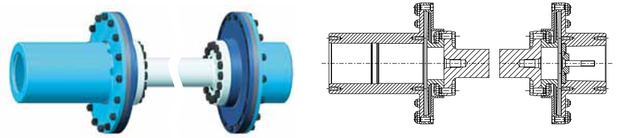
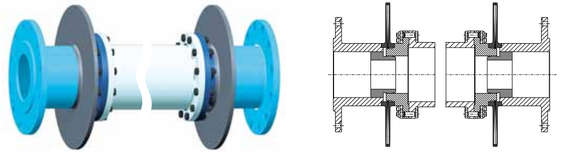
Design types

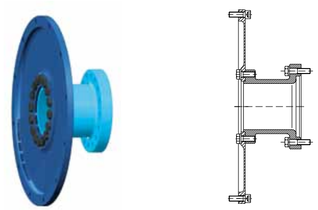
Double diaphragm coupling according to API 671 for turbo compressors



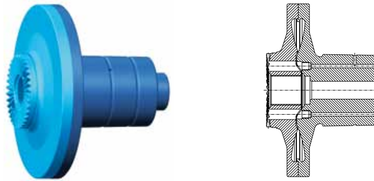
Electron beam welded quadruple diaphragm coupling for gas turbines



Single diaphragm coupling for single bearing motors



Electron beam welded double diaphragm coupling with Hirth serration for railway traction drives



KWD
KUPPLUNGSWERK DRESDEN

For more than two decades KWD Kupplungswerk Dresden has supplied diaphragm couplings in varying designs for a wide variety of applications.

Based on the specific application and customer requirements, the diaphragm is dimensioned project specifically with the help of proprietary selection software, then FEA-optimized. During detailed design of the coupling our engineers are able to utilise numerous tried and tested solutions. This way we make sure that you not only receive an optimised, custom-engineered coupling, but also that the development and design process is executed quickly and cost effectively. All couplings are manufactured on state of the art machines in our factory in Dresden, subsequently assembled and, if required, fully tested before delivery.

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Certified in accordance with ISO 9001: 2008
Scope development, manufacture, sale and servicing of couplings in the drive technology field

Certified Welding Company / GSI SLV

Ausgabe: 10/2015

KWD
KUPPLUNGSWERK DRESDEN

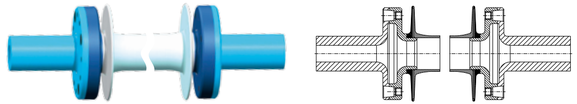
Diaphragm Couplings MEM

Couplings from Dresden/Germany

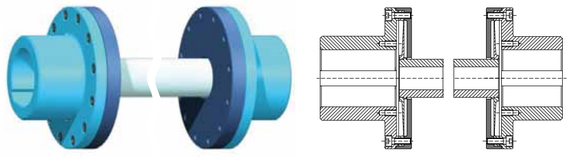
By specialists – for specialists

Design types

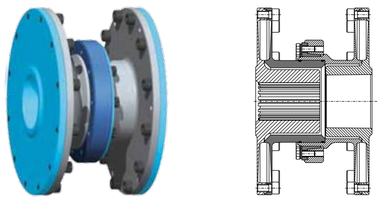
Electron beam welded quadruple diaphragm coupling for high-speed drives (95,000 min-1)



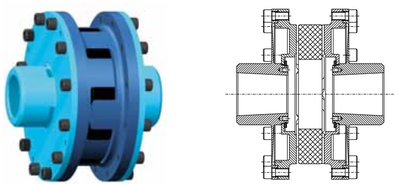
Double diaphragm coupling for turbine-driven compressors



Quadruple diaphragm coupling with overload protection for railway traction drives



Insertable, torsionally flexible double diaphragm coupling for railway traction drives



General information

Definition and features

Diaphragm couplings are torsionally stiff, bending flexible couplings for backlash-free transmission of torque. They are capable of accommodating angular misalignment and axial displacement, in double cardanic design parallel offset can also be accommodated.

The diaphragm coupling is designed for infinite life, provided the shaft misalignments are kept within the specified limits, and is wear-free and maintenance-free.

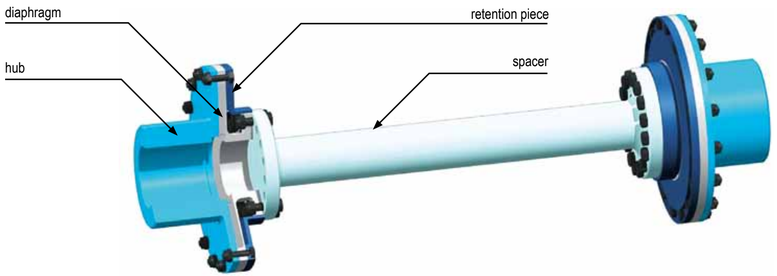
Diaphragm couplings are the preferred technical solution for critical applications with high torques and high speeds.

Basic design of the diaphragm coupling

Each diaphragm coupling consists of the flexible diaphragm and the two interfaces at the inner and outer diameter. The connection interfaces can be designed as internal or external hubs or as flanges.

The diaphragm can be used in a single arrangement; if however a larger angular displacement needs to be accommodated a design with several diaphragms should be selected. At least two diaphragms are necessary to accommodate parallel offset. By varying the spacer length the coupling can be fitted to the required distance between shaft ends (DBSE). The diaphragm can either be bolted to the spacer or welded by electron beam.

By suitably selecting the diaphragm diameter and contour as well as the spacer length, the elasticity, reactionary loads and displacements can be optimized for the specific application.



Typical applications

Gas and steam turbines
Pumps
Compressors
Blowers
Generators
Test stands
Marine drives
Railway traction drives
Construction machinery drives
Single bearing motors and generators

Maximum safety and availability for your plant

The limited number of components and few interface connections reduce the potential for error to a minimum. Due to the wear-free and maintenance-free characteristic as well as the infinite life design, the diaphragm coupling offers maximum safety and availability for your plant.

Minimal life cycle costs

Due to its technical characteristics and the very high availability the diaphragm coupling has minimal life cycle costs.

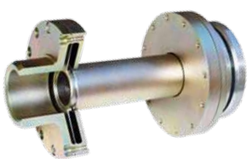
Technical features

Advantages and value during configuration of the drive train

- Very high torques and speeds
- Very high balance quality
- High power density
- Very large temperature range
- Rotor dynamic characteristics can be adapted to the requirements of the drive train
- Definable reactionary loads and restoring moments
- Low overhung moment
- Very low influence of temperature and service life on the elastic characteristic
- Low windage design
- Low noise emission
- Corrosion resistant
- Low heat development
- Constant stress distribution through contoured diaphragm

Advantages and value for the operator

- Maximum safety and availability
- Maximum service life provided shaft misalignments are within specified limits
- Very low influence of service life or temperature on the dynamic properties
- Coupling removal and reinstallation without shifting connected equipment
- Low noise
- Lubrication-free



Special designs

- Design according to API 610 and API 671 (ISO 10441)
- Use in explosive environments (according to ATEX Directive 94/9/EC)
- Limited end float design
- Electrical isolation
- Integrated overload protection
- Design for retention of the spacer
- Vibration optimized design according to customer requirements

Please contact us for any further requirements and / or requests.

Differences compared to disc couplings

- Dynamically more stable as generally stiffer coupling type
- Higher speeds reachable
- No fretting corrosion, no wear
- Higher balancing quality and repeatability
- Better power-to-weight ratio
- Fewer parts

Please also see our disc couplings (GMK).