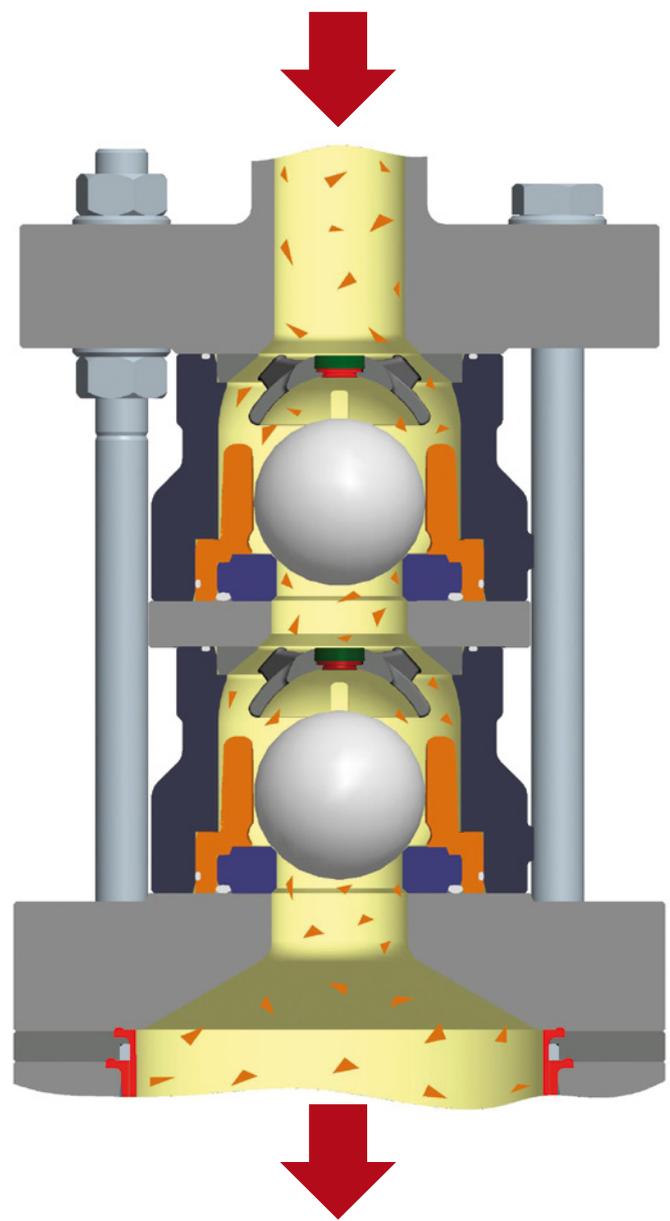


# MULTISAFE Double Hose-Diaphragm Process Pump

## *Check Valves*



$$v_{\ddot{u},DV} = \sqrt{\frac{\Delta p}{2\zeta_V \frac{\rho}{2}}}$$

Fig. 1: Double ball valve with reversible valve seat

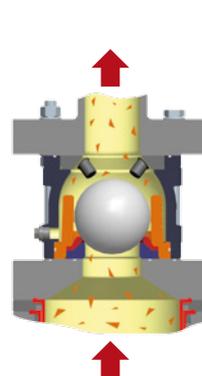
FELUWA heavy-duty check valves are most suited to handle aggressive and/or abrasive media. This qualification is based on comprehensive calculations of flow characteristics and individual selection of suitable construction materials. Even under high pressure conditions FELUWA valves ensure reliable protection against fluid/slurry backflow from the piping.

A great variety of different ball (see Fig. 2), ball scraper, cone (see Fig. 4) and disc valves (see Fig. 5) with metal and/or soft sealing is available for the individual adaptation to working conditions. As a result of their high resistance to wear, FELUWA valves ensure very low gap loss, even over long periods of operation. The modular design allows for the most diversified combination of designs and materials of seats, balls or cones, guides and retainers in a common valve casing.

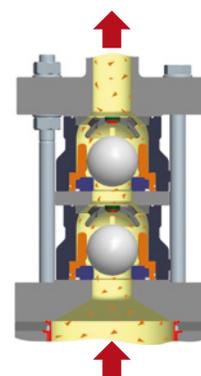
Double valves are specified for media with high levels of impurities and applications which require a particularly high continuous flow, such as gasifier feed pumps in coal gasification systems (see Fig. 3). If, in the short term, a particle gets jammed between the ball or cone and the valve seat resulting in valve leakage, the second valve ensures effective sealing, thus preventing medium backflow and a resulting loss of volume. Double valves provide for a considerably longer life cycle than single valves. For media containing solids characterised by a high settling speed, spring-loaded downflow ball or cone valves are applied (see Fig. 6 and 7).

All designs are particularly easy to assemble and service. The cassettes are hinge-mounted between pump head and suction or discharge manifold, respectively. For maintenance purposes, the complete valve assembly is easily removable like a cassette by means of jacking bolts, without prior dismantling of adjacent elements or piping (see front page, Fig. 1).

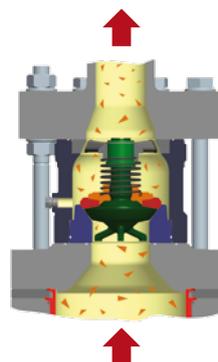
Big size check valves are of TopEntry design and additionally provided with newly developed FELUWA Quick Change System. The hydraulically actuated clamping system allows for easy replacement of valve trims within less than 30 minutes. For details please refer to the relating individual leaflet.



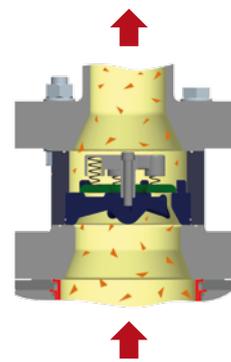
*Fig. 2: Ball valve with metal and additional soft sealing*



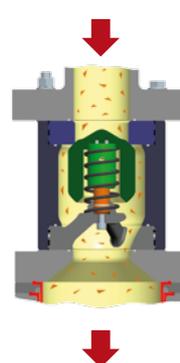
*Fig. 3: Double ball valve with reversible valve seat*



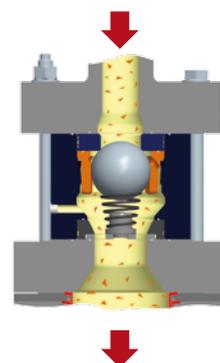
*Fig. 4: Spring-loaded cone valve*



*Fig. 5: Spring-loaded disc valve*



*Fig. 6: Spring-loaded downflow cone valve*



*Fig. 7: Spring-loaded downflow ball valve*