



Blowtherm®

INSTRUCTIONS MANUAL FOR BOILERS MODELS:

SIMPLEX 35

SIMPLEX 50

SIMPLEX 80



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1 IMPORTANT

- ❑ This booklet contains operating and maintenance instructions and must be handed to the user. Please read all the instructions and warnings carefully as they provide important advice for safe installation and operation. This booklet should be kept in a safe place for future reference.
- ❑ The boiler must be installed by qualified personnel according to current safety regulations and following the Manufacturer's instructions. Improper installation may cause damage or injury. The Manufacturer cannot be held responsible in such case.
- ❑ First unpack the boiler and check that it is complete. In case of doubt, do not use the boiler and return it to the Supplier. No packaging (including wooden crates , nails, staples, plastic bags, polystyrene foam, etc.) must be left where children can play with as it may constitute a hazard.
- ❑ This boiler must only be used for the purpose for which it was designed. It must be never be used for other purposes as this would create a hazard. The Manufacturer cannot be held liable for damage caused by improper or unreasonable use.
- ❑ Before cleaning or servicing the boiler, disconnect from the power mains by operating the switch on the system or the relevant on-off devices.
- ❑ Do not obstruct the intake or outlet grilles.
- ❑ If the device does not work or malfunctions, disactivate it but do not attempt to repair it yourself. You must contact a qualified service operator. Repairs must only be carried out by a service centre authorized by the Manufacturer, using original spares. Failure to do this may well affect the safety of the device. To guarantee complete efficiency and correct operation, it is very important to follow the Manufacturer's instructions. Schedule maintenance must be carried out by a qualified service operator.
- ❑ If the boiler is taken out of service, all parts liable to cause a future hazard must be disposed of properly.
- ❑ If the boiler is sold or transferred to another owner, or if you move premises and leave the boiler behind, always make sure that the booklet stays with the boiler so that it can be consulted by the new owner and/or installer.

**For boiler's mounting and location:
MUST COMPLY WITH THE RELEVANT LOCAL SAFETY STANDARDS**

2 BUILDING CHARACTERISTICS

The **SIMPLEX** boilers are pressurized combustion heat exchangers made of steel with inversion flame type and successive turn in the tube system.

The high speed of the fumes inside the tubes and the high turbulence provoked with the new TURBOLATORS IN STAINLESS STEEL AISI 430, favours the heating exchange, decreases of the consumption, increasing the combustion yield that reaches an efficiency over 90%.

The jacket consists of elegant panels in steel painted with epoxy powder paint, and is totally insulated with rock wool in order to give it high an heat insulation characteristics.

The power losses on the smoke side are so limited as the allow a wide range of choice for operation with gas oil-fire burners with forced air.

The front door hinge-mounted it's insulated inside with ceramic fiber to be resistant high temperature and take the functions:

- fumes reversal chamber
- furnace and tube system inspection and cleaning
- burner support

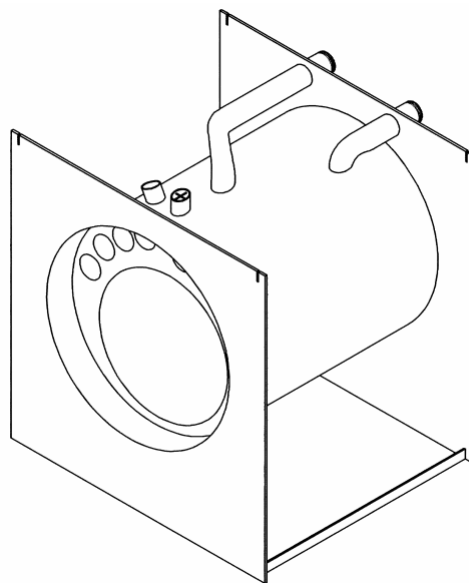
The control panel is complete with all the instruments necessary to optimise the control and the correct operation of the boiler.

The boiler body is made of iron and completely is welded with procedure mag (metal-arc active gas), arc welding in active gas atmosphere with electrode fuse.

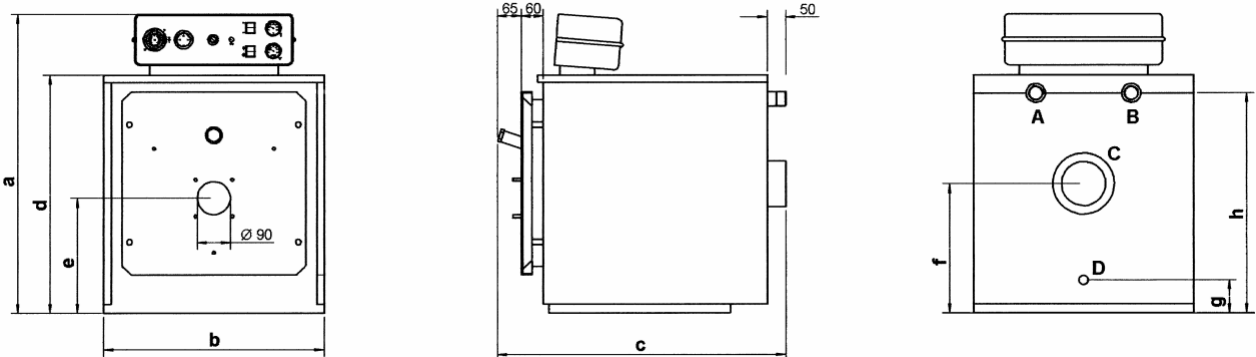
In order to ensure maximum quality and reliability over time, all the boilers are subjected to testing under severe conditions during all the phases of the production.

The shelves are checked and tested hydraulically at 4,5 bar.

The maximum working pressure is 3 bar.

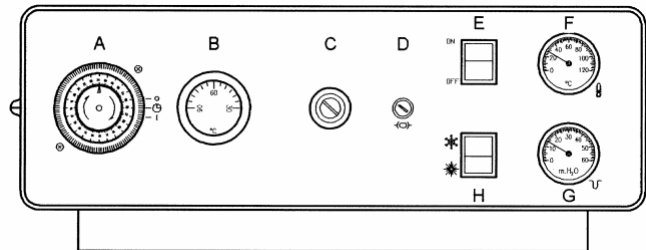


2.1 TECHNICAL DATA



			35	50	80
Nominal capacity		kW	31,8	47,0	76,4
		kcal/h	27350	40450	65704
Furnace capacity		kW	34,5	51,0	82,5
		kcal/h	29650	43850	70950
Efficiency at nominal charge		%	92,2	92,2	92,5
Efficiency at reduced charge (30%)		%	89,6	89,6	89,6
Max working temperature		°C	90	90	90
Max working pressure		bar	3	3	3
Combustion's chamber lenght		mm	400	490	540
Combustion's chamber volume		dm ³	27.2	35,8	53,3
Smoke discharge		mm	127	127	127
Smoke's exit temperature		°C	153	153	156
Combustion chamber pressure		Pa	40	45	50
Electrical feed		V / Hz	230 / 50	230 / 50	230 / 50
Height	a	mm	815	815	935
Lenght	b	mm	600	600	650
Deepness	c	mm	785	985	985
	d	mm	650	650	770
	e	mm	310	310	340
	f	mm	355	355	395
	g	mm	80	80	80
	h	mm	600	600	700
Weight		kg	112	122	168
Plant return	A	Ø	1"1/4	1"1/4	1"1/4
Plant delivery	B	Ø	1"1/4	1"1/4	1"1/4
Smoke discharge	C	Ø	127	127	127
Boiler discharge	D	Ø	3/4"	3/4"	3/4"

2.2 CONTROL PANEL



- A* *Timer (optional)*
B *Heating regulation thermostat*
C *Safety thermostat manual reset*
D *Fuse*

- E* *Switch on/off*
F *Heating thermometer*
G *Hydrometer*
H *Summer-winter switch*

3 INSTALLATION

The boiler must be installed by a qualified person. The size and features of the room must comply with the relevant safety standards. All regulations involving the safety of technical installation must be complied with.

Before connecting the heating system advise to carried out a tubes washing to prevent that impurity put in jeopardy the boiler corrected functioning.

Flue gas be discharged through pipes with a diameter no less than that of the hood and connected to a stack of suitable capacity. The stack must be of a suitable size and height to ensure minimum draft as per specification and thermally insulated as prescribed.

The connection of the burner to the fuel piping must be carried out by qualified personnel following the instructions with the burner

The electric connecting must carried out stable and safe. It's more important to carry out the electric connecting to the feeding line under the laws in force.

Before electric connecting it must be checked an efficient earthing wiring because this is a basic safety requirement.

Not use the water-pipes and the gas-pipes for earthing.

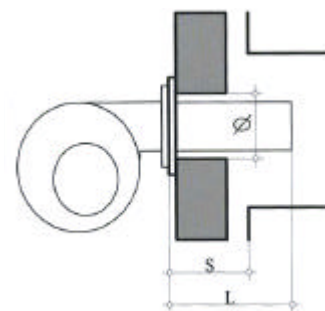
Besides verify the wiring suitable for the equipment and burner maximum power adsorption.

3.1 BURNER MATCHING

For installation of the burner, the electrical connections and the necessary settings, consult the burner instruction manual.

Ascertain that the correct type of burner has been chosen for the boiler, checking the technical specifications of both.

The burner blast tube must be sized as shown in the picture here beside.



Model	Cement Hole on door Ø (mm)	Door Thickness S (mm)	Blast tube burner length min-max L (mm)	Internal Furnace Diameter (mm)	Internal Furnace Length (mm)
SIMPLEX 35	110	135	150/180	296	400
SIMPLEX 50	110	135	150/190	296	490
SIMPLEX 80	110	150	165/205	345	555

3.2 OPERATING

Starting up the boiler

Before starting up the boiler, check that:

- ◆ the system is full of water and that the pressure on the gauge does not exceed the rated value of 1,5÷2 bar
- ◆ the stack was built in compliance with the current regulations, perfectly free and there is not air infiltration
- ◆ the connection between boiler and stack is perfectly tight-proof
- ◆ the flanges or fittings are perfectly sealed and the power supply voltage corresponds to that required for the boiler
- ◆ the burner rated values (power supply and nozzle flow) are compatible with the boiler and that there is no air infiltration in the fuel oil pipes
- ◆ all air has been relieved from the system
- ◆ pump delivery and lift suitable for heating system delivery

Operating

The **SIMPLEX** boiler is only designed to supply hot water for room heating. After pressing the ON-OFF button to turn on the boiler and set the required temperature on the thermostat, the burner starts and after the temperature set on the anti-condensation low point thermostat ($T_M = 55^\circ\text{C}$), the heating circulating pump starts.

When the preset temperature is reached, the burner stop until new heat is requested.

N.B. If the boiler exceeds 100°C , the safety thermostat cuts in and stops the burner. To resume operation, unscrew the thermostat cap and press RESET. If this occur again, ask for the service by a qualified personnel.

4 MAINTENANCE

The boiler must be cleaned at least once every season. Turn on the main power switch and release the on/off button. Remove the burner and plate together with the lining. Open the front door, the rear stack and the cast iron plate covering the rear element.

Clean the horizontal flue gas conduits, the combustion chamber. The fumes range cleaning it's more important, only millimetres of soot increase the flue gas outlet temperature at least 30°C decreasing one percentage point of thermal efficiency.

Water properties

The chemical and physical properties of the water in the circuit and refill water are the basic elements for safe trouble-free operation of the system. It's known that bad water quality causes inconveniences to the entire system, the most common and serious inconvenience being the formation of scale on the heat exchange areas. Due to their considerably low heat conductivity, scale deposits, although of a small thickness, create insulation of the wall that are not cooled by the circulating water and are thus subjected to overheating, and this provokes uneven expansion or localized thermal shocks.

Water treatment is required when:

water system are very extensive

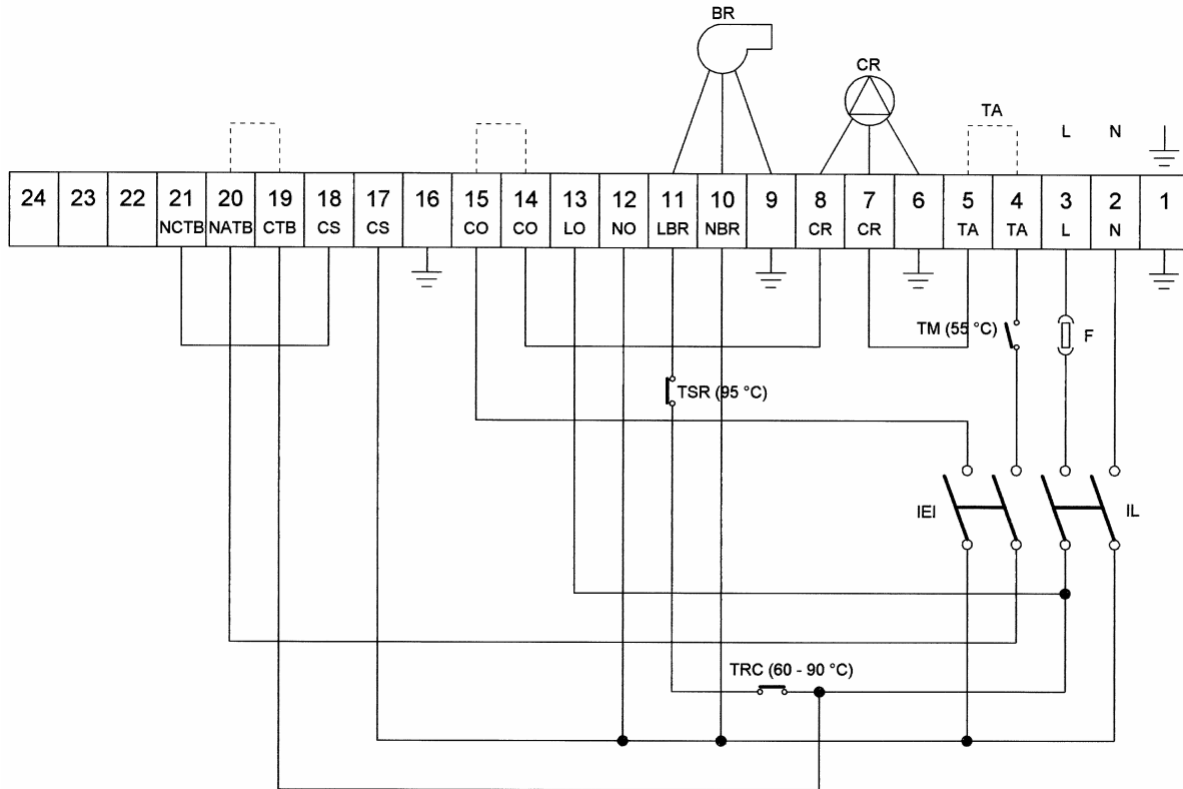
water available has a high hardness index

for any reason whatsoever, the system needs to be partially or fully emptied and then filled up again

Water properties for filling and topping up are:

Appearance	clear
Total hardness	max 20°F
Free oxygen	max 0.005 mg/l
Organic substances	max 0.5 mg/l
pH	min. 8.5

5 WIRING DIAGRAM



N	Neutral	NO	Programming time neutral
L	Phase	LO	Programming time phase
TA	Environment Thermostat (optional)	CO	Programming time contact
F	Fuse	TM	Anti condensation low point thermostat
CR	Heating circulating pump	IL	Switch on/off
BR	Burner	IEI	Summer-winter switch
NBR	Burner neutral	TSR	Safety thermostat manual reset
LBR	Burner phase	TRC	Regulation thermostat



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