

1 General

After completion of the installation work in the plant and prior to commissioning the new plants, the tanks and piping systems are normally thoroughly cleaned by pickling and flushed afterwards. This procedure often detaches weld beads, scale and other impurities from the piping walls which must be kept away from the pump. To be on the safe side, it is therefore necessary to install a fine-meshed strainer in the inlet pipe of the pump. To ensure that the inlet pressure for the pump is always sufficient, the degree of contamination of the strainer must be monitored.

2 Design

Conical strainers are preferably used. They have a single cone for smaller diameters and a double cone for larger diameters. The cone is a perforated plate lined with a wire mesh (fine or coarse).

Fine mesh: Wire mesh to DIN 4189 - 0.5 x 0.25 (mesh size x wire diameter)

Coarse mesh: Wire mesh to DIN 4189 - 1.25 x 0.4 (mesh size x wire diameter)

The free mesh area of the conical strainer must be equivalent to at least 3 times the cross-section of the pipe to avoid excessive resistance due to foreign objects caught in the strainer. The conical strainers supplied by KSB under standard ZN 1449 meet these requirements. The material is stainless austenitic chrome-nickel steel acc. to DIN 17440 or DIN 17441.

3 Assembly

The conical strainer, which can be installed in vertical or horizontal pipes, should be fitted as close to the suction nozzle of the pump as possible. If the strainer is installed in a vertical pipe, there should be a straight pipe distance of at least 2 times the nominal diameter both upstream and downstream of the pipe.

Caution! The strainer must be installed in the pipe in such a way that the surface lined with the wire mesh faces the flow direction (see figure under point 6). If the strainer is installed in the wrong way, the wire mesh will become detached from the perforated plate and may get into the pump causing damage there.

4 Monitoring

The contamination of the conical strainer must be measured by means of a differential pressure gauge (connected upstream and downstream of the strainer). For automatic monitoring, we recommend to have the strainer monitored by a differential pressure gauge with alarm contact. If there is no G 1/2 connection in the strainer body or the pipe upstream of the strainer, this hole has to be drilled and tapped accordingly. The connection downstream of the strainer can be made on the suction side pressure gauge connection if it has been drilled accordingly. The differential pressure of the conical strainer should not exceed 0.2 bar at a flow velocity of 1 m/s.

5 Allowable degree of contamination

Unless otherwise specified, the max. allowable strainer resistance must not exceed the safety margin in the NPSH value of the plant.

6 Installation examples for conical strainer acc. to ZN 1449:

