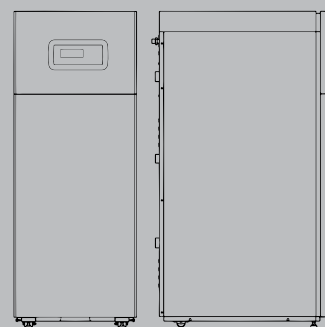




TAU UNIT

Floor-standing condensing gas boilers

In compliance with Regulation (EU) 2016/426.
Condensing gas boilers with a titanium-stabilised stainless steel body (AISI 316 Ti + AISI 444) with a high water content and a low pollutant emission modulating premix burner (Class 6 according to UNI EN 15502).



Tau Unit

PRODUCT OVERVIEW

The body with a high water content has flue pipes extending vertically, and has two return lines to provide optimal condensing operation. In the upper part there is high temperature water, while in the lower part, where the condensation takes place, the cold water is stored. The boiler board, which has an easy to use interface, allows you to optimise the combustion, to manage any remote storage cylinder for the production of domestic hot water and the delivery temperature in climatic control mode. The basic electronics includes include climatic regulation, management of the cascade of the modules, with integrated master/slave functions, the automatic switching between summer/winter and the possibility of managing a direct zone and a DHW storage cylinder. The electronics also provides the possibility of the remote management using the 0-10V input or with the Modbus protocol. With specific accessories it is also possible to manage the distribution of the secondary circuit, up to 16 mixed zones. The optimal management of the combustion and the high modulation ratio 1:10 (for 35-115 models), provide a high performance and low pollutant emissions (NO_x in Class 6 according to UNI EN 15502).

All models include the outdoor temperature probe.

The range operates both with methane gas as well as LPG.

- High quality precise finishing
- Modulation ratio 1:10
- Maximum operating pressure 5 bar
- Easy maintenance due to the total accessibility of the internal components
- Smaller max. dimensions.

TECHNICAL DATA 35-100

MODEL	UoM	TAU Unit 35		TAU Unit 50		TAU Unit 70		TAU Unit 100	
		G20	G31	G20	G31	G20	G31	G20	G31
TYPE OF APPLIANCE									
Type		Condensing unit with premix burner							
Combustion chamber		Vertical							
Smoke discharge type-approvals		B23, B23P, B53P, C13(*), C33(*), C43(*), C53(*),C63(*), C83(*), C93(*)							
Appliance category according to UNI 10642		IT-CH-PT: II2H3P / FR: II2Esi3P / BE: I2E(S)						IT-CH-PT: II2H3P / FR: II2Esi3P / BE: I2E(R)	
OUTPUTS AND EFFICIENCY									
NCV rated heat input	kW	34,80		49,90		69,90		100,00	
GCV rated heat input (G20)	kW	38,70	-	55,40	-	77,60	-	111,00	-
Nominal heat output max 80-60°C	kW	33,80		48,50		68,00		97,50	
Nominal heat output max 60-40°C	kW	33,50		51,50		72,20		103,30	
Nominal heat output max 50-30°C	kW	37,00		54,50		76,50		109,20	
Minimum rated heat input (NCV)	kW	3,48	3,90	4,90		6,90		10,00	
Minimum heat output GCV (G20)	kW	3,90	-	5,40	-	7,70	-	11,10	-
Minimum heat output 80/60°C		3,96		4,70		6,70		9,70	
Minimum heat output 50/30°C	kW	3,65		5,30		7,40		10,90	
Useful efficiency at nominal heat output 80-60°C (NCV)	%	97,2		97,10		97,30		97,50	
Useful efficiency at minimum heat output 80-60°C (NCV)	%	96,6		95,90		97,10		97,00	
Useful efficiency at nominal heat output 50-30°C (NCV)	%	106,3		109,20		109,40		109,20	
Useful efficiency at minimum heat output 50-30°C (NCV)	%	104,90		108,20		107,20		109,00	
Useful efficiency 30% 50-30° GCV (NCV)	%	97,1 (107,8)		98,8 (109,7)		97,7 (108,5)		97,8 (108,6)	
Stack losses with burner off	%	0,10		0,10		0,10		0,10	
Stack losses with burner on max output 80-60°C	%	2,20		2,80		1,00		2,20	
Stack losses with burner on at 30% of Pn 50-30°C	%	0,90		1,90		2,20		2,10	
Stack losses with burner on min output 80-60°C	%	2,80		4,00		1,20		2,70	
Heat losses at the casing with average temperature of 70°C and burner on	%	0,60		0,10		1,70		0,30	
Heat losses at the appliance casing with average temperature of 70°C and burner off	%	0,10		0,10		0,10		0,10	
Flue gases temperature at max-min output 80-60°C	°C	72-61		70 - 61		71 - 61		70 - 61	
Flue gases temperature at max-min output 50-30°C	°C	40-31		40-31		40-31		40-31	
Air index λ at max output	no.	1,27	1,29	1,27	1,29	1,27	1,29	1,27	1,29
Air index λ at min output	no.	1,27	1,29	1,27	1,29	1,27	1,29	1,27	1,29
Max-min mass flue gas flow rate	g/s	16,0-1,6	-	23,0-2,3	-	33,0-3,3	-	47,0-4,7	-
Flue gases residual discharge head at min output	Pa	5		3		4		3	
Flue gases residual discharge head at max output	Pa	150		175		145		170	

MODEL	UoM	TAU Unit 35		TAU Unit 50		TAU Unit 70		TAU Unit 100	
		G20	G31	G20	G31	G20	G31	G20	G31
ELECTRICAL DATA									
Voltage supply	V - Hz	230/1 - 50							
Electrical protection level	IP	X0D							
Electric power consumption with boiler at max output	W	90		100		150		230	
Electric power consumption with boiler at min output	W	40		40		50		60	
Electric power consumption with pumps at max output	W	-		-		-		-	
Electric power consumption with pumps at min output	W	-		-		-		-	
HEATING OPERATION									
Water temperature selection range	°C	30-85							
Lockout thermostat activation temperature	°C	110							
Maximum operating temperature	°C	110							
Maximum operating pressure	bar	3				5			
Minimum operating pressure	bar	0,5				1			
Water content	l	56		91		99		130	
Pressure drops water side with ΔT 20°C	mbar	20		4		7		11	
Residual discharge head water side with ΔT 20°C	mbar	-		-		-		-	
Max. condensate production at 100% nominal output (40-30°C)	l/h	4,50	-	8,00	-	11,00	-	14,00	-
Noise levels (Sound pressure)	dB(A)	64		61		62		63	
GAS FEEDING DATA									
Maximum gas feeding pressure	mbar	60		60		60		60	
Nominal gas feeding pressure	mbar	20	37	20	37	20	37	20	37
Minimum gas feeding pressure	mbar	15	25	15	25	15	25	15	25
DIMENSIONAL DATA									
Heating delivery diameter	Inch	G 1" M		G 1" 1/2 M		G 1" 1/2 M		G 2" M	
"High temperature" heating return line diameter	Inch	-		G 1" 1/4 M		G 1" 1/4 M		G 1" 1/2 M	
"Low temperature" heating return line diameter	Inch	G 1" M		G 1" 1/2 M		G 1" 1/2 M		G 2" M	
Gas input diameter	Inch	1/2"		1/2"		1/2"		1/2"	
Condensate drain diameter	ø	22		22		22		22	
Height of the casing	mm	1400		1550		1550		1750	
Width of the casing	mm	600		600		600		600	
Depth of the casing	mm	760		850		850		850	
Flue gases exhaust diameter	mm	80		80		80		110	
Empty weight	kg	110		155		165		243	
CONCENTRIC DISCHARGE PIPES									
Flue gas/air discharge diameter	mm	80-125		80-125		80-125		110-160	
Wall hole	mm	150		150		150		180	
SEPARATE DISCHARGE PIPES									
Flue gas/air discharge diameter	mm	80-80		80-80		80-80		110-110	
Wall hole	mm	100		100		100		130	

(*) Configurations possible only with the installation of the relative accessories (available separately).

(**) Weights calculated according to EN 15502.

(***) Values referring to atmospheric pressure at sea level.

CENTRAL HEATING

Floor-standing condensing gas boilers

TECHNICAL DATA 115-190

MODEL	UoM	TAU Unit 115		TAU Unit 140		TAU Unit 190	
		G20	G31	G20	G31	G20	G31
TYPE OF APPLIANCE							
Type		Condensing unit with premix burner					
Combustion chamber		Vertical					
Smoke discharge type-approvals		B23, B23P, B53P, C13(*), C33(*), C43(*), C53(*),C63(*), C83(*), C93(*)				B23, B23P, B53P, C43(*), C53(*),C63(*), C83(*),C93(*)	
Appliance category according to UNI 10642		IT-CH-PT: II2H3P / FR: II2Esi3P / BE: I2E(R)					
OUTPUTS AND EFFICIENCY							
NCV rated heat input	kW	115,00		140,00		190,00	
GCV rated heat input (G20)	kW	127,70	-	155,60	-	211,10	-
Nominal heat output max 80-60°C	kW	112,00		136,90		185,80	
Nominal heat output max 60-40°C	kW	118,70		144,40		195,40	
Nominal heat output max 50-30°C	kW	125,40		152,00		205,20	
Minimum rated heat input (NCV)	kW	11,50		28,00		38,00	
Minimum heat output GCV (G20)	kW	12,80	-	31,10	-	42,20	-
Minimum heat output 80-60°C		11,00		27,30		37,10	
Minimum heat output 50-30°C	kW	12,40		30,20		40,70	
Useful efficiency at nominal heat output 80-60°C (NCV)	%	97,40		97,8		97,8	
Useful efficiency at minimum heat output 80-60°C (NCV)	%	95,70		97,50		97,60	
Useful efficiency at nominal heat output 50-30°C (NCV)	%	109,00		108,60		108,00	
Useful efficiency at minimum heat output 50-30°C (NCV)	%	107,80		107,90		107,10	
Useful efficiency 30% 50-30° GCV (NCV)	%	97,8 (108,7)		97,9 (108,8)		97,6 (108,4)	
Stack losses with burner off	%	0,10		0,10		0,10	
Stack losses with burner on max output 80-60°C	%	2,20		2,10		2,10	
Stack losses with burner on at 30% of Pn 50-30°C	%	2,00		1,20		1,20	
Stack losses with burner on min output 80-60°C	%	3,90		2,40		2,30	
Heat losses at the appliance casing with average temperature of 70°C and burner on	%	0,40		0,10		0,10	
Heat losses at the appliance casing with average temperature of 70°C and burner off	%	0,10		0,10		0,10	
Flue gases temperature at max-min output 80-60°C	°C	70 - 61		68-61		68-61	
Flue gases temperature at max-min output 50-30°C	°C	40-31		40-31		40-31	
Air index λ at max output	no.	1,27	1,29	1,27	1,29	1,27	1,29
Air index λ at min output	no.	1,27	1,29	1,27	1,29	1,27	1,29
Max-min mass flue gas flow rate	g/s	55,0-5,5	-	64,2-12,8	-	87,1-17,4	-
Flue gases residual discharge head at min output	Pa	6		5		5	
Flue gases residual discharge head at max output	Pa	150		150		150	
ELECTRICAL DATA							
Voltage supply	V - Hz	230-50					
Electrical protection level	IP	X0D					
Electric power consumption with boiler at max output	W	230		260		270	
Electric power consumption with boiler at min output	W	60		74		77	
Electric power consumption with pumps at max output	W	-		-		-	
Electric power consumption with pumps at min output	W	-		-		-	
HEATING OPERATION							
Water temperature selection range	°C	30-85					
Lockout thermostat activation temperature	°C	110					
Maximum operating temperature	°C	110					
Maximum operating pressure	bar	5					
Minimum operating pressure	bar	1					
Water content	l	130		290		270	
Pressure drops water side with ΔT 20°C	mbar	14		3		5	
Residual discharge head water side with ΔT 20°C	mbar	-		-		-	
Max. condensate production at 100% nominal output (40-30°C)	l/h	15,00	-	18,50	-	25,00	-
Noise levels (Sound pressure)	dB(A)	64		64		64	

MODEL	UoM	TAU Unit 115		TAU Unit 140		TAU Unit 190	
		G20	G31	G20	G31	G20	G31
GAS FEEDING DATA							
Maximum gas feeding pressure	mbar	60		100		100	
Nominal gas feeding pressure	mbar	20	37	20	37	20	37
Minimum gas feeding pressure	mbar	15	25	15	25	15	25
DIMENSIONAL DATA							
Heating delivery diameter	Inch	G 2" M		G 2" 1/2M		G 2" 1/2M	
"High temperature" heating return line diameter	Inch	G 1" 1/2 M		G 2" M		G 2" M	
"Low temperature" heating return line diameter	Inch	G 2" M		G 2" 1/2M		G 2" 1/2M	
Gas input diameter	inch	1/2"		1"		1"	
Condensate drain diameter	Ø	22		22		22	
Height of the casing	mm	1750		1885		1885	
Width of the casing	mm	600		800		800	
Depth of the casing	mm	850		973		973	
Flue gases exhaust diameter	mm	110		110		160	
Empty weight	kg	243		400		420	
CONCENTRIC DISCHARGE PIPES							
Flue gas/air discharge diameter	mm	110-160		110-160		-	
Wall hole	mm	180		180		-	
SEPARATE DISCHARGE PIPES							
Flue gas/air discharge diameter	mm	110-110		110-110		110-160	
Wall hole	mm	130		130		200	

(*) Configurations possible only with the installation of the relative accessories (available separately).

(**) Weights calculated according to EN 15502.

(***) Values referring to atmospheric pressure at sea level.

CENTRAL HEATING

Floor-standing condensing gas boilers

ERP TECHNICAL DATA

MODEL	UoM	TAU Unit 35		TAU Unit 50		TAU Unit 70		TAU Unit 100		TAU Unit 115		TAU Unit 140		TAU Unit 190	
Seasonal ambient heating energy efficiency class		A		A		A		-		-		-		-	
Nominal output	kW	34		49		68		98		112		137		186	
Seasonal energy efficiency of the ambient heating η_s	%	91		93		93		93		93		93		93	
EFFECTIVE HEAT OUTPUT															
At nominal heat output and in high temperature mode P4 (*)	kW	34,0		48,4		68,0		97,5		112,0		136,9		185,8	
At 30% of nominal heat output and in low temperature mode P1	kW	11,3		16,4		22,7		32,5		34,5		45,7		61,8	
EFFICIENCY															
At nominal heat output and in high temperature mode η_4 (GCV)	%	87,5		87,4		87,6		87,7		87,7		88,0		88,0	
At 30% of nominal heat output and in low temperature mode η_1 (GCV)	%	97,1		98,8		97,7		97,8		97,8		97,9		97,6	
AUXILIARIES ELECTRICITY CONSUMPTION															
With full load Elmax	W	90		100		150		230		230		260		270	
With partial load Elmin	W	40		40		50		60		60		74		77	
In Standby mode PSB	W	18		18		18		18		18		18		18	
OTHER PARAMETERS															
Heat losses in standby mode Pstby	W	35		54		74		107		107		112		112	
Energy consumption of the pilot flame Pign	W	-		-		-		-		-		-		-	
Annual energy consumption QHE	GJ	107		151		212		-		-		-		-	
Sound power level indoors LWA	dB(A)	64		61		62		63		64		64		64	
Nitrogen oxide emissions NOx (**)	mg/kWh	36		55		52		52		50		54		53	
NOx class	n°	Class 6		Class 6		Class 6		Class 6		Class 6		Class 6		Class 6	
Emission values at maximum and minimum output (**)															
CO s.a. lower than (Maximum)	p.p.m.	4	4	5	5	7	7	4	4	4	4	5	5	5	5
CO ₂ (***) (Maximum)	%	9	10	9	10	9	10	9	10	9	10	9	10	9	10
T flue gases	°C	72		70		71		70		70		68		68	
CO s.a. lower than (Minimum)	p.p.m.	12	10	5	5	7	7	4	4	4	4	5	5	5	5
CO ₂ (***) (Minimum)	%	9	10	9	10	9	10	9	10	9	10	9	10	9	10
T flue gases (Minimum)	°C	61		61		61		61		61		61		61	
FOR COMBI HEATING APPLIANCES															
Energy efficiency of the water heating η_{wh}	%	-		-		-		-		-		-		-	
Daily electrical energy consumption Qelec	kWh	-		-		-		-		-		-		-	
Daily fuel consumption Qfuel	kWh	-		-		-		-		-		-		-	
Annual electrical energy consumption AEC	kWh	-		-		-		-		-		-		-	
Annual fuel consumption AFC	GJ	-		-		-		-		-		-		-	

(**) Weights calculated according to EN 15502

(***) Values referring to atmospheric pressure at sea level.

TABLE LAW 10

MODEL	UoM	TAU Unit 35	TAU Unit 50	TAU Unit 70	TAU Unit 100	TAU Unit 115	TAU Unit 140	TAU Unit 190
Nominal effective heat output	kW	33,80	48,50	68,00	97,50	112,00	136,90	185,80
Efficiency at nominal output	%	97,20	97,10	97,30	97,50	97,40	97,80	97,80
Average temperature of the generator in test conditions at nominal output	°C	70,0	70,00	70,00	70,00	70,00	70,00	70,00
Useful nominal heat output at intermediate load 30%	kW	11,30	16,30	22,70	32,50	34,50	45,70	61,80
Efficiency at intermediate output 30%	%	108,9	108,90	108,50	108,60	108,80	108,80	108,80
Average temperature of the generator in test conditions at intermediate output	°C	40,00	40,00	40,00	40,00	40,00	40,00	40,00
Output lost in stand-by (output lost at null load)	W	35,00	54,00	74,00	107,00	107,00	112,0	112,0
Stack losses with burner off	%	0,20	0,20	0,20	0,20	0,20	1,20	1,20
Stack losses with burner on at max power	%	2,20	2,80	1,00	2,20	2,20	2,10	2,10
Stack losses with burner on at min power	%	2,80	4,00	1,20	2,70	3,90	2,40	2,30
Heat losses at the appliance casing with average temperature of 70°C and burner on	%	0,60	0,10	1,70	0,30	0,40	0,10	0,10
Heat losses at the appliance casing with average temperature of 70°C and burner off	%	0,10	0,10	0,10	0,10	0,10	0,10	0,10
Power consumption by auxiliaries at nominal load	W	90,0	100,0	150,0	230,0	230,0	260,0	270,0
Power consumption by auxiliaries at intermediate load	W	40,0	40,0	50,0	60,0	60,0	74,0	77,0
Power consumption by auxiliaries at null load	W	18,0	18,0	18,0	18,0	18,0	18,0	18,0
Minimum operating temperature of the generator	°C	30,00	30,00	30,00	30,00	30,00	30,00	30,00
Minimum continuous output at the furnace with flame lit	kW	3,50	4,90	6,90	10,00	11,50	28,00	38,00
Difference in temperature between flue gases and water returning to the boiler at maximum output	°C	12,00	10,00	11,00	10,00	10,00	8,00	8,00
Oxygen content in the combustion gases at maximum output	%	4,50	4,50	4,50	4,50	4,50	4,50	4,50
Difference in temperature between flue gases and water returning to the boiler at minimum output	°C	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Oxygen content in the combustion gases at minimum output	%	4,50	4,50	4,50	4,50	4,50	4,50	4,50

CENTRAL HEATING

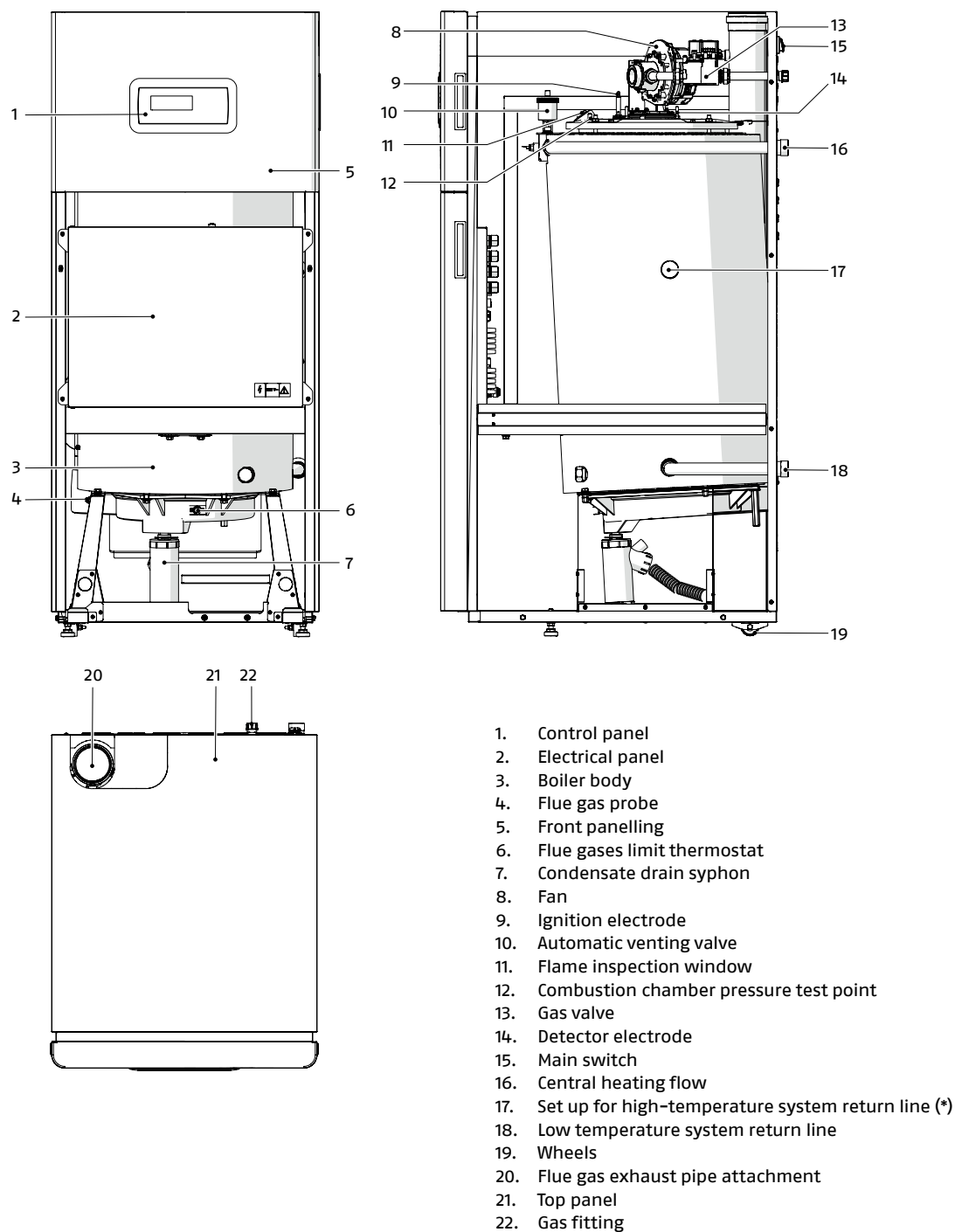
Floor-standing condensing gas boilers

TAU UNIT 35 STRUCTURE

The TAU UNIT boiler is supplied on a pallet, protected by a scratch-resistant sheet and a wooden crate.

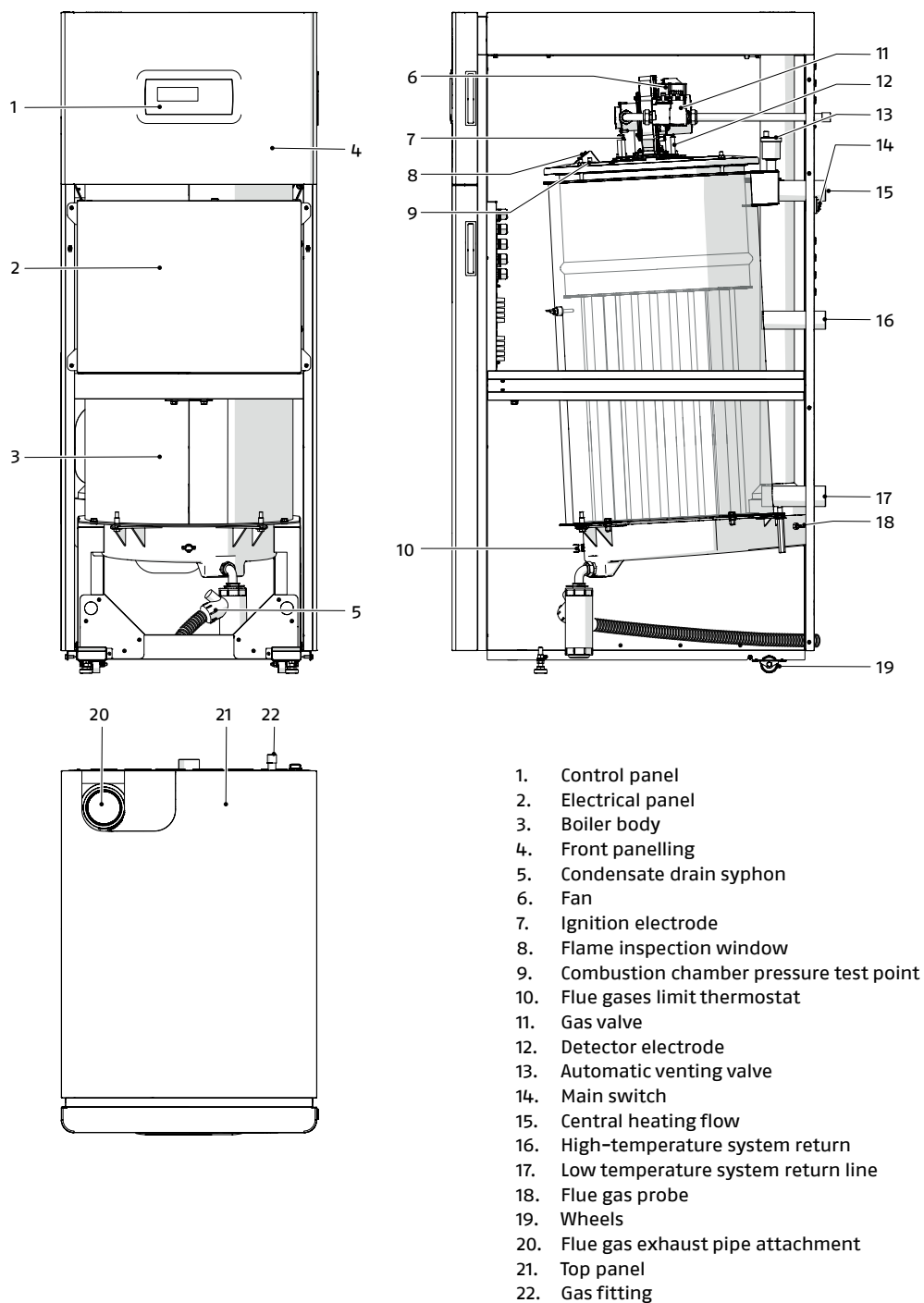
The following material is supplied in a plastic envelope inside the boiler:

- instruction booklet
- hydraulic test certificate
- energy label
- conventional warranty conditions



(*) Depending on the type of plant engineering it is possible to connect the system high temperature return line using the connecting pipe of the system low temperature return line that is already there, making sure that the attachment not used is closed with the plug removed previously.

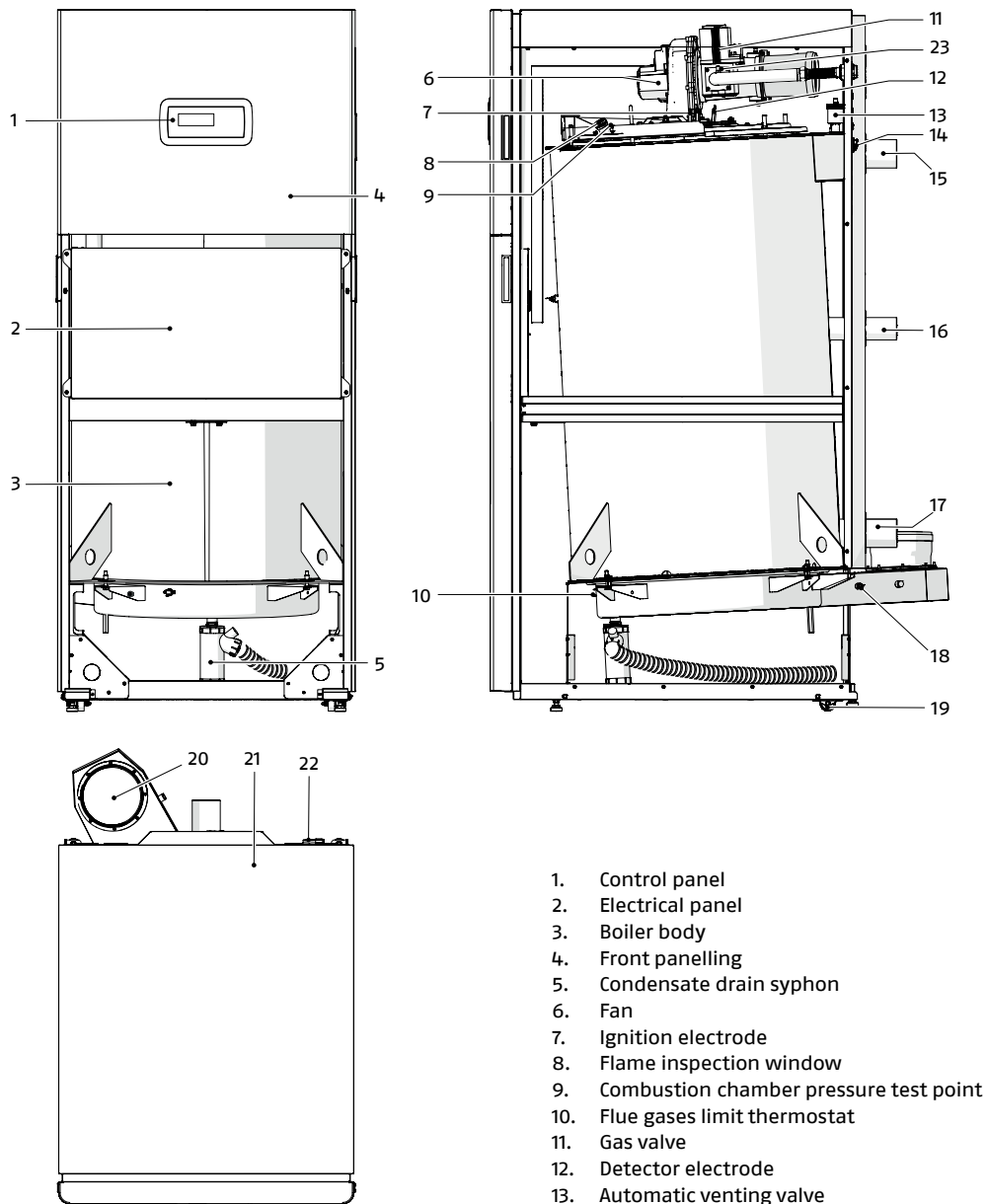
TAU UNIT 50 - 70 - 100 - 115 STRUCTURE



CENTRAL HEATING

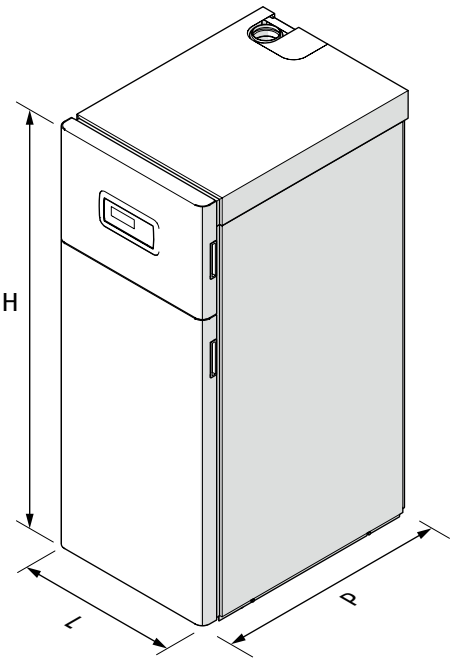
Floor-standing condensing gas boilers

TAU UNIT 140 – 190 STRUCTURE



1. Control panel
2. Electrical panel
3. Boiler body
4. Front panelling
5. Condensate drain syphon
6. Fan
7. Ignition electrode
8. Flame inspection window
9. Combustion chamber pressure test point
10. Flue gases limit thermostat
11. Gas valve
12. Detector electrode
13. Automatic venting valve
14. Main switch
15. Central heating flow
16. High-temperature system return
17. Low temperature system return line
18. Flue gas probe
19. Wheels
20. Flue gas exhaust pipe attachment
21. Top panel
22. Gas fitting
23. Gas pressure test point

OVERALL DIMENSIONS

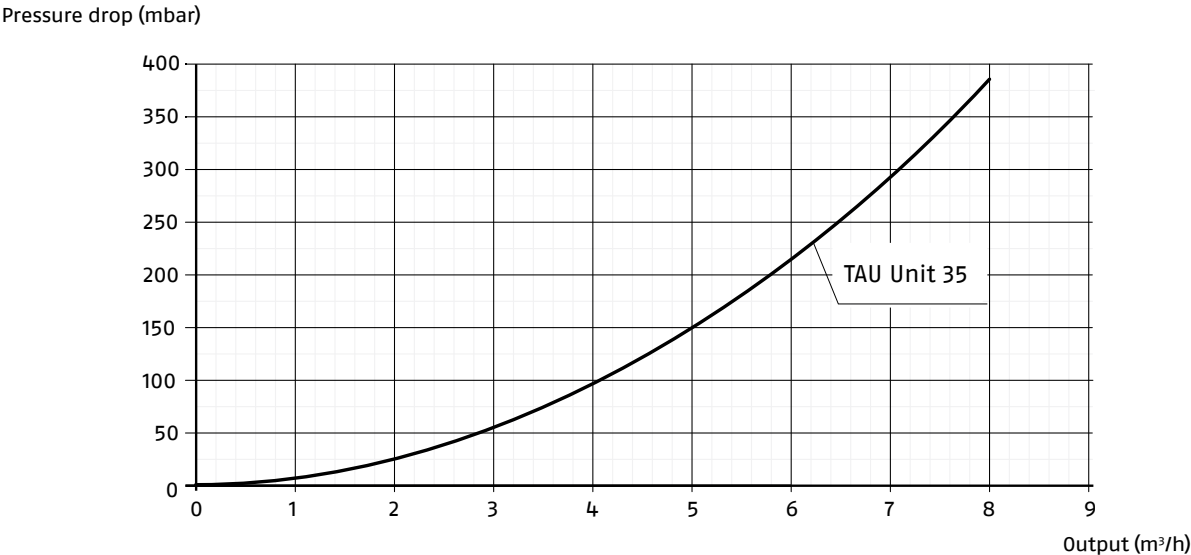


MODELS	UoM	TAU Unit 35	TAU Unit 50	TAU Unit 70	TAU Unit 100
L	mm	600	600	600	600
P	mm	760	850	850	850
H	mm	1400	1550	1550	1750
NetWeight	kg	110	155	165	243

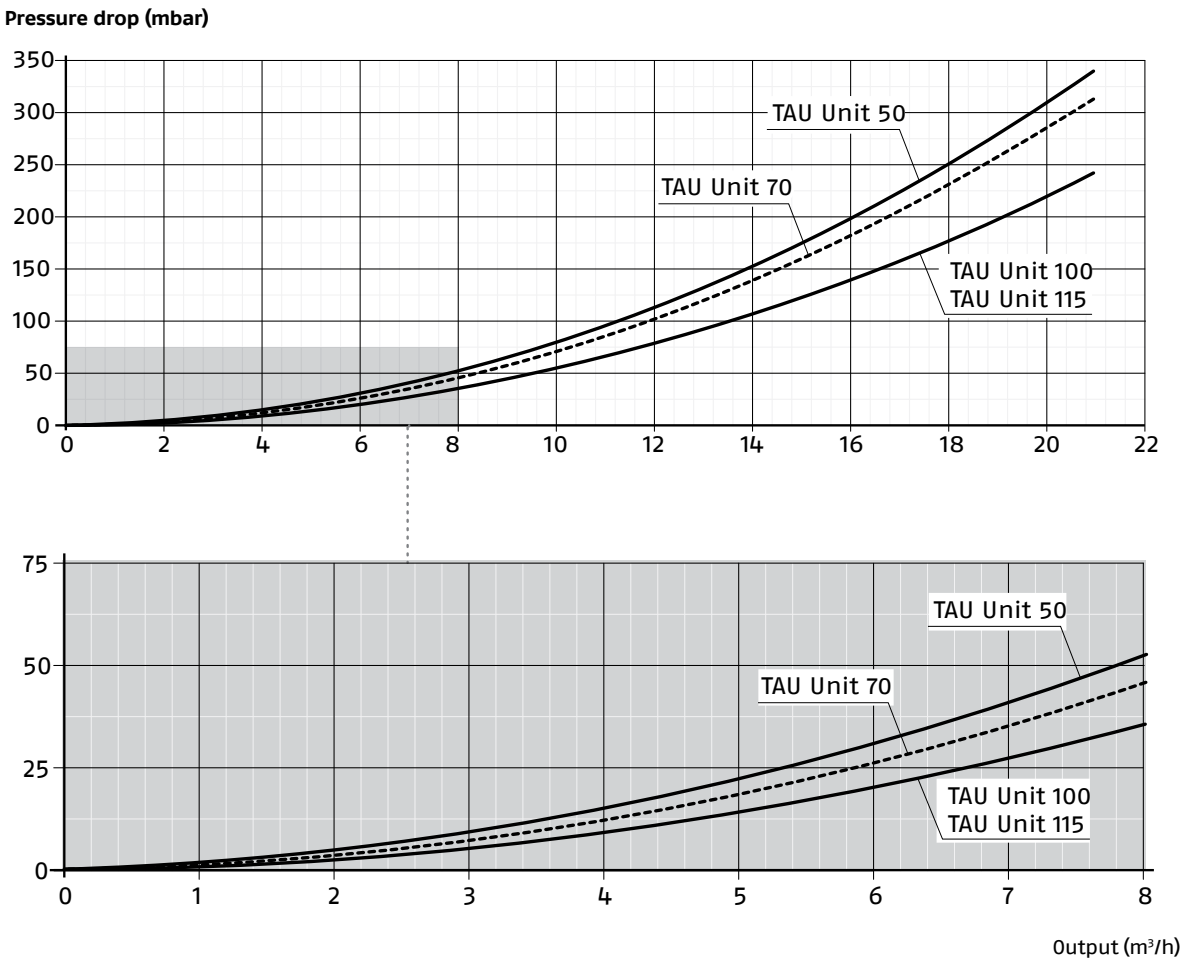
MODELS	UoM	TAU Unit 115	TAU Unit 140	TAU Unit 190
L	mm	600	800	800
P	mm	850	973	973
H	mm	1750	1885	1885
NetWeight	kg	243	400	420

MODEL TAU UNIT 35

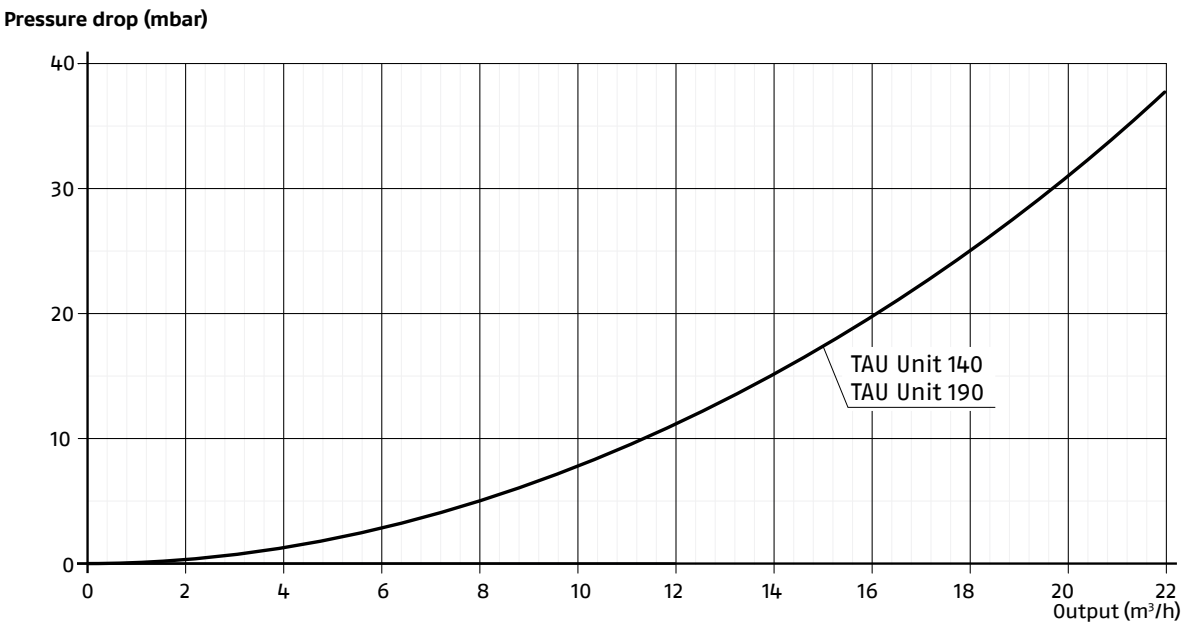
The TAU Unit boilers are not equipped with a circulator that the system needs.
 For its sizing, take into account the boiler's water-side pressure drops, which are shown in the chart below.



TAU UNIT 50 - 70 - 100 - 115

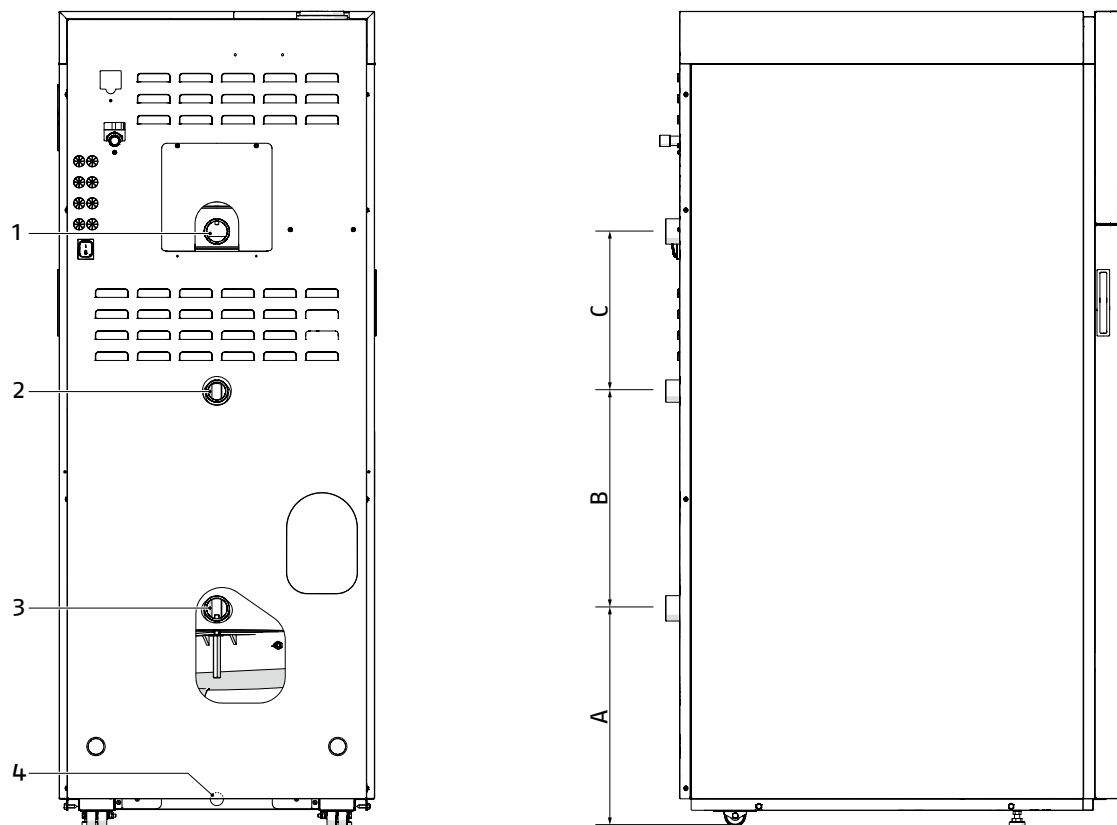


TAU UNIT 140 - 190



HYDRAULIC CONNECTIONS

The TAU Unit boilers have been designed and built to be installed on heating and hot domestic water heating systems. Water fittings have the following specifications:



* Indicative image

DESCRIPTION	UoM	TAU Unit 35	TAU Unit 50	TAU Unit 70	TAU Unit 100
A	mm	378	415	415	393
B	mm	717	415	415	410
C	mm	161	304	402	632
1 - System delivery	Ø	1"	1" 1/2	1" 1/2	2"
2 - High temp. system return line	Ø	-	1" 1/4	1" 1/4	1" 1/2
3 - Low temp. system return line	Ø	1"	1" 1/2	1" 1/2	2"
4 - Condensate drain	Ø mm	22	22	22	22

DESCRIPTION	UoM	TAU Unit 115	TAU Unit 140	TAU Unit 190
A	mm	393	478	478
B	mm	410	550	550
C	mm	632	470	470
1 - System delivery	Ø	2"	2" 1/2	2" 1/2
2 - High temp. system return line	Ø	1" 1/2	2"	2"
3 - Low temp. system return line	Ø	2"	2" 1/2	2" 1/2
4 - Condensate drain	Ø mm	22	22	22

NOTE: if the system uses only high temperature terminals connect the system return line to the low temperature attachment (3), so that the entire exchange surface is used.

CENTRAL HEATING

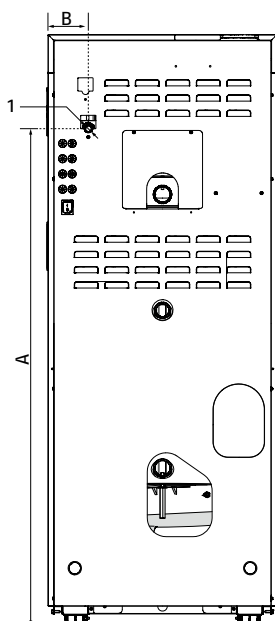
Floor-standing condensing gas boilers

GAS CONNECTION

The connection of the TAU Unit to the gas supply, whether methane or LPG, should be carried out respecting current regulations. Before carrying out the connection, ensure that:

- The type of gas is that for which the appliance has been set up for
- The pipes have been thoroughly cleaned and without any machining residue.

It is recommended that a suitably sized filter be installed.



* Indicative image

MODELS	UoM	TAU Unit 35	TAU Unit 50	TAU Unit 70	TAU Unit 100
A	mm	1256	1305	1405	1605
B	mm	147	105	98	98
1 - Gas fitting		1/2"	1/2"	1/2"	1/2"

MODELS	UoM	TAU Unit 115	TAU Unit 140	TAU Unit 190
A	mm	1605	1730	1730
B	mm	98	124	124
1 - Gas fitting		1/2"	1"	1"

FLUE GAS EXHAUST AND COMBUSTION AIR SUCTION

The appliance comes as standard configured for type B (B23,B23P,B53P), set up, therefore, to suck air directly into the installation room through the ventilation apertures that need to be made in conformity with Technical Standards.

It can become type C (C33,C43,C53,C83,C93) with the use of specific accessories. In this configuration the appliance will suction the air directly from outdoors with the possibility of coaxial or dual piping. For flue gas extraction and the intake of combustion air, it is essential to use only specific pipes for condensing boilers and ensure that they are correctly connected, as shown in the instructions supplied with the flue gas accessories. The realisation of the discharge and suction pipes should always respect current national, regional and provincial standards and regulations (UNI - CIG). The combustion gases leave the boiler body at a temperature close to that of the return water and permit the creation of exhaust flues made of plastic with a subsequent considerable saving in the overall installation cost.

To protect these pipe the TAU Unit boilers have a flue gases limit thermostat.

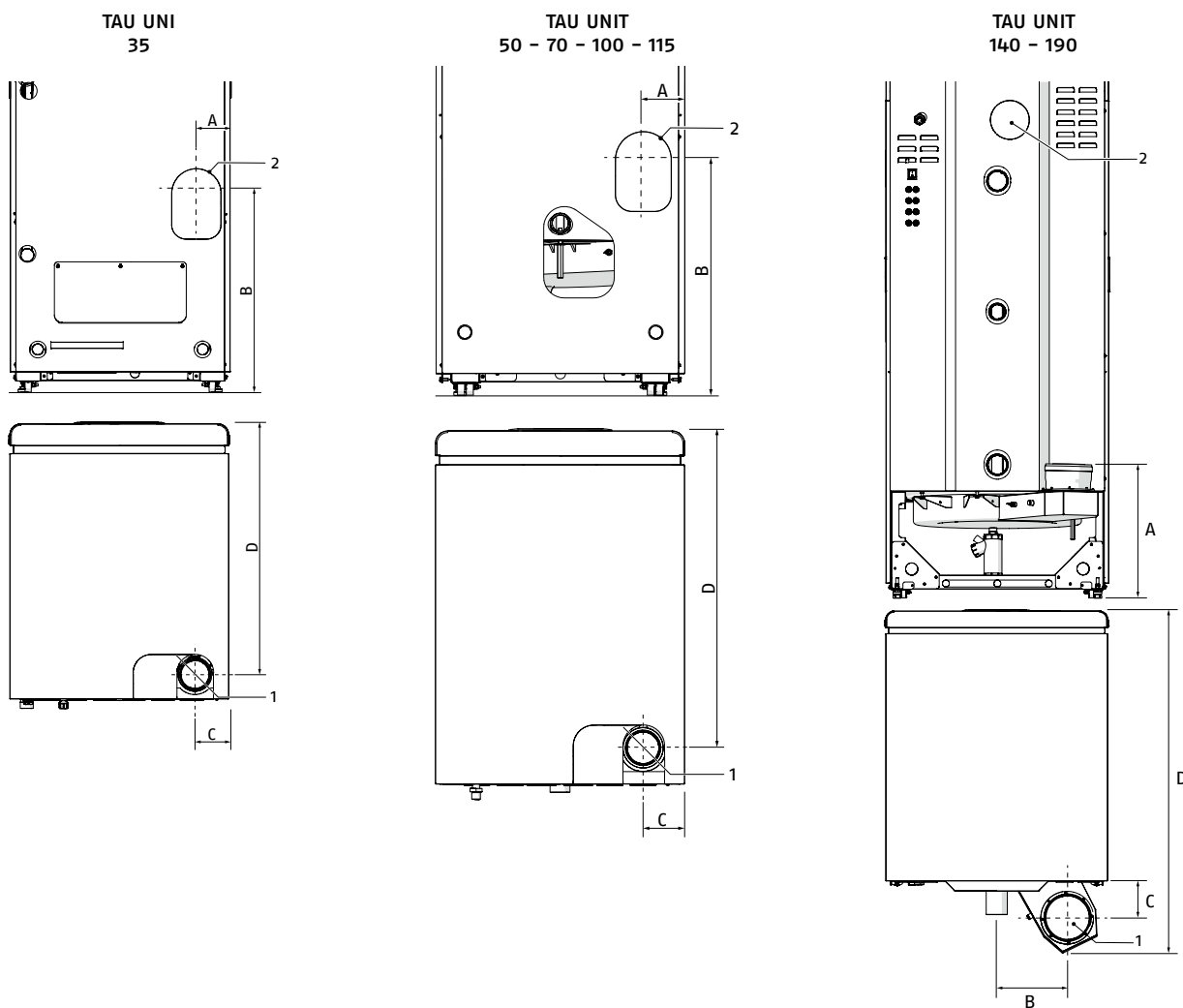
Do not connect this appliance's flue gas extraction pipes with those of other appliances, unless this is specifically authorised by the manufacturer. Non-compliance with this precaution may cause a build-up of carbon monoxide in the room where the appliance is installed. This could jeopardise people's health and safety.

Make sure that the combustion air (suction line air) is not contaminated by:

- waxes/chlorinated detergents
- chemical products based on swimming pool chlorine
- calcium chloride
- sodium chloride use to soften water
- refrigerant leaks
- paint or varnish removers
- chloridric acid/muriatic acid
- cements and glues
- anti-static softeners used in dryers
- chloride used for domestic or industrial applications as detergent, whitener or solvent
- adhesives used to fix construction products and the like.

To prevent contamination of the boiler, do not install the suction line air intakes and gas flue gases exhaust pipes near:

- dry-cleaners/laundry rooms and factories
- swimming pools
- metal processing plants
- beauty parlours
- fridge repair shops
- photo-processing facilities
- body-shops
- plastics manufacturing plants
- furniture workshops and manufacturing plants.



MODELS	U.M.	TAU Unit 35	TAU Unit 50	TAU Unit 70	TAU Unit 100	TAU Unit 115	TAU Unit 140	TAU Unit 190
A	mm	92	100	100	100	100	475	475
B	mm	543	515	515	515	515	255	255
C	mm	92	100	100	100	100	132	132
D	mm	691	763	763	760	760	1233	1233
1 - Flue gas exhaust	Ø mm	80	80	80	110	110	110	160
2 - Rear flue gas exhaust (accessory)*	Ø mm	80	80	80	110	110	-	-
3 - Combustion air suction (accessory)	Ø mm	-	-	-	-	-	110	160
Flue gas exhaust pipe wall through-hole	Ø mm	100	100	100	130	130	-	-
Air suction pipe wall through-hole	Ø mm	100	100	100	100	100	-	-
Coaxial flue gas exhaust/air suction for type C configurations (accessory)	Ø mm	80/125	80/125	80/125	110/160	110/160	-	-
Coaxial flue gas exhaust/air suction pipe wall through-hole	Ø mm	150	150	150	180	180	-	-

*Accessory available for models 35-115. Models 140-190 have a rear flue gas exhaust as standard.

CENTRAL HEATING

Floor-standing condensing gas boilers

TECHNICAL CHARACTERISTICS OF THE FLUE

The flue should meet the following requisites:

- should be made with materials that are impermeable to flue gases, suitable for withstanding the mechanical stresses, heat, and action of the combustion products and their condensates for prolonged periods
- be vertical in nature, free of bottlenecks, with deviations of the axis of no more than 45°
- be suitable for the specific operating conditions of the products and have an EC marking
- be the right size for meeting the requirements of flue gas draught/disposal required for the regular operation of the product
- be adequately insulated on the outside in order to prevent condensate and reduce the cooling of the flue gases
- a condensate drain system must be provided at the lower part of the flue.

The flue diameter should never be smaller than the diameter of the boiler's flue gas exhaust.

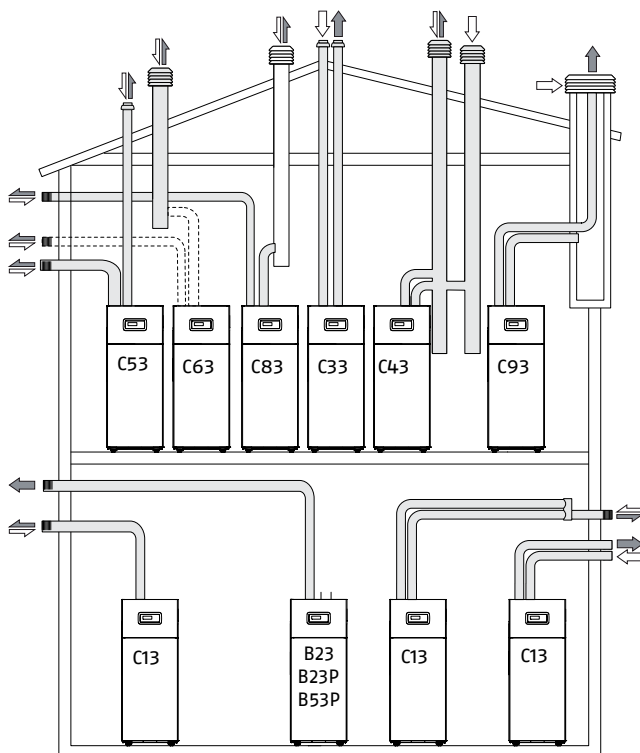
In configuration B23, the flue needs to provide the minimum depression envisaged by current Technical Standards, considering a "zero" pressure at the outlet of the boiler's flue gas exhaust.

TECHNICAL CHARACTERISTICS OF THE FLUE

Rigid pipes must be used for the connection to the flue, pipes which are resistant to temperature, condensation, mechanical stresses, insulated and sealed.

The sub-horizontal section should have a minimum inclination 5° towards the boiler and should adequately insulated. For long sub-horizontal sections (L>1 m) put a condensate drain system in between before the boiler entrance (as shown in the figure) so that any condensate that forms in this section of the pipe can be drained.

The discharge pipe should have a section that is greater than that of the attachment of the appliance's discharge pipe. For changes of direction, use a T-shaped fitting with an inspection plug that allows the piping to be easily cleaned periodically. Always make sure that after cleaning the inspection plugs are hermetically sealed with the relative gasket.



B23 Upstream fan. Suction of combustion air directly from the area where the boiler is installed. Discharge of combustion gases using horizontal or vertical pipes, and set up with ventilation intakes.

B23P Like B23 flue gas exhaust pipe designed to operate at a positive pressure.

B53P Like B23P but with pipes supplied by the manufacturer of the boiler.

C13 Concentric wall discharge. The pipes can be split, but the outlets should be concentric or sufficiently close so they are subject to similar wind conditions.

C33 Concentric discharge on the roof. The pipes can be split, but the outlets should be concentric or sufficiently close so they are subject to similar wind conditions (within a square with 100 cm sides and the difference of level between the terminal should be less than 100 cm).

C43 Discharge and suction in common separate flues, but subjected to similar wind and natural draught conditions.

C53 Separated discharge and suction on wall or roof, and in any event in areas with different pressure levels but on opposite walls.

C63 Upstream fan. Boiler to be connected to a combustion system for feeding air and for removing the combustion products, approved and sold separately.

C83 Discharge and suction separated and subject to natural draught. Wall suction. Discharge on individual or common stack. The collective stack should be isolated to prevent the forming of condensate.

C93 Fan in the combustion circuit upstream of the combustion chamber/heat exchanger. This configuration, used in the restoration of old systems or in the installation of condensing boilers, allows you to re-use a shaft or an old stack/flue that would otherwise have been totally useless.

INSTALLATION ROOM

The TAU UNIT boilers, since they generate over 35 kW of heat output, **MUST** be installed in a dedicated boiler room in compliance with applicable technical standards. There must also be a suitable system for collecting condensate and the flue gases.

Evaluate the spaces required for accessing the safety and adjustment devices and for carrying out maintenance.

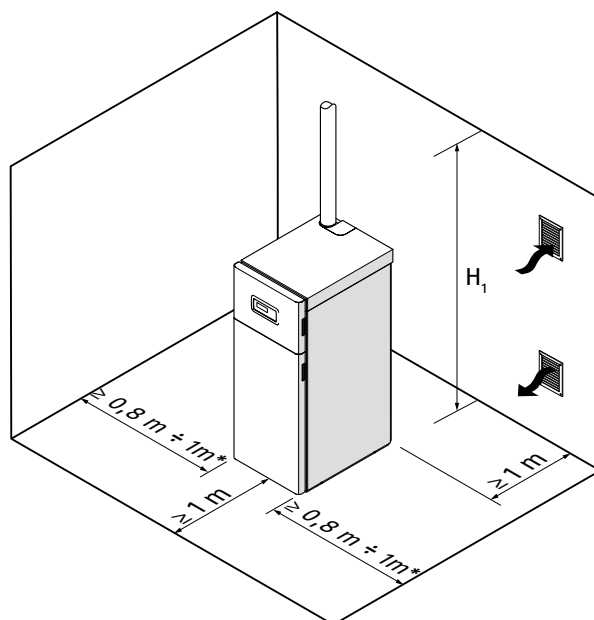
Check that the electric protection level of the appliance is adequate for the characteristics of the installation area.

In the event the boilers are fed with fuel gas of that has a specific weight greater than that of air, the electric parts will have to be placed higher than 500 mm off the ground.

The boilers cannot be installed outdoors, since they have not been designed to operate outside.

It is prohibited to cover or reduce the size of the ventilation openings in the room where the boiler is installed because this is indispensable for a correct combustion.

Prevent the combustion air from being contaminated by substances containing chlorine and fluorine (substances contained for example in detergents, paints and spray cans).



*0.8m recommended for TAU UNIT 35 – 115; 1 m recommended for TAU UNIT 140 – 190

** H1 = 2230 mm, opening position of the “upper flue gases chamber closure” to carry out maintenance operations (only for models 140 – 190)

The TAU Unit boiler can be installed in rooms that are permanently ventilated and equipped with suitably sized ventilation openings in line with Technical Standards and Regulations applicable to the installation site.

INSTALLATION ON APPLIANCES THAT ARE OLD OR THAT NEED MODERNISING

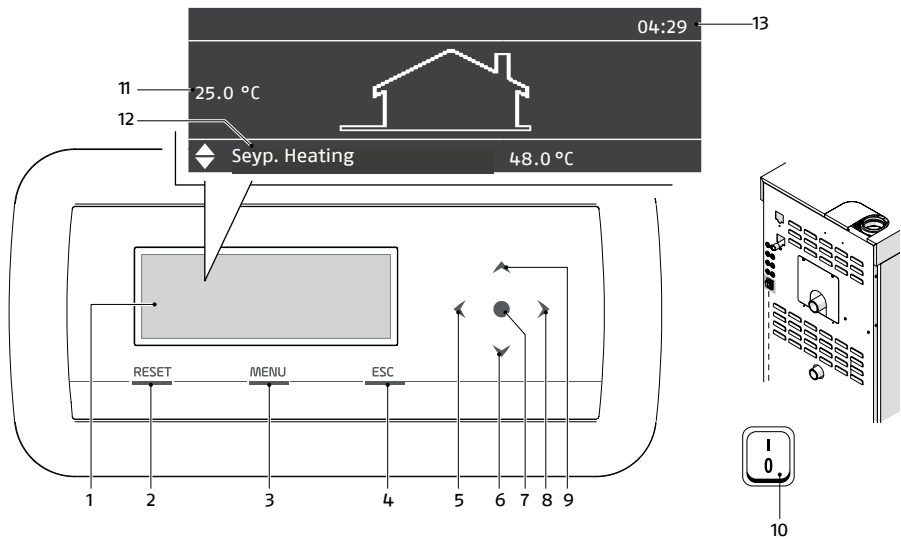
When the boiler is installed in old systems or systems being updated, make sure that:

- The flue is suitable for condensing appliances, for the temperatures of the combustion gases and that it has been designed and constructed in compliance with applicable standards. It is as straight as possible, sealed, isolated and that there are no blockages or bottlenecks
- The flue should have a connection for removing condensate
- The electrical system is installed in compliance with the specific standards and by qualified personnel
- The output, the discharge head and the flow direction of the circulation pumps is appropriate
- The gas supply line and any tank are implemented according to applicable standards
- The expansion tanks provide for the total absorption of the expansion of the fluid contained in the system.
- The system should be free of sludge and encrustations.

CENTRAL HEATING

Floor-standing condensing gas boilers

CONTROL PANEL



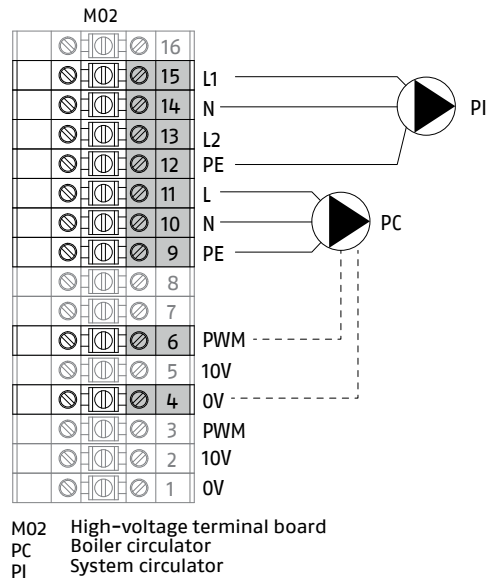
CONTROLS INTERFACE

- 1 255x80 backlit display (106,4x39,0mm)
- 2 RESET button: restores normal operations after a safety shut-down
- 3 MENU key: switches on the main menu
- 4 ESC key: in menu navigation, it enables you to exit a menu item and go back to the previous one
- 5 - 9 Navigation keys ◀, ▼, ●, ▶, ▲
- 10 Main switch (on the rear panel of the appliance)

DISPLAY

- 11 Outdoor temperature
- 12 Setpoint
- 13 Time

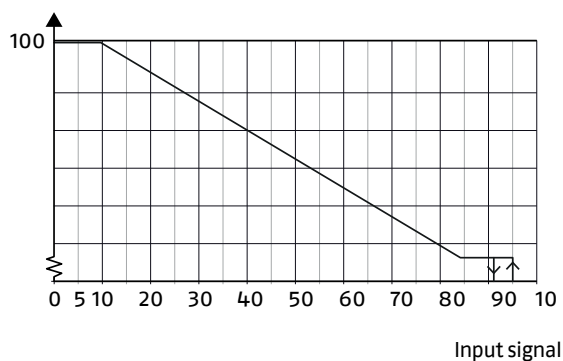
MODULATING CIRCULATORS CONNECTION



The regulator on the control panel can manage a modulating circulator (alternative to the standard 230Vac circulators). The circulator should be controlled by a low voltage PWM digital signal (pulse width modulation). The speed of the circulator changes in accordance with the input signal (see section PWM input signal). The main characteristics that the PWM signal should have are listed below.

PWM INPUT SIGNAL

Speed (%)



With high PWM signal percentages (Duty cycles) a hysteresis prevents the circulator from starting if the input signal oscillates around the status commutation value. With high PWM signal percentages, the speed of the circulator is high for reasons of safety. In the event that the boiler circulator does not receive any input signal, for example because of a broken signal cable, the circulator continues operating at maximum speed to dissipate the heat accumulated by the boiler as quick as possible.

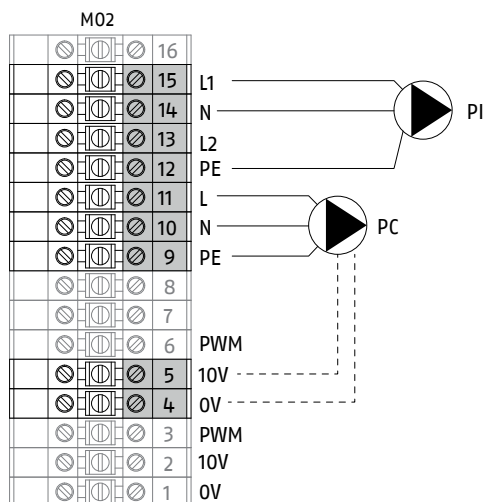
PWM signal (%)	Circulator status
<10	Maximum speed
>10 / <84	Variable speed (from min to max)
>84 / <91	Minimum speed
>91 / <95	Hysteresis range: on/off
>95 / <100	Standby: off

Check that the control logic of your pump is directly proportional (as shown in the graphic) and not inversely proportional.

TECHNICAL DATA

Maximum output	Symbol	Value
PWM input frequency	f	100-4000 Hz
Consumption in stand-by		< 1 W
High voltage level of the input signal	UiH	4-24 V
Low voltage level of the input signal	UiL	< 1 V
Current intensity of the input signal	IiH	< 10 mA
Duty cycle in input	PWM	0-100%

CONTROL OF CIRCULATORS 0-10 V



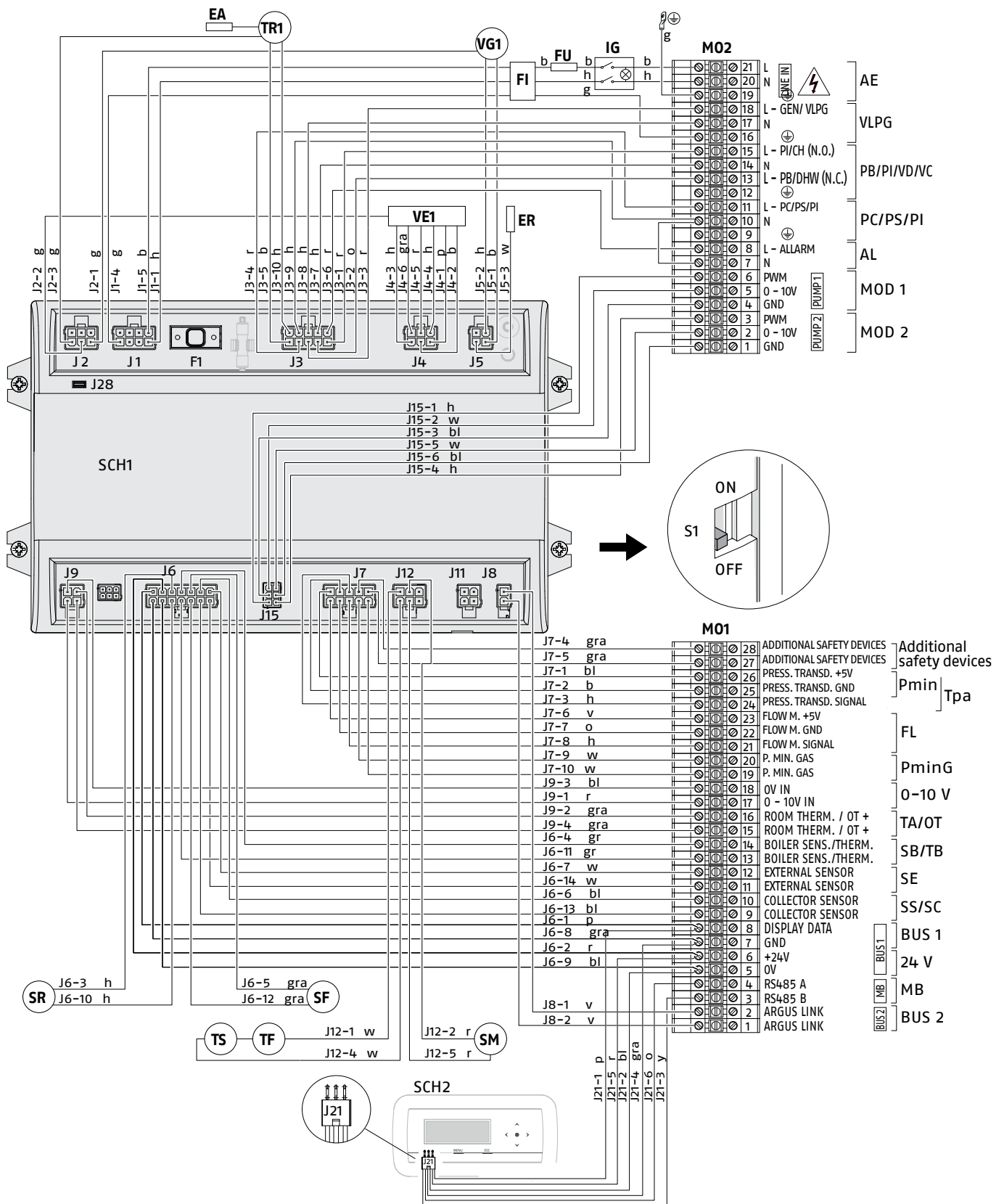
M02 High-voltage terminal board
 PC Boiler circulator
 PI System circulator

The regulator provides the 0-10V modulating control of a circulator (as alternative to the standard 230Vac circulators).

CENTRAL HEATING

Floor-standing condensing gas boilers

WIRING DIAGRAM



Low voltage key

M01	Low-voltage terminal board
Additional safety devices	Additional outdoor safety devices (accessory)
Tpa	Water pressure transducer (accessory)
Pmin	Minimum water pressure switch (accessory)
FL	Flow meter (accessory)
PminG	Minimum gas pressure switch (accessory)
TA/OT	Room thermostat (low voltage 24V) / Open Therm interface (accessory)
SB/TB	Storage cylinder probe/Storage cylinder thermostat (accessory)
SE	Outdoor temperature sensor (accessory)
SS	Primary cascade circuit system probe (accessory)
SC	Secondary cascade circuit system probe (accessory)
BUS 1	Bus Managing/Zone
24 V	Output 24V
MODBUS	Modbus output
BUS 2	Bus Depending
SCH1	Main board
SCH2	Display and control board
SM	Flow sensor
SR	Return temperature sensor
SF	Flue gas probe
TS	Water safety thermostat
TF	Flue gas thermostat

Cable colour

b	brown
bl	black
g	yellow/green
gr	green
gra	gray
h	blue
o	orange
p	pink
r	red
v	violet
w	white
y	yellow

High voltage key

M02	High voltage terminal board
AE	Electrical supply (230V ~ 50Hz)
PI	System circulator
VLPg	LPG shut-off solenoid valve (accessory)
PB	Storage cylinder circulator
VC	Boiler 2-way interception valve
VD	3-way domestic hot water diverter valve
PC	Boiler circulator
PS	System circulator
AL	Alarm output
MOD 1	PWM/0-10V PC/PS output
MOD 2	PWM/0-10V PI output
IG	Main switch
FI	Network filter
FU	Fuse
TR1	Ignition transformer
EA	Ignition electrode
ER	Detector electrode
VG1	Gas valve
VE1	Variable speed fan

CENTRAL HEATING

Floor-standing condensing gas boilers

THE WATER IN THE HEATING SYSTEMS

It is ABSOLUTELY NECESSARY to treat the water system for the heat generator to work properly and to guarantee its service life together with all its components. This not only applies to jobs carried out on existing installations but also on new installations. Sludge, lime-scale and pollutants present in the water can cause permanent damage to the heat generator, also within a short time and regardless of the quality standards of the materials used. For additional information regarding the type and the use of additives contact the Technical Assistance Centre.

Always comply with the legislation applicable in the country of installation.

CHEMICAL AND PHYSICAL CHARACTERISTICS

The chemical and physical characteristics of water used in central heating systems must conform to the requirements of EN 14868 standard and to the following tables:

STEEL GENERATORS with Furnace Output < 150 kW			
		Initial filling water	Regular ser- vice water (*)
ph		6-8	7,5-9,5
Hardness	°fH	< 10°	< 10°
Electrical con- ductivity	µs/cm		< 150
Chlorides	mg/l		< 20
Sulphides	mg/l		< 20
Nitrides	mg/l		< 20
Iron	mg/l		< 0,5

(*) values for water in system after 8 weeks of operation

STEEL GENERATORS with Furnace Output > 150 kW			
		Initial filling water	Regular ser- vice water (*)
ph		6-8	7,5-9,5
Hardness	°fH	< 5°	< 5°
Electrical con- ductivity	µs/cm		< 100
Chlorides	mg/l		< 10
Sulphides	mg/l		< 10
Nitrides	mg/l		< 10
Iron	mg/l		< 0,5

(*) values for water in system after 8 weeks of operation

General note on water used to top up:

If softened water is used, after 8 weeks verify again that the water in the system respects the above limits, in particular for electrical conductivity if demineralised water is used controls are not required.

THE HEATING SYSTEMS

NEW CENTRAL HEATING SYSTEMS

The system must be filled up slowly the first time; once it is filled and the air expelled, the system should never need to be topped up. The system should be operated at the maximum working temperature the first time it is started up, in order to facilitate de-aeration (a very low water temperature prevents the release of gases).

Reconditioning old central heating systems

When replacing the boiler, if the water quality in the existing systems conforms to recommendations we do not recommend a fresh filling. If the quality of water fails to conform to requirements, we recommend reconditioning the old water or separating the systems (water quality in the boiler circuit must conform to requirements).

CORROSION

Deposit corrosion

Under-deposit corrosion is an electrochemical process, due to the presence of sand, rust, etc., inside the mass of water. These solid substances generally deposit on the bottom of the boiler (sludge), on tube and pipe heads or in the gaps between pipes and tubes. Micro-corrosion phenomena may be triggered off owing to the difference in electrochemical potential coming to be created between the material in contact with the impurity and the surrounding one.

Stray current corrosion

Corrosion from stray currents can occur due to the differing electrical potentials between water in the boiler and the metallic mass of the boiler or piping. This process leaves unmistakeable traces i.e. small regular conical holes.

ELIMINATING AIR AND GAS FROM THE HEATING SYSTEMS

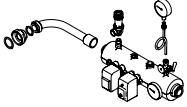
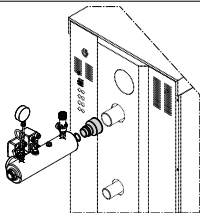
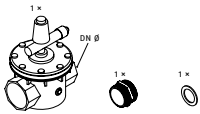
If oxygen enters a circuit continuously or even intermittently (e.g. in under-floor heating systems whose pipes are not protected by impermeable synthetic sheaths, in circuits with open expansion vessels, or in circuits that require frequent top-ups) always separate the boiler's water circuit from the central heating circuit.

Mistakes to avoid and precautions.

From what we have seen it is therefore important to avoid two factors possibly leading to the above mentioned processes i.e. contact between air and water in the installation and regular topping up with fresh water. To eliminate contact between air and water (and to prevent the latter from becoming oxidized), it is necessary:

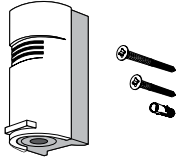
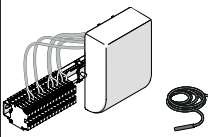
- That the expansion system be a closed vessel, correctly sized and with the right pre-loading pressure (to be regularly checked)
- That the system be always at a pressure higher than the atmospheric pressure at any point (including the pump suction side) and under any operating conditions (all seals and hydraulic couplings in a system are designed to withstand pressure towards the outside, but not depression)
- That the system has not been made with gas-permeable materials (e.g. plastic pipes without an oxygen barrier for underfloor heating systems).

Lastly we would remind you that the warranty does not cover breakdowns incurred by the boiler due to deposits and corrosion.

ADDITIONAL SAFETY DEVICES								
	TAU UNIT	35	50	70	100	115	140	190
	Additional safety devices: • Manifold with thermal insulation • Generator-manifold connection bend • Safety valve Minimum pressure switch • Safety/lockout pressure switch (maximum pressure) • Pressure gauge 0-10 bar with damper coil • Thermometer 0-120°C		●	●	●	●	●	●
	Reduction for additional safety devices 2"1/2 F to 1"1/2 M						●	●
	Comb. interception valve (VIC)-Ø G.1"-TS=97°C Capillary L=5 m. Recommended up to maximum output 131 kW, calculated considering a gas feed pressure = 20 mbar		●	●	●	●		
	Comb. interception valve (VIC)-Ø G.1½"-TS=97°C Capillary L=5 m. Recommended up to maximum output 230 kW, calculated considering a gas feed pressure = 20 mbar						●	●
	Flow meter DN15 Supplied with reduction M-F 1" 1/2 - 1"		● ΔT= 20°C					
	Flow meter DN20 Supplied with reduction M-F 1" 1/2 - 1"		● ΔT= 10/15°C	● ΔT= 15/20°C	● ΔT= 20°C			
	Flow meter DN25			● ΔT= 10°C	● ΔT= 15°C	● ΔT= 15/20°C	● ΔT= 15/20°C	
	Flow meter DN32				● ΔT= 10°C	● ΔT= 10°C	● ΔT= 10°C	● ΔT= 10/15/20°C

CENTRAL HEATING

Floor-standing condensing gas boilers

MANAGEMENT OF SECONDARY CIRCUIT AND ELECTRONIC ACCESSORIES								
	TAU UNIT	35	50	70	100	115	140	190
	Outdoor temperature sensor: NTC 10 kOhm@25°C, used for "climatic" operation	•	•	•	•	•	•	•
	Electronic kit for managing direct or additional mixed zone (max 16)	•	•	•	•	•	•	•
	Secondary/storage cylinder probe: contains 2 NTC 10 kOhm@25°C probes	•	•	•	•	•	•	•

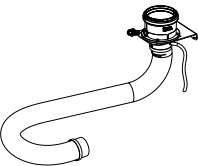
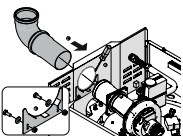
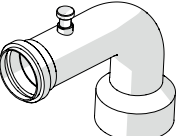
RICLOUD ROOM CONTROLS FOR MANAGING THE DOMESTIC COMFORT FROM SMARTPHONE AND TABLET								
	TAU UNIT	35	50	70	100	115	140	190
	Hi, Comfort T100 Wi-Fi Complete KIT for wi-fi installation, containing a room control Hi, Comfort T100 and gateway Hi, Comfort G100-W. Package includes batteries, wires, transformer, screws, anchors, double-sided tape, magnetic tape and technical instructions. Class-ErP grant: VI-4% (*); I-1% (**).	•	•	•	•	•	•	•
	Hi, Comfort T100 Room thermostat Hi, Comfort T100 ideal for replacement and new buildings, both for single zone and for multi-zones application. Hi, Comfort T100 can be connected to the internet coupled with Hi, Comfort G100-W (optional). Package includes batteries, screws, anchors, double-sided tape and technical instructions. Class-ErP grant: V-3% (*); I-1% (**).	•	•	•	•	•	•	•
	Wi-Fi box. Device that provides the connection to the Internet using the home Wi-Fi network . It also provides the BUS connection to the boiler for advanced remote management. The pack also includes: connection cables, transformer, magnetic adhesive.	•	•	•	•	•	•	•
	RF-Wireless boiler receiver. Radio frequency device that provides the Wi-Fi connection of the RiCLOUD to the boiler (both on/off as well as via BUS). It can also be used where a weak Wi-Fi signal does not allow the Wi-Fi box to be connected near the boiler.	•	•	•	•	•	•	•

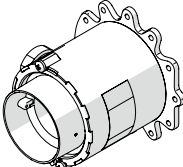
* with OT BUS connection

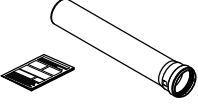
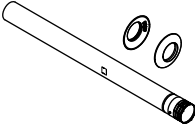
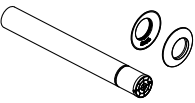
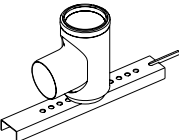
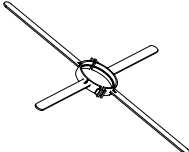
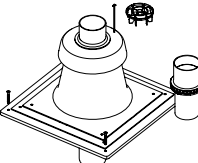
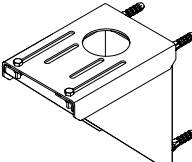
** in ON/OFF management

CENTRAL HEATING

Floor-standing condensing gas boilers

AIRTIGHT COMBUSTION CONVERSION (TYPE "C") AND REAR FLUE GAS EXHAUST CONVERSION KIT								
	TAU UNIT	35	50	70	100	115	140	190
	Type C conversion kit (35-50): DN80 attachment	●	●					
	Type C conversion kit (70): DN80 attachment			●				
	Type C conversion kit (100-115): DN80 attachment				●	●		
	Type C conversion kit (140-190): DN110 attachment						●	●
	Rear flue gases outlet conversion kit (50-70)		●	●				
	Rear flue gases outlet conversion kit (100-115)				●	●		

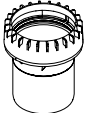
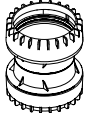
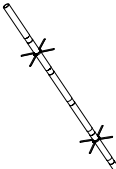
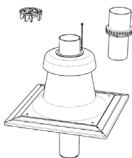
LPG CONVERSION KIT								
	LPG conversion kit (35)	●						
	LPG conversion kit (50)		●					
	LPG conversion kit (70)			●				
	LPG conversion kit (100)				●			
	LPG conversion kit (115)					●		

SINGLE FLUE GAS EXHAUST OR DOUBLE SUCTION/DISCHARGE Ø 80 MM SYSTEMS – MATERIAL PP (DO NOT EXPOSE TO DIRECT SUNLIGHT)								
	TAU UNIT	35	50	70	100	115	140	190
	Extension Ø 80 M-F L = 500 mm	●	●	●	● (*)	● (*)		
	Extension Ø 80 M-F L = 1000 mm	●	●	●	● (*)	● (*)		
	PrCooldu. 2n0g13a75 Ø05 8- 100/ 1M7 -- Efd. L0 = 2000 mm	●	●	●	● (*)	● (*)		
	Bend 90° Ø 80	●	●	●	● (*)	● (*)		
	Bend 45° Ø 80	●	●	●	● (*)	● (*)		
	Flue gas exhaust terminal Ø 80 L = 985 mm	●	●	●	● (*)	● (*)		
	Suction line terminal Ø 80 L = 662 mm	●	●	●	● (*)	● (*)		
	Stack support kit Ø 80	●	●	●	● (*)	● (*)		
	Pipe spacers Ø 80 in the flue gases pipe: Max di- mension 523 mm	●	●	●	● (*)	● (*)		
	Straight inspection mani- fold Ø 80: total length 270 mm	●	●	●	● (*)	● (*)		
	Stack cover Ø 80	●	●	●	● (*)	● (*)		
	Support bracket for con- densate collection kit Ø 80	●	●	●	● (*)	● (*)		

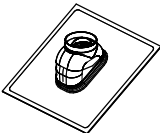
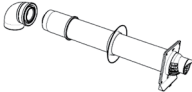
*only for combustion air suction

CENTRAL HEATING

Floor-standing condensing gas boilers

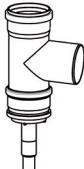
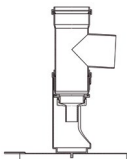
SINGLE FLUE GAS EXHAUST OR DOUBLE SUCTION/DISCHARGE Ø 80 MM SYSTEMS – MATERIAL PP (DO NOT EXPOSE TO DIRECT SUNLIGHT)								
	TAU UNIT	35	50	70	100	115	140	190
	Rigid/flexible fitting Ø 80	•	•	•	• (*)	• (*)		
	Flexible/flexible fitting Ø 80	•	•	•	• (*)	• (*)		
	Flexible/rigid fitting Ø 80	•	•	•	• (*)	• (*)		
	Drain kit	•	•	•	• (*)	• (*)		
	T-junction kit Ø 80	•	•	•	• (*)	• (*)		
	T-junction closure kit Ø 80 for condensate drain	•	•	•	• (*)	• (*)		
	Flexible extension Ø 80-L = 12.5 m with 8 spacers	•	•	•	• (*)	• (*)		
	Stack cover Ø 80 for rigid/ flexible system	•	•	•	• (*)	• (*)		

*only for combustion air suction

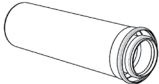
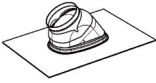
CONCENTRIC SUCTION/DISCHARGE SYSTEMS Ø 80/125 MM (TYPE "C" AIRTIGHT COMBUSTION KIT NECESSARY) – MATERIAL PP (DO NOT EXPOSE TO DIRECT SUNLIGHT)								
	TAU UNIT	35	50	70	100	115	140	190
	Double adaptor Ø 80/80-concentric Ø 80/125	•	•	•				
	Bend 45° Ø 80/125	•	•	•				
	Bend 90° Ø 80/125	•	•	•				
	Bend 90° with inspection Ø 80/125	•	•	•				
	Extension Ø 80/125 L = 500 mm	•	•	•				
	Extension Ø 80/125 L = 1000 mm	•	•	•				
	Roof terminal Ø 80/125 mm	•	•	•				
	Tile Ø 125 mm inclination 25-45%	•	•	•				
	Wall discharge terminal Ø 80/125	•	•	•				
	Connection element to the flue gases pipe Ø 80/125	•	•	•				

CENTRAL HEATING

Floor-standing condensing gas boilers

SINGLE FLUE GAS EXHAUST OR DOUBLE SUCTION/DISCHARGE Ø 110 MM SYSTEMS – MATERIAL PP (DO NOT EXPOSE TO DIRECT SUNLIGHT)								
	TAU UNIT	35	50	70	100	115	140	190
	Bend 90° Ø 110 with inspection	● **	● **	● **	●	●	●	
	Bend 45° Ø 110	● **	● **	● **	●	●	●	
	Bend 90° Ø 110	● **	● **	● **	●	●	●	
	Extension Ø 110 L = 1000 mm	● **	● **	● **	●	●	●	
	T-junction kit Ø 110 with condensate drain	● **	● **	● **	●	●	●	
	T-junction kit Ø 110 with stack support condensate drain	● **	● **	● **	●	●	●	
	T-junction kit Ø 110	● **	● **	● **	●	●	●	
	Stack cover Ø 110 with terminal	● **	● **	● **	●	●	●	

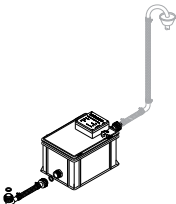
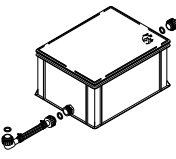
** an Ø80-110mm adaptor is required

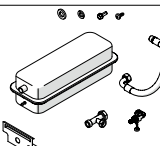
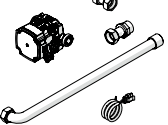
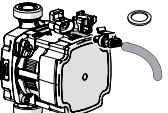
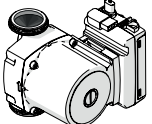
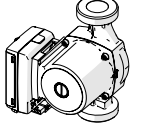
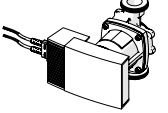
CONCENTRIC SUCTION/DISCHARGE SYSTEMS Ø 110/160 MM (TYPE "C" AIRTIGHT COMBUSTION KIT NECESSARY) – MATERIAL PP (DO NOT EXPOSE TO DIRECT SUNLIGHT)								
	TAU UNIT	35	50	70	100	115	140	190
	Extension Ø 110 L = 145 mm	● **	● **	● **	●	●	●	
	Adaptor Ø 80/110	● **	● **	● **	●	●	●	
	Double adaptor Ø 110/110 - concentric Ø 110/160	● **	● **	● **	●	●	●	
	Bend 45° Ø 110/160	● **	● **	● **	●	●	●	
	Bend 90° Ø 110/160	● **	● **	● **	●	●	●	
	Extension Ø 110/160 L = 500 mm	● **	● **	● **	●	●	●	
	Extension Ø 110/160 L = 1000 mm	● **	● **	● **	●	●	●	
	Tile Ø 160 inclination 25-45%	● **	● **	● **	●	●	●	
	Bend 90° with inspection Ø 110/160 mm	● **	● **	● **	●	●	●	
	Roof outlet Ø 110/160 mm	● **	● **	● **	●	●	●	

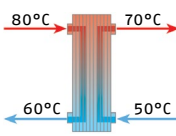
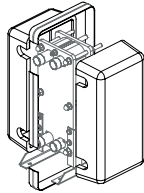
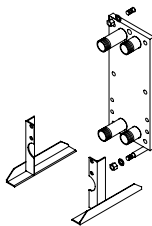
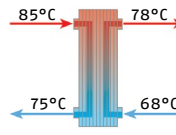
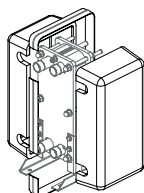
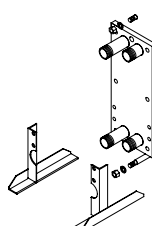
** an Ø80-110mm adaptor is required

CENTRAL HEATING

Floor-standing condensing gas boilers

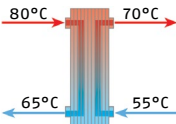
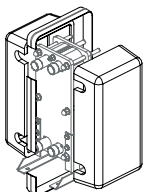
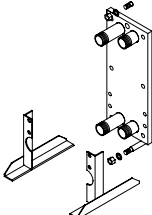
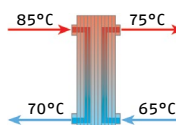
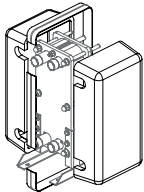
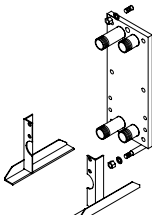
TREATMENT SYSTEMS FOR NEUTRALISING CONDENSATE								
	TAU UNIT	35	50	70	100	115	140	190
	Neutralisation kit HN2 up to 270 kW		●	●	●	●	●	●
	Neutralisation kit N2 up to 450 kW		●	●	●	●	●	●

PRIMARY CIRCULATION PUMPS FOR PLATE HEAT EXCHANGERS								
	TAU UNIT	35	50	70	100	115	140	190
	Expansion tank (35) to be installed inside the boiler	●						
	Circulation pump (35) to be installed inside the boiler	●						
	Primary circuit pump (35-50)	● $\Delta T = 10/15/20^{\circ}\text{C}$	● $\Delta T = 15/20^{\circ}\text{C}$	● $\Delta T = 20^{\circ}\text{C}$				
	Primary circuit pump (70)			● $\Delta T = 15^{\circ}\text{C}$	● $\Delta T = 20^{\circ}\text{C}$			
	Primary circuit pump (100)		● $\Delta T = 10^{\circ}\text{C}$		● $\Delta T = 15^{\circ}\text{C}$	● $\Delta T = 20^{\circ}\text{C}$		
	Primary circuit pump (115-140-190)			● $\Delta T = 10^{\circ}\text{C}$	● $\Delta T = 10^{\circ}\text{C}$	● $\Delta T = 10/15^{\circ}\text{C}$	● $\Delta T = 15/20^{\circ}\text{C}$	● $\Delta T = 15/20^{\circ}\text{C}$
	MAGNA3 32-120 F						● $\Delta T = 10^{\circ}\text{C}$	
	MAGNA3 40-120 F							● $\Delta T = 10^{\circ}\text{C}$

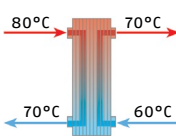
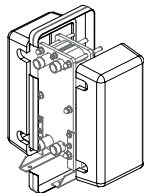
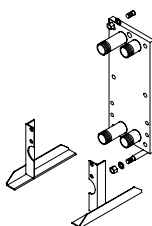
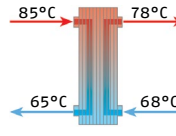
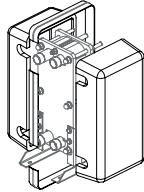
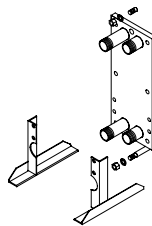
COMBINATIONS WITH HEATGATE INSPECTIONABLE PLATE HEAT EXCHANGERS, BOILER WITH OUTPUT AT $\Delta T=20^{\circ}\text{C}$								
	TAU UNIT	35	50	70	100	115	140	190
$\Delta T_{\text{m}} = 10^{\circ}\text{C}$   	SP 20-DN32 21 (21A) N	●						
	Insulation kit SP 20-29							
	Ground fixing kit SP 20-30							
	SP 20-DN32 29 (29A) N		●	●				
	Insulation kit SP 20-29							
	Ground fixing kit SP 20-30							
	SP 20 - DN32 41 (41A) N				●			
	Insulation kit SP 20-49							
	Ground fixing kit SP 20-30							
	SP 20-DN32 49 (49A) N					●		
	Insulation kit SP 20-49							
	Ground fixing kit SP 20-30							
	SP 35-DN50 25 (25A) N						●	
	Insulation kit SP 35-41							
	Ground fixing kit SP 35-40							
$\Delta T_{\text{m}} = 7.2^{\circ}\text{C}$   	SP 20-DN32 29 (29A) N	●						
	Insulation kit SP 20-29							
	Ground fixing kit SP 20-30							
	SP 20 - DN32 41 (41A) N		●					
	Insulation kit SP 20 49							
	Ground fixing kit SP 20-30							
	SP 20 - DN32 49 (49A) N			●				
	Insulation kit SP 20 49							
	Ground fixing kit SP 20-30							
	SP 35 - DN50 31 (31A) N				●			
	Insulation kit SP 35 41							
	Ground fixing kit SP 35-40							
	SP 35-DN50 35 (35A) N					●		
	Insulation kit SP 35- 41							
	Ground fixing kit SP 35-40							
	SP 35 - DN50 39 (39A) N						●	
	Insulation kit SP 35 41							
	Ground fixing kit SP 35-40							
	SP 35 - DN50 57 (57A) N							●
	Insulation kit SP 35 71							
	Ground fixing kit SP 35-40							

CENTRAL HEATING

Floor-standing condensing gas boilers

COMBINATIONS WITH HEATGATE INSPECTIONABLE PLATE HEAT EXCHANGERS, BOILER WITH OUTPUT AT $\Delta T=15^{\circ}\text{C}$								
	TAU UNIT	35	50	70	100	115	140	190
$\Delta T_{\text{ml}} = 10^{\circ}\text{C}$   	SP 20-DN32 21 (21A) N							
	Insulation kit SP 20-29	●	●					
	Ground fixing kit SP 20-30							
	SP 20-DN32 29 (29A) N							
	Insulation kit SP 20-29			●				
	Ground fixing kit SP 20-30							
	SP 20 - DN32 41 (41A) N							
	Insulation kit SP 20-49				●			
	Ground fixing kit SP 20-30							
	SP 20-DN32 49 (49A) N							
	Insulation kit SP 20-49					●		
	Ground fixing kit SP 20-30							
	SP 35-DN50 25 (25A) N							
	Insulation kit SP 35-41						●	
	Ground fixing kit SP 35-40							
	SP 35 - DN50 35 (35A) N							
	Insulation kit SP 35 41							●
	Ground fixing kit SP 35-40							
$\Delta T_{\text{ml}} = 7.2^{\circ}\text{C}$   	SP 20-DN32 21 (21A) N							
	Insulation kit SP 20-29	●						
	Ground fixing kit SP 20-30							
	SP 20 - DN32 29 (29A) N							
	Insulation kit SP 20 29		●					
	Ground fixing kit SP 20-30							
	SP 20 - DN32 41 (41A) N							
	Insulation kit SP 20 49			●				
	Ground fixing kit SP 20-30							
	SP 35 - DN50 31 (31A) N							
	Insulation kit SP 35 41				●	●		
	Ground fixing kit SP 35-40							
	SP 35-DN50 39 (39A) N							
	Insulation kit SP 35- 41						●	
	Ground fixing kit SP 35-40							
	SP 35 - DN50 57 (57A) N							
	Insulation kit SP 35 71							●
	Ground fixing kit SP 35-40							

COMBINATIONS WITH HEATGATE INSPECTIONABLE PLATE HEAT EXCHANGERS, BOILER WITH OUTPUT AT $\Delta T=10^{\circ}\text{C}$

	TAU UNIT	35	50	70	100	115	140	190
$\Delta T_{ml} = 10^{\circ}\text{C}$   	SP 20-DN32 21 (21A) N	●						
	Insulation kit SP 20-29							
	Ground fixing kit SP 20-30							
	SP 20-DN32 29 (29A) N		●					
	Insulation kit SP 20-29							
	Ground fixing kit SP 20-30							
	SP 20 - DN32 41 (41A) N			●				
	Insulation kit SP 20-49							
	Ground fixing kit SP 20-30							
	SP 35-DN50 25 (25A) N				●			
	Insulation kit SP 35-41							
	Ground fixing kit SP 35-40							
	SP 35-DN50 31 (31A) N					●		
	Insulation kit SP 35-41							
	Ground fixing kit SP 35-40							
	SP 35 - DN50 35 (35A) N						●	
	Insulation kit SP 35 41							
	Ground fixing kit SP 35-40							
	SP 35-DN50 45 (45A) N							●
	Insulation kit SP 35-71							
	Ground fixing kit SP 35-40							
$\Delta T_{ml} = 7.2^{\circ}\text{C}$   	SP 20 - DN32 21 (21A) N	●						
	Insulation kit SP 20-29							
	Ground fixing kit SP 20-30							
	SP 20 - DN32 29 (29A) N		●					
	Insulation kit SP 20 29							
	Ground fixing kit SP 20-30							
	SP 20 - DN32 41 (41A) N			●				
	Insulation kit SP 20-49							
	Ground fixing kit SP 20-30							
	SP 35-DN50 25 (25A) N				●			
	Insulation kit SP 35- 41							
	Ground fixing kit SP 35-40							
	SP 35 - DN50 31 (31A) N					●		
	Insulation kit SP 35 41							
	Ground fixing kit SP 35-40							
	SP 35 - DN50 35 (35A) N						●	
	Insulation kit SP 35 41							
	Ground fixing kit SP 35-40							

CENTRAL HEATING

Floor-standing condensing gas boilers

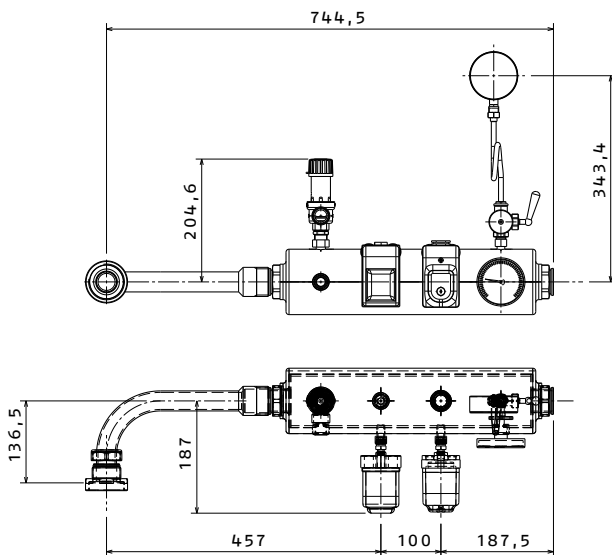
COMBINATIONS WITH HEATGATE INSPECTIONABLE PLATE HEAT EXCHANGERS, BOILER WITH OUTPUT AT ΔT=10°C								
	TAU UNIT	35	50	70	100	115	140	190
	SP 35-DN50 45 (45A) N							●
	Insulation kit SP 35-71							
	Ground fixing kit SP 35-40							

Below is a detailed look at the main accessories.

ADDITIONAL SAFETY DEVICES ACCESSORIES

MANIFOLD KIT WITH SAFETY DEVICES

Inside the boiler there is a safety thermostat calibrated at 110°C ; all the other devices are installed on the manifold (except the flow meter and the VIC that, since it a function of the respective design outputs, are available as wall accessories):



The manifold kit includes:

- Manifold with reduction nipples and thermal insulation
- Generator-manifold connection bend (to be used according to plant engineering requirements)
- Safety valve with certificate (single copy to be kept that CANNOT BE DUPLICATED)
- Minimum pressure switch
- Safety/lockout pressure switch (maximum pressure)
- Pressure gauge 0-10 bar with damper coil
- Thermometer 0-120°C
- manometer and 4,5 bar safety valve kit (50 and 70 models)
- manometer and 4 bar safety valve kit (100,115,140 and 190 models)

Characteristics of the safety devices

The valve has the following characteristics:

- **EC marking:** the VST safety valves meet the requirements of the Directive 97/23/EC (PED), regarding pressurised equipment. The valves fall within category IV considered the top risk category since they are safety devices and bear the EC marking followed by the number 1115 that identifies the approving body.
- **SAFETY DEVICE:** The VST Series safety valves are manufactured in accordance with the specifications and requirements set out in the Riello Collection, Chapter R.2.A (2009 Edition 2009) and are accompanied by the safety type-approval certificate and calibration certificate. The SAFETY type-approval certificate is issued to the manufacturer following verification that the valve fully complies with the operating characteristics required by the regulations. The valves are tested individually and supplied complete with a calibration report, in a single copy (NOT TO BE DUPLICATED, to be retained) bearing the valve's serial number, stamped on the non-removable metal disc fixed within the handle. The calibration report must accompany the valve for the entire duration of its service life.

Model	VST 15 1/2" x 3/4" 4,5 bar
Body and cap	brass CW617N
Membrane and sealing gaskets	EPDM
Nominal pressure	PN10
Overpressure	10%
Reseating pressure	< 20%
Maximum operating temperature	-10°C / + 120°C
PED category	IV
Hydraulic connection	1/2" input / 3/4 F discharge
Opening pressure	4,5 bar
Discharge pressure	4,95 bar
Closure pressure	3,60 bar
Discharge orifice diameter	15 mm
Discharge orifice cross-section	1,7671 cm ²
Outflow coefficient (K)	0,71
Discharge output	344,78 kg/h
Nominal output of the generator	199,97 kW
Safety valve	
Nominal pressure	PN10
Overpressure	10%
Reseating pressure	<20%
Maximum operating temperature	-10°C÷120°C
Calibration pressure	4 bar
PED category	IV
Hydraulic connection	3/4" (x 1") F
Discharge flow rate	637,17 kg/h
Overall nominal output	369,55 kW
Certified and calibrated	INAIL
Nipples	
Hydraulic attachments	3/4"-3/4" M-M
Pressure gauge	
Measuring range	0-6 bar
Complies with the standard	EN 837-1
In accordance with the technical requirements	INAIL
Radial connection	G 3/8 B
Accuracy class	1,6

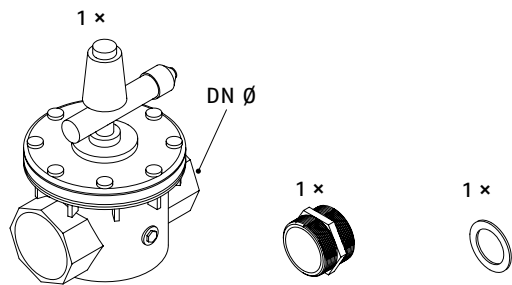
The minimum pressure switch meets the requirements of point 8 of the Raccolta R Cap. R.3.B (2009 Edition) and has the following characteristics:

Type	Manual reset minimum pressure switch
Maximum pressure	5 bar
Adjustment field	0,5 ÷ 1,7 bar
Calibration pressure (factory setting)	1,0 bar
Ambient temperature range	-10°C ÷ + 55°C
Maximum operating temperature	0°C ÷ 110°C
Hydraulic attachments	G 1/4" F

The safety/lockout pressure switch (maximum pressure) meets the requirements of point 1.7 of the Raccolta R Cap. R.2.B (2009 Edition) and point 10.3 of the Raccolta R Cap. R.1.B (2009 Edition) and has the following characteristics:

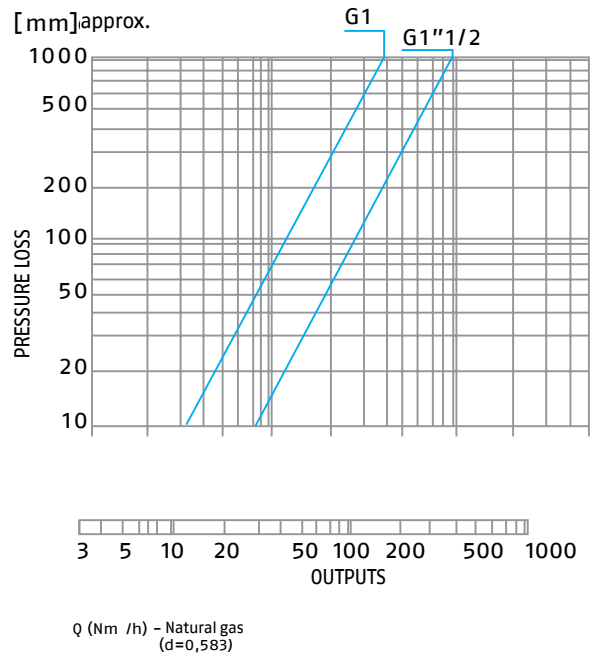
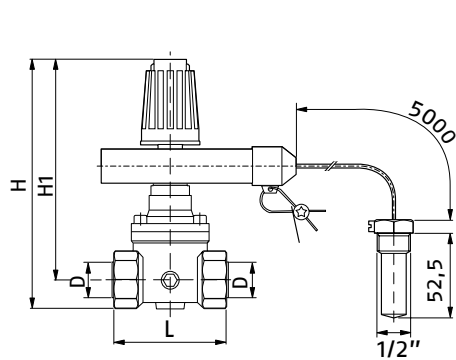
Model	PMR5
Type	Manual reset safety/lockout pressure switch (maximum pressure)
Maximum pressure	5 bar
Adjustment field	2,0 ÷ 4,5 bar
Calibration pressure (factory setting)	3,0 bar
Manufacturing tolerance	± 0,15 bar
Ambient temperature range	55°C
Maximum operating temperature	20°C ÷ 110°C
Hydraulic attachments	G 1/4" F

FUEL SHUT-OFF VALVE (VIC)



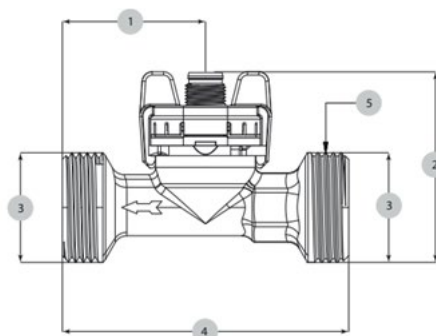
TECHNICAL CHARACTERISTICS

Body	Die-cast aluminium	
Heat sensitive element	Liquid filled	
Connections	Gas thread FF (ISO 228/1)	
Pressure test points (mod. 1/2" - 2")	2 x 1/4"	
Heat sensitive sheath attachment	G 1/2"M (ISO 228/1)	
Calibration temperature	97°C (±3°C)	
Maximum temperature sensor side	120°C	
Maximum temperature valve side	50°C	
Max operating pressure	6 bar (G 1") - 1 bar (G 1" 1/2)	
Reference	Recommended for maximum outputs of 131 kW (gas feeding 20 mbar)	Recommended for maximum outputs of 230 (gas feeding 20 bar)
DN	G 1" F	G 1" 1/2 F
L [mm]	90	150
H [mm]	196	204
H1 [mm]	169	169
Capillary length [mm]	5000	5000



FLOW METERS

Flow meters are flow rate measuring devices directly connected to the heat generator and meet the requirements of point 7.1 of the Raccolta R Cap. R.3.B (2009 Edition) and have the following characteristics:

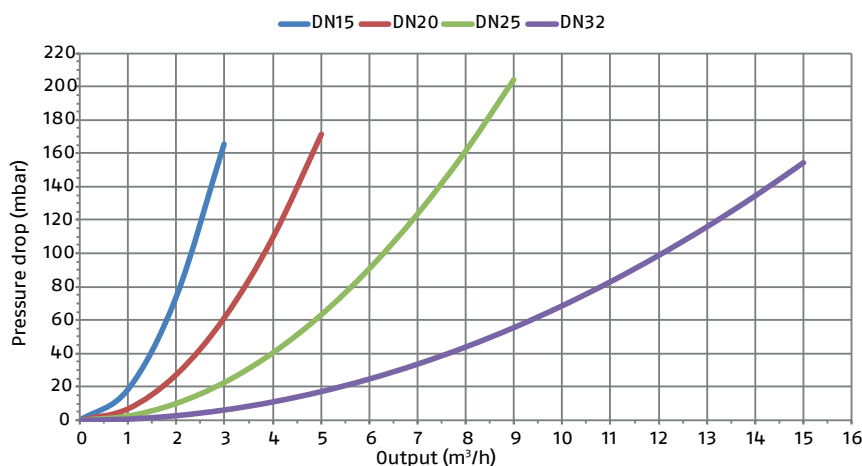


Characteristics	DN15	DN20	DN25	DN32
Measuring range	3.5 ÷ 50 l/min	5 ÷ 85 l/min	9 ÷ 150 l/min	14 ÷ 240 l/min
Measurement 1	41,0	40,6	50,0	50,0
Measurement 2	59,3	61,6	71,1	74,9
Measurement 3	G 1" M	G 1" M	G 1" 1/2 M	G 1" 1/2 M
Measurement 4	87,0	105,0	120,0	134,0
Spanner required (No.)	22	27	34	41

The DN15 and DN20 models are supplied with a reduction M-F 1" 1/2 - 1".

The flow meters, thanks to their broad measuring range, allow you to work with low flow rates and fully exploit the wide modulation range of the boiler (not possible using a flow switch).

PRESSURE LOSS



As far as the combinations are concerned based on the flow rate the following table allows you to rapidly choose the flow meter most suitable for requirements:

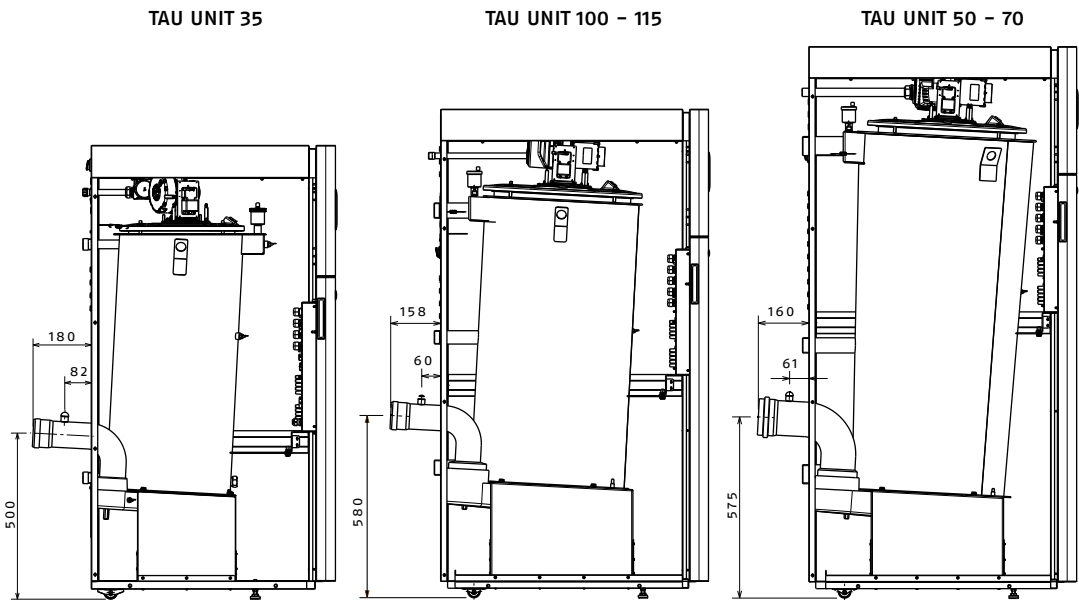
	FOR BOILER OPERATION OUTPUT											
	$\Delta T = 20^{\circ}\text{C}$				$\Delta T = 15^{\circ}\text{C}$				$\Delta T = 10^{\circ}\text{C}$			
	DN15	DN20	DN25	DN32	DN15	DN20	DN25	DN32	DN15	DN20	DN25	DN32
TAU UNIT 50	•					•				•		
TAU UNIT 70		•				•					•	
TAU UNIT 100		•					•					•
TAU UNIT 115			•				•					•
TAU UNIT 140			•				•					•
TAU UNIT 190				•				•				•

CENTRAL HEATING

Floor-standing condensing gas boilers

REAR FLUE GASES OUTLET CONVERSION KIT

The kit consists of a bend with socket and well flue gases analysis and allows the boiler to be connected to a stack closer to the ground.

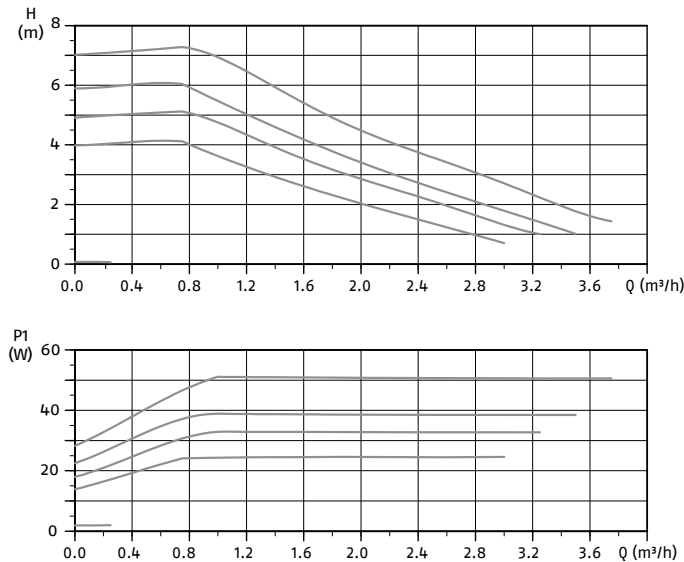


* Models 140 and 190 already have a rear flue gas exhaust (vertical)

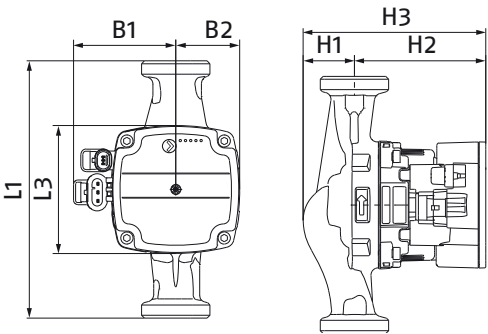
PRIMARY CIRCUIT CIRCULATION PUMPS

The kit includes a pump with single phase power supply with PWM control (and relative gaskets, power cables, and PWM signal) to allow the boiler to maximise the condensation working at a constant ΔT (can be set on the control panel of the boiler).

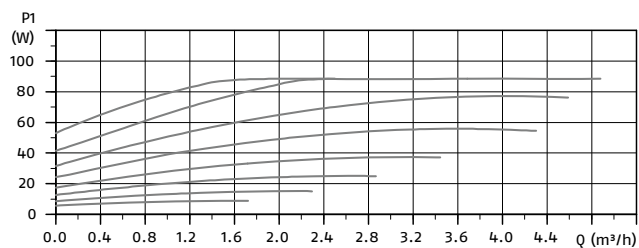
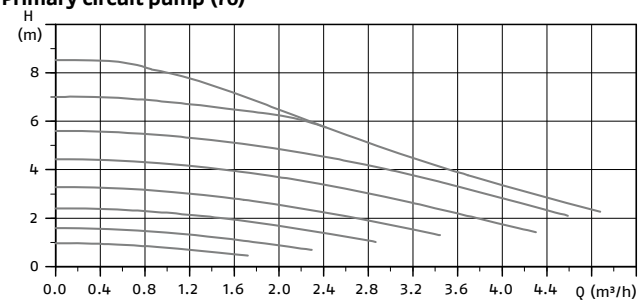
Primary circuit pump (35-50) and circulation pump (35)



ELECTRICAL DATA	
Electrical power	230/1 - 50 Hz
Consumption at minimum speed	2 W - 0,04 A
Consumption at maximum speed	52 W - 0,52 A
EEI	≤ 0,20 Part 3
PL,avg	≤ 0,20 W
Hydraulic data	
Maximum operating pressure	10 bar
Minimum suction pressure (to avoid cavitation)	0,5 bar at 95°C
Operating temperature range	2°C - 110°C (TF 110°C)
Dimensions	
L1	130 mm
L3	90 mm
B1	72 mm
B2	45 mm
H1	36 mm
H2	92 mm
H3	128 mm
Hydraulic connections	G 1" M



Primary circuit pump (70)



ELECTRICAL DATA

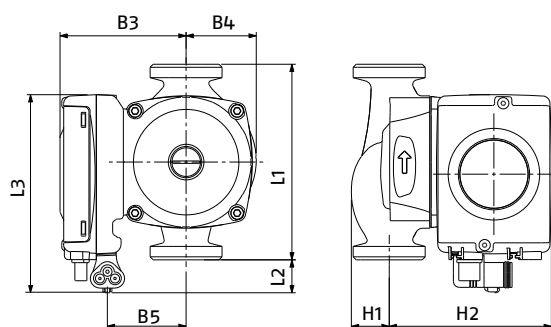
Electrical power	230/1 - 50 Hz
Consumption at minimum speed	5,7 W - 0,06 A
Consumption at maximum speed	87 W - 0,71 A
EEL	≤ 0,23

HYDRAULIC DATA

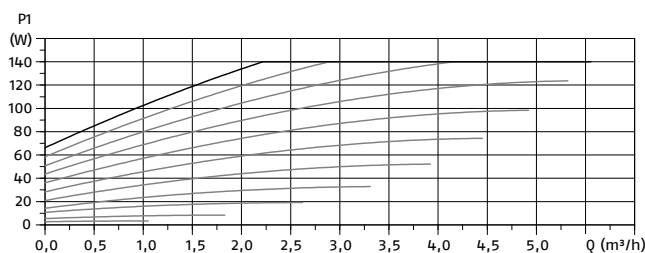
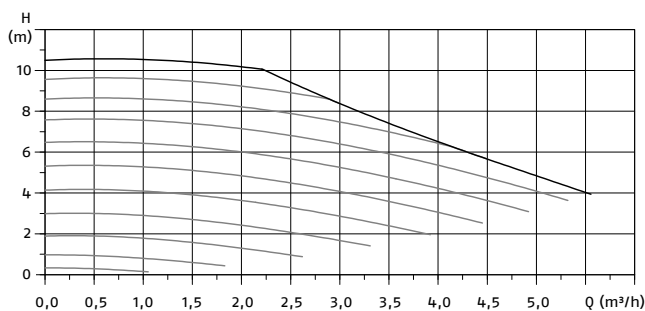
Maximum operating pressure	10 bar
Minimum suction pressure (to avoid cavitation)	0,5 bar at 95°C
Operating temperature range	- 10°C - 95°C (TF 95°C)

DIMENSIONS

L1	130 mm
L2	22 mm
L3	131 mm
B3	95 mm
B4	50 mm
B5	64 mm
H1	27 mm
H2	114 mm
Hydraulic connections	G 1" 1/2 M



Primary circuit pump (100)



ELECTRICAL DATA

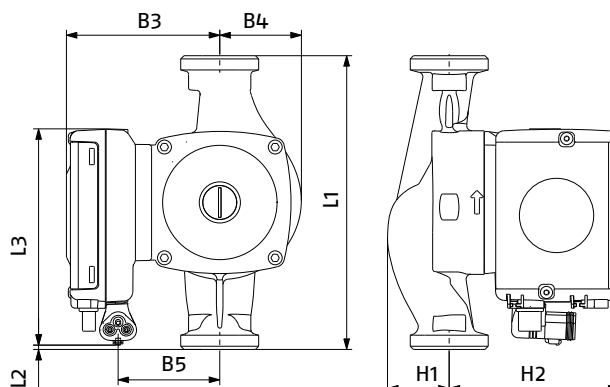
Electrical power	230/1 - 50 Hz
Consumption at minimum speed	3 W - 0,04 A
Consumption at maximum speed	140 W - 1,10 A
EEL	≤ 0,23

HYDRAULIC DATA

Maximum operating pressure	10 bar
Minimum suction pressure (to avoid cavitation)	0,1 bar at 95°C
Operating temperature range	- 10°C - 95°C (TF 95°C)

DIMENSIONS

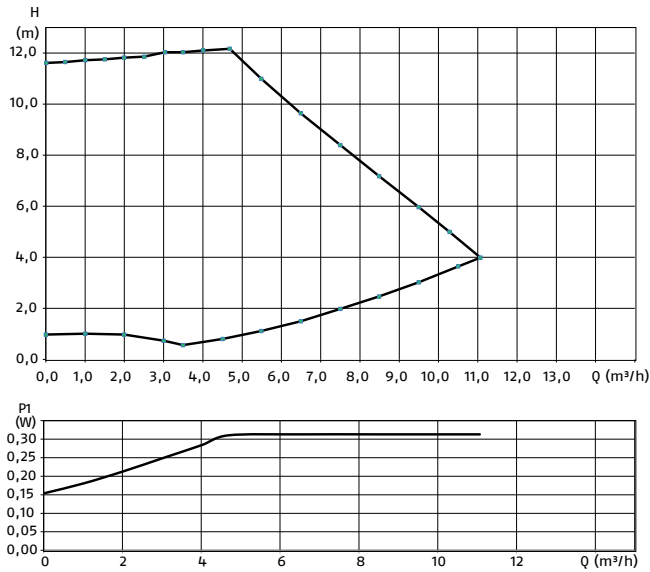
L1	180 mm
L2	3,5 mm
L3	131 mm
B3	95 mm
B4	50 mm
B5	64 mm
H1	38 mm
H2	104 mm
Hydraulic connections	G 2" M



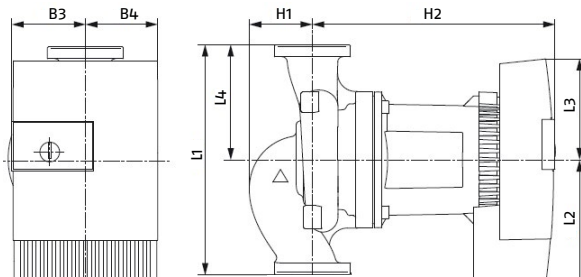
CENTRAL HEATING

Floor-standing condensing gas boilers

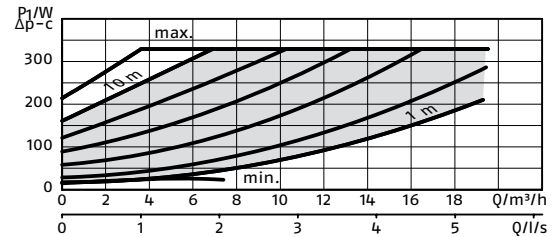
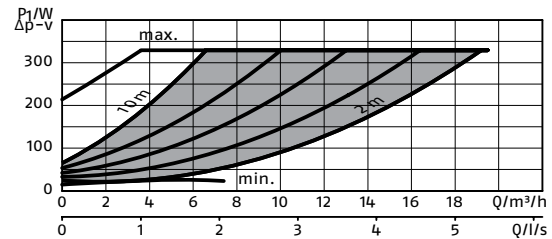
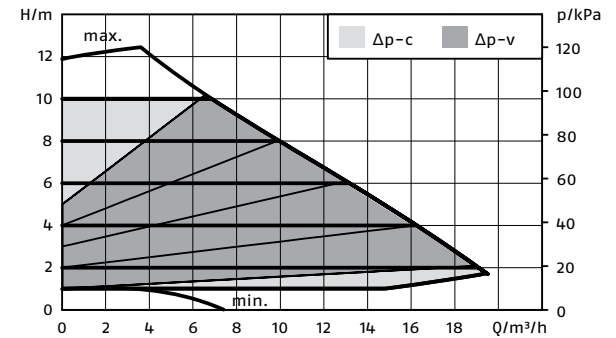
Primary circuit pump (115-140-190)



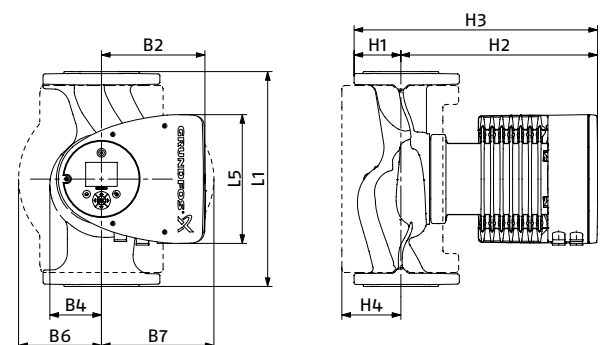
ELECTRICAL DATA	
Electrical power	230/1 – 50/60 Hz
Consumption at minimum speed	16 W – 0,16 A
Consumption at maximum speed	310 W – 1,37 A
EEL	≤ 0,23
HYDRAULIC DATA	
Maximum operating pressure	10 bar
Minimum suction pressure (to avoid cavitation)	1 bar at 95°C
Operating temperature range	- 10°C – 110°C (TF 110°C)
DIMENSIONS	
L1	180 mm
L2	109 mm
L3	79 mm
L4	90 mm
B3	58 mm
B4	57 mm
H1	50 mm
H2	191 mm
Hydraulic connections	G 2" M



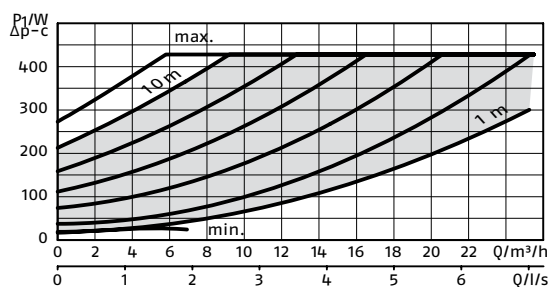
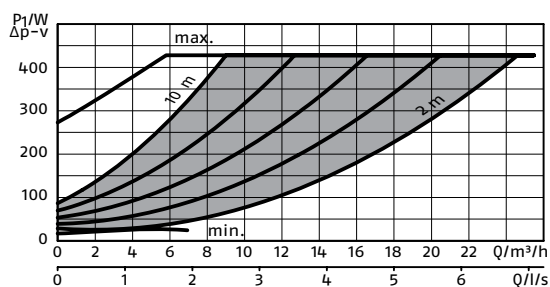
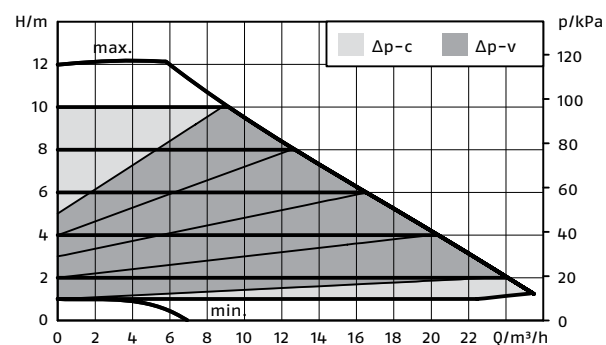
MAGNA3 32-120 F



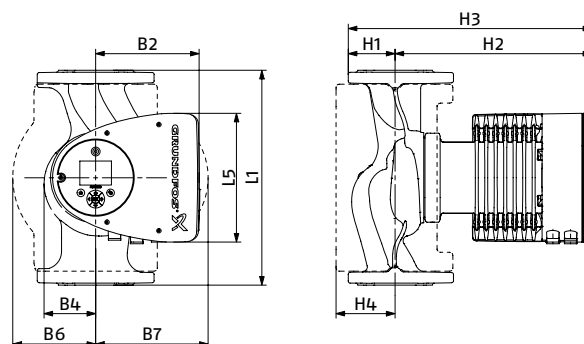
ELECTRICAL DATA	
Electrical power	230/1 – 50/60 Hz
Consumption at minimum speed	15 W – 0,18 A
Consumption at maximum speed	336 W – 1,50 A
EEL	≤ 0,18
HYDRAULIC DATA	
Maximum operating pressure	10 bar
Minimum suction pressure (to avoid cavitation)	0,5 BAR A 95°C
Operating temperature range	- 10°C ÷ 110°C (TF 110)
DIMENSIONS	
L1	220 mm
L5	204 mm
B1	84 mm
B2	164 mm
B4	73 mm
B6	106 mm
B7	116 mm
H1	65 mm
H2	301 mm
H3	366 mm
H4	86 mm
Hydraulic connections	DN 32



MAGNA3 40-120 F



ELECTRICAL DATA	
Electrical power	230/1 – 50/60 Hz
Consumption at minimum speed	17 W – 0,19 A
Consumption at maximum speed	440 W – 1,95 A
EEI	≤ 0,18
HYDRAULIC DATA	
Maximum operating pressure	10 bar
Minimum suction pressure (to avoid cavitation)	0,4T bar a 95°C
Operating temperature range	- 10°C ÷ 110°C (TF 110)
DIMENSIONS	
L1	250 mm
L5	204 mm
B1	84 mm
B2	164 mm
B4	73 mm
B6	106 mm
B7	128 mm
H1	65 mm
H2	304 mm
H3	369 mm
H4	83 mm
Hydraulic connections	DN 40



	FOR NOMINAL OR MAXIMUM BOILER OPERATION OUTPUT											
	Primary ΔT = 20°C				Primary ΔT = 15°C				Primary ΔT = 10°C			
	Primary circuit pump (35-50)	Primary circuit pump (70)	Primary circuit pump (100)	Primary circuit pump (115-140-190)	Primary circuit pump (35-50)	Primary circuit pump (70)	Primary circuit pump (100)	Primary circuit pump (115-140-190)	Primary circuit pump (35-50)	Primary circuit pump (100)	Primary circuit pump (115-140-190)	Vega RMDA 32-70 + communication module
TAU UNIT 35	•				•				•			
TAU UNIT 50	•				•					•		
TAU UNIT 70	•					•					•	
TAU UNIT 100		•					•				•	
TAU UNIT 115			•					•			•	
TAU UNIT 140				•				•				•
TAU UNIT 190				•				•				•

CENTRAL HEATING

Floor-standing condensing gas boilers

RIELLO TAU UNIT

PRODUCT DESCRIPTION FOR SPECIFICATIONS SUMMARY

TAU UNIT is a condensing boiler, pre-mixed, made of a vertical body, with a high water content, made of titanium stabilised stainless steel (part in contact with the combustion products).

It is available in 7 models with a furnace output from 35 kW to 190 kW, with a high modulation ratio (1:10 for models 35-115 and 1:5 for models 140-190), and is suitable for LPG and methane gas combustion (LPG conversion kits supplied as an accessory).

The boiler is distinguished by its high punctual efficiency exceeding 109%, a value calculated on the NCV, and seasonal medium (Class "A" up to model 70 and equivalent to class "A" up to model 190) and by its extremely low pollutant emissions (Class 6 according to UNI EN 15502-1).

Maximum operating pressure of 3 bar for TAU UNIT 35 and 5 bar for models 50-190.

PRODUCT DESCRIPTION FOR SPECIFICATIONS

Riello TAU UNIT is a condensing boiler with:

- Steel body that has:
 - 7 models with a furnace output ranging from 35 kW to 190 kW
 - High punctual efficiency exceeding 109%, value calculated on the NCV, and medium seasonal (Class "A" up to model 70 and equivalent to class "A" up to model 190, $\eta_s = 93\%$ on all models)
 - High water volume with stratification effect: low water content in the hot part for a fast steady state, and large reserve of water in the cold part beneath, for the maximum exploitation of the condensation phenomenon
 - No limit on the return line temperature, and no limit on the water flow rate
 - Disposal of the overtemperatures carried out automatically by the natural internal circulation inside the body ("zero output" operation)
 - Highly corrosion resistant titanium stabilised stainless steel AISI 316 Ti combustion chamber, equipped with compensation of the thermal dilatations; this allows the tensile stress to be reduced and provides structural integrity and a long life for the generator
 - Highly corrosion resistant titanium stabilised stainless steel AISI 316 Ti tubing heads
 - Vertical smooth flue gas pipes to facilitate the drainage of the condensate, constructed of highly corrosion resistant and high temperature sensitive titanium and niobium stabilised stainless steel AISI 444 and in welding phase. Titanium and niobium bind with carbon at a high temperature preserving the chrome dissolved in the grain for a greater guarantee of a longer life
 - This particular steel has a low elongation modulus that allows you to have thermal dilatations (and strains) that is almost half of AISI 316 Ti, guaranteeing a long life and robustness
 - Inclination of 3° to permit the elimination of the micro-bubbles of steam
 - Very thick, coated carbon steel outer ferrule
 - Maximum operating pressure of 3 bar for TAU UNIT 35 and 5 bar for models 50-190.
 - Very thick and dense thermal insulation to minimise heat loss when operating and when in stand-by
 - Double return line (high and low temperature) to maximise the stratification and condensation in mixed heating systems (only set up on TAU UNIT 35)
 - Condensate drain syphon as standard to prevent the backflow of the combustion flue gases into the area where the generator is installed
- Modulating burner with:
 - Micro-flames combustion head with extremely low NO_x (Class 6 according to UNI EN 15502-1) and CO
 - Continuous modulation of the fan with extremely low energy absorption
 - Fan safety using a Hall effect rev counter so that the rotation speed is always monitored
 - Pneumatic gas valve with high modulation ratio ready for "type C" operation with air pressure test point
 - Totally safe operation even with very low gas feed pressures
 - Venturi with adjustment and throttling, perfectly balanced and calibrated that provides a 1:10 modulation that allows a constant percentage of CO₂ to be maintained in the flue gases (except models 140-190)
 - Ignition electrode
 - Flame detection electrode
 - External high frequency ignition transformer
 - LPG conversion available as an accessory with dedicated Venturi with adjustment and throttling plates, perfectly balanced and calibrated (except for TAU UNIT 190)
 - Set up for conversion of the boiler to "type C" (using the relative accessory)
- Robust and coated casing and support structure with:
 - Two wheel units installed on the rear of the base that allow the boiler to be moved by just one person
 - Coated top front sheet metal panel with handles and that can be pivoted to facilitate opening and maintenance and control operations; the panel provides access to the burner and the control interface. The support bar of the interface can also be pivoted to facilitate any further maintenance operations
 - Coated bottom front cover panel with handles, which can be removed without having to use tools; this panel provides access to the box (isolated from the rest of the boiler) containing the motherboard and the electrical connections terminal boards
 - Adjustable feet (accessible from the lower front panel) to adjust the levelling of the generator
 - Top flue gas outlet (standard) and set up for the lower rear flue gas exhaust (accessory) for an easier replacement of the existing heat generators
- Electronic control interface with:
 - Anti-freeze mode
 - Outdoor temperature sensor as standard, which enables the climatic control function
 - Set up for room thermostat/heat request in the heating zones
 - Option to manage a CH circuit and a DHW circuit with storage tank (circulator and 3-way valve)
 - Option to manage up to 16 further heating zones (mixed or direct) using the relative electronic expansion (accessory), each with a dedicated and independent climatic curve
 - The main functions of the TAU UNIT are:
 - Date and time setting
 - Setting heating system with 5 modes:
 - Operation with room thermostat/heat request and fixed set-point;

- Operation with room thermostat/heat request and variable set-point depending on the outdoor temperature;
- Climatic operation with attenuation controlled by room thermostat/heat request)
- Continuous fixed set-point operation with attenuation controlled by room thermostat/heat request;
- Set-point adjustment based on a 0-10V analogue input
- Setting DHW production in 3 modes:
 - No production of domestic hot water
 - DHW production with storage tank regulated by a storage cylinder probe
 - DHW production with storage tank adjusted by a thermostat
- Anti-Legionella function
- Establishing the DHW-heating priority
 - On: priority allocated to the DHW circuit
 - Off: priority given to the heating circuit
 - Time: timed priority between the two circuits
 - Parallel: contemporaneous operation with priority on heating until the setpoint is reached.
- Timer programme: seasonal, holiday, groups of homogeneous zones
- Screen displays:
 - Delivery temperature
 - Return temperature
 - DHW temperature
 - Outdoor temperature
 - Flue gas temperature
 - System temperature (common delivery)
 - Fan speed
 - Ionization
 - Status
 - Error
- Control interface and motherboard with the following functions:
 - Integrated Master (managing) / Slave (depending) management
 - Control of the circulator speed of the boiler and system using one of the following signals:
 - Low voltage digital PWM (pulse width modulation) with a frequency range of 100-4000 Hz
 - Analogue 0-10V
 - Standard 230 Vac
 - External 0-10V analogue input for supervision using an external BMS system
 - Port with ModBus protocol for communicating with external BMS system
 - Input for room thermostat/port with Open Therm protocol
 - Inputs for connecting additional safety devices that allow the burner to go into lockout without cutting off the electrical supply to the boiler
- Safety devices: All appliance functions are electronically controlled by a dual processor board approved for safety functions. Any malfunction results in the appliance being shut down and the automatic closure of the gas valve.
The following are installed on the water circuit:
 - Safety/lockout thermostat calibrated at 110°C
 - Temperature probes on delivery and return that measure the temperature difference between input and output fluids and enable activation of the control
 The following are installed on the combustion circuit:
 - Gas solenoid in class B+C , with pneumatic gas flow compensation depending on the suction line's air flow rate
 - Ionisation electrode for ignition and flame detection
 - Flue gases temperature probe
 - Flue gases limit thermostat.

The TAU UNIT boilers comply with:

- Gas Appliance Directive 2009/142/EC (up to 20 April 2018) and Regulation (EU) 2016/426 (starting from 21 April 2018)
- Efficiency Directive 92/42/EEC and Attachment E of the Pres. Decree 26 August 1993 no. 412 (****)
- Electromagnetic Compatibility Directive 2014/30/EU
- Ecodesign Requirements for Energy-Related Products Directive 2009/125/EC
- Energy Consumption Labelling Directive 2010/30/EU
- Low Voltage Directive 2014/35/EU
- Condensing boilers Standard EN 677
- Delegated Regulation (EU) No. 811/2013
- Delegated Regulation (EU) No. 813/2013

MATERIAL INCLUDED

The following material is supplied in a plastic envelope inside the boiler:

- Instruction booklet
- Hydrostatic test certificate
- Energy Label
- Conventional warranty conditions

RIELLO

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TAU UNIT

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