LDM, spol. s r.o. Czech Republic	INSTRUCTION FOR INSTALLATION AND SERVICE DIRECT ACTING CONTROLLER OF OUTPUT PRESSURE DN 15 - 50 PN 25	RD 122 V PM - 093/10/04/GB

The instructions for installation and service RD 122V are binding for users to ensure proper function of valves. The user must keep the rules said here while servicing, installation and using.

I. TECHNICAL DESCRIPTION AND VALVE FUNCTION :

1.1. Description:

Direct acting controller of output pressure type RD122V is valve, determined for reducing of medium output pressure and it's maintaining on adjusted value. This is ensured by diaphragm, loaded by output pressure from one side and by spring from the other side. The diaphragm deflection is transmitted to valve's plug, the increasing of output pressure causes closing of valve. Thanks to pressure balanced plug, the value of output pressure isn't influenced by pressure conditions inside the valve.

If the required value of output pressure lies in the area, where the ranges of individual spring are overlapping, it's better to use the spring with lower range and reach better controller's sensitivity.

As a standard, the valve is equipped with impulse pipe, for the connection to output pipeline joint.

1.2. Application:

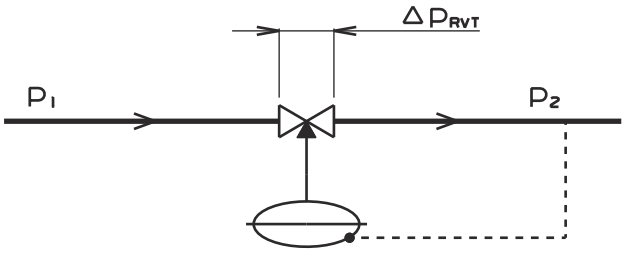
The valves are designed for operation in common warm-water and hot-water regulation circuits at heatings and also in operations with some specific media features such as for example refrigerating industry and air-condition technology. Maximal differential pressure on the valve must not exceed 1.6 MPa.

1.3. Working media:

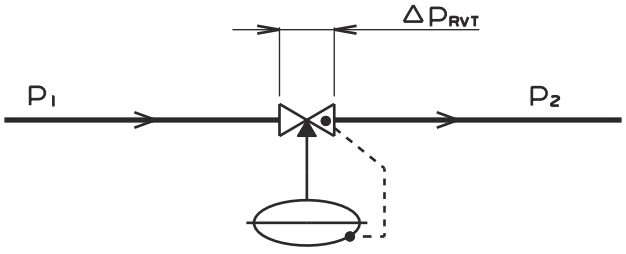
Valves RD 122 are suitable for application in devices where regulated media are water, air or low-pressure steam up to 1,0 MPa. They are also suitable for coolants and other non-aggressive liquid and gaseous media within temperature range +2 °C to +150 °C (eventually to +180°C). Sealing surfaces of a throttling system are resistant to common sludges and media impurities, but if any abrasive objects are present, it is necessary to place a filter into the pipe before the valve to secure long-run reliable function and tightness.

1.4.Controller's basic schedule of connection:

with input of reduced pressure through impulse pipe (V2,V3)



with direct input of reduced pressure (V4)



II. DIRECTIONS FOR INSTALLATION AND OPERATING OF VALVE:

2.1 Valve installation into the pipeline:

2.1.1. Installation positions

The controller basic working position is with the valve body up and the control head down. This position must be kept especially in case of steam pressure reduction. If the medium is liquid, with the temperature up to 90°C, the controller can be installed into horizontal pipeline with side located control head or into vertical pipeline. However, at gaseous media with lower temperatures the valve may be installed at any position. The flow direction is determined by an arrow on the valve body.

2.1.2. Instructions for process of installation

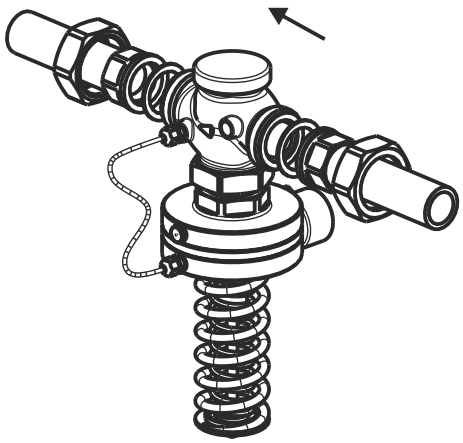
It is necessary to assure alignment of parts at pipe connections between the pipe and the valve. Possible pipe reductions before and after the valve must be gradual (recommended wall slope angle of the cone reducer against the pipe axis is 12 to 15°) and the valve should not be less by two dimensions than the input pipe. To have a quality function and low noise level it is recommended to let a straight pipe segment with a length of min. 6x DN.

The pipe system must be free of impurities, which would cause damage of sealing surfaces or choking of pressure impulses during operation. If any impurities occur, it is necessary to place a suitable filter into the pipe before the valve.

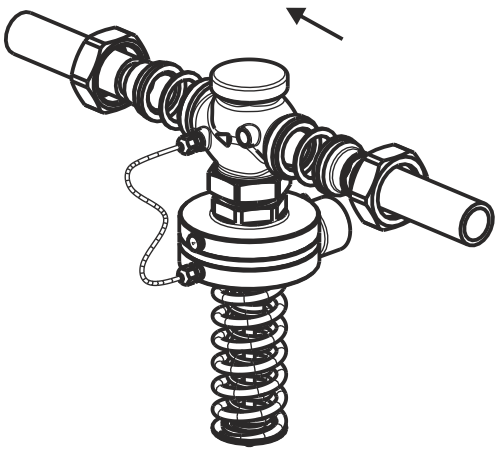
If welding ends are used the valve must be fixed in a correct position in the pipe. Once weld spots are made the valve and union sealing must be removed from the pipe. A cap nut to be pushed off and weld connections to be welded. Back valve installation can be done after coupling sleeves cooled down.

Attention!

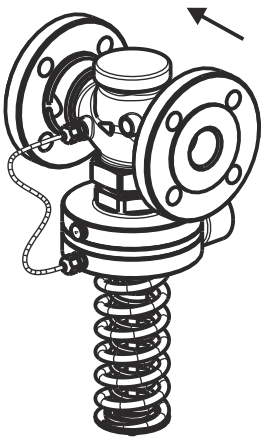
If this process is not followed, there is a risk of damage of sealing materials in pipe unions and also inside the valve.



RD 122 V/T



RD 122 V/W



RD 122 V/F

2.2. Impulse pipeline connection:

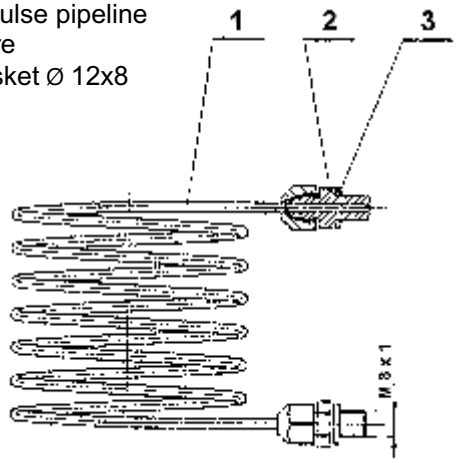
Membrane area connection to the device output pipe is carried out by copper tubes connected with screw fittings. The tubes are a part of a valve delivery. It is recommended to place a pressure output (welding fitting) from the side of pipeline to avoid penetration of impurity and sludge from the pipe bottom to the impulse tube and also to avoid air intake.

Version V4 has an integrated connection between the valve's body and control head (direct input).

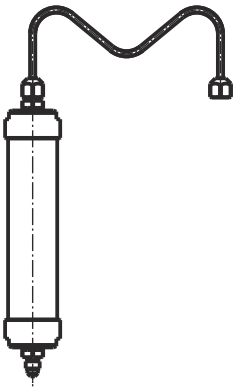
Version for temperatures up to 180°C is equipped with condensate cooling reservoir. It's installed between the impulse pipe and control head, axis of reservoir must be vertical.

Impulse pipeline to bring a pressure impulse to the controller:

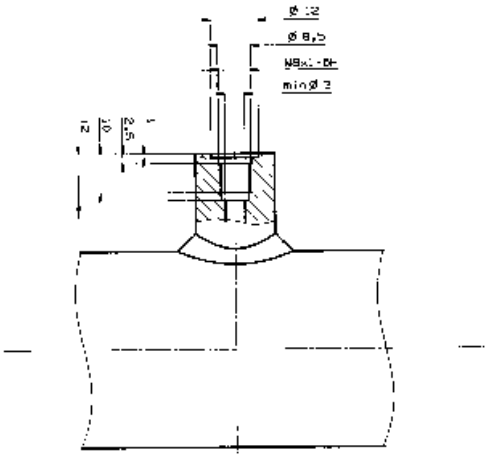
1 Impulse pipeline
2 Flare
3 Gasket Ø 12x8



Condensate reservoir



Welding fitting:



Welding coupling sleeves to connect a pressure impulse are a part of the valve delivery.

2.3 Post-installation inspection:

Once pipe is filled with operation liquid (at liquid media) it is necessary to deaerate impulse tubes and membrane chambers by means of connecting screw fittings. If the condensate cooling reservoir is used, it's recommended to fill it by condensate or clean water , prior the steam is brought for the first time.

Then the pipe system must be pressurized and tightness of all connections checked.

2.4 Output pressure adjustment:

Output pressure adjustment is made by a change of spring prestressing with a setting nut so:

- rotation direction clockwise ... output pressure is increasing
- rotation direction anti-clockwise ... output pressure is decreasing

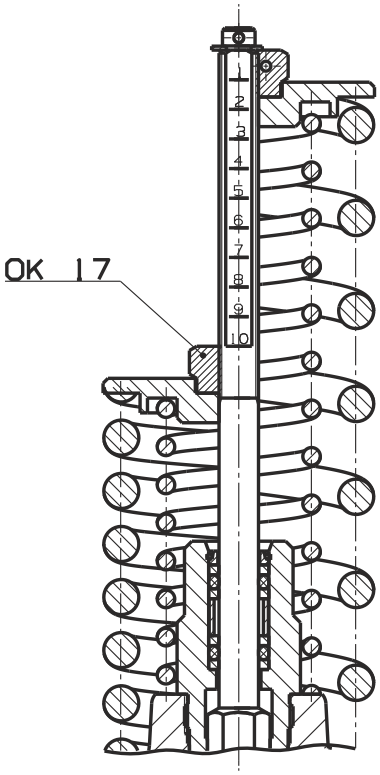
Adjusting of controller is done:

a) when the pressure is steady (i.e. zero flow), if it´s necessary to prevent increasing of output pipeline pressure above the set value

b) when the flow of medium is nominal, if the target is to assure optimal working condition.

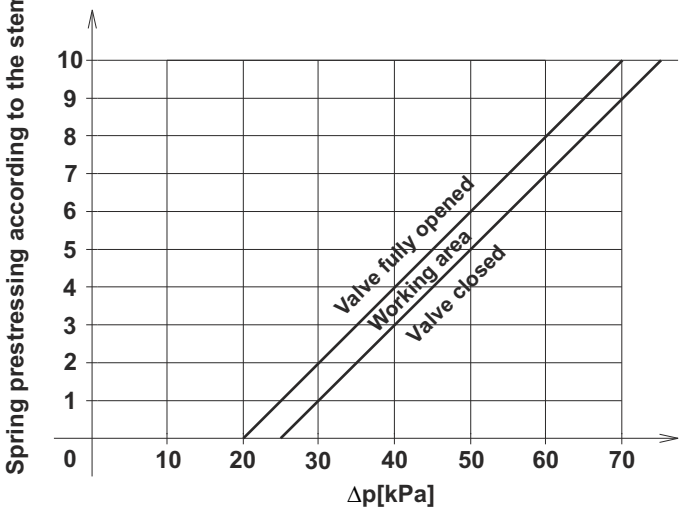
The adjusting nut end positions are determined wire rings on the control head stem. The nut can be sealed in this position when the adjusting of required value of output pressure is finished.

Spring´s setting:



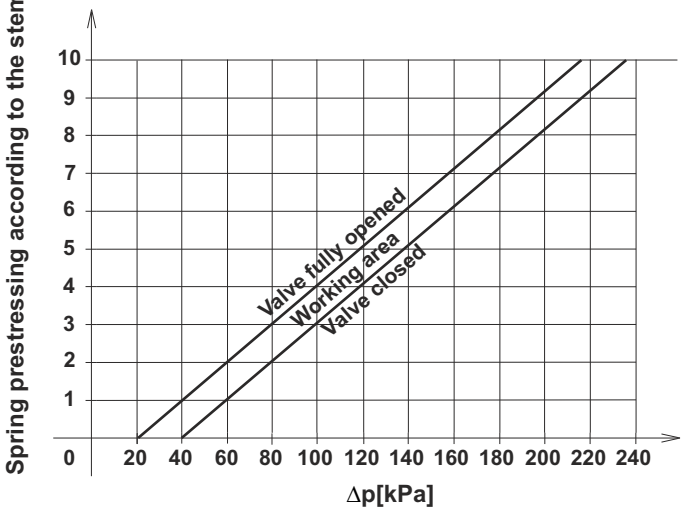
Values of set output pressure can be taken from to the gauge or readed from mentioned charts according to the value on the head stem scale:

DN 15÷50; rangeof springs 25÷70 kPa (diaphragm 63cm², red spring)



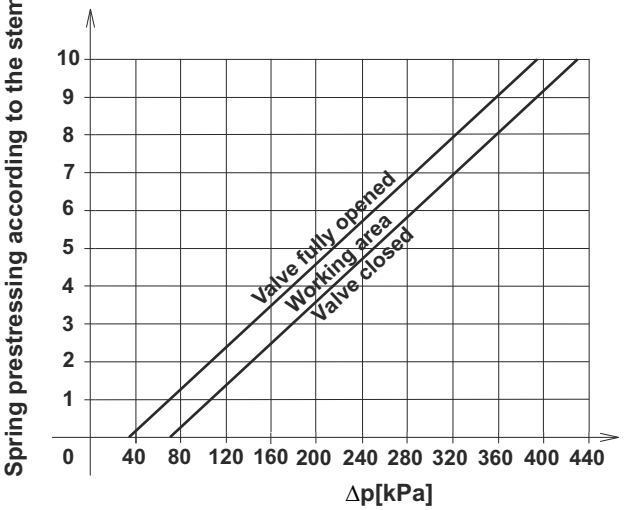
Change of setting at one revolution: Δp = 0,83 kPa

DN 15÷50; rrangeof springs 40÷220 kPa (diaphragm 63cm², red and yellow spring)



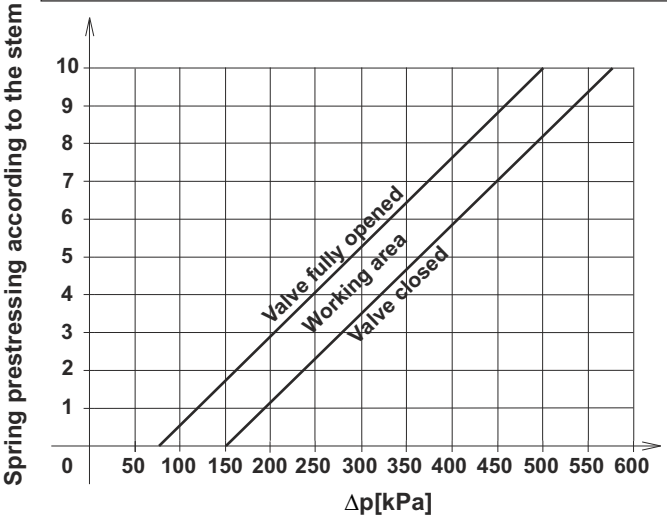
Change of setting at one revolution: Δp = 3,27 kPa

DN 15÷50; rangeof springs 70÷410 kPa (diaphragm 63cm², red and black spring)



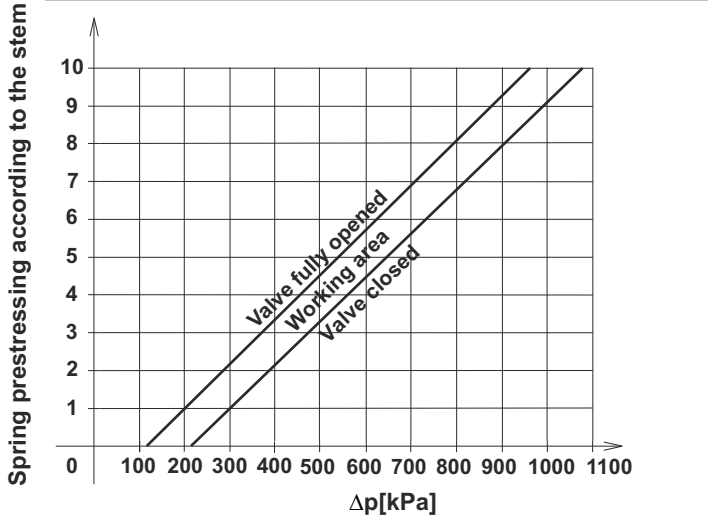
Change of setting at one revolution: Δp = 6 kPa

DN 15÷50; rangeof springs 150÷550 kPa (diaphragm 26cm², red and yellow spring)



Change of setting at one revolution: Δp = 7 kPa

DN 15÷50; rangeof springs 220÷1000 kPa (diaphragm 26cm², red and black spring)



Change of setting at one revolution: Δp = 14 kPa

2.6 Maintenance:

The valves are maintenance-free, no preventive revisions or service interventions are requested for them.

Failure demonstrations	Failure cause	Localization and the way of removal
The controller works in a wrong way or does not work at all.	Impulse pipe choke	After impulse pipe loosening no working medium runs off from the tube. It is necessary to dismount impulse pipe and to secure its throughput.
	Penetration of undesirable impurities to the throttling valve system.	After valve dismounting impurities are visible in the throttling valve system. It is necessary to check and clean the area between the cone and the seat of the valve.
	Cracked or in other way broken membrane.	Working medium constantly runs off from the membrane area by ventilating bolt. It is necessary to exchange the membrane.

Within warranty time no action on the fitting may be done except output pressure setting. Before any action on the fitting the pipe system must be depressurized. The person who makes the action must be trained about the product. Further safety schooling and health work protection schooling must be done for him.
If any failure on the valve is detected, points a), b) or c) to be followed.
a) To send the valve to the address of LDM servis, spol s r. o. company where warranty rightfulness will be judged and service or exchange will be performed.
b) To report a failure to the service organisation and let them to send a spare fitting as a loan. To send the original fitting to the service where warranty rightfulness will be judged and service or exchange will be performed.
c) To ask for a service action directly in the place.

2.8. Warranty conditions:

The product is under warranty provided by the producer for 24 months after delivery date. If the warranty is accepted, the producer pays the repair cost or the product replacement and its transport back to the customer. If the customer asks for a service action directly in the application place, he pays necessary transport cost. If the warranty is not accepted, the customer pays all incurred costs.
The producer does not guarantee product operation and safety under different conditions than they are stated in these assembly and maintenance instructions and in the product catalogue sheet. Any use of the product under other conditions must be consulted with the producer. Valve failures caused by medium impurity are not considered as under guarantee.

2.9. Waste disposal:

Disposal of packing material and fittings after their scrapping is made in a common way, for instance by handover to a specialized organization for a disposal (metal parts metal scrap, wrapping + other non-metallic parts municipal refuse).

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