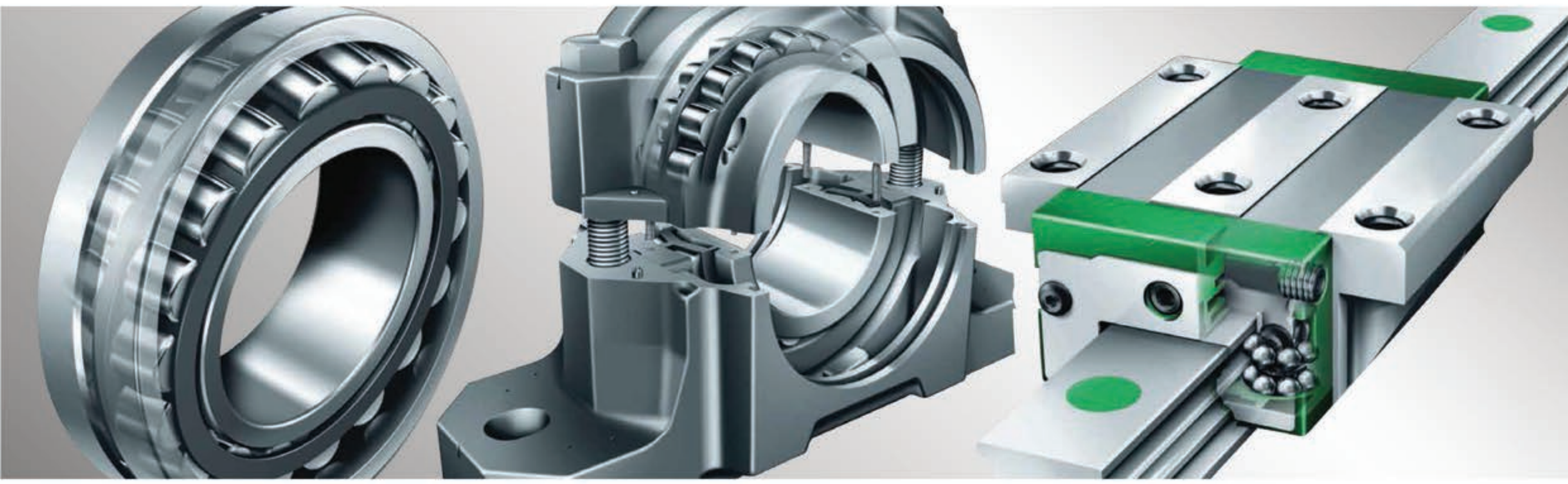
CATÁLOGO DE ACOPLAMENTOS

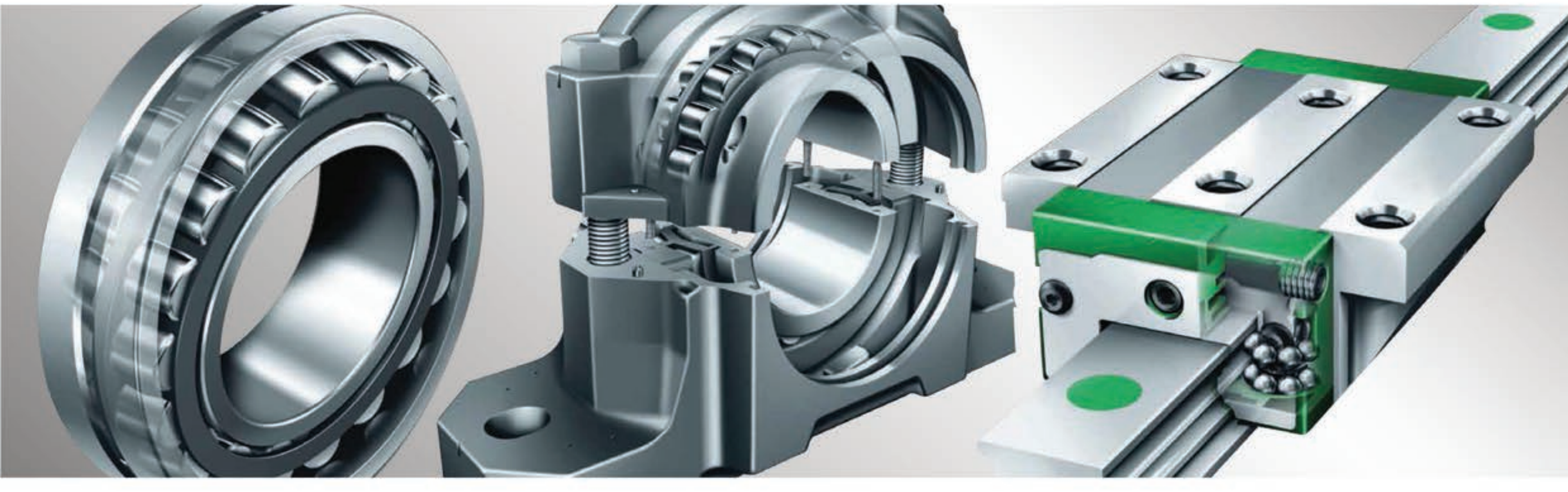


PRODUTO - SERVIÇO - ENGENHARIA

FLENDER
A Siemens Company

JUNCOR
acessórios industriais e agrícolas, SA

ACOPLAMENTOS RÍGIDOS
ZAPEX, N-ARPEX E ARPEX



PRODUTO - SERVIÇO - ENGENHARIA

FLENDER COUPLINGS
CATALOG **FLE 10.1**
EDITION 2020 EN

TORSIONALLY RIGID COUPLINGS ZAPEX, N-ARPEX AND ARPEX

flender.com

FLENDER

FLE 10 CATALOG GROUP

Product catalog FLE 10.1
Torsionally Rigid Couplings

Product catalog FLE 10.3
Highly Flexible Couplings

Product catalog FLE 10.2
Flexible Couplings

Product catalog FLE 10.4
Fluid Couplings

For further coupling catalogs, see page A/6

FLENDER

TORSIONALLY RIGID COUPLINGS

Catalog FLE 10.1 Edition 2020 EN

INTRODUCTION

E

The mechanical drive train comprises individual units such as motor, gear unit and driven machine. The coupling connects these component assemblies.
As well as the transmission of rotary motion and torque, other requirements may be made of the coupling.

- Compensation for shaft misalignment with low restorative forces
- Control of characteristic angular vibration frequency and damping
- Interruption or limitation of torque
- Noise insulation, electrical insulation

Couplings are frequently chosen after the machines to be connected have already been selected. Thanks to a large number of different coupling assembly options, specified marginal conditions for clearance and connection geometry can be met from the standard range. The coupling also performs secondary functions, e.g. providing a brake disk or brake drum for operating or blocking brakes, devices to record speed or the attachment of sprockets or pulleys.

Couplings are divided into two main groups, couplings and clutches.

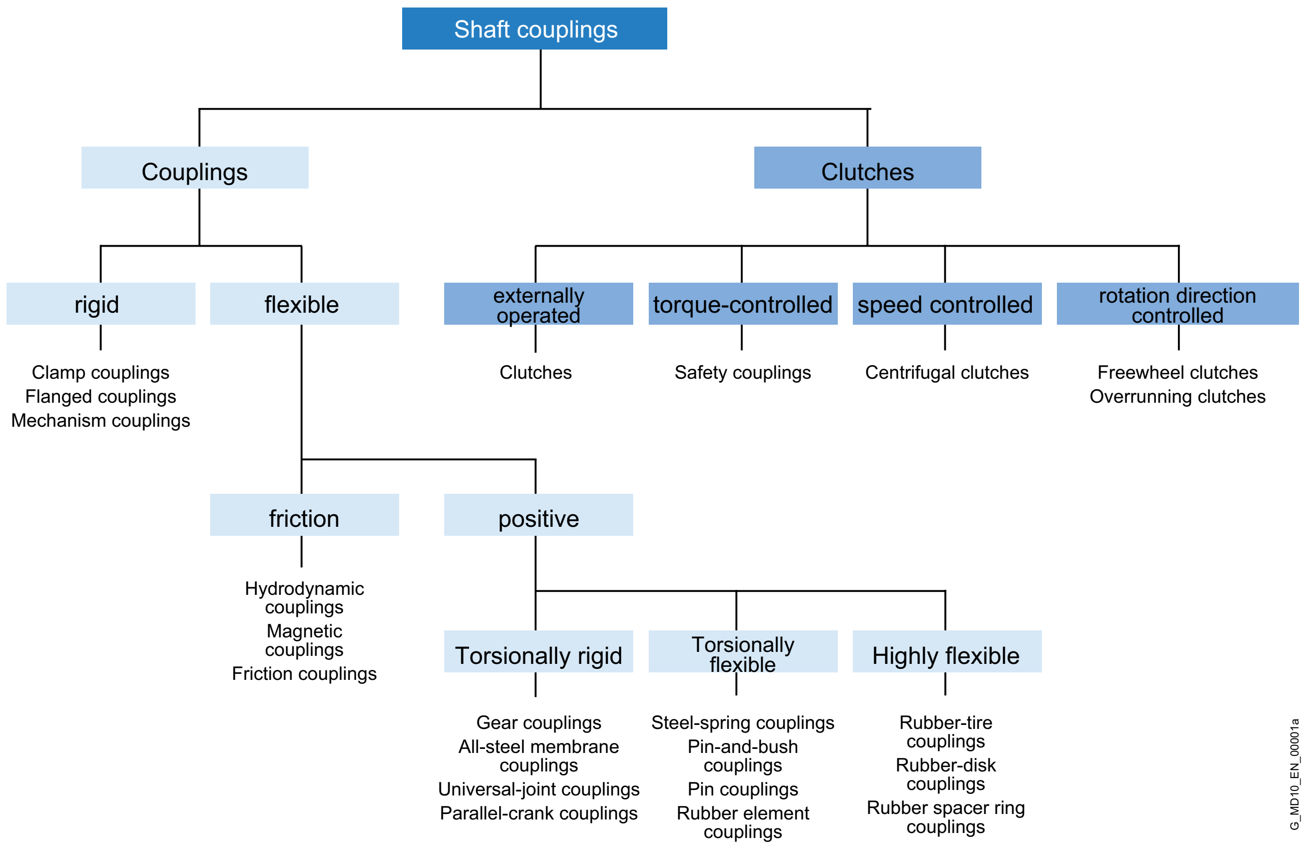
Clutches interrupt or limited the transmissible torque. The engaging and disengaging forces on externally operated clutches are introduced via a mechanically, electrically, hydraulically or pneumatically operating mechanism. Overload, centrifugal or freewheel clutches draw their engaging energy from the transmitted output.

Rigid couplings, designed as clamp, flanged or mechanism couplings, connect machines which must not undergo any shaft misalignment. Hydrodynamic couplings, often also called fluid or Föttinger couplings, are used as starting couplings in drives with high mass moments of inertia of the driven machine. In drive technology very often flexible, positive couplings, which may be designed to be torsionally rigid, torsionally flexible or highly flexible, are used.

Torsionally rigid couplings are designed to be rigid in a peripheral direction and flexible in radial and axial directions. The angle of rotation and torque are conducted through the coupling without a phase shift.

Torsionally flexible couplings have resilient elements usually manufactured from elastomer materials. Using an elastomer material with a suitable ShoreA hardness provides the most advantageous torsional stiffness and damping for the application. Shaft misalignment causes the resilient elements to deform.

Highly flexible couplings have large-volume (elastomer) resilient elements of low stiffness. The angle of rotation and torque are conducted through the coupling with a considerable phase shift.

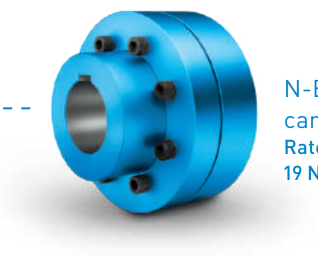

Shaft couplings
Couplings
Clutches
rigid
flexible
externally operated
torque-controlled
speed controlled
rotation direction controlled
Clamp couplings
Flanged couplings
Mechanism couplings
Clutches
Safety couplings
Centrifugal clutches
Freewheel clutches
Overrunning clutches
friction
positive
Hydrodynamic couplings
Magnetic couplings
Friction couplings
Torsionally rigid
Torsionally flexible
Highly flexible
Gear couplings
All-steel membrane couplings
Universal-joint couplings
Parallel-crank couplings
Steel-spring couplings
Pin-and-bush couplings
Pin couplings
Rubber element couplings
Rubber-tire couplings
Rubber-disk couplings
Rubber spacer ring couplings
G_MD10_EN_00001a

OUR COUPLING GROUPS AT A GLANCE

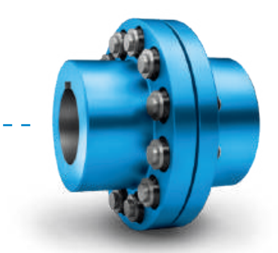
N-EUPEX, RUPEX and N-BIPEX

Flexible Couplings

Flexible Flender couplings have a wide range of possible applications. A broad standard modular system as well as specially designed application-specific couplings are available.



N-EUPEX
cam couplings
Rated torque:
19 Nm ... 62,000 Nm



RUPEX
pin-and-bush couplings
Rated torque:
200 Nm ... 1,300,000 Nm

N-BIPEX
cam couplings
Rated torque:
12 Nm ... 4,650 Nm

ELPEX, ELPEX-B and ELPEX-S

Highly Flexible Couplings

ELPEX® couplings are free of circumferential back-lash. Their damping capacity and low torsional stiff-ness make them especially well-suited for coupling machines with strongly non-uniform torque characteristics or large shaft misalignment.

ELPEX
elastic ring couplings
Rated torque:
1,600 Nm ... 90,000 Nm

ELPEX-B
elastic tire couplings
Rated torque:
24 Nm ... 14,500 Nm

ELPEX-S
rubber disk couplings
Rated torque:
330 Nm ... 63,000 Nm

ZAPEX gear couplings and ARPEX all-steel couplings

Torsionally rigid couplings

For transmission of high torques, we offer both ARPEX all-steel couplings and ZAPEX gear couplings in a range of versions. Their purposes of application vary according to specific requirements with respect to shaft misalignment, temperature and torque.

ZAPEX
gear couplings
Rated torque:
1,300 Nm ... 7,200,000 Nm

ARPEX
high Performance Couplings
Rated torque:
1,000 Nm ... 588,500 Nm

N-ARPEX and ARPEX
all-steel couplings
Rated torque:
92 Nm ... 2,000,000 Nm

BIPEX-S and SIPEX

Backlash-free couplings

The vibration-damping, electrically insulating plug-in BIPEX-S elastomer couplings and SIPEX metal bellows couplings with very high torsional stiffness deliver especially isogonal torque transmission.

BIPEX-S and SIPEX
Rated torque:
0.1 Nm ... 5,000 Nm

FLUDEX

Hydrodynamic couplings

The FLUDEX hydrodynamic fluid coupling works according to the Föttinger principle. It functions entirely free of wear.

FLUDEX
fluid Couplings
Power:
1.2 kW ... 2,500 kW

Application-specific couplings

Couplings for rail vehicles must
meet high demands. Due to their high degree of standardization and wide variety, they can be
used in the most diverse vehicle types.

Railway coupling
Rated torque:
1,000 Nm ... 9,500 Nm

Each wind turbine coupling is designed to optimally meet the requirements of the respective wind turbine. The coupling connects the fast-running gear shaft with the generator shaft and is available for wind turbines with a capacity of up to 12 MW.

Wind turbine couplings
Rated torque:
10,000 Nm ... 60,000 Nm

TECHNICAL INFORMATION AND COUPLING SELECTION

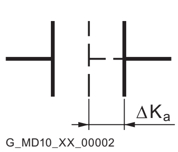
TECHNICAL INFORMATION

Shaft misalignment

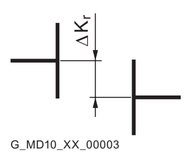
Shaft misalignment is the result of displacement during assembly and operation and, where machines constructed with two radial bearings each are rigidly coupled, will cause high loads being placed on the bearings. Elastic deformation of base frame, foundation and machine housing will lead to shaft misalignment which cannot be prevented, even by precise alignment.

Furthermore, because individual components of the drive train heat up differently during operation, heat expansion of the machine housings causes shaft misalignment. Poorly aligned drives are often the cause of seal, rolling bearing or coupling failure. Alignment should be carried out by specialist personnel in accordance with operating instructions.

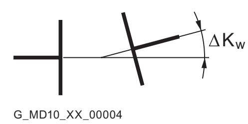
Depending on the direction of the effective shaft misalignment a distinction is made between:



Axial misalignment



Radial misalignment



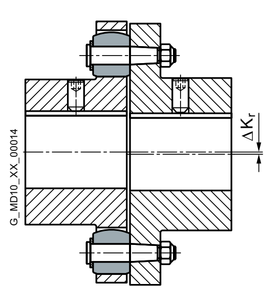
Angular misalignment

Couplings can be categorized into one of the following groups:

Single-joint couplings

Couplings with flexible elements mainly made of elastomer materials. Shaft misalignment results in deformation of the elastomer elements. The elastomer elements can absorb shaft misalignment as deformations in an axial, radial and angular direction. The degree of permissible misalignment depends on the coupling size, the speed and the type of elastomer element.
Single-joint couplings do not require an adapter and are therefore short versions.

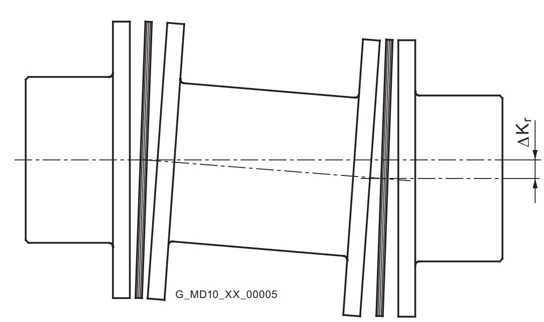
Example:
In the case of a RUPEX RWN 198 coupling with an outer diameter of 198 mm and a speed of 1500 rpm, the permitted radial misalignment is $\Delta_{Kr} = 0.3$ mm.



Two-joint couplings

Two-joint couplings are always designed with an adapter. The two joint levels are able to absorb axial and angular misalignment. Radial misalignment occurs via the gap between the two joint levels and the angular displacement of the joint levels. The permitted angular misalignment per joint level is frequently about 0.5°. The permitted shaft misalignment of the coupling can be adjusted via the length of the adapter. If there are more than two joint levels, it is not possible to define the position of the coupling parts relative to the axis of rotation. (The less frequently used parallel-crank couplings are an exception).

Example:
N-ARPEX ARN-6 NEN 217-6 with a shaft distance of 140 mm with a permitted radial misalignment of $\Delta K_r = 2.2$ mm (angle per joint level 1.0°).



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Balancing

Balance quality levels

The so-called quality level G to DIN ISO 21940 indicates a range of permitted residual imbalance from zero up to an upper limit. Applications can be grouped on the basis of similarity analysis. For many applications a coupling balance quality of G 16 is sufficient. On drives susceptible to vibration the balance quality should be G 6.3. Only in special cases is a better balance quality required.

Balancing standard in accordance with DIN ISO 21940-32

Besides the required balance quality, it is necessary to set standards which define how the mass of the parallel key is to be taken into consideration when balancing. In the past, motor rotors have frequently been balanced in accordance with the full parallel key standard. The "appropriate" balance condition of the coupling hub was described as "balancing with open keyway" or "balancing after keyseating". Today it is usual for the motor rotor, as well as the gear unit and driven machine shaft, to be balanced in accordance with the half parallel key standard.

Full parallel key standard

The parallel key is inserted in the shaft keyway, then balancing is carried out. The coupling hub must be balanced without parallel key after keyseating.

Marking of shaft and hub with "F" (for "full").

Half parallel key standard

The balancing standard normally applied today. Before balancing, a half parallel key is inserted in the shaft and another in the coupling hub. Alternatively, balancing can be carried out before cutting the keyway.

The balanced parts must be marked with an "H". This marking can be dispensed with if it is absolutely clear which parallel key standard has been applied.

No parallel key standard

Balancing of shaft and coupling hub after keyseating, but without parallel key. Not used in practice. Marking of shaft and hub with "N" (for "no").
The length of the parallel key is determined by the shaft keyway. Coupling hubs may be designed considerably shorter than the shaft.

To prevent imbalance forces caused by projecting parallel key factors when balancing in accordance with the half parallel key standard in the case of applications with high balancing quality requirements, grooved spacer rings can be fitted or stepped parallel keys used.

Flender Balancing Standard

The balancing quality level, together with the operating speed, results in the maximum permissible eccentricity of the center of gravity of the coupling or the coupling subassembly. In the Flender article number the balancing quality can be preset with the help of the order code. Additionally, also the balance quality level to DIN ISO 21940 can be preset together with the operating speed belonging to it, which then be taken as priority.

$$e_{perm} = 9550 \cdot \frac{G}{n}$$

$$e_{coupl} \leq e_{perm}$$

Permitted eccentricity of center of gravity	e_{perm}	in µm
Eccentricity of center of gravity of coupling	e_{coupl}	in µm
Balancing quality level	G	in mm/s
Coupling speed	n	in rpm

Eccentricity of center of gravity of coupling e_{coupl}	Flender balancing quality	Order code
maximum 100 µm	standard balancing	without specification
maximum 40 µm	fine balancing	W02
maximum 16 µm	micro-balancing	W03
better than 16 µm	special balancing	on request

TECHNICAL INFORMATION

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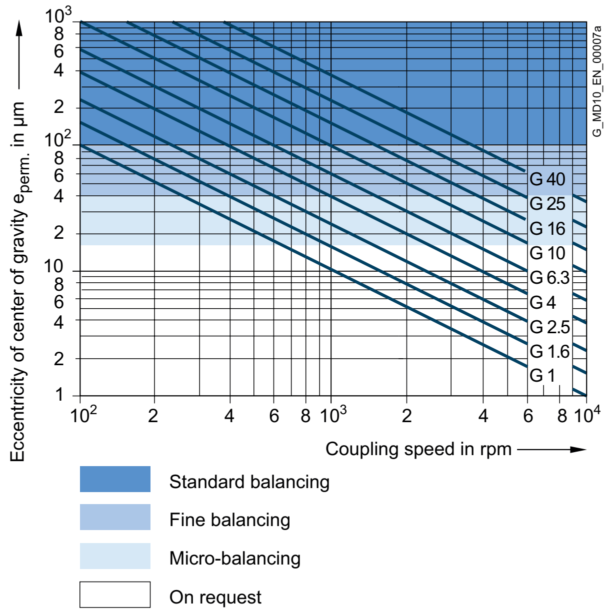

Example:
Coupling speed = 1450 rpm
required balancing quality level G 6.3

$$e_{perm} = 9550 \cdot \frac{G}{n} = 9550 \cdot \frac{6.3}{1450}\ \mu m$$

Thus, the required eccentricity of center of gravity is 41.5 µm. The fine balancing with a maximum eccentricity of center of gravity of 40 mm fulfills this requirement; therefore, the order code W02 has to be specified when ordering.

For many applications the following balancing quality recommendation applies:

Coupling	standard balancing v = DA · n/19100	fine balancing
short version with LG ≤ 3 × DA	v ≤ 30 m/s	v > 30 m/s
long version with LG > 3 × DA	v ≤ 15 m/s	v > 15 m/s

Peripheral speed	v	in mm/s
Coupling outer diameter	DA	in mm
Coupling speed	n	in rpm
Coupling length	LG	in mm

The following standards on balancing must be observed:

- couplings are balanced in subassemblies.
- hub parts without finished bore are unbalanced.
- the number of balancing levels (one- or two-level balancing) is specified by Flender.
- without special specification balancing is done in accordance with the half-parallel-key standard. Balancing in accordance with the full-parallel-key standard must be specified in the order number.
- For FLUDEX couplings special balancing standards specified in Section 13 apply.
- ARPEX couplings in standard balancing quality are unbalanced. Thanks to steel components machined all over and precisely guided adapters the balancing quality of standard balancing is nearly always adhered to.

Shaft-hub connections

The bore and the shaft-hub connection of the coupling are determined by the design of the machine shaft. In the case of IEC standard motors, the shaft diameters and parallel key connections are specified in accordance with DIN EN 50347. For diesel motors, the flywheel connections are frequently specified in accordance with SAE J620d or DIN 6288. Besides the very widely used connection of shaft and hub with parallel keys to DIN 6885 and cylindrically bored hubs, couplings with Taper clamping bushes, clamping sets, shrink-fit connections and splines to DIN 5480 are common.

The form stability of the shaft/hub connection can only be demonstrated when shaft dimensions and details of the connection are available. The coupling torques specified in the tables of power ratings of the coupling series do not apply to the shaft-hub connection unrestrictedly.

In the case of the shaft-hub connection with parallel key, the coupling hub must be axially secured, e.g. with a set screw or end washer. The parallel key must be secured against axial displacement in the machine shaft.

All Flender couplings with a finished bore and parallel keyway are designed with a set screw. Exceptions are some couplings of the FLUDEX series, in which end washers are used. During assembly, Taper clamping bushes are frictionally connected to the machine shaft.

TECHNICAL INFORMATION

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Standards

Machines

2006/42/EG	EC Machinery Directive
2014/34/EU	ATEX Directive – Manufacturer
1999/92/EG	ATEX Directive – Operator – and ATEX Guideline to Directive 1999/92/EC
DIN EN 80079-36	Non-electrical equipment for use in potentially explosive atmospheres
DIN EN 1127	Explosive atmospheres, explosion prevention and protection
DIN EN 50347	General-purpose three-phase induction motors having standard dimensions and outputs

Couplings

DIN 740	Flexible shaft couplings Part 1 and Part 2
VDI Guideline 2240	Shaft couplings - Systematic subdivision according to their properties VDI Technical Group Engineering Design 1971
API 610	Centrifugal Pumps for Petroleum, Chemical and Gas Industry Services
API 671	Special Purpose Couplings for Petroleum, Chemical and Gas Industry Services
ISO 10441	Petroleum, petrochemical and natural gas industries – Flexible couplings for mechanical power transmission-special-purpose applications
ISO 13709	Centrifugal pumps for petroleum, petrochemical and natural gas industries

Balancing

DIN ISO 21940	Requirements for the balancing quality of rigid rotors
DIN ISO 21940-32	Mechanical vibrations; standard governing the type of parallel key during balancing of shafts and composite parts

Shaft-hub connections

DIN 6885	Driver connections without taper action – parallel keys – keyways
SAE J620d	Flywheels for industrial engines ...
DIN 6288	Reciprocating internal combustion engines Dimensions and requirements for flywheels and flexible couplings
ASME B17.1	Keys and keyseats
DIN EN 50347	General-purpose three-phase induction motors with standard dimensions and output data
BS 46-1:1958	Keys and keyways and taper pins Specification

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Key to symbols

Name	Symbols	Unit	Explanation
Torsional stiffness, dynamic	C_{Tdyn}	Nm/rad	For calculating torsional vibration
Excitation frequency	f_{err}	Hz	Excitation frequency of motor or driven machine
Moment of inertia	J	kgm^2	Moment of inertia of coupling sides 1 and 2
Axial misalignment	ΔK_a	mm	Axial misalignment of the coupling halves
Radial misalignment	ΔK_r	mm	Radial misalignment of the coupling halves
Angular misalignment	ΔK_w	°	Angular misalignment of the coupling halves
Service factor	FB		Factor expressing the real coupling load as a ratio of the nominal coupling load
Frequency factor	FF		Factor expressing the frequency dependence of the fatigue torque load
Temperature factor	FT		Factor taking into account the reduction in strength of flexible rubber materials at a higher temperature
Weight	m	kg	Weight of the coupling
Rated speed	n_N	rpm	Coupling speed
Maximum coupling speed	n_{Kmax}	rpm	Maximum permissible coupling speed
Rated power	P_N	kW	Rated output on the coupling, usually the output of the driven machine
Rated torque	T_N	Nm	Rated torque as nominal load on the coupling
Fatigue torque	T_W	Nm	Amplitude of the dynamic coupling load
Maximum torque	T_{max}	Nm	More frequently occurring maximum load, e.g. during starting
Overload torque	T_{OL}	Nm	Very infrequently occurring maximum load, e.g. during short circuit or blocking conditions
Rated coupling torque	T_{KN}	Nm	Torque which can be transmitted as static torque by the coupling over the period of use.
Maximum coupling torque	T_{Kmax}	Nm	Torque which can be frequently transmitted (up to 25 times an hour) as maximum torque by the coupling.
Coupling overload torque	T_{KOL}	Nm	Torque which can very infrequently be transmitted as maximum torque by the coupling.
Fatigue coupling torque	T_{KW}	Nm	Torque amplitude which can be transmitted by the coupling as dynamic torque at a frequency of 10 Hz over the period of use.
Resonance factor	V_R		Factor specifying the torque increase at resonance
Temperature	T_a	°C	Ambient temperature of the coupling in operation
Damping coefficient	Ψ	psi	Damping parameter

SELECTION OF THE COUPLING SERIES

The coupling series is frequently determined by the driven machine and the design of the drive train. Common selection criteria are listed below and assigned to coupling properties, which are used to select the coupling series. Additionally, the price of the coupling and availability are important criteria for determining the coupling series to be used.

The FLUDEX series operates positively and transmits the torque with the aid of a flowing oil or water filling.

FLUDEX couplings are used to reduce starting and/or overload torques. During starting, the motor may, for example, run up within a very short time; because of the FLUDEX coupling, the drive train with the driven machine may accelerate after a delay and without increased torque load.

The FLUDEX coupling cannot compensate for shaft misalignment and is therefore designed in combination with a displacement coupling, a cardan shaft or a belt drive. The displacement coupling may be selected in accordance with the criteria described below.

Selection criteria	Torque range Rated coupling torque T_{KN}	Speed range Peripheral speed v_{max} = DA · n_{max}/19100	Torsional stiffness torsionally rigid	torsionally flexible	Highly flexible	Operating temperature range
ZAPEX	850 ... 7200000 Nm	60 m/s	■	–	–	-20 ... +80 °C
N-ARPEX	350 ... 2000000 Nm	110 m/s	■	–	–	-50 ... +280 °C
ARPEX	92 ... 2000000 Nm	100 m/s	■	–	–	-40 ... +280 °C
N-EUPEX	19 ... 62000 Nm	36 m/s	–	■	–	-50 ... +100 °C
N-EUPEX DS	19 ... 21200 Nm	36 m/s	–	■	–	-30 ... +80 °C
RUPEX	200 ... 1300000 Nm	60 m/s	–	■	–	-50 ... +100 °C
N-BIPEX	12 ... 4650 Nm	45 m/s	–	■	–	-50 ... +100 °C
ELPEX-B	24 ... 14500 Nm	35 m/s	–	–	■	-50 ... +70 °C
ELPEX-S	330 ... 63000 Nm	66 m/s	–	–	■	-40 ... +120 °C
ELPEX	1600 ... 90000 Nm	60 m/s	–	–	■	-40 ... +80 °C

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Typical coupling solutions for different example applications

The specified application factors are recommendations; regulations, rules and practical experience take priority as assessment criteria.
No application factor need be taken into account with FLUDEX couplings.

In the case of highly flexible couplings of the ELPEX, ELPEX-S and ELPEX-B series, deviating application factors are stated in the product descriptions.
FLUDEX couplings are mostly mounted on the high-speed gear shaft.

Example applications	Appli-cation factor FB
Electric motor without gear unit	
Centrifugal pumps	1.0
Piston pumps	1.5
Vacuum pumps	1.5
Fans with T_N less than 75 Nm	1.5
Fans with T_N from 75 to 750 Nm	1.75
Fans with T_N larger than 750 Nm	1.75
Blowers	1.5
Frequency converters / generators	1.25
Reciprocating compressors	1.75
Screw-type compressors	1.5
Internal-combustion engine without gear unit	
Generators	1.75
Pumps	1.5
Fans	1.75
Hydraulic pumps, excavators, construction machines	1.5
Compressors / screw-type compressors	1.5
Agricultural machinery	1.75
Other	
Turbine gear units	1.5
Hydraulic motor - gear unit	1.25
Electric motor with gear unit	
Chemical industry	
Extruders	1.5
Pumps - centrifugal pumps	1.0
Pumps - piston pumps	1.75
Pumps - plunger pumps	1.5
Reciprocating compressors	1.75
Calenders	1.5
Kneaders	1.75
Cooling drums	1.25
Mixers	1.25
Stirrers	1.25
Toasters	1.25
Drying drums	1.25
Centrifuges	1.25
Crushers	1.5
Power generation and conversion	
Compressed air, reciprocating compressors	1.75

Example applications	Appli-cation factor FB
Compressed air, screw-type compressors	1.25
Air - Blowers	1.5
Air - Cooling tower fans	1.5
Air - Turbine blowers	1.5
Generators, converters	1.25
Welding generators	1.25
Metal production, iron and steel works	
Plate tilters	1.5
Ingot pushers	1.75
Slabbing mill	1.75
Coiling machines	1.5
Roller straightening machines	1.5
Roller tables	1.75
Shears	1.75
Rollers	1.75
Metal working machines	
Plate bending machines	1.5
Plate straightening machines	1.5
Hammers	1.75
Planing machines	1.75
Presses, forging presses	1.75
Shears	1.5
Grinding machines	1.25
Punches	1.5
Machine tools: Main drives	1.5
Machine tools: Auxiliary drives	1.25
Food industry	
Filling machines	1.25
Kneading machines	1.5
Mashers	1.5
Sugar cane production	1.5
Production machines	
Construction machines, hydraulic pumps	1.25
Construction machines, traversing gears	1.5
Construction machines, suction pumps	1.5
Construction machines, concrete mixers	1.5
Printing machines	1.25
Woodworking - barking drums	1.5
Woodworking - planing machines	1.5

Example applications	Appli-cation factor FB
Woodworking - reciprocating saws	1.5
Grinding machines	1.5
Textile machines - winders	1.5
Textile machines - printing machines	1.5
Textile machines - tanning vats	1.5
Textile machines - shredders	1.5
Textile machines - looms	1.5
Packaging machines	1.5
Brick molding machines	1.75
Transport and logistics	
Passenger transport - elevators	1.5
Passenger transport - escalators	1.5
Conveyor systems - bucket elevators	1.5
Conveyor systems - hauling winches	1.5
Conveyor systems - belt conveyors	1.5
Conveyor systems - endless-chain conveyors	1.5
Conveyor systems - circular conveyors	1.5
Conveyor systems - screw conveyors	1.5
Conveyor systems - inclined hoists	1.5
Crane traversing gear	1.5
Hoisting gear	1.5
Crane lifting gear	2.0
Crane traveling gear	1.5
Crane slewing gear	1.5
Crane fly jib hoists	1.5
Cable railways	1.5
Drag lifts	1.5
Winches	1.5
Cellulose and paper	
Paper-making machines, all	1.5
Pulper drives	1.5
Cement industry	
Crushers	1.75
Rotary furnaces	1.5
Hammer mills	1.75
Ball mills	1.75
Pug mills	1.75
Mixers	1.5
Pipe mills	1.5
Beater mills	1.75
Separators	1.5
Roller presses	1.75

SELECTION OF THE COUPLING SIZE

E

The torque load of the coupling must be determined from the output of the driven machine and the coupling speed.

Rated coupling load $T_N = 9550 \times P_N / n_N$
(T_N in Nm; P_N in kW; n_N in rpm)

The rated coupling load obtained in this way must be multiplied by factors and compared with the rated coupling torque. An ideal but expensive method is to measure the torque characteristic on the coupling. For this, Flender offers special adapters fitted with torque measuring devices.

The rated coupling torque T_{KN} is the torque which can be transmitted by the coupling over an appropriate period of use if the load is applied to the coupling purely statically at room temperature.

Application factors are to express the deviation of the real coupling load from the "ideal" load condition.

Coupling load in continuous operation

The operating principles of the driving and driven machines are divided into categories and the application factor FB derived from these in accordance with DIN 3990-1.

Application factor for N-EUPEX, N-EUPEX-DS, RUPEX, N-BIPEX, ELPEX-B, N-ARPEX, ARPEX, ZAPEX and FLUDEX

Application factor FB				
	Torque characteristic of the driven machine			
Torque characteristic of the driving machine	uniform	uniform with moderate shock loads	non uniform	very rough
uniform	1.0	1.25	1.5	1.75
uniform with moderate shock loads	1.25	1.5	1.75	2.0
non uniform	1.5	1.75	2.0	2.5

Examples of torque characteristic of driving machines:

- uniform: Electric motors with soft starting, steam turbines
- uniform with moderate shock loads: Electric motors without soft starting, hydraulic motors, gas and water turbines
- non uniform: Internal-combustion engines

Examples of torque characteristic in driven machines:

- uniform: Generators, centrifugal pumps for light fluids
- uniform with moderate shock loads: Centrifugal pumps for viscous fluids, elevators, machine tool drives, centrifuges, extruders, blowers, crane drives
- non uniform: Excavators, kneaders, conveyor systems, presses, mills
- very rough: Crushers, excavators, shredders, iron/smelting machinery

Temperature factor FT

Coupling	Elastomer material	Low temperature °C	Temperature T_a on the coupling under -30 °C	-30 °C up to 50 °C	up to 60 °C	up to 70 °C	up to 80 °C	up to 90 °C	up to 100 °C	up to 110 °C	up to 120 °C
N-EUPEX	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
N-EUPEX	NR	-50	1.1 [1]	1.0	–	–	–	–	–	–	–
N-EUPEX	HNBR	-10	–	1.0	1.0	1.0	1.0	1.25	1.25	–	–
N-EUPEX DS	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
RUPEX	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
RUPEX	NR	-50	1.1	1.0	–	–	–	–	–	–	–
RUPEX	HNBR	-10	–	1.0	1.0	1.0	1.0	1.25	1.25	–	–
N-BIPEX	TPU	-50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	–	–
ELPEX	NR	-40	1.1	1.0	1.25	1.40	1.60	–	–	–	–
ELPEX-B	NR	-50	1.1	1.0	–	–	–	–	–	–	–
ELPEX-B	CR	-15	–	1.0	1.0	1.0	–	–	–	–	–
ELPEX-S SN, NN, WN	NR	-40	1.1	1.0	1.25	1.40	1.60	–	–	–	–
ELPEX-S NX	VMQ	-40	1.1	1.0	1.0	1.0	1.0	1.1	1.25	1.4	1.6

NR = natural rubber, natural-synthetic rubber mixture
NBR = nitril-butadiene-rubber (Perbunan)
HNBR = hydrated acrylonitrile butadiene rubber
CR = chloroprene rubber (FRAS fire-resistant and anti-static)
VMQ = silicone
TPU = polyurethane

[1] The N-EUPEX coupling is not suitable for shock loads when used at low temperatures.

Coupling size $T_{KN} \geq T_N \cdot FB \cdot FT$

In the case of ARPEX and ZAPEX coupling types, no temperature factor (FT = 1.0) need be taken into account.

Coupling load at maximum and overload conditions

The maximum torque is the highest load acting on the coupling in normal operation.
Maximum torques at a frequency of up to 25 times an hour are permitted and must be lower than the maximum coupling torque. Examples of maximum torque conditions are: Starting operations, stopping operations or usual operating conditions with maximum load.

$T_{Kmax} \geq T_{Max} \cdot FT$

Overload torques are maximum loads which occur only in combination with special, infrequent operating conditions. Examples of overload torque conditions are: Motor short circuit, emergency stop or blocking because of component breakage. Overload torques at a frequency of once a month are permitted and must be lower than the maximum overload torque of the coupling. The overload condition may last only a short while, i.e. fractions of a second.

$T_{KOL} \geq T_{OL} \cdot FT$

Coupling load due to dynamic torque load

Applying the frequency factor FF, the dynamic torque load must be lower than the coupling fatigue torque.

Dynamic torque load

$T_{KW} \geq T_W \cdot FF$

Frequency of the dynamic torque load
$f_{err} \leq 10$ Hz frequency factor FF = 1.0

Frequency of the dynamic torque load
$f_{err} > 10$ Hz frequency factor FF = $\sqrt{(f_{err}/10\ \text{Hz})}$

For the ZAPEX and ARPEX series, the frequency factor is always FF = 1.0.

SELECTION OF THE COUPLING SIZE

E

Checking the maximum speed

For all load situations $n_{Kmax} \geqslant n_{max}$

Checking permitted shaft misalignment

For all load situations, the actual shaft misalignment must be less than the permitted shaft misalignment.

Checking bore diameter, mounting geometry and coupling design

The check must be made on the basis of the dimension tables. The maximum bore diameter applies to parallel keyways to DIN 6885. For other keyway geometries, the maximum bore diameter can be reduced.

On request, couplings with adapted geometry can be provided.

Coupling behavior under overload conditions

The ZAPEX, N-ARPEX, ARPEX, N-EUPEX, RUPEX and N-BIPEX coupling series can withstand overloads until the breakage of metal parts. These coupling series are designated as fail-safe.
The N-EUPEX DS, ELPEX-B, ELPEX-S and ELPEX coupling series throw overload. The elastomer element of these couplings is irreparably damaged without damage to metal parts when subjected to excessive overload.

These coupling series are designated as non-fail-safe. These types that fail can be fitted with a so-called fail-safe device. This additional component enables emergency operation, even after the rubber element of the coupling has been irreparably damaged.

Checking shaft-hub connection

The torques specified in the tables of power ratings data of the coupling series do not necessarily apply to the shaft-hub connection. Depending on the shaft-hub connection, proof of form stability is required. Flender recommends obtaining proof of form strength by using calculation methods in accordance with the current state of the art.

Shaft-hub connection	Suggestion for calculation method
Keyway connection to DIN 6885-1	DIN 6892
Shrink fit	DIN 7190
Spline to DIN 5480	
Bolted flange connection	VDI 2230
Flange connection with close-fitting bolts	

Fitting recommendations for the shaft-hub connection are given in the **Appendix**.

The coupling hub is frequently fitted flush with the shaft end face. If the shaft projects, the risk of collision with other coupling parts must be checked. If the shaft is set back, in addition to the load-bearing capacity of the shaft-hub connection, the correct positioning of the hub must be ensured as well. If the bearing hub length is insufficient, restorative forces may cause tilting movements and so wear to and impairment of the axial retention. Also, the position of the set screw to be positioned on sufficient shaft or parallel key material must be noted.

Checking low temperature and chemically aggressive environment

The minimum permitted coupling temperature is specified in the Temperature factor FT table. In the case of chemically aggressive environments, please consult the manufacturer.

FEATURES OF THE STANDARD TYPE

Couplings	Features of the standard type
All coupling series except ARPEX clamping hubs and FLUDEX with keyway to ASME B17.1	Bore tolerance H7
N-ARPEX and ARPEX clamping hubs	Bore tolerance H6
FLUDEX couplings with keyway to ASME B17.1	Hollow shafts: bore tolerance K7
	other parts: Bore tolerance M7
All coupling series with bore diameter - imperial	Parallel keyway to ASME B17.1
Bore diameter metric in the case of ZAPEX, N-ARPEX and ARPEX coupling series as well as coupling hubs with applied brake disks or brake drums of the N-EUPEX and RUPEX series	Parallel keyway to DIN 6885-1 keyway width P9
Bore diameter metric in the case of the N-EUPEX, RUPEX, N-BIPEX, ELPEX-S, ELPEX-B, ELPEX, FLUDEX coupling series	Parallel keyway to DIN 6885-1 keyway width JS9
All coupling series except FLUDEX	Axial locking by means of set screw
FLUDEX coupling series	Axial lock by means of set screw or end washer
All coupling series	Balancing in accordance with half parallel key standard
ZAPEX, N-ARPEX, ARPEX, N-EUPEX, RUPEX, N-BIPEX, ELPEX-S, ELPEX-B and ELPEX coupling series	Balancing quality G16
FLUDEX coupling series	Balancing quality G6.3
All series	Unpainted
All series	Preservation with cleaning emulsion
FLUDEX couplings	Fuse 140 °C

Configurator

The article number can be obtained with the help of the Configurator. The coupling can be selected in a product configurator and specified using selection menus.

The Configurator is available under **flender.com**.

The coupling can be selected via "Technical selection" (technical selection) or via "Direct selection" (via article-no.).

TORSIONALLY RIGID GEAR COUPLINGS
ZAPEX ZW SERIES

ZAPEX ZW
FLENDER

GENERAL

Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

II 2G Ex h IIC T6 ... T5 Gb X

II 2D Ex h IIIC T85 °C ... 100 °C Db X

I M2 Ex h Mb X

Benefits

ZAPEX gear couplings link machine shafts and compensate for shaft misalignment with weak restorative forces. High transmissible torque combined with compactness and light weight are characteristic of ZAPEX couplings. ZAPEX coupling types are constructed on a modular principle.

This means that application-specific solutions can be delivered quickly. ZAPEX couplings require very little maintenance. Regular grease or oil changes at the prescribed intervals prolongs the service life of the coupling.

Application

ZAPEX couplings are especially suited for operation in harsh operating conditions, such as drives in the iron smelting or cement industry.

ZAPEX couplings are suitable for reverse operation and horizontal mounting positions and, in the case of type ZWNV, for vertical mounting positions.

4

GENERAL

Design and configurations

A ZAPEX coupling comprises two hub sections with external teeth which are mounted on the machine shafts. Each set of external teeth engages in a flanged socket with mating internal teeth. The flanged sleeves are connected via two flanges with close-fitting bolts.
The teeth are lubricated with oil or grease. On the ZAPEX type ZW, DUO sealing rings are used to seal the tooth space. The DUO sealing rings prevent the lubricant from escaping and dirt from entering the tooth space. The parallel keyways must be sealed during assembly to prevent lubricant from escaping.
Customized hub designs are described after the types.

Type	Description
ZWN	Standard type
ZZS	with adapter
ZZW	with intermediate shaft
ZWH	with coupling sleeve
ZWBT	with offset brake disk
ZWBG	with straight brake disk
ZWB	with brake drum
ZWTR	for rope drums
ZBR	with shear pins
ZWS	Clutch
ZWNV	Vertical type
ZWSE	Simple clutch-coupling combination

Further application-specific coupling types are available; dimension sheets for and information on these are available on request.

Function

The torque is transmitted through the coupling teeth.
The teeth are crowned, so angular displacement per tooth plane is possible. Radial displacement can be compensated for via the space VA between the tooth planes.
The internal teeth of the flanged sleeves are significantly wider than the external teeth of the hub parts, permitting a relatively high axial misalignment.

A small angular misalignment on the coupling teeth results in an advantageous distribution of the lubricant film and a very low wear rate. This favorable condition can be deliberately set by aligning the drive with the machine shafts with a slight radial misalignment.

Technical specifications

Power ratings Size	Rated torque T_{KN} Nm	Maximum torque T_{Kmax} Nm	Overload torque T_{KOL} Nm	Fatigue torque T_{KW} Nm	Torsional stiffness ZW C_{Tdyn} kNm/rad	Permitted axial shaft misalignment ΔK_a mm
112	1300	2600	5200	520	2000	1.0
128	2500	5000	10000	1000	3600	1.0
146	4300	8600	17200	1720	6900	1.0
175	7000	14000	28000	2800	9360	1.0
198	11600	23200	46400	4640	15600	1.0
230	19000	38000	76000	7600	26300	1.0
255	27000	54000	108000	10800	33400	1.5
290	39000	78000	156000	15600	44000	1.5
315	54000	108000	216000	21600	64100	1.5
342	69000	138000	276000	27600	81600	1.5
375	98000	196000	392000	39200	115600	1.5
415	130000	260000	520000	52000	106000	1.5
465	180000	360000	720000	72000	134600	2.0
505	250000	500000	1000000	100000	168700	2.0
545	320000	640000	1280000	128000	216900	2.0
585	400000	800000	1600000	160000	263200	2.0
640	510000	1020000	2040000	204000	356000	2.0
690	660000	1320000	2640000	264000	431000	2.0
730	790000	1580000	3160000	316000	538000	2.0
780	1000000	2000000	4000000	400000	696000	3.0
852	1200000	2400000	4800000	480000	926000	3.0
910	1600000	3200000	6400000	640000	1118000	3.0
1020	1900000	3800000	7600000	760000	1339000	3.0
1080	2200000	4400000	8800000	880000	1605000	3.0
1150	2700000	5400000	10800000	1080000	2120000	3.0
1160	3350000	6700000	13400000	1340000	2474000	3.0
1240	3800000	7600000	15200000	1520000	3079000	3.0
1310	4600000	9200000	18400000	1840000	3693000	4.0
1380	5300000	10600000	21200000	2120000	4383000	4.0
1440	6250000	12500000	25000000	2500000	5056000	4.0
1540	7200000	14400000	28800000	2880000	6115000	4.0

In the case of type ZWTR, the rated torques which deviate from the above are specified in the dimension table.

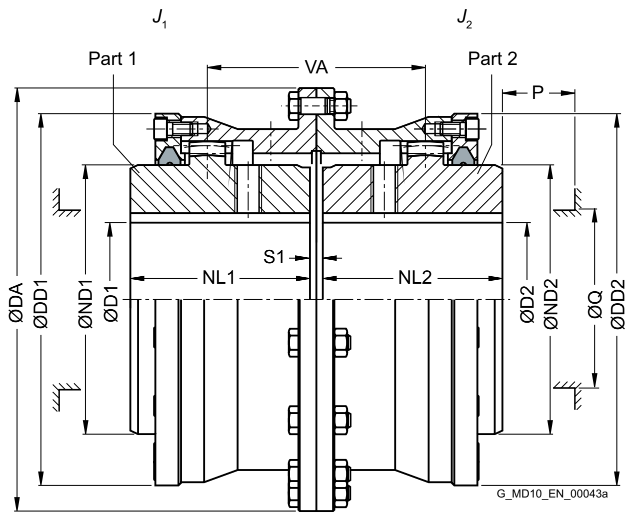
The stated torsional stiffness "ZW" applies to coupling types ZWN and ZWNV.
Torsional stiffness of the remaining types on request.

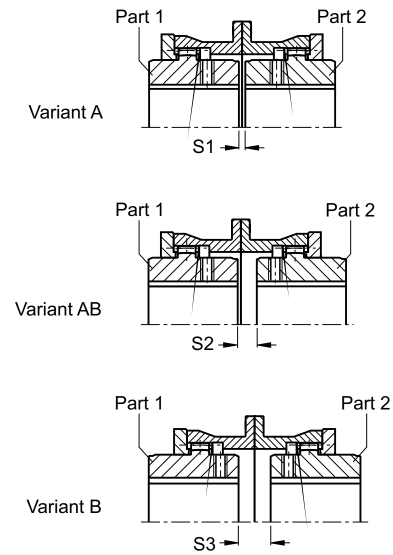
The axial misalignment ΔKa must be understood as the maximum permitted enlargement of the hub distance S of the coupling.
The axial misalignment for the types ZWBT, ZWBG and ZWNV is $1/2 \cdot \Delta K_a$.

Angular misalignment ΔK_w
Types ZWN, ZZS, ZZW, ZWH, ZWB, ZBR, ZWS: $\Delta K_w = 1°$
Types ZWBT and ZWBG: $\Delta K_w = 0.2°$
Type ZWSE: $\Delta K_w = 0.4°$

Radial misalignment ΔK_r
Types ZWN, ZZS, ZZW, ZWH, ZWB, ZBR, ZWS:
$\Delta K_r \leq VA \cdot \tan 1°$
Types ZWBT and ZWBG: $\Delta K_r \leq VA \cdot \tan 0{,}2°$
Type ZWSE: $\Delta K_r \leq VA \cdot 0.4°$
For the tooth distance VA, see the relevant table for the subassembly.

TYPE ZWN





Size	Rated torque T_{KN} Nm	Maxi-mum speed n_{Kmax} rpm	Dimensions in mm: D1, D2 Keyway DIN 6885-1 min.	D1, D2 max.	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S1	S2	S3	VA	Q	P	Mass moment of inertia J_1/J_2 kgm²	↗ Article no. [1] Type A	B	AB	Weight m kg
112	1300	9400	0	49	143	65	50	110	6	-	-	56	50	35	0.007	2LC0300-0AA	2LC0300-0AB	2LC0300-0AC	5.8
128	2500	8300	0	61	157	80	60	128	6	13	20	73	65	45	0.014	2LC0300-1AA	2LC0300-1AB	2LC0300-1AC	7.9
146	4300	7300	0	72	177	95	75	146	6	13	20	88	75	45	0.021	2LC0300-2AA	2LC0300-2AB	2LC0300-2AC	11.5
175	7000	6400	0	85	215	112	90	175	8	14	20	104	85	50	0.049	2LC0300-3AA	2LC0300-3AB	2LC0300-3AC	19
198	11600	5500	0	100	237	135	100	198	8	19	30	119	110	50	0.086	2LC0300-4AA	2LC0300-4AB	2LC0300-4AC	26.5
230	19000	4700	0	120	265	160	110	230	8	20	32	130	135	50	0.16	2LC0300-5AA	2LC0300-5AB	2LC0300-5AC	37
255	27000	4100	0	140	294	185	125	255	10	25	40	150	160	50	0.26	2LC0300-6AA	2LC0300-6AB	2LC0300-6AC	49
290	39000	3700	70	160	330	210	140	290	10	30	50	170	180	60	0.51	2LC0300-7AA	2LC0300-7AB	2LC0300-7AC	72
315	54000	3300	80	175	366	230	160	315	10	30	50	190	200	60	0.81	2LC0300-8AA	2LC0300-8AB	2LC0300-8AC	99
342	69000	3000	90	195	392	255	180	340	12	42	72	222	225	60	1.2	2LC0301-0AA	2LC0301-0AB	2LC0301-0AC	125
375	98000	2700	100	220	430	290	200	375	12	42	72	242	260	60	2	2LC0301-1AA	2LC0301-1AB	2LC0301-1AC	170
415	130000	2500	120	240	478	320	220	415	12	74	136	294	285	80	3.1	2LC0301-2AA	2LC0301-2AB	2LC0301-2AC	225
465	180000	2200	140	270	528	360	240	465	16	96	176	336	325	80	5.2	2LC0301-3AA	2LC0301-3AB	2LC0301-3AC	300
505	250000	2000	160	300	568	400	260	505	16	106	196	366	365	80	7.7	2LC0301-4AA	2LC0301-4AB	2LC0301-4AC	380
545	320000	1800	180	330	620	440	280	545	16	126	236	406	405	80	12	2LC0301-5AA	2LC0301-5AB	2LC0301-5AC	490
585	400000	1700	210	360	660	480	310	585	20	150	280	460	445	80	17	2LC0301-6AA	2LC0301-6AB	2LC0301-6AC	620
640	510000	1600	230 >360	360 390	738	480 520	330	640	20	149	278	479	445 475	90	25 27	2LC0301-7AA	2LC0301-7AB	2LC0301-7AC	780 800
690	660000	1450	250 >390	390 420	788	520 560	350	690	20	166	312	516	475 515	90	35 38	2LC0301-8AA	2LC0301-8AB	2LC0301-8AC	950 980
730	790000	1350	275 >420	420 450	834	560 600	380	730	20	180	340	560	515 555	90	48 52	2LC0302-0AA	2LC0302-0AB	2LC0302-0AC	1150 1200

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque T_{KN} Nm	Maxi-mum speed n_{Kmax} rpm	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S1	S2	S3	VA	Q	P	Mass moment of inertia J_1/J_2 kgm²	↗ Article no. 1) Type A	B	AB	Weight m kg
780	1000000	1250	300	450	900	600	400	780	25	176	327	576	555	110	68	2LC0302-1AA	2LC0302-1AB	2LC0302-1AC	1450
			>450	490		650							595		77				1450
852	1200000	1150	325	490	970	650	420	850	25	185	345	605	595	110	100	2LC0302-2AA	2LC0302-2AB	2LC0302-2AC	1750
			>490	535		710							655		110				1800
910	1600000	1050	350	535	1030	710	450	910	25	215	405	665	655	110	140	2LC0302-3AA	2LC0302-3AB	2LC0302-3AC	2100
			>535	570		750							695		145				2150
1020	1900000	1000	375	570	1112	750	480	1020	25	213	401	693	695	130	200	2LC0302-4AA	2LC0302-4AB	2LC0302-4AC	2600
			>570	600		800							735		220				2800
1080	2200000	950	400	600	1162	800	500	1080	30	226	422	726	735	135	255	2LC0302-5AA	2LC0302-5AB	2LC0302-5AC	3100
			>600	650		860							795		285				3200
1150	2700000	900	425	650	1222	860	520	1150	30	238	446	758	795	135	330	2LC0302-6AA	2LC0302-6AB	2LC0302-6AC	3600
			>650	705		930							865		380				3700
1160	3350000	850	450	650	1292	860	550	1160	30	260	490	810	795	135	420	2LC0302-7AA	2LC0302-7AB	2LC0302-7AC	4000
			>650	705		930		1160					865		450				4100
			>705	750		990		1210					910		500				4300
1240	3800000	800	475	705	1400	930	580	1240	30	250	470	830	865	155	580	2LC0302-8AA	2LC0302-8AB	2LC0302-8AC	4900
			>705	750		990		1240					910		620				5000
			>750	800		1055		1290					975		700				5300
1310	4600000	750	500	705	1470	930	610	1310	35	265	495	875	865	155	730	2LC0303-0AA	2LC0303-0AB	2LC0303-0AC	5600
			>705	750		990		1310					910		770				5700
			>750	800		1055		1310					975		840				5900
			>800	850		1120		1370					1030		930				6200
1380	5300000	700	525	750	1540	990	640	1380	35	275	515	915	910	155	930	2LC0303-1AA	2LC0303-1AB	2LC0303-1AC	6500
			>750	800		1055		1380					975		1000				6800
			>800	850		1120		1380					1030		1050				6900
			>850	890		1170		1430					1080		1150				7100
1440	6250000	670	550	800	1600	1055	670	1440	35	295	555	965	975	155	1200	2LC0303-2AA	2LC0303-2AB	2LC0303-2AC	7500
			>800	850		1120		1440					1030		1250				7600
			>850	890		1170		1440					1080		1300				7700
			>890	940		1240		1510					1150		1450				8200
1540	7200000	630	575	850	1710	1120	700	1540	35	275	515	975	1030	175	1550	2LC0303-3AA	2LC0303-3AB	2LC0303-3AC	8800
			>850	890		1170		1540					1080		1600				8900
			>890	940		1240		1540					1150		1700				9200
			>940	995		1310		1610					1220		1900				9600

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to the entire coupling with maximum bores.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings.

Ordering example

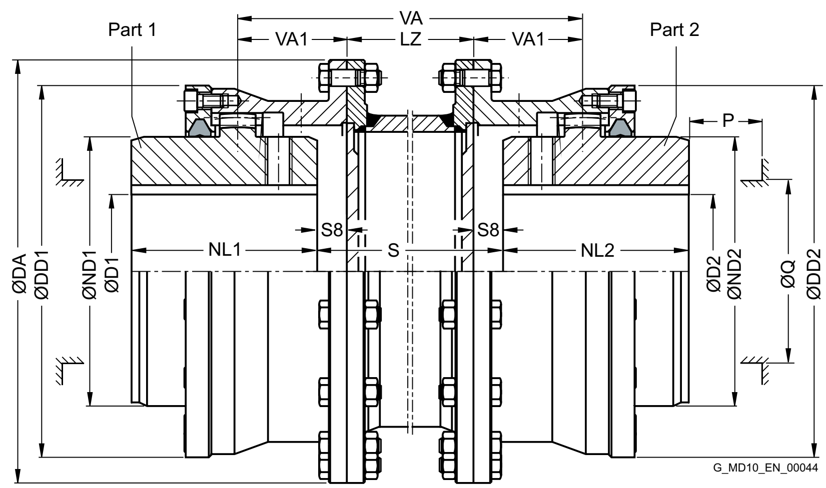
- ZAPEX ZWN coupling, size 146, variant A
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: 2LC0300-2AA99-0AA0-Z L0W+M1A+M13

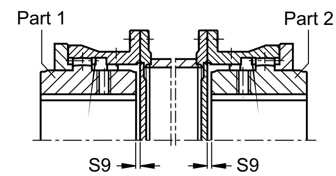
1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZZS



Variant B



Variant A

Size	Rated torque T_{KN} Nm	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S8	S9	VA1	Q	P	LZ min.	↗ Article no. [1] Type A	B	Weight each 100 mm pipe m kg	m kg
112	1300	0	49	143	65	50	110	3	3	28	50	35	120	2LC0300-0AD	2LC0300-0AE	0.8	9.4
128	2500	0	61	157	80	60	128	10	3	36.5	65	45	120	2LC0300-1AD	2LC0300-1AE	1.3	12.5
146	4300	0	72	177	95	75	146	10	3	44	75	45	120	2LC0300-2AD	2LC0300-2AE	1.8	17
175	7000	0	85	215	112	90	175	10	4	52	85	50	130	2LC0300-3AD	2LC0300-3AE	2.3	27.5
198	11600	0	100	237	135	100	198	15	4	59.5	110	50	130	2LC0300-4AD	2LC0300-4AE	3.5	37
230	19000	0	120	265	160	110	230	16	4	65	135	50	130	2LC0300-5AD	2LC0300-5AE	4.5	50
255	27000	0	140	294	185	125	255	20	5	75	160	50	140	2LC0300-6AD	2LC0300-6AE	6.3	68
290	39000	70	160	330	210	140	290	25	5	85	180	60	140	2LC0300-7AD	2LC0300-7AE	7.2	93
315	54000	80	175	366	230	160	315	25	5	95	200	60	180	2LC0300-8AD	2LC0300-8AE	9.1	135
342	69000	90	195	392	255	180	340	36	6	111	225	60	180	2LC0301-0AD	2LC0301-0AE	12	170
375	98000	100	220	430	290	200	375	36	6	121	260	60	180	2LC0301-1AD	2LC0301-1AE	15	220
415	130000	120	240	478	320	220	415	68	6	147	285	80	200	2LC0301-2AD	2LC0301-2AE	17	295
465	180000	140	270	528	360	240	465	88	8	168	325	80	200	2LC0301-3AD	2LC0301-3AE	19	380
505	250000	160	300	568	400	260	505	98	8	183	365	80	200	2LC0301-4AD	2LC0301-4AE	24	470
545	320000	180	330	620	440	280	545	118	8	203	405	80	220	2LC0301-5AD	2LC0301-5AE	30	640
585	400000	210	360	660	480	310	585	140	10	230	445	80	220	2LC0301-6AD	2LC0301-6AE	33	780
640	510000	230	360	738	480	330	640	139	10.0	239.5	445	90	250	2LC0301-7AD	2LC0301-7AE	39	1010
		>360	390		520						475						1050
690	660000	250	390	788	520	350	690	156	10.0	258	475	90	250	2LC0301-8AD	2LC0301-8AE	48	1200
		>390	420		560						515						1250
730	790000	275	420	834	560	380	730	170	10.0	280	515	90	250	2LC0302-0AD	2LC0302-0AE	51	1450
		>420	450		600						555						1500
780	1000000	300	450	900	600	400	780	163.5	12.5	288	555	110	280	2LC0302-1AD	2LC0302-1AE	55	1850
		>450	490		650						595						1900

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque	Dimensions in mm												↗ Article no. [1]		Weight each 100 mm pipe	
	T_{KN}	D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S8	S9	VA1	Q	P	LZ	Type		*m*	*m*
	Nm	min.	max.										min.	A	B	kg	kg
852	1200000	325 >490	**490** **535**	970	650 710	420	850	172.5	12.5	302.5	595 655	110	280	**2LC0302-2AD**	**2LC0302-2AE**	68	2300 2400
910	1600000	350 >535	**535** **570**	1030	710 750	450	910	202.5	12.5	332.5	655 695	110	280	**2LC0302-3AD**	**2LC0302-3AE**	94	2800 2850
1020	1900000	375 >570	**570** **600**	1112	750 800	480	1020	200.5	12.5	346.5	695 735	130	380	**2LC0302-4AD**	**2LC0302-4AE**		
1080	2200000	400 >600	**600** **650**	1162	800 860	500	1080	211	15.0	363	735 795	135	380	**2LC0302-5AD**	**2LC0302-5AE**		
1150	2700000	425 >650	**650** **705**	1222	860 930	520	1150	223	15.0	379	795 865	135	380	**2LC0302-6AD**	**2LC0302-6AE**		
1160	3350000	450 >650 >705	**650** **705** **750**	1292	860 930 990	550	1160 1160 1210	245	15.0	405	795 865 910	135	380	**2LC0302-7AD**	**2LC0302-7AE**		
1240	3800000	475 >705 >750	**705** **750** **800**	1400	930 990 1055	580	1240 1240 1290	235	15.0	415	865 910 975	155	400	**2LC0302-8AD**	**2LC0302-8AE**		
1310	4600000	500 >705 >750 >800	**705** **750** **800** **850**	1470	930 990 1055 1120	610	1310 1310 1310 1370	247.5	17.5	437.5	865 910 975 1030	155	400	**2LC0303-0AD**	**2LC0303-0AE**		
1380	5300000	525 >750 >800 >850	**750** **800** **850** **890**	1540	990 1055 1120 1170	640	1380 1380 1380 1430	257.5	17.5	457.5	910 975 1030 1080	155	400	**2LC0303-1AD**	**2LC0303-1AE**		
1440	6250000	550 >800 >850 >890	**800** **850** **890** **940**	1600	1055 1120 1170 1240	670	1440 1440 1440 1510	277.5	17.5	482.5	975 1030 1080 1150	155	400	**2LC0303-2AD**	**2LC0303-2AE**		
1540	7200000	575 >850 >890 >940	**850** **890** **940** **995**	1710	1120 1170 1240 1310	700	1540 1540 1540 1610	257.5	17.5	487.5	1030 1080 1150 1220	175	600	**2LC0303-3AD**	**2LC0303-3AE**		

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to maximum bores and an adapter length of LZ min.
- Weights from size 1020 on request.
- VA = 2·VA1 + LZ
- Mass moment of inertia on request.
- Maximum speed, limited by weight and critical adapter speed, on request.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings.

Ordering example

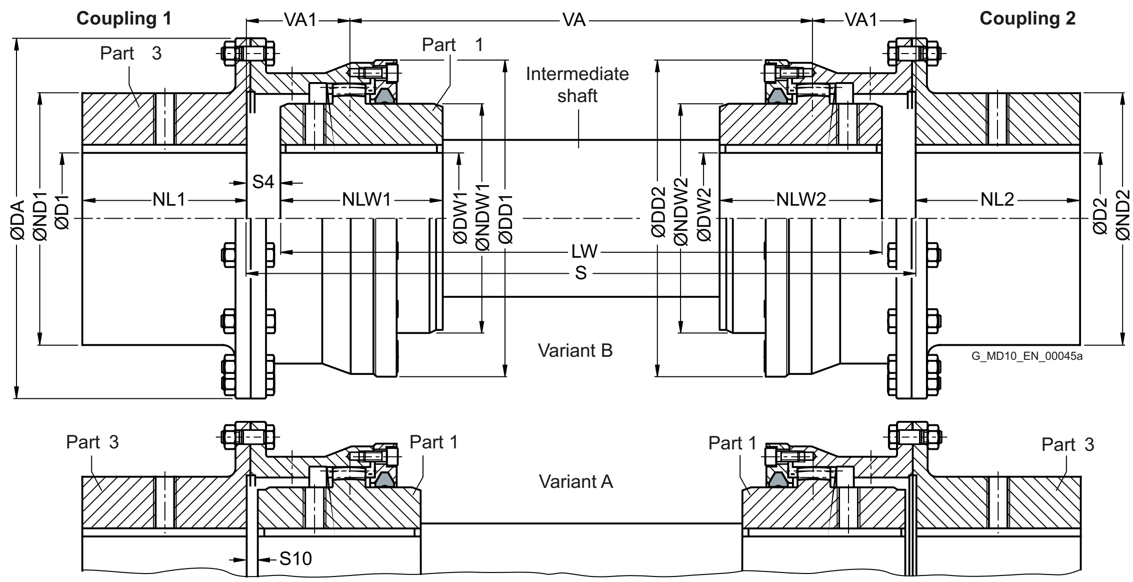
- ZAPEX ZZS coupling, size 146, variant B
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: 2LC0300-2AE99-0AZ0-Z L0W+M1A+Q0Y+M13
Plain text to Q0Y: 250 mm (dimension S)

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZZW



Size	Rated torque	Dimensions in mm												↗ Article no. 1)		Weight
	T_{KN}	D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2/ NLW1/ NLW2	DW1, DW2 Keyway DIN 6885-1		NDW1/ NDW2	DD1/ DD2	S4	S10	VA1	Type		m
	Nm	min.	max.				min.	max.						A	B	kg
112	1300	20	61	143	80	50	0	49	65	110	12.5	12.5	37.5	2LC0300-0BD	2LC0300-0BE	5.1
128	2500	25	72	157	95	60	0	61	80	128	12.5	5.5	39	2LC0300-1BD	2LC0300-1BE	6.8
146	4300	30	85	177	112	75	0	72	95	146	12.5	5.5	46.5	2LC0300-2BD	2LC0300-2BE	9.8
175	7000	35	100	215	135	90	0	85	112	175	12.5	6.5	54.5	2LC0300-3BD	2LC0300-3BE	16.5
198	11600	40	120	237	160	100	0	100	135	198	17.5	6.5	62	2LC0300-4BD	2LC0300-4BE	23
230	19000	50	140	265	185	110	0	120	160	230	18.5	6.5	67.5	2LC0300-5BD	2LC0300-5BE	32
255	27000	60	160	294	210	125	0	140	185	255	23.5	8.5	78.5	2LC0300-6BD	2LC0300-6BE	43
290	39000	70	175	330	230	140	70	160	210	290	28.5	8.5	88.5	2LC0300-7BD	2LC0300-7BE	61
315	54000	80	195	366	255	160	80	175	230	315	28.5	8.5	98.5	2LC0300-8BD	2LC0300-8BE	86
342	69000	90	220	392	290	180	90	195	255	340	39.5	9.5	114.5	2LC0301-0BD	2LC0301-0BE	115
375	98000	100	240	430	320	200	100	220	290	375	39.5	9.5	124.5	2LC0301-1BD	2LC0301-1BE	150
415	130000	120	270	478	360	220	120	240	320	415	71.5	9.5	150.5	2LC0301-2BD	2LC0301-2BE	205
465	180000	140	300	528	400	240	140	270	360	465	91.5	11.5	171.5	2LC0301-3BD	2LC0301-3BE	275
505	250000	160	330	568	440	260	160	300	400	505	102.5	12.5	187.5	2LC0301-4BD	2LC0301-4BE	350
545	320000	180	360	620	480	280	180	330	440	545	122.5	12.5	207.5	2LC0301-5BD	2LC0301-5BE	450
585	400000	210 >360	360 390	660	480 520	310	210	360	480	585	144.5	14.5	234.5	2LC0301-6BD	2LC0301-6BE	540 570
640	510000	230 >390	390 420	738	520 560	330	230 >360	360 390	480 520	640	143.5	14.5	244	2LC0301-7BD	2LC0301-7BE	700 740
690	660000	250 >420	420 450	788	560 600	350	250 >390	390 420	520 560	690	160.5	14.5	262.5	2LC0301-8BD	2LC0301-8BE	850 900
730	790000	275 >450	450 490	834	600 650	380	275 >420	420 450	560 600	730	176	16	286	2LC0302-0BD	2LC0302-0BE	1050 1100
780	1000000	300 >490	490 535	900	650 710	400	300 >450	450 490	600 650	780	171.5	20.5	296	2LC0302-1BD	2LC0302-1BE	1300 1350

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque	Dimensions in mm												↗ Article no. [1]		Weight
	T_{KN}	D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2/ NLW1/ NLW2	DW1, DW2 Keyway DIN 6885-1		NDW1/ NDW2	DD1/ DD2	S4	S10	VA1	Type		*m*
	Nm	min.	max.				min.	max.						A	B	kg
852	1200000	325	**535**	970	710	420	325	490	650	850	180.5	20.5	310.5	**2LC0302-2BD**	**2LC0302-2BE**	1550
		>535	**570**		750		>490	535	710							1650
910	1600000	350	**570**	1030	750	450	350	535	710	910	210.5	20.5	340.5	**2LC0302-3BD**	**2LC0302-3BE**	1900
		>570	**600**		800		>535	570	750							2000
1020	1900000	375	**600**	1112	800	480	375	570	750	1020	210.5	22.5	356.5	**2LC0302-4BD**	**2LC0302-4BE**	2300
		>600	**650**		860		>570	600	800							2500
1080	2200000	400	**650**	1162	860	500	400	600	800	1080	221	25	373	**2LC0302-5BD**	**2LC0302-5BE**	2750
		>650	**705**		930		>600	650	860							2900
1150	2700000	425	**650**	1222	860	520	425	650	860	1150	233	25	389	**2LC0302-6BD**	**2LC0302-6BE**	3100
		>650	**705**		930		425	650	860							3200
		>705	**750**		990		>650	705	930							3400
1160	3350000	450	**705**	1292	930	550	450	650	860	1160	255	25	415	**2LC0302-7BD**	**2LC0302-7BE**	3600
		>705	**750**		990		>650	705	930	1160						3700
		>750	**800**		1055		>705	750	990	1210						4000
1240	3800000	475	**705**	1400	930	580	475	705	930	1240	245	25	425	**2LC0302-8BD**	**2LC0302-8BE**	4200
		>705	**750**		990		475	705	930	1240						4400
		>750	**800**		1055		>705	750	990	1240						4600
		>800	**850**		1120		>750	800	1055	1290						4900
1310	4600000	500	**750**	1470	990	610	500	705	930	1310	257.5	27.5	447.5	**2LC0303-0BD**	**2LC0303-0BE**	4900
		>750	**800**		1055		>705	750	990	1310						5100
		>800	**850**		1120		>750	800	1055	1310						5300
		>850	**890**		1170		>800	850	1120	1370						5600
1380	5300000	525	**800**	1540	1055	640	525	750	990	1380	267.5	27.5	467.5	**2LC0303-1BD**	**2LC0303-1BE**	5700
		>800	**850**		1120		>750	800	1055	1380						5900
		>850	**890**		1170		>800	850	1120	1380						6100
		>890	**940**		1240		>850	890	1170	1430						6500
1440	6250000	550	**850**	1600	1120	670	550	800	1055	1440	287.5	27.5	492.5	**2LC0303-2BD**	**2LC0303-2BE**	6500
		>850	**890**		1170		>800	850	1120	1440						6700
		>890	**940**		1240		>850	890	1170	1440						7000
		>940	**995**		1310		>890	940	1240	1510						7400
1540	7200000	575	**890**	1710	1170	700	575	850	1120	1540	267.5	27.5	497.5	**2LC0303-3BD**	**2LC0303-3BE**	7700
		575	**890**		1170		>850	890	1170	1540						7700
		>890	**940**		1240		>890	940	1240	1540						8100
		>940	**1040**		1390		>940	995	1310	1610						8900

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- VA = S – 2 · VA1
- Mass moment of inertia on request.
- Weights apply to either coupling 1 or 2 with maximum bore diameter, without intermediate shaft.
- Maximum speed, limited by weight and critical speed of intermediate shaft, on request.

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Ordering example

- Coupling 1:
  ZAPEX ZZW coupling, size 146, variant B,
  Part 3: Bore D1 = 45K7 mm, keyway to DIN 6885-1 P9 and set screw, Part 1: Bore DW1 = 45H7 mm, keyway to DIN 6885-1 P9 and set screw.

Article no.: 2LC0300-2BE99-0AA0-Z L1A+M1A+L13

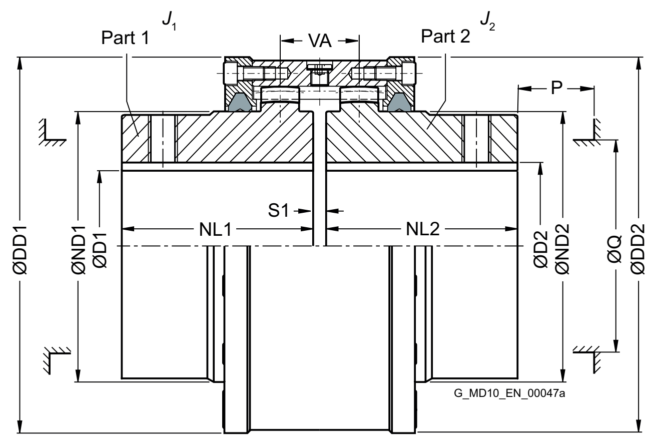
- Intermediate shaft:
  Intermediate shaft for ZAPEX coupling ZZW, size 146, length LW = 570 mm, for shaft distance S = 595 mm shaft journal Ø45p6 x 75 long; keyway DIN 6885-1.

Article no.: 2LC0308-8XX00-0AA0-Z Y99
Plain text to Y99: DW1 = 45p6 mm, NLW1 = 75 mm,
DW2 = 45p6 mm, NLW2 = 75 mm, LW = 570 mm

- Coupling 2:
  ZAPEX ZZW coupling, size 146, variant B,
  Part 1: Bore DW2 = 45H7 mm, keyway to DIN 6885-1 P9 and set screw, Part 3: Bore D2 = 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article no.: 2LC0300-2BE99-0AA0-Z L1A+M1A+L13

TYPE ZWH



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm: D1, D2 Keyway DIN 6885-1 min.	D1, D2 max.	ND1/ ND2	NL1/ NL2	DD1/ DD2	S1	VA	Q	P	Mass moment of inertia J_1/J_2 kgm²	↗ Article no. [1]	Weight m kg
112	**1300**	9400	0	**49**	65	50	110	6	28	50	35	0.003	**2LC0300-0BB**	3.5
128	**2500**	8300	0	**61**	80	60	128	6	30	65	45	0.007	**2LC0300-1BB**	5.1
146	**4300**	7300	0	**72**	95	75	146	6	33	75	45	0.012	**2LC0300-2BB**	7.8
175	**7000**	6400	0	**85**	112	90	175	8	46	85	50	0.031	**2LC0300-3BB**	13.5
198	**11600**	5500	0	**100**	135	100	198	8	48	110	50	0.056	**2LC0300-4BB**	20
230	**19000**	4700	0	**120**	160	110	230	8	50	135	50	0.11	**2LC0300-5BB**	28.5
255	**27000**	4100	0	**140**	185	125	255	10	55	160	50	0.18	**2LC0300-6BB**	38
290	**39000**	3700	70	**160**	210	140	290	10	58	180	60	0.35	**2LC0300-7BB**	56
315	**54000**	3300	80	**175**	230	160	315	10	62	200	60	0.55	**2LC0300-8BB**	74
342	**69000**	3000	90	**195**	255	180	340	12	70	225	60	0.82	**2LC0301-0BB**	95
375	**98000**	2700	100	**220**	290	200	375	12	72	260	60	1.3	**2LC0301-1BB**	130
415	**130000**	2500	120	**240**	320	220	415	12	76	285	80	2.3	**2LC0301-2BB**	175
465	**180000**	2200	140	**270**	360	240	465	16	90	325	80	4	**2LC0301-3BB**	245
505	**250000**	2000	160	**300**	400	260	505	16	92	365	80	6	**2LC0301-4BB**	310
545	**320000**	1800	180	**330**	440	280	545	16	96	405	80	8.8	**2LC0301-5BB**	390
585	**400000**	1700	210	**360**	480	310	585	20	102	445	80	13	**2LC0301-6BB**	500
640	**510000**	1600	230	**360**	480	330	640	20	105	445	90	18	**2LC0301-7BB**	620
			>360	**390**	520					475		19.5		650
690	**660000**	1450	250	**390**	520	350	690	20	108	475	90	25.5	**2LC0301-8BB**	760
			>390	**420**	560					515		28		790
730	**790000**	1350	275	**420**	560	380	730	20	112	515	90	35	**2LC0302-0BB**	920
			>420	**450**	600					555		39		950
780	**1000000**	1250	300	**450**	600	400	780	25	120	555	110	48	**2LC0302-1BB**	1150
			>450	**490**	650					595		57		

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Ordering example

- ZAPEX ZWH coupling, size 146
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: 2LC0300-2BB99-0AA0-Z L0W+M1A+M13

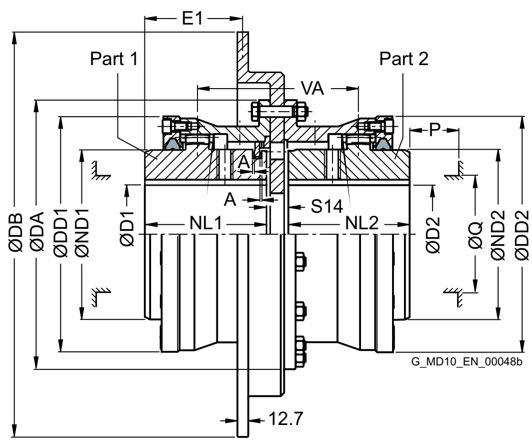
Notes

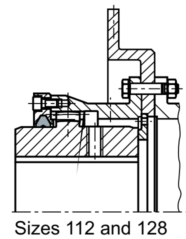
- Larger size couplings on request.
- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to the entire coupling with maximum bores.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings.

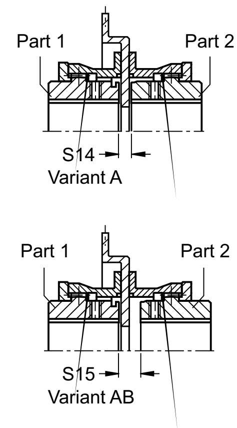
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZWBT







Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm: D1 Keyway DIN 6885-1 min.	D1 max.	D2 Keyway DIN 6885-1 min.	D2 max.	DA	ND1/ND2	NL1/NL2	DD1/DD2	S14	S15	A	VA	Q	P	Brake disk DB	E1	↗ Article no. [1] Type A	Type B	Weight m kg
112	1300	3800	0	49	0	49	143	65	50	110	20	–	0.5	70	50	35	300	32.35	2LC0300-0AS	2LC0300-0AT	13
		3200									23	–		73			356	22.35	2LC0300-0AS	2LC0300-0AT	16.5
128	2500	3200	0	61	0	61	157	80	60	128	23.5	30.5	0.5	90.5	65	45	356	32.85	2LC0300-1AS	2LC0300-1AT	19
		2800									20.5	27.5		87.5			406	29.85	2LC0300-1AS	2LC0300-1AT	21.5
146	4300	2800	0	65	0	72	177	95	75	146	19	26	0.5	101	75	45	406	43.35	2LC0300-2AS	2LC0300-2AT	25
		2500									22	29		104			457	46.35	2LC0300-2AS	2LC0300-2AT	30
175	7000	2800	0	80	0	85	215	112	90	175	21	27	0.5	117	85	50	406	59.35	2LC0300-3AS	2LC0300-3AT	33
		2500									24	30		120			457	62.35	2LC0300-3AS	2LC0300-3AT	38
		2200									24	30		120			514	62.35	2LC0300-3AS	2LC0300-3AT	43
198	11600	2500	0	95	0	100	237	135	100	198	24	35	0.5	135	110	50	457	72.35	2LC0300-4AS	2LC0300-4AT	46
		2200									24	35		135			514	72.35	2LC0300-4AS	2LC0300-4AT	51
230	19000	2200	0	117	0	120	265	160	110	230	24	36	0.5	146	135	50	514	82.35	2LC0300-5AS	2LC0300-5AT	62
		1850									24	36		146			610	82.35	2LC0300-5AS	2LC0300-5AT	73
255	27000	2200	0	140	0	140	294	185	125	255	26	41	1	166	160	50	514	98.35	2LC0300-6AS	2LC0300-6AT	73
		1850									26	41		166			610	98.35	2LC0300-6AS	2LC0300-6AT	84
290	39000	1850	70	155	70	160	330	210	140	290	26	46	1	186	180	60	610	113.35	2LC0300-7AS	2LC0300-7AT	110
		1600									29	49		189			711	116.35	2LC0300-7AS	2LC0300-7AT	125
315	54000	1850	80	175	80	175	366	230	160	315	26	46	1	206	200	60	610	133.35	2LC0300-8AS	2LC0300-8AT	135
		1600									29	49		209			711	136.35	2LC0300-8AS	2LC0300-8AT	150
342	69000	1600	90	195	90	195	392	255	180	340	31	61	1	241	225	60	711	157.35	2LC0301-0AS	2LC0301-0AT	180
375	98000	1600	100	220	100	220	430	290	200	375	31	61	1	261	260	60	711	177.35	2LC0301-1AS	2LC0301-1AT	220
415	130000	1400	120	240	120	240	478	320	220	415	37	99	1	319	285	80	812	203.35	2LC0301-2AS	2LC0301-2AT	320
465	180000	1400	140	270	140	270	528	360	240	465	41	121	1	361	325	80	812	225.35	2LC0301-3AS	2LC0301-3AT	400

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moment of inertia on request.
- Weights apply to maximum bores.
- Variant limited in displacement and axial movement. Max. displacement 0.2°.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings.

Ordering example

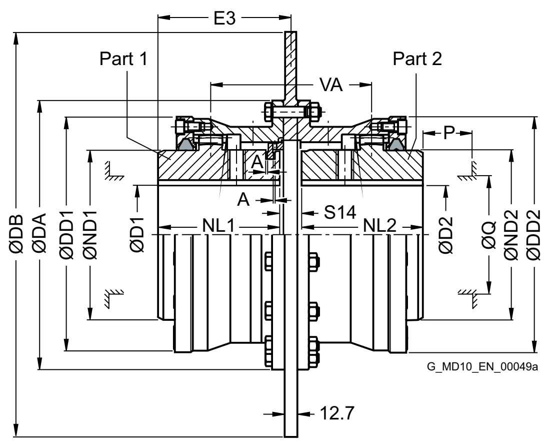
- ZAPEX ZWBT coupling, size 146, variant A, brake disk diameter DB = 457 mm
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

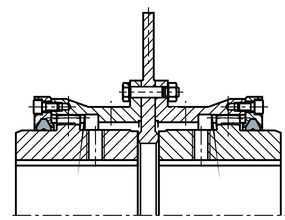
Article no.: 2LC0300-2AS99-0BA0-Z L0W+M1A+M13

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

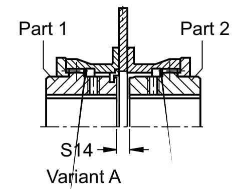
↗ For online configuration on **flender.com**, click on the item no.

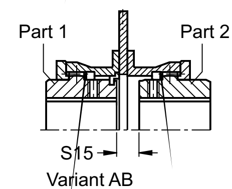
TYPE ZWBG





Sizes 112 and 128





Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm D1 Keyway DIN 6885-1 min.	D1 max.	D2 Keyway DIN 6885-1 min.	D2 max.	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S14	S15	A	VA	Q	P	Brake disk DB	E3	↗ Article no. [1] Type A	Type AB	Weight m kg
112	1300	3800	0	49	0	49	143	65	50	110	19	–	0.5	69	50	35	300	59.5	2LC0300-0AU	2LC0300-0AV	13
		3200									22	–		72			356	61	2LC0300-0AU	2LC0300-0AV	16
128	2500	3200	0	61	0	61	157	80	60	128	22	29	0.5	89	65	45	356	71	2LC0300-1AU	2LC0300-1AV	18
		2800									19	26		86			406	69.5	2LC0300-1AU	2LC0300-1AV	20.5
146	4300	2800	0	65	0	72	177	95	75	146	19	26	0.5	101	75	45	406	84.5	2LC0300-2AU	2LC0300-2AV	24
		2500									22	29		104			457	86	2LC0300-2AU	2LC0300-2AV	28.5
175	7000	2800	0	80	0	85	215	112	90	175	21	27	0.5	117	85	50	406	100.5	2LC0300-3AU	2LC0300-3AV	31
		2500									24	30		120			457	102	2LC0300-3AU	2LC0300-3AV	35
		2200									24	30		120			514	102	2LC0300-3AU	2LC0300-3AV	40
198	11600	2500	0	95	0	100	237	135	100	198	24	35	0.5	135	110	50	457	112	2LC0300-4AU	2LC0300-4AV	43
		2200									24	35		135			514	112	2LC0300-4AU	2LC0300-4AV	47
230	19000	2200	0	117	0	120	265	160	110	230	24	36	0.5	146	135	50	514	122	2LC0300-5AU	2LC0300-5AV	58
		1850									24	36		146			610	122	2LC0300-5AU	2LC0300-5AV	66
255	27000	2200	0	140	0	140	294	185	125	255	26	41	1	166	160	50	514	138	2LC0300-6AU	2LC0300-6AV	69
		1850									26	41		166			610	138	2LC0300-6AU	2LC0300-6AV	77
290	39000	1850	70	155	70	160	330	210	140	290	26	46	1	186	180	60	610	153	2LC0300-7AU	2LC0300-7AV	100
		1600									29	49		189			711	154.5	2LC0300-7AU	2LC0300-7AV	110
315	54000	1850	80	175	80	175	366	230	160	315	26	46	1	206	200	60	610	173	2LC0300-8AU	2LC0300-8AV	130
		1600									29	49		209			711	174.5	2LC0300-8AU	2LC0300-8AV	140
342	69000	1600	90	195	90	195	392	255	180	340	31	61	1	241	225	60	711	195.5	2LC0301-0AU	2LC0301-0AV	165
375	98000	1600	100	220	100	220	430	290	200	375	31	61	1	261	260	60	711	215.5	2LC0301-1AU	2LC0301-1AV	205
415	130000	1400	120	240	120	240	478	320	220	415	37	99	1	319	285	80	812	238.5	2LC0301-2AU	2LC0301-2AV	280
465	180000	1400	140	270	140	270	528	360	240	465	41	121	1	361	325	80	812	260.5	2LC0301-3AU	2LC0301-3AV	360

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moment of inertia on request.
- Weights apply to maximum bores.
- Variant limited in displacement and axial movement. Max. displacement 0.2°.
- Modified brake disk dimensions on request
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings.

Ordering example

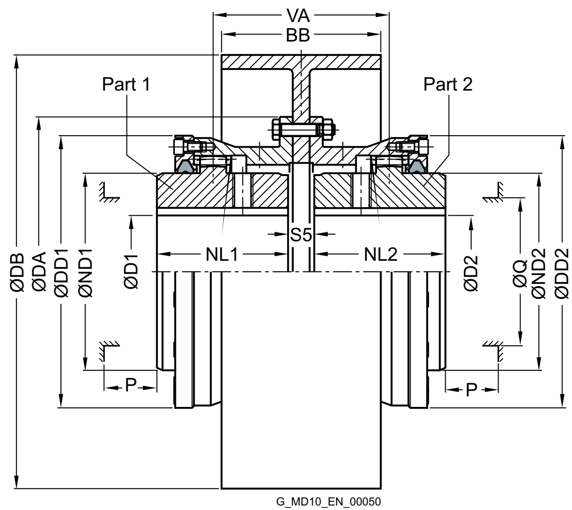
- ZAPEX ZWBG coupling, size 146, variant A, brake disk diameter DB = 457 mm
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

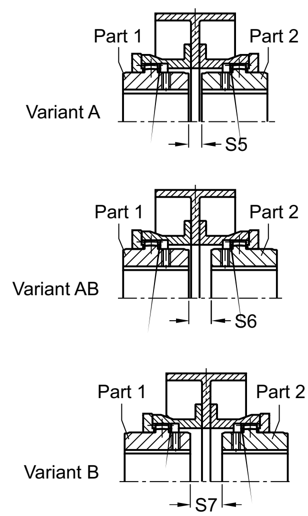
Article no.: 2LC0300-2AU99-0BA0-Z L0W+M1A+M13

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZWB





Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S5	S6	S7	VA	Q	P	Brake disk DB	BB	↗ Article no. [1] Type A	B	AB	Weight m kg
128	2500	2500	0	61	157	80	60	128	16	23	30	83	60	45	200	75	2LC0300-1AW	2LC0300-1AX	2LC0300-1BA	12.5
		2000							16	23	30	83			250	95	2LC0300-1AW	2LC0300-1AX	2LC0300-1BA	15.5
146	4300	2000	0	72	177	95	75	146	16	23	30	98	75	45	250	95	2LC0300-2AW	2LC0300-2AX	2LC0300-2BA	19
		1600							18	25	32	100			315	118	2LC0300-2AW	2LC0300-2AX	2LC0300-2BA	26.5
175	7000	1600	0	85	215	112	90	175	20	26	32	116	85	50	315	118	2LC0300-3AW	2LC0300-3AX	2LC0300-3BA	33
		1250							22	28	34	118			400	150	2LC0300-3AW	2LC0300-3AX	2LC0300-3BA	47
198	11600	1600	0	100	237	135	100	198	20	31	42	131	110	50	315	118	2LC0300-4AW	2LC0300-4AX	2LC0300-4BA	41
		1250							22	33	44	133			400	150	2LC0300-4AW	2LC0300-4AX	2LC0300-4BA	54
230	19000	1250	0	120	265	160	110	230	22	34	46	144	135	50	400	150	2LC0300-5AW	2LC0300-5AX	2LC0300-5BA	64
		1000							23	35	47	145			500	190	2LC0300-5AW	2LC0300-5AX	2LC0300-5BA	85
255	27000	1000	0	140	294	185	125	255	25	40	55	165	160	50	500	190	2LC0300-6AW	2LC0300-6AX	2LC0300-6BA	95
		1000							28	43	58	168			630	236	2LC0300-6AW	2LC0300-6AX	2LC0300-6BA	140
290	39000	1000	70	160	330	210	140	290	28	48	68	188	180	60	630	236	2LC0300-7AW	2LC0300-7AX	2LC0300-7BA	160
		750							28	48	68	188			710	265	2LC0300-7AW	2LC0300-7AX	2LC0300-7BA	195

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moment of inertia on request.
- Weights apply to maximum bores.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings.

Ordering example

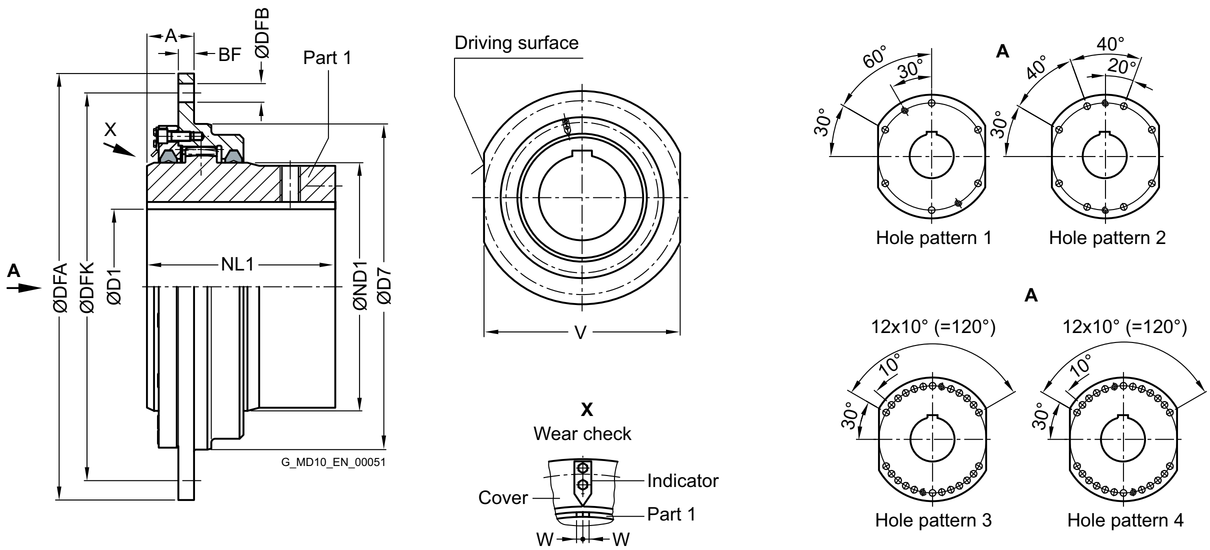
- ZAPEX ZWB coupling, size 146, variant A,
  brake disk diameter DB = 315 mm, BB = 118 mm
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9
  and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9
  and set screw

Article no.: 2LC0300-2AW99-0BA0-Z L0W+M1A+M13

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZWTR



Size	Rated torque T_{KN}	Max. perm. radial load	Dimensions in mm													↗ Article no. [1]	Weight
			D1 Keyway DIN 6885-1		ND1	NL1	DFA	D7	V	A	BF	DFK	DFB	Hole pattern	Perm. wear		*m*
	Nm	N	min.	max.				h6	h9						W		kg
198	**14500**	32500	0	**95**	135	125	340	220	300	45	15	300	15	1	2	**2LC0300-4BN**	25
230	**17500**	36500	0	**110**	160	130	360	240	320	45	15	320	15	1	2	**2LC0300-5BN**	30
255	**24000**	45500	0	**125**	185	145	380	260	340	45	15	340	19	1	2	**2LC0300-6BN**	35
290 [2]	**31500**	50000	0	**145**	210	170	400	280	360	45	15	360	19	1	3	**2LC0300-7BN**	45
315	**42000**	70000	0	**160**	230	175	420	310	380	60	20	380	24	1	3	**2LC0300-8BN**	60
342 [2]	**55000**	90000	0	**180**	255	185	450	340	400	60	20	400	24	1	3	**2LC0301-0BN**	70
375	**78000**	110000	0	**200**	290	220	510	400	460	60	20	460	24	1	3	**2LC0301-1BN**	100
415 [2]	**104000**	150000	0	**220**	320	240	550	420	500	60	20	500	24	1	3	**2LC0301-2BN**	130
465 [2]	**155000**	165000	0	**250**	360	260	580	450	530	60	20	530	24	2	4	**2LC0301-3BN**	160
505 [2]	**235000**	200000	0	**275**	400	315	650	530	580	65	25	600	24	2	4	**2LC0301-4BN**	240
545 [2]	**390000**	325000	0	**300**	440	350	680	560	600	65	25	630	24	3	4	**2LC0301-5BN**	320
585 [2]	**460000**	380000	0	**330**	480	380	710	600	640	81	35	660	28	4	4	**2LC0301-6BN**	400
640 [2]	**600000**	420000	0	**360**	520	410	780	670	700	81	35	730	28	4	4	**2LC0301-7BN**	510
730 [2]	**880000**	500000	0	**415**	600	450	850	730	760	81	35	800	28	4	5	**2LC0302-0BN**	690

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore

Notes

- Total wear must not exceed 1 x W.
- Mass moment of inertia on request.
- Weights apply to maximum bores.

Ordering example

- ZAPEX ZWTR coupling, size 198, bore 80H7 mm, keyway to DIN 6885-1 P9 and set screw.

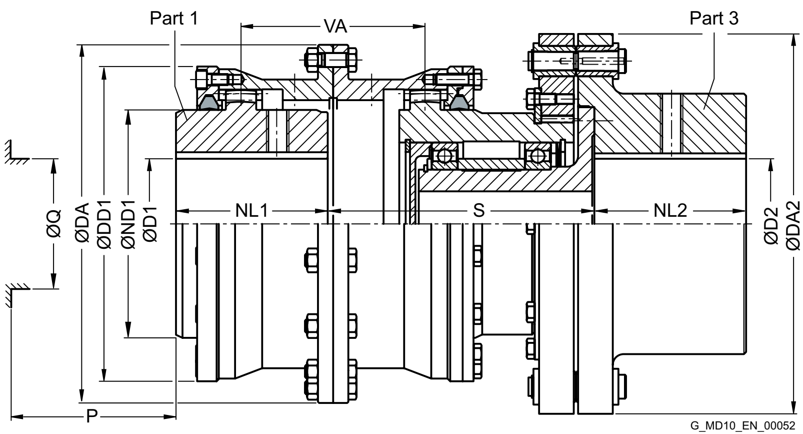
Article no.: 2LC0300-4BN90-0AA0-Z L1J

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] These sizes have connection dimensions according to SEB 666 212.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZBR



Size	Rated torque T_{KN} Nm	Max. shear torque T_{BR} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm D1 Keyway DIN 6885-1 min.	D1 max.	D2 Keyway DIN 6885-1 min.	D2 max.	DA	ND1	NL1/ NL2	DA2	DD1	S	VA	Q	P	↗ Article no. 1)	Weight m kg
112	**1300**	1690	9400	0	**49**	0	**60**	143	65	50	170	110	115	56	50	35	**2LC0300-0BH**	14.5
128	**2500**	3250	8300	0	**61**	0	**75**	157	80	60	190	128	125	73	65	45	**2LC0300-1BH**	19
146	**4300**	5590	7300	0	**72**	0	**90**	177	95	75	205	146	140	88	75	45	**2LC0300-2BH**	27.5
175	**7000**	9100	6400	0	**85**	0	**105**	215	112	90	235	175	170	104	85	50	**2LC0300-3BH**	43
198	**11600**	15080	5500	0	**100**	0	**120**	237	135	100	285	198	185	119	110	50	**2LC0300-4BH**	67
230	**19000**	24700	4700	0	**120**	0	**135**	265	160	110	300	230	200	130	135	50	**2LC0300-5BH**	91
255	**27000**	35100	4100	0	**140**	0	**155**	294	185	125	335	255	215	150	160	50	**2LC0300-6BH**	120
290	**39000**	50700	3700	70	**160**	70	**185**	330	210	140	390	290	240	170	180	60	**2LC0300-7BH**	170
315	**54000**	70200	3300	80	**175**	80	**200**	366	230	160	415	315	257	190	200	60	**2LC0300-8BH**	215
342	**69000**	89700	3000	90	**195**	90	**235**	392	255	180	460	340	290	222	225	60	**2LC0301-0BH**	295
375	**98000**	127400	2700	100	**220**	100	**240**	430	290	200	495	375	300	242	260	60	**2LC0301-1BH**	380
415	**130000**	169000	2500	120	**240**	120	**255**	478	320	220	540	415	370	294	285	80	**2LC0301-2BH**	520
465	**180000**	234000	2200	140	**270**	140	**285**	528	360	240	635	465	400	336	325	80	**2LC0301-3BH**	720
505	**250000**	325000	2000	160	**300**	160	**320**	568	400	260	710	505	420	366	365	80	**2LC0301-4BH**	970
545	**320000**	416000	1800	180	**330**	180	**370**	620	440	280	800	545	460	406	405	80	**2LC0301-5BH**	1250
585	**400000**	520000	1700	210	**360**	210	**390**	660	480	310	860	585	500	460	445	80	**2LC0301-6BH**	1600
640	**510000**	663000	1600	230 >360	**360** **390**	230	**425**	738	480 520	330	900	640	530	479	445 475	90	**2LC0301-7BH**	1850
690	**660000**	858000	1450	250 >390	**390** **420**	250	**450**	788	520 560	350	1020	690	580	516	475 515	90	**2LC0301-8BH**	2600 2650
730	**790000**	1027000	1350	275 >420	**420** **450**	275	**485**	834	560 600	380	1080	730	620	560	515 555	90	**2LC0302-0BH**	3200

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moment of inertia on request.
- Weights apply to maximum bores.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings.

Ordering example

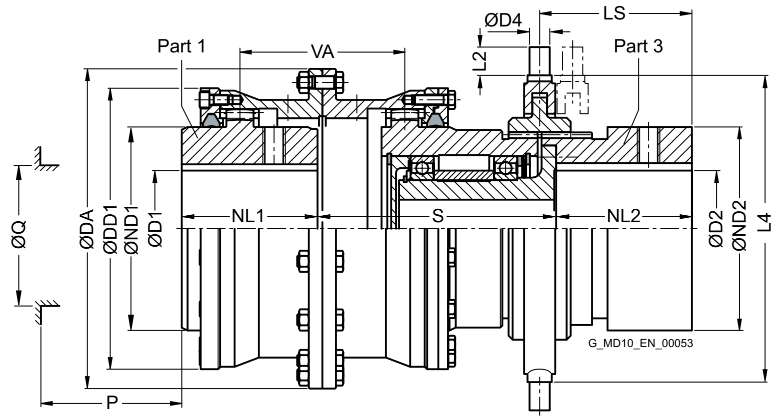
- ZAPEX coupling ZBR, size 146,
  ultimate moment T_{break} = 3500 Nm
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 3: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: 2LC0300-2BH99-0BA0-Z L0W+M1A+M13+Y99
Plain text to Y99: T_{break} = 3500 Nm

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZWS



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm D1 Keyway DIN 6885-1 min.	D1 max.	D2 Keyway DIN 6885-1 min.	D2 max.	DA	ND1/ ND2	NL1/ NL2	DD1	S	VA	Q	P	LS	Shift ring L4	D4	L2	Switch size KSHN	KSZH	↗ Article no. 1)	Weight m kg
128	2500	1500	0	61	0	50	157	80	60	128	135	73	65	45	70	150	15	14	14/11	–	2LC0300-1BK	16
146	4300	1300	0	72	0	50	177	95	75	146	131	88	75	45	86	180	16	16	16/12	–	2LC0300-2BK	22
175	7000	1100	0	85	0	70	215	112	90	175	165	104	85	50	101	180	16	16	16/12	–	2LC0300-3BK	35
198	11600	960	0	100	0	80	237	135	100	198	182	119	110	50	116	210	20	18	18/13	–	2LC0300-4BK	52
230	19000	830	0	120	0	90	265	160	110	230	198	130	135	50	126	260	22	20	18/15	14/14	2LC0300-5BK	77
255	27000	750	0	140	0	115	294	185	125	255	215	150	160	50	142	300	25	22	21/17	16/17	2LC0300-6BK	98
290	39000	660	70	160	70	130	330	210	140	290	236	170	180	60	157	315	25	35	–	16/211	2LC0300-7BK	140
315	54000	600	80	175	80	140	366	230	160	315	257	190	200	60	182	360	30	24	–	18/18	2LC0300-8BK	200
342	69000	560	90	195	90	160	392	255	180	340	280	222	225	60	202	360	30	24	–	18/18	2LC0301-0BK	230
375	98000	510	100	220	100	180	430	290	200	375	292	242	260	60	222	430	34	26	–	24/20	2LC0301-1BK	340
415	130000	460	120	240	120	210	478	320	220	415	349	294	285	80	247	430	34	26	–	24/20	2LC0301-2BK	430
465	180000	410	140	270	140	230	528	360	240	465	380	336	325	80	267	–	–	–	–	–	2LC0301-3BK	570
505	250000	380	160	300	160	260	568	400	260	505	395	366	365	80	287	–	–	–	–	–	2LC0301-4BK	740
545	320000	350	180	330	180	270	620	440	280	545	460	406	405	80	315	–	–	–	–	–	2LC0301-5BK	1000

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moment of inertia on request.
- Weights apply to maximum bores.
- Pneumatically or hydraulically actuated switches also available.
- For engaging/disengaging during standstill.
- Part 3 should be mounted on the shaft while the shaft is disconnected and not being driven.
- KSHN Manual lever switch type KSHN to M4218
  KSZH Toothed rack type KSZH to M4215

Ordering example

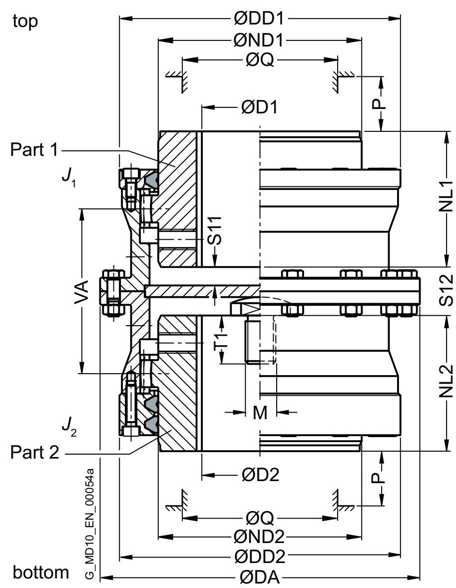
- ZAPEX ZWS coupling, size 146
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 3: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: 2LC0300-2BK99-0AA0-Z L0W+M1A+M13

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZWNV



Size	Rated torque T_{KN}	Maximum speed n_{Kmax}	Dimensions in mm D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S11	S12	VA	Q	P	Mass moment of inertia J_1/J_2	↗ Article no. [1]	Weight m
	Nm	rpm	min.	max.										kgm²		kg
128	2500	8300	0	61	157	80	60	128	6.5	26	73	65	45	0.015	2LC0300-1AH	9.1
146	4300	7300	0	72	177	95	75	146	6	28	88	75	45	0.023	2LC0300-2AH	13
175	7000	6400	0	85	215	112	90	175	5.5	33	104	85	50	0.055	2LC0300-3AH	22
198	11600	5500	0	100	237	135	100	198	10	40	119	110	50	0.095	2LC0300-4AH	31
230	19000	4700	0	120	265	160	110	230	11	32	130	135	50	0.18	2LC0300-5AH	43
255	27000	4100	0	140	294	185	125	255	14	40	150	160	50	0.28	2LC0300-6AH	56
290	39000	3700	70	160	330	210	140	290	19	50	170	180	60	0.55	2LC0300-7AH	81
315	54000	3300	80	175	366	230	160	315	18	50	190	200	60	0.88	2LC0300-8AH	110
342	69000	3000	90	195	392	255	180	340	29	72	222	225	60	1.3	2LC0301-0AH	140
375	98000	2700	100	220	430	290	200	375	29	72	242	260	60	2.1	2LC0301-1AH	185
415	130000	2500	120	240	478	320	220	415	60	136	294	285	80	3.4	2LC0301-2AH	250
465	180000	2200	140	270	528	360	240	465	80	176	336	325	80	5.6	2LC0301-3AH	340
505	250000	2000	160	300	568	400	260	505	89	196	366	365	80	8.2	2LC0301-4AH	420

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- When ordering, state thread size M and thread length T1 of the thrust piece.
- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to the entire coupling with maximum bores.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings.

Ordering example

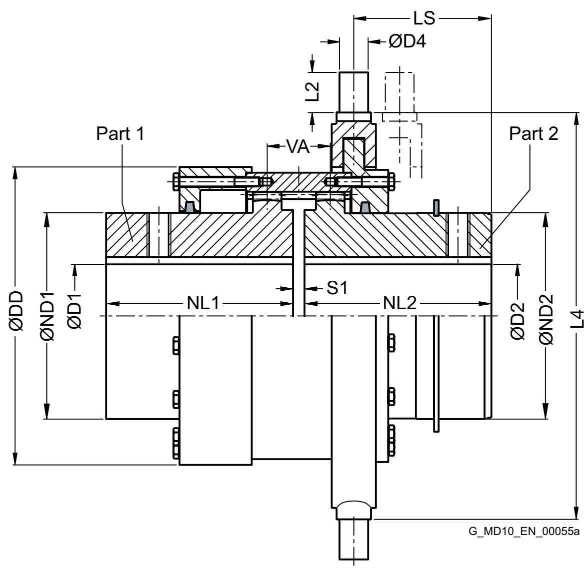
- ZAPEX ZWNV coupling, size 146, thread M10 x 20 deep
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: 2LC0300-2AH99-0AA0-Z L0W+M1A+M13+Y99
Plain text to Y99: Thread M10 x 20 mm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZWSE



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm D1 Keyway DIN 6885-1 min.	D1 max.	D2 Keyway DIN 6885-1 min.	D2 max.	ND1	ND2	NL1	NL2	DD	S1	VA	LS	Shift ring L4	D4	L2	Switch size KSHN	KSZH	↗ Article no. [1]	Weight m kg
128	2500	730	0	**55**	0	**55**	76.5	75	60	60	130	6	30	36.5	180	16	16	16	–	2LC0300-1BM	8.8
146	4300	630	0	**69**	0	**65**	91.5	90	75	75	150	6	33	50	210	20	18	18	–	2LC0300-2BM	13.5
175	7000	530	0	**80**	0	**75**	108	105	90	90	180	8	46	56.5	250	20	30	18	–	2LC0300-3BM	23
198	11600	470	0	**95**	0	**95**	130	130	100	100	204	8	48	64.5	260	22	20	18	–	2LC0300-4BM	32
230	19000	410	0	**115**	0	**110**	155	155	110	110	236	8	50	73	300	25	22	21	–	2LC0300-5BM	44
255	27000	370	0	**135**	0	**130**	180	180	125	125	260	10	55	82	355	25	35	24	–	2LC0300-6BM	63
290	39000	330	70	**155**	70	**145**	210	210	140	140	295	10	38	64.5	355	25	35	24	–	2LC0300-7BM	82
315	54000	300	80	**170**	80	**165**	230	230	160	160	325	10	42	76	355	25	35	24	–	2LC0300-8BM	105
342	69000	280	90	**190**	90	**175**	255	255	180	180	345	12	46	82	430	34	26	–	24	2LC0301-0BM	145
375	98000	250	100	**210**	100	**200**	280	280	200	200	378	12	48	90	430	34	26	–	24	2LC0301-1BM	180
415	130000	220	120	**240**	120	**225**	320	320	220	240	425	12	52	120	580	40	40	–	24	2LC0301-2BM	295
465	180000	200	140	**270**	140	**250**	360	360	240	260	470	16	60	150	580	40	40	–	24	2LC0301-3BM	350
505	250000	180	160	**300**	160	**270**	400	400	260	280	510	16	62	161	–	–	–	–	24	2LC0301-4BM	400

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moment of inertia on request.
- Weights apply to maximum bores.
- For engaging/disengaging during standstill.
- Part 2 should be mounted on the shaft while the shaft is disconnected and not being driven.
- Protect sliding surfaces from dirt and corrosion; sprayed with adhesive grease.

Ordering example

- ZAPEX ZWSE coupling, size 146
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw,
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article no.: **2LC0300-2BM99-0AA0-Z L0W+M1A+M13**

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

CUSTOMIZED HUB DESIGN

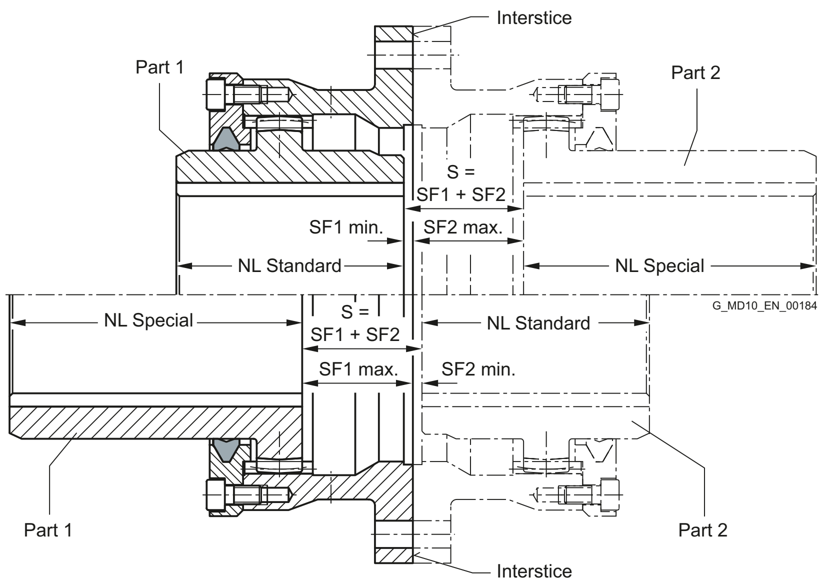
ZAPEX couplings can be provided with customized S-dimensions and hub lengths.

The entire dimension S results from the sum of the individual measurements SF1 and SF2. SF1 and SF2 are the measurements from the interstice of the coupling ring flange up to the beginning of the respective hub.
As standard SF1 and SF2 are identical to each other and the entire S-dimension arises in accordance with them.

SF1 and SF2 can be chosen different on customer request, however the minimal and maximum values of the following table have to be observed. Within these limits the measurements SF1 and SF2 may be chosen freely.

The distance VA of the coupling teeth, the permitted bore diameter and the hub diameter remain unchanged.

By stating the hub S-dimension and both hub lengths the coupling is completely described.



Geometric data

Size	Standard hub length NL mm	Minimal dimension SF1 or SF2 mm	Maximum dimension SF1 or SF2 mm
112	50	3	23
128	60	3	30.5
146	75	3	36.5
175	90	4	43
198	100	4	49.5
230	110	4	54
255	125	5	62.5
290	140	5	71
315	160	5	79
342	180	6	94
375	200	6	103
415	220	6	127
465	240	8	146
505	260	8	160

The minimal hub lengths are not to fall below the standard hub lengths. If there's no other possibility, for hub lengths smaller than standard hub lengths the order codes "**Y50**" for part 1 and "**Y51**" for part 2 must be stated in plain text.

Article number

The Article number of the respective ZAPEX coupling type must be supplemented with "**-Z**" and order codes for non standard SF-dimensions (order code "**Y38**" for part 1 and "**Y39**" for part 2). For no standard hub lengths the order codes "**Y40**" to "**Y49**" must be specified (see table **Page 4/22**).

Ordering example

- ZAPEX coupling ZWN 175, variant A
- Hub left: Bore D1 = 70H7 mm, keyway to DIN 6885-1 P9 and set screw; NL1 = 160 mm; SF1 = 10 mm
- Hub right: Bore D2 = 75H7 mm, keyway to DIN 6885-1 P9and set screw; NL2 = 100 mm; SF2 = 25 mm

Article no.: 2LC0300-3AA99-0AA0-Z L1G M1H Y38 Y39 Y41 Y46
Plain text to Y38: SF1 = 10 mm
Plain text to Y39: SF2 = 25 mm
Plain text to Y46: NL1 = 160 mm
Plain text to Y41: NL2 = 100 mm

CUSTOMIZED HUB DESIGN

Order code for hub prolongations (Y4). (Std-NL = Standard hub length)

Part 1 Selected (special) hub length min.	max.	Order code (specification of hub length in plain text)
>Std-NL	⩽1.25 · Std-NL	**Y40**
>1.25 · Std-NL	⩽1.5 · Std-NL	**Y42**
>1.5 · Std-NL	⩽1.75 · Std-NL	**Y44**
>1.75 · Std-NL	⩽2 · Std-NL	**Y46**
>2 · Std-NL		**Y48**

Part 2 Selected (special) hub length min.	max.	Order code (specification of hub length in plain text)
>Std-NL	⩽1.25 · Std-NL	**Y41**
>1.25 · Std-NL	⩽1.5 · Std-NL	**Y43**
>1.5 · Std-NL	⩽1.75 · Std-NL	**Y45**
>1.75 · Std-NL	⩽2 · Std-NL	**Y47**
>2 · Std-NL		**Y49**

SPARE AND WEAR PARTS

DUO sealing rings

The DUO sealing rings are wear parts and must be replaced in accordance with the operating instructions.

Size	Hub diameter ND1/ND2 mm	Article No.
112	65	2LC0300-0XG00-0AA0
128	80	2LC0300-1XG00-0AA0
146	95	2LC0300-2XG00-0AA0
175	112	2LC0300-3XG00-0AA0
198	135	2LC0300-4XG00-0AA0
230	160	2LC0300-5XG00-0AA0
255	185	2LC0300-6XG00-0AA0
290	210	2LC0300-7XG00-0AA0
315	230	2LC0300-8XG00-0AA0
342	255	2LC0301-0XG00-0AA0
375	290	2LC0301-1XG00-0AA0
415	320	2LC0301-2XG00-0AA0
465	360	2LC0301-3XG00-0AA0
505	400	2LC0301-4XG00-0AA0
545	440	2LC0301-5XG00-0AA0
585	480	2LC0301-6XG00-0AA0
640	480	2LC0301-7XG10-0AA0
	520	2LC0301-7XG20-0AA0
690	520	2LC0301-8XG10-0AA0
	560	2LC0301-8XG20-0AA0
730	560	2LC0302-0XG10-0AA0
	600	2LC0302-0XG20-0AA0
780	600	2LC0302-1XG10-0AA0
	650	2LC0302-1XG20-0AA0
852	650	2LC0302-2XG10-0AA0
	710	2LC0302-2XG20-0AA0
910	710	2LC0302-3XG10-0AA0
	750	2LC0302-3XG20-0AA0

Size	Hub diameter ND1/ND2 mm	Article No.
1020	750	2LC0302-4XG10-0AA0
	800	2LC0302-4XG20-0AA0
1080	800	2LC0302-5XG10-0AA0
	860	2LC0302-5XG20-0AA0
1150	860	2LC0302-6XG10-0AA0
	930	2LC0302-6XG20-0AA0
1160	860	2LC0302-7XG10-0AA0
	930	2LC0302-7XG20-0AA0
	990	2LC0302-7XG30-0AA0
1240	930	2LC0302-8XG10-0AA0
	990	2LC0302-8XG20-0AA0
	1055	2LC0302-8XG30-0AA0
1310	930	2LC0303-0XG10-0AA0
	990	2LC0303-0XG20-0AA0
	1055	2LC0303-0XG30-0AA0
	1120	2LC0303-0XG40-0AA0
1380	990	2LC0303-1XG10-0AA0
	1055	2LC0303-1XG20-0AA0
	1120	2LC0303-1XG30-0AA0
	1170	2LC0303-1XG40-0AA0
1440	1055	2LC0303-2XG10-0AA0
	1120	2LC0303-2XG20-0AA0
	1170	2LC0303-2XG30-0AA0
	1240	2LC0303-2XG40-0AA0
1540	1120	2LC0303-3XG10-0AA0
	1170	2LC0303-3XG20-0AA0
	1240	2LC0303-3XG30-0AA0
	1310	2LC0303-3XG40-0AA0

High-performance grease

Container	Content g	Article No.
Cartridge	300	FFA:000000501027

Sealing compound

Container	Content ml	Article No.
Tube	60	FFA:000001443780

TORSIONALLY RIGID GEAR COUPLINGS
ZAPEX ZN SERIES

ZAPEX ZN

FLENDER

5

GENERAL

Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

II 2G Ex h IIC T6 ... T5 Gb X

II 2D Ex h IIIC T85 °C ... 100 °C Db X

I M2 Ex h Mb X

Materials

- Hubs and flanged sleeves: Steel
- O ring: Perbunan
- Lubricant: Grease filling

Benefits

ZAPEX gear couplings link machine shafts and compensate for shaft misalignment with weak restorative forces. High transmissible torque combined with compactness and light weight are characteristic of ZAPEX couplings. ZAPEX coupling types are constructed on a modular principle, so application-related solutions can be delivered quickly.

This coupling requires very little maintenance. Regular grease changes at the prescribed intervals prolong the service life of the coupling.

Application

ZAPEX couplings are especially suited for operation in harsh operating conditions, such as drives in the iron smelting or cement industry.

ZAPEX couplings are suitable for reverse operation and horizontal mounting positions and, in the case of type ZNNV, for vertical mounting positions.

GENERAL

Design and configurations

A ZAPEX coupling comprises two hub sections with external teeth which are mounted on the machine shafts. The external teeth engage with a flanged sleeve with corresponding internal teeth. The flanged sleeves are connected via two flanges with close-fitting bolts.
The teeth are lubricated with grease. On the ZAPEX type ZN, O-rings are used to seal the tooth space. The O-rings prevent the lubricant from escaping and dirt from entering the tooth space. The parallel keyways must be sealed during assembly to prevent lubricant from escaping.
Customized hub designs are described after the types.

Type	Description
ZNN	Standard type
ZNZS	with adapter
ZNW	with intermediate shaft
ZNBG	with straight brake disk
ZNNA	With axial backlash limiter
ZNZA	With adapter and axial backlash limiter
ZNNV	Vertical type
ZNN	For axial displacement

Further application-specific coupling types are available; dimension sheets for and information on these are available on request.

Function

The torque is transmitted through the coupling teeth.
The teeth are crowned, so angular displacement per tooth plane is possible. Radial displacement can be compensated for via the space VA between the tooth planes.
The internal teeth of the flanged sleeves are significantly wider than the external teeth of the hub parts, permitting a relatively high axial misalignment.

A small angular misalignment on the coupling teeth results in an advantageous distribution of the lubricant film in contact with the teeth and a very low wear rate. This favorable condition can be deliberately set by aligning the drive with the machine shafts with a slight radial misalignment.

Technical specifications

Power ratings Size	Rated torque T_{KN} Nm	Maximum torque T_{Kmax} Nm	Overload torque T_{KOL} Nm	Fatigue torque T_{KW} Nm	Torsional stiffness ZN C_{Tdyn} kNm/rad	Permitted axial shaft misalignment ΔK_a mm
83	1020	2040	4080	408	500	1
107	2210	4420	8840	884	1400	1
130	4020	8040	16080	1600	2500	1
156	6600	13200	26400	2640	5800	1
181	11000	22000	44000	4400	9200	1
211	19200	38400	76800	7680	16600	1
250	30680	61360	122720	12270	27300	1
274	43550	87100	174200	17400	41500	1.5
307	61750	123500	247000	24700	61000	1.5
333	87100	174200	348400	34800	79000	1.5
364	117000	234000	468000	46800	99000	1.5
424	162500	325000	650000	64800	156000	1.5

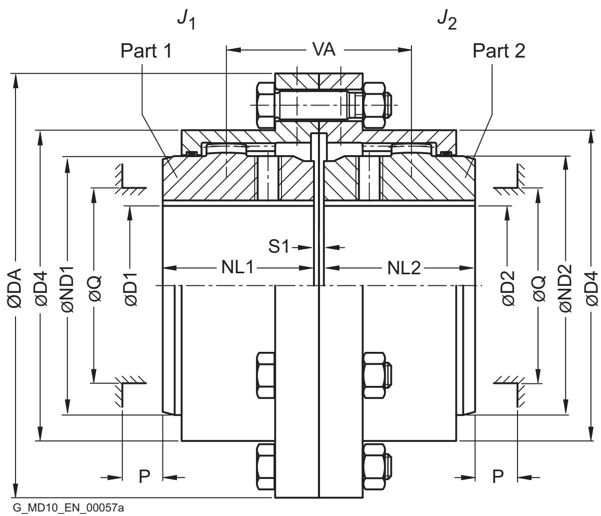
The specified torsional stiffness "ZN" applies to coupling types ZNN, ZNNA, ZNNV and ZNN for axial displacement. Torsional stiffness of types ZNZS, ZNW, ZNBG and ZNZA on request.

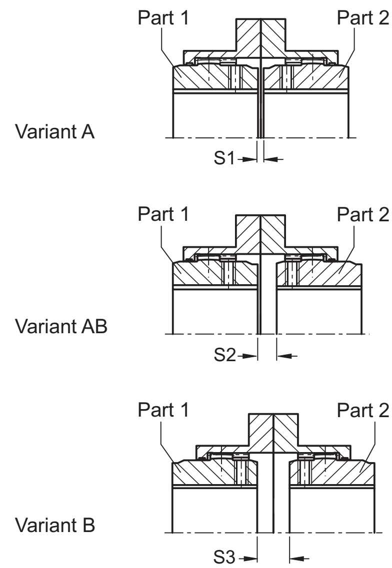
The axial misalignment ΔK_a must be understood as the maximum permitted enlargement of the hub distance S of the coupling.
The axial misalignment ΔK_a does not apply to the types ZNNA, ZNNV, ZNBG and ZNZA.

Angular misalignment ΔK_w
Types ZNN, ZNZS, ZNW, ZNNV, ZNN for axial displacement: $\Delta K_w = 0.5°$
Types ZNBG, ZNNA, ZNZA: $\Delta K_w = 0.2°$

Radial misalignment ΔK_r
Types ZNN, ZNZS, ZNW, ZNNV, ZNN for axial displacement: $\Delta K_r \leq VA \cdot \tan 0.5°$
Types ZNBG, ZNNA, ZNZA: $\Delta K_r \leq VA \cdot \tan 0.2°$
For the tooth distance VA, see the relevant table for the subassembly.

TYPE ZNN





Size	Rated torque T_{KN}	Maximum speed n_{Kmax}	Dimensions in mm D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	D4	S1	S2	S3	VA	Q	P	Mass moment of inertia J_1/J_2	↗ Article no.[1] Type			Weight m
	Nm	rpm	min.	max.				min.	max.						kgm²	A	B	AB	kg
83	**1020**	8500	0	**50**	117	67	43	83	3	12	21	55	52	31	0.003	2LC0330-0AA	2LC0330-0AB	2LC0330-0AC	3.2
107	**2210**	7700	0	**65**	152	87	50	107	3	9	15	59	68	34	0.009	2LC0330-1AA	2LC0330-1AB	2LC0330-1AC	6.5
130	**4020**	6900	0	**82**	178	108	62	129.5	3	17	31	79	85	42	0.02	2LC0330-2AA	2LC0330-2AB	2LC0330-2AC	9.8
156	**6600**	6200	0	**100**	213	130	76	156	5	17	29	93	110	47	0.05	2LC0330-3AA	2LC0330-3AB	2LC0330-3AC	17.5
181	**11000**	5800	0	**116**	240	153	90	181	5	19	33	109	130	58	0.09	2LC0330-4AA	2LC0330-4AB	2LC0330-4AC	25.5
211	**19200**	5100	0	**137**	280	180	105	211	6	23	40	128	150	67	0.21	2LC0330-5AA	2LC0330-5AB	2LC0330-5AC	43
250	**30680**	4500	0	**164**	318	214	120	249.5	6	24	42	144	175	72	0.39	2LC0330-6AA	2LC0330-6AB	2LC0330-6AC	60
274	**43550**	4000	80	**178**	347	233	135	274	8	29	50	164	190	81	0.59	2LC0330-7AA	2LC0330-7AB	2LC0330-7AC	82
307	**61750**	3750	90	**198**	390	260	150	307	8	32	56	182	220	91	1.1	2LC0330-8AA	2LC0330-8AB	2LC0330-8AC	115
333	**87100**	3550	100	**216**	425.5	283	175	332.5	8	39	70	214	250	104	1.8	2LC0331-0AA	2LC0331-0AB	2LC0331-0AC	155
364	**117000**	3400	120	**242**	457	312	190	364	8	46	84	236	265	126	2.3	2LC0331-1AA	2LC0331-1AB	2LC0331-1AC	180
424	**162500**	3200	150	**288**	527	371	220	423.5	10	43	76	263	300	140	4.9	2LC0331-2AA	2LC0331-2AB	2LC0331-2AC	275

Configurable variants[1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to the entire coupling with maximum bores.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Ordering example

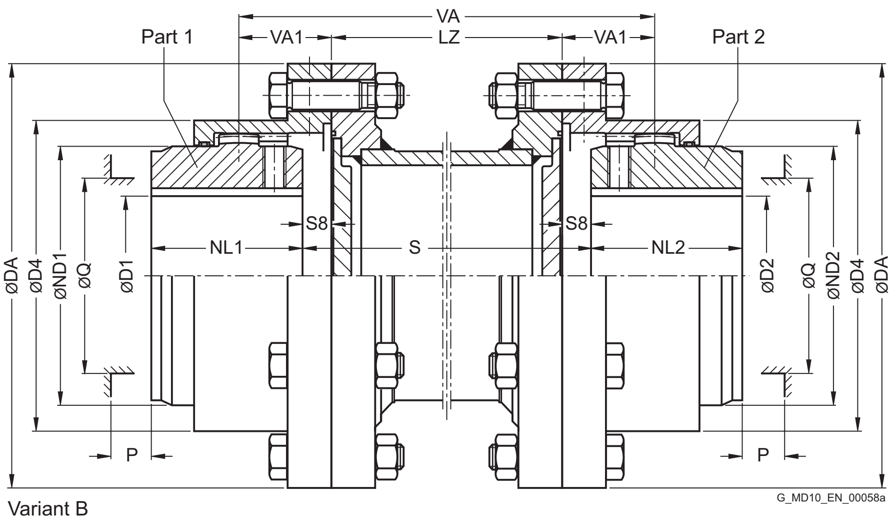
- ZAPEX ZNN coupling, size 107, variant A
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

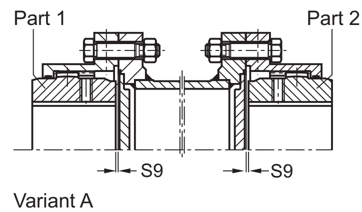
Article no.: 2LC0330-1AA99-0AA0-Z L0W+M1A+M13

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZNZS





5

Size	Rated torque	Dimensions in mm												↗ Article no. [1]		Weight each 100 mm pipe	
	T_{KN}	D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	D4	S8	S9	VA1	Q	P	LZ	Type		*m*	*m*
	Nm	min.	max.										min.	A	B	kg	kg
83	1020	0	50	117	67	43	83	10.5	1.5	27.5	52	31	75	2LC0330-0AD	2LC0330-0AE	0.9	5.5
107	2210	0	65	152	87	50	107	7.5	1.5	29.5	68	34	85	2LC0330-1AD	2LC0330-1AE	0.8	12
130	4020	0	82	178	108	62	129.5	15.5	1.5	39.5	85	42	95	2LC0330-2AD	2LC0330-2AE	1.2	16
156	6600	0	100	213	130	76	156	14.5	2.5	46.5	110	47	110	2LC0330-3AD	2LC0330-3AE	2.3	28
181	11000	0	116	240	153	90	181	16.5	2.5	54.5	130	58	110	2LC0330-4AD	2LC0330-4AE	3.5	40
211	19200	0	137	280	180	105	211	20	3	64	150	67	125	2LC0330-5AD	2LC0330-5AE	4.5	64
250	30680	0	164	318	214	120	249.5	21	3	72	175	72	125	2LC0330-6AD	2LC0330-6AE	6.3	91
274	43550	80	178	347	233	135	274	25	4	82	190	81	125	2LC0330-7AD	2LC0330-7AE	7.2	115
307	61750	90	198	390	260	150	307	28	4	91	220	91	145	2LC0330-8AD	2LC0330-8AE	9.1	175
333	87100	100	216	425.5	283	175	332.5	35	4	107	250	104	145	2LC0331-0AD	2LC0331-0AE	12	220
364	117000	120	242	457	312	190	364	42	4	118	265	126	145	2LC0331-1AD	2LC0331-1AE	15	245
424	162500	150	288	527	371	220	423.5	38	5	131.5	300	140	145	2LC0331-2AD	2LC0331-2AE	16	360

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- VA = 2 · VA1 + LZ
- Mass moment of inertia on request.
- Weights apply to the entire coupling with maximum bores and an adapter length of LZ min.
- Maximum speed, limited by weight and critical adapter speed, on request.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Ordering example

- ZAPEX ZNZS coupling, size 107, variant B, adapter for S = 250 mm
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

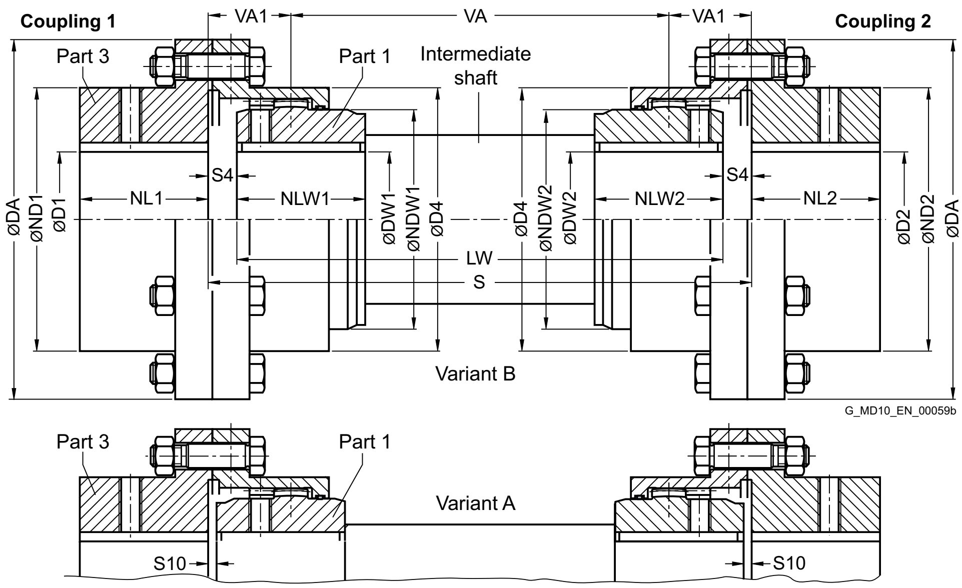
Article no.: 2LC0330-1AE99-0AZ0-Z L0W+M1A+Q0Y+M13
Plain text to Q0Y: 250 mm (dimension S)

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

5

TYPE ZNW



Size	Rated torque T_{KN}	Dimensions in mm												↗ Article no. [1]		Weight
		D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/NL2/ NLW1/LW2	DW1, DW2 Keyway DIN 6885-1		NDW1/ NDW2	D4	S4	S10	VA1	Type		*m*
	Nm	min.	max.				min.	max.						A	B	kg
83	**1020**	0	**61**	117	83	43	0	**50**	67	83	12	3	29	**2LC0330-0AV**	**2LC0330-0AW**	3.1
107	**2210**	0	**79**	152	107	50	0	**65**	87	107	9	3	31	**2LC0330-1AV**	**2LC0330-1AW**	6.2
130	**4020**	0	**96**	178	129.5	62	0	**82**	108	129.5	17	3	41	**2LC0330-2AV**	**2LC0330-2AW**	9.5
156	**6600**	0	**116**	213	156	76	0	**100**	130	156	17	5	49	**2LC0330-3AV**	**2LC0330-3AW**	17
181	**11000**	0	**134**	240	181	90	0	**116**	153	181	19	5	57	**2LC0330-4AV**	**2LC0330-4AW**	24.5
211	**19200**	0	**156**	280	211	105	0	**137**	180	211	23	6	67	**2LC0330-5AV**	**2LC0330-5AW**	41
250	**30680**	0	**184**	318	249.5	120	0	**164**	214	249.5	24	6	75	**2LC0330-6AV**	**2LC0330-6AW**	58
274	**43550**	80	**202**	347	274	135	80	**178**	233	274	29	8	86	**2LC0330-7AV**	**2LC0330-7AW**	76
307	**61750**	90	**228**	390	307	150	90	**198**	260	307	32	8	95	**2LC0330-8AV**	**2LC0330-8AW**	110
333	**87100**	100	**247**	425.5	332.5	175	100	**216**	283	332.5	39	8	111	**2LC0331-0AV**	**2LC0331-0AW**	150
364	**117000**	120	**270**	457	364	190	120	**242**	312	364	46	8	122	**2LC0331-1AV**	**2LC0331-1AW**	170
424	**162500**	150	**313**	527	423.5	220	150	**288**	371	423.5	43	10	136.5	**2LC0331-2AV**	**2LC0331-2AW**	270

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Notes

- VA = S – 2 · VA1
- Mass moment of inertia on request.
- Weights apply to either coupling 1 or 2 with maximum bores, without intermediate shaft.
- Maximum speed, limited by weight and critical speed of intermediate shaft, on request.

Ordering example

- Coupling 1:
  ZAPEX ZNW coupling, size 107, variant B,
  Part 3: Bore 45K7 mm, keyway to DIN 6885-1 P9
  and set screw, Part 1: Bore 45H7 mm,
  keyway to DIN 6885-1 P9 and set screw.

Article no.: 2LC0330-1AW99-0AA0-Z L1A+L13+M1A

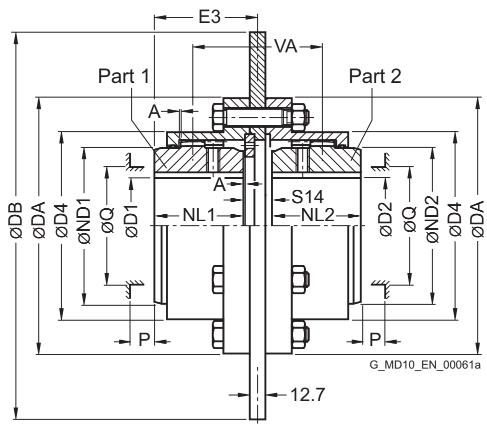
- Intermediate shaft:
  Intermediate shaft to ZAPEX ZNW coupling, size 107,
  length LW = 570 mm, shaft journal Ø45p6 x 50 long;
  keyway DIN 6885-1.

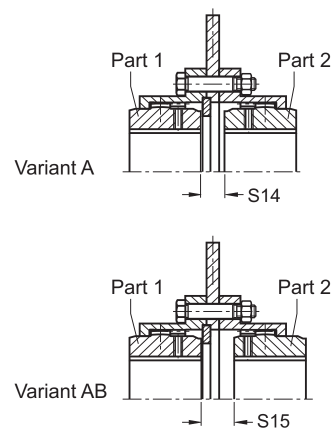
Article no.: 2LC9310-0XH00-0AA0-Z Y99
Plain text to Y99: DW1 = 45p6 mm, NLW1 = 50 mm,
DW2 = 45p6 mm, NLW2 = 50 mm, LW = 570 mm

- Coupling 2:
  ZAPEX ZNW coupling, size 107, variant B,
  Part 1: Bore 45H7 mm, keyway to DIN 6885-1 P9
  and set screw, Part 3: Bore 45K7 mm,
  keyway to DIN 6885-1 P9 and set screw.

Article no.: 2LC0330-0AW99-0AA0-Z L1A+M1A+L13

TYPE ZNBG





Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	D4	S14	S15	A	VA	Q	P	Brake disk DB	E3	↗ Article no. [1] Type A	AB	Weight m kg
83	1020	3800	0	50	117	67	43	83	17	26	0.5	69	52	31	300	52	2LC0330-0AQ	2LC0330-0AR	10
107	2210	3200	0	65	152	87	50	107	20.5	26.5	0.5	76.5	68	34	356	61	2LC0330-1AQ	2LC0330-1AR	16
130	4020	3200	0	82	178	108	62	129.5	20.5	34.5	0.5	96.5	85	42	356	73	2LC0330-2AQ	2LC0330-2AR	16.5
		2800							17.5	31.5		93.5			406	71.5	2LC0330-2AQ	2LC0330-2AR	19.5
156	6600	2800	0	100	213	130	76	156	20	32	0.5	108	110	47	406	87	2LC0330-3AQ	2LC0330-3AR	29
		2500							23	35		111			457	88.5	2LC0330-3AQ	2LC0330-3AR	33
181	11000	2800	0	116	240	153	90	181	20	34	0.5	124	130	58	406	101	2LC0330-4AQ	2LC0330-4AR	38
		2500							23	37		127			457	102.5	2LC0330-4AQ	2LC0330-4AR	42
		2200							23	37		127			514	102.5	2LC0330-4AQ	2LC0330-4AR	46
211	19200	2500	0	137	280	180	105	211	24.5	41.5	0.5	146.5	150	67	457	118.5	2LC0330-5AQ	2LC0330-5AR	58
		2200							24.5	41.5		146.5			514	118.5	2LC0330-5AQ	2LC0330-5AR	63
		1850							24.5	41.5		146.5			610	118.5	2LC0330-5AQ	2LC0330-5AR	71
250	30680	2200	0	164	318	214	120	249.5	24	42	1	162	175	72	514	133	2LC0330-6AQ	2LC0330-6AR	77
		1850							24	42		162			610	133	2LC0330-6AQ	2LC0330-6AR	87
		1600							27	45		165			711	134.5	2LC0330-6AQ	2LC0330-6AR	97

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque	Maximum speed	Dimensions in mm												Brake disk		↗ Article no. [1]		Weight
	T_{KN}	n_{Kmax}	D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	D4	S14	S15	A	VA	Q	P	DB	E3	Type		m
	Nm	rpm	min.	max.													A	AB	kg
274	**43550**	2200	80	**178**	347	233	135	274	26.5	47.5	1	182.5	190	81	514	149.5	**2LC0330-7AQ**	**2LC0330-7AR**	97
		1850							26.5	47.5		182.5			610	149.5	**2LC0330-7AQ**	**2LC0330-7AR**	105
		1600							29.5	50.5		185.5			711	151	**2LC0330-7AQ**	**2LC0330-7AR**	115
		1400							35.5	56.5		191.5			812	154	**2LC0330-7AQ**	**2LC0330-7AR**	130
307	**61750**	1850	90	**198**	390	260	150	307	27	51	1	201	220	91	610	165	**2LC0330-8AQ**	**2LC0330-8AR**	140
		1600							30	54		204			711	166.5	**2LC0330-8AQ**	**2LC0330-8AR**	155
		1400							36	60		210			812	169.5	**2LC0330-8AQ**	**2LC0330-8AR**	170
333	**87100**	1600	100	**216**	425.5	283	175	332.5	30	61	1	236	250	104	711	191.5	**2LC0331-0AQ**	**2LC0331-0AR**	190
		1400							36	67		242			812	194.5	**2LC0331-0AQ**	**2LC0331-0AR**	205
364	**117000**	1400	120	**242**	457	312	190	364	36	74	1	264	265	126	812	209.5	**2LC0331-1AQ**	**2LC0331-1AR**	235

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moment of inertia on request.
- Weights apply to maximum bores.
- Variant limited in displacement and axial movement. Max. displacement 0.2°.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Ordering example

- ZAPEX ZNBG coupling, size 107, variant A, brake disk diameter DB = 356 mm
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

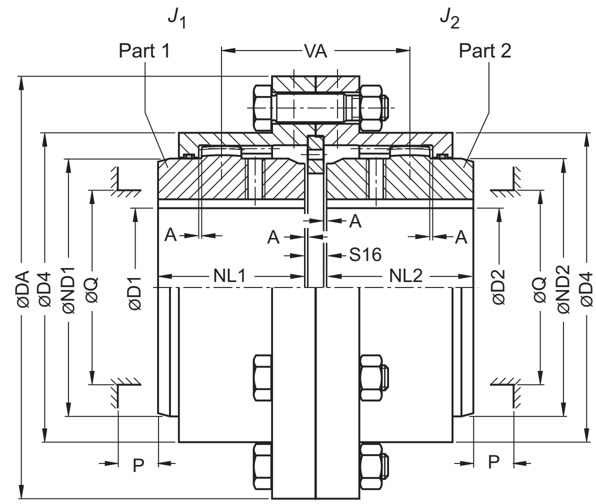
Article no.: **2LC0330-1AQ99-0AA0-Z L0W+M1A+M13**

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

5

TYPE ZNNA



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Size	Rated torque	Maximum speed	Dimensions in mm											Mass moment of inertia	↗ Article no. [1]	Weight
	T_{KN}	n_{Kmax}	D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	D4	S16	A	VA	Q	P	J_1/J_2		m
	Nm	rpm	min.	max.										kgm²		kg
83	**1020**	8500	0	**50**	117	67	43	83	5	0.5	57	52	31	0.003	**2LC0330-0AF**	3.3
107	**2210**	7700	0	**65**	152	87	50	107	6	0.5	62	68	34	0.01	**2LC0330-1AF**	6.7
130	**4020**	6900	0	**82**	178	108	62	129.5	6	0.5	82	85	42	0.021	**2LC0330-2AF**	10.5
156	**6600**	6200	0	**100**	213	130	76	156	9	0.5	97	110	47	0.05	**2LC0330-3AF**	18
181	**11000**	5800	0	**116**	240	153	90	181	9	0.5	113	130	58	0.095	**2LC0330-4AF**	26.5
211	**19200**	5100	0	**137**	280	180	105	211	11	0.5	133	150	67	0.22	**2LC0330-5AF**	44
250	**30680**	4500	0	**164**	318	214	120	249.5	10	1	148	175	72	0.4	**2LC0330-6AF**	62
274	**43550**	4000	80	**178**	347	233	135	274	13	1	169	190	81	0.64	**2LC0330-7AF**	82
307	**61750**	3750	90	**198**	390	260	150	307	14	1	188	220	91	1.1	**2LC0330-8AF**	115
333	**87100**	3550	100	**216**	425.5	283	175	332.5	14	1	220	250	104	1.8	**2LC0331-0AF**	155
364	**117000**	3400	120	**242**	457	312	190	364	14	1	242	265	126	2.4	**2LC0331-1AF**	185
424	**162500**	3200	150	**288**	527	371	220	423.5	18	1	271	300	140	4.9	**2LC0331-2AF**	285

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to the entire coupling with maximum bores.
- Variant limited in displacement and axial movement. Max. displacement 0.2°.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Ordering example

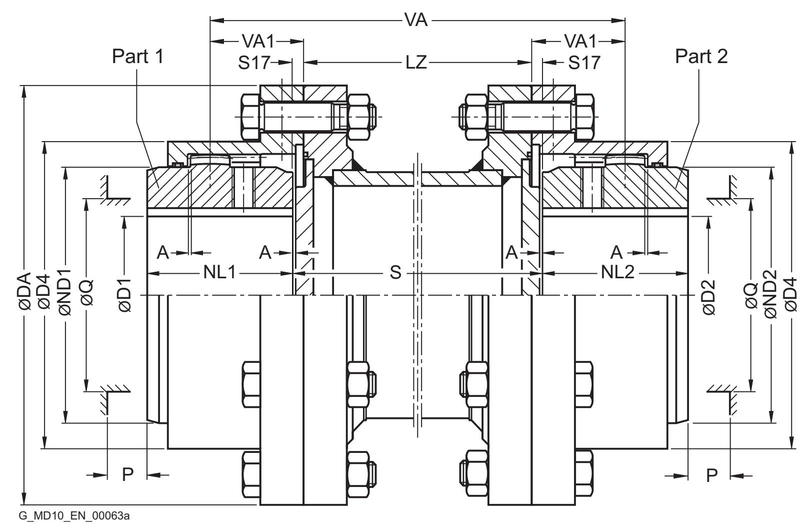
- ZAPEX ZNNA coupling, size 107
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: 2LC0330-1AF99-0AA0-Z L0W+M1A+M13

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZNZA



Size	Rated torque T_{KN} Nm	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	D4	S17	A	VA1	Q	P	LZ min.	↗ Article no. 1)	Weight each 100 mm pipe m kg	m kg
83	1020	0	50	117	67	43	83	2.5	0.5	28.5	52	31	75	2LC0330-0AG	0.9	5.5
107	2210	0	65	152	87	50	107	3	0.5	31	68	34	85	2LC0330-1AG	0.8	12
130	4020	0	82	178	108	62	129.5	3	0.5	41	85	42	95	2LC0330-2AG	1.2	16
156	6600	0	100	213	130	76	156	4.5	0.5	48.5	110	47	110	2LC0330-3AG	2.3	28
181	11000	0	116	240	153	90	181	4.5	0.5	56.5	130	58	110	2LC0330-4AG	3.5	40
211	19200	0	137	280	180	105	211	5.5	0.5	66.5	150	67	125	2LC0330-5AG	4.5	64
250	30680	0	164	318	214	120	249.5	5	1	74	175	72	125	2LC0330-6AG	6.3	91
274	43550	80	178	347	233	135	274	6.5	1	84.5	190	81	125	2LC0330-7AG	7.2	115
307	61750	90	198	390	260	150	307	7	1	94	220	91	145	2LC0330-8AG	9.1	175
333	87100	100	216	425.5	283	175	332.5	7	1	110	250	104	145	2LC0331-0AG	12	220
364	117000	120	242	457	312	190	364	7	1	121	265	126	145	2LC0331-1AG	15	245
424	162500	150	288	527	371	220	423.5	9	1	135.5	300	140	145	2LC0331-2AG	16	360

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Notes

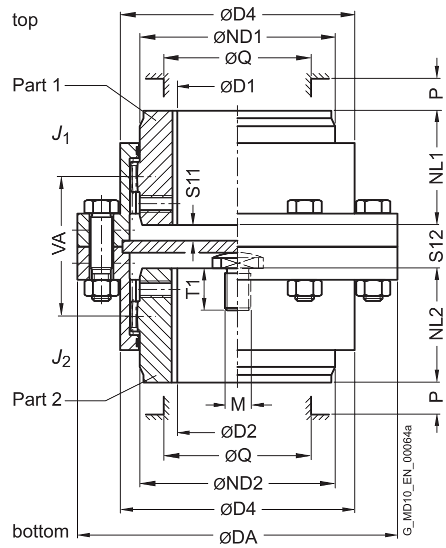
- VA = 2 · VA1 + LZ
- Mass moment of inertia on request.
- Weights apply to the entire coupling with maximum bores and an adapter length of LZ min.
- Maximum speed, limited by weight and critical adapter speed, on request.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Ordering example

- ZAPEX ZNZA coupling, size 107, adapter for S = 250 mm
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: 2LC0330-1AG99-0AZ0-Z L0W+M1A+Q0Y+M13
Plain text to Q0Y: 250 mm (dimension S)

TYPE ZNNV



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm: D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	D4	S11	S12	VA1	Q	P	Mass moment of inertia J_1/J_2 kgm²	↗ Article no. [1]	Weight m kg
83	1020	8500	0	50	117	67	43	83	8	21	55	52	31	0.003	2LC0330-0AH	3.5
107	2210	7700	0	65	152	87	50	107	4.5	15	59	68	34	0.009	2LC0330-1AH	6.6
130	4020	6900	0	82	178	108	62	129.5	12.5	31	79	85	42	0.023	2LC0330-2AH	10.5
156	6600	6200	0	100	213	130	76	156	10.5	29	93	110	47	0.055	2LC0330-3AH	17
181	11000	5800	0	116	240	153	90	181	12.5	33	109	130	58	0.1	2LC0330-4AH	25.5
211	19200	5100	0	137	280	180	105	211	15	40	128	150	67	0.22	2LC0330-5AH	40
250	30680	4500	0	164	318	214	120	249.5	17	42	144	175	72	0.37	2LC0330-6AH	54
274	43550	4000	80	178	347	233	135	274	19.5	50	164	190	81	0.64	2LC0330-7AH	87
307	61750	3750	90	198	390	260	150	307	22	56	182	220	91	1.2	2LC0330-8AH	130
333	87100	3550	100	216	425.5	283	175	332.5	29	70	214	250	104	1.8	2LC0331-0AH	160
364	117000	3400	120	242	457	312	190	364	36	84	236	265	126	2.6	2LC0331-1AH	190
424	162500	3200	150	288	527	371	220	423.5	30	76	263	300	140	5.4	2LC0331-2AH	270

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to the entire coupling with maximum bores.
- When ordering, state thread size M and thread length T1 of the thrust piece.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Ordering example

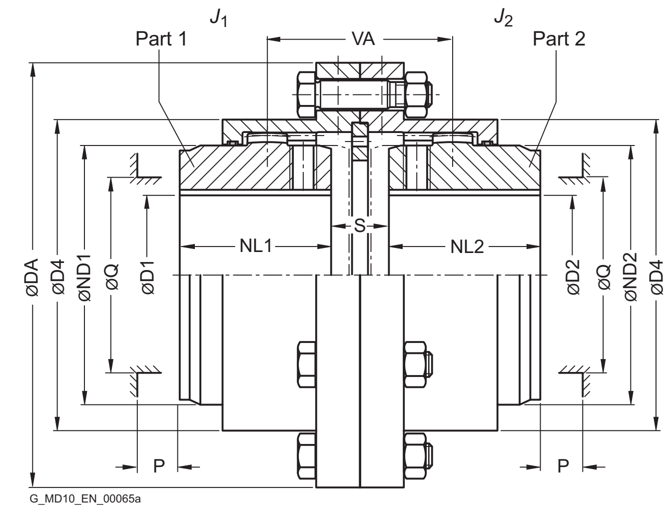
- ZAPEX ZNNV coupling, size 107
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw, thread M10 x 20 deep.

Article no.: 2LC0330-1AH99-0AA0-Z L0W+M1A+M13+Y99
Plain text to Y99: Thread M10 x 20

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options , please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ZNN FOR AXIAL DISPLACEMENT



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	D4	S min.	max.	VA	Q	P	Mass moment of inertia J_1/J_2 kgm²	↗ Article no. [1]	Weight m kg
83	1020	8500	0	50	117	67	43	83	6	21	55	52	31	0.003	2LC0330-0AY	3.3
107	2210	7700	0	65	152	87	50	107	7	15	59	68	34	0.01	2LC0330-1AY	6.7
130	4020	6900	0	82	178	108	62	129.5	16	31	79	85	42	0.021	2LC0330-2AY	10.5
156	6600	6200	0	100	213	130	76	156	11	29	93	110	47	0.05	2LC0330-3AY	18
181	11000	5800	0	116	240	153	90	181	11	33	109	130	58	0.095	2LC0330-4AY	26.5
211	19200	5100	0	137	280	180	105	211	14	40	128	150	67	0.22	2LC0330-5AY	44
250	30680	4500	0	164	318	214	120	249.5	12	42	144	175	72	0.4	2LC0330-6AY	62
274	43550	4000	80	178	347	233	135	274	16	50	164	190	81	0.64	2LC0330-7AY	82
307	61750	3750	90	198	390	260	150	307	17	56	182	220	91	1.1	2LC0330-8AY	115
333	87100	3550	100	216	425.5	283	175	332.5	17	70	214	250	104	1.8	2LC0331-0AY	155
364	117000	3400	120	242	457	312	190	364	17	84	236	265	126	2.4	2LC0331-1AY	185
424	162500	3200	150	288	527	371	220	423.5	23	76	263	300	140	4.9	2LC0331-2AY	285

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- VA Valid at S max.
- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to the entire coupling with maximum bores.
- Q Diameter required for renewing the sealing rings.
  P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Ordering example

- ZAPEX ZNN coupling for axial displacement, size 107, S min. = 7 mm, S max. = 15 mm
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw
- Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw

Article no.: **2LC0330-0AY99-0AA0-Z L0W+M1A+M13**

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

CUSTOMIZED HUB DESIGN

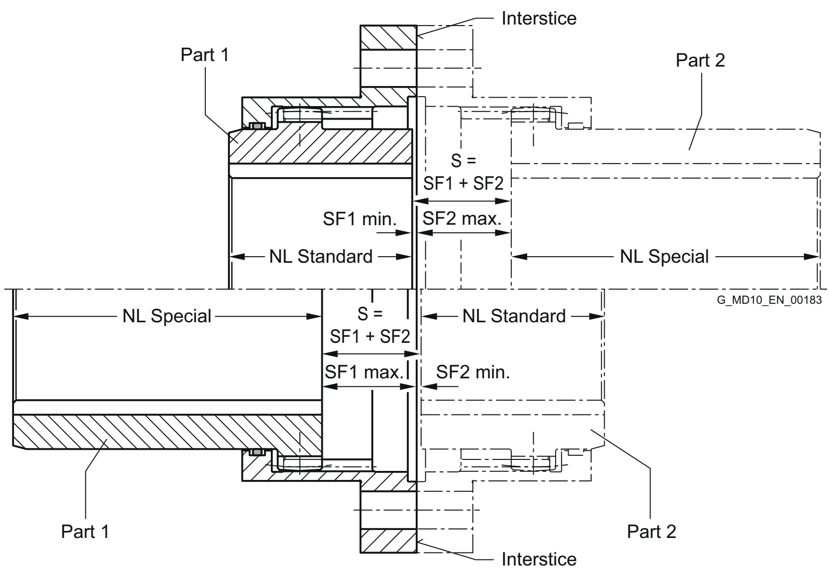
ZAPEX couplings can be provided with customized S-dimensions and hub lengths.

The entire dimension S results from the sum of the individual measurements SF1 and SF2. SF1 and SF2 are the measurements from the interstice of the coupling ring flange up to the beginning of the respective hub. As standard SF1 and SF2 are identical to each other and the entire S-dimension arises in accordance with them.

SF1 and SF2 can be chosen different on customer request, however the minimal and maximum values of the following table have to be observed. Within these limits the measurements SF1 and SF2 may be chosen freely.

The distance VA of the coupling teeth, the permitted bore diameter and the hub diameter remain unchanged.

By stating the hub S-dimension and both hub lengths the coupling is completely described.



Geometric data			
Size	Standard hub length NL mm	Minimal dimension SF1 or SF2 mm	Maximum dimension SF1 or SF2 mm
83	43	1.5	22
107	50	1.5	23.5
130	62	1.5	32
156	76	2.5	36.5
181	90	2.5	43.5
211	105	3	51
250	120	3	59
274	135	4	64.5
307	150	4	72
333	175	4	85
364	190	4	92
424	220	5	100

The minimal hub lengths are not to fall below the standard hub lengths. If there's no other possibility, for hub lengths smaller than standard hub lengths the order codes **"Y50"** for part 1 and **"Y51"** for part 2 must be stated in plain text.

Article number

The Article number of the respective ZAPEX coupling type must be supplemented with **"-Z"** and order codes for non standard SF-dimensions (order code **"Y38"** for part 1 and **"Y39"** for part 2). For no standard hub lengths the order codes **"Y40"** to **"Y49"** must be specified (see **Page 5/17**).

Ordering example

- ZAPEX coupling ZNN 130, variant A
- Hub left: Bore D1 = 70H7 mm,
  keyway to DIN 6885-1 P9 and set screw;
  NL1 = 110 mm; SF1 = 10 mm
- Hub right: Bore D2 = 75H7 mm,
  keyway to DIN 6885-1 P9and set screw;
  NL2 = 75 mm; SF2 = 25 mm

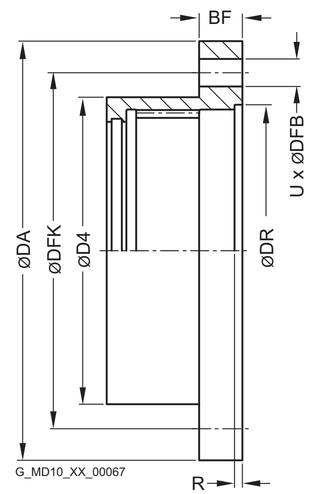
Article no.: 2LC0330-2AA99-0AA0-Z L1G M1H Y38 Y39 Y41 Y46
Plain text to Y38: SF1 = 10 mm
Plain text to Y39: SF2 = 25 mm
Plain text to Y46: NL1 = 110 mm
Plain text to Y41: NL2 = 75 mm

Order code for hub prolongations Y4. (Std-NL = Standard hub length)

Part 1 Selected (special) hub length min.	 max.	 Order code (specification of hub length in plain text)
>Std-NL	≤1.25 · Std-NL	Y40
>1.25 · Std-NL	≤1.5 · Std-NL	Y42
>1.5 · Std-NL	≤1.75 · Std-NL	Y44
>1.75 · Std-NL	≤2 · Std-NL	Y46
>2 · Std-NL		Y48

Part 2 Selected (special) hub length min.	 max.	 Order code (specification of hub length in plain text)
>Std-NL	≤1.25 · Std-NL	Y41
>1.25 · Std-NL	≤1.5 · Std-NL	Y43
>1.5 · Std-NL	≤1.75 · Std-NL	Y45
>1.75 · Std-NL	≤2 · Std-NL	Y47
>2 · Std-NL		Y49

TYPE ZN – FLANGE CONNECTION DIMENSIONS



Size	Dimensions in mm							
	DA	BF	D4	DFK	DFB	U Number	DR	R
83	117	14	83	100	9	6	82	2.5
107	152	19	107	131	11	6	105	3
130	178	19	129.5	157	11	8	130	3
156	213	22	156	188	13	6	153	4
181	240	22	181	213	13	10	178	4
211	280	28.5	211	249	17	8	205	5
250	318	28.5	249.5	287	17	10	243	4
274	347	28.5	274	315	17	12	265	5.5
307	390	38	307	352	21	12	302	6
333	425.5	38	332.5	385	21	14	320	6
364	457	26	364	416	21	16	353	6
424	527	28.5	423.5	482	25	16	412	8

SPARE AND WEAR PARTS

Sealing rings

The sealing rings are wear parts and must be replaced in accordance with the operating instructions.

Size	Hub diameter ND1/ND2 mm	Article No.
83	67	2LC0330-0XE00-0AA0
107	87	2LC0330-1XE00-0AA0
130	108	2LC0330-2XE00-0AA0
156	130	2LC0330-3XE00-0AA0
181	153	2LC0330-4XE00-0AA0
211	180	2LC0330-5XE00-0AA0
250	214	2LC0330-6XE00-0AA0
274	233	2LC0330-7XE00-0AA0
307	260	2LC0330-8XE00-0AA0
333	283	2LC0331-0XE00-0AA0
364	312	2LC0331-1XE00-0AA0
424	371	2LC0331-2XE00-0AA0

High-performance grease

Container	Content g	Article No.
Cartridge	300	FFA:000000501027

Sealing compound

Container	Content ml	Article No.
Tube	60	FFA:000001443780

TORSIONALLY RIGID ALL-STEEL COUPLINGS N-ARPEX AND ARPEX SERIES

6

N-ARPEX

FLENDER

GENERAL

Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

II 2G Ex h IIC T6 ... T2 Gb X

II 2D Ex h IIIC T85 °C ... 250 °C Db X

I M2 Ex h Mb X

Benefits

N-ARPEX couplings of the ARN-6/-8/-10 series are outstanding for their application-optimized construction. The NEN, BEB, MCECM, MFEFM series meet the requirement of **API 610**. Coupling type in accordance with **API 671** is also possible. For speeds of over 1,800 rpm the five-part version with pre-assembled intermediate unit is used.

A special catching device acts to secure the intermediate spacer in the event of plate breakage. Application of the N-ARPEX couplings in potentially explosive atmospheres in accordance with the current ATEX Directive is permitted.

GENERAL

Application

N-ARPEX couplings of the ARN-6/-8/-10 series are used wherever reliable torque transmission is called for, even in cases of often unavoidable shaft misalignment. They are universally applicable over a temperature range of from -50 °C (or even as low as -60 °C on request) up to +280 °C, are torsionally rigid, free of torsional backlash and enable quiet running at a constant angular velocity. They are wear-free and maintenance-free and, if correctly fitted, can be expected to have an unlimited service life.

Especial consideration is given to use in pump and compressor drives. Available for this are couplings with standardised intermediate spacer lengths from stock (see following tables).

Main areas of application for the ARN-6/-8-/10 series:

- Pumps
- Fans
- Compressors
- Generator and turbine drives
- Axial and radial blowers
- Paper-making machines and printing machines
- Mixers, Stirrers
- Extruders
- Lifting and traversing gears
- Marine drive
- Water screw drives

6

By the launch of the new FLENDER N-ARPEX all-steel multiple-disk couplings Flender is continuing the success story of the proven ARPEX coupling series.

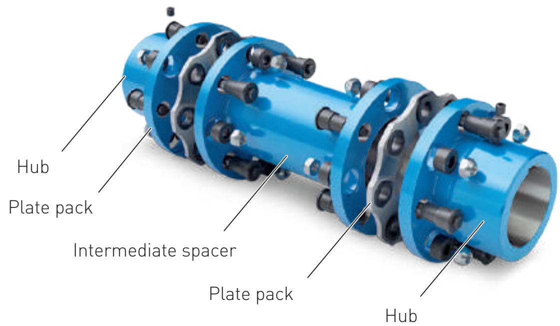
An optimised plate pack and a reworked component part design enable even higher torques and speeds to be transmitted.

In short, the new design of the plate packs, the closed flange geometry, the standard catching device of the intermediate spacer and FEM-optimised force distribution inside the all-steel multiple-disk coupling clearly show that the development has paid off.

Design and configurations

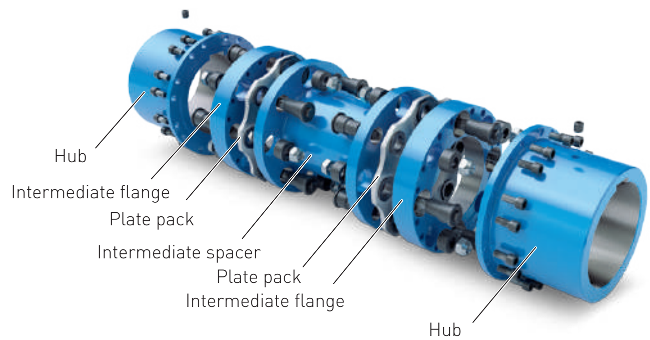
NEN

The design of an N-ARPEX type NEN is shown in the following illustration. The coupling comprises two hubs, an intermediate spacer and two plate packs that in the ARN-6 series are bolted together alternatingly with close-fitting bolts and in the ARN-8/-10 series by means of a Flender conical screw connection. The coupling is available in fixed lengths from stock. Other spacer lengths are manufactured to order. Hubs are designed with threaded pull-off holes.



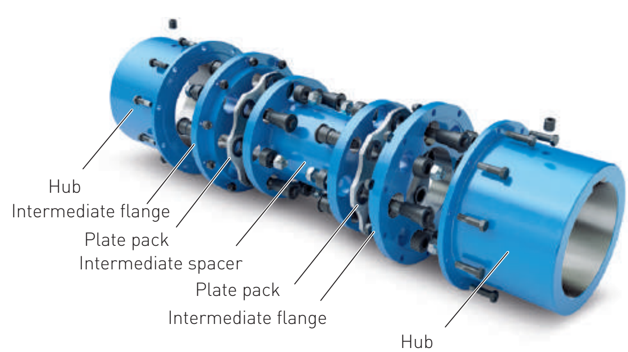
MCECM

The design of an N-ARPEX type MCECM is shown in the following illustration. The coupling comprises two hubs and a pre-assembled intermediate unit (CEC), where the plate packs are bolted together with an intermediate spacer and intermediate flanges at the factory. All that need be done at the construction site is to bolt the hubs with the intermediate flanges. The coupling is available in fixed lengths from stock. Other spacer lengths are manufactured to order. Hubs are designed with threaded pull-off holes.



MFEFM

The following illustration shows the N-ARPEX type MFEFM. It most differs from the type MCECM by the considerably increased bore capacity, for which reason this type is intended precisely for comparatively large shaft diameters. The coupling is available in fixed lengths from stock. Other spacer lengths are manufactured to order. Hubs are designed with threaded pull-off holes.



6

GENERAL

Variants of the N-ARPEX coupling, ARN-6/-8/-10 series

Type	Series ARN-6	ARN-8	ARN-10	Description
NEN	■	■	■	Variant with intermediate spacer machined on all sides, length variable
BEB	■	–	–	Variant with intermediate spacer machined on all sides
MCECM	■	■	–	Variant with preassembled intermediate unit and intermediate spacer machined on all sides, length variable
MFEFM	■	■	■	
NHN	■	■	■	Version with variable spacer tube – specially for greater shaft distances (up to 6,500 mm)
MCHCM	■	■	–	Version with pre-assembled intermediate unit and with variable spacer tube – specially for greater shaft distances (up to 6,500 mm)
MFHFM	■	■	■	

The coupling parts of the N-ARPEX ARN-6/-8/-10 series with the exception of the H spacers have been machined on all sides. The H spacers are delivered with unmachined, primed spacer tube.

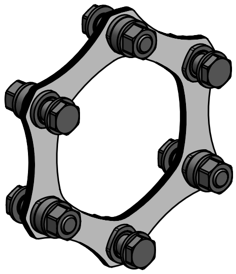
Dimension sheets and 3D models of the standard types as well as application-related coupling types are available from the DTK selection module at **flender.com**.

6

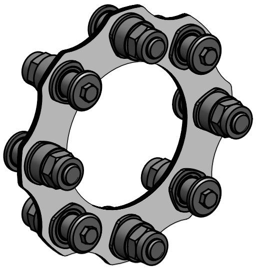
Plate-pack designs

The plate packs of the N-ARPEX ARN series are designed with hexagon, octagon and decagon plates, depending on the coupling size. The number of screw connections is indicated in the denomination of the ARN-6/-8/-10 series. Hexagon plates have 6 bolting points, octagon plates have 8 bolting points and decagon plates have 10 bolting points.

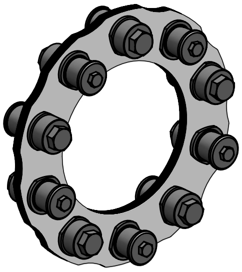
The hexagon plates, octagon plates and decagon plates up to size 631 are designed as ring plates. Sizes 694 to 988 are designed as segmented plates.



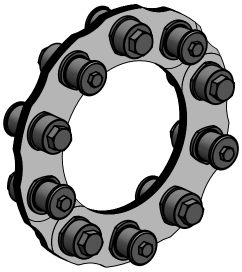
Size 86-6 to 343-6
(hexagon plates)



Size 219-8 to 631-8
(octagon plates)



Size 495-10 to 631-10
(decagon plates)

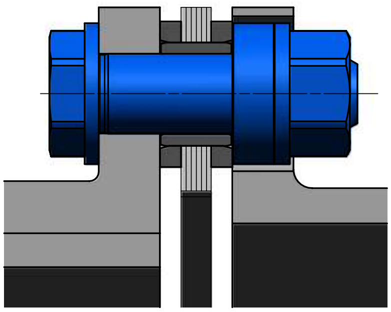


Size 694-10 to 988-10
(decagon plates/segment)

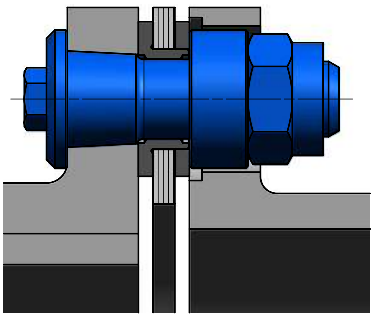
Plate pack screw connection

In the ARN-6 series the plate pack screw connection on N-ARPEX couplings is designed in the form of a close-fitting screw connection. In the ARN-8 and ARN-10 series a conical bolt connection by Flender is used.

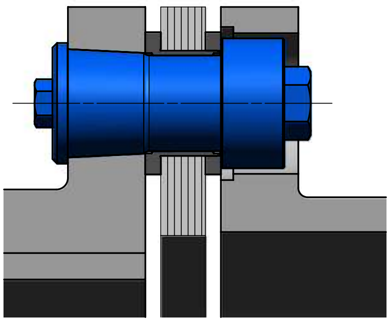
The advantage of this screw connection is the considerably simplified installation in the case of large screw connections.



Screw connection / ARN-6 series
Size 86-6 – 343-6



Screw connection / ARN-8 series
Size 219-8 to 354-8



Screw connection / ARN-8 /-10 series
Size 387-8 to 631-8 / Size 495-10 to 988-10

GENERAL

Technical specifications

Power ratings, NEN/NHN, BEB, MCECM/MCHCM and MFEFM/MFHFM series

Size	Type	Rated torque	Maxi-mum torque	Overload torque	Fatigue torque				Maxi-mum speed	Maximum permitted shaft misalignment (The permissible radial misalignment ΔK_r depends on the total length of the coupling)		Torsional stiffness for a plate pack
DA		T_{KN}	T_{Kmax}	T_{KOL}	T_{Kw0}	$T_{Kw} = T_{Kw0} \cdot (1 - T_N/T_{KN})$			n_{Kmax}	$\pm\Delta K_a$	$\pm\Delta K_w$	C_{Tdyn}
					$T_N = 0\% T_{KN}$	$25\% T_{KN}$	$50\% T_{KN}$	$75\% T_{KN}$				
mm		kNm	kNm	kNm	kNm	kNm	kNm	kNm	rpm	mm		MNm/rad
86-6	6-Bolt	0.35	0.7	0.875	0.175	0.131	0.088	0.044	24000	1.2	1.0 °	0.132
103-6		0.5	1	1.25	0.25	0.188	0.125	0.063	20000	1.4		0.206
122-6		0.95	1.9	2.375	0.475	0.356	0.238	0.119	17000	2		0.463
133-6		1.25	2.5	3.125	0.625	0.469	0.313	0.156	15000	2.2		0.608
159-6		2.1	4.2	5.25	1.05	0.788	0.525	0.263	13000	2.6		0.986
174-6		2.5	5	6.25	1.3	0.975	0.65	0.325	12000	3		1.19
184-6		3.8	7.6	9.5	1.9	1.425	0.95	0.475	11000	3.2		1.83
203-6		5	10	12.5	2.5	1.875	1.25	0.625	10000	3.4		2.59
217-6		6.2	12.4	15.5	3.1	2.325	1.55	0.775	9500	3.4		3.28
251-6		10.5	21	26.25	5.5	4.125	2.75	1.375	8000	4.1		4.71
268-6		13.8	27.6	34.5	6.9	5.175	3.45	1.725	7500	4.2		5.63
291-6		18.2	36.4	45.5	9.1	6.825	4.55	2.275	7000	4.6		8.27
318-6		23	46	57.5	11.5	8.625	5.75	2.875	6500	5		10.94
343-6		28	56	70	14	10.5	7	3.5	6000	5.3		12.15
219-8	8-Bolt	10	20	25	5	3.75	2.5	1.25	9500	1.7	0.4 °	6.31
241-8		15	30	37	7.5	5.625	3.75	1.875	8700	1.9		7.64
262-8		20	40	50	10	7.5	5	2.5	8000	2.1		9.09
285-8		27	54	67	13.5	10.125	6.75	3.375	7300	2.2		11.9
302-8		35	70	87	17.5	13.125	8.75	4.375	6900	2.4		16.2
321-8		43	86	107	21.5	16.125	10.75	5.375	6500	2.5		21.9
354-8		56	112	140	28	21	14	7	5900	3		29.1
387-8		72	144	180	36	27	18	9	5400	3.3		40
411-8		93	186	232	46.5	34.875	23.25	11.625	5100	3.4		46.9
447-8		122	244	305	61	45.75	30.5	15.25	4600	2.5		60.3
495-8		160	320	400	80	60	40	20	4200	3		76.9
546-8		212	424	530	106	79.5	53	26.5	3800	3.4		100
587-8		270	540	675	135	101.25	67.5	33.75	3500	3.6		116
631-8		350	700	875	175	131.25	87.5	43.75	3300	3.8		138
495-10	10-Bolt	200	350	450	80	60	40	20	4200	2	0.3 °	150
546-10		270	473	608	108	81	54	27	3800	2.3		194
587-10		352	616	792	140.8	105.6	70.4	35.2	3500	2.4		236
631-10		450	788	1013	180	135	90	45	3300	2.5		274
694-10		630	1103	1418	252	189	126	63	3000	2.7	0.2 °	405
734-10		760	1330	1710	304	228	152	76	2800	2.8		501
790-10		950	1663	2138	380	285	190	95	2600	3		632
887-10		1400	2450	3150	560	420	280	140	2300	3.5		858
988-10		2000	3500	4500	800	600	400	200	2100	3.9		1163

Notes

- The permitted shaft misalignments ΔK_a, ΔK_r and ΔK_w are maximum values and must not occur at the same time (see table on page **6/9**).
- The maximum permissible radial misalignment depends on the shaft distance S. It can be determined for the stated types by using the following formulas:
  NEN/NHN: $\Delta K_r = (S - S1) \cdot \tan(\Delta K_w)$
  BEB, MCECM/ MCHCM and MFEFM/ MFHFM: $\Delta K_r = (LZ + S1) \cdot \tan(\Delta K_w)$
- T_{Kmax} is permitted five times per hour.
- Length-related values like torsional stiffness, total weight and mass moment of inertia are listed in the tables on **pages 6/23 to 6/25**.
- The torsional stiffness of the plate packs relates to the nominal range of the coupling. For determination of torsional stiffness for a specific operating point outside the nominal range Flender must be consulted.

Permitted shaft misalignments, types NEN/NHN, BEB, MCECM/MCHCM and MFEFM/MFHFM

The permitted shaft misalignments ΔK_a, ΔK_r and ΔK_w are maximum values and must not occur at the same time. The specified axial misalignments apply to the complete coupling. The permissible angular misalignments have been specified per coupling joint. As all N-ARPEX types are designed to be double-jointed, there is a direct interrelation between radial and angular misalignment.

NEN/NHN: $\Delta K_r = (S - S1) \cdot \tan(\Delta K_w)$

BEB, MCECM/MCHCM and MFEFM/MFHFM: $\Delta K_r = (LZ + S1) \cdot \tan(\Delta K_w)$

To determine the permissible misalignment, values must, if necessary, be converted.

Size	Permitted angular misalignment $\pm\Delta K_w$									
	0.0 °	0.1 °	0.2 °	0.3 °	0.4 °	0.5 °	0.6 °	0.7 °	0.8 °	0.9 °	1.0 °
DA	Permitted axial misalignment $\pm\Delta K_a$ in mm										
86-6	1.2	1.1	1	0.8	0.7	0.6	0.5	0.4	0.2	0.1	0
103-6	1.4	1.3	1.1	1	0.8	0.7	0.6	0.4	0.3	0.1	0
122-6	2	1.8	1.6	1.4	1.2	1	0.8	0.6	0.4	0.2	0
133-6	2.2	2	1.8	1.5	1.3	1.1	0.9	0.7	0.4	0.2	0
159-6	2.6	2.3	2.1	1.8	1.6	1.3	1	0.8	0.5	0.3	0
174-6	3	2.7	2.4	2.1	1.8	1.5	1.2	0.9	0.6	0.3	0
184-6	3.2	2.9	2.6	2.2	1.9	1.6	1.3	1	0.6	0.3	0
203-6	3.4	3.1	2.7	2.4	2	1.7	1.4	1	0.7	0.3	0
217-6	3.4	3.1	2.7	2.4	2	1.7	1.4	1	0.7	0.3	0
251-6	4.1	3.7	3.3	2.9	2.5	2.1	1.6	1.2	0.8	0.4	0
268-6	4.2	3.8	3.4	2.9	2.5	2.1	1.7	1.3	0.8	0.4	0
291-6	4.6	4.1	3.7	3.2	2.8	2.3	1.8	1.4	0.9	0.5	0
318-6	5	4.5	4	3.5	3	2.5	2	1.5	1	0.5	0
343-6	5.3	4.8	4.2	3.7	3.2	2.7	2.1	1.6	1.1	0.5	0
219-8	1.7	1.28	0.85	0.43	0	-	-	-	-	-	-
241-8	1.9	1.43	0.95	0.48	0	-	-	-	-	-	-
262-8	2.1	1.58	1.05	0.53	0	-	-	-	-	-	-
285-8	2.2	1.65	1.1	0.55	0	-	-	-	-	-	-
302-8	2.4	1.8	1.2	0.6	0	-	-	-	-	-	-
321-8	2.5	1.88	1.25	0.63	0	-	-	-	-	-	-
354-8	3	2.25	1.5	0.75	0	-	-	-	-	-	-
387-8	3.3	2.48	1.65	0.83	0	-	-	-	-	-	-
411-8	3.4	2.55	1.7	0.85	0	-	-	-	-	-	-
447-8	2.5	1.88	1.25	0.63	0	-	-	-	-	-	-
495-8	3	2.25	1.5	0.75	0	-	-	-	-	-	-
546-8	3.4	2.55	1.7	0.85	0	-	-	-	-	-	-
587-8	3.6	2.7	1.8	0.9	0	-	-	-	-	-	-
631-8	3.8	2.85	1.9	0.95	0	-	-	-	-	-	-
495-10	2	1.33	0.67	0	-	-	-	-	-	-	-
546-10	2.3	1.53	0.77	0	-	-	-	-	-	-	-
587-10	2.4	1.6	0.8	0	-	-	-	-	-	-	-
631-10	2.5	1.67	0.83	0	-	-	-	-	-	-	-
694-10	2.7	1.35	0	-	-	-	-	-	-	-	-
734-10	2.8	1.4	0	-	-	-	-	-	-	-	-
790-10	3	1.5	0	-	-	-	-	-	-	-	-
887-10	3.5	1.75	0	-	-	-	-	-	-	-	-
988-10	3.9	1.95	0	-	-	-	-	-	-	-	-

6

GENERAL

Available standard dimensions for the shaft spacing S

Type NEN/NHN

Size DA mm	Shaft distance S NEN min. mm	Shaft distance S NHN min. mm	Preferred dimension V NEN	100	140	180	200	250	300	(88.9) 3.5"	(127) 5"	(177.8) 7"	(228.6) 9"	-
86-6	60	300	**100**	■	▒	▒	▒	▒		▒	▒	▒		
103-6	60	300	**100**	■	▒	▒	▒	▒		▒	▒	▒		
122-6	71	300	**100**	■	▒	▒	▒	▒		▒	▒	▒	▒	
133-6	73	300	**100**	■	▒	▒	▒	▒		▒	▒	▒	▒	
159-6	91	300	**100**	■	▒	▒	▒	▒		▒	▒	▒	▒	
174-6	92	300	**100**	■	▒	▒	▒	▒			▒	▒	▒	
184-6	119	350	**140**		■	▒	▒	▒			▒	▒	▒	
203-6	120	350	**140**		■	▒	▒	▒			▒	▒	▒	
217-6	123	350	**140**		■	▒	▒	▒			▒	▒	▒	
251-6	149	350	**180**			■	▒	▒				▒	▒	
268-6	175	350	**180**			■	▒	▒				▒	▒	
291-6	177	350	**180**			■	▒	▒				▒	▒	
318-6	189	400	**200**				■	▒	▒				▒	
343-6	190	400	**200**				■	▒	▒				▒	
219-8	129	350	**140**		■									
241-8	135	350	**140**		■									
262-8	145	350	**180**			■								
285-8	162	350	**180**			■								
302-8	179	350	**180**			■								
321-8	196	400	**200**				■							
354-8	214	400	**250**					■						
387-8	246	400	**250**					■						
411-8	256	400	**300**						■					
447-8	270	400	**300**						■					
495-8	281	600	**300**						■					
546-8	299	600	**300**						■					
587-8	315	600	**320**											■
631-8	334	600	**340**											■
495-10	281	600	**300**						■					
546-10	299	600	**300**						■					
587-10	315	600	**320**											■
631-10	334	600	**340**											■
694-10	400	600	**400**											■
734-10	436	600	**440**											■
790-10	466	750	**470**											■
887-10	543	750	**550**											■
988-10	617	750	**620**											■

Type MCECM/MCHCM

Size DA mm	Shaft distance S MCECM min. mm	Shaft distance S MCHCM min. mm	Preferred dimension V MCECM	100	140	180	200	250	300	(127) 5"	(177.8) 7"	(228.6) 9"	-
86-6	100	340	**140**	▒	■	▒	▒	▒		▒	▒	▒	
103-6	100	340	**140**	▒	■	▒	▒	▒		▒	▒	▒	
122-6	111	340	**140**		■	▒	▒	▒		▒	▒	▒	
133-6	113	340	**140**		■	▒	▒	▒			▒	▒	
159-6	131	340	**140**		■	▒	▒	▒			▒	▒	
174-6	132	340	**140**		■	▒	▒	▒			▒	▒	
184-6	179	410	**200**				■	▒				▒	
203-6	180	410	**200**				■	▒				▒	
217-6	183	410	**200**				■	▒				▒	
251-6	219	420	**250**					■				▒	
268-6	245	420	**250**					■					
291-6	247	420	**250**					■					
318-6	289	500	**300**						■				
343-6	290	500	**300**						■				

■ Preferred dimensions   ▒ Available standard dimensions

Type MCECM/MCHCM

Size DA mm	Shaft distance S MCECM min. mm	Shaft distance S MCHCM min. mm	Preferred dimension V MCECM	100	140	180	200	250	300	(127) 5"	(177.8) 7"	(228.6) 9"	-
219-8	207	428	**218**										■
241-8	217	432	**222**										■
262-8	233	438	**268**										■
285-8	260	448	**278**										■
302-8	285	456	**286**										■
321-8	308	512	**312**										■
354-8	330	516	**366**										■
387-8	338	492	**342**										■
411-8	350	494	**394**										■
447-8	372	502	**402**										■
495-8	387	706	**406**										■
546-8	413	714	**414**										■
587-8	435	720	**440**										■
631-8	458	724	**464**										■

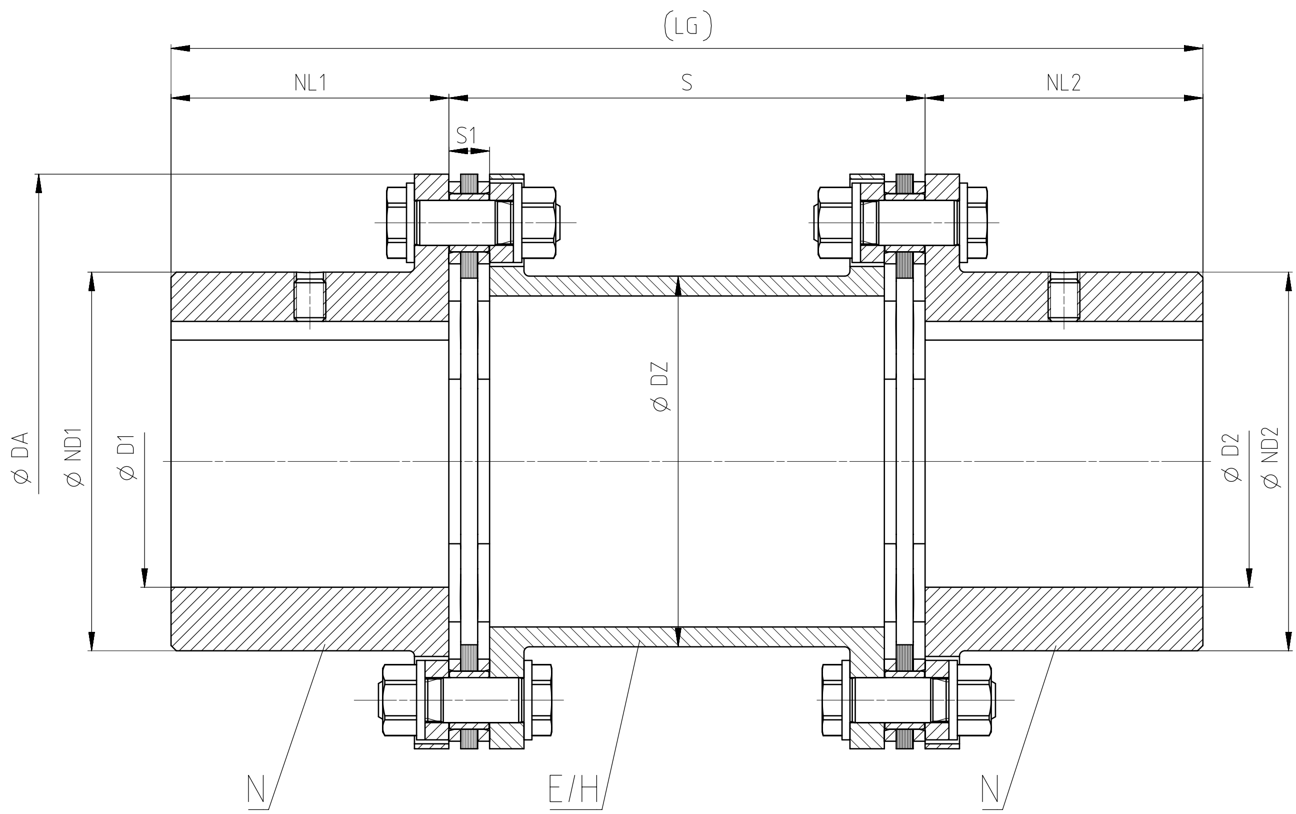
Type MFEFM/MFHFM

Size DA mm	Shaft distance S MFEFM min. mm	Shaft distance S MFHFM min. mm	Preferred dimension V MFEFM	100	140	180	200	250	300	(127) 5"	(177.8) 7"	(228.6) 9"	-
86-6	100	340	**140**		■								
103-6	100	340	**140**		■								
122-6	111	340	**140**		■								
133-6	113	340	**140**		■								
159-6	131	340	**140**		■								
174-6	132	340	**140**		■								
184-6	179	410	**200**				■						
203-6	180	410	**200**				■						
217-6	183	410	**200**				■						
251-6	219	420	**250**					■					
268-6	245	420	**250**					■					
291-6	297	470	**300**						■				
318-6	289	500	**300**						■				
343-6	290	500	**300**						■				
219-8	207	428	**218**										■
241-8	217	432	**222**										■
262-8	233	438	**268**										■
285-8	260	448	**278**										■
302-8	285	456	**286**										■
321-8	308	512	**312**										■
354-8	330	516	**366**										■
387-8	338	492	**342**										■
411-8	350	494	**394**										■
447-8	372	502	**402**										■
495-8	387	706	**406**										■
546-8	413	714	**414**										■
587-8	435	720	**440**										■
631-8	458	724	**464**										■
495-10	387	706	**406**										■
546-10	413	714	**414**										■
587-10	435	720	**440**										■
631-10	458	724	**464**										■
694-10	552	752	**552**										■
734-10	600	764	**604**										■
790-10	646	930	**650**										■
887-10	749	956	**756**										■
988-10	857	900	**860**										■

■ Preferred dimensions   Available standard dimensions

TYPE NEN/NHN

Torsionally rigid couplings of type NEN (NHN) with radially freely demountable intermediate spacer and catching device to secure the intermediate spacer in the event of plate breakage. Standard coupling type in accordance with **API 610**. Coupling type in accordance with **API 671** (up to *n* = 1800 rpm) possible.



Size	Rated torque	Maximum speed	Dimensions in mm									↗ Article no. [1]		Weight
DA	T_{KN}	n_{Kmax}	D1/D2 Keyway DIN 6885-1	ND1/ ND2	NL1/ NL2	DZ	S1	Shaft distance S		Preferred dimension V	LG	Intermediate spacer		*m*
								NEN	NHN	NEN		E spacer (NEN)	H spacer (NHN)	
mm	kNm	rpm	max.					min.	min.					kg
86-6	**0.35**	24000	**42**	56	45	45	8	60	300	100	190	**2LC0370-0AA**	**2LC0370-0AL**	1.9
103-6	**0.5**	20000	**55**	73	55	60	8.4	60	300	100	210	**2LC0370-1AA**	**2LC0370-1AL**	3
122-6	**0.95**	17000	**65**	85	65	73	8.8	71	300	100	230	**2LC0370-2AA**	**2LC0370-2AL**	5.1
133-6	**1.25**	15000	**75**	96	75	85	9.6	73	300	100	250	**2LC0370-3AA**	**2LC0370-3AL**	6.4
159-6	**2.1**	13000	**80**	104	80	97	11.6	91	300	100	260	**2LC0370-4AA**	**2LC0370-4AL**	9.6
174-6	**2.5**	12000	**90**	118	85	116	12.8	92	300	100	270	**2LC0370-5AA**	**2LC0370-5AL**	11.8
184-6	**3.8**	11000	**95**	124	90	123	14.6	119	350	140	320	**2LC0370-6AA**	**2LC0370-6AL**	16.4
203-6	**5**	10000	**100**	135	95	128	15	120	350	140	330	**2LC0370-7AA**	**2LC0370-7AL**	21.3
217-6	**6.2**	9500	**110**	143	105	140	15.4	123	350	140	350	**2LC0370-8AA**	**2LC0370-8AL**	24.4
251-6	**10.5**	8000	**120**	160	110	160	20.6	149	350	180	400	**2LC0371-0AA**	**2LC0371-0AL**	38
268-6	**13.8**	7500	**130**	170	130	166	22	175	350	180	440	**2LC0371-1AA**	**2LC0371-1AL**	48.6
291-6	**18.2**	7000	**145**	190	140	188	22.8	177	350	180	460	**2LC0371-2AA**	**2LC0371-2AL**	62.8
318-6	**23**	6500	**155**	205	150	197	23.2	189	400	200	500	**2LC0371-3AA**	**2LC0371-3AL**	83.9
343-6	**28**	6000	**170**	230	160	223	24	190	400	200	520	**2LC0371-4AA**	**2LC0371-4AL**	104

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) The S shaft spacing standard dimensions available for each size can be found on **Page 6/10**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque	Maximum speed	Dimensions in mm									↗ Article no. 1)		Weight
DA	T_{KN}	n_{Kmax}	D1/D2 Keyway DIN 6885-1	ND1/ ND2	NL1/ NL2	DZ	S1	Shaft distance S		Preferred dimension V	LG	Intermediate spacer		m
								NEN	NHN	NEN		E spacer (NEN)	H spacer (NHN)	
mm	kNm	rpm	max.					min.	min.					kg
219-8	**10**	9500	**100**	137	115	124	12.2	129	350	140	370	**2LC0380-0AA**	**2LC0380-0AL**	31.9
241-8	**15**	8700	**110**	150	127	135	12.6	135	350	140	394	**2LC0380-1AA**	**2LC0380-1AL**	41.3
262-8	**20**	8000	**120**	163	138	148	13.8	145	350	180	456	**2LC0380-2AA**	**2LC0380-2AL**	53.8
285-8	**27**	7300	**130**	177	150	162	15.2	162	350	180	480	**2LC0380-3AA**	**2LC0380-3AL**	70.8
302-8	**35**	6900	**140**	192	161	174	17.2	179	350	180	502	**2LC0380-4AA**	**2LC0380-4AL**	89.4
321-8	**43**	6500	**150**	206	173	189	21	196	400	200	546	**2LC0380-5AA**	**2LC0380-5AL**	109
354-8	**56**	5900	**170**	232	196	216	23.6	214	400	250	642	**2LC0380-6AA**	**2LC0380-6AL**	149
387-8	**72**	5400	**190**	258	219	240	26	246	400	250	688	**2LC0380-7AA**	**2LC0380-7AL**	193
411-8	**93**	5100	**200**	272	230	250	29.6	256	400	300	760	**2LC0380-8AA**	**2LC0380-8AL**	236
447-8	**122**	4600	**220**	299	253	275	32.6	270	400	300	806	**2LC0381-0AA**	**2LC0381-0AL**	299
495-8	**160**	4200	**250**	340	288	312	33.8	281	600	300	876	**2LC0381-1AA**	**2LC0381-1AL**	402
546-8	**212**	3800	**280**	381	322	351	40	299	600	300	944	**2LC0381-2AA**	**2LC0381-2AL**	547
587-8	**270**	3500	**300**	408	345	363	45	315	600	320	1010	**2LC0381-3AA**	**2LC0381-3AL**	690
631-8	**350**	3300	**320**	435	368	399	48.8	334	600	340	1076	**2LC0381-4AA**	**2LC0381-4AL**	835
495-10	**200**	4200	**250**	340	288	312	33.8	281	600	300	876	**2LC0390-0AA**	**2LC0390-0AL**	402
546-10	**270**	3800	**280**	381	322	351	40	299	600	300	944	**2LC0390-1AA**	**2LC0390-1AL**	547
587-10	**352**	3500	**300**	408	345	363	45	315	600	320	1010	**2LC0390-2AA**	**2LC0390-2AL**	690
631-10	**450**	3300	**320**	435	368	399	48.8	334	600	340	1076	**2LC0390-3AA**	**2LC0390-3AL**	834
694-10	**630**	3000	**350**	485	403	435	58	400	600	400	1206	**2LC0390-4AA**	**2LC0390-4AL**	1213
734-10	**760**	2800	**370**	512	426	459	63	436	600	440	1292	**2LC0390-5AA**	**2LC0390-5AL**	1463
790-10	**950**	2600	**400**	555	460	496	66	466	750	470	1390	**2LC0390-6AA**	**2LC0390-6AL**	1837
887-10	**1400**	2300	**450**	627	518	546	78	543	750	550	1586	**2LC0390-7AA**	**2LC0390-7AL**	2713
988-10	**2000**	2100	**500**	696	575	596	86	617	750	620	1770	**2LC0390-8AA**	**2LC0390-8AL**	3868

Configurable variants 1)

• ØD1	Without finished bore With finished bore	
• ØD2	Without finished bore With finished bore	
• Shaft distance S 2)	Metric (mm):	100 mm, 140 mm, 180 mm, 200 mm, 250 mm, 300 mm
	Imperial (inches):	3.5" (88.9 mm), 5" (127 mm), 7" (177.8 mm), 9" (228.6 mm)
	Any required (mm)	

Notes

- Spacer sleeves (type NEN) designed as electrical cable sleeves are API compliant.
- Hubs are designed with threaded pull-off holes. Special lengths available upon request.
- The total lengths and the weights apply to the whole coupling of type NEN with maximum bores D1/D2 and the preferred shaft distance S = V.
- In cases with large shaft distances S the intermediate spacer can be designed as an H-spacer. The tube diameters here may slightly diverge. More precise coupling data in cases of variable shaft distances and E- / H-spacers are given on **pages 6/23 to 6/25**.
- E-spacers in preferred lengths up to size 343-6 are available from stock.

Ordering example

- N-ARPEX ARN-6 NEN coupling, size 217-6, with shaft distance S = 140 mm
- Bore ØD1 50H7 mm, keyway to DIN 6885-1 P9 and set screw **(L1C)**
- Bore ØD2 60H7 mm, keyway to DIN 6885-1 P9 and set screw **(M1E)**

Article no.: 2LC0370-8AA99-0AB0-Z L1C+M1E

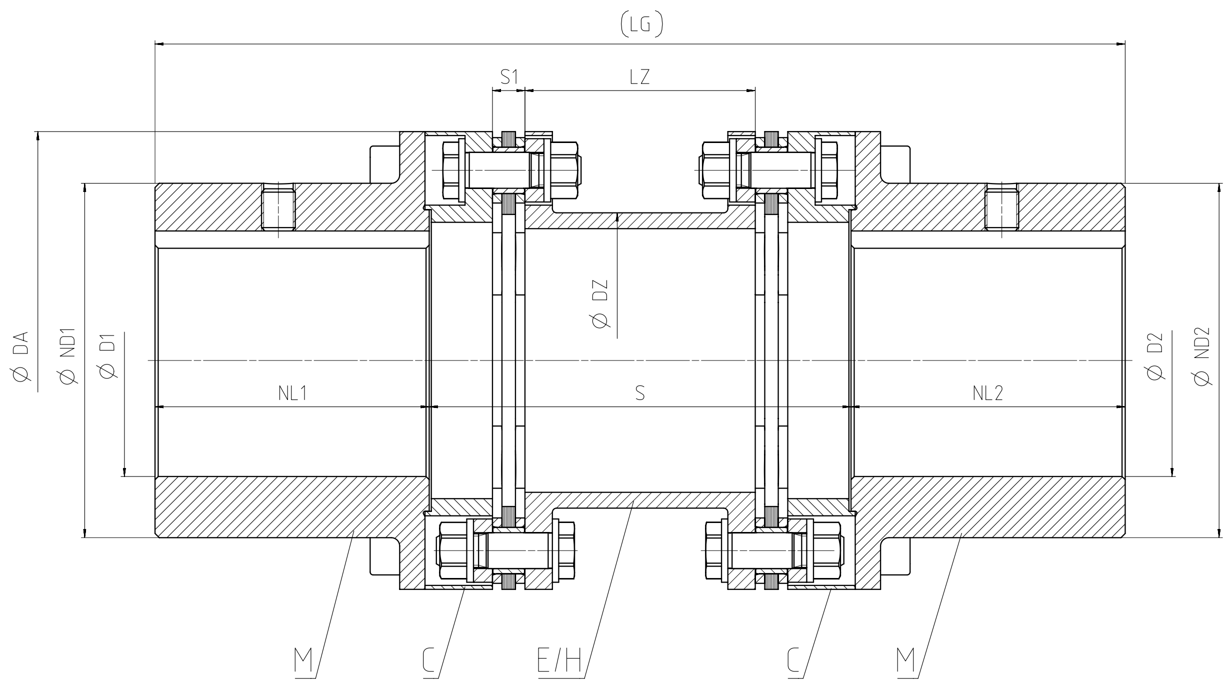
1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) The S shaft spacing standard dimensions available for each size can be found on **Page 6/10**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE MCECM/MCHCM

Torsionally rigid couplings of type MCECM (MCHCM) with radially freely demountable pre-assembled intermediate unit and catching device to secure the intermediate spacer in the event of plate breakage. Standard coupling type in accordance with **API 610**. Coupling type in accordance with **API 671** possible.



Size	Rated torque	Maximum speed	Dimensions in mm										↗ Article no. [1]		Weight
DA	T_{KN}	n_{Kmax}	D1/D2 Keyway DIN 6885-1	ND1/ ND2	NL1/ NL2	DZ	LZ	S1	Shaft distance S		Preferred dimension V	LG	Intermediate spacer		m
									MCECM	MCHCM	MCECM		E spacer	H spacer	
mm	kNm	rpm	max.						min.	min.			(MCECM)	(MCHCM)	kg
86-6	**0.35**	24000	**42**	62	42	45	84	8	100	340	140	224	**2LC0370-0AC**	**2LC0370-0AM**	3.1
103-6	**0.5**	20000	**55**	72	55	60	83.2	8.4	100	340	140	250	**2LC0370-1AC**	**2LC0370-1AM**	4.7
122-6	**0.95**	17000	**70**	91	70	73	82.4	8.8	111	340	140	280	**2LC0370-2AC**	**2LC0370-2AM**	7.7
133-6	**1.25**	15000	**80**	103	80	85	80.8	9.6	113	340	140	300	**2LC0370-3AC**	**2LC0370-3AM**	9.6
159-6	**2.1**	13000	**95**	123	95	97	76.8	11.6	131	340	140	330	**2LC0370-4AC**	**2LC0370-4AM**	15.9
174-6	**2.5**	12000	**105**	136	105	116	74.4	12.8	132	340	140	350	**2LC0370-5AC**	**2LC0370-5AM**	19.3

Configurable variants [1]

• ØD1	Without finished bore With finished bore	
• ØD2	Without finished bore With finished bore	
• Shaft distance S [2]	Metric (mm): Imperial (inches): Any required (mm)	100 mm, 140 mm, 180 mm, 200 mm, 250 mm, 300 mm 5" (127 mm), 7" (177.8 mm), 9" (228.6 mm)

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The S shaft spacing standard dimensions available for each size can be found on **Page 6/10**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque	Maximum speed	Dimensions in mm										Article no. [1]		Weight
DA	T_{KN}	n_{Kmax}	D1/D2 Keyway DIN 6885-1	ND1/ ND2	NL1/ NL2	DZ	LZ	S1	Shaft distance S		Preferred dimension V	LG	Intermediate spacer		m
									MCECM	MCHCM	MCECM		E spacer	H spacer	
mm	kNm	rpm	max.						min.	min.			(MCECM)	(MCHCM)	kg
184-6	**3.8**	11000	**110**	142	110	123	110.8	14.6	179	410	200	420	**2LC0370-6AC**	**2LC0370-6AM**	26.6
203-6	**5**	10000	**115**	150	115	128	110	15	180	410	200	430	**2LC0370-7AC**	**2LC0370-7AM**	33.7
217-6	**6.2**	9500	**130**	168	130	140	109.2	15.4	183	410	200	460	**2LC0370-8AC**	**2LC0370-8AM**	40.3
251-6	**10.5**	8000	**150**	193	150	160	138.8	20.6	219	420	250	550	**2LC0371-0AC**	**2LC0371-0AM**	64.4
268-6	**13.8**	7500	**160**	206	160	166	136	22	245	420	250	570	**2LC0371-1AC**	**2LC0371-1AM**	78.8
291-6	**18.2**	7000	**170**	221	170	188	134.4	22.8	247	420	250	590	**2LC0371-2AC**	**2LC0371-2AM**	98.3
318-6	**23**	6500	**190**	245	190	197	153.6	23.2	289	500	300	680	**2LC0371-3AC**	**2LC0371-3AM**	139
343-6	**28**	6000	**205**	267	205	223	152	24	290	500	300	710	**2LC0371-4AC**	**2LC0371-4AM**	168
219-8	**10**	9500	**140**	179	140	124	115.6	12.2	207	428	218	498	**2LC0380-0AC**	**2LC0380-0AM**	50.3
241-8	**15**	8700	**155**	201	155	135	114.8	12.6	217	432	222	532	**2LC0380-1AC**	**2LC0380-1AM**	68.2
262-8	**20**	8000	**165**	218	165	148	152.4	13.8	233	438	268	598	**2LC0380-2AC**	**2LC0380-2AM**	89
285-8	**27**	7300	**185**	239	185	162	149.6	15.2	260	448	278	648	**2LC0380-3AC**	**2LC0380-3AM**	115
302-8	**35**	6900	**190**	250	190	174	145.6	17.2	285	456	286	666	**2LC0380-4AC**	**2LC0380-4AM**	140
321-8	**43**	6500	**205**	269	205	189	158	21	308	512	312	722	**2LC0380-5AC**	**2LC0380-5AM**	171
354-8	**56**	5900	**230**	296	230	216	202.8	23.6	330	516	366	826	**2LC0380-6AC**	**2LC0380-6AM**	220
387-8	**72**	5400	**255**	329	255	240	198	26	338	492	342	852	**2LC0380-7AC**	**2LC0380-7AM**	275
411-8	**93**	5100	**270**	347	270	250	240.8	29.6	350	494	394	934	**2LC0380-8AC**	**2LC0380-8AM**	332
447-8	**122**	4600	**290**	375	290	275	234.8	32.6	372	502	402	982	**2LC0381-0AC**	**2LC0381-0AM**	419
495-8	**160**	4200	**325**	423	325	312	232.4	33.8	387	706	406	1056	**2LC0381-1AC**	**2LC0381-1AM**	561
546-8	**212**	3800	**360**	468	360	351	220	40	413	714	414	1134	**2LC0381-2AC**	**2LC0381-2AM**	752
587-8	**270**	3500	**380**	499	380	363	230	45	435	720	440	1200	**2LC0381-3AC**	**2LC0381-3AM**	945
631-8	**350**	3300	**410**	535	410	399	242.4	48.8	458	724	464	1284	**2LC0381-4AC**	**2LC0381-4AM**	1146

6

Configurable variants [1]

• ØD1	Without finished bore With finished bore	
• ØD2	Without finished bore With finished bore	
• Shaft distance S [2]	Metric (mm):	100 mm, 140 mm, 180 mm, 200 mm, 250 mm, 300 mm
	Imperial (inches):	5" (127 mm), 7" (177.8 mm), 9" (228.6 mm)
	Any required (mm)	

Notes

- Spacer sleeves (type MCECM) designed as electrical cable sleeves are API compliant.
- Hubs are designed with threaded pull-off holes. Special lengths available upon request.
- The total lengths, the spacer lenghts and the weights apply to the whole coupling of type MCECM with maximum bores D1/D2 and the preferred shaft distance S = V.
- In cases with large shaft distances S the intermediate spacer can be designed as an H-spacer. The tube diameters here may slightly diverge. More precise coupling data in cases of variable shaft distances and E- / H-spacers are given on **pages 6/23 to 6/25**.
- Plate packs in the CEC/CHC intermediate unit assembled at the factory.
- E-spacers in preferred lengths up to size 343-6 are available from stock.

Ordering example

- N-ARPEX ARN-6 MCECM coupling, size 217-6, with shaft distance S = 200 mm
- Bore ØD1 60H7 mm, keyway to DIN 6885-1 P9 and set screw **(L1G)**
- Bore ØD2 70H7 mm, keyway to DIN 6885-1 P9 and set screw **(M1G)**

Article no.: 2LC0370-8AC99-0AD0-Z L1G+M1G

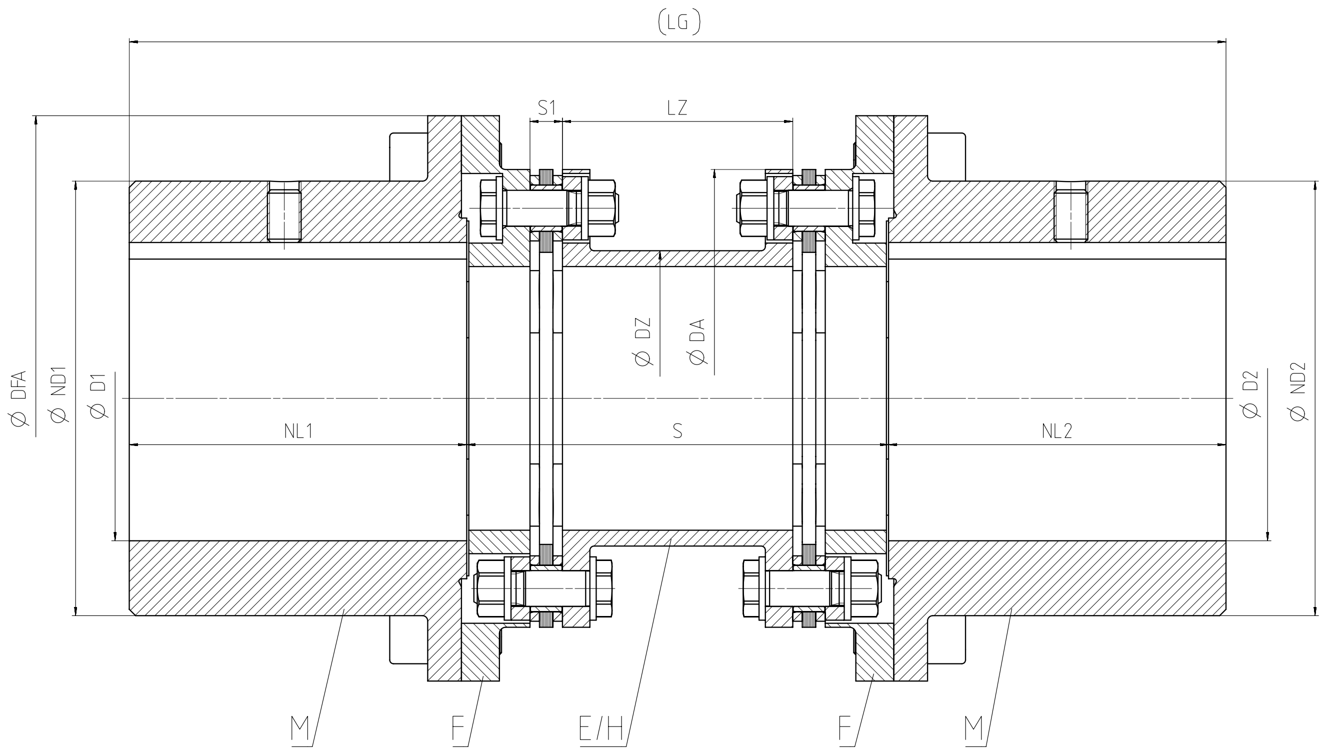
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The S shaft spacing standard dimensions available for each size can be found on **Page 6/10**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE MFEFM/MFHFM

Torsionally rigid type MFEFM (MFHFM) couplings with enlarged bore capacity and radially freely demountable intermediate unit and catching device to secure the intermediate spacer in the event of plate breakage. Standard coupling type in accordance with **API 610**. Coupling type in accordance with **API 671** possible.



Size DA (mm)	Rated torque T_{KN} (kNm)	Maximum speed n_{Kmax} (rpm)	Dimensions in mm: DFA	D1/D2 Keyway DIN 6885-1 max.	ND1/ND2	NL1/NL2	DZ	LZ	S1	Shaft distance S MFEFM min.	Shaft distance S MFHFM min.	Preferred dimension V MFEFM	LG	↗ Article no. [1] Intermediate spacer: E spacer (MFEFM)	H spacer (MFHFM)	Weight *m* (kg)
86-6	**0.35**	17000	122	**70**	91	70	45	84	8	100	340	140	280	**2LC0370-0BA**	**2LC0370-0BC**	6
103-6	**0.5**	15000	133	**80**	103	80	60	83.2	8.4	100	340	140	300	**2LC0370-1BA**	**2LC0370-1BC**	8
122-6	**0.95**	13000	159	**95**	123	95	73	82.4	8.8	111	340	140	330	**2LC0370-2BA**	**2LC0370-2BC**	13.6
133-6	**1.25**	12000	174	**105**	136	105	85	80.8	9.6	113	340	140	350	**2LC0370-3BA**	**2LC0370-3BC**	17.1
159-6	**2.1**	10000	203	**115**	150	115	97	76.8	11.6	131	340	140	370	**2LC0370-4BA**	**2LC0370-4BC**	22.9
174-6	**2.5**	9500	217	**130**	168	130	116	74.4	12.8	132	340	140	400	**2LC0370-5BA**	**2LC0370-5BC**	26.8
184-6	**3.8**	8000	251	**150**	193	150	123	110.8	14.6	179	410	200	500	**2LC0370-6BA**	**2LC0370-6BC**	40.1
203-6	**5**	8000	251	**150**	193	150	128	110	15	180	410	200	500	**2LC0370-7BA**	**2LC0370-7BC**	52.8
217-6	**6.2**	7500	268	**160**	206	160	140	109.2	15.4	183	410	200	520	**2LC0370-8BA**	**2LC0370-8BC**	63.4
251-6	**10.5**	6500	318	**190**	245	190	160	138.8	20.6	219	420	250	630	**2LC0371-0BA**	**2LC0371-0BC**	109

Configurable variants [1]

- ØD1 — Without finished bore / With finished bore
- ØD2 — Without finished bore / With finished bore
- Shaft distance S [2] — Metric (mm): 100 mm, 140 mm, 180 mm, 200 mm, 250 mm, 300 mm; Imperial (inches): 5" (127 mm), 7" (177.8 mm), 9" (228.6 mm); Any required (mm)

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The S shaft spacing standard dimensions available for each size can be found on **Page 6/10**.

↗ For online configuration on **flender.com**, click on the item no.

Size DA mm	Rated torque T_{KN} kNm	Maximum speed n_{Kmax} rpm	Dimensions in mm DFA	D1/D2 Keyway DIN 6885-1 max.	ND1/ ND2	NL1/ NL2	DZ	LZ	S1	Shaft distance S MFEFM min.	Shaft distance S MFHFM min.	Preferred dimension V MFEFM	LG	↗ Article no. 1) Intermediate spacer E spacer (MFEFM)	H spacer (MFHFM)	Weight *m* kg
268-6	**13.8**	6000	343	**205**	267	205	166	136	22	245	420	250	660	**2LC0371-1BA**	**2LC0371-1BC**	136
291-6	**18.2**	5500	356	**230**	302	230	188	134.4	22.8	297	470	300	760	**2LC0371-2BA**	**2LC0371-2BC**	190
318-6	**23**	5500	375	**245**	321	245	197	153.6	23.2	289	500	300	790	**2LC0371-3BA**	**2LC0371-3BC**	221
343-6	**28**	4500	424	**270**	354	270	223	152	24	290	500	300	840	**2LC0371-4BA**	**2LC0371-4BC**	284
219-8	**10**	7800	267	**165**	219	165	124	115.6	12.2	207	428	218	548	**2LC0380-0BA**	**2LC0380-0BC**	77.7
241-8	**15**	7200	289	**185**	241	185	135	114.8	12.6	217	432	222	592	**2LC0380-1BA**	**2LC0380-1BC**	98.6
262-8	**20**	6600	314	**200**	262	200	148	152.4	13.8	233	438	268	668	**2LC0380-2BA**	**2LC0380-2BC**	131
285-8	**27**	6100	339	**215**	285	215	162	149.6	15.2	260	448	278	708	**2LC0380-3BA**	**2LC0380-3BC**	169
302-8	**35**	5900	356	**230**	302	230	174	145.6	17.2	285	456	286	746	**2LC0380-4BA**	**2LC0380-4BC**	200
321-8	**43**	5600	375	**245**	321	245	189	158	21	308	512	312	802	**2LC0380-5BA**	**2LC0380-5BC**	237
354-8	**56**	4900	424	**270**	354	270	216	202.8	23.6	330	516	366	906	**2LC0380-6BA**	**2LC0380-6BC**	315
387-8	**72**	4500	457	**295**	387	295	240	198	26	338	492	342	932	**2LC0380-7BA**	**2LC0380-7BC**	384
411-8	**93**	4300	481	**315**	411	315	250	240.8	29.6	350	494	394	1024	**2LC0380-8BA**	**2LC0380-8BC**	460
447-8	**122**	4000	519	**340**	447	340	275	234.8	32.6	372	502	402	1082	**2LC0381-0BA**	**2LC0381-0BC**	586
495-8	**160**	3700	567	**380**	495	380	312	232.4	33.8	387	706	406	1166	**2LC0381-1BA**	**2LC0381-1BC**	758
546-8	**212**	3300	624	**420**	546	420	351	220	40	413	714	414	1254	**2LC0381-2BA**	**2LC0381-2BC**	1011
587-8	**270**	3100	669	**450**	587	450	363	230	45	435	720	440	1340	**2LC0381-3BA**	**2LC0381-3BC**	1270
631-8	**350**	2900	719	**480**	631	480	399	242.4	48.8	458	724	464	1424	**2LC0381-4BA**	**2LC0381-4BC**	1581
495-10	**200**	3700	567	**380**	495	380	312	232.4	33.8	387	706	406	1166	**2LC0390-0BA**	**2LC0390-0BC**	757
546-10	**270**	3300	624	**420**	546	420	351	220	40	413	714	414	1254	**2LC0390-1BA**	**2LC0390-1BC**	1010
587-10	**350**	3100	669	**450**	587	450	363	230	45	435	720	440	1340	**2LC0390-2BA**	**2LC0390-2BC**	1268
631-10	**450**	2900	719	**480**	631	480	399	242.4	48.8	458	724	464	1424	**2LC0390-3BA**	**2LC0390-3BC**	1578
694-10	**630**	2600	790	**530**	694	530	435	284	58	552	752	552	1612	**2LC0390-4BA**	**2LC0390-4BC**	2165
734-10	**750**	2500	830	**560**	734	560	459	314	63	600	764	604	1724	**2LC0390-5BA**	**2LC0390-5BC**	2586
790-10	**950**	2300	896	**600**	790	600	496	338	66	646	930	650	1850	**2LC0390-6BA**	**2LC0390-6BC**	3263
887-10	**1400**	2000	1013	**680**	887	680	546	394	78	749	956	756	2116	**2LC0390-7BA**	**2LC0390-7BC**	4716
988-10	**2000**	1800	1114	**760**	988	760	596	448	86	857	900	860	2380	**2LC0390-8BA**	**2LC0390-8BC**	6574

Configurable variants [1]

- ØD1: Without finished bore; With finished bore
- ØD2: Without finished bore; With finished bore
- Shaft distance S [2]: Metric (mm): 100 mm, 140 mm, 180 mm, 200 mm, 250 mm, 300 mm; Imperial (inches): 5" (127 mm), 7" (177.8 mm), 9" (228.6 mm); Any required (mm)

Notes

- Spacer sleeves (type MFEFM) designed as electrical cable sleeves are API compliant.
- Hubs are designed with threaded pull-off holes. Special lengths available upon request.
- The total lengths, the spacer lenghts and the weights apply to the whole coupling of type MFEFM with maximum bores D1/D2 and the preferred shaft distance S = V.
- In cases with large shaft distances S the intermediate spacer can be designed as an H-spacer. The tube diameters here may slightly diverge. More precise coupling data in cases of variable shaft distances and E- / H-spacers are given on **pages 6/23 to 6/25**.
- Plate packs in the FEF/FHF intermediate unit assembled at the factory.
- E-spacers in preferred lengths up to size 343-6 are available from stock.

Ordering example

- N-ARPEX ARN-6 MFEFM coupling, size 217-6, with shaft distance S = 200 mm
- Bore ØD1 80H7 mm, keyway to DIN 6885-1 P9 and set screw **(L1J)**
- Bore ØD2 90H7 mm, keyway to DIN 6885-1 P9 and set screw **(M1L)**

Article no.: 2LC0370-8BA99-0AD0-Z L1J+M1L

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

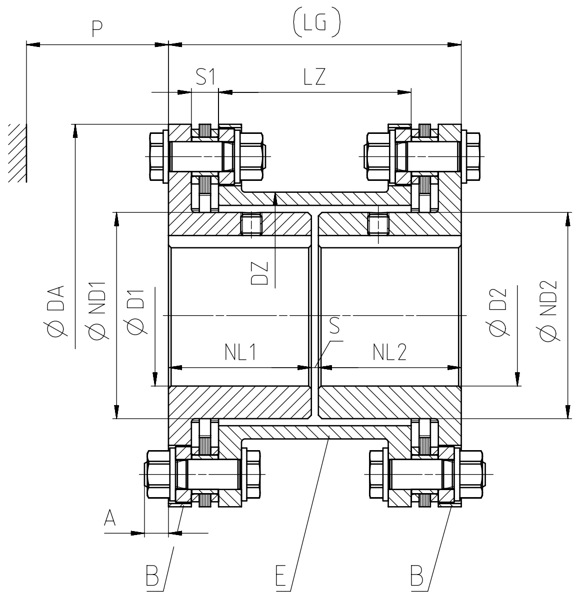
2) The S shaft spacing standard dimensions available for each size can be found on **Page 6/10**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE BEB

Torsionally rigid type BEB couplings with smallest possible shaft distance.

Type BEB cannot be freely demounted radially without shifting the units.



Size DA mm	Rated torque T_{KN} kNm	Maximum speed n_{Kmax} rpm	Dimensions in mm D1/D2 Keyway DIN 6885-1 max.	ND1/ ND2	NL1/ NL2	DZ	LZ	S1	Shaft distance S	A	P	LG	↗ Article no. [1]	Weight *m* kg
86-6	**350**	24000	**22**	35	30	45	44	8	12	8	32	72	**SLC0370-0AB**	1.5
103-6	**500**	20000	**38**	50	34	60	43.2	8.4	4	8	32	72	**SLC0370-1AB**	2.0
122-6	**950**	17000	**48**	62	56	73	82.4	8.8	4	8	38	116	**2LC0370-2AB**	4.2
133-6	**1250**	15000	**55**	72	56	85	80.8	9.6	4	7	38	116	**2LC0370-3AB**	5.1
159-6	**2100**	13000	**65**	84	57	97	76.8	11.6	6	9	48	120	**2LC0370-4AB**	8.1
174-6	**2500**	12000	**75**	102	77	116	114.4	12.8	4	10	48	158	**2LC0370-5AB**	11.4
184-6	**3800**	11000	**80**	106	80	123	110.8	14.6	6	15	64	166	**2LC0370-6AB**	15.2
203-6	**5000**	10000	**85**	111	80	128	110	15	6	14	64	166	**2LC0370-7AB**	18.2
217-6	**6200**	9500	**90**	124	81	140	109.2	15.4	4	14	66	166	**2LC0370-8AB**	22.0
251-6	**10500**	8000	**100**	137	102	160	138.8	20.6	6	15	77	210	**2LC0371-0AB**	35.6
268-6	**13800**	7500	**108**	143	105	166	136	22	12	11	89	222	**2LC0371-1AB**	44.8
291-6	**18200**	7000	**120**	162	106	188	134.4	22.8	10	11	89	222	**2LC0371-2AB**	56.7
318-6	**23000**	6500	**130**	164	118	197	153.6	23.2	6	20	100	242	**2LC0371-3AB**	70.2
343-6	**28000**	6000	**150**	186	143	223	202	24	6	19	100	292	**2LC0371-4AB**	87.7

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Hubs are designed with threaded pull-off holes.
  Special lengths available upon request.
- The total lengths and the weights apply to the whole coupling with maximum bores D1/D2 and the preferred shaft distance S = V.

Ordering example

- N-ARPEX ARN-6 BEB coupling, size 217-6, with shaft distance S = 4 mm
- Bore ØD1 50H7 mm, keyway to DIN 6885-1 and set screw **(L1C)**
- Bore ØD2 60H7 mm, keyway to DIN 6885-1 and set screw **(M1E)**

Article no.: 2LC0370-8AB99-0AA0-Z L1C+M1E

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

FURTHER HUBS

Clamping hubs, type 124 and 125

Type 124 and 125 standard clamping hubs can be combined with any spacer of the ARN-6 series.

It should be noted that the clamping hub can be used only as an "N hub" (hub core outside).

Function

N-ARPEX clamping hubs transmit torque with the aid of a flexible press fit. By pulling the clamping ring on by means of the tightening screws the necessary surface pressure is applied in the "shaft/hub" contact area. After the tightening operation the clamping ring lies up against the clamping hub.

Transmissible torque

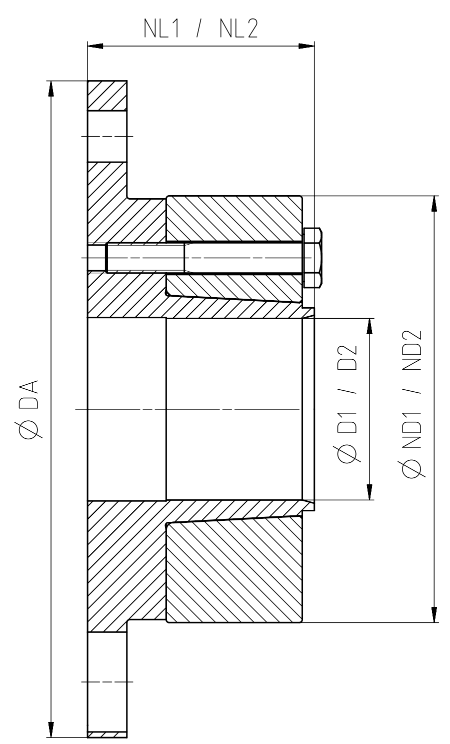
The clamping connections are designed to enable the specified maximum torques to be transmitted.

These maximum torques must not be exceeded, even in the case of overload.

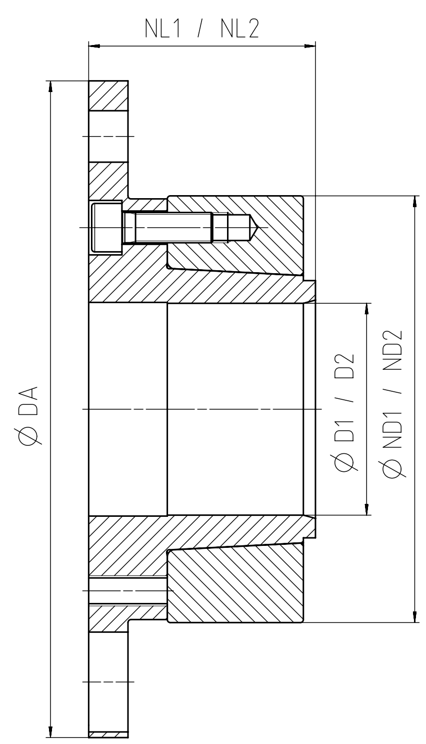
Fitting clearance and surface roughness

The transmissible torques allow for the maximum fitting clearance for a quality IT6 bore and shaft and maximum surface roughness. For other shaft tolerances reduced torques or other bore tolerances must be used. The surface roughness of the shaft should be ≤ Ra = 1.6 µm.

The fit pairing G6/h6 should be used wherever possible.
Divergent shaft tolerances must be specified when ordering.
The article no. for the specification must end in "**-Z**" and include the code "**Y26**" for the fit.



Type 124 (standard type)



Type 125

FURTHER HUBS

Clamping hubs, type 124 and 125

Size DA mm	Clamping hub Type	Dimensions in mm D1/D2 min.	max.	ND1/ND2	NL1/NL2	Mass moment of inertia J kgm²	↗ Article no. [1]	Weight m kg
86-6	124	19	**25**	50	35	0.0003	2LC0370-0LM90-0AA0	0.5
	125						2LC0370-0LN90-0AA0	
103-6	124	25	**38**	67	40	0.0009	2LC0370-1LM90-0AA0	0.9
	125						2LC0370-1LN90-0AA0	
122-6	124	30	**42**	77	45	0.0021	2LC0370-2LM90-0AA0	1.5
	125						2LC0370-2LN90-0AA0	
133-6	124	32	**50**	88	50	0.0034	2LC0370-3LM90-0AA0	2
	125						2LC0370-3LN90-0AA0	
159-6	124	35	**60**	105	55	0.0077	2LC0370-4LM90-0AA0	3.2
	125						2LC0370-4LN90-0AA0	
174-6	124	40	**70**	120	65	0.0135	2LC0370-5LM90-0AA0	4.6
	125						2LC0370-5LN90-0AA0	
184-6	124	45	**70**	126	70	0.0195	2LC0370-6LM90-0AA0	5.9
	125						2LC0370-6LN90-0AA0	
203-6	124	50	**80**	139	75	0.0298	2LC0370-7LM90-0AA0	7.4
	125						2LC0370-7LN90-0AA0	
217-6	124	60	**90**	147	90	0.0429	2LC0370-8LM90-0AA0	9.2
	125						2LC0370-8LN90-0AA0	
251-6	124	70	**95**	168	95	0.0837	2LC0371-0LM90-0AA0	14
	125						2LC0371-0LN90-0AA0	
268-6	124	75	**100**	175	115	0.1236	2LC0371-1LM90-0AA0	18.5
	125						2LC0371-1LN90-0AA0	
291-6	124	80	**120**	195	125	0.1907	2LC0371-2LM90-0AA0	22.9
	125						2LC0371-2LN90-0AA0	
318-6	124	85	**120**	209	140	0.2975	2LC0371-3LM90-0AA0	31.5
	125						2LC0371-3LN90-0AA0	
343-6	124	95	**140**	234	150	0.4539	2LC0371-4LM90-0AA0	39.6
	125						2LC0371-4LN90-0AA0	

Note

- Weights and mass moments of inertia apply to a clamping hub with a maximum bore D1/D2.

Ordering example:

- N-ARPEX clamping hub, type 124, size 133-6
- Shaft ØD1 = 40k6 (**L0W**)
- **Y26** / fit specification supplied

Article no.: 2LC0370-3LM90-0AA0-Z L0W+Y26
Plain text Y26: k6

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

6

Dimensions and torques

Finished bore/shaft in standard fit	DA size in mm													
	86-6	103-6	122-6	133-6	159-6	174-6	184-6	203-6	217-6	251-6	268-6	291-6	318-6	343-6
	Rated coupling torque T_{KN} in Nm													
	350	500	950	1250	2100	2400	3800	5000	6200	10500	13800	18200	23000	28000
$D1^{G6}/_{h6}$	Maximum transmissible torque of the clamping hub													
mm	Nm													
19	400	-	-	-	-	-	-	-	-	-	-	-	-	-
20	460	-	-	-	-	-	-	-	-	-	-	-	-	-
22	470	-	-	-	-	-	-	-	-	-	-	-	-	-
24	350	-	-	-	-	-	-	-	-	-	-	-	-	-
25	370	480	-	-	-	-	-	-	-	-	-	-	-	-
28	-	870	-	-	-	-	-	-	-	-	-	-	-	-
30	-	1150	1770	-	-	-	-	-	-	-	-	-	-	-
32	-	1140	1830	2300	-	-	-	-	-	-	-	-	-	-
35	-	570	1420	2360	3050	-	-	-	-	-	-	-	-	-
38	-	830	1720	3040	2710	-	-	-	-	-	-	-	-	-
40	-	-	1370	2610	3660	3680	-	-	-	-	-	-	-	-
42	-	-	1670	2930	2180	4020	-	-	-	-	-	-	-	-
45	-	-	-	2120	3750	4110	5780	-	-	-	-	-	-	-
48	-	-	-	2480	4160	4930	6200	-	-	-	-	-	-	-
50	-	-	-	2240	2300	4300	5840	7190	-	-	-	-	-	-
55	-	-	-	-	3310	5370	6410	7970	-	-	-	-	-	-
60	-	-	-	-	3260	3730	5370	8840	7570	-	-	-	-	-
65	-	-	-	-	-	4700	6240	8890	10390	-	-	-	-	-
70	-	-	-	-	-	4150	5920	8460	10640	14050	-	-	-	-
75	-	-	-	-	-	-	-	7960	9590	15350	20710	-	-	-
80	-	-	-	-	-	-	-	7340	8850	13510	20120	31840	-	-
85	-	-	-	-	-	-	-	-	7890	16370	21130	31230	36420	-
90	-	-	-	-	-	-	-	-	6290	14300	20810	33300	39050	-
95	-	-	-	-	-	-	-	-	-	13310	18570	33530	35940	54230
100	-	-	-	-	-	-	-	-	-	-	14440	31710	37500	56580
110	-	-	-	-	-	-	-	-	-	-	-	29020	35200	56900
120	-	-	-	-	-	-	-	-	-	-	-	22600	31490	53580
130	-	-	-	-	-	-	-	-	-	-	-	-	-	50910
140	-	-	-	-	-	-	-	-	-	-	-	-	-	43600

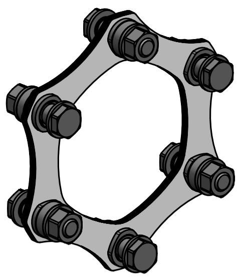
Note

- The maximum transmissible torque of the clamping hub must not be exceeded! Further clamping hub sizes and higher torques on request.

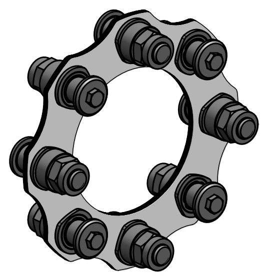
SPARE AND WEAR PARTS

6

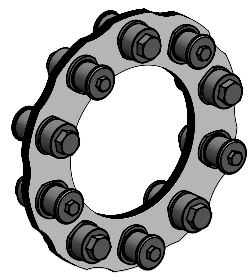
Plate pack



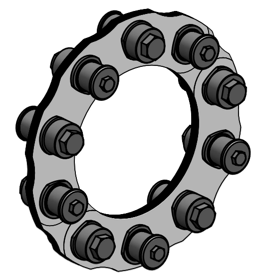
Size 86-6 to 343-6
(hexagon plates)



Size 219-8 to 631-8
(octagon plates)



Size 495-10 to 631-10
(decagon plates)



Size 694-10 to 988-10
(decagon plates/segment)

Size DA	Dimensions S1 mm	Mass moment of inertia *J* kgm^2	Article No.	Weight *m* kg
86-6	8	0.00018	2LC0370-0LP00-0AA0	0.17
103-6	8.4	0.00032	2LC0370-1LP00-0AA0	0.19
122-6	8.8	0.001	2LC0370-2LP00-0AA0	0.43
133-6	9.6	0.0014	2LC0370-3LP00-0AA0	0.49
159-6	11.6	0.0033	2LC0370-4LP00-0AA0	0.8
174-6	12.8	0.0047	2LC0370-5LP00-0AA0	0.93
184-6	14.6	0.0078	2LC0370-6LP00-0AA0	1.38
203-6	15	0.012	2LC0370-7LP00-0AA0	1.79
217-6	15.4	0.018	2LC0370-8LP00-0AA0	2.25
251-6	20.6	0.037	2LC0371-0LP00-0AA0	3.61
268-6	22	0.056	2LC0371-1LP00-0AA0	4.83
291-6	22.8	0.08	2LC0371-2LP00-0AA0	5.78
318-6	23.2	0.13	2LC0371-3LP00-0AA0	8.12
343-6	24	0.17	2LC0371-4LP00-0AA0	8.68
219-8	12.2	0.028	2LC0380-0LP00-0AA0	3.58
241-8	12.6	0.042	2LC0380-1LP00-0AA0	4.67
262-8	13.8	0.067	2LC0380-2LP00-0AA0	6.05
285-8	15.2	0.11	2LC0380-3LP00-0AA0	8.28
302-8	17.2	0.15	2LC0380-4LP00-0AA0	10.3
321-8	21	0.22	2LC0380-5LP00-0AA0	13.6
354-8	23.6	0.34	2LC0380-6LP00-0AA0	17
387-8	26	0.49	2LC0380-7LP00-0AA0	20.2
411-8	29.6	0.7	2LC0380-8LP00-0AA0	26
447-8	32.6	1.01	2LC0381-0LP00-0AA0	31.5
495-8	33.8	1.54	2LC0381-1LP00-0AA0	38.7
546-8	40	2.57	2LC0381-2LP00-0AA0	52.9
587-8	45	3.74	2LC0381-3LP00-0AA0	67.2
631-8	48.8	5.38	2LC0381-4LP00-0AA0	85
495-10	33.8	1.76	2LC0390-0LP00-0AA0	43.4
546-10	40	2.9	2LC0390-1LP00-0AA0	58.5
587-10	45	4.19	2LC0390-2LP00-0AA0	73.7
631-10	48.8	5.98	2LC0390-3LP00-0AA0	92.6
694-10	58	11.8	2LC0390-4LP00-0AA0	148
734-10	63	16.3	2LC0390-5LP00-0AA0	182
790-10	66	23.4	2LC0390-6LP00-0AA0	226
887-10	78	43.7	2LC0390-7LP00-0AA0	335
988-10	86	75.8	2LC0390-8LP00-0AA0	468

Notes

- The plate pack of the ARN-6/-8 series is readily available as a spare part.
- The plate pack is delivered with screw connection.
- Mainly ring plates are used for the plate packs. Sizes 694-10 to 988-10 plate packs are designed with segmented plates.

Ordering example

- N-ARPEX ARN-8 plate pack, size 354-8, complete with screw connection

Article no.: 2LC0380-6LP00-0AA0

LENGTH-DEPENDENT SPECIFICATIONS

of types NEN/ NHN, BEB, MCECM/MCHCM and MFEFM/MFHFM

A variant with an E-spacer is standardly provided for each N-ARPEX type. This has been machined all over in accordance with the requirements of **API 610** and **671**. Particularly for large shaft distances S and therefore for correspondingly long intermediate spacer it is usual to leave the inside and outside diameters of the tube in the condition in which it was delivered. These spacers are then referred to as H-spacers.

If a coupling is fitted with an H-spacer, the type designation changes accordingly. For example, an NEN becomes an NHN, an MFEFM becomes an MFHFN. No version with an H-spacer is provided for the BEB type. Length-dependent technical specifications for the various coupling types are shown on the following table.
The shaft distance S must be specified in mm. The specifications with regard to weight and mass moment of inertia refer to the whole coupling with maximum bores D1/ D2.

The values for torsional stiffness apply to the whole coupling (not including the hubs and customer shafts) and refer to the rated coupling torque T_{KN}. For determination of torsional stiffness for a specific operating point outside the nominal range Flender must be consulted.

Variant with E spacer

Size DA	Type	*m* kg	*J* kgm²	*C* MNm/rad
86-6	**NEN**	1.55 + 0.003 · S	0.001 + 0.000002 · S	1/(1/0,08 + S/15)
	BEB	1.42 + 0.003 · S	0.001 + 0.000002 · S	1/(1/0,06 + S/15)
	MCECM	2.64 + 0.003 · S	0.003 + 0.000002 · S	1/(1/0,09 + S/15)
	MFEFM	5.54 + 0.003 · S	0.01 + 0.000002 · S	1/(1/0,09 + S/15)
103-6	**NEN**	2.52 + 0.005 · S	0.004 + 0.000004 · S	1/(1/0,11 + S/42)
	BEB	2.01 + 0.005 · S	0.003 + 0.000004 · S	1/(1/0,1 + S/42)
	MCECM	4 + 0.005 · S	0.006 + 0.000004 · S	1/(1/0,12 + S/42)
	MFEFM	7.28 + 0.005 · S	0.017 + 0.000004 · S	1/(1/0,12 + S/42)
122-6	**NEN**	4.39 + 0.007 · S	0.009 + 0.000008 · S	1/(1/0,26 + S/82)
	BEB	4.19 + 0.007 · S	0.008 + 0.000008 · S	1/(1/0,2 + S/82)
	MCECM	6.78 + 0.007 · S	0.015 + 0.000008 · S	1/(1/0,29 + S/82)
	MFEFM	12.6 + 0.007 · S	0.042 + 0.000008 · S	1/(1/0,29 + S/82)
133-6	**NEN**	5.5 + 0.009 · S	0.013 + 0.000014 · S	1/(1/0,33 + S/142)
	BEB	5.09 + 0.009 · S	0.011 + 0.000014 · S	1/(1/0,27 + S/142)
	MCECM	8.44 + 0.009 · S	0.023 + 0.000014 · S	1/(1/0,36 + S/142)
	MFEFM	15.86 + 0.009 · S	0.064 + 0.000014 · S	1/(1/0,36 + S/142)
159-6	**NEN**	8.54 + 0.011 · S	0.028 + 0.000023 · S	1/(1/0,54 + S/234)
	BEB	8 + 0.011 · S	0.026 + 0.000023 · S	1/(1/0,45 + S/234)
	MCECM	14.35 + 0.011 · S	0.055 + 0.000023 · S	1/(1/0,6 + S/234)
	MFEFM	21.37 + 0.011 · S	0.068 + 0.000023 · S	1/(1/0,6 + S/234)

Variant with H spacer

Size DA	Type	*m* kg	*J* kgm²	*C* MNm/rad
86-6	**NHN**	1.11 + 0.005 · S	0.001 + 0.000003 · S	1/(1/0,05 + S/25)
	-	-	-	-
	MCHCM	2.13 + 0.005 · S	0.003 + 0.000003 · S	1/(1/0,06 + S/25)
	MFHFM	5.03 + 0.005 · S	0.01 + 0.000003 · S	1/(1/0,06 + S/25)
103-6	**NHN**	1.91 + 0.008 · S	0.003 + 0.000007 · S	1/(1/0,09 + S/68)
	-	-	-	-
	MCHCM	3.28 + 0.008 · S	0.006 + 0.000007 · S	1/(1/0,1 + S/68)
	MFHFM	6.56 + 0.008 · S	0.016 + 0.000007 · S	1/(1/0,1 + S/68)
122-6	**NHN**	3.72 + 0.01 · S	0.008 + 0.000012 · S	1/(1/0,21 + S/122)
	-	-	-	-
	MCHCM	6 + 0.01 · S	0.014 + 0.000012 · S	1/(1/0,22 + S/122)
	MFHFM	11.82 + 0.01 · S	0.041 + 0.000012 · S	1/(1/0,22 + S/122)
133-6	**NHN**	4.52 + 0.013 · S	0.012 + 0.000022 · S	1/(1/0,28 + S/221)
	-	-	-	-
	MCHCM	7.29 + 0.013 · S	0.021 + 0.000022 · S	1/(1/0,29 + S/221)
	MFHFM	14.71 + 0.013 · S	0.062 + 0.000022 · S	1/(1/0,29 + S/221)
159-6	**NHN**	7.17 + 0.017 · S	0.025 + 0.000037 · S	1/(1/0,45 + S/373)
	-	-	-	-
	MCHCM	12.76 + 0.017 · S	0.051 + 0.000037 · S	1/(1/0,47 + S/373)
	MFHFM	19.78 + 0.017 · S	0.064 + 0.000037 · S	1/(1/0,47 + S/373)

LENGTH-DEPENDENT SPECIFICATIONS

of types NEN/ NHN, BEB, MCECM/MCHCM and MFEFM/MFHFM

Variant with E spacer

Size DA	Type	*m* kg	*J* kgm²	*C* MNm/rad
174-6	NEN	10.57 + 0.013 · S	0.042 + 0.000039 · S	1/(1/0,64 + S/394)
	BEB	11.36 + 0.013 · S	0.041 + 0.000039 · S	1/(1/0,52 + S/394)
	MCECM	17.54 + 0.013 · S	0.08 + 0.000039 · S	1/(1/0,68 + S/394)
	MFEFM	25.02 + 0.013 · S	0.146 + 0.000039 · S	1/(1/0,68 + S/394)
184-6	NEN	13.94 + 0.017 · S	0.065 + 0.000059 · S	1/(1/1 + S/597)
	BEB	15.1 + 0.017 · S	0.066 + 0.000059 · S	1/(1/0,81 + S/597)
	MCECM	23.12 + 0.017 · S	0.081 + 0.000059 · S	1/(1/1,11 + S/597)
	MFEFM	36.59 + 0.017 · S	0.267 + 0.000059 · S	1/(1/1,11 + S/597)
203-6	NEN	18.62 + 0.019 · S	0.102 + 0.00007 · S	1/(1/1,44 + S/705)
	BEB	18.09 + 0.019 · S	0.096 + 0.00007 · S	1/(1/1,13 + S/705)
	MCECM	29.96 + 0.019 · S	0.185 + 0.00007 · S	1/(1/1,65 + S/705)
	MFEFM	49.06 + 0.019 · S	0.414 + 0.00007 · S	1/(1/1,65 + S/705)
217-6	NEN	21.68 + 0.019 · S	0.137 + 0.000087 · S	1/(1/1,84 + S/870)
	BEB	21.93 + 0.019 · S	0.131 + 0.000087 · S	1/(1/1,43 + S/870)
	MCECM	36.46 + 0.019 · S	0.262 + 0.000087 · S	1/(1/2,11 + S/870)
	MFEFM	59.53 + 0.019 · S	0.579 + 0.000087 · S	1/(1/2,11 + S/870)
251-6	NEN	32.32 + 0.032 · S	0.271 + 0.00018 · S	1/(1/2,24 + S/1827)
	BEB	35.42 + 0.032 · S	0.276 + 0.00018 · S	1/(1/1,85 + S/1827)
	MCECM	56.48 + 0.032 · S	0.539 + 0.00018 · S	1/(1/2,45 + S/1827)
	MFEFM	101.1 + 0.032 · S	1.397 + 0.00018 · S	1/(1/2,45 + S/1827)
268-6	NEN	44.91 + 0.02 · S	0.434 + 0.00013 · S	1/(1/2,78 + S/2063)
	BEB	44.58 + 0.02 · S	0.425 + 0.00013 · S	1/(1/2,27 + S/2063)
	MCECM	73.71 + 0.02 · S	0.8 + 0.00013 · S	1/(1/3,07 + S/2063)
	MFEFM	131.4 + 0.02 · S	2.07 + 0.00013 · S	1/(1/3,07 + S/2063)
291-6	NEN	55.18 + 0.042 · S	0.634 + 0.00034 · S	1/(1/3,77 + S/3400)
	BEB	56.23 + 0.042 · S	0.624 + 0.00034 · S	1/(1/3,17 + S/3400)
	MCECM	87.66 + 0.042 · S	1.124 + 0.00034 · S	1/(1/4,09 + S/3400)
	MFEFM	176.8 + 0.042 · S	3.213 + 0.00034 · S	1/(1/4,09 + S/3400)
318-6	NEN	72.12 + 0.059 · S	0.979 + 0.0005 · S	1/(1/5,13 + S/5040)
	BEB	69.81 + 0.059 · S	0.922 + 0.0005 · S	1/(1/4,29 + S/5040)
	MCECM	121.4 + 0.059 · S	1.89 + 0.0005 · S	1/(1/5,72 + S/5040)
	MFEFM	203.7 + 0.059 · S	4.214 + 0.0005 · S	1/(1/5,72 + S/5040)
343-6	NEN	89.26 + 0.075 · S	1.394 + 0.00081 · S	1/(1/5,26 + S/8178)
	BEB	87.3 + 0.075 · S	1.322 + 0.00081 · S	1/(1/4,55 + S/8178)
	MCECM	145.8 + 0.075 · S	2.639 + 0.00081 · S	1/(1/5,62 + S/8178)
	MFEFM	261.5 + 0.075 · S	6.626 + 0.00081 · S	1/(1/5,62 + S/8178)

Variant with H spacer

Size DA	Type	*m* kg	*J* kgm²	*C* MNm/rad
174-6	NHN	8.79 + 0.02 · S	0.036 + 0.000065 · S	1/(1/0,55 + S/652)
	-	-	-	-
	MCHCM	15.46 + 0.02 · S	0.073 + 0.000065 · S	1/(1/0,57 + S/652)
	MFHFM	22.95 + 0.02 · S	0.139 + 0.000065 · S	1/(1/0,57 + S/652)
184-6	NHN	12.36 + 0.023 · S	0.059 + 0.000083 · S	1/(1/0,89 + S/839)
	-	-	-	-
	MCHCM	21.18 + 0.023 · S	0.074 + 0.000083 · S	1/(1/0,95 + S/839)
	MFHFM	34.65 + 0.023 · S	0.259 + 0.000083 · S	1/(1/0,95 + S/839)
203-6	NHN	16.56 + 0.027 · S	0.093 + 0.0001 · S	1/(1/1,23 + S/1049)
	-	-	-	-
	MCHCM	27.42 + 0.027 · S	0.174 + 0.0001 · S	1/(1/1,33 + S/1049)
	MFHFM	46.52 + 0.027 · S	0.403 + 0.0001 · S	1/(1/1,33 + S/1049)
217-6	NHN	18.96 + 0.03 · S	0.123 + 0.00014 · S	1/(1/1,52 + S/1413)
	-	-	-	-
	MCHCM	33.11 + 0.03 · S	0.245 + 0.00014 · S	1/(1/1,63 + S/1413)
	MFHFM	56.18 + 0.03 · S	0.562 + 0.00014 · S	1/(1/1,63 + S/1413)
251-6	NHN	29.54 + 0.042 · S	0.253 + 0.00025 · S	1/(1/2,05 + S/2505)
	-	-	-	-
	MCHCM	53 + 0.042 · S	0.516 + 0.00025 · S	1/(1/2,18 + S/2505)
	MFHFM	97.57 + 0.042 · S	1.374 + 0.00025 · S	1/(1/2,18 + S/2505)
268-6	NHN	41.38 + 0.043 · S	0.41 + 0.00028 · S	1/(1/2,52 + S/2803)
	-	-	-	-
	MCHCM	68.56 + 0.043 · S	0.765 + 0.00028 · S	1/(1/2,69 + S/2803)
	MFHFM	126.3 + 0.043 · S	2.035 + 0.00028 · S	1/(1/2,69 + S/2803)
291-6	NHN	51.32 + 0.056 · S	0.598 + 0.00046 · S	1/(1/3,48 + S/4627)
	-	-	-	-
	MCHCM	82.87 + 0.056 · S	1.08 + 0.00046 · S	1/(1/3,67 + S/4627)
	MFHFM	171.4 + 0.056 · S	3.163 + 0.00046 · S	1/(1/3,67 + S/4627)
318-6	NHN	67.86 + 0.074 · S	0.936 + 0.00065 · S	1/(1/4,81 + S/6527)
	-	-	-	-
	MCHCM	115.6 + 0.074 · S	1.832 + 0.00065 · S	1/(1/5,2 + S/6527)
	MFHFM	198 + 0.074 · S	4.157 + 0.00065 · S	1/(1/5,2 + S/6527)
343-6	NHN	84.41 + 0.091 · S	1.332 + 0.001 · S	1/(1/5,07 + S/10323)
	-	-	-	-
	MCHCM	139.3 + 0.091 · S	2.556 + 0.001 · S	1/(1/5,33 + S/10323)
	MFHFM	255 + 0.091 · S	6.542 + 0.001 · S	1/(1/5,33 + S/10323)

Variant with E spacer

Size DA	Type	m kg	J kgm²	C MNm/rad
	NEN	28.17 + 0.027 · S	0.177 + 0.000089 · S	1/(1/3,98 + S/889)
219-8	MCECM	44.48 + 0.027 · S	0.338 + 0.000089 · S	1/(1/6,11 + S/889)
	MFEFM	71.89 + 0.027 · S	0.703 + 0.000089 · S	1/(1/6,11 + S/889)
	NEN	36.79 + 0.032 · S	0.276 + 0.00013 · S	1/(1/4,69 + S/1264)
241-8	MCECM	61.04 + 0.032 · S	0.56 + 0.00013 · S	1/(1/6,74 + S/1264)
	MFEFM	91.45 + 0.032 · S	1.074 + 0.00013 · S	1/(1/6,74 + S/1264)
	NEN	46.53 + 0.04 · S	0.414 + 0.00019 · S	1/(1/5,4 + S/1884)
262-8	MCECM	78.23 + 0.04 · S	0.846 + 0.00019 · S	1/(1/7,22 + S/1884)
	MFEFM	120.1 + 0.04 · S	1.692 + 0.00019 · S	1/(1/7,22 + S/1884)
	NEN	61.59 + 0.051 · S	0.656 + 0.00028 · S	1/(1/7,04 + S/2836)
285-8	MCECM	100.8 + 0.051 · S	1.315 + 0.00028 · S	1/(1/9,31 + S/2836)
	MFEFM	155 + 0.051 · S	2.552 + 0.00028 · S	1/(1/9,31 + S/2836)
	NEN	78.21 + 0.062 · S	0.948 + 0.00039 · S	1/(1/9,87 + S/3948)
302-8	MCECM	122.3 + 0.062 · S	1.774 + 0.00039 · S	1/(1/13,4 + S/3948)
	MFEFM	182 + 0.062 · S	3.359 + 0.00039 · S	1/(1/13,4 + S/3948)
	NEN	96.07 + 0.066 · S	1.317 + 0.0005 · S	1/(1/13,9 + S/5053)
321-8	MCECM	150 + 0.066 · S	2.469 + 0.0005 · S	1/(1/20,1 + S/5053)
	MFEFM	216.6 + 0.066 · S	4.48 + 0.0005 · S	1/(1/20,1 + S/5053)
	NEN	129.1 + 0.079 · S	2.163 + 0.00079 · S	1/(1/18,2 + S/7977)
354-8	MCECM	191.4 + 0.079 · S	3.866 + 0.00079 · S	1/(1/24,7 + S/7977)
	MFEFM	286.5 + 0.079 · S	7.246 + 0.00079 · S	1/(1/24,7 + S/7977)
	NEN	169.6 + 0.093 · S	3.414 + 0.0012 · S	1/(1/25,3 + S/11742)
387-8	MCECM	242.5 + 0.093 · S	5.88 + 0.0012 · S	1/(1/31,5 + S/11742)
	MFEFM	351.7 + 0.093 · S	10.62 + 0.0012 · S	1/(1/31,5 + S/11742)
	NEN	201.9 + 0.113 · S	4.565 + 0.0015 · S	1/(1/29,4 + S/15183)
411-8	MCECM	287.1 + 0.113 · S	7.821 + 0.0015 · S	1/(1/36 + S/15183)
	MFEFM	415.8 + 0.113 · S	14.1 + 0.0015 · S	1/(1/36 + S/15183)
	NEN	260.7 + 0.129 · S	6.985 + 0.0021 · S	1/(1/38 + S/21062)
447-8	MCECM	367.1 + 0.129 · S	11.74 + 0.0021 · S	1/(1/46,5 + S/21062)
	MFEFM	534.1 + 0.129 · S	21.22 + 0.0021 · S	1/(1/46,5 + S/21062)
	NEN	354.4 + 0.157 · S	11.61 + 0.0033 · S	1/(1/46,4 + S/33418)
495-8	MCECM	497.5 + 0.157 · S	19.74 + 0.0033 · S	1/(1/54,5 + S/33418)
	MFEFM	693.8 + 0.157 · S	33.95 + 0.0033 · S	1/(1/54,5 + S/33418)
	NEN	483.3 + 0.212 · S	19.43 + 0.0056 · S	1/(1/59 + S/56448)
546-8	MCECM	663.8 + 0.212 · S	32.27 + 0.0056 · S	1/(1/67 + S/56448)
	MFEFM	923.1 + 0.212 · S	55.39 + 0.0056 · S	1/(1/67 + S/56448)
	NEN	600.7 + 0.279 · S	27.94 + 0.0076 · S	1/(1/67,3 + S/76570)
587-8	MCECM	821.9 + 0.279 · S	45.85 + 0.0076 · S	1/(1/75,3 + S/76570)
	MFEFM	1147 + 0.279 · S	79.25 + 0.0076 · S	1/(1/75,3 + S/76570)
	NEN	731.9 + 0.302 · S	39.04 + 0.01 · S	1/(1/79,6 + S/102143)
631-8	MCECM	1006 + 0.302 · S	64.52 + 0.01 · S	1/(1/88,2 + S/102143)
	MFEFM	1441 + 0.302 · S	114.7 + 0.01 · S	1/(1/88,2 + S/102143)

Variant with H spacer

Size DA	Type	m kg	J kgm²	C MNm/rad
	NHN	26.88 + 0.035 · S	0.172 + 0.00012 · S	1/(1/3,35 + S/1176)
219-8	MCHCM	42.52 + 0.035 · S	0.33 + 0.00012 · S	1/(1/4,3 + S/1176)
	MFHFM	69.94 + 0.035 · S	0.695 + 0.00012 · S	1/(1/4,3 + S/1176)
	NHN	34.62 + 0.044 · S	0.266 + 0.00018 · S	1/(1/3,88 + S/1760)
241-8	MCHCM	57.91 + 0.044 · S	0.546 + 0.00018 · S	1/(1/4,73 + S/1760)
	MFHFM	88.32 + 0.044 · S	1.06 + 0.00018 · S	1/(1/4,73 + S/1760)
	NHN	44.21 + 0.054 · S	0.402 + 0.00025 · S	1/(1/4,72 + S/2549)
262-8	MCHCM	74.72 + 0.054 · S	0.828 + 0.00025 · S	1/(1/5,65 + S/2549)
	MFHFM	116.5 + 0.054 · S	1.673 + 0.00025 · S	1/(1/5,65 + S/2549)
	NHN	59.68 + 0.064 · S	0.643 + 0.00035 · S	1/(1/6,46 + S/3534)
285-8	MCHCM	97.63 + 0.064 · S	1.296 + 0.00035 · S	1/(1/7,87 + S/3534)
	MFHFM	151.8 + 0.064 · S	2.533 + 0.00035 · S	1/(1/7,87 + S/3534)
	NHN	75.6 + 0.078 · S	0.928 + 0.00049 · S	1/(1/8,95 + S/4945)
302-8	MCHCM	118.1 + 0.078 · S	1.744 + 0.00049 · S	1/(1/11,1 + S/4945)
	MFHFM	177.7 + 0.078 · S	3.329 + 0.00049 · S	1/(1/11,1 + S/4945)
	NHN	92.41 + 0.086 · S	1.285 + 0.00065 · S	1/(1/12,2 + S/6577)
321-8	MCHCM	144.2 + 0.086 · S	2.419 + 0.00065 · S	1/(1/15,4 + S/6577)
	MFHFM	210.8 + 0.086 · S	4.43 + 0.00065 · S	1/(1/15,4 + S/6577)
	NHN	126 + 0.098 · S	2.129 + 0.00098 · S	1/(1/16,7 + S/9874)
354-8	MCHCM	186 + 0.098 · S	3.809 + 0.00098 · S	1/(1/20,8 + S/9874)
	MFHFM	281.2 + 0.098 · S	7.189 + 0.00098 · S	1/(1/20,8 + S/9874)
	NHN	164.5 + 0.122 · S	3.343 + 0.0015 · S	1/(1/22,8 + S/15253)
387-8	MCHCM	234.9 + 0.122 · S	5.777 + 0.0015 · S	1/(1/26,4 + S/15253)
	MFHFM	344.1 + 0.122 · S	10.51 + 0.0015 · S	1/(1/26,4 + S/15253)
	NHN	196.8 + 0.141 · S	4.49 + 0.0019 · S	1/(1/27,1 + S/18813)
411-8	MCHCM	279.5 + 0.141 · S	7.712 + 0.0019 · S	1/(1/31,3 + S/18813)
	MFHFM	408.1 + 0.141 · S	13.99 + 0.0019 · S	1/(1/31,3 + S/18813)
	NHN	255.1 + 0.157 · S	6.883 + 0.0026 · S	1/(1/35,1 + S/25615)
447-8	MCHCM	358.7 + 0.157 · S	11.59 + 0.0026 · S	1/(1/40,9 + S/25615)
	MFHFM	525.6 + 0.157 · S	21.07 + 0.0026 · S	1/(1/40,9 + S/25615)
	NHN	345 + 0.2 · S	11.39 + 0.0042 · S	1/(1/43 + S/42683)
495-8	MCHCM	483.5 + 0.2 · S	19.42 + 0.0042 · S	1/(1/48,2 + S/42683)
	MFHFM	679.8 + 0.2 · S	33.62 + 0.0042 · S	1/(1/48,2 + S/42683)
	NHN	474 + 0.255 · S	19.16 + 0.0068 · S	1/(1/56,3 + S/67807)
546-8	MCHCM	649.6 + 0.255 · S	31.86 + 0.0068 · S	1/(1/62,2 + S/67807)
	MFHFM	908.9 + 0.255 · S	54.99 + 0.0068 · S	1/(1/62,2 + S/67807)
	NHN	590 + 0.324 · S	27.6 + 0.0088 · S	1/(1/65 + S/88708)
587-8	MCHCM	806 + 0.324 · S	45.37 + 0.0088 · S	1/(1/71,2 + S/88708)
	MFHFM	1131 + 0.324 · S	78.77 + 0.0088 · S	1/(1/71,2 + S/88708)
	NHN	715.1 + 0.361 · S	38.39 + 0.012 · S	1/(1/76,3 + S/123294)
631-8	MCHCM	981.7 + 0.361 · S	63.61 + 0.012 · S	1/(1/82,6 + S/123294)
	MFHFM	1417 + 0.361 · S	113.8 + 0.012 · S	1/(1/82,6 + S/123294)

LENGTH-DEPENDENT SPECIFICATIONS

of types NEN/ NHN, BEB, MCECM/MCHCM and MFEFM/MFHFM

Variant with E spacer

Size DA	Type	*m* kg	*J* kgm²	*C* MNm/rad
495-10	NEN	355.1 + 0.157 · S	11.7 + 0.0033 · S	1/(1/113 + S/33418)
	MFEFM	693 + 0.157 · S	33.97 + 0.0033 · S	1/(1/176 + S/33418)
546-10	NEN	483.7 + 0.212 · S	19.56 + 0.0056 · S	1/(1/138 + S/56448)
	MFEFM	921.8 + 0.212 · S	55.43 + 0.0056 · S	1/(1/190 + S/56448)
587-10	NEN	600.5 + 0.279 · S	28.09 + 0.0076 · S	1/(1/165 + S/76570)
	MFEFM	1145 + 0.279 · S	79.29 + 0.0076 · S	1/(1/223 + S/76570)
631-10	NEN	731.3 + 0.302 · S	39.23 + 0.01 · S	1/(1/187 + S/102143)
	MFEFM	1438 + 0.302 · S	114.8 + 0.01 · S	1/(1/241 + S/102143)
694-10	NEN	1057 + 0.39 · S	69.77 + 0.015 · S	1/(1/293 + S/154224)
	MFEFM	1950 + 0.39 · S	188.1 + 0.015 · S	1/(1/412 + S/154224)
734-10	NEN	1265 + 0.45 · S	94.03 + 0.02 · S	1/(1/373 + S/196935)
	MFEFM	2314 + 0.45 · S	248.7 + 0.02 · S	1/(1/542 + S/196935)
790-10	NEN	1587 + 0.53 · S	136.9 + 0.027 · S	1/(1/467 + S/270335)
	MFEFM	2919 + 0.53 · S	363.4 + 0.027 · S	1/(1/677 + S/270335)
887-10	NEN	2335 + 0.687 · S	256 + 0.042 · S	1/(1/644 + S/418343)
	MFEFM	4197 + 0.687 · S	665.8 + 0.042 · S	1/(1/944 + S/418343)
988-10	NEN	3264 + 0.975 · S	447.8 + 0.067 · S	1/(1/856 + S/675886)
	MFEFM	5736 + 0.975 · S	1129 + 0.067 · S	1/(1/1229 + S/675886)

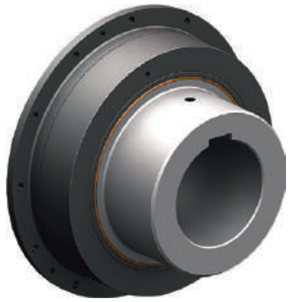
Variant with H spacer

Size DA	Type	*m* kg	*J* kgm²	*C* MNm/rad
495-10	NHN	345.7 + 0.2 · S	11.47 + 0.0042 · S	1/(1/94,7 + S/42683)
	MFHFM	678.9 + 0.2 · S	33.65 + 0.0042 · S	1/(1/124 + S/42683)
546-10	NHN	474.4 + 0.255 · S	19.28 + 0.0068 · S	1/(1/124 + S/67807)
	MFHFM	907.5 + 0.255 · S	55.03 + 0.0068 · S	1/(1/156 + S/67807)
587-10	NHN	589.9 + 0.324 · S	27.76 + 0.0088 · S	1/(1/152 + S/88708)
	MFHFM	1129 + 0.324 · S	78.81 + 0.0088 · S	1/(1/191 + S/88708)
631-10	NHN	714.5 + 0.361 · S	38.57 + 0.012 · S	1/(1/169 + S/123294)
	MFHFM	1414 + 0.361 · S	113.9 + 0.012 · S	1/(1/204 + S/123294)
694-10	NHN	1028 + 0.487 · S	68.47 + 0.019 · S	1/(1/257 + S/193881)
	MFHFM	1906 + 0.487 · S	186.2 + 0.019 · S	1/(1/322 + S/193881)
734-10	NHN	1229 + 0.563 · S	92.27 + 0.025 · S	1/(1/325 + S/247708)
	MFHFM	2260 + 0.563 · S	246.1 + 0.025 · S	1/(1/414 + S/247708)
790-10	NHN	1544 + 0.663 · S	134.4 + 0.034 · S	1/(1/409 + S/340076)
	MFHFM	2852 + 0.663 · S	359.6 + 0.034 · S	1/(1/522 + S/340076)
887-10	NHN	2278 + 0.844 · S	252 + 0.051 · S	1/(1/568 + S/517255)
	MFHFM	4107 + 0.844 · S	659.8 + 0.051 · S	1/(1/734 + S/517255)
988-10	NHN	3192 + 1.154 · S	441.8 + 0.08 · S	1/(1/774 + S/807126)
	MFHFM	5620 + 1.154 · S	1120 + 0.08 · S	1/(1/1006 + S/807126)

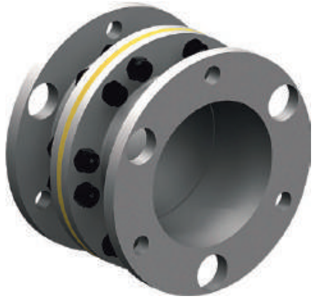
OTHER DESIGN OPTIONS

Flange version for adaptation to a customer flange

Intermediate spacer as a torsion shaft
for reducing the torsional stiffness



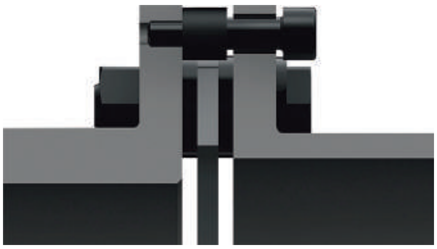
Slipping flanges for overload protection
against brief high-frequency torque shock loads



Version for avoiding leakage currents
between the connected units

Slipping hubs for overload protection
against brief high-frequency torque shock loads

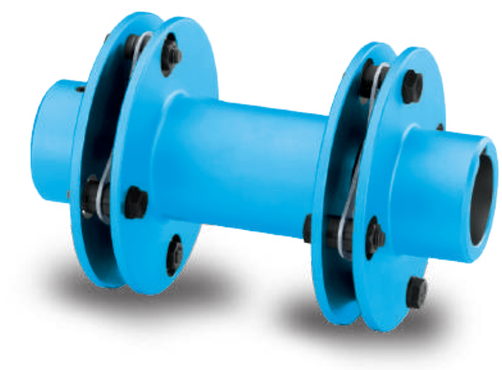
Vertical support for avoiding excessive axial loading of the plate
packs by the weight of the intermediate spacer



Axial backlash limiter

Brake disk/brake drum

GENERAL



Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

II 2G Ex h IIC T6 ... T2 Gb X

II 2D Ex h IIIC T85 °C ... 250 °C Db X

I M2 Ex h Mb X

6

Benefits

ARPEX couplings of the ARW-4/-6 series are outstanding for their large angular misalignment capacity of 3°. They were specially designed for drives where high misalignments which have to be compensated for by the coupling are to be expected. The intermediate spacer lengths are variable and are manufactured to customer specifications.

Application

ARPEX couplings of the ARW-4/-6 series are used where large misalignment capacities are required. In the paper-making machine industry, the ARW coupling has already proved itself as a maintenance-free alternative to the cardan shaft. Torques of between 92 and 80000 Nm can be transmitted at a permitted angular misalignment of 3.0°. The intermediate spacer can be fitted radially without moving the connected units.

Main areas of application for the ARW-4/-6 series:

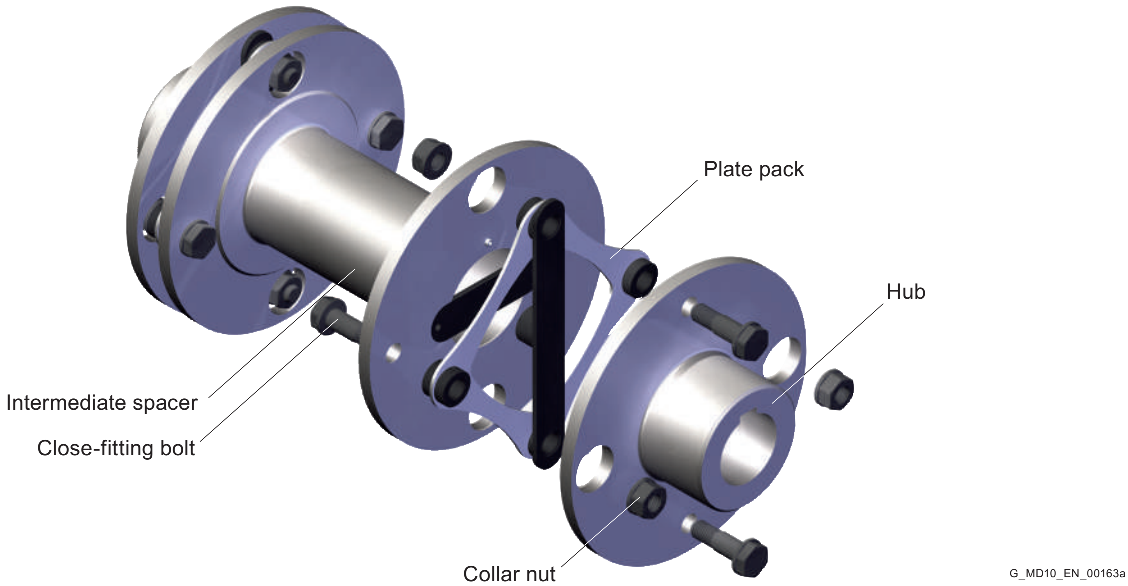
- Paper-making machines
- Wind power systems
- Traction drives

Design and configurations

The design of an ARPEX NHN coupling of the ARW-4/-6 series is shown in the following illustration. The plate packs are bolted alternately between the flanges of the coupling hubs and the intermediate spacer. Up to size 292-4 close-fitting bolts and from size 324-4 conical screw connections are used for fastening.

Up to size 647-4 plate packs in rectangular design, from size 695-6 in hexagonal design are used. The intermediate spacers are variable in length and are manufactured specifically to customer specifications.

6



Variants of the ARPEX coupling, ARW-4/-6 series

Variants of the ARPEX coupling, ARW-4/-6 series

Type	Description
NHN	Variant with unmachined intermediate spacer, with variable spacer length

The article number can be obtained with the help of the Configurator. The coupling can be selected in a product configurator and specified using selection menus.

The Configurator is available under **flender.com**

The coupling can be selected via "Technical selection" (technical selection) or via "Direct selection" (via article-no.).

The coupling parts of the ARPEX ARW-4/-6 series with the exception of H spacers are machined on all sides. These are delivered with unmachined, primed spacer tube.

GENERAL

Technical specifications

Power ratings

Size	Rated torque T_{KN}	Maximum torque T_{Kmax}	Overload torque T_{KOL}	Fatigue torque T_{KW}	Maximum speed n_{Kmax}	Maximum permitted shaft misalignment				Torsional stiffness C_{Tdyn}
						$+\Delta K_a$ Tension	$-\Delta K_a$ Compression	$\pm\Delta K_w$	$\pm\Delta K_r$	
	Nm	Nm	Nm	Nm	rpm	mm	mm		mm	MNm/rad
									for S = 1000 mm	for S = 1000 mm
101-4	92	140	230	37	10400	2.4	2		51.8	0.006
133-4	225	340	560	90	7850	3.3	2.2		51.7	0.012
167-4	450	680	1130	180	6250	4.2	2.2		51.6	0.028
196-4	800	1200	2000	320	5350	5.1	2.2		51.6	0.068
230-4	1250	1880	3200	500	4550	5.7	2.2		51.6	0.108
260-4	2000	3000	5000	800	4000	6.6	2.2		51.5	0.174
292-4	2700	4100	6800	1080	3550	7.5	2.8		51.4	0.275
324-4	3850	5800	9700	1540	3200	8.4	2.8		51.4	0.451
355-4	5250	7900	13200	2100	2950	9	2.8		51.4	0.622
389-4	6650	10000	16700	2660	2700	10	2.8	3.0 °	51.4	0.657
439-4	9850	15000	25000	3940	2350	11.1	3		51.3	1.08
499-4	13300	20000	34000	5320	2100	12.4	4.8		50.8	1.32
547-4	19000	29000	48000	7600	1900	13.4	4.8		50.7	2.03
600-4	25150	38000	63000	10060	1750	14.6	4.8		50.6	2.73
647-4	32500	49000	82000	13000	1600	16	4.8		50.6	3.93
695-6	41000	62000	103000	16400	1500	17	4.8		50.7	10.1
756-6	52000	78000	130000	20800	1350	18	4.8		50.6	14
817-6	65000	98000	163000	26000	1250	20	4.8		50.5	16.9
880-6	80000	120000	200000	32000	1150	22	4.8		50.5	21.2

The radial misalignment ΔK_r applies to a type NHN coupling with a shaft distance S = 1000 mm. The radial misalignment ΔK_r for other shaft distances S is calculated as follows: $\Delta K_r = (S - S1) \cdot \tan(\Delta K_w)$

The permitted shaft misalignments ΔK_a, ΔK_r and ΔK_w are maximum values and must not occur at the same time (see following table).

The torsional stiffness values apply to the entire coupling with shaft distance S = 1000 mm. The torsional stiffness of the plate packs applies to the rated coupling torque T_{KN}. To determine the torsional stiffness for a specific operating point, e.g. for calculating torsional vibration, the manufacturer must be consulted.

- T_{Kmax} permitted only five times per hour.
- T_{KW} for medium torque T_N = 0 Nm.
- If T_N and T_{KW} occur at the same time, the manufacturer must be consulted.

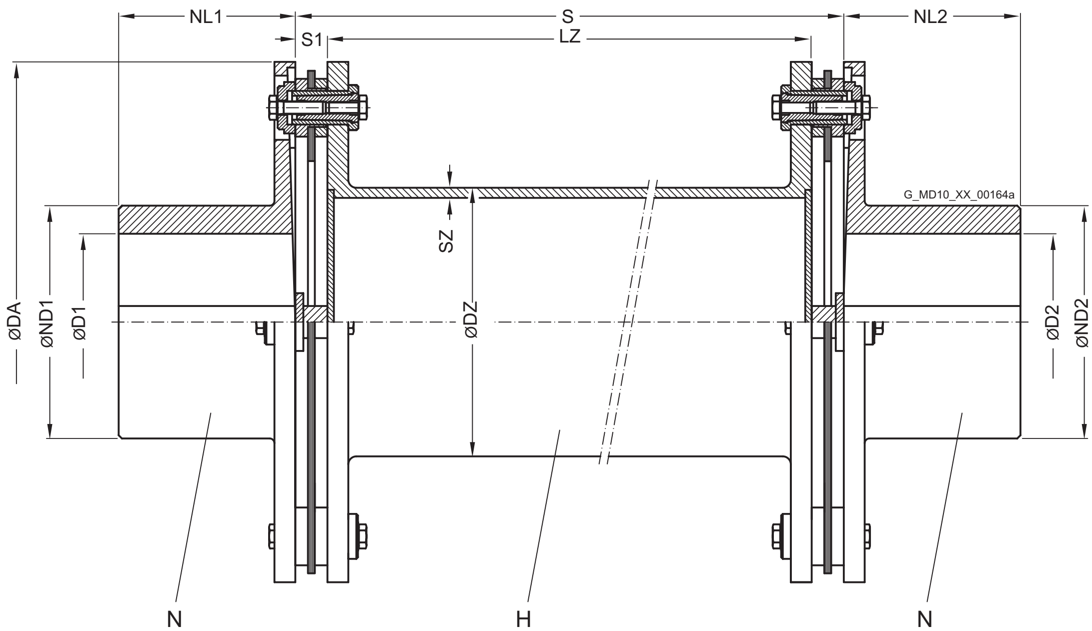
Permitted shaft misalignments						
Size	Permitted angular misalignment ΔK_w (tension +)			Permitted angular misalignment ΔK_w (compression –)		
	3.0 °	1.5 °	0.0 °	3.0 °	1.5 °	0.0 °
	Permitted axial misalignment ΔK_a in mm			Permitted axial misalignment ΔK_a in mm		
101-4	0.8	1.6	2.4	0.8	1.6	2
133-4	1.1	2.2	3.3	1.1	2.2	2.2
167-4	1.4	2.8	4.2	1.4	2.2	2.2
196-4	1.7	3.4	5.1	1.7	2.2	2.2
230-4	1.9	3.8	5.7	1.9	2.2	2.2
260-4	2.2	4.4	6.6	2.2	2.2	2.2
292-4	2.5	5	7.5	2.5	2.8	2.8
324-4	2.8	5.6	8.4	2.8	2.8	2.8
355-4	3	6	9	2.8	2.8	2.8
389-4	3.3	6.7	10	2.8	2.8	2.8
439-4	3.7	7.4	11.1	3	3	3
499-4	4.1	8.3	12.4	4.1	4.8	4.8
547-4	4.5	8.9	13.4	4.4	4.8	4.8
600-4	4.9	9.7	14.6	4.8	4.8	4.8
647-4	5.3	10.7	16	4.8	4.8	4.8
695-6	5.6	11.4	17	4.8	4.8	4.8
756-6	6	12.1	18	4.8	4.8	4.8
817-6	6.7	13.4	20	4.8	4.8	4.8
880-6	7.3	14.8	22	4.8	4.8	4.8

Because of design specifications, the maximum possible axial shaft misalignment with plate packs pulled apart (**tension +**) is greater than with plate packs pressed together (**compression –**).

6

TYPE NHN

Torsionally rigid type NHN coupling with high angular misalignment capacity up to 3° and radially freely dismountable intermediate spacer and variable shaft distance S.



Size	Rated torque	Maximum speed	Dimensions in mm								Mass moment of inertia	↗ Article no. [1]	Weight
DA	T_{KN}	n_{Kmax}	D1, D2 Keyway DIN 6885	ND1/ ND2	DZ	SZ	NL1/ NL2	S1	LZ	Shaft dis-tance S	J		m
mm	Nm	rpm	max.								kgm²		kg
101-4	**92**	10400	**32**	45	45	2.9	32	11	43	65	0.002	**2LC0530-0AD**	1.5
133-4	**225**	7850	**45**	60	48	2.9	45	13	59	85	0.008	**2LC0530-1AD**	3.9
167-4	**450**	6250	**50**	70	64	4	50	15	70	100	0.022	**2LC0530-2AD**	7.1
196-4	**800**	5350	**60**	80	89	4	60	16	83	115	0.056	**2LC0530-3AD**	12.1
230-4	**1250**	4550	**75**	100	102	5	75	16	83	115	0.109	**2LC0530-4AD**	17.9
260-4	**2000**	4000	**90**	120	133	5	90	17	96	130	0.189	**2LC0530-5AD**	24.6
292-4	**2700**	3550	**100**	130	152	5	100	19	92	130	0.359	**2LC0530-6AD**	35.1
324-4	**3850**	3200	**110**	145	168	6.3	110	20	120	160	0.52	**2LC0530-7AD**	43.7
355-4	**5250**	2950	**120**	160	178	7.1	120	20	125	165	0.856	**2LC0530-8AD**	59.8
389-4	**6650**	2700	**130**	175	194	7.1	130	20	130	170	1.09	**2LC0531-0AD**	68.9
439-4	**9850**	2350	**150**	200	219	7.1	150	22	166	210	2.23	**2LC0531-1AD**	106
499-4	**13300**	2100	**165**	220	245	7.1	165	30	170	230	3.81	**2LC0531-2AD**	142
547-4	**19000**	1900	**190**	250	299	8.8	190	32	176	240	6.24	**2LC0531-3AD**	191
600-4	**25150**	1750	**205**	275	324	8.8	205	34	182	250	10.2	**2LC0531-4AD**	257
647-4	**32500**	1600	**225**	300	343	10	225	35	220	290	16.5	**2LC0531-5AD**	348
695-6	**41000**	1500	**240**	325	368	10	240	33	224	290	23.7	**2LC0540-0AD**	441
756-6	**52000**	1350	**255**	340	394	12.5	255	34	232	300	33.2	**2LC0540-1AD**	525
817-6	**65000**	1250	**270**	360	406	12.5	270	36	238	310	49.1	**2LC0540-2AD**	659
880-6	**80000**	1150	**300**	400	419	12.5	300	37	256	330	72.8	**2LC0540-3AD**	849

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Permitted shaft distance S of type NHN relative to speed

Size DA mm	Speed n_N 500 rpm	600	700	800	900	1000	1200	1400	1500	2000	2500	3000	4000
	Permitted shaft distance S in mm												
101-4	2822	2577	2387	2233	2106	1999	1825	1691	1634	1416	1268	1159	1005
133-4	2949	2693	2494	2334	2201	2089	1908	1767	1708	1481	1326	1212	1051
167-4	3376	3083	2856	2672	2520	2392	2185	2024	1956	1696	1518	1387	1203
196-4	4029	3679	3407	3188	3007	2854	2606	2414	2333	2022	1811	1654	1435
230-4	4297	3924	3634	3400	3207	3043	2779	2574	2488	2156	1930	1764	1530
260-4	4943	4514	4181	3912	3689	3500	3197	2961	2861	2480	2220	2028	1759
292-4	5305	4844	4487	4198	3959	3757	3431	3178	3071	2662	2383	2177	
324-4	5562	5079	4704	4401	4151	3939	3597	3332	3220	2791	2499	2283	
355-4	5709	5214	4828	4518	4261	4043	3692	3420	3305	2865	2564		
389-4	5968	5450	5047	4722	4453	4226	3859	3575	3454	2994	2680		
439-4	6361	5809	5380	5034	4747	4505	4114	3811	3682	3192			
499-4	6738	6154	5699	5333	5030	4773	4360	4039	3903	3384			
547-4	7442	6797	6295	5890	5555	5272	4815	4460	4310				
600-4	7762	7089	6565	6144	5794	5499	5022	4652	4496		Outside the permitted speed range		
647-4	7980	7287	6750	6316	5957	5653	5163	4783	4622				
695-6	8000	7553	6995	6545	6173	5858	5350	4956	4789				
756-6	8000	7797	7221	6757	6372	6047	5523						
817-6	8000	7920	7335	6864	6473	6143	5611						
880-6	8000	8000	7456	6977	6580	6244							

Notes

- The permitted length of the intermediate spacer depends on the maximum operating speed of the coupling. In the case of individual order of the intermediate spacer, the length (LZ) must be specified.
- Mass moments of inertia and weights apply to the entire NHN coupling with maximum bores D1/D2 and a shaft distance S = S min.

Ordering example

- ARPEX ARW-4 NHN coupling, size 133-4, with shaft distance S = 1000 mm,
- Bore ØD1 40H7 mm, with keyway to DIN 6885 and set screw
- Bore ØD2 45K7 mm, with keyway to DIN 6885 and set screw

Article no.: 2LC0530-1AD99-0AZ0-Z L0W+M1A+Q0Y+M13
Plain text to Q0Y: S = 1000 mm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

SPARE AND WEAR PARTS

Plate pack, ARW-4/-6 series

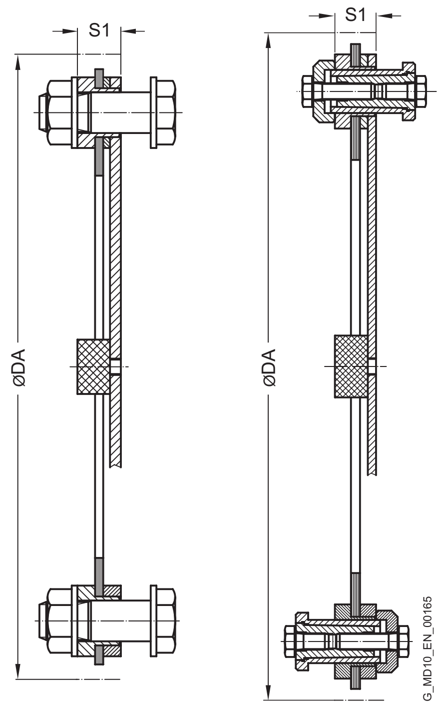


Figure 1

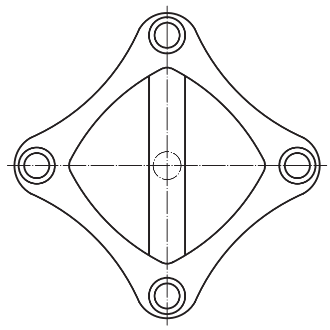
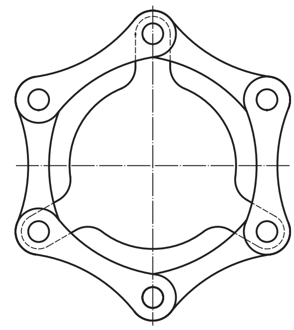


Figure 2



Size DA mm	Dimensions S1 mm	Mass moment of inertia *J* kgm²	Article No.	Weight *m* kg
101-4	11	0.0001	2LC0530-0AB00-0AA0	0.1
133-4	13	0.0005	2LC0530-1AB00-0AA0	0.2
167-4	15	0.0017	2LC0530-2AB00-0AA0	0.5
196-4	16	0.0037	2LC0530-3AB00-0AA0	0.7
230-4	16	0.0068	2LC0530-4AB00-0AA0	1
260-4	17	0.0136	2LC0530-5AB00-0AA0	1.5
292-4	19	0.0227	2LC0530-6AB00-0AA0	1.9
324-4	20	0.0288	2LC0530-7AB00-0AA0	2.1
355-4	20	0.0452	2LC0530-8AB00-0AA0	2.7
389-4	20	0.0645	2LC0531-0AB00-0AA0	3.2
439-4	22	0.1147	2LC0531-1AB00-0AA0	4.5
499-4	30	0.2235	2LC0531-2AB00-0AA0	6.9
547-4	32	0.3658	2LC0531-3AB00-0AA0	9.5
600-4	34	0.5355	2LC0531-4AB00-0AA0	11.4
647-4	35	0.7939	2LC0531-5AB00-0AA0	14.6
695-6	33	1.4624	2LC0540-0AB00-0AA0	24.6
756-6	34	1.225	2LC0540-1AB00-0AA0	20.2
817-6	36	1.7497	2LC0540-2AB00-0AA0	23.9
880-6	37	2.546	2LC0540-3AB00-0AA0	28.9

Notes

- Plate packs of the ARW-4 series comprise ring plates (Fig. 1), those of the ARW-6 series side-bar plates (Fig. 2).
- The plate pack of the ARW-4/-6 series is readily available as a spare part.
- The plate pack is delivered with screw connection.
- Up to size 292-4 close-fitting bolts with collar nuts, from size 324-4 conical screw connections are used.

Ordering example

- ARPEX ARW-4 plate pack, size 133-4, complete with screw connection.

Article no.: 2LC0530-1AB00-0AA0

GENERAL

Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

CE Ex II 2G Ex h IIC T6 ... T2 Gb X

Ex II 2D Ex h IIIC T85 °C ... 250 °C Db X

Ex I M2 Ex h Mb X

Benefits

ARPEX couplings of the ARF-6 series are extremely short and so suitable for drives with short shaft distances. They also serve as self-aligning couplings for axial, angular and radial misalignment. The hubs are available both as pure clamping hubs for smooth shafts and with parallel keyway for shafts with parallel key.
The variant with slit clamping hubs enables the delivery of fully preassembled couplings. This means that the entire coupling can be dismounted and fitted without moving the connected units.

Application

ARPEX couplings of the ARF-6 series are designed for minimum fitting spaces without having to sacrifice the advantages of the two-joint coupling. It is thus possible to compensate for both axial and angular as well as radial misalignment. By using half-shell clamping hubs, the coupling can be radially freely dismounted. Power is transmitted via hexagon socket head cap screws and close-fitting bolts with nuts and ring plate packs in hexagonal design. Torques of between 120 and 6100 Nm can be transmitted at a permitted angular misalignment of 0.7°.

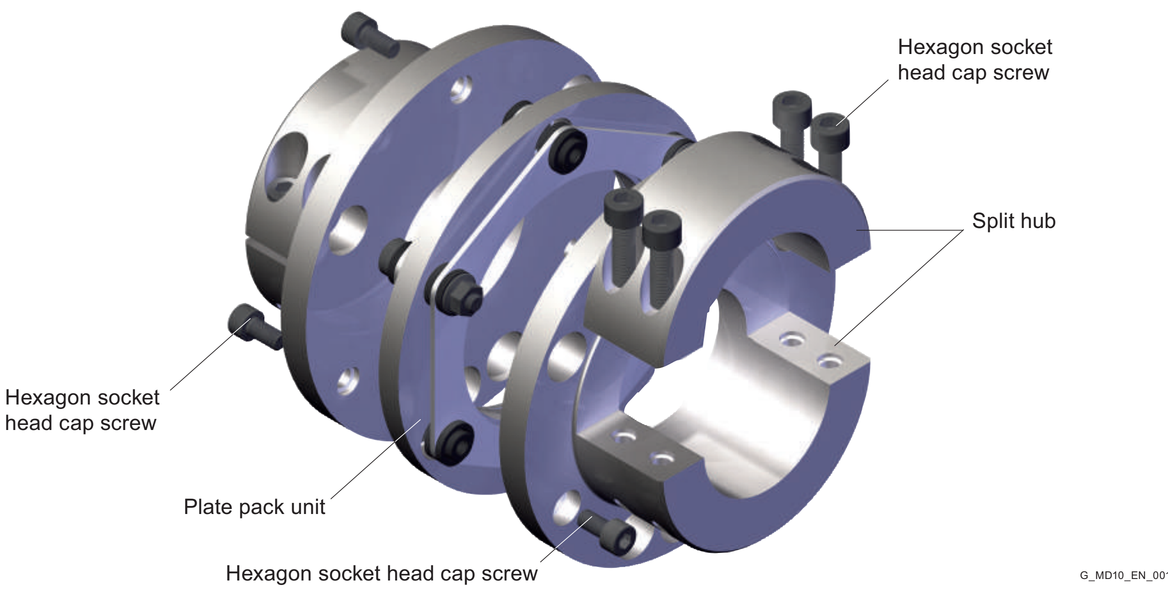
Main areas of application for the ARF-6 series:

- Film stretching machines
- Machines in the cellulose industry
- Machines in confined fitting situations

GENERAL

Design and configurations

The two plate packs form a unit with the adapter disk and are screwed together with close-fitting bolts and nuts at three points. The alternate connection of this intermediate unit with the flanges of the split coupling hubs is achieved by means of short hexagon socket head cap screws at further three points. The hubs are designed as axially slit clamping hubs with a half-shell. For larger bores these can be manufactured as jumbo hubs. Optionally, the hubs are also available without parallel keyway.



Design of the ARPEX coupling, ARF series

Variants of the ARF coupling

Type	Description
GG	Variant with 2 standard clamping hubs
GJ	Variant with 1 jumbo clamping hub for large bore diameters

The article number can be obtained with the help of the Configurator. The coupling can be selected in a product configurator and specified using selection menus.

The Configurator is available under **flender.com**

The coupling can be selected via "Technical selection" (technical selection) or via "Direct selection" (via article-no.).

6

Technical specifications

Power ratings, types GG and GJ									
Size	Rated torque	Maximum torque	Overload torque	Fatigue torque	Maximum speed	Maximum permitted shaft misalignment			Torsional stiffness
	T_{KN}	T_{Kmax}	T_{KOL}	T_{KW}	n_{Kmax}	$\pm\Delta K_a$	$\pm\Delta K_w$	$\pm\Delta K_r$	C_T
	Nm	Nm	Nm	Nm	rpm	mm		mm	MNm/rad
84-6	120	220	330	55	12500	1.1	0.7 °	0.16	0.07
111-6	190	350	520	90	9450	1.8		0.16	0.13
132-6	350	650	950	160	7950	2.02		0.2	0.2
147-6	500	900	1350	230	7100	2.4		0.2	0.28
171-6	900	1700	2450	400	6100	2.74		0.24	0.57
182-6	1450	2600	4000	650	5750	2.86		0.29	0.66
202-6	2150	3900	5800	980	5200	3.06		0.29	0.77
218-6	3200	5800	8700	1450	4800	3.14		0.37	1.25
252-6	4500	8100	12000	2000	4150	3.7		0.45	1.55
267-6	6100	11000	16500	2800	3900	3.84		0.46	1.8

The permitted shaft misalignments ΔK_a, ΔK_r and ΔK_w are maximum values and must not occur at the same time (see following table).

- T_{Kmax} permitted only five times per hour.
- T_{KW} for medium torque T_N = 0 Nm.
- If T_N and T_{KW} occur at the same time, the manufacturer must be consulted.

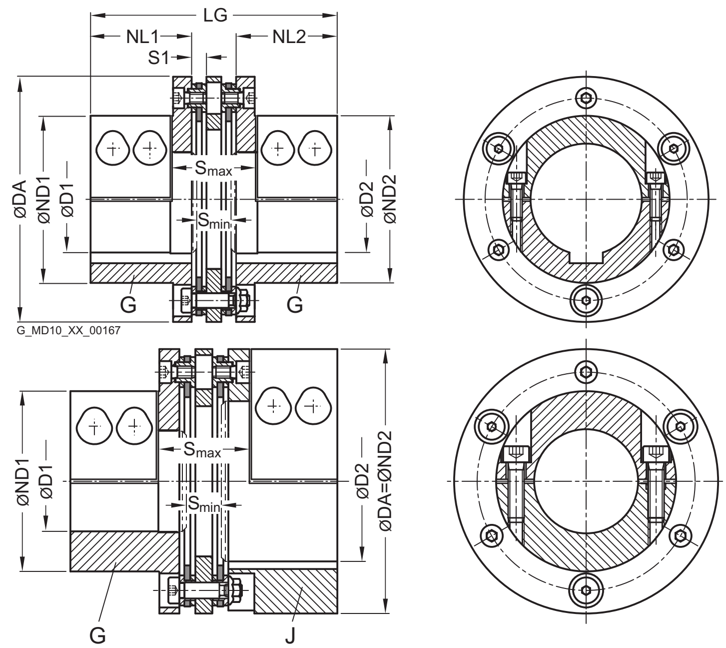
The values for torsional stiffness apply to the complete coupling. The torsional stiffness of the plate packs applies to the rated coupling torque T_{KN}. To determine the torsional stiffness for a specific operating point, e.g. for calculating torsional vibration, the manufacturer must be consulted.

Permitted shaft misalignments								
Size	Permitted angular misalignment $\pm\Delta K_w$							
	0.0 °	0.1 °	0.2 °	0.3 °	0.4 °	0.5 °	0.6 °	0.7 °
	Permitted axial misalignment $\pm\Delta K_a$ in mm							
84-6	1.1	0.94	0.79	0.63	0.47	0.31	0.16	0
111-6	1.8	1.54	1.29	1.03	0.77	0.51	0.26	0
132-6	2.02	1.73	1.44	1.15	0.87	0.58	0.29	0
147-6	2.4	2.06	1.71	1.37	1.03	0.69	0.34	0
171-6	2.74	2.35	1.96	1.57	1.17	0.78	0.39	0
182-6	2.86	2.45	2.04	1.63	1.23	0.82	0.41	0
202-6	3.06	2.62	2.19	1.75	1.31	0.87	0.44	0
218-6	3.14	2.69	2.24	1.79	1.35	0.9	0.45	0
252-6	3.7	3.17	2.64	2.11	1.59	1.06	0.53	0
267-6	3.84	3.29	2.74	2.19	1.65	1.1	0.55	0

TYPES GG AND GJ

Radially freely dismountable, torsionally rigid coupling, available as types GG and GJ.

Complete dismounting without moving the units with extremely short shaft distances.



Size DA mm	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Type	Dimensions in mm – Keyway DIN 6885 – D1 max. – Parallel key/ Clamping seat	D2 max. – Parallel key	D2 max. – Clamping seat	ND1	ND2	NL1/ NL2	S1	Shaft distance S – min	Shaft distance S – max.	LG	Mass moment of inertia *J* kgm²	↗ Article no. [1]	Weight *m* kg
84-6	120	12500	GG	25	25	25	50	50	40	6	16	39	99	0.0013	2LC0420-0AB99-0AA0	1.7
			GJ		40	48		84						0.0021	2LC0420-0AC99-0AA0	2.1
111-6	190	9450	GG	48	48	48	76	76	40	6	16	39	99	0.0043	2LC0420-1AB99-0AA0	2.9
			GJ		65	65		111						0.0067	2LC0420-1AC99-0AA0	3.6
132-6	350	7950	GG	52	52	52	90	90	55	8	18.5	45	134	0.011	2LC0420-2AB99-0AA0	5.7
			GJ		75	80		132						0.0177	2LC0420-2AC99-0AA0	7
147-6	500	7100	GG	60	60	60	105	105	65	8	18.5	45	154	0.0199	2LC0420-3AB99-0AA0	8.3
			GJ		85	85		147						0.0324	2LC0420-3AC99-0AA0	10.4
171-6	900	6100	GG	70	70	70	122	122	75	9	22.5	56	179	0.0439	2LC0420-4AB99-0AA0	13.3
			GJ		100	100		171						0.0695	2LC0420-4AC99-0AA0	16.4
182-6	1450	5750	GG	70	70	70	126	126	85	11	29	71	205	0.0649	2LC0420-5AB99-0AA0	17.5
			GJ		100	110		182						0.1005	2LC0420-5AC99-0AA0	20.9
202-6	2150	5200	GG	75	75	75	138	138	85	11	29	71	205	0.0986	2LC0420-6AB99-0AA0	21.9
			GJ		115	125		202						0.1519	2LC0420-6AC99-0AA0	25.6
218-6	3200	4800	GG	90	90	90	149	149	95	14	35	86	234	0.1499	2LC0420-7AB99-0AA0	27.2
			GJ		130	130		218						0.2345	2LC0420-7AC99-0AA0	33.6
252-6	4500	4150	GG	100	100	100	166	166	105	17	40.5	101	264	0.2924	2LC0420-8AB99-0AA0	39.9
			GJ		140	150		252						0.4651	2LC0420-8AC99-0AA0	49.8
267-6	6100	3900	GG	110	110	100	177	177	110	17	40.5	102	275	0.3827	2LC0421-0AB99-0AA0	45.9
			GJ		150	160		267						0.6129	2LC0421-0AC99-0AA0	58.1

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Notes

- The shaft tolerance must be specified in the order.
  To specify, "**-Z**" must be added to the article no. and the order codes "**Y26**" and "**Y27**" with plain text specification of the shaft tolerance for D1 and D2 must be added as well.
- Jumbo hubs for larger shaft diameters.
  G and J hubs in split clamping hub variant.
  The hub variant with keyway rates as standard. Optionally, the shaft/hub connection can be implemented without keyway as a pure clamping seat.
  For specification of plate pack, see **Page 6/40**.
- Weights and mass moments of inertia apply to the entire coupling with maximum bores D1/D2.

Ordering example

- ARPEX ARF-6 GG coupling, size 132-6
- for shaft diameter ØD1 45h6 mm, without keyway
- for shaft diameter ØD2 50k6 mm,
  with keyway to DIN 6885-1, keyway width P9.

Article no.: 2LC0420-2AB99-0AA0-Z L1A+M1C+L45+Y26+Y27
Plain text to Y26: h6
Plain text to Y27: k6

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

SPARE AND WEAR PARTS

6

Plate pack, ARF-6 series

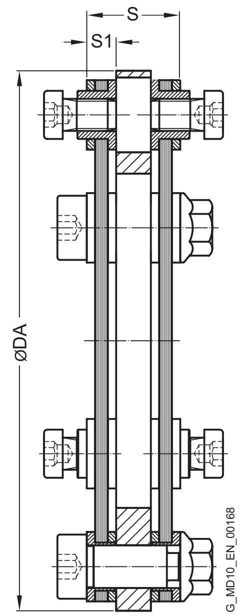
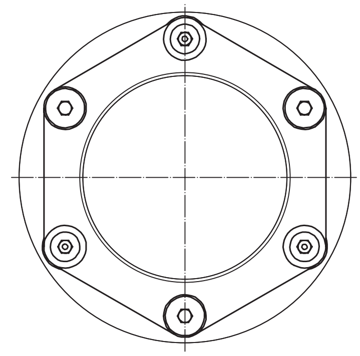


Figure 1



Size DA mm	Type	Dimensions S mm	 S1 mm	Mass moment of inertia *J* kgm²	Article No.	Weight *m* kg
84-6	GG	19	6	0.0003	2LC0420-0AE00-0AA0	0.3
	GJ				2LC0420-0AH00-0AA0	
111-6	GG	19	6	0.0009	2LC0420-1AE00-0AA0	0.46
	GJ				2LC0420-1AH00-0AA0	
132-6	GG	24	8	0.0026	2LC0420-2AE00-0AA0	0.9
	GJ				2LC0420-2AH00-0AA0	
147-6	GG	24	8	0.0038	2LC0420-3AE00-0AA0	1.07
	GJ				2LC0420-3AH00-0AA0	
171-6	GG	29	9	0.0097	2LC0420-4AE00-0AA0	1.96
	GJ				2LC0420-4AH00-0AA0	
182-6	GG	35	11	0.0143	2LC0420-5AE00-0AA0	2.58
	GJ				2LC0420-5AH00-0AA0	
202-6	GG	35	11	0.024	2LC0420-6AE00-0AA0	3.53
	GJ				2LC0420-6AH00-0AA0	
218-6	GG	44	14	0.0383	2LC0420-7AE00-0AA0	4.89
	GJ				2LC0420-7AH00-0AA0	
252-6	GG	54	17	0.0812	2LC0420-8AE00-0AA0	7.9
	GJ				2LC0420-8AH00-0AA0	
267-6	GG	55	17	0.1152	2LC0421-0AE00-0AA0	9.6
	GJ				2LC0421-0AH00-0AA0	

Note

- Ring plates (Figure 1) are used for the plate packs.
- The plate pack unit for the ARF-6 series is readily available as a spare part in most sizes.
- The plate pack unit comprises two preassembled plate packs with adapter disk, including screw connection. The standard screw connection comprises hexagon socket head cap screws and close-fitting bolts with nuts.

APPENDIX

FITS

Fitting recommendations

For many applications, the fit assignment m6/H7 is especially suitable.

Description	Application	Shaft tolerance	Bore tolerance
Sliding fit with parallel key connection not suitable for reversing operation	For steel and cast hubs	j6	H7
		h6	J7
Press fit with parallel key connection not suitable for reversing operation	For steel and cast hubs	h6	K7
		k6	H7
Interference fit with parallel key connection suitable for reversing operation	For steel and cast hubs	m6	H7
		n6	H7
		h6	M7
	Only for steel hubs	h6	P7
	Preferred for ZAPEX and ARPEX coupling series.	k6	M7
		m6	K7
		n6	J7
		p6	H7
		s6	F7
Shrink fit connection without parallel key	Only for steel hubs	u6	H6
	The permitted hub tension must be urgently checked.	v6	H6
		x6	H6

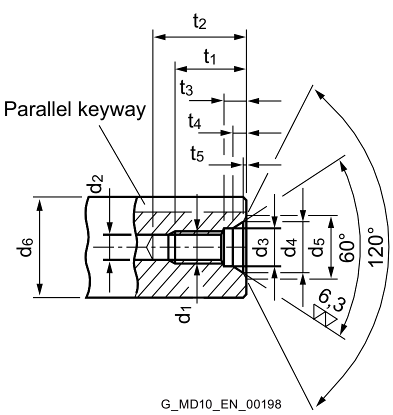
Deviation table to DIN ISO 286 for above-mentioned fits for bore diameters from 10 mm to 250 mm

Bore diameter		Deviations in µm											
		Bore						Shaft					
above	up to	F7	H7	J7	K7	M7	P7	h6	j6	k6	m6	n6	p6
10	18	+34	+18	+10	+6	0	-11	0	+8	+12	+18	+23	+29
		+16	0	-8	-12	-18	-29	-11	-3	+1	+7	+12	+18
18	30	+41	+21	+12	+6	0	-14	0	+9	+15	+21	+28	+35
		+20	0	-9	-15	-21	-35	-13	-4	+2	+8	+15	+22
30	50	+50	+25	+14	+7	0	-17	0	+11	+18	+25	+33	+42
		+25	0	-11	-18	-25	-42	-16	-5	+2	+9	+17	+26
50	80	+60	+30	+18	+9	0	-21	0	+12	+21	+30	+39	+51
		+30	0	-12	-21	-30	-51	-19	-7	+2	+11	+20	+32
80	120	+71	+35	+22	+10	0	-24	0	+13	+25	+35	+45	+59
		+36	0	-13	-25	-35	-59	-22	-9	+3	+13	+23	+37
120	180	+83	+40	+26	+12	0	-28	0	+14	+28	+40	+52	+68
		+43	0	-14	-28	-40	-68	-25	-11	+3	+15	+27	+43
180	250	+96	+46	+30	+13	0	-33	0	+16	+33	+46	+60	+79
		+50	0	-16	-33	-46	-79	-29	-13	+4	+17	+31	+50

Cylindrical shaft ends, extract from DIN 748 Part 1 (long)

	Diameter in mm																					
	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75	80	85	90	95	100
ISO tolerance zone	k6												m6									
End length in mm	50	60		80				110						140				170				210

Central holes according to DIN 332 Part 2



Form DS (with thread) DIN 332/2

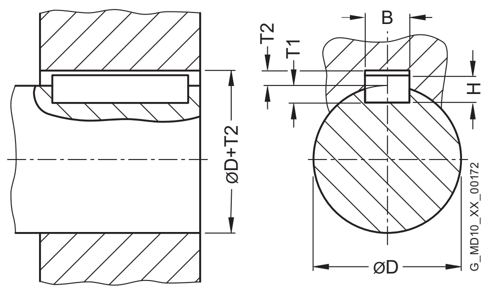
Recommended diameter ranges d_6 [1]		DS form dimensions									
above	up to	d_1	d_2 [2]	d_3	d_4	d_5	t_1 +2	t_2 min.	t_3 +1	t_4 approx.	t_5 approx.
7	**10**	M3	2.5	3.2	5.3	5.8	9	12	2.6	1.8	0.2
10	**13**	M4	3.3	4.3	6.7	7.4	10	14	3.2	2.1	0.3
13	**16**	M5	4.2	5.3	8.1	8.8	12.5	17	4	2.4	0.3
16	**21**	M6	5	6.4	9.6	10.5	16	21	5	2.8	0.4
21	**24**	M8	6.8	8.4	12.2	13.2	19	25	6	3.3	0.4
24	**30**	M10	8.5	10.5	14.9	16.3	22	30	7.5	3.8	0.6
30	**38**	M12	10.2	13	18.1	19.8	28	37	9.5	4.4	0.7
38	**50**	M16	14	17	23	25.3	36	45	12	5.2	1.0
50	**85**	M20	17.5	21	28.4	31.3	42	53	15	6.4	1.3
85	**130**	M24	21	25	34.2	38	50	63	18	8	1.6
130	**225**	M30 [3]	26.5	31	40.2	44.6	60	77	22	8	1.9
225	**320**	M36 [3]	32	37	49.7	55	74	93	22	11	2.3
320	**500**	M42 [3]	37.5	43	60.3	66.6	84	105	26	15	2.7

[1] Diameter refers to the finished workpiece

[2] Tap hole drill diameter according to DIN 336 Part 1

[3] Dimensions not acc. to DIN 332 Part 2

PARALLEL KEY CONNECTIONS TO DIN 6885-1



For moderate operating conditions, the hub keyway tolerance JS9 is recommended.

In harsh operating conditions or during reversing operation, the keyway width tolerance P9 must be preferred.

With two parallel keyways, the keyway width tolerance JS9 should be specified in order to simplify the assembly.

The shaft keyway width has to be specified with the tolerance N9.

Diameter above D mm	Diameter up to mm	Keyway width B mm	Parallel key height H mm	Shaft keyway depth T1 mm	Hub keyway depth T2 mm	Deviation for shaft and hub keyway depth mm	Deviation table for keyway width B JS9 µm	Deviation table for keyway width B P9 µm
	10	3	3	1.8	1.4	+0.1	+12.5	-6
							-12.5	-31
10	12	4	4	2.5	1.8	+0.1	+15	-12
							-15	-42
12	17	5	5	3	2.3	+0.1	+15	-12
							-15	-42
17	22	6	6	3.5	2.8	+0.1	+15	-12
							-15	-42
22	30	8	7	4	3.3	+0.2	+18	-15
							-18	-51
30	38	10	8	5	3.3	+0.2	+18	-15
							-18	-51
38	44	12	8	5	3.3	+0.2	+21.5	-18
							-21.5	-61
44	50	14	9	5.5	3.8	+0.2	+21.5	-18
							-21.5	-61
50	58	16	10	6	4.3	+0.2	+21.5	-18
							-21.5	-61
58	65	18	11	7	4.4	+0.2	+21.5	-18
							-21.5	-61
65	75	20	12	7.5	4.9	+0.2	+26	-22
							-26	-74
75	85	22	14	9	5.4	+0.2	+26	-22
							-26	-74
85	95	25	14	9	5.4	+0.2	+26	-22
							-26	-74

Diameter		Keyway width	Parallel key height	Shaft keyway depth	Hub keyway depth	Deviation for shaft and hub keyway depth	Deviation table for keyway width B	
above D mm	up to mm	B mm	H mm	T1 mm	T2 mm	mm	JS9 µm	P9 µm
95	110	28	16	10	6.4	+0.2	+26	-22
							-26	-74
110	130	32	18	11	7.4	+0.2	+31	-26
							-31	-88
130	150	36	20	12	8.4	+0.3	+31	-26
							-31	-88
150	170	40	22	13	9.4	+0.3	+31	-26
							-31	-88
170	200	45	25	15	10.4	+0.3	+31	-26
							-31	-88
200	230	50	28	17	11.4	+0.3	+31	-26
							-31	-88
230	260	56	32	20	12.4	+0.3	+37	-32
							-37	-106
260	290	63	32	20	12.4	+0.3	+37	-32
							-37	-106
290	330	70	36	22	14.4	+0.3	+37	-32
							-37	-106
330	380	80	40	25	15.4	+0.3	+37	-32
							-37	-106
380	440	90	45	28	17.4	+0.3	+43.5	-37
							-43.5	-124
440	500	100	50	31	19.4	+0.3	+43.5	-37
							-43.5	-124

A

RELATED CATALOGS

Torsionally Rigid Couplings

FLE 10.1

FLEX-C10001-00-7600

Flexible Couplings

FLE 10.2

FLEX-C10002-00-7600

Highly Flexible Couplings

FLE 10.3

FLEX-C10003-00-7600

Fluid Couplings

FLE 10.4

FLEX-C10004-00-7600

ARPEX

High Performance Couplings
MD 10.2

PDMD-C10146-00

SIPEX and BIPEX-S

Backlash-free couplings
MD 10.3

PDMD-C10145-00

ARPEX

Composite Couplings
MD 10.5

PDMD-C10153-00

ARPEX

Safety couplings

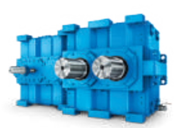
MD 10.11

PDMD-C10147-00

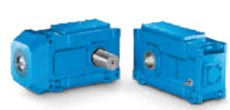
A

FLENDER SIP
Standard Industrial Planetary Gear Units
MD 31.1
PDMD-C10154-00

FLENDER CHG
Helical Gear Units
MD 20.10
PDMD-C10155-00



Gear units
Fast Track
MD 20.12
PDMD-C10156-00



Bucket Elevator Drives

MD 20.2
PDMD-C10157-00

PLANUREX 2
Planetary Gear Units
MD 20.3
PDMD-C10158-00

Paper Machine Drives

MD 20.5
PDMD-C10159-00

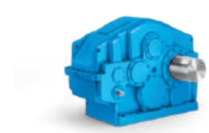
Conveyor Belt Drives

MD 20.6
PDMD-C10160-00

Marine Reduction Gearboxes

MD 20.7
PDMD-C10161-00

DUORED 2
Helical Gear Units, Load-sharing
MD 20.8
PDMD-C10162-00



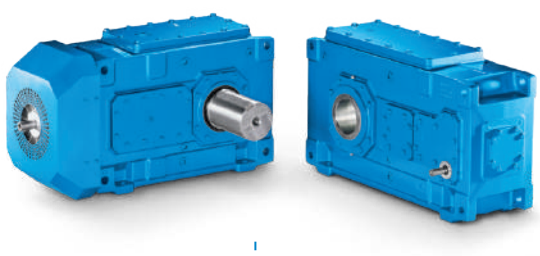
Pinion Drive for Tube Mills

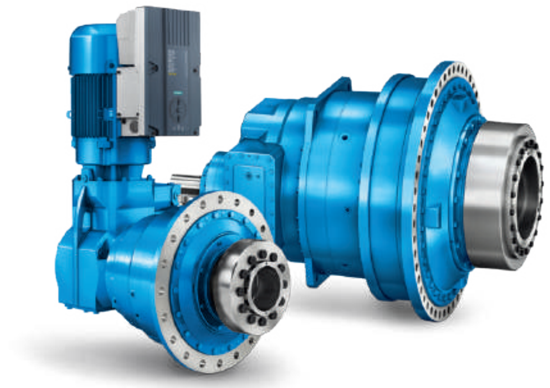
MD 20.9
PDMD-C10163-00

THE RIGHT GEAR UNIT SOLUTION FOR ANY REQUIREMENT

We provide helical and planetary gear units made up of standard modules or as a complete application solution.

Helical and planetary gear units from Flender are modern drive solutions that satisfy the most varying and extreme demands, day after day and year after year. For decades, plant operators have been achieving high system reliability and low lifecycle costs in every conceivable industry with our helical gear units.



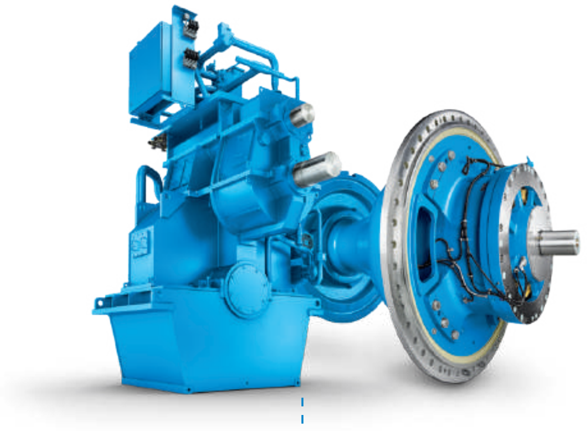


Helical and bevel helical gear units

Flender helical and bevel helical gear units are by far the most comprehensive range of industrial gear units in the world.
It ranges from a multi-faceted universal gear unit portfolio and application-specific gear units to customer-specific solutions.
Rated torque: 3,300 Nm ... 1,400,000 Nm

Planetary Gear Units

With Flender planetary gear units, we provide a range of durable, reliable and finely graduated gear unit solutions. The series wins customers over due to its highly integrated planetary geared motor and maximum conformity with all international motor standards.
It also brings quality and performance in a good ratio of lifecycle costs to price.
Rated torque: 10,000 Nm ... 5,450,000 Nm



Application-specific gear units

With application-specific gear units, Flender provides by far the most application solutions and thus covers nearly every drive-related need from hundreds of applications in industry and the acquisition of raw materials.
Rated torque: up to 10,000,000 Nm

Customer-specific designs

Our experts are available at any time for special requirements during the development of new products. From designing and simulating complex drive solutions to implementing them, we work together with you to resolve multi-layered tasks.

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FLENDER COUPLINGS
CATALOG **FLE 10.1**
EDITION 2020 EN

flender.com

Further information on the subject of couplings:
flender.com/couplings

Further information on the subject of applications:
flender.com/application-specific-gear-unit

For further information on gears:
flender.com/gearunits

Further information on the subject of service:
flender.com/services

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flender.com

FLENDER
A Siemens Company

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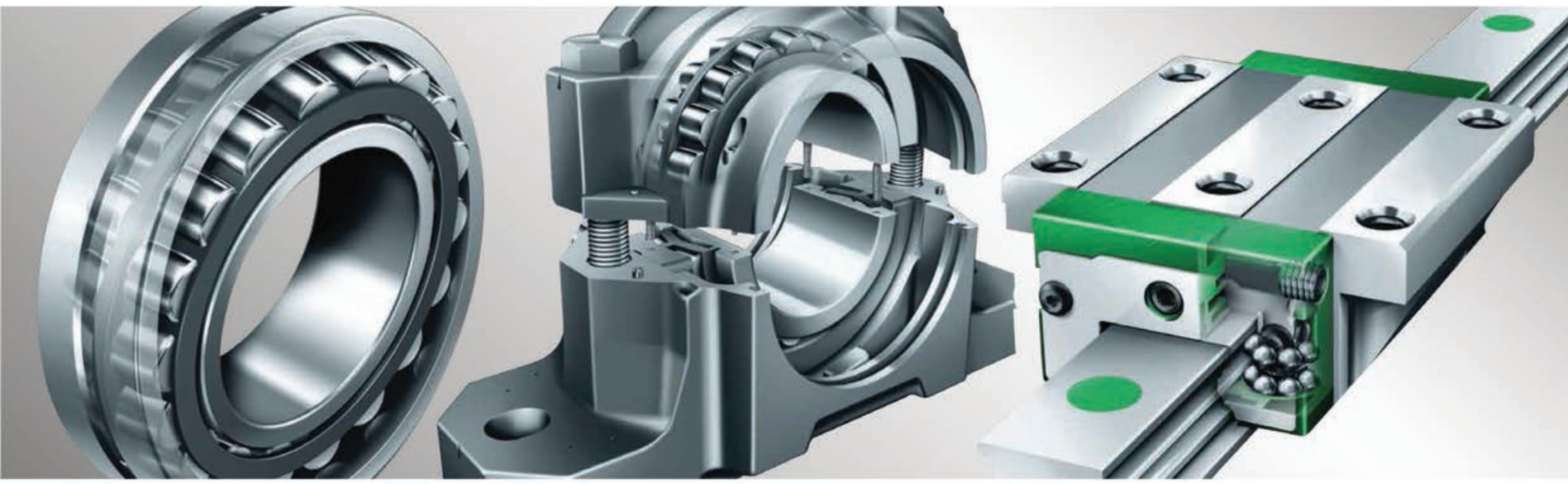
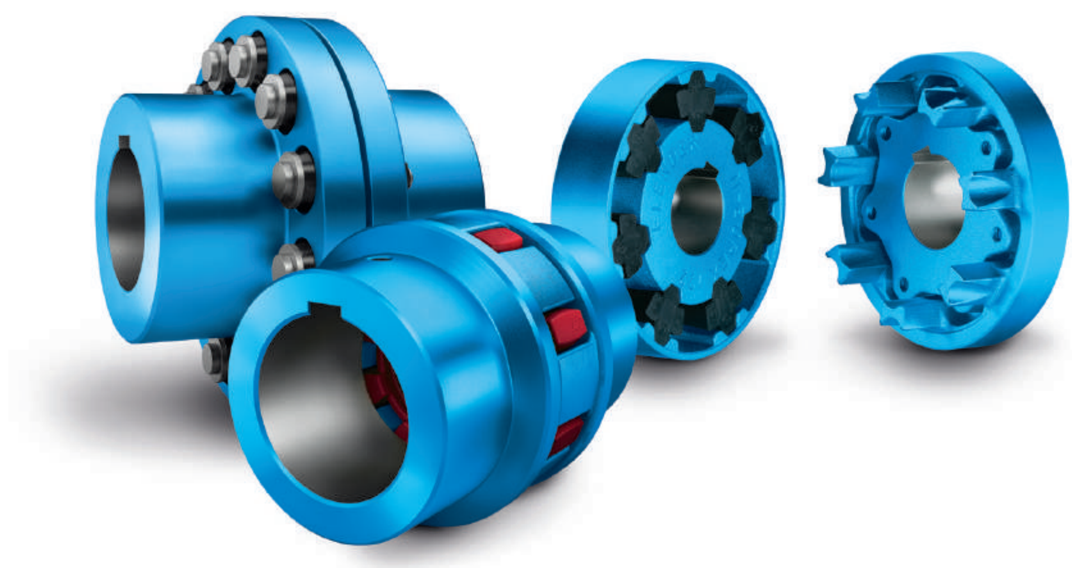
acessórios industriais e agrícolas, SA

ACOPLAMENTOS FLEXÍVEIS
N-EUPEX, RUPEX E N-BIPEX



PRODUTO - SERVIÇO - ENGENHARIA

FLENDER COUPLINGS
CATALOG **FLE 10.2**
EDITION 2020 EN



FLEXIBLE COUPLINGS

N-EUPEX, RUPEX AND N-BIPEX

flender.com

FLENDER

FLE 10 CATALOG GROUP

Product catalog FLE 10.1
Torsionally Rigid Couplings

Product catalog FLE 10.3
Highly Flexible Couplings

Product catalog FLE 10.2
Flexible Couplings

Product catalog FLE 10.4
Fluid Couplings

For further coupling catalogs, see page A/6

FLEXIBLE COUPLINGS

Catalog FLE 10.2 Edition 2020 EN

INTRODUCTION

E

The mechanical drive train comprises individual units such as motor, gear unit and driven machine. The coupling connects these component assemblies.
As well as the transmission of rotary motion and torque, other requirements may be made of the coupling.

- Compensation for shaft misalignment with low restorative forces
- Control of characteristic angular vibration frequency and damping
- Interruption or limitation of torque
- Noise insulation, electrical insulation

Couplings are frequently chosen after the machines to be connected have already been selected. Thanks to a large number of different coupling assembly options, specified marginal conditions for clearance and connection geometry can be met from the standard range. The coupling also performs secondary functions, e.g. providing a brake disk or brake drum for operating or blocking brakes, devices to record speed or the attachment of sprockets or pulleys.

Couplings are divided into two main groups, couplings and clutches.

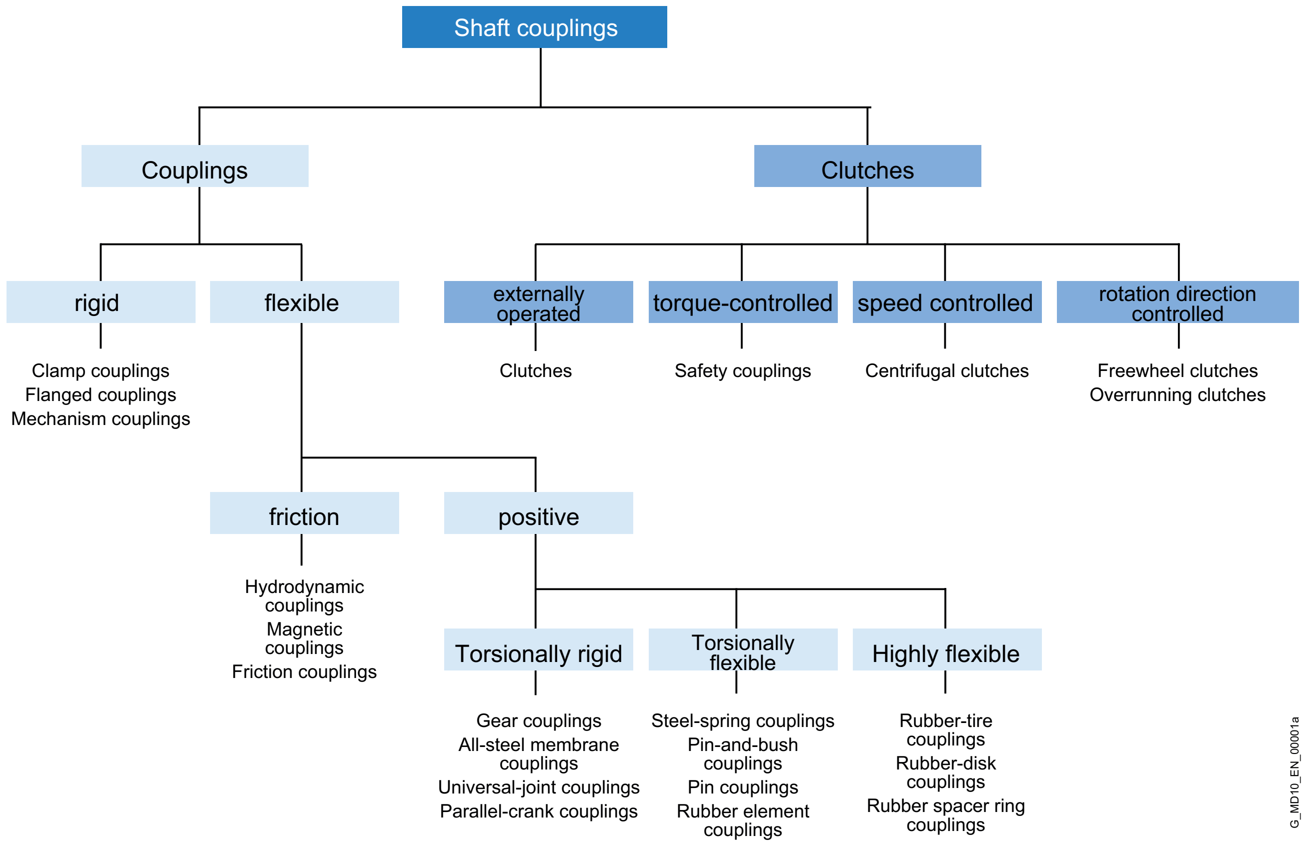
Clutches interrupt or limited the transmissible torque. The engaging and disengaging forces on externally operated clutches are introduced via a mechanically, electrically, hydraulically or pneumatically operating mechanism. Overload, centrifugal or freewheel clutches draw their engaging energy from the transmitted output.

Rigid couplings, designed as clamp, flanged or mechanism couplings, connect machines which must not undergo any shaft misalignment. Hydrodynamic couplings, often also called fluid or Föttinger couplings, are used as starting couplings in drives with high mass moments of inertia of the driven machine. In drive technology very often flexible, positive couplings, which may be designed to be torsionally rigid, torsionally flexible or highly flexible, are used.

Torsionally rigid couplings are designed to be rigid in a peripheral direction and flexible in radial and axial directions. The angle of rotation and torque are conducted through the coupling without a phase shift.

Torsionally flexible couplings have resilient elements usually manufactured from elastomer materials. Using an elastomer material with a suitable ShoreA hardness provides the most advantageous torsional stiffness and damping for the application. Shaft misalignment causes the resilient elements to deform.

Highly flexible couplings have large-volume (elastomer) resilient elements of low stiffness. The angle of rotation and torque are conducted through the coupling with a considerable phase shift.


Shaft couplings
Couplings
Clutches
rigid
flexible
externally operated
torque-controlled
speed controlled
rotation direction controlled
Clamp couplings
Flanged couplings
Mechanism couplings
Clutches
Safety couplings
Centrifugal clutches
Freewheel clutches
Overrunning clutches
friction
positive
Hydrodynamic couplings
Magnetic couplings
Friction couplings
Torsionally rigid
Torsionally flexible
Highly flexible
Gear couplings
All-steel membrane couplings
Universal-joint couplings
Parallel-crank couplings
Steel-spring couplings
Pin-and-bush couplings
Pin couplings
Rubber element couplings
Rubber-tire couplings
Rubber-disk couplings
Rubber spacer ring couplings
G_MD10_EN_00001a

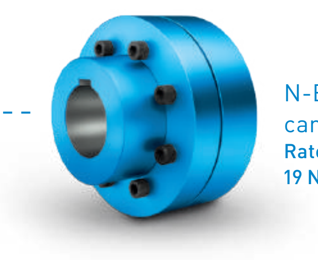
OUR COUPLING GROUPS AT A GLANCE

E

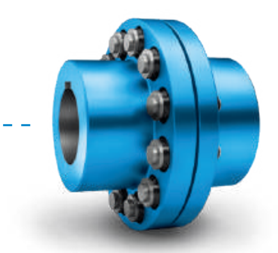
N-EUPEX, RUPEX and N-BIPEX

Flexible Couplings

Flexible Flender couplings have a wide range of possible applications. A broad standard modular system as well as specially designed application-specific couplings are available.



N-EUPEX
cam couplings
Rated torque:
19 Nm ... 62,000 Nm



RUPEX
pin-and-bush couplings
Rated torque:
200 Nm ... 1,300,000 Nm

N-BIPEX
cam couplings
Rated torque:
12 Nm ... 4,650 Nm

ELPEX, ELPEX-B and ELPEX-S

Highly Flexible Couplings

ELPEX® couplings are free of circumferential back-lash. Their damping capacity and low torsional stiff-ness make them especially well-suited for coupling machines with strongly non-uniform torque characteristics or large shaft misalignment.

ELPEX
elastic ring couplings
Rated torque:
1,600 Nm ... 90,000 Nm

ELPEX-B
elastic tire couplings
Rated torque:
24 Nm ... 14,500 Nm

ELPEX-S
rubber disk couplings
Rated torque:
330 Nm ... 63,000 Nm

ZAPEX gear couplings and ARPEX all-steel couplings

Torsionally rigid couplings

For transmission of high torques, we offer both ARPEX all-steel couplings and ZAPEX gear couplings in a range of versions. Their purposes of application vary according to specific requirements with respect to shaft misalignment, temperature and torque.

ZAPEX
gear couplings
Rated torque:
1,300 Nm ... 7,200,000 Nm

ARPEX
high Performance Couplings
Rated torque:
1,000 Nm ... 588,500 Nm

N-ARPEX and ARPEX
all-steel couplings
Rated torque:
92 Nm ... 2,000,000 Nm

BIPEX-S and SIPEX

Backlash-free couplings

The vibration-damping, electrically insulating plug-in BIPEX-S elastomer couplings and SIPEX metal bellows couplings with very high torsional stiffness deliver especially isogonal torque transmission.

BIPEX-S and SIPEX
Rated torque:
0.1 Nm ... 5,000 Nm

FLUDEX

Hydrodynamic couplings

The FLUDEX hydrodynamic fluid coupling works according to the Föttinger principle. It functions entirely free of wear.

FLUDEX
fluid Couplings
Power:
1.2 kW ... 2,500 kW

Application-specific couplings

Couplings for rail vehicles must meet high demands. Due to their high degree of standardization and wide variety, they can be used in the most diverse vehicle types.

Railway coupling
Rated torque:
1,000 Nm ... 9,500 Nm

Each wind turbine coupling is designed to optimally meet the requirements of the respective wind turbine. The coupling connects the fast-running gear shaft with the generator shaft and is available for wind turbines with a capacity of up to 12 MW.

Wind turbine couplings
Rated torque:
10,000 Nm ... 60,000 Nm

TECHNICAL INFORMATION AND COUPLING SELECTION

E

TECHNICAL INFORMATION

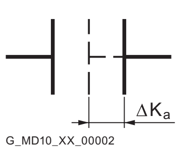
E

Shaft misalignment

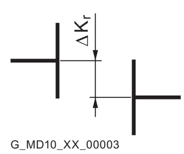
Shaft misalignment is the result of displacement during assembly and operation and, where machines constructed with two radial bearings each are rigidly coupled, will cause high loads being placed on the bearings. Elastic deformation of base frame, foundation and machine housing will lead to shaft misalignment which cannot be prevented, even by precise alignment.

Furthermore, because individual components of the drive train heat up differently during operation, heat expansion of the machine housings causes shaft misalignment. Poorly aligned drives are often the cause of seal, rolling bearing or coupling failure. Alignment should be carried out by specialist personnel in accordance with operating instructions.

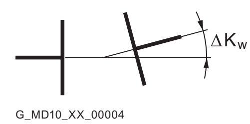
Depending on the direction of the effective shaft misalignment a distinction is made between:



Axial misalignment



Radial misalignment



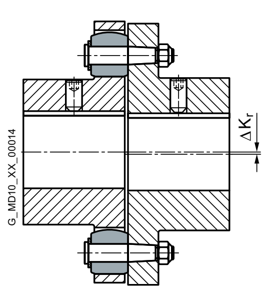
Angular misalignment

Couplings can be categorized into one of the following groups:

Single-joint couplings

Couplings with flexible elements mainly made of elastomer materials. Shaft misalignment results in deformation of the elastomer elements. The elastomer elements can absorb shaft misalignment as deformations in an axial, radial and angular direction. The degree of permissible misalignment depends on the coupling size, the speed and the type of elastomer element.
Single-joint couplings do not require an adapter and are therefore short versions.

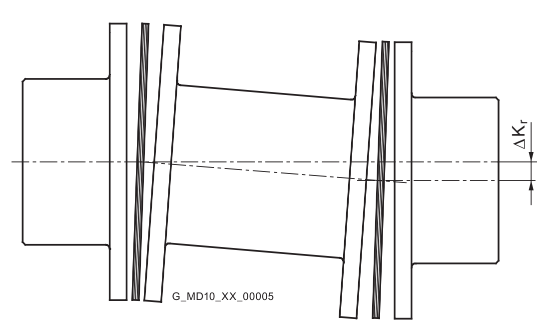
Example:
In the case of a RUPEX RWN 198 coupling with an outer diameter of 198 mm and a speed of 1500 rpm, the permitted radial misalignment is Δ_{Kr} = 0.3 mm.



Two-joint couplings

Two-joint couplings are always designed with an adapter. The two joint levels are able to absorb axial and angular misalignment. Radial misalignment occurs via the gap between the two joint levels and the angular displacement of the joint levels. The permitted angular misalignment per joint level is frequently about 0.5°. The permitted shaft misalignment of the coupling can be adjusted via the length of the adapter. If there are more than two joint levels, it is not possible to define the position of the coupling parts relative to the axis of rotation. (The less frequently used parallel-crank couplings are an exception).

Example:
N-ARPEX ARN-6 NEN 217-6 with a shaft distance of 140 mm with a permitted radial misalignment of ΔK_r = 2.2 mm (angle per joint level 1.0°).



E

Balancing

Balance quality levels
The so-called quality level G to DIN ISO 21940 indicates a range of permitted residual imbalance from zero up to an upper limit. Applications can be grouped on the basis of similarity analysis. For many applications a coupling balance quality of G 16 is sufficient. On drives susceptible to vibration the balance quality should be G 6.3. Only in special cases is a better balance quality required.

Balancing standard in accordance with DIN ISO 21940-32
Besides the required balance quality, it is necessary to set standards which define how the mass of the parallel key is to be taken into consideration when balancing. In the past, motor rotors have frequently been balanced in accordance with the full parallel key standard. The "appropriate" balance condition of the coupling hub was described as "balancing with open keyway" or "balancing after keyseating". Today it is usual for the motor rotor, as well as the gear unit and driven machine shaft, to be balanced in accordance with the half parallel key standard.

Full parallel key standard

The parallel key is inserted in the shaft keyway, then balancing is carried out. The coupling hub must be balanced without parallel key after keyseating.

Marking of shaft and hub with "F" (for "full").

Half parallel key standard

The balancing standard normally applied today. Before balancing, a half parallel key is inserted in the shaft and another in the coupling hub. Alternatively, balancing can be carried out before cutting the keyway.

The balanced parts must be marked with an "H". This marking can be dispensed with if it is absolutely clear which parallel key standard has been applied.

No parallel key standard

Balancing of shaft and coupling hub after keyseating, but without parallel key. Not used in practice. Marking of shaft and hub with "N" (for "no").
The length of the parallel key is determined by the shaft keyway. Coupling hubs may be designed considerably shorter than the shaft.

To prevent imbalance forces caused by projecting parallel key factors when balancing in accordance with the half parallel key standard in the case of applications with high balancing quality requirements, grooved spacer rings can be fitted or stepped parallel keys used.

Flender Balancing Standard

The balancing quality level, together with the operating speed, results in the maximum permissible eccentricity of the center of gravity of the coupling or the coupling subassembly. In the Flender article number the balancing quality can be preset with the help of the order code. Additionally, also the balance quality level to DIN ISO 21940 can be preset together with the operating speed belonging to it, which then be taken as priority.

$$e_{perm} = 9550 \cdot \frac{G}{n}$$

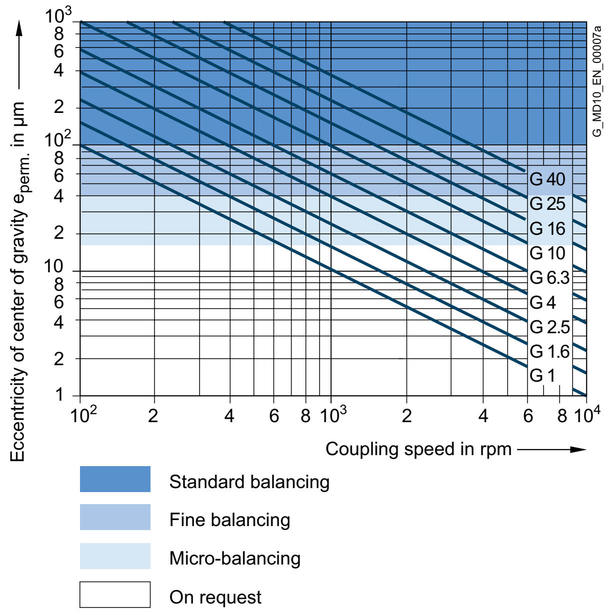
$$e_{coupl} \leq e_{perm}$$

Permitted eccentricity of center of gravity	e_{perm}	in µm
Eccentricity of center of gravity of coupling	e_{coupl}	in µm
Balancing quality level	G	in mm/s
Coupling speed	n	in rpm

Eccentricity of center of gravity of coupling e_{coupl}	Flender balancing quality	Order code
maximum 100 µm	standard balancing	without specification
maximum 40 µm	fine balancing	W02
maximum 16 µm	micro-balancing	W03
better than 16 µm	special balancing	on request

TECHNICAL INFORMATION

E



Example:
Coupling speed = 1450 rpm
required balancing quality level G 6.3

$$e_{perm} = 9550 \cdot \frac{G}{n} = 9550 \cdot \frac{6.3}{1450} \ \mu m$$

Thus, the required eccentricity of center of gravity is 41.5 µm. The fine balancing with a maximum eccentricity of center of gravity of 40 mm fulfills this requirement; therefore, the order code W02 has to be specified when ordering.

For many applications the following balancing quality recommendation applies:

Coupling	standard balancing v = DA · n/19100	fine balancing
short version with LG ≤ 3 × DA	v ≤ 30 m/s	v > 30 m/s
long version with LG > 3 × DA	v ≤ 15 m/s	v > 15 m/s

Peripheral speed	v	in mm/s
Coupling outer diameter	DA	in mm
Coupling speed	n	in rpm
Coupling length	LG	in mm

The following standards on balancing must be observed:

- couplings are balanced in subassemblies.
- hub parts without finished bore are unbalanced.
- the number of balancing levels (one- or two-level balancing) is specified by Flender.
- without special specification balancing is done in accordance with the half-parallel-key standard. Balancing in accordance with the full-parallel-key standard must be specified in the order number.
- For FLUDEX couplings special balancing standards specified in Section 13 apply.
- ARPEX couplings in standard balancing quality are unbalanced. Thanks to steel components machined all over and precisely guided adapters the balancing quality of standard balancing is nearly always adhered to.

Shaft-hub connections

The bore and the shaft-hub connection of the coupling are determined by the design of the machine shaft. In the case of IEC standard motors, the shaft diameters and parallel key connections are specified in accordance with DIN EN 50347. For diesel motors, the flywheel connections are frequently specified in accordance with SAE J620d or DIN 6288. Besides the very widely used connection of shaft and hub with parallel keys to DIN 6885 and cylindrically bored hubs, couplings with Taper clamping bushes, clamping sets, shrink-fit connections and splines to DIN 5480 are common.

The form stability of the shaft/hub connection can only be demonstrated when shaft dimensions and details of the connection are available. The coupling torques specified in the tables of power ratings of the coupling series do not apply to the shaft-hub connection unrestrictedly.

In the case of the shaft-hub connection with parallel key, the coupling hub must be axially secured, e.g. with a set screw or end washer. The parallel key must be secured against axial displacement in the machine shaft.

All Flender couplings with a finished bore and parallel keyway are designed with a set screw. Exceptions are some couplings of the FLUDEX series, in which end washers are used. During assembly, Taper clamping bushes are frictionally connected to the machine shaft.

TECHNICAL INFORMATION

E

Standards

Machines

2006/42/EG	EC Machinery Directive
2014/34/EU	ATEX Directive – Manufacturer
1999/92/EG	ATEX Directive – Operator – and ATEX Guideline to Directive 1999/92/EC
DIN EN 80079-36	Non-electrical equipment for use in potentially explosive atmospheres
DIN EN 1127	Explosive atmospheres, explosion prevention and protection
DIN EN 50347	General-purpose three-phase induction motors having standard dimensions and outputs

Couplings

DIN 740	Flexible shaft couplings Part 1 and Part 2
VDI Guideline 2240	Shaft couplings - Systematic subdivision according to their properties VDI Technical Group Engineering Design 1971
API 610	Centrifugal Pumps for Petroleum, Chemical and Gas Industry Services
API 671	Special Purpose Couplings for Petroleum, Chemical and Gas Industry Services
ISO 10441	Petroleum, petrochemical and natural gas industries – Flexible couplings for mechanical power transmission-special-purpose applications
ISO 13709	Centrifugal pumps for petroleum, petrochemical and natural gas industries

Balancing

DIN ISO 21940	Requirements for the balancing quality of rigid rotors
DIN ISO 21940-32	Mechanical vibrations; standard governing the type of parallel key during balancing of shafts and composite parts

Shaft-hub connections

DIN 6885	Driver connections without taper action – parallel keys – keyways
SAE J620d	Flywheels for industrial engines ...
DIN 6288	Reciprocating internal combustion engines Dimensions and requirements for flywheels and flexible couplings
ASME B17.1	Keys and keyseats
DIN EN 50347	General-purpose three-phase induction motors with standard dimensions and output data
BS 46-1:1958	Keys and keyways and taper pins Specification

Key to symbols

Name	Symbols	Unit	Explanation
Torsional stiffness, dynamic	C_{Tdyn}	Nm/rad	For calculating torsional vibration
Excitation frequency	f_{err}	Hz	Excitation frequency of motor or driven machine
Moment of inertia	J	kgm^2	Moment of inertia of coupling sides 1 and 2
Axial misalignment	ΔK_a	mm	Axial misalignment of the coupling halves
Radial misalignment	ΔK_r	mm	Radial misalignment of the coupling halves
Angular misalignment	ΔK_w	°	Angular misalignment of the coupling halves
Service factor	FB		Factor expressing the real coupling load as a ratio of the nominal coupling load
Frequency factor	FF		Factor expressing the frequency dependence of the fatigue torque load
Temperature factor	FT		Factor taking into account the reduction in strength of flexible rubber materials at a higher temperature
Weight	m	kg	Weight of the coupling
Rated speed	n_N	rpm	Coupling speed
Maximum coupling speed	n_{Kmax}	rpm	Maximum permissible coupling speed
Rated power	P_N	kW	Rated output on the coupling, usually the output of the driven machine
Rated torque	T_N	Nm	Rated torque as nominal load on the coupling
Fatigue torque	T_W	Nm	Amplitude of the dynamic coupling load
Maximum torque	T_{max}	Nm	More frequently occurring maximum load, e.g. during starting
Overload torque	T_{OL}	Nm	Very infrequently occurring maximum load, e.g. during short circuit or blocking conditions
Rated coupling torque	T_{KN}	Nm	Torque which can be transmitted as static torque by the coupling over the period of use.
Maximum coupling torque	T_{Kmax}	Nm	Torque which can be frequently transmitted (up to 25 times an hour) as maximum torque by the coupling.
Coupling overload torque	T_{KOL}	Nm	Torque which can very infrequently be transmitted as maximum torque by the coupling.
Fatigue coupling torque	T_{KW}	Nm	Torque amplitude which can be transmitted by the coupling as dynamic torque at a frequency of 10 Hz over the period of use.
Resonance factor	V_R		Factor specifying the torque increase at resonance
Temperature	T_a	°C	Ambient temperature of the coupling in operation
Damping coefficient	Ψ	psi	Damping parameter

SELECTION OF THE COUPLING SERIES

E

The coupling series is frequently determined by the driven machine and the design of the drive train. Common selection criteria are listed below and assigned to coupling properties, which are used to select the coupling series. Additionally, the price of the coupling and availability are important criteria for determining the coupling series to be used.

The FLUDEX series operates positively and transmits the torque with the aid of a flowing oil or water filling.

FLUDEX couplings are used to reduce starting and/or overload torques. During starting, the motor may, for example, run up within a very short time; because of the FLUDEX coupling, the drive train with the driven machine may accelerate after a delay and without increased torque load.

The FLUDEX coupling cannot compensate for shaft misalignment and is therefore designed in combination with a displacement coupling, a cardan shaft or a belt drive. The displacement coupling may be selected in accordance with the criteria described below.

Selection criteria	Torque range Rated coupling torque T_{KN}	Speed range Peripheral speed v_{max} = DA · n_{max}/19100	Torsional stiffness torsionally rigid	torsionally flexible	Highly flexible	Operating temperature range
ZAPEX	850 ... 7200000 Nm	60 m/s	■	–	–	-20 ... +80 °C
N-ARPEX	350 ... 2000000 Nm	110 m/s	■	–	–	-50 ... +280 °C
ARPEX	92 ... 2000000 Nm	100 m/s	■	–	–	-40 ... +280 °C
N-EUPEX	19 ... 62000 Nm	36 m/s	–	■	–	-50 ... +100 °C
N-EUPEX DS	19 ... 21200 Nm	36 m/s	–	■	–	-30 ... +80 °C
RUPEX	200 ... 1300000 Nm	60 m/s	–	■	–	-50 ... +100 °C
N-BIPEX	12 ... 4650 Nm	45 m/s	–	■	–	-50 ... +100 °C
ELPEX-B	24 ... 14500 Nm	35 m/s	–	–	■	-50 ... +70 °C
ELPEX-S	330 ... 63000 Nm	66 m/s	–	–	■	-40 ... +120 °C
ELPEX	1600 ... 90000 Nm	60 m/s	–	–	■	-40 ... +80 °C

Typical coupling solutions for different example applications

The specified application factors are recommendations; regulations, rules and practical experience take priority as assessment criteria.
No application factor need be taken into account with FLUDEX couplings.

In the case of highly flexible couplings of the ELPEX, ELPEX-S and ELPEX-B series, deviating application factors are stated in the product descriptions.
FLUDEX couplings are mostly mounted on the high-speed gear shaft.

Example applications	Application factor FB
Electric motor without gear unit	
Centrifugal pumps	1.0
Piston pumps	1.5
Vacuum pumps	1.5
Fans with T_N less than 75 Nm	1.5
Fans with T_N from 75 to 750 Nm	1.75
Fans with T_N larger than 750 Nm	1.75
Blowers	1.5
Frequency converters / generators	1.25
Reciprocating compressors	1.75
Screw-type compressors	1.5
Internal-combustion engine without gear unit	
Generators	1.75
Pumps	1.5
Fans	1.75
Hydraulic pumps, excavators, construction machines	1.5
Compressors / screw-type compressors	1.5
Agricultural machinery	1.75
Other	
Turbine gear units	1.5
Hydraulic motor - gear unit	1.25
Electric motor with gear unit	
Chemical industry	
Extruders	1.5
Pumps - centrifugal pumps	1.0
Pumps - piston pumps	1.75
Pumps - plunger pumps	1.5
Reciprocating compressors	1.75
Calenders	1.5
Kneaders	1.75
Cooling drums	1.25
Mixers	1.25
Stirrers	1.25
Toasters	1.25
Drying drums	1.25
Centrifuges	1.25
Crushers	1.5
Power generation and conversion	
Compressed air, reciprocating compressors	1.75

Example applications	Application factor FB
Compressed air, screw-type compressors	1.25
Air - Blowers	1.5
Air - Cooling tower fans	1.5
Air - Turbine blowers	1.5
Generators, converters	1.25
Welding generators	1.25
Metal production, iron and steel works	
Plate tilters	1.5
Ingot pushers	1.75
Slabbing mill	1.75
Coiling machines	1.5
Roller straightening machines	1.5
Roller tables	1.75
Shears	1.75
Rollers	1.75
Metal working machines	
Plate bending machines	1.5
Plate straightening machines	1.5
Hammers	1.75
Planing machines	1.75
Presses, forging presses	1.75
Shears	1.5
Grinding machines	1.25
Punches	1.5
Machine tools: Main drives	1.5
Machine tools: Auxiliary drives	1.25
Food industry	
Filling machines	1.25
Kneading machines	1.5
Mashers	1.5
Sugar cane production	1.5
Production machines	
Construction machines, hydraulic pumps	1.25
Construction machines, traversing gears	1.5
Construction machines, suction pumps	1.5
Construction machines, concrete mixers	1.5
Printing machines	1.25
Woodworking - barking drums	1.5
Woodworking - planing machines	1.5

Example applications	Application factor FB
Woodworking - reciprocating saws	1.5
Grinding machines	1.5
Textile machines - winders	1.5
Textile machines - printing machines	1.5
Textile machines - tanning vats	1.5
Textile machines - shredders	1.5
Textile machines - looms	1.5
Packaging machines	1.5
Brick molding machines	1.75
Transport and logistics	
Passenger transport - elevators	1.5
Passenger transport - escalators	1.5
Conveyor systems - bucket elevators	1.5
Conveyor systems - hauling winches	1.5
Conveyor systems - belt conveyors	1.5
Conveyor systems - endless-chain conveyors	1.5
Conveyor systems - circular conveyors	1.5
Conveyor systems - screw conveyors	1.5
Conveyor systems - inclined hoists	1.5
Crane traversing gear	1.5
Hoisting gear	1.5
Crane lifting gear	2.0
Crane traveling gear	1.5
Crane slewing gear	1.5
Crane fly jib hoists	1.5
Cable railways	1.5
Drag lifts	1.5
Winches	1.5
Cellulose and paper	
Paper-making machines, all	1.5
Pulper drives	1.5
Cement industry	
Crushers	1.75
Rotary furnaces	1.5
Hammer mills	1.75
Ball mills	1.75
Pug mills	1.75
Mixers	1.5
Pipe mills	1.5
Beater mills	1.75
Separators	1.5
Roller presses	1.75

SELECTION OF THE COUPLING SIZE

E

The torque load of the coupling must be determined from the output of the driven machine and the coupling speed.

Rated coupling load $T_N = 9550 \times P_N / n_N$
(T_N in Nm; P_N in kW; n_N in rpm)

The rated coupling load obtained in this way must be multiplied by factors and compared with the rated coupling torque. An ideal but expensive method is to measure the torque characteristic on the coupling. For this, Flender offers special adapters fitted with torque measuring devices.

The rated coupling torque T_{KN} is the torque which can be transmitted by the coupling over an appropriate period of use if the load is applied to the coupling purely statically at room temperature.

Application factors are to express the deviation of the real coupling load from the "ideal" load condition.

Coupling load in continuous operation

The operating principles of the driving and driven machines are divided into categories and the application factor FB derived from these in accordance with DIN 3990-1.

Application factor for N-EUPEX, N-EUPEX-DS, RUPEX, N-BIPEX, ELPEX-B, N-ARPEX, ARPEX, ZAPEX and FLUDEX

Application factor FB				
	Torque characteristic of the driven machine			
Torque characteristic of the driving machine	uniform	uniform with moderate shock loads	non uniform	very rough
uniform	1.0	1.25	1.5	1.75
uniform with moderate shock loads	1.25	1.5	1.75	2.0
non uniform	1.5	1.75	2.0	2.5

Examples of torque characteristic of driving machines:

- uniform: Electric motors with soft starting, steam turbines
- uniform with moderate shock loads: Electric motors without soft starting, hydraulic motors, gas and water turbines
- non uniform: Internal-combustion engines

Examples of torque characteristic in driven machines:

- uniform: Generators, centrifugal pumps for light fluids
- uniform with moderate shock loads: Centrifugal pumps for viscous fluids, elevators, machine tool drives, centrifuges, extruders, blowers, crane drives
- non uniform: Excavators, kneaders, conveyor systems, presses, mills
- very rough: Crushers, excavators, shredders, iron/smelting machinery

Temperature factor FT

Coupling	Elastomer material	Low temperature °C	Temperature T_a on the coupling under -30 °C	-30 °C up to 50 °C	up to 60 °C	up to 70 °C	up to 80 °C	up to 90 °C	up to 100 °C	up to 110 °C	up to 120 °C
N-EUPEX	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
N-EUPEX	NR	-50	1.1 [1]	1.0	–	–	–	–	–	–	–
N-EUPEX	HNBR	-10	–	1.0	1.0	1.0	1.0	1.25	1.25	–	–
N-EUPEX DS	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
RUPEX	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
RUPEX	NR	-50	1.1	1.0	–	–	–	–	–	–	–
RUPEX	HNBR	-10	–	1.0	1.0	1.0	1.0	1.25	1.25	–	–
N-BIPEX	TPU	-50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	–	–
ELPEX	NR	-40	1.1	1.0	1.25	1.40	1.60	–	–	–	–
ELPEX-B	NR	-50	1.1	1.0	–	–	–	–	–	–	–
ELPEX-B	CR	-15	–	1.0	1.0	1.0	–	–	–	–	–
ELPEX-S SN, NN, WN	NR	-40	1.1	1.0	1.25	1.40	1.60	–	–	–	–
ELPEX-S NX	VMQ	-40	1.1	1.0	1.0	1.0	1.0	1.1	1.25	1.4	1.6

NR = natural rubber, natural-synthetic rubber mixture
NBR = nitril-butadiene-rubber (Perbunan)
HNBR = hydrated acrylonitrile butadiene rubber
CR = chloroprene rubber (FRAS fire-resistant and anti-static)
VMQ = silicone
TPU = polyurethane

[1] The N-EUPEX coupling is not suitable for shock loads when used at low temperatures.

Coupling size $T_{KN} \geqslant T_N \cdot FB \cdot FT$

In the case of ARPEX and ZAPEX coupling types, no temperature factor (FT = 1.0) need be taken into account.

Coupling load at maximum and overload conditions

The maximum torque is the highest load acting on the coupling in normal operation.
Maximum torques at a frequency of up to 25 times an hour are permitted and must be lower than the maximum coupling torque. Examples of maximum torque conditions are: Starting operations, stopping operations or usual operating conditions with maximum load.

$T_{Kmax} \geqslant T_{Max} \cdot FT$

Overload torques are maximum loads which occur only in combination with special, infrequent operating conditions. Examples of overload torque conditions are: Motor short circuit, emergency stop or blocking because of component breakage. Overload torques at a frequency of once a month are permitted and must be lower than the maximum overload torque of the coupling. The overload condition may last only a short while, i.e. fractions of a second.

$T_{KOL} \geqslant T_{OL} \cdot FT$

Coupling load due to dynamic torque load

Applying the frequency factor FF, the dynamic torque load must be lower than the coupling fatigue torque.

Dynamic torque load

$T_{KW} \geqslant T_W \cdot FF$

Frequency of the dynamic torque load
$f_{err} \leqslant 10$ Hz frequency factor FF = 1.0

Frequency of the dynamic torque load
$f_{err} > 10$ Hz frequency factor $FF = \sqrt{(f_{err}/10 \text{ Hz})}$

For the ZAPEX and ARPEX series, the frequency factor is always FF = 1.0.

SELECTION OF THE COUPLING SIZE

E

Checking the maximum speed

For all load situations $n_{Kmax} \geqslant n_{max}$

Checking permitted shaft misalignment

For all load situations, the actual shaft misalignment must be less than the permitted shaft misalignment.

Checking bore diameter, mounting geometry and coupling design

The check must be made on the basis of the dimension tables. The maximum bore diameter applies to parallel keyways to DIN 6885. For other keyway geometries, the maximum bore diameter can be reduced.

On request, couplings with adapted geometry can be provided.

Coupling behavior under overload conditions

The ZAPEX, N-ARPEX, ARPEX, N-EUPEX, RUPEX and N-BIPEX coupling series can withstand overloads until the breakage of metal parts. These coupling series are designated as fail-safe.
The N-EUPEX DS, ELPEX-B, ELPEX-S and ELPEX coupling series throw overload. The elastomer element of these couplings is irreparably damaged without damage to metal parts when subjected to excessive overload.

These coupling series are designated as non-fail-safe. These types that fail can be fitted with a so-called fail-safe device. This additional component enables emergency operation, even after the rubber element of the coupling has been irreparably damaged.

Checking shaft-hub connection

The torques specified in the tables of power ratings data of the coupling series do not necessarily apply to the shaft-hub connection. Depending on the shaft-hub connection, proof of form stability is required. Flender recommends obtaining proof of form strength by using calculation methods in accordance with the current state of the art.

Shaft-hub connection	Suggestion for calculation method
Keyway connection to DIN 6885-1	DIN 6892
Shrink fit	DIN 7190
Spline to DIN 5480	
Bolted flange connection	VDI 2230
Flange connection with close-fitting bolts	

Fitting recommendations for the shaft-hub connection are given in the **Appendix**.

The coupling hub is frequently fitted flush with the shaft end face. If the shaft projects, the risk of collision with other coupling parts must be checked. If the shaft is set back, in addition to the load-bearing capacity of the shaft-hub connection, the correct positioning of the hub must be ensured as well. If the bearing hub length is insufficient, restorative forces may cause tilting movements and so wear to and impairment of the axial retention. Also, the position of the set screw to be positioned on sufficient shaft or parallel key material must be noted.

Checking low temperature and chemically aggressive environment

The minimum permitted coupling temperature is specified in the Temperature factor FT table. In the case of chemically aggressive environments, please consult the manufacturer.

FEATURES OF THE STANDARD TYPE

Couplings	Features of the standard type
All coupling series except ARPEX clamping hubs and FLUDEX with keyway to ASME B17.1	Bore tolerance H7
N-ARPEX and ARPEX clamping hubs	Bore tolerance H6
FLUDEX couplings with keyway to ASME B17.1	Hollow shafts: bore tolerance K7
	other parts: Bore tolerance M7
All coupling series with bore diameter - imperial	Parallel keyway to ASME B17.1
Bore diameter metric in the case of ZAPEX, N-ARPEX and ARPEX coupling series as well as coupling hubs with applied brake disks or brake drums of the N-EUPEX and RUPEX series	Parallel keyway to DIN 6885-1 keyway width P9
Bore diameter metric in the case of the N-EUPEX, RUPEX, N-BIPEX, ELPEX-S, ELPEX-B, ELPEX, FLUDEX coupling series	Parallel keyway to DIN 6885-1 keyway width JS9
All coupling series except FLUDEX	Axial locking by means of set screw
FLUDEX coupling series	Axial lock by means of set screw or end washer
All coupling series	Balancing in accordance with half parallel key standard
ZAPEX, N-ARPEX, ARPEX, N-EUPEX, RUPEX, N-BIPEX, ELPEX-S, ELPEX-B and ELPEX coupling series	Balancing quality G16
FLUDEX coupling series	Balancing quality G6.3
All series	Unpainted
All series	Preservation with cleaning emulsion
FLUDEX couplings	Fuse 140 °C

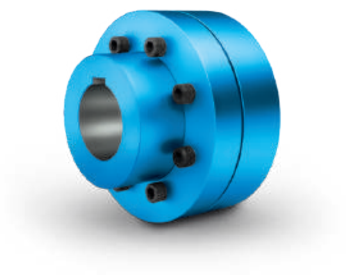
Configurator

The article number can be obtained with the help of the Configurator. The coupling can be selected in a product configurator and specified using selection menus.

The Configurator is available under **flender.com**.

The coupling can be selected via "Technical selection" (technical selection) or via "Direct selection" (via article-no.).

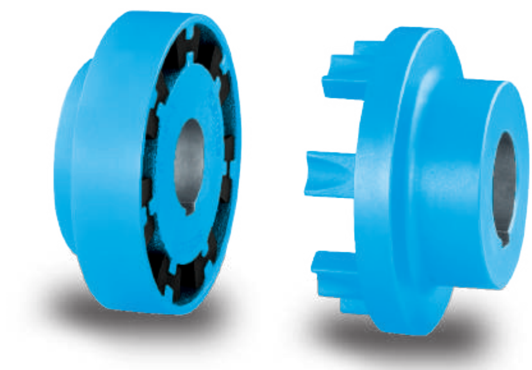
FLEXIBLE COUPLINGS – N-EUPEX, N-EUPEX DS SERIES



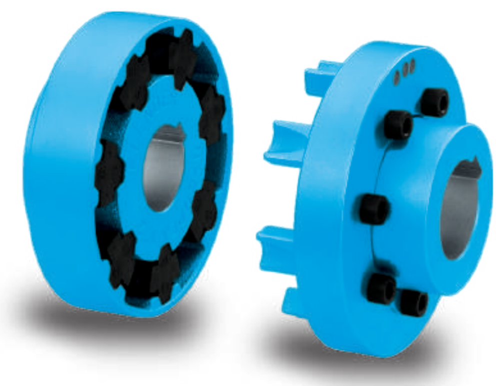
7

N-EUPEX
FLENDER

GENERAL



N-EUPEX as overload-holding, fail-safe series



N-EUPEX DS as overload-shedding, non-fail-safe series

7

N-EUPEX and N-EUPEX DS pin couplings connect machines. They compensate for shaft misalignment, generating only low restorative forces.
The torque is conducted through elastomer flexibles, so the coupling has typically flexible rubber properties.

N-EUPEX couplings are overload-holding. By contrast, the N-EUPEX DS series is designed so that overload or advanced wear causes irreparable damage to the elastomer flexibles. The metal parts of N-EUPEX DS couplings can then rotate freely against one another without contact.

Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

CE Ex II 2G Ex h IIC T6 ... T4 Gb X

Ex II 2D Ex h IIIC T85 °C ... 110 °C Db X

Ex I M2 Ex h Mb X

Benefits

N-EUPEX couplings are designed on the modular principle and have a very simple construction. N-EUPEX types are made up of subassemblies to suit requirements. The couplings are assembled by simply fitting the coupling halves together. Wear is restricted to the elastomer flexibles, which must be replaced at the end of their service life.

Depending on type, the elastomer flexibles can be changed without moving the coupled machines.
The coupling parts are readily available from stock and are mostly finish-machined, i.e. with finished bore, keyway, set screw and balancing.

Application

The N-EUPEX coupling is available as a catalog standard in 23 sizes with a rated torque of between 19 Nm and 62000 Nm. The coupling is suitable for use at ambient temperatures of between -30 °C and +80 °C. By using alternative elastomer buffers, the permissible ambient temperature range can be extended to between -50 °C and +100 °C. Frequently, the coupling is used to connect the motor to the gear unit input shaft. The coupling is suitable especially for drives with uniform to average dynamic loads.

Examples of applications are pump drives, ventilator drives or crane running gear. Furthermore, N-EUPEX couplings can be used as add-on couplings, particularly on FLUDEX fluid couplings or ARPEX AKR safety couplings.In the case of drives with a diesel engine, N-EUPEX couplings are suitable for driven machines with a low mass moment of inertia. In the case of diesel engine drives, the actual dynamic coupling load should be checked by measurement or torsional vibration calculations.

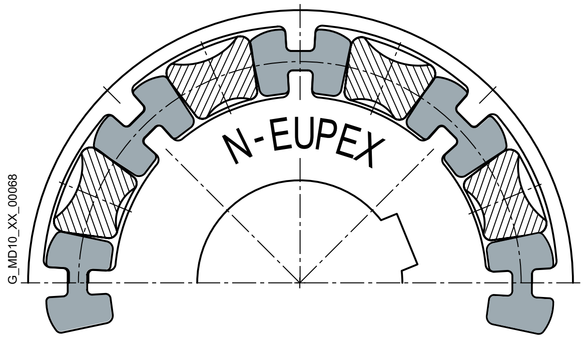
Design and configurations

N-EUPEX and N-EUPEX DS couplings consist of two hub parts mounted on the machine shafts. The coupling parts are connected positively by means of elastomer flexibles. On the two-part variant, the elastomer flexibles can be changed only if one of the coupled machines is moved.

On the three-part variants, the bolted cam ring can be released and moved to enable the flexible to be changed without moving the coupled machines.

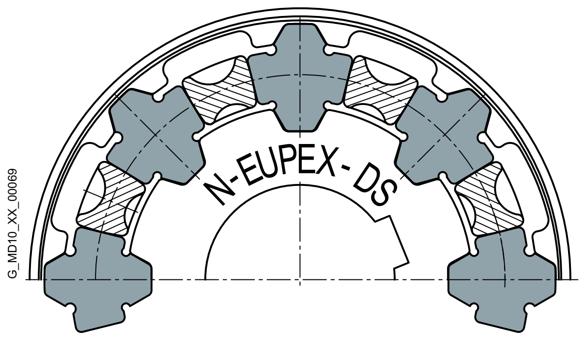
Elastomer flexible of the N-EUPEX series

The flexibles of the N-EUPEX coupling are subjected to compression. If the flexibles are irreparably damaged, the hub parts come into contact with metal. This "emergency operation capability" is required, e.g., in the case of fire pump drives.



Elastomer flexible of the N-EUPEX DS series

The flexibles of the N-EUPEX DS series are subjected to compression and bending forces. If the flexibles are irreparably damaged, the metal parts turn against one another without contact, and the power transmission is separated. Fitting new flexibles will make the coupling once more usable.
The capacity of the N-EUPEX DS series to shed overloads is especially in demand for highly sensitive machines.



GENERAL

Materials

- Cam parts, pocket parts, adapters and hubs:
  Grey cast iron EN-GJL-250
- Brake disks:
  EN-GJS-400 spheroidal graphite cast iron or S355J2G3 steel
- Brake drums:
  Grey cast iron EN-GJL-250
- Low-temperature application:
  Shock loads in the drive caused by e.g. starting of drives with large masses to be accelerated (e.g. in fan drives) result in high component loads, particularly at low temperatures. For such applications a particularly robust coupling series must be selected.
  Of the flexible couplings, the RUPEX pin-and-bush coupling is especially suited for this.

Flexible materials

Material/description	Hardness	Marking	Ambient temperature
N-EUPEX series			
NBR standard type	**80 ShoreA**	**Flexible black with blue stripe**	**-30 °C ... +80 °C**
NBR electrically insulating	80 ShoreA	Flexible green	-30 °C ... +80 °C
NBR soft	65 ShoreA	Flexible black with green stripe	-30 °C ... +80 °C
NBR hard	90 ShoreA	Flexible black with magenta stripe	-30 °C ... +80 °C
NBR normal low-backlash	80 ShoreA	Flexible black with yellow stripe	-30 °C ... +80 °C
NBR soft low-backlash	65 ShoreA	Flexible black with white stripe	-30 °C ... +80 °C
NR for low temperature	80 ShoreA	Flexible black with orange stripe	-50 °C ... +50 °C
HNBR high temperature	80 ShoreA	Flexible black with red stripe	-10 °C ... +100 °C
N-EUPEX DS series			
NBR hard	**90 ShoreA**	**Flexible black**	**-30 °C ... +80 °C**

- The technical data and article numbers do not include the flexible variants NBR low-backlash, HNBR high temperature and NR low temperature.
- Technical data, prices and article numbers on request.

Types of N-EUPEX pin coupling

Type	Description
A	Fail-safe, 3-part
B	Fail-safe, 2-part
D	Fail-safe, 3-part, flange variant
E	Fail-safe, 2-part, flange variant
H	Fail-safe, with adapter
O	Fail-safe, 2-part, with brake drum
P	Fail-safe, 3-part, with brake drum
EBD	Fail-safe, 2-part, with brake disk
DBD	Fail-safe, 3-part, with brake disk
DBDR	Fail-safe, 3-part, with brake disk, brake disk radially dismountable
ADS	Non-fail-safe, 3-part
BDS	Non-fail-safe, 2-part
HDS	Non-fail-safe, with adapter

Types of N-EUPEX pin coupling on request

Type	Description
AT	Fail-safe, 3-part, with Taper clamping bush
BT	Fail-safe, 2-part, with Taper clamping bush
G	Fail-safe, 2-part, with intermediate shaft
F	Fail-safe, 3-part, with intermediate shaft
K	Fail-safe, 3-part, with brake drum to customer's requirement
L	Fail-safe, 2-part, with brake drum to customer's requirement
M	Fail-safe, 2-part, with flange dimensions to SAE J620d

Further application-related coupling types are available. Dimension sheets for and information on these are available on request.

Function

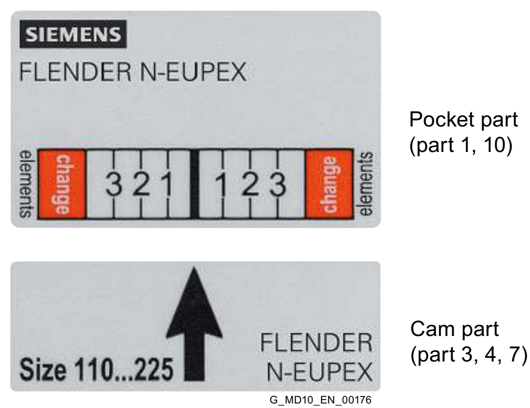
The motor torque is transmitted to the hub on the drive side via the shaft-hub connection, which is mostly designed as a keyway connection. The torque is transmitted to the hub on the output side with the aid of elastomer flexibles. The hub on the output side further transmits the torque to the driven machine or a gear unit placed in between. Because of the primarily compression-loaded elastomer flexibles, the coupling has a progressive torsional stiffness. In the case of the N-EUPEX DS coupling series, the elastomer flexible is subjected to bending and compression loads.

In the event of overload or advanced wear, the coupling disconnects positively and the flexibles are irreparably damaged.
The metal parts then rotate without touching one another. After new elastomer flexibles are fitted, the N-EUPEX DS coupling is once more operable.
N-EUPEX DS couplings are maintenance-free, even in potentially explosive environments, so long as the possible torque interruption does not lead to an unacceptable disruption of the production process.

Wear indicator for N-EUPEX couplings (optional)

The wear indicator for N-EUPEX couplings enables the condition of the flexible to be easily assessed. The wear condition can also be ascertained with the aid of a stroboscope while the coupling is rotating. The production process can thus continue undisturbed.

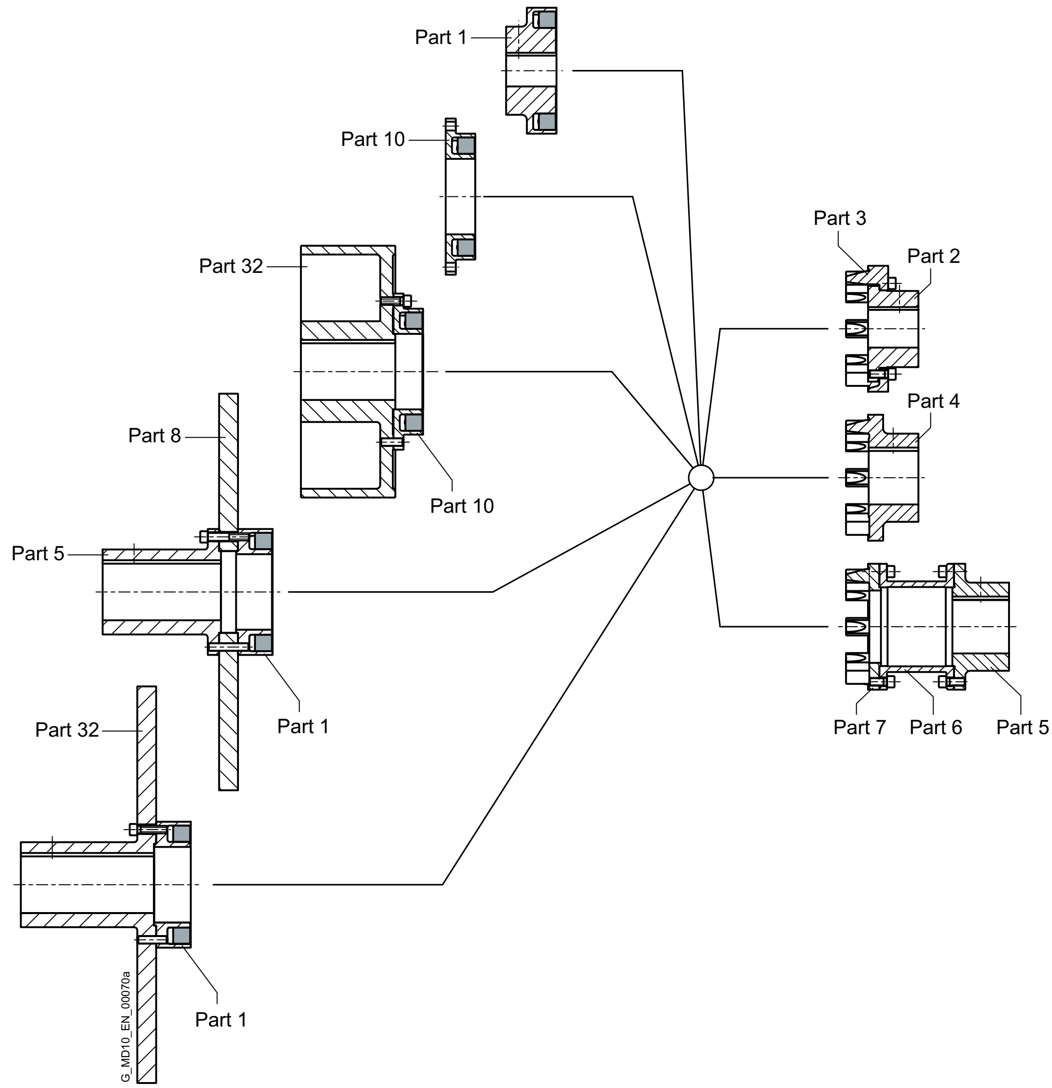
If the stroboscope is to be used in a potentially explosive environment, you can enquire about the equipment for this at Flender.

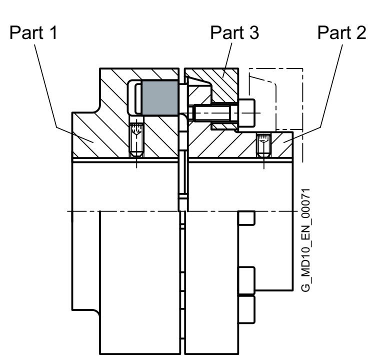


The wear indicator must be attached to the outside diameter of the coupling after the coupling has been fitted.

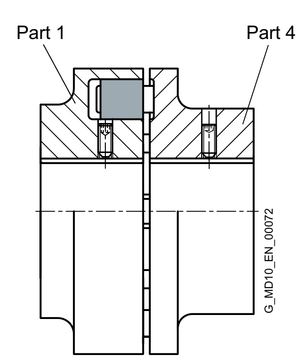
GENERAL

Modular principle of N-EUPEX types

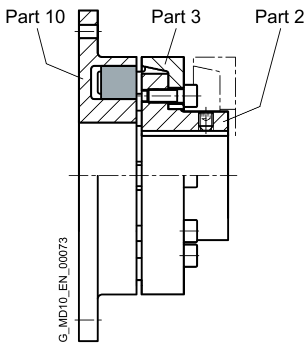




Types A and ADS



Types B and BDS



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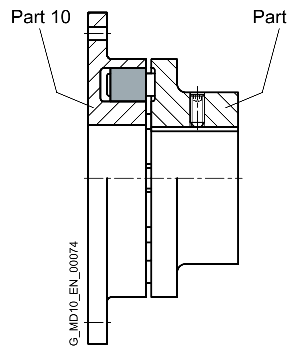
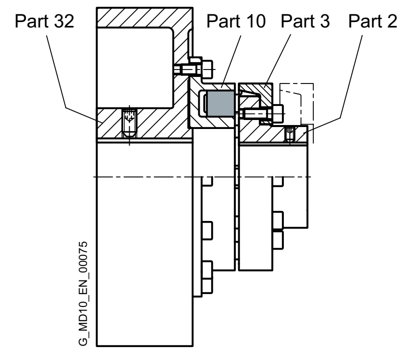
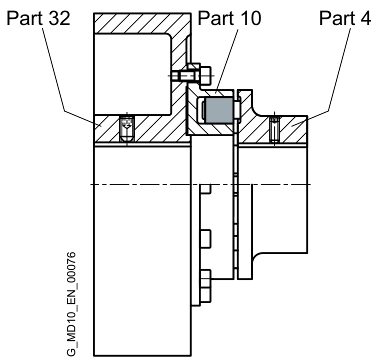


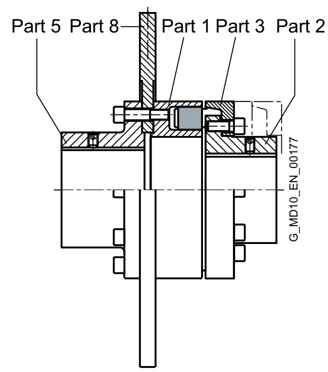
Type E



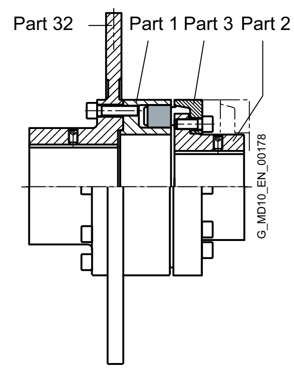
Type P



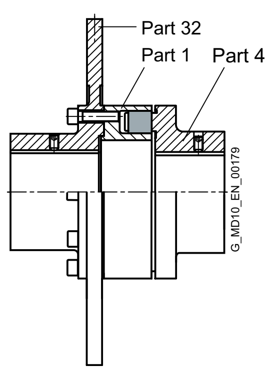
Type O



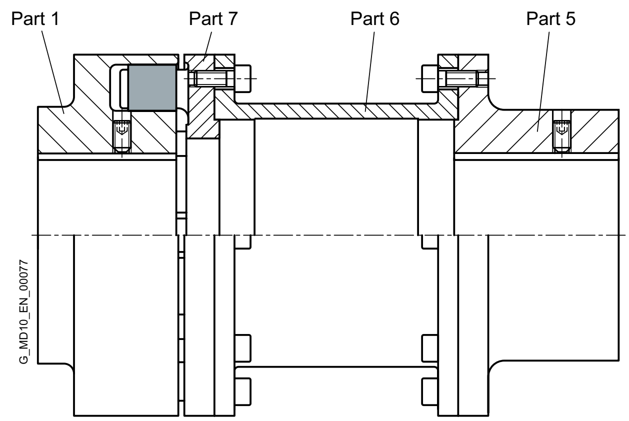
Type DBDR



Type DBD



Type EBD



Types H and HDS

Note

- Further application-related coupling types are available. Dimension sheets for and information on these are available on request.

GENERAL

N-EUPEX technical specifications

7

Power ratings of the N-EUPEX series

Size	Rated torque for flexible type			Torsional stiffness at 50 % capacity utilization for flexible type			Assembly	Permitted shaft misalignment at n = 1500 rpm [1]	
	65 ShoreA T_{KN} Nm	80 ShoreA T_{KN} Nm	90 ShoreA T_{KN} Nm	65 ShoreA C_{Tdyn} 50 % kNm/rad	80 ShoreA C_{Tdyn} 50 % kNm/rad	90 ShoreA C_{Tdyn} 50 % kNm/rad	Gap dimension [2] ΔS mm	Radial ΔK_r mm	Angle ΔK_w °
58	11	19	19	0.21	0.50	0.93	1.0	0.2	0.15
68	21	34	34	0.39	0.90	1.80	1.0	0.2	0.15
80	37	60	60	1.05	2.40	4.50	1.0	0.2	0.12
95	63	100	100	1.64	4.00	7.40	1.0	0.2	0.12
110	100	160	160	2.49	6.00	11.4	1.0	0.2	0.10
125	150	240	240	3.70	9.00	17	1.0	0.25	0.10
140	230	360	360	5.60	13.2	25	1.0	0.25	0.10
160	350	560	560	11.2	26.7	51	2.0	0.3	0.10
180	550	880	880	19.2	46	88	2.0	0.3	0.10
200	850	1340	1340	31.6	75	139	2.0	0.3	0.09
225	1260	2000	2000	48	115	212	2.0	0.35	0.09
250	1760	2800	2800	68	162	302	2.5	0.35	0.08
280	2460	3900	3900	95	226	420	2.5	0.4	0.08
315	3500	5500	5500	171	370	730	2.5	0.4	0.08
350	4850	7700	7700	235	520	950	2.5	0.5	0.08
400	6500	10300	10300	316	750	1420	2.5	0.5	0.08
440	8500	13500	13500	390	930	1920	2.5	0.6	0.08
480	10500	16600	16600	510	1200	2300	2.5	0.6	0.07
520	13300	21200	21200	600	1410	2710	2.5	0.65	0.07
560	18300	29000	29000	1000	2340	4400	3.0	0.65	0.07
610	24000	38000	38000	1300	3030	5700	3.0	0.75	0.07
660	30900	49000	49000	1640	3800	7100	3.0	0.8	0.07
710	39000	62000	62000	2140	4900	9100	3.0	0.9	0.07

For maximum coupling torque:
$T_{Kmax} = 3{,}0 \cdot T_{KN}$

For coupling overload torque:
$T_{KOL} = 3.5 \cdot T_{KN}$

For coupling fatigue torque:
$T_{KW} = 0{,}15 \cdot T_{KN}$, where $T_N > T_W$ must be adhered to.

Note

For fitting, the maximum gap dimension of S max. = S + ΔS and the minimum gap dimension of S min. = S – ΔS are permitted.

[1] The maximum speed for the respective type must be noted. For additional information on the allowable shaft misalignment, please refer to the operating instructions.

[2] Does not apply to type H. The ΔS clearance for types DBDR and DBD (coupling sizes 250, 280, 315 and 350), as well as for type EBD (coupling sizes 250 and 280) is +2/-3 mm.

Torsional stiffness and damping

The values stated in the above table apply to a capacity utilization of 50 %, an excitation amplitude of 10 % T_{KN} with the frequency 10 Hz and an ambient temperature of 20 °C. The dynamic torsional stiffness is load-dependent and increases in proportion to capacity utilization. The following table shows the correction factors for different rated loads.

$$C_{Tdyn} = C_{Tdyn\ 50\ \%} \cdot \mathrm{FKC}$$

	Load T_N / T_{KN}						
	20%	40%	50%	60%	70%	80%	100%
Correction factor FKC 65/80/90 ShoreA	0.54	0.84	1.00	1.18	1.36	1.55	1.97

The damping coefficient is Ψ = 1.4

Torsional stiffness and damping is further dependent on the ambient temperature and the frequency and amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn}. For this reason calculation must be made with a tolerance for the dynamic stiffness of ± 20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

Permitted shaft misalignment

The permitted shaft misalignment depends on the operating speed. As the speed increases, lower shaft misalignment values are permitted. The correction factors for different speeds are specified in the following table. The maximum speed for the respective coupling size must be noted!

$$\Delta K_{perm} = \Delta K_{1500} \cdot \mathrm{FKV}$$

	Speed in rpm			
	500	1000	1500	3000
Correction factor FKV	1.7	1.2	1.0	0.7

For fitting, the maximum gap dimension of S max. = S + ΔS and the minimum gap dimension of S min. = S – ΔS are permitted.

Shaft misalignments ΔK_r and ΔK_w may occur simultaneously.

GENERAL

N-EUPEX DS technical specifications

Power ratings of the N-EUPEX DS series

Size	Rated torque	Torsional stiffness at 50 % capacity utilization	Assembly	Permitted shaft misalignment at speed n = 1500 rpm	
			Gap dimension [1]	Radial	Angle
	T_{KN}	C_{Tdyn}	ΔS	ΔK_r	ΔK_w
	Nm	kNm/rad	mm	mm	°
66	19	0.73	1.0	0.2	0.15
76	34	1.36	1.0	0.2	0.15
88	60	2.62	1.0	0.2	0.12
103	100	4.00	1.0	0.2	0.12
118	160	6.30	1.0	0.2	0.10
135	240	10.5	1.0	0.25	0.10
152	360	13.6	1.0	0.25	0.10
172	560	27.2	2.0	0.3	0.10
194	880	47.0	2.0	0.3	0.10
218	1340	70.0	2.0	0.3	0.09
245	2000	106	2.0	0.35	0.09
272	2800	149	2.5	0.35	0.08
305	3900	214	2.5	0.4	0.08
340	5500	350	2.5	0.4	0.08
380	7700	480	2.5	0.5	0.08
430	10300	730	2.5	0.5	0.08
472	13500	990	2.5	0.6	0.08
514	16600	1270	2.5	0.6	0.07
556	21200	1540	2.5	0.65	0.07

For maximum coupling torque:
$T_{Kmax} = 2{,}0 \cdot T_{KN}$

For coupling overload torque:
$T_{KOL} = 3.0 \cdot T_{KN}$

For coupling fatigue torque:
$T_{KW} = 0{,}15 \cdot T_{KN}$

Note

For fitting, the maximum gap dimension of S max. = S + ΔS and the minimum gap dimension of S min. = S – ΔS are permitted.

[1] Does not apply to type HDS.

Torsional stiffness and damping

The values stated in the above table apply to a capacity utilization of 50 %, an excitation amplitude of 10 % T_{KN} with the frequency 10 Hz and an ambient temperature of 20 °C. The dynamic torsional stiffness is load-dependent and increases in proportion to capacity utilization. The following table shows the correction factors for different rated loads.

$C_{Tdyn} = C_{Tdyn\ 50\ \%} \cdot \mathrm{FKC}$

	Load T_N / T_{KN}						
	20%	40%	50%	60%	70%	80%	100%
Correction factor FKC	0.7	0.9	1	1.1	1.2	1.3	1.5

The damping coefficient is Ψ = 1.4

Torsional stiffness and damping is further dependent on the ambient temperature and the frequency and amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn}. For this reason calculation must be made with a tolerance for the dynamic stiffness of ± 20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

Permitted shaft misalignment

The permitted shaft misalignment depends on the operating speed. As the speed increases, lower shaft misalignment values are permitted. The correction factors for different speeds are specified in the following table. The maximum speed for the respective coupling size must be noted!

$\Delta K_{perm} = \Delta K_{1500} \cdot \mathrm{FKV}$

	Speed in rpm			
	500	1000	1500	3000
Correction factor FKV	1.7	1.2	1.0	0.7

For fitting, the maximum gap dimension of S max. = S + ΔS and the minimum gap dimension of S min. = S – ΔS are permitted.

Shaft misalignments ΔK_r and ΔK_w may occur simultaneously.

7

GENERAL

Assignment of N-EUPEX sizes to IEC standard motors [1]

Three-phase motor Size	Motor output at ≈ 3000 rpm P_M kW	N-EUPEX coupling Size	Motor output at ≈ 1500 rpm P_M kW	N-EUPEX coupling Size	Motor output at ≈ 1000 rpm P_M kW	N-EUPEX coupling Size	Motor output at ≈ 750 rpm P_M kW	N-EUPEX coupling Size	DE shaft end D x E acc. to IEC D mm	 E mm
56	0.09	**58**	0.06	**58**					9	20
	0.12	**58**	0.09	**58**						
63	0.18	**58**	0.12	**58**					11	23
	0.25	**58**	0.18	**58**						
71	0.37	**58**	0.25	**58**					14	30
	0.55	**58**	0.37	**58**						
80	0.75	**58**	0.55	**58**	0.37	**58**			19	40
	1.1	**58**	0.75	**58**	0.55	**58**				
90 S	1.5	**68**	1.1	**68**	0.75	**68**			24	50
90 L	2.2	**68**	1.5	**68**	1.1	**68**			24	50
100 L	3	**80**	2.2	**80**	1.5	**80**	0.75	**80**	28	60
			3	**80**			1.1	**80**		
112 M	4	**80**	4	**80**	2.2	**80**	1.5	**80**	28	60
132 S	5.5	**95**	5.5	**95**	3	**95**	2.2	**95**	38	80
	7.5	**95**								
132 M			7.5	**95**	4	**95**	3	**95**	38	80
					5.5	**95**				
160 M	11	**95**	11	**95**	7.5	**95**	4	**95**	42	110
	15	**95**					5.5	**95**		
160 L	18.5	**95**	15	**110**	11	**110**	7.5	**110**	42	110
180 M	22	**110**	18.5	**110**					48	110
180 L			22	**125**	15	**125**	11	**125**	48	110
200 L	30	**125**	30	**125**	18.5	**125**	15	**125**	55	110
	37	**125**			22	**140**				

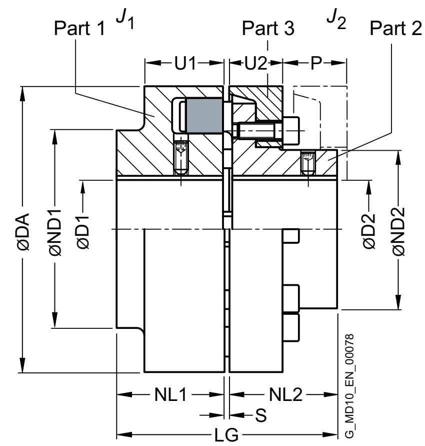
[1] The assignment applies to an application factor of 1.25.
Outputs P_M of IEC motors and assigned N-EUPEX couplings

Three-phase motor Size	Motor Output at ≈ 3000 rpm P_M kW	N-EUPEX coupling Size	Motor Output at ≈ 1500 rpm P_M kW	N-EUPEX coupling Size	Motor Output at ≈ 1000 rpm P_M kW	N-EUPEX coupling Size	Motor Output at ≈ 750 rpm P_M kW	N-EUPEX coupling Size	DE shaft end D x E acc. to IEC D mm	E mm
225 S									55	110
			37	**140**			18.5	**140**	60	140
225 M	45	**125**							55	110
			45	**140**	30	**140**	22	**140**	60	140
250 M	55	**140**							60	140
			55	**160**	37	**160**	30	**160**	65	140
280 S	75	**160**							65	140
			75	**180**	45	**180**	37	**180**	75	140
280 M	90	**160**							65	140
			90	**180**	55	**180**	45	**180**	75	140
315 S	110	**160**							65	140
			110	**200**	75	**200**	55	**200**	80	170
315 M	132	**160**							65	140
			132	**200**	90	**200**	75	**200**	80	170
315 L	160	**180**							65	140
	200	**180**							65	140
			160	**200**	110	**200**	90	**225**	80	170
			200	**225**	132	**225**	110	**225**	80	170
					160	**225**	132	**250**	85	170
315	250	**200**							65	140
	315	**200**							65	140
			250	**225**	200	**250**			85	170
355	355	**225**								
	400	**225**							75	140
	500	**225**								

7

TYPE A

for easy elastomer flexible replacement



Size	Rated torque flexible type 80 ShoreA T_{KN}	Speed n_{Kmax}	Dimensions in mm Bore with keyway to DIN 6885 D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	P	LG	Mass moment of inertia J_1/J_2	↗ Article no. [1]	Weight m
	Nm	rpm	min.	max.	min.	max.										kgm²		kg
110	160	5300	-	48	-	38	110	86	62	40	3	34	20	33	83	0.003	2LC0100-4AB	3
125	240	5100	-	55	-	45	125	100	75	50	3	36	23	38	103	0.005	2LC0100-5AB	4.8
140	360	4900	-	60	-	50	140	100	82	55	3	34	28	43	113	0.008	2LC0100-6AB	6
160	560	4250	-	65	-	58	160	108	95	60	4	39	28	47	124	0.014	2LC0100-7AB	8.4
180	880	3800	-	75	-	65	180	125	108	70	4	42	30	50	144	0.025	2LC0100-8AB	12
200	1340	3400	-	85	-	75	200	140	122	80	4	47	32	53	164	0.04	2LC0101-0AB	17
225	2000	3000	-	90	-	85	225	150	138	90	4	52	38	61	184	0.08	2LC0101-1AB	23
250	2800	2750	46	100	-	95	250	165	155	100	5.5	60	42	69	205.5	0.13	2LC0101-2AB	31
280	3900	2450	49	110	54	105	280	180	172	110	5.5	65	42	73	225.5	0.20	2LC0101-3AB	41
315	5500	2150	49	100	46	100	315	165	165	125	5.5	70	47	78	255.5	0.32	2LC0101-4AB	57
			90	120	90	120		200	200							0.35		61
350	7700	2000	61	110	61	110	350	180	180	140	5.5	74	51	83	285.5	0.54	2LC0101-5AB	78
			90	140	90	140		230	230							0.61		82
400	10300	1700	66	120	66	120	400	200	200	160	5.5	78	56	88	325.5	1.0	2LC0101-6AB	112
			100	150	100	150		250	250							1.1		117

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm Bore with keyway to DIN 6885 D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	P	LG	Mass moment of inertia	↗ Article no. [1]	Weight
	T_{KN}	n_{Kmax}														J_1/J_2		m
	Nm	rpm	min.	max.	min.	max.										kgm²		kg
440	**13500**	1550	80	**130**	80	**130**	440	215	215	180	7.5	86	64	99	367.5	1.5	**2LC0101-7AB**	147
			120	**160**	120	**160**		265	265							1.7		155
480	**16600**	1400	90	**145**	90	**145**	480	240	240	190	7.5	90	65	104	387.5	2.3	**2LC0101-8AB**	184
			136	**180**	136	**180**		300	300							2.6		200
520	**21200**	1300	100	**150**	100	**150**	520	250	250	210	7.5	102	68	115	427.5	3.3	**2LC0102-0AB**	234
			140	**190**	140	**190**		315	315							3.7		254
560	**29000**	1200	120	**200**	120	**200**	560	320	320	220	9	115	80	125	449	6.0	**2LC0102-1AB**	329
610	**38000**	1100	130	**220**	130	**220**	610	352	352	240	9	121	88	135	489	9.0	**2LC0102-2AB**	416
660	**49000**	1000	140	**240**	140	**240**	660	384	384	260	9	132	96	145	529	13.5	**2LC0102-3AB**	546
710	**62000**	1000	140	**260**	140	**260**	710	416	416	290	9	138	102	155	589	19	**2LC0102-4AB**	680

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- The hub diameter of the component part is assigned according to the diameter of the finished bore. Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weights and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

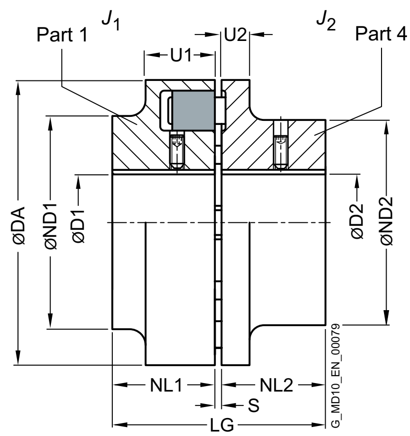
- ZN-EUPEX A coupling, size 200
- Part 1: Bore D1 65H7 mm, keyway to DIN 6885-1 and set screw
- Part 2: Bore D2 50H7 mm, keyway to DIN 6885-1 and set screw

Article no.: 2LC0101-0AB99-0AA0-Z L1F+M1C

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE B



Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm Bore with keyway to DIN 6885												Mass moment of inertia	↗ Article no. [1]	Weight
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	LG	J_1/J_2		m
	Nm	rpm	min.	max.	min.	max.									kgm²		kg
58	19	7500	-	19	-	24	58	58	40	20	3	20	8	43	0.0001	2LC0100-0AA	0.4
68	34	7000	-	24	-	28	68	68	50	20	3	20	8	43	0.0002	2LC0100-1AA	0.54
80	60	6000	-	30	-	38	80	80	68	30	3	30	10	63	0.0006	2LC0100-2AA	1.3
95	100	5500	-	42	-	42	95	76	76	35	3	30	12	73	0.0013	2LC0100-3AA	2.2
110	160	5300	-	48	-	48	110	86	86	40	3	34	14	83	0.003	2LC0100-4AA	3.3
125	240	5100	-	55	-	55	125	100	100	50	3	36	18	103	0.006	2LC0100-5AA	5.2
140	360	4900	-	60	-	60	140	100	100	55	3	34	20	113	0.007	2LC0100-6AA	5.6

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm													Mass moment of inertia	↗ Article no. 1)	Weight
			Bore with keyway to DIN 6885															
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	LG		J_1/J_2		m
	Nm	rpm	min.	max.	min.	max.										kgm²		kg
160	560	4250	-	65	-	65	160	108	108	60	4	39	20	124		0.01	2LC0100-7AA	7.8
180	880	3800	-	75	-	75	180	125	125	70	4	42	20	144		0.02	2LC0100-8AA	11.5
200	1340	3400	-	85	-	85	200	140	140	80	4	47	24	164		0.04	2LC0101-0AA	16
225	2000	3000	-	90	-	90	225	150	150	90	4	52	18	184		0.07	2LC0101-1AA	20
250	2800	2750	46	100	46	100	250	165	165	100	5.5	60	18	205.5		0.12	2LC0101-2AA	29
280	3900	2450	49	110	54	110	280	180	180	110	5.5	65	20	225.5		0.18	2LC0101-3AA	38

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Weights and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

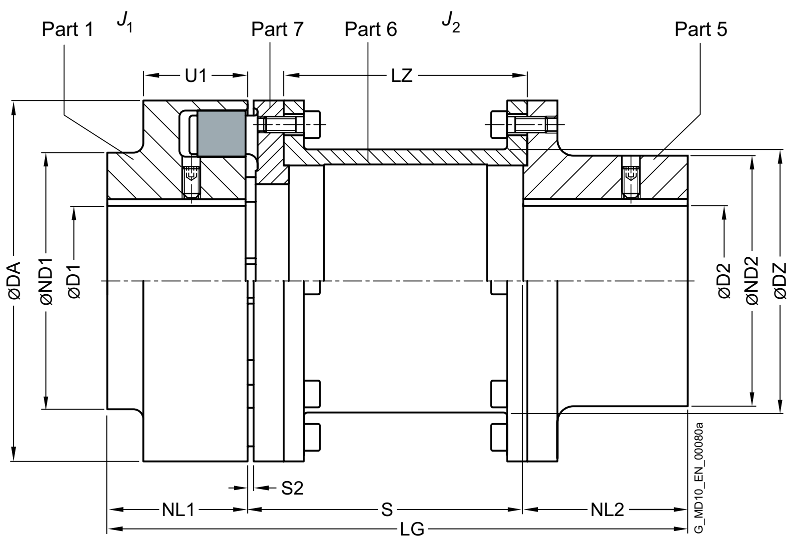
- N-EUPEX B coupling, size 95
- Part 1: Bore D1 42H7 mm, keyway to DIN 6885-1 and set screw
- Part 2: Bore D2 32H7 mm, keyway to DIN 6885-1 and set screw

Article no.: 2LC0100-3AA99-0AA0-Z L0X+M0T

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE H



Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm Bore with keyway to DIN 6885														Mass moment of inertia		↗ Article no. [1]	Weight
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1	NL2	S2	S	LZ	DZ	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.											kgm²			kg
80	60	6000	-	30	-	32	80	80	55	30	45	5	100	87	51	175	0.0006	0.001	2LC0100-2AG	2.6
													140	127		215		0.001	2LC0100-2AG	2.7
95	100	5500	-	42	-	42	95	76	70	35	45	5	100	87	63	180	0.001	0.003	2LC0100-3AG	3.5
													140	127		220		0.003	2LC0100-3AG	3.8
110	160	5300	-	48	-	48	110	86	80	40	50	5	100	85	73	190	0.003	0.005	2LC0100-4AG	5.2
											50		140	125		230		0.006	2LC0100-4AG	5.4
											60		180	165		280		0.006	2LC0100-4AG	6.0
125	240	5100	-	55	-	55	125	100	90	50	50	5	100	85	85	200	0.005	0.01	2LC0100-5AG	7.2
											50		140	125		240		0.01	2LC0100-5AG	7.7
											60		180	165		290		0.011	2LC0100-5AG	8.2
											70		200	185		320		0.012	2LC0100-5AG	8.5
											80		250	235		380		0.012	2LC0100-5AG	9.0
140	360	4900	-	60	-	60	140	100	100	55	65	5	100	82	91	220	0.007	0.018	2LC0100-6AG	10.0
											65		140	122		260		0.019	2LC0100-6AG	10.5
											65		180	162		300		0.02	2LC0100-6AG	11.0
											65		200	182		320		0.021	2LC0100-6AG	11.3
											80		250	232		385		0.022	2LC0100-6AG	12.0
160	560	4250	–	65	-	65	160	108	108	60	70	6	100	81.5	111	230	0.013	0.03	2LC0100-7AG	13
											70		140	121.5		270		0.032	2LC0100-7AG	13.7
											70		180	161.5		310		0.034	2LC0100-7AG	14.5
											70		200	181.5		330		0.035	2LC0100-7AG	14.9
											80		250	231.5		390		0.037	2LC0100-7AG	15.9

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm Bore with keyway to DIN 6885														Mass moment of inertia		↗ Article no. [1]	Weight
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1	NL2	S2	S	LZ	DZ	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.											kgm^2			kg
180	880	3800	–	75	-	75	180	125	125	70	80	6	140	121.5	131	290	0.023	0.054	2LC0100-8AG	18.5
													180	161.5		330		0.058	2LC0100-8AG	19.4
													200	181.5		350		0.060	2LC0100-8AG	21
													250	231.5		400		0.065	2LC0100-8AG	22
200	1340	3400	-	85	-	85	200	140	140	80	90	6	140	118.5	144	310	0.04	0.095	2LC0101-0AG	25.6
													180	158.5		350		0.1	2LC0101-0AG	26.5
													200	178.5		370		0.105	2LC0101-0AG	27.2
													250	228.5		420		0.11	2LC0101-0AG	28.5
225	2000	3000	-	90	-	90	225	150	150	90	100	6	140	118.5	169	330	0.07	0.158	2LC0101-1AG	34
													180	158.5		370		0.16	2LC0101-1AG	35
													200	178.5		390		0.17	2LC0101-1AG	36
													250	228.5		440		0.18	2LC0101-1AG	38
250	2800	2750	46	100	46	100	250	165	165	100	110	8	180	152.5	185	390	0.12	0.27	2LC0101-2AG	48
													200	172.5		410		0.28	2LC0101-2AG	50
													250	222.5		460		0.3	2LC0101-2AG	52
280	3900	2450	49	110	51	110	280	180	180	110	120	8	250	222.5	215	480	0.20	0.52	2LC0101-3AG	70
315	5500	2150	49	100	51	120	315	165	200	125	140	8	250	222.5	250	515	0.32	0.87	2LC0101-4AG	98
			90	120				200									0.35			100
350	7700	2000	61	110	51	140	350	180	230	140	150	8	250	220.5	272	540	0.54	1.4	2LC0101-5AG	120
			90	140				230									0.61			125
400	10300	1700	66	120	51	150	400	200	250	160	180	8	250	185.5	310	590	1.0	2.9	2LC0101-6AG	195
			100	150				250									1.1			200
440	13500	1550	80	130	51	160	440	215	265	180	180	10	250	182	354	610	1.5	4.1	2LC0101-7AG	225
			120	160				265									1.7			230

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- For dimension U1, see type A on **Page 7/14**.
- During assembly, the gap dimension S2 must not exceed the permissible tolerance of +1 mm.
- The hub diameter of the component part is assigned according to the diameter of the finished bore.
  Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weights and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

- N-EUPEX H coupling, size 160, S = 200 mm
- Part 1: Bore D1 60H7 mm, keyway to DIN 6885-1 and set screw
- Part 2: Bore D2 55H7 mm, keyway to DIN 6885-1 and set screw

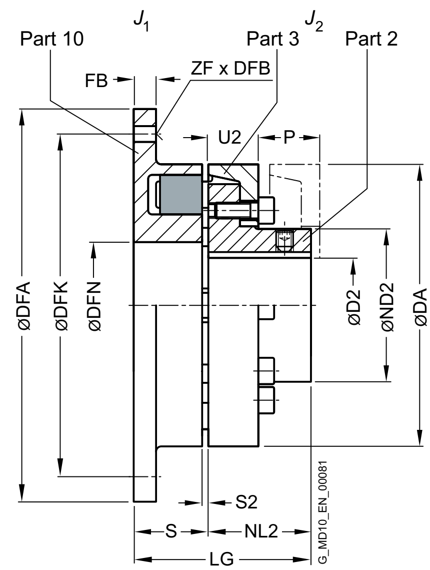
Article no.: 2LC0100-7AG99-0AD0-Z L1E+M1D

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE D

for easy elastomer flexible replacement



Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885								Flange connection dimensions									
	T_{KN}	n_{Kmax}	D2		DA	ND2	NL2	S2	S	LG	DFA	DFN	DFK	FB	ZF	DFB	J_1	J_2		m
	Nm	rpm	min.	max.							h8	H7					kgm²	kgm²		kg
110	160	5300	-	38	110	62	40	3	30	70	144	62	128	10	6	9 M8	0.0034	0.003	2LC0100-4AD1 2LC0100-4AD2	2.7
125	240	5100	-	45	125	75	50	3	34	84	158	75	142	10	6	9 M8	0.0052	0.005	2LC0100-5AD1 2LC0100-5AD2	3.9
140	360	4900	-	50	140	82	55	3	37	92	180	82	160	13	6	11 M10	0.011	0.008	2LC0100-6AD1 2LC0100-6AD2	5.6
160	560	4250	-	58	160	95	60	4	43	103	200	95	180	13	7	11 M10	0.017	0.014	2LC0100-7AD1 2LC0100-7AD2	7.5
180	880	3800	-	65	180	108	70	4	46	116	220	110	200	13	8	11 M10	0.026	0.025	2LC0100-8AD1 2LC0100-8AD2	10.3
200	1340	3400	-	75	200	122	80	4	51	131	248	120	224	16	8	14 M12	0.051	0.04	2LC0101-0AD1 2LC0101-0AD2	14.7
225	2000	3000	-	85	225	138	90	4	56	146	274	135	250	16	8	14 M12	0.085	0.08	2LC0101-1AD1 2LC0101-1AD2	19.5
250	2800	2750	-	95	250	155	100	5.5	65.5	165.5	314	150	282	20	8	18 M16	0.16	0.13	2LC0101-2AD1 2LC0101-2AD2	28.0
280	3900	2450	54	105	280	172	110	5.5	70.5	180.5	344	170	312	20	8	18 M16	0.24	0.2	2LC0101-3AD1 2LC0101-3AD2	35.0

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm															Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885								Flange connection dimensions										
	T_{KN}	n_{Kmax}	D2		DA	ND2	NL2	S2	S	LG	DFA	DFN	DFK	FB	ZF	DFB	J_1	J_2		m
	Nm	rpm	min.	max.							h8	H7					kgm²	kgm²		kg
315	**5500**	2150	46	**100**	315	165	125	5.5	75.5	200.5	380	200	348	22	9	18	0.4	0.32	**2LC0101-4AD1**	47
			90	**120**		200												0.35		50
	5500	2150	46	**100**	315	165	125	5.5	75.5	200.5	380	200	348	22	9	M16	0.4	0.32	**2LC0101-4AD2**	47
			90	**120**		200												0.35		50
350	**7700**	2000	61	**110**	350	180	140	5.5	79.5	219.5	430	225	390	25	9	22	0.7	0.54	**2LC0101-5AD1**	64
			90	**140**		230												0.61		67
	7700	2000	61	**110**	350	180	140	5.5	79.5	219.5	430	225	390	25	9	M20	0.7	0.54	**2LC0101-5AD2**	64
			90	**140**		230												0.61		67
400	**10300**	1700	66	**120**	400	200	160	5.5	83.5	243.5	480	265	440	25	10	22	1.1	1.0	**2LC0101-6AD1**	86
			100	**150**		250												1.1		90
	10300	1700	66	**120**	400	200	160	5.5	83.5	243.5	480	265	440	25	10	M20	1.1	1.0	**2LC0101-6AD2**	86
			100	**150**		250												1.1		90
440	**13500**	1550	80	**130**	440	215	180	7.5	93.5	273.5	520	295	480	25	10	22	1.7	1.5	**2LC0101-7AD1**	114
			120	**160**		265												1.7		119
	13500	1550	80	**130**	440	215	180	7.5	93.5	273.5	520	295	480	25	10	M20	1.7	1.5	**2LC0101-7AD2**	114
			120	**160**		265												1.7		119
480	**16600**	1400	90	**145**	480	240	190	7.5	97.5	287.5	575	325	528	30	10	26	2.7	2.3	**2LC0101-8AD1**	146
			136	**180**		300												2.6		155
	16600	1400	90	**145**	480	240	190	7.5	97.5	287.5	575	325	528	30	10	M24	2.7	2.3	**2LC0101-8AD2**	146
			136	**180**		300												2.6		155
520	**21200**	1300	100	**150**	520	250	210	7.5	109.5	319.5	615	355	568	30	10	26	3.8	3.3	**2LC0102-0AD1**	177
			140	**190**		315												3.7		190
	21200	1300	100	**150**	520	250	210	7.5	109.5	319.5	615	355	568	30	10	M24	3.8	3.3	**2LC0102-0AD2**	177
			140	**190**		315												3.7		190

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore

Notes

- For dimensions U2 and P, see type A on **Page 7/14**.
- The hub diameter of the component part is assigned according to the diameter of the finished bore.
  Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weights and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

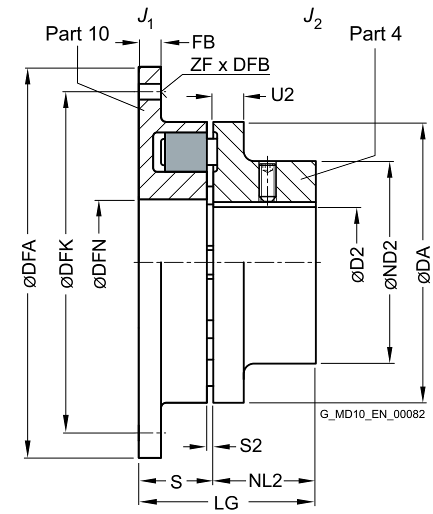
- N-EUPEX D coupling, size 125
- Part 10: with through bores
- Part 2: Bore D2 38H7 mm, with keyway to DIN 6885-1 and set screw

Article no.: 2LC0100-5AD19-0AA0-Z M0V

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE E



Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885								Flange connection dimensions									
	T_{KN}	n_{Kmax}	D2		DA	ND2	NL2	S2	S	LG	DFA	DFN	DFK	FB	ZF	DFB	J_1	J_2		m
	Nm	rpm	min.	max.							h8	H7					kgm²	kgm²		kg
68	**34**	7000	-	**28**	68	50	20	3	23	43	90	34	80	7	6	5.5 M5	0.0004	0.0002	2LC0100-1AC1 2LC0100-1AC2	0.63
80	**60**	6000	-	**38**	80	68	30	3	24	54	106	42	94	8	6	6.6 M6	0.0008	0.0006	2LC0100-2AC1 2LC0100-2AC2	1.35
95	**100**	5500	-	**42**	95	76	35	3	27	62	120	52	108	8	6	6.6 M6	0.0014	0.0013	2LC0100-3AC1 2LC0100-3AC2	2.0
110	**160**	5300	-	**48**	110	86	40	3	30	70	144	62	128	10	6	9 M8	0.0034	0.0030	2LC0100-4AC1 2LC0100-4AC2	3.0
125	**240**	5100	-	**55**	125	100	50	3	34	84	158	75	142	10	6	9 M8	0.0052	0.0060	2LC0100-5AC1 2LC0100-5AC2	4.5
140	**360**	4900	-	**60**	140	100	55	3	37	92	180	82	160	13	6	11 M10	0.011	0.007	2LC0100-6AC1 2LC0100-6AC2	5.6
160	**560**	4250	-	**65**	160	108	60	4	43	103	200	95	180	13	7	11 M10	0.017	0.01	2LC0100-7AC1 2LC0100-7AC2	7.2

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885								Flange connection dimensions									
	T_{KN}	n_{Kmax}	D2		DA	ND2	NL2	S2	S	LG	DFA	DFN	DFK	FB	ZF	DFB	J_1	J_2		m
	Nm	rpm	min.	max.							h8	H7					kgm^2	kgm^2		kg
180	**880**	3800	-	**75**	180	125	70	4	46	116	220	110	200	13	8	11 M10	0.026	0.02	2LC0100-8AC1 2LC0100-8AC2	10.3
200	**1340**	3400	-	**85**	200	140	80	4	51	131	248	120	224	16	8	14 M12	0.051	0.04	2LC0101-0AC1 2LC0101-0AC2	14
225	**2000**	3000	-	**90**	225	150	90	4	56	146	274	135	250	16	8	14 M12	0.085	0.07	2LC0101-1AC1 2LC0101-1AC2	17
250	**2800**	2750	46	**100**	250	165	100	5.5	65.5	165.5	314	150	282	20	8	18 M16	0.16	0.12	2LC0101-2AC1 2LC0101-2AC2	26
280	**3900**	2450	54	**110**	280	180	110	5.5	70.5	180.5	344	170	312	20	8	18 M16	0.24	0.18	2LC0101-3AC1 2LC0101-3AC2	32

7

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore

Notes

- For dimension U2, see type B on **Page 7/16**.
- Weights and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

- N-EUPEX E coupling, size 125
- Part 10: with through bores
- Part 4: Bore D2 38H7 mm, with keyway to DIN 6885-1 and set screw

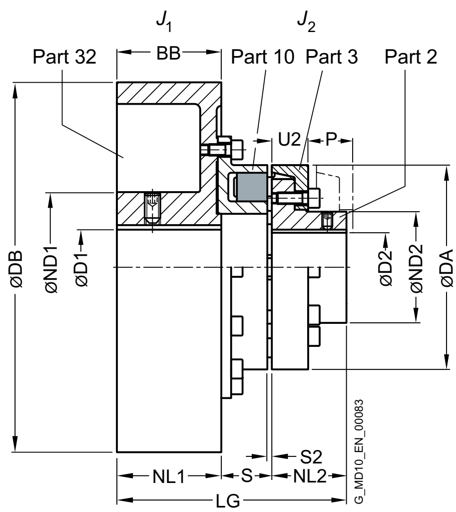
Article no.: 2LC0100-5AC19-0AA0-Z M0V

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE P

with brake drum



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Size	Rated torque flexible type 80 ShoreA T_{KN} Nm	Speed n_{Kmax} rpm	Dimensions in mm Bore with keyway to DIN 6885 D1 min.	D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1BB	NL2	S2	S	DB	U2	LG	Mass moment of inertia J_1 kgm²	J_2	↗ Article no. [1]	Weight m kg
125	240	4800	-	55	-	45	125	84	75	75	50	3	31	200	23	156	0.043	0.004	2LC0100-5AF	10.9
140	360	3800	-	60	-	50	140	128	82	95	55	3	34	250	28	184	0.13	0.008	2LC0100-6AF	21
160	560	3800	-	70	-	58	160	128	95	95	60	4	40	250	28	195	0.14	0.014	2LC0100-7AF	22
180	880	3800	-	80	-	65	180	128	108	95	70	4	41	250	30	206	0.16	0.025	2LC0100-8AF	28
		3000	-	80				128		118			43	315		231	0.35		2LC0100-8AF	35
200	1340	3000	-	80	-	75	200	128	122	118	80	4	48	315	32	246	0.37	0.04	2LC0101-0AF	40
		2400	-	90				160		150			48	400		278	1.1		2LC0101-0AF	60
		1900	-	110				175		190			48	500		318	2.8		2LC0101-0AF	98
225	2000	3000	-	80	-	85	225	128	138	118	90	4	51	315	38	259	0.39	0.08	2LC0101-1AF	47
		2400	-	90				160		150			53	400		293	1.1		2LC0101-1AF	65
		1900	38	110				175		190			53	500		333	3.1		2LC0101-1AF	104
250	2800	2400	-	100	-	95	250	160	155	150	100	5.5	62.5	400	42	312.5	1.16	0.13	2LC0101-2AF	76
		1900	38	110				175		190			62.5	500		352.5	2.9		2LC0101-2AF	113
280	3900	2400	-	100	54	105	280	160	172	150	110	5.5	65.5	400	42	325.5	1.24	0.2	2LC0101-3AF	85
		1900	48	110				175		190			67.5	500		367.5	3.1		2LC0101-3AF	118
		1500	48	110				175		236			67.5	630		413.5	8.0		2LC0101-3AF	171

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885																	
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1BB	NL2	S2	S	DB	U2	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.											kgm²			kg
315	**5500**	2150	-	**100**	46	**100**	315	160	165	150	125	5.5	72.5	400	47	347.5	1.4	0.32	**2LC0101-4AF**	96
		1900	48	**110**				175		190			72.5	500		387.5	3.3		**2LC0101-4AF**	134
		1500	48	**110**				175		236			72.5	630		433.5	8.2		**2LC0101-4AF**	183
		1300	55	**120**				192		265			72.5	710		462.5	14.2		**2LC0101-4AF**	236
315	**5500**	2150	-	**100**	90	**120**	315	160	200	150	125	5.5	72.5	400	47	347.5	1.4	0.35	**2LC0101-4AF**	97
		1900	48	**110**				175		190			72.5	500		387.5	3.3		**2LC0101-4AF**	136
		1500	48	**110**				175		236			72.5	630		433.5	8.2		**2LC0101-4AF**	185
		1300	55	**120**				192		265			72.5	710		462.5	14.2		**2LC0101-4AF**	238
350	**7700**	1500	48	**110**	61	**110**	350	175	180	236	140	5.5	76.5	630	51	452.5	8.5	0.54	**2LC0101-5AF**	200
		1300	55	**120**				192		265			76.5	710		481.5	14.6		**2LC0101-5AF**	253
350	**7700**	1500	48	**110**	90	**140**	350	175	230	236	140	5.5	76.5	630	51	452.5	8.5	0.61	**2LC0101-5AF**	203
		1300	55	**120**				192		265			76.5	710		481.5	14.6		**2LC0101-5AF**	257

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Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- For dimensions U2 and P, see type A on **Page 7/14**.
- Weights and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

- N-EUPEX P coupling, size 200, brake drum 315 x 118 mm
- Part 32: Bore D1 55H7 mm, keyway to DIN 6885 P9 and set screw
- Part 4: Bore D2 60H7 mm, keyway to DIN 6885 and set screw
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

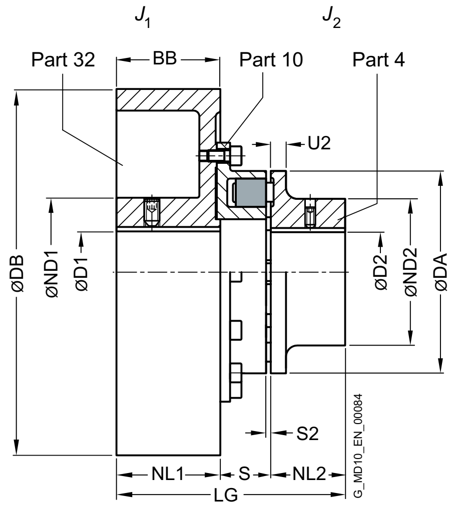
Article no.: 2LC0101-0AF99-0DA0-Z L1D+M1E+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE O

with brake drum



Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885																	
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1/BB	NL2	S2	S	DB	U2	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.											kgm²			kg
125	240	4800	-	55	-	55	125	84	100	75	50	3	31	200	18	156	0.043	0.006	2LC0100-5AE	11.3
140	360	3800	-	60	-	60	140	128	100	95	55	3	34	250	20	184	0.13	0.007	2LC0100-6AE	22.3
160	560	3800	-	70	-	65	160	128	108	95	60	4	40	250	20	195	0.14	0.01	2LC0100-7AE	24
180	880	3800	-	80	-	75	180	128	125	95	70	4	41	250	20	206	0.16	0.02	2LC0100-8AE	28
		3000	-	80						118			43	315		231	0.35		2LC0100-8AE	35
200	1340	3000	-	80	-	85	200	128	140	118	80	4	48	315	24	246	0.37	0.04	2LC0101-0AE	40
		2400	-	90				160		150			48	400		278	1.10		2LC0101-0AE	60
		1900	-	110				175		190			48	500		318	2.80		2LC0101-0AE	98

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885																	
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1/BB	NL2	S2	S	DB	U2	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.											kgm²			kg
		3000	-	**80**				128	150	118	90	4	51	315	18	259	0.39	0.07	**2LC0101-1AE**	45
225	**2000**	2400	-	**90**	–	**90**	225	160		150			53	400		293	1.10		**2LC0101-1AE**	63
		1900	38	**110**				175		190			53	500		333	3.10		**2LC0101-1AE**	102
250	**2800**	2400	-	**100**	46	**100**	250	160	165	150	100	5.5	62.5	400	18	312.5	1.16	0.12	**2LC0101-2AE**	73
		1900	38	**110**				175		190			62.5	500		352.5	2.90		**2LC0101-2AE**	108
		2400	-	**100**				160		150			65.5	400		325.5	1.24		**2LC0101-3AE**	82
280	**3900**	1900	48	**110**	54	**110**	280	175	180	190	110	5.5	67.5	500	20	367.5	3.10	0.18	**2LC0101-3AE**	115
		1500	48	**110**				175		236			67.5	630		413.5	8.0		**2LC0101-3AE**	168

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Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Weights and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

- N-EUPEX O coupling, size 200,
  brake drum 315 x 118 mm
- Part 32: Bore D1 55H7 mm, keyway to DIN 6885 P9
  and set screw
- Part 4: Bore D2 60H7 mm, keyway to DIN 6885
  and set screw
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

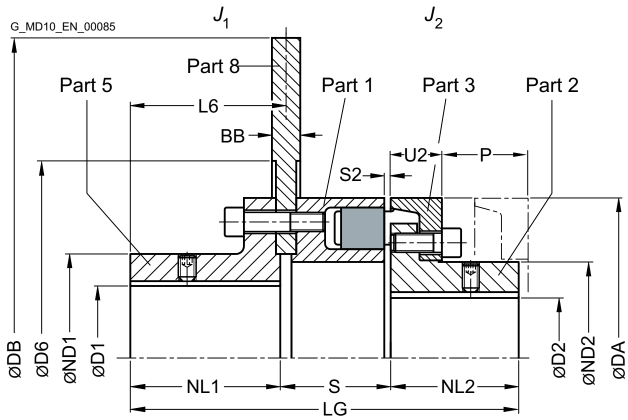
Article no.: 2LC0101-0AE99-0DA0-Z L1D+M1E+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE DBDR

with brake disk



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Size	Rated torque flexible type 80 ShoreA T_{KN} Nm	Dimensions in mm Bore with key-way to DIN 6885 D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1	NL2	S[2]	S2[2]	DB[3] min.	D6 min.	BB[3]	L6	LG	Mass moment of inertia J_1 min. kgm²	J_2 kgm²	↗ Article no. [1]	Weight m kg
								72		54.35				12.7	74	181.35	0.11			15.5
140	**360**	55	-	**50**	140	85	82	72	55	57.5	3	315	150	15	76	184.5	0.13	0.008	**2LC0100-6AV**	17
								188		73				30	200	316	0.24			28.5
								90		58.35				12.7	91	208.35	0.12			19
160	**560**	70	-	**58**	160	105	95	90	60	62.5	4	315	170	15	94	212.5	0.14	0.014	**2LC0100-7AV**	20.5
								188		78				30	200	326	0.26			32
								90		60.35				12.7	91	220.35	0.29			23
180	**880**	80	-	**65**	180	125	108	90	70	64.5	4	315	190	15	94	224.5	0.3	0.025	**2LC0100-8AV**	24.5
								188		80				30	200	338	0.43			38
								95		67.35				12.7	97	242.35	0.22			31
200	**1340**	90	-	**75**	200	135	122	95	80	70.5	4	355	210	15	99	245.5	0.25	0.04	**2LC0101-0AV**	32
								188		86				30	200	354	0.45			48
								100		72.35				12.7	103	262.35	0.37			41
225	**2000**	105	-	**85**	225	160	138	100	90	74.5	4	400	235	15	104	264.5	0.42	0.08	**2LC0101-1AV**	43
								188		90				30	200	368	0.74			64
								105		83.35				12.7	107	288.35	1.4			54
250	**2800**	110	-	**95**	250	170	155	105	100	86.5	6	450	260	15	109	291.5	1.5	0.13	**2LC0101-2AV**	57
								188		102				30	200	390	2.0			81

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The ΔS clearance for coupling sizes 250, 280, 315 and 350 is +2/-3 mm.

[3] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA T_{KN} Nm	Dimensions in mm Bore with keyway to DIN 6885 D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1	NL2	S[2)]	S2[2)]	DB[3)] min.	D6 min.	BB[3)]	L6	LG	Mass moment of inertia J_1 min. kgm²	J_2 kgm²	↗ Article no. [1)]	Weight m kg
								120		87.35				12.7	122	317.35	0.94			71
280	**3900**	130	54	**105**	280	200	172	120	110	90.5	6	500	350	15	124	320.5	1.0	0.20	**2LC0101-3AV**	74
								188		106				30	200	404	1.8			105
								130		87.35				12.7	130	342.35	1.1			86
			46	**100**	315	200	165	130	125	92.5	6	500	350	15	134	347.5	1.2	0.32	**2LC0101-4AV**	89
								188		108				30	200	421	2.0			115
315	**5500**	130						130		87.35				12.7	130	342.35	1.1			89
			90	**120**	315	200	200	130	125	92.5	6	500	350	15	134	347.5	1.2	0.35	**2LC0101-4AV**	92
								188		108				30	200	421	2.0			120
								135		97.35				12.7	136	372.35	1.5			110
			61	**110**	350	230	180	135	140	101.5	6	500	360	15	139	376.5	1.6	0.54	**2LC0101-5AV**	115
								188		117				30	200	445	2.3			140
350	**7700**	140						135		97.35				12.7	136	372.35	1.5			115
			90	**140**	350	230	230	135	140	101.5	6	500	360	15	139	376.5	1.6	0.61	**2LC0101-5AV**	115
								188		117				30	200	445	2.3			145

Configurable variants [1)]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- For dimensions U2 and P, see type A on **Page 7/14**.
- Weights and mass moments of inertia apply to maximum bore diameters.
- Maximum speed in rpm: n_{max} = 1146/DB DB in m
- Other brake disk diameters DB and brake disk widths BB on request.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

- N-EUPEX DBDR coupling, size 200, brake disk 450 x 30 mm
- Part 5: Bore D1 55H7 mm, keyway to DIN 6885 P9 and set screw
- Part 2: Bore D2 60H7 mm, keyway to DIN 6885 and set screw
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

Article no.: 2LC0101-0AV99-0G A0-Z L1D+M1E+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

7

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

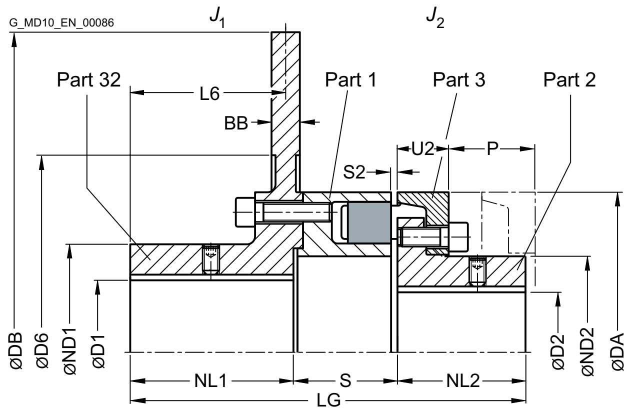
2) The ΔS clearance for coupling sizes 250, 280, 315 and 350 is +2/-3 mm.

3) For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE DBD

with brake disk



Size	Rated torque flexible type 80 ShoreA T_{KN} Nm	Dimensions in mm Bore with keyway to DIN 6885 D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1	NL2	S[2]	S2[2]	DB[3] min.	D6 min.	BB[3]	L6	LG	Mass moment of inertia J_1 min. kgm²	J_2 kgm²	↗ Article no. [1]	Weight m kg
								81.5						12.7	74	186	0.10			15
140	360	55	-	50	140	85	82	81.5	55	49.5	3	315	150	15	73	186	0.12	0.008	2LC0100-6AU	16
								211.5						30	200	316	0.22			26
								98.5						12.7	91	213	0.11			18
160	560	70	-	58	160	105	95	98.5	60	54.5	4	315	170	15	90	213	0.13	0.014	2LC0100-7AU	19
								211.5						30	200	326	0.23			30
								98.5						12.7	91	225	0.28			22
180	880	80	-	65	180	125	108	98.5	70	56.5	4	315	190	15	90	225	0.29	0.025	2LC0100-8AU	23
								211.5						30	200	338	0.40			35
								104.5						12.7	97	247	0.21			30
200	1340	90	-	75	200	135	122	104.5	80	62.5	4	355	210	15	96	247	0.23	0.04	2LC0101-0AU	31
								211.5						30	200	354	0.41			45
								111.5						12.7	103	268	0.35			39
225	2000	105	-	85	225	160	138	111.5	90	66.5	4	400	235	15	102	268	0.38	0.08	2LC0101-1AU	41
								211.5						30	200	368	0.67			59
								116.5						12.7	107	295	1.4			52
250	2800	110	-	95	250	170	155	116.5	100	78.5	6	450	260	15	106	295	1.4	0.13	2LC0101-2AU	54
								211.5						30	200	390	1.9			75

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on flender.com.

[2] The ΔS clearance for coupling sizes 250, 280, 315 and 350 is +2/-3 mm.

[3] For the available DB · BB brake disk dimensions, please refer to the product configurator on flender.com.

↗ For online configuration on flender.com, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Dimensions in mm Bore with keyway to DIN 6885																Mass moment of inertia		↗ Article no. 1)	Weight
	T_{KN}	D1	D2		DA	ND1	ND2	NL1	NL2	S 2)	S2 2)	DB 3)	D6	BB 3)	L6	LG	J_1	J_2		m
	Nm	max.	min.	max.								min.	min.				min. kgm²	kgm²		kg
								131.5						12.7	122	324	0.87			68
280	**3900**	130	54	**105**	280	200	172	131.5	110	82.5	6	500	350	15	121	324	0.96	0.20	**2LC0101-3AU**	71
								211.5						30	200	404	1.6			96
								141.5						12.7	130	351	1.0			82
315	**5500**	130	46	**100**	315	200	165	141.5	125	84.5	6	500	350	15	129	351	1.1	0.32	**2LC0101-4AU**	84
								211.5						30	200	421	1.7			105
								141.5						12.7	130	351	1.0			85
			90	**120**	315	200	200	141.5	125	84.5	6	500	350	15	129	351	1.1	0.35	**2LC0101-4AU**	87
								211.5						30	200	421	1.7			110
								146.5						12.7	135	380	2.1			125
350	**7700**	140	61	**110**	350	220	180	146.5	140	93.5	6	500	360	15	134	380	2.2	0.54	**2LC0101-5AU**	125
								211.5						30	200	445	2.0			125
								146.5						12.7	135	380	2.1			125
			90	**140**	350	220	230	146.5	140	93.5	6	500	360	15	134	380	2.2	0.61	**2LC0101-5AU**	130
								211.5						30	200	445	2.0			130

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- For dimensions U2 and P, see type A on **Page 7/14**.
- Weights and mass moments of inertia apply to maximum bore diameters.
- Maximum speed in rpm: n_{max} = 1146/DB DB in m
- Other brake disk diameters DB and brake disk widths BB on request.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

- N-EUPEX DBD coupling, size 200, brake disk 450 x 30 mm
- Part 32: Bore D1 55H7 mm, keyway to DIN 6885 P9 and set screw
- Part 2: Bore D2 60H7 mm, keyway to DIN 6885 and set screw
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

Article no.: 2LC0101-0AU99-0GA0-Z L1D+M1E+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

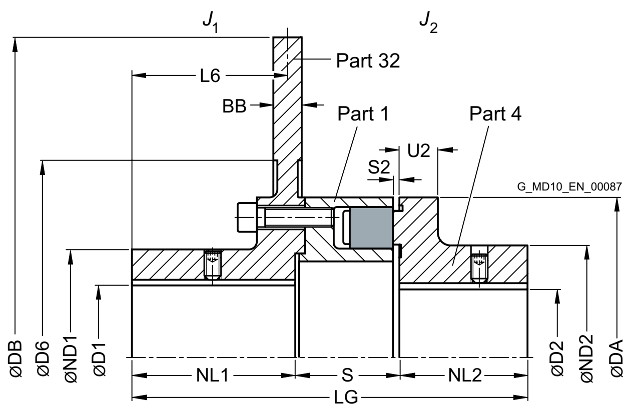
2) The ΔS clearance for coupling sizes 250, 280, 315 and 350 is +2/-3 mm.

3) For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE EBD

with brake disk



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Size	Rated torque flexible type 80 ShoreA	Dimensions in mm Bore with keyway to DIN 6885																Mass moment of inertia		↗ Article no. [1]	Weight
	T_{KN} Nm	D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1	NL2	S[2]	S2[2]	DB[3] min.	D6 min.	BB[3]	L6	LG	J_1 min. kgm^2	J_2 kgm^2			m kg
								81.5						12.7	74	186	0.10				15
140	**360**	55	-	**60**	140	85	100	81.5	55	49.5	3	315	150	15	73	186	0.12	0.007	**2LC0100-6AW**		16
								211.5						30	200	316	0.22				26
								98.5						12.7	91	213	0.11				18
160	**560**	70	-	**65**	160	105	108	98.5	60	54.5	4	315	170	15	90	213	0.13	0.01	**2LC0100-7AW**		19
								211.5						30	200	326	0.23				30
								98.5						12.7	91	225	0.28				22
180	**880**	80	-	**75**	180	125	125	98.5	70	56.5	4	315	190	15	90	225	0.29	0.02	**2LC0100-8AW**		23
								211.5						30	200	338	0.40				35
								104.5						12.7	97	247	0.21				30
200	**1340**	90	-	**85**	200	135	140	104.5	80	62.5	4	355	210	15	96	247	0.23	0.04	**2LC0101-0AW**		31
								211.5						30	200	354	0.41				45

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The ΔS clearance for coupling sizes 250, 280, 315 and 350 is +2/-3 mm.

[3] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque flexible type 80 ShoreA	Dimensions in mm Bore with keyway to DIN 6885															Mass moment of inertia		↗ Article no. [1]	Weight
	T_{KN}	D1	D2		DA	ND1	ND2	NL1	NL2	S[2]	S2[2]	DB[3]	D6	BB[3]	L6	LG	J_1	J_2		m
	Nm	max.	min.	max.								min.	min.				min. kgm²	kgm²		kg
225	**2000**	105	-	**90**	225	160	150	111.5	90	66.5	4	400	235	12.7	103	268	0.35	0.07	**2LC0101-1AW**	39
								111.5						15	102	268	0.38			41
								211.5						30	200	368	0.67			59
250	**2800**	110	46	**100**	250	170	165	116.5	100	78.5	6	450	260	12.7	107	295	1.4	0.12	**2LC0101-2AW**	52
								116.5						15	106	295	1.4			54
								211.5						30	200	390	1.9			75
280	**3900**	130	54	**110**	280	200	180	131.5	110	82.5	6	500	350	12.7	122	324	0.87	0.18	**2LC0101-3AW**	68
								131.5						15	121	324	0.96			71
								211.5						30	200	404	1.6			96

7

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- For dimension U2, see type B on **Page 7/16**.
- Weights and mass moments of inertia apply to maximum bore diameters.
- Maximum speed in rpm: n_{max} = 1146/DB DB in m
- Other brake disk diameters DB and brake disk widths BB on request.
- The article numbers apply to standard flexibles of 80 ShoreA; the article no. for alternative flexible types is available on request.

Ordering example

- N-EUPEX EBD coupling, size 200, brake disk 450 x 30 mm
- Part 32: Bore D1 55H7 mm, keyway to DIN 6885 P9 and set screw
- Part 4: Bore D2 60H7 mm, keyway to DIN 6885 and set screw
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

Article no.: 2LC0101-0AW99-0GA0-Z L1D+M1E+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

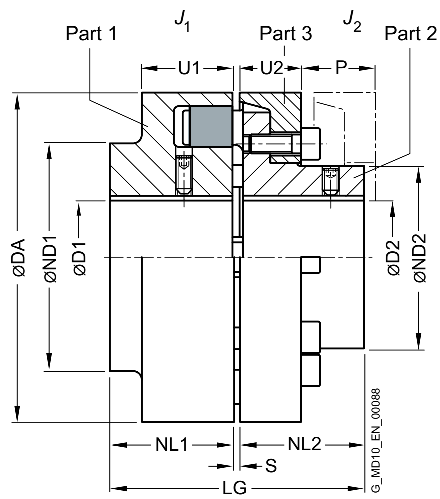
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The ΔS clearance for coupling sizes 250, 280, 315 and 350 is +2/-3 mm.

[3] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ADS



Size	Rated torque	Speed	Dimensions in mm													Mass moment of inertia	↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885															
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	P	LG	J_1/J_2		m
	Nm	rpm	min.	max.	min.	max.										kgm²		kg
118	**160**	5300	-	**48**	-	**38**	118	86	62	40	3	34	20	33	83	0.003	**2LC0110-4AB**	3.5
135	**240**	5100	-	**55**	-	**45**	135	100	75	50	3	36	23	38	103	0.006	**2LC0110-5AB**	5.5
152	**360**	4900	-	**60**	-	**50**	152	108	82	55	3	36	28	43	113	0.011	**2LC0110-6AB**	7.7
172	**560**	4250	-	**65**	-	**58**	172	118	95	60	4	41	28	47	124	0.019	**2LC0110-7AB**	10.5
194	**880**	3800	-	**75**	-	**65**	194	135	108	70	4	44	30	50	144	0.036	**2LC0110-8AB**	15
218	**1340**	3400	-	**85**	-	**75**	218	150	122	80	4	47	32	53	164	0.062	**2LC0111-0AB**	21
245	**2000**	3000	-	**90**	-	**85**	245	150	138	90	4	52	38	61	184	0.10	**2LC0111-1AB**	28
272	**2800**	2750	46	**100**	-	**95**	272	165	155	100	5.5	60	42	69	205.5	0.18	**2LC0111-2AB**	40
305	**3900**	2450	49	**110**	54	**105**	305	180	172	110	5.5	65	42	73	225.5	0.28	**2LC0111-3AB**	50
340	**5500**	2150	49	**120**	46	**100**	340	200	165	125	5.5	70	47	78	255.5	0.45	**2LC0111-4AB**	72
					90	**120**			200							0.50		73
380	**7700**	2000	61	**140**	61	**110**	380	230	180	140	5.5	74	51	83	285.5	0.75	**2LC0111-5AB**	100
					90	**140**			230							0.80		104
430	**10300**	1700	66	**150**	66	**120**	430	250	200	160	5.5	78	56	88	325.5	1.2	**2LC0111-6AB**	135
					100	**150**			250							1.4		140
472	**13500**	1550	80	**160**	80	**130**	472	265	215	180	7.5	86	64	99	367.5	2.0	**2LC0111-7AB**	174
					120	**160**			265							2.1		180
514	**16600**	1400	90	**180**	90	**145**	514	300	240	190	7.5	90	65	104	387.5	2.9	**2LC0111-8AB**	220
					136	**180**			300							3.2		237
556	**21200**	1300	100	**190**	100	**150**	556	315	250	210	7.5	102	68	115	427.5	4.3	**2LC0112-0AB**	281
					140	**190**			315							4.7		290

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- The hub diameter of the component part is assigned according to the diameter of the finished bore. Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weights and mass moments of inertia apply to maximum bore diameters.

Ordering example

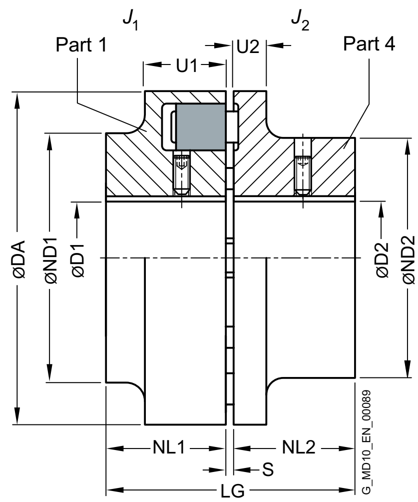
- N-EUPEX ADS coupling, size 135
- Part 1: Bore D1 42H7 mm, keyway to DIN 6885 and set screw
- Part 2: Bore D2 32H7 mm, keyway to DIN 6885 and set screw

Article no.: **2LC0110-5AB99-0AA0-Z L0X+M0T**

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE BDS



Size	Rated torque	Speed	Dimensions in mm												Mass moment of inertia	↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885														
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	LG	J_1/J_2		m
	Nm	rpm	min.	max.	min.	max.									kgm²		kg
66	**19**	7500	-	**19**	-	**24**	66	66	40	20	3	20	8	43	0.0001	**2LC0110-0AA**	0.50
76	**34**	7000	-	**24**	-	**28**	76	76	50	20	3	20	8	43	0.0002	**2LC0110-1AA**	0.65
88	**60**	6000	-	**30**	-	**38**	88	88	68	30	3	30	10	63	0.0006	**2LC0110-2AA**	1.8
103	**100**	5500	-	**42**	-	**42**	103	76	76	35	3	30	12	73	0.0015	**2LC0110-3AA**	3
118	**160**	5300	-	**48**	-	**48**	118	86	86	40	3	34	14	83	0.003	**2LC0110-4AA**	3.7
135	**240**	5100	-	**55**	-	**55**	135	100	100	50	3	36	18	103	0.007	**2LC0110-5AA**	6.1
152	**360**	4900	-	**60**	-	**60**	152	108	100	55	3	36	20	113	0.011	**2LC0110-6AA**	7.0
172	**560**	4250	-	**65**	-	**65**	172	118	108	60	4	41	20	124	0.019	**2LC0110-7AA**	11
194	**880**	3800	-	**75**	-	**75**	194	135	125	70	4	44	20	144	0.035	**2LC0110-8AA**	17
218	**1340**	3400	-	**85**	-	**85**	218	150	140	80	4	47	24	164	0.06	**2LC0111-0AA**	23
245	**2000**	3000	-	**90**	-	**90**	245	150	150	90	4	52	18	184	0.085	**2LC0111-1AA**	27
272	**2800**	2750	46	**100**	46	**100**	272	165	165	100	5.5	60	18	205.5	0.15	**2LC0111-2AA**	36
305	**3900**	2450	49	**110**	54	**110**	305	180	180	110	5.5	65	20	225.5	0.25	**2LC0111-3AA**	47

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Weights and mass moments of inertia apply to maximum bore diameters.

Ordering example

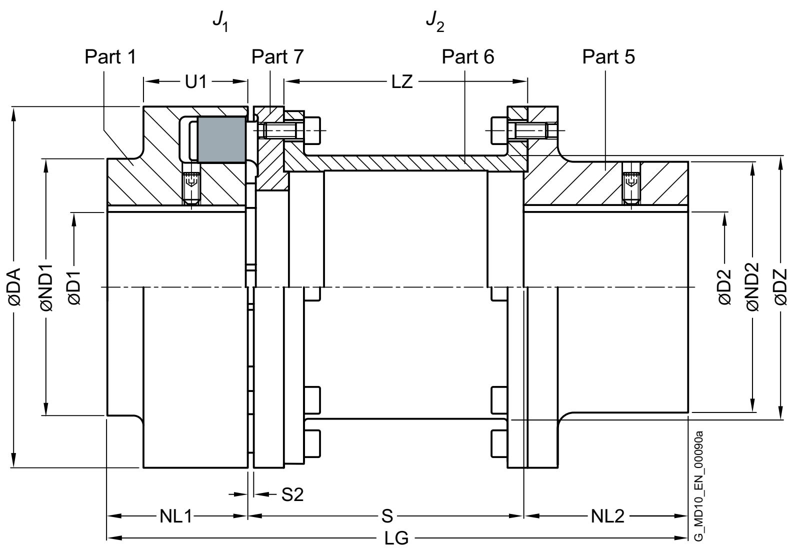
- N-EUPEX BDS coupling, size 103
- Part 1: Bore D1 42H7 mm, keyway to DIN 6885 and set screw
- Part 4: Bore D2 32H7 mm, keyway to DIN 6885 and set screw

Article no.: 2LC0110-3AA99-0AA0-Z L0X+M0T

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE HDS



Size	Rated torque	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885																	
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1	NL2	S2	S	LZ	DZ	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.											kgm²	kgm²		kg
88	**60**	6000	-	**30**	-	**32**	88	88	55	30	45	5	100	87	51	175	0.0007	0.0014	**2LC0110-2AC**	2.8
													140	127		215		0.0015	**2LC0110-2AC**	2.9
103	**100**	5500	-	**42**	-	**42**	103	76	70	35	45	5	100	87	63	180	0.001	0.003	**2LC0110-3AC**	4.0
													140	127		220		0.0033	**2LC0110-3AC**	4.3
118	**160**	5300	-	**48**	-	**48**	118	86	80	40	50	5	100	85	73	190	0.003	0.006	**2LC0110-4AC**	5.3
											50		140	125		230		0.0064	**2LC0110-4AC**	5.7
											60		180	165		280		0.0068	**2LC0110-4AC**	6.1
135	**240**	5100	-	**55**	-	**55**	135	100	90	50	50	5	100	85	85	200	0.006	0.01	**2LC0110-5AC**	7.6
											50		140	125		240		0.01	**2LC0110-5AC**	8.1
											60		180	165		290		0.012	**2LC0110-5AC**	8.6
											70		200	185		320		0.012	**2LC0110-5AC**	8.9
											80		250	235		380		0.013	**2LC0110-5AC**	9.4
152	**360**	4900	-	**60**	-	**60**	152	108	100	55	65	5	100	82	91	220	0.011	0.02	**2LC0110-6AC**	11.2
											65		140	122		260		0.02	**2LC0110-6AC**	11.7
											65		180	162		300		0.022	**2LC0110-6AC**	12.2
											65		200	182		320		0.023	**2LC0110-6AC**	12.5
											80		250	232		385		0.024	**2LC0110-6AC**	13.1
172	**560**	4250	-	**65**	-	**65**	172	118	108	60	70	6	100	81.5	111	230	0.019	0.03	**2LC0110-7AC**	14.3
											70		140	121.5		270		0.034	**2LC0110-7AC**	15.0
											70		180	161.5		310		0.036	**2LC0110-7AC**	15.9
											70		200	181.5		330		0.037	**2LC0110-7AC**	16.2
											80		250	231.5		390		0.039	**2LC0110-7AC**	17.2

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway to DIN 6885																	
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1	NL2	S2	S	LZ	DZ	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.											kgm²	kgm²		kg
194	**880**	3800	-	**75**	-	**75**	194	135	125	70	80	6	140	121.5	131	290	0.037	0.058	**2LC0110-8AC**	21
													180	161.5		330		0.062	**2LC0110-8AC**	22
													200	181.5		350		0.064	**2LC0110-8AC**	23
													250	231.5		400		0.069	**2LC0110-8AC**	24
218	**1340**	3400	-	**85**	-	**85**	218	150	140	80	90	6	140	118.5	144	310	0.062	0.10	**2LC0111-0AC**	30
													180	158.5		350		0.11	**2LC0111-0AC**	31
													200	178.5		370		0.11	**2LC0111-0AC**	32
													250	228.5		420		0.12	**2LC0111-0AC**	33
245	**2000**	3000	-	**90**	-	**90**	245	150	150	90	100	6	140	118.5	169	330	0.09	0.16	**2LC0111-1AC**	35
													180	158.5		370		0.17	**2LC0111-1AC**	36
													200	178.5		390		0.18	**2LC0111-1AC**	37
													250	228.5		430		0.19	**2LC0111-1AC**	39
272	**2800**	2750	46	**100**	46	**100**	272	165	165	100	110	8	180	152.5	185	390	0.16	0.3	**2LC0111-2AC**	51
													200	172.5		410		0.31	**2LC0111-2AC**	52
													250	222.5		460		0.33	**2LC0111-2AC**	55
305	**3900**	2450	49	**110**	51	**110**	305	180	180	110	120	8	250	222.5	215	480	0.28	0.52	**2LC0111-3AC**	74
340	**5500**	2150	49	**120**	51	**120**	340	200	200	125	140	8	250	222.5	250	515	0.50	0.87	**2LC0111-4AC**	105
380	**7700**	2000	61	**140**	51	**140**	380	230	230	140	150	8	250	220.5	272	540	0.80	1.4	**2LC0111-5AC**	130
430	**10300**	1700	66	**150**	51	**150**	430	250	250	160	180	8	250	185.5	310	590	1.4	2.5	**2LC0111-6AC**	205
472	**13500**	1550	80	**160**	51	**160**	472	265	265	180	180	10	250	182	354	610	2.1	4.1	**2LC0111-7AC**	235

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- For dimension U1, see type A on **Page 7/14**.
- During assembly, the gap dimension S2 must not exceed the permissible tolerance of +1 mm.
- For sizes 305 to 472 the outer diameter of part 5 and part 7 is smaller than ØDA.
- Weights and mass moments of inertia apply to maximum bore diameters.

Ordering example

- N-EUPEX HDS coupling, size 103, S3 = 100 mm
- Part 1: Bore D1 42H7 mm, keyway to DIN 6885-1 and set screw
- Part 5: Bore D2 32H7 mm, keyway to DIN 6885-1 and set screw
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

Article no.: 2LC0110-3AC99-0AA0-ZL0X+M0T+W02

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

SPARE AND WEAR PARTS

Elastomer flexibles of the N-EUPEX series

NBR elastomer flexibles 80 ShoreA standard type			
Size	Article No. (flexible set for one coupling)	Number of flexibles per set	Weight per set kg
58	2LC0100-0WA00-0AA0	4	0.012
68	2LC0100-1WA00-0AA0	5	0.015
80	2LC0100-2WA00-0AA0	6	0.02
95	2LC0100-3WA00-0AA0	6	0.03
110	2LC0100-4WA00-0AA0	6	0.045
125	2LC0100-5WA00-0AA0	6	0.06
140	2LC0100-6WA00-0AA0	6	0.09
160	2LC0100-7WA00-0AA0	7	0.12
180	2LC0100-8WA00-0AA0	8	0.17
200	2LC0101-0WA00-0AA0	8	0.23
225	2LC0101-1WA00-0AA0	8	0.3
250	2LC0101-2WA00-0AA0	8	0.38
280	2LC0101-3WA00-0AA0	8	0.55
315	2LC0101-4WA00-0AA0	9	0.7
350	2LC0101-5WA00-0AA0	9	0.85
400	2LC0101-6WA00-0AA0	10	1.2
440	2LC0101-7WA00-0AA0	10	1.5
480	2LC0101-8WA00-0AA0	10	2.1
520	2LC0102-0WA00-0AA0	10	2.6
560	2LC0102-1WA00-0AA0	10	3.6
610	2LC0102-2WA00-0AA0	10	4.9
660	2LC0102-3WA00-0AA0	10	6.3
710	2LC0102-4WA00-0AA0	10	7.6

Notes

- The elastomer flexibles are wear parts.
  The service life depends on the operating conditions.

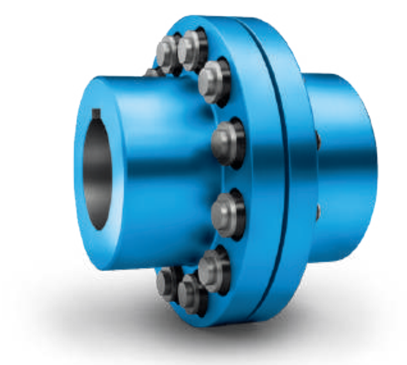
Elastomer flexibles of the N-EUPEX DS series

NBR elastomer flexibles standard type			
Size	Article No. (flexible set for one coupling)	Number of flexibles per set	Weight per set kg
66	2LC0110-0WA00-0AA0	4	0.012
76	2LC0110-1WA00-0AA0	5	0.015
88	2LC0110-2WA00-0AA0	6	0.021
103	2LC0110-3WA00-0AA0	6	0.033
118	2LC0110-4WA00-0AA0	6	0.048
135	2LC0110-5WA00-0AA0	6	0.072
152	2LC0110-6WA00-0AA0	6	0.1
172	2LC0110-7WA00-0AA0	7	0.16
194	2LC0110-8WA00-0AA0	8	0.21
218	2LC0111-0WA00-0AA0	8	0.28
245	2LC0111-1WA00-0AA0	8	0.45
272	2LC0111-2WA00-0AA0	8	0.64
305	2LC0111-3WA00-0AA0	8	0.72
340	2LC0111-4WA00-0AA0	9	0.92
380	2LC0111-5WA00-0AA0	9	1.2
430	2LC0111-6WA00-0AA0	10	1.6
472	2LC0111-7WA00-0AA0	10	2.0
514	2LC0111-8WA00-0AA0	10	2.5
556	2LC0112-0WA00-0AA0	10	3.2

Notes

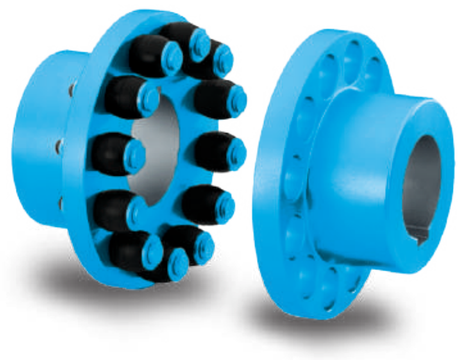
- The elastomer flexibles are wear parts.
  The service life depends on the operating conditions.

FLEXIBLE COUPLINGS
RUPEX SERIES



RUPEX
FLENDER

GENERAL



Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

II 2G Ex h IIC T6 ... T4 Gb X

II 2D Ex h IIIC T85 °C ... 110 °C Db X

I M2 Ex h Mb X

RUPEX pin and bush couplings link machine shafts and compensate for shaft misalignment with weak restorative forces.
The torque is conducted through elastomer buffers, so the coupling has typically flexible rubber properties.

Thanks to their robust design, RUPEX couplings are also suitable for rough operating conditions.

Benefits

RUPEX couplings can also hold loads when overloaded and are therefore especially suitable for drives for special safety and reliability requirements.

Torque shock loads and changing loads are no problem for robust, compact flexible RUPEX couplings.

The steel variant is also especially suitable for high-speed drives.

RUPEX couplings are fitted by putting together the coupling halves. Fitting with low torsional backlash is simplified by the barrel-shaped geometry of the buffers.

RUPEX couplings require little maintenance. Only the elastomer buffers, as wear parts, need be replaced and the coupled machines need not be moved to do so.

RUPEX couplings are suitable for reversing operation and horizontal and vertical fitting or fitting at any required angle.

Application

RUPEX couplings are available as a catalog standard in 26 sizes with a rated torque of between 200 Nm and 1300000 Nm.

The coupling is suitable for use at ambient temperatures of between -30 °C and +80 °C. By using alternative elastomer buffers, the permissible ambient temperature range can be extended to between -50 °C and +100 °C.

Frequently, the coupling is used to connect the gear shaft to the driven machine. In the case of drives without gear units, the coupling is particularly suitable for operation in rough conditions or heavy-duty drives with electric motor drive. Ventilator drives with high ventilator mass and drives in the cement industry are typical applications.

Examples of particularly safety-relevant areas of application are cable railway drives, lifting gear for crane drives or escalator drives.

GENERAL

Design and configurations

A RUPEX coupling comprises two hub sections which are mounted on the machine shafts. The hub parts are connected positively by steel pins and elastomer buffers. The coupling can be fitted with add-on parts such as brake disks or brake drums.

Up to size 360, the pins and buffers are fitted on one side. From size 400 up, the pins and buffers are fitted in the hubs on alternate sides.

Materials

- Hubs:
  Types RWN and RWB made of grey cast iron EN-GJL-250
  Types RWS and RBS made of steel
- Flange:
  Types RFN, RFS made of steel
- Pins:
  Material steel 42CrMo4, surface fine-machined
- Brake disks:
  Type RWB made of EN-GJS-400 spheroidal graphite cast iron
  Type RBS made of steel
- Brake drums:
  Type RWB made of EN-GJL-250 grey cast iron
  Type RBS made of steel

Buffer material

Material/description	Hardness	Marking	Ambient temperature
NBR standard type	**80 ShoreA**	**Buffer black**	**-30 °C ... +80 °C**
NBR electrically insulating	80 ShoreA	Buffer green	-30 °C ... +80 °C
NBR soft	65 ShoreA	Buffer black with green dot	-30 °C ... +80 °C
NBR hard	90 ShoreA	Buffer black with magenta dot	-30 °C ... +80 °C
NR for low temperature	80 ShoreA	Buffer black with white dot	-50 °C ... +50 °C
HNBR high temperature	80 ShoreA	Buffer black with red dot	-10 °C ... +100 °C

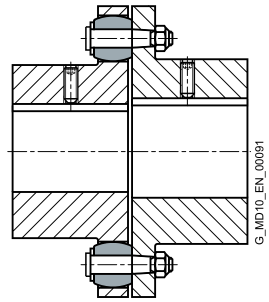
RUPEX pin and bush coupling types

Type	Description
RWN	Coupling made of grey cast iron
RWS	Coupling made of steel
RWB	Coupling made of grey cast iron with brake drum or brake disk
RBS	Coupling made of steel with brake drum or brake disk
RFN	Coupling made of grey cast iron in flange-shaft variant
RFS	Coupling made of steel in flange-shaft variant

Further application-related coupling types are available. Dimension sheets for and information on these are available on request.

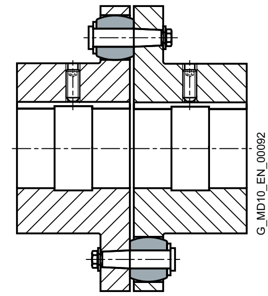
RUPEX pin and bush coupling types on request

Type	Description
All	Coupling with axial backlash limitation
	Coupling with pretensioned buffers
	Coupling with lengthened pins and spacer sleeves
RKS	Coupling for engaging/disengaging during standstill
RWNH, RWSH	Coupling with extension piece
RBM	Coupling with lengthened pins for sliding rotor motors
RAK	Coupling combination RUPEX with ARPEX all-steel membrane coupling



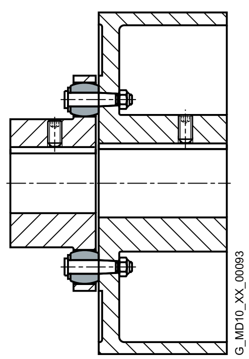
up to size 360

Types RWN/RWS – One-sided arrangement of pins and buffers

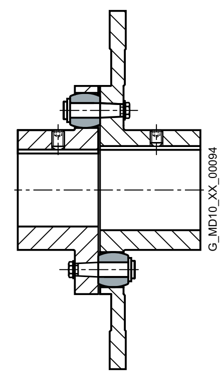


from size 400

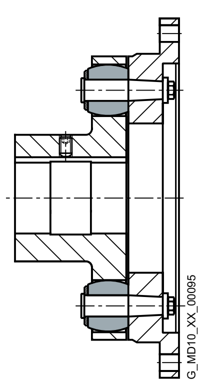
Types RWN/RWS – Alternate-sided arrangement of pins and buffers



Types RWB/RBS with brake drum



Types RWB/RBS with brake disk



Types RFN, RFS

GENERAL

Function

The motor torque is transmitted to the hub on the drive side via the shaft-hub connection, which is mostly designed as a keyway connection. With the aid of elastomer buffers mounted on steel pins, the torque is conducted to the hub on the output side. The hub on the output side further transmits the torque to the driven machine or a gear unit located in between. Because of the primarily compression-loaded buffers, the coupling has a progressive torsional stiffness.

Technical specifications

Power ratings

Size	Rated torque for buffer type			Torsional stiffness at 50 % capacity utilization for buffer type			Assembly	Permitted shaft misalignment at n = 1500 rpm [1]	
	65 ShoreA	80 ShoreA	90 ShoreA	65 ShoreA	80 ShoreA	90 ShoreA	Gap dimension	Radial	Angle
	T_{KN} Nm	T_{KN} Nm	T_{KN} Nm	$C_{Tdyn\ 50\ \%}$ kNm/rad	$C_{Tdyn\ 50\ \%}$ kNm/rad	$C_{Tdyn\ 50\ \%}$ kNm/rad	ΔS mm	ΔK_r mm	ΔK_w Degree
105	120	**200**	200	5	**13**	21	1	0.21	0.12
125	210	**350**	350	9	**25**	37	1	0.23	0.11
144	300	**500**	500	15	**43**	64	1	0.25	0.1
162	450	**750**	750	20	**55**	83	1.5	0.27	0.1
178	570	**950**	950	31	**85**	130	1.5	0.29	0.09
198	780	**1300**	1300	43	**123**	187	1.5	0.3	0.09
228	1300	**2200**	2200	65	**184**	270	1.5	0.34	0.09
252	1650	**2750**	2750	92	**256**	380	1.5	0.36	0.08
285	2600	**4300**	4300	141	**390**	560	1.5	0.4	0.08
320	3300	**5500**	5500	195	**540**	790	1.5	0.43	0.08
360	4700	**7800**	7800	276	**610**	940	1.5	0.48	0.08
400	7500	**12500**	12500	410	**1130**	1710	1.5	0.52	0.07
450	11000	**18500**	18500	570	**1600**	2380	1.5	0.57	0.07
500	15000	**25000**	25000	860	**2350**	3600	1.5	0.62	0.07
560	23500	**39000**	39000	1130	**3070**	4700	2	0.68	0.07
630	31000	**52000**	52000	1640	**4600**	7400	2	0.75	0.07
710	50000	**84000**	84000	2560	**7200**	10900	2	0.84	0.07
800	66000	**110000**	110000	3900	**10700**	16700	2	0.93	0.07
900	90000	**150000**	150000	5200	**14300**	22500	2.5	1.03	0.07
1000	115000	**195000**	195000	7700	**21300**	33000	2.5	1.14	0.07
1120	160000	**270000**	270000	9800	**27300**	44000	2.5	1.26	0.06
1250	205000	**345000**	345000	14000	**39000**	62000	2.5	1.39	0.06
1400	320000	**530000**	530000	22800	**62000**	97000	3	1.55	0.06
1600	450000	**750000**	750000	37000	**103000**	160000	3	1.76	0.06
1800	585000	**975000**	975000	48000	**133000**	208000	4	1.96	0.06
2000	780000	**1300000**	1300000	73000	**201000**	314000	4	2.17	0.06

For maximum coupling torque:
$T_{Kmax} = 3{,}0 \cdot T_{KN}$

For overload torque:
$T_{KOL} = 4 \cdot T_{KN}$

For coupling fatigue torque:
$T_{KW} = 0{,}20 \cdot T_{KN}$

Note

For fitting, the maximum gap dimension of S max. = S + ΔS and the minimum gap dimension of S min. = S – ΔS are permitted.

[1] The maximum speed for the respective type must be noted. For additional information on the allowable shaft misalignment, please refer to the operating instructions.

Torsional stiffness and damping

The values stated in the above table apply to a capacity utilization of 50 %, an excitation amplitude of 10 % T_{KN} with the frequency 10 Hz and an ambient temperature of 20 °C. The dynamic torsional stiffness is load-dependent and increases in proportion to capacity utilization. The following table shows the correction factors for different rated loads.

$C_{Tdyn} = C_{Tdyn}$ 50 % · FKC

	Load T_N / T_{KN}							
	20%	40%	50%	60%	70%	80%	90%	100%
Correction factor FKC 65/80/90 ShoreA	0.51	0.83	1	1.18	1.38	1.58	1.8	2.03

The damping coefficient is Ψ = 1.4

Torsional stiffness and damping is further dependent on the ambient temperature and the frequency and amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn}. For this reason calculation must be made with a tolerance for the dynamic stiffness of ± 20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

Permitted shaft misalignment

The permitted shaft misalignment depends on the operating speed. As the speed increases, lower shaft misalignment values are permitted. The correction factors for different speeds are specified in the following table. The maximum speed for the respective coupling size and type must be noted!

$\Delta K_{perm} = \Delta K_{1500} \cdot$ FKV

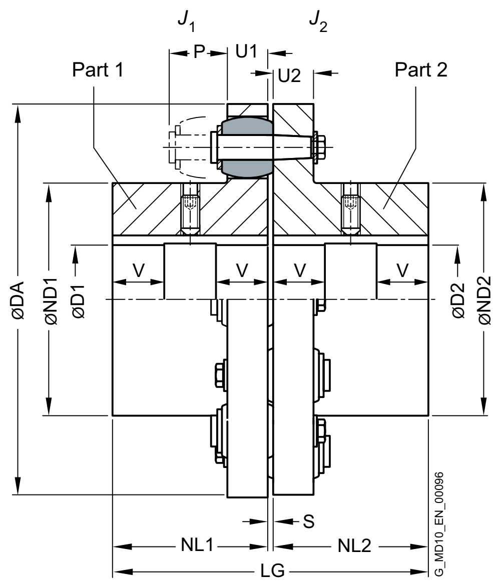
	Speed in rpm			
	500	1000	1500	3000
Correction factor FKV	1.7	1.2	1.0	0.7

For fitting, the maximum gap dimension of S max. = S + ΔS and the minimum gap dimension of S min. = S – ΔS are permitted.

Shaft misalignments ΔK_r and ΔK_w may occur simultaneously.

TYPE RWN

Hub material grey cast iron



Size	Rated torque buffer 80 ShoreA T_{KN}	Speed n_{Kmax}	Dimensions in mm Bore with keyway DIN 6885 D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	P	LG	Mass moment of inertia J_1	J_2	↗ Article no. [1]	Weight m
	Nm	rpm	min.	max.	min.	max.										kgm²	kgm²		kg
105 [2]	**200**	7000	–	**32**	–	**38**	105	53	59	45	3	13	12	30	93	0.001	0.001	**2LC0130-1AA**	1.9
125 [2]	**350**	6000	–	**40**	–	**48**	125	65	68	50	3	16	15	35	103	0.003	0.003	**2LC0130-2AA**	3.2
144	**500**	5250	–	**45**	–	**55**	144	76	84	55	3	16	15	35	113	0.004	0.006	**2LC0130-3AA**	4.5
162	**750**	4650	–	**50**	–	**60**	162	85	92	60	3.5	20	18	40	123.5	0.007	0.013	**2LC0130-4AA**	6.7
178	**950**	4200	–	**60**	–	**70**	178	102	108	70	3.5	20	18	40	143.5	0.014	0.022	**2LC0130-5AA**	9.7
198	**1300**	3750	–	**70**	–	**80**	198	120	128	80	3.5	20	18	40	163.5	0.022	0.03	**2LC0130-6AA**	12.9
228	**2200**	3300	–	**80**	–	**90**	228	129	140	90	3.5	26	24	50	183.5	0.038	0.071	**2LC0130-7AA**	19
252	**2750**	3000	–	**90**	–	**100**	252	150	160	100	3.5	26	24	50	203.5	0.07	0.12	**2LC0130-8AA**	26.3
285	**4300**	2650	48	**100**	48	**110**	285	164	175	110	4.5	32	30	60	224.5	0.13	0.22	**2LC0131-0AA**	39
320	**5500**	2350	55	**110**	55	**120**	320	180	192	125	4.5	32	30	60	254.5	0.23	0.3	**2LC0131-1AA**	53
360	**7800**	2100	65	**120**	65	**130**	360	200	210	140	4.5	42	42	75	284.5	0.41	0.7	**2LC0131-2AA**	78
400	**12500**	2050	75	**140**	75	**140**	400	230	230	160	4.5	42	42	75	324.5	0.87	0.87	**2LC0131-3AA**	105
450	**18500**	1800	85	**160**	85	**160**	450	260	260	180	5.5	52	52	90	365.5	1.7	1.7	**2LC0131-4AA**	156
500	**25000**	1600	95	**180**	95	**180**	500	290	290	200	5.5	52	52	90	405.5	2.8	2.8	**2LC0131-5AA**	200
			100	**140**	100	**140**		250	250							4.6	4.6		280
560	**39000**	1450	140	**180**	140	**180**	560	300	300	220	6	68	68	120	446	5	5	**2LC0131-6AA**	290
			180	**200**	180	**200**		320	320							5.1	5.1		295
			100	**140**	100	**140**		250	250							7.2	7.2		345
630	**52000**	1280	140	**180**	140	**180**	630	300	300	240	6	68	68	120	486	7.7	7.7	**2LC0131-7AA**	370
			180	**220**	180	**220**		355	355							8.4	8.4		400
			110	**160**	110	**160**		290	290							13	13		510
710	**84000**	1150	160	**200**	160	**200**	710	330	330	260	7	80	80	140	527	14	14	**2LC0131-8AA**	515
			200	**240**	200	**240**		385	385							15	15		540

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Hub material spheroidal graphite iron EN-GJS 400.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque buffer 80 ShoreA T_{KN}	Speed n_{Kmax}	Dimensions in mm: Bore with keyway DIN 6885, D1 min.	D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1/ NL2	S	U1	U2	P	LG	Mass moment of inertia J_1	J_2	↗ Article no. [1]	Weight m
	Nm	rpm														kgm²	kgm²		kg
800	**110000**	1000	125	**180**	125	**180**	800	320	320	290	7	80	80	140	587	22	22	**2LC0132-0AA**	670
			180	**220**	180	**220**		360	360							23	23		690
			220	**260**	220	**260**		420	420							24.5	24.5		730
900	**150000**	900	140	**220**	140	**220**	900	360	360	320	7.5	90	90	160	647.5	39	39	**2LC0132-1AA**	940
			220	**260**	220	**260**		425	425							41	41		960
			260	**290**	260	**290**		465	465							43	43		1030
1000	**195000**	810	150	**240**	150	**240**	1000	395	395	350	7.5	90	90	160	707.5	60	60	**2LC0132-2AA**	1200
			240	**280**	240	**280**		460	460							63	63		1250
			280	**320**	280	**320**		515	515							68	68		1310
1120	**270000**	700	160	**200**	160	**200**	1120	360	360	380	8.5	100	100	180	768.5	98	98	**2LC0132-3AA**	1470
			200	**250**	200	**250**		410	410							100	100		1510
			250	**300**	250	**300**		495	495							105	105		1600
			300	**350**	300	**350**		560	560							110	110		1690
1250	**345000**	650	180	**230**	180	**230**	1250	410	410	420	8.5	100	100	180	848.5	150	150	**2LC0132-4AA**	1850
			230	**280**	230	**280**		460	460							155	155		1900
			280	**330**	280	**330**		540	540							165	165		2025
			330	**380**	330	**380**		610	610							175	175		2210
1400	**530000**	570	200	**260**	200	**260**	1400	465	465	480	9	120	120	210	969	290	290	**2LC0132-5AA**	2820
			260	**320**	260	**320**		525	525							300	300		2900
			320	**380**	320	**380**		620	620							310	310		3180
			380	**440**	380	**440**		700	700							330	330		3260
1600	**750000**	500	260	**320**	260	**320**	1600	565	565	540	9	120	120	210	1089	490	490	**2LC0132-6AA**	3780
			320	**380**	320	**380**		625	625							500	500		3870
			380	**440**	380	**440**		720	720							530	530		4150
			440	**480**	440	**480**		770	770							550	550		4290
1800	**975000**	450	320	**380**	320	**380**	1800	660	660	600	12	140	140	240	1212	850	850	**2LC0132-7AA**	5550
			380	**440**	380	**440**		720	720							930	930		5630
			440	**500**	440	**500**		820	820							980	980		6000
			500	**540**	500	**540**		870	870							1050	1050		6250
2000	**1300000**	400	380	**440**	380	**440**	2000	760	760	660	12	140	140	240	1332	1350	1350	**2LC0132-8AA**	6800
			440	**500**	440	**500**		820	820							1400	1400		7000
			500	**560**	500	**560**		920	920							1500	1500		7350
			560	**600**	560	**600**		960	960							1550	1550		7620

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- From size 560 bores D1 and D2 are each provided with a recess of D = +1 mm halfway along the hub. V ≈ 1/3 NL
- The hub diameter of the component part is assigned according to the diameter of the finished bore.
  Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weight and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RWN coupling, size 710
- Part 1: Hub left with bore 180H7 mm, with keyway to DIN 6885 and set screw
- Part 2: Hub right with bore 200H7 mm, with keyway to DIN 6885 and set screw.

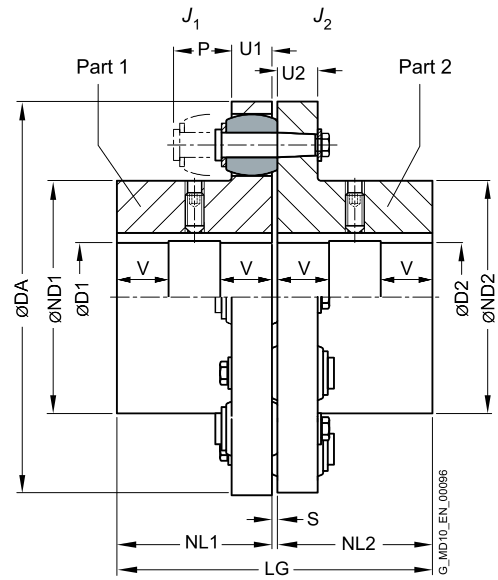
Article no.: 2LC0131-8AA99-0AA0-Z L2B+M2D

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE RWS

Hub material steel



Size	Rated torque buffer 80 ShoreA	Speed	Dimensions in mm													Mass moment of inertia		↗ Article no. 1)	Weight
			Bore with keyway DIN 6885																
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	P	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.										kgm²	kgm²		kg
105	**200**	10000	–	**32**	–	**38**	105	53	59	45	3	13	12	30	93	0.001	0.001	**2LC0130-1AB**	1.9
125	**350**	9000	–	**42**	–	**48**	125	65	68	50	3	16	15	35	103	0.003	0.003	**2LC0130-2AB**	3.2
144	**500**	7800	–	**50**	–	**60**	144	76	84	55	3	16	15	35	113	0.004	0.006	**2LC0130-3AB**	4.5
162	**750**	6900	–	**55**	–	**65**	162	85	92	60	3.5	20	18	40	123.5	0.007	0.013	**2LC0130-4AB**	6.7
178	**950**	6300	–	**70**	–	**75**	178	102	108	70	3.5	20	18	40	143.5	0.014	0.022	**2LC0130-5AB**	9.7
198	**1300**	5600	–	**80**	–	**85**	198	120	128	80	3.5	20	18	40	163.5	0.022	0.030	**2LC0130-6AB**	12.9
228	**2200**	4900	–	**85**	–	**95**	228	129	140	90	3.5	26	24	50	183.5	0.038	0.071	**2LC0130-7AB**	19
252	**2750**	4400	–	**100**	–	**110**	252	150	160	100	3.5	26	24	50	203.5	0.07	0.12	**2LC0130-8AB**	26.3
285	**4300**	3900	–	**110**	–	**120**	285	164	175	110	4.5	32	30	60	224.5	0.13	0.21	**2LC0131-0AB**	39
320	**5500**	3500	55	**125**	55	**130**	320	180	192	125	4.5	32	30	60	254.5	0.23	0.32	**2LC0131-1AB**	53
360	**7800**	3100	65	**135**	65	**140**	360	200	210	140	4.5	42	42	75	284.5	0.41	0.69	**2LC0131-2AB**	78
400	**12500**	2800	75	**150**	75	**150**	400	230	230	160	4.5	42	42	75	324.5	0.92	0.92	**2LC0131-3AB**	110
450	**18500**	2500	85	**170**	85	**170**	450	260	260	180	5.5	52	52	90	365.5	1.7	1.7	**2LC0131-4AB**	163
500	**25000**	2200	95	**190**	95	**190**	500	290	290	200	5.5	52	52	90	405.5	2.8	2.8	**2LC0131-5AB**	217
			100	**165**	100	**165**		250	250							4.8	4.8		274
560	**39000**	2000	165	**200**	165	**200**	560	300	300	220	6	68	68	120	446	5.2	5.2	**2LC0131-6AB**	292
			200	**210**	200	**210**		320	320							5.4	5.4		305
			100	**165**	100	**165**		250	250							7.6	7.6		352
630	**52000**	1800	165	**200**	165	**200**	630	300	300	240	6	68	68	120	486	7.9	7.9	**2LC0131-7AB**	370
			200	**235**	200	**235**		355	355							8.7	8.7		400
			110	**190**	110	**190**		290	290							14.4	14.4		507
710	**84000**	1600	190	**220**	190	**220**	710	330	330	260	7	80	80	140	527	14.6	14.6	**2LC0131-8AB**	530
			220	**250**	220	**250**		385	385							15.9	15.9		560

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque buffer 80 ShoreA	Speed	Dimensions in mm													Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway DIN 6885																
	T_{KN}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1/ NL2	S	U1	U2	P	LG	J_1	J_2		m
	Nm	rpm	min.	max.	min.	max.										kgm²	kgm²		kg
800	110000	1400	125	**210**	125	**210**	800	320	320	290	7	80	80	140	587	23.1	23.1	2LC0132-0AB	683
			210	**240**	210	**240**		360	360							23.3	23.3		715
			240	**280**	240	**280**		420	420							25.7	25.7		762
900	150000	1250	140	**210**	140	**210**	900	320	320	320	7.5	90	90	160	647.5	40	40	2LC0132-1AB	907
			210	**240**	210	**240**		360	360							41	41		933
			240	**280**	240	**280**		425	425							44	44		1000
			280	**310**	280	**310**		465	465							45	45		1025
1000	195000	1100	150	**230**	150	**230**	1000	355	355	350	7.5	90	90	160	707.5	63	63	2LC0132-2AB	1170
			230	**260**	230	**260**		395	395							64	64		1208
			260	**300**	260	**300**		460	460							68	68		1290
			300	**340**	300	**340**		515	515							70	70		1343
1120	270000	1000	160	**240**	160	**240**	1120	360	360	380	8.5	100	100	180	768.5	105	105	2LC0132-3AB	1560
			240	**270**	240	**270**		410	410							106	106		1660
			270	**330**	270	**330**		495	495							109	109		1730
			330	**370**	330	**370**		560	560							119	119		1870
1250	345000	900	180	**270**	180	**270**	1250	410	410	420	8.5	100	100	180	848.5	168	168	2LC0132-4AB	2000
			270	**300**	270	**300**		460	460							172	172		2150
			300	**360**	300	**360**		540	540							179	179		2200
			360	**400**	360	**400**		610	610							189	189		2420
1400	530000	800	200	**310**	200	**310**	1400	465	465	480	9	120	120	210	969	316	316	2LC0132-5AB	3020
			310	**350**	310	**350**		525	525							322	322		3120
			350	**410**	350	**410**		620	620							337	337		3350
			410	**460**	410	**460**		700	700							357	357		3570
1600	750000	700	260	**370**	260	**370**	1600	565	565	540	9	120	120	210	1089	540	540	2LC0132-6AB	3890
			370	**410**	370	**410**		625	625							554	554		4270
			410	**480**	410	**480**		720	720							587	587		4300
			480	**510**	480	**510**		770	770							611	611		4630
1800	975000	600	320	**440**	320	**440**	1800	660	660	600	12	140	140	240	1212	1043	1043	2LC0132-7AB	6230
			440	**480**	440	**480**		720	720							1072	1072		6460
			480	**540**	480	**540**		820	820							1122	1122		6770
			540	**580**	540	**580**		870	870							1143	1143		7030
2000	1300000	550	380	**500**	380	**500**	2000	760	760	660	12	140	140	240	1332	1628	1628	2LC0132-8AB	8140
			500	**540**	500	**540**		820	820							1664	1664		8430
			540	**610**	540	**610**		920	920							1735	1735		8860
			610	**640**	610	**640**		960	960							1793	1793		9050

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- From size 560 bores D1 and D2 are each provided with a recess of D = +1 mm halfway along the hub. V ≈ 1/3 NL
- The hub diameter of the component part is assigned according to the diameter of the finished bore.
  Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weight and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RWS coupling, size 710
- Part 1: Hub left with bore 180H7 mm, with keyway to DIN 6885 and set screw
- Part 2: Hub right with bore 200H7 mm, with keyway to DIN 6885 and set screw.
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

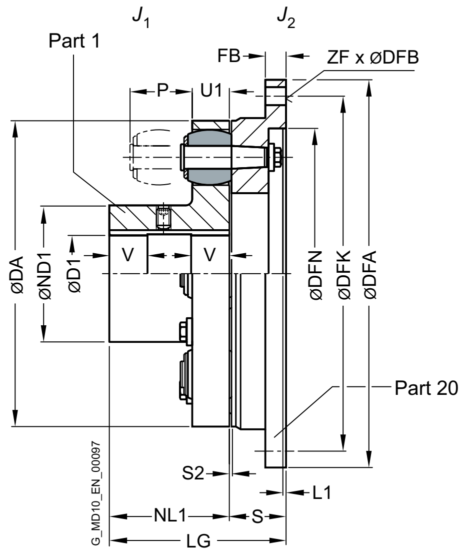
Article no.: 2LC0131-8AB99-0AA0-Z L2B+M2D+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE RFN

Hub material grey cast iron



Size	Rated torque buffer 80 ShoreA	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway DIN 6885							Flange connection										
	T_{KN} Nm	n_{Kmax} rpm	D1 min.	D1 max.	DA	ND1	NL1	S	LG	DFA h8	FB	DFN H7	L1	DFK	ZF	DFB	J_1 kgm²	J_2 kgm²		m kg
105	**200**	7000	–	**32**	105	53	45	26	71	158	10			142	6	9	0.001	0.005	**2LC0130-1AJ**	2.3
125	**350**	6000	–	**40**	125	65	50	31	81	180	13			160	6	11	0.003	0.012	**2LC0130-2AJ**	4.2
144	**500**	5250	–	**45**	144	76	55	31	86	200	13			180	7	11	0.004	0.018	**2LC0130-3AJ**	5.0
162	**750**	4650	–	**50**	162	85	60	37.5	97.5	220	13			200	8	11	0.007	0.032	**2LC0130-4AJ**	7.3
178	**950**	4200	–	**60**	178	102	70	37.5	107.5	248	16			224	8	14	0.014	0.055	**2LC0130-5AJ**	10
198	**1300**	3750	–	**70**	198	120	80	37.5	117.5	274	16			250	8	14	0.022	0.08	**2LC0130-6AJ**	13
228	**2200**	3300	–	**80**	228	129	90	45.5	135.5	314	20			282	8	18	0.038	0.18	**2LC0130-7AJ**	20
252	**2750**	3000	–	**90**	252	150	100	45.5	145.5	344	20			312	8	18	0.07	0.26	**2LC0130-8AJ**	25
285	**4300**	2650	48	**100**	285	164	110	55.5	165.5	380	22			348	9	18	0.13	0.46	**2LC0131-0AJ**	38
320	**5500**	2350	55	**110**	320	180	125	55.5	175.5	430	25			390	9	22	0.23	0.76	**2LC0131-1AJ**	50
360	**7800**	2100	65	**120**	360	200	140	70.5	210.5	480	25			440	10	22	0.41	1.4	**2LC0131-2AJ**	76
400	**12500**	2050	75	**140**	400	230	160	74.5	234.5	520	50	380	4	480	10	22	0.87	1.8	**2LC0131-3AJ**	125
450	**18500**	1800	85	**160**	450	260	180	85.5	265.5	575	45	428	6	528	12	26	1.7	3.2	**2LC0131-4AJ**	170
500	**25000**	1600	95	**180**	500	290	200	85.5	285.5	620	45	475	6	570	12	26	2.8	4.3	**2LC0131-5AJ**	205

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque buffer 80 ShoreA	Speed	Dimensions in mm															Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway DIN 6885							Flange connection										
	T_{KN}	n_{Kmax}	D1		DA	ND1	NL1	S	LG	DFA	FB	DFN	L1	DFK	ZF	DFB	J_1	J_2		m
	Nm	rpm	min.	max.						h8		H7					kgm²	kgm²		kg
			100	**140**		250											4.6			330
560	**39000**	1450	140	**180**	560	300	220	106	326	700	65	532	8	650	16	26	5	8.2	**2LC0131-6AJ**	330
			180	**200**		320											5.1			340
			100	**140**		250											7.2			390
630	**52000**	1280	140	**180**	630	300	240	106	346	785	60	602	8	725	16	33	7.7	13.8	**2LC0131-7AJ**	400
			180	**220**		355											8.4			420
			110	**160**		290											13			550
710	**84000**	1150	160	**200**	710	330	260	127	387	875	80	675	10	815	18	33	14	26	**2LC0131-8AJ**	550
			200	**240**		385											15			570
			125	**180**		320											22			680
800	**110000**	1000	180	**220**	800	360	290	127	417	1000	70	765	10	930	16	39	23	45	**2LC0131-9AJ**	690
			220	**260**		420											24.5			710

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore

Notes

- For dimensions U1, P and S2, see type RWN on **Page 8/8**
- From size 560 bore D1 is provided with a recess of D = +1 mm halfway along the hub.
  V ≈ 1/3 NL
- Weight and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RFN coupling, size 560
- Part 1: Hub left with bore 180H7 mm, with keyway to DIN 6885 and set screw

Article no.: 2LC0131-6AJ91-0AA0-Z L2B

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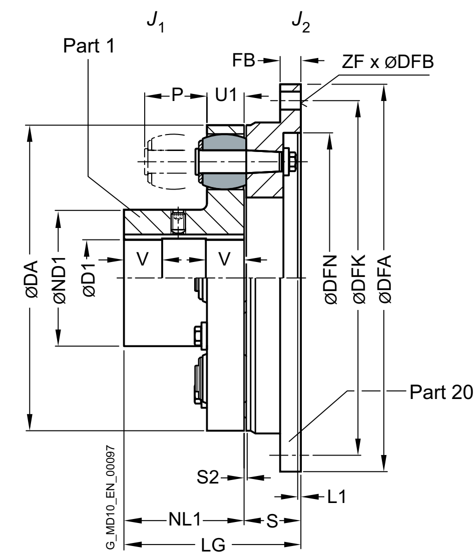
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE RFS

Hub material steel



8

Size	Rated torque buffer 80 ShoreA	Speed	Dimensions in mm														Mass moment of inertia		↗ Article no. 1)	Weight
			Bore with keyway DIN 6885							Flange connection										
	T_{KN}	n_{Kmax}	D1		DA	ND1	NL1	S	LG	DFA	FB	DFN	L1	DFK	ZF	DFB	J_1	J_2		m
	Nm	rpm	min.	max.						h8		H7					kgm²	kgm²		kg
105	200	10000	–	32	105	53	45	26	71	158	10			142	6	9	0.001	0.005	2LC0130-1AK	2.3
125	350	9000	–	42	125	65	50	31	81	180	13			160	6	11	0.003	0.012	2LC0130-2AK	4.2
144	500	7800	–	50	144	76	55	31	86	200	13			180	7	11	0.004	0.018	2LC0130-3AK	5
162	750	6900	–	55	162	85	60	37.5	97.5	220	13			200	8	11	0.007	0.032	2LC0130-4AK	7.3
178	950	6300	–	70	178	102	70	37.5	107.5	248	16			224	8	14	0.014	0.055	2LC0130-5AK	10
198	1300	5600	–	80	198	120	80	37.5	117.5	274	16			250	8	14	0.022	0.08	2LC0130-6AK	13
228	2200	4900	–	85	228	129	90	45.5	135.5	314	20			282	8	18	0.038	0.18	2LC0130-7AK	20
252	2750	4400	–	100	252	150	100	45.5	145.5	344	20			312	8	18	0.07	0.26	2LC0130-8AK	25
285	4300	3900	48	110	285	164	110	55.5	165.5	380	22			348	9	18	0.13	0.46	2LC0131-0AK	38
320	5500	3500	55	125	320	180	125	55.5	175.5	430	25			390	9	22	0.23	0.76	2LC0131-1AK	50
360	7800	3100	65	135	360	200	140	70.5	210.5	480	25			440	10	22	0.41	1.4	2LC0131-2AK	76
400	12500	2800	75	150	400	230	160	74.5	234.5	520	50	380	4	480	10	22	0.92	1.8	2LC0131-3AK	125
450	18500	2500	85	170	450	260	180	85.5	265.5	575	45	428	6	528	12	26	1.7	3.2	2LC0131-4AK	175
500	25000	2200	95	190	500	290	200	85.5	285.5	620	45	475	6	570	12	26	2.8	4.3	2LC0131-5AK	210

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque buffer 80 ShoreA	Speed	Dimensions in mm															Mass moment of inertia		↗ Article no. [1]	Weight
			Bore with keyway DIN 6885							Flange connection										
	T_{KN} Nm	n_{Kmax} rpm	D1 min.	D1 max.	DA	ND1	NL1	S	LG	DFA h8	FB	DFN H7	L1	DFK	ZF	DFB	J_1 kgm²	J_2 kgm²		m kg
			100	**165**		250											4.8			330
560	**39000**	2000	165	**200**	560	300	220	106	326	700	65	532	8	650	16	26	5.2	8.2	**2LC0131-6AK**	340
			200	**210**		320											5.4			340
			100	**165**		250											7.6			390
630	**52000**	1800	165	**200**	630	300	240	106	346	785	60	602	8	725	16	33	7.9	13.8	**2LC0131-7AK**	400
			200	**235**		355											8.7			420
			110	**190**		290											14.4			550
710	**84000**	1600	190	**220**	710	330	260	127	387	875	80	675	10	815	18	33	14.6	26	**2LC0131-8AK**	560
			220	**250**		385											15.9			580
			125	**210**		320											23.1			690
800	**110000**	1400	210	**240**	800	360	290	127	417	1000	70	765	10	930	16	39	23.3	45	**2LC0131-9AK**	710
			240	**280**		420											25.7			730

8

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore

Notes

- For dimensions U1, P and S2, see type RWS on **Page 8/10**
- From size 560 bore D1 is provided with a recess of D = +1 mm halfway along the hub.
  V ≈ 1/3 NL
- Weight and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RFS coupling, size 560
- Part 1: Hub left with bore 180H7 mm, with keyway to DIN 6885 and set screw
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

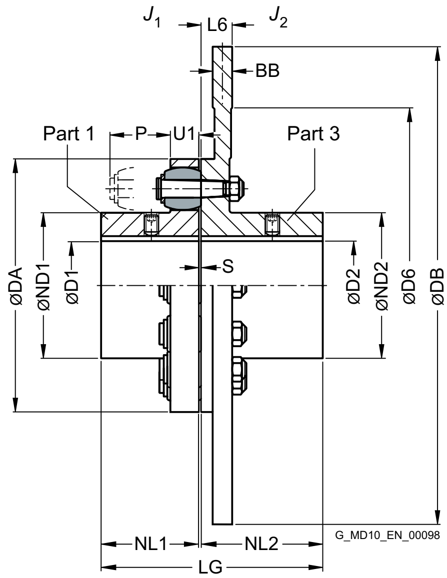
Article no.: 2LC0131-6AK91-0AA0-Z L2B+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE RWB

with brake disk to DIN 15432



Size	Rated torque buffer 80 ShoreA	Dimensions in mm																		↗ Article no. [1]
		Bore with keyway DIN 6885													Brake disk					
	T_{KN}	D1		D2		DA	ND1	ND2	NL1	NL2	S	U1	P	LG	DB[2]	DB	D6	BB[2]	L6	
	Nm	min.	max.	min.	max.					max.				max.	max.	min.	min.			
144	**500**	–	**45**	–	**45**	144	76	84	55	219	3	16	35	277	500	315	175	30	34	**2LC0130-3AE**
162	**750**	–	**50**	–	**50**	162	85	92	60	219	3.5	20	40	282.5	560	315	175	30	34	**2LC0130-4AE**
178	**950**	–	**60**	–	**60**	178	102	108	70	219	3.5	20	40	292.5	560	355	200	30	34	**2LC0130-5AE**
198	**1300**	–	**70**	–	**70**	198	120	128	80	219	3.5	20	40	302.5	560	355	200	30	34	**2LC0130-6AE**
228	**2200**	–	**80**	–	**80**	228	129	140	90	219	3.5	26	50	312.5	800	355	250	30	34	**2LC0130-7AE**
252	**2750**	–	**90**	38	**100**	252	150	160	100	219	3.5	26	50	322.5	800	400	280	30	34	**2LC0130-8AE**
285	**4300**	48	**100**	48	**110**	285	164	175	110	219	4.5	32	60	333.5	800	400	310	30	34	**2LC0131-0AE**
320	**5500**	55	**110**	55	**120**	320	180	192	125	219	4.5	32	60	348.5	1000	450	350	30	34	**2LC0131-1AE**

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Notes

- Brake disk diameter DB in accordance with customer specification.
- Additional sizes are available on request.
- Further dimensions for part 3 on request.
- Maximum speed in rpm:
  n_{Kmax} = 1146/DB (DB in m)
  Observe maximum speed of type RWN!
- Mass moments of inertia and weights can be sufficiently precisely determined as follows:
  - Mass moments of inertia in kgm^2:
    $J_1 = J_1$ from type RWN
    $J_2 = J_2$ from type RWN + 710 × BB × DB^4
    (BB and DB in m)
  - Weight in kg:
    $m = m$ from type RWN + 5700 × BB × DB^2
    (BB and DB in m)
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RWB coupling, size 252, brake disk 630 x 30 mm
- Part 1: Bore D1 = 48H7 mm, keyway to DIN 6885-1 and set screw
- Part 3: Bore 42H7 mm, keyway to DIN 6885-1 P9 and set screw.
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard
- Mass moment of inertia:
  J_1 = 0.07 kgm^2
  J_2 = 0.12 kgm^2 + 3.3 kgm^2 = 3.42 kgm^2
- Weight:
  m = 26.3 kg + 68 kg = 94.3 kg

Article no.: 2LC0130-8AE99-0KA0-Z L1B+M0X+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

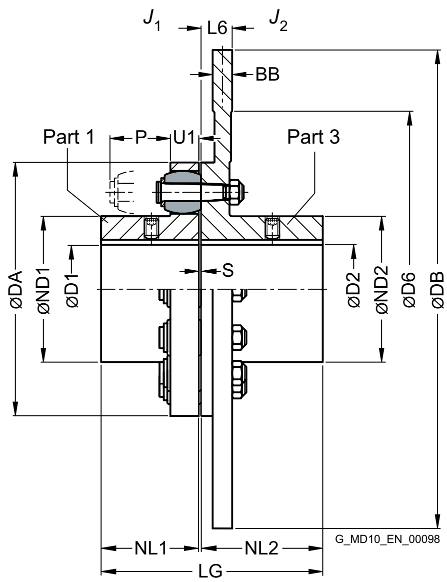
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE RBS

with brake disk to DIN 15432



Size	Rated torque buffer 80 ShoreA	Dimensions in mm																	↗ Article no. [1]
		Bore with keyway DIN 6885													Brake disk				
	T_{KN}	D1		D2		DA	ND1	ND2	NL1	NL2	S	U1	P	LG	DB[2]	D6	BB[2]	L6	
	Nm	min.	max.	min.	max.					max.				max.	min.	min.			
144	500	–	50	–	45	144	76	84	55	219	3	16	35	277	315	175	30	34	2LC0130-3AH
162	750	–	55	–	50	162	85	92	60	219	3.5	20	40	282.5	315	175	30	34	2LC0130-4AH
178	950	–	70	–	60	178	102	108	70	219	3.5	20	40	292.5	355	200	30	34	2LC0130-5AH
198	1300	–	80	–	70	198	120	128	80	219	3.5	20	40	302.5	355	200	30	34	2LC0130-6AH
228	2200	–	85	–	80	228	129	140	90	219	3.5	26	50	312.5	355	250	30	34	2LC0130-7AH
252	2750	–	100	38	100	252	150	160	100	219	3.5	26	50	322.5	400	280	30	34	2LC0130-8AH
285	4300	48	110	48	120	285	164	175	110	219	4.5	32	60	333.5	400	310	30	34	2LC0131-0AH
320	5500	55	125	55	130	320	180	192	125	219	4.5	32	60	348.5	450	350	30	34	2LC0131-1AH
360	7800	65	135	65	140	360	200	210	140	221	4.5	42	75	365.5	560	390	30	36	2LC0131-2AE

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Notes

- Brake disk diameter DB in accordance with customer specification.
- Additional sizes are available on request.
- Further dimensions for part 3 on request.
- Maximum speed in rpm:
  n_{Kmax} = 1528/DB (DB in m)
  Observe maximum speed of type RWS!
- Mass moments of inertia and weights can be sufficiently precisely determined as follows:
  - Mass moments of inertia in kgm²:
    $J_1 = J_1$ from type RWS
    $J_2 = J_2$ from type RWS + 770 × BB × DB⁴
    (BB and DB in m)
  - Weight in kg:
    $m = m$ from type RWS + 6160 × BB × DB²
    (BB and DB in m)
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RBS coupling, size 252, brake disk 630 x 30 mm
- Part 1: Bore D1 = 48H7 mm, keyway to DIN 6885-1 and set screw
- Part 3: Bore 42H7 mm, keyway to DIN 6885-1 P9 and set screw.
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with the half parallel key standard.
- Mass moment of inertia:
  J_1 = 0.07 kgm²
  J_2 = 0.12 kgm² + 3.6 kgm² = 3.72 kgm²
- Weight:
  m = 25.8 kg + 73 kg = 98.8 kg

Article no.: 2LC0130-8AH99-0KA0-Z L1B+M0X+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

8

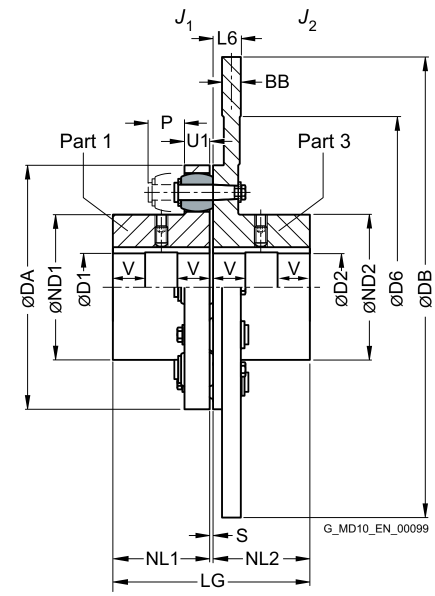
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE RBS

with brake disk to DIN 15432



Size	Rated torque buffer 80 ShoreA T_{KN} Nm	Dimensions in mm Bore with keyway DIN 6885 D1 min.	D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1	NL2	S	U1	P	LG	Brake disk D6[2] min.	BB[2]	L6	↗ Article no. [1]
400	12500	75	150	75	150	400	230	230	160	225	4.5	42	75	389.5	410	30	40	2LC0131-3AH
450	18500	85	170	85	170	450	260	260	180	225	5.5	52	90	410.5	460	30	40	2LC0131-4AH
500	25000	95	190	95	190	500	290	290	200	225	5.5	52	90	430.5	510	30	40	2LC0131-5AH
		100	165				250											
560	39000	165	200	100	210	560	300	320	220	225	6	68	120	451	570	30	40	2LC0131-6AH
		200	210				320											
		100	165				250											
630	52000	165	200	100	235	630	300	355	240	240	6	68	120	486	670	30	55	2LC0131-7AH
		200	235				355											

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque buffer 80 ShoreA	Dimensions in mm																↗ Article no. [1]
		Bore with keyway DIN 6885													Brake disk			
	T_{KN}	D1		D2		DA	ND1	ND2	NL1	NL2	S	U1	P	LG	D6[2]	BB[2]	L6	
	Nm	min.	max.	min.	max.										min.			
710	84000	110	**190**	110	**250**	710	290	385	260	260	7	80	140	527	760	30	75	**2LC0131-8AH**
		190	**220**				330											
		220	**250**				385											
800	110000	125	**210**	125	**280**	800	320	420	290	290	7	80	140	587	840	30	75	**2LC0132-0AH**
		210	**240**				360											
		240	**280**				420											
900	150000	140	**210**	140	**310**	900	320	465	320	–	7.5	90	160	647.5	950	30	75	**2LC0132-1AH**
		210	**240**				360											
		240	**280**				425											
		280	**310**				465											
1000	195000	150	**230**	150	**340**	1000	355	515	350	–	7.5	90	160	707.5	1050	30	75	**2LC0132-2AH**
		230	**260**				395											
		260	**300**				460											
		300	**340**				515											

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- From size 560 bores D1 are provided with a recess of D = +1 mm halfway along the hub.
  V ≈ 1/3 NL
- Brake disk diameter DB in accordance with customer specification.
- Additional sizes are available on request.
  Further dimensions for part 3 on request.
- Maximum speed in rpm:
  n_{Kmax} = 1528/DB (DB in m)
  Observe maximum speed of type RWS!
- Mass moments of inertia and weights can be sufficiently precisely determined as follows:
  - Mass moments of inertia in kgm^2:
    $J_1 = J_1$ from type RWS
    $J_2 = J_2$ from type RWS + 770 × BB × DB^4 (BB and DB in m)
  - Weight in kg:
    $m = m$ from type RWS + 6160 × BB × DB^2 (BB and DB in m)
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RBS coupling, size 450, brake disk 900 x 30 mm
- Part 1: Bore D1 = 130H7 mm, keyway to DIN 6885-1 and set screw
- Part 3: Bore 120H7 mm, keyway to DIN 6885-1 P9 and set screw.
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard
- Mass moment of inertia:
  J_1 = 1.74 kgm^2
  J_2 = 1.74 kgm^2 + 15 kgm^2 = 16.74 kgm^2
- Weight:
  m = 25.8 kg + 149 kg = 174.8 kg

Article no.: 2LC0131-4AH99-0NA0-Z L1U+M1S+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

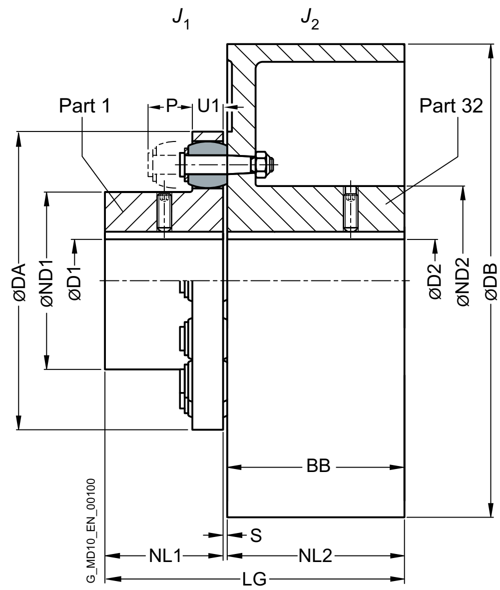
[2] For the available DB · BB brake disk dimensions, please refer to the product configurator on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

8

TYPE RWB

with brake drum to DIN 15431



8

Size	Rated torque buffer 80 ShoreA T_{KN} Nm	Speed n_{Kmax} rpm	Dimensions in mm – Bore with keyway DIN 6885 – D1 min.	D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1	NL2/ BB	S	DB	LG	Mass moment of inertia J_1 kgm²	J_2 kgm²	↗ Article no. [1]	Weight m kg
144	**500**	4800	–	**45**	–	**55**	144	76	84	55	75	3	200	133	0.004	0.04	2LC0130-3AC	9.5
162	**750**	3800	–	**50**	–	**60**	162	85	92	60	95	3.5	250	158.5	0.007	0.11	2LC0130-4AC	17
178	**950**	3800	–	**60**	–	**70**	178	102	108	70	95	3.5	250	168.5	0.014	0.12	2LC0130-5AC	20
		3000									118		315	191.5		0.31	2LC0130-5AC	28
198	**1300**	3800	–	**70**	–	**80**	198	120	128	80	95	3.5	250	178.5	0.022	0.13	2LC0130-6AC	24
		3000									118		315	201.5		0.32	2LC0130-6AC	32
228	**2200**	2400	–	**80**	–	**90**	228	129	140	90	150	3.5	400	243.5	0.038	1	2LC0130-7AC	54
252	**2750**	2400	–	**90**	38	**100**	252	150	160	100	150	3.5	400	253.5	0.07	1	2LC0130-8AC	63
		1900									190		500	293.5		2.8	2LC0130-8AC	93
285	**4300**	1900	48	**100**	48	**110**	285	164	175	110	190	4.5	500	304.5	0.13	2.8	2LC0131-0AC	104
		1500									236		630	350.5		7.8	2LC0131-0AC	157
320	**5500**	1500	55	**110**	55	**120**	320	180	192	125	236	4.5	630	365.5	0.23	7.9	2LC0131-1AC	172
		1300									265		710	394.5		13.9	2LC0131-1AC	217
360	**7800**	1500	65	**120**	65	**130**	360	200	210	140	236	4.5	630	380.5	0.41	8.1	2LC0131-2AC	191
		1300									265		710	409.5		14	2LC0131-2AC	236

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Note

- For dimensions U1 and P, see type RWN on **Page 8/8**.
- Weight and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RWB coupling, size 252
- Part 1: Bore 48H7 mm, keyway to DIN 6885-1 and set screw
- Part 3: 500 x 190, bore 42H7 mm, keyway to DIN 6885-1 P9 and set screw.
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

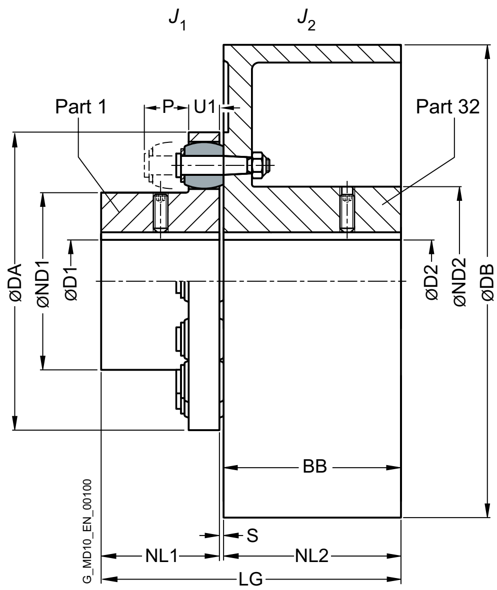
Article no.: 2LC0130-8AC99-0FA0-Z L1B+M0X+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE RBS

with brake drum to DIN 15431



Size	Rated torque buffer 80 ShoreA T_{KN} Nm	Speed n_{Kmax} rpm	Bore with keyway DIN 6885 D1 min.	D1 max.	D2 min.	D2 max.	DA	ND1	ND2	NL1	NL2/ BB	S	DB	LG	Mass moment of inertia J_1 kgm²	J_2 kgm²	↗ Article no. [1]	Weight m kg
144	500	5000	–	50	–	60	144	76	84	55	75	3	200	133	0.004	0.04	2LC0130-3AD	10
162	750	5000	–	55	–	65	162	85	92	60	95	3.5	250	158.5	0.007	0.13	2LC0130-4AD	18
178	950	4900	–	70	–	75	178	102	108	70	95	3.5	250	168.5	0.014	0.13	2LC0130-5AD	22
		4350									118		315	191.5		0.34	2LC0130-5AD	30
198	1300	4600	–	80	–	85	198	120	128	80	95	3.5	250	178.5	0.022	0.14	2LC0130-6AD	26
		4350									118		315	201.5		0.35	2LC0130-6AD	35
228	2200	3400	–	85	–	95	228	129	140	90	150	3.5	400	243.5	0.038	1.1	2LC0130-7AD	60
252	2750	3400	–	100	38	110	252	150	160	100	150	3.5	400	253.5	0.067	1.1	2LC0130-8AD	68
		2750				100					190		500	293.5		3.1	2LC0130-8AD	103
285	4300	2750	48	110	48	110	285	164	175	110	190	4.5	500	304.5	0.13	3.1	2LC0131-0AD	115
		2150									236		630	350.5		8.5	2LC0131-0AD	171
320	5500	2150	55	125	55	125	320	180	192	125	236	4.5	630	365.5	0.23	8.6	2LC0131-1AD	185
		1900									265		710	394.5		14.8	2LC0131-1AD	230
360	7800	2150	65	135	65	135	360	200	210	140	236	4.5	630	380.5	0.41	8.9	2LC0131-2AD	210
		1900									265		710	409.5		15.1	2LC0131-2AD	255

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Note

- For dimensions U1 and P, see type RWS on **Page 8/10**.
- Weight and mass moments of inertia apply to maximum bore diameters.
- The article numbers apply to standard buffers of NBR material in the 80 ShoreA variant; the article number for alternative buffer types is available on request.

Ordering example

- RUPEX RBS coupling, size 252
- Part 1: Bore 48H7 mm, keyway to DIN 6885-1 and set screw
- Part 3: 500 x 190, bore 42H7 mm, keyway to DIN 6885-1 P9 and set screw
- Coupling micro-balanced G6.3 at 1500 rpm in accordance with half parallel key standard

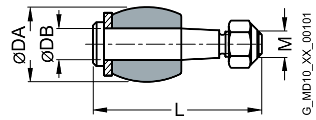
Article no.: 2LC0130-8AD99-0FA0-Z L1B+M0X+W02+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

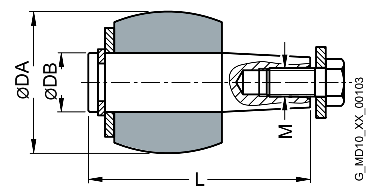
↗ For online configuration on **flender.com**, click on the item no.

SPARE AND WEAR PARTS

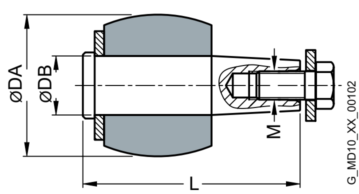
Buffers and pins



Sizes 105 to 400



Sizes 710 to 2000



Sizes 450 to 630

Size	Marking	Number per set	Dimensions				Article No. for a set of buffers	Weight	Article No. for a set of pins	Weight
			DA	DB	L	M	(Buffer Perbunan 80ShoreA)	*m*	(Pin complete, incl. fasteners)	*m*
			mm	mm	mm			kg		kg
105	105	8	20	8	45	M6	2LC0130-1WA00-0AA0	0.043	2LC0130-1WB00-0AA0	0.14
125	125	8	24	10	53.5	M8	2LC0130-2WA00-0AA0	0.098	2LC0130-2WB00-0AA0	0.28
144	125	10	24	10	53.5	M8	2LC0130-3WA00-0AA0	0.12	2LC0130-3WB00-0AA0	0.35
[1]					59.5				ASE36074885	0.4
162	162	9	30	12	64.5	M10	2LC0130-4WA00-0AA0	0.17	2LC0130-4WB00-0AA0	0.57
[1]					67.5				ASE36074964	0.6
178	162	10	30	12	64.5	M10	2LC0130-5WA00-0AA0	0.19	2LC0130-5WB00-0AA0	0.65
[1]					67.5				ASE36075371	0.67
198	162	12	30	12	64.5	M10	2LC0130-6WA00-0AA0	0.23	2LC0130-6WB00-0AA0	0.76
[1]					67.5				ASE36075396	0.8
228	228	11	40	16	79	M12	2LC0130-7WA00-0AA0	0.42	2LC0130-7WB00-0AA0	1.4
252	228	12	40	16	79	M12	2LC0130-8WA00-0AA0	0.45	2LC0130-8WB00-0AA0	1.5
285	285	11	48	20	98	M16	2LC0131-0WA00-0AA0	0.81	2LC0131-0WB00-0AA0	2.5
320	285	12	48	20	98	M16	2LC0131-1WA00-0AA0	0.88	2LC0131-1WB00-0AA0	2.8
360	360	10	64	25	123	M18	2LC0131-2WA00-0AA0	1.6	2LC0131-2WB00-0AA0	4.4
400	360	14	64	25	123	M18	2LC0131-3WA00-0AA0	2.2	2LC0131-3WB00-0AA0	6.1
450	450	12	78	32	123	M16	2LC0131-4WA00-0AA0	3.5	2LC0131-4WB00-0AA0	11
500	450	14	78	32	123	M16	2LC0131-5WA00-0AA0	4	2LC0131-5WB00-0AA0	13
560	560	12	101	42	158	M20	2LC0131-6WA00-0AA0	7.1	2LC0131-6WB00-0AA0	25
630	560	14	101	42	158	M20	2LC0131-7WA00-0AA0	8.3	2LC0131-7WB00-0AA0	29
710	710	14	120	50	185.5	M24	2LC0131-8WA00-0AA0	14	2LC0131-8WB00-0AA0	49
800	710	16	120	50	185.5	M24	2LC0132-0WA00-0AA0	16	2LC0132-0WB00-0AA0	56
900	900	16	136	55	207.5	M24	2LC0132-1WA00-0AA0	24	2LC0132-1WB00-0AA0	71
1000	900	18	136	55	207.5	M24	2LC0132-2WA00-0AA0	27	2LC0132-2WB00-0AA0	80
1120	1120	18	155	60	232.5	M30	2LC0132-3WA00-0AA0	41	2LC0132-3WB00-0AA0	110
1250	1120	20	155	60	232.5	M30	2LC0132-4WA00-0AA0	45	2LC0132-4WB00-0AA0	125
1400	1400	20	175	70	274	M30	2LC0132-5WA00-0AA0	65	2LC0132-5WB00-0AA0	185
1600	1400	24	175	70	274	M30	2LC0132-6WA00-0AA0	78	2LC0132-6WB00-0AA0	225
1800	1800	22	200	80	327	M36	2LC0132-7WA00-0AA0	115	2LC0132-7WB00-0AA0	320
2000	1800	26	200	80	327	M36	2LC0132-8WA00-0AA0	135	2LC0132-8WB00-0AA0	380

Note

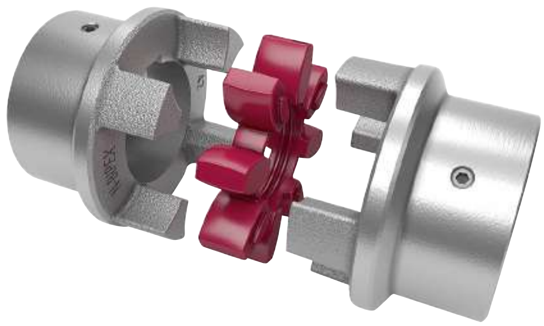
- The buffers of RUPEX couplings are wear parts.
  The service life depends on the operating conditions.

[1] For types RWB/RBS with brake disk BB = 30 only

FLEXIBLE COUPLINGS
N-BIPEX SERIES

N-BIPEX
FLENDER

GENERAL



Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

II 2G Ex h IIB T6 ... T4 Gb X

II 2D Ex h IIIC T85 °C ... 120 °C Db X

I M2 Ex h Mb X

N-BIPEX couplings are torsionally flexible and are outstanding for their particularly compact design and low weight.
N-BIPEX couplings are used in many areas of mechanical engineering.
Their main area of use is in electric motor drives which are well aligned and have uniform torque loads, such as in hydraulic applications and in combinations with geared motors.

Benefits

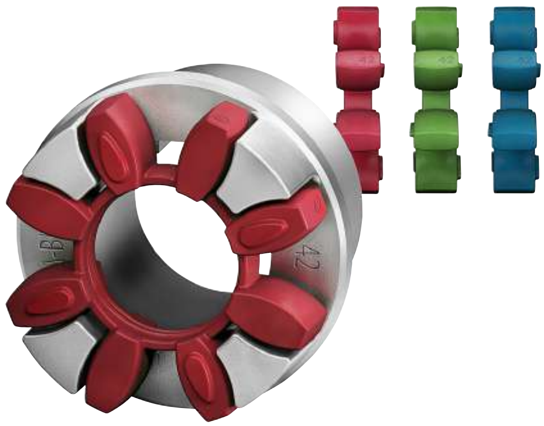
N-BIPEX couplings are suitable for horizontal, vertical and freely selectable mounting positions. They are able to absorb axial, radial and angular misalignment.

N-BIPEX couplings consist of two identical hub parts which can be arranged as required on the shaft extensions to be connected. N-BIPEX couplings transmit the torque positively and are thus fail-safe. The curved design of the cast cams ensures that the N-BIPEX couplings have a perfect pressure distribution and this increases the elastomer lifetime.

The flexible cam rings responsible for torque transmission and misalignment compensation are available in different Shore hardnesses. As a result of the good damping capability and by selecting the suitable stiffness, torque shock loads can thus be absorbed and the torsional vibration behavior of the drive can be positively influenced.
Different cam ring versions and ready-to-install hub parts are available from stock.

GENERAL

Application



The N-BIPEX coupling is available as a catalog standard in 10 sizes with rated torques of between 12 Nm and 4650 Nm and is made of high-grade spheroidal graphite cast iron.

The extremely high-performance cam ring materials are available from stock in three different Shore hardnesses with the following colors:

- 92 ShoreA – red
- 95 ShoreA – green
- 64 ShoreD – blue

An additional size marking has been provided on the outer surface of the cam ring to be able to determine the size of the N-BIPEX even when it is in the assembled state without having to use any additional aids.

The coupling is suitable for use at ambient temperatures between -50 °C and +100 °C without any restrictions on the rated torque as a result of temperature factors.

Function

The torque is transmitted to the hub at the drive end via the shaft-hub connection, which is mostly designed as a keyway connection, and is transmitted to the hub on the output side via the cam ring. This hub then further transmits the torque to the driven machine or a gear unit placed in between.

The special cam ring design helps to keep the compression-loaded cam ring elements in their defined position under all operating conditions and to keep them evenly loaded. This results in a long lifetime of the flexible elements.
A long lifetime is also guaranteed by the hub parts which ensure maximum operational reliability even under harsh operating conditions.

Design and configurations

The N-BIPEX coupling of type BWN comprises two identical hub parts connected by a cam ring of elastomer material.

The hubs are connected to the respective shafts via finished bores with parallel keyway connection or Taper clamping bushes. N-BIPEX couplings are positive-locking and torsionally flexible thanks to the thermoplastic polyurethane cam ring.

Coupling materials

Hubs:

- EN-GJS-400-15

Cam ring:

- TPU 92 ShoreA
  -50 °C to +100 °C without any restrictions
- TPU 95 ShoreA
  -50 °C to +100 °C without any restrictions
- TPU 64 ShoreD
  -50 °C to +100 °C without any restrictions.

The coupling comprises the following:

- Cam ring
- 2 hub parts with identical cams.

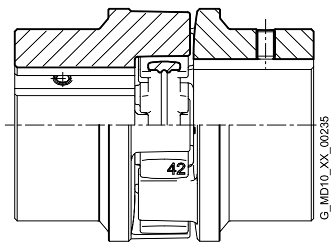
The hub parts are designed with a bore and keyway to DIN 6885-1 or with a taper bore for mounting a Taper clamping bush.
Fitting the clamping bush connects the hub firmly to the machine shaft.

In the case of part 4 the Taper clamping bush is inserted from the machine housing side. If there is insufficient space, the Taper clamping bush cannot be fitted from this side. Besides space for fitting the Taper clamping bush, space for the fitting tool (offset screwdriver) must be taken into consideration. In the case of part 3, the Taper clamping bush is screwed in from the shaft end face side. The hub must be fitted before the machines to be connected are pushed together.

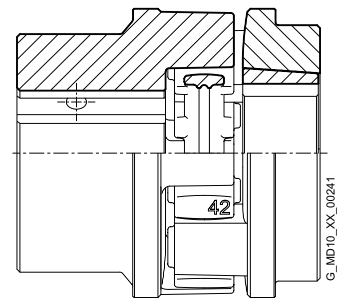
N-BIPEX coupling types

Type	Description
BWN	Coupling as a shaft-shaft connection with drilled and grooved hubs
BWT	Coupling as a shaft-shaft connection with Taper clamping bushes
BNT	Coupling as a shaft-shaft connection with drilled and grooved hubs and a Taper clamping bush

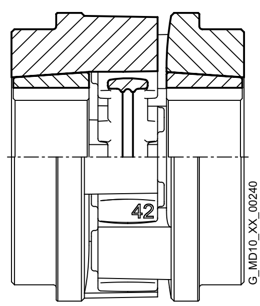
GENERAL



Type BWN



Type BNT



Type BWT

Size	Un-drilled	Preferred bores part 1/2 from stock with cylindrical finished bores Ø in mm H7, parallel keyway according to DIN 6885-1 JS9 and set screw																																	
		10	11	12	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75	80	85	90	100	110	120
19	■	■	■	■	■	■	■	■	■	■	■	■	■	■																					
24	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																		
28	■				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■															
38	■						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
42	■										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■										
48	■												■	■	■	■	■	■	■	■	■	■	■	■	■	■									
55	■													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
65	■																■	■	■	■	■	■	■	■	■	■	■	■	■	■					
75	■																	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
90	■																					■	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Preferred bores

Technical specifications

Cam rings									
Size	Rated torque	Maximum torque	Fatigue torque	Maximum speed	Damping coefficient Ψ	Torsional stiffness at 50 % capacity utilization	Permitted shaft misalignment at [1]		
				V ≤ 45 m/s			< 10 Hz	n = 1500 rpm	
	T_{KN}	T_{Kmax}	T_{KW}	n_{max}		$C_{Tdyn\ 50\ \%}$	ΔK_a	ΔK_r	ΔK_w
	Nm	Nm	Nm	rpm		Nm/rad	mm	mm	degree
Cam rings of polyurethane 92 ShoreA (standard)									
19	**12**	36	2	19500	1.4	530	0.3	0.17	0.5
24	**45**	135	7	14500	1.4	1790	0.4	0.23	0.5
28	**95**	285	14	12500	1.4	3060	0.5	0.25	0.5
38	**190**	570	29	10000	1.4	6500	0.6	0.29	0.5
42	**265**	795	40	8500	1.4	8200	0.7	0.34	0.5
48	**330**	990	50	7500	1.4	10000	0.8	0.38	0.5
55	**460**	1380	70	6500	1.4	14500	0.9	0.4	0.5
65	**670**	2010	100	6000	1.4	25600	1	0.45	0.5
75	**1400**	4200	210	5000	1.4	37400	1.2	0.52	0.5
90	**2500**	7500	375	4000	1.4	62700	1.4	0.6	0.5
Cam rings of polyurethane 95 ShoreA (ordering option -Z and order code K01)									
19	**18**	54	3	19500	1.4	1130	0.27	0.15	0.4
24	**65**	195	10	14500	1.4	4240	0.36	0.21	0.4
28	**160**	480	25	12500	1.4	8050	0.45	0.23	0.4
38	**325**	975	50	10000	1.4	14100	0.54	0.26	0.4
42	**450**	1350	70	8500	1.4	16200	0.63	0.31	0.4
48	**550**	1650	85	7500	1.4	23300	0.72	0.34	0.4
55	**700**	2100	105	6500	1.4	28500	0.81	0.36	0.4
65	**1000**	3000	150	6000	1.4	35000	0.9	0.41	0.4
75	**2000**	6000	300	5000	1.4	66300	1.08	0.47	0.4
90	**3700**	11100	555	4000	1.4	105000	1.26	0.54	0.4
Cam rings of polyurethane 64 ShoreD (ordering option -Z and order code K04)									
19	**25**	75	5	19500	1.4	2010	0.24	0.14	0.3
24	**90**	270	15	14500	1.4	7680	0.32	0.18	0.3
28	**200**	600	30	12500	1.4	12200	0.4	0.2	0.3
38	**405**	1215	60	10000	1.4	25100	0.48	0.23	0.3
42	**560**	1680	84	8500	1.4	32000	0.56	0.27	0.3
48	**700**	2100	105	7500	1.4	41200	0.64	0.3	0.3
55	**925**	2775	140	6500	1.4	52600	0.72	0.32	0.3
65	**1200**	3600	180	6000	1.4	86700	0.8	0.36	0.3
75	**2600**	7800	390	5000	1.4	143000	0.96	0.42	0.3
90	**4650**	13950	700	4000	1.4	234000	1.12	0.48	0.3

[1] The maximum speed must be observed. For further information on the allowable shaft misalignment, please refer to the operating instructions.

GENERAL

Torsional stiffness and damping

The values stated in the above table apply to a capacity utilization of 50 %, an excitation amplitude of 10 % T_{KN} with frequency 10 Hz and an ambient temperature of 20 °C. The dynamic torsional stiffness (C_{Tdyn}) is load-dependent and increases in proportion to capacity utilization. The following table shows the correction factors for different nominal load.

$C_{Tdyn} = C_{Tdyn}$ 50 % · FKC

	Load T_N / T_{KN}						
	20%	40%	50%	60%	70%	80%	100%
Correction factor FKC 92/95 ShoreA and 64 ShoreD	0.56	0.85	1	1.17	1.35	1.53	1.92

Furthermore, torsional stiffness and damping depend on the ambient temperature, the frequency and the amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn}. For this reason calculation must be made with a tolerance for the dynamic stiffness of ±20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

Permitted shaft misalignment

The permitted shaft misalignment depends on the operating speed. As the speed increases, lower shaft misalignment values are permitted. The correction factors for different speeds are specified in the following table. The maximum speed depending on the respective coupling size and type must be observed!

$\Delta K_{perm} = \Delta K_{1500} \cdot FKV$

	Speed in rpm			
	500	1000	1500	3000
Correction factor FKV	1.20	1.10	1.00	0.70

The axial misalignment may occur dynamically at frequencies up to 10 Hz.
For fitting, the maximum gap dimension of S2 max. = S2 + ΔS2 and the minimum gap dimension of S2 min. = S2 - ΔS2 are permitted.

The shaft misalignments ΔK_a, ΔK_r and ΔK_w may occur simultaneously (**see Page E/8**).

Assignment of N-BIPEX sizes to output PM of IEC standard motors [1]

Three-phase motor Size	Motor output at ≈ 3000 min⁻¹		N-BIPEX coupling Size	Motor output at ≈ 1500 min⁻¹		N-BIPEX coupling Size	Motor output at ≈ 1000 min⁻¹		N-BIPEX coupling Size	Motor output at ≈ 750 min⁻¹		N-BIPEX coupling Size	DE shaft end D x E acc. to IEC	
	P_M kW	T Nm		P_M kW	T Nm		P_M kW	T Nm		P_M kW	T Nm		D mm	E mm
80	0.75	2.5	**19**	0.55	3.7	**19**	0.37	3.9	**19**	0.18	2.5	**19**	19	40
	1.1	3.7	**19**	0.75	5.1	**19**	0.55	5.8	**19**	0.25	3.5	**19**		
90S	1.5	5	**19**	1.1	7.5	**19**	0.75	8	**19**	0.37	5.3	**19**	19	40
													24	50
90L	2.2	7.4	**19**	1.5	10	**24**	1.1	12	**24**	0.55	7.9	**24**	19	40
													24	50
100L	3	9.8	**24**	2.2	15	**24**	1.5	15	**24**	0.75	11	**24**	28	60
				3	20	**24**				1.1	16	**24**		
112M	4	13	**24**	4	27	**24**	2.2	22	**24**	1.5	21	**24**	28	60
132S	5.5	18	**28**	5.5	36	**28**	3	30	**28**	2.2	30	**28**	38	80
	7.5	25	**28**											
132M				7.5	49	**28**	4	40	**28**	3	40	**28**	38	80
							5.5	55	**28**					
160M	11	36	**38**	11	72	**38**	7.5	75	**38**	4	54	**38**	42	110
	15	49	**38**							5.5	74	**38**		
160L	18.5	60	**38**	15	98	**38**	11	109	**38**	7.5	100	**38**	42	110
180M	22	71	**38**	18.5	121	**38**							48	110
180L				22	144	**38**	15	148	**42**	11	145	**42**	48	110
200L	30	97	**42**	30	196	**42**	18.5	181	**42**	15	198	**42**	55	110
	37	120	**42**				22	215	**42**					
225S				37	240	**48**				18.5	244	**48**	60	140
225M	45	145	**42**										55	110
				45	292	**55**	30	293	**55**	22	290	**55**	60	140
250M	55	177	**48**										60	140
				55	356	**55**	37	361	**55**	30	392	**65**	65	140
280S	75	241	**55**										65	140
				75	484	**65**	45	438	**65**	37	483	**65**	75	140
280M	90	289	**55**										65	140
				90	581	**75**	55	535	**75**	45	587	**75**	75	140
315S	110	353	**55**										65	140
				110	707	**75**	75	727	**75**	55	712	**75**	80	170
315M	132	423	**65**										65	140
				132	849	**75**	90	873	**75**	75	971	**75**	80	170
315L	160	513	**65**										65	140
	200	641	**75**											
				160	1030	**75**	110	1070	**75**	90	1170	**90**	80	170
				200	1290	**90**	132	1280	**90**	110	1420	**90**		
							160	1550	**90**	132	1710	**90**	85	170
315	250	802	**75**										65	140
	315	1010	**90**											
				250	1600	**90**	200	1930	**90**				85	170
355	355	1140	**90**										75	140
	400	1280	**90**										75	140
	500	1600	**90**										75	140
400	560	1790	**90**										80	170

[1] The assignment applies for an service factor of 1.25 and the use of a standard cam ring (92 ShoreA).

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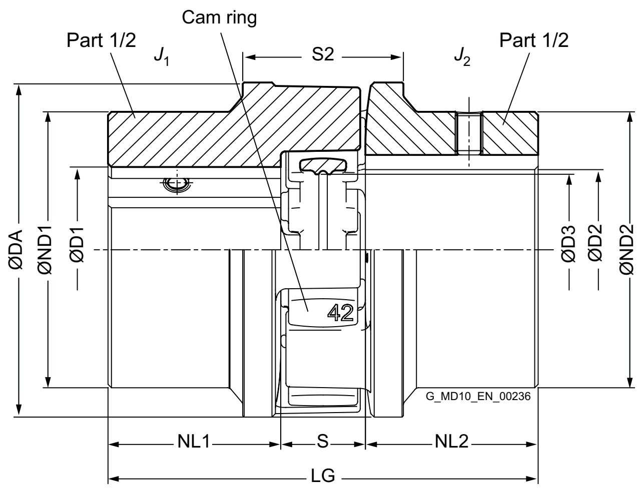
TYPE BWN



Size	Rated torque			Speed	Dimensions in mm										Mass moment of inertia	↗ Article no. [1]	Weight
	T_{KN}			n_{Kmax}	D1/D2 Keyway DIN 6885		DA	ND1/ ND2	NL1/ NL2	D3	S	S2	ΔS2	LG	J_1/J_2		m
	92 ShoreA	95 ShoreA	64ShoreD														
	Nm	Nm	Nm	rpm	min.	max.							±		kgm²		kg
19	12	18	25	19500	0	25	42	38	25	17	16	31	1	66	0.000045	2LC0160-0AA	0.3
24	45	65	90	14500	0	35	57	50	30	25	18	37	1.5	78	0.00015	2LC0160-1AA	0.6
28	95	160	200	12500	0	40	67	58	35	28	20	41	1	90	0.00033	2LC0160-2AA	1
38	190	325	405	10000	0	48	82	68	45	36	24	45	1.5	114	0.0009	2LC0160-3AA	1.7
42	265	450	560	8500	0	55	97	80	50	43	26	48	1.5	126	0.0019	2LC0160-4AA	2.6
48	330	550	700	7500	0	62	107	90	56	48	28	50	2	140	0.0031	2LC0160-5AA	3.6
55	460	700	925	6500	0	75	123	105	65	57	30	60	2	160	0.006	2LC0160-6AA	5.2
65	670	1000	1200	6000	0	82	138	115	75	64	35	65	2.5	185	0.011	2LC0160-7AA	7.5
75	1400	2000	2600	5000	0	96	163	135	85	76	40	75	2.5	210	0.023	2LC0160-8AA	11.5
90	2500	3700	4650	4000	0	120	203	170	100	95	45	85	3	245	0.065	2LC0161-0AA	21.4

Configurable variants [1]

• ØD1	Without finished bore With finished bore
• ØD2	Without finished bore With finished bore
• Cam ring hardness	92 ShoreA 95 ShoreA 64 ShoreD

Notes

- Mass moments of inertia apply to a coupling half with maximum bore diameter.
- Weights apply to a whole coupling in the version with maximum bore.

Ordering example

- N-BIPEX coupling BWN, size 42
- Part 1/2: Bore D1 42 H7 mm, with keyway to DIN 6885-1 and set screw
- Part 1/2: Bore D2 32 H7 mm, with keyway to DIN 6885-1 and set screw
- Cam ring hardness 92 ShoreA

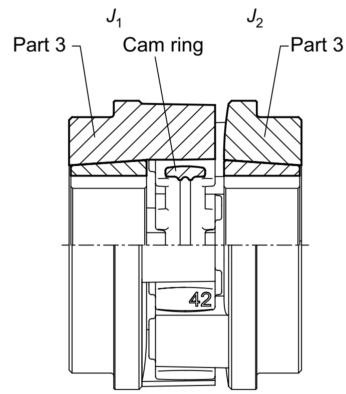
Article no.: **2LC0160-4AA99-0AA0-Z L0X+M0T**

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on flender.com.

↗ For online configuration on flender.com, click on the item no.

TYPE BWT

Variant A



Variant A

Size	Taper Clamping Bush Size	Rated torque T_{KN}		Speed n_{Kmax}	Dimensions in mm D1/D2 Keyway DIN 6885		DA	ND1/ ND2	NL1/ NL2	D3	S	S2	ΔS2	LG	Mass moment of inertia J_1/J_2	↗ Article no. [1] Type A	Weight m
		92 ShoreA Nm	95 ShoreA Nm	rpm	min.	max.							±		kgm²		kg
24	1008	**45**	**65**	14500	10	**25**	57	54	23	25	18	37	1.5	64	0.00015	**2LC0160-1AB**	0.6
28	1108	**95**	**160**	12500	10	**28**	67	58	23	28	20	41	1	66	0.00025	**2LC0160-2AB**	0.8
38	1108	**190**	**325**	10000	10	**28**	82	58	23	36	24	45	1.5	70	0.0005	**2LC0160-3AB**	1.2
42	1610	**265**	**450**	8500	14	**42**	97	86	26	43	26	48	1.5	78	0.0013	**2LC0160-4AB**	1.8
48	1615	**330**	**550**	7500	14	**42**	107	80	39	48	28	50	2	106	0.002	**2LC0160-5AB**	2.6
55	2012	**460**	**700**	6500	14	**50**	123	100	33	57	30	60	2	96	0.004	**2LC0160-6AB**	3.5
65	2012	**670**	**1000**	6000	14	**50**	138	100	33	64	35	65	2.5	101	0.006	**2LC0160-7AB**	4.5
	2517 [2]				55	**60**		118	46					127	0.008		5.5
75	2517	**1400**	**2000**	5000	16	**60**	163	118	46	76	40	75	2.5	132	0.015	**2LC0160-8AB**	7.7
	3020 [2]				65	**75**		142	52					144	0.017		8
90	3020	**2500**	**3700**	4000	25	**75**	205	142	52	95	45	85	3	149	0.037	**2LC0161-0AB**	12.9
	3535 [2]				80	**90**		170	90					225	0.06		19.8

Configurable variants [1]

- ØD1 — Without Taper clamping bush / With Taper clamping bush
- ØD2 — Without Taper clamping bush / With Taper clamping bush
- Cam ring hardness — 92 ShoreA / 95 ShoreA

Notes

- Mass moments of inertia apply to a coupling half without Taper clamping bush.
- Weights apply to a whole coupling in the version without Taper clamping bush.
- T_{Kmax} for the 95 ShoreA cam ring is limited to 2 ×T_{KN} for types BWT and BNT contrary to the table on **Page 9/7** . When using the 64 ShoreD cam ring, the same torque values apply as for the 95 ShoreA cam ring.

Ordering example

- N-BIPEX BWT coupling, size 42, variant A
- Part 3: With Taper clamping bushes, size 1610, bore D1 38 H7 mm, with keyway to DIN 6885-1
- Part 4: With Taper clamping bushes, size 1610, bore D2 32 H7 mm, with keyway to DIN 6885-1
- Cam ring hardness 92 ShoreA

Article no.: 2LC0160-4AB99-0AA0-Z L0V+M0T

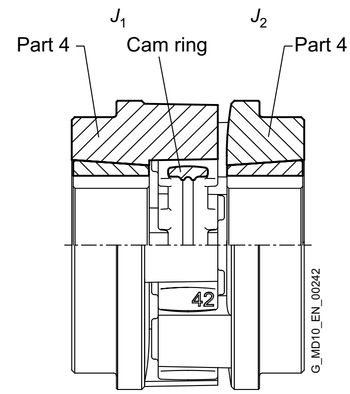
1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) Taper clamping bush version only possible in part 4.

↗ For online configuration on **flender.com**, click on the item no.

TYPE BWT

Variant B



Variant B

9

Size	Taper Clamping Bush Size	Rated torque T_{KN} 92 ShoreA	95 ShoreA	Speed n_{Kmax}	Dimensions in mm D1/D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	D3	S	S2	ΔS2	LG	Mass moment of inertia J_1/J_2	↗ Article no. [1] Type B	Weight m
		Nm	Nm	rpm	min.	max.							±		kgm²		kg
24	1008	45	65	14500	10	25	57	54	23	25	18	37	1.5	64	0.00015	2LC0160-1AC	0.6
28	1108	95	160	12500	10	28	67	58	23	28	20	41	1	66	0.00025	2LC0160-2AC	0.8
38	1108	190	325	10000	10	28	82	58	23	36	24	45	1.5	70	0.0005	2LC0160-3AC	1.2
42	1610	265	450	8500	14	42	97	86	26	43	26	48	1.5	78	0.0013	2LC0160-4AC	1.8
48	1615	330	550	7500	14	42	107	80	39	48	28	50	2	106	0.002	2LC0160-5AC	2.6
55	2012	460	700	6500	14	50	123	100	33	57	30	60	2	96	0.004	2LC0160-6AC	3.5
65	2012	670	1000	6000	14	50	138	100	33	64	35	65	2.5	101	0.006	2LC0160-7AC	4.5
	2517 [2]				55	60		118	46					127	0.008		5.5
75	2517	1400	2000	5000	16	60	163	118	46	76	40	75	2.5	132	0.015	2LC0160-8AC	7.7
	3020 [2]				65	75		142	52					144	0.017		8
90	3020	2500	3700	4000	25	75	205	142	52	95	45	85	3	149	0.037	2LC0161-0AC	12.9
	3535 [2]				80	90		170	90					225	0.06		19.8

Configurable variants [1]

• ØD1	Without Taper clamping bush With Taper clamping bush
• ØD2	Without Taper clamping bush With Taper clamping bush
• Cam ring hardness	92 ShoreA 95 ShoreA

Notes

- Mass moments of inertia apply to a coupling half without Taper clamping bush.
- Weights apply to a whole coupling in the version without taper clamping bush.
- T_{Kmax} for the 95 ShoreA cam ring is limited to 2 ×T_{KN} for types BWT and BNT contrary to the table on **Page 9/7** . When using the 64 ShoreD cam ring, the same torque values apply as for the 95 ShoreA cam ring.

Ordering example

- N-BIPEX BWT coupling, size 42, variant B
- Part 3: With Taper clamping bushes, size 1610, bore D1 38 H7 mm, with keyway to DIN 6885-1
- Part 4: With Taper clamping bushes, size 1610, bore D2 32 H7 mm, with keyway to DIN 6885-1
- Cam ring hardness 92 ShoreA

Article no.: 2LC0160-4AC99-0AA0-Z L0V+M0T

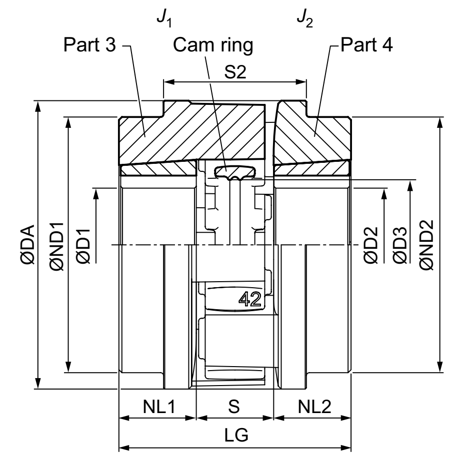
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Taper clamping bush version only possible in part 4.

↗ For online configuration on **flender.com**, click on the item no.

TYPE BWT

Variant AB



Variant AB

Size	Taper Clamping Bush Size	Rated torque T_{KN} 92 ShoreA	Rated torque T_{KN} 95 ShoreA	Speed n_{Kmax}	Dimensions in mm D1/D2 Keyway DIN 6885 min.	D1/D2 max.	DA	ND1/ND2	NL1/NL2	D3	S	S2	ΔS2	LG	Mass moment of inertia J_1/J_2	↗ Article no. [1] Type AB	Weight m
		Nm	Nm	rpm									±		kgm²		kg
24	1008	**45**	**65**	14500	10	**25**	57	54	23	25	18	37	1.5	64	0.00015	**2LC0160-1AD**	0.6
28	1108	**95**	**160**	12500	10	**28**	67	58	23	28	20	41	1	66	0.00025	**2LC0160-2AD**	0.8
38	1108	**190**	**325**	10000	10	**28**	82	58	23	36	24	45	1.5	70	0.0005	**2LC0160-3AD**	1.2
42	1610	**265**	**450**	8500	14	**42**	97	86	26	43	26	48	1.5	78	0.0013	**2LC0160-4AD**	1.8
48	1615	**330**	**550**	7500	14	**42**	107	80	39	48	28	50	2	106	0.002	**2LC0160-5AD**	2.6
55	2012	**460**	**700**	6500	14	**50**	123	100	33	57	30	60	2	96	0.004	**2LC0160-6AD**	3.5
65	2012	**670**	**1000**	6000	14	**50**	138	100	33	64	35	65	2.5	101	0.006	**2LC0160-7AD**	4.5
	2517 [2]				55	**60**		118	46					127	0.008		5.5
75	2517	**1400**	**2000**	5000	16	**60**	163	118	46	76	40	75	2.5	132	0.015	**2LC0160-8AD**	7.7
	3020 [2]				65	**75**		142	52					144	0.017		8
90	3020	**2500**	**3700**	4000	25	**75**	205	142	52	95	45	85	3	149	0.037	**2LC0161-0AD**	12.9
	3535 [2]				80	**90**		170	90					225	0.06		19.8

Configurable variants [1]

• ØD1	Without Taper clamping bush With Taper clamping bush
• ØD2	Without Taper clamping bush With Taper clamping bush
• Cam ring hardness	92 ShoreA 95 ShoreA

Notes

- Mass moments of inertia apply to a coupling half without Taper clamping bush.
- Weights apply to a whole coupling in the version without taper clamping bush.
- T_{Kmax} for the 95 ShoreA cam ring is limited to 2 ×T_{KN} for types BWT and BNT contrary to the table on **Page 9/7** . When using the 64 ShoreD cam ring, the same torque values apply as for the 95 ShoreA cam ring.

Ordering example

- N-BIPEX BWT coupling, size 42, variant AB
- Part 3: With Taper clamping bushes, size 1610, bore D1 38 H7 mm, with keyway to DIN 6885-1
- Part 4: With Taper clamping bushes, size 1610, bore D2 32 H7 mm, with keyway to DIN 6885-1
- Cam ring hardness 92 ShoreA

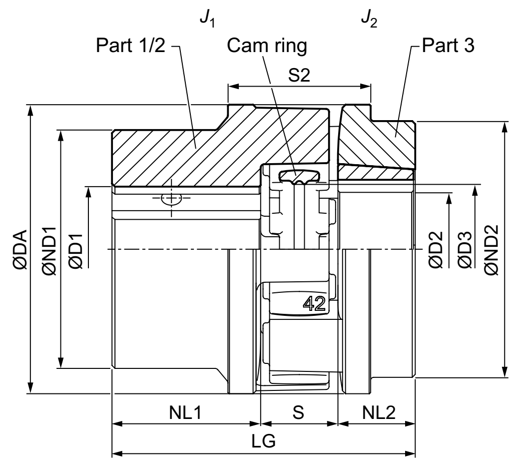
Article no.: **2LC0160-4AD99-0AA0-Z L0V+M0T**

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

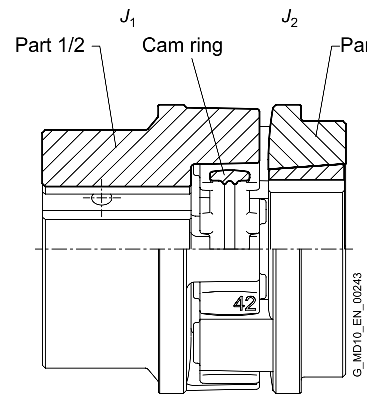
[2] Taper clamping bush version only possible in part 4.

↗ For online configuration on **flender.com**, click on the item no.

TYPE BNT



Variant A



Variant B

Size	Taper Clamping Bush Size	Rated torque T_{KN} 92 ShoreA	95 ShoreA	Speed n_{Kmax}	Dimensions in mm D1 Keyway DIN 6885		D2 Keyway DIN 6885		DA	ND1	ND2	NL1	NL2	D3	S	S2	ΔS2	LG	Mass moment of inertia J_1	J_2	↗ Article no. [1] Type A	B	Weight m
		Nm	Nm	rpm	min.	max.	min.	max.									±		kgm²	kgm²			kg
24	1008	**45**	**65**	14500	0	**35**	10	25	57	50	54	30	23	25	18	37	1.5	71	0.00015	0.00015	**2LC0160-1AE**	**2LC0160-1AF**	0.6
28	1108	**95**	**160**	12500	0	**40**	10	28	67	58	58	35	23	28	20	41	1	78	0.0003	0.0002	**2LC0160-2AE**	**2LC0160-2AF**	0.8
38	1108	**190**	**325**	10000	0	**48**	10	28	82	68	58	45	23	36	24	45	1.5	92	0.0009	0.0005	**2LC0160-3AE**	**2LC0160-3AF**	1.4
42	1610	**265**	**450**	8500	0	**55**	14	42	97	80	86	50	26	43	26	48	1.5	102	0.002	0.0013	**2LC0160-4AE**	**2LC0160-4AF**	2.3
48	1615	**330**	**550**	7500	0	**62**	14	42	107	90	80	56	39	48	28	50	2	123	0.003	0.002	**2LC0160-5AE**	**2LC0160-5AF**	3.2
55	2012	**460**	**700**	6500	0	**75**	14	50	123	105	100	65	33	57	30	60	2	128	0.006	0.004	**2LC0160-6AE**	**2LC0160-6AF**	4.4
65	2012	**670**	**1000**	6000	0	**82**	14	50	138	115	100	75	33	64	35	65	2.5	143	0.011	0.006	**2LC0160-7AE**	**2LC0160-7AF**	6
	2517 [2]						55	60			118		46					156	0.011	0.008			6.5
75	2517	**1400**	**2000**	5000	0	**96**	160	60	163	135	118	85	46	76	40	75	2.5	171	0.023	0.014	**2LC0160-8AE**	**2LC0160-8AF**	9.4
	3020 [2]						65	75			142		52					177	0.023	0.016			9.6
90	3020	**2500**	**3700**	4000	0	**120**	25	75	205	170	142	100	52	95	45	85	3	197	0.065	0.036	**2LC0161-0AE**	**2LC0161-0AF**	17.2
	3535 [2]						80	90			170		90					235	0.065	0.06			20.7

Configurable variants [1]

• Type	A B
• ØD1	Without Taper clamping bush With Taper clamping bush
• ØD2	Without Taper clamping bush With Taper clamping bush
• Cam ring hardness	92 ShoreA 95 ShoreA

Notes

- Mass moments of inertia apply to a coupling half with maximum bore diameter and without Taper clamping bush.
- Weights apply to a whole coupling in the version without taper clamping bush.
- T_{Kmax} for the 95 ShoreA cam ring is limited to 2 ×T_{KN} for types BWT and BNT contrary to the table on **Page 9/7** . When using the 64 ShoreD cam ring, the same torque values apply as for the 95 ShoreA cam ring.

Ordering example

- N-BIPEX BNT coupling, size 42, variant B
- Part 1/2: Bore D1 42 H7 mm, with keyway to DIN 6885-1 and set screw
- Part 4: With Taper clamping bushes, size 1610, bore D2 32 H7 mm, with keyway to DIN 6885-1
- Cam ring hardness 92 ShoreA

Article no.: 2LC0160-4AF99-0AA0-Z L0X+M0T

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) Taper clamping bush version only possible in part 4.

↗ For online configuration on **flender.com**, click on the item no.

SPARE AND WEAR PARTS

Cam rings of the N-BIPEX coupling

Size	Article no. N-BIPEX cam ring			Weight
	92 ShoreA	95 ShoreA	64 ShoreA	kg
19	2LC0160-0WA00-0AA0	2LC0160-0WA00-0AA0-Z K01	2LC0160-0WA00-0AA0-Z K04	0.006
24	2LC0160-1WA00-0AA0	2LC0160-1WA00-0AA0-Z K01	2LC0160-1WA00-0AA0-Z K04	0.02
28	2LC0160-2WA00-0AA0	2LC0160-2WA00-0AA0-Z K01	2LC0160-2WA00-0AA0-Z K04	0.03
38	2LC0160-3WA00-0AA0	2LC0160-3WA00-0AA0-Z K01	2LC0160-3WA00-0AA0-Z K04	0.04
42	2LC0160-4WA00-0AA0	2LC0160-4WA00-0AA0-Z K01	2LC0160-4WA00-0AA0-Z K04	0.07
48	2LC0160-5WA00-0AA0	2LC0160-5WA00-0AA0-Z K01	2LC0160-5WA00-0AA0-Z K04	0.09
55	2LC0160-6WA00-0AA0	2LC0160-6WA00-0AA0-Z K01	2LC0160-6WA00-0AA0-Z K04	0.1
65	2LC0160-7WA00-0AA0	2LC0160-7WA00-0AA0-Z K01	2LC0160-7WA00-0AA0-Z K04	0.2
75	2LC0160-8WA00-0AA0	2LC0160-8WA00-0AA0-Z K01	2LC0160-8WA00-0AA0-Z K04	0.4
90	2LC0161-0WA00-0AA0	2LC0161-0WA00-0AA0-Z K01	2LC0161-0WA00-0AA0-Z K04	0.6

Note

- The cam rings of the N-BIPEX coupling are wear parts. The service life depends on the operating conditions.

APPENDIX

A

FITS

Fitting recommendations

For many applications, the fit assignment m6/H7 is especially suitable.

Description	Application	Shaft tolerance	Bore tolerance
Sliding fit with parallel key connection not suitable for reversing operation	For steel and cast hubs	j6	H7
		h6	J7
Press fit with parallel key connection not suitable for reversing operation	For steel and cast hubs	h6	K7
		k6	H7
Interference fit with parallel key connection suitable for reversing operation	For steel and cast hubs	m6	H7
		n6	H7
		h6	M7
	Only for steel hubs	h6	P7
	Preferred for ZAPEX and ARPEX coupling series.	k6	M7
		m6	K7
		n6	J7
		p6	H7
		s6	F7
Shrink fit connection without parallel key	Only for steel hubs	u6	H6
	The permitted hub tension must be urgently checked.	v6	H6
		x6	H6

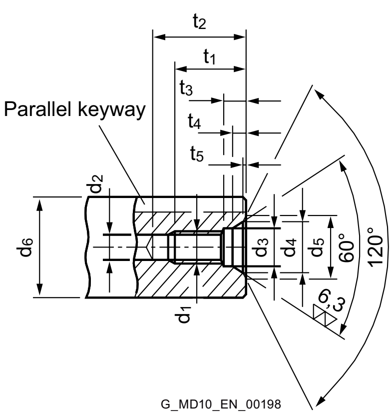
Deviation table to DIN ISO 286 for above-mentioned fits for bore diameters from 10 mm to 250 mm

Bore diameter		Deviations in µm											
		Bore						Shaft					
above	up to	F7	H7	J7	K7	M7	P7	h6	j6	k6	m6	n6	p6
10	18	+34	+18	+10	+6	0	-11	0	+8	+12	+18	+23	+29
		+16	0	-8	-12	-18	-29	-11	-3	+1	+7	+12	+18
18	30	+41	+21	+12	+6	0	-14	0	+9	+15	+21	+28	+35
		+20	0	-9	-15	-21	-35	-13	-4	+2	+8	+15	+22
30	50	+50	+25	+14	+7	0	-17	0	+11	+18	+25	+33	+42
		+25	0	-11	-18	-25	-42	-16	-5	+2	+9	+17	+26
50	80	+60	+30	+18	+9	0	-21	0	+12	+21	+30	+39	+51
		+30	0	-12	-21	-30	-51	-19	-7	+2	+11	+20	+32
80	120	+71	+35	+22	+10	0	-24	0	+13	+25	+35	+45	+59
		+36	0	-13	-25	-35	-59	-22	-9	+3	+13	+23	+37
120	180	+83	+40	+26	+12	0	-28	0	+14	+28	+40	+52	+68
		+43	0	-14	-28	-40	-68	-25	-11	+3	+15	+27	+43
180	250	+96	+46	+30	+13	0	-33	0	+16	+33	+46	+60	+79
		+50	0	-16	-33	-46	-79	-29	-13	+4	+17	+31	+50

Cylindrical shaft ends, extract from DIN 748 Part 1 (long)

	Diameter in mm																				
	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75	80	85	90	95	100
ISO tolerance zone	**k6**												**m6**									
End length in mm	50	60		80				110						140				170				210

Central holes according to DIN 332 Part 2



Form DS (with thread) DIN 332/2

Recommended diameter ranges d_6 [1]		DS form dimensions									
above	up to	d_1	d_2 [2]	d_3	d_4	d_5	t_1 +2	t_2 min.	t_3 +1	t_4 approx.	t_5 approx.
7	**10**	M3	2.5	3.2	5.3	5.8	9	12	2.6	1.8	0.2
10	**13**	M4	3.3	4.3	6.7	7.4	10	14	3.2	2.1	0.3
13	**16**	M5	4.2	5.3	8.1	8.8	12.5	17	4	2.4	0.3
16	**21**	M6	5	6.4	9.6	10.5	16	21	5	2.8	0.4
21	**24**	M8	6.8	8.4	12.2	13.2	19	25	6	3.3	0.4
24	**30**	M10	8.5	10.5	14.9	16.3	22	30	7.5	3.8	0.6
30	**38**	M12	10.2	13	18.1	19.8	28	37	9.5	4.4	0.7
38	**50**	M16	14	17	23	25.3	36	45	12	5.2	1.0
50	**85**	M20	17.5	21	28.4	31.3	42	53	15	6.4	1.3
85	**130**	M24	21	25	34.2	38	50	63	18	8	1.6
130	**225**	M30 [3]	26.5	31	40.2	44.6	60	77	22	8	1.9
225	**320**	M36 [3]	32	37	49.7	55	74	93	22	11	2.3
320	**500**	M42 [3]	37.5	43	60.3	66.6	84	105	26	15	2.7

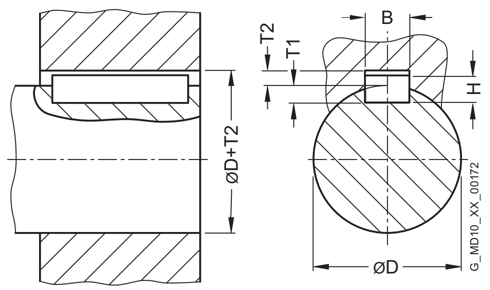
A

[1] Diameter refers to the finished workpiece

[2] Tap hole drill diameter according to DIN 336 Part 1

[3] Dimensions not acc. to DIN 332 Part 2

PARALLEL KEY CONNECTIONS TO DIN 6885-1



For moderate operating conditions, the hub keyway tolerance JS9 is recommended.

In harsh operating conditions or during reversing operation, the keyway width tolerance P9 must be preferred.

With two parallel keyways, the keyway width tolerance JS9 should be specified in order to simplify the assembly.

The shaft keyway width has to be specified with the tolerance N9.

Diameter above D mm	Diameter up to mm	Keyway width B mm	Parallel key height H mm	Shaft keyway depth T1 mm	Hub keyway depth T2 mm	Deviation for shaft and hub keyway depth mm	Deviation table for keyway width B: JS9 µm	Deviation table for keyway width B: P9 µm
	10	3	3	1.8	1.4	+0.1	+12.5	-6
							-12.5	-31
10	12	4	4	2.5	1.8	+0.1	+15	-12
							-15	-42
12	17	5	5	3	2.3	+0.1	+15	-12
							-15	-42
17	22	6	6	3.5	2.8	+0.1	+15	-12
							-15	-42
22	30	8	7	4	3.3	+0.2	+18	-15
							-18	-51
30	38	10	8	5	3.3	+0.2	+18	-15
							-18	-51
38	44	12	8	5	3.3	+0.2	+21.5	-18
							-21.5	-61
44	50	14	9	5.5	3.8	+0.2	+21.5	-18
							-21.5	-61
50	58	16	10	6	4.3	+0.2	+21.5	-18
							-21.5	-61
58	65	18	11	7	4.4	+0.2	+21.5	-18
							-21.5	-61
65	75	20	12	7.5	4.9	+0.2	+26	-22
							-26	-74
75	85	22	14	9	5.4	+0.2	+26	-22
							-26	-74
85	95	25	14	9	5.4	+0.2	+26	-22
							-26	-74

A

Diameter above D mm	Diameter up to mm	Keyway width B mm	Parallel key height H mm	Shaft keyway depth T1 mm	Hub keyway depth T2 mm	Deviation for shaft and hub keyway depth mm	Deviation table for keyway width B JS9 µm	Deviation table for keyway width B P9 µm
95	110	28	16	10	6.4	+0.2	+26	-22
							-26	-74
110	130	32	18	11	7.4	+0.2	+31	-26
							-31	-88
130	150	36	20	12	8.4	+0.3	+31	-26
							-31	-88
150	170	40	22	13	9.4	+0.3	+31	-26
							-31	-88
170	200	45	25	15	10.4	+0.3	+31	-26
							-31	-88
200	230	50	28	17	11.4	+0.3	+31	-26
							-31	-88
230	260	56	32	20	12.4	+0.3	+37	-32
							-37	-106
260	290	63	32	20	12.4	+0.3	+37	-32
							-37	-106
290	330	70	36	22	14.4	+0.3	+37	-32
							-37	-106
330	380	80	40	25	15.4	+0.3	+37	-32
							-37	-106
380	440	90	45	28	17.4	+0.3	+43.5	-37
							-43.5	-124
440	500	100	50	31	19.4	+0.3	+43.5	-37
							-43.5	-124

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Torsionally Rigid Couplings

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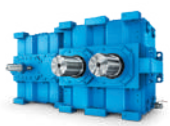

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Bucket Elevator Drives

MD 20.2
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PLANUREX 2
Planetary Gear Units
MD 20.3
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MD 20.5
PDMD-C10159-00

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DUORED 2
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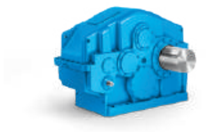

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We provide helical and planetary gear units made up of standard modules or as a complete application solution.

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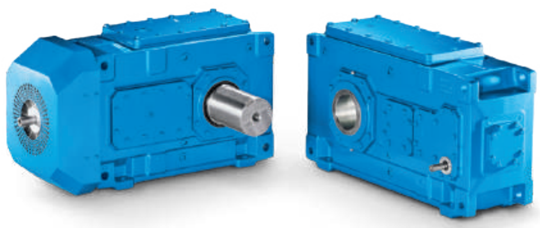

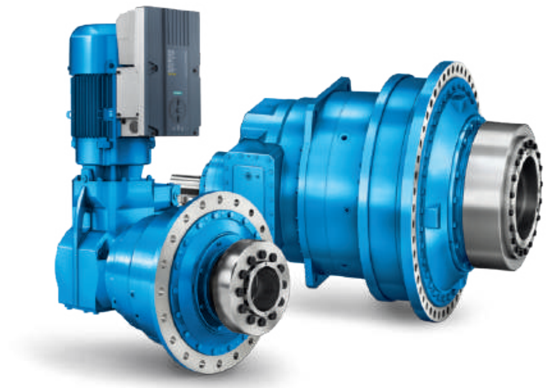

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Flender helical and bevel helical gear units are by far the most comprehensive range of industrial gear units in the world.
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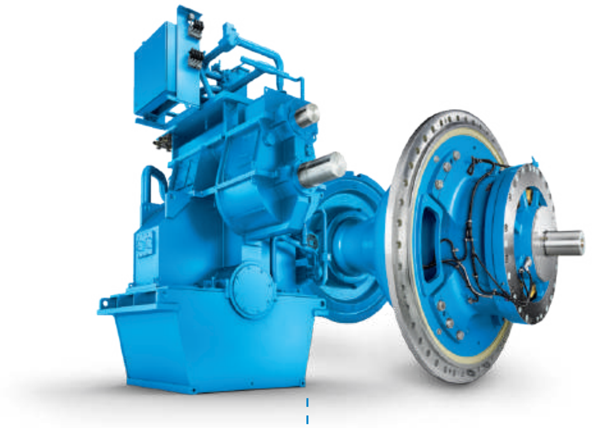

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FLE 10 CATALOG GROUP

Product catalog FLE 10.1
Torsionally Rigid Couplings

Product catalog FLE 10.3
Highly Flexible Couplings

Product catalog FLE 10.2
Flexible Couplings

Product catalog FLE 10.4
Fluid Couplings

For further coupling catalogs, see page A/6

HIGHLY FLEXIBLE COUPLINGS

Catalog FLE 10.3 Edition 2020 EN

INTRODUCTION

E

The mechanical drive train comprises individual units such as motor, gear unit and driven machine. The coupling connects these component assemblies.
As well as the transmission of rotary motion and torque, other requirements may be made of the coupling.

- Compensation for shaft misalignment with low restorative forces
- Control of characteristic angular vibration frequency and damping
- Interruption or limitation of torque
- Noise insulation, electrical insulation

Couplings are frequently chosen after the machines to be connected have already been selected. Thanks to a large number of different coupling assembly options, specified marginal conditions for clearance and connection geometry can be met from the standard range. The coupling also performs secondary functions, e.g. providing a brake disk or brake drum for operating or blocking brakes, devices to record speed or the attachment of sprockets or pulleys.

Couplings are divided into two main groups, couplings and clutches.

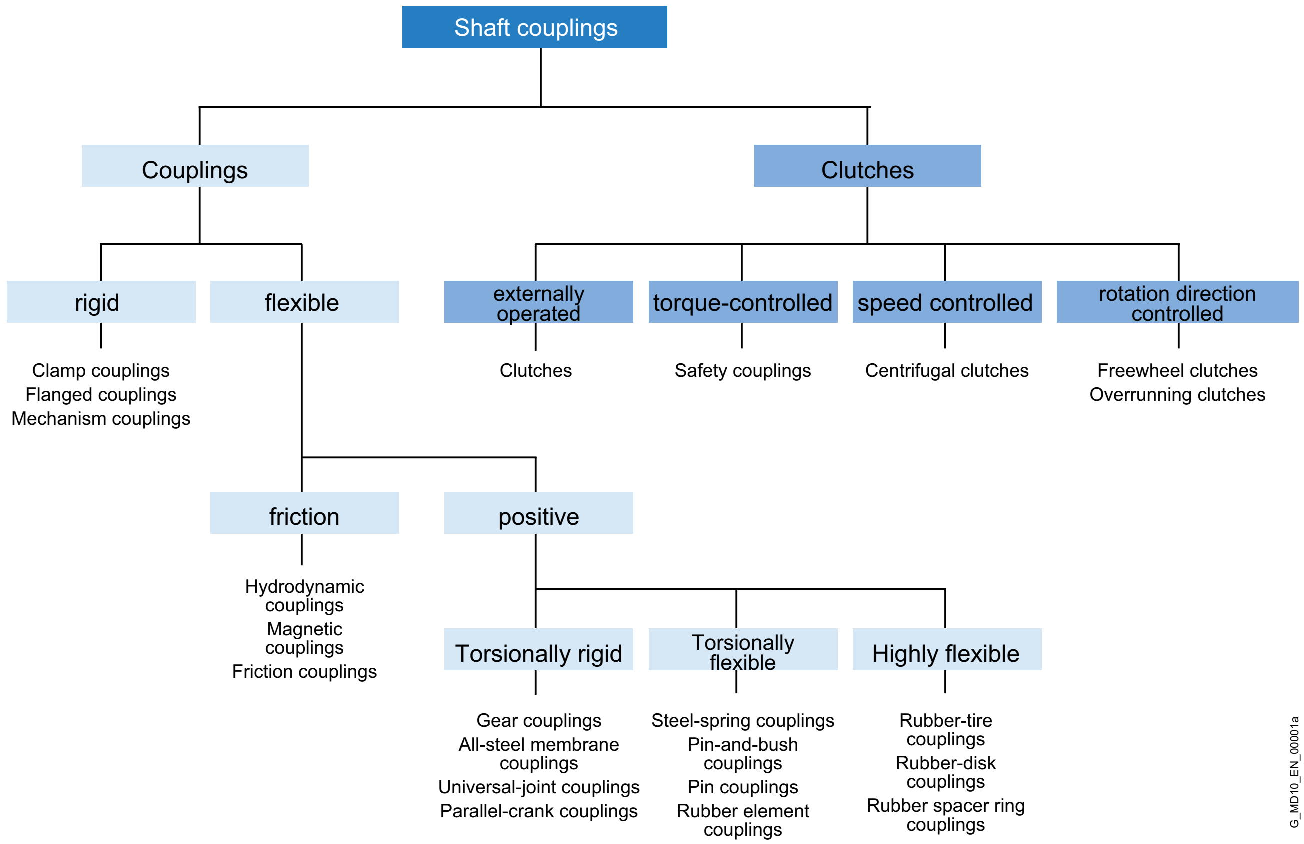
Clutches interrupt or limited the transmissible torque. The engaging and disengaging forces on externally operated clutches are introduced via a mechanically, electrically, hydraulically or pneumatically operating mechanism. Overload, centrifugal or freewheel clutches draw their engaging energy from the transmitted output.

Rigid couplings, designed as clamp, flanged or mechanism couplings, connect machines which must not undergo any shaft misalignment. Hydrodynamic couplings, often also called fluid or Föttinger couplings, are used as starting couplings in drives with high mass moments of inertia of the driven machine. In drive technology very often flexible, positive couplings, which may be designed to be torsionally rigid, torsionally flexible or highly flexible, are used.

Torsionally rigid couplings are designed to be rigid in a peripheral direction and flexible in radial and axial directions. The angle of rotation and torque are conducted through the coupling without a phase shift.

Torsionally flexible couplings have resilient elements usually manufactured from elastomer materials. Using an elastomer material with a suitable ShoreA hardness provides the most advantageous torsional stiffness and damping for the application. Shaft misalignment causes the resilient elements to deform.

Highly flexible couplings have large-volume (elastomer) resilient elements of low stiffness. The angle of rotation and torque are conducted through the coupling with a considerable phase shift.


Shaft couplings
Couplings
Clutches
rigid
flexible
externally operated
torque-controlled
speed controlled
rotation direction controlled
Clamp couplings
Flanged couplings
Mechanism couplings
Clutches
Safety couplings
Centrifugal clutches
Freewheel clutches
Overrunning clutches
friction
positive
Hydrodynamic couplings
Magnetic couplings
Friction couplings
Torsionally rigid
Torsionally flexible
Highly flexible
Gear couplings
All-steel membrane couplings
Universal-joint couplings
Parallel-crank couplings
Steel-spring couplings
Pin-and-bush couplings
Pin couplings
Rubber element couplings
Rubber-tire couplings
Rubber-disk couplings
Rubber spacer ring couplings
G_MD10_EN_00001a

OUR COUPLING GROUPS AT A GLANCE

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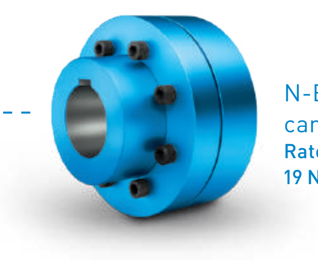
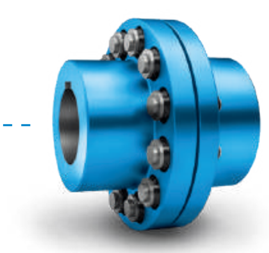
N-EUPEX, RUPEX and N-BIPEX

Flexible Couplings

Flexible Flender couplings have a wide range of possible applications. A broad standard modular system as well as specially designed application-specific couplings are available.



N-EUPEX
cam couplings
Rated torque:
19 Nm ... 62,000 Nm



RUPEX
pin-and-bush couplings
Rated torque:
200 Nm ... 1,300,000 Nm

N-BIPEX
cam couplings
Rated torque:
12 Nm ... 4,650 Nm

ELPEX, ELPEX-B and ELPEX-S

Highly Flexible Couplings

ELPEX® couplings are free of circumferential back-lash. Their damping capacity and low torsional stiff-ness make them especially well-suited for coupling machines with strongly non-uniform torque characteristics or large shaft misalignment.

ELPEX
elastic ring couplings
Rated torque:
1,600 Nm ... 90,000 Nm

ELPEX-B
elastic tire couplings
Rated torque:
24 Nm ... 14,500 Nm

ELPEX-S
rubber disk couplings
Rated torque:
330 Nm ... 63,000 Nm

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ZAPEX gear couplings and ARPEX all-steel couplings

Torsionally rigid couplings

For transmission of high torques, we offer both ARPEX all-steel couplings and ZAPEX gear couplings in a range of versions. Their purposes of application vary according to specific requirements with respect to shaft misalignment, temperature and torque.

ZAPEX
gear couplings
Rated torque:
1,300 Nm ... 7,200,000 Nm

ARPEX
high Performance Couplings
Rated torque:
1,000 Nm ... 588,500 Nm

N-ARPEX and ARPEX
all-steel couplings
Rated torque:
92 Nm ... 2,000,000 Nm

BIPEX-S and SIPEX

Backlash-free couplings

The vibration-damping, electrically insulating plug-in BIPEX-S elastomer couplings and SIPEX metal bellows couplings with very high torsional stiffness deliver especially isogonal torque transmission.

BIPEX-S and SIPEX
Rated torque:
0.1 Nm ... 5,000 Nm

FLUDEX

Hydrodynamic couplings

The FLUDEX hydrodynamic fluid coupling works according to the Föttinger principle. It functions entirely free of wear.

FLUDEX
fluid Couplings
Power:
1.2 kW ... 2,500 kW

Application-specific couplings

Couplings for rail vehicles must meet high demands. Due to their high degree of standardization and wide variety, they can be used in the most diverse vehicle types.

Railway coupling
Rated torque:
1,000 Nm ... 9,500 Nm

Each wind turbine coupling is designed to optimally meet the requirements of the respective wind turbine. The coupling connects the fast-running gear shaft with the generator shaft and is available for wind turbines with a capacity of up to 12 MW.

Wind turbine couplings
Rated torque:
10,000 Nm ... 60,000 Nm

TECHNICAL INFORMATION AND COUPLING SELECTION

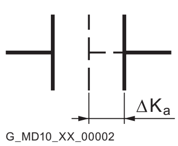
TECHNICAL INFORMATION

Shaft misalignment

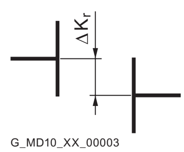
Shaft misalignment is the result of displacement during assembly and operation and, where machines constructed with two radial bearings each are rigidly coupled, will cause high loads being placed on the bearings. Elastic deformation of base frame, foundation and machine housing will lead to shaft misalignment which cannot be prevented, even by precise alignment.

Furthermore, because individual components of the drive train heat up differently during operation, heat expansion of the machine housings causes shaft misalignment. Poorly aligned drives are often the cause of seal, rolling bearing or coupling failure. Alignment should be carried out by specialist personnel in accordance with operating instructions.

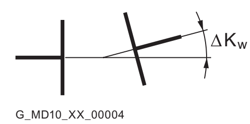
Depending on the direction of the effective shaft misalignment a distinction is made between:



Axial misalignment



Radial misalignment



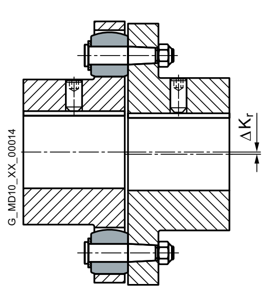
Angular misalignment

Couplings can be categorized into one of the following groups:

Single-joint couplings

Couplings with flexible elements mainly made of elastomer materials. Shaft misalignment results in deformation of the elastomer elements. The elastomer elements can absorb shaft misalignment as deformations in an axial, radial and angular direction. The degree of permissible misalignment depends on the coupling size, the speed and the type of elastomer element.
Single-joint couplings do not require an adapter and are therefore short versions.

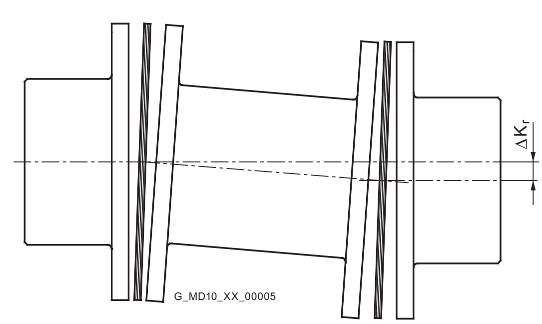
Example:
In the case of a RUPEX RWN 198 coupling with an outer diameter of 198 mm and a speed of 1500 rpm, the permitted radial misalignment is Δ_{Kr} = 0.3 mm.



Two-joint couplings

Two-joint couplings are always designed with an adapter. The two joint levels are able to absorb axial and angular misalignment. Radial misalignment occurs via the gap between the two joint levels and the angular displacement of the joint levels. The permitted angular misalignment per joint level is frequently about 0.5°. The permitted shaft misalignment of the coupling can be adjusted via the length of the adapter. If there are more than two joint levels, it is not possible to define the position of the coupling parts relative to the axis of rotation. (The less frequently used parallel-crank couplings are an exception).

Example:
N-ARPEX ARN-6 NEN 217-6 with a shaft distance of 140 mm with a permitted radial misalignment of ΔK_r = 2.2 mm (angle per joint level 1.0°).



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Balancing

Balance quality levels
The so-called quality level G to DIN ISO 21940 indicates a range of permitted residual imbalance from zero up to an upper limit. Applications can be grouped on the basis of similarity analysis. For many applications a coupling balance quality of G 16 is sufficient. On drives susceptible to vibration the balance quality should be G 6.3. Only in special cases is a better balance quality required.

Balancing standard in accordance with DIN ISO 21940-32
Besides the required balance quality, it is necessary to set standards which define how the mass of the parallel key is to be taken into consideration when balancing. In the past, motor rotors have frequently been balanced in accordance with the full parallel key standard. The "appropriate" balance condition of the coupling hub was described as "balancing with open keyway" or "balancing after keyseating". Today it is usual for the motor rotor, as well as the gear unit and driven machine shaft, to be balanced in accordance with the half parallel key standard.

Full parallel key standard

The parallel key is inserted in the shaft keyway, then balancing is carried out. The coupling hub must be balanced without parallel key after keyseating.

Marking of shaft and hub with "F" (for "full").

Half parallel key standard

The balancing standard normally applied today. Before balancing, a half parallel key is inserted in the shaft and another in the coupling hub. Alternatively, balancing can be carried out before cutting the keyway.

The balanced parts must be marked with an "H". This marking can be dispensed with if it is absolutely clear which parallel key standard has been applied.

No parallel key standard

Balancing of shaft and coupling hub after keyseating, but without parallel key. Not used in practice. Marking of shaft and hub with "N" (for "no").
The length of the parallel key is determined by the shaft keyway. Coupling hubs may be designed considerably shorter than the shaft.

To prevent imbalance forces caused by projecting parallel key factors when balancing in accordance with the half parallel key standard in the case of applications with high balancing quality requirements, grooved spacer rings can be fitted or stepped parallel keys used.

Flender Balancing Standard

The balancing quality level, together with the operating speed, results in the maximum permissible eccentricity of the center of gravity of the coupling or the coupling subassembly. In the Flender article number the balancing quality can be preset with the help of the order code. Additionally, also the balance quality level to DIN ISO 21940 can be preset together with the operating speed belonging to it, which then be taken as priority.

$$e_{perm} = 9550 \cdot \frac{G}{n}$$

$$e_{coupl} \leq e_{perm}$$

Permitted eccentricity of center of gravity	e_{perm}	in µm
Eccentricity of center of gravity of coupling	e_{coupl}	in µm
Balancing quality level	G	in mm/s
Coupling speed	n	in rpm

Eccentricity of center of gravity of coupling e_{coupl}	Flender balancing quality	Order code
maximum 100 µm	standard balancing	without specification
maximum 40 µm	fine balancing	W02
maximum 16 µm	micro-balancing	W03
better than 16 µm	special balancing	on request

TECHNICAL INFORMATION

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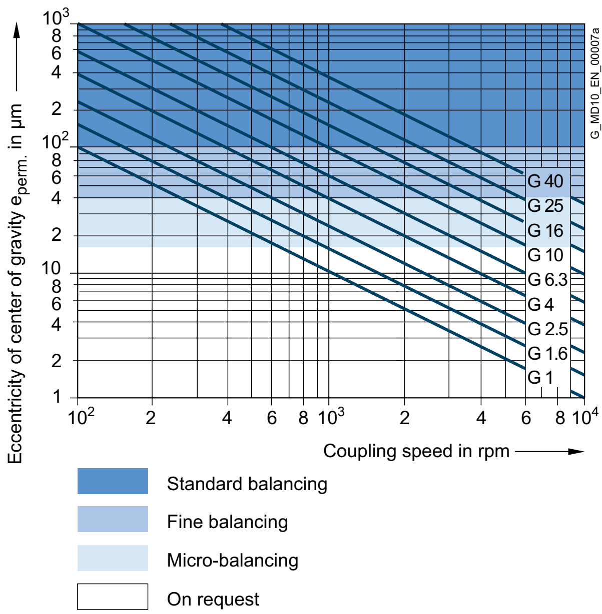

Example:
Coupling speed = 1450 rpm
required balancing quality level G 6.3

$$e_{perm} = 9550 \cdot \frac{G}{n} = 9550 \cdot \frac{6.3}{1450}\ \mu m$$

Thus, the required eccentricity of center of gravity is 41.5 µm. The fine balancing with a maximum eccentricity of center of gravity of 40 mm fulfills this requirement; therefore, the order code W02 has to be specified when ordering.

For many applications the following balancing quality recommendation applies:

Coupling	standard balancing v = DA · n/19100	fine balancing
short version with LG ≤ 3 × DA	v ≤ 30 m/s	v > 30 m/s
long version with LG > 3 × DA	v ≤ 15 m/s	v > 15 m/s

Peripheral speed	v	in mm/s
Coupling outer diameter	DA	in mm
Coupling speed	n	in rpm
Coupling length	LG	in mm

The following standards on balancing must be observed:

- couplings are balanced in subassemblies.
- hub parts without finished bore are unbalanced.
- the number of balancing levels (one- or two-level balancing) is specified by Flender.
- without special specification balancing is done in accordance with the half-parallel-key standard. Balancing in accordance with the full-parallel-key standard must be specified in the order number.
- For FLUDEX couplings special balancing standards specified in Section 13 apply.
- ARPEX couplings in standard balancing quality are unbalanced. Thanks to steel components machined all over and precisely guided adapters the balancing quality of standard balancing is nearly always adhered to.

Shaft-hub connections

The bore and the shaft-hub connection of the coupling are determined by the design of the machine shaft. In the case of IEC standard motors, the shaft diameters and parallel key connections are specified in accordance with DIN EN 50347. For diesel motors, the flywheel connections are frequently specified in accordance with SAE J620d or DIN 6288. Besides the very widely used connection of shaft and hub with parallel keys to DIN 6885 and cylindrically bored hubs, couplings with Taper clamping bushes, clamping sets, shrink-fit connections and splines to DIN 5480 are common.

The form stability of the shaft/hub connection can only be demonstrated when shaft dimensions and details of the connection are available. The coupling torques specified in the tables of power ratings of the coupling series do not apply to the shaft-hub connection unrestrictedly.

In the case of the shaft-hub connection with parallel key, the coupling hub must be axially secured, e.g. with a set screw or end washer. The parallel key must be secured against axial displacement in the machine shaft.

All Flender couplings with a finished bore and parallel keyway are designed with a set screw. Exceptions are some couplings of the FLUDEX series, in which end washers are used. During assembly, Taper clamping bushes are frictionally connected to the machine shaft.

TECHNICAL INFORMATION

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Standards

Machines

2006/42/EG	EC Machinery Directive
2014/34/EU	ATEX Directive – Manufacturer
1999/92/EG	ATEX Directive – Operator – and ATEX Guideline to Directive 1999/92/EC
DIN EN 80079-36	Non-electrical equipment for use in potentially explosive atmospheres
DIN EN 1127	Explosive atmospheres, explosion prevention and protection
DIN EN 50347	General-purpose three-phase induction motors having standard dimensions and outputs

Couplings

DIN 740	Flexible shaft couplings Part 1 and Part 2
VDI Guideline 2240	Shaft couplings - Systematic subdivision according to their properties VDI Technical Group Engineering Design 1971
API 610	Centrifugal Pumps for Petroleum, Chemical and Gas Industry Services
API 671	Special Purpose Couplings for Petroleum, Chemical and Gas Industry Services
ISO 10441	Petroleum, petrochemical and natural gas industries – Flexible couplings for mechanical power transmission-special-purpose applications
ISO 13709	Centrifugal pumps for petroleum, petrochemical and natural gas industries

Balancing

DIN ISO 21940	Requirements for the balancing quality of rigid rotors
DIN ISO 21940-32	Mechanical vibrations; standard governing the type of parallel key during balancing of shafts and composite parts

Shaft-hub connections

DIN 6885	Driver connections without taper action – parallel keys – keyways
SAE J620d	Flywheels for industrial engines ...
DIN 6288	Reciprocating internal combustion engines Dimensions and requirements for flywheels and flexible couplings
ASME B17.1	Keys and keyseats
DIN EN 50347	General-purpose three-phase induction motors with standard dimensions and output data
BS 46-1:1958	Keys and keyways and taper pins Specification

Key to symbols

Name	Symbols	Unit	Explanation
Torsional stiffness, dynamic	C_{Tdyn}	Nm/rad	For calculating torsional vibration
Excitation frequency	f_{err}	Hz	Excitation frequency of motor or driven machine
Moment of inertia	J	kgm^2	Moment of inertia of coupling sides 1 and 2
Axial misalignment	ΔK_a	mm	Axial misalignment of the coupling halves
Radial misalignment	ΔK_r	mm	Radial misalignment of the coupling halves
Angular misalignment	ΔK_w	°	Angular misalignment of the coupling halves
Service factor	FB		Factor expressing the real coupling load as a ratio of the nominal coupling load
Frequency factor	FF		Factor expressing the frequency dependence of the fatigue torque load
Temperature factor	FT		Factor taking into account the reduction in strength of flexible rubber materials at a higher temperature
Weight	m	kg	Weight of the coupling
Rated speed	n_N	rpm	Coupling speed
Maximum coupling speed	n_{Kmax}	rpm	Maximum permissible coupling speed
Rated power	P_N	kW	Rated output on the coupling, usually the output of the driven machine
Rated torque	T_N	Nm	Rated torque as nominal load on the coupling
Fatigue torque	T_W	Nm	Amplitude of the dynamic coupling load
Maximum torque	T_{max}	Nm	More frequently occurring maximum load, e.g. during starting
Overload torque	T_{OL}	Nm	Very infrequently occurring maximum load, e.g. during short circuit or blocking conditions
Rated coupling torque	T_{KN}	Nm	Torque which can be transmitted as static torque by the coupling over the period of use.
Maximum coupling torque	T_{Kmax}	Nm	Torque which can be frequently transmitted (up to 25 times an hour) as maximum torque by the coupling.
Coupling overload torque	T_{KOL}	Nm	Torque which can very infrequently be transmitted as maximum torque by the coupling.
Fatigue coupling torque	T_{KW}	Nm	Torque amplitude which can be transmitted by the coupling as dynamic torque at a frequency of 10 Hz over the period of use.
Resonance factor	V_R		Factor specifying the torque increase at resonance
Temperature	T_a	°C	Ambient temperature of the coupling in operation
Damping coefficient	Ψ	psi	Damping parameter

SELECTION OF THE COUPLING SERIES

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The coupling series is frequently determined by the driven machine and the design of the drive train. Common selection criteria are listed below and assigned to coupling properties, which are used to select the coupling series. Additionally, the price of the coupling and availability are important criteria for determining the coupling series to be used.

The FLUDEX series operates positively and transmits the torque with the aid of a flowing oil or water filling.

FLUDEX couplings are used to reduce starting and/or overload torques. During starting, the motor may, for example, run up within a very short time; because of the FLUDEX coupling, the drive train with the driven machine may accelerate after a delay and without increased torque load.

The FLUDEX coupling cannot compensate for shaft misalignment and is therefore designed in combination with a displacement coupling, a cardan shaft or a belt drive. The displacement coupling may be selected in accordance with the criteria described below.

Selection criteria	Torque range Rated coupling torque T_{KN}	Speed range Peripheral speed v_{max} = DA · n_{max}/19100	Torsional stiffness torsionally rigid	torsionally flexible	Highly flexible	Operating temperature range
ZAPEX	850 ... 7200000 Nm	60 m/s	■	–	–	-20 ... +80 °C
N-ARPEX	350 ... 2000000 Nm	110 m/s	■	–	–	-50 ... +280 °C
ARPEX	92 ... 2000000 Nm	100 m/s	■	–	–	-40 ... +280 °C
N-EUPEX	19 ... 62000 Nm	36 m/s	–	■	–	-50 ... +100 °C
N-EUPEX DS	19 ... 21200 Nm	36 m/s	–	■	–	-30 ... +80 °C
RUPEX	200 ... 1300000 Nm	60 m/s	–	■	–	-50 ... +100 °C
N-BIPEX	12 ... 4650 Nm	45 m/s	–	■	–	-50 ... +100 °C
ELPEX-B	24 ... 14500 Nm	35 m/s	–	–	■	-50 ... +70 °C
ELPEX-S	330 ... 63000 Nm	66 m/s	–	–	■	-40 ... +120 °C
ELPEX	1600 ... 90000 Nm	60 m/s	–	–	■	-40 ... +80 °C

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Typical coupling solutions for different example applications

The specified application factors are recommendations; regulations, rules and practical experience take priority as assessment criteria.
No application factor need be taken into account with FLUDEX couplings.

In the case of highly flexible couplings of the ELPEX, ELPEX-S and ELPEX-B series, deviating application factors are stated in the product descriptions.
FLUDEX couplings are mostly mounted on the high-speed gear shaft.

Example applications	Application factor FB
Electric motor without gear unit	
Centrifugal pumps	1.0
Piston pumps	1.5
Vacuum pumps	1.5
Fans with T_N less than 75 Nm	1.5
Fans with T_N from 75 to 750 Nm	1.75
Fans with T_N larger than 750 Nm	1.75
Blowers	1.5
Frequency converters / generators	1.25
Reciprocating compressors	1.75
Screw-type compressors	1.5
Internal-combustion engine without gear unit	
Generators	1.75
Pumps	1.5
Fans	1.75
Hydraulic pumps, excavators, construction machines	1.5
Compressors / screw-type compressors	1.5
Agricultural machinery	1.75
Other	
Turbine gear units	1.5
Hydraulic motor - gear unit	1.25
Electric motor with gear unit	
Chemical industry	
Extruders	1.5
Pumps - centrifugal pumps	1.0
Pumps - piston pumps	1.75
Pumps - plunger pumps	1.5
Reciprocating compressors	1.75
Calenders	1.5
Kneaders	1.75
Cooling drums	1.25
Mixers	1.25
Stirrers	1.25
Toasters	1.25
Drying drums	1.25
Centrifuges	1.25
Crushers	1.5
Power generation and conversion	
Compressed air, reciprocating compressors	1.75

Example applications	Application factor FB
Compressed air, screw-type compressors	1.25
Air - Blowers	1.5
Air - Cooling tower fans	1.5
Air - Turbine blowers	1.5
Generators, converters	1.25
Welding generators	1.25
Metal production, iron and steel works	
Plate tilters	1.5
Ingot pushers	1.75
Slabbing mill	1.75
Coiling machines	1.5
Roller straightening machines	1.5
Roller tables	1.75
Shears	1.75
Rollers	1.75
Metal working machines	
Plate bending machines	1.5
Plate straightening machines	1.5
Hammers	1.75
Planing machines	1.75
Presses, forging presses	1.75
Shears	1.5
Grinding machines	1.25
Punches	1.5
Machine tools: Main drives	1.5
Machine tools: Auxiliary drives	1.25
Food industry	
Filling machines	1.25
Kneading machines	1.5
Mashers	1.5
Sugar cane production	1.5
Production machines	
Construction machines, hydraulic pumps	1.25
Construction machines, traversing gears	1.5
Construction machines, suction pumps	1.5
Construction machines, concrete mixers	1.5
Printing machines	1.25
Woodworking - barking drums	1.5
Woodworking - planing machines	1.5

Example applications	Application factor FB
Woodworking - reciprocating saws	1.5
Grinding machines	1.5
Textile machines - winders	1.5
Textile machines - printing machines	1.5
Textile machines - tanning vats	1.5
Textile machines - shredders	1.5
Textile machines - looms	1.5
Packaging machines	1.5
Brick molding machines	1.75
Transport and logistics	
Passenger transport - elevators	1.5
Passenger transport - escalators	1.5
Conveyor systems - bucket elevators	1.5
Conveyor systems - hauling winches	1.5
Conveyor systems - belt conveyors	1.5
Conveyor systems - endless-chain conveyors	1.5
Conveyor systems - circular conveyors	1.5
Conveyor systems - screw conveyors	1.5
Conveyor systems - inclined hoists	1.5
Crane traversing gear	1.5
Hoisting gear	1.5
Crane lifting gear	2.0
Crane traveling gear	1.5
Crane slewing gear	1.5
Crane fly jib hoists	1.5
Cable railways	1.5
Drag lifts	1.5
Winches	1.5
Cellulose and paper	
Paper-making machines, all	1.5
Pulper drives	1.5
Cement industry	
Crushers	1.75
Rotary furnaces	1.5
Hammer mills	1.75
Ball mills	1.75
Pug mills	1.75
Mixers	1.5
Pipe mills	1.5
Beater mills	1.75
Separators	1.5
Roller presses	1.75

SELECTION OF THE COUPLING SIZE

E

The torque load of the coupling must be determined from the output of the driven machine and the coupling speed.

Rated coupling load $T_N = 9550 \times P_N / n_N$
(T_N in Nm; P_N in kW; n_N in rpm)

The rated coupling load obtained in this way must be multiplied by factors and compared with the rated coupling torque. An ideal but expensive method is to measure the torque characteristic on the coupling. For this, Flender offers special adapters fitted with torque measuring devices.

The rated coupling torque T_{KN} is the torque which can be transmitted by the coupling over an appropriate period of use if the load is applied to the coupling purely statically at room temperature.

Application factors are to express the deviation of the real coupling load from the "ideal" load condition.

Coupling load in continuous operation

The operating principles of the driving and driven machines are divided into categories and the application factor FB derived from these in accordance with DIN 3990-1.

Application factor for N-EUPEX, N-EUPEX-DS, RUPEX, N-BIPEX, ELPEX-B, N-ARPEX, ARPEX, ZAPEX and FLUDEX

Application factor FB				
	Torque characteristic of the driven machine			
Torque characteristic of the driving machine	uniform	uniform with moderate shock loads	non uniform	very rough
uniform	1.0	1.25	1.5	1.75
uniform with moderate shock loads	1.25	1.5	1.75	2.0
non uniform	1.5	1.75	2.0	2.5

Examples of torque characteristic of driving machines:
- uniform: Electric motors with soft starting, steam turbines
- uniform with moderate shock loads: Electric motors without soft starting, hydraulic motors, gas and water turbines
- non uniform: Internal-combustion engines

Examples of torque characteristic in driven machines:
- uniform: Generators, centrifugal pumps for light fluids
- uniform with moderate shock loads: Centrifugal pumps for viscous fluids, elevators, machine tool drives, centrifuges, extruders, blowers, crane drives
- non uniform: Excavators, kneaders, conveyor systems, presses, mills
- very rough: Crushers, excavators, shredders, iron/smelting machinery

Temperature factor FT											
			Temperature T_a on the coupling								
Coupling	Elastomer material	Low temperature °C	under -30 °C	-30 °C up to 50 °C	up to 60 °C	up to 70 °C	up to 80 °C	up to 90 °C	up to 100 °C	up to 110 °C	up to 120 °C
N-EUPEX	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
N-EUPEX	NR	-50	1.1 [1]	1.0	–	–	–	–	–	–	–
N-EUPEX	HNBR	-10	–	1.0	1.0	1.0	1.0	1.25	1.25	–	–
N-EUPEX DS	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
RUPEX	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
RUPEX	NR	-50	1.1	1.0	–	–	–	–	–	–	–
RUPEX	HNBR	-10	–	1.0	1.0	1.0	1.0	1.25	1.25	–	–
N-BIPEX	TPU	-50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	–	–
ELPEX	NR	-40	1.1	1.0	1.25	1.40	1.60	–	–	–	–
ELPEX-B	NR	-50	1.1	1.0	–	–	–	–	–	–	–
ELPEX-B	CR	-15	–	1.0	1.0	1.0	–	–	–	–	–
ELPEX-S SN, NN, WN	NR	-40	1.1	1.0	1.25	1.40	1.60	–	–	–	–
ELPEX-S NX	VMQ	-40	1.1	1.0	1.0	1.0	1.0	1.1	1.25	1.4	1.6

NR = natural rubber, natural-synthetic rubber mixture
NBR = nitril-butadiene-rubber (Perbunan)
HNBR = hydrated acrylonitrile butadiene rubber
CR = chloroprene rubber (FRAS fire-resistant and anti-static)
VMQ = silicone
TPU = polyurethane

[1] The N-EUPEX coupling is not suitable for shock loads when used at low temperatures.

Coupling size $T_{KN} \geqslant T_N \cdot FB \cdot FT$

In the case of ARPEX and ZAPEX coupling types, no temperature factor (FT = 1.0) need be taken into account.

Coupling load at maximum and overload conditions

The maximum torque is the highest load acting on the coupling in normal operation.
Maximum torques at a frequency of up to 25 times an hour are permitted and must be lower than the maximum coupling torque. Examples of maximum torque conditions are: Starting operations, stopping operations or usual operating conditions with maximum load.

$T_{Kmax} \geqslant T_{Max} \cdot FT$

Overload torques are maximum loads which occur only in combination with special, infrequent operating conditions. Examples of overload torque conditions are: Motor short circuit, emergency stop or blocking because of component breakage. Overload torques at a frequency of once a month are permitted and must be lower than the maximum overload torque of the coupling. The overload condition may last only a short while, i.e. fractions of a second.

$T_{KOL} \geqslant T_{OL} \cdot FT$

Coupling load due to dynamic torque load

Applying the frequency factor FF, the dynamic torque load must be lower than the coupling fatigue torque.

Dynamic torque load

$T_{KW} \geqslant T_W \cdot FF$

Frequency of the dynamic torque load
$f_{err} \leqslant 10$ Hz frequency factor FF = 1.0

Frequency of the dynamic torque load
$f_{err} > 10$ Hz frequency factor FF = $\sqrt{(f_{err}/10\ \text{Hz})}$

For the ZAPEX and ARPEX series, the frequency factor is always FF = 1.0.

SELECTION OF THE COUPLING SIZE

E

Checking the maximum speed

For all load situations $n_{Kmax} \geq n_{max}$

Checking permitted shaft misalignment

For all load situations, the actual shaft misalignment must be less than the permitted shaft misalignment.

Checking bore diameter, mounting geometry and coupling design

The check must be made on the basis of the dimension tables. The maximum bore diameter applies to parallel keyways to DIN 6885. For other keyway geometries, the maximum bore diameter can be reduced.

On request, couplings with adapted geometry can be provided.

Coupling behavior under overload conditions

The ZAPEX, N-ARPEX, ARPEX, N-EUPEX, RUPEX and N-BIPEX coupling series can withstand overloads until the breakage of metal parts. These coupling series are designated as fail-safe.
The N-EUPEX DS, ELPEX-B, ELPEX-S and ELPEX coupling series throw overload. The elastomer element of these couplings is irreparably damaged without damage to metal parts when subjected to excessive overload.

These coupling series are designated as non-fail-safe. These types that fail can be fitted with a so-called fail-safe device. This additional component enables emergency operation, even after the rubber element of the coupling has been irreparably damaged.

Checking shaft-hub connection

The torques specified in the tables of power ratings data of the coupling series do not necessarily apply to the shaft-hub connection. Depending on the shaft-hub connection, proof of form stability is required. Flender recommends obtaining proof of form strength by using calculation methods in accordance with the current state of the art.

Shaft-hub connection	Suggestion for calculation method
Keyway connection to DIN 6885-1	DIN 6892
Shrink fit	DIN 7190
Spline to DIN 5480	
Bolted flange connection	VDI 2230
Flange connection with close-fitting bolts	

Fitting recommendations for the shaft-hub connection are given in the **Appendix**.

The coupling hub is frequently fitted flush with the shaft end face. If the shaft projects, the risk of collision with other coupling parts must be checked. If the shaft is set back, in addition to the load-bearing capacity of the shaft-hub connection, the correct positioning of the hub must be ensured as well. If the bearing hub length is insufficient, restorative forces may cause tilting movements and so wear to and impairment of the axial retention. Also, the position of the set screw to be positioned on sufficient shaft or parallel key material must be noted.

Checking low temperature and chemically aggressive environment

The minimum permitted coupling temperature is specified in the Temperature factor FT table. In the case of chemically aggressive environments, please consult the manufacturer.

FEATURES OF THE STANDARD TYPE

E

Couplings	Features of the standard type
All coupling series except ARPEX clamping hubs and FLUDEX with keyway to ASME B17.1	Bore tolerance H7
N-ARPEX and ARPEX clamping hubs	Bore tolerance H6
FLUDEX couplings with keyway to ASME B17.1	Hollow shafts: bore tolerance K7
	other parts: Bore tolerance M7
All coupling series with bore diameter - imperial	Parallel keyway to ASME B17.1
Bore diameter metric in the case of ZAPEX, N-ARPEX and ARPEX coupling series as well as coupling hubs with applied brake disks or brake drums of the N-EUPEX and RUPEX series	Parallel keyway to DIN 6885-1 keyway width P9
Bore diameter metric in the case of the N-EUPEX, RUPEX, N-BIPEX, ELPEX-S, ELPEX-B, ELPEX, FLUDEX coupling series	Parallel keyway to DIN 6885-1 keyway width JS9
All coupling series except FLUDEX	Axial locking by means of set screw
FLUDEX coupling series	Axial lock by means of set screw or end washer
All coupling series	Balancing in accordance with half parallel key standard
ZAPEX, N-ARPEX, ARPEX, N-EUPEX, RUPEX, N-BIPEX, ELPEX-S, ELPEX-B and ELPEX coupling series	Balancing quality G16
FLUDEX coupling series	Balancing quality G6.3
All series	Unpainted
All series	Preservation with cleaning emulsion
FLUDEX couplings	Fuse 140 °C

Configurator

The article number can be obtained with the help of the Configurator. The coupling can be selected in a product configurator and specified using selection menus.

The Configurator is available under **flender.com**.

The coupling can be selected via "Technical selection" (technical selection) or via "Direct selection" (via article-no.).

HIGHLY FLEXIBLE COUPLINGS ELPEX-B SERIES

ELPEX-B
FLENDER

GENERAL

ELPEX-B couplings are highly flexible and free of torsional backlash. Because of their low torsional stiffness and damping capacity, ELPEX-B couplings are especially suitable for coupling machines with a highly non uniform torque pattern. ELPEX-B couplings are also suitable for connecting machines with high shaft misalignment.

Standard ELPEX-B coupling types are designed as shaft-shaft connections. Application-related types can be implemented on request.

Benefits

The ELPEX-B coupling is suitable for horizontal and vertical mounting positions or mounting positions at any required angle.

The elastic tire is slit at the circumference and can be changed without having to move the coupled machines.

The elastic tire is fitted without backlash and gives the coupling linear torsional stiffness, thus the torsional rigidity remains constant as the load on the coupling increases.

The ELPEX-B coupling is especially suitable for reversing operation or operation with changing directions of load. The coupling parts can be arranged as required on the shafts to be connected.

If the elastic tire is irreparably damaged or worn, the metal parts can rotate freely against one another because they are not in contact with one another.

Application

The ELPEX-B coupling is available as a catalog standard in 15 sizes with a rated torque of between 24 Nm and 14500 Nm. The coupling can be fitted with elastic tires made of natural rubber for ambient temperatures of -50 °C to +50 °C and with elastic tires made of chloroprene rubber for -15 °C to +70 °C.

The chloroprene rubber tire is marked FRAS, "Fire-resistant and Antistatic".

GENERAL

Design and configurations

The ELPEX-B coupling's transmission characteristic is determined essentially by the elastic tire. The elastic tire is manufactured from a natural rubber or a chloroprene rubber mixture with a multiply fabric insert. The elastic tire is fastened to the hubs with bolts and two clamping rings.

In type EBWT, the shaft-hub connection is achieved with Taper clamping bushes, in type EBWN with finish-drilled hubs and parallel keys. The type EBWZ connects the machine shafts additionally via a detachable adapter.

Metal part materials

- EN-GJL-250 grey cast iron or steel.

Elastic tire material

Material	Hardness	Marking	Ambient temperature
Natural rubber	70 ShoreA	48	-50 ... +50 °C
Chloroprene rubber	70 ShoreA	068 FRAS	-15 ... +70 °C

ELPEX-B coupling types

Type	Description
EBWN	Coupling as a shaft-shaft connection with drilled and grooved hubs
EBWT	Coupling as a shaft-shaft connection with Taper clamping bushes
EBWZ	Coupling as shaft-shaft connection with detachable adapter

Further application-specific coupling types are available; dimension sheets for and information on these are available on request.

The coupling types set up for shaft-hub connections with Taper clamping bushes are designated as follows:

- Variant A: Coupling with part 3 – part 3
- Variant B: Coupling with part 4 – part 4
- Variant AB: Coupling with part 3 – part 4

In the case of part 3, the Taper clamping bush is screwed in from the shaft end face side. The coupling half must be fitted before the machines to be connected are pushed together.

In the case of part 4, the Taper clamping bush is screwed in from the machine-housing side. If there is insufficient room, the Taper clamping bushes cannot be fitted from this side. Besides fitting space for the Taper clamping bush bolts, space for the fitting tool (offset screwdriver) must be taken into account.

In the case of coupling type EBWT, part 3 and part 4 can be combined as required. Furthermore, the variant with a Taper clamping bush can be combined with the finish-drilled hub.

Unfitted coupling

Fitted coupling
(shown without connecting shafts)

Fitted elastic tire

The elastic tire can simply be slipped over the hub parts. The elastic tire is held firmly in place by fitting the clamping ring. The connection transmits the torque by frictional engagement.

GENERAL

Technical specifications

Power ratings

Size	Rated torque T_{KN} Nm	Maximum torque T_{Kmax} Nm	Overload torque T_{KOL} Nm	Fatigue torque T_{KW} Nm	Maximum speed n_{Kmax} rpm	Dynamic torsional stiffness C_{Tdyn} Nm/rad	Permitted shaft misalignment at n = 1500 rpm [1)] Axial ΔK_a mm	 Radial ΔK_r mm	 Angle ΔK_w Degree
105	**24**	48	72	7	4500	285	1.3	1.1	4
135	**66**	132	200	20	4500	745	1.7	1.3	4
165	**125**	250	375	38	4000	1500	2	1.6	4
190	**250**	500	750	75	3600	2350	2.3	1.9	4
210	**380**	760	1140	114	3100	3600	2.6	2.1	4
235	**500**	1000	1500	150	3000	5200	3	2.4	4
255	**680**	1360	2040	204	2600	7200	3.3	2.6	4
280	**880**	1760	2640	264	2300	10000	3.7	2.9	4
315	**1350**	2700	4050	405	2050	17000	4	3.2	4
360	**2350**	4700	7050	705	1800	28000	4.6	3.7	4
400	**3800**	7600	11400	1140	1600	44500	5.3	4.2	4
470	**6300**	12600	18900	1890	1500	78500	6	4.8	4
510	**9300**	18600	27900	2790	1300	110000	6.6	5.3	4
560	**11500**	23000	34500	3450	1100	160000	7.3	5.8	4
630	**14500**	29000	43500	4350	1000	200000	8.2	6.6	4

Torsional stiffness and damping

The damping coefficient is Ψ = 0.9

The technical data for the elastic tires made of natural rubber and chloroprene rubber are virtually identical.

Torsional stiffness depends on the ambient temperature and the frequency and amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn}. For this reason calculation must be made with a tolerance for the dynamic stiffness of ± 20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

Permitted shaft misalignment

The permitted shaft misalignment depends on the operating speed. As the speed increases, lower shaft misalignment values are permitted. The correction factors for different speeds are specified in the following table. The maximum speed for the respective coupling size must be noted.

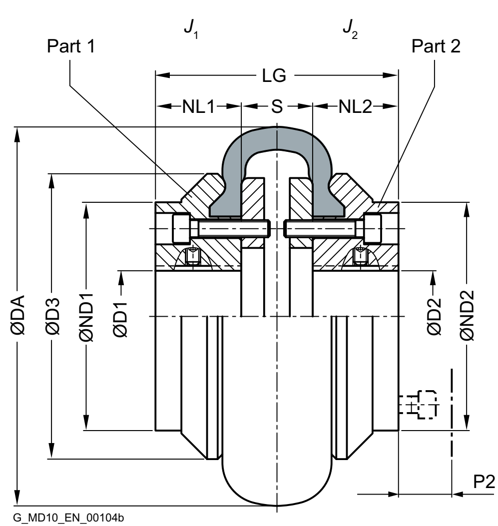
$$\Delta K_{perm} = \Delta K_{1500} \cdot \text{FKV}$$

	Speed in rpm 500	 1000	 1500	 3000
Correction factor FKV	1.2	1.1	1.0	0.7

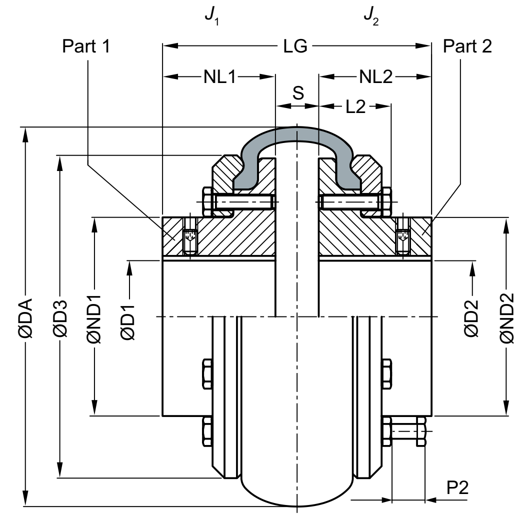
The restorative force (including in the axial direction) depends on speed, system torque and shaft misalignment. Restorative forces on request.

1) The maximum speed for the respective type must be noted. For additional information on the allowable shaft misalignment, please refer to the operating instructions.

TYPE EBWN



Sizes 105 ... 165



Sizes 190 ... 630

Size	Rated torque T_{KN} Nm	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	D3	L2	S	P2	LG	Mass moment of inertia J_1/J_2 kgm²	↗ Article no. 1)	Weight m kg
105	24	–	30	104	70	30	82	–	22	35	82	0.0011	2LC0210-0AA	2.2
135	66	–	38	134	80	40	100	–	25	35	105	0.0025	2LC0210-1AA	3.6
165	125	–	45	165	70	50	125	–	33	35	133	0.0056	2LC0210-2AA	5.4
190	250	–	50	187	80	55	145	36	23	35	133	0.0095	2LC0210-3AA	6.9
210	380	–	60	211	98	65	168	40	25	35	155	0.02	2LC0210-4AA	11
235	500	–	70	235	111	70	188	45	27	35	167	0.023	2LC0210-5AA	14.8
255	680	–	80	254	130	75	216	44	27	35	177	0.06	2LC0210-6AA	20
280	880	–	90	280	145	80	233	45	25	35	185	0.083	2LC0210-7AA	24.5
315	1350	–	95	314	155	90	264	50	29	35	209	0.129	2LC0210-8AA	35
360	2350	–	125	359	200	100	311	50	32	35	232	0.32	2LC0211-0AA	54
400	3800	–	135	402	216	125	345	59	30	35	280	0.55	2LC0211-1AA	78
470	6300	–	160	470	260	140	398	67	46	35	326	1.12	2LC0211-2AA	120
510	9300	–	140	508	250	150	429	73	48	35	348	1.6	2LC0211-3AA	146
		140	180		290							1.7		154
560	11500	–	140	562	250	165	474	82	55	35	385	2.5	2LC0211-4AA	200
		140	180		300							2.7		206
630	14500	80	140	629	250	195	532	82	59	35	449	4.1	2LC0211-5AA	258
		140	180		300							4.4		265

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Weight and mass moments of inertia apply to maximum bore diameters.
- The article no. applies to elastic tires made of natural rubber.
- P2 = fitting space for dismounting the elastic tire

Ordering example

- ELPEX-B EBWN coupling, size 210
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 and set screw
- Part 2: Bore 45H7 mm, keyway to DIN 6885-1 and set screw

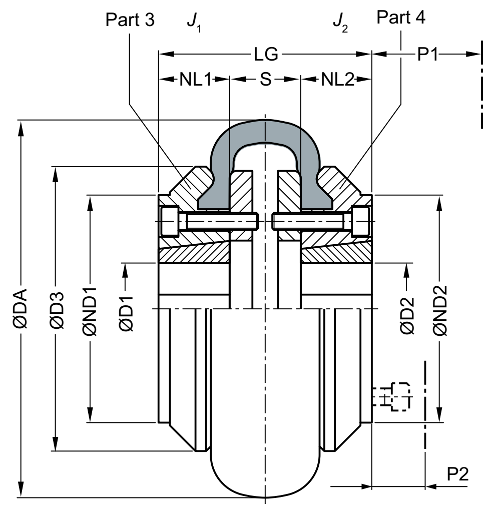
Article no.: **2LC0210-4AA99-0AA0-Z L0W+M1A**

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

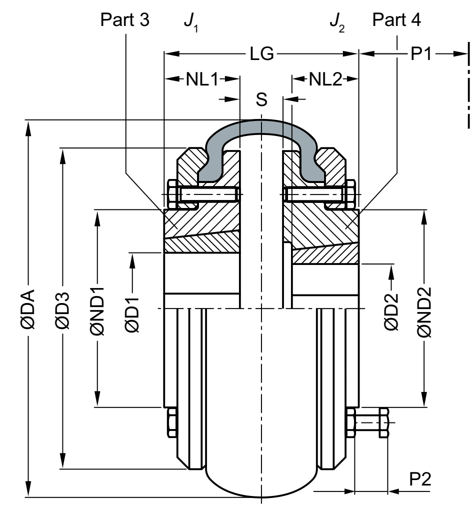
TYPE EBWT

Sizes 105 ... 165



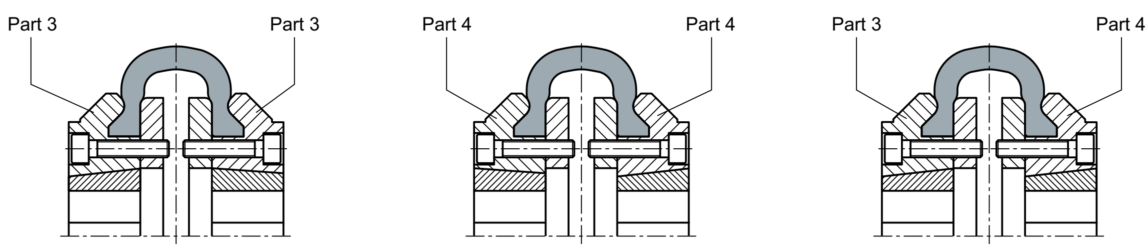
Variant AB

Sizes 190 ... 560



Variant AB

Sizes 105 ... 165

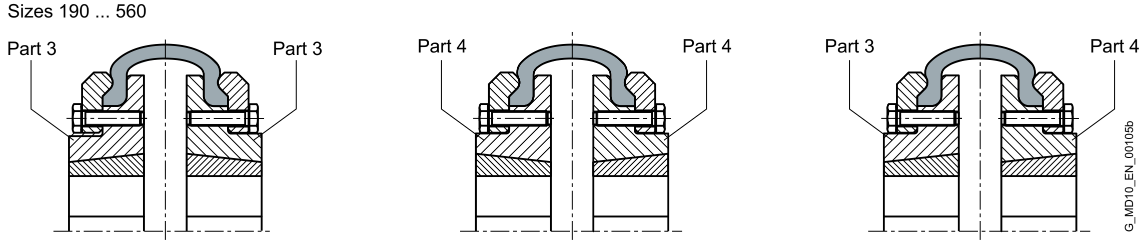


Variant A

Variant B

Variant AB

Sizes 190 ... 560



Variant A

Variant B

Variant AB

Part 3: Screw connection for Taper clamping bush from the shaft end face side

Part 4: Screw connection for Taper clamping bush from the machine-housing side

Size	Rated torque T_{KN} Nm	Part no.	Taper Clamping Bush Size	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND1/ ND2	NL1/ NL2	D3	S	P1	P2	LG	Mass moment of inertia J_1/J_2 kgm²	↗ Article no. [1] Type A	B	AB	Weight m kg
105	24	3 / 4	1008	10	25	104	–	22	82	22	29	35	66	0.0009	2LC0210-0AB	2LC0210-0AC	2LC0210-0AD	1.8
135	66	3 / 4	1210	11	32	134	80	25	100	25	38	35	75	0.0019	2LC0210-1AB	2LC0210-1AC	2LC0210-1AD	2.4
165	125	3 / 4	1610	14	42	165	103	25	125	33	38	35	83	0.0049	2LC0210-2AB	2LC0210-2AC	2LC0210-2AD	4
190	250	3 / 4	2012 / 1610	14 / 14	50 / 42	187	80	32 / 25	145	23	42 / 38	35	87	0.0085	2LC0210-3AB	2LC0210-3AC	2LC0210-3AD	5.4
210	380	3 / 4	2517 / 2012	16 / 14	60 / 50	211	98	45 / 32	168	25	48 / 42	35	115 / 89	0.017	2LC0210-4AB	2LC0210-4AC	2LC0210-4AD	8
235	500	3 / 4	2517	16	60	235	108	46	188	27	48	35	119	0.019	2LC0210-5AB	2LC0210-5AC	2LC0210-5AD	12
255	680	3 / 4	3020 / 2517	25 / 16	75 / 60	254	120 / 113	51 / 45	216	27	55 / 48	35	129 / 117	0.05	2LC0210-6AB	2LC0210-6AC	2LC0210-6AD	14
280	880	3 / 4	3020	25	75	280	134	52	233	25	55	35	129	0.075	2LC0210-7AB	2LC0210-7AC	2LC0210-7AD	22
315	1350	3 / 4	3525 / 3020	35 / 25	100 / 75	314	140	66 / 51	264	29	67 / 55	35	161 / 131	0.11	2LC0210-8AB	2LC0210-8AC	2LC0210-8AD	23
360	2350	3 / 4	3525	35	100	359	178	65	311	32	67	35	162	0.26	2LC0211-0AB	2LC0211-0AC	2LC0211-0AD	38
400	3800	3 / 4	4030	40	115	402	200	77	345	30	80	35	184	0.44	2LC0211-1AB	2LC0211-1AC	2LC0211-1AD	54
470	6300	3 / 4	4535	55	125	470	210	89	398	46	89	35	224	0.8	2LC0211-2AB	2LC0211-2AC	2LC0211-2AD	72
510	9300	3 / 4	4535	55	125	508	208	89	429	48	89	35	226	1.5	2LC0211-3AB	2LC0211-3AC	2LC0211-3AD	120
560	11500	3 / 4	5040	70	125	562	224	102	474	55	92	35	259	2	2LC0211-4AB	2LC0211-4AC	2LC0211-4AD	120

10

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

Notes

- Weights and mass moments of inertia apply to couplings with Taper clamping bushes with maximum bore diameter.
- The article no. applies to elastic tires made of natural rubber.
- P1 = fitting space for offset screwdriver and ejector bolt for dismounting the Taper clamping bush
- P2 = fitting space for dismounting the elastic tire.

Ordering example

- ELPEX-B EBWT coupling, size 210, variant AB, including Taper clamping bushes
- Part 3: with Taper clamping bush, bore 60 mm
- Part 4: with Taper clamping bush, bore 40 mm

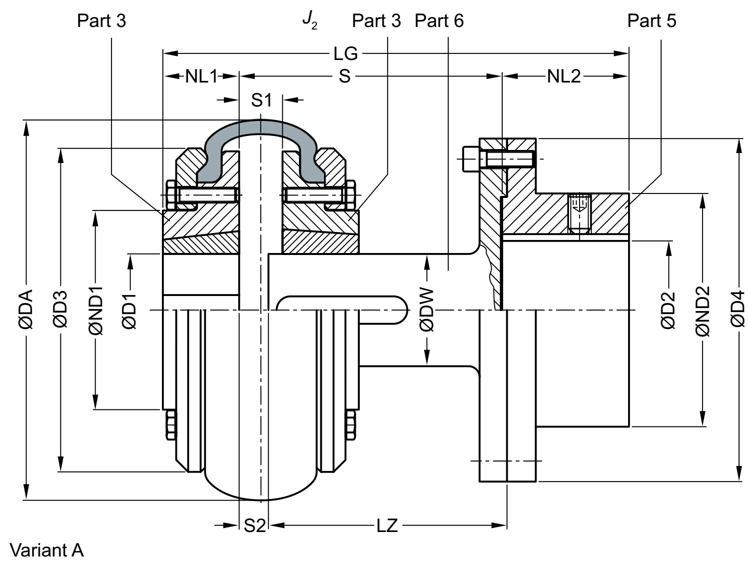
Article no.: **2LC0210-4AD99-0AA0-Z L1E+M0W**

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

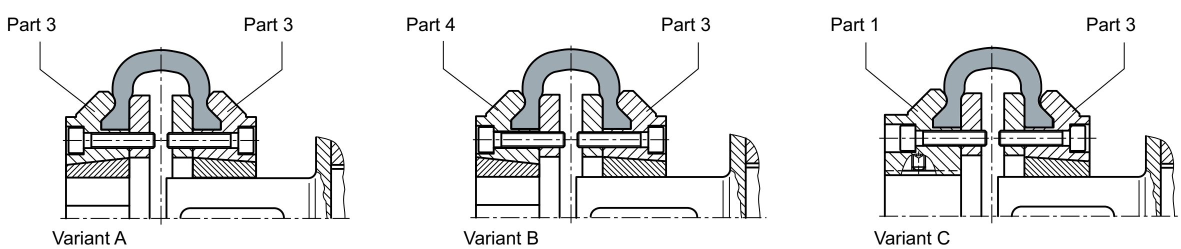
TYPE EBWZ

Sizes 190 ... 470

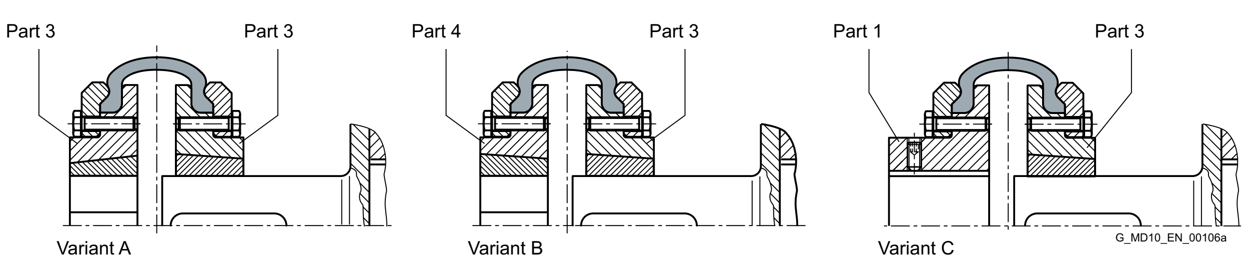


10

Sizes 105 ... 165



Sizes 190 ... 470



Part 3: Screw connection for Taper clamping bush from the shaft end face side

Part 4: Screw connection for Taper clamping bush from the machine-housing side

Size	Rated torque T_{KN} Nm	Dimensions in mm D1, D2 Keyway DIN 6885-1 min.	max.	DA	ND2	D4	DW	NL2	LZ	S min.	S max.	S1	S2 min.	Mass moment of inertia J_2 kgm²	↗ Article no. [1] Type A	B	C	Weight m kg
105	**24**	–	**42**	104	70	95	25	45	96 133	100 140	116 156	22	6	0.0027	**2LC0210-0AG**	**2LC0210-0AH**	**2LC0210-0AJ**	3.3
135	**66**	–	**55**	134	90	125	32	50	93 133	100 140	116 156	25	9	0.0085	**2LC0210-1AG**	**2LC0210-1AH**	**2LC0210-1AJ**	5.4
165	**125**	–	**55**	165	90	125	32	50	93 133	100 140	124 164	33	9	0.012	**2LC0210-2AG**	**2LC0210-2AH**	**2LC0210-2AJ**	6.2
190	**250**	–	**75**	187	125	180	48	80	93.5 133.5 173.5	100 140 180	114 154 194	23	9	0.046	**2LC0210-3AG**	**2LC0210-3AH**	**2LC0210-3AJ**	16
210	**380**	–	**75**	211	125	180	48	80	133.5 173.5	140 180	156 196	25	9	0.053	**2LC0210-4AG**	**2LC0210-4AH**	**2LC0210-4AJ**	17
235	**500**	–	**75**	235	125	180	48	80	133.5 173.5	140 180	158 198	27	9	0.056	**2LC0210-5AG**	**2LC0210-5AH**	**2LC0210-5AJ**	25
255	**680**	–	**90**	254	150	225	60	100	133.5 173.5	140 180	158 198	27	9	0.15	**2LC0210-6AG**	**2LC0210-6AH**	**2LC0210-6AJ**	29
280	**880**	–	**90**	280	150	225	60	100	133.5 173.5	140 180	156 196	25	9	0.17	**2LC0210-7AG**	**2LC0210-7AH**	**2LC0210-7AJ**	33
315	**1350**	46	**100**	314	165	250	80	110	134.5 174.5	140 180	160 200	29	9	0.28	**2LC0210-8AG**	**2LC0210-8AH**	**2LC0210-8AJ**	40
360	**2350**	46	**100**	359	165	250	80	110	134.5 174.5	140 180	163 203	32	9	0.43	**2LC0211-0AG**	**2LC0211-0AH**	**2LC0211-0AJ**	48
400	**3800**	51	**110**	402	180	280	90	120	223.5	230	250	30	10	0.88	**2LC0211-1AG**	**2LC0211-1AH**	**2LC0211-1AJ**	73
470	**6300**	51	**120**	470	200	315	100	140	207.5	214	250	46	10	0.97	**2LC0211-2AG**	**2LC0211-2AH**	**2LC0211-2AJ**	104

10

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- S min. 100 mm
  140 mm
  180 mm

Notes

- Dimensions D1, ND1, NL1, J1 and fitting space for dismounting elastic tire and Taper clamping bush, see types EBWN or EBWT, **Page 10/7** or **Page 10/8**
- The article no. applies to elastic tires made of natural rubber.
- Mass moment of inertia J_2 and weight *m* as total of part 3, part 5 and part 6 with maximum bore diameter.

Ordering example

- ELPEX-B EBWZ coupling, size 360
- variant C, for fitting length S min. = 190 mm
- Part 1: Bore 65H7 mm, keyway to DIN 6885-1 and set screw
- Part 5: Bore 70H7 mm, keyway to DIN 6885-1 and set screw

Article no.: 2LC0211-0AJ99-0AC0-Z L1F+M1G

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

SPARE AND WEAR PARTS

Elastic tire

Size	Article No.			
	Natural rubber Identification 048	Weight kg	Chloroprene rubber Identification 068 FRAS	Weight kg
105	2LC0210-0WA00-0AA0	0.1	2LC0210-0WA00-0AA0-Z K01	0.1
135	2LC0210-1WA00-0AA0	0.2	2LC0210-1WA00-0AA0-Z K01	0.2
165	2LC0210-2WA00-0AA0	0.4	2LC0210-2WA00-0AA0-Z K01	0.4
190	2LC0210-3WA00-0AA0	0.5	2LC0210-3WA00-0AA0-Z K01	0.5
210	2LC0210-4WA00-0AA0	0.8	2LC0210-4WA00-0AA0-Z K01	0.8
235	2LC0210-5WA00-0AA0	1	2LC0210-5WA00-0AA0-Z K01	1
255	2LC0210-6WA00-0AA0	1.2	2LC0210-6WA00-0AA0-Z K01	1.2
280	2LC0210-7WA00-0AA0	1.4	2LC0210-7WA00-0AA0-Z K01	1.4
315	2LC0210-8WA00-0AA0	2.6	2LC0210-8WA00-0AA0-Z K01	2.6
360	2LC0211-0WA00-0AA0	2.9	2LC0211-0WA00-0AA0-Z K01	2.9
400	2LC0211-1WA00-0AA0	3.1	2LC0211-1WA00-0AA0-Z K01	3.1
470	2LC0211-2WA00-0AA0	5.3	2LC0211-2WA00-0AA0-Z K01	5.3
510	2LC0211-3WA00-0AA0	7.8	2LC0211-3WA00-0AA0-Z K01	7.8
560	2LC0211-4WA00-0AA0	10.8	2LC0211-4WA00-0AA0-Z K01	10.8
630	2LC0211-5WA00-0AA0	12.4	2LC0211-5WA00-0AA0-Z K01	12.4

Note

- The elastic tires are wear parts.
  The service life depends on the operating conditions.

HIGHLY FLEXIBLE COUPLINGS – ELPEX-S SERIES

ELPEX-S
FLENDER

GENERAL

Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

CE Ex II 2G Ex h IIC T4 ... T3 Gb X

Ex II 2D Ex h IIIC T120 °C ... 160 °C Db X

Ex I M2 Ex h Mb X

(Type EST is not available in Ex version.)
ELPEX-S couplings are highly torsionally flexible and because of their low torsional stiffness and damping capacity are especially suitable for coupling machines with a highly non uniform torque pattern.
Standard ELPEX-S coupling types are designed as flange-shaft-connections or shaft-shaft connections.
Application-related types can be implemented on request.

Benefits

The ELPEX-S coupling is suitable for horizontal and vertical mounting positions or mounting at any required angle. The coupling parts can be arranged as required on the shafts to be connected.

ELPEX-S couplings are especially suitable for reversing operation or operation with changing directions of load.

The rubber disk elements are fitted virtually without backlash and give the coupling linear torsional stiffness, i.e. the torsion stiffness remains constant even when the load on the coupling increases.

There are 4 different rubber element versions with different grades of torsional stiffness available for each size from stock.

On certain types the flexible rings can be changed without having to move the coupled machines.

If substantial overload occurs, the rubber disk element of the coupling is irreparably damaged, the coupling throws the load and thus limits the overload for particular operating conditions. The coupling can be inserted and fitted blind e.g. in a bell housing.

There are outer flanges with different connection dimensions available for each coupling size.

Application

The ELPEX-S coupling is available as a catalog standard in 12 sizes with rated torques of between 330 Nm and 63000 Nm.

The coupling is suitable for ambient temperatures of between -40 °C and +120 °C.

The ELPEX-S coupling is frequently used for diesel motor drives or reciprocating compressor drives.

Because the different rubber versions enable the torsional stiffness to be adjusted to meet requirements, the coupling is also suitable for drives which require a specific and preferably precalculated torsional vibration behavior setting.

GENERAL

Design and configurations

The rubber disk element is vulcanized onto a flange on the inside diameter. The flange can mount e.g. a Taper clamping bush or a hub. On its outer diameter the rubber disk element has driving teeth, which are inserted into the outer flange. The torque is transmitted positively between the rubber disk element and the outer flange.

In the type for shaft-shaft connection the outer flange is screwed to a flange hub mounted on a machine shaft.

Materials

	Type EST	Types ESN. and ESD.
Rubber disk element	EN-GJL-250 grey cast iron/ elastomer	EN-GJL-400 spheroidal graphite cast iron/elastomer
Hubs, part 1, part 2	Steel	Steel
Outer flange	Cast aluminum Zn10Si8Mg Sizes 680 and 770 of spheroidal graphite cast iron EN-GJS-500	Cast aluminum Zn10Si8Mg Sizes 680 and 770 of spheroidal graphite cast iron EN-GJS-500

Elastomer materials of the rubber disk element

Material/ description	Hardness ShoreA	Marking	Ambient temperature
Natural-synthetic rubber mixture	50 ° ... 55 °	WN	-40 °C ... +80 °C
	60 ° ... 65 °	NN	-40 °C ... +80 °C
	70 ° ... 75 °	SN	-40 °C ... +80 °C
Silicone rubber	55 ° ... 65 °	NX	-40 °C ... +120 °C

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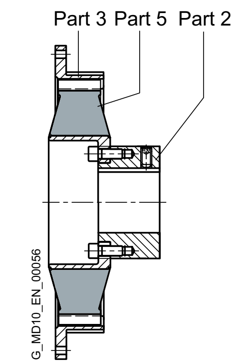
ELPEX-S coupling types

Type	Description
ESN	Coupling with hub, long or short version
ESD	Coupling with hub, with two rubber disk elements
ESNR	Coupling with hub, rubber disk element radially dismountable
ESDR	Coupling with hub with two rubber disk elements; rubber disk elements radially dismountable
ESNW	Coupling designed as a shaft-shaft connection with a rubber disk element; rubber disk element radially dismountable
ESDW	Coupling designed as a shaft-shaft connection with two rubber disk elements; rubber disk element radially dismountable
EST	Coupling suitable for mounting a Taper clamping bush

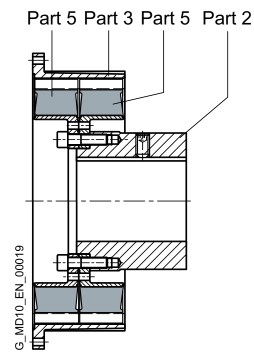
Further application-related coupling types are available. Dimension sheets for and information on these are available on request.

The following versions have already been implemented a number of times:

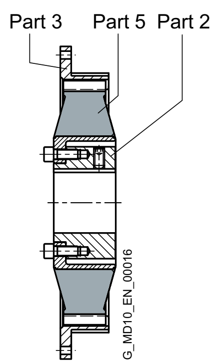
- ELPEX-S coupling with brake drum, brake disk or flywheel mass
- ELPEX-S coupling with axial backlash limiter
- ELPEX-S coupling with adapter
- ELPEX-S coupling with bearing for mounting a cardan shaft
- ELPEX-S coupling for engaging/disengaging during standstill
- ELPEX-S coupling as part of a coupling combination
- ELPEX-S coupling with fail-safe device



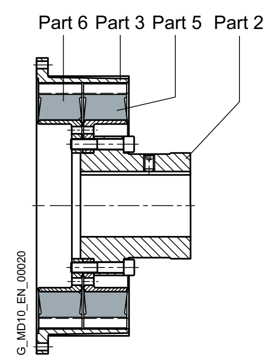
Type **ESN** – long version



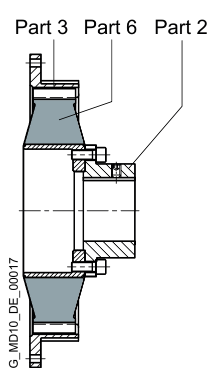
Type **ESD**



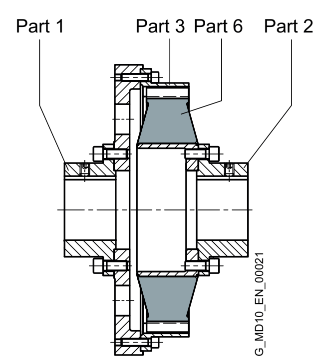
Type **ESN** – short version



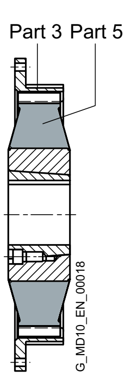
Type **ESDR**



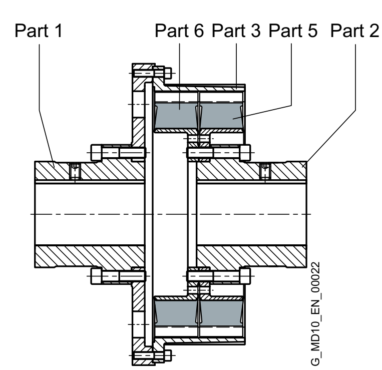
Type **ESNR**



Type **ESNW**



Type **EST**



Type **ESDW**

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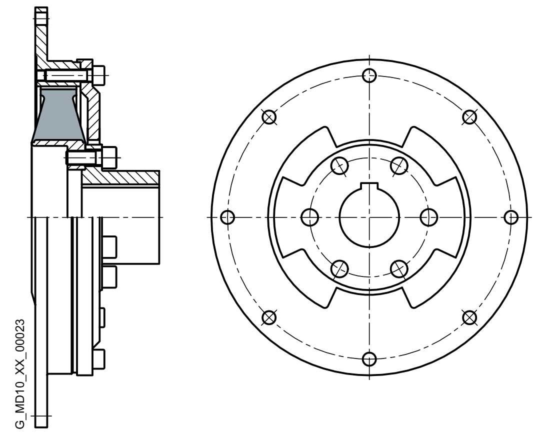
GENERAL

Fail-safe device of ELPEX-S coupling

The ELPEX-S coupling can also be designed with a fail-safe device. If the rubber disk element fails, the coupling can continue operating in emergency mode for a short time. This option is frequently required e.g. in the case of marine drives.

If the rubber disk element fails, cams transmit the torque from the inner and outer parts of the fail-safe device.

In normal operation the torsion angle of the rubber disk element is smaller than the gap between the cams, so there is no metal-metal contact.



Function

The ELPEX-S coupling's transmission characteristic is determined essentially by the rubber disk element. The torque is transmitted positively between the rubber disk element and the outer flange.

The outer flange can be bolted to e.g. a diesel motor or compressor flywheel.

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Configuration

Coupling selection

The ELPEX-S coupling is especially suitable for rough operating environments. An application factor lower than that in **the chapter introduction** is therefore sufficient for all applications.

In the case of machines which excite torsional vibration, Flender urgently recommends carrying out a torsional vibration calculation or measuring the coupling load occurring in the drive.

Coupling load in continuous operation

Application factor FB

	Torque characteristic of the driven machine		
	uniform with moderate shock loads	non uniform	very rough
Electric motors, hydraulic motors, gas and water turbines	1.0	1.3	1.4
Internal-combustion engines	1.3	1.4	1.6

Examples of torque characteristic in driven machines:
- uniform with moderate shock loads: Generators, fans, blowers
- non uniform: Reciprocating compressors, mixers, conveyor systems
- very rough: crushers, excavators, presses, mills

Temperature factor FT

Coupling	Rubber version	Elastomer material	Temperature T_a on the coupling -40 up to -30 °C	-30 up to +50 °C	up to 60 °C	up to 70 °C	up to 80 °C	up to 90 °C	up to 100 °C	up to 110 °C	up to 120 °C
ELPEX-S	SN, NN, WN	NR	1.1	1.0	1.25	1.40	1.60	–	–	–	–
	NX	VMQ	1.1	1.0	1.0	1.0	1.0	1.1	1.25	1.4	1.6

NR = Natural-synthetic rubber mixture
VMQ = Silicone rubber

Coupling size $T_{KN} \geq T_N \cdot FB \cdot FT$

Coupling load under maximum and overload conditions

The maximum torque is the highest load acting on the coupling in normal operation.
Maximum torques at a frequency of up to 25 times an hour are permitted and must be lower than the maximum coupling torque. Examples of maximum torque conditions are: Starting operations, stopping operations or usual operating conditions with maximum load.

$T_{Kmax} \geq T_{Max} \cdot FT$

Overload torques are maximum loads which occur only in combination with special, infrequent operating conditions. Examples of overload torque conditions are: Motor short circuit, emergency stop or blocking because of component breakage. Overload torques at a frequency of once a month are permitted and must be lower than the maximum overload torque of the coupling. The overload condition may last only a short while, i.e. fractions of a second.

$T_{KOL} \geq T_{OL} \cdot FT$

Coupling load due to dynamic torque load

Applying the frequency factor FF, the dynamic torque load must be lower than the coupling fatigue torque.

Dynamic torque load

$T_{KW} \geq T_W \cdot FF \cdot FF$

Frequency of the dynamic torque load
$f_{err} \leq 10$ Hz frequency factor FF = 1.0

Frequency of the dynamic torque load
$f_{err} > 10$ Hz frequency factor FF = $\sqrt{(f_{err}/10\ \text{Hz})}$

Operation in potentially explosive environments is subject to the following restriction:
Operation with low fatigue load

The fatigue torque TKW must be reduced by 70 %.
In these particular operating conditions the coupling satisfies the requirements of temperature class T4 D120 °C.
Operation with medium fatigue load

The fatigue torque T_{KW} must be reduced by 50 %. In these particular operating conditions the coupling satisfies the requirements of temperature class T3 D160 °C.

Type EST is not permitted for application in potentially explosive environments.

Checking the maximum speed

The following must apply to all load situations: $n_{Kmax} \geq n_{max}$
The maximum speed of a size depends only on the size of the outer flange (part 3).

Checking permitted shaft misalignment and restorative forces

For all load situations, the actual shaft misalignment must be less than the permitted shaft misalignment.

Checking bore diameter, mounting geometry and coupling design

The check must be made on the basis of the dimension tables.
On request, couplings with adapted geometry can be provided.

Checking shaft-hub connection

For any information on this, please refer to **Page E/18**.

Checking temperature and chemically aggressive environment

The permitted coupling temperature is specified in the Temperature Factor FT table. In the case of chemically aggressive environments, please consult the manufacturer.

GENERAL

Technical specifications

Type	Size	Rubber version	Rated torque T_{KN} Nm	Maximum torque T_{Kmax} Nm	Overload torque T_{KOL} Nm	Fatigue torque T_{KW} Nm	dynamic torsional stiffness C_{Tdyn} Nm/rad	Motor flange SAE J620d Size	Maximum speed n_{max} rpm
Performance data for rubber disk elements made of a mix of natural and synthetic rubber									
ESN . EST	**220**	WN	330	660	750	165	1600	6.5	4200
		NN	360	720	900	180	2500	7.5	4200
		SN	400	800	1000	200	4200	8	4200
								10	3600
ESN . EST	**265**	WN	500	1000	1250	250	2400	8	4200
		NN	600	1200	1800	300	3600	10	3600
		SN	700	1400	2100	350	6100	11.5	3500
ESN . EST	**290**	WN	800	1600	2000	400	3600	10	3600
		NN	900	1800	2700	450	5000	11.5	3500
		SN	1000	2000	3000	500	7500		
ESN . EST	**320**	WN	1200	2400	3000	600	8000	11.5	3500
		NN	1350	2700	3600	650	10000	14	3000
		SN	1550	3100	4200	750	13500		
ESN . EST	**360**	WN	1800	3600	4500	900	8500	11.5	3200
		NN	2000	4000	5400	1000	13000	14	3000
		SN	2500	5000	7500	1250	22000		
ESN . EST	**420**	WN	3100	6200	7700	1500	16000	14	3000
		NN	3450	6900	10000	1700	30000	16	2600
		SN	4200	8400	12600	2100	45000	18	2300
ESN . EST	**465**	WN	4600	9200	10000	2300	35000	14	3000
		NN	5200	10400	15600	2600	56000	16	2600
		SN	6300	12600	18900	3100	100000	18	2300
ESN .	**520**	WN	6200	12400	14000	3100	38000	18	2300
		NN	7000	14000	21000	3500	75000	21	2000
		SN	7800	15600	23400	3900	110000		
ESD .	**520**	WN	12400	24800	28000	6200	76000	18	2300
		NN	14000	28000	42000	7000	150000	21	2000
		SN	15600	31200	46800	7800	220000		
ESN .	**560**	WN	8000	16000	18000	4200	55000	18	2300
		NN	9000	18000	27000	4800	100000	21	2000
		SN	10000	20000	30000	5500	190000		
ESD .	**560**	WN	16000	32000	36000	8400	110000	18	2300
		NN	18000	36000	54000	9600	200000	21	2000
		SN	20000	40000	60000	11000	380000		

Performance data for rubber disk elements made of a mix of natural and synthetic rubber									
Type	Size	Rubber version	Rated torque T_{KN} Nm	Maximum torque T_{Kmax} Nm	Overload torque T_{KOL} Nm	Fatigue torque T_{KW} Nm	dynamic torsional stiffness C_{Tdyn} Nm/rad	Motor flange SAE J620d Size	Maximum speed $_{max}$ rpm
ESN .	**580**	WN	11000	22000	28000	5500	75000	18	2300
		NN	12500	25000	37000	6250	120000	21	2000
		SN	14000	28000	42000	7000	210000		
ESD .	**580**	WN	22000	44000	56000	11000	150000	21	2000
		NN	25000	50000	74000	12500	240000	24	1800
		SN	28000	56000	84000	14000	420000		
ESN .	**680**	WN	16000	32000	40000	8000	150000	21	2000
		NN	18000	36000	54000	9000	250000	24	1800
		SN	20000	40000	60000	10000	450000		
ESD .	**680**	WN	32000	64000	80000	16000	300000	21	2000
		NN	36000	72000	108000	18000	500000	24	1800
		SN	40000	80000	120000	20000	900000		
ESN .	**770**	WN	25000	50000	75000	12500	250000	similar to DIN 6288	1500
		NN	28000	56000	84000	14000	400000		
		SN	31500	63000	94000	15000	700000		
ESD .	**770**	WN	50000	100000	150000	25000	500000	similar to DIN 6288	1300
		NN	56000	112000	168000	28000	800000		
		SN	63000	126000	189000	30000	1400000		

Torsional stiffness and damping

Torsional stiffness depends on the ambient temperature and the frequency and amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn}.

For this reason calculation must be made with a tolerance for the dynamic stiffness of ± 20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

GENERAL

Technical specifications

Power ratings of the rubber disk elements made of silicone rubber							
Type	Size	Rubber version	Rated torque T_{KN} Nm	Maximum torque T_{Kmax} Nm	Overload torque T_{KOL} Nm	Fatigue torque T_{KW} (10 Hz) Nm	Dynamic torsional stiffness for 100 % load C_{Tdyn} Nm/rad
ESN .	220	NX	200	300	400	87	1.3
ESN .	265	NX	300	450	600	133	2.4
ESN .	290	NX	500	750	1000	213	4.2
ESN .	320	NX	770	1150	1530	320	9.2
ESN .	360	NX	1200	1800	2400	480	10
ESN .	420	NX	2000	3000	4000	800	23
ESN .	465	NX	3000	4500	6000	1200	60
ESN .	520	NX	4100	6100	8200	1600	65
ESD .	520	NX	8200	12300	16400	3200	130
ESN .	560	NX	5000	7500	10000	2200	100
ESD .	560	NX	10000	15000	20000	4400	200
ESN .	580	NX	6500	9750	13000	2667	160
ESD .	580	NX	13000	19500	26000	5867	310
ESN .	680	NX	10000	15000	20000	4000	280
ESD .	680	NX	20000	30000	40000	8000	550
ESN .	770	NX	15000	22500	30000	6000	620
ESD .	770	NX	30000	45000	60000	12000	1230

Torsional stiffness

The dynamic torsional stiffness of the silicone rubber elements is load-dependent and increases in proportion to the load. The values specified in the selection table represent 100 % loading. The following table shows the correction factors for different rated loads.

$C_{Tdyn} = C_{Tdyn}\ 100\ \% \cdot \mathrm{FKC}$

	Load T_N / T_{KN}						
	20%	50%	60%	70%	80%	100%	150%
Correction factor FKC	0.59	0.75	0.79	0.83	0.88	1	1.5

Torsional stiffness also depends on the ambient temperature and the frequency and amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

Damping coefficient

Damping coefficient of the rubber versions		
Rubber version	Hardness ShoreA	Damping coefficient Ψ
WN	55 ° ± 5 °	0.80
NN	65 ° ± 5 °	1.15
SN	75 ° ± 5 °	1.25
NX	60 ° ± 5 °	1.15

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn}. For this reason calculation must be made with a tolerance for the dynamic stiffness of ± 20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

Permitted shaft misalignment

The permitted shaft misalignment depends on the operating speed. As the speed increases, lower shaft misalignment values are permitted.

For fitting, the maximum gap dimension of S max. = S + ΔS and the minimum gap dimension of S min. = S – ΔS are permitted.

Size	Assembly	Permitted shaft misalignment at *n* = 1500 rpm		
	Shaft distance ΔS mm	Axial ΔK_a mm	Radial ΔK_r mm	Angle ΔK_w degree
220	1.3	0.2	1.2	0.5
265	1.3	0.2	1.2	0.5
290	1.5	0.2	1.2	0.5
320	1.5	0.2	1.2	0.5
360	1.5	0.2	1.2	0.5
420	1.5	0.3	1.3	0.4
465	1.7	0.3	1.3	0.4
520	1.7	0.3	1.4	0.4
560	1.7	0.3	1.4	0.4
580	1.8	0.4	1.5	0.3
680	1.8	0.4	1.5	0.3
770	2.0	0.5	1.5	0.3

The correction factors for different speeds are specified in the following table.

The maximum speed for the respective coupling size and type must be noted!

$\Delta K_{perm} = \Delta K_{1500} \cdot \text{FKV}$

	Speed in rpm			
	500	1000	1500	3000
Correction factor FKV	1.2	1.1	1.0	0.7

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GENERAL

Variants of the outer flange

The outer flange of sizes 220 to 680 is designed to fit the connection dimensions of the SAE J620d standard. The centering depth on the connection flange of the machine should be between 4 mm and 6.4 mm maximum.

Type	Size	Flange connection size	Figure
ESN	220	6.5	1
ESN	220	7.5	2
ESN, ESNR	265	8	
	360	11.5	
	465	14	
	580	18	
	680	21	
ESN	220	8, 10	3
ESN, ESNR	265	10, 11.5	
	290	all	
	320	all	
	360	14	
	420	all	
	465	16, 18	
	520	all	
	560	all	
	580	21	
	680	24	
ESNR	770	all	
ESD, ESDR	520	all	4
	560	all	
	580	all	
ESD, ESDR	680	21	5
ESD, ESDR	680	24	6
ESDR	770	all	

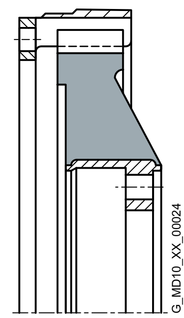


Figure 1

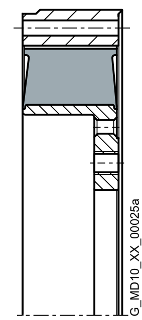


Figure 2

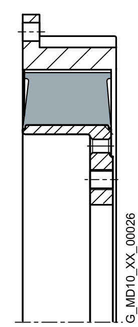


Figure 3

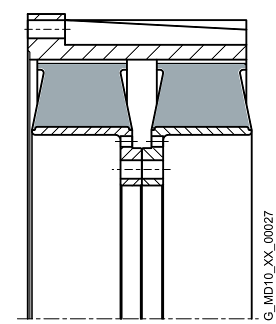


Figure 4

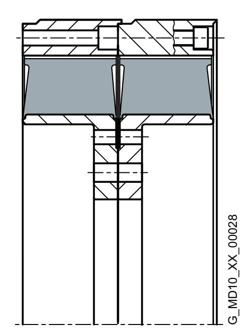


Figure 5

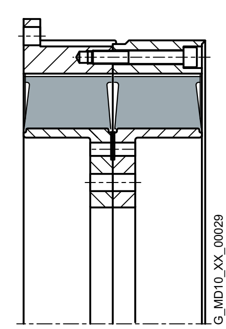
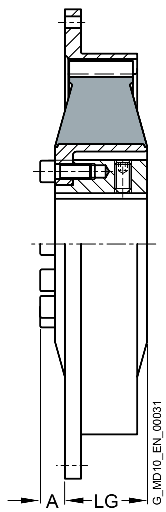
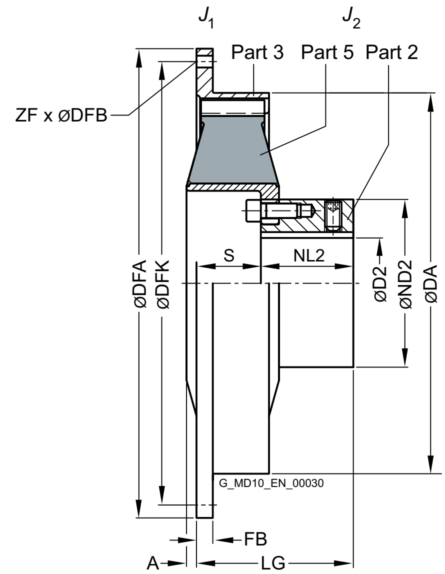


Figure 6

TYPE ESN



Short version



Long version

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Size	Dimensions in mm									Flange connection dimensions						Mass moment of inertia		↗ Article no. [1]		Weight
	D2 Keyway DIN 6885 max.	DA	ND2	NL2	short version A	short version LG	long version A	long version S	long version LG	SAE size	DFA g7	DFK	FB	ZF	DFB	J_1 kgm²	J_2 kgm²	Type short version	Type long version	*m* kg
220	60	222	98	54	-	-	0	49	103	6.5	215.9	200.0	6	6	8.5	0.008	0.01	–	2LC0220-0AB0	5.8
		237						40	94	7.5	241.3	222.3	33	8	8.5	0.011		–	2LC0220-0AB0	6.1
		222						40	94	8	263.5	244.5	8	6	10.5	0.011		–	2LC0220-0AB0	6.4
		222						40	94	10	314.3	295.3	8	8	10.5	0.017		–	2LC0220-0AB0	6.9
265	65	263	118	65	15	74	3	39	104	8	263.5	244.5	33	6	10.5	0.011	0.022	2LC0220-1AA0	2LC0220-1AB0	6.6
										10	314.3	295.3	10	8		0.017		2LC0220-1AA0	2LC0220-1AB0	6.9
										11.5	352.4	333.4	10	8		0.024		2LC0220-1AA0	2LC0220-1AB0	7.2
290	65	290	118	70	18	58	6	36	106	10	314.3	295.3	16	8	10.5	0.026	0.026	2LC0220-2AA0	2LC0220-2AB0	9.2
										11.5	352.4	333.4	16	8		0.036		2LC0220-2AA0	2LC0220-2AB0	10.5
320	80	318	140	87	15	96	2	70	157	11.5	352.4	333.4	16	8	10.5	0.062	0.061	2LC0220-3AA0	2LC0220-3AB0	19
										14	466.7	438.2	16	8	13	0.18		2LC0220-3AA0	2LC0220-3AB0	20.5
360	90	353.5	160	105	29	92	13	56	161	11.5	352.4	333.4	54	8	10.5	0.065	0.13	2LC0220-4AA0	2LC0220-4AB0	24.5
										14	466.7	438.2	15	8	13	0.18		2LC0220-4AA0	2LC0220-4AB0	27.5
420	100	420	185	102	26	92	10	72	174	14	466.7	438.2	18	8	13	0.22	0.32	2LC0220-5AA0	2LC0220-5AB0	36
										16	517.5	489.0	18	8	13	0.32		2LC0220-5AA0	2LC0220-5AB0	38
										18	571.5	542.9	18	6	17	0.47		2LC0220-5AA0	2LC0220-5AB0	40

Configurable variants [1]

• ØD2	Without finished bore With finished bore
• Rubber version	WN NN SN NX

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Dimensions in mm															Mass moment of inertia		↗ Article no. [1]		Weight
										Flange connection dimensions										
	D2 Keyway DIN 6885	DA	ND2	NL2	short version		long version			SAE size	DFA	DFK	FB	ZF	DFB	J_1	J_2	Type		m
					A	LG	A	S	LG									short version	long version	
	max.										g7					kgm²	kgm²			kg
465	**120**	465	222	125	33	92	2	39	164	14	466.7	438.2	85	8	13	0.31	0.58	2LC0220-6AA0	2LC0220-6AB0	56
										16	517.5	489.0	27	8	13	0.41		2LC0220-6AA0	2LC0220-6AB0	57
										18	571.5	542.9	18	6	17	0.52		2LC0220-6AA0	2LC0220-6AB0	61
520	**165**	514	250	142	16	159	0	83	225	18	571.5	542.9	18	12	17	0.48	0.93	2LC0220-7AA0	2LC0220-7AB0	55
										21	673.1	641.4	18	12		0.95		2LC0220-7AA0	2LC0220-7AB0	60
560	**200**	560	320	140	30	130	2.5	83	223	18	571.5	542.9	35	12	17	0.85	1.2	2LC0220-8AA0	2LC0220-8AB0	69
										21	673.1	641.4	20	12		1.8		2LC0220-8AA0	2LC0220-8AB0	78
580	**200**	580	316	200	23	215	0	100	300	18	571.5	542.9	104	12	17	0.77	1.8	2LC0221-0AA0	2LC0221-0AB0	100
										21	673.1	641.4	26	12		1.2		2LC0221-0AA0	2LC0221-0AB0	105
680	**220**	682	380	210	24	232	0	102	312	21	673.1	641.4	85	12	17	4.1	5.3	2LC0221-1AA0	2LC0221-1AB0	205
										24	733.4	692.2	20	12	21	5.3		2LC0221-1AA0	2LC0221-1AB0	215

Configurable variants [1]

• ØD2	Without finished bore With finished bore
• Rubber version	WN NN SN NX

Notes

- The rubber disk element cannot be dismounted until the machines have been moved.
- Weight and mass moments of inertia apply to maximum bore diameters.

Ordering example

- ELPEX-S ESN coupling, size 520, WN rubber element version
- Bore ØD2 = 150H7 mm, with keyway to DIN 6885 and set screw, outer flange to SAE J620d size 21

Short version article no.: **2LC0220-7AA09-1JA0-Z M1W**
Long version article no.: **2LC0220-7AB09-1JA0-Z M1W**

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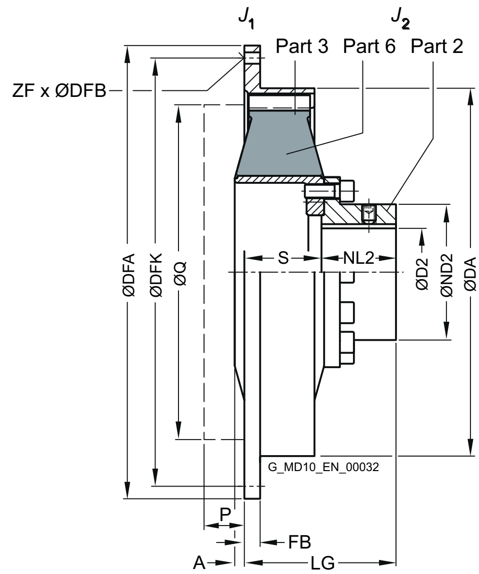
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ESNR



Size	Dimensions in mm									Flange connection dimensions						Mass moment of inertia		↗ Article no. [1]	Weight
	D2 Keyway DIN 6885 max.	DA	ND2	NL2	S	A	P	Q	LG	SAE size	DFA g7	DFK	FB	ZF	DFB	J_1 kgm²	J_2 kgm²		*m* kg
265	50	263	78	65	42	-	10	225	107	8	263.5	244.5	33	6	10.5	0.011	0.022	2LC0220-1AC0	5.0
										10	314.3	295.3	10	8		0.017		2LC0220-1AC0	5.3
										11.5	352.4	333.4	10	8		0.024		2LC0220-1AC0	5.6
290	50	290	78	65	59	2	15	276	124	10	314.3	295.3	16	8	10.5	0.026	0.026	2LC0220-2AC0	8.1
										11.5	352.4	333.4	16	8		0.036		2LC0220-2AC0	8.4
320	65	318	98	87	74	0	20	310	161	11.5	352.4	333.4	16	8	10.5	0.062	0.061	2LC0220-3AC0	13.5
										14	466.7	438.2	16	8	13	0.18		2LC0220-3AC0	16
360	85	353.5	123	88	77	9	28	314	165	11.5	352.4	333.4	54	8	10.5	0.065	0.13	2LC0220-4AC0	20
										14	466.7	438.2	15	8	13	0.18		2LC0220-4AC0	23
420	100	420	155	85	93	6	28	409	178	14	466.7	438.2	18	8	13	0.22	0.32	2LC0220-5AC0	31
										16	517.5	489.0	18	8	13	0.32		2LC0220-5AC0	32
										18	571.5	542.9	18	6	17	0.47		2LC0220-5AC0	35
465	130	465	190	119	88	-	15	409	207	14	466.7	438.2	85	8	13	0.31	0.58	2LC0220-6AC0	41
										16	517.5	489.0	27	8	13	0.41		2LC0220-6AC0	42
										18	571.5	542.9	18	6	17	0.52		2LC0220-6AC0	45

Configurable variants [1]

• ØD2	Without finished bore With finished bore
• Rubber version	WN NN SN NX

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Dimensions in mm									Flange connection dimensions						Mass moment of inertia		↗ Article no. [1]	Weight
	D2 Keyway DIN 6885 max.	DA	ND2	NL2	S	A	P	Q	LG	SAE size	DFA g7	DFK	FB	ZF	DFB	J_1 kgm²	J_2 kgm²		*m* kg
520	**150**	514	227	162	85	-	10	498	247	18	571.5	542.9	18	12	17	0.48	0.93	**2LC0220-7AC0**	59
										21	673.1	641.4	18	12		0.95		**2LC0220-7AC0**	64
560	**150**	560	240	180	99	-	10	498	279	18	571.5	542.9	35	12	17	0.85	1.2	**2LC0220-8AC0**	75
										21	673.1	641.4	20	12		1.8		**2LC0220-8AC0**	85
580	**160**	580	240	200	102	-	10	498	302	18	571.5	542.9	104	12	17	0.77	1.8	**2LC0221-0AC0**	80
										21	673.1	641.4	26	12		1.2		**2LC0221-0AC0**	84
680	**200**	682	300	210	102	-	10	584	312	21	673.1	641.4	85	12	17	4.1	5.3	**2LC0221-1AC0**	155
										24	733.4	692.2	20	12	21	5.3		**2LC0221-1AC0**	165
770	**260**	780	390	255	134	-	10	750	389	-	860.0	820.0	26	32	21	10.7	12	**2LC0221-2AC0**	330
											920.0	880.0	27	32	21	15.4		**2LC0221-2AC0**	350
											995.0	950.0	27	32	21	20.5		**2LC0221-2AC0**	375

Configurable variants [1]

• ØD2	Without finished bore With finished bore
• Rubber version	WN NN SN NX

Notes

- Weight and mass moments of inertia apply to maximum bore diameters.
- P, Q = required space for radial dismounting of the rubber disk element.

Ordering example

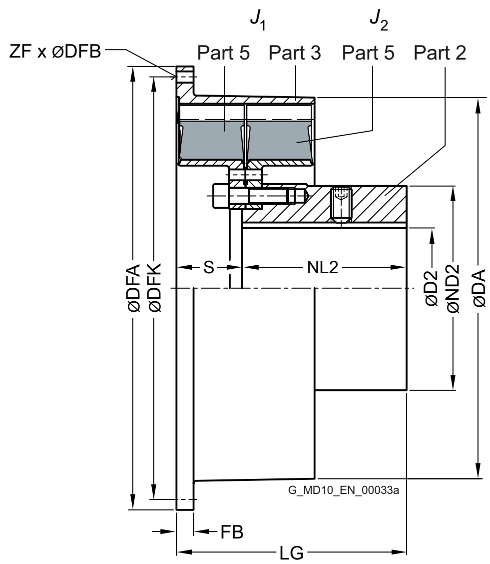
- ELPEX-S ESNR coupling, size 320, WN rubber element version
- Bore ØD2 = 50H7 mm, with keyway to DIN 6885 and set screw, outer flange to SAE J620d size 14

Article no.: 2LC0220-3AC09-1FA0-Z M1C

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ESD



Size	Dimensions in mm												Mass moment of inertia		↗ Article no. 1)	Weight
							Flange connection dimensions									
	D2 Keyway DIN 6885 max.	DA	ND2	NL2	S	LG	SAE size	DFA g7	DFK	FB	ZF	DFB	J_1 kgm²	J_2 kgm²		m kg
520	165	525	250	174	81	255	18	571.5	542.9	25	12	17	1	1.6	2LC0220-7AD0	85
							21	673.1	641.4	18	12	17	1.5		2LC0220-7AD0	90
560	170	560	316	210	60	270	18	571.5	542.9	35	12	17	1.7	2.8	2LC0220-8AD0	140
							21	673.1	641.4	25	12	17	2.6		2LC0220-8AD0	150
580	200	585	310	250	100	350	21	673.1	641.4	26	12	17	2	3.8	2LC0221-0AD0	170
							24	733.4	692.2	26	12	21	2.6		2LC0221-0AD0	175
680	220	682	380	250	17	267	21	673.1	641.4	85	12	17	8.2	7	2LC0221-1AD0	265
							24	733.4	692.2	20	12	21	9.4		2LC0221-1AD0	275

Configurable variants 1)

- ØD2 — Without finished bore; With finished bore
- Rubber version — WN; NN; SN; NX

Notes

- The rubber disk element cannot be dismounted until the machines have been moved.
- Weight and mass moments of inertia apply to maximum bore diameters.

Ordering example

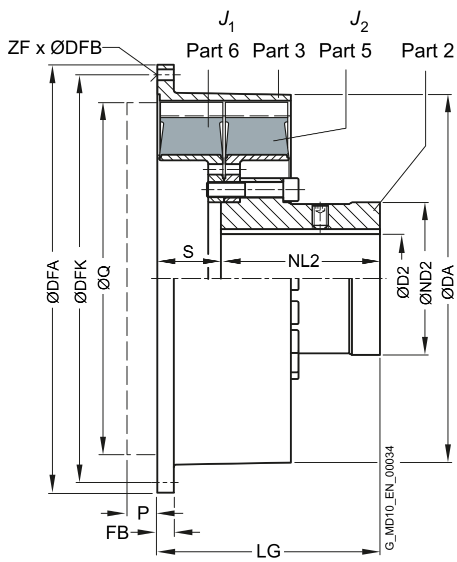
- ELPEX-S ESD coupling, size 680, WN rubber element version
- Bore ØD2 = 180H7 mm, with keyway to DIN 6885 and set screw, outer flange to SAE J620d size 24

Article no.: 2LC0221-1AD09-1KA0-Z M2B

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ESDR



Size	Dimensions in mm								Flange connection dimensions						Mass moment of inertia		↗ Article no. [1]	Weight
	D2 Keyway DIN 6885 max.	DA	ND2	NL2	S	P	Q	LG	SAE size	DFA g7	DFK	FB	ZF	DFB	J_1 kgm²	J_2 kgm²		m kg
520	**150**	525	227	226	83	10	498	309	18	571.5	542.9	25	12	17	1	1.8	**2LC0220-7AE0**	105
									21	673.1	641.4	18	12	17	1.5		**2LC0220-7AE0**	110
560	**160**	560	240	240	100	10	498	340	18	571.5	542.9	35	12	17	1.7	2.5	**2LC0220-8AE0**	135
									21	673.1	641.4	25	12	17	2.6		**2LC0220-8AE0**	140
580	**160**	585	240	250	100	10	560	350	21	673.1	641.4	26	12	17	2	3.2	**2LC0221-0AE0**	145
									24	733.4	692.2	26	12	21	2.6		**2LC0221-0AE0**	150
680	**200**	682	300	250	102	10	584	352	21	673.1	641.4	85	12	17	8.2	6.5	**2LC0221-1AE0**	260
									24	733.4	692.2	20	12	21	9.4		**2LC0221-1AE0**	270
770	**260**	780	390	300	200	10	750	500	-	860.0	820.0	19	32	21	22.3	20	**2LC0221-2AE0**	540
										920.0	880.0	27	32		26		**2LC0221-2AE0**	555
										995.0	950.0	27	32		31		**2LC0221-2AE0**	600

Configurable variants [1]

• ØD2	Without finished bore With finished bore
• Rubber version	WN NN SN NX

Notes

- Weight and mass moments of inertia apply to maximum bore diameters.
- P, Q = required space for radial dismounting of the rubber disk element.

Ordering example

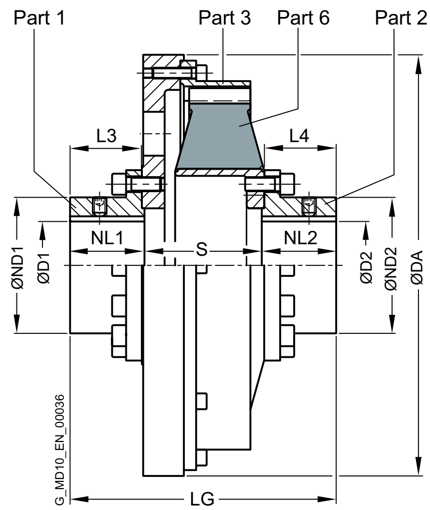
- ELPEX-S ESDR coupling, size 560, WN rubber element version
- Bore ØD2 = 120H7 mm, with keyway to DIN 6885 and set screw, outer flange to SAE J620d size 21

Article no.: **2LC0220-8AE09-1JA0-Z M1S**

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ESNW



Size	Dimensions in mm								Mass moment of inertia		↗ Article no. 1)	Weight
	D1/D2 Keyway DIN 6885 max.	DA	ND1/ND2	NL1/NL2	L3	L4	S	LG	J_1 kgm²	J_2 kgm²		*m* kg
265	**50**	275	78	65	62	66	68	198	0.11	0.017	**2LC0220-1AG**	15
290	**50**	325	78	65	62	68	89	219	0.21	0.028	**2LC0220-2AG**	22
320	**65**	365	98	87	84	92	105	279	0.37	0.042	**2LC0220-3AG**	32
360	**85**	365	123	88	85	96	123	299	0.45	0.11	**2LC0220-4AG**	43
420	**100**	480	155	85	82	94	134	304	1.5	0.3	**2LC0220-5AG**	75
465	**130**	480	190	119	116	119	125	363	1.6	0.54	**2LC0220-6AG**	89
520	**150**	585	227	162	159	161	123	447	4	0.94	**2LC0220-7AG**	155
560	**150**	585	240	180	174	174	132	492	4.1	1.2	**2LC0220-8AG**	160
580	**160**	685	240	200	195	198	145	545	5.5	1.6	**2LC0221-0AG**	185
680	**200**	685	300	210	205	201	150	570	12	3.6	**2LC0221-1AG**	315
770	**260**	870	390	255	250	253	180	690	27.2	12	**2LC0221-2AG**	500

Configurable variants 1)

• ØD1	Without finished bore With finished bore
• ØD2	Without finished bore With finished bore
• Rubber version	WN NN SN NX

Notes

- Weight and mass moments of inertia apply to maximum bore diameters.

Ordering example

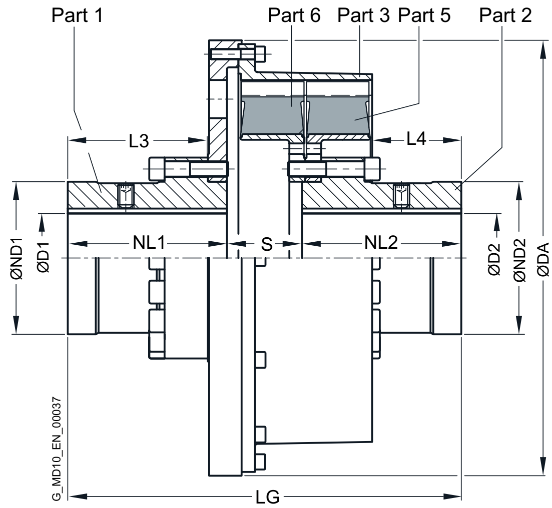
- ELPEX-S ESNW coupling, size 520, WN rubber element version
- Bore ØD1 140H7 mm, keyway to DIN 6885 and set screw
- Bore ØD2 120H7 mm, keyway to DIN 6885 and set screw

Article no.: 2LC0220-7AG99-1AA0-Z L1V+M1S

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE ESDW



Size	Dimensions in mm								Mass moment of inertia		↗ Article no. [1]	Weight
	D1/D2 Keyway DIN 6885 max.	DA	ND1/ND2	NL1/NL2	L3	L4	S	LG	J_1 kgm²	J_2 kgm²		m kg
520	150	585	227	226	201	135	100	552	4.7	1.8	2LC0220-7AH	215
560	160	585	240	240	215	133	114	594	5.4	2.5	2LC0220-8AH	250
580	160	685	240	250	220	140	120	620	10.1	3.2	2LC0221-0AH	300
680	200	685	300	250	218	134	125	625	14.5	6.5	2LC0221-1AH	440
770	260	870	390	300	265	238	220	820	40	20	2LC0221-2AH	720

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Configurable variants [1]

• ØD1	Without finished bore With finished bore
• ØD2	Without finished bore With finished bore
• Rubber version	WN NN SN NX

Notes

- Weight and mass moments of inertia apply to maximum bore diameters.

Ordering example

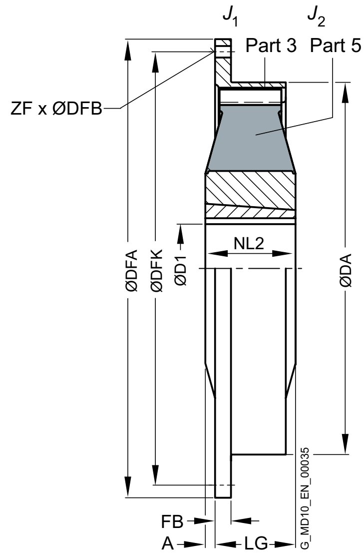
- ELPEX-S ESDW coupling, size 520, WN rubber element version
- Bore ØD1 140H7 mm, keyway to DIN 6885 and set screw
- Bore ØD2 120H7 mm, keyway to DIN 6885 and set screw

Article no.: 2LC0220-7AH99-1AA0-Z L1V+M1S

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE EST



Size	Taper Clamping Bush Size	Dimensions in mm						Flange connection dimensions						Mass moment of inertia		↗ Article no. 1)	Weight
		D1 Keyway DIN 6885 min.	max.	DA	NL2	A	LG	SAE size	DFA	DFK	FB	ZF	DFB	J_1 kgm²	J_2 kgm²		m kg
220	2012	14	**50**	222	32	0	52	6.5	215.9	200.0	6	6	8.5	0.008	0.008	**2LC0220-0AF0**	3.6
							43	7.5	241.3	222.3	33	8	8.5	0.008		**2LC0220-0AF0**	3.5
								8	263.5	244.5	8	6	10.5	0.011		**2LC0220-0AF0**	3.7
								10	314.3	295.3	8	8	10.5	0.020		**2LC0220-0AF0**	4.2
265	2517	16	**60**	263	45	3	42	8	263.5	244.5	33	6	10.5	0.011	0.019	**2LC0220-1AF0**	5.9
								10	314.3	295.3	10	8		0.017		**2LC0220-1AF0**	6.2
								11.5	352.4	333.4	10	8		0.024		**2LC0220-1AF0**	6.5
290	2517	16	**60**	290	64	6	58	10	314.3	295.3	16	8	10.5	0.026	0.026	**2LC0220-2AF0**	8.5
								11.5	352.4	333.4	16	8		0.036		**2LC0220-2AF0**	8.8
320	3030	35	**75**	318	76	2	73	11.5	352.4	333.4	16	8	10.5	0.062	0.06	**2LC0220-3AF0**	14
								14	466.7	438.2	16	8	13	0.18		**2LC0220-3AF0**	17
360	3535	35	**90**	353.5	89	13	76	11.5	352.4	333.4	54	8	10.5	0.065	0.13	**2LC0220-4AF0**	21
								14	466.7	438.2	15	8	13	0.18		**2LC0220-4AF0**	24
420	4040	40	**100**	420	102	10	92	14	466.7	438.2	18	8	13	0.22	0.33	**2LC0220-5AF0**	37
								16	517.5	489.0	18	8	13	0.32		**2LC0220-5AF0**	38
								18	571.5	542.9	18	6	17	0.47		**2LC0220-5AF0**	41
465	4545	55	**110**	465	115	28	87	14	466.7	438.2	85	8	13	0.31	0.76	**2LC0220-6AF0**	63
								16	517.5	489.0	27	8	13	0.41		**2LC0220-6AF0**	64
								18	571.5	542.9	18	6	17	0.52		**2LC0220-6AF0**	68

Configurable variants 1)

- ØD1 — Without finished bore; With finished bore
- Rubber version — WN; NN; SN; NX

Notes

- The rubber disk element cannot be dismounted until the machines have been moved.
- Weight and mass moments of inertia apply to maximum bore diameters.

Ordering example

- ELPEX-S EST coupling, size 265, WN rubber element version, with Taper clamping bush size 2517
- Bore ØD2 = 30 mm, outer flange to SAE J620d size 10

Article no.: 2LC0220-1AF99-1DA0-Z M0S

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

SPARE AND WEAR PARTS

Rubber disk elements

Size	↗ Article No. set of rubber disk elements for a coupling					
	Coupling type					
	EST		ESN	ESNR, ESNW	ESD	ESDR, ESDW
	without Taper clamping bush	with Taper clamping bush				
WN rubber version						
220	2LC0220-0XL10-1AA0	2LC0220-0XL90-1AA0	2LC0220-0XJ00-1AA0			
265	2LC0220-1XL10-1AA0	2LC0220-1XL90-1AA0	2LC0220-1XJ00-1AA0	2LC0220-1XM00-1AA0		
290	2LC0220-2XL10-1AA0	2LC0220-2XL90-1AA0	2LC0220-2XJ00-1AA0	2LC0220-2XM00-1AA0		
320	2LC0220-3XL10-1AA0	2LC0220-3XL90-1AA0	2LC0220-3XJ00-1AA0	2LC0220-3XM00-1AA0		
360	2LC0220-4XL10-1AA0	2LC0220-4XL90-1AA0	2LC0220-4XJ00-1AA0	2LC0220-4XM00-1AA0		
420	2LC0220-5XL10-1AA0	2LC0220-5XL90-1AA0	2LC0220-5XJ00-1AA0	2LC0220-5XM00-1AA0		
465	2LC0220-6XL10-1AA0	2LC0220-6XL90-1AA0	2LC0220-6XJ00-1AA0	2LC0220-6XM00-1AA0		
520			2LC0220-7XJ00-1AA0	2LC0220-7XM00-1AA0	2LC0220-7XK00-1AA0	2LC0220-7XN00-1AA0
560			2LC0220-8XJ00-1AA0	2LC0220-8XM00-1AA0	2LC0220-8XK00-1AA0	2LC0220-8XN00-1AA0
580			2LC0221-0XJ00-1AA0	2LC0221-0XM00-1AA0	2LC0221-0XK00-1AA0	2LC0221-0XN00-1AA0
680			2LC0221-1XJ00-1AA0	2LC0221-1XM00-1AA0	2LC0221-1XK00-1AA0	2LC0221-1XN00-1AA0
770				2LC0221-2XM00-1AA0		2LC0221-2XN00-1AA0
NN rubber version						
220	2LC0220-0XL10-2AA0	2LC0220-0XL90-2AA0	2LC0220-0XJ00-2AA0			
265	2LC0220-1XL10-2AA0	2LC0220-1XL90-2AA0	2LC0220-1XJ00-2AA0	2LC0220-1XM00-2AA0		
290	2LC0220-2XL10-2AA0	2LC0220-2XL90-2AA0	2LC0220-2XJ00-2AA0	2LC0220-2XM00-2AA0		
320	2LC0220-3XL10-2AA0	2LC0220-3XL90-2AA0	2LC0220-3XJ00-2AA0	2LC0220-3XM00-2AA0		
360	2LC0220-4XL10-2AA0	2LC0220-4XL90-2AA0	2LC0220-4XJ00-2AA0	2LC0220-4XM00-2AA0		
420	2LC0220-5XL10-2AA0	2LC0220-5XL90-2AA0	2LC0220-5XJ00-2AA0	2LC0220-5XM00-2AA0		
465	2LC0220-6XL10-2AA0	2LC0220-6XL90-2AA0	2LC0220-6XJ00-2AA0	2LC0220-6XM00-2AA0		
520			2LC0220-7XJ00-2AA0	2LC0220-7XM00-2AA0	2LC0220-7XK00-2AA0	2LC0220-7XN00-2AA0
560			2LC0220-8XJ00-2AA0	2LC0220-8XM00-2AA0	2LC0220-8XK00-2AA0	2LC0220-8XN00-2AA0
580			2LC0221-0XJ00-2AA0	2LC0221-0XM00-2AA0	2LC0221-0XK00-2AA0	2LC0221-0XN00-2AA0
680			2LC0221-1XJ00-2AA0	2LC0221-1XM00-2AA0	2LC0221-1XK00-2AA0	2LC0221-1XN00-2AA0
770				2LC0221-2XM00-2AA0		2LC0221-2XN00-2AA0
SN rubber version						
220	2LC0220-0XL10-3AA0	2LC0220-0XL90-3AA0	2LC0220-0XJ00-3AA0			
265	2LC0220-1XL10-3AA0	2LC0220-1XL90-3AA0	2LC0220-1XJ00-3AA0	2LC0220-1XM00-3AA0		
290	2LC0220-2XL10-3AA0	2LC0220-2XL90-3AA0	2LC0220-2XJ00-3AA0	2LC0220-2XM00-3AA0		
320	2LC0220-3XL10-3AA0	2LC0220-3XL90-3AA0	2LC0220-3XJ00-3AA0	2LC0220-3XM00-3AA0		
360	2LC0220-4XL10-3AA0	2LC0220-4XL90-3AA0	2LC0220-4XJ00-3AA0	2LC0220-4XM00-3AA0		
420	2LC0220-5XL10-3AA0	2LC0220-5XL90-3AA0	2LC0220-5XJ00-3AA0	2LC0220-5XM00-3AA0		
465	2LC0220-6XL10-3AA0	2LC0220-6XL90-3AA0	2LC0220-6XJ00-3AA0	2LC0220-6XM00-3AA0		
520			2LC0220-7XJ00-3AA0	2LC0220-7XM00-3AA0	2LC0220-7XK00-3AA0	2LC0220-7XN00-3AA0
560			2LC0220-8XJ00-3AA0	2LC0220-8XM00-3AA0	2LC0220-8XK00-3AA0	2LC0220-8XN00-3AA0
580			2LC0221-0XJ00-3AA0	2LC0221-0XM00-3AA0	2LC0221-0XK00-3AA0	2LC0221-0XN00-3AA0
680			2LC0221-1XJ00-3AA0	2LC0221-1XM00-3AA0	2LC0221-1XK00-3AA0	2LC0221-1XN00-3AA0
770				2LC0221-2XM00-3AA0		2LC0221-2XN00-3AA0
NX rubber version						
220	2LC0220-0XL10-4AA0	2LC0220-0XL90-4AA0	2LC0220-0XJ00-4AA0			
265	2LC0220-1XL10-4AA0	2LC0220-1XL90-4AA0	2LC0220-1XJ00-4AA0	2LC0220-1XM00-4AA0		
290	2LC0220-2XL10-4AA0	2LC0220-2XL90-4AA0	2LC0220-2XJ00-4AA0	2LC0220-2XM00-4AA0		
320	2LC0220-3XL10-4AA0	2LC0220-3XL90-4AA0	2LC0220-3XJ00-4AA0	2LC0220-3XM00-4AA0		
360	2LC0220-4XL10-4AA0	2LC0220-4XL90-4AA0	2LC0220-4XJ00-4AA0	2LC0220-4XM00-4AA0		
420	2LC0220-5XL10-4AA0	2LC0220-5XL90-4AA0	2LC0220-5XJ00-4AA0	2LC0220-5XM00-4AA0		
465	2LC0220-6XL10-4AA0	2LC0220-6XL90-4AA0	2LC0220-6XJ00-4AA0	2LC0220-6XM00-4AA0		
520			2LC0220-7XJ00-4AA0	2LC0220-7XM00-4AA0	2LC0220-7XK00-4AA0	2LC0220-7XN00-4AA0
560			2LC0220-8XJ00-4AA0	2LC0220-8XM00-4AA0	2LC0220-8XK00-4AA0	2LC0220-8XN00-4AA0
580			2LC0221-0XJ00-4AA0	2LC0221-0XM00-4AA0	2LC0221-0XK00-4AA0	2LC0221-0XN00-4AA0
680			2LC0221-1XJ00-4AA0	2LC0221-1XM00-4AA0	2LC0221-1XK00-4AA0	2LC0221-1XN00-4AA0
770				2LC0221-2XM00-4AA0		2LC0221-2XN00-4AA0

Notes

- The ELPEX-S coupling rubber disk elements are wear parts. The service life depends on the operating conditions.

HIGHLY FLEXIBLE COUPLINGS – ELPEX SERIES

ELPEX
FLENDER

GENERAL

ELPEX couplings are highly torsionally flexible and free of torsional backlash. Because of their low torsional stiffness and damping capacity, ELPEX couplings are especially suitable for coupling machines with a very non uniform torque pattern. ELPEX couplings are also suitable for connecting machines with high shaft misalignment. Standard ELPEX coupling types are designed as shaft-shaft connections or flange-shaft connections. Application-related types can be implemented on request.

Benefits

The ELPEX coupling is suitable for horizontal and vertical mounting positions or mounting at any required angle. The coupling parts can be arranged as required on the shafts to be connected.

The split flexible rings can be changed without having to move the coupled machines.

The flexible rings are mounted without backlash and give the coupling progressive torsional stiffness, i.e. torsional stiffness increases in proportion to coupling load.

The ELPEX coupling is especially suitable for reversing operation or operation with changing directions of load.

The coupling is delivered preassembled. The flexible rings are completely assembled. On the type ENG, the coupling halves have to be bolted together after the hub has been mounted. On the type EFG, after mounting the coupling hub, only the outer flange has to be connected to the machine.

Outer flanges with different connection dimensions are available for the type EFG.

If the flexible rings are irreparably damaged or worn, the metal parts can rotate freely against one another, they are not in contact with one another.

Application

The ELPEX coupling is available in 9 sizes with a nominal torque of between 1600 Nm and 90000 Nm. The coupling is suitable for ambient temperatures of between -40 °C and +80 °C.

The ELPEX coupling is frequently used for high-quality drives which have to guarantee very long service life in harsh operating conditions.

Examples of applications are mill drives in the cement industry, marine main and secondary drives or drives on large excavators powered by an electric motor or diesel engine.

GENERAL

Design and configurations

The ELPEX coupling's transmission characteristic is determined essentially by the flexible rings. The flexible rings are manufactured from a natural rubber mixture with a multiply fabric lining. The flexible rings are split so that they can be changed without having to move the coupled machines.

The flexible rings are fastened to the hub with a clamping ring and to the outer flange with a clamping ring, using pins and bolts.

On the EFG type, the outer flange is designed with connection dimensions for connection to e.g. a diesel engine flywheel. On ENG types, the outer flange is fitted to a second hub part, which then enables the shaft-shaft connection.

Materials

	Type Cast iron	Steel
Hub part 1	Grey cast iron EN-GJL-250	Steel
Hub part 2	Steel	Steel
Retaining ring, outer ENG, ENGS	Grey cast iron EN-GJL-250	Steel
Outer flange EFG, EFGS	Grey cast iron EN-GJL-250	Steel

Flexible ring materials

Material/ Description	Hardness	Marking	Ambient temperature
Natural rubber	70 ShoreA	Size - 2	-40 ... +80 °C

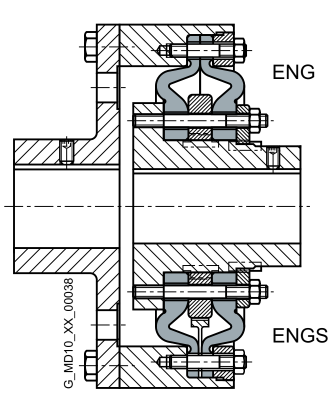
ELPEX coupling types

Type	Description
ENG	Coupling as shaft-shaft connection
EFG	Coupling as flange-shaft connection
ENGS	as ENG with fail-safe device
EFGS	as EFG with fail-safe device

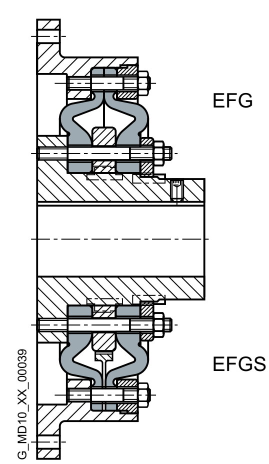
Further application-specific coupling types are available. Dimension sheets for and information on these are available on request.

The following versions have already been implemented a number of times:

- ELPEX coupling with brake drum, brake disk or flywheel mass
- ELPEX coupling with axial backlash limiter
- ELPEX coupling with adapter
- ELPEX coupling in combination with a safety slip clutch
- ELPEX coupling for engaging/disengaging during stand-still ELPEX coupling as part of a coupling combination



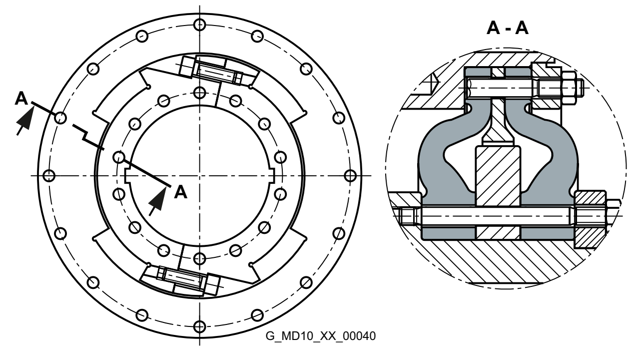
Types ENG/ENGS



Types EFG/EFGS

Fail-safe device of ELPEX coupling

Types ENGS and EFGS are provided with a fail-safe device. In normal operation the torsion angle of the flexible rings is smaller than the gap between the cams. In normal operation there is no metal-metal contact.
If the flexible rings fail, cams transmit the torque from the inner part and outer part. These enable the coupling to be used in emergency mode for a short time. This option is frequently required e.g. in the case of marine drives.



Fail-safe device

Configuration

Coupling selection

The ELPEX-S coupling is especially suitable for rough operating environments. An application factor lower than that in **Chapter E** is therefore sufficient for all applications.

In the case of machines which excite torsional vibration, Flender urgently recommends carrying out a torsional vibration calculation or measuring the coupling load occurring in the drive.

Coupling load in continuous operation

The operating principles of the driving and driven machines are divided into categories and the application factor FB derived from these in accordance with DIN 3990-1.

Application factor FB

	Torque characteristic of the driven machine		
	uniform with moderate shock loads	non uniform	very rough
Electric motors, hydraulic motors, gas and water turbines	1.0	1.3	1.4
Internal-combustion engines	1.3	1.4	1.6

Temperature factor FT

Coupling	Elastomer material	Temperature T_a on the coupling				
		-40 up to -30 °C	-30 up to +50 °C	up to 60 °C	up to 70 °C	up to 80 °C
ELPEX	NR	1.1	1.0	1.25	1.40	1.60

NR = Natural rubber mixture

Coupling size $T_{KN} \geq T_N \cdot FB \cdot FT$

Examples of torque characteristic in driven machines:

- uniform with moderate shock loads: Generators, fans, blowers
- non uniform: Reciprocating compressors, mixers, conveyor systems
- very rough: crushers, excavators, presses, mills

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GENERAL

Coupling load under maximum and overload conditions

The maximum torque is the highest load acting on the coupling in normal operation.
Maximum torques at a frequency of up to 25 times an hour are permitted and must be lower than the maximum coupling torque. Examples of maximum torque conditions are: Starting operations, stopping operations or usual operating conditions with maximum load.

$T_{Kmax} \geq T_{Max} \cdot FT$

Overload torques are maximum loads which occur only in combination with special, infrequent operating conditions. Examples of overload torque conditions are: Motor short circuit, emergency stop or blocking because of component breakage. Overload torques at a frequency of once a month are permitted and must be lower than the maximum overload torque of the coupling. The overload condition may last only a short while, i.e. fractions of a second.

$T_{KOL} \geq T_{OL} \cdot FT$

Coupling load due to dynamic torque load

Applying the frequency factor FF, the dynamic torque load must be lower than the coupling fatigue torque.

Dynamic torque load

$T_{KW} \geq T_{W} \cdot FT \cdot FF$

Frequency of the dynamic torque load
$f_{err} \leq 10$ Hz frequency factor FF = 1.0

Frequency of the dynamic torque load
$f_{err} > 10$ Hz frequency factor FF = $\sqrt{(f_{err}/10\ \text{Hz})}$

Checking the maximum speed

For all load situations $n_{Kmax} \geq n_{max}$

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Checking permitted shaft misalignment and restorative forces

For all load situations, the actual shaft misalignment must be less than the permitted shaft misalignment.

Checking bore diameter, mounting geometry and coupling design

The check must be made on the basis of the dimension tables. On request, couplings with adapted geometry can be provided.

Checking shaft-hub connection

For any information on this, please refer to **Page E/18**.

Checking low temperature and chemically aggressive environment

The permitted coupling temperature is specified in the Temperature Factor FT table. In the case of chemically aggressive environments, please consult the manufacturer.

Technical specifications

Power ratings of the ELPEX series										
Size	Rated torque	Maximum torque	Overload torque	Fatigue torque	Dynamic torsional stiffness for 100 % load	Stiffness		Permitted shaft misalignment at speed n = 1500 rpm		
						Axial	Radial	Axial	Radial	Angle
	T_{KN} Nm	T_{Kmax} Nm	T_{KOL} Nm	T_{KW} Nm	C_{Tdyn} kNm/rad	C_a N/mm	C_r mm	ΔK_a mm	ΔK_r mm	ΔK_w °
270	1600	4800	6400	640	22	660	770	2.2	2.2	0.2
320	2800	8400	11200	1120	38	780	910	2.6	2.6	0.2
375	4500	13500	18000	1800	63	970	1130	3	3	0.2
430	7100	21300	28400	2840	97	1160	1350	3.4	3.4	0.2
500	11200	33600	44800	4480	155	1410	1630	3.8	3.8	0.2
590	18000	54000	72000	7200	240	1710	1990	4.2	4.2	0.2
690	28000	84000	112000	11200	365	2060	2390	4.6	4.6	0.2
840	45000	135000	180000	18000	685	2570	2990	5	5	0.2
970	90000	270000	360000	36000	1100	3020	3510	5.5	5.5	0.2

Torsional stiffness and damping

The dynamic torsional stiffness is load-dependent and increases in proportion to capacity utilization. The values specified in the selection table apply to a capacity utilization of 100 %. The following table shows the correction factors for different rated loads.

$C_{Tdyn} = C_{Tdyn\,1000\,\%} \cdot \mathrm{FKC}$

	Load T_N / T_{KN}						
	20%	50%	60%	70%	80%	100%	200%
Correction factor FKC	0.3	0.56	0.65	0.74	0.82	1	1.9

The damping coefficient is Ψ = 1.1

Torsional stiffness also depends on the ambient temperature and the frequency and amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn}. For this reason calculation must be made with a tolerance for the dynamic stiffness of ± 20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

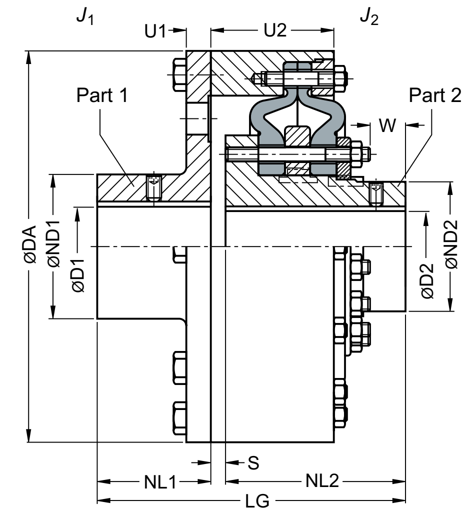
Permitted shaft misalignment

The permitted shaft misalignment depends on the operating speed. As the speed increases, lower shaft misalignment values are permitted. The correction factors for different speeds are specified in the following table. The maximum speed for the respective coupling size must be noted!

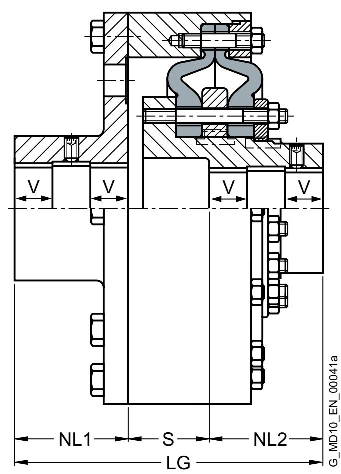
$\Delta K_{perm} = \Delta K_{1500} \cdot \mathrm{FKV}$

	Speed in rpm			
	500	1000	1500	3000
Correction factor FKV	1.6	1.25	1.0	0.7

TYPE ENG



Sizes 270 ... 430



Sizes 500 ... 970

Size	Rated torque	Maximum speed Type		Dimensions in mm														Mass moment of inertia		Article no. 1)		Weight
		Cast iron	Steel	Keyway DIN 6885																Type		
	T_{KN}	n_{Kmax}	n_{Kmax}	D1		D2		DA	ND1	ND2	NL1	NL2	S	U1	U2	W	LG	J_1	J_2	Cast iron	Steel	m
	Nm	rpm	rpm	min.	max.	min.	max.											kgm²	kgm²			kg
270	1600	3000	4250	45	**80**	45	**70**	270	128	94	80	155	10	14	86	42	245	0.21	0.037	**2LC0200-3AF**	**2LC0200-3AL**	29
320	2800	2500	3600	55	**100**	55	**85**	320	160	115	100	180	6	16	97.5	48	286	0.49	0.082	**2LC0200-4AF**	**2LC0200-4AL**	50
375	4500	2100	3100	65	**115**	65	**105**	375	184	143	120	205	10	18	111.8	62	335	1.0	0.21	**2LC0200-5AF**	**2LC0200-5AL**	80
430	7100	1900	2650	75	**130**	75	**120**	430	208	165	140	235	8	22	126	68	383	2.0	0.37	**2LC0200-6AF**	**2LC0200-6AL**	113
500	11200	1600	2300	90	**150**	90	**150**	500	240	202	160	160	112	25	139.7	80	432	3.9	0.85	**2LC0200-7AF**	**2LC0200-7AL**	174
590	18000	1360	2000	100	**140**	100	**170**	590	224	230	190	190	130	28	162.7	95	510	8.2	1.7	**2LC0200-8AF**	**2LC0200-8AL**	254
				140	**180**				288									8.4				284
690	28000	1200	1650	110	**140**	110	**200**	690	224	278	220	220	140	32	175.6	102	580	16.3	3.7	**2LC0201-0AF**	**2LC0201-0AL**	350
				140	**180**				288									16.8				370
				180	**210**				336									16.9				385
840	45000	1000	1350	140	**180**	140	**240**	840	288	340	280	280	125	42	231	105	685	49	11	**2LC0201-1AF**	**2LC0201-1AL**	700
				180	**220**				352									50				725
970	90000	850	1180	160	**200**	160	**280**	970	320	390	350	350	167	70	290	137	867	104	26	**2LC0201-2AF**	**2LC0201-2AL**	1265
				200	**240**				384									106				1310
				240	**280**				448									110				1350
				280	**320**				512									115				1410

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Notes

- The hub diameter of the component part is assigned according to the diameter of the finished bore. Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weights and mass moments of inertia apply to cast iron version with maximum bore.
- From size 500, the bores D1 and D2 are each provided with a recess of D = +1 mm halfway along the hub. V ≈ 1/3 NL.

Ordering example

- ELPEX ENG coupling, size 690, cast iron version
- Bore ØD1 = 180H7 mm with keyway to DIN 6885 and set screw, the hub diameter ND1 = 288 mm is thus assigned
- Bore ØD2 = 200H7 mm with keyway to DIN 6885 and set screw, the hub diameter ND2 = 278 mm is thus assigned

Article no.: 2LC0201-0AF99-0AA0-Z L2B+M2D

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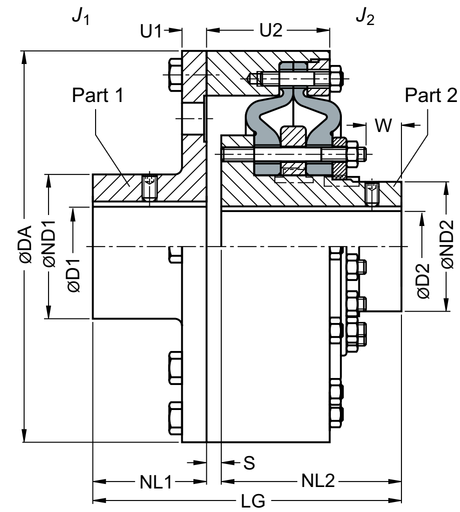
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

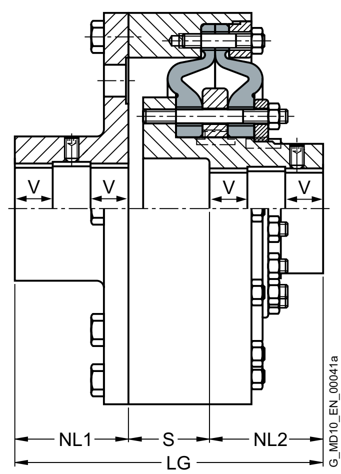
↗ For online configuration on **flender.com**, click on the item no.

TYPE ENGS

with fail-safe device



Sizes 270 ... 430



Sizes 500 ... 970

12

Size	Rated torque	Maximum speed Type		Dimensions in mm Keyway DIN 6885														Mass moment of inertia		Article no. [1] Type		Weight
		Cast iron	Steel	D1		D2		DA	ND1	ND2	NL1	NL2	S	U1	U2	W	LG	J_1	J_2	Cast iron	Steel	
	T_{KN} Nm	n_{Kmax} rpm	n_{Kmax} rpm	min.	max.	min.	max.											kgm²	kgm²			m kg
270	1600	3000	4250	45	**80**	45	**70**	270	128	94	80	155	10	14	86	42	245	0.21	0.037	**2LC0200-3AG**	**2LC0200-3AM**	29
320	2800	2500	3600	55	**100**	55	**85**	320	160	115	100	180	6	16	97.5	48	286	0.49	0.082	**2LC0200-4AG**	**2LC0200-4AM**	50
375	4500	2100	3100	65	**115**	65	**105**	375	184	143	120	205	10	18	111.8	62	335	1.0	0.21	**2LC0200-5AG**	**2LC0200-5AM**	80
430	7100	1900	2650	75	**130**	75	**120**	430	208	165	140	235	8	22	126	68	383	2.0	0.37	**2LC0200-6AG**	**2LC0200-6AM**	113
500	11200	1600	2300	90	**150**	90	**150**	500	240	202	160	160	112	25	139.7	80	432	3.9	0.85	**2LC0200-7AG**	**2LC0200-7AM**	174
590	18000	1360	2000	100 140	**140** **180**	100	**170**	590	224 288	230	190	190	130	28	162.7	95	510	8.2 8.4	1.7	**2LC0200-8AG**	**2LC0200-8AM**	254 284
690	28000	1200	1650	110 140 180	**140** **180** **210**	110	**200**	690	224 288 336	278	220	220	140	32	175.6	102	580	16.3 16.8 16.9	3.7	**2LC0201-0AG**	**2LC0201-0AM**	350 370 385
840	45000	1000	1350	140 180	**180** **220**	140	**240**	840	288 352	340	280	280	125	42	231	105	685	49 50	11	**2LC0201-1AG**	**2LC0201-1AM**	700 725
970	90000	850	1180	160 200 240 280	**200** **240** **280** **320**	160	**280**	970	320 384 448 512	390	350	350	167	70	290	137	867	104 106 110 115	26	**2LC0201-2AG**	**2LC0201-2AM**	1265 1310 1350 1410

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Notes

- The hub diameter of the component part is assigned according to the diameter of the finished bore. Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weights and mass moments of inertia apply to cast iron version with maximum bore.
- From size 500, the bores D1 and D2 are each provided with a recess of D = +1 mm halfway along the hub. V ≈ 1/3 NL.

Ordering example

- ELPEX ENGS coupling, size 690, cast iron version
- Bore ØD1 = 180H7 mm with keyway to DIN 6885 and set screw, the hub diameter ND1 = 288 mm is thus assigned
- Bore ØD2 = 200H7 mm with keyway to DIN 6885 and set screw, the hub diameter ND2 = 278 mm is thus assigned

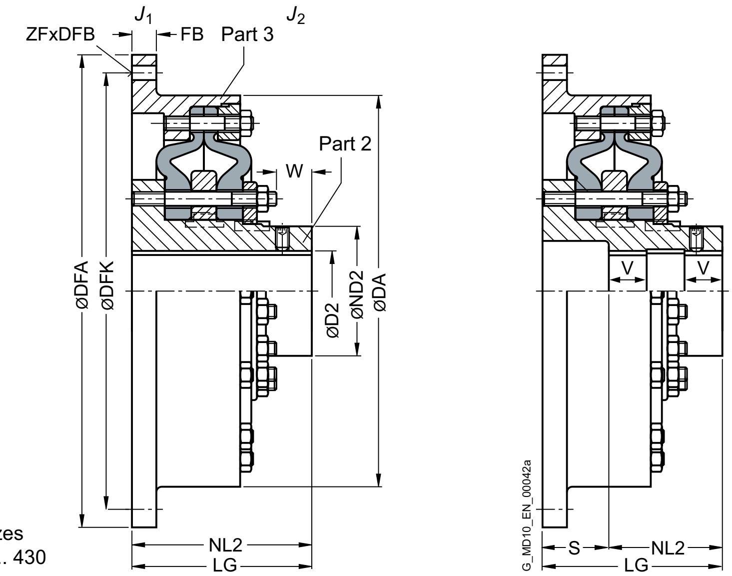
Article no.: 2LC0201-0AG99-0AA0-Z L2B+M2D

12

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPES EFG



Sizes 270 ... 430

Sizes 500 ... 970

12

Size	Rated torque T_{KN} Nm	Maximum speed, Type Cast iron n_{Kmax} rpm	Maximum speed, Type Steel n_{Kmax} rpm	Dimensions in mm: D2 Keyway DIN 6885 min.	D2 max.	DA	ND2	NL2	S	W	LG	Flange connection dimensions [2] DFA	DFK	FB	ZF	DFB	Mass moment of inertia J_1 kgm²	J_2 kgm²	Article no. [1] Type Cast iron	Steel	Weight m kg
270	1600	3000	4250	45	70	270	94	155	-	42	155	466.7_{g7} [2]	438.2 [2]	12	8	13	0.47	0.037	2LC0200-3AB2	2LC0200-3AJ2	27
												325_{j6}	300		8	14	0.16		2LC0200-3AB1	2LC0200-3AJ1	19
320	2800	2500	3600	55	85	320	115	180	-	48	180	517.5_{g7} [2]	489 [2]	14	8	13	0.87	0.082	2LC0200-4AB2	2LC0200-4AJ2	42
												392_{j6}	360		8	18	0.39		2LC0200-4AB1	2LC0200-4AJ1	33.5
375	4500	2100	3100	65	105	375	143	205	-	62	205	571.5_{g7} [2]	542.9 [2]	16	6	17	1.5	0.21	2LC0200-5AB2	2LC0200-5AJ2	65
												448_{j6}	415		8	18	0.78		2LC0200-5AB1	2LC0200-5AJ1	53
430	7100	1900	2650	75	120	430	165	235	-	68	235	673.1_{g7} [2]	641.4 [2]	20	12	17	3.4	0.37	2LC0200-6AB2	2LC0200-6AJ2	100
												515_{j6}	475		8	22	1.5		2LC0200-6AB1	2LC0200-6AJ1	78
500	11200	1600	2300	90	150	500	202	160	100	80	260	673.1_{g7} [2]	641.4 [2]	20	12	17	4.0	0.85	2LC0200-7AB2	2LC0200-7AJ2	150
												585_{j6}	545		10	22	2.7		2LC0200-7AB1	2LC0200-7AJ1	140

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The upper line for the flange connection dimensions complies with standard SAE J620d or DIN 6288.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque	Maximum speed Type Cast iron	Maximum speed Type Steel	Dimensions in mm D2 Keyway DIN 6885		DA	ND2	NL2	S	W	LG	Flange connection dimensions 2) DFA	DFK	FB	ZF	DFB	Mass moment of inertia J_1	J_2	Article no. 1) Type Cast iron	Steel	Weight m
	T_{KN}	n_{Kmax}	n_{Kmax}																		
	Nm	rpm	rpm	min.	max.												kgm²	kgm²			kg
590	**18000**	1350	2000	100	**170**	590	230	190	120	95	310	733.4_{g7} 2)	692.2 2)	24	12	21	7.0	1.7	**2LC0200-8AB2**	**2LC0200-8AJ2**	200
												692_{j6}	645		10	26	6.0		**2LC0200-8AB1**	**2LC0200-8AJ1**	190
690	**28000**	1200	1650	110	**200**	690	278	220	130	102	350	890_{g7} 2)	850 2)	24	32	17	15	3.7	**2LC0201-0AB2**	**2LC0201-0AJ2**	270
												800_{j6}	750		12	26	11		**2LC0201-0AB1**	**2LC0201-0AJ1**	250
840	**45000**	1000	1350	140	**240**	840	340	280	115	105	395	1105_{g7} 2)	1060 2)	30	32	21	46	11	**2LC0201-1AB2**	**2LC0201-1AJ2**	530
												960_{j6}	908		16	30	32		**2LC0201-1AB1**	**2LC0201-1AJ1**	470
970	**90000**	850	1180	160	**280**	970	390	350	155	137	505	1385_{g7} 2)	1320 2)	35	24	31	130	26	**2LC0201-2AB2**	**2LC0201-2AJ2**	1050
												1112_{j6}	1051		16	35	76		**2LC0201-2AB1**	**2LC0201-2AJ1**	920

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore

Notes

- The hub diameter of the component part is assigned according to the diameter of the finished bore. Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weights and mass moments of inertia apply to cast iron version with maximum bore.
- From size 500, the bores D1 and D2 are each provided with a recess of D = +1 mm halfway along the hub. V ≈ 1/3 NL.
- Notice: The application factor FB in the coupling selection **Page 12/5** section must be noted.

Ordering example

- ELPEX EFG coupling, size 430, steel version
- Bore ØD1 = 100H7 mm with keyway to DIN 6885 and set screw, flange to SAE J620d size 21 with DFA = 673.5g7 mm
- Coupling balanced G6.3 in accordance with the half parallel key standard.

Article no.: 2LC0200-6AJ29-0AA0-ZM1N+W02

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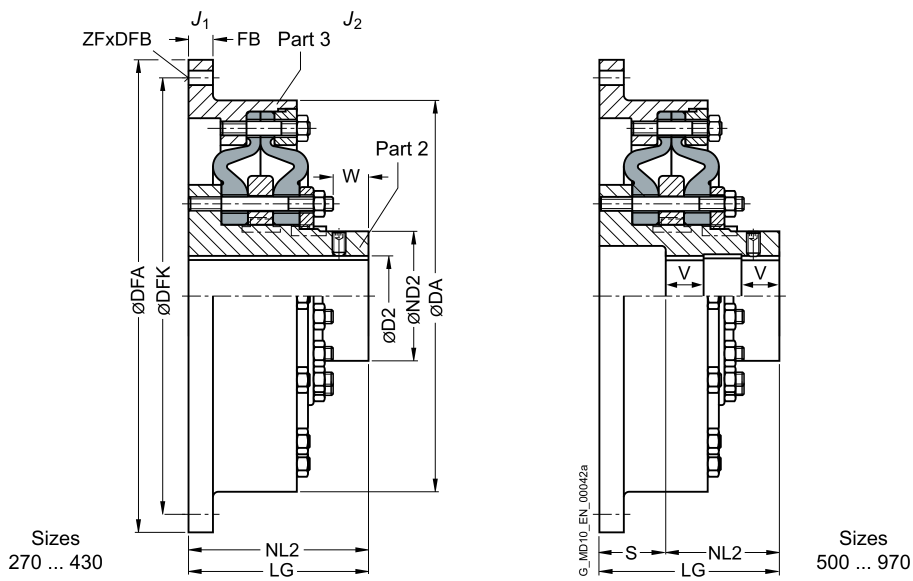
1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) The upper line for the flange connection dimensions complies with standard SAE J620d or DIN 6288.

↗ For online configuration on **flender.com**, click on the item no.

TYPES EFGS

with fail-safe device



Size	Rated torque	Maximum speed Type		Dimensions in mm								Flange connection dimensions [2]					Mass moment of inertia		Article no. [1] Type		Weight
		Cast iron	Steel	D2 Keyway DIN 6885																	
	T_{KN}	n_{Kmax}	n_{Kmax}			DA	ND2	NL2	S	W	LG	DFA	DFK	FB	ZF	DFB	J_1	J_2	Cast iron	Steel	m
	Nm	rpm	rpm	min.	max.												kgm²	kgm²			kg
270	**1600**	3000	4250	45	**70**	270	94	155	-	42	155	466.7_{g7} [2]	438.2 [2]	12	8	13	0.47	0.037	2LC0200-3AC2	2LC0200-3AK2	27
												325_{j6}	300		8	14	0.16		2LC0200-3AC1	2LC0200-3AK1	19
320	**2800**	2500	3600	55	**85**	320	115	180	-	48	180	517.5_{g7} [2]	489 [2]	14	8	13	0.87	0.082	2LC0200-4AC2	2LC0200-4AK2	42
												392_{j6}	360		8	18	0.39		2LC0200-4AC1	2LC0200-4AK1	33.5
375	**4500**	2100	3100	65	**105**	375	143	205	-	62	205	571.5_{g7} [2]	542.9 [2]	16	6	17	1.5	0.21	2LC0200-5AC2	2LC0200-5AK2	65
												448_{j6}	415		8	18	0.78		2LC0200-5AC1	2LC0200-5AK1	53
430	**7100**	1900	2650	75	**120**	430	165	235	-	68	235	673.1_{g7} [2]	641.4 [2]	20	12	17	3.4	0.37	2LC0200-6AC2	2LC0200-6AK2	100
												515_{j6}	475		8	22	1.5		2LC0200-6AC1	2LC0200-6AK1	78
500	**11200**	1600	2300	90	**150**	500	202	160	100	80	260	673.1_{g7} [2]	641.4 [2]	20	12	17	4.0	0.85	2LC0200-7AC2	2LC0200-7AK2	150
												585_{j6}	545		10	22	2.7		2LC0200-7AC1	2LC0200-7AK1	140

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The upper line for the flange connection dimensions complies with standard SAE J620d or DIN 6288.

↗ For online configuration on **flender.com**, click on the item no.

Size	Rated torque	Maximum speed Type Cast iron	Maximum speed Type Steel	Dimensions in mm D2 Keyway DIN 6885		DA	ND2	NL2	S	W	LG	Flange connection dimensions [2] DFA	DFK	FB	ZF	DFB	Mass moment of inertia J_1	J_2	Article no. [1] Type Cast iron	Steel	Weight m
	T_{KN}	n_{Kmax}	n_{Kmax}																		
	Nm	rpm	rpm	min.	max.												kgm²	kgm²			kg
590	**18000**	1350	2000	100	**170**	590	230	190	120	95	310	733.4_{g7} [2]	692.2 [2]	24	12	21	7.0	1.7	**2LC0200-8AC2**	**2LC0200-8AK2**	200
												692_{j6}	645		10	26	6.0		**2LC0200-8AC1**	**2LC0200-8AK1**	190
690	**28000**	1200	1650	110	**200**	690	278	220	130	102	350	890_{g7} [2]	850 [2]	24	32	17	15	3.7	**2LC0201-0AC2**	**2LC0201-0AK2**	270
												800_{j6}	750		12	26	11		**2LC0201-0AC1**	**2LC0201-0AK1**	250
840	**45000**	1000	1350	140	**240**	840	340	280	115	105	395	1105_{g7} [2]	1060 [2]	30	32	21	46	11	**2LC0201-1AC2**	**2LC0201-1AK2**	530
												960_{j6}	908		16	30	32		**2LC0201-1AC1**	**2LC0201-1AK1**	470
970	**90000**	850	1180	160	**280**	970	390	350	155	137	505	1385_{g7} [2]	1320 [2]	35	24	31	130	26	**2LC0201-2AC2**	**2LC0201-2AK2**	1050
												1112_{j6}	1051		16	35	76		**2LC0201-2AC1**	**2LC0201-2AK1**	920

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore

Notes

- The hub diameter of the component part is assigned according to the diameter of the finished bore. Where bore diameters overlap, the component with the smaller hub diameter is always selected.
- Weights and mass moments of inertia apply to cast iron version with maximum bore.
- From size 500, the bores D1 and D2 are each provided with a recess of D = +1 mm halfway along the hub. V ≈ 1/3 NL.
- Notice: The application factor FB in the coupling selection **Page 12/5** section must be noted.

Ordering example

- ELPEX EFGS coupling, size 430, steel version
- Bore ØD1 = 100H7 mm with keyway to DIN 6885 and set screw, flange to SAE J620d size 21 with DFA = 673.5g7 mm
- Coupling balanced G6.3 in accordance with the half parallel key standard.

Article no.: **2LC0200-6AK29-0AA0-Z M1N+W02**

12

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] The upper line for the flange connection dimensions complies with standard SAE J620d or DIN 6288.

↗ For online configuration on **flender.com**, click on the item no.

SPARE AND WEAR PARTS

Flexible rings

Size	↗ Article no. set of flexible rings for a coupling	Weight kg
270	2LC0200-3XV00-0AA0	1.6
320	2LC0200-4XV00-0AA0	2.6
375	2LC0200-5XV00-0AA0	4.4
430	2LC0200-6XV00-0AA0	6.8
500	2LC0200-7XV00-0AA0	9.4
590	2LC0200-8XV00-0AA0	18
690	2LC0201-0XV00-0AA0	36
840	2LC0201-1XV00-0AA0	68
970	2LC0201-2XV00-0AA0	120

Note

- The flexible rings are wear parts. The service life depends on the operating conditions.

Flexible ring screw connection

Size	↗ Article no. set of pins and bolts Type EFG, ENG	EFGS, ENGS
270	2LC0200-3XU00-0AA0	2LC0200-3XW00-0AA0
320	2LC0200-4XU00-0AA0	2LC0200-4XW00-0AA0
375	2LC0200-5XU00-0AA0	2LC0200-5XW00-0AA0
430	2LC0200-6XU00-0AA0	2LC0200-6XW00-0AA0
500	2LC0200-7XU00-0AA0	2LC0200-7XW00-0AA0
590	2LC0200-8XU00-0AA0	2LC0200-8XW00-0AA0
690	2LC0201-0XU00-0AA0	2LC0201-0XW00-0AA0
840	2LC0201-1XU00-0AA0	2LC0201-1XW00-0AA0
970	2LC0201-2XU00-0AA0	2LC0201-2XW00-0AA0

APPENDIX

FITS

Fitting recommendations

For many applications, the fit assignment m6/H7 is especially suitable.

Description	Application	Shaft tolerance	Bore tolerance
Sliding fit with parallel key connection not suitable for reversing operation	For steel and cast hubs	j6	H7
		h6	J7
Press fit with parallel key connection not suitable for reversing operation	For steel and cast hubs	h6	K7
		k6	H7
Interference fit with parallel key connection suitable for reversing operation	For steel and cast hubs	m6	H7
		n6	H7
		h6	M7
	Only for steel hubs	h6	P7
	Preferred for ZAPEX and ARPEX coupling series.	k6	M7
		m6	K7
		n6	J7
		p6	H7
		s6	F7
Shrink fit connection without parallel key	Only for steel hubs	u6	H6
	The permitted hub tension must be urgently checked.	v6	H6
		x6	H6

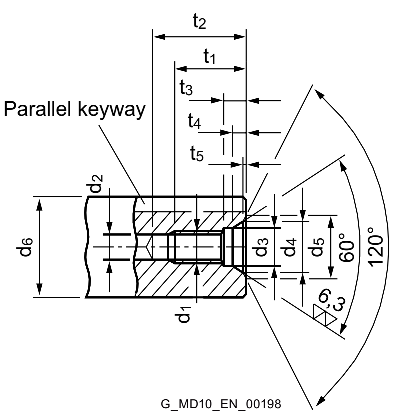
Deviation table to DIN ISO 286 for above-mentioned fits for bore diameters from 10 mm to 250 mm

Bore diameter		Deviations in µm											
		Bore						Shaft					
above	up to	F7	H7	J7	K7	M7	P7	h6	j6	k6	m6	n6	p6
10	**18**	+34	+18	+10	+6	0	-11	0	+8	+12	+18	+23	+29
		+16	0	-8	-12	-18	-29	-11	-3	+1	+7	+12	+18
18	**30**	+41	+21	+12	+6	0	-14	0	+9	+15	+21	+28	+35
		+20	0	-9	-15	-21	-35	-13	-4	+2	+8	+15	+22
30	**50**	+50	+25	+14	+7	0	-17	0	+11	+18	+25	+33	+42
		+25	0	-11	-18	-25	-42	-16	-5	+2	+9	+17	+26
50	**80**	+60	+30	+18	+9	0	-21	0	+12	+21	+30	+39	+51
		+30	0	-12	-21	-30	-51	-19	-7	+2	+11	+20	+32
80	**120**	+71	+35	+22	+10	0	-24	0	+13	+25	+35	+45	+59
		+36	0	-13	-25	-35	-59	-22	-9	+3	+13	+23	+37
120	**180**	+83	+40	+26	+12	0	-28	0	+14	+28	+40	+52	+68
		+43	0	-14	-28	-40	-68	-25	-11	+3	+15	+27	+43
180	**250**	+96	+46	+30	+13	0	-33	0	+16	+33	+46	+60	+79
		+50	0	-16	-33	-46	-79	-29	-13	+4	+17	+31	+50

Cylindrical shaft ends, extract from DIN 748 Part 1 (long)

	Diameter in mm																				
	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75	80	85	90	95	100
ISO tolerance zone	k6												m6									
End length in mm	50	60		80				110						140				170				210

Central holes according to DIN 332 Part 2



Form DS (with thread) DIN 332/2

Recommended diameter ranges d_6 [1]		DS form dimensions									
above	up to	d_1	d_2 [2]	d_3	d_4	d_5	t_1 +2	t_2 min.	t_3 +1	t_4 approx.	t_5 approx.
7	10	M3	2.5	3.2	5.3	5.8	9	12	2.6	1.8	0.2
10	13	M4	3.3	4.3	6.7	7.4	10	14	3.2	2.1	0.3
13	16	M5	4.2	5.3	8.1	8.8	12.5	17	4	2.4	0.3
16	21	M6	5	6.4	9.6	10.5	16	21	5	2.8	0.4
21	24	M8	6.8	8.4	12.2	13.2	19	25	6	3.3	0.4
24	30	M10	8.5	10.5	14.9	16.3	22	30	7.5	3.8	0.6
30	38	M12	10.2	13	18.1	19.8	28	37	9.5	4.4	0.7
38	50	M16	14	17	23	25.3	36	45	12	5.2	1.0
50	85	M20	17.5	21	28.4	31.3	42	53	15	6.4	1.3
85	130	M24	21	25	34.2	38	50	63	18	8	1.6
130	225	M30 [3]	26.5	31	40.2	44.6	60	77	22	8	1.9
225	320	M36 [3]	32	37	49.7	55	74	93	22	11	2.3
320	500	M42 [3]	37.5	43	60.3	66.6	84	105	26	15	2.7

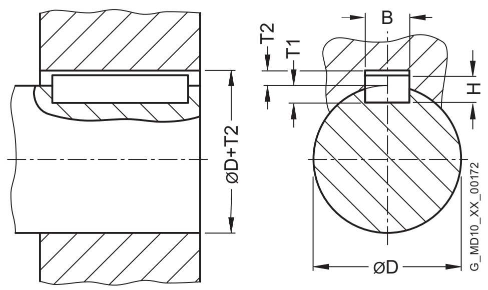
[1] Diameter refers to the finished workpiece

[2] Tap hole drill diameter according to DIN 336 Part 1

[3] Dimensions not acc. to DIN 332 Part 2

A

PARALLEL KEY CONNECTIONS TO DIN 6885-1



For moderate operating conditions, the hub keyway tolerance JS9 is recommended.

In harsh operating conditions or during reversing operation, the keyway width tolerance P9 must be preferred.

With two parallel keyways, the keyway width tolerance JS9 should be specified in order to simplify the assembly.

The shaft keyway width has to be specified with the tolerance N9.

Diameter above D mm	Diameter up to mm	Keyway width B mm	Parallel key height H mm	Shaft keyway depth T1 mm	Hub keyway depth T2 mm	Deviation for shaft and hub keyway depth mm	Deviation table for keyway width B JS9 µm	Deviation table for keyway width B P9 µm
	10	3	3	1.8	1.4	+0.1	+12.5 -12.5	-6 -31
10	12	4	4	2.5	1.8	+0.1	+15 -15	-12 -42
12	17	5	5	3	2.3	+0.1	+15 -15	-12 -42
17	22	6	6	3.5	2.8	+0.1	+15 -15	-12 -42
22	30	8	7	4	3.3	+0.2	+18 -18	-15 -51
30	38	10	8	5	3.3	+0.2	+18 -18	-15 -51
38	44	12	8	5	3.3	+0.2	+21.5 -21.5	-18 -61
44	50	14	9	5.5	3.8	+0.2	+21.5 -21.5	-18 -61
50	58	16	10	6	4.3	+0.2	+21.5 -21.5	-18 -61
58	65	18	11	7	4.4	+0.2	+21.5 -21.5	-18 -61
65	75	20	12	7.5	4.9	+0.2	+26 -26	-22 -74
75	85	22	14	9	5.4	+0.2	+26 -26	-22 -74
85	95	25	14	9	5.4	+0.2	+26 -26	-22 -74

A

Diameter		Keyway width	Parallel key height	Shaft keyway depth	Hub keyway depth	Deviation for shaft and hub keyway depth	Deviation table for keyway width B	
above D mm	up to mm	B mm	H mm	T1 mm	T2 mm	mm	JS9 µm	P9 µm
95	110	28	16	10	6.4	+0.2	+26	-22
							-26	-74
110	130	32	18	11	7.4	+0.2	+31	-26
							-31	-88
130	150	36	20	12	8.4	+0.3	+31	-26
							-31	-88
150	170	40	22	13	9.4	+0.3	+31	-26
							-31	-88
170	200	45	25	15	10.4	+0.3	+31	-26
							-31	-88
200	230	50	28	17	11.4	+0.3	+31	-26
							-31	-88
230	260	56	32	20	12.4	+0.3	+37	-32
							-37	-106
260	290	63	32	20	12.4	+0.3	+37	-32
							-37	-106
290	330	70	36	22	14.4	+0.3	+37	-32
							-37	-106
330	380	80	40	25	15.4	+0.3	+37	-32
							-37	-106
380	440	90	45	28	17.4	+0.3	+43.5	-37
							-43.5	-124
440	500	100	50	31	19.4	+0.3	+43.5	-37
							-43.5	-124

RELATED CATALOGS

Torsionally Rigid Couplings

FLE 10.1

FLEX-C10001-00-7600

Flexible Couplings

FLE 10.2

FLEX-C10002-00-7600

Highly Flexible Couplings

FLE 10.3

FLEX-C10003-00-7600

Fluid Couplings

FLE 10.4

FLEX-C10004-00-7600

ARPEX

High Performance Couplings
MD 10.2

PDMD-C10146-00

SIPEX and BIPEX-S

Backlash-free couplings
MD 10.3

PDMD-C10145-00

ARPEX

Composite Couplings
MD 10.5

PDMD-C10153-00

ARPEX

Safety couplings

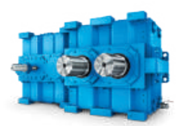
MD 10.11

PDMD-C10147-00

A

FLENDER SIP
Standard Industrial Planetary Gear Units
MD 31.1
PDMD-C10154-00

FLENDER CHG
Helical Gear Units
MD 20.10
PDMD-C10155-00



Gear units
Fast Track
MD 20.12
PDMD-C10156-00

Bucket Elevator Drives

MD 20.2
PDMD-C10157-00

PLANUREX 2
Planetary Gear Units
MD 20.3
PDMD-C10158-00

Paper Machine Drives

MD 20.5
PDMD-C10159-00

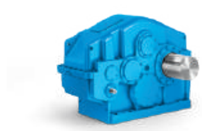
Conveyor Belt Drives

MD 20.6
PDMD-C10160-00

Marine Reduction Gearboxes

MD 20.7
PDMD-C10161-00

DUORED 2
Helical Gear Units, Load-sharing
MD 20.8
PDMD-C10162-00



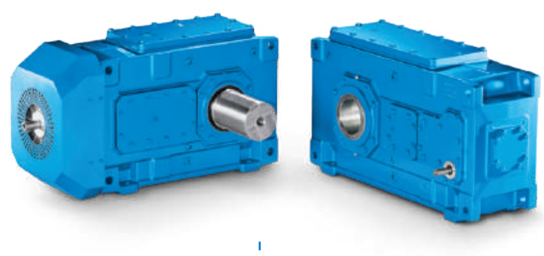
Pinion Drive for Tube Mills

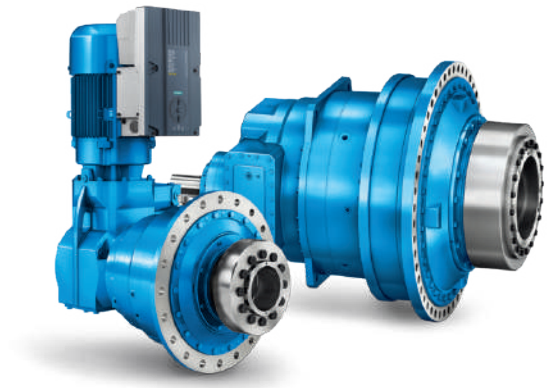
MD 20.9
PDMD-C10163-00

THE RIGHT GEAR UNIT SOLUTION FOR ANY REQUIREMENT

We provide helical and planetary gear units made up of standard modules or as a complete application solution.

Helical and planetary gear units from Flender are modern drive solutions that satisfy the most varying and extreme demands, day after day and year after year. For decades, plant operators have been achieving high system reliability and low lifecycle costs in every conceivable industry with our helical gear units.



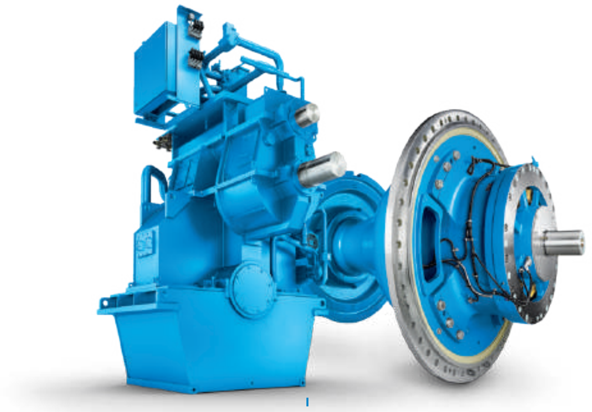


Helical and bevel helical gear units

Flender helical and bevel helical gear units are by far the most comprehensive range of industrial gear units in the world.
It ranges from a multi-faceted universal gear unit portfolio and application-specific gear units to customer-specific solutions.
Rated torque: 3,300 Nm ... 1,400,000 Nm

Planetary Gear Units

With Flender planetary gear units, we provide a range of durable, reliable and finely graduated gear unit solutions. The series wins customers over due to its highly integrated planetary geared motor and maximum conformity with all international motor standards.
It also brings quality and performance in a good ratio of lifecycle costs to price.
Rated torque: 10,000 Nm ... 5,450,000 Nm



Application-specific gear units

With application-specific gear units, Flender provides by far the most application solutions and thus covers nearly every drive-related need from hundreds of applications in industry and the acquisition of raw materials.
Rated torque: up to 10,000,000 Nm

Customer-specific designs

Our experts are available at any time for special requirements during the development of new products. From designing and simulating complex drive solutions to implementing them, we work together with you to resolve multi-layered tasks.

A

FLENDER COUPLINGS
CATALOG **FLE 10.3**
EDITION 2020 EN

flender.com

Further information on the subject of couplings:
flender.com/couplings

Further information on the subject of applications:
flender.com/application-specific-gear-unit

For further information on gears:
flender.com/gearunits

Further information on the subject of service:
flender.com/services

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46395 Bocholt
Germany

Article no.: FLEX-C10003-00-7600

flender.com

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Adicionamos movimento ao seu negócio!

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PRODUTO - SERVIÇO - ENGENHARIA

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JUNCOR
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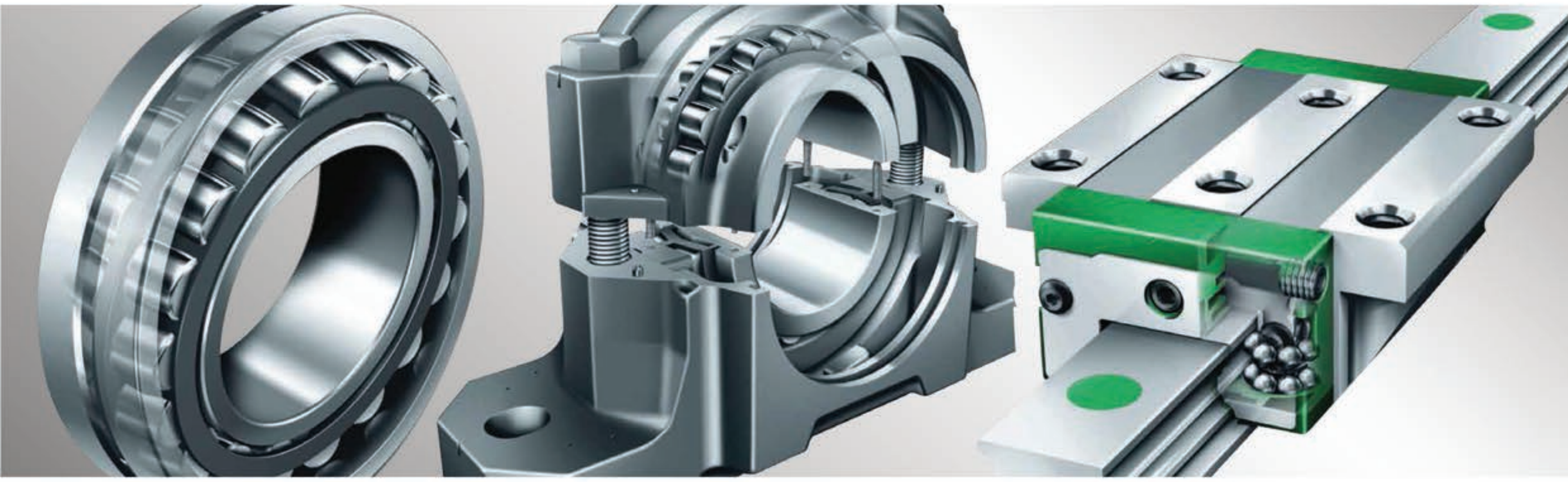
ACOPLAMENTOS HIDRÁULICOS
FLUDEX



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FLENDER COUPLINGS
CATALOG **FLE 10.4**
EDITION 2020 EN

FLUID COUPLINGS
FLUDEX

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FLENDER

FLE 10 CATALOG GROUP

Product catalog FLE 10.1
Torsionally Rigid Couplings

Product catalog FLE 10.3
Highly Flexible Couplings

Product catalog FLE 10.2
Flexible Couplings

Product catalog FLE 10.4
Fluid Couplings

For further coupling catalogs, see page A/6

FLUID COUPLINGS

Catalog FLE 10.4 Edition 2020 EN

INTRODUCTION

E

The mechanical drive train comprises individual units such as motor, gear unit and driven machine. The coupling connects these component assemblies.
As well as the transmission of rotary motion and torque, other requirements may be made of the coupling.

- Compensation for shaft misalignment with low restorative forces
- Control of characteristic angular vibration frequency and damping
- Interruption or limitation of torque
- Noise insulation, electrical insulation

Couplings are frequently chosen after the machines to be connected have already been selected. Thanks to a large number of different coupling assembly options, specified marginal conditions for clearance and connection geometry can be met from the standard range. The coupling also performs secondary functions, e.g. providing a brake disk or brake drum for operating or blocking brakes, devices to record speed or the attachment of sprockets or pulleys.

Couplings are divided into two main groups, couplings and clutches.

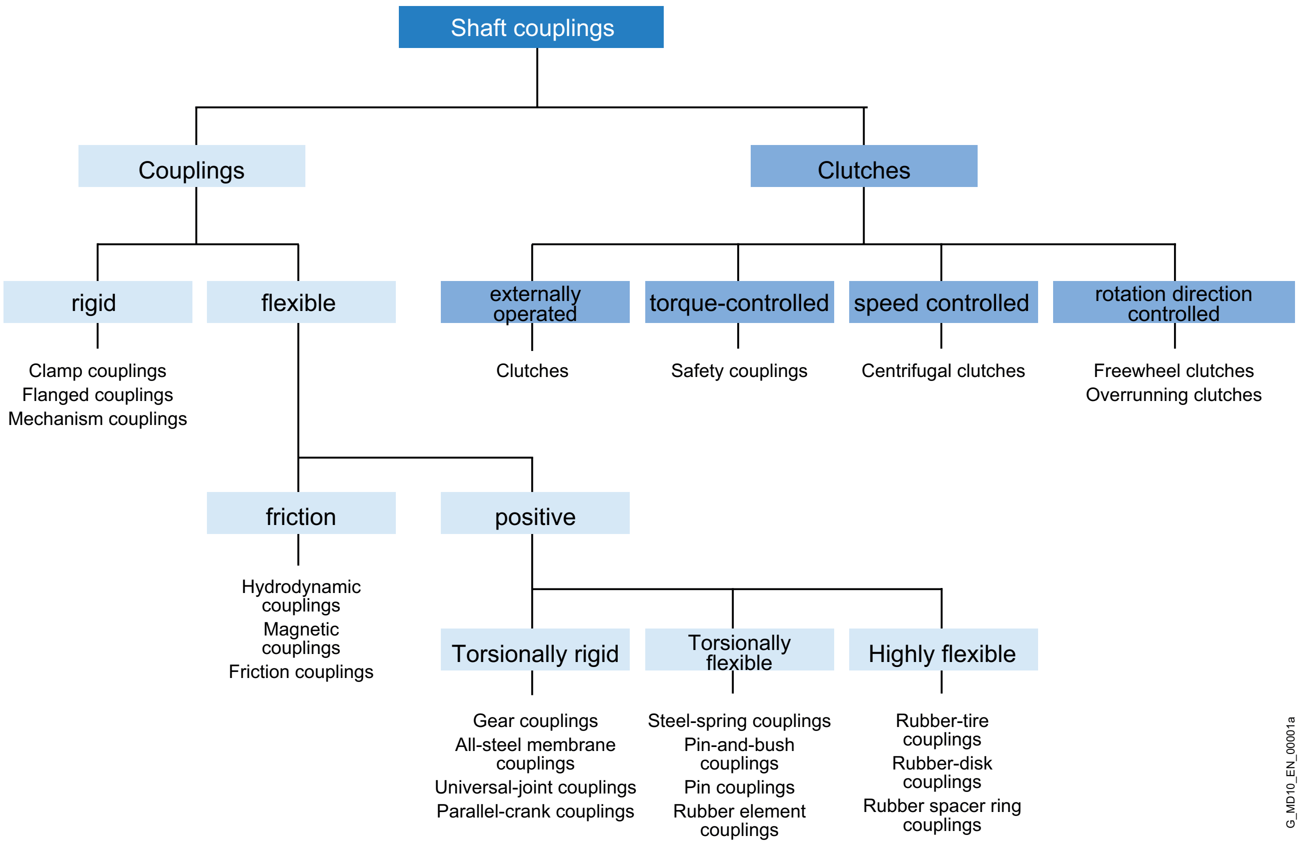
Clutches interrupt or limited the transmissible torque. The engaging and disengaging forces on externally operated clutches are introduced via a mechanically, electrically, hydraulically or pneumatically operating mechanism. Overload, centrifugal or freewheel clutches draw their engaging energy from the transmitted output.

Rigid couplings, designed as clamp, flanged or mechanism couplings, connect machines which must not undergo any shaft misalignment. Hydrodynamic couplings, often also called fluid or Föttinger couplings, are used as starting couplings in drives with high mass moments of inertia of the driven machine. In drive technology very often flexible, positive couplings, which may be designed to be torsionally rigid, torsionally flexible or highly flexible, are used.

Torsionally rigid couplings are designed to be rigid in a peripheral direction and flexible in radial and axial directions. The angle of rotation and torque are conducted through the coupling without a phase shift.

Torsionally flexible couplings have resilient elements usually manufactured from elastomer materials. Using an elastomer material with a suitable ShoreA hardness provides the most advantageous torsional stiffness and damping for the application. Shaft misalignment causes the resilient elements to deform.

Highly flexible couplings have large-volume (elastomer) resilient elements of low stiffness. The angle of rotation and torque are conducted through the coupling with a considerable phase shift.


Shaft couplings
Couplings
Clutches
rigid
flexible
externally operated
torque-controlled
speed controlled
rotation direction controlled
Clamp couplings
Flanged couplings
Mechanism couplings
Clutches
Safety couplings
Centrifugal clutches
Freewheel clutches
Overrunning clutches
friction
positive
Hydrodynamic couplings
Magnetic couplings
Friction couplings
Torsionally rigid
Torsionally flexible
Highly flexible
Gear couplings
All-steel membrane couplings
Universal-joint couplings
Parallel-crank couplings
Steel-spring couplings
Pin-and-bush couplings
Pin couplings
Rubber element couplings
Rubber-tire couplings
Rubber-disk couplings
Rubber spacer ring couplings
G_MD10_EN_00001a

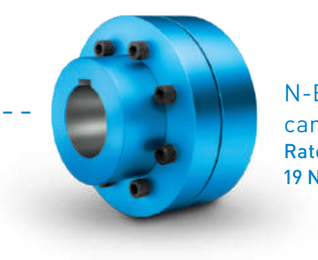
OUR COUPLING GROUPS AT A GLANCE

E

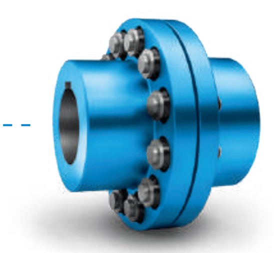
N-EUPEX, RUPEX and N-BIPEX

Flexible Couplings

Flexible Flender couplings have a wide range of possible applications. A broad standard modular system as well as specially designed application-specific coup-lings are available.



N-EUPEX
cam couplings
Rated torque:
19 Nm ... 62,000 Nm



RUPEX
pin-and-bush couplings
Rated torque:
200 Nm ... 1,300,000 Nm

N-BIPEX
cam couplings
Rated torque:
12 Nm ... 4,650 Nm

ELPEX, ELPEX-B and ELPEX-S

Highly Flexible Couplings

ELPEX® couplings are free of circumferential back-lash. Their damping capacity and low torsional stiff-ness make them especially well-suited for coupling machines with strongly non-uniform torque characteristics or large shaft misalignment.

ELPEX
elastic ring couplings
Rated torque:
1,600 Nm ... 90,000 Nm

ELPEX-B
elastic tire couplings
Rated torque:
24 Nm ... 14,500 Nm

ELPEX-S
rubber disk couplings
Rated torque:
330 Nm ... 63,000 Nm

E

ZAPEX gear couplings and ARPEX all-steel couplings

Torsionally rigid couplings

For transmission of high torques, we offer both ARPEX all-steel couplings and ZAPEX gear couplings in a range of versions. Their purposes of application vary according to specific requirements with respect to shaft misalignment, temperature and torque.

ZAPEX
gear couplings
Rated torque:
1,300 Nm ... 7,200,000 Nm

ARPEX
high Performance Couplings
Rated torque:
1,000 Nm ... 588,500 Nm

N-ARPEX and ARPEX
all-steel couplings
Rated torque:
92 Nm ... 2,000,000 Nm

BIPEX-S and SIPEX

Backlash-free couplings

The vibration-damping, electrically insulating plug-in BIPEX-S elastomer couplings and SIPEX metal bellows couplings with very high torsional stiffness deliver especially isogonal torque transmission.

BIPEX-S and SIPEX
Rated torque:
0.1 Nm ... 5,000 Nm

FLUDEX

Hydrodynamic couplings

The FLUDEX hydrodynamic fluid coupling works according to the Föttinger principle. It functions entirely free of wear.

FLUDEX
fluid Couplings
Power:
1.2 kW ... 2,500 kW

Application-specific couplings

Couplings for rail vehicles must meet high demands. Due to their high degree of standardization and wide variety, they can be used in the most diverse vehicle types.

Railway coupling
Rated torque:
1,000 Nm ... 9,500 Nm

Each wind turbine coupling is designed to optimally meet the requirements of the respective wind turbine. The coupling connects the fast-running gear shaft with the generator shaft and is available for wind turbines with a capacity of up to 12 MW.

Wind turbine couplings
Rated torque:
10,000 Nm ... 60,000 Nm

TECHNICAL INFORMATION AND COUPLING SELECTION

TECHNICAL INFORMATION

E

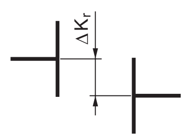
Shaft misalignment

Shaft misalignment is the result of displacement during assembly and operation and, where machines constructed with two radial bearings each are rigidly coupled, will cause high loads being placed on the bearings. Elastic deformation of base frame, foundation and machine housing will lead to shaft misalignment which cannot be prevented, even by precise alignment.

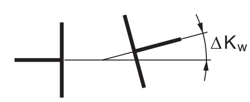
Furthermore, because individual components of the drive train heat up differently during operation, heat expansion of the machine housings causes shaft misalignment. Poorly aligned drives are often the cause of seal, rolling bearing or coupling failure. Alignment should be carried out by specialist personnel in accordance with operating instructions.

Depending on the direction of the effective shaft misalignment a distinction is made between:

Axial misalignment



Radial misalignment



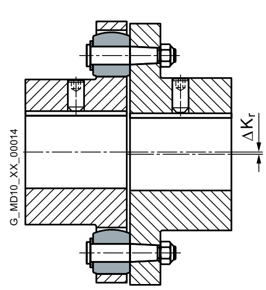
Angular misalignment

Couplings can be categorized into one of the following groups:

Single-joint couplings

Couplings with flexible elements mainly made of elastomer materials. Shaft misalignment results in deformation of the elastomer elements. The elastomer elements can absorb shaft misalignment as deformations in an axial, radial and angular direction. The degree of permissible misalignment depends on the coupling size, the speed and the type of elastomer element.
Single-joint couplings do not require an adapter and are therefore short versions.

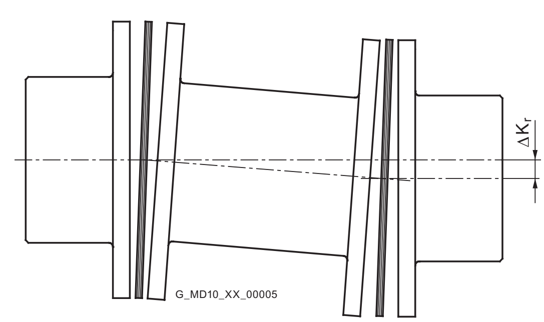
Example:
In the case of a RUPEX RWN 198 coupling with an outer diameter of 198 mm and a speed of 1500 rpm, the permitted radial misalignment is Δ_{Kr} = 0.3 mm.



Two-joint couplings

Two-joint couplings are always designed with an adapter. The two joint levels are able to absorb axial and angular misalignment. Radial misalignment occurs via the gap between the two joint levels and the angular displacement of the joint levels. The permitted angular misalignment per joint level is frequently about 0.5°. The permitted shaft misalignment of the coupling can be adjusted via the length of the adapter. If there are more than two joint levels, it is not possible to define the position of the coupling parts relative to the axis of rotation. (The less frequently used parallel-crank couplings are an exception).

Example:
N-ARPEX ARN-6 NEN 217-6 with a shaft distance of 140 mm with a permitted radial misalignment of ΔK_r = 2.2 mm (angle per joint level 1.0°).



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Balancing

Balance quality levels
The so-called quality level G to DIN ISO 21940 indicates a range of permitted residual imbalance from zero up to an upper limit. Applications can be grouped on the basis of similarity analysis. For many applications a coupling balance quality of G 16 is sufficient. On drives susceptible to vibration the balance quality should be G 6.3. Only in special cases is a better balance quality required.

Balancing standard in accordance with DIN ISO 21940-32
Besides the required balance quality, it is necessary to set standards which define how the mass of the parallel key is to be taken into consideration when balancing. In the past, motor rotors have frequently been balanced in accordance with the full parallel key standard. The "appropriate" balance condition of the coupling hub was described as "balancing with open keyway" or "balancing after keyseating". Today it is usual for the motor rotor, as well as the gear unit and driven machine shaft, to be balanced in accordance with the half parallel key standard.

Full parallel key standard

The parallel key is inserted in the shaft keyway, then balancing is carried out. The coupling hub must be balanced without parallel key after keyseating.

Marking of shaft and hub with "F" (for "full").

Half parallel key standard

The balancing standard normally applied today. Before balancing, a half parallel key is inserted in the shaft and another in the coupling hub. Alternatively, balancing can be carried out before cutting the keyway.

The balanced parts must be marked with an "H". This marking can be dispensed with if it is absolutely clear which parallel key standard has been applied.

No parallel key standard

Balancing of shaft and coupling hub after keyseating, but without parallel key. Not used in practice. Marking of shaft and hub with "N" (for "no").
The length of the parallel key is determined by the shaft keyway. Coupling hubs may be designed considerably shorter than the shaft.

To prevent imbalance forces caused by projecting parallel key factors when balancing in accordance with the half parallel key standard in the case of applications with high balancing quality requirements, grooved spacer rings can be fitted or stepped parallel keys used.

Flender Balancing Standard

The balancing quality level, together with the operating speed, results in the maximum permissible eccentricity of the center of gravity of the coupling or the coupling subassembly. In the Flender article number the balancing quality can be preset with the help of the order code. Additionally, also the balance quality level to DIN ISO 21940 can be preset together with the operating speed belonging to it, which then be taken as priority.

$$e_{perm} = 9550 \cdot \frac{G}{n}$$

$$e_{coupl} \leq e_{perm}$$

Permitted eccentricity of center of gravity	e_{perm}	in µm
Eccentricity of center of gravity of coupling	e_{coupl}	in µm
Balancing quality level	G	in mm/s
Coupling speed	n	in rpm

Eccentricity of center of gravity of coupling e_{coupl}	Flender balancing quality	Order code
maximum 100 µm	standard balancing	without specification
maximum 40 µm	fine balancing	W02
maximum 16 µm	micro-balancing	W03
better than 16 µm	special balancing	on request

TECHNICAL INFORMATION

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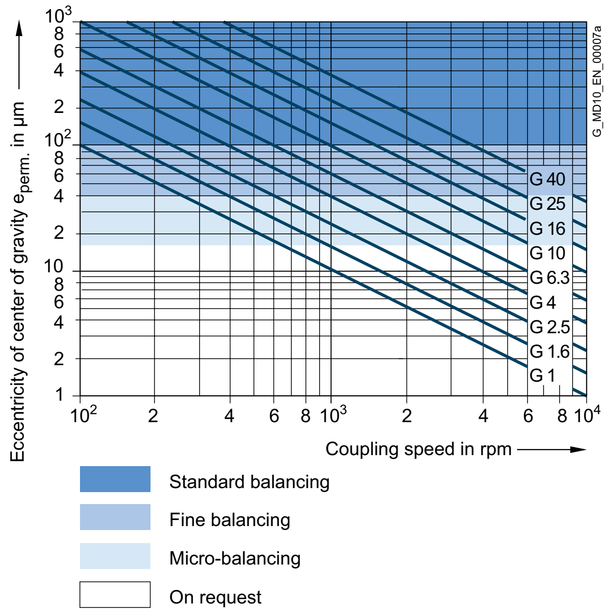

Example:
Coupling speed = 1450 rpm
required balancing quality level G 6.3

$$e_{perm} = 9550 \cdot \frac{G}{n} = 9550 \cdot \frac{6.3}{1450} \text{ µm}$$

Thus, the required eccentricity of center of gravity is 41.5 µm. The fine balancing with a maximum eccentricity of center of gravity of 40 mm fulfills this requirement; therefore, the order code W02 has to be specified when ordering.

For many applications the following balancing quality recommendation applies:

Coupling	standard balancing v = DA · n/19100	fine balancing
short version with LG ≤ 3 × DA	v ≤ 30 m/s	v > 30 m/s
long version with LG > 3 × DA	v ≤ 15 m/s	v > 15 m/s

Peripheral speed	v	in mm/s
Coupling outer diameter	DA	in mm
Coupling speed	n	in rpm
Coupling length	LG	in mm

The following standards on balancing must be observed:

- couplings are balanced in subassemblies.
- hub parts without finished bore are unbalanced.
- the number of balancing levels (one- or two-level balancing) is specified by Flender.
- without special specification balancing is done in accordance with the half-parallel-key standard. Balancing in accordance with the full-parallel-key standard must be specified in the order number.
- For FLUDEX couplings special balancing standards specified in Section 13 apply.
- ARPEX couplings in standard balancing quality are unbalanced. Thanks to steel components machined all over and precisely guided adapters the balancing quality of standard balancing is nearly always adhered to.

Shaft-hub connections

The bore and the shaft-hub connection of the coupling are determined by the design of the machine shaft. In the case of IEC standard motors, the shaft diameters and parallel key connections are specified in accordance with DIN EN 50347. For diesel motors, the flywheel connections are frequently specified in accordance with SAE J620d or DIN 6288. Besides the very widely used connection of shaft and hub with parallel keys to DIN 6885 and cylindrically bored hubs, couplings with Taper clamping bushes, clamping sets, shrink-fit connections and splines to DIN 5480 are common.

The form stability of the shaft/hub connection can only be demonstrated when shaft dimensions and details of the connection are available. The coupling torques specified in the tables of power ratings of the coupling series do not apply to the shaft-hub connection unrestrictedly.

In the case of the shaft-hub connection with parallel key, the coupling hub must be axially secured, e.g. with a set screw or end washer. The parallel key must be secured against axial displacement in the machine shaft.

All Flender couplings with a finished bore and parallel keyway are designed with a set screw. Exceptions are some couplings of the FLUDEX series, in which end washers are used. During assembly, Taper clamping bushes are frictionally connected to the machine shaft.

TECHNICAL INFORMATION

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Standards

Machines

2006/42/EG	EC Machinery Directive
2014/34/EU	ATEX Directive – Manufacturer
1999/92/EG	ATEX Directive – Operator – and ATEX Guideline to Directive 1999/92/EC
DIN EN 80079-36	Non-electrical equipment for use in potentially explosive atmospheres
DIN EN 1127	Explosive atmospheres, explosion prevention and protection
DIN EN 50347	General-purpose three-phase induction motors having standard dimensions and outputs

Couplings

DIN 740	Flexible shaft couplings Part 1 and Part 2
VDI Guideline 2240	Shaft couplings - Systematic subdivision according to their properties VDI Technical Group Engineering Design 1971
API 610	Centrifugal Pumps for Petroleum, Chemical and Gas Industry Services
API 671	Special Purpose Couplings for Petroleum, Chemical and Gas Industry Services
ISO 10441	Petroleum, petrochemical and natural gas industries – Flexible couplings for mechanical power transmission-special-purpose applications
ISO 13709	Centrifugal pumps for petroleum, petrochemical and natural gas industries

Balancing

DIN ISO 21940	Requirements for the balancing quality of rigid rotors
DIN ISO 21940-32	Mechanical vibrations; standard governing the type of parallel key during balancing of shafts and composite parts

Shaft-hub connections

DIN 6885	Driver connections without taper action – parallel keys – keyways
SAE J620d	Flywheels for industrial engines ...
DIN 6288	Reciprocating internal combustion engines Dimensions and requirements for flywheels and flexible couplings
ASME B17.1	Keys and keyseats
DIN EN 50347	General-purpose three-phase induction motors with standard dimensions and output data
BS 46-1:1958	Keys and keyways and taper pins Specification

Key to symbols

Name	Symbols	Unit	Explanation
Torsional stiffness, dynamic	C_{Tdyn}	Nm/rad	For calculating torsional vibration
Excitation frequency	f_{err}	Hz	Excitation frequency of motor or driven machine
Moment of inertia	J	kgm^2	Moment of inertia of coupling sides 1 and 2
Axial misalignment	ΔK_a	mm	Axial misalignment of the coupling halves
Radial misalignment	ΔK_r	mm	Radial misalignment of the coupling halves
Angular misalignment	ΔK_w	°	Angular misalignment of the coupling halves
Service factor	FB		Factor expressing the real coupling load as a ratio of the nominal coupling load
Frequency factor	FF		Factor expressing the frequency dependence of the fatigue torque load
Temperature factor	FT		Factor taking into account the reduction in strength of flexible rubber materials at a higher temperature
Weight	m	kg	Weight of the coupling
Rated speed	n_N	rpm	Coupling speed
Maximum coupling speed	n_{Kmax}	rpm	Maximum permissible coupling speed
Rated power	P_N	kW	Rated output on the coupling, usually the output of the driven machine
Rated torque	T_N	Nm	Rated torque as nominal load on the coupling
Fatigue torque	T_W	Nm	Amplitude of the dynamic coupling load
Maximum torque	T_{max}	Nm	More frequently occurring maximum load, e.g. during starting
Overload torque	T_{OL}	Nm	Very infrequently occurring maximum load, e.g. during short circuit or blocking conditions
Rated coupling torque	T_{KN}	Nm	Torque which can be transmitted as static torque by the coupling over the period of use.
Maximum coupling torque	T_{Kmax}	Nm	Torque which can be frequently transmitted (up to 25 times an hour) as maximum torque by the coupling.
Coupling overload torque	T_{KOL}	Nm	Torque which can very infrequently be transmitted as maximum torque by the coupling.
Fatigue coupling torque	T_{KW}	Nm	Torque amplitude which can be transmitted by the coupling as dynamic torque at a frequency of 10 Hz over the period of use.
Resonance factor	V_R		Factor specifying the torque increase at resonance
Temperature	T_a	°C	Ambient temperature of the coupling in operation
Damping coefficient	Ψ	psi	Damping parameter

SELECTION OF THE COUPLING SERIES

E

The coupling series is frequently determined by the driven machine and the design of the drive train. Common selection criteria are listed below and assigned to coupling properties, which are used to select the coupling series. Additionally, the price of the coupling and availability are important criteria for determining the coupling series to be used.

The FLUDEX series operates positively and transmits the torque with the aid of a flowing oil or water filling.

FLUDEX couplings are used to reduce starting and/or overload torques. During starting, the motor may, for example, run up within a very short time; because of the FLUDEX coupling, the drive train with the driven machine may accelerate after a delay and without increased torque load.

The FLUDEX coupling cannot compensate for shaft misalignment and is therefore designed in combination with a displacement coupling, a cardan shaft or a belt drive. The displacement coupling may be selected in accordance with the criteria described below.

Selection criteria	Torque range Rated coupling torque T_{KN}	Speed range Peripheral speed $v_{max} = DA \cdot n_{max}/19100$	Torsional stiffness torsionally rigid	torsionally flexible	Highly flexible	Operating temperature range
ZAPEX	850 ... 7200000 Nm	60 m/s	■	–	–	-20 ... +80 °C
N-ARPEX	350 ... 2000000 Nm	110 m/s	■	–	–	-50 ... +280 °C
ARPEX	92 ... 2000000 Nm	100 m/s	■	–	–	-40 ... +280 °C
N-EUPEX	19 ... 62000 Nm	36 m/s	–	■	–	-50 ... +100 °C
N-EUPEX DS	19 ... 21200 Nm	36 m/s	–	■	–	-30 ... +80 °C
RUPEX	200 ... 1300000 Nm	60 m/s	–	■	–	-50 ... +100 °C
N-BIPEX	12 ... 4650 Nm	45 m/s	–	■	–	-50 ... +100 °C
ELPEX-B	24 ... 14500 Nm	35 m/s	–	–	■	-50 ... +70 °C
ELPEX-S	330 ... 63000 Nm	66 m/s	–	–	■	-40 ... +120 °C
ELPEX	1600 ... 90000 Nm	60 m/s	–	–	■	-40 ... +80 °C

E

Typical coupling solutions for different example applications

The specified application factors are recommendations; regulations, rules and practical experience take priority as assessment criteria.
No application factor need be taken into account with FLUDEX couplings.

In the case of highly flexible couplings of the ELPEX, ELPEX-S and ELPEX-B series, deviating application factors are stated in the product descriptions.
FLUDEX couplings are mostly mounted on the high-speed gear shaft.

Example applications	Application factor FB
Electric motor without gear unit	
Centrifugal pumps	1.0
Piston pumps	1.5
Vacuum pumps	1.5
Fans with T_N less than 75 Nm	1.5
Fans with T_N from 75 to 750 Nm	1.75
Fans with T_N larger than 750 Nm	1.75
Blowers	1.5
Frequency converters / generators	1.25
Reciprocating compressors	1.75
Screw-type compressors	1.5
Internal-combustion engine without gear unit	
Generators	1.75
Pumps	1.5
Fans	1.75
Hydraulic pumps, excavators, construction machines	1.5
Compressors / screw-type compressors	1.5
Agricultural machinery	1.75
Other	
Turbine gear units	1.5
Hydraulic motor - gear unit	1.25
Electric motor with gear unit	
Chemical industry	
Extruders	1.5
Pumps - centrifugal pumps	1.0
Pumps - piston pumps	1.75
Pumps - plunger pumps	1.5
Reciprocating compressors	1.75
Calenders	1.5
Kneaders	1.75
Cooling drums	1.25
Mixers	1.25
Stirrers	1.25
Toasters	1.25
Drying drums	1.25
Centrifuges	1.25
Crushers	1.5
Power generation and conversion	
Compressed air, reciprocating compressors	1.75

Example applications	Application factor FB
Compressed air, screw-type compressors	1.25
Air - Blowers	1.5
Air - Cooling tower fans	1.5
Air - Turbine blowers	1.5
Generators, converters	1.25
Welding generators	1.25
Metal production, iron and steel works	
Plate tilters	1.5
Ingot pushers	1.75
Slabbing mill	1.75
Coiling machines	1.5
Roller straightening machines	1.5
Roller tables	1.75
Shears	1.75
Rollers	1.75
Metal working machines	
Plate bending machines	1.5
Plate straightening machines	1.5
Hammers	1.75
Planing machines	1.75
Presses, forging presses	1.75
Shears	1.5
Grinding machines	1.25
Punches	1.5
Machine tools: Main drives	1.5
Machine tools: Auxiliary drives	1.25
Food industry	
Filling machines	1.25
Kneading machines	1.5
Mashers	1.5
Sugar cane production	1.5
Production machines	
Construction machines, hydraulic pumps	1.25
Construction machines, traversing gears	1.5
Construction machines, suction pumps	1.5
Construction machines, concrete mixers	1.5
Printing machines	1.25
Woodworking - barking drums	1.5
Woodworking - planing machines	1.5

Example applications	Application factor FB
Woodworking - reciprocating saws	1.5
Grinding machines	1.5
Textile machines - winders	1.5
Textile machines - printing machines	1.5
Textile machines - tanning vats	1.5
Textile machines - shredders	1.5
Textile machines - looms	1.5
Packaging machines	1.5
Brick molding machines	1.75
Transport and logistics	
Passenger transport - elevators	1.5
Passenger transport - escalators	1.5
Conveyor systems - bucket elevators	1.5
Conveyor systems - hauling winches	1.5
Conveyor systems - belt conveyors	1.5
Conveyor systems - endless-chain conveyors	1.5
Conveyor systems - circular conveyors	1.5
Conveyor systems - screw conveyors	1.5
Conveyor systems - inclined hoists	1.5
Crane traversing gear	1.5
Hoisting gear	1.5
Crane lifting gear	2.0
Crane traveling gear	1.5
Crane slewing gear	1.5
Crane fly jib hoists	1.5
Cable railways	1.5
Drag lifts	1.5
Winches	1.5
Cellulose and paper	
Paper-making machines, all	1.5
Pulper drives	1.5
Cement industry	
Crushers	1.75
Rotary furnaces	1.5
Hammer mills	1.75
Ball mills	1.75
Pug mills	1.75
Mixers	1.5
Pipe mills	1.5
Beater mills	1.75
Separators	1.5
Roller presses	1.75

SELECTION OF THE COUPLING SIZE

E

The torque load of the coupling must be determined from the output of the driven machine and the coupling speed.

Rated coupling load $T_N = 9550 \times P_N / n_N$
(T_N in Nm; P_N in kW; n_N in rpm)

The rated coupling load obtained in this way must be multiplied by factors and compared with the rated coupling torque. An ideal but expensive method is to measure the torque characteristic on the coupling. For this, Flender offers special adapters fitted with torque measuring devices.

The rated coupling torque T_{KN} is the torque which can be transmitted by the coupling over an appropriate period of use if the load is applied to the coupling purely statically at room temperature.

Application factors are to express the deviation of the real coupling load from the "ideal" load condition.

Coupling load in continuous operation

The operating principles of the driving and driven machines are divided into categories and the application factor FB derived from these in accordance with DIN 3990-1.

Application factor for N-EUPEX, N-EUPEX-DS, RUPEX, N-BIPEX, ELPEX-B, N-ARPEX, ARPEX, ZAPEX and FLUDEX

Application factor FB				
	Torque characteristic of the driven machine			
Torque characteristic of the driving machine	uniform	uniform with moderate shock loads	non uniform	very rough
uniform	1.0	1.25	1.5	1.75
uniform with moderate shock loads	1.25	1.5	1.75	2.0
non uniform	1.5	1.75	2.0	2.5

Examples of torque characteristic of driving machines:
- uniform: Electric motors with soft starting, steam turbines
- uniform with moderate shock loads: Electric motors without soft starting, hydraulic motors, gas and water turbines
- non uniform: Internal-combustion engines

Examples of torque characteristic in driven machines:
- uniform: Generators, centrifugal pumps for light fluids
- uniform with moderate shock loads: Centrifugal pumps for viscous fluids, elevators, machine tool drives, centrifuges, extruders, blowers, crane drives
- non uniform: Excavators, kneaders, conveyor systems, presses, mills
- very rough: Crushers, excavators, shredders, iron/smelting machinery

E

Temperature factor FT												
			Temperature T_a on the coupling									
Coupling	Elastomer material	Low temperature °C	under -30 °C	-30 °C up to 50 °C	up to 60 °C	up to 70 °C	up to 80 °C	up to 90 °C	up to 100 °C	up to 110 °C	up to 120 °C
N-EUPEX	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
N-EUPEX	NR	-50	1.1 [1]	1.0	–	–	–	–	–	–	–
N-EUPEX	HNBR	-10	–	1.0	1.0	1.0	1.0	1.25	1.25	–	–
N-EUPEX DS	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
RUPEX	NBR	-30	–	1.0	1.0	1.0	1.0	–	–	–	–
RUPEX	NR	-50	1.1	1.0	–	–	–	–	–	–	–
RUPEX	HNBR	-10	–	1.0	1.0	1.0	1.0	1.25	1.25	–	–
N-BIPEX	TPU	-50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	–	–
ELPEX	NR	-40	1.1	1.0	1.25	1.40	1.60	–	–	–	–
ELPEX-B	NR	-50	1.1	1.0	–	–	–	–	–	–	–
ELPEX-B	CR	-15	–	1.0	1.0	1.0	–	–	–	–	–
ELPEX-S SN, NN, WN	NR	-40	1.1	1.0	1.25	1.40	1.60	–	–	–	–
ELPEX-S NX	VMQ	-40	1.1	1.0	1.0	1.0	1.0	1.1	1.25	1.4	1.6

NR = natural rubber, natural-synthetic rubber mixture
NBR = nitril-butadiene-rubber (Perbunan)
HNBR = hydrated acrylonitrile butadiene rubber
CR = chloroprene rubber (FRAS fire-resistant and anti-static)
VMQ = silicone
TPU = polyurethane

[1] The N-EUPEX coupling is not suitable for shock loads when used at low temperatures.

Coupling size $T_{KN} \geqslant T_N \cdot FB \cdot FT$

In the case of ARPEX and ZAPEX coupling types, no temperature factor (FT = 1.0) need be taken into account.

Coupling load at maximum and overload conditions

The maximum torque is the highest load acting on the coupling in normal operation.
Maximum torques at a frequency of up to 25 times an hour are permitted and must be lower than the maximum coupling torque. Examples of maximum torque conditions are: Starting operations, stopping operations or usual operating conditions with maximum load.

$T_{Kmax} \geqslant T_{Max} \cdot FT$

Overload torques are maximum loads which occur only in combination with special, infrequent operating conditions. Examples of overload torque conditions are: Motor short circuit, emergency stop or blocking because of component breakage. Overload torques at a frequency of once a month are permitted and must be lower than the maximum overload torque of the coupling. The overload condition may last only a short while, i.e. fractions of a second.

$T_{KOL} \geqslant T_{OL} \cdot FT$

Coupling load due to dynamic torque load

Applying the frequency factor FF, the dynamic torque load must be lower than the coupling fatigue torque.

Dynamic torque load

$T_{KW} \geqslant T_W \cdot FF$

Frequency of the dynamic torque load
$f_{err} \leqslant 10$ Hz frequency factor FF = 1.0

Frequency of the dynamic torque load
$f_{err} > 10$ Hz frequency factor $FF = \sqrt{(f_{err}/10\ Hz)}$

For the ZAPEX and ARPEX series, the frequency factor is always FF = 1.0.

SELECTION OF THE COUPLING SIZE

E

Checking the maximum speed

For all load situations $n_{Kmax} \geqslant n_{max}$

Checking permitted shaft misalignment

For all load situations, the actual shaft misalignment must be less than the permitted shaft misalignment.

Checking bore diameter, mounting geometry and coupling design

The check must be made on the basis of the dimension tables. The maximum bore diameter applies to parallel keyways to DIN 6885. For other keyway geometries, the maximum bore diameter can be reduced.

On request, couplings with adapted geometry can be provided.

Coupling behavior under overload conditions

The ZAPEX, N-ARPEX, ARPEX, N-EUPEX, RUPEX and N-BIPEX coupling series can withstand overloads until the breakage of metal parts. These coupling series are designated as fail-safe.
The N-EUPEX DS, ELPEX-B, ELPEX-S and ELPEX coupling series throw overload. The elastomer element of these couplings is irreparably damaged without damage to metal parts when subjected to excessive overload.

These coupling series are designated as non-fail-safe. These types that fail can be fitted with a so-called fail-safe device. This additional component enables emergency operation, even after the rubber element of the coupling has been irreparably damaged.

Checking shaft-hub connection

The torques specified in the tables of power ratings data of the coupling series do not necessarily apply to the shaft-hub connection. Depending on the shaft-hub connection, proof of form stability is required. Flender recommends obtaining proof of form strength by using calculation methods in accordance with the current state of the art.

Shaft-hub connection	Suggestion for calculation method
Keyway connection to DIN 6885-1	DIN 6892
Shrink fit	DIN 7190
Spline to DIN 5480	
Bolted flange connection	VDI 2230
Flange connection with close-fitting bolts	

Fitting recommendations for the shaft-hub connection are given in the **Appendix**.

The coupling hub is frequently fitted flush with the shaft end face. If the shaft projects, the risk of collision with other coupling parts must be checked. If the shaft is set back, in addition to the load-bearing capacity of the shaft-hub connection, the correct positioning of the hub must be ensured as well. If the bearing hub length is insufficient, restorative forces may cause tilting movements and so wear to and impairment of the axial retention. Also, the position of the set screw to be positioned on sufficient shaft or parallel key material must be noted.

Checking low temperature and chemically aggressive environment

The minimum permitted coupling temperature is specified in the Temperature factor FT table. In the case of chemically aggressive environments, please consult the manufacturer.

FEATURES OF THE STANDARD TYPE

Couplings	Features of the standard type
All coupling series except ARPEX clamping hubs and FLUDEX with keyway to ASME B17.1	Bore tolerance H7
N-ARPEX and ARPEX clamping hubs	Bore tolerance H6
FLUDEX couplings with keyway to ASME B17.1	Hollow shafts: bore tolerance K7
	other parts: Bore tolerance M7
All coupling series with bore diameter - imperial	Parallel keyway to ASME B17.1
Bore diameter metric in the case of ZAPEX, N-ARPEX and ARPEX coupling series as well as coupling hubs with applied brake disks or brake drums of the N-EUPEX and RUPEX series	Parallel keyway to DIN 6885-1 keyway width P9
Bore diameter metric in the case of the N-EUPEX, RUPEX, N-BIPEX, ELPEX-S, ELPEX-B, ELPEX, FLUDEX coupling series	Parallel keyway to DIN 6885-1 keyway width JS9
All coupling series except FLUDEX	Axial locking by means of set screw
FLUDEX coupling series	Axial lock by means of set screw or end washer
All coupling series	Balancing in accordance with half parallel key standard
ZAPEX, N-ARPEX, ARPEX, N-EUPEX, RUPEX, N-BIPEX, ELPEX-S, ELPEX-B and ELPEX coupling series	Balancing quality G16
FLUDEX coupling series	Balancing quality G6.3
All series	Unpainted
All series	Preservation with cleaning emulsion
FLUDEX couplings	Fuse 140 °C

Configurator

The article number can be obtained with the help of the Configurator. The coupling can be selected in a product configurator and specified using selection menus.

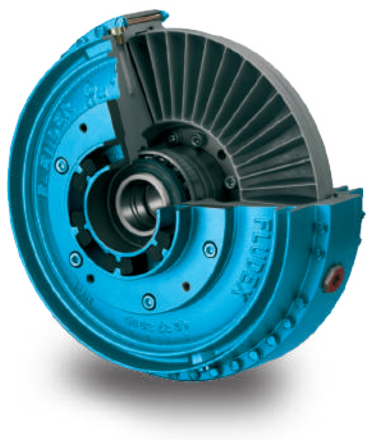
The Configurator is available under **flender.com**.

The coupling can be selected via "Technical selection" (technical selection) or via "Direct selection" (via article-no.).

FLUID COUPLINGS
FLUDEX SERIES

FLUDEX
FLENDER

GENERAL



Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

CE II 2G Ex h IIB T3 Gb X

II 2D Ex h IIIC T160°C Db X

I M2 Ex h Mb X

FLUDEX couplings marked with Ex are constructed with fusible safety plugs 110 °C.

Benefits

FLUDEX couplings are hydrodynamic fluid couplings which operate on the Föttinger principle. The coupling parts on the input and output sides are not mechanically connected to each other. Output is transmitted via the oil filling which rotates in the coupling and is conducted over radially arranged blades.

FLUDEX couplings limit starting and maximum torque in the drive train and, through the property of rotational slip, serve as an aid to starting the motor, as overload protection in the event of fault and for isolating torsional vibration.

When large masses are started up, the drive train is accelerated only at the torque determined by the coupling characteristic. The starting operation is spread over time, the driven machine started softly and smoothly.

In the case of special operating conditions, such as overload or blocking of the driven machine, the FLUDEX coupling limits the maximum torque load and prevents the inert effect of the rotating motor mass on the drive train.
The coupling then acts as a load-holding safety clutch until the drive is shut off by the motor control or coupling monitoring system.

The FLUDEX coupling further acts as a means of decoupling during torsional vibration excitation. Torsional vibration excitation with a frequency of > 5 Hz is virtually absorbed by the coupling.

To compensate for shaft misalignment, the FLUDEX coupling is combined with a displacement coupling e.g. of the N-EUPEX type.

All FLUDEX couplings are designed with radial unset blades and are therefore suitable for rotation in both directions and reversing operation. They can be fitted horizontally, at an angle or vertically. In the case of FLUDEX couplings with a delay chamber it must be ensured, when fitting at an angle or vertically, that the delay chamber is below the working chamber.

Application

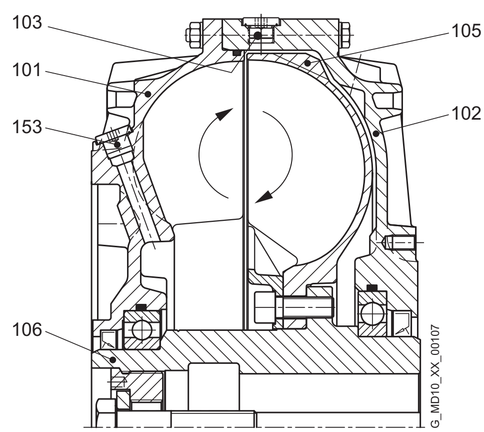
FLUDEX couplings are used in drives for conveyor systems such as belt conveyors, bucket elevators and chain conveyors. In heavy industry FLUDEX couplings are used for applications such as blade wheel drives, crushers, roller presses, mixers, large ventilators, boiler feed pumps, large compressors, centrifuges and auxiliary drives for mills.

Further applications are, for example, pump drives, PTO generator drives, wind power systems and door and gate drives.

In drives with diesel engines, FLUDEX couplings are used on driven machines with a high mass moment of inertia.

Design and configurations

FLUDEX couplings are constructed of just a few, robust components. Internal components include the hollow shaft or solid shaft (106), to which the blade wheel (105) is connected. The outer housing comprises the cover (102) and the blade wheel housing (101). The joint is constructed as a bolted flange joint and sealed with an O ring. The outer housing and the shaft or hollow shaft have double bearing support and are sealed off to the outside with radial shaft seals. The coupling is provided with two filler plugs (153) with integral overflow protection and with one or two fusible safety plugs (103) in the coupling housing for protection against overheating. The fusible safety plug or a screw plug fitted in the same position also serves as a fluid drain plug and with the aid of a scale marking on the housing can be used as a level indicator.



Materials

- Blade wheel and housing:
  Cast aluminum AlSi10Mg or AlSi9Mg
- Shaft and hollow shaft:
  Steel with a yield point higher than 400 N/mm²
- Static seals and radial shaft seals:
  Perbunan NBR or Viton FPM
- Add-on parts:
  Grey cast iron EN-GJL-250, spheroidal graphite cast iron EN-GJS-400 or steel

Fusible safety plugs

If a FLUDEX coupling is operated with an impermissibly high slip for a prolonged period, the oil filling and the coupling housing will overheat. Fusible safety plugs which release the oil filling into the environment upon reaching a preset temperature are therefore fitted in each coupling housing. These protect the coupling from irreparable damage through overheating or overpressure and disconnect the drive motor from the driven machine.

GENERAL

Thermal equipment

Equipment	Suitability for coupling continuous operating temperatures	Fusible safety plug	Sealing materials
	up to 85 °C	110 °C	NBR
			FPM
Standard	up to 85 °C	140 °C	NBR
			FPM
	up to 110 °C	160 °C	FPM
ATEX	up to 85 °C	110 °C ex	NBR
			FPM
With thermal switch [1]	up to 85 °C	140 °C + thermal switch 110 °C	NBR
			FPM
	up to 110 °C	160 °C + thermal switch 140 °C	FPM
With transmitter [1]	up to 85 °C	160 °C + EOC transmitter (125 °C)	NBR
	up to 110 °C		FPM

Thermal switching equipment

By adding thermal switching equipment leakage and loss of the hydraulic fluid as well as a risk to and contamination of the environment in the event that the coupling overheats can be avoided.

The thermal switching equipment does not work if a machine side is blocked and the coupling housing is connected to this side. If the coupling is stationary, the switching pin cannot actuate the switching equipment.

The thermal switching equipment comprises the thermal switch and the switchgear.

The switchgear comprises a limit switch with a make-and-break contact and a swiveling cam. Limit switch and cam are mounted on a common base plate. The thermal switch is screwed into the housing in place of a screw plug. The fusible safety plug (with a higher response temperature) remains in the coupling for additional safety.

If the set temperature is exceeded, the switching pin is released from the fusible element, emerges 10 mm from the housing and actuates the switchgear while the coupling is rotating. The switchgear can cut out the drive motor and/or trigger an optical or acoustic alarm signal.
The housing of the coupling remains closed and no operating fluid will escape.

Continuous operating temperature	Thermal switch	Fusible safety plug
≤ 85 °C	110 °C	140 °C
> 85 ° ... 110 °C	140 °C	160 °C

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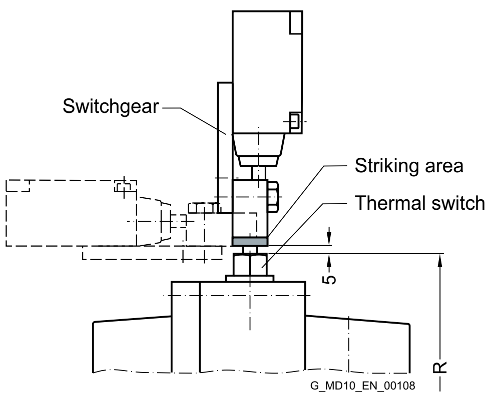
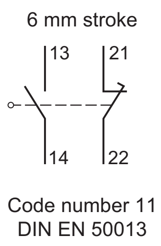
[1] Not available for size 222.

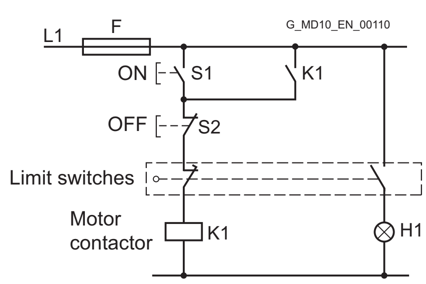


	Coupling size												
	297	342	370	395	425	450	490	516	565	590	655	755	887
Perm. speed in rpm	2500	2240	2100	2000	1900	1800	1650	1600	1500	1450	1250	1100	1000
Radius of travel R in mm	188	215	226	239	251	271	292	307	330	346	383	435	507

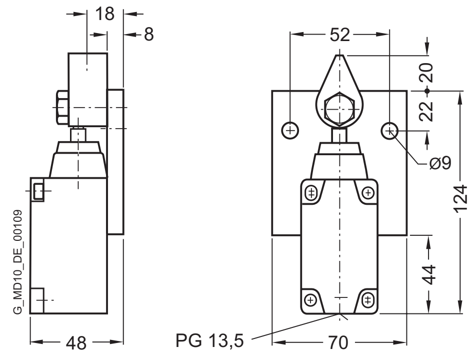
From coupling size 297, the thermal switching equipment can be used up to a peripheral speed of 50 m/s. At higher speeds, an EOC system should be provided.



Snap-action switching contact



Wiring proposition



Switchgear: FFA:000000652020

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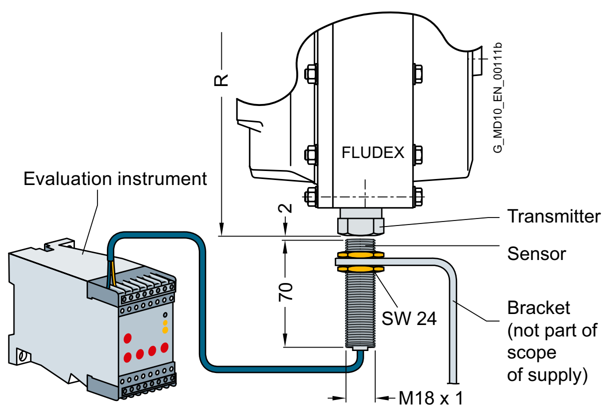
GENERAL

EOC system

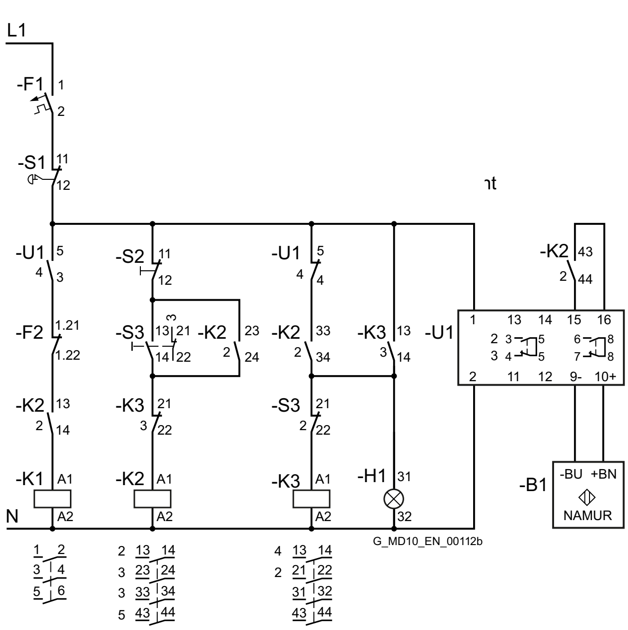
On the EOC system the temperature-dependent magnitude of the magnetic field of the EOC transmitter is measured and used for a switching pulse. The transmitter signal is transmitted via the fixed sensor to the evaluation instrument and there compared with the set value. If the signal does not exceed the minimum value or no signal is received, the relay of the evaluation instrument switches over. This can cause a malfunction message to be sent and the motor cut out. The coupling housing remains closed.

The fusible safety plug with a higher response temperature remains in the coupling for additional safety.
The response temperature of the EOC system is 125 °C.

Components of the EOC system	
Component	**Article No.**
EOC transmitter with seal	**FFA:000001194899**
EOC sensor	**FFA:000000361460**
Evaluation instrument EWD	**FFA:000001205294**



	Coupling size												
	297	**342**	**370**	**395**	**425**	**450**	**490**	**516**	**565**	**590**	**655**	**755**	**887**
Radius of travel R to the transmitter in mm	188	215	226	239	251	271	292	307	330	346	383	435	507



Wiring proposition

- B1 Sensor
- F1 Fuse
- F2 Motor protection switch
- H1 Malfunction
- K1 Motor protection
- K2 Contactor relay
- K3 Contactor relay
- S1 Emergency stop
- S2 Motor Off
- S3 Motor On
- U1 Evaluation instrument

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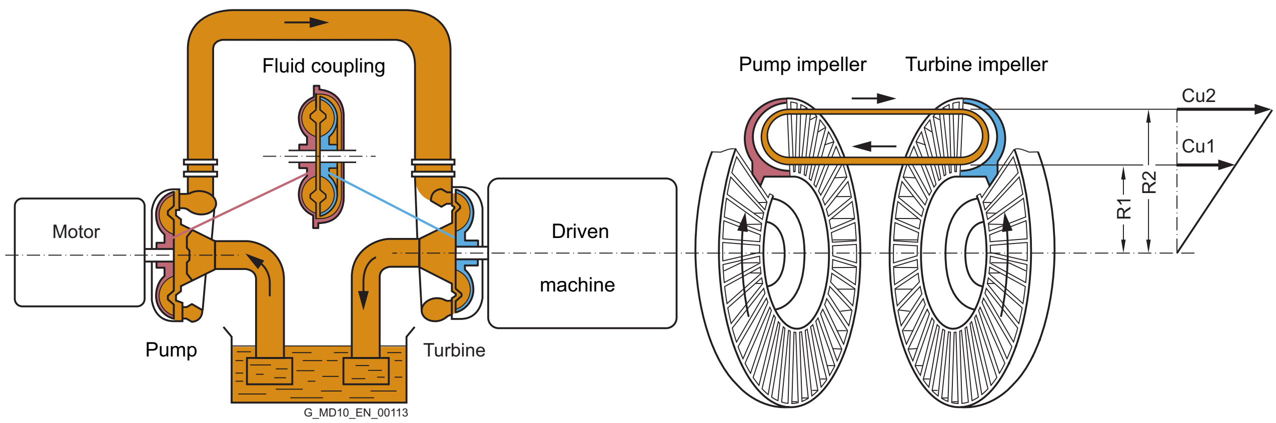
Function

Föttinger principle



Two opposing, radially bladed impellers are housed in a leakproof housing. The impellers are not mechanically connected to each other. Because of the axially parallel arranged blades, the torque is transmitted independently of the direction of rotation and solely by the oil filling.

Hydrodynamic couplings have the characteristic properties of fluid flow engines. The transmissible torque depends on the density and quantity of the operating fluid and increases as the square of the drive speed and the fifth power of the profile diameter denoting the coupling size. In the driven pump impeller, mechanical energy is converted into kinetic flow energy of the operating fluid. In the turbine impeller, which is connected to the output side, flow energy is converted back to mechanical energy.

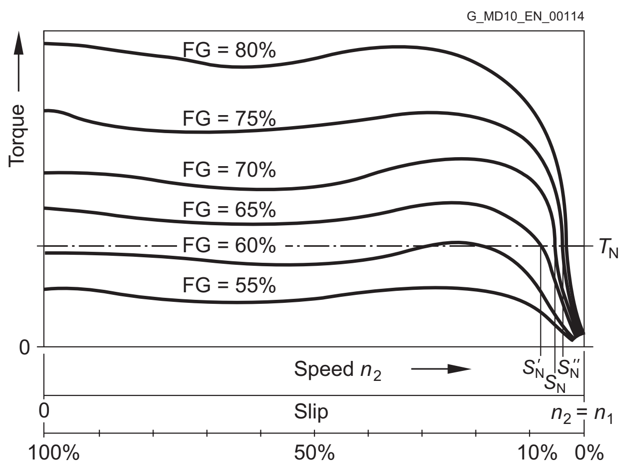
To generate the operating fluid circulation necessary for torque transmission, a difference in speed is necessary between the pump and turbine impellers. A centrifugal force pressure field is set up that is greater in the faster rotating pump impeller than in the turbine impeller.
The difference in speed, usually termed "slip", at the continuous operating point of the coupling is between 2 % and 6 %, depending on application and coupling size. Immediately after drive motor start-up slip is 100 %, i.e. the pump impeller is driven at the speed of the motor, but the turbine impeller remains stationary.

Slip multiplied by the transmitted power represents the power loss of the coupling, which is converted into heat inside the oil filling. The amount of heat generated must be released into the environment via the coupling housing to prevent an impermissible temperature rise. The rated coupling output is mainly determined by the power loss which can be dissipated at a still acceptable operating temperature or a reasonable set slip limit. This distinguishes the FLUDEX coupling from all positively acting coupling assembly options for which the rated coupling torque is the defining characteristic.

Depending on the FLUDEX coupling series, drive is via the inner rotor (shaft/hollow shaft with rigidly connected blade wheel) or via the bladed housing impeller (blade wheel housing). The driving impeller is the pump impeller, and the driven impeller is the turbine impeller.

A low-viscosity mineral oil VG 22/VG 32, which also serves to lubricate the bearings, is used as fluid. In special types water, a water emulsion or low-flammability fluid may be used as a non-combustible fluid.

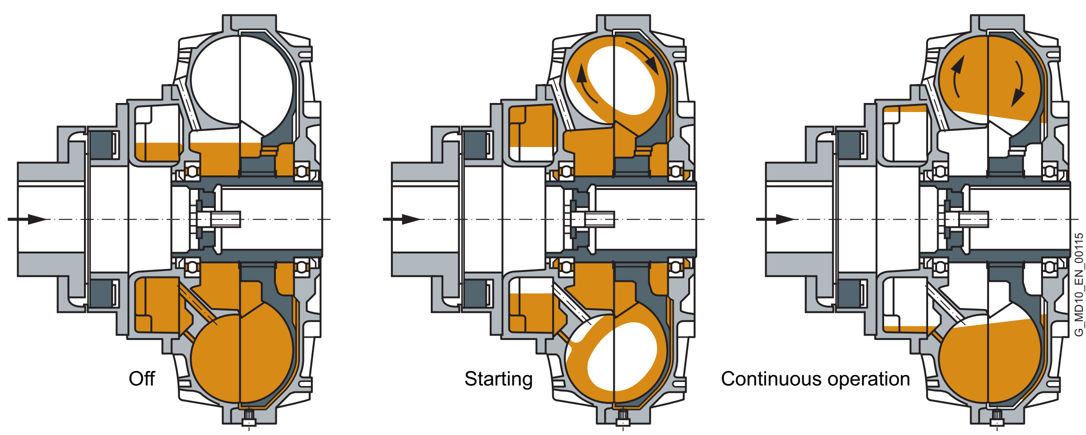
GENERAL



Slip-torque characteristics for different filling levels FG

The torque characteristic depends on the oil filling quantity FG in the coupling. This enables the transmissible torque on starting up to be set via the filling level. With a higher filling level the starting torque increases, while the operating slip and thus the coupling temperature rise decreases.

Conversely, with a lower filling level the starting torque decreases, the coupling becomes softer, while slip and coupling temperature rise.



Operation of the delay chamber

Starting torque can be reduced without increasing continuous operating slip by using a type of coupling with a delay chamber. On these couplings part of the oil filling is initially stored inactively in the delay chamber. The starting torque is considerably reduced because of the thus reduced starting filling in the working chamber of the coupling. The filling in the delay chamber runs very slowly, mostly only at the finish of the starting operation, from the delay chamber into the working chamber, causing the active filling in it to rise gradually and the continuous operating slip to reach a value corresponding to the whole filling.

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Technical specifications

Balancing FLUDEX couplings

In deviation from the balancing specifications in **Chapter E**, all FLUDEX couplings complying with DIN ISO 21940 are balanced to balancing quality G6.3 for 1800 rpm. For operating speeds higher than 1800 rpm micro-balancing, based on operating speed, can be requested.

Balancing is a two-level balancing with the specified oil quantity or a 75 % filling.

FLUDEX couplings are balanced in accordance with the half parallel key standard. Other balancing standards must be specified in the order.

Add-on couplings are subject to the standards as set out in **Chapter E**.

Oil filling

FLUDEX couplings can be delivered with or without oil filling.

- Delivery without oil filling
- Delivery with oil filling
- Delivery without oil filling but with oil filling quantity specification in liters

Hollow shafts of the FA, FG and FV series

Variant of FLUDEX hollow shafts only with finished bore.

Operating temperature range of FLUDEX couplings

FLUDEX couplings are suitable for ambient temperatures of between -40 °C and +40 °C.

For use at temperatures below -15 °C, FLUDEX couplings are exclusively delivered with NBR seals (Perbunan).

For use at temperatures below -20 °C, FLUDEX couplings are generally delivered without oil filling.

To select the operating oil for low temperatures, ensure that the pour point of the oil is sufficiently low and that it is compatible with the sealing elements.

The temperature limits of the N-EUPEX add-on coupling are shown in part 7 of this catalogue.

If other displacement couplings are combined with a FLUDEX coupling, their respective temperature limits must be taken into account.

GENERAL

Operating conditions for FLUDEX couplings in potentially explosive atmospheres

The coupling with fusible safety plugs with identity marking Ex T3 is suitable for the operating conditions set out in the ATEX Directive 2014/34/EU:

Equipment group II (above-ground applications)
Temperature class T3 of categories 2 and 3 for environments where there are potentially explosive gas, vapors, mist and air mixtures and for environments where dust can form potentially explosive atmospheres.

Equipment group I (below-ground applications) of category M2

Ex If used in potentially explosive environments under ground, aluminum couplings must be provided with a robust enclo-sure to preclude the risk of ignition caused by e.g. friction, impact or friction sparks. The deposit of heavy-metal oxides (rust) on the coupling housing must be prevented by the enclosure or other suitable means.

Ex FLUDEX couplings can be delivered with fitted brake disk or V-belt pulley.
Designing the belt drive or the brake disk to conform with the guidelines is the responsibility of the subassembly supplier. It should be noted that there is a risk from, amongst other things, electrostatic charges and hot surfaces.
Under BGR 132 (regulations of German Institute for Occupational Safety) the use of V-belts in conjunction with IIC gases is not permitted.

Axial retention

Axial retention is provided by a set screw or end washer with a retaining screw for shaft ends to DIN 748/1 long with a centering thread to DIN 332/2.

Bore and keyway width tolerances are specified in **Chapter A**.

Weights specified in the dimension order tables apply to maximum bore diameters without oil filling.

Configuration

Selection of FLUDEX coupling

In accordance with the requirements catalog various series, sizes and types of FLUDEX coupling are available. The FLUDEX coupling series is characterized by various flow chamber configurations, fitted delay chambers or fittings in the flow chamber. The types are determined by the design of the add-on coupling.

This results in different starting factors and characteristics which can be used for the most varied applications. The size is specified by stating the flow outside diameter.

When selecting, the series required for the application, taking into account the starting factor and the characteristic, must be selected.

Selection of FLUDEX series

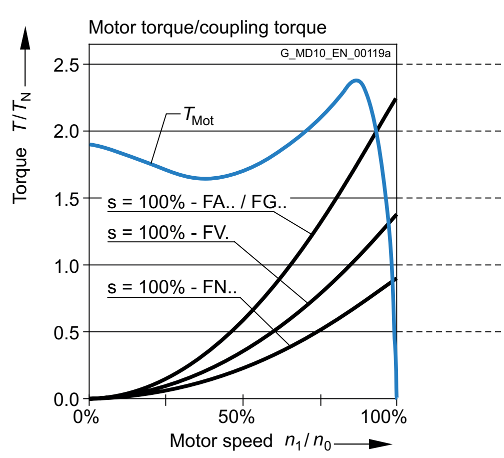
Series	Description
FA../FG..	Basic coupling without delay chamber
FV..	Coupling with delay chamber
FN..	Coupling with large delay chamber

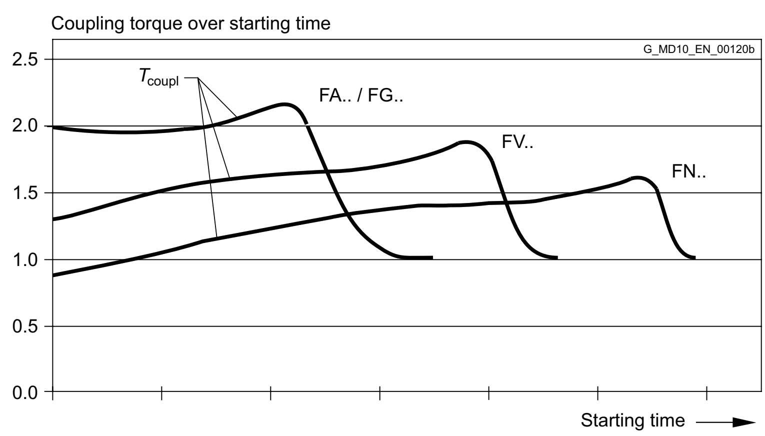
FLUDEX couplings, which are to be used solely as an aid to starting the motor under no special conditions, can be selected according to the assignment tables from **Page 13/20** (for n = 1500 min^{-1}) or from **Page 13/24** (for n = 3000 min^{-1}).

If special requirements, based on the operating method of the prime mover or driven machine, are made of the coupling or the coupling is to be used in extreme environmental conditions, please give specific details in the enquiry or order. The form "Technical specifications for the selection of type and size" on **Page 13/19** can be used for this purpose.

Start-up characteristics during the starting process

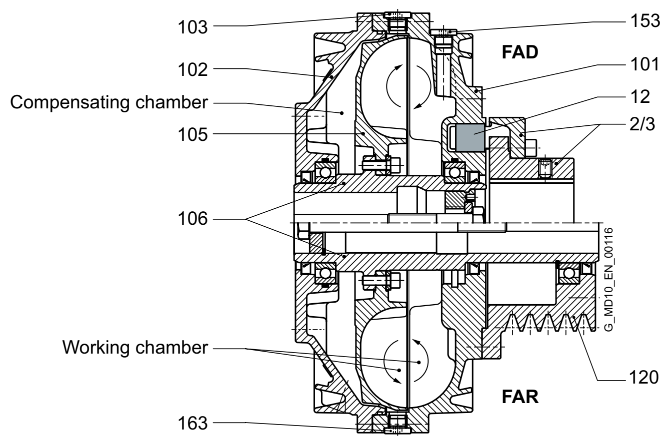
Depending on the series selected, different starting characteristics arise during starting.





GENERAL

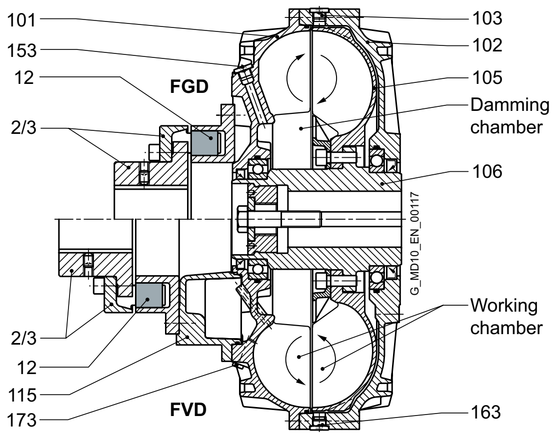
FA series – drive via the hollow shaft (impeller drive)



2/3 Part 2/3 of the flexible coupling
12 Flexible elements
101 Blade wheel (outer wheel)
102 Cover
103 Fusible safety plug
105 Blade wheel (inner wheel)
106 Hollow shaft
120 V-belt pulley
153 Filler plug
163 Screw plug (oil drain)

FLUDEX FA series couplings are basic couplings (without delay chamber) which are driven via the hollow shaft (106) with attached blade wheel (105). This enables the advantages of the compensating chamber and the working chamber to be used to best effect. Combinations with brake drums/disks and pulleys can also be easily achieved. When the coupling is started, part of the oil filling in the area of greatest slip is forced into the radially inner chambers and the compensating chamber by the strong rotational flow. This causes the effective oil filling in the working chamber to be reduced and the desired torque limitation (approx. twice TN) to be achieved during starting. By means of additional fittings the coupling torque at the start of the starting operation can be limited to approx.1.5 times the rated value. During run-up to speed the compensating chamber again empties into the working chamber, and this helps to reduce slip.

FG and FV series – drive via the housing



2/3 Part 2/3 of the flexible coupling
12 Flexible elements
101 Blade wheel (outer wheel)
102 Cover
103 Fusible safety plug
105 Blade wheel (inner wheel)
106 Hollow shaft
115 Delay chamber
153 Filler plug
163 Screw plug (oil drain)
173 Oil drain plug - delay chamber

FLUDEX FG and FV series couplings are designed for drive via the coupling housing. In the FV series (coupling with delay chamber), the motor drives the coupling housing, comprising a blade wheel (101) and a cover (102), via the flexible N-EUPEX coupling (part 2/3) and the delay chamber (115). The rotational flow of the coupling filling drives the blade wheel (105) and the hollow shaft (106) on the output side, which is mounted on the gear unit or driven machine shaft. In the FG series (basic coupling), there is no delay chamber, and the flexible coupling is directly flange-mounted on the blade wheel.

When the coupling is started up, part of the oil filling is forced into the damming chamber. This enables the desired torque limitation (approx. twice T_N) to be achieved during motor starting. In the FV series the delay chamber also receives part of the oil filling in accordance with the fluid level when the coupling is stationary. During starting the effective oil filling in the working chamber is reduced by the amount of fluid in the delay chamber, thus considerably reducing the starting torque (approx. 1.5 times T_N).

From the delay chamber located on the drive side, the oil is fed back time-dependently to the working chamber via small holes and the coupling torque is raised, even if the output is blocked.

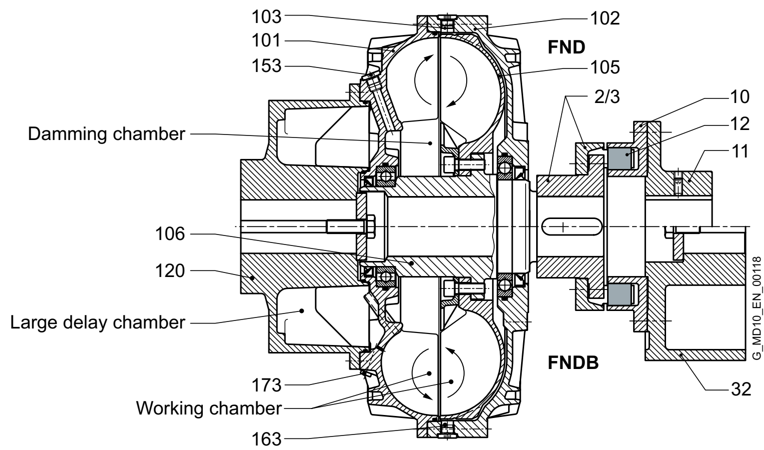
This replenishing function enables a drive to be soft-started with a very low starting torque and with an almost load-free motor. At the same time, however, increased load torques can be overcome by the torque increase in the coupling.

The property of the coupling with delay chamber can be used advantageously, for example, to soft-start empty, partly loaded and fully loaded conveyor belts.

FG series couplings are used for normal starting torque limitation, as a starting clutch for isolating vibration and for overload limitation in the event of drive blockage.

GENERAL

FN series – drive via the housing



2/3	Part 2/3 of the flexible coupling
10	Part 10 of the flexible coupling
12	Flexible elements
11	Part 11
32	Brake drum
101	Blade wheel (outer wheel)
102	Cover
103	Fusible safety plug
105	Blade wheel (inner wheel)
106	Shaft
120	Hub carrier (large delay chamber)
153	Filler plug
173	Oil locking screw - delay chamber
163	Screw plug (oil drain)

FLUDEX FN series couplings have a larger delay chamber than the FV series. The delay chamber is designed as a hub carrier (120) and is mounted on the motor shaft. The hub carrier is flange-fitted to the housing (101, 102) of the FLUDEX coupling. Output is via the blade wheel (105) and the shaft (106) to the flexible N-EUPEX coupling connecting to the gear unit or driven machine. With types FND, FNDB and FNDS the coupling can be dismounted radially without moving the coupled machines.

Because of the larger delay chamber, FN couplings enable even softer starting than FV couplings. Torque limitation during motor starting is approx. 1.3 times T_N. A further advantage of types FNDB and FNDS is the favorable weight distribution.

The normally stronger motor shaft bears the weight of the hub carrier (cast version) and the main coupling. The gear unit shaft carries only the brake drum or disk and the output-side part of the flexible coupling. At the same time, the principle of the drive-side delay chamber with the capacity for increasing torque time-dependently is retained. FN couplings have the same fields of application as FV couplings. However, they offer special advantages in the brake disk design because of the weight distribution.

Selection of FLUDEX type

Listed in the catalog are FLUDEX couplings with pulley, brake drum, brake disk and flexible N-EUPEX coupling.

Further types, e.g. in combination with a torsionally rigid steel membrane coupling of the ARPEX series or a highly flexible coupling of the ELPEX or ELPEX-S series, are available.

Series	Description	Type	Add-on coupling	Characteristic feature
FA	• without delay chamber • impeller-driven • Starting torque: $T_{max} = 2{,}0 \cdot T_{eff}$ • Starting aid for standard motors and torsional vibration isolation	FA**O**	**Without**	• Basic coupling with connecting flange
		FA**R**	Without	• with attached pulley
		FA**D**	N-EUPEX **D**	• enables change of flexible elements without axial displacement of the machine
		FA**E**	N-EUPEX **E**	• enables larger bores on the output side
		FA**M**	N-EUPEX **M**	• enables a short fitting length
		FA**DB**	N-EUPEX **D**	• with brake drum
		FA**DS SB**	N-EUPEX **D**	• with brake disk for stopping brakes • enables change of flexible elements without axial displacement of the machine
		FA**DS HB**	N-EUPEX **D**	• with brake disk for blocking brakes • enables change of flexible elements without axial displacement of the machine
FG	• without delay chamber • Housing-driven • Starting torque: $T_{max} = 2.0 \cdot T_{eff}$ • Starting aid for standard motors, for torsional vibration isolation and for overload limitation in the event of drive blockage.	FG**O**	**Without**	• Basic coupling with connecting flange
		FG**D**	N-EUPEX **D**	• enables change of flexible elements without axial displacement of the machine
		FG**E**	N-EUPEX **E**	• enables larger bores on the output side
		FG**M**	N-EUPEX **M**	• enables a short fitting length
FV	• with delay chamber • Housing-driven • Starting torque: $T_{max} = 1.5 \cdot T_{eff}$ • Starting aid for motors and soft-starting of conveyor equipment	FV**O**	**Without**	• Coupling with connecting flange
		FV**D**	N-EUPEX **D**	• enables change of flexible elements without axial displacement of the machine
		FV**E**	N-EUPEX **E**	• enables larger bores on the output side
		FV**M**	N-EUPEX **M**	• enables a short fitting length
FN	• with large delay chamber • Housing drive via hub carrier • Starting torque: $T_{max} = 1.3 \cdot T_{eff}$ • Starting aid for motors with very unfavorable characteristic and soft-starting of empty and full conveying equipment • favorable weight distribution on brake-drum variant	FN**O**	**Without**	• Coupling with connecting shaft
		FN**A**	N-EUPEX **A**	• enables a short fitting length • enables change of flexible elements without axial displacement of the machine
		FN**D**	N-EUPEX **D**	• enables change of flexible elements without axial displacement of the machine • enables fitting and dismounting of the coupling without displacement of the coupled machine
		FN**DB**	N-EUPEX **D**	• with brake drum • enables change of flexible elements without axial displacement of the machine • enables fitting and dismounting of the coupling without displacement of the coupled machine
		FN**DS SB**	N-EUPEX **D**	• with brake disk for stopping brakes • enables change of flexible elements without axial displacement of the machine • enables fitting and dismounting of the coupling without displace-ment of the coupled machine
		FN**DS HB**	N-EUPEX **D**	• with brake disk for blocking brakes • enables change of flexible elements without axial displacement of the machine • enables fitting and dismounting of the coupling without displacement of the coupled machine

The maximum shaft misalignments permissible for an N-EUPEX add-on coupling are shown in **catalog FLE 10.2**. For greater shaft misalignments FLUDEX couplings can be combined with cardan shafts or other displacement couplings.

FLUDEX couplings designed specifically for operation with water/water emulsion are available for use in mining applications.

GENERAL

Selection of FLUDEX size

The FLUDEX size is determined by the output to be transmitted in comparison with the rated outputs listed in the following tables. No application factors or additional safety factors need be taken into consideration.
The rated outputs stated in the tables normally require the maximum permissible filling (80 % to 85 %) of the coupling and because of operating slip, lead to the coupling heating up by approx. 50 °C relative to the ambient (cooling air) temperature. With lower outputs, coupling heating will be proportionately lower.

If for continuous operation of the coupling an absolute temperature (ambient temperature + coupling heating) of >85 °C is expected, the coupling must be fitted with FPM seals and 160 °C fusible safety plugs.

When selecting the size of a FLUDEX coupling in ATEX design or for operation with water/water emulsion, please note that these versions are normally designed with fusible safety plugs 110 °C and the maximum permitted coupling temperature must be limited to 85 °C.

FA series

Speed in rpm 600	740	890	980	1180	1350	1470	1600	1770	2000	2300	2600	2950	3550	FLUDEX size
Rated output P_N in kW														
		1.2	1.6	2.8	4.2	5.5	6.9	8.7	11.7	15	19	24	33	**222**
1.2	2.3	4	5.5	9	14	18.5	23	29	37	48	60	70	90	**297**
2.6	4.8	8.7	11.5	18	27	34	40	51	65	82	97	120	145	**342**
5.7	10	16	21	36	49	61	74	87	105	135	165	180		**395**
11	21	32	41	65	90	110	127	155	190	230	290	370		**450**
19	36	60	75	115	154	190	215	260	310	395				**516**
37	69	109	134	200	260	320	360	435	540					**590**

FG, FV and FN series

Speed in rpm 600	740	890	980	1180	1350	1470	1600	1770	2000	2300	2600	2950	3550	FLUDEX size
Rated output P_N in kW														
4	7.5	12	16	26	38	48	61	85	110	140	170	220	290	**370**
7.5	15	23	30	48	70	90	115	140	175	220	280	340		**425**
15	30	45	58	95	140	180	210	245	300	380	480			**490**
28	55	85	110	180	255	300	350	420	525	660				**565**
55	110	170	220	350	450	520	600	730	900					**655**
110	210	330	440	600	760	870	1010	1220						**755**
240	440	700	810	1130	1440	1660								**887**
480	880	1400	1600	2000	2350	2500								**887D**[1]

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[1] D = Multi-pass version on request.

Mass moments of inertia

FA series

FLUDEX size	Series	Types							Oil filling quantity
	FA	FAO	FAD	FAE	FAM	FADB	FADS SB	FADS HB	
	J_I	J_A	J_A	J_A	J_A	J_A	J_A	J_A	max.
	kgm²	kgm²	kgm²	kgm²	kgm²	kgm²	kgm²	kgm²	l
222	0.014	0.056	0.061	0.061	0.06	0.084	0.287	0.109	1.55
297	0.04	0.173	0.193	0.193	0.193	0.226	0.673	0.246	3.7
342	0.092	0.314	0.356	0.352	0.353	0.469	1.002	0.42	6.6
395	0.203	0.66	0.745	0.73	–	1.03	1.814	1.15	9.5
450	0.404	1.087	1.217	1.217	–	1.497	3.611	1.818	13.4
516	0.896	2.109	2.439	–	–	3.359	5.969	3.238	22.7
590	1.295	3.455	3.785	–	–	6.605	7.315	4.584	33

FAR series

FLUDEX size	J_I kgm²	J_A kgm²			Oil filling quantity max. l
222	0.014	2 · SPZ 100	3 · SPZ 160		1.55
		0.062	0.071		
297	0.107	5 · SPZ 150	4 · SPA 190	5 · SPA 224	3.7
		0.202	0.235	0.273	
342	0.095	5 · SPA 180			6.6
		0.386			
395	5 · SPB = 0,214	5 · SPB 224	7 · SPB 236	7 · SPB 280	9.5
	7 · SPB = 0,210	0.84	0.96	1.144	
450	0.426	8 · SPB 250			13.4
		1.467			
516	0.946	10 · SPB 315			22.7
		3.209			
590	1.375	12 · SPC 315			33
		4.955			

FG/FV series

FLUDEX size	Series		Types								Oil filling quantity	
	FG	FV	FGO	FVO	FGD	FVD	FGE	FVE	FGM	FVM	FG	FV
	J_I	J_I	J_A	J_A	J_A	J_A	J_A	J_A	J_A	J_A	max.	max.
	kgm²	kgm²	kgm²	kgm²	kgm²	kgm²	kgm²	kgm²	kgm²	kgm²	l	l
370	0.191	0.191	0.519	0.551	0.571	0.603	0.571	0.603	0.571	0.603	7.2	8
425	0.342	0.342	0.819	0.876	0.989	1.046	0.974	1.031	0.963	1.02	11	12
490	0.723	0.723	1.992	2.11	2.312	2.43	2.272	2.39	2.264	2.382	17	18.5
565	1.269	1.269	3.216	3.441	3.696	3.921	3.636	3.861	3.616	3.841	25.5	28
655	2.567	2.567	7.287	7.757	8.687	9.157	–	–	–	–	40	44
755	4.856	4.856	12.575	13.291	14.775	15.491	–	–	–	–	59	65
887	11.817	11.817	26.832	28.212	30.102	31.482	–	–	–	–	98	107

Note

- Mass moments of inertia *J* (including the power-transmitting oil filling components) apply to maximum bores

J_I Mass moment of inertia of the inner rotor (hollow shaft (106) + blade wheel (105)) in kgm²

J_A Mass moment of inertia of the outer housing (shell (101) + cover (102)) + any parts of the add-on coupling connected to them) in kgm²

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GENERAL

FN series

FLUDEX size	Hub carrier part	Series FN J_A kgm²	Types FNO J_I kgm²	FNA J_I kgm²	FND J_I kgm²	FNDS SB J_I kgm²	FNDS HB J_I kgm²	Weights Y mm	F_Y N	Oil filling quantity max. l
370	Standard	0.657	0.237	0.281	0.32	1.18	0.386	197	685	8.2
	Long	0.647						227		
425	Standard	1.107	0.343	0.47	0.491	1.841	0.659	224	970	12.5
	Long	1.102						254		
490	Standard	2.48	0.737	0.954	0.999	3.009	1.285	235	1450	19
	Long	2.474						265		
565	Standard	4.175	1.364	1.715	1.835	5.075	2.081	278	2050	29
	Long	4.251						318		
655	Standard	9.319	2.567	3.587	3.777	6.777	4.701	330	3100	45
	Long	9.523						370		
755	Standard	15.616	4.91	6.878	7.198	12.078	9.689	352	4300	67
	Long	15.95						392		
887	Standard	33.662	11.832	15.132	16.632	24.03	20.428	406	7250	110
	Long	34.462						456		

Type FNDB

FLUDEX size	Hub carrier part	Brake drum ØDBT · BBT	J_A kgm²	J_I kgm²	Weights Y mm	F_Y N	Oil filling quantity max. l
370	Standard	Ø315 · 118	0.657	0.64	197	685	8.2
		Ø400 · 150		1.341			
	Long	Ø315 · 118	0.647	0.64	227		
		Ø400 · 150		1.341			
425	Standard	Ø315 · 118	1.107	0.811	224	970	12.5
		Ø400 · 150		1.492			
	Long	Ø315 · 118	1.102	0.811	254		
		Ø400 · 150		1.492			
490	Standard	Ø400 · 150	2.48	1.994	235	1450	19
		Ø500 · 190		4.009			
	Long	Ø400 · 150	2.474	1.994	265		
		Ø500 · 190		4.009			
565	Standard	Ø400 · 150	4.175	2.835	278	2050	29
		Ø500 · 190		4.775			
	Long	Ø400 · 150	4.251	2.835	318		
		Ø500 · 190		4.775			
655	Standard	Ø500 · 190	9.319	6.677	330	3100	45
		Ø630 · 236		11.577			
	Long	Ø500 · 190	9.523	6.677	370		
		Ø630 · 236		11.577			
755	Standard	Ø630 · 236	15.616	15.178	352	4300	67
	Long		15.95		392		
887	Standard	Ø710 · 265	33.662	30.832	406	7250	110
	Long		34.462		456		

Note

- Mass moments of inertia J (including the power-transmitting oil filling components) apply to maximum bores

J_I Mass moment of inertia of the inner rotor (shaft (106) + blade wheel (105)) + any parts of the add-on coupling connected to them in kgm²

J_A Mass moment of inertia of the outer housing (shell (101) + cover (102)) + hub carrier (120) in kgm²

Y Centroidal distance of the drive-side coupling masses, measured from the hub end face of the hub carrier.

F_Y Effective weight in mass center including maximum oil filling quantity

Technical data for type selection

Please complete as far as possible and return to your Flender Sales Office.

1. Intended use of coupling

☐ As starting aid ☐ For overload protection ☐ For torsional vibration isolation

2. Data for prime mover

2.1 ☐ Electric motor ☐ Characteristic enclosed

Power rating P_1 = ... kW at speed n_1 = ... rpm

Starting: ☐ Direct ☐ Star delta ☐ Other: ....

Motor shaft: Ø .... · Length .... mm

2.2 ☐ Internal-combustion engine Number of cylinders:: ....

Planned operating range max. power rating: .... kW at .... rpm

min. power rating: .... kW at .... rpm

☐ Attachment via shaft Ø .... · Length .... mm ☐ Attachment to flywheel SAE ...."

☐ Motor rigidly ☐ Motor flexibly installed on foundation/base frame

3. Data for driven machine

3.1 Type of driven machine: ....

3.2 Required power rating P_2: .... kW at n_2 = ... rpm

3.3 Mass moment of inertia J = ... kgm² (based on n_2)

3.4 Operational cycle: ☐ uniform operation ☐ non uniform operation

3.4.1. Starting frequency min.: ☐ 1 x / day ☐ 1 x / week ☐ 1 x / month ☐ Continuous operation (min. 2 months without stopping)

Starting frequency max.: ☐ < 3 x in succession Number in succession: ....

☐ < 5 x / hour Number per hour: ....

3.4.2. Duty cycle per operational cycle: ☐ 60 - 100% ☐ ED = ... %

3.4.3. Dimensions of the gear unit/machine shaft on the coupling side Ø .... · Length .... mm

4. Ambient conditions

4.1 Place of installation: ☐ < 1000 m a.s.l. ☐ .... m a.s.l.

☐ out of doors ☐ in narrow space ☐ other: ....

4.2 Temperature of the ambient air (cooling air): min. ....°C max. .... °C

4.3 ☐ Fitting into guard ☐ bell housing

Holes: ☐ with large (well ventilated) ☐ with small (less well ventilated)

☐ without holes: ☐ with forced ventilation ☐ without forced ventilation

4.4 Environment: ☐ normally dusty ☐ extremely dusty ☐ abrasively dusty

☐ aggressive atmosphere: ....

4.5 Use in potentially explosive atmospheres

☐ in conformity with ATEX: II 2G Ex h IIB T3 Gb X / II 2D Ex h IIIC T160 °C Db X / I M2 Ex h Mb X

☐ other class: ....

5. Arrangement of coupling

5.1 ☐ horizontal ☐ at an angle (max 20°) ☐ vertical: motor overhead ☐ vertical: motor underneath

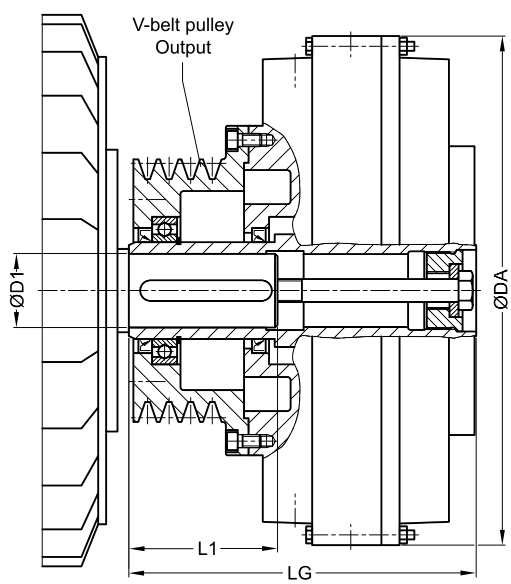
5.2

between:	and:
Motor ☐	☐ Driven machine
Gear unit (n_1 = ... rpm) ☐	☐ Gear unit
Transmission/belt drives ☐	☐ Transmission/belt drives

FLUDEX COUPLING AS AN AID FOR STARTING THE IEC MOTORS

Speed *n* = 1500 rpm, Type FAR with fitted V-belt pulley

This assignment offers safety in normal load cases and includes standard types with 140 °C fusible safety plugs, for horizontal fitting and an ambient air temperature from -40 °C to +40 °C.



Three-phase motor Size	1500 min⁻¹ P_M kW	D1 · L1 mm	FLUDEX coupling Size	Oil filling l	DA mm	LG mm	V-belt pulley Profile, pitch Ø mm	Chamfer number	Recommended no. of belts	↗ Article no. [1]	Weight *m* kg
80 M	0.55	19 · 40	222	0.9	263	153	SPZ 100	2	1	2LC0900-0AF90-0AA0	12
	0.75	19 · 40		1			SPZ 100	2	1		
90 S	1.1	24 · 50		1.1			SPZ 100	2	1	2LC0900-0AF90-0AA0	
90 L	1.5	24 · 50		1.2			SPZ 100	2	1	2LC0900-0AF90-0AA0	
100 L	2.2	28 · 60		1.4			SPZ 100	2	2	2LC0900-0AF90-0AA0	
	3	28 · 60		1.5			SPZ 100	2	2		
112 M	4	28 · 60		1.55			SPZ 160	3	2	2LC0900-0AF91-0AA0	14
132 S	5.5	38 · 80		1.55			SPZ 160	3	2	2LC0900-0AF91-0AA0	

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Flank-open belts required.

↗ For online configuration on **flender.com**, click on the item no.

Three-phase motor			FLUDEX coupling				V-belt pulley			↗ Article no. [1]	Weight
Size	1500 min^{-1}		Size	Oil filling			Profile, pitch Ø	Chamfer number	Recommended no. of belts		
	P_M	D1 · L1			DA	LG					m
	kW	mm		l	mm	mm	mm				kg
132 M	7.5	38 · 80		3.2			SPZ 150	5	3	**2LC0900-1AF90-0AA0**	
160 M	11	42 · 110	**297**	3.5	340	226	SPZ 150	5	4	**2LC0900-1AF90-0AA0**	27
160 L	15	42 · 110		3.7			SPZ 150	5	5	**2LC0900-1AF90-0AA0**	
180 M	18.5	48 · 110		3.7			SPA 190	4	4	**2LC0900-1AF91-0AA0**	32
180 L	22	48 · 110	**342**	5.5	400	278	SPA 180	5	5	**2LC0900-2AF90-0AA0**	40
200 L	30	55 · 110		6			SPA 180	5	5 [2]	**2LC0900-2AF90-0AA0**	
225 S	37	60 · 140		7.6			SPB 224	5	5	**2LC0900-3AF90-0AA0**	
225 M	45	60 · 140	**395**	7.9	448	325	SPB 224	5	5	**2LC0900-3AF90-0AA0**	63
250 M	55	65 · 140		8.4			SPB 224	5	5 [2]	**2LC0900-3AF90-0AA0**	
280 S	75	75 · 140		10.8			SPB 250	8	7	**2LC0900-4AF90-0AA0**	
280 M	90	75 · 140	**450**	11.3	512	410	SPB 250	8	8	**2LC0900-4AF90-0AA0**	94
315 S	110	80 · 170		12			SPB 250	8	8 [2]	**2LC0900-4AF90-0AA0**	
315 M	132	80 · 170	**516**	17.7	584	491	SPB 315	10	10	**2LC0900-5AF90-0AA0**	152
	160	80 · 170		18.6			SPB 315	10	10 [2]		

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C
- Axial retention is provided by a set screw and/or end washer with a retaining screw for shaft ends to DIN 748/1 long with a centering thread to DIN 332/2.
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Drive with motor 200 L, 30 kW at 1470 rpm with starting clutch and pulley
- FLUDEX FAR 342 coupling, standard type
- Hollow shaft: Bore ØD1 = 55H7 with keyway to DIN 6885/1 and retaining screw, with pulley 5xSPA Ø180.

Article no. delivery without oil filling:
2LC0900-2AF90-0AA0-Z L1D

Article no. delivery with oil filling:
2LC0900-1AF90-0AA0-Z L1D+F16+Y90
Plain text to Y90: 6.0 l

Article no. delivery with specification of oil filling quantity:
2LC0900-1AF90-0AA0-Z L1D+Y90
Plain text to Y90: 6.0 l

13

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

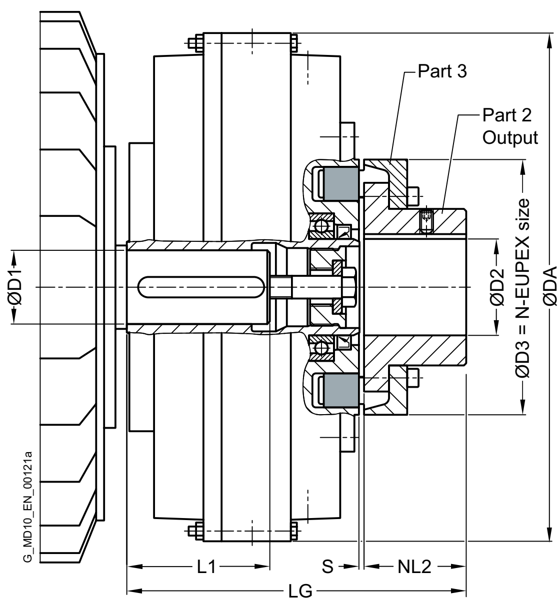
[2] Flank-open belts required.

↗ For online configuration on **flender.com**, click on the item no.

FLUDEX COUPLING AS AN AID FOR STARTING THE IEC MOTORS

Speed *n* = 1500 rpm, Type FAD with N-EUPEX D add-on coupling

This assignment offers safety in normal load cases and includes standard types with 140 °C fusible safety plugs, for horizontal fitting and an ambient air temperature from -40 °C to +40 °C.



Three-phase motor Size	1500 min⁻¹ P_M kW	D1 · L1 mm	FLUDEX coupling Size	Oil filling l	DA mm	LG mm	N-EUPEX D add-on coupling NL2 mm	D3 mm	D2[2] max. mm	↗ Article no. [1]	Weight *m* kg
80 M	0.55	19 · 40	222	0.9	263	180	40	110	**38**	2LC0900-0AA9	12
	0.75	19 · 40		1							
90 S	1.1	24 · 50		1.1						2LC0900-0AA9	
90 L	1.5	24 · 50		1.2						2LC0900-0AA9	
100 L	2.2	28 · 60		1.4						2LC0900-0AA9	
	3	28 · 60		1.5							
112 M	4	28 · 60		1.55						2LC0900-0AA9	
132 S	5.5	38 · 80		1.55						2LC0900-0AA9	

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Larger bores on the power takeoff side are possible with the FAE type.

↗ For online configuration on **flender.com**, click on the item no.

Three-phase motor Size	1500 min⁻¹ P_M kW	D1 · L1 mm	FLUDEX coupling Size	Oil filling l	DA mm	LG mm	N-EUPEX D add-on coupling NL2 mm	D3 mm	D2 [2] max. mm	↗ Article no. [1]	Weight m kg
132 M	7.5	38 · 80	**297**	3.2	340	233	50	125	**45**	**2LC0900-1AA9**	24
160 M	11	42 · 110		3.5						**2LC0900-1AA9**	
160 L	15	42 · 110		3.7							
180 M	18.5	48 · 110		3.7						**2LC0900-1AA9**	
180 L	22	48 · 110	**342**	5.5	400	271	55	140	**50**	**2LC0900-2AA9**	34
200 L	30	55 · 110		6						**2LC0900-2AA9**	
225 S	37	60 · 140	**395**	7.6	448	299	90	225	**85**	**2LC0900-3AA9**	53
225 M	45	60 · 140		7.9							
250 M	55	65 · 140		8.4						**2LC0900-3AA9**	
280 S	75	75 · 140	**450**	10.8	512	338	100	250	**95**	**2LC0900-4AA9**	70
280 M	90	75 · 140		11.3							
315 S	110	80 · 170		12						**2LC0900-4AA9**	
315 M	132	80 · 170	**516**	17.7	584	398	125	315	**120**	**2LC0900-5AA9**	113
	160	80 · 170		18.6							

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C
- Axial retention is provided by a set screw and/or end washer with a retaining screw for shaft ends to DIN 748/1 long with a centering thread to DIN 332/2.
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Drive with motor 250 M, 55 kW at 1470 rpm with starting clutch for connecting two shafts.
- FLUDEX FAD 395 coupling, standard type
- Hollow shaft: Bore ØD1 = 65H7 with keyway to DIN 6885/1 and retaining screw
- Part 2: Bore ØD2 = 45H7 with keyway to DIN 6885/1 and set screw

Article no. delivery without oil filling:
2LC0900-3AA99-0AA0-Z L1F+M1A

Article no. delivery with oil filling:
2LC0900-3AA99-0AA0-Z L1F+M1A+F16+Y90
Plain text to Y90: 8.4 l

Article no. delivery with specification of oil filling quantity:
2LC0900-3AA99-0AA0-Z L1F+M1A+Y90
Plain text to Y90: 8.4 l

13

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

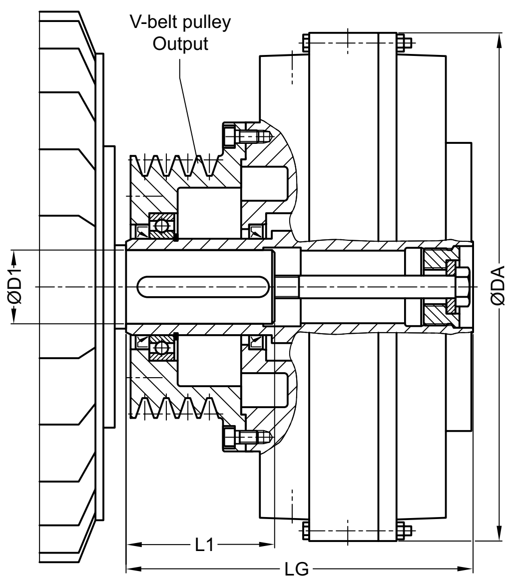
[2] Larger bores on the power takeoff side are possible with the FAE type.

↗ For online configuration on **flender.com**, click on the item no.

FLUDEX COUPLING AS AN AID FOR STARTING THE IEC MOTORS

Speed *n* = 3000 rpm, Type FAR with fitted V-belt pulley

This assignment offers safety in normal load cases and includes standard types with 140 °C fusible safety plugs, for horizontal fitting and an ambient air temperature from -40 °C to +40 °C.



Three-phase motor			FLUDEX coupling				V-belt pulley			↗ Article no. [1]	Weight
Size	3000 min⁻¹		Size	Oil filling			Profile, pitch Ø	Chamfer number	Recommended no. of belts		
	P_M	D1 · L1			DA	LG					*m*
	kW	mm		l	mm	mm	mm				kg
90 S	1.5	24 · 50	**222**	0.7	263	153	SPZ 100	2	1	**2LC0900-0AF90-0AA0**	12
90 L	2.2	24 · 50		0.8			SPZ 100	2	1		
100 L	3	28 · 60		0.9			SPZ 100	2	1	**2LC0900-0AF90-0AA0**	
112 M	4	28 · 60		1			SPZ 100	2	2	**2LC0900-0AF90-0AA0**	
132 S	5.5	38 · 80		1			SPZ 100	2	2	**2LC0900-0AF90-0AA0**	
	7.5	38 · 80		1.1			SPZ 160	3	2	**2LC0900-0AF91-0AA0**	14
160 M	11	42[3] · 110		1.2			SPZ 160	3	2	**2LC0900-0AF91-0AA0**	
	15	42[3] · 110		1.3			SPZ 160	3	3		
160 L	18.5	42[3] · 110		1.4			SPZ 160	3	3	**2LC0900-0AF91-0AA0**	

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Flank-open belts required.

[3] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

Three-phase motor			FLUDEX coupling				V-belt pulley			↗ Article no. [1]	Weight
Size	3000 min⁻¹		Size	Oil filling			Profile, pitch Ø	Chamfer number	Recommended no. of belts		
	P_M	D1 · L1			DA	LG					m
	kW	mm		l	mm	mm	mm				kg
180 M	22	48 · 110		2.5			SPZ 150	5	4	2LC0900-1AF90-0AA0	27
200 L	30	55 · 110		2.7			SPZ 150	5	5	2LC0900-1AF90-0AA0	
	37	55 · 110	297	2.8	340	226	SPA 190	4	4	2LC0900-1AF91-0AA0	32
225 M	45	55 · 110		2.9			SPA 224	5	4	2LC0900-1AF92-0AA0	35
250 M	55	60 [3] · 140		3.1			SPA 224	5	5	2LC0900-1AF92-0AA0	
280 S	75	65 · 140		5.3			SPB 236	7	5	2LC0900-3AF91-0AA0	
280 M	90	65 · 140		5.6			SPB 236	7	6	2LC0900-3AF91-0AA0	70
315 S	110	65 · 140	395	5.9	448	363.5	SPB 236	7	7	2LC0900-3AF91-0AA0	
315 M	132	65 · 140		6.2			SPB 236	7	7 [2]	2LC0900-3AF91-0AA0	
315 L	160	65 · 140		6.8			SPB 280	7	7 [2]	2LC0900-3AF92-0AA0	83

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C
- Axial retention is provided by a set screw and/or end washer with a retaining screw for shaft ends to DIN 748/1 long with a centering thread to DIN 332/2.
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Drive with motor 200 L, 37 kW at 2950 rpm with starting clutch and pulley
- FLUDEX FAR 297 coupling, standard type
- Hollow shaft: Bore ØD1 = 55H7 with keyway to DIN 6885/1 and retaining screw, with pulley 4xSPA Ø190.

Article no. delivery without oil filling:
2LC0900-1AF91-0AA0-Z L1D+W03+Y95

Article no. delivery with oil filling:
2LC0900-1AF91-0AA0-Z L1D+W03+F16+Y90
Plain text to Y90: 2,8 l

Article no. delivery with specification of oil filling quantity:
2LC0900-1AF91-0AA0-Z L1D+W03+F16+Y90
Plain text to Y90: 2,8 l

13

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) Flank-open belts required.

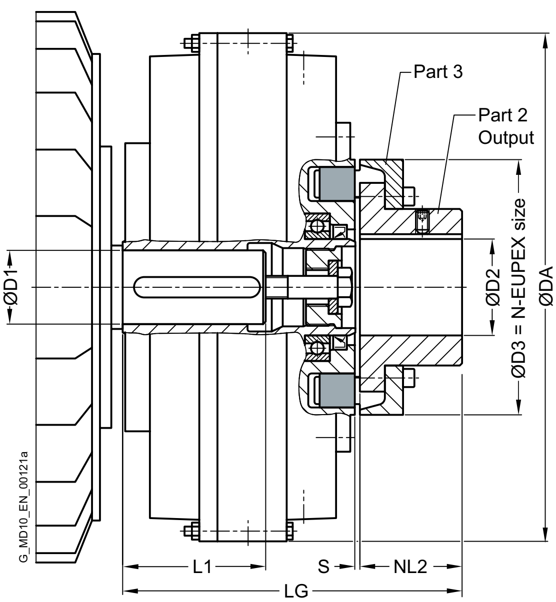
3) Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

FLUDEX COUPLING AS AN AID FOR STARTING THE IEC MOTORS

Speed *n* = 3000 rpm, Type FAD with N-EUPEX D add-on coupling

This assignment offers safety in normal load cases and includes standard types with 140 °C fusible safety plugs, for horizontal fitting and an ambient air temperature from -40 °C to +40 °C.



Three-phase motor Size	3000 min⁻¹ P_M kW	D1 · L1 mm	FLUDEX coupling Size	Oil filling l	DA mm	LG mm	N-EUPEX D add-on coupling NL2 mm	D3 mm	D2 [2] max. mm	↗ Article no. [1]	Weight *m* kg
90 S	1.5	24 · 50		0.7						2LC0900-0AA9	
90 L	2.2	24 · 50		0.8							
100 L	3	28 · 60		0.9						2LC0900-0AA9	
112 M	4	28 · 60		1						2LC0900-0AA9	
132 S	5.5	38 · 80	**222**	1	263	180	40	110	**38**	2LC0900-0AA9	12
	7.5	38 · 80		1.1							
160 M	11	42[3] · 110		1.2						2LC0900-0AA9	
	15	42[3] · 110		1.3							
160 L	18.5	42[3] · 110		1.4						2LC0900-0AA9	

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Larger bores on the power takeoff side are possible with the FAE type.

[3] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

Three-phase motor			FLUDEX coupling				N-EUPEX D add-on coupling			↗ Article no. [1]	Weight
Size	3000 min^{-1}		Size	Oil filling							
	P_M	D1 · L1			DA	LG	NL2	D3	D2 [2] max.		m
	kW	mm		l	mm	mm	mm	mm	mm		kg
180 M	22	48 · 110	**297**	2.5	340	233	50	125	**45**	2LC0900-1AA9	24
200 L	30	55 · 110		2.7						2LC0900-1AA9	
200 L	37	55 · 110		2.8							
225 M	45	55 · 110		2.9						2LC0900-1AA9	
250 M	55	60[3] · 140		3.1						2LC0900-1AA9	
280 S	75	65 · 140	**395**	5.3	448	299	90	225	**85**	2LC0900-3AA9	53
280 M	90	65 · 140		5.6							
315 S	110	65 · 140		5.9						2LC0900-3AA9	
315 M	132	65 · 140		6.2							
315 L	160	65 · 140		6.8							

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C
- Axial retention is provided by a set screw and/or end washer with a retaining screw for shaft ends to DIN 748/1 long with a centering thread to DIN 332/2.
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Drive with motor 280 M, 90 kW at 2950 rpm with starting clutch for connecting two shafts.
- FLUDEX FAD 395 coupling, standard type
- Hollow shaft: Bore ØD1 = 65H7 with keyway to DIN 6885/1 and retaining screw
- Part 2: Bore ØD2 = 60H7 with keyway to DIN 6885/1 and set screw

Article no. delivery without oil filling:
2LC0900-3AA99-0AA0-Z L1F+M1E+W03

Article no. delivery with oil filling:
2LC0900-3AA99-0AA0-Z L1F+M1E+W03+F16+Y90
Plain text to Y90: 5.6 l

Article no. delivery with specification of oil filling quantity:
2LC0900-3AA99-0AA0-Z L1F+M1E+W03+Y90
Plain text to Y90: 5.6 l

13

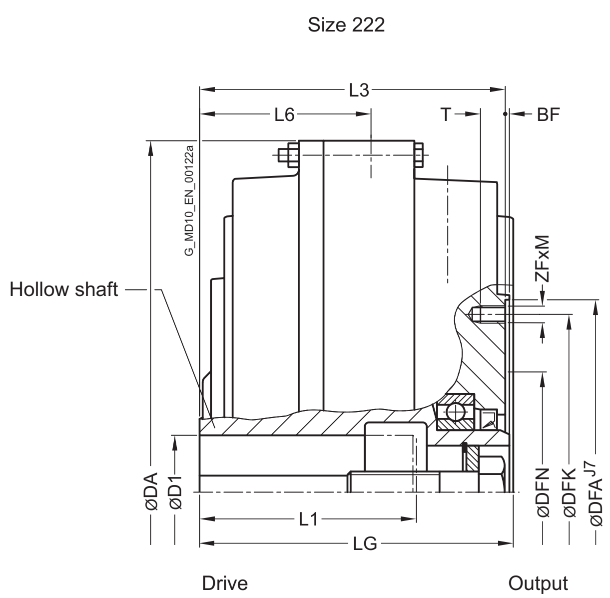
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

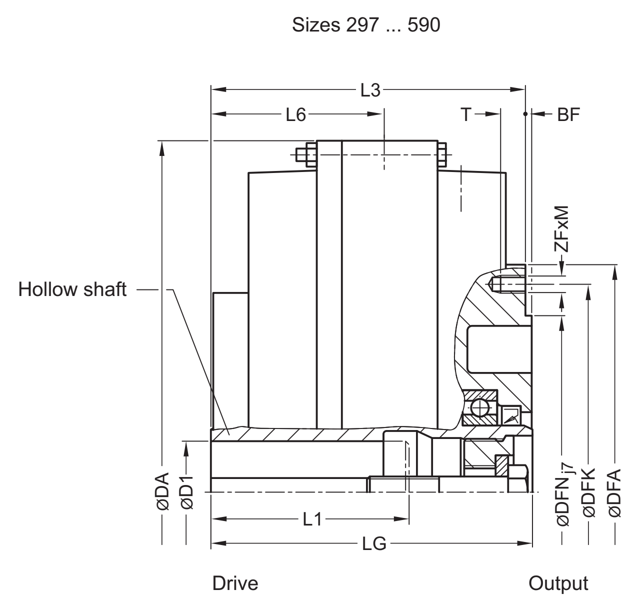
[2] Larger bores on the power takeoff side are possible with the FAE type.

[3] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FAO





Size	Maximum speed	FLUDEX coupling installation dimensions								Flange connection dimensions						Tightening torque for screws in thread ZF x M	↗ Article no. [1]	Weight
	n_{Kmax}	D1 Keyway to DIN 6885			L1	DA	L3	L6	LG	DFN	DFA	BF	DFK	ZF · M	T	T_A		m
		min.	max.	Preferred bore	max.													
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm	Nm		kg
222	3600		38	28	80	263	110	58	112	90	144	2	128	6 · M8	12	18.7	2LC0900-0AG90-0AA0	10
		>38 [2]	42 [2]															
297	3600		38		80	340	145	83	150	125	195	3	172	6 · M8	12	18.7	2LC0900-1AG90-0AA0	18
		>38	55	42	110													
		>55 [2]	60 [2]		110													
342	3600		55	48 + 55	110	400	174	101	180	140	230	4	205	8 · M10	15	31	2LC0900-2AG90-0AA0	26
		>55 [2]	60 [2]		120													
395	3000		65	60 + 65	140	448	200.5	110.5	205	225	290	4	265	8 · M12	18	54	2LC0900-3AG90-0AA0	40

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

Size	Maximum speed	FLUDEX coupling installation dimensions								Flange connection dimensions						Tightening torque for screws in thread ZF x M	↗ Article no. [1]	Weight
	n_{Kmax}	D1 Keyway to DIN 6885			L1	DA	L3	L6	LG	DFN	DFA	BF	DFK	ZF · M	T	T_A		m
		min.	max.	Preferred bore	max.													
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm	Nm		kg
450	3000		**75**	65 + 75	140	512	228	126	233	250	310	4	285	8 · M12	18	54	**2LC0900-4AG90-0AA0**	53
		>75	**80**		170													
516	2300		**55**		140	584	263	147	270	315	390	5	360	8 · M16	24	135	**2LC0900-5AG90-0AA0**	84
		>55	**90**	80	170													
590	2000		**75**		140	662	298	166	305	315	390	5	360	8 · M16	24	135	**2LC0900-6AG90-0AA0**	109
		>75	**95**		170													
		>95	**100**		210													

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Motor 37 kW, P_{eff} = 30 kW, n_1 = 1470 rpm, maximum output torque: $T_{max} = 2.0 \cdot T_{eff.}$
- FLUDEX FAO coupling size 342
- Hollow shaft: Bore ØD1 = 60H7 mm with keyway to DIN 6885/3 and retaining screw
- Seal set FPM
- Specification of oil filling quantity: 6.0 l **(see Page 13/9)**

Article no. with 160 °C fuse:
2LC0900-2AG90-0AA0-Z L1E+F08+Y90
Plain text to Y90: 6.0 l

13

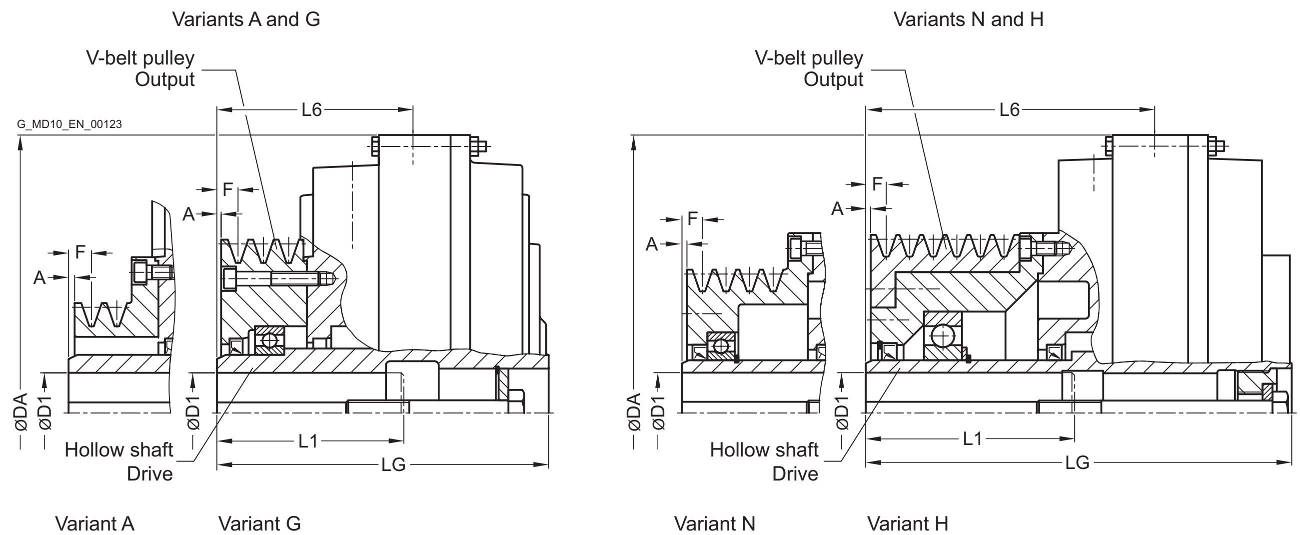
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FAR

with attached v-belt pulley



Size	Maximum speed n_{Kmax}	FLUDEX coupling D1 Keyway to DIN 6885 min.	max.	Preferred bore	L1 max.	DA	L6	LG	V-belt pulley Profile, pitch Ø	Chamfer number	A	F	Type	↗ Article no. [1]	Weight m
	rpm	mm	mm	mm	mm	mm	mm	mm	mm		mm	mm			kg
			28	28	60				SPZ 100	2			A	**2LC0900-0AF90-0AA0**	12
222	3600	>28	**38**		105	263	95	153	SPZ 160	3	1	9	G	**2LC0900-0AF91-0AA0**	14
		>38 [2]	**42 [2]**		110										
			38		80				SPZ 150	5	2		N	**2LC0900-1AF90-0AA0**	27
297	3600	>38	**55**	42	110	340	143	226				10			
		>55 [2]	**59 [2]**		110				SPA 190	4	0		H	**2LC0900-1AF91-0AA0**	32
		>59 [2]	**60 [2]**		140				SPA 224	5	0		G	**2LC0900-1AF92-0AA0**	35
342	3600		**55**	55	110	400	177	278	SPA 180	5	4	14	N	**2LC0900-2AF90-0AA0**	40
	3000		**55**		110	448	214.5	325	SPB 224	5			N	**2LC0900-3AF90-0AA0**	63
395		>55	**65**	60 + 65	140						4	16.5			
	3000		**55**		110	448	253	363.5	SPB 236	7			N	**2LC0900-3AF91-0AA0**	70
	2700	>55	**75**		140				SPB 280	7			H	**2LC0900-3AF92-0AA0**	83

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

13

Size	Maximum speed n_{Kmax} rpm	FLUDEX coupling D1 Keyway to DIN 6885 min. mm	max. mm	Preferred bore mm	L1 max. mm	DA mm	L6 mm	LG mm	V-belt pulley Profile, pitch Ø mm	Chamfer number	A mm	F mm	Type	↗ Article no. [1]	Weight m kg
450	3000		**55**	65 + 75	110	512	284	410	SPB 250	8	4	16.5	N	**2LC0900-4AF90-0AA0**	94
		>55	**75**		140										
		>75	**80**		170										
516	2300		**55**		110	584	344	491	SPB 315	10	4	16.5	N	**2LC0900-5AF90-0AA0**	152
		>55	**75**		140										
		>75	**95**		170										
		>95	**100**		210										
590	2000		**55**		110	662	476	642	SPC 315	12	4	21	N	**2LC0900-6AF90-0AA0**	208
		>55	**75**		140										
		>75	**95**		170										
		>95	**100**		210										

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 45 kW, P_{eff} = 37 kW, n_1 = 1470 rpm, maximum output torque: T_{max} = 2.0 · $T_{eff.}$
- FLUDEX FAR coupling size 395
- Hollow shaft: Bore ØD1 = 60H7 mm with keyway to DIN 6885/1 and retaining screw
- Specification of oil filling quantity: 7.6 l **(see Page 13/9)**

Article no. with pulley 5xSPB224:
2LC0900-3AF90-0AA0-Z L1E+Y90
Plain text to Y90: 7.6 l

Article no. with pulley 7xSPB236:
2LC0900-3AF91-0AA0-Z L1E+Y90
Plain text to Y90: 7.6 l

Article no. with 160 °C fuse:
2LC0900-3AF90-0AA0-Z L1E+Y90+F08
Plain text to Y90: 7.6 l

13

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

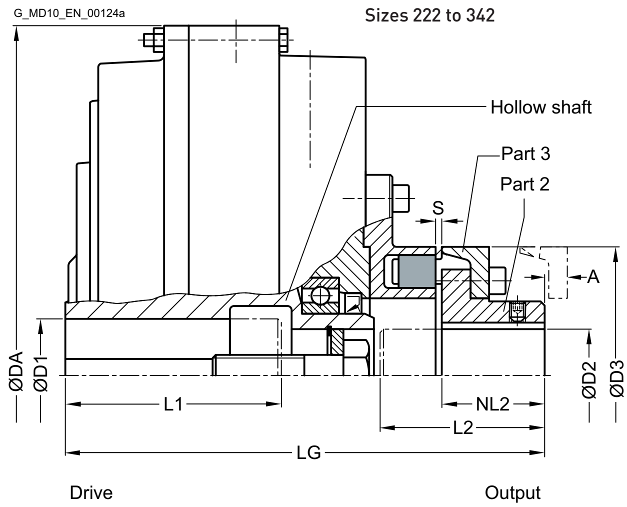
[2] Version with flat groove as per DIN 6885/3.

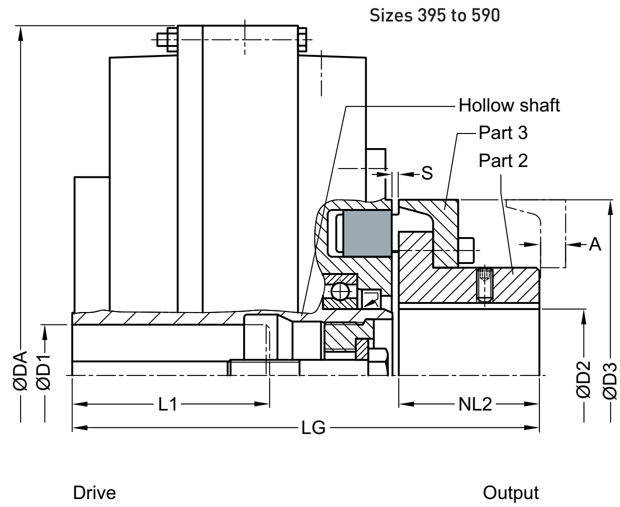
↗ For online configuration on **flender.com**, click on the item no.

TYPE FAD

with N-EUPEX D add-on coupling

Enables change of flexible elements without axial displacement of the shafts if the space "A" is provided.





Size	Maximum speed n_{Kmax}	FLUDEX coupling D1 Keyway to DIN 6885						N-EUPEX D add-on coupling						↗ Article no. [1]	Weight m
		min.	max.	Preferred bore	L1 max.	DA	LG	D2 max.	L2 max.	NL2	Size D3	S	A		
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
222	3600		**38**	28	80	263	180	**38**	65	40	**110**	3^{+1}_{-1}	13	**2LC0900-0AA9**	12
		>38 [2]	**42 [2]**												
297	3600		**38**		80	340	233	**45**	80	50	**125**	3^{+1}_{-1}	11	**2LC0900-1AA9**	24
		>38	**55**	42	110										
		>55 [2]	**60 [2]**		110										
342	3600		**55**	48 + 55	110	400	271	**50**	88	55	**140**	3^{+1}_{-1}	16	**2LC0900-2AA9**	34
		>55 [2]	**60 [2]**		120										
395	3000		**65**	60 + 65	140	448	299	**85**	90	90	**225**	$4{,}5^{+1{,}5}_{-1{,}5}$	9	**2LC0900-3AA9**	53
450	3000		**75**	65 + 75	140	512	338	**95**	100	100	**250**	6^{+2}_{-3}	11	**2LC0900-4AA9**	70
		>75	**80**		170										
516	2300		**55**		140	584	398	**120**	125	125	**315**	5^{+3}_{-2}	0	**2LC0900-5AA9**	113
		>55	**90**	80	170										
590	2000		**75**		140	662	433	**120**	125	125	**315**	5^{+3}_{-2}	0	**2LC0900-6AA9**	138
		>75	**95**		170										
		>95	**100**		210										

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 160 kW, P_{eff} = 132 kW, n_1 = 1470 rpm, maximum output torque: $T_{max} = 2.0 \cdot T_{eff.}$
- FLUDEX FAD coupling size 516
- Hollow shaft: Bore ØD1= 80H7 mm with keyway to DIN 6885/1 and retaining screw
- Part 2: with finished bore ØD2 = 80H7
- Specification of oil filling quantity: 17.7 l **(see Page 13/9)**

Article no.: 2LC0900-5AA99-0AA0-Z L1J+M1J+Y90
Plain text to Y90: 17.7 l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

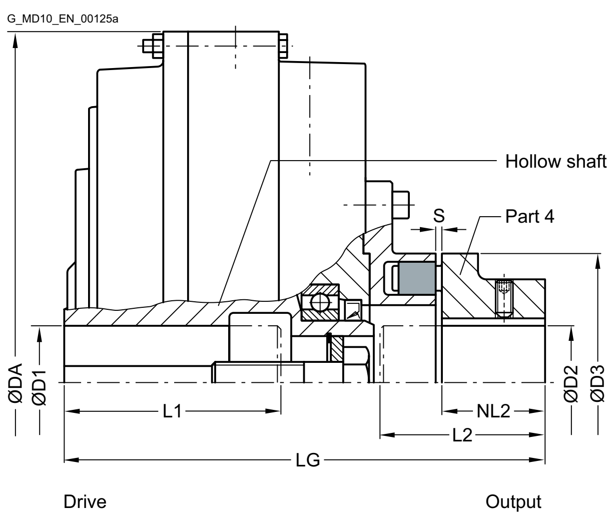
13

TYPE FAE

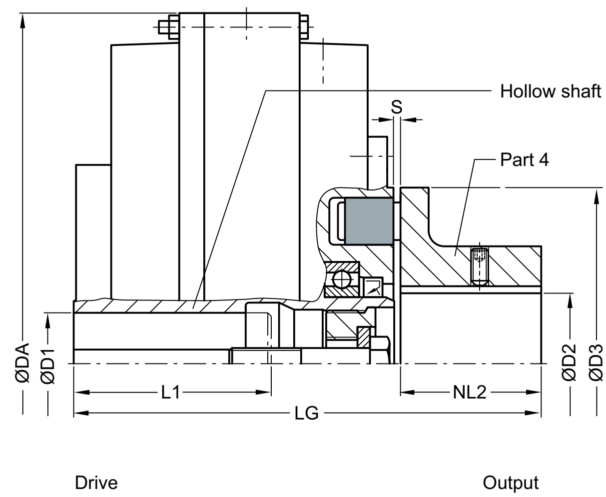
with N-EUPEX E add-on coupling

Enables larger bores on the output side.

Sizes 222 ... 342



Sizes 395 ... 450



Size	Maximum speed n_{Kmax} rpm	FLUDEX coupling D1 Keyway to DIN 6885 min. mm	max. mm	Preferred bore mm	L1 max. mm	DA mm	LG mm	N-EUPEX E add-on coupling D2 max. mm	L2 max. mm	NL2 mm	Size D3 mm	S mm	↗ Article no. [1]	Weight m kg
222	3600		**38**	28	80	263	180	**48**	65	40	**110**	3^{+1}_{-1}	**2LC0900-0AB9**	12
		>38 [2]	**42** [2]											
297	3600		**38**		80	340	233	**55**	80	50	**125**	3^{+1}_{-1}	**2LC0900-1AB9**	24
		>38	**55**	42	110									
		>55 [2]	**60** [2]		110									
342	3600		**55**	48 + 55	110	400	271	**60**	88	55	**140**	3^{+1}_{-1}	**2LC0900-2AB9**	34
		>55 [2]	**60** [2]		120									
395	3000		**65**	60 + 65	140	448	299	**90**	90	90	**225**	$4{,}5^{+1{,}5}_{-1{,}5}$	**2LC0900-3AB9**	50
450	3000		**75**	65 + 75	140	512	338	**100**	100	100	**250**	6^{+2}_{-3}	**2LC0900-4AB9**	68
		>75	**80**		170									

13

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 45 kW, P_{eff} = 42 kW, n_1 = 2950 rpm
- FLUDEX FAE coupling size 342
- Hollow shaft: Bore ØD1 = 55H7 mm with keyway to DIN 6885/1 and retaining screw
- Part 4: Bore ØD2 = 60H7 mm with keyway to DIN 6885/1 and set screw
- with micro-balancing (high speed)
- with electronic operation monitoring
- seal set NBR
- Delivery without oil filling, no oil filling quantity specification

Article no. with EOC system:
2LC0900-2AB99-0AA0-Z L1D+M1E+F04+F26+W03+Y95
Plain text to Y95: G=6.3, n = 2950 rpm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

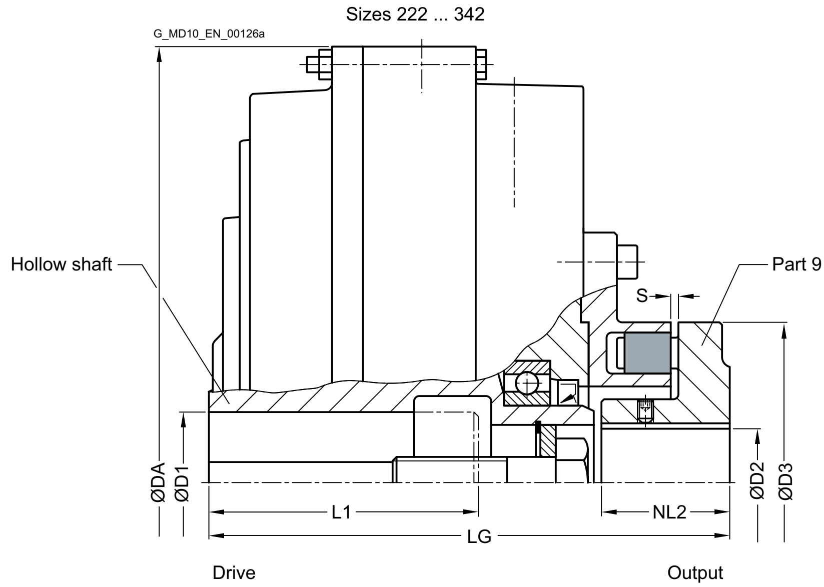
[2] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FAM

with N-EUPEX M add-on coupling

Enables a short fitting length.



Size	Maximum speed n_{Kmax}	FLUDEX coupling D1 Keyway to DIN 6885						N-EUPEX M add-on coupling				↗ Article no. [1]	Weight m
		min.	max.	Preferred bore	L1 max.	DA	LG	D2 max.	NL2	Size D3	S		
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
222	3600		38	28	80	263	150	38	36	110	3^{+1}_{-1}	2LC0900-0AH9	12
		>38 [2]	42 [2]										
297	3600		38		80	340	203	48	50	125	3^{+1}_{-1}	2LC0900-1AH9	24
		>38	55	42	110								
		>55 [2]	60 [2]		110								
342	3600		55	48 + 55	110	400	238	52	55	140	3^{+1}_{-1}	2LC0900-2AH9	34
		>55 [2]	60 [2]		120								

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 22 kW, P_{eff} = 20 kW, n_1 = 1470 rpm
- FLUDEX FAM coupling size 342
- Hollow shaft: Bore ØD1 = 40H7 mm with keyway to DIN 6885/1 and retaining screw
- Part 9: Bore ØD2 = 48H7 mm with keyway to DIN 6885/1 and set screw
- Delivery without oil filling, no oil filling quantity specification

Article no. with drive via housing:
2LC0900-2AH99-0AA0-Z L0W+M1B+F23

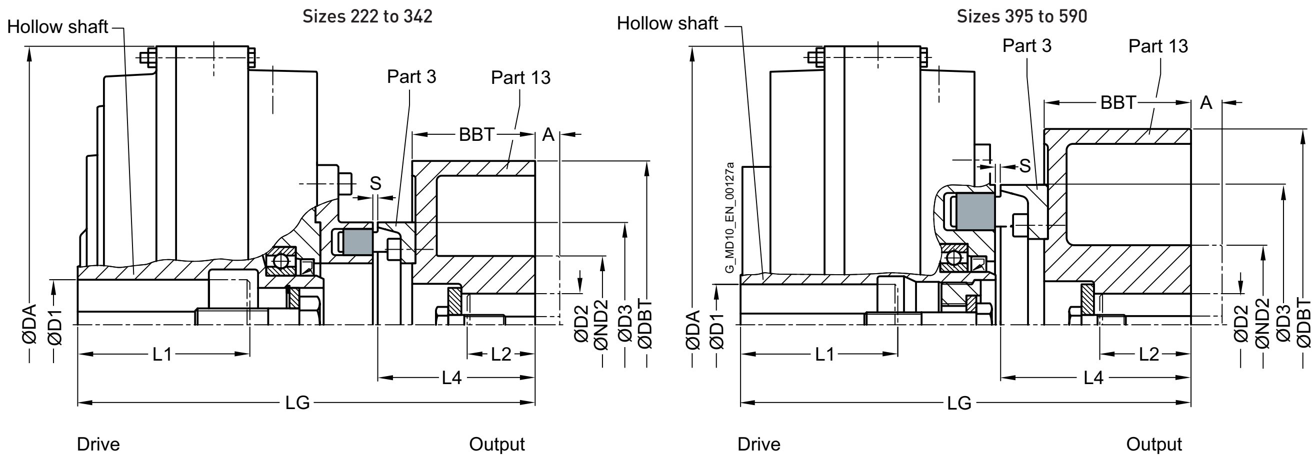
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FADB

with N-EUPEX D add-on coupling and brake drum



Size	Maximum speed n_{Kmax} rpm	FLUDEX coupling D1 Keyway DIN 6885 min. mm	max. mm	L1 max. mm	DA mm	LG mm	N-EUPEX D add-on coupling Size D3 mm	S mm	L4 mm	Brake drum (Part 13) D2 max. mm	ND2 mm	DBT mm	BBT mm	A mm	↗ Article no. [1]	Weight m kg
222	3600		38	80	263	232	110	3^{+1}_{-1}	92	42	68	200	75	30	2LC0900-0AC9	17
		>38 [2]	42 [2]													
297	3600		38	80	340	279	125	3^{+1}_{-1}	96	55	84	200	75	30	2LC0900-1AC9	29
		>38	55	110												
		>55 [2]	60 [2]	110												
342	3600		55	110	400	337	140	3^{+1}_{-1}	121	60	128 [3]	250	95	50	2LC0900-2AC9	48
		>55 [2]	60 [2]	120												
395	3000		65	140	448	362	225	$4{,}5^{+1{,}5}_{-1{,}5}$	153	80	128	315	118	50	2LC0900-3AC9	71
450	3000		75	140	512	395	250	6^{+2}_{-3}	157	80	128	315	118	50	2LC0900-4AC9	86
		>75	80	170												
516	2300		55	140	584	466	315	5^{+3}_{-2}	193	100	160	400	150	80	2LC0900-5AC9	146
		>55	90	170												
590	1900		75	140	662	540	315	5^{+3}_{-2}	232	110	175	500	190	110	2LC0900-6AC9	207
		>75	95	170												
		>95	100	210												

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Part 13 Standard brake drum
  Long brake drum
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling, without hub prolongations "A" but with set screw
- L2 denotes the shaft insertion depth.
  In the case of shaft ends deviating from DIN 748/1 long, the insertion depth must be specified in plain text with "**Y29**"
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 30 kW, P_{eff} = 22 kW, n_1 = 1470 rpm
- FLUDEX FADB coupling size 342, standard type
- Hollow shaft: Bore ØD1 = 55H7 mm with keyway to DIN 6885/1 and retaining screw
- Brake drum (Part 13): Bore ØD2 = 50H7 mm with keyway to DIN 6885/1 and set screw.
- shaft end insertion depth L2 = 90 mm
- Delivery without oil filling, no oil filling quantity specification

Article no. Part 13 Standard brake drum:
2LC0900-2AC99-0AA0-Z L1D+M1C+Y29
Plain text to Y29: 90 mm

Article no. Part 13 Long brake drum:
2LC0900-2AC99-0BA0-Z L1D+M1C+Y29
Plain text to Y29: 90 mm

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Version with flat groove as per DIN 6885/3.

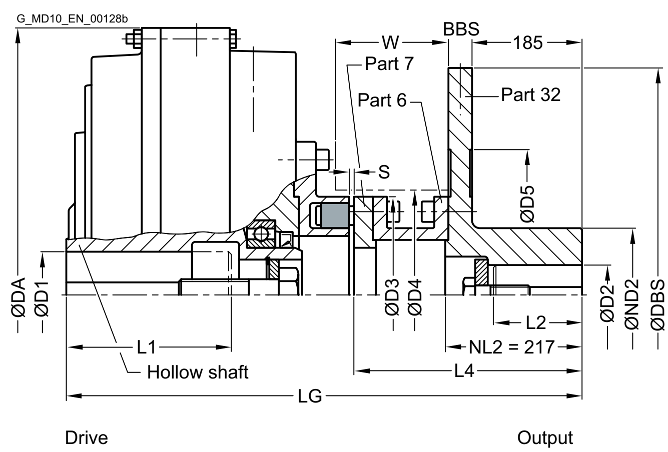
[3] ND2 = 128 for A = 0
ND2 = 100 for hub prolongations A = 50

↗ For online configuration on **flender.com**, click on the item no.

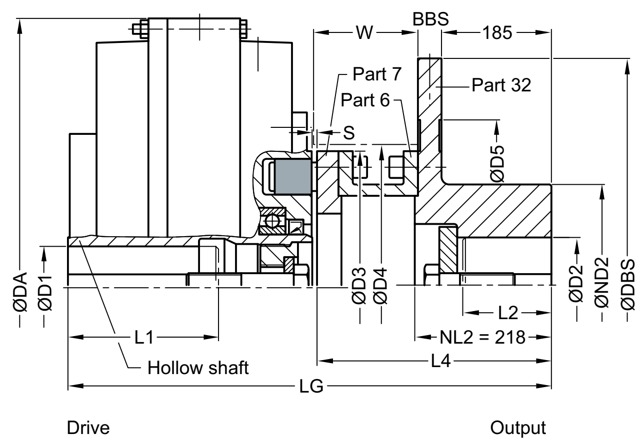
TYPE FADS SB

with N-EUPEX D add-on coupling and brake disk for stopping brakes

Sizes 222 ... 342



Sizes 395 ... 590



Size	Maximum speed n_{Kmax} rpm	FLUDEX coupling D1 Keyway DIN 6885 min. mm	D1 max. mm	L1 max. mm	DA mm	LG mm	N-EUPEX D add-on coupling Size D3 mm	S mm	L4 mm	Brake disk (part 32) [2] D2 max. mm	ND2 mm	DBS mm	BBS mm	D5 mm	Space dimensions D4 mm	W mm	↗ Article no. [1]	Weight m kg
222	3600		38	80	263	494	110	5+1	352	42	100	315	30	165	115	149	2LC0900-0AD9	35
		>38 [3]	42 [3]															
297	3600		38	80	340	537	125	5+1	352	60	120	355	30	205	130	155	2LC0900-1AD9	68
		>38	55	110														
		>55 [3]	60 [3]	110														
342	3300		55	110	400	570	140	5+1	352	60	120	400	30	250	145	155	2LC0900-2AD9	83
		>55 [3]	60 [3]	120														
395	3000		65	140	448	602	225	6+1	391.5	80	150	450	30	300	230	182	2LC0900-3AD9	102
450	2300		75	140	512	630.5	250	8+1	390.5	90	160	560	30	370	260	182	2LC0900-4AD9	141
		>75	80	170														
516	2100		55	140	584	706.5	315	8+1	430.5	100	160	630	30	440	325	222	2LC0900-5AD9	199
		>55	90	170														
590	2000		75	140	662	741.5	315	8+1	430.5	100	160	630	30	440	325	222	2LC0900-6AD9	224
		>75	95	170														
		>95	100	210														

Configurable variants [1]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- L2 denotes the shaft insertion depth.
  In the case of shaft ends deviating from DIN 748/1 long, the insertion depth must be specified in plain text with "**Y29**"
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 90 kW, P_{eff} = 75 kW, n_1 = 1470 rpm
- FLUDEX FADS SB coupling size 450
- Hollow shaft: Bore ØD1 = 75H7 mm with keyway to DIN 6885/1 and retaining screw
- Brake disk (part 32): Bore ØD2 = 80H7 mm with keyway to DIN 6885/1 and retaining screw
- with preservation suitable for indoor storage
- shaft end insertion depth L2 = 90 mm
- Delivery without oil filling, no oil filling quantity specification

Article no. with preservation 24 months:
2LC0900-4AD99-0AA0-Z L1H+M1J+B28+Y29
Plain text to Y29: L2 = 90 mm

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) Hub shortening possible, clearly specify NL2 size

3) Version with flat groove as per DIN 6885/3.

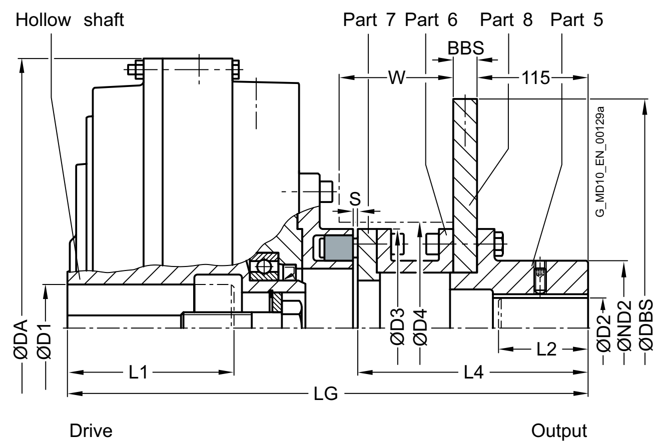
↗ For online configuration on **flender.com**, click on the item no.

13

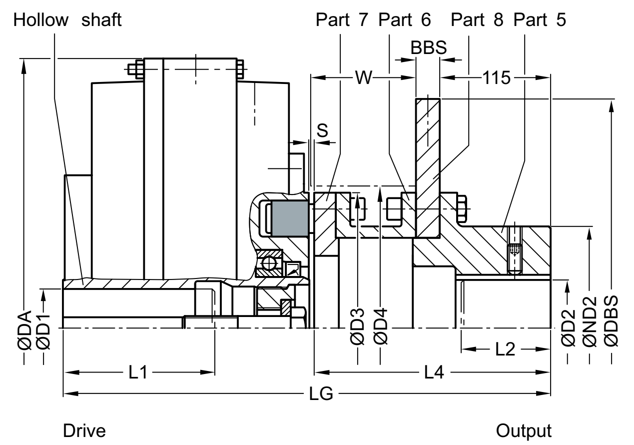
TYPE FADS HB

with N-EUPEX D add-on coupling and brake disk for blocking brakes

Sizes 222 ... 342



Sizes 395 ... 590



Size	Maximum speed n_{Kmax}	FLUDEX coupling D1 Keyway DIN 6885					N-EUPEX D add-on coupling			Brake disk (part 5/8)				Space dimensions		↗ Article no. [1)]	Weight
		D1 min.	D1 max.	L1 max.	DA	LG	Size D3	S	L4	D2 max.	ND2	DBS	BBS	D4	W		m
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
222	3600		38	80	263	366.5	110	5^{+1}	224.5	42	70	250	12.5	115	109	2LC0900-0AE9	22
		>38 [2)]	42 [2)]														
297	3600		38	80	340	409.5	125	5^{+1}	224.5	60	85	250	12.5	130	115	2LC0900-1AE9	33
		>38	55	110													
		>55 [2)]	60 [2)]	110													
342	3600		55	110	400	442.5	140	5^{+1}	224.5	60	90	250	12.5	145	115	2LC0900-2AE9	45
		>55 [2)]	60 [2)]	120													
395	3000		65	140	448	478	225	6^{+1}	267.5	80	150	355	16	230	142	2LC0900-3AE9	80
450	2750		75	140	512	546.5	250	8^{+1}	306.5	90	160	355	16	260	182	2LC0900-4AE9	101
		>75	80	170													
516	2150		55	140	584	566.5	315	8^{+1}	290.5	100	160	450	16	325	166	2LC0900-5AE9	154
		>55	90	170													
590	2000		75	140	662	601.5	315	8^{+1}	290.5	100	160	450	16	325	166	2LC0900-6AE9	179
		>75	95	170													
		>95	100	210													

Configurable variants [1)]

- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- L2 denotes the shaft insertion depth.
  In the case of shaft ends deviating from DIN 748/1 long, the insertion depth must be specified in plain text with "**Y29**"
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 160 kW, P_{eff} = 132 kW, n_1 = 2950 rpm
- FLUDEX FADS HB coupling size 395
- Hollow shaft: Bore ØD1 = 65H7 mm with keyway to DIN 6885/1 and retaining screw
- Part 5: Bore ØD2 = 80H7 mm with keyway to DIN 6885/1 and set screw
- Delivery without oil filling, no oil filling quantity specification

Article no.: 2LC0900-3AE99-0AA0-Z L1F+M1J+W03+Y95
Plain text to Y95: G 6.3 N, n = 1500 rpm

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) Version with flat groove as per DIN 6885/3.

↗ For online configuration on **flender.com**, click on the item no.

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OIL FILLING QUANTITIES FOR FA SERIES

This assignment is valid for a maximum starting torque $T_{max} = 2.0 \cdot T_{eff}$ and mineral oils with a viscosity of VG 22/VG 32, with drive via the hollow shaft.

If other operating fluids are used, or with drive via the housing or $T_{max} \neq 2.0 \cdot T_{eff}$, changed filling quantities must be observed!

Sizes 222, 342, 450 and 590

P_{eff} kW	Speed in rpm 600 (Oil filling quantity in l)	740	890	980	1180	1470	1770	2300	2950	3550	Size
0.55	4.3		1.4	1.3	1.1						
0.75	4.7		1.5	1.4	1.2						
1.1	5.1	4.4	1.55	1.55	1.4	1.1					
2.2	6.2	5.2	4.5	4.2	1.55	1.4	1.2				
3	9.5	5.6	4.9	4.6	1.55	1.5	1.3	1			
4	10.2	6.1	5.3	4.9	4.3	1.55	1.4	1.1			
5.5	11	9.4	5.7	5.3	4.6	1.55	1.5	1.2	1		
7.5	12	10.2	6.2	5.8	5	4.3	1.55	1.3	1.1		
11	13.4	11.2	9.7	6.4	5.5	4.7	4.1	1.5	1.2	1	**222**
15	24.8	12.2	10.5	9.8	6	5	4.4	1.55	1.3	1.1	
18	25.9	12.9	11	10.3	6.3	5.3	4.6	3.9	1.4	1.2	
22	27.3	23.3	11.6	10.8	9.4	5.5	4.8	4	1.4	1.25	
30	29.7	25.2	12.7	11.7	10.1	6	5.2	4.3	3.7	1.4	
37	31.5	26.5	23.1	12.4	10.7	9.1	5.5	4.5	3.9	1.5	
45		27.9	24.2	22.6	11.2	9.5	5.8	4.7	4	3.5	**342**
55		29.5	25.5	23.7	11.9	10	8.8	5	4.2	3.7	
75			27.6	25.7	22.3	10.8	9.4	5.4	4.5	3.9	
90			29	26.9	23.4	11.3	9.8	8.1	4.7	4.1	
110				28.3	24.5	12	10.4	8.6	4.9	4.3	
132				29.7	25.7	21.9	10.8	8.9	7.6	4.5	
160					27	22.9	20	9.3	7.8		**450**
180					27.8	23.5	20.6	10	8		
200					28.6	24.2	21.2	10.9	8.2		
225						24.9	21.8	11.5	8.5		
250						25.6	22.3		9.6		
280						26.3	22.9		9.9		
315						27.1	23.6		10.5		
350							24.2				**590**
400							26.4				

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Sizes 297, 395 and 516											
P_{eff}	Speed in rpm										Size
	600	740	890	980	1180	1470	1770	2300	2950	3550	
kW	Oil filling quantity in l										
0.55	3.2	2.8									
0.75	3.5	3	2.6								
1.1	3.7	3.3	2.9	2.7							
2.2	7.3	3.7	3.4	3.2	2.8						
3	7.9	6.8	3.7	3.4	3	2.5					
4	8.5	7.3	3.7	3.7	3.2	2.7					
5.5	9.4	7.9	6.8	3.7	3.5	2.9	2.6				
7.5	17	8.5	7.4	6.9	3.7	3.2	2.8	2.4			
11	18.7	16	8.1	7.6	6.6	3.5	3	2.5			
15	20.3	17.3	8.9	8.2	7.1	3.7	3.3	2.7			
18	21.4	18	15.7	8.6	7.4	3.7	3.4	2.8	2.4		
22		19	16.5	15.4	7.8	6.6	3.6	3	2.5		
30		20.6	17.8	16.6	8.5	7.2	6.3	3.2	2.7	2.4	
37			18.8	17.5	15.2	7.6	6.6	3.4	2.8	2.5	
45			19.8	18.4	16	7.9	6.9	3.6	2.9	2.6	
55			21	19.3	16.8	8.4	7.3	6	3.1	2.7	297
75				21.1	18.1	15.4	7.9	6.5	5.3	2.9	
90					19	16.1	14.1	6.7	5.6	3	
110					20.1	16.9	14.8	7.1	5.9		
132						17.7	15.4	7.9	6.2		
160						18.6	16.2	13.4	6.8		395
180						19.2	16.7	13.8	7.2		
200							17.1	14.1			
225							17.6	14.6			
250							18.1	14.9			
280								15.3			516
315								15.8			
350								17.1			

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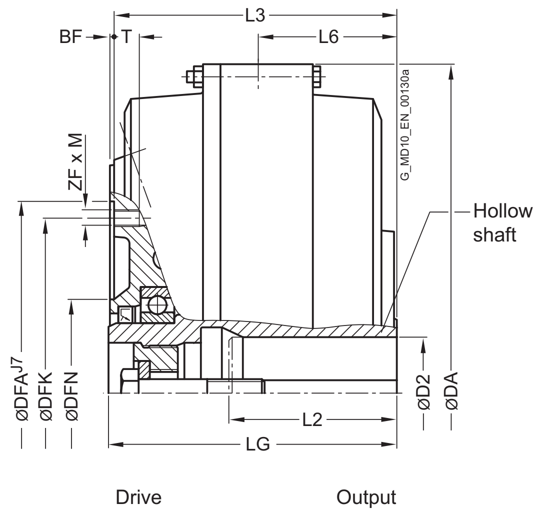
TYPE FGO

Basic coupling of the FG series with connecting flange



Size	Maxi-mum speed	Installation dimensions							Flange connection dimensions						Tightening torque for screws in thread ZF · M	↗ Article no. [1]	Weight
	n_{Kmax}	D2 Keyway DIN 6885		L2	DA	L3	L6	LG	DFN	DFA	BF	DFK	ZF · M	T	T_A		m
		min.	max.	max.													
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm	Nm		kg
370	3600		**75**	140	420	182	84	185	126	220	3	200	8 · M10	15	31	**2LC0900-8CE09-0AA0**	34
425	3000		**80**	140	470	202	99	205	134	274	3	250	8 · M12	18	54	**2LC0901-0CE09-0AA0**	45
			55	110													
490	2600	>55	**75**	140	555	232	105	236	150	314	4	282	8 · M16	24	135	**2LC0901-1CE09-0AA0**	75
		>75	**100**	170													
565	2300		**110**	170	630	250	123	254	166	344	4	312	8 · M16	24	135	**2LC0901-2CE09-0AA0**	95
655	2000		**130**	210	736	296	145	301	180	430	5	390	8 · M20	25	260	**2LC0901-3CE09-0AA0**	142
755	1800		**150**	240	840	341	176	346	226	480	5	440	10 · M20	25	260	**2LC0901-4CE09-0AA0**	208
887	1500		**150**	275	990	391	217	396	249	520	5	480	10 · M20	25	260	**2LC0901-5CE09-0AA0**	362

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 132 kW, P_{eff} = 110 kW, n_1 = 1470 rpm
- FLUDEX FGO coupling size 490
- Hollow shaft: Bore ØD2 = 70H7 mm with keyway to DIN 6885/1 and retaining screw
- Delivery with oil filling: 14.4 l **(see Page 13/9)**

Article no.: 2LC0901-1CE09-0AA0-Z L1G+F16+Y90
Plain text to Y90:14.4 l

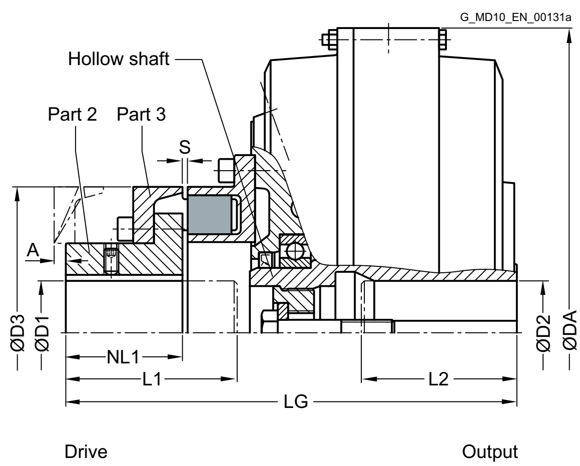
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FGD

with N-EUPEX D add-on coupling

Enables change of flexible elements without axial displacement of the shafts if the space "A" is provided.



Size	Maximum speed n_{Kmax}	FLUDEX coupling D2 Keyway DIN 6885 min.		L2 max.	DA	LG	N-EUPEX D add-on coupling D1 max.	L1 max.	NL1	Size D3	S	A	↗ Article no. [1]	Weight m
	rpm	mm	max. mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
370	3600		**75**	140	420	298	**65**	110	70	**180**	4^{+2}_{-2}	10	**2LC0900-8CA**	44
425	3000		**80**	140	470	348	**85**	140	90	**225**	4^{+2}_{-2}	9	**2LC0901-0CA**	66
490	2600	 >55 >75	**55** **75** **100**	110 140 170	555	397	**95**	155	100	**250**	5^{+3}_{-2}	11	**2LC0901-1CA**	105
565	2300		**110**	170	630	430	**105**	170	110	**280**	5^{+3}_{-2}	5	**2LC0901-2CA**	134
655	2000		**130**	210	736	515	**140**	210	140	**350**	5^{+3}_{-2}	0	**2LC0901-3CA**	217
755	1800		**150**	240	840	584	**150**	230	160	**400**	5^{+3}_{-2}	0	**2LC0901-4CA**	307
887	1500		**150**	275	990	665	**160**	260	180	**440**	8^{+2}_{-3}	0	**2LC0901-5CA**	491

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 350 kW, P_{eff} = 315 kW, n_1 = 1470 rpm
- FLUDEX FGD coupling size 655, standard type
- Hollow shaft: Bore ØD2 = 120H7 mm with keyway to DIN 6885/1 and retaining screw
- Part 2: without finished bore (bore ØD1 = 110 mm or ØD1 = 130 mm) or with finished bore (bore ØD1 = 140H7 mm) with keyway to DIN 6885/1 and set screw
- Delivery without oil filling, no oil filling quantity specification

Article no. without finished bore for ØD1 = 110 mm:
2LC0901-3CA19-0AA0-Z L1S

Article no. without finished bore for ØD1 = 130 mm:
2LC0901-3CA29-0AA0-Z L1S

Article no. with finished bore for ØD1 = 140H7 mm:
2LC0901-3CA99-0AA0-Z L1S+M1V

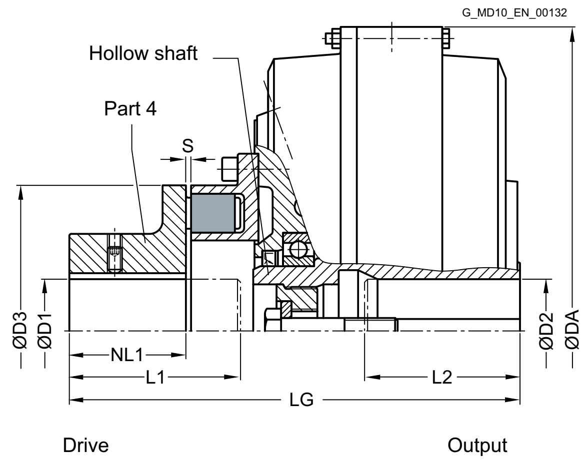
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FGE

with N-EUPEX E add-on coupling

Enables larger bores on the drive side.



Size	Maximum speed n_{Kmax} rpm	FLUDEX coupling D2 Keyway DIN 6885 min. mm	max. mm	L2 max. mm	DA mm	LG mm	N-EUPEX E add-on coupling D1 max. mm	L1 max. mm	NL1 mm	Size D3 mm	S mm	↗ Article no. [1]	Weight m kg
370	3600		**75**	140	420	298	**75**	110	70	**180**	4^{+2}_{-2}	**2LC0900-8CB**	44
425	3000		**80**	140	470	348	**90**	140	90	**225**	4^{+2}_{-2}	**2LC0901-0CB**	64
490	2600		**55**	110	555	397	**100**	155	100	**250**	5^{+3}_{-2}	**2LC0901-1CB**	101
		>55	**75**	140									
		>75	**100**	170									
565	2300		**110**	170	630	430	**110**	170	110	**280**	5^{+3}_{-2}	**2LC0901-2CB**	129

Configurable variants [1)]

- ØD1 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 160 kW, P_{eff} = 145 kW, n_1 = 1485 rpm
- FLUDEX FGE coupling size 490, vertical version, motor overhead
- Hollow shaft: Bore ØD2 = 60H7 with keyway to DIN 6885/1 and retaining screw
- Part 4: Bore ØD2 = 80H7 with keyway to DIN 6885/1 and set screw
- with seal set FPM
- Delivery with oil filling with specification of oil filling quantity

Article no.: 2LC0901-1CB99-0AA0-Z L1J+M1E+F08+F13+F16+Y90
Plain text to Y90: 15.4 l

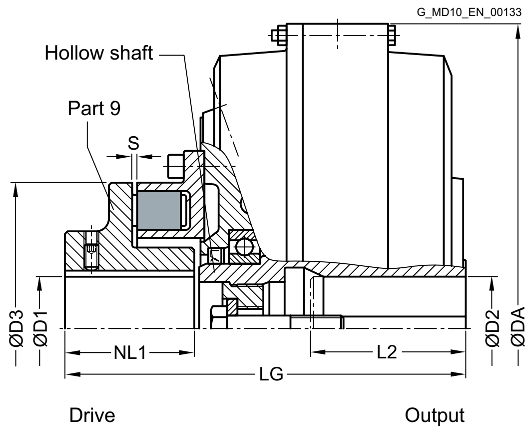
1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FGM

with N-EUPEX M add-on coupling

Enables a short fitting length.



Size	Maximum speed n_{Kmax} rpm	FLUDEX coupling D2 Keyway DIN 6885 min. mm	D2 Keyway DIN 6885 max. mm	L2 max. mm	DA mm	LG mm	N-EUPEX M add-on coupling D1 max. mm	L1 max. mm	NL1 mm	Size D3 mm	S mm	↗ Article no. [1]	Weight m kg
370	3600		**75**	140	420	274	**70**	80	80	**180**	4^{+2}_{-2}	**2LC0900-8CD**	44
425	3000		**80**	140	470	310	**85**	100	100	**225**	4^{+2}_{-2}	**2LC0901-0CD**	64
490	2600		**55**	110	555	350	**90**	105	105	**250**	5^{+3}_{-2}	**2LC0901-1CD**	101
		>55	**75**	140									
		>75	**100**	170									
565	2300		**110**	170	630	380	**100**	120	120	**280**	5^{+3}_{-2}	**2LC0901-2CD**	128

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 45 kW, P_{eff} = 37 kW, n_1 = 1470 rpm
- FLUDEX FGM coupling size 370
- Hollow shaft: Bore ØD2 = 60H7 mm with keyway to DIN 6885/1 and retaining screw
- Part 4: Bore ØD1 = 60H7 mm with keyway to DIN 6885/1 and set screw.
- Delivery without oil filling, no oil filling quantity specification

Article no. with a keyway: 2LC0900-8CD99-0AA0-Z L1E+M1E

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

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OIL FILLING QUANTITIES FOR FG SERIES

This assignment is valid for a maximum starting torque $T_{max} = 2.0 \cdot T_{eff}$ and mineral oils with a viscosity of VG 22/VG 32.

If other operating fluids are used, or with drive via the hollow shaft or $T_{max} \neq 2.0 \cdot T_{eff}$ or $T_{max} \neq 1.5 \cdot T_{eff}$, changed filling quantities must be observed!

Sizes 370, 490, 655 and 887

P_{eff} kW	Speed in rpm / Oil filling quantity in l: 600	740	890	980	1180	1470	1770	2300	2950	3550	Size
1.1	5.2										
2.2	6.4										
3	7	5.9									
4	7.2	6.4	5.4								
5.5	13	6.9	6	5.4							
7.5	14.4	7.2	6.5	6	5.1						
11	15.9	13.3	7.2	6.7	5.7						
15	17	14.7	12.4	7.2	6.2						
18	28.9	15.4	13.1	12	6.5	5.4					
22	31.1	16.2	14	12.7	6.9	5.7	4.7				
30	35.9	17	15.2	14.1	11.8	6.3	5.3				
37	37.9	29.9	16.1	14.9	12.6	6.6	5.7				
45	39.7	32.3	17	15.7	13.4	7	6				
55	40	35.5	28.4	16.6	14.3	11.6	6.4	5			
75	70.5	38.7	31.7	28.5	15.5	12.7	6.9	5.5	4.3		
90	74.7	40	34.4	30.4	16.3	13.5	11.4	5.9	4.6		
110	81	40	37	33	27.3	14.4	12.1	6.2	4.9	4	
132	88.2	69.3	38.8	36	28.6	15.1	12.8	6.5	5.2	4.4	
160	93.5	73.3	40	37.8	30.6	15.9	13.6	10.6	5.5	4.7	370
200	98	79.8	67	39.9	33.7	26.9	14.6	11.4	6	5	
250	98	88.7	70.9	40	36.8	28.4	15.4	12.2		5.4	
315		94.7	76.6	69.8	39	30.8	26.2	13.1			490
350		97.2	80	71.8	39.9	32.2	26.9	13.6			
400		98	85.1	75.2	64.5	34.2	27.8				
500			92.4	82.5	68.1	37.1	29.7				
600			96.9	90.1	71.5	38.8	31.9				655
750			98	95.3	77.3	64	35.4				
900				98	83.7	67					
1100					91.1	70.4					887
1300					95.2	74.2					
1600						80.6					

Sizes 425, 565 and 755

P_{eff} kW	Speed in rpm 600	740	890	980	1180	1470	1770	2300	2950	Size
	Oil filling quantity in l									
2.2	7.8									
3	8.7									
4	9.5	7.8								
5.5	10.3	8.7								
7.5	10.9	9.5	7.9							
11	19.9	10.5	9.1	8.2						
15	22	10.9	9.8	9.1						
18	23.2	19.1	10.3	9.6	8					
22	24.3	20.3	10.9	10.1	8.6					
30	40.2	22.4	18.9	10.9	9.5					
37	42.6	23.7	20.1	18.5	10	8.2				
45	45.8	24.9	21.5	19.5	10.5	8.8				
55	50.1	25.5	22.8	20.8	17.5	9.3	7.8			
75	55.6	43.8	24.6	22.9	19.3	10.1	8.6			
90	58.1	47.1	25.5	23.9	20.4	10.7	9.2	7.2		
110		51.7	41.5	25.5	21.8	17.7	9.7	7.6		
132		54.7	44	40.3	23	18.7	10.1	8.1	6.3	
160		57.4	47.5	42.5	24	19.8	16.7	8.6	6.8	
200		59	52.9	46.2	25.5	21.4	17.9	9.2	7.3	425
250			56	51.2	41.2	22.8	19.2	14.6	7.8	
315			59	55.1	44.4	24.2	20.6	16.1	8.3	
350				56.6	46.2	38	21.4	16.7		
400				58.4	49	39.3	22.2	17.4		565
500					53.7	41.6	36.3	18.7		
600					56.4	44.1	37.9			
750						48.4	40			755
900						52.8	42			
1100							45			

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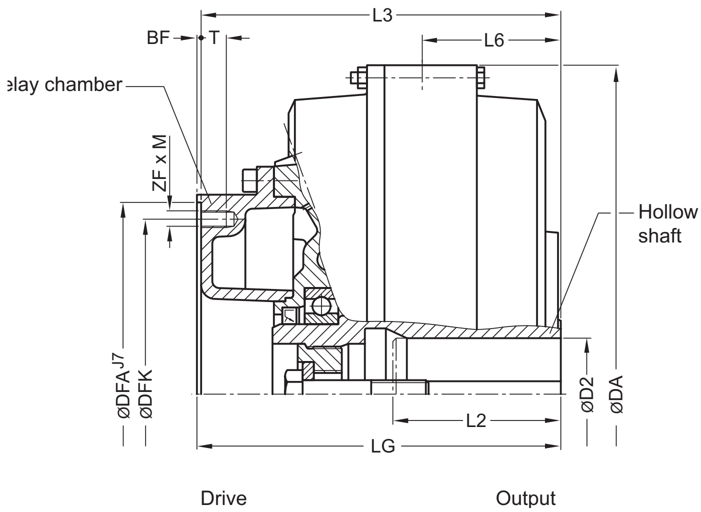
TYPE FVO

Delay chamber coupling of the FV series with connecting flange.



Size	Maximum speed	Installation dimensions							Flange connection dimensions					Tightening torque for screws in thread ZF · M	↗ Article no. [1]	Weight
	n_{Kmax}	D2 Keyway DIN 6885 min.	max.	L2 max.	DA	L3	L6	LG	DFA	BF	DFK	ZF · M	T	T_A		m
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm	Nm		kg
370	3600		**75**	140	420	225	84	228	220	3	200	8 · M10	15	31	**2LC0900-8ED09-0AA0**	37
425	3000		**80**	140	470	257	99	260	274	3	250	8 · M12	18	54	**2LC0901-0ED09-0AA0**	47
			55	110												
490	2600	>55	**75**	140	555	297	105	301	314	4	282	8 · M16	24	135	**2LC0901-1ED09-0AA0**	80
		>75	**100**	170												
565	2300		**110**	170	630	333	123	337	344	4	312	8 · M16	24	135	**2LC0901-2ED09-0AA0**	103
655	2000		**130**	210	736	384	145	389	430	5	390	8 · M20	25	260	**2LC0901-3ED09-0AA0**	154
755	1800		**150**	240	840	440	176	445	480	5	440	10 · M20	25	260	**2LC0901-4ED09-0AA0**	224
887	1500		**150**	275	990	493	217	498	520	5	480	10 · M20	25	260	**2LC0901-5ED09-0AA0**	385

Configurable variants [1]

- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 132 kW, P_{eff} = 110 kW, n_1 = 1470 rpm
- FLUDEX FVO coupling size 490
- Hollow shaft: Bore ØD2 = 70H7 mm with keyway to DIN 6885/1 and retaining screw
- Delivery with oil filling: 15.2 l **(see Page 13/9)**

Article no.: 2LC0901-1ED09-0AA0-Z L1G+F16+Y90
Plain text to Y90: 15.2 l

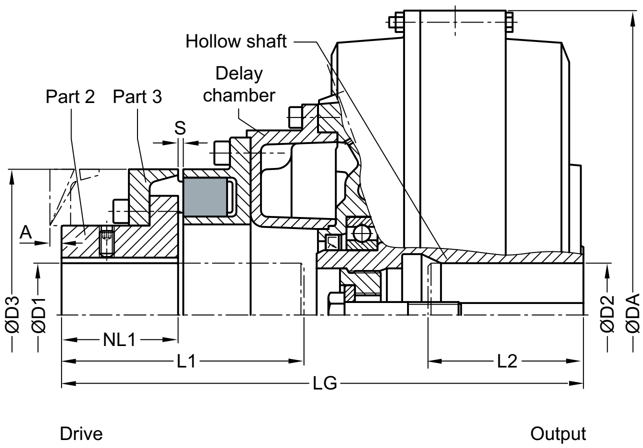
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FVD

with N-EUPEX D add-on coupling

Enables change of flexible elements without axial displacement of the shafts if the space "A" is provided.



Size	Maximum speed n_{Kmax}	FLUDEX coupling						N-EUPEX D add-on coupling						↗ Article no. [1]	Weight m
		D2 Keyway DIN 6885 min.	D2 Keyway DIN 6885 max.	L2 max.	DA	LG		D1 max.	L1 max.	NL1	Size D3	S	A		
	rpm	mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm		kg
370	3600		**75**	140	420	341		**65**	150	70	**180**	4^{+2}_{-2}	10	**2LC0900-8EA**	47
425	3000		**80**	140	470	403		**85**	190	90	**225**	4^{+2}_{-2}	9	**2LC0901-0EA**	68
			55	110											
490	2600	>55	**75**	140	555	462		**95**	220	100	**250**	5^{+3}_{-2}	11	**2LC0901-1EA**	166
		>75	**100**	170											
565	2300		**110**	170	630	513		**105**	250	110	**280**	5^{+3}_{-2}	5	**2LC0901-2EA**	142
655	2000		**130**	210	736	603		**140**	295	140	**350**	5^{+3}_{-2}	0	**2LC0901-3EA**	229
755	1800		**150**	240	840	683		**150**	330	160	**400**	5^{+3}_{-2}	0	**2LC0901-4EA**	323
887	1500		**150**	275	990	767		**160**	365	180	**440**	8^{+2}_{-3}	0	**2LC0901-5EA**	514

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 630 kW, P_{eff} = 500 kW, n_1=1770 rpm
- FLUDEX FVD coupling size 655
- Hollow shaft: Bore ØD2 = 95H7 with keyway to DIN 6885/1 and retaining screw,
- Part 2: Bore ØD2 = 110H7 with keyway to DIN 6885/1 and set screw
- with seal set FPM
- Delivery without oil filling with oil filling quantity specification (see Page 13/9)

Article no.: **2LC0901-3EA99-0AA0-Z L1Q+M1M+F08+Y90**
Plain text to Y90: 32.3 l

13

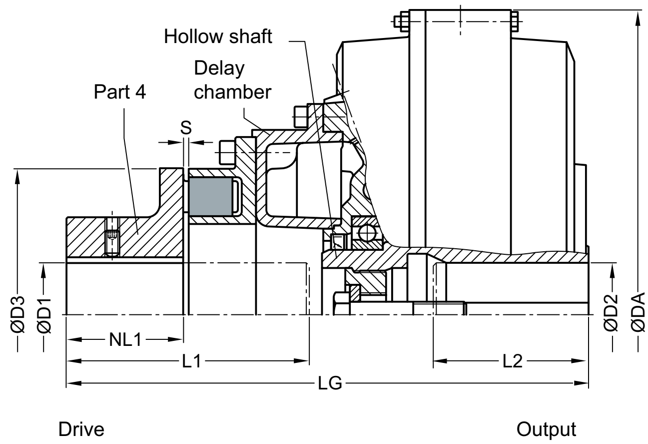
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FVE

with N-EUPEX E add-on coupling

Enables larger bores on the drive side.



Size	Maximum speed n_{Kmax}	FLUDEX coupling D2 Keyway DIN 6885 min.	FLUDEX coupling D2 Keyway DIN 6885 max.	L2 max.	DA	LG	N-EUPEX E add-on coupling D1 max.	L1 max.	NL1	Size D3	S	↗ Article no. [1]	Weight m
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
370	3600		**75**	140	420	341	**75**	150	70	**180**	4^{+2}_{-2}	**2LC0900-8EB**	47
425	3000		**80**	140	470	403	**90**	190	90	**225**	4^{+2}_{-2}	**2LC0901-0EB**	66
490	2600		**55**	110	555	462	**100**	220	100	**250**	5^{+3}_{-2}	**2LC0901-1EB**	107
		>55	**75**	140									
		>75	**100**	170									
565	2300		**110**	170	630	513	**110**	250	110	**280**	5^{+3}_{-2}	**2LC0901-2EB**	137

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 45 kW, P_{eff} = 37 kW, n_1 = 1470 rpm
- FLUDEX FVE coupling size 370
- Hollow shaft: Bore ØD2 = 60H7 mm with keyway to DIN 6885/1 and retaining screw
- Part 4: Bore ØD1 = 60H7 mm with keyway to DIN 6885/1 and set screw
- with electronic or mechanical operation monitoring, seal set NBR
- Delivery without oil filling, no oil filling quantity specification

Article no, with 110 °C thermal switch:
2LC0900-8EB99-0AA0-Z L1E+M1E+F03

Article no. with 125 °C EOC transmitter:
2LC0900-8EB99-0AA0-Z L1E+M1E+F04

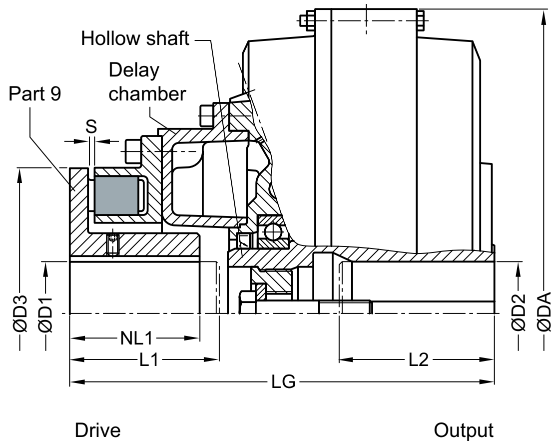
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FVM

with N-EUPEX M add-on coupling

Enables a short fitting length.



Size	Maximum speed	FLUDEX coupling					N-EUPEX M add-on coupling					↗ Article no. [1]	Weight
	n_{Kmax}	D2 Keyway DIN 6885		L2	DA	LG	D1	L1	NL1	Size D3	S		m
		min.	max.	max.			max.	max.					
	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
370	3600		**75**	140	420	288	**70**	100	85	**180**	4^{+2}_{-2}	**2LC0900-8EC**	46
425	3000		**80**	140	470	327	**85**	115	100	**225**	4^{+2}_{-2}	**2LC0901-0EC**	65
			55	110									
490	2600	>55	**75**	140	555	382	**90**	140	110	**250**	5^{+3}_{-2}	**2LC0901-1EC**	104
		>75	**100**	170									
565	2300		**110**	170	630	425	**100**	165	130	**280**	5^{+3}_{-2}	**2LC0901-2EC**	135

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C

Ordering example

- Motor 250 kW, P_{eff} = 180 kW, n_1 = 1470 rpm
- FLUDEX FVM coupling size 565
- Hollow shaft: Bore ØD2 = 75H7 with keyway to DIN 6885/1 and retaining screw
- Part 9: Bore ØD2 = 95H7 with keyway to DIN 6885/1 and set screw
- with seal set NBR
- thermal control unit for temperature monitoring
- Delivery without oil filling without oil filling quantity specification

Article no.: 2LC0901-2EC99-0AA0-Z L1M+M1H+F03+F25

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

OIL FILLING QUANTITIES FOR FV SERIES

This assignment is valid for a maximum starting torque $T_{max} = 1.5 \cdot T_{eff}$ and mineral oils with a viscosity of VG 22/VG 32.

If other operating fluids are used, or with drive via the hollow shaft or $T_{max} \neq 2.0 \cdot T_{eff}$ or $T_{max} \neq 1.5 \cdot T_{eff}$, changed filling quantities must be observed!

Sizes 370, 490, 655 and 887

P_{eff} kW	Speed in rpm 600	740	890	980	1180	1470	1770	2300	2950	3550	Size
	Oil filling quantity in l										
1.1	5.3										
2.2	6.7	5.5									
3	7.4	6.1	5								
4	8	6.6	5.6	5							
5.5	13.8	7.4	6.2	5.6							
7.5	15.2	8	6.8	6.2	5.1						
11	17.4	14.1	7.7	7.1	5.9						
15	18.5	15.6	13	7.7	6.5	5.2					
18	31.6	16.6	13.8	12.5	6.9	5.5					
22	33.2	17.7	14.8	13.4	7.3	5.9	4.8				
30	36.5	18.5	16.3	14.9	12.3	6.5	5.5				
37	39.9	32.4	17.5	15.9	13.3	7	5.9	4.2			
45	44	34	18.5	17	14.1	7.5	6.2	4.6			
55	44	36.2	31	18.1	15.1	12	6.7	5.1			
75	75.8	41.4	33.6	31.2	16.7	13.5	7.4	5.7	4.2		
90	80	44	35.4	32.7	17.7	14.3	11.6	6.1	4.5		
110	74.3	44	38.2	34.5	29.9	15.2	12.6	6.4	5	4.1	
132	89.2	74.6	41.6	36.7	31.3	16.2	13.5	6.9	5.4	4.2	
160	96.3	78.7	44	39.8	32.9	17.3	14.4	10.4	5.7	4.6	370
200	107	83.6	72.1	44	34.9	29.4	15.4	11.7	6.2	5.1	
250	107	89.5	76.3	44	37.9	31.1	16.7	12.8		5.5	
315		98.5	81.5	75.6	42.1	33	28.6	13.9			490
350		103.6	83.7	77.7	44	33.9	29.5	14.4			
400		107	86.9	80.5	68.4	35.3	30.4				
500			94.5	85.3	73.8	38.4	32.3				655
600			102.9	90.6	77.3	41.8	33.8				
750			107	99.6	81.9	67.8	36.2				
900				107	86	72.7					
1100					92.3	76.2					887
1300					99.3	79.8					
1600						84					

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Sizes 425, 565 and 755

P_{eff} kW	Speed in rpm / Oil filling quantity in l: 600	740	890	980	1180	1470	1770	2300	2950	Size
2.2	8									
3	9.1									
4	9.9	8.1								
5.5	11.1	9								
7.5	12	9.9	8.3	7.4						
11	21.4	11.3	9.4	8.6						
15	23.7	12	10.4	9.5	7.8					
18	25.2	20.5	11.1	10.1	8.4					
22	27	21.9	11.7	10.8	9					
30	43.2	24.2	20.1	11.8	9.9	7.9				
37	45.7	26	21.7	19.5	10.7	8.6	6.7			
45	48.3	27.7	23.1	21	11.3	9.2	7.5			
55	51.2	28	24.6	22.5	18.3	9.7	8.1			
75	58	46.8	27.4	24.8	20.7	10.8	9	6.5		
90	63.7	49.2	28	26.5	22	11.4	9.5	7.1		
110		52.3	44.5	28	23.4	18.7	10.2	7.8		
132		56.3	46.9	43.3	24.9	19.9	10.9	8.4	6.1	
160		61.9	49.5	45.6	26.7	21.4	16.8	8.9	6.6	
200		65	53.2	48.6	41.7	23	18.9	9.6	7.3	425
250			58.6	51.9	44.2	24.7	20.6	14.7	8	
315			65	57	47.3	26.8	22.3	16.1	8.7	
350				60	48.6	40.3	23	16.8		
400				64.4	50.5	42.2	24	18.1		565
500					54.7	44.6	37.9	19.9		
600					59.5	47.1	40	21.2		
750						50	42.9			
900						53.2	45			755
1100							47.7			

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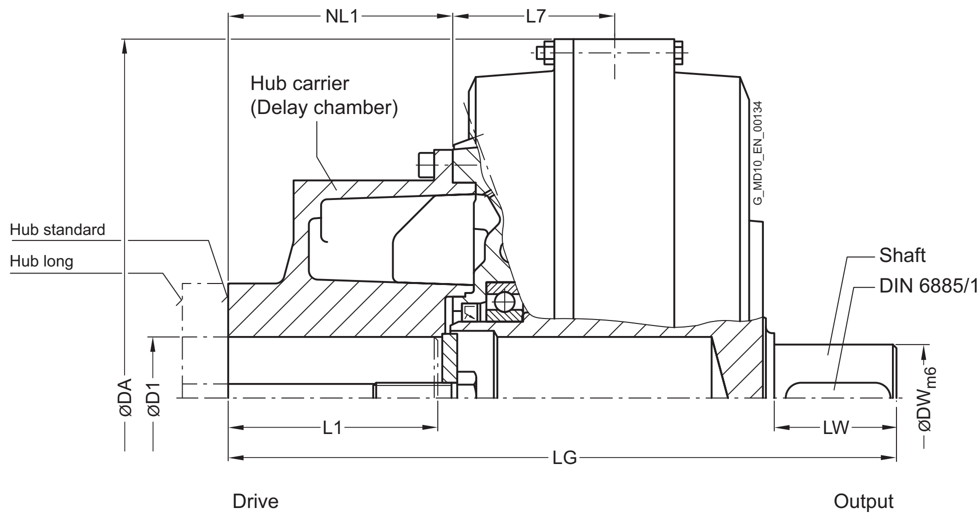
TYPE FNO

with large delay chamber and connecting shaft



Size	Maximum speed n_{Kmax} rpm	Hub carrier Hub	Installation dimensions D1 Keyway DIN 6885 min. mm	D1 max. mm	L1 max. mm	NL1 mm	DA mm	L7 mm	LG mm	Connection dimensions DW mm	LW mm	↗ Article no. [1]	Weight m kg
370	3600	Standard	38	**55**	110	115	420	101	380	60	70	2LC0900-8GA	56
		Long	38	**80**	140	145	420		410			2LC0900-8GA	55
425	3000	Standard	42	**75**	140	147	470	106	437	70	80	2LC0901-0GA	77
		Long	42	**100**	170	177	470		467			2LC0901-0GA	77
490	2600	Standard	48	**75**	140	148	555	131	485	70	90	2LC0901-1GA	116
		Long	48	**110**	170	178	555		515			2LC0901-1GA	116
565	2300	Standard	65	**95**	170	178	630	131	543	90	100	2LC0901-2GA	158
		Long	65	**120**	210	218	630		583			2LC0901-2GA	160
655	2000	Standard	65	**110**	210	218	736	156	644	100	125	2LC0901-3GA	240
		Long	65	**135**	250	258	736		684			2LC0901-3GA	240
755	1800	Standard	65	**120**	210	219	840	170	705	110	140	2LC0901-4GA	321
		Long	65	**150**	250	259	840		745			2LC0901-4GA	318
887	1500	Standard	65	**150**	250	251	990	187	835	120	178	2LC0901-5GA	562
		Long	65	**170**	300	301	990		885			2LC0901-5GA	563

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Motor 110 kW, P_{eff} = 90 kW, n_1 = 1470 rpm, maximum output torque T_{max} = 1.3 · T_{eff}
- FLUDEX FNO coupling size 425
- Hub carrier: Standard hub bore ØD1 = 75H7 mm with keyway to DIN 6885/1 and retaining screw
- Seal set FPM
- Specification of oil filling quantity: 12.4 l **(see Page 13/9)**

Article no. with 160 °C fuse:
2LC0901-1GA90-1AA0-Z L1H+Y90+F08
Plain text to Y90: 12.4 l

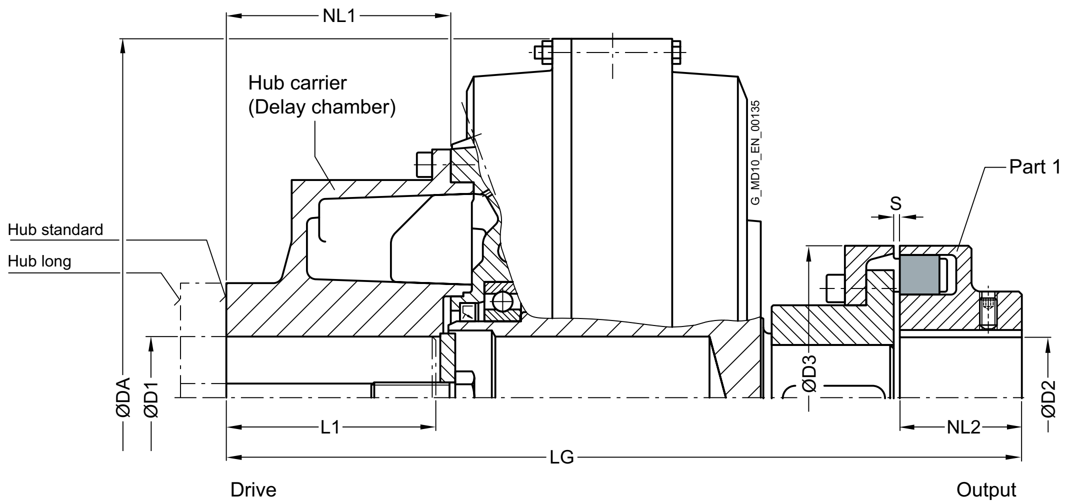
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FNA

with large delay chamber and N-EUPEX A add-on coupling

Enables a short fitting length.



Size	Maximum speed	Hub carrier	FLUDEX coupling						N-EUPEX A add-on coupling				↗ Article no. [1)]	Weight
	n_{Kmax}	Hub	D1 Keyway DIN 6885 min.	max.	L1 max.	NL1	DA	LG	D2 max.	NL2	Size D3	S		*m*
	rpm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
370	3600	Standard	38	**55**	110	115	420	454	**75**	70	**180**	4^{+2}_{-2}	**2LC0900-8GB**	68
		Long	38	**80**	140	145	420	484					**2LC0900-8GB**	67
425	3000	Standard	42	**75**	140	147	470	521	**85**	80	**200**	4^{+2}_{-2}	**2LC0901-0GB**	93
		Long	42	**100**	170	177	470	551					**2LC0901-0GB**	93
490	2600	Standard	48	**75**	140	148	555	579	**90**	90	**225**	4^{+2}_{-2}	**2LC0901-1GB**	143
		Long	48	**110**	170	178	555	609					**2LC0901-1GB**	143
565	2300	Standard	65	**95**	170	178	630	648	**100**	100	**250**	5^{+3}_{-2}	**2LC0901-2GB**	193
		Long	65	**120**	210	218	630	688					**2LC0901-2GB**	195
655	2000	Standard	65	**110**	210	218	736	774	**120**	125	**315**	5^{+3}_{-2}	**2LC0901-3GB**	311
		Long	65	**135**	250	258	736	814					**2LC0901-3GB**	311
755	1800	Standard	65	**120**	210	219	840	850	**140**	140	**350**	5^{+3}_{-2}	**2LC0901-4GB**	420
		Long	65	**150**	250	259	840	890					**2LC0901-4GB**	417
887	1500	Standard	65	**150**	250	251	990	1023	**160**	180	**440**	8^{+2}_{-3}	**2LC0901-5GB**	726
		Long	65	**170**	300	301	990	1073					**2LC0901-5GB**	727

Configurable variants [1)]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Motor 750 kW, P_{eff} = 600 kW, n_1 = 980 rpm
- FLUDEX FNA coupling size 887
- Hub carrier: Standard hub bore ØD1 = 40H7 with keyway to DIN 6885/1 and retaining screw
- Part 1: Bore ØD2 = 120H7 with keyway to DIN 6885/1 and set screw
- with seal set FPM
- EOC system for temperature monitoring
- Delivery without oil filling with oil filling quantity specification

Article no. with EOC system:
2LC0901-5GB99-1AA0-Z L1V+M1S+F12+F26+Y90
Plain text Y90: 90.6 l

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

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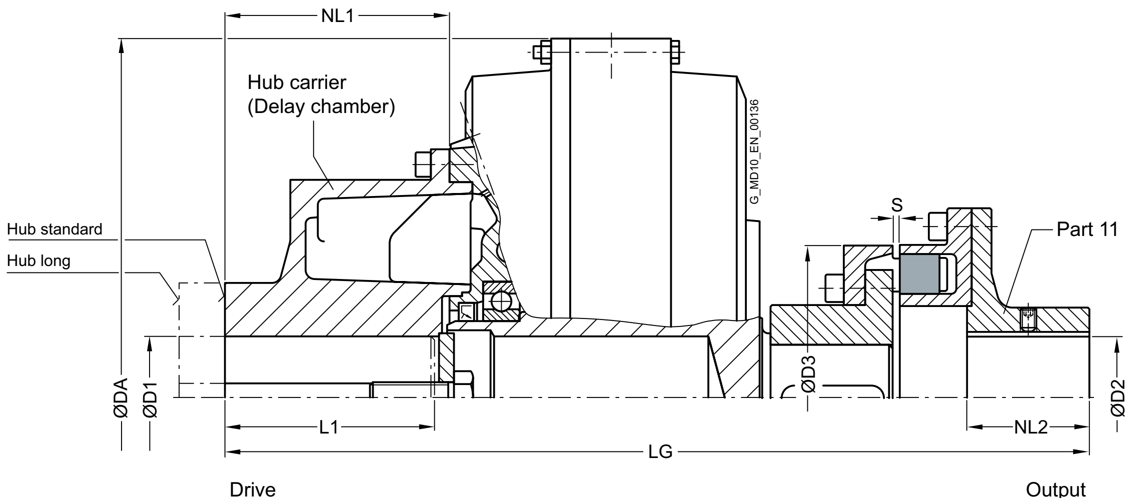
TYPE FND

with large delay chamber and N-EUPEX D add-on coupling

Enables fitting and dismounting of the coupling without displacement of the coupled shafts.



Size	Maximum speed n_{Kmax} rpm	Hub carrier Hub	FLUDEX coupling D1 Keyway DIN 6885 min. mm	max. mm	L1 max. mm	NL1 mm	DA mm	LG mm	N-EUPEX D coupling D2 max. mm	NL2 mm	Size D3 mm	S mm	↗ Article no. [1]	Weight m kg
370	3600	Standard	38	**55**	110	115	420	494	**70**	70	**180**	5^{+1}_{-1}	**2LC0900-8GC**	72
		Long	38	**80**	140	145	420	524					**2LC0900-8GC**	71
425	3000	Standard	42	**75**	140	147	470	566	**80**	80	**200**	5^{+1}_{-1}	**2LC0901-0GC**	99
		Long	42	**100**	170	177	470	596					**2LC0901-0GC**	99
490	2600	Standard	48	**75**	140	148	555	629	**90**	90	**225**	5^{+1}_{-1}	**2LC0901-1GC**	150
		Long	48	**110**	170	178	555	659					**2LC0901-1GC**	150

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Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

Size	Maximum speed	Hub carrier	FLUDEX coupling						N-EUPEX D coupling				Article no. [1]	Weight
	n_{Kmax}	Hub	D1 Keyway DIN 6885		L1	NL1	DA	LG	D2	NL2	Size D3	S		m
			min.	max.	max.				max.					
	rpm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
565	2300	Standard	65	**95**	170	178	630	706	**100**	100	**250**	6^{+2}_{-1}	**2LC0901-2GC**	204
		Long	65	**120**	210	218	630	746					**2LC0901-2GC**	206
655	2000	Standard	65	**110**	210	218	736	842	**110**	125	**315**	6^{+2}_{-1}	**2LC0901-3GC**	324
		Long	65	**135**	250	258	736	882					**2LC0901-3GC**	324
755	1800	Standard	65	**120**	210	219	840	921	**120**	140	**350**	6^{+2}_{-1}	**2LC0901-4GC**	440
		Long	65	**150**	250	259	840	961					**2LC0901-4GC**	437
887	1500	Standard	65	**150**	250	251	990	1104	**130**	180	**440**	8^{+2}_{-2}	**2LC0901-5GC**	747
		Long	65	**170**	300	301	990	1154					**2LC0901-5GC**	748

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- Delivery with oil filling only above -20 °C
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Motor 132 kW, P_{eff} = 110 kW, n_1 = 1470 rpm
- FLUDEX FND coupling size 490
- Hub carrier: Long hub bore ØD1 = 80H7 mm with keyway to DIN 6885/1 and set screw
- Part 11: Bore ØD1 = 80H7 mm with keyway to DIN 6885/1 and set screw
- with electronic or mechanical operation monitoring
- seal set NBR
- Delivery without oil filling, no oil filling quantity specification

Article no, with 110 °C thermal switch:
2LC0901-1GC99-2AA0-Z L1J+M1J+F03

Article no. with 125 °C EOC transmitter:
2LC0901-1GC99-2AA0-Z L1J+M1J+F04

13

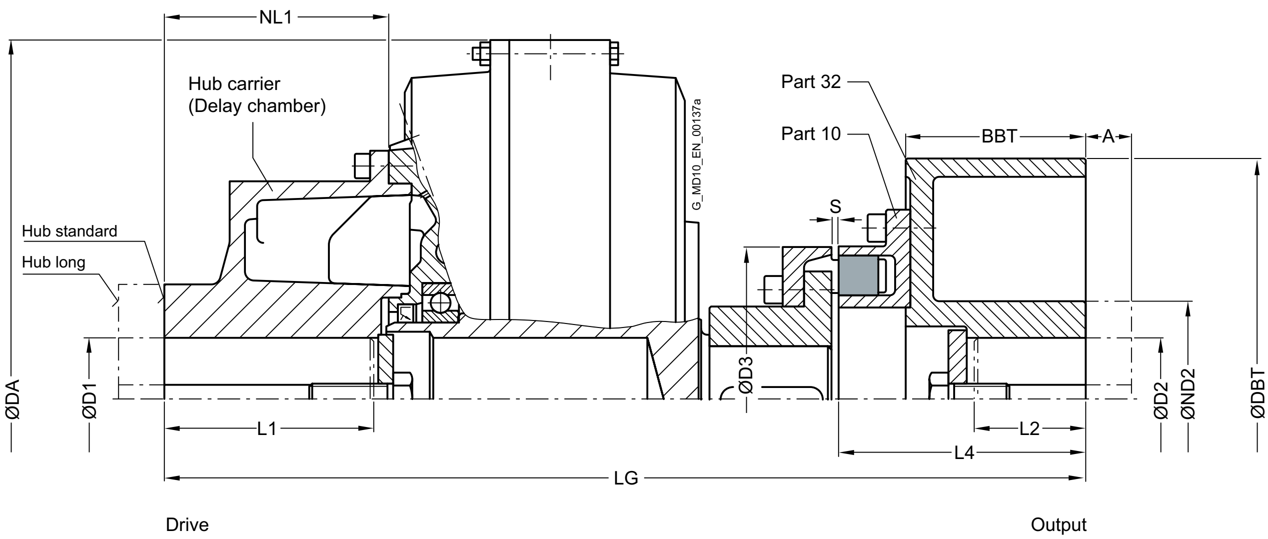
[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

TYPE FNDB

with large delay chamber, N-EUPEX A add-on coupling and brake drum

Enables fitting and dismounting of the coupling without displacement of the coupled shafts.



Size	Maximum speed n_{Kmax} rpm	Hub carrier Hub	FLUDEX coupling D1 Keyway DIN 6885 min. mm	max. mm	L1 max. mm	NL1 mm	DA mm	LG mm	N-EUPEX D add-on coupling Size D3 mm	S mm	L4 mm	Brake drum (Part 32) D2 max. mm	ND2 mm	DBT mm	BBT mm	A mm	↗ Article no. 1)	Weight *m* kg
370	3000	Standard	38	**55**	110	115	420	542	180	5^{+1}_{-1}	157	**80**	128	315	118	50	**2LC0900-8GD**	87
		Long	38	**80**	140	145	420	572									**2LC0900-8GD**	86
	2300	Standard	38	**55**	110	115	420	574			189	**90**	160	400	150	80	**2LC0900-8GD**	111
		Long	38	**80**	140	145	420	604									**2LC0900-8GD**	110
425	3000	Standard	42	**75**	140	147	470	604	200	5^{+1}_{-1}	162	**80**	128	315	118	50	**2LC0901-0GD**	113
		Long	42	**100**	170	177	470	634									**2LC0901-0GD**	113
	2300	Standard	42	**75**	140	147	470	636			194	**90**	160	400	150	80	**2LC0901-0GD**	137
		Long	42	**100**	170	177	470	666									**2LC0901-0GD**	137

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Part 32 Small brake drum
  Large brake drum
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

↗ For online configuration on **flender.com**, click on the item no.

13

Size	Maximum speed n_{Kmax} rpm	Hub carrier Hub	FLUDEX coupling D1 Keyway DIN 6885 min. mm	D1 Keyway DIN 6885 max. mm	L1 max. mm	NL1 mm	DA mm	LG mm	N-EUPEX D add-on coupling Size D3 mm	S mm	L4 mm	Brake drum (Part 32) D2 max. mm	ND2 mm	DBT mm	BBT mm	A mm	↗ Article no. 1)	Weight m kg
490	2300	Standard	48	**75**	140	148	555	689	**225**	5^{+1}_{-1}	199	**90**	160	400	150	80	**2LC0901-1GD**	183
		Long	48	**110**	170	178	555	719									**2LC0901-1GD**	183
	1900	Standard	48	**75**	140	148	555	729			239	**110**	175	500	190	110	**2LC0901-1GD**	218
		Long	48	**110**	170	178	555	759									**2LC0901-1GD**	218
565	2300	Standard	65	**95**	170	178	630	756	**250**	6^{+2}_{-1}	207	**100**	160	400	150	80	**2LC0901-2GD**	234
		Long	65	**120**	210	218	630	796									**2LC0901-2GD**	236
	1900	Standard	65	**95**	170	178	630	796			247	**110**	175	500	190	110	**2LC0901-2GD**	268
		Long	65	**120**	210	218	630	836									**2LC0901-2GD**	270
655	1900	Standard	65	**110**	210	218	736	907	**315**	6^{+2}_{-1}	257	**110**	175	500	190	110	**2LC0901-3GD**	377
		Long	65	**135**	250	258	736	947									**2LC0901-3GD**	377
	1500 2)	Standard	65	**110**	210	218	736	953			303	**140**	224	630	236	100	**2LC0901-3GD**	437
		Long	65	**135**	250	258	736	993									**2LC0901-3GD**	437
755	1500 2)	Standard	65	**120**	210	219	840	1018	**350**	6^{+2}_{-1}	307	**140**	224	630	236	100	**2LC0901-4GD**	541
		Long	65	**150**	250	259	840	1058									**2LC0901-4GD**	538
887	1300 3)	Standard	65	**150**	250	251	990	1190	**440**	8^{+2}_{-2}	347	**160**	265	710	265	100	**2LC0901-5GD**	892
		Long	65	**170**	300	301	990	1240									**2LC0901-5GD**	893

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Part 32 Small brake drum
  Large brake drum
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling, without hub prolongations "A" but with set screw
- L2 denotes the shaft insertion depth.
  In the case of shaft ends deviating from DIN 748/1 long, the insertion depth must be specified in plain text with "**Y29**"
- Delivery with oil filling only above -20 °C
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example:

- Motor 55 kW, P_{eff} = 45 kW, n_1 = 1470 rpm
- FLUDEX FNDB coupling size 370, standard type
- Hub carrier: Long hub bore ØD1 = 65H7 mm
  with keyway to DIN 6885/1 and set screw
- Brake drum (Part 32): Ø315 x 118, bore ØD2 = 80H7 mm
  with keyway to DIN 6885/1 and retaining screw
- seal set NBR
- Delivery without oil filling, no oil filling quantity specification

Article no.: 2LC0900-8GD99-2AA0-Z L1F+M1J

1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) When performing a GGG brake drum:
Maximum speed 1800 min^{-1} possible.

3) When performing a GGG brake drum:
Maximum speed 1500 min^{-1} possible.

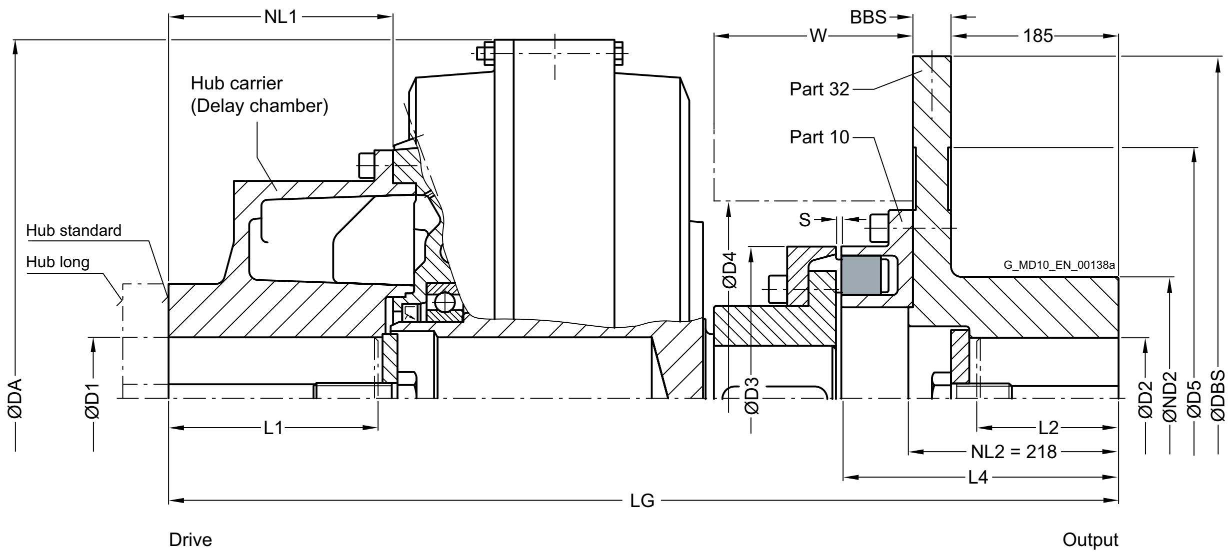
↗ For online configuration on **flender.com**, click on the item no.

13

TYPE FNDS SB

with large delay chamber, N-EUPEX D add-on coupling and brake disk for stopping brakes

Enables fitting and dismounting of the coupling without displacement of the coupled shafts.



Size	Maximum speed n_{Kmax}	Hub carrier Hub	FLUDEX coupling D1 Keyway DIN 6885						N-EUPEX D add-on coupling			Brake disk (part 32) [2]					Space dimensions		↗ Article no. [1]	Weight
			min.	max.	L1 max.	NL1	DA	LG	Size D3	S	L4	D2 max.	ND2	DBS	BBS	D5	D4	W		m
	rpm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
370	3000	Standard	38	**55**	110	115	420	642	**180**	5^{+1}_{-1}	257	**80**	145	450	30	300	222	130	**2LC0900-8GE**	116
		Long	38	**80**	140	145	420	672											**2LC0900-8GE**	115
425	2600	Standard	42	**75**	140	147	470	704	**200**	5^{+1}_{-1}	262	**80**	160	500	30	340	250	144	**2LC0901-0GE**	155
		Long	42	**100**	170	177	470	734											**2LC0901-0GE**	155
490	2300	Standard	48	**75**	140	148	555	757	**225**	5^{+1}_{-1}	267	**90**	160	560	30	370	276	162	**2LC0901-1GE**	212
		Long	48	**110**	170	178	555	787											**2LC0901-1GE**	212

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Hub shortening possible, clearly specify NL2 size

↗ For online configuration on **flender.com**, click on the item no.

Size	Maximum speed	Hub carrier	FLUDEX coupling						N-EUPEX D add-on coupling			Brake disk (part 32) [2]					Space dimensions		↗ Article no. [1]	Weight
	n_{Kmax}	Hub	D1 Keyway DIN 6885		L1	NL1	DA	LG	Size D3	S	L4	D2	ND2	DBS	BBS	D5	D4	W		m
			min.	max.	max.							max.								
	rpm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
565	2100	Standard	65	**95**	170	178	630	824	**250**	6^{+2}_{-1}	275	**100**	175	630	30	440	317	179	**2LC0901-2GE**	279
		Long	65	**120**	210	218	630	864											**2LC0901-2GE**	281
655	2000	Standard	65	**110**	210	218	736	935	**315**	6^{+2}_{-1}	285	**100**	175	630	30	440	385	200	**2LC0901-3GE**	388
		Long	65	**135**	250	258	736	975											**2LC0901-3GE**	388
755	1800	Standard	65	**120**	210	219	840	1000	**350**	6^{+2}_{-1}	289	**140**	220	710	30	520	435	219	**2LC0901-4GE**	518
		Long	65	**150**	250	259	840	1040											**2LC0901-4GE**	515
887	1500	Standard	65	**150**	250	251	990	1144	**440**	8^{+2}_{-2}	301	**140**	220	800	30	610	525	268	**2LC0901-5GE**	828
		Long	65	**170**	300	301	990	1194											**2LC0901-5GE**	829

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- L2 denotes the shaft insertion depth
  In the case of shaft ends deviating from DIN 748/1 long the insertion depth must be specified in plain text and with "**Y29**"
- Delivery with oil filling only above -20 °C
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Motor 37 kW, P_{eff} = 30 kW, n_1 = 1470 rpm
- FLUDEX FNDS SB coupling size 370
- Hub carrier: Standard hub bore ØD1 = 55H7 mm
  with keyway to DIN 6885/1 and retaining screw
- Brake disk (part 32): Bore ØD2 = 75H7 mm
  with keyway to DIN 6885/1 and retaining screw
- with preservation suitable for indoor storage
- Delivery without oil filling, no oil filling quantity specification

Article no. with standard preservation:
2LC0900-8GE99-1CA0-Z L1D+M1H

Article no. with preservation 6 months:
2LC0900-8GE99-1CA0-Z L1D+M1H+B31

Article no. with preservation 24 months:
2LC0900-8GE99-1CA0-Z L1D+M1H+B28

Article no. with preservation 36 months:
2LC0900-8GE99-1CA0-Z L1D+M1H+B34

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[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

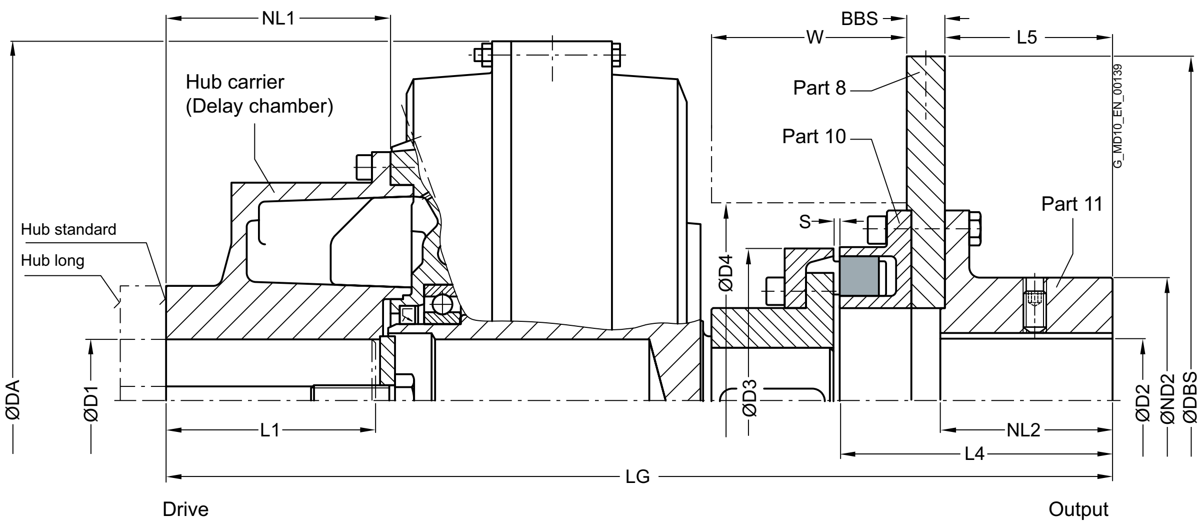
[2] Hub shortening possible, clearly specify NL2 size

↗ For online configuration on **flender.com**, click on the item no.

TYPE FNDS HB

with large delay chamber, N-EUPEX D add-on coupling and brake disk for blocking brakes

Enables fitting and dismounting of the coupling without displacement of the coupled shafts.



Size	Maximum speed n_{Kmax}	Hub carrier	FLUDEX coupling						N-EUPEX D add-on coupling			Brake disk (part 8) Hub (part 11)						Space dimensions		↗ Article no. [1]	Weight
		Hub	D1 Keyway DIN 6885 min.	D1 max.	L1 max.	NL1	DA	LG	Size D3	S	L4	D2 max.	NL2	ND2	DBS	BBS	D5 [2]	D4	W		m
	rpm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
370	3600	Standard	38	**55**	110	115	420	555	**180**	5^{+1}_{-1}	170	**80**	118	130	355	16	115	222	127	**2LC0900-8GF**	87
		Long	38	**80**	140	145	420	585												**2LC0900-8GF**	86
425	3000	Standard	42	**75**	140	147	470	617	**200**	5^{+1}_{-1}	175	**80**	118	130	355	16	115	250	141	**2LC0901-0GF**	115
		Long	42	**100**	170	177	470	647												**2LC0901-0GF**	115
490	2600	Standard	48	**75**	140	148	555	670	**225**	5^{+1}_{-1}	180	**85**	118	135	400	16	115	276	159	**2LC0901-1GF**	166
		Long	48	**110**	170	178	555	700												**2LC0901-1GF**	166

Configurable variants [1]

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

[1] To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

[2] Hub shortening possible, clearly specify L5 size

↗ For online configuration on **flender.com**, click on the item no.

Size	Maximum speed	Hub carrier	FLUDEX coupling						N-EUPEX D add-on coupling			Brake disk (part 8) Hub (part 11)						Space dimensions		↗ Article no. 1)	Weight
	n_{Kmax}	Hub	D1 Keyway DIN 6885		L1	NL1	DA	LG	Size D3	S	L4	D2	NL2	ND2	DBS	BBS	D5 2)	D4	W		m
			min.	max.	max.							max.									
	rpm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
565	2300	Standard	65	**95**	170	178	630	737	**250**	6^{+2}_{-1}	188	**100**	118	160	450	16	115	317	176	**2LC0901-2GF**	224
		Long	65	**120**	210	218	630	777												**2LC0901-2GF**	226
655	2000	Standard	65	**110**	210	218	736	848	**315**	6^{+2}_{-1}	198	**100**	118	170	500	16	115	385	197	**2LC0901-3GF**	347
		Long	65	**135**	250	258	736	888												**2LC0901-3GF**	347
755	1800	Standard	65	**120**	210	219	840	961	**350**	6^{+2}_{-1}	250	**140**	164	225	630	20	160	435	215	**2LC0901-4GF**	495
		Long	65	**150**	250	259	840	1001												**2LC0901-4GF**	492
887	1500	Standard	65	**150**	250	251	990	1105	**440**	8^{+2}_{-2}	262	**140**	164	225	710	20	160	525	264	**2LC0901-5GF**	799
		Long	65	**170**	300	301	990	1155												**2LC0901-5GF**	800

Configurable variants 1)

- ØD1 Without finished bore
  With finished bore
- ØD2 Without finished bore
  With finished bore
- Delivery without oil filling
  Delivery with oil filling with specification of oil filling quantity in l
  Delivery without oil filling with oil filling quantity specification in l

Notes

- The specified coupling weights are effective for maximum bores without oil filling.
- L2 denotes the shaft insertion depth
  In the case of shaft ends deviating from DIN 748/1 long the insertion depth must be specified in plain text and with "**Y29**"
- Delivery with oil filling only above -20 °C
- For mass moments of inertia, centroidal distance Y and weight FY, see **Page 13/18**.

Ordering example

- Motor 200 kW, P_{eff} = 160 kW, n_1 = 1470 rpm
- FLUDEX FNDS HB coupling size 490
- Hub carrier: Long hub bore ØD1 = 110H7 mm
  with keyway to DIN 6885/1 and set screw
- Hub (part 11): Bore ØD2 = 80H7 mm
  with keyway to DIN 6885/1 and set screw
- Fitting position: Horizontal/vertical motor underneath (MU)
- Delivery without oil filling, no oil filling quantity specification

Article no. in horizontal version:
2LC0901-1GF99-2AA0-Z L1Q+M1J

Article no. in vertical version (MU):
2LC0901-1GF99-2AA0-Z L1Q+M1J+F14

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1) To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **flender.com**.

2) Hub shortening possible, clearly specify L5 size

↗ For online configuration on **flender.com**, click on the item no.

OIL FILLING QUANTITIES FOR FN SERIES

This assignment is valid for a maximum starting torque $T_{max} = 1.3 \cdot T_{eff}$ and mineral oils with a viscosity of VG 22/VG 32.

If other operating fluids are used, or with drive via the shaft or $T_{max} \neq 1.3 \cdot T_{eff}$, changed filling quantities must be observed!

Sizes 370, 490, 655 and 887

P_{eff} kW	Speed in rpm / Oil filling quantity in l: 600	740	890	980	1180	1470	1770	2300	2950	3550	Size
1.1	5.6										
2.2	7.1	5.7									
3	7.9	6.4	5.1								
4	8.2	7	5.8	5.1							
5.5	14.4	7.8	6.5	5.9							
7.5	16	8.2	7.2	6.5	5.3						
11	18.2	14.7	8.2	7.4	6.2						
15	19	16.3	13.4	8.2	6.8	5.4					
18	33.5	17.3	14.4	12.9	7.2	5.8					
22	35.4	18.6	15.4	13.9	7.8	6.2	4.9				
30	38.5	19	17	15.5	12.5	6.9	5.7				
37	41.6	34.3	18.4	16.6	13.7	7.4	6.1	4.4			
45	45	36.2	19	17.7	14.7	7.9	6.6	4.7			
55	45	38.2	32.9	19	15.8	12.2	7	5.3			
75	76.5	43	35.8	33.1	17.4	14	7.8	6	4.3		
90	80.5	45	37.6	34.8	18.7	14.9	11.7	6.4	4.6		
110	85.2	45	40.1	36.7	31.8	16	13.1	6.8	5.1		
132	89.5	74.7	43.3	38.6	33.2	16.9	14	7.2	5.6	4.3	**370**
160	95.6	80	45	41.5	35	18.1	15	10.7	6	4.7	
200	105.5	84.5	71.5	45	37.1	31.1	16.2	11.8	6.5	5.2	
250	110	89.7	76.9	45	39.7	33	17.4	13.2		5.8	
315		97.5	82.4	76.5	43.8	35.1	30.2	14.5			**490**
350		102.1	84.6	78.4	45	36.1	31.2	15			
400		108.9	87.6	81.2	68	37.4	32.3				**655**
500			94.1	86.1	73.3	40.2	34.2				
600			101.4	90.6	78.1	43.5	35.9				
750			110	98.5	82.9	66.9	38.2				
900				107.2	86.8	72.7					**887**
1100					92.1	77.1					
1300					98.2	80.4					
1600						84.9					

Sizes 425, 565 and 755

P_{eff} kW	Speed in rpm 600 (Oil filling quantity in l)	740	890	980	1180	1470	1770	2300	2950	Size
2.2	8.5									
3	9.7									
4	10.7	8.6								
5.5	12	9.7								
7.5	12.5	10.7	8.8	7.7						
11	22.6	12.2	10.2	9.2						
15	25.2	12.5	11.2	10.2	8.3					
18	26.6	21.4	12	10.8	8.9					
22	28.6	23.1	12.5	11.6	9.6					
30	44.1	25.7	21.1	12.5	10.7	8.5				
37	46.8	27.5	22.9	20.5	11.4	9.2	7.1			
45	49.5	29	24.5	22	12.3	9.8	7.8			
55	52.4	29	26.1	23.7	18.7	10.5	8.6			
75	58.5	47.8	29	26.3	21.7	11.6	9.7	6.9		
90	63.8	50.5	29	27.9	23.2	12.4	10.3	7.4		
110		53.5	45.6	29	24.9	19	11	8.3		
132		57	47.9	44.3	26.3	20.9	11.7	8.9	6.6	
160		62	50.8	46.7	28.1	22.5	17.4	9.6	6.9	
200		67	54.2	49.9	42.1	24.3	19.5	10.3	7.6	**425**
250			59	53.1	45.3	26.2	21.6	16	8.6	
315			66.2	57.6	48.3	28.3	23.5	16.7	9.3	
350				60.3	49.9	40.8	24.4	17.4		
400				64.4	51.8	42.6	25.5	18.5		**565**
500					55.4	45.7	37.8	20.8		
600					59.8	48.1	40.6	22.3		
750						51.3	43.7			
900						54.2	46.1			**755**
1100							48.8			
1200							50.1			

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SPARE AND WEAR PARTS

for standard catalog couplings

Flexible elements for N-EUPEX add-on coupling

FLUDEX coupling			N-EUPEX coupling	Number flexibles per set	Article No. (FFA) for one set flexibles
Series	Size	Type	Size		
FA	222	FAK [1]; FAKB [1]	95	6	FFA:000001194870
		Other types	110	6	FFA:000001194871
	297	FAK [1]; FAKB [1]	125	6	FFA:000001194872
		FAK [2]; FAKB [2]	125	6	FFA:000001194873
		Other types	125	6	FFA:000001194873
	342	All types	140	6	FFA:000001194874
	395	FAD [1]; FAE [1]; FADB [1]	225	8	FFA:000001194875
		FAD [2]; FAE [2]; FADB [2]	225	8	FFA:000001194876
		Other types	225	8	FFA:000001194876
	450	FAD [1]; FAE [1]; FADB [1]	250	8	FFA:000001194877
		FAD [2]; FAE [2]; FADB [2]	250	8	FFA:000001194878
		Other types	250	8	FFA:000001194878
	516	FAD [1]; FADB [1]	315	9	FFA:000001194879
		FAD [2]; FADB [2]	315	9	FFA:000001194880
		Other types	315	9	FFA:000001194880
	590	All types until 2010	315	9	FFA:000001194879
		All types from 2011 on	315	9	FFA:000001194880
FG/FV	370	All types	180	8	FFA:000001194881
	425		225	8	FFA:000001194876
	490		250	8	FFA:000001194878
	565		280	8	FFA:000001194882
	655		350	9	FFA:000001194883
	755		400	10	FFA:000001194884
	887		440	10	FFA:000001194885
FN	370	FNDB ØDBT = 400 [3]	200	8	FFA:000001194886
		All types	180	8	FFA:000001194881
	425	All types	200	8	FFA:000001194886
	490	FNDB ØDBT = 500 [3]	250	8	FFA:000001194878
		All types	225	8	FFA:000001194876
	565	All types	250	8	FFA:000001194878
	655		315	9	FFA:000001194880
	755		350	9	FFA:000001194883
	887		440	10	FFA:000001194885

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[1] For couplings up to and including year of construction 2003.

[2] For couplings from year of construction 2004.

[3] For couplings up to and including year of construction 2007.

Thermal equipment

FLUDEX size	Thread	Part no.	Fuse element	Response temperature	Marking	Article No. (FFA) for one unit
222	M10	103 + 104 [1] 203 + 204 [1]	Fusible safety plug	110 °C	yellow	FFA:000001194896
				140 °C	red	FFA:000001194897
				160 °C	green	FFA:000001194898
	M10	153 + 104 [1]	Oil filler plug	–		FFA:000001194894
297	M10	153 + 104 [1]	Oil filler plug	–		FFA:000001194894
297 - 887	M18 x 1.5	103 [2] 203 [2]	Fusible safety plug	110 °C	yellow	FFA:000001250338
				140 °C	red	FFA:000001250339
				160 °C	green	FFA:000001250380
	M18 x 1.5	110 [2] 210 [2]	Thermal switch	110 °C		FFA:000001361795
				140 °C		FFA:000001361796
	M18 x 1.5	153 [2] 163 [2]	Oil filler plug (except size 887) Screw plug	–		FFA:000001337653
	–	301	Cut-out device	–		FFA:000000652020
	–	142 + 104 [1]	EOC transmitter with seal	125 °C		FFA:000001194899
	–	245	EOC sensor	–		FFA:000000361460
	–	244	Evaluation instrument EWD 20 to 250 V AC/DC	–		FFA:000001205294
370 - 755	M10	173 + 174 [1]	Oil drain plug - delay chamber	–		FFA:000001194894
887	M30 x 1.5	153 + 154 [1]	Oil filler plug (up to and including year of construction 2007)	–		FFA:000001194893
		153 [2]	Oil filler plug (from year of construction 2008)	–		FFA:000001349554
	M16	173 + 174 [1]	Oil drain plug - delay chamber	–		FFA:000001194895

Sealing and rolling bearing sets for the FA series (except type FAR)

FLUDEX size	Up to and including year of construction	From year of construction	Seal set material	Article No. (FFA) for one seal set	Article No. (FFA) for one rolling bearing set
222	2000		NBR	FFA:000001194900	FFA:000001194800
		2001	NBR	FFA:000001194901	FFA:000001194801
			FPM	FFA:000001194902	
297	2000		NBR	FFA:000001194903	FFA:000001194802
			FPM	FFA:000001194904	
		2001	NBR	FFA:000001194905	FFA:000001194803
			FPM	FFA:000001194906	
342			NBR	FFA:000001194907	FFA:000001194804
			FPM	FFA:000001194908	
395			NBR	FFA:000001194909	FFA:000001194805
			FPM	FFA:000001194910	
450			NBR	FFA:000001194911	FFA:000001194806
			FPM	FFA:000001194912	
516			NBR	FFA:000001194913	FFA:000001194807
			FPM	FFA:000001194914	
590			NBR	FFA:000001194915	FFA:000001194808
			FPM	FFA:000001194916	

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[1] With separate seal ring.

[2] With built-in ring seal.

SPARE AND WEAR PARTS

for standard catalog couplings

Seal and rolling bearing sets for type FAR [1)]

FLUDEX size	Type	Up to and including year of construction	From year of construction	Seal set material	Article No. (FFA) for one seal set	Article No. (FFA) for one rolling bearing set
222	2 · SPZ 100	2000		NBR	FFA:000001194917	FFA:000001194809
			2001	NBR	FFA:000001194918	FFA:000001194810
				FPM	FFA:000001194919	
	3 · SPZ 160		2001	NBR	FFA:000001194920	FFA:000001194811
				FPM	FFA:000001194921	
297	5 · SPZ 140	2000		NBR	FFA:000001194922	FFA:000001194812
				FPM	FFA:000001194923	
	7 · SPZ 140	2000		NBR	FFA:000001194924	FFA:000001194813
				FPM	FFA:000001194925	
	5 · SPZ 150 4 · SPA 190		2001	NBR	FFA:000001194926	FFA:000001194814
				FPM	FFA:000001194927	
	5 · SPA 224		2001	NBR	FFA:000001194928	
				FPM	FFA:000001194929	
342	5 · SPA 180			NBR	FFA:000001194930	FFA:000001194815
				FPM	FFA:000001194931	
	7 · SPA 180	2000		NBR	FFA:000001194932	FFA:000001194816
				FPM	FFA:000001194933	
395	5 · SPB 224			NBR	FFA:000001194934	FFA:000001194817
				FPM	FFA:000001194935	
	7 · SPB 224	2000		NBR	FFA:000001194936	FFA:000001194818
				FPM	FFA:000001194937	
	7 · SPB 236		2001	NBR	FFA:000001194938	FFA:000001194819
				FPM	FFA:000001194939	
	7 · SPB 280		2001	NBR	FFA:000001194938	
				FPM	FFA:000001194939	
450	8 · SPB 250	2000 (ØD1 ≤ 75)		NBR	FFA:000001194940	FFA:000001194820
				FPM	FFA:000001194941	
		ØD1 ≤ 75	2001	NBR	FFA:000001194942	FFA:000001194821
				FPM	FFA:000001194943	
		ØD1 = 73.025 ØD1 > 75	2001	NBR	FFA:000001194944	FFA:000001194822
				FPM	FFA:000001194945	
	10 · SPB 250	2000		NBR	FFA:000001194946	FFA:000001194823
				FPM	FFA:000001194947	
516	10 · SPB 315	2000		NBR	FFA:000001194948	FFA:000001194824
				FPM	FFA:000001194949	
			2001	NBR	FFA:000001194950	FFA:000001194825
				FPM	FFA:000001194951	
	12 · SPB 315	2000		NBR	FFA:000001194952	FFA:000001194826
				FPM	FFA:000001194953	
590	12 · SPC 315	2000		NBR	FFA:000001194954	FFA:000001194827
				FPM	FFA:000001194955	
			2001	NBR	FFA:000001194956	FFA:000001194828
				FPM	FFA:000001194957	

[1)] Spare parts only suitable for specified belt pulleys.
Please request a different number of grooves by specifying the original delivery number.

Seal and rolling bearing sets for the FG/FV/FN series

FLUDEX coupling Series	Size	Year of construction	Additional bore specifications	Seal set material	Article No. (FFA) for one seal set	Article No. (FFA) for one rolling bearing set
FG	370	Up to and including year of construction 2000		NBR	FFA:000001194958	FFA:000001194850
				FPM	FFA:000001194959	
		From year of construction 2001		NBR	FFA:000001194958	FFA:000001194851
				FPM	FFA:000001194959	
	425			NBR	FFA:000001194962	FFA:000001194852
				FPM	FFA:000001194963	
	490			NBR	FFA:000001194966	FFA:000001194853
				FPM	FFA:000001194967	
	565			NBR	FFA:000001194970	FFA:000001194854
				FPM	FFA:000001194971	
	655		ØD2 ≤ 100	NBR	FFA:000001194974	FFA:000001194855
				FPM	FFA:000001194975	
			ØD2 > 100	NBR	FFA:000001194976	FFA:000001194856
				FPM	FFA:000001194977	
	755		ØD2 ≤ 110	NBR	FFA:000001194982	FFA:000001194857
				FPM	FFA:000001194983	
			ØD2 > 110	NBR	FFA:000001194984	FFA:000001194858
				FPM	FFA:000001194985	
	887			FPM	FFA:000001194993	FFA:000001194860
FV	370	Up to and including year of construction 2000		NBR	FFA:000001194960	FFA:000001194850
				FPM	FFA:000001194961	
		From year of construction 2001		NBR	FFA:000001194960	FFA:000001194851
				FPM	FFA:000001194961	
	425			NBR	FFA:000001194964	FFA:000001194852
				FPM	FFA:000001194965	
	490			NBR	FFA:000001194968	FFA:000001194853
				FPM	FFA:000001194969	
	565			NBR	FFA:000001194972	FFA:000001194854
				FPM	FFA:000001194973	
	655		ØD2 ≤ 100	NBR	FFA:000001194978	FFA:000001194855
				FPM	FFA:000001194979	
			ØD2 > 100	NBR	FFA:000001194980	FFA:000001194856
				FPM	FFA:000001194981	
	755		ØD2 ≤ 110	NBR	FFA:000001194986	FFA:000001194857
				FPM	FFA:000001194987	
			ØD2 > 110	NBR	FFA:000001194988	FFA:000001194858
				FPM	FFA:000001194989	
	887			FPM	FFA:000001194992	FFA:000001194860
FN	370	Up to and including year of construction 2000		NBR	FFA:000001194960	FFA:000001194850
				FPM	FFA:000001194961	
		From year of construction 2001		NBR	FFA:000001194960	FFA:000001194851
				FPM	FFA:000001194961	
	425			NBR	FFA:000001194964	FFA:000001194852
				FPM	FFA:000001194965	
	490			NBR	FFA:000001194968	FFA:000001194853
				FPM	FFA:000001194969	
	565			NBR	FFA:000001194972	FFA:000001194854
				FPM	FFA:000001194973	
	655			NBR	FFA:000001194978	FFA:000001194855
				FPM	FFA:000001194979	
	755			NBR	FFA:000001194990	FFA:000001194859
				FPM	FFA:000001194991	
	887			FPM	FFA:000001194992	FFA:000001194860

APPENDIX

A

FITS

Fitting recommendations

For many applications, the fit assignment m6/H7 is especially suitable.

Description	Application	Shaft tolerance	Bore tolerance
Sliding fit with parallel key connection not suitable for reversing operation	For steel and cast hubs	j6	H7
		h6	J7
Press fit with parallel key connection not suitable for reversing operation	For steel and cast hubs	h6	K7
		k6	H7
Interference fit with parallel key connection suitable for reversing operation	For steel and cast hubs	m6	H7
		n6	H7
		h6	M7
	Only for steel hubs	h6	P7
	Preferred for ZAPEX and ARPEX coupling series.	k6	M7
		m6	K7
		n6	J7
		p6	H7
		s6	F7
Shrink fit connection without parallel key	Only for steel hubs	u6	H6
	The permitted hub tension must be urgently checked.	v6	H6
		x6	H6

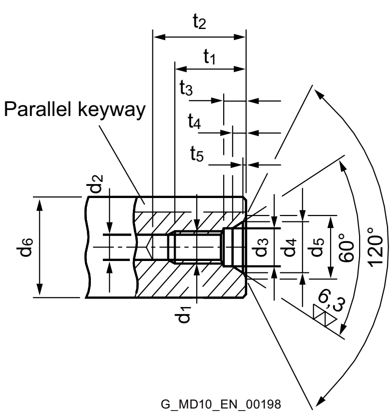
Deviation table to DIN ISO 286
for above-mentioned fits for bore diameters from 10 mm to 250 mm

Bore diameter		Deviations in µm											
		Bore						Shaft					
above	up to	F7	H7	J7	K7	M7	P7	h6	j6	k6	m6	n6	p6
10	18	+34	+18	+10	+6	0	-11	0	+8	+12	+18	+23	+29
		+16	0	-8	-12	-18	-29	-11	-3	+1	+7	+12	+18
18	30	+41	+21	+12	+6	0	-14	0	+9	+15	+21	+28	+35
		+20	0	-9	-15	-21	-35	-13	-4	+2	+8	+15	+22
30	50	+50	+25	+14	+7	0	-17	0	+11	+18	+25	+33	+42
		+25	0	-11	-18	-25	-42	-16	-5	+2	+9	+17	+26
50	80	+60	+30	+18	+9	0	-21	0	+12	+21	+30	+39	+51
		+30	0	-12	-21	-30	-51	-19	-7	+2	+11	+20	+32
80	120	+71	+35	+22	+10	0	-24	0	+13	+25	+35	+45	+59
		+36	0	-13	-25	-35	-59	-22	-9	+3	+13	+23	+37
120	180	+83	+40	+26	+12	0	-28	0	+14	+28	+40	+52	+68
		+43	0	-14	-28	-40	-68	-25	-11	+3	+15	+27	+43
180	250	+96	+46	+30	+13	0	-33	0	+16	+33	+46	+60	+79
		+50	0	-16	-33	-46	-79	-29	-13	+4	+17	+31	+50

Cylindrical shaft ends, extract from DIN 748 Part 1 (long)

	Diameter in mm																			
	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75	80	85	90	95	100
ISO tolerance zone	k6												m6									
End length in mm	50	60		80				110						140				170				210

Central holes according to DIN 332 Part 2



Form DS (with thread) DIN 332/2

Recommended diameter ranges d_6 [1]		DS form dimensions									
above	up to	d_1	d_2 [2]	d_3	d_4	d_5	t_1 +2	t_2 min.	t_3 +1	t_4 approx.	t_5 approx.
7	10	M3	2.5	3.2	5.3	5.8	9	12	2.6	1.8	0.2
10	13	M4	3.3	4.3	6.7	7.4	10	14	3.2	2.1	0.3
13	16	M5	4.2	5.3	8.1	8.8	12.5	17	4	2.4	0.3
16	21	M6	5	6.4	9.6	10.5	16	21	5	2.8	0.4
21	24	M8	6.8	8.4	12.2	13.2	19	25	6	3.3	0.4
24	30	M10	8.5	10.5	14.9	16.3	22	30	7.5	3.8	0.6
30	38	M12	10.2	13	18.1	19.8	28	37	9.5	4.4	0.7
38	50	M16	14	17	23	25.3	36	45	12	5.2	1.0
50	85	M20	17.5	21	28.4	31.3	42	53	15	6.4	1.3
85	130	M24	21	25	34.2	38	50	63	18	8	1.6
130	225	M30 [3]	26.5	31	40.2	44.6	60	77	22	8	1.9
225	320	M36 [3]	32	37	49.7	55	74	93	22	11	2.3
320	500	M42 [3]	37.5	43	60.3	66.6	84	105	26	15	2.7

[1] Diameter refers to the finished workpiece

[2] Tap hole drill diameter according to DIN 336 Part 1

[3] Dimensions not acc. to DIN 332 Part 2

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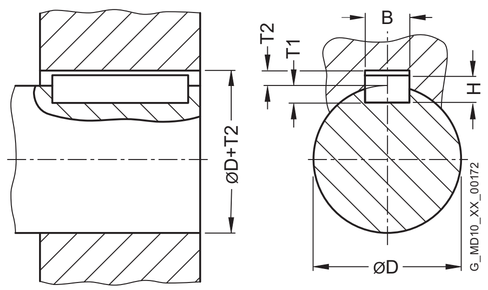
PARALLEL KEY CONNECTIONS TO DIN 6885-1



For moderate operating conditions, the hub keyway tolerance JS9 is recommended.

In harsh operating conditions or during reversing operation, the keyway width tolerance P9 must be preferred.

With two parallel keyways, the keyway width tolerance JS9 should be specified in order to simplify the assembly.

The shaft keyway width has to be specified with the tolerance N9.

Diameter above D mm	Diameter up to mm	Keyway width B mm	Parallel key height H mm	Shaft keyway depth T1 mm	Hub keyway depth T2 mm	Deviation for shaft and hub keyway depth mm	Deviation table for keyway width B JS9 µm	P9 µm
	10	3	3	1.8	1.4	+0.1	+12.5	-6
							-12.5	-31
10	12	4	4	2.5	1.8	+0.1	+15	-12
							-15	-42
12	17	5	5	3	2.3	+0.1	+15	-12
							-15	-42
17	22	6	6	3.5	2.8	+0.1	+15	-12
							-15	-42
22	30	8	7	4	3.3	+0.2	+18	-15
							-18	-51
30	38	10	8	5	3.3	+0.2	+18	-15
							-18	-51
38	44	12	8	5	3.3	+0.2	+21.5	-18
							-21.5	-61
44	50	14	9	5.5	3.8	+0.2	+21.5	-18
							-21.5	-61
50	58	16	10	6	4.3	+0.2	+21.5	-18
							-21.5	-61
58	65	18	11	7	4.4	+0.2	+21.5	-18
							-21.5	-61
65	75	20	12	7.5	4.9	+0.2	+26	-22
							-26	-74
75	85	22	14	9	5.4	+0.2	+26	-22
							-26	-74
85	95	25	14	9	5.4	+0.2	+26	-22
							-26	-74

Diameter above D mm	Diameter up to mm	Keyway width B mm	Parallel key height H mm	Shaft keyway depth T1 mm	Hub keyway depth T2 mm	Deviation for shaft and hub keyway depth mm	Deviation table for keyway width B JS9 µm	Deviation table for keyway width B P9 µm
95	110	28	16	10	6.4	+0.2	+26	-22
							-26	-74
110	130	32	18	11	7.4	+0.2	+31	-26
							-31	-88
130	150	36	20	12	8.4	+0.3	+31	-26
							-31	-88
150	170	40	22	13	9.4	+0.3	+31	-26
							-31	-88
170	200	45	25	15	10.4	+0.3	+31	-26
							-31	-88
200	230	50	28	17	11.4	+0.3	+31	-26
							-31	-88
230	260	56	32	20	12.4	+0.3	+37	-32
							-37	-106
260	290	63	32	20	12.4	+0.3	+37	-32
							-37	-106
290	330	70	36	22	14.4	+0.3	+37	-32
							-37	-106
330	380	80	40	25	15.4	+0.3	+37	-32
							-37	-106
380	440	90	45	28	17.4	+0.3	+43.5	-37
							-43.5	-124
440	500	100	50	31	19.4	+0.3	+43.5	-37
							-43.5	-124

RELATED CATALOGS

Torsionally Rigid Couplings

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FLEX-C10001-00-7600

Flexible Couplings

FLE 10.2

FLEX-C10002-00-7600

Highly Flexible Couplings

FLE 10.3

FLEX-C10003-00-7600

Fluid Couplings

FLE 10.4

FLEX-C10004-00-7600

ARPEX

High Performance Couplings
MD 10.2

PDMD-C10146-00

SIPEX and BIPEX-S

Backlash-free couplings
MD 10.3

PDMD-C10145-00

ARPEX

Composite Couplings
MD 10.5

PDMD-C10153-00

ARPEX

Safety couplings

MD 10.11

PDMD-C10147-00

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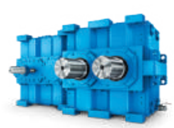
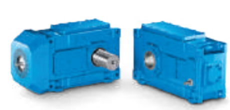
Standard Industrial Planetary Gear Units
MD 31.1
PDMD-C10154-00

FLENDER CHG
Helical Gear Units
MD 20.10
PDMD-C10155-00



Gear units
Fast Track
MD 20.12
PDMD-C10156-00



Bucket Elevator Drives

MD 20.2
PDMD-C10157-00

PLANUREX 2
Planetary Gear Units
MD 20.3
PDMD-C10158-00

Paper Machine Drives

MD 20.5
PDMD-C10159-00

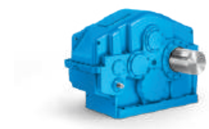
Conveyor Belt Drives

MD 20.6
PDMD-C10160-00

Marine Reduction Gearboxes

MD 20.7
PDMD-C10161-00

DUORED 2
Helical Gear Units, Load-sharing
MD 20.8
PDMD-C10162-00



Pinion Drive for Tube Mills

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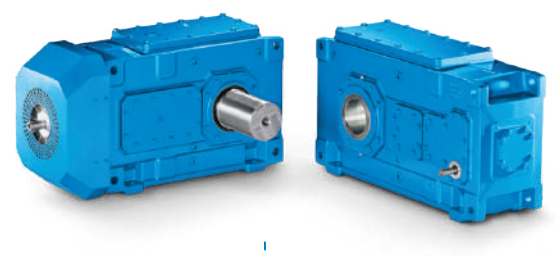
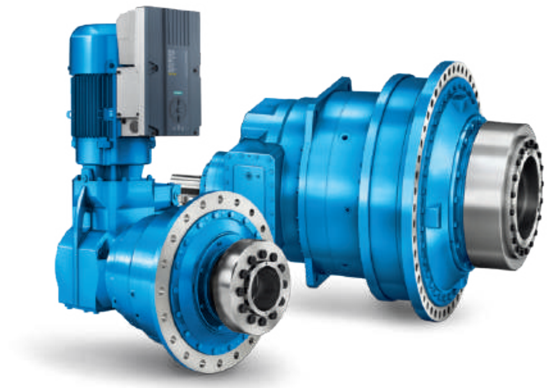
We provide helical and planetary gear units made up of standard modules or as a complete application solution.

Helical and planetary gear units from Flender are modern drive solutions that satisfy the most varying and extreme demands, day after day and year after year. For decades, plant operators have been achieving high system reliability and low lifecycle costs in every conceivable industry with our helical gear units.



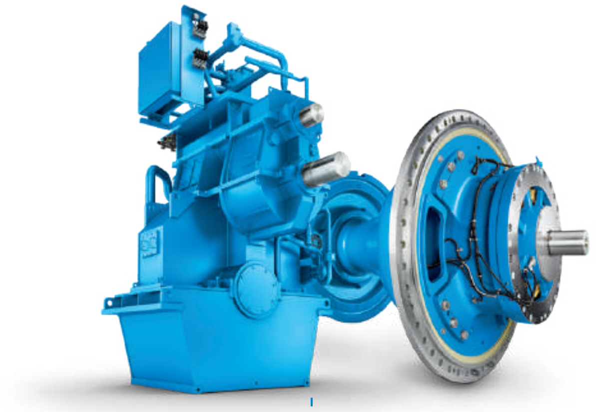


Helical and bevel helical gear units

Flender helical and bevel helical gear units are by far the most comprehensive range of industrial gear units in the world.
It ranges from a multi-faceted universal gear unit portfolio and application-specific gear units to customer-specific solutions.
Rated torque: 3,300 Nm ... 1,400,000 Nm

Planetary Gear Units

With Flender planetary gear units, we provide a range of durable, reliable and finely graduated gear unit solutions. The series wins customers over due to its highly integrated planetary geared motor and maximum conformity with all international motor standards.
It also brings quality and performance in a good ratio of lifecycle costs to price.
Rated torque: 10,000 Nm ... 5,450,000 Nm



Application-specific gear units

With application-specific gear units, Flender provides by far the most application solutions and thus covers nearly every drive-related need from hundreds of applications in industry and the acquisition of raw materials.
Rated torque: up to 10,000,000 Nm

Customer-specific designs

Our experts are available at any time for special requirements during the development of new products. From designing and simulating complex drive solutions to implementing them, we work together with you to resolve multi-layered tasks.

A

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Further information on the subject of applications:
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