Core values, quality products

CORE Maxi

Installation, Operation & Maintenance Instructions

Please leave this instruction booklet with the end user as it contains importantwarranty, maintenance and safety information

Read this manual carefully before commencing installation.

This manual covers the following products:

CORE Maxi135

CORE Maxi175

CORE Maxi235

CORE Maxi275

UK CA CE

2 YEAR WARRANTY

CONTENTS

1 PRODUCT OVERVIEW

1.1 Product Description

The Maxi is a fully automatic heating/chilling system filling device and is suitable for the water management in domestic and commercial heating and cooling systems. Each unit is supplied fully commissioned and should require no on site commissioning, if purchased with the appropriate expansion vessel. It is designed for use in a normal environment. It is not suitable for installation outside, or in environments where there are excessively cold temperatures.

1.2 Application

The Maxi is designed to maintain system pressure in sealed heating & cooling systems.

1.3 Storage

If this product is not to be installed immediately on receipt, ensure that it is stored in a dry, frost and vibration free location in its original packaging.

1.4 Environment Protection

Your appliance contains valuable materials which can be recovered or recycled. At the end of the products' useful life, please leave it at an appropriate local civic waste collection point.

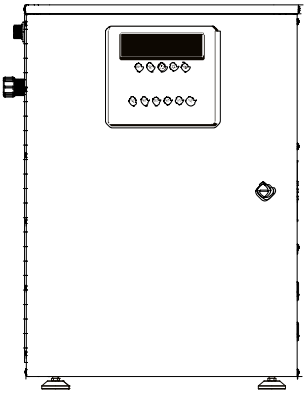
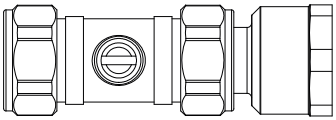
2 WARNINGS

- This appliance must not be used for any other application without the written consent of Smith Brothers Stores Ltd.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- Children should be supervised to ensure that they do not play with the appliance.
- This product should not be used for the supply of water to more than one heating/cooling system at a time.
- The electrical installation must be carried out in accordance with the current national electrical regulations and installed by a qualified person.
- The motor is not accessible in normal operating mode. The unit must only be operated with the front cover in place.
- In the interests of electrical safety a 30mA residual current device (R.C.D. not supplied) should be installed in the supply circuit. This may be part of a consumer unit or a separate unit.
- This appliance must be earthed via the terminal block.

Please read installation details carefully as they are intended to ensure this product provides long, trouble free service. Failure to install the unit in accordance with the installation instructions will lead to invalidation of the warranty.

3 CHECKLIST

IMPORTANT: With the Maxi removed from its packaging check for any damage prior to installation. If any damage is found contact Smith Brothers Stores Ltd within 24 hours of receipt.

Item	Description	Qty
	Maxi Unit	1
	Cold Water Valve	1

Your product may vary slightly from the illustrations above.

4 PUMPED MEDIUM

- Pump medium can be pure water or a mixture of pure water and glycol, which is appropriate for central heating. Water must meet water quality standard VDI 2035.
- The medium must be free from aggressive or explosive additives, free from mixtures of mineral oils and solid or fibrous particles.
- The pump should not be used for pumping flammable, explosive media and in an explosive atmosphere.
- Permanent magnet rotor inside the pump is prone to accumulating magnetic particles on its surface, which can lead to abrasion of bearings and rotor can or even blocking the rotor. Although the pump is built in a way that the effect of magnetic particles is minimal, failures of bearings, rotor cans and blocked rotors are not a subject of claims.
- To improve pump resistance to magnetite we recommend the use of a filter.
- Operation outside recommended conditions may shorten pump life and will void the warranty.

5 INSTALLATION

All Smith Brothers Stores Ltd products should be installed by a competent person with regard to the relevant requirements of the Health and Safety Regulations, Building Regulations, IEE Regulations, Water Supply (Water Fittings) Regulations, Water By-laws (Scotland) and any other by-laws or planning requirements.

The Maxi is intended for floor mounting and should be situated in such a position as to enable the display to be easily read.

5.1 Mains/boosted cold water supply

The Maxi is designed to be connected directly to the mains cold water supply, or a boosted cold water supply. The unit is supplied complete with all necessary system isolating valves but an inlet water isolating valve is recommended. The unit complies to the requirements of Category 5 backflow prevention when installed 50mm away from any obstructions at the rear of the unit.

The water inlet connection is ½" BSP male iron and should be connected to the mains cold water supply by an appropriate fitting and 15mm copper pipe or equivalent plastic pipework.

If the Maxi is sited some distance from the mains cold water supply it may be advisable to install a single check valve adjacent to the mains cold water supply.

To reduce the pressure drop on very long supply routes 22mm supply pipework is recommended.

5.2 Connection to the system

The Maxi is connected to the system by way of the 15mm outlet isolation valve. The pipework from the unit should be made in 15mm copper or similarly approved plastic pipework. A suitable sized expansion vessel should be incorporated into the system at this point (please refer to the typical installation diagram on page 9 for more information).

Please contact our helpline if you require any assistance regarding vessel sizing.

The final connection into the system should be sized accordingly, recommendations are shown below:

- Vessel size up to 100L: ½" (15mm) expansion pipework
- Vessel size up to 300L: ¾" (22mm) expansion pipework
- Vessel size up to 1000L: 1" (28mm) expansion pipework

For vessel sizes in excess of 1000L capacity please contact our technical department on: +44 03452 606 020

5.3 Important note:

The expansion vessel air/nitrogen charge must be set to the same pressure as the cold fill pressure of the system.

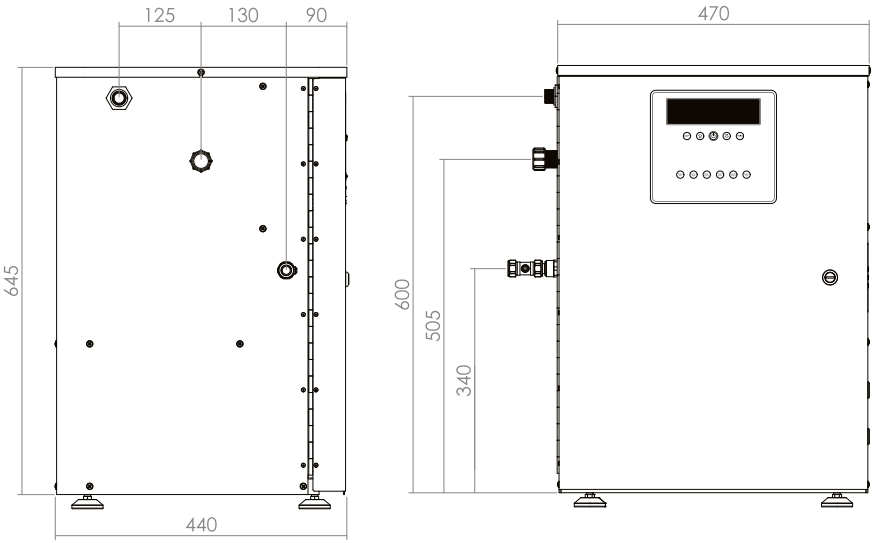
If the installed height of the expansion vessel is different to that of the unit then please contact our technical department who will advise on the air/nitrogen charge required.

A suitably sized pressure relief/safety valve MUST be fitted on all sealed systems.

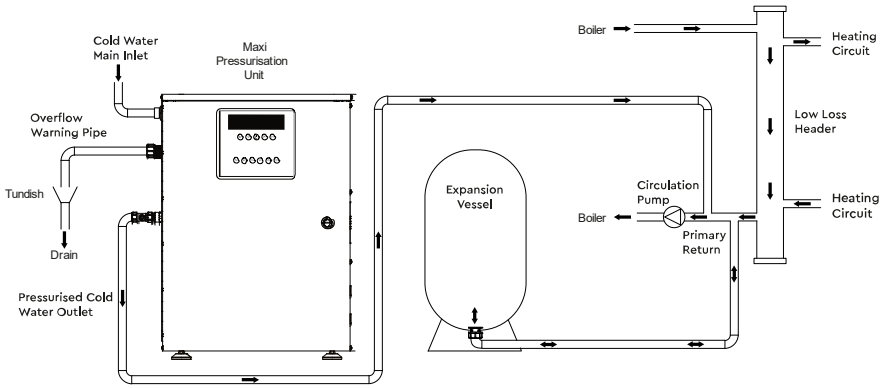
5.4 Overflow

The unit is supplied with a 20mm plastic tank overflow (warning pipe) connection, which must be connected to a suitable drain and be visible at the point of discharge. Smith Brothers Stores Ltd cannot accept responsibility for any consequential damage caused by failure to connect the overflow to a suitable drain.

5.5 Dimensions (in millimeters)



5.6 Diagram of a typical installation



Please note that for the purpose of clarity, system valves are not shown. The expansion vessel should be installed in the most neutral point in the system regarding pressure and temperature. For systems exceeding 90°C contact our helpline for advice.

Further installation guidelines can be found on page 7 of this technical documentation.

6 ELECTRICAL INSTALLATION

The Maxi requires a permanent 230V 50Hz 1 phase fused supply rated at 10 Amp. The unit is internally fused at 8 Amp Time Delay.

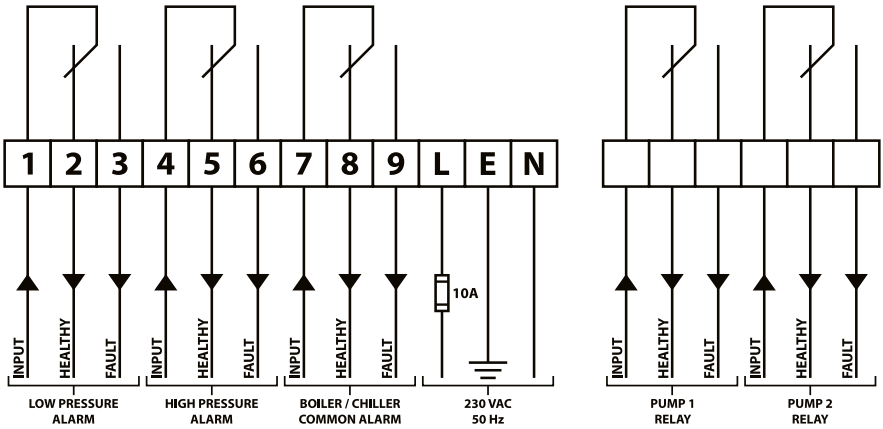
The unit also incorporates two BMS relays offering volt free contacts for the remote indication of low or high pressure conditions within the system. Alternatively, if only a common fault signal is required by the BMS as opposed to individual low and high alarms, a further volt free relay is included in the unit which can be used to interlock the boiler or chiller control circuits. Should either the low or high alarm relay operate, then this third relay will shut down the boiler or chiller and indication of any alarm situation will be shown on the display. The relays are suitable for use on control voltages up to 250V.

To access the wiring connections on the Maxi, the door will first need to be opened by using a flat head screwdriver on the door latch located on the front of the unit. Opening the casing will reveal a 12 way terminal block directly in front of you, with each connection labelled 1 - 9 for the volt free relays (see electrical installation diagram below), Live, Earth and Neutral. The wiring can be passed through the openings in the lower back corner of the right hand side of the unit, then connected as required into the terminal block.

Once the Maxi has been correctly connected, the unit is ready for use. Ensure that the unit has a water supply and that the service valves are open. Check for water leaks, switch on the electrical supply to the unit, press the central power button on the front of the unit until the display illuminates and vent the pump(s) to release any air trapped in the pump body via the bleeding cap located at the front top left of each pump, between the pump inlet and outlet connections (see page 27-28 for details). After a brief period, the unit will start to fill the system. Once the system has achieved its set cold fill pressure, the unit will stop filling and then go to **pressure correct**.

Important note: The Maxi is not designed to fill a system from empty, therefore the initial system fill should be carried out by other means in compliance with the appropriate water regulations.

6.1 Electrical diagram (when not at fault)



6.2 Electrical data

- Supply: 230V 1 ph 10 Amp.
- Full Load Current: 5.6 Amp.
- Fuse Rating: 8 Amp Time Delay.
- BMS Relays and Boiler/Chiller Relays: Volt Free Contacts rated at 250 VAC.

6.3 Caution Danger to life!

Incorrect installation and incorrect electrical connection can be life-threatening. Electricity hazards must be ruled out.

- Installation and electrical connection may only be performed by qualified personnel and in accordance with the applicable regulations (e.g. IEC, VDE, etc.)!
- The type of current and voltage must comply with the data on the rating plate.
- Comply with the regulations of the local power supply company!
- Comply with the accident prevention regulations!
- Never pull on the power cord.
- Do not bend the cord.
- Do not place any objects on the cord.
- When the pump is used in systems with temperatures above 90°C, a connection cable that is suitably resistant to high temperature must be used.
- There is a risk of sharp and jaged edges during assembly.
- Never transport by holding the power cord.
- There is a risk of injury from dropping the pump.

7 UNIT SETTINGS

7.1 Keypad functions

System data

This button is used primarily to scroll through the various settings of the unit. Repeatedly pressing this button will cycle through each setting (see page 15-16 for information on each of these settings). Pressing this button whilst the unit is in **service mode** will again cycle through each setting, but in this mode the settings can now be adjusted

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Up

When the unit is in **service mode** this button is used to increase parameter values.

Power

Pressing and holding this button for approximately 2 seconds will turn the unit on or off. When the unit is powered on, the display should always be illuminated.

NOTE: This button will turn the unit off, but it does not isolate power to the unit.

Down

When the unit is in **service mode** this button is used to decrease parameter values. This button can also be used to view the calibration code for the unit's pressure sensors by pressing and holding it down for 2 seconds. The top line of numbers displayed will relate to the calibration of the unit.

Service mode

This is a multi-function button that, when the unit is in operational mode, is used to mute the audible alarm conditions. Pressing and holding this button for approximately 8 seconds will put the unit into **service mode** where various parameters can then be adjusted (described in further detail on page 15).

7.2 Status display

The top line of the display on the Maxi will provide information on the current status of the unit as well as the system that it is managing, providing information on any potential issues and/or faults as and when they occur.

The following status messages will be displayed on the unit based on current conditions:

- **Pressure correct**
  The Maxi continuously monitors the system pressure. When the system pressure is within set parameters, the unit will show this message on the display.

- **System filling**
  This message indicates that the unit is currently filling the system to its target fill pressure.

- **Low water level**
  The Maxi continuously monitors the water level in the tank via a float switch. If this water level falls below an acceptable limit then the unit will inhibit the pump(s) from running, displaying this message. Once a sufficient water level is reinstated, the unit will return to operating as normal.

- **Frequent use**
  There is a **frequent use** setting on the Maxi which can be adjusted by accessing the **service mode** (described in further detail on page 15). If the unit cuts in to top up the system more than the number of times this setting is set to within a 24-hour period then the unit will alarm and display this message. This alert is for informational purposes as it informs that the unit is having to top up the system unusually often, suggesting there may potentially be a leak somewhere on the system.

If the unit displays any messages other than those detailed above, then there is likely a fault either with the unit or the system. For a list of possible fault displays, along with causes and remedies, please refer to the **fault diagnosis** section of this technical documentation.

7.3 Adjusting settings

The settings on the Maxi can be adjusted on site by following the below steps:

Step 01: Press and hold the **"service mode**" button for approximately 8 seconds.

Step 02: The display will indicate that you are now in **service mode**. You can then release the button.

Step 03: The button **"system data"** can now be used to scroll through the various settings.

Step 04: To increase or decrease the value of a setting use the **"up"** or **"down"** buttons respectively.

Step 05: After adjusting the settings, the unit will save any changes made and return to its normal operating mode when no button is pressed for approximately 30 seconds.

7.4 Parameter functions

The following lists each parameter of the Maxi which can be adjusted through the **service mode**, along with an explanation of their functions:

Cold Fill Pressure The required pressure of the system when cold.

Alarm Low Pressure The system pressure at which the low pressure alarm relay will operate, typically set 0.6 - 0.7 bar below the cold fill pressure.

Alarm High Pressure The system pressure at which the high pressure alarm relay will operate, typically set 0.2 - 0.3 bar below the system safety valve setting.

Usage Provides information on water usage in the system based on the amount of water the unit has put into the system and how long it has been operating (this is for information only and thus no setting is required). To reset the usage, both the **"up"** and **"down"** buttons can be held together for 3 seconds.

Lvl 1 Leak Alert Time	Affects the flood protection facilities of the unit, if the Maxi does not register a pressure increase in the system whilst filling for the period set here then it will assume that there must be a leak in the system and alarm, the longer the Dry Run setting (which is calculated in minutes) the less responsive the flood protection. Set at 0.00 to disable Dry Run protection.
Delay Off	Refers to the amount of time in seconds that the unit will continue to fill the system once the cold fill pressure has been reached, to prevent overshoot or undershoot of the fill pressure - increasing the time prevents undershoot and decreasing it prevents overshoot.
Frequent Use Alarm	Warns of frequent filling, which would indicate a system leak, by showing a warning message if in any 24-hour period the unit operates in excess of this value.
Delay On	Refers to the amount of time in seconds that the unit will wait before it begins operation once the system pressure has dropped to its cut in point, increasing the setting will reduce the units sensitivity to temporary drops in system pressure.
Time & Date	Alters the time and date displayed on the unit.
Audible Alarm	Enables or disables the audible alarm when the unit goes to fault.
Fault Log	Provides information of the last five registered faults (described in further detail on pages 11 and 12), displayed as two letter codes which refer to the following: MP - Low Mains Water Pressure when filling. FS - Low System Water Pressure (if Leak Alert is enabled). LP - Low System Water Pressure (if Leak Alert is disabled). HP - High System Water Pressure. DR - Leak Alert due to no increase in pressure whilst filling. FR - Frequent Run / Use.
Leak Alert	Enables or disables flood protection for the unit, it is highly recommended that this setting is enabled.

8 FAULT DIAGNOSIS

The Maxi has a full self-diagnostic microprocessor unit which continually self-checks its operation. If an internal fault is diagnosed then this will be displayed on the screen in place of the usual status display (described on page 14). The message displayed will directly relate to the issue that the unit has registered and will aid in resolving the fault.

If you continue to experience a fault, or are having difficulty in diagnosing the specific cause, then please contact our helpline for further assistance.

8.1 Status/fault conditions

FAULT INDICATION	CAUSE	RESOLUTION
"FILLING STOPPED DUE TO LEAK ALERT - CHECK SYSTEM FOR LEAKS!"	Low system pressure.	The system pressure has dropped below the Alarm Low setting. Check for leaks and that the Alarm Low has not been set incorrectly (refer to **page 15-16**). To reinstate the unit, power it off and back on again.
"FREQUENT USE!"	Possible persistent leak on the system.	If the unit operates more than the Frequent Use setpoint during a 24-hour period this message will be displayed. This will not stop the unit from operating or trigger the BMS fault relays but it does indicate that there may be a small leak on the system which should be investigated. To reinstate the unit, power it off and back on again.
"HIGH PRESSURE FAULT - CHECK EXPANSION VESSEL!"	High system pressure.	The system pressure has exceeded the Alarm High setting.Drain down and check the air charge of any expansion vessels on the system. Confirm the diaphragm is still intact and check that the vessel is adequately sized. Also check the Alarm High has not been set incorrectly (refer to **page 15-16**). This fault will automatically reset when the pressure drops back down below the Alarm High setpoint.
"LOW WATER LEVEL"	Low incoming water pressure.	The float switch in the tank has detected that the water level is below that required for correct operation and the unit requires time to allow for the tank to be refilled. If this is taking longer than usual, then the mains pressure should be checked and the cause of any drop in mains pressure should be investigated.

Status/fault conditions continued

FAULT INDICATION	CAUSE	RESOLUTION
"LOW WATER LEVEL"	Possible faulty float switch.	The float switch is incorrectly registering a low water level despite the tank having a sufficient volume of water. Please contact helpline as the float switch will need to be replaced (refer to **page 21-22** for part details).
"PUMP 1 FAILURE!" or "PUMP 2 FAILURE!"	The system pressure is not rising due to a leak.	The unit has been filling the system for longer than the Dry Run Time set in **service mode**, without registering a pressure increase. The system should be checked for leaks. To reinstate the unit, power it off and back on again.
	The pump(s) cannot run so the unit is unable to increase the pressure in the system.	The pump(s) should be checked for operation by pressing and holding the **pump test** button(s) on the front of the unit. If a pump is not operating correctly then the fuses on the PCB (pump) (see page 14 for part identification) should be checked and replaced where necessary. Continuously blowing fuses would suggest a pump may be seized. If this occurs then please contact our helpline for further assistance.
"SENSOR FAILURE"	Possible damaged sensor.	Power the unit off and back on, and the unit will return to normal operation. If the unit displays a '#' in the corner of the display then this indicates that there is still a possible fault. After 10 minutes the unit will recheck the sensors and return to displaying **"sensor failure"** if the issue still remains. Obtain the calibration code for the sensors (as outlined on **page 14**) and then contact our helpline and we will be able to confirm if this is a genuine sensor fault.

Status/fault conditions continued

FAULT INDICATION	CAUSE	RESOLUTION
“SENSOR FAILURE”	Incoming voltage instability.	The sensors use the voltage as a baseline to measure pressure. If the incoming voltage supply to the unit is fluctuating then this can cause the unit to go to **''sensor failure"**. If the pressure readings on the display are fluctuating, or the voltage is unstable when measured with a multimeter then there is likely an issue with the supply. The unit can be powered from an alternative source or a power suppressor can be fitted to try and stabilise the incoming voltage to the unit. In either case of **''sensor failure"**, the Maxi can be put into **manual override** to stop it from locking out any equipment on-site (described in further detail below).

8.2 Manual override

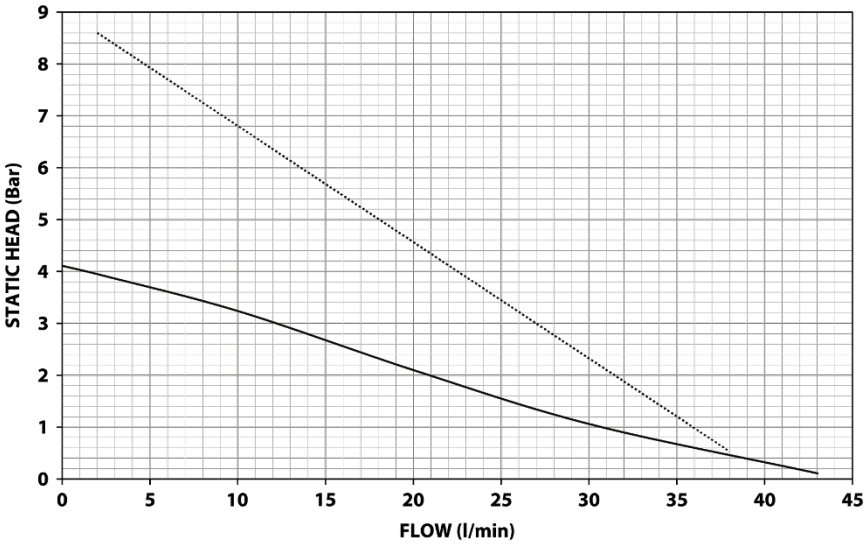
In the unlikely event of **''sensor failure"**, the Maxi may begin to give incorrect readings and could cause alarm conditions. If this occurs, a **manual override** can be employed which will reinstate the BMS relays in the unit, forcing them into a healthy position and preventing the unit from locking out any equipment that the unit has been linked to.

To put the unit into **manual override**, press and hold both the **''down"** and **''service mode**” buttons simultaneously for approximately 2 seconds.

Before operating this feature, it must be ensured that there is sufficient pressure in the system. **Manual override** must not be employed if the unit has shown a potential leak condition or if there is insufficient pressure in the system.

9 PUMP CHARACTERISTICS

9.1 Performance Range

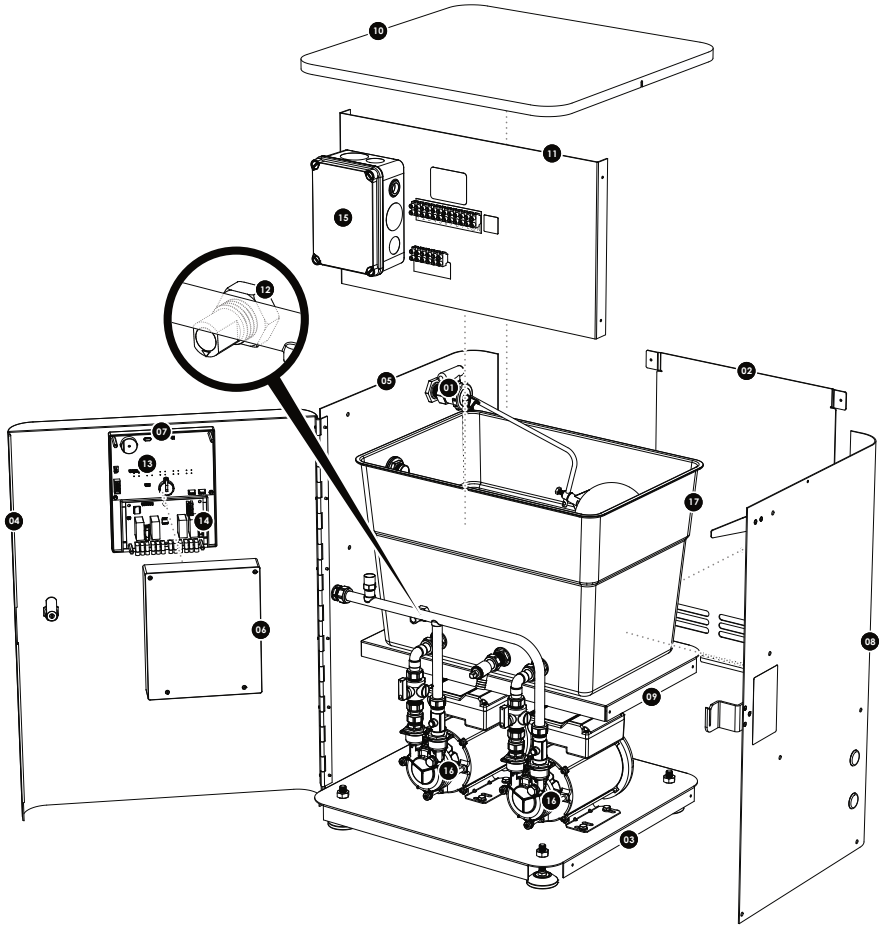


9.2 Product Data

Data	CORE Maxi135 & Maxi235	CORE Maxi175 & Maxi275
Dimensions (Height x Width x Length):	169 x 132 x 225mm	179 x 138 x 258mm
Supply Voltage:	230 Volt | 240 Volt	230 Volt | 240 Volt
Frequency:	50 Hz	50 Hz
Maximum Pressure: based on a flow rate of 8 l/min.	3.4 Bar	7 Bar
Maximum Flow: based on a pressure of 0.5 Bar.	37.5 l/min	38 l/min
Dry Weight:	6 kg	9.5 kg

10 COMPONENT LIST

Any components within the Maxi that may require replacing have been listed in this section, along with their respective part codes. If any part needs replacing which is not listed here, please contact our helpline for assistance.



No.	Component name	
01	(**MAX000090**)	BALL FLOAT WITH VALVE COMPLETE (½")
02	(**MX1100002**)	CASING - BACK PANEL
03	(**MX1000001**)	CASING - BOTTOM PANEL
04	(**MX1000002**)	CASING - FRONT PANEL (Maxi135 & Maxi235)
	(**MX1000003**)	CASING - FRONT PANEL (Maxi175 & Maxi275)
05	(**MX1000004**)	CASING - LEFT SIDE PANEL
06	(**MX1000005**)	CASING - PCB (BACK)
07	(**MX1000006**)	CASING - PCB (FRONT)
08	(**MX1000007**)	CASING - RIGHT SIDE PANEL
09	(**MX1000008**)	CASING - SHELF PANEL
10	(**MX1000009**)	CASING - TOP PANEL
11	(**MX1000010**)	CASING - WIRING PANEL
12	(**MAX000011**)	FLOAT SWITCH (M16)
13	(**MX1000011**)	PCB (CONTROL) WITH SENSOR (Maxi135 & Maxi235)
	(**MX1000012**)	PCB (CONTROL) WITH SENSOR (Maxi175 & Maxi275)
14	(**MX1000013**)	PCB (PUMP) (Maxi135)
	(**MX1000014**)	PCB (PUMP) (Maxi175)
	(**MX1000019**)	PCB (PUMP) (Maxi235)
	(**MX1000016**)	PCB (PUMP) (Maxi275)
15	(**MX1000042**)	PCB (POWER)
16	(**MX1000038**)	PUMP (Maxi135 & Maxi235)
	(**MX1000018**)	PUMP (HIGH PRESSURE) (Maxi175 & Maxi275)
17	(**MAX000017**)	TANK (RECTANGULAR) (BLACK) (18 L)

"(**PART CODE**) PART NAME":

11 TECHNICAL SPECIFICATION

Pump Model		CORE Maxi135	CORE Maxi235	CORE Maxi175	CORE Maxi275
General	Warranty	2 years			
	Conformity certification	UKCA/CE			
Features	Sealed system capacity	Up to 300,000 litres			
	Mounting	Wall & floor mount			
	Pump control system	✓			
	Intelligent control interface	✓			
	System fill mode	✓			
	Dry run protection	✓			
Materials	Break Tank	Polyethylene			
	Enclosure	Powder coated steel			
Performance	Maximum cold fill pressure	3.4 bar (8 l/min)		7.0 bar (8 l/min)	
	Maximum flow (maximum)	37.5 l/min (at 0.5 bar)		38 l/min (at 0.5 bar)	
	Maximum flow (nominal)	21 l/min (at 2 bar)		31.5 l/min (at 2 bar)	
	Ambient air temperature	Min 4°C/Max 40°C			
	Relative humidity	95 % non-condensing			
	Min./Max. water temperature	Min 4°C/Max 23°C			
Water Tank	Usable water capacity	18 litres			
	Inlet valve and fill rate	Float valve			
	Fluid category	CAT 5 (type AB air gap with weir)			
Connections	Cold water inlet	1 ¼" BSP M Iron			
	System outlet	15mm Compression			
	Overflow	20mm			
Pump	Number of pumps	1	2	1	2
	Pump mode	Duty	Duty-standby	Duty	Duty-standby
	Pump type	Peripheral			
	Motor type	Induction, auto-reset thermal trip			
	Duty rating	Continuous (S1)			
	Pump head and impeller	Bronze			
Electrical	Power supply (Vac/Ph/Hz)	230 V a.c./1/50 Hz			
	Power consumption (standby)	10 Watts			
	Power consumption (filling)	610 Watts		1298 Watts	
	Current - full load	2.6 Amps		5.6 Amps	
	Fuse rating	5 Amps		8 Amps	
	Alarm output	✓			
Physical	Enclosure protection	IPX2			
	Width	470mm			
	Depth	440mm			
	Height	645mm			
	Weight - including fittings	27Kg	32Kg	33Kg	43Kg

12 MAINTAINANCE & SERVICE

Before carrying out maintenance, cleaning and repair work, disconnect the system from the power supply and secure it against being switched on again by unauthorized persons.

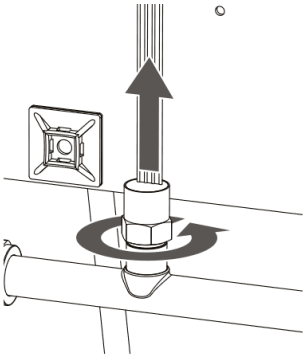
At high water temperatures and system pressures, wait for the pump to cool down beforehand. There is a risk of burns!

12.1 Malfunctions, causes and elimination

Maintenance work or repair attempts may only be performed by qualified personnel. Before carrying out maintenance, cleaning and repair work, disconnect the system from the power supply and secure it against being switched on again by unauthorized persons. At high water temperatures and system pressures, wait for the pump to cool down beforehand. There is a risk of burns!

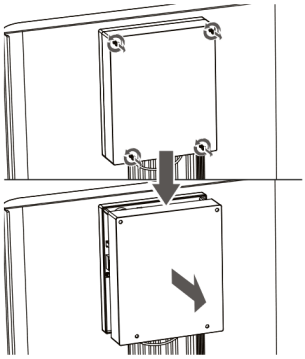
12.2 REMOVING THE PCB (CONTROL) WITH SENSOR

In the unlikely event of either a sensor or PCB (control) failure, it may be necessary to replace the controls assembly. If this is the case then the unit must first be isolated mechanically and electrically, and then drained down by slackening the inner system valve nut, allowing any water in the internal pipework of the unit to drain out. Once this is done, the controls assembly may be removed by following the steps listed below.



Step 01:

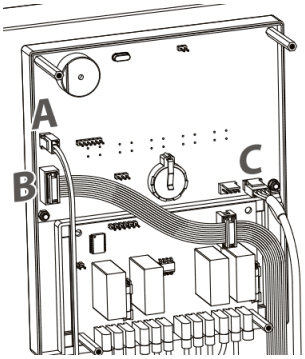
Identify the location of the system pressure sensor inside the unit and then trace the ribbon cable on the sensor back along to the extension cable connection and disconnect it. With the sensor ribbon cable completely separated from the extension cable, unscrew the sensor from the ferrule fitting in the pipework and completely remove it from the unit.



Step 02:

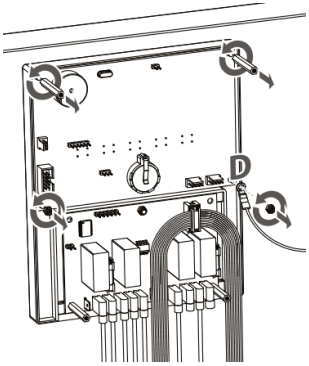
There will be four retaining screws, one in each corner, of the PCB casing situated on the inside of the front panel. Each of these should be unscrewed using a suitable screwdriver.

This will allow the casing to be opened by pulling the back casing away from the front panel, providing access to the PCB (control) (located at the top) and the PCB (pump) (located at the bottom).



Step 03:

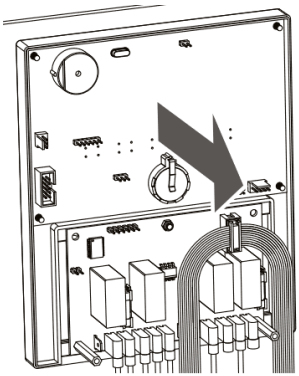
All connections on the back of the PCB (control) (located at the top of the PCB casing) should then be disconnected. These are the float switch (**A**), ribbon cable (**B**) and sensor extension cable (**C**) connections. It should also be noted where each connection is fitted on the PCB (control) as they are being disconnected.



Step 04:

The two hex spacers in the top corners and the two M3 nuts in the bottom corners of the PCB (control) should be unscrewed and the earth tab (**D**) removed from the bottom right pin.

Care should be taken when fitting a replacement PCB (control) that the earth tab (D) is reinstated in the previous position to ensure the unit remains correctly earthed.



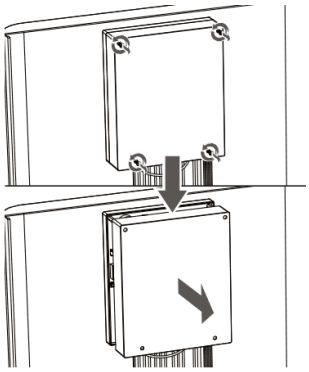
Step 05:

The PCB (control) can then be removed completely from the PCB casing and the above steps should be reversed in order to fit the new controls assembly into the Maxi.

The PCB (control) will need to be replaced along with the included sensor as the two parts have to be calibrated together before being despatched in order to properly function. Replacing only one or the other will result in incorrect operation, therefore they should only be fitted if they have been provided as a package by Smith Brothers Stores Ltd.

12.3 Removing the PCB (pump)

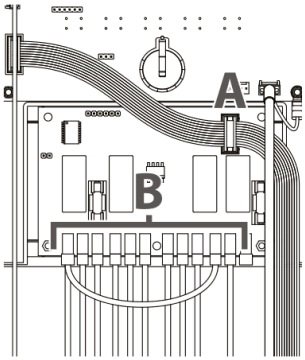
In the unlikely event of a PCB (pump) failure, it may be necessary to replace the component. If this is the case then the unit must first be isolated electrically. Once this is done, the PCB (pump) may be removed by following the steps listed below.



Step 01:

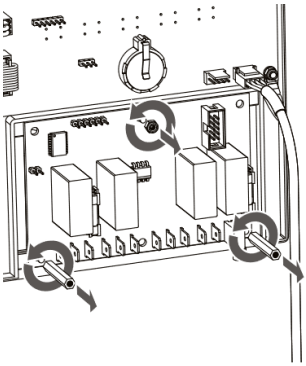
There will be four retaining screws, one in each corner, of the PCB casing situated on the inside of the front panel. Each of these should be unscrewed using a suitable screwdriver.

This will allow the casing to be opened by pulling the back casing away from the front panel, providing access to the PCB (control) (located at the top) and the PCB (pump) (located at the bottom).



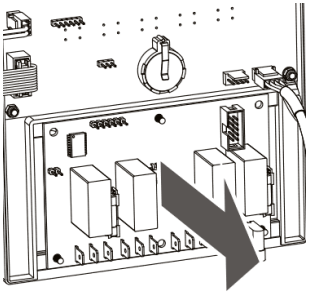
Step 02:

All connections on the back of the PCB (pump) (located at the bottom of the PCB casing) should then be disconnected. These are the ribbon cable (**A**) and pump (**B**) connections. It should also be noted where each connection is fitted on the PCB (pump) as they are being disconnected.



Step 03:

The one M3 nut at the top middle and the two hex spacers in the bottom corners of the PCB (pump) should be unscrewed.



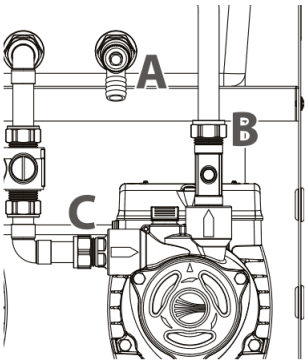
Step 04:

The PCB (pump) can then be removed completely from the PCB casing.

STEPS 01 - 03 should be reversed in order to fit the new PCB (pump) into the Maxi.

12.4 Removing a pump

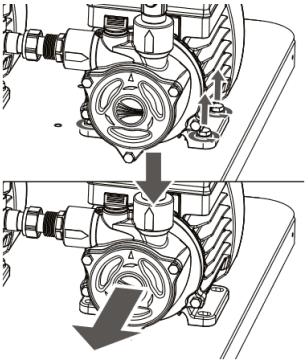
In the unlikely event of a pump failure, it may be necessary to replace the component. If this is the case then the unit must first be isolated mechanically and electrically, and then drained down by slackening the inner system valve nut, allowing any water in the internal pipework of the unit to drain out. Once this is done, the pump may be removed by following the steps listed below.



Step 01:

Drain the tank completely of water via the drain tap (**A**) and then undo the double non-return valve nut (**B**) and the pump outlet connection nut (**C**) in order to remove any additional water remaining in the respective lengths of pipework.

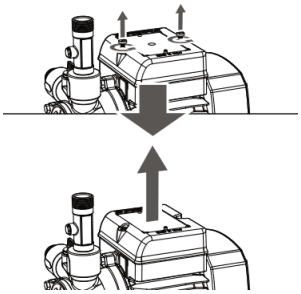
Please note that there is likely to be an amount of water retained within these lengths of pipework so appropriate preparation should be made before undoing both nuts.



Step 02:

Unscrew the four M6 bolts that are holding the pump to the bottom panel and then remove them, along with their accompanying washers.

Slide the pump forward and out of the unit.



Step 03:

With the pump physically removed from the unit, note the four retaining screws, one in each corner of the electrical enclosure located on the top of the pump. These can now be unscrewed using a PZ2 screwdriver allowing the top half of the electrical enclosure to be removed.

Before continuing, it is important to reaffirm that the pump is still electrically isolated to ensure safety during the remaining steps.

Step 04:

Take note of the wiring connections present within the electrical enclosure, specifically the **earth**, **live**, and **neutral** wires coming into the pump from the supply cable. Remove the **live** and **neutral** wires from their respective terminals and remove the fitting holding the **earth** wire tab in place using a suitable tool.

Step 05:

With the supply cable wiring now disconnected internally, unscrew the cable gland nut from the electrical enclosure, allowing the supply cable wiring to be slid out and completely separated from the pump.

STEPS 02 - 05 should be reversed in order to fit the new pump into the Maxi. The unit should then be refilled and vented

(please see "**Bleeding a pump**" below for further details).

12.5 Bleeding a pump

After replacing a pump in the Maxi (see above for details), or in the unlikely event that a pump is either not operating efficiently or is not increasing the system pressure efficiently, then it may be necessary to bleed air from the pump. If this is the case then the bleeding cap located on the front face of the pump, in the top corner near the outlet connection, must be unscrewed to allow the excess air to escape. This may need to be carried out more than once to ensure all air is removed from the pump.

13 THE WARRANTY

Congratulations on purchasing a Smith Brothers Stores Ltd product.

We are confident this product will provide many years of trouble free service as all our products are manufactured to the very highest standard.

The Smith Brothers Stores Matrix Maxi is warrantied to be free from defects in materials or workmanship for 2 years from the date of purchase.

Within the warranty period we will repair, free of charge, any defects in the product resulting from faults in material or workmanship, repairing or exchanging the whole unit as we may reasonably decide.

Not covered by this warranty: Damage arising from incorrect installation, improper use, unauthorised repair, normal wear and tear and defects which have a negligible effect on the value or operation of the product.

Reasonable evidence must be supplied that the product has been purchased within the warranty term prior to the date of claim (such as proof of purchase or the product serial number).

This warranty is in addition to your statutory rights as a consumer. If you are in any doubt as to these rights, please contact your local Trading Standards Department.

In the event of a claim please telephone **'Technical Helpline'** with proof of purchase and product serial number.

+44 (0) 1785 218 206

You should obtain appropriate insurance cover for any loss or damage which is not covered by Smith Brothers Stores Ltd in this provision.

Please record here for your records.

TYPE NO.	SERIAL NO.	DATE PURCHASED

DECLARATION OF CONFORMITY

Supply of Machinery Regulations - 2008

EN ISO 12100:2010, EN 809:1998+A1:2009/AC:2010

Electrical Equipment Regulations - 2016

EN 60335-1:2012/A2:2019, EN 60335-2-41:2003/A2:2010

EMC Regulations - 2016

EN 55014-1:2017/A11:2020, EN 55014-2:2015, EN 61000-3-2:2014, EN 61000-3-3:2013

Machinery Directive - 2006/42/EC

EN ISO 12100:2010, EN 809:1998+A1:2009/AC:2010

Low Voltage Directive - 2014/35/EC

EN 60335-1:2012/A2:2019, EN 60335-2-41:2003/A2:2010

EMC Directive - 2014/30/EU

EN 55014-1:2017/A11:2020, EN 55014-2:2015, EN 61000-3-2:2014, EN 61000-3-3:2013

IT IS HEREBY CERTIFIED THAT THE PRESURISATION UNIT AS SERIAL NUMBER BELOW, COMPLIES WITH THE ESSENTIAL REQUIREMENTS OF THE ABOVE STATUTORY REGULATIONS & E.U. DIRECTIVES.

SMITH BROTHERS STORES LIMITED,
UNIT V2 WINCHESTER AVENUE BLABY,
LEICESTER. LE8 4GZ

RESPONSIBLE PERSON AND MANUFACTURER

Signed.....

ANDREW RAINE | SUPPLY CHAIN DIRECTOR

EU AUTHORISED REPRESENTATIVE

ARC (AUTHORISED REP COMPLIANCE)
GND FLOOR, 71 LOWER BAGGOT STREET, DUBLIN,
D02 P593, IRELAND.

Registered Office, Unit V2 Winchester Avenue Blaby, Leicester. LE8 4GZ

Core values, quality products

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