



AquaPiv Steel Buffer Vessel

Operating & Instruction Manual

Standard storage
capacities
available:

300 to
30,000 Litres

1. Description

The standard range of AquaPIV buffer vessels are mostly used in heating and chilled water systems. Other applications may arise with different water temperatures and materials of construction. This manual covers for mild steel vessels.

Design Data.

| | |
|------------------------------|--|
| Maximum Working Pressure: | 6.0 BarG |
| Hydraulic Test Pressure: | 9.9 BarG |
| Maximum Working Temperature: | 90°C |
| Design Code: | Commercial Standards and PED 1999 (SI 1999-2001) Cat: SEP |

2. PED Information

The standard range of buffer vessels are designed in accordance with the requirements of the Pressure Equipment Directive 97/23/EC. Units classed as SEP in the PED category are not supplied with a CE mark. Units in category I & II are CE marked and appropriate markings and certification is supplied with each unit.

It is the responsibility of the user and/or installer to ensure that the unit is installed and operated safely, and in accordance with the instructions supplied within this manual. The standard AquaPIV unit is designed for a water medium in the shell.

3. Installation

3.1 Lifting & Handling

- Use lifting lugs where fitted.
- Do not lift a vessel using the insulation where fitted.
- Straps may crush or damage the insulation casing.
- Due to the insulation casing material thickness, care should be taken when moving and handling the vessel not to damage the insulation.
- Do not lift the vessel using chains directly in contact with the shell.
- Do not allow operatives to stand on the vessel.

IMPORTANT NOTE: When lifting, please ensure clean lift of the vessel, using the top lifting lugs, then using the tailing lug. Swing the bottom out avoiding pivoting on the legs or ring stand.

When standing the vessel back up, reverse this procedure.

NB: The legs / ring stand are not designed for pivoting during this operation.

3.2 Siting

- Unless specifically ordered for an external installation, the vessel must be sited indoors.
- Foundations or plinths must be firm and level to prevent settling, pipe strain or distortion of the shell.
- Unless specifically ordered differently, the vessel must be installed in a level position.
- Protective covers and plugs may be fitted to connections to protect them in transit, these must be removed prior to use.
- If a connection is not required, seal it appropriately.
- Check for any foreign material which may have got into the vessel.
- Pipe-work connected to the vessel must be adequately supported to prevent any loads being transmitted to the vessel. Provide for thermal expansion with bends and expansion joints.
- Fit isolation valves prior to the vessel connections to facilitate servicing (NOT TO THE VENT).
- For flanged connections, tighten bolts in a diametrically opposite sequence to load the flanges evenly onto the gasket.
- Ensure adequate venting for air removal during filling and operation (pressurised systems should have an automatic air vent and a manual air vent for this).
- Safety valves should have their discharge pipes away to a safe disposal point, preferably via an air- break and tundish so that the discharge unrestricted and easily visible.
- Water expansion must be accommodated by a separate expansion vessel fitted in the system.

Important Notes:

Insulated vessels – When filling/in operation, take extra care to avoid any spillages or leaks from the connections - particularly top connections.

Any water between the insulated jacket and the shell, will void any warranties as severe corrosion is likely.

Ormandy will not take responsibility for any corrosion, due to water ingress between shell and jacket.

The unit should be flushed thoroughly with clean water prior to operation.

4. Commissioning & Operation

Do not operate the equipment at pressures or temperatures in excess of those specified on the nameplate or the vessel marking. Do not subject the vessel to conditions of vacuum or partial vacuum. For example, partial vacuum may occur if draining the vessel when valves are fully or partially closed.

It is assumed that the pipe-work is already full of water.

1. Start with all valves closed and circulation pumps off.
2. Close the drain valve.
3. Ensure the automatic air vent is operational pen any manual vent valves.
4. Open the main system connection valve and slowly fill the vessel with water.
5. Shut the manual vent valve when water appears from it.
6. Carefully open all the other system connections valves.

Check that all gaskets are effective when the unit is operating and the working temperature and pressure, some bolting may need tightening after the vessel has been first heated and maybe also from time to time.

Following installation and commissioning, it is advisable to remove, clean and reassemble any strainers. All fluids must be drained when the unit is out of operation to prevent freezing or possible corrosion.

5. Maintenance

To drain the vessel:

1. It is assumed that all isolation valves (except the drain valve) are open at the start.
2. Switch off any system circulation pumps and isolate the connections to the vessel using the valves installed.
3. Manually operate the safety valve to remove any residual pressure.
4. Open the manual vent valve to allow air into the vessel during draining.

Refill the vessel as section 4

6. Spares

Please contact Heat Exchange Spares regarding spares. We recommend as a minimum, a set of heater gaskets and an inspection opening gasket be kept as spares.



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