

LAROX VALVES

OPERATION MANUAL

MODELS PV AND PVE

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Read these instructions before starting installation, operation or maintenance jobs.

Keep these instructions near the valve.

Observe the safety instructions.

VALVE MODEL SELECTION

PVE	100	AK	10	-	2	0	3	L	R
TYPE	SIZE (DN)	ACTUATOR	PRESSURE CLASSES (PN)		FLANGE DRILLINGS	BODY MATERIAL	SHAPE OF FLANGE	OPENING TAGS	AUXILIARIES
PV = open PVE = enclosed PVS = sealed PVE/S = enclosed/sealed	25-1000	M=handwheel A=pneumatic AB=with manual override AK=with el.pneum. positioner AN=with pneum. positioner AU=with pneum. spring AV=with mech. spring H=hydraulic HP=with hydraulic positioner E=electro mechanical EO=electric for control	1= 1 bar 6 = 6 bar 10 = 10 bar 16 = 16 bar 25 = 25 bar 40 = 40 bar 64 = 64 bar 100=100 bar		1 = - 2 = DIN PN 10 3 = DIN PN 16 4 = DIN PN 25 5 = DIN PN 40 6 = ANSI 150 7 = ANSI 300 7 = ANSI 300 8 = BS TABLE D 9A = AS TABLE D 9B = AS TABLE E 9C = JIS 10 9D = JIS 16 Other on request	0 = GRS/Fe 1 = - 2 = AISI 316 3 = aluminium 4 = other 5 = plastic	types 1 - 4 Determined by the valve manufacturer	L = opening tags	Q = quick exhaust valve R= inductive limits S= magnetic proximity limits T= mechan. limits Z= solenoid valve X = must be specified

SLEEVE MODEL SELECTION

SBRT	10	100	/	250	/	3	L	2
SLEEVE MATERIALS	PRESSURE CLASSES (PN)	SLEEVE INNER DIA (mm)		SLEEVE LENGTH (mm)		SHAPE OF FLANGE	OPENING TAGS	FLANGE DRILLINGS
SBRT = styrene butadiene EPDM=ethylene propylene CR = chloroprene CSM = chloro-sulphone-ethene FPM = fluorine rubber HNBR = hydrogenated nitrile IIR = butyl NBR = nitrile NBRF = nitrile foodstuff quality NR = natural rubber NRF = natural rubber foodstuff quality PU = polyurethane _ /PU = PU-coating inside the sleeve _ /M = Larox SensoMate sleeve _ /VAC = Vacuum sleeve	1= 1 bar 6 = 6 bar 10 = 10 bar 16 = 16 bar 25 = 25 bar 40 = 40 bar 64 = 64 bar 100=100 bar			Depend on the sleeve inner diameter		type 1 - 4 Determined by the valve manufacturer (depending on the valve diameter / pressure class)	L = yes - = none	1 = - 2 = DIN PN 10 3 = DIN PN 16 4 = DIN PN 25 5 = DIN PN 40 6 = ANSI 150 7 = ANSI 300 7 = ANSI 300 8 = BS TABLE D 9A = AS TABLE D 9B = AS TABLE E 9C = JIS 10 9D = JIS 16 X = Other, must be specified

In spare sleeve orders, please use 4- or 5- figure code marked on the sleeve.

2. GENERAL

2.1. CONSTRUCTION

Larox valves are made of three main components

- flanged valve sleeve
- valve body, either open PV or enclosed PVE
- actuator and actuator control components, if applicable

The valve sleeve is the only part of the valve which is in contact with the medium flowing in the pipeline.

In the open body model the body and the actuator are connected to only one of the end flanges. The construction allows a slight deviation in the pipe angle and the valve can act as a shock absorber.

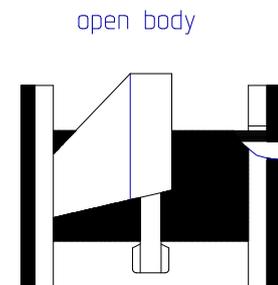


Fig. 1

Note that in case of a sleeve breakage, the flowing liquid will leak into the environment. It is therefore advisable to use enclosed body valve, if this occurrence is undesirable.

The body of the enclosed model hinders a straight spray of flowing media to the environment. The lower part of the body has a plugged opening, which can be opened to investigate for sleeve breakage.

In case of a sleeve breakage, slight leakage can occur through bushings.

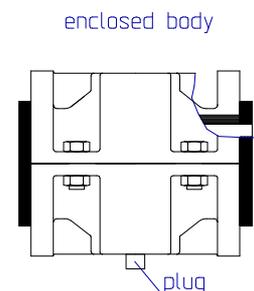


Fig. 2

2.2. OPERATION

The pinch valve closes so that two pinch bars moved by the actuator, squeeze the valve sleeve, closing on the centerline. The closing mechanism causes the actuator to rise one half of the diameter length.

2.3 SAFETY INSTRUCTIONS

The valve closing mechanism makes the actuator move. Do not leave tools or parts of your body between the moving valve parts.

Note the dangerous places (see drawings 3A and 3B):



The actuator **risers** in both models (PV and PVE) 0.5 x valve nominal diameter (measure X).



In the open model the space between the pinch bars, the space between the upper pinch bar and fixing plate of the actuator and the space below the lower pinch bar.



In the enclosed model the space between the valve body and the fixing plate of the actuator and the ends of the bars of lower pinch bar below the valve body.

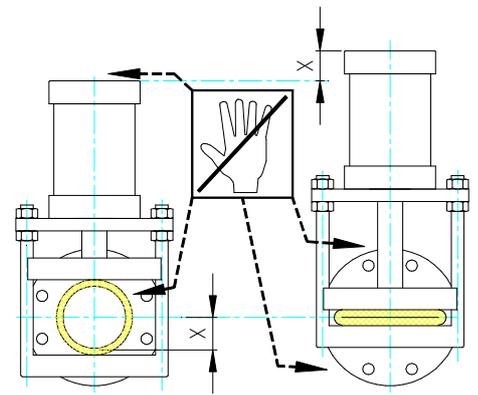


Fig. 3A - PV open model

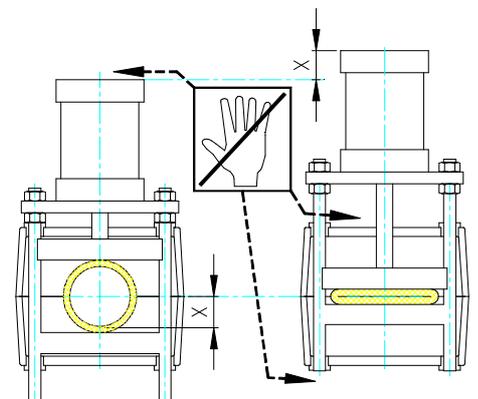


Fig. 3B - PVE enclosed model

Regarding the actuators, observe the instructions of the manufacturer. Note the possible remote control of automatic valves and turn it off before starting maintenance jobs.

3. HANDLING THE VALVE

3.1. RECEIVING AND STORAGE

Check the condition of the valve package on arrival. If it shows signs of transport damages, check the operation of the valve carefully. Normally, a visual inspection of the valve is sufficient. However, if valves have been damaged during transportation, contact your nearest Larox sales office immediately.

Store the valve and spare sleeves carefully. Direct sunlight (UV radiation) deteriorates the sleeve.

A recommendable long term storing place is dry, with free air circulation, temperature +5...30 °C.

3.2. LIFTING THE VALVE

When lifting the valve, fasten the ropes to the valve body or around it. Note the centre of gravity and support the valve to avoid it turning around. In some models the centre of gravity is located towards the actuator.

3.3. INSTALLATION IN PIPELINE

Note the following:

OPEN BODY MODEL (PV)

The sleeve has not been designed to withstand axial forces. The pipes must therefore be supported properly so that neither tension nor compression is caused.

Make sure that no foreign items get between the pinch bars and the sleeve.

If possible, protect the sleeve from direct sunlight. Direct sunlight and UV radiation deteriorate certain rubber qualities; this must also be considered during normal use.

A lengthwise angle deviation of max. 5° in the pipe is allowed (Fig. 5).

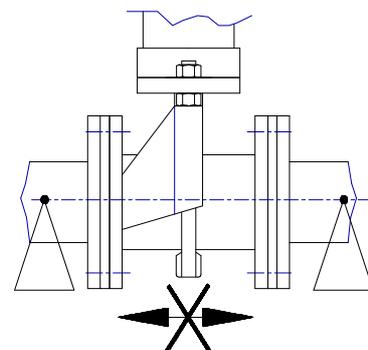


Fig. 4

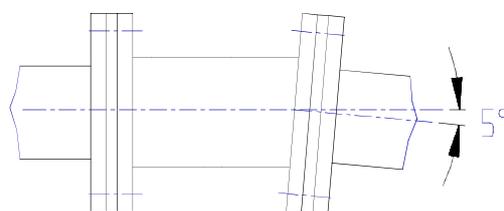


Fig. 5

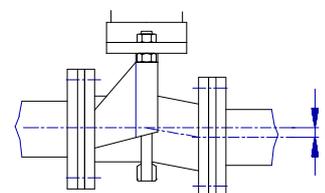


Fig. 6

Deviation in the center line of the pipe (C), (Fig. 6):

PV 80...100	max. 5 mm
PV 125...250	max. 10 mm
PV 300...500	max. 15 mm
PV 550...1000	max. 20 mm

ENCLOSED BODY MODEL (PVE)

Make sure that no foreign items get between the valve body and the actuator.

BOTH MODELS (PV AND PVE)

The valve nominal size means the inner diameter of the sleeve. The pipe inner diameter should match this diameter as closely as possible.

Whenever possible, install the actuator in a vertical position.

If you have to install the actuator horizontally, it has to be supported to ensure the operation, especially if the actuator is heavy. Install a sliding surface under the actuator (Fig 7).

The support can be fixed on the wall (1), on the floor (2) or the pipeline (3).

The valve can be installed in either way with respect to the flow direction.

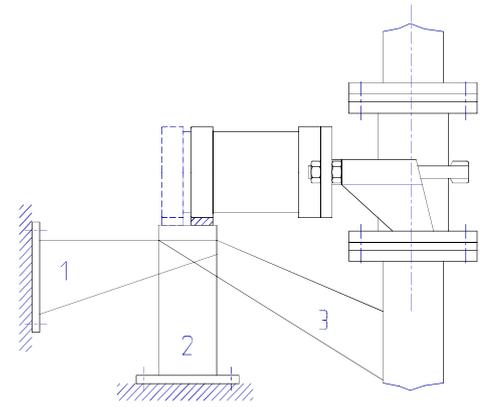


Fig. 7.

When installing the valve to the pipeline, it has to be in the open position. Tighten the end flange screws smoothly in turn on the opposite sides of the flange.

4. OPERATION CONTROL AND MAINTENANCE

4.1. OPERATION CONTROL

During the operation the valve does not normally require any maintenance operations. The sleeve change is described in 4.2.

To ensure smooth operation, it is recommendable to change the valve sleeve at regular intervals.

Regarding the actuators, observe the instructions of the manufacturer.

Note the safety instructions, see 2.3.

4.2. CHANGE OF VALVE SLEEVE

Observe the safety instructions (see 2.3) and the instructions for adjustment of valve (4.3) to prevent accidents and to ensure the correct operation of the valve.

4.2.1. Open model valve

Open the valve and detach it from the pipeline. If the valve is equipped with opening tags, loosen the fixing screws (8 pcs) at the pinch bars and pull out the opening tags (Fig. 8).

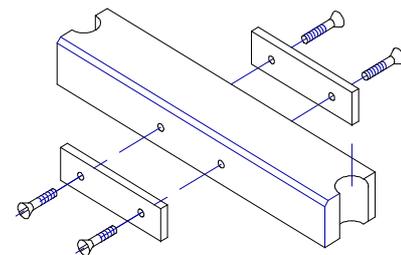


Fig. 8.

Remove the broken sleeve by bending the rubber flange of the sleeve and by wrenching it e.g. with a big screwdriver through the steel flange.

Put in the new sleeve by pressing the rubber flange on the opposite sides together, pushing its edge as far as possible through the steel flange and wrenching the rest of the sleeve through the flange e.g. with a big screwdriver (see Fig. 9).

The rubber flange of the sleeve allows bending. Avoid damaging the sleeve with a sharp tool.

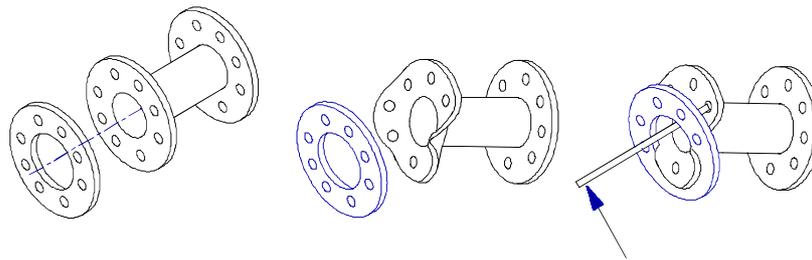


Fig. 9.

After putting in the new sleeve, fix the opening tags to the pinch bars. Adjust the pinch bars before installing to the pipeline.

N.B. At sleeve change, it is always important to check and, if necessary, to adjust the position of the pinch bars. See 4.3.

4.2.2. Enclosed model valve

Open the valve and detach it from the pipeline. Open the bolts between the valve body halves and detach the lower part of the body. If the valve has opening tags, detach them from both upper and lower pinch bars, 8 pcs screws (Fig.8). Take out the damaged sleeve and put in a new one. If the sleeve is stiff, detach the lower pinch bar. Remember to fix the opening tags if applicable. Check the body sealing between the body halves and the condition of the plastic bushings. A worn sealing and/or worn bushings may cause leakage to the environment in the event of a sleeve breakage. Assemble the valve and adjust the pinch bars before installing the valve to the pipeline.

N.B. At sleeve change, it is always important to check and, if necessary, to adjust the position of the pinch bars. See 4.3.

4.3. ADJUSTMENT OF THE VALVE

After every sleeve change, the closing of the valve has to be controlled and adjusted if necessary. A wrong adjustment may cause a considerably shorter life time of the sleeve and leakage from the valve when the actuator is in the closed position.

Observe the safety instructions (see 2.3). Do not leave tools or parts of your body between the moving valve parts.

Before reinstallation of the valve into the pipeline: Close the valve by using the actuator. Adjust the pinch bars parallel by means of the nuts, which are on both sides of actuator fixing plate (Fig.10, nuts 1 and 2), so that from one end of the sleeve an even, narrow light slit (appr. 0.5 mm) (Fig. 10.1) is shown on the whole squeezed point of the sleeve or symmetrically on both sides.

Unscrew the lower nuts (Fig. 10.2, nut 2) X mm from the fixing plate (see the measurements in the table, Fig. 11). Now when the screws on the upper side of the fixing plate (Fig. 10.3, nut 1) are tightened, the lower pinch bar rises and causes a sufficient squeeze on the sleeve to close the flow against the pressure in the pipeline. After this has been done the valve is ready to be installed to the pipeline.

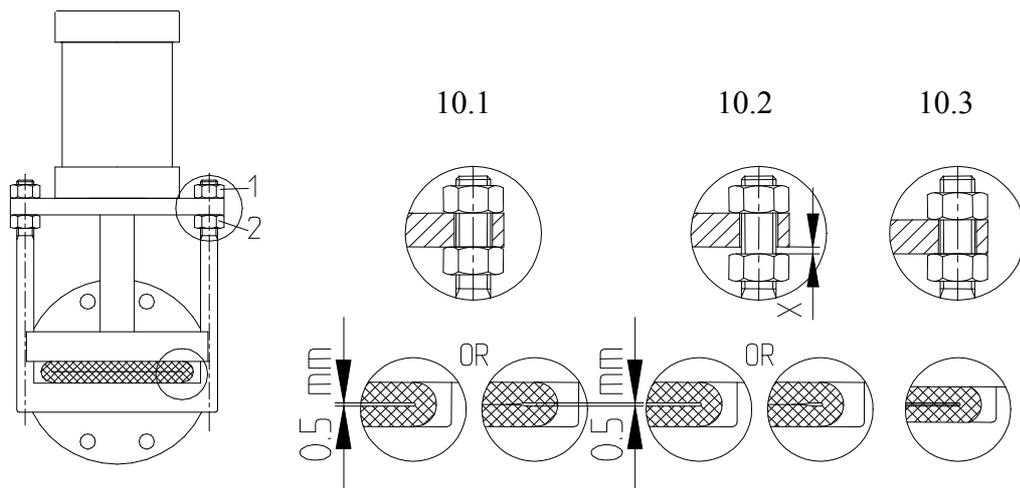


Fig. 10.

VALVE SIZE Measure mm	PRESSURE CLASS		
	1	6 - 10	16 - 25
25 - 100	1.5	2.5	3.5
125 - 250	2.0	3.0	4.0
300 - 500	3.0	4.0	
550 -	4.0		

Fig. 11.

If the valve is handwheel-operated, it is enough to check that the pinch bars are parallel and the light slit is shown. A sufficient squeeze is achieved by turning the handwheel 1/3...3/4 rounds after the valve feels tight: if the pressure in the pipeline is 1 bar - appr. 1/3 of a handwheel rotation; PN 10 bar - appr. 1/2 of a handwheel rotation; PN 25 bar - appr. 3/4 of a handwheel rotation. If the valve is supplied with a reduction gear, the number of rotations is multiplied by the gear ratio.