

# Low pressure, no problem

THE LOW VISCOSITY OF FIRE-RESISTANT HYDRAULIC FLUID MEANS GEAR PUMPS MUST BE CAPABLE OF WORKING AT LOW PRESSURES. ONE SUCH SOLUTION THAT IS ALSO LOW-NOISE IS AVAILABLE ON THE MARKET

▶ The FTP gear pump from Marzocchi is an ideal solution for low-pressure lubrication applications where low-viscosity fluids are required, such as fire-resistant ones. Typical applications include large lubrication systems, lubrication of the guides of machine tools, and the lubrication and cooling of the tools themselves.

Fire-resistant fluids are used whenever there is a possibility that a hydraulic fluid (also used for lubrication) may encounter a source of ignition, such as the surface of very hot equipment. Fire-resistant hydraulic fluids are specially formulated so they are more difficult to ignite and do not propagate a flame from an ignition source.

There are several types of fire-resistant fluids and they are generally classified as follows: oil and water emulsions, water-polymer solutions, and anhydrous synthetics. More specifically, the International Standards Organization (ISO) further classifies these fluids as follows: HFAE – oil-in-water emulsions, typically with more than 80% water content; HFAS – synthetic aqueous fluids, typically with more than 80% water content; HFB – water-in-oil emulsions, typically with more than 40% water content; HFC – water polymer solutions, typically with more than 35% water content (also known as glycol solutions, polyalkylene glycol solutions or water glycols); HFDR – synthetic anhydrous fluids composed of phosphate esters; and HFDU – synthetic anhydrous fluids other than phosphate esters. Examples include polyol esters and polyalkylene glycols.

The only fire-resistant fluids that are completely incompatible with gear pumps are the HFDR ones; for all the others, it is possible to obtain a configuration that makes them compatible. To avoid fast wear of the sliding contact parts, FTP pumps can be supplied, depending on the type of application with bronze or bronze/PTFE thrust plates.

Marzocchi FTP gear pumps are available in versions with or without a relief valve built into the cover, and maximum working pressure is 50 bar. The gear pumps have very high specifications for rotation speed and viscosity range.

FTP pumps are available with both unidirectional clockwise or counterclockwise rotation, and all commercial versions of standard gear pump



ABOVE: The Marzocchi FTP gear pump is based on Elika gear technology

BELOW: The lower number of teeth makes the FTP pump a quieter option



flanges are available, in a displacement range from 7-35cm<sup>3</sup>/rev.

## Designed for low noise

Marzocchi FTP pumps are based on Elika gear technology, an ideal choice for lowering noise levels. The Elika gears reduce noise levels by an average of 15dBA compared with a conventional external gear pump. The helical gears ensure the continuity of the motion despite the small number of teeth. FTP pumps are interchangeable with standard gear pumps. The low number of teeth reduces the fundamental frequencies of the pump noise, thereby producing less noise. The shape of the Elika profile, patented by Marzocchi Pompe, eliminates the encapsulation phenomenon typical of standard gear pumps, removing the main cause of noise and vibrations. Pressure oscillations and vibrations produced by the pump are reduced, therefore fewer are transmitted to the other components, reducing the overall noise of the entire hydraulic system. Specific compensation areas in the flange and cover, insulated by special gaskets reinforced with anti-extrusion, allow for fully free axial and radial movement of the bushings. **ivT**

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