

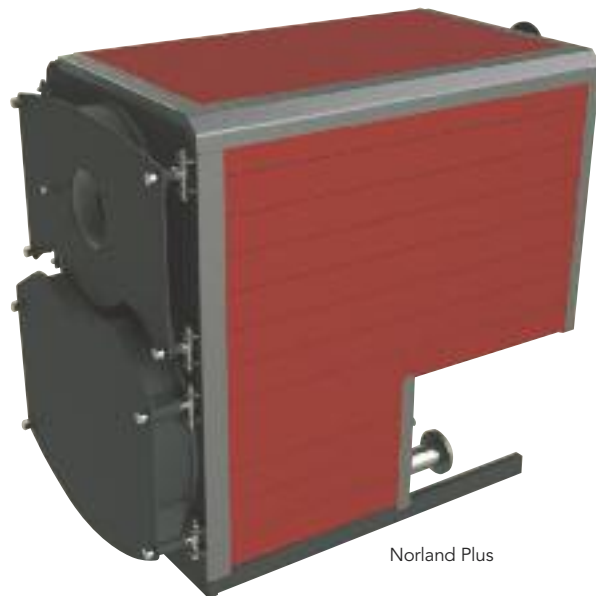
Norland & Norland Plus

A Floor Standing, High Efficiency, Condensing Hot Water Boiler. Suitable for pressure jet and pre-mix gas burners.

Outputs from 95kW to 1600kW



Norland



Norland Plus



ORMANDY

Hartley & Sugden

STEAM & HOT WATER BOILERS



ORMANDY

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Norland and Norland Plus - Condensing boilers

The Norland and Norland Plus is a range of pre assembled floor standing, gas fired high efficiency stainless steel condensing boilers, suitable for operation with pressure jet or pre-mix gas burners. Boiler outputs range from 95 - 1600kW.

Design features

- Robust high quality and reliable stainless steel heat exchanger
- Manufactured using latest manufacturing techniques
- Compact dimensions
- Suitable for modulating pressure jet gas burner including latest pre-mix technology
- Natural gas or LPG
- Supplied fully assembled complete with gas burner and controls fitted pre wired and tested
- Two return connections
- High specification controls
- System control options



Norland Plus:
Outputs 1000 - 1600 kW



Norland boiler:
Outputs 95 - 851 kW

Performance features

- Outputs from 95kW to 1600kW with 15 sizes in the range.
- High efficiency up to 109% (Net CV) (50/30deg C flow and return temps and @30% output)
- Insulated casing with low standing losses
- Low emissions
- Standard working pressure up to 5 bar (higher pressures available on request)
- High water content
- No minimum water flow rate requirement

General Description

Norland and Norland Plus boilers are supplied complete with a matched modulating gas burner, fully fitted and pre-wired to the control panel.

The boilers are suitable for firing with either pressure jet or pre-mix gas burners. Where possible pre-mix burners are recommended as these burners with their latest high technology combustion performance coupled with the high technology boiler design will maximise the performance of the matched package leading to highest possible

efficiencies, lowest possible Nox and other emissions over a wide modulation range.

Maximum boiler efficiency and low emissions are achieved with combustion contained within the generously sized horizontal combustion chamber and with condensing taking place within the special integral vertical corrugated flueway condensing section.

The boilers are suitable for both single and multiple boiler installations.

The boilers are easy to install and maintain with the hot water flow and return and the flue gas connections all located at the rear. Each boiler has two return connections allowing separate return water connections from constant temperature and variable temperature circuits within the heating and hot water system.

To maximise efficiency, the lowest system return water temperature should be connected to the low temperature return on the boiler. If there is only one

return from the system, this should be connected to the low temperature return only and the other return connection on the boiler should be blanked off.

The boilers have a standard maximum working pressure of 5 bar, with higher pressures available on request. The minimum water pressure is 1 bar. The maximum standard water flow temperature is 90°C.

All Norland and Norland Plus boilers are supplied with a set of cleaning tools.

Design & Construction

The boiler body is constructed from 316 Ti high corrosion resistant stainless steel for the combustion and condensing sections, with a carbon steel outer shell. The heat exchanger is a contra flow design to maximise heat transfer efficiency with horizontal combustion chamber and a vertical condensing section. The welding is fully automated and controlled using ultra modern manufacturing techniques to give a very reliable and high quality heat exchanger. After welding the boiler body is subjected to a complete passivation process to ensure that all welds are to the highest quality and integrity. The heat exchanger is enclosed

within a factory fitted painted steel casing complete with high density insulation.

The boilers have an insulated hinged front door, which is available for left or right hand opening. However this needs to be specified at the time of order.

To ensure the highest quality standards, every Norland and Norland plus boiler is hydraulically pressure tested in the factory.



Norland return water connections



Stainless steel heat exchanger with Horizontal combustion chamber and vertical condensing section

Electrical Connections and Controls

A control panel is supplied with each Norland or Norland Plus boiler, mounted on either the left or right side of the boiler. The standard control panel features include a main switch, panel live lamp, boiler thermometer, control thermostats, safety thermostat with manual reset, burner on/off switch and pump on/off switch. The standard control thermostats have an operating range from 60 - 90°C.

Additional control options are available, including volt free kits, weather compensation, optimised start/stop, cascade

control, room and outdoor sensors, hours run meter, flue gas thermometer, etc. details available on request.

A 230v single phase electricity supply is required to the control panel from a suitable fused isolator. For single phase burners the electrical supply can be direct from the control panel.

For three phase burners a separate three phase isolated supply direct to the burner is necessary, with a flexible connection for boiler door opening.

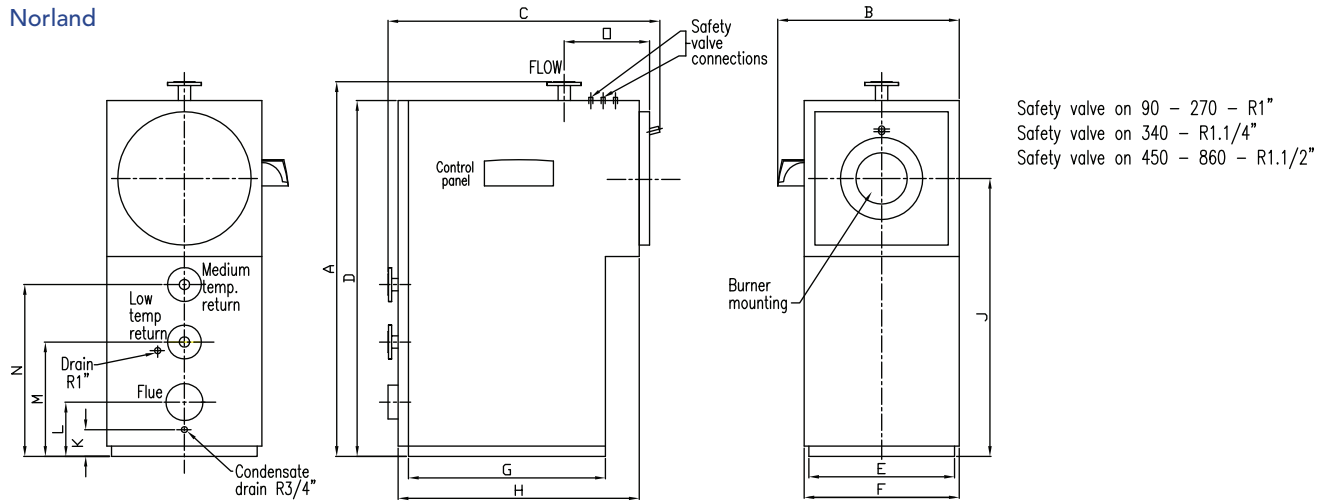


The standard panel is supplied with the following:-

- main switch
- panel live lamp
- boiler thermometer
- control thermostats
- safety thermostat with manual reset
- burner on/off switch and pump on/off switch
- Fully wired and connected to burner

Technical Data and Dimensions

Norland

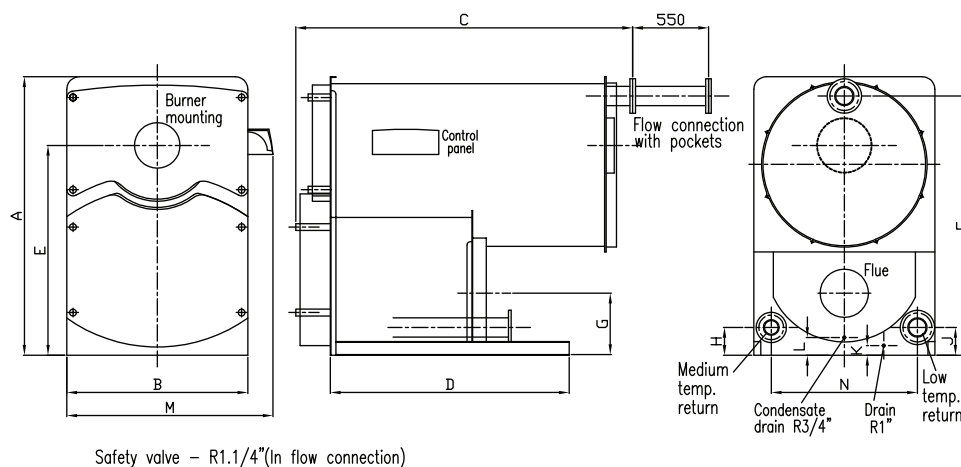


Norland Model	90	120	160	200	270	340	450	560	700	780	860
Outputs and Input											
Nominal Output (kW) @ 50/30°C (flow/return)	95	120	158	203	266	343	445	559	699	775	851
Nominal Output (kW) @ 80/60°C (flow/return)	87	110	145	186	244	313	406	511	639	709	779
Nominal Input (kW) Net CV	88	112	147	189	248	319	414	520	650	721	792
Dimensions & weight											
A	1825	1825	1825	1955	1955	1955	2025	2025	2025	2025	2025
B	867	894	894	990	990	990	1130	1130	1130	1130	1130
C	985	1325	1325	1545	1545	1790	1820	2334	2334	2334	2334
D	1734	1734	1734	1941	1941	1941	2008	2008	2008	2008	2008
E	710	710	710	814	814	814	932	932	932	932	932
F	756	756	756	853	853	853	991	991	991	991	991
G	670	1010	1010	1004	1004	1254	1205	1720	1720	1720	1720
H	881	1221	1430	1296	1296	1546	1577	2092	2092	2092	2092
J	1348	1348	1348	1510	1510	1510	1532	1532	1532	1532	1532
K	135	130	130	203	203	203	125	125	125	125	125
L	264	264	264	367	367	367	315	315	315	315	315
M	557	557	557	589	589	589	569	569	569	569	569
N	837	837	837	864	864	864	854	854	854	854	854
O	241	241	241	468	468	488	819	819	819	819	819
Approx. Dry Weight (kg)	295	325	350	560	600	660	940	1090	1150	1270	1270
Efficiency based on Net CV											
Efficiency (%) @ 50/30°C (flow/return) 100% input	107.9	107.1	107.5	107.4	107.2	107.5	107.5	107.5	107.5	107.5	107.5
Efficiency (%) @ 50/30°C (flow/return) 30% input	109	109	109	109	109	109	109	109	109	109	109
Efficiency (%) @ 80/60°C (flow/return) 100% input	98.9	98.2	98.6	98.4	98.4	98.1	98.1	98.3	98.3	98.3	98.3
Combustion & flue system											
Gas flow rate max output G20 (m³/h)	9.4	11.9	15.6	20.0	26.3	33.8	43.8	55.1	68.8	76.4	83.9
Flue Gas volume max (m³/min)	2.1	2.65	3.5	4.5	5.8	7.5	9.7	12.3	15.3	17.1	18.7
Flue gas temp @max output and 50/30°C	50	50	50	50	50	50	50	50	50	50	50
Flue Gas connection size (mm)	150	180	180	200	200	200	250	250	250	250	250
Combustion chamber resistance (mbar)	0.8	1.0	1.1	1.5	2.0	2.1	2.3	2.5	2.7	3.4	4.1
Water system											
Water Content (l)	150	210	200	308	285	340	392	560	523	523	523
Water flow rate @ max output and 20k (l/s)	1.1	1.4	1.9	2.4	3.1	4.1	5.3	6.7	8.3	9.2	10.1
Water resistance @ max output and 20k (mbar)	0.48	0.6	0.66	0.9	1.2	1.3	1.4	1.5	1.6	2.0	2.5
Flow and return connection sizes Flanged (PN16)	50	50	50	65	65	80	100	100	100	100	100

All dimensions in (mm) unless stated otherwise

Technical Data and Dimensions

Norland Plus



Norland Plus Model	1000	1200	1400	1600
Outputs and Input				
Nominal Output (kW) @ 50/30°C (flow/return)	1000	1200	1400	1600
Nominal Output (kW) @ 70°C	914	1097	1280	1463
Nominal Input (kW) Net CV	930	1116	1302	1488
Dimensions & weight				
A	2020	2020	2165	2165
B	1313	1313	1395	1395
C	2443	2443	2437	2437
D	1732	1732	1725	1725
E	1522	1522	1610	1610
F	1880	1880	2022	2022
G	453	453	440	440
H	202	202	205	205
J	202	202	205	205
K	62	62	62	62
L	85	85	81	81
M	1493	1493	3231	3231
N	1060	1060	1165	1165
Approx. Dry Weight (kg)	1776	1776	1850	2103
Efficiency based on Net CV				
Efficiency (%) @ 50/30°C (flow/return) 100% input	107.5	107.5	107.5	107.5
Efficiency (%) @ 50/30°C (flow/return) 30% input	108.5	108.5	108.5	108.5
Efficiency (%) @ 70°C 100% input	98.5	98.5	98.5	98.5
Combustion & flue system				
Gas flow rate max output G20 (m ³ /h)	32.5	39.0	45.5	52.0
Flue Gas volume max (m ³ /min)	22.0	26.4	30.8	35.2
Flue gas temp @max output and 50/30°C	40	40	40	40
Flue Gas connection size (mm)	350	350	400	400
Combustion chamber resistance (mbar)	4.2	6.2	8.3	10.8
Water system				
Water Content (l)	1900	1900	1828	1828
Water flow rate @ max output and 20k (l/s)	11.9	14.3	16.6	19.0
Water resistance @ max output and 20k (mbar)	1.8	1.8	1.8	1.8
Connections				
Flow connection sizes	125	125	125	125
Medium temperature return	100	100	100	100
Low temperature return	125	125	125	125

All dimensions in (mm) unless stated otherwise

Installation

Clearances

Norland and Norland Plus boilers should be installed and positioned so that there is adequate access to the flue and pipework connections. The boilers should also be installed so that there is enough room at the front for cleaning and maintenance of the boiler/ burner unit.

Consideration should also be given to the position and projection of the burner with the boiler door in the open position.

Burners

A burner is normally supplied and matched to the boiler to give fully modulating operation, which ensures optimum operating efficiency to suit specific requirements. The burner is supplied for bolting to the boiler front door and is wired to the control panel with a plug in lead.

Ancillary items

It is recommended that a suitably sized safety valve is fitted to each boiler. Please note that the safety valve, pressure gauge and drain valve are not supplied with the boiler, but can be supplied as optional items.

Boiler base

Norland and Norland Plus boilers should be located on a surface capable of supporting the fully flooded weight of the boiler and burner and it should be smooth, level and constructed from a non flammable material.

Delivery

Delivery to site can be arranged.

Commissioning

Commissioning of the boiler/burner can be arranged.

Ormandy Group Associated Products

The Ormandy group has an extensive range of boilerhouse products, which compliment the Ormandy Hartley & Sugden boiler range. All Ormandy products can be skid mounted to specific requirements. Detailed information on all Ormandy products is available on request.

Additional products include:

- Pressurisation units
- Storage and Non Storage Calorifiers
- Plate heat exchangers
- Package plant rooms which can be designed to incorporate any of the above equipment



Please visit www.ormandy ltd.com to access comprehensive information on Ormandy Hartley & Sugden products and services.

The Ormandy Group: Ormandy Offsite / Ormandy Rycroft / Ormandy Electric Ormandy Hartley & Sugden / Ormandy Newade / Ormandy Dreh / Ormandy Aquatherm

For full information on the Ormandy Group and all its products and services, please visit www.ormandy ltd.com Tel +44 (0)1422 350111



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