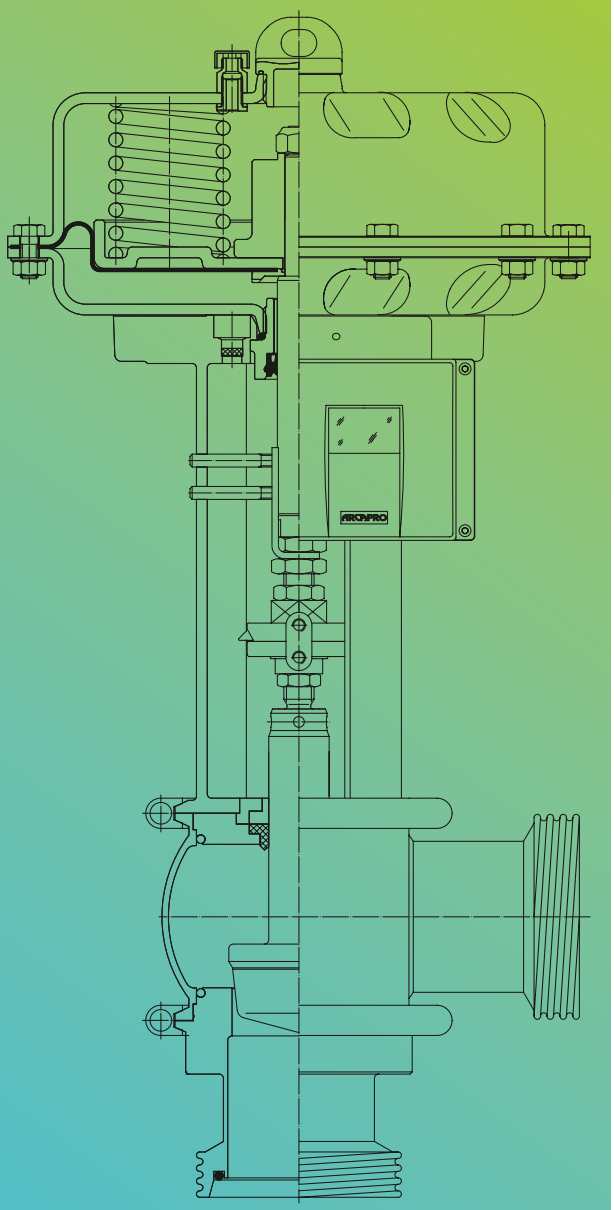
BIOVENT®

HYGIENIC VALVE

SERIES 391:

ARCA-VALVE.COM

ARCA VENTILE



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

YOUR SOLUTION: OUR BIOVENT®-HYGIENIC VALVES

Powerful valve actuator

Usually, BIOVENT® control valves are combined with the pneumatic multi-spring actuator of the 813 series. This is fully made of stainless steel, sturdy and features short actuating times and constant sealing force. Different valve sizes are optimized for the required actuating force.

Multi-functional positioner

BIOVENT® control valves equipped with ARCAPRO or ARCASMART digital positioners provide a multifunctional interface to the control or process control system. It works with 4-20 mA as standard. HART, Profibus (PA) and Foundation Fieldbus, provide a digital connection with bidirectional data exchange, including status messages, for example. For more details, please refer to the *ARCA positioners brochure*.

Flexible hygienic housings

The stainless steel spherical housing with zero dead space offers optimal flow conditions. The internal height of the housing matches the internal diameter of the connecting pipe. The hygiene-committed design of BIOVENT® control valves is CIP-capable and ensures that any residue is drained. This makes the valves easy to clean and prevents damage caused by oxidation as well as the settling of media. The housing components are connected by means of stainless steel clamping rings, which facilitates maintenance and allows different housing and connection types to be used.

Hygienic housing and stem seals

EPDM O-rings, which are shaped to a defined size in a form-fit installation space, are used as standard to ensure that the housing components are sealed in line with FDA requirements. The O-ring is pre-tensioned so that it is flush with the wall of the housing and secures the seals. Optimum CIP conditions are ensured. A special combination sealing element with wiper ring is used on the dynamic seal of the valve stems. Purge liquid and/or particles are removed upstream of the sealing element and bearing, thereby preventing them from settling or being crushed between the stem and bearing.

High-precision valve trims

The BIOVENT® control valves are equipped with valve trims specially designed for the prevailing flow conditions in your plant. The shapes of the closure members and valve seats as well as the material from which they are made (1.4571) superfinished, roller burnished and are optimized in line with your requirements. The replaceable control plug and clamped valve seat allow the system to be easily adapted to different operating conditions. Various Kvs values can be selected for each nominal diameter, which means that the valve can be optimized to meet the controlled system.

The BIOVENT® system combines holistically conceived technology with unique service and maintenance convenience, low operating costs and low life cycle costs.

EXTREMELY HYGIENIC, PRECISE AND EFFICIENT

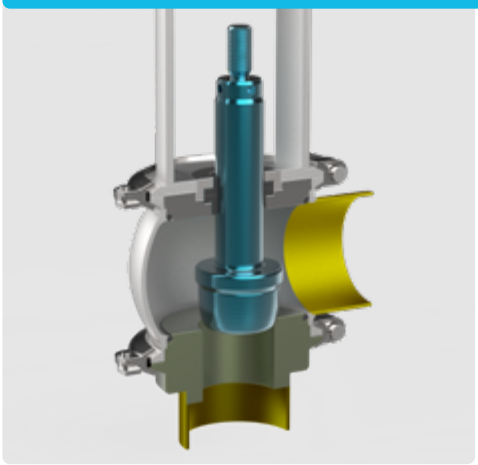
The BIOVENT® hygienic valve combines a dead space-free design with optimum cleaning options. The modular design of the valve housing, connections, stem seals, valve trims, actuator and positioner ensures an optimum adaptation to your plant. Hygienic design, efficiency, control accuracy, price/performance ratio and maintenance outlay are coordinated to ensure the lowest *Total Cost of Ownership* with the BIOVENT® hygienic valve. Our commitment to innovation in valve technology ensures that you benefit from maximum control accuracy for your application.

See for yourself!

ARCAonsite allows you with a QR code nameplate on the control valve worldwide direct access to our digital platform. There you will find all the necessary information and the latest documentation for your valves.

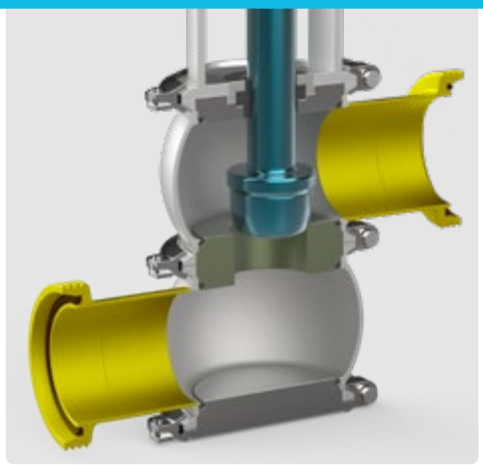
OUR INNOVATIONS	YOUR ADVANTAGES
1 Flow-optimized valve housing	→ Zero dead space → GMP compatible → FDA compliant → Low noise emission → 3A sanitary standard (optional)
2 Nominal diameter identical to internal diameter of piping	→ Optimum CIP conditions → No sources of infections
3 Compact module connection by means of clamping rings	→ Maintenance without special tools → Quick and easy disassembly
4 Valve plug and seat can be replaced separately	→ Cost-effective plug replacement (metallic, soft sealing)
5 Stem seal with special sealing element and additional wiper ring	→ Long-term safety → Low maintenance
6 Modular system	→ A wide range of connection and housing types → Quick adjustment to process changes
7 Customized sealing solutions	→ EPDM seals from -40 °C to +135 °C (up to +150 °C over short periods) → FPM seals from -10 °C to +200 °C (optional)

VARIABLE HOUSING TYPES / CONNECTIONS



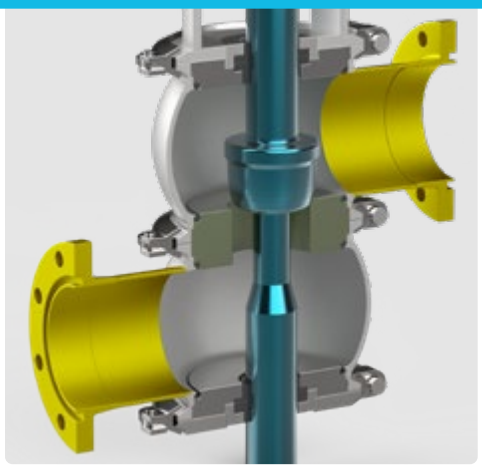
Angular valve with welding stubs (Type 391-P1-L) DIN 11850

This design is a cost-effective standard version of the BIOVENT® hygienic valve. It comprises a spherical housing with a pipe connection and a vertical valve inlet with an integrated valve seat. The flow direction is always from below against the closing direction of the plug.



Globe valve with knuckle thread (Type 391-P1-BO) DIN 11851

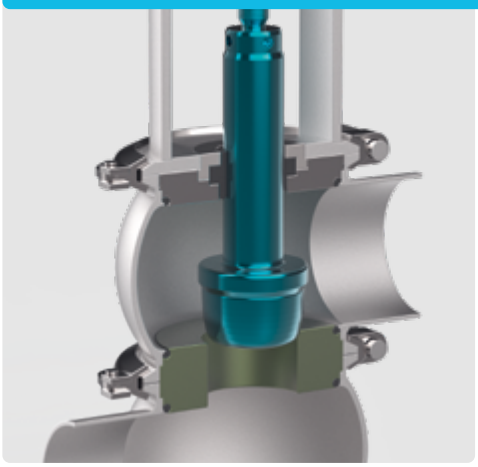
This design comprises two spherical housings, each with one connection. The valve seat is secured as a separate component between the two halves of the housing, and can therefore be quickly and easily replaced. The clamping ring connections allow the two pipe connections to be aligned as required. The knuckle threads are manufactured in accordance with DIN 11851.



Globe valve with flanged connection (Type 391-P1-BM) DIN 11853-2

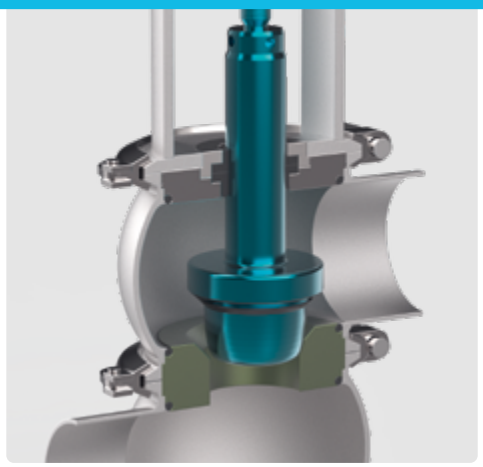
This design also comprises two spherical housings, each with one connection. The valve seat is clamped between the two halves of the housing as a separate component that can be easily replaced. With larger nominal diameters or Kvs values, a second, lower guide for the control plug is recommended to prevent vibrations.

VALVE TRIMS



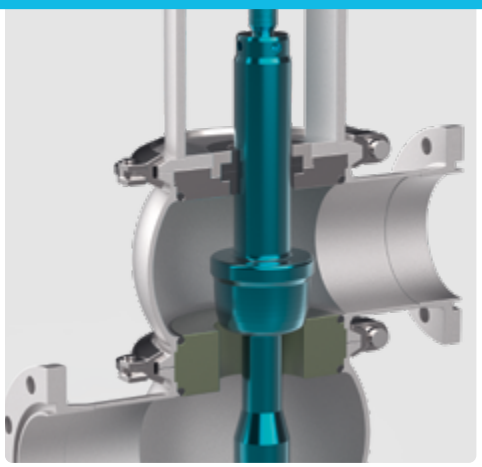
Standard parabolic plug with metal seal

The single-step parabolic plug is the ideal solution for laminar or turbulent flows. This version is suitable for handling high viscosity fluids or media containing fruit. The linear or equal percentage control plug is located in the spherical housing. The valve seat has a metal seal and a one-piece plug.



Parabolic plug with V-ring soft seal

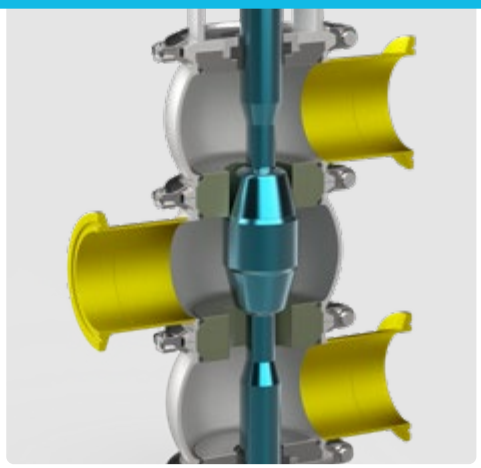
If the hygienic valve is also used as a shut-off device, maximum tightness can be ensured by means of an EPDM or FKM V-ring soft seal. The seating thrusts are absorbed by the metal support. The stress-relieved installation of the seal increases the service life. The secure fixing of the soft seal allows the system to be used in vacuums or in applications with high flow velocity.



Stem sealing with combination sealing element

A specially-developed combination sealing element with wiper ring seals the polished and roller burnished valve stem. The wiper ring protects the sealing element and bearing against the ingress of purge liquid and particles, thereby preventing media from settling or abrasive particles from being crushed or ground down between the stem and bearing.

HOUSING TYPES / CONNECTIONS



Three-way valve with Tri-Clamps as a flow mixer (Type 391-M-WM) DIN 32676

This valve design comprises three identical spherical housings, each with a pipe connection. Both valve seats are secured between the housing components. This valve can also be used as a flow mixer or as a flow divider, as shown above.

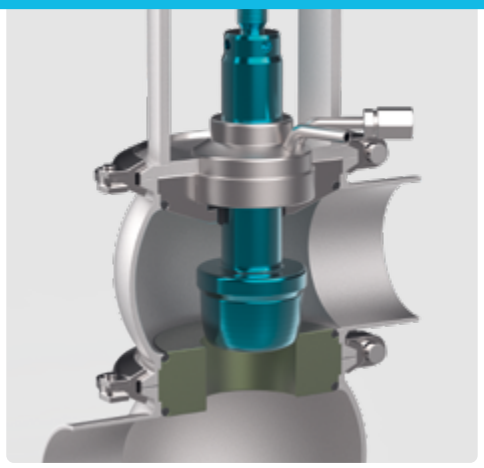
Three-way valve with different connections as a flow divider (Type 391-T-WT) DIN 32676

This three-way valve is dimensioned for both control plugs with the maximum Kvs value and a linear characteristic. Reduced Kvs values are also available as an option. This valve is ideal as a flow divider.

Multi-step valve with welded ends (Type 391-P3-B)

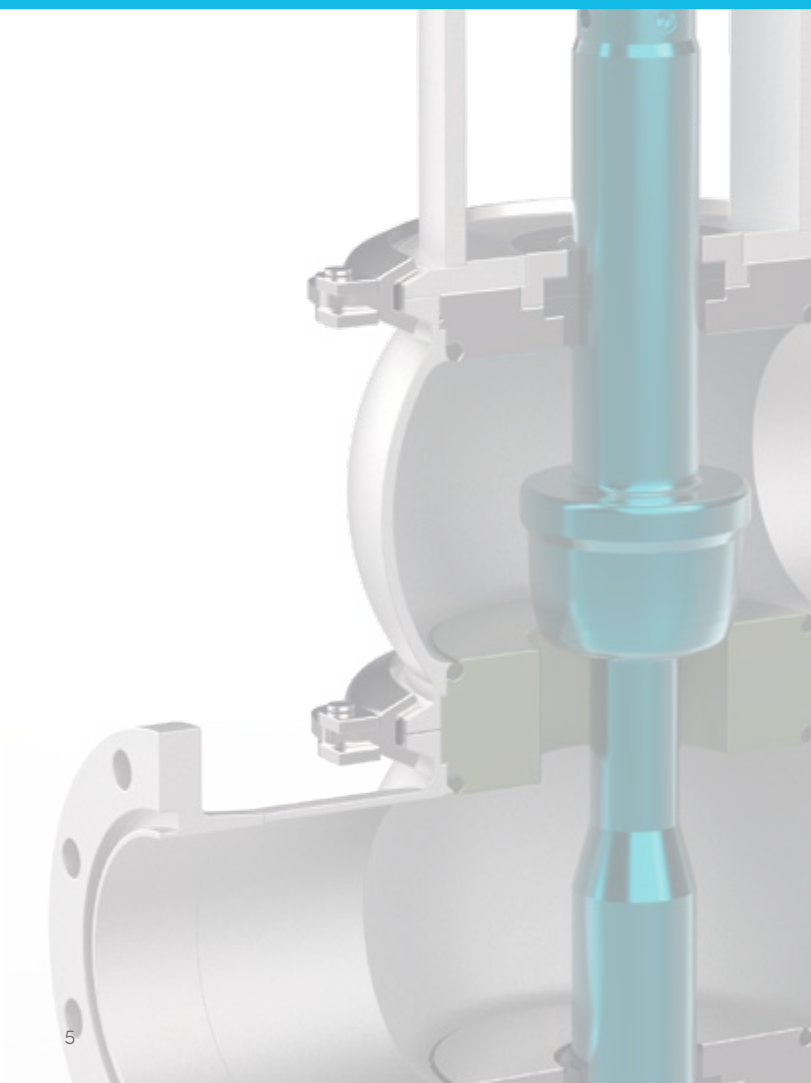
This multi-step valve combines two spherical housings (each with one connection) and a specially-shaped valve seat, which is secured between the two housing components by means of clamping rings. The control unit is ideal for pressure reduction of liquids at high differential pressure, thereby preventing the serious consequences of cavitation.

VALVE TRIMS



Stem sealing with sterile lock

The sterile lock, which can be applied with steam or other sterilizing media, protects the product space against the ambient air. The medium is applied to the sterile lock at the pressure end in such a way that it always remains on the «sterile» side.



BIOVENT® General specifications

Series	391		
DN	25 – 150 / OD 1" - 6", IPS 2" - 6"		
PN	10 – 16 (20)		
Housing types	**Angular**	**L**	**Parabolic plug**
	Straight way	BO	Parabolic plug
	Straight way	BM	Parabolic plug (double guided)
	3-step	B	3-step plug (P3)
	3-way	WM	Flow mixer
	3-way	WT	Flow divider
Housing material	Stainless steel 1.4404, all housing components blasted and post-treated		
	Threaded connection in 1.4404		
Housing connections	Threaded connections, welded ends, flanged connections, clamp connections, aseptic flanged connections		
	Other connections available on request		
Piping classes	Metric in accordance with DIN 11866, Series A		
	Imperial OD in accordance with ISO2037/BS 4825 Part 1		
	Imperial IPS in accordance with Schedule 5		
Surfaces	Surfaces that come in contact with product Ra ≤ 0.8 µm, outer surface matt blasted		
Plug characteristic	equal percentage or linear		
Rangeability	40:1		
Seat leakage	Metallic sealing: Leakage class IV (0.01% of kvs)		
	Soft-sealing: Leakage class VI		
Plug	1.4571 steel, superfinished, additionally roller burnished on the guide surfaces		
Seat	Stainless steel 1.4404		
Stem seal	EPDM sealing rings, temperature range -40 to +135 °C, FDA compliant		
	Resistant to 2- to 5% alkalis and acids up to +85 °C		
Seal materials	EPDM (FDA) -40 to 135°		
	FKM (FDA) -10 to 200°C, other materials available on request		
Options	Sterile lock		
Material certificates	Factory certificate EN 10204 / 2.2		

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 prophylactic service dates aren't hampered by everyday operation. The failure of important valves is prevented.

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