WORLD HEAT
CYLINDERS

MADE IN MANCHESTER

INDIRECT STORAGE CYLINDERS

Installation, Operation & Maintenance Manual

Issue 1 · 18 October 2026

Document reference WH-IOM-003

worldheat.co.uk

0161 343 8610

INDIRECT STORAGE CYLINDERS

Contents

01 **Your product** 3
What it is, the directive it is made to, and safe handling

02 **Installation** 4
Lifting, storage, siting, connections and system cleaning

03 **Commissioning & operation** 7
Filling the vessel and bringing it into service

04 **Service & maintenance** 8
Annual inspection, drain-down and fault finding

05 **Recycling & spares** 10
End-of-life disposal and recommended spares

WH-IOM-003 · Issue 1 · 18 October 2026

Revision log

Version 1.0	25/06/2018	The previous manual (WH-IOM-003 Indirect Storage Cylinder)

WARNING
Could cause injury: follow it exactly.

CAUTION
Could damage the cylinder or the system.

NOTE
Good to know.

01

SECTION 1

Your product

What it is, the directive it is made to, and safe handling

Description

World Heat range of Indirect Storage Cylinders are typically used within systems to heat Domestic Hot Water (DHW) but can be used within other applications. Low Temperature Hot Water (LTHW) is commonly used to heat the water, although our standard unit can be used for Medium Temperature Hot Water (MTHW) and Hot Temperature Hot Water (HTHW).

World Heat manufacture Indirect Storage Cylinders in the following materials; Mild Steel, Stainless Steel (various grades) and Galvanised Mild Steel. The standard range covers 230 litres up to 10,000 litres.

Pressure Equipment Directive (PED)

The World Heat standard range of Indirect Storage Cylinders are designed and manufactured in accordance with the requirements of the Pressure Equipment Directive 2014/68/EU. As per the requirements of the directive, units that fall within the SEP (Sound Engineering Practice) category are not supplied with a CE Mark. Units that fall within categories I to IV are CE Marked and provided with the necessary markings, certification and inspectorates.

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 detailed within this document.

COSHH

Research has suggested that there are no specific items to highlight during normal operating conditions.

However, during manufacture, dye-penetrant may be used as part of our pre-inspection process of welds. It is therefore essential that adequate flushing and sterilization is carried out before use and that the quality of water produced is to acceptable standards.

02

SECTION 2

Installation

Lifting, storage, siting, connections and system cleaning

Lifting and handling

Lifting lugs, where fitted, should be used for lifting purposes.

For units without lifting lugs, the user must arrange suitable lifting arrangements (i.e. the use of slings, lifting eyes etc.) to avoid damaging the vessel or its attachments during installation, taking into consideration the weight and design of the unit.

Where fitted, insulation should not be used for lifting purposes.

Due to the insulation and case characteristics, care should be taken when lifting and handling the vessel to prevent damage.

Avoid the use of lifting straps where insulation is fitted, as they may damage or crush the insulating material or case.

Do not lift the vessel using chains which are directly in contact with the vessel shell.

Do not allow operatives to stand on the vessel.

WARNING

When lifting, please ensure a clean lift of the vessel using the lifting lugs provided. The legs/ring stand/vessel supports are not designed for pivoting during lifting/siting/installation. Vessels should be kept in the upright position.

Storage

Upon receipt of the unit, please check the packaging to ensure that it has not been damaged during transport. Any damage to the packaging should be fixed or replaced as necessary.

It is recommended that the unit be stored indoors within a dry, frost-free environment with ambient temperatures between 4°C and 40°C.

The integrity of the packaging should be checked monthly. Should the external seal be found to have broken or its condition found to have deteriorated (i.e. become wet, hardened or split), the packaging should be repaired or replaced.

Once sited and the packaging has been removed, the condition of the unit should be thoroughly examined for any signs of corrosion or contaminant ingress.

Siting

Unless specified at enquiry stage and specifically ordered to suit 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 shell.

02 Installation continued

Unless specified at enquiry stage and specifically ordered, the vessel must be installed in a level position.

Ensure that there is sufficient maintenance space surrounding the vessel.

Installation

- 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 for any reason, the connection must be sealed appropriately.
- Check for any signs of contaminant ingress which may have got into the vessel during transportation or storage on site.
- Pipe-work connected to the vessel must be adequately supported to prevent any loads being transmitted to the vessel. Consideration must be taken with regards to thermal expansion through the use of bends and expansion joints.
- Isolation valves should be fitted prior to the vessel pipe-work (EXCLUDING THE VENT CONNECTION) to facilitate future maintenance and servicing.
- To avoid corrosion, use appropriate pipe materials to suit the vessel material.
- To connect to the vessel screwed connections, a suitable thread sealant should be used.

CAUTION

Care should be taken not to over tighten pipe-work connections, especially the heater coil connections.

- To connect to the vessel flanged connections, bolts should be tightened in a diametrically opposite sequence in order to load the flanges evenly onto the gasket. The gasket should be suitably chosen for the application.
- A suitable safety relief valve should be fitted to prevent over-temperature and over-pressure. The discharge should be piped away to a safe disposal point, preferably an air break and tundish so that the discharge is unrestricted and easily visible.

Chlorination & system cleaning

We highly recommend that our vessels are bypassed if carrying out any chlorination and chemical cleaning to the hot water or heating systems.

CAUTION

Chlorine and other cleaning chemicals such as hydrogen peroxide can be extremely corrosive to stainless steel.

If chemical cleaning is taking place, then the chemical must be thoroughly flushed through with water to clear the chemical, then the vessel should be fully drained and jet washed internally to ensure no chemical is present inside the vessel wall. Remove any electrical elements prior to chemical cleaning and plug the holes and only refit the elements after the vessels have been drained and jet washed internally. Please contact your chemical cleaning provider to ensure anything you are using is not corrosive to stainless and mild steel material prior to use.

02 Installation continued

Our warranty does not cover failure due to corrosion, therefore if the vessels are corroded by something present in the water, they will not be covered under a manufacturing warranty.

De-stratification pump-sets

To avoid damage in transit the de-stratification pump-set may be supplied loose. The pump should be installed to circulate water from the top of the vessel to the bottom. To ensure that the de-stratification pump does not adversely affect performance of the vessel during peak demand periods, the power supply to the pump should be designed to turn on during periods of low demand, if possible. However, it is necessary that the pump is turned on for a sufficient length of time over a 24 hour period to ensure that the full contents of the vessel is circulated at least once per day.

Vessels on unvented systems

Arrangements are required on unvented systems to prevent excessive pressure, temperature and the formation of a vacuum. This includes the supply and installation of suitable equipment such as; Pressure Relief Valve, Temperature Relief Valve, Expansion Relief Valve, Expansion Vessel, Anti-Vacuum Valve, Control Thermostat, High Limit Thermostat and Cut-Out Device etc. For further information, please consult the most recent edition of the UK Building and Water Regulations.

03

SECTION 3

Commissioning & operation

Filling the vessel and bringing it into service

Commissioning & operation

WARNING

Do not operate the equipment at pressures or temperatures in excess of those specified on the nameplate of the unit. Do not subject the vessel to conditions of vacuum or partial vacuum. For example, partial vacuum may occur if the cold feed or vent is restricted during draw off or drain down.

Assumptions

- It is assumed that the secondary pipe-work is already full of water.
- On sealed systems, it is assumed that the expansion vessel has been pre-charged and that any cold water booster set and/or pressure reducing valve has been commissioned and set to the correct pressure.

Filling and bringing into service

1. All isolating valves isolating the vessel from the system should be closed and any circulation pumps/backup immersion heaters turned off.
2. Close the vessel drain valve.
3. Ensure the anti-vacuum valve is fitted and operational.
4. Open any manual air vents fitted.
5. On sealed systems, open the expansion vessel isolating valve.
6. Open the fill connection valve and slowly fill the vessel with cold water.
7. When water appears at the manual vent valve, close it. (If the vessel is open vented and shares a vent with other units, connect it to the common vent using a 3-way valve.)
8. When the unit is full, slowly introduce the hot fluid to the primary side coil.
9. Allow the unit to heat up.
10. Adjust the temperature controls gradually and ensure that the correct operating temperature is maintained.
11. Carefully open the remaining system isolating valves.

Whilst the unit is operating, check that all of the gaskets supplied with the unit are effective. Some bolt tightening may be required after the unit has been subjected to its first heating cycle and subsequently maintained.

Following installation and commissioning, it is advisable to remove, clean and reassemble any strainers prior to operation.

When the unit is taken out of operation, all fluids must be drained from the vessel to prevent freezing or possible corrosion.

04

SECTION 4

Service & maintenance

Annual inspection, drain-down and fault finding

Maintenance

Annual maintenance of the unit should consist of internal inspection of the vessel shell and inspection of the gaskets supplied as part of the unit. As per guidelines regarding Legionella bacteria proliferation, it is recommended that the vessel internals are cleaned. Site insurers may also require annual inspection of the shell conditions.

In order to drain the vessel down to carry out annual maintenance:

1. It is assumed that all isolating valves isolating the vessel from the system are open.
2. Isolate the primary fluid inlet and outlet: switch off the primary pump and boilers if necessary. Do not drain down the primary side while the secondary side remains under pressure, this could cause the coil to be crushed.
3. Switch off any secondary circulating pump and/or backup immersion heaters.
4. Isolate the vessel by closing the isolating valves installed.
5. On sealed systems, reduce the residual pressure within the vessel by manually operating the safety valve. Please note: some water will be produced by the safety valve.
6. Open the manual vent valve and allow air into the vessel during drain down. (If the vessel is open vented and shares a common vent with other units, isolate the vessel from the common vent using a 3-way valve and vent to atmosphere.)
7. Ensure that the drain is piped away appropriately to a designated drain point before opening the drain valve and allowing the vessel contents to drain. (If the drain connection is positioned on the side of the vessel, it will not completely drain the vessel. The residual water should be pumped or siphoned out appropriately.)
8. The vessel internals should be inspected by removing the inspection opening cover. If an inspection opening has not been supplied, an inspection mirror or camera can be used through one of the vessel connections.
9. Re-fill the vessel as per the instructions in Commissioning & operation.

The primary coil

> **NOTE**
> The primary coil is fixed and cannot be removed. Therefore, if de-scaling is required it must be done chemically in place.

04 Service & maintenance continued

Sacrificial anodes

A sacrificial anode may be fitted to the unit to reduce corrosion. Sacrificial anodes use the principles of galvanic corrosion and 'sacrifices' itself for the protection of the cylinder. The corrosive material attacks the anode (the more easily corroded material), while the cylinder shell acts as the cathode. The anode needs to be replaced periodically to ensure protection is continuous, the anode should be checked after six months of operation and then periodically depending on the rate of corrosion observed. It should be replaced when the thickness of the anode has been reduced to 60% of its original thickness.

Fault finding

If a loss of performance or increase in the primary pressure drop is observed, the following are possible causes:

- Primary fluid restriction (i.e. faulty control valve, faulty primary circulating pump, blocked strainer etc.)
- Air lock on primary side
- Scale deposited on the heat exchanger surfaces (both internally and externally)

05

SECTION 5

Recycling & spares

End-of-life disposal and recommended spares

Recycling

For details on the end of life disassembly, recycling and disposal requirements of the unit, please consult the general assembly drawing and technical data sheet issued at quote/order stage, to determine the materials used.

All materials should be disposed of responsibly and in accordance with local regulations.

Please contact our technical team for further information.

Spares

World Heat recommends the following spares for a standard Indirect Storage Cylinder;

- Inspection Opening Gasket
- Set of Heater Gaskets
- Sacrificial Anode (if supplied on original unit)

Please contact our sales department for recommended spares prices and availability, please quote the vessel serial number in order for our sales team to correctly specify the spares required.

WORLD HEAT
CYLINDERS

World Heat Cylinders

Indirect storage cylinders

PHONE 0161 343 8610

EMAIL sales@whcylinders.co.uk

WEB worldheat.co.uk

Unit 4, Tudor Industrial Estate
Ashton Street
Dukinfield
Cheshire
SK16 4RN

MADE IN MANCHESTER

WH-IOM-003 · Issue 1 · 18 October 2026