Unical®

MODAL.

MODAL and MODAL B

The MODAL and MODAL B are high efficiency pressurized steel boilers for operation at a fixed temperature, higher than 50°C.

Versions available:
MODAL – only for central heating available in 10 models, with an output from 64 to 291 kW.

MODAL B – for C.H. and D.H.W. production, available in 8 models from 64 to 186 kW, with a DHW storage tank of 160 litres (models 64 to 93 kW) or 250 litres (the other models).

Heat exchange optimization

The cylindrical furnace with a blind bottom plate, completely wet, and with reversed flame combustion chamber guarantees:

- *compact dimensions*
- *heat exchange optimization* for short flame fuels, as for example oil and gas, thus favouring heat exchange by convection.

The furnace's flat bottom plate has "C" profiles welded on the water side in order to favour heat transfer and to strengthen the structure.

Completely adjustable door

On all pressure-fired boilers it is necessary that the door ensure the maximum gas soundness, as every minimum opening could cause a high temperature gas leakage towards the ambient, causing:

- heat dispersion
- structure deformation
- air pollution with combustion residues in the room where the boiler is installed.

Due to these reasons the door is particularly strong and finely adjustable, vertically and lengthwise, in order to achieve the ideal gastight position. Normally hinged on the right hand side, the opening can be reversed by inverting the hinges. Moreover, for reducing the thermal dispersions towards the ambient, it is also fitted with a special ceramic fibre lining which, when compared to refractory cement, improves the insulation by 40% and remarkably increases its life-span.

New heat exchange ratio for preventing condensation

The development of this project has modified the ratio between the heat exchange guaranteed by the furnace's surface and the one of tube bundle. By increasing heat exchange of the tube bundle to over 60% of the total and placing it in the highest and hottest part of the boiler the possibility of condensation for the combustion gasses is notably reduced. Besides, the introduction of the "*fin effect*" technology, the extension of the smoke pipes over the rear tube plate, causes a temperature increase in the pipes terminal part, protecting their welding seams from corrosion.

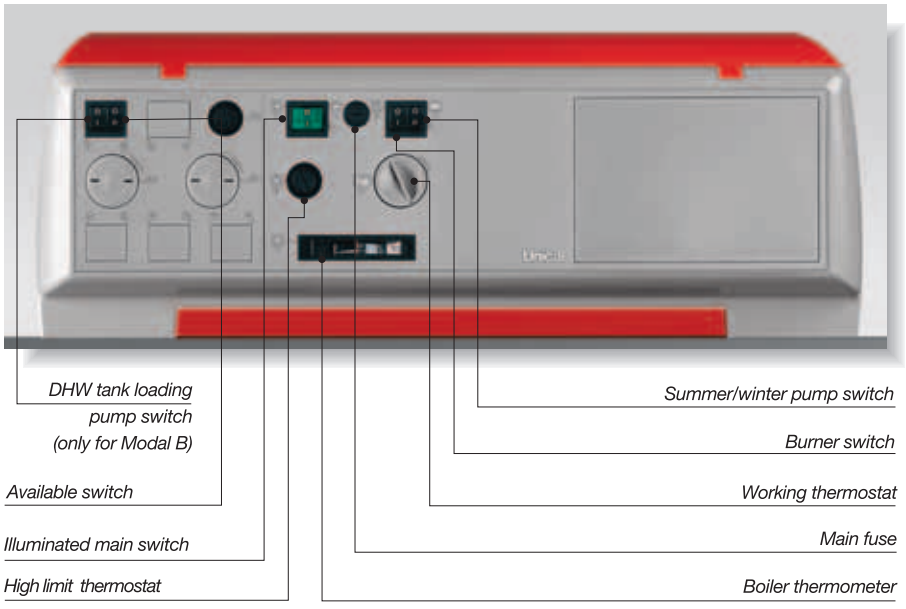
MODAL B with storage tank

Derived from the corresponding boiler designed for only C.H. production, from which it maintains the thermal features. It is equipped with a vertical type storage tank, able to resist to working pressures up to 10 bar.
The MODAL B boiler is also fitted with a DHW tank loading pump, switched by a priority thermostat, which controls the DHW temperature. The storage tank has undergone a special anti-limestone and anti-corrosion hygienic treatment, which consists of two enamelling layers and subsequent baking in an oven at 820°C (in accordance with the requirements of the standard DIN 4753).

Instruments and complementary functions

- *Complete insulation of the boiler body* with 60 mm thick rock wool material.
- *Steel turbulators* for combustion optimiziation

The control panel

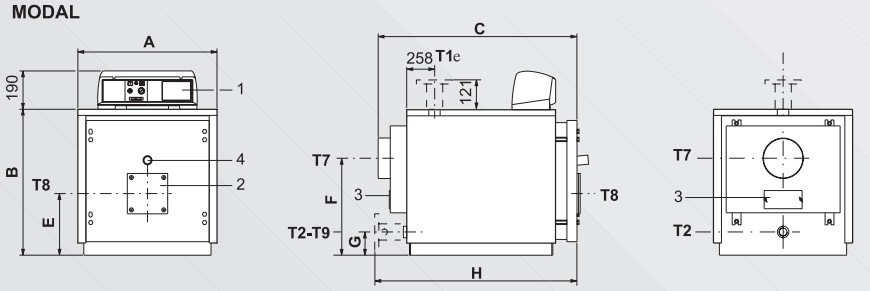


Technical data

Legend:
1. *Control panel*
2. *Burner connection flange*
3. *Maintenance/cleaning door*
4. *Flame spy glass*
5. *Storage tank loading pump*
6. *Non-return valve*
7. *Storage tank inspection flange*

T1 – C.H. flow
T2 – C.H. return
T3 – Vent and expansion vessel connection
T4 – Cold water inlet
T5 – DHW outlet
T6 – DHW recirculation
T7 – Chimney connection
T8 - Max dia. for burner tube
T9 – Boiler drain

MODAL



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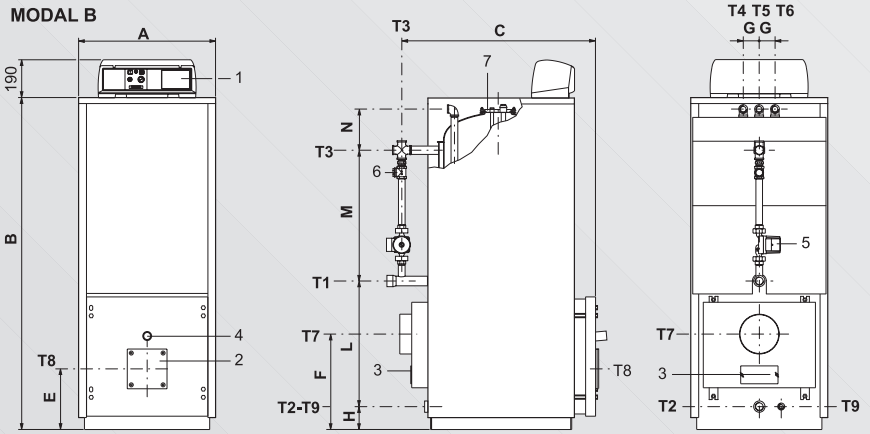

Model	Output kW	Input kW	A mm	B mm	C mm	E mm	F mm	G mm	H mm	L mm	M mm	N mm	T1 T2 Rp	T3 Rp	T4 T5 T6 Rp	T7 ø mm	T8 ø mm	T9 Rp	Combustion chamber dimensions mm	Water content Boiler/DHW tank * l	DHW production** l/h	Water side pressure losses*** m w.c	Smoke side pressure losses mm w.c	Max working pressure boiler/ DHW tank bar	Weight kg
MODAL																									
64	64	71	690	722	990	305	480	115	-	-	-	-	1 1/2	-	-	200	130	3/4	330x670	86	-	0,10	1,5	5	195
76	76	84	690	722	990	305	480	115	-	-	-	-	1 1/2	-	-	200	130	3/4	330x670	86	-	0,13	1,8	5	195
93	93	102	690	722	990	305	480	115	-	-	-	-	1 1/2	-	-	200	130	3/4	330x670	86	-	0,16	2,5	5	195
105	105	115	760	812	1205	350	500	130	-	-	-	-	2	-	-	200	180	3/4	390x850	126	-	0,10	3	5	280
116	116	128	760	812	1205	350	500	130	-	-	-	-	2	-	-	200	180	3/4	390x850	126	-	0,10	3	5	280
140	140	155	760	812	1205	350	500	130	-	-	-	-	2	-	-	200	180	3/4	390x850	126	-	0,14	5	5	280
163	163	180	760	812	1385	350	500	130	-	-	-	-	2	-	-	200	180	3/4	390x1030	151	-	0,20	8	5	318
186	186	206	760	812	1385	350	500	130	-	-	-	-	2	-	-	200	180	3/4	390x1030	151	-	0,25	14	5	318
233	233	258	860	937	1437	421	580	165	1482	-	-	-	DN 65	-	-	250	180	3/4	470x1070	203	-	0,22	18	5	420
291	291	322	860	937	1687	421	580	165	1732	-	-	-	DN 65	-	-	250	180	3/4	470x1320	247	-	0,30	22	5	480
MODAL B																									
64	64	71	690	1670	977	305	480	80	115	632	657	208	1 1/2	1	1	200	130	3/4	330x670	136/160	830	0,10	1,5	5/10	280
76	76	84	690	1670	977	305	480	80	115	632	657	208	1 1/2	1	1	200	130	3/4	330x670	136/160	830	0,13	1,8	5/10	280
93	93	102	690	1670	977	305	480	80	115	632	657	208	1 1/2	1	1	200	130	3/4	330x670	136/160	830	0,16	2,5	5/10	280
105	105	115	760	1895	1157	350	500	135	130	718	753	230	2	1	1 1/4	200	180	3/4	390x850	216/250	1100	0,10	3	5/10	420
116	116	128	760	1895	1157	350	500	135	130	718	753	230	2	1	1 1/4	200	180	3/4	390x850	216/250	1100	0,10	3	5/10	420
140	140	155	760	1895	1157	350	500	135	130	718	753	230	2	1	1 1/4	200	180	3/4	390x850	216/250	1100	0,14	5	5/10	420
163	163	180	760	1895	1337	350	500	135	130	718	753	230	2	1	1 1/4	200	180	3/4	390x1030	241/250	1100	0,20	8	5/10	455
186	186	206	760	1895	1337	350	500	135	130	718	753	230	2	1	1 1/4	200	180	3/4	390x1030	241/250	1100	0,25	14	5/10	455

(*) Data valid only for the Modal B model (**) DHW production from 15°C to 45°C (***) Pressure losses for a flow rate related to a Δt of 15K

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