

# Metrose-E

Cast Iron Sectional Hot Water Boiler  
Suitable for Pressure Jet Burners  
Oil, gas or dual fuel firing

Outputs 406 - 1450 kW

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**Hartley & Sugden**

STEAM & HOT WATER BOILERS



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## Metrose-E Cast Iron Sectional Boiler

The Metrose - E is a range of cast iron sectional boilers available in sizes from 406 - 1450 kW. The boilers are suitable for firing on Natural gas, 35 second oil and LPG, with a choice of burner manufacturers. The boilers are available in nineteen outputs across the range.



Metrose-E boiler

### Design features

- 4 Pass boiler design
- Manufactured from Eutectic cast iron
- High corrosion resistant properties
- Manufactured to EN303
- Insulated steel casing
- Reversible door hinges for either left or right hand opening

### Performance features

- Outputs up to 1450 kW
- Nineteen boiler output sizes
- Up to 6 bar working pressure
- up to 92% efficiency (net CV)

## General Description

The Metrose-E is a range of high quality cast Iron sectional boilers, which are suitable for a number of applications, including boilerhouses with limited access and space. The boilers have a typical efficiency across the range of up to 92% (net CV).

The boilers have a maximum working pressure up to 6 bar, with a maximum flow water

temperature of 90°C and a minimum return water temperature of 40°C.

Metrose-E boilers are supplied complete with a control panel located on the top of the boiler, which has been factory tested.

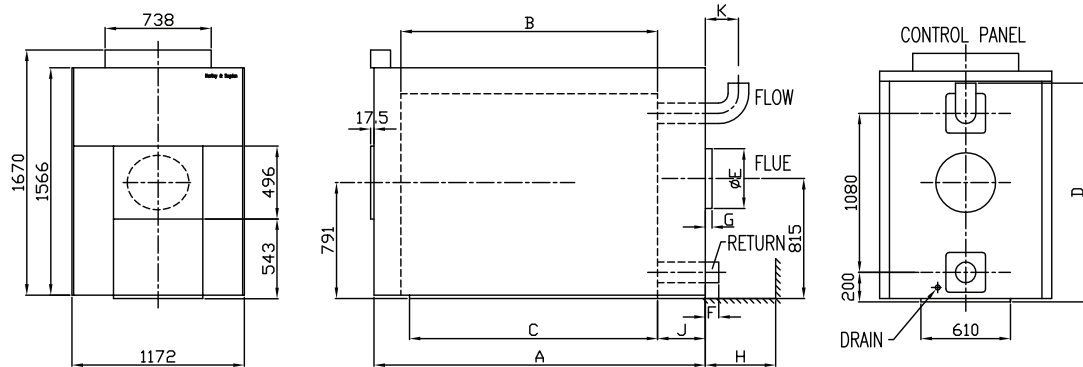
Metrose-E boilers should be installed in accordance with BS 6644 where applicable and

other relevant standards, codes of practice and current building regulations. Water treatment is recommended for all cast iron boilers and a water treatment specialist should be consulted for advice on this matter.

All Metrose-E boilers are supplied with a set of cleaning tools.

# Technical Data and Dimensions

Metrose-E models E7 - E16  
(Outputs 406 -928 kW)

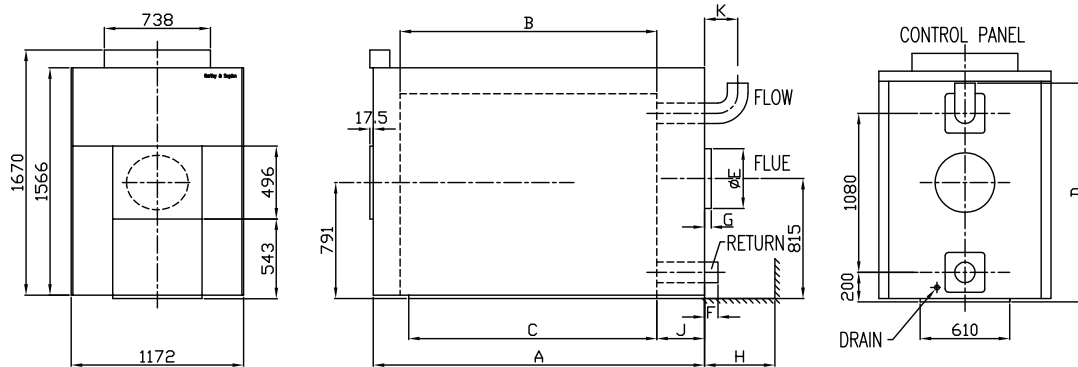


Metrose-E Model	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16
Output (kW)	406	464	522	580	638	696	754	812	870	928
No. of sections	7	8	9	10	11	12	13	14	15	16
<b>Dimensions &amp; weight</b>										
A	1305	1455	1555	1654	1755	1845	1955	2105	2245	2355
B	897	1008	1119	1230	1341	1452	1563	1674	1785	1896
C	967	1078	1078	1300	1300	1522	1522	1744	1744	1966
D	1488	1488	1488	1488	1488	1488	1488	1488	1488	1488
E (Flue outside diameter)	300	300	300	350	350	350	350	400	400	400
F	21	-8	-7	14	15	36	37	-2	-31	-30
G	33	4	5	26	27	48	49	10	-19	-18
H (minimum)	300	300	300	300	300	300	300	300	436	436
J	248	265	319	243	297	221	275	259	324	269
K	240	211	212	233	234	255	256	217	188	189
Approx. dry weight (kg)	1852	2046	2237	2412	2601	2810	3000	3171	3364	3561
<b>Efficiency based on net CV</b>										
Efficiency (%) @ 100% load	90.9	91.3	91.4	91.7	90.8	90.5	90.7	91.2	90.0	90.6
<b>Combustion and flue data</b>										
Gas flow rate (G20) (m <sup>3</sup> /h)	46.3	52.9	59.5	66.1	72.7	79.3	86.0	92.6	99.2	105.8
Oil flow rate (35 sec oil) (l/h)	45.0	51.4	57.8	64.3	70.7	77.1	83.5	90.0	96.4	102.8
Flue Gas Volume (35 sec oil) (m <sup>3</sup> /min)	35.4	19.8	22.2	24.6	27.0	29.4	31.8	34.2	37.2	39.6
Flue Gas Volume (Gas) (m <sup>3</sup> /min)	16.8	19.2	21.6	24.0	26.4	28.8	31.2	33.6	36.0	40.3
Comb. Chamber Resistance (mbar)	1.7	1.75	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
<b>Water system</b>										
Hydraulic Resistance (11k) (mbar)	14.9	18.1	24.5	28.7	34.7	41.3	47.6	55.5	64.1	21.2
Hydraulic Resistance (20k) (mbar)	4.5	5.5	7.1	8.7	10.5	12.5	14.4	16.8	19.4	6.4
Minimum water flow rate (11k) (l/s)	2.15	2.46	2.77	3.07	3.38	3.69	4.0	4.31	4.61	4.92
Minimum water flow rate (20k) (l/s)	1.20	1.38	1.55	1.73	1.90	2.07	2.24	2.42	2.59	2.76
Water content (l)	389	427	465	503	541	579	617	655	693	731
<b>Connections</b>										
Flow & Return connection Outside diameter (mm)	139.7	139.7	139.7	139.7	139.7	139.7	139.7	139.7	139.7	139.7
Drain connection size	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"
Safety valve size (6 bar)*	R1"	R1"	R1"	R1"	R1"	R1.1/4"	R1.1/4"	R1.1/4"	R1.1/4"	R1.1/4"

\* The installer should fit a safety valve in flow pipework before the isolation valve.  
Negative dimensions indicate that the item is inside the casing.

# Technical Data and Dimensions

Metrose-E models E17 - E25  
(Outputs 986 -1450 kW)



Metrose-E Model	E17	E18	E19	E20	E21	E22	E23	E24	E25
Output (kW)	986	1044	1102	1160	1218	1276	1334	1400	1450
No. of sections	17	18	19	20	21	22	23	24	25
<b>Dimensions &amp; weight</b>									
A	2445	2555	2645	2845	2955	3045	3155	3245	3355
B	2007	2118	2229	2380	2491	2602	2713	2824	2935
C	1966	2188	2188	2450	2450	2672	2672	2894	2894
D	1488	1504	1504	1504	1504	1504	1504	1504	1504
E (Flue outside diameter)	400	400	400	400	**	**	**	**	**
F	-9	-8	13	-36	-35	-14	-13	8	9
G	3	4	25	-24	-23	-2	-1	20	21
H (minimum)	656	656	656	936	936	936	1266	1266	1266
J	321	265	299	269	324	269	324	249	303
K	210	236	257	208	209	230	231	252	253
Approx. dry weight (kg)	3756	3955	4124	4343	4538	4734	4930	5107	5297
<b>Efficiency based on net CV</b>									
Efficiency (%) @ 100% load	90.2	91.0	90.6	91.5	91.2	90.9	91.1	90.7	90.9
<b>Combustion and flue data</b>									
Gas flow rate (m <sup>3</sup> /h)	112.4	119.0	125.6	132.2	138.9	145.5	152.1	158.7	165.3
Oil flow rate (l/h)	109.2	115.7	122.1	128.5	135.0	141.4	147.8	154.2	160.7
Flue Gas Volume (35 sec oil) (m <sup>3</sup> /min)	42.0	44.4	46.8	49.2	52.2	54.6	57.0	59.4	61.8
Flue Gas Volume (gas) (m <sup>3</sup> /min)	40.8	43.8	46.2	48.6	51.0	53.4	55.8	58.2	60.6
Comb. Chamber Resistance (mbar)	2.6	2.7	2.85	3.0	3.1	3.2	3.3	3.4	3.5
<b>Water system</b>									
Hydraulic Resistance (11k) (mbar)	21.6	29.6	34.2	39.6	44.3	48.9	53.5	59.1	64.8
Hydraulic Resistance (20k) (mbar)	7.6	9.0	10.4	12.0	13.4	14.8	16.3	18.1	19.6
Minimum water flow rate (11k) (l/s)	5.23	5.53	5.84	6.15	6.46	6.76	7.07	7.38	7.69
Minimum water flow rate (20k) (l/s)	2.93	3.11	3.28	3.45	3.63	3.80	3.97	4.17	4.32
Water content (l)	769	807	845	905	943	981	1019	1057	1095
<b>Connections</b>									
Flow & Return connection outside diameter. (mm)	139.7	159	159	159	159	159	159	159	159
Drain connection size	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"
Safety valve (6 bar) *	R1.1/4"	R1.1/4"	R1.1/4"	R1.1/4"	R1.1/2"	R1.1/2"	R1.1/2"	R1.1/2"	R1.1/2"

\* The installer should fit a safety valve in flow pipework before the isolation valve.

\*\* A plain plate is supplied (without a spigot) for cutting out on site. Maximum size opening 500H x 700W. Negative dimensions indicate that the item is inside the casing.

## Design & Construction

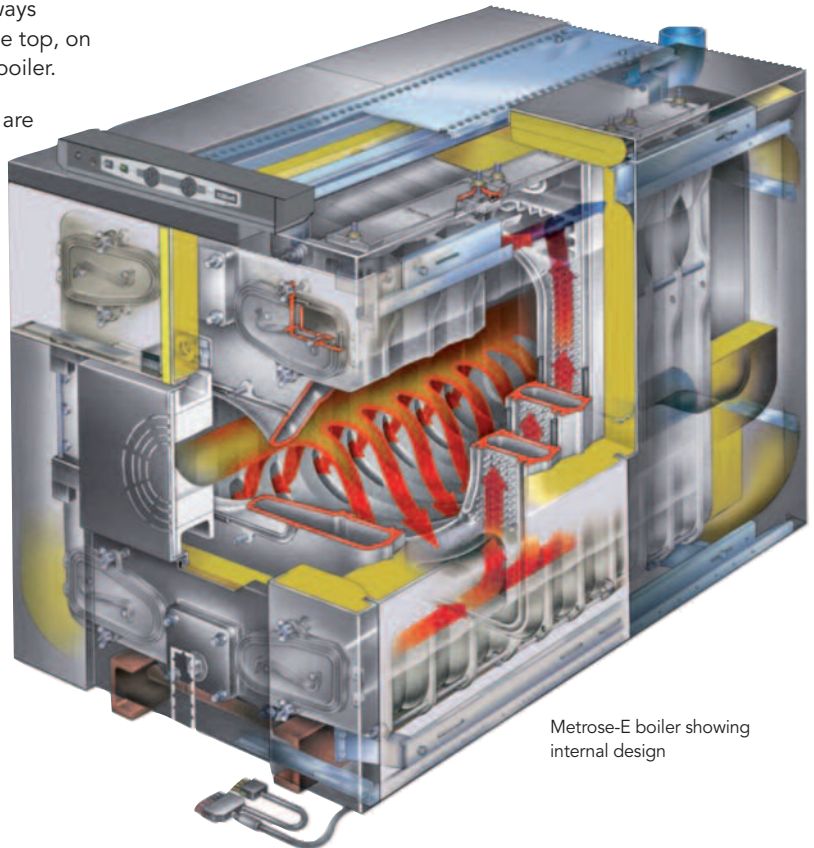
Metrose-E boilers are manufactured from high quality Eutectic cast iron, which offers high resistance to corrosion and thermal stresses. The boilers are of a reliable four pass design, which gives low combustion chamber resistance and improved efficiency. The boilers are supplied unassembled and details of our boiler site assembly service are available on request.

The boilers are assembled using steel nipples between each boiler section. The boiler is insulated with 100mm thick glass wool insulation and comes complete with a painted steel casing.

The front door has reversible hinges for either left or right hand opening, giving easy access to the combustion chamber for cleaning

purposes. There are also vertical cleaning ways accessible from the top, on both sides of the boiler.

Metrose-E boilers are manufactured in accordance with EN303 and are CE certified.



Metrose-E boiler showing internal design

## Controls

A control panel is supplied for mounting on the front of each boiler. It is supplied with wiring for connection to the burner and boiler thermostats. 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 :-

- On/off switch
- 6 AT Fuse
- Temperature gauge
- Safety thermostat test push button
- Standard control thermostat, adjustable from 30 - 90°C
- Standard high/low thermostat, adjustable from 30 - 90°C
- An overheat Safety thermostat, preset to 110°C (with manual reset)

# Installation

## Clearances

Metrose-E 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.

It should be noted that this boiler also needs cleaning from the top and consideration

should be given to this during installation.

## Burners

A burner is normally supplied and matched to the boiler to give either high/low or fully modulating operation, which ensures optimum operating efficiency to suit specific requirements. The burner is bolted to the boiler front door by the site assembly team and is wired to the control panel with a plug in lead.

## Pump Overrun

It is recommended that the system pump is installed so

that there is an overrun of at least five minutes on boiler shutdown, to dissipate heat around the system.

## Ancillary items

It is recommended that a suitably sized safety valve is fitted in the flow pipework before the isolation valve. 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

Metrose-E 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.ormandyltd.com](http://www.ormandyltd.com) to access comprehensive information on Ormandy Hartley & Sugden products and services.

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