TAU UNIT

Gas condensing floor-standing thermal units

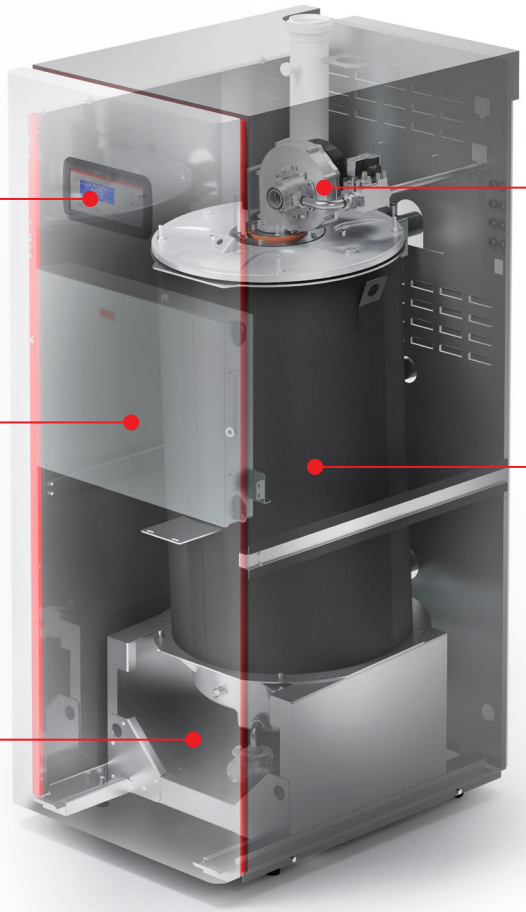
RIELLO
Energy For Life

A Carrier Company

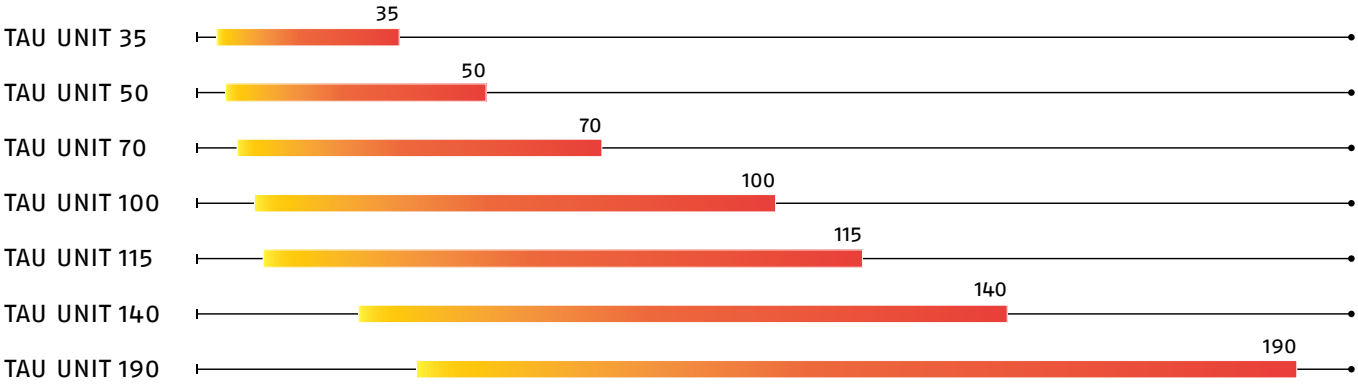
www.riello.com

TAU UNIT RENOVATES

TAU UNIT has been a distinctive element for Riello and a guarantee for the central system for several years. Our engineers accepted the challenge of renovating also a consolidated product and the result is the design of the new TAU UNIT.
All the components have been renewed and redesigned for further improving the zero output operation: new extremely-low dilation material at the end of the bundle of tubes, inclined heat exchanger and new internal fluidics facilitate the natural circulation of the heat-transfer fluid and consequently reduce the thermal stress and increase the lifespan; the already excellent polluting emissions have descended below the more stringent limits (Class 6 NOx according to UNI EN 15502); high seasonal efficiency also thanks to the modulation ratio of 1:10; there are new optional fittings and a dynamic configurator available for helping the designer in customising the system.



TAU UNIT is available in the following versions and power levels:



RIELLO HEAT EXCHANGER

The **TAU UNIT** heat exchanger has been designed to obtain high performance and work in the most difficult conditions. The combustion chamber has been designed in complete symbiosis with the premixed gas burner. This allows the best chemical energy transformation of fuel into useful thermal energy, which is transferred to water, and the reduction of polluting emissions below the most stringent European limits

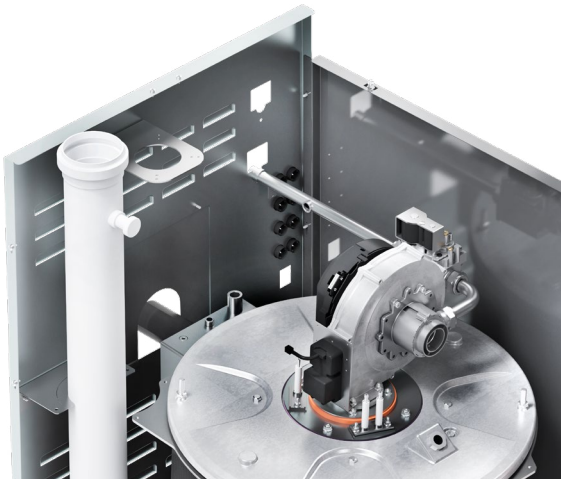
The heat exchanger is made of high quality stainless steel so as to guarantee its unchangeability and reliability over time. The exclusive stainless steel heat exchanger combined with the condensing technology enables to recover a considerable quantity of the used energy.

The double return connection allows to manage systems with differentiated and instantaneous operating temperatures, conveying at the bottom the lower temperature water, maximising heat exchange and condensation. The special steel used for the bundle of tubes guarantees a reduced thermal dilation, minimising the thrusts on elements connected to it.

The heat exchanger features a large water content and a structure capable of ensuring natural circulation inside it; these characteristics make it apt for installation without the hydraulic separator, since it may run also in zero output conditions.

COMBUSTION UNIT

TAU UNIT is equipped with a new modulating combustion unit capable of supplying power based on the system's need; the ratio between maximum and minimum reaches the value of 1:10 (up to model 115), minimising the ON-OFF cycles, making the TAU UNIT apt for installation both for replacing existing systems and as a generator on new systems for low energy consumption buildings. Using the new Venturi air/gas mixing unit allows a clean and efficient combustion throughout the entire adjustment range.



The burner combustion head is equipped with a specific metallic mesh that, thanks to the extended surface, ensures low temperatures and reduced turbulences. This translates into more energy transmitted as compared to a traditional burner with the same flame temperature, absolute operating safety thanks to the absence of turbulences, limited production of pollutants thanks to the complete oxidation of natural gas molecules, noiseless operation and start-up.

These features combined with the large combustion chamber, allow to reach very low pollutant emission values of CO and NOx (class 6 according to EN 15502).

ELECTRONIC CONTROL AND DISPLAY

The electronic adjustment of **TAU UNIT** performs complex tasks since it must monitor and process quickly a lot of information coming from the system, with the aim of guaranteeing the best comfort to Users with the lowest energy consumption and maximum operating safety. The TAU UNIT control has been totally renewed in terms of more sophisticated calculation programs, higher detection efficiency and processing speed. The boiler operating logics in "managing" or "depending" mode, in the event of cascade applications, are integrated in the board, thus guaranteeing maximum flexibility to the unit. The interface display is backlit, user friendly and multilanguage, facilitating the dialogue between the machine and the individuals interacting with it.

TAU UNIT uses a new generation control system that integrates the temperature adjustment with advanced functions for managing the system.

Functions integrated in the control:

- Linear or curve-based temperature adjustment, in combination with an external probe
- Management of cascade boilers with Managing-Depending logic
- Constant DT operation power control
- Management of DHW production and direct circuit
- Possibility of expanding the system by means of an optional fitting for controlling additional heating zones (direct/mixed)
- Pump modulating control (PWM/0-10 V)
- Remote management by means of MODBUS
- External power control through a 0-10 V input

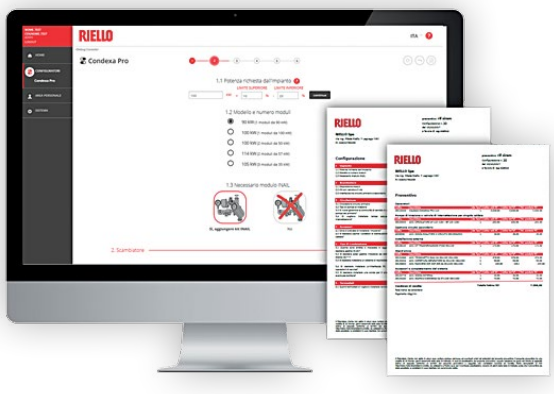
The electronic setting is complete with the new backlit display, which is easy to use thanks to its user friendly menu that incorporates graphical elements and text strings. It enables system setting, including heat distribution on the secondary circuit, with temperature curves and time slots dedicated to each managed system. The user interface is equipped with 8 keys for browsing the menu and setting the operating parameters.

DISPLAY CHARACTERISTICS

- Multi-language multilevel tree menu
- Management of password-protected user profiles
- Wide backlit 255x80 pixel display
- Management of weekly time programs
- Boiler error log

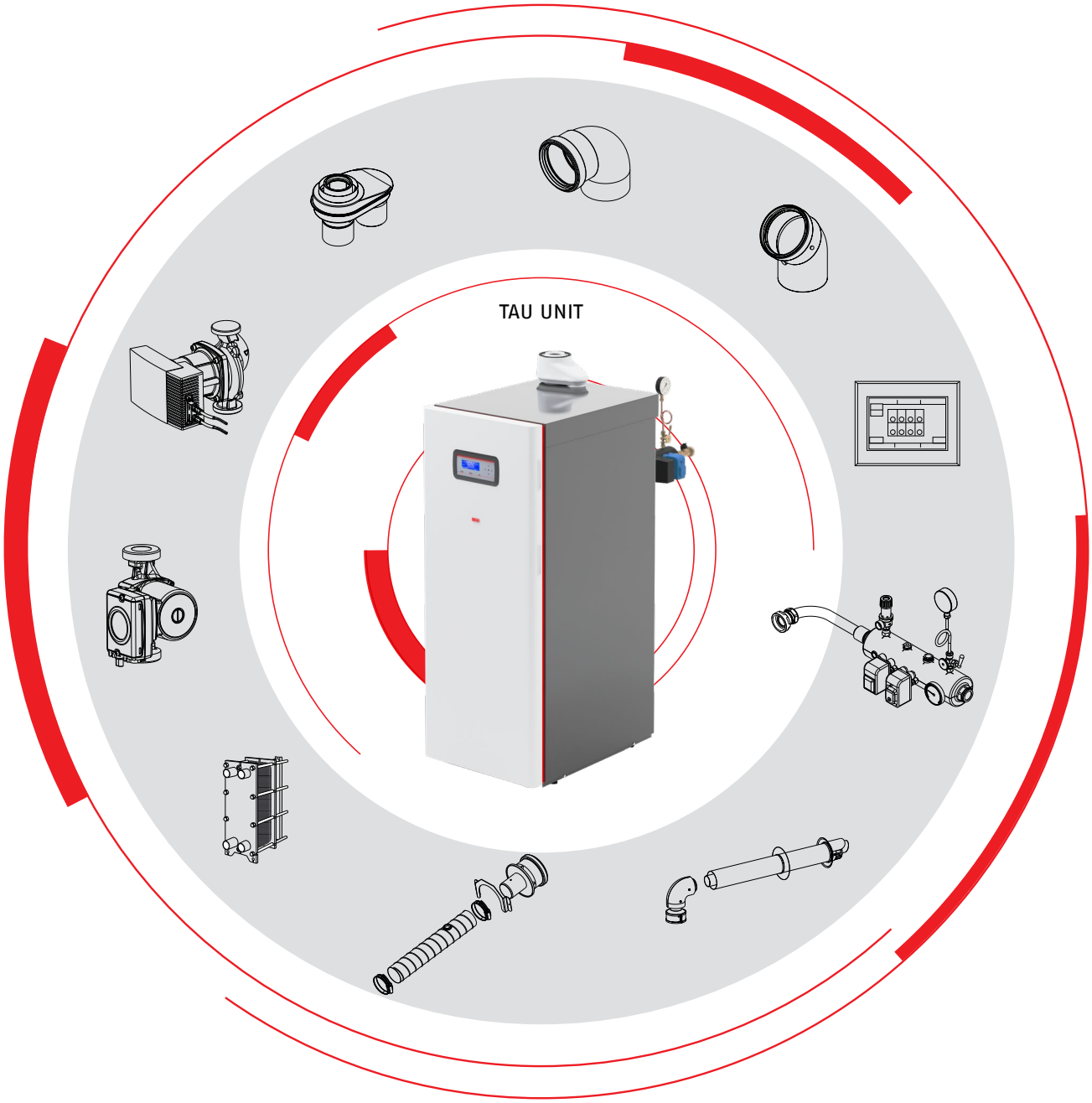
SIMPLIFYING COMPLEXITY

With **TAU UNIT** Riello provides a comprehensive range and the tools for controlling it. Selecting the solution that best interprets the features of the project may be a time-consuming activity and entail a certain degree of complexity, which Riello simplifies by providing a dynamic configuration system.
Starting from the basic information concerning the required total thermal power, the Configurator asks automatically step by step other specifications and provides gradually possible solutions. Thus the tool indicates to the Designer the best technical solution, which may translate directly into a quotation with product documentation enclosed. Once more Riello transforms complexity in a continuous challenge and therefore in an opportunity.



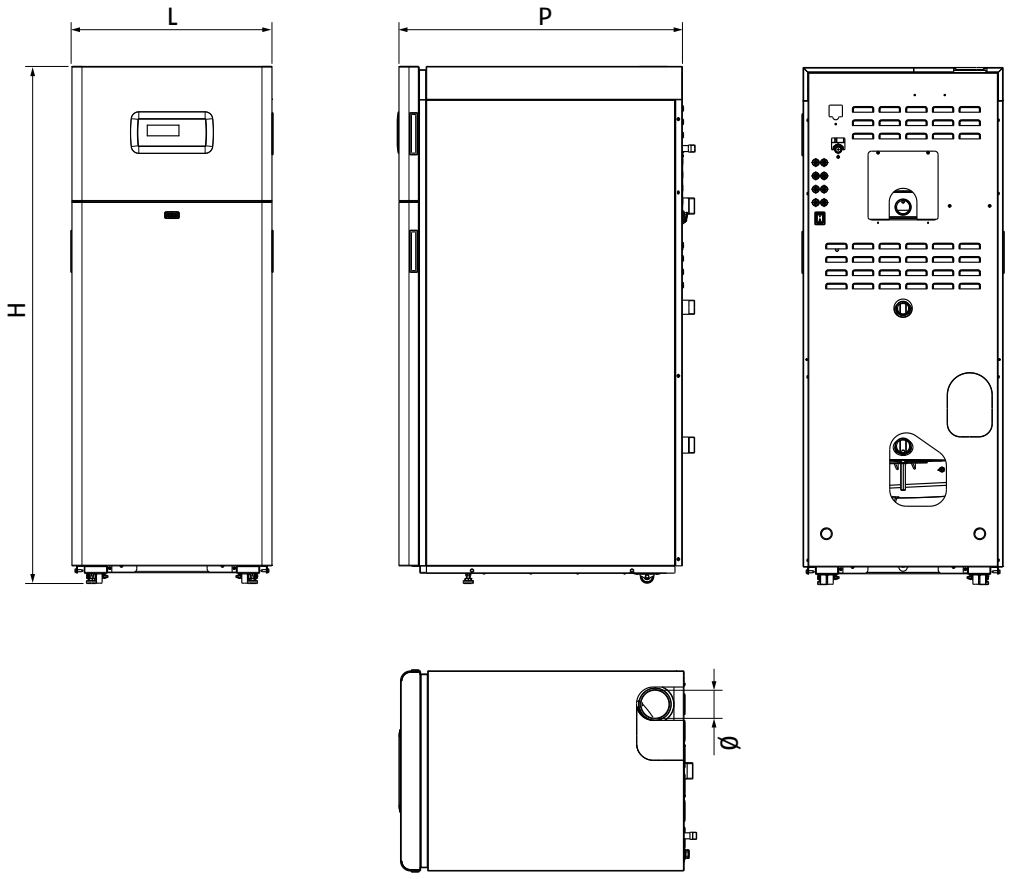
ACCESSORIES

TAU UNIT may fit a wide range of accessories adaptable to the specifications of every type of system. The optional accessories are designed specifically to maximise the system's flexibility and achieve the ideal solution for every installation requirement.
All the models of the range may be transformed with accessory kits for running with LPG and/or water-tight chamber; this allows a considerable flexibility during boiler installation operations inside the building. Solutions available with two-channel or concentric flue piping (up to model 140).
Models with PN>35 kW may be equipped with an INAIL safety kit, complete with flow switches and fuel shut-off valves (VIC) according to the model and operating conditions.
In order to protect the boiler, when it is installed in old systems, we suggest combining it with HEAT GATE plate heat exchangers, which enable combinations based on the operating conditions on primary and secondary circuits. The primary circuit circulation is controlled with PWM modulating pumps.



TECHNICAL DRAWINGS

TAU Unit's reduced dimensions facilitate installation and handling operations.
The reduced front and lateral sections allow the boiler to go through doors and hallways, also thanks to the rear wheels. The reduced floor contact surface enables installation in little space, the ideal replacement for many existing solutions.



Model		TAU UNIT 35	TAU UNIT 50	TAU UNIT 70	TAU UNIT 100	TAU UNIT 115	TAU UNIT 140	TAU UNIT 190
Height	H	1365	1550	1550	1810	1810	1880	1880
Width	L	600	600	600	600	600	800	800
Depth	P	760	890	890	870	870	1250	1250
Diameter	Ø	80	80	80	110	110	200	200
Net weight	kg	135	155	165	245	245	420	450
Heating inlet - outlet	Ø	1''	1"1/2 - 1"1/4 RAT	1"1/2 - 1"1/4 RAT	2" - 1"1/2 RAT	2" - 1"1/2 RAT	2''1/2 - 2''RAT	2''1/2 - 2''RAT
Gas inlet	Ø	1/2''	1/2"	1/2"	3/4"	3/4"	1''	1''

TECHNICAL DATA

Model		TAU UNIT 35	TAU UNIT 50	TAU UNIT 70	TAU UNIT 100	TAU UNIT 115	TAU UNIT 140	TAU UNIT 190
Seasonal space heating energy efficiency class		D->A+++(1)	A	A	A	-	-	-
PCI nominal heat output	kW	34.8	49.90	69.9	100	115	140	190
	kcal/h	29928	42,914	60,114	86,000	98,900	120,400	163,400
Nominal thermal power (80-60°C)	kW	34	48.50	68.0	97.5	112.0	136.9	185.8
	kcal/h	29240	41,710	58,480	83,850	96,320	117,734	159,788
Nominal thermal power (50-30°C)	kW	37	54.5	76.5	109.2	125.4	152	205.2
	kcal/h	31820	46,870	65,790	93,912	107,844	130,720	176,472
PCI reduced heat output	kW	3.48	4.90	6.9	10.0	11.5	28.0	38.0
	kcal/h	2992.8	4,214	5,934	8,600	9,890	24,080	32,680
Reduced thermal power (80-60°C)	kW	3.36	4.70	6.7	9.7	11.0	27.3	37.1
	kcal/h	2889.6	4,042	5,762	8,342	9,460	23,478	31,906
Reduced thermal power (50-30°C)	kW	3.65	5.3	7.4	10.9	12.4	30.2	40.7
	kcal/h	3139	4,558	6,364	9,331	10,664	25,972	35,002
Useful efficiency Pn max - Pn min (80-60°C)	%	97.7 - 96.5	97.1 - 96	97.3 - 97.1	97.5 - 97	97.4 - 96	97.8 - 97.5	97.8 - 97.6
Combustion efficiency (80-60°C)	%	97.8	97.60	98.0	98.0	98.0	98.0	98.0
Useful efficiency Pn max - Pn min (50-30°C)	%	106.3-105	109.2-108.3	109.4- 108.4	109.2- 108.5	109-108.2	108.5- 107.8	108-107.2
Useful efficiency 30% Pn max (30°C return line)	%	107.7	108.9	108.5	108.6	108.8	108.8	108.4
Total electrical power (max heating power)	W	90	100	150	230	230	260	370
Power supply voltage	V-Hz	230-50						
Protection level	IP	X0D						
Maximum pressure	bar	3	5					
Maximum allowed temperature	°C	110						
Air flow	Nm^3/h	42.48	60.91	85.32	122.06	140.37	170.89	231.92
Flue gas flow	Nm^3/h	58.11	82.84	116.04	166.01	190.92	229.03	313.59
Flue gas mass airflow (max-min)	g/s	15.95-1.59	23-2.3	32.03-3.16	45.82-4.58	52.69-5.27	64.15-12.83	87.06
NOx		Class 6						

(1) The range of energy efficiency class of this products category is between D and A+++.

RIELLO

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Cod. 27015479 - EN - rev.02 10/2025