

# GEA VARIVENT<sup>®</sup> HYGIENIC SEAT VALVES





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**GEA VARIVENT®**  
Hygienic  
seat valves



**GEA**  
Hygienic  
butterfly valves



**GEA VARIVENT®**  
Hygienic special  
application valves



**GEA VARICOMP®**  
Hygienic expansion  
compensators



**GEA VARITOP®**  
Hygienic tank  
safety systems



**GEA VARINLINE®**  
Hygienic process  
connections



**GEA VARICOVER®**  
Hygienic product  
recovery systems



**GEA VARIVENT®**  
Hygienic valves  
for the U.S. dairy market

# Hygienic Valve Technology

## Efficiency delivering perfect results

Hygienic valves from GEA form the core component of matrix-piped process plants. Thanks to a pioneering valve concept that sets standards for its flexibility, as well as the latest control and automation functions, our valves offer manufacturers maximum product safety and process reliability.

All GEA hygienic valves are designed to be efficient and cost-effective for their particular applications, leading to sustainable operation and considerable savings potential.

## GEA valve technology controls flow processes

Our hygienic valve technology ensures safe, efficient processes wherever sensitive liquid products are manufactured. In food production, the classic application areas range from milk processing (milk, yogurt, cheese ...) to liquid foods (sauces and pastes, instant products, baby food ...) and on to the brewing of beer and production of beverages. Further significant areas are biotechnology and pharmaceuticals, as well as care products and cleaning agents/detergents.

Regardless of the sector, the application or production specifications: Our hygienic valve technology is sure to meet the demands of our users.

## Hygienic solutions for every task

Additional components in our portfolio are available to optimize the design of any process plant – from pigging systems for the recovery of valuable products, process connections, and expansion compensators for offsetting thermal stress, to tank safety systems for securing and cleaning tanks and containers.

Supported by our Research and Development Department we regularly launch new, technologically mature products on the markets. Our customers have high standards, which we continuously and systematically meet.



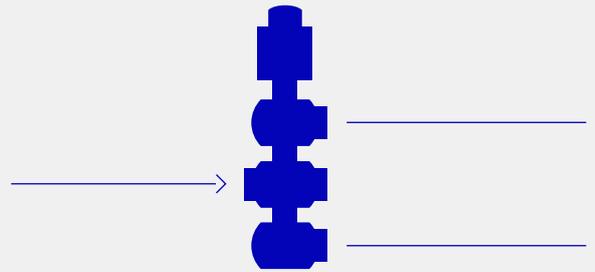
## Valves – Setting the Course of the Process



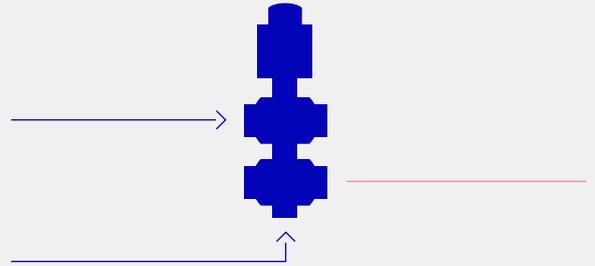
#### Divert valves

Divert valves direct a liquid medium into the right path.

Different types of application include the distribution of a liquid into two channels and the merging of channels in blending processes. Versions supplied by GEA are designed for different directional flows.



Divert valve to distribute products



Divert valve to merge products



#### Shut-off valves

Single-seat valves are used for simple shut-off in hygienic applications.

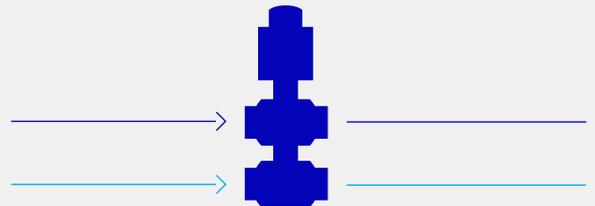
The valves impress with their ease of operation and flexibility. In order to avoid pressure shocks, separate versions are designed in the GEA VARIVENT® module for different directional flows.



#### Mixproof valves

Double-seat mixproof valves provide the shut-off of incompatible media at pipe intersections.

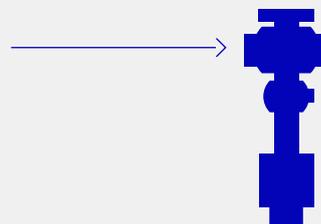
Developed by Otto Tuchenhagen, the founder of GEA's hygienic valve technology range, mixproof valves to this day deliver crucial benefits for safe and secure applications, e.g. in the case of cleaning agents in pipes carrying products. Divert valves are also available as mixproof valves and support the safe construction of an efficient valve matrix.



#### Tank bottom valves

Tank bottom valves serve to hygienically shut off pipes on tanks or containers.

The various housing connections can be welded directly into the bottom of the tank or mounted flush with the tank bottom wall.



# Hygienic Classes for Valves

Increasing variety of products, longer production cycles and changing market conditions are all factors that make the conception of new installations more complex for producers. Additionally, there are higher expectations from the consumers as well as stricter regulations for producers and products. Therefore, engineers have many things to consider when creating suitable solutions for their customers. Our goal is to equip your installation with components that fit your product and your market. To better assist you, we have set up a guideline for choosing the right hygienic component technology according to the Association of German Food Processing Machinery and Packaging Machinery (VDMA).

The hygienic classes can be described by microbiological, physicochemical as well as the resulting organoleptic properties of the product. An important indicator for the classification is its desired shelf-life. The classification is based on the desired characteristics of the final product. Contamination risks and the ability to detect them are important factors for corresponding component designs.



## Soft drink (still)\*

MSL: several months  
pH-value: > 4.5



## Ice tea (still)\*

MSL: > 12 months  
pH-value: > 4.5



## Babyfood / Nutrition\*

MSL: several months  
pH-value: > 4.5



## UHT milk / UHT cream\*

MSL: > 3 months  
pH-value: > 4.5



## Fruite juice\*

MSL: several months  
pH-value: ≤ 4.5



## Ice tea (still)\*

MSL: > 6 months  
pH-value: ≤ 4.5



## Fruit yogurt, heat-treated\*\*

MSL: > 5 weeks  
pH-value: ≤ 4.5



## ESL milk\*\*

MSL: 21–45 days  
pH-value: > 4.5



## Wine\*

MSL: > 1 year  
pH-value: ≤ 4.5



## Beer\*

MSL: > 6 months  
pH-value: ≤ 4.5



## Fruit yogurt / Natural yogurt\*\*

MSL: 2–4 weeks  
pH-value: ≤ 4.5



## Fresh milk\*\*

MSL: 7–10 days  
pH-value: > 4.5



**Storage**



**Preparation**

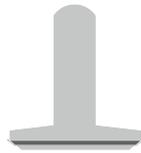


**Preservation**

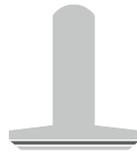


**Bottling**

**Aseptic (V)**



**Seat valves**



**Seat valves**

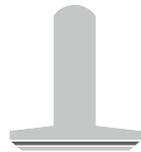


**Stainless steel bellow**

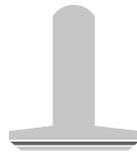


**Stainless steel bellow**

**UltraClean (IV)**



**Seat valves**



**Seat valves**



**Diaphragm and stem diaphragm**



**Diaphragm and stem diaphragm**

**Hygienic (I-III)**



**Butterfly valves**



**Seat valves**



**Seat valves**



**Seat valves**

\* unchilled  
 \*\* Chilled  
 MSL: Minimum Shelf Life

# THE BENCHMARK.

## GEA VARIVENT® Valve Unit



## GEA VARIVENT® Valves

### The standard for hygienic valve technology

Wherever future-proof product and process security is essential in liquid processes, the modular GEA VARIVENT® valve system is first choice for systems operators and engineers. Uncompromisingly hygienic valve technology, adaptable to any requirement, permits sustainably economic system and process solutions for a wide variety of the most demanding production tasks.

### Safely to safe products

As a pioneering standard for premium quality valve technology, the GEA VARIVENT® modular system offers an unrivalled range of ever-reliable, pocket-free valves – from classic single-seat and mixproof double-seat valves to valves with special process functions. A nearly limitless choice and variety of customization, combination and materials options meet all hygiene, performance and stress requirements of individual customers. Systematically standardized modules with low parts diversity help cut the operating costs for maintenance and spare parts logistics.

### Perfectly in tune: The GEA VARIVENT® valve unit

Pioneering mechanical valve technology and equally advanced options for electronic valve control and system communication combine to form a finely tuned valve unit, increasing valve functionality and safety as well as its cost-efficiency in operation.

### Made in Germany – renowned worldwide

The invention of the mixproof valve by Otto Tuchen in Büchen in 1967 set in motion the triumphant march of the modular VARIVENT® valve series shortly thereafter. To this day, GEA develops and manufactures every GEA VARIVENT® valve unit at the original Büchen location. The experience of GEA's engineers along with the huge installed base of valve units around the world offer the best guarantee of safety and total reliability. Users benefit continuously from international project developments and ground-breaking innovations which are incorporated into the valve design.

Every GEA VARIVENT® valve unit keeps the promise of “The Benchmark” – the bar for hygienic valve technology.

# The Sustainable Choice

## **16 % savings potential on compressor energy costs and reduction of carbon footprint with 4 bar valve actuators**

GEA VARIVENT® hygienic process valves are actuated by compressed air in automated systems, connected to the air supply stations via the digital valve control top. In a pioneering effort, GEA has introduced specially designed 4-bar actuators for all relevant valve types and process applications. This allows operators to reduce the compressed air system pressure, resulting in significant energy savings throughout the plant.

## **Pioneered by GEA to enable pressure-reduced control air systems**

Compressed air is essential for operating automated valve systems and other process equipment. But it comes at a significant cost – typically 10 % – 15 % of the total energy consumption in food and beverage plants. Due to the increasing need to save energy, experts now recommend reducing the air system pressure, estimating an 8 % savings in compressor energy for every 1-bar reduction. Historically, 6 bar has been the standard system pressure in many industries, and available valve actuators are mostly still designed for 6 bar, inhibiting plants from implementing lower pressures.

GEA is leading the way to a more sustainable setup, with 4-bar actuators made available for all GEA VARIVENT® seat valves (single-seat and mixproof) and GEA Hygienic butterfly valves. These 4-bar actuators maintain full reliability of functionality and operation. They can be ordered for retrofit or new valve installations.



# GEA VARIVENT® Modular System

The VARIVENT® system is the first – and, to date, the only – valve module to feature a flexible design. Its modular concept offers numerous advantages, such as the standardized forms and connections across all valve types, thereby ensuring that all components can be removed, replaced, combined and expanded without any issues. The result? Cost-efficient system operation, optimized warehousing, economical spare parts and low parts diversity.

Existing valve systems in process plants can be modified or adjusted without the need to alter the overall system concept. The VARIVENT® system remains the benchmark others seek to emulate.

## GEA VARIVENT® single seat valve



### 1 Control and feedback system

Each control top enables intelligent valve control for easy commissioning and increased safety in the process sequence. Detectable valve positions make a decisive contribution to optimal system operation. All common connection types and control systems are available for technical communication in the plant.

### 2 Actuator

A process-specific selection of the actuator size according to the installation situation results in low air and energy consumption. Depending on the tasks of the valve, various actuator options are available and can be adapted optimally to customer requirements. All actuators can be used in Ex zones as standard, although the Ex-conformity of the electrical add-on components must be taken into account. Furthermore, the actuator contains an integrated interface for mounting a control and feedback system. The internal air supply reduces the risk of failure with external hoses.

①



②



④



⑤



⑥



## GEA VARIVENT® mixproof valve



### 3 Lifting actuator

Mixproof valves are optionally equipped with a lifting actuator, which enables individual lifting of a single valve disc when cleaning the respective pipe. This allows cleaning of the sealing surfaces in the seat area.

### 4 Lantern

The open lantern separates the actuator and product parts. It permits visual inspection of the stem seal, and is also used for indicating any leakages. Furthermore, heat transfer from the valve housing to the actuator is prevented. The VARIVENT® valve series enables the integration of additional valve options in the lantern, for example a limit stop or support of up to two proximity switches.

### 5 Valve disc

The VARIVENT® system offers an extensive number of different valve types for particular applications in process systems. These are mainly characterized by the different configurations of the valve disc. Mix-proof separation of the media is achieved by two mutually independent valve discs, the double disc (upper disc) and the valve disc (lower disc).

### 6 Valve housing

The height of the dead-zone-free housing exactly corresponds to the inside diameter of the connection pipeline. This avoids domes and sumps with their negative effects such as oxidization damage or cleaning problems. The special ball shape of the housing offers the best flow profiles without flow separation. Depending on the valve design, different seat rings are installed between the valve housings. Optionally, numerous housing combinations are available with either clamped or welded seats.

1



2



3



4



5



6



# Hygienic Valves

## Technical Characteristics

VARIVENT® and ECOVENT® hygienic valves offer reliable function, are suitable for CIP / SIP, easy to maintain and represent a significant factor in consistent product quality. Low operating, maintenance and servicing costs ensure economical system productivity.

The VARIVENT® system has a modular structure, which means it offers a high level of flexibility. The result is economic efficiency for the system operator, optimized stock keeping and low-cost spare parts production due to the reduced diversity of parts.

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### Modular system

Greater flexibility because of the ability to adapt rapidly to process changes  
 High economic efficiency  
 Low spare part stocks

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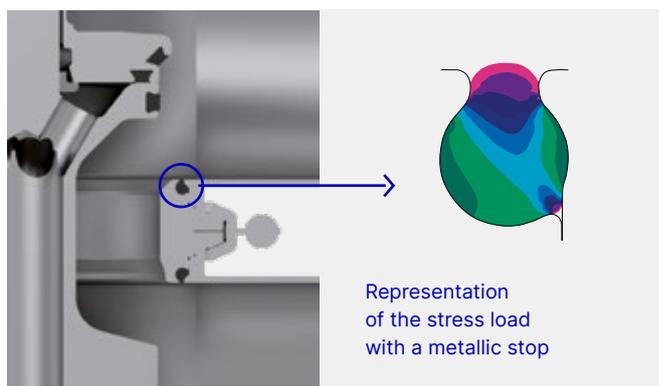
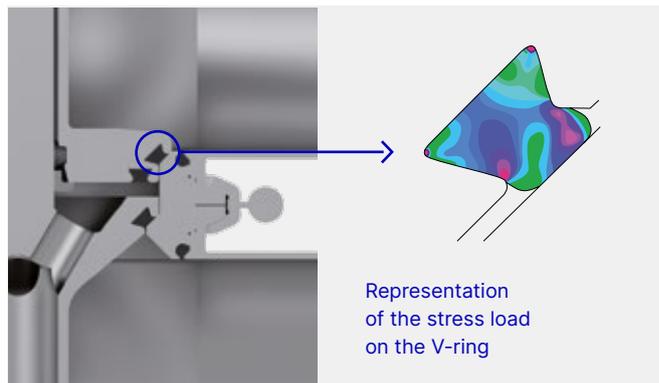
### Hygienic design

Lower risk of contaminating the end product  
 Maximum efficiency in cleaning  
 Lower CIP costs

---

### Sealing according to the VARIVENT® principle

The hygienic valves are characterized by special seal technology. A metallic stop results in defined seal deformation, ensuring long seal life. This allows for more time to pass between required maintenance services with the process system, thereby allowing for continuous production and shorter downtimes. The special groove shape in the valve disc makes sure the seal has a secure hold at all times up to a pressure differential of 10 bar during switching. The seal geometry was optimized using FEM calculations.




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### Seals

Long operating time

Vacuum-proof

Selection of FDA-compliant seal materials

- EPDM
  - FKM
  - FFKM
  - HNBR
  - TEFASEP® gold
-

## Available nominal widths for valve series

Nominal width	DN	10	15	25	40	50	65	80	100	125	150						
	OD				1"	1 ½"	2"	2 ½"	3"	4"	6"						
	IPS											2"	3"	4"	6"		
<b>Valve type</b>																	
<b>VARIVENT®</b>																	
Shut-off valve type N				•	•	•	•	•	•	•	•	•	•	•	•		
Long-stroke shut-off valve type N_V							•	•	•								
Shut-off valve type U				•	•	•	•	•	•	•	•	•	•	•	•		
Long-stroke shut-off valve type U_V							•	•	•								
Divert valve type W				•	•	•	•	•	•	•	•	•	•	•	•		
Divert valve radial sealing type W_R				•	•	•	•	•	•								
Long-stroke divert valve type W_V							•	•	•								
Divert valve type X				•	•	•	•	•	•	•	•	•	•	•	•		
Long-stroke divert valve type X_V*							•	•	•								
Double-seat valve type D				•	•	•	•	•	•	•	•	•	•	•	•		
Double-seat valve type B							•	•	•	•	•	•	•	•	•		
Double-seat valve type R				•	•	•	•	•	•	•	•	•	•	•	•		
Double-seat long-stroke valve type D_/V*							•	•	•								
Double-seat valve type L_H					•	•	•	•	•								
Double-seat valve type L_S					•	•	•	•	•								
Double-seat valve type C				•	•	•	•	•	•	•	•						
Double-seat valve type K				•	•	•	•	•	•	•	•	•	•	•	•		
Double-seat valve type D_L, D_C				•	•	•	•	•	•	•	•	•	•	•	•		
Double-seat valve type B_L, B_C							•	•	•	•	•	•	•	•	•		
Double-seat valve type R_L, R_C											•	•	•	•	•		
Double-seat valve type MX				•	•	•	•	•	•	•	•						
Double-seat long-stroke valve type D_L/V, D_L/C*							•	•	•								
Double-seat valve type L_HL, L_HC					•	•	•	•	•								
Double-seat valve type L_SL, L_SC					•	•	•	•	•								
Double-seat divert valve type Y				•	•	•	•	•	•	•	•	•	•	•	•		
Double-seat divert valve type Y_L, Y_C				•	•	•	•	•	•	•	•	•	•	•	•		
Bottom valve type N				•	•	•	•	•	•	•	•	•	•	•	•		
Long-stroke bottom valve type N_V							•	•	•								
Bottom valve type U				•	•	•	•	•	•	•	•	•	•	•	•		
Long-stroke bottom valve type U_V							•	•	•								
Double-seat bottom valve type T_R					•	•	•	•	•	•	•	•	•	•	•		
Double-seat bottom valve type T_RL, T_RC				•	•	•	•	•	•	•	•	•	•	•	•		
<b>ECOVENT®</b>																	
Shut-off valve type N				•	•	•	•	•	•								
Shut-off valve type N		•	•														
Divert valve type W				•	•	•	•	•	•								
Divert valve type W		•	•														
Bottom valve type N				•	•	•	•	•	•								

\* Only nominal width OD

# Hygienic Valves

## Technical Characteristics

### Pipe classes

Standard VARIVENT® valve housings are supplied with welding ends, although the valves can be delivered with various connection fittings as an option (see section 7).

The dimensions of the welding ends comply with the following standards:

Metric		Inch		
DIN	Outside diameter according to DIN 11866, series A	OD IPS	Outside diameter based on ASME-BPE-a-2004, DIN 11866, series C	Outside diameter according to IPS schedule 5
10	13.0 × 1.50			
15	19.0 × 1.50			
25	29.0 × 1.50	1"	25.4 × 1.65	
40	41.0 × 1.50	1 ½"	38.1 × 1.65	
50	53.0 × 1.50	2"	50.8 × 1.65	60.3 × 2.00
65	70.0 × 2.00	2 ½"	63.5 × 1.65	
80	85.0 × 2.00	3"	76.2 × 1.65	88.9 × 2.30
100	104.0 × 2.00	4"	101.6 × 2.11	114.3 × 2.30
125	129.0 × 2.00			
150	154.0 × 2.00	6"	152.4 × 2.77	168.3 × 2.77

### Surfaces

The standard for surfaces in contact with the product is:

- Metric, inch OD, inch IPS:  $R_a \leq 0.8 \mu\text{m}$

Higher-quality surfaces are an available option (see section 7).

Surfaces not in contact with the product (housing) are matte blasted as standard. Alternatively, a ground outer surface is available.

### Materials

Components in contact with the product are produced from 1.4404 (AISI 316L), while those not in contact with the product are made from 1.4301 (AISI 304). Other materials, e.g. for use when handling aggressive fluids, are available on request.

For detailed information about the properties of the materials, refer to the material properties table.

### Test report and inspection certificate

Optionally, the valve housings and internal components can be supplied with a test report 2.2 or an inspection certificate 3.1 acc. to EN 10204.

If 3.1 inspection certificates are required, please notify us of this when you place the order.

### Seal materials

Seals in contact with the product are EPDM (standard), FKM as well as HNBR, FFKM and TEFASEP® gold (on request; not available for all valve types). NBR material is used for seals not in contact with the product. Other materials for seals in contact with the product are available on request. EPDM will be supplied if no seal material is specified in the orders.

The mixing constituents of our seal materials confirm to the USP class VI and are contained in the FDA White List. In this the sealings are in accordance with FOOD and DRUG (FDA) guidelines 21 CFR Part 177.2600 or 21 CFR 177.1550: "Rubber articles intended for repeated use".

The resistance of the seal material depends on the nature and temperature of the product being transported. The contact time with certain products can negatively affect the service life of seals.

For detailed information about the properties of the seal materials, refer to the seal material properties table.

## Material properties

Material number	Short name	Similar materials	PREN***	Main alloy elements in % by mass				
				Cr (Chrome)	Ni (Nickel)	Mo (Molybdenum)	C max. (Carbon)	
1.4301*	X5CrNi18-10	AISI 304 BS 304S15	SS2332	18	17.5–19.5	8.0–10.5	–	0.07
1.4404**	X2 CrNiMo 17-12-2	AISI 316L BS 316S11	SS2348	25	16.5–18.5	10.0–13.0	2.0–2.5	0.03
1.4435	X2 CrNiMo 18-14-3	AISI 316L BS 316S11	SS2353	27	17.0–19.0	12.5–15.0	2.5–3.0	0.03
1.4462	X2 CrNiMoN 22-5-3	2205 BS 318S13	SS2377	37	21.0–23.0	4.5–6.5	2.5–3.5	0.03
1.4410	X2 CrNiMoN 25-7-4	SAF 2507 <sup>®</sup>	–	39	24.0–26.0	6.0–8.0	3.0–4.5	0.03
1.4529	X1 NiCrMoCuN 25-20-7	AISI 926	–	42	19.0–21.0	24.0–26.0	6.0–7.0	0.02
AL-6XN <sup>®</sup>	–	–	–	43	20.0–22.0	23.5–25.5	6.0–7.0	0.03
1.4539	X1 NiCrMoCu 25-20-5	AISI 904L BS 904S13	SS2562	35	19.0–21.0	24.0–26.0	4.0–5.0	0.02
2.4602	NiCr21Mo14W HASTELLOY C-22	–	–	69	20.0–22.5	Rest	12.5–14.5	0.01
2.4819	NiMo16Cr15W HASTELLOY C-276	N 10276	–	75	14.5–16.5	Rest	15.0–17.0	0.01

\* Standard material for components not in contact with the product

\*\* Standard material for components in contact with the product (other materials available on request)

\*\*\* Pitting Resistance Equivalent Number = %Cr + 3.3 × (%Mo + 0.5 W) + 20N

## Seal material properties

Seal material			EPDM	FKM	HNBR	FFKM	Tefasep <sup>®</sup> Gold
General application temperature*			–40 to 135 °C –40 to 275 °F	–10 to 200 °C 14 to 392 °F	–25 to 140 °C –13 to 284 °F	–10 to 230 °C 14 to 446 °F	–80 to 200 °C –112 to 392 °F
Medium	Concentration	At permitted operating temperature					
Alkali	≤ 3 %	up to 80 °C	+	○	+	+	+
	≤ 5 %	up to 40 °C	+	○	○	+	+
	≤ 5 %	up to 80 °C	+	–	–	+	+
	> 5 %		○	–	–	+	+
Inorganic acid**	≤ 3 %	up to 80 °C	+	+	+	+	+
	≤ 5 %	up to 80 °C	○	+	○	+	+
	> 5 %	up to 100 °C	–	+	–	+	+
Water		up to 100 °C	+	+	+	+	+
Steam		up to 135 °C	+	○	○	–	+
Steam, approx. 30 min		up to 150 °C up to 160 °C	+	○	–	–	+
Hydrocarbons/fuels			–	+	○	+	+
Products containing grease	≤ 35 %		+	+	+	+	+
	> 35 %		–	+	+	+	+
Oils			–	+	+	+	+

Other applications on request

\* The general resistance of the material does not correspond to the maximum possible operating temperature.

\*\* Inorganic acids are, for example, hydrochloric acid, nitric acid, sulphuric acid

+ = Good resistance

○ = Reduced service life

– = Not resistant

# Hygienic Valves

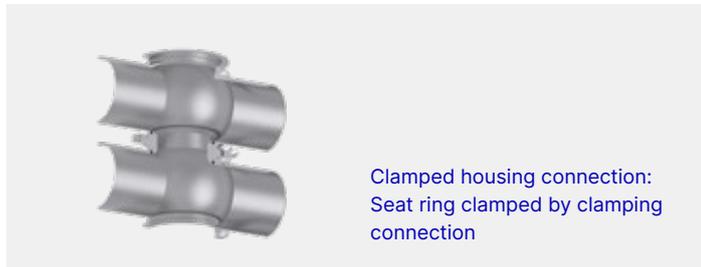
## Technical Characteristics

### Housing connections

Two alternative housing connections are available: the clamped connection (standard) and the fixed housing connection. The clamped housing selection permits a flexible choice of port orientation.

The advantage of the welded housing connection is that no seals at the seat ring are needed. As a result, the service work during maintenance of the valves is reduced.

Also mix-matched housing combinations (see section 7) are available on request – both with clamped and fixed housing connection, depending on the valve type.



### Installation

VARIVENT® and ECOVENT® valves must be installed without stresses. Lateral forces such as expansion of the pipelines due to heat cannot be compensated in the valve, as a result valve damages are possible. In such cases, we recommend taking measures to compensate for the expansion, such as by using the VARICOMP® expansion compensator.

The required clearance for installing and removing a VARIVENT® or ECOVENT® valve is specified in the particular technical data and dimensional sheet.

### Recommended flow direction

If possible, the valves should close against the flow direction in order to avoid water hammer.

### Ambient conditions

#### Ambient temperatures

VARIVENT®/ECOVENT® (with connection 0)	0 °C to 45 °C 32 °F to 113 °F
---	----------------------------------

The valves can also be used outdoors. However, in these application areas they must be protected against icing, or else de-iced before switching or lifting. In addition, the particular requirements on the control and feedback system must be taken into account in this case.

The product or operating temperature depends on the seal material and can be seen in the seal material properties table.

### Air supply

The valve actuators are configured for operation with min. 4 bar and max. 8 bar air pressure. The standard actuator sizes are configured for an air supply pressure of min. 6 bar (with a product pressure of 5 bar). The quality of the air supply must meet the requirements of ISO 8573-1:2010.

#### ISO 8573-1:2010

Solid content	Quality class 6
	Particle size max. 5 µm
	Particle density max. 5 mg/m <sup>3</sup>
Water content	Quality class 4
	Max. dew point 3 °C
Oil content	A correspondingly different dew point is required for applications at high altitude or with low ambient temperatures.
	Quality class 3
	Max. 1 mg oil per 1 m <sup>3</sup> air, preferably oil-free

### Operating pressure

The valves can be operated down to a negative pressure of –0.95 bar. As standard, the valves are configured for a product pressure up to max. 5 bar (all-round). The maximum product pressure for which the standard valves can be configured is 10 bar. Upon request, individual valve types can be supplied with the nominal pressure level of PS20. It should be noted in this case, however, that when switching the valve, the pressure differential between the upper and lower housing is only allowed to be 10 bar.

### Actuator types

The modular structure of VARIVENT® valves makes it possible to equip them with different actuator types. As standard, the valves are supplied with a pneumatic actuator with spring return.

The pneumatic actuators are configured for long-term operation, and are maintenance-free. Optionally, additional actuator types are available (see section 7).

### Feedback

#### In the control top

See catalog GEA Valve Automation

#### In the lantern (LAT)

Proximity switches of size M12×1 can detect the positions “open” and/or “closed”. In double-seat valves with lift actuator, it is also possible to detect the upper valve disc stroke in the lantern by means of a proximity switch (see catalog GEA Valve Automation).

For detecting the end positions by proximity switches in these valves, it is recommended to use the proximity switch holder (INA) on the actuator (see catalog GEA Valve Automation).

### Certificates

Hygienic valves in the GEA VARIVENT® family, including ECOVENT® variants, meet the requirements of the European Hygienic Engineering and Design Group (EHEDG) as well as those of 3-A Sanitary Standards, Inc. (3-A SSI).

Numerous valves have been demonstrated to offer trouble-free and efficient cleaning ability not only in accordance with the above guidelines, but also in independent and standardized cleaning tests.

ATEX certificates, CRN, EAC and other additional certificates are available on request for many GEA VARIVENT® valves and for other hygienic valves and components in the GEA portfolio.

GEA VARIVENT® and ECOVENT® valves comply with the EC Machinery Directive 2006/42/EC and bear the CE mark. They also fulfill the EN ISO 12100:2010 standard for the safety of machinery.

Due to their refined design, VARIVENT® valves also meet the essential health and safety requirements of the EC Pressure Equipment Directive 2014/68/EU.

GEA VARIVENT® and ECOVENT® valves can come into contact with food. They comply with Regulation (EC) No. 1935/2004 of the European Parliament and Council.

# Selection Matrix

Catalogs  
Hygienic Valve Technology

**GEA VARIVENT®**  
seat valves

Catalogs  
Hygienic Pump Technology

GEA butterfly valves

Catalogs  
Aseptic Valve Technology

GEA VARIVENT®  
special application valves

Catalogs  
Cleaning Technology

GEA VARIVENT®  
valves for the U.S. dairy market

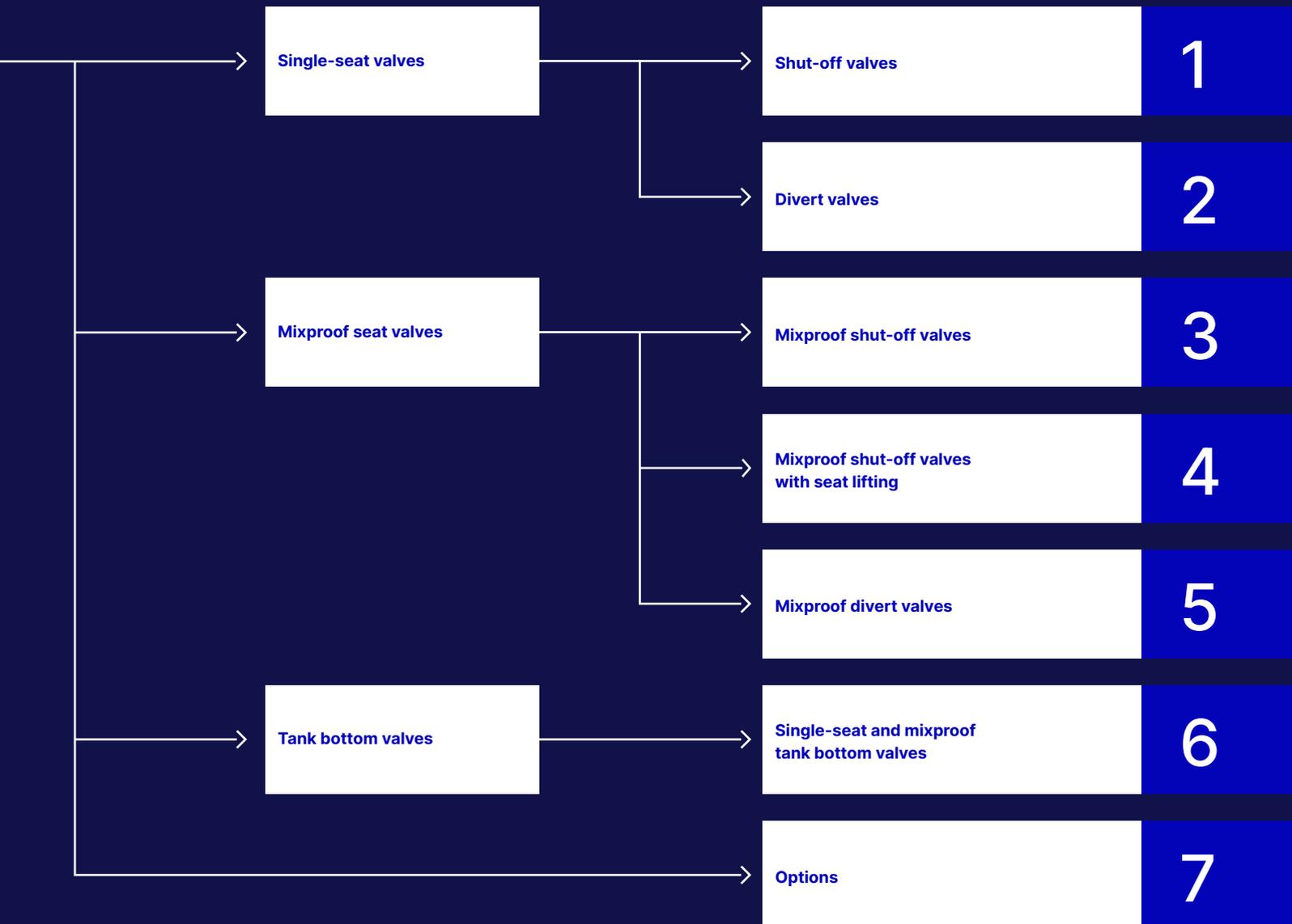
GEA VARITOP®  
tank safety systems

GEA VARINLINE® / GEA VARICOMP®  
process connections and  
expansion compensators

GEA VARICOVER®  
product recovery systems

GEA Service  
for hygienic valve technology

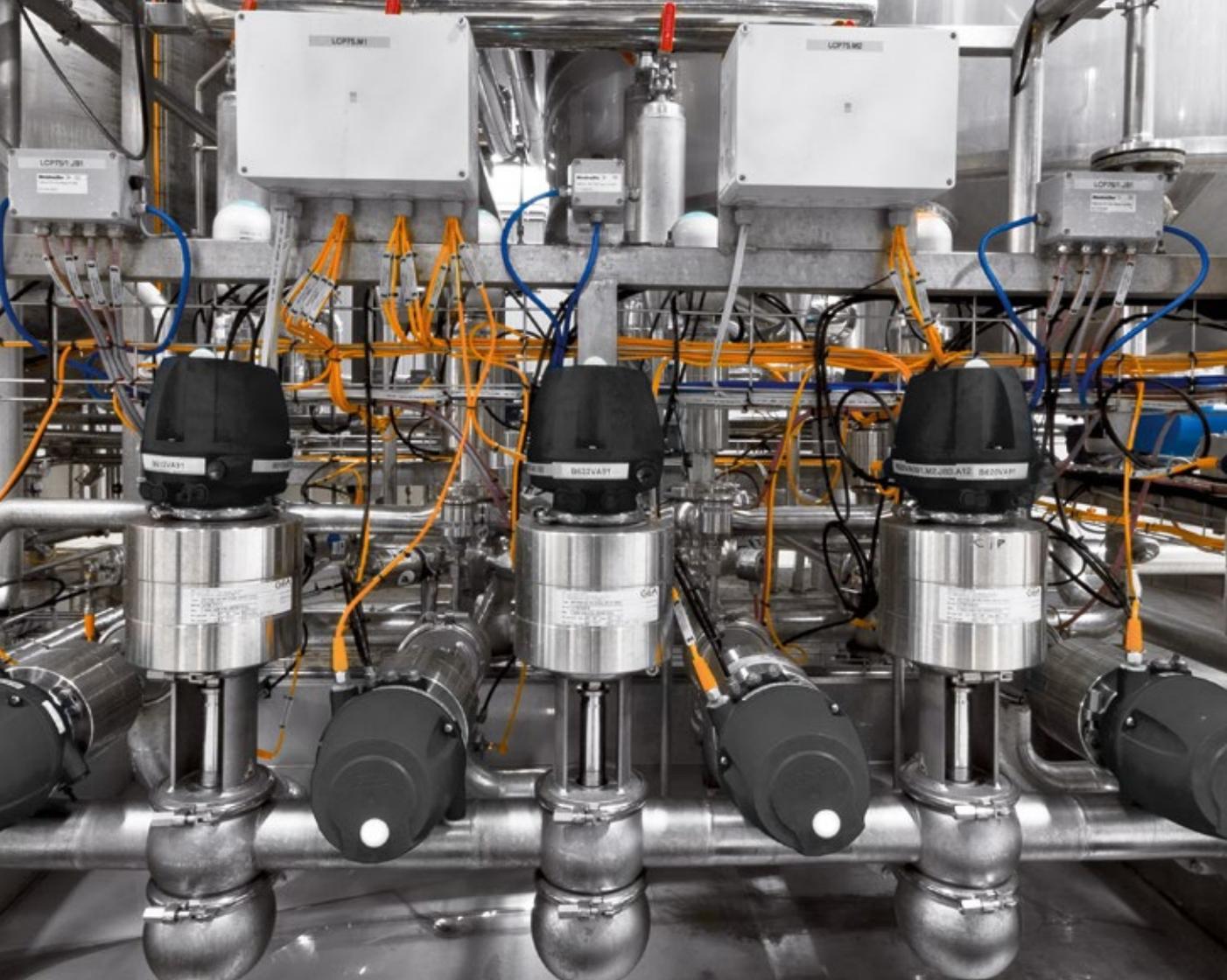
GEA valve automation  
control and feedback systems



# 1

## SHUT-OFF VALVES

VARIVENT® Hygienic Seat Valves



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# Overview of Single-seat Valves

## Single-seat shut-off valves

VARIVENT® and ECOVENT® single-seat valves are used for simple shut-off in hygienic applications. The valves are characterized by their ease of operation and flexibility. To avoid water hammers, individual variants in the VARIVENT® modular system are configured for different flow directions.

### Special features

Certified, hygienic configuration

Metallic stop

Flexibility because of the modular principle

Proven seal geometry

Availability of two valve series





# Overview of Single-seat Valves

## Function of the valve

In the simple shut-off, there is only one seal in the one-piece valve disc separating the pipelines from one another. This means liquid can pass from one pipeline to the other in the eventuality of a seal defect. For this reason, single-seat shut-off valves are not suitable for separating incompatible products.



Simple shut-off  
with only one seal

## Application examples

In practical use, these valves are used, for example, as emptying/drainage valves or for shutting off a bypass line. Frequently, these types of valve are also used as dosing valves.

The ECOVENT® small valve type N/ECO in nominal widths DN 10 or DN 15 is predominantly used as a feed valve for supplying the spray cleaning of double-seat valves.

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**VARIVENT®**

The structure of the VARIVENT® modular system has many optional versions available to best optimize the valve in the process. Please refer to the options section (section 7) for information about these.

VARIVENT® long-stroke valves are used for transporting fluids with relatively large particles or for viscous products, such as yoghurt with pieces of fruit.

**Sizes**

Single-seat shut-off valves	Long-stroke shut-off valves
DN 25–DN 150	DN 65–DN 100
OD 1"–OD 6"	OD 2 ½"–OD 4"
IPS 2"–IPS 6"	

**ECOVENT®**

The ECOVENT® valve series is characterized by its compact design. Contrary to the VARIVENT® systems with multiple options, this series provides a simple and economical solution for standard requirements.

**Sizes**

Single-seat shut-off valves
DN 10–DN 100
OD 1"–OD 4"

# Overview of Single-seat Valves

## Housing combinations

VARIVENT® and ECOVENT® single-seat shut-off valves are available with an extremely wide range of housing combinations. In addition, it is possible to select between a clamped and a welded housing connection.

## Valve seat version

The clamped housing connection is characterized by a high level of flexibility when it comes to installing the valve. The port orientation of the single-seat shut-off valve can thus be adapted to the pipeline system in question.

On the other hand, the advantage of the welded valve seat version lies in its low maintenance requirements, because there are no O-rings between the housings.



In VARIVENT® and ECOVENT® valve types N, both clamped vertical ports (L0) and a one-piece housing (V0) are available for the housing combinations L and T.



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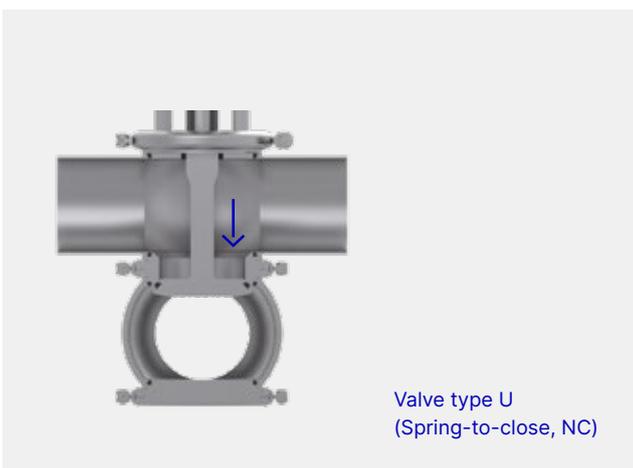
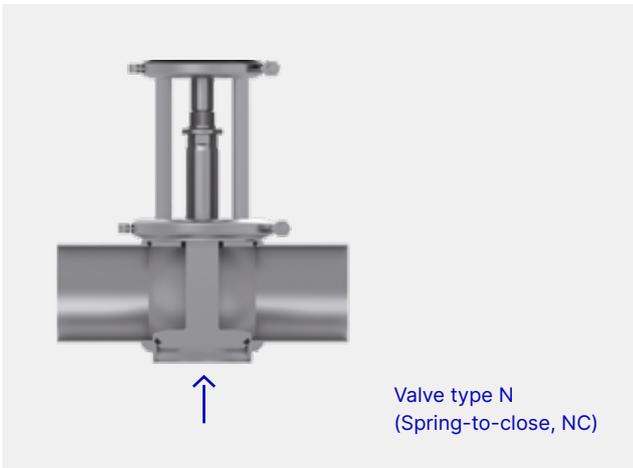
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### Recommended flow direction

To avoid water hammers when closing the valve while the product is flowing, single-seat shut-off valves should be switched against the flow direction of the product. Valve type N is designed for a flow from the lower to the upper pipeline, whereas valve type U is for the opposite flow direction. Valve type U is only available in the VARIVENT® series, thus making clear one of the major differences between VARIVENT® and ECOVENT®: the difference in the number of variants available in both series.

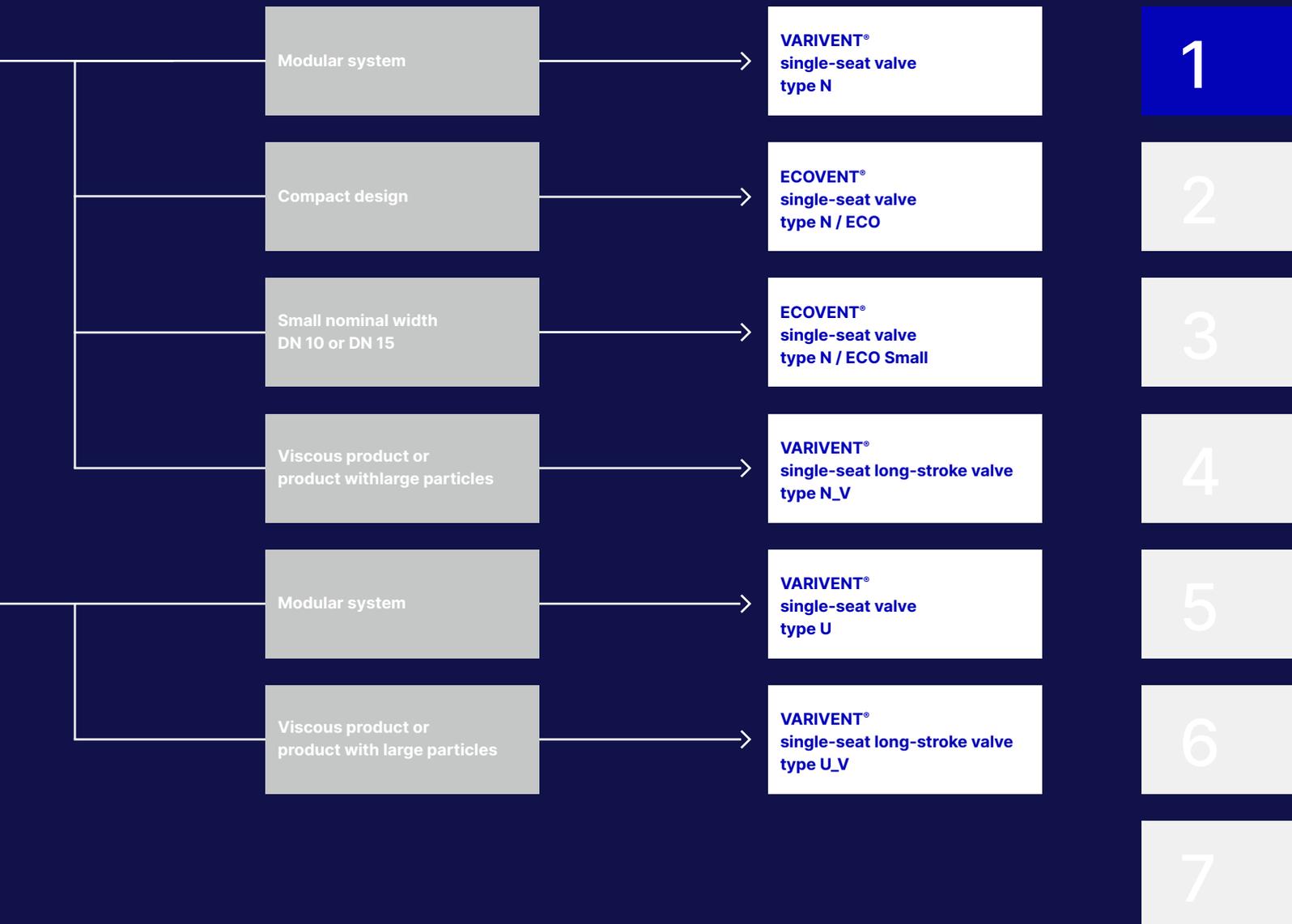


# Selection Matrix

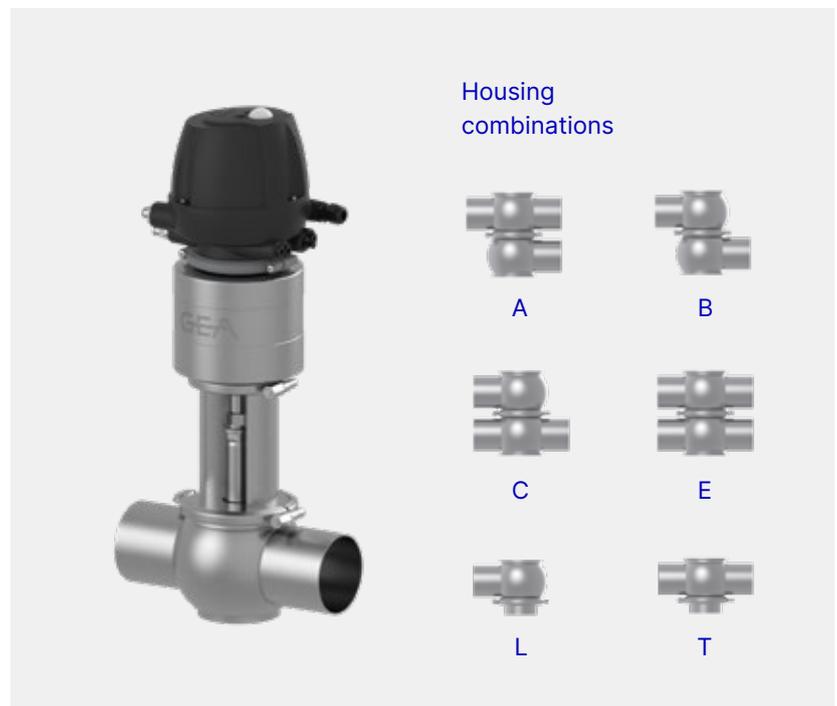
Shut-off valves

Recommended  
flow direction Against  
the closing direction

Recommended  
flow direction from  
top to bottom



## VARIVENT® Type N Single-seat Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped or welded seat ring	
Marking / Certificates		

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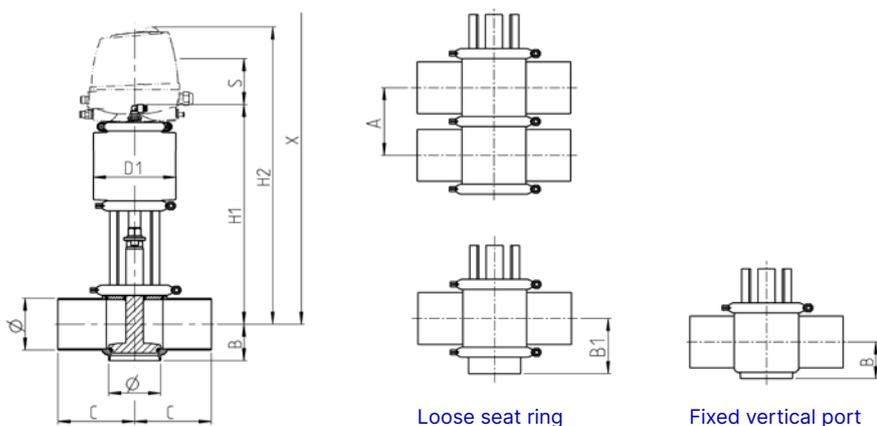
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	Pipe		Housing			Actuator	Dimensions				Valve
Nominal width	Ø [mm]	A [mm]	B [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	50.0	31	58	90.0	99	294	423	508	16	6
DN 40	41.0 × 1.50	62.0	39	64	90.0	110	335	464	549	18	8
DN 50	53.0 × 1.50	74.0	41	70	90.0	110	341	470	555	30	8
DN 65	70.0 × 2.00	96.0	52	83	125.0	135	352	481	626	30	13
DN 80	85.0 × 2.00	111.0	60	90	125.0	135	360	489	634	30	13
DN 100	104.0 × 2.00	130.0	70	100	125.0	170	399	528	673	30	19
DN 125	129.0 × 2.00	155.0	113	112	150.0	260	555	684	884	60	46
DN 150	154.0 × 2.00	180.0	125	125	150.0	260	579	708	908	60	51
OD 1"	25.4 × 1.65	46.0	29	56	90.0	99	292	421	506	12	6
OD 1 ½"	38.1 × 1.65	59.0	39	62	90.0	110	337	466	551	18	8
OD 2"	50.8 × 1.65	71.5	42	68	90.0	110	343	472	557	30	8
OD 2 ½"	63.5 × 1.65	90.0	54	80	125.0	135	356	485	630	31	13
OD 3"	76.2 × 1.65	103.0	54	86	125.0	135	363	492	637	29	13
OD 4"	101.6 × 2.11	127.5	69	99	125.0	170	401	530	675	30	20
OD 6"	152.4 × 2.77	177.0	124	123	150.0	260	578	707	907	57	51
IPS 2"	60.3 × 2.00	81.0	44	73	114.3	110	338	467	552	30	8
IPS 3"	88.9 × 2.30	115.0	63	92	152.5	135	358	487	632	30	13
IPS 4"	114.3 × 2.30	140.0	75	105	152.5	170	394	523	668	30	20
IPS 6"	168.3 × 2.77	192.0	131	131	152.5	260	573	702	902	60	51

## VARIVENT® Type N Single-seat Valve

Position	Description of the order code for the standard version							
1	<b>Valve type</b>							
	N	VARIVENT® single-seat valve						
2	<b>Housing combinations</b>							
	A	B	C	E	L	T		
3	<b>Supplement to the valve type</b>							
	Reserved for options							
4/5	<b>Nominal width (upper housing/lower housing)</b>							
	DN 25	OD 1"						
	DN 40	OD 1 ½"						
	DN 50	OD 2"	IPS 2"					
	DN 65	OD 2 ½"						
	DN 80	OD 3"	IPS 3"					
	DN 100	OD 4"	IPS 4"					
	DN 125							
	DN 150	OD 6"	IPS 6"					
6	<b>Actuator type</b>							
	S	Air / Spring						
7	<b>Non-actuated position</b>							
	Z	Spring-to-close (NC)						
	A	Spring-to-open (NO)						
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>							
	Actuator (spring-to-close)		Actuator (spring-to-open)			For nominal widths		
	AA	AA			DN 25, OD 1"			
	BB	BA			DN 40, DN 50, OD 1 ½", OD 2", IPS 2"			
	CD	CB			DN 65, DN 80, OD 2 ½", OD 3", IPS 3"			
	DF	DD			DN 100, OD 4", IPS 4"			
	SH6	EF6			DN 125			
	SK6	SG6			DN 150, OD 6", IPS 6"			
	9	<b>Valve seat version</b>		<b>Housing combination</b>				
			A	B	C	E	L	T
L0		Loose seat ring/Clamp connection	✓	✓	✓	✓	✓	✓
V0		Welded seat ring/Port orientation 0° or fixed vertical port					✓	✓
V1		Welded seat ring/Port orientation 90°						
V2		Welded seat ring/Port orientation 180°						
V3		Welded seat ring/Port orientation 270°						



<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19					
Code	N			/	S						N	/52						

For order codes differing from the standard version, please refer to section 7.

## ECOVENT® Type N/ECO Single-seat Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction
Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	5 bar (73 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Clamped or welded seat ring
Marking / Certificates	

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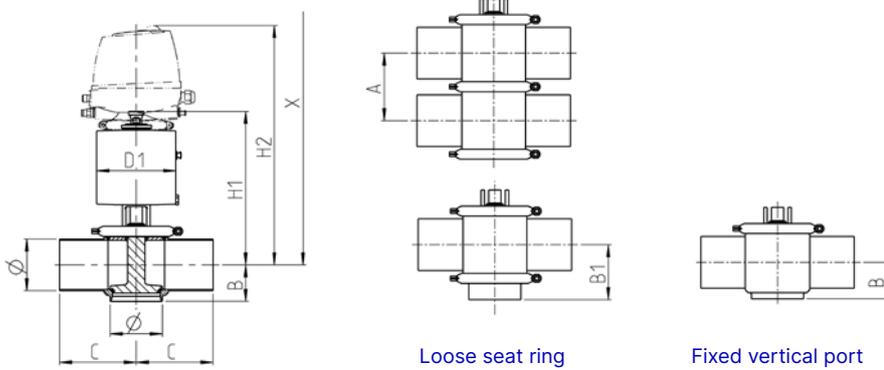
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Loose seat ring

Fixed vertical port

	Pipe	Housing	Actuator	Dimensions			Valve				
Nominal width	Ø [mm]	A [mm]	B [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	50.0	31	58.0	90	85	209	338	423	16.0	5
DN 40	41.0 × 1.50	62.0	39	64.0	90	104	243	372	457	20.0	7
DN 50	53.0 × 1.50	74.0	41	70.0	90	104	249	378	463	28.0	7
DN 65	70.0 × 2.00	96.0	52	83.0	125	129	257	386	531	28.0	11
DN 80	85.0 × 2.00	111.0	60	90.5	125	129	264	393	538	28.0	11
DN 100	104.0 × 2.00	130.0	70	100.0	125	170	274	403	548	28.0	16
OD 1"	25.4 × 1.65	46.0	29	56.0	90	85	207	336	421	12.0	5
OD 1 ½"	38.1 × 1.65	59.0	39	62.5	90	104	241	370	455	17.0	7
OD 2"	50.8 × 1.65	71.5	42	69.0	90	104	248	377	462	25.5	7
OD 2 ½"	63.5 × 1.65	90.0	54	80.0	125	129	254	383	528	22.0	11
OD 3"	76.2 × 1.65	103.0	54	86.5	125	129	260	389	534	20.0	11
OD 4"	101.6 × 2.11	127.5	69	99.0	125	170	273	402	547	25.5	17

## ECOVENT® Type N/ECO Single-seat Valve

Position	Description of the order code for the standard version							
1	<b>Valve type</b>							
	N	ECOVENT® single-seat valve						
2	<b>Housing combinations</b>							
	A	B	C	E	L	T		
3	<b>Supplement to the valve type</b>							
	/ECO							
4/5	<b>Nominal width (upper housing/lower housing)</b>							
	DN 25	OD 1"						
	DN 40	OD 1 ½"						
	DN 50	OD 2"	IPS 2"					
	DN 65	OD 2 ½"						
	DN 80	OD 3"	IPS 3"					
	DN 100	OD 4"	IPS 4"					
6	<b>Actuator type</b>							
	E	Air / Spring						
7	<b>Non-actuated position</b>							
	Z	Spring-to-close (NC)						
	A	Spring-to-open (NO)						
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>							
	Actuator (spring-to-close)		Actuator (spring-to-open)			For nominal widths		
	EAA	EAA			DN 25, OD 1"			
	EBB	EBA			DN 40, DN 50, OD 1 ½", OD 2"			
	ECD	ECB			DN 65, DN 80, OD 2 ½", OD 3"			
	EDF	EDD			DN 100, OD 4"			
9	<b>Valve seat version</b>		<b>Housing combination</b>					
			A	B	C	E	L	T
	L0	Loose seat ring / Clamp connection	✓	✓	✓	✓	✓	✓
	V0	Welded seat ring / Port orientation 0° or fixed vertical port					✓	✓
	V1	Welded seat ring / Port orientation 90°						
	V2	Welded seat ring / Port orientation 180°						
	V3	Welded seat ring / Port orientation 270°						

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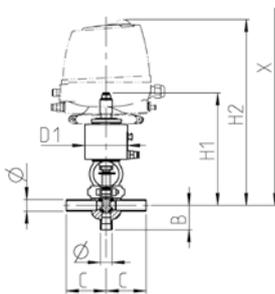
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b>	
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD $1/4$ " (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19							
Code	N		/ECO	-	/	-	E		-		-		-							

For order codes differing from the standard version, please refer to section 7.

# ECOVENT® Type N/ECO Small Single-seat Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction
Material housing	1.4435 (AISI 316L)
Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	5 bar (73 psi)
Product pressure	10 bar (145 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Fixed vertical port
Marking / Certificates	

	Pipe		Housing		Actuator		Dimensions		Valve	
	Nominal width	$\varnothing$ [mm]	B [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 10	29.0 × 1.50		40	65	70	166	295	345	8.5	4
DN 15	104.0 × 2.00		40	65	70	169	298	348	8.5	4

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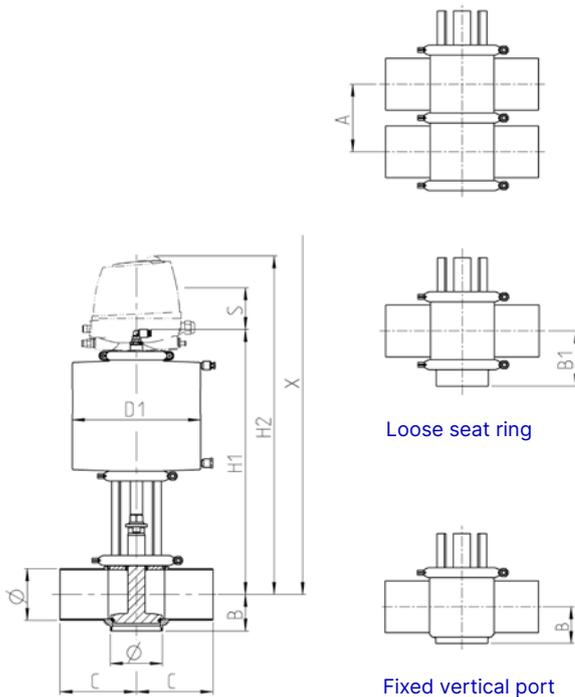
Position	Description of the order code for the standard version	
<b>1</b>	<b>Valve type</b>	
	N	ECOVENT® single-seat valve
<b>2</b>	<b>Housing combinations</b>	
	L	T
<b>3</b>	<b>Supplement to the valve type</b>	
	/ECO	ECOVENT® small
	/M/ ECO	ECOVENT® small with stainless steel bellow
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>	
	DN 10	
	DN 15	
<b>6</b>	<b>Actuator type</b>	
	E	Air / Spring
<b>7</b>	<b>Non-actuated position</b>	
	Z	Spring-to-close (NC)
	A	Spring-to-open (NO)
<b>8</b>	<b>Standard configuration with 5 bar air supply pressure for 10 bar product pressure (higher pressures on request)</b>	
	Actuator (spring-to-close)	Actuator (spring-to-open)
	60/4	60/4
<b>9</b>	<b>Valve seat version</b>	<b>Housing combination</b>
		L      T
	V0      Fixed vertical port	✓      ✓
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b>	
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing$ 6/4 mm
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N			/	E		60/4	V0		2	N	/52	

For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type N\_V Single-seat Long-stroke Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	4.8 bar (70 psi)	
Product pressure	DN 65 – DN 80 OD 2 ½" – OD 3"	10 bar (145 psi)
	DN 100 OD 4"	5.2 bar (75 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$	
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped or welded seat ring	
Marking / Certificates		



Nominal width	Pipe		Housing			Actuator		Dimensions			Valve	
	Ø [mm]		A [mm]	B [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 65	70.0 × 2.00		96.0	52	83.0	125	210	421	550	695	41.5	23
DN 80	85.0 × 2.00		111.0	60	90.5	125	210	429	558	703	56.5	23
DN 100	104.0 × 2.00		130.0	70	100.0	125	210	438	567	712	60.0	25
OD 2 ½"	63.5 × 1.65		90.0	54	80.0	125	210	425	554	699	42.5	23
OD 3"	76.2 × 1.65		103.0	54	86.5	125	210	432	561	706	55.5	23
OD 4"	101.6 × 2.11		127.5	69	99.0	125	210	440	569	714	60.5	26

Position	Description of the order code for the standard version							
1	<b>Valve type</b>							
	N	VARIVENT® single-seat valve						
2	<b>Housing combinations</b>							
	A	B	C	E	L	T		
3	<b>Supplement to the valve type</b>							
	V	Long-stroke						
4/5	<b>Nominal width (upper housing/lower housing)</b>							
	DN 65	OD 2 ½"						
	DN 80	OD 3"						
	DN 100	OD 4"						
6	<b>Actuator type</b>							
	L	Air/Spring, long stroke						
7	<b>Non-actuated position</b>							
	Z	Spring-to-close (NC)						
	A	Spring-to-open (NO)						
8	<b>Standard configuration with 4.8 bar air supply pressure for 10 bar (DN 65 – DN 80, OD 2 ½" – OD 3") or 5.2 bar (DN 100, OD 4") product pressure, respectively – (higher pressures on request)</b>							
	Actuator (spring-to-close)			Actuator (spring-to-open)				
	ZEF/V			ZEF/V				
9	<b>Valve seat version</b>		<b>Housing combination</b>					
			A	B	C	E	L	T
	L0	Loose seat ring/Clamp connection	✓	✓	✓	✓	✓	✓
	V0	Welded seat ring/Port orientation 0° or fixed vertical port					✓	✓
	V1	Welded seat ring/Port orientation 90°						
	V2	Welded seat ring/Port orientation 180°						
	V3	Welded seat ring/Port orientation 270°						
10	<b>Seal material in contact with the product</b>							
	1	EPDM (FDA)						
	2	FKM (FDA)						
	3	HNBR (FDA)						
11	<b>Surface quality of the housing</b>							
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted (DN, OD)						
12	<b>Connection fittings</b>							
	N	Welding end						
13	<b>Accessories</b>							
	/52	Adhesive ID tag						
+								
14–19	<b>Air connection/Control and feedback system</b>							
	00000M	Metric for air hose Ø 6/4 mm						
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)						
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation						

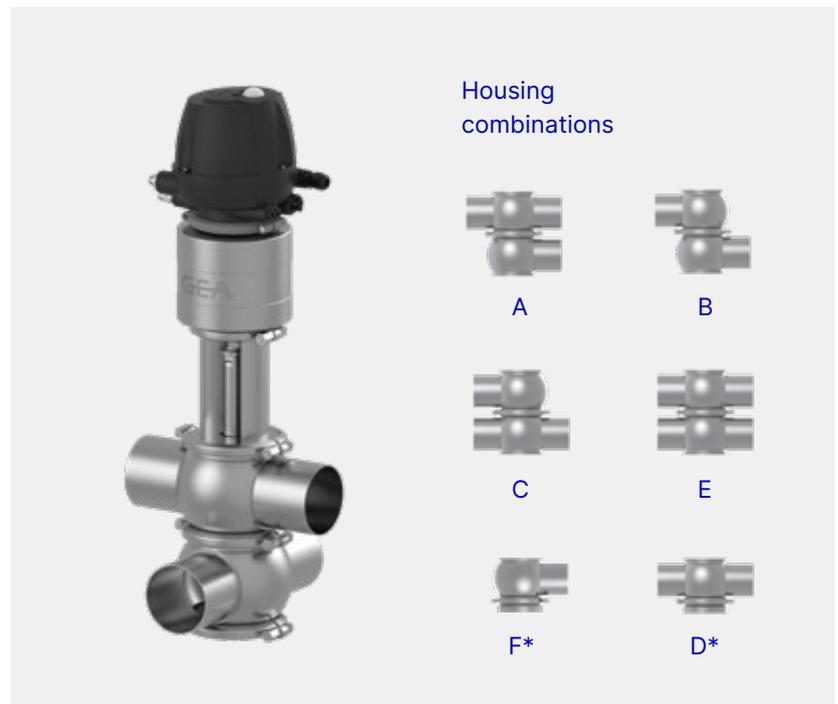
The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N		V	/	L		ZEF/V			2	N	/52	

For order codes differing from the standard version, please refer to section 7.



## VARIVENT® Type U Single-seat Valve



\* with housing connection flange U

### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped or welded seat ring	
Marking / Certificates		

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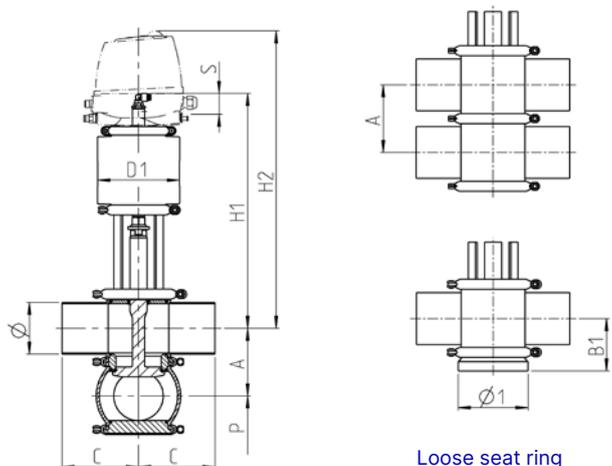
3

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Nominal width	Pipe		Housing		Actuator	Dimensions				Valve	
	Ø [mm]	Ø1 [mm]	A [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	P [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	70 × 2	50.0	50.0	90.0	99	294	423	200	18	8
DN 40	41.0 × 1.50	85 × 2	62.0	56.0	90.0	110	335	464	200	25	11
DN 50	53.0 × 1.50	85 × 2	74.0	62.0	90.0	110	341	470	200	29	11
DN 65	70.0 × 2.00	114 × 3	96.0	78.0	125.0	135	352	481	230	30	17
DN 80	85.0 × 2.00	114 × 3	111.0	85.5	125.0	135	360	489	230	30	18
DN 100	104.0 × 2.00	154 × 2	130.0	95.0	125.0	170	399	528	250	30	25
DN 125	129.0 × 2.00	184 × 3	155.0	107.5	150.0	260	555	684	300	60	56
DN 150	154.0 × 2.00	212 × 4	180.0	120.0	150.0	260	579	708	300	60	63

OD 1"	25.4 × 1.65	70 × 2	46.0	48.0	90.0	99	292	421	200	22	8
OD 1 ½"	38.1 × 1.65	85 × 2	59.0	54.5	90.0	110	337	466	200	25	10
OD 2"	50.8 × 1.65	85 × 2	71.5	60.8	90.0	110	343	472	200	28	11
OD 2 ½"	63.5 × 1.65	114 × 3	90.0	75.0	125.0	135	356	485	230	29	17
OD 3"	76.2 × 1.65	114 × 3	103.0	81.5	125.0	135	363	492	230	31	17
OD 4"	101.6 × 2.11	154 × 2	127.5	93.8	125.0	170	401	530	250	29	25
OD 6"	152.4 × 2.77	212 × 4	177.0	118.5	150.0	260	578	707	300	60	64

IPS 2"	60.3 × 2.00	81.0	65.5	114.3	110	338	467	200	29	12	8
IPS 3"	88.9 × 2.30	115.0	87.5	152.5	135	358	487	230	30	19	13
IPS 4"	114.3 × 2.30	140.0	100.0	152.5	170	394	523	250	30	27	20
IPS 6"	168.3 × 2.77	192.0	126.0	152.5	260	573	702	300	60	65	51

## VARIVENT® Type U Single-seat Valve

Position	Description of the order code for the standard version							
1	<b>Valve type</b>							
	U	VARIVENT® single-seat valve						
2	<b>Housing combinations</b>							
	A	B	C	E	F*	D*		
3	<b>Supplement to the valve type</b>							
	Reserved for options							
4/5	<b>Nominal width (upper housing/lower housing)</b>							
	DN 25	OD 1"						
	DN 40	OD 1 ½"						
	DN 50	OD 2"	IPS 2"					
	DN 65	OD 2 ½"						
	DN 80	OD 3"	IPS 3"					
	DN 100	OD 4"	IPS 4"					
	DN 125							
	DN 150	OD 6"	IPS 6"					
6	<b>Actuator type</b>							
	S	Air / Spring						
7	<b>Non-actuated position</b>							
	Z	Spring-to-close (NC)						
	A	Spring-to-open (NO)						
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>							
	Actuator (spring-to-close)		Actuator (spring-to-open)			For nominal widths		
	AA	AA			DN 25, OD 1"			
	BB	BA			DN 40, DN 50, OD 1 ½", OD 2", IPS 2"			
	CD	CB			DN 65, DN 80, OD 2 ½", OD 3", IPS 3"			
	DF	DD			DN 100, OD 4", IPS 4"			
	SH6	EF6			DN 125			
	SK6	SG6			DN 150, OD 6", IPS 6"			
	9	<b>Valve seat version</b>		<b>Housing combination</b>				
L0		Loose seat ring/Clamp connection	✓	✓	✓	✓	✓	✓
V0		Welded seat ring/Port orientation 0° or fixed vertical port						
V1		Welded seat ring/Port orientation 90°						
V2		Welded seat ring/Port orientation 180°						
V3		Welded seat ring/Port orientation 270°						



<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4 \text{ mm}$
	00000Z	Inch for air hose $\varnothing \text{ OD } 1/4'' (6.35 / 4.35 \text{ mm})$
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

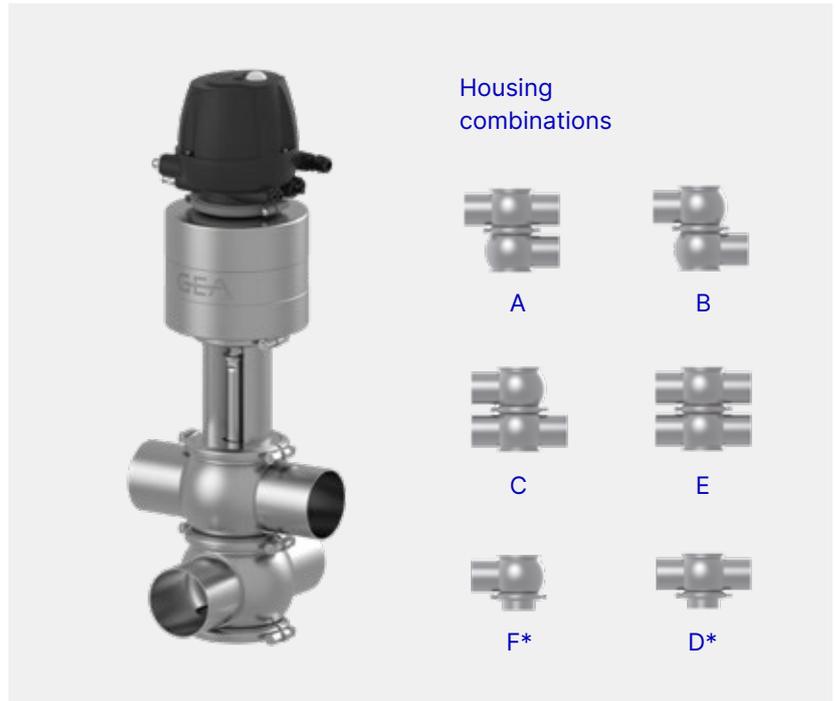
\* with housing connection flange U

The code is composed as following, depending on the chosen configuration:

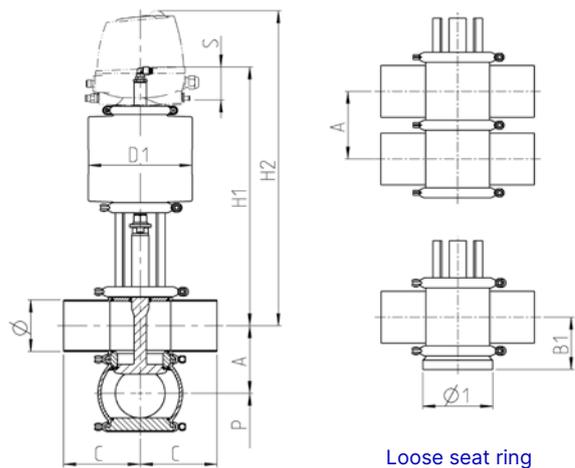
<b>Position</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4/5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14 to 19</b>
Code	U			/	S						N	/52	

For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type U\_V Single-seat Long-stroke Valve



\* with housing connection flange U



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	4.8 bar (70 psi)	
Product pressure	DN 80 OD 3"	5 bar (73 psi)
	DN 100 OD 4"	5.6 bar (81 psi)

Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Clamped or welded seat ring
Marking / Certificates	



Nominal width	Pipe		Housing			Actuator		Dimensions			Valve
	$\varnothing$ [mm]	$\varnothing 1$ [mm]	A [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	P [mm]	Stroke S [mm]	Weight [kg]
DN 80	85.0 × 2.00	114 × 3	111.0	85.5	125	170	390	519	230	40	21
DN 100	104.0 × 2.00	154 × 2	130.0	95.0	125	210	409	538	250	40	29
OD 3"	76.2 × 1.65	114 × 3	103.0	81.5	125	170	393	522	230	41	21
OD 4"	101.6 × 2.11	154 × 2	127.5	93.8	125	210	411	540	250	39	29

Position	Description of the order code for the standard version						
1	<b>Valve type</b>						
	U	VARIVENT® single-seat valve					
2	<b>Housing combinations</b>						
	A	B	C	E	F*	D*	
3	<b>Supplement to the valve type</b>						
	V	Long-stroke					
4/5	<b>Nominal width (upper housing/lower housing)</b>						
	DN 80	OD 3"					
	DN 100	OD 4"					
6	<b>Actuator type</b>						
	L	Air/Spring, long stroke					
7	<b>Non-actuated position</b>						
	Z	Spring-to-close (NC)					
	A	Spring-to-open (NO)					
8	<b>Standard configuration with 4.8 bar air supply pressure for 5 bar (DN 80, OD 3") or 5.6 bar (DN 100, OD 4") product pressure, respectively – (higher pressures on request)</b>						
	Actuator (spring-to-close)		Actuator (spring-to-open)			For nominal widths	
	DD5		DD5			DN 80, OD 3"	
	EF5		EF5			DN 100, OD 4"	
9	<b>Valve seat version</b>		<b>Housing combination</b>				
	L0	Loose seat ring / Clamp connection	✓	✓	✓	✓	✓
	V0	Welded seat ring / Port orientation 0° or fixed vertical port					
	V1	Welded seat ring / Port orientation 90°					
	V2	Welded seat ring / Port orientation 180°					
	V3	Welded seat ring / Port orientation 270°					
10	<b>Seal material in contact with the product</b>						
	1	EPDM (FDA)					
	2	FKM (FDA)					
	3	HNBR (FDA)					
11	<b>Surface quality of the housing</b>						
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted					
12	<b>Connection fittings</b>						
	N	Welding end					
13	<b>Accessories</b>						
	/52	Adhesive ID tag					
+							
14-19	<b>Air connection / Control and feedback system</b>						
	00000M	Metric for air hose Ø 6/4 mm					
	00000Z	Inch for air hose Ø OD ¼" (6.35 / 4.35 mm)					
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation					

\* with housing connection flange U

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	U		V	- / -	S		-		-	2	N	/52	-

For order codes differing from the standard version, please refer to section 7.



# 2

## DIVERT VALVES

VARIVENT® Hygienic Seat Valves



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# Overview of Single-seat Valves

## Single-seat divert valves

VARIVENT® and ECOVENT® single-seat divert valves are used for simple divert functions in hygienic applications. The valves are characterized by their ease of operation and flexibility. The individual variants are designed for different flow directions.

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### Special features

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Certified, hygienic configuration

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Metallic stop

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Flexibility because of the modular principle

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Proven seal geometry

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Availability of two valve series

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# Overview of Single-seat Valves

## Function of the valve

In single-seat divert valves, there is only one seal for each switching position in the valve disc separating the particular pipelines from one another. This means liquid can pass from one pipeline to the other in the eventuality of a seal defect. For this reason, single-seat divert valves are not suitable for separating incompatible fluids.

## Application examples

In practice, these valves are frequently used in CIP supply and return lines. One typical application is also found at the end of a valve block in which the valves are fitted as divert valves between the process line and the drainage (e.g. during pushing out).



Simple divert valve  
with only one seal

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**VARIVENT®**

The structure of the VARIVENT® modular system means that different valve configurations (closing direction of the valve disc) and numerous options are available. Please refer to the options section (section 7) for information about these.

VARIVENT® long-stroke valves are used for manufacturing products with relatively large particles or for viscous products, such as strawberry yoghurt.

**Sizes**

Single-seat divert valves	Long-stroke divert valves
DN 25–DN 150	DN 65–DN 100
OD 1"–OD 6"	OD 2 ½"–OD 4"
IPS 2"–IPS 6"	

**ECOVENT®**

The ECOVENT® valve series is characterized by its compact design. Contrary to the VARIVENT® systems with multiple options, this series provides a simple and economical solution for standard requirements.

**Sizes**

Single-seat divert valves
DN 10–DN 100
OD 1"–OD 4"

# Overview of Single-seat Valves

## Housing combinations

VARIVENT® and ECOVENT® single-seat divert valves are available with an extremely wide range of housing combinations.

## Valve seat version

The valves are configured with a clamped housing connection that is characterized by a high level of flexibility during installation of the valve.



## Maintenance

To allow the valve disc to be removed and the seals in the seat ring renewed during maintenance, it is at least necessary to remove the upper housing from the pipeline. For this reason a clamped connection, e.g. a VARIVENT® flange connection, is recommended to be provided on the affected housings or in the connected pipeline system right from the planning phase.

## Maintenance in the divert valve type W\_R

The radial seal divert valve type W\_R was developed to offer the advantage of the welded valve seat version. This design is characterized by its low maintenance requirement. The valve disc with the radial seal can easily be removed upwards through the seat ring. Furthermore, there is no need to renew any O-rings in the seat ring.



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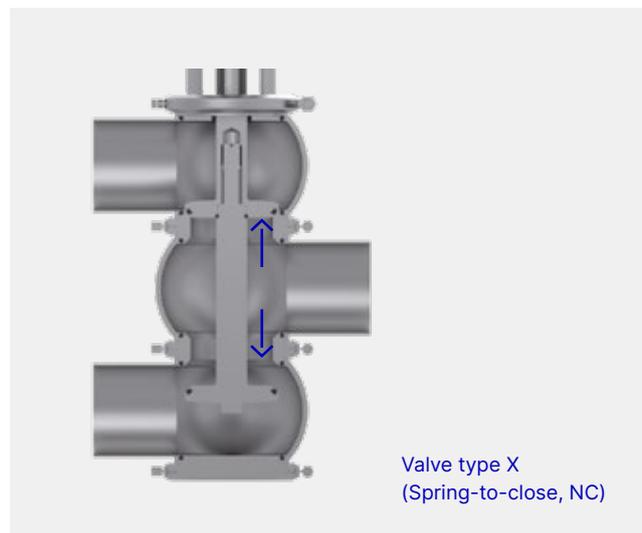
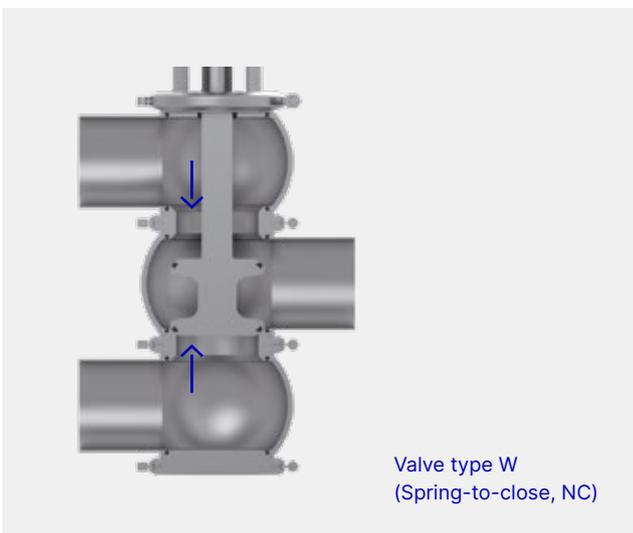
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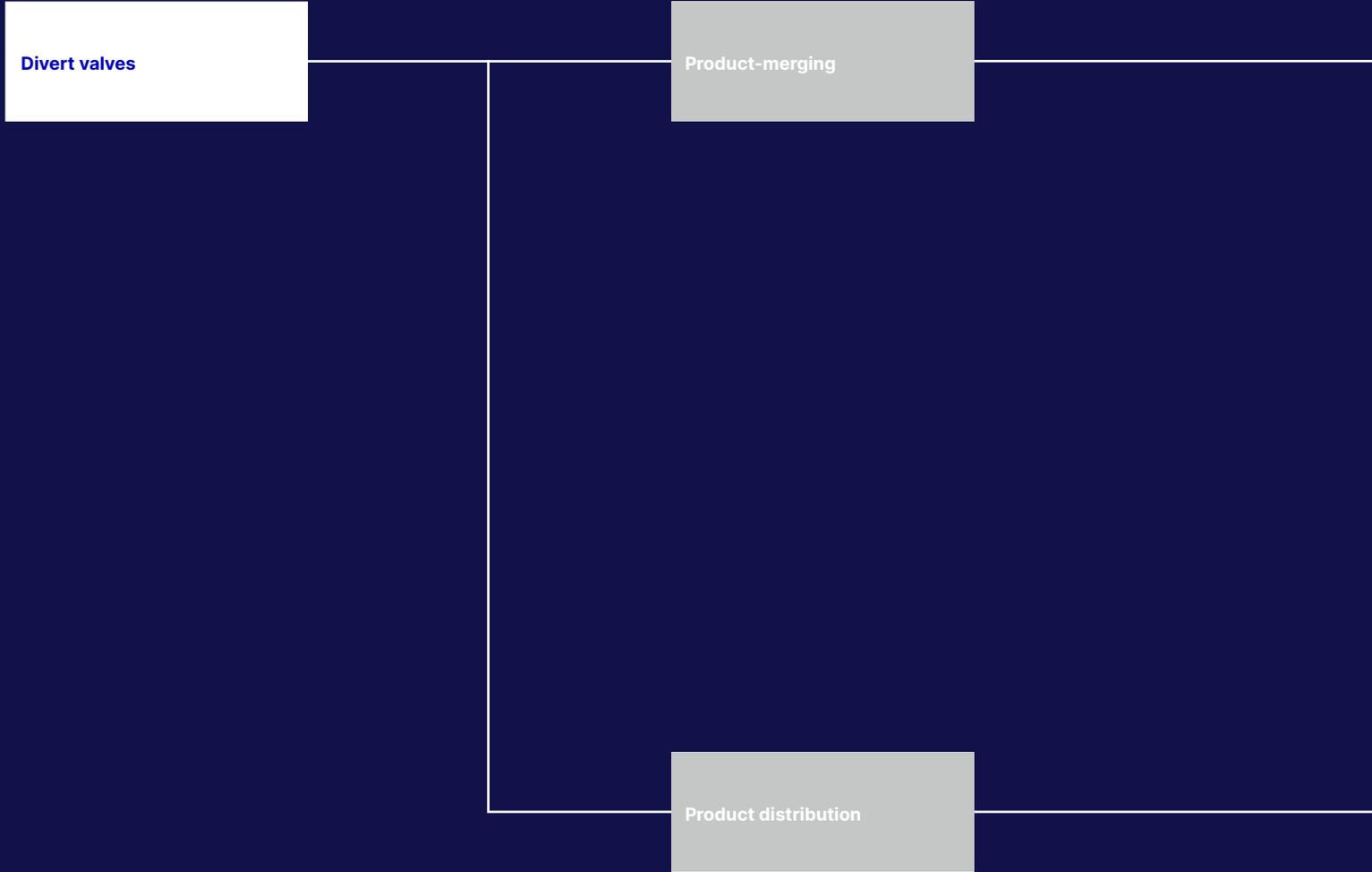
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### Recommended flow direction

To avoid water hammers when closing one path while the product is flowing, single-seat divert valves should be switched against the flow direction of the product if possible. The single-seat divert valve type W is used for merging products from two pipelines, whereas valve type X has been designed for product distribution. The valves are characterized by their ease of operation. Valve type X is only available in the VARIVENT® series, thus making clear one of the major differences between VARIVENT® and ECOVENT®: the difference in the number of variants available in both series.

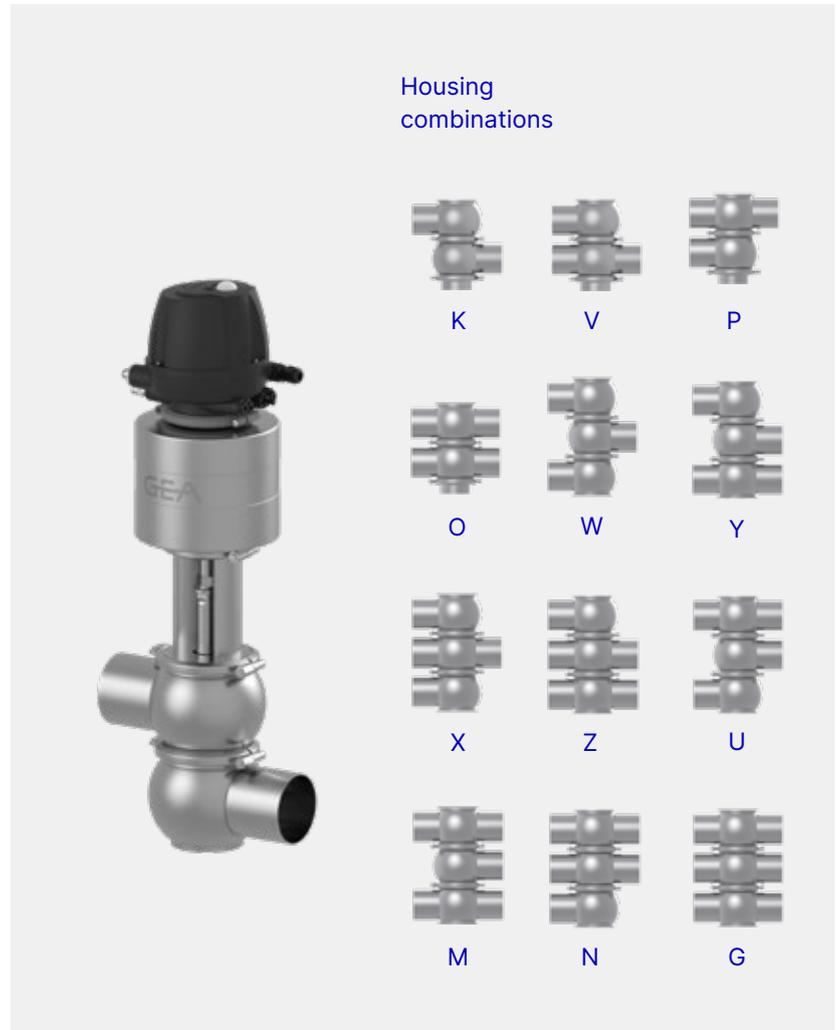


# Selection Matrix



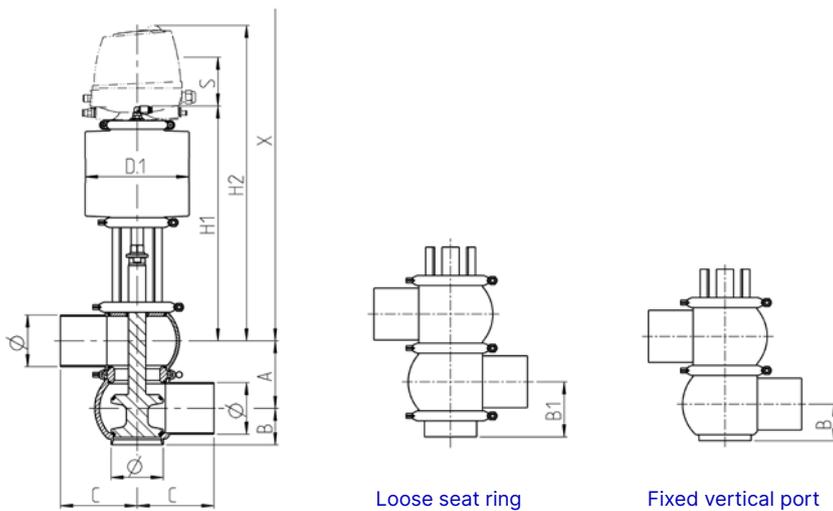


## VARIVENT® Type W Single-seat Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD IPS	$R_a \leq 0.8 \mu\text{m}$ $R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring or fixed vertical port	
Marking / Certificates		



Loose seat ring

Fixed vertical port

	Pipe		Housing			Actuator	Dimensions				Valve
Nominal width	Ø [mm]	A [mm]	B [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	50.0	31	58.0	90.0	99	294	423	583	11	8
DN 40	41.0 × 1.50	62.0	39	64.0	90.0	135	335	464	624	25	11
DN 50	53.0 × 1.50	74.0	41	70.0	90.0	135	341	470	630	25	12
DN 65	70.0 × 2.00	96.0	52	83.0	125.0	170	382	511	796	25	20
DN 80	85.0 × 2.00	111.0	60	90.5	125.0	170	390	519	804	25	21
DN 100	104.0 × 2.00	130.0	70	100.0	125.0	210	399	528	813	25	29
DN 125	129.0 × 2.00	155.0	113	112.0	150.0	260	555	684	1,074	55	57
DN 150	154.0 × 2.00	180.0	125	125.0	150.0	210	708	837	1,227	55	72

OD 1"	25.4 × 1.65	46.0	29	56.0	90.0	99	292	421	581	7	8
OD 1 ½"	38.1 × 1.65	59.0	39	62.5	90.0	135	337	466	626	22	11
OD 2"	50.8 × 1.65	71.5	42	69.0	90.0	135	343	472	632	22	12
OD 2 ½"	63.5 × 1.65	90.0	54	80.0	125.0	170	386	515	800	19	20
OD 3"	76.2 × 1.65	103.0	54	86.5	125.0	170	393	522	807	17	20
OD 4"	101.6 × 2.11	127.5	69	99.0	125.0	210	401	530	815	22	29
OD 6"	152.4 × 2.77	177.0	124	123.5	150.0	210	707	836	1,226	55	72

IPS 2"	60.3 × 2.00	81.0	44	73.5	114.3	135	338	467	627	25	13
IPS 3"	88.9 × 2.30	115.0	63	92.5	152.5	170	388	517	802	25	21
IPS 4"	114.3 × 2.30	140.0	75	105.0	152.5	210	394	523	808	25	30
IPS 6"	168.3 × 2.77	192.0	131	131.0	152.5	210	702	831	1,221	55	73

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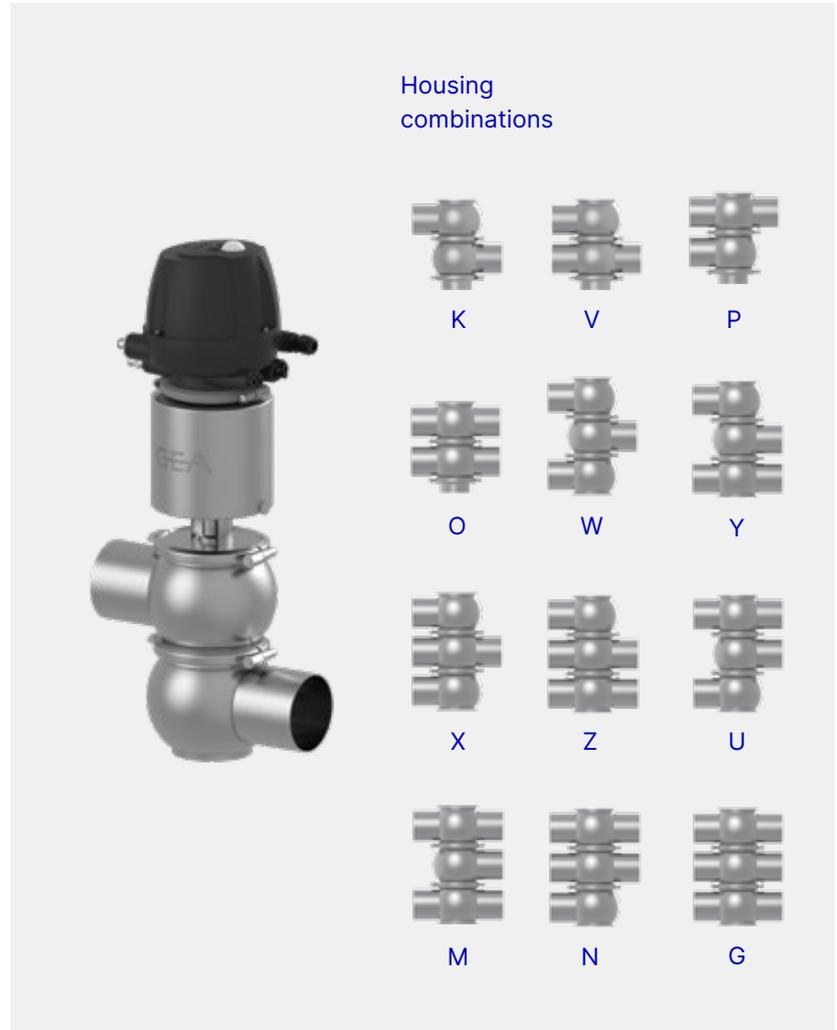
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD $1/4$ " (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19					
Code	W			/	S						N	/52						

For order codes differing from the standard version, please refer to section 7.

## ECOVENT® Type W/ECO Single-seat Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction
Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	5 bar (73 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Clamped seat ring or fixed vertical port
Marking / Certificates	

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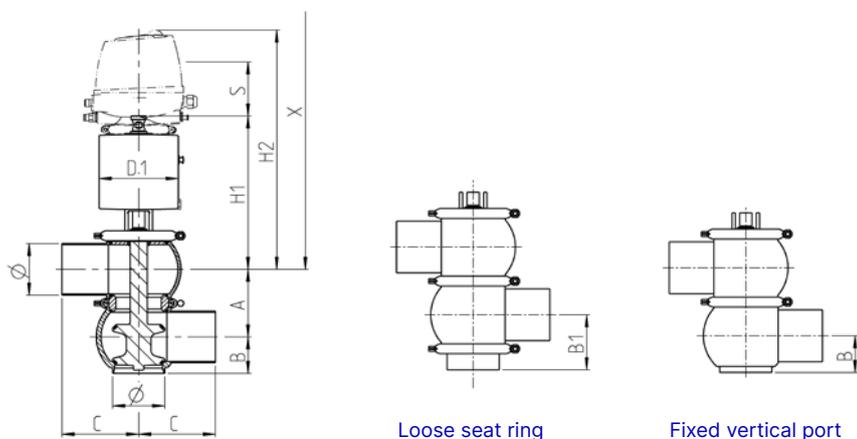
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	Pipe	Housing				Actuator	Dimensions				Valve
Nominal width	Ø [mm]	A [mm]	B [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	50.0	31	58.0	90	85	209	338	498	15	6
DN 40	41.0 × 1.50	62.0	39	64.0	90	129	243	372	532	24	10
DN 50	53.0 × 1.50	74.0	41	70.0	90	129	249	378	538	24	10
DN 65	70.0 × 2.00	96.0	52	83.0	125	170	257	386	671	26	17
DN 80	85.0 × 2.00	111.0	60	90.5	125	170	264	393	678	26	18
DN 100	104.0 × 2.00	130.0	70	100.0	125	170	274	403	688	26	23
OD 1"	25.4 × 1.65	46.0	29	56.0	90	85	207	336	496	11	6
OD 1 ½"	38.1 × 1.65	59.0	39	62.5	90	129	241	370	530	24	9
OD 2"	50.8 × 1.65	71.5	42	69.0	90	129	248	377	537	24	10
OD 2 ½"	63.5 × 1.65	90.0	54	80.0	125	170	254	383	668	26	18
OD 3"	76.2 × 1.65	103.0	54	86.5	125	170	260	389	674	26	18
OD 4"	101.6 × 2.11	127.5	69	99.0	125	170	273	402	687	26	23

## ECOVENT® Type N/ECO Single-seat Valve

Position	Description of the order code for the standard version																	
1	<b>Valve type</b>																	
	W	ECOVENT® divert valve																
2	<b>Housing combinations</b>																	
	K	V	P	O	W	Y	X	Z	U	M	N	G						
3	<b>Supplement to the valve type</b>																	
	/ECO																	
4/5	<b>Nominal width (upper housing/lower housing)</b>																	
	DN 25	OD 1"																
	DN 40	OD 1 ½"																
	DN 50	OD 2"																
	DN 65	OD 2 ½"																
	DN 80	OD 3"																
6	<b>Actuator type</b>																	
	E	Air / Spring																
7	<b>Non-actuated position</b>																	
	Z	Spring-to-close (NC)																
	A	Spring-to-open (NO)																
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>																	
	Actuator (spring-to-close)				Actuator (spring-to-open)				For nominal widths									
	EAA				EAA				DN 25, OD 1"									
	ECB				ECB				DN 40, DN 50, OD 1 ½", OD 2"									
	EDD				EDD				DN 65, DN 80, OD 2 ½", OD 3"									
EDD*				EDD*				DN 100, OD 4"										
9	<b>Valve seat version</b>						<b>Housing combination</b>											
							K	V	P	O	W	Y	X	Z	U	M	N	G
	L0	Loose seat ring/Clamp connection					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
V0	Fixed vertical port					✓	✓	✓	✓									
10	<b>Seal material in contact with the product</b>																	
	1		EPDM (FDA)															
	2		FKM (FDA)															
	3		HNBR (FDA)															
11	<b>Surface quality of the housing</b>																	
	2		Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted (DN, OD)															
12	<b>Connection fittings</b>																	
	N		Welding end															
13	<b>Accessories</b>																	
	/52		Adhesive ID tag															
14-19	<b>Air connection / Control and feedback system</b>																	
	00000M		Metric for air hose Ø 6/4 mm															
	00000Z		Inch for air hose Ø OD ¼" (6.35/4.35 mm)															
	XXXXX		Order code for different control and feedback systems see catalog GEA Valve Automation															

\* with air support

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	W		/ECO	-	/	-	E		-		-		-		2	N	/52	-						

For order codes differing from the standard version, please refer to section 7.

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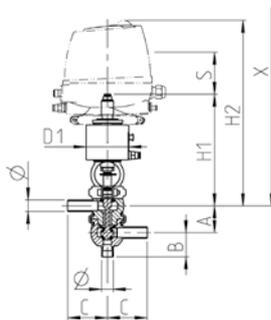
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# ECOVENT® Type W/ECO Small Single-seat Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction
Material housing	1.4435 (AISI 316L)
Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	5 bar (73 psi)
Product pressure	10 bar (145 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Fixed vertical port
Marking / Certificates	

	Pipe		Housing			Actuator	Dimensions			Valve
Nominal width	Ø [mm]	A [mm]	B [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 10	13 × 1.50	44	40	65	70	166	295	345	6	5
DN 15	19 × 1.50	47	40	65	70	169	298	348	6	5

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Position	Description of the order code for the standard version
<b>1</b>	<b>Valve type</b> W ECOVENT® divert valve
<b>2</b>	<b>Housing combinations</b> K P O V
<b>3</b>	<b>Supplement to the valve type</b> /ECO ECOVENT® small
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b> DN 10 DN 15
<b>6</b>	<b>Actuator type</b> E Air / Spring
<b>7</b>	<b>Non-actuated position</b> Z Spring-to-close (NC) A Spring-to-open (NO)
<b>8</b>	<b>Standard configuration with 5 bar air supply pressure for 10 bar product pressure (higher pressures on request)</b> Actuator (spring-to-close) Actuator (spring-to-open) 60/4 60/4
<b>9</b>	<b>Valve seat version</b> V0 Fixed vertical port
<b>10</b>	<b>Seal material in contact with the product</b> 1 EPDM (FDA) 2 FKM (FDA) 3 HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b> 2 Inside R <sub>a</sub> ≤ 0.8 μm, outside matt blasted
<b>12</b>	<b>Connection fittings</b> N Welding end
<b>13</b>	<b>Accessories</b> /52 Adhesive ID tag
<b>+</b>	
<b>14–19</b>	<b>Air connection/ Control and feedback system</b> 00000M Metric for air hose Ø 6/4 mm 00000Z Inch for air hose Ø OD ¼" (6.35 / 4.35 mm) XXXXX Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	W		/ECO	- /	- E		- 60/4	- V0	-	2	N	/52	-

For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type W\_R Radial Sealing Single-seat Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction
Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	5 bar (73 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Welded seat ring
Marking / Certificates	CE FDA

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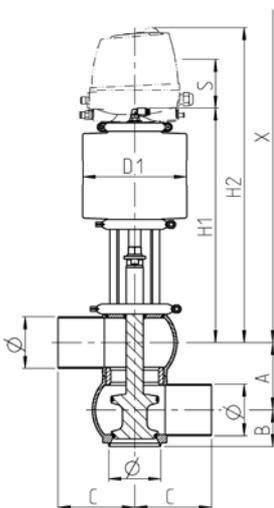
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	Pipe	Housing			Actuator	Dimensions				Valve
Nominal width	Ø [mm]	A [mm]	B [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	50.0	31	90	99	294	423	583	20	8
DN 40	41.0 × 1.50	62.0	39	90	110	335	464	624	30	11
DN 50	53.0 × 1.50	74.0	41	90	110	341	470	630	30	11
DN 65	70.0 × 2.00	96.0	52	125	135	382	511	796	30	19
DN 80	85.0 × 2.00	111.0	60	125	135	390	519	804	30	20
DN 100	104.0 × 2.00	130.0	70	125	170	399	528	813	30	27
OD 1"	25.4 × 1.65	46.0	29	90	99	292	421	581	20	8
OD 1 ½"	38.1 × 1.65	59.0	39	90	110	337	466	626	27	11
OD 2"	50.8 × 1.65	71.5	42	90	110	343	472	632	28	11
OD 2 ½"	63.5 × 1.65	90.0	54	125	135	386	515	800	25	19
OD 3"	76.2 × 1.65	103.0	54	125	135	393	522	807	30	19
OD 4"	101.6 × 2.11	127.5	69	125	170	401	530	815	28	27

## VARIVENT® Type W\_R Radial Sealing Single-seat Valve

Position	Description of the order code for the standard version		
1	<b>Valve type</b>		
	W	VARIVENT® divert valve	
2	<b>Housing combinations</b>		
	K	P	
3	<b>Supplement to the valve type</b>		
	R	Radial sealing	
4/5	<b>Nominal width (upper housing/lower housing)</b>		
	DN 25	OD 1"	
	DN 40	OD 1 ½"	
	DN 50	OD 2"	
	DN 65	OD 2 ½"	
	DN 80	OD 3"	
	DN 100	OD 4"	
6	<b>Actuator type</b>		
	S	Air / Spring	
7	<b>Non-actuated position</b>		
	Z	Spring-to-close (NC)	
	A	Spring-to-open (NO)	
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>		
	Actuator (spring-to-close)	Actuator (spring-to-open)	For nominal widths
	AA	AA	DN 25, OD 1"
	CB	CB	DN 40, DN 50, OD 1 ½", OD 2"
	DD	DD	DN 65, DN 80, OD 2 ½", OD 3"
	EF	EF	DN 100, OD 4"
9	<b>Valve seat version</b>		<b>Housing combination</b>
			K      P
	V0	Welded seat ring / Port orientation 0°	 
	V1	Welded seat ring / Port orientation 90°	 
	V2	Welded seat ring / Port orientation 180°	 
	V3	Welded seat ring / Port orientation 270°	



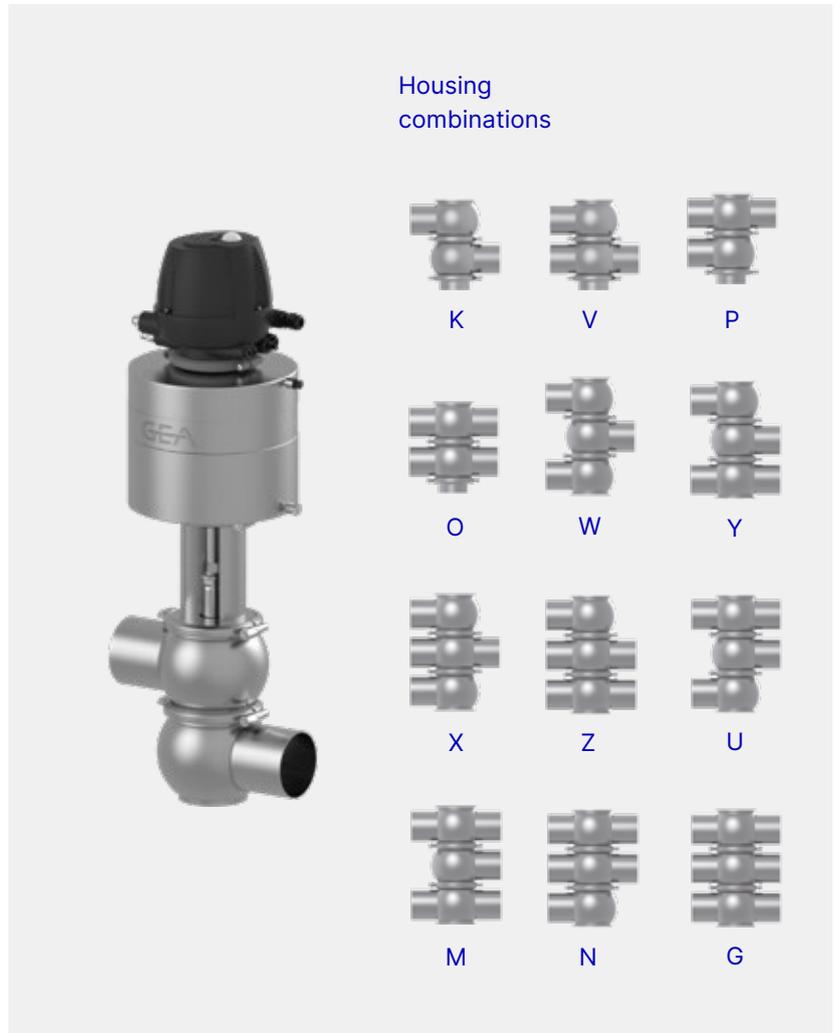
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b>	
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD $1/4$ " (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19							
Code	W		R	- / -	S		-		-		2	N	/52	-						

For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type W\_V Single-seat Long-stroke Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6.4 bar (93 psi)	
Product pressure	DN 65 – DN 80	10 bar (145 psi)
	OD 2 ½" – OD 3"	
	DN 100 OD 4"	5.2 bar (75 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$	
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring or fixed vertical port	
Marking / Certificates		

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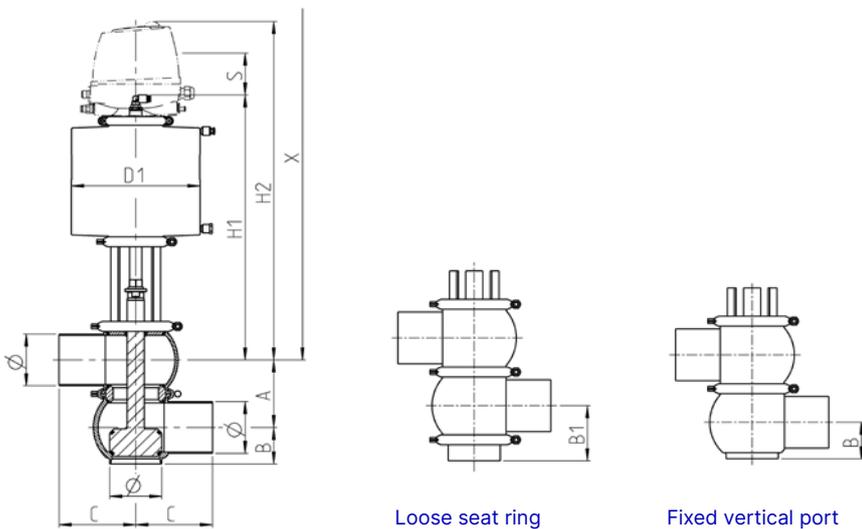
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Loose seat ring

Fixed vertical port

	Pipe		Housing				Actuator	Dimensions				Valve
Nominal width	Ø [mm]	A [mm]	B [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 65	70.0 × 2.00	96.0	52	83.0	125	210	421	550	835	50.0	26	
DN 80	85.0 × 2.00	111.0	60	90.5	125	210	429	558	843	50.0	28	
DN 100	104.0 × 2.00	130.0	70	100.0	125	210	438	567	852	55.0	34	
OD 2 ½"	63.5 × 1.65	90.0	54	80.0	125	210	425	554	839	44.0	26	
OD 3"	76.2 × 1.65	103.0	54	86.5	125	210	432	561	846	42.0	27	
OD 4"	101.6 × 2.11	127.5	69	99.0	125	210	440	569	854	52.5	34	

## VARIVENT® Type W\_V Single-seat Long-stroke Valve

Position	Description of the order code for the standard version																							
1	<b>Valve type</b>																							
	W	VARIVENT® divert valve																						
2	<b>Housing combinations</b>																							
	K	V	P	O	W	Y	X	Z	U	M	N	G												
3	<b>Supplement to the valve type</b>																							
	V	Long-stroke																						
4/5	<b>Nominal width (upper housing/lower housing)</b>																							
	DN 65	OD 2 ½"																						
	DN 80	OD 3"																						
	DN 100	OD 4"																						
6	<b>Actuator type</b>																							
	L	Air/Spring, long stroke																						
7	<b>Non-actuated position</b>																							
	Z	Spring-to-close (NC)																						
	A	Spring-to-open (NO)																						
8	<b>Standard configuration with 6.4 bar air supply pressure for 10 bar (DN 65 – DN 80, OD 2 ½" – OD 3") or 5.2 bar (DN 100, OD 4") product pressure, respectively – (higher pressures on request)</b>																							
	Actuator (spring-to-close)						Actuator (spring-to-open)																	
	ZEF/V						ZEF/V																	
9	<b>Valve seat version</b>												<b>Housing combination</b>											
													K	V	P	O	W	Y	X	Z	U	M	N	G
	L0	Loose seat ring/Clamp connection											✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	V0	Fixed vertical port											✓	✓	✓	✓								
10	<b>Seal material in contact with the product</b>																							
	1	EPDM (FDA)																						
	2	FKM (FDA)																						
	3	HNBR (FDA); (up to DN 80, OD 3")																						
11	<b>Surface quality of the housing</b>																							
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted (DN, OD)																						
12	<b>Connection fittings</b>																							
	N	Welding end																						
13	<b>Accessories</b>																							
	/52	Adhesive ID tag																						
+																								
14–19	<b>Air connection/Control and feedback system</b>																							
	00000M	Metric for air hose Ø 6/4 mm																						
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)																						
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation																						

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19				
Code	W		V	- / -	L		- ZEF/V -		-	2	N	/52	-				

For order codes differing from the standard version, please refer to section 7.

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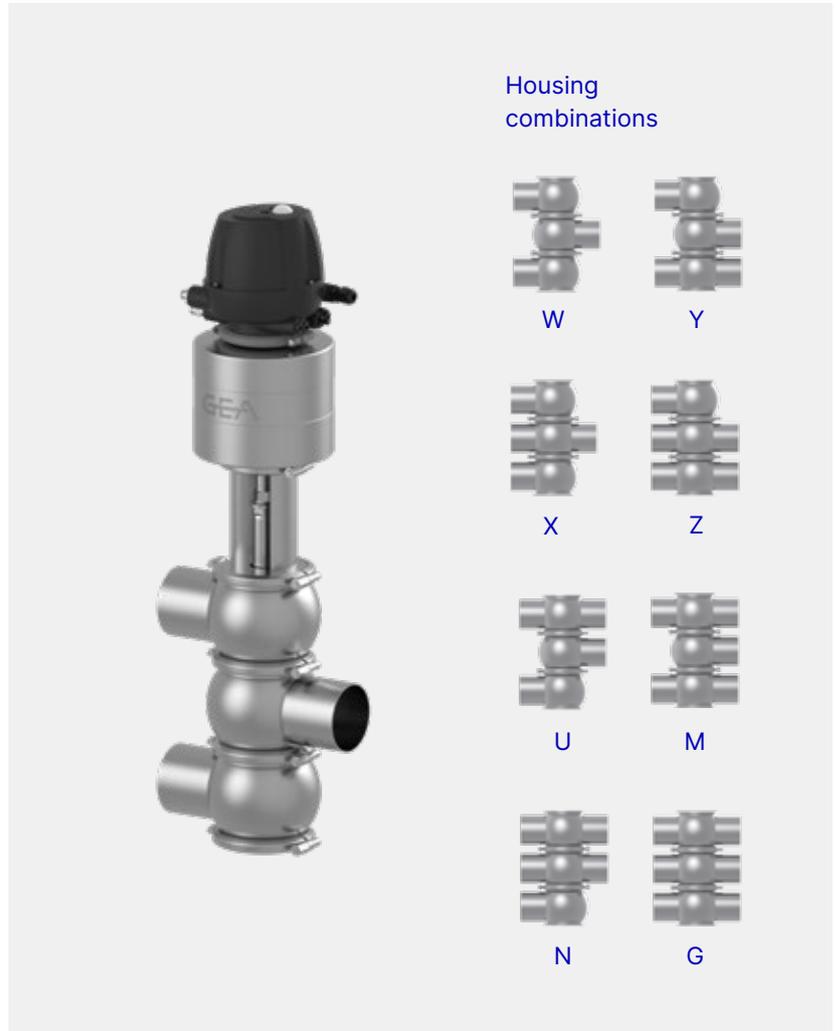
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## VARIVENT® Type X Single-seat Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		

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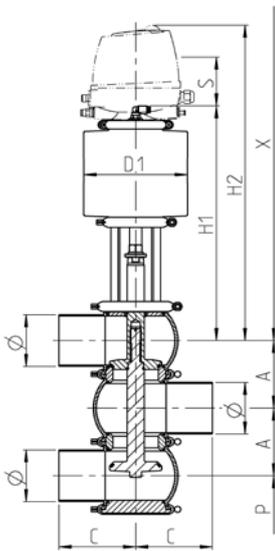
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	Pipe	Housing		Actuator	Dimensions					Valve	
Nominal width	Ø [mm]	A [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	P [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	50.0	90.0	99	294	423	200	508	8	9	
DN 40	41.0 × 1.50	62.0	90.0	110	335	464	200	549	13	13	
DN 50	53.0 × 1.50	74.0	90.0	110	341	470	200	555	14	14	
DN 65	70.0 × 2.00	96.0	125.0	135	382	511	230	656	25	24	
DN 80	85.0 × 2.00	111.0	125.0	135	390	519	230	664	25	25	
DN 100	104.0 × 2.00	130.0	125.0	170	399	528	250	673	25	34	
DN 125	129.0 × 2.00	155.0	150.0	260	555	684	300	884	55	65	
DN 150	154.0 × 2.00	180.0	150.0	260	708	837	300	1,037	55	82	
OD 1"	25.4 × 1.65	46.0	90.0	99	292	421	200	506	7	9	
OD 1 ½"	38.1 × 1.65	59.0	90.0	110	337	466	200	551	16	13	
OD 2"	50.8 × 1.65	71.5	90.0	110	343	472	200	557	16	13	
OD 2 ½"	63.5 × 1.65	90.0	125.0	135	386	515	230	660	25	23	
OD 3"	76.2 × 1.65	103.0	125.0	135	393	522	230	667	18	24	
OD 4"	101.6 × 2.11	127.5	125.0	170	401	530	250	675	27	33	
OD 6"	152.4 × 2.77	177.0	150.0	260	707	836	300	1,036	55	82	
IPS 2"	60.3 × 2.00	81.0	114.3	110	338	467	200	552	20	14	
IPS 3"	88.9 × 2.30	115.0	152.5	135	388	517	230	662	21	25	
IPS 4"	114.3 × 2.30	140.0	152.5	170	394	523	250	668	25	35	
IPS 6"	168.3 × 2.77	192.0	152.5	260	702	831	300	1,031	55	84	

## VARIVENT® Type X Single-seat Valve

Position	Description of the order code for the standard version		
<b>1</b>	<b>Valve type</b>		
	X	VARIVENT® divert valve	
<b>2</b>	<b>Housing combinations</b>		
	W	Y	X Z U M N G
<b>3</b>	<b>Supplement to the valve type</b>		
	Reserved for options		
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>		
	DN 25	OD 1"	
	DN 40	OD 1 ½"	
	DN 50	OD 2"	IPS 2"
	DN 65	OD 2 ½"	
	DN 80	OD 3"	IPS 3"
	DN 100	OD 4"	IPS 4"
	DN 125		
	DN 150	OD 6"	IPS 6"
<b>6</b>	<b>Actuator type</b>		
	S	Air / Spring	
<b>7</b>	<b>Non-actuated position</b>		
	Z	Spring-to-close (NC)	
	A	Spring-to-open (NO)	
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>		
	Actuator (spring-to-close)	Actuator (spring-to-open)	For nominal widths
	AA	AA	DN 25, OD 1"
	CB	CB	DN 40, DN 50, OD 1 ½", OD 2", IPS 2"
	DD	DD	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"
	EF	EF	DN 100, OD 4", IPS 4"
	SH6	SH6	DN 125
	TK6	TK6	DN 150, OD 6", IPS 6"
<b>9</b>	<b>Valve seat version</b>		
	L0	Loose seat ring / Clamp connection	
<b>10</b>	<b>Seal material in contact with the product</b>		
	1	EPDM (FDA)	
	2	FKM (FDA)	
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")	
<b>11</b>	<b>Surface quality of the housing</b>		
	1	Inside R <sub>a</sub> ≤ 1.2 µm, outside matt blasted (IPS)	
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted (DN, OD)	
<b>12</b>	<b>Connection fittings</b>		
	N	Welding end	
<b>13</b>	<b>Accessories</b>		
	/52	Adhesive ID tag	
<b>+</b>			
<b>14-19</b>	<b>Air connection / Control and feedback system</b>		
	00000M	Metric for air hose Ø 6/4 mm	
	00000Z	Inch for air hose Ø OD ¼" (6.35 / 4.35 mm)	
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation	

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	X			/	S			L0			N	/52	

For order codes differing from the standard version, please refer to section 7.

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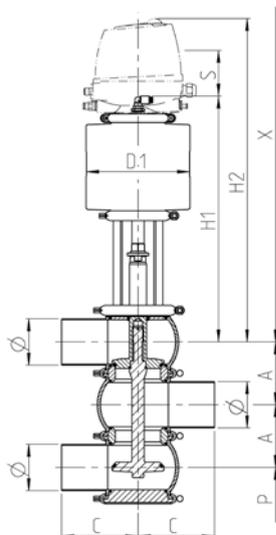
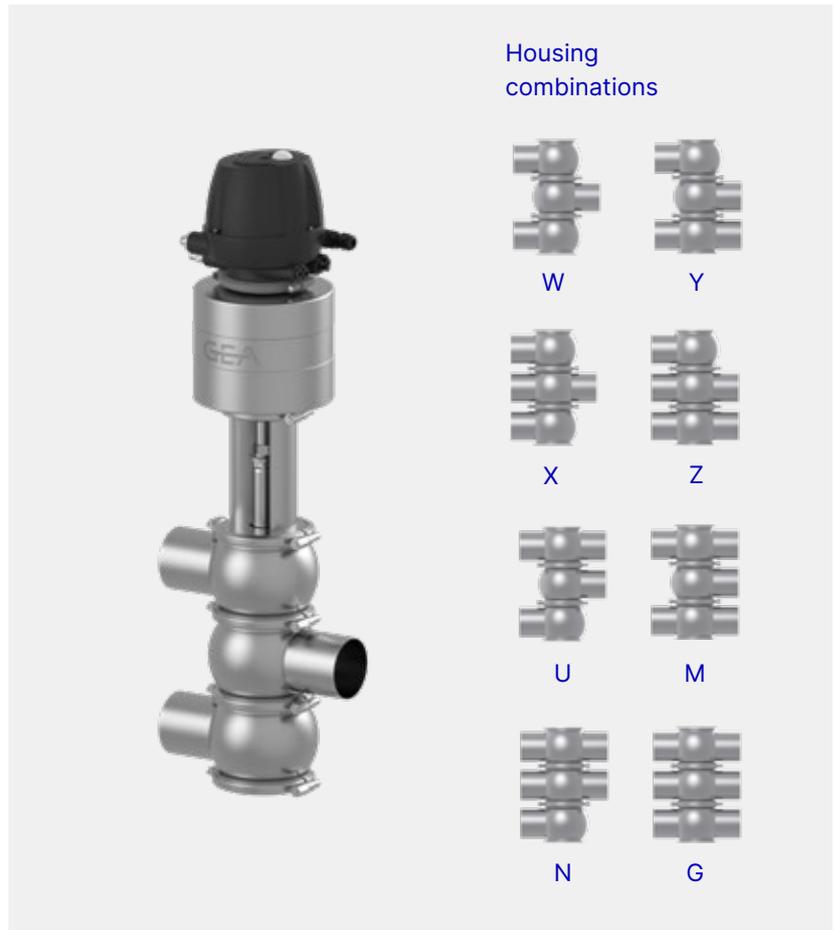
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## VARIVENT® Type X\_V Single-seat Long-stroke Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	OD 2 ½"- OD 3" OD 4"	4.8 bar (70 psi) 6.3 bar (91 psi)
Product pressure	OD 2 ½"- OD 3" OD 4"	5 bar (73 psi) 5.2 bar (75 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$	
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		

Nominal width	Pipe		Housing		Actuator		Dimensions			Valve	
	Ø [mm]	A [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	P [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
OD 2 ½"	63.5 × 1.65	90.0	125	170	402	531	240	675	35	24	
OD 3"	76.2 × 1.65	103.0	125	170	409	538	240	683	35	24	
OD 4"	101.6 × 2.11	127.5	125	210	439	568	280	713	55	36	

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Position	Description of the order code for the standard version
<b>1</b>	<b>Valve type</b> X VARIVENT® divert valve
<b>2</b>	<b>Housing combinations</b> W Y X Z U M N G
<b>3</b>	<b>Supplement to the valve type</b> V Long-stroke
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b> OD 2 ½" OD 3" OD 4"
<b>6</b>	<b>Actuator type</b> S Air / Spring
<b>7</b>	<b>Non-actuated position</b> Z Spring-to-close (NC) A Spring-to-open (NO)
<b>8</b>	<b>Standard configuration with 4.8 bar air supply pressure for 5 bar product pressure (OD 2 ½" – OD 3") or with 6.3 bar air supply pressure for 5.2 bar product pressure (OD 4"), respectively – (higher pressures on request)</b> Actuator (spring-to-close)      Actuator (spring-to-open)      For nominal widths DD5      DD5      OD 2 ½", OD 3" ZEF/V      ZEF/V      OD 4"
<b>9</b>	<b>Valve seat version</b> L0 Loose seat ring / Clamp connection
<b>10</b>	<b>Seal material in contact with the product</b> 1 EPDM (FDA) 2 FKM (FDA) 3 HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b> 2 Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted
<b>12</b>	<b>Connection fittings</b> N Welding end
<b>13</b>	<b>Accessories</b> /52 Adhesive ID tag
<b>+</b>	
<b>14–19</b>	<b>Air connection / Control and feedback system</b> 00000M Metric for air hose Ø 6/4 mm 00000Z Inch for air hose Ø OD ¼" (6.35 / 4.35 mm) XXXXX Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	X		V	/	S			L0		2	N	/52	

For order codes differing from the standard version, please refer to section 7.

# 3

## MIXPROOF SHUT-OFF VALVES

VARIVENT® Hygienic Seat Valves



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# Overview of Double-seat Valves

VARIVENT® double-seat valves are used for mixproof shut-off of incompatible products at the pipe junctions.

## Special features

Certified, hygienic configuration

Metallic stop

Flexibility because of the modular principle

Proven seal geometry

Mixproof separation

Availability of different valve configurations

Spray cleaning connection for cleaning the leakage chamber





# Overview of Double-seat Valves

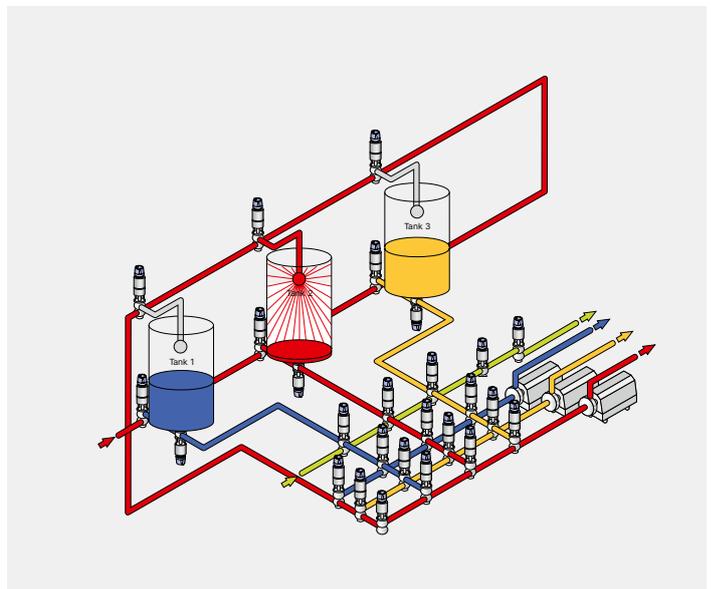
## VARIVENT®

The structure of the VARIVENT® modular system has many optional versions available to best optimize the valve in the process. Please refer to the options section (section 7) for information about these.

VARIVENT® long-stroke valves are used for transporting products with relatively large particles or for viscous products, such as yoghurt with pieces of fruit.

### Sizes

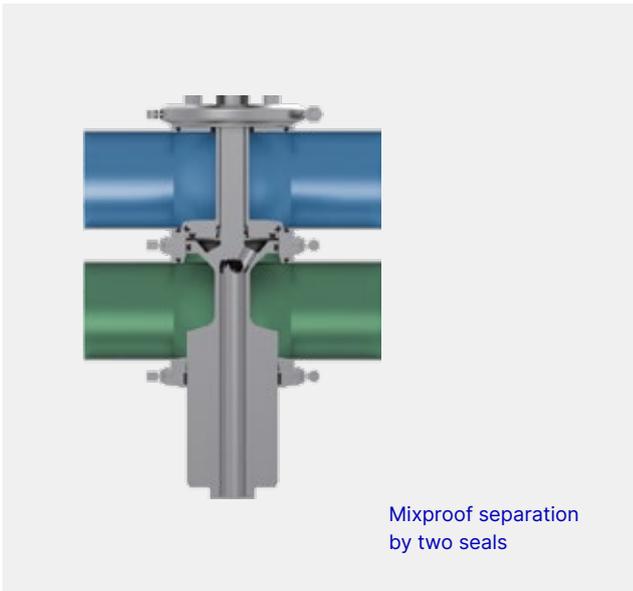
Double-seat valves type D and R	Double-seat valve type B	Double-seat long-stroke valves
DN 25–DN 150	DN 65–DN 150	
OD 1"–OD 6"	OD 2 ½"–OD 6"	OD 3"–OD 4"
IPS2"–IPS 6"	IPS 2"–IPS 6"	



### Function of the valve

When the valve is closed (non-actuated position), there are always two seals between the separated pipelines. If one seal is defective, the resulting leakage will be directed through the leakage outlet into the periphery, without mixing with the product in the second pipeline.

This method enables that there is no mixing between the products from two pipelines.



### Variety of types

The different variants of the VARIVENT® double-seat valve make it possible to select valves that are optimally adapted to the process.

The axial sealing valve types D and B entail a small switching leakage during each switching procedure, but they notably have a very long service life with the axial seals. The radial sealing valve type R, on the other hand, offers the advantage of switching nearly without any switching leakage.

Valve types B and R are additionally characterized by a balancer in the lower valve housing. This enables the valve to reliably remain in the closed position even if there are water hammers in the lower pipeline.

### Application examples

To accommodate the different requirements of various industries, applications and processes, we offer mixproof shut-off valves of various technical configurations in our portfolio. The selection matrix provides an overview of all the options.

VARIVENT® double-seat valves with spray cleaning of the leakage chamber are frequently used in non-critical areas:

- Breweries: Cold process area, e.g. fermenting cellar
- Dairies: Before heat treatment, e.g. milk reception, raw milk storage...

### Switching leakage

In axial sealing double-seat valves, with every switching procedure there is a short time during which the lower valve disc is neither in contact with the middle seal of the upper valve disc, nor has it reached the axial seat surface of the seat ring. During this brief moment liquid can percolate through the resulting gap into the leakage chamber and flow out into the atmosphere. This is referred to as the switching leakage.

In radial sealing double-seat valves, this gap does not occur during the switching procedure, which means the switching leakage is reduced to a minimum (possibility of product residues adhering to the metallic surfaces).

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# Overview of Double-seat Valves

## Water hammer safety

If there is a water hammer in the lower pipeline, the force of the water hammer acts on the lower valve disc and could exceed the locking force of the actuator spring.

This gives rise to the danger of the lower valve disc being lifted by the pressure in the pipeline.

In axial sealing double-seat valves, this would result in a connection to the atmosphere, leading to a leak (see switching leakage). The connection to the atmosphere would also cause a sudden reduction in the excess pressure in the pipeline. Then the actuator spring would close the valve again.

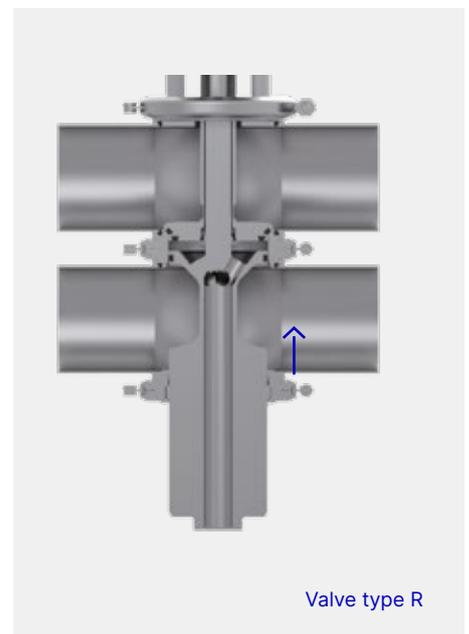
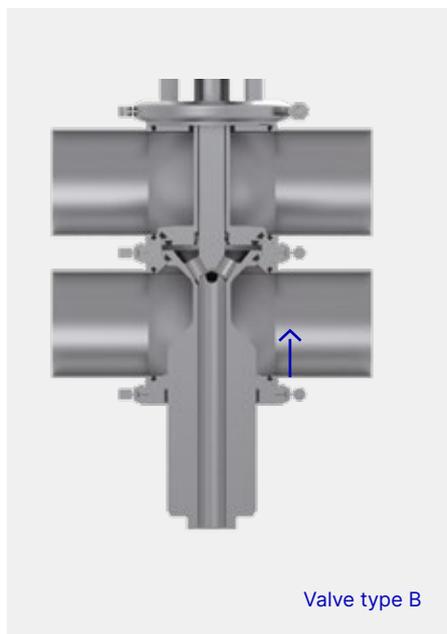
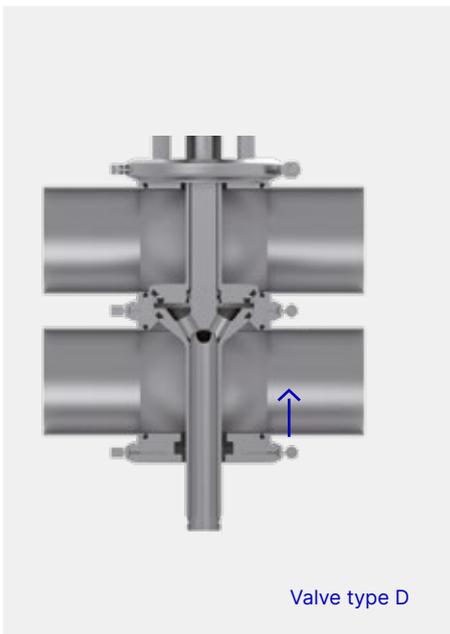
Valves with a lower balancer are available to prevent the lower valve disc from lifting during a water hammer in the lower pipeline.

With its downward-facing compensation surface, the balancer adjusts out the operating direction of the pressure and prevents movement of the lower valve disc up to a particular excess pressure.

Radial sealing double-seat valves are always equipped with this lower balancer to prevent the opening movement of the lower valve disc.

## Recommended flow direction

To avoid water hammers when closing the valve while the product is flowing, mixproof shut-off valves should be switched against the flow direction of the product.



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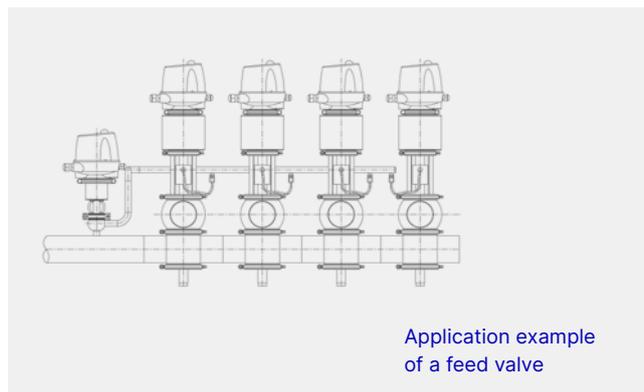
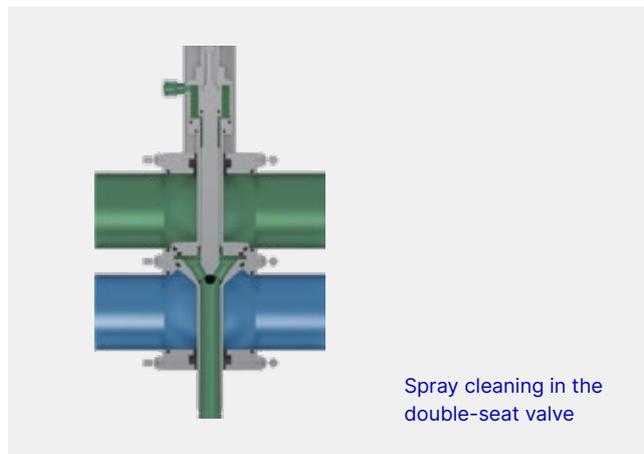
**Cleaning the leakage chamber**

Spray cleaning

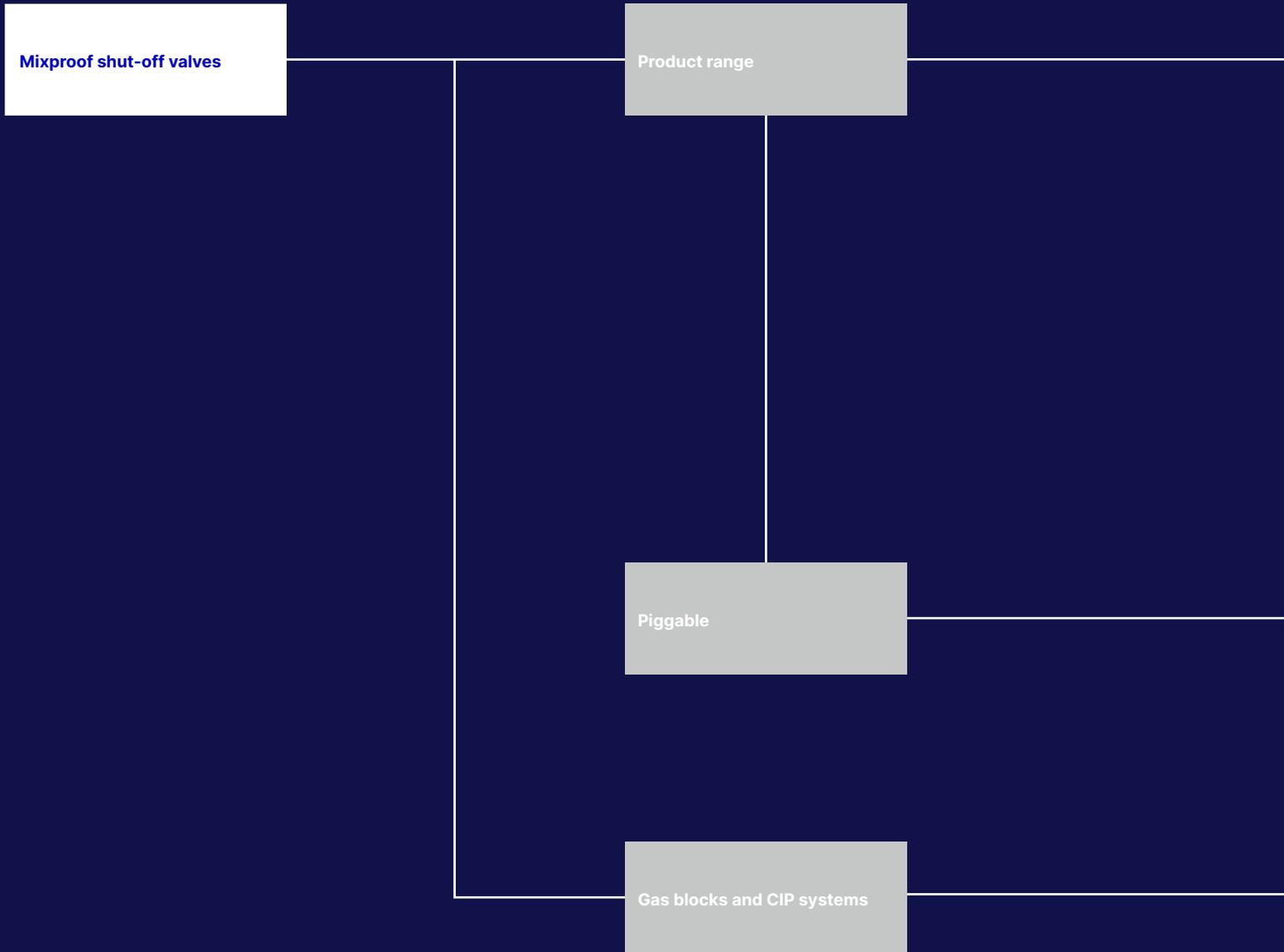
A cleaning connection that is to be connected at the level of the lantern makes it possible to supply external cleaning media into the leakage chamber, in order to clean this chamber using an integrated spray nozzle. After that, the cleaning media flows through the leakage outlet without pressure into the periphery. Cleaning takes place with the valve closed, which means the seal surfaces in contact with the seat ring are not touched during cleaning. In this way, the leakage chamber can be cleaned independently from the pipe cleaning. In addition, this allows interim flushing to occur before or after a switching procedure of the valve.

Periphery

For spray cleaning via the external connection in the lantern, it is necessary to have feed valves in the periphery in order to channel the cleaning media to the cleaning connection at the intended time. For this purpose feed valves with a relatively small nominal width are used on the pipeline carrying the cleaning media. Each feed valve generally supplies several cleaning connections of double-seat valves. It should be noted that all connected double-seat valves must have an adequate supply of cleaning media during cleaning. As a rule of thumb, no more than six double-seat valves should be supplied from one feed valve.

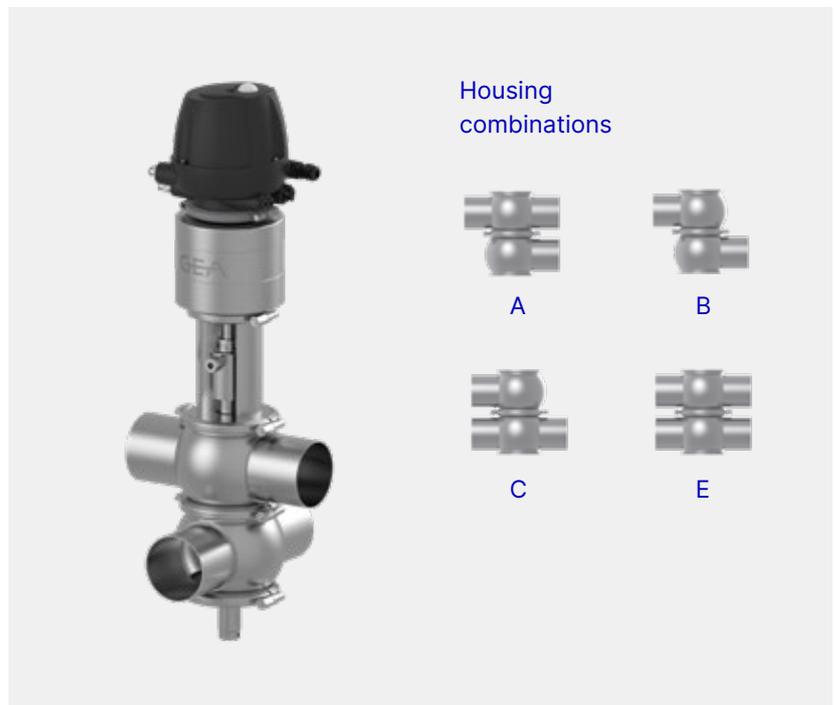


# Selection Matrix



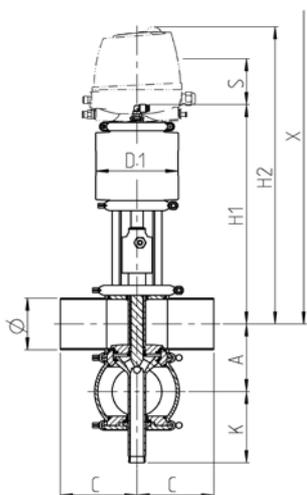


## VARIVENT® Type D Double-seat Valve



### Technical data of the standard version

Material in contact with the product		1.4404 (AISI 316L)
Material not in contact with the product		1.4301 (AISI 304)
Seal material in contact with the product		EPDM, FKM, HNBR
Ambient temperature		0 to 45 °C
Air supply pressure		6 bar (87 psi)
Product pressure		5 bar (73 psi)
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface		Matt blasted
Control and feedback system		Connection 0 (without control top)
Actuator type		Pneumatic actuator air/spring
Connection fittings		Welding end
Identification		Adhesive ID tag
Valve seat version		Clamped or welded seat ring
Marking / Certificates		



	Pipe		Housing			Actuator	Spray cleaning hose (PTFE)			Dimensions		Valve
Nominal width	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	50.0	90.0	81	99	6/4	294	423	648	22.0	8	
DN 40	41.0 × 1.50	62.0	90.0	93	110	8/6	335	464	689	22.0	11	
DN 50	53.0 × 1.50	74.0	90.0	99	110	8/6	341	470	695	30.0	12	
DN 65	70.0 × 2.00	96.0	125.0	125	135	8/6	352	481	831	30.0	18	
DN 80	85.0 × 2.00	111.0	125.0	117	135	8/6	360	489	839	30.0	19	
DN 100	104.0 × 2.00	130.0	125.0	137	170	8/6	399	528	878	30.0	27	
DN 125	129.0 × 2.00	155.0	150.0	171	260	10/8	555	684	1,174	60.0	58	
DN 150	154.0 × 2.00	180.0	150.0	196	260	10/8	579	708	1,198	60.0	66	
<hr/>												
OD 1"	25.4 × 1.65	46.0	90.0	83	99	6/4	292	421	646	18.0	8	
OD 1 ½"	38.1 × 1.65	59.0	90.0	94	110	8/6	337	466	691	22.0	11	
OD 2"	50.8 × 1.65	71.5	90.0	100	110	8/6	343	472	697	30.5	11	
OD 2 ½"	63.5 × 1.65	90.0	125.0	128	135	8/6	356	485	835	31.0	18	
OD 3"	76.2 × 1.65	103.0	125.0	121	135	8/6	363	492	842	29.0	18	
OD 4"	101.6 × 2.11	127.5	125.0	138	170	8/6	401	530	880	30.5	27	
OD 6"	152.4 × 2.77	177.0	150.0	197	260	10/8	578	707	1197	60.0	67	
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IPS 2"	60.3 × 2.00	81.0	114.3	95	110	8/6	338	467	692	30.0	12	
IPS 3"	88.9 × 2.30	115.0	152.5	115	135	8/6	358	487	837	30.0	19	
IPS 4"	114.3 × 2.30	140.0	152.5	132	170	8/6	394	523	873	30.0	28	
IPS 6"	168.3 × 2.77	192.0	152.5	190	260	10/8	573	702	1,192	60.0	68	

Please note: A 10–100 mm clearance below the leakage outlet is required with this valve type.

## VARIVENT® Type D Double-seat Valve

Position	Description of the order code for the standard version					
1	<b>Valve type</b>					
	D	VARIVENT® double-seat valve				
2	<b>Housing combinations</b>					
	A	B	C	E		
3	<b>Supplement to the valve type</b>					
	Reserved for options					
4/5	<b>Nominal width (upper housing/lower housing)</b>					
	DN 25	OD 1"				
	DN 40	OD 1 ½"				
	DN 50	OD 2"	IPS 2"			
	DN 65	OD 2 ½"				
	DN 80	OD 3"	IPS 3"			
	DN 100	OD 4"	IPS 4"			
	DN 125					
	DN 150	OD 6"	IPS 6"			
6	<b>Actuator type</b>					
	S	Air / Spring				
7	<b>Non-actuated position</b>					
	Z	Spring-to-close (NC)				
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>					
	Actuator (spring-to-close)	For nominal widths				
	AA	DN 25, OD 1"				
	BB	DN 40, DN 50, OD 1 ½", OD 2", IPS 2"				
	CD	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"				
	DF	DN 100, OD 4", IPS 4"				
	SH6	DN 125				
	SK6	DN 150, OD 6", IPS 6"				
9	<b>Valve seat version</b>		<b>Housing combination</b>			
			A	B	C	E
	L0	Loose seat ring/Clamp connection	✓	✓	✓	✓
	V0	Welded seat ring/Port orientation 0°				
	V1	Welded seat ring/Port orientation 90°				
	V2	Welded seat ring/Port orientation 180°				
	V3	Welded seat ring/Port orientation 270°				



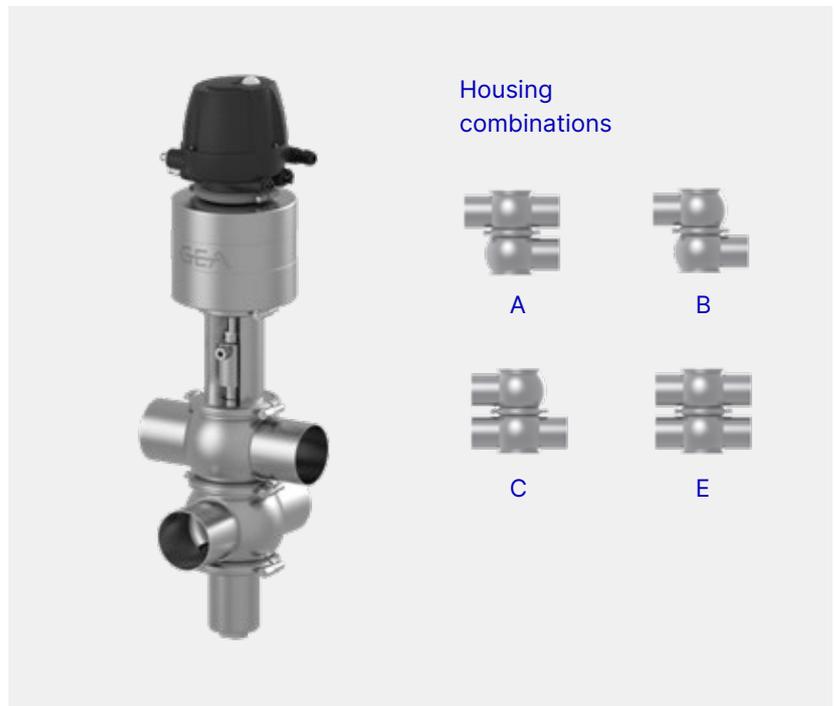
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19					
Code	D			/	S	Z					N	/52						

For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type B Double-seat Valve With Balancer



### Technical data of the standard version

Material in contact with the product		1.4404 (AISI 316L)
Material not in contact with the product		1.4301 (AISI 304)
Seal material in contact with the product		EPDM, FKM, HNBR
Ambient temperature		0 to 45 °C
Air supply pressure		6 bar (87 psi)
Product pressure		5 bar (73 psi)
Water hammer safety		Up to 25 bar
Surface in contact with the product	DN, OD IPS	$R_a \leq 0.8 \mu\text{m}$ $R_a \leq 1.2 \mu\text{m}$
External housing surface		Matt blasted
Control and feedback system		Connection 0 (without control top)
Actuator type		Pneumatic actuator air/spring
Connection fittings		Welding end
Identification		Adhesive ID tag
Valve seat version		Clamped or welded seat ring
Marking / Certificates		

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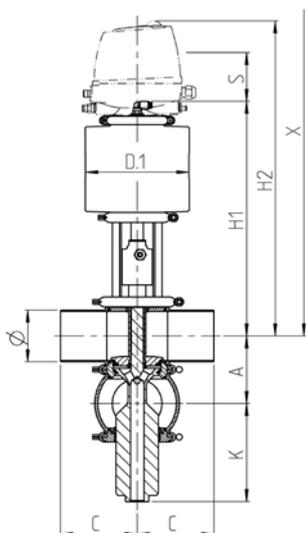
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Nominal width	Pipe		Housing			Actuator	Spray cleaning hose (PTFE)		Dimensions			Valve	
	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]		
DN 65	70.0 × 2.00	96.0	125.0	125.0	170	8/6	382	511	916	30.0	24		
DN 80	85.0 × 2.00	111.0	125.0	117.0	170	8/6	390	519	924	30.0	24		
DN 100	104.0 × 2.00	130.0	125.0	137.0	210	8/6	399	528	933	30.0	32		
DN 125	129.0 × 2.00	155.0	150.0	171.0	210	10/8	555	684	1,274	60.0	51		
DN 150	154.0 × 2.00	180.0	150.0	196.0	260	10/8	579	708	1,298	60.0	65		
OD 2 ½"	63.5 × 1.65	90.0	125.0	128.0	170	8/6	386	515	920	31.0	23		
OD 3"	76.2 × 1.65	103.0	125.0	121.0	170	8/6	393	522	927	29.0	24		
OD 4"	101.6 × 2.11	127.5	125.0	138.0	210	8/6	401	530	935	30.5	32		
OD 6"	152.4 × 2.77	177.0	150.0	276.5	260	10/8	578	707	1,297	60.0	66		
IPS 2"	60.3 × 2.00	81.0	114.3	95.0	110	8/6	345	474	734	30.0	13		
IPS 3"	88.9 × 2.30	115.0	152.5	115.0	170	8/6	392	521	926	30.0	25		
IPS 4"	114.3 × 2.30	140.0	152.5	132.0	210	8/6	404	533	938	30.0	33		
IPS 6"	168.3 × 2.77	192.0	152.5	190.0	260	10/8	573	702	1,292	60.0	67		

Please note: A 10–100 mm clearance below the leakage outlet is required with this valve type.

## VARIVENT® Type B Double-seat Valve With Balancer

Position	Description of the order code for the standard version					
1	<b>Valve type</b>					
	B	VARIVENT® double-seat valve				
2	<b>Housing combinations</b>					
	A	B	C	E		
3	<b>Supplement to the valve type</b>					
	Reserved for options					
4/5	<b>Nominal width (upper housing/lower housing)</b>					
	IPS 2"					
	DN 65	OD 2 ½"				
	DN 80	OD 3"	IPS 3"			
	DN 100	OD 4"	IPS 4"			
	DN 125					
	DN 150	OD 6"	IPS 6"			
6	<b>Actuator type</b>					
	S	Air / Spring				
7	<b>Non-actuated position</b>					
	Z	Spring-to-close (NC)				
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>					
	Actuator (spring-to-close)		For nominal widths			
	BB	IPS 2"				
	DD	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"				
	EF	DN 100, OD 4", IPS 4"				
	EF6	DN 125				
	SG6	DN 150, OD 6", IPS 6"				
9	<b>Valve seat version</b>		<b>Housing combination</b>			
			A	B	C	E
	L0	Loose seat ring / Clamp connection	✓	✓	✓	✓
	V0	Welded seat ring / Port orientation 0°				
	V1	Welded seat ring / Port orientation 90°				
	V2	Welded seat ring / Port orientation 180°				
	V3	Welded seat ring / Port orientation 270°				



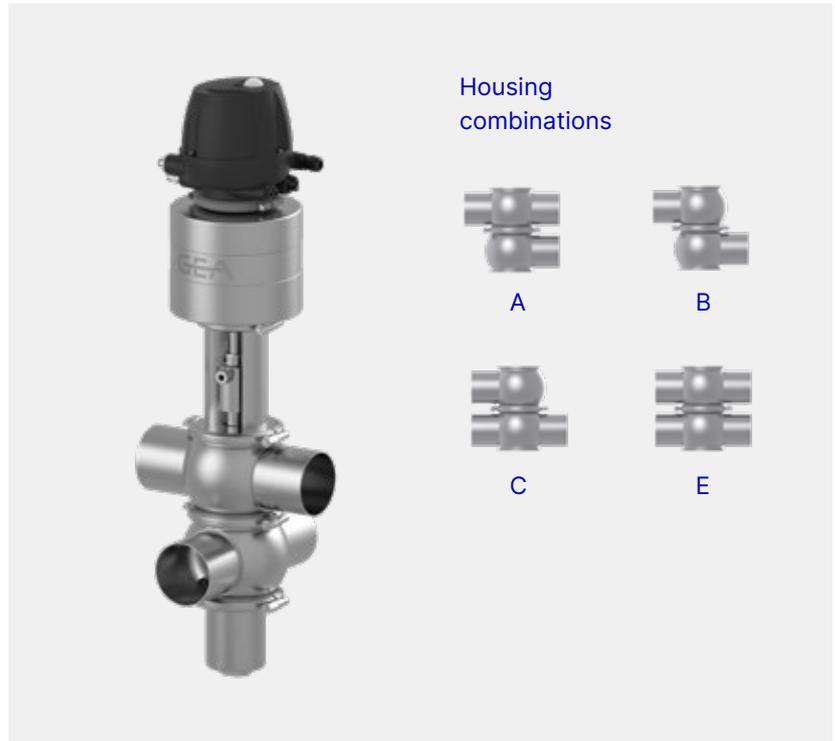
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4 \text{ mm}$
	00000Z	Inch for air hose $\varnothing \text{ OD } 1/4" (6.35/4.35 \text{ mm})$
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19					
Code	B			/	S	Z					N	/52						

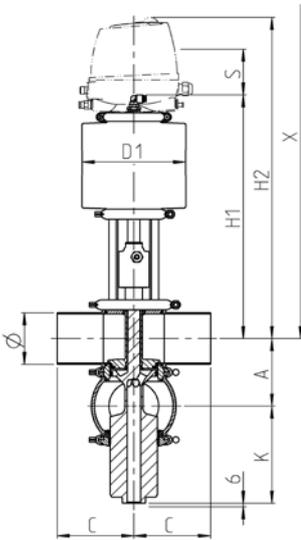
For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type R Radial Sealing Double-seat Valve



### Technical data of the standard version

Material in contact with the product		1.4404 (AISI 316L)
Material not in contact with the product		1.4301 (AISI 304)
Seal material in contact with the product		EPDM, FKM, HNBR
Ambient temperature		0 to 45 °C
Air supply pressure		6 bar (87 psi)
Product pressure		5 bar (73 psi)
Water hammer safety		30 bar (DN 25 up to DN 50, OD 1" up to OD 2", IPS 2") 50 bar (from DN 65, OD 2 1/2", IPS 3")
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface		Matt blasted
Control and feedback system		Connection 0 (without control top)
Actuator type		Pneumatic actuator air/spring
Connection fittings		Welding end
Identification		Adhesive ID tag
Valve seat version		Clamped or welded seat ring
Marking / Certificates		



Nominal width	Pipe		Housing			Actuator	Spray cleaning hose (PTFE)			Dimensions		Valve
	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	50.0	90.0	91.0	135	6/4	329.0	458.0	718	22	11	
DN 40	41.0 × 1.50	62.0	90.0	129.5	135	8/6	338.0	467.0	727	25	14	
DN 50	53.0 × 1.50	74.0	90.0	135.5	135	8/6	341.0	470.0	730	30	14	
DN 65	70.0 × 2.00	96.0	125.0	164.5	170	8/6	382.0	511.0	916	30	24	
DN 80	85.0 × 2.00	111.0	125.0	172.0	170	8/6	399.5	528.5	934	40	26	
DN 100	104.0 × 2.00	130.0	125.0	192.5	170	8/6	409.0	538.0	943	40	29	
DN 125	129.0 × 2.00	155.0	150.0	258.0	210	10/8	554.5	683.5	1,274	60	52	
DN 150	154.0 × 2.00	180.0	150.0	272.5	210	10/8	661.0	790.0	1,380	60	64	
OD 1"	25.4 × 1.65	46.0	90.0	93.0	135	6/4	327.0	456.0	716	18	11	
OD 1 ½"	38.1 × 1.65	59.0	90.0	128.0	135	8/6	336.5	465.5	726	22	14	
OD 2"	50.8 × 1.65	71.5	90.0	137.0	135	8/6	343.0	472.0	732	30	14	
OD 2 ½"	63.5 × 1.65	90.0	125.0	167.5	170	8/6	386.0	515.0	920	31	24	
OD 3"	76.2 × 1.65	103.0	125.0	176.0	170	8/6	402.5	531.5	937	39	25	
OD 4"	101.6 × 2.11	127.5	125.0	194.0	170	8/6	411.0	540.0	945	40	31	
OD 6"	152.4 × 2.77	177.0	150.0	274.0	210	10/8	659.5	788.5	1,379	60	65	
IPS 2"	60.3 × 2.00	81.0	114.3	139.0	135	8/6	344.5	473.5	734	29	15	
IPS 3"	88.9 × 2.30	115.0	152.5	174.0	170	8/6	401.5	530.5	936	40	26	
IPS 4"	114.3 × 2.30	140.0	152.5	197.5	170	8/6	414.0	543.0	948	40	31	
IPS 6"	168.3 × 2.77	192.0	152.5	278.5	210	10/8	655.0	784.0	1,374	60	66	

Please note: A 10–100 mm clearance below the leakage outlet is required with this valve type.

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## VARIVENT® Type R Radial Sealing Double-seat Valve

Position	Description of the order code for the standard version					
<b>1</b>	<b>Valve type</b>					
	R	VARIVENT® double-seat valve, radial sealing				
<b>2</b>	<b>Housing combinations</b>					
	A	B	C	E		
<b>3</b>	<b>Supplement to the valve type</b>					
	Reserved for options					
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>					
	DN 25	OD 1"				
	DN 40	OD 1 ½"				
	DN 50	OD 2"	IPS 2"			
	DN 65	OD 2 ½"				
	DN 80	OD 3"	IPS 3"			
	DN 100	OD 4"	IPS 4"			
	DN 125					
	DN 150	OD 6"	IPS 6"			
<b>6</b>	<b>Actuator type</b>					
	S	Air / Spring				
<b>7</b>	<b>Non-actuated position</b>					
	Z	Spring-to-close (NC)				
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>					
	Actuator (spring-to-close)	For nominal widths				
	CD	DN 25, DN 40, DN 50, OD 1", OD 1 ½", OD 2", IPS 2"				
	DD	DN 65, OD 2 ½"				
	DD5	DN 80, DN 100, OD 3", OD 4", IPS 3", IPS 4"				
	EF6	DN 125				
	RF6	DN 150, OD 6", IPS 6"				
<b>9</b>	<b>Valve seat version</b>		<b>Housing combination</b>			
			A	B	C	E
	L0	Loose seat ring/Clamp connection	✓	✓	✓	✓
	V0	Welded seat ring/Port orientation 0°				
	V1	Welded seat ring/Port orientation 90°				
	V2	Welded seat ring/Port orientation 180°				
	V3	Welded seat ring/Port orientation 270°				



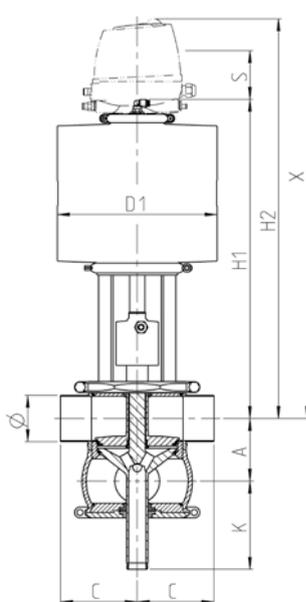
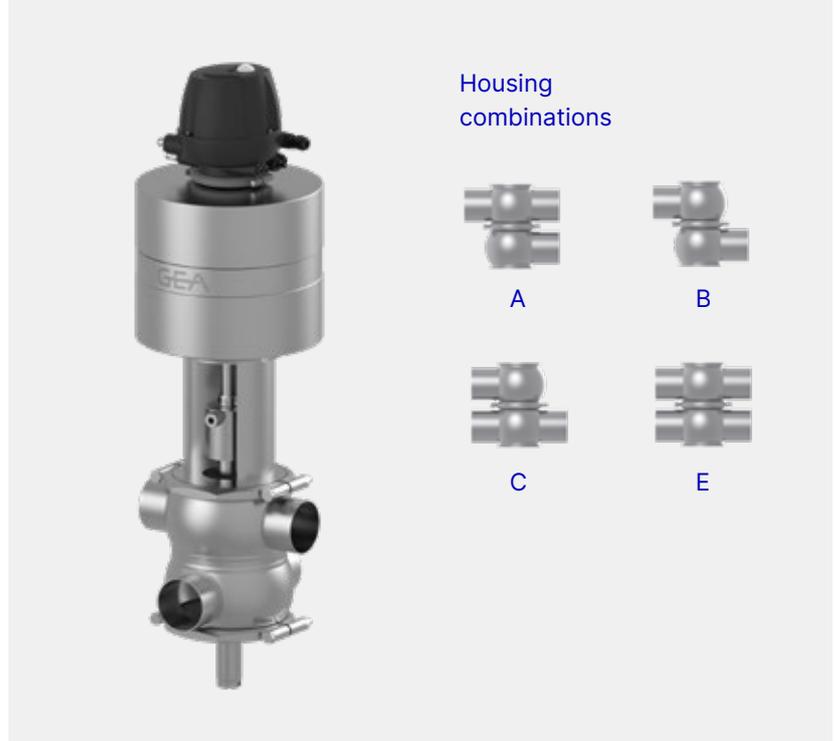
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag (up to DN 50, OD 2", IPS 2")
	/52/05	Adhesive ID tag (from DN 65, OD 2 1/2", IPS 3")
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

<b>Position</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4/5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14 to 19</b>
Code	R			/	S	Z					N		

For order codes differing from the standard version, please refer to section 7.

# VARIVENT® Type D\_/V Double-seat Long-stroke Valve



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	5 bar (73 psi)
Surface in contact with the product	R <sub>a</sub> ≤ 0.8 µm
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Clamped or welded seat ring
Marking / Certificates	



Nominal width	Pipe		Housing			Actuator	Spray cleaning hose (PTFE)		Dimensions			Valve
	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
OD 3"	76.2 × 1.65	103.0	150	145	261	8/6	528.50	657.50	1,007.50	60	53	
OD 4"	101.6 × 2.11	127.5	150	157	261	8/6	540.75	669.75	1,019.75	60	61	

Please note: A 10–100 mm clearance below the leakage outlet is required with this valve type.

Position	Description of the order code for the standard version				
<b>1</b>	<b>Valve type</b>				
	D	VARIVENT® double-seat valve			
<b>2</b>	<b>Housing combinations</b>				
	A	B	C	E	
<b>3</b>	<b>Supplement to the valve type</b>				
	/V	Long-stroke			
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>				
	OD 3"				
	OD 4"				
<b>6</b>	<b>Actuator type</b>				
	S	Air / Spring			
<b>7</b>	<b>Non-actuated position</b>				
	Z	Spring-to-close (NC)			
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>				
	Actuator (spring-to-close)	For nominal widths			
	SH6	OD 3"			
	SK6	OD 4"			
<b>9</b>	<b>Valve seat version</b>	<b>Housing combination</b>			
		A	B	C	E
	L0	Loose seat ring / Clamp connection			
	V0	Welded seat ring / Port orientation 0°			
	V1	Welded seat ring / Port orientation 90°			
	V2	Welded seat ring / Port orientation 180°			
	V3	Welded seat ring / Port orientation 270°			
<b>10</b>	<b>Seal material in contact with the product</b>				
	1	EPDM (FDA)			
	2	FKM (FDA)			
<b>11</b>	<b>Surface quality of the housing</b>				
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)			
<b>12</b>	<b>Connection fittings</b>				
	N	Welding end			
<b>13</b>	<b>Accessories</b>				
	/52	Adhesive ID tag			
<b>+</b>					
<b>14-19</b>	<b>Air connection / Control and feedback system</b>				
	00000M	Metric for air hose $\varnothing 6/4$ mm			
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35/4.35 mm)			
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation			

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	D		/V	- /	- S	Z	-		-	2	N	/52	-

For order codes differing from the standard version, please refer to section 7.

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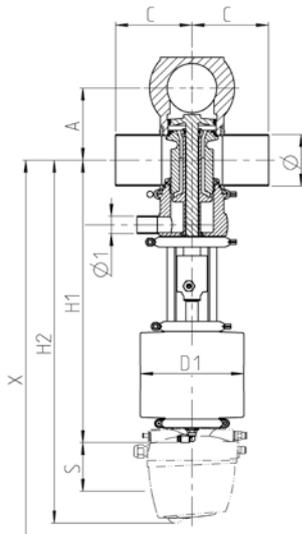
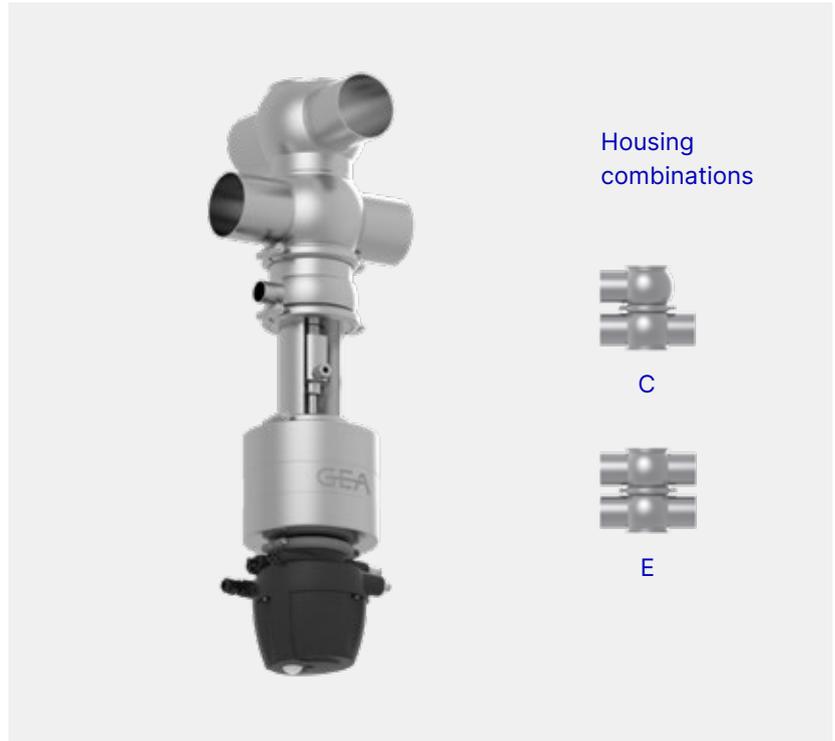
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## VARIVENT® Type L\_H Piggable Double-seat Valve Upside Down



### Technical data

#### of the standard version

Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	7 bar (101 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Welded seat ring
Marking / Certificates	



Nominal width	Pipe	Pipe leakage	Housing		Actuator	Spray cleaning hose (PTFE)	Dimensions			Valve	
	Ø [mm]	Ø1 [mm]	A [mm]	C [mm]	D1 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 40	41.0 × 1.50	23 × 1.5	74.0	90	135	8/6	414.5	543.5	648.5	25	16
DN 50	53.0 × 1.50	23 × 1.5	86.0	90	135	8/6	420.5	549.5	654.5	33	16
DN 65	70.0 × 2.00	29 × 1.5	104.0	125	170	8/6	460.5	589.5	764.5	35	29
DN 80	85.0 × 2.00	29 × 1.5	119.0	125	170	8/6	468.0	597.0	772.0	35	29
DN 100	104.0 × 2.00	29 × 1.5	138.0	125	210	8/6	467.5	596.5	771.5	35	43
OD 1 ½"	38.1 × 1.65	23 × 1.5	71.0	90	135	8/6	416.0	545.0	650.0	25	16
OD 2"	50.8 × 1.65	23 × 1.5	83.5	90	135	8/6	422.3	551.3	656.3	33	16
OD 2 ½"	63.5 × 1.65	29 × 1.5	98.0	125	170	8/6	464.5	593.5	768.5	35	28
OD 3"	76.2 × 1.65	29 × 1.5	111.0	125	170	8/6	471.0	600.0	775.0	35	29
OD 4"	101.6 × 2.11	29 × 1.5	135.5	125	210	8/6	469.3	598.3	773.3	35	43

Position	Description of the order code for the standard version	
<b>1</b>	<b>Valve type</b>	
	L	VARIVENT® double-seat valve, piggable
<b>2</b>	<b>Housing combinations</b>	
	C	E
<b>3</b>	<b>Supplement to the valve type</b>	
	H	Upside down
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>	
	DN 40	OD 1 ½"
	DN 50	OD 2"
	DN 65	OD 2 ½"
	DN 80	OD 3"
	DN 100	OD 4"
<b>6</b>	<b>Actuator type</b>	
	S	Air / Spring
<b>7</b>	<b>Non-actuated position</b>	
	Z	Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>	
	Actuator (spring-to-close)	For nominal widths
	CD	DN 40, DN 50, OD 1 ½", OD 2"
	DF	DN 65, DN 80, OD 2 ½", OD 3"
	EG	DN 100, OD 4"
<b>9</b>	<b>Valve seat version</b>	<b>Housing combination</b>
		C      E
	V1	Welded seat ring / Port orientation 90° 
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b>	
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
<b>+</b>		
<b>14-19</b>	<b>Air connection/ Control and feedback system</b>	
	00000M	Metric for air hose Ø 6/4 mm
	00000Z	Inch for air hose Ø OD ¼" (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	L		H	- / -	S	Z	-	V1	-	2	N	/52	-

For order codes differing from the standard version, please refer to section 7.

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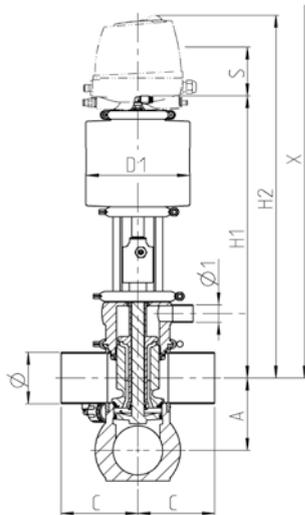
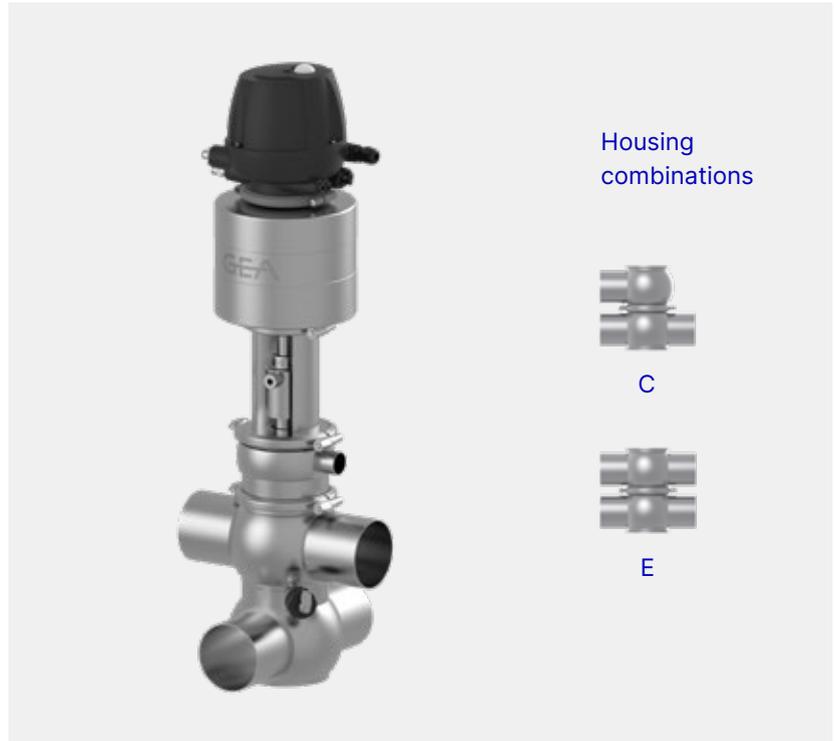
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# VARIVENT® Type L\_S Piggable Double-seat Valve Upright



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	7 bar (101 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Welded seat ring
Marking / Certificates	

Nominal width	Pipe	Pipe leakage	Housing		Actuator	Spray cleaning hose (PTFE)	Dimensions				Valve
	$\varnothing$ [mm]	$\varnothing 1$ [mm]	A [mm]	C [mm]	D1 [mm]	$\varnothing$ [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 40	41.0 × 1.50	23 × 1.5	74.0	90	135	8/6	414.5	543.5	648.5	25	16
DN 50	53.0 × 1.50	23 × 1.5	86.0	90	135	8/6	420.5	549.5	654.5	33	17
DN 65	70.0 × 2.00	29 × 1.5	104.0	125	170	8/6	460.5	589.5	764.5	35	29
DN 80	85.0 × 2.00	29 × 1.5	119.0	125	170	8/6	468.0	597.0	772.0	35	30
DN 100	104.0 × 2.00	29 × 1.5	138.0	125	210	8/6	467.5	596.5	771.5	35	38
OD 1 ½"	38.1 × 1.65	23 × 1.5	71.0	90	135	8/6	416.0	545.0	650.0	25	16
OD 2"	50.8 × 1.65	23 × 1.5	83.5	90	135	8/6	422.3	551.3	656.3	33	17
OD 2 ½"	63.5 × 1.65	29 × 1.5	98.0	125	170	8/6	464.5	593.5	768.5	35	28
OD 3"	76.2 × 1.65	29 × 1.5	111.0	125	170	8/6	471.0	600.0	775.0	35	29
OD 4"	101.6 × 2.11	29 × 1.5	135.5	125	210	8/6	469.3	598.3	773.3	35	38

Position	Description of the order code for the standard version	
<b>1</b>	<b>Valve type</b>	
	L	VARIVENT® double-seat valve, piggable
<b>2</b>	<b>Housing combinations</b>	
	C	E
<b>3</b>	<b>Supplement to the valve type</b>	
	S	Upright
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>	
	DN 40	OD 1 ½"
	DN 50	OD 2"
	DN 65	OD 2 ½"
	DN 80	OD 3"
	DN 100	OD 4"
<b>6</b>	<b>Actuator type</b>	
	S	Air / Spring
<b>7</b>	<b>Non-actuated position</b>	
	Z	Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>	
	Actuator (spring-to-close)	For nominal widths
	CD	DN 40, DN 50, OD 1 ½", OD 2"
	DF	DN 65, DN 80, OD 2 ½", OD 3"
	EG	DN 100, OD 4"
<b>9</b>	<b>Valve seat version</b>	<b>Housing combination</b>
		C      E
	V1	Welded seat ring / Port orientation 90° 
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b>	
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
	/C	Flush valve, plastic, up to 80 °C
	/C-S	Flush valve, stainless steel, over 80 °C
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose Ø 6/4 mm
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	L		S	/	S	Z		V1		2	N		

For order codes differing from the standard version, please refer to section 7.





# Overview of Valves for Gas Blocks and CIP Systems

## VARIVENT®

The VARIVENT® modular system has many available versions for optimizing the valves in the process system. Please refer to the options section (section 7) for information about these.

### Sizes

Double-seat valves type C	Double-seat valves type K
DN 25–DN 150	DN 25–DN 150
OD 1"–OD 6"	OD 1"–OD 6"
	IPS 2"–IPS 6"

## Application examples

VARIVENT® double-seat valves type C and double-seat valves type K are predominantly used in areas where hygiene is not critical, e.g. CIP systems and gas blocks (brewery).

## Mixproof separation

VARIVENT® mixproof valves type C and K are used as efficient alternatives for mixproof separation of incompatible products at pipeline junctions within CIP systems or gas blocks.

When the valve is closed (non-actuated position), there are always two seals between the separated pipelines. If one seal is defective, the resulting leakage will be directed through the leakage outlet into the periphery, without mixing with the product in the second pipeline.

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### The valve types

Valve type K represents a typical double-seat valve with two independent valve discs in which these two seals are located.

Valve type C, on the other hand, is a double-seat valve in which these two seals are together with the leakage chamber in between them in a valve disc.

In both versions, two seals prevent any mixture between a product line and a line carrying a cleaning media.

### Recommended flow direction

To avoid water hammers when closing the valve while the product is flowing, mixproof shut-off valves should be switched against the flow direction of the product. That means, for VARIVENT® mixproof valves type C and K, the recommended flow direction of the product is from the lower to the upper housing,



Double-seat valve  
type K



Double-seat valve  
type C

# Overview of Valves for Gas Blocks and CIP Systems

## Cleaning the leakage chamber

### Double-seat valve type C

In the standard version, two flush valves are connected to the leakage chamber between the two valve disc seals. One flush valve is always used for the leakage outlet, while the second flush valve is in contact with cleaning media through an olive screw fitting, in order to clean the leakage chamber.

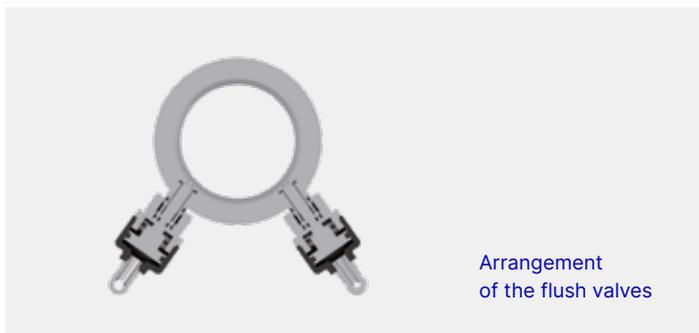
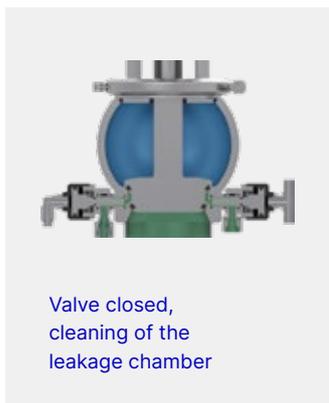
In this case, it is necessary to have a supply valve connected in the periphery to supply the flush valve with cleaning media at the required time.

Cleaning takes place while the main valve is closed, which means the seal surfaces of the valve disc seals that are in contact are not reached.

### Double-seat valve type K

The double-seat valve type K does not have neither an external spraying connection nor a lifting actuator. The leakage chamber is flushed by the fluid that emerges from the leakage chamber as a result of the switching leakage during the main stroke. For this reason, the valve is not suitable for use in hygienic areas.

The advantages of the valve type K are its slightly increased safety against water hammers that could occur in the lower pipeline, as well as having a wider selection of available housing combinations.



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## VARIVENT® Type C Double-seal Valve



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	5 bar (73 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Fixed vertical port
Marking / Certificates	



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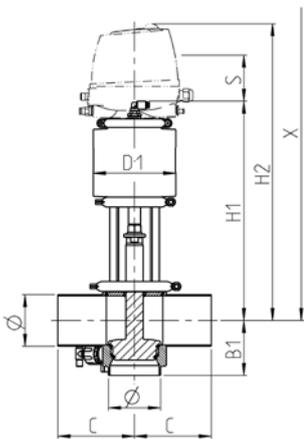
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	Pipe	Housing		Actuator	Flush valve hose (PTFE)		Dimensions			Valve	
Nominal width	Ø [mm]	B1 [mm]	C [mm]	D1 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	58	90	99	8/6	294	423	528	16	8	
DN 40	41.0 × 1.50	64	90	110	8/6	338	467	572	14	10	
DN 50	53.0 × 1.50	70	90	110	8/6	341	470	575	26	10	
DN 65	70.0 × 2.00	83	125	135	8/6	352	481	656	30	15	
DN 80	85.0 × 2.00	91	125	135	8/6	360	489	664	30	16	
DN 100	104.0 × 2.00	100	125	170	8/6	399	528	703	30	23	
DN 125	129.0 × 2.00	113	150	260	8/6	555	684	914	60	49	
DN 150	154.0 × 2.00	125	150	260	8/6	579	708	938	60	55	
OD 1"	25.4 × 1.65	56	90	135	8/6	292	421	526	12	8	
OD 1 ½"	38.1 × 1.65	63	90	135	8/6	337	466	571	14	10	
OD 2"	50.8 × 1.65	69	90	135	8/6	343	472	577	27	10	
OD 2 ½"	63.5 × 1.65	80	125	170	8/6	356	485	660	31	15	
OD 3"	76.2 × 1.65	87	125	170	8/6	363	492	667	29	15	
OD 4"	101.6 × 2.11	99	125	170	8/6	401	530	705	30	22	
OD 6"*	152.4 × 2.77	124	150	260	8/6	578	707	907	57	55	

\* only available for FKM

## VARIVENT® Type C Double-seal Valve

Position	Description of the order code for the standard version	
<b>1</b>	<b>Valve type</b>	
	C	VARIVENT® double-seal valve
<b>2</b>	<b>Housing combinations</b>	
	L	T
<b>3</b>	<b>Supplement to the valve type</b>	
	Reserved for options	
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>	
	DN 25	OD 1"
	DN 40	OD 1 ½"
	DN 50	OD 2"
	DN 65	OD 2 ½"
	DN 80	OD 3"
	DN 100	OD 4"
	DN 125	
	DN 150	
<b>6</b>	<b>Actuator type</b>	
	S	Air / Spring
<b>7</b>	<b>Non-actuated position</b>	
	Z	Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>	
	Actuator (spring-to-close)	For nominal widths
	AA	DN 25, OD 1"
	BB	DN 40, DN 50, OD 1 ½", OD 2"
	CD	DN 65, DN 80, OD 2 ½", OD 3"
	DF	DN 100, OD 4"
	SH6	DN 125
	SK6	DN 150
<b>9</b>	<b>Valve seat version</b>	
	V0	Fixed vertical port
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
	/C	Flush valves, plastic, up to 80 °C
	/C-S	Flush valves, stainless steel, over 80 °C
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose Ø 6/4 mm
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	C			/	S	Z		V0		2	N	/52 /C	

For order codes differing from the standard version, please refer to section 7.

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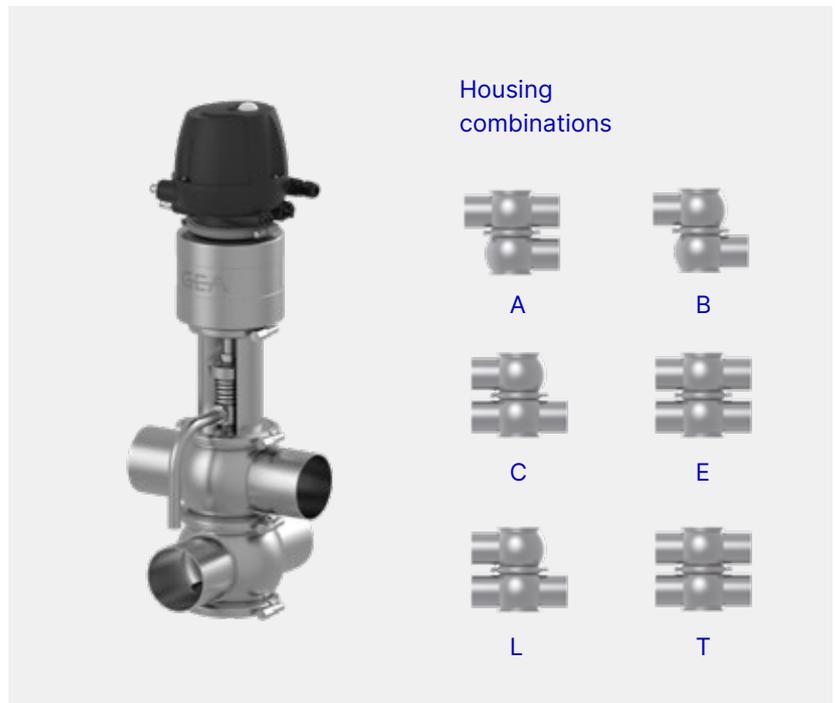
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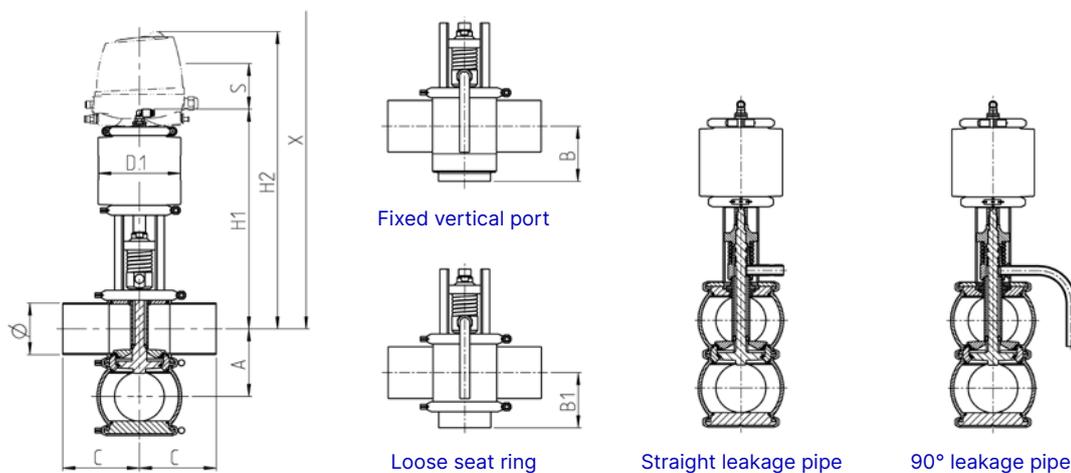
7

## VARIVENT® Type K Double-seat Valve



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD IPS	$R_a \leq 0.8 \mu\text{m}$ $R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped or welded seat ring	
Marking / Certificates		



Nominal width	Pipe		Housing				Actuator	Dimensions				Valve
	Ø [mm]	A [mm]	B [mm]	B1 [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	50.0	58.0	58.0	90.0	135	329.0	458.0	563	22	9	
DN 40	41.0 × 1.50	62.0	64.0	64.0	90.0	135	338.0	467.0	572	25	11	
DN 50	53.0 × 1.50	74.0	70.0	70.0	90.0	135	341.0	470.0	575	30	11	
DN 65	70.0 × 2.00	96.0	83.0	83.0	125.0	170	382.0	511.0	686	30	18	
DN 80	85.0 × 2.00	111.0	90.5	90.5	125.0	170	399.5	528.5	704	40	18	
DN 100	104.0 × 2.00	130.0	100.0	100.0	125.0	170	409.0	538.0	713	40	26	
DN 125	129.0 × 2.00	155.0	112.5	112.5	150.0	210	554.5	683.5	914	60	57	
DN 150	154.0 × 2.00	180.0	125.0	125.0	150.0	210	661.0	790.0	1,020	60	65	

OD 1"	25.4 × 1.65	46.0	56.0	56.0	90.0	135	327.0	456.0	561	18	9
OD 1 ½"	38.1 × 1.65	59.0	62.5	62.5	90.0	135	336.5	465.5	571	22	11
OD 2"	50.8 × 1.65	71.5	69.0	69.0	90.0	135	343.0	472.0	577	30	11
OD 2 ½"	63.5 × 1.65	90.0	80.0	80.0	125.0	170	386.0	515.0	690	30	17
OD 3"	76.2 × 1.65	103.0	86.5	86.5	125.0	170	402.5	531.5	707	39	18
OD 4"	101.6 × 2.11	127.5	99.0	99.0	125.0	170	411.0	540.0	715	40	26
OD 6"	152.4 × 2.77	177.0	123.5	123.5	150.0	210	659.5	788.5	1,019	60	66

IPS 2"	60.3 × 2.00	81.0	73.5	73.5	114.3	135	344.5	473.5	579	29	12
IPS 3"	88.9 × 2.30	115.0	92.5	92.5	152.5	170	401.5	530.5	706	40	19
IPS 4"	114.3 × 2.30	140.0	105.0	105.0	152.5	170	414.0	543.0	718	40	27
IPS 6"	168.3 × 2.77	192.0	131.0	131.0	152.5	210	655.0	784.0	1,014	60	67

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## VARIVENT® Type K Double-seat Valve

Position	Description of the order code for the standard version							
1	<b>Valve type</b>							
	K	VARIVENT® double-seat valve						
2	<b>Housing combinations</b>							
	A	B	C	E	L	T		
3	<b>Supplement to the valve type</b>							
	Reserved for options							
4/5	<b>Nominal width (upper housing/lower housing)</b>							
	DN 25	OD 1"						
	DN 40	OD 1 ½"						
	DN 50	OD 2"		IPS 2"				
	DN 65	OD 2 ½"						
	DN 80	OD 3"		IPS 3"				
	DN 100	OD 4"		IPS 4"				
	DN 125							
	DN 150	OD 6"		IPS 6"				
6	<b>Actuator type</b>							
	S	Air / Spring						
7	<b>Non-actuated position</b>							
	Z	Spring-to-close (NC)						
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>							
	Actuator (spring-to-close)			For nominal widths				
	AA	DN 25, OD 1"						
	BB	DN 40, DN 50, OD 1 ½", OD 2", IPS 2"						
	CD	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"						
	DF	DN 100, OD 4", IPS 4"						
	SH6	DN 125						
	SK6	DN 150, OD 6", IPS 6"						
	9	<b>Valve seat version</b>		<b>Housing combination</b>				
			A	B	C	E	L	T
L0		Loose seat ring / Clamp connection	✓	✓	✓	✓	✓	✓
V0		Welded seat ring / Port orientation 0° or fixed vertical port					✓	✓
V1		Welded seat ring / Port orientation 90°						
V2		Welded seat ring / Port orientation 180°						
V3		Welded seat ring / Port orientation 270°						



<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
	/K1	Straight leakage pipe
	/K2	90° leakage pipe
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	K			/	S	Z					N	/52	

For order codes differing from the standard version, please refer to section 7.

# 4

## MIXPROOF SHUT-OFF VALVES WITH SEAT LIFTING

VARIVENT® Hygienic Seat Valves



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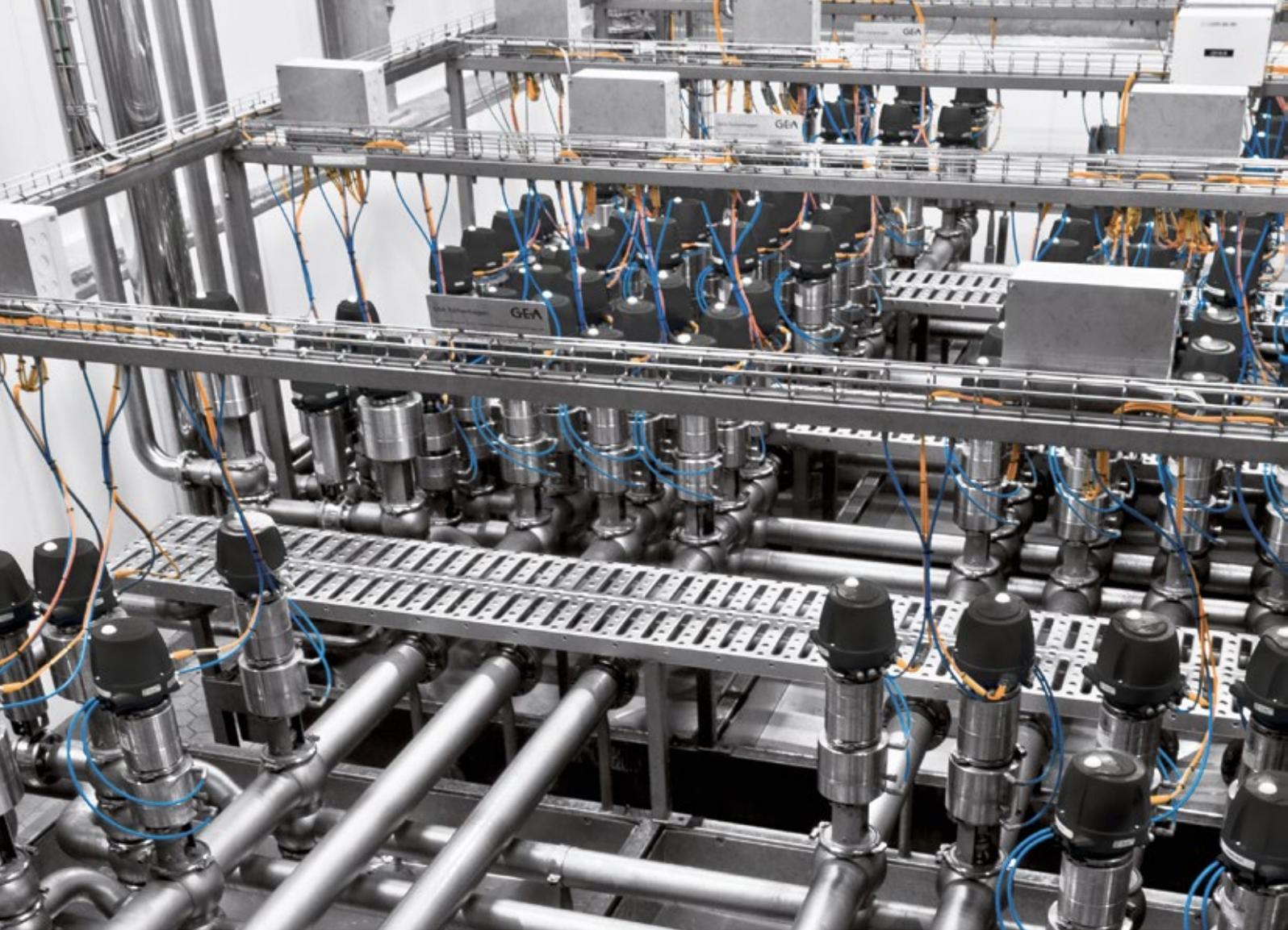
# Overview of Double-seat Valves

VARIVENT® double-seat valves are used for mixproof shut-off of incompatible fluids at pipe junctions.

## Special features

- Certified, hygienic configuration
- Metallic stop
- Flexibility because of the modular principle
- Proven seal geometry
- Mixproof separation
- Different valve configurations available
- Separate lifting actuator for lifting both valve discs
- Optional spray cleaning connection for cleaning the leakage chamber





# Overview of Double-seat Valves

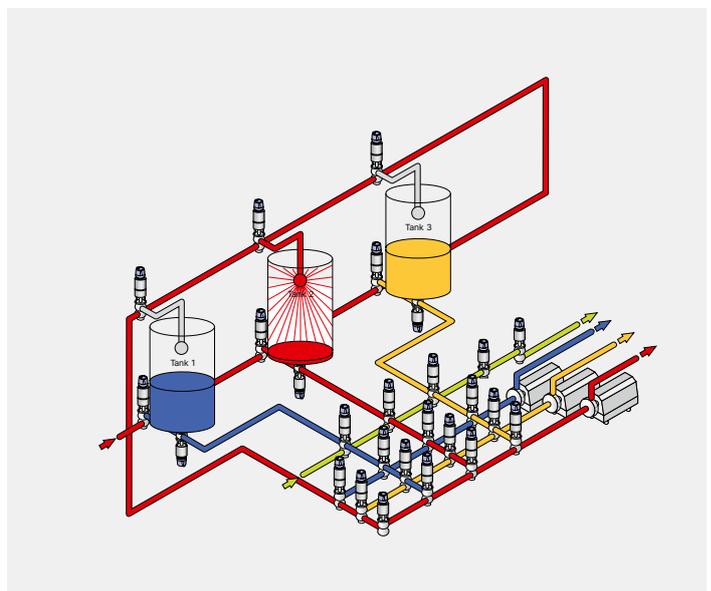
## VARIVENT®

The structure of the VARIVENT® modular system means that many options are available. Please refer to the options section (section 7) for information about these.

VARIVENT® long-stroke valves are used for manufacturing products with relatively large particles or for viscous products, such as strawberry yoghurt.

### Sizes

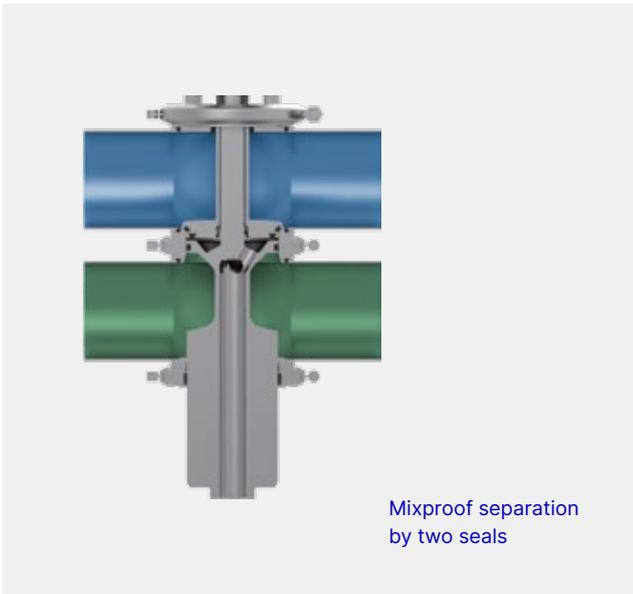
Double-seat valves type D and R	Double-seat valve type B	Double-seat long-stroke valves
DN 25–DN 150	DN 65–DN 150	
OD 1"–OD 6"	OD 2 ½"–OD 6"	OD 3"–OD 4"
IPS2"–IPS 6"	IPS 2"–IPS 6"	



### Function of the valve

When the valve is closed (non-actuated position), there are always two seals between the separated pipelines. If one seal is defective, the resulting leakage will be directed through the leakage outlet into the periphery, without mixing with the product in the second pipeline.

This method enables that there is no mixing between the products from two pipelines.



### Application examples

To accommodate the different requirements of various industries, applications and processes, we have a variety of mixproof shut-off valves in our portfolio. The selection matrix provides an overview of all the options.

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### Variety of types

The different variants of the VARIVENT® double-seat valve make it possible to select valves that are optimally adapted to the process.

The axial sealing valve types D and B entail a small switching leakage during each switching procedure, but they notably have a very long service life with the axial seals. The radial sealing valve types R and MX, on the other hand, offer the advantage of switching nearly without any switching leakage.

Valve types B and R are additionally characterized by a balancer in the lower valve housing. This enables the valve to reliably remain in the closed position even if there are water hammers in the lower pipeline. The valve type MX has a balancer on both the (upper) double disc and the (lower) valve disc.

### Switching leakage

In axial sealing double-seat valves, with every switching procedure there is a short time during which the lower valve disc is neither in contact with the middle seal of the upper valve disc, nor has it reached the axial seat surface of the seat ring. During this brief moment liquid can percolate through the resulting gap into the leakage chamber and flow out into the atmosphere. This is referred to as the switching leakage.

In radial sealing double-seat valves, this gap does not occur during the switching procedure, which means the switching leakage is reduced to a minimum (possibility of product residues adhering to the metallic surfaces).

# Overview of Double-seat Valves

## Water hammer safety

If there is a water hammer in the lower pipeline, the force of the water hammer acts on the lower valve disc and could exceed the locking force of the actuator spring.

This gives rise to the danger of the lower valve disc being lifted by the pressure in the pipeline.

In axial sealing double-seat valves, this would result in a connection to the atmosphere, leading to a leak (see switching leakage). The connection to the atmosphere would also cause a sudden reduction in the excess pressure in the pipeline. Then the actuator spring would close the valve again.

Valves with a lower balancer are available to prevent the lower valve disc from lifting during a water hammer in the lower pipeline. With its downward-facing compensation surface, the

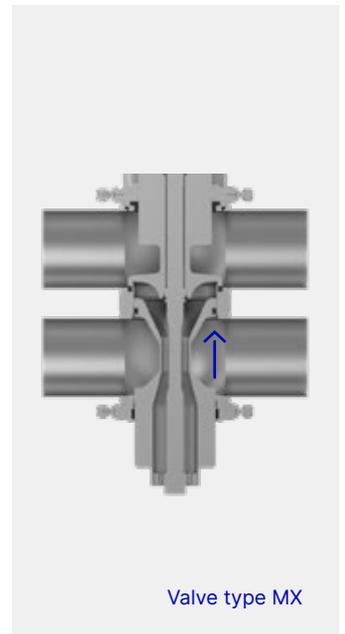
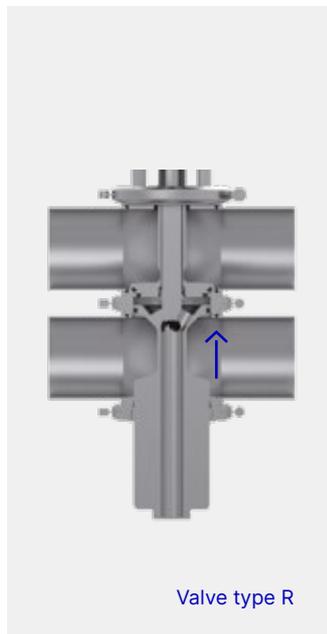
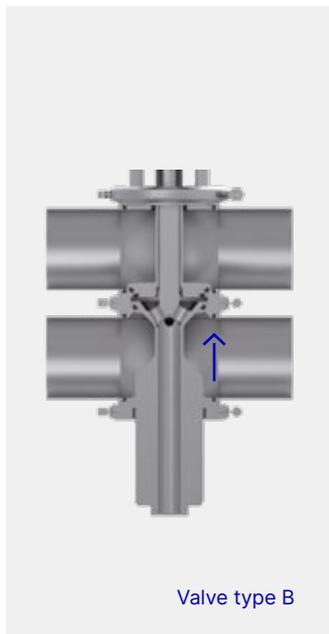
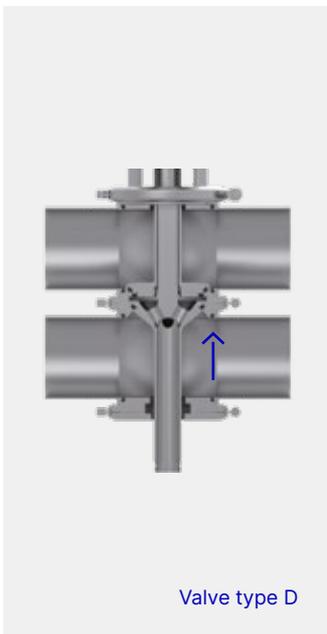
balancer adjusts out the operating direction of the pressure and prevents movement of the lower valve disc up to a particular excess pressure.

Radial sealing double-seat valves are always equipped with this lower balancer to prevent the opening movement of the lower valve disc.

On the MX type both valve disks are fitted with balancers. The valve is thus protected in the closed valve position against pressure surges both in the upper and in the lower pipeline. Switching is still possible in the case of enclosed product.

## Recommended flow direction

To avoid water hammers when closing the valve while the product is flowing, mixproof shut-off valves with seat lifting should be switched against the flow direction of the product.



**Cleaning the leakage chamber**

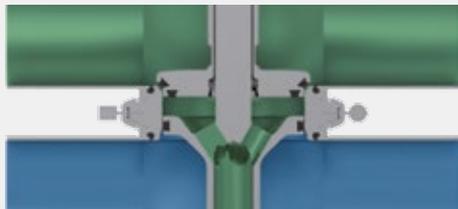
Lifting actuator

Double-seat valves are equipped with a lifting actuator which permits individual lifting of each valve disc during the particular pipe cleaning.

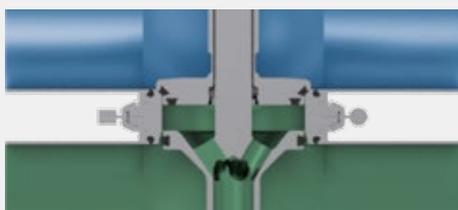
In this case, the cleaning media passes the seal of the lifted valve disc, cleans the leakage chamber and then flows out through the leakage outlet into the periphery. This way it is possible to clean all surfaces that come into contact with the product, including the surfaces of the valve disc seals.

If there is cleaning media in the lower pipeline, double-seat valve type D and B permit lifting of the lower valve disc upwards. In the case of valve types R and MX, the lower valve disk is lifted downwards.

The valve type MX can optionally be equipped with a Balancer Cleaning Device on the lower balancer. When the lower valve disk is lifted, a small gap automatically opens between the balancer seal and the valve disk. This allows cleaning fluid to flow into the Balancer Cleaning Device and clean the surface of the balancer.



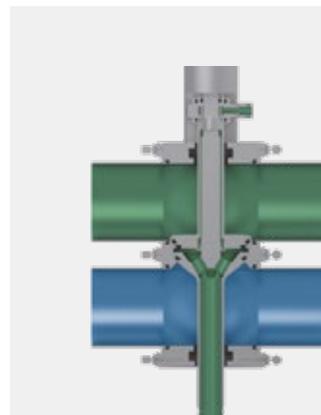
If there is cleaning media in the upper pipeline, the upper valve disc can be lifted to allow the surface of the seal and the leakage chamber to be cleaned.



In the radial sealed double-seat valves type R and MX, the lower valve disc opens downward.

Spray cleaning

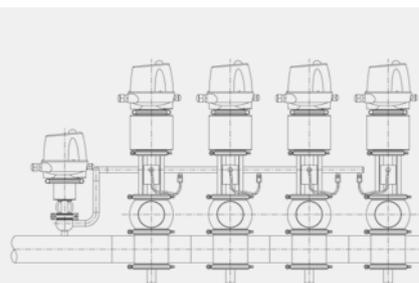
With the mixproof valves type D, B and R there is the option of feeding cleaning liquid from the outside into the leakage chamber via a cleaning connection at the level of the lantern in order to clean the chamber or to carry out an additional intermediate rinse before or after the switching operation. The cleaning liquid then flows without pressure through the leakage outlet into the periphery.



Spray cleaning in the double-seat valve

Periphery

For spray cleaning via the external connection in the lantern, it is necessary to have feed valves in the periphery in order to channel the cleaning media to the cleaning connection at the intended time. For this purpose feed valves with a relatively small nominal width are used on the pipeline carrying the cleaning media. Each feed valve generally supplies several cleaning connections of double-seat valves. It should be noted that all connected double-seat valves must have an adequate supply of cleaning media during cleaning. As a rule of thumb, no more than six double-seat valves should be supplied from one feed valve.



Application example of a feed valve

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# Overview of Double-seat Valves

## **GEA VARIVENT® Mixproof valve type MX for advanced safety concepts**

We are at the beginning of a new era in which successful companies and brands define themselves through their status as pioneers for maximum safety of their products – protecting consumers and their own workforce.

The new GEA VARIVENT® Mixproof valve type MX offers innovative technologies as essential elements of future-oriented safety concepts.

The modular GEA VARIVENT® valve concept has long been known for its range of mixproof valve technology, which represents the latest advances in protecting milk and food products and preventing any contamination in the process line.

The Mixproof valve type MX marks a groundbreaking extension of this concept, offering a measure of product safety that goes far beyond previous requirements. We call it: Next level safety.

### **Perfect assurance in line with your requirements**

The key to this latest advance in the GEA VARIVENT® concept are technical developments in crucial details that make it possible to prevent incompatible media from mixing under all conceivable conditions and thus to meet the highest safety requirements.

Forward-thinking companies can implement these improvements to demonstrate their uncompromising commitment to food safety or the safety of other products. You can determine for yourself which of these improvements are important to you in order to achieve your individual safety goals. The added security opens the door to globally validated process concepts and provides valuable efficiency potential.



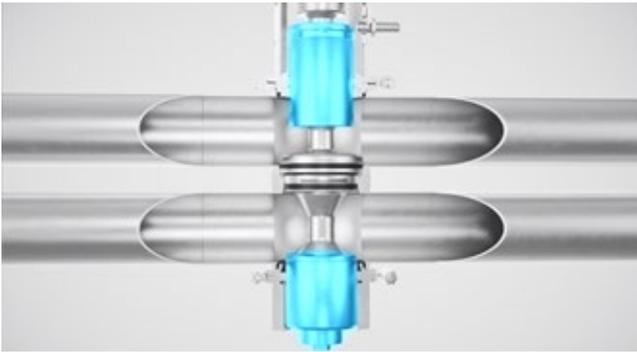
GEA VARIVENT®  
Mixproof valve type MX



**Maximum process safety**

The optimized physical design of the leakage cavity creates a negative pressure. Should a seal fail, the product is removed by vacuum and guided to the periphery without the risk of contamination (Venturi effect).

1



**Maximum pressure relief**

Thanks to specially shaped balancers in both pipelines, the valve remains stable in the closed position even in the event of water hammer and, on the other hand, retains its full ability to act even in the case of hydraulic lock or thermal expansion of the medium.

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**Maximum valve monitoring**

Up to four feedbacks can be applied to ensure exact control and documentation of the valve status at all times.

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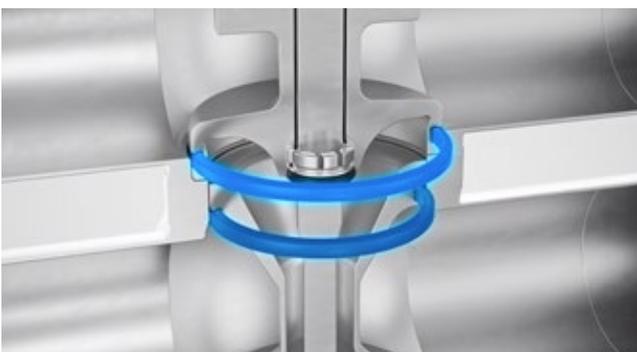
6



**Maximum cleanability**

The uncompromising hygienic design of all components ensures maximum efficiency in valve cleaning, now enhanced by automatic external cleaning of the lower balancer when the lower valve seat is lifted.

7



**Maximum compliance**

The specially improved valve technology of the new GEA VARIVENT® Mixproof valve type MX fulfills the world's strictest design specifications for hygienic valves (PMO, 3A, EHEDG).

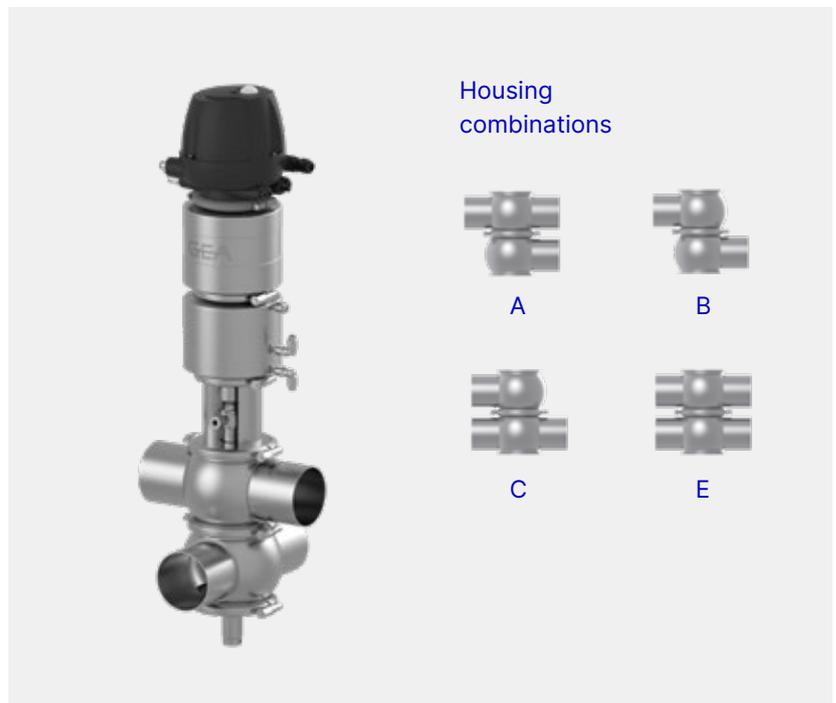
# Selection Matrix

Mixproof shut-off valves  
with seat lifting

Piggable



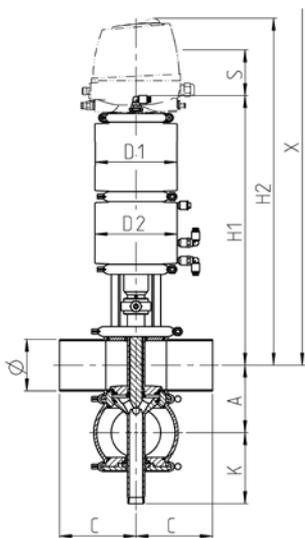
## VARIVENT® Type D\_L, D\_C Double-seat Valve with Lift Function



### Technical data

#### of the standard version

Material in contact with the product		1.4404 (AISI 316L)
Material not in contact with the product		1.4301 (AISI 304)
Seal material in contact with the product		EPDM, FKM, HNBR
Ambient temperature		0 to 45 °C
Air supply pressure		6 bar (87 psi)
Product pressure		5 bar (73 psi)
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface		Matt blasted
Control and feedback system		Connection 0 (without control top)
Actuator type		Pneumatic actuator air/spring
Connection fittings		Welding end
Identification		Adhesive ID tag
Valve seat version		Clamped or welded seat ring
Marking / Certificates		



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	Pipe		Housing			Actuator		Spray cleaning hose (PTFE)	Dimensions			Valve	
Nominal width	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	D2 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	50.0	90.0	81	110	110	6/4	412	541	766	22	14	
DN 40	41.0 × 1.50	62.0	90.0	93	110	110	8/6	426	555	780	22	16	
DN 50	53.0 × 1.50	74.0	90.0	99	110	110	8/6	424	553	778	30	16	
DN 65	70.0 × 2.00	96.0	125.0	125	135	135	8/6	435	564	914	30	23	
DN 80	85.0 × 2.00	111.0	125.0	117	135	135	8/6	443	572	922	30	24	
DN 100	104.0 × 2.00	130.0	125.0	137	170	170	8/6	482	611	961	30	34	
DN 125	129.0 × 2.00	155.0	150.0	171	260	210	10/8	663	792	1,282	60	72	
DN 150	154.0 × 2.00	180.0	150.0	196	260	210	10/8	687	816	1,306	60	85	
OD 1"	25.4 × 1.65	46.0	90.0	83	110	110	6/4	414	543	768	18	14	
OD 1 ½"	38.1 × 1.65	59.0	90.0	94	110	110	8/6	428	557	782	22	16	
OD 2"	50.8 × 1.65	71.5	90.0	100	110	110	8/6	425	554	779	30	16	
OD 2 ½"	63.5 × 1.65	90.0	125.0	128	135	135	8/6	438	567	917	30	23	
OD 3"	76.2 × 1.65	103.0	125.0	121	135	135	8/6	447	576	926	30	23	
OD 4"	101.6 × 2.11	127.5	125.0	138	170	170	8/6	483	612	962	30	34	
OD 6"	152.4 × 2.77	177.0	150.0	197	260	210	10/8	689	818	1,308	60	81	
IPS 2"	60.3 × 2.00	81.0	114.3	95	110	110	8/6	421	550	775	30	17	
IPS 3"	88.9 × 2.30	115.0	152.5	115	135	135	8/6	441	570	920	30	25	
IPS 4"	114.3 × 2.30	140.0	152.5	132	170	170	8/6	477	606	956	30	35	
IPS 6"	168.3 × 2.77	192.0	152.5	190	260	210	10/8	681	810	1,300	60	82	

# VARIVENT® Type D\_L, D\_C

## Double-seat Valve with Lift Function

Position	Description of the order code for the standard version					
1	<b>Valve type</b>					
	D	VARIVENT® double-seat valve				
2	<b>Housing combinations</b>					
	A	B	C	E		
3	<b>Supplement to the valve type</b>					
	L	With lifting actuator and spray cleaning				
	C	With lifting actuator without spray cleaning				
4/5	<b>Nominal width (upper housing/lower housing)</b>					
	DN 25	OD 1"				
	DN 40	OD 1 ½"				
	DN 50	OD 2"	IPS 2"			
	DN 65	OD 2 ½"				
	DN 80	OD 3"	IPS 3"			
	DN 100	OD 4"	IPS 4"			
	DN 125					
	DN 150	OD 6"	IPS 6"			
6	<b>Actuator type</b>					
	S	Air / Spring				
7	<b>Non-actuated position</b>					
	Z	Spring-to-close (NC)				
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>					
	Actuator (spring-to-close)	/Lifting actuator	For nominal widths			
	BA	/BLB	DN 25, OD 1"			
	BB	/BLB	DN 40, DN 50, OD 1 ½", OD 2", IPS 2"			
	CD	/CLB	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"			
	DF	/DLB	DN 100, OD 4", IPS 4"			
	SH6	/EL6	DN 125			
	SK6	/EL6	DN 150, OD 6", IPS 6"			
	9	<b>Valve seat version</b>		<b>Housing combination</b>		
			A	B	C	E
L0		Loose seat ring/Clamp connection	✓	✓	✓	✓
V0		Welded seat ring/Port orientation 0°				
V1		Welded seat ring/Port orientation 90°				
V2		Welded seat ring/Port orientation 180°				
V3		Welded seat ring/Port orientation 270°				



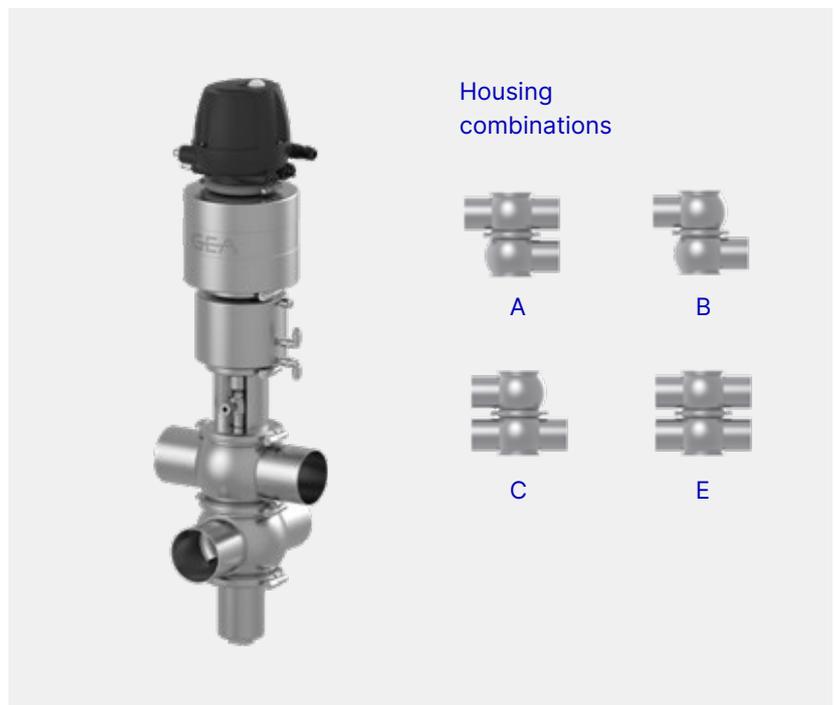
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

<b>Position</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4/5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14 to 19</b>
Code	D			/	S	Z					N	/52	

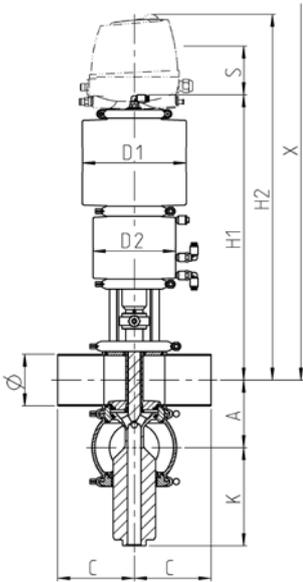
For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type B\_L, B\_C Double-seat Valve with Lift Function



### Technical data of the standard version

Material in contact with the product		1.4404 (AISI 316L)
Material not in contact with the product		1.4301 (AISI 304)
Seal material in contact with the product		EPDM, FKM, HNBR
Ambient temperature		0 to 45 °C
Air supply pressure		6 bar (87 psi)
Product pressure		5 bar (73 psi)
Water hammer safety		Up to 25 bar
Surface in contact with the product	DN, OD IPS	$R_a \leq 0.8 \mu\text{m}$ $R_a \leq 1.2 \mu\text{m}$
External housing surface		Matt blasted
Control and feedback system		Connection 0 (without control top)
Actuator type		Pneumatic actuator air/spring
Connection fittings		Welding end
Identification		Adhesive ID tag
Valve seat version		Clamped or welded seat ring
Marking / Certificates		



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Nominal width	Pipe		Housing			Actuator		Spray cleaning hose (PTFE)		Dimensions			Valve	
	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	D2 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]		
DN 65	70.0 × 2.00	96.0	125.0	154	170	135	8/6	465	594.00	999	30	29		
DN 80	85.0 × 2.00	111.0	125.0	162	170	135	8/6	473	601.50	1,007	30	30		
DN 100	104.0 × 2.00	130.0	125.0	162	210	170	8/6	482	611.00	1,016	30	39		
DN 125	129.0 × 2.00	155.0	150.0	265	210	210	10/8	663	791.50	1,382	60	65		
DN 150	154.0 × 2.00	180.0	150.0	275	260	210	10/8	687	816.00	1,406	60	84		
OD 2 ½"	63.5 × 1.65	90.0	125.0	157	170	135	8/6	468	597.00	1,002	30	29		
OD 3"	76.2 × 1.65	103.0	125.0	166	170	135	8/6	477	605.50	1,011	30	29		
OD 4"	101.6 × 2.11	127.5	125.0	183	210	170	8/6	483	612.25	1,017	30	39		
OD 6"	152.4 × 2.77	177.0	150.0	277	260	210	10/8	689	817.50	1,408	60	80		
IPS 2"	60.3 × 2.00	81.0	114.3	131	110	110	8/6	428	556.50	817	30	18		
IPS 3"	88.9 × 2.30	115.0	152.5	164	170	135	8/6	475	603.50	1,009	30	30		
IPS 4"	114.3 × 2.30	140.0	152.5	187	210	170	8/6	487	616.00	1,021	30	41		
IPS 6"	168.3 × 2.77	192.0	152.5	291	260	210	10/8	681	810.00	1,400	60	81		

## VARIVENT® Type B\_L, B\_C

### Double-seat Valve with Lift Function

Position	Description of the order code for the standard version					
1	<b>Valve type</b>					
	B	VARIVENT® double-seat valve, with balancer				
2	<b>Housing combinations</b>					
	A	B	C	E		
3	<b>Supplement to the valve type</b>					
	L	With lifting actuator and spray cleaning				
	C	With lifting actuator without spray cleaning				
4/5	<b>Nominal width (upper housing/lower housing)</b>					
			IPS 2"			
	DN 65	OD 2 ½"				
	DN 80	OD 3"	IPS 3"			
	DN 100	OD 4"	IPS 4"			
	DN 125					
6	<b>Actuator type</b>					
	S	Air / Spring				
7	<b>Non-actuated position</b>					
	Z	Spring-to-close (NC)				
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>					
	Actuator (spring-to-close)	/ Lifting actuator	For nominal widths			
	BB	/BLB	IPS 2"			
	DD	/CLB	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"			
	EF	/DLB	DN 100, OD 4", IPS 4"			
	EF6	/EL6	DN 125			
	SG6	/EL6	DN 150, OD 6", IPS 6"			
	9	<b>Valve seat version</b>		<b>Housing combination</b>		
			A	B	C	E
L0		Loose seat ring/Clamp connection	✓	✓	✓	✓
V0		Welded seat ring/Port orientation 0°				
V1		Welded seat ring/Port orientation 90°				
V2		Welded seat ring/Port orientation 180°				
V3		Welded seat ring/Port orientation 270°				



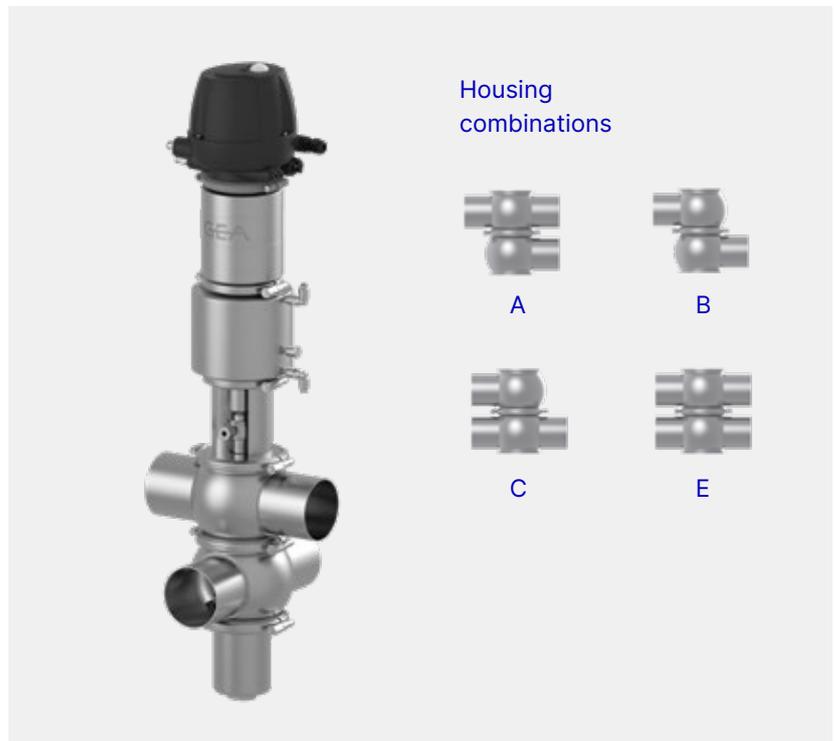
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD $1/4$ " (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	B			/	S	Z					N	/52	

For order codes differing from the standard version, please refer to section 7.

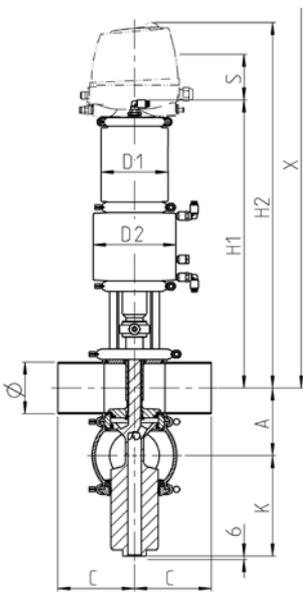
## VARIVENT® Type R\_L, R\_C Radial Sealing Double-seat Valve with Lift Function



### Technical data

#### of the standard version

Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD IPS	$R_a \leq 0.8 \mu\text{m}$ $R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped or welded seat ring	
Marking / Certificates		



	Pipe		Housing			Actuator		Spray cleaning hose (PTFE)	Dimensions			Valve	
Nominal width	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	D2 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	50.0	90.0	91.0	110	110	6/4	412.00	541.00	801	25	14	
DN 40	41.0 × 1.50	62.0	90.0	129.5	110	110	8/6	426.00	555.00	815	28	17	
DN 50	53.0 × 1.50	74.0	90.0	135.5	110	110	8/6	424.00	553.00	813	31	17	
DN 65	70.0 × 2.00	96.0	125.0	164.5	110	135	8/6	435.00	564.00	969	35	25	
DN 80	85.0 × 2.00	111.0	125.0	172.0	110	135	8/6	472.50	601.50	1,007	45	26	
DN 100	104.0 × 2.00	130.0	125.0	192.5	110	170	8/6	482.00	611.00	1,016	45	32	
DN 125	129.0 × 2.00	155.0	150.0	258.0	170	210	10/8	615.50	744.50	1,335	65	59	
DN 150	154.0 × 2.00	180.0	150.0	272.5	170	210	10/8	640.00	769.00	1,359	65	70	
OD 1"	25.4 × 1.65	46.0	90.0	93.0	110	110	6/4	414.00	543.00	803	22	14	
OD 1 ½"	38.1 × 1.65	59.0	90.0	128.0	110	110	8/6	427.50	556.50	817	25	17	
OD 2"	50.8 × 1.65	71.5	90.0	137.0	110	110	8/6	425.25	554.25	814	31	17	
OD 2 ½"	63.5 × 1.65	90.0	125.0	167.5	110	135	8/6	438.00	567.00	972	35	25	
OD 3"	76.2 × 1.65	103.0	125.0	176.0	110	135	8/6	476.50	605.50	1,011	45	26	
OD 4"	101.6 × 2.11	127.5	125.0	194.0	110	170	10/8	483.25	612.25	1,017	45	32	
OD 6"	152.4 × 2.77	177.0	150.0	274.0	170	210	10/8	641.50	770.50	1,361	65	66	
IPS 2"	60.3 × 2.00	81.0	114.3	139.0	110	110	8/6	427.50	556.50	817	31	18	
IPS 3"	88.9 × 2.30	115.0	152.5	174.0	110	135	8/6	474.50	603.50	1,009	35	27	
IPS 4"	114.3 × 2.30	140.0	152.5	197.5	110	170	8/6	487.00	616.00	1,021	45	34	
IPS 6"	168.3 × 2.77	192.0	152.5	278.5	170	210	10/8	634.00	763.00	1,353	65	67	

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## VARIVENT® Type R\_L, R\_C

### Radial Sealing Double-seat Valve with Lift Function

Position	Description of the order code for the standard version					
1	<b>Valve type</b>					
	R	VARIVENT® double-seat valve, radial sealing				
2	<b>Housing combinations</b>					
	A	B	C	E		
3	<b>Supplement to the valve type</b>					
	L	With lifting actuator and spray cleaning				
	C	With lifting actuator without spray cleaning				
4/5	<b>Nominal width (upper housing/lower housing)</b>					
	DN 25	OD 1"				
	DN 40	OD 1 ½"				
	DN 50	OD 2"	IPS 2"			
	DN 65	OD 2 ½"				
	DN 80	OD 3"	IPS 3"			
	DN 100	OD 4"	IPS 4"			
	DN 125					
6	<b>Actuator type</b>					
	S	Air / Spring				
7	<b>Non-actuated position</b>					
	Z	Spring-to-close (NC)				
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>					
	Actuator (spring-to-close)	/Lifting actuator	For nominal widths			
	BD	/BLR	DN 25, DN 40, DN 50, OD 1", OD 1 ½", OD 2", IPS 2"			
	BD	/CLR	DN 65, OD 2 ½"			
	BD	/CLR5	DN 80, OD 3", IPS 3"			
	BE5	/DLR5	DN 100, OD 4", IPS 4"			
	DG6	/ELR6	DN 125, DN 150, OD 6", IPS 6"			
9	<b>Valve seat version</b>		<b>Housing combination</b>			
			A	B	C	E
	L0	Loose seat ring/Clamp connection	✓	✓	✓	✓
	V0	Welded seat ring/Port orientation 0°				
	V1	Welded seat ring/Port orientation 90°				
	V2	Welded seat ring/Port orientation 180°				
	V3	Welded seat ring/Port orientation 270°				

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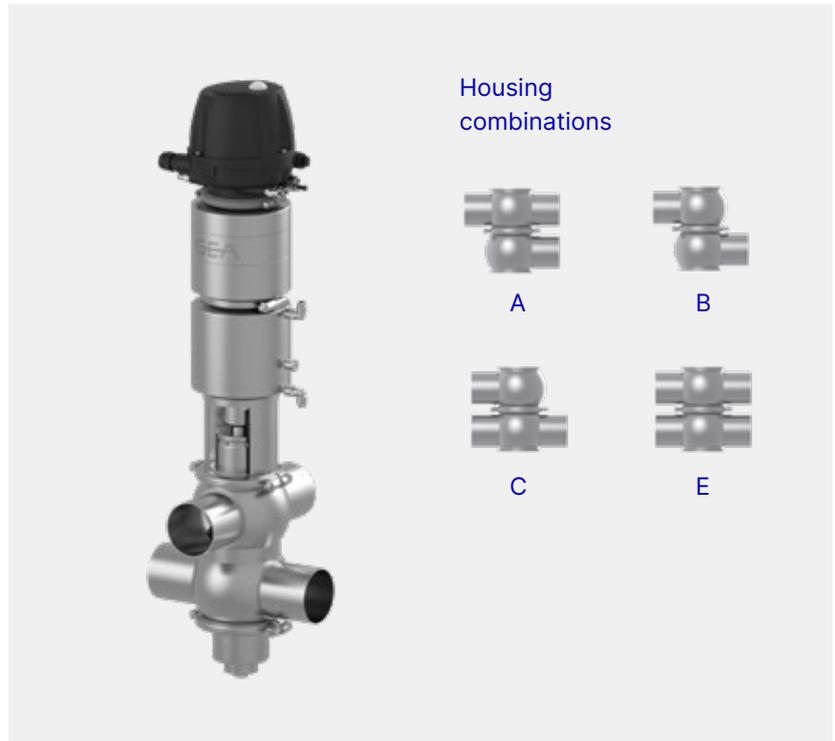
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag (up to DN 50, OD 2", IPS 2")
	/52/05	Adhesive ID tag (from DN 65, OD 2 1/2", IPS 3")
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing$ 6/4 mm
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	R			/	S	Z					N		

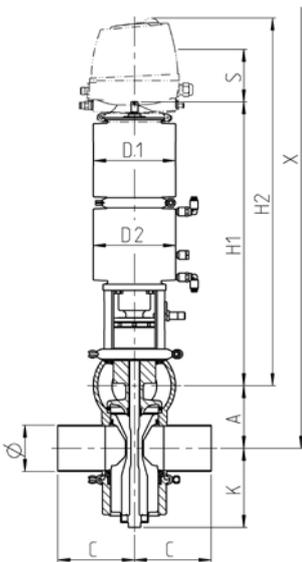
For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type MX Radial Sealing Double-seat Valve with Lift Function



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	10 bar (145 psi)
Water hammer safety	50 bar
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	T.VIS® M-20, T.VIS® A-15
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Welded seat ring
Marking / Certificates	



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Nominal width	Pipe		Housing			Actuator		Dimensions		Valve	
	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	D2 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
DN 40	41.0 × 1.50	62.0	90	96.0	110	110	565.0	752.5	28.0	17	
DN 50	53.0 × 1.50	74.0	90	110.0	110	110	571.0	790.5	35.0	17	
DN 65	70.0 × 2.00	96.0	125	127.0	135	135	601.0	869.0	45.0	29	
DN 80	85.0 × 2.00	111.0	125	134.5	135	135	608.5	905.5	45.0	29	
DN 100	104.0 × 2.00	130.0	125	144.0	135	135	618.0	955.5	45.0	41	
DN 125	129.0 × 2.00	155.0	150	179.0	210	210	797.5	1,173.0	65.0	75	
DN 150	154.0 × 2.00	180.0	150	191.5	210	210	810.0	1,223.0	65.0	90	
OD 1 ½"	38.1 × 1.65	59.0	90	94.5	110	110	564.0	746.5	28.0	17	
OD 2"	50.8 × 1.65	71.5	90	108.5	110	110	570.0	785.5	35.0	17	
OD 2 ½"	63.5 × 1.65	90.0	125	124.0	135	135	598.0	857.0	45.0	29	
OD 3"	76.2 × 1.65	103.0	125	130.5	135	135	605.0	889.5	45.0	29	
OD 4"	101.6 × 2.11	127.5	125	142.5	135	135	617.0	950.5	45.0	41	
OD 6"	152.4 × 2.77	177.0	150	190.0	210	210	809.0	1,217.0	65.0	90	

## VARIVENT® Type MX

### Radial Sealing Double-seat Valve with Lift Function

Position	Description of the order code for the standard version					
1	<b>Valve type</b>					
	MX	VARIVENT® double-seat valve type MX, radial sealing				
2	<b>Housing combinations</b>					
	A	B	C	E		
3	<b>Supplement to the valve type</b>					
	O	With lifting actuator double balanced, without spray cleaning				
4/5	<b>Nominal width (upper housing/lower housing)</b>					
	DN 40	OD 1 ½"				
	DN 50	OD 2"	IPS 2"			
	DN 65	OD 2 ½"				
	DN 80	OD 3"	IPS 3"			
	DN 100	OD 4"	IPS 4"			
	DN 125					
	DN 150	OD 6"	IPS 6"			
6	<b>Actuator type</b>					
	S	Air / Spring				
7	<b>Non-actuated position</b>					
	Z	Spring-to-close (NC)				
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>					
	Actuator (spring-to-close)	/Lifting actuator	For nominal widths			
	BD	/BLM	DN 40, DN 50, OD 1 ½", OD 2"			
	CF5	/CLM	DN 65–DN 100 and OD 2 ½"–OD 4"			
	EH6Z	/ELM	DN 125, DN 150, OD 6"			
9	<b>Valve seat version</b>		<b>Housing combination</b>			
			A	B	C	E
	V1	Welded seat ring / Port orientation 90°				
	V2	Welded seat ring / Port orientation 180°				
	V3	Welded seat ring / Port orientation 270°				

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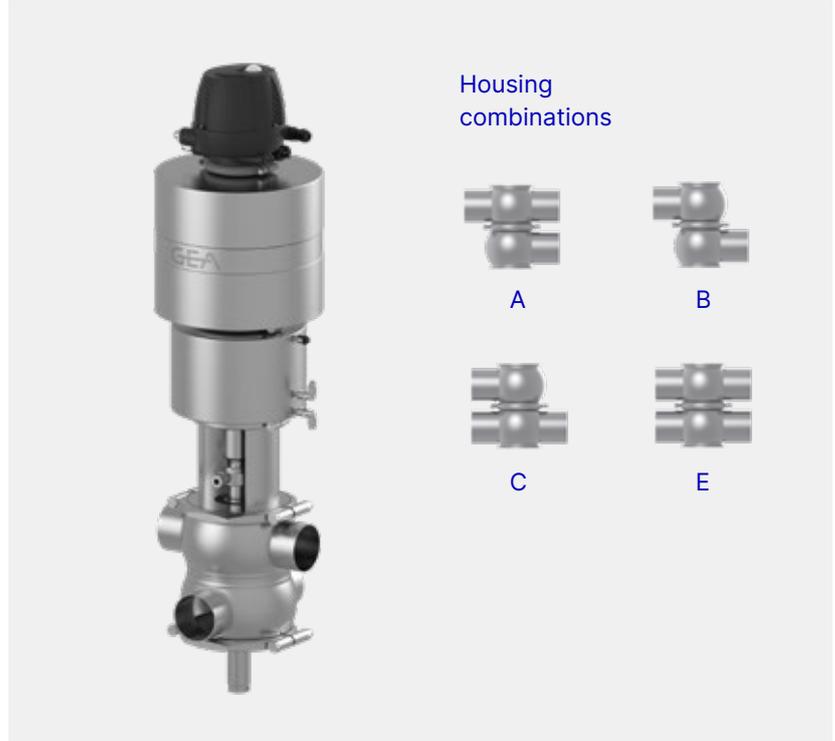
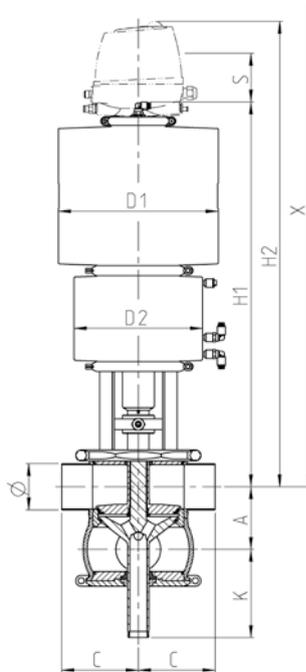
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , completely ground
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52B	With adhesive ID tag and balancer cleaning device
	/52	With adhesive ID tag, without balancer cleaning device
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD $\frac{1}{4}$ " (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	MX		O	/	S	Z					N		

For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type D\_L/V, D\_C/V Double-seat Long-stroke Valve with Lift Function



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	5 bar (73 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Clamped or welded seat ring
Marking / Certificates	



Nominal width	Pipe		Housing			Actuator		Spray cleaning hose (PTFE)		Dimensions			Valve
	$\emptyset$ [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	D2 [mm]	$\emptyset$ [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]	
OD 3"	76.2 × 1.65	103.0	125	145	260	210	8/6	637	766	1116	60	67	
OD 4"	101.6 × 2.11	127.5	150	157	260	210	8/6	649	778	1128	60	75	

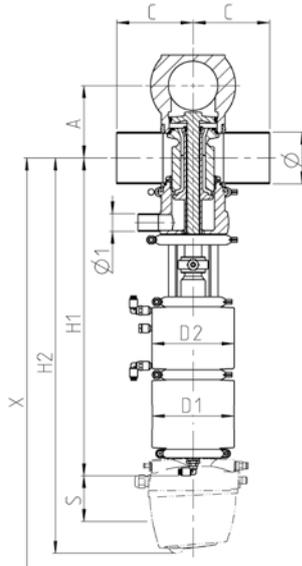
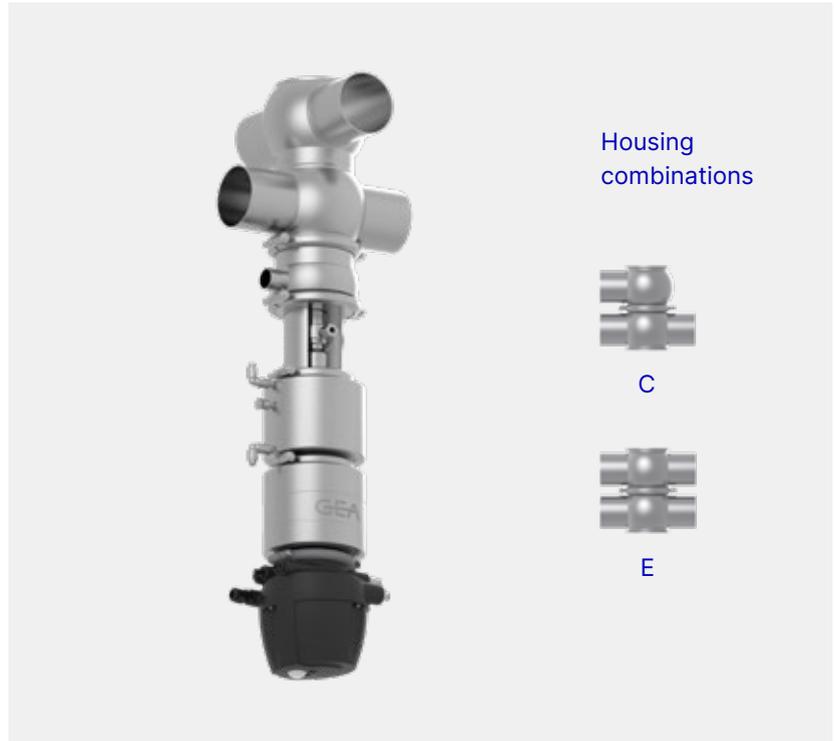
Position	Description of the order code for the standard version				
<b>1</b>	<b>Valve type</b>				
	D	VARIVENT® double-seat valve			
<b>2</b>	<b>Housing combinations</b>				
	A	B	C	E	
<b>3</b>	<b>Supplement to the valve type</b>				
	L/V	Long stroke with lifting actuator and spray cleaning			
	C/V	Long stroke with lifting actuator without spray cleaning			
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>				
	OD 3"				
	OD 4"				
<b>6</b>	<b>Actuator type</b>				
	S	Air / Spring			
<b>7</b>	<b>Non-actuated position</b>				
	Z	Spring-to-close (NC)			
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>				
	Actuator (spring-to-close)	/Lifting actuator	For nominal widths		
	SH6	/ELB	OD 3"		
	SK6	/ELB	OD 4"		
<b>9</b>	<b>Valve seat version</b>	<b>Housing combination</b>			
		A	B	C	E
	L0	Loose seat ring/Clamp connection			
	V0	Welded seat ring/Port orientation 0°			
	V1	Welded seat ring/Port orientation 90°			
	V2	Welded seat ring/Port orientation 180°			
	V3	Welded seat ring/Port orientation 270°			
<b>10</b>	<b>Seal material in contact with the product</b>				
	1	EPDM (FDA)			
	2	FKM (FDA)			
<b>11</b>	<b>Surface quality of the housing</b>				
	1	Inside R <sub>a</sub> ≤ 0.8 μm, outside matt blasted			
<b>12</b>	<b>Connection fittings</b>				
	N	Welding end			
<b>13</b>	<b>Accessories</b>				
	/52	Adhesive ID tag			
<b>+</b>					
<b>14-19</b>	<b>Air connection / Control and feedback system</b>				
	00000M	Metric for air hose Ø 6/4 mm			
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)			
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation			

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	D			/	S	Z				2	N	/52	

For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type L\_HL, L\_HC Piggable Double-seat Valve Upside Down with Lift Function



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	7 bar (101 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Welded seat ring
Marking / Certificates	



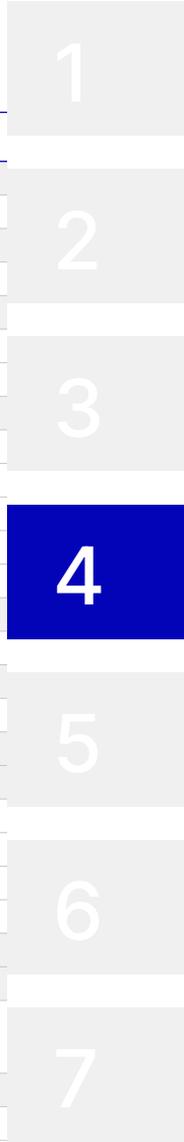
Nominal width	Pipe	Pipe leakage	Housing		Actuator		Spray cleaning hose (PTFE)	Dimensions			Valve	
	Ø [mm]	Ø1 [mm]	A [mm]	C [mm]	D1 [mm]	D2 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 40	41.0 × 1.50	23 × 1.5	74.0	90	110	170	8/6	544	544	649	25	16
DN 50	53.0 × 1.50	23 × 1.5	86.0	90	110	170	8/6	550	550	655	33	16
DN 65	70.0 × 2.00	29 × 1.5	104.0	125	135	170	8/6	590	590	765	35	29
DN 80	85.0 × 2.00	29 × 1.5	119.0	125	135	170	8/6	597	597	772	35	29
DN 100	104.0 × 2.00	29 × 1.5	138.0	125	170	170	8/6	597	597	772	35	43
OD 1 ½"	38.1 × 1.65	23 × 1.5	71.0	90	110	170	8/6	545	545	650	25	16
OD 2"	50.8 × 1.65	23 × 1.5	83.5	90	110	170	8/6	551	551	656	33	16
OD 2 ½"	63.5 × 1.65	29 × 1.5	98.0	125	135	170	8/6	594	594	769	35	28
OD 3"	76.2 × 1.65	29 × 1.5	111.0	125	135	170	8/6	600	600	775	35	29
OD 4"	101.6 × 2.11	29 × 1.5	135.5	125	170	170	8/6	598	598	773	35	43

<b>Position</b>	<b>Description of the order code for the standard version</b>	
<b>1</b>	<b>Valve type</b>	
	L	VARIVENT® double-seat valve, piggable
<b>2</b>	<b>Housing combinations</b>	
	C	E
<b>3</b>	<b>Supplement to the valve type</b>	
	HL	Suspended with lifting actuator and spray cleaning
	HC	Suspended with lifting actuator without spray cleaning
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>	
	DN 40	OD 1 ½"
	DN 50	OD 2"
	DN 65	OD 2 ½"
	DN 80	OD 3"
	DN 100	OD 4"
<b>6</b>	<b>Actuator type</b>	
	S	Air / Spring
<b>7</b>	<b>Non-actuated position</b>	
	Z	Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>	
	Actuator (spring-to-close)	/Lifting actuator For nominal widths
	BD	/BLRN 40 DN 40, OD 1 ½"
	BD	/BLRN 50 DN 50, OD 2"
	CF	/CLT DN 65, DN 80, OD 2 ½", OD 3"
	DG	/DLRN DN 100, OD 4"
<b>9</b>	<b>Valve seat version</b>	<b>Housing combination</b>
		C E
	V1	Welded seat ring / Port orientation 90° 
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b>	
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose Ø 6/4 mm
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

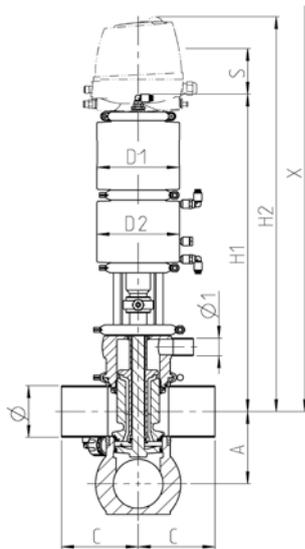
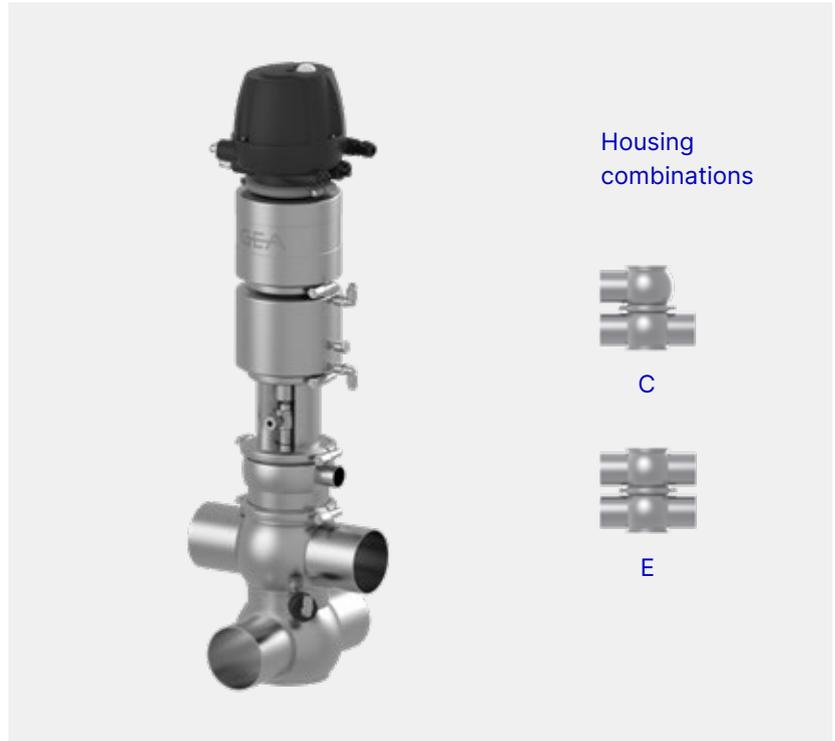
The code is composed as following, depending on the chosen configuration:

<b>Position</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4/5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14 to 19</b>
Code	L			/	S	Z		V1		2	N	/52	

For order codes differing from the standard version, please refer to section 7.



## VARIVENT® Type L\_SL, L\_SC Piggable Double-seat Valve Upright with Lift Function



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	7 bar (101 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Welded seat ring
Marking / Certificates	



Nominal width	Pipe	Pipe leakage	Housing		Actuator		Spray cleaning hose (PTFE)	Dimensions			Valve	
	Ø [mm]	Ø1 [mm]	A [mm]	C [mm]	D1 [mm]	D2 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 40	41.0 × 1.50	23 × 1.5	74.0	90	110	170	8/6	415	544	649	25	16
DN 50	53.0 × 1.50	23 × 1.5	86.0	90	110	170	8/6	421	550	655	33	17
DN 65	70.0 × 2.00	29 × 1.5	104.0	125	135	170	8/6	461	590	765	35	29
DN 80	85.0 × 2.00	29 × 1.5	119.0	125	135	170	8/6	468	597	772	35	30
DN 100	104.0 × 2.00	29 × 1.5	138.0	125	170	170	8/6	468	597	772	35	38
OD 1 ½"	38.1 × 1.65	23 × 1.5	71.0	90	110	170	8/6	416	545	650	25	16
OD 2"	50.8 × 1.65	23 × 1.5	83.5	90	110	170	8/6	422	551	656	33	17
OD 2 ½"	63.5 × 1.65	29 × 1.5	98.0	125	135	170	8/6	465	594	769	35	28
OD 3"	76.2 × 1.65	29 × 1.5	111.0	125	135	170	8/6	471	600	775	35	29
OD 4"	101.6 × 2.11	29 × 1.5	135.5	125	170	170	8/6	469	598	773	35	38

Position	Description of the order code for the standard version	
<b>1</b>	<b>Valve type</b>	
	L	VARIVENT® double-seat valve, piggable
<b>2</b>	<b>Housing combinations</b>	
	C	E
<b>3</b>	<b>Supplement to the valve type</b>	
	SL	Upright with lifting actuator and spray cleaning
	SC	Upright with lifting actuator without spray cleaning
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>	
	DN 40	OD 1 ½"
	DN 50	OD 2"
	DN 65	OD 2 ½"
	DN 80	OD 3"
	DN 100	OD 4"
<b>6</b>	<b>Actuator type</b>	
	S	Air / Spring
<b>7</b>	<b>Non-actuated position</b>	
	Z	Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>	
	Actuator (spring-to-close)	/Lifting actuator For nominal widths
	BD	/BLRN 40 DN 40, OD 1 ½"
	BD	/BLRN 50 DN 50, OD 2"
	CF	/CLT DN 65, DN 80, OD 2 ½", OD 3"
	DG	/DLRN DN 100, OD 4"
<b>9</b>	<b>Valve seat version</b>	<b>Housing combination</b>
		C E
	V1	Welded seat ring / Port orientation 90° 
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b>	
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
	/C	Flush valve, plastic, up to 80 °C
	/C-S	Flush valve, stainless steel, over 80 °C
<b>+</b>		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose Ø 6/4 mm
	00000Z	Inch for air hose Ø OD ¼" (6.35 / 4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	L			/	S	Z		V1		2	N		

For order codes differing from the standard version, please refer to section 7.

# 5

## MIXPROOF DIVERT VALVES

VARIVENT® Hygienic Seat Valves



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# Overview of Double-seat Valves

VARIVENT® mixproof divert valves are used for distributing liquid in pipelines, i.e. for distributing a liquid from one pipeline into two others, in which case one of the two pipelines must be shut off from the outlet line with a mixproof function.

## Special features

- Certified, hygienic configuration
- Metallic stop
- Flexibility because of the modular principle
- Proven seal geometry
- Mixproof separation
- Optional separate lifting actuator for lifting the two valve discs
- Optional spray cleaning connection for cleaning the leakage chamber



# Overview of Double-seat Valves

## VARIVENT®

The VARIVENT® modular system has many options available. Please refer to the options section (section 7) for information about these.

### Sizes

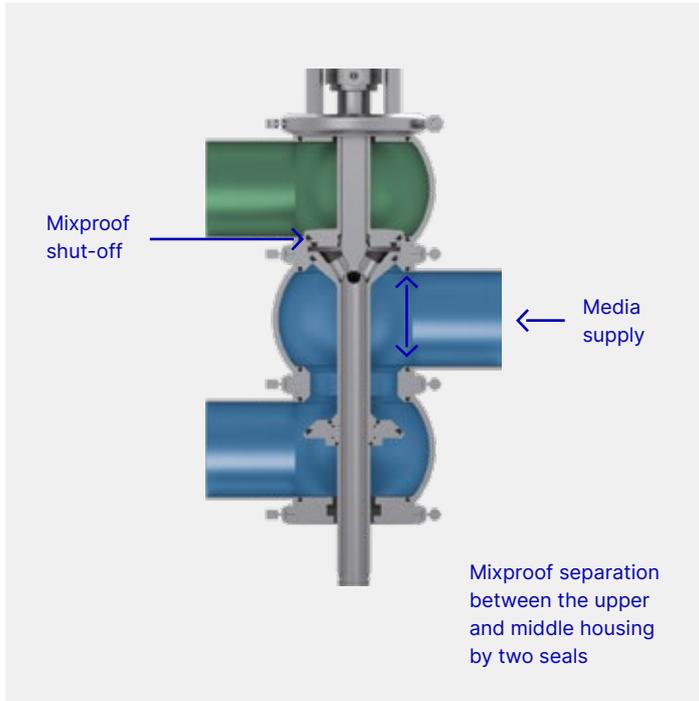
Double-seat divert valves

DN 25–DN 150

OD 1"–OD 6"

IPS 2"–IPS 6"

## Mixproof Separation

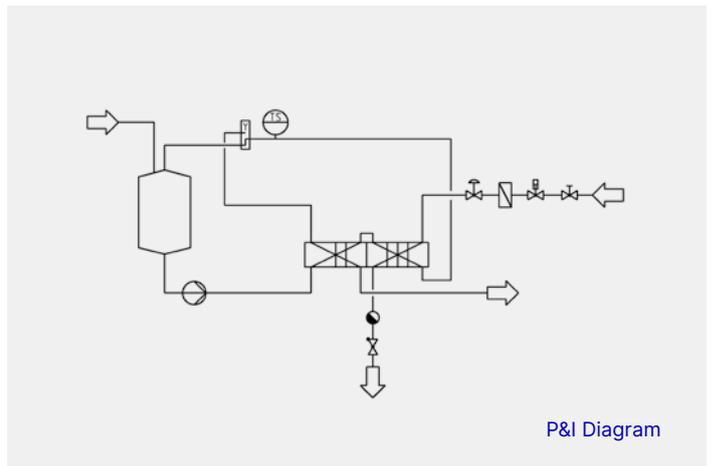
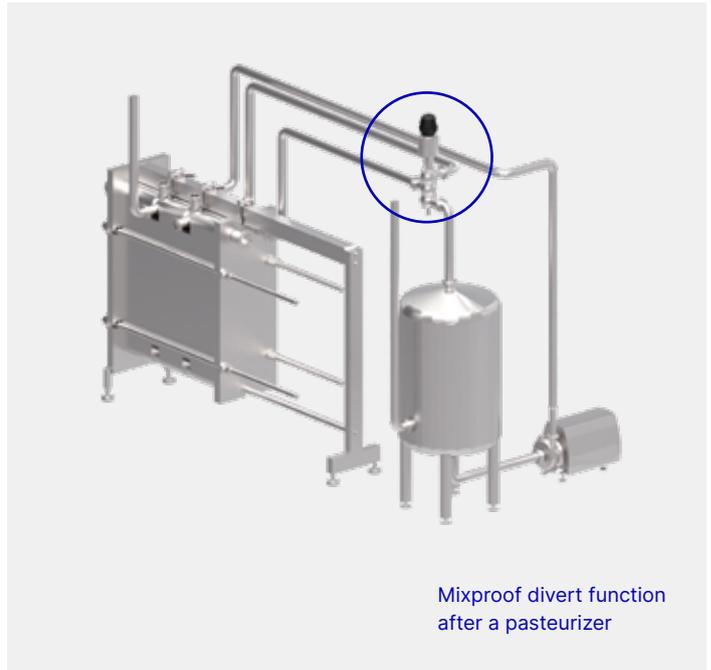


## Recommended flow direction

To avoid water hammers when closing the valve while the product is flowing, mixproof divert valves should be switched against the flow direction of the product.

## Application examples

The typical application for this mixproof valve with change-over function is the divert function after a pasteurizer. For this application, the VARIVENT® mixproof divert valve type Y has been approved by the German Federal Dairy Research Center in Kiel for use after a pasteurizer.



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**Function of the valve**

When the valve is closed (non-actuated position), there are always two seals between the middle and upper pipeline. If one seal is defective at this point, the resulting leakage can be deliberately channelled through the leakage outlet into the periphery, without mixing with the product in the second pipeline. The shut-off between the middle and lower housing is performed with only one seal, and is not suitable for separating two incompatible media.

This method enables that there will not be any mixture between the products in the pipelines.

**Switching leakage**

In axial sealing double-seat valves, with every switching procedure there is a short time during which the lower valve disc is neither in contact with the middle seal of the upper valve disc, nor has it reached the axial seat surface of the seat ring. During this brief moment liquid can percolate through the resulting gap into the leakage chamber and flow out into the atmosphere. This is referred to as the switching leakage.

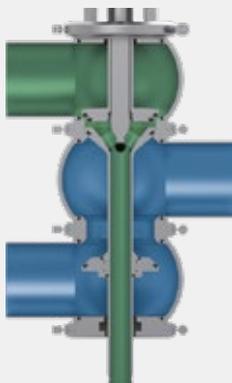
# Overview of Double-seat Valves

## Cleaning the leakage chamber

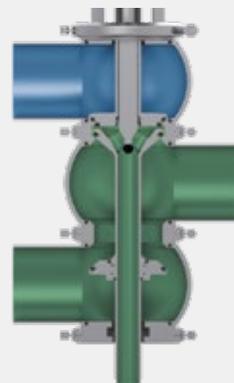
### Lifting actuator (type Y\_C, Y\_L)

The valves are equipped with a lifting actuator which permits individual lifting of an individual valve disc during the particular pipe cleaning.

In this case, the cleaning media passes the seal of the lifted valve disc, cleans the leakage chamber and then flows out through the leakage outlet into the periphery. In this way, it is possible to clean all surfaces that come into contact with the product, including the seal surfaces of the valve disc seals.



If there is cleaning media in the upper pipeline, the upper valve disc can be lifted up to allow the cleaning of the surface of the seal and the leakage chamber to be cleaned.



If there is cleaning media in the lower pipeline, valve type Y permits lifting of the lower valve disc upwards.

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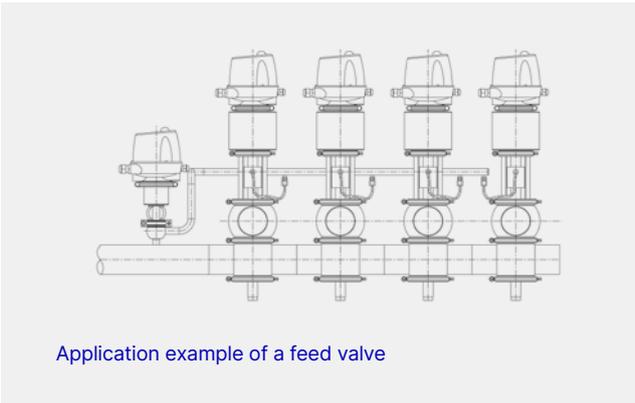
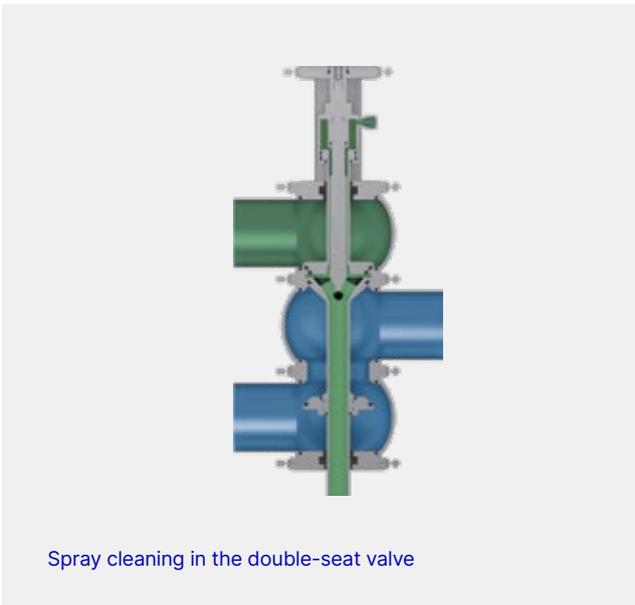
Spray cleaning (type Y, Y\_L)

The valves have a cleaning connection to be connected at the level of the lantern either on its own (type Y) or additionally next to the lifting actuator (type Y\_L). This connection allows the leakage chamber to be supplied with cleaning media from an external source in order to clean this chamber (in addition to the lifting actuator) by means of an integrated spray nozzle. After that, the cleaning media flows through the leakage outlet without pressure into the periphery. Cleaning takes place with the valve closed, which means the seal surfaces in contact are not touched during cleaning.

If valves are equipped with both a lifting actuator and the possibility of external spray cleaning, then spray cleaning is only used for interim flushing during the individual switching procedures, whereas thorough cleaning is performed by lifting.

Periphery

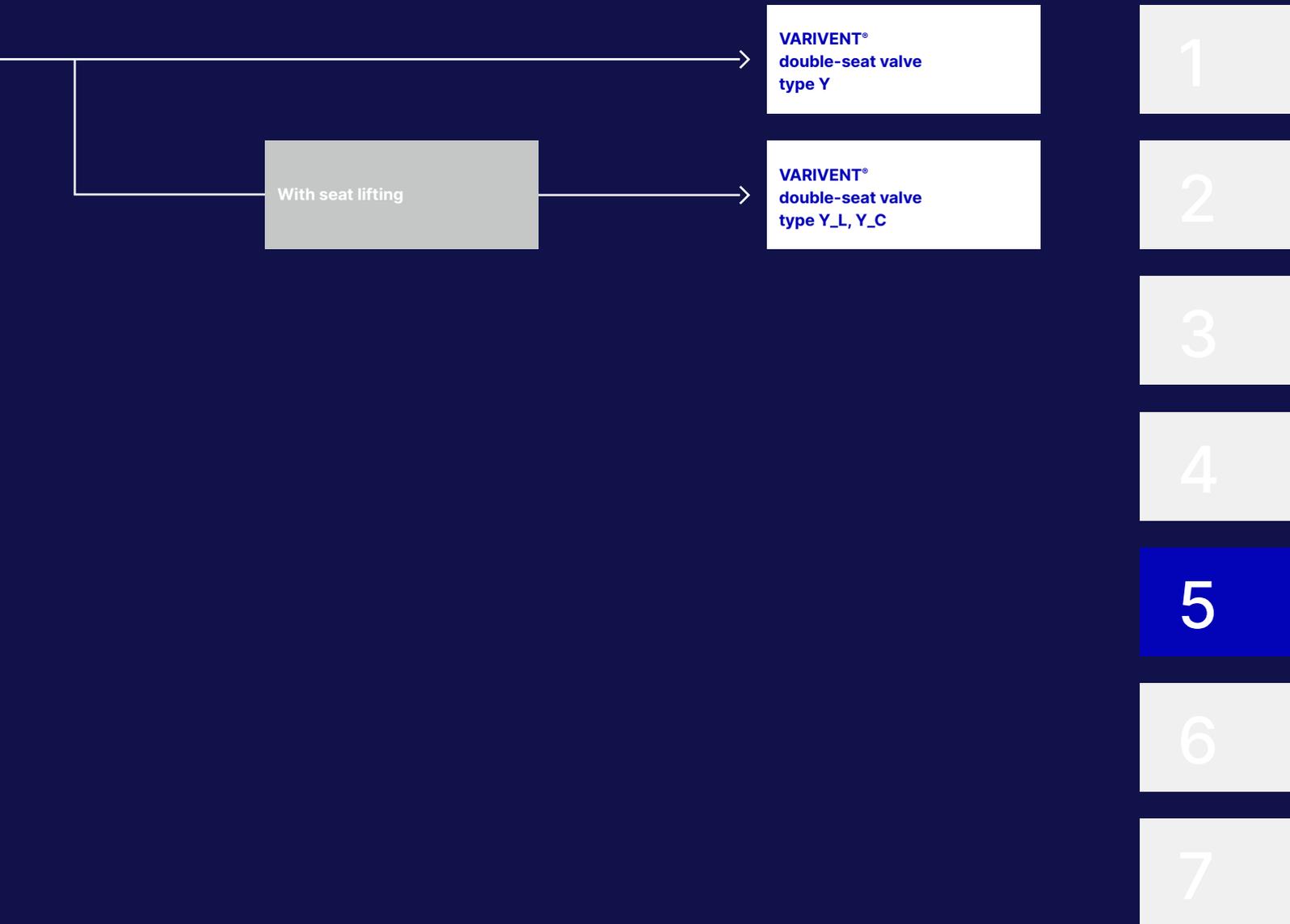
For spray cleaning via the external connection in the lantern, it is necessary to have feed valves in the periphery which channel the cleaning media to the cleaning connection. For this purpose feed valves with a relatively small nominal width are used on the pipeline carrying the cleaning media. Each feed valve generally supplies several cleaning connections of double-seat valves. It should be noted that all connected double-seat valves must have an adequate supply of cleaning media during cleaning. As a rule of thumb, no more than six double-seat valves should be supplied from one feed valve.



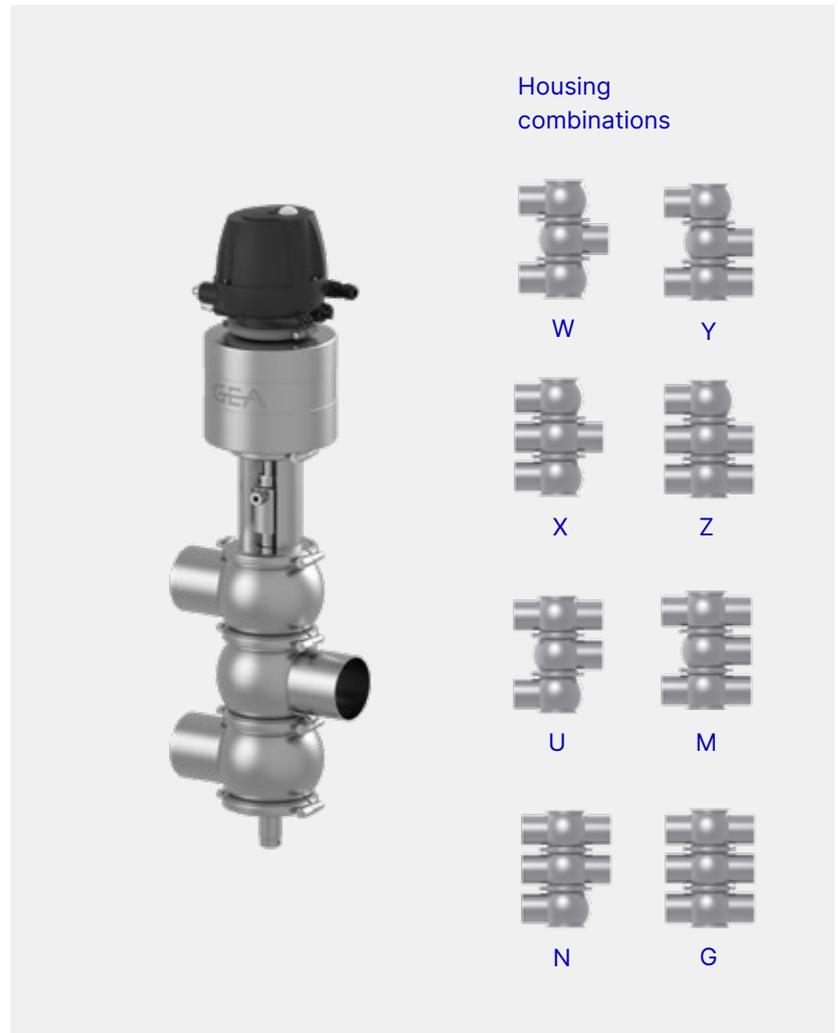
# Selection Matrix

Mixproof divert valves

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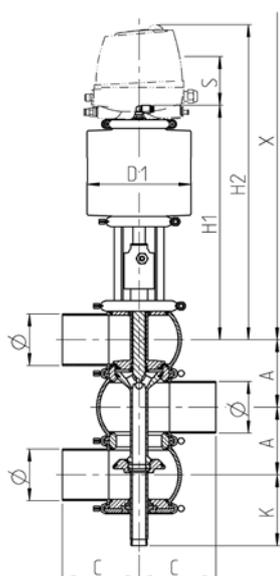


## VARIVENT® Type Y Double-seat Valve



### Technical data of the standard version

Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		



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	Pipe	Housing	Actuator	Spray cleaning hose (PTFE)	Dimensions					Valve	
Nominal width	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	50.0	90.0	82	99	6/4	294	423	733	20	9
DN 40	41.0 × 1.50	62.0	90.0	93	135	8/6	335	464	774	19	14
DN 50	53.0 × 1.50	74.0	90.0	99	135	8/6	341	470	780	27	14
DN 65	70.0 × 2.00	96.0	125.0	125	170	8/6	382	511	996	27	24
DN 80	85.0 × 2.00	111.0	125.0	117	170	8/6	390	519	1,004	27	25
DN 100	104.0 × 2.00	130.0	125.0	127	210	8/6	399	528	1,013	27	34
DN 125	129.0 × 2.00	155.0	150.0	171	260	10/8	555	684	1,359	55	67
DN 150	154.0 × 2.00	180.0	150.0	184	210	10/8	709	838	1,513	55	85
OD 1"	25.4 × 1.65	46.0	90.0	80	99	6/4	292	421	731	16	9
OD 1 ½"	38.1 × 1.65	59.0	90.0	91	135	8/6	337	466	776	18	13
OD 2"	50.8 × 1.65	71.5	90.0	97	135	8/6	343	472	782	26	14
OD 2 ½"	63.5 × 1.65	90.0	125.0	122	170	8/6	386	515	1,000	27	23
OD 3"	76.2 × 1.65	103.0	125.0	113	170	8/6	393	522	1,007	26	24
OD 4"	101.6 × 2.11	127.5	125.0	125	210	8/6	401	530	1,015	26	34
OD 6"	152.4 × 2.77	177.0	150.0	185	210	10/8	708	837	1,512	55	85
IPS 2"	60.3 × 2.00	81.0	114.3	102	99	8/6	338	467	777	27	15
IPS 3"	88.9 × 2.30	115.0	152.5	119	170	8/6	388	517	1,002	27	24
IPS 4"	114.3 × 2.30	140.0	152.5	132	210	8/6	394	523	1,008	27	36
IPS 6"	168.3 × 2.77	192.0	152.5	190	210	10/8	702	831	1,506	55	86

Please note: The following clearances are required for demounting the additional disc: DN 25 – 50: 50 mm, DN 65 – 100: 80 mm, DN 125 – 150: 110 mm

## VARIVENT® Type Y Double-seat Valve

Position	Description of the order code for the standard version
<b>1</b>	<b>Valve type</b>
	Y VARIVENT® double-seat valve
<b>2</b>	<b>Housing combinations</b>
	W Y X Z U M N G
<b>3</b>	<b>Supplement to the valve type</b>
	Reserved for options
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>
	DN 25 OD 1"
	DN 40 OD 1 ½"
	DN 50 OD 2" IPS 2"
	DN 65 OD 2 ½"
	DN 80 OD 3" IPS 3"
	DN 100 OD 4" IPS 4"
	DN 125
	DN 150 OD 6" IPS 6"
<b>6</b>	<b>Actuator type</b>
	S Air / Spring
<b>7</b>	<b>Non-actuated position</b>
	Z Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>
	Actuator (spring-to-close) For nominal widths
	AA DN 25, OD 1"
	CB DN 40, DN 50, OD 1 ½", OD 2", IPS 2"
	DD DN 65, DN 80, OD 2 ½", OD 3", IPS 3"
	EF DN 100, OD 4", IPS 4"
	SH6 DN 125
	TK6 DN 150, OD 6", IPS 6"
<b>9</b>	<b>Valve seat version</b>
	L0 Loose seat ring / Clamp connection



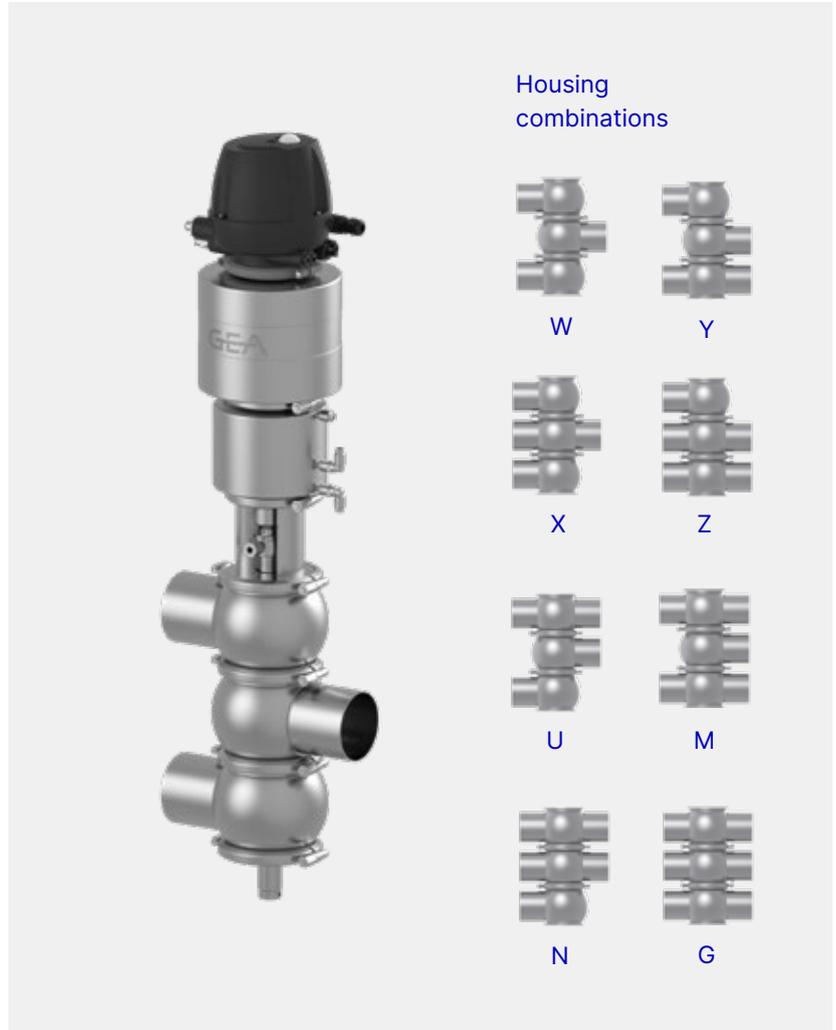
<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4$ mm
	00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19					
Code	Y			/	S	Z		L0			N	/52						

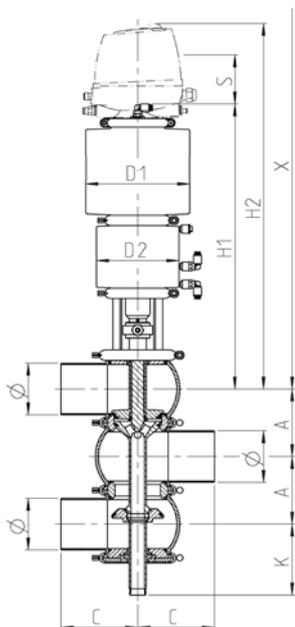
For order codes differing from the standard version, please refer to section 7.

# VARIVENT® Type Y\_L, Y\_C Double-seat Valve with Lift Function



**Technical data  
of the standard version**

Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD IPS	R <sub>a</sub> ≤ 0.8 µm R <sub>a</sub> ≤ 1.2 µm
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		



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	Pipe	Housing			Actuator		Spray cleaning hose (PTFE)	Dimensions			Valve	
Nominal width	Ø [mm]	A [mm]	C [mm]	K [mm]	D1 [mm]	D2 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	50.0	90.0	82	110	110	6/4	412.0	541.0	851.0	20	15
DN 40	41.0 × 1.50	62.0	90.0	93	135	110	8/6	426.0	555.0	865.0	19	18
DN 50	53.0 × 1.50	74.0	90.0	99	135	110	8/6	424.0	553.0	863.0	27	18
DN 65	70.0 × 2.00	96.0	125.0	125	170	135	8/6	465.0	594.0	1,079.0	27	29
DN 80	85.0 × 2.00	111.0	125.0	117	170	135	8/6	472.5	601.5	1,086.5	27	30
DN 100	104.0 × 2.00	130.0	125.0	127	210	170	8/6	482.0	611.0	1,096.0	27	42
DN 125	129.0 × 2.00	155.0	150.0	171	260	210	10/8	662.5	791.5	1,466.5	55	81
DN 150	154.0 × 2.00	180.0	150.0	184	210	210	10/8	816.0	945.0	1,620.0	55	103
OD 1"	25.4 × 1.65	46.0	90.0	80	110	110	6/4	414.0	543.0	853.0	16	15
OD 1 ½"	38.1 × 1.65	59.0	90.0	91	135	110	8/6	427.5	556.5	866.5	18	18
OD 2"	50.8 × 1.65	71.5	90.0	97	135	110	8/6	425.3	554.3	864.3	26	18
OD 2 ½"	63.5 × 1.65	90.0	125.0	122	170	135	8/6	468.0	597.0	1,082.0	27	29
OD 3"	76.2 × 1.65	103.0	125.0	113	170	135	8/6	476.5	605.5	1,090.5	26	29
OD 4"	101.6 × 2.11	127.5	125.0	125	210	170	8/6	483.3	612.3	1,097.3	26	42
OD 6"	152.4 × 2.77	177.0	150.0	185	210	210	10/8	866.0	995.0	1,670.0	55	103
IPS 2"	60.3 × 2.00	81.0	114.3	102	135	110	8/6	417.5	546.5	856.5	27	19
IPS 3"	88.9 × 2.30	115.0	152.5	119	170	135	8/6	470.5	599.5	1,084.5	27	29
IPS 4"	114.3 × 2.30	140.0	152.5	132	210	170	8/6	477.0	606.0	1,091.0	27	43
IPS 6"	168.3 × 2.77	192.0	152.5	190	210	210	10/8	810.0	939.0	1,614.0	55	100

Please note: The following clearances are required for demounting the additional disc: DN 25 – 50: 50 mm, DN 65 – 100: 80 mm, DN 125 – 150: 110 mm

## VARIVENT® Type Y\_L, Y\_C Double-seat Valve with Lift Function

Position	Description of the order code for the standard version
<b>1</b>	<b>Valve type</b>
	Y VARIVENT® double-seat valve
<b>2</b>	<b>Housing combinations</b>
	W Y X Z U M N G
<b>3</b>	<b>Supplement to the valve type</b>
	L With lifting actuator and spray cleaning
	C With lifting actuator without spray cleaning
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>
	DN 25 OD 1"
	DN 40 OD 1 ½"
	DN 50 OD 2" IPS 2"
	DN 65 OD 2 ½"
	DN 80 OD 3" IPS 3"
	DN 100 OD 4" IPS 4"
	DN 125
	DN 150 OD 6" IPS 6"
<b>6</b>	<b>Actuator type</b>
	S Air / Spring
<b>7</b>	<b>Non-actuated position</b>
	Z Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>
	Actuator (spring-to-close) / Lifting actuator For nominal widths
	BA /BLB DN 25, OD 1"
	CB /BLB DN 40, DN 50, OD 1 ½", OD 2", IPS 2"
	DD /CLB DN 65, DN 80, OD 2 ½", OD 3", IPS 3"
	EF /DLB DN 100, OD 4", IPS 4"
	SH6 /EL6 DN 125
	TK6 /EL6 DN 150, OD 6", IPS 6"
<b>9</b>	<b>Valve seat version</b>
	L0 Loose seat ring/Clamp connection



<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4 \text{ mm}$
	00000Z	Inch for air hose $\varnothing \text{ OD } 1/4" (6.35/4.35 \text{ mm})$
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	Y			/	S	Z		L0			N	/52	

For order codes differing from the standard version, please refer to section 7.

# 6

## TANK BOTTOM VALVES

VARIVENT® Hygienic Seat Valves



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## Overview of Single-seat and Double-seat Bottom Valves

VARIVENT® tank bottom valves are used for shutting off pipelines at tanks or containers. Various housing connections can be welded directly into the tank bottom, flush mounted into the tank bottom wall.



# Overview of Single-seat and Double-seat Bottom Valves



## VARIVENT®

The VARIVENT® modular system has many options available. Please refer to the options section (section 7) for information about these.

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### Sizes

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Tank bottom valves

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DN 25–DN 150

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OD 1"–OD 6"

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IPS 2"–IPS 6"

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## Application examples

Simple tank shut-off valves with only one sealing surface between the tank and pipeline are available, as well as mix-proof, radial sealing tank bottom valves.

Simple tank shut-off valves are used if the tank is operated with separate filling and emptying lines. It is not possible to clean the pipeline while the tank is in process.

Mixproof tank shut-off valves are used if the tank is operated with common filling and emptying lines. Mixproof separation between the pipeline and the inside of the tank allows the pipeline to be cleaned while the process in the tank continues.

In the classic variant, the mixproof tank shut-off valve separates the process in the tank from the supply to the following valve matrix, meaning that the tanks can be filled, emptied and cleaned flexibly and in parallel with one another.

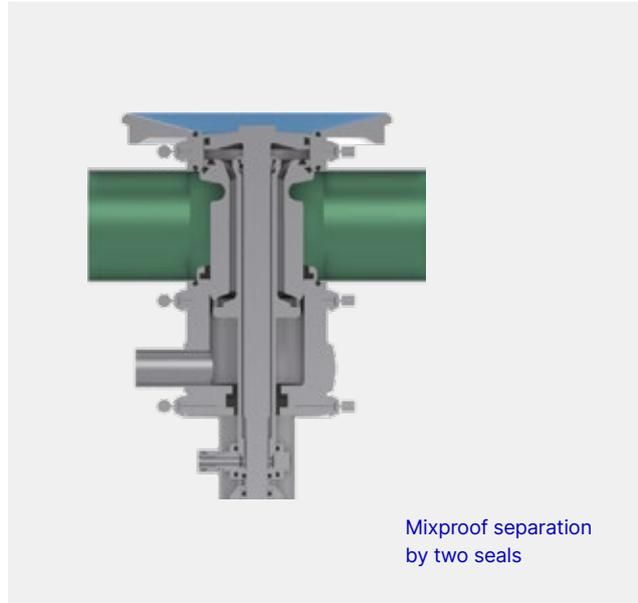
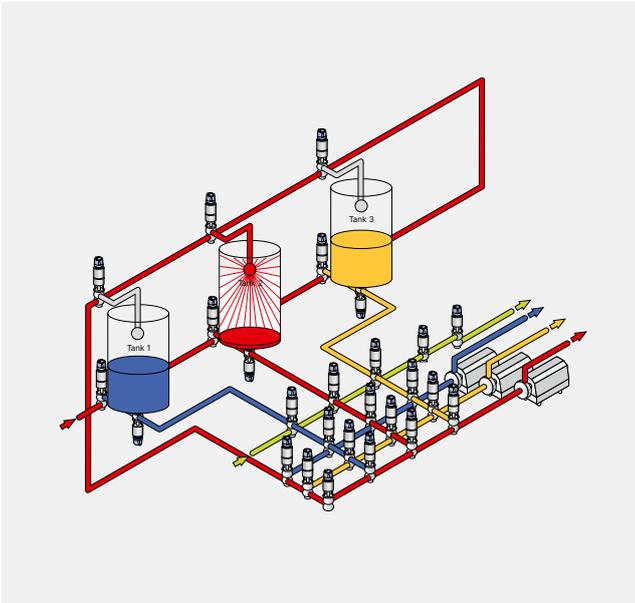
For some time now, mixproof tank bottom valves have been installed horizontally on a special connection unit directly below the tank (ECO-MATRIX™). In this case, the process lines do not converge in a valve matrix, instead they are routed directly underneath the tanks in order to save space.

### Mixproof separation

Generally speaking, the mixproof variant is selected if the tank is operated with a common filling and emptying line.

The mixproof valve makes it possible to clean the pipeline while the product in the tank is undergoing the required process.

When the valve is closed (non-actuated position), there are always two seals between the two fluids in the mixproof variant. If one seal is defective, the resulting leakage can be deliberately channelled out of the leakage housing into the periphery. This method enables that there cannot be any mixture between a tank and a pipeline.



Mixproof separation  
by two seals

### Tank connections

Various possibilities are available for connecting VARIVENT® tank valves to the tank. Tank connection type T is used for installing valves on the tank bottom. Tank connection type U is preferred for lateral, horizontal installation of valves on the tank wall.



Tank connection T



Tank connection U

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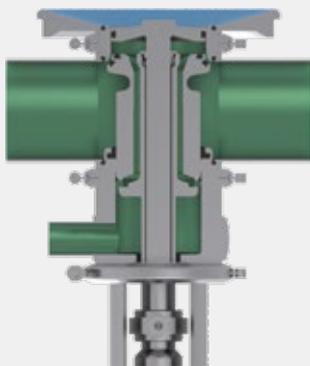
# Overview of Single-seat and Double-seat Bottom Valves

## Cleaning the leakage chamber

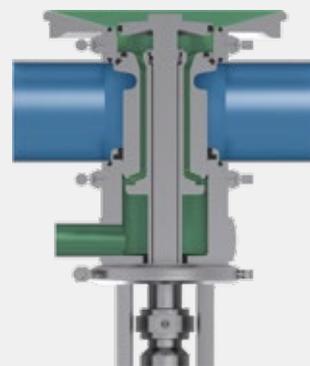
### Lifting actuator (type T\_RC, T\_RL)

Double-seat bottom valves type T\_RC are equipped with a lifting actuator which enables individual lifting of a single valve disc during cleaning of the pipe or the tank.

The cleaning media passes the seal of the lifted valve disc, cleans the leakage chamber and then flows out through the leakage outlet into the periphery. This way, it is possible to clean all surfaces that come into contact with the product, including the surfaces of the valve disc seals.



If there is cleaning media in the pipeline, the lower valve disc (double disc lift) can be lifted into the pipeline to allow the surface of the seal and the leakage chamber to be cleaned.



The upper valve disc (valve disc lift) of the bottom valve can be lifted in the direction of the tank. This makes it possible to clean the seal surfaces and the leakage chamber. For this purpose, the liquid should be stored in advance at an adequate level in the tank.

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#### Spray cleaning (type T\_R, T\_RL)

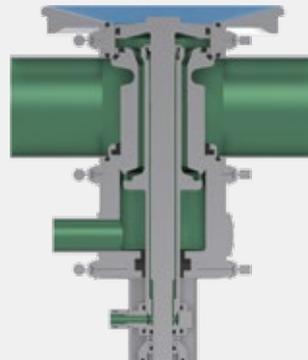
The valves have a cleaning connection at the level of the lantern either on its own (type T\_R) or additionally alongside the lifting actuator (type T\_RL). This connection allows the leakage chamber to be supplied with cleaning media from an external source in order to clean this chamber (in addition to the lifting actuator) by means of an integrated spray nozzle. After that, the cleaning media flows through the leakage outlet without pressure into the periphery. Cleaning takes place with the valve closed, which means the seal surfaces in contact are not touched during cleaning.

This way, the leakage chamber can be cleaned independently from the pipe cleaning. In addition, this allows interim flushing to occur before or after a switching procedure of the valve.

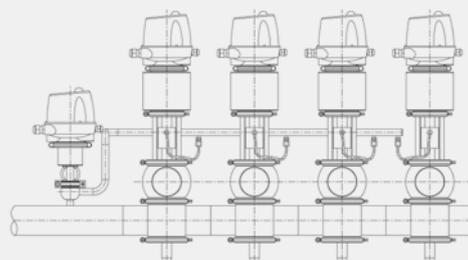
If valves are equipped with both a lifting actuator and the possibility of external spray cleaning, then spray cleaning is only used for interim flushing during the individual switching procedures, whereas thorough cleaning is performed by lifting.

#### Periphery

For spray cleaning via the external connection in the lantern, it is necessary to have feed valves in the periphery to channel the cleaning media to the cleaning connection of the double-seat valve. For this purpose feed valves with a relatively small nominal width are used on the pipeline carrying the cleaning media. Each feed valve generally supplies several cleaning connections of double-seat valves. It should be noted that all connected double-seat valves must have an adequate supply of cleaning media during cleaning. As a rule of thumb, no more than six double-seat valves should be supplied from one feed valve.



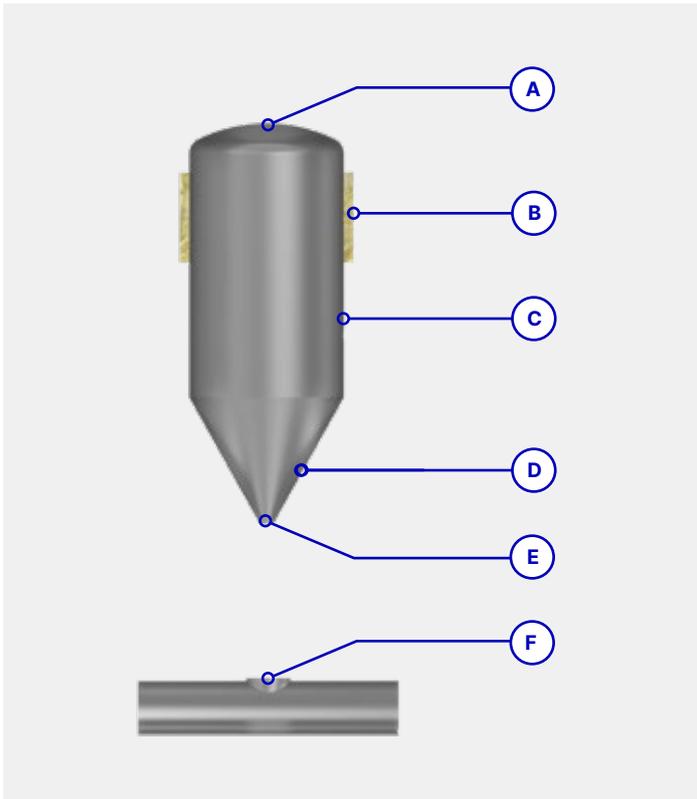
Spray cleaning with tank bottom valve



Application example of a feed valve

# VARIVENT®

## Housing Connection Flanges



### Installation position

Depending on the installation situation and existing specifications there are different housing connection flanges that allow the adaption of tank bottom valves in a wide variety of positions.

Installation position at the tank	Suitable connection or tank flange				
	Type U	Type U-S	Type T	Type T-S	Type P
A		•	•	•	•
B		•		•	
C		•	•	•	•
D			•	•	•
E	•		•		•
F	•				

The different connection positions on the tank make it necessary to adapt the contour of the welded joint from the inside of the tank. The housing connections U-S and

T-S were developed for installation in tanks with smaller diameter or insulated tanks. Please refer to the tables below for the minimum tank diameter required for the adaption.

**VARIVENT® Housing connection type U**

Nominal width of the Valve		Minimum tank diameter		
		Wall thickness tank [mm]		
		2	3	4
DN 25	OD 1"	500	500	500
DN 50/40	OD 1½"/2"	750	750	750
DN 65/80	OD 2½"/3"	1,100	1,100	1,100
DN 100	OD 4"	2,000	2,000	2,000
DN 125	–	2,850	2,850	2,850
DN 150	OD 6"	3,750	3,750	3,750

**VARIVENT® Housing connection type U-S**

Nominal width of the Valve		Minimum tank diameter		
		Wall thickness tank [mm]		
		2	3	4
DN 25	OD 1"	110	110	110
DN 50/40	OD 1½"/2"	130	130	130
DN 65/80	OD 2½"/3"	170	170	170
DN 100	OD 4"	240	240	240
DN 125	–	360	370	380
DN 150	OD 6"	460	475	490

**VARIVENT® Housing connection type T**

Nominal width of the Valve		Minimum tank diameter						
		Wall thickness tank [mm]						
		2	3	4	5	6	7	8
DN 25	OD 1"	950	1,150	1,450	1,950	3,050	3,050*	3,050*
DN 50/40	OD 1½"/2"	1,200	1,450	1,850	2,500	3,900	3,900*	3,900*
DN 65/80	OD 2½"/3"	1,800	2,150	2,700	3,700	5,750	5,750*	5,750*
DN 100	OD 4"	2,250	2,700	3,400	4,650	7,250	7,250*	7,250*

\* 0,5 –1 mm overlap at critical welding area

**VARIVENT® Housing connection type T-S**

Nominal width of the Valve		Minimum tank diameter						
		Wall thickness tank [mm]						
		2	3	4	5	6	7	8
DN 25	OD 1"	290	300	310	320	330	350	370
DN 50/40	OD 1½"/2"	360	370	380	400	420	440	460
DN 65/80	OD 2½"/3"	500	520	540	570	600	630	660
DN 100	OD 4"	620	650	680	710	740	780	830

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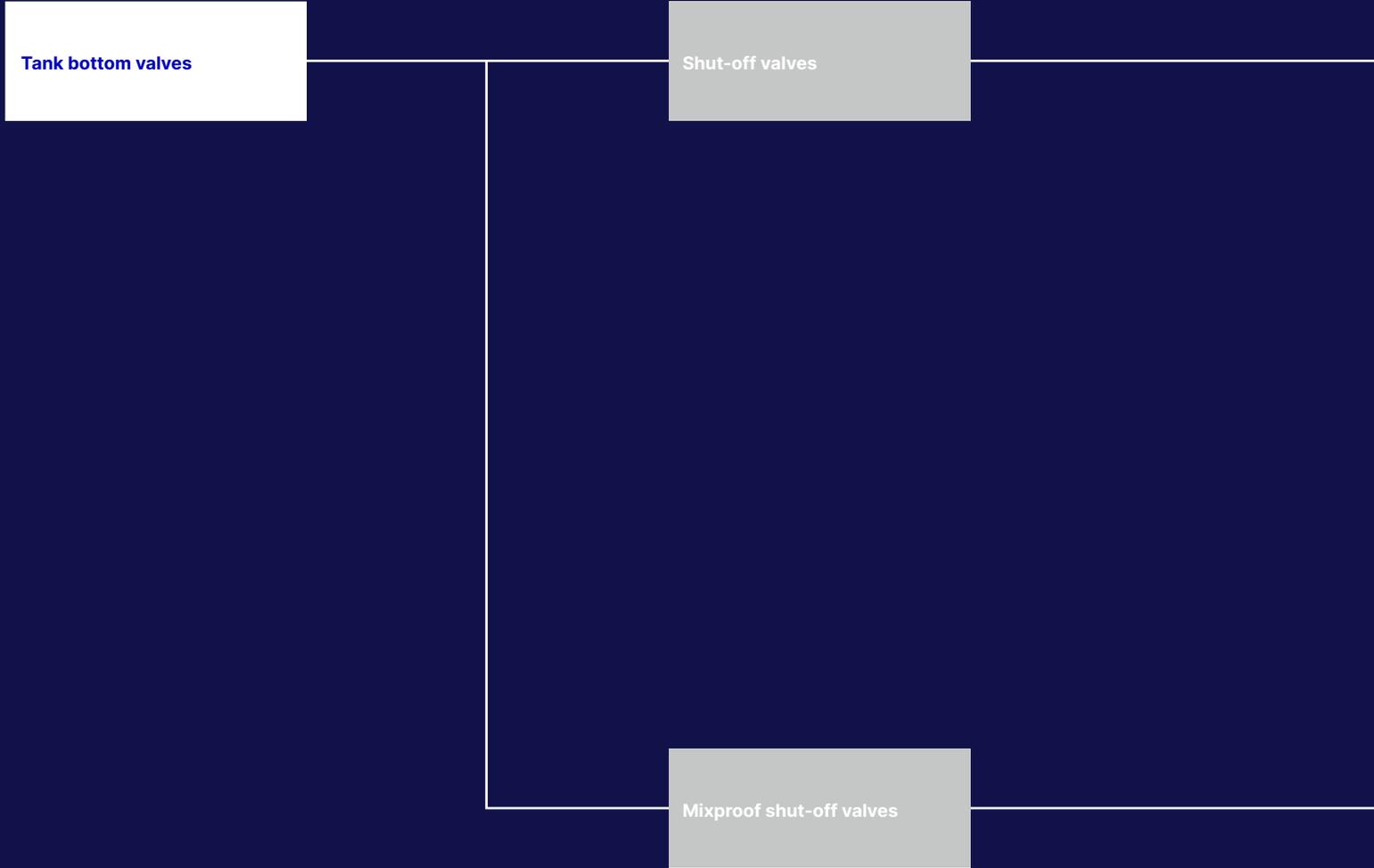
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# Selection Matrix





## VARIVENT® Type N Single-seat Bottom Valve

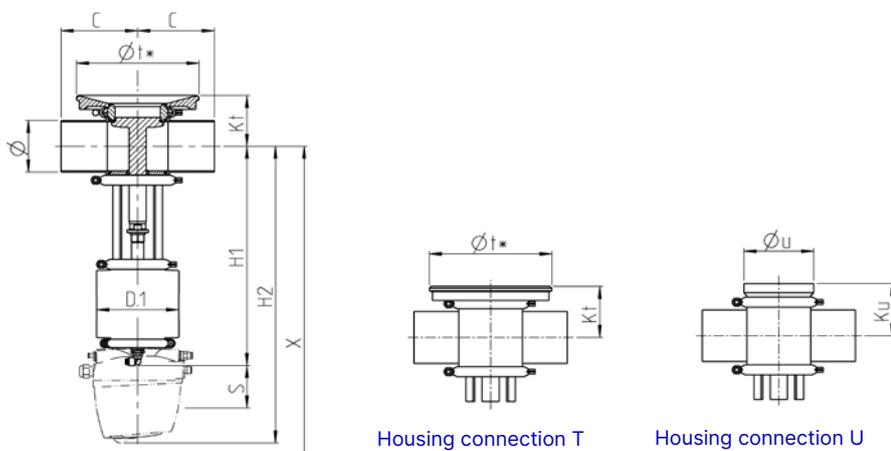


### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		



\* Optionally with housing connection flange U or housing connection flange T (see position 13)



	Pipe	Housing	Actuator	Dimensions				Housing connection U		Housing connection T		Valve	
Nominal width	Ø [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Ku [mm]	Øu [mm]	Kt [mm]	Øt* [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	90.0	99	294	423	508	50.0	70 × 2.0	49.0	145	16	7	
DN 40	41.0 × 1.50	90.0	110	335	464	549	56.0	85 × 2.0	55.5	165	18	9	
DN 50	53.0 × 1.50	90.0	110	341	470	555	62.0	85 × 2.0	61.5	165	30	9	
DN 65	70.0 × 2.00	125.0	135	352	481	626	78.0	114 × 2.5	76.0	200	30	14	
DN 80	85.0 × 2.00	125.0	135	360	489	634	85.5	114 × 2.5	83.5	200	30	15	
DN 100	104.0 × 2.00	125.0	170	399	528	673	95.0	154 × 2.0	92.5	225	30	21	
DN 125	129.0 × 2.00	150.0	260	555	684	884	107.5	184 × 3.0	-	-	60	48	
DN 150	154.0 × 2.00	150.0	260	579	708	908	120.0	212 × 4.0	-	-	60	53	
OD 1"	25.4 × 1.65	90.0	99	292	421	506	48.0	70 × 2.0	47.0	145	12	7	
OD 1 ½"	38.1 × 1.65	90.0	110	337	466	551	54.5	85 × 2.0	54.0	165	18	9	
OD 2"	50.8 × 1.65	90.0	110	343	472	557	60.8	85 × 2.0	60.3	165	30	9	
OD 2 ½"	63.5 × 1.65	125.0	135	356	485	630	75.0	114 × 2.5	73.0	200	31	14	
OD 3"	76.2 × 1.65	125.0	135	363	492	637	81.5	114 × 2.5	79.5	200	29	14	
OD 4"	101.6 × 2.11	125.0	170	401	530	675	93.8	154 × 2.0	91.3	225	30	21	
OD 6"	152.4 × 2.77	150.0	260	578	707	907	118.5	212 × 4.0	-	-	60	54	
IPS 2"	60.3 × 2.00	114.3	110	338	467	552	65.5	85 × 2.0	65.0	165	30	10	
IPS 3"	88.9 × 2.30	152.5	135	358	487	632	87.5	114 × 2.5	85.5	200	30	15	
IPS 4"	114.3 × 2.30	152.5	170	394	523	668	100.0	154 × 2.0	97.5	225	30	22	
IPS 6"	168.3 × 2.77	152.5	260	573	702	902	126.0	212 × 4.0	-	-	60	54	

\* The maximum wall thickness of the tank can be 8 mm.

## VARIVENT® Type N Single-seat Bottom Valve

Position	Description of the order code for the standard version		
1	<b>Valve type</b>		
	N	VARIVENT® single-seat bottom valve	
2	<b>Housing combinations</b>		
	F*	D*	
3	<b>Supplement to the valve type</b>		
	Reserved for options		
4/5	<b>Nominal width (upper housing/lower housing)</b>		
	DN 25	OD 1"	
	DN 40	OD 1 ½"	
	DN 50	OD 2"	IPS 2"
	DN 65	OD 2 ½"	
	DN 80	OD 3"	IPS 3"
	DN 100	OD 4"	IPS 4"
	DN 125		
	DN 150	OD 6"	IPS 6"
6	<b>Actuator type</b>		
	S	Air / Spring	
7	<b>Non-actuated position</b>		
	Z	Spring-to-close (NC)	
	A	Spring-to-open (NO)	
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>		
	Actuator (spring-to-close)	Actuator (spring-to-open)	For nominal widths
	AA	AA	DN 25, OD 1"
	BB	BA	DN 40, DN 50, OD 1 ½", OD 2", IPS 2"
	CD	CB	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"
	DF	DD	DN 100, OD 4", IPS 4"
	SH6	EF6	DN 125
	SK6	SG6	DN 150, OD 6", IPS 6"



<b>9</b>	<b>Valve seat version</b>	L0	Loose seat ring/Clamp connection
<b>10</b>	<b>Seal material in contact with the product</b>	1	EPDM (FDA)
		2	FKM (FDA)
		3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
		2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	N	Welding end
<b>13</b>	<b>Accessories</b>	/T	Housing connection T (up to DN 100, OD 4", IPS 4")
		/U	Housing connection U
		/52	Adhesive ID tag
<b>+</b>			
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	00000M	Metric for air hose $\varnothing 6/4$ mm
		00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35/4.35 mm)
		XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

\* Optionally with housing connection flange U or housing connection flange T (see position 13)

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N			/	S			L0			N	/52	

For order codes differing from the standard version, please refer to section 7.



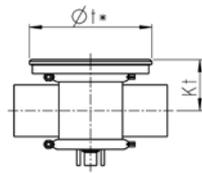
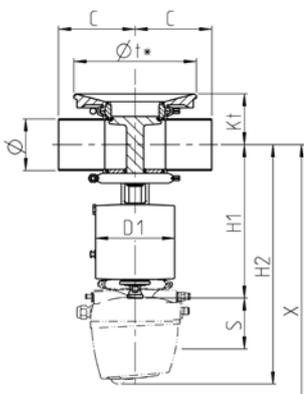
## ECOVENT® Type N/ECO Single-seat Bottom Valve



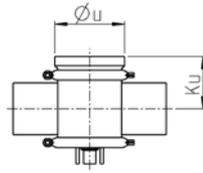
### Technical data of the standard version

Recommended flow direction	Against the closing direction
Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	5 bar (73 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Clamped seat ring
Marking / Certificates	

\* Optionally with housing connection flange U or housing connection flange T (see position 13)



Housing connection T



Housing connection U

	Pipe	Housing	Actuator	Dimensions				Housing connection U		Housing connection T		Valve	
Nominal width	Ø [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Ku [mm]	Øu [mm]	Kt [mm]	Øt* [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	90	85	209	338	423	50.0	70 × 2.0	49.0	145	16.0	6	
DN 40	41.0 × 1.50	90	104	243	372	457	56.0	85 × 2.0	55.5	165	20.0	7	
DN 50	53.0 × 1.50	90	104	249	378	463	62.0	85 × 2.0	61.5	165	28.0	8	
DN 65	70.0 × 2.00	125	129	257	386	531	78.0	114 × 2.5	76.0	200	28.0	12	
DN 80	85.0 × 2.00	125	129	264	393	538	85.5	114 × 2.5	83.5	200	28.0	12	
DN 100	104.0 × 2.00	125	170	274	403	548	95.0	154 × 2.0	92.5	225	28.0	17	
OD 1"	25.4 × 1.65	90	85	207	336	421	48.0	70 × 2.0	47.0	145	12.0	6	
OD 1 ½"	38.1 × 1.65	90	104	241	370	455	54.5	85 × 2.0	54.0	165	17.0	7	
OD 2"	50.8 × 1.65	90	104	248	377	462	60.8	85 × 2.0	60.3	165	25.5	7	
OD 2 ½"	63.5 × 1.65	125	129	254	383	528	75.0	114 × 2.5	73.0	200	22.0	11	
OD 3"	76.2 × 1.65	125	129	260	389	534	81.5	114 × 2.5	79.5	200	20.0	12	
OD 4"	101.6 × 2.11	125	170	273	402	547	93.8	154 × 2.0	91.3	225	25.5	17	

\* The maximum wall thickness of the tank can be 8 mm.

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## ECOVENT® Type N/ECO Single-seat Bottom Valve

Position	Description of the order code for the standard version		
<b>1</b>	<b>Valve type</b>		
	N	ECOVENT® single-seat bottom valve	
<b>2</b>	<b>Housing combinations</b>		
	F*	D*	
<b>3</b>	<b>Supplement to the valve type</b>		
	/ECO		
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>		
	DN 25	OD 1"	
	DN 40	OD 1 ½"	
	DN 50	OD 2"	IPS 2"
	DN 65	OD 2 ½"	
	DN 80	OD 3"	IPS 3"
	DN 100	OD 4"	IPS 4"
<b>6</b>	<b>Actuator type</b>		
	E	Air / Spring	
<b>7</b>	<b>Non-actuated position</b>		
	Z	Spring-to-close (NC)	
	A	Spring-to-open (NO)	
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>		
	Actuator (spring-to-close)	Actuator (spring-to-open)	For nominal widths
	EAA	EAA	DN 25, OD 1"
	EBB	EBA	DN 40, DN 50, OD 1 ½", OD 2"
	ECD	ECB	DN 65, DN 80, OD 2 ½", OD 3"
	EDF	EDD	DN 100, OD 4"
<b>9</b>	<b>Valve seat version</b>		
	L0	Loose seat ring / Clamp connection	
<b>10</b>	<b>Seal material in contact with the product</b>		
	1	EPDM (FDA)	
	2	FKM (FDA)	
	3	HNBR (FDA)	
<b>11</b>	<b>Surface quality of the housing</b>		
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted (DN, OD)	
<b>12</b>	<b>Connection fittings</b>		
	N	Welding end	
<b>13</b>	<b>Accessories</b>		
	/T	Housing connection T (up to DN 100, OD 4")	
	/U	Housing connection U	
	/52	Adhesive ID tag	
<b>+</b>			
<b>14-19</b>	<b>Air connection / Control and feedback system</b>		
	00000M	Metric for air hose Ø 6/4 mm	
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)	
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation	

\* Optionally with housing connection flange U or housing connection flange T (see position 13)

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N		/ECO	- /	- E		-	L0	-	2	N	/52	-

For order codes differing from the standard version, please refer to section 7.

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# VARIVENT® Type N\_V Single-seat Long-stroke Bottom Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	4.8 bar (70 psi)	
Product pressure	DN 65 – DN 80 OD 2 ½" – OD 3"	10 bar (145 psi)
	DN 100 OD 4"	5.2 bar (75 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$	
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates	  	

\* Optionally with housing connection flange U or housing connection flange T (see position 13)

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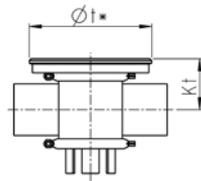
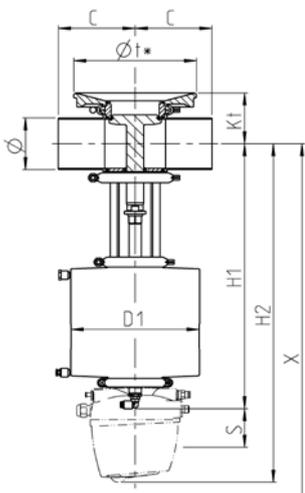
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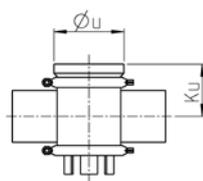
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Housing connection T



Housing connection U

	Pipe	Housing	Actuator	Dimensions				Housing connection U		Housing connection T		Valve	
Nominal width	Ø [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Ku [mm]	Øu [mm]	Kt [mm]	Øt* [mm]	Stroke S [mm]	Weight [kg]	
DN 65	70.0 × 2.00	125	210	421	550	695	78.0	114 × 2.5	76.0	200	41.5	24	
DN 80	85.0 × 2.00	125	210	429	558	703	85.5	114 × 2.5	83.5	200	56.5	24	
DN 100	104.0 × 2.00	125	210	438	567	712	95.0	154 × 2.0	92.5	225	60.0	27	
OD 2 ½"	63.5 × 1.65	125	210	425	554	699	75.0	114 × 2.5	73.0	200	42.5	24	
OD 3"	76.2 × 1.65	125	210	432	561	706	81.5	114 × 2.5	79.5	200	55.5	24	
OD 4"	101.6 × 2.11	125	210	438	567	712	93.8	154 × 2.0	91.3	225	60.5	27	

\* The maximum wall thickness of the tank can be 8 mm.

# VARIVENT® Type N\_V

## Single-seat Long-stroke Bottom Valve

Position	Description of the order code for the standard version	
1	<b>Valve type</b>	
	N	VARIVENT® single-seat long-stroke bottom valve
2	<b>Housing combinations</b>	
	F*      D*	
3	<b>Supplement to the valve type</b>	
	V	Long-stroke
4/5	<b>Nominal width (upper housing/lower housing)</b>	
	DN 65	OD 2 ½"
	DN 80	OD 3"                  IPS 3"
	DN 100	OD 4"                  IPS 4"
6	<b>Actuator type</b>	
	L	Air/Spring, long stroke
7	<b>Non-actuated position</b>	
	Z	Spring-to-close (NC)
	A	Spring-to-open (NO)
8	<b>Standard configuration with 4.8 bar air supply pressure for 10 bar product pressure (DN 65 – DN 80, OD 2 ½" – OD 3") or 5.2 bar (DN 100, OD 4") – (higher pressures on request)</b>	
	Actuator (spring-to-close)	Actuator (spring-to-open)
	ZEF/V	ZEF/V
9	<b>Valve seat version</b>	
	L0	Loose seat ring/Clamp connection
10	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA)
11	<b>Surface quality of the housing</b>	
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted
12	<b>Connection fittings</b>	
	N	Welding end
13	<b>Accessories</b>	
	/T	Housing connection T (up to DN 100, OD 4")
	/U	Housing connection U
	/52	Adhesive ID tag
+		
14–19	<b>Air connection/Control and feedback system</b>	
	00000M	Metric for air hose Ø 6/4 mm
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

\* Optionally with housing connection flange U or housing connection flange T (see position 13)

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N		V	/	L		ZEF/V	L0		2	N	/52	

For order codes differing from the standard version, please refer to section 7.

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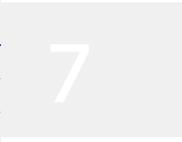
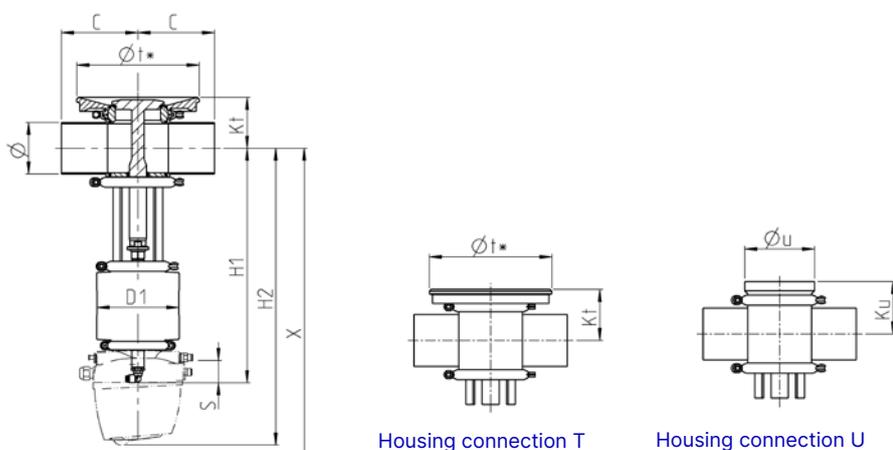
## VARIVENT® Type U Single-seat Bottom Valve



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		

\* Optionally with housing connection flange U or housing connection flange T (see position 13)



	Pipe	Housing	Actuator	Dimensions				Housing connection U		Housing connection T		Valve	
Nominal width	Ø [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Ku [mm]	Øu [mm]	Kt [mm]	Øt* [mm]	Stroke S [mm]	Weight [kg]	
DN 25	29.0 × 1.50	90.0	99	294	423	200	50.0	70 × 2.0	49.0	145	18	7	
DN 40	41.0 × 1.50	90.0	110	335	464	200	56.0	85 × 2.0	55.5	165	25	9	
DN 50	53.0 × 1.50	90.0	110	341	470	200	62.0	85 × 2.0	61.5	165	29	10	
DN 65	70.0 × 2.00	125.0	135	352	481	230	78.0	114 × 2.5	76.0	200	30	15	
DN 80	85.0 × 2.00	125.0	135	360	489	230	85.5	114 × 2.5	83.5	200	30	15	
DN 100	104.0 × 2.00	125.0	170	399	528	250	95.0	154 × 2.0	92.5	225	30	21	
DN 125	129.0 × 2.00	150.0	260	555	684	300	107.5	184 × 3.0	-	-	60	48	
DN 150	154.0 × 2.00	150.0	260	579	708	300	120.0	212 × 4.0	-	-	60	54	
OD 1"	25.4 × 1.65	90.0	99	292	421	200	48.0	70 × 2.0	47.0	145	22	7	
OD 1 ½"	38.1 × 1.65	90.0	110	337	466	200	54.5	85 × 2.0	54.0	165	25	9	
OD 2"	50.8 × 1.65	90.0	110	343	472	200	60.8	85 × 2.0	60.3	165	28	10	
OD 2 ½"	63.5 × 1.65	125.0	135	356	485	230	75.0	114 × 2.5	73.0	200	29	14	
OD 3"	76.2 × 1.65	125.0	135	363	492	230	81.5	114 × 2.5	79.5	200	31	14	
OD 4"	101.6 × 2.11	125.0	170	401	530	250	93.8	154 × 2.0	91.3	225	29	21	
OD 6"	152.4 × 2.77	150.0	260	578	707	300	118.5	212 × 4.0	-	-	60	54	
IPS 2"	60.3 × 2.00	114.3	110	338	467	200	65.5	85 × 2.0	65.0	165	29	10	
IPS 3"	88.9 × 2.30	152.5	135	358	487	230	87.5	114 × 2.5	85.5	200	30	15	
IPS 4"	114.3 × 2.30	152.5	170	394	523	250	100.0	154 × 2.0	97.5	225	30	22	
IPS 6"	168.3 × 2.77	152.5	260	573	702	300	126.0	212 × 4.0	-	-	60	55	

\* The maximum wall thickness of the tank can be 8 mm.

## VARIVENT® Type U Single-seat Bottom Valve

Position	Description of the order code for the standard version		
1	<b>Valve type</b>		
	U	VARIVENT® single-seat bottom valve	
2	<b>Housing combinations</b>		
	F*	D*	
3	<b>Supplement to the valve type</b>		
	Reserved for options		
4/5	<b>Nominal width (upper housing/lower housing)</b>		
	DN 25	OD 1"	
	DN 40	OD 1 ½"	
	DN 50	OD 2"	IPS 2"
	DN 65	OD 2 ½"	
	DN 80	OD 3"	IPS 3"
	DN 100	OD 4"	IPS 4"
	DN 125		
	DN 150	OD 6"	IPS 6"
6	<b>Actuator type</b>		
	S	Air / Spring	
7	<b>Non-actuated position</b>		
	Z	Spring-to-close (NC)	
	A	Spring-to-open (NO)	
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>		
	Actuator (spring-to-close)	Actuator (spring-to-open)	For nominal widths
	AA	AA	DN 25, OD 1"
	BB	BA	DN 40, DN 50, OD 1 ½", OD 2", IPS 2"
	CD	CB	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"
	DF	DD	DN 100, OD 4", IPS 4"
	SH6	EF6	DN 125
	SK6	SG6	DN 150, OD 6", IPS 6"



<b>9</b>	<b>Valve seat version</b>	L0	Loose seat ring/Clamp connection
<b>10</b>	<b>Seal material in contact with the product</b>	1	EPDM (FDA)
		2	FKM (FDA)
		3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
		2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings</b>	N	Welding end
<b>13</b>	<b>Accessories</b>	/T	Housing connection T (up to DN 100, OD 4", IPS 4")
		/U	Housing connection U
		/52	Adhesive ID tag
<b>+</b>			
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	00000M	Metric for air hose $\varnothing 6/4$ mm
		00000Z	Inch for air hose $\varnothing$ OD 1/4" (6.35/4.35 mm)
		XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

\* Optionally with housing connection flange U or housing connection flange T (see position 13)

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	U			/	S			L0			N	/52	

For order codes differing from the standard version, please refer to section 7.



# VARIVENT® Type U\_V Single-seat Long-stroke Bottom Valve



**Technical data  
of the standard version**

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	4.8 bar (70 psi)	
Product pressure	DN 80 OD 3"	5 bar (73 psi)
	DN 100 OD 4"	5.6 bar (81 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$	
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		

\* Optionally with housing connection flange U or housing connection flange T (see position 13)

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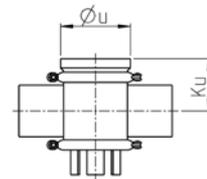
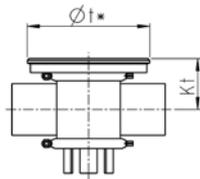
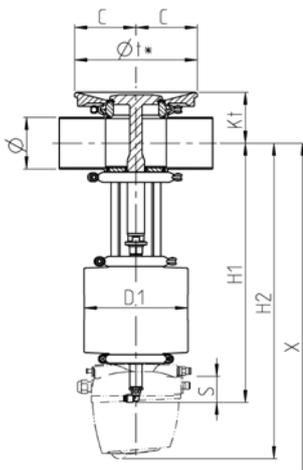
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Housing connection T

Housing connection U

	Pipe	Housing	Actuator	Dimensions				Housing connection U		Housing connection T		Valve	
Nominal width	Ø [mm]	C [mm]	D1 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Ku [mm]	Øu [mm]	Kt [mm]	Øt* [mm]	Stroke S [mm]	Weight [kg]	
DN 80	85.0 × 2.00	125	170	390	519	230	85.5	114 × 2.5	83.5	200	40	18	
DN 100	104.0 × 2.00	125	210	409	538	250	95.0	154 × 2.0	92.5	225	40	24	
OD 3"	76.2 × 1.65	125	170	393	522	230	81.5	114 × 2.5	79.5	200	41	18	
OD 4"	101.6 × 2.11	125	170	411	540	250	93.8	154 × 2.0	91.3	225	39	24	

\* The maximum wall thickness of the tank can be 8 mm.

# VARIVENT® Type U\_V

## Single-seat Long-stroke Bottom Valve

Position	Description of the order code for the standard version		
1	<b>Valve type</b>		
	U	VARIVENT® single-seat long-stroke bottom valve	
2	<b>Housing combinations</b>		
	F*	D*	
3	<b>Supplement to the valve type</b>		
	V	Long-stroke	
4/5	<b>Nominal width (upper housing/lower housing)</b>		
	DN 80	OD 3"	
	DN 100	OD 4"	
6	<b>Actuator type</b>		
	S	Air/Spring,	
7	<b>Non-actuated position</b>		
	Z	Spring-to-close (NC)	
	A	Spring-to-open (NO)	
8	<b>Standard configuration with 4.8 bar air supply pressure for 5 bar product pressure (DN 80, OD 3") or 5.6 bar (DN 100, OD 4") – (higher pressures on request)</b>		
	Actuator (spring-to-close)	Actuator (spring-to-open)	For nominal widths
	DD5	DD5	DN 80, OD 3"
	EF5	EF5	DN 100, OD 4"
9	<b>Valve seat version</b>		
	L0	Loose seat ring/Clamp connection	
10	<b>Seal material in contact with the product</b>		
	1	EPDM (FDA)	
	2	FKM (FDA)	
	3	HNBR (FDA)	
11	<b>Surface quality of the housing</b>		
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted	
12	<b>Connection fittings</b>		
	N	Welding end	
13	<b>Accessories</b>		
	/T	Housing connection T	
	/U	Housing connection U	
	/52	Adhesive ID tag	
+			
14–19	<b>Air connection/Control and feedback system</b>		
	00000M	Metric for air hose Ø 6/4 mm	
	00000Z	Inch for air hose Ø OD ¼" (6.35/4.35 mm)	
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation	

\* Optionally with housing connection flange U or housing connection flange T (see position 13)

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	U		V	- /	- S		-	L0	-	2	N	/52	-

For order codes differing from the standard version, please refer to section 7.

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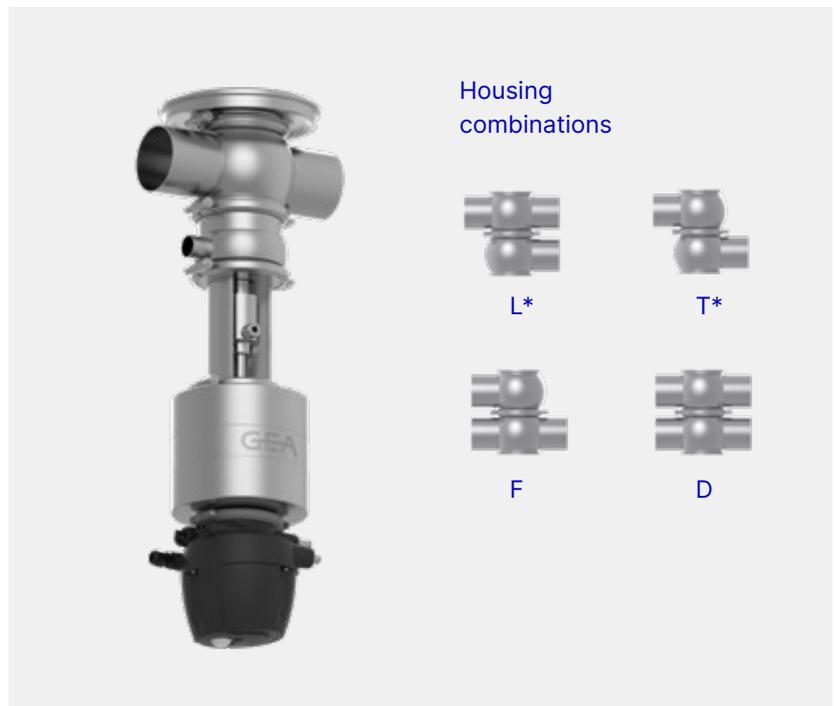
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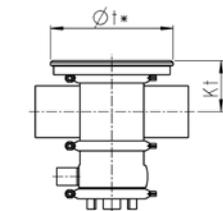
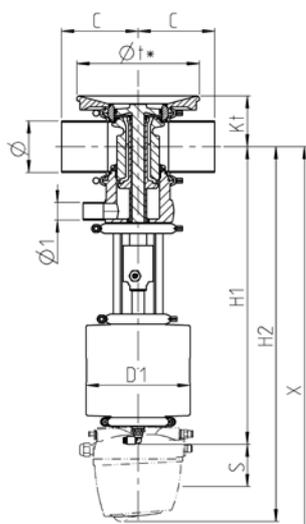
# VARIVENT® Type T\_R Radial Sealing Double-seat Bottom Valve



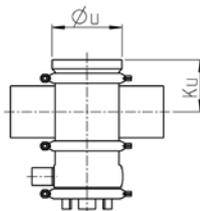
**Technical data  
of the standard version**

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		

\* Up to DN 100, OD 4", IPS 4"



Housing connection T



Housing connection U

	Pipe	Pipe leakage	Housing	Actuator	Spray cleaning hose (PTFE)	Dimensions			Housing connection U	Housing connection T		Valve		
Nominal width	Ø [mm]	Ø1 [mm]	C [mm]	D1 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Ext. X [mm]	Ku [mm]	Øu [mm]	Kt [mm]	Øt* [mm]	Stroke S [mm]	Weight [kg]
DN 40	41.0 × 1.50	23 × 1.5	90.0	135	8/6	415	544	649	56.0	85 × 2.0	55.5	165	22	14
DN 50	53.0 × 1.50	23 × 1.5	90.0	135	8/6	421	550	655	62.0	85 × 2.0	61.5	165	30	15
DN 65	70.0 × 2.00	29 × 1.5	125.0	170	8/6	461	590	765	78.0	114 × 2.5	76.0	200	30	25
DN 80	85.0 × 2.00	29 × 1.5	125.0	170	8/6	488	617	792	85.5	114 × 2.5	83.5	200	40	26
DN 100	104.0 × 2.00	29 × 1.5	125.0	210	8/6	488	617	792	95.0	154 × 2.0	92.5	225	40	35
DN 125	129.0 × 2.00	41 × 1.5	150.0	261	10/8	652	781	1,011	107.5	184 × 3.0	-	-	60	57
DN 150	154.0 × 2.00	41 × 1.5	150.0	261	10/8	676	805	1,035	120.0	212 × 4.0	-	-	60	71
OD 1 ½"	38.1 × 1.65	23 × 1.5	90.0	135	8/6	416	545	650	54.5	85 × 2.0	54.0	165	25	14
OD 2"	50.8 × 1.65	23 × 1.5	90.0	135	8/6	422	551	656	60.8	85 × 2.0	60.3	165	31	15
OD 2 ½"	63.5 × 1.65	29 × 1.5	125.0	170	8/6	465	594	769	75.0	114 × 2.5	73.0	200	31	24
OD 3"	76.2 × 1.65	29 × 1.5	125.0	170	8/6	491	620	795	81.5	114 × 2.5	79.5	200	39	26
OD 4"	101.6 × 2.11	29 × 1.5	125.0	210	8/6	490	619	794	93.8	154 × 2.0	91.3	225	40	36
OD 6"	152.4 × 2.77	41 × 1.5	150.0	261	10/8	675	804	1,034	118.5	212 × 4.0	-	-	60	71
IPS 2"	60.3 × 2.00	23 × 1.5	114.3	135	8/6	425	554	659	65.5	84 × 2.0	65.0	165	30	16
IPS 3"	88.9 × 2.30	29 × 1.5	152.5	170	8/6	490	619	794	87.5	114 × 2.5	85.5	200	40	28
IPS 4"	114.3 × 2.30	29 × 1.5	152.5	210	8/6	493	622	797	100.0	154 × 2.0	97.5	225	40	38
IPS 6"	168.3 × 2.77	41 × 1.5	152.5	261	10/8	670	799	1,029	126.0	212 × 4.0	-	-	60	72

\* The maximum wall thickness of the tank can be 8 mm.

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## VARIVENT® Type T\_R Radial Sealing Double-seat Bottom Valve

Position	Description of the order code for the standard version
1	<b>Valve type</b>
	T VARIVENT® double-seat bottom valve
2	<b>Housing combinations</b>
	L* T* F D
3	<b>Supplement to the valve type</b>
	R Radial seat
4/5	<b>Nominal width (upper housing/lower housing)</b>
	DN 40 OD 1 ½"
	DN 50 OD 2" IPS 2"
	DN 65 OD 2 ½"
	DN 80 OD 3" IPS 3"
	DN 100 OD 4" IPS 4"
	DN 125
	DN 150 OD 6" IPS 6"
6	<b>Actuator type</b>
	S Air / Spring
7	<b>Non-actuated position</b>
	Z Spring-to-close (NC)
8	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>
	Actuator (spring-to-close) For nominal widths
	CD DN 40, DN 50, OD 1 ½", OD 2", IPS 2"
	DF DN 65, OD 2 ½"
	DF5 DN 80, OD 3", IPS 3"
	EG5 DN 100, OD 4", IPS 4"
	SH6 DN 125
	SK6 DN 150, OD 6", IPS 6"
9	<b>Valve seat version</b>
	L0 Loose seat ring / Clamp connection



<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings**</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4 \text{ mm}$
	00000Z	Inch for air hose $\varnothing \text{ OD } 1/4" (6.35 / 4.35 \text{ mm})$
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

\* Up to DN 100, OD 4", IPS 4"

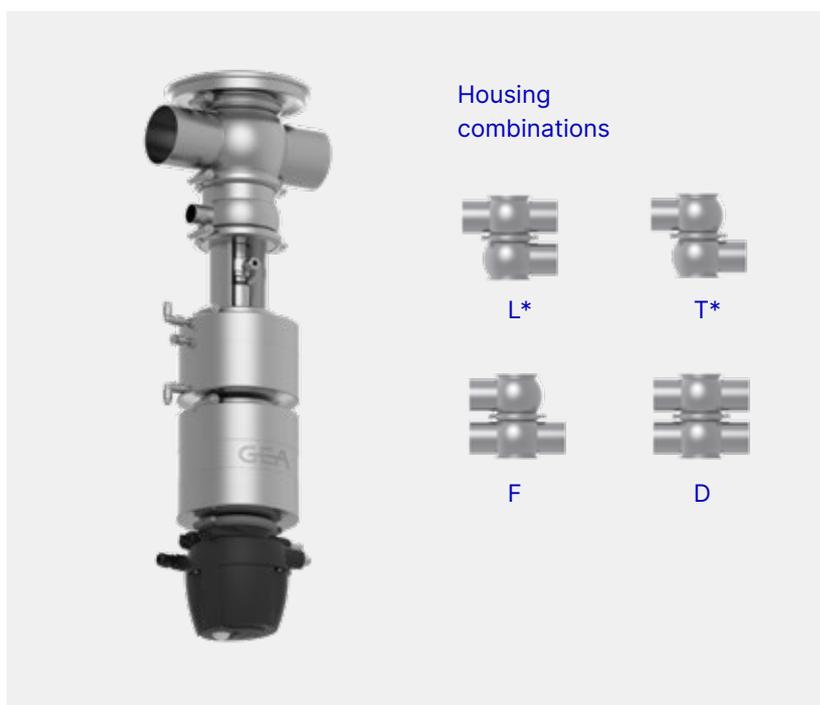
\*\* The leakage housing socket can be ordered with a GK connection fitting upon request (please specify separately when ordering).

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19						
Code	T		R	- / -	S	Z	-	L0	-			N /52	-						

For order codes differing from the standard version, please refer to section 7.

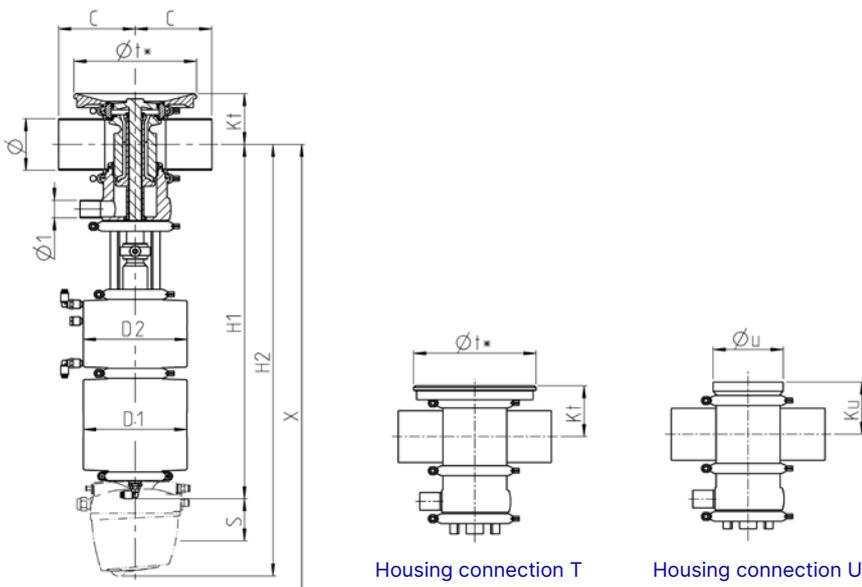
## VARIVENT® Type T\_RL, T\_RC Radial Sealing Double-seat Bottom Valve with Lift Function



### Technical data of the standard version

Recommended flow direction	Against the closing direction	
Material in contact with the product	1.4404 (AISI 316L)	
Material not in contact with the product	1.4301 (AISI 304)	
Seal material in contact with the product	EPDM, FKM, HNBR	
Ambient temperature	0 to 45 °C	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	
Surface in contact with the product	DN, OD	$R_a \leq 0.8 \mu\text{m}$
	IPS	$R_a \leq 1.2 \mu\text{m}$
External housing surface	Matt blasted	
Control and feedback system	Connection 0 (without control top)	
Actuator type	Pneumatic actuator air/spring	
Connection fittings	Welding end	
Identification	Adhesive ID tag	
Valve seat version	Clamped seat ring	
Marking / Certificates		

\* Up to DN 100, OD 4", IPS 4"



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	Pipe	Pipe leakage	Housing	Actuator	Spray cleaning hose (PTFE)	Dimensions	Housing connection U	Housing connection T	Valve						
Nominal width	Ø [mm]	Ø1 [mm]	C [mm]	D1 [mm]	D2 [mm]	Ø [mm]	H1 [mm]	H2 [mm]	Ext. X [mm]	Ku [mm]	Øu [mm]	Kt [mm]	Øt* [mm]	Stroke S [mm]	Weight [kg]
DN 40	41.0 × 1.50	23 × 1.5	90.0	110	110	8/6	506	635	740	56.0	85 × 2.0	55.5	165	28	17
DN 50	53.0 × 1.50	23 × 1.5	90.0	110	110	8/6	504	633	738	62.0	85 × 2.0	61.5	165	31	17
DN 65	70.0 × 2.00	29 × 1.5	125.0	135	135	8/6	514	643	818	78.0	114 × 2.5	76.0	200	35	26
DN 80	85.0 × 2.00	29 × 1.5	125.0	135	170	8/6	551	680	855	85.5	114 × 2.5	83.5	200	45	31
DN 100	104.0 × 2.00	29 × 1.5	125.0	170	170	8/6	481	610	785	95.0	154 × 2.0	92.5	225	45	40
DN 125	129.0 × 2.00	41 × 1.5	150.0	210	210	10/8	760	889	1,119	107.5	184 × 3.0	-	-	65	65
DN 150	154.0 × 2.00	41 × 1.5	150.0	210	210	10/8	784	913	1,143	120.0	212 × 4.0	-	-	65	83
OD 1 ½"	38.1 × 1.65	23 × 1.5	90.0	110	110	8/6	507	636	741	54.5	85 × 2.0	54.0	165	28	17
OD 2"	50.8 × 1.65	23 × 1.5	90.0	110	110	8/6	505	634	739	60.8	85 × 2.0	60.3	165	35	17
OD 2 ½"	63.5 × 1.65	29 × 1.5	125.0	135	135	8/6	517	646	821	75.0	114 × 2.5	73.0	200	45	26
OD 3"	76.2 × 1.65	29 × 1.5	125.0	135	170	8/6	555	684	859	81.5	114 × 2.5	79.5	200	45	30
OD 4"	101.6 × 2.11	29 × 1.5	125.0	170	170	10/8	582	711	886	93.8	154 × 2.0	91.3	225	65	40
OD 6"	152.4 × 2.77	41 × 1.5	150.0	210	210	10/8	786	915	1,145	118.5	212 × 4.0	-	-	65	79
IPS 2"	60.3 × 2.00	23 × 1.5	114.3	110	110	8/6	507	636	741	65.5	84 × 2.0	65.0	165	31	19
IPS 3"	88.9 × 2.30	29 × 1.5	152.5	135	170	8/6	553	682	857	87.5	114 × 2.5	85.5	200	45	33
IPS 4"	114.3 × 2.30	29 × 1.5	152.5	170	170	8/6	586	715	890	100.0	154 × 2.0	97.5	225	45	43
IPS 6"	168.3 × 2.77	41 × 1.5	152.5	210	210	10/8	778	907	1,137	126.0	212 × 4.0	-	-	65	80

\* The maximum wall thickness of the tank can be 8 mm.

## VARIVENT® Type T\_RL, T\_RC Radial Sealing Double-seat Bottom Valve with Lift Function

Position	Description of the order code for the standard version
<b>1</b>	<b>Valve type</b>
	T VARIVENT® double-seat bottom valve
<b>2</b>	<b>Housing combinations</b>
	L* T* F D
<b>3</b>	<b>Supplement to the valve type</b>
	RL Radial seat, with lifting actuator and spray cleaning
	RC Radial seat, with lifting actuator without spray cleaning
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b>
	DN 40 OD 1 ½"
	DN 50 OD 2" IPS 2"
	DN 65 OD 2 ½"
	DN 80 OD 3" IPS 3"
	DN 100 OD 4" IPS 4"
	DN 125
	DN 150 OD 6" IPS 6"
<b>6</b>	<b>Actuator type</b>
	S Air / Spring
<b>7</b>	<b>Non-actuated position</b>
	Z Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b>
	Actuator (spring-to-close) /Lifting actuator For nominal widths
	BD /BLR DN 40, DN 50, OD 1 ½", OD 2", IPS 2"
	CF /CLT DN 65, OD 2 ½"
	CF5 /DLT5 DN 80, OD 3", IPS 3"
	DG5 /DLT5 DN 100, OD 4", IPS 4"
	EH6 /ELR6 DN 125
	EK6 /ELR6 DN 150, OD 6", IPS 6"
<b>9</b>	<b>Valve seat version</b>
	L0 Loose seat ring/Clamp connection



<b>10</b>	<b>Seal material in contact with the product</b>	
	1	EPDM (FDA)
	2	FKM (FDA)
	3	HNBR (FDA); (up to DN 100, OD 4", IPS 4")
<b>11</b>	<b>Surface quality of the housing</b>	
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings**</b>	
	N	Welding end
<b>13</b>	<b>Accessories</b>	
	/52	Adhesive ID tag
+		
<b>14-19</b>	<b>Air connection / Control and feedback system</b>	
	00000M	Metric for air hose $\varnothing 6/4 \text{ mm}$
	00000Z	Inch for air hose $\varnothing \text{ OD } 1/4'' (6.35 / 4.35 \text{ mm})$
	XXXXX	Order code for different control and feedback systems see catalog GEA Valve Automation

\* Up to DN 100, OD 4", IPS 4"

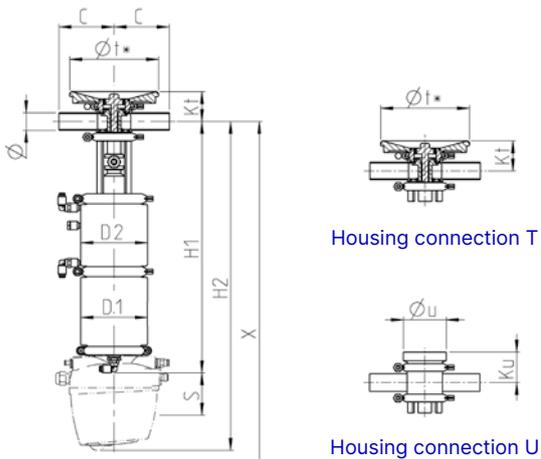
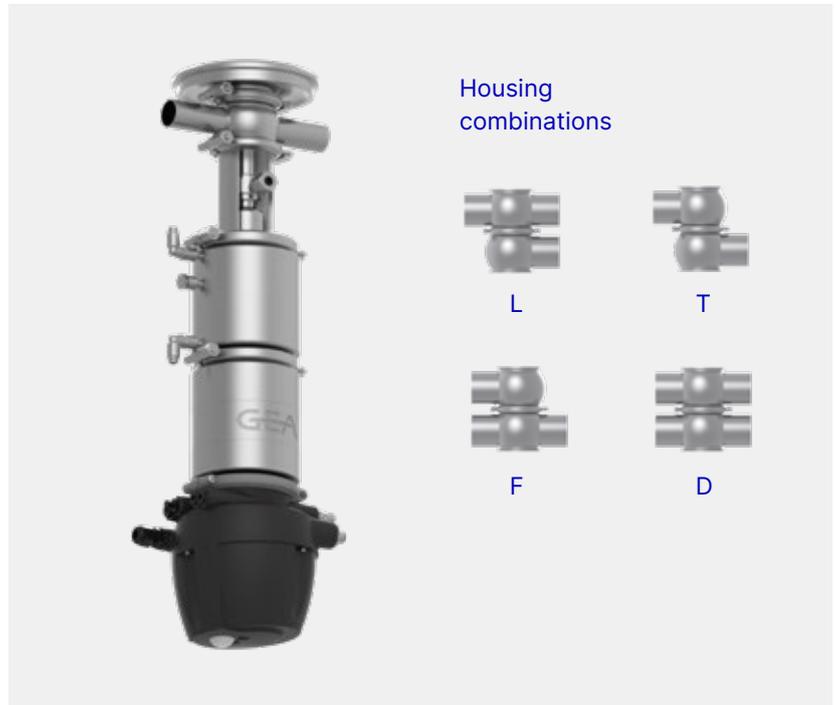
\*\* The leakage housing socket can be ordered with a GK connection fitting upon request (please specify separately when ordering).

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19				
Code	T			/	S	Z		L0			N	/52					

For order codes differing from the standard version, please refer to section 7.

## VARIVENT® Type T\_RC Radial Sealing Double-seat Bottom Valve with Lift Function



### Technical data of the standard version

Recommended flow direction	Against the closing direction
Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM, FKM, HNBR
Ambient temperature	0 to 45 °C
Air supply pressure	6 bar (87 psi)
Product pressure	5 bar (73 psi)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
External housing surface	Matt blasted
Control and feedback system	Connection 0 (without control top)
Actuator type	Pneumatic actuator air/spring
Connection fittings	Welding end
Identification	Adhesive ID tag
Valve seat version	Clamped seat ring
Marking / Certificates	

	Pipe	Housing	Actuator		Dimensions			Housing connection U		Housing connection T		Valve	
Nominal width	Ø [mm]	C [mm]	D1 [mm]	D2 [mm]	H1 [mm]	H2 [mm]	Extension X [mm]	Ku [mm]	Øu [mm]	Kt [mm]	Øt* [mm]	Stroke S [mm]	Weight [kg]
DN 25	29.0 × 1.50	90	110	110	412	541	646	50	70 × 2	49	145	25	13
OD 1"	25.4 × 1.65	90	110	110	414	543	648	49	70 × 2	47	145	22	13

\* The maximum wall thickness of the tank can be 8 mm.



Position	Description of the order code for the standard version
<b>1</b>	<b>Valve type</b> T VARIVENT® double-seat bottom valve with lift function
<b>2</b>	<b>Housing combinations</b> L T F D
<b>3</b>	<b>Supplement to the valve type</b> RC Radial seat, with lifting actuator without spray cleaning
<b>4/5</b>	<b>Nominal width (upper housing/lower housing)</b> DN 25 OD 1"
<b>6</b>	<b>Actuator type</b> S Air / Spring
<b>7</b>	<b>Non-actuated position</b> Z Spring-to-close (NC)
<b>8</b>	<b>Standard configuration with 6 bar air supply pressure for 5 bar product pressure (higher pressures on request)</b> Actuator (spring-to-close) /Lifting actuator BD /BLR
<b>9</b>	<b>Valve seat version</b> L0 Loose seat ring /Clamp connection
<b>10</b>	<b>Seal material in contact with the product</b> 1 EPDM (FDA) 2 FKM (FDA) 3 HNBR (FDA)
<b>11</b>	<b>Surface quality of the housing</b> 2 Inside R <sub>a</sub> ≤ 0.8 µm, outside matt blasted (DN, OD)
<b>12</b>	<b>Connection fittings*</b> N Welding end
<b>13</b>	<b>Accessories</b> /52 Adhesive ID tag
<b>+</b>	
<b>14-19</b>	<b>Air connection / Control and feedback system</b> 00000M Metric for air hose Ø 6/4 mm 00000Z Inch for air hose Ø OD ¼" (6.35/4.35 mm) XXXXX Order code for different control and feedback systems see catalog GEA Valve Automation

\* The leakage housing socket can be ordered with a GK connection fitting upon request (please specify separately when ordering).

The code is composed as following, depending on the chosen configuration:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	T		RC	- / -	S	Z	- BD/BLR -	L0	-	2	N	/52	-

For order codes differing from the standard version, please refer to section 7.

7

# OPTIONS

GEA VARIVENT® Hygienic Seat Valves

# Available Options

<b>210</b>	Supplement to the Valve Type	<b>258</b>	Connection Fittings
210	VARIVENT® Lifting Actuator	258	Overview
212	VARIVENT® Conversion Kit Bellows, Stainless Steel	260	VARIVENT® Flange Connection
214	VARIVENT® Conversion Kit Bellows, PTFE	262	Pipe Fitting acc. to DIN 11851
216	VARIVENT® Conversion Kit D-Tec® for Shut-Off Valves	264	Hygienic Flange Connection acc. to DIN 11853-2
218	VARIVENT® Conversion Kit D-Tec® for Divert Valves	266	Clamp Connection (Tri-clamp)
<b>220</b>	Housing and Nominal Widths	<b>268</b>	<b>Accessories</b>
220	VARIVENT® Jacketed Valve Housing	268	VARIVENT® Damping Cylinder
222	VARIVENT® Housing with Increased Pressure Level	270	VARIVENT® Two-position-stop
224	ECOVENT® Housing with Increased Pressure Level	272	VARIVENT® Limit Stop
226	Mix-matched Housing Combinations	274	VARIVENT® Sterile Lock for Single-seat valves
230	Vertical Ports Suitable for Orbital Welding	276	VARIVENT® Sterile Lock for Double-seat valves, Complete
232	Tangential Valve Housings	278	VARIVENT® Sterile Lock for Double-seat valves (Balancer only)
<b>234</b>	Actuators	280	VARIVENT® Leakage Connector
234	VARIVENT® Actuator Air/Spring	282	VARIVENT® Leakage Connector for Balancer
236	ECOVENT® Actuator Air/Spring for Application with Feedback System	284	VARIVENT® Flush Valve
238	ECOVENT® Actuator Air/Spring for Application without Feedback System	<b>286</b>	<b>Additional Options</b>
240	VARIVENT® Actuator Air/Spring, Air-assisted	286	VARIVENT® CIP Connection for Double-seat and Double-seat valves
242	ECOVENT® Actuator Air/Spring, Air-assisted	288	Test Report and Inspection Certificate
244	VARIVENT® Booster Cylinder for Actuator Air/Spring	290	3-A Symbol
246	VARIVENT® Actuator Air/Air	292	ATEX
248	VARIVENT® Manual Actuator	294	ID Plates, TAG Numbers
250	ECOVENT® Manual Actuator	296	Transport Device
<b>252</b>	Seal Materials	297	VARIVENT® Manual Emergency Actuator
252	FFKM (FDA)	<b>298</b>	<b>Actuator Selection</b>
254	TEFASEP® gold		
<b>256</b>	Surface Qualities		
256	Inner and Outer Surface of the Housings		
257	Electropolishing of the Housings		

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## Options – Supplement to the Valve Type VARIVENT® Lifting Actuator



### Typical application and description

In a double-seat valve, in order to clean the two valve discs, inclusive seal surfaces and the leakage chamber, by using seat lifting, an additional lifting actuator is installed to lift the main actuator and the lantern.

The lifting actuator is supplied with air via the two connections provided on the particular control and feedback system. Both valve discs can be activated separately using this lifting actuator.

The configuration and required size of lifting actuator is determined by GEA Tuchenhagen. When ordering, it is necessary to specify the prevailing product pressure, as well as the available air supply pressure, or to select an appropriate combination from one of the actuator selection sheets. In a double-seat valve, in order to clean the two valve discs, inclusive seal surfaces and the leakage chamber, by using seat lifting, an additional lifting actuator is installed to lift the main actuator and the lantern.

### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

### Available valve types

Single-seat valves with shut-off function	–
Single-seat valves with divert function	–
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	D, B, R, MX, L
Mixproof valves with divert function	Y
Tank bottom valves	T

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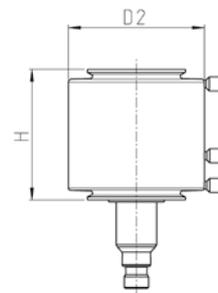
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#### Technical data

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$

Type	Dimensions		
No. 8 in the order code	D2 [mm]	H [mm]	Weight [kg]
/BL_	110	120	4.6
/CL_	135	120	5.8
/DL_	170	120	8.0
/EL_	210	120	10.5
/CL_5	135	130	4.9
/DL_5	170	130	8.3
/EL_5	210	130	10.8
/EL_6	210	158	15.7
/SL_6	260	158	21.0

#### Incorporation of the option in the order code and example

Position	Description of the order code for options
3	Supplement to the valve type
	<ul style="list-style-type: none"> <li> L With lifting actuator and spray cleaning</li> <li>C With lifting actuator without spray cleaning</li> </ul>
8	Actuator (spring-to-close) / Lifting actuator
	<ul style="list-style-type: none"> <li> ... / ... Required combination of main actuator / lifting actuator acc. to actuator selection sheet (e.g. EG/ELB)</li> </ul>

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	D	E	L	-	DN 80/80	-	S	Z	-	EG/ELB	-	L0	-	1	2	N	/52	+	0	0	0	0	0	0	M

## Options – Supplement to the Valve Type VARIVENT® Conversion Kit Bellows, Stainless Steel



### Typical application and description

Conversion of a VARIVENT® hygienic valve type N into a sterile version within existing systems.

For more sensitive applications, single-seat valves in existing systems can be modified by using bellows, e.g. for use in highly hygienic applications. Not only the bellows but also a lantern, adapter and securing clip are supplied for the conversion.

Please contact GEA Aseptomag AG if you are planning new aseptic applications!

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### Available nominal widths

Metric	DN	25–100
Inch OD	OD	1"–4"

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### Available valve types

Single-seat valves with shut-off function	N
Single-seat valves with divert function	–
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N

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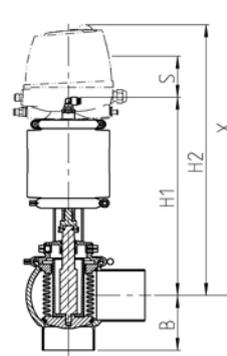
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**Technical data**

Recommended flow direction	From bottom to top
Material in contact with the product	1.4404 (AISI 316L)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	EPDM (FDA)
Air supply pressure	Max. 6 bar (max. 87 psi)
Product pressure	Max. 6 bar (max. 87 psi)
Certificates	

**Order numbers of conversion kit:**

Nominal width	Housing		Dimensions			Stroke S [mm]	Valve Weight [kg]	Article number	
	B [mm]	H1 [mm]	H2 [mm]	X [mm]	EPDM			FKM	
DN 25	58	248	377	462	5.2	7	221-004755	221-004765	
DN 40	64	289	418	503	7.0	10	221-004757	221-004767	
DN 50	70	295	424	509	7.3	15	221-004758	221-004768	
DN 65	83	309	438	583	10.1	14	221-004760	221-004770	
DN 80	91	317	446	591	15.0	15	221-004762	221-004772	
DN 100	100	358	487	632	21.2	22	221-004764	221-004774	
OD 1"	56.00	246	375	375	3.2	7	221-004756	221-004766	
OD 1 1/2"	62.50	288	417	417	5.5	10	221-004757	221-004767	
OD 2"	68.75	294	423	423	10.0	14	221-004758	221-004768	
OD 2 1/2"	80.00	294	423	423	14.4	14	221-004760	221-004770	
OD 3"	86.50	313	442	442	19.1	14	221-004763	221-004773	
OD 4"	98.75	357	486	486	27.5	22	221-004764	221-004774	

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**Order as a complete valve by incorporating the option in the order code and example**

Position	Description of the order code for options																		
3	Supplement to the valve type																		
	A/S Bellows stainless steel																		

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	N	L	A/S	-	DN 80/80	-	S	Z	-	RG	-	L0	-	1	5	N	/52	+	0	0	0	0	0	M

## Options – Supplement to the Valve Type VARIVENT® Conversion Kit Bellows, PTFE



### Typical application and description

Conversion of a VARIVENT® hygienic valve type N into a sterile version within existing systems.

For more sensitive applications, single-seat valves in existing systems can be modified by using a bellows, e.g. for use in highly hygienic applications. Not only the bellows but also a lantern, adapter and securing clip are supplied for the conversion. Product versions with 3-A certificate are optionally available.

Please contact GEA Aseptomag AG if you are planning new aseptic applications!

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### Available nominal widths

Metric	DN	25–100
Inch OD	OD	1"–4"

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### Available valve types

Single-seat valves with shut-off function	N
Single-seat valves with divert function	–
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N

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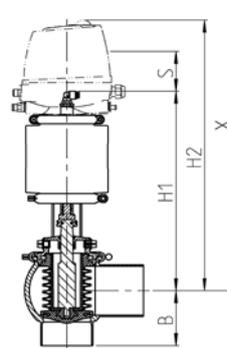
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**Technical data**

Recommended flow direction	From bottom to top
Material in contact with the product	1.4404 (AISI 316L) Bellows PTFE (FDA)
Material not in contact with the product	1.4301 (AISI 304)
Seal material in contact with the product	PTFE (FDA)
Air supply pressure	Max. 6 bar (max. 87 psi)
Product pressure	Max. 6 bar (max. 87 psi)
Certificates	

**Order numbers of conversion kit:**

Nominal width	Housing		Dimensions			Valve		Article number
	B [mm]	H1 [mm]	H2 [mm]	X [mm]	Stroke S [mm]	Weight [kg]	Material PTFE	
DN 25	58.00	248	377	462	6.4	7	221-004775	
DN 40	64.00	289	418	503	11.2	9	221-004777	
DN 50	70.00	295	424	509	14.8	10	221-004778	
DN 65	83.00	309	438	583	19.3	14	221-004779	
DN 80	91.00	317	446	591	19.8	14	221-004780	
DN 100	100.00	358	487	632	21.2	20	221-004782	
OD 1"	56.00	246	375	460	3.2	7	221-004776	
OD 1 ½"	62.50	288	417	502	5.5	9	221-004777	
OD 2"	68.75	294	423	508	10.0	10	221-004778	
OD 2 ½"	80.00	306	435	580	14.4	14	221-004779	
OD 3"	86.50	313	442	587	19.1	14	221-004781	
OD 4"	98.75	357	486	631	27.5	21	221-004782	

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**Order as a complete valve by incorporating the option in the order code and example**

Position	Description of the order code for options																		
3	Supplement to the valve type																		
	A/P Bellows PTFE																		

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	N	L	A/P	-	DN 80/80	-	S	Z	-	RG	-	L0	-	1	5	N	/52	+	0	0	0	0	0	M

## Options – Supplement to the Valve Type VARIVENT® Conversion Kit D-tec® for Shut-off Valves



### Typical application and description

From Hygienic to UltraClean – D-tec® conversion kit for VARIVENT®

The D-tec® conversion kit makes it possible to convert existing systems from a hygienic stem diaphragm sealing to the D-tec® diaphragm for achieving UltraClean production conditions. Using components that prevent exchange with the exterior atmosphere simplifies the production of demanding and sensitive products and advances product shelf life.

D-tec® valves are used especially in the food, beverages, biotech and dairy industries.

Product versions with 3-A certificate are optionally available.

Please contact GEA Aseptomag AG if you are planning new aseptic applications!

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### Available nominal widths

Metric	DN	25–100
Inch OD	OD	1"–4"

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### Available valve types

Single-seat valves with shut-off function	N
Single-seat valves with divert function	–
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N

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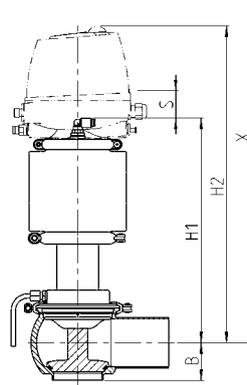
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**Technical data**

Recommended flow direction	From bottom to top	
Material	Housing	1.4404 (AISI 316L)
	Diaphragm	D-tec®
	Valve seat seal	EPDM, FKM, HNBR, TEFASEP® gold
	Housing seal	EPDM, FKM, HNBR
	Not in contact with product	1.4301 (AISI 304)
Operating temperature	Max. 135 °C (275 °F)	
Sterilization temperature	Max. 150 °C (302 °F) for 30 min	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	

**Order numbers of conversion kit + seal set**

Nominal width	Housing		Dimensions			Valve Stroke S [mm]	conversion kit	Article number*		
	B [mm]	H1 [mm]	H2 [mm]	X [mm]	Seal set (material)					
					EPDM			FKM	HNBR	
DN 25	31	248	412	493	10	221-743.01	221-741.01	221-741.05	221-741.09	
DN 40	39	293	457	558	17	221-743.02	221-741.02	221-741.06	221-741.10	
DN 50	41	299	463	578	17	221-743.03	221-741.02	221-741.06	221-741.10	
DN 65	52	307	471	619	25	221-743.04	221-741.03	221-741.07	221-741.11	
DN 80	60	314	478	649	25	221-743.05	221-741.03	221-741.07	221-741.11	
DN 100	70	358	522	722	30	221-743.06	221-741.04	221-741.08	221-741.12	
OD 1"	29	246	410	485	10	221-743.07	221-741.01	221-741.05	221-741.09	
OD 1 1/2"	39	291	455	553	17	221-743.08	221-741.02	221-741.06	221-741.10	
OD 2"	42	297	461	575	17	221-743.09	221-741.02	221-741.06	221-741.10	
OD 2 1/2"	54	304	468	612	25	221-743.10	221-741.03	221-741.07	221-741.11	
OD 3"	54	310	474	631	25	221-743.11	221-741.03	221-741.07	221-741.11	
OD 4"	69	357	521	718	30	221-743.12	221-741.04	221-741.08	221-741.12	

\* For every conversion kit a suitable seal set must be included in the order.

## Options – Supplement to the Valve Type VARIVENT® Conversion Kit D-tec® for Divert Valves



### Typical application and description

From Hygienic to UltraClean – D-tec® conversion kit for VARIVENT®

The D-tec® conversion kit makes it possible to convert existing systems from a hygienic stem diaphragm sealing to the D-tec® diaphragm for achieving UltraClean production conditions. Using components that prevent exchange with the exterior atmosphere simplifies the production of demanding and sensitive products and advances product shelf life.

D-tec® valves are used especially in the food, beverages, biotech and dairy industries.

Product versions with 3-A certificate are optionally available.

Please contact GEA Aseptomag AG if you are planning new aseptic applications!

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#### Available nominal widths

Metric	DN	25–100
Inch OD	OD	1"–4"

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#### Available valve types

Single-seat valves with shut-off function	–
Single-seat valves with divert function	W
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	–

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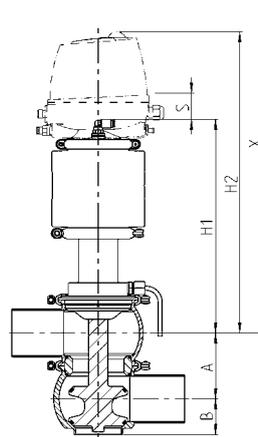
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**Technical data**

Recommended flow direction	product-merging	
Material	Housing	1.4404 (AISI 316L)
	Diaphragm	D-tec®
	Valve seat seal	EPDM, FKM, HNBR, TEFASEP® gold
	Housing seal	EPDM, FKM, HNBR
	Not in contact with product	1.4301 (AISI 304)
Operating temperature	Max. 135 °C (275 °F)	
Sterilization temperature	Max. 150 °C (302 °F) for 30 min	
Air supply pressure	6 bar (87 psi)	
Product pressure	5 bar (73 psi)	

**Order numbers of conversion kit + seal set**

Nominal width	Housing		Dimensions			Valve	conversion kit	Article number*		
	B [mm]	A [mm]	H1 [mm]	H2 [mm]	X [mm]	Stroke S [mm]		Seal set (material)		
								EPDM	FKM	HNBR
DN 25	31	50.0	248	412	593	8	221-744.01	221-742.01	221-742.05	221-742.09
DN 40	39	62.0	293	457	682	14	221-744.02	221-742.02	221-742.06	221-742.10
DN 50	41	74.0	299	463	726	14	221-744.03	221-742.02	221-742.06	221-742.10
DN 65	52	96.0	337	501	841	22	221-744.04	221-742.03	221-742.07	221-742.11
DN 80	60	111.0	344	508	901	22	221-744.05	221-742.03	221-742.07	221-742.11
DN 100	70	130.0	358	522	982	25	221-744.06	221-742.04	221-742.08	221-742.12
OD 1"	29	46.0	246	410	577	8	221-744.07	221-742.01	221-742.05	221-742.09
OD 1 1/2"	39	59.0	291	455	671	14	221-744.08	221-742.02	221-742.06	221-742.10
OD 2"	42	71.5	297	461	718	14	221-744.09	221-742.02	221-742.06	221-742.10
OD 2 1/2"	54	90.0	334	498	822	22	221-744.10	221-742.03	221-742.07	221-742.11
OD 3"	54	103.0	340	504	867	22	221-744.11	221-742.03	221-742.07	221-742.11
OD 4"	69	127.5	357	521	973	25	221-744.12	221-742.04	221-742.08	221-742.12

\* For every conversion kit a suitable seal set must be included in the order.

## Options – Housing and Nominal Widths VARIVENT® Jacketed Valve Housing



### Typical application and description

For keeping chocolate or margarine fluid and for cooling ice cream.

For heating or cooling products, a hot or cold medium is passed through the housing jacket in the opposite flow direction.

The product range includes jacketed valve housings with both one and two vertical ports. However, the housings cannot be supplied for valves with mix-matched nominal widths or a welded seat ring.

### Available nominal widths

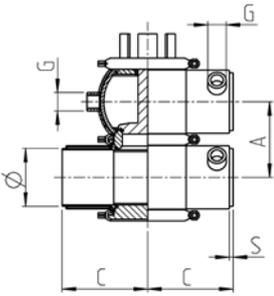
Metric	DN	25–100
Inch OD	OD	1"–4"

### Available valve types

Single-seat valves with shut-off function	N, U, N/ECO
Single-seat valves with divert function	W, X, W/ECO
Mixproof valves with shut-off function	D, B, R, K
Mixproof valves with shut-off function and seat lifting	D, B, R
Mixproof valves with divert function	Y
Tank bottom valves	N, U, T

### Technical data

Material	1.4404 (AISI 316L)	
Max. product pressure	10 bar	DN 25–50, OD 1"–2"
	6 bar	DN 65–100, OD 2 ½"–4"
Jacket pressure resistance	3.5 bar	
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$	
Outside surface	Matt blasted	
Valve seat version	Clamped connection	



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Nominal width	Dimensions					Weight	
	Ø [mm]	C [mm]	A [mm]	S [mm]	G [mm]	single vertical ports [kg]	double vertical ports [kg]
DN 25	29 × 1.5	90	50	5	¼"	0.5	0.7
DN 40	41 × 1.5	90	62	5	¼"	0.8	1.1
DN 50	53 × 1.5	90	74	5	¼"	1.0	1.1
DN 65	70 × 2.0	125	96	5	½"	2.5	2.7
DN 80	85 × 2.0	125	111	5	½"	3.0	3.2
DN 100	104 × 2.0	125	130	5	½"	4.1	4.4
OD 1"	25.4 × 1.65	90	46.0	5	¼"	0.5	0.6
OD 1 ½"	38.1 × 1.65	90	59.0	5	¼"	0.8	0.9
OD 2"	50.8 × 1.65	90	71.5	5	¼"	1.0	1.1
OD 2 ½"	63.5 × 1.65	125	90.0	5	½"	2.3	2.5
OD 3"	76.2 × 1.65	125	103.0	5	½"	2.7	2.8
OD 4"	101.6 × 2.11	125	127.5	5	½"	4.1	4.0

### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessoires
	/25 Jacketed valve housings

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	D	E		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	/25	/52	+	0	0	0	0	0	0	M

## Options – Housing and Nominal Widths VARIVENT® Housing with Increased Pressure Level

### Typical application and description

For static use of valves with increased product pressure. For increasing the strength, the half rings on the valve housings are made of cast material and the housings with nominal widths DN 100/OD 4" are made of a higher-quality material.

**IMPORTANT:** The differential pressure between the product chambers on both sides of the valve disc is not allowed to exceed 10 bar during switching of the valve. The actuator size of the valve must be selected based on the product data.

### Available nominal widths and pressure range

Nominal width	Pressure range (PS)	
	Standard	Option
DN 25	16	20
DN 40	16	20
DN 50	16	20
DN 65	16	20
DN 80	10	20
DN 100	10	20
DN 125	10	–
DN 150	10	–

OD 1"	16	20
OD 1 ½"	16	20
OD 2"	16	20
OD 2 ½"	16	20
OD 3"	10	20
OD 4"	10	20
OD 6"	10	–

IPS 2"	16	20
IPS 3"	10	20
IPS 4"	10	–
IPS 6"	10	–

### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	D, B, R, K
Mixproof valves with shut-off function and seat lifting	D, B, R, K
Mixproof valves with divert function	Y
Tank bottom valves	–

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**Technical data**

Material	1.4404 (AISI 316L)	DN 25–80, OD 1"–3"
	1.4462	DN 100, OD 4"
Pressure range	PS 20 bar	TS 0/+150 °C
Pressure range jacketed housing	PS 16 bar	DN 25 – 80, OD 1" – 3"; TS 0/+150 °C
Valve seat version	Clamped or welded* housing connection	

\* not for jacketed housings

			Dimensions	
Nominal width	Ø [mm]	C [mm]	A [mm]	
DN 25	29 × 1.5	90	50	
DN 40	41 × 1.5	90	62	
DN 50	53 × 1.5	90	74	
DN 65	70 × 2.0	125	96	
DN 80	85 × 2.0	125	111	
DN 100	104 × 2.0	125	130	
OD 1"	25.4 × 1.65	90	46.0	
OD 1 ½"	38.1 × 1.65	90	59.0	
OD 2"	50.8 × 1.65	90	71.5	
OD 2 ½"	63.5 × 1.65	125	90.0	
OD 3"	76.2 × 1.65	125	103.0	
OD 4"	101.6 × 2.11	125	127.5	
IPS 2"	60.3 × 2.00	114.3	81	
IPS 3"	88.9 × 2.30	152.5	115	

**Incorporation of the option in the order code and example**

Position	Description of the order code for options	
13	Accessoires	
	 /37	PS 20 bar
	/38	PS 16 bar (jacketed valve housing)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	E		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	 /37	/52	+	0	0	0	0	0	0	M

## Options – Housing and Nominal Widths ECOVENT® Housing with Increased Pressure Level

### Typical application and description

For static use of valves with increased product pressure.

**IMPORTANT:** The differential pressure between the product chambers on both sides of the valve disc is not allowed to exceed 10 bar during switching of the valve. The actuator size of the valve must be selected based on the product data.

### Available nominal widths and pressure range

Nominal width	Pressure range (PS)	
	Standard	Option
DN 10	16	25
DN 15	16	25

### Available valve types

Single-seat valves with shut-off function	N/ECO
Single-seat valves with divert function	W/ECO
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	–

### Technical data

Material	1.4435 (AISI 316L)	DN 10–15
Pressure range	PS 25 bar*	TS 0/+150 °C

\* not available for valves with bellows

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	Dimensions		
Nominal width	∅ [mm]	C [mm]	A [mm]
DN 10	13.0 × 1.50	65.0	44.0
DN 15	19.0 × 1.50	65.0	47.0

### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessoires
	<b>/37</b> PS 25 bar

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	L	/ECO	DN 10	-	E	Z	-	64/4	-	V0	-	1	2	N	<b>/37</b>	/52	+	0	0	0	0	0	0	M

## Options – Housing and Nominal Widths Mix-Matched Housing Combinations



### Typical application and description

Many mix-matched housings are already available. [For technical reasons, however, a mix-matched combination is not possible for all valve types! If required, please contact GEA Tuchenhausen to ask about the feasibility.](#)

The first mentioned nominal width indicates the upper valve housing, the second one is the nominal width of the lower valve housing. In divert valves, both upper housings are configured with the same nominal width. The larger housing in the mix-matched combination must always be configured as a housing with two vertical ports.

### Available nominal widths

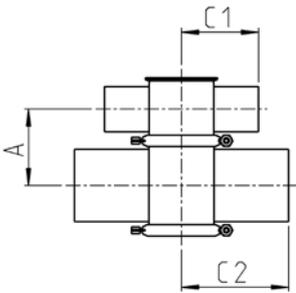
Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

### Available valve types

Single-seat valves with shut-off function	N, U, N/ECO
Single-seat valves with divert function	W, X, W/ECO
Mixproof valves with shut-off function	D, B, R, K
Mixproof valves with shut-off function and seat lifting	D, B, R, MX, K
Mixproof valves with divert function	–
Tank bottom valves	–

### Technical data

Material	1.4404 (AISI 316L)
Product pressure	10 bar
Valve seat version	Clamped or welded housing connection



Upper housing	DN 25			DN 40			DN 50			DN 65		
	A	C1	C2	A	C1	C2	A	C1	C2	A	C1	C2
<b>Lower housing</b>												
DN 25	50	90	90	56	90	90	62	90	90	70	125	90
DN 40	56	90	90	62	90	90	68	90	90	76	125	90
DN 50	62	90	90	68	90	90	74	90	90	82	125	90
DN 65	70	90	125	76	90	125	82	90	125	96	125	125
DN 80	77.5	90	125	83.5	90	125	89.5	90	125	103.5	125	125
DN 100	87	90	125	93	90	125	99	90	125	113	125	125
DN 125	-	-	-	105.5	90	125	111.5	90	125	125.5	125	125
DN 150	-	-	-	118	90	150	124	90	150	138	125	150

Upper housing	OD 1"			OD 1 ½"			OD 2"			OD 2 ½"		
	A	C1	C2	A	C1	C2	A	C1	C2	A	C1	C2
<b>Lower housing</b>												
OD 1"	46	90	90	52.5	90	90	58.75	90	90	65	125	90
OD 1 ½"	52.5	90	90	59	90	90	65.25	90	90	71.5	125	90
OD 2"	58.75	90	90	65.25	90	90	71.5	90	90	77.75	125	90
OD 2 ½"	65	90	125	71.5	90	125	77.75	90	125	90	125	125
OD 3"	71.5	90	125	78	90	125	84.25	90	125	96.5	125	125
OD 4"	83.75	90	125	90.25	90	125	96.5	90	125	108.75	125	125
OD 6"	-	-	-	116.5	90	150	122.75	90	150	133.5	125	150

Upper housing	IPS 2"		
	A	C1	C2
<b>Lower housing</b>			
IPS 2"	58.75	90	90
IPS 3"	65.25	90	90
IPS 4"	71.5	90	90
IPS 6"	77.75	90	125

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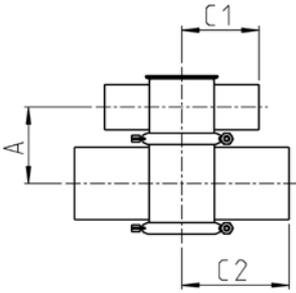
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## Options – Housing and Nominal Widths Mix-Matched Housing Combinations



Upper housing	DN 80			DN 100			DN 125			DN 150		
	A	C1	C2	A	C1	C2	A	C1	C2	A	C1	C2
<b>Lower housing</b>												
DN 25	77.5	125	90	87	125	90	-	-	-	-	-	-
DN 40	83.5	125	90	93	125	90	105.5	125	90	118	150	90
DN 50	89.5	125	90	99	125	90	111.5	125	90	124	150	90
DN 65	103.5	125	125	113	125	125	125.5	125	125	138	150	125
DN 80	111	125	125	120.5	125	125	133	125	125	145.5	150	125
DN 100	120.5	125	125	130	125	125	142.5	125	125	155	150	125
DN 125	133	125	125	142.5	125	125	155	125	125	167.5	150	125
DN 150	145.5	125	150	155	125	150	167.5	125	150	180	150	150

Upper housing	OD 3"			OD 4"			OD 6"		
	A	C1	C2	A	C1	C2	A	C1	C2
<b>Lower housing</b>									
OD 1"	71.5	125	90	83.75	125	90	-	-	-
OD 1 ½"	78	125	90	90.25	125	90	116.5	150	90
OD 2"	84.25	125	90	102.5	125	90	122.75	150	90
OD 2 ½"	96.5	125	125	115.25	125	125	133.5	150	125
OD 3"	103	125	125	115.25	125	125	140	150	125
OD 4"	115.25	125	125	127.5	125	125	152.25	150	125
OD 6"	140	125	150	152.25	125	150	177	150	150

Upper housing	IPS 3"			IPS 4"			IPS 6"		
	A	C1	C2	A	C1	C2	A	C1	C2
<b>Lower housing</b>									
IPS 2"	95	152.5	114.5	107.5	152.5	114.5	133.5	152.5	114.5
IPS 3"	115	152.5	152.5	121.5	152.5	152.5	153.5	152.5	152.5
IPS 4"	127.5	152.5	152.5	140	152.5	152.5	166	152.5	152.5
IPS 6"	153.5	152.5	152.5	166	152.5	152.5	192	152.5	152.5

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### Incorporation of the option in the order code and example

Position	Description of the order code for options
4/5	.../... Nominal width (upper housing/lower housing)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N	E		- OD 2"/OD 3"	- S	Z	- CD	- L0	- 1	2	N	/52	+ 0 0 0 0 0 M

## Options – Housing and Nominal Widths Vertical Ports Suitable For Orbital Welding



### Typical application and description

The orbital welding process is used in pipeline construction when high weld qualities have to be achieved under controllable conditions.

The extended vertical port (dimension B) makes it possible to weld in the housing using welding tongs or an orbital welding head.

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### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–4"
Inch IPS	IPS	2"–4"

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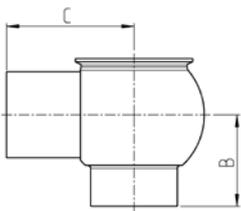
### Technical data

Material	1.4404 (AISI 316L)
Product pressure	10 bar

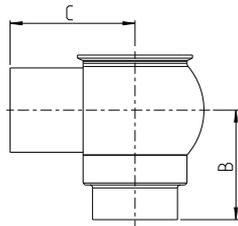
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### Available valve types

Single-seat valves with shut-off function	N, N/ECO
Single-seat valves with divert function	W, W/ECO
Mixproof valves with shut-off function	K
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N, N/ECO



Valve type N, N/ECO, W and W/ECO



Valve type K

Nominal width	Ø [mm]	Dimensions		
		Valve type N, N/ECO, W and W/ECO B [mm]	Valve type K B <sub>K</sub> [mm]	C [mm]
DN 25	29 × 1.50	58.0	51.0	90.0
DN 40	41 × 1.50	64.0	59.0	90.0
DN 50	53 × 1.50	70.0	61.0	90.0
DN 65	70 × 2.00	83.0	72.0	125.0
DN 80	85 × 2.00	90.5	80.0	125.0
DN 100	104 × 2.00	100.0	90.0	125.0
OD 1"	25.4 × 1.65	56.0	49.0	90.0
OD 1 1/2"	38.1 × 1.65	62.5	59.0	90.0
OD 2"	50.8 × 1.65	68.8	62.0	90.0
OD 2 1/2"	63.5 × 1.65	80.0	74.0	125.0
OD 3"	76.2 × 1.65	86.5	74.0	125.0
OD 4"	101.6 × 2.11	98.8	89.0	125.0
IPS 2"	60.3 × 2.00	73.5	–	114.3
IPS 3"	88.9 × 2.30	92.5	–	152.5
IPS 4"	114.3 × 2.30	105.5	–	152.5

### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessoires
	/28 Lower housing port suitable for orbital welding

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N	T		DN 80/80	-	S	Z	-	CD	-	V0	-	1 2 N /28 /52 + 0 0 0 0 0 M

## Options – Housing and Nominal Widths Tangential Valve Housings



### Typical application and description

Horizontal tank valves or horizontally installed valves are configured so the connection piping can be completely drained.

Tangential valve housings are provided with eccentrically welded-on vertical ports, as a result, no fluid remains in the housing sphere of the horizontal installation.

Various nominal widths are available. If required, please contact GEA Tuchenhausen to ask about the dimensions and feasibility.

### Available nominal widths

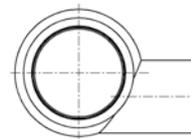
On request

### Available valve types

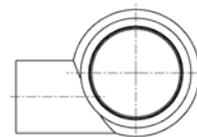
Single-seat valves with shut-off function	N, U, N/ECO
Single-seat valves with divert function	W, X,W/ECO
Mixproof valves with shut-off function	-
Mixproof valves with shut-off function and seat lifting	-
Mixproof valves with divert function	-
Tank bottom valves	N, U, N/ECO
Valves for the U.S. dairy industry	-

### Technical data

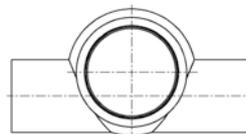
Material	1.4404 (AISI 316L)
Product pressure	10 bar
Valve seat version	Clamped or welded housing connection



Tangential right  
(view from the direction of the actuator)



Tangential left  
(view from the direction of the actuator)



Tangential straight  
(view from the direction of the actuator)



**Incorporation of the option in the order code and example**

Position	Description of the order code for options	
13	Accessoires	
	/TR	Tangential right
	/TL	Tangential left
	/TT	Tangential straight

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	T		DN 80/80	-	S	Z	-	CD	-	V0	-	1	2	N	/52	/TT	+	0	0	0	0	0	0	M

## Options – Actuators

### VARIVENT® Actuator Air/Spring



#### Typical application and description

As one of the basic elements of the VARIVENT® modular system, the actuator air/spring is used for performing the valve movement in all VARIVENT® valves.

The air supply is connected to the particular control and feedback system and led via the internal air channel under the piston surface of the actuator. Simply by reversing the actuator, it is possible to convert the fail-safe position of the valve (in single-seat valves) from spring-to-close (NC) to spring-to-open (NO). In these cases, or if the product or air supply pressure differs from the standard, check the definition of the actuator size based on the order code and the selection sheets onwards.

#### Available nominal widths

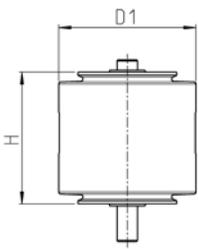
Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	D, B, R, L, C, K
Mixproof valves with shut-off function and seat lifting	D, B, R, L
Mixproof valves with divert function	Y
Tank bottom valves	N, U, T

#### Technical data

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$



Type	Dimensions		
No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
AA	99	95	3.2
BA	110	130	4.3
BB	110	130	4.5
BD	110	130	5.1
CA	135	130	5.7
CB	135	130	5.8
CD	135	130	6.2
CF	135	130	7.0
DB	170	160	8.0
DD	170	160	8.7
DF	170	160	9.6
DG	170	160	10.8
DH	170	160	11.4
ED	210	160	11.2
EF	210	160	12.1
EG	210	160	13.2
EH	210	160	13.8

Type	Dimensions		
No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
BD5	110	140	5.1
DD5	170	160	9.0
DF5	170	170	10.4
DG5	170	170	11.1
ED5	210	160	12.3
EF5	210	170	12.9
EG5	210	170	13.5
EH5	210	170	14.1
DF6	170	199	13.5
EF6	210	246	20.5
EG6	210	246	21.7
EH6	210	246	24.2
EK6	210	246	25.5
SG6	260	246	26.0
SH6	260	246	28.4
SK6	260	246	29.8
SM6	260	246	33.4
SN6	260	246	35.8

### Incorporation of the option in the order code and example

Position	Description of the order code for options
6	Actuator type
	<b>S</b> Air/Spring
8	Actuator
	... Acc. to actuator selection scheme (e.g. EF)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N	E		DN 80/80	-	<b>S</b>	Z	-	<b>EF</b>	-	L0	-	1 2 N /52 + 0 0 0 0 0 M

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## Options – Actuators

### ECOVENT® Actuator Air/Spring for Application with Feedback System



#### Typical application and description

As one of the basic elements of the ECOVENT® valves, the air/spring actuator type ECO-E is used for performing the valve movements in all ECOVENT® valves.

The air supply is connected to the particular control and feedback system and led via the internal air channel under the piston surface of the actuator. Simply by reversing the actuator, it is possible to convert the fail-safe position of the valve (in single-seat valves) from spring-to-close (NC) to spring-to-open (NO). In these cases, or if the product or air supply pressure differs from the standard, check the definition of the actuator size based on the order code and the selection sheets onwards. In addition, the actuator permits additional pressurization of the spring chamber with up to 6 bar air supply, in order to increase the closing force by this method. To pressurize the spring chamber with air, it is recommended that a NOT-element should be used in the control and feedback system T.VIS® (see catalog GEA Valve Automation).

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#### Available nominal widths

Metric	DN	25–100
Inch OD	OD	1"–4"

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#### Available valve types

Single-seat valves with shut-off function	N/ECO
Single-seat valves with divert function	W/ECO
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N/ECO

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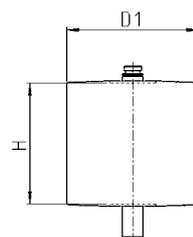
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**Technical data**

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$
Air supply pressure	Max. 8 bar
Air supply pressure air-supporting	Max. 6 bar



Type	Dimensions		
No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
EAA	85	140	1.9
EBA	104	168	2.8
EBB	104	168	2.9
ECA	29	168	3.9
ECB	129	168	4.0
ECD	29	168	4.6
EDB	170	168	6.6
EDD	170	168	7.2
EDF	170	168	8.2
DD	170	160	8.7
DF	170	160	9.6
DG	170	160	10.8
DH	170	160	11.4
ED	210	160	11.2
EF	210	160	12.1
EG	210	160	13.2
EH	210	160	13.8

**Incorporation of the option in the order code and example**

Position	Description of the order code for options
6	Actuator type
	🔍 <b>E</b> Air/Spring
8	Actuator
	🔍 ... Acc. to actuator selection scheme (e.g. EDF)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	E	/ECO	-	DN 80/80	-	🔍 <b>E</b>	Z	-	🔍 <b>EDF</b>	-	L0	-	1	2	N	/52	+	0	0	0	0	0	0	M

## Options – Actuators

### ECOVENT® Actuator Air/Spring for Application without Feedback System



#### Typical application and description

A basic element of ECOVENT® valves, the actuator air/spring of the ECO-E/US type is used for performing the valve movements in all ECOVENT® valves without control top.

Simply by reversing the actuator, it is possible to convert the fail-safe position of the valve from spring-to-close (NC) to spring-to-open (NO). In these cases, or if the product or air supply pressure differs from the standard, check the definition of the actuator size based on the selection sheets.

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#### Available nominal widths

Metric	DN	25–100
Inch OD	OD	1"–4"

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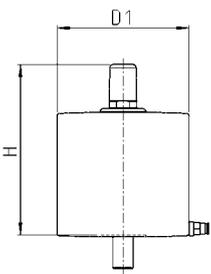
#### Available valve types

Single-seat valves with shut-off function	N/ECO
Single-seat valves with divert function	W/ECO
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N/ECO

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#### Technical data

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$
Air supply pressure stroke	Max. 8 bar



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Type	Dimensions		
No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
EAA	85	140	1.9
EBA	104	168	2.8
EBB	104	168	2.9
ECA	129	168	3.9
ECB	129	168	4.0
ECD	129	168	4.6
EDB	170	168	6.6
EDD	170	168	7.2
EDF	170	168	8.2

### Incorporation of the option in the order code and example

Position	Description of the order code for options
6	Actuator type
	<b>E</b> Air/Spring
8	Actuator
	... Acc. to actuator selection scheme (e.g. ZDD)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19	
Code	N	E	/ECO	- DN 80/80	- <b>E</b>	Z	- <b>ZDD</b>	- L0	-	1	2	N	/52	+ 0 0 0 0 0 0 M

## Options – Actuators

### VARIVENT® Actuator Air/Spring, Air-assisted



#### Typical application and description

For increasing the holding force of the actuator.

In addition to the function method of the VARIVENT® actuator air/spring, this actuator has another air connection to the spring side of the actuator. This connection enables the spring-side piston surface to be pressurized by compressed air.

To pressurize the spring side with air, it is recommended that a NOT-element should be used in the control and feedback system T.VIS® (see catalog GEA Valve Automation). For increasing the holding force of the actuator.

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#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

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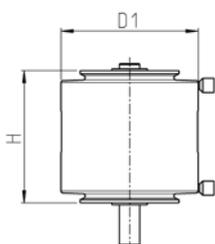
#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	D, L, C, K
Mixproof valves with shut-off function and seat lifting	D, L
Mixproof valves with divert function	Y
Tank bottom valves	N, U

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#### Technical data

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$
Air supply pressure stroke	Max. 8 bar
Air supply pressure	Max. 8 bar (actuator ZBB – ZDH)
air-supporting	Max. 6 bar (actuator ZEF – ZSN6)



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Type	Dimensions		
No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
ZBB	110	130	4.2
ZCB	135	130	5.3
ZCD	135	130	5.9
ZDD	170	160	9.8
ZDF	170	160	9.8
ZDG	170	160	10.6
ZDH	170	160	15.6
ZEF	210	160	12.1
ZEG	210	160	13.6
ZEH	210	160	14.1
ZEK6	210	246	25.2
ZSH6	260	246	29.3
ZSK6	260	246	30.7
ZSN6	260	246	38.8

### Incorporation of the option in the order code and example

Position	Description of the order code for options
6	Actuator type
	Z Air/Spring
8	Actuator
	... Acc. to actuator selection scheme (e.g. ZDD)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19										
Code	N	E		DN 80/80	-	Z	-	ZDD	-	L0	-	1	2	N	/52	+	0	0	0	0	0	0	M

## Options – Actuators

### ECOVENT® Actuator Air/Spring, Air-assisted



#### Typical application and description

For increasing the holding force of the actuator.

In addition, the actuator permits additional pressurization of the spring chamber with up to 6 bar air supply, in order to increase the closing force by this method.

To pressurize the spring side with air, it is recommended that a NOT-element should be used in the control and feedback system T.VIS® (see catalog GEA Valve Automation).

Simply by reversing the actuator, it is possible to convert the fail-safe position of the valve from spring-to-close (NC) to spring-to-open (NO). In these cases, or if the product or air supply pressure differs from the standard, check the definition of the actuator size based on the selection sheets.

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#### Available nominal widths

Metric	DN	25–100
Inch OD	OD	1"–4"

---

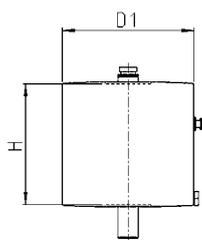
#### Available valve types

Single-seat valves with shut-off function	N/ECO
Single-seat valves with divert function	W/ECO
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N/ECO

---

#### Technical data

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$
Air supply pressure stroke	Max. 8 bar



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Type	Dimensions		
No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
EAA	85	91	1.9
EBA	104	119	2.8
EBB	104	119	2.9
ECA	129	119	3.9
ECB	129	119	4.0
ECD	129	119	4.6
EDB	170	119	6.6
EDD	170	119	7.2
EDF	170	119	8.2

### Incorporation of the option in the order code and example

Position	Description of the order code for options
6	Actuator type
	⊗ E Air/Spring
8	Actuator
	⊗ ... Acc. to actuator selection scheme (e.g. L+EDD)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19
Code	N	E	/ECO	DN 80/80	-	⊗ E	Z	-	⊗ L+EDD	-	L0	-	1 2 N /52 + 0 0 0 0 0 M

## Options – Actuators

### VARIVENT® Booster Cylinder for Actuator Air/Spring



#### Typical application and description

For increasing the size of the active pneumatic surface (piston surface) of the actuator.

The booster cylinder can be mounted in addition to the actuator so that the actuator can also be operated with low air supply pressure. In spring-to-close valves (valve type U with NO), the spring is installed below the actuator and in spring-to-open valves (valve type U with NC) between the actuator and control and feedback system. The booster cylinder is automatically supplied with compressed air without additional hosing via the internal air channel.

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#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

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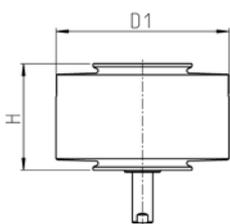
#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	D, B, R, C, K
Mixproof valves with shut-off function and seat lifting	D, B
Mixproof valves with divert function	Y
Tank bottom valves	N, U

---

#### Technical data

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$
Air supply pressure stroke	Max. 8 bar



Type	Dimensions		
	D1 [mm]	H [mm]	Weight [kg]
D	168	105	6.0
E	208	130	9.9
E6	208	130	9.9

The actuator sizes R..., S... and T... as well as T...6 and U...6 (position 8 in the code) resulting from the actuator selection schemes are a combination of an actuator type S air/spring and a booster cylinder. All symbols following the first letter relate to the actuator size. The combination is composed as follows:

No. 8 in the order code	Composed of	
	Actuator	Booster cylinder
RF	DF	D
RG	DG	D
RH	DH	D
SF	EF	D
SG	EG	D
SH	EH	D
TF	EF	E
TG	EG	E
TH	EH	E

No. 8 in the order code	Composed of	
	Actuator	Booster cylinder
TF6	EF6	E6
TG6	EG6	E6
TH6	EH6	E6
TK6	EK6	E6
UG6	SG6	E6
UH6	SH6	E6
UK6	SK6	E6
UN6	SN6	E6
UM6	SM6	E6

### Incorporation of the option in the order code and example

Position	Description of the order code for options
8	Actuator
	... Acc. to actuator selection scheme (e.g. TK6)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	N	E		DN 80/80	-	S	Z	-	TK6	-	L0	-	1	2	N	/52	+	0	0	0	0	0	0	M

## Options – Actuators

### VARIVENT® Actuator Air/Air



#### Typical application and description

In the air/air actuator, both end positions are realized using pressurized air at the particular side of the piston. The actuator is not equipped with a spring in the inside.

If there is a failure with the air supply, the valve will remain in its particular position or its current position will be determined by the product pressure acting on the valve disc. For this reason, it is not permitted for an air/air actuator to be used on double-seat valves, because if there is a power failure the valve will not automatically return to its fail-safe position (closed position), but rather, the resulting position would be determined randomly based on the process conditions (product pressure or flow).

If an air/air actuator is required, please send your request to GEA Tuchenhausen stating the prevailing pressures (air supply and product pressure), nominal width and required valve type.

---

#### Available nominal widths

Metric	DN	25–100
Inch OD	OD	1"–4"
Inch IPS	IPS	2"–4"

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#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N, U

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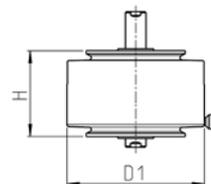
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**Technical data**

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$
Air supply pressure stroke	Max. 8 bar



Type	Dimensions		
No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
CJ	133	85	4.9

**Incorporation of the option in the order code and example**

Position	Description of the order code for options
6	Actuator type
	<b>J</b> Actuator air/air, indifferent
8	Actuator
	<b>CJ</b>

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	N	E		DN 80/80	-	<b>J</b>	Z	-	<b>CJ</b>	-	L0	-	1	2	N	/52	+	0	0	0	0	0	0	M

## Options – Actuators

### VARIVENT® Manual Actuator



#### Typical application and description

For manual operation and locking of the valve disk position of VARIVENT® valves.

The manual actuator is designed as a handwheel up to the nominal width DN 100 or 4". With larger nominal widths, the manual actuator is designed as a crank. The manual actuator can be locked in any position using a lock nut.

One full turn of the manual actuator results in a valve stroke of 11 mm, irrespective of the nominal width.

---

#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

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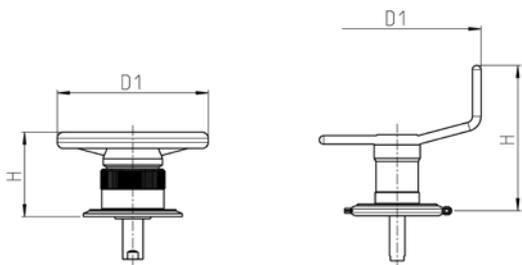
#### Available valve types

Single-seat valves with shut-off function	N
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	D, R, C, K
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	Y
Tank bottom valves	N

---

#### Technical data

Material	1.4301 (AISI 304)
Outside surface	Turned, $R_a \leq 1.6 \mu\text{m}$



G1 and G2

G6

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		Type	Dimensions		
Nominal width		No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
DN 25 – DN 50	1" – 2"	G1	148	107	2.7
DN 65 – DN 100	2 ½" – 4"	G2	198	113	3.1
DN 125 – DN 150	6"	G6	532	239	5.8

### Incorporation of the option in the order code and example

Position	Description of the order code for options
6	Actuator type
	Ⓞ <b>G</b> Manual actuator with locking
8	Actuator
	Ⓞ ... Acc. to size (e.g. G2)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	N	E	-	DN 80/80	-	Ⓞ <b>G</b>	Z	-	Ⓞ <b>G2</b>	-	L0	-	1	2	N	/52	+	0	0	0	0	0	0	M

## Options – Actuators

### ECOVENT® Manual Actuator



#### Typical application and description

For manual operation of ECOVENT® valves.

This manual actuator is designed as a handwheel for the nominal widths DN 10 and DN 15.

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#### Available nominal widths

Metric	DN	10–15
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#### Available valve types

Single-seat valves with shut-off function	N_ECO small
Single-seat valves with divert function	W_ECO small
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	–

---

#### Technical data

Material	PPH
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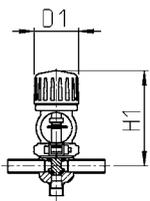
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		Type	Dimensions		
Nominal width		No. 8 in the order code	D1 [mm]	H [mm]	Weight [kg]
DN 25 – DN 50	1" – 2"	G1	148	107	2.7
DN 65 – DN 100	2 ½" – 4"	G2	198	113	3.1
DN 125 – DN 150	6"	G6	532	239	5.8

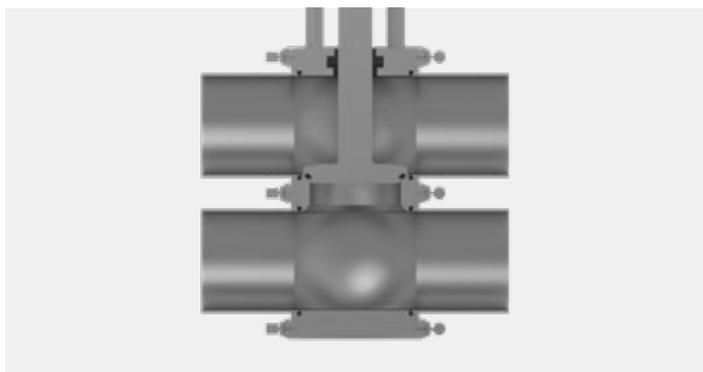
### Incorporation of the option in the order code and example

Position	Description of the order code for options
6	Actuator type
	<b>H</b> Manual actuator

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19									
Code	N	L	/ECO	DN 10/10	<b>H</b>	Z	-	-	V0	-	1	2	N	/52	+	0	0	0	0	0	0	M

## Options – Seal Materials

### FFKM (FDA)



#### Typical application and description

Perfluorinated rubber (FFKM) is an elastomer that is used in areas where particularly high thermal and/or chemical resistance properties are required.

FFKM seal material combines the chemical properties of PTFE and the mechanical properties of Viton, and is characterized by a wide range of application temperatures, very good resistance to fluids, low-pressure deformation and minimum swelling.

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#### Available nominal widths

Metric	DN	10–100
Inch OD	OD	1"–4"
Inch IPS	IPS	2"–4"

---

#### Available valve types

Single-seat valves with shut-off function	N, N/ECO, U
Single-seat valves with divert function	W, W/ECO, X
Mixproof valves with shut-off function	D, C, K
Mixproof valves with shut-off function and seat lifting	D
Mixproof valves with divert function	–
Tank bottom valves	N, N/ECO, U

---

#### Technical data

Operating temperature	–10 °C to 230 °C (14 °F to 446 °F)
Properties	See table of seal material properties

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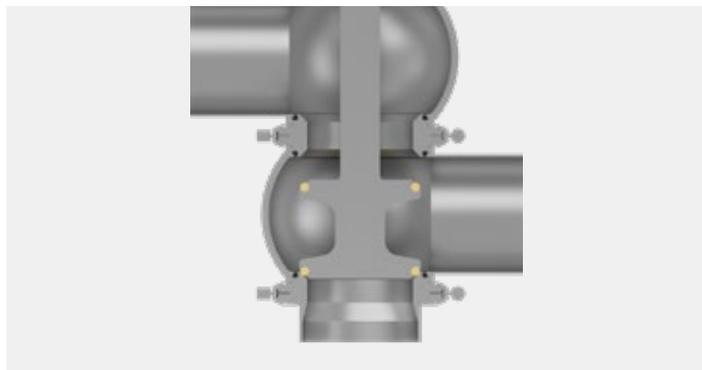
### Incorporation of the option in the order code and example

Position	Description of the order code for options
10	Seal material in contact with the product
	 4 FFKM (FDA)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19										
Code	D	E	-	DN 80/80	-	S	Z	-	CD	-	L0	-	4	2	N	/52	+	0	0	0	0	0	M

## Options – Seal Materials

### Tefasep® gold



#### Typical application and description

TEFASEP® gold easily copes with sterilization processes at temperatures up to 160 °C and can also handle abrasive and aggressive media without any problems which is essential for pharmaceutical or biotechnological applications. The hard, stable material compound is impressive not only because of its chemical resistance but its robustness also prevents the cold flow familiar with other thermoplastics and as a result contributes significantly to process stability. Together with the valve design, the material ensures a minimum contact surface between the housing and the seal which, in turn, increases the cleaning capability of the process system.

Unlike an elastomer seal, the thermoplastic uniquely requires a cleaning cycle of 80 °C. As a result the O ring adjusts to the valve seat and seals the system hermetically. The new TEFASEP® gold differs from the well approved TEFASEP® gasket for GEA Aseptomag valves by its bronze-golden color.

---

#### Available nominal widths

Metric	DN	10–100
Inch OD	OD	1"–4"

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#### Available valve types

Single-seat valves with shut-off function	N
Single-seat valves with divert function	W
Mixproof valves with shut-off function	–
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N

---

#### Technical data

Operating temperature	–10 °C to 160 °C (14 °F to 320 °F)
Certificates	FDA (21 CFR § 177.1550), European Union (EG 1935/2004, EG 10/2011), 3-A-Standard (Number 20 to 24), USP-Standards (USP Class IV – 121 °C)

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### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Seat gasket; product touched
	 /07 TEFASEP® gold (FDA)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	N	E		DN 80/80	-	S	Z	-	CD	-	LO	-	1	2	N	 /07	+	0	0	0	0	0	0	M

## Options – Surface Qualities Inner and Outer Surface of the Housings



### Typical application and description

Deviating from the quality of the standard surface quality, different surface qualities are available up to a medium roughness for surfaces in contact with the product of  $R_a \leq 0.4 \mu\text{m}$ . The outer surface of the housings is matt blasted as standard. Optionally, it can also be supplied ground.

Housings that should comply with the 3-A standard are produced as standard with an inner surface of  $R_a \leq 0.8 \mu\text{m}$  with ground welds and a blasted outer surface. If a configuration with a ground outer surface is required, it is necessary to select not only option /3-A (position 13) but also the corresponding surface quality 3 (position 11).

### Incorporation of the option in the order code and example

Position	Description of the order code for options
11	Surface quality of the housing
1**	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted
2*	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted
3	Inside $R_a \leq 0.8 \mu\text{m}$ , outside ground
4	Inside $R_a \leq 0.4 \mu\text{m}$ , outside matt blasted
8	Inside $R_a \leq 0.4 \mu\text{m}$ , outside ground

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19										
Code	D	E		- DN 80/80	-	S	Z	-	CD	-	L0	-	1	4	N	/52	+	0	0	0	0	0	M

## Options – Surface Qualities Electro-Polishing



### Typical application and description

One process for improving the surface quality is electrochemical polishing, in which peaks on the surfaces of material are abraded by a galvanic process, resulting in an evened-out elevation profile.

This surface treatment makes it much less likely for contaminating substances and micro-organisms to stick to the surface. In addition, the smooth surface improves corrosion resistance by formation of an inert oxide layer.

Electropolishing of the housings is only available for housings that are outside grounded (order-code position 11).

### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessories
	 /E Surface finish electrolytically polished

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	R	E		DN 80/80	-	S	Z	-	DD5	-	L0	-	1	7	N	 /E	/52	+	0	0	0	0	0	0	M

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## Options – Connection Fittings Overview

### Typical application and description

The valve housings can be specified with a welded-on connection fitting. To find which connection fittings are available, please refer to the list on the following pages.

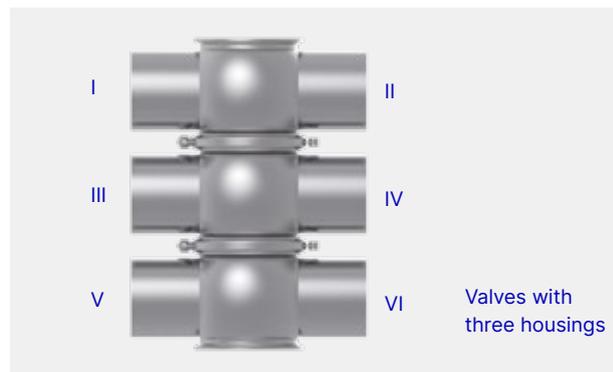
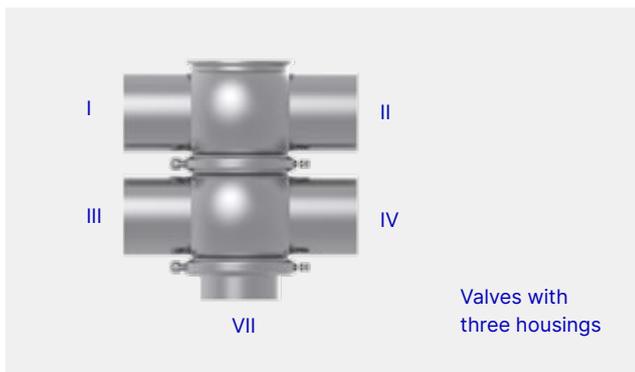
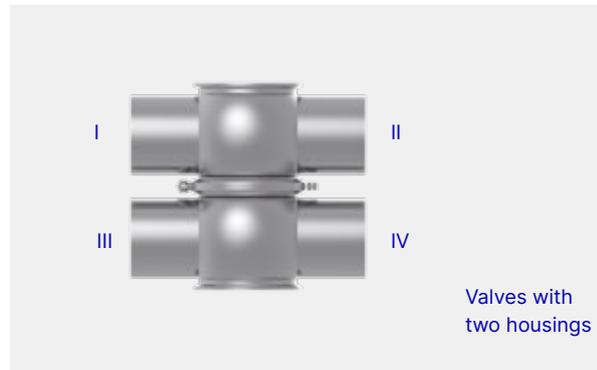
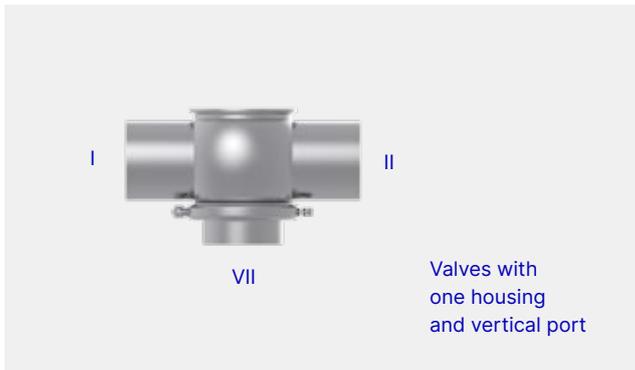
If the vertical ports within a valve do have different configurations, please inform us of the designation for the particular housing port including the required connection fitting (as in the example below). The seal which may be included corresponds to the sealing material of the valve.

---

### Connection fittings

TK	VARIVENT® flange connection, groove flange on housing
TN	VARIVENT® groove flange incl. O-ring and connecting parts
TF	VARIVENT® flange
GK	Pipe fitting, DIN 11851, male end on housing
GO	Male end SC, DIN 11851, incl. seal ring G
KO	Liner SD, DIN 11851, incl. groove nut
ASK	Hygienic flange connection, DIN 11853-2
NFK	Hygienic groove flange, DIN 11853-2
BFK	Hygienic flange, DIN 11853-2
CO	Clamp connection / TRI-Clamp, DIN 32676 (DN) / ISO 2852 (OD; length: 28.5 mm)

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### Example

Housing port	Connection fitting
I	TN
II	TF
III	TK
IV	
V	
VI	
VII	

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### Incorporation of the option in the order code and example

Position	Description of the order code for options
12	Connection fittings
	J Valve with connection fittings (required connection fitting according to list above, please state <a href="#">separately</a> )

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19										
Code	N	A		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	J	/52	+	0	0	0	0	0	M

## Options – Connection Fittings VARIVENT® Flange Connection



### Typical application and description

An O-ring is used for sealing the VARIVENT® flange connection, and is given a defined compression by a metal stop. The O-ring is also protected by the special geometry of the recess from being pulled out at high flow rates.

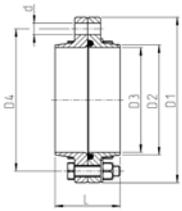
The VARIVENT® flange connection (TK) can be ordered either as a complete connection including bolts and nuts (TK) or a groove flange (TN)/flange (TF) as a connection fitting on a vertical port. If a complete connection is ordered as the connection fitting, the groove flange is welded onto the housing. The groove flange (TN) contains not only the O-ring but also the required connecting elements.

### Available nominal widths

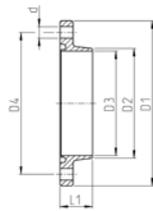
Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

### Technical data

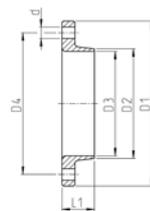
Material	1.4404
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
Certificates	3.1/AD2000W2
Seal materials	EPDM (FDA), FKM (FDA), HNBR (FDA)



TK = VARIVENT® flange connection



TN = VARIVENT® groove flange



TF = VARIVENT® flange

Nominal width	Dimensions							O-ring	PS
	D1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	d [mm]	L [mm]	L1 [mm]	[mm]	
DN 25	70	30.0	26.0	53	4 × Ø 9	50	25	25.0 × 5.0	16
DN 40	82	42.0	38.0	65	4 × Ø 9	50	25	36.0 × 5.0	16
DN 50	94	54.0	50.0	77	4 × Ø 9	50	25	47.0 × 5.0	16
DN 65	113	70.0	66.0	95	8 × Ø 9	50	25	62.0 × 5.0	16
DN 80	128	85.0	81.0	110	8 × Ø 9	50	25	75.0 × 5.0	10
DN 100	159	104.0	100.0	137	8 × Ø 11	50	25	92.0 × 5.0	10
DN 125	183	129.0	125.0	161	8 × Ø 11	50	25	115.0 × 5.0	10
DN 150	213	154.0	150.0	188	8 × Ø 14	60	30	134.2 × 5.7	10
OD 1"	66	25.5	22.0	49	4 × Ø 9	50	25	22.0 × 5.0	16
OD 1 ½"	79	38.5	35.0	62	4 × Ø 9	50	25	33.5 × 5.0	16
OD 2"	91	51.0	47.5	74	4 × Ø 9	50	25	45.0 × 5.0	16
OD 2 ½"	106	63.5	60.0	88	8 × Ø 9	50	25	56.0 × 5.0	16
OD 3"	119	76.5	73.0	101	8 × Ø 9	50	25	68.0 × 5.0	10
OD 4"	156	102.0	97.5	134	8 × Ø 11	50	25	90.0 × 5.0	10
OD 6"	211	152.4	146.5	186	8 × Ø 11	50	25	134.0 × 5.7	10
IPS 2"*	101	60.5	57.0	84	4 × Ø 9	50	25	53.0 × 5.0	16
IPS 3"*	132	89.0	85.0	114	4 × Ø 9	50	25	78.0 × 5.0	10
IPS 4"	169	114.0	110.0	147	4 × Ø 9	50	25	102.0 × 5.0	10
IPS 6"***	227	168.0	162.0	202	8 × Ø 9	50	25	149.0 × 5.7	10

\* only EPDM \*\* only EPDM and FKM

### Incorporation of the option in the order code and example

Position	Description of the order code for options
12	Connection fittings
J	Valve with connection fittings (please state option TK, TN or TF <u>separately</u> with reference to the connection)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	N	E	-	DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	J	/52	+	0	0	0	0	0	0	M

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## Options – Connection Fittings Pipe Fitting acc. to DIN 11851



Complete connection  
(GK)



Male end SC (GO),  
including seal ring G



Liner SD (KO),  
including groove nut

### Typical application and description

A seal ring G is used for sealing the pipe fitting acc. to DIN 11851. The pipe fitting acc. to DIN 11851 can be ordered either as a complete connection (GK) or male end SC (GO)/liner SD (KO) as a connection fitting on a vertical port. If a complete connection is ordered on a housing port, the male end is welded onto the housing. The groove flange contains the seal ring G. The liner (KO) contains the groove nut.

**GK – Complete connection, male end on housing****Available nominal widths**

Metric	DN	10–150
Inch OD	OD	1"–4"

**Technical data**

Material	1.4404 (AISI 316L)
Standard	DIN 11851

**GO – Male end SC, including seal ring G****Available nominal widths**

Metric	DN	10–150
Inch OD	OD	1"–4"

**Technical data**

Material	1.4404 (AISI 316L)
Standard	DIN 11851

**KO – Liner SD, including groove nut****Available nominal widths**

Metric	DN	10–150
Inch OD	OD	1"–4"

**Technical data**

Material	1.4404 (AISI 316L)
Standard	DIN 11851

**Incorporation of the option in the order code and example**

Position	Description of the order code for options
12	Connection fittings
 J	Valve with connection fittings (required connection fitting, please specify <a href="#">separately</a> )

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19											
Code	N	E		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	J	/52	+	0	0	0	0	0	0	M

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## Options – Connection Fittings

### Hygienic Flange Connection acc. to DIN 11853-2



Complete hygienic  
flange connection  
(ASK)



Hygienic-groove  
flange (NFK), including  
connecting elements  
and seal ring



Hygienic flange  
(BFK)

#### Typical application and description

An O-ring is used for sealing the hygienic flange connection acc. to DIN 11853-2, and is given a defined compression by a metal stop. The O-ring is also protected by the special geometry of the recess from being pulled out at high flow rates. Furthermore, the flange connection is centered by the design shape. The sealing geometry of the hygienic flange connection corresponds to the aseptic flange connection acc. to DIN 11864-2.

The hygienic flange connection (ASK) can be ordered either as a complete connection including bolts and nuts (ASK) or a hygienic groove flange (NFK)/hygienic flange (BFK) as a connection fitting on a vertical port. If a complete connection is ordered on a housing port, the groove flange is welded onto the housing. The groove flange (NFK) contains not only the O-Ring but also the required connecting elements.

**ASK – Complete hygienic flange connection****Available nominal widths**

Metric	DN	10–150
Inch OD	OD	1"–4"

**Technical data**

Material	1.4404 (AISI 316L)	
Seal material	EPDM (FDA), FKM (FDA), HNBR (FDA)	
Standard	DIN 11853-2	

**NFK – Hygienic groove flange, including connecting elements and seal****Available nominal widths**

Metric	DN	10–150
Inch OD	OD	1"–4"

**Technical data**

Material	1.4404 (AISI 316L)	
Seal material	EPDM (FDA), FKM (FDA), HNBR (FDA)	
Standard	DIN 11853-2	

**BFK – Hygienic flange****Available nominal widths**

Metric	DN	10–150
Inch OD	OD	1"–4"

**Technical data**

Material	1.4404 (AISI 316L)	
Standard	DIN 11853-2	

**Incorporation of the option in the order code and example**

Position	Description of the order code for options																		
12	Connection fittings																		
	 <b>J</b> Valve with connection fittings (required connection fitting, please specify <a href="#">separately</a> )																		

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19						
Code	N	E		DN 80/80	S	Z	CD	L0	1	2	 <b>J</b>	/52	+	0	0	0	0	0	M

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## Options – Connection Fittings Clamp Connection (Tri-Clamp)



### Typical application and description

The clamp connection acc. to DIN 32676 is a widely used connection fitting, in the food, chemical and pharmaceutical industry, especially in North America. The connection uses a symmetrically structured clamp connection with a seal located in between it, and is secured by a clamp. The second clamp connection, the seal and the clamp are not supplied. Clamps with nominal width OD series are compatible to ASME BPE clamps.

### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"

### Technical data

Material	DN	1.4404 (AISI 316L)
	OD	AISI 316L
Standard	DN	DIN 32676
	OD	DIN 32676*; Length 28.5 mm**
Inner diameter	DN	DIN 11866 row A
	OD	DIN 11866 row C
Certificates		3.1

\* Similar to ASME BPE B    \*\*OD 6" referred to DIN 32676

### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Connection fittings
/12	Valve with connection fittings (required connection fitting, please specify <a href="#">separately</a> )

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19										
Code	N	E		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	J	/52	+	0	0	0	0	0	M

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## Options – Accessories

### VARIVENT® Damping Cylinder



#### Typical application and description

To avoid water hammers when the valve disc of VARIVENT® valves is closed in the flow direction.

The oil-filled damping cylinder enables the closing speed of VARIVENT® valves to be kept constant throughout the entire stroke length. The closing speed can be set using an adjustable throttle valve on the bypass.

The application is recommended when the installed valve closes in the flow direction of the product, and cannot be converted to a valve variant intended for this flow direction.

---

#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

---

#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	D, B, R, L, C, K
Mixproof valves with shut-off function and seat lifting	D, B
Mixproof valves with divert function	Y
Tank bottom valves	N, U, T*

\* Not possible with lifting actuator

---

#### Technical data

Type	R7**
Material	1.4301 (AISI 304)
Filling fluid	Synthetic lubricating oil for the foodstuffs industry acc. to NSF-H1, Rivolta F.L. 50

\*\* Possible for valve with maximum actuator size EH

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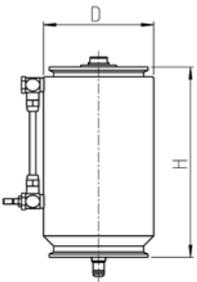
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Type	Dimensions		
	d [mm]	H [mm]	Weight [kg]
R7	108	188	7.9

### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessories
	/12 Damping cylinder with bypass

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	E		DN 80/80	-	S	Z	-	RG	-	L0	-	1	2	N	/12	/52	+	0	0	0	0	0	0	M

## Options – Accessories

### VARIVENT® Two-position-stop



#### Typical application and description

Setting the coarse and fine flow when dosing or weighing at a bottling station.

With the two-position-stop (cylinder), a pneumatically operated valve can be moved to two reproducible positions in addition to the closed position. A partial stroke and a full stroke, or two partial strokes, can be set.

---

#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

---

#### Available valve types

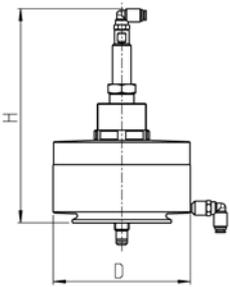
Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	C, K
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N, U

Only for spring-to-close valves, in type U only spring-to-open valves possible!

---

#### Technical data

Material	1.4301 (AISI 304)
Setting of the strokes	Mechanically using threaded pieces and adjustment screw
Control and feedback system	Feedback on the valve position is possible by using proximity switches in the lantern



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Type	Dimensions					
	For valves with actuator size*	d [mm]	H [mm]	Max. partial stroke [mm]	Max. stroke [mm]	Weight [kg]
AS	A...	98	216	17	30	2.7
CS	B..., C...	135	218	30	30	3.7
DS	D...	170	222	33	40	5.8
ES	E...	210	222	33	40	7.7
SS 6	E...6, S...6	260	282	55	60	13.0

\* See position 8 in the code

7

### Incorporation of the option in the order code and example

Position	Description of the order code for options
8	Actuator (spring-to-close) /Lifting actuator .../... Required combination of main actuator / two-position stop according to the actuator selection sheet and corresponding two-position stop cylinder (e. g. CD/CS)
13	Accessories /16 Two-position-stop (cylinder)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	E		DN 80/80	-	S	Z	-	CD/CS	-	LO	-	1	2	N	/16	/52	+	0	0	0	0	0	0	M

## Options – Accessories

### VARIVENT® Limit Stop



#### Typical application and description

Mechanically adjustable limit on the stroke.

The maximum stroke can be reduced by using a mechanically adjustable limit stop. The limit stop limits either the opening or the closing stroke of the valve. The minimum stroke is 5 mm.

It is not possible to install a proximity switch as a feedback function in the lantern!

NOTE: The limit stop can not be used simultaneously with a sterile lock.

---

#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

---

#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	C, K*
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N, U

---

#### Technical data

Material	1.4301 (AISI 304)
Setting possibility	Limitation of the stroke in closing or opening direction; only possible for single-seat valves

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		Type	Dimensions	Type	Dimensions
Valve type		N, U, W, X, C		K*	
Nominal width			Weight [kg]		Weight [kg]
DN 25	OD 1"	N 25-50	0.4	-	-
DN 40	OD 1 ½"	N 25-50	0.4	K 40-100	0.5
DN 50	OD 2"      IPS 2"	N 25-50	0.4	K 40-100	0.5
DN 65	OD 2 ½"	N 65-100	0.7	K 40-100	0.5
DN 80	OD 3"      IPS 3"	N 65-100	0.7	K 40-100	0.5
DN 100	OD 4"      IPS 4"	N 65-100	0.7	K 40-100	0.5
DN 125		N 125-6"IPS	1.1	-	-
DN 150	OD 6"      IPS 6"	N 125-6"IPS	1.1	-	-

\* Only for stroke limitation when opening the valve

### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessories
 /20	Limit stop, opening
/21	Limit stop, closing

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	E		DN 80/80	-	S	Z	-	RG	-	L0	-	1	2	N	 /20	/52	+	0	0	0	0	0	0	M

## Options – Accessories

### VARIVENT® Sterile Lock for Single-seat Valves



#### Typical application and description

For reliable separation between the surface of the valve disc in contact with the product and the atmosphere.

Applying sterilizing media to the sterile lock prevents contamination of the product from atmosphere due to the switching movement of the valve stem ("elevator effect").

If the media has a tendency towards crystallisation, this effect can be avoided by pressurizing the sterile lock with a liquid and securing the shaft seal against damage.

NOTE: The limit stop can not be used simultaneously with a sterile lock.

---

#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

---

#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	C
Mixproof valves with shut-off function and seat lifting	–
Mixproof valves with divert function	–
Tank bottom valves	N, U

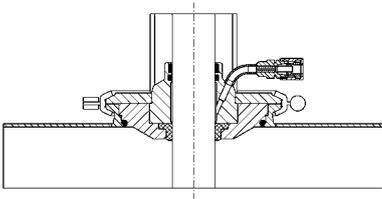
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#### Technical data

Material	1.4301 (AISI 304)
Barrier media	e.g. sterile water*, condensate*, steam

**IMPORTANT:** The sterile lock is not suitable for permanent vapor application. Brief actuation is recommended after or before the switching procedure.

\* Maximum pressure at flushing lock: 1 bar<sub>g</sub>



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			Dimensions	
Nominal width			Connection [mm]	Weight [kg]
DN 25	OD 1"		6/4	0.4
DN 40	OD 1 ½"		6/4	0.8
DN 50	OD 2"	IPS 2"	6/4	0.8
DN 65	OD 2 ½"		6/4	1.5
DN 80	OD 3"	IPS 3"	6/4	1.5
DN 100	OD 4"	IPS 4"	6/4	2.6
DN 125			6/4	5.9
DN 150	OD 6"	IPS 6"	6/4	7.2

### Incorporation of the option in the order code and example

Position	Description of the order code for options										
13	Accessories										
	 /24 Flushing lock complete										

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	E		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	 /24	/52	+	0	0	0	0	0	0	M

## Options – Accessories

### VARIVENT® Sterile Lock for Double-seat Valves, Complete



#### Typical application and description

For reliable separation between the surface of the valve disc in contact with the product and the atmosphere.

Applying sterilizing media to the sterile lock prevents contamination of the product from atmosphere due to the switching movement of the valve stem ("elevator effect").

If the media has a tendency towards crystallization, this effect can be avoided by pressurizing the sterile lock with a liquid and securing the shaft seal against damage. If this option is selected with double-seat valves, both the upper and the lower stem feedthrough will be equipped with a sterile lock.

---

#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

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#### Available valve types

Single-seat valves with shut-off function	–
Single-seat valves with divert function	–
Mixproof valves with shut-off function	D, B, R
Mixproof valves with shut-off function and seat lifting	D, B, R
Mixproof valves with divert function	Y
Tank bottom valves	–

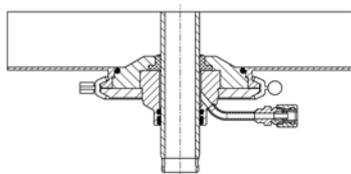
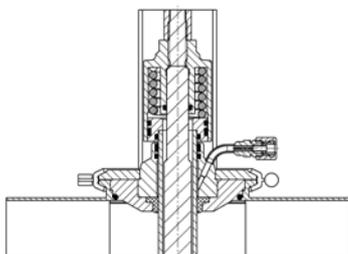
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#### Technical data

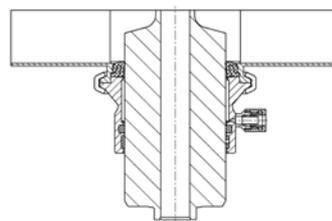
Material	1.4301 (AISI 304)
Barrier media	e.g. sterile water*, condensate*, steam

**IMPORTANT:** The sterile lock is not suitable for permanent vapor application. Brief actuation is recommended after or before the switching procedure.

\* Maximum pressure at flushing lock: 1 bar<sub>g</sub>



for VARIVENT® type D, Y



for VARIVENT® type B, R

		Dimensions					
Valve type		D, Y		B		R	
Connection upper sterile lock		6/4 mm		6/4 mm		6/4 mm	
Nominal width		Connection	Weight**	Connection	Weight**	Connection	Weight
Lower sterile lock		[mm]	[kg]	[mm]	[kg]	[mm]	[kg]
DN 25	OD 1"	6/4	0.8	–	–	6/4	0.8
DN 40	OD 1 ½"	6/4	1.6	–	–	8/6	1.4
DN 50	OD 2"      IPS 2"	6/4	1.6	8/6***	1.4	8/6	1.4
DN 65	OD 2 ½"	6/4	3.0	8/6	2.7	8/6	2.7
DN 80	OD 3"      IPS 3"	6/4	3.0	8/6	2.7	8/6	2.7
DN 100	OD 4"      IPS 4"	6/4	5.2	8/6	4.3	8/6	4.3
DN 125		6/4	11.8	8/6	8.4	8/6	8.4
DN 150	OD 6"      IPS 6"	6/4	14.2	8/6	10.4	8/6	10.4

\*\* Complete, upper and lower sterile lock

\*\*\* Only for IPS 2"

### Incorporation of the option in the order code and example

Position	Description of the order code for options												
13	Accessories												
	/24 Flushing lock complete (top and bottom)												

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	N	E		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	/24	/52	+	0	0	0	0	0	0	M

## Options – Accessories

### VARIVENT® Sterile Lock for Double-seat Valves (Balancer only)



#### Typical application and description

For reliable separation between the surface of the lower valve disc in contact with the product and the atmosphere.

Applying sterilizing media to the sterile lock prevents contamination of the product from atmosphere due to the switching movement of the valve stem ("elevator effect").

If the media has a tendency towards crystallization, this effect can be avoided by pressurizing the sterile lock with a liquid and securing the shaft seal against damage.

---

#### Available nominal widths

Metric	DN	40–150
Inch OD	OD	1 ½"–6"
Inch IPS	IPS	2"–6"

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#### Available valve types

Single-seat valves with shut-off function	–
Single-seat valves with divert function	–
Mixproof valves with shut-off function	B, R
Mixproof valves with shut-off function and seat lifting	B, R
Mixproof valves with divert function	–
Tank bottom valves	–

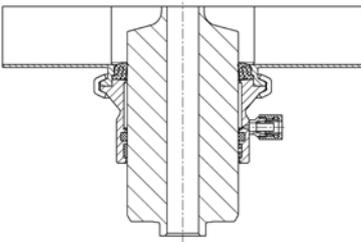
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#### Technical data

Material	1.4301 (AISI 304)
Barrier media	e.g. sterile water*, condensate*, steam

**IMPORTANT:** The sterile lock is not suitable for permanent vapor application. Brief actuation is recommended after or before the switching procedure.

\* Maximum pressure at flushing lock: 1 bar<sub>g</sub>



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## Dimensions

Valve type		B		R	
Nominal width	Connection [mm]	Weight** [kg]	Connection [mm]	Weight [kg]	
DN 40	OD 1 ½"	–	8/6	0.6	
DN 50	OD 2" IPS 2"	8/6**	8/6	0.6	
DN 65	OD 2 ½"	8/6	8/6	1.0	
DN 80	OD 3" IPS 3"	8/6	8/6	1.0	
DN 100	OD 4" IPS 4"	8/6	8/6	1.4	
DN 125		8/6	8/6	2.3	
DN 150	OD 6" IPS 6"	8/6	8/6	2.7	

\*\* Only for IPS 2"

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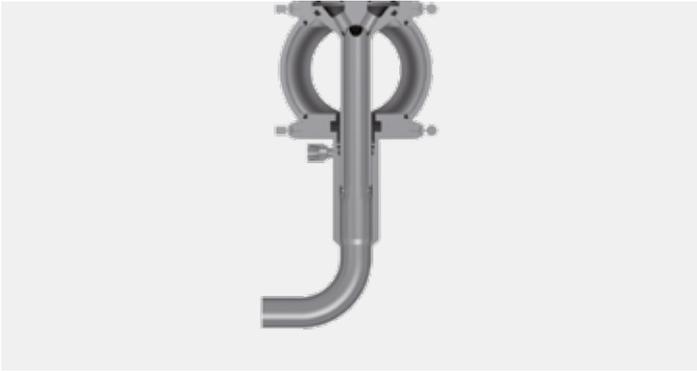
## Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessories
	 /23 Balancer flushing lock (bottom)

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	R	E		DN 80/80	-	S	Z	-	DD5	-	L0	-	1	2	N	 /23	/52	+	0	0	0	0	0	0	M

## Options – Accessories

### VARIVENT® Leakage Connector



#### Typical application and description

For controlled collection of the leakage in double-seat valves without dripping pan or funnel, e.g. valves installed outside of manifolds.

The leakage connector is used for individual collection of switching leakages and cleaning media during cleaning of the leakage chamber.

The leakage outlet should be flushed regularly through the cleaning connection!

---

#### Available nominal widths

Metric	DN	40–150
Inch OD	OD	1 ½"–6"
Inch IPS	IPS	2"–6"

---

#### Available valve types

Single-seat valves with shut-off function	–
Single-seat valves with divert function	–
Mixproof valves with shut-off function	D
Mixproof valves with shut-off function and seat lifting	D
Mixproof valves with divert function	Y
Tank bottom valves	–

---

#### Technical data

Material	1.4301 (AISI 304)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
Outside surface	Matt blasted

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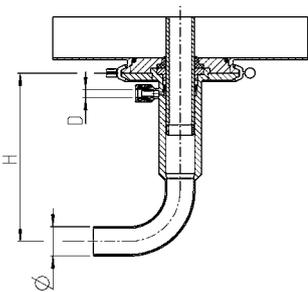
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			Dimensions			
Nominal width			Ø [mm]	d [mm]	H [mm]	Weight [kg]
DN 25	OD 1"		29	6/4	122	0.4
DN 40	OD 1 ½"		29	8/6	147	0.8
DN 50	OD 2"	IPS 2"	29	8/6	147	0.8
DN 65	OD 2 ½"		29	8/6	166	1.2
DN 80	OD 3"	IPS 3"	29	8/6	166	1.2
DN 100	OD 4"	IPS 4"	29	8/6	166	1.2
DN 125			30	10/8	105	1.8
DN 150	OD 6"	IPS 6"	30	10/8	105	1.8

### Incorporation of the option in the order code and example

Position	Description of the order code for options																		
13	Accessories																		
	/26 Leakage connector																		

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	D	E		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	/26	/52	+	0	0	0	0	0	0	M

## Options – Accessories

### VARIVENT® Leakage Connector for Balancer



#### Typical application and description

For controlled collection of the leakage in double-seat valves without dripping pan or funnel, e.g. valves installed outside of manifolds.

The leakage connector is used for individual collection of switching leakages and cleaning media during cleaning of the leakage chamber.

The leakage outlet should be flushed regularly through the cleaning connection!

---

#### Available nominal widths

Metric	DN	40–100
Inch OD	OD	1 ½"–4"
Inch IPS	IPS	2"–4"

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#### Available valve types

Single-seat valves with shut-off function	–
Single-seat valves with divert function	–
Mixproof valves with shut-off function	B, R
Mixproof valves with shut-off function and seat lifting	B, R
Mixproof valves with divert function	–
Tank bottom valves	–

---

#### Technical data

Material	1.4301 (AISI 304)
Surface in contact with the product	$R_a \leq 0.8 \mu\text{m}$
Outside surface	Matt blasted

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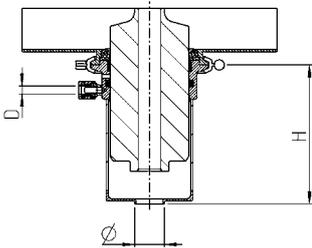
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			Dimensions			
Nominal width			Ø [mm]	d [mm]	H [mm]	Weight [kg]
DN 40	OD 1 ½"		26	8/6	147.5	0.9
DN 50	OD 2"	IPS 2"	26	8/6	147.5	0.9
DN 65	OD 2 ½"		26	8/6	136.5	1.3
DN 80	OD 3"	IPS 3"	26	8/6	136.5	1.3
DN 100	OD 4"	IPS 4"	26	8/6	143.5	1.9

### Incorporation of the option in the order code and example

Position	Description of the order code for options										
13	Accessories										
	 /26 Leakage connector										

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	R	E		DN 80/80	-	S	Z	-	DD5	-	L0	-	1	2	N	 /26	/52	+	0	0	0	0	0	0	M

## Options – Accessories VARIVENT® Flush Valve



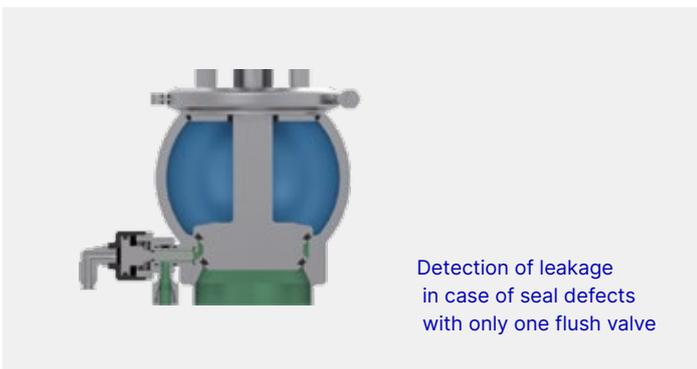
### Typical application and description

Leakage detection in case of seal defects on the double-seal valve type C.

If there is no need to flush the leakage chamber in a double-seal valve type C, the valve can be equipped with only one flush valve. In this case, the flush valve is not used for flushing, but only for leakage detection in case of defects.

To modify the Double seal valve from two flushing valve to just one the plug SPV-C PVDF with Part number 221-464.07 is required.

To drain Leakages into the leakage pan a pipe 8 × 1 mm or a hose 8/6 mm can be connected to the flushing valve.



Double seal valves on those the leakage chamber is to be flushed with cleaning media above a temperature of 80 ° C are equipped with a metal cylinder and a piston made of PEEK.

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#### Available nominal widths

Metric	DN	25 – 150
Inch OD	OD	1" – 4"

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#### Available valve types

Single-seat valves with shut-off function	-
Single-seat valves with divert function	-
Mixproof valves with shut-off function	C
Mixproof valves with shut-off function and seat lifting	-
Mixproof valves with divert function	-
Tank bottom valves	-

#### Technical data

Material	1.4301 (AISI 304) / PVDF
Leakage connection	8 / 6 mm
Pressure leakage channelling	Pressureless

#### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessories
 /27	Version with only one flush valve
/C-S	Stainless steel flush valve off 80 °C

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19													
Code	C	T		DN 80/80	-	S	Z	-	CD	-	V0	-	1	2	N	 /27	/52	/C	+	0	0	0	0	0	0	M

## Options – Additional Options VARIVENT® CIP Connection for Double-seat and Double-seal Valve



### Typical application and description

Double-seat valves are equipped with a cleaning connection at the level of the lantern to supply the spray cleaning with cleaning media. In case of double-seal valves the seat area is cleaned by inserting CIP media into one of the two flushing valves. Both connections are supplied with cleaning media through a connection to a supply valve in the periphery. All necessary components as well as one meter PTFE-hose can be supplied with the valve directly or ordered as an assembly. For the cleaning of the seat area at double-seal valves one of the two flushing valves also has to be connected to CIP-Medium.

As an option for double-seat valves, it is also possible to make the spray cleaning connection a blind connection. Making the cleaning connection a blind is only intended for transport purposes, to prevent dust or particles from penetrating the cleaning connection. During operation of the valve, it is not recommended for the cleaning connection to use such a blind.

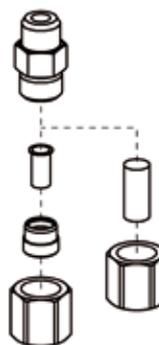
### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

### Available valve types

Single-seat valves with shut-off function	–
Single-seat valves with divert function	–
Mixproof valves with shut-off function	D, B, R, L, C*
Mixproof valves with shut-off function and seat lifting	D, B, R, L
Mixproof valves with divert function	Y
Tank bottom valves	T

\* For the connection of the flushing valve of a double-seat valve type C, the part number 221-105.79, thus the hose dimension 8/6, is required.



		Nominal width					
		DN 25, OD 1"		DN 40–100, OD 1 ½"–4", IPS 2"–4"		DN 125–150, OD 6", IPS 6"	
	One meter CIP hose with connection parts for double-seat valves; parts contained	Ø size	Article number	Ø size	Article number	Ø size	Article number
Double-seat Valves	PTFE hose, 1 m	6/4	221-105.78	8/6	221-105.79	10/8	221-105.80
	Support tube	6		8		10	
	Olive	6		8		10	
	Union nut	12		14		16	
	Weld-on vertical port	6		8		10	
Double-seal Valves	PTFE hose, 1 m	8/6	221-105.79	8/6	221-105.79	8/6	221-105.79
	Support tube	8		8		8	
	Olive	8		8		8	
	Union nut	14		14		14	
	Weld-on vertical port	8		8		8	
	CIP connection blind	Ø size	Article number	Ø size	Article number	Ø size	Article number
		6	915-089	8	915-068	10	915-090

\* For the connection of the flushing valve of a double-seal valve type C, the part number 221-105.79, thus the hose dimension 8/6, is required.

### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessories
	/32 1 m CIP hose with connection parts for double-seat valves and double-seal valves
	/36 CIP connection blind for double-seat valves

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	D	E		DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	/32	/52	+	0	0	0	0	0	0	M

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## Options – Additional Options

### Test Report and Inspection Certificate

#### Typical application and description

Optionally, the housings or all parts in contact with the product can be supplied with a test report 2.2 and/or an inspection certificate 3.1 acc. to EN 10204.

**IMPORTANT:** An inspection certificate for all components in contact with the product can only be produced if notification of this requirement is provided with the order. The inspection certificate 3.1 acc. to EN 10204 can only be issued subsequently for the housings. Unless special requirements are stated, the order code referred to below only covers issuing the inspection certificate 3.1 acc. to EN 10204 for the housings.

European standard EN 10204 in its 2004 edition defines the various types of test certificate that can be issued to the ordering party in accordance with the agreements in the order for delivery of metallic products.

Number	Type of test certificate	Content of the certificate	Confirmation of the certificate by
2.2	Test report	Confirmation of compliance with the order, specifying results of a non-specific test	The manufacturer
3.1	Inspection certificate 3.1*	Confirmation of compliance with the order, specifying results of a specific test	The manufacturer's acceptance officer independent of the production department

\* Inspection certificates 3.1 can be selected either for the housing or for product wetted parts, incl. connection fittings or ADW2 (please specify when ordering).



**Incorporation of the option in the order code and example**

Position	Description of the order code for options
13	Accessories
 /41	Test report 2.2
/42	Inspection certificate 3.1 according to EN 10204

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	D	E	-	DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	 /41	/52	+	0	0	0	0	0	0	M

## Options – Additional Options 3-A Symbol



### Typical application and description

3-A Sanitary Standards, Inc. is an independent, non-profit corporation dedicated to advancing hygienic equipment design for the food, beverage, and pharmaceutical industries. In particular, it represents the interests of three stakeholder groups in the US dairy industry with a common commitment to promoting food safety and the public health – regulatory sanitarians, equipment fabricators and processors. To achieve this purpose, it has produced guidelines which define various design requirements on components. In the area of seat valves, it is above all the standards 53-06 (compression type valves) and 85-02 (double-seat mixproof valves) that are relevant. Compliance with these design specifications is examined by an independent expert and confirmed by issuing a certificate. Almost the entire VARIVENT® and ECOVENT® valve series complies with these design specification in the standard design.

If the 3-A option is selected, compliance of the valve with the requirements of the standard is confirmed by means of a sticker on the component. Consequently, if this option is selected, it is necessary to comply with the standard in terms of identification as well.

Furthermore, when this option is selected, the welds of the port connections are ground smooth. The standard does not specify that this is mandatory, but it is in line with customers' preferences in this market.

**IMPORTANT:** The standard surface when this option is selected is "inside surface  $R_a \leq 0.8 \mu\text{m}$ , outside matt". Many customers in this market ask for the alternative surface quality "inside surface  $R_a \leq 0.8 \mu\text{m}$ , outside ground". If this is required, it must be selected separately at position 11 in the order code as a non-standard surface.

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### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessories
	 /3A Adhesive ID tag, configuration of the valve according to 3-A standard

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19													
Code	D	E	-	DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	/S	/52	 /3A	+	0	0	0	0	0	0	M

## Options – Additional Options ATEX



### Typical application and description

The ATEX standard of the European Union actually includes two guidelines on the explosion protection subject, the ATEX Product Directive 2014/34/EU and 1999/92/EG. The abbreviation ATEX come from the French term ATmosphères EXplosibles.

VARIVENT® and ECOVENT® valves have been subjected to an ignition hazard assessment and do not have in the interior a potential source of ignition. Thus the directive 2014/34/EU (ATEX) is not applicable for the internal space of the valve.

A risk of ignition or explosion very rarely may occur from the actuator unit in case of an error so that the actuator comes within the scope of Directive 2014/34/EU and is labeled accordingly. The suitability is confirmed by the type-specific Declaration of Conformity of the manufacturer.

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### Incorporation of the option in the order code and example

Position	Description of the order code for options
13	Accessories
	 /EX Ex-proof design

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19												
Code	D	E	-	DN 80/80	-	S	Z	-	CD	-	L0	-	1	2	N	/52	 /EX	+	0	0	0	0	0	0	M

## Options – Additional Options ID Plates, TAG Numbers



### Typical application and description

If no alternative identification option is selected, the valves are always provided with a nameplate for clear identification (option /52). All key information required for clear allocation of the valve, as well as technical data, is specified on the nameplate. The plate is glued onto the actuator. If the required identification number is specified, this is allocated to the valve by means of a separate sticker on the actuator or control and feedback system.

---

### Key data contained

Valve type	
Serial number	
Materials in contact with the product	Metallic material / seal material
Air supply pressure	Min./Max. [bar/psi]
Product pressure	Housing 1/2/3 [bar/psi]



### Option /50 – engraved labeling plate cpl. for system identification number

In addition to the nameplate, the option /50 consists of an engraved labeling plate attached between the actuator and lantern using a key ring on the clamp connection.



### Option /51 – metal labeling plate US version cpl.

The engraved labeling plate is attached between the actuator and lantern using a key ring on the clamp connection. Additional information can be recorded as well as the TAG number, customer designation and the valve type. In addition, the valve is identified with a nameplate.

### Incorporation of the option in the order code and example

Position	Description of the order code for options															
13	Accessories															
	🔍 /50 Engraved metal plate															
	/51 Metal plate (US version)															
	/52 Adhesive ID tag															

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19										
Code	D	E		DN 80/80	-	S	Z	-	CD	-	LO	-	1	2	N	🔍 /50	+	0	0	0	0	0	M

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## Options – Additional Options

### Transport Device



#### Typical application and description

For transporting VARIVENT® and ECOVENT® valves with pneumatic actuator for assembly and maintenance purposes.

The transport device is screwed into the piston stem of the actuator after removal of the control and feedback system and thus permits secure transport with available lifting equipment. The transport device must be removed before commissioning.

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#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

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#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	D, B, R, L, K, C
Mixproof valves with shut-off function and seat lifting	D, B, R, L, M
Mixproof valves with divert function	Y
Tank bottom valves	N, U, T

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#### Technical data

Material	1.4301 (AISI 304)
Connection size	M14
Article number	221-104.98

## Options – Additional Options

### VARIVENT® Manual Emergency Actuator



#### Typical application and description

For manual actuation of pneumatic VARIVENT® valves if there is a power failure as well as for actuation during maintenance and assembly work.

The emergency manual actuator attachment NOH is used for manual activation of all pneumatically operated VARIVENT® valves as well as for maintenance and assembly work on all valve types. Radial sealing valves with lifting actuator represent an exception to this. The manual emergency actuator cannot be used in these valves.

#### Available nominal widths

Metric	DN	25–150
Inch OD	OD	1"–6"
Inch IPS	IPS	2"–6"

#### Available valve types

Single-seat valves with shut-off function	N, U
Single-seat valves with divert function	W, X
Mixproof valves with shut-off function	D, B, R, L, K, C
Mixproof valves with shut-off function and seat lifting	D, B
Mixproof valves with divert function	Y
Tank bottom valves	N, U, T

#### Technical data

Material	1.4301 (AISI 304)
Article number	221-310.74

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# Options – Actuator Selection – Sample Selection Method VARIVENT® Actuator Air/Spring

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## Procedure for VARIVENT® shut-off valves type N

- Depending on the valve type, select the required table on one of the following pages.
- The available air supply pressure indicates which rows to refer to for the actuator size.
- Select the prevailing product pressure in order to define the required row.
- Select a double column based on the nominal width of the valve.
- The fail-safe position of the valve defines the precise column.
- Select the necessary actuator size at the intersection between the row and the column.

Air supply pressure [min.]		Product pressure [max.]		Nominal widths													
				DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125		DN 150 OD 6" IPS 6"			
bar	PSI	bar	PSI	Spring-to-close actuators (NC) and spring-to-open actuators (NO)													
				NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO		
8	116	4	58	AA	AA	BB	BA	CD	BB	DF	<b>DD</b>	EG6Z	EF6A	EH6Z	EF6A		
				5	72	AA	AA	BB	BA	CD	CB	DF	<b>DD</b>	EH6Z	EF6A	SK6Z	EG6A
				6	87	AA	AA	BB	BA	DF	CD	EG	<b>DF</b>	EH6Z	EF6A	SK6Z	SG6A
				7	101	AA	AA	CD	BB	DF	DD	EG	<b>EF</b>	SK6Z	EG6A	SM6Z	SH6A
				8	116	AA	AA	CD	BB	DF	DD	EG	<b>EF</b>	SK6Z	SG6A	UN6Z	SH6A
				9	130	BB	AA	CD	CB	DF	DD	EH	<b>EG</b>	SM6Z	SH6A	UN6Z	TK6A
				10	145	BB	AA	CD	CB	EG	DF	EH	<b>RG</b>	SM6Z	SH6A	-	TK6A
7	101	4	58	AA	AA	BB	BA	CD	CB	DF	<b>DD</b>	EG6Z	EF6A	EH6Z	EF6A		
				5	72	AA	AA	BB	BA	CD	CB	DF	<b>DD</b>	EH6Z	EF6A	SK6Z	SG6A
				6	87	AA	AA	BB	BA	DF	DD	EG	<b>EF</b>	SH6Z	EF6A	SK6Z	SG6A
				7	101	AA	AA	CD	CB	DF	DD	EG	<b>EF</b>	SK6Z	SG6A	SM6Z	SH6A
				8	116	AA	AA	CD	CB	DF	DD	EG	<b>EF</b>	SK6Z	SG6A	UN6Z	TH6A
				9	130	BB	BA	CD	CB	DF	DD	RH	<b>RG</b>	SM6Z	SH6A	UN6Z	TK6A
				10	145	BB	BA	CD	CB	EG	EF	RH	<b>RG</b>	UM6Z	TH6A	-	UK6A
6	87	4	58	AA	AA	BB	BA	CD	CB	DF	<b>DD</b>	EG6Z	EF6A	SH6Z	EF6A		
				5	72	AA	AA	BB	BA	CD	CB	DF	<b>DD</b>	SH6Z	EF6A	SK6Z	SG6A
				6	87	AA	BA	BB	BA	DF	DD	EG	<b>EF</b>	SH6Z	SG6A	SK6Z	SG6A
				7	101	AA	BA	CD	CB	DF	DD	EG	<b>EF</b>	SK6Z	SG6A	UM6Z	TH6A
				8	116	AA	BA	CD	CB	DF	DD	RG	<b>EF</b>	SK6Z	SG6A	UN6Z	TH6A
				9	130	BB	BA	CD	CB	DF	DD	RH	<b>SG</b>	UM6Z	TH6A	UN6Z	UK6A
				10	145	BB	BA	CD	CB	EG	EF	RH	<b>SG</b>	UM6Z	TH6A	-	UK6A
5	72	4	58	AA	BA	BB	BA	CD	CB	EF	<b>DD</b>	EG6Z	TF6A	SH6Z	TF6A		
				5	72	AA	BA	BB	BA	DD	DB	EF	<b>ED</b>	SH6Z	TF6A	TK6Z	SG6A
				6	87	AA	BA	CB	CA	EF	DD	RG	<b>RF</b>	SH6Z	SG6A	TK6Z	TG6A
				7	101	BA	BA	CD	CB	EF	DD	RG	<b>RF</b>	TK6Z	SG6A	UM6Z	UH6A
				8	116	BA	BA	CD	CB	EF	ED	RG	<b>RF</b>	TK6Z	TG6A	-	UH6A
				9	130	BB	BA	DD	DB	EF	ED	SH	<b>SG</b>	UM6Z	UH6A	-	-
				10	145	BB	BA	DD	DB	RG	EF	SH	<b>TG</b>	UM6Z	UH6A	-	-
4	58	4	58	BA	BA	CB	CA	DD	DB	EF	<b>ED</b>	SG6Z	TF6A	TH6Z	TF6A		
				5	72	<b>BA</b>	<b>BA</b>	<b>CB</b>	<b>CA</b>	<b>DD</b>	<b>DB</b>	<b>EF</b>	<b>ED</b>	<b>TH6Z</b>	<b>TF6A</b>	<b>UK6Z</b>	<b>TG6A</b>
				6	87	BA	BA	CB	CA	EF	ED	SG	<b>RF</b>	TH6Z	TF6A	UK6Z	UG6A
				7	101	BA	CA	DD	DB	EF	ED	SG	<b>SF</b>	UK6Z	TG6A	-	-
				8	116	BA	CA	DD	DB	EF	ED	SG	<b>SF</b>	UK6Z	UG6A	-	-
				9	130	CB	CA	DD	DB	EF	ED	TH	<b>TG</b>	-	-	-	-
				10	145	CB	CA	DD	DB	SG	RF	TH	-	-	-	-	-

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**Example:**

- 1 Valve type
- 2 Air supply pressure
- 3 Product pressure
- 4 Nominal width
- 5 Fail-safe position of the valve

**VARIVENT® shut-off valve type N**  
**4 bar**  
**5 bar**  
**OD 4"**  
**Spring-to-open (NO)**

} → **6** Result    Actuator ED



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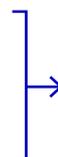
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**Example:**

- 1 Valve type
- 2 Air supply pressure
- 3 Product pressure
- 4 Nominal width

**VARIVENT® double-seat valve  
with lift function type D\_L  
7 bar  
6 bar  
DN 65**



**5 Result** Actuator DF  
Lifting actuator DLB

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Shut-off Valves Type N

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

Air supply pressure [min.]		Product pressure [max.]		Nominal widths											
				DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125		DN 150 OD 6" IPS 6"	
				Spring-to-close actuators (NC) and spring-to-open actuators (NO)											
bar	PSI	bar	PSI	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO
8	116	4	58	AA	AA	BB	BA	CD	BB	DF	DD	EG6Z	EF6A	EH6Z	EF6A
		5	72	AA	AA	BB	BA	CD	CB	DF	DD	EH6Z	EF6A	SK6Z	EG6A
		6	87	AA	AA	BB	BA	DF	CD	EG	DF	EH6Z	EF6A	SK6Z	SG6A
		7	101	AA	AA	CD	BB	DF	DD	EG	EF	SK6Z	EG6A	SM6Z	SH6A
		8	116	AA	AA	CD	BB	DF	DD	EG	EF	SK6Z	SG6A	UN6Z	SH6A
		9	130	BB	AA	CD	CB	DF	DD	EH	EG	SM6Z	SH6A	UN6Z	TK6A
		10	145	BB	AA	CD	CB	EG	DF	EH	RG	SM6Z	SH6A	–	TK6A
7	101	4	58	AA	AA	BB	BA	CD	CB	DF	DD	EG6Z	EF6A	EH6Z	EF6A
		5	72	AA	AA	BB	BA	CD	CB	DF	DD	EH6Z	EF6A	SK6Z	SG6A
		6	87	AA	AA	BB	BA	DF	DD	EG	EF	SH6Z	EF6A	SK6Z	SG6A
		7	101	AA	AA	CD	CB	DF	DD	EG	EF	SK6Z	SG6A	SM6Z	SH6A
		8	116	AA	AA	CD	CB	DF	DD	EG	EF	SK6Z	SG6A	UN6Z	TH6A
		9	130	BB	BA	CD	CB	DF	DD	RH	RG	SM6Z	SH6A	UN6Z	TK6A
		10	145	BB	BA	CD	CB	EG	EF	RH	RG	UM6Z	TH6A	–	UK6A
6	87	4	58	AA	AA	BB	BA	CD	CB	DF	DD	EG6Z	EF6A	SH6Z	EF6A
		5	72	<b>AA</b>	<b>AA</b>	<b>BB</b>	<b>BA</b>	<b>CD</b>	<b>CB</b>	<b>DF</b>	<b>DD</b>	<b>SH6Z</b>	<b>EF6A</b>	<b>SK6Z</b>	<b>SG6A</b>
		6	87	AA	BA	BB	BA	DF	DD	EG	EF	SH6Z	SG6A	SK6Z	SG6A
		7	101	AA	BA	CD	CB	DF	DD	EG	EF	SK6Z	SG6A	UM6Z	TH6A
		8	116	AA	BA	CD	CB	DF	DD	RG	EF	SK6Z	SG6A	UN6Z	TH6A
		9	130	BB	BA	CD	CB	DF	DD	RH	SG	UM6Z	TH6A	UN6Z	UK6A
		10	145	BB	BA	CD	CB	EG	EF	RH	SG	UM6Z	TH6A	–	UK6A
5	72	4	58	AA	BA	BB	BA	CD	CB	EF	DD	EG6Z	TF6A	SH6Z	TF6A
		5	72	AA	BA	BB	BA	DD	DB	EF	ED	SH6Z	TF6A	TK6Z	SG6A
		6	87	AA	BA	CB	CA	EF	DD	RG	RF	SH6Z	SG6A	TK6Z	TG6A
		7	101	BA	BA	CD	CB	EF	DD	RG	RF	TK6Z	SG6A	UM6Z	UH6A
		8	116	BA	BA	CD	CB	EF	ED	RG	RF	TK6Z	TG6A	–	UH6A
		9	130	BB	BA	DD	DB	EF	ED	SH	SG	UM6Z	UH6A	–	–
		10	145	BB	BA	DD	DB	RG	EF	SH	TG	UM6Z	UH6A	–	–
4	58	4	58	BA	BA	CB	CA	DD	DB	EF	ED	SG6Z	TF6A	TH6Z	TF6A
		5	72	BA	BA	CB	CA	DD	DB	EF	ED	TH6Z	TF6A	UK6Z	TG6A
		6	87	BA	BA	CB	CA	EF	ED	SG	RF	TH6Z	TF6A	UK6Z	UG6A
		7	101	BA	CA	DD	DB	EF	ED	SG	SF	UK6Z	TG6A	–	–
		8	116	BA	CA	DD	DB	EF	ED	SG	SF	UK6Z	UG6A	–	–
		9	130	CB	CA	DD	DB	EF	ED	TH	TG	–	–	–	–
		10	145	CB	CA	DD	DB	SG	RF	TH	–	–	–	–	–

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

- R... = actuator D + booster cylinder D
- S... = actuator E + booster cylinder D
- T... = actuator E + booster cylinder E
- T...6 = actuator E...6 + booster cylinder E
- U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Shut-off Valves Type N with TEFASEP® Gold Seat Gasket

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths											
		DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"					
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC) and spring-to-open actuators (NO)									
bar	PSI	bar	PSI	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO
8	116	4	58	AA	AA	BB	BA	CD	BB	DF	DD		
		5	72	AA	AA	BB	BA	CD	CB	DF	DD		
		6	87	AA	AA	BB	BA	DF	CD	EG	DF		
7	101	4	58	AA	AA	BB	BA	CD	CB	DF	DD		
		5	72	AA	AA	BB	BA	CD	CB	DF	DD		
		6	87	AA	AA	BB	BA	DF	DD	EG	EF		
<b>6</b>	<b>87</b>	4	58	AA	AA	BB	BA	CD	CB	DF	DD		
		<b>5</b>	<b>72</b>	<b>AA</b>	<b>AA</b>	<b>BB</b>	<b>BA</b>	<b>CD</b>	<b>CB</b>	<b>DF</b>	<b>DD</b>		
		6	87	AA	BA	BB	BA	DF	DD	EG	EF		
5	72	4	58	AA	BA	BB	BA	CD	CB	EF	DD		
		5	72	AA	BA	BB	BA	DD	DB	EF	ED		
		6	87	AA	BA	CB	CA	EF	DD	RG	RF		
4	58	4	58	BA	BA	CB	CA	DD	DB	EF	ED		
		5	72	BA	BA	CB	CA	DD	DB	EF	ED		
		6	87	BA	BA	CB	CA	EF	ED	SG	RF		

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D  
S... = actuator E + booster cylinder D  
T... = actuator E + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection ECOVENT® Actuator Air/Spring For ECOVENT® shut-off valves type N/ECO

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

Air supply pressure [min.]		Product pressure [max.]		Nominal widths							
				DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2"		DN 65 / DN 80 OD 2 ½" / OD 3"		DN 100 OD 4"	
		Spring-to-close actuators (NC) and spring-to-open actuators (NO)									
bar	PSI	bar	PSI	NC	NO	NC	NO	NC	NO	NC	NO
8	116	4	58	EAA	EAA	EBB	EBA	ECD	EBB	EDF	EDD
		5	72	EAA	EAA	EBB	EBA	ECD	ECB	EDF	EDD
		6	87	EAA	EAA	EBB	EBA	EDF	ECD	–	EDF
		7	101	EAA	EAA	ECD	EBB	EDF	EDD	–	–
		8	116	EAA	EAA	ECD	EBB	EDF	EDD	–	–
		9	130	EBB	EAA	ECD	ECB	EDF	EDD	–	–
		10	145	EBB	EAA	ECD	ECB	–	EDF	–	–
7	101	4	58	EAA	EAA	EBB	EBA	ECD	ECB	EDF	EDD
		5	72	EAA	EAA	EBB	EBA	ECD	ECB	EDF	EDD
		6	87	EAA	EAA	EBB	EBA	EDF	EDD	–	–
		7	101	EAA	EAA	ECD	ECB	EDF	EDD	–	–
		8	116	EAA	EAA	ECD	ECB	EDF	EDD	–	–
		9	130	EBB	EBA	ECD	ECB	EDF	EDD	–	–
		10	145	EBB	EBA	ECD	ECB	–	–	–	–
6	87	4	58	EAA	EAA	EBB	EBA	ECD	ECB	EDF	EDD
		5	72	<b>EAA</b>	<b>EAA</b>	<b>EBB</b>	<b>EBA</b>	<b>ECD</b>	<b>ECB</b>	<b>EDF</b>	<b>EDD</b>
		6	87	EAA	EBA	EBB	EBA	EDF	EDD	L+EDD	L+EDB
		7	101	EAA	EBA	ECD	ECB	EDF	EDD	L+EDD	L+EDB
		8	116	EAA	EBA	ECD	ECB	EDF	EDD	L+EDB	–
		9	130	EBB	EBA	ECD	ECB	EDF	EDD	L+EDB	–
		10	145	EBB	EBA	ECD	ECB	L+EDD	L+EDD	–	–
5	72	4	58	EAA	EBA	EBB	EBA	ECD	ECB	L+EDD	EDD
		5	72	EAA	EBA	EBB	EBA	EDD	EDB	L+EDD	L+EDB
		6	87	EAA	EBA	ECB	ECA	L+EDD	EDD	L+EDB	L+EDB
		7	101	EBA	EBA	ECD	ECB	L+EDD	EDD	L+EDB	–
		8	116	EBA	EBA	ECD	ECB	L+EDD	L+EDB	–	–
		9	130	EBB	EBA	EDD	EDB	L+EDD	L+EDB	–	–
		10	145	EBB	EBA	EDD	EDB	L+EDD	L+EDB	–	–
4	58	4	58	EBA	EBA	ECB	ECA	EDD	EDB	L+EDB	L+EDB
		5	72	EBA	EBA	ECB	ECA	EDD	EDB	L+EDB	–
		6	87	EBA	EBA	ECB	ECA	L+EDD	L+EDB	–	–
		7	101	EBA	ECA	EDD	EDB	L+EDD	L+EDB	–	–
		8	116	EBA	ECA	EDD	EDB	L+EDB	L+EDB	–	–
		9	130	ECB	ECA	EDD	EDB	L+EDB	L+EDB	–	–
		10	145	ECB	ECA	EDD	EDB	–	–	–	–

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“L + actuator designation” indicates that this combination is only possible if the spring has air assistance. In this case, the actuator must be assisted by the corresponding air supply pressure (left column). The air pressure for assisting the actuator spring is allowed to be max. 6 bar (87 psi).

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Shut-off Valves Type U

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

Air supply pressure [min.]		Product pressure [max.]		Nominal widths											
				DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125		DN 150 OD 6" IPS 6"	
				Spring-to-close actuators (NC) and spring-to-open actuators (NO)											
bar	PSI	bar	PSI	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO
8	116	4	58	AA	AA	BB	BA	CD	BB	DF	DD	EG6Z	EF6A	EH6Z	EF6A
		5	72	AA	AA	BB	BA	CD	CB	DF	DD	EH6Z	EF6A	SK6Z	EG6A
		6	87	AA	AA	BB	BA	DF	CD	EG	DF	EH6Z	EF6A	SK6Z	SG6A
		7	101	AA	AA	CD	BB	DF	DD	EG	EF	SK6Z	EG6A	SM6Z	SH6A
		8	116	AA	AA	CD	BB	DF	DD	EG	EF	SK6Z	SG6A	UN6Z	SH6A
		9	130	BB	AA	CD	CB	DF	DD	EH	EG	SM6Z	SH6A	UN6Z	TK6A
		10	145	BB	AA	CD	CB	EG	DF	EH	RG	SM6Z	SH6A	–	TK6A
7	101	4	58	AA	AA	BB	BA	CD	CB	DF	DD	EG6Z	EF6A	EH6Z	EF6A
		5	72	AA	AA	BB	BA	CD	CB	DF	DD	EH6Z	EF6A	SK6Z	SG6A
		6	87	AA	AA	BB	BA	DF	DD	EG	EF	SH6Z	EF6A	SK6Z	SG6A
		7	101	AA	AA	CD	CB	DF	DD	EG	EF	SK6Z	SG6A	SM6Z	SH6A
		8	116	AA	AA	CD	CB	DF	DD	EG	EF	SK6Z	SG6A	UN6Z	TH6A
		9	130	BB	BA	CD	CB	DF	DD	RH	RG	SM6Z	SH6A	UN6Z	TK6A
		10	145	BB	BA	CD	CB	EG	EF	RH	RG	UM6Z	TH6A	–	UK6A
6	87	4	58	AA	AA	BB	BA	CD	CB	DF	DD	EG6Z	EF6A	SH6Z	EF6A
		5	72	<b>AA</b>	<b>AA</b>	<b>BB</b>	<b>BA</b>	<b>CD</b>	<b>CB</b>	<b>DF</b>	<b>DD</b>	<b>SH6Z</b>	<b>EF6A</b>	<b>SK6Z</b>	<b>SG6A</b>
		6	87	AA	BA	BB	BA	DF	DD	EG	EF	SH6Z	SG6A	SK6Z	SG6A
		7	101	AA	BA	CD	CB	DF	DD	EG	EF	SK6Z	SG6A	UM6Z	TH6A
		8	116	AA	BA	CD	CB	DF	DD	RG	EF	SK6Z	SG6A	UN6Z	TH6A
		9	130	BB	BA	CD	CB	DF	DD	RH	SG	UM6Z	TH6A	UN6Z	UK6A
		10	145	BB	BA	CD	CB	EG	EF	RH	SG	UM6Z	TH6A	–	UK6A
5	72	4	58	AA	BA	BB	BA	CD	CB	EF	DD	EG6Z	TF6A	SH6Z	TF6A
		5	72	AA	BA	BB	BA	DD	DB	EF	ED	SH6Z	TF6A	TK6Z	SG6A
		6	87	AA	BA	CB	CA	EF	DD	RG	RF	SH6Z	SG6A	TK6Z	TG6A
		7	101	BA	BA	CD	CB	EF	DD	RG	RF	TK6Z	SG6A	UM6Z	UH6A
		8	116	BA	BA	CD	CB	EF	ED	RG	RF	TK6Z	TG6A	–	UH6A
		9	130	BB	BA	DD	DB	EF	ED	SH	SG	UM6Z	UH6A	–	–
		10	145	BB	BA	DD	DB	RG	EF	SH	TG	UM6Z	UH6A	–	–
4	58	4	58	BA	BA	CB	CA	DD	DB	EF	ED	SG6Z	TF6A	TH6Z	TF6A
		5	72	BA	BA	CB	CA	DD	DB	EF	ED	TH6Z	TF6A	UK6Z	TG6A
		6	87	BA	BA	CB	CA	EF	ED	SG	RF	TH6Z	TF6A	UK6Z	UG6A
		7	101	BA	CA	DD	DB	EF	ED	SG	SF	UK6Z	TG6A	–	–
		8	116	BA	CA	DD	DB	EF	ED	SG	SF	UK6Z	UG6A	–	–
		9	130	CB	CA	DD	DB	EF	ED	TH	TG	–	–	–	–
		10	145	CB	CA	DD	DB	SG	RF	TH	–	–	–	–	–

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D  
S... = actuator E + booster cylinder D  
T... = actuator E + booster cylinder E  
T...6 = actuator E...6 + booster cylinder E  
U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Divert Valves Type W

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

Air supply pressure [min.]		Product pressure [max.]		Nominal widths											
				DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125		DN 150 OD 6" IPS 6"	
				Spring-to-close actuators (NC) and spring-to-open actuators (NO)											
bar	PSI	bar	PSI	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO
8	116	4	58	AA	AA	BB	BB	CD	CD	DF	DF	EG6Z	EG6A	SH6Z	SH6A
		5	72	AA	AA	BB	BB	CD	CD	DF	DF	SH6Z	SH6A	SK6Z	SK6A
		6	87	AA	AA	BB	BB	DF	DF	EG	EG	SH6Z	SH6A	SK6Z	SK6A
		7	101	AA	AA	CD	CD	DF	DF	EG	EG	SK6Z	SK6A	UM6Z	UM6A
		8	116	AA	AA	CD	CD	DF	DF	EG	EG	SK6Z	SK6A	UN6Z	UN6A
		9	130	BB	BB	CD	CD	DF	DF	RH	RH	UM6Z	UM6A	UN6Z	UN6A
		10	145	BB	BB	CD	CD	EG	EG	RH	RH	UM6Z	UM6A	–	–
7	101	4	58	AA	AA	BB	BB	CD	CD	DF	DF	EG6Z	EG6A	SH6Z	SH6A
		5	72	AA	AA	BB	BB	DD	DD	EF	EF	SH6Z	SH6A	SK6Z	SK6A
		6	87	AA	AA	BB	BB	DF	DF	EG	EG	SH6Z	SH6A	TK6Z	TK6A
		7	101	AA	AA	CD	CD	DF	DF	RG	RG	TK6Z	TK6A	UM6Z	UM6A
		8	116	AA	AA	CD	CD	EF	EF	RG	RG	TK6Z	TK6A	UN6Z	UN6A
		9	130	BB	BB	CD	CD	EF	EF	SH	SH	UM6Z	UM6A	UN6Z	UN6A
		10	145	BB	BB	DD	DD	EG	EG	SH	SH	UM6Z	UM6A	–	–
6	87	4	58	AA	AA	CB	CB	DD	DD	EF	EF	SG6Z	SG6A	SH6Z	SH6A
		5	72	<b>AA</b>	<b>AA</b>	<b>CB</b>	<b>CB</b>	<b>DD</b>	<b>DD</b>	<b>EF</b>	<b>EF</b>	<b>SH6Z</b>	<b>SH6A</b>	<b>TK6Z</b>	<b>TK6A</b>
		6	87	BA	BA	CB	CB	EF	EF	RG	RG	SH6Z	SH6A	TK6Z	TK6A
		7	101	BA	BA	DD	DD	EF	EF	RG	RG	TK6Z	TK6A	UM6Z	UM6A
		8	116	BA	BA	DD	DD	EF	EF	RG	RG	TK6Z	TK6A	–	–
		9	130	CB	CB	DD	DD	EF	EF	SH	SH	UM6Z	UM6A	–	–
		10	145	CB	CB	DD	DD	RG	RG	SH	SH	UM6Z	UM6A	–	–
5	72	4	58	BA	BA	CB	CB	DD	DD	EF	EF	SG6Z	SG6A	TH6Z	TH6A
		5	72	BA	BA	CB	CB	DD	DD	EF	EF	SH6Z	SH6A	UK6Z	UK6A
		6	87	BA	BA	CB	CB	EF	EF	SG	SG	TH6Z	TH6A	UK6Z	UK6A
		7	101	BA	BA	DD	DD	EF	EF	SG	SG	UK6Z	UK6A	–	–
		8	116	BA	BA	DD	DD	EF	EF	SG	SG	UK6Z	UK6A	–	–
		9	130	CB	CB	DD	DD	EF	EF	TH	TH	–	–	–	–
		10	145	CB	CB	DD	DD	SG	SG	TH	TH	–	–	–	–
4	58	4	58	BA	BA	CB	CB	DD	DD	RF	RF	TG6Z	TG6A	UH6Z	UH6A
		5	72	BA	BA	DB	DB	ED	ED	RF	RF	UH6Z	UH6A	–	–
		6	87	BA	BA	DB	DB	RF	RF	TG	TG	UH6Z	UH6A	–	–
		7	101	CA	CA	DD	DD	RF	RF	TG	TG	–	–	–	–
		8	116	CA	CA	DD	DD	RF	RF	TG	TG	–	–	–	–
		9	130	CB	CB	ED	ED	RF	RF	–	–	–	–	–	–
		10	145	DB	DB	ED	ED	TG	TG	–	–	–	–	–	–

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

- R... = actuator D + booster cylinder D
- S... = actuator E + booster cylinder D
- T... = actuator E + booster cylinder E
- T...6 = actuator E...6 + booster cylinder E
- U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Divert Valves Type W with TEFASEP® Gold Seat Gasket

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths											
		DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"					
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC) and spring-to-open actuators (NO)									
bar	PSI	bar	PSI	NC	NO	NC	NO	NC	NO	NC	NO		
8	116	4	58	AA	AA	BB	BB	CD	CD	DF	DF		
		5	72	AA	AA	BB	BB	CD	CD	DF	DF		
		6	87	AA	AA	BB	BB	DF	DF	EG	EG		
7	101	4	58	AA	AA	BB	BB	CD	CD	DF	DF		
		5	72	AA	AA	BB	BB	DD	DD	EF	EF		
		6	87	AA	AA	BB	BB	DF	DF	EG	EG		
<b>6</b>	<b>87</b>	4	58	AA	AA	CB	CB	DD	DD	EF	EF		
		<b>5</b>	<b>72</b>	<b>AA</b>	<b>AA</b>	<b>CB</b>	<b>CB</b>	<b>DD</b>	<b>DD</b>	<b>EF</b>	<b>EF</b>		
		6	87	BA	BA	CB	CB	EF	EF	RG	RG		
5	72	4	58	BA	BA	CB	CB	DD	DD	EF	EF		
		5	72	BA	BA	CB	CB	DD	DD	EF	EF		
		6	87	BA	BA	CB	CB	EF	EF	SG	SG		
4	58	4	58	BA	BA	CB	CB	DD	DD	RF	RF		
		5	72	BA	BA	DB	DB	ED	ED	RF	RF		
		6	87	BA	BA	DB	DB	RF	RF	TG	TG		

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D  
S... = actuator E + booster cylinder D  
T... = actuator E + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection ECOVENT® Actuator Air/Spring For ECOVENT® Divert Valves Type W/ECO

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

Air supply pressure [min.]		Product pressure [max.]		Nominal widths							
				DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2"		DN 65 / DN 80 OD 2 ½" / OD 3"		DN 100 OD 4"	
		Spring-to-close actuators (NC) and spring-to-open actuators (NO)									
bar	PSI	bar	PSI	NC	NO	NC	NO	NC	NO	NC	NO
8	116	4	58	EAA	EAA	EBB	EBB	ECD	ECD	EDF	EDF
		5	72	EAA	EAA	EBB	EBB	ECD	ECD	EDF	EDF
		6	87	EAA	EAA	EBB	EBB	EDF	EDF	–	–
		7	101	EAA	EAA	ECD	ECD	EDF	EDF	–	–
		8	116	EAA	EAA	ECD	ECD	EDF	EDF	–	–
		9	130	EBB	EBB	ECD	ECD	EDF	EDF	–	–
		10	145	EBB	EBB	ECD	ECD	–	–	–	–
7	101	4	58	EAA	EAA	EBB	EBB	ECD	ECD	EDF	EDF
		5	72	EAA	EAA	EBB	EBB	EDD	EDD	–	–
		6	87	EAA	EAA	EBB	EBB	EDF	EDF	–	–
		7	101	EAA	EAA	ECD	ECD	EDF	EDF	–	–
		8	116	EAA	EAA	ECD	ECD	–	–	–	–
		9	130	EBB	EBB	ECD	ECD	–	–	–	–
		10	145	EBB	EBB	EDD	EDD	–	–	–	–
6	87	4	58	EAA	EAA	ECB	ECB	EDD	EDD	L+EDD	L+EDD
		5	72	<b>EAA</b>	<b>EAA</b>	<b>ECB</b>	<b>ECB</b>	<b>EDD</b>	<b>EDD</b>	<b>L+EDD</b>	<b>L+EDD</b>
		6	87	EBA	EBA	ECB	ECB	L+EDD	L+EDD	L+EDB	L+EDB
		7	101	EBA	EBA	EDD	EDD	L+EDD	L+EDD	L+EDB	L+EDB
		8	116	EBA	EBA	EDD	EDD	L+EDD	L+EDD	–	–
		9	130	ECB	ECB	EDD	EDD	L+EDD	L+EDD	–	–
		10	145	ECB	ECB	EDD	EDD	L+EDD	L+EDD	–	–
5	72	4	58	EBA	EBA	ECB	ECB	EDD	EDD	L+EDD	L+EDD
		5	72	EBA	EBA	ECB	ECB	EDD	EDD	L+EDB	L+EDB
		6	87	EBA	EBA	ECB	ECB	L+EDD	L+EDD	L+EDB	L+EDB
		7	101	EBA	EBA	EDD	EDD	L+EDD	L+EDD	–	–
		8	116	EBA	EBA	EDD	EDD	L+EDB	L+EDB	–	–
		9	130	ECB	ECB	EDD	EDD	L+EDB	L+EDB	–	–
		10	145	ECB	ECB	EDD	EDD	L+EDB	L+EDB	–	–
4	58	4	58	EBA	EBA	ECB	ECB	EDD	EDD	L+EDB	L+EDB
		5	72	EBA	EBA	EDB	EDB	L+EDB	L+EDB	–	–
		6	87	EBA	EBA	EDB	EDB	L+EDB	L+EDB	–	–
		7	101	ECA	ECA	EDD	EDD	L+EDB	L+EDB	–	–
		8	116	ECA	ECA	EDD	EDD	–	–	–	–
		9	130	ECB	ECB	L+EDB	L+EDB	–	–	–	–
		10	145	EDB	EDB	L+EDB	L+EDB	–	–	–	–

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“L + actuator designation” indicates that this combination is only possible if the spring has air assistance. In this case, the actuator must be assisted by the corresponding air supply pressure (left column). The air pressure for assisting the actuator spring is allowed to be max. 6 bar (87 psi).

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Divert Valves Type X

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

Air supply pressure [min.]		Product pressure [max.]		Nominal widths											
				DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125		DN 150 OD 6" IPS 6"	
				Spring-to-close actuators (NC) and spring-to-open actuators (NO)											
bar	PSI	bar	PSI	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO
8	116	4	58	AA	AA	BB	BB	CD	CD	DF	DF	EG6Z	EG6A	SH6Z	SH6A
		5	72	AA	AA	BB	BB	CD	CD	DF	DF	SH6Z	SH6A	SK6Z	SK6A
		6	87	AA	AA	BB	BB	DF	DF	EG	EG	SH6Z	SH6A	SK6Z	SK6A
		7	101	AA	AA	CD	CD	DF	DF	EG	EG	SK6Z	SK6A	UM6Z	UM6A
		8	116	AA	AA	CD	CD	DF	DF	EG	EG	SK6Z	SK6A	UN6Z	UN6A
		9	130	BB	BB	CD	CD	DF	DF	RH	RH	UM6Z	UM6A	UN6Z	UN6A
		10	145	BB	BB	CD	CD	EG	EG	RH	RH	UM6Z	UM6A	–	–
7	101	4	58	AA	AA	BB	BB	CD	CD	DF	DF	EG6Z	EG6A	SH6Z	SH6A
		5	72	AA	AA	BB	BB	DD	DD	EF	EF	SH6Z	SH6A	SK6Z	SK6A
		6	87	AA	AA	BB	BB	DF	DF	EG	EG	SH6Z	SH6A	TK6Z	TK6A
		7	101	AA	AA	CD	CD	DF	DF	RG	RG	TK6Z	TK6A	UM6Z	UM6A
		8	116	AA	AA	CD	CD	EF	EF	RG	RG	TK6Z	TK6A	UN6Z	UN6A
		9	130	BB	BB	CD	CD	EF	EF	SH	SH	UM6Z	UM6A	UN6Z	UN6A
		10	145	BB	BB	DD	DD	EG	EG	SH	SH	UM6Z	UM6A	–	–
6	87	4	58	AA	AA	CB	CB	DD	DD	EF	EF	SG6Z	SG6A	SH6Z	SH6A
		5	72	<b>AA</b>	<b>AA</b>	<b>CB</b>	<b>CB</b>	<b>DD</b>	<b>DD</b>	<b>EF</b>	<b>EF</b>	<b>SH6Z</b>	<b>SH6A</b>	<b>TK6Z</b>	<b>TK6A</b>
		6	87	BA	BA	CB	CB	EF	EF	RG	RG	SH6Z	SH6A	TK6Z	TK6A
		7	101	BA	BA	DD	DD	EF	EF	RG	RG	TK6Z	TK6A	UM6Z	UM6A
		8	116	BA	BA	DD	DD	EF	EF	RG	RG	TK6Z	TK6A	–	–
		9	130	CB	CB	DD	DD	EF	EF	SH	SH	UM6Z	UM6A	–	–
		10	145	CB	CB	DD	DD	RG	RG	SH	SH	UM6Z	UM6A	–	–
5	72	4	58	BA	BA	CB	CB	DD	DD	EF	EF	SG6Z	SG6A	TH6Z	TH6A
		5	72	BA	BA	CB	CB	DD	DD	EF	EF	SH6Z	SH6A	UK6Z	UK6A
		6	87	BA	BA	CB	CB	EF	EF	SG	SG	TH6Z	TH6A	UK6Z	UK6A
		7	101	BA	BA	DD	DD	EF	EF	SG	SG	UK6Z	UK6A	–	–
		8	116	BA	BA	DD	DD	EF	EF	SG	SG	UK6Z	UK6A	–	–
		9	130	CB	CB	DD	DD	EF	EF	TH	TH	–	–	–	–
		10	145	CB	CB	DD	DD	SG	SG	TH	TH	–	–	–	–
4	58	4	58	BA	BA	CB	CB	DD	DD	RF	RF	TG6Z	TG6A	UH6Z	UH6A
		5	72	BA	BA	DB	DB	ED	ED	RF	RF	UH6Z	UH6A	–	–
		6	87	BA	BA	DB	DB	RF	RF	TG	TG	UH6Z	UH6A	–	–
		7	101	CA	CA	DD	DD	RF	RF	TG	TG	–	–	–	–
		8	116	CA	CA	DD	DD	RF	RF	TG	TG	–	–	–	–
		9	130	CB	CB	ED	ED	RF	RF	–	–	–	–	–	–
		10	145	DB	DB	ED	ED	TG	TG	–	–	–	–	–	–

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D  
S... = actuator E + booster cylinder D  
T... = actuator E + booster cylinder E  
T...6 = actuator E...6 + booster cylinder E  
U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Valves Type D

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths									
		DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125 DN 150 OD 6" IPS 6"	
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC)							
bar	PSI	bar	PSI	NC	NC	NC	NC	NC	NC	NC	
8	116	4	58	AA	BB	CD	DF	EG6Z	EH6Z		
		5	72	AA	BB	CD	DF	EH6Z	SK6Z		
		6	87	AA	BB	DF	EG	EH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	SM6Z		
		8	116	AA	CD	DF	EG	SK6Z	UN6Z		
		9	130	BB	CD	DF	EH	SM6Z	UN6Z		
		10	145	BB	CD	EG	EH	SM6Z	–		
7	101	4	58	AA	BB	CD	DF	EG6Z	EH6Z		
		5	72	AA	BB	CD	DF	EH6Z	SK6Z		
		6	87	AA	BB	DF	EG	SH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	SM6Z		
		8	116	AA	CD	DF	EG	SK6Z	UN6Z		
		9	130	BB	CD	DF	RH	SM6Z	UN6Z		
		10	145	BB	CD	EG	RH	UM6Z	–		
6	87	4	58	AA	BB	CD	DF	EG6Z	SH6Z		
		<b>5</b>	<b>72</b>	<b>AA</b>	<b>BB</b>	<b>CD</b>	<b>DF</b>	<b>SH6Z</b>	<b>SK6Z</b>		
		6	87	AA	BB	DF	EG	SH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	UM6Z		
		8	116	AA	CD	DF	RG	SK6Z	UN6Z		
		9	130	BB	CD	DF	RH	UM6Z	UN6Z		
		10	145	BB	CD	EG	RH	UM6Z	–		
5	72	4	58	AA	BB	CD	EF	EG6Z	SH6Z		
		5	72	AA	BB	DD	EF	SH6Z	TK6Z		
		6	87	AA	CB	EF	RG	SH6Z	TK6Z		
		7	101	BA	CD	EF	RG	TK6Z	UM6Z		
		8	116	BA	CD	EF	RG	TK6Z	–		
		9	130	BB	DD	EF	SH	UM6Z	–		
		10	145	BB	DD	RG	SH	UM6Z	–		
4	58	4	58	BA	CB	DD	EF	SG6Z	TH6Z		
		5	72	BA	CB	DD	EF	TH6Z	UK6Z		
		6	87	BA	CB	EF	SG	TH6Z	UK6Z		
		7	101	BA	DD	EF	SG	UK6Z	–		
		8	116	BA	DD	EF	SG	UK6Z	–		
		9	130	CB	DD	EF	TH	–	–		
		10	145	CB	DD	SG	TH	–	–		

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D  
S... = actuator E + booster cylinder D  
T... = actuator E + booster cylinder E  
T...6 = actuator E...6 + booster cylinder E  
U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Valves Type B

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths						
		IPS 2"	DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"	DN 100 OD 4" IPS 4"	DN 125	DN 150 OD 6" IPS 6"		
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC)				
bar	PSI	bar	PSI	NC	NC	NC	NC	NC
8	116	4	58	BB	CD	DF	EF6Z	EG6Z
		5	72	BB	CD	DF	EF6Z	EG6Z
		6	87	BB	CD	DF	EF6Z	EG6Z
		7	101	BB	CD	DF	EF6Z	SG6Z
		8	116	BB	CD	EF	EF6Z	SG6Z
		9	130	BB	CD	EF	EF6Z	SG6Z
		10	145	BB	DD	EF	EF6Z	SG6Z
		7	101	4	58	BB	CD	DF
		5	72	BB	CD	DF	EF6Z	SG6Z
		6	87	BB	CD	DF	EF6Z	SG6Z
		7	101	BB	CD	EF	EF6Z	SG6Z
		8	116	BB	CD	EF	EF6Z	SG6Z
		9	130	BB	DD	EF	TF6Z	SG6Z
		10	145	CB	DD	EF	TF6Z	SG6Z
6	87	4	58	BB	CD	EF	EF6Z	SG6Z
		<b>5</b>	<b>72</b>	<b>BB</b>	<b>DD</b>	<b>EF</b>	<b>EF6Z</b>	<b>SG6Z</b>
		6	87	BB	DD	EF	EF6Z	SG6Z
		7	101	BB	DD	EF	TF6Z	SG6Z
		8	116	CB	DD	EF	TF6Z	SG6Z
		9	130	CB	DD	EF	TF6Z	SG6Z
		10	145	CB	DD	EF	TF6Z	TG6Z
		5	72	4	58	CB	DD	EF
		5	72	CB	DD	EF	TF6Z	SG6Z
		6	87	CB	DD	EF	TF6Z	SG6Z
		7	101	CB	DD	EF	TF6Z	TG6Z
		8	116	CB	DD	RF	TF6Z	TG6Z
		9	130	CB	DD	RF	TF6Z	TG6Z
		10	145	CB	ED	RF	TF6Z	–
4	58	4	58	CB	DD	RF	TF6Z	TG6Z
		5	72	CB	DD	RF	TF6Z	TG6Z
		6	87	CB	DD	RF	TF6Z	TG6Z
		7	101	CB	ED	RF	TF6Z	–
		8	116	DB	ED	–	TF6Z	–
		9	130	DB	ED	–	TF6Z	–
		10	145	DB	ED	–	TF6Z	–

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Actuators R... and T... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D

T...6 = actuator E...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Valves Type R

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths								
		DN 25 OD 1"	DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"	DN 65 OD 2 ½"	DN 80 OD 3" IPS 3"	DN 100 OD 4" IPS 4"	DN 125	DN 150 OD 6" IPS 6"		
Air supply pressure [min.]	Product pressure [max.]	Spring-to-close actuators (NC)								
		bar	PSI	bar	PSI	NC	NC	NC	NC	NC
8	116	4	58	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		5	72	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		6	87	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		7	101	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		8	116	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		9	130	CD	CD	DD	DD5	DD5	EF6Z	RF6Z
		10	145	CD	CD	DD	DD5	DD5	EF6Z	RF6Z
7	101	4	58	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		5	72	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		6	87	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		7	101	CD	CD	DD	DD5	DD5	EF6Z	RF6Z
		8	116	CD	CD	DD	DD5	DD5	EF6Z	RF6Z
		9	130	CD	CD	DD	DD5	ED5	RF6Z	RF6Z
6	87	4	58	CD	CD	DD	DD5	DD5	EF6Z	EF6Z
		5	72	<b>CD</b>	<b>CD</b>	<b>DD</b>	<b>DD5</b>	<b>DD5</b>	<b>EF6Z</b>	<b>RF6Z</b>
		6	87	CD	CD	DD	DD5	DD5	EF6Z	RF6Z
		7	101	CD	CD	DD	DD5	ED5	RF6Z	RF6Z
		8	116	CD	CD	DD	DD5	ED5	RF6Z	RF6Z
		9	130	CD	CD	DD	DD5	ED5	RF6Z	RF6Z
5	72	4	58	CD	DD	DD	DD5	DD5	RF6Z	RF6Z
		5	72	CD	DD	DD	DD5	ED5	RF6Z	RF6Z
		6	87	CD	DD	DD	DD5	ED5	RF6Z	RF6Z
		7	101	CD	DD	DD	DD5	ED5	RF6Z	RF6Z
		8	116	CD	DD	DD	DD5	ED5	RF6Z	TF6Z
		9	130	CD	DD	ED	ED5	ED5	RF6Z	TF6Z
		10	145	CD	DD	ED	ED5	ED5	RF6Z	TF6Z
4	58	4	58	DD	DD	DD	DD5	ED5	RF6Z	RF6Z
		5	72	DD	DD	DD	DD5	ED5	RF6Z	RF6Z
		6	87	DD	DD	ED	ED5	ED5	RF6Z	TF6Z
		7	101	DD	DD	ED	ED5	ED5	RF6Z	TF6Z
		8	116	DD	DD	ED	ED5	RD5	TF6Z	TF6Z
		9	130	DD	DD	ED	ED5	RD5	TF6Z	UG6Z
		10	145	DD	DD	ED	ED5	RD5	TF6Z	UG6Z

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Actuators R..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

- R...5 = actuator D...5 + booster cylinder D
- R...6 = actuator D...6 + booster cylinder E
- T...6 = actuator E...6 + booster cylinder E
- U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Valves Type K

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths									
		DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125 DN 150 OD 6" IPS 6"	
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC)							
bar	PSI	bar	PSI	NC	NC	NC	NC	NC	NC	NC	
8	116	4	58	AA	BB	CD	DF	EG6Z	EH6Z		
		5	72	AA	BB	CD	DF	EH6Z	SK6Z		
		6	87	AA	BB	DF	EG	EH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	SM6Z		
		8	116	AA	CD	DF	EG	SK6Z	UN6Z		
		9	130	BB	CD	DF	EH	SM6Z	UN6Z		
		10	145	BB	CD	EG	EH	SM6Z	–		
7	101	4	58	AA	BB	CD	DF	EG6Z	EH6Z		
		5	72	AA	BB	CD	DF	EH6Z	SK6Z		
		6	87	AA	BB	DF	EG	SH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	SM6Z		
		8	116	AA	CD	DF	EG	SK6Z	UN6Z		
		9	130	BB	CD	DF	RH	SM6Z	UN6Z		
		10	145	BB	CD	EG	RH	UM6Z	–		
6	87	4	58	AA	BB	CD	DF	EG6Z	SH6Z		
		<b>5</b>	<b>72</b>	<b>AA</b>	<b>BB</b>	<b>CD</b>	<b>DF</b>	<b>SH6Z</b>	<b>SK6Z</b>		
		6	87	AA	BB	DF	EG	SH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	UM6Z		
		8	116	AA	CD	DF	RG	SK6Z	UN6Z		
		9	130	BB	CD	DF	RH	UM6Z	UN6Z		
		10	145	BB	CD	EG	RH	UM6Z	–		
5	72	4	58	AA	BB	CD	EF	EG6Z	SH6Z		
		5	72	AA	BB	DD	EF	SH6Z	TK6Z		
		6	87	AA	CB	EF	RG	SH6Z	TK6Z		
		7	101	BA	CD	EF	RG	TK6Z	UM6Z		
		8	116	BA	CD	EF	RG	TK6Z	–		
		9	130	BB	DD	EF	SH	UM6Z	–		
		10	145	BB	DD	RG	SH	UM6Z	–		
4	58	4	58	BA	CB	DD	EF	SG6Z	TH6Z		
		5	72	BA	CB	DD	EF	TH6Z	UK6Z		
		6	87	BA	CB	EF	SG	TH6Z	UK6Z		
		7	101	BA	DD	EF	SG	UK6Z	–		
		8	116	BA	DD	EF	SG	UK6Z	–		
		9	130	CB	DD	EF	TH	–	–		
		10	145	CB	DD	SG	TH	–	–		

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

- R... = actuator D + booster cylinder D
- S... = actuator E + booster cylinder D
- T... = actuator E + booster cylinder E
- T...6 = actuator E...6 + booster cylinder E
- U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Valves Type C

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths									
		DN 25 OD 1"		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"		DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125 DN 150 OD 6" IPS 6"	
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC)							
bar	PSI	bar	PSI	NC	NC	NC	NC	NC	NC	NC	
8	116	4	58	AA	BB	CD	DF	EG6Z	EH6Z		
		5	72	AA	BB	CD	DF	EH6Z	SK6Z		
		6	87	AA	BB	DF	EG	EH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	SM6Z		
		8	116	AA	CD	DF	EG	SK6Z	UN6Z		
		9	130	BB	CD	DF	EH	SM6Z	UN6Z		
		10	145	BB	CD	EG	EH	SM6Z	–		
7	101	4	58	AA	BB	CD	DF	EG6Z	EH6Z		
		5	72	AA	BB	CD	DF	EH6Z	SK6Z		
		6	87	AA	BB	DF	EG	SH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	SM6Z		
		8	116	AA	CD	DF	EG	SK6Z	UN6Z		
		9	130	BB	CD	DF	RH	SM6Z	UN6Z		
		10	145	BB	CD	EG	RH	UM6Z	–		
6	87	4	58	AA	BB	CD	DF	EG6Z	SH6Z		
		<b>5</b>	<b>72</b>	<b>AA</b>	<b>BB</b>	<b>CD</b>	<b>DF</b>	<b>SH6Z</b>	<b>SK6Z</b>		
		6	87	AA	BB	DF	EG	SH6Z	SK6Z		
		7	101	AA	CD	DF	EG	SK6Z	UM6Z		
		8	116	AA	CD	DF	RG	SK6Z	UN6Z		
		9	130	BB	CD	DF	RH	UM6Z	UN6Z		
		10	145	BB	CD	EG	RH	UM6Z	–		
5	72	4	58	AA	BB	CD	EF	EG6Z	SH6Z		
		5	72	AA	BB	DD	EF	SH6Z	TK6Z		
		6	87	AA	CB	EF	RG	SH6Z	TK6Z		
		7	101	BA	CD	EF	RG	TK6Z	UM6Z		
		8	116	BA	CD	EF	RG	TK6Z	–		
		9	130	BB	DD	EF	SH	UM6Z	–		
		10	145	BB	DD	RG	SH	UM6Z	–		
4	58	4	58	BA	CB	DD	EF	SG6Z	TH6Z		
		5	72	BA	CB	DD	EF	TH6Z	UK6Z		
		6	87	BA	CB	EF	SG	TH6Z	UK6Z		
		7	101	BA	DD	EF	SG	UK6Z	–		
		8	116	BA	DD	EF	SG	UK6Z	–		
		9	130	CB	DD	EF	TH	–	–		
		10	145	CB	DD	SG	TH	–	–		

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

- R... = actuator D + booster cylinder D
- S... = actuator E + booster cylinder D
- T... = actuator E + booster cylinder E
- T...6 = actuator E...6 + booster cylinder E
- U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Valves Type L\_H and Type L\_S

The standard configuration has 6 bar air supply pressure for 7 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths						
		DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"			DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"		DN 100 OD 4" IPS 4"	
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC)				
bar	PSI	bar	PSI	NC	NC	NC	NC	NC
<b>6</b>	<b>87</b>	4	58	CD	DF	EG	EG	EG
		5	72	CD	DF	EG	EG	EG
		6	87	CD	DF	EG	EG	EG
		<b>7</b>	<b>101</b>	<b>CD</b>	<b>DF</b>	<b>EG</b>	<b>EG</b>	<b>EG</b>
		8	116	CD	EG	EG	RH	RH
		9	130	CD	EG	EG	RH	RH
		10	145	CD	EG	EG	RH	RH

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Actuators R... is made up of the actuator air/spring type S and a booster cylinder as follows:

R... = actuator D + booster cylinder D

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.



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Actuators R..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D

T...6 = actuator E...6 + booster cylinder E

U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.



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Actuators R... and T... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D

T...6 = actuator E...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.



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**DN 125****DN 150  
OD 6"  
IPS 6"**

NC [actuator]	NC [lifting actuator]	NC [actuator]	NC [lifting actuator]
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	SLR6
DG6Z	ELR6	DG6Z	ELR6
<b>DG6Z</b>	<b>ELR6</b>	<b>DG6Z</b>	<b>ELR6</b>
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	ELR6
DG6Z	ELR6	DG6Z	SLR6
DG6Z	ELR6	DG6Z	SRL6
DG6Z	ELR6	DG6Z	SLR6
DG6Z	ELR6	DG6Z	SLR6
DG6Z	ELR6	DG6Z	SLR6
DG6Z	ELR6	DG6Z	SLR6
DG6Z	SLR6	DG6Z	SLR6
DG6Z	SLR6	DG6Z	SLR6
DG6Z	SLR6	DG6Z	SLR6
DG6Z	SLR6	DG6Z	SLR6
DG6Z	SLR6	DG6Z	SLR6
DG6Z	SLR6	DG6Z	SLR6
DG6Z	SLR6	DG6Z	SLR6
DG6Z	SLR6	DG6Z	SLR6
BA	BLB	CB	CLB
BA	BLB	CB	CLB
BA	BLB	CB	CLB
BA	BLB	-	-
BA	BLB	-	-
CB	C LB	-	-
CB	CLB	-	-

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Valves with Lift Function Type L\_HL, Type L\_HC, Type L\_SL and Type L\_SC

The standard configuration has 6 bar air supply pressure for 7 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths							
		DN 40 / DN 50 OD 1 ½" / OD 2"		DN 65 / DN 80 OD 2 ½" / OD 3"		DN 100 OD 4"			
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC)					
bar	PSI	bar	PSI	NC [actuator]	NC [lifting actuator]	NC [actuator]	NC [lifting actuator]	NC [actuator]	NC [lifting actuator]
<b>6</b>	<b>87</b>	4	58	BD	BLRN50	CF	CLT	DG	DLRN
		5	72	BD	BLRN50	CF	CLT	DG	DLRN
		6	87	BD	BLRN50	CF	CLT	DG	DLRN
		<b>7</b>	<b>101</b>	<b>BD</b>	<b>BLRN50</b>	<b>CF</b>	<b>CLT</b>	<b>DG</b>	<b>DLRN</b>
		8	116	CF	BLRN50	DG	CLT	DH	DLRN
		9	130	CF	BLRN50	DG	CLT	DH	DLRN
		10	145	CF	BLRN50	DG	CLT	DH	DLRN

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## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Divert Valves Type Y

The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

Air supply pressure [min.]		Product pressure [max.]		Nominal widths					
				DN 25 OD 1"	DN 40 / DN 50 OD 1 ½" / OD 2" IPS 2"	DN 65 / DN 80 OD 2 ½" / OD 3" IPS 3"	DN 100 OD 4" IPS 4"	DN 125	DN 150 OD 6" IPS 6"
				Spring-to-close actuators (NC)					
bar	PSI	bar	PSI	NC	NC	NC	NC	NC	NC
8	116	4	58	AA	BB	CD	DF	EG6Z	SH6Z
		5	72	AA	BB	CD	DF	SH6Z	SK6Z
		6	87	AA	BB	DF	EG	SH6Z	SK6Z
		7	101	AA	CD	DF	EG	SK6Z	UM6Z
		8	116	AA	CD	DF	EG	SK6Z	UN6Z
		9	130	BB	CD	DF	RH	UM6Z	UN6Z
		10	145	BB	CD	EG	RH	UM6Z	–
7	101	4	58	AA	BB	CD	DF	EG6Z	SH6Z
		5	72	AA	BB	DD	EF	SH6Z	SK6Z
		6	87	AA	BB	DF	EG	SH6Z	TK6Z
		7	101	AA	CD	DF	RG	TK6Z	UM6Z
		8	116	AA	CD	EF	RG	TK6Z	UN6Z
		9	130	BB	CD	EF	SH	UM6Z	UN6Z
		10	145	BB	DD	EG	SH	UM6Z	–
6	87	4	58	AA	CB	DD	EF	SG6Z	SH6Z
		<b>5</b>	<b>72</b>	<b>AA</b>	<b>CB</b>	<b>DD</b>	<b>EF</b>	<b>SH6Z</b>	<b>TK6Z</b>
		6	87	BA	CB	EF	RG	SH6Z	TK6Z
		7	101	BA	DD	EF	RG	TK6Z	UM6Z
		8	116	BA	DD	EF	RG	TK6Z	–
		9	130	CB	DD	EF	SH	UM6Z	–
		10	145	CB	DD	RG	SH	UM6Z	–
5	72	4	58	BA	CB	DD	EF	SG6Z	TH6Z
		5	72	BA	CB	DD	EF	SH6Z	UK6Z
		6	87	BA	CB	EF	SG	TH6Z	UK6Z
		7	101	BA	DD	EF	SG	UK6Z	–
		8	116	BA	DD	EF	SG	UK6Z	–
		9	130	CB	DD	EF	TH	–	–
		10	145	CB	DD	SG	TH	–	–
4	58	4	58	BA	CB	DD	RF	TG6Z	UH6Z
		5	72	BA	DB	ED	RF	UH6Z	–
		6	87	BA	DB	RF	TG	UH6Z	–
		7	101	CA	DD	RF	TG	–	–
		8	116	CA	DD	RF	TG	–	–
		9	130	CB	ED	RF	–	–	–
		10	145	DB	ED	TG	–	–	–

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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D  
S... = actuator E + booster cylinder D  
T... = actuator E + booster cylinder E  
T...6 = actuator E...6 + booster cylinder E  
U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.



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Actuators R..., S..., T... and U... are made up of the actuator air/spring type S and booster cylinders as follows:

R... = actuator D + booster cylinder D

S... = actuator E + booster cylinder D

T...6 = actuator E...6 + booster cylinder E

U...6 = actuator S...6 + booster cylinder E

If there are different product pressures in the valve housings, this can result in different actuator sizes which cannot be found in the table. Please contact us in this case.

For a detailed description of the composition of actuator/booster cylinders, please refer to the VARIVENT® booster cylinder page on the actuator air/spring.



## Options – Actuator Selection VARIVENT® Actuator Air/Spring For VARIVENT® Double-seat Bottom Valves with Lift Function Type T\_RL and Type T\_RC

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The standard configuration has 6 bar air supply pressure for 5 bar product pressure (see grey mark in the table). The particular product and air supply pressure must be specified when ordering. If you do not provide any further information about the pressures when ordering, we will supply the standard configuration.

		Nominal widths															
		DN 25*/ DN 40/DN 50 OD 1"*/ OD 1 ½"/OD 2" IPS 2		DN 65 OD 2 ½"		DN 80 OD 3" IPS 3"		DN 100 OD 4" IPS 4"		DN 125		DN 150 OD 6" IPS 6"					
Air supply pressure [min.]		Product pressure [max.]		Spring-to-close actuators (NC)													
bar	PSI	bar	PSI	NC [actuator]	NC [lifting actuator]	NC [actuator]	NC [lifting actuator]	NC [actuator]	NC [lifting actuator]	NC [actuator]	NC [lifting actuator]	NC [actuator]	NC [lifting actuator]	NC [actuator]	NC [lifting actuator]		
<b>6</b>	<b>87</b>	4	58	BD	BLR**	CF	CLT	CF5	DLT5	DG5	DLT5	EH6Z	ELR6	EK6Z	ELR6		
		<b>5</b>	<b>72</b>	<b>BD</b>	<b>BLR**</b>	<b>CF</b>	<b>CLT</b>	<b>CF5</b>	<b>DLT5</b>	<b>DG5</b>	<b>DLT5</b>	<b>EH6Z</b>	<b>ELR6</b>	<b>EK6Z</b>	<b>ELR6</b>		
		6	87	-	-	-	-	-	-	-	-	-	-	-	-	-	
		7	101	-	-	-	-	-	-	-	-	-	-	-	-	-	
		8	116	-	-	-	-	-	-	-	-	-	-	-	-	-	
		9	130	-	-	-	-	-	-	-	-	-	-	-	-	-	
		10	145	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	72	4	58	BD	BLR**	CF	CLT	CF5	DLT5	DG5	DLT5	EH6Z	ELR6	EK6Z	ELR6		
		5	72	BD	BLR**	CF	CLT	CF5	DLT5	DG5	DLT5	EH6Z	ELR6	EK6Z	ELR6		
		6	87	-	-	-	-	-	-	-	-	-	-	-	-	-	
		7	101	-	-	-	-	-	-	-	-	-	-	-	-	-	
		8	116	-	-	-	-	-	-	-	-	-	-	-	-	-	
		9	130	-	-	-	-	-	-	-	-	-	-	-	-	-	
		10	145	-	-	-	-	-	-	-	-	-	-	-	-	-	

\* The nominal widths DN 25 and OD 1" are available as double-seat bottom valve with lift function without spray cleaning.

\*\* The lifting actuator also has a supplement, depending on the nominal width. DN 25: BLR25; OD 1": BLR22; DN 40/OD 1 ½": BLRN40; DN 50/OD 2"/IPS 2": BLRN50



# GEA Valve Automation – Control and Feedback Systems

## **Valve automation for increased process reliability, efficiency and flexibility**

GEA's hygienic valve technology sets the standards for reliable, safe and permanently efficient liquid processes. Leading-edge control and automation options enable operators to achieve optimum control and monitoring of the valve – thereby realizing state-of-the-art, highly flexible operating and automation concepts.

The key component is the latest generation of GEA control tops with reliable, ground-breaking control and feedback technology. Mechanical valve components and a control top specified for the particular application together to form a finely tuned valve unit capable of realizing advanced system concepts and enhancing process options.

## **The control top – integral part of the valve unit**

The control top facilitates optimized production and cleaning processes with less expenditure on staff, energy and time. Valve functions can be automatically and continuously monitored, recorded, evaluated and if necessary, corrected. Detectable valve positions make a crucial contribution towards the achievement of optimum system operation. This ensures

adherence to a smooth process flow, while also achieving the utmost in product safety.

Special priority is given to sustainability in intelligent valve control: Thanks to the selectable LEFF® function integrated in the T.VIS® A-15, up to 90 percent of cleaning agents can be saved by an optimized and PLC-independent pulsing of the valve discs during the cleaning process. The economical air guidance in the control top and the integrated solenoid valves with low power intake minimize energy consumption as well as the demand for compressed air and the number of hose connections.

In addition, the control top offers the best protection to components against adverse ambient conditions such as moisture, dust, liquids of any kind, vibrations and other mechanical impact.

### Modern plant communication at the threshold to industry 4.0

The control tops in the current GEA range can be configured for all common types of connection and control systems to make future-oriented, pioneering automation functions possible. For example, users can ensure early digital integration of their system control setup in Industry 4.0 environments by way of the modern IO-Link technology. Digital exchange of data enables central setting of component parameters and lossless information transfer.

Diagnostic data from the valve can be processed and displayed in central control unit of the plant. The options even extend to networking the system controller with the company's ERP system for optimized resource utilization.

### Easy start-up

Thanks to pre-configurable system parameters and a fully automatic SETUP, the installation for digital valve control is easy even also without extensive technical knowledge. Regional requirements, application-specific certificates (UL/CSA/PMO/ATEX) and other individual specifications can be provided as needed.

As a true pioneer with decades of experience in the development of valves and control tops for all processes, GEA offers the perfect symbiosis of mechanical and electronic engineering, largely with standardized components. Extensive tests and countless valve units installed around the world have continuously proved the reliability and cost-effectiveness for the user, always ensuring maximum safety of operation.

### Recommended control and feedback systems for GEA VARIVENT® seat valves

The T.VIS® M-20 offers an attractively priced basic version of control and feedback technology for seat valves with optimum adaptation to process conditions. The T.VIS® M-20 is fitted with self-learning sensors and is available for all established types of communication such as 24VDC, As-i and DeviceNet.

The T.VIS® A-15 offers extended functional scope and greater ease of operation. Besides the established types of communication, this control top also features the groundbreaking



IO-Link technology, which allows users to set the parameters for components centrally in the system via digital data exchange and transfer all process data loss-free. Thanks to a fully automatic setup, commissioning can be quickly and easily carried out by means of the push buttons fitted on the hood. Additional functions such as the selection of different tolerance bands, signal attenuation and the resource-saving LEFF® function round off the T.VIS® A-15.

Especially for GEA VARIVENT® mixproof valves, the T.VIS® A-15 provides the optimum solution, guaranteeing efficient processes and lower operating costs.

For control applications the T.VIS® P-15 positioner in combination with an air-spring actuator provides a cost-efficient alternative to conventional control valves with diaphragm actuators. The valve can be moved to any position.

Attention must be paid to regional requirements for use in explosive areas. The SES meets the requirements of the European ATEX Directive and can be used in Zones 1 and 20. The T.VIS® A-15 is certified in accordance with the Directive Class 1 / Div. 2 in compliance with the regulations in place for the North American market.

# Sample Composition of the Order Code

## Procedure for valve selection (positions 1 – 13), incl. a feedback system

Position	Description of the order code for the standard version					
1	<b>Valve type</b>					
	 <b>D</b>	VARIVENT® double-seat valve				
2	<b>Housing combinations</b>					
	A	B	C	<b>E</b>		
3	<b>Supplement to the valve type</b>					
	 <b>L</b>	With lifting actuator and spray cleaning				
	<b>C</b>	With lifting actuator without spray cleaning				
4/5	<b>Nominal width (upper housing / lower housing)</b>					
	DN 25	OD 1"				
	DN 40	OD 1 ½"				
	DN 50	OD 2"	IPS 2"			
	 <b>DN 65</b>	OD 2 ½"				
	DN 80	OD 3"	IPS 3"			
	DN 100	OD 4"	IPS 4"			
	DN 125					
	DN 150	OD 6"	IPS 6"			
6	<b>Actuator type</b>					
	 <b>S</b>	Air / Spring				
7	<b>Air connection</b>					
	 <b>Z</b>	Spring-to-close (NC)				
8	<b>Standard configuration with 6 bar supply air pressure for 5 bar product pressure</b>					
	<b>Actuator (spring-to-close)</b>	<b>/ Lifting actuator</b>	<b>For nominal widths</b>			
	BA	/BLB	DN 25, OD 1"			
	BB	/BLB	DN 40, DN 50, OD 1 ½", OD 2", IPS 2"			
	 <b>CD</b>	<b>/CLB</b>	DN 65, DN 80, OD 2 ½", OD 3", IPS 3"			
	DF	/DLB	DN 100, OD 4", IPS 4"			
	SH6	/EL6	DN 125			
	SK6	/EL6	DN 150, OD 6", IPS 6"			
9	<b>Valve seat version</b>		Housing combination			
			A	B	C	E
	 <b>L0</b>	Loose seat ring / Clamp connection	•	•	•	•
	V1	Welded seat ring / Port orientation 90°	•	•	•	•
	V2	Welded seat ring / Port orientation 180°	•	•	•	•
	V3	Welded seat ring / Port orientation 270°		•		
10	<b>Seal material in contact with the product</b>					
	 <b>1</b>	EPDM (FDA)				
	<b>2</b>	FKM (FDA)				
	<b>3</b>	HNBR (FDA); (up to DN 100, OD 4")				
11	<b>Surface quality of the housing</b>					
	<b>1</b>	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt blasted (IPS)				
	 <b>2</b>	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt blasted (DN, OD)				
12	<b>Connection fittings</b>					
	 <b>N</b>	Welding end				
13	<b>Accessories</b>					
	 <b>/52</b>	Adhesive ID tag				

### Procedure for feedback system selection (positions 14 – 19)

Position	Description of the order code for the standard version	
<b>14</b>	<b>Feedback location</b>	
	 <b>TM15</b>	Control top T.VIS® M-15
<b>15</b>	<b>Control top type</b>	
	N	Without solenoid valve
	P	1 solenoid valve Y1
	R	1 solenoid valve Y1 (retrofitable: Y2, Y3)
	I	2 solenoid valves Y1, Y2 (retrofitable: Y3)
	J	2 solenoid valves Y1, Y3 (retrofitable: Y2)
	 <b>L</b>	3 solenoid valves Y1, Y2, Y3
	V	1 solenoid valve Y1 (retrofitable: Y2, Y3), logic NOT-element
	X	2 solenoid valves Y1, Y2 (retrofitable: Y3), logic NOT-element
	Y	3 solenoid valves Y1, Y2, Y3, logic NOT-element
<b>16</b>	<b>Feedback</b>	
	 <b>2</b>	2 feedbacks
	3	2 feedbacks with external proximity switch
<b>17</b>	<b>Type of interface</b>	
	B	24 V DC, 3-wire, PNP
	 <b>N</b>	24 V DC, 3-wire, NPN
	C	48–130 V AC
<b>18</b>	<b>Solenoid valve</b>	
	 <b>A</b>	24 V DC, 0.85 W
	0	Without
<b>19</b>	<b>Screw connection</b>	
	 <b>M</b>	Metric air connection, M20×1.5 cable gland
	Z	Inch air connection, 0.5" NPT cable gland
	J	Metric air connection, 5-pin M12 plug (1 solenoid valve, 2 feedbacks)
	P	Inch air connection, 5-pin M12 plug (1 solenoid valve, 2 feedbacks)
	H	Metric air connection, 8-pin M12 plug (> 1 solenoid valve, > 2 feedbacks)
	I	Inch air connection, 8-pin M12 plug (> 1 solenoid valve, > 2 feedbacks)
	B	Inch air connection, Brad Harrison 0.5" NPT 5-pin plug (US)
	<b>Options (multiple selection possible)</b>	
	/18	Supply air throttle: regulates the opening speed of the valve
	/19	Exhaust air throttle: regulates the closing speed of the valve
	/22	5-pin M12 connection socket for screw fitting J, P (article no. 508-963) 8-pin M12 connection socket for screw fitting H, I (article no. 508-061)
	/59	Clamp joint 1.4401 at the control top
	/66	Protection class IP66
	/67	Protection class IP67
	/UC	Certification UL/CSA

Example for a complete order code, comprising valve and feedback system:

Position	1	2	3	4/5	6	7	8	9	10	11	12	13	14 to 19						
Code	D	 <b>E</b>	 <b>L</b>	- <b>DN 65/DN 65</b>	- S	Z	- <b>CD/CLB</b>	-  <b>LO</b>	-  <b>1</b>	 <b>2</b>	N	/52	+	TM15	 <b>L</b>	 <b>2</b>	 <b>B</b>	 <b>A</b>	 <b>M</b>

# Complete Order Codes

## Shut-off Valves

The complete order code makes it possible to assemble an order code for a non-standard configuration. All possible options for the valve in question are included.

When ordering a valve, specify not only the order code but also any required connection fittings as well as the supply air and product pressure. Unless specific pressure values are stated, the actuators for valves will be configured for 6 bar air supply pressure and 5 bar product pressure.

Position	Description of the order code	Available for valve type			
		N	N/ECO	N/ECO small	U
1	<b>Valve type</b>				
	N VARIVENT® shut-off valve				
	N ECOVENT® shut-off valve (always with /ECO at position 3)				
	U VARIVENT® shut-off valve				
2	<b>Housing combinations</b>				
	L T	•	•	•	
	F* D*				•
	A B C E	•	•		•
3	<b>Supplement to the valve type</b>				
	/ECO ECOVENT® shut-off valve		•	•	
	/M/ECO ECOVENT® shut-off valve with stainless steel			•	
	V Long-stroke valve	•			•
	A/S Bellows, stainless steel	•			
	A/P Bellows, PTFE	•			
4/5	<b>Nominal width (upper housing / lower housing)</b>				
	DN 10, DN 15			•	
	DN 25, DN 40, DN 50, DN 65, DN 80, DN 100	•	•		•
	DN 125, DN 150	•			•
	OD 1", OD 1 ½", OD 2", OD 2 ½", OD 3", OD 4"	•	•		•
	OD 6"	•			•
	IPS 2", IPS 3", IPS 4", IPS 6"	•			•
6	<b>Actuator type</b>				
	S VARIVENT® actuator air / spring	•			•
	E ECOVENT® actuator air / spring		•	•	
	Z VARIVENT® actuator air / spring, air-assisted	•			•
	J VARIVENT® actuator air / air	•			•
	G VARIVENT® manual actuator, lockable	•			•
	H ECOVENT® manual actuator			•	
	L VARIVENT® long-stroke actuator air / spring	•			
7	<b>Non-actuated position</b>				
	Z Spring-to-close (NC)	•	•	•	•
	A Spring-to-open (NO)	•	•	•	•
8	<b>Actuator</b>				
	The size of the actuator depends on the valve type and size, the air supply and product pressure as well as the closing direction of the valve. This information must be specified in the order. Section 7 contains configuration tables.				

Position	Description of the order code	Housing combination						Available for valve type					
		A	B	C	E	L	T	N	N/ECO	N/ECO small	U		
9	<b>Valve seat version</b>												
	L0	Loose seat ring/Clamp connection	√	√	√	√	√**	√**				•	
	V0	Fixed vertical port					√	√			•		
	V1	Welded seat ring/Port orientation 90°											•
	V2	Welded seat ring/Port orientation 180°											•
	V3	Welded seat ring/Port orientation 270°											•
10	<b>Seal material</b>												
	1	EPDM (FDA)										•	
	2	FKM (FDA)										•	
	3	HNBR (FDA); (up to DN 100, OD 4")										•	
	4	FFKM (FDA)										•	
11	<b>Surface quality of the housing</b>												
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt (standard with IPS)										•	
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt (standard with DN and OD)										•	
	3	Inside $R_a \leq 0.8 \mu\text{m}$ , outside ground										•	
	4	Inside $R_a \leq 0.4 \mu\text{m}$ , outside matt										•	
	6	Inside $R_a \leq 0.5 \mu\text{m}$ , outside matt										•	
	7	Inside $R_a \leq 0.5 \mu\text{m}$ , outside ground										•	
	8	Inside $R_a \leq 0.4 \mu\text{m}$ , outside ground										•	
12	<b>Connection fittings</b>												
	N	Welding end										•	
	J	With connection fitting (please specify separately in each case)										•	
	TK	VARIVENT® flange connection complete, groove flange on housing										•	
	TN	VARIVENT® groove flange cpl., incl. O-ring and connecting parts										•	
	TF	VARIVENT® flange										•	
	GK	Pipe fitting S complete, male end on housing										•	
	KO	Liner including groove nut SD										•	
	GO	Male end SC including seal ring G										•	
	ASK	Hygienic flange connection complete, groove flange on housing										•	
	NFK	Hygienic-groove flange complete, incl. O-ring and connecting parts										•	
	BFK	Hygienic flange										•	
	CO	Clamp connection										•	

\*\* For VARIVENT® type U, only the two housing combinations F and D with housing connection U are available.





# Complete Order Codes

## Divert Valves

The complete order code makes it possible to assemble an order code for a non-standard configuration. All possible options for the valve in question are included.

When ordering a valve, specify not only the order code but also any required connection fittings as well as the supply air and product pressure. Unless specific pressure values are stated, the actuators for valves will be configured for 6 bar air supply pressure and 5 bar product pressure.

Position	Description of the order code	Available for valve type			
		W	W/ECO	W/ECO small	X
<b>1</b>	<b>Valve type</b>				
	W VARIVENT® divert valve				
	W ECOVENT® divert valve (always with /ECO at position 3)				
	X VARIVENT® divert valve				
<b>2</b>	<b>Housing combinations</b>				
	K* P*	.	.	.	
	V O	.	.	.	
	W U X Y Z M N G	.	.		.
<b>3</b>	<b>Supplement to the valve type</b>				
	/ECO ECOVENT® divert valve		.	.	
	R Radial sealing divert valve	.			
	V Long-stroke valve	.**			.**
<b>4/5</b>	<b>Nominal width (upper housing / lower housing)</b>				
	DN 10, DN 15			.	
	DN 25, DN 40, DN 50, DN 65, DN 80, DN 100	.	.		.
	DN 125, DN 150	.			.
	OD 1", OD 1 ½", OD 2", OD 2 ½", OD 3", OD 4"	.	.		.
	OD 6"	.			.
	IPS 2", IPS 3", IPS 4", IPS 6"	.			.
<b>6</b>	<b>Actuator type</b>				
	S VARIVENT® actuator air / spring	.			.
	E ECOVENT® actuator air / spring		.	.	
	Z VARIVENT® actuator air / spring, air-assisted	.			.
	J VARIVENT® actuator air / air	.			.
	G VARIVENT® manual actuator, lockable	.			.
	H ECOVENT® manual actuator			.	
	L VARIVENT® long-stroke actuator air / spring	.			
<b>7</b>	<b>Non-actuated position</b>				
	Z Spring-to-close (NC)	.	.	.	.
	A Spring-to-open (NO)	.	.	.	.
<b>8</b>	<b>Actuator</b>				
	The size of the actuator depends on the valve type and size, the air supply and product pressure as well as the closing direction of the valve. This information must be specified in the order. Section 7 contains configuration tables.			60/4	

\* The radial sealing divert valve type W\_R is only available in these combinations.

\*\* Only in nominal widths OD 2 ½", OD 3" and OD 4"

Position	Description of the order code	Housing combination										Available for valve type				
		K	P	V	O	W	V	Z	U	M	N	G	W	W/ECO	W/ECO small	X
9	<b>Valve seat version</b>															
	L0 Loose seat ring/Clamp connection	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	V0 Fixed vertical port	√***	√***	√	√											
	V1 Welded seat ring/Port orientation 90°														•***	
	V2 Welded seat ring/Port orientation 180°														•***	
	V3 Welded seat ring/Port orientation 270°														•***	
10	<b>Seal material</b>															
	1 EPDM (FDA)														•	•
	2 FKM (FDA)														•	•
	3 HNBR (FDA); (up to DN 100, OD 4")														•	•
	4 FFKM (FDA)														•	•
11	<b>Surface quality of the housing</b>															
	1 Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt (standard with IPS)														•	•
	2 Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt (standard with DN and OD)														•	•
	3 Inside $R_a \leq 0.8 \mu\text{m}$ , outside ground														•	•
	4 Inside $R_a \leq 0.4 \mu\text{m}$ , outside matt														•	•
	6 Inside $R_a \leq 0.5 \mu\text{m}$ , outside matt														•	•
	7 Inside $R_a \leq 0.5 \mu\text{m}$ , outside ground														•	•
	8 Inside $R_a \leq 0.4 \mu\text{m}$ , outside ground														•	•
12	<b>Connection fittings</b>															
	N Welding end														•	•
	J With connection fitting (please specify separately in each case)														•	•
	TK VARIVENT® flange connection complete, groove flange on housing														•	•
	TN VARIVENT® groove flange cpl., incl. O-ring and connecting parts														•	•
	TF VARIVENT® flange														•	•
	GK Pipe fitting S complete, male end on housing														•	•
	KO Liner including groove nut SD														•	•
	GO Male end SC including seal ring G														•	•
	ASK Hygienic flange connection complete, groove flange on housing														•	•
	NFK Hygienic-groove flange complete, incl. O-ring and connecting parts														•	•
	BFK Hygienic flange														•	•
	CO Clamp connection														•	•

\*\*\* Only for the radial sealing divert valve type W\_R, also possible with welded seat ring / port orientation 0°.





# Complete Order Codes

## Mixproof Shut-off Valves

The complete order code makes it possible to assemble an order code for a non-standard configuration. All possible options for the valve in question are included.

When ordering a valve, specify not only the order code but also any required connection fittings as well as the air supply and product pressure. Unless specific pressure values are stated, the actuators for valves will be configured for 6 bar air supply pressure and 5 bar product pressure (7 bar product pressure with VARIVENT® type L).

Position	Description of the order code	Available for valve type					
		D	B	R	L	C	K
1	<b>Valve type</b>						
	D	VARIVENT® double-seat valve					
	B	VARIVENT® double-seat valve with balancer					
	R	VARIVENT® radial sealing double-seat valve					
	L	VARIVENT® piggable double-seat valve					
	C	VARIVENT® double-seat valve					
	K	VARIVENT® double-seat valve					
2	<b>Housing combinations</b>						
	L T					•	•
	A B	•	•	•			•
	C C* E E*	•	•	•	•		•
3	<b>Supplement to the valve type</b>						
	/V Long-stroke	•**					
	H Suspended				•		
	S Upright				•		
4/5	<b>Nominal width (upper housing / lower housing)</b>						
	DN 25	•		•		•	•
	DN 40, DN 50	•		•	•	•	•
	DN 65, DN 80, DN 100	•	•	•	•	•	•
	DN 125, DN 150	•	•	•		•	•
	OD 1"	•		•		•	•
	OD 1 ½", OD 2"	•		•	•	•	•
	OD 2 ½", OD 3", OD 4"	•	•	•	•	•	•
	OD 6"	•	•	•			•
	IPS 2", IPS 3", IPS 4", IPS 6"	•	•	•			•
6	<b>Actuator type</b>						
	S VARIVENT® actuator air / spring	•	•	•	•	•	•
	Z VARIVENT® actuator air / spring, air-assisted	•	•	•	•	•	•
	G VARIVENT® manual actuator, lockable	•	•	•		•	
7	<b>Non-actuated position</b>						
	Z Spring-to-close (NC)	•	•	•	•	•	•
8	<b>Actuator</b>						
	The size of the actuator depends on the valve type and size, the air supply and product pressure as well as the closing direction of the valve. This information must be specified in the order. Section 7 contains configuration tables.						

\* Housing combination for piggable valves VARIVENT® type L

\*\* Only in nominal widths OD 3" and OD 4"

Position	Description of the order code	Housing combination						Available for valve type						
		A	B	C	E	L	T	D	B	R	L	C	K	
9	<b>Valve seat version</b>													
	L0	Loose seat ring/Clamp connection	✓	✓	✓	✓	✓***	✓***	•	•	•			•
	V0	Fixed vertical port					✓	✓					•	•
	V1	Welded seat ring/Port orientation 90°							•	•	•	•****		•
	V2	Welded seat ring/Port orientation 180°							•	•	•			•
	V3	Welded seat ring/Port orientation 270°							•	•	•			•
10	<b>Seal material</b>													
	1	EPDM (FDA)						•	•	•	•	•	•	
	2	FKM (FDA)						•	•	•	•	•	•	
	3	HNBR (FDA); (up to DN 100, OD 4")						•	•	•	•	•	•	
	4	FFKM (FDA)						•				•	•	
11	<b>Surface quality of the housing</b>													
	1	Inside R <sub>a</sub> ≤ 1.2 µm, outside matt (standard with IPS)						•	•	•	•	•	•	
	2	Inside R <sub>a</sub> ≤ 0.8 µm, outside matt (standard with DN and OD)						•	•	•	•	•	•	
	3	Inside R <sub>a</sub> ≤ 0.8 µm, outside ground						•	•	•	•	•	•	
	4	Inside R <sub>a</sub> ≤ 0.4 µm, outside matt						•	•	•	•	•	•	
	6	Inside R <sub>a</sub> ≤ 0.5 µm, outside matt						•	•	•	•	•	•	
	7	Inside R <sub>a</sub> ≤ 0.5 µm, outside ground						•	•	•	•	•	•	
	8	Inside R <sub>a</sub> ≤ 0.4 µm, outside ground						•	•	•	•	•	•	
12	<b>Connection fittings</b>													
	N	Welding end						•	•	•	•	•	•	
	J	With connection fitting (please specify separately in each case)						•	•	•	•	•	•	
	TK	VARIVENT® flange connection complete, groove flange on housing						•	•	•	•	•	•	
	TN	VARIVENT® groove flange cpl., incl. O-ring and connecting parts						•	•	•	•	•	•	
	TF	VARIVENT® flange						•	•	•	•	•	•	
	GK	Pipe fitting S complete, male end on housing						•	•	•	•	•	•	
	KO	Liner including groove nut SD						•	•	•	•	•	•	
	GO	Male end SC including seal ring G						•	•	•	•	•	•	
	ASK	Hygienic flange connection complete, groove flange on housing						•	•	•	•	•	•	
	NFK	Hygienic-groove flange complete, incl. O-ring and connecting parts						•	•	•	•	•	•	
	BFK	Hygienic flange						•	•	•	•	•	•	
	CO	Clamp connection						•	•	•	•	•	•	

\*\*\* Only type K

\*\*\*\* Only housing combination C and E





# Complete Order Codes

## Mixproof Shut-off Valves with Seat Lifting

The complete order code makes it possible to assemble an order code for a non-standard configuration. All possible options for the valve in question are included.

When ordering a valve, specify not only the order code but also any required connection fittings as well as the air supply and product pressure. Unless specific pressure values are stated, the actuators for valves will be configured for 6 bar air supply pressure and 5 bar product pressure (7 bar product pressure with VARIVENT® type L).

Position	Description of the order code	Available for valve type					
		D	B	R	MX	L	
<b>1</b>	<b>Valve type</b>						
	D	VARIVENT® double-seat valve					
	B	VARIVENT® double-seat valve with balancer					
	R	VARIVENT® radial sealing double-seat valve					
	MX	VARIVENT® double-seat valve type MX, radial sealing					
	L	VARIVENT® piggable double-seat valve					
<b>2</b>	<b>Housing combinations</b>						
	A B	•	•	•	•		
	C C* E E*	•	•	•	•	•	
<b>3</b>	<b>Supplement to the valve type</b>						
	C	Lifting actuator without spray cleaning	•	•	•		
	L	Lifting actuator with spray cleaning	•	•	•		
	O	Lifting actuator, double balanced, without spray cleaning				•	
	C/V	Long-stroke valve with lifting actuator without spray cleaning	•**				
	L/V	Long-stroke valve with lifting actuator and spray cleaning	•**				
	HC	Suspended with lifting actuator without spray cleaning					•
	HL	Suspended with lifting actuator and spray cleaning					•
	SC	Upright with lifting actuator without spray cleaning					•
	SL	Upright with lifting actuator and spray cleaning					•
<b>4/5</b>	<b>Nominal width (upper housing / lower housing)</b>						
	DN 25	•		•			
	DN 40, DN 50	•		•	•	•	
	DN 65, DN 80, DN 100	•	•	•	•	•	
	DN 125, DN 150	•	•	•	•		
	OD 1"	•		•			
	OD 1 ½", OD 2"	•		•	•	•	
	OD 2 ½", OD 3", OD 4"	•	•	•	•	•	
	OD 6"	•	•	•	•		
	IPS 2", IPS 3", IPS 4", IPS 6"	•	•	•			
	<b>6</b>	<b>Actuator type</b>					
S		VARIVENT® actuator air/spring	•	•	•	•	
<b>7</b>	<b>Non-actuated position</b>						
	Z	Spring-to-close (NC)	•	•	•	•	
<b>8</b>	<b>Actuator</b>						
	The size of the actuator depends on the valve type and size, the air supply and product pressure as well as the closing direction of the valve. This information must be specified in the order. Section 7 contains configuration tables.						

\* Housing combination for piggable valves VARIVENT® type L

\*\* Only in nominal widths OD 3" and OD 4"

Position	Description of the order code	Housing combination				Available for valve type				
		A	B	C	E	D	B	R	MX	L
9	<b>Valve seat version</b>									
	L0	Loose seat ring/Clamp connection	✓	✓	✓	✓				
	V0	Fixed vertical port								•***
	V1	Welded seat ring/Port orientation 90°								
	V2	Welded seat ring/Port orientation 180°								
	V3	Welded seat ring/Port orientation 270°								
10	<b>Seal material</b>									
	1	EPDM (FDA)								
	2	FKM (FDA)								
	3	HNBR (FDA); (up to DN 100, OD 4")								
	4	FFKM (FDA)								
11	<b>Surface quality of the housing</b>									
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt (standard with IPS)								
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt (standard with DN and OD)								
	3	Inside $R_a \leq 0.8 \mu\text{m}$ , outside ground								
	4	Inside $R_a \leq 0.4 \mu\text{m}$ , outside matt								
	6	Inside $R_a \leq 0.5 \mu\text{m}$ , outside matt								
	7	Inside $R_a \leq 0.5 \mu\text{m}$ , outside ground								
	8	Inside $R_a \leq 0.4 \mu\text{m}$ , outside ground								
12	<b>Connection fittings</b>									
	N	Welding end								
	J	With connection fitting (please specify separately in each case)								
	TK	VARIVENT® flange connection complete, groove flange on housing								
	TN	VARIVENT® groove flange cpl., incl. O-ring and connecting parts								
	TF	VARIVENT® flange								
	GK	Pipe fitting S complete, male end on housing								
	KO	Liner including groove nut SD								
	GO	Male end SC including seal ring G								
	ASK	Hygienic flange connection complete, groove flange on housing								
	NFK	Hygienic-groove flange complete, incl. O-ring and connecting parts								
	BFK	Hygienic flange								
	CO	Clamp connection								

\*\*\* Only housing combination C and E





# Complete Order Codes

## Mixproof Divert Valves

The complete order code makes it possible to assemble an order code for a non-standard configuration. All possible options for the valve in question are included.

When ordering a valve, specify not only the order code but also any required connection fittings as well as the air supply and product pressure. Unless specific pressure values are stated, the actuators for valves will be configured for 6 bar air supply pressure and 5 bar product pressure.

Position	Description of the order code
<b>1</b>	<b>Valve type</b>
	Y VARIVENT® double-seat valve with divert function
<b>2</b>	<b>Housing combinations</b>
	W U X Y Z M N G
<b>3</b>	<b>Supplement to the valve type</b>
	C Lifting actuator without spray cleaning
	L Lifting actuator with spray cleaning
<b>4/5</b>	<b>Nominal width (upper housing / lower housing)</b>
	DN 25, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125, DN 150
	OD 1", OD 1 ½", OD 2", OD 2 ½", OD 3", OD 4", OD 6"
	IPS 2", IPS 3", IPS 4", IPS 6"
<b>6</b>	<b>Actuator type</b>
	S VARIVENT® actuator air / spring
	Z VARIVENT® actuator air / spring, air-assisted*
<b>7</b>	<b>Non-actuated position</b>
	Z Spring-to-close (NC)
<b>8</b>	<b>Actuator</b>
	The size of the actuator depends on the valve type and size, the air supply and product pressure as well as the closing direction of the valve. This information must be specified in the order. Section 7 contains configuration tables.
<b>9</b>	<b>Valve seat version</b>
	L0 Loose seat ring / Clamp connection
<b>10</b>	<b>Seal material</b>
	1 EPDM (FDA)
	2 FKM (FDA)
	3 HNBR (FDA); (up to DN 100, OD 4")
	4 FFKM (FDA)
<b>11</b>	<b>Surface quality of the housing</b>
	1 Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt (standard with IPS)
	2 Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt (standard with DN and OD)
	3 Inside $R_a \leq 0.8 \mu\text{m}$ , outside ground
	4 Inside $R_a \leq 0.4 \mu\text{m}$ , outside matt
	6 Inside $R_a \leq 0.5 \mu\text{m}$ , outside matt
	7 Inside $R_a \leq 0.5 \mu\text{m}$ , outside ground
	8 Inside $R_a \leq 0.4 \mu\text{m}$ , outside ground

\* Only for valves without lifting actuator

Position	Description of the order code
<b>12</b>	<b>Connection fittings</b>
N	Welding end
J	With connection fitting (please specify separately in each case)
TK	VARIVENT® flange connection complete, groove flange on housing
TN	VARIVENT® groove flange cpl., incl. O-ring and connecting parts
TF	VARIVENT® flange
GK	Pipe fitting S complete, male end on housing
KO	Liner including groove nut SD
GO	Male end SC including seal ring G
ASK	Hygienic flange connection complete, groove flange on housing
NFK	Hygienic-groove flange complete, incl. O-ring and connecting parts
BFK	Hygienic flange
CO	Clamp connection
<b>13</b>	<b>Accessories</b>
/E	Electrolytically polished
/12	Damping cylinder
/24	Sterile lock complete
/25	Jacketed valve housings
/26	Leakage protection
/32	1 m CIP hose with connections
/36	CIP connection blind for transport
/37	Pressure level PS 20 bar
/41	Test report 2.2
/42	Inspection certificate 3.1 acc. to EN 10204
/50	Engraved metal plate
/51	Metal plate USA
/52	Adhesive ID tag
/55	Cable carrier 10 characters
/56	2 cable carriers 20 characters
/3A	Adhesive ID tag, version of the valve acc. to 3-A standard
<b>+</b>	
<b>14–19</b>	<b>Control and feedback system</b>
00000M	Without control and feedback system with air connection metric for air hose Ø 6/4 mm
00000Z	Without control and feedback system with air connection inch for air hose Ø OD ¼" (6.35/4.35 mm)
The description of the order code for valves with control and feedback system is contained in the catalog GEA Valve Automation.	

\*\*\* Only housing combination C and E

# Complete Order Codes

## Tank Bottom Valves

The complete order code makes it possible to assemble an order code for a non-standard configuration. All possible options for the valve in question are included.

When ordering a valve, specify not only the order code but also any required connection fittings as well as the air supply and product pressure. Unless specific pressure values are stated, the actuators for valves will be configured for 6 bar air supply pressure and 5 bar product pressure.

Position	Description of the order code	Available for valve type			
		N	N/ECO	U	T_R
1	<b>Valve type</b>				
	N				
	N				
	U				
	T				
2	<b>Housing combinations</b>				
	L T				
	D F				
3	<b>Supplement to the valve type</b>				
	/ECO				
	V				
	R				
	RC				
	RL				
4/5	<b>Nominal width (upper housing / lower housing)</b>				
	DN 25				
	DN 40, DN 50, DN 65, DN 80, DN 100				
	DN 125, DN 150				
	OD 1"				
	OD 1 ½", OD 2", OD 2 ½", OD 3", OD 4"				
	OD 6"				
	IPS 2", IPS 3", IPS 4", IPS 6"				
6	<b>Actuator type</b>				
	S				
	E				
	Z				
	J				
	G				
	L				
7	<b>Non-actuated position</b>				
	Z				
	A				
8	<b>Actuator</b>				
	The size of the actuator depends on the valve type and size, the air supply and product pressure as well as the closing direction of the valve. This information must be specified in the order. Section 7 contains configuration tables.				

\* Optionally with housing connection flange U or housing connection flange T

Position	Description of the order code					Available for valve type				
			Housing combination				N	N/ECO	U	T_R
		D	F	L	T					
9	<b>Valve seat version</b>									
	L0	Loose seat ring/Clamp connection	√	√	√	√	•	•	•	•
10	<b>Seal material</b>									
	1	EPDM (FDA)					•	•	•	•
	2	FKM (FDA)					•	•	•	•
	3	HNBR (FDA); (up to DN 100, OD 4")					•	•	•	•
	4	FFKM (FDA)					•	•	•	•
11	<b>Surface quality of the housing</b>									
	1	Inside $R_a \leq 1.2 \mu\text{m}$ , outside matt (standard with IPS)					•	•	•	•
	2	Inside $R_a \leq 0.8 \mu\text{m}$ , outside matt (standard with DN and OD)					•	•	•	•
	3	Inside $R_a \leq 0.8 \mu\text{m}$ , outside ground					•	•	•	•
	4	Inside $R_a \leq 0.4 \mu\text{m}$ , outside matt					•	•	•	•
	6	Inside $R_a \leq 0.5 \mu\text{m}$ , outside matt					•	•	•	•
	7	Inside $R_a \leq 0.5 \mu\text{m}$ , outside ground					•	•	•	•
	8	Inside $R_a \leq 0.4 \mu\text{m}$ , outside ground					•	•	•	•
12	<b>Connection fittings</b>									
	N	Welding end					•	•	•	•
	J	With connection fitting (please specify separately in each case)					•	•	•	•
	TK	VARIVENT® flange connection complete, groove flange on housing					•	•	•	•
	TN	VARIVENT® groove flange cpl., incl. O-ring and connecting parts					•	•	•	•
	TF	VARIVENT® flange					•	•	•	•
	GK	Pipe fitting S complete, male end on housing					•	•	•	•
	KO	Liner including groove nut SD					•	•	•	•
	GO	Male end SC including seal ring G					•	•	•	•
	ASK	Hygienic flange connection complete, groove flange on housing					•	•	•	•
	NFK	Hygienic-groove flange complete, incl. O-ring and connecting parts					•	•	•	•
	BFK	Hygienic flange					•	•	•	•
CO	Clamp connection					•	•	•	•	



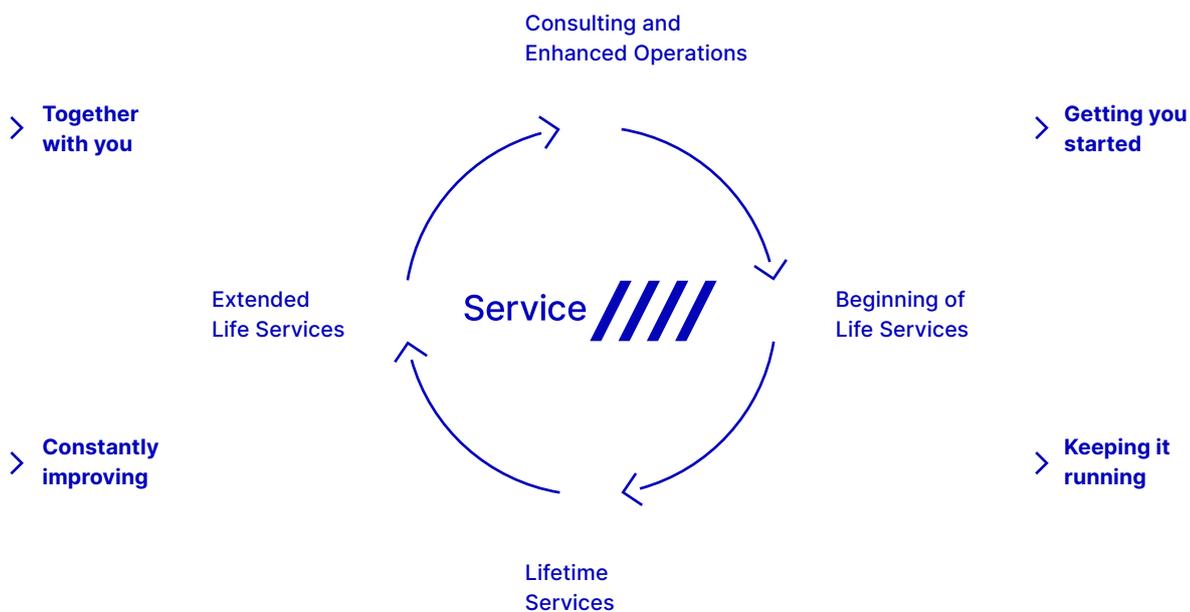




# Our service package for dependable valve technology

With a tailored service concept, you can extend the service life of your hygienic valve technology. Professional services and original spare parts from GEA help to ensure maximum system availability and security, smooth operation and precise process execution.

Our service specialists are here to help you in every phase of system utilization – from the initial process concept and throughout the entire performance period to advising on your best strategies for the future.



## Beginning of life services

We draw on our decades of experience to support you in configuring your system and providing extensive employee training. Our consultations and training sessions take place in our Competence Centre in Büchen or, upon request, at your premises.

## Lifetime services

We optimize your spare parts logistics by using our modular component system and our extensive service network. Preventive maintenance programmes based on comprehensive data, routine troubleshooting and efficient repair logistics keep downtimes to a minimum.

## Extended life services

When upgrades are available to enhance your system, you benefit from our continuing advances in hygienic valve technology. We offer extensive advice and consultation.

## Consulting and enhanced operations

Working in partnership with you, we support your enduring success and develop service strategies and Service Level Agreements for a profitable future operation.

# Description of Certificates

<b>3-A</b>		3-A Sanitary Standards, Inc. (3-A SSI) is an independent, non-profit corporation dedicated to advancing hygienic equipment design for the food, beverage, and pharmaceutical industries.
<b>24/7 PMO VALVE 2.0° NON-STOP PRODUCTION</b>		24/7 PMO VALVE° is a registered trade mark of GEA Tuchenhausen GmbH. It describes double-seat valves that have been authorized for use in PMO-regulated systems for carrying out the seat lift in order to clean the leakage chamber while the other pipeline is carrying product. This grants system operators the possibility of cleaning all valve components in contact with the product in parallel with the production process. In this way, the valves permit uninterrupted production on a 24/7 basis.
<b>AS-i</b>		Actuator Sensor interface. BUS system for the lowest field level.
<b>ATEX</b>		Atmosphères Explosibles. ATEX comprises the directives of the European Union in the area of explosion protection. Complies with the applicable requirements of ATEX directives: 2014/34/EU.
<b>CCCEX</b>		Complies with the applicable requirements of CCCEX directives in China.
<b>cCSAus</b>		Test of a product by CSA according to applicable safety standards in Canada and the USA.
<b>CE</b>		Conformité Européenne. By affixing the CE mark, the manufacturer confirms that the product complies with the European directives 765/2008 applicable to the specific product.
<b>CSA</b>		Canadian Standards Association. A non-governmental Canadian organization which issues standards as well as checking and certifying the safety of products. It is now globally active.
<b>cULus</b>		Test of a product by UL according to applicable safety standards in Canada and the USA.
<b>DeviceNet</b>		BUS system of the ODVA organization for complex communication on various field levels.
<b>EG 1935/2004*</b>		Materials in contact with the product used in valves from GEA Tuchenhausen GmbH are in accordance with EC regulation 1935/2004. This defines a general framework for materials and objects intended to come into contact with foodstuffs.
<b>EHEDG</b>		European Hygienic Engineering & Design Group. European supervisory authority for foodstuffs and pharmaceuticals. This authority issues approvals and certificates for products and materials that are used in the foodstuffs and pharmaceuticals industries.
<b>FDA</b>		Food and Drug Administration. US supervisory authority for foodstuffs and pharmaceuticals. This authority issues approvals and certificates for products and materials that are used in the foodstuffs and pharmaceuticals industries.
<b>IECEX</b>		IECEX: International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres. Complies with the applicable requirements according to IECEX directives.
<b>ODVA</b>		ODVA is a worldwide association comprising leading automation companies. It develops network protocols and standards in the joint interests of its members, which are used for the international interoperability of production systems.
<b>TÜV</b>		Technischer Überwachungs-Verein. The German TÜV is a private company which carries out technical safety checks as prescribed in national legislation or regulations.
<b>UKCA</b>		UK Conformity Assessed. By affixing the UKCA marking, the manufacturer confirms that the product complies with the product-specific applicable UK regulations.
<b>UKEx</b>		UKEx includes the guidelines for Great Britain. Complies with applicable requirements acc. UKEx Directive: UKSI 2016: 1107.
<b>UL</b>		Underwriters Laboratories. An organization founded in the USA for checking and certifying products and their safety.

\* not possible for HNBR

# Abbreviations and Terms

Abbreviation	Explanation
°C	Degrees Celsius, unit of measurement for temperature
°F	Degrees Fahrenheit, unit of measurement for temperature
3-A	Standard of 3-A Sanitary Standards, Incorporated (3-A SSI)
3D	Three-dimensional
A	Ampere, unit of measurement of current intensity or Output, term used in automation
AC	Alternating Current
ADI free	All elastomer compounds are free of animal-derived ingredients
AISI	American Iron and Steel Institute, association of the American steel industry
ANSI	American National Standards Institute, American body for standardizing industrial processes
approx.	approximately
AS-i	Actuator Sensor interface, standard for fieldbus communication
ASME	American Society of Mechanical Engineers, professional association of mechanical engineers in the USA
ASME-BPE	Standard of the ASME's – bioprocessing equipment association
ATEX	Atmosphères Explosibles, synonymous with the directives of the European Union for potentially explosive areas
bar	Unit of measurement for pressure. All pressure values [barg/psig] refer to positive pressure [bar <sub>g</sub> /psi <sub>g</sub> ], unless specifically stated otherwise.
bar <sub>g</sub>	Unit of measurement for pressure relative to atmospheric pressure
CAN	Controller Area Network; asynchronous serial bus system
CE	Conformité Européenne, administrative symbol for the free movement of industrial products
CIP	Cleaning In Place, designates a process for cleaning technical process systems.
CRN	The Canadian Registration Number is issued by a Canadian Jurisdiction and covers pressurized components. The authorization is needed to operate these components in Canada.
CSA	Canadian Standards Association, a non-governmental Canadian Standardization organization
dB	Decibel, one tenth of a bel, named after Alexander Graham Bell and used for identifying levels and dimensions
DC	Direct Current
DIN	Deutsches Institut für Normung e. V. Standardization organization in the Federal Republic of Germany, DIN = synonym for standards issued by the organization
DIP	Dual Inline Package, design of a switch
DN	Diameter Nominal, DIN nominal width
Device Net	Network system used in the automation industry to interconnect control devices for data exchange
E	Input, term used in automation
EAC	Certification of technical conformity from the customs union of Russia/Balarus/Kazakhstan
Pressure Equipment Directive 2014/68/EU	Directive of the European Parliament and the Council Directive for layout and conformity evaluation for pressure equipment and assemblies with a maximum pressure (PS) of more than 0.5 bars.
EG No. 1935/2004	Regulation of the European Parliament which lays down common rules for materials which come, or may come, into contact with food, either directly or indirectly.
EHEDG	European Hygienic Engineering and Design Group. Consortium of equipment manufacturers, food industries, research institutes as well as public health authorities
EN	European standard, rules of the European Committee for Standardization
EPDM	Ethylene propylene diene rubber, acronym acc. to DIN/ISO 1629
Ex	Synonym for ATEX
FDA	Food and Drug Administration, official foodstuffs monitoring in the United States
FEM calculation	Finite Element Method; calculation process for simulating solids
FKM	Fluorinated rubber, acronym acc. to DIN/ISO 1629
H	Henry, unit of measurement for inductance
HNBR	Hydrated acrylonitrile butadiene rubber, acronym acc. to DIN / ISO 1629
Hz	Hertz, unit of frequency named after Heinrich Hertz
I	Formula symbol for electrical current
IEC	International Electrotechnical Commission, international standardization organization for electrical and electronic engineering
IP	Ingress Protection / International Protection, index of protection class acc. to IEC 60529
IPS	Iron Pipe Size, American pipe dimension
ISA	International Society of Automation, international US organization of the automation industry

# Abbreviations and Terms

Abbreviation	Explanation
ISO	International Organization for Standardization, international organization that produced international standards, ISO = synonym for standards from the organization
kg	Kilogram, unit of measurement for weight
Kv	The Kv value corresponds to the water flow rate through a valve (in m <sup>3</sup> /h) at a pressure differential of 0.98 bar and a water temperature of 5 °C to 30 °C.
Kvs	The Kv values of a valve at nominal stroke (100 % opening) is designated the Kvs value
L	Conductive
LED	Light-Emitting Diode
LEFF®	Function of the T.VIS® valve information system for cyclical pulsing during the lifting process; Low-Emission Flip Flop
mm	Millimeter, unit of measurement for length
M	Metric, system of units based on the meter or Mega, one million times a unit
m <sup>3</sup> /h	Cubic meters per hour, unit of measurement for volumetric flow
max.	Maximum
NAMUR	Standardization working association for measuring and control technology in the chemical industry, synonym for the interface type of the organization, especially for potentially explosive atmospheres
NC	Normally Closed; valve or solenoid valve control which is closed in idle status
NO	Normally Open; valve or solenoid valve control which is open in idle status
NOT-element	Logic element, NOT gate
NPN	Signal transmission against reference potential, current-consuming
NPT	National Pipe Thread, US thread standard for self-sealing pipe fittings
OD	Outside Diameter, pipe dimension
ODVA	Open DeviceNet Vendor Association, global association for network standards
PA 12/L	Polyamide
Pg	Armoured thread
PMO	Pasteurized Milk Ordinance
PN	Nominal pressure for pipeline systems according to EN 1333, rated pressure in bar at room temperature (20 °C)
PNP	Signal transmission against reference potential, current-supplying
PPO	Polyphenylene oxide, thermoplastic material
PS	Maximum permitted operating pressure at which the components can operate safely at maximum allowable temperature (TS)
psi	Unit of measurement for pressure, pound-force per square inch, 1 psi = 6894.75 Pa. All pressure values [bar/psi] refer to positive pressure [bar <sub>g</sub> /psi <sub>g</sub> ], unless specifically stated otherwise.
psi <sub>g</sub>	Unit of measurement for pressure relative to atmospheric pressure
PV	Solenoid valve
R <sub>a</sub> in µm	Average roughness value, describes the roughness of a technical surface
RM	Feedback
International Protection-Code IP67, IP66, IP69	Classifies and rates the degree of protection provided against intrusion dust, accidental contact, and water
SET-UP	Self-learning installation, the SET-UP procedure carries out all necessary settings for generating messages during commissioning and maintenance.
SIP	Sterilization in Place, refers to a process for cleaning technical process systems
SMS	Svensk Mjök Standard, Scandinavian pipe dimension
SW	Indicates the size of a tool spanner, "Schlüsselweite"
TA-Luft VDI 2440	If a product is certified according to TA Luft it meets the requirements for proof of high grade performance according to TA Luft of 1.0× 10 <sup>-4</sup> mbar x l / (s x m) at service conditions under the VDI guideline 2440. The product will hence be tested for tightness.
TEFASEP® gold	Brand name for GEA's proprietary valve seat seal (hard sealing)
T.VIS®	GEA Tuchenhagen valve information system, control top system from GEA Tuchenhagen
TS	Maximum permitted operating temperature
UL	Underwriters Laboratories, a certification organization established in the USA
USP Class VI	The United States Pharmacopeial Convention (USP) is a scientific nonprofit organization that sets standards to help protecting public health. Class VI administer tests and impacts of material and their substances on animal and human tissues.
UV	Ultraviolet, ultraviolet radiation is a wavelength of light

<b>Abbreviation</b>	<b>Explanation</b>
V	Volt, unit of measurement for voltage
VARICOMP®	Pipe expansion compensator from GEA Tuchenhausen
VMQ	High-polymer vinyl methyl polysiloxane, silicone rubber, MVQ = synonym
W	Watt, unit of measurement for power
Y	Control air connection for the working cylinder, designation from pneumatic systems
μ	Micro, one millionth of a unit
Ω	Ohm, the unit of electrical resistance named after Georg Simon Ohm

# CAD Files

## Typical application and description

You can receive two-dimensional and/or three-dimensional drawing files of our components for making your piping planning. For this purpose, please send us your specific request, stating the particular order code and the required drawing format. The required files will then be individually prepared for you.

## Available drawing formats:

	Format	Name
2D formats	drw	Native Pro/E
	igs (2D)	IGS file
	dxf	AutoCAD drawing exchange
	pdf (2D)	Adobe Acrobat document
	tif	TIFF (plot)
3D formats	asm	Native Pro/E
	igs (3D)	IGS file
	pdf (3D)	Adobe Acrobat document
	stp	STP file
	bmp (3D)	Bitmap image
	jpg (3D)	JPEG image
	tif (3D)	TIFF image
	sat	Standard ACIS

# General Sales Terms and Condition of Delivery

**Please note**

All our sales and/or services are exclusively subject to our valid terms and conditions of sale and/or service applicable in the respective country of business, which can be found on our internet platform: [www.gea.com](http://www.gea.com).

If not available or if you otherwise wish to receive such terms and conditions directly from us, please contact us and we of course will send you the applicable version of our terms and conditions for the envisaged business.



**Mixproof Shut-off Valves  
with Seat Lifting**  
GEA VARIVENT®  
Hygienic Seat Valves



**Mixproof Shut-off Valve**  
GEA VARIVENT®  
Hygienic Seat Valves



**Divert Valve**  
GEA VARIVENT®  
Hygienic Seat Valves



**Shut-off Valve**  
GEA VARIVENT®  
Hygienic Seat Valves



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