# TAU N

Three-pass gas condensing steel boilers


RIELLO
Energy For Life

A Carrier Company

www.riello.com

# **TAU N.** HIGH POWERS, MINIMUM ENVIRONMENTAL IMPACT.

**TAU N** is the range of **gas condensing boilers** designed to meet all modern requirements for centralised heating in large living spaces, commercial or industrial. All models, available in power ratings from 115 kW to 3000 kW, represent the state of the art of RIELLO research, aimed at supplying a high level of efficiency and reliability with minimum environmental impact and ready for tomorrow's evolution: the TAU N range is today tested **"HYDROGEN COMBUSTION READY"**.
The heat exchanger flues tube body with high water content, **the three-pass layout**, the titanium-coated stainless steel internal components, accurate insulation, ease of inspection and maintenance, the high efficiencies and the integrated control system are all quality features that distinguish Riello's latest generation products.


1750÷3000 kW MODELS

115÷1450 kW MODELS

**TAU N** is the base of a wider range of high-performance integrated systems, tested in the Riello's laboratories: the complete solutions with every RIELLO accessory, starting with the reliable burners, which include the best technical assistance, maintenance and updating with original components.

# RIELLO FOR THE ENVIRONMENT.
## ABOUT THE FUTURE, LET'S TALK ABOUT IT TODAY.

RIELLO has developed a program of intentions and qualitative protocols to minimize the impact on the environment of the products and company itself. This is how Riello has bet on energy efficiency, even during the production cycle. **Environmentally sustainable technologies** allow to reduce energy, electric and water consumption, drastically resizing the footprint we leave on our planet. These measures allow, as well as a reduction in energy expenditure, also a sharing of themes to which RIELLO pays particular attention and that shares with those who work within the company.

RIELLO research on alternative fuels has made it possible to experiment with the principles of detonation hydrogen with the same structures reserved for combustion from fossil derivatives. It is no coincidence that **TAU N** is "**HYDROGEN COMBUSTION READY**", ready and easily adapted the use of hydrogen, including in hybrid systems with natural gas. And the next few years will be decisive to ensure that this becomes not only possible, but also and above all safe.

# ENGINEERING AND DESIGN.
## OUR WAY OF SEEING TAU N.

THE BOILER BODY IS AVAILABLE IN TWO SPECIFIC LAYOUTS:

- **VERTICAL** for models up to 1450 kW, with a superimposed band, for easy portability and insertion in any type of heating plant;
- **QUADRA** for all power ratings up to 3000 kW with a single casing, to adequately contain the large water content without loss of efficiency.

In both designs, each component has been designed to suit the specific needs without compromising quality and performance, while keeping all of RIELLO's patented operating principles intact. In addition, in each layout, the front door and gas chamber closure can be opened completely, making inspection, maintenance and cleaning operations easier and faster.

A milestone in engineering and style that earned the award of best product design 2020.

archiproducts DESIGN AWARDS WINNER 2020

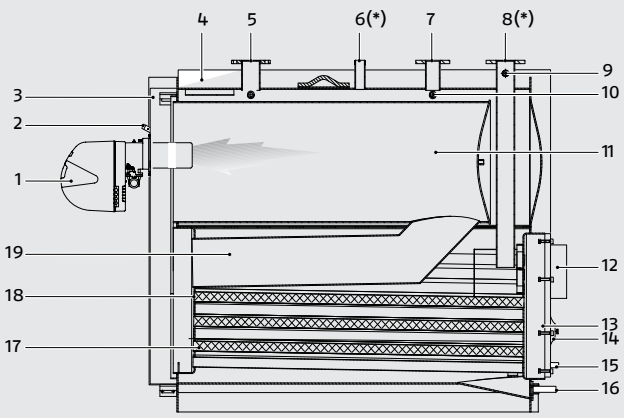
**The TAU N winner of the Archiproducts design awards 2020.**

**The jury, made up of experts from all over the world, was conquered by the concept of the project and its design. An international acknowledgment to RIELLO's R&D Department.**

# THE COMBUSTION CHAMBER, MAXIMUM ATTENTION TO EVERY DETAIL.

At the heart of every **TAU N** boiler, the combustion chamber represents a design milestone, obtained after several tests and optimization tests in the laboratory. In particular, the **PASS-THROUGH FLAME GENERATOR** was conceived as a large volume structure, to increase the surface of heat exchange. The **CHAMBER, FULLY FLOATING** as it is welded exclusively to the front plate, allows natural expansion of the firebox without mechanical stress.

In these conditions, starting from a larger and never excessively overheated hearth, the combustion generates cleaner flue gas, avoiding the formation of "thermal NOx", to the benefit of consumption and general performance. All internal parts are also insulated with layers of wool of high-density glass that allow the unit to be well insulated from the operating environment, avoiding heat loss and contributing to the overall efficiency of the system.




1. Burners
2. Flame viewer with pressure point
3. Door
4. Panelling
5. Delivery
6. Safety connection (**)
7. System return (high temperature)
8. System return (low temperature)
9. Blind plug
10. Instrumentation probe / bulb wells
11. Combustion chamber
12. Flues duct connection
13. Flue gas box
14. Inspection door
15. Condensate drain
16. Boiler drain
17. Turbulators
18. Flue gas pipes
19. Second flues round

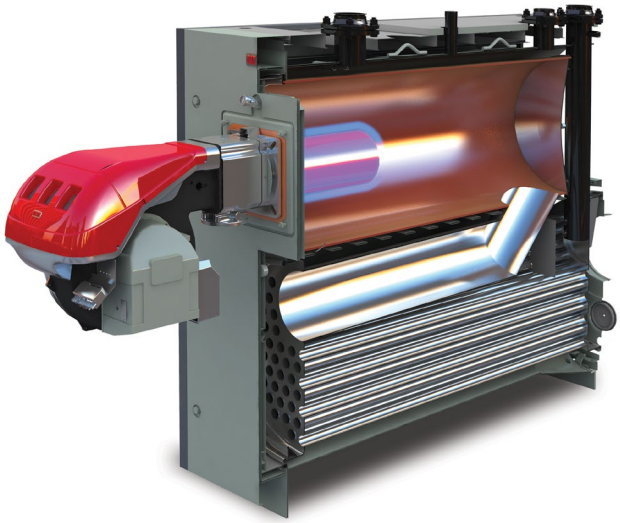
(*) for models TAU 1450 N the low temperature system return "8" is located on the rear and the safety connection "6" is flanged.

(**) the safety connection refers to regulations valid in other countries: comply with the regulations in force in the country of installation.

# ONLY **QUALITY MATERIALS** AND OF ABSOLUTE AVANT-GARDE.

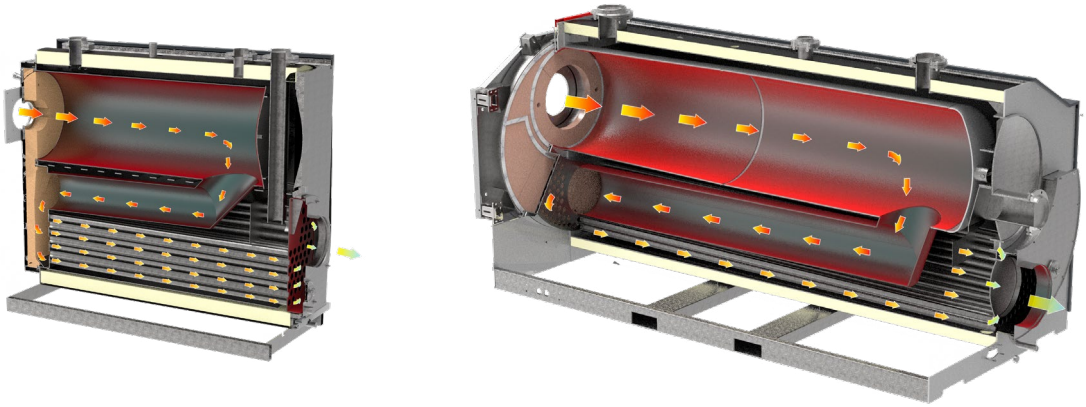
All materials in contact with the combustion products are made in **STAINLESS STEEL**, to optimally perform on low temperature plants, without limit from the temperature of return and no limit on the modulation of the operating power.

Under these conditions **TAU N** MAXIMIZE ITS THEORETICAL PERFORMANCE, CAN OPERATE FULLY CONDENSATION, IN ORDER TO REACH **THE VALUES OF HIGHER PERFORMANCE**.



# THREE TURNS OF FLUE GAS
# FOR AN EXCHANGE OF PERFECT HEAT.

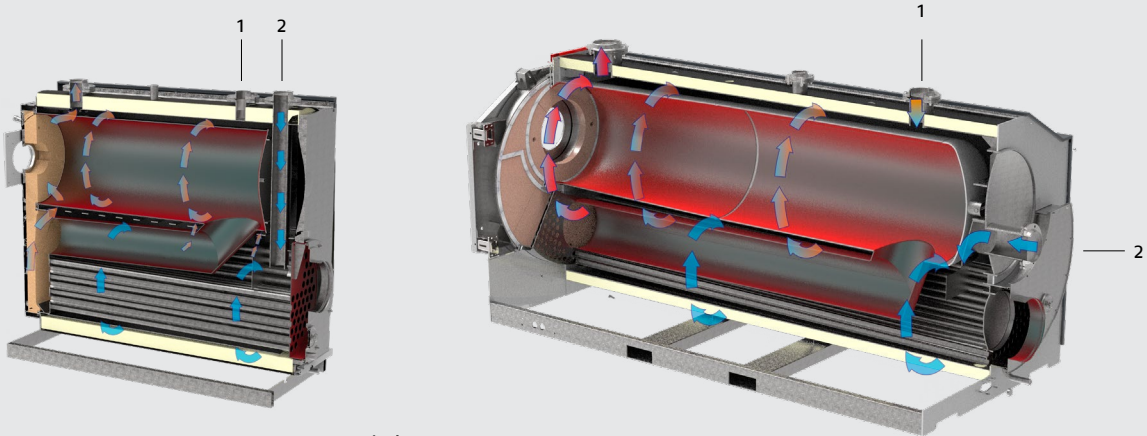
The heat exchange takes place according to the principle of counter-current transfer: hot flue gas generated by the flame, **channelled in three progressive paths at different temperatures**, they meet the cold-water inlet flows that immediately go down the chamber to receive the heat exchange with the less hot gases. Then through the rest of the body to start in the upper outlet of the boiler receiving progressively more and more heat from the combustion chamber.



In particular, the path of the flues starts from the large-volume combustion chamber (first path) characterized by very low specific thermal load values, continues in the flame inversion tube (second path) and ends with the channelling in the tube bundle (third path) which houses special removable turbulators that increase heat exchange. Removing the turbulators allows periodic cleaning operations which keep **TAU N's high performance** over time.

# THE **DOUBLE RETURN**
# CONDENSING SYSTEM.

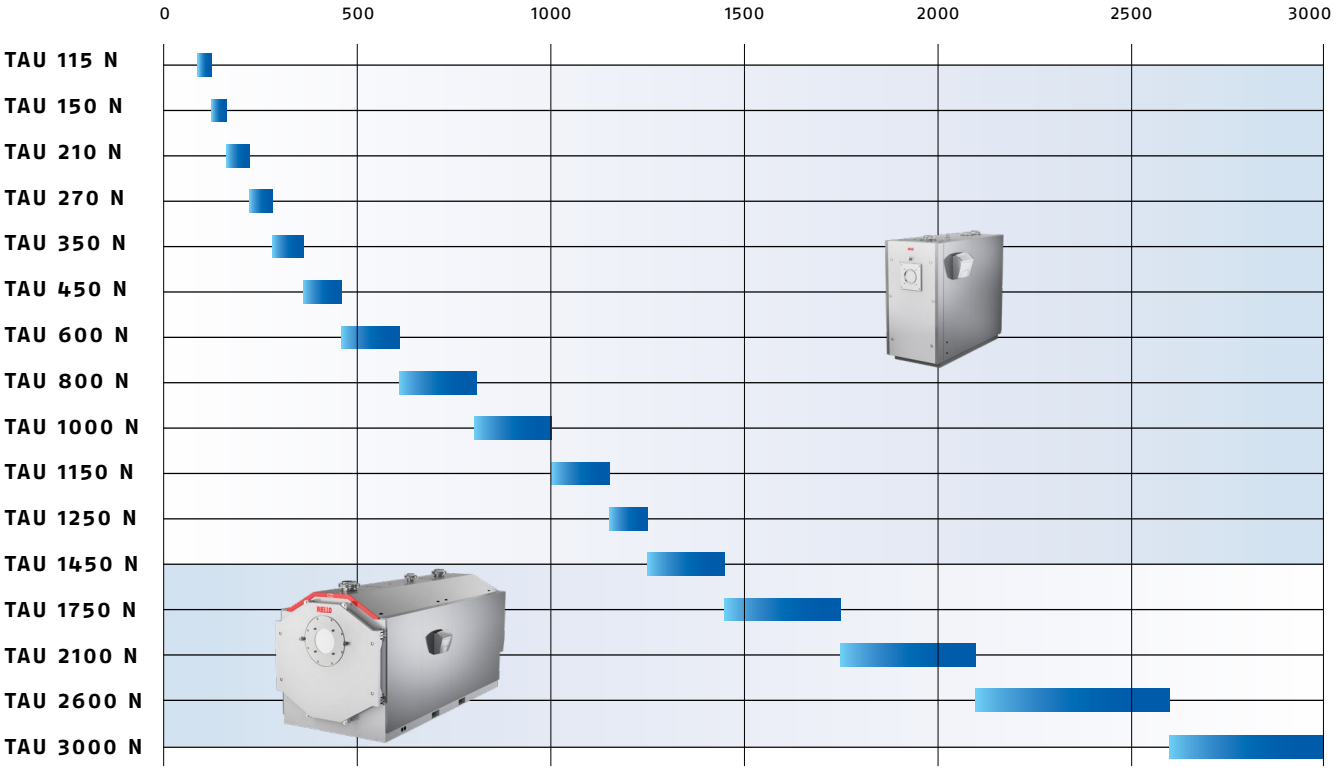
The amount of condensate produced depends on the difference between the surface temperature of the heat exchanger wall and the dew point value. All **TAU N** models can manage systems with **several circuits at different temperatures**; the double return allows to keep THIS TEMPERATURE DIFFERENCE HIGH, thus MAXIMIZING THE FORMATION OF CONDENSATION.




1. High temperature return
2. Low temperature return

# WIDE, MODULAR, COMPLETE,
# THE TAU N RANGE IS TRULY INIMITABLE.

**TAU N** is a great reference project in RIELLO.
Not surprisingly, the range of available models has been progressively expanded to ensure **MAXIMUM FLEXIBILITY OF CHOICE AND APPLICATION**. As a result, to date the **TAU N** solutions represents one of the most complete proposals of the whole world offer. Virtually one of a kind.



# TAU N THERMAL GROUPS.
# A HIGH CONCEPT SYSTEM.

**TAU N** is much more than a simple boiler: it is the heart of a modular and highly performing thermal system, consisting of a boiler, control panel and burner.
Thanks to its historical experience in the field of combustion, RIELLO can offer the largest range of burners ready to work perfectly with **TAU N**: modulating and low NOx emissions, with mechanical or electronic adjustment cam, with **DIFFUSIVE OR PREMIXED FLAME**, also with active combustion control with oxygen probe.
The RIELLO integrated solution makes TAU N a more efficient, safe, and long-lasting system than ever.

| TAU N | control panel RIELLOTECH | RIELLO burner | TAU N integrate package |
|---|---|---|---|

# RIELLOTECH CLIMA COMFORT,
# THE CONTROL PANEL THAT CONTROLS EVERYTHING.

RIELLOtech Clima Comfort is the **INTELLIGENT ELECTRONIC REGULATION** which combines the management of the operating power according to the external climatic conditions and the consequent distribution of heat to the systems.

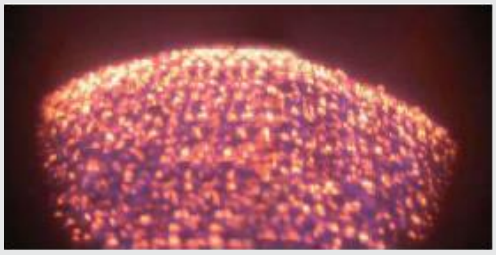
With **RIELLOtech Clima Comfort**, the system selects and controls the comfort zones and manages data, statistics, diagnoses and operating reports that allow it to monitor efficiency and consumption.

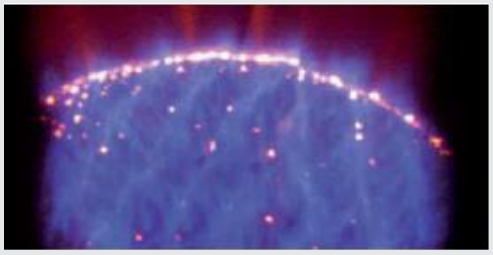
# THE POWER HAS A SUBTLE BLOW.

The head of a RIELLO Premix burner is made up of a cylinder and a tungsten carbide “sock”, without welding the joints. The sock allows to obtain an optimal perforated surface for the air / gas mixture. The pressure inside the head causes the air / gas mixture to flow through the “microholes” of the weft which constitutes the metal fiber braid, generating micro flames upon ignition (visible in the photo).

The reduced size of the mixture passage holes generates a great stability of the flame front even in the presence of extremely high power densities and high modulation ratios, contributing to the containment of unburnt fuel (CO) and polluting emissions (NOx).

The presence of **PREMIXED MICRO FLAMES** therefore drastically reduces the formation of nitrogen oxides.

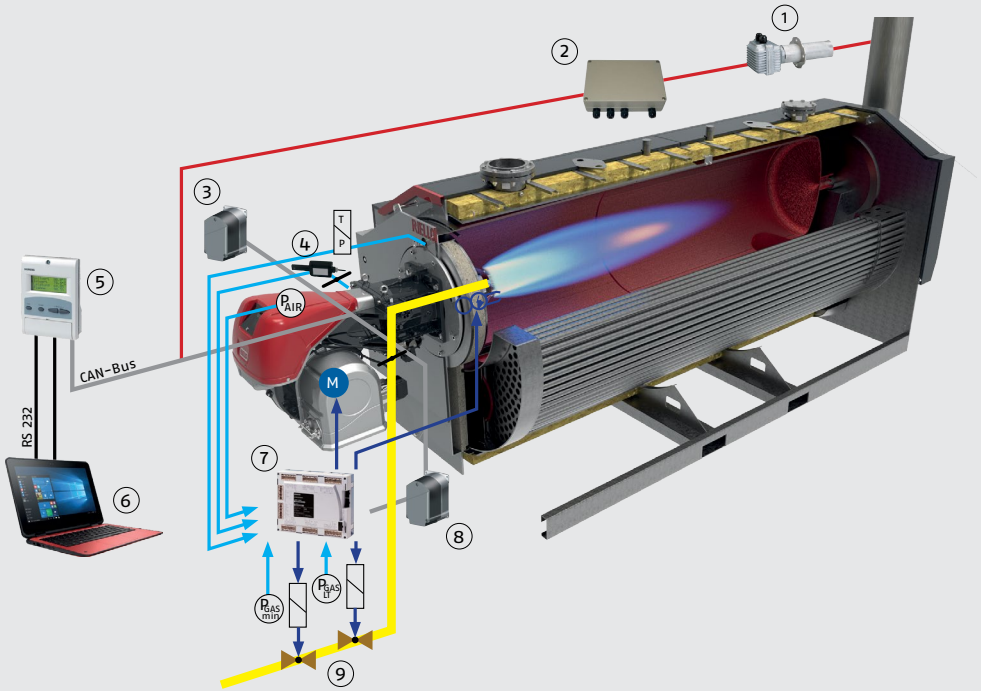




# FLAME ADJUSTMENT.

**TAU N** can be combined with **modulating burners with flame regulation** by means of a mechanical or electronic cam and with active combustion regulation by means of an oxygen control kit.

1 Analyzer with probe, for oxygen control residue in products combustion
2 $O_2$ module - PLL52
3 Gas servomotor
4 QRI probe
5 AZL display, interface for adjustment and control of the burner
6 PC interface, made up from an adapter and from software to carry out adjustments and detect the function signals diagnostics
7 Electronic cam LMV52
8 Air servomotor
9 Gas valves




Configuration of a burner with system combustion control ($O_2$ control)

# TAU N SPECIALIZED SYSTEM, THE RIELLO WINNING SOLUTIONS.

Among the various possible TAU N systems, RIELLO experience has selected for you the best integrated solutions to satisfy the most different technological needs.

TAU N combined with premixed gas burners of the RX series

| Installed burner | TAU 115 N | TAU 150 N | TAU 210 N | TAU 270 N | TAU 350 N | TAU 450 N | TAU 600 N | TAU 800 N | TAU 1000 N | TAU 1150 N | TAU 1250 N | TAU 1450 N | TAU 1750 N | TAU 2100 N | TAU 2600 N | TAU 3000 N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RX 150 S/PV C | • | | | | | | | | | | | | | | | |
| RX 180 S/PV | | • | | | | | | | | | | | | | | |
| RX 250 S/PV | | | • | | | | | | | | | | | | | |
| RX 360 S/PV | | | | • | | | | | | | | | | | | |
| RX 500 S/PV | | | | | • | • | | | | | | | | | | |
| RX 850 S/PV | | | | | | | • | | | | | | | | | |
| RX 1000 S/PV | | | | | | | | • | • | | | | | | | |
| RX 1500 S/E | | | | | | | | | | • | • | • | | | | |
| RX1800S/E | | | | | | | | | | | | | • | | | |
| RX2500S/E | | | | | | | | | | | | | | • | | |
| RX3000S/E | | | | | | | | | | | | | | | • | • |

TAU N combined with blown air gas burners with low polluting emissions (Low NOx)

*"E" Modulating with electronic cam*

| Installed burner | TAU 210 N | TAU 270 N | TAU 350 N | TAU 450 N | TAU 600 N | TAU 800 N | TAU 1000 N | TAU 1150 N | TAU 1250 N | TAU 1450 N | TAU 1750 N | TAU 2100 N | TAU 2600 N | TAU 3000 N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS 25/E BLU | • | • | | | | | | | | | | | | |
| RS 35/E BLU | | | • | | | | | | | | | | | |
| RS 55/E BLU | | | | • | | | | | | | | | | |
| RS 68/E BLU | | | | | • | | | | | | | | | |
| RS 120/E BLU | | | | | | • | • | | | | | | | |
| RS 160/E BLU | | | | | | | | • | • | • | | | | |
| RS 200/E BLU | | | | | | | | | | | • | | | |
| RS 310/E BLU | | | | | | | | | | | | • | | |
| RS 410/E BLU | | | | | | | | | | | | | • | • |

TAU N combined with blown air gas burners with low polluting emissions (Low NOx) with system active control of combustion with oxygen probe

*"E $O_2$" with electronic cam and oxygen control*

| Installed burner | TAU 800 N | TAU 1000 N | TAU 1150 N | TAU 1250 N | TAU 1450 N | TAU 1750 N | TAU 2100 N | TAU 2600 N | TAU 3000 N |
|---|---|---|---|---|---|---|---|---|---|
| RS 120/E $O_2$ BLU | • | • | | | | | | | |
| RS 160/E $O_2$ BLU | | | • | • | • | | | | |
| RS 200/E $O_2$ BLU | | | | | | • | | | |
| RS 310/E $O_2$ BLU | | | | | | | • | | |
| RS 410/E $O_2$ BLU | | | | | | | | • | • |

*"EV $O_2$" with electronic cam, with oxygen control and inverter*

| Installed burner | TAU 800 N | TAU 1000 N | TAU 1150 N | TAU 1250 N | TAU 1450 N | TAU 1750 N | TAU 2100 N | TAU 2600 N | TAU 3000 N |
|---|---|---|---|---|---|---|---|---|---|
| RS 120/EV $O_2$ BLU | • | • | | | | | | | |
| RS 160/EV $O_2$ BLU | | | • | • | • | | | | |
| RS 200/EV $O_2$ BLU | | | | | | • | | | |
| RS 310/EV $O_2$ BLU | | | | | | | • | | |
| RS 410/EV $O_2$ BLU | | | | | | | | • | • |

# WHEREVER YOU NEED A SPECIAL HEAT: **RELIABLE, CHEAP, CLEAN.**

Until recently, high-performance floor-standing boilers required particular spaces and environments. And for many reason is still like this today, but the **TAU N** family, thanks to its compactness and layout flexibility, allows the placement of a centralized heating unit even in rooms or spaces previously considered impossible. Its **PERFECT INSULATION** then allows to obtain thermal room without dispersion. It is the pleasant, constant, and well-being guaranteed by RIELLO.

## LARGE PUBLIC UTILITY BUILDINGS

Hospitals, administrative offices, sports centres, indoor swimming pools, military buildings, museums, large structures dedicated to the public can all benefit from a **TAU N** selected ad hoc, with power supply gas or gasoil. Without waste, without harmful flue gas for the environment, but with the power, the **EFFICIENCY AND CONTINUITY OF SERVICE** that only a product of excellence and avant-garde can allow.

## INDUSTRIAL, COMMERCIAL OR FINANCIAL CENTERS

Whether small or large, it doesn't matter. With **TAU N** there is always a model and a shape layout (horizontal or vertical) suitable to every available place. The easy transport, easy installation, quick testing and **IMMEDIATE ADJUSTMENT** will contribute to make your **ENERGY ADJUSTMENT** an easy operation and particularly cheap. The possible control on each **TAU N** it is so meticulous that it will be possible to differentiate and program local operating temperatures by room, shop by shop, floor by floor.

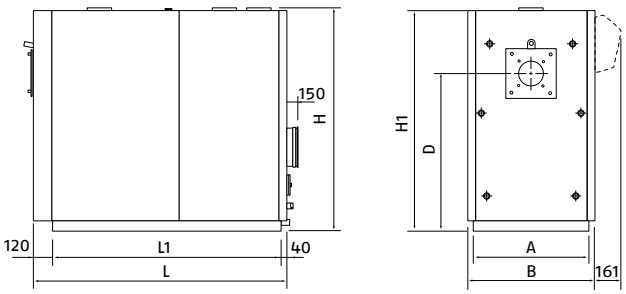
## BUILDINGS FOR CIVIL USE

Are you thinking about an apartment building? A group of homes with central heating, a decommissioned and converted industrial building to loft? You have hit the target. There is no civil setting that cannot benefit from all the **ENERGY AND COMFORT ADVANTAGES** offered from a class **TAU N**.

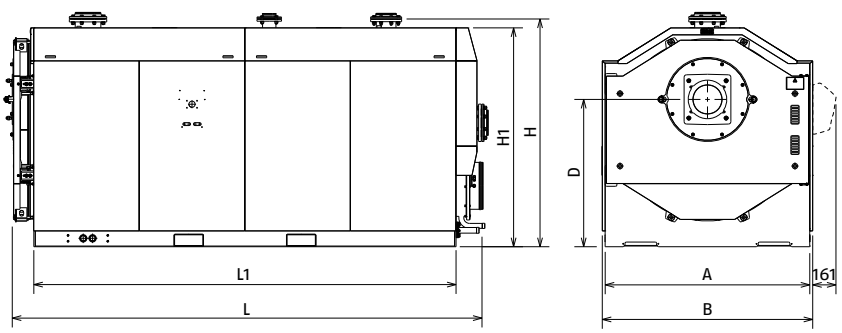
# TECHNICAL DATA

| | | TAU N | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | | 115 | 150 | 210 | 270 | 350 | 450 | 600 | 800 | 1000 | 1150 | 1250 | 1450 | 1750 | 2100 | 2600 | 3000 |
| Max. power | kW | 115 | 150 | 210 | 270 | 350 | 450 | 600 | 800 | 1000 | 1150 | 1250 | 1450 | 1750 | 2100 | 2600 | 3000 |
| Regulation range of Max. ÷ Min. power | kW | 115 ÷ 80 | 150 ÷ 111 | 210 ÷ 151 | 270 ÷ 211 | 350 ÷ 271 | 450 ÷ 351 | 600 ÷ 451 | 800 ÷ 601 | 1000 ÷ 801 | 1150 ÷ 1001 | 1250 ÷ 1151 | 1450 ÷ 1251 | 1750 ÷ 1451 | 2100 ÷ 1751 | 2600 ÷ 2101 | 3000 ÷ 2601 |
| Max. nominal power (80-60°C) | kW | 112 | 147 | 205 | 264 | 344 | 442 | 589 | 786 | 787 | 984 | 1132 | 1230 | 1424 | 1721 | 2065 | 2557 |
| Max. nominal power (50-30°C) | kW | 123 | 160 | 224 | 288 | 373 | 479 | 639 | 852 | 1065 | 1225 | 1331 | 1544 | 1864 | 2237 | 2769 | 3195 |
| Efficiency at max. power (80-60°C) | % | 97,7 | 97,7 | 97,7 | 97,9 | 98,2 | 98,2 | 98,2 | 98,2 | 98,2 | 98,2 | 98,2 | 98,2 | 98,2 | 98,2 | 98,2 | 98,2 |
| Efficiency at max. power (50-30°C) | % | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 | 106,5 |
| 30 % working efficiency (30°C return) | % | 108,3 | 108,5 | 109,3 | 109,2 | 108,7 | 108,7 | 108,7 | 108,7 | 108,7 | 108,7 | 108,7 | 108,7 | 108,7 | 108,7 | 108,7 | 108,7 |
| Flue gas side pressure drops | mbar | 2,2 | 2,0 | 2,7 | 3,2 | 4,6 | 5,0 | 5,5 | 5,7 | 6,3 | 6,6 | 6,8 | 7,4 | 8,4 | 9,6 | 11,5 | 11,6 |
| Maximum operating pressure | bar | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Maximum allowed temperature | °C | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| Maximum operating temperature | °C | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Water content | l | 375 | 323 | 360 | 495 | 555 | 743 | 770 | 1320 | 1395 | 1825 | 1825 | 1900 | 3060 | 3330 | 4700 | 5560 |
| Empty weight | kg | 539 | 560 | 580 | 737 | 823 | 1185 | 1370 | 2010 | 2245 | 2730 | 2730 | 3280 | 4365 | 4740 | 5820 | 6750 |
| A - Passage width | mm | 690 | 690 | 690 | 750 | 750 | 790 | 790 | 980 | 980 | 1070 | 1070 | 1130 | 1750 | 1750 | 1850 | 1950 |
| B - Width | mm | 760 | 760 | 760 | 820 | 820 | 890 | 890 | 1080 | 1080 | 1170 | 1170 | 1225 | 1800 | 1800 | 1900 | 2000 |
| L - Length | mm | 1455 | 1455 | 1455 | 1630 | 1830 | 2035 | 2235 | 2560 | 2810 | 3010 | 3010 | 3080 | 3620 | 4020 | 4425 | 4615 |
| L1 - Base length | mm | 1295 | 1295 | 1295 | 1470 | 1670 | 1875 | 2075 | 2400 | 2650 | 2830 | 2830 | 2850 | 3212 | 3612 | 4024 | 4206 |
| H - Height of hydraulic connections | mm | 1315 | 1315 | 1315 | 1450 | 1450 | 1630 | 1630 | 1910 | 1910 | 2030 | 2030 | 2180 | 1945 | 1945 | 2070 | 2170 |
| H1 - Boiler height | mm | 1300 | 1300 | 1300 | 1437 | 1437 | 1615 | 1615 | 1900 | 1900 | 2015 | 2015 | 2167 | 1870 | 1870 | 2128 | 2075 |
| D - Burner axis | mm | 925 | 925 | 925 | 1030 | 1030 | 1235 | 1235 | 1390 | 1390 | 1495 | 1495 | 1590 | 1060 | 1060 | 1150 | 1210 |
| Boiler weight | kg | 480 | 510 | 530 | 677 | 753 | 1095 | 1250 | 1870 | 2085 | 2515 | 2515 | 3050 | 3985 | 4750 | 5820 | 6750 |
| Panelling weight | kg | 50 | 50 | 50 | 60 | 70 | 90 | 120 | 140 | 160 | 215 | 215 | 230 | - | - | - | - |

**TAU 115 N ÷ TAU 1450 N**




**TAU 1750 N ÷ TAU 3000 N**



RIELLO

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TAU N

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