



Gas Condensing boiler UltraGas AM/c (650)

Technical Specification**General Brief Description/Type**

High efficiency, floor standing, with modulating Pre-mix burner.

Comprises of a single pass, high water content, welded, shell/tube arrangement complete with an integral modulating premix gas burner. The boiler shell is manufactured from Carbon steel and is complete with a series of Alufer® tubes that make up the heat exchanger. Each Alufer® tube is constructed from an Aluminium inner (gas side) finned surface which is heat shrunk within an outer (water side) stainless steel tube. This combination ensures optimum heat transfer across the medium.

Performance

Output at 80/60°C (max/min)	602.6	122.0	kW
Output at 50/30°C (max/min)	650.0	136.0	kW
Modulating	5 :1		Turndown Ratio (approx)
Operating at 80/60°C			
Full Load Efficiency	98.3	88.6	% net / gross basis
Operating at 50/30°C			
Full Load Efficiency	103.2	93.0	% net / gross basis
Part Load Efficiency	108	97.3	% net / gross basis
Standing Loss at 70°C	1000	0.16%	W / % at full load
Dry Stoichiometric NO _x emission		38.5	mg/kWh
Acoustic pressure Level @ 1 m		65	dB(A)
Min/Max Gas Supply Pressure - after gas filter (if necessary)	15	80	mbar
Flue Gas			
Mass Flow		1017.58	kg/h
Temperature with return at 60°C		72	°C
Temperature with return at 30°C		49	°C
Useable overpressure for flue		130	Pa
Fuel consumption at nominal output (Natural Gas)		61.34	m ³ /h
Fuel consumption at nominal output (LPG)		23.67	m ³ /h

Design/operational parameters

Pressure			
Operating (max/min)	6	1.2	bar
Test		9	bar
Water Content		529	litres
For a Flow/Return ΔT of 20K			
Appropriate Flow rate for full output		7.6	litres/s
Hydraulic Resistance (both modules operating if D unit)		4	mbar
For a Flow/Return ΔT of 10K			
Appropriate Flow rate for full output		15.1	litres/s
Hydraulic Resistance (both modules operating if D unit)		16	mbar
Minimum Flow Rate	NO minimum required		
Temperature			
Maximum Operating		90	°C
Weight (empty, incl. casings)		1328	kg
Electrical Details			
Power Supply Operating /Control	230V-1ph-50Hz / 24V – 50Hz		
Consumption (max/min)	1030	62	W
Fuse Rating (models 15-100 / 125-2000D)	13 / 16		Amps

Overall boiler dimensions

Length (excluding connections)	1890	mm
Width	1290	mm
Height	2110	mm

Connections

Heating Flow /Return ⁽¹⁾ (if D unit, then figure is as per optional header kit)	DN 125	
Condensate (incl. trap)	DN25	
Boiler Drain (behind casing)	1/2"	
Gas Connection	2"	
Boiler Flue Connection diameter (internal/external)	302	306 mm

Control Operation/Control Options

Standard	Enable signal (self-modulating) High Limit Protection 230Vac Run and Alarm signal Touchscreen Display Manual Over-Ride TopTronic E Heating System Control Fully Modulating Hours Run Indication Internal Time-Clocks Safety Interlock
Optional	0-10Vdc firing rate or setpoint control Sequencing (up to 8 controllers) - set up extra cost Weather Compensation Volt-free contacts Additional Toptronic Modules ⁽²⁾ Gateway module - Modbus TCP/RS485 Online remote monitoring (requires LAN connection & gateway module)

⁽¹⁾ The Hoval UltraGas Boiler design is complete with two separate return connections. This allows the boiler to be utilised, where required, with intelligent heating system circuits to optimise the operating efficiency. Where there are cooler system returns (eg from Variable Temperature circuits) these can be directed to the lower of the return connections and warmer system returns (typically from Constant Temperature circuits) to the higher of the two. This allows for a marked increase in boiler operating efficiency.

⁽²⁾ Hydraulic system suitability should be discussed with Hoval at Order stage - additional TopTronic Modules may be necessary.

The following items are all included:

- Operating Manual
- Boiler Casings and support legs
- TopTronic ®E Control Panel – must be set up by an Approved Hoval Engineer
- Volt Free enable connection
- Drain Valve
- Pressure Transducer

All above items will be supplied loose for yourselves to mount and/or assemble, including the boiler control panel, support legs, gas connection pipe, insulation and casings.

Fine gas filter installation and maintenance:

Each filter will be supplied loose for the Installer to fit adjacent to the boiler concerned. It should be possible for the gas filter to be isolated to allow the filter pad to be replaced as required (recommended to be done at least annually or when the pressure drop across the filter reaches 2.5 mbar. This can be measured across the two test points fitted on the filter top cover).

The pressure drop through a clean gas filter is as follows and needs to be taken into account by system designers along with an allowance for an increase if the filter becomes dirty:

Pressure drop	0.6	mbar
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