CPD

ADVECO
HOT WATER SPECIALISTS

Air Source Heat Pumps

1

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Agenda

- FPi range
  - Install
  - Maintenance
- Midea Range
  - Install
  - Maintenance

2

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FPi

3

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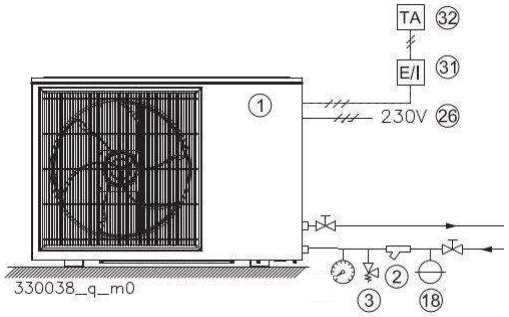
Plumbing Connections



4

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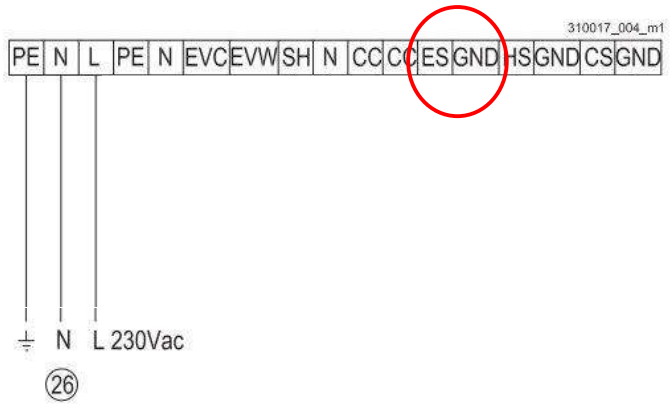
Electrical Connections



5

Commissioning

DHW Only:

1. Ensure the DHW is controlled via a thermostat, and it is wired into **ES** and any **GND**.
2. Leave TR sensor connected and rolled up within the terminal box.
3. Use the **M** button to set the heating mode to **Heating** (sun symbol only). The DHW (shower symbol) and cooling (snowflake symbol) should remain off.

Engineering Parameters:

4. To access the engineering parameters, start with the heat pump turned off (display will show a time only), then press and hold the ▼ down arrow for 5 seconds, until the display turns to -- -- dashes.
5. Next, using the ▲ up arrow to shift between the four dash positions and the ▼ down arrow to change the value of the selected position, enter the password **2234**, followed by **SET** to confirm. The display should change to show:

Top line: Value 00 00 - Shows the Value of the Parameter
Bottom line: Group 0, Parameter 0 - Shows which Group and Parameter are selected.
Use the ◴ clock symbol to scroll through Groups, and the ▲ up arrow to scroll through Parameters within each Group. To change the Value of the Parameter, press **SET**, then ▲ up arrow to choose the Value, followed by **SET** to confirm.

6. Group 0 (System Settings). For additional info refer to manual pages 37–40:
   Set **Parameter 01** (External ON OFF Switch) to **00 01**.
   Set **Parameter 08** (Available working modes) to **00 03**.
7. Group C (Backup Heating Settings). For additional info refer to manual pages 42–45:
   Set **Parameter C5** (Maximum allowable set water temperature [°C] in heating mode) to **00 55**.
8. Press the power button to exit the engineering parameters menu.
9. Set the heat pump to run at **55°C**.
   Starting with the heat pump on, press **SET** once to change the set point temperature. Use the ▼▲ arrow keys to adjust up or down. Press **SET** to confirm the change.
10. Set the DHW thermostat to **50°C**.

6

Commissioning

Temperature Information:

11. Press and hold the ▲ up and ▼ down arrows for 5 seconds to access the temperature information. Use the ▲ up and ▼ down arrows to scroll through the readings.
12. Compare reading **10** (Outlet temperature) and **11** (Inlet temperature) to confirm that the **ΔT** is between **2°C** and **6°C**.
13. Ensure readings **2** (Heating set temperature), **5** (Ambient temperature), **10**, and **11** are recorded on your commissioning form.

7

Frost Protection:

Trace heating cables are no longer provided to protect the pipework leading to the unit. The unit is programmed to protect itself from frost while in standby mode. If trace heating cables are present, they can be left secured and disconnected inside the unit.

To keep water moving, the internal pump will start for 1 minute when the external temperature reaches 5°C, then idle for 8 minutes and repeat until the external temperature rises. If the temperature sensor on the PHE reads 2°C, and the external temperature falls to 2°C, the compressor will start and run until the PHE temperature reaches 15°C.

It is important to confirm the frost protection parameters are configured correctly. Access the advanced parameters using code **2234**, and check the following:

1. b4 is set to **01**.
2. b5 is set to **05**.
3. b6 is set to **02**.
4. b7 is set to **05**.
5. b8 is set to **02**.
6. b9 is set to **15**.

For more information, consult section 7.5 of the installation manual.

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Maintenance

- ASHP
  - Inspect condition of the plate heat exchanger.
    Inspect condition of condenser coils. Remove foreign objects and debris with a brush between the fins. Clean if necessary with coil cleanser, flush afterwards with clean water
  - Ensure all electrical connections are tight and show no sign of wear
  - Confirm system is correctly filled and fully air purged
  - Confirm digital controller and thermostats are set and operate correctly
  - Check performance of the ASHP
  - Confirm operation of the pressure relief valve
  - Check performance of the ASHP
  - Check the glycol concentration cold water protection (if present)

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ADVECO

Midea Heat Pumps

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Midea & Adveco Strategy

- We offer Midea a pathway into the commercial market that they do not currently have.
- We partner with Midea and we utilise them to provide the warranty, breakdown, technical help desk, spare parts, etc. All of the things that are difficult and costly for us.
- They have their own engineers that they give us if we need them, they also have approved installers/service engineers
- Training courses are available from them online for installation and servicing, we can provide you with details
- Please email training@mideauk.co.uk to register interest in training

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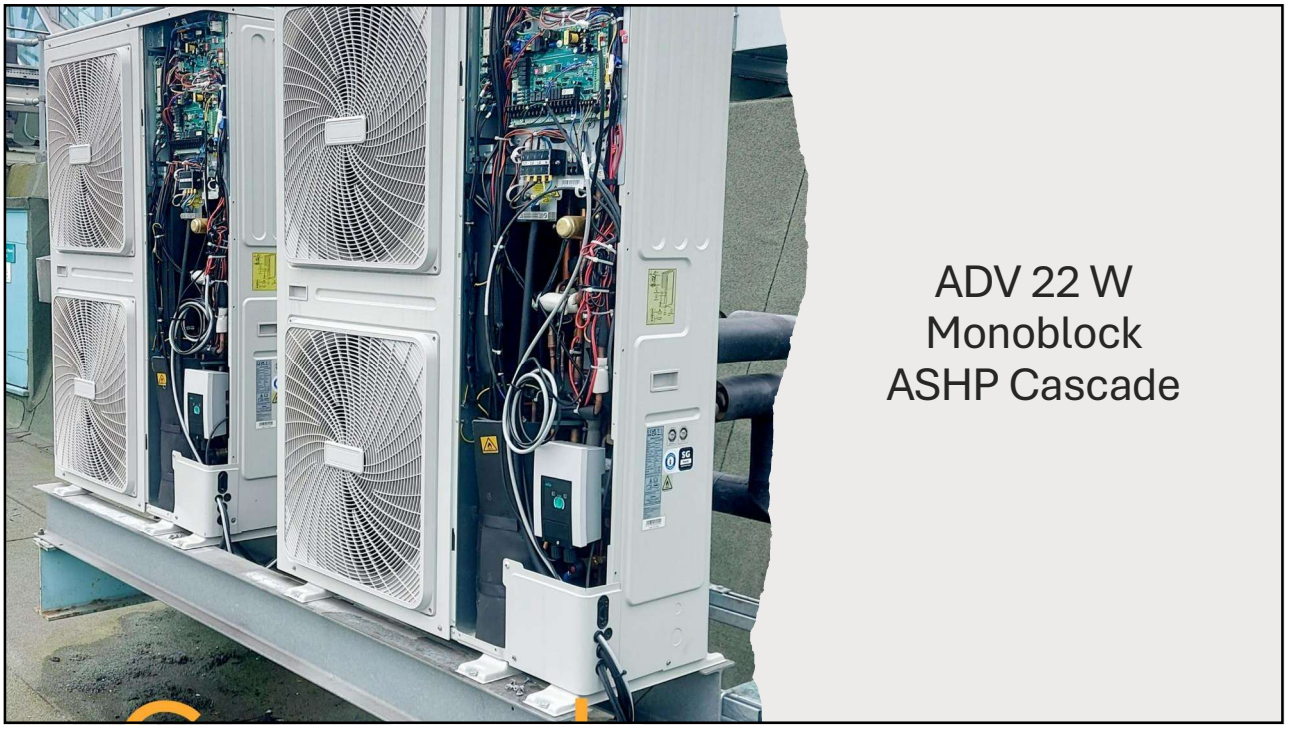

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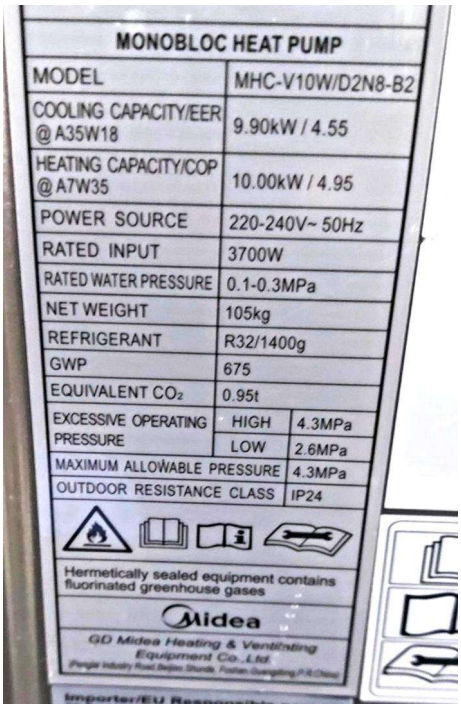
ASHP ADVS10W

Identify Appliance: Model & Serial Number

Badge on side of appliance:

Monobloc Heat Pump, R32 (1.4kg)

Serial Number: Located below badge & Sticker inside the appliance.



MONOBLOC HEAT PUMP		
MODEL	MHC-V10W/D2N8-B2	
COOLING CAPACITY/EER @A35W18	9.90kW / 4.55	
HEATING CAPACITY/COP @A7W35	10.00kW / 4.95	
POWER SOURCE	220-240V~ 50Hz	
RATED INPUT	3700W	
RATED WATER PRESSURE	0.1-0.3MPa	
NET WEIGHT	105kg	
REFRIGERANT	R32/1400g	
GWP	675	
EQUIVALENT CO_2	0.95t	
EXCESSIVE OPERATING PRESSURE	HIGH	4.3MPa
	LOW	2.6MPa
MAXIMUM ALLOWABLE PRESSURE		4.3MPa
OUTDOOR RESISTANCE CLASS		IP24

Hermetically sealed equipment contains fluorinated greenhouse gases

Midea

GD Midea Heating & Ventilating Equipment Co., Ltd.

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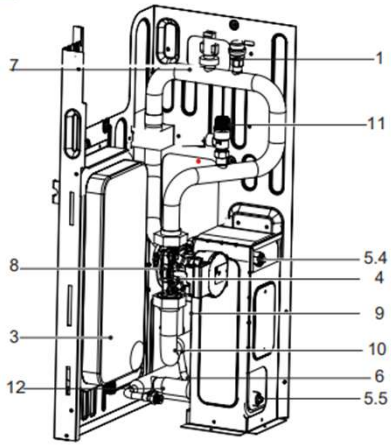
HOT WATER SPECIALISTS

ASHP 8 – 16 Kw Hydraulic Block



8~16 kW without backup heater

Code	Assembly unit	Explaination
1	Automatic air purge valve	Remaining air in the water circuit will be automatically removed from the water circuit.
2	Backup heater(optional)	Provides additional heating capacity when the heating capacity of the heat pump is insufficient due to very low outdoor temperature. Also protects the external water pipes from freezing.
3	Expansion vessel	Balances water system pressure.
4	Refrigerant gas pipe	/
5	Temperature sensor	Four temperature sensors determine the water and refrigerant temperature at various points in the water circuit. 5.1-T2B; 5.2-T2; 5.3-T1(optional); 5.4-TW_out; 5.5-TW_in
6	Refrigerant liquid pipe	/
7	Flow switch	Detects water flow rate to protect compressor and water pump in the event of insufficient water flow.
8	Pump	Circulates water in the water circuit.
9	Plate heat exchanger	Transfer heat from the refrigerant to the water.
10	Water outlet pipe	/
11	Pressure relief valve	Prevents excessive water pressure by opening at 3 bar and discharging water from the water circuit.
12	Water inlet pipe	/

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Siting

- Select an installation site where the following conditions are satisfied and one that meets with your customer's approval.
- - Places that are well-ventilated.
- - Safe places which can bear the unit's weight and vibration and where the unit can be installed at an even level.
- - Places where there is no possibility of flammable gas or product leak.
- - The equipment is not intended for use in a potentially explosive atmosphere.
- - Places where servicing space can be ensured.
- - Places where the units' piping and wiring lengths come within the allowable ranges.
- - Places where water leaking from the unit cannot cause damage to the location (e.g. in case of a blocked Condensate drain pipe)
- - Do not place any object or equipment on top of the unit (top plate).
- - Be sure that sufficient precautions are taken in case of refrigerant leakage according to relevant local laws and regulations.
- - Don’t install the unit near the sea or where there is corrosive gas.

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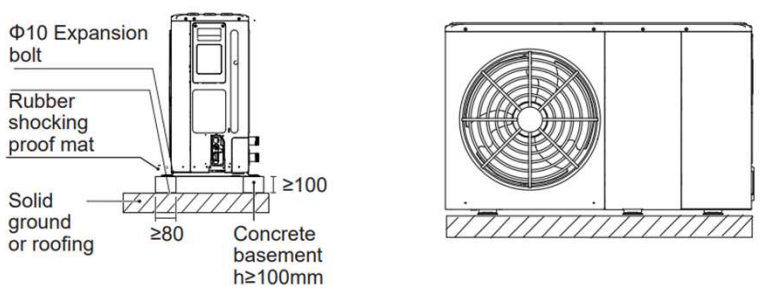
Siting

7.2 Installation requirements

- Check the strength and level of the installation ground so that the unit may not cause any vibrations or noise during its operation.
- In accordance with the foundation drawing in the figure, fix the unit securely by means of foundation bolts. (Prepare four sets each of Φ10 Expansion bolts, nuts and washers which are readily available in the market.)
- Screw in the foundation bolts until their length is 20 mm from the foundation surface.

(unit: mm)



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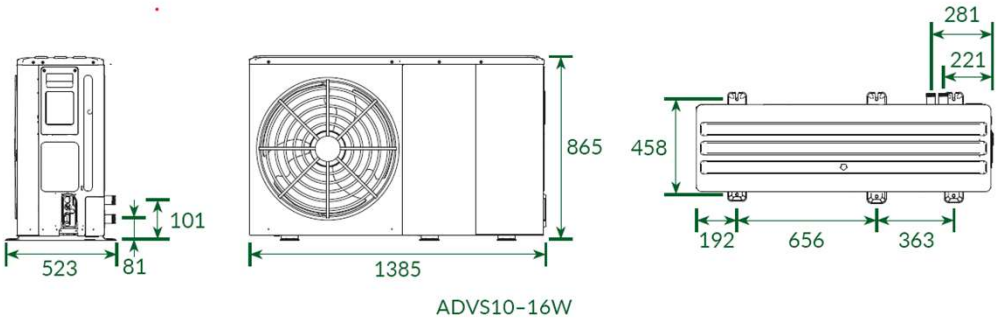
Siting

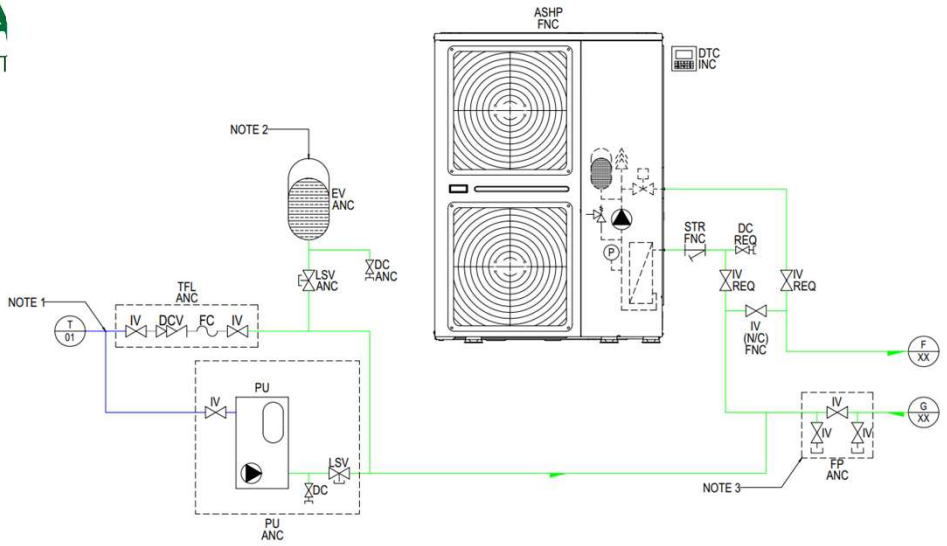
- Size

ADVS10–16W: 10–16kW Single Phase ASHP



ADVS10–16W

17



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Pipework

10kW unit:

- 28mm pipe for short runs (less than 10m one way)
- 35mm for longer runs
- Mini Buffer might be required
- Always keep pipe runs as short as possible.

Operation range

Outlet water (Heating mode)		+12 ~ +65℃
Outlet water (Cooling mode)		+5 ~ +25℃
Domestic hot water		+12 ~ +60℃
Ambient temperature		-25 ~ +43℃
Water pressure		0.1~0.3MPa
Water flow	4kW	0.40~0.90m³/h
	6kW	0.40~1.25m³/h
	8kW	0.40~1.65m³/h
	10kW	0.40~2.10m³/h
	12kW	0.70~2.50m³/h
	14kW	0.70~2.75m³/h
	16kW	0.70~3.00m³/h

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ASHP ADVS10W

- **Installation checks:**
- Line Sized Fill & Flushing Point
- NB: If Glycol required, then access to a power supply (230v) will be required for the Filling Pump.
-
-

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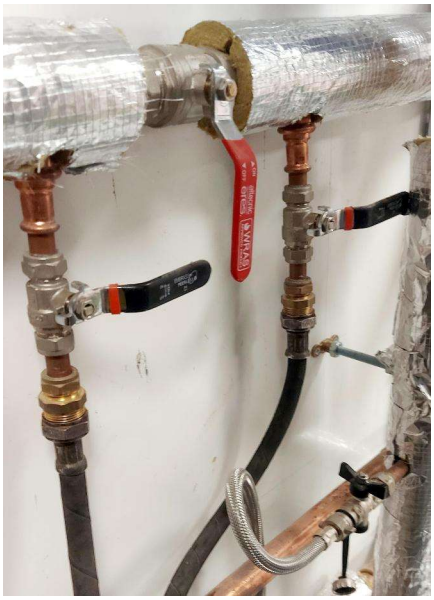
ASHP ADVS10W

- **Installation checks:**
- **Flush & Fill Point Critical For Air Removal**
- **Freeze Protection.**
- **NB: Line Sized Valve (Red Handle)**



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Controls

- Enable
- Fault
- Controller

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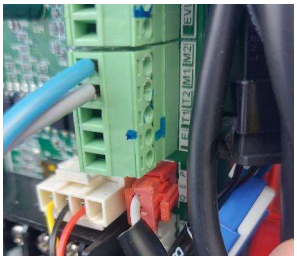
ASHP ADVS10W

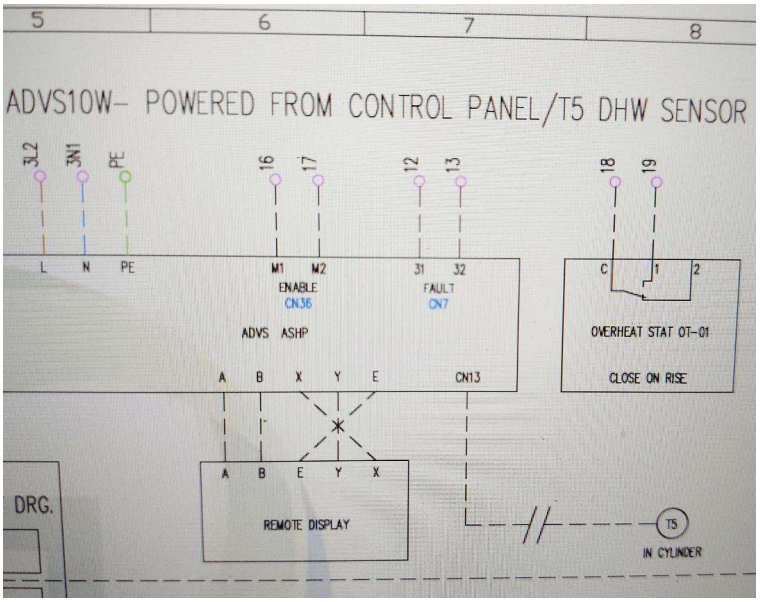
ASHP Wiring Connections:

ADVS10W-Powered from Control Panel/T5 DHW Sensor:

Page 5 (Grid C-6) WEP21462

- **Enable** 16-17 Control Box
- **Enable** M1-M2 ASHP CN36





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ASHP ADVS10W

ADVS10W-Powered from Control Panel/T5 DHW Sensor:

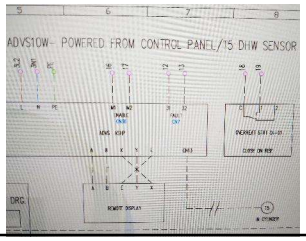
Sheet 5 (Grid C-8) **WEP21462**

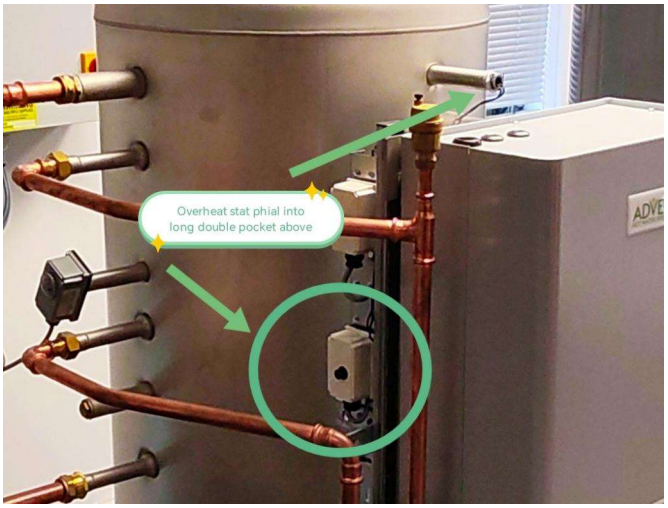
O/Heat 18-19 810366/K **Control Box**

O/Heat Stat Mounted on DHWS Tank or Preheat.

Stat Term: C – 18 in 810366/K

Stat: Term: 1 – 19 in 810366/K

- 



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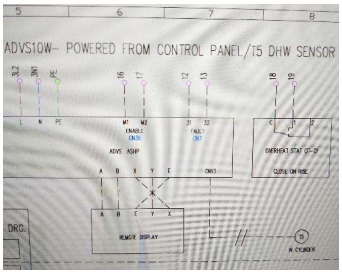
ASHP ADVS10W

ADVS10W-Powered from Control Panel/T5 DHW Sensor (Term ASHP)

Sheet 5 (Grid D-7) **WEP21462**

T5 Sensor (Blue wire) into pocket DHWS Tank or Preheat.

T5 Sensor (Blue wire) terminates in **ASHP Hydroboard CN13**.



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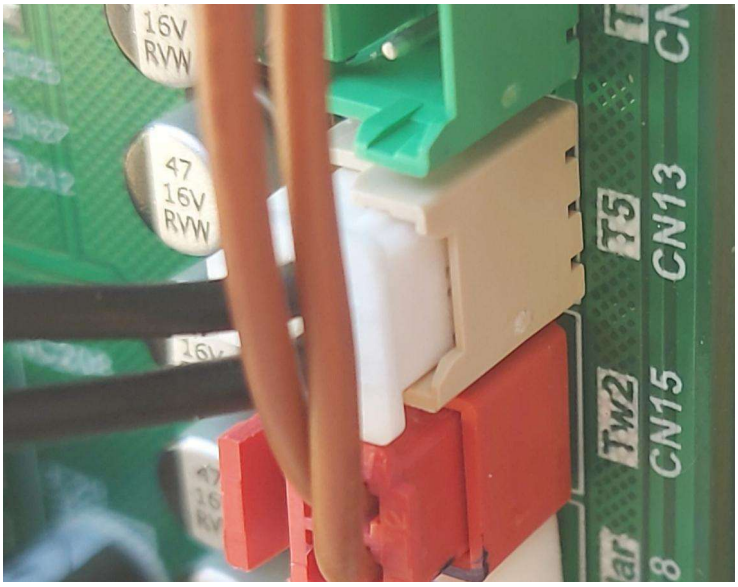
ASHP ADVS10W

- **T5 Sensor** Lead terminates into ASHP **Hydroboard** on ASHP is **CN13** with white connector.
- **T5 Sensor** is inserted into appropriate pocket in tank.



CIBSE CPD

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ASHP ADVS10W

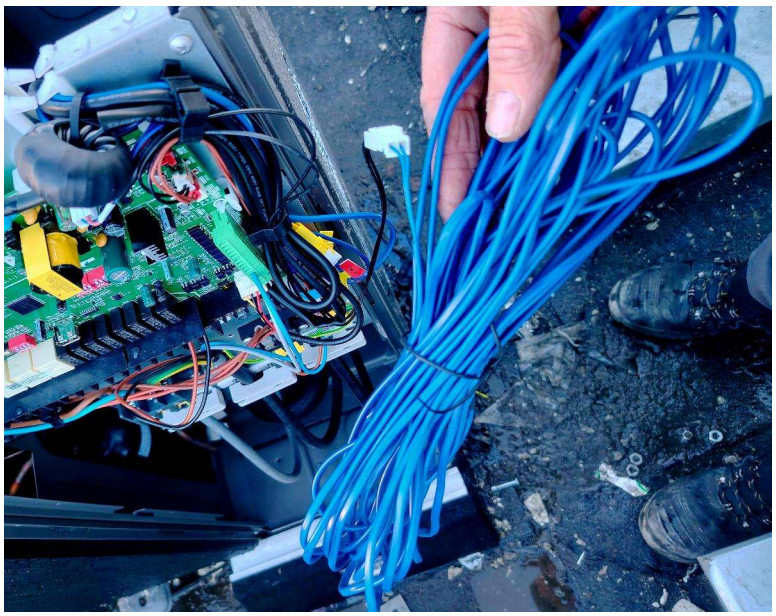
Air Scource Heat Pump

T5 Sensor Lead

Connction on **ASHP** is **CN13** via white connector.

Longer runs to plantroom extend blue sensor lead

Sensor into long pocket lower tank



CIBSE CPD

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ASHP ADVS10W

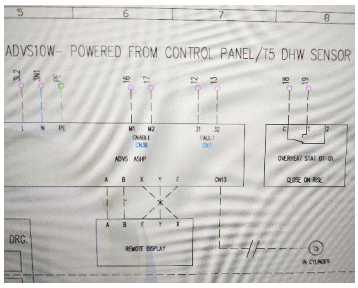
ADVS10W-Powered from Control Panel/T5 DHW Sensor: Fault Signal

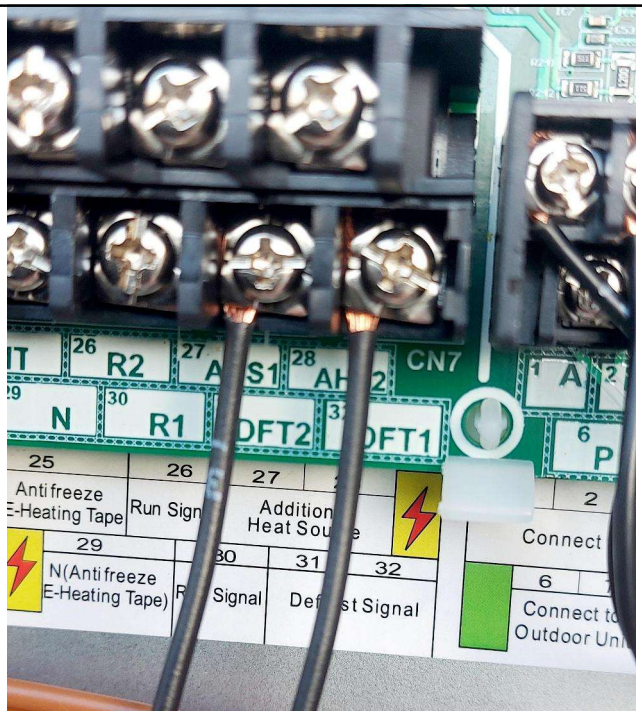
Sheet 5 (Grid B-6) WEP21462

ASHP Hydroboard 31-32 CN7

Image on right (DFT1 & DFT2) is the FAULT relay

810366/K Terminals 12-13





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ASHP ADVS10W

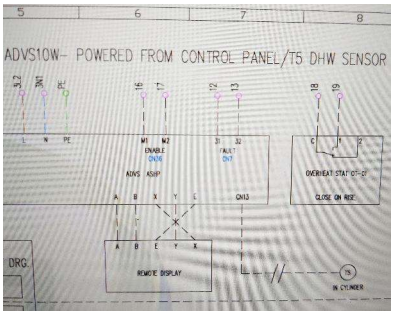
ADVS10W-Powered from Control Panel/T5 DHW Sensor:

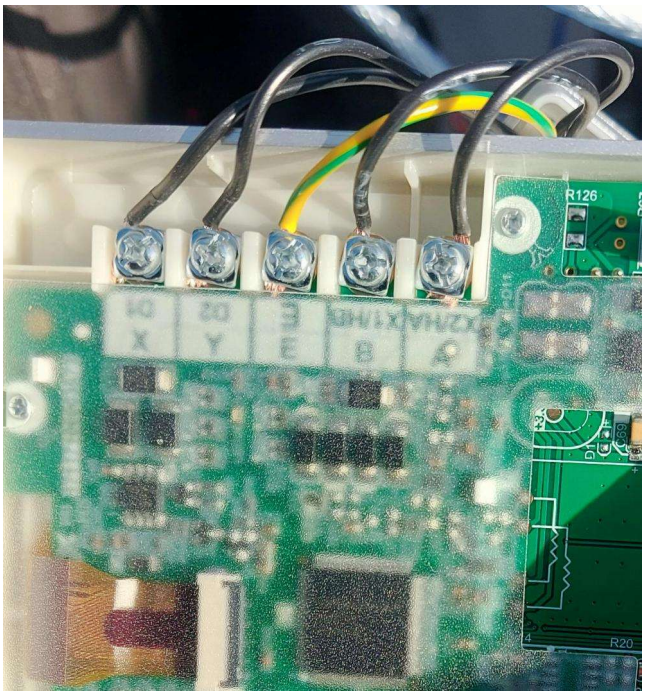
Page 5 (Grid D-6/7) WEP21462

Remote Display-Wired-ASHP CN30

Remote Display: A-B-E-Y-X

ASHP Term Order: A-B-X-Y-E





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HOT WATER SPECIALISTS

ASHP ADVS10W

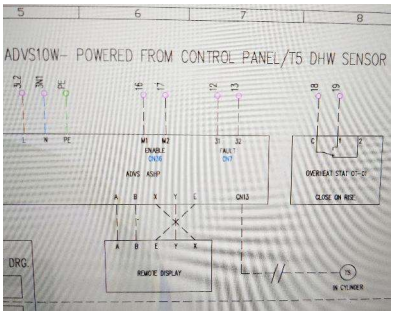
ADVS10W-Powered from Control Panel/T5 DHW Sensor:

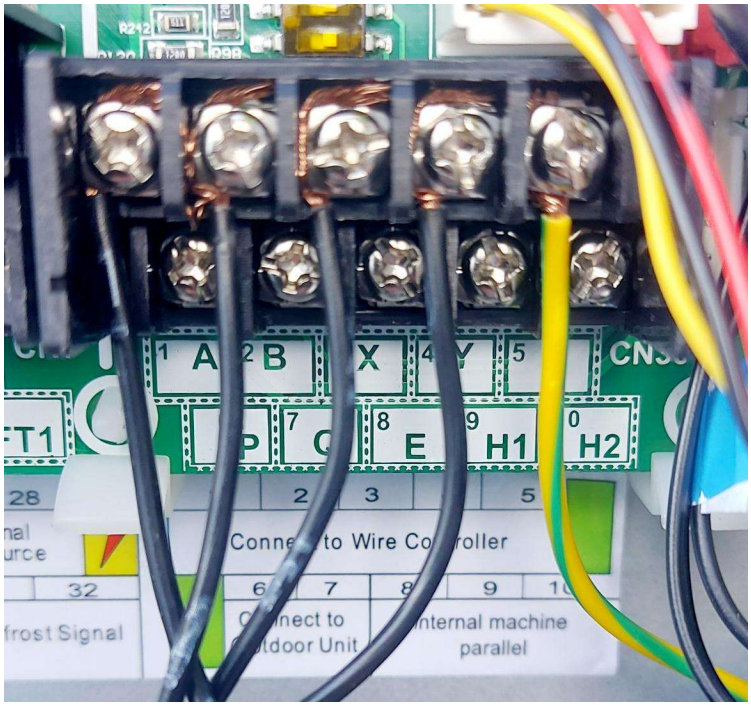
Page 5 (Grid D-6/7) WEP21462

Remote Display-Wired-ASHP CN30

ASHP Term Order: A-B-X-Y-E

Remote Display: A-B-E-Y-X





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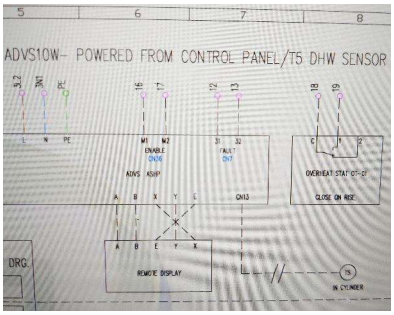
ASHP ADVS10W

ADVS10W-Powered from Control Panel/T5 DHW Sensor:

Sheet 5 (Grid D-7) WEP21462

Remote Display: Example DHW running

NB: Wiring on next slide.



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ASHP ADVS10W

Hint/Tip

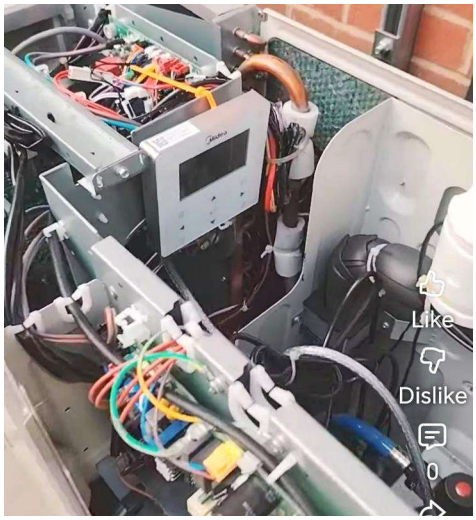
Wired Controller Locations

1/. Inside ASHP Mounted onto Frame

2/. Inside ASHP Side access panel

3/. Inside Plantroom, Wall Mounted.

NB: Not suitable for external mounting outdoors.



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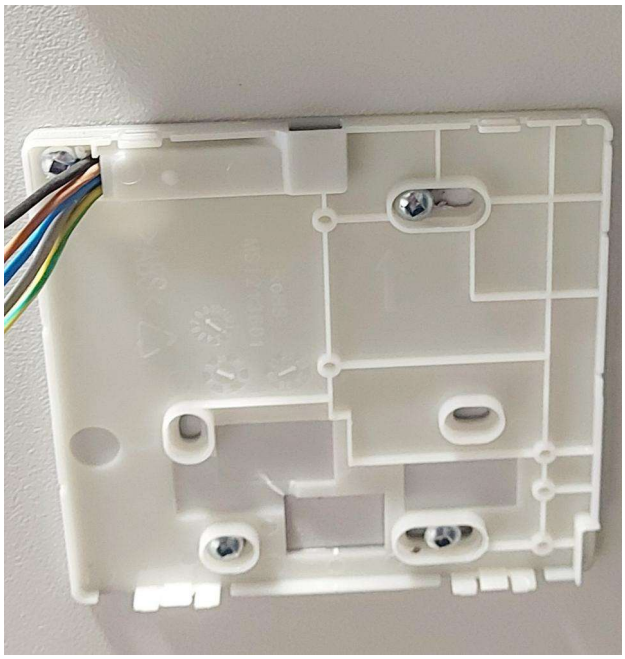
ADV W ASHP Controller Backplate, 1mm² shielded 5 Core Flex.



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Commissioning

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- Turn on DHW by unlocking (hold lock down) then press to right, then press power.

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ADVECO HOT WATER SPECIALISTS

ASHP ADVS10W

Installation Pre Commissioning Critical Checks:

Page 2: **Section 7.1 – 7.4**

- Location & Clearances
- Field wiring completed
- Breakers correct size & type
- Appliance AAV valve open
- ASHP Airflow, Egress & Access
- Correct stats for configuration
- Glycol as required or Trace Heating, confirm fluid strength
- **Pressure testing & Risk of Freezing, Consider Frost Damage.**

CIBSE CPD

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ADVECO HOT WATER SPECIALISTS

ASHP ADVS10W

ADVS10W-Powered from Control Panel/T5 DHW Sensor:

Entering the Serviceman Screen

CIBSE CPD

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ADVECO HOT WATER SPECIALISTS

ASHP ADVS10W Setting DHW/T5 Sensor: Installer Password: 234

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ADVECO HOT WATER SPECIALISTS

ASHP ADVS10W Setting DHW/T5 Sensor

Parameter settings

Option with DHW Sensor; DHW mode via T5 sensor:

Enter Serviceman settings (code 234)
DHW Mode Settings (use only with T5 sensor)

1.1	DHW Mode	set to Yes	DHW is on
1.2	Disinfect	set to No	Disinfection dealt with by BMS/afterheater
1.3	DHW Priority	set to Yes	Gives priority to DHW if there is a heating system
1.4	Pump_D	set to No	Disinfection pump, not used in our system
1.5	DHW Priority time	set to Non	Limit on how long DHW can hold priority, do not use
1.6	dT5_ON	set to 5C	Diff from set point for AHSP to start (set – 5C=on)
1.7	dt1S5	set to 20C	ASHP flow temp setting above T5 current temp
1.8	T4DHWMAX	set to 43C	Over this temp ASHP will stop
1.9	T4DHWMIN	set to -15C	Below this temp ASHP will not heat DHW
1.10	t_INTERVAL_DHW	set to 10min	Forced OFF time between DHW cycles
1.11-1.13	Immersion settings	Do not adjust	We do not have the ASHP control afterheater
1.14-1.16	Disinfect settings	Do not adjust	We do not have the ASHP control disinfection

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ADVECO HOT WATER SPECIALISTS

ASHP ADVS10W

Installation Types:

Adveco Fusion System (4 Types)

ASHP May be some distance from the Fusion DHWS Tank/System

Maximum pipe run distance: Consideration to shortest Practical Route

Freeze Protection: Glycol or Trace Heating

Air Removal: Automatic Air Vents at strategic points/high points

CIBSE CPD

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ADVECO HOT WATER SPECIALISTS

Maintenance

- ASHP
  - Inspect condition of the plate heat exchanger.
    Inspect condition of condenser coils. Remove foreign objects and debris with a brush between the fins. Clean if necessary with coil cleanser, flush afterwards with clean water
  - Ensure all electrical connections are tight and show no sign of wear
  - Confirm system is correctly filled and fully air purged
  - Confirm digital controller and thermostats are set and operate correctly
  - Check performance of the ASHP
  - Confirm operation of the pressure relief valve
  - Check performance of the ASHP
  - Check the glycol concentration cold water protection (if present)

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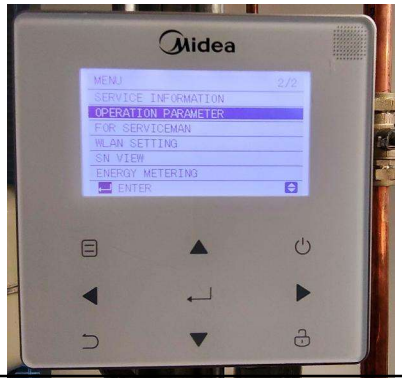
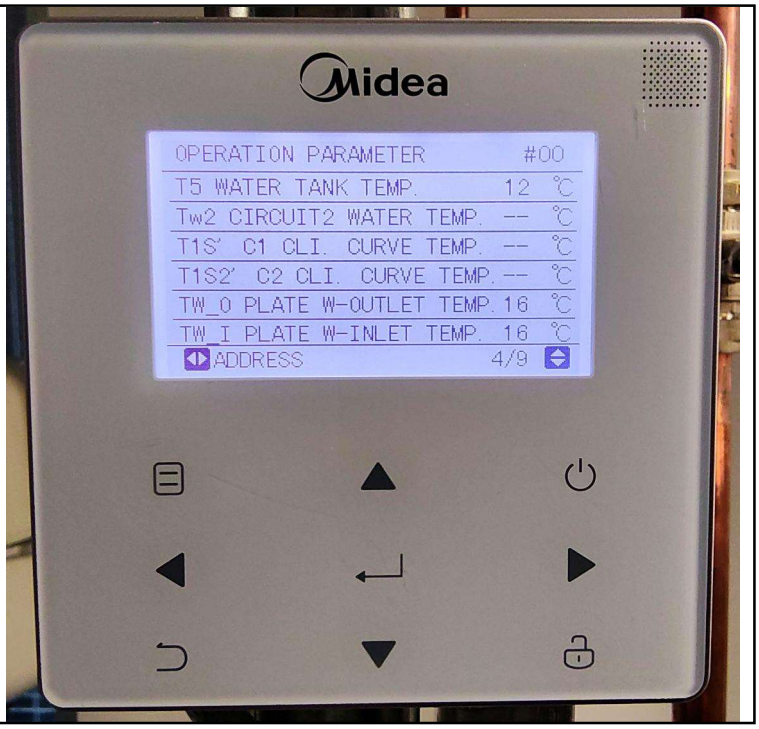
HOT WATER SPECIALISTS

ASHP ADVS10W

Operation Parameter Screen:

T5 DHW Tank Temp **12c**





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HOT WATER SPECIALISTS

ASHP ADVS10W

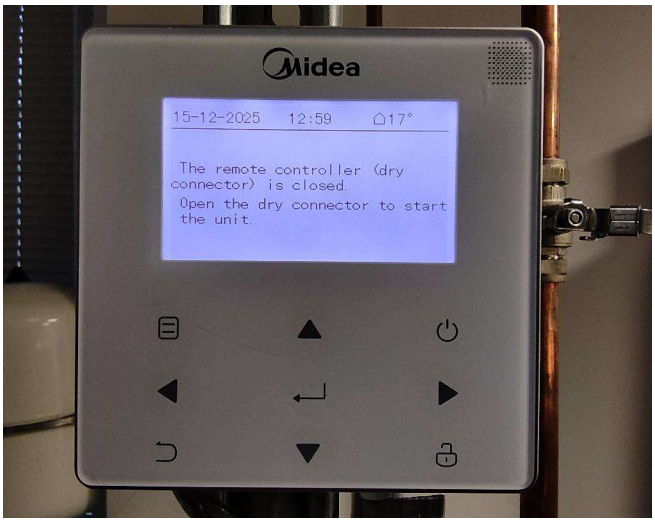
Hint/Tip

With T5 Sensor Enable ASHP Terms 16-17

When **TC2 is Off/Reset**, then the ASHP Display reads **"The remote controller (dry connector) is closed. Open the dry connector to start the unit"**

If TC2 is Off Dry Contact Message appears

When TC2 is Active KA2 is illuminated



CIBSE CPD

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ASHP ADVS10W Glycol Test Kit

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ADVECO HOT WATER SPECIALISTS

ASHP ADVS10W, Glycol Sample

- **Installation checks:**
- **Why? Freeze protect for the ASHP.**
- **Refractomteter for testing Freeze protection**
- **Collect a small sample**
- **Top up or refill as required**
- **Frost proection could also be Trace Heating**

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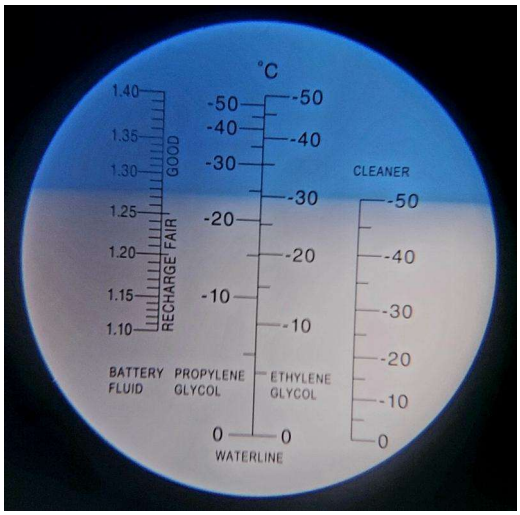
ASHP ADVS10W

- **Installation checks:**
- **Pressure testing & risk of freezing.**
- Glycol as required, confirm fluid strength & PH reading acceptable



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Repair

- Manufacturer's warranty covers 5 years if registered.
- Registration is via QR code on side of unit.
- All repairs to be done via Midea, servicing is available as well, but I recommend you contact Midea and do the course to become a Midea approved partner

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