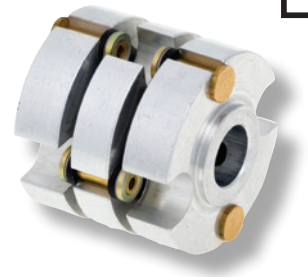


# The art of choosing the right shaft coupling



To put it in simple terms, the purpose of a shaft coupling is to transfer rotational force from one shaft to another. To do this effectively, the coupling must have a high torsional rigidity. Factors that should be taken into account when a shaft coupling is to be specified are: torsional rigidity, backlash, torque, environmental factors that affect the shaft coupling and its mounting system.



Common to all installations of pulse encoders with a solid shaft end is that a good quality shaft coupling should be chosen. This ensures a good service life and measurement accuracy.

## Choosing the right shaft coupling

The following guidelines will help you choose the right shaft coupling:

- The coupling must be able to tolerate the displacements that can occur between the shafts
- The coupling must be able to transfer the required torque
- The coupling must be able to cope with the required rotation speed
- The coupling must comply with environmental and space requirements on site.




## Installation and handling

Like a pulse encoder, a shaft coupling is a component that must be handled carefully by trained staff. Leine & Linde recommends that you always replace the shaft coupling whenever a new pulse encoder is installed.

The following guidelines will take you through a correct installation that will give the coupling the maximum service life:

- Make sure that the shafts are smooth and undamaged, and that they can penetrate the bore of the shaft coupling
- Install the coupling by holding the encoder while at the same time rotating the coupling back and forth as you pass it along the shaft
- Do not use any more force than the coupling can cope with when it is extended or pushed together. ▶

## Properties of different shaft couplings

	 <b>Nickel bellows coupling</b>	 <b>Membrane coupling</b>	 <b>Sliding disc coupling (Oldham type)</b>	 <b>Double loop coupling</b>
<b>Description</b>	High-performance precision coupling with excellent kinematic properties.	Precision coupling with excellent kinematic properties. Dynamically balanced construction.	Multi-purpose coupling. Robust, userfriendly threepart coupling with replaceable components. Easy to fit.	Exceptional tolerance for angles and radial and axial movements.
<b>Areas of application</b>	First-class applications with strict requirements for measurement accuracy.	High-speed applications where exactness is required. Harsh environments with independent drive shafts.	Applications where simple installation and electrical insulation are required.	Normal applications with limited speeds and with low requirements for accuracy.
<b>Speeds</b>	Max 5000 rpm	Max 5000 rpm	Max 3000 rpm	Max 3000 rpm
<b>Max torque for a ø10mm shaft coupling</b>	328 Ncm	5,6 Nm	4 Nm	1,8 Nm
<b>Max displacement compensation for a ø10mm shaft coupling</b>	Angle 8° Radial 0,46 mm Axial ± 2,07 mm	Angle 3° Radial 0,2 mm Axial ±0,2 mm	Angle 0,5° Radial 0,2 mm Axial ±0,1 mm	Angle 15° Radial 3,2 mm Axial ±7,5 mm
<b>Temperature</b>	-40°C to +120°C	-40°C to +120°C	-20°C to +60°C	-40°C to +100°C
<b>Electrical insulation</b>	No	No	Yes	Yes
<b>Type of fitting for encoder shaft</b>	Clamping or set screw	Clamping or set screw	Clamping or set screw	Set screw