

## MULTISAFE Hose-Diaphragm Guard (HDG)

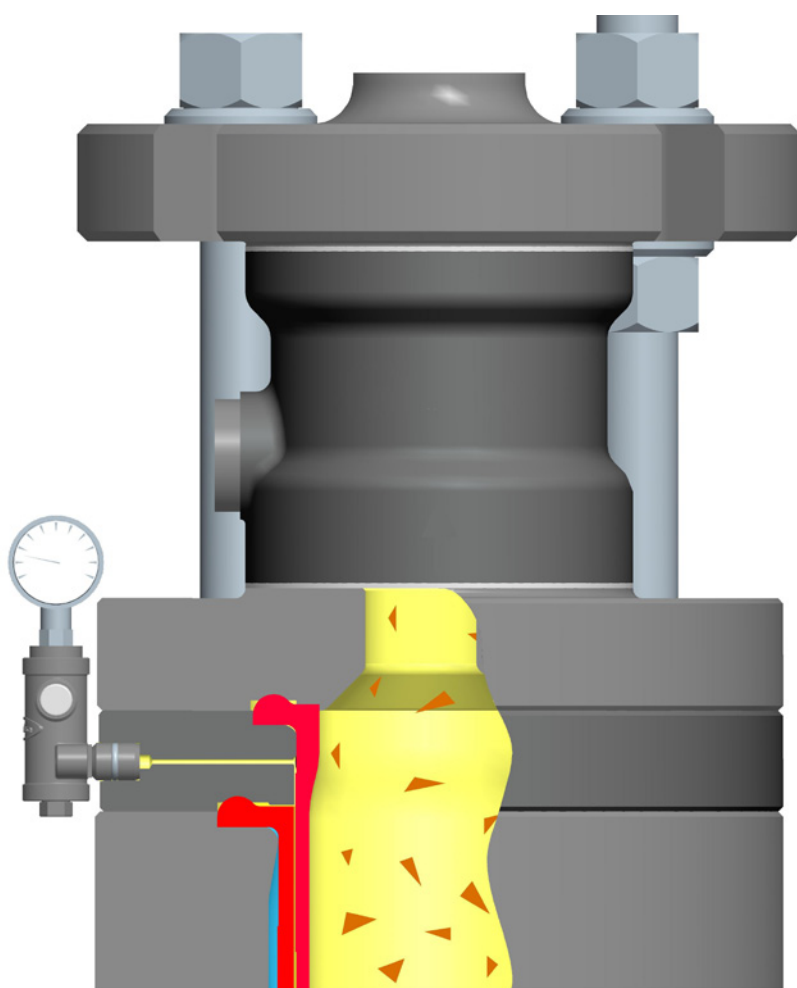


Fig. 1: Hose-diaphragm system with  
Hose-Diaphragm Guard (HDG)

At the heart of MULTISAFE pumps is a redundant hose-diaphragm system (two hose-diaphragms arranged one inside the other), although the pump only requires one to be fully operational.

The material of the primary hose-diaphragm that is in contact with the fluid is individually adapted to the respective operating conditions. The primary hose-diaphragm is hydraulically coupled to the complementary (secondary) hose-diaphragm that is turned towards the hydraulic fluid (see front page, Fig. 1).

According to the design, the space between both hose-diaphragms, which ends in a central hand-over point, is unpressurised. In the event that one of the hose-diaphragms leaks or fails, either product or actuation fluid will penetrate into the interspace. The resulting buildup of pressure (see Fig. 3) is inevitably led to the Hose-Diaphragm Guard – HDG (see Fig. 2).

In any case, a warning is ensured at an early stage, but pump operation can be maintained until the system allows for shutdown and repair.

The hose-diaphragms do not cover any load, because inside and outside pressures are always identical. Only the hydrostatic load, coming from the inside slurry and the outside hydraulic fluid, has to be covered by the diaphragms. With MULTISAFE pumps, hose-diaphragms are not considered as wear parts, because the above-mentioned physical effect provides for a long lifetime (see Fig. 4).

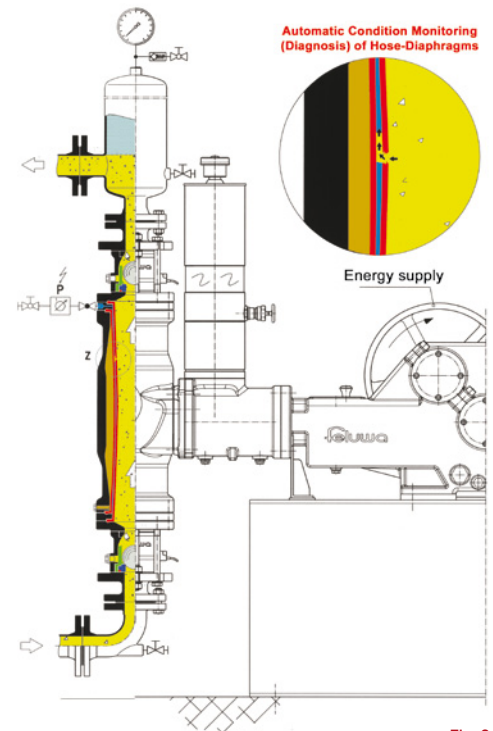


Fig. 2

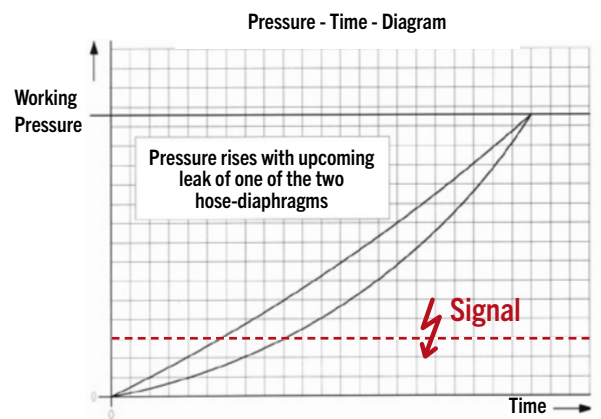


Fig. 3

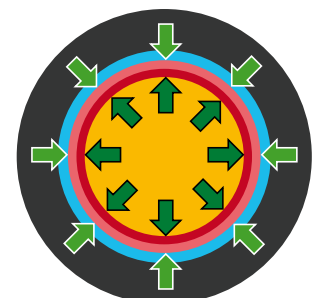


Fig. 4