

# CP-M

HIGH PERFORMANCE COMPACT  
WALL-HUNG CONDENSING BOILERS



CE



Authorised User No. 00461

Lochinvar Corporation has been designing, manufacturing and distributing water heating products in USA since 1919 and has built an enviable reputation for reliable, efficient and cost effective water heaters and boilers.



In the UK the company is based in Banbury, ideally located to support its established products with a service which is second to none with Area Sales Managers and a head office staff covering Technical support, Service Technicians, Accounts and General Administration.

Water heating equipment was first sold in the UK under the Lochinvar name in 1976. The "Knight" and "Charger" ranges of direct gas fired Storage Water Heater were among the first of their type to be sold in this country and their popularity has continued to grow due to their suitability for the concept of System Separation and Decentralisation.

In 1981 Lochinvar introduced Copper-Fin® Water Heaters and Boilers and with various models available can offer outputs of up to 568kW. Most recent addition to the Copper-Fin® series is Intelli-Fin™, which has net thermal efficiencies of up to 108% from an incredibly small footprint.

The addition of the Condensa and CP-M Boiler ranges offer further flexibility of choice, offering wall-hung boilers with outputs from 23 to 180kW, all of which offer high levels of efficiency.

All Lochinvar water heaters and boilers have a range of ancillary equipment designed for the specific needs of the UK market, are CE marked and WRAS (Water Research Advisory Service) listed.



# WHY CHOOSE CP-M BOILERS?



Up to  
**110%**  
Net Efficiency  
(99% gross)

The CP-M boiler works in much the same way as a standard fan-flued boiler does except that it has a larger heat exchanger, made of stainless steel, which absorbs more heat from the burner and the flue gasses. When return water temperature is below 54°C, the flue gasses condense and release latent heat back into the boiler; this would otherwise be wasted. The flue gasses from standard boilers are generally above 300°C, on the CP-M boiler they can be as low as 50°C for the majority of operation, so the potential for fuel savings and lower carbon emissions are obvious.

All boilers are less efficient when oversized and output should be carefully matched to demand. The CP-M has a pre-mix, class 5 low NO<sub>x</sub>, fully modulating burner that will mirror the design requirements of the system and modulate to the exact output needed. This helps to ensure that the boiler is a perfect companion to the heating system.

The CP-M has a larger heat exchanger than a standard boiler and therefore it will always be more efficient even when not condensing. Radiators can be oversized to make the boiler condense more often but this is not generally cost effective and they should be sized as for a conventional boiler.

**The key to maximising the potential of the CP-M is in the effectiveness of the "on board" controls system.**

## WEATHER COMPENSATION

All CP-M boilers have a built in weather compensation device and a cascade management system.

The weather compensator adjusts the demand for heat in response to the outside temperature. This enables the boiler to modulate and run at lower temperatures, allowing the boiler to operate in condensing mode for as long as possible.

In order to operate the weather compensation device, an external temperature sensor is required. This is available as an Ancillary Option.

## CASCADE MANAGEMENT

For multiple boiler installations the standard feature of Cascade Management accurately matches boiler output to system demand and provides optimum operating efficiency. It also provides "back-up" protection should one of the units be out of operation for any maintenance purposes.

The cascade management can also be controlled externally through our in-built 0-10 VDC connection on the boiler panel. Up to 8 x CP-M Boilers can be installed in modular arrangement with Cascade Management. A primary flow temperature sensor is required to operate the cascade management. This is available as an Ancillary Option.



## CONTROLS

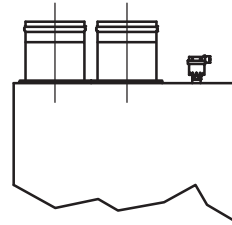
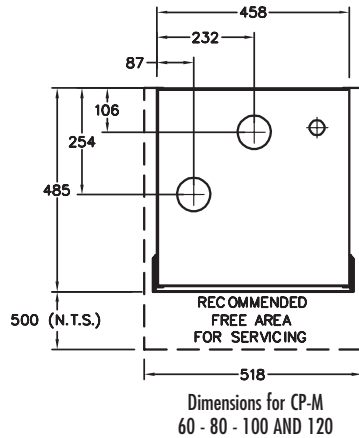
The CP-M controls can also be interrogated by a laptop computer to give performance data revealing the operation of the boiler from the moment that it is installed/commissioned. This gives assurances that the boiler is set to cope with the system requirements and allows any necessary running adjustments to be made in order to further "trim" the controls.



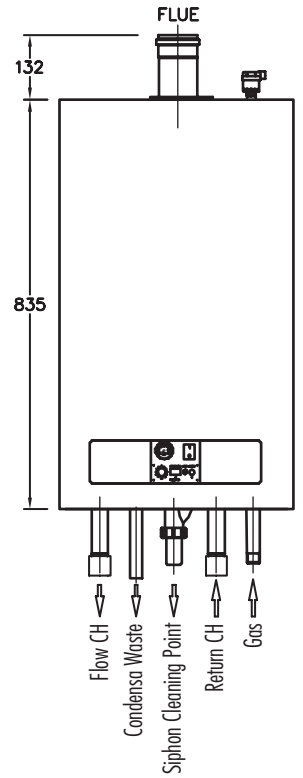
# CP-M 60 - 80 - 100 AND 120



Top view showing concentric flue



Part view showing twin pipe



## FLUE OPTIONS

CP-M Boilers are built with a concentric spigot as standard. An option for twin pipe (flue & air ducts) is available for long flue runs.

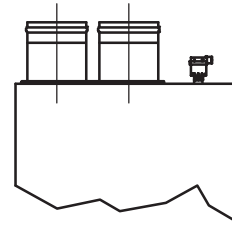
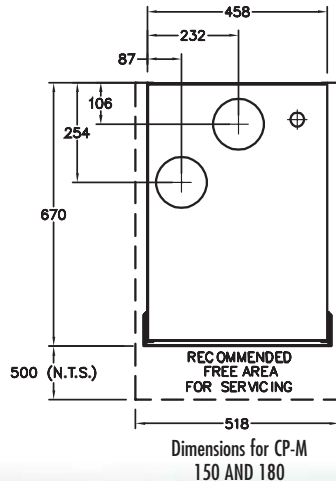
Model	AS SUPPLIED:	OPTION:	
	Concentric Flue	Twin Pipe Flue	Air
CP-M 60	80/125	80	80
CP-M 80	80/125	80	80
CP-M 100	100/150	100	100
CP-M 120	100/150	100	100
CP-M 150	100/150	130	130
CP-M 180	100/150	130	130



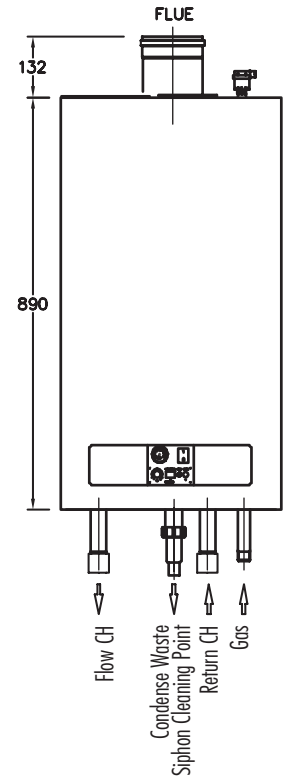
# CP-M 150 AND 180



Top view showing concentric flue



Part view showing twin pipe



## CP-M CONTROL OPTIONS



**RC Room Controller**  
Remote time and temperature control for one heating circuit.



**EBC Economic Burner Controller**  
Time and temperature control for two heating circuits.



**RCH Room Controller (Heating Circuits)**  
Remote time and temperature control for heating zones controlled by an EBC unit.

# TECHNICAL SPECIFICATION

GENERAL							
Product Identification Number	CE 0063 BP3254						
Dimensions (H x W x D)	mm	835 x 458 x 485				890 x 458 x 670	
Classification	II <sub>2H3P</sub>						
Gas Appliance Type	B23: C13X, C23X, C33X, C43X, C53X, C63X, C83X						
Boiler Model		CP-M 60	CP-M 80	CP-M 100	CP-M 120	CP-M 150	CP-M 180
Water Content	Litre	3.9	5	6.5	8.3	10.4	12.9
Weight (empty)	Kg	46	73	78	83	92	101
Flow Connection	BSP	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"
Gas Connection	BSP	R 3/4"	R 3/4"	R 3/4"	R 3/4"	R 1"	R 1"
Flue Duct / Air Inlet (As supplied)	mm	80 / 125	80 / 125	100 / 150	100 / 150	100 / 150	100 / 150
Power Consumption	W	355	355	355	375	460	460
Protection Class	Class	IP40	IP40	IP40	IP40	IP40	IP40

PERFORMANCE		CP-M 60	CP-M 80	CP-M 100	CP-M 120	CP-M 150	CP-M 180
Nominal Input (net) 80/60°C	kW	14-56	18-74	23-92	27-111	34-138	43-166
Nominal Input (gross) 50/30°C	kW	15-61	20-82	25-102	30-123	38-154	48-184
Gas Flow Max. (G20)	m <sup>3</sup> /hr	5.9	7.9	9.8	11.8	14.7	17.6
Efficiency at 80/60°C	%	97	98	98	98	98	98
Efficiency at 50/30°C	%	109	109.5	109.5	109.5	109.5	109.5
Efficiency at 40/30°C RAL 61	%	109.5	110	110	110	110	110
Nominal output at 80/60°C	kW	55	73	90	109	136	163
Nominal output at 50/30°C	kW	15-60	20-80	25-100	30-120	36-150	45-180
Normal Efficiency 75/60°C RAL-UZ61	%	107	107	107	107	107	107
NO <sub>x</sub> Emission, RAL 61	mg/kWh	<15	<15	<15	<15	<15	<15
CO Emission, RAL 61	mg/kWh	<20	<20	<20	<20	<20	<20

TECHNICAL DETAILS							
CO <sub>2</sub> - Flue Gas	%	9					
Dew Point Combustion Gas	°C	53					
Temp. Flue Gas Surrounding Temp. 20°C	°C	85					
Available Pressure for Flue System	Pa	250 - 600					
Condensate Acidity	pH	4 TO 5.5					
Available Pressure at 25°K for Installation	kPa	24.5	29.4	14.7	14.7	14.7	14.7
Max. Flow Temp.	°C	90					
Pressure CH-Part Min/Max	bar	1 - 6					
NO <sub>x</sub> Emissions	Class	5	5	5	5	5	5

## CP-M FEATURES

- ▼ Six model sizes 60 - 180 kW
- ▼ Fully Condensing
- ▼ Fully Modulating
- ▼ 0-10 VDC for Remote Control
- ▼ VFC Remote Fault Indication
- ▼ Integral Pump
- ▼ Weather Compensation and Cascade Control
- ▼ Low NO<sub>x</sub> Emissions - Class 5 pre-mix combustion
- ▼ Low Cost Horizontal and Vertical Flue Systems
- ▼ Natural Gas and LPG Models Available

## ANCILLARY OPTIONS

- ▼ Pipework Header Kits
- ▼ External Temperature Sensor
- ▼ Flow Temperature Sensor
- ▼ Modulating Room Thermostat with Time Control
- ▼ Flue Header Systems for Multiple Boilers



[www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)



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