PSC Tech Topics

Flexible Mechanical Coupling Overview

Why Choose PSC Disc Couplings?

- Longer equipment life with industry leading high torque density and low restoring forces
- Quick and easy installation with self piloting, fully assembled, and collapsible disc pack cartridges
- Better balance with precisely manufactured components and piloting features

PSC Couplings

www.psccouplings.com

Purpose of Flexible Mechanical Coupling

- Mechanical couplings are generally used to connect rotating shafts of a driver and a driven piece of equipment. For example, they are used to connect the shaft of an eclectic motor to a pump, or to connect an engine to a compressor.

Misalignment and Resorting Forces

- Flexible mechanical couplings provide a flexible or movable connection that accommodates misalignment between the shafts. This flexible feature reduces the forces or loads caused by the reaction to the misalignment. Without a flexible coupling in place, these reactive loads result in increased loads in the bearings of the equipment, which can increase wear and shorten the life of the equipment. These reactive loads are often described as restoring forces.
- Misalignment between the shafts occurs in parallel, angular, and axial modes. When a coupling is rotated, the misalignment causes a bending in the flexible portion of the coupling, or it may cause a sliding/wearing action between components in couplings (as with a gear coupling), where the mating components are allowed to slide against one another with minimal flexing of the components.

Lubricated Couplings

- Lubricated couplings are designed to provide grease or oil to reduce the friction and wear between sliding components. The grease increases the life of the coupling, and it is generally considered as a maintenance item requiring service periodically to re-lubricate the coupling. Gear couplings and grid couplings are examples of lubricated couplings.

Non-Lubricated Couplings

- Non-lubricated couplings use no grease or lubricant and rely upon a flexing member to transmit the torque and accommodate the misalignment. It is advantageous for the flexing member to bend with a very low reactive load or restoring moment. Flexible Disc couplings are examples of non-lubricated couplings.