 <p>17, rue Paul Bert 89400 MIGENNES Tel:03.86.92.30.14 Fax:03.86.92.30.01 Email:resvoin@charlatte.com www.charlatte.fr</p>	TECHNICAL SPECIFICATION	Assurance Qualité
	TITLE: COMMISSIONING GENERAL INSTRUCTIONS FOR HYDROCHOC OR HYDROFORT OR HYDROFLEX BUTYL BLADDER VESSEL FOR CLEAR WATER	IDENTIFICATION
		SPT 0211-06-GB
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For tanks subject to Directive 97/23/EC and to the implementation decree dated 13 December 1999 or to ASME VIII div.1

The aim of these instructions is to draw the attention of installers, operators, project managers and other users to some basic precautions to be observed :

I Security and legislation

This tank, manufactured according to the European Directive PED 97/23 CE or ASME VIII division 1, is under the rules of pressure gas apparatus. **Check that a safety device (compliant with directive 97/23 CE or ASME VIII div.1) is providing protection against any pressure that exceed the maximum service pressure level. We recommend installing this safety device on the pipe as close as possible to the pump.**

- Never dismantle or open a vessel under pressure without previously having drained it completely (air & water).
- Never stay in front of the manhole while opening it.
- Internal pressure must be zero before any dismantling.

II Storage and Packaging

Packaging : the tanks are wrapped in recyclable bubble film.

Even when wrapped, it is highly recommended to place them out of the sun and to shelter them from the elements.

Handling : only hoist these tanks when they are empty. Use the handling eyes and the legs if necessary.

Precautions in relation with the bladder : to protect the bladder, do not leave the tanks in the sun without water in them.

III Installation conditions

A neutral, normal atmosphere is preferable and sites where there is no risk of exceeding the operating temperature.

Incidents may still occur (discharge from a valve, pipe leak...). Avoid sites with heavy traffic, locations near electrical lines or near fragile equipment.

Earth the tank. The tank's foundation should support its weight, including in the event of retesting. The environment must enable easy access to all parts of the apparatus, including inside it. Install and connect the tank so that any vibrations (even vibrations that are not visible) due to the operation of other equipment will be absorbed. The attachments and clamps must not give rise to any stresses or strains.

Check that a safety device (compliant with Directive 97/23/EC Category IV or equivalent) is providing protection against any pressure that exceeds the maximum service pressure level. We recommend installing this safety device on the pipe as close as possible to the pump and fitting the tank with a manometer that will allow internal pressure read-outs to be obtained.

IV Installation and Commissioning

Installation

1. Install the tank and connect it to the network.
2. Install an isolation valve between the tank and the network.
3. Install a water draining valve (equipped with a stop valve and a diameter adapted to the capacity of the tank) between the isolation valve and the water outlet of the tank.
4. Fix the vessel's feet to the floor or on concrete supports.
5. Install the level gauge equipment (see our technical specifications for installation available on our website www.charlatte.com).
6. Use only sealing products adapted to gas or air.
7. Check that all parts and accessories mounted on the air side of the tank (water outlet, air draining, manhole) have been well tightened.

Commissioning (in the specific case of an atmospheric precharge, please follow the different steps of our SPT 0164)

1. For the moment, the tank is empty (no water, no air).
2. Shut the vessel's isolation valve to the network.
3. Shut all the valves of the level gauge equipment.
4. Open the drain valve on the hydraulic side located between the isolation valve and the connexion outlet between the tank and the network. (in order to evacuate the air contained in the bladder). This drain valve remains open until the step 8.
5. Precharge the tank with air (see our hydraulic study for implementation).

Selection of the vessel precharge value

CHARLATTE interchangeable tanks, fitted with bladders made of food-processing standard quality butyl **are delivered without initial pre-inflation** and can be fitted with a water level gauge.

The dry precharge operation has to be done on site.

HYDROFORT (pressure) / HYDROFLEX (expansion) :

$$P_g = 0.8 P_{min} - 0.2$$

With P_g the relative dry pre-inflation pressure realized in the case of a cold installation.


P_{min} , the pump's start-up, in relative bar, measured at the same height as the hydrofort unit.

HYDROCHOC (surge protection) :

The pre-inflation pressure of a Hydrochoc unit depends on the profile of the pipe.

- *Contact us, we can perform this type of hydraulic analysis quickly.*

In all cases, the pre-inflation value must not exceed:

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- 5 bar relative (dry) for the 10 and 16 bar service pressure ranges.
- 7 bar relative (dry) for the 25 bar service pressure range.

The tanks can be pre-inflated up to 12 bar relative when dry. To do this, you have to have bladders that are specially reinforced from the outset (additional costs).

6. Check with soapy water the air tightness on the air side of the tank (water outlet, air purge, inflation valve and level gauge equipment).
In case of leakages, drain completely the air out of the tank; repair the leak and start again the whole procedure of the commissioning.
7. Open slowly the isolation valve from the tank to the network while leaving the water draining valve open in order to evacuate the air out of the connection pipe procedure.
8. Close the water draining valve when the latter only evacuates water under pressure (meaning, no more air in the connection pipe).
9. Open completely the isolation valve. The water will fill the tank until static pressure is obtained.
10. When the static pressure is obtained (pumps not running), check one more time with soapy water the air tightness of the tank (water outlet, pre-inflation valve, manhole...).
11. Check the water level in the tank. To do so :
 - First open the valves of the upper level arm of the vessel (air side of the tank).
 - Open the valves of the lower level arm of the vessel.
 - Check the water level in the glass tube and put a reference mark on the tube.
 - Then, close all the equipment valves and drain the water out of the glass tube by opening the drain valve which is at the bottom of the equipment.

This mark will be useful for future controls of the water level (in the same conditions : static pressure, pumps not running).

NB: In case of a water level which is not normal (over the reference mark, meaning a possible loss of the tank's air counter pressure) you will have to check one more time the whole air tightness and commission again.

TO REMEMBER

- Pre-inflate the tank,
- Check that the nuts and bolts are tightly fastened,
- Check the air tightness of the tank,
- Fill it with water slowly,
- **Never exceed the maximum pre-inflation values.**
- **CHARLATTE's bladder vessel must run with the level gauge equipment's valves closed.**

V Maintenance

Users will find assembly instructions for accessories on our internet site www.charlatte.com

4 times a year

- Regularly check the precharge pressure or the water level measured at commissioning.
- Manipulate the valves.

Once a year

- Lubricate the valves
- Behaviour of the manometer (at the commissioning).

Every 40 months

- Internal check of the vessel.
- Check the thickness (using appropriate devices). Under no circumstances should the values measured be less than the minimum thickness indicated in the item description.
During the inspection, check that the seals and wear parts are in good condition. No modification or repairs to the tank are permitted without the manufacturer's prior agreement.
For any supplies of spare parts, please provide us with the number of the vessel.

**For any information, please contact our After Sales Department.
CHARLATTE 17, Rue Paul Bert 89400 MIGENNES Tél. 03 86 92 30 14 fax 03 86 92 30 01
All our documents are available on our website www.charlatte.com**