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|  | INSTRUCTION FOR INSTALLATION AND SERVICE | UV 2x6 UV 2x7 |
| | SHUT-OFF VALVE | PM - 060/21/05/GB |

The instructions for installation and service of valves UV 2x6 and 2x7 are binding for users to ensure proper function of valves. The user must keep the rules said here while servicing, installation and using. Technical details of individual execution are specified in catalogue data sheets. If the usage of the valves is different from mentioned herein, the guarantee terms are not valid any more.

This instructions are valid for these products:

UV 226, 236 ... Shut-off valve with hand wheel

UV 227, 237 ... Shut-off valve with hand wheel and with hard metal overlay seat

1. Description and application

The valve was manufactured and tested in accordance with ISO 9001 standard (Quality management systems Requirements)

1.1 Description

Shut-off valves are designed to shut off of process medium flow such as water (except of drinkable), steam, non-aggressive gases and other media compatible with material of valve body and inner parts. The valves made of cast steel or stainless steel.

Valves UV 2x6 and 2x7 comply EN 13709.

1.2 Operating conditions

Valves should be operated under the condition, which were considered during their selection (type, dimension, materials etc.) In case of different working conditions ask the manufacturer for review/confirmation of suitability.

Recommended strainer dimensions:

For reliable function of the valves, the producer recommends to pipe strainer of mechanical impurities.

| DN, Type | Recommended maximum mesh size |
|------------|-------------------------------|
| DN 15-65 | 0,6 mm |
| DN 80-200 | 1,0 mm |
| DN 250-400 | 1,6 mm |

To assure stated leakage rate, the shut off torque must be applied into the hand wheel. Direction of rotation see arrow at the hand wheel.

| Nominal size DN | Shut-off torque [Nm] |
|---------------------------|----------------------|
| 15 - 25 | 35 |
| 32, 40 | 50 |
| 50, 65 | 80 |
| 80 | 200 |
| 100 | 250 |
| 125, 150 (UV 2x6/7 S, R) | 300 |
| 150 - 400 (UV 2x6/7 B, V) | 150 |

2. Installation

Valve has to be installed and put into operation by qualified person! Qualified person is a person acquainted with installation, putting into operation and manipulation herewith product, and which is qualified in enclosure. As well he must be for-educated about health protection and safety at work.

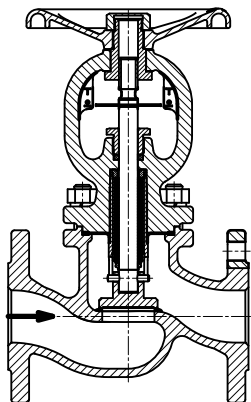
2.1 Preparation before installation

The valves are delivered completely assembled from the company and tested. Prior to the piping of the valve, it is necessary to compare the data on the valve tag with data from accompanying documents. The protective blinds must be removed from the valve. The valves shall be inspected against mechanical damage or being stained, especially in the inner area and on sealing flanges. Also the piping system shall be cleared from all impurities that could cause damage to sealing surface and thus cause a loss of tightness of the valve.

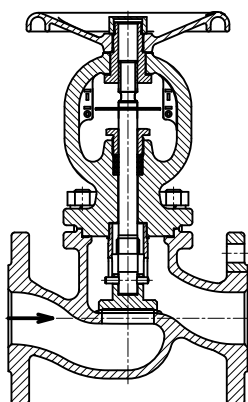
2.2 Installation of valve into pipeline

The valve must be piped in such direction, that the arrows on the valve body correspond to the process medium flow.

UV 2x6, 2x7 R

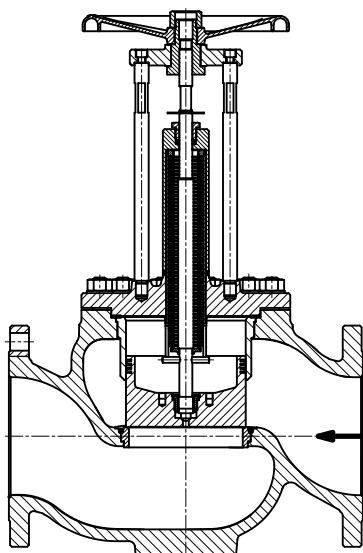


UV 2x6, 2x7 S

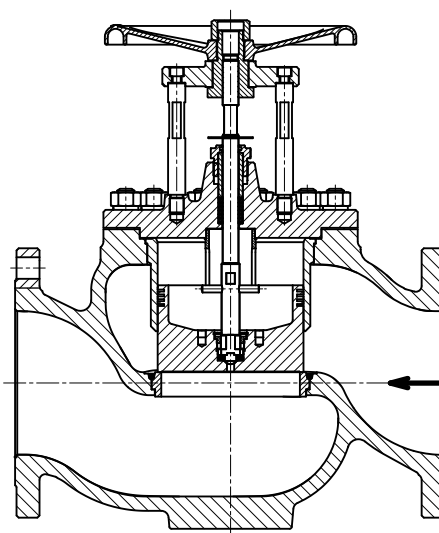


Pic.1: Flow direction of valve with disc or contoured plug

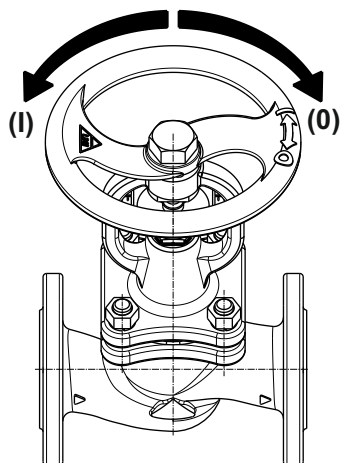
UV 2x6, 2x7 V



UV 2x6, 2x7 B



Pic.2: Flow direction of valve with pressure - balanced plug



Pic. 3: Hand wheel - open (I), close (0)

2.3 Installation and maintenance of the valves

The valves **DN 15 - 150** can be installed in any position but the proper space for hand wheel operation should be provided. For the valves **DN200 and greather**, the basic working position, i.e. vertical stem and hand wheel above the valve, is strictly recommended, regarding the operation and maintenance purposes. If necessary, the other positions are possible but, in case of valve dismounting from the pipeline for the repairs, the additional expenses for dismounting and back installation aren't in the scope of warranty and must be paid by customer as extra money. The flow direction is indicated with the arrows on the valve body, however, the alternate flowing through the valve is possible except valves type V, B. The valves require no preventive revisions or service works except tightening of the graphite packing (in non-bellows version) in case of the leakage.

The manufacturer recommends periodic visual inspections of the operational external leakage.

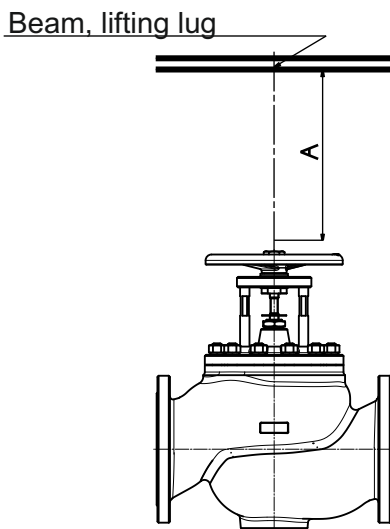
Recommended period controls external leakage

| Media Type | Packing set | Cover and flanged joints |
|--------------------------------------------------------------------|----------------------|--------------------------|
| Normal fluids - water, steam, air, ... | min. 1x per 6 months | min. 1x per 12 months |
| Dangerous liquids - flammable, explosive, toxic or other dangerous | min. 1x per 3 months | min. 1x per 6 months |

For the valves all DN operated with temperatures below 0°C, they must be mounted in their basic position, ie. the actuator or hand wheel is above the valve body.

The valve must be installed with proper space around (esp. below and above), for the maintenance and other activities linked with valve operation and maintenance. For the valves DN200 and greather, the clearance above the valve and suspension for lifting device must be provided, see pic.4.

| DN | A (Minimum distance for disassembly) |
|------------|--------------------------------------|
| DN 15-150 | 500 mm |
| DN 200-400 | 1500 mm, with suspension |



Pic.4: Minimum space above the valve

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

- no excessive forces can be transferred from pipeline to valve, the valve should not be used as a pipe support
- the piping itself shall be carried out carefully with alternate tightening of the screws so as to prevent tension. Pipeline flanges must be coaxial with valve flanges.

In case of pipeline cleaning (flushing, outblowing) the valve must be replaced by appropriate pipe spacer!

2.4 Checking after installation

Piping systems should be pressured after valve installation and checked if there is not leak. Check the packing set tightness as well.

3. Operating and Service

3.1 Packing set

In case of bellows packing (valve type R,V), the packing does not require any maintenance. The gland bolt isn't tightened. The leakage is evidence of bellows bursting/damage. In such case, the gland bolt must be tighten and „safety“ packing takes over the function of bellows. The bellows must be replaced as soon as possible.

In case of expanded graphite rings packing (valve type S, B), the rings are gradually abraded by stem movement. If the leakage occurs, the gland bolt must be tightened, eventually, another ring must be added. Graphite packing shall be tightened in steps, ie. by $\frac{1}{4}$ of turn to achieve proper tightness.

3.2 Maintenance and replacing of the packing (applies to non-bellows version only)

If the packing is to be replaced completely, first the stroke indicator shall be removed, packing bolt loosen and then the nut retaining the valve bonnet removed. Then remove complete set of the bonnet with plug and stem. By turning the hand wheel into closed position in steps, it is necessary to remove stem and plug from stem nut and carefully (sealing surface of the stem must not be damaged) take it out from the bonnet. Now the loosen packing bolt can be removed along with damaged sealing rings. Carefully clean the sealing area of the packing set.

Into packing area it is possible to put back all the parts in this sequence: washer, given number of graphite rings, washer and packing bolt which shall be tightened by hand only as the final tightening by wrench shall be carried out after the valve is completely repaired. Then carry out assembly in opposite sequence as in dismantling the valve but it is necessary to replace the bonnet gasket. After reaching the operating conditions, the packing bolt shall be re-tightened in steps till the tightness is achieved. The valve must not be under pressure when replacing or repairing the packing of the valve!

In case the valve cannot be stopped from the operation, it is possible to carry our repair work of the valve packing during service conditions. The valve is equipped with back seat (only the valves produced after 09/2005) preventing the process medium from leaking. First the valves shall be fully open until the back seat is closed. Then the position indicator shall be removed and packing bolt loosened. If the process medium still leaks, increase the closing force of the back seat by turning the hand wheel into fully open position. Insert the cut graphite ring or graphite string into the packing area and re-tighten the packing bolt by wrench. After opening the back seat, it may be necessary to further re-tighten the packing by turning the packing bolt till the tightness is achieved. During the whole period of the repair, the back seat must be closed! The valves without back seat cannot be repaired under pressure! Such a repair is of a temporary matter and during the total stop of the loop, the valve packing shall be replaced completely as described in previous case above.

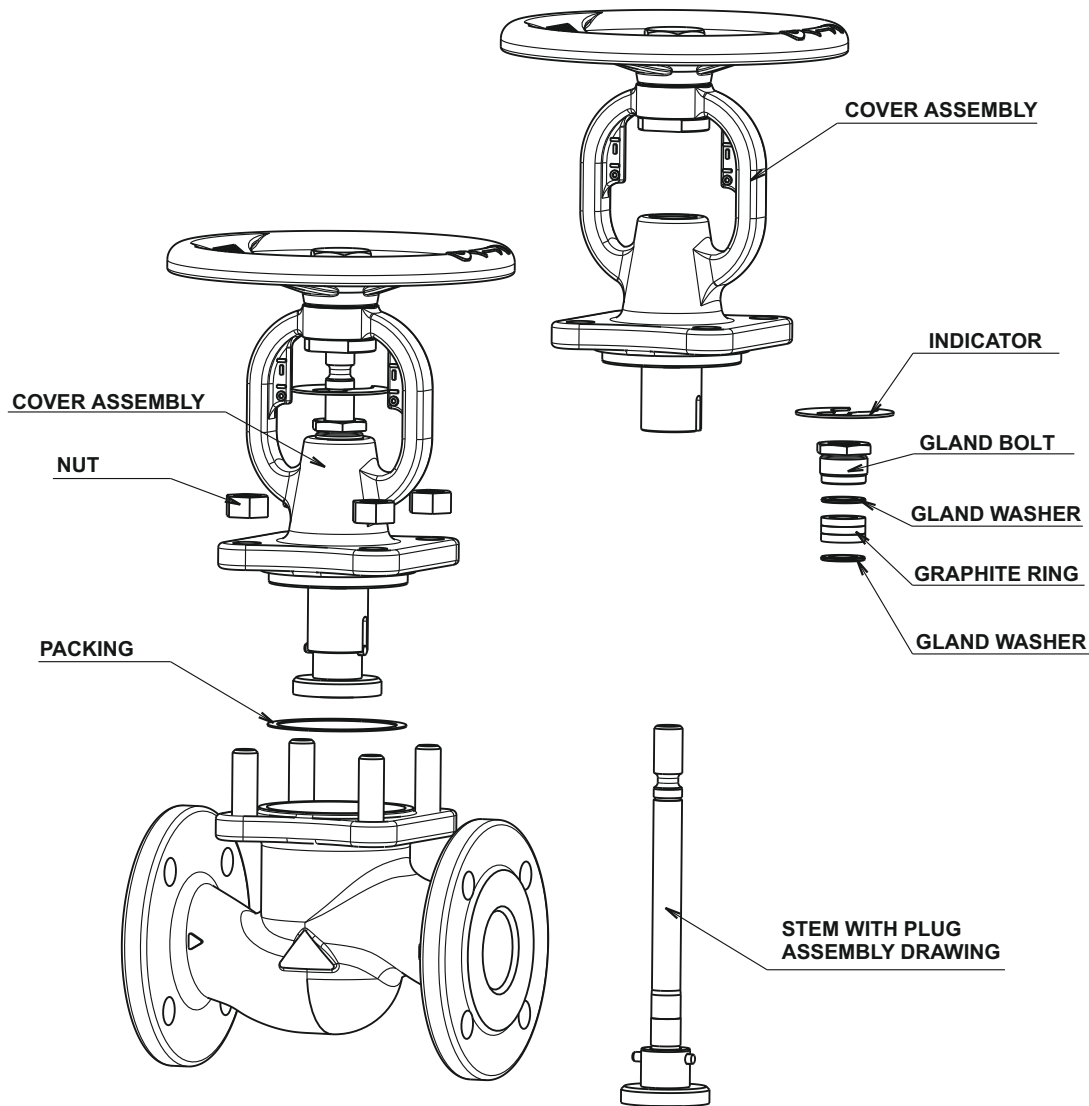
Graphite rings cannot be greased. Close attention shall be paid to cleanness of all parts especially the packing area and stem surface.

Table graphite rings

| DN | Gland packing | | | Bonnet gasket | | Tightening torque * [Nm] |
|-------|-----------------------------------------|---------|-----|---------------|---------------|-----------------------------|
| | Material | Size | pcs | Size - UV 2x6 | Size - UV 2x7 | |
| 15-25 | Expanded graphite 1,6 g/cm ³ | 20x12x4 | 3 | 48x40x1,6 | 47x41x2,5 | 30 |
| 32-40 | | | | 72x62x1,6 | 71x63x2,5 | 50 |
| 50-65 | | 28x18x5 | 3 | 88x76x1,6 | 87x77x2,5 | 90 |
| 80 | | | | 120x108x1,6 | 119x109x2,5 | 90 |
| 100 | | | | 142x128x1,6 | 141x129x2,5 | 90 |
| 125 | | | | 164x148x2,4 | 163x149x2,5 | 320 |
| 150 | | 34x22x6 | 3 | 192x176x2,4 | 191x177x2,5 | 320 |
| 200 | | | | 253x221x2 | 252x222x2,5 | 320 |
| 250 | | 42x28x7 | 6 | 298x258x2 | 297x259x2,5 | 320 |
| 300 | | | | 326x282x2 | 325x283x2,5 | 480 |
| 400 | | | | 426x370x2 | 425x371x2,5 | 580 |

* Tightening torque of the nuts on the bonnet

Note: In case application cord of graphite recommended with producer consult used materia.



3.3 Malfunction and their solution

In warranty period, no service by the user is allowed except tightening the packing in non-bellows version. Prior to any service work with the valve, the piping system must be depressurized. The personnel carrying such a work must be well trained about the product and also trained concerning safety regulations at working site. In case the problem cannot be solved, take the steps according to points a), b) or c).

- Send the valve to the address of LDM servis, spol. s r. o., where the valve will be inspected and changed or repaired.
- Report the malfunction to a local service company which can lend you a spare valve. Send the valve over to our service company where it will be repaired or replaced with new one.
- Require service work directly at site.

4. Warranty conditions

The producer provides a 24-month warranty for this product starting with the date of dispatch from the factory. In case the claim is found relevant, the producer shall pay the cost of repair and transportation cost for sending it back to the customer. If the customer requires the service work directly at site, he shall be bound to pay the travel cost of the service personnel. If the claim is not found relevant, he is bound to pay all the cost arised.

The producer does not guarantee the proper function of the product under other conditions than those stipulated in this instructions for installation and maintenance of the product. Any other service conditions shall be consulted with the producer. The valve defects caused by impurities in medium will not be found relevant and valid and will be considered as after-guarantee service.

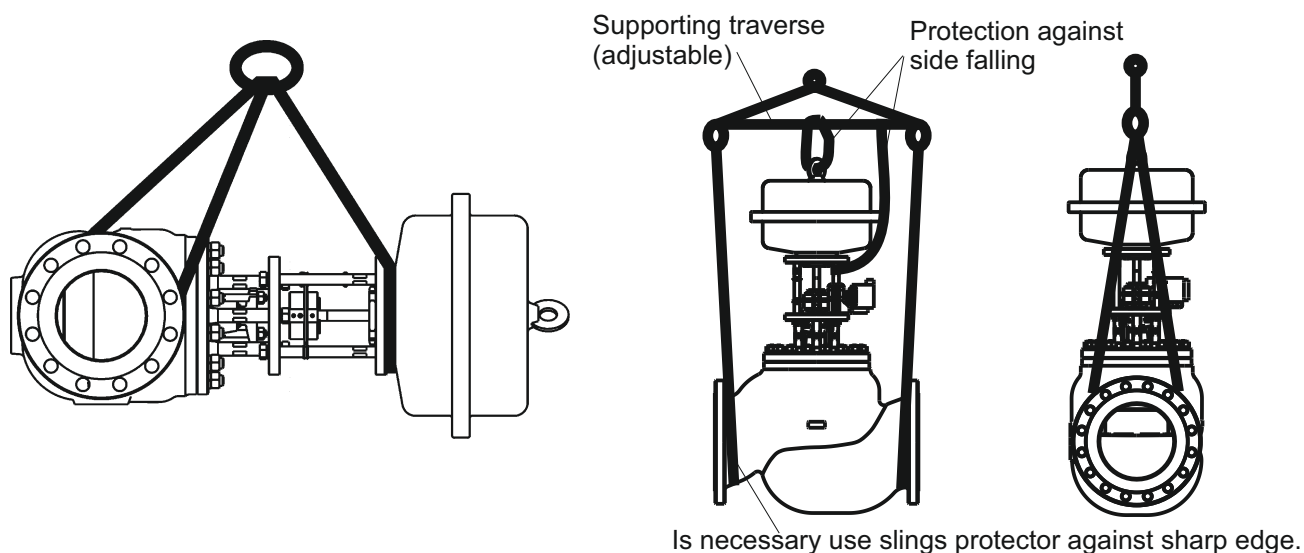
5. Transportation and storage

During transport and storage, the valve must not be exposed to direct climatic and other harmful effects (rain, direct sunlight) or placed in environment with relative humidity exceeding 90 %.

Flanges must be protected with blinds (these are part of delivery) .

Suitable tools/devices should be used for valve lifting during the transport and installation (e.g. lifting harness). For DN 15-150 the valve can be lifted only the handwheel. For DN 200-400, the lifting straps/rope must be fixed round the flanges and Yoke, (see pic.5).

The manipulation must be done carefully, not to damage the valve. **Especially, the attention to valve stem is required.**



Pic.5: Example of lifting device usage

6. Waste disposal

Packaging material and the valves shall be disposed of in the common way such as by handing over to a specialized enterprise for disposal of (body and metal parts - metal waste, other non-metal parts - communal waste).

7. Maxim. permissible working overpressure acc. to EN 12516-1+A1



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