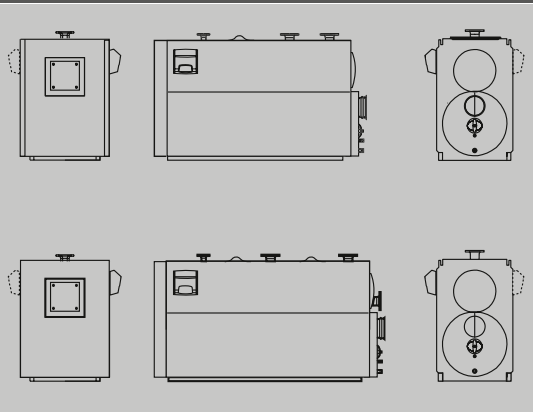
07/2020
27017544 - EN rev. 00

Tau N Oil Pro

Light oil condensing steel boilers with three passes

Compliant with Directive 2009/125/EC
Condensing stainless steel boilers with three passes with high water content that can be combined with gas, light oil and mixed gas-light oil burners
Suitable for operation with heating light oil according to UNI 6579 (sulphur content <1000 ppm)



RIELLO
Energy For Life

Tau N Oil Pro

PRODUCT DESCRIPTION

The boiler has been designed to operate with standard heating light oil with sulphur content < 1000 ppm thanks to the high quality austenitic and duplex stainless steel construction ensuring very high corrosion resistance.
The boiler design has been based on the principle of heat stratification: in the upper part of the body there is water at high temperature, while in the lower part, where condensation takes place, a high quantity of cold water remains to guarantee condensation.
The generator structure has been designed to contain thermal expansions.
Particular care has been taken in the thermal insulation of boiler body, panels and door, using high density mineral wool and ceramic fibre.
The control panel must be ordered separately.

- Low polluting emissions
- Low body average temperature and rapid set-up times
- Multiple system solutions thanks to the combination with the RIELLOtech control panels
- Integrated condensate drain
- Power band approval
- Also suitable for gas operation

TECHNICAL DATA

MODELS		U.M.	TAU N Oil PRO								
			115	150	210	270	350	450	600	800	1000
Material			STEEL	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL
Efficiency class			> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn
Supply fuel			Non-desulphurised light oil (S < 1000 ppm)						Methane/LPG		
Test ambient temperature		°C	20	20	20	20	20	20	20	20	20
Max. power (LCV)	Power band approval	kW	115.0	150.0	210.0	270.0	350.0	450.0	600.0	800.0	1,000.0
Min. power (max) (LCV)*		kW	80.0	111.0	151.0	211.0	271.0	351.0	451.0	601.0	801.0
Min. power (burner minimum)**		kW	77.7	90.0	90.0	173.0	191.0	190.0	190.0	223.0	332.0
Max. nominal power 80-60°C		kW	112.2	146.5	205.2	264.3	343.7	441.9	589.2	785.6	982.0
Min. nominal power 80-60°C (max.) *		kW	78.4	108.2	147.5	207.2	266.4	345.0	442.9	590.2	787.4
Min. nominal power 80-60°C (burner minimum)		kW	76.1	87.7	87.8	169.5	187.2	186.2	185.8	217.9	324.4
Max. nominal power 50-30°C		kW	119.6	156.0	218.2	280.3	361.9	465.3	620.4	827.2	1,034.0
Min. nominal power 50-30°C (max.) *		kW	83.5	115.8	157.4	219.7	281.2	364.2	467.9	623.5	831.0
Min. nominal power 50-30°C (burner minimum)		kW	81.3	94.1	94.0	180.4	198.5	197.5	197.5	231.8	345.1
30% thermal output with 30°C return		kW	33.7	43.9	61.6	79.3	103.1	132.6	176.8	235.7	294.6
Efficiency at max. power 80-60°C		%	97.6	97.6	97.7	97.9	98.2	98.2	98.2	98.2	98.2
Efficiency at min. power 80-60°C (max.) *		%	98.0	97.5	97.7	98.2	98.3	98.3	98.2	98.2	98.3
Efficiency at min. power 80-60°C (burner minimum) *		%	98.0	97.4	97.5	98.0	98.0	98.0	97.8	97.7	97.7
Efficiency at max. power 50-30°C		%	104.0	104.0	103.9	103.8	103.4	103.4	103.4	103.4	103.4
Efficiency at min. power 50-30°C (max.) *		%	104.4	104.4	104.3	104.1	103.8	103.8	103.8	103.8	103.8
Efficiency at min. power 50-30°C (burner minimum)		%	104.6	104.6	104.5	104.3	104.0	104.0	104.0	104.0	104.0
30 % working efficiency		%	104.8	104.7	104.6	104.4	104.1	104.1	104.1	104.1	104.1
Losses at chimney with burner off		%	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Losses at chimney with burner on max. power		%	1.7	1.7	1.7	1.5	1.5	1.9	1.9	1.9	1.9
Losses at chimney with burner on min. power		%	1.7	2.2	2.0	1.3	0.7	1.1	1.2	1.2	1.1
Heat losses at the appliance casing with average temperature of 70°C and burner on		%	0.3	0.3	0.3	0.5	1.0	0.6	0.6	0.6	0.6
Heat losses at the appliance casing with average temperature of 70°C and burner off		%	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Flue gas temperature at max P. and min P. 80-60°C		°C	75-65	75-65	75-65	75-65	75-65	75-65	75-65	75-65	75-65
Flue gas temperature at max P. and min P. 50-30°C		°C	45-40	45-40	45-40	45-40	45-40	45-40	45-40	45-40	45-40
Air excess at max. P			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Air excess at min. P			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Max-min flue gas mass airflow rate		kg/s	0.050 - 0.034	0.065 - 0.039	0.092 - 0.039	0.118 - 0.075	0.153 - 0.083	0.196 - 0.083	0.262 - 0.083	0.349 - 0.097	0.436 - 0.145
Flue gas residual head (Pmax - Pmin)		Pa	~ 50 Pa Pmax - ~ 50 Pa Pmin								

* The minimum powers indicate the minimum power setting level (power band approval); the minimum operating power depends on the burner installed. If necessary, ask for the nameplate of the boiler with the desired nominal power (as long as it is included within the approval band) when ordering
** Power ratings refer to the smallest LOW NOx burner available; for TAU 1000 N Oil Pro reference is made to RL 100/M. For further details please refer to the matching table available in the dedicated paragraph
NB: for performance related to gas operation, refer to the data sheets of TAU N - TAU NB - TAU N Premix products

MODELS	U.M.	TAU N Oil PRO								
		115	150	210	270	350	450	600	800	1000
Flue gas side pressure drops	mbar	2.2	2.0	2.7	3.2	4.6	5.0	5.5	5.7	6.3
Furnace volume	dm^3	172	172	172	241	279	442	496	753	845
Total volume on flue side	dm^3	246	272	292	413	482	737	860	1,290	1,454
Exchange surface	m^2	7.0	8.2	10.4	13.0	16.3	21.8	28.8	39.6	46.5
Volumetric thermal load (QMax)	kW/m^3	669	872	1,221	1,120	1,254	1,018	1,210	1,062	1,183
Specific thermal load	kW/m^2	16.4	18.3	20.2	20.8	21.5	20.6	20.8	20.2	21.5
NOx ***	mg/kWh	78	100	100	100	69	69	63	63	< 250
Maximum condensation production	l/h	11.0	18.4	27.4	31.9	40.9	52.2	73.8	88.0	111.4
Pressure drops on water side with ΔT 20°C	mbar	12.5	11.3	10.2	16.3	13.4	9.0	8.5	28.7	30.6
Pressure drops on water side with ΔT 10°C	mbar	50.0	43.2	36.0	54.0	46.4	33.8	30.2	128.7	121.5
Water content	l	375.0	360.0	323.0	495.0	555.0	743.0	770.0	1,320.0	1,395.0
Maximum operating pressure	bar	6.0								
Maximum allowed temperature	°C	110								
Maximum operating temperature	°C	95								
Boiler absorbed electric power at max. P	W	390	650	650	800	800	1650	2200	2600	2600
Boiler absorbed electric power at min. P	W	117	195	195	240	240	240	350	400	400
Pump absorbed electric power at max. P	W	---	---	---	---	---	---	---	---	---
Pump absorbed electric power at min. P	W	---	---	---	---	---	---	---	---	---
Flue gas drain diameter	mm	160	200	200	250	250	300	300	350	350
Boiler weight	kg	480	510	530	677	753	1095	1250	1870	2085
Panelling weight	kg	50	50	50	60	70	90	120	140	160
Category according to UNI 10642		B23 – B23P	B23 – B23P	B23 – B23P	B23 – B23P	B23 – B23P	B23 – B23P	B23 – B23P	B23 – B23P	B23 – B23P
Noise (Sound power)	dB(A)	80	82	82	83	87	87	89.5	89.5	88

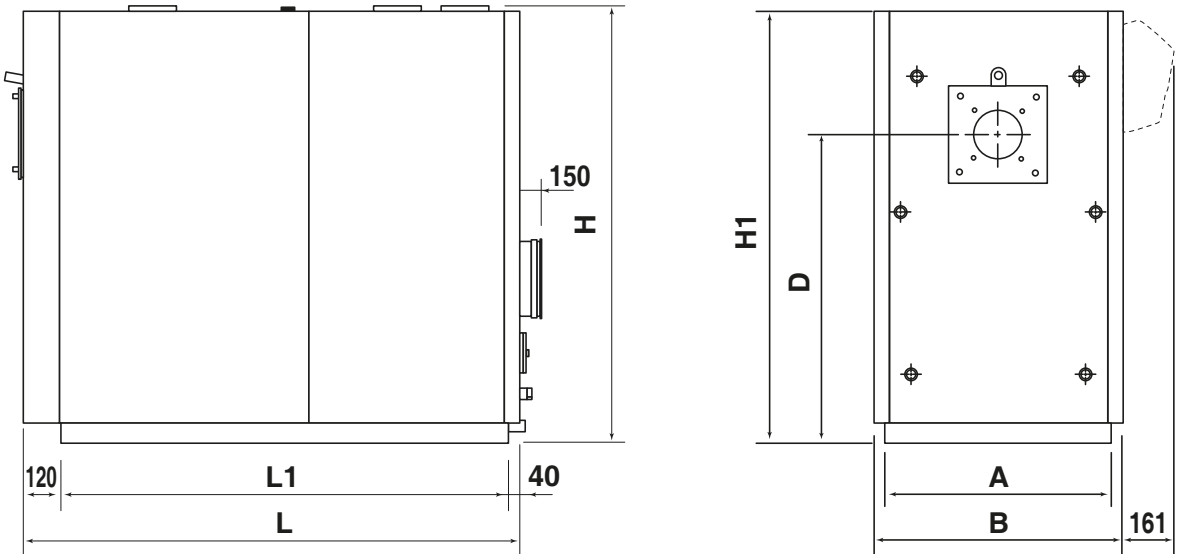
*** Maximum value measured according to EN267 and A.R. 8/1/2004 – 17/7/2009 Belgium

ERP TAU N OIL PRO TECHNICAL DATA

MODELS		U.M.	TAU N Oil PRO								
			115	150	210	270	350	450	600	800	1000
Room heating seasonal energy efficiency class			---	---	---	---	---	---	---	---	---
Water heating energy efficiency class			---	---	---	---	---	---	---	---	---
Nominal power	nominalP	kW	112	146	205	264	343	442	589	786	982
Room heating seasonal energy efficiency	ηs	%	94	93	94	94	94	93	93	93	93
DELIVERED THERMAL OUTPUT											
At nominal thermal output and at high temperature capacity	P4	kW	112.2	146.5	205.2	264.3	343.7	441.9	589.2	785.6	982.0
At 30% of nominal thermal output and at low temperature capacity	P1	kW	33.7	43.9	61.6	79.3	103.1	132.6	176.8	235.7	294.6
EFFICIENCY											
At nominal thermal output and at high temperature capacity	η4	%	92.0	92.0	92.1	92.3	92.6	92.6	92.6	92.6	92.6
At 30% of nominal thermal output and at low temperature capacity	η1	%	98.8	98.7	98.6	98.4	98.1	98.2	98.2	98.2	98.2
AUXILIARY ELECTRIC CONSUMPTION											
At full load	elmax	W	390	650	650	800	800	1650	2200	2600	2600
At partial load	elmin	W	117	195	195	240	240	240	350	400	400
In standby mode	PSB	W	20	20	20	20	20	20	20	20	20
OTHER PARAMETERS											
Thermal losses in Standby mode	Pstby	W	300.0	300	420	540	700	900	1200	1600	2000
Pilot flame energy consumption	Pign	W	---	---	---	---	---	---	---	---	---
Yearly energy consumption	QHE	GJ	---	---	---	---	---	---	---	---	---
Indoor sound power level	LWA	dB	80	82	82	83	87	87	89.5	89.5	88
Nitrogen oxide emissions *	NOx	mg/kWh	< 120	< 120	< 120	< 120	< 120	< 120	< 120	< 120	< 250
FOR COMBINED HEATING EQUIPMENT											
Declared load profile			---	---	---	---	---	---	---	---	---
Water heating energy efficiency	ηwh	%	---	---	---	---	---	---	---	---	---
Power daily consumption	Qelec	kWh	---	---	---	---	---	---	---	---	---
Fuel daily consumption	Qfuel	kWh	---	---	---	---	---	---	---	---	---
Power yearly consumption	AEC	kWh	---	---	---	---	---	---	---	---	---
Fuel yearly consumption	AFC	GJ	---	---	---	---	---	---	---	---	---

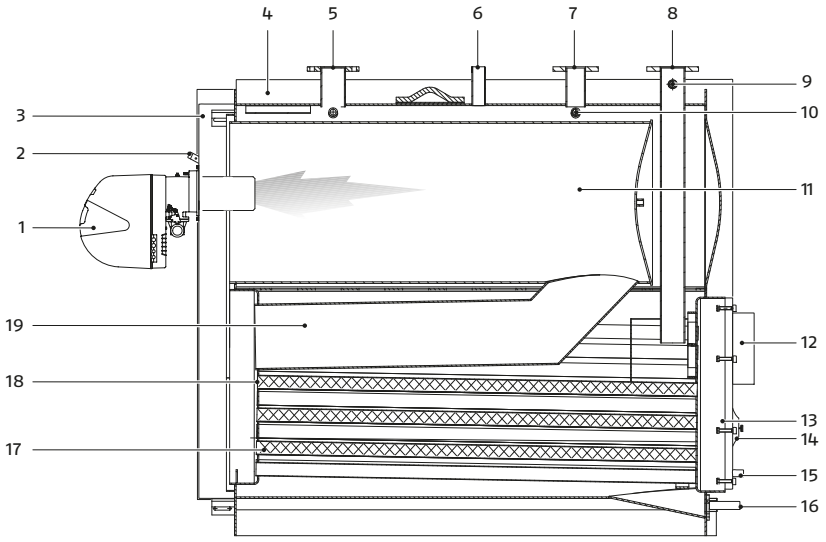
* Matching with BLUE (LOW NOx) flame burners; for TAU 1000 N Oil reference is made to RL 100/M (standard combustion). For further details please refer to the matching table available in the dedicated paragraph

OVERALL DIMENSIONS



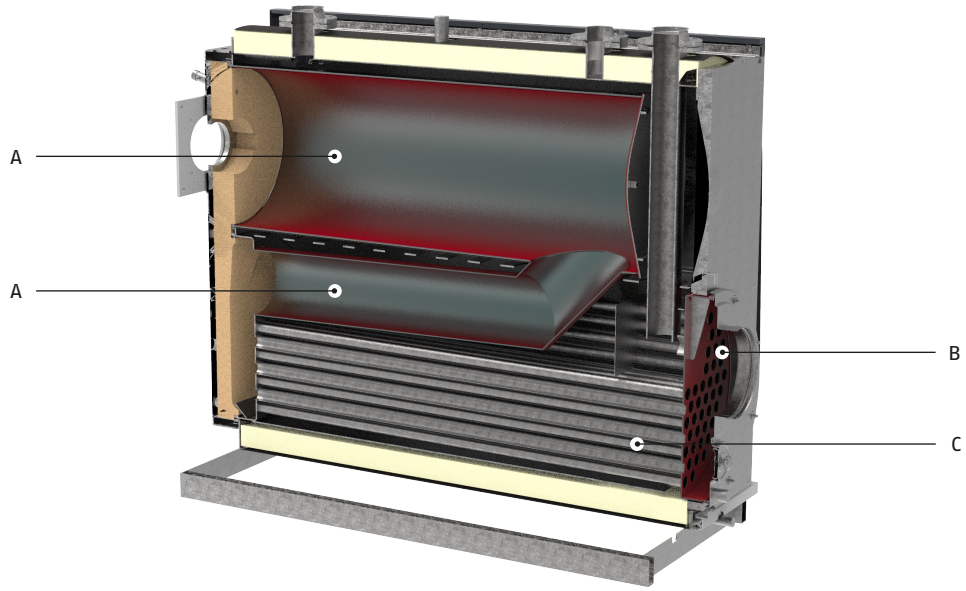
	MODELS	TAU N Oil PRO								
		115	150	210	270	350	450	600	800	1000
A – Passage width	mm	690	690	690	750	750	790	790	980	980
B – Width	mm	760	760	760	820	820	890	890	1080	1080
L – Length	mm	1455	1455	1455	1630	1830	2035	2235	2560	2810
L1 – Base length	mm	1295	1295	1295	1470	1670	1875	2075	2400	2650
H – Height of hydraulic connections	mm	1315	1315	1315	1450	1450	1630	1630	1910	1910
H1 – Boiler height	mm	1300	1300	1300	1437	1437	1615	1615	1900	1900
D – Burner axis	mm	925	925	925	1030	1030	1235	1235	1390	1390
Boiler weight	mm	480	510	530	677	753	1095	1250	1870	2085
Panelling weight	kg	50	50	50	60	70	90	120	140	160

STRUCTURE



1 Burner
2 Flame inspection window with pressure outlet
3 Door
4 Panels
5 Delivery line
6 Safety devices connection
7 System return line (high temp.)
8 System return line (low temp.)
9 Blind cap
10 Instrument bulb/probe pockets
11 Combustion chamber
12 Flue gas channel connector
13 Flue gas box
14 Inspection door
15 Condensate drain
16 Boiler drain
17 Turbulators
18 Flue gas pipes
19 Second pass

NOTE: In case the system uses only high temperature terminals, connect the return line of the system to the low temperature connection (8), so as to use the whole exchange surface."



A HIGH VOLUME AND SURFACE AREA COMBUSTION CHAMBER (1ST PASS) AND FLUE GAS INVERSION PIPE (2ND PASS)

Material used AISI 316Ti – EN 1.4571: titanium stabilised austenitic stainless steel, an element that avoids the precipitation of chromium carbides at temperatures between 450°C and 800°C and therefore ensures greater resistance to corrosion at such temperatures (in particular against pitting phenomena), typical of areas subject to welding, even in particularly reducing, highly saline environments etc

Dimensions: the large size of the combustion chamber (volume and exchange surface area) makes it possible to drastically reduce both the volumetric thermal load and the specific thermal load respectively and, therefore, the production of harmful emissions. The generously sized flame inversion tube reduces flue gas-side pressure drops, returning, where required, a high available head (approved for B23P)

"Through flame" design: allows you not to overheat flue gas and boiler plates, preventing the formation of "**Thermal NOx**"

B TUBE PLATES

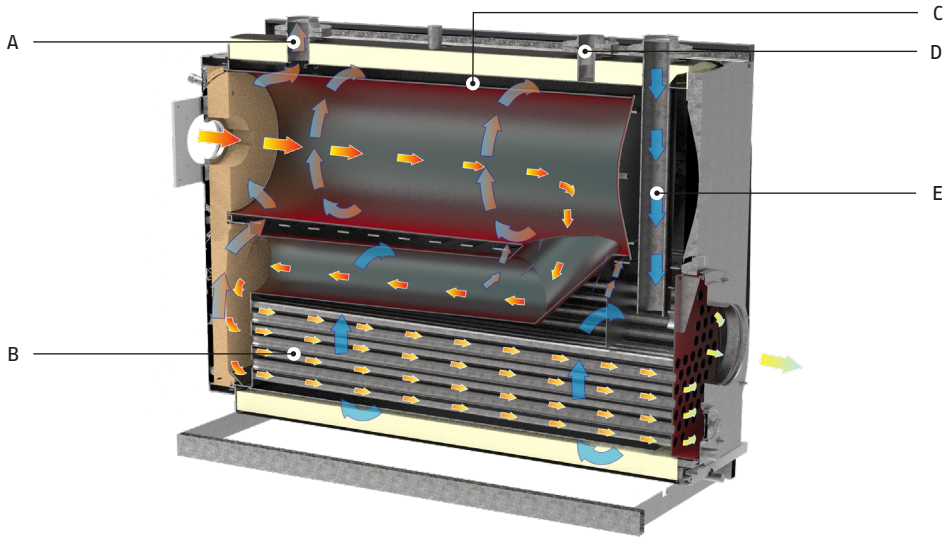
Material used AISI 904L – EN 1.4539: Ni-Cr-Mo-Cu austenitic super stainless steel, resistant to pitting, stress corrosion and crevice corrosion. This steel is used in reactors, distillation plants, pipes for the treatment of highly aggressive substances such as sulphuric, phosphoric, nitro-hydrochloric and acetic acids. High resistance in the presence of chlorine ions. Its corrosion resistance is superior to that of the 316L series with regard to all types of corrosion (pitting, crevice, intergranular, stress).

C FLUE GAS PIPES (3RD PASS)

Material used AISI 2205 – EN 1.4462: two-phase stainless steel, characterised by a microstructure consisting of austenitic matrix ferrite islands, present in equal volumetric percentage. This results in a steel with better mechanical properties than traditional stainless steel and better behaviour against pitting corrosion and stress corrosion. By way of example, compared to AISI 904L, AISI 22-05 can boast a higher yield strength of about 96%, a tensile strength of about 20%, a lower coefficient of linear expansion of about 16%, a higher Brinell hardness of about 17% and a higher thermal conductivity of about 25%, all to the advantage of the mechanical strength and efficiency of the boiler body.

This steel is used for bodies and parts of valves, pumps, centrifuges subjected to very severe corrosive conditions, in the chemical and petrochemical industry, in off-shore plants and in the energy industry, as it proves resistant to hot oxidation up to 1000°C. It is better than austenitic Cr-Ni types even in the presence of chlorides and especially when the corrosive conditions are combined with mechanical stress (stress-corrosion) typical of thermal expansion and mechanical stress in general. Its corrosion resistance is maximum in the solubilised state. The optimal range of use is in the temperature range between -50°C and 250°C, typical of the tube bundle of a boiler.

"Smooth tube" design: allows easy cleaning of the boiler, low pressure drops on flue gas side (high useful head - B23P) and "self-cleaning" effect.



A DELIVERY LINE

B LOW TEMPERATURE AREA

Condensation area characterised by:

- High water content
- High thermal inertia
- Low temperature increases to ensure optimal condensation

C HIGH TEMPERATURE AREA:

located in the immediate vicinity of the furnace, characterised by:

- Low water content
- Low thermal inertia

D 1ST RETURN LINE:

Dedicated to high-temperature systems: the return line flows around the combustion chamber and does not affect the low temperature area dedicated to maximizing condensation

This return line is to be used only in the presence of both low and high temperature systems at the same time.

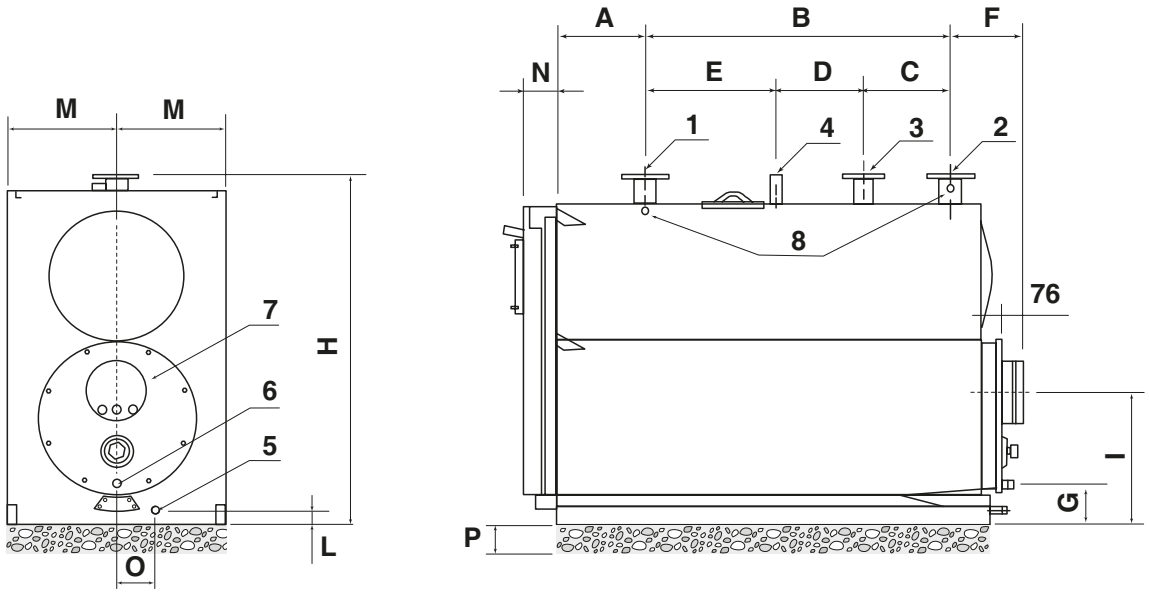
E 2ND RETURN LINE:

Dedicated to low temperature systems: the return line directly touches the end of the flue gas pipes working, therefore, on the whole available exchange surface. This return line is also used with high temperature systems when there is no area operating at low temperature

The useful effect of the two return lines is not to de-stratify the boiler body. A lower average body temperature enhances the phenomenon of condensation and therefore increases yields (higher condensation production means higher energy recovery from flue gas and, therefore, higher seasonal efficiency)

HYDRAULIC CONNECTIONS

TAU N OIL PRO steel boilers are designed and built to be installed on heating systems and also for the production of domestic hot water if connected to suitable systems. The characteristics of the hydraulic connections are shown in the table.



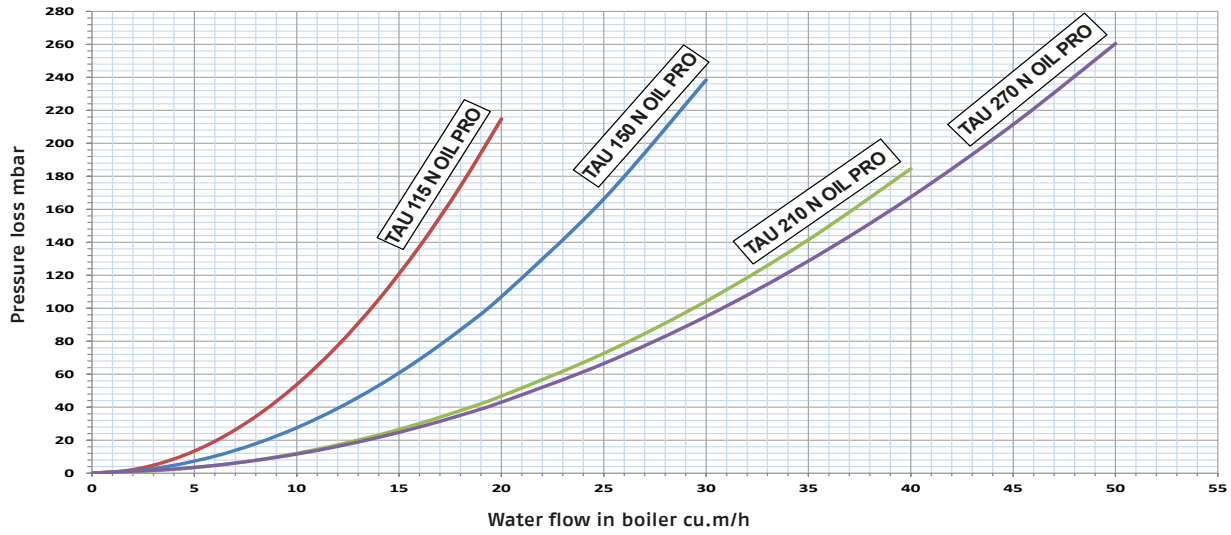
MODELS	U.M.	TAU N OIL PRO								
		115	150	210	270	350	450	600	800	1000
1 – System delivery line (*)	DN	65	65	65	65	80	100	100	125	125
2 – 1st Return line (Low Temperature) (*)	DN	65	65	65	65	80	100	100	125	125
3 – 2nd Return line (High Temperature) (*)	DN	50	50	50	50	65	80	80	80	80
4 – Safety Devices Connection	Ø "– DN	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/2	1" 1/2	80	80
5 – Boiler drain connection	Ø"	1"	1"	1"	1"	1"	1"	1"	1" 1/4	1" 1/4
6 – Condensation Drain Connection	Ø "– DN	1"	1"	1"	1"	1"	1" 1/4	1" 1/4	1" 1/4	1" 1/4
7 – Chimney Flue Gas Drain Connection	Ø mm	160	200	200	250	250	300	300	350	350
8 – Detection bulb/probe pocket	no. x Ø "	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"
A – Head/ Delivery line Distance	mm	300	300	300	300	315	311	311	410	410
B – 1st Delivery/return Distance	mm	885	885	885	1050	1235	1400	1600	1800	2050
C – 1st / 2nd Return Distance	mm	200	200	200	300	250	250	300	350	350
D – Distance between 2nd Return line and connections of Safety devices	mm	285	285	285	300	450	600	700	750	850
E – Distance between Delivery line and connections of Safety devices	mm	400	400	400	450	535	550	600	700	855
F – 1st Return line / Flue Gas Drain Distance	mm	200	200	200	225	225	270	270	325	325
G – Condensation Drain Height	mm	152	152	156	156	156	215	213	195	195
H – Height of Boiler Connections	mm	1340	1340	1340	1450	1450	1630	1630	1910	1910
I – Flue Gas Drain Height	mm	505	505	505	535	535	635	635	680	680
L – Boiler Drain Height	mm	60	60	60	60	60	82	82	86	86
M – Boiler Axis	mm	345	345	345	375	375	395	395	490	490
N – Head/ Door Distance	mm	110	110	110	120	120	125	125	125	125
O – Distance from Boiler Drain Axis	mm	132	132	132	137	137	125	125	175	175
P – Base	mm	100								

(*) All flanged connections are PN6 according to UNI EN 1092–1.

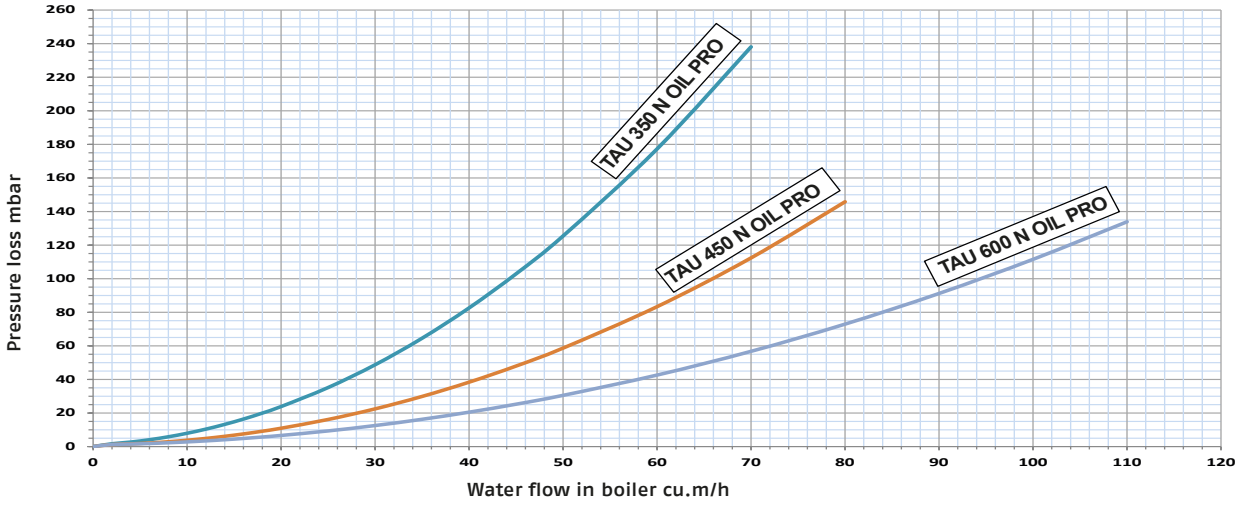
NOTE: In case the system uses only high temperature terminals, connect the return line of the system to the low temperature connection (3), so as to use the whole exchange surface.

HYDRAULIC CIRCUIT

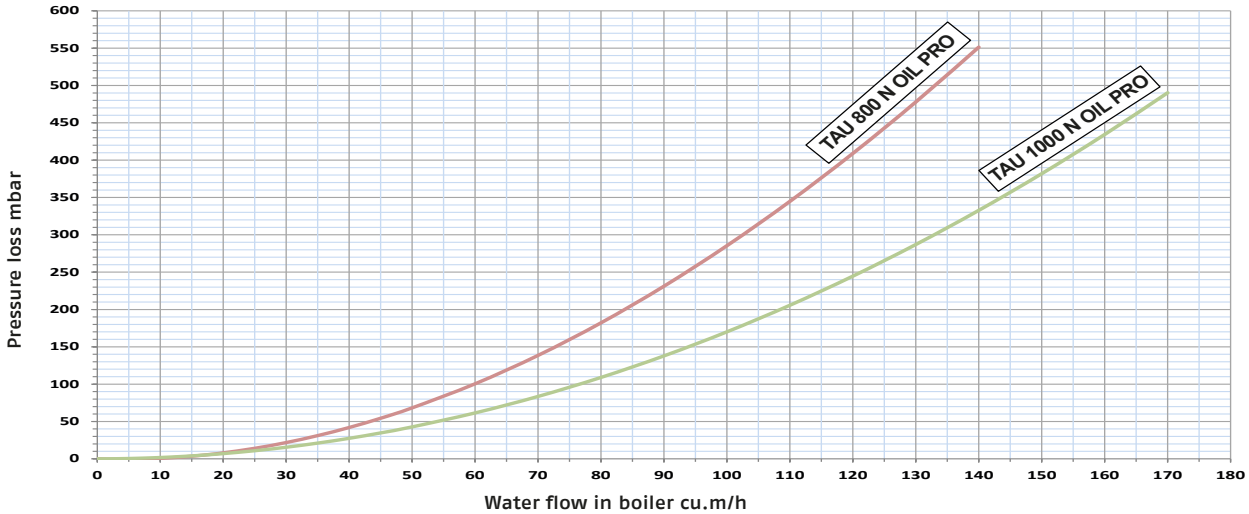
RIELLO TAU 115-270 N OIL PRO



RIELLO TAU 350-600 N OIL PRO



RIELLO TAU 800-1000 N OIL PRO



WATER TREATMENT

The treatment of the system water is a NECESSARY CONDITION for the good operation and the guarantee of duration over time of the heat generator and of all the components of the system. This applies not only when working on existing systems, but also in new installations. Sludge, limestone and contaminants present in the water can lead to irreversible damage to the heat generator, even in short periods of time and regardless of the quality of the materials used.
For additional information on the type and use of additives, please contact the Technical Service Department.

COMPLY WITH THE LEGISLATIVE PROVISIONS IN FORCE IN THE COUNTRY OF INSTALLATION.

CHEMICAL-PHYSICAL CHARACTERISTICS

The chemical and physical characteristics of the water must comply with the European Standard EN 14868 and the tables below:

STEEL GENERATORS with Furnace Power < 150 kW			
		First filling water	Steady state water (*)
ph		6-8	7.5-9.5
Hardness	°fH	< 10°	< 10°
Electric conductivity	µs/cm		< 150
Chlorides	mg/l		< 20
Sulphides	mg/l		< 20
Nitrides	mg/l		< 20
Iron	mg/l		< 0.5

STEEL GENERATORS with Furnace Power > 150 kW			
		First filling water	Steady state water (*)
ph		6-8	7.5-9.5
Hardness	°fH	< 5°	< 5°
Electric conductivity	µs/cm		< 100
Chlorides	mg/l		< 10
Sulphides	mg/l		< 10
Nitrides	mg/l		< 10
Iron	mg/l		< 0.5

(*) system water values after 8 weeks of operation

General note for topping up water:
- If softened water is used, it is mandatory to check again, 8 weeks after topping up, that the limits for steady state water and in particular the electric conductivity are respected;
- If purified water is used, no checks are required.

CORROSION FROM SUB-DEPOSIT

Corrosion from sub-deposit is an electrochemical phenomenon, due to the presence of sand, rust, etc. within the mass of water. These solid substances are generally deposited on the bottom of the boiler (sludge), on the tube heads and in the tube crevices. In these points micro-corrosion phenomena can occur due to the difference in electrochemical potential that is created between the material in contact with the impurities and the surrounding one.

CORROSION FROM STRAY CURRENTS

Corrosion from stray currents can occur due to different electrical potentials between the boiler water and the metal mass of the boiler or pipe. The phenomenon leaves unmistakable traces, i.e. small regular conical holes. The various metal components should therefore be grounded.

ELIMINATION OF AIR AND GASES IN HEATING SYSTEMS

The systems must always be separated if a continuous or intermittent oxygen injection occurs (e.g. underfloor heating systems without synthetic diffusion-proof plastic pipes, open-reservoir circuits, frequent top-ups).
Errors to avoid and precautions.
It is therefore important to avoid two factors that can lead to the mentioned phenomena, namely the contact between the air and the water of the system and the periodic reintegration of new water. To eliminate the contact between air and water (and avoid oxygenation of the latter), it is necessary that:
The expansion system is with closed reservoir, correctly sized and with the right pre-charge pressure (to be checked periodically);
The system is always at a pressure higher than atmospheric pressure at any point (including the suction side of the pump) and under any operating conditions (in a system, all hydraulic seals and joints are designed to withstand pressure to the outside, but not depression);
The system is not made of gas-permeable materials (e.g. plastic pipes for floor systems without an anti-oxygen barrier).
Finally, we would like to remind you that the faults suffered by the boiler, caused by encrustations and corrosion, are not covered by warranty.

HEATING SYSTEMS

Any top-up must not be carried out using an automatic loading system, but must be done manually and must be recorded in the control panel booklet. In case of several boilers, in the first period of operation they must all be operating simultaneously or with

a very low rotation time in order to evenly distribute the limited initial deposit of limestone. Once the system has been completed, proceed with a washing cycle to clean the system from any processing residues. The filling water and any water for topping up the system must always be filtered (filters with synthetic or metallic mesh with a filtering capacity not lower than 50 microns) to avoid deposits that can trigger the corrosion phenomenon from sub-deposit. Before filling existing installations, the heating system must be cleaned and washed to perfection. The boiler can only be filled after washing the heating system.

NEW HEATING SYSTEMS
The first load of the system must be done slowly; once filled and deaerated, the system should not be subjected to any more reintegration. During the first start-up, the system must be brought to the maximum operating temperature to facilitate deaeration (a temperature too low prevents the gas from escaping).

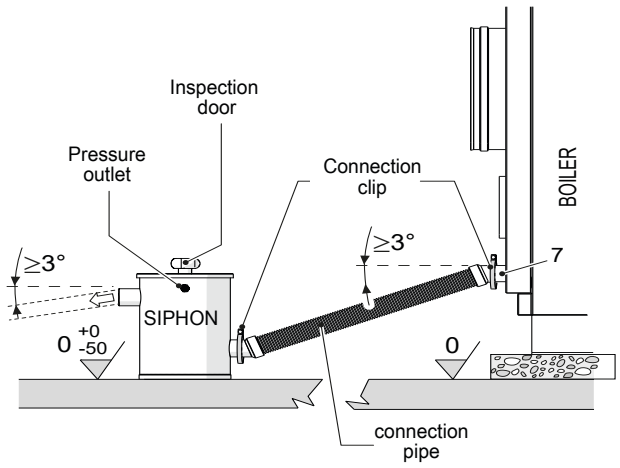
REQUALIFICATION OF OLD HEATING SYSTEMS
In case the boiler is replaced, if the quality of the water complies with the requirements in the existing systems, a new filling is not recommended. If the water quality does not comply with the requirements, water reconditioning or system separation is recommended (water quality requirements must be met in the boiler circuit).

CONDENSATE DRAIN

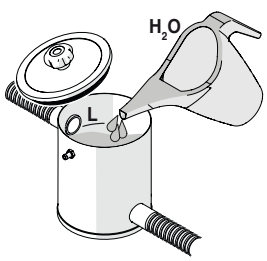
TAU N OIL PRO condensing boilers produce a flow of condensates depending on the operating conditions. The maximum hourly condensation flow produced is indicated for every single model in the technical data table.
The condensate drain system must be sized for this value and must not show diameters smaller than that of the boiler condensate drain (7) in any point.
To prevent the combustion products from escaping into the thermal room, the siphon supplied with the boiler must be inserted in the condensation drainage path. The connecting sections between boiler and siphon and between siphon and drain into the sewage system must have an inclination of at least 3° and have a shape such as to avoid any accumulation of condensation.
The siphon is equipped with a pressure outlet (G 1/8") where it is possible to connect a pipe for pressure equalization between the siphon and the flue.

⚠ Check and clean the condensate evacuation line every year.

⚠ Collecting to the sewage system must be carried out in accordance with current legislation and any local regulations.



⚠ Before commissioning, fill the siphon with water up to level "L" at the upper connection.

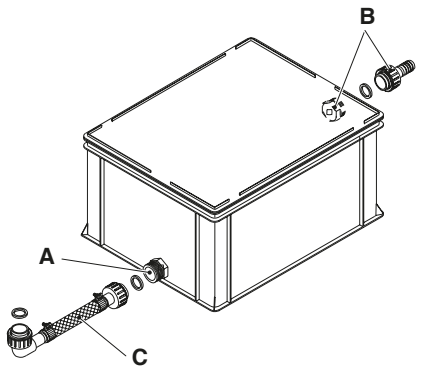


CONDENSATE NEUTRALISATION

NEUTRALISATION KIT TYPE N2-N3

The TYPE N2-N3 neutralization units have been designed for systems equipped with plant room condensate drain pocket lower than the boiler condensate drain.
These neutralisation units do not require electrical connections.

Type	UM	N2	N3
Maximum flow rate of neutralised condensate	l/h	54	180
Dimension (mm)	mm	420x300x240	640x400x240
Granulate quantity	kg	25	50
Couplings	Ø	1"	1" 1/2



The inlet connection (A) of the neutralisation unit (lower) must be connected to the condensate drain of the boiler with the delivery hose (C) supplied with the unit. This ensures that there is no leakage of combustion products through the condensate drain pipe of the boiler.

The outlet connection (B) of the neutralisation unit (higher) must be connected to the plant room condensate drain pocket with a hose (not supplied).

⚠ The condensate drain pocket of the plant room must be lower than the connection (B) of the neutralisation unit.

⚠ The connecting pipes used must be as short and straight as possible and resistant to corrosion. The curves and the bends favour the obstruction of the pipes that prevents the correct evacuation of the condensation.

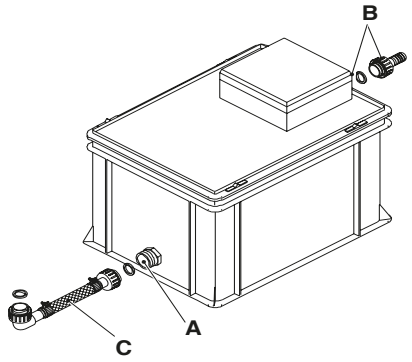
If it is necessary to neutralise the condensation produced in the chimney, it is advisable to connect the condensate drains of the boiler and the chimney with a Tee connection and then bring them to the inlet of the neutraliser

⚠ Tighten the hose clamps appropriately.

NEUTRALISATION UNIT TYPE HN2-HN3 (WITH PUMP)

The TYPE HN2 and HN3 neutralization units have been designed for systems equipped with plant room condensate drain pocket higher than the boiler condensate drain.
The maximum head that the pump can exceed is given by its maximum head less the resistance offered by the discharge pipe. The pump is controlled by a level electrical contact. This neutralisation unit does not require electrical connections
for which you have to refer to the specific instructions supplied with the appliance. The electrical protection level of electrical connections is IP54.

TYPE	UM	HN2	HN3
Absorbed electrical power	W	40	45
Power supply	V~Hz	230 ~ 50	230 ~ 50
Maximum flow rate of neutralised condensate	l/h	34	90
Dimensions	mm	420x300x290	640x400x320
Granulate quantity	kg	25	50
Maximum circulator head	m	6	4
couplings	Ø	1" - 5/8"	1" 1/2 - 5/8"



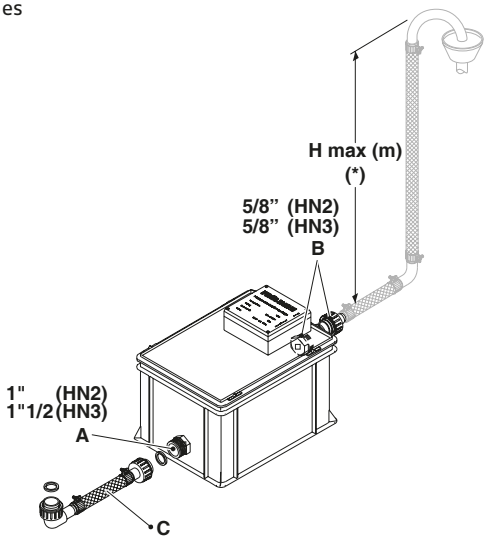
The inlet connection (A) of the neutralisation unit (lower) must be connected to the condensate drain of the boiler with the delivery hose (C) supplied with the unit. This ensures that there is no leakage of combustion products through the condensate drain pipe of the boiler.
The outlet connection (B) of the neutralisation unit (higher) must be connected to the plant room condensate drain pocket with a hose (not supplied).

⚠ The connecting pipes used must be as short and straight as possible and resistant to corrosion. The curves and the bends favour the obstruction of the pipes that prevents the correct evacuation of the condensation.

If it is necessary to neutralise the condensation produced in the chimney, it is advisable to connect the condensate drains of the boiler and the chimney with a Tee connection and then bring them to the inlet of the neutraliser.

⚠ Tighten the hose clamps appropriately.

⚠ It is also recommended to fix the pipes to the floor and protect them.

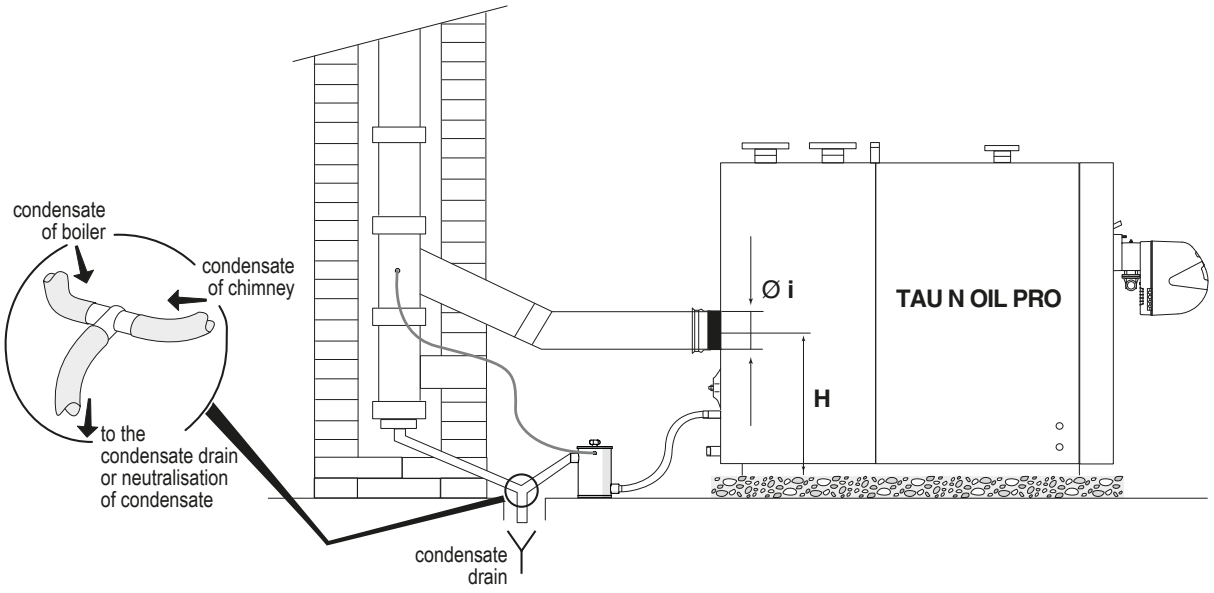


(*) The maximum head that the pump can exceed is given by its maximum head less the resistance offered by the discharge pipe.

COMBUSTION PRODUCT DRAIN

The flue gas channel and the flue connector must be made in compliance with the Standards and Regulations in force, with rigid ducts, resistant to condensate, suitable for the temperature of the combustion products, to mechanical stress and sealed.
The flue must be equipped with a condensate collection and discharge module and the flue gas channel must have a slope of at least 3° towards the boiler.

DIMENSIONS (mm)		TAU N OIL PRO								
		115	150	210	270	350	450	600	800	1000
H – Height of flue gas outlet	mm	515	515	515	545	545	645	645	680	680
i Ø Flue gas connection diameter	mm	160	200	200	250	250	300	300	350	350

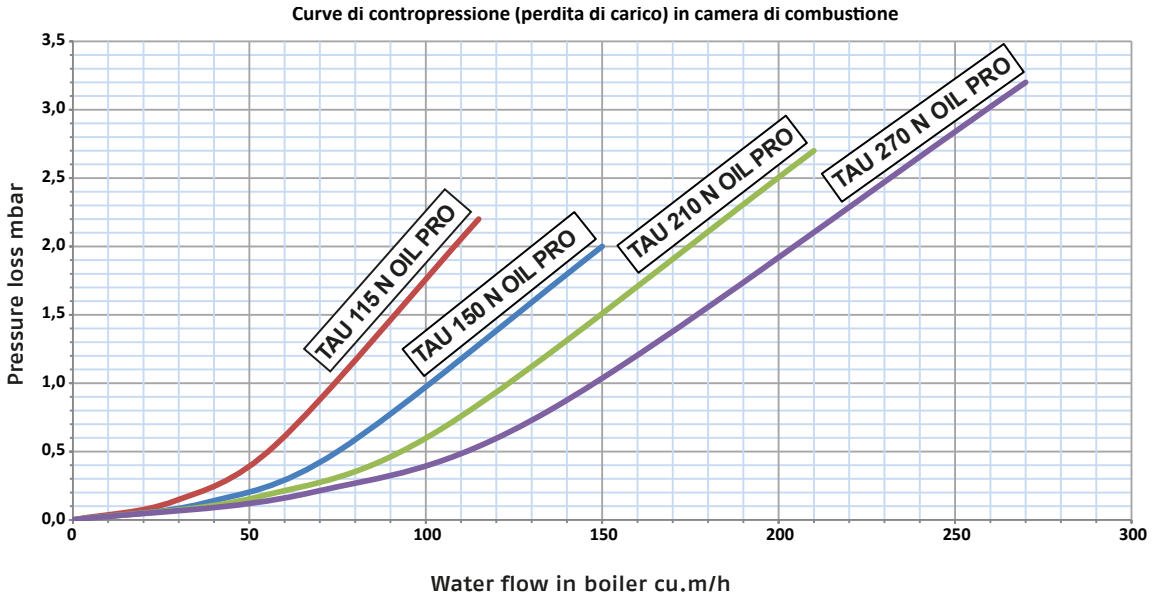


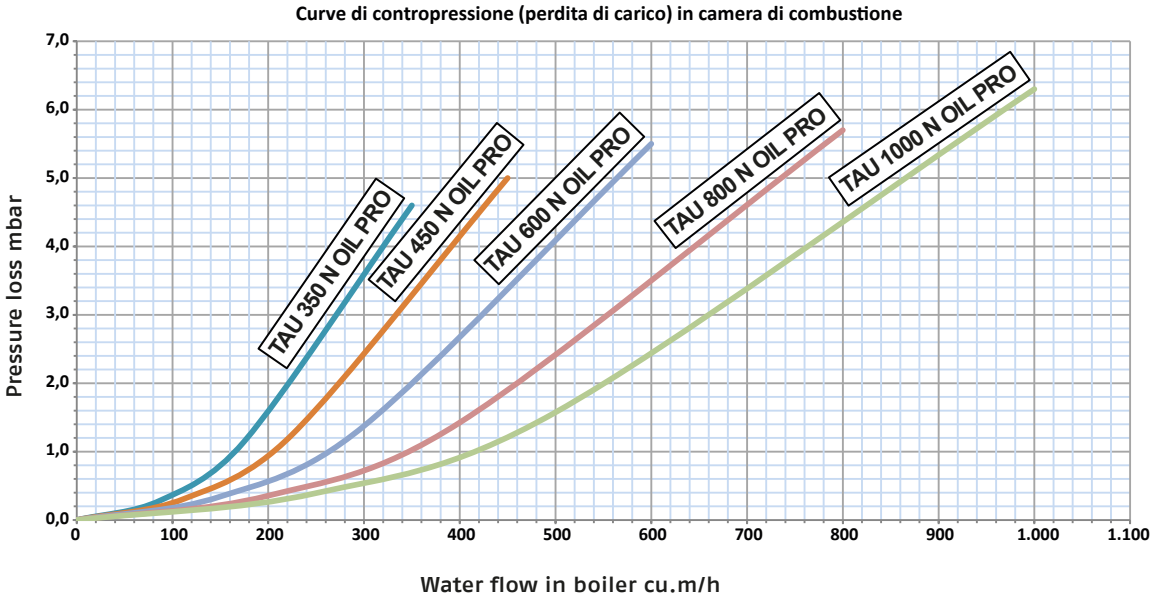
The flue must ensure the minimum depression required by the current Technical Standards, considering "zero" pressure to the connection with the flue gas channel.

Inadequate or poorly sized flues and flue gas channels can amplify the noise and negatively affect the combustion parameters.

Uninsulated exhaust pipes are a source of potential danger.
Use flue gas drain systems with a temperature class higher than 140°C.

COMBUSTION CHAMBER PRESSURE LOSSES





FIRING RATE ACCORDING TO AIR DENSITY

The burner firing rate specified in the manual applies for an ambient temperature of 20°C and an altitude of 0 m a.s.l. (barometric pressure of approx. 1013 mbar).
The burner may have to operate at a higher altitude and/or with combustion air at a higher temperature. Both air heating and increased altitude cause air volume expansion, i.e. air density is reduced. Burner fan flow rate remains basically the same but oxygen content per cu. m of air is reduced as well as the fan thrust (head). Therefore, it is important to know whether the maximum burner output required at a certain pressure in the combustion chamber remains within the burner firing rate also under different temperature and altitude conditions. To check this, proceed as follows:

1 find the correction factor F concerning air temperature and altitude for the system in Tab.F.
2 Divide output Q requested from the burner by F to obtain the equivalent output Qe:

Qe = Q : F (kW)

3 Within burner firing rate, mark the point identified by:
Qe = equivalent output
H1= pressure in combustion chamber
point A that must remain within the firing rate.
4 Draw a vertical line from point A (Fig.3) of the graph, and calculate the maximum pressure H2 of the firing rate.
5 Multiply H2 by F to obtain the reduced maximum pressure H3 of the firing rate:

H3 = H2 x F (mbar)

If H3 is higher than H1, the burner can output the requested flow rate.
If H3 is lower than H1, burner output must be reduced. Output reduction is also combined with a reduction of the pressure in the combustion chamber:
Qr = reduced output
H1r = reduced pressure

$$H1r = H1 \times \left(\frac{Qr}{Q}\right)^2$$

Example, 5% output reduction:
Qr = Q x 0.95
H1r = H1 x $(0.95)^2$
Using the new Qr and H1r values, repeat steps 2 – 5

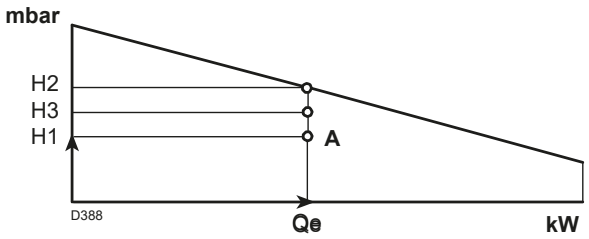


Fig. 3

⚠ The combustion head must be adjusted according to equivalent output Qe

ALTITUDE	AVERAGE BAROMETRIC PRESSURE	F AIR TEMPERATURE °C							
m a.s.l.	mbar	0	5	10	15	20	25	30	40
0	1013	1.087	1.068	1.049	1.031	1.013	0.996	0.980	0.948
100	1000	1.073	1.054	1.035	1.017	1.000	0.983	0.967	0.936
200	989	1.061	1.042	1.024	1.006	0.989	0.972	0.956	0.926
300	978	1.050	1.031	1.013	0.995	0.978	0.962	0.946	0.916
400	966	1.037	1.018	1.000	0.983	0.966	0.950	0.934	0.904
500	955	1.025	1.007	0.989	0.972	0.955	0.939	0.923	0.894
600	944	1.013	0.995	0.977	0.960	0.944	0.928	0.913	0.884
700	932	1.000	0.982	0.965	0.948	0.932	0.916	0.901	0.872
800	921	0.988	0.971	0.954	0.937	0.921	0.906	0.891	0.862
900	910	0.977	0.959	0.942	0.926	0.910	0.895	0.880	0.852
1000	898	0.964	0.946	0.930	0.914	0.898	0.883	0.868	0.841
1200	878	0.942	0.925	0.909	0.893	0.878	0.863	0.849	0.822
1400	856	0.919	0.902	0.886	0.871	0.856	0.842	0.828	0.801
1600	836	0.897	0.881	0.866	0.851	0.836	0.822	0.808	0.783
1800	815	0.875	0.859	0.844	0.829	0.815	0.801	0.788	0.763
2000	794	0.852	0.837	0.822	0.808	0.794	0.781	0.768	0.743
2400	755	0.810	0.796	0.782	0.768	0.755	0.742	0.730	0.707
2800	714	0.766	0.753	0.739	0.726	0.714	0.702	0.690	0.668
3200	675	0.724	0.711	0.699	0.687	0.675	0.664	0.653	0.632
3600	635	0.682	0.669	0.657	0.646	0.635	0.624	0.614	0.594
4000	616	0.661	0.649	0.638	0.627	0.616	0.606	0.596	0.577

Tab. F

BURNERS

MATCHING BURNERS

Matchings are valid for an altitude of 0 m a.s.l. For different altitudes matching is to be checked. The recommended burners to obtain the best performance of TAU N OIL PRO boilers are:

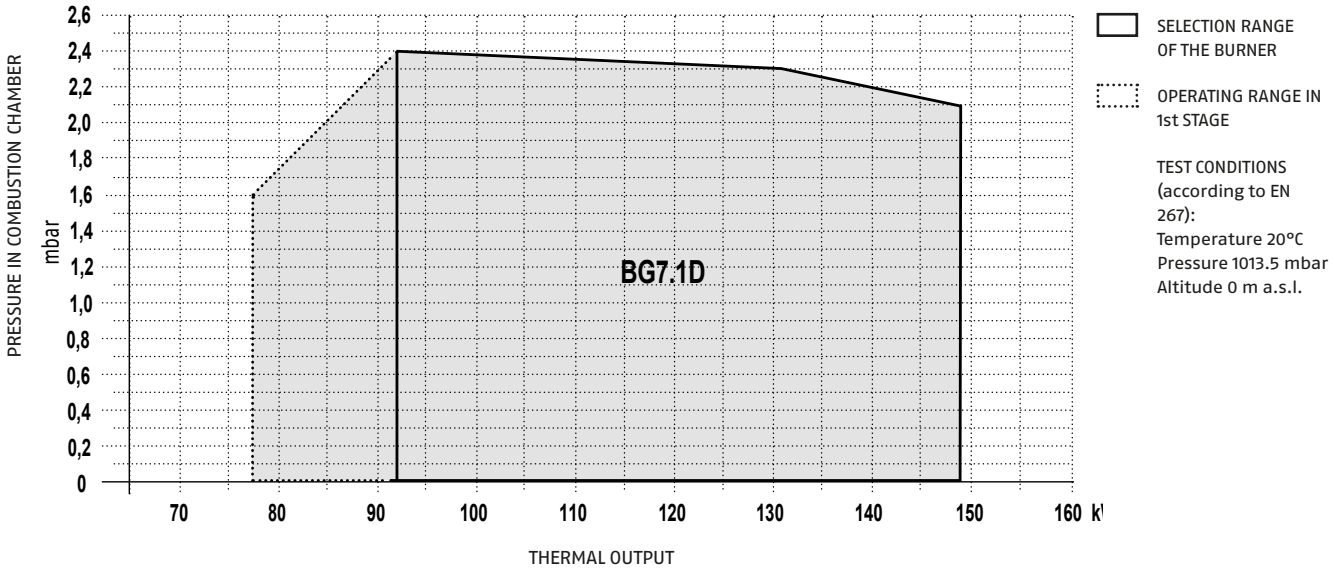
BURNER MODEL			MODEL	TAU N Oil PRO								
				115	150	210	270	350	450	600	800	1000
Light oil	Low NOx	Two-stage	GULLIVER BG7.1D	x(*)								
			RL 25 BLU		x (*)	x (*)						
			RL 35 BLU			x	x (*)					
			RL 42 BLU					x (*)	x			
		Modulating	RL 55/M BLU						x	x		
			RL 85/M BLU							x	x (**)	
	Standard	Two-stage	RL 100 TC								x	x
		Modulating	RL 100/M TC								x	x
Mixed gas/ light oil	Standard ***	Two-stage	RLS 100								x (**)	x (**)
	Low NOx ****	Modulating	RLS 120/M MX TC								x (**)	x (**)

* Reference burner used during performance qualification tests to obtain the declared technical data.
** The correct burner holder plate must be provided as an accessory (refer to the current price list/catalogue).
*** Standard pollutant emissions burner, below Class 1 according to EN 676 for gaseous fuels (NOx less than 170 mg/kWh) and Class 1 according to EN 267 for gaseous fuels (NOx less than 250 mg/kWh).
**** Low polluting emission burner, below Class 3 according to EN 676 for gaseous fuels (NOx below 80 mg/kWh) and Class 2 according to EN 267 for gaseous fuels (NOx below 185 mg/kWh)

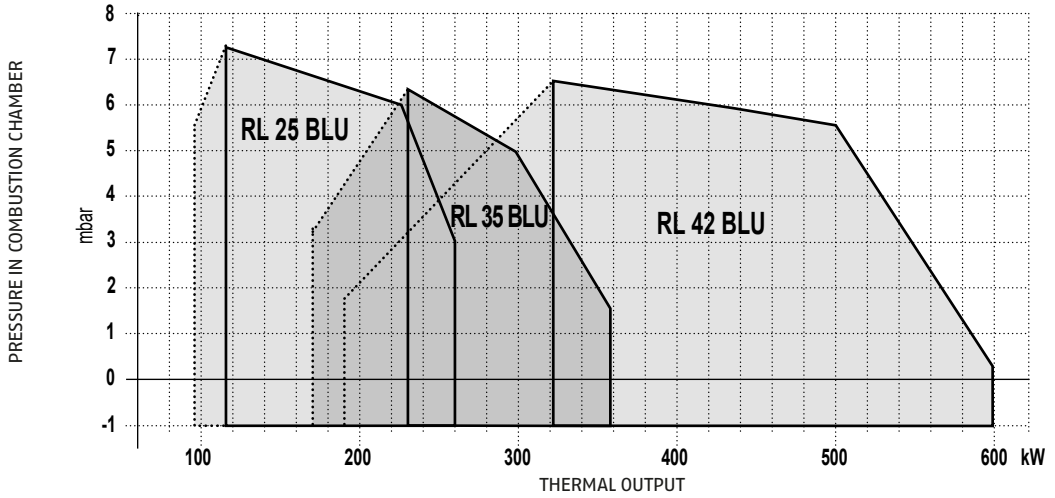
Refer to the instruction manual supplied with the burner chosen for:
- Installing the burner
- Electrical connections
- The necessary adjustments.

FIRING RATES

GULLIVER BG7.1D



RL 25-35-42 BLU

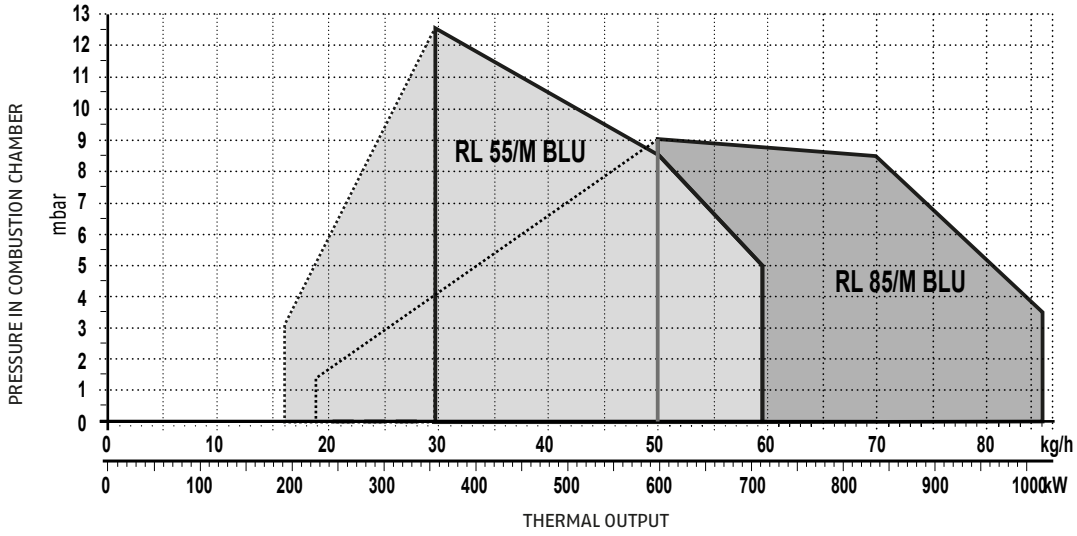


SELECTION RANGE OF THE BURNER

OPERATING RANGE IN 1st STAGE

TEST CONDITIONS (according to EN 267):
Temperature 20°C
Pressure 1013.5 mbar
Altitude 0 m a.s.l.

RL 55-85/M BLU

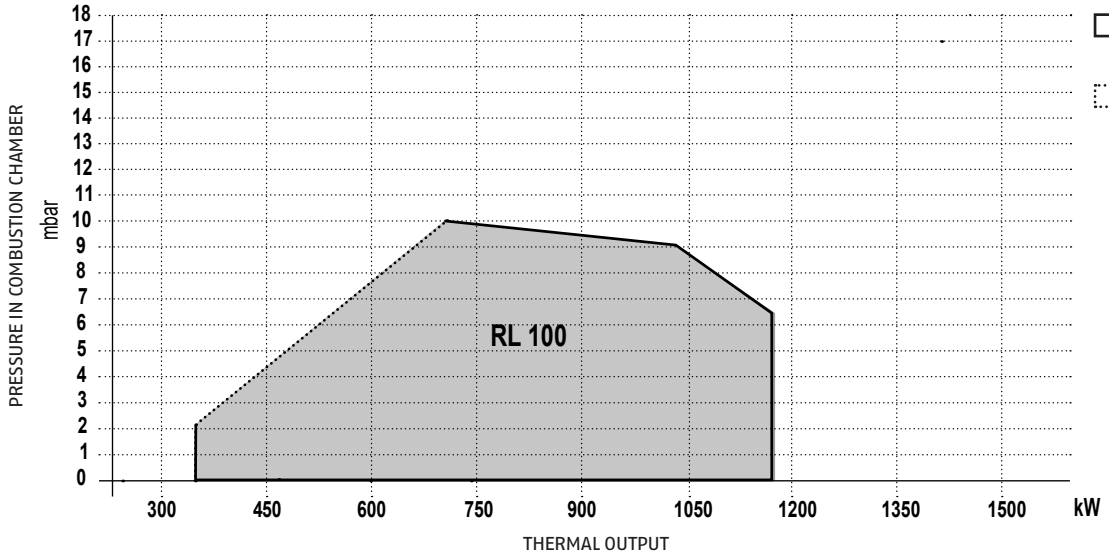


SELECTION RANGE OF THE BURNER

RANGE OF MODULATION

TEST CONDITIONS (according to EN 267):
Temperature 20°C
Pressure 1013.5 mbar
Altitude 0 m a.s.l.

RL 100

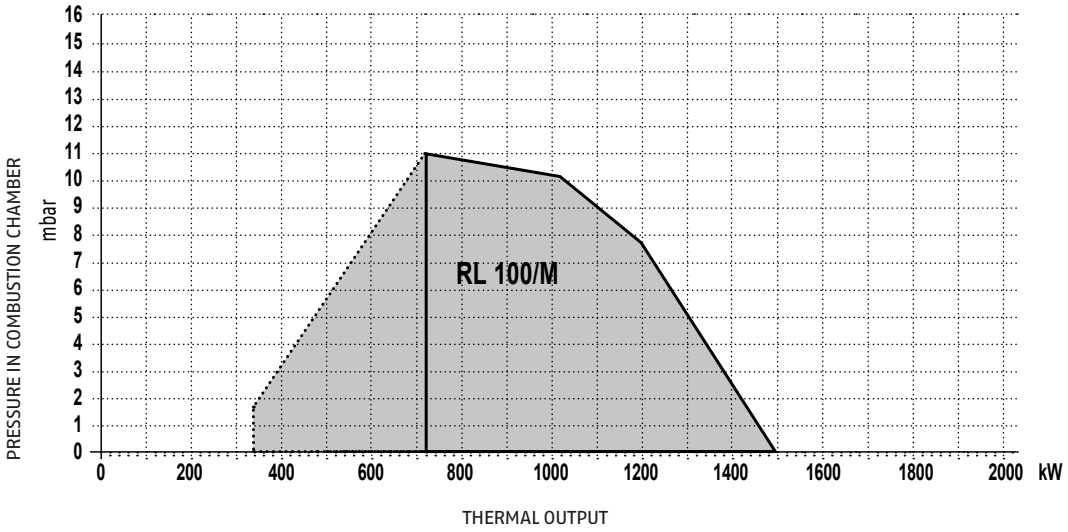


SELECTION RANGE OF THE BURNER

RANGE OF MODULATION

TEST CONDITIONS (according to EN 267):
Temperature 20°C
Pressure 1013.5 mbar
Altitude 0 m a.s.l.

RL 100/M

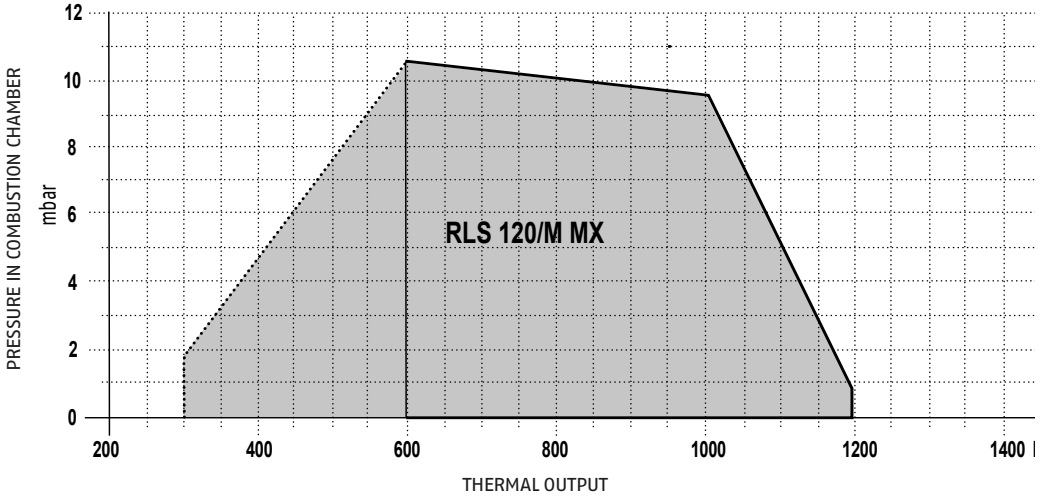


SELECTION RANGE OF THE BURNER

RANGE OF MODULATION

TEST CONDITIONS (according to EN 267):
Temperature 20°C
Pressure 1013.5 mbar
Altitude 0 m a.s.l.

RL 120/M MX

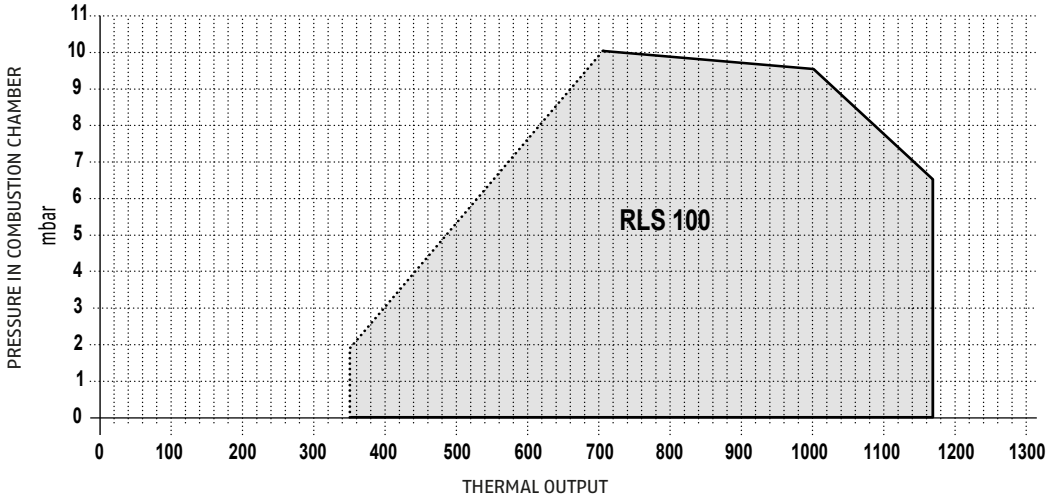


SELECTION RANGE OF THE BURNER

MODULATION OR 1st STAGE OPERATING RANGE

TEST CONDITIONS (according to EN 267 –EN 676):
Temperature 20°C
Pressure 1013.5 mbar
Altitude 0 m a.s.l.

RLS 100



SELECTION RANGE OF THE BURNER

RANGE OF OPERATION IN 1st STAGE

TEST CONDITIONS (according to EN 267 –EN 676):
Temperature 20°C
Pressure 1013.5 mbar
Altitude 0 m a.s.l.

LOW NOX LIGHT OIL BURNERS
TECHNICAL DATA

MODEL		GULLIVER BG7.1D	RL 25 BLU	RL 35 BLU	RL 42 BLU	RL 55/M	RL 85/M
FUEL							
Fuel		Light oil					
Lower calorific value (Icv)	kWh/kg	11.86					
Density	kg/dm3	0.82 - 0.85					
Viscosity at 20°c	mm²/s	4 ÷ 6 (1.5 °E - 6 cSt)					
Operation		FS1 (intermittent, min. 1 stop every 24 hours) Two-stage Single-stage				FS1 (intermittent, min 1 stop every 24 hours) Modulating (with dedicated kit) Progressive two-stage	
EMISSIONS							
Class *		3 (< NOX 120 MG/KWH)					
NOx max **	mg/kWh	78	100	100	69	63	61
Max point NOx (firing range)	mg/kWh	112	85	100	-	98	105
Min point NOx (firing range)	mg/kWh	112	103	92	-	87	82
Max. CO **	mg/kWh	1	10	12	5	0	0
TECHNICAL DATA (**)							
Max power/output	kW	92.0 ÷ 149.5	115.0 ÷ 260.0	230.0 ÷ 355.0	323.0 ÷ 598.0	356.0 ÷ 712.0	594.0 ÷ 1023.0
	kg/h	7.7 ÷ 12.5	10.0 ÷ 22.0	19.0 ÷ 30.0	27.0 ÷ 50.3	30.0 ÷ 60.0	50.0 ÷ 86.2
Min power/output	kW	77.7 ÷ 92.0	90.0 ÷ 115.0	173.0 ÷ 230.0	191.0 ÷ 311.0	190.0 ÷ 356.0	223.0 ÷ 594
	kg/h	6.5 ÷ 7.7	8.0 ÷ 10.0	15.0 ÷ 19.0	16.0 ÷ 26.2	16.0 ÷ 30.0	18.8 ÷ 50.0
Ambient temperature (firing range)	°C	0 ÷ 40					
Combustion air temperature (max. permitted)	°C	40	60	60	60	60	60
Number of nozzles		1	1	1	1	1 (with return line)	1 (with return line)
Light oil pump	bar	8 ÷ 15	8 ÷ 25		4 ÷ 25	10 ÷ 21	
	kg/h (12 bar)	30	45		60	163	
Fuel temperature (max. permitted)	°C	50	60	60	60	90	90
Electrical power supply	V/Hz	1N 230 V (± 10%) - 50 HZ	1N 230 V (± 10%) - 50 ÷ 60 Hz		3N 230 ÷ 400 V - 50 Hz	3N 230 ÷ 400 V (± 10%) - 50 Hz	
	A (max P)	1.85	2.20	2.65	2.50 ÷ 4.30	3.50 ÷ 6.10	4.60 ÷ 7.90
	W (max P)	470	600	760	1650	2200	2600
Electrical protection level	IP	IP40	IP54	IP54	IP44	IP44	IP44
Weight (gross+packaging)	kg	20	40	41	42	65	70
MAXIMUM NOISE (****)							
Sound power level (lw)	dB(A)	80	82	83	87	89.5	89.5
Sound pressure level (lp)	dB(A)	69	71	72	76	78.5	78.5

(*) The weighted average emission values are measured according to EN 267 on test tubes (Class 3)
(**) Maximum values are measured according to EN 267 and A.R. 8/1/2004 - 17/7/2009 Belgium
(***) Reference conditions:
- Gulliver BG7.1D: ambient temperature 20°C - barometric pressure 1013 mbar - altitude 0 m a.s.l.
- Other burners: ambient temperature 20°C - barometric pressure 1000 mbar - altitude 100 m a.s.l.

(****) Sound pressure measured in manufacturer's combustion laboratory, with burner operating on test boiler, at maximum output and at a distance of 1 m.

The sound power is measured using the "Free Field" method, required by the EN 15036 standard, and according to an "Accuracy: Category 3" measurement, as described in EN ISO 3746.

STANDARD LIGHT OIL BURNERS
TECHNICAL DATA

MODEL		RL 100	RL 100/M
FUEL			
Fuel		Light oil	
Lower calorific value (LCV)	kWh/kg	11.86	
Density	kg/dm³	0.82 – 0.85	
Viscosity at 20°C	mm²/s	4 ÷ 6 (1.5 °E – 6 cSt)	
Operation		FS1 (intermittent, min. 1 stop every 24 hours) Two-stage Single-stage	FS1 (intermittent, min 1 stop every 24 hours) Modulating (with dedicated kit) Progressive two-stage
EMISSIONS			
Class (*)		1 (< NOx 250 mg/kWh)	
Max. NOx (**)	mg/kWh	< 250	< 250
Max. CO (**)	mg/kWh	< 100	< 100
TECHNICAL DATA (**)			
Max power/output	kW	711.0 ÷ 1186.0	711.0 ÷ 1482.0
	kg/h	60.0 ÷ 100.0	60.0 ÷ 125.0
Min power/output	kW	356.0 ÷ 711.0	332.0 ÷ 711.0
	kg/h	30.0 ÷ 60.0	28.0 ÷ 60.0
Ambient temperature (firing range)	°C	0 ÷ 40	
Combustion air temperature (max. permitted)	°C	60	
Number of nozzles		2	1 (with return)
Light oil pump	bar	10 ÷ 20	10 ÷ 21
	kg/h (12 bar)	220	190
Fuel temperature (max. permitted)	°C		60
Electrical power supply	V/Hz	3N 230 ÷ 400 V (± 10%) – 50 Hz	
	A (max P)	3.40 ÷ 5.40	4.00 ÷ 6.90
	W (max P)	2500	2600
Electrical protection level	IP	IP44	IP44
Weight (gross+packaging)	kg	63	68
MAXIMUM NOISE (****)			
Sound power level (Lw)	dB(A)	88	88
Sound pressure level (Lp)	dB(A)	77	77

(*) The weighted average emission values are measured according to EN 267 on test tubes (Class 1)
(**) Maximum values are measured according to EN 267 and A.R.8/1/2004 – 17/7/2009 Belgium
(***) Reference conditions: ambient temperature 20°C – barometric pressure 1000 mbar – altitude 100 m a.s.l.
(****) Sound pressure measured in manufacturer's combustion laboratory, with burner operating on test boiler, at maximum output and at a distance of 1 m.

The sound power is measured using the "Free Field" method, required by the EN 15036 standard, and according to an "Accuracy: Category 3" measurement, as described in EN ISO 3746.

MIXED GAS/LIGHT OIL BURNERS
TECHNICAL DATA

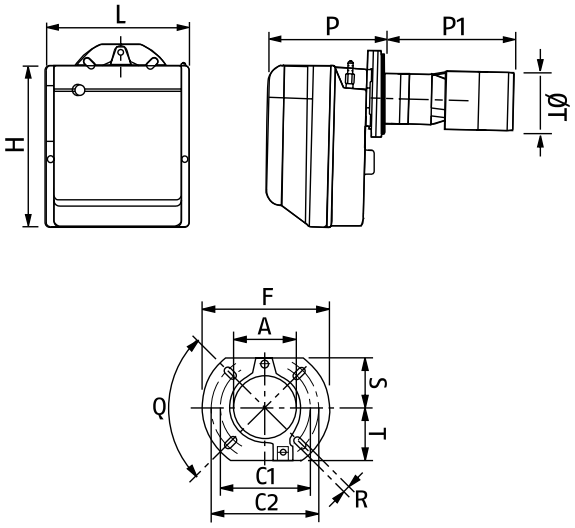
MODEL		RLS 100	RLS 120/M MX
FUEL			
Fuel		Natural gas – LPG (G20 – G25 – G31) Light oil max viscosity at 20°C = 6 mm2/s (1.5 °E – 6 cSt)	Natural gas – LPG (G20 – G21 – G23 – G25) Light oil max viscosity at 20°C = 6 mm2/s (1.5 °E – 6 cSt)
Operation		FS1 (intermittent, min. 1 stop every 24 hours) Two-stage Single-stage	FS1 (intermittent, min. 1 stop every 24 hours) FS2 (continuous) Modulating gas only (with dedicated kit) Progressive two-stage Single-stage
EMISSIONS			
Class *		Light oil: 1 (< NOx 250 mg/kWh) Gas: 1 (< NOx 170 mg/kWh)	Light oil: 2 (< NOx 185 mg/kWh) Gas: 3 (< NOx 80 mg/kWh)
NOx max **	mg/kWh	Light oil: < 250 Gas: < 170	Light oil: 130 Gas: < 64
Max. CO **	mg/kWh	Gas/Light oil: < 100	Light oil: 6 Gas: 7
TECHNICAL DATA (**)			
Max power/output	kW (gas/light oil)	698.0 ÷ 1163.0	600.0 ÷ 1200.0
	kg/h (light oil)	59.0 ÷ 98.0	50.0 ÷ 101.0
Min power/output	kW (gas/light oil)	349.0 ÷ 698.0	300.0 ÷ 600.0
	kg/h (light oil)	29.5 ÷ 59.0	25.0 ÷ 50.0
Ambient temperature (firing range)	°C	0 ÷ 40	
Combustion air temperature (max. permitted)	°C	60	
Number of nozzles		2	2
Light oil pump	bar	10 ÷ 20	10 ÷ 20
	kg/h (12 bar)	220	220
Fuel temperature (max. permitted)	°C	60	
Electrical power supply	Main V/Hz	3N 230 ÷ 400 V (± 10%) – 50 Hz	
	Main V/Hz	1N 230 – 50 Hz	1N 230 (± 10%) – 50 Hz
	A (light oil max P)	7.00 ÷ 9.10	8.20 ÷ 11.60
	W (light oil max P)	2880	2750
	A (gas max P)	3.40 ÷ 5.50	4.6 ÷ 8.0
	W (gas max P)	2280	2200
Electrical protection level	IP	IP44	IP44
Weight (gross+packaging)	kg	78	120
MAXIMUM NOISE (****)			
Sound power level (Lw)	dB(A)	88.5	90
Sound pressure level (Lp)	dB(A)	77.5	79

(*) The weighted average emission values are measured according to EN 267 (for light oil) and according to EN676 (for gas) on test tubes
(**) Maximum values are measured according to EN 267 and A.R.8/1/2004 – 17/7/2009 Belgium
(***) Reference conditions:
– RLS 100: ambient temperature 20°C – gas temperature 15°C – barometric pressure 1000 mbar – altitude 0 m a.s.l.
– RLS 120/M MX: ambient temperature 20°C – gas temperature 15°C – barometric pressure 1000 mbar – altitude 100 m a.s.l.
(****) Sound pressure measured in manufacturer's combustion laboratory, with burner operating on test boiler, at maximum output and at a distance of 1 m.

The sound power is measured using the "Free Field" method, required by the EN 15036 standard, and according to an "Accuracy: Category 3" measurement, as described in EN ISO 3746.

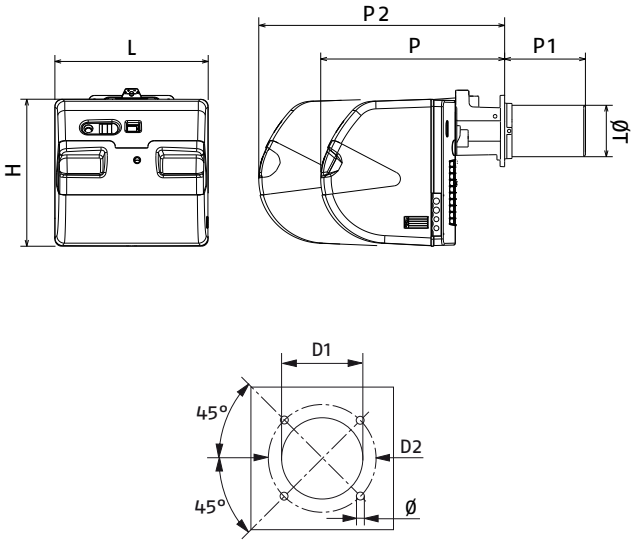
OVERALL DIMENSIONS

GULLIVER BG7.1D



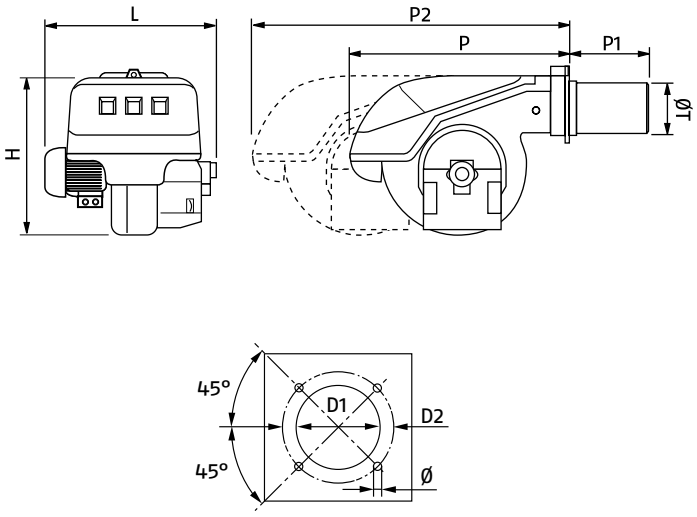
REF	UM	GULLIVER BG7.1D
H	mm	345
L	mm	300
P	mm	247
P1	mm	394
ØT	mm	165
Q	°	90°
F	mm	213
A	mm	127
S	mm	99
T	mm	99
C1	mm	160
C2	mm	190
R	mm	11

RL 25-35-42 BLU



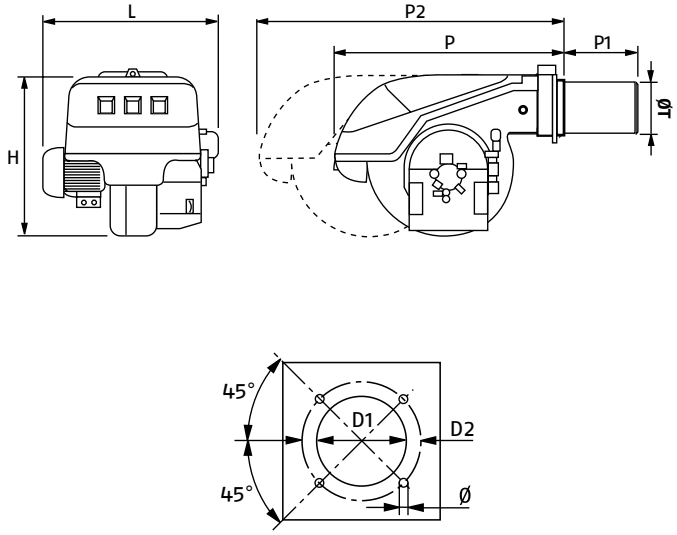
REF	UM	RL 25 BLU	RL 35 BLU	RL 42 BLU
H	mm	416	416	490
L	mm	442	442	533
P	mm	508	508	690
P1	mm	200	218	291
P2	mm	788	788	-
ØT	mm	140	140	163
D1	mm	160	160	185
D2	mm	224	224	275-325
Ø	-	M8	M8	M12

RL 55-85/M BLU



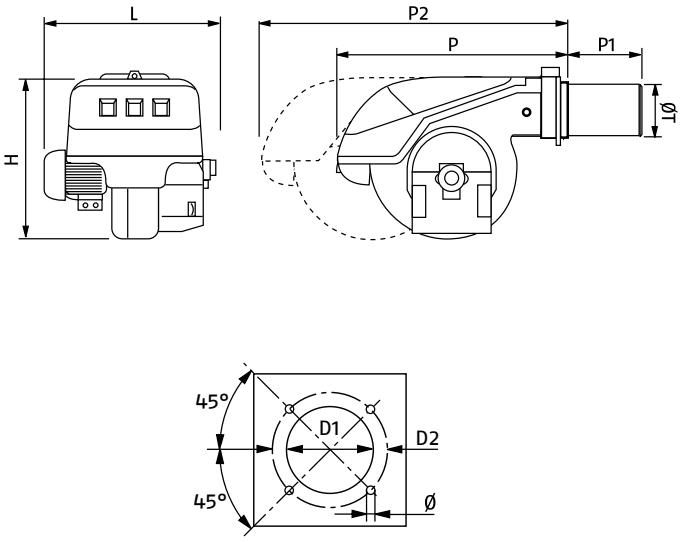
REF	UM	RL 55/M BLU	RL 85/M BLU
H	mm	555	555
L	mm	663	705
P	mm	680	680
P1	mm	365	365
P2	mm	951	951
ØT	mm	189	189
D1	mm	195	195
D2	mm	275-325	275-325
Ø	-	M12	M12

RL 100



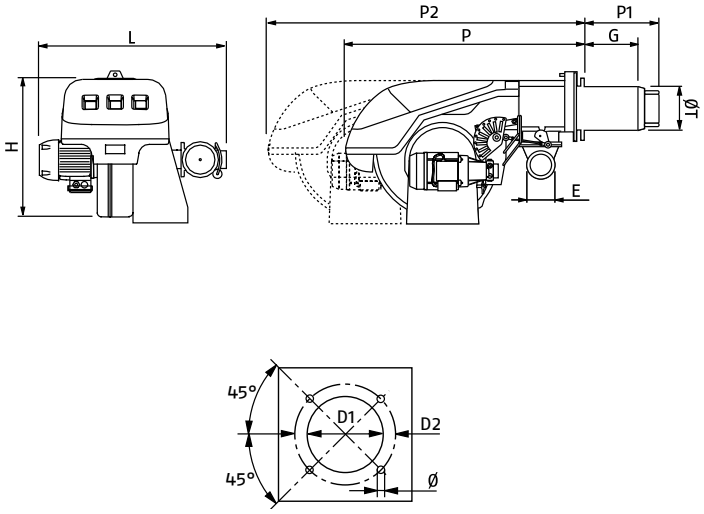
REF	UM	RL 100 TL
H	mm	555
L	mm	599
P	mm	680
P1	mm	250
P2	mm	951
ØT	mm	179
D1	mm	185
D2	mm	275-325
Ø	-	M12

RL 100/M



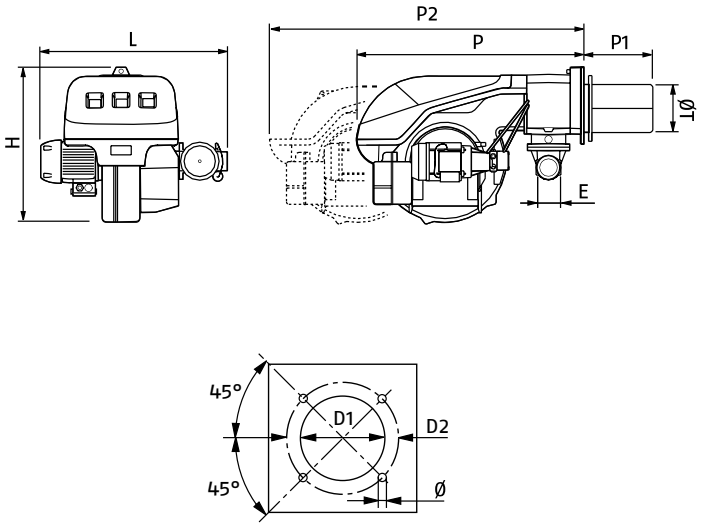
REF	UM	RL 100/M
H	mm	555
L	mm	679
P	mm	680
P1	mm	272
P2	mm	951
ØT	mm	179
D1	mm	185
D2	mm	275-325
Ø	-	M12

RLS 120/M MX



REF	UM	RLS 120/M MX
H	mm	555
L	mm	733
P	mm	840
P1	mm	260
P2	mm	1161
G	mm	200
ØT	mm	189
E	–	2"
D1	mm	195
D2	mm	275-325
Ø	–	M12

RLS 100

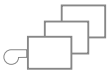


REF	UM	RLS 100
H	mm	555
L	mm	707
P	mm	840
P1	mm	250
P2	mm	1161
ØT	mm	189
E	–	2"
D1	mm	195
D2	mm	275-325
Ø	–	M12

THERMOREGULATIONS – RIELLOtech

RIELLOtech is the RIELLO range of regulations created for the management of any type of system. Ideal for complex systems as well as for the management of simpler installations. The range includes:
RIELLOtech Climate Comfort: it is the climatic regulation of even complex systems in single- or multi-family installations. It manages one-stage and two-stage modulating burners (with a special kit), cascades of boilers, solar systems, and the integration of several types of heat generators. The system side manages a mixed area (expandable to 2 with a special kit), one direct and the production of domestic hot water. RIELLOtech Clima Mix: this is the system regulation that can manage 1 mixed area, expandable to 2 with a special kit. RIELLOtech Prime ACS: it is the thermostatic line able to manage one-stage and two-stage burners (using a special kit), the production of domestic hot water and a direct area. RIELLOtech Prime: it is the thermostatic line able to manage one-stage and two-stage burners (using a special kit) and a direct area. The RIELLOtech Clima Top and Comfort versions include a boiler probe and an external probe. All RIELLOtech Clima regulations can be integrated via BUS. The Clima series is also available as a control panel version. IPX4D electrical protection level.

INSTALLATION MODES

	BURNER	CASCADE OF BOILERS	ALTERNATE GENERATOR	SOLAR SYSTEM	DOMESTIC HOT WATER HEATER	AREA DIRECT	1ST AREA MIXED	2ND AREA MIXED
MANDATORY ACCESSORIES		Immersion probe or band probe		2 heater probes and 1 solar collector probe	Heater probe (for climate panels)		Immersion probe or band probe	Immersion probe or band probe
OPTIONAL ACCESSORIES			Immersion probe (only for biomass boiler)				Ambient probe or Remote Control RC2	Ambient probe or Remote Control RC2
RIELLOtech CLIMA COMFORT	 modulating							with kit additional dedicated mix area management
RIELLOtech CLIMA MIX								with kit additional mix area management
RIELLOtech Prime	 Two-stage with special kit							
RIELLOtech Prime ACS	 Two-stage with special kit							

THERMOREGULATIONS ERP CLASS

DESCRIPTION ACCESSORIES	PROBE EXTERNAL	BURNER	CLASS	RELAY KIT 3-POINT MODULE	ONE AMBIENT PROBE	TWO AMBIENT PROBES	THREE AMBIENT PROBES	ADDITIONAL MIX AREA MANAGEMENT + RELEVANT AMBIENT PROBE
RIELLOtech CLIMA COMFORT	Yes	Modul On/off	II III	II III	VI VII	VI VII	VIII VII	VIII VII
REMOTE CONTROL RC3			V					
AMBIENT PROBE			V					

TAU THERMAL UNIT AND BOILER RANGE OPTIONS

TAU boilers are available in 8 variants. To identify the products quickly and unambiguously the following abbreviations are used

BOILER MODEL:
TAU

FURNACE POWER (kW):
210

BOILER TYPE:
N: "FREE STANDING" MONOBLOC GAS BOILER
N OIL PRO: "FREE STANDING" MONOBLOC LIGHT OIL/GAS BOILER

TAU	210	N OIL

BOILER MODEL:
TAU

FURNACE POWER (kW):
210

BOILER TYPE:
N: MONOBLOC GAS BOILER
N OIL PRO: "FREE STANDING" MONOBLOC LIGHT OIL/GAS BOILER

BURNER TYPE:
B: LOW NOx DIFFUSION FLAME BURNER
PREMIX: LOW NOx MICROFLAME PREMIXED BURNER

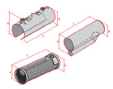
BURNER MODEL (ONLY FOR 'B' MODELS):
EXAMPLE: '25 -->RS25'

TYPE OF FLAME CONTROL (ONLY FOR 'B' MODELS)
M: MODULATING WITH MECHANICAL CAM
E: MODULATING WITH ELECTRONIC CAM
E O_2: MODULATING WITH ELECTRONIC CAM WITH OXYGEN CONTROL
EV O_2: MODULATING WITH ELECTRONIC CAM WITH OXYGEN CONTROL AND FAN WITH INVERTER

TAU	210	N	B	25	M

THERMAL UNITS
The individual components are supplied separately, so they must be assembled in the plant room

FREE STANDING

Model	Fuel Boiler body type	Description	Application / Installation Plus	Range options															
				115	150	210	270	350	450	600	800	1000	1150	1250	1450	1750	2100	2600	3000
 **TAU N** Three passes (through flame) Monobloc	- Gas - Desulphurised light oil (sulphur < 15 ppm) - Non-desulphurised light oil with minimum return temperature > 55°C	"Free standing" monobloc boiler. The supply does not include the burner and the control panel.	- Maximum flexibility of matchings with burners, gas trains and control panels present in the price list/catalogue - Approved for power band - Replacements of the boiler body only - Maximum operating pressure 6 bar - Reduced average body temperature (to promote condensation) and reduced volume of water around the furnace (to reduce set-up times) - Condensate drain siphon supplied	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
 **TAU NC (modular)** Three passes (through flame) Modular to be assembled in the plant room		"Free standing" boiler supplied disassembled (to be welded in the plant room). The supply does not include the burner and the control panel.	- The "modular" supply facilitates access to plant rooms with narrow passageways - Maximum flexibility of matchings with burners, gas trains and control panels present in the price list/catalogue - Approved for power band - Replacements of the boiler body only - Maximum operating pressure 6 bar - Reduced average body temperature (to promote condensation) and reduced volume of water around the furnace (to reduce set-up times) - Condensate drain siphon supplied			•	•	•	•	•	•	•	•	•	•				
 **TAU N OIL PRO** Three passes (through flame) Monobloc	- Non-desulphurised light oil (sulphur < 1000 ppm) - Gas	"Free standing" monobloc boiler. The supply does not include the burner and the control panel.	- Redevelopment of light oil plant rooms (sulphur < 1000 ppm) with a significant increase in efficiency - Approved for gas/light oil (for switching to gas, just replace ONLY the burner) - Maximum flexibility of matchings with burners, gas trains and control panels present in the price list/catalogue - Approved for power band - Replacements of the boiler body only - Maximum operating pressure 6 bar - Reduced average body temperature (to promote condensation) and reduced volume of water around the furnace (to reduce set-up times) - Condensate drain siphon supplied	•	•	•	•	•	•	•	•	•							
 **TAU N Premix** Three passes (through flame) Monobloc	- Gas - Desulphurised light oil (sulphur < 15 ppm) - Non-desulphurised light oil with minimum return temperature > 55°C	Boiler matched with gas burners (the various components must be installed and calibrated on site). The supply includes the climatic control panel with modulating regulation, the pre-mixed modulating burner with fan regulation by inverter and pneumatic gas train. Low polluting emissions (NOx compliant with ErP).	- Low gas supply pressures (the burner draws gas from the mains) - High average seasonal efficiency (reduced power consumption thanks to the inverter) - Low noise during partial load operation (inverter) - Climatic and modulating control panel supplied. Wide management flexibility thanks to the full configurability of the panel - Replacement of thermal units - Approved for power band - Replacements of the boiler body only - Maximum operating pressure 6 bar - Reduced average body temperature (to promote condensation) and reduced volume of water around the furnace (to reduce set-up times) - Condensate drain siphon supplied	•	•	•	•	•	•	•	•	•							
 **TAU NB M** Three passes (through flame) Monobloc		Boiler matched with gas burners (the various components must be installed and calibrated on site). The supply includes the climatic control panel with modulating regulation, the diffusion flame burner with modulating regulation by mechanical cam and gas train. Low polluting emissions (NOx compliant with ErP).	- Easy calibration and maintenance - Replacements of thermal units - Climatic and modulating control panel supplied. Wide management flexibility thanks to the full configurability of the panel - Replacement of thermal units - Approved for power band - Replacements of the boiler body only - Maximum operating pressure 6 bar - Reduced average body temperature (to promote condensation) and reduced volume of water around the furnace (to reduce set-up times) - Condensate drain siphon supplied	•	•	•	•	•	•	•	•	•	•						

THERMAL UNITS
The individual components are supplied separately, so they must be assembled in the plant room

Model	Fuel Boiler body type	Description	Application / Installation Plus	Range options														
				115	150	210	270	350	450	600	800	1000	1150	1250	1450	1750	2100	2600	3000
 **TAU NB E** Three passes (through flame) Monobloc	- Gas - Desulphurised light oil (sulphur < 15 ppm) - Non-desulphurised light oil with minimum return temperature > 55°C	Boiler matched with gas burners (the various components must be installed and calibrated on site). The supply includes the climatic control panel with modulating regulation, the diffusion flame burner with modulating regulation by electronic cam and gas train. Low polluting emissions (NOx compliant with ErP).	- Constancy and precision of the calibration over time (no wear of the air/gas ratio adjustment mechanical parts). - Replacements of thermal units - Climatic and modulating control panel supplied. Wide management flexibility thanks to the full configurability of the panel - Replacement of thermal units - Approved for power band - Replacements of the boiler body only - Maximum operating pressure 6 bar - Reduced average body temperature (to promote condensation) and reduced volume of water around the furnace (to reduce set-up times) - Condensate drain siphon supplied			•	•	•	•	•	•	•	•						
 **TAU NB O2** Three passes (through flame) Monobloc		Boiler matched with gas burners (the various components must be installed and calibrated on site). The supply includes the climatic control panel with modulating regulation, the gas train and the diffusion flame burner with modulating regulation by electronic cam, supervised by O2 feedback probe. Low polluting emissions (NOx compliant with ErP).	- Constancy and precision of the calibration over time (no wear of the air/gas ratio adjustment mechanical parts) - Continuous adjustment of the air/fuel ratio according to climatic conditions (temperature/ pressure), as per national regulations for high power values - Replacements of thermal units - Climatic and modulating control panel supplied. Wide management flexibility thanks to the full configurability of the panel - Replacement of thermal units - Approved for power band - Replacements of the boiler body only - Maximum operating pressure 6 bar - Reduced average body temperature (to promote condensation) and reduced volume of water around the furnace (to reduce set-up times) - Condensate drain siphon supplied								•	•	•	•	•	•	•	•	•
 **TAU NB O2** Three passes (through flame) Monobloc		Boiler matched with gas burners (the various components must be installed and calibrated on site). The supply includes the climatic control panel with modulating regulation, the gas train and the diffusion flame burner, whose fan is controlled by means of an inverter, with modulating regulation by electronic cam, supervised by O2 feedback probe. Low polluting emissions (NOx compliant with ErP).	- Constancy and precision of the calibration over time (no wear of the air/gas ratio adjustment mechanical parts) - Continuous adjustment of the air/fuel ratio according to climatic conditions (temperature/ pressure), as per national regulations for high power values - High average seasonal efficiency (reduced power consumption thanks to the inverter) - Low noise during partial load operation (inverter) - Replacements of thermal units - Climatic and modulating control panel supplied. Wide management flexibility thanks to the full configurability of the panel - Replacement of thermal units - Approved for power band - Replacements of the boiler body only - Maximum operating pressure 6 bar - Reduced average body temperature (to promote condensation) and reduced volume of water around the furnace (to reduce set-up times) - Condensate drain siphon supplied								•	•	•	•	•	•	•	•	•

RIELLO TAU N 0THE PRO

SHORT DESCRIPTION

Hot water "condensing" boiler, base mounted, with three passes, both for gas and light oil operation according to UNI 6579 (sulphur content < 1000 ppm) and with low sliding temperature, with three-pass boiler body, with pressurised furnace with reduced thermal load and specially designed for low polluting emissions.
The parts of the boiler in contact with the combustion products are made of stainless steel resistant to corrosion by sulphuric acid, typical of light oil with sulphur content < 1000 ppm
Max. heat output (furnace) between 115 ÷ 1000 kW
Useful efficiency at Pn max. of 97.6÷ 98.2% with temperature of 80°/60°C.
Useful efficiency of 104.8÷ 104.1% at 30% of the load
Flue gas temperature between 45°C and 75°C depending on the return temperature.
Maximum operating pressure 6 bar.

DESCRIPTION FOR SPECIFICATIONS

Hot water "condensing" boiler, base mounted, with three passes, both for gas and light oil operation according to UNI 6579 (sulphur content < 1000 ppm) and with low sliding temperature. The boiler is approved for the power band and, therefore, you can request, at the time of ordering, a plate with the maximum and minimum furnace power ranging between the maximum and minimum furnace power indicated in the installer's manual and related to the desired boiler model. The range of generators is characterised by:

- Max. heat output (furnace) from 115 at 1000 kW
- Max. nominal delivered output of 112.2 ÷ 982.0 kW with temperature of 80°/60°C
- Useful efficiency at Pn max. of 97.6÷ 98.2% with temperature of 80°/60°C.
- Useful efficiency of 104.8÷ 104.1% at 30% of the load
- Flue gas temperature between 45°C and 75°C depending on the return temperature
- High volume and surface area combustion chamber (1st and 2nd pass):
  - Material used AISI 316Ti - EN 1.4571: titanium stabilised austenitic stainless steel, an element that avoids the precipitation of chromium carbides at temperatures between 450°C and 800°C and therefore ensures greater resistance to corrosion at such temperatures (in particular against pitting phenomena), typical of areas subject to welding, even in particularly reducing environments
  - Dimensions: the large size of the combustion chamber (volume and exchange surface area) makes it possible to drastically reduce both the volumetric thermal load and the specific thermal load respectively and, therefore, the production of harmful emissions. The generously sized flame inversion tube reduces flue gas-side pressure drops, returning, where required, a high available head (approved for B23P)
  - "Through flame" design: allows you not to overheat flue gas and boiler plates, preventing the formation of "thermal N0x"
- Tube plates:
  - Material used AISI 904L - EN 1.4539: Ni-Cr-Mo-Cu austenitic super stainless steel, resistant to pitting, stress corrosion and crevice corrosion. This steel is used in the manufacture of components for the treatment of highly aggressive substances such as sulphuric, phosphoric, nitro-hydrochloric and acetic acids. High resistance in the presence of chlorine ions. Its corrosion resistance is superior to that of the 316L series with regard to all types of corrosion (pitting, crevice, intergranular, stress).
- Flue gas pipes (3rd pass):
  - Material used AISI 22-05 - EN 1.4462: two-phase stainless steel, characterised by a microstructure consisting of austenitic matrix ferrite islands, present in equal volumetric percentage. This results in a steel with better mechanical properties than traditional stainless steel and better behaviour against pitting corrosion and stress corrosion. By way of example, compared to AISI 904L, AISI 22-05 can boast a higher yield strength of about 96%, a tensile strength of about 20%, a lower coefficient of linear expansion of about 16%, a higher Brinell hardness of about 17% and a higher thermal conductivity of about 25%, all to the advantage of the mechanical strength and efficiency of the boiler body
  - This steel is used for the production of parts subjected to very severe corrosive conditions, as it is resistant to hot oxidation up to 1000°C. It is better than austenitic Cr-Ni types even in the presence of chlorides and especially when the corrosive conditions are combined with mechanical stress (stress-corrosion) typical of thermal expansion and mechanical stress in general. Its corrosion resistance is maximum in the solubilised state. The optimal range of use is in the temperature range between -50°C and 250°C, typical of the tube bundle of a boiler.
  - "Smooth tube" design: allows easy cleaning of the boiler, low pressure drops on flue gas side (high useful head - B23P) and "self-cleaning" effect.
- All heat exchange surfaces in contact with condensation are suitable for heating light oil condensation according to UNI 6579 (sulphur content < 1000 kW)
- External plating (in contact with the heat transfer fluid) in carbon steel in contact with the heat transfer fluid
- Turbolators in AISI 430 - EN 1.4016 for a long service life even in the presence of aggressive environments (light oil with high sulphur content)
- A large volume of water with stratification effect: very low water content in the hot part, fast set-up, and large reserve of water in the cold part below, for maximum exploitation of the phenomenon of condensation
- No limit on return temperature, and no limit on water flow rate
- 0verheating automatically removed by the internal circulation system
- AISI 430 stainless steel turbulators to facilitate heat exchange even at very low combustion gas temperatures
- A system delivery circuit
- Two system return circuits; one for high temperature and one for low temperature with boiler water inlet at the height of the second pass. This constructive part allows operation with high average seasonal efficiency in case of mixed systems, as it allows maximizing the phenomenon of condensation

- Connection to safety pipe
- External casing composed by painted steel metal sheet panels, assembled with snap and removable couplings for total accessibility to the boiler with complete opening both of the front door and of the combustion chamber
- Front door with ambidextrous opening without the need to remove the burner
- Thermal insulation with a double high density glass wool layer having a thickness of 100 mm and protected by an aluminium sheet
- Probe holder pockets and regulations according to law
- System drain
- Condensate drain
- Condensate siphon
- Flanged sludge collection area, located in the lower part of the boiler, useful for boiler maintenance and cleaning operations
- Combination required with climatic control panel and/or cascade/sequence management with single-stage, two-stage or modulating burner, necessary for boiler operation
- Cleaning and control of the combustion chamber and the condensation exchanger that can be carried out totally from the front

TAU N OIL PRO BOILERS COMPLY WITH:

- Efficiency Directive 92/42/EEC
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- Models up to 400 kW comply with the Eco-design Directive for energy products 2009/125/EC and with the Delegated Regulation (EU) no. 813/2013.

THE THERMAL UNIT IS SUPPLIED IN SEPARATE PACKAGES:

- Thermal insulated boiler body with document envelope
- Panelling complete with assembly accessories

ACCESSORIES:

- Burner holder plate
- Neutraliser kit
- Control panels
- Burner and related nozzles and accessories

For the specification description of the burner and control panel refer to the description of the actual model under consideration.

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