

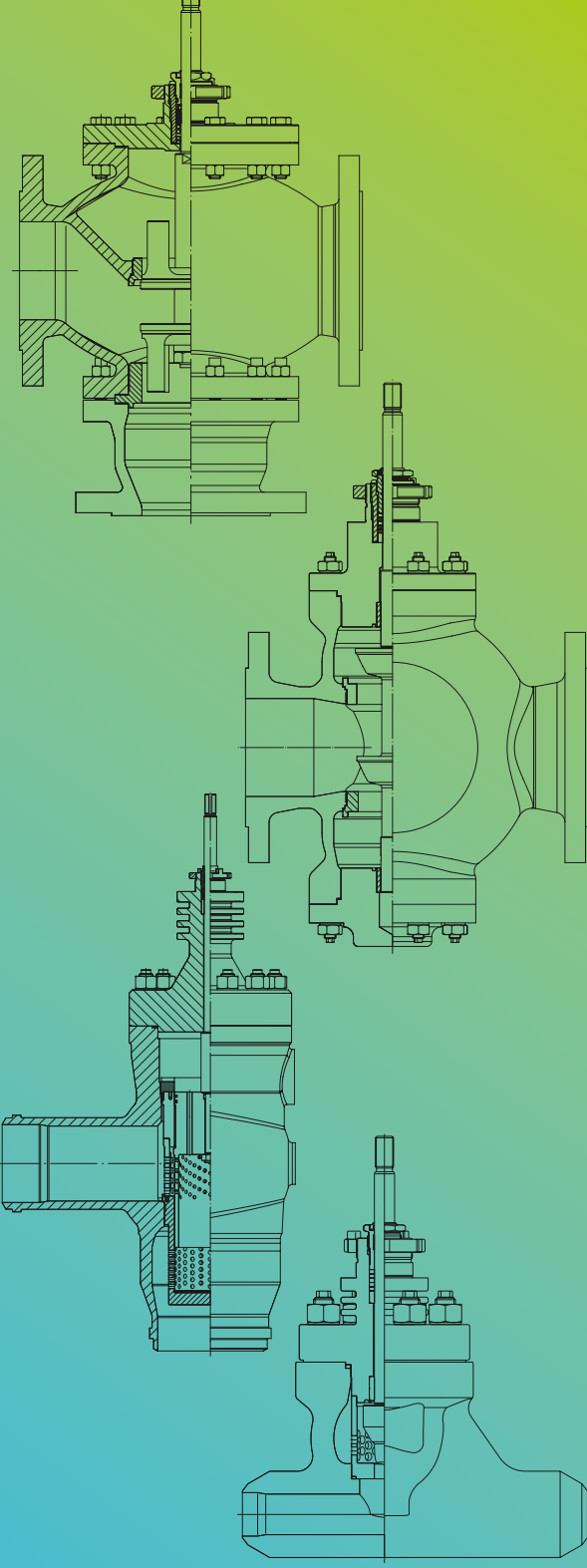
CONTROL VALVES

TRIVENT / DUALVENT / ANGLEVENT / FORGEVENT



ARCA-VALVE.COM





YOUR SOLUTION: OUR MODULAR CONTROL VALVES

TRIVENT – Three-way valves

work safely and reliably as mixing and diverting valves in heating systems and processes, some of which involve extremely high loads. For example, in cooling and heating circuits in almost all industrial applications, such as marine diesel, heat exchangers and calender presses. Due to their extremely short switching times, our three-way valves are also used for cooling water control on wire rod mills. The sturdy construction in modular ARCA design is precisely tailored to your medium and your process due to the choice of material, the connection to the piping system or the versatile trims.

DUALVENT – Double-seat control valves

are used for more robust applications. The double guide regulates the medium at two throttle points. The diameters of the two control plugs are matched so that the medium causes one control plug to open and the other to close, effectively cancelling out the actuating forces. Thanks to the variety in the choice of materials, the connection to the piping system or the versatile trims, the control valve can be precisely aligned to your process and the contaminated medium. This also applies to the shape of the control plugs.

ANGLEVENT – Angle valves

are selected to suit the specific system layout. For a wide range of applications, the bodies are manufactured in a variety of cast and forged materials, and the trim is adapted to the specific operating conditions. This modular design principle ensures accurate process control that, together with the proven ARCA clamped seat ring, characterizes each of our angle valves. Our angle valves have also proven themselves in difficult operating conditions and noise-sensitive applications.

FORGEVENT – Forged valves

are machined from solid forged bar or from forged shaped bodies. Their particular strengths are the wide choice of body materials and the high material soundness inherent in the forging process. Welding ends offer a further advantage, as the valve can be connected directly to the pipeline. The trim follows the clamping principle of the ECOTROL® series, ensuring that these valves are also very easy to maintain.

We offer a wide range of our ARCADRIVE pneumatic and electric actuators for the precise positioning of all control valves listed here, such as the Series 812 pneumatic actuator.

The control valve system series stands for holistically designed technology that offers exceptional ease of service and maintenance, low operating costs, and low life-cycle costs.

ARCA is a specialist in sophisticated industrial process control.

Our story began in 1917 with a groundbreaking innovation. Since then, outstanding engineering skills and pioneering spirit have been key strengths of our family-run company. Today our control technology provides reliable interfaces for your process.

Our comprehensive services guarantee the secure and efficient control of your production, from early project consulting to maintenance all the way to process optimization.

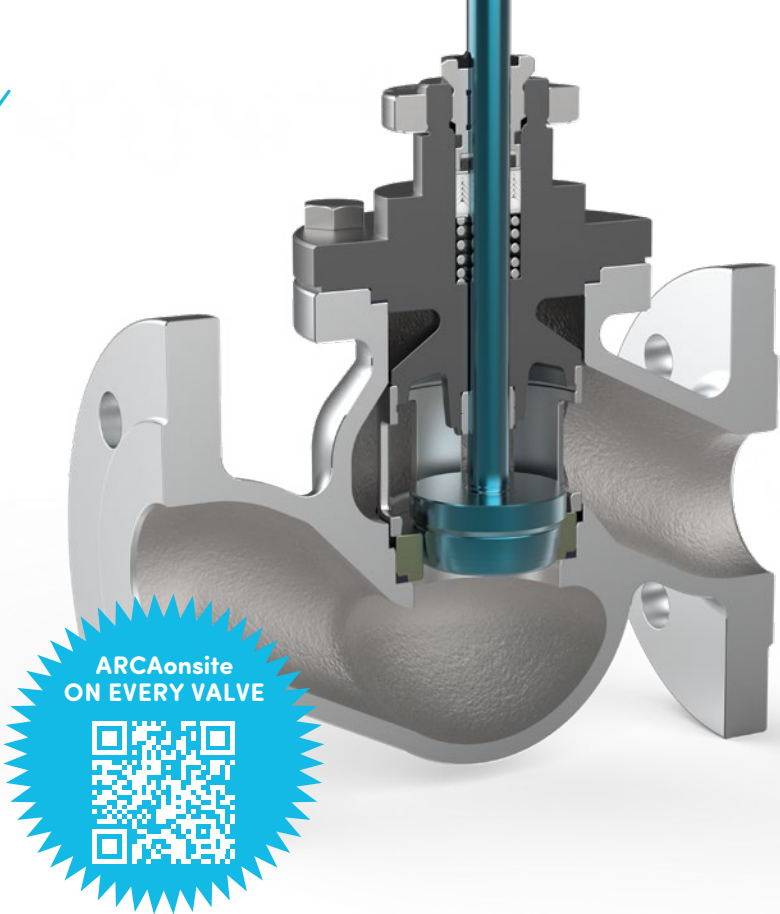
CONTROL THE FLOW

MANAGING COMPLEXITY

ARCA rounds out its product range with these control valves. Alongside classic valves, ARCA's portfolio also includes three-way, double-seat and angle valves, and also forged valves and high-pressure valves. This positions us as a partner for complete control valve packages. Naturally, all these valve types are standardized on a single design principle.

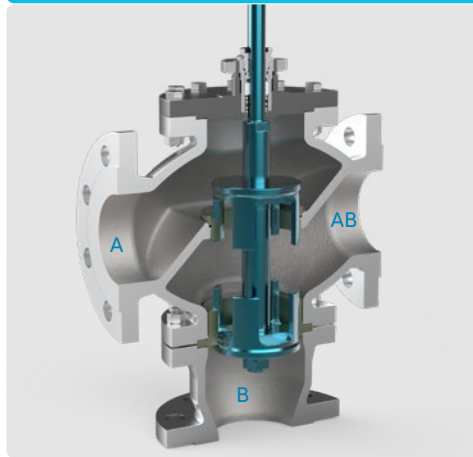
Nevertheless, each individual series offers its own unique advantages and a wide range of options for your process, be it due to material selection, connection to the piping system or the wide range of trims that control your medium to suit your specific application. The complete range of ARCA actuators and controllers is available for your actuation applications.

ARCAonsite gives you direct access to our global digital platform using a QR code nameplate on the control valve. There you can find all necessary information and the current documentation for your control valve.



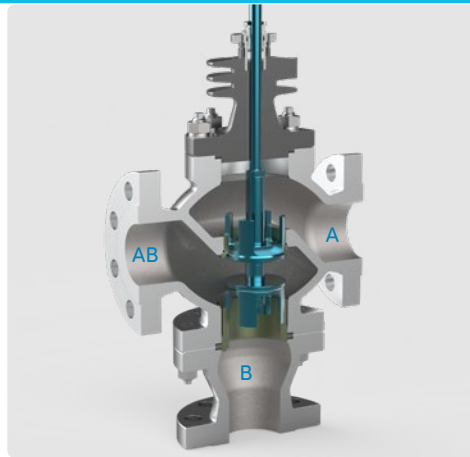
OUR INNOVATIONS		YOUR ADVANTAGES	
1	Comprehensive modular system for nominal sizes with standardized components	→ All nominal sizes	→ Few components
		→ If at all, just a single special tool	
2	Flow-optimized body shapes	→ Low noise emission	→ Optimized Kv values per nominal size
3	Optimized seat and plug trims for all areas of application	→ Broad control range with high control accuracy	→ Low noise emission
		→ Can be tailored perfectly to your needs	
4	Standardized interface to the actuator	→ All actuator types – pneumatic, electric or hydraulic – can be mounted	→ Later conversion is easy
5	Trim can be completely removed	→ All trims can be removed	→ All trims are clamped or screw-fastened
		→ No special machinery required	→ Fast maintenance work at short notice
6	Always the right packing	→ Sealing solutions up to hermetically tight	→ Low maintenance
7	Customization to meet customer specifications	→ Few spare and wear parts	→ Adjustments are always possible

TRIVENT – THREE-WAY VALVE SERIES 200 & 220



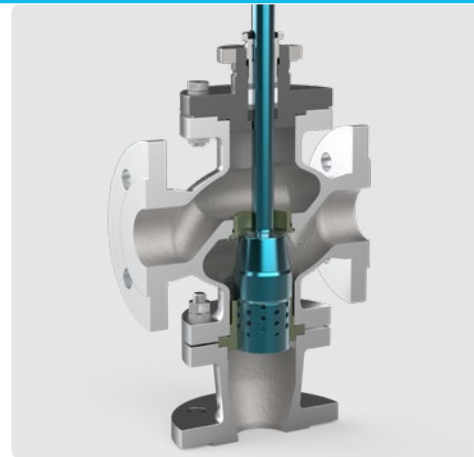
Flow divider (201-T)

The medium enters the valve body sideways (AB), where it is divided into two separate flows, straight-through (A) and through the angle outlet (B). The two counteracting plugs have the same seat diameter and are therefore statically pressure-balanced. The ARCA design always incorporates a dual-guide system that allows it to handle even the most demanding applications. This means that the actuator only needs to be designed for the resulting forces caused by differential pressure, dead weight, and packing friction.



Flow mixer (223-M)

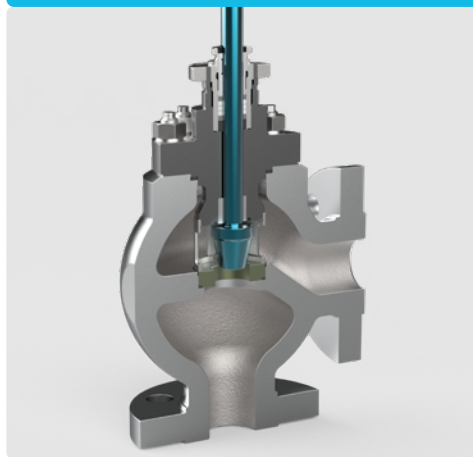
The medium enters the valve body on the side (A) and diagonally from below (B), mixes in the valve body, and then exits the valve body on the side (AB). This is a typical application for temperature control. The ARCA modular system covers temperature applications for three-way control valves up to 530 °C and a nominal pressure rating of PN 250; in this example, it features cooling fins in the bonnet. The internal design follows the modular principle used in the flow divider design and is equivalent in terms of actuator technology.



Other applications (201-SO)

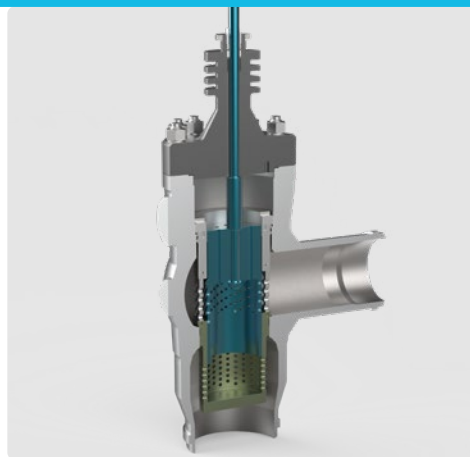
The ARCA modular system offers a wide range of possible combinations for temperature, pressure, and flow rate. In the example shown, the incoming medium is fed through straight with a low differential pressure and controlled through the angle outlet with a high differential pressure. The perforated plug allows you to achieve the required range of Kv values by selecting the correct hole dimensions. In addition, the lower guiding is also ensured in the perforated plug. We have many applications: Please contact us.

ANGLEVENT – ANGLE VALVE SERIES 350 & 380



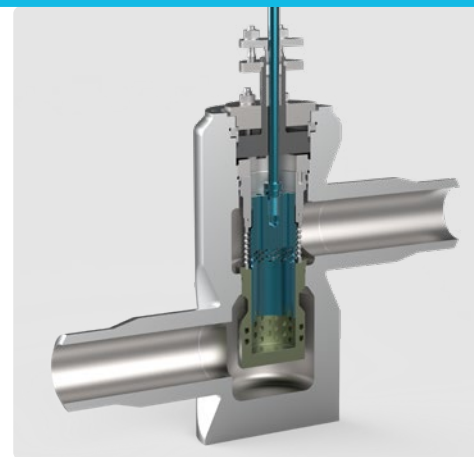
Low pressure (341-P1)

The basic version of the ARCA modular system is a cast version. This cast body series covers the basic applications. The standard version uses a single-stage parabolic plug as the control plug. Apart from the standard bonnet, various designs are available depending on the application, such as cooling fins, bellows, and many others. The packing is also selected accordingly. Other options, such as a heating jacket, can be implemented for your application using the ARCA modular system.



High pressure (353-L2)

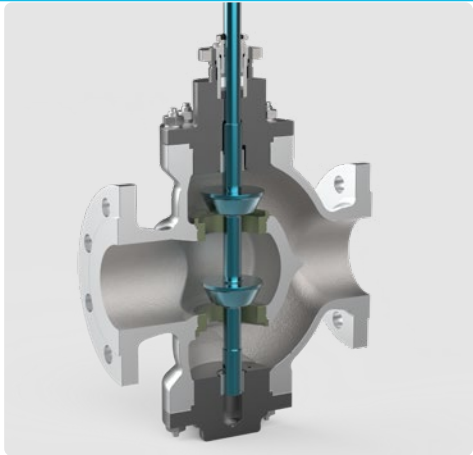
In addition to the low-pressure series, ARCA provides angle valves up to a nominal pressure rating of PN 250. Several cast models in different materials are available here. These cover a temperature range of up to 600 °C. As a basis, the bodies are cast with integral welding ends. This allows the end connections to be machined individually to the customer's piping specification. The trims, with their wide variety of designs, are standardized based on the proven clamping technology. Bonnet seals include all common versions through to a self-sealing bonnet closure (Brettschneider).



CUSTOM-Designed-Vent series 180 (189-L2_ADDITIVE)

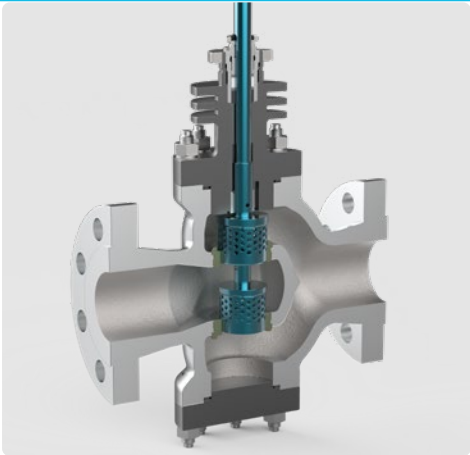
Depending on the piping layout, globe control valves are available not only in the classic straight-through design, but also in a Z-shaped design. ARCA can certainly provide you with a well-thought-out plan. Building on proven trim designs, the flow parameters were addressed with an additively manufactured multi-stage seat. Using a wide variety of proven designs and numerous bonnet options, the forged body is engineered, adapted to the specific conditions and requirements, and optimized.

DUALVENT – DOUBLE-SEAT VALVE SERIES 250 & 280



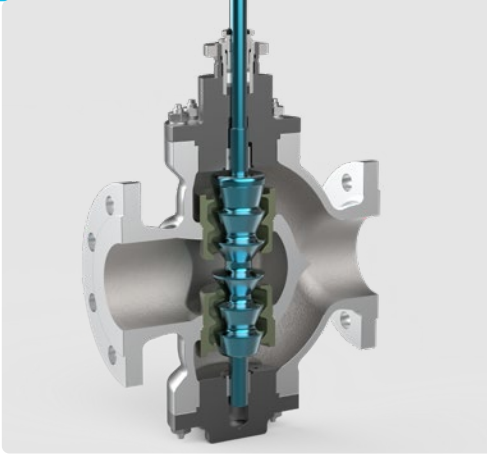
With parabolic plug, single stage (251-P1)

In this double-seat control valve, the medium is split and controlled through two parabolic plugs. The proven double-guided parabolic plug design is often used in water applications and impresses with its design, which is both sturdy and simple. Due to the design, the outer diameters of the two parabolic plugs are almost the same and thus almost pressure-balanced. When calculating the actuator force, it is therefore not necessary to consider the full plug diameter, but only the resulting annular area; this means they can perform their control task using smaller control actuators.



With perforated plug, single stage (283-L1)

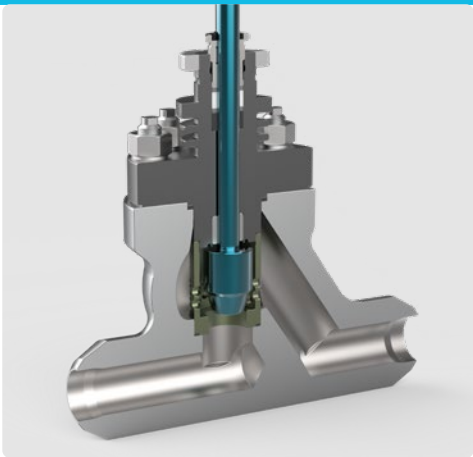
As with all ARCA series, the double-seat control valve has a modular design with a wide range of configurations, with options up to a nominal pressure rating of PN 160 and covering a temperature range up to 530 °C. The image shows a high-pressure double-seat control valve with a finned bonnet flange that keeps the gland packing outside the hot area. Perforated plugs were chosen for the control system rather than the usual parabolic plugs to counteract noise generation. Small actuators are, of course, also specified here so that high differential pressures can be controlled.



With multi-stage parabolic plug (251-P3)

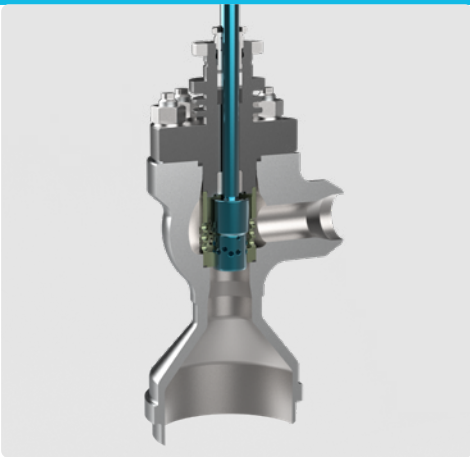
The ARCA modular system offers the option of multi-stage pressure reduction for higher differential pressures and applications where the cleanliness of the medium cannot always be guaranteed. This design allows you to relieve pressure in the medium – for example, without cavitation – when the perforated plug reaches its limits. Due to its design, the double-seat control valve does not require a pressure-balancing piston ring, which can jam with even slightly contaminated media. Small actuators are the natural choice for double-seat control valves.

FORGEVENT – FORGED VALVE SERIES 190



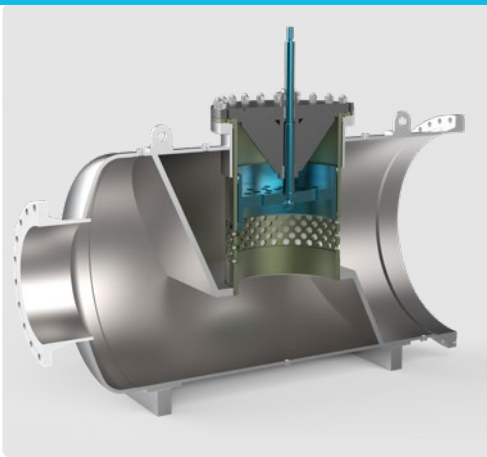
With parabolic plug in straight-through design (193-P1-D)

The standard version includes control valves in various nominal sizes, available in two basic models designed based on the ECOTROL® principle. We rely here on the proven, both standardized and versatile trims. Seat-to-body leakage is eliminated. The forged valve body is available with welding ends and also the usual flanges. The bonnet flange, secured by metal-to-metal contact, allows any ARCA actuator to be fitted.



With perforated plug in angle design (193-L1-E)

The forged valve with the angle design is based on the same components as the straight-through design variant. This series is used in applications up to 650 °C and PN 400/Class 2500 and Class 4500. With additional special tests for the body and the bonnet, higher nominal pressure ratings are possible. The design proves its clear advantages in highly demanding control tasks such as cavitation or flashing. Due to the built-in seat, available either as a solid Stellite seat or with a Stellite-coated sealing edge, only the seat needs to be replaced, without the need for any special tools.



CUSTOM-Designed-Vent series 180 (187-SL1)

ARCA can also provide assistance with large valves using its standardized design principles. We are limited only by the flow data in this design. You determine the nominal size and design based on your application. The design concept is developed and implemented well beyond the requirements of control engineering. This means that, for these dimensions, the conditions for transport and on-site positioning are incorporated into the design and implemented.



Range overview

Type	TRIVENT		DUALVENT		FORGEVENT		ANGLEVENT	
Series	200	220/230	250	280	180	190	340/350	380
DN	25-600	25-300/200	50-350	40-250	15-1200	15-65	15-500	15-800
NPS					1/2"-48"	1/2"-2 1/2"	1/2"-20"	1/2"-32"
PN	10-40	63-160/250	10-40	63-160/250	10-400	10-720	10-250	16-400
Class					150-2500	150-4500	150-1500	150-2500
Body shape	Three-way		Straight-through		Angle and straight-through		Angle	

Materials

	EN	for temperatures	ASTM	for temperatures
Cast body	1.0619 GP240GH	up to 425 °C	A 216 WCB	up to 425 °C
	1.7357 G17CrMo5-5	up to 530 °C	A 217 WC6	up to 530 °C
	1.4408 GX5CrNiMo19-11-2	-196 °C to 500 °C	A 351 CF8M	-196 °C to 538 °C
	1.7379 G17CrMo9-10	up to 600 °C	A 217 WC9	up to 595 °C
	1.4931 GX23CrMoV12-1	up to 600 °C	A 217 C12A	up to 650 °C
	1.6220 G20Mn5	-40 °C to 400 °C	A 352 LCB	-50 °C to 400 °C
	2.1050 CuSn10-C	-196 °C to 300 °C	-	-
Forged body	1.0460 P250GH	up to 425 °C	A 105	up to 425 °C
	1.0425 P265GH	up to 450 °C	-	-
	1.5415 16Mo3	up to 530 °C	-	-
	1.7335 13CrMo4-5	up to 570 °C	A 182 F12 Cl.2	up to 570 °C
	1.7383 11CrMo9-10	up to 600 °C	A 182 F22 Cl.3	up to 650 °C
	1.4903 X10CrMoVNb9-1	up to 650 °C	A 182 F91	up to 650 °C

ARE YOU FAMILIAR WITH OUR ARCA SERVICE PACKAGES?

On the basis of our comprehensive application knowledge about the entire process or control loop ARCA Services underscore our promise to you:
CONTROL THE FLOW

ARCA launch

With ARCAlaunch we assist you with the commissioning of your control valves. That applies to support during construction and also during the cold and hot commissioning.

ARCA care

With ARCAcare, we offer maintenance contracts that are precisely tailored to your plant. This way, planned preventive maintenance intervals aren't hampered by everyday operation. The failure of important valves is prevented.