

Mixergy CubeX-DHW Installation Manual MDC0039-04





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1 CubeX-DHW, an Overview

CubeX-DHW, is an intelligent thermal store (Heat Battery) which only heats what you need by stratifying thermal energy around an internal heat exchanger. This provides rapid re-heat performance whilst reducing heat losses. The integral State of Charge (SOC) measurement and software control allows CubeX-DHW to work with smart tariffs so that the store pays the customers whenever there is surplus renewable energy.

CubeX-DHW provides mains pressurised domestic hot water without needing an expansion vessel, group inlet control set or Temperature and Pressure Relief discharge pipework, this greatly simplifies installation.

2 User Instructions

2.1 Controlling your unit

You can easily set how much hot water you need using either the gauge (located on the side of the product), or the Mixergy app.

2.1.1 Quick start controls your unit using the gauge

Your CubeX-DHW comes with an integral gauge which provides:

- a) A quick means of turning the product on or off via the top 'power button'
- b) Visibility of the volume of hot water and ability to increase the amount of hot water using the 'increment buttons'
- c) Visibility of the product status (whether it is connected to the internet or whether it is heating)

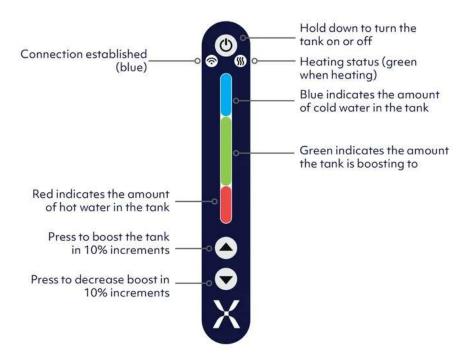


Figure 1: Gauge connection into the controller



2.1.2 More in depth control using the Mixergy App

The Mixergy app allows you to set schedules, remotely boost or to utilise the holiday mode function. For smart remote control over your Mixergy Cube X DHW, use the Mixergy App. For more details on the App, how to use it and where to find it, visit the Mixergy App page via the URL below or go to the Google or IOS store and simply search 'Mixergy app':

https://support.mixergy.co.uk/how-do-i-access-and-use-the-mixergy-app

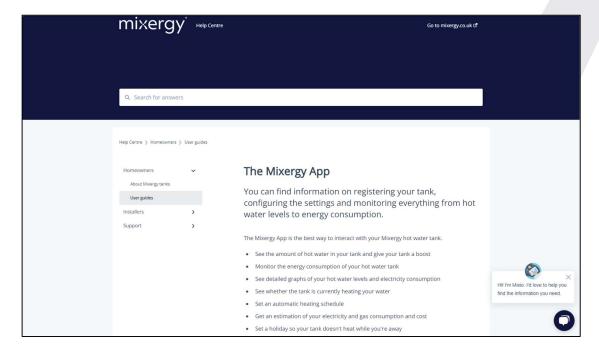


Figure 2: Mixergy App Web Page



2.2 Mechanical Controls

2.2.1 Thermostatic Mixing Valve

The thermostatic mixing valve safely sets the hot water temperature produced by your CubeX-DHW. The setting temperature defines how hot the water inside the product gets. This can be configured using the Mixergy App as detailed through the links provided in Section 3.1.2. Having a higher setting temperature means that the product will store more energy. Having a lower setting temperature means less energy but also lower heat losses.

The thermostatic mixing valve (Figure 3) has an adjustment range of between 30°C (MIN) and 65°C (MAX) is supplied as standard with the Mixergy CubeX-DHW models. The function of the thermostatic mixing valve is to deliver water consistently at a safe temperature. To prevent scalding, we highly recommend that the mixing valve is set to position 4 (nominally 44°C).



Figure 3: Thermostatic Mixing Valve



2.2.2 Tank Overfill Pipe Connection

The Mixergy CubeX-DHW has an overfill pipe connection (Figure 4). The function of the overfill pipe is to act as a vent and prevent any pressure build up if the tank was overfilled or developed an internal fault. If water is continuously flowing through the overfill pipe this may suggest the tank has developed a fault or that the inlet valve is leaking. If the fault persists, contact your original installer.

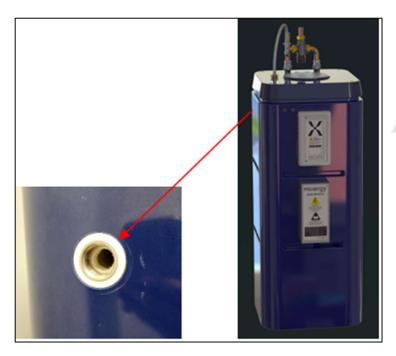


Figure 4: Overfill pipe connection (Left face of the tank)

Note: If a fault is discovered switch off all heat sources, isolate the power supply, contact your installer and do NOT turn off the water supply. Wait until the storage water has sufficiently cooled before carrying out any repairs.



3 Technical specification

3.1 Technical Specification Table

Table 1: Technical specification table

Product Variant	150L	210L
Width (mm)	520	520
Depth (mm)	585	585
Height (including fittings) (mm)	1315	1650
Clearance	W – 100mm D – 50mm H– 475mm	W – 100mm D – 50mm H– 475mm
Dry weight (kg)	36	44
Wet weight (kg)	188	246
Primary Connections	22mm comp	22mm comp
Overfill pipe connections	G 3/4"	G 3/4"
Electrical requirements	16A, 230-240V, 1.5mm2 CSA	16A, 230-240V, 1.5mm2 CSA
DHW coil max operating pressure (bar)	3	3
Maximum permissible storage water temperature (°C)	60	60
Standing Heat loss (kWh/24h)	1.12	1.24
ERP Rating	В	В
Heat UP time (15-60°C) (mins)	160	260
Reheat Time (0%-30% SOC @60°C) (mins)	28	31
Reheat Time (0%-50% SOC @60°C) (mins)	58	65
Reheat Time (0%-70% SOC @60°C) (mins)	90	95
Reheat Time (0%-100% SOC @60°C) (mins)	124	160
Volume (I) of hot water without reheating at 10 I/min draw off rate (Inlet temperature 12°C, store temperature 60°C, 100% SOC)	142	188
Volume (I) of hot water without reheating at 10 I/min draw off rate (Inlet temperature 12°C, store temperature 60°C, 70% SOC)	103	122
Volume (I) of hot water without reheating at 10 I/min draw off rate (Inlet temperature 12°C, store temperature 60°C, 50% SOC)	62	86
Volume (I) of hot water without reheating at 10 I/min draw off rate (Inlet temperature 12°C, store temperature 60°C, 30% SOC)	35	50



4 Installation guide

4.1 Tank installation

The following instructions must be read prior to the installation of the Mixergy CubeX-DHW, and work should only be carried out by a competent person. The installer should be aware of their responsibility and duty of care to ensure all aspects of the installation comply with all current regulations and legislation.

4.1.1 Location

The CubeX-DHW unit should be supported on a solid level base, free from any debris and should cover the entire base of the unit. The base must be capable of supporting the Cube X DHW filled weight, refer to Table 1: Technical Specifications. The installation site should be indoors in a frost-free room and protected from continuous direct sunlight. To protect the integrity of the CubeX-DHW it should be situated in an area with suitable and effective rodent control measures in place. When selecting a suitable location, consideration should be given with regards to the relative position of the main hot water outlets to keep pipe runs as short as possible, thus maximising efficiency. Routing of the overfill pipe should also be considered to allow it to be safely conveyed and discharged.

The CubeX-DHW should be placed a minimum of 1M away from any heat source or open fire to ensure the unit is not at risk of damage or melting from heat exposure.

For future servicing and maintenance requirements the hot water storage tank should be positioned in such a way that allows for components to be inspected, removed, and replaced, if necessary, as per Figure 5.



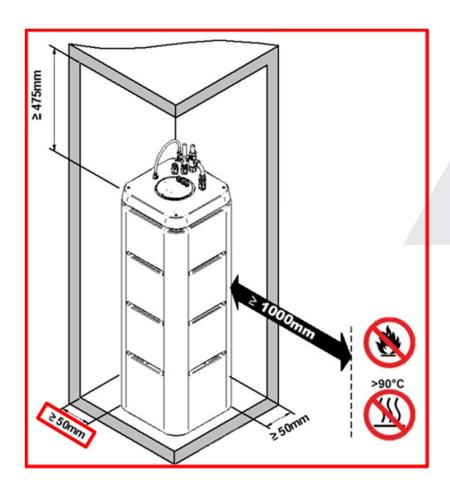


Figure 5: Service clearance required around the Cube X-DHW



4.1.2 Connections

450mm (18 inches) is the minimum distance to make a solder connection from any of the inlet and outlet connections on top of the Mixergy CubeX-DHW. This is to reduce the possibility of any residual flux / solder contacting the stainless-steel corrugated tube inside the tank. Fluxes used for soldering or brazing are, by their nature and purpose, aggressive towards metals.

If excessive flux enters the bore of the tube and remains there, local attack can result. Corrosion likelihood is best minimised by using water soluble flux with restricted aggressivity and flushing the unit to remove any flux residues as soon as possible after completion of the soldering or brazing operation. It is recommended the y pattern strainer is fitted as close as possible to the cold-water inlet to the tank before the first solder connection.



4.1.3 Mains Water Supply Pipework

For optimum performance, it is recommended that the incoming mains water supply should be capable of always delivering a minimum flow rate of 10l/min at a dynamic pressure of 1 bar or above. This should be sufficient for the operation of most sanitary appliances. It is recommended that a 22mm mains supply pipework is used; however, this is not mandatory.

- If the mains supply pressure is likely to exceed 3 bar at any time a pressure reducing valve must be installed.
- We recommend that a full-bore isolation valve is fitted to the incoming mains water supply to allow the tank, and cold-water outlet taps to be isolated for maintenance purposes.
- The incoming mains water pipework should be split to serve both the hot water storage and coldwater outlets after the full-bore isolation valve.
- To protect the public water network from backflow contamination a double check valve must be installed. Care must be taken to ensure the direction arrow on the side of the double check valve follows the direction of flow.
- The supplied Y pattern strainer **must** be fitted on the mains water supply to the hot water storage tank as close as practicable to the location of the mixing valve. This will trap any debris from the pipework upstream which may affect the performance of the Cube X DHW unit. This should be fitted on a straight run of pipe away from any bends and in an accessible location to allow the filter to be removed for inspection and cleaning if necessary.

It may be necessary to fit a shock arrestor on the mains supply pipework to prevent noise from water hammer. Refer to Figure 6 for typical pipework configuration.



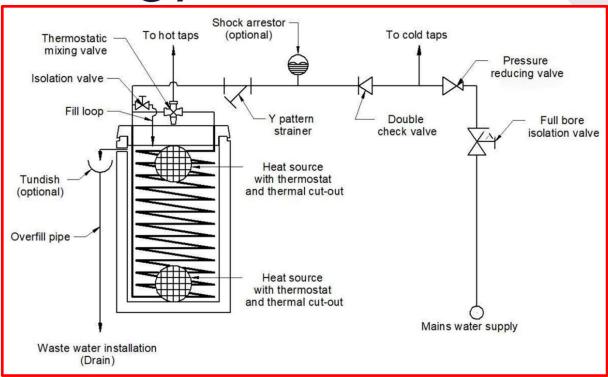


Figure 6: Typical Pipework Configuration



4.1.4 Hot and cold-water connections

The mixing valve pipe set fittings should be fitted to the hot and cold domestic hot water heat exchanger coil connections. These are positioned on the top of the hot water storage tank and are identified with a tap symbol, Figure 7. Once in place the thermostatic mixing valve can be connected. It is recommended that the thermostatic mixing valve be set to position 4 (nominally 44°C), see Figure 7, to achieve the best hot water performance. However, this can be adjusted dependent on user requirements - this can be set during commissioning of the hot water storage tank.

Care should be taken to ensure the hot and cold-water supplies are connected to the valve in accordance with the indications on the body of the valve. The straight pipe set fitting should be fitted to the mixed water outlet on the mixing valve. See Figure 7 for the hot and cold-water connection set up. The mixing valve can either be positioned in the vertical or horizontal position depending on the individual installation requirements, however it must be accessible to allow for maintenance, commissioning and testing of the valve.

Fibre washers (supplied) should be fitted at the point of each connection. Connections to the cold and mixed hot water pipe set fittings should be made using compression fittings. Use 2 spanners to ensure the connection doesn't twist when tightening.



Figure 7: Mixing valve pipe set and valve set to position #4

Note: It is not recommended to use any form of sealant / paste in combination with the flat washers. These should be fitted dry. When making the compression connections hold the compression fitting body tightly with a spanner and tighten the compression nut on top with a spanner. Do not overtighten as this can cause the fitting to leak. On models where a thermostatic mixing valve has not been provided, to prevent scalding, it is recommended that all hot water outlets should be blended at point of use.



4.1.5 Fill loop connection

Remove the isolation valve that is circled in figure 8 below.



Figure 8: Filling loop

Assemble the double check valve to the copper pipe. Ensure the orientation matches that in figure 9. There is an arrow on the valve which signifies the direction of flow.



Figure 9: Orientation of double check valve

Assemble the filling loop flexi between both valves as shown in Figure 10 below.



Figure 10: Complete assembly of filling loop



4.1.6 Secondary Return

Ideally the Cube X DHW should be installed as close as possible to all hot water outlets however, where this is not possible, and the pipe runs to outlets are excessive, a secondary return may need to be fitted. Figure 11 details a typical schematic of how to fit a secondary return to the hot water storage tank. In addition to a WRAS approved bronze secondary hot water pump suitable for sanitary hot water it is recommended that a pipe thermostat or time clock is fitted to prevent the pump running constantly. To prevent excessive heat loss the secondary return pipework should be insulated over its entire length. It is essential that the check valves shown in the diagram are fitted to prevent the cold mains feed backflowing up the secondary return pipework.

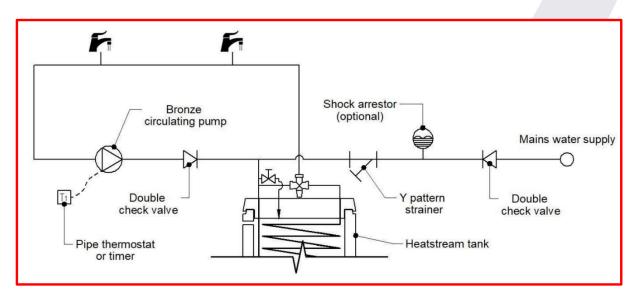


Figure 11: Secondary return schematic



4.1.7 Over fill pipework

The overfill pipework should be configured in such a way to allow any overfill flow from the Cube X DHW unit to be conveyed to a safe visible position. The overfill pipework should fall away from the tank via gravity, taking the shortest possible route to the termination point. The overfill pipe should be terminated to either waste (sink or toilet), soil or atmosphere.

When terminating to waste / soil pipe, the overfill pipework should include a visible air-break so any overfill flow from the tank becomes apparent. Where it is not possible to terminate the overfill pipe upstream of an existing waste / soil pipe trap, it is recommended that a waterless drain waste valve is fitted to prevent the escape of foul air into the living space from the drain.

A dry trap tundish can also be used as a means of creating a visible air break and trap. Any overfill pipework should have a minimum of 19mm ID (typically 22mm OD) and can be either plastic or copper pipe. If it is impractical to terminate the overfill pipe to waste / soil, the overfill pipe can be terminated at a point open to the atmosphere.

When terminating to a point open to atmosphere the overfill pipe should terminate in a safe place where there are no risks to persons in the vicinity of any overfill flow from the hot water storage tank. Where it is impractical to terminate the overfill pipe to waste / soil or atmosphere, the internal overfill kit can be used.

Note: For the operation of the Mixergy CubeX-DHW unit, it is essential that the overfill pipe remains free of any blockages. A blockage in this pipe can lead to the failure of the unit.



4.2 Electrical installation



The electrical supply to the controller must be installed by a qualified electrician.



ENSURE ALL ELECTRICAL SUPPLIES ARE SWITCHED OFF BEFORE MAKING ANY CONNECTION TO THE UNIT.



ELECTRICAL INSTALLATION MUST BE CARRIED OUT BY COMPETENT ELECTRICIAN AND BE IN ACCORDANCE WITH THE LATEST I.E.E. REGULATIONS.

4.2.1 External wiring

Mixergy Cube DHW unit is supplied with pre-wired cable included. Any extensions to the supplied cabling should match or exceed the current and voltage ratings of the cables to be extended.

4.2.2 Primary supply

The white 3-core (L,N,E) cable labelled 'PRIMARY SUPPLY' must be connected to the household's main supply via a dedicated 16A MCB protected circuit with a 20A DP switch. This is the primary power supply for the control electronics and is used to power the immersion when the Cube X DHW is set to heat in direct mode.

4.2.3 Timer control

The black 3-core (L,N,E) cable labelled 'TIMER CONTROL' can be used to integrate the Mixergy Cube X DHW with any existing timers or controllers i.e. economy 7 timer or a dual channel controller. This cable detects an 80-240VAC signal and instructs the Cube X DHW to heat unless otherwise disabled in software.

Note: The timer control cables are attached to volt free contacts within the controller and can be safely left tucked away or removed from the unit if not required.

Note: These instructions are given as a generic reference, specific timer/smart controller and central heating valve wiring may vary.

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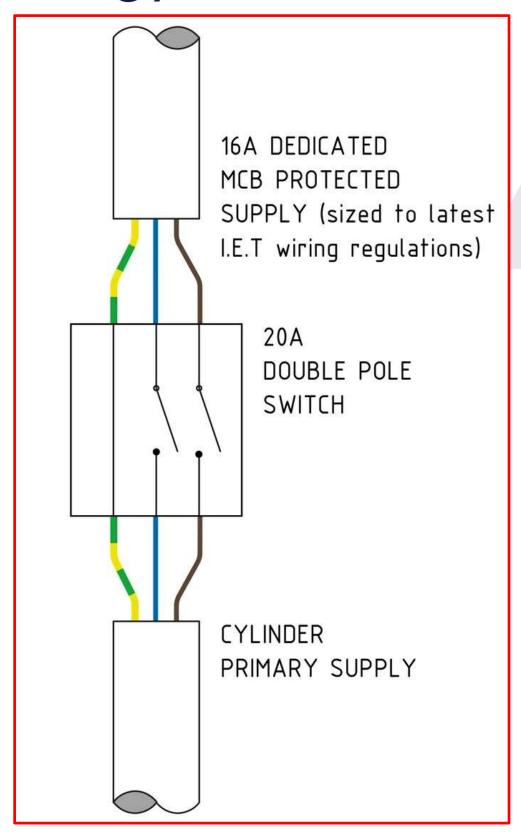


Figure 12: Primary supply



4.3 Connectivity

4.3.1 Installing the powerline adapter

The Mixergy Cube X DHW requires internet connectivity to allow for full control of the unit. Connection to the cylinder can be made using the provided ethernet to powerline adapter or by hard-wired ethernet.

NOTE: If an existing HomePlug AV powerline network is installed at the property, it is recommended to pair the Cube X DHW with the existing network. Powerline connectivity between the Cube X DHW and internet router is only possible in houses where both the Cube X DHW and adapter are powered from the same electrical phase.

- 1. Plug the powerline adapter into a wall socket within 2m of the internet router.
- 2. Plug the powerline adapter into the internet router using the included 2m ethernet cable.

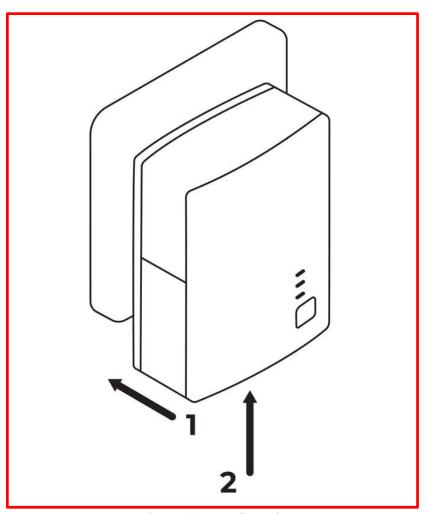


Figure 13: Powerline adaptor



4.3.2 Wiring an ethernet connection

If a hard-wired CAT5/CAT5e/CAT6 network connection is desired, this can be achieved as follows:



ENSURE ALL ELECTRICAL SUPPLIES ARE SWITCHED OFF BEFORE OPENING THE Cube X DHW CONTROLLER COVER.

1. Unscrew and remove the Cube X DHW controller cover and then disconnect the blue ethernet cable as shown.

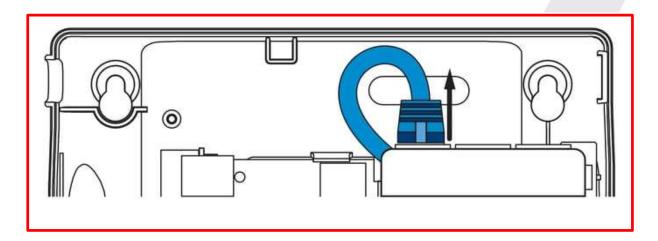


Figure 14: ethernet removal

2. Replace the removed ethernet cable with a suitable direct connection to the network (broadband router/switch).

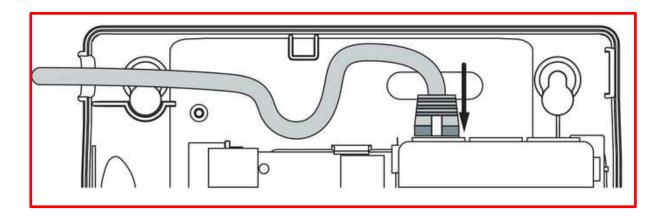


Figure 15: ethernet installation



5 Commissioning

The following instructions must be read and understood prior to the commissioning of the CubeX-DHW. If under any circumstances there are aspects to the installation and or unit which do not comply with the specification laid down, the unit **MUST NOT** be put into operation until the unit and or installation meets all the requirements. Unless otherwise instructed isolate all electrical supplies to the Cube X DHW before carrying out commissioning of the unit.

Note: Before filling ensure the overfill pipe is connected correctly, free from blockages and can discharge in a safe visible location.

5.1 Pre commissioning cleaning

A suitable and effective cleaning and flushing procedure should be undertaken on all pipework prior to commissioning of the Cube X DHW. Unit contaminants such as flux residues, solder pieces, jointing compound, building debris will inevitably be found in pipework units. If allowed to remain in the unit, in sufficient quantity, these contaminants will make the unit prone to blockages at strainers and valves. They may also initiate corrosion and encourage the growth of micro-organisms.



5.2 Filling the unit

5.2.1 Filling the Cube X DHW

With the filling loop hose connected as per Figure 9, open the stopcock on the mains cold water supply to the Cube X DHW then open the isolation valve. The Cube X-DHW is fitted with an automatic fill valve when the correct store volume has been reached, the valve will automatically stop filling. Open the nearest hot tap followed by the rest in sequence to allow any trapped air to escape and flush out any debris. Leave the tap open until the unit has been cleared. If water begins to exit the Cube X DHW via the overflow tank during filling isolate the Cube X DHW and contact Mixergy Support.

5.2.2 Standby mode

With the Cube X DHW completely full, fit the flow restriction cartridge into the isolation valve on the filling loop. Close the double check valve that was shown in Figure 10. Unscrew the cap in the flow restricting valve and insert the cartridge as indicated in the figure 16. Ensure orientation of the cartridge matches that shown in Figure 16 below.

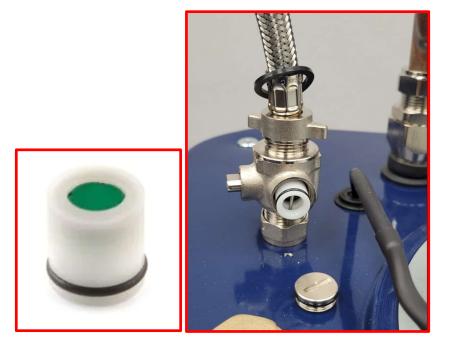


Figure 16: Restrictor valve cartridge and assembly

Once the cartridge is inserted, screw the cap back on to the valve ensuring it is secure as shown in figure 17 below. Finally, re-open the double check valve that was opened at the start of fitting the filling loop.

NOTE: Leave the isolation valve open after the install, failure to do so could potentially result in damage to internal components.

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Figure 17: Flow restrictor valve with cartridge inserted and cap fastened securely

Note: Failing to install this cartridge properly may result in flooding in the event the of the inlet valve failing



6 Maintenance

The design of the Mixergy CubeX-DHW means that it requires minimal maintenance, it is important that the unit is serviced annually to ensure its safe and efficient operation. Servicing should be carried out by a qualified heating engineer and the details of any work carried out should be logged in the Service Record section of this manual. Failing to service the unit may invalidate the warranty.

Note: Unless otherwise instructed isolate all electrical supplies to the Cube X DHW before carrying out any maintenance work.

6.1 Inspection access

If for any reason, inspection access is required to check the internal components of the Cube X DHW access can be provided by means of removing the dual element immersion heater and using an appropriate inspection tool such as an inspection camera inserted through the opening in the lid. Removing the lid assembly of the unit (to which the coils are attached) at any time will invalidate the warranty.



6.2 Maintenance checks

Carry out a visual inspection of the general condition of the unit.

Maintenance Checklist:
☐ Check the overfill pipe connection and associated pipework for any leaks and or blockages which may
affect free drainage. If necessary, replace defective parts.
☐ When the Cube X DHW water has reached the set temperature, open the nearest hot water outlet and
check the mixing valve is delivering water at a safe and consistent temperature.
☐ Check that the immersion heater and heat supply thermostats are appropriately set.
\Box Check all thermostats are functioning correctly (i.e., once the Cube X DHW water regulation temperature
has been reached any connected heat source should be disabled). If necessary, replace defective parts.
\Box Check the Y pattern strainer / any filters are free from particulate debris / blockages.
☐ Check all connections are tight and free from leaks. If necessary, carry out repairs / replace defective parts.



6.3.1 Disassembly, recycling and disposal

Disassembly and removal from service should be carried out by a competent person.

Note: Disconnect and isolate all electrical supplies and allow the store water and pipework to cool before carrying out disassembly and or removal of the unit.

- 1) Close the stopcock on the mains cold water supply to the tank.
- 2) Drain the water in the hot water supply pipework by opening at least two hot water outlets nearby.
- 3) Drain the water remaining in the domestic hot water coil to an open drain using a syphon fitted through the cold-water inlet connection.
- 4) Unscrew and raise the dual element immersion heater and using a syphon inserted into the gap in the centre of the element, drain the contents of the unit.

The designation of the product means that it should not be disposed of together with unsorted domestic waste. It is the responsibility of the owner to properly dispose of the unit in accordance with national regulations. Further guidance should be sought from the appropriate local authorities. The packaging of the unit can however be recycled, and this should be done so through a local recycling centre.



Hot Water Storage System Commissioning Checklist

This Commissioning Checklist is to be completed in full by the competent person who commissioned the storage system as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect statutory rights.

Customer name:	Telephone No:			
Address:				
Cylinder make & model:				
Cylinder Serial No:				
Commissioned by (Print name):	G3 Certificate No:			7
Company name:	Telephone No:			
Company address:	I			
ALL SYSTEMS PRIMARY SETTINGS (Indirect heating only)				
Is the primary circuit a sealed or open vented system?		Sealed	Open	
What is the maximum primary flow temperature?				°C
ALL SYSTEMS				
What is the incoming static cold-water pressure at the inlet to th	e system?			bar
Has the strainer been cleaned of installation debris?		Yes	No	
Is the installation in a hard water area (above 200ppm)?		Yes	No	
If yes, has a scale reducer been fitted?		Yes	No	
What type of scale reducer has been fitted?			·	
What is the hot water temperature set to?				°C
What is the maximum hot water flow rate (measured at high flow	v outlet)?		I	/min
Time & temperature controls have been fitted in compliance	with Part L of the Buildi	ng Regulations	? Yes	
Type of control system (if applicable)	Y Plan	S Plan	Other	
Is the cylinder renewable compatible?		Yes	No	
What is the hot water temperature at the nearest outlet.		•	'	°C
All appropriate pipes have been lagged up to 1m or point they b	ecome concealed		Yes	
			'	



UNVENTED SYSTEMS ONLY			
Where is the pressure reducing valve located?			
What is the pressure reducing valve setting?			Baı
Has a combined temperature & pressure relief valve and expansion valve been fitted, and discharge tested?	Yes	No	
The tundish & discharge pipework have been connected A terminated to Part G Building Regulations?	Yes	No	
Are all energy sources fitted with a cut-out device?	Yes	No	
Has the expansion vessel been checked?	Yes	No	T
THERMAL STORES ONLY			
What store temperature is achievable?			°C
What is the maximum hot water temperature?			°(
ALL INSTALLATIONS			
The hot water system complies with the appropriate Building Regulations		Yes	
The system has been installed in accordance with the manufacturer's instructions Yes			
The system has been commissioned in accordance with the manufacturer's instructions			T
The system controls including the Mixergy App have been demonstrated to and understood by the customer Yes			
The manufacturer's literature has been explained and left with the customer		Yes	
Building Regulations Notification Number (if applicable)			
To be completed by the customer on receipt of a Building Compliance Certificate*			
Commissioning Engineer's Signature			
Customer's signature (to confirm satisfactory demonstration			
& receipt of manufacturer's literature			

^{*}All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulation Compliance Certificate will then be issued to the customer.



Service Record

It is recommended that your hot water system is serviced regularly and that the appropriate service record is completed.

Service Agent

Before completing the service record below, please ensure you have completed the service in accordance with the manufacturer's instructions.

Service No 1 Date:	Service No 2 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
Signature	Signature
Compies No. 3 Date:	Service No 4 Date:
Service No 3 Date:	
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
Signature	Signature
Service No. 5 Date:	Sarvica No. 6 Date:
Service No 5 Date:	Service No 6 Date:
Engineer name	Engineer name
Engineer name Company name	Engineer name Company name
Engineer name Company name Telephone No	Engineer name Company name Telephone No
Engineer name Company name Telephone No Email address	Engineer name Company name Telephone No Email address
Engineer name Company name Telephone No	Engineer name Company name Telephone No
Engineer name Company name Telephone No Email address	Engineer name Company name Telephone No Email address
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Engineer name Company name Telephone No Email address Comments Signature Service No 7 Engineer name Company name	Engineer name Company name Telephone No Email address Comments Signature Service No 8 Engineer name Company name Company name
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Engineer name Company name Telephone No Email address Comments Signature Service No 7 Engineer name Company name Telephone No Email address	Engineer name Company name Telephone No Email address Comments Signature Service No 8 Engineer name Company name Telephone No Email address
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Engineer name Company name Telephone No Email address Comments Signature Service No 7 Engineer name Company name Telephone No Email address	Engineer name Company name Telephone No Email address Comments Signature Service No 8 Engineer name Company name Telephone No Email address



Service No 9 Date:	Service No 10 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
Comments	
Signature	Signature
Signature	Signature
Service No 11 Date:	Service No 12 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
Signature	Signature
Signature	Signature
Service No 13 Date:	Service No 14 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
Signature	Signature
Signature	Signature
Service No 15 Date:	Service No 16 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
Signature	Signature
Signature	Signature
Service No 17 Date:	Service No 18 Date:
	Engineer name
Engineer name	
Company name	Company name
Company name Telephone No	Company name Telephone No
Company name Telephone No Email address	Company name Telephone No Email address
Company name Telephone No	Company name Telephone No
Company name Telephone No Email address	Company name Telephone No Email address
Company name Telephone No Email address	Company name Telephone No Email address
Company name Telephone No Email address	Company name Telephone No Email address
Company name Telephone No Email address	Company name Telephone No Email address
Company name Telephone No Email address	Company name Telephone No Email address



Service No 19 Date:	Service No 20 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
C'	C' .
Signature	Signature
Control No. 24 But	C N- 22 D-
Service No 21 Date:	Service No 22 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
Signature	Signature
Service No 23 Date:	Service No 24 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	Comments
Signature	Signature
Signature	Signature
Service No 25 Date:	Service No 26 Date:
Engineer name	Engineer name
Company name	Company name
Telephone No	Telephone No
Email address	Email address
Comments	
Comments	Comments
Signature	Signature
Signature Service No 27 Date:	Signature Service No 28 Date:
Service No 27 Date:	Service No 28 Date:
Service No 27 Date: Engineer name	Service No 28 Date: Engineer name
Service No 27 Date: Engineer name Company name	Service No 28 Date: Engineer name Company name
Service No 27 Date: Engineer name Company name Telephone No	Service No 28 Date: Engineer name Company name Telephone No
Service No 27 Date: Engineer name Company name Telephone No Email address	Service No 28 Date: Engineer name Company name Telephone No Email address
Service No 27 Date: Engineer name Company name Telephone No	Service No 28 Date: Engineer name Company name Telephone No
Service No 27 Date: Engineer name Company name Telephone No Email address	Service No 28 Date: Engineer name Company name Telephone No Email address
Service No 27 Date: Engineer name Company name Telephone No Email address	Service No 28 Date: Engineer name Company name Telephone No Email address
Service No 27 Date: Engineer name Company name Telephone No Email address	Service No 28 Date: Engineer name Company name Telephone No Email address
Service No 27 Date: Engineer name Company name Telephone No Email address	Service No 28 Date: Engineer name Company name Telephone No Email address
Service No 27 Date: Engineer name Company name Telephone No Email address	Service No 28 Date: Engineer name Company name Telephone No Email address
Service No 27 Date: Engineer name Company name Telephone No Email address	Service No 28 Date: Engineer name Company name Telephone No Email address

