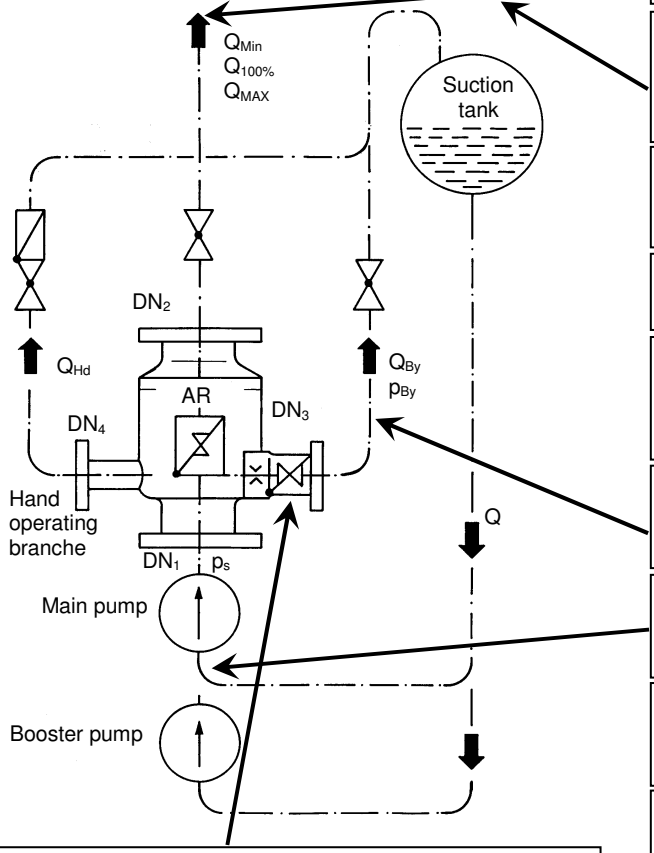
Automatic-Recirculation-Check Valve
DESIGN DATA OF VALVE

Explanations to the necessary Design Data for the Automatic Recirculation Check Valve – AR Valve (please see the inquiry sheet)



Maximum Capacity Q_{MAX}
Information to double-check the valve size.

Design Capacity $Q_{100\%}$, most frequent point of operation
Important information to design the optimal valve size!

Total Head $H_{100\%}$ at $Q_{100\%}$ (see pump curve)
Information not compulsory but helpful to double-check if the pump curve is stable or unstable (parabola).

Bypass Flow Q_{By}
Important information to design the bypass size!

Total Head H_{By} of the pump at Q_{By}
(see pump curve)
Important information to calculate the differential pressure between valve inlet DN_1 and bypass branch DN_3!

Back Pressure in the Bypass Pipe p_{By}
Important information to calculate the differential pressure between valve inlet DN_1 and bypass branch DN_3!

Pump Inlet Pressure p_s
Important information to calculate the differential pressure between valve inlet DN_1 and bypass branch DN_3!

Pump Discharge Size
Information to select the suitable size of the flange DN_1 (Valve mounted on pump discharge branch)!

Valve Pressure Rating
For selection of pressure rate of the valve (same as discharge flange?)

Information to Valve Flange: Sealing, Size/Rating at Inlet, Outlet and Bypass
Information to select the correct flange design DN_1, DN_2 and DN_3 (valve mounted on pump discharge branch)!

Additional Valve Branch
See also SMV with degasing, hand operating branch for commissioning of the plant, manometer connection etc.

Backpressure at Degasing Branch
Important information only for SMV with degassing to calculate the closing pressure of the automatic degassing device!

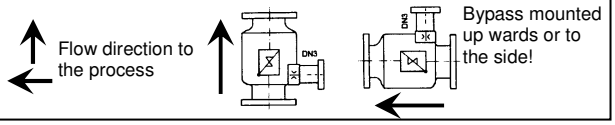
Calculation of the Differential Pressure dp between DN_1 und DN_3.
Important calculation for the design of the bypass internals!

$$dp = H_{By} + p_s - p_{By}$$

Non Return Valve in Bypass Branch yes/no

Variable Pump Speed yes/no
Important information for SMA 63/64, since the bypass control needs minimum 70 bar pump pressure!

Installation vertical horizontal



Medium

Name of Medium	type of the medium
Density	**Important design information**
Concentration	for material selection
Temperature	**Important design information**
Viscosity	up to 150 cSt
Vapor Pressure	indicate easily boiling media (poss. use of SMV with automatic degassing)

Body Material
Important information to select the correct material for the pressure parts (casing and branches) corresponding to the medium! Standard is ASTM A105.

Standards DIN / ASME (ANSI)
Important information to design the flange size according to DIN- or ASME standard.

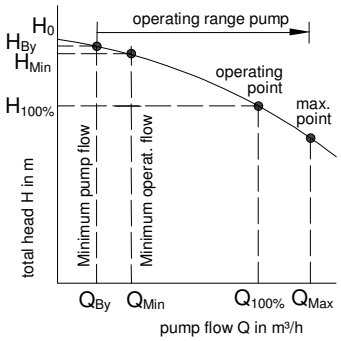


Figure: stable pump curve (example without variable pump speed)

Comments_InquirySheet_AR_en_04

tecmara gmbh · sales@tecmara.de · www.tecmara.de