

FAN COIL UNITS

LASER, LOW BODY & CONCEALED

TECHNICAL INFORMATION



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1. GENERAL INFORMATION

1.1 Applications

Fan coils are used to directly treat the air in the room where they are installed.

They can be used both for heating and cooling applications; in the latter case, the air is also dehumidified.

1.2 Operation

The effectiveness of a fan coil is due to the large surface area of the finned heat exchanger (coil) where the air drawn from the room by the fan passes through.

Heating operation: the hot water circulating in the finned coil supplies heat to the air passing through the heat exchanger.

Cooling operation: the chilled water circulating in the finned coil removes heat from the air passing through the heat exchanger. The air is also dehumidified and the condensed water vapour must be discharged from the unit: suitable drains must therefore be provided to drain the condensed water that collects in the condensate tray.

1.3 Performances

The performance of a fan coil can vary greatly with changes in the temperature and in the amount of water circulating through the coil, as well as with changes in the temperature and in the amount of air circulating through the coil.

When using the direct expansion coil, thermal performances in cooling and heating depend on the performance of the condensing unit connected to the fan coil.

The air volume is determined by selecting the proper fan speed (MIN-MED-MAX), while the water flow rate is determined by the specifications of the system and of the pump. Thermal performances of the unit can be optimised by controlling the inlet flow rate of the water with proper regulating valves (ON/OFF, floating 3 points, modulating with proportional feedback), which can be supplied as accessories.

For each model, thermal performances in heating and cooling depend on the number of rows of the coil installed, which gives the opportunity to make the air treatment suit every condition required.

In cooling function, under the same operating conditions, the more rows the heat exchanger has, the more it will dehumidify.

1.4 Product range

This manual covers the following models of YORK fancoil units:

| Model | Installation | Size |
|--|--|---------|
| SIGMA SERIE | | |
| YLV with cabinet | vertical on the wall/floor (with feet) | 110÷228 |
| YLV/AF with cabinet and frontal air intake | vertical on the floor (without feet) | 110÷228 |
| YLH with cabinet | horizontal on the ceiling | 110÷228 |
| YLH/AF with cabinet and bottom air intake | horizontal on the ceiling | 110÷228 |
| LOW BODY SERIE | | |
| YLVR with cabinet | vertical on the floor (without feet) | 110÷218 |
| YLIVR without cabinet | vertical and concealed | 110÷218 |
| CONCEALED SERIE | | |
| YLIV without cabinet | vertical and concealed | 110÷228 |
| YLIV/AF without cabinet and frontal air intake | vertical and concealed | 110÷228 |
| YLIH without cabinet | horizontal and concealed | 110÷228 |
| YLIH/AF without cabinet and bottom air intake | horizontal and concealed | 110÷228 |

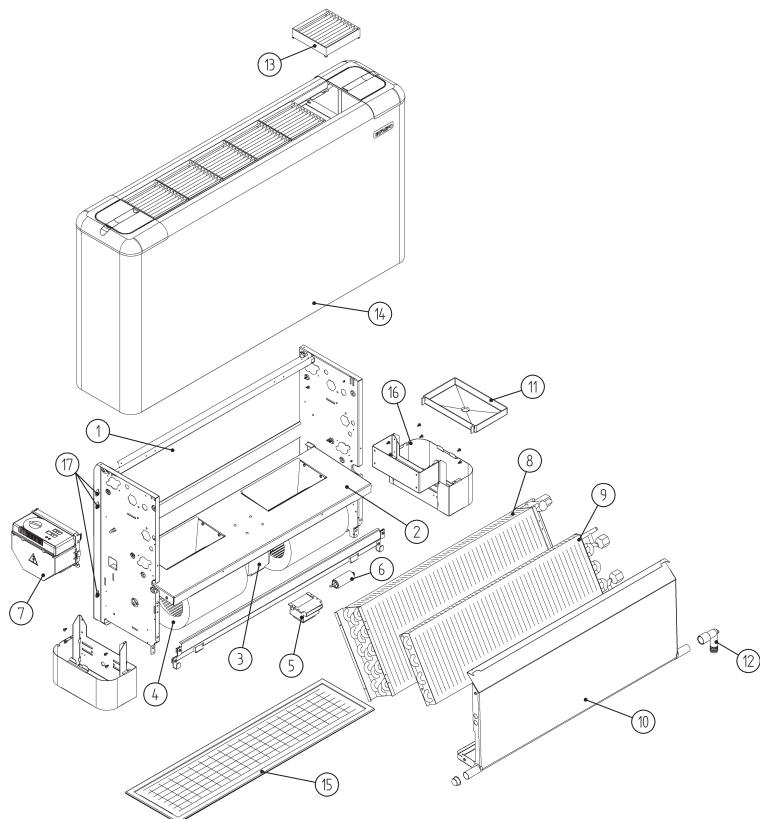
1.5 Selection software

To facilitate choosing the correct size of a fan coil for any operating condition (including those differing from the standard ones), YORK offers a dedicated computer program, either available on CD-ROM or it can be downloaded from the YORK official web site, on request.



Installation and Operation instructions concerning the software for selection are given on its «Help on line».

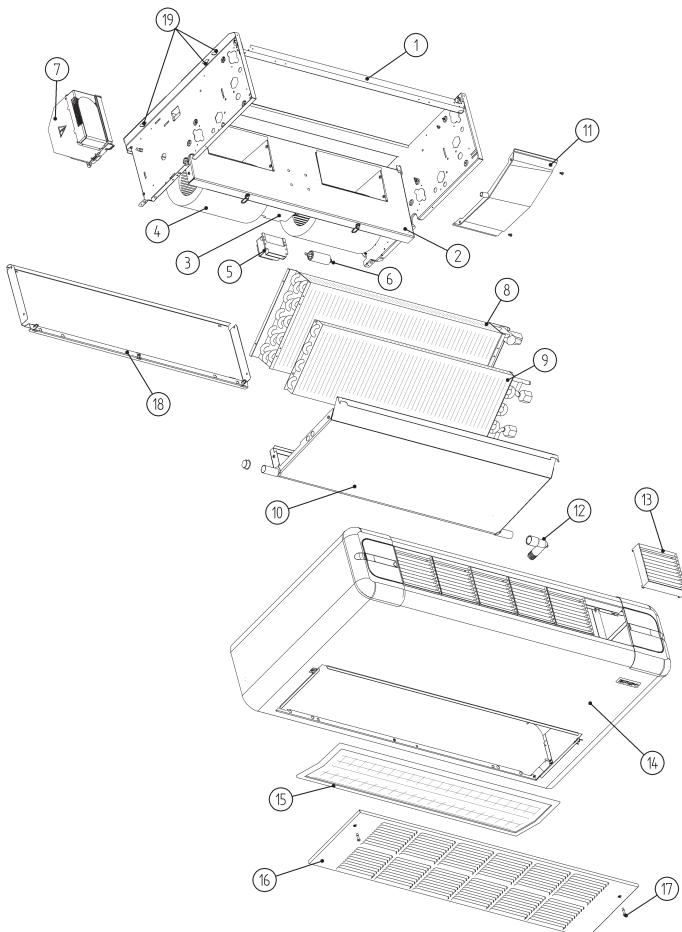
YLV Model



LEGEND

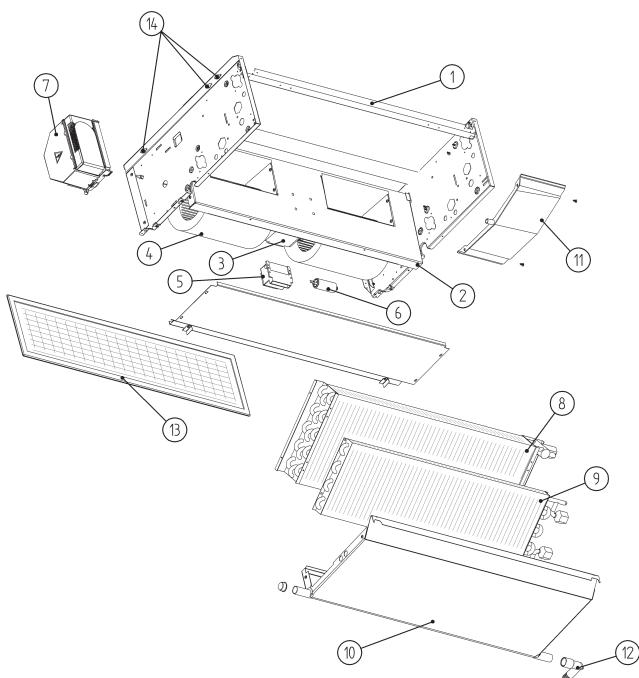
- | | |
|-----------|--------------------------------|
| 1 | Internal structure |
| 2 | Fan deck |
| 3 | Electric motor |
| 4 | Scroll |
| 5 | Autotransformer |
| 6 | Capacitor |
| 7 | Electric panel |
| 8 | Standard coil (2, 3 or 4 rows) |
| 9 | Additional coil |
| 10 | Condensate tray |
| 11 | Auxiliary drain pan (vertical) |
| 12 | Water discharge plastic pipe |
| 13 | Grilles |
| 14 | Housing |
| 15 | Filter |
| 16 | Set of feet |
| 17 | Fixing slots |

YLH/AF Model



LEGEND

- | | |
|-----------|----------------------------------|
| 1 | Internal structure |
| 2 | Fan deck |
| 3 | Electric motor |
| 4 | Scroll |
| 5 | Autotransformer |
| 6 | Capacitor |
| 7 | Electric panel |
| 8 | Standard coil (2, 3 or 4 rows) |
| 9 | Additional coil |
| 10 | Condensate tray |
| 11 | Auxiliary drain pan (horizontal) |
| 12 | Water discharge plastic pipe |
| 13 | Grilles |
| 14 | Housing |
| 15 | Filter |
| 16 | Air intake panel |
| 17 | Fixing screws |
| 18 | Back inner panel |
| 19 | Fixing slots |

Modello YLIH**LEGEND**

- | | |
|-----------|----------------------------------|
| 1 | Structure |
| 2 | Fan deck |
| 3 | Electric motor |
| 4 | Scroll |
| 5 | Autotransformer |
| 6 | Capacitor |
| 7 | Electric panel |
| 8 | Standard coil (2, 3 or 4 rows) |
| 9 | Additional coil |
| 10 | Condensate tray |
| 11 | Auxiliary drain pan (horizontal) |
| 12 | Water discharge plastic pipe |
| 13 | Filter |
| 14 | Fixing slots |
-

2. MODELS WITH CABINET

2.1 LASER Serie:

YLV – YLV/AF Models



Vertical units with upper air outlet and bottom (YLV) or frontal (YLV/AF) air intake, to be installed on the wall (YLV) or on the floor (both models, but with a set of feet in RAL 9003 for SV model).

- grilles can be adjusted in all 4 directions and are made of heat-resistant ABS
- models equipped with auxiliary drain pan
- 2 pipe systems: 2, 3 or 4 row coils; on 2 or 3 row coil units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil
- direct expansion system: 3 row direct expansion coil
- standard colour: white casing (RAL 9003), with white grilles and access doors (RAL 9016)



YLV Model

2.2 LASER Serie:

YLH – YLH/AF Models

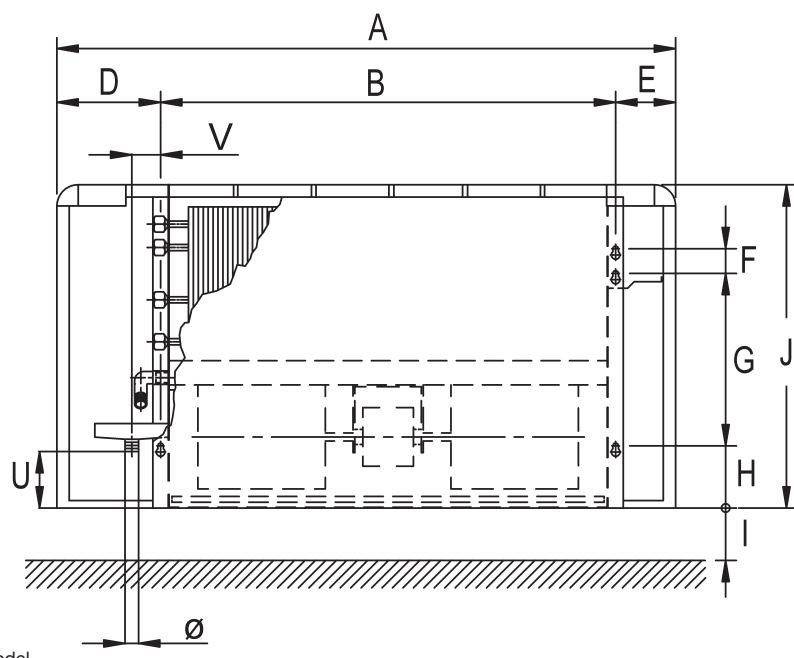


Horizontal units for ceiling installation with frontal air discharge and rear (YLH) or bottom (YLH/AF) air intake.

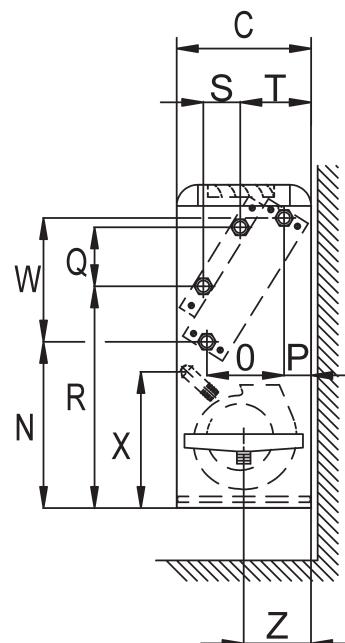
- grilles can be adjusted in all four directions and are made of heat-resistant ABS
- models equipped with auxiliary drain pan
- 2 pipe systems: 2, 3 or 4 row coils; in 2 or 3 row coil units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil
- direct expansion system: 3 row direct expansion coil
- standard colour: white casing (RAL 9003) with white grilles and access doors (RAL 9016)

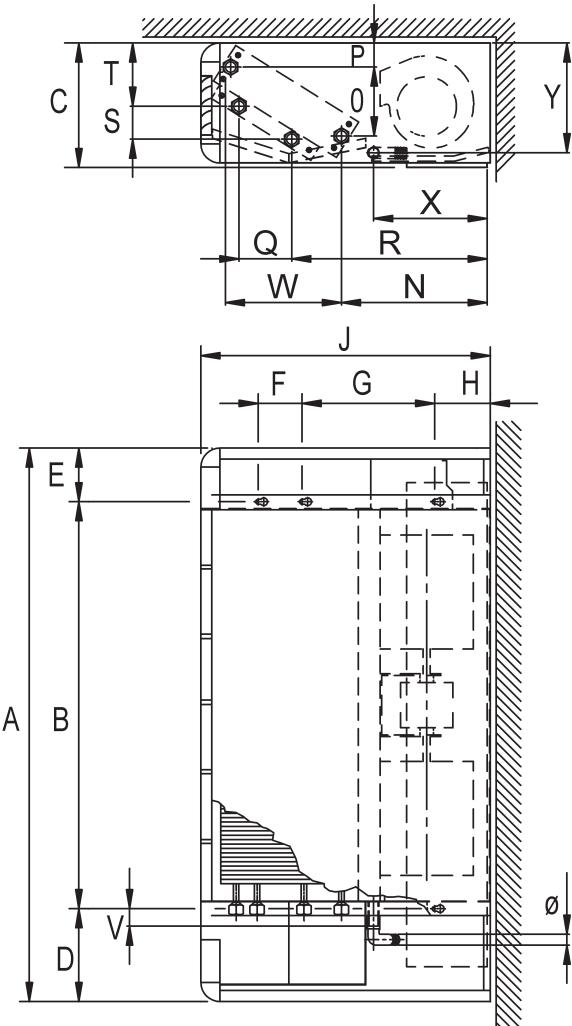


YLH Model



YLV Model





YLV/AF Model

YLV - YLH Dimensions and weights

| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|------|-----|-----|-----|------|------|------|------|------|------|------|
| A | 648 | 773 | 898 | 1023 | 1148 | 1273 | 1273 | 1523 | 1523 | 1773 |
| B | 374 | 499 | 624 | 749 | 874 | 999 | 999 | 1249 | 1249 | 1499 |
| C | 224 | 224 | 224 | 224 | 224 | 254 | 254 | 254 | 254 | 254 |
| D | 174 | 174 | 174 | 174 | 174 | 174 | 174 | 174 | 174 | 174 |
| E | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| F | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| G | 280 | 280 | 280 | 280 | 280 | 356 | 356 | 356 | 356 | 356 |
| H | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 |
| I | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| J | 538 | 538 | 538 | 538 | 538 | 614 | 614 | 614 | 614 | 614 |
| N | 266 | 266 | 266 | 266 | 266 | 299 | 299 | 299 | 299 | 299 |
| O | 113 | 113 | 113 | 113 | 113 | 138 | 138 | 138 | 138 | 138 |
| P | 48 | 48 | 48 | 48 | 48 | 53 | 53 | 53 | 53 | 53 |
| Q | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| R | 335 | 335 | 335 | 335 | 335 | 335 | 409 | 409 | 409 | 409 |
| S | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| T | 117 | 117 | 117 | 117 | 117 | 135 | 135 | 135 | 135 | 135 |
| U | 90 | 90 | 90 | 90 | 90 | 116 | 116 | 116 | 116 | 116 |
| V | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| W | 195 | 195 | 195 | 195 | 195 | 238 | 238 | 238 | 238 | 238 |
| X | 219 | 219 | 219 | 219 | 219 | 252 | 252 | 252 | 252 | 252 |
| Z | 109 | 109 | 109 | 109 | 109 | 122 | 122 | 122 | 122 | 122 |
| Ø | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| kg | 18 | 20 | 23 | 28 | 31 | 41 | 44 | 52 | 52 | 58 |

YLV/AF - YLH/AF Dimensions and weights

| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|------|-----|-----|-----|------|------|------|------|------|------|------|
| A | 648 | 773 | 898 | 1023 | 1148 | 1273 | 1273 | 1523 | 1523 | 1773 |
| B | 374 | 499 | 624 | 749 | 874 | 999 | 999 | 1249 | 1249 | 1499 |
| C | 233 | 233 | 233 | 233 | 233 | 263 | 263 | 263 | 263 | 263 |
| D | 174 | 174 | 174 | 174 | 174 | 174 | 174 | 174 | 174 | 174 |
| E | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| F | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| G | 280 | 280 | 280 | 280 | 280 | 356 | 356 | 356 | 356 | 356 |
| H | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 |
| J | 538 | 538 | 538 | 538 | 538 | 614 | 614 | 614 | 614 | 614 |
| N | 266 | 266 | 266 | 266 | 266 | 299 | 299 | 299 | 299 | 299 |
| O | 113 | 113 | 113 | 113 | 113 | 138 | 138 | 138 | 138 | 138 |
| P | 48 | 48 | 48 | 48 | 48 | 53 | 53 | 53 | 53 | 53 |
| Q | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| R | 335 | 335 | 335 | 335 | 335 | 335 | 409 | 409 | 409 | 409 |
| S | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| T | 117 | 117 | 117 | 117 | 117 | 135 | 135 | 135 | 135 | 135 |
| V | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| W | 195 | 195 | 195 | 195 | 195 | 238 | 238 | 238 | 238 | 238 |
| X | 219 | 219 | 219 | 219 | 219 | 252 | 252 | 252 | 252 | 252 |
| Y | 205 | 205 | 205 | 205 | 205 | 235 | 235 | 235 | 235 | 235 |
| Ø | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| kg | 19 | 21 | 24 | 30 | 32 | 43 | 46 | 54 | 54 | 61 |



Please refer to EURAPO official website (www.eurapo.it) or to the Eurovent-Certification website (www.eurovent-certification.com) for updated values.

2.5 LOW BODY Serie: YLVR Model

Vertical unit in a reduced height (430 mm) with upper air outlet and frontal air intake, to be installed on the floor.

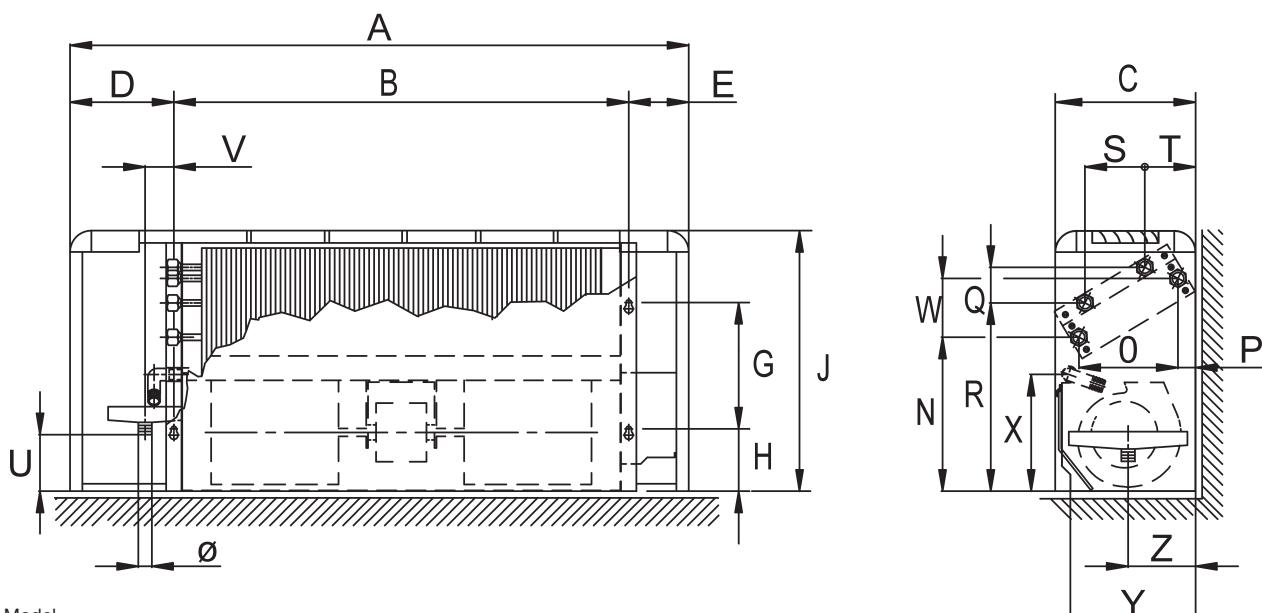
- grilles can be adjusted in all four directions and are made of heat-resistant ABS
- model equipped with auxiliary drain pan
- 2 pipe systems: 2 or 3 row coils
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil
- standard colour: white casing (RAL 9003) with white grilles and access doors (RAL 9016)



YLVR Model

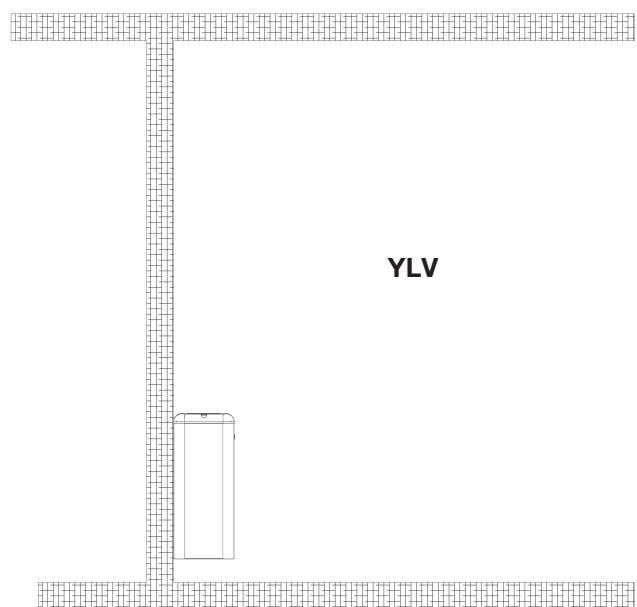
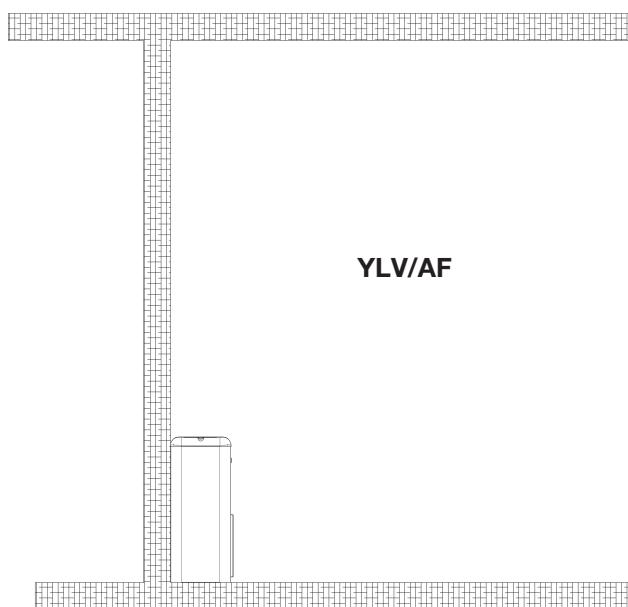
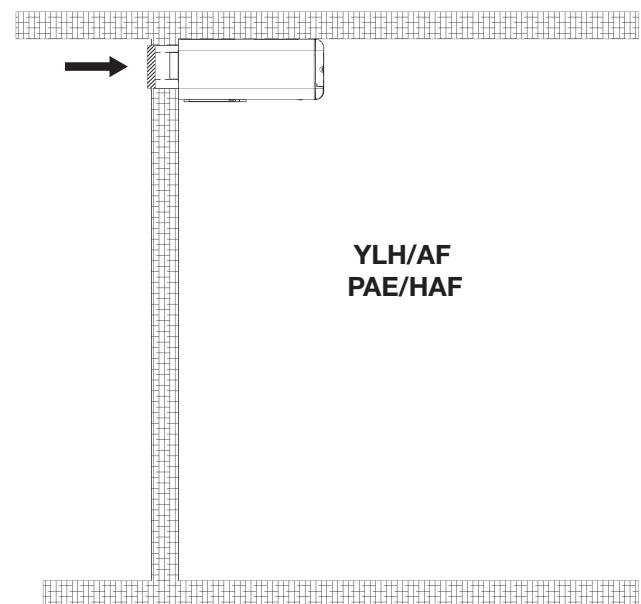
YLVR Dimensions and weights

| Size | 110 | 112 | 114 | 216 | 218 |
|------|-----|-----|-----|------|------|
| A | 648 | 773 | 898 | 1023 | 1148 |
| B | 374 | 499 | 624 | 749 | 874 |
| C | 254 | 254 | 254 | 254 | 254 |
| D | 174 | 174 | 174 | 174 | 174 |
| E | 100 | 100 | 100 | 100 | 100 |
| G | 170 | 170 | 170 | 170 | 170 |
| H | 101 | 101 | 101 | 101 | 101 |
| J | 430 | 430 | 430 | 430 | 430 |
| N | 245 | 245 | 245 | 245 | 245 |
| O | 154 | 154 | 154 | 154 | 154 |
| P | 31 | 31 | 31 | 31 | 31 |
| Q | 47 | 47 | 47 | 47 | 47 |
| R | 304 | 304 | 304 | 304 | 304 |
| S | 88 | 88 | 88 | 88 | 88 |
| T | 87 | 87 | 87 | 87 | 87 |
| U | 65 | 65 | 65 | 65 | 65 |
| V | 47 | 47 | 47 | 47 | 47 |
| W | 84 | 84 | 84 | 84 | 84 |
| X | 214 | 214 | 214 | 214 | 214 |
| Z | 109 | 109 | 109 | 109 | 109 |
| Ø | 20 | 20 | 20 | 20 | 20 |
| kg | 15 | 17 | 22 | 23 | 26 |



YLVR Model

APPENDIX 1
SUGGESTED INSTALLATION



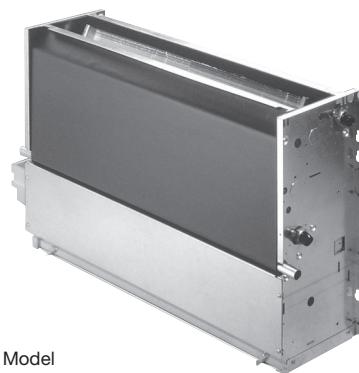
3. MODELS WITHOUT CABINET

3.1 CONCEALED Serie: YLIV - YLIV/AF Models



Vertical units for concealed installation with upper air outlet and bottom (YLIV) or frontal (YLIV/AF) air intake.

- models equipped with auxiliary drain pan
- 2 pipe systems: 2, 3 or 4 row coils; in all units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil; in 4 row coil units, the additional 1 row coil is fitted on the air outlet connection
- direct expansion system: 3 row direct expansion coil



YLIV Model

3.2 CONCEALED Serie: YLIH - YLIH/AF Models



Horizontal units for concealed installation, with frontal air outlet and rear (YLIH) or bottom (YLIH/AF) air intake.

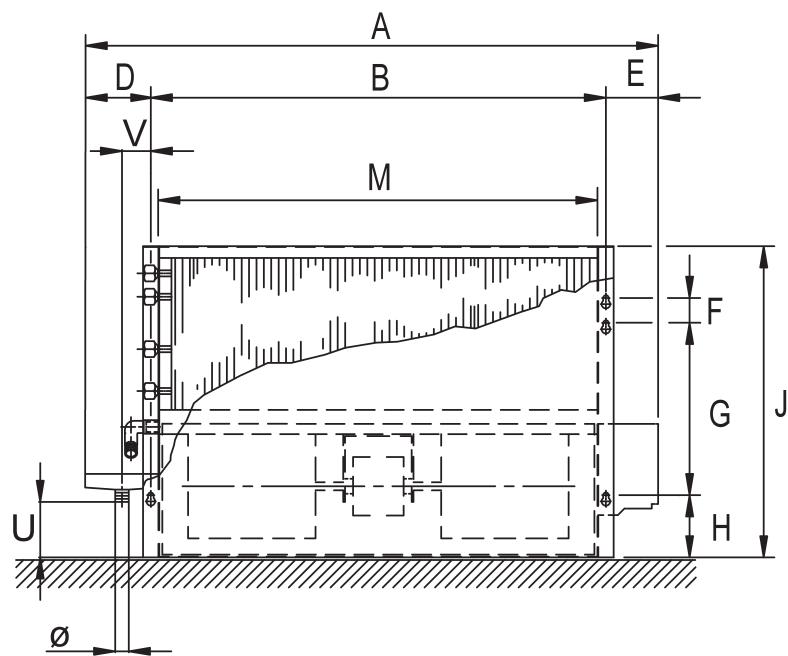
- models equipped with auxiliary drain pan
- 2 pipe systems: 2, 3 or 4 row coils; in all units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil; in 4 row coil units, the additional 1 row coil is fitted on the air outlet connection
- direct expansion system: 3 row direct expansion coil



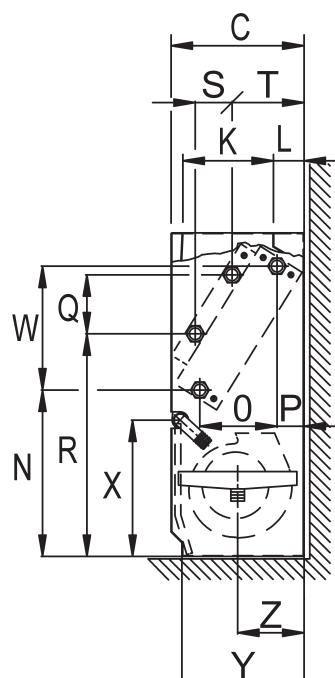
YLIH/AF Model

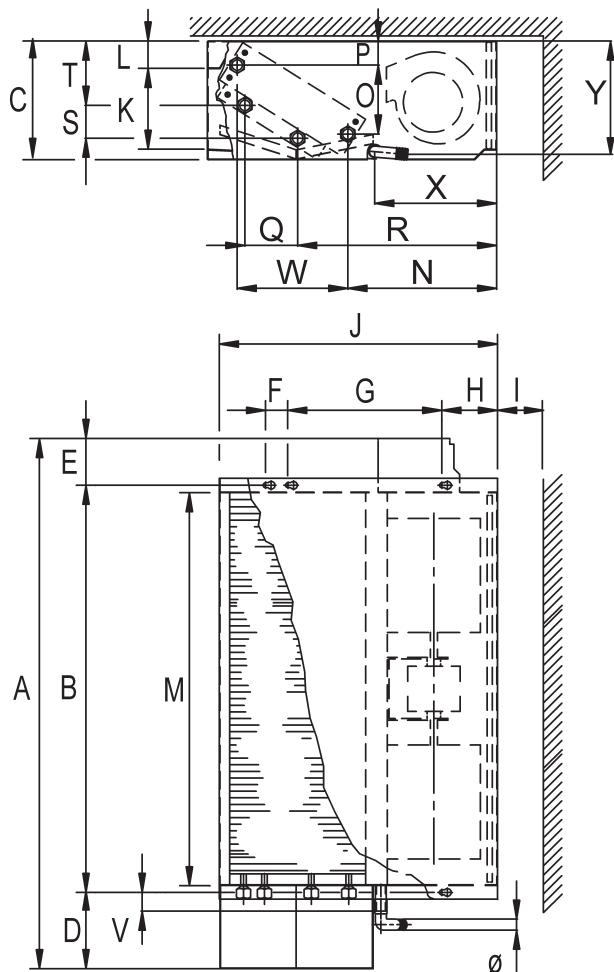


Please refer to EURAPO official website (www.eurapo.it) or to the Eurovent-Certification website (www.eurovent-certification.com) for updated values.



YLIV/AF Model





YLIV - YLIH Dimensions and weights

| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|------|-----|-----|-----|-----|------|------|------|------|------|------|
| A | 574 | 699 | 824 | 949 | 1074 | 1199 | 1199 | 1449 | 1449 | 1699 |
| B | 374 | 499 | 624 | 749 | 874 | 999 | 999 | 1249 | 1249 | 1499 |
| C | 215 | 215 | 215 | 215 | 215 | 245 | 245 | 245 | 245 | 245 |
| D | 128 | 128 | 128 | 128 | 128 | 128 | 128 | 128 | 128 | 128 |
| E | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| F | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| G | 280 | 280 | 280 | 280 | 280 | 356 | 356 | 356 | 356 | 356 |
| H | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 |
| I | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| J | 505 | 505 | 505 | 505 | 505 | 581 | 581 | 581 | 581 | 581 |
| K | 110 | 110 | 110 | 110 | 110 | 125 | 125 | 125 | 125 | 125 |
| L | 55 | 55 | 55 | 55 | 55 | 60 | 60 | 60 | 60 | 60 |
| M | 349 | 474 | 599 | 724 | 849 | 974 | 974 | 1224 | 1224 | 1474 |
| N | 266 | 266 | 266 | 266 | 266 | 299 | 299 | 299 | 299 | 299 |
| O | 113 | 113 | 113 | 113 | 113 | 138 | 138 | 138 | 138 | 138 |
| P | 48 | 48 | 48 | 48 | 48 | 53 | 53 | 53 | 53 | 53 |
| Q | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| R | 355 | 355 | 355 | 355 | 355 | 409 | 409 | 409 | 409 | 409 |
| S | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| T | 117 | 117 | 117 | 117 | 117 | 135 | 135 | 135 | 135 | 135 |
| V | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| W | 195 | 195 | 195 | 195 | 195 | 238 | 238 | 238 | 238 | 238 |
| X | 219 | 219 | 219 | 219 | 219 | 252 | 252 | 252 | 252 | 252 |
| Y | 205 | 205 | 205 | 205 | 205 | 235 | 235 | 235 | 235 | 235 |
| Ø | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| kg | 10 | 13 | 16 | 19 | 22 | 29 | 31 | 38 | 38 | 42 |

YLIH Model

YLIV/AF - YLIH/AF Dimensions and weights

| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|------|-----|-----|-----|-----|------|------|------|------|------|------|
| A | 555 | 680 | 805 | 930 | 1055 | 1180 | 1180 | 1430 | 1430 | 1680 |
| B | 374 | 499 | 624 | 749 | 874 | 999 | 999 | 1249 | 1249 | 1499 |
| C | 215 | 215 | 215 | 215 | 215 | 245 | 245 | 245 | 245 | 245 |
| D | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 |
| E | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| F | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| G | 280 | 280 | 280 | 280 | 280 | 356 | 356 | 356 | 356 | 356 |
| H | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 |
| J | 505 | 505 | 505 | 505 | 505 | 581 | 581 | 581 | 581 | 581 |
| K | 110 | 110 | 110 | 110 | 110 | 125 | 125 | 125 | 125 | 125 |
| L | 55 | 55 | 55 | 55 | 55 | 60 | 60 | 60 | 60 | 60 |
| M | 349 | 474 | 599 | 724 | 849 | 974 | 974 | 1224 | 1224 | 1474 |
| N | 266 | 266 | 266 | 266 | 266 | 299 | 299 | 299 | 299 | 299 |
| O | 113 | 113 | 113 | 113 | 113 | 138 | 138 | 138 | 138 | 138 |
| P | 48 | 48 | 48 | 48 | 48 | 53 | 53 | 53 | 53 | 53 |
| Q | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 |
| R | 355 | 355 | 355 | 355 | 355 | 409 | 409 | 409 | 409 | 409 |
| S | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| T | 117 | 117 | 117 | 117 | 117 | 135 | 135 | 135 | 135 | 135 |
| U | 90 | 90 | 90 | 90 | 90 | 116 | 116 | 116 | 116 | 116 |
| V | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| W | 195 | 195 | 195 | 195 | 195 | 238 | 238 | 238 | 238 | 238 |
| X | 219 | 219 | 219 | 219 | 219 | 252 | 252 | 252 | 252 | 252 |
| Y | 200 | 200 | 200 | 200 | 200 | 230 | 230 | 230 | 230 | 230 |
| Z | 109 | 109 | 109 | 109 | 109 | 122 | 122 | 122 | 122 | 122 |
| Ø | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| kg | 10 | 13 | 16 | 19 | 22 | 29 | 31 | 38 | 38 | 42 |

3.3 LOW BODY Serie: YLIVR Model

Vertical unit in a reduced height (395 mm) for concealed installation, with upper air outlet and frontal air intake.

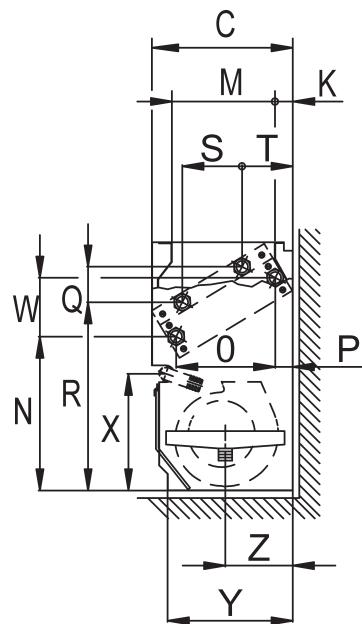
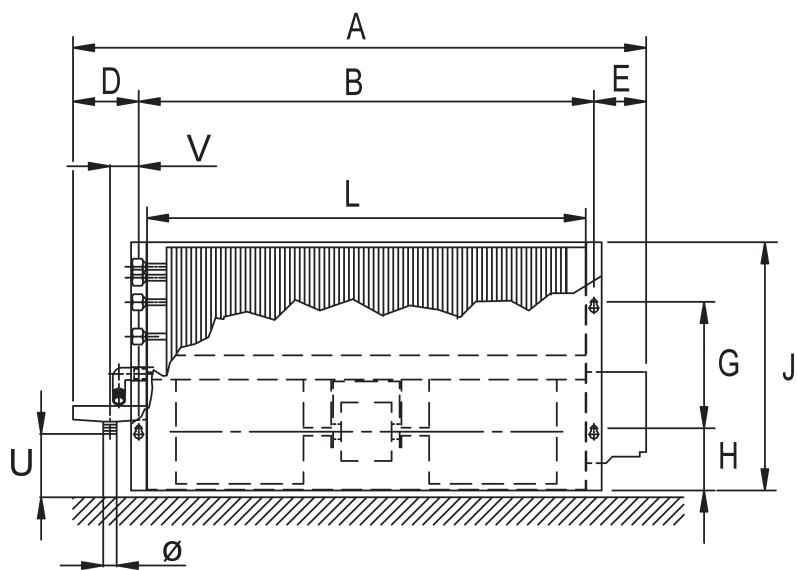
- model equipped with auxiliary drain pan
- 2 pipe systems: 2 or 3 row coils
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil



YLIVR Model

YLIVR Dimensions and weights

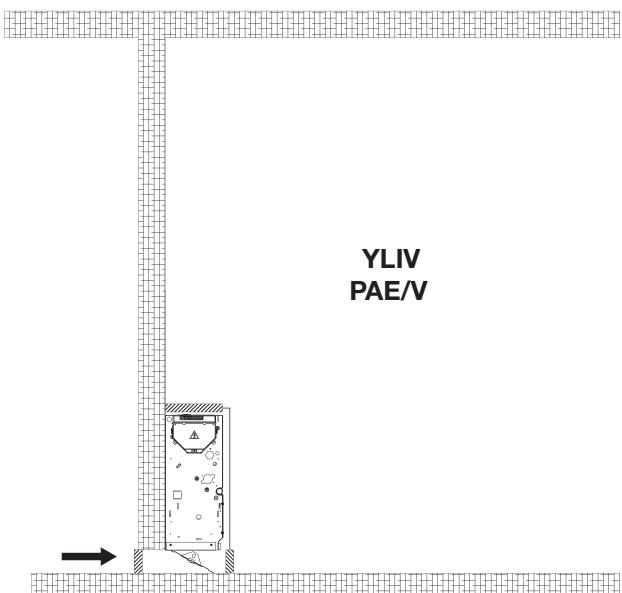
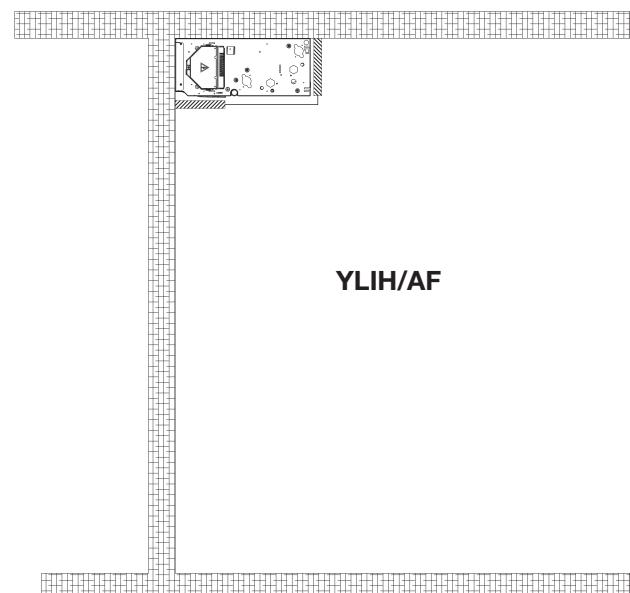
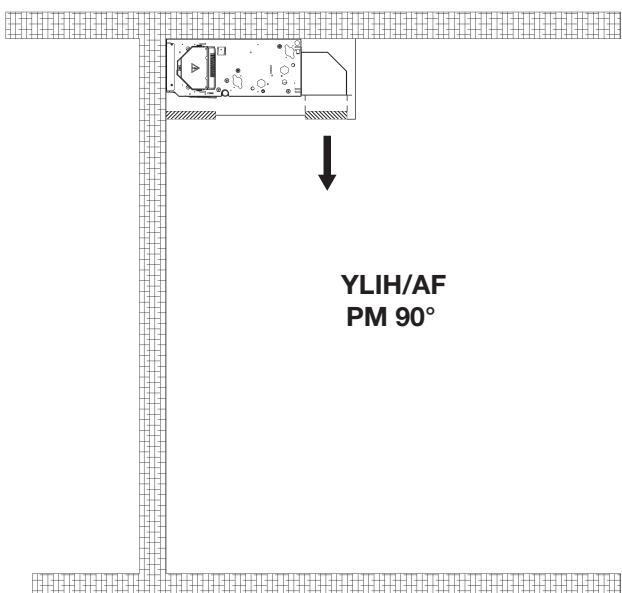
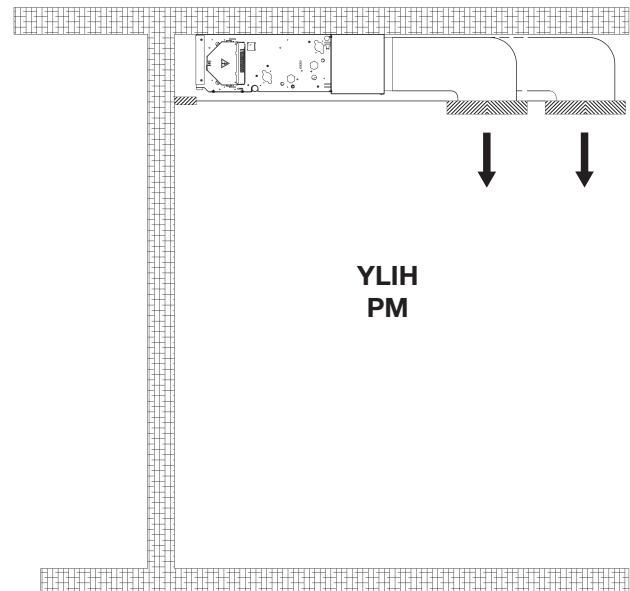
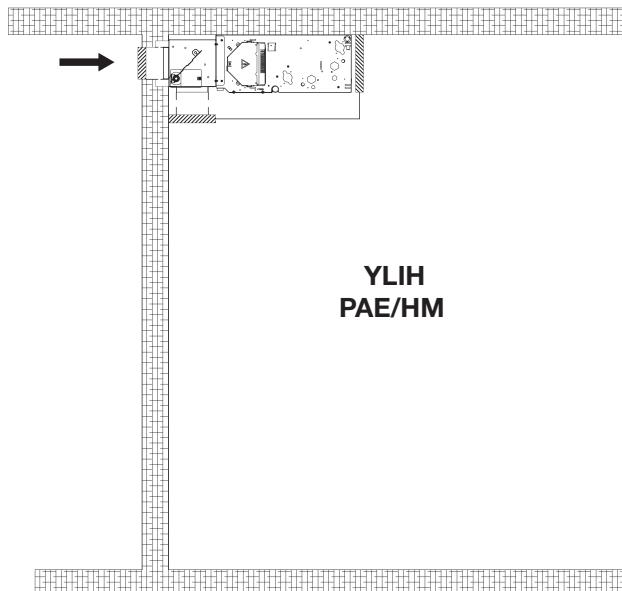
| Size | 110 | 112 | 114 | 216 | 218 |
|-----------|-----|-----|-----|-----|------|
| A | 555 | 680 | 805 | 930 | 1055 |
| B | 374 | 499 | 624 | 749 | 874 |
| C | 230 | 230 | 230 | 230 | 230 |
| D | 108 | 108 | 108 | 108 | 108 |
| E | 73 | 73 | 73 | 73 | 73 |
| G | 170 | 170 | 170 | 170 | 170 |
| H | 101 | 101 | 101 | 101 | 101 |
| J | 395 | 395 | 395 | 395 | 395 |
| K | 61 | 61 | 61 | 61 | 61 |
| L | 349 | 474 | 599 | 724 | 849 |
| M | 127 | 127 | 127 | 127 | 127 |
| N | 245 | 245 | 245 | 245 | 245 |
| O | 154 | 154 | 154 | 154 | 154 |
| P | 31 | 31 | 31 | 31 | 31 |
| Q | 47 | 47 | 47 | 47 | 47 |
| R | 304 | 304 | 304 | 304 | 304 |
| S | 88 | 88 | 88 | 88 | 88 |
| T | 87 | 87 | 87 | 87 | 87 |
| U | 65 | 65 | 65 | 65 | 65 |
| V | 47 | 47 | 47 | 47 | 47 |
| W | 84 | 84 | 84 | 84 | 84 |
| X | 214 | 214 | 214 | 214 | 214 |
| Y | 201 | 201 | 201 | 201 | 201 |
| Z | 109 | 109 | 109 | 109 | 109 |
| Ø | 20 | 20 | 20 | 20 | 20 |
| kg | 9 | 11 | 14 | 16 | 19 |



YLIVR Model

APPENDIX 2

SUGGESTED INSTALLATION



4. COMPONENTS

4.1 Inner frame

The inner frame consists of 2 sides welded to a back panel and of a movable element (condensate tray). It is made of galvanised steel: 8/10 mm thick for models up to size 218, 10/10 mm thick starting from size 220.

The sides have a special structure near the coil connections in order to avoid the headers' deformation while connecting the unit to the system (anti-torsion structure).

All the inner elements are completely lined with thermal insulation material.

The insulated condensate tray can be taken apart independently of the other components and it is perfectly effective both in vertical and in horizontal position.

The condensed water is discharged from the side (left or right, by choice), through a 20 mm external diameter header.

4.2 Coils

The coils consist of aluminium fin packs and mechanically expanded copper tubes.

Operating pressure 8 bar, testing pressure 30 bar.

Standard water connections are on the right side of the unit, facing the air outlet; however the coils can be easily removed and reversed on site. Each header is provided with a very handy air valve, to allow air venting or water drainage from the coil. All water connections are 1/2" G (female threaded).

| Sizes 110÷228 | | | | | |
|------------------------|---------------|---------------|-----------------|-----------------|---------------|
| Type of coil | YLV YLV/AF | YLH YLH/AF | YLIV YLIV/AF | YLIH YLIH/AF | YLVR YLIVR |
| B2 (2 rows) | • | • | • | • | • |
| B3 (3 rows) | • | • | • | • | • |
| B4 (4 rows) | • | • | • | • | |
| B2 + BA1 (*) | • | • | • | • | • |
| B3 + BA1 (*) | • | • | • | • | • |
| B4 + BA41 (**) | | | • | • | |
| BE3 (direct expansion) | • | • | • | • | |
| BE3 + BA1 (*) | • | • | • | • | |

(*) BA1: additional 1 row coil for 4 pipe systems; the coil (for heating only) is placed inside the inner frame, in addition to 2 or 3 row coils.

(**) BA41: additional 1 row coil for 4 pipe systems; the coil (for heating only) is placed outside the frame, fixed on the air outlet.

4.3 Fan deck

The centrifugal motor, single- or double-shaft, is single phase with permanently connected capacitor and thermal protection of the windings; protection grade IP 41.

It is provided with 6 speeds (by using a transformer), 3 of them factory wired as standard.

If an electric shock occurs to the unit, the autotransformer is also a protection for the motor: in this case it will burn before the shock damages the motor.

The motor and the scrolls are fixed on a galvanized steel basement (12/10 mm thick for models 110÷218 and 15/10 mm thick from size 220÷228): the motor is located in a proper cradle and fixed with elastic ribbon supports. On request, motor for sizes 222÷228 are also available with ball bearings.

Each fan assembly is dynamically balanced, to reduce noise and wear of the components to minimum levels; it can easily be removed, independently of the inner frame, by taking off two fixing screws.

It consists of a centrifugal fan, one (110÷114 sizes) or two (216÷228 sizes) aluminium impellers, directly splined to the motor shaft, and of galvanized steel scrolls.

4.6 Housing

The housing (see. Fig. YLV, point 14) is manufactured with sheet steel painted with oven dried epoxy powders; its thickness is 8/10 mm for 110÷218 sizes and 10/10 mm for 220÷228 sizes. The standard colour is white (RAL 9003).

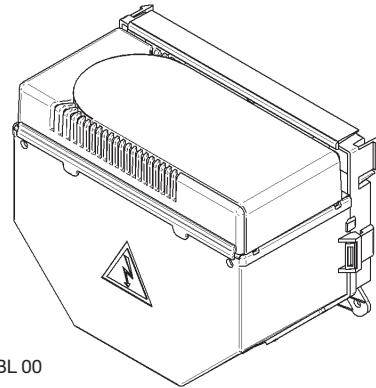
It is fixed to the inner frame with screws and also with retainers. In models having frontal air intake (AF), the panel covering the filter is fixed with a 1/4 turn screw system and can be taken off by using a screwdriver.

The standard grilles are movable and can be turned into all 4 directions without any tool. They are made of heat-resistant ABS (see Fig. YLV, point 13). At each side of the grilles, two doors in ABS give access to the control panel and to the water connections respectively. Both grilles and access doors are white (RAL 9016).

4.4 Electrical components and controls

The electric panel (CBL00) consists of a self-extinguishing plastic box (class V0), which contains a 12 pole terminal board. The plastic box is fixed on the left side (as standard) of the inner frame, and it can easily be pulled out and shifted from the left to the right side when the water connections are reversed.

Every unit is provided with an electric wiring diagram, always showing all the controls (both built-in and remote) and electric accessories eventually mounted on the unit. Everything must be correctly wired in accordance to the diagram, to obtain the requested working conditions of the unit.



4.5 Air filter

The air filter consists of a metal frame and two wide mesh nets enclosing the filter element. (see. Fig. YLV, point 15).

The filter is placed on the bottom part of the unit (except for AF units) and it can be easily removed by releasing its fixing; it can be cleaned by washing with soap and water and drying in open-air.

AF models have a shaped filter located behind the air inlet panel and suspended by splines (see Fig. YLH/AF, point 15).

On request, the full range of RAL colours is available for each model with a slightly increased delivery time.

5. ELECTRICAL ACCESSORIES

5.1 Electric box CBL10

Self-extinguishing plastic box (class V0), which contains a 12 pole terminal board and a double insulated transformer (230/24 Vac 10 VA), for the electrical connection of the modulating valves. It is supplied as standard when the regulators CER10 and CER30 are requested (see §5.8).

5.2 Electric box CBL20

Self-extinguishing plastic box (class V0), which contains a 12 pole terminal board and a power relay card (230 Vac): this card is requested either when an electric heater is mounted on the fancoil unit or to control the fan speeds in Master/Slave configuration.

It can be combined with the following regulators: CMR00, CMR10, CER00 and CER20 (see §5.7 and §5.8).

5.3 Electric box CBL30

Self-extinguishing plastic box (class V0), which contains a 12 pole terminal board, a double insulated transformer (230/24 Vac 10 VA) for the electrical connection of the modulating valves and/or 24 Vac controls, a power relay card (24 Vac), which is requested to control the fan speeds in Master/Slave configuration.

It can be combined with the following regulators: CER10, CER30, CER00 (with power supply 24V) and CER20 (with power supply 24V).

5.4 Electric heater KREL

Electric heater supplied with 2 safety thermostats, one with automatic resetting and the other one with manual resetting (in accordance with 73/23 CEE and EMC 89/336 CEE Directives), and a power relay card (CBL20).

Table A

| Sizes 110÷228 | | | | | | |
|---------------|---------------|---------------|---------------|-----------------|---------------|---------------|
| Model | YLV YLV/AF | YLH YLH/AF | YLV YLV/AF | YLIH YLIH/AF | YLV YLV/AF | YLV YLV/AF |
| Type of coil | B2 | • | • | • | • | • |
| | B3 | • | • | • | • | |
| | B4 | | | • | • | |
| | BE3 | • | • | • | • | |

The table A shows the availability of the electric heater for the different models, in relation to the coil mounted on the unit.

The table B shows the power of the electric heater for each unit size. An electric heater with a lower power rating than shown can always be installed.

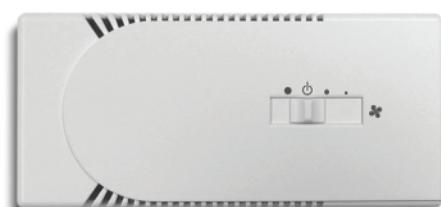
Table B

| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|
| Power kW | 0,5 | 1,0 | 1,5 | 2,0 | 2,25 | 2,5 | 2,5 | 3,0 | 3,0 | 3,5 |

5.5 Fan speed selectors CSL, CSR

These selectors have no room thermostat and can control the 3 fan speeds only. CSL40 and CSR40 models are provided with a weekly timer in order to set the fancoil operating time.

The speed selectors do not control any valve: a remote thermostat (TAD10) is requested in order to control the ON/OFF valves, eventually.



CSR00

For more information please refer to the technical manual for YORK controllers.

| SPEED SELECTORS | | Built-in | | | | Remote | |
|--|--|----------|-------|-------|-------|--------|-------|
| Functions | | CSL00 | CSL20 | CSL30 | CSL40 | CSR00 | CSR40 |
| Manual fan speed selector + OFF position | | • | | | | • | |
| Ventilation mode (Thermostated – OFF – Continuous) | | | • | • | • | | • |
| Manual speed selector | | • | • | • | • | • | • |
| Manual S/W switch | | | • | | • | | • |
| External (centralized) S/W switch | | | | • | | | |
| Digital Timer for daily/weekly program | | | | | • | | • |

| | | Built-in | | | | Remote | |
|--|-----------|----------|-------|-------|-------|--------|-------|
| Compatibility | Ref. YORK | CSL00 | CSL20 | CSL30 | CSL40 | CSR00 | CSR40 |
| 2 pipe system only | | • | | | | • | |
| 2/4 pipe system | | | • | • | • | | • |
| ON/OFF 230V cooling and heating valve, 2/4 pipe system | J3A2 | | • | • | • | | • |
| Minimum water temp. thermostat | TM | • | • | • | • | • | • |
| Remote room thermostat | TAD10 | • | • | • | • | • | • |
| Electric heater (in alternative to the heating valve) | KREL | | • | • | • | | • |

5.6 Room temperature thermostat TAD10

Room temperature thermostat for wall installation with manual selection of the working mode (Summer/Winter changeover) and set point regulation of the room temperature.

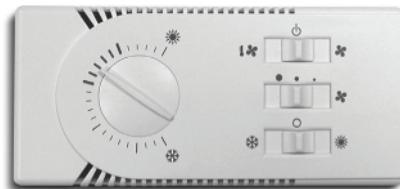


TAD10

For more information please refer to the technical manual for YORK controllers.

5.7 Thermostats CML, CMR

Room temperature thermostats with fan speed selector. The comfort temperature zone (20-25°C) is marked around the knob. It is also possible to limit the temperature setting range.



CMR00

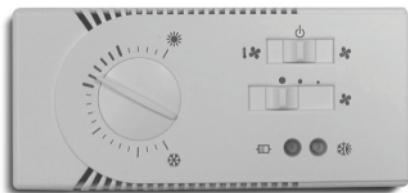
For more information please refer to the technical manual for YORK controllers.

| THERMOSTATS | | Built-in | | | | Remote | |
|--|--|----------|-------|-------|-------|--------|---|
| Functions | | CML00 | CML10 | CMR00 | CMR10 | | |
| Ventilation mode (Thermostated – OFF – Continuous) | | • | • | • | • | | • |
| Manual speed selector | | • | • | • | • | | • |
| Manual S/W switch | | • | | • | | | |
| External (centralized) S/W switch | | | • | | • | | |
| Temperature thermostat | | • | • | • | • | | • |
| Temperature setting range limitation | | • | • | • | • | | • |

| | | Built-in | | | | Remote | |
|--|-----------|----------|-------|-------|-------|--------|---|
| Compatibility | Ref. YORK | CML00 | CML10 | CMR00 | CMR10 | | |
| 2/4 pipe system | | • | • | • | • | | • |
| ON/OFF 230V cooling and heating valve, 2/4 pipe system | J3A2 | • | • | • | • | | • |
| Minimum water temp. thermostat | TM | • | • | • | • | | • |

5.8 Electronic regulators CEL, CER

The YORK electronic controllers with microprocessor offer a wide range of functions for the fancoil regulation; they are provided with the comfort temperature zone (20-25°C) and with the opportunity to limit the temperature setting range.



CER00

For more information please refer to the technical manual for YORK controllers.

| ELECTRONIC REGULATORS | Built-in | | | | Remote | | | |
|--|----------|-------|-------|-------|--------|-------|-------|-------|
| | CEL00 | CEL10 | CEL20 | CEL30 | CER00 | CER10 | CER20 | CER30 |
| Functions | | | | | | | | |
| Ventilation mode (Thermostated – OFF – Continuous) | • | • | • | • | • | • | • | • |
| Manual speed selector | • | • | • | • | • | • | • | • |
| Automatic speed selection | | | • | • | | | • | • |
| Automatic or external (centralized) S/W changeover | • | • | • | • | • | • | • | • |
| Electronic temperature thermostat | • | • | • | • | • | • | • | • |
| Temperature setting range limitation | • | • | • | • | • | • | • | • |
| De-stratification function | • | • | • | • | • | • | • | • |
| Economy/occupancy function | • | • | • | • | • | • | • | • |
| Window contact | • | • | • | • | • | • | • | • |
| Frost protection (only with heating valve) | • | • | • | • | • | • | • | • |
| Operating mode LED (Summer – Winter) | • | • | • | • | • | • | • | • |
| Dirty filter alarm LED | • | • | • | • | • | • | • | • |

| Compatibility | Ref. YORK | Built-in | | | | Remote | | | |
|--|--------------|----------|-------|-------|-------|--------|-------|-------|-------|
| | | CEL00 | CEL10 | CEL20 | CEL30 | CER00 | CER10 | CER20 | CER30 |
| 2/4 pipe system | | • | • | • | • | • | • | • | • |
| ON/OFF 230V cooling and heating valve, 2/4 pipe system | J3A2 | • | | • | | • | | • | |
| Modulating 24V cooling and heating valve, 2/4 pipe system | J3AM | | • | | • | | • | | • |
| Minimum water temp. thermostat | TM | • | • | • | • | • | • | • | • |
| NTC sensor for automatic S/W changeover (2 pipe system only) | WS | • | • | • | • | • | • | • | • |
| Electric heater (in alternative to the heating valve) | KREL | • | | • | | • | | • | |

5.9 Digital control

The YORK digital control system permits a complete and integrated management of several fancoil units installed in the same building. It is designed either for a stand-alone operation mode, or to be integrated, at different levels, to a centralized

Building Automation System, with a local or open communication protocol (Local Bus or Open Bus). The digital regulator can control many fancoils at the same time, which are connected together by a digital line.

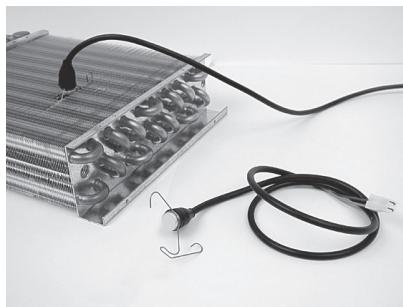
For more details please refer to the technical manual for YORK digital regulators.

5.10 TM – Minimum water temperature thermostat TM

Bimetallic thermostat with fixed set point, to be used in heating only. It is factory mounted or, upon request, supplied separately as a kit.

Functions:

- during heating operation, it prevents the fan from starting if the coil temperature has not reached the set point temperature



Technical features:

- installation position: clipped to the coil fins
- set point temperature: $42\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$
- differential: $10\text{ }^{\circ}\text{C}$
- rating of contacts: 5 A - 250 Vac

5.11 Water sensor WS

3m length NTC sensor (10K, 25°C), requested when a fancoil unit is controlled by a regulator with microprocessor, in a 2 pipe system, for both heating and cooling operation.

The Summer/Winter changeover works with the following procedures:

- WS combined with CER00, CER20, CEL00, CEL20
Summer: water temperature $< 17\text{ }^{\circ}\text{C}$ = cooling on;
water temperature $> 19\text{ }^{\circ}\text{C}$ = cooling off
Winter: water temperature $> 32\text{ }^{\circ}\text{C}$ = valve open;
water temperature $< 30\text{ }^{\circ}\text{C}$ = valve close
water temperature $> 35\text{ }^{\circ}\text{C}$ = fan on;
water temperature $< 33\text{ }^{\circ}\text{C}$ = fan off
- WS combined with CER10, CER30, CEL10, CEL30
Summer: water temperature $< 11\text{ }^{\circ}\text{C} \pm 1\text{ K}$ = cooling on;
water temperature $> 14\text{ }^{\circ}\text{C} \pm 1\text{ K}$ = cooling off
Winter: water temperature $> 40\text{ }^{\circ}\text{C} \pm 1\text{ K}$ = cooling on;
water temperature $< 30\text{ }^{\circ}\text{C} \pm 1\text{ K}$ = cooling off

The water sensor is not suitable when 2 way valves are mounted on the unit (i.e.: J2A2 or J2AM).

5.12 Air sensor AS

1m length NTC sensor (10K, 25°C), to be installed on the fancoil unit's air intake.

It is supplied as standard with the following regulators: CML00, CEL00, CEL20 and CEL30.

It is optional, on request, with the following regulators: CMR00, CER00, CER20 and CER30.

5.13 AFT – Thermostat AFT

5.13.1 Anti-frost function

When combined with a motorized dumper (either PAE/VM or PAE/HM), the anti-frost thermostat closes the dumper if the air temperature is below the set point (i.e. $0\text{ }^{\circ}\text{C}$), avoiding any damage to the coil caused by the frozen water inside it.

5.13.2 Additional function when used in combination with an electric heater and a regulator with microprocessor.

When the electronic regulator switches in heating operation, immediately it turns the electric heater on until the coil's temperature reaches the value set on the AFT thermostat (i.e. $40\text{ }^{\circ}\text{C}$).

When the heat exchanger is warm enough, the electric heater is deactivated and the unit will work with the water coil.

Technical features:

- operating range: $0\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C} / 40\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$
- differential: $2\text{ }^{\circ}\text{C} \pm 1\text{ K}$
- rating of contacts: 15 (2.5) A/250V

5.14 Condensate pump PC

The condensate pump is necessary when the traditional water discharge is not allowed.

Functions:

- forced evacuation of the condensed water

Technical features:

- max water flow: 8 l/h
- max water discharge: 6 m head
- max suction: 1 m
- power supply: 230V 50 Hz
- power: 18 W
- alarm output: NC 8 A resistive
- thermal protection: (overheating) $90\text{ }^{\circ}\text{C}$
- sound level: $\leq 28\text{ dB(A)}$ at 1 m

6. REGULATING VALVES

6.1 On/Off valves: 3-way with 4 water connections (J3A2) or 2-way (J2A2), 1/2", 230V, for 2 or 4 pipe systems

The On/Off 3-way regulating valves with bypass and 2-way regulating valves are provided with thermoelectric actuator and connection tubes. The direct water flow is closed by not supplying power to the actuator.

They are suitable for fan coils size 110÷228 and available also with 24V.

6.2 Modulating valves: 3-way with 4 water connections (J3AM) or 2-way (J2AM), 1/2", 24V, for 2 or 4 pipe systems

The modulating 3-way regulating valves with bypass and 2-way regulating valves are provided with thermoelectric actuator and connection tubes. The direct water flow is closed by not supplying power to the actuator.

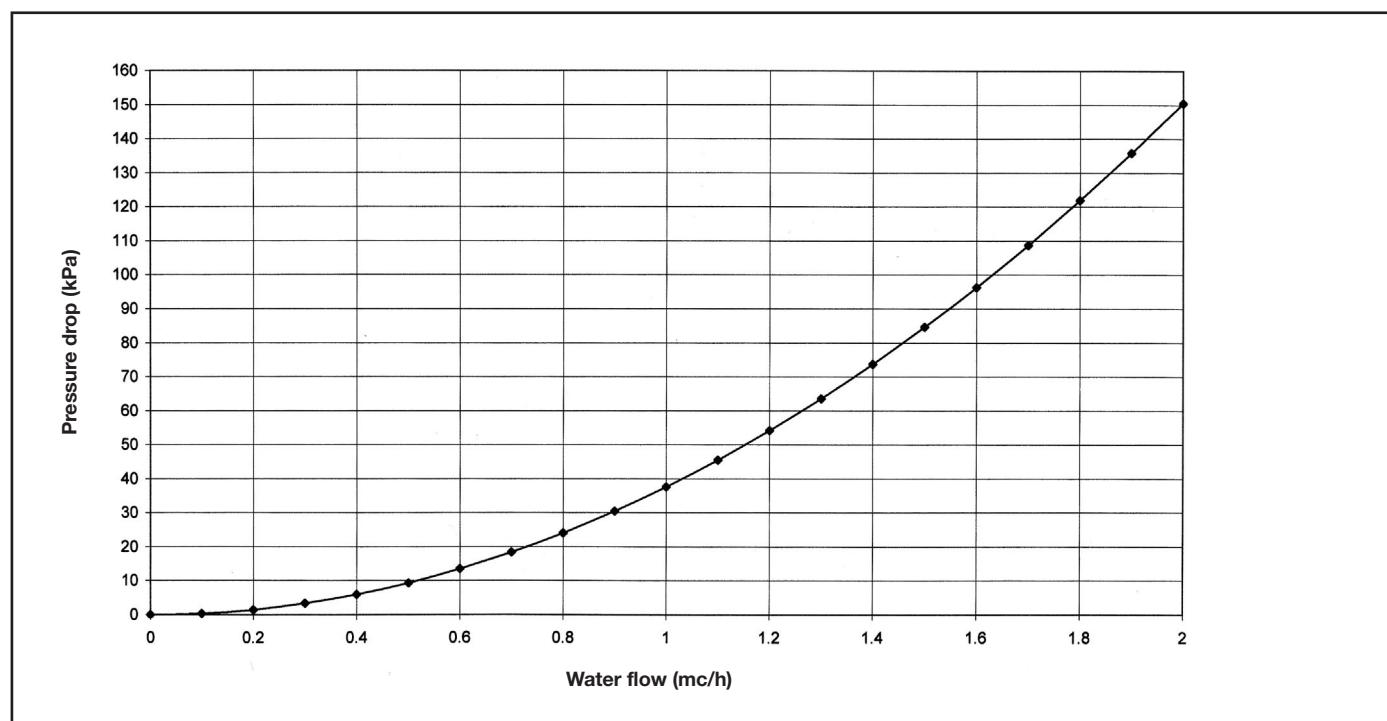
They are suitable for fan coils size 110÷228.

6.3 Floating valves H3AF: 3-way 3 positions with 4 water connections, 1/2", 24V, for 2 or 4 pipe systems

The 3-way 3 positions floating valves with 4 water connections and bypass are provided with electric actuator, floating control and connection tubes. The actuator is compatible with an external controller which opens or closes the valve by feeding the terminals of the actuator. To solder the valves to the piping system, they are equipped with copper elbows (external diam. 14 mm) and flat sealing washers. The direct water flow is closed by not supplying power to the actuator.

They are suitable for fan coils size 110÷228.

Pressure drop diagram for valves having kvs value 1,63.



Pressure drops diagram referred to the body valve only (J3A2, J3AM).

BODY VALVES' TECHNICAL FEATURES

| | J3A2 – J2A2 – J3AM – J2AM | H3AF |
|----------------------------|---------------------------|-------------------|
| Nominal pressure | PN16 | PN16 |
| Water connection | 1/2" Gm | 1/2" Gm |
| kv: water flow rate | 1,6 (by-pass 1,6) | 1,6 (by-pass 1,0) |

ACTUATORS' TECHNICAL FEATURES

| | Voltage supply V-ph-Hz | Running time s | Control signal Vdc | Protection grade | Controllers compatibility |
|--------------------|---------------------------|--|-----------------------|-----------------------------|--|
| J3A2 – J2A2 | 230-1-50(60) | 180÷260 | | IP 44 vert. IP 42 horiz. | TAD10 – CMR00 – CMR10 CER00 – CER20 – CML00 CML10 – CEL00 – CEL20 Digital |
| J3AM – J2AM | 24-1-50(60) | | 0÷10 | IP 40 | CER10 – CER30 – CEL10 CEL30 – Digital |
| H3AF | 24-1-50(60) | 3 positions floating control without feedback | | IP 43 | Digital |

On request, 3/4" valves are also available (kvs 2,5).

The consultant has the responsibility of the correct choice of the valve.
In order to choose the correct type of valve it is necessary to know the system's technical specifications; for this reason the consultant should take full responsibility for this choice.

6.4 DT – Shut-off valve DT

It is a full bore ball valve with T handle; it is designed to separate the unit from the piping system if maintenance is required.

6.5 FY – Y filter FY

It is an accessible water filter with a stainless steel filter element. It is installed at the water inlet to avoid the entrance of wastes coming from the piping system; all solids with diameter above 0.4 mm can be removed.

7. OTHER ACCESSORIES

7.1 CP1 – Set of feet

Set of painted steel feet, each of them composed by two elements: a bearing element fixed to the inner frame, on which the unit leans, and a visible element fixed to the previous one. They are designed to cover the water connections and the electric cables.

- Height: 85 mm
- Colour: RAL 9003 (white) for both Sigma and Prisma series

7.2 ZL1 – Long socle with feet

Painted steel socle consisting of a set of feet (CP1) and a frontal grill. It is designed to cover a vertical external air intake or other accessories.

- Height: 85 mm
- Colour: RAL 9003 (white) for both Sigma and Prisma series

7.3 PPV1 – Vertical back panel

It is a back panel made of steel painted in the same colour as the casing. It is mounted on vertical units with housing when the back side of the unit is in view.

7.4 PPH1 – Horizontal back panel

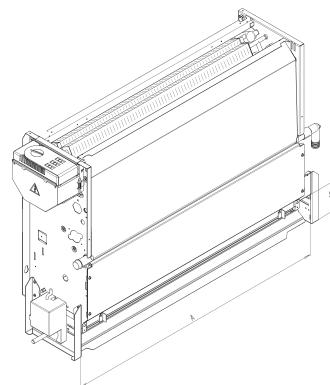
It is a back panel made of steel painted in the same colour as the casing. It is mounted on horizontal units with housing when the back side of the unit is in view.

7.5 PAE/V1 – Vertical external air intake with manual damper

PAE/V 1 is a vertical external air intake with supporting feet, frontal grill and manual damper.

All the elements are made of painted steel. The manual air damper provides the unit with a mixture of return air and outside air. An air intake at the rear of the fan coil must be included to provide fresh outside air.

- Mixture rate: 0 / 100 %
- Height: 85 mm
- Colour: RAL 9003 (white) for both Sigma and Prisma series



| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|---------|-----|-----|-----|-----|-----|------|------|------|------|------|
| A mm | 424 | 549 | 674 | 799 | 924 | 1049 | 1049 | 1174 | 1174 | 1299 |

7.6 PAE/VM1 – Vertical external air intake with motorized damper

PAE/VM1 is a vertical external air intake with supporting feet, frontal grill and motorized damper.

All the elements are made of painted steel. The motorized air damper is regulated by a servomotor and provides the unit with a mixture of return air and outside air. The servomotor operating mode depends on the required working conditions. An air intake at the rear of the fan coil must be included to provide fresh outside air.

- Mixture rate: 0 / 100 %
- Height: 85 mm
- Colour: RAL 9003 (white) for both Sigma and Prisma series
- Servomotor regulation: ON/OFF (code LM230), ON/OFF with spring return (code LF230) or modulating with a proper controller (code LM24)

7.7 PAE/H1 – Horizontal external air intake with manual damper

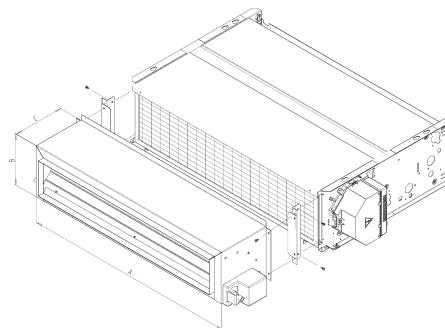
Air suction plenum made of galvanized steel sheet, provided with a rectangular collar for the connection to the external air intake. It is mounted on the air intake of the unit, between the

external air intake and the filter, which remains accessible for maintenance. The manual damper can be operated by a lever located on the side of the unit.

| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| B mm | 351 | 476 | 601 | 726 | 851 | 976 | 976 | 1226 | 1226 | 1476 |
| E mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |
| D mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |

7.8 PAE/HM1 – Horizontal external air intake with motorized damper

Air suction plenum made of galvanized steel sheet, provided with a rectangular collar for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance. The damper can be operated by a servomotor: ON/OFF (code LM230), ON/OFF with spring return (code LF230) or modulating with a proper controller (code LM24).

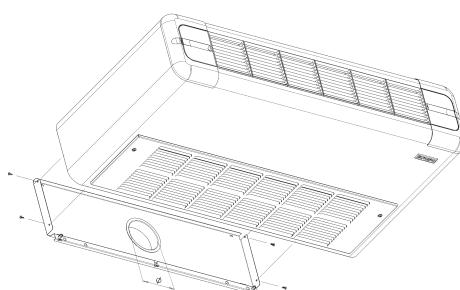


| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| A mm | 351 | 476 | 601 | 726 | 851 | 976 | 976 | 1226 | 1226 | 1476 |
| B mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |
| C mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |

7.9 PAE/HAF1 – Horizontal external air intake (for horizontal units with bottom air intake)

This external air intake is made of galvanized steel and is installed on the back side of horizontal units with bottom air intake. It is provided with a collar to be located in a hole on the wall, which allows the entrance of outside air.

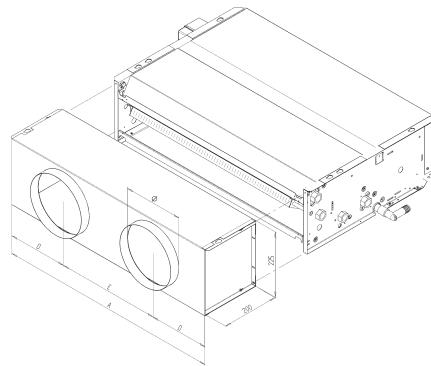
- Collar diameter of units 110÷218: 100 mm
- Collar diameter of units 220÷228: 150 mm



| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| No. of spigots | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Spigots' external Ø mm | 100 | 100 | 100 | 100 | 100 | 150 | 150 | 150 | 150 | 150 |

7.10 PM – Air delivery plenum

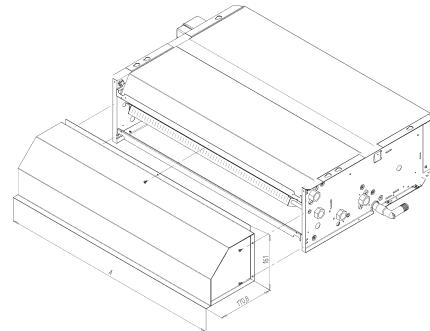
The air delivery plenum is made of galvanized steel sheet, insulated inside, provided with spigots for the connection to the air ducts. It is mounted on the air outlet of the unit.



| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|-------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| No. of spigots | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |
| Spigots' external Ø mm | 150 | 150 | 150 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| A mm | 350,6 | 475,6 | 600,6 | 725,6 | 850,6 | 975,6 | 975,6 | 1225,6 | 1225,6 | 1475,6 |
| D mm | 189,5 | 127 | 139,5 | 202 | 252 | 152 | 152 | 277 | 277 | 377 |
| E mm | – | 250 | 350 | 350 | 375 | 350 | 350 | 350 | 350 | 375 |

7.11 PM90 - 90° Air delivery plenum

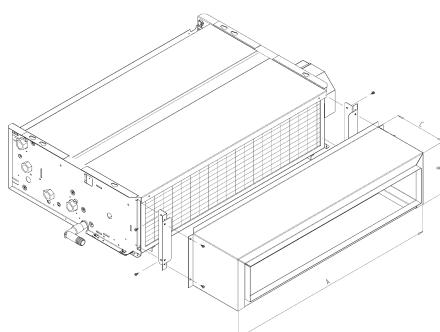
The 90° air delivery plenum is made of galvanized steel sheet, insulated inside, provided with a rectangular collar for the connection to the air duct. It is mounted on the air outlet of the unit.



| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| A mm | 379 | 504 | 629 | 754 | 879 | 1004 | 1004 | 1254 | 1254 | 1504 |

7.12 PA – Air suction plenum

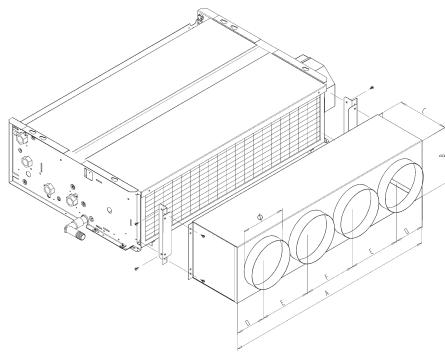
The air suction plenum is made of galvanized steel sheet, provided with a rectangular collar for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance.



| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| A mm | 351 | 476 | 601 | 726 | 851 | 976 | 976 | 1226 | 1226 | 1476 |
| B mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |
| C mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |

7.13 PAS – Air suction plenum with spigots

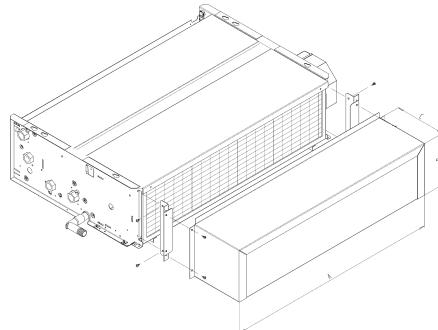
Air suction plenum made of galvanized steel sheet, provided with collars (spigots) for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance.



| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|-------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| No. of spigots | 2 | 2 | 3 | 4 | 4 | 3 | 3 | 4 | 4 | 4 |
| Spigots' external Ø mm | 100 | 150 | 150 | 150 | 150 | 200 | 200 | 200 | 200 | 200 |
| A mm | 350,6 | 475,6 | 600,6 | 725,6 | 850,6 | 975,6 | 975,6 | 1225,6 | 1225,6 | 1475,6 |
| B mm | 191 | 191 | 191 | 191 | 191 | 221 | 221 | 221 | 221 | 221 |
| C mm | 176,6 | 176,6 | 176,6 | 176,6 | 176,6 | 206,6 | 206,6 | 206,6 | 206,6 | 206,6 |
| D mm | 76,8 | 101,8 | 101,8 | 101,8 | 101,8 | 116,8 | 116,8 | 126,8 | 126,8 | 126,8 |
| E mm | — | — | — | 174 | 222,5 | — | — | 360 | 360 | 485 |
| F mm | 197 | 272 | 198,5 | 174 | 202 | 371 | 371 | 252 | 252 | 252 |

7.14 PA90 – Plenum 90° Air suction plenum

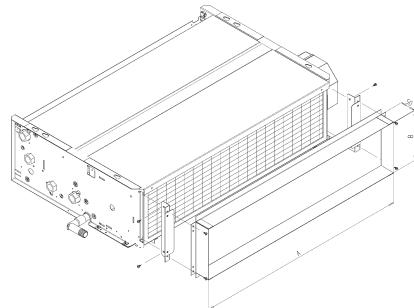
The 90° air suction plenum is made of galvanized steel sheet, provided with a rectangular collar for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance.



| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| A mm | 351 | 476 | 601 | 726 | 851 | 976 | 976 | 1226 | 1226 | 1476 |
| B mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |
| C mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |

7.15 RCA – Duct connection

This duct connection is made of galvanized steel, provided with a rectangular collar for the connection to the suction air duct. It is mounted on the air intake of the unit, between the duct and the filter, which remains accessible for maintenance.



| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| A mm | 351 | 476 | 601 | 726 | 851 | 976 | 976 | 1226 | 1226 | 1476 |
| B mm | 176 | 176 | 176 | 176 | 176 | 206 | 206 | 206 | 206 | 206 |

8. TECHNICAL DATA

8.1 Air volumes

8.1.1 LASER & CONCEALED Series

Nominal values (m³/s)

| Size | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|-----------|-----------------|-----|-----|-----|-----|-----|------|------|------|------|
| Fan speed | Fan speed 1 | 292 | 396 | 490 | 749 | 900 | 1089 | 1365 | 1581 | 1715 |
| | Fan speed 2 MAX | 241 | 331 | 410 | 666 | 788 | 915 | 1128 | 1231 | 1388 |
| | Fan speed 3 MED | 194 | 248 | 342 | 500 | 616 | 734 | 966 | 1097 | 1266 |
| | Fan speed 4 | 162 | 212 | 299 | 407 | 540 | 651 | 833 | 933 | 1014 |
| | Fan speed MIN | 144 | 187 | 266 | 382 | 464 | 565 | 776 | 933 | 895 |
| | Fan speed 6 | 108 | 151 | 223 | 324 | 378 | 525 | 683 | 702 | 839 |



Nominal capacities refer to standard fan coils with clean air filter, 20 °C room temperature, at sea level, without external static pressure.

Values with external static pressure (m³/s)

| Water pressure drop (Pa) | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 |
|--------------------------|-----------------|------|------|------|------|------|------|------|------|------|------|
| Size 110 | Fan speed 1 | 270 | 252 | 234 | 212 | 187 | 151 | 112 | | | |
| | Fan speed 2 MAX | 223 | 205 | 191 | 173 | 151 | 122 | 83 | | | |
| | Fan speed 3 MED | 176 | 162 | 144 | 126 | 108 | 86 | 95 | | | |
| | Fan speed 4 | 144 | 126 | 108 | 90 | 76 | 54 | | | | |
| | Fan speed 5 MIN | 126 | 104 | 86 | 76 | 58 | 39 | | | | |
| | Fan speed 6 | 86 | 65 | | | | | | | | |
| Size 112 | Fan speed 1 | 374 | 353 | 331 | 302 | 274 | 241 | 202 | | | |
| | Fan speed 2 MAX | 310 | 295 | 277 | 252 | 227 | 202 | 176 | | | |
| | Fan speed 3 MED | 230 | 216 | 198 | 180 | 155 | 130 | 97 | | | |
| | Fan speed 4 | 191 | 173 | 155 | 140 | 119 | 97 | 68 | | | |
| | Fan speed 5 MIN | 162 | 140 | 119 | 104 | 86 | 68 | | | | |
| | Fan speed 6 | 126 | 101 | 83 | 68 | | | | | | |
| Size 114 | Fan speed 1 | 446 | 410 | 374 | 338 | 302 | 263 | 220 | | | |
| | Fan speed 2 MAX | 382 | 349 | 320 | 288 | 252 | 212 | 162 | | | |
| | Fan speed 3 MED | 310 | 281 | 256 | 230 | 198 | 158 | 112 | | | |
| | Fan speed 4 | 266 | 238 | 209 | 180 | 155 | 126 | 94 | | | |
| | Fan speed 5 MIN | 234 | 202 | 176 | 151 | 126 | 101 | 72 | | | |
| | Fan speed 6 | 187 | 158 | 130 | 108 | 86 | 65 | | | | |
| Size 216 | Fan speed 1 | 720 | 706 | 670 | 616 | 558 | 511 | 454 | | | |
| | Fan speed 2 MAX | 626 | 598 | 562 | 515 | 468 | 421 | 367 | | | |
| | Fan speed 3 MED | 461 | 425 | 389 | 353 | 310 | 263 | 205 | | | |
| | Fan speed 4 | 360 | 324 | 292 | 263 | 230 | 187 | 137 | | | |
| | Fan speed 5 MIN | 331 | 284 | 256 | 230 | 202 | 162 | 108 | | | |
| | Fan speed 6 | 270 | 209 | 173 | 148 | 115 | | | | | |
| Size 218 | Fan speed 1 | 853 | 810 | 760 | 698 | 634 | 565 | 486 | | | |
| | Fan speed 2 MAX | 738 | 698 | 652 | 594 | 536 | 475 | 407 | | | |
| | Fan speed 3 MED | 572 | 540 | 500 | 454 | 403 | 349 | 295 | | | |
| | Fan speed 4 | 497 | 464 | 421 | 374 | 324 | 270 | 198 | | | |
| | Fan speed 5 MIN | 414 | 374 | 338 | 299 | 259 | 209 | 137 | | | |
| | Fan speed 6 | 328 | 263 | 212 | 166 | 144 | | | | | |
| Size 220 | Fan speed 1 | 1043 | 989 | 927 | 857 | 780 | 696 | 604 | 504 | 396 | 282 |
| | Fan speed 2 MAX | 869 | 816 | 758 | 695 | 626 | 552 | 473 | 388 | 297 | 201 |
| | Fan speed 3 MED | 681 | 627 | 571 | 514 | 456 | 396 | 334 | 272 | | |
| | Fan speed 4 | 589 | 530 | 474 | 420 | 368 | 319 | 273 | 229 | | |
| | Fan speed 5 MIN | 501 | 441 | 384 | 331 | 282 | 236 | 194 | | | |
| | Fan speed 6 | 441 | 366 | 301 | 244 | 196 | 157 | 128 | | | |
| Size 222 | Fan speed 1 | 1307 | 1237 | 1177 | 1099 | 1014 | 928 | 819 | 710 | 592 | 460 |
| | Fan speed 2 MAX | 1087 | 1035 | 985 | 922 | 852 | 778 | 688 | 594 | 493 | 377 |
| | Fan speed 3 MED | 919 | 864 | 815 | 755 | 690 | 622 | 546 | 466 | 381 | 297 |
| | Fan speed 4 | 780 | 725 | 669 | 611 | 549 | 483 | 419 | 350 | 279 | 215 |
| | Fan speed 5 MIN | 718 | 660 | 600 | 540 | 479 | 418 | 357 | 294 | 232 | 169 |
| | Fan speed 6 | 615 | 550 | 488 | 428 | 371 | 317 | 265 | 216 | 170 | |
| Size 224 | Fan speed 1 | 1539 | 1489 | 1431 | 1364 | 1289 | 1207 | 1116 | 1016 | 909 | 793 |
| | Fan speed 2 MAX | 1184 | 1132 | 1075 | 1013 | 946 | 874 | 797 | 715 | 628 | 536 |
| | Fan speed 3 MED | 1057 | 1012 | 961 | 904 | 842 | 775 | 702 | 624 | 540 | 451 |
| | Fan speed 4 | 887 | 838 | 786 | 729 | 669 | 605 | 538 | 467 | 392 | 313 |
| | Fan speed 5 MIN | 746 | 696 | 644 | 591 | 537 | 482 | 425 | 367 | 308 | |
| | Fan speed 6 | 650 | 597 | 545 | 493 | 441 | 389 | 338 | 287 | | |
| Size 226 | Fan speed 1 | 1673 | 1623 | 1565 | 1498 | 1424 | 1341 | 1249 | 1150 | 1042 | 926 |
| | Fan speed 2 MAX | 1341 | 1289 | 1232 | 1170 | 1103 | 1031 | 954 | 872 | 785 | 693 |
| | Fan speed 3 MED | 1225 | 1179 | 1128 | 1072 | 1010 | 943 | 870 | 793 | 710 | 621 |
| | Fan speed 4 | 1013 | 964 | 911 | 855 | 795 | 731 | 663 | 592 | 517 | 439 |
| | Fan speed 5 MIN | 884 | 833 | 781 | 728 | 673 | 618 | 561 | 502 | 443 | |
| | Fan speed 6 | 786 | 733 | 680 | 628 | 577 | 525 | 475 | 424 | | |
| Size 228 | Fan speed 1 | 2090 | 2040 | 1983 | 1918 | 1846 | 1767 | 1680 | 1586 | 1485 | 1376 |
| | Fan speed 2 MAX | 1773 | 1724 | 1667 | 1602 | 1528 | 1446 | 1356 | 1257 | 1149 | 1034 |
| | Fan speed 3 MED | 1175 | 1123 | 1066 | 1003 | 935 | 862 | 783 | 699 | 609 | 514 |
| | Fan speed 4 | 970 | 921 | 868 | 811 | 750 | 684 | 614 | 540 | 461 | 378 |
| | Fan speed 5 MIN | 856 | 811 | 759 | 701 | 637 | 566 | 470 | 407 | 317 | |
| | Fan speed 6 | 718 | 655 | 593 | 533 | 474 | 416 | 358 | 302 | | |

8.1.2 LOW BODY Serie

Nominal values (m³/s)

| Size | 110 | 112 | 114 | 216 | 218 |
|-------------|-----------------|------------|------------|------------|------------|
| Fan speed | Fan speed 1 | 289 | 381 | 513 | 670 |
| | Fan speed 2 MAX | 243 | 321 | 446 | 574 |
| | Fan speed 3 MED | 203 | 246 | 343 | 470 |
| | Fan speed 4 | 167 | 192 | 271 | 370 |
| | Fan speed 5 MIN | 149 | 178 | 253 | 356 |
| | Fan speed 6 | 111 | 139 | 200 | 289 |
| | | | | | |



Nominal capacities refer to standard fan coils with clean air filter, 20 °C room temperature, at sea level, without external static pressure.

Values with external static pressure (m³/s)

| Water pressure drop (Pa) | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
|---------------------------------|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Size 110 | Fan speed 1 | 267 | 253 | 236 | 218 | 192 | 160 | 125 |
| | Fan speed 2 MAX | 225 | 207 | 196 | 182 | 194 | 136 | 96 |
| | Fan speed 3 MED | 185 | 167 | 149 | 136 | 118 | 100 | 78 |
| | Fan speed 4 | 149 | 132 | 118 | 103 | 89 | 71 | |
| | Fan speed 5 MIN | 129 | 107 | 93 | 82 | 67 | | |
| | Fan speed 6 | 93 | 71 | 57 | | | | |
| Size 112 | Fan speed 1 | 360 | 343 | 321 | 296 | 267 | 239 | 203 |
| | Fan speed 2 MAX | 303 | 289 | 271 | 249 | 228 | 207 | 182 |
| | Fan speed 3 MED | 228 | 210 | 192 | 178 | 156 | 132 | 100 |
| | Fan speed 4 | 174 | 156 | 143 | 129 | 111 | 89 | 64 |
| | Fan speed 5 MIN | 149 | 125 | 107 | 93 | 78 | 60 | |
| | Fan speed 6 | 111 | 82 | 71 | 64 | 53 | | |
| Size 114 | Fan speed 1 | 477 | 446 | 414 | 381 | 349 | 314 | 271 |
| | Fan speed 2 MAX | 417 | 392 | 363 | 335 | 303 | 267 | 225 |
| | Fan speed 3 MED | 307 | 274 | 249 | 232 | 203 | 164 | 118 |
| | Fan speed 4 | 243 | 218 | 192 | 167 | 143 | 118 | 89 |
| | Fan speed 5 MIN | 218 | 182 | 156 | 136 | 118 | 89 | 60 |
| | Fan speed 6 | 171 | 143 | 118 | 96 | 78 | 60 | |
| Size 216 | Fan speed 1 | 631 | 606 | 570 | 528 | 477 | 432 | 374 |
| | Fan speed 2 MAX | 542 | 513 | 477 | 439 | 396 | 352 | 303 |
| | Fan speed 3 MED | 424 | 388 | 356 | 321 | 285 | 243 | 192 |
| | Fan speed 4 | 332 | 296 | 267 | 243 | 214 | 174 | 125 |
| | Fan speed 5 MIN | 303 | 253 | 225 | 207 | 182 | 143 | 89 |
| | Fan speed 6 | 239 | 189 | 153 | 132 | 100 | | |
| Size 218 | Fan speed 1 | 762 | 724 | 677 | 624 | 566 | 503 | 432 |
| | Fan speed 2 MAX | 655 | 624 | 581 | 531 | 477 | 424 | 363 |
| | Fan speed 3 MED | 524 | 485 | 446 | 410 | 367 | 317 | 260 |
| | Fan speed 4 | 449 | 417 | 381 | 339 | 292 | 246 | 182 |
| | Fan speed 5 MIN | 414 | 363 | 328 | 299 | 263 | 218 | 143 |
| | Fan speed 6 | 314 | 267 | 225 | 178 | 125 | | |

8.2 Cooling capacities

8.2.1 LASER & CONCEALED Series

Room temperature: 27 °C D. B. – 19 °C W.B.

Water temperature: 7/12 °C

| Size | | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 | |
|-----------------|---------------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2 ROWS | | | | | | | | | | | | |
| Fan speed 1 | Total cooling capacity | kW | 1,215 | 1,546 | 2,18 | 3,092 | 3,464 | 4,162 | 5,056 | 6,805 | 7,007 | 9,086 |
| | Sensible cooling capacity | kW | 1,000 | 1,301 | 1,764 | 2,491 | 2,963 | 3,551 | 4,160 | 5,443 | 5,643 | 7,232 |
| | Water flow | l/h | 209 | 266 | 375 | 532 | 596 | 716 | 869 | 1170 | 1205 | 1562 |
| | Water pressure drop | kPa | 20,3 | 3,8 | 12,1 | 23,1 | 8,3 | 13,8 | 21,9 | 38,6 | 37,1 | 70,0 |
| Fan speed 2 MAX | Total cooling capacity | kW | 1,077 | 1,383 | 1,942 | 2,878 | 3,2 | 3,755 | 4,509 | 5,803 | 6,15 | 8,22 |
| | Sensible cooling capacity | kW | 0,870 | 1,144 | 1,547 | 2,297 | 2,698 | 3,141 | 3,648 | 4,549 | 4,865 | 6,452 |
| | Water flow | l/h | 185 | 238 | 334 | 495 | 550 | 646 | 775 | 998 | 1057 | 1413 |
| | Water pressure drop | kPa | 16,4 | 3,1 | 9,9 | 20,3 | 7,2 | 11,5 | 17,9 | 29,2 | 29,5 | 58,6 |
| Fan speed 3 MED | Total cooling capacity | kW | 0,936 | 1,145 | 1,717 | 2,390 | 2,741 | 3,274 | 4,094 | 5,377 | 5,799 | 6,329 |
| | Sensible cooling capacity | kW | 0,742 | 0,923 | 1,349 | 1,866 | 2,254 | 2,677 | 3,271 | 4,179 | 4,553 | 4,829 |
| | Water flow | l/h | 161 | 197 | 295 | 411 | 471 | 563 | 704 | 924 | 997 | 1088 |
| | Water pressure drop | kPa | 12,8 | 2,2 | 7,9 | 14,7 | 5,5 | 9,1 | 15,1 | 25,5 | 26,6 | 37,0 |
| Fan speed 4 | Total cooling capacity | kW | 0,829 | 1,030 | 1,565 | 2,077 | 2,514 | 3,032 | 3,719 | 4,813 | 5,151 | 5,549 |
| | Sensible cooling capacity | kW | 0,648 | 0,821 | 1,217 | 1,598 | 2,041 | 2,451 | 2,940 | 3,701 | 3,993 | 4,186 |
| | Water flow | l/h | 143 | 177 | 269 | 357 | 432 | 521 | 639 | 827 | 886 | 954 |
| | Water pressure drop | kPa | 10,4 | 1,9 | 6,7 | 11,5 | 4,7 | 7,9 | 12,7 | 21,0 | 21,6 | 29,4 |
| Fan speed 5 MIN | Total cooling capacity | kW | 0,760 | 0,945 | 1,441 | 1,988 | 2,271 | 2,759 | 3,551 | 4,296 | 4,725 | 5,069 |
| | Sensible cooling capacity | kW | 0,589 | 0,746 | 1,111 | 1,524 | 1,821 | 2,203 | 2,794 | 3,270 | 3,633 | 3,800 |
| | Water flow | l/h | 131 | 162 | 248 | 342 | 390 | 474 | 610 | 739 | 812 | 871 |
| | Water pressure drop | kPa | 8,9 | 1,6 | 5,8 | 10,6 | 4,0 | 6,7 | 11,7 | 17,2 | 18,5 | 25,0 |
| Fan speed 6 | Total cooling capacity | kW | 0,617 | 0,812 | 1,264 | 1,765 | 1,967 | 2,623 | 3,259 | 3,929 | 4,387 | 4,582 |
| | Sensible cooling capacity | kW | 0,470 | 0,632 | 0,964 | 1,340 | 1,553 | 2,082 | 2,541 | 2,969 | 3,352 | 3,411 |
| | Water flow | l/h | 106 | 140 | 217 | 304 | 338 | 451 | 560 | 675 | 754 | 788 |
| | Water pressure drop | kPa | 6,2 | 1,2 | 4,6 | 8,6 | 3,1 | 6,1 | 10,1 | 14,7 | 16,3 | 21,0 |
| Water content | | l | 0,4 | 0,6 | 0,7 | 0,9 | 1,1 | 1,2 | 1,5 | 1,9 | 1,9 | 2,3 |

Room temperature: 27 °C D. B. – 19 °C W.B.

Water temperature: 7/12 °C

| Size | | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 | |
|-----------------|---------------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 3 ROWS | | | | | | | | | | | | |
| Fan speed 1 | Total cooling capacity | kW | 1,323 | 1,972 | 2,599 | 3,754 | 4,147 | 5,24 | 6,295 | 8,073 | 8,78 | 11,142 |
| | Sensible cooling capacity | kW | 1,113 | 1,569 | 2,042 | 2,950 | 3,341 | 4,105 | 5,033 | 6,300 | 6,896 | 8,655 |
| | Water flow | l/h | 227 | 339 | 447 | 645 | 713 | 901 | 1082 | 1388 | 1509 | 1916 |
| | Water pressure drop | kPa | 4,8 | 9,4 | 8,1 | 15,9 | 15,9 | 28,4 | 39,2 | 25,6 | 27,0 | 45,1 |
| Fan speed 2 MAX | Total cooling capacity | kW | 1,169 | 1,746 | 2,291 | 3,467 | 3,804 | 4,664 | 5,57 | 6,789 | 7,599 | 9,974 |
| | Sensible cooling capacity | kW | 0,961 | 1,367 | 1,772 | 2,699 | 3,029 | 3,605 | 4,378 | 5,195 | 5,859 | 7,646 |
| | Water flow | l/h | 201 | 300 | 394 | 596 | 654 | 802 | 958 | 1167 | 1306 | 1715 |
| | Water pressure drop | kPa | 3,9 | 7,6 | 6,5 | 13,8 | 13,6 | 23,1 | 31,6 | 18,8 | 20,9 | 37,1 |
| Fan speed 3 MED | Total cooling capacity | kW | 1,008 | 1,42 | 2,004 | 2,831 | 3,219 | 3,998 | 5,021 | 6,247 | 7,12 | 7,481 |
| | Sensible cooling capacity | kW | 0,811 | 1,088 | 1,531 | 2,157 | 2,511 | 3,044 | 3,896 | 4,743 | 5,452 | 5,581 |
| | Water flow | l/h | 173 | 244 | 345 | 487 | 553 | 687 | 863 | 1074 | 1224 | 1286 |
| | Water pressure drop | kPa | 3,0 | 5,3 | 5,1 | 9,7 | 10,2 | 17,6 | 26,3 | 16,3 | 18,7 | 22,4 |
| Fan speed 4 | Total cooling capacity | kW | 0,887 | 1,263 | 1,81 | 2,429 | 2,933 | 3,666 | 4,531 | 5,54 | 6,246 | 6,475 |
| | Sensible cooling capacity | kW | 0,702 | 0,957 | 1,369 | 1,827 | 2,266 | 2,771 | 3,474 | 4,165 | 4,724 | 4,780 |
| | Water flow | l/h | 153 | 217 | 311 | 418 | 504 | 630 | 779 | 952 | 1074 | 1113 |
| | Water pressure drop | kPa | 2,4 | 4,3 | 4,3 | 7,4 | 8,6 | 15,1 | 22,0 | 13,2 | 14,8 | 17,3 |
| Fan speed 5 MIN | Total cooling capacity | kW | 0,814 | 1,147 | 1,653 | 2,314 | 2,627 | 3,301 | 4,308 | 4,897 | 5,682 | 5,863 |
| | Sensible cooling capacity | kW | 0,637 | 0,862 | 1,242 | 1,735 | 2,007 | 2,474 | 3,288 | 3,649 | 4,261 | 4,303 |
| | Water flow | l/h | 140 | 197 | 284 | 398 | 452 | 567 | 741 | 842 | 977 | 1008 |
| | Water pressure drop | kPa | 2,0 | 3,6 | 3,6 | 6,8 | 7,1 | 12,6 | 20,1 | 10,6 | 12,6 | 14,6 |
| Fan speed 6 | Total cooling capacity | kW | 0,654 | 0,969 | 1,437 | 2,036 | 2,252 | 3,123 | 3,927 | 4,447 | 5,235 | 5,249 |
| | Sensible cooling capacity | kW | 0,501 | 0,720 | 1,068 | 1,512 | 1,699 | 2,332 | 2,971 | 3,292 | 3,902 | 3,828 |
| | Water flow | l/h | 112 | 167 | 247 | 350 | 387 | 537 | 675 | 764 | 900 | 902 |
| | Water pressure drop | kPa | 1,4 | 2,7 | 2,8 | 5,4 | 5,4 | 11,4 | 17,1 | 8,9 | 10,9 | 12,0 |
| Water content | | l | 0,6 | 0,8 | 1,1 | 1,4 | 1,5 | 2 | 2 | 2,9 | 2,9 | 3,5 |

Room temperature: 27 °C D. B. – 19 °C W.B.

Water temperature: 7/12 °C

| Size | | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 | |
|-----------------|---------------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 4 ROWS | | | | | | | | | | | | |
| Fan speed 1 | Total cooling capacity | kW | 1,602 | 2,457 | 3,324 | 4,638 | 5,115 | 6,677 | 8,169 | 9,833 | 10,28 | 13,256 |
| | Sensible cooling capacity | kW | 1,282 | 1,867 | 2,449 | 3,531 | 3,996 | 5,085 | 6,247 | 7,445 | 7,860 | 10,011 |
| | Water flow | l/h | 275 | 422 | 572 | 797 | 879 | 1148 | 1,404 | 1,690 | 1,767 | 2,279 |
| | Water pressure drop | kPa | 3,1 | 6,4 | 16,7 | 13,1 | 9,5 | 19,4 | 29,5 | 21,1 | 20,7 | 38,8 |
| Fan speed 2 MAX | Total cooling capacity | kW | 1,395 | 2,139 | 2,87 | 4,237 | 4,643 | 5,849 | 7,086 | 8,101 | 8,768 | 11,716 |
| | Sensible cooling capacity | kW | 1,094 | 1,603 | 2,091 | 3,192 | 3,583 | 4,389 | 5,334 | 6,017 | 6,590 | 8,736 |
| | Water flow | l/h | 240 | 368 | 493 | 728 | 798 | 1006 | 1,218 | 1,393 | 1,507 | 2014 |
| | Water pressure drop | kPa | 2,5 | 5,0 | 12,9 | 11,2 | 8,0 | 15,4 | 23,0 | 15,0 | 15,7 | 31,2 |
| Fan speed 3 MED | Total cooling capacity | kW | 1,181 | 1,692 | 2,461 | 3,376 | 3,852 | 4,911 | 6,279 | 7,382 | 8,162 | 8,522 |
| | Sensible cooling capacity | kW | 0,908 | 1,244 | 1,777 | 2,490 | 2,913 | 3,630 | 4,673 | 5,441 | 6,094 | 6,197 |
| | Water flow | l/h | 203 | 291 | 423 | 580 | 662 | 844 | 1,080 | 1,269 | 1,403 | 1,465 |
| | Water pressure drop | kPa | 1,8 | 3,3 | 9,9 | 7,5 | 5,8 | 11,3 | 18,6 | 12,7 | 13,8 | 17,8 |
| Fan speed 4 | Total cooling capacity | kW | 1,023 | 1,48 | 2,187 | 2,846 | 3,474 | 4,447 | 5,581 | 6,46 | 7,072 | 7,272 |
| | Sensible cooling capacity | kW | 0,776 | 1,080 | 1,569 | 2,075 | 2,602 | 3,262 | 4,113 | 4,717 | 5,216 | 5,240 |
| | Water flow | l/h | 176 | 255 | 376 | 489 | 597 | 764 | 959 | 1,111 | 1,216 | 1,250 |
| | Water pressure drop | kPa | 1,4 | 2,6 | 8,0 | 5,5 | 4,8 | 9,5 | 15,1 | 10,1 | 10,7 | 13,5 |
| Fan speed 5 MIN | Total cooling capacity | kW | 0,934 | 1,327 | 1,969 | 2,695 | 3,069 | 3,949 | 5,263 | 5,632 | 6,382 | 6,523 |
| | Sensible cooling capacity | kW | 0,702 | 0,962 | 1,406 | 1,957 | 2,276 | 2,874 | 3,863 | 4,080 | 4,675 | 4,675 |
| | Water flow | l/h | 161 | 228 | 339 | 463 | 528 | 679 | 905 | 968 | 1,097 | 1,121 |
| | Water pressure drop | kPa | 1,2 | 2,2 | 6,7 | 5,0 | 3,9 | 7,7 | 13,6 | 7,9 | 9,0 | 11,1 |
| Fan speed 6 | Total cooling capacity | kW | 0,733 | 1,097 | 1,683 | 2,34 | 2,588 | 3,713 | 4,734 | 5,063 | 6 | 5,781 |
| | Sensible cooling capacity | kW | 0,542 | 0,788 | 1,194 | 1,687 | 1,898 | 2,692 | 3,449 | 3,645 | 4,252 | 4,123 |
| | Water flow | l/h | 126 | 189 | 289 | 402 | 445 | 638 | 814 | 870 | 1,004 | 994 |
| | Water pressure drop | kPa | 0,8 | 1,5 | 5,1 | 3,9 | 2,9 | 6,9 | 11,3 | 6,6 | 7,7 | 9,0 |
| Water content | | l | 0,8 | 1,1 | 1,5 | 1,7 | 2 | 2,6 | 2,9 | 3,7 | 3,7 | 4,4 |

8.2.2 LOW BODY Serie

Room temperature: 27 °C D. B. - 19 °C W.B.

Water temperature: 7/12 °C

| Size | | 110 | 112 | 114 | 216 | 218 |
|-----------------|---------------------------|-----|-------|-------|-------|-------|
| 2 ROWS | | | | | | |
| Fan speed 1 | Total cooling capacity | kW | 0,832 | 1,178 | 1,714 | 2,312 |
| | Sensible cooling capacity | kW | 0,763 | 1,055 | 1,469 | 1,934 |
| | Water flow | l/h | 143 | 202 | 295 | 397 |
| | Water pressure drop | kPa | 7,2 | 1,6 | 6,3 | 10,6 |
| Fan speed 2 MAX | Total cooling capacity | kW | 0,759 | 1,07 | 1,583 | 2,116 |
| | Sensible cooling capacity | kW | 0,68 | 0,94 | 1,336 | 1,745 |
| | Water flow | l/h | 131 | 184 | 272 | 364 |
| | Water pressure drop | kPa | 6,1 | 1,4 | 5,4 | 9,1 |
| Fan speed 3 MED | Total cooling capacity | kW | 0,689 | 0,914 | 1,353 | 1,877 |
| | Sensible cooling capacity | kW | 0,603 | 0,781 | 1,114 | 1,521 |
| | Water flow | l/h | 118 | 157 | 233 | 323 |
| | Water pressure drop | kPa | 1,6 | 1,1 | 4,1 | 7,4 |
| Fan speed 4 | Total cooling capacity | kW | 0,617 | 0,785 | 1,167 | 1,614 |
| | Sensible cooling capacity | kW | 0,528 | 0,655 | 0,942 | 1,283 |
| | Water flow | l/h | 106 | 135 | 201 | 278 |
| | Water pressure drop | kPa | 4,3 | 0,8 | 3,2 | 5,6 |
| Fan speed 5 MIN | Total cooling capacity | kW | 0,577 | 0,748 | 1,116 | 1,575 |
| | Sensible cooling capacity | kW | 0,488 | 0,62 | 0,896 | 1,249 |
| | Water flow | l/h | 99 | 129 | 192 | 271 |
| | Water pressure drop | kPa | 3,8 | 0,7 | 2,9 | 5,4 |
| Fan speed 6 | Total cooling capacity | kW | 0,479 | 0,633 | 0,952 | 1,37 |
| | Sensible cooling capacity | kW | 0,393 | 0,514 | 0,751 | 1,071 |
| | Water flow | l/h | 82 | 109 | 164 | 235 |
| | Water pressure drop | kPa | 2,7 | 0,6 | 2,2 | 4,2 |
| Water content | | l | 0,3 | 0,4 | 0,6 | 0,7 |
| | | | | | | 0,9 |

Room temperature: 27 °C D. B. - 19 °C W.B.

Water temperature: 7/12 °C

| Size | | 110 | 112 | 114 | 216 | 218 |
|-----------------|---------------------------|-----|-------|-------|-------|-------|
| 3 ROWS | | | | | | |
| Fan speed 1 | Total cooling capacity | kW | 1,041 | 1,626 | 2,312 | 3,003 |
| | Sensible cooling capacity | kW | 0,941 | 1,356 | 1,873 | 2,429 |
| | Water flow | l/h | 179 | 280 | 397 | 516 |
| | Water pressure drop | kPa | 2,5 | 4,8 | 14,8 | 8,2 |
| Fan speed 2 MAX | Total cooling capacity | kW | 0,942 | 1,46 | 2,115 | 2,719 |
| | Sensible cooling capacity | kW | 0,831 | 1,196 | 1,690 | 2,168 |
| | Water flow | l/h | 162 | 251 | 364 | 467 |
| | Water pressure drop | kPa | 2,1 | 4,0 | 12,6 | 6,9 |
| Fan speed 3 MED | Total cooling capacity | kW | 0,844 | 1,225 | 1,774 | 2,377 |
| | Sensible cooling capacity | kW | 0,729 | 0,978 | 1,386 | 1,865 |
| | Water flow | l/h | 145 | 211 | 305 | 409 |
| | Water pressure drop | kPa | 1,7 | 2,9 | 9,3 | 5,5 |
| Fan speed 4 | Total cooling capacity | kW | 0,745 | 1,03 | 1,502 | 2,008 |
| | Sensible cooling capacity | kW | 0,629 | 0,806 | 1,153 | 1,549 |
| | Water flow | l/h | 128 | 177 | 258 | 345 |
| | Water pressure drop | kPa | 1,4 | 2,1 | 6,9 | 4,1 |
| Fan speed 5 MIN | Total cooling capacity | kW | 0,691 | 0,975 | 1,428 | 1,953 |
| | Sensible cooling capacity | kW | 0,576 | 0,759 | 1,091 | 1,502 |
| | Water flow | l/h | 119 | 168 | 246 | 336 |
| | Water pressure drop | kPa | 1,2 | 1,9 | 6,3 | 3,9 |
| Fan speed 6 | Total cooling capacity | kW | 0,564 | 0,811 | 1,198 | 1,673 |
| | Sensible cooling capacity | kW | 0,457 | 0,62 | 0,902 | 1,270 |
| | Water flow | l/h | 97 | 139 | 206 | 288 |
| | Water pressure drop | kPa | 0,8 | 1,4 | 4,6 | 2,9 |
| Water content | | l | 0,4 | 0,6 | 0,8 | 1,1 |
| | | | | | | 1,3 |

8.3 Heating capacities

8.3.1 LASER & CONCEALED Series

| Room temperature: 20 °C | | | Water temperature: 70/60 °C | | | | | | | | | |
|-------------------------|---------------------|-----|-----------------------------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| Size | | | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
| 2 ROWS | | | | | | | | | | | | |
| Fan speed 1 | Heating capacity | kW | 2,907 | 3,834 | 5,115 | 7,162 | 8,756 | 10,405 | 12,042 | 15,606 | 16,174 | 20,594 |
| | Water flow | l/h | 254 | 335 | 447 | 626 | 765 | 910 | 1053 | 1364 | 1414 | 1800 |
| | Water pressure drop | kPa | 21,6 | 4,3 | 12,4 | 23,2 | 9,8 | 15,9 | 23,1 | 38,2 | 37,1 | 67,8 |
| Fan speed 2 MAX | Heating capacity | kW | 2,523 | 3,364 | 4,474 | 6,591 | 7,957 | 9,189 | 10,542 | 12,993 | 13,907 | 18,335 |
| | Water flow | l/h | 221 | 294 | 391 | 576 | 696 | 803 | 922 | 1136 | 1216 | 1603 |
| | Water pressure drop | kPa | 16,9 | 3,4 | 9,8 | 20,1 | 8,2 | 12,8 | 18,3 | 27,7 | 28,4 | 55,2 |
| Fan speed 3 MED | Heating capacity | kW | 2,146 | 2,706 | 3,889 | 5,335 | 6,627 | 7,812 | 9,443 | 11,92 | 13,006 | 13,653 |
| | Water flow | l/h | 188 | 237 | 340 | 466 | 579 | 683 | 825 | 1042 | 1137 | 1194 |
| | Water pressure drop | kPa | 12,7 | 2,3 | 7,7 | 13,8 | 6,0 | 9,6 | 15,1 | 23,8 | 25,3 | 32,9 |
| Fan speed 4 | Heating capacity | kW | 1,869 | 2,398 | 3,502 | 4,559 | 5,992 | 7,143 | 8,47 | 10,527 | 11,381 | 11,805 |
| | Water flow | l/h | 163 | 210 | 306 | 399 | 524 | 624 | 740 | 920 | 995 | 1032 |
| | Water pressure drop | kPa | 9,9 | 1,9 | 6,4 | 10,5 | 5,0 | 8,2 | 12,4 | 19,1 | 20,0 | 25,4 |
| Fan speed 5 MIN | Heating capacity | kW | 1,696 | 2,193 | 3,192 | 4,342 | 5,332 | 6,404 | 8,039 | 9,278 | 10,335 | 10,688 |
| | Water flow | l/h | 148 | 192 | 279 | 380 | 466 | 560 | 703 | 811 | 903 | 934 |
| | Water pressure drop | kPa | 8,4 | 1,6 | 5,4 | 9,6 | 4,1 | 6,8 | 11,4 | 15,3 | 16,8 | 21,4 |
| Fan speed 6 | Heating capacity | kW | 1,354 | 1,847 | 2,759 | 3,807 | 4,527 | 6,095 | 7,3 | 8,406 | 9,517 | 9,569 |
| | Water flow | l/h | 118 | 161 | 241 | 333 | 396 | 533 | 638 | 735 | 832 | 836 |
| | Water pressure drop | kPa | 5,6 | 1,2 | 4,2 | 7,6 | 3,1 | 6,2 | 9,6 | 12,9 | 14,6 | 17,6 |
| Water content | | l | 0,4 | 0,6 | 0,7 | 0,9 | 1,1 | 1,2 | 1,5 | 1,9 | 1,9 | 2,3 |

| Room temperature: 20 °C | | | Water temperature: 70/60 °C | | | | | | | | | |
|-------------------------|---------------------|-----|-----------------------------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| Size | | | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
| 3 ROWS | | | | | | | | | | | | |
| Fan speed 1 | Heating capacity | kW | 3,297 | 4,534 | 5,894 | 8,455 | 9,663 | 11,702 | 14,411 | 17,987 | 19,726 | 24,571 |
| | Water flow | l/h | 288 | 396 | 515 | 739 | 845 | 1023 | 1260 | 1572 | 1724 | 2148 |
| | Water pressure drop | kPa | 5,5 | 9,3 | 7,8 | 15,2 | 16,1 | 26,8 | 38,7 | 24,0 | 25,7 | 41,6 |
| Fan speed 2 MAX | Heating capacity | kW | 2,841 | 3,937 | 5,098 | 7,717 | 8,738 | 10,251 | 12,497 | 14,765 | 16,706 | 21,652 |
| | Water flow | l/h | 248 | 344 | 446 | 675 | 764 | 896 | 1092 | 1291 | 1460 | 1893 |
| | Water pressure drop | kPa | 4,2 | 7,3 | 6,1 | 13,0 | 13,5 | 21,2 | 30,1 | 17,0 | 19,2 | 33,3 |
| Fan speed 3 MED | Heating capacity | kW | 2,386 | 3,113 | 4,383 | 6,135 | 7,214 | 8,626 | 11,091 | 13,452 | 16 | 15,677 |
| | Water flow | l/h | 209 | 272 | 383 | 536 | 631 | 754 | 970 | 1176 | 1356 | 1370 |
| | Water pressure drop | kPa | 3,1 | 4,8 | 4,6 | 8,7 | 9,6 | 15,7 | 24,4 | 14,4 | 16,9 | 18,9 |
| Fan speed 4 | Heating capacity | kW | 2,055 | 2,729 | 4 | 5,175 | 6,493 | 7,833 | 9,87 | 11,772 | 13,382 | 13,378 |
| | Water flow | l/h | 180 | 239 | 342 | 452 | 568 | 685 | 863 | 1029 | 1170 | 1169 |
| | Water pressure drop | kPa | 2,4 | 3,8 | 3,8 | 6,4 | 8,0 | 13,2 | 19,9 | 11,4 | 13,0 | 14,3 |
| Fan speed 5 MIN | Heating capacity | kW | 1,861 | 2,452 | 3,535 | 4,906 | 5,737 | 7,032 | 9,326 | 10,277 | 12,043 | 12,007 |
| | Water flow | l/h | 163 | 214 | 309 | 429 | 502 | 615 | 815 | 898 | 1053 | 1050 |
| | Water pressure drop | kPa | 2,0 | 3,2 | 3,2 | 5,8 | 6,4 | 10,9 | 18,0 | 9,0 | 10,8 | 11,8 |
| Fan speed 6 | Heating capacity | kW | 1,451 | 2,047 | 3,028 | 4,262 | 4,866 | 6,612 | 8,409 | 9,248 | 11,003 | 11 |
| | Water flow | l/h | 127 | 179 | 265 | 373 | 425 | 578 | 735 | 808 | 962 | 931 |
| | Water pressure drop | kPa | 1,3 | 2,3 | 2,4 | 4,6 | 4,8 | 9,8 | 15,0 | 7,4 | 9,2 | 9,6 |
| Water content | | l | 0,6 | 0,8 | 1,1 | 1,4 | 1,5 | 2,0 | 2,0 | 2,9 | 2,9 | 3,5 |

| Room temperature: 20 °C | | | Water temperature: 70/60 °C | | | | | | | | | |
|-------------------------|---------------------|-----|-----------------------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Size | | | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
| 4 ROWS | | | | | | | | | | | | |
| Fan speed 1 | Heating capacity | kW | 3,797 | 5,367 | 6,916 | 10,121 | 11,584 | 14,541 | 17,833 | 21,231 | 22,469 | 28,394 |
| | Water flow | l/h | 332 | 469 | 605 | 885 | 1013 | 1271 | 1559 | 1856 | 1964 | 2482 |
| | Water pressure drop | kPa | 3,3 | 5,8 | 13,9 | 11,9 | 9,2 | 17,5 | 26,7 | 18,8 | 18,8 | 34,0 |
| Fan speed 2 MAX | Heating capacity | kW | 3,223 | 4,579 | 5,867 | 9,118 | 10,344 | 12 | 15,144 | 17,025 | 18,717 | 24,656 |
| | Water flow | l/h | 282 | 400 | 513 | 797 | 904 | 1092 | 1324 | 1488 | 1636 | 2155 |
| | Water pressure drop | kPa | 2,5 | 4,4 | 10,4 | 9,9 | 7,5 | 13,4 | 20,0 | 12,7 | 13,7 | 26,5 |
| Fan speed 3 MED | Heating capacity | kW | 2,655 | 3,521 | 4,953 | 7,044 | 8,352 | 10,254 | 13,206 | 15,338 | 17,256 | 17,286 |
| | Water flow | l/h | 232 | 308 | 433 | 616 | 730 | 896 | 1154 | 1341 | 1508 | 1511 |
| | Water pressure drop | kPa | 1,8 | 2,7 | 7,7 | 6,3 | 5,2 | 9,5 | 15,8 | 10,6 | 11,8 | 14,2 |
| Fan speed 4 | Heating capacity | kW | 2,251 | 3,038 | 4,354 | 5,824 | 7,43 | 9,178 | 11,574 | 13,228 | 14,696 | 14,535 |
| | Water flow | l/h | 197 | 266 | 381 | 509 | 649 | 802 | 1012 | 1156 | 1285 | 1271 |
| | Water pressure drop | kPa | 1,3 | 2,1 | 6,2 | 4,5 | 4,2 | 7,8 | 12,5 | 8,2 | 8,9 | 10,5 |
| Fan speed 5 MIN | Heating capacity | kW | 2,031 | 2,696 | 3,888 | 5,485 | 6,468 | 8,051 | 10,846 | 11,379 | 13,115 | 12,922 |
| | Water flow | l/h | 178 | 236 | 340 | 479 | 565 | 704 | 948 | 995 | 1146 | 1130 |
| | Water pressure drop | kPa | 1,1 | 1,7 | 5,1 | 4,0 | 3,3 | 6,2 | 11,1 | 6,3 | 7,3 | 8,5 |
| Fan speed 6 | Heating capacity | kW | 1,55 | 2,194 | 3,286 | 5 | 5,357 | 7,525 | 9,649 | 10,134 | 11,894 | 11,352 |
| | Water flow | l/h | 135 | 192 | 287 | 411 | 468 | 658 | 843 | 886 | 1040 | 992 |
| | Water pressure drop | kPa | 0,7 | 1,2 | 3,8 | 3,1 | 2,4 | 5,5 | 9,1 | 5,1 | 6,1 | 6,8 |
| Water content | | l | 0,8 | 1,1 | 1,5 | 1,7 | 2,0 | 2,6 | 2,9 | 3,7 | 3,7 | 4,4 |

Room temperature: 20 °C

Water temperature: 70/60 °C

| Size | | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 | |
|-----------------|---------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1 ROWS | | | | | | | | | | | | |
| Fan speed 1 | Heating capacity | kW | 1,294 | 2,057 | 2,571 | 3,791 | 4,227 | 5,719 | 6,322 | 8,045 | 8,265 | 10,652 |
| | Water flow | l/h | 113 | 180 | 225 | 331 | 369 | 500 | 553 | 703 | 723 | 931 |
| | Water pressure drop | kPa | 2,6 | 5,6 | 11,5 | 24,5 | 7,4 | 15,8 | 18,9 | 44,1 | 46,3 | 72,0 |
| Fan speed 2 MAX | Heating capacity | kW | 1,146 | 1,865 | 2,281 | 3,514 | 3,954 | 5,088 | 5,703 | 6,955 | 7,346 | 9,601 |
| | Water flow | l/h | 100 | 163 | 199 | 307 | 346 | 445 | 499 | 608 | 642 | 839 |
| | Water pressure drop | kPa | 2,1 | 4,7 | 9,3 | 21,4 | 6,6 | 12,9 | 15,8 | 34,1 | 37,6 | 60,0 |
| Fan speed 3 MED | Heating capacity | kW | 0,989 | 1,532 | 2,013 | 2,96 | 3,36 | 4,368 | 5,138 | 6,423 | 6,905 | 7,485 |
| | Water flow | l/h | 86 | 134 | 176 | 259 | 294 | 382 | 449 | 562 | 604 | 654 |
| | Water pressure drop | kPa | 1,6 | 3,3 | 7,5 | 15,8 | 4,9 | 9,9 | 13,1 | 29,7 | 33,7 | 38,7 |
| Fan speed 4 | Heating capacity | kW | 0,874 | 1,371 | 1,832 | 2,564 | 3,07 | 4,015 | 4,643 | 5,738 | 6,101 | 6,564 |
| | Water flow | l/h | 76 | 120 | 160 | 224 | 268 | 351 | 406 | 502 | 533 | 574 |
| | Water pressure drop | kPa | 1,3 | 2,7 | 6,4 | 12,3 | 4,2 | 8,5 | 11,0 | 24,3 | 27,1 | 30,7 |
| Fan speed 5 MIN | Heating capacity | kW | 0,81 | 1,254 | 1,687 | 2,451 | 2,761 | 3,637 | 4,419 | 5,123 | 5,593 | 6,01 |
| | Water flow | l/h | 71 | 110 | 147 | 214 | 241 | 318 | 386 | 448 | 489 | 525 |
| | Water pressure drop | kPa | 1,1 | 2,3 | 5,5 | 11,4 | 3,5 | 7,1 | 10,1 | 19,9 | 23,3 | 26,3 |
| Fan speed 6 | Heating capacity | kW | 0,665 | 1,076 | 1,494 | 2,184 | 2,395 | 3,458 | 4,046 | 4,698 | 5,195 | 5,457 |
| | Water flow | l/h | 58 | 94 | 131 | 191 | 209 | 302 | 354 | 411 | 454 | 477 |
| | Water pressure drop | kPa | 0,8 | 1,8 | 4,4 | 9,3 | 2,7 | 6,5 | 8,6 | 17,1 | 20,4 | 22,2 |
| Water content | l | 0,2 | 0,2 | 0,3 | 0,4 | 0,4 | 0,6 | 0,6 | 0,8 | 0,8 | 1,0 | |

8.3.2 LOW BODY Serie

Room temperature: 20 °C

Water temperature: 70/60 °C

| Size | | 110 | 112 | 114 | 216 | 218 |
|-----------------|---------------------|-----|-------|-------|-------|-------|
| 2 ROWS | | | | | | |
| Fan speed 1 | Heating capacity | kW | 2,254 | 3,152 | 4,309 | 5,616 |
| | Water flow | l/h | 197 | 276 | 377 | 491 |
| | Water pressure drop | kPa | 9,6 | 2,1 | 7,3 | 11,6 |
| Fan speed 2 MAX | Heating capacity | kW | 2,012 | 2,804 | 3,915 | 5,056 |
| | Water flow | l/h | 176 | 245 | 342 | 442 |
| | Water pressure drop | kPa | 7,8 | 1,7 | 6,2 | 9,6 |
| Fan speed 3 MED | Heating capacity | kW | 1,785 | 2,324 | 3,257 | 4,399 |
| | Water flow | l/h | 156 | 203 | 285 | 385 |
| | Water pressure drop | kPa | 6,3 | 1,2 | 4,4 | 7,6 |
| Fan speed 4 | Heating capacity | kW | 1,561 | 1,943 | 2,748 | 3,703 |
| | Water flow | l/h | 136 | 170 | 240 | 324 |
| | Water pressure drop | kPa | 5,0 | 0,9 | 3,3 | 5,6 |
| Fan speed 5 MIN | Heating capacity | kW | 1,441 | 1,838 | 2,613 | 3,601 |
| | Water flow | l/h | 126 | 161 | 288 | 315 |
| | Water pressure drop | kPa | 4,4 | 0,8 | 3,0 | 5,3 |
| Fan speed 6 | Heating capacity | kW | 1,157 | 1,532 | 2,204 | 3,078 |
| | Water flow | l/h | 101 | 134 | 193 | 269 |
| | Water pressure drop | kPa | 3,0 | 0,6 | 2,2 | 4,0 |
| Water content | | l | 0,3 | 0,4 | 0,6 | 0,7 |
| | | | | | | 0,9 |

Room temperature: 20 °C

Water temperature: 70/60 °C

| Size | | 110 | 112 | 114 | 216 | 218 |
|-----------------|---------------------|-----|-------|-------|-------|-------|
| 3 ROWS | | | | | | |
| Fan speed 1 | Heating capacity | kW | 2,837 | 3,977 | 5,412 | 7,042 |
| | Water flow | l/h | 248 | 348 | 473 | 616 |
| | Water pressure drop | kPa | 3,3 | 5,3 | 15,2 | 8,5 |
| Fan speed 2 MAX | Heating capacity | kW | 2,504 | 3,499 | 4,874 | 6,269 |
| | Water flow | l/h | 219 | 306 | 426 | 548 |
| | Water pressure drop | kPa | 2,6 | 4,2 | 12,6 | 6,9 |
| Fan speed 3 MED | Heating capacity | kW | 2,189 | 2,849 | 4 | 5,374 |
| | Water flow | l/h | 191 | 249 | 348 | 470 |
| | Water pressure drop | kPa | 2,1 | 3,0 | 8,8 | 5,3 |
| Fan speed 4 | Heating capacity | kW | 1,884 | 2,335 | 3,296 | 4,443 |
| | Water flow | l/h | 165 | 204 | 288 | 388 |
| | Water pressure drop | kPa | 1,6 | 2,1 | 6,3 | 3,8 |
| Fan speed 5 MIN | Heating capacity | kW | 1,723 | 2,195 | 3,116 | 4,307 |
| | Water flow | l/h | 151 | 192 | 272 | 376 |
| | Water pressure drop | kPa | 1,4 | 1,9 | 5,7 | 3,6 |
| Fan speed 6 | Heating capacity | kW | 1,358 | 1,796 | 2,579 | 3,626 |
| | Water flow | l/h | 119 | 157 | 225 | 317 |
| | Water pressure drop | kPa | 0,9 | 1,3 | 4,1 | 2,6 |
| Water content | | l | 0,4 | 0,6 | 0,8 | 1,1 |
| | | | | | | 1,3 |

Room temperature: 20 °C

Water temperature: 70/60 °C

| Size | | 110 | 112 | 114 | 216 | 218 |
|-----------------|---------------------|-----|-------|-------|-------|-------|
| 1 ROWS | | | | | | |
| Fan speed 1 | Heating capacity | kW | 1,294 | 2,02 | 2,666 | 3,552 |
| | Water flow | l/h | 113 | 177 | 233 | 311 |
| | Water pressure drop | kPa | 2,6 | 5,4 | 12,3 | 21,8 |
| Fan speed 2 MAX | Heating capacity | kW | 1,159 | 1,839 | 2,432 | 3,27 |
| | Water flow | l/h | 101 | 161 | 213 | 286 |
| | Water pressure drop | kPa | 2,2 | 4,6 | 10,5 | 18,9 |
| Fan speed 3 MED | Heating capacity | kW | 1,027 | 1,532 | 2,03 | 2,856 |
| | Water flow | l/h | 90 | 134 | 177 | 250 |
| | Water pressure drop | kPa | 1,7 | 3,3 | 7,6 | 14,9 |
| Fan speed 4 | Heating capacity | kW | 0,9 | 1,287 | 1,723 | 2,414 |
| | Water flow | l/h | 79 | 113 | 151 | 211 |
| | Water pressure drop | kPa | 1,4 | 2,5 | 5,7 | 11,1 |
| Fan speed 5 MIN | Heating capacity | kW | 0,833 | 1,22 | 1,642 | 2,349 |
| | Water flow | l/h | 73 | 107 | 144 | 205 |
| | Water pressure drop | kPa | 1,2 | 2,2 | 5,2 | 10,5 |
| Fan speed 6 | Heating capacity | kW | 0,682 | 1,024 | 1,392 | 2,027 |
| | Water flow | l/h | 60 | 89 | 122 | 177 |
| | Water pressure drop | kPa | 0,8 | 1,6 | 3,9 | 8,1 |
| Water content | | l | 0,2 | 0,2 | 0,3 | 0,4 |
| | | | | | | 0,4 |

8.4 Electrical data

Power supply: 230-1-50 [V-ph-Hz]

| Size | | 110 | 112 | 114 | 216 | 218 | 220 | 222 | 224 | 226 | 228 |
|--------------------------|---------------------|------|------|------|------|------|------|------|------|------|------|
| Nominal absorbed power | Fan speed 1 [W] | 51 | 62 | 73 | 86 | 90 | 112 | 156 | 184 | 203 | 241 |
| | Fan speed 2 MAX [W] | 46 | 48 | 57 | 81 | 86 | 89 | 119 | 145 | 156 | 200 |
| | Fan speed 3 MED [W] | 37 | 38 | 45 | 65 | 68 | 67 | 94 | 128 | 138 | 128 |
| | Fan speed 4 [W] | 30 | 33 | 40 | 56 | 61 | 59 | 75 | 104 | 111 | 102 |
| | Fan speed 5 MIN [W] | 28 | 29 | 33 | 49 | 51 | 50 | 68 | 85 | 91 | 85 |
| | Fan speed 6 [W] | 22 | 26 | 31 | 37 | 42 | 45 | 55 | 70 | 76 | 70 |
| Nominal absorbed current | Fan speed 1 [A] | 0,24 | 0,30 | 0,35 | 0,41 | 0,43 | 0,48 | 0,68 | 0,81 | 0,88 | 1,10 |
| | Fan speed 2 MAX [A] | 0,22 | 0,23 | 0,27 | 0,39 | 0,41 | 0,38 | 0,52 | 0,66 | 0,68 | 0,87 |
| | Fan speed 3 MED [A] | 0,18 | 0,18 | 0,22 | 0,31 | 0,32 | 0,29 | 0,41 | 0,59 | 0,61 | 0,55 |
| | Fan speed 4 [A] | 0,14 | 0,16 | 0,19 | 0,27 | 0,29 | 0,25 | 0,33 | 0,48 | 0,49 | 0,44 |
| | Fan speed 5 MIN [A] | 0,13 | 0,14 | 0,16 | 0,23 | 0,24 | 0,21 | 0,30 | 0,40 | 0,41 | 0,37 |
| | Fan speed 6 [A] | 0,11 | 0,12 | 0,15 | 0,18 | 0,20 | 0,19 | 0,25 | 0,34 | 0,34 | 0,31 |
| Locket rotor current | [A] | 0,32 | 0,34 | 0,4 | 0,6 | 0,6 | 0,68 | 0,84 | 1,45 | 1,64 | 1,85 |



Electrical data refer to standard fan coils with clean filter and without external static pressure. A dirty filter or an external air pressure drop will lower the absorbed power level. The installation of electric accessories increase the absorbed power level.

9. NOISE LEVELS

9.1 Sound power

The acoustic emission characteristics of any noise source is defined as its «**sound power**» (SWL). This typical measurement indicates the total radiated energy which does not vary for a given noise source; that is, it does not depend on the observer, location, distance or any other factor which is not part of the source.

9.2 Sound pressure in a closed environment

The perceived noise radiated from a sound source is something quite different: noise perception is indicated by its «**sound pressure**» (SPL). Even though it is caused by the emission of sound energy, it greatly depends on the environment through which the sound travels, on the distance from the source and on all other circumstances that are not directly related to the primary noise source.

Sound power level

| | | dB (A) |
|----------|-----------------|--------|
| Size 110 | Fan speed 1 | 52 |
| | Fan speed 2 MAX | 48 |
| | Fan speed 3 MED | 42 |
| | Fan speed 4 | 40 |
| | Fan speed 5 MIN | 36 |
| | Fan speed 6 | 34 |
| Size 112 | Fan speed 1 | 53 |
| | Fan speed 2 MAX | 50 |
| | Fan speed 3 MED | 45 |
| | Fan speed 4 | 41 |
| | Fan speed 5 MIN | 38 |
| | Fan speed 6 | 35 |
| Size 114 | Fan speed 1 | 56 |
| | Fan speed 2 MAX | 53 |
| | Fan speed 3 MED | 48 |
| | Fan speed 4 | 44 |
| | Fan speed 5 MIN | 42 |
| | Fan speed 6 | 38 |
| Size 216 | Fan speed 1 | 56 |
| | Fan speed 2 MAX | 53 |
| | Fan speed 3 MED | 47 |
| | Fan speed 4 | 44 |
| | Fan speed 5 MIN | 40 |
| | Fan speed 6 | 37 |
| Size 218 | Fan speed 1 | 58 |
| | Fan speed 2 MAX | 55 |
| | Fan speed 3 MED | 51 |
| | Fan speed 4 | 47 |
| | Fan speed 5 MIN | 43 |
| | Fan speed 6 | 39 |
| Size 220 | Fan speed 1 | 58 |
| | Fan speed 2 MAX | 53 |
| | Fan speed 3 MED | 47 |
| | Fan speed 4 | 43 |
| | Fan speed 5 MIN | 40 |
| | Fan speed 6 | 36 |
| Size 222 | Fan speed 1 | 63 |
| | Fan speed 2 MAX | 60 |
| | Fan speed 3 MED | 55 |
| | Fan speed 4 | 52 |
| | Fan speed 5 MIN | 50 |
| | Fan speed 6 | 46 |
| Size 224 | Fan speed 1 | 64 |
| | Fan speed 2 MAX | 58 |
| | Fan speed 3 MED | 56 |
| | Fan speed 4 | 52 |
| | Fan speed 5 MIN | 49 |
| | Fan speed 6 | 48 |
| Size 226 | Fan speed 1 | 67 |
| | Fan speed 2 MAX | 63 |
| | Fan speed 3 MED | 60 |
| | Fan speed 4 | 58 |
| | Fan speed 5 MIN | 54 |
| | Fan speed 6 | 51 |
| Size 228 | Fan speed 1 | 70 |
| | Fan speed 2 MAX | 66 |
| | Fan speed 3 MED | 58 |
| | Fan speed 4 | 52 |
| | Fan speed 5 MIN | 49 |
| | Fan speed 6 | 45 |

Besides the distance from the source, the most important factor that influences the «**sound pressure**» (and, as a result, the perceived noise) in a closed environment is the amount of sound energy reflected off surfaces that have a greater or lesser reflection capacity: it depends, therefore, on the re-transmission of sound energy (**power**) acting upon reflecting surfaces.

Covering the walls with sound absorbing material (i.e., material with a low sound reflecting capacity) is the most effective way to reduce the noise level in a closed environment.

The following values indicate the sound pressure emitted by the fan coils. By using the YORK software for selection it is possible to calculate the new sound pressure level obtained by changing the parameters: room volume, distance from the noise source and reverberation time.

The reverberation time measures the sound characteristics of a room: it increases as the room dimensions increase and decreases as the sound absorption capacity of the structure increases.

Sound pressure in a closed environment

| | | dB (A) |
|----------|-----------------|--------|
| Size 110 | Fan speed 1 | 40 |
| | Fan speed 2 MAX | 38 |
| | Fan speed 3 MED | 33 |
| | Fan speed 4 | 32 |
| | Fan speed 5 MIN | 28 |
| | Fan speed 6 | 27 |
| Size 112 | Fan speed 1 | 42 |
| | Fan speed 2 MAX | 40 |
| | Fan speed 3 MED | 35 |
| | Fan speed 4 | 32 |
| | Fan speed 5 MIN | 29 |
| | Fan speed 6 | 27 |
| Size 114 | Fan speed 1 | 45 |
| | Fan speed 2 MAX | 42 |
| | Fan speed 3 MED | 38 |
| | Fan speed 4 | 34 |
| | Fan speed 5 MIN | 32 |
| | Fan speed 6 | 29 |
| Size 216 | Fan speed 1 | 44 |
| | Fan speed 2 MAX | 41 |
| | Fan speed 3 MED | 36 |
| | Fan speed 4 | 33 |
| | Fan speed 5 MIN | 29 |
| | Fan speed 6 | 27 |
| Size 218 | Fan speed 1 | 45 |
| | Fan speed 2 MAX | 43 |
| | Fan speed 3 MED | 39 |
| | Fan speed 4 | 35 |
| | Fan speed 5 MIN | 32 |
| | Fan speed 6 | 28 |
| Size 220 | Fan speed 1 | 45 |
| | Fan speed 2 MAX | 41 |
| | Fan speed 3 MED | 35 |
| | Fan speed 4 | 31 |
| | Fan speed 5 MIN | 29 |
| | Fan speed 6 | 25 |
| Size 222 | Fan speed 1 | 51 |
| | Fan speed 2 MAX | 47 |
| | Fan speed 3 MED | 42 |
| | Fan speed 4 | 39 |
| | Fan speed 5 MIN | 38 |
| | Fan speed 6 | 34 |
| Size 224 | Fan speed 1 | 51 |
| | Fan speed 2 MAX | 45 |
| | Fan speed 3 MED | 44 |
| | Fan speed 4 | 40 |
| | Fan speed 5 MIN | 37 |
| | Fan speed 6 | 36 |
| Size 226 | Fan speed 1 | 54 |
| | Fan speed 2 MAX | 50 |
| | Fan speed 3 MED | 47 |
| | Fan speed 4 | 45 |
| | Fan speed 5 MIN | 41 |
| | Fan speed 6 | 39 |
| Size 228 | Fan speed 1 | 58 |
| | Fan speed 2 MAX | 53 |
| | Fan speed 3 MED | 45 |
| | Fan speed 4 | 40 |
| | Fan speed 5 MIN | 36 |
| | Fan speed 6 | 33 |

10. CONVERSION TABLES

The units of electrical measurement are common to the all systems:

- V voltage
- Hz frequency of the voltage
- A absorbed current intensity
- W absorbed electric power

The conversion tables enable you to convert data into units of the Technic System (T.S.), International System (I.S.) and British System (B.S.).

| FROM | TECHNIC SYSTEM (T.S.) | | |
|--------------------------------|-----------------------|---------------------|----------------------------|
| TO | I.S. | | B.S. |
| temperature | °C (*) | = | °F = °C x 1,8 + 32 |
| external static pressure | Pa | = mm c.a. x 9,80665 | m p.s.i. = mm c.a. x 1,422 |
| capacity (heating and cooling) | W | = Kcal/h x 1,163 | Btu/h = Kcal/h x 3,968 |
| water flow | l/s (*) | = l/h / 3600 | gal/h = l/h / 4,545 |
| water pressure drop | KPa | = m c.a. x 9,80665 | p.s.i. = m c.a. x 1,422 |
| air flow | m³/s | = m³/h / 3600 | Kgal/h = m³/h / 4,545 |

| FROM | INTERNATIONAL SYSTEM (I.S.) | | |
|--------------------------------|-----------------------------|-----------------|-----------------------|
| TO | T.S. | | B.S. |
| temperature | °C | | °F = °C x 1,8 + 32 |
| external static pressure | mm c.a. | = Pa / 9,80665 | m p.s.i. = Pa x 6,896 |
| capacity (heating and cooling) | Kcal/h | = W / 1,163 | Btu/h = W x 3,412 |
| water flow | l/h | = l/s x 3600 | gal/h = l/s x 16362 |
| water pressure drop | m c.a. | = Kpa / 9,80665 | p.s.i. = KPa x 6,896 |
| air flow | m³/h | = m³/s x 3600 | Kgal/h = m³/s x 792 |

| FROM | BRITISH SYSTEM (B.S.) | | |
|--------------------------------|-----------------------|-------------------------------------|--|
| TO | T.S. | | I.S. |
| temperature | °C | = ($^{\circ}\text{F} - 32$) / 1,8 | °C (*) = ($^{\circ}\text{F} - 32$) / 1,8 |
| external static pressure | mm c.a. | = m p.s.i. / 1,422 | Pa = m p.s.i. / 6,896 |
| capacity (heating and cooling) | Kcal/h | = Btu/h / 3,968 | W = Btu/h / 3,412 |
| water flow | l/h | = gal/h x 4,545 | l/s (*) = gal/h / 16362 |
| water pressure drop | m c.a. | = p.s.i. / 1,422 | KPa = p.s.i. / 6,896 |
| air flow | m³/h | = Kgal/h x 4,545 | m³/s = Kgal/h / 792 |

(*) in common use; strictly the temperature should be measured in K and volume in m³

Example 1

Model YLV 110 3R has a heating capacity of 2442 kcal/h at the MAX speed. The same capacity can be calculated in Btu/h by converting the value from the Technic System (T.S) to the British System (B.S.):

$$\text{Btu/h} = \text{kcal/h} \times 3.968 \text{ that is } \text{Btu/h} = 2442 \times 3.968 = 9690$$

Example 2

Convert in l/s the water flow of 12 gal/h. We convert the value from the British System (B.S.) to the International System (I.S.):

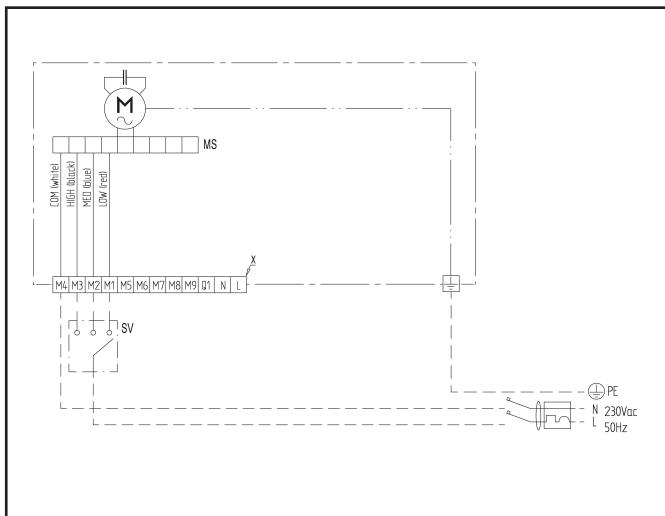
$$\text{l/s} = \text{gal/h} / 792 \text{ that is } \text{l/s} = 12 / 792 = 0.0$$

EXHIBIT 1

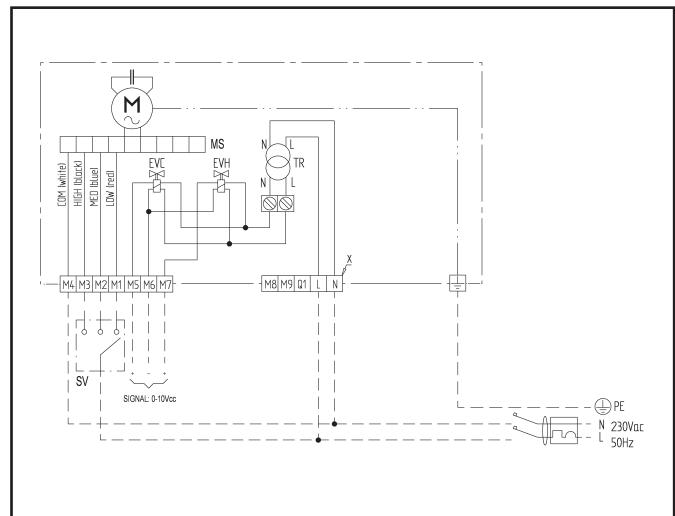
ELECTRICAL CONNECTIONS

The following wiring diagrams are the most frequently used for fancoil applications:

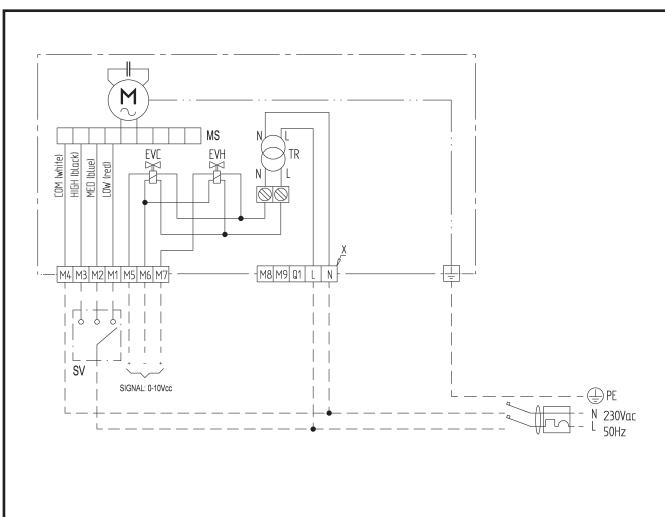
CBL00



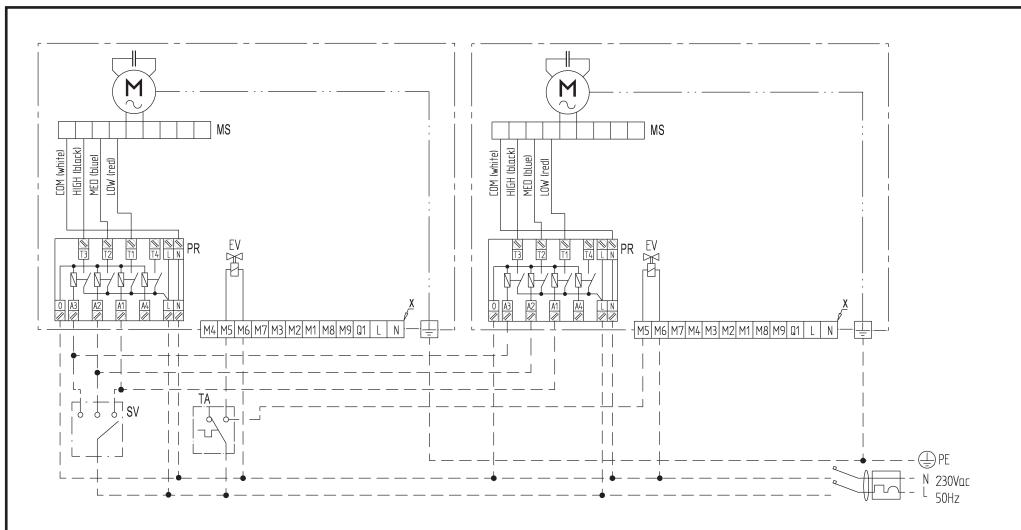
CBL00 – EVC – EVH



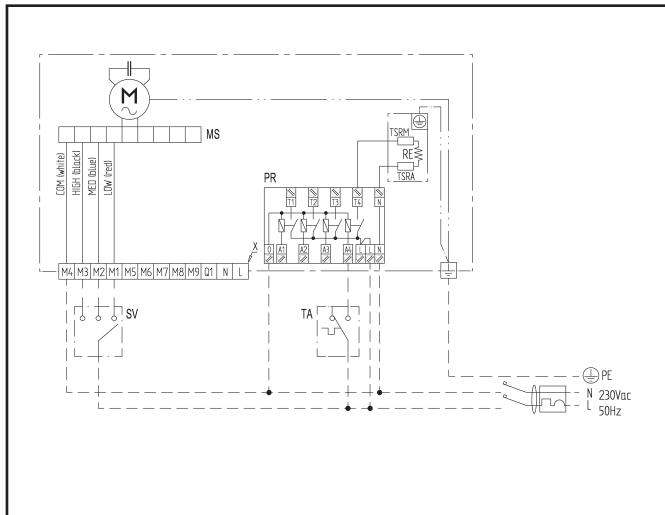
CBL10 – EVC – EVH



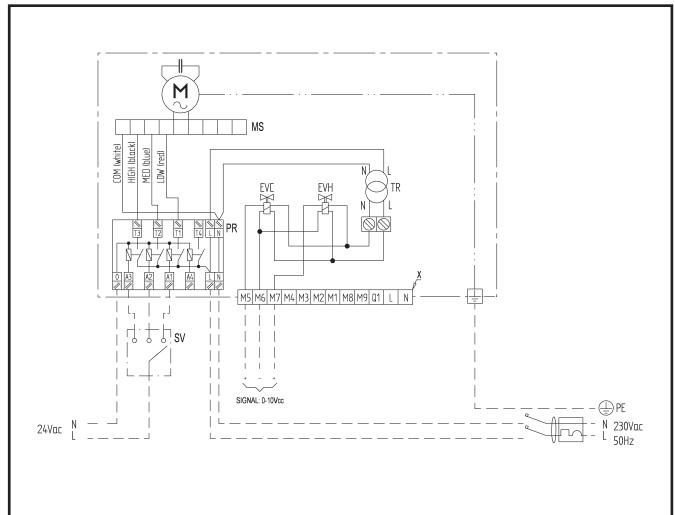
CBL20 – EV – MASTER/SLAVE



CBL20 - RE



CBL30 - EVC - EVH



LEGEND

(for all the electric diagrams)

| | |
|------------|--------------------------------|
| M | Fan motor |
| MS | Terminal board for motor |
| SV | Fan speed selector (OFF-1-2-3) |
| PE | Earth |
| N | Neutral |
| L | Phase |
| TA | Room temperature thermostat |
| E/I | S/W switch |

| | |
|-------------|---|
| RE | Electric heater |
| PR | Power Relay card |
| TSRM | Safety thermostat with manual resetting |
| TSRA | Safety thermostat with automatic resetting |
| EV | Regulating valve: EVC for cooling; EVH for heating |
| TR | Transformer 230/24V |
| x | CBL00 terminal board |

NOTE. If other configurations are required, different from the standard ones, please refer to the instruction manual of every specific YORK regulator.

JOHNSON
CONTROLS

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