



I N S T R U C T I O N S
For installing and servicing self-operating
pressure regulators UBAS-HP 1/4" - 1/2"



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IMI0032E.doc
Rev.0 07/07/10
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1. GENERAL INFORMATIONS

1.1 – RIGHT TO MAKE MODIFICATIONS AND "COPYRIGHT"

The regulations, standards, etc. mentioned in these operating instructions are based on the knowledge that was available when they were drawn up and are not subject to modification. Users are responsible for applying the latest versions of these.

The supplier reserves the right to make modifications and technical improvements to data and information whenever it sees fit. Under no circumstances may users require modifications or improvements to be made to valves that have already been delivered.

2. GUARANTEE

The scope and duration of the guarantee are indicated in the manufacturer's "General Conditions of Sale".

The applicable conditions are those that were in force at the moment of delivery.

Amongst other things, the guarantee does not cover damage to valves deriving from the following:

- Ignorance or non-observance of these operating instructions!
- Insufficiently trained fitters, operators or maintenance men;
- Normal wear and tear;
- Incorrect or negligent use of the valves.

The manufacturer declines all liability for the following which are not covered by the guarantee:

- Non-observance of accident prevention regulations and/or safety legislation;
- Incorrect assembly, start-up or use;
- Improper or incorrect use, inappropriate use or different working conditions from those agreed.

Users are solely liable for physical injury and/or damage to property if the above is not observed.

3. VALIDITY OF INSTRUCTIONS

These instructions refer to self-operated single-seat pressure regulators featuring spring-loaded diaphragm servomotors:

- **UBAS-HP 1/4" - 1/2"**

SEE PARAGRAPH 8) (Figs.1-2)





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4. PRODUCT SAFETY INDICATIONS AND TAG SYSTEM

If and where appropriate, safety indications have been put inside tags on the sides of the pages of this manual.

These rectangular tags are placed vertically (as shown in the following examples) and contain four different messages communicating:

- The level of risk
- The nature of the risk
- The effects of the risk on people or products
- Instructions, if necessary, on how to avoid the risk

The box at the top contains a warning word (DANGER – WARNING – CAUTION – ATTENTION) which indicates the level of risk.

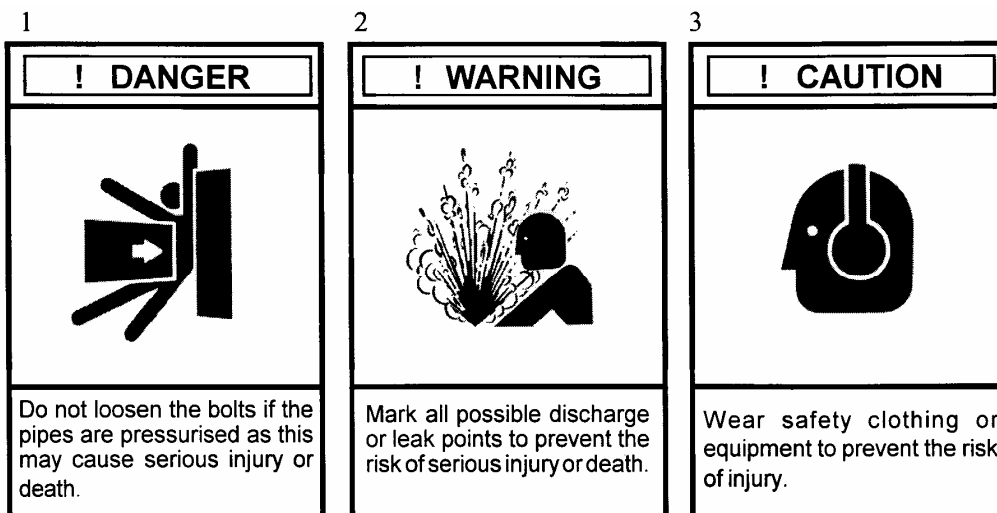
The box in the middle contains a drawing indicating the nature of the risk and its possible effects on people and property. In some cases, the drawing may suggest what preventive measures can be taken, such as wearing safety clothing.

The box at the bottom may contain a message with instructions on how to avoid the risk. In the event of risks for people, the message may also contain a more precise definition of the risk and its effects on people.

1) DANGER – Immediate risk which will certainly cause serious injury or death.

2) WARNING – Risk or hazardous behaviour which may cause serious injury or death.

3) CAUTION – Risk or hazardous behaviour which may cause minor injury.





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5. SAFETY WARNINGS

Thorough maintenance operations and overhauls are important for the safe and reliable operation of all valves.

The service procedures recommended by CARRARO and described in this manual are effective methods for carrying out maintenance operations. Please note that this service manual contains various warning and caution notices which should be read carefully in order to minimise the risk of injury to people or the possibility of using incorrect work methods which may damage the valves or make them unsafe. It is important to realise, however, that these warnings cannot be exhaustive.

CARRARO is unable to know, assess and inform customers or users of all the conceivable methods of performing maintenance operations and all the risks deriving from the use of such methods.

Consequently, CARRARO has not even attempted to start such a task. Therefore, whoever uses a service method or piece of equipment which is not recommended by CARRARO must make sure that neither his own or other people's safety, nor valve safety and performance are jeopardised by the chosen method.

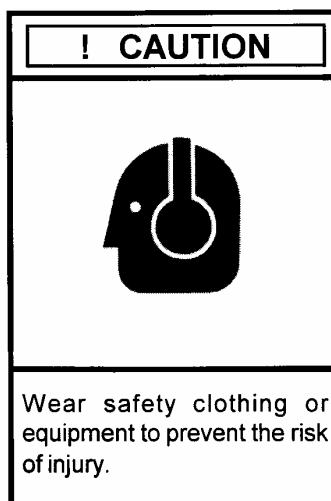
In case of doubt about the method used, please contact CARRARO.

Testing, installing or dismantling the valves or accessories may cause you to come into contact with fluids at very high pressures or temperatures and/or corrosive or erosive.

Therefore, take all safety precautions while testing, installing or dismantling the product; these include, wearing ear plugs, goggles and safety clothing, such as gloves, both in or near the work area.

Users of CARRARO products are responsible for training the staff that will use the product.

It is most important for these people to acquire a thorough knowledge of the instructions of the product, especially the ones contained in this manual.






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6. SAFETY PRECAUTIONS

! DANGER



Decrease pressure and keep away from the discharge side when operating a valve in order to prevent serious injury or death.


Always observe the current plant safety regulations together with the following indications:

° Wear safety clothing. Hot water can scald you and overheated steam is invisible.

° When dismantling a valve, wear safety clothing to prevent being sprayed by any process fluid that may have accumulated inside. **Remember that this fluid may generate a potentially explosive mixture.**

Make sure the valve is isolated from any pressure source in the system before starting to dismantle it.

! CAUTION




Wear suitable protection equipment in order to prevent injury.

° Inspect/service the valves at least once a year.

The outer surfaces of the valves reach the same temperature as that of the fluid flowing inside them. For this reason, when installing a valve in a potentially explosive atmosphere, make sure that the flashover temperature of the mixture surrounding the valve is safely above that of the fluid flowing inside the valve and do not allow inflammable powders to deposit on the outer surface of the valve.

! WARNING



Mark all possible discharge or leak points in order to prevent serious injury or death.

° **The system must be equipotential at the connection between the valve and the piping in order to prevent the accumulation of electrostatic electricity on the outer surfaces of the system that can act as an efficient flashover trigger in a potentially explosive atmosphere.**

° Please consult CARRARO before working on valve parts.





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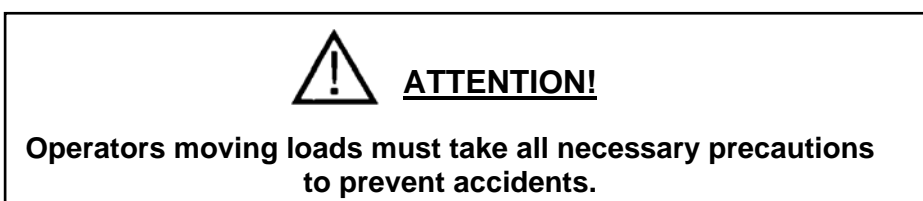
7. TRANSPORT, STORAGE AND HANDLING



Transport

Depending on their size, valves can be transported loose, packed in cardboard boxes or in wooden crates.

All the valve ends are fitted with covers to prevent dirt from entering. Packs can be placed on pallets if required. Follow all and any indications written on the packaging.



Storage

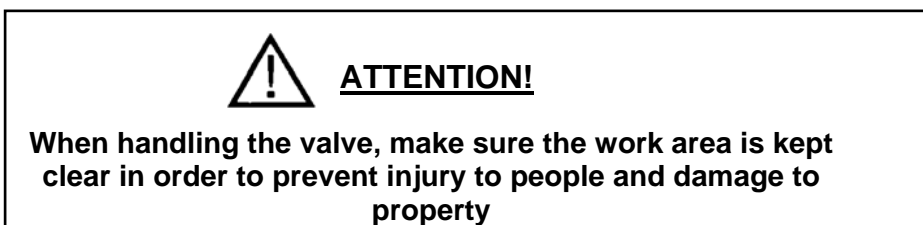
Valves must be kept in a dry place to protect them from atmospheric conditions. They may only be removed from their crates or packing immediately prior to installation.

The end protections and covers must be kept on until the last moment. Valves, whether packed or not, must not be subject to violent knocks. Valves, whether packed or not, must always be kept upright, that is, never lying on one side, in order to prevent distortion and damage to internal parts.



Handling

When unpacking the valves and removing the end protectors immediately prior to installation, take great care to make sure that foreign bodies do not enter the valve inlet and outlet holes while it is being connected.





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8. UBAS-HP

8.1 Cross-section drawing

Fig. 1
UBAS-HP - 1/4"

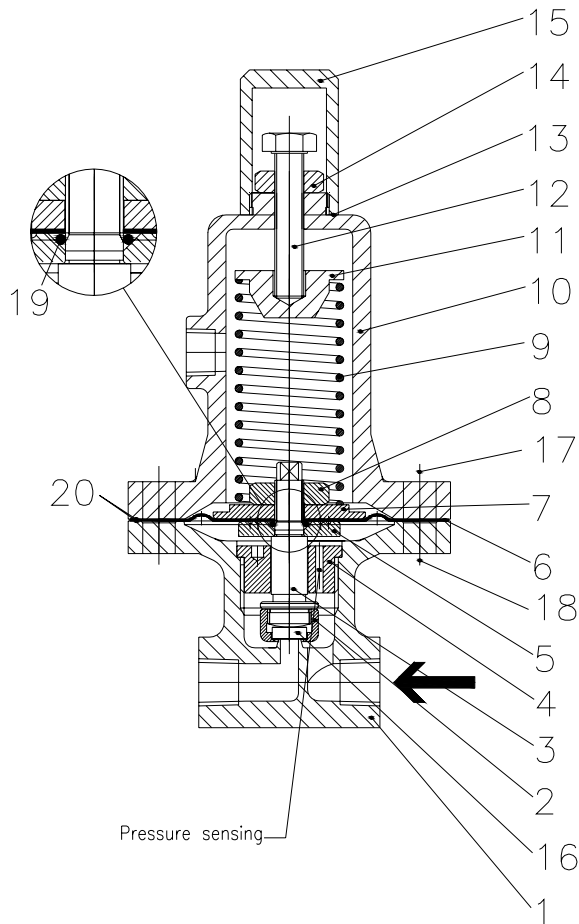
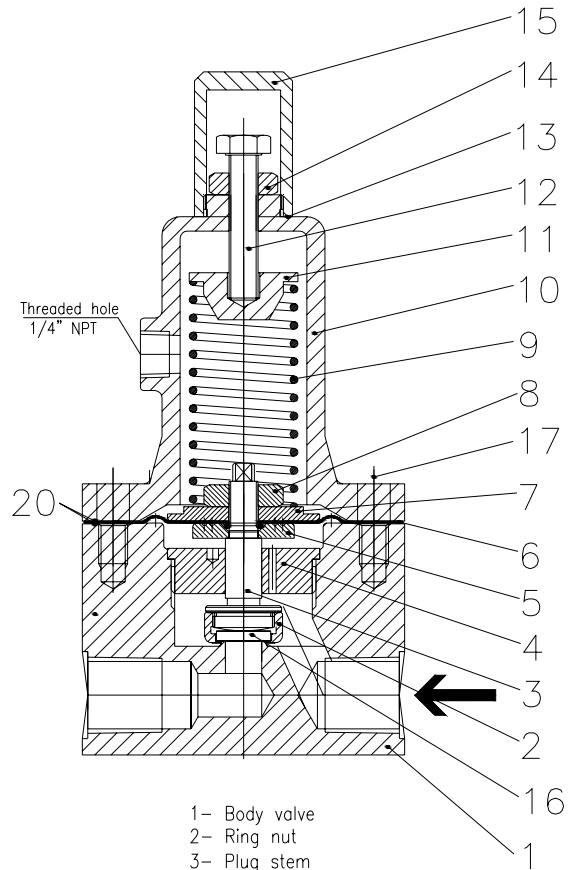


Fig. 2
UBAS-HP - 1/2"



- 1- Body valve
- 2- Ring nut
- 3- Plug stem
- 4- Guide
- 5- Lower diaphragm plate
- *6- Diaphragm
- 7- Upper diaphragm plate
- 8- Lock nut
- 9- Spring
- 10- Spring cover
- 11- Spring loader
- 12- Adjusting screw
- *13- Gaskets
- 14- Lock nut
- 15- Cap
- 16- Disc
- 17- Screw
- 18- Nut
- *19- O-ring
- **20- Gaskets

* Recommended Spare Parts
 ** In case of stainless steel diaphragm version, are provided two gaskets (20), one over, one under the diaphragm

Figs.1-2 show the cross-sections of UBAS-HP 1/4" - 1/2" valves with part names.



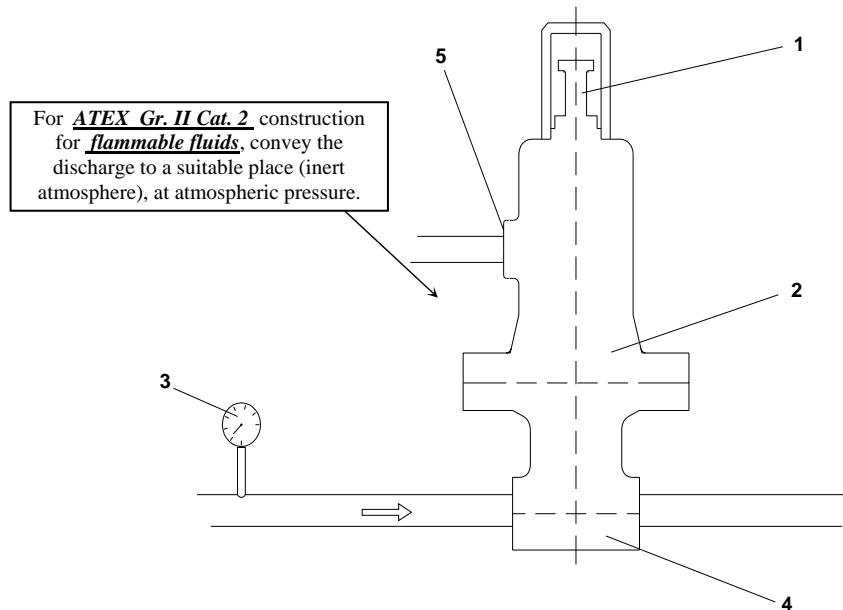
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9. INSTALLATION

9.1 The UBAS-HP valves must be installed with the servomotor (2) facing upwards and the diaphragm horizontal, as shown in Fig.3.

9.2 Installation sketches



- 1) Adjustment screw (spring-loader)
- 2) Servomotor
- 3) Pressure gauge
- 4) Body valve
- 5) Vent hole

Fig. 3

9.3 Before mounting the valve on the piping, make sure the insides of the pipes are scrupulously clean, especially the upstream side; blow into the piping, if possible, to eliminate any remaining dirt: small solid particles may seriously damage the valve.

9.4 On the UBAS-HP valves, the spring cover has a vent hole: check that the threaded hole 1/4" NPT (5)(Fig.3) is not blocked, so as to prevent the cover from becoming pressurised in the event of breakage of the diaphragm. In case of dangerous medium, the hole must be connected with a tube that conveys medium to a suitable place, kept at atmospheric pressure (see Fig.3).

9.5 **WARNING ON ATEX (ATEX Gr II Cat.2):** For flammable medium, the threaded hole (5) must be connected with a tube that conveys the flow to inert atmosphere, kept at atmospheric pressure (see Fig.3).

9.6 If you are not certain whether the fluid to be controlled is clean, it is suggested to fit a filter before the control valve.





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10. START-UP AND CALIBRATION (Fig. 1-2)

Regulation equipment is normally supplied calibrated to the value indicated in the order; the set pressure must be always checked in real operating conditions, proceeding as follows:

- Remove the cap (15) and loosen the lock nut (14);
- Adjust the adjusting screw (12) position: turn it clockwise to increase overflow pressure or anti-clockwise to reduce it;
- Checked the set pressure, tighten the lock nut (14); remount the cap (15).

11. MAINTENANCE

11.1 If the regulated fluid is clean and the plant is fitted with a filter, maintenance operations will be infrequent occurrences.

The user must check the tightness seats (elastomeric components) at least once a year depending on the need for the valve to close airtight and to operating conditions.

11.2 Dismounting the components

Before to proceed like described as follow, must be available the spare parts kit recommended (see Fig.1-2)

11.2.1 Dismounting the servomotor

Remove the cap (15) with the relevant gasket (13). Release the spring by unscrewing the adjusting screw (12) after loosening the lock nut (14), leaving it in position or noting down the relative position of the adjusting screw in reference to the lock nut upper surface in order to restore calibration after reassembly. Dismount spring cover (10) loosening the nuts (18) for the UBAS-HP 1/4" or unscrewing the screws (17) for the UBAS-HP 1/2". Remove the spring loader (11) and the spring (9). Loosen the nut (8). Remove the diaphragm (6), after removing upper diaphragm plate (7). Finally remove the lower diaphragm plate (5) and O-ring (19).

11.2.2 Dismounting the body

Unscrew the guide (4) using the appropriate tool. Pull the plug (3) off the guide.

11.3 Parts inspection

Unscrew the ring nut (2) and remove the disk (16). All the components are now ready to be inspected. Replace any worn ones. Clean all the parts.

Check the state of the disk of the plug and of the sealing seat on the body valve.

If these are worn, work them by rubbing with a metal disk and abrasive paste. If this is not enough, substitute the disk and rework the orifice surface on the lathe. If no expert operators are available, send the whole valve back to CARRARO for revision. Another important component to control is the diaphragm (6); replace it if the surface is in poor condition. Replace all the gaskets, after cleaning the surfaces they lie on.

Please bear in mind that for stainless steel diaphragm are provided two sealing gaskets (20) one over, the other under the diaphragm.

11.4 Reassembly

Carry out the dismounting operations in reverse order.

Constitute group: disk (16), ring nut (2), plug (3). Insert in the guide (4) the plug stem (3), and screw, with the appropriate tool, the guide in the body valve (1). Remount the lower diaphragm plate (5).

Assembling diaphragm (and replace the sealing gaskets (20) in the case of a stainless steel diaphragm), replacing the O-ring, (19) having well-polished surfaces they lie on.





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Put in place the upper diaphragm plate (7), tighten the lock nut (8).
Match the holes of the diaphragm with the holes in body valve (1) and remount the spring (9), spring loader (11) and spring cover (10), tightening the nuts (18) for the UBAS-HP 1/4" or screws (17) for UBAS-HP 1/2". Turn the adjustment screw (12) the number of turns noted down during dismounting (see par.11.2.1), and tighten lock nut (14).
Exact calibration must then be checked when the valve starts working again.

11.5 Replacing the diaphragm only

If the diaphragm deteriorates or breaks during operation or requires replacement without having to perform any other maintenance operations and if the valve is easy to access, perform the operations listed in paragraph 11.2.1, leaving the valve on the piping, preventing the operating medium inflow to the valve itself and discharging the pressure on the main line. At the end of operations proceed to reassembly with inverse operations from those described in paragraph 11.2.1.
Check calibration once more when the valve starts working again and adjust if necessary.

12. REPAIRS

- 12.1 If it is not possible to eliminate the problems, send faulty valves to the supplier/manufacturer, together with a description of the problem.
- 12.2 In order to receive spare parts or information, always quote the series number shown on the rating plate attached to the valve.
- 12.3 Rating plate (*example*)



- 12.4 To ensure the valves treated in this manual work correctly, they should be serviced by Carraro engineers or by Carraro-authorized Service Centres using original spare parts.



ATTENTION!

The maker declines all liability for modifications to the product or operations that are not contemplated in this manual.