WUNDA
THE BRAND YOU CAN TRUST

Heat Pump Manifold

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M03

Before you start: Check the manifold box contents against the list below.

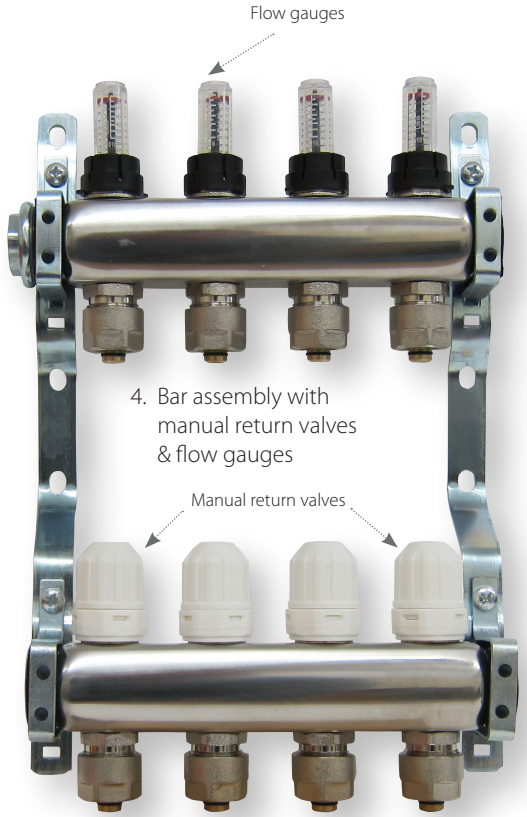
Check the contents

1. Bar assembly with manual return valves
2. 2 x Auto air vent & drain hose attachments

Optional

Top ball valve and temp gauge

Bottom ball valve and temp gauge



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In the unlikely event of any shortage please contact us and a replacement will be despatched immediately. Tel. 0800 083 2677

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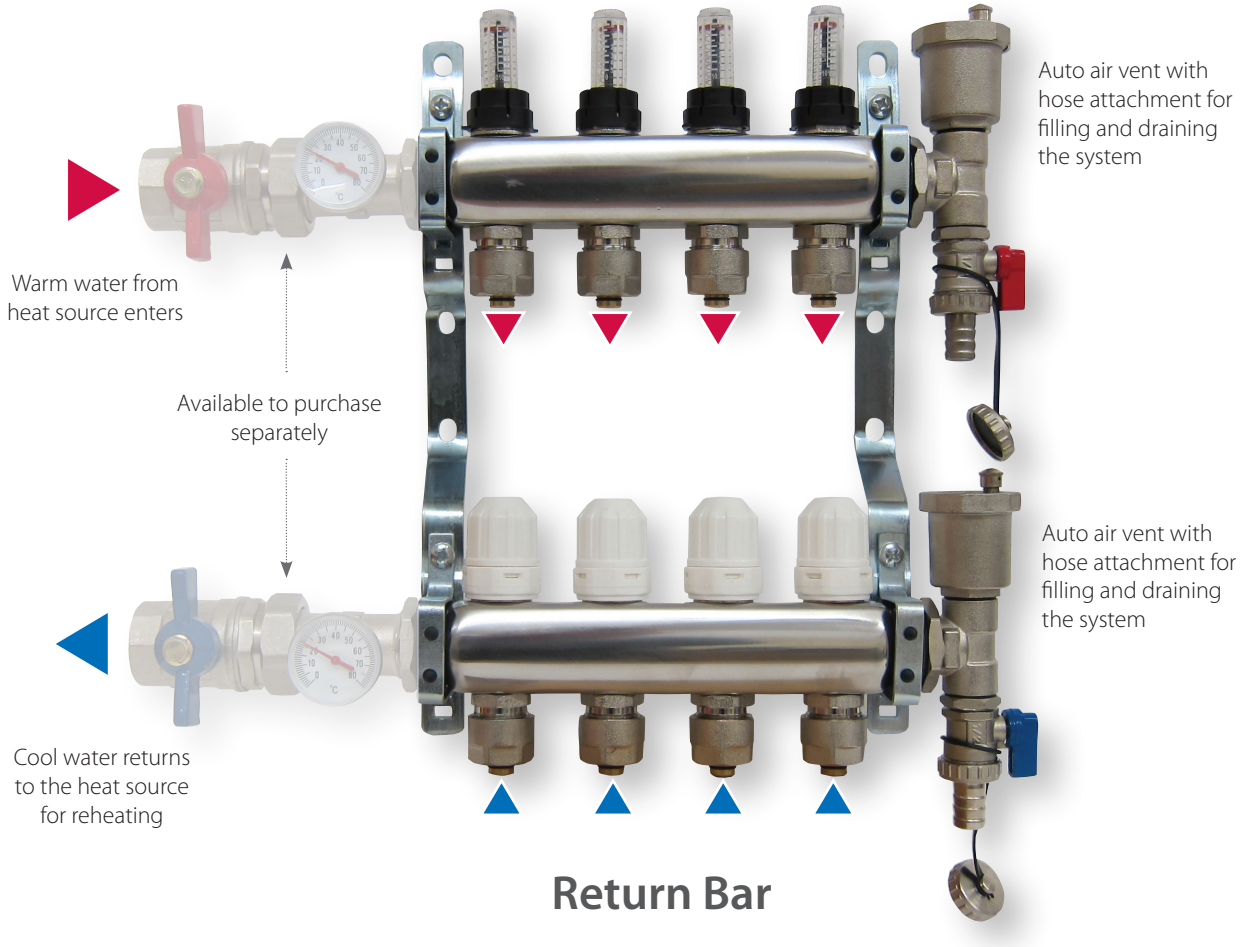

Understanding how the manifold works

Warm water is pumped from the heat source to the manifold assembly.

From the flow bar, warm water is distributed to each loop of pipe via the adjustable flow gauges, returning via the return valves into the return bar.

Supply of warm water is controlled independently from manifold.

Before assembly of manifold or pressure test, familiarise yourself with the way the manifold works and the various stages of assembly.

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Wall Mounting & Pipe Connection

Recommended height of return bar is 600mm from floor to allow access for pipe connection. Ensure manifold is level using a spirit level to site bottom bar. Fix manifold to wall using appropriate fixings through both manifold brackets (See picture A)

Before connecting floor pipes to manifold using a marker pen ensure each loop of pipe has been identified and that flow and return tails are marked.

Open Wunda pipe cutters by pulling the handles fully open (See Picture B), ensure pipe is cut cleanly and squarely being careful not to cut the pipe short or it will not reach the manifold.

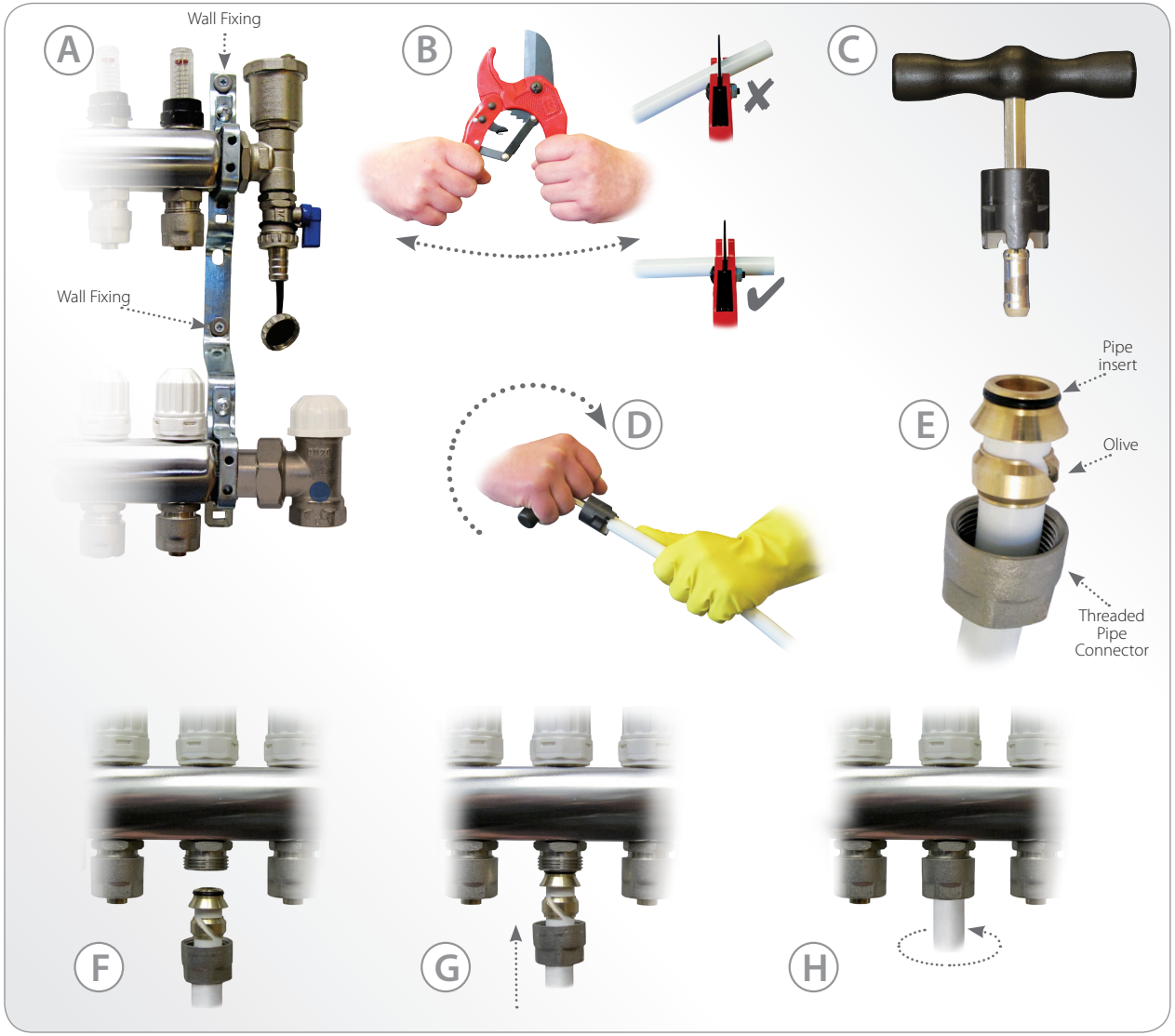
The freshly cut end of the pipe must now be reamed using a Wunda reamer (See picture C).

Insert the reamer fully into the end of the pipe so that the pipe is in contact with the 3 cutting teeth (See picture D).

Push and turn the reamer clockwise 2-3 full turns this will give the pipe a chamfered finish. A good tip is to grip the pipe wearing a rubber glove. This will stop the pipe twisting in your hand.

Place the threaded pipe connector over the prepared pipe followed by the olive, push pipe insert into end of pipe ensuring it is fully seated against the end of the pipe (See picture E).

Pipe is now ready to be connected to the manifold ensuring pipe connector is tightened sufficiently using 27mm spanner. (See picture F, G & H)



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Manifold pressure test

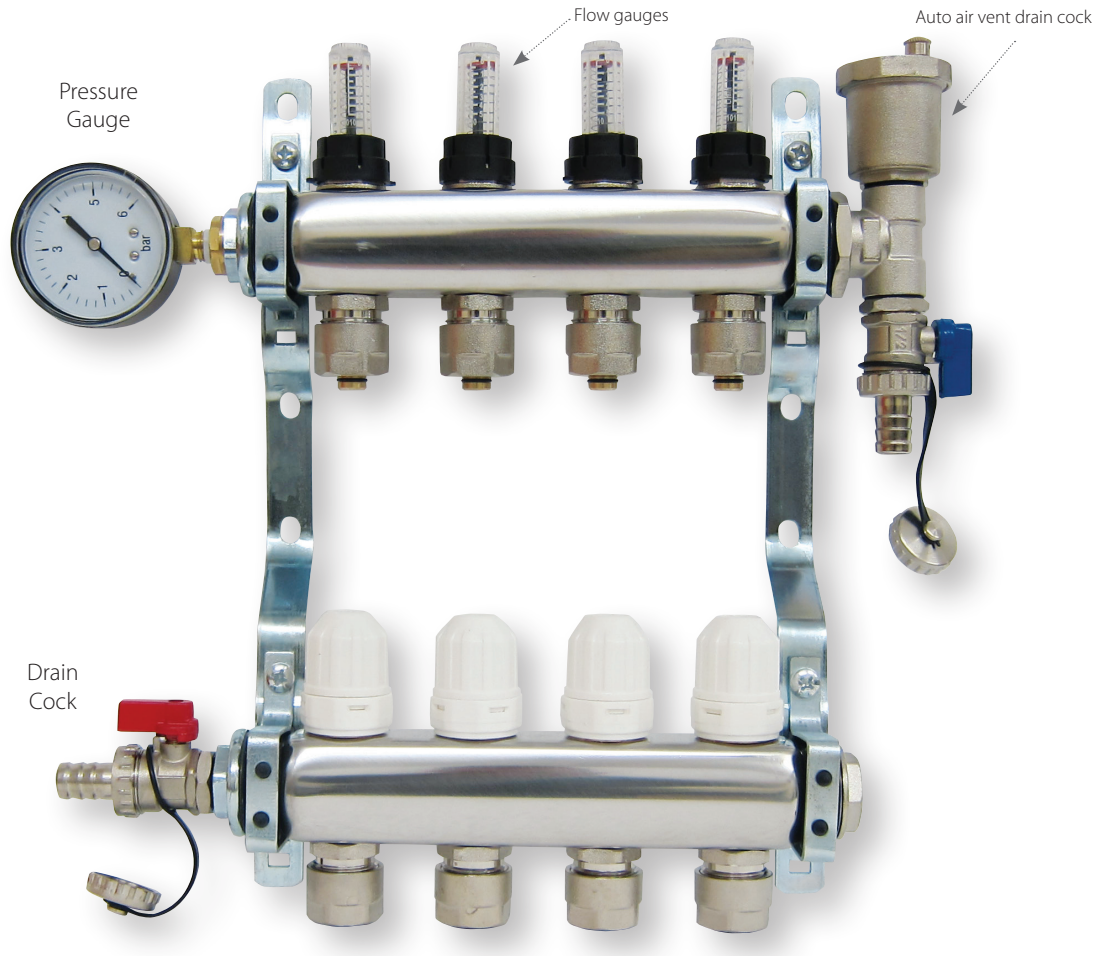

Fig. 1

Pressure test kit available from Wunda

- Remove the manifold from the packing
- Fit auto air vent
- Mount in the chosen site location (see fig 2 page 5).
- Using 1 inch – ½ inch bushes fit a standard pressure gauge to the top left bar and a drain cock to the lower left bar (see Fig. 1).
- Fit cold mains hose to auto air vent with drain hose attachment and a drain hose to the drain cock.
- Close all valves (clockwise), including flow gauges by removing plastic lock ring at base of sight glass (see Fig. 3, page 6) and turning black plastic knurled base, manual return valves and boiler return valve.
- Introduce water into the manifold via air vent drain cock until 4 bar pressure is reached
- Open drain cock.
- Leave for 10 minutes and check for leaks.
- Open right hand flow gauge and corresponding manual return valve, the flow meter will move erratically until a steady flow is achieved through this circuit. By placing the end of the waste hose in a bucket it is possible to see when all air has been purged from this loop by a reduction in bubbles.
- Once filled close manual return valve and repeat exercise with each individual pipe loop.
- Once all loops are filled close drain cock, re-pressurizing completed manifold to 4 bar and leave on test for a minimum of 3 hours.
- It is advisable to leave system pressurised during laying of all floors to indicate any possible damage to pipe.

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Manifold Assembly (This stage should be carried out by a qualified professional)

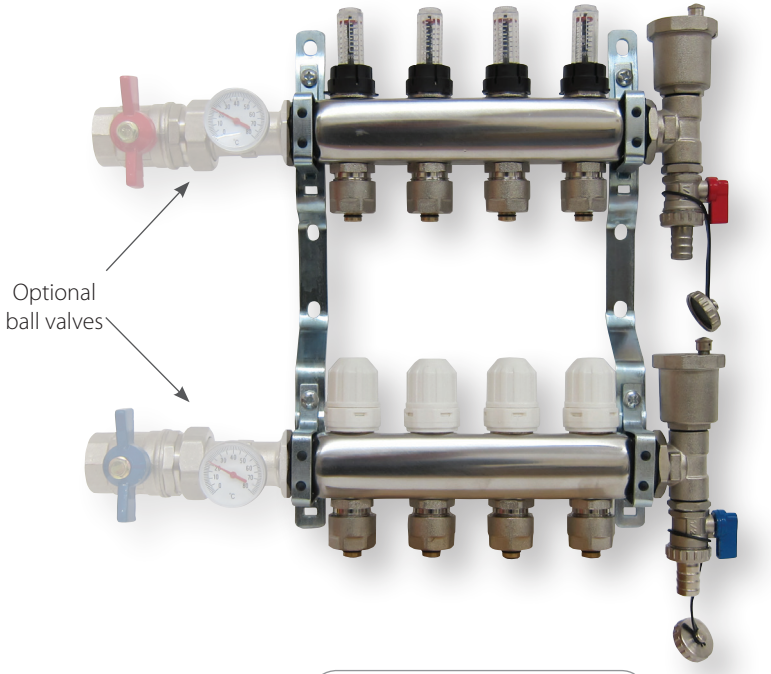

Fig. 2

- Close all flow gauges.
- Release pressure in the manifold by opening drain cock.
- Remove 1 inch blank and bushes for pressure gauge including the pressure gauge.
- Assemble ball valves and fit to manifold as shown in Fig. 2.
- Tighten all joints and connect flow and return pipe work from heating system to manifold.
- The manifold can now be re-pressurised using system water from the boiler as the small amount of air trapped will be released by the auto air vent.
- Do not use hemp and paste, overload with PTFE tape or over tighten fittings. Liquid PTFE is preferable.
- Check for leaks.
- If you find any small leaks coming from the flow meter sight glass just twist the flow meter sight glass and the internal 'O' rings should seal.
- In the unlikely event that the leak persists the flow meter will need replacing. Call us and we will immediately send out a replacement.
- Turn off the flow gauge and manual return valves on the affected loop and carry on filling the rest of the system.
- All valves should be fully open.

IMPORTANT NOTE

There is no thermostatic control of water temperature entering the floor heating circuits. Temperature regulation is set at the heat source and necessary precautions must be taken NOT to overheat the floors concerned to avoid damage, Wunda Group Plc accepts no liability.

• See supplementary information sheet

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Manifold circuits flow rate - Adjustment and setting

Fig. 3

Fig. 4

IMPORTANT: Adjust by hand only and do not force beyond two full turns from shut as this may cause damage to the flow meter.

Do not use pliers or grips to adjust flow gauges.

To adjust, remove lock clip (see Fig. 3) and turn black nut of flow meter by hand (see fig. 4).

- **clockwise** to **decrease** flow rate.
- **anti-clockwise** to **increase** flow rate.

- Flow rate is indicated by red marker in flow meter.
- Check with table in Fig. 5. to match Lts / Min with length of each pipe run.
- Refit lock clip to hold each flow meter at adjusted setting.

Approximate Flow Rate Guide*

Length of heating** circuit (Metres)	Flow rate (litres per min)
20	0.5
30	0.6
40	0.8
50	1.2
60	1.4
70	1.7
80	1.9
90	2.3
100	2.5
110	2.8
120	3.0

Fig. 5

Flow metre cleaning

- Make note of individual flow meter settings before starting procedure.
- Isolate the water supply to the manifold.
- Remove the black plastic lock nut closing the valve **clockwise**.
- While holding the black plastic clip of flow meter with 22mm spanner, undo Perspex sight glass **anti-clockwise** gently by hand. Do not use grips or pliers.
- Take out small black washer seal at base of sight glass, clean and refit the seal
- Refit the sight glass and open the flow meter valve to the indicated flow rate setting, noted for that circuit before starting the cleaning procedure.

***NOTE**
Flow rates may be increased or decreased to adjust performance. A flow and return temperature differential of approx 7°C is preferred.

If two pipe circuits are attached to one port with a 'Y' connector, then both lengths should be added when working out flow rate.

****NOTE**
The maximum advisable circuit lengths are:
16mm pipe – 100m per circuit
12mm pipe – 60m per circuit

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Manifold supplementary information.

Floor surface temperatures

Before introducing heat into the floor heating system check with the final floor finish supplier about maximum floor surface temperatures.

Generally a maximum floor surface temperature of 29ºC should not be exceeded however many wooden floor finishes have a maximum floor surface temperature of 27 ºC and must be layed in conjunction with relevant underlay and moisture barriers.

We advise the use of floor probes in conjunction with room thermostats be used in order to limit floor surface temperatures and avoid damage to chosen floor finish.

In particularly large areas several probes and thermostats may be required.

Wooden floor coverings

When installing wooden floor coverings over floor heating the floor surface temperature must not exceed 27 ºC. Floor probes in conjunction with room thermostats must be used in order to limit floor surface temperatures and avoid damage to wooden floors. Expansion gaps must be used to allow for expansion and contraction movement of the wooden flooring as specified by flooring suppliers. Birch and Maple are not suitable for use with floor heating due to excessive amounts of expansion. Laminates and engineered woods less than 25mm thick work well with floor heating. All wood flooring products must be acclimatised to the heating system and its operational temperatures by following suppliers guide lines.

Water Treatment (required to comply with product guarantee)

Specialist water treatment suppliers such as Sentinal or Fernox will be able to advise on all water treatment issues and dosage requirements. Flushing should be in accordance with BS:7593 to ensure awareness of the preparation of the water circuit for the wet heating systems prior to initial commissioning following major remedial work such as boiler replacement and the ongoing water treatment to ensure continued efficiency. The water volume in a 16mm pipe Floor Heating system can be calculated by multiplying the total linear length of Floor Heating pipe by a factor of 0.113 this will give the volume of water in litres.

In order to minimise corrosion, treatment of the water with an inhibitor is essential, however, for a corrosion inhibitor to function effectively, the metal surfaces must be clean. The British Standard Code of Practice BS 7593: 1992 details the steps necessary to clean a domestic central heating system. The Code recognises that it is not possible to clean a system without the application of a cleanser. Different products may be used depending on the nature of the system involved.

The most effective corrosion inhibitors act by reacting with the surface of the metal to produce a protective film in the form of a stable complex. The effectiveness of a given corrosion inhibitor will depend on its concentration.

In a multi-metal system, the product selected should contain a blend of inhibitors such that each metal is afforded good protection. In addition to the usual metals and alloys, e.g., iron, copper, steel and brass, special consideration must be afforded to aluminium.

Normally this metal is protected by a film of aluminium oxide which prevents corrosion in water (or in air), but under acid or strongly alkaline conditions the oxide film dissolves exposing the metal. Some waters found in the UK will give rise to sufficiently alkaline conditions in a central heating system to promote corrosion of aluminium and the gassing associated.

An increasing number of central heating systems contain aluminium so it is advisable that a neutral (neither acid nor alkaline) corrosion inhibitor product is selected in every case.

Consideration should be given to adding antifreeze to the floor heating system especially during the winter months.

Wunda Group Plc operates a continuous product development programme to maintain our reputation for quality products and as such we do occasionally modify or amend the specification of our products in line with our strict quality control policy. Maintenance of the floor heating system is straightforward and the pump, manifold, gauges, valves and actuators are designed for continuous operation over many years.Wunda Group Plc recommends regular use of floor heating systems, this will ensure flow gauges, pumps and valves are kept in good working order.

Your Notes:

Tech support opening hours are subject to change - please visit our website for the latest information

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