



For steam and gases. (For liquids, consult our technical department). Suitable for application in; ironing machines, laundries and dry cleaners', cooking vats, textile machinery, drying cylinders, autoclaves, steam ovens, distilleries, heat exchangers, the food industry, chemical laboratories, etc.

# **Specifications**

- Materials carefully selected for resistance to wear, extreme temperatures and corrosion. They can be fully recycled, and use a single, non-metallic, asbestos-free joint.
- Simplicity of design, ensuring minimum maintenance requirements.
- Easy installation; may be assembled in any position, even upside down.
- Moderate weight and size.
- Interior design conceived for maximum capacity and performance for size.
- Easy to adjust. The valves are supplied unregulated, but with the corresponding spring, duly identified, for the required pressure reduction.
- Rating plate which identifies the regulation field.
- Three springs, easily interchangeable and identified by colour and code.
- Anchoring system immune to vibrations; may be sealed to prevent manipulation.
- Selft-centring lock, independent of axle, designed to guarantee absolue precision of regulation at the most demanding points.
- Protective filter for the locking surfaces.
- High degree of airtightness of the lock at zero consumption, exceeding the requirements of EN 12266-1.
- Stainless steel bellows welded to the plasma. Airtightness tested with helium, ensuring absolute reliability and long life.
- All valves undergo throrough testing.
- Each component is numbered, registered and inspected. If previously requested, the valve will be accompanied by certificates corresponding to materials, batch, tests and performance.

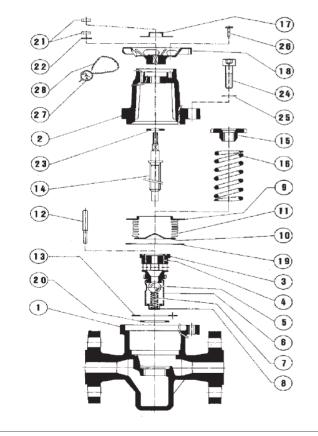
## **IMPORTANT**

### Depending on demand:

- May be manufactured using other materials for specific working conditions (high temperatures, fluids, etc.).
- Other connections.
- Degreased and completely free of oils and greases.

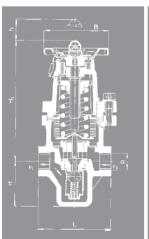


N°.		DIEGE	MATERIAL										
PIECE		PIECE	NODULAR IRON	CARBON STEEL	STAINLESS STEEL								
1	Body		Nodular iron (EN 5.3105)	Carbon steel (EN-1.0619)	Stainless steel (EN-1.4408)								
2	Cover		Aluminium (EN-AC-44200)	Aluminium (EN-AC-44200)	Aluminium (EN-AC-44200)								
3	Seating	g	Stainless steel (EN-1.4542)	Stainless steel (EN-1.4542)	Stainless steel (EN-1.4542)								
4	Guide		Graphite PTFE (Teflón)	Graphite PTFE (Teflón)	Graphite PTFE (Teflón)								
5	Lock		Stainless steel (EN-1.4034)	Stainless steel (EN-1.4034)	Stainless steel (EN-1.4034)								
6	Filter		Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)								
7	Auxilia	ry spring	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)								
8	Сар		Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)								
9	Bellows	s ring	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)								
10	Bellows	s disc	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)								
11	Bellows	s	Stainless steel (EN-1.4571)	Stainless steel (EN-1.4571)	Stainless steel (EN-1.4571)								
12	Axle		Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)								
13	Separa	ator disc	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)	Stainless steel (EN-1.4404)								
14	Regulation screw		Carbon steel (EN-1.1191)	Carbon steel (EN-1.1191)	Carbon steel (EN-1.1191)								
15	Spring press		Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)								
16	Spring		Chrome-silicon steel (EN-10270-2-FDSiCr)	Chrome-silicon steel (EN-10270-2-FDSiCr)	Chrome-silicon steel (EN-10270-2-FDSiCr)								
17	Rating plate		Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)								
18	Handwheel		Aluminium (EN-AC-44200)	Aluminium (EN-AC-44200)	Aluminium (EN-AC-44200)								
19	Body jo	oint	Graphite	Graphite	Graphite								
20	Seating	g joint	PTFE (Topchem)	PTFE (Topchem)	PTFE (Topchem)								
21	Nut		Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)								
22	Washe	er	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)								
23	Washe	er	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)								
24	Screw		Carbon steel (EN-1.1191)	Carbon steel (EN-1.1191)	Stainless steel (EN-1.4401)								
25	Washe	er	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Stainless steel (EN-1.4401)								
26	Anchor	ring bolt	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)								
27	Seal		Plastic	Plastic	Plastic								
28	Sealing	g wire	Sealing wire	Sealing wire	Sealing wire								
		R	1/2" to 1" (GAS, NPT)										
		DN		15 to 25 (EN, ANSI)									
		PN	25	40	40								
		PRESSURE IN bar	17	17	17								
OPER		MAX. TEMP. IN °C	210	230	230								
CONDITIONS MIN. TEMP. IN °C		MIN. TEMP. IN °C	-10	-10	-60								





	MODEL		513										514																								
	R DN			1/2" 3/4"								1"						15							20					 25							
	CONNECTIONS		Whitworth gas-tight cylindrical female ISO 228/1 1978 (DIN-259)										I - Flanges PN-25 EN-1092-1/PN-40 EN-1092-2 II - Flanges class 150 lbs ASME/ ANSI B.16.5																								
								NP	T th	read	IAN	SI-E	32.1																		l II						
	Н				7			57						57					57						5157					57							
	H1				50			150					150					150						150					150								
	h				25			25							2						2						2!				25						
	L				5					9							)5					15				150					160						
	В				'5					7	5					7				75						75					75						
	D																		95			90		105			100			115			110				
	K											_				65 60,30			0	75			69	69,90		85		7	79,40								
													_					14			15,9	0	14	4		15,90			14				15,90				
	b												_				16 11,20			0	18			12,70			18 1			14,30							
	DRILLS N°.		_					_					_				4					4					4										
Kgs.	NODULAR IRON		1,98					2,05					2,29				3,60					3,65				4,73											
MEIGHTIN	CARBON STEEL		2,08					2,15					2,44				3,85					3,95				5,05											
WE	STAINLESS STEEL			2,	13					2,	25					2,	55					3,9	95					4,0	)8					5,2	20		
	PRING REGULATING RANGE IN bar EDUCED PRESSURE)		0,14 a 1,70	1,40 a 4,00 3,50 a 8,60		0,14 a 1,70		0,14 a 1,70 1,40 a 4,00		3,50 a 8,60		0,14 a 1,70		ס ס			3,50 a 8,60	0,14 a 1,70		0,14 a 1,70 1,40 a 4,00			3,50 a 8,60		0,14 a 1,70	1,40 a 4,00		1,40 a 4,00 3,50 a 8,60		0,14 a 1,70		1,40 a 4,00		( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	3,50 a 8,60		
		GAS	NPT	GAS	NPT	GAS	NPT	GAS	NPT	GAS	NPT	GAS	NPT	GAS	NPT	GAS	NPT	GAS	NPT	EN	ANSI	EN	ANSI	EN	ANSI	EN	ANSI	Ш N	ANSI	EN	ANSI	EN	ANSI	E E	ANSI	E N	ANSI
ı	NODULAR IRON 2001-	513.60261	513.602611	513.60262	513.602621	513.60263	513.602631	513.63461	513.634611	513.63462	513.634621	513.63463	513.634631	513.61061	513.610611	513.61062	513.610621	513.61063	513.610631	514.60261	514.602611	514.60262	514.602621	514.60263	514.602631	514.63461	514.634611	514.63462	514.634621	514.63463	514.634631	514.61061	514.610611	514.61062	514.610621	514.61063	514.610631
CODE	CARBON STEEL 2001-	513.80241	513.802411	513.80242	513.802421	513.80243	513.802431	513.83441	513.834411	513.83442	513.834421	513.83443	513.834431	513.81041	513.810411	513.81042	513.810421	513.81043	513.810431	514.80241	514.802411	514.80242	514.802421	514.80243	514.802431	514.83441	514.834411	514.83442	514.834421	514.83443	514.834431	514.81041	514.810411	514.81042	514.810421	514.81043	514.810431
	STAINLESS STEEL 2001-	513.80221	513.802211	513.80222	513.802221	513.80223	513.802231	513.83421	513.834211	513.83422	513.834221	513.83423	513.834231	513.81021	513.810211	513.81022	513.810221	513.81023	513.810231	514.80221	514.802211	514.80222	514.802221	514.80223	514.802231	514.83421	514.834211	514.83422	514.834221	514.83423	514.834231	514.81021	514.810211	514.81022	514.810221	514.81023	514.810231



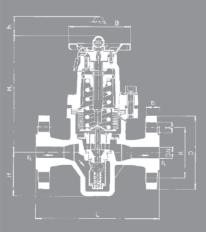


TABLE OF PRESSURES, FLOW COEFFICIENTS AND REGULATION FIELDS												
		1/2"	1"									
		15 20 25										
MAXI	MUM INPUT PR		17									
MAXI	MUM REDUCTI		P1:10									
MINIMU	JM REDUCED F		0,14									
FL	OW COEFFICIE	1,50	2,50	3,00								
	0.44 + 4.70	CODE	56494									
JLATING Ibar ESSURE)	0,14 to 1,70	IDENTIFICATION COLOUR	CATION COLOUR White									
│∺중≥☆	1,40 to 4,00	CODE										
SPRING REC RANGE (REDUCED P	1,40 to 4,00	IDENTIFICATION COLOUR	Pink									
SPR (RED	3,50 to 8,60	CODE	56496									
	3,50 (0 6,60	IDENTIFICATION COLOUR	Red									

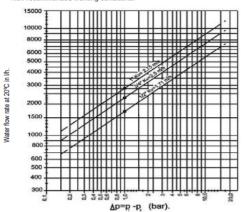


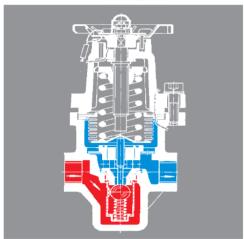
R				FLO	ows							
NPUT   REDUCED	ı	R				/4"	25  VA = Water flow according to table.					
NPUT   REDUCED   1		N	1	15	2	20						
NPUT   REDUCED			I- Saturated ste. II- Air at 0°C and [Nm³/h]. III-Water flow rate with a loss of pre coefficient Kv.	am in Kg/h. 1,013 bar in o at 20°C in l/h. ssure ∆p and								
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1,5						_						
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						444	478	673				



III-Water flow rate at 20°C in l/h. with a loss of pressure  $\triangle p$  and coefficient Kv.

- Valid flow rates for completely opened valve with metal/soft seats — Non-recommended working conditions.





- Area of influence of input pressure. (P<sub>1</sub>)
- Area of influence of reduced pressure. (P<sub>2</sub>)

#### Operation

The operation of the reducing valve is based on the principle of direct action. The force exerted by the spring displaces the axle and maintains the locking ball open. The fluid exerts an opposite force on the hood as it passes, which tends to reduce the section of passage of the fluid through the seating. The action of the spring and reaction of the pressure on the bellows balance each other, and the reduced pressure is maintained constant.

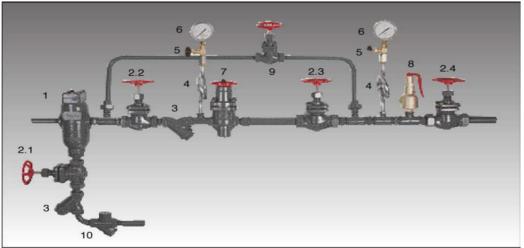
The fluctuations in consumption affect the reduced pressure. The bellows detects these variations via the balance hole, provoking a change in the passage of fluid as a function of the established reduced pressure.

In working conditions with zero consumption, the valve remains closed and completely airtight when there is a slight increase in reduced pressure.

#### Installation

- Allways install the valve in a section of horizontal tubing, as close as possible to the point of consumption.
- The valve may be assembled in any position, even upside-down.
- Verify that the fluid flows in the direction indicated by the arrow on the body of the valve.
- The input and output tubes must be of the correct size and properly supported, to avoid any fall in pressure or tension.
- The output tubing should ideally have a greater diameter than the input tubing, to avoid excessive velocity of flow of the liquid.
- In accordance with the requirements of "Regulations for pressure devices ITC-MIE-AP 2 5.8", the pressure reduction facilities in steam circuits will be supplied with:
- 1- A pressure gauge with syphon tube and three end cock, in accordance with article 11 of the MIE-AP 1 instructions, "Boilers", located before and after the reduction valve.
- 2- A safety valve following the reduction valve, capable of evacuating the maximum flow of steam, which permits flow at the level regulated and adjusted to the maximum reduced pressure of service plus a maximum of 10%.

### Example of installation for steam

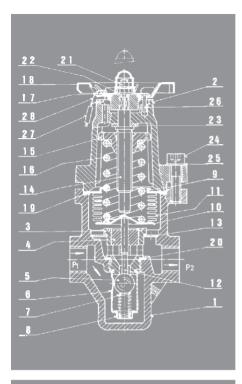


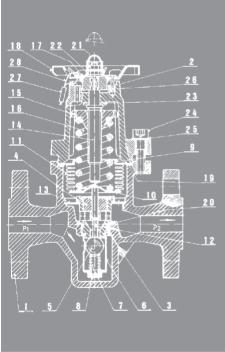
- Condensate separator.
- 2 Interruption valve.
- 3 Filter.
- 4 Syphon tube.
- 5 Pressure gauge cock.
- 6 Pressure gauge.
- 7 Pressure reducing valve.
- 8 Safety valve.
- Interruption valve with adjusting cone.
- 10 Condensate purger.

#### **IMPORTANT**

- The distance between the pressure reducing valve 7 and the interruption valves 2.2 and 2.3 must be 8 ÷ 10 times the diameter of the tube.
- It is advisable to install the separator 🚹 and the condensate purger 🔟 using wet steam with dragging.
- We recommend that the reduction device be equipped with a by-pass and interruption valve with an adjusting cone 🗓







#### Start-up and adjustment of the reduced pressure

- 1- Before start-up, the tubes and the inside of the valve itself should be cleaned, eliminating any residues or impurities, particularly from the locking surfaces.
- 2- Check the rating plate (17) to verify that the regulation field for the reduced pressure is appropriate and that the spring (16) corresponds to the same range.
- 3- Remove the nut (21), the rating plate (17) and the anchoring bolt (26).
- 4- With the input interruption valve fully open and the output interruption valve closed, turn the handwheel (18) gradually from left to right to increase the reduced pressure, or from right to left to decrease it, until the required reduced pressure is obtained at zero consumption.
- 5- Slowly open the output interruption valve.
- 6- Readjust the required reduced pressure in consumption conditions.
- 7- Put the anchoring bolt (26) and the rating (17) in place, and fix with the nut (21).
- 8- Seal the valve to prevent further adjustments, using the sealing wire (28) and the seal (27).
- 9- We recommend that the input pressure P1 and the reduced pressure P2 be recorded in the corresponding space of the rating plate (17).

## Assembly and disassembly

- 1- Unseal the valve by cutting the wire (28).
- 2- Remove the nut (21), the rating plate (17) and the anchoring bolt (26).
- 3- Turn the handwheel (18) from right to left until you notice the spring (16) loosening.
- 4- Remove the screws (24) along with the washers (25).
- 5- Separate the cover (2) from the body (1), and you will have access to all the internal components. This enables simple maintenance and replacement of the spring (16), the bellows components (9) (10) (11) and the seating components (3) (4) (5) (6) (7) (8)
- 6- If the seating has been disassembled, replace the joint (20) with a new one. Put a new body joint in place (19).
- 7- Put the axle (12) in the guide hole (4) and check that it can move freely and is perpendicular to the bellows disc (10) when the bellows components (9) (10) (11) are put in place.
- 8- Select the spring (16) corresponding to the reduced pressure.
- 9- Put the cover (2) on the body (1) and the screws (24) with the washers (25), and screw them in.
- 10- Finally, proceed as described in "Start-up and adjustment of the reduced pressure".

### Maintenance

Correct installation with interruption valves at the input and output points facilitates

The filter (6) should be cleaned regularly.

When assembling the valve, replace the seating joint (20) and body joint (19) with new ones