

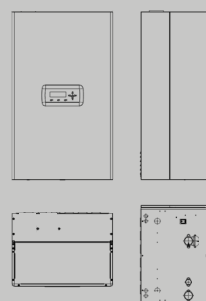
Condensing generators



Condexa Pro

Wall-hung gas condensing modules
Stand alone installation

In conformity with Directive 2009/125/EC
Condensing thermal modules for indoor applications
Modular design to ensure an easy and fast installation
Low polluting emissions, Class 6 (DIN EN 15502)



A Carrier Company

RIELLO
Energy For Life

Condexa Pro

PRODUCT OVERVIEW

Condexa PRO is the new Riello proposal as a modular condensing wall-hung system, capable to ensure extremely high performance levels and to cover a wide range of applications for indoor installation, with sealed combustion; stand alone or cascade configurations are possible with heat outputs up to 970 kW.

The range consists of 3 models with thermal modules from 45 up to 97 kW. 70 P and 100 P models are equipped with the innovative heat exchanger with patented geometries, consisting of two smooth concentric stainless steel pipes, each having a pentagonal inner section and a circular outer section, designed to maximize the exchange surface and offer maximum corrosion resistance. The 50 P model is equipped with an helical, single principle exchanger, with a "P" shaped cross section.

The primary circuit pump with modulating regulation allows working with a settable constant ΔT , reducing set-up plant regime times and maximizing condensation. The basic electronics include climate control, module cascade management, with integrated master / slave functions, automatic summer / winter switching and the possibility of managing both a direct zone and a DHW tank.

The electronics also offers the possibility of remote management via 0-10V input or with the Modbus protocol. Standard equipment includes: boiler drain tap, safety valves, LPG conversion kit, wall support and the condensate drain syphon. Through appropriate accessories there is also the possibility of managing the distribution of the secondary circuit, up to 16 mixed zones.

The optimal combustion management and the high modulation ratios from 1 up to 50 for the cascade installations with 10 thermal modules allow high efficiencies and low pollutant emissions (Class 6, UNI EN 15502-1).

- Service continuity is guaranteed by the system modularity: even in the case of a module failure, the overall operation it is not prejudiced;
- The anti-freeze and anti-seize functions ensure operation in all weather conditions
- Maximum operating pressure: 3 bar
- A wide range of accessories is available to ensure a simple, fast and complete cascade installation.

CONDEXA PRO 50 P – 70 P – 100 P TECHNICAL DATA

| MODEL | | CONDEXA PRO 50 P | CONDEXA PRO 70 P | CONDEXA PRO 100 P |
|--|--------|---------------------|---------------------|----------------------|
| Material | | Steel | Steel | Steel |
| Efficiency class | | > 93 + 2 log Pn | > 93 + 2 log Pn | > 93 + 2 log Pn |
| Fuel | | NG-LPG | NG-LPG | NG-LPG |
| Test room temperature | °C | 20 | 20 | 20 |
| Max. rated heat input at furnace (LCV) | kW | 45,0 | 68,0 | 97,0 |
| Min. rated heat input at furnace (LCV) | kW | 9,0 | 14,0 | 19,4 |
| Max. rated heat output (80–60°C) | kW | 44,2 | 67,0 | 95,2 |
| Min. rated heat output (80–60°C) | kW | 8,9 | 13,5 | 19,2 |
| Max. rated heat output (50–30°C) | kW | 48,8 | 72,9 | 105,1 |
| Min. rated heat output (50–30°C) | kW | 9,9 | 14,9 | 21,1 |
| Efficiency at max. rated heat output (80–60°C) | % | 98,3 | 97,9 | 98,1 |
| Efficiency at min. rated heat output (80–60°C) | % | 98,9 | 98,9 | 98,8 |
| Efficiency at max. rated heat output (50–30°C) | % | 108,6 | 108,1 | 108,2 |
| Efficiency at min. rated heat output (50–30°C) | % | 109,7 | 109,3 | 109,2 |
| Useful efficiency at 30% | % | 109,2 | 108,8 | 109,0 |
| Heat loss in standby mode | % | 0,1 | 0,1 | 0,1 |
| Chimney losses with burner on at P.max | % | 2,3 | 2,3 | 2,6 |
| Chimney losses with burner on at P.min | % | 0,1 | 0,1 | 0,2 |
| Blanket losses with burner on with 70°C average Temperature | % | 1,1 | 0,9 | 0,9 |
| Blanket losses with burner off with 70°C average Temperature | % | 1,1 | 0,9 | 0,9 |
| Flue gas temperature at max. and min. power 80–60°C | °C | 67,5 / 61,0 | 72,0 / 61,0 | 78,0 / 62,0 |
| Flue gas temperature at max. and min. power 50–30°C | °C | 45,0 / 32,0 | 46,0 / 33,0 | 49,0 / 35,0 |
| Excess air at max.power | | 1,27 | 1,27 | 1,27 |
| Excess air at min.power | | 1,27 | 1,27 | 1,27 |
| Max-min flue gas mass flow rate | kg / s | 0,0200–0,0050 | 0,0300–0,0070 | 0,0460–0,0072 |
| Available useful discharge head P.max | Pa | 480 | 630 | 610 |
| Available useful discharge head P.min | Pa | 45 | 35 | 32 |
| Flue side pressure drop | mbar | --- | --- | --- |
| NOx | mg/kWh | 43,9 | 36,4 | 38,7 |
| Water-side resistance (ΔT 20°C) | mbar | --- | --- | --- |
| Available useful discharge head (ΔT 20°C) | mbar | 250 | 390 | 350 |
| Water-side resistance (ΔT 10°C) | mbar | --- | --- | --- |
| Available useful discharge head (ΔT 10°C) | mbar | --- | --- | --- |
| Water content | l | 5 | 15 | 17 |
| Maximum working pressure | bar | 3 | 3 | 3 |
| Expansion tank capacity | l | --- | --- | --- |
| Power supply | V/Hz | 230–50 | 230–50 | 230–50 |
| Electrical protection level | IP | IPX4D | IPX4D | IPX4D |
| Electrical consumption with boiler at max. power | W | 200 | 175 | 345 |
| Electrical consumption with boiler at min. power | W | 34 | 30 | 31 |
| Electrical consumption with pumps at max. power | W | --- | --- | --- |
| Electrical consumption with pumps at min. power | W | --- | --- | --- |
| Flue gas discharge diameter | mm | 80 | 80 | 110 |
| Empty weight | kg | 66 | 78 | 81 |
| Category according to UNI 10642 | | II 2H3P appliance | II 2H3P appliance | II 2H3P appliance |
| Boiler water content | l | --- | --- | --- |
| Boiler losses | W / K | --- | --- | --- |
| Boiler material | | --- | --- | --- |
| Insulation thickness | mm | --- | --- | --- |
| Boiler circulator absorption | W | --- | --- | --- |
| Sanitary expansion vessel | l | --- | --- | --- |
| Noise | dB(A) | 52 | 54 | 56 |
| Nominal/min natural gas pressure supply (G20) | mbar | 20 / 17 | 20 / 17 | 20 / 17 |
| Nominal/min natural gas pressure supply (G31) | mbar | 37 / 25 | 37 / 25 | 37 / 25 |

CONDENSING GENERATORS

Wall-hung gas condensing modules

ErP TECHNICAL DATA

| MODEL | | | CONDEXA PRO 50 P | CONDEXA PRO 70 P | CONDEXA PRO 100 P |
|---|-------|--------|---------------------|---------------------|----------------------|
| Seasonal efficiency class in central heating mode | | | A | A | --- |
| Seasonal efficiency class in water heating | | | --- | --- | --- |
| Useful (rated) heat output | Pn | kW | 44,2 | 68 | 95 |
| Seasonal efficiency class in room heating mode | ηs | % | 94 | 94 | 94 |
| USEFUL THERMAL POWER | | | | | |
| At useful heat output and at high temperature capacity (*) | P4 | kW | 44,2 | 67 | 95,3 |
| At 30% of useful heat output and at low temperature capacity (**) | P1 | kW | 14,7 | 22,3 | 31,7 |
| EFFICIENCY | | | | | |
| At useful heat output and at high temperature capacity (*) | η4 | % | 88,4 | 88,2 | 88,2 |
| At 30% of useful heat output and at low temperature capacity (**) | η1 | % | 98,2 | 98,0 | 98,0 |
| AUXILIARY ELECTRICAL CONSUMPTION | | | | | |
| At full load | elmax | W | 105 | 77 | 203 |
| At partial load | elmin | W | 34 | 30 | 31 |
| In standby mode | PSB | W | 9 | 13 | 6 |
| OTHER PARAMETERS | | | | | |
| Thermal losses in Stand-by mode | Pstby | W | 57,0 | 87,0 | 124,0 |
| Pilot flame energy consumption | Pign | W | --- | --- | --- |
| Yearly energy consumption | QHE | GJ | 91 | 141 | --- |
| Noise level, indoor (sound power) | LWA | dB | 52 | 54 | 56 |
| Nitrogen oxide emissions (NOx) | NOx | mg/kWh | 43,9 | 36,4 | 38,7 |
| FOR COMBINED HEATING EQUIPMENT | | | | | |
| Declared load profile | | | | | |
| Energy efficiency class in water heating | ηwh | % | --- | --- | --- |
| Daily electrical energy consumption | Qelec | kWh | --- | --- | --- |
| Daily fuel consumption | Qfuel | kWh | --- | --- | --- |
| Annual electrical energy consumption | AEC | kWh | --- | --- | --- |
| Annual fuel consumption | AFC | GJ | --- | --- | --- |

LAW TABLE 10

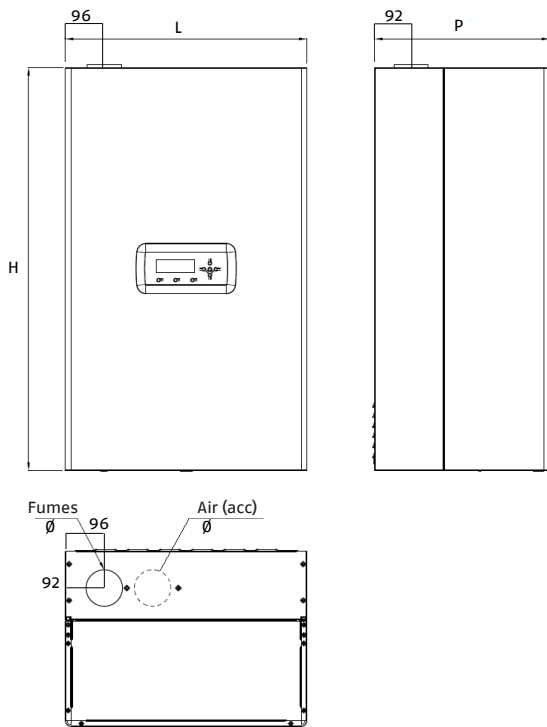
| BOILER MODELS | | | CONDEXA PRO 50 P | CONDEXA PRO 70 P | Condexa PRO 100 P |
|---|---|--------|---------------------|---------------------|----------------------|
| MAXIMUM THERMAL POWER | | | | | |
| | Useful (80/60°C) | kW | 44,2 | 67 | 95,2 |
| | Useful (50/30°C) | kW | 48,8 | 73,9 | 105,1 |
| | Furnace | kW | 45,0 | 68 | 97 |
| MINIMUM THERMAL POWER | | | | | |
| | Useful (80/60°C) | kW | 8,9 | 13,5 | 19,2 |
| | Useful (50/30°C) | kW | 9,9 | 14,9 | 21,1 |
| | Furnace | kW | 9,0 | 14 | 19,4 |
| EFFICIENCY | | | | | |
| | Useful (80/60°C) | % | 98,34- 98,9 | 98,1-98,9 | 98,1-98,8 |
| | Useful (50/30°C) | % | 108,6-119,7 | 108,1-109,3 | 108,2-109,2 |
| | With reduced load 30% (return 30°C) | % | 109,2 | 109 | 109 |
| COMBUSTION | | | | | |
| | Chimney and blanket losses with burner on | % | 2,3-1,1 | 2,3-0,9 | 2,6-0,9 |
| | Chimney losses with burner off | % | 0,1 | 0,1 | 0,1 |
| | Flue flow rate | kg / s | 0,020 | 0,03 | 0,046 |
| GAS EMISSION VALUES AT MAX AND MIN FLOW RATES G20 (**) | | | | | |
| | CO s.a. less than (***) | ppm | 73 | 90 | 92 |
| | CO ₂ | % | 9 | 9 | 9 |
| | NOx (EN 677) (***) | ppm | 30 | 30 | 30 |
| | Flue temperature | °C | 67,5 | 72 | 78 |
| | ΔT flue - return water | K | 7,50 | 12 | 18 |
| | CO s.a. less than (***) | ppm | 2,3 | 6,5 | 7,5 |
| | CO ₂ | % | 9 | 9 | 9 |
| | NOx (EN 677) (***) | ppm | 30 | 30 | 30 |
| | Flue temperature | °C | 61 | 61 | 62 |
| | ΔT flue - return water | K | 1 | 1 | 2 |
| | NOx class | | 6 | 6 | 6 |
| | Electric power: circulator, total | | 105 | 77 | 203 |

(**) Verification carried out with concentric pipe Ø 60-100 mm length 0.85 m; water temperatures 80-60 °C.

(***) Graphs for intermediate power values are also available. The expressed data must not be used to certify the plant; for certification the data indicated in the "installation manual" measured at the time of the first ignition must be used.

CONDENSING GENERATORS
Wall-hung gas condensing modules

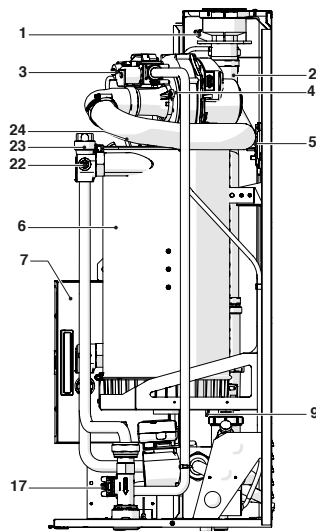
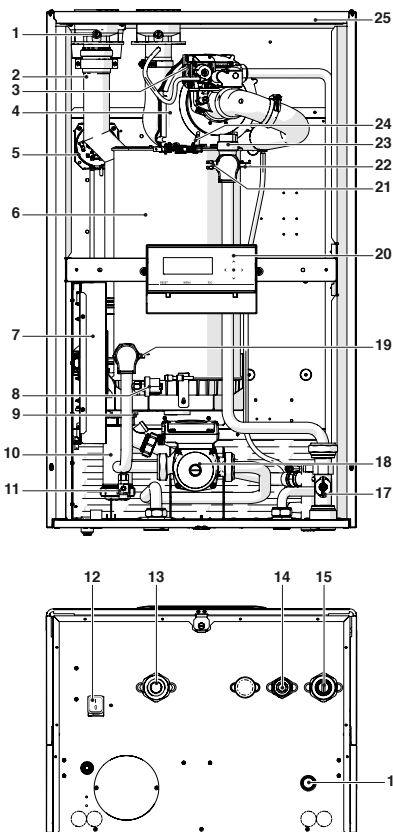
OVERALL DIMENSIONS



| Commercial description | H mm | L mm | P mm | Ø fumes/ air mm | Net weight kg |
|------------------------|------|------|------|-----------------|---------------|
| CONDEXA PRO 50 P | 1000 | 600 | 435 | 80 | 66 |
| CONDEXA PRO 70 P | 1000 | 600 | 435 | 80 | 78 |
| CONDEXA PRO 100 P | 1000 | 600 | 435 | 110 | 81 |

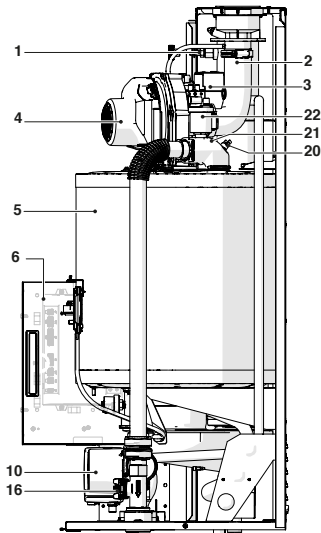
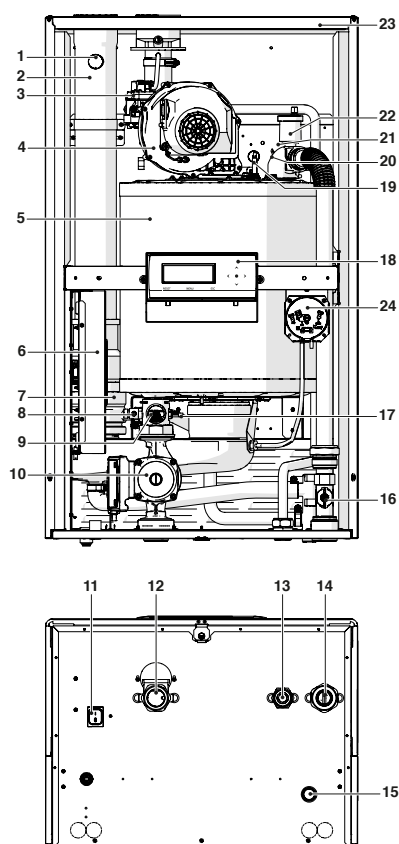
SYSTEM LAYOUT

Condexa PRO 50 P



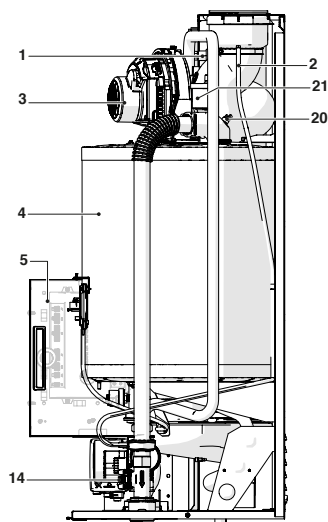
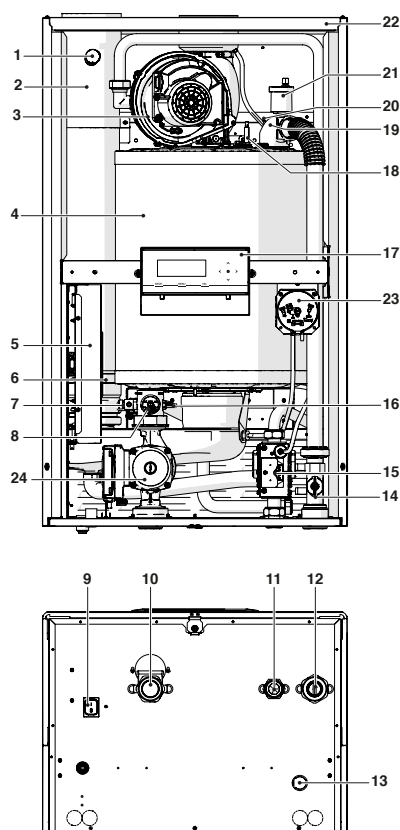
- 1 烟气分析检测口
- 2 烟气排气管
- 3 燃气阀
- 4 风机
- 5 烟气压差开关
- 6 燃烧室
- 7 主控板
- 8 最小压力开关(0.7 bar)
- 9 烟气温度传感器
- 10 冷凝水收集器
- 11 排水阀
- 12 电源开关
- 13 采暖回水口
- 14 燃气供气管
- 15 采暖供水管
- 16 冷凝水排放管
- 17 流量传感器
- 18 循环泵
- 19 回水温度传感器
- 20 控制面板
- 21 过热保护 (需手动复位)
- 22 流量传感器
- 23 自动排气阀
- 24 点火/火焰检测电极
- 25 外壳

Condexa PRO 70 P



- 1 烟气分析检测口
- 2 烟气排气管
- 3 燃气阀
- 4 风机
- 5 燃烧室
- 6 主控板
- 7 烟气止回阀
- 8 排水阀
- 9 最小压力开关 (0.7bar)
- 10 循环泵
- 11 电源开关
- 12 供暖回水管
- 13 燃气供气管
- 14 采暖供水管
- 15 冷凝水排放管
- 16 流量传感器
- 17 烟气温度传感器
- 18 回水温度传感器
- 19 控制面板
- 20 点火/火焰检测电极
- 21 过热保护 (需手动复位)
- 22 流量传感器
- 23 自动排气阀
- 24 外壳

Condexa PRO 100 P



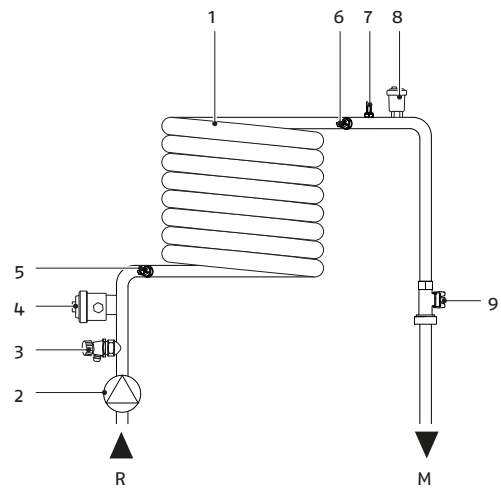
- 1 烟气分析检测口
- 2 烟气排气管
- 3 风机
- 4 燃烧室
- 5 主控板
- 6 烟气止回阀
- 7 排水阀
- 8 最小压力开关 (0.7-bar)
- 9 电源开关
- 10 供暖回水管
- 11 燃气供气管
- 12 采暖供水管
- 13 冷凝水排放管
- 14 流量传感器
- 15 燃气阀
- 16 烟气温度传感器
- 17 回水温度传感器
- 18 控制面板
- 19 点火/火焰检测电极
- 20 过热保护 (需手动复位)
- 21 流量传感器
- 22 自动排气阀
- 23 外壳
- 24 循环泵

CONDENSING GENERATORS

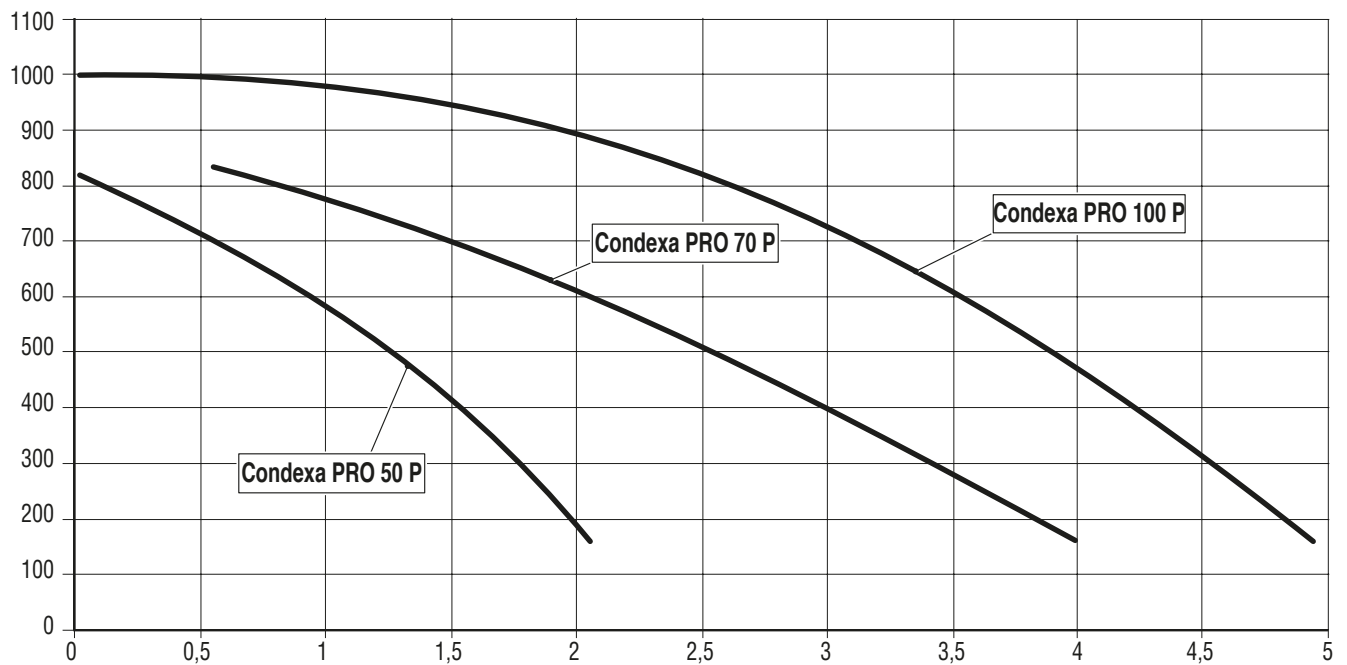
Wall-hung gas condensing modules

HYDRAULIC CIRCUIT

1. Heat exchanger
 2. Circulator
 3. Drain tap
 4. Minimum pressure switch
 5. NTC return probe
 6. NTC flow probe
 7. Safety thermostat temperature sensor
 8. Automatic bleed valve
 9. Flow meter
- F Central heating flow
R System return

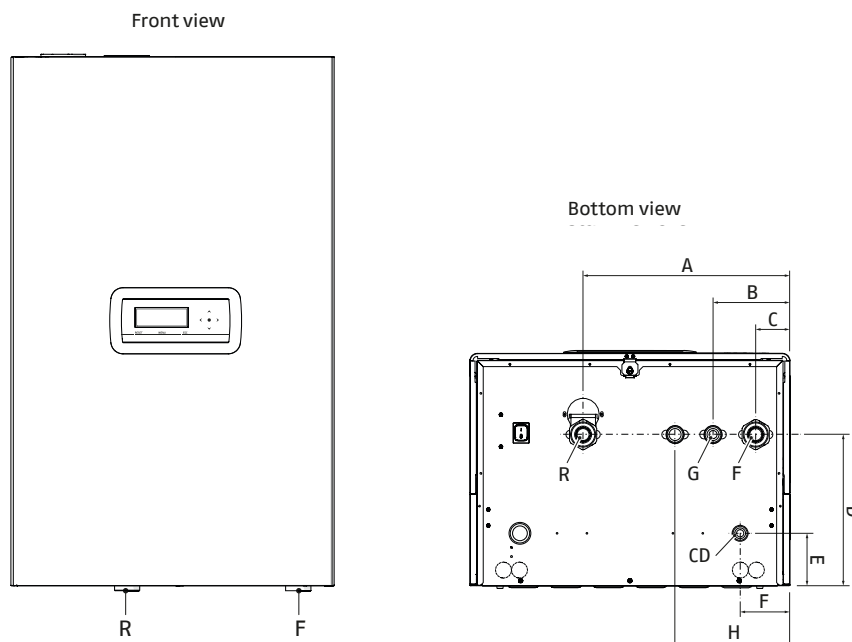


CIRCULATORS



HYDRAULIC CONNECTIONS AND FUMES DISCHARGE

The dimensions and position of thermal module's hydraulic connections are shown in the table below.



| DESCRIPTION | | Condexa PRO | | |
|-------------|-----------------------------------|-------------|------------|------------|
| | | 50 P | 70 P | 100 P |
| A | mm | 387 | 387 | 387 |
| B | mm | 143,5 | 143,5 | 143,5 |
| C | mm | 63,5 | 63,5 | 63,5 |
| D | mm | 283,5 | 283,5 | 283,5 |
| E | mm | 98,5 | 98,5 | 98,5 |
| F | mm | 92,5 | 92,5 | 92,5 |
| H | (optional 3-way valve connection) | mm | 202,5 | - |
| F | (System flow) | Ø | G 1 "1/2 M | G 1 "1/2 M |
| R | (System return) | Ø | G 1 "1/2 M | G 1 "1/2 M |
| CD | (condensate drain) | Ø mm | 25 | 25 |
| G | Gas input | Ø | G 1" M | G 1" M |

WATER IN THE PLANT

Before connecting the thermal module, it is necessary to clean the system. This step is absolutely required when the appliance replaces another one on pre-existing systems. In order to carry out this cleaning activity, if the old generator is still installed on the system, it is advisable to:

- Add a de-scaling additive.
- Operate the system with the generator on for around 7 days.
- Discharge dirty system water and flush the system one or more times with clean water.

If the system is very dirty, repeat the last procedure one more time. In case of new installation or if the old generator is not present or available, use a pump to circulate the additive water in the system for about 10 days and carry out the final washing as described in the previous paragraph.

Once the cleaning has been completed, it is recommended to add a suitable protective fluid to the system's water before installing the thermal module.

Do not use incompatible liquid detergents, including acids (eg chloridric acid and similar) in any concentration.

Do not subject the exchanger to cyclical pressure variations because the fatigue stress is very dangerous for the integrity of the system components.

Sludge, limestone and contaminants present in the water can lead to irreversible damage to the heat generator, even in short times and regardless of the quality level of the materials used.

The quality of the water used in the heating system must comply with the following parameters:

| Parameters | Value | Unit |
|-------------------------|---------------------------------|-------------------|
| General characteristic | Colorless, without sediment | |
| PH value | Min 6.5; Max 8 | PH |
| Dissolved oxygen | <0.05 | mg / l |
| Total iron (Fe) | <0.3 | mg / l |
| Total Copper (Cu) | <0.1 | mg / l |
| Na2S03 | <10 | mg / l |
| N2H4 | <3 | mg / l |
| P04 | <15 | mg / l |
| CaC03 | Min 50; Max 150 | ppm |
| Trisodium phosphate | None | ppm |
| Chlorine | <100 | ppm |
| Electrical conductivity | <200 | microsiemens / cm |
| Pressure | Min 0.6; Max 6 | bar |
| Glycol | Max 40% (only propylene glycol) | % |

All the data in the table refer to the water contained in the system after 8 weeks' operation.

Do not use excessively softened water. Excessive water softening (total hardness < 5° f) results in corrosion due to contact with metal elements (pipes or thermal module components).

Immediately repair any leaks or drips that could result in air entering the system.

Excessive pressure fluctuations can cause stress and fatigue to the heat exchanger.

Maintain a constant operating pressure.

Water used to fill a system for the first time and water used to top it up must always be filtered (using synthetic or metal mesh filters with a filtration rating of no less than 50 microns) to prevent sludge from forming and triggering deposit corrosion. 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.

It is prohibited to top up the heating system constantly or frequently, since this can damage the thermal module's heat exchanger. The use of automatic topping up systems should be avoided for this reason.

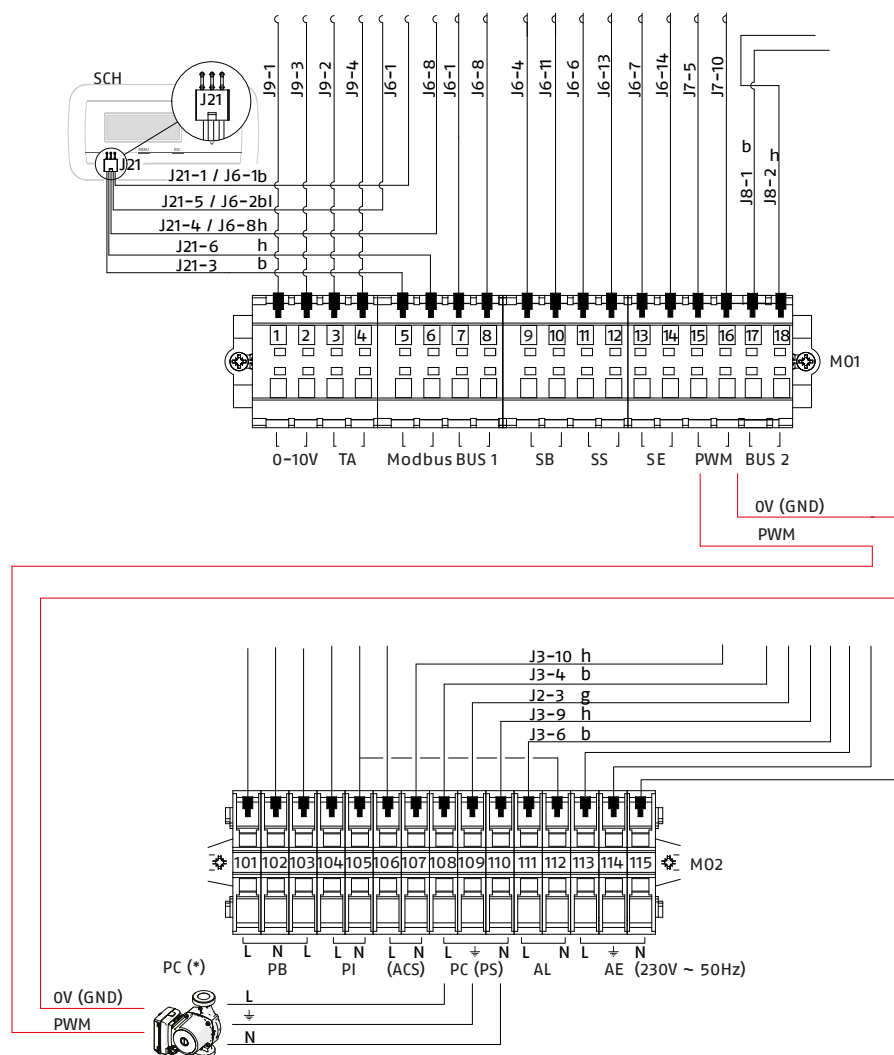
To sum up, in order to eliminate contact between air and water (and to prevent the latter from becoming oxidized), it is necessary:

- that the expansion system be a closed vessel, correctly sized and with the correct pre-loading pressure (to be regularly checked);
- that the system be always at a pressure higher than the atmospheric one 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 underpressure);
- the installation be not made with gas-permeable materials (e.g. plastic pipes without oxygen barrier for underfloor heating systems).

Damages suffered by the thermal module, caused by encrustations and corrosion, are not covered by warranty.

ELECTRICAL WIRING

The injection pumps are piloted with PWM signal to work with constant ΔT .



Key

| | |
|--------|--|
| SCH | display PCB and controls |
| M01 | Low voltage terminal block, 1-10 V input |
| TA | Room thermostat/ heat request |
| EA | Ignition electrode |
| Modbus | Modbus output |
| SB | Tank probe (acc.) |
| SS | System probe (acc.) |
| SE | External probe (acc.) |
| PWM | PWM connection |

Key

| | |
|-------|-----------------------------|
| M02 | High voltage terminal block |
| PB | 2-way valve |
| PI | Plant circulator |
| (DHW) | Sanitary circulator |
| PC | Thermal module circulator |
| PS | System circulator |
| AL | Alarm output |
| AE | Electrical supply |

INSTALLING THE EXTERNAL TEMPERATURE PROBE (ACCESSORY)

The correct positioning of the external probe is fundamental for the proper functioning of the climate control.

The probe must be installed outside the building to be heated, at about 2/3 of the height of the north or north-west facade and away from chimneys, doors, windows and sunny areas.

The probe must be placed in a smooth wall stretch; in the case of exposed bricks or irregular walls, a smooth contact area should be provided.

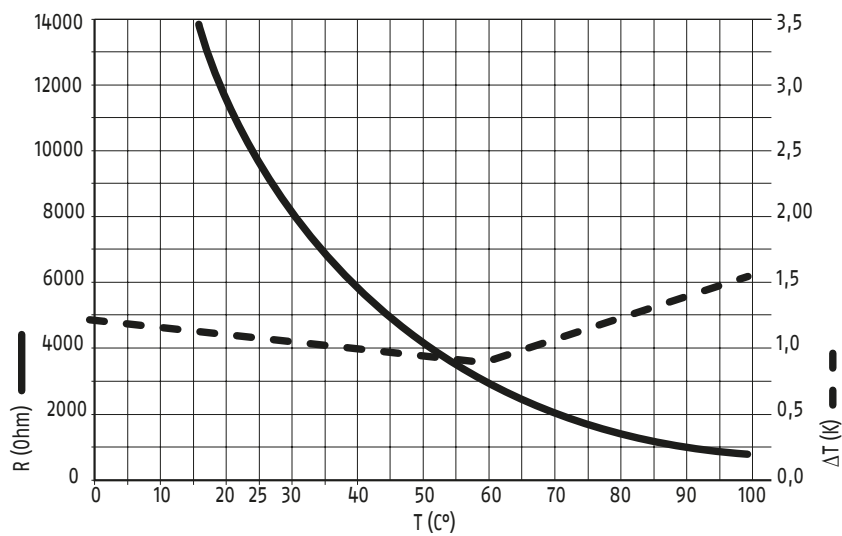
The maximum length of the connection between the external probe and the control panel is 50 m. In case of connections with a cable longer than 50 m, check that the value read by the card corresponds to a real measurement and use parameter 39 to make any correction.

The connection cable between the probe and the control panel must not have joints; if necessary, it must be tinned and adequately protected.

Any ducting of the connection cable must be separated from live cables (230V AC).

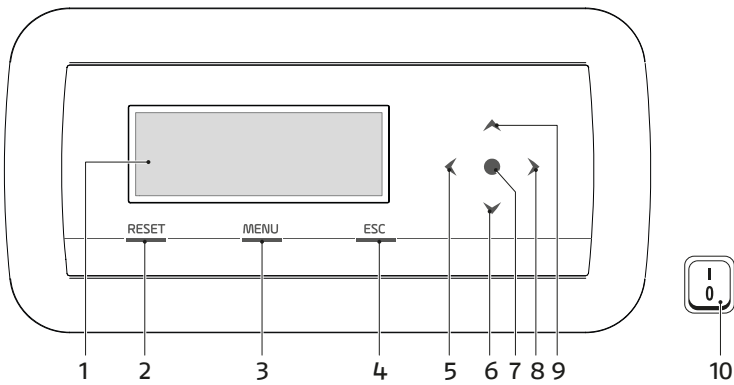
If the external probe is not connected, parameters 14 and 22 should be set to "0".

Correspondence table valid for all probes



| T (°C) | R (°Ω) |
|--------|--------|
| 0 | 27396 |
| 5 | 22140 |
| 10 | 17999 |
| 15 | 14716 |
| 20 | 12099 |
| 25 | 10000 |
| 30 | 8308 |
| 35 | 6936 |
| 40 | 5819 |
| 45 | 4904 |
| 50 | 4151 |
| 55 | 3529 |
| 60 | 3012 |
| 65 | 2582 |
| 70 | 2221 |
| 80 | 1663 |
| 85 | 1446 |
| 90 | 1262 |
| 95 | 1105 |
| 100 | 970 |

CONTROL PANEL



1. 255x80 backlit display (106,4x39,0mm)
2. RESET button: allows operation to be restored after a fault stop
3. MENU button: allows access to the main menu
4. ESC button: in the menu navigation it allows to exit from a menu item and return to the previous one
5. Navigation button ◀
6. Navigation button ▼
7. Navigation button •
8. Navigation button ▶
9. Navigation button ▲
10. Main switch (located on the bottom of the appliance)

DISCHARGE OF COMBUSTION PRODUCTS

The appliance is supplied as standard in type C configuration (C13 – C33 – C53 – C63), offering the possibility to draw air directly from the installation room or from the outside, in this case with the possibility of having coaxial or split pipes.

It is essential that only specific pipes for condensing boilers are used for extracting the combustion air and that the connection is made correctly as indicated by the instructions supplied with the smoke accessories. Do not connect the smoke evacuation ducts of this appliance to those of other appliances unless expressly approved by the manufacturer. Failure to comply with this warning may result in accumulation of carbon monoxide which can cause serious personal injury or death.

Ensure that the combustion air (intake air) is not contaminated by:

- waxes/chlorinated detergent
- chemical products based on swimming pool chlorine
- calcium chloride
- sodium chloride used for water softening
- refrigerant leaks
- paint or varnish removal products
- hydrochloric acid / muriatic acid
- cements and glues
- antistatic softeners used in dryers
- chlorine used for domestic or industrial purposes as a detergent
- whitener or solvent
- adhesives used to glue construction products and others
- similar products.

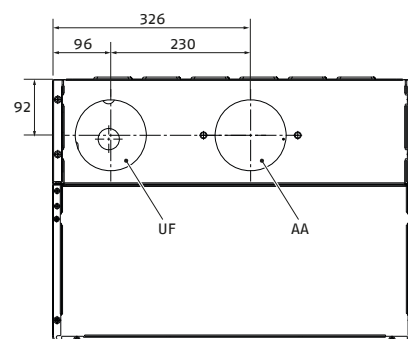
To prevent contamination, do not install suction line air intakes and gas flue extraction pipes near:

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

The exhaust duct and the fumes connection must be made in compliance with the standards, current legislation and local regulations.

The use of rigid ducts that are resistant to temperature, condensation, mechanical stress and tightness is mandatory.

Non-insulated exhaust ducts are potential sources of danger.



| DESCRIPTION | Condexa PRO 50 P | Condexa PRO 70 P | Condexa PRO | |
|-------------------|------------------|------------------|-------------|---|
| UF (fumes outlet) | DN80 | DN80 | DN110 | Ø |
| AA (air intake) | DN80 | DN80 | DN110 | Ø |

Check that condensation does not build up along the duct. For this purpose, provide a sloping duct of at least 3 ° towards the appliance in the presence of a horizontal section. If the horizontal or vertical section is longer than 4 meters, it is necessary to provide a siphoned drainage of the condensate at the foot of the pipe. The useful height of the siphon must be at least the value "H" shown in the table. The drain of the siphon must therefore be connected to the sewerage system.

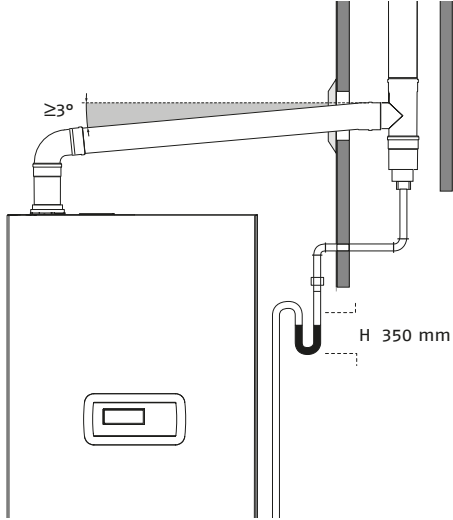
For changes of direction, use a T-fitting with an inspection cap which allows easy periodic cleaning of the pipes.

Always make sure that after cleaning the inspection plugs are hermetically closed with the relative seal intact.

CONDENSING GENERATORS

Wall-hung gas condensing modules

| Description | Discharge head | |
|-------------------|----------------|-----|
| | Max | Min |
| Condexa PRO 50 P | 480 | 45 |
| Condexa PRO 70 P | 630 | 35 |
| Condexa PRO 100 P | 610 | 32 |



ACCESSORIES FOR STAND ALONE INSTALLATION


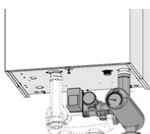

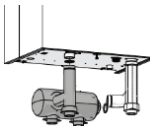



GUIDE TO SYSTEM CONFIGURATION WITH STAND ALONE BOILER AND ACCESSORIES SELECTION



1. ACCESSORIES TO COMPLETE THE SYSTEM


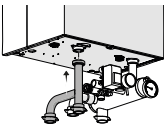
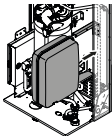
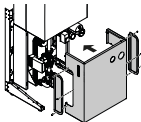
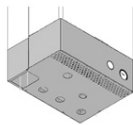
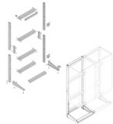

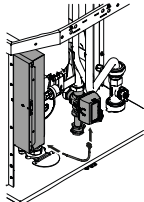
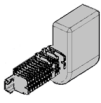
2. OPTIONAL ACCESSORIES

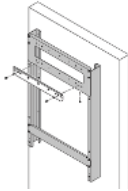

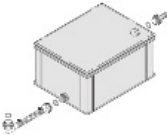
- 2.1 Additional safety devices
- 2.2 Hydraulic separator or plate heat exchanger
- 2.3 Secondary circuit management
- 2.4 Flue system
- 2.5 Treatment system for neutralising condensate

| Image | Description | CONDEXA PRO | | |
|---|--|-------------|------|-------|
| | | 50 P | 70 P | 100 P |
| 1. ACCESSORIES TO COMPLETE THE SYSTEM | | | | |
|  | External probe: it contains a probe to be installed in external environment, model: NTC 10 kOhm@25°C, used for the climatic mode of operation. N.1 probe for each cascade system, to be wired in the Master boiler. | • | • | • |
| 2. OPTIONAL ACCESSORIES | | | | |
| 2.1 Safety devices | | | | |
|  | Manifold kit with safety devices for stand alone installation: flow manifold and housing of the safety devices for Condexa PRO stand alone installations. Accessory installed in the area below the boiler, allowing a considerable saving of the space occupied. kit composed with 3" manifold, insulation and the safety devices listed below: <ul style="list-style-type: none">• Bourdon spring pressure gauge• Safety pressure switch for manifold• Thermometer 0-120 ° C 1/2 " G.• Safety valve VST 1/2 " x 3/4 " 5.4 bar• Gas shutting valve (VIC) suitable up to 135 kW | • | • | • |
|  | Hydraulic separator connection kit for stand alone boiler: flow connection pipe. Accessory installed in the area below the boiler, allowing a considerable saving of the space occupied. Complete with insulation, contains flow connections for both heating and DHW circuit. | • | • | • |
| 2.2 Hydraulic separator or plate heat exchanger | | | | |
|  | Horizontal hydraulic separator kit for stand alone boiler: 4" hydraulic separator with insulation, for Condexa PRO stand alone installation. It allows the hydraulic separation between the primary circuit and the secondary circuit, balancing the differences in flow between the circuits. This device is necessary on systems equipped with control of zones by means of thermostatic valves, in which the condition of "zero" flow on the secondary circuit can be verified. Accessory installed in the area below the boiler, allowing a considerable saving of the space occupied. This kit (combined with the safety manifold or with the connector-to-the hydraulic separator manifold) acts as a compensator / manifold reducing installation costs; therefore it allows to have 2 flows (1 for the heating circuit and 1 for the storage tank) and 2 returns. | • | • | • |
|  | Plate heat exchanger kit for 50 stand alone boiler: it consists of a braze-welded plate heat exchanger sized with $\Delta T_{ml} = 7.2\text{ }^{\circ}\text{C}$, support bracket and connections to the boiler. This kit requires the installation of the support frame kit. | • | | |
|  | Plate heat exchanger kit for 70 stand alone boiler: it consists of a braze-welded plate heat exchanger sized with $\Delta T_{ml} = 7.2\text{ }^{\circ}\text{C}$, support bracket and connections to the boiler with a manifold for three way valve installation (accessory). This kit requires the installation of the support frame kit. | | • | |
|  | Plate heat exchanger kit for 100 stand alone boiler: it consists of a braze-welded plate heat exchanger sized with $\Delta T_{ml} = 7.2\text{ }^{\circ}\text{C}$, support bracket and connections to the boiler with a manifold for three way valve installation (accessory). This kit requires the installation of the support frame kit. | | | • |

CONDENSING GENERATORS

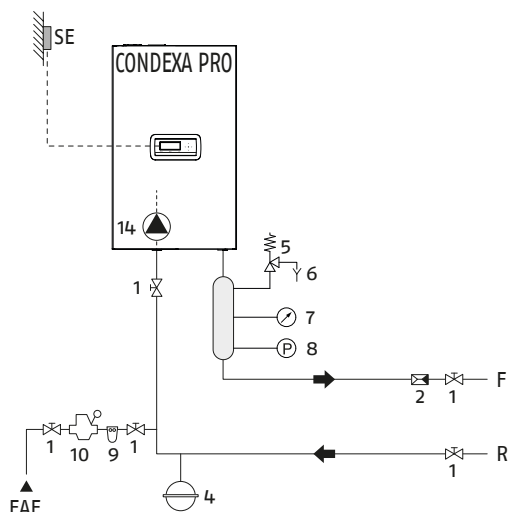
Wall-hung gas condensing modules

| Image | Description | CONDEXA PRO | | |
|---|---|-------------|------|-------|
| | | 50 P | 70 P | 100 P |
|  | 2-way valve kit: this valve can be installed only coupled with one of the "Plate heat exchanger kit" in order to satisfy also the DHW request. | • | • | • |
|  | Flow / return connection kit for 35-135 "direct" installation: piping for the "direct" connection to the secondary system The kit is suitable for systems where no hydraulic separator is required. It contains both flow/return connections for the heating circuit and return connection for DHW circuit. | • | • | • |
|  | Expansion vessel kit for 50 stand alone boiler: 18 l expansion vessel with pipes (3/4" M connection) and connection brackets for the installation inside the boiler casing. | • | | |
|  | Cover for plate heat exchanger: painted metal sheet that protects the plate heat exchanger in the "outdoor" installations. The cover requires the support frame. | • | • | • |
|  | Cover for Safety kit/hydraulic separator for stand alone boiler: painted metal sheet that protects both the safety manifold and the hydraulic separator. | • | • | • |
|  | Frame kit for front cascades: it contains all the panels (and screws) needed to install the boiler support frame (this kit can be used for all Condexa PRO boiler range) . | • | • | • |
| 2.3 Secondary circuit management | | | | |
|  | Secondary/tank probe: NTC probe for temperature control both for the tank circuit and for the heating circuit. Cable length: 2200 mm. | • | • | • |
|  | 3-way valve kit for domestic hot water production 50: 3-way valve (1" M - kvs = 8.6) to be installed on the boiler return (inside the casing). The kit includes fittings, gaskets, servomotor and electric control cable | • | | |
|  | Electronic management kit for single direct or additional mixed zone (max 16): kit for the management of additional heating zone, direct or mixed. It consists of an electronic control device completely wired to the terminal board, installed on a DIN bar so that it can be installed in a box in the electrical control panel in the central heating. The electronic module is connected to the boiler board by means of a communication bus and allows the management of the zone with a dedicated climatic curve. Features: - Direct or mixed zone control - Three way valve management - Zone circulation pump control - Input for TA or OT probe | • | • | • |

| Image | Description | CONDEXA PRO | | |
|--|---|-------------|------|-------|
| | | 50 P | 70 P | 100 P |
| 2.4 Flue system | | | | |
|  | <p>Spacer kit for fixing to wall: frame kit to anchor and distance the boiler from the wall. For Condexa PRO 35÷135 stand alone installation.</p> <p>The frame is necessary if you want to make the concentric ejection directly to the back side, to the wall; in this case the kit creates the necessary space for the concentric curve and the insertion of the straight section.</p> <p>This accessory also allows the boiler to be fixed in the presence of irregular walls.</p> | ● | ● | ● |
| 2.5 Treatment systems for neutralising condensate | | | | |
|  | <p>HN2 neutralizer kit up to 280 kW: HN2 type condensate neutraliser for condensing gas boilers up to 270 kW.</p> <p>The system allows to increase the pH of the condensate deriving from the exhaust fumes of condensing boilers to values between 6.5 and 9 to allow their disposal through the common sewer system.</p> <p>The kit is suitable for those systems equipped with a condensate drain in the thermal plant located higher than the condensate discharge of the boiler.</p> <p>The maximum head that the pump can win is given by its own maximum head, less the resistance offered by the discharge pipe.</p> <p>The pump is controlled by an electrical level contact. The electrical connections have an IP54 electrical protection rating.</p> | ● | ● | ● |
|  | <p>N2 neutralizer kit up to 450 kW: N2 type condensate neutraliser for condensing gas boilers up to 450 kW.</p> <p>The system allows to increase the pH of the condensate deriving from the exhaust fumes of condensing boilers to values between 6.5 and 9 to allow their disposal through the common sewer system.</p> <p>The kit is designed for systems equipped with a condensate drain trap in the thermal plant located lower than the boiler condensate drain and which therefore has a natural slope. Therefore, they do not require a pump and relative electrical connections.</p> | ● | ● | ● |

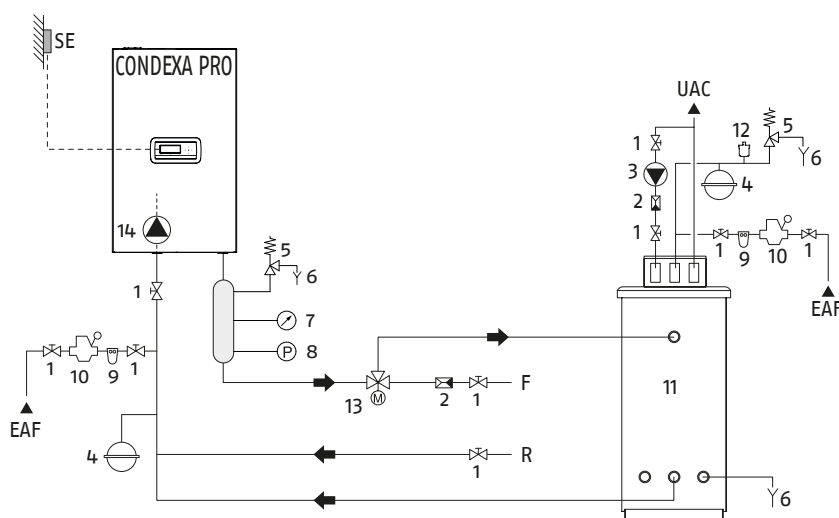
HYDRAULIC SYSTEM

Scheme 1: circuit with thermal module connected directly to the heating system (check that the pump head is sufficient to ensure adequate circulation)



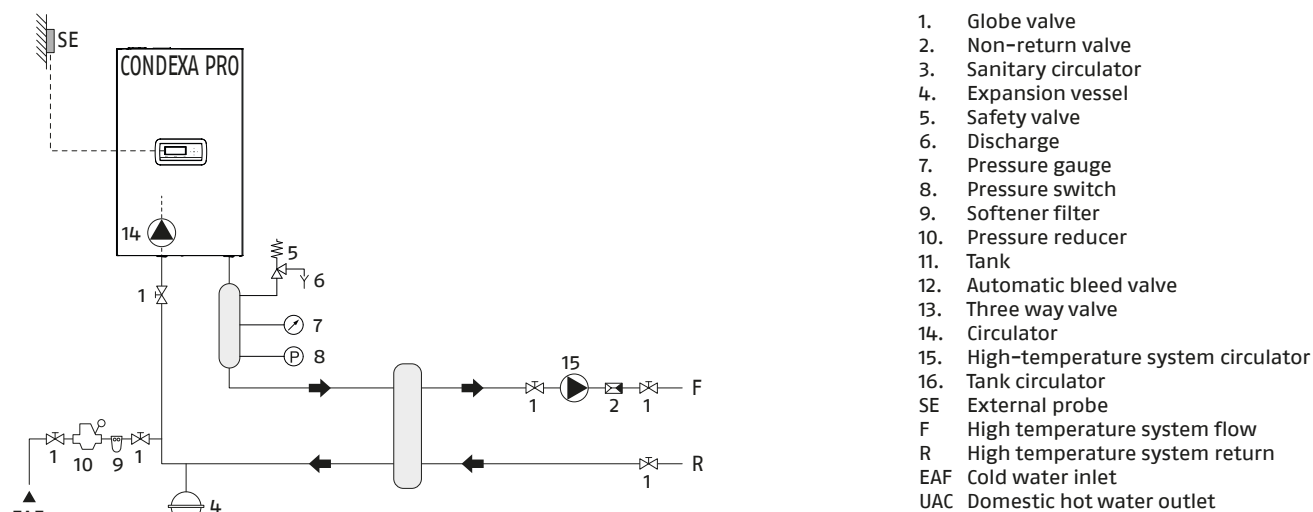
- 1. Globe valve
- 2. Non-return valve
- 3. Sanitary circulator
- 4. Expansion vessel
- 5. Safety valve
- 6. Discharge
- 7. Pressure gauge
- 8. Pressure switch
- 9. Softener filter
- 10. Pressure reducer
- 11. Tank
- 12. Automatic bleed valve
- 13. Three way valve
- 14. Circulator
- SE External probe
- F High temperature system flow
- R High temperature system return
- EAF Cold water inlet
- UAC Domestic hot water outlet

Scheme 2: circuit with thermal module connected directly to the heating system and DHW tank (check that the pump head is sufficient to ensure adequate circulation)

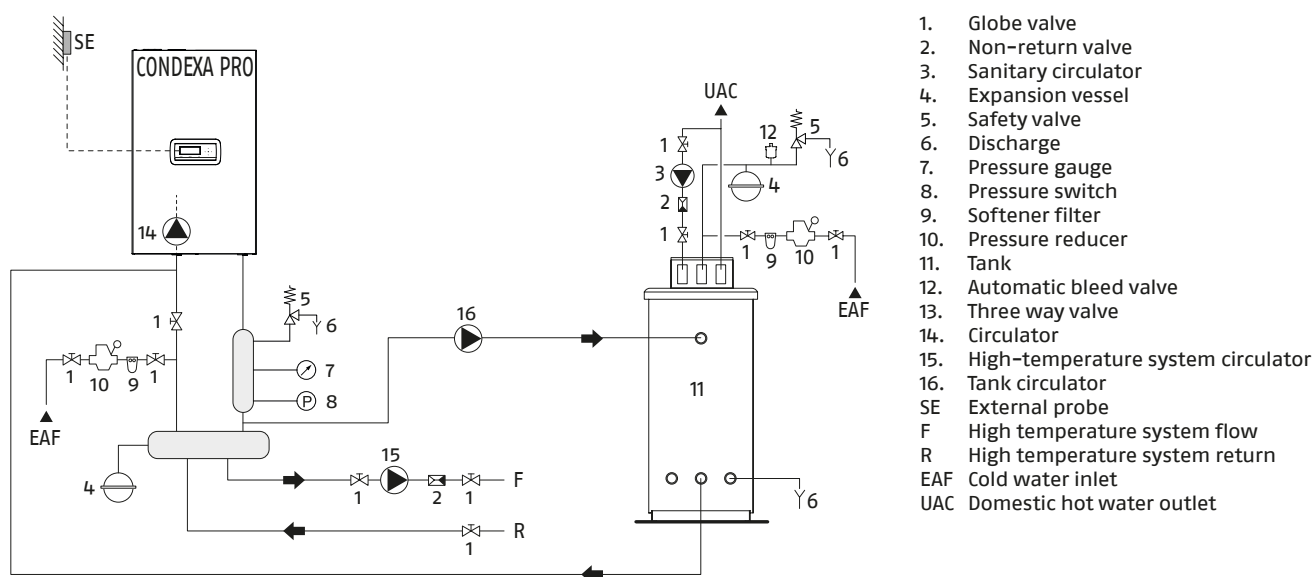


- 1. Globe valve
- 2. Non-return valve
- 3. Sanitary circulator
- 4. Expansion vessel
- 5. Safety valve
- 6. Discharge
- 7. Pressure gauge
- 8. Pressure switch
- 9. Softener filter
- 10. Pressure reducer
- 11. Tank
- 12. Automatic bleed valve
- 13. Three way valve
- 14. Circulator
- SE External probe
- F High temperature system flow
- R High temperature system return
- EAF Cold water inlet
- UAC Domestic hot water outlet

Scheme 3: circuit with thermal module connected to a heating system via a separator (in this case the boiler pump only serves to ensure circulation in the primary)



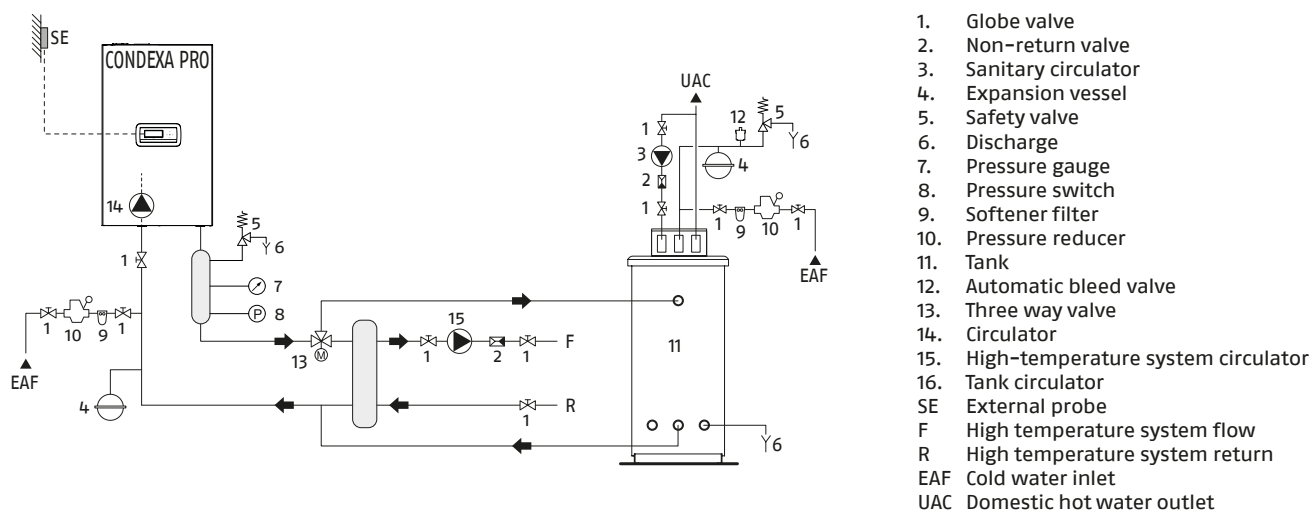
Scheme 4: circuit with thermal module connected with DHW tank and with heating system by means of hydraulic separator



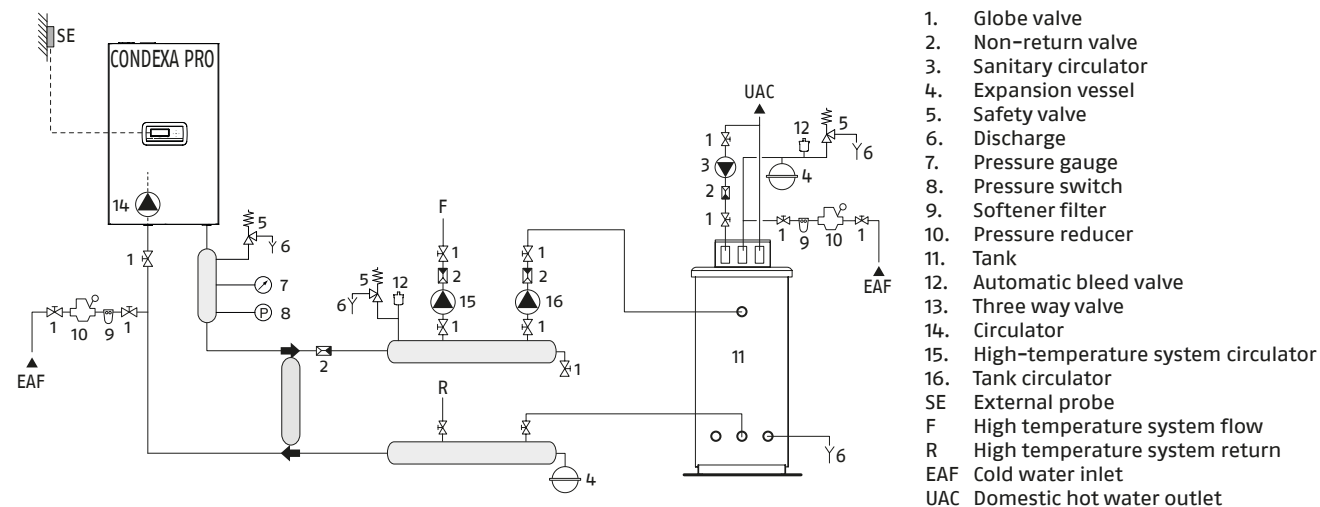
CONDENSING GENERATORS

Wall-hung gas condensing modules

Scheme 5: circuit with thermal module connected with heating system and DHW tank by means of hydraulic separator (the boiler pump ensure only circulation in the primary).



Scheme 6: circuit with thermal module connected with heating system and DHW tank with collector (DHW and heating simultaneous production). System to be installed only with low head pumps.



Domestic hot water and central heating circuits must be completed with expansion vessels of adequate capacity and suitable, correctly-sized safety valves.

The discharge of safety valves and appliances must be connected to a suitable collection and disposal system. The choice of system components and the method of their installation are left up to the heating engineer installing the system. Installers must use their expertise to ensure proper installation and functioning in conformity to all applicable legislation. Special supply/refill water must be conditioned using suitable treatment systems. It is prohibited to operate the thermal module without water.

DESCRIPTION FOR SPECIFICATIONS

Condexa PRO is a pre-mixed condensing thermal module, consisting of a modulating thermal element.

It is available in 3 models, starting from 45 kW up to 97 kW.

The optimal combustion management allows high efficiency up to over 109%, value calculated on the PCI, in the condensation regime, and low polluting emissions – Class 6 according to UNI EN 15502-1.

Condexa PRO boiler can be connected in cascade up to a maximum power of 970 MW.

The main technical features of the appliance are:

- Premixing burner with constant air-gas ratio;
- Heat exchanger with patented geometries, consisting of two smooth concentric stainless steel tubes, each having a pentagonal section inside and a circular outside, designed to maximize the exchange surface, offer maximum corrosion resistance and the possibility of working with high ΔT (up to 40°C) reducing set-up times;
- Module power from 45 up to 97 kW, with possible cascades of modules with the same power
- Maximum fumes outlet temperature 100°C;
- Microprocessor management and control with self-diagnosis shown through display and recording of the main errors;
- Anti-freeze function;
- External probe that enables climatic operation (accessory);
- Condensate drain syphon to avoid backflow of exhaust fumes into the environment (supplied with the boiler as standard);
- Predisposition for room thermostat/heat request on high and low temperature zones;
- Possibility to manage both a heating circuit and a circuit for the production of domestic hot water with storage;
- High efficiency and high residual head circulator for each model;
- IPX4D protection degree (for indoor installation);
- Sealed chamber as standard.

SAFETY DEVICES

All the functions of the device are electronically controlled by the motherboard approved to perform safety functions by means of a dual processor technology. Any anomaly causes the appliance stop and the gas valve automatic shutdown.

The following are installed on the water circuit:

- Safety thermostat;
- Flowmeter capable of checking continuously the flow rate of the primary circuit and causing the appliance stop in case of insufficient flow;
- Temperature probes on the flow and return that continuously measure the temperature difference between the flow and return fluid and allow the control to intervene;
- Minimum pressure switch.

The following are installed on the combustion circuit:

- Gas solenoid valve in class B + C, with pneumatic compensation of the gas flow according to the suction air flow rate;
- Ionization electrode for detection;
- Flue temperature probe;
- Smoke-exhaust flue non-return valve to avoid backflow in central heating (accessory for 50 P model, standard for other models).

The triggering of safety devices indicates the malfunction of a potentially hazardous thermal module. Therefore, contact Technical Assistance Service immediately. After a brief pause, it is possible to try and restart the appliance (see Paragraph "Initial startup").

Safety devices must be replaced by Technical Assistance Service, using only original parts. Refer to the spare parts catalogue supplied with the appliance. After making the repair, check that the appliance is working properly.

The appliance must not be put in service, even temporarily, when tampered safety devices are not in operation or have been tampered with.

The Condexa PRO thermal modules comply with:

- Regulation (EU) 2016/426
- Directive 92/42/EEC on efficiency requirements and Annex E and Pres. Republic Decree n. 412, 26 August 1993 (****)
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- Ecodesign Directive 2009/125/CE for energy-related products
- Regulation (EU) 2017/1369 Energy labelling
- Delegated Regulation (EU) No. 811/2013;
- Delegated Regulation (EU) No. 813/2013;
- Standard for gas-fired heating boilers – General requirements and tests – EN 15502-1
- Specific standard for type C appliances and type B2, B3 and B5 appliances of nominal heat input not exceeding 1000 kW – EN 15502-2/1
- SSIGA G1 gas directive
- AICAA Fire regulations
- CFST GPL directive part 2;
- Various cantonal and communal provisions on air quality and energy saving.

CONDENSING GENERATORS

Wall-hung gas condensing modules

The Condexa PRO thermal module is supplied on a pallet, packed and protected by cardboard.

Inserted in a plastic bag placed inside the packaging, the following material is provided:

- Instruction booklet
- LPG conversion kit
- Bracket for wall fixing with dowels (n°4 dowels, d = 10mm, suitable for concrete, bricks, compact stone, perforated concrete block walls);
- Hydraulic test certificate;
- Energy Label (for models <70kW);
- Condensate drain syphon for models 70 and 100, already installed on 50 model;
- 5,4 bar safety valve 3/4" F.



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The manufacturer strives to continuously improve all products. Appearance, dimensions, technical specifications, standard equipment and accessories are therefore liable to modification without notice.

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