



FOR YOUR SAFETY

- This paragraph contains important information concerning safety. Read carefully before using the assembly – In this document, “assembly” [accumulator] is defined as the unit formed by the casing, membrane and valve.

- Warnings and cautions



WARNINGS: this symbol indicates warnings that must be read prior to using the product to prevent possible physical harm to the user



CAUTIONS: this symbol indicates procedures for preventing product damage

WARNINGS

- To prevent risks of explosion or fire, do not expose the assembly to direct or indirect heat sources.
- The pre-charge pressure must be equal to $P_0 = P_1$ (Minimum operating pressure) x 0.8.
- If the assembly operates at high temperature, the pre-charge pressure changes according to the formula below.

Example:

Let's assume to pre-charge the assembly at 50 bar at a room temperature of approx. 20°C and that it shall operate at a max. temperature of 200°C. The pre-charge value must be obtained using the following formula:

$$P_{0TA} \times \frac{(273 + TA)}{(273 + T2)}$$

Where

P_{0TA} = Pre-charge pressure at room temperature

TA = Room temperature

T2 = Max. operating temperature

- It is strictly prohibited to carry out structural modifications to the assembly. [welding or drilling for installation].
- The customer shall install a safety system protecting the accumulator from unwanted overpressures.

- Use **ONLY NITROGEN**, never other types of gas: **DANGER OF EXPLOSION**

- IT IS STRICTLY FORBIDDEN TO CARRY OUT DRILLING OPERATIONS FROM THE GAS PART AND/OR CUT THE ASSEMBLY.

CAUTIONS



- Never exceed the maximum operating pressure imprinted on the assembly
- Use grease type Castrol 8794 or similar for membranes: NBR – HNBR – NBR low temperatures - VITON
- Use oil type Caldic 47V350 for all other mixes
- Upon system start, we recommend to verify the pre-charge pressure
- The disposal of the assembly with sealed fixture on the gas part must be carried out with the assembly completely empty.

NOTE This operation is considered to be highly risky. For this reason all personnel in charge of the operation must carefully read this paragraph and follow the indicated steps accurately.

Block the assembly on the mandrel of a lathe.

Block the 2 mm bit on the mandrel placed on the tailstock.

Wear safety goggles

Rotate the lathe mandrel puncturing the membrane with the 2 mm bit entering from the oil part. [look at the picture].

Puncture until the gas is completely discharged.



- TYPES OF FASTENINGS GAS PART

This series of accumulators comes with three types of gas closing devices.



Plug



Screw valve closing device



Valve closing device

- INSTALLATION

- Vertical or horizontal position according to system requirements. It is absolutely prohibited to install the assembly in a vertical position with the gas valve in the underlying section.
- In the case of vibrations, we recommend fastening the assembly by using the specific mounting set.



- Tips:

- Include the following in the system:

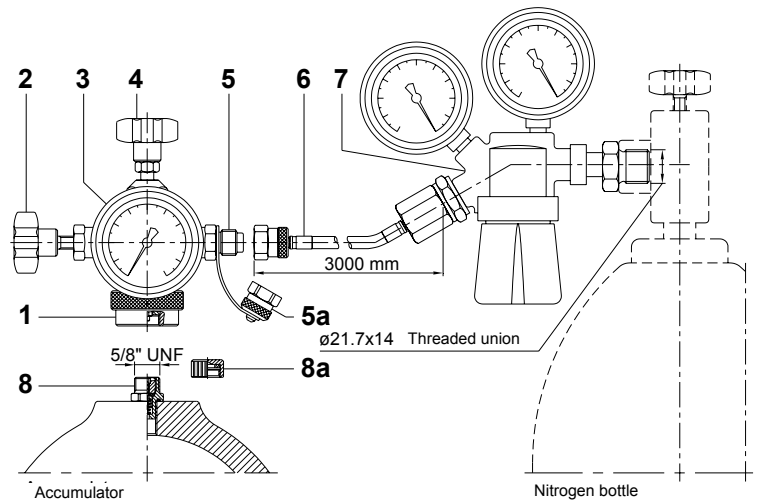


- a non-return valve between the assembly and the pump
- a pressure relief valve with a value below the assembly's rated pressure
- a shutoff cock for the assembly allowing to isolate it and implement safety measures, draining the liquid side.

- In the case of a precharge, the operator must proceed as follows:

1 **Verify or increase the precharge of the assembly with the valve:**

- a. Remove the protection cap (8a) of the valve (8) on the damper.
- b. Fit the pre-charge device rotating the ring nut (1), ensuring that the discharge valve (2) is open.
- c. Remove the cap (5a) and connect the hose (6) to the precharge attachment (5) already connected to the pressure reducer (7) fitted on the nitrogen bottle.
- d. Close the discharge valve (2).
- e. Gently screw the hand-wheel (4) until you are able to read the pressure of the gas contained inside the assembly.
- f. Checking the pressure gauge (3), increase the pre-charge pressure, operating the pressure reducer adjusting knob (7), up to a value slightly higher than the one selected.
- g. Unscrew the handwheel (4), close the cock of the bottle and empty the hose (6) opening the valve (2).
- h. Remove the hose (6), refit the cap (5a) on the attachment (5) and wait for a few minutes.
- i. Close the discharge valve (2), screw the hand-wheel (4) and check the pressure: if it is correct unscrew the hand-wheel (4), open the discharge valve (2), remove the device by unscrewing the ring nut (1) and refit the protection cap (8a) on the valve (8).

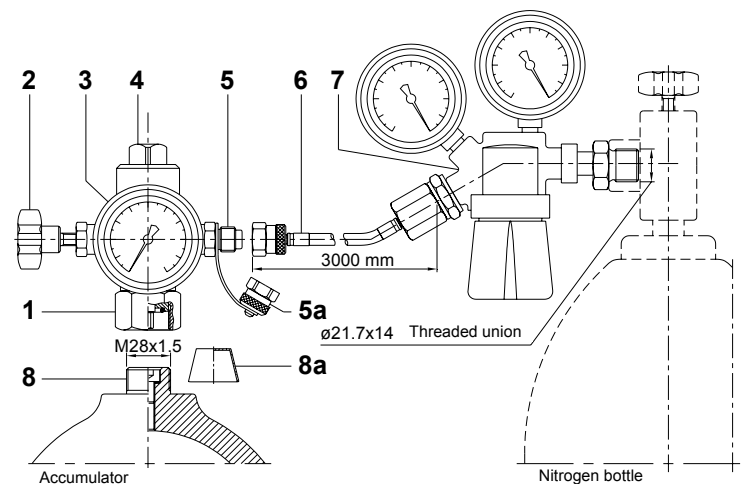


2 **To discharge the assembly:**

- a. Remove the protection cap (8a) of the valve (8) on the damper.
- b. Fit the pre-charge device rotating the ring nut (1), ensuring that the discharge valve (2) is closed.
- c. Screw, without forcing, the handwheel (4) and open the valve (2). Until complete discharge or until you reach the desired pressure.

3 **Verify or increase the precharge of the assembly with the screw valve:**

- a. Remove the protection cap (8a) of the valve (8) on the damper.
- b. Unblock the screw without allowing any gas leak
- c. Fit the pre-charge device rotating the ring nut (1), ensuring that the discharge valve (2) is open.
- d. Remove the cap (5a) and connect the hose (6) to the precharge attachment (5) already connected to the pressure reducer (7) fitted on the nitrogen bottle.
- e. Close the discharge valve (2).
- f. Unscrew, with the use of a 19 monkey wrench, the frame (4) until you are able to read the pressure of the gas contained inside the assembly.
- g. Checking the pressure gauge (3), increase the pre-charge pressure, operating the pressure reducer adjusting knob (7), up to a value slightly higher than the one selected.
- h. Gently unscrew the frame (4), close the cock of the bottle and empty the hose (6) opening the valve (2).
- i. Remove the hose (6), refit the cap (5a) on the attachment (5) and wait for a few minutes.
- j. Close the discharge valve (2), unscrew the frame (4) and check the pressure: if it is correct screw, without forcing, the frame (4), open the discharge valve (2), remove the device unscrewing the ring nut (1)
- k. Completely tighten the screw by means of a dynamometrical wrench (the tightening torque is listed at the end of the document).
- l. Refit the protection cap (8a) on the valve (8).



4 **To discharge the assembly:**

- d. Remove the protection cap (8a) of the valve (8) on the damper.
- e. Unblock the screw without allowing any gas leak
- f. Fit the pre-charge device rotating the ring nut (1), ensuring that the discharge valve (2) is closed.
- g. Unscrew, by means of a 19 monkey wrench, the frame (4) and open the valve (2). Until complete discharge or until you reach the desired pressure.

- Should there be a sealed lock on the gas part, the assembly is no longer retrievable.



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Italy

USE AND MAINTENANCE MANUAL OF THE WA TYPE ASSEMBLY

Emission Mod.

07/07/09

Revision n. 1

20/11/09

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TIGHTENING TORQUE OF THE VALVE



M12 thread 30 Nm
M8 screw 40 Nm

EXAMPLE OF ASSEMBLY MARKING

CE xxxx
xxxx.x.x,x.xx.x.x.x
P.MAX xxx Bar
Lt xxx -xx +xx°C
Po xxx Bar


01/02
xxxxxx/x

Legend

 Qualifying Authority Numbers
xxxx.x.x,x.xx.x.x.x Assembly type
P.MAX Maximum pressure
Lt Assembly capacity
-xx +xx°C Operating temperature delta
 SAIP marking
Po Precharge pressure
01 Month of manufacturing
02 Year of manufacturing.
xxxxxx/x Serial number

Note: the CE marking and the number of the certifying authority is imprinted for the assembly in class II III IV. The serial number is imprinted only on assemblies of category II, III and IV.

DISPOSAL

WARNING	
	Spent oil is a toxic waste and therefore must be disposed of in strict compliance of the law.-
	Should an assembly with a sealing system and/or valve or screw closing device on the gas part be disposed of, the assembly must be fully discharged prior to its disposal. To carry this out, you must operate as follows: A) Discharge the gas by loosening the valve pin and let the gas flow out B) Discharge the gas by loosening the allen screw and let the gas flow out. C) Follow the procedure described in the beginning of this manual step by step.

- The mechanical parts that make up the assembly are not subject to disposal obligations