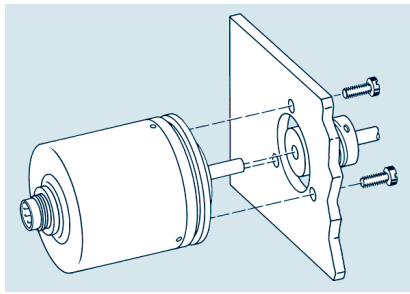
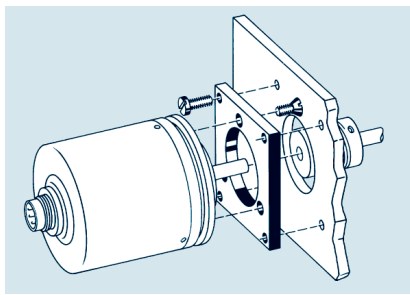
Mounting instructions
Shaft encoders

Mounting



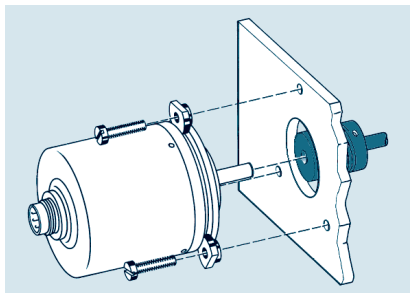
...by screw fastening directly onto the encoder flange

All shaft encoders may be mounted in this way.



...by screw fastening onto a mounting adapter

All collar type encoders may be mounted in this way.

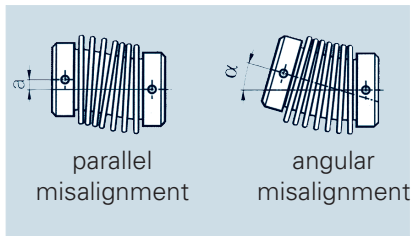


...with servo clamps

With this type of mounting the installed encoder can be turned so as to set the encoders reference pulse (marker pulse) to the drive shaft mechanical zero position. Clamp options are shown in the accessories section.

Shaft connections

Each shaft encoder can be easily fastened to the drive shaft by means of a flexible coupling. The purpose of this coupling is to transmit rotary movement



to the encoder without torsional error. Small inaccuracies in alignment are equalized by parallel or angular compensation (see drawing). Different styles for various applications are available. A selection guide with specifications is shown under the accessories section.

In the choice of the correct coupling for measurement tasks, the torsional stiffness of the coupling is decisive. Other selection criteria are various environmental effects, such as temperature, aggressive media, mechanical misalignment and operating modes. Also, care should be taken that no damaging natural resonances can occur in the relevant application.

Axial misalignment **ΔA**

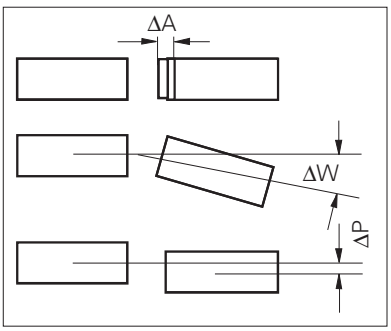
Produces tension or pressure with single piece couplings. Split couplings can compensate for this error.

Angular misalignment **ΔW**

Produces bending of the flexible coupling section and leads to alternating tensile and compressive loads.

Parallel misalignment **ΔP**

With rigid couplings, high restoring forces occur, which have a harmful effect on the ball bearings.



Installation notes

The power transmission between coupling and shaft is effected by means of frictional locking between contact surfaces. Precautions must be taken to ensure equal tightening of the mounting screws.

Before installation, check that the shaft misalignment is within permissible limits. Excessive misalignment will impair the service life of the coupling.

Selection by coupling torque

The torque applied is obtained from:

Mk = Mmax * K * JK

Mk = coupling torque in Nm

Mmax = accelerating torque of the drive

K = load factor, for servo-motors in reversing operation ⟶ K = 2...3

JK = mass moment of inertia of the hollow shaft and coupling kg m^2

Selection by torsional stiffness

The transmission error due to elastic deformation of the flexible part is obtained from:

fi = (180 / π)*(Mk / Ct)

fi = angle of rotation in degrees

Ct = torsional stiffness in Nm / rad

Mk = coupling torque in Nm

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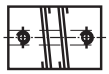
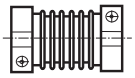
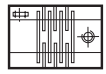
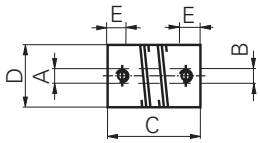
Couplings
Shaft encoders

Overview couplings

	 spiral coupling aluminum	 bellows coupling alu/stainless steel	 slit coupling aluminum	 slit coupling polyamid
high torsional stiffness		❍	❍	
high torque	❍	❍	❍	
low moment of inertia		❍		❍
vibration absorption				❍
electrically insulating				❍
clamp fastening		❍	❍	
stud bolt fastening	❍			❍

Spiral coupling

aluminum

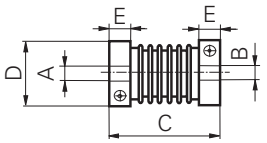


part nr. / mm	106009	251401	251402
ø	5...9,5	6...9,5	6...12
A	5	6	5,88
B	6	6	7,5
C	25,4	25,4	38
D	19	19	25,4
E	6,3	6,3	11,6

max. rated torque	(Nm)	1	1	5
axial axis misalignment	(mm)	≤ 0,2	≤ 0,2	≤ 0,3
parallel axis misalignment	(mm)	≤ 0,2	≤ 0,2	≤ 0,3
angular axis misalignment	(°)	≤ 2,5	≤ 2,5	≤ 2,5
torsional stiffness	(Nm/rad)	60	60	250
moment of inertia	(kgm^2*10E-7)	5	5	20

Bellows coupling

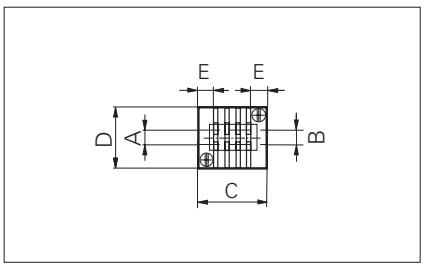
aluminum / stainless steel



part nr. / mm	106008		
ø	6...12		
A	ø 6		
B	ø 8		
C	43		
D	ø 25		
E	13		

max. rated torque	(Nm)	2		
axial axis misalignment	(mm)	≤ 0,2		
parallel axis misalignment	(mm)	≤ 0,2		
angular axis misalignment	(°)	≤ 2		
torsional stiffness	(Nm/rad)	1290		
moment of inertia	(kgm^2*10E-7)	12		

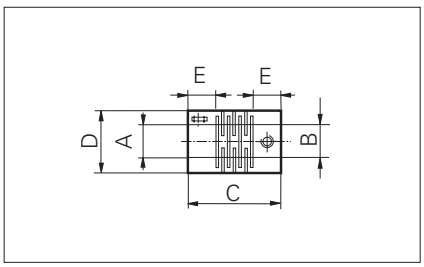
Slit coupling
aluminum



part nr. / mm	107671	107670	
ø	5...6	6...12	
A	6	6	
B	5	6	
C	16,6	28	
D	18	25	
E	6	8	

max. rated torque	(Nm)	1	5	
axial axis misalignment	(mm)	≤ 0,1	≤ 0,2	
parallel axis misalignment	(mm)	≤ 0,1	≤ 0,2	
angular axis misalignment	(°)	≤ 1,5	≤ 2	
torsional stiffness	(Nm/rad)	200	3400	
moment of inertia	(kgm²*10E-7)	3	15	

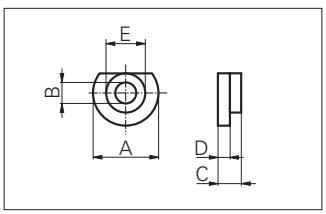
Slit coupling
polyamid



part nr. / mm	115110	124461	
ø	6	5	
A	ø 6	ø 5	
B	ø 6	ø 5	
C	20,2	20,2	
D	ø 15	ø 15	
E	6	6	

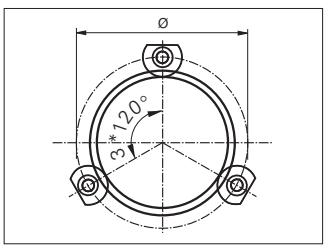
max. rated torque	(Nm)	0,2	0,2	
axial axis misalignment	(mm)	±0,2	±0,2	
parallel axis misalignment	(mm)	±0,3	±0,3	
angular axis misalignment	(°)	±2,5	±2,5	
torsional stiffness	(Nm/rad)	15	15	
moment of inertia	(kgm²*10E-7)	0,5	0,5	

Clamp set



part nr.		106004	252773
dimensions	ø A	10	15
	ø B	3,2	4,2
	C	3,8	5,4
	D	2	2,6
	ø E	6	9,5

Mounting clamps



encoder	part nr.	ø
BDK	106004	37
BAV, BDT, BMA, BMB, BMC, BMD, BME, BMF	252773	68
BDC, BAC	252773	102
BHW, BFW	252773	90

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Mounting accessories
Shaft encoders

Measuring wheel

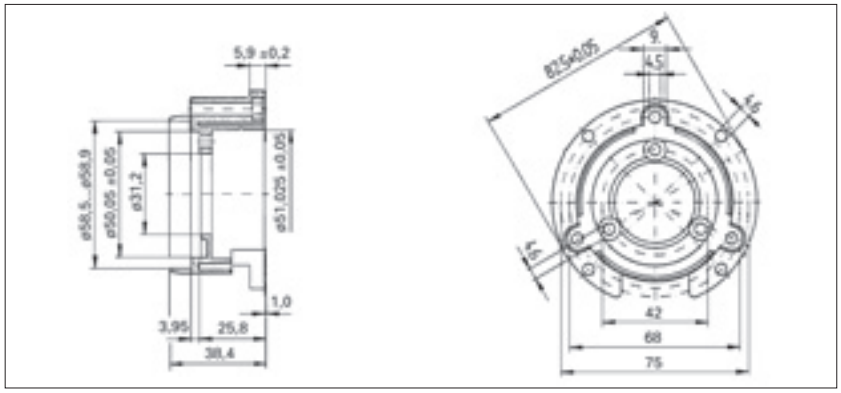
dimensions			
meas. wheel circumference		0,2 m	0,5 m
bore		10 mm	10 mm
measuring width		12 mm	25 mm
material	profile	part nr.	part nr.
aluminum	knurled	117671	117677
plastic	smooth	117673	117679
plastic	corrugated	117675	117681

Adapter

for encoder: BAV, BDT

mounting adapter part nr. 117667

fixing screws
and servo clamps part nr. 117668



Note for BPxV
For mounting please use the according coupling springs.

Mounting bracket

for clamping flange encoder:
BPxV 58K

mounting bracket part nr. 117698
of PPS