

**FIGURED DIMENSIONS ONLY TO BE USED**  
 Safety, Health and Environmental Information  
 In addition to the hazards/risks normally associated with the types of work detailed on this drawing and noted in the designer risk assessments and health and safety plan, note the following:  
 • It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an approved method statement.  
 • Where applicable, significant residual risks are highlighted in the body of the drawing.

T03	01/08/2018	Updated Tender Issue - Revised as included for TQ34, TQ35 &36
T02	18/12/2017	Updated Tender Issue - revised as included
T01	27/10/2017	Tender Issue
P03	29/06/17	Stage 3 A/E Issue
P02	09/06/17	Draft Stage 3
P01	26/05/17	Draft Stage 3

**ARUP ASSOCIATES**  
 6 Finsbury Street  
 London  
 W1T 4BQ  
 Tel: 020 7755 2525  
 Fax: 020 7755 2961  
 email: info@arupassociates.com

**British Land Property Management Limited**

Job Title:  
**1 Triton Square**

Drawing Title:  
**Mechanical Services Pipework Basement Layout**

Scale of A0:  
 1:100

Discipline:  
**Mechanical Services**

Job No:  
**246868**

Drawing Status:  
**Tender**

Drawing No:  
**246868-A-XX-B1-DR-MX-55010**

## Equipment Data Sheets M04 Condensing Boilers (Sheet 1 of 3)

### General Data

Unit Reference	B.1, B.2, B.3, B.4
Model Type	Modular Stack (Wessex)
Quantity	4
Boiler Type	Modular condensing boiler
Location	Basement B1
System	Heating

### Performance Data

		Required	Offered		Required	Offered	
Max Heat Output 65/45	kW	679	719 @ 80/60	Water Leaving Temperature	°C	65	65
Min Heat Output	kW	Advise	48.4	Max Operating Temperature	°C	75	75
Gross Heat Input	kW	Advise	825	Max Operating Pressure	bar (g)	Advise	10
Thermal Efficiency @GCV	%	95.5	93.19	Test Pressure	bar (g)	Advise	15
Water Flow Rate	kg/s	8	8	Water Contents	litres	Advise	66
Water Pressure Drop	kPa	Advise	32	Flue Gas Flow Rate (high fire)	m³/hr	Advise	1062
Min Water Flow Rate	kg/s	Advise	4.5	Flue Gas Temperature 70/50	°C	Advise	82
Water Entering Temperature	°C	45	45	Max Flue Gas NOx Level (Note7)mg/kWh		Advise	38.8
				Noise Level (Lp) @ 1m	dB(A)	53	47

### Construction Data

Construction Standard		Advise		Safety Valve Connection Size	mm	Advise	¾"
Heat Exchanger Material		SS	SS	Casing Material		Advise	STEEL
Heat Exchanger Type		Advise	CYLINDRICAL	Casing Finish / Colour		Advise	SILVER
Water Connection Type		Advise	G SCREWED	Insulation Material		Advise	N/A
Water Connection Size (Ø)	mm	Advise	65	Insulation Thickness	mm	Advise	N/A
Drain Connection Type		Advise	G SCREWED	Flue Connection Type		Advise	FEMALE
Drain Connection Size (Ø)		Advise	32	Flue Connection Size (Ø)	mm	Advise	250
Safety Valve Connection Type		Advise	R SCREWED	Operating Weight	kg	Advise	744

### Burner

Burner Type		Advise	PREMIX	Blower Air Flow Rate	m³/hr	Advise	N/A
Burner Output Control		Advise	-	Blower Flow Control Method		Advise	N/A
Gas Rate	m³/hr	73.2	83.7	Method of Ignition		Advise	HSI
Turndown Ratio		Advise	5:1	Gas Connection Type		Advise	R SCREWED
Gas Inlet Pressure (Nominal)	mbar	20.0	20	Gas Connection Size (Ø)	mm	R1"	1 1/4"
Max/Min Gas Inlet Pressure	mbar	25.0 / 17.5	25/17.5	Burner Connection Type		Advise	INTEGRAL
Oil Pump Suction Head	bar (g)	N/A		Burner Connection Size (Ø)	mm	R1"	INTEGRAL
Gas Type/ Oil Class		Nat. Gas	NAT GAS				

## Equipment Data Sheets M04 Condensing Boilers (Sheet 2 of 3)

### Electrical Data

	Required	Offered
Electrical Supply V/Ø/Hz	230/1/50	230/1/50
Current Rating (start Amps/ run Amps) A	Advise	1.3/1.05

Fan Rating per Boiler  
Power Source

Required	Offered
Advise	

### Dimensional Data

	Required	Offered
Overall Casing Width mm	700	700
Overall Casing Depth mm	950	1082
Overall Casing Height mm	1435	1799
Flue Connection Height mm	2185	2084

	Required	Offered
Min Front Clearance mm	Advise	600
Min Side Clearance mm	Advise	400
Min Rear Clearance WITH PIPE KIT mm	Advise	1200

The height is ok, currently modelled as 2.1m

### Accessories

	Required	Offered
Pressure Relief Valve	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Temperature Gauge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pressure Gauge	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Overheat Lamp	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Flue Gas Monitoring	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Drain Valve & Removable Key	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Control Panel Mounted Isolator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

	Required	Offered
Hours Run Meter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
High/Low Thermostat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
High/Low Fire Lamps	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Burner Shut Off Damper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Integral Pump(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Controls & Monitoring

	Required	Offered
On/Off Switch	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Control Thermostat/Sensor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
High Limit Thermostat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Power On Lamp	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Boiler Run Lamp	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Common Alarm Lamp	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S.Controller OPTION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

### Burners

	Required	Offered
Nozzle Assembly	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Flame Inspection Window	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Fan with TEFC Motor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Air Control Damper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
High Voltage Ignition System	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Flame Failure System	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

### BMS Points

	Required	Offered
Boiler Enable Contact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (Per Module)
Common Alarm VFC OPTION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (Per Module)
Boiler Run VFC OPTION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (Per Module)
Safety Circuit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (Per Module)
0-10v Temperature control setpoint	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (Per Module)

### Testing

	Required	Offered
Type Tests PRODUCTION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Works Performance Tests	<input type="checkbox"/>	<input type="checkbox"/>
Site OEM Performance Tests	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

### Manufacturer

	Preferred	Alternative	Alternative
Manufacturer	Hamworthy		
Model Type	WESSEX MODUMAX MARK 3		
Contact Name	ROB KIRK		
Telephone Number	07957815384		
Fax Number			
E-mail Address	<a href="mailto:ROB.KIRK@HAMWORTHY-HEATING.COM">ROB.KIRK@HAMWORTHY-HEATING.COM</a>		
Internet Address	<a href="http://www.hamworthy-HEATING.com">www.hamworthy-HEATING.com</a>		

**Equipment Data Sheets M04**  
**Condensing Boilers**  
**(Sheet 3 of 3)**

**Additional Information**

**Comments**

- 1 Type test data shall be provided to demonstrate that the equipment performs to the required standards.
- 2 All inputs/outputs to be wired to numbered terminals within the control panel.
- 3 All alarm volt free contacts shall be fail safe. Contacts shall be normally open, closed when healthy, open on alarm or loss of power
- 4 All volt free contacts to be rated at 3A inductive at 230 VAC.
- 5 This data sheet shall be read in conjunction with the Specification documents
- 6 Each boiler or bank of boilers for modular installation to be fitted with pressure relief valve to latest BS requirements.
- 7. *0-10V temperature setpoint signal to be used for output temperature control not modulation*

- 7. As regards BREEAM Pol 02 NOx emissions, the boilers shall fulfill the maximum BREEAM credits available.
- 8. Flues to be designed by flues specialists.

# Technical submittal

Products: **4x Wessex ModuMax mk3 WM254/762V**  
 For: **1 TRITON SQUARE LONDON NW1 - T Clarke**  
 Date: **24/09/2018**

- ⊗ Floor standing condensing modular boiler
- ⊗ Stainless steel heat exchanger with 10-year warranty
- ⊗ Close load matching for improved efficiencies
- ⊗ Advanced sequence control
- ⊗ 10 bar maximum operating pressure
- ⊗ Wide differential temperature - up to 40°C ΔT
- ⊗ Fits through a standard doorway

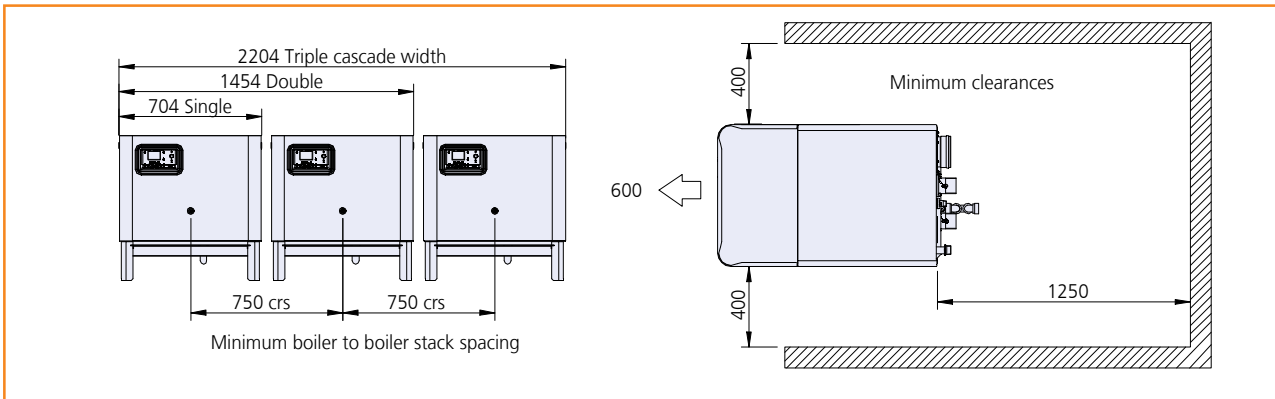
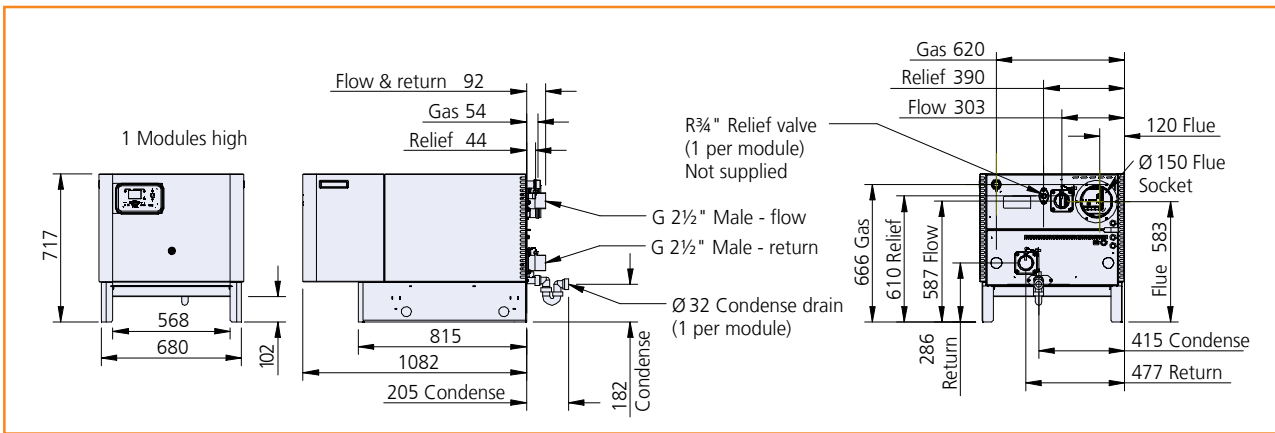
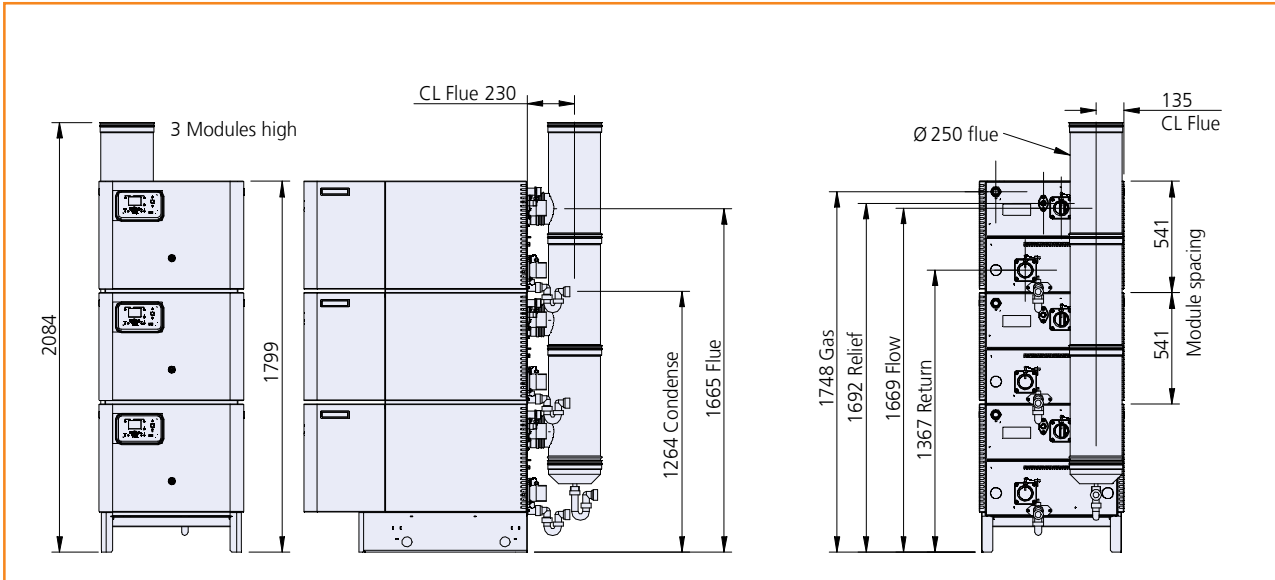


	Wessex ModuMax mk3 boiler model	Units	254/762V
	No. of modules		3
Energy	Building regulations Part L seasonal efficiency	% gross	95.0
	BS EN 15502 seasonal efficiency	% gross	95.3
	Boiler output 80/60°C, NG & LPG	kW	719.4
	Boiler output 50/30°C, NG & LPG	kW	763.1
	Boiler input (gross) - maximum, NG	kW	825
	Boiler input (nett) - maximum, NG & LPG	kW	742.9
	Boiler output - minimum 80/60°C, NG & LPG	kW	48.4
Water	Water content	litres	66
	System design flow rate @ 40°C ΔT rise	l/s	4.5
	Water side pressure loss @ 40°C ΔT rise	mbar	100
	System design flow rate @ 30°C ΔT rise	l/s	6
	Water side pressure loss @ 30°C ΔT rise	mbar	180
	System design flow rate @ 20°C ΔT rise	l/s	9
	Water side pressure loss @ 20°C ΔT rise	mbar	395
	System design flow rate @ 11°C ΔT rise	l/s	16.2
	Water side pressure loss @ 11°C ΔT rise	mbar	1300
	Minimum water pressure	barg	*
	Maximum water pressure	barg	10
Gas	Maximum flow temperature setting	°C	90
	Gas flow rate, NG (G20) - maximum	m³/hr	83.7
	Gas flow rate, LPG (G31) - maximum	m³/hr	30.3
	Nominal inlet pressure, NG (LPG) - maximum	mbar	20 (37)
Flue	Maximum gas inlet pressure NG (LPG)	mbar	25 (45)
	Approx. flue gas volume @ 15°C, 8.75-9.25% CO <sub>2</sub>	m³/hr	1062
	Maximum flue gas temperature @ 80/60°C	°C	82
Connection	Pressure at boiler flue connection	Pa      mbar	150    1.5
	Dry NOx emission (0% excess oxygen, dry air free) - NG	mg/kWh	38.8
Electrics	Water flow/return connections	inches	G2½" male
	Gas inlet connection pipe thread size	inches	R1¼" male
	Nominal flue diameter (I/D)	mm	250
	Condensate trap connection(s) (O/D)	mm	32
Electrics	Electrical supply		230V 1Ph 50Hz
	Power consumption - maximum boiler modulation	W	720
	Start current (per module)	Amp	1.3
Electrics	Run current (per module)	Amp	1.05
	Approx shipping weight	kg	678
	Noise emission @1m @maximum modulation	Max dB (A)	65
Electrics	Noise emission @1m @minimum modulation	Min dB (A)	47

NOx levels

# Technical submittal

Products: **4x Wessex ModuMax mk3 WM254/762V**  
 For: **1 TRITON SQUARE LONDON NW1 - T Clarke**  
 Date: **24/09/2018**



## 12x Remote Signalling: Volt-Free Contacts Kit

- ⊙ Volt-free contacts for common fault and normal run indication
- ⊙ Compatible with boilers using Siemens LMS controls platform
- ⊙ One unit required per boiler module

Every effort has been taken to ensure the details are accurate. Hamworthy Heating does not, however, guarantee the accuracy or completeness of any information nor does it accept liability for any errors or omissions in the information. Hamworthy Heating reserves the right to make changes and improvements which may necessitate alteration to product specification without prior notice.

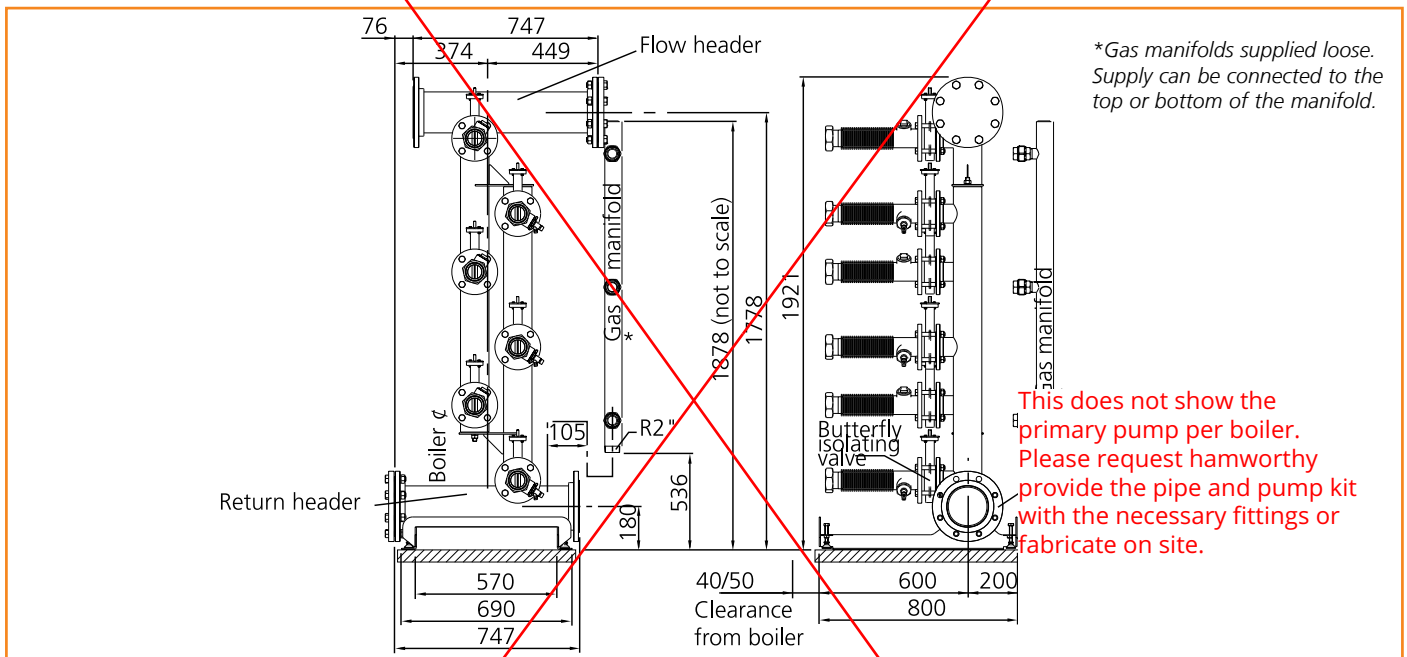


# Technical submittal



Products: **4x Wessex ModuMax mk3 WM254/762V Pipe kits**  
For: **1 TRITON SQUARE LONDON NW1 - T Clarke**  
Date: **24/09/2018**

- ⊗ Isolating quarter-turn ball valves, with operating handles, for water flow and return connections on each boiler module
- ⊗ Flow and return flexible connectors and tees
- ⊗ Drain valves
- ⊗ Flow and return header pipe assembly
- ⊗ Gas manifold (supplied loose), can be fitted for top or bottom supply connection
- ⊗ Blanking flanges, gaskets and bolts for header ends
- ⊗ Adjustable levelling feet



Note: All dimensions in mm unless otherwise stated.

## 12x LPB Bus Communication Kit - OCI345

- ⊗ Up to 16 boiler modules may be sequence controlled
- ⊗ Communication between boiler modules is facilitated via an LPB bus.
- ⊗ Each boiler module must be equipped with an optional LPB bus communications kit.

## 4x Insertion Water Temperature Sensor QAZ36

- ⊗ Insertion type water temperature sensor and pocket
- ⊗ One sensor required for the heating circuit where used and one sensor for the DHW cylinder where used

Every effort has been taken to ensure the details are accurate. Hamworthy Heating does not, however, guarantee the accuracy or completeness of any information nor does it accept liability for any errors or omissions in the information. Hamworthy Heating reserves the right to make changes and improvements which may necessitate alteration to product specification without prior notice.

Architecture | Arup  
8 Fitzroy Street  
London, W1T 4BJ

+44 (0) 20 7755 4675

[architecture@arup.com](mailto:architecture@arup.com)

[www.arup.com](http://www.arup.com)