

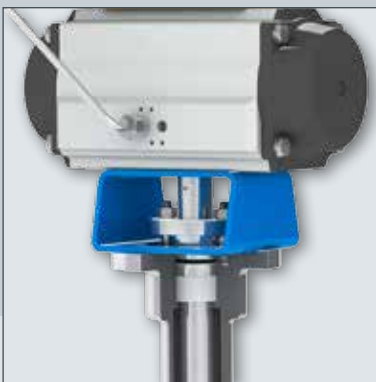
SAMSON

SAMSON VETEC



MAXIFLUSS

Rotary Plug Valves
for Cryogenic Applications



Strong. Rugged. Reliable.

MAXIFLUSS rotary plug valves by VETEC have a double-eccentric design. They feature high flow capacities and an excellent control accuracy at an enormous resolution. Typically, their K_{vs} and C_v coefficients are two to three times higher than those of conventional globe control valves and higher than those of similar products. Their rangeability of 200:1 also exceeds that of conventional control valves and similar products. When the closure member starts to move from the closed position, the valve plug lifts off the seat immediately and moves to the desired position virtually without any initial breakaway torque and without friction between the trim elements. As a result, the undesirable slip-stick effect is prevented. Very short transit times can be implemented without any problems. Thanks to their rugged double guiding, the rotary plug valves have an unobstructed cross-section of flow and do not need a shaft that would disrupt the flow path. As a result, detrimental flow turbulences are minimized and valves' service life is extended.

The MAXIFLUSS rotary plug valves are suitable for handling all media: liquids, steam or gases. They master high pressure drops, handle severely contaminated, abrasive, caking or corrosive media, and are suitable for many areas of the process industry. For 50 years, the MAXIFLUSS rotary plug valves by VETEC have proven their worth in processes in the chemical, petrochemical, oil and gas industries, in refineries, the food and steel industries as well as in pulp and paper applications. In recent years, the valves have increasingly been used in water treatment as well.



Cryogenics

Cryogenics are used to generate low temperatures below $-150\text{ }^{\circ}\text{C}$. The physical effect of cryogenic temperatures is utilized in industrial processes to liquefy gases by condensation, which allows them to be transported and processed further. The valves used in these processes must retain their proper functioning and permanently prevent internal and external leakage even at cryogenic temperatures.

The VETEC Series 72.x, 73.x, 82.x have successfully been tested according to DIN EN 1626 for use as shut-off valves on cryogenic vessels. During this test, the valves are immersed in liquid nitrogen and subjected to a functional inspection and test for internal and external leakage. The valves can be used in shut-off and throttling service down to $-196\text{ }^{\circ}\text{C}$. With our versatile insulating sections, the cryogenic packings, and an optional soft seat seal, we are able to meet all requirements for cryogenic applications.

Technical benefits

Various actuators, compact design

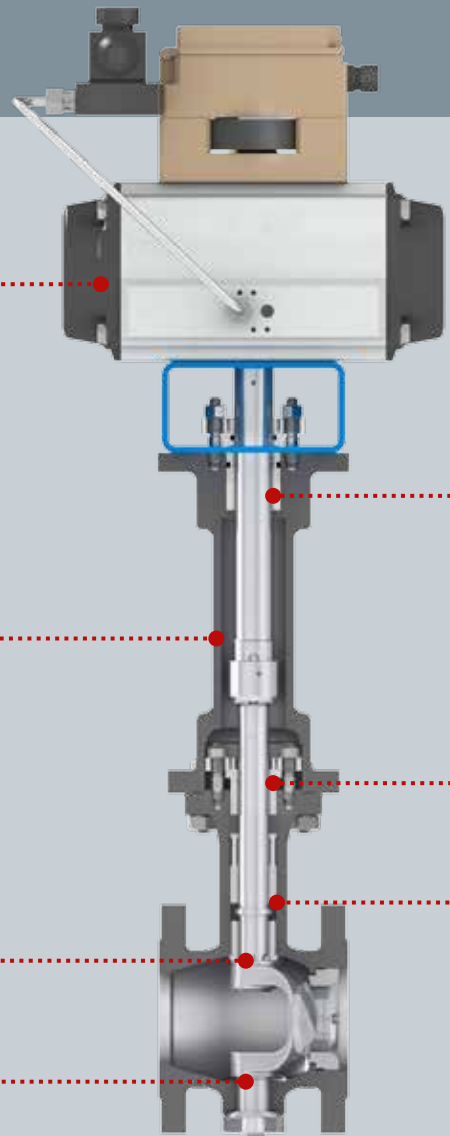
- Compact valve bodies and actuators with high torques are combined into space-saving assemblies. Different actuator types – diaphragm, piston or electric actuators – can be mounted.

With or without insulating section

- The valves have a modular design and comply with the test specifications also without insulating section. Optionally, a standard extension bonnet and customized extensions are available.

Long service life

- The fitted double guiding, which prevents jamming, is virtually free of wear. Thanks to the manufacturing tolerances, use at cryogenic temperatures is no problem.





Packing system

- The packing system prevents external leakage even at $-196\text{ }^{\circ}\text{C}$. It is also available with an optional environmental seal according to VDI 2440.

Operation

- Proper functioning and smooth rotary motion are retained even with liquefied gas.

Typical cryogenic applications

LNG (Liquefied Natural Gas)

Natural gas contains 98 % methane. It is extracted from subterranean deposits onshore or on offshore rigs, cleaned and depressurized for further processing. The extracted gas must be stored and transported for industrial processing or as an energy source. It is liquefied in a cryogenic process similar to air separation. During this process, the gas' volume is reduced by 600 times. This results in its density being only half that of water. Consequently, the compact substance can efficiently be transported over long distances at low cost.

FSRU (Floating Storage and Regasification Unit)

The liquefied gas is stored and transported in insulated tanks on tanker ships at atmospheric pressure. At its destination, it is regasified and unloaded for further use.

MAXIFLUSS rotary plug valves by VETEC are used in the regasification process to control the flow rate or pressure. The expanded gas requires high flow rates at small pressure drops and high rangeabilities at small valve sizes. The perfect job for our rotary plug control valves.

Storage and regasification

Alternatively, the liquefied gas is unloaded from the ship and regasified in plants onshore by applying heat. For this process, VETEC supplies rotary plug valves that control the flow rates. Our valves provide quicker and thus more efficient filling times and minimum volume tolerances. The strengths of the MAXIFLUSS valves, i.e. high flow capacity, control accuracy and resolution, mean that our customers can cut costs.



LPG (Liquefied Petroleum Gas) as an alternative to LNG

LPG is a mixture of propane and butane, i.e. hydrocarbon compounds comprising three or four carbon atoms. The gases are produced in refinery processes, liquefied under pressure, and stored and transported in pressure vessels. VETEC valves are used in the liquefied gas circuits in the refineries as well as during regasification, where cryogenic temperatures occur during the evaporation process.

Thanks to their rangeability of 200:1, our rotary plug valves can control very high and very low pressure drops at the same tag using only one valve, which means that costly split-range solutions become obsolete.

Liquid ethylene

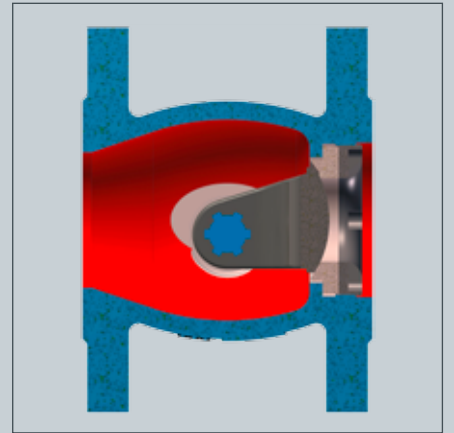
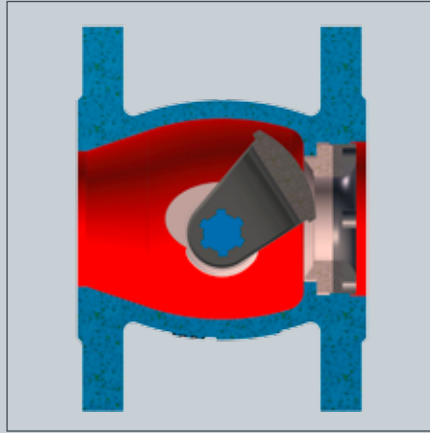
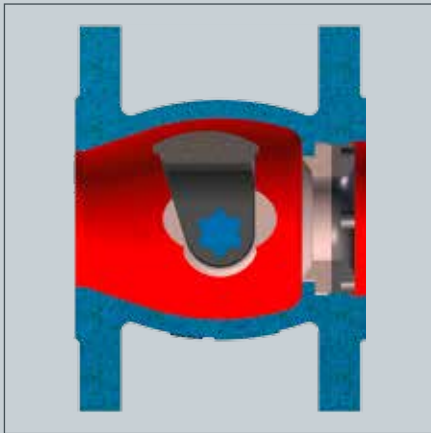
The ethylene gas fractionated in the olefin plant is liquefied under pressure by extracting heat. After that, the liquefied gas is ready for transport as a raw material for the chemical industry. VETEC valves are used to control the flow of cryogenic ethylene to the high-pressure pumps.

Liquid nitrogen

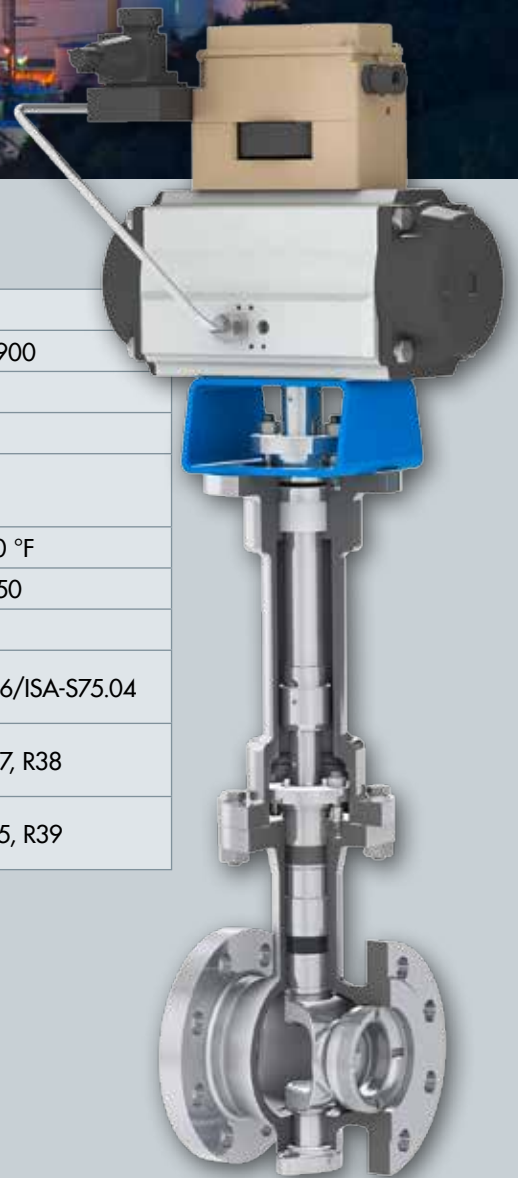
VETEC supplies rotary plug valves to control the flow rate in pump test benches. The pumps transport liquid nitrogen; they are used in industrial-grade freezing units, for example.

The MAXIFLUSS valves work at small pressure drops on the suction side upstream of the cryogenic pump. The major benefits they provide compared to conventional globe valves are their high C_v coefficient at small valve sizes and the resulting savings for the customer.

Technical data



Double-eccentric design



Valve size	DN 25 to 500	NPS 1 to 20	
Pressure rating	PN 10 to 160	Class 150 to 900	
Material	1.4408	A351 CF8M	
	Other austenitic steels on request		
Extension bonnet	Standard (70 to 230 mm) According to customer requirements		
Temperature range	Down to $-196\text{ }^{\circ}\text{C}$	Down to $-320\text{ }^{\circ}\text{F}$	
Flow coefficients	K_{vs} 4 to 4,800	C_v 4.6 to 5,550	
Cryogenic certification	DIN EN 1626	DIN EN 1626	
Face-to-face dimensions	Series 82.7 Short design	EN 558-1, R36/ISA-S75.04	EN 558-2, R36/ISA-S75.04
	Series 72.3 Long design	EN 558-1, R1, R15	EN 558-2, R37, R38
	Series 73.7 High pressure	EN 558-1, R2, R15	EN 558-2, R15, R39

About VETEC

VETEC Ventiltechnik GmbH is a German company headquartered in Speyer on the Rhine River. The roots of the company date back to 1901. VETEC has been designing, developing, and manufacturing control valves and actuators for industrial processes since 1964.

In 1988, VETEC joined forces with SAMSON, a leading global manufacturer of control valves, actuators, and valve accessories for all industrial processes. VETEC is represented worldwide through the vast network of SAMSON subsidiaries and engineering and sales offices. Flexibility and close proximity to the customer are a vital part of corporate success.

SAMSON subsidiaries comprise VETEC and several other distinguished manufacturers of engineered valves and control equipment: AIR TORQUE, CERA SYSTEM, LEUSCH, PFEIFFER, RINGO VÁLVULAS, SAMSOMATIC, and STARLINE. The wealth of product knowledge and highest regard for quality set SAMSON apart, providing the customer with a single source for all engineered valves.



VETEC designs, develops, and manufactures rotary plug valves in standard and high-alloy materials. Their modularity and flexibility make these valves suitable for many industrial applications. VETEC also offers the VNG high-pressure angle valve for supercritical natural gas applications and the newly developed Type 93.7 Axial Flow Valve for bypass, anti-surge, and pipeline applications.



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● Production sites

● Subsidiaries

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SMART IN FLOW CONTROL.