

Installer Service Operating Procedure: Installation of Intergas Hybrid Xtend Indoor and Outdoor Units

Disclaimer: This procedure is intended as a general guideline. Always refer to the manufacturer's installation instructions and follow local regulations and safety guidelines when installing HVAC equipment.

***Only certified and registered F-Gas trained engineers should perform the following tasks.**

1. Pre-Installation Preparation:

- A. Ensure that all necessary tools and equipment are available calibrated and in good condition. Vacuum Pump, Vacuum Gauge, refrigeration manifold gauges & hoses, Nitrogen Regulator 50 Bar, Scales & Recovery valve, bending springs, bending set, Flaring tool, Valve core removal tool x 2, LDF and leak sealant oil for Gas/Liquid Lines, PPE, Oxygen free Nitrogen cylinder, R32 cylinder & R32 Recovery cylinder.
- B. Review the manufacturer's installation instructions before installation.
- C. Minimum system volume of 30 litres (Radiators) or 20 litres (Underfloor).
- D. All required components are on site and connected to the indoor unit, outdoor unit and boiler.
- E. If Intergas are to connect the refrigerant lines, Intergas will try to flare the $\frac{1}{4}$ " & $\frac{1}{2}$ " connections. The installer where possible provide the 2 x $\frac{1}{4}$ " and 2 x $\frac{1}{2}$ " Conex MaxiPro press fit connections. If not supplied Intergas may charge for these connections.
- F. If Intergas are to connect the refrigerant lines that are already in place, the ends of the $\frac{1}{4}$ " & $\frac{1}{2}$ " refrigerant lines must be sealed/capped to prevent an moisture within the lines.
- G. All components are wired correctly with the specified cable type, core and diameter & correctly fuse rated via a double pole switched fuse spur as per BS EN 7671 IET wiring regulations.
- H. CH system flushed in line with BS 7593 -2019. CH system water test must be provided.

2. Outdoor Unit Installation:

- A. A suitable location for the outdoor unit on a stable level surface, considering correct ventilation and maintenance clearances. A minimum distance of 150mm from the back of the outdoor unit to any solid surface.
- B. IP rated 3 pole electrical isolator switch within 1 metre of the outdoor unit with a 4-core cable of at least 1.5mm as specified within the installation instructions.

- C. The refrigerant lines must have a minimum length of 3m, if the refrigerant lines are above 6m in length then additional R32 must be added. (Ref to MI's section 8.6.6) NOTE when additional refrigerant has been added the "field charge sticker" must be completed by the installer and attached to the outdoor unit.
- D. When used the drain plug must be connected directly to a soak away or drain, if the unit is directly over a gravel bed, then the plug can be omitted.
- E. Refrigerant lines must be fully clipped, supported and insulated with Armaflex or an equivalent refrigerant insulation. External refrigerant lines should be protected in surface plastic trunking.
- F. *Connect the refrigerant lines to the outdoor unit, ensuring the correct torque settings are adhered to (see section 8.6.3) using the oil sealant on the flared faces to ensure sealing and tightness.

3. Indoor Unit Installation:

- A. Mount the indoor unit on the wall as close to the wall mounted boiler adhering to the minimum clearances as per manufacturer instructions.
- B. Check the hydronics connections are correct into the low loss header and that the full flow non-return valve is fitted on the return pipe to the boiler.
- C. The Low loss header should be installed directly onto the flow outlet connection of the indoor unit, or as close as practically possible.
- D. Intergas system filter fitted on the return pipe to the indoor unit.
- E. *Connect the refrigerant lines to the indoor unit, ensuring the correct torque settings are adhered to (see section 8.6.2) using the oil sealant on the flared faces to ensure sealing and tightness.
- F. Power to the outdoor unit at X1 L,N,E,3(S/L/Comms).
- G. OpenTherm to the boiler from X2 1-2 on the indoor unit to X13 1-2 on the boiler.
- H. X2 5-6 to the Comfort Touch thermostat V 1.7 -1.8 or OpenTherm Thermostat.

***The Following Points 4, 5, 6 & 7 must only be completed by certified and registered F-Gas trained engineers should perform the following tasks.**

4. Strength Testing:

- A. See section 8.6.4 within the MI's and ensure the service valves are fully closed. Remove the Schrader core from the outdoor unit test point service valve connection, using the valve core removal tool.
- B. Conduct a strength test using oxygen-free nitrogen having ensured the gas & liquid lines are connected to

the indoor unit & outdoor unit correctly. The service valves of the outdoor unit must remain closed to ensure refrigerant does not enter the lines.

- C. Pressurise the system steadily up to 42 bar for 2 minutes with oxygen-free nitrogen.
- D. Any pressure drops or leaks during this period should be detected using LDF suitable for hydrocarbon gases then repaired and retested before continuing to the tightness test.

5. Tightness Test:

- A. Once complete and tightness proved, slowly release the oxygen free nitrogen to a well-ventilated area, reducing the pressure to 10 bar.
- B. Perform a tightness test on the entire system at 10 bar.
- C. Monitor the pressure for 30 minutes to ensure it remains stable, indicating no leaks.
- D. Once the tightness is proved, slowly release the oxygen free nitrogen to a well-ventilated area.

6. Vacuum Testing:

- A. Vacuum the refrigerant lines to below 500 microns, switch off the pump to allow stabilisation see section 8.6.5 of the MI's.
- B. Perform a vacuum test for 30 minutes.
- C. Ensure that the system does not rise above 2025 microns within 30 minutes, indicating a secure vacuum and no leaks, if the pressure does rise above 2025 microns, then break the vacuum with oxygen free nitrogen and complete further tightness tests as per section 8.6.5 of the MI's before repeating the vacuum testing.
- D. Document all steps, pressure tests, and vacuum readings, take photos of the test equipment under load at each stage.

7. Startup and Testing:

- A. Remove the lockshield caps from the service valves on the outdoor unit.
- B. Open the service valve on the liquid line of the outdoor unit first, ensuring it is back stopped.
- C. Open the service valve on the Gas line of the outdoor unit, ensuring it is back stopped.
- D. Replace the lockshield caps back onto the service valves once they are fully open.
- E. Switch the power onto the indoor unit.

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- F. Confirm that the indoor and outdoor units are functioning correctly and communicating as required.
- G. Check for any abnormal noises or vibrations during operation.
- H. Press and hold the on button on the indoor unit until flashing green and purple. (See MI's section 9.3)
- I. Using the camera on your smart phone scan the QR code on the front of the indoor unit or WiFi card supplied, to join the Xtend internal WiFi and start the set-up wizard. (See MI's section 10.2.2)
- J. Make sure the hydronic system is vented and no leaks.
- K. Using your smart phone to access the Web-U-I enter service code 15 then confirm then select tools, pump venting (see section 11.2 of the MI's).
- L. On the Web-U-I Xtend Summary under CH water you will see the system flow rate, this should be a min 8l/min and a standard of 15l/min.
- M. Enter the boiler parameters and set the min & max pump setting to 50% and the CH output to 40/50%.
- N. Test the heat system with indoor + outdoor units only to ensure they reach temperature. Then test full system with boiler.

8. Customer Handover:

- A. Provide the customer with a demonstration of the system's operation and service requirements.
- B. Document all installation steps, pressure tests, and vacuum readings.
- C. Provide the customer with the installation manual, warranty information, and maintenance instructions.

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