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Feroglide Valves

Feroglide is a self-lubricating bearing material; a low friction composite bearing surface of strong fibres to reinforce PTFE blends. It is supplied on a metal backed substrate. The specialist formulation yields a high strength, excellent chemical resistance, and low coefficient of friction material that is resistant to wear, chemicals, cavitation, flow erosion and fatigue. It has been specially designed for long life and reduced maintenance, making it the heavy- duty option for working environments with little or no lubrication across a range of speeds and extreme temperatures.

Wear Components

Product Description

Feroglide bearings are used extensively by valve manufacturers due to the material's ability to maintain low friction under heavy loads. Feroglide bearings are known as the market leader in terms of bearing capacity and working life. This is made possible thanks to the specialist reinforcement of the PTFE bearing surface.

Feroglide bearings operate over a wide range of load, speed, and temperature conditions because they are composite in nature and thus do not have the cold flow tendencies of solid PTFE or and filled PTFE materials. Thanks to the specialist self-lubrication, Feroglide bearings are a superior replacement for greased metallic parts.

Feroglide bearings operate at extreme cold and extreme hot temperatures, beyond the range of most lubricants. Working conditions of -150 °C to +300 °C are common for Feroglide. Feroglide maintains a consistently tight fit about the shaft, made possible by its superior thermal stability. This ensures best bearing support for rotating parts, thus improving performance of a valve.

The extended work life means they operate with a "fit and forget" function. This is especially beneficial in sub-sea, oil and gas, platform, and other remote operations.

Typical successful installations include valves reliable bearing rotation performance is critical to the function of the valve. This requires consistently low operating force, reliable sealing performance, and low rates of wear.

Feroglide bearings are well suited for use in high pressure valves where they effectively support a ball or shaft against side loads whilst allowing low operating torques and minimal wear. This is particularly important for control applications with higher operating cycles. Feroglide bearings have superior wear performance and this helps to ensure the ball or shaft continues to rotate concentrically, whilst also reduce damaging side loads on seals.

Product Advantages

- Fit and forget valves with longer service life: Feroglide has superior life time, thanks to its excellent resistance to wear, abrasive environments and particles, corrosion, chemicals, cavitation, and temperatures.
- Reduced maintenance of valve: Feroglide reduces maintenance need of a valve
- Better performance of valve rotation, control, and sealing: No Stick or slip from these low-friction self-lubricating bearings
- Cryogenic and high-temp installation
- Environmental protection: Feroglide is self-lubricating and lead free, which means no lubricating oil is needed, avoiding all risk of leak and pollution into environment
- Reduced cost of operation

Physical Properties

For all technical data, please view the Tenmat Advanced Composite Laminates Datasheet.

Approved Applications

Feroglide can be used as self-lubricating trunnion bearings, stem guide bearings and thrust washers for floating ball valves, trunnion ball valves, butterfly valves, and gate valves. Typical sectors include sub-sea pipeline, oil and gas, Mining & Minerals, Power Generation, pulp & Paper, Pipelines.

Specific valve applications best suited to Feroglide bearings include:

- High Cycle Control Valve applications where low wear rates are critical to overall control performance.
- Safety Critical Isolation Valve applications such as gate valve designs and trunnion mounted ball valves including Double Block and Bleed Valves.
- Safety Shut-down Systems such as Emergency Shut Down (ESD) and High Integrity Pipeline Protection Systems (HIPPS) where demonstrably reliable valve performance is required to assure system integrity.
- Cryogenic Applications where the coefficient of thermal expansion of Feroglide Bearings is very similar to the surrounding metallic materials.
- Sub-sea applications where high levels of proven reliability performance are essential due to the costs of servicing valve products in this environment.

Sizes

Feroglide can be provided backed to stainless steel, carbon steel, Inconel, bronze, aluminium, or other metals upon request. Feroglide can be supplied as split bearings, full spherical bearings, flanged bushings, and as various flat plates and thrust washers. For spherical parts, standard diameters range up to 740mm and lengths up to 560mm.

For flat parts, a max surface area 500 x 200 mm is possible.

Fitting Instructions

Feroglide bearings are generally installed using a press fit into the housing bore, utilising interference between the part and the housing. Suggestions on fitting tolerances and shaft running clearance are available direct from Tenmat. Flanged parts can be fitted using mechanical means like screws and bolts. Tenmat can design bespoke fitting incl. clip-in design, screw-in bores, and others.

Intended Use

Feroglide material is intended for use as heavy-duty bearing and thrust washer components in high load valve applications for oil & gas, sub-sea pipelines, and other sectors where parts must last a long time due to difficult access for maintenance and bearing replacement.

Storage

- To be stored in a dry location
- Take care not to exceed safe working loads and heights for storage shelves and racks

Working Life

Feroglide bearings have been designed for a fit-and-forget operation, which is especially beneficial for sub-sea installations. Typically, Feroglide parts exceed all operational work life cycles.

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