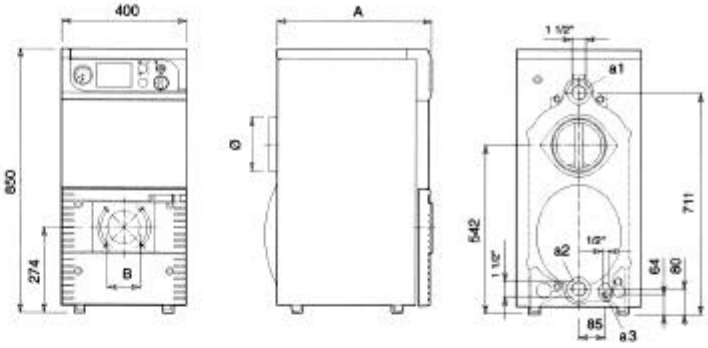
MIKROTHERM
G SERIES BOILERS

GENERAL DESCRIPTION

The G Series boiler is available for pressure jet oil (35 or 28 sec.) or blown gas firing (natural or LPG). The cast iron sections are joined by steel nipples and tie rods. All models are delivered to site fully assembled with the casing already fitted, palletised and surrounded by a wooden frame with a protective plastic covering. All boilers are designed for use with fully pumped indirect heating systems up to a maximum working pressure of 4 bar and a flow temperature of 82C against a △t 11°C. The pre-wired boiler control panel incorporates ON/OFF illuminated switch, control thermostat, limit (manual re-set) thermostat, combined thermometer and altitude gauge. For ease of maintenance all cleaning of the flueways and burner servicing is carried out from the front of the boiler, with means that the side clearances are kept to a minimum, making this boiler particularly suitable for modular installations. The system electrical and associated controls should be installed so that the burner is never allowed to fire when there is no demand for heat.



TECHNCAL DATA

MODEL	OUTPUT		DIMENSIONS			CONNECTIONS			WATER	WEIGHT
	kW	BTU/h	A	B	Ø flue size	a1	a2	a3	CONTENT LT	kg
G20/GN1.02	17.4-23.3	59-79	300	105	130	1"1/2	1"1/2	1/2"	11	75
G35/GN1.03	24.4-34.9	83-119	400	105	130	1"1/2	1"1/2	1/2"	14	100
G45/GN1.04	36.0-46.5	122-158	500	105	130	1"1/2	1"1/2	1/2"	17	125
G60/GN1.05	47.7-58.1	162-198	600	105	180	1"1/2	1"1/2	1/2"	20	150
G70/GN1.06	59.3-69.8	202-238	700	125	180	1"1/2	1"1/2	1/2"	23	175
G80/GN1.07	70.9-81.4	241-277	800	125	180	1"1/2	1"1/2	1/2"	26	200
G90/GN1.08	82.6-93.0	281-317	900	125	180	1"1/2	1"1/2	1/2"	29	225

MODULAR APPLICATIONS

This boiler series, is particularly suited for modular applications since all servicing and flue cleaning is carried out from the front, so that side clearances are kept to a minimum. For further details please contact Mikrofill technical Dept., or consult Modular Boiler Applications Literature.

INSTALLATION REQUIREMENTS

All boilers should be installed in accordance with the relevant requirements of the building Regulations, Health and Safety Executive Regulation PMS, IEE Regulations and the Byelaws of the Local Authority and the local water company.

British Standard Codes of Practice

CP341.300-307: Central heating by low pressure hot water.
CP341.342: Part 2 Centralised hot water supply.
CIBSE Guide: Reference sections B7 B11 & B13.
IGE/UP/2: Gas Installation pipework boosters and compressors on Industrial and Commercial premises.
BS6644: Installation of gas fired hot water boilers rated inputs above 60 kW but not greater than 2 Mw.
BS5410: Part 2 oil-fired installation of 44 kW and above.

BASE REQUIREMENTS

The boiler should stand on a load bearing non-combustible level base. Any plinth constructed must exceed the boiler plan area by not less than 80 mm overall.

WATER FLOW RATES

The system design must ensure that adequate circulation takes place whilst the boiler is firing.

MODEL	20	35	45	60	70	80	90
Flow Rate at △11°C lt/sec	0.5	0.75	1.0	1.25	1.5	1.75	2.0
Flow Rate at △20°C lt/sec	0.28	0.42	0.55	0.69	0.83	0.97	1.1

WATERSIDE PRESSURE DROPS

Waterside pressure drops, to assist with selection of pumps, the table indicates the hydraulic resistance (mbar).

MODEL	20	35	45	60	70	80	90
Pressure drop at △11°C	1.0	1.8	4.2	7.2	11.0	15.0	20.0
Pressure drop at △20°C	–	–	1.0	1.6	2.3	3.3	4.5

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PUMP OVER-RUN

Provision should be made to dissipate residual heat on plant shutdown. The boiler incudes a 3 pole changeover thermostat which means that provided the installation is wired in accordance with the "Electrical Diagram" then this facility will be provided.

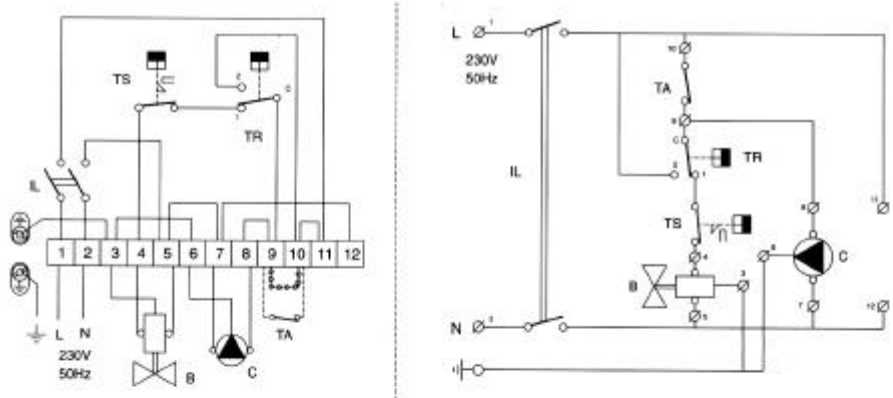
VENTILATION

Safe efficient and trouble-free operation of conventionally flued gas boilers is vitally dependent on the provision of adequate supply of fresh air to the room in which the appliance is installed. Ventilation by grilles communicating directly with the outside air is required at both high and low levels. The minimum free areas of these grilles must be in accordance with the table shown. The use of an extractor fan in the same room as the boiler (or in an adjacent room in communication) can in certain conditions adversely effect the safe operation of the boiler. Where such a fan is already fitted or if an extractor fan is likely to be installed at later date then advice of the gas supplier should be obtained.

Total gross input rating of boilers	Position of Air vents	Air vent areas (Air direct from outside)
Up to 2MW	High Level	270 cm^2 plus 2.25 cm^2 per kW in excess of 60 kW total rated input
Up to 2MW	Low Level	540 cm^2 plus 4.5cm^2 per kW in excess of 60 kW total rated input

For further detailed recommendations consult BS5440 PART 2 AND BS6644

ELECTRICAL DIAGRAM



ELECTRICAL REQUIREMENTS

These boilers are only to be used with single phase electric supply 220/240V having a max fuse rating of 5 amps.

IL	Boiler ON/OFF switch
CA	Auxiliary contacts
TR	Control thermostat
TS	Limit thermostat (manual reset)
B	Burner
C	Circulating pump
11 & 12	Spare terminals
⊖⊖⊖⊖	Remove this link if a room thermostat is fitted

WATER TREATMENT

Water contained in all heating and indirect hot water systems, particularly open vented systems, requires basic treatment. It is wrong to assume that because boilers are operating in conjunction with what is an apparently closed circuit, an open vented system will not under normal circumstances allow damage or loss of efficiency due to hardness salts and corrosion once the initial charge of water has been heated several times. One millimetre of lime reduces the heat conversion from flame via metal to water by 10%. In practice the accumulation of these salts is liable to cause noises from the boiler body or even premature boiler failure. Corrosion and the formation of black iron oxide sludge will ultimately result in premature radiator failure. Open vented systems are not completely sealed off from the atmosphere because it is necessary to provide a tank open to atmosphere if proper venting and expansion of system water is to be achieved. The same tank is used to fill the systems with water and it is through the cold feed pipe that system water expands into the tank when the boiler passes heat into the system. Conversely, when the system cools, water previously expanded is drawn back from the tank into the system together with a quantity of dissolved oxygen. Even if leakage from the heating and hot water system is eliminated there will be evaporation losses from the surface of the tank. Depending on ambient temperature these may be high enough to evaporate a large portion of the system water capacity over a full heating season. Corrosion will always occur within a heating/hot water system to a greater or lesser degree irrespective of water characteristics, unless the initial fill water from the mains is treated. Even the water in closed systems will promote corrosion unless treated.