	INSTRUCTION FOR INSTALLATION AND MAINTENANCE	RD 102 V RD 103 V
	OUTLET PRESSURE REGULATOR DN 15 - 50 PN 16	
	PM - 039/12/01/GB	

The instructions for installation and maintenance of valves RD 102 V, 103 V (further in text only RD 10x V) are binding for users to ensure proper function of valves. The user must keep the rules said here while installation, operation and maintenance.

1. TECHNICAL DESCRIPTION AND VALVE FUNCTION

1.1 Description

Self-acting control valves of outlet pressure RD 10x V are valves designed for medium pressure reducing and keeping it at required value. Such function is ensured by diaphragm exposed to influence of observed pressure from one side and controlled by spring from the other side. Diaphragm's deflection transfers to valve plug and when pressure drops in relation to increase of medium bleeding, then the valve is opening. Owing to pressure-balanced plug, value of outlet pressure is not influenced by changes of inlet pressure value.

Regulator is equipped with manometer, from which it is possible to read actual values of inlet and outlet pressure and according to which required outlet pressure value can be directly adjusted (within range of used spring).

In case when required value of outlet pressure is within range of two spring ranges, it is more suitable to choose the range with lower values to ensure more sensitivity of regulator.

Connecting impulse pipes are supplied with valves as standard.

1.2 Application

These valves have a wide range of application in heating, water industry, air-conditioning and ventilation. They can be installed in all control circuits to PN 16, where reduction of medium pressure must be secured without the necessity of application of any other measuring device and energy supply. For proper function the producer recommends to install a filter into the pipeline in front of the valve.

1.3 Operating pressures

The valve can be used for pressure reduction with condition that maximum inlet pressure is restricted by PN of the valve i.e. 1.6 MPa and value of outlet pressure is limited by spring ranges i.e. 0.025 to 1.0 MPa. However, the difference between the inlet and outlet pressure during its operation must not be higher than 0.6 MPa for RD 102 and 0.4 MPa for RD 103.

1.4 Process media

Valves series RD 102 V, 103 V are designed for gases and liquids such as air, water, low-pressure steam (it applies to RD 102 only) and other media compatible with material of the valve inner parts (especially body, plug and diaphragm). This valve is not suitable for oil.

To ensure long-term tightness of the valve, the producer recommends to install a filter into the pipeline in front of the valve. In application where increase of reducing pressure above adjusted value could cause a considerable breakdown of a system, the producer recommends to install a safety valve behind pressure regulator into the pipeline.

1.5 Technical data

Series	RD 102 V	RD 103 V
Type	Self-acting control valve of outlet pressure	
Nominal diameter DN	DN 15 - 50	
Nominal pressure PN	PN 16	
Body material	Bronze 42 3135	Grey cast iron EN-JL 1040
Plug material	Brass 42 3234	
Plug - seat sealing	EPDM	
Diaphragm material	EPDM	
Operating temperature	-5 to 130°C, peaking up to 140°C	
Building length	Acc. to DIN 3202 - M4	Acc. to EN 558-1 - F1
Connection	Internal threaded coupling Acc. to ČSN EN ISO 228-1	Flange with raise face, type B1 Acc. to ČSN EN 1092-1
Type of plug	Parabolic, pressure balanced	
Flow characteristic	Linear	
Kvs values	2 to 20 m ³ /h	
Adjustable range of outlet pressure values	0.025 to 0.1; 0.08 to 0.3; 0.2 to 0.65; 0.3 to 1.0 MPa	

Tolerance of setting of edge range values is 10% from appropriate nominal edge value of the setting range.

1.6 Maximum inlet pressures of valves RD 10x V

Range [MPa]	0.025 - 0.1	0.08 - 0.3	0.2 - 0.65	0.3 - 1.0
P_{1max}	0.6	0.9	1.2	1.6

2. DIRECTIONS FOR INSTALLATION AND OPERATING OF VALVE

2.1 Preparation before installation

The valves are delivered from the company assembled, adjusted and tested. Before valve's installation into pipeline you must check the data on the name-plate with data mentioned in accompanying documentation. Then check if the valve or the actuator are not damaged and dirty. Pay attention especially to inner spaces and packing surfaces of valve.

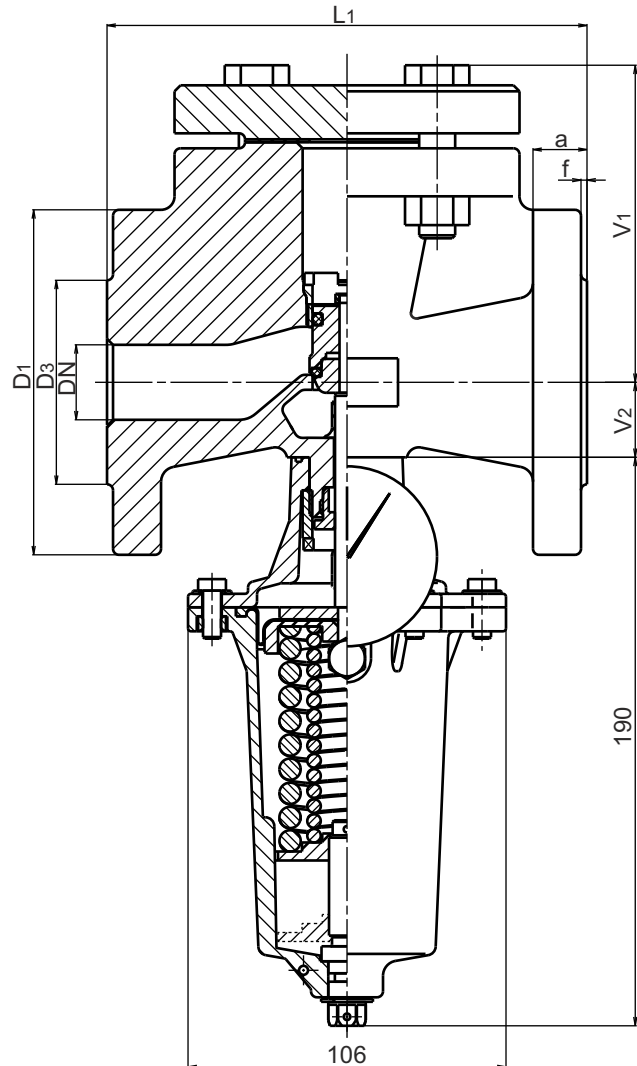
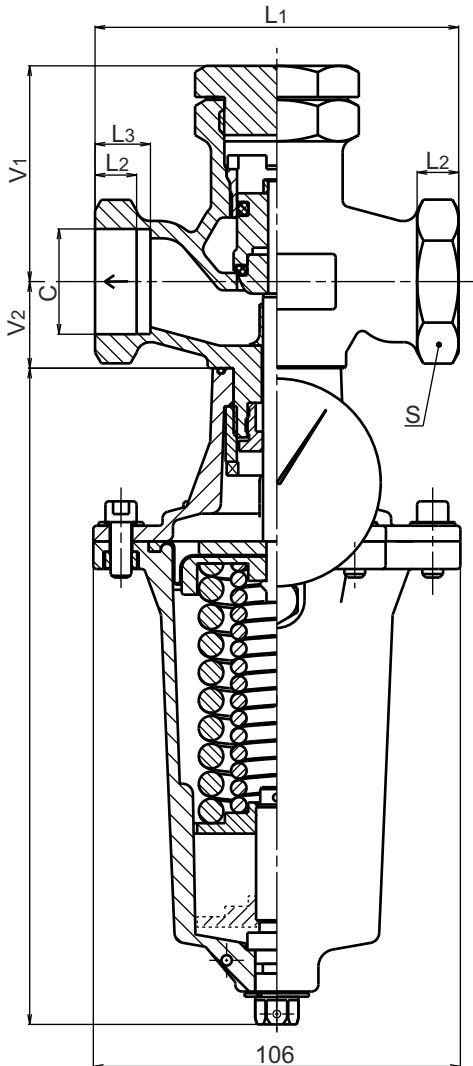
2.2 Dimensions and weights of valves RD 10xV

RD 102 V

DN	C	L ₁	L ₂	L ₃	V ₁	V ₂	S	m
		mm	mm	mm	mm	mm	mm	kg
15	G 1/2	85	9	12	50	25	27	3.1
20	G 3/4	95	11	14	55	25	32	3.2
25	G 1	105	12	16	62	25	41	3.4
32	G 1 1/4	120	14	18	75	35	50	4.0
40	G 1 1/2	130	16	20	79	35	58	4.5
50	G 2	150	18	22	89	42	70	5.5

RD 103 V

DN	D ₁	D ₂	D ₃	nxd	a	f	L ₁	V ₁	V ₂	m
	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
15	95	65	45	4 x 14	16x4	2	130	65	25	3.2
20	105	75	58		18		150	75	25	4.3
25	115	85	68	4 x 18	18	3	160	80	25	5.5
32	140	100	78				180	90	35	7.7
40	150	110	88				200	100	35	8.5
50	165	125	102	20	230	115	42	11.9		



2.3 Installation of valve into pipeline

2.3.1 Mounting positions

Valve must be installed into pipeline so that flow of medium is according to arrows on the body. Basic operating position of regulator is when the valve body is above controlling head and the control head is downward. It is necessary to keep this position namely during reducing of steam pressure and for temperatures above 80°C. For liquids and gases that have lower temperatures, the valve can be installed in any position.

2.3.2 Installation of valve

For proper function of reducing valve, below-mentioned instructions must be obeyed :

- no excessive forces can be transferred from pipeline to valve.
- the pipeline must be cleaned from dirt before valve installation.
- the valve can not be installed just behind the bend. The pipeline should be straight min. 6xDN in front of the valve.
- it is recommended to keep clean space around the valve for easy manipulation and service.
- installation itself must be done precisely. The pipeline flanges must be coaxial with valve flanges.

2.3.3 Connection of impulse pipeline (for RD 10x V2 ...only)

Connecting of diaphragm space with outlet pipeline is practised with a copper impulse pipe connecting with the aid of pipe union. This pipe is included in the supply of the valve (see article 2.10, 2.11).

2.3.4 Checking after installation

The piping system should be pressured after valve installation and then checked if there is no leak.

2.4 Outlet pressure setting

Setting of outlet pressure is carried out by tensioning the spring with adjusting bolt. The direction of turning for the bolt is designated on the bonnet as follows:

- turning in direction of (+) ... pressure increases
- turning in direction of (-) ... pressure decreases

Setting of regulator is carried out:

- a) in stillstand (no pressure) - if it is necessary to prevent increasing of pressure in outlet pipeline above the set value.
- b) in nominal operation - if it is necessary to ensure optimum service conditions.

After setting the pressure on value required, it is possible to lock adjusting bolt in selected position with a seal.

2.5 Operating and Maintenance

The valve in operation does not require service, however, it is advisable to check each 6 months the proper function of the valve i.e. if the set value of outlet pressure corresponds to the required one.

2.6 Defects and malfunctions

2.6.1 Damaged diaphragm

The damage manifests so that the regulator works badly or not at all. There may be also a process medium leaking through the adjusting bolt. The cause of such a damage is obviously damaged diaphragm which must be replaced at once.

2.6.2 Leakage

With low or no extraction, the outlet pressure increases above the value required. The cause is damaged O-ring in plug or damaged valve seat. It is necessary to exchange the sealing rings possibly repair of the valve body. The repairs should be done by the producer or service organizations cooperating with the producer. In guarantee period, the user should not carry out any modification or repair except outlet pressure setting.

2.7 Spare parts

Spare parts are not part of valve delivery. They must be ordered separately. When the spare parts are ordered, following data must be written: type of a valve, nominal diameter DN, registration valve's number, name of a spare part.

2.8 Guarantee conditions

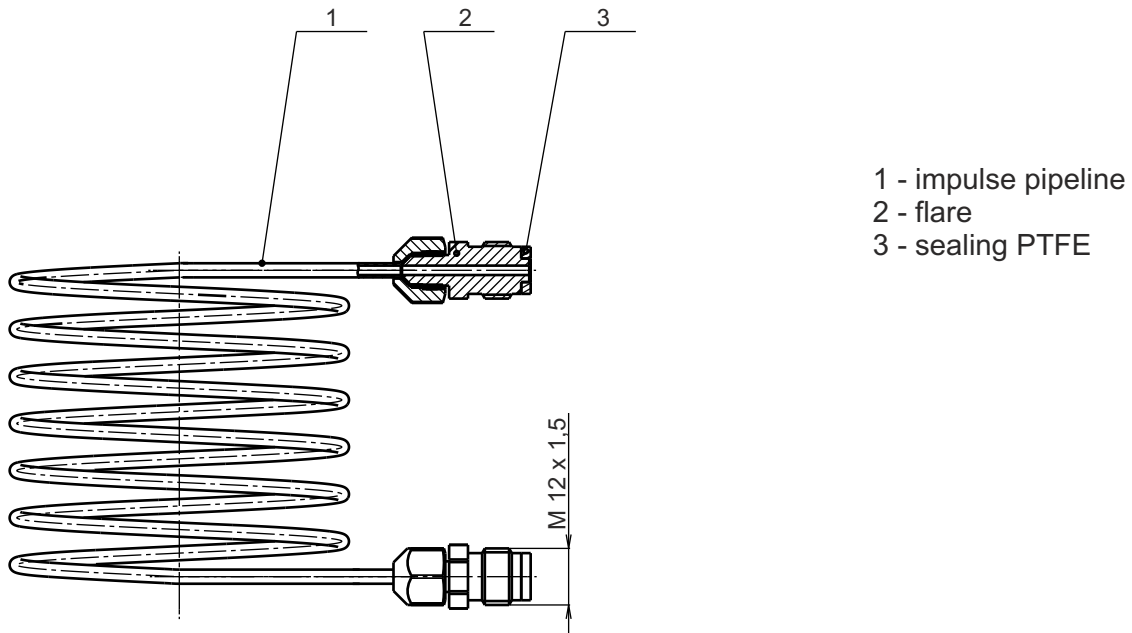
The producer does not guarantee the service and safety of the product under conditions different from this instructions and catalogue data sheet. Any using of the valve under different conditions shall be consulted with the producer.

The producer does not take over the guarantee if any change was made by the user without prior written consent from the producer.

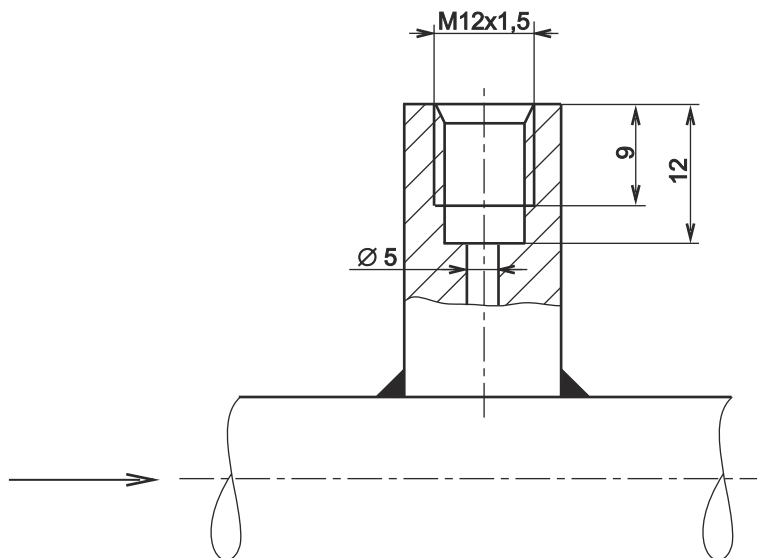
2.9 Waste disposal

Packaging and the valves (after their scrapping) shall be disposed off in the common way, e.g. by handing over to a specialized company for a disposal (body and metal parts - metal scrap, packaging + other non-metallic parts - communal waste).

2.10 The impulse pipeline for the supply of pressure impulse into regulator

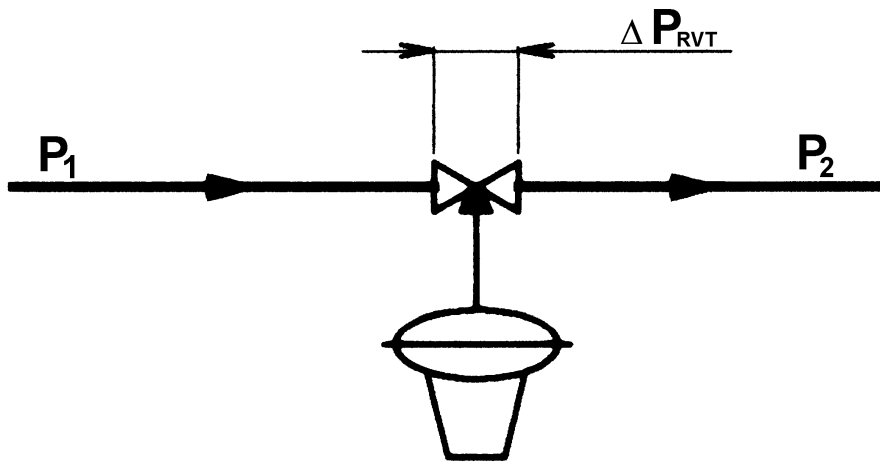


2.11 The socket for connecting of impulse pipeline flare

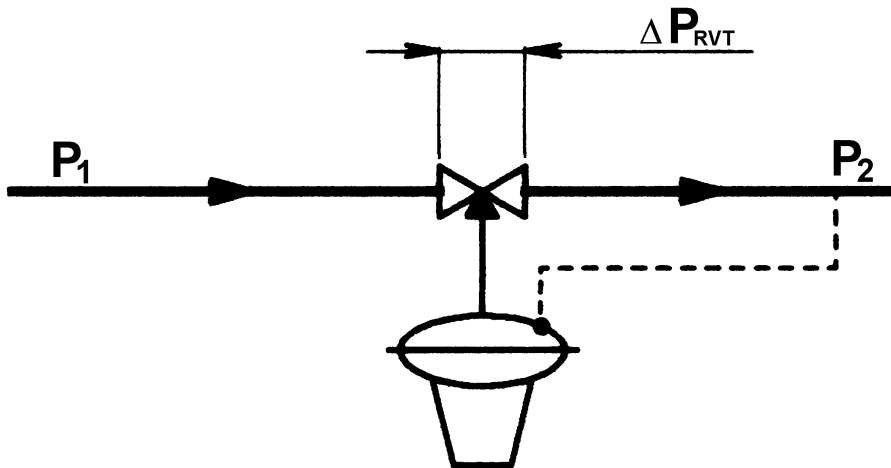


2.12 Outlet pressure regulator - basic scheme

a) with direct inlet of reducing pressure



b) with inlet of reducing pressure from extraction from pipeline



Valve complete specification No. for ordering RD 10x V

		XX	XXX	XXX	-XX	/XXX	-XX
1. Valve	Pressure reducing valve	RD					
2. Type of valve	Valve from brass - threaded		102				
	Valve from grey cast iron - flanged		103				
3. Function	Outlet pressure regulator			V			
4. Version	With direct inlet of reducing pressure			1			
	With inlet of reduc. press. from extraction from pipeline			2			
5. Reducing pressure setting range	0.025 to 0.1 MPa			1			
	0.08 to 0.3 MPa			2			
	0.2 to 0.65 MPa			3			
	0.3 to 1.0 MPa			4			
6. Nom. pressure PN	PN 16				16		
7. Op. temperature °C						140	
8. Nominal diameter	DN						XX

Ordering example: Outlet pressure regulator DN 25, PN 16, max. temperature 140°C, body material: brass, connection: internal thread G 1, with direct inlet of reducing pressure, with spring range 0,2 to 0.65 MPa is marked as: **RD 102 V13-16/140-025**



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