

NEW RANGE OF SELF-ACTUATED VALVES



NEW SELF-ACTUATED VALVES

A RANGE FOR ALL APPLICATION NEEDS

ODE presents the new range of self-actuated valves: complementary devices that expand the products and services offered to meet every need in the fluid management field.

In line with ODE's tradition, the range — consisting of Pressure Reducers, Overflow Valves and Filter Pressure Reducers — is highly customisable.

The main feature of these self-actuated valves is that they allow a flow to be regulated with no need of an external power source as they use only the power generated by the fluid itself.

The **pressure reducer** is a self-actuated valve that controls the valve outlet pressure;

the overflow valve, on the other hand, regulates the inlet pressure;

the **filter pressure reducer** is actually a reducer incorporating a filter cartridge through which the fluid has to pass.

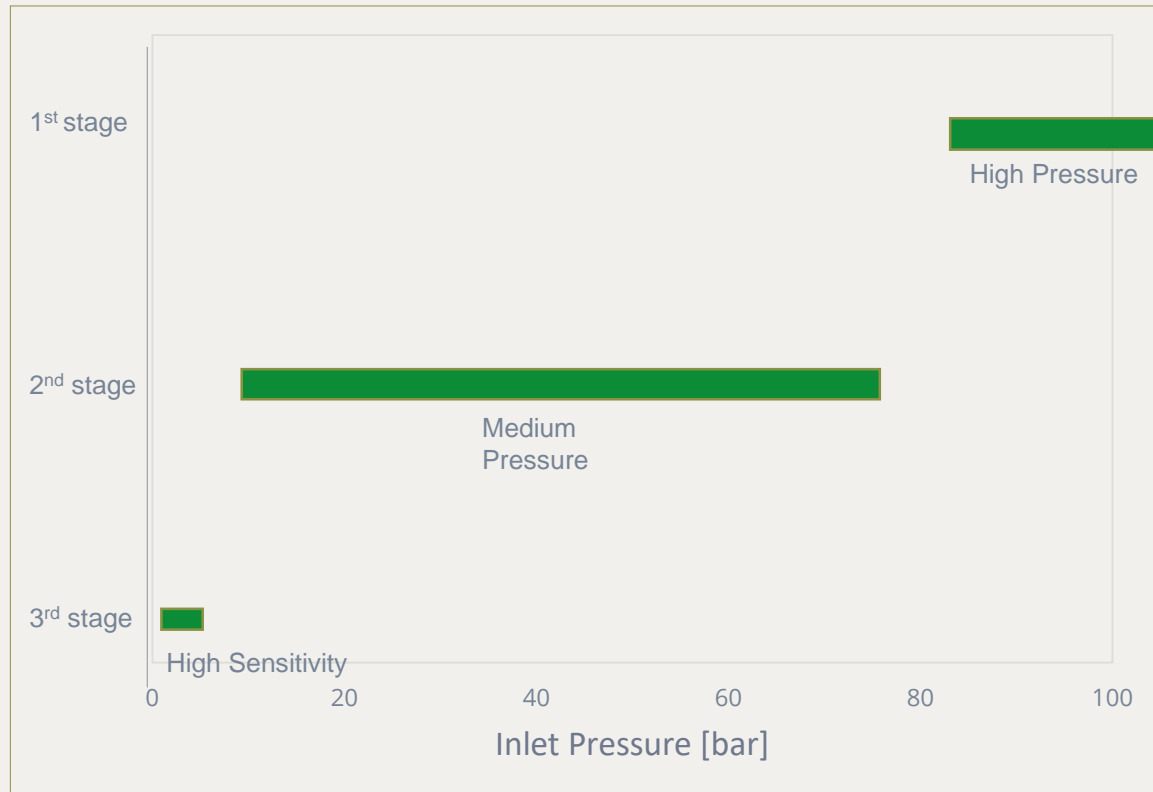
These valves are available with 1/4" to 4" connections in the GAS and NPT versions, with ANSI and DIN flanges.

Regarding the materials used, ODE's self-actuated valves are available in brass, stainless steel and aluminium for bodies and bonnets, whilst the seals may be in EPDM, FPM or NBR.



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OPERATING STAGES

The operating stage indicates the maximum inlet pressure.

There are 3 different operating stages

1st stage: pressure above 80 bar – high pressure

2nd stage: inlet pressure between 7 and 80 bar – medium pressure

3rd stage: inlet pressure below 7 bar – high sensitivity regulation

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TECHNICAL FEATURES



PRESSURE REDUCERS

Device that acts on a fluid (liquid or gaseous) contained in a reservoir or pipe, able to supply a pre-set, constant pressure 'downstream' that differs from that 'upstream'

OVERFLOW VALVE

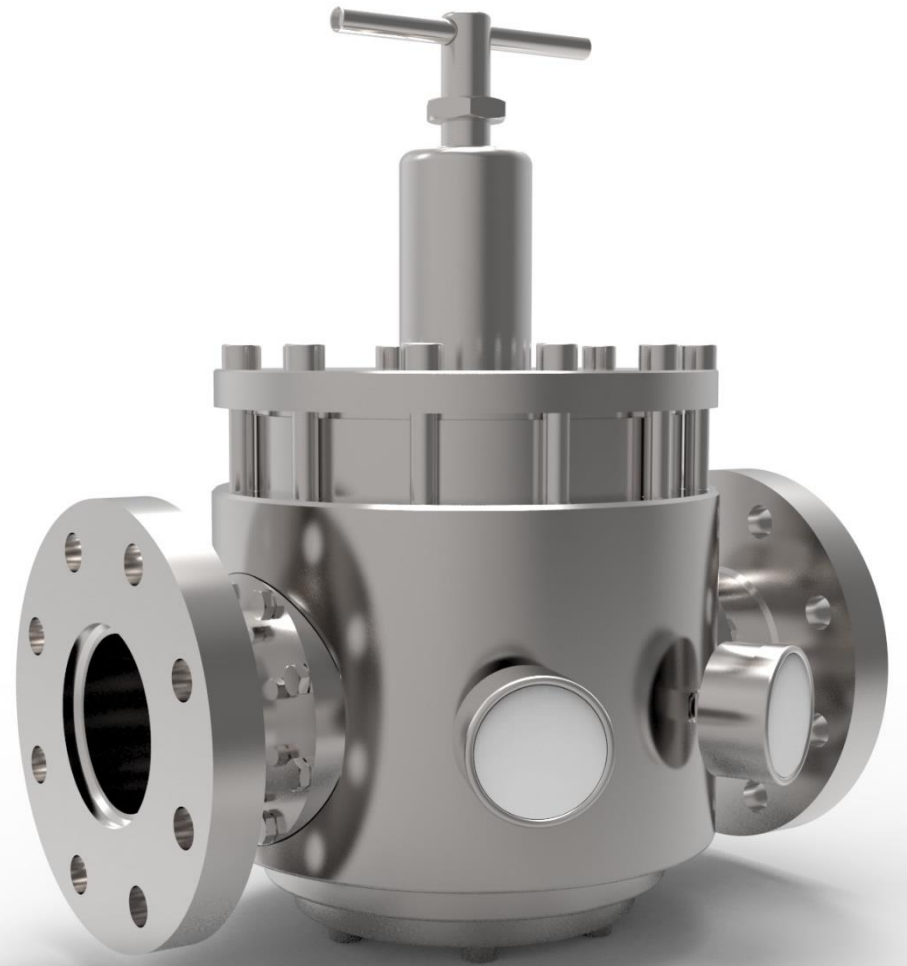
Device that regulates the inlet pressure, typically connected in derivation to the main circuit, which function is to normalize possible overpressures

FILTER PRESSURE REDUCER

Device that combines the regulating function with a filtering stage through the use of a cartridge of sintered material

NEW SELF-ACTUATED VALVES

PRESSURE REDUCERS



NEW SELF-ACTUATED VALVES

PRESSURE REDUCERS

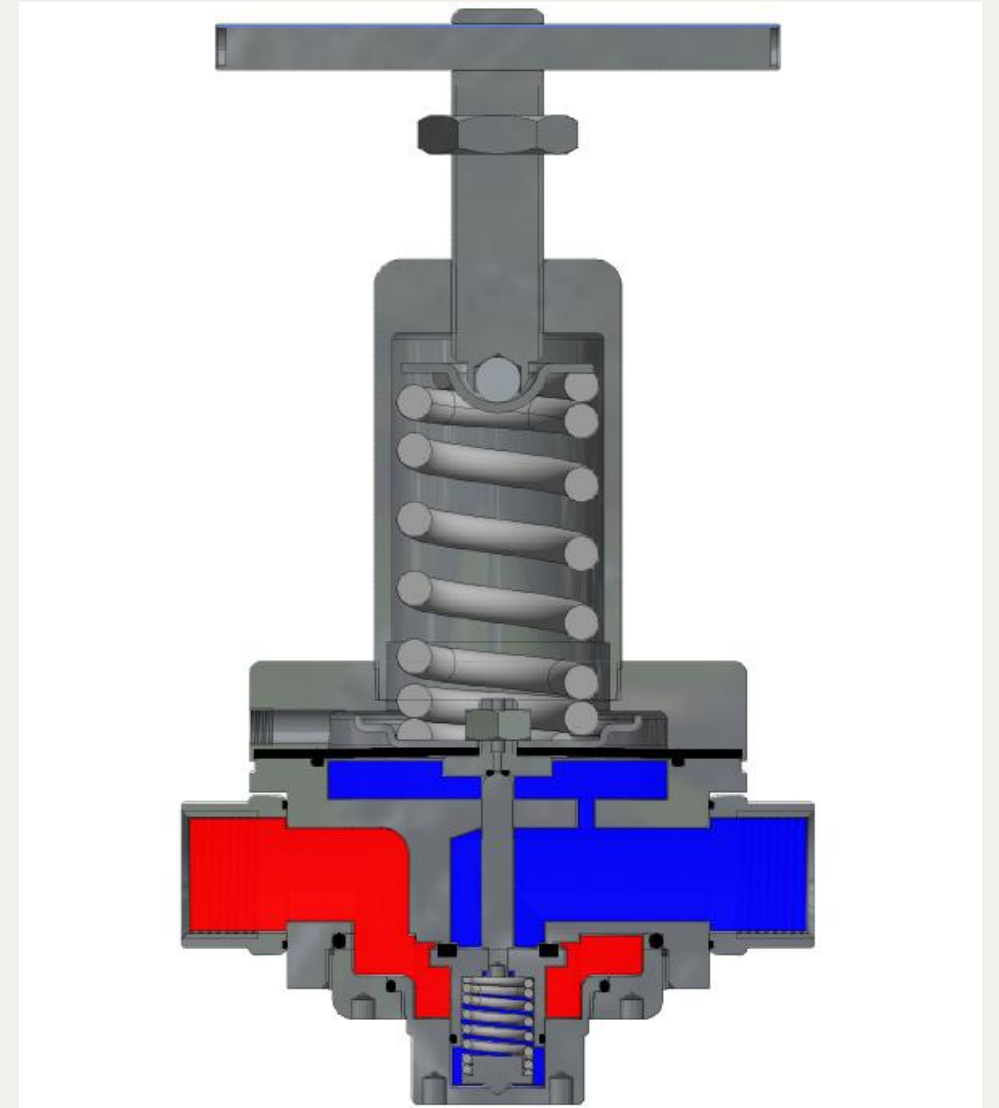
The ODE pressure reducer consists mainly of a body, bonnet, spring, diaphragm, stem, shutter and adjusting screw.

OPERATING PRINCIPLE

The outlet pressure (blue in the diagram) is regulated through a force balance created on the diaphragm: a downwards elastic force due to the spring and an upwards force generated by the outlet pressure that is carried below the sensing element through a balancing path.

The diaphragm is connected to the shutter through a stem; when the stem moves vertically, the shutter moves accordingly, shutting off or allowing the flow through the orifice.

The part that balances the force exerted by the pressure is generally a spring that can be loaded or unloaded manually so as to vary the pressure value for balancing and hence calibration of the device. However, instead of using a spring, it is also possible to balance the force by conveying pressure inside the bonnet, above the sensing element. In this way, the regulator is said to be 'pilot-operated' or 'dome loaded', since it can be piloted at various calibrations using a pressure line.



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PRESSURE REDUCERS

FEATURES

In certain circumstances, when the pressure at which the valve is calibrated is above 15 bar, the sensing element is a piston rather than a diaphragm.

The piston is made of a metallic material, typically the same as the body and bonnet.

The diaphragm instead is constructed in a double layer: one layer made of an elastomeric material and another made up of a thin teflon layer (in contact with the fluid).

Balanced shutter design

The pressure reducers mentioned in the catalogue are featured by a balanced shutter. This means that the special shutter and cap design prevents the regulator's inlet pressure flowing into the area under the shutter; therefore, the regulator movement will not be affected by pressure changes in any way.

Relieving option

This is a small hole located in the middle of the diaphragm, which allows the pressure downstream the device to be discharged through the upper bonnet when the spring is unloaded and the shutter is closed



NEW SELF-ACTUATED VALVES

OVERFLOW VALVES



NEW SELF-ACTUATED VALVES

OVERFLOW VALVES

They are very similar to pressure reducing valves in terms of operation.

The basic difference is that, whilst pressure reducing valves regulate the product's outlet pressure, overflow valves regulate the inlet pressure.

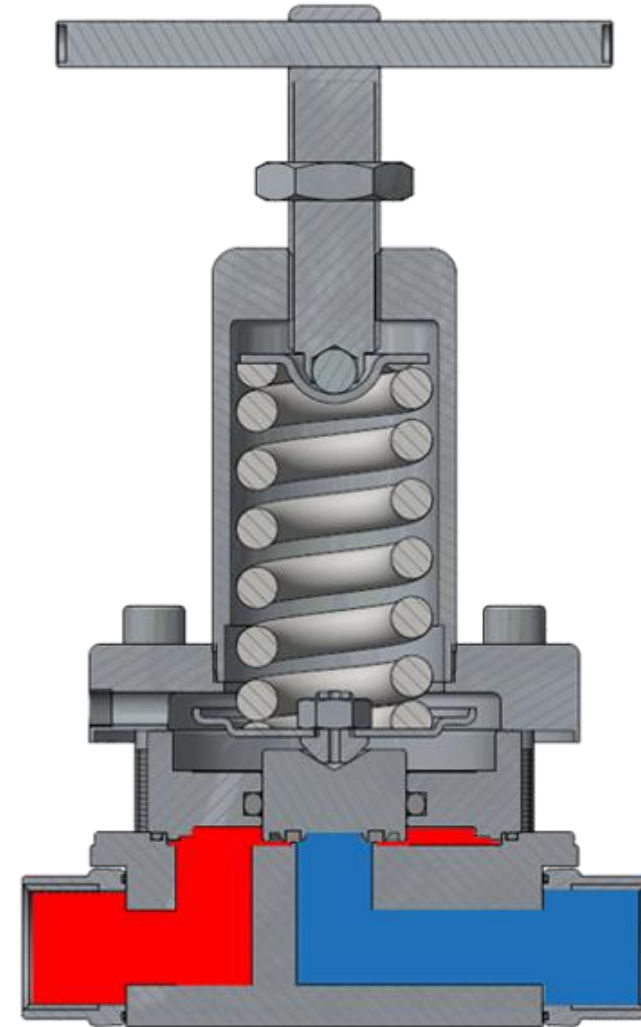
OPERATING PRINCIPLE

A balance of forces lead the shutter opening or closing: the spring force drives the sensing element downward against the force generated by the upstream pressure.

Once the spring preload value is set, the orifice remains closed until the pressure upstream rises above a certain level. At this point, the pressure allows the shutter letting the medium flow till the overpressure created will be released; when the pressure drops below the threshold value, the shutter closes again.

The overflow valves has not to be considered as a safety valves:

they are simply called on duty to equalize transient overpressure stages to keep the system's pressure stable and constant.



NEW SELF-ACTUATED VALVES

FILTER PRESSURE REDUCERS



NEW SELF-ACTUATED VALVES

FILTER PRESSURE REDUCERS

These filters are essentially pressure reducing valves which include cartridge filtering units to keep the fluid clean.

FEATURES

ODE filter pressure reducers may have different types of cartridge. In particular, standard cartridges are available in the 5 μm and 50 μm versions, whilst 25 μm cartridges are available upon request. These cartridges are composed of sintered steel or bronze.

A variety of solutions are available for draining the condensate created inside the filters, namely:

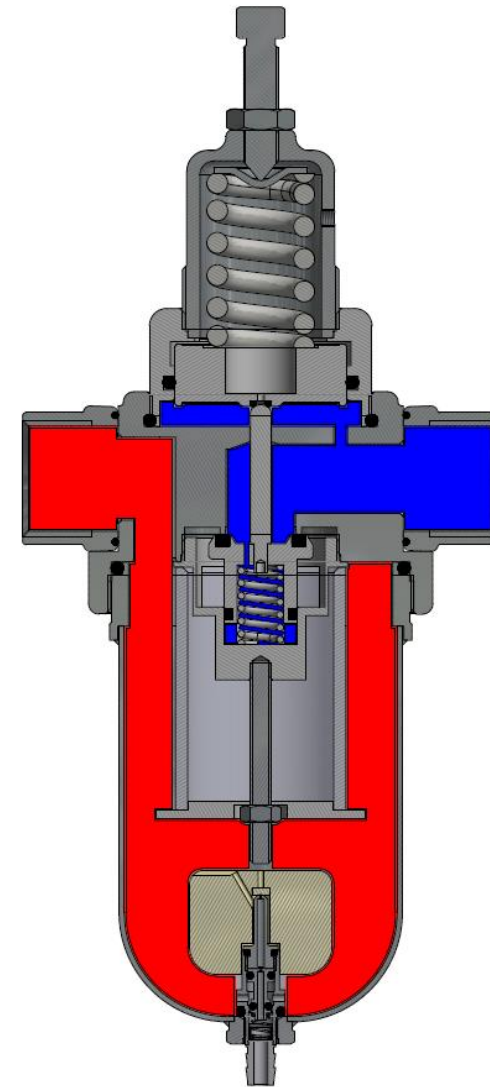
- automatic drain, which features a float that opens the drain when it reaches a certain level;

- semi-automatic drain, which allows the condensate to be drained when the pressure inside the filter reaches a certain threshold value (generally when the system is drained);

- manual drain, in which the drain is opened manually;

- plug drain, when condensate is drained by opening the plug.

The first two solutions are generally used with low pressure, whilst the other two apply to higher pressure.

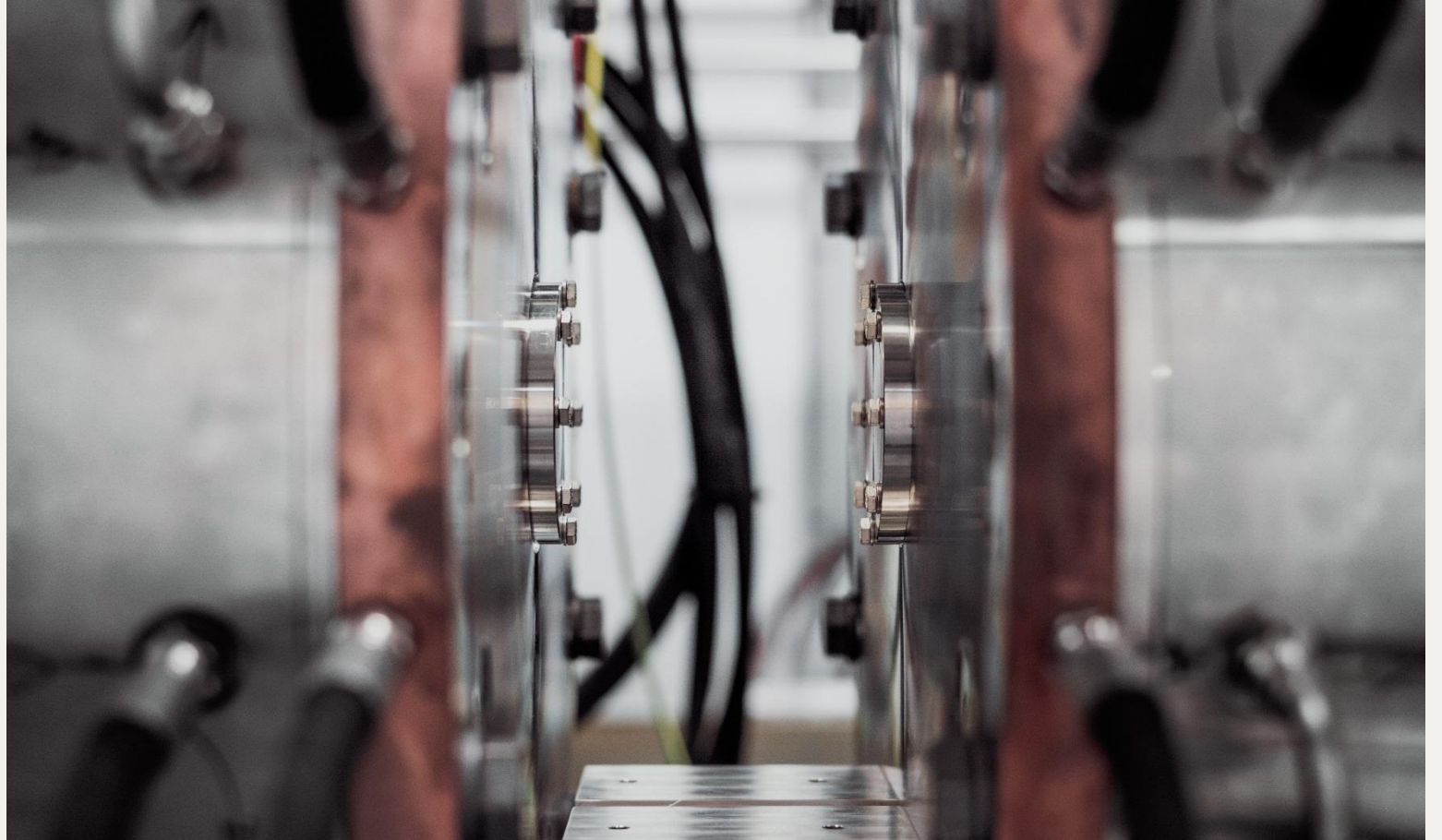


CERTIFICATION

PED Directive

The new range of complementary devices with different types of process connections in ¼" to 4" sizes are designed, built, inspected and tested in accordance with Directive 2014/68/EU.

ATEX and EAC (EAC-Ex TR CU 012/2011 and EAC TR CU 032/2013) certifications are also available on request.



APPLICATIONS

Thanks precisely to their application characteristics, these valves are ideal for use in a variety of sectors, including:

Food, fire protection, industrial automation, chemical and petrochemical, defence, pharmaceutical, filling systems, heating technology, shipbuilding, oil & gas, automotive, packaging, water treatment, energy and compressors.



FIRE PROTECTION



WATER TREATMENT



COMPRESSORS



PACKAGING

APPLICATIONS

PRESSURE REDUCERS

For the sake of simplicity, pressure reducer applications may be divided into 3 different categories: applications for pressure reducing valves at high pressure, medium pressure and low pressure (high sensitivity):

High pressure: gas cylinders and high-pressure containers in general; laboratory analysis and research; fire protection sector — fixed installations, mobile installations (skids) or also on fire-fighting trucks; shipbuilding; petrochemical sector; oil & gas upstream; automotive; laser cutting plants; plants such as casting and producing/forming of plastics

Medium pressure: distribution networks for gas, water and compressed air in general; machines for glass bottle blowing and moulding of PET and other types of containers; electronics industry in general; storage of chemical/food substances

Low pressure (High sensitivity): pressurisation/blanketing of systems and tanks for storage in general; food packaging; industrial furnaces; glass industry; torches/pilot flames



FIRE PROTECTION



AUTOMOTIVE



PETROCHEMICAL PLANTS



PACKAGING

APPLICATIONS

OVERFLOW VALVES

The most significant applications for overflow valves may be:

petrol pumps; hydraulic and fluid-power pumping circuits; generic gas/compressed air systems; wineries; food oil production (wherever food is stored in tanks); automotive

Tank blanketing

Serve to control and vent any overpressures due to the filling of liquids in tanks used for food/pharmaceuticals/chemicals. These are normally installed with pressure reducing valves to provide a combined action to ensure accurate, reliable blanketing.



BLANKETING



FIRE PROTECTION



PETROL PUMPS



FOOD STORAGE

APPLICATIONS

FILTER PRESSURE REDUCERS

The most significant applications for filter pressure reducers may be:

air/gas treatment systems; bypass solutions; cryogenics; water treatment; oil & gas; plastics/rubber industry; air tooling; paint systems.



WATER TREATMENT



PLASTICS/RUBBER INDUSTRY



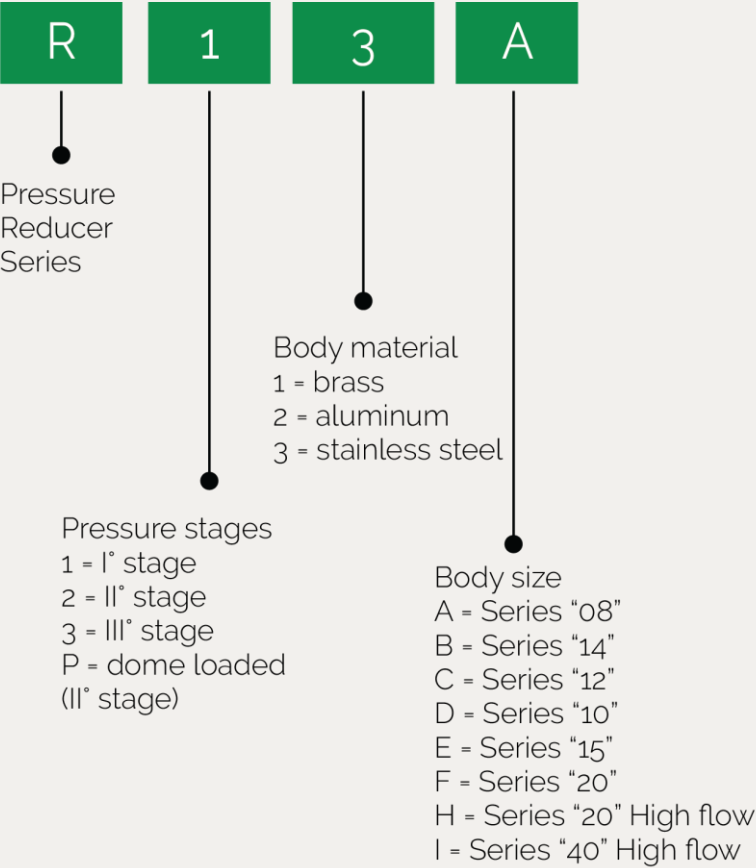
PAINT SYSTEMS



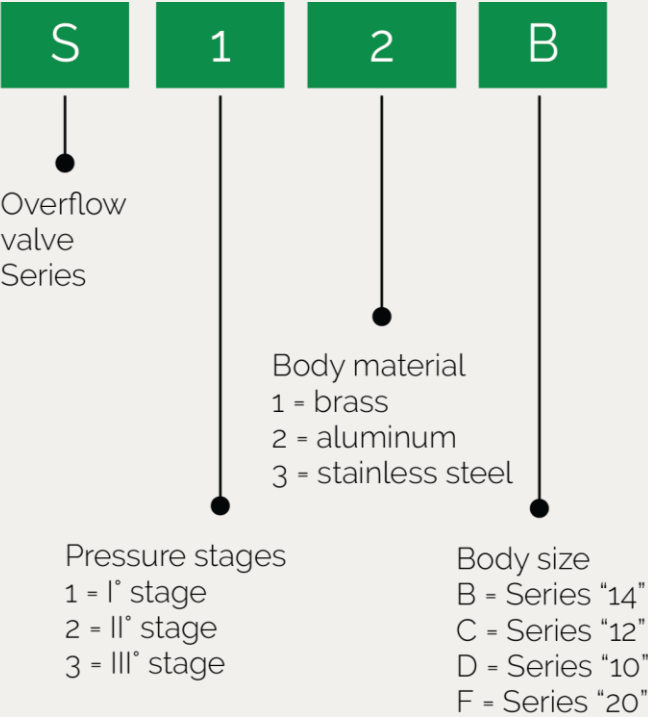
OIL & GAS

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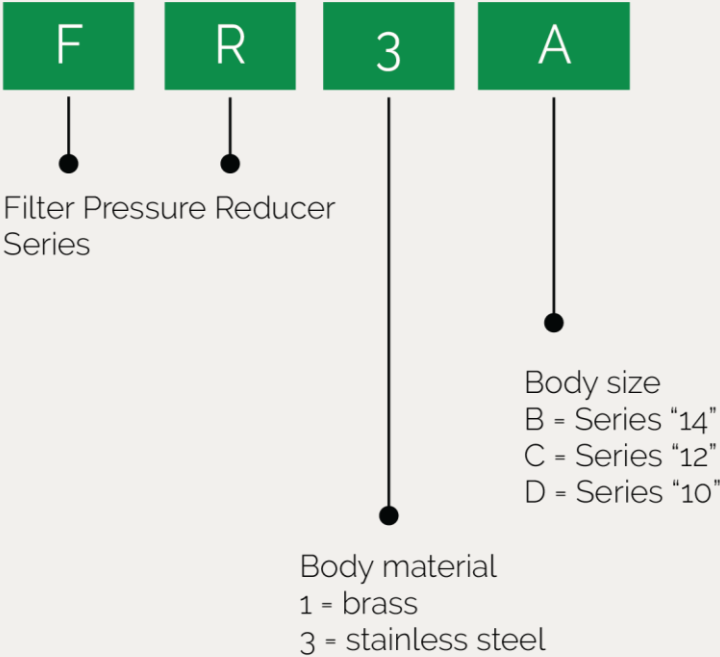
CODE KEY



PRESSURE REDUCER



OVERFLOW VALVE



FILTER PRESSURE REDUCER

NEW SELF-ACTUATED VALVES

MATRIX

	HIGH SENSITIVITY III° STAGE (Inlet pressure < 7 bar)					MEDIUM PRESSURE II° STAGE (7 bar < Inlet pressure < 80 bar)					HIGH PRESSURE I° STAGE (Inlet pressure > 80 bar)							
	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX			
PRESSURE REDUCER	STANDARD SERIES	1/4	R32B			STANDARD SERIES	1/4		R21B	R23B	LAB	1/4		R11A/R11B	R13B			
		3/8					3/8		R21B/ R21C	R23C		3/8			R13C			
		1/2																
		3/4	R32D				R33C		3/4	R22D		R21D	R23D/ R23E					
		1																
		1 1/4																
		1 1/2						R32D/ R32F	R21F			R23D/ R23E/ R23F						
	2	R32F				R23F												
						HIGH FLOW	1 1/2	R22H		R23H								
							2											
							3 DN80	R22I			R23I							
							4 DN100											
						DOME LOADED	3/4			RP3D								
							1											
							1 1/4											
					1 1/2													
OVERFLOW VALVE	STANDARD SERIES	1/4				STANDARD SERIES	1/4		S21B	S23C	STANDARD SERIES	1/4						
		3/8					3/8		S21C			3/8						
		1/2					1/2			S21D		S23D				1/2		
		3/4					S32D		3/4			S23D				3/4	S11D	S13D
		1	1						1									
		1 1/4	1 1/4					1 1/4										
		1 1/2	S32D/ S32F				1 1/2	S23D/ S23F	1 1/2									
2	S32F	2	S21F	S23F	2													
FILTER REDUCER						STANDARD SERIES	1/4			FR3B								
							3/8			FR3B/ FR3C								
							1/2			FR3C								
							3/4			FR3D								
							1											
							1 1/4											
							1 1/2											
							2											

NEW SELF-ACTUATED VALVES

MATRIX - PRESSURE REDUCERS

		HIGH SENSITIVITY III° STAGE (Inlet pressure < 7 bar)					MEDIUM PRESSURE II° STAGE (7 bar < Inlet pressure < 80 bar)					HIGH PRESSURE I° STAGE (Inlet pressure > 80 bar)				
		SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX
PRESSURE REDUCER	STANDARD SERIES	1/4	R32B			STANDARD SERIES	1/4		R21B	R23B	LAB	1/4		R11A/R11B	R13B	
		3/8							R23C	3/8				R13C		
		1/2					R33C		1/2							
		3/4	R32D				R33D	3/4	R22D	R21D		R23D/ R23E				
		1														
		1 1/4														
		1 1/2						R32D/ R32F		R33D/ R33F		1 1/2	R21F	R23D/ R23E/ R23F		
		2	R32F				R33F	2				R23F				
		HIGH FLOW	1 1/2	R22H		R23H										
			2													
			3 DN80	R22I		R23I										
			4 DN100													
		DOME LOADED	3/4			RP3D										
			1													
			1 1/4													
			1 1/2													

NEW SELF-ACTUATED VALVES

MATRIX - OVERFLOW VALVES

	HIGH SENSITIVITY III° STAGE (Inlet pressure < 7 bar)					MEDIUM PRESSURE II° STAGE (7 bar < Inlet pressure < 80 bar)					HIGH PRESSURE I° STAGE (Inlet pressure > 80 bar)						
	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX		
OVERFLOW VALVE	STANDARD SERIES	1/4				STANDARD SERIES	1/4		S21B	S23C	STANDARD SERIES	1/4					
		3/8					3/8		S21C			3/8					
		1/2			S33C		1/2		S21D	S23D		1/2		S11D	S13D		
		3/4	S32D		S33D		3/4					3/4					
		1					1		S21F	S23D/ S23F		1					
		1 1/4			S33D/ S33F		1 1/4					1 1/4					
		1 1/2			S33F		1 1/2					1 1/2					
		2	S32F				2		S23F			2					

NEW SELF-ACTUATED VALVES

MATRIX - REDUCER FILTERS

	HIGH SENSITIVITY III° STAGE (Inlet pressure < 7 bar)					MEDIUM PRESSURE II° STAGE (7 bar < Inlet pressure < 80 bar)					HIGH PRESSURE I° STAGE (Inlet pressure > 80 bar)				
	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX	SERIES	CONNECTIONS	ALUMINUM	BRASS	INOX
FILTER REDUCER						STANDARD SERIES	1/4				FR3B				
							3/8				FR3B/ FR3C				
							1/2				FR3C				
							3/4				FR3D				
							1	FR2D							
							1 1/4								
							1 1/2								
							2								

REQUEST FOR QUOTE

CHECKLIST

PRESSURE REDUCERS

PROCESS CONNECTIONS

FLUID / SEAL

OPERATING TEMPERATURE

(if different from standard -20°/+60°C)

INLET PRESSURE

OUTLET PRESSURE

NOTES

REQUEST FOR QUOTE

CHECKLIST

OVERFLOW VALVES

PROCESS CONNECTIONS	OPERATING TEMPERATURE <small>(if different from standard -20°/+60°C)</small>	NOTES
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
RELIEF PRESSURE	FLUID / SEAL	

REQUEST FOR QUOTE

CHECKLIST

FILTER PRESSURE REDUCERS

PROCESS CONNECTIONS

INLET PRESSURE

FLUID / SEAL

OUTLET PRESSURE

FILTERING GRADE

CONDENSATE DRAIN
(if required)

OPERATING TEMPERATURE
(if different from standard -20°/+60°C)

NOTES

Your Gateway to Excellence

