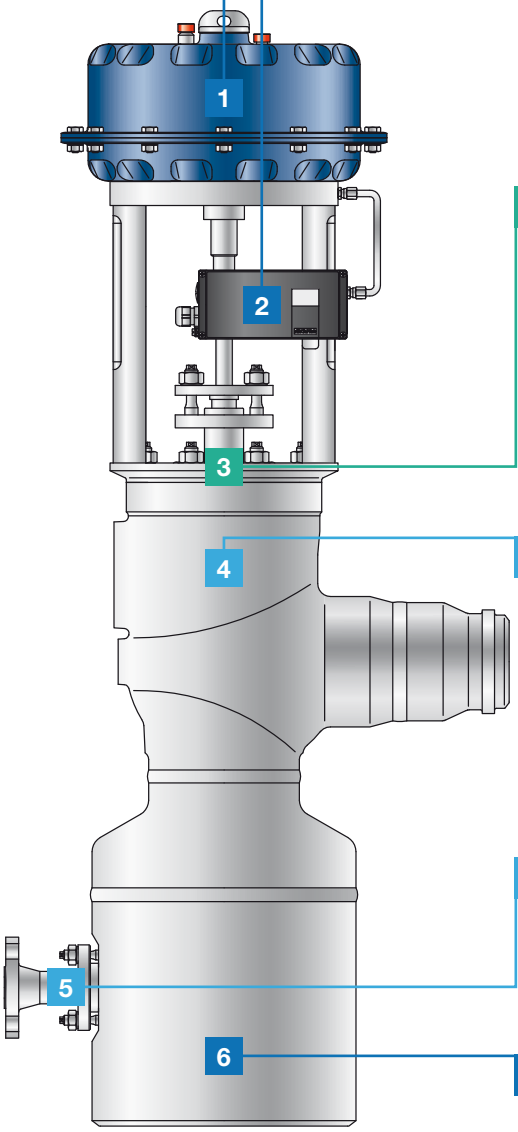
von Rohr
Armaturen AG

Series 500

Every component precisely matched



Powerful valve actuator

Most commonly used is the pneumatic multi-spring actuator series 812 as shown here. It is robust, ex-proof, features low actuating times, provides a constant seating force and is cost effective. Different sizes, strokes and materials can be manufactured according to your requirements. von Rohr valves are optional also available with electric actuators.

Multi-functional positioner

The ARCAPRO® digital positioner is a multi-functional interface with the controller or process control system and operates as standard with 4 to 20 mA. HART, Profibus (PA), and Foundation Fieldbus (FF) communication are used to establish a digital interface with bidirectional data exchange (including status messages). It can be parameterized on site or via the communications system. An open mechanical interface concept that our mother company ARCA helped elaborate complies with VDI / VDE 3847 and is used for mounting and mechanically connecting the positioner to the actuator. For more details about this see the von Rohr brochure ARCAPRO® positioner.

Stem and bonnet seal

The dynamic stem sealing and the static bonnet seal in bypass design are precisely selected for the prevailing pressure and temperature range. For this purpose, the surface finish of the stem and the packing material are also considered. The generally used chambered bonnet seal prevents assembly errors during service and maintenance. For high pressure applications, the use of a self-sealing ring lock ensures tightness regardless of the tightening torque of the bonnet bolts. These design features also ensure that valve seat and control plug are not subjected to any lateral forces, and thus minimize internal leakage.

Versatile valve trims

These are the crucial functional parts for the control of pressure and temperature. Perforated flow restrictors are designed and manufactured to suit the prevailing flow conditions and the required rangeability. For applications with increased security requirements, a strainer will be installed before the steam inlet. This prevents contaminant entry and therefore protects from internal damage. The patented clamping seat ensures a fast, easy and cost-effective maintenance without special tools.

Water injection

The selection of the water injection is made in proportion to steam and cooling water temperature. The injection can take place at the valve outlet or through the valve stem.

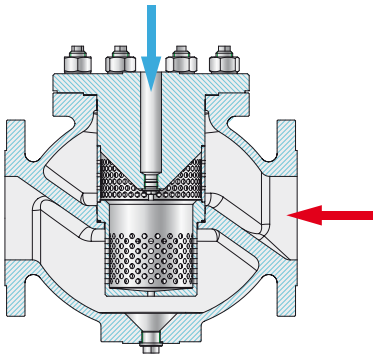
Body

The body is available in cast steel, heat resisting cast steel or stainless steel. The nominal pressure rating goes from PN 16 to 400 and reaches temperatures up to 600° C. Optionally the body is available in angle or straight form.

Valve design

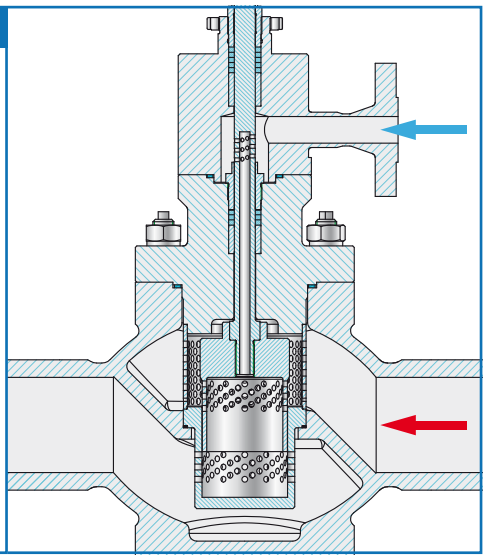
Mini cooler

The mini cooler, which is based on the single-phase nozzle, is used in steam-conditioning stations that process very small quantities of injected water. Once the pressure has been reduced, the water is injected into a perforated valve seat to ensure ultra-high turbulence for optimal vaporization conditions. The perforated valve seat also protects the valve body (which can be fitted with a condensate drain connection) against direct contact with the injected water.



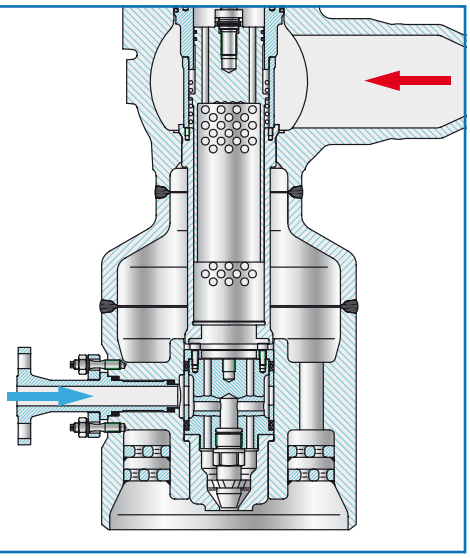
Injection through valve stem

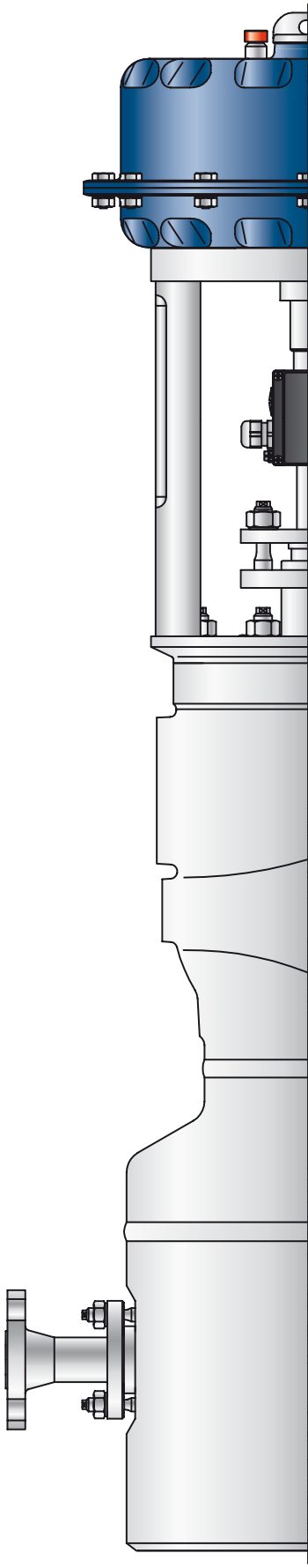
This valve features a hollow stem that uncovers a hole pattern used to inject a controlled amount of water directly into the intermediate pressure-reduction chamber (perforated plug-seat). Turbulence is at its greatest here, where cross-sectional flow areas are restricted in accordance with the quantity of steam required. This ensures optimal vaporization of the injected water and prevents the valve housing from becoming directly exposed to the medium.

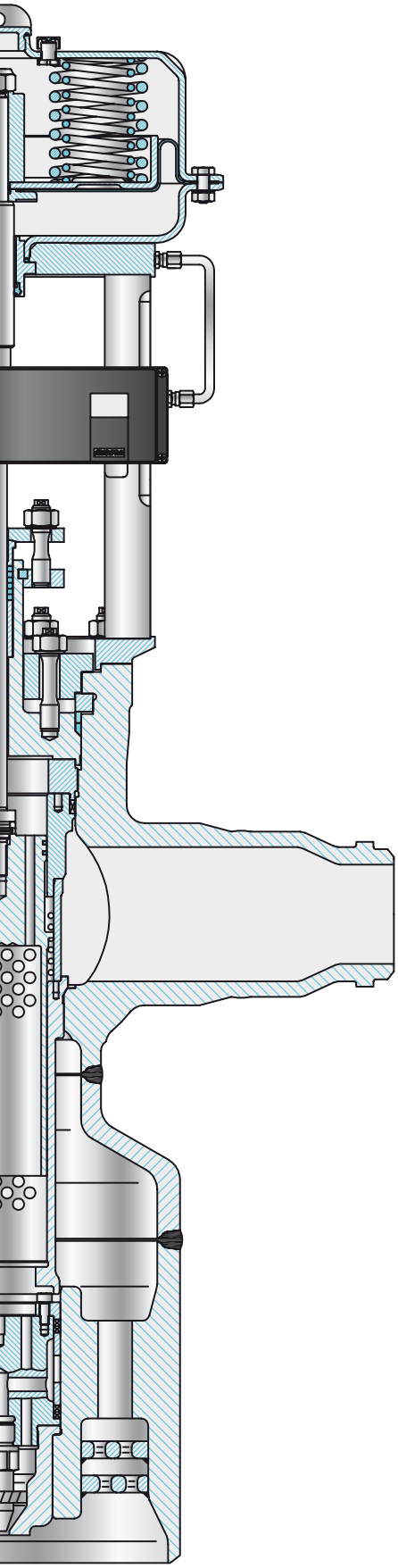


Two-component nozzle at the valve outlet

The steam-assisted spray nozzle is an optimal solution for applications in which the temperature difference (ΔT) between the injected water and live steam is exceptionally large, water is injected at low pressure, or minimal loads must be regulated. The nozzle extracts and atomizes the water from the live steam in accordance with the injector principle so that low-pressure vaporization paths can also be realized without turbulence via perforated plug-seats.

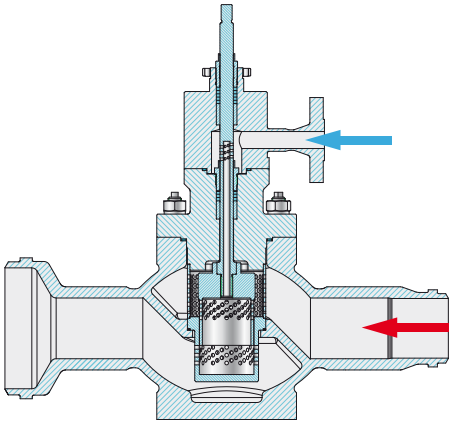






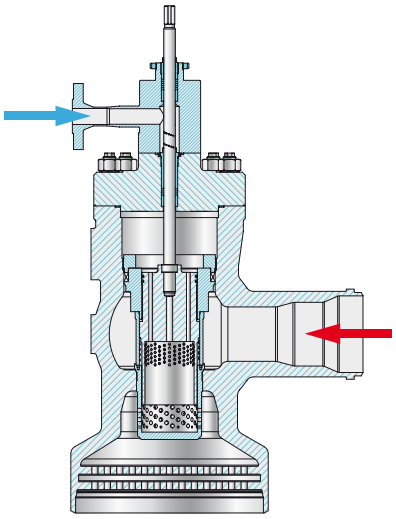
Globe version design with welded ends, extension and stem-injection

Steam-conditioning stations are typically welded for applications with reasonable steam pressures. Higher differential pressures must be relieved in graduated steps to reduce sound pressure. This can be accomplished using a three-stage perforated trim, for example (shown). The cast standard valve housing can also be combined with an outlet extension to accommodate expanding steam.



Forged angle version valve with stem-injection

The constantly increasing demands by operating conditions, require the use of valves made from forged materials.



Water

Steam

Series 500

Angle version steam-conditioning valve with two-component nozzle

Features	Advantages
Body designed to meet flow path criteria	● Less noise ● Less wear ● Less maintenance
Modular design and standardized components	● All nominal sizes ● Fewer parts ● Only one special tool
Highly accurate stem guiding	● Precise plug guiding ● Guided stuffing box ● Minimum wear of packing
Compact and robust design	● Saves installation space
Easy interchangeability of components	● Low operating expenses
Stainless steel internal parts	● No corrosion
Optionally available with manual, pneumatic or electric actuator	● Wide range of choice
Integrated pipeless mounting of position regulators possible	● High availability ● Retrofitting possible
Interchangeable trim	● Changes in kv-value possible

von Rohr Armaturen AG

Series 500

General data

Series	500			
Nominal bore/nominal pressure	51… & 52…	55… & 56…	57… & 58…	59…
Nominal bore DN	50 to 600 / 2“ to 24“	80 to 200 / 3“ to 8“	25 to 250 / 1“ to 10“	25 to 100 / 1“ to 4“
Nominal pressure PN/ANSI	16 to 250 / 150 to 1500	16 to 250 / 150 to 1500	16 to 400 / 150 to 2500	16 to 400 / 150 to 2500
Body shape	globe	angle	angle	angle
Body material	cast	cast	forged	forged
Characteristics	standard: linear optional: linear modified			
Rangeability	25:1			
Leakage rate	metallic sealing: leakage rate class IV (0.01% of kvs-value) with pressure balance <0.05% of kvs-value			
Bonnet	standard, with cooling fins, with self-sealing ring lock, with cooling water connection			

Materials

Body material	EN	for temperatures	ASTM	for temperatures
	1.0619 GP240GH	up to 450° C	A216WCB	up to 450° C
	1.7357 G17CrMo5-5	up to 530° C	A217WC6	up to 530° C
	1.4581 GX5CrNiMoNb 19-11-2	up to 550° C	–	–
	1.7379 G17CrMo9-10	up to 580° C	–	–
	1.4931 GX23CrMoV12-1	up to 600° C	–	–
Forged body	1.0460 P250GH	up to 450° C	A105	up to 450° C
	1.0425 P256GH	up to 450° C	–	–
	1.5415 16Mo3	up to 530° C	–	–
	1.7335 13CrMo4-5	up to 570° C	A182F12Cl.2	up to 570° C
	1.7380 10CrMo9-10	up to 600° C	A182F22Cl.3	up to 600° C
	1.4903 X10CrMoVNb91	up to 620° C	A182F91-P91	up to 620° C
Trim	1.4021 X20Cr13			
	1.4122 X39CrMo17-1			
	1.4571 X6CrNiMoTi17122			
	1.4922 X20CrMoV1 21			

von Rohr Armaturen AG • Member of the ARCA FLOW Group
Fichtenhagstrasse 4 • CH-4132 Muttenz • Tel. +41 (0)61 467 91 20 • Fax +41 (0)61 467 91 21 • info@von-rohr.ch • www.von-rohr.ch