Tenmat Wear

Advanced materials.
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Feroform T814 & Feroglide

Water-Lubricated Bearings and Wear Parts for the Hydro power Sector

Feroform T814 was specifically designed to satisfy the long life and ultra-low friction needs of the hydro power industry. Feroglide bearings fulfil the need for ultra-high compressive strength bearings in turbine guide vane assemblies. Also available is an innovative fabric-free Feroglide lining with a unique low friction coating. Both material brands are proven over hundreds of installations in the sector and others, like the Ariane space rocket.

Wear Components

Product Description

The “fit and forget” operation of Tenmat Wear hydro power bearings makes them the ideal choice in this sector. This is a direct result of their long lifetime, made possible thanks to their superior wear resistance and ultra-low, stable friction levels. This results in a bearing that outlasts plastic and other bearings. Independent testing from the US Army Corps of Engineers proves that Feroform bearings maintain lower wear rates and lower friction coefficients, better than the alternative bearing materials tested.

Tenmat Wear materials are chemically resistant, offer excellent abrasion resistance, and can efficiently operate in dirty or sandy water, removing the need for costly water filtration packages.

Tenmat Wear materials reduce the downtime and maintenance needed for hydro power machines. When the bearings last longer, machines work for longer before stopping.

Massive moving components are used to generate power, subjecting bearings to extreme loads and forces. Tenmat Wear bearings are a superior choice because they combine superior load-bearing capacity and compressive strength with dimensional stability. The materials avoid stick-slip and bearing swell seizure, which ensures smooth and reliable rotation of dam and gate components.

Moreover, the tighter running clearances and low friction of Tenmat Wear parts means rotating parts are better supported and guided. This yields better energy generation thanks to the more efficient rotation with less vibration when better supported by bearings.

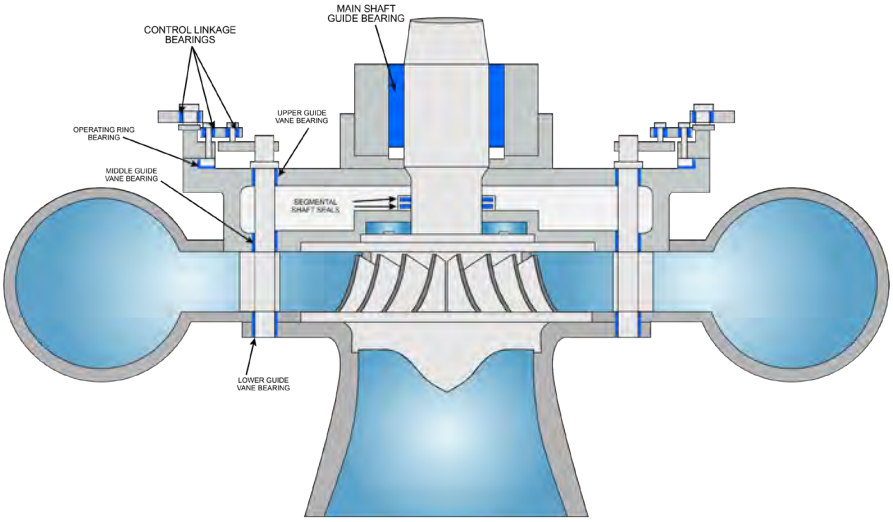
Tenmat Wear materials are highly stable. These dimensionally-stable bearings show minimal swell in water, as low as 0.05% and stabilise in under a day - leading the market in this aspect.

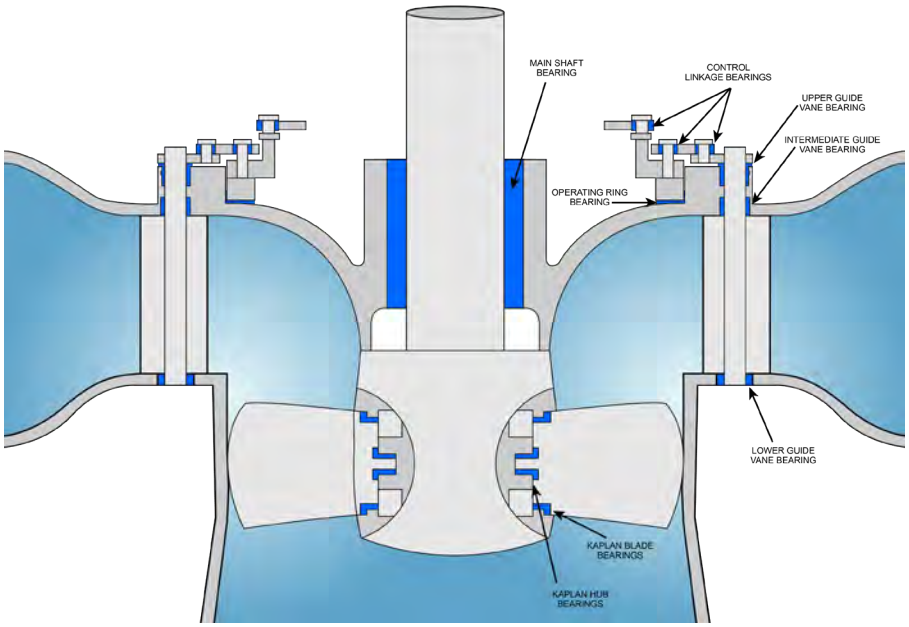
Environmental protection is a core competency in the development of Tenmat Wear solutions. National governments and international industry bodies understandably place strict environmental requirements for non-polluting hydro power plants. This is achieved by using Tenmat Wear bearing parts. These self-lubricating bearings run dry or simply use process water as lubrication. This eliminates all risk of pollution from lubrication oils, since Tenmat Wear parts need no damaging lubrication oils.

Tenmat Wear is a proven partner for hydro power sector. Tenmat Wear offers a full design and installation support package.

Product Advantages

- Better efficiency for power generation
- “Fit and Forget” operation
- Tenmat Wear materials offer the longest lifetime on the water-lubricated bearing market, proven through independent testing
- Reduced downtime and maintenance for hydroelectric power units
- Protect the environment by eliminating oil/grease lubrication, thanks to water-lubricated Tenmat Wear materials
- Tenmat Wear is a leading bearing design partner with hundreds of installation references worldwide
- Solutions for both retrofit and new build
- Improved profit margins





Physical Properties

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

Approved Applications

Tenmat Wear materials are designed for use in Kaplan turbines, Francis turbines, for use around the main shaft, and for all types of gates (wicket, radial, vertical, sluice). Successful installations include:

- Turbine Main Shaft Guide Bearings
- Kaplan Hub and Blade Bearings
- Guide Vane Bearings (all positions)
- Operating Ring Bearings
- Segmental Shaft Seals
- Control Linkage Bearings (all positions)
- Gate trunnion bearings and washers

Sizes

Tenmat Wear supplies many part types; flat, spherical, and bespoke designed. Flat parts can be manufactured up to 100mm thick and 1200mm in length & width, and spherical parts boast an market-leading max diameter up-to 1350mm

Packaging

Tenmat Wear materials are packaged in such a way as to protect their high performance, and ensure they suffer no damage before installation. Keep Tenmat Wear materials in the packaging until you are ready to directly use them.

Fitting Instructions

Tenmat Wear composite bearings can be fitted by various methods. Spherical parts are preferably fitted with interference. They should be pressed under steady continuous load into the housing, and fully supported over the length where resultant wall pressure ensures safe fitment. Other fitment methods for spherical and flat parts include clip fit, freeze fit, mechanical fitting (keys, screws, countersink bores). For highly loaded parts, keeper plates or metal washers should be used to provide a more secure fixing method. For detailed information, please contact Tenmat Wear direct.

Intended use

Tenmat Wear's Feroform and Feroglide materials are intended for use as load-bearing components, guides, and wear parts within hydro electric power generation dams, machinery, turbines, and gates.

Shelf Life

If stored correctly and kept in original packaging without any damage, parts do not lose performance even when stored for extended periods before use.

Reference

Thanks to decades of leading the hydro power bearings sector, Tenmat Wear boasts references from all major plant OEMs and operators. This includes Andritz Hydro, Alstom, Voith Hydro, VA Tech, BHEL, Mecamidi, Flovel, EnerServ, and many more. Tenmat Wear has provided solutions for new hydro plants and refurbished thousands of plants worldwide.

Working Life

Independent lab and field testing proves that Tenmat Wear components offer the longest working life from any similar part available on the market, on account of their superior resistance to wear.

If they are properly installed, not damaged, and the plant working conditions remain within specified design, there is typically no need for maintenance during the bearing's working life which can typically span decades.

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