

# POWER EVO-X

## Condensation





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## Power Evo-X (stand-alone)

Power Evo-X is the wall-mounted modular condensing system that makes compactness its strong point. The stainless steel horizontal primary heat exchanger, with front access to the combustion chamber, guarantees high performance in terms of efficiency and reliability over time.

The range consists of 4 heating only models with thermal modules from 34,9 to 70 kW.

Power Evo-X can be installed individually in a partially protected location indoors or outdoors, while it is possible to install up to 4 modules in cascade in the boiler room, both in-line configuration and in back-to-back configuration.

The group type system is managed by means of a simple and intuitive remote control, capable of managing, parametrizing and displaying up to 4 modules in cascade and up to 6 additional independent zones.

- Designed to function with mixtures of natural gas and hydrogen, up to a maximum of 20%.
- Modulating ratio 1:8 in single installation, up to 1:32 in group installation.
- High head, low consumption modulating circulator.
- Maximum operating pressure 5 bar.
- Ease of installation.
- Wide range of accessories to complete the single and group installations, both in in-line and back-to-back configurations.

## Technical data

| DESCRIPTION                               | U.M.   | POWER EVO-X                                                                            |     |        |     |        |     |        |     |
|-------------------------------------------|--------|----------------------------------------------------------------------------------------|-----|--------|-----|--------|-----|--------|-----|
|                                           |        | 50 DEP                                                                                 |     | 50     |     | 65     |     | 80     |     |
| Type of gas                               |        | G20                                                                                    | G31 | G20    | G31 | G20    | G31 | G20    | G31 |
| Gas category                              |        | II2H3P                                                                                 |     | II2H3P |     | II2H3P |     | II2H3P |     |
| Country of destination                    |        | IT                                                                                     |     | IT     |     | IT     |     | IT     |     |
| Type of flue gas discharge installation   |        | B23P; B53P; C13, C13x; C33, C33x; C43, C43x; C53, C53x; C63, C63x; C83, C83x; C93,C93x |     |        |     |        |     |        |     |
| HEATING                                   |        |                                                                                        |     |        |     |        |     |        |     |
| Nominal heat input (Hi)                   | kW     | 34,90                                                                                  |     | 45,00  |     | 55,00  |     | 70,00  |     |
| Nominal heat output (80÷60 °C)            | kW     | 34,00                                                                                  |     | 43,88  |     | 53,60  |     | 68,22  |     |
| Nominal heat output (50÷30 °C)            | kW     | 37,31                                                                                  |     | 47,30  |     | 58,25  |     | 74,19  |     |
| Reduced heat input (Hi)                   | kW     | 5,20                                                                                   | -   | 5,20   | -   | 8,20   | -   | 8,20   | -   |
| Reduced heat output (80÷60 °C)            | kW     | 4,98                                                                                   | -   | 4,98   | -   | 7,87   | -   | 7,87   | -   |
| Reduced heat output (50÷30 °C)            | kW     | 5,57                                                                                   | -   | 5,57   | -   | 8,78   | -   | 8,78   | -   |
| HOT WATER                                 |        |                                                                                        |     |        |     |        |     |        |     |
| Nominal heat input (Hi)                   | kW     | 34,90                                                                                  |     | 45,00  |     | 55,00  |     | 70,00  |     |
| Nominal heating capacity                  | (*) kW | 34,90                                                                                  |     | 45,00  |     | 55,00  |     | 70,00  |     |
| Reduced heat input (Hi)                   | kW     | 5,20                                                                                   | -   | 5,20   | -   | 8,20   | -   | 8,20   | -   |
| Reduced heat output                       | (*) kW | 5,20                                                                                   | -   | 5,20   | -   | 8,20   | -   | 8,20   | -   |
| Modulating ratio                          |        | 1:7                                                                                    |     | 1:8    |     | 1:7    |     | 1:8    |     |
| EFFICIENCY                                |        |                                                                                        |     |        |     |        |     |        |     |
| Usable efficiency at max. power (80-60°C) | %      | 97.4                                                                                   |     | 97.5   |     | 97.5   |     | 97.5   |     |
| Usable efficiency at min. power (80-60°C) | %      | 95.8                                                                                   |     | 95.8   |     | 96.0   |     | 96.0   |     |
| Usable efficiency at Pn max. (50-30°)     | %      | 106,9                                                                                  |     | 105.1  |     | 105,9  |     | 106.0  |     |
| Usable efficiency at Pn min. (50-30°)     | %      | 107,2                                                                                  |     | 107,2  |     | 107,0  |     | 107,0  |     |
| Useful efficiency 30% (30° C return)      | %      | 108.2                                                                                  |     | 107,9  |     | 107.6  |     | 107.5  |     |
| Losses in stack with burner ON (Pn max)   | %      | 2,38                                                                                   |     | 2.35   |     | 2,41   |     | 2,44   |     |
| Chimney and skirt losses with burner off  | %      | 0.06                                                                                   |     | 0.05   |     | 0.04   |     | 0.03   |     |
| Losses in casing with burner ON (Pn max)  | %      | 0.22                                                                                   |     | 0.15   |     | 0.09   |     | 0.06   |     |



## Technical data

| DESCRIPTION                                                   | U.M.   | POWER EVO-X   |          |               |          |               |          |               |          |
|---------------------------------------------------------------|--------|---------------|----------|---------------|----------|---------------|----------|---------------|----------|
|                                                               |        | 50 DEP        |          | 50            |          | 65            |          | 80            |          |
| Type of gas                                                   |        | G20           | G31      | G20           | G31      | G20           | G31      | G20           | G31      |
| FLUE GAS DISCHARGE                                            |        |               |          |               |          |               |          |               |          |
| Class Nox - UNI EN 15502                                      |        | 6             |          | 6             |          | 6             |          | 6             |          |
| Residual discharge head on concentric pipes 0.85m ø 60-100 mm | Pa     | 60            |          | 60            |          | ND            |          | ND            |          |
| Residual discharge head on separate pipes 0.5m ø 80 mm        | Pa     | 160           |          | 192           |          | 172           |          | 197           |          |
| Boiler residual head without pipes or flange                  | Pa     | 166           |          | 198           |          | 180           |          | 200           |          |
| ELECTRICAL CHARACTERISTICS                                    |        |               |          |               |          |               |          |               |          |
| Maximum heating electric power                                | W      | 158           |          | 175           |          | 201           |          | 284           |          |
| Burner electric power P max                                   | W      | 60            |          | 77            |          | 113           |          | 196           |          |
| Maximum circulating electric power                            | W      | 98            |          | 98            |          | 88            |          | 88            |          |
| Minimum circulating electric power                            | W      | 3             |          | 3             |          | 5             |          | 5             |          |
| Supply voltage                                                | V - Hz | 230-50        |          | 230-50        |          | 230-50        |          | 230-50        |          |
| Protection level                                              | IP     | X5D           |          | X5D           |          | X5D           |          | X5D           |          |
| HEATING OPERATION                                             |        |               |          |               |          |               |          |               |          |
| Maximum pressure                                              | bar    | 5             |          | 5             |          | 5             |          | 5             |          |
| Minimum pressure for standard operation                       | bar    | 0,8           |          | 0,8           |          | 0,8           |          | 0,8           |          |
| Maximum temperature                                           | °C     | 90            |          | 90            |          | 90            |          | 90            |          |
| Selection field of heating water temperature                  | °C     | 20/45 - 20/90 |          | 20/45 - 20/90 |          | 20/45 - 20/90 |          | 20/45 - 20/90 |          |
| Pump: Max. head available to the system                       | mbar   | 820           |          | 820           |          | 430           |          | 430           |          |
| at a flow rate of                                             | l/h    | 1000          |          | 1000          |          | 2500          |          | 2500          |          |
| AIR AND FLUE GAS FLOW RATES                                   |        |               |          |               |          |               |          |               |          |
| Heating                                                       |        |               |          |               |          |               |          |               |          |
| Air flow rate                                                 | Nm³/h  | 42,4          | 43.3     | 54,7          | 55.8     | 66.8          | 68.2     | 85.0          | 86,9     |
| Flue gas flow rate                                            | Nm³/h  | 45.9          | 46,0     | 59,2          | 59.3     | 72,3          | 72.5     | 92,0          | 92,3     |
| Mass flue gas flow rate (max-min)                             | g/s    | 15,8-2,4      | 16,2-2,4 | 20,4-2,4      | 20,9-2,4 | 24,9-3,7      | 25,5-3,8 | 31,8-3,7      | 32,5-3,8 |
| DHW                                                           |        |               |          |               |          |               |          |               |          |
| Air flow rate                                                 | Nm³/h  | 42,4          | 43.3     | 54,7          | 55.8     | 66.8          | 68.2     | 85.0          | 86,9     |
| Flue gas flow rate                                            | Nm³/h  | 45.9          | 46       | 59,2          | 59.3     | 72,3          | 72.5     | 92            | 92,3     |
| Mass flue gas flow rate (max-min)                             | g/s    | 15,8-2,4      | 16,2-2,4 | 20,4-2,4      | 20,9-2,4 | 24,9-3,7      | 25,5-3,8 | 31,8-3,7      | 32,5-3,8 |
| EMISSIONS VALUE AT MAX AND MIN FLOW WITH GAS G20 (**)         |        |               |          |               |          |               |          |               |          |
| Maximum                                                       |        |               |          |               |          |               |          |               |          |
| CO s.a. lower than                                            | p.p.m  | 120           | 130      | 150           | 160      | 170           | 170      | 220           | 230      |
| CO2                                                           | %      | 9.0           | 10.0     | 9.0           | 10.0     | 9.0           | 10.0     | 9.0           | 10.0     |
| NOx s.a. lower than                                           | p.p.m  | 50            | 50       | 60            | 60       | 50            | 50       | 60            | 60       |
| Flue gas temperature                                          | °C     | 68            | 66       | 71            | 73       | 66            | 70       | 70            | 76       |
| Minimum                                                       |        |               |          |               |          |               |          |               |          |
| CO s.a. lower than                                            | p.p.m  | 30            | 30       | 30            | 30       | 40            | 20       | 40            | 20       |
| CO2                                                           | %      | 9.0           | 10.0     | 9.0           | 10.0     | 9.0           | 10.0     | 9.0           | 10.0     |
| NOx s.a. lower than                                           | p.p.m  | 40            | 45       | 40            | 45       | 40            | 60       | 40            | 60       |
| Flue gas temperature                                          | °C     | 60            | 58       | 60            | 58       | 57            | 58       | 57            | 58       |

(\*) Average value of various hot water operating conditions.

(\*\*) Check performed with concentric pipe -100 mm - length 0.85m - water temperature 80-60°C.

## NOTE

With reference to the Delegated Regulation (EU) No. 811/2013, the information in the table can be used for completing the product data sheet and the labelling for room heating appliances, for mixed heating appliances, for all those appliances for enclosed space heating, for temperature control devices and solar devices:

|                                                    | CLASS | BONUS |
|----------------------------------------------------|-------|-------|
| OUTDOOR TEMPERATURE SENSOR                         | II    | 2%    |
| REMOTE CONTROL OT+                                 | V     | 3%    |
| OUTDOOR TEMPERATURE SENSOR<br>+ REMOTE CONTROL OT+ | VI    | 4%    |

## Power Evo-X (stand-alone)

## ErP regulations technical data table

| Parameter                                                      | Symbol      | Unit   | POWER EVO-X |      |      |      |
|----------------------------------------------------------------|-------------|--------|-------------|------|------|------|
|                                                                |             |        | 50 DEP      | 50   | 65   | 80   |
| Seasonal ambient heating energy efficiency class               | -           | -      | A           | A    | A    | A    |
| Water heating energy efficiency class                          | -           | -      | ND          | ND   | ND   | ND   |
| Nominal output                                                 | Nominal Pn  | kW     | 34          | 44   | 54   | 68   |
| Seasonal ambient heating energy efficiency                     | $\eta_s$    | %      | 93          | 92   | 92   | 92   |
| <b>Useful heat output</b>                                      |             |        |             |      |      |      |
| At nominal heat output and in high temperature mode (*)        | P4          | kW     | 34.0        | 43.9 | 53.6 | 68.2 |
| At 30% of nominal heat output and in low temperature mode (**) | P1          | kW     | 11.3        | 14.6 | 17.8 | 22.6 |
| <b>Efficiency</b>                                              |             |        |             |      |      |      |
| At nominal heat output and in high temperature mode (*)        | $\eta_4$    | %      | 87.7        | 87.8 | 87.8 | 87.8 |
| At 30% of nominal heat output and in low temperature mode (**) | $\eta_1$    | %      | 97.4        | 97.2 | 96.9 | 96.8 |
| <b>Other parameters</b>                                        |             |        |             |      |      |      |
| Heat loss in standby mode                                      | Pstby       | W      | 36.8        | 34.7 | 34.5 | 34.5 |
| Energy consumption of the pilot light                          | Pign        | W      | -           | -    | -    | -    |
| Annual energy consumption                                      | QHE         | GJ     | 105         | 137  | 168  | 214  |
| Sound power level indoors                                      | LWA         | dB     | 57          | 60   | 57   | 61   |
| Nitrogen oxide emissions                                       | NOx         | mg/kWh | 30          | 33   | 41   | 48   |
| <b>Domestic hot water</b>                                      |             |        |             |      |      |      |
| Declared load profile                                          |             |        | ND          | ND   | ND   | ND   |
| Water heating energy efficiency                                | $\eta_{wh}$ | %      | ND          | ND   | ND   | ND   |
| Daily electricity consumption                                  | Qelec       | kWh    | ND          | ND   | ND   | ND   |
| Daily fuel consumption                                         | Qfuel       | kWh    | ND          | ND   | ND   | ND   |
| Annual electricity consumption                                 | AEC         | kWh    | ND          | ND   | ND   | ND   |
| Annual fuel consumption                                        | AFC         | GJ     | ND          | ND   | ND   | ND   |

(\*) in high temperature mode: 60°C on return and 80°C on delivery.

(\*\*) in low temperature mode: 30°C of return temperature for condensing boilers, 37°C for low-temperature boilers, 50°C for other heating appliances.

## Data 11300-2 - determination of generation losses - calculation method directive 92/42 EEC

| DESCRIPTION                                    | SYMBOL        | U.M. | POWER EVO-X |       |       |       |
|------------------------------------------------|---------------|------|-------------|-------|-------|-------|
|                                                |               |      | 50 DEP      | 50    | 65    | 80    |
| Nominal useful heat output                     | Fgn,Pn        | kW   | 34,00       | 43,88 | 53,60 | 68,22 |
| Nominal output efficiency                      | hgn,pn        | -    | 97.4        | 97.5  | 97.5  | 97.5  |
| Average temperature at Pn                      | qgn,test,pn   | °C   | 70          | 70    | 70    | 70    |
| Useful heat output at 30%                      | Fint          | kW   | 5.20        | 5.20  | 8.20  | 8.20  |
| Efficiency at 30% output                       | hgn,Pint      | -    | 108.2       | 107.9 | 107.6 | 107.5 |
| Average temperature at intermediate P          | qgn,test,Pint | °C   | 40          | 40    | 40    | 40    |
| Output loss with zero load with Dqgn,test      | Fgn,1,P0      | W    | 36.8        | 34.7  | 34.5  | 34.5  |
| Auxiliary absorbed output at nominal load      | Wgn,aux,Pn    | W    | 48          | 86    | 103.4 | 184.9 |
| Auxiliary absorbed output at intermediate load | Wgn,aux,Pint  | W    | 13          | 15    | 21.1  | 25.6  |
| Auxiliary absorbed output at zero load         | Wgn,aux,P0    | W    | 3,8         | 3,8   | 3,8   | 3,8   |
| Generator minimum return temperature           | qgn,min       | °C   | 20          | 20    | 20    | 20    |

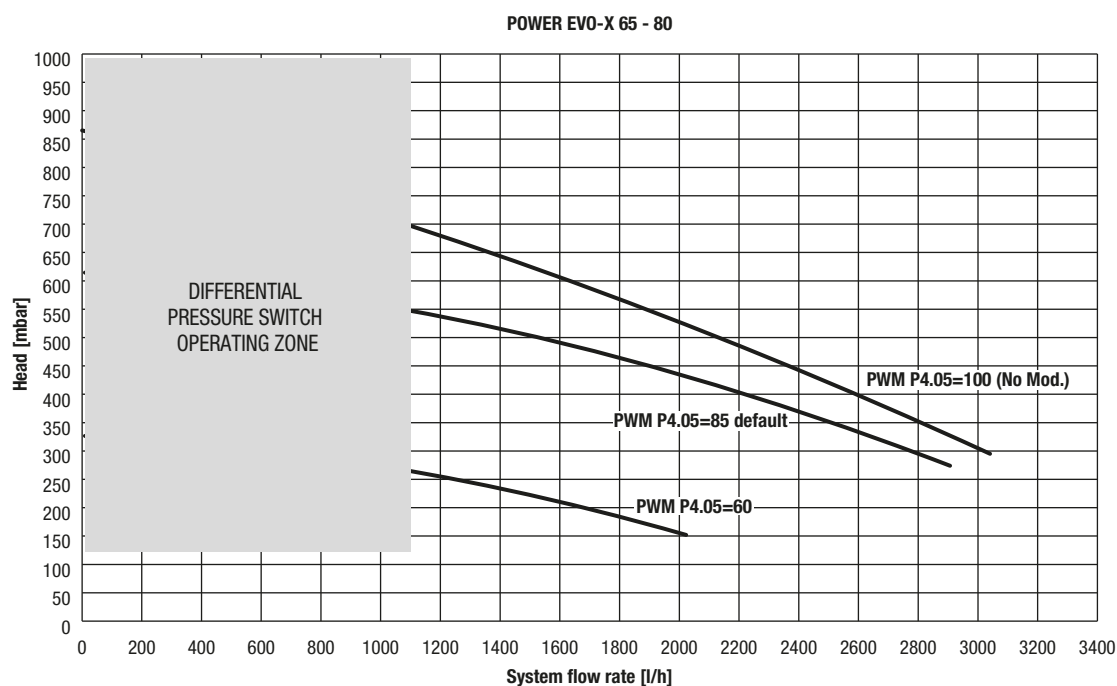
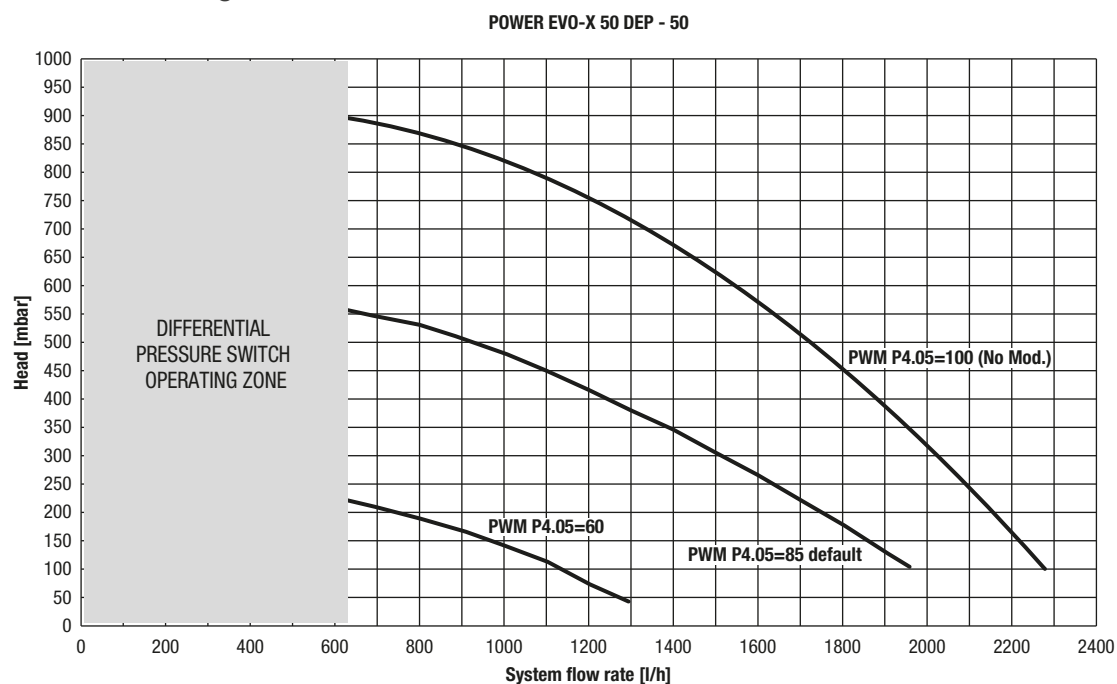
**Power Evo-X (stand-alone)****Table law 10**

| Description                                             | Unit   | POWER EVO-X |            |            |            |
|---------------------------------------------------------|--------|-------------|------------|------------|------------|
|                                                         |        | 50 DEP      | 50         | 65         | 80         |
| Heating maximum heat output                             |        |             |            |            |            |
| Effective (80/60 °C)                                    | kW     | 34,00       | 43,88      | 53,60      | 68,22      |
| Effective (50/30 °C)                                    | kW     | 37,31       | 47,30      | 58,25      | 74,19      |
| Furnace                                                 | kW     | 34,90       | 45,00      | 55,00      | 70,00      |
| Minimum heat output                                     |        |             |            |            |            |
| Effective (80/60 °C)                                    | kW     | 4,98        | 4,98       | 7,87       | 7,87       |
| Effective (50/30 °C)                                    | kW     | 5,57        | 5,57       | 8,78       | 8,78       |
| Furnace                                                 | kW     | 5,20        | 5,20       | 8,20       | 8,20       |
| Efficiency                                              |        |             |            |            |            |
| Useful Pn max - Pn min (80/60°C)                        | %      | 97.4        | 97.5       | 97.5       | 97.5       |
| Useful Pn max - Pn min (50/30°C)                        | %      | 106.9       | 105.1      | 105.9      | 106        |
| Useful 30% Pn max (30°C return)                         | %      | 108.2       | 107.9      | 107.6      | 107.5      |
| Losses in stack with burner ON (Pn max)                 | %      | 2,38        | 2,35       | 2,41       | 2,44       |
| Chimney and skirt losses with burner off                | %      | 0.06        | 0.05       | 0.04       | 0.03       |
| Losses in casing with burner ON (Pn max)                | %      | 0.22        | 0.15       | 0.09       | 0.06       |
| Emissions value at max and min flow with gas G20 G31(*) |        |             |            |            |            |
| Maximum                                                 |        |             |            |            |            |
| CO s.a. lower than                                      | p.p.m. | 120 - 130   | 150 - 160  | 170 - 170  | 220 - 230  |
| CO <sub>2</sub>                                         | %      | 9,0 - 10,0  | 9,0 - 10,0 | 9,0 - 10,0 | 9,0 - 10,0 |
| NOx (EN 677)                                            | p.p.m. | 50 - 50     | 60 - 60    | 50 - 50    | 60 - 60    |
| Flue gas temperature                                    | °C     | 68 - 66     | 71 - 73    | 66 - 70    | 70 - 76    |
| Minimum                                                 |        |             |            |            |            |
| CO s.a. lower than                                      | p.p.m. | 30 - 30     | 30 - 30    | 40 - 20    | 40 - 20    |
| CO <sub>2</sub>                                         | %      | 9,0 - 10,0  | 9,0 - 10,0 | 9,0 - 10,0 | 9,0 - 10,0 |
| NOx (EN 677)                                            | p.p.m. | 40 - 45     | 40 - 45    | 40 - 60    | 40 - 60    |
| Flue gas temperature                                    | °C     | 60 - 58     | 60 - 58    | 57 - 58    | 57 - 58    |
| NOx class                                               |        | 6           | 6          | 6          | 6          |
| Electric power (max heat. eIP - max DHW eIP)            | W      | 158         | 158        | 201        | 284        |

(\*) Check performed with concentric pipe - 100 mm - length 0.85m - water temperature 80-60°C.

## Power Evo-X (stand-alone)

### Flowrate-head diagrams



### The water in the heating systems

#### CHEMICAL AND PHYSICAL CHARACTERISTICS

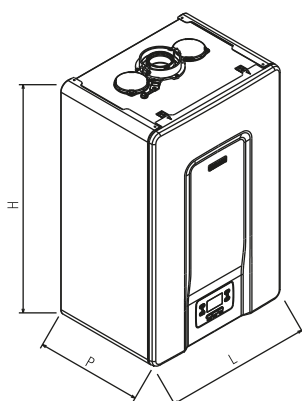
The chemical and physical characteristics of water used in central heating systems must conform to the requirements of EN 14868 standard and to the following tables:

| PARAMETERS | U.M.  | HEATING CIRCUIT WATER | FILLING WATER |
|------------|-------|-----------------------|---------------|
| pH value   |       | 7-8                   | -             |
| Hardness   | °F    | -                     | < 15          |
| Appearance |       | -                     | clear         |
| Fe         | mg/kg | <0,5                  | -             |
| Cu         | mg/kg | < 0.1                 | -             |

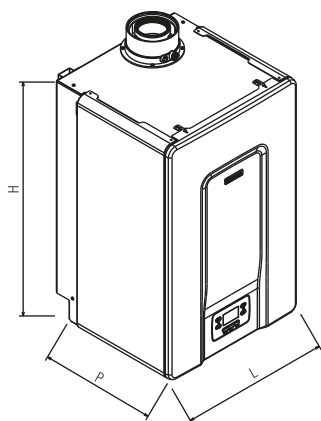
## Description and use of the appliance

### Maximum dimensions and weights

POWER EVO-X 50 DEP - 50



POWER EVO-X 65 - 80



| DESCRIPTION | U.M. | POWER EVO-X |     |      |      |
|-------------|------|-------------|-----|------|------|
|             |      | 50 DEP      | 50  | 65   | 80   |
| L           | mm   | 470         | 470 | 470  | 470  |
| P           | mm   | 350         | 350 | 443  | 443  |
| H           | mm   | 740         | 740 | 740  | 740  |
| Net weight  | kg   | 35          | 35  | 53,5 | 53,5 |

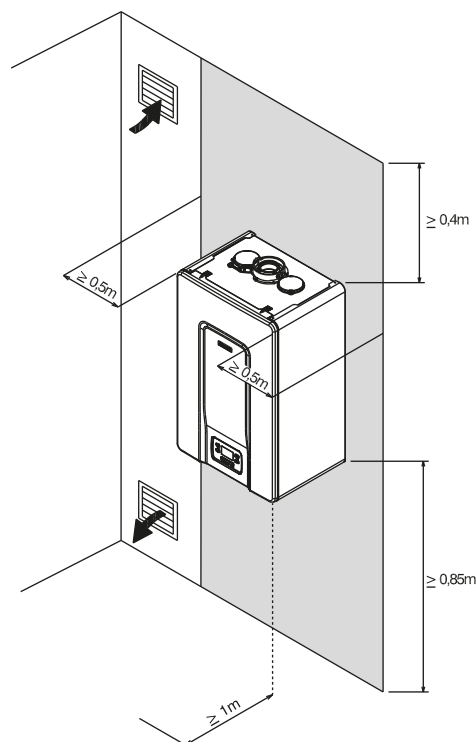
### Minimum installation distances

The Power Evo-X boiler can be installed in permanently ventilated rooms that have suitably sized ventilation openings complying with the Technical Standards and Regulations applicable to the installation site.

The appliance can be installed in a partially protected location indoors or outdoors, i.e. a place where it is not exposed to direct contact with - or infiltration of - rain, snow or hail.

It can work in a temperature range of 0÷60°C.

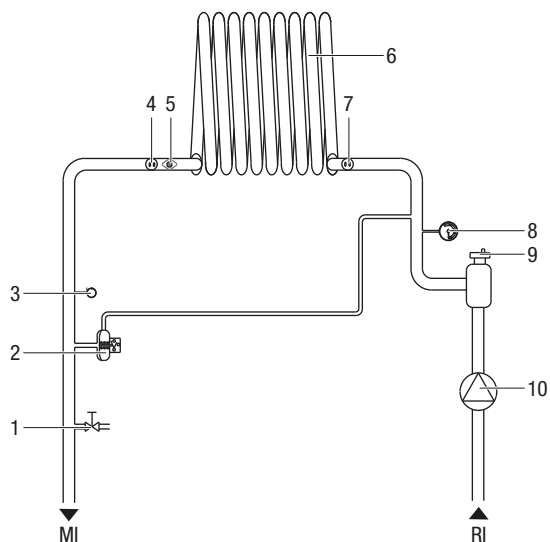
Consider the clearances necessary to access the safety and adjustment devices and to perform maintenance operations.



## Description and use of the appliance

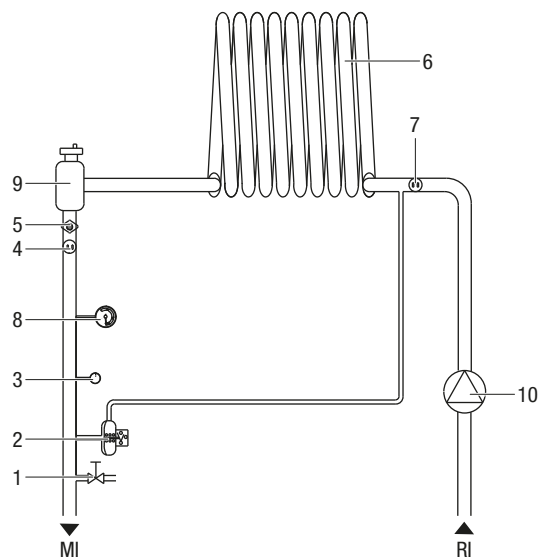
## Hydraulic circuit and connections

POWER EVO-X 50 DEP - 50



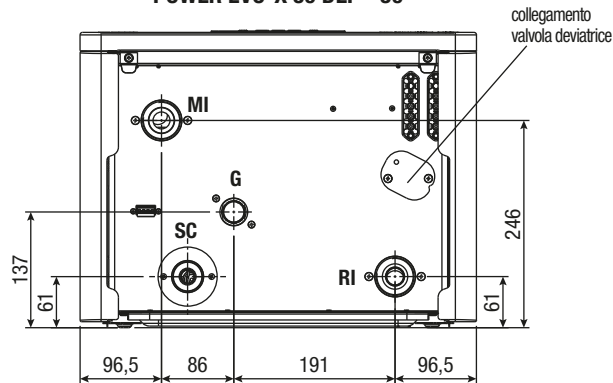
RI - Heating return line  
 MI - Heating delivery line  
 1 - Boiler degasser/discharge tap  
 2 - Heating pressure switch  
 3 - Pressure transducer  
 4 - Flow sensor

POWER EVO-X 65 - 80

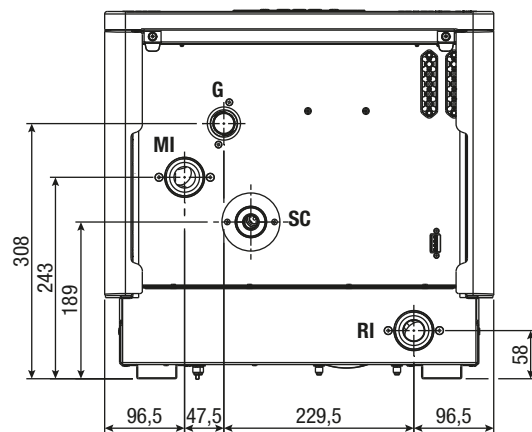


5 - Safety thermostat  
 6 - Exchanger  
 7 - Return probe  
 8 - Pressure gauge  
 9 - Air vent valve  
 10 - Circulator

POWER EVO-X 50 DEP - 50



POWER EVO-X 65- 80

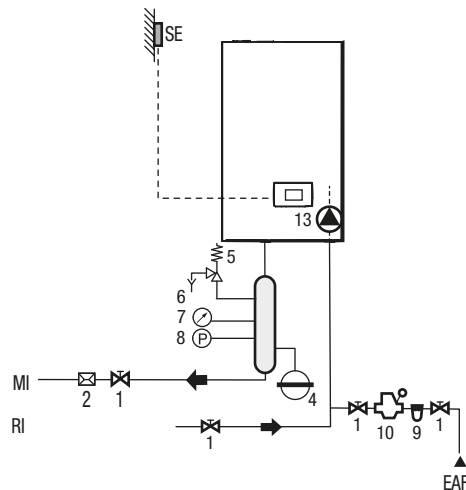


| DESCRIPTION                | U.M. | POWER EVO-X |            |            |            |
|----------------------------|------|-------------|------------|------------|------------|
|                            |      | 50 DEP      | 50         | 65         | 80         |
| MI (system delivery)       | Ø    | G 1" 1/2 M  | G 1" 1/2 M | G 1" 1/2 M | G 1" 1/2 M |
| RI (system return)         | Ø    | G 1" 1/2 M  | G 1" 1/2 M | G 1" 1/2 M | G 1" 1/2 M |
| SC (condensate discharge)  | Ø mm | 25          | 25         | 25         | 25         |
| G (gas inlet)              | Ø    | G 3/4" M    | G 3/4" M   | G 3/4" M   | G 3/4" M   |
| Diverting valve connection | Ø    | G 1" 1/2 M  | G 1" 1/2 M | -          | -          |

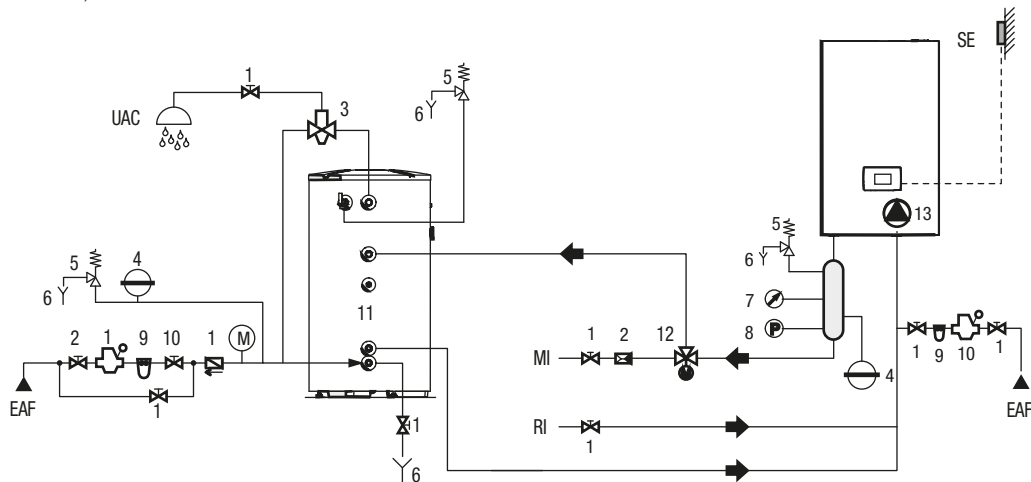
## Description and use of the appliance

# Schematic hydraulic systems

Layout 1: circuit with boiler directly connected to heating system (check that the pump discharge head is sufficient to ensure adequate circulation).



Layout 2: circuit with boiler directly linked to heating system and DHW tank (check that the pump's discharge head is sufficient to ensure adequate circulation).



- 1 - Disconnecter valve
- 2 - Non-return valve
- 3 - Anti-burn mixer valve
- 4 - Expansion tank
- 5 - Safety valve
- 6 - Discharge
- 7 - Pressure gauge
- 8 - Minimum pressure switch
- 9 - Softener filter
- 10 - Pressure reducer
- 11 - Storage tank
- 12 - Diverting valve
- 13 - Boiler circulator
- SE - Outdoor temperature sensor
- MI - High-temperature system delivery
- RI - High-temperature system return
- EAF - Cold water inlet
- UAC - Domestic hot water outlet

**WARNING** - The DHW and heating circuits must be completed with expansion vessels of adequate capacity and correctly-sized safety valves. The discharge of the safety valves and appliances must be connected to a suitable collection and disposal system (see the price list catalogue for compatible accessories).

**WARNING** - The selection and installation of the system components is the responsibility of the installer, who must respect the standards of good practice and current legislation.

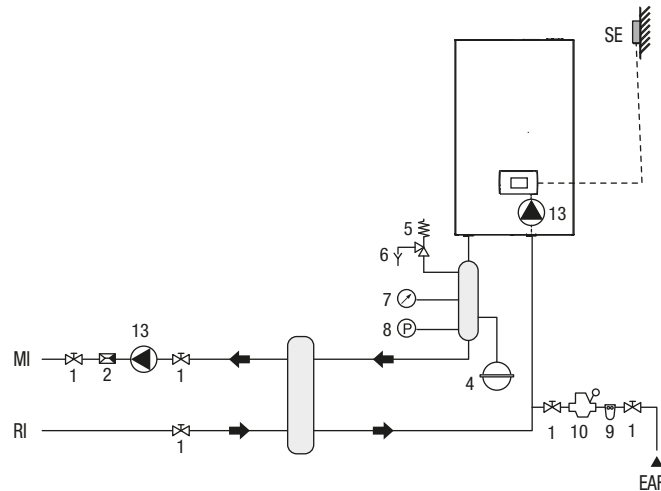
**WARNING** - Special supply/make-up water must be conditioned using suitable treatment systems.

**WARNING** - It is forbidden to operate the boiler and circulators without water.

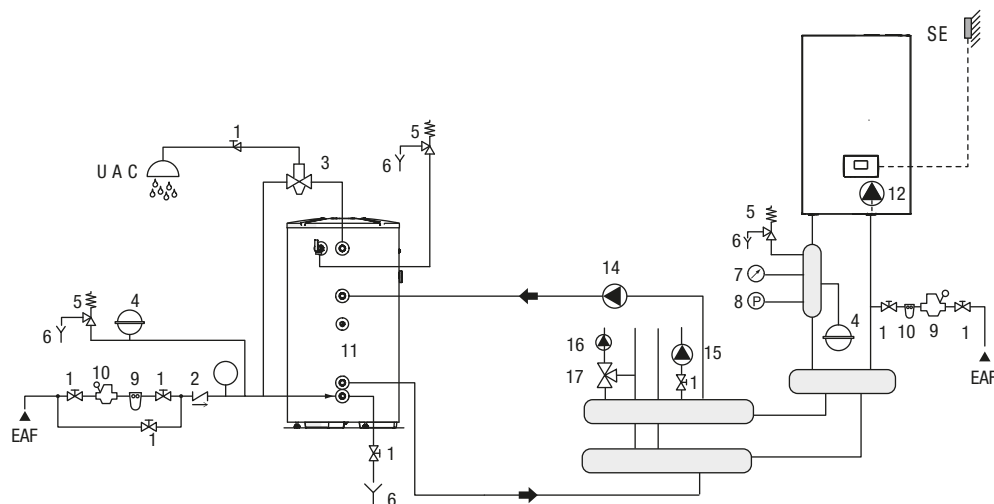
**WARNING** - On Power Evo-X 50DEP-50 models, the diverting valve (12) can be installed in the boiler.

## Description and use of the appliance

Layout 3: circuit with boiler connected to heating system via separator.



Layout 4: circuit with boiler connected to DHW tank and heating system via separator.



- 1 - Disconnecter valve
- 2 - Non-return valve
- 3 - Anti-burn mixer valve
- 4 - Expansion tank
- 5 - Safety valve
- 6 - Discharge
- 7 - Pressure gauge
- 8 - Minimum pressure switch
- 9 - Softener filter
- 10 - Pressure reducer
- 11 - Storage tank
- 12 - Diverting valve
- 13 - Boiler circulator
- 14 - Storage tank circulator
- 15 - Direct zone circulator
- 16 - Mixed zone circulator
- 17 - Mixer valve
- SE - Outdoor temperature sensor
- MI - High-temperature system delivery
- RI - High-temperature system return
- EAF - Cold water inlet
- UAC - Domestic hot water outlet

**WARNING** - The DHW and heating circuits must be completed with expansion vessels of adequate capacity and correctly-sized safety valves. The discharge of the safety valves and appliances must be connected to a suitable collection and disposal system (see the price list catalogue for compatible accessories).

**WARNING** - The selection and installation of the system components is the responsibility of the installer, who must respect the standards of good practice and current legislation.

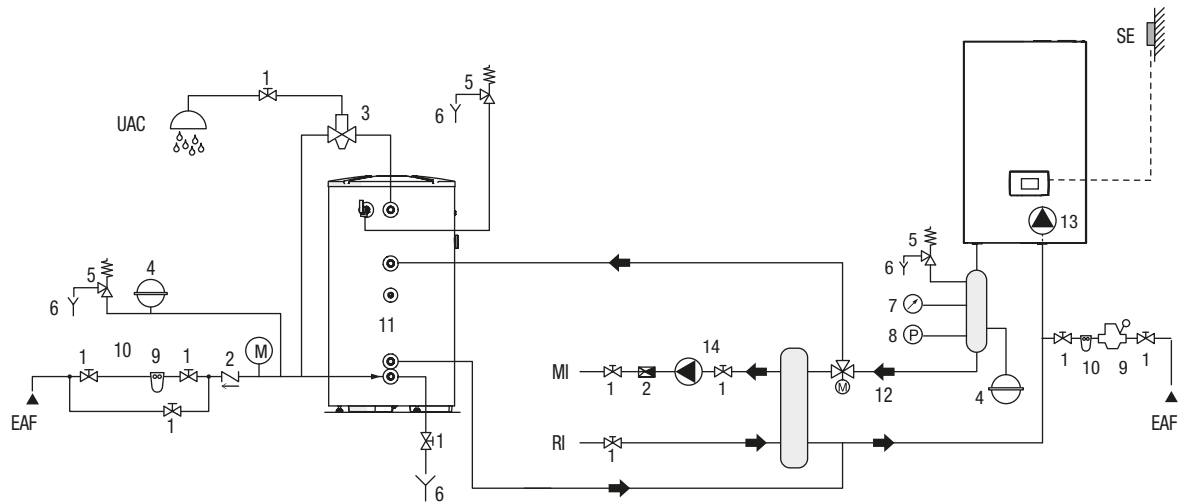
**WARNING** - Special supply/make-up water must be conditioned using suitable treatment systems.

**WARNING** - It is forbidden to operate the boiler and circulators without water.



## Description and use of the appliance

Layout 5: circuit with boiler connected to heating system and DHW tank via separator.



- 1 - Disconnecter valve
- 2 - Non-return valve
- 3 - Anti-burn mixer valve
- 4 - Expansion tank
- 5 - Safety valve
- 6 - Discharge
- 7 - Pressure gauge
- 8 - Minimum pressure switch
- 9 - Softener filter
- 10 - Pressure reducer
- 11 - Storage tank
- 12 - Diverting valve
- 13 - Circulator
- 14 - High-temperature system circulator
- SE - Outdoor temperature sensor
- MI - High-temperature system delivery
- RI - High-temperature system return
- EAF - Cold water inlet
- UAC - Domestic hot water outlet

**WARNING** - The DHW and heating circuits must be completed with expansion vessels of adequate capacity and correctly-sized safety valves. The discharge of the safety valves and appliances must be connected to a suitable collection and disposal system (see the price list catalogue for compatible accessories).

**WARNING** - The selection and installation of the system components is the responsibility of the installer, who must respect the standards of good practice and current legislation.

**WARNING** - Special supply/make-up water must be conditioned using suitable treatment systems.

**WARNING** - It is forbidden to operate the boiler and circulators without water.

**WARNING** - On Power Evo-X 50DEP- 50 models, the diverting valve (12) can be installed in the boiler.

## Description and use of the appliance

### Wiring

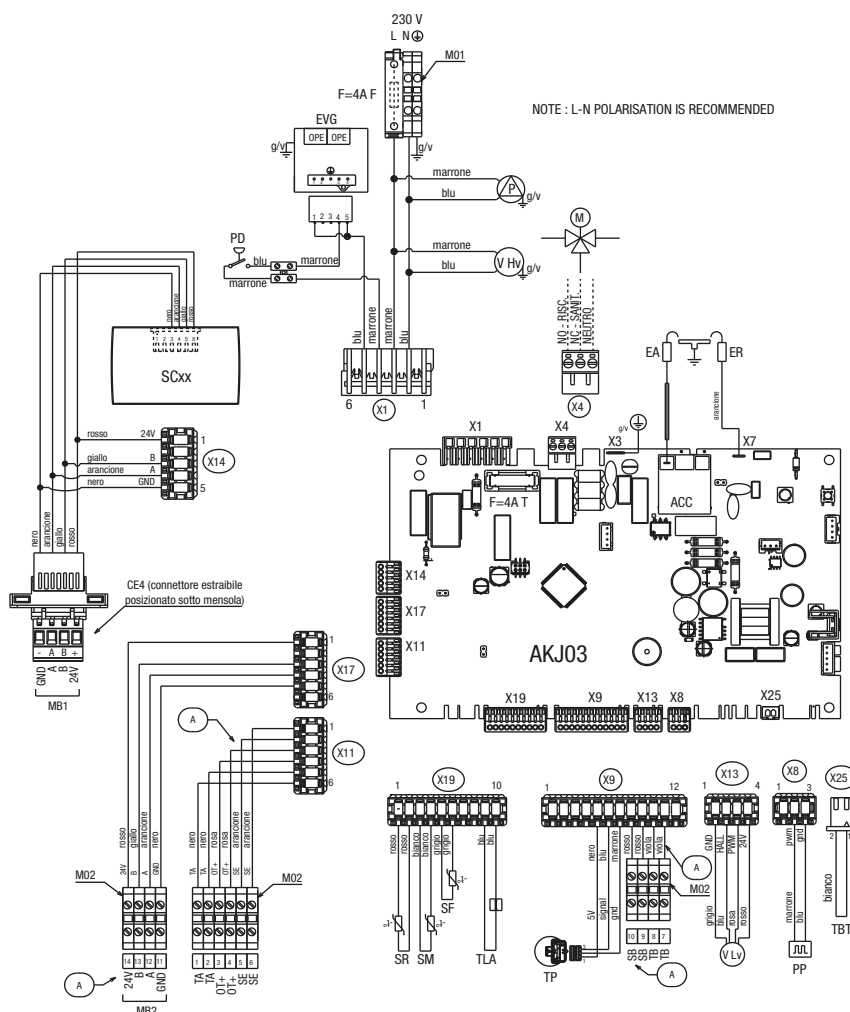
The Power Evo-X thermal module is supplied fully wired, and only needs to be connected to the main power supply and the system components.

It is mandatory to use an omnipolar magnetothermal switch, a line disconnector, complying with CEI-EN standards (contact opening of at least 3 mm).

The supply cable is not supplied as standard. The connection to the mains supply must be made using FROR 3G1.5 type cables (standardised by CEI 20-27) or the equivalent.

It is also advisable to respect the phase-neutral connection (L-N).

For low voltage connections it is advisable to use conductors with a section not exceeding 0.5 mm<sup>2</sup>.



AKJ03 - Control board with built-in ignition transformer

SC - User interface

F - Fuse

X - Connection fittings

ACC - Ignition transformer

EA - Ignition electrode

ER - Detection electrode

F - Fan

P - Pump

PP - PWM signal for pump command

V - Lv PWM signal for fan command

TP - Pressure transducer

SR - Return probe

SM - Return probe

TLA - Safety thermostat

SF - Flue gas probe

EVG - Gas valve

M01 - Power supply terminal board (high voltage)

M02 - Terminal board for connection of external services (low voltage)

MB1 - Modbus 1: commands/wi-fi key

MB2 - Modbus 2: cascades

SB - Storage cylinder probe

TB - Storage tank thermostat

TA - Room thermostat

OT+ - Open therm

SE - Outdoor temperature sensor

CE4 - Modbus 1 connector

X4 - Hydraulic three-way connection (supplied on request)

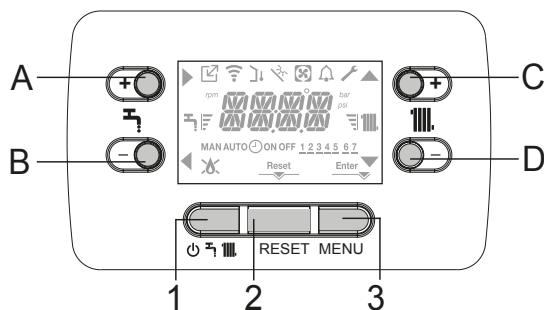
# Control panel

The control panel acts as a machine interface, displaying the system settings and providing access to the parameters.

The display normally shows the temperature of the delivery sensor unless a DHW request is in progress, in this case the DHW sensor temperature is displayed; If no button is touched for 60 seconds, the interface shows the current time (backlight OFF).

The configuration MENU is organised with a multi-level tree structure. An access level has been fixed for each sub-menu: USER level always available; TECHNICAL level protected by means of a password.

Some of the information might not be available depending on the access level, machine status or system configuration.



**A** Normally used to increase the DHW temperature value, but when the arrow ► is highlighted it acts as a confirmation button

**B** Normally used to decrease the DHW temperature value, but when the arrow ◀ is highlighted it acts as a back/annul button

**C** Normally used to increase the heating water temperature value, but when the arrow ▲ is highlighted it allows you to navigate menu **P1**

**D** Normally used to decrease the heating water temperature value, but when the arrow ▼ is highlighted it allows you to navigate menu **P1**

**A+C** Access to the clock setting menu

**1** Used to modify the boiler operating status (OFF, SUMMER and WINTER)

**2** Used to reset the alarm status, or to interrupt the venting cycle

**3** Used to access the INFO and **P1** menus. When the Enter icon  appears on the display, this button has an ENTER function and is used to confirm the value set while programming a technical parameter

**1+3** Button lock and release

**2+3** Used when the boiler is OFF, to activate the flue gas analysis function (CO)



Indicates the connection to a remote device (OT+ or RS485)



Indicates the connection to a wi-fi device



Indicates the presence of an outdoor temperature sensor



Indicates the activation of special DHW functions or the presence of a solar heating system



Lights up if an alarm is triggered



Along with the icon  in the event of a fault (apart from flame and water alarms)



Indicates the presence of a flame (✕ in the event of a flame lockout)



Lights up for alarms requiring a manual reset by the operator



Lights up when confirmation is required



When this icon is active, the "confirm" function of button A is active



When this icon is active, the "back/annul" function of button B is active



When this icon is active, the user can navigate the menu or increase the value of the selected parameter



When this icon is active, the user can navigate the menu or decrease the value of the selected parameter



Lights up if heating mode is active; flashes with a heating request in progress



Lights up if DHW mode is active; flashes with a DHW request in progress (\*)



Indicate the setpoint defined (1 notch=minimum value, 4 notches=maximum value)

**1 2 3 4 5 6 7**

Indicate the days of the week



Not available on this model

**MAN ON**

Not available on this model

**MAN OFF**

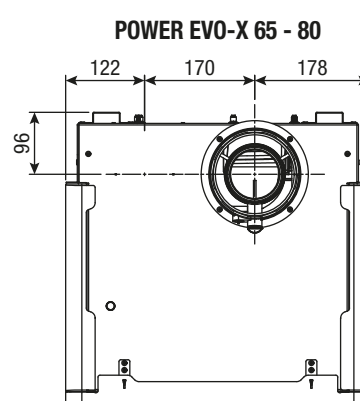
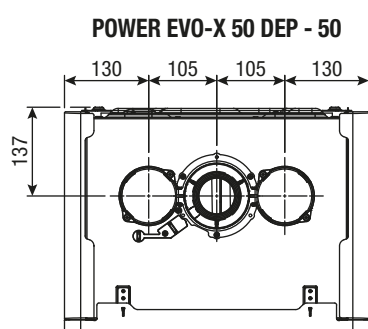
Not available on this model

(\*) with outdoor DHW storage cylinder

# Flue gas vent and combustion air intake

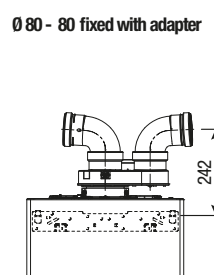
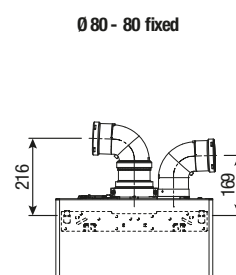
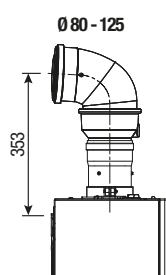
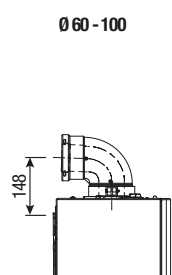
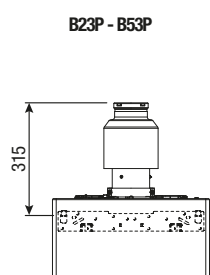
To evacuate the combustion products, refer to UNI 7129-7131. Always comply with the local regulations of the fire brigade and gas company, and with any possible municipal regulations.

It is essential for flue gas evacuation and boiler combustion air transfer that only original pipes are used (apart from type C6, as long as it is certified), and that the connection is made as explained in the instructions supplied with the flue gas accessories. A single flue can be connected to several appliances provided that every appliance is the condensing type.

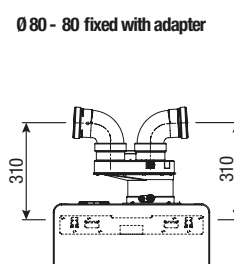
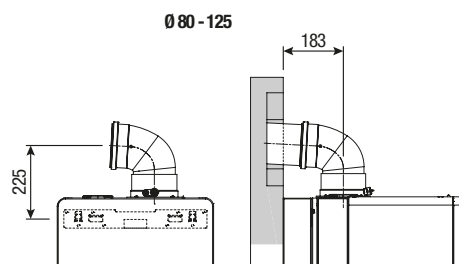


| Types of discharge                                                    | Maximum straight length (m) |       |       |       | Pressure drops for introduction of each bend (m) |     |
|-----------------------------------------------------------------------|-----------------------------|-------|-------|-------|--------------------------------------------------|-----|
|                                                                       | 50 DEP                      | 50    | 65    | 80    | 45°                                              | 90° |
| Flue gases pipe Ø 80 mm ("forced open" installation) (type B23P-B53P) | 48                          | 33    | -     | -     | 1                                                | 1.5 |
| Coaxial pipe Ø60-100 mm                                               | 10                          | 10    | 10    | 10    | 1.3                                              | 1.6 |
| Coaxial pipe Ø80-125 mm                                               | 25                          | 25    | 12+12 | 10+10 | 1                                                | 1.5 |
| Double pipe Ø80 mm (fixed or with adapter)                            | 30+30                       | 21+21 | -     | -     | 1                                                | 1.5 |

## POWER EVO-X 50 DEP - 50

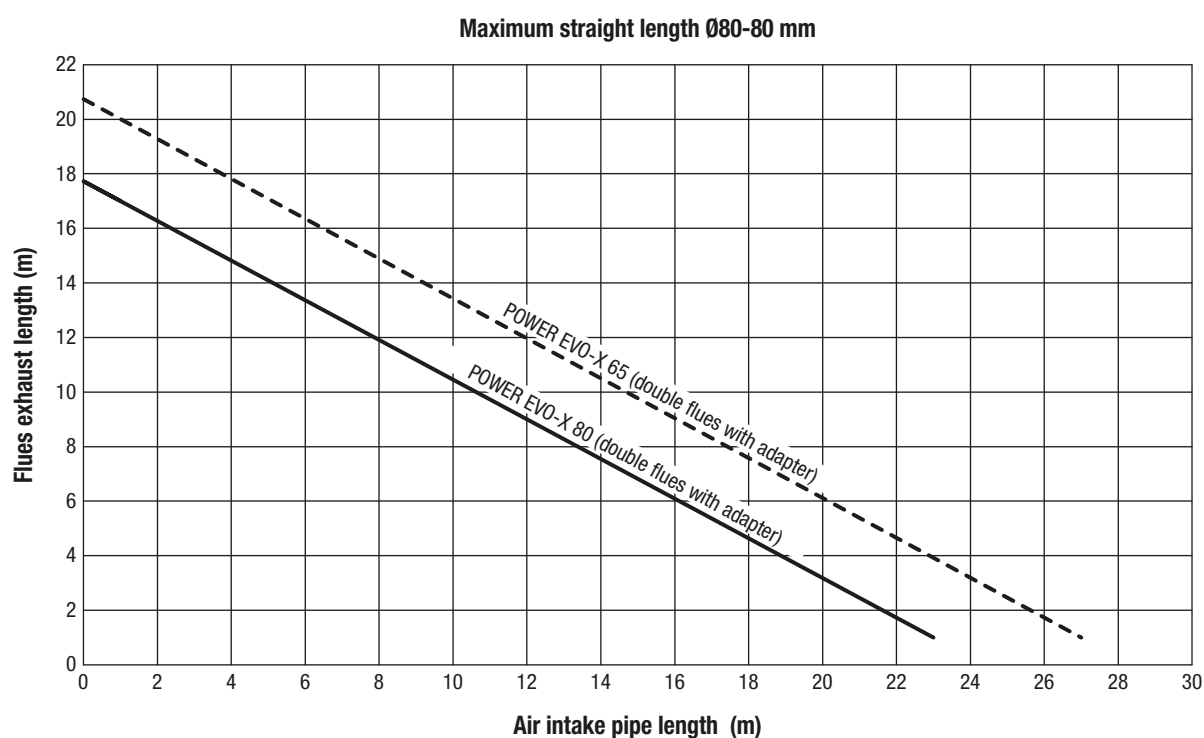
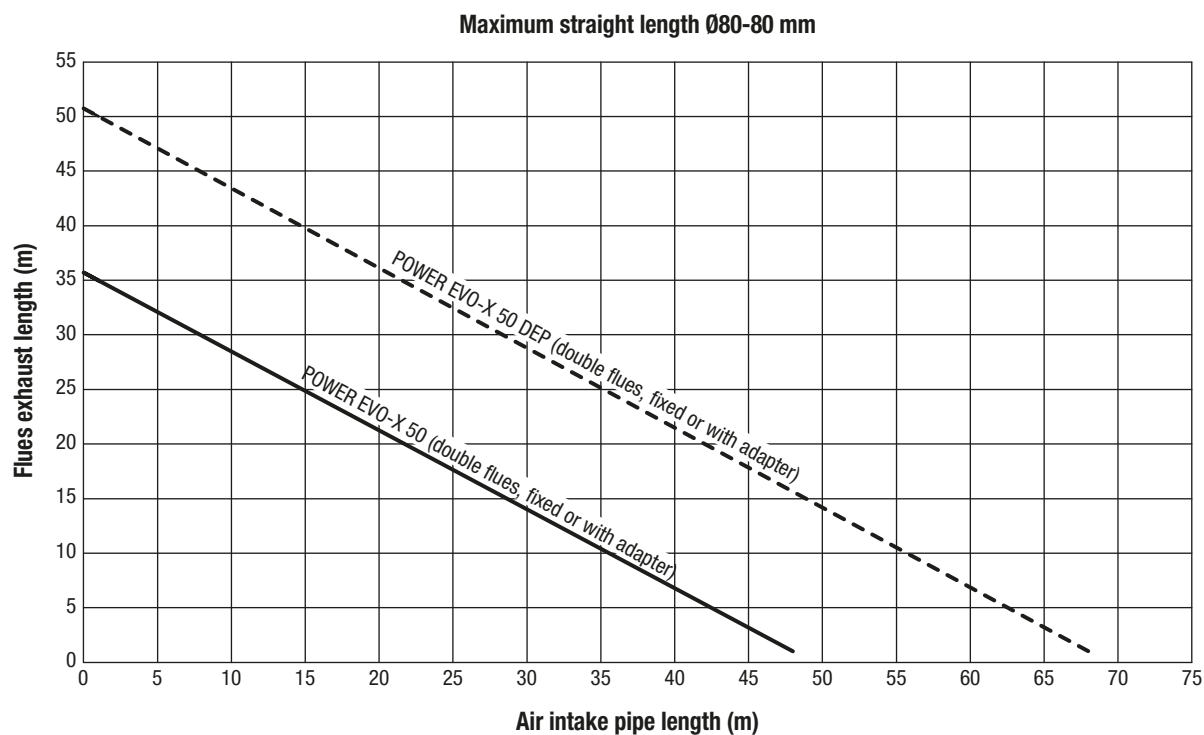


## POWER EVO-X 65 - 80



## Flue gas vent and combustion air intake

For the indication of the maximum lengths WITH SEPARATED PIPES Ø 80-80 mm of the single pipe, refer to the following charts.



## Power Evo-X System (cascade modules)

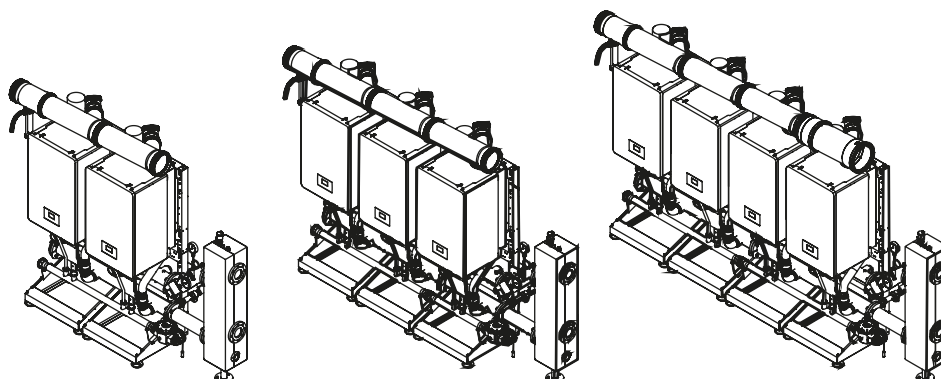
Power Evo-X can be linked in cascade with other generators in order to create modular heating systems, made up of hydraulically connected thermal modules, the electronic controls of which communicate via bus. In fact, each thermal module is designed to be combined with other identical units, up to a maximum of 4 units and 272 kW.

For each thermal module it is possible to configure the different types of installation in-line (i.e. Front) or back to back.

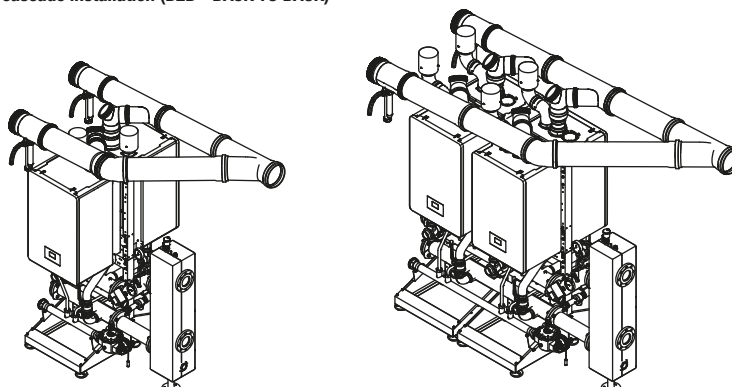
Power Evo-X, in any power variant and number of thermal modules, can be assembled in left or right configuration.

- Continuity of service is guaranteed by system modularity: even in the event of fault of a module, overall operation will not be compromised.
- The anti-freeze and anti-seizing functions ensure operation in all weather conditions.
- Maximum operating pressure: 5 bar.
- A wide range of accessories is available to ensure the installation is simple, fast and complete.

**Linear cascade installation (FRONT)**



**Back-to-back cascade installation (B2B - BACK TO BACK)**

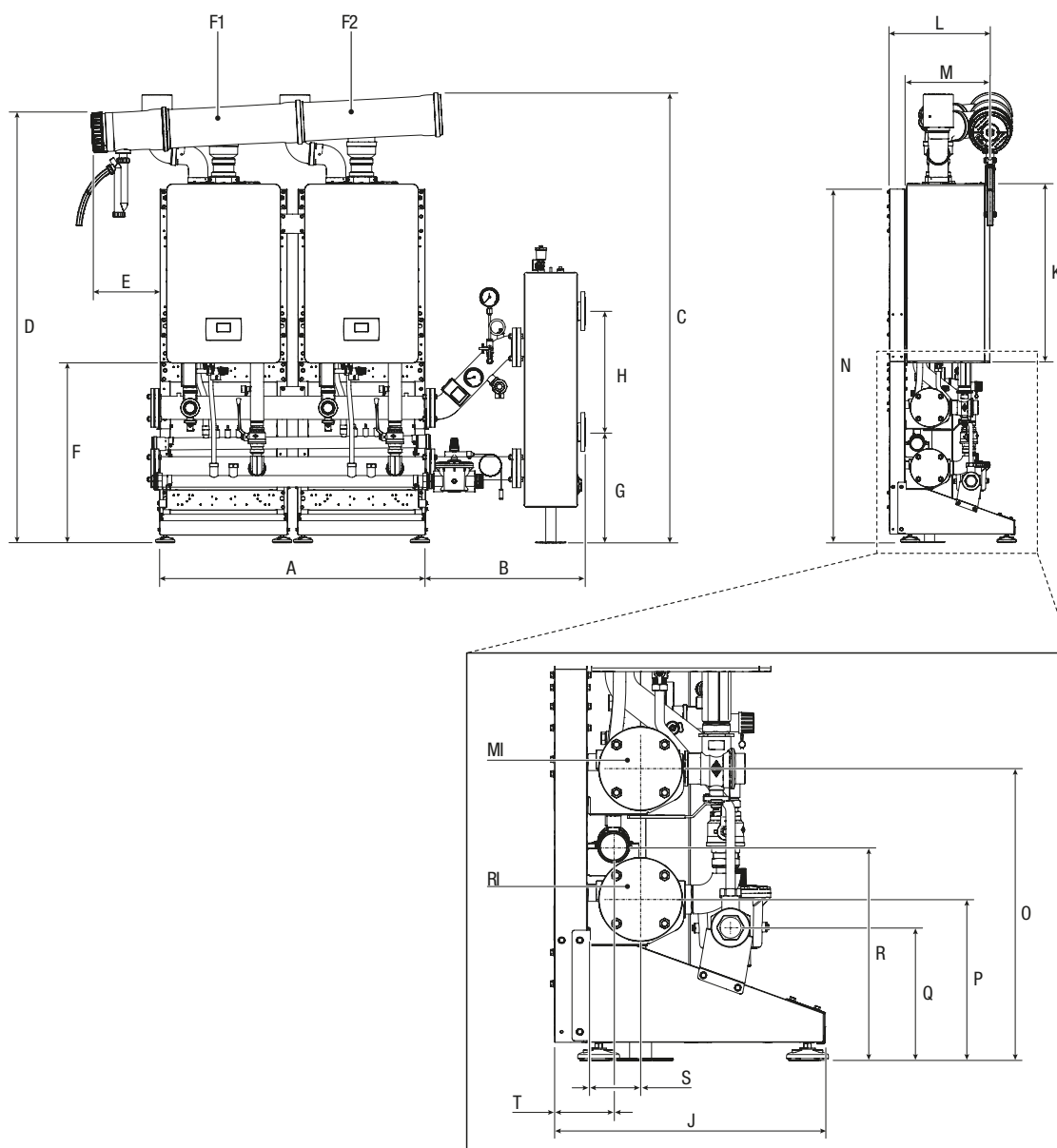


| Model                  | POWER EVO-X               |     |     |     |
|------------------------|---------------------------|-----|-----|-----|
|                        | 50 DEP                    | 50  | 65  | 80  |
| No. of thermal modules | Total Cascade Output (kW) |     |     |     |
| 1                      | 34.9                      | 45  | 57  | 68  |
| 2                      | 70                        | 90  | 114 | 136 |
| 3                      | 105                       | 135 | 171 | 204 |
| 4                      | 140                       | 180 | 228 | 272 |

## Power Evo-X System (cascade modules)

## Cascade configuration

Linear installation (FRONT) 2 modules - [35-45kW]



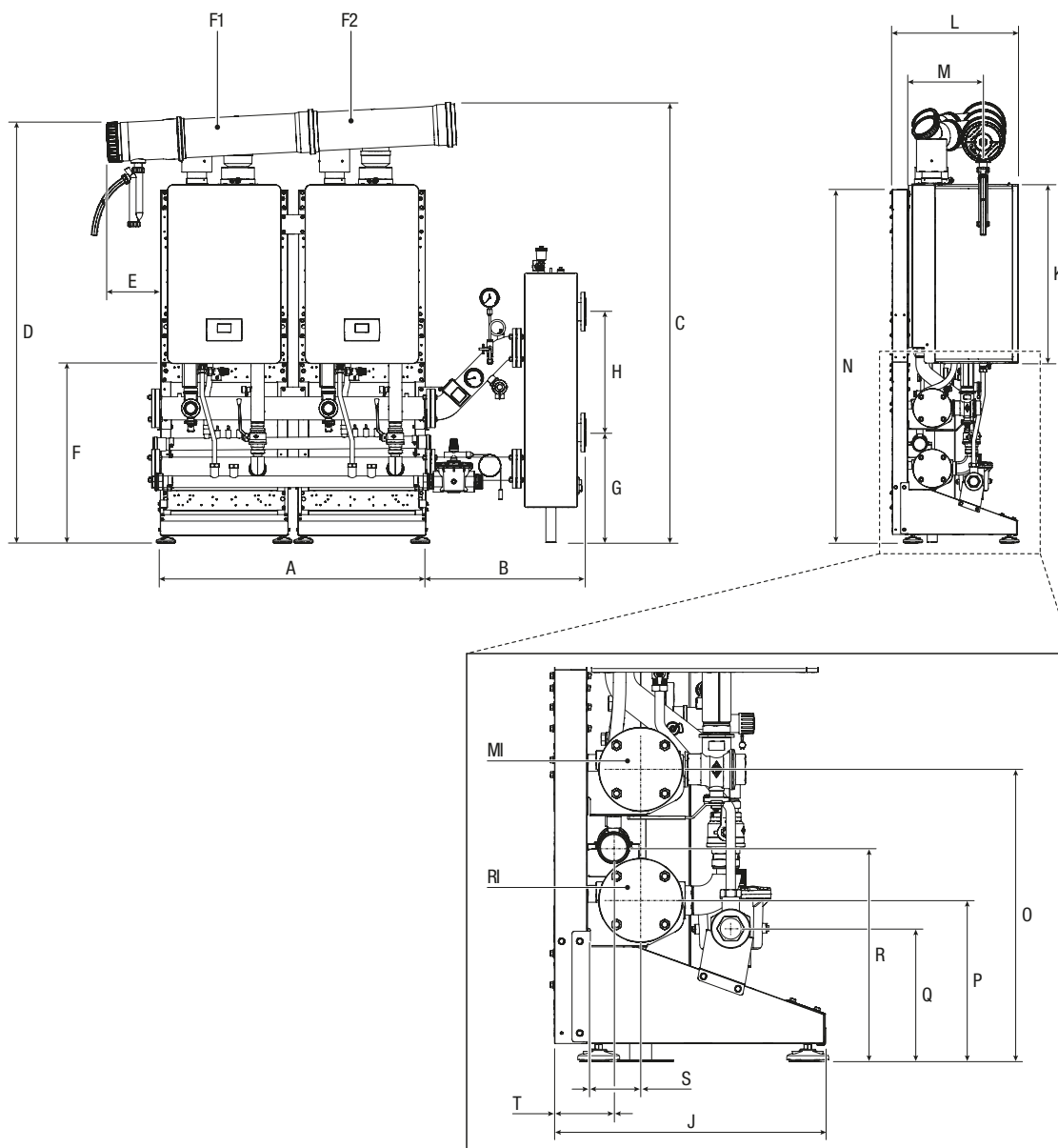
| DESCRIPTION        | A    | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   |
|--------------------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| POWER EVO-X 50 DEP | 1100 | 658 | 1860 | 1777 | 285 | 743 | 457 | 500 | 525 | 740 | 423 | 351 |
| POWER EVO-X 50     | 1100 | 658 | 1860 | 1777 | 285 | 743 | 457 | 500 | 525 | 740 | 423 | 351 |
| UM                 | mm   | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  |

| DESCRIPTION        | N    | O   | P   | Q   | R   | S   | T   | F1   | F2   | RI*  | MI*  |
|--------------------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|
| POWER EVO-X 50 DEP | 1483 | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| POWER EVO-X 50     | 1483 | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| UM                 | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.

**Power Evo-X System (cascade modules)**

Linear installation (FRONT) 2 modules - [55-70kW]



| DESCRIPTION    | A    | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   |
|----------------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| POWER EVO-X 65 | 1100 | 658 | 1824 | 1740 | 226 | 743 | 457 | 500 | 525 | 740 | 516 | 312 |
| POWER EVO-X 80 | 1100 | 658 | 1824 | 1740 | 226 | 743 | 457 | 500 | 525 | 740 | 516 | 312 |
| UM             | mm   | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  |

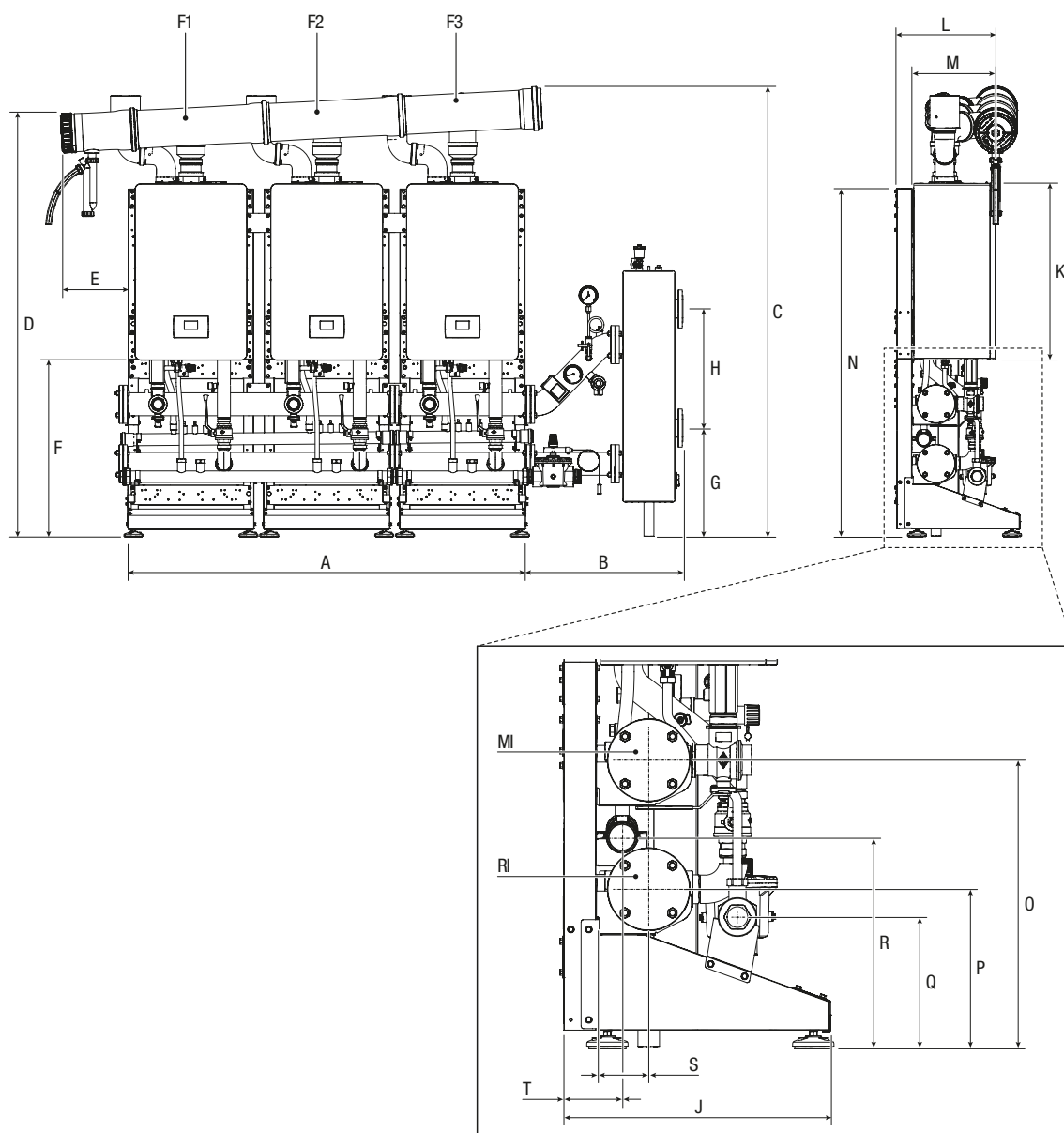
| DESCRIPTION    | N    | O   | P   | Q   | R   | S   | T   | F1   | F2   | RI*  | MI*  |
|----------------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|
| POWER EVO-X 65 | 1481 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| POWER EVO-X 80 | 1481 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| UM             | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.



**Power Evo-X System (cascade modules)**

Linear installation (FRONT) 3 modules - [35-45kW]



| DESCRIPTION               | A     | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   |
|---------------------------|-------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>POWER EVO-X 50 DEP</b> | 1,670 | 658 | 1891 | 1777 | 285 | 743 | 457 | 500 | 525 | 740 | 423 | 351 |
| <b>POWER EVO-X 50</b>     | 1,670 | 658 | 1891 | 1777 | 285 | 743 | 457 | 500 | 525 | 740 | 423 | 351 |
| <b>UM</b>                 | mm    | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  |

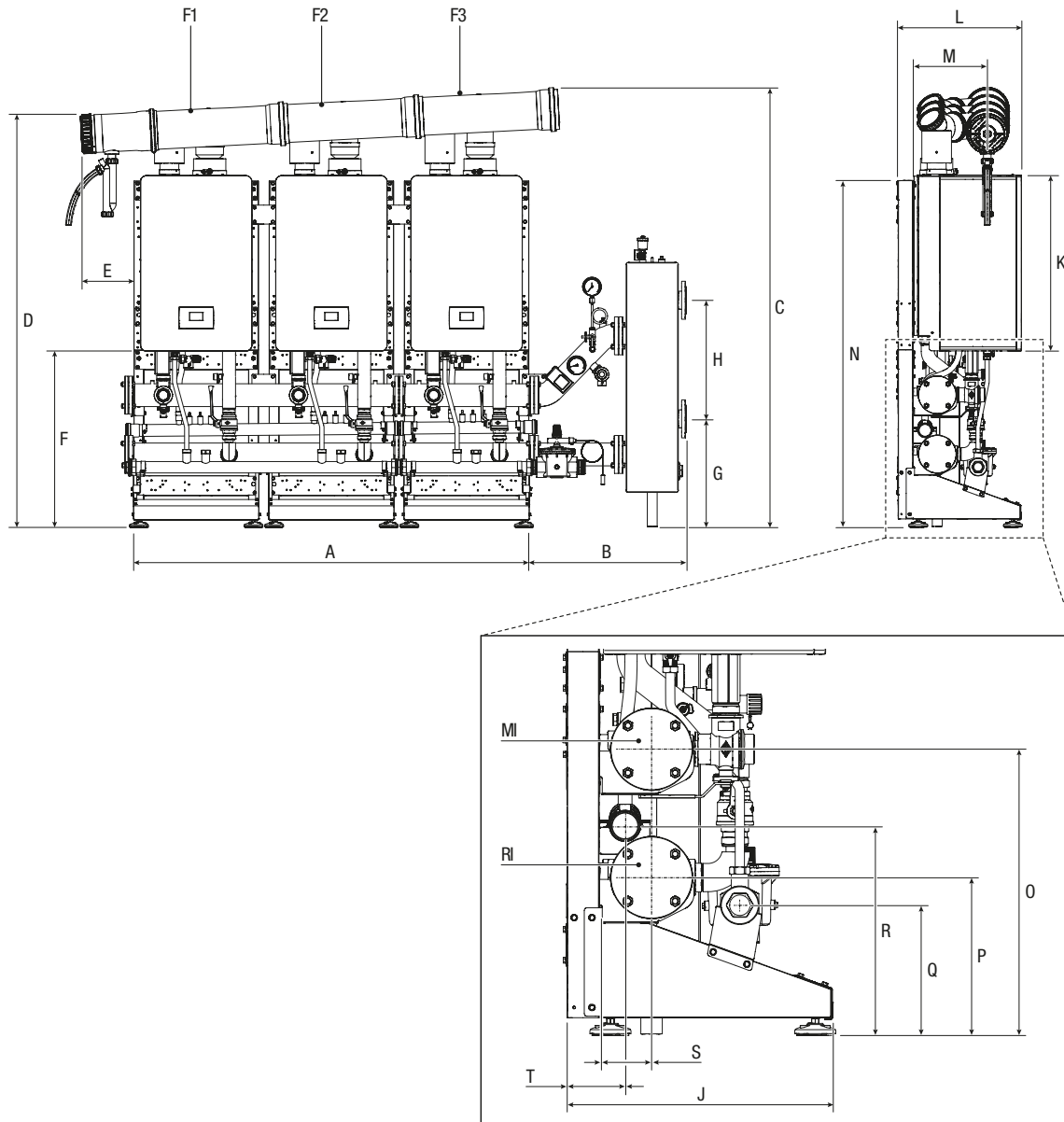
  

| DESCRIPTION               | N    | O   | P   | Q   | R   | S   | T   | F1   | F2   | F3   | RI*  | MI*  |
|---------------------------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| <b>POWER EVO-X 50 DEP</b> | 1483 | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>POWER EVO-X 50</b>     | 1483 | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>UM</b>                 | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.

**Power Evo-X System (cascade modules)**

Linear installation (FRONT) 3 modules - [55-70kW]



| DESCRIPTION           | A     | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   |
|-----------------------|-------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>POWER EVO-X 65</b> | 1,670 | 658 | 1854 | 1740 | 226 | 743 | 457 | 500 | 525 | 740 | 516 | 312 |
| <b>POWER EVO-X 80</b> | 1,670 | 658 | 1854 | 1740 | 226 | 743 | 457 | 500 | 525 | 740 | 516 | 312 |
| <b>UM</b>             | mm    | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  |

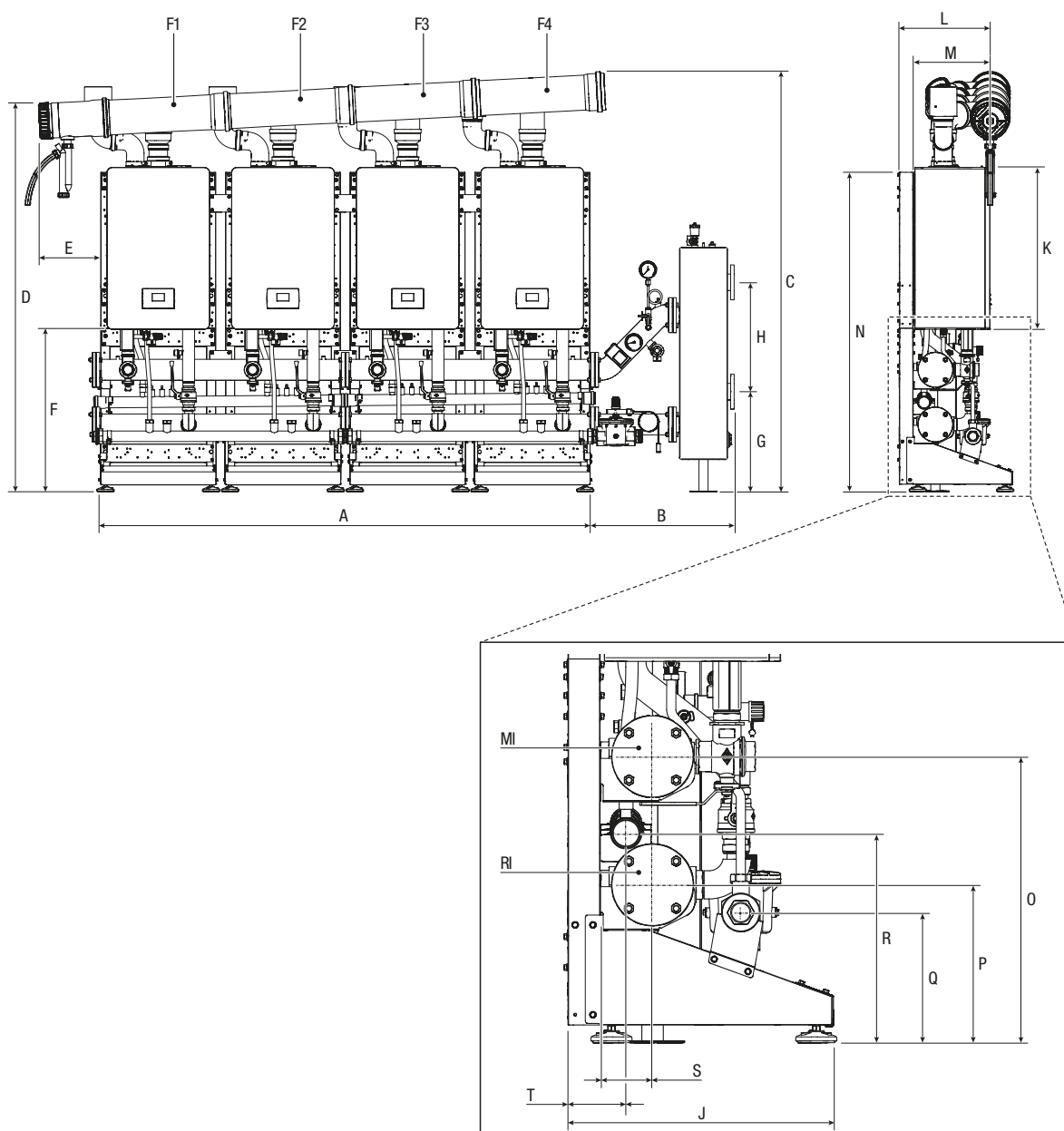
  

| DESCRIPTION           | N    | O   | P   | Q   | R   | S   | T   | F1   | F2   | F3   | RI*  | MI*  |
|-----------------------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| <b>POWER EVO-X 65</b> | 1481 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>POWER EVO-X 80</b> | 1481 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>UM</b>             | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.

**Power Evo-X System (cascade modules)**

Linear installation (FRONT) 4 modules - [35-45kW]



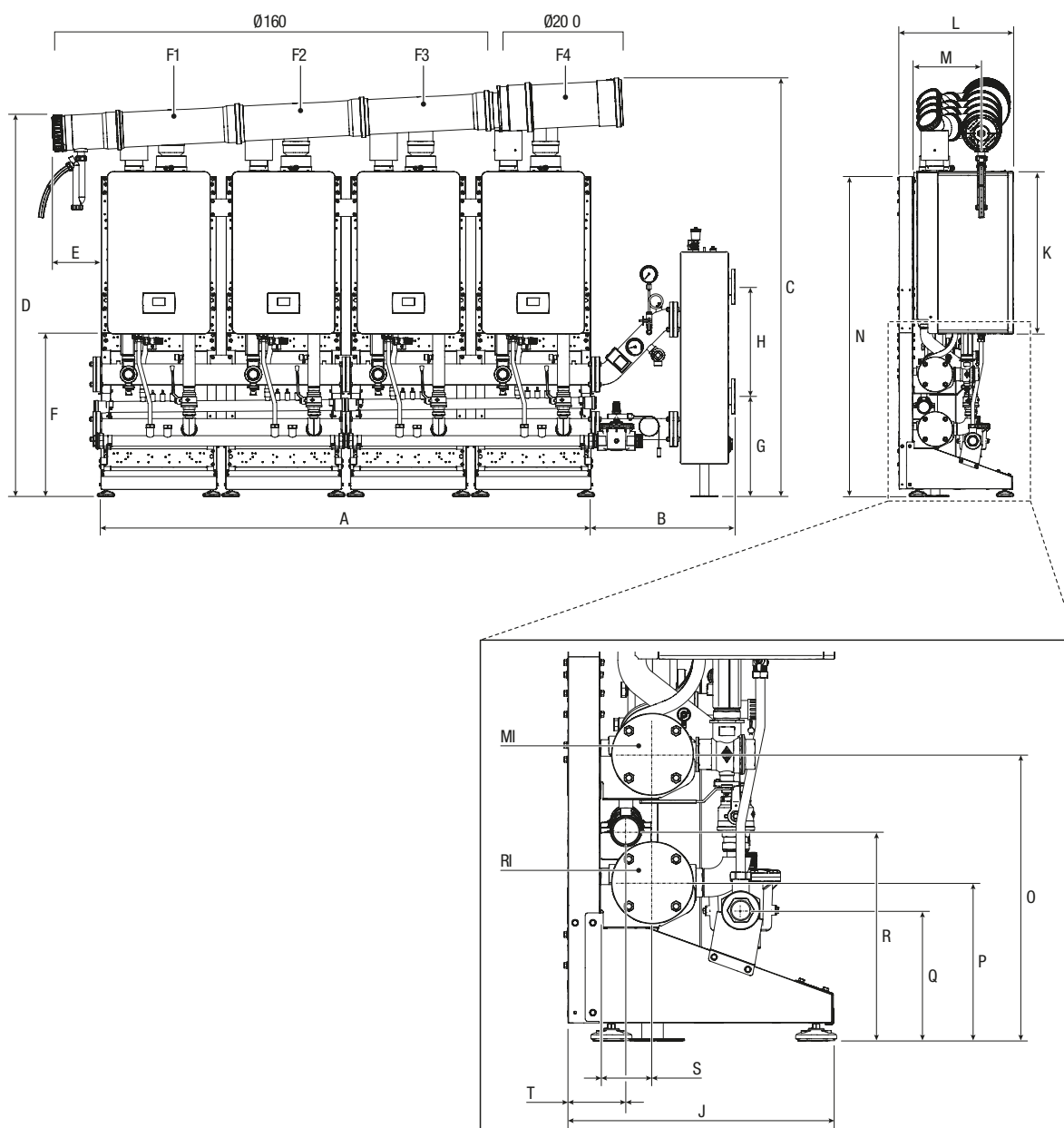
| DESCRIPTION               | A    | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   |
|---------------------------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>POWER EVO-X 50 DEP</b> | 2240 | 658 | 1921 | 1777 | 285 | 743 | 457 | 500 | 525 | 740 | 423 | 351 |
| <b>POWER EVO-X 50</b>     | 2240 | 658 | 1921 | 1777 | 285 | 743 | 457 | 500 | 525 | 740 | 423 | 351 |
| <b>UM</b>                 | mm   | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  |

| DESCRIPTION               | N    | O   | P   | Q   | R   | S   | T   | F1   | F2   | F3   | F4   | RI*  | MI*  |
|---------------------------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| <b>POWER EVO-X 50 DEP</b> | 1483 | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>POWER EVO-X 50</b>     | 1483 | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>UM</b>                 | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.

**Power Evo-X System (cascade modules)**

Linear installation (FRONT) 4 modules - [55-70kW]



| DESCRIPTION           | A    | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   |
|-----------------------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>POWER EVO-X 65</b> | 2240 | 658 | 1892 | 1740 | 226 | 743 | 457 | 500 | 525 | 740 | 516 | 312 |
| <b>POWER EVO-X 80</b> | 2240 | 658 | 1892 | 1740 | 226 | 743 | 457 | 500 | 525 | 740 | 516 | 312 |
| <b>UM</b>             | mm   | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  |

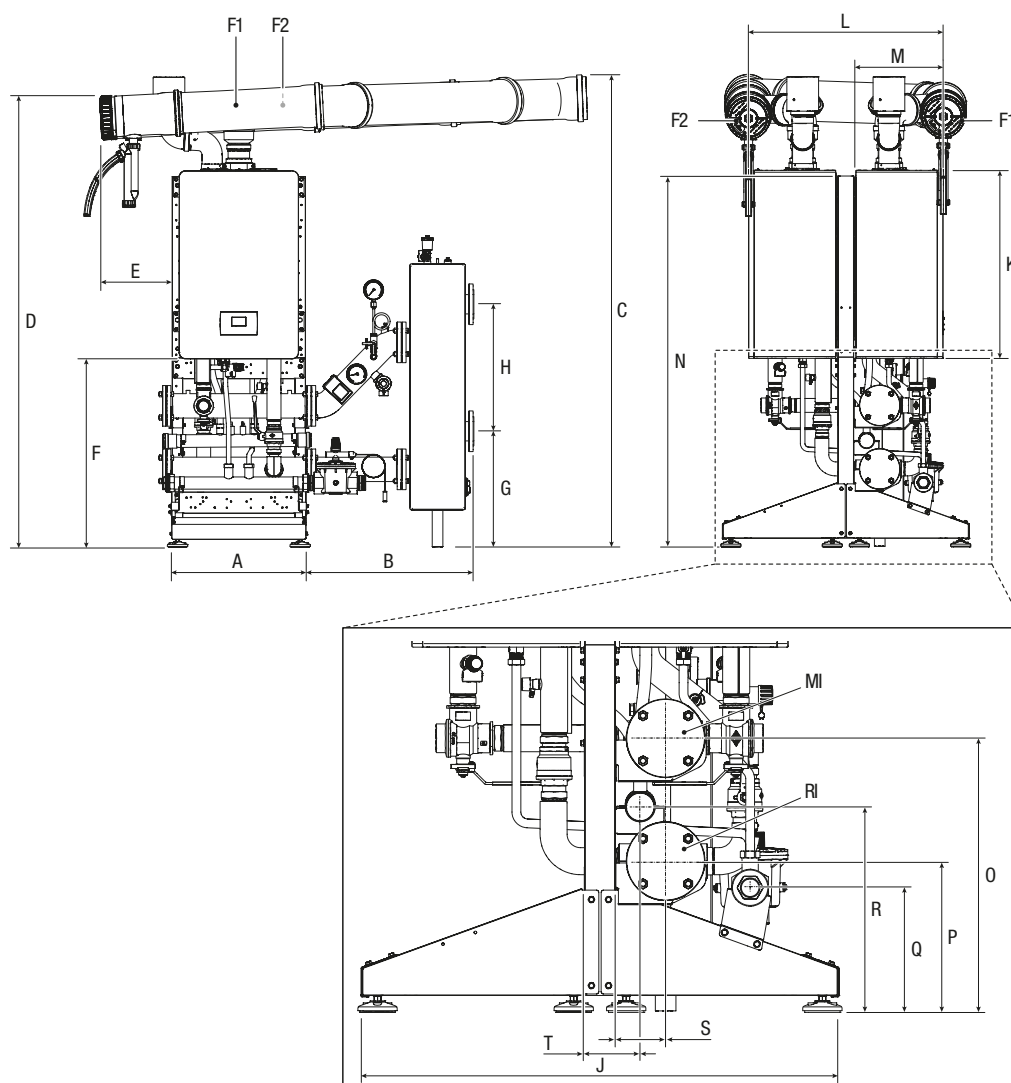
  

| DESCRIPTION           | N    | O   | P   | Q   | R   | S   | T   | F1   | F2   | F3   | F4   | RI*  | MI*  |
|-----------------------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| <b>POWER EVO-X 65</b> | 1481 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø200 | Ø2"½ | Ø2"½ |
| <b>POWER EVO-X 80</b> | 1481 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø200 | Ø2"½ | Ø2"½ |
| <b>UM</b>             | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.

**Power Evo-X System (cascade modules)**

B2B installation (BACK TO BACK) 2 modules - [35-45kW]



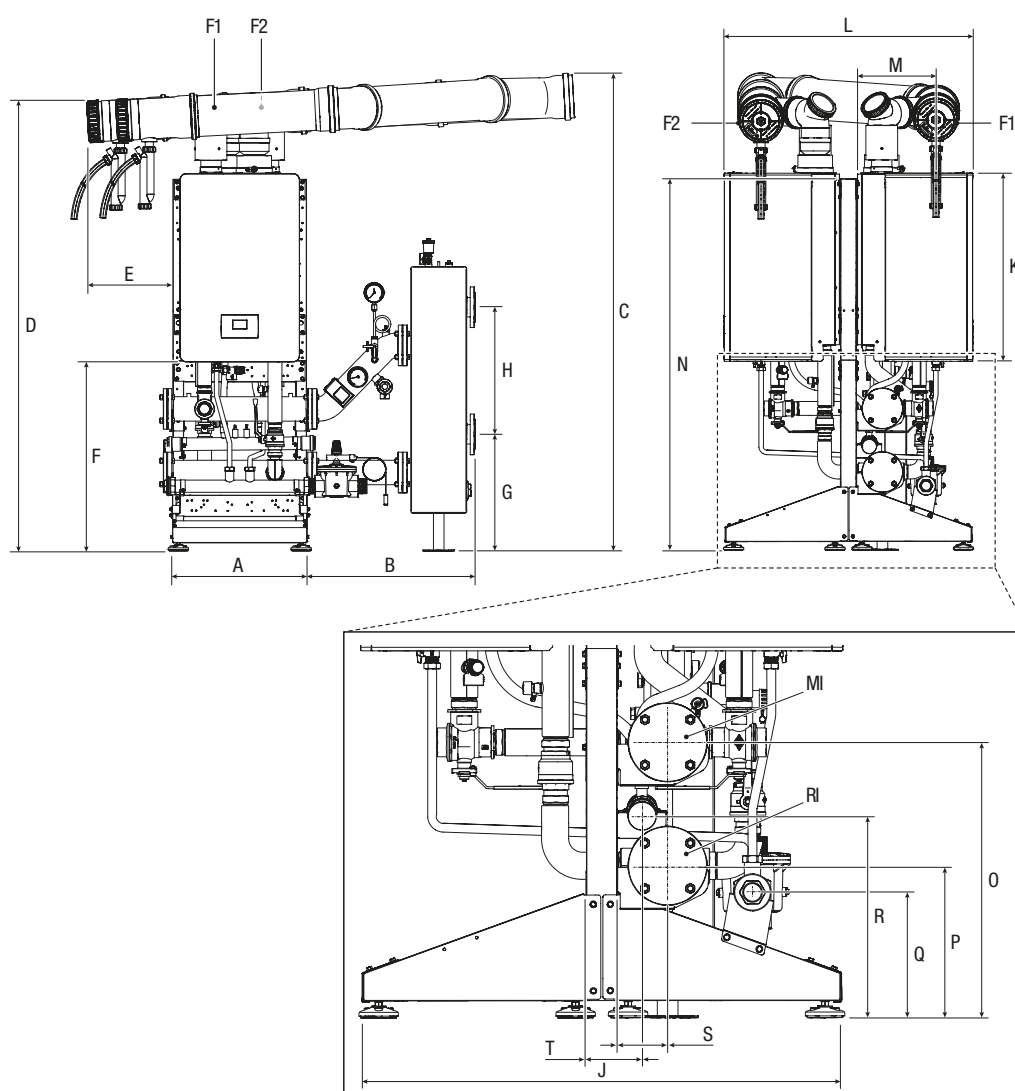
| DESCRIPTION               | A   | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   |
|---------------------------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>POWER EVO-X 50 DEP</b> | 529 | 658 | 1861 | 1777 | 285 | 743 | 457 | 500 | 972 | 740 | 764 | 351 |
| <b>POWER EVO-X 50</b>     | 529 | 658 | 1861 | 1777 | 285 | 743 | 457 | 500 | 972 | 740 | 764 | 351 |
| <b>UM</b>                 | mm  | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  |

| DESCRIPTION               | N    | O   | P   | Q   | R   | S   | T   | F1   | F2   | RI*  | MI*  |
|---------------------------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|
| <b>POWER EVO-X 50 DEP</b> | 1483 | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>POWER EVO-X 50</b>     | 1483 | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>UM</b>                 | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.

**Power Evo-X System (cascade modules)**

B2B installation (BACK TO BACK) 2 modules - [55-70kW]



| DESCRIPTION           | A   | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   |
|-----------------------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>POWER EVO-X 65</b> | 529 | 658 | 1843 | 1736 | 338 | 743 | 457 | 500 | 972 | 740 | 982 | 312 |
| <b>POWER EVO-X 80</b> | 529 | 658 | 1843 | 1736 | 338 | 743 | 457 | 500 | 972 | 740 | 982 | 312 |
| <b>UM</b>             | mm  | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  |

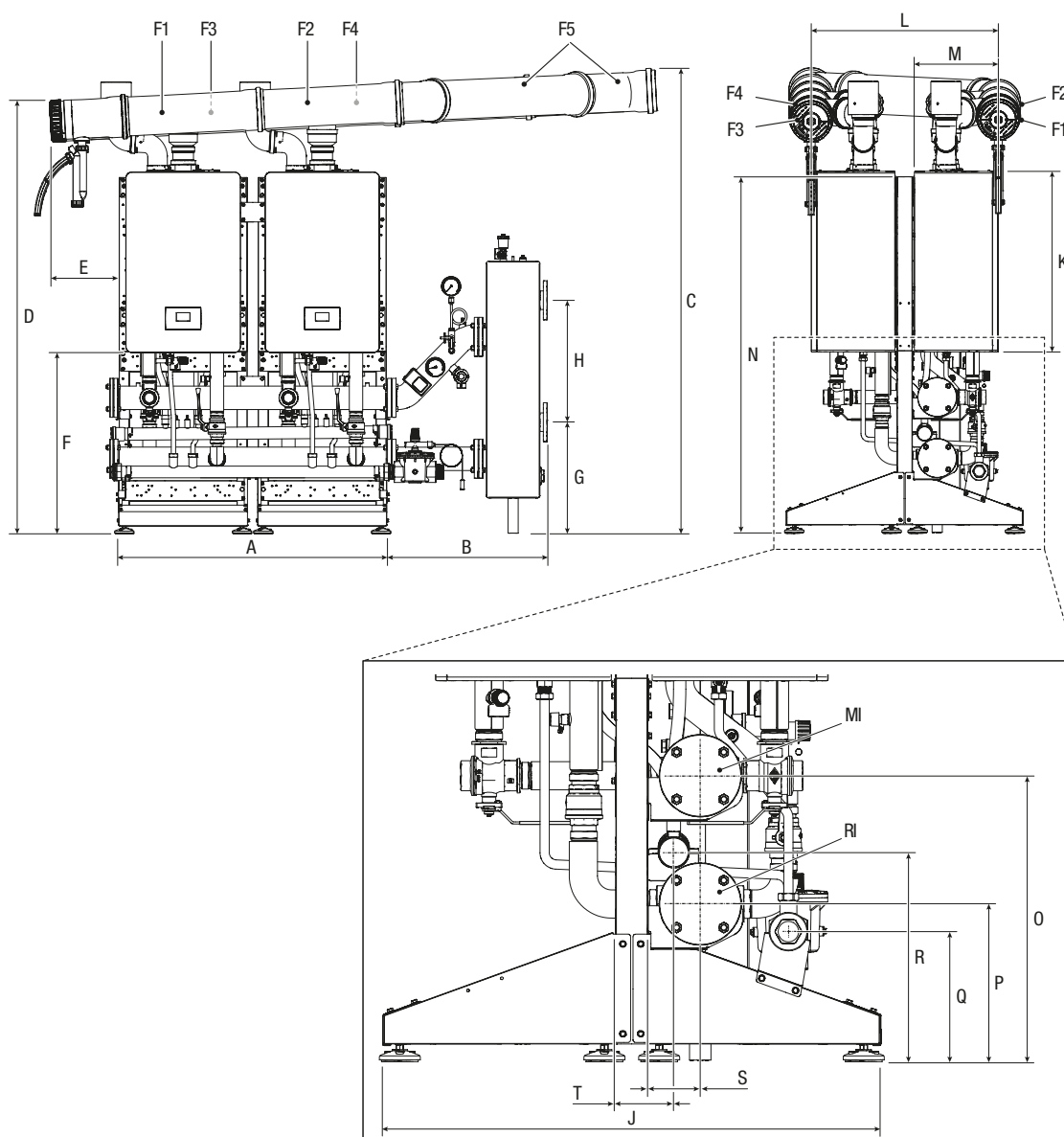
  

| DESCRIPTION           | N    | O   | P   | Q   | R   | S   | T   | F1   | F2   | RI*  | MI*  |
|-----------------------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|
| <b>POWER EVO-X 65</b> | 1481 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>POWER EVO-X 80</b> | 1481 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>UM</b>             | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.

**Power Evo-X System (cascade modules)**

B2B installation (BACK TO BACK) 3 and 4 modules - [35-45kW]



| DESCRIPTION               | A    | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   | N    |
|---------------------------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| <b>POWER EVO-X 50 DEP</b> | 1100 | 658 | 1908 | 1777 | 285 | 743 | 457 | 500 | 972 | 740 | 764 | 351 | 1483 |
| <b>POWER EVO-X 50</b>     | 1100 | 658 | 1908 | 1777 | 285 | 743 | 457 | 500 | 972 | 740 | 764 | 351 | 1483 |
| <b>UM</b>                 | mm   | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm   |

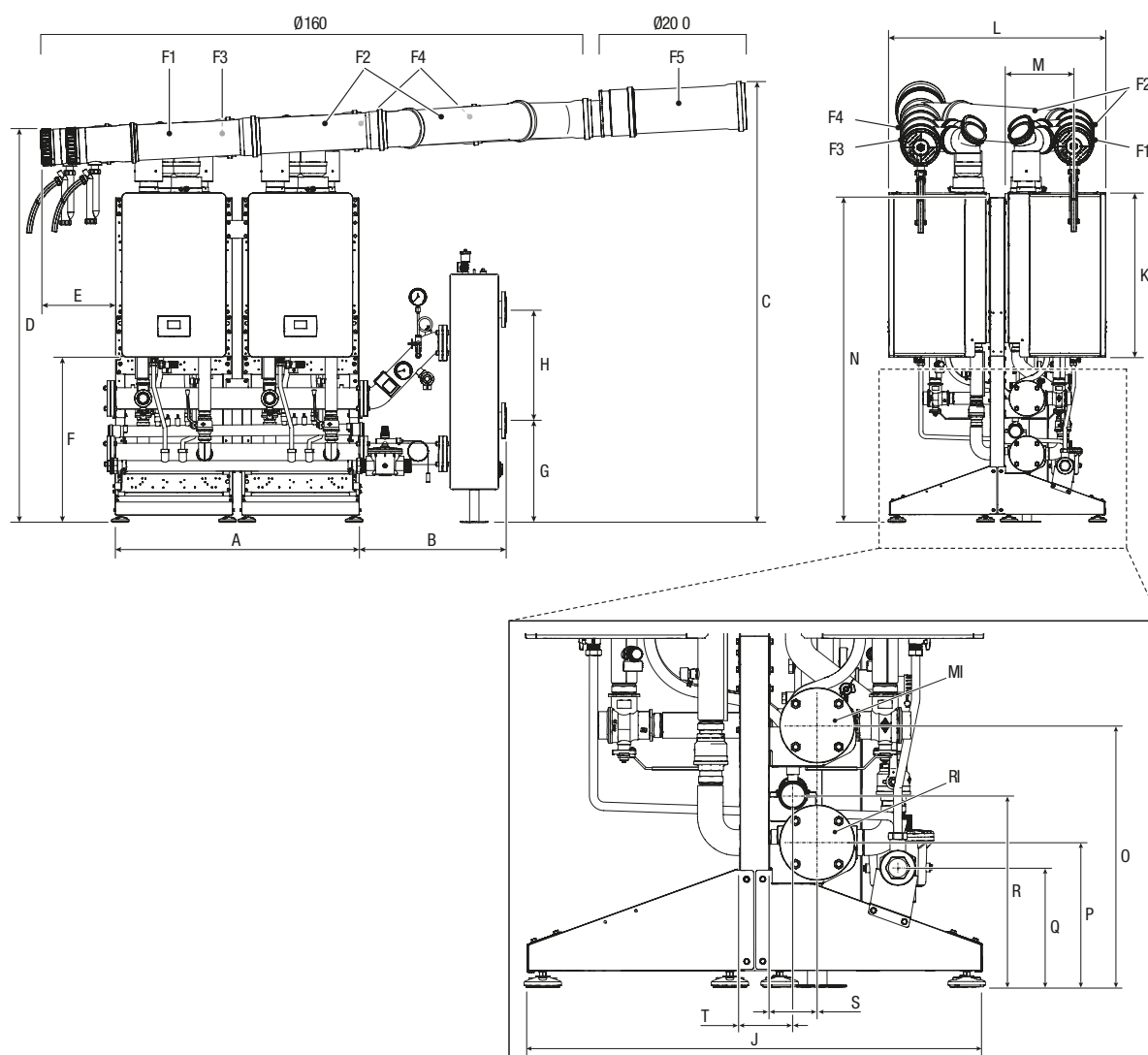
  

| DESCRIPTION               | O   | P   | Q   | R   | S   | T   | F1   | F2   | F3   | F4   | F5   | R1*  | M1*  |
|---------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|
| <b>POWER EVO-X 50 DEP</b> | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>POWER EVO-X 50</b>     | 558 | 308 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø160 | Ø160 | Ø2"½ | Ø2"½ |
| <b>UM</b>                 | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | mm   | mm   | mm   | Inch | Inch |

\* Primary and secondary flanges DN65 PN6 4 holes.

**Power Evo-X System (cascade modules)**

B2B installation (BACK TO BACK) 3 and 4 modules - [55-70kW]



| DESCRIPTION    | A    | B   | C    | D    | E   | F   | G   | H   | J   | K   | L   | M   | N    |
|----------------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| POWER EVO-X 65 | 1100 | 658 | 1966 | 1736 | 338 | 743 | 457 | 500 | 972 | 740 | 982 | 312 | 1481 |
| POWER EVO-X 80 | 1100 | 658 | 1966 | 1736 | 338 | 743 | 457 | 500 | 972 | 740 | 982 | 312 | 1481 |
| UM             | mm   | mm  | mm   | mm   | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm  | mm   |

| DESCRIPTION    | O   | P   | Q   | R   | S   | T   | F1   | F2   | F3   | F4   | F5   | RI*  | MI*  |
|----------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|
| POWER EVO-X 65 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø160 | Ø200 | Ø2"½ | Ø2"½ |
| POWER EVO-X 80 | 558 | 228 | 254 | 408 | 103 | 113 | Ø160 | Ø160 | Ø160 | Ø160 | Ø200 | Ø2"½ | Ø2"½ |
| UM             | mm  | mm  | mm  | mm  | mm  | mm  | mm   | mm   | mm   | mm   | mm   | Inch | Inch |

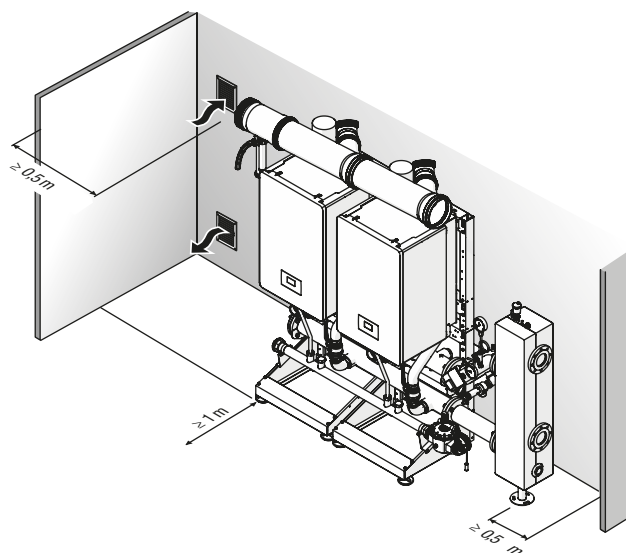
\* Primary and secondary flanges DN65 PN6 4 holes.



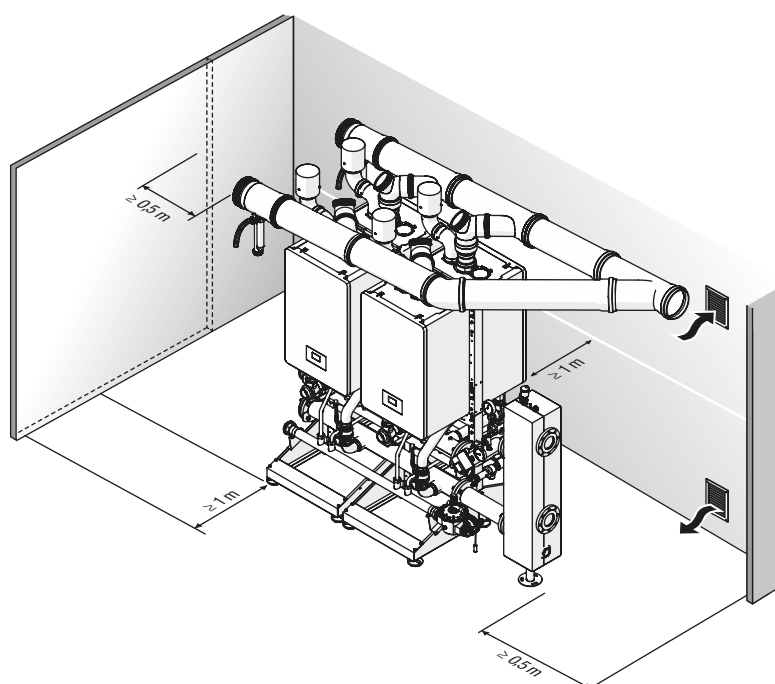
## Minimum distances

The thermal module must be installed in rooms for exclusive use that comply with the Technical Standards and with the Legislation in force and in which the discharge of the combustion products and the intake of the combustion air are taken outside the room itself. If, instead, the combustion air is picked up from the installation room, the latter must be equipped with ventilation openings compliant with Technical Standards and suitably dimensioned.

### Minimum distances for linear installation (FRONT)



### Minimum distances for B2B installation (B2B - BACK TO BACK)



## Minimum distances

# Schematic hydraulic systems

**WARNING** - The DHW and heating circuits must be completed with expansion vessels of adequate capacity and correctly-sized safety valves. The discharge of the safety valves and appliances must be connected to a suitable collection and disposal system.

**WARNING** - The selection and installation of the system components is the responsibility of the installer, who must respect the standards of good practice and current legislation.

**WARNING** - Special supply/make-up water must be conditioned using suitable treatment systems.

**WARNING** - For the electrical power connections, use H05-VV-F cables with a minimum conductor section of 1.5 mm<sup>2</sup>, complete with terminals. For low voltage connections, use H05-VV-F cables with a section between 0.5 and 1 mm<sup>2</sup>, complete with terminals.

**WARNING** - In order to connect the appliances connected to the output terminal board (pumps, circulators, and also diverting/mixing valves), use interfacing relays unless the maximum power absorption of all the components connected to the board (including the module's circulator) is lower than or equal to 1.5 A. The choice and sizing of the aforementioned relays is recommended by the installer depending on the type of appliance connected.

**WARNING** - It is prohibited to operate the thermal module without water.

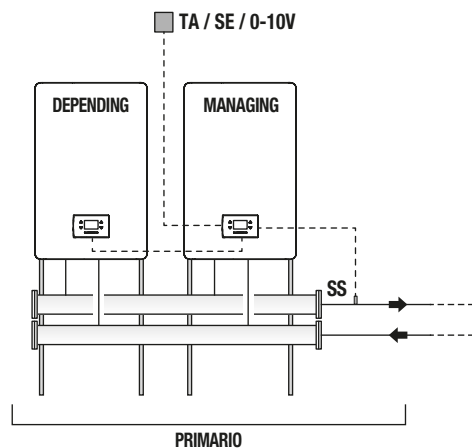
## Primary system configuration

The basic cascade configuration consists of at least two thermal modules. One will be assigned the role of "Managing", the others that of "Depending".

The cascade of thermal modules can be seen as the primary of a generation system; this configuration could be optimal for the replacement, in an existing system, of one or more larger size generators if the aim is to increase the efficiency and reliability of the system.

For the cascade operation to be possible, at least the sensor of the primary (SS), available as an accessory, must be connected to the thermal module identified as "Managing".

The sensor of the primary is foreseen for managing the cascade setpoint and its presence is essential for managing the thermal modules as a single generator.



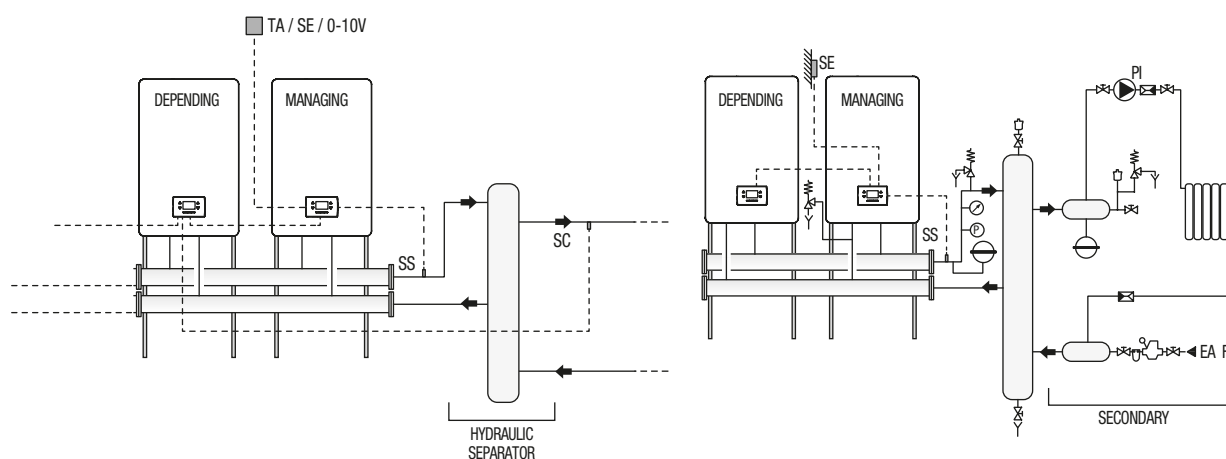
The operation of the primary can be:

- Mode 0 - Fixed setpoint. This configuration foresees the connection of a room thermostat or heat request contact (TA).
- Mode 1 - In climatic with variable setpoint according to the external temperature. This configuration requires the connection of a room thermostat or heat request contact (TA) and an external sensor (SE), available as an accessory.
- Mode 2 - In climatic mode with attenuation controlled by room thermostat/heat request signal and variable setpoint according to the external temperature. This configuration requires the connection of a room thermostat or heat request contact (TA) and an external sensor (SE), available as an accessory.
- Mode 3 - With fixed set-point operation with attenuation controlled by room thermostat/heat request signal. This configuration foresees the connection of a room thermostat or heat request contact (TA).
- Mode 4 - With delivery set-point adjustment based on a 0-10V analogue input. This configuration requires the connection, on the 0-10V analogue input, of an external device (for example PLC of a boiler room) capable of generating this signal. The operations described can be set through the parametrisation to be carried out on the "Managing" thermal module, as described in the manual of the individual thermal module in the "Heating system settings" paragraph.

### Minimum distances

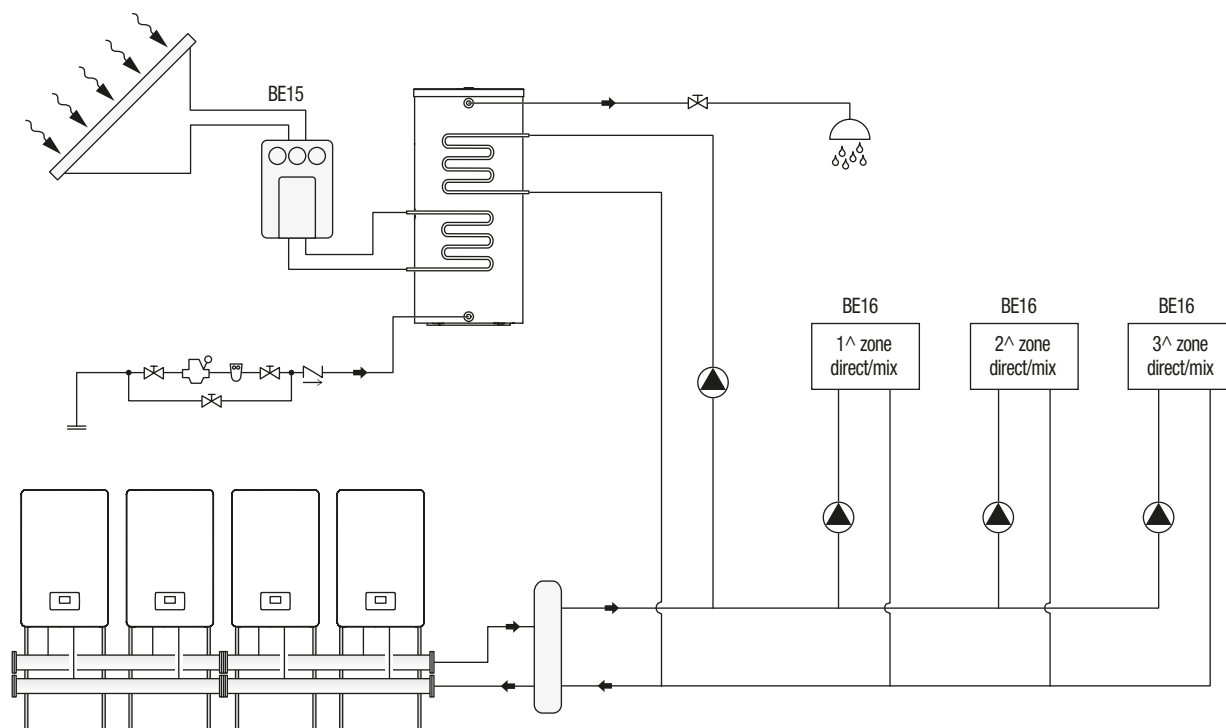
## Secondary system configuration

The optimal use of cascade modules takes place by interposing a hydraulic separator (available as accessory) between the primary (thermal modules in cascade for heat generation) and the secondary (utilities, such as heat distribution systems for heating, DHW production system). This device allows to compensate for a different flow rate between primary and secondary.



For simplicity, we identify the hydraulic circuit downstream of the separator as secondary.

The basic configuration of the secondary occurs with the use of a system circulator (PI). This circulator, connected to the modules in cascade, allows to manage the transfer of thermal energy to a user circuit, for example a direct zone for high temperature room heating.



# Specifications guide

## PRODUCT DESCRIPTION FOR SPECIFICATIONS SUMMARY

Power Evo-X is a condensing, pre-mixed thermal module consisting in a modulating thermal element.

It comes in 4 models, starting from 35kW up to 70kW.

Optimal combustion management supports high yields, over 108%, calculated over NVC, with condensation, and low polluting emissions - Class 6 pursuant to UNI EN 15502.

The thermal module is designed for open chamber operation, but can be converted to sealed chamber operation by fitting a dedicated flue.

The appliance in the standard configuration has an IPX5D protection level intended for indoor or outdoor installation in partially protected locations.

Power Evo-X appliances may be cascaded to reach a maximum output of 280 kW.

The electronics of the Power Evo-X generator can be expanded thanks to the use of suitable kits to govern hybrid systems or solar thermal systems.

The main technical characteristics of the appliance are:

- Premix burner with constant air-gas ratio and double electrode, ignition and flame detection.
- Single-pass AISI 441 stainless steel heat exchanger, designed to maximize the exchange surface and offer maximum resistance to corrosion.
- Module output from 35 to 70 kW, with possible cascades of modules of the same output.
- Maximum flue gas output temperature 100°C.
- Microprocessor management and control with self-diagnostics, shown on a display, and logging of main errors.
- Anti-freeze function.
- Outdoor temperature sensor that enables the climatic control (accessory).
- Pre-setting for room thermostat/heat request for low and high temperature zones.
- Each generator can manage a direct heating circuit and a circuit for the production of domestic hot water with external storage as standard in stand-alone configuration; it is possible to expand the electronics up to a maximum of three direct or mixed zones on the secondary and solar thermal.
- In the cascade configuration it can manage up to a maximum of 6 direct or mixed zones on the secondary.
- Standard high efficiency and high residual head modulating circulator; modulation takes place only on the system side in proportion to the power supplied by the boiler; the circulator will operate at maximum speed in DHW mode.
- INAIL accessories and devices are available complete with certificate for outputs above 35 kW.

- Cascade configurations up to a maximum of 4 generators, in-line and back-to-back, complete with all the hydraulic, electrical and flue accessories.
- Both in the stand-alone version and in the cascade, hydraulic separators or plate exchangers are available as accessories for the interface to the systems.

## SAFETY DEVICES

All appliance functions are electronically controlled by a dual processor technology 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 thermostat 102±3°C.
- Pressure transducer with minimum pressure control function of 0.8 bar.
- Differential pressure switch for continuous control of the minimum flow rate on the primary circuit.
- Temperature probes on delivery and return that continually 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 valve with pneumatic gas flow compensation depending on the suction line's air flow rate.
- Two distinct electrodes, one for ignition and one for detection.
- Flue gases temperature probe.
- Non-return valve (clapet) for connecting the generators to collective positive pressure pipes.

## Specifications guide

### FUNCTIONS

- Date and time setting.
- Setting heating system with 4 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.
  - Operation with OT+ input with heat request and fixed set-point.
  - Operation with OT+ input with heat request and variable set-point depending on the outdoor temperature.
- Setting DHW production in 3 modes:
  - No Production of Domestic Hot Water.
  - DHW Production with Storage Tank Controlled by a Storage Cylinder Probe.
  - DHW Production with Storage Tank Controlled by a Thermostat.
- Anti-Legionella function.
- Timer programme: seasonal, holiday, groups of homogeneous zones.
- Screen displays:
  - Delivery temperature.
  - Return temperature.
  - DHW temperature (the sensor must be connected in order to display a value; if it is not present, the default value is displayed).
  - Outside temperature.
  - Flue gas temperature.
  - System temperature (the sensor must be connected in order to display a value; if it is not present, the default value is displayed).
  - Fan speed.
  - Sensor.
  - Status.
  - Error.

### MATERIAL INCLUDED

- Documents:
  - Instruction booklet.
  - Hydraulic test certificate.
  - Energy Labelling.
- Other supplied material:
  - LPG conversion kit.
  - Wall-mounting bracket with plugs (no.4 plugs Ø=10 mm suitable for concrete, brick, compact stone and concrete hollow brick walls).

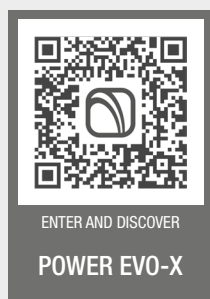
### CONFORMITY

Power Evo-X boilers are compliant with:

- Regulation (EU) 2016/426.
- Efficiency Directive 92/42/EEC and Attachment E of the Pres. Decree 26 August 1993 no. 412 (\*\*\*\*).
- Electromagnetic Compatibility Directive 2014/30/EU.
- Low Voltage Directive 2014/35/EU.
- Directive 2009/125/EC Eco-design of energy-related products.
- Regulation (EU) 2017/1369 Energy Labelling.
- Delegated Regulation (EU) No. 811/2013.
- Delegated Regulation (EU) No. 813/2013.
- Boiler standards for gas heating – General requisites and EN 15502-1 tests.
- Specific regulations for type C appliances and type B2, B3 and B5 appliances with a rated heat output no larger than 1000 kW EN 15502-2/1.
- SSIGA Gas Appliance Directive G1.
- AICAA Fire prevention requirements.
- CFST LPG Directive part 2.
- VARIOUS cantonal and communal provisions on air quality and energy saving.







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