Know How Strainers and Filters

Strainers and filters protect plant, plant components and equipment against damage and malfunctioning caused by contamination

In what cases should a strainer be installed
After a pipeline system or plant has been commissioned, equipment or valves have been installed or repaired or pipes have been installed or welded, it may well be that dirt, welding nuggets, bits of sealing materials etc. have entered the system. Even during operation particles lodged in the pipes or fittings can become detached. These can cause malfunctioning by blocking small orifices or by forming deposits in control valves etc. For this reason we recommend that you should install strainers, gas filters or filters upstream of any equipment, control valves or fittings which may be at risk.
Even clean media such as sterile steam require suitable filter.
To protect our own pressure and flow control valves we always recommend fitting an upstream strainer or filter. This applies especially to regulating valves with small seat diameters i.e. small Kvs values.
Mankenberg fit such protection devices to the pilot valves of pilot-controlled valves as standard equipment.

Selection
The type of strainer to be selected depends on the medium and temperature.
- Liquids
Strainers featuring one or more layers of mesh are particularly well suited for liquids. The mesh size depends on the downstream equipment. The smaller the control or measuring orifices, the finer must be the mesh size.
- Gases
For gases we use gas filters featuring non-woven filter fabric or, if a high degree of purity is required, a cartridge-type filter. As with strainers, the retained particle size of the filter is governed by the requirements of the downstream equipment.
- Steam
Our filter FI 6.06 is especially suitable for sterile and clean steam. Filter cartridges offering various retained particle sizes may be fitted.

Limits of application
Owing to the use of a synthetic fibre filter medium, the maximum temperature for gas filters is limited to 80 °C. Filter 6.06 is designed for temperatures up to 190 °C. Strainers must be used for all media exceeding this temperature.

Selecting valve type and nominal size
You must first ask which pressure drop is acceptable. If this is not all that important you should select the simplest equipment. In the case of strainers this is type 1.22 in Y-form. If the pressure drop is important you should select the pot-type. With this type the mesh area which is relatively large compared with the nominal diameter, produces a considerably smaller pressure drop than a Y-type strainer with its small circular strainer mesh.
By using the Design Data sheet you can calculate the flow resistance. The flow resistance is a function of the retained particle size of the mesh or filter cartridge and of the mesh area. With strainers the larger nominal diameters feature larger mesh areas i.e. smaller pressure drops. If the calculated pressure loss should prove to be excessive you should check whether a larger mesh size can be used; if not, select a larger nominal diameter.

Valves free of oil and grease or silicone
Please pay attention to order an fit only spares free of oil and grease resp. free of silicone.

Please consult our engineer if extreme operating conditions apply or whenever you are in doubt.

Notes on Safety, operating instructions etc. MUST be followed