Tenmat

Advanced materials.
tenmat.com

Bearings for Axial Piston Pumps

Low friction cradle bearings, swashplate bearings, and other bearing components for variable displacement axial piston pumps

Feroglide bearings are best-in-class fully self-lubricating components, comprising a reinforced PTFE-composite contact bearing surface on a strong metal substrate. Feroglide operates with little to no lubrication, from -196 °C to +300 °C, and with extreme speed oscillating, reciprocating, rotating, or sliding movements.

Wear Components

Product Description

Feroglide has years of proven experience installed as the cradle bearing for variable displacement piston pumps, one of the most challenging applications possible for a plain bearing.

Feroglide carries higher loads than other bearings, up to 60,000 PSI stationary load. Feroglide avoids downtime thanks to its longer service life and quicker installation. Feroglide offers excellent resistance to bearing fatigue, chemical attack, and cavitation. The reinforced Feroglide liner does not suffer plastic deformation or creep.

Feroglide is self-lubricating, which ensures better pump efficiency. Feroglide gives high performance without taking away process fluid for bearing lubrication. This means all hydraulic fluid is used to give maximum output boom movement.

Increasingly, it has been seen that high-end applications require better high-speed control over displacement with fastest swashplate reaction times. This gives operators excellent movement control over machinery. Low-friction Feroglide bearings contributes directly to this, by avoiding any stick-slip in the swashplate. Feroglide offers a low, constant coefficient of friction with no resistance. Thus, when using Feroglide cradle bearings, the swashplate moves freely and this promises constantly smooth machinery movement. Other bearing options can result in resistance to movement which detracts from machinery movement ability.

A further benefit of Feroglide is the reduction in cost to manufacture, repair, and operate variable displacement axial piston pumps. Tenmat designs bespoke fitment and bearing installation designs, giving quicker bearing installation to save both time and money. The same is true for repair jobs using easy-install Feroglide parts.

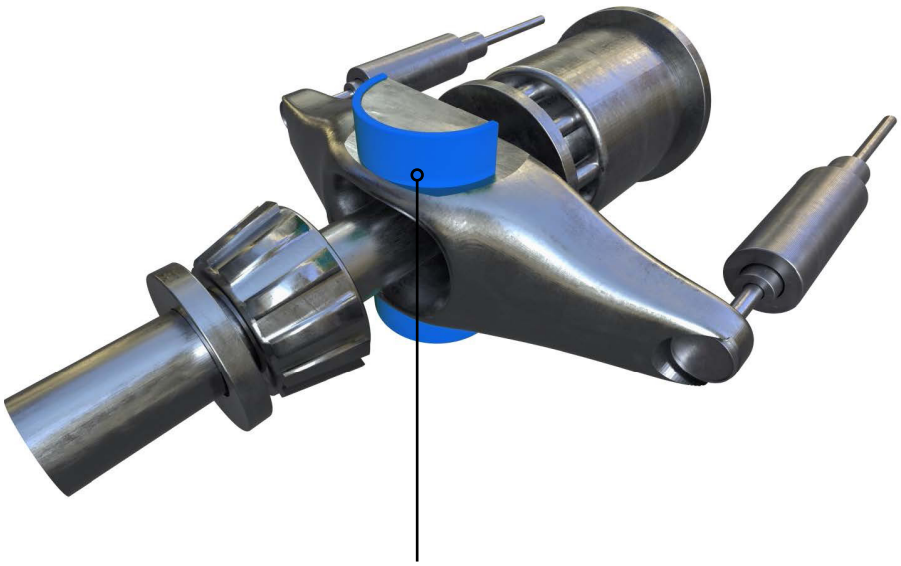
For these reasons, world leading manufacturers already specify Ferobide cradle bearings in medium-pressure and high-pressure units. Significant improvement in pump performance is achieved when using Feroglide parts.

Product Advantages

- Feroglide enables high-speed control of machinery with a hysteresis reaction quicker than <0.1 second
- Feroglide enables smoother movement by avoiding stick-slip thanks to its constant low friction
- Self-lubricating Feroglide parts are proven to improve pump efficiency, ensuring all hydraulic fluid is used for movement
- Costs are reduced through the longer lifetime and quicker installation of Feroglide parts
- Feroglide offers market-leading load bearing capacity and shock load resistance
- Feroglide parts enable a lightweight, low-noise, smaller pump design

Approved Applications

- Cradle Bearing
- Shaft Bearings
- Thrust Blocks
- Wear Plates
- Rod Guide Bearings
- Bearing Components in Hydraulic Cylinders
- In sectors including construction, highway, mobile power, mining, pulp & paper



Physical Properties

		Liner	
	Units	T200	T500
Metal	-	MS	SS
Maximum Operating Temperature	°C	150	150
Minimum Operating Temperature	°C	-196	-196
Coefficient of Friction	μ	0.06-0.1	0.02-0.10

Types of Bearing Load

***Static* Pressure and *Dynamic* Pressure Limit**

Maximum *Static* Pressure N/mm²	Maximum *Static* Pressure PSI	Backing Metal
240	34,000	Bronze (RG7), Steel
420	60,000	Inconel

Maximum *Dynamic* Pressure N/mm²	*Dynamic* Pressure PSI	Comments
14-28	2,000 - 4,000	Best Life & Friction
140	20,000	Suggested Maximum Load
180	26,000	High Strength backing metals

Sizes

Tenmat supplies cradle bearings to fit all leading piston pump designs. Tenmat routinely creates half-shell bearings that can reach up to 350mm in diameter, and cylindrical parts reach 500mm in diameter.

Fitting Instructions

Please consult Tenmat for support on the various methods to install pump bearings. Tenmat can design bespoke fittings incl. clip-in design, screw-in bores, and others.

Feroglide components like cyclindrical bearings are often fitted into a housing using an interference fit.

Intended Use

Metal-backed Feroglide materials are intended for use as various types of load bearing components inside variable displacement axial piston pumps, including cradle bearings.

Storage

- Keep in packaging and do not open until ready to install
- To be stored in dry location
- Take care not to exceed safe working loads and heights for storage shelves and racks

Bearings for Axial Piston Pumps

Tenmat Ltd
Ashburton Rd West, Manchester
M17 1TD United Kingdom

+44 161 872 2181
wpsales@tenmat.com

tenmat.com

Tenmat

Advanced materials.
tenmat.com

V1 21