| | |
|---|---|
| UNIVERSAL WITH CABINET | PFWBC<br>[ AC MOTOR ]<br>PFWBC-EC<br>[ EC MOTOR ] |
| UNIVERSAL WITHOUT CABINET | PFWB<br>[ AC MOTOR ]<br>PFWB-EC<br>[ EC MOTOR ] |
| UNIVERSAL SLIM WITH CABINET | PSLF<br>[ EC MOTOR ] |

# UNIVERSAL **FAN COILS**

# UNIVERSAL
## Intelligent Fan Coils

**PFWB(C)-EC**
**PFWB(C)-AC**

## PRODUCT PRESENTATION

Designed to meet the requirements of the most worldwide demanding markets, the Polar Air Intelligent universal ranges suit applications that require units for floor standing or under-ceiling mount installation, with decorative casings or for ceiling concealed. The Universal Fan coil range offers 3-row coils for 2-pipe installations (3+1 row for 4-pipe through auxiliary heating coil accessory), as well as electrical heater accessory modules that can be easily mounted onsite. The universal ranges have easy access to the fan motor assemblies for maintenance without the need to remove the units once installed.

## PRODUCT RANGE

The Intelligent Universal units offer the following EC and ACmotor 230V/50Hz range with the following capacities at H speed:

| | EC Motor | AC Motor | EC Motor | AC Motor |
|---|---|---|---|---|
| | 2 Pipe | | 4 Pipe | |
| COOLING | 1.8 - 11.37 kW | 1.70 - 11.37 kW | 1.84 - 9.59 kW | 1.7 - 9.59 kW |
| HEATING | 2 - 12.16kW | 1.72 - 12.16 kW | 0.46 - 2.64 kW | 1.79 - 9.29 kW |
| AIR FLOW | 330 - 2204 m³/h | 350 - 2204 m³/h | 330 - 2204 m³/h | 330 - 2204 m³/h |



## PRODUCT FEATURES

**Structure.** Units made of galvanized sheet steel designed to be attached to the wall or the ceiling, with fire-resistant thermo-acoustic insulation internally fitted. Installation can be vertical or horizontal, thanks to the "V" type drain pan accessory.

**Cabinet.** Made of thick steel sheet resistant to rust, corrosion, chemical agents, solvents, aliphatic compounds, and alcohols. The cabinet, designed to allow the unit structure to hang, is also internally insulated with thermo-acoustic insulation.

**Air Grille Distribution.** Built with fixed fins made of ABS plastic in color RAL9010. The metal cabinet has an ABS air discharge grille (only for PFWBC models), supplied with small side doors for easy access to the control panel.

**Water Coils.** Built with seamless copper headers and tubes mechanically expanded into corrugated aluminium fin material for a permanent primary to secondary surface bond. We test the coils at 35 bar, and the maximum operating limit we recommend is at 20 bar. It includes manual air vent and water purge valve.

**Fan.** The fan section includes one or two centrifugal fans, which consist of double air inlet blades made of forward-curving metal fins that are directly attached to the AC or EC motors. Statically and dynamically balanced fan section for smooth and quiet operation. Fans with large diameter to create high airflow and high static pressure with fewer revolutions to offer lower noise levels.

**Filtration.** Metal frame G2 efficient air filter, easy to remove and to clean by rinsing with water or by gently vacuuming it. G4 efficiency filter is optional

**Flexibility.** The Polar Air Universal Intelligent range offer configuration flexibility with interchangeable left to right-hand connections, front cover easy to remove for ease of maintenance, horizontal or vertical return air intake positions, auxiliary electric heater easily installed onsite, and auxiliary 1-row heating coil for 4-pipe applications.

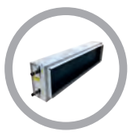
## OPTIONAL ACCESSORIES*


**Thermostat Controller**

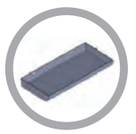
**ABS Led Receiver**

**Wall Pad Controller**

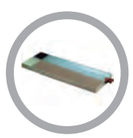
**Electric heater**
1 - 3 kW



**1 row auxiliary heating coil**



**Horizontal drain pan**



**Stainless steel drain pan**

**ABS Plastic feet**

**MERV8 | G4 HAF 3M Filter**

**Valve kit**
2 way Ball 3/4"
24VAC modulating

**Vertical drain pan**

*(*): Please refer to page 146 for further information on accessories.*

## TECHNICAL SPECIFICATIONS

Hydronic Universal (Cabinet), 3 row, 2 pipe with **EC Motor**

| UNIT GENERAL SPECS | PFWB(C)-3R-[SIZE]-V-EC | | | 06B | 09 | 12B | 15B | 18 | 24B | 30B | 36B | 40C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Configuration | | | 2 PIPE | | | | | | | | |
| | Number of Fan Blowers | | | 1 | 2 | | | | 4 | | | |
| | Power Supply (V/Ph/Hz) | | | 230/1/50 \| 220/1/60 | | | | | | | | |
| AIR | Air Flow (E) | H | m³/h | 330 | 504 | 677 | 840 | 970 | 1350 | 1575 | 1935 | 2204 |
| | | M | | 280 | 432 | 540 | 697 | 827 | 1170 | 1440 | 1710 | 2034 |
| | | L | | 198 | 342 | 450 | 607 | 677 | 990 | 1224 | 1350 | 1700 |
| COOLING | Cooling Capacity (E) | H | kW | 1.84 | 2.36 | 3.09 | 3.90 | 4.49 | 6.45 | 6.95 | 8.47 | 9.59 |
| | | M | | 1.61 | 2.10 | 2.68 | 3.40 | 3.96 | 5.84 | 6.47 | 7.67 | 9.09 |
| | | L | | 1.20 | 1.76 | 2.33 | 3.06 | 3.39 | 5.30 | 5.73 | 6.39 | 7.93 |
| | Sensible Cooling Capacity (E) | H | | 1.38 | 1.73 | 2.37 | 2.82 | 3.22 | 5.08 | 5.07 | 6.15 | 6.95 |
| | | M | | 1.21 | 1.53 | 2.06 | 2.43 | 2.81 | 4.58 | 4.68 | 5.52 | 6.56 |
| | | L | | 0.92 | 1.27 | 1.77 | 2.17 | 2.39 | 4.01 | 4.12 | 4.57 | 5.66 |
| HEATING | Heating Capacity (E) | H | kW | 1.95 | 2.48 | 3.13 | 3.92 | 4.49 | 6.50 | 7.11 | 8.65 | 9.72 |
| | | M | | 1.69 | 2.19 | 2.66 | 3.43 | 3.97 | 5.90 | 6.67 | 7.88 | 9.22 |
| | | L | | 1.29 | 1.82 | 2.30 | 3.07 | 3.41 | 5.40 | 5.88 | 6.54 | 8.00 |
| | Max. Electric Heater | | | 1.00 | 1.50 | 2.00 | 2.00 | 2.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| SOUND | Pressure Level ( Outlet ) | | db(A) | 41/39/33 | 43/40/36 | 46/43/39 | 51/46/43 | 51/48/44 | 51/48/46 | 55/51/49 | 57/54/50 | 58/54/50 |
| | Power Level ( Outlet ) | | | 50/48/42 | 52/49/45 | 55/52/48 | 60/55/52 | 60/57/53 | 60/57/55 | 64/60/58 | 66/63/59 | 67/63/59 |
| ELECTRICAL (Fan Motor) | Power Input (Cooling) (E) 1 | H | W | 15 | 29 | 25 | 44 | 52 | 76 | 100 | 128 | 182 |
| | | M | | 12 | 20 | 18 | 30 | 36 | 52 | 68 | 92 | 147 |
| | | L | | 8 | 12 | 13 | 22 | 23 | 40 | 51 | 56 | 92 |
| | Power Input (Heating) (E) 1 | H | | 16 | 29 | 25 | 50 | 52 | 76 | 100 | 128 | 182 |
| | | M | | 12 | 20 | 18 | 33 | 36 | 52 | 68 | 92 | 147 |
| | | L | | 8 | 12 | 13 | 24 | 23 | 40 | 51 | 56 | 92 |
| | Running Current | H | A | 0.15 | 0.23 | 0.33 | 0.38 | 0.45 | 0.76 | 0.87 | 1.11 | 1.58 |
| HYDRONIC | Cooling Water Flow Rate | H | L/h | 280.80 | 404.90 | 526.30 | 668.30 | 770.10 | 1011 | 1192 | 1451 | 1643 |
| | | M | | 247.30 | 360.30 | 448.70 | 583.20 | 678.70 | 908.20 | 1109 | 1315 | 1559 |
| | | L | | 188.40 | 302.00 | 386.60 | 524.60 | 580.70 | 798.60 | 981.50 | 1096 | 1360 |
| | Cooling Pressure Drop | H | kPa | 8.57 | 18.00 | 9.50 | 19 | 25.20 | 9.79 | 12 | 17.50 | 23.20 |
| | | M | | 6.74 | 14.70 | 6.30 | 14.90 | 20.30 | 8.20 | 9.96 | 15.00 | 21.20 |
| | | L | | 4.20 | 10.80 | 5.90 | 10.30 | 15.60 | 5.70 | 8.70 | 10.70 | 16.90 |
| | Heating Water Flow Rate | H | L/h | 283 | 405 | 536 | 672 | 770 | 1046 | 1218 | 1473 | 1663 |
| | | M | | 251 | 361 | 456 | 589 | 681 | 942 | 1144 | 1350 | 1580 |
| | | L | | 191 | 301 | 395 | 526 | 585 | 831 | 1008 | 1121 | 1372 |
| | Heating Pressure Drop | H | kPa | 9.70 | 17.40 | 8.32 | 15.90 | 21.20 | 15.10 | 11.30 | 18.70 | 19.80 |
| | | M | | 7.60 | 14.10 | 5.50 | 12.50 | 17.20 | 12.60 | 9.96 | 26.40 | 18.20 |
| | | L | | 4.80 | 10.20 | 5.11 | 10.30 | 13.20 | 8.70 | 7.71 | 20.10 | 14.30 |
| | Water Content | | L | 0.66 | 0.74 | 0.96 | 1.19 | 1.26 | 1.74 | 1.97 | 2.19 | 2.42 |

***TESTING CONDITIONS***

*Cooling mode: Return air temperature: 27°C DB / 19°C WB Inlet / outlet water temperature: 7°C / 12°C*
*Heating mode: Return air temperature: 20°C Inlet / outlet water temperature: 45°C / 40°C*

*(1): Fan motor power includes PCB power input.*
*(e): Specifications follow Eurovent test data for the year of publication.*
***For non-standard conditions (i.e: High ΔT requirements) please refer to Eurovent certified selection software.***
*Please visit www.eurovent-certification.com for more information.*



## TECHNICAL SPECIFICATIONS

Hydronic Universal (Cabinet), 4 row, 2 pipe with **EC Motor**

| UNIT GENERAL SPECS | PFWB(C)-4R-[SIZE]-V-EC | | | 06 | 09 | 12 | 15 | 18 | 24 | 30 | 36 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Configuration | | | 2 PIPE | | | | | | | | |
| | Number of Fan Blowers | | | 1 | 2 | | | | 4 | | | |
| | Power Supply (V/Ph/Hz) | | | 230 / 1 / 50 \| 220 /1 / 60 | | | | | | | | |
| AIR | Air Flow | H | m³/h | 330 | 504 | 677 | 840 | 970 | 1350 | 1575 | 1935 | 2204 |
| | | M | | 280 | 432 | 540 | 697 | 827 | 1170 | 1440 | 1710 | 2034 |
| | | L | | 198 | 342 | 450 | 607 | 677 | 990 | 1224 | 1350 | 1700 |
| COOLING | Cooling Capacity | H | kW | 1.8 | 2.55 | 3.33 | 4.06 | 4.8 | 6.79 | 8.29 | 9.81 | 11.37 |
| | | M | | 1.59 | 2.27 | 2.84 | 3.54 | 4.23 | 6.1 | 7.72 | 8.89 | 10.79 |
| | | L | | 1.21 | 1.9 | 2.45 | 3.19 | 3.62 | 5.36 | 6.83 | 7.4 | 9.41 |
| | Sensible Cooling Capacit | H | | 1.24 | 1.79 | 2.32 | 2.86 | 3.35 | 4.76 | 5.81 | 6.86 | 7.98 |
| | | M | | 1.08 | 1.57 | 1.95 | 2.46 | 2.93 | 4.23 | 5.37 | 6.15 | 7.54 |
| | | L | | 0.81 | 1.31 | 1.68 | 2.2 | 2.49 | 3.7 | 4.72 | 5.09 | 6.5 |
| HEATING | Heating Capacity | H | kW | 2 | 2.92 | 3.91 | 4.82 | 5.59 | 7.63 | 8.88 | 10.77 | 12.16 |
| | | M | | 1.78 | 2.6 | 3.32 | 4.22 | 4.94 | 6.91 | 8.36 | 9.9 | 11.49 |
| | | L | | 1.37 | 2.17 | 2.88 | 3.81 | 4.25 | 6.09 | 7.43 | 8.24 | 10.06 |
| | Max. Electric Heater | | | 1 | 1.5 | 2 | | | 3 | | | |
| SOUND | Pressure Level ( Outlet ) | | db(A) | 41/39/33 | 43/40/36 | 46/43/39 | 51/46/43 | 51/48/44 | 51/48/46 | 55/51/49 | 57/54/50 | 60/58/56 |
| | Power Level ( Outlet ) | | | 50/48/42 | 52/49/45 | 55/52/48 | 60/55/52 | 60/57/53 | 60/57/55 | 64/60/58 | 66/63/59 | 69/67/65 |
| ELECTRICAL (Fan Motor) | Power Input (cooling mode) | H | W | 17 | 26 | 38 | 44 | 52 | 87 | 100 | 128 | 182 |
| | | M | | 13 | 15 | 23 | 30 | 36 | 60 | 71 | 92 | 147 |
| | | L | | 8 | 11 | 13 | 22 | 23 | 40 | 51 | 56 | 92 |
| | Power Input (heating mode) | H | | 17 | 26 | 38 | 44 | 52 | 87 | 100 | 128 | 182 |
| | | M | | 13 | 15 | 23 | 30 | 36 | 60 | 71 | 92 | 147 |
| | | L | | 8 | 11 | 13 | 22 | 23 | 40 | 51 | 56 | 92 |
| | Running Current | H | A | 0.15 | 0.23 | 0.33 | 0.38 | 0.45 | 0.76 | 0.87 | 1.11 | 1.58 |
| HYDRONIC | Cooling Water Flow Rate | H | L/h | 309 | 437 | 571 | 696 | 822 | 1164 | 1422 | 1681 | 1950 |
| | | M | | 272 | 389 | 487 | 607 | 725 | 1045 | 1323 | 1523 | 1850 |
| | | L | | 207 | 326 | 419 | 546 | 620 | 919 | 1171 | 1269 | 1614 |
| | Cooling Pressure Drop | H | kPa | 91.96 | 27 | 50.56 | 27.13 | 37.58 | 39.76 | 61.89 | 90.24 | 127.15 |
| | | M | | 73.14 | 21.89 | 37.94 | 21.23 | 29.93 | 32.76 | 54.35 | 75.57 | 115.63 |
| | | L | | 44.84 | 15.93 | 29.03 | 17.54 | 22.6 | 25.99 | 43.64 | 54.39 | 90.44 |
| | Heating Water Flow Rate | H | L/h | 343 | 500 | 670 | 827 | 958 | 1308 | 1522 | 1846 | 2085 |
| | | M | | 306 | 446 | 570 | 724 | 848 | 1184 | 1433 | 1698 | 1970 |
| | | L | | 234 | 372 | 493 | 652 | 729 | 1043 | 1273 | 1413 | 1725 |
| | Heating Pressure Drop | H | kPa | 13.94 | 28.60 | 56.34 | 30.74 | 41.42 | 41.08 | 59.06 | 90.55 | 122.01 |
| | | M | | 11.31 | 23.25 | 42.09 | 24.18 | 33.21 | 34.33 | 53.01 | 77.90 | 110.17 |
| | | L | | 7.01 | 16.79 | 32.44 | 20.06 | 25.33 | 27.35 | 42.86 | 55.97 | 86.67 |
| | Water Content | | L | 0.88 | 0.99 | 1.28 | 1.59 | 1.68 | 2.32 | 2.63 | 2.92 | 3.23 |

***TESTING CONDITIONS***

*Cooling mode: Return air temperature: 27°C DB / 19°C WB Inlet / outlet water temperature: 7°C / 12°C*
*Heating mode: Return air temperature: 20°C Inlet / outlet water temperature: 45°C / 40°C*

*(1): Fan motor power includes PCB power input.*
*(e): Specifications follow Eurovent test data for the year of publication.*
***For non-standard conditions (i.e: High ΔT requirements) please refer to Eurovent certified selection software.***
*Please visit www.eurovent-certification.com for more information.*

## TECHNICAL SPECIFICATIONS

Hydronic Universal (Cabinet), 3+1 row (Auxiliary Heating coil) with **EC Motor**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| UNIT GENERAL SPECS | PFWB(C)-3+1R-[SIZE]-V-EC | | | 06B | 09 | 12B | 15B | 18 | 24B | 30B | 36B | 40C |
| | Configuration | | | 2 PIPE | | | | | | | | |
| | Number of Fan Blowers | | | 1 | 2 | | | | 4 | | | |
| | Power Supply (V/Ph/Hz) | | | 230/1/50 \| 220/1/60 | | | | | | | | |
| AIR | Air Flow | H | $m^3/h$ | 330 | 504 | 677 | 840 | 970 | 1350 | 1575 | 1935 | 2204 |
| | | M | | 280 | 432 | 540 | 697 | 827 | 1170 | 1440 | 1710 | 2034 |
| | | L | | 198 | 342 | 450 | 607 | 677 | 990 | 1224 | 1350 | 1700 |
| COOLING | Cooling Capacity | H | kW | 1.84 | 2.36 | 3.09 | 3.90 | 4.49 | 6.45 | 6.95 | 8.47 | 9.59 |
| | | M | | 1.61 | 2.10 | 2.68 | 3.40 | 3.96 | 5.84 | 6.47 | 7.67 | 9.09 |
| | | L | | 1.20 | 1.76 | 2.33 | 3.06 | 3.39 | 5.30 | 5.73 | 6.39 | 7.93 |
| | Sensible Cooling Capacity | H | | 1.38 | 1.73 | 2.37 | 2.82 | 3.22 | 5.08 | 5.07 | 6.15 | 6.95 |
| | | M | | 1.21 | 1.53 | 2.06 | 2.43 | 2.81 | 4.58 | 4.68 | 5.52 | 6.56 |
| | | L | | 0.92 | 1.27 | 1.77 | 2.17 | 2.39 | 4.01 | 4.12 | 4.57 | 5.66 |
| HEATING | Heating Capacity | H | kW | 0.46 | 0.63 | 0.72 | 1.05 | 1.27 | 1.37 | 1.88 | 2.32 | 2.64 |
| | | M | | 0.40 | 0.57 | 0.62 | 1.10 | 1.15 | 1.26 | 1.79 | 2.15 | 2.53 |
| | | L | | 0.28 | 0.49 | 0.56 | 0.98 | 1.00 | 1.29 | 1.61 | 1.82 | 2.27 |
| SOUND | Pressure Level ( Outlet ) | | db(A) | 41/39/33 | 43/40/36 | 46/43/39 | 51/46/43 | 51/48/44 | 51/48/46 | 55/51/49 | 57/54/50 | 60/58/56 |
| | Power Level ( Outlet ) | | | 50/48/41 | 52/49/45 | 52/49/46 | 58/53/51 | 60/57/53 | 59/55/53 | 64/60/58 | 66/63/59 | 69/67/65 |
| ELECTRICAL (Fan Motor) | Power Input (Cooling) [1] | H | W | 15 | 29 | 25 | 44 | 52 | 76 | 100 | 128 | 182 |
| | | M | | 12 | 20 | 18 | 30 | 36 | 52 | 68 | 92 | 147 |
| | | L | | 8 | 12 | 13 | 22 | 23 | 40 | 51 | 56 | 92 |
| | Power Input (Heating) [1] | H | | 16 | 29 | 25 | 50 | 52 | 76 | 100 | 128 | 182 |
| | | M | | 12 | 20 | 18 | 33 | 36 | 52 | 68 | 92 | 147 |
| | | L | | 8 | 12 | 13 | 24 | 23 | 40 | 51 | 56 | 92 |
| | Running Current | H | A | 0.15 | 0.23 | 0.33 | 0.38 | 0.45 | 0.76 | 0.87 | 1.11 | 1.58 |
| HYDRONIC | Cooling Water Flow Rate | H | L/h | 280.80 | 404.90 | 526.30 | 668.30 | 770.10 | 1011.00 | 1192.00 | 1451.00 | 1643.00 |
| | | M | | 247.30 | 360.30 | 448.70 | 583.20 | 678.70 | 908.20 | 1109.00 | 1315.00 | 1559.00 |
| | | L | | 188.40 | 302.00 | 386.60 | 524.60 | 580.70 | 798.60 | 981.50 | 1096.00 | 1360.00 |
| | Cooling Pressure Drop | H | kPa | 8.57 | 18.00 | 9.50 | 19.00 | 25.20 | 9.79 | 12.00 | 17.50 | 23.20 |
| | | M | | 6.74 | 14.70 | 6.30 | 14.90 | 20.30 | 8.20 | 9.96 | 15.00 | 21.20 |
| | | L | | 4.20 | 10.80 | 5.90 | 10.30 | 15.60 | 5.70 | 8.70 | 10.70 | 16.90 |
| | Heating Water Flow Rate | H | L/h | 138 | 196 | 262 | 326 | 366 | 506 | 590 | 705 | 796 |
| | | M | | 122 | 173 | 223 | 285 | 329 | 458 | 549 | 645 | 752 |
| | | L | | 93 | 147 | 193 | 254 | 282 | 401 | 486 | 541 | 662 |
| | Heating Pressure Drop | H | kPa | 4.09 | 8.14 | 16.14 | 27.75 | 35.74 | 11.7 | 17 | 25.63 | 34.51 |
| | | M | | 3.28 | 6.49 | 12.06 | 21.71 | 29.4 | 9.79 | 14.93 | 21.84 | 31.11 |
| | | L | | 2.01 | 4.82 | 9.3 | 17.69 | 22.38 | 7.69 | 11.99 | 15.91 | 24.74 |
| | Water Content | | L | 0.88 | 0.99 | 1.28 | 1.59 | 1.68 | 2.32 | 2.63 | 2.92 | 3.23 |

***TESTING CONDITIONS***

*Cooling mode: Return air temperature: 27°C DB / 19°C WB Inlet / outlet water temperature: 7°C / 12°C*
*Heating mode: Return air temperature: 20°C Inlet / outlet water temperature: 65°C / 55°C*

*(1): Fan motor power includes PCB power input.*
***For High ΔT Condition Requirements, please refer to Selection Software.***

## TECHNICAL SPECIFICATIONS

Hydronic Universal (Cabinet), 3row, 2 pipe with **AC Motor**

| UNIT GENERAL SPECS | PFWB(C)-3R-[Size]-V | | | 06 | 09 | 12 | 15B | 18 | 24B | 30R | 36R | 40R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Configuration | | | 2 PIPE | | | | | | | | |
| | Number of Fan Blowers | | | 1 | 2 | | | | 4 | | | |
| | Power Supply (V/Ph/Hz) | | | 230 / 1 / 50 \| 220 / 1 / 60 | | | | | | | | |
| AIR | Air Flow (E) | H | m³/h | 350 | 504 | 677 | 840 | 970 | 1350 | 1575 | 1935 | 2204 |
| | | M | | 280 | 432 | 540 | 697 | 827 | 1170 | 1440 | 1710 | 2034 |
| | | L | | 210 | 342 | 450 | 607 | 677 | 990 | 1224 | 1350 | 1700 |
| COOLING | Cooling Capacity (E) | H | kW | 1.7 | 2.34 | 2.98 | 3.8 | 4.49 | 5.9 | 6.95 | 8.47 | 9.59 |
| | | M | | 1.44 | 2.08 | 2.57 | 3.27 | 3.96 | 5.3 | 6.47 | 7.67 | 9.09 |
| | | L | | 1.16 | 1.73 | 2.23 | 2.92 | 3.39 | 4.66 | 5.73 | 6.39 | 7.93 |
| | Sensible Cooling Capacity (E) | H | | 1.23 | 1.73 | 2.22 | 2.75 | 3.22 | 4.34 | 5.07 | 6.15 | 6.95 |
| | | M | | 1.03 | 1.53 | 1.91 | 2.35 | 2.81 | 3.83 | 4.68 | 5.52 | 6.56 |
| | | L | | 0.82 | 1.27 | 1.65 | 2.1 | 2.39 | 3.37 | 4.12 | 4.57 | 5.66 |
| HEATING | Heating Capacity (E) | H | kW | 1.72 | 2.48 | 3.21 | 3.92 | 4.49 | 6.1 | 7.11 | 8.65 | 9.7 |
| | | M | | 1.46 | 2.19 | 2.75 | 3.43 | 3.97 | 5.49 | 6.67 | 7.88 | 9.22 |
| | | L | | 1.17 | 1.82 | 2.37 | 3.07 | 3.41 | 4.85 | 5.88 | 6.54 | 8 |
| | Max. Electric Heater | | | 1 | 1.5 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| SOUND | Pressure Level ( Outlet ) | | db(A) | 41/39/33 | 43/40/36 | 46/43/39 | 51/46/43 | 51/48/44 | 51/48/46 | 55/51/49 | 57/54/50 | 60/58/56 |
| | Power Level ( Outlet )e | | | 50/48/42 | 52/49/45 | 55/52/48 | 60/55/52 | 60/57/53 | 61/57/55 | 64/60/58 | 66/63/59 | 69/67/65 |
| ELECTRICAL (Fan Motor) | Power Input (Cooling) (E) 1 | H | W | 39 | 56 | 70 | 80 | 93 | 150 | 176 | 214 | 235 |
| | | M | | 34 | 49 | 60 | 72 | 86 | 130 | 163 | 201 | 224 |
| | | L | | 31 | 45 | 53 | 70 | 80 | 120 | 157 | 192 | 222 |
| | Power Input (Heating) (E) 1 | H | | 40 | 56 | 70 | 81 | 93 | 150 | 176 | 214 | 235 |
| | | M | | 34 | 49 | 60 | 72 | 86 | 130 | 163 | 201 | 224 |
| | | L | | 31 | 45 | 53 | 64 | 80 | 120 | 157 | 192 | 222 |
| | Running Current | H | A | 0.17 | 0.22 | 0.3 | 0.35 | 0.4 | 0.65 | 0.77 | 0.93 | 1.02 |
| | Starting Current | | | 0.51 | 0.65 | 0.91 | 1.06 | 1.21 | 1.96 | 2.3 | 2.79 | 3.07 |
| HYDRONIC | Cooling Water Flow Rate | H | L/h | 292 | 405 | 526 | 668 | 770 | 1011 | 1192 | 1451 | 1643 |
| | | M | | 247 | 360 | 449 | 583 | 679 | 908 | 1109 | 1315 | 1559 |
| | | L | | 199 | 302 | 387 | 525 | 581 | 799 | 982 | 1096 | 1360 |
| | Cooling Pressure Drop | H | kPa | 9.5 | 18 | 10.7 | 18 | 25.2 | 7.5 | 11.5 | 17.3 | 23.2 |
| | | M | | 7.3 | 14.7 | 8.4 | 13.9 | 20.3 | 6.5 | 9.96 | 14.6 | 21.2 |
| | | L | | 4.9 | 10.8 | 6.6 | 11.5 | 15.6 | 5.2 | 8.1 | 10.7 | 16.8 |
| | Heating Water Flow Rate | H | L/h | 294 | 405 | 536 | 672 | 770 | 1046 | 1218 | 1473 | 1663 |
| | | M | | 251 | 361 | 456 | 589 | 681 | 942 | 1144 | 1350 | 1580 |
| | | L | | 201 | 301 | 395 | 526 | 585 | 831 | 1008 | 1121 | 1372 |
| | Heating Pressure Drop | H | kPa | 8 | 17.7 | 10.8 | 15.9 | 21.2 | 6.8 | 9.8 | 14.9 | 19.8 |
| | | M | | 6 | 14.3 | 8.4 | 12.7 | 17.2 | 5.7 | 8.7 | 12.8 | 18.2 |
| | | L | | 4.2 | 10.5 | 6.5 | 10.5 | 13.3 | 4.9 | 7.1 | 9.3 | 14.3 |
| | Water Content | | L | 0.66 | 0.74 | 0.96 | 1.19 | 1.26 | 1.74 | 1.97 | 2.19 | 2.42 |

***TESTING CONDITIONS***

*Cooling mode: Return air temperature: 27°C DB / 19°C WB Inlet / outlet water temperature: 7°C / 12°C*
*Heating mode: Return air temperature: 20°C Inlet / outlet water temperature: 45°C / 40°C*

*(1): Fan motor power includes PCB power input.*
*(e): Specifications follow Eurovent test data for the year of publication.*
***For non-standard conditions (i.e: High ΔT requirements) please refer to Eurovent certified selection software.***
*Please visit www.eurovent-certification.com for more information.*



## TECHNICAL SPECIFICATIONS

Hydronic Universal (Cabinet), 4 row, 2 pipe with **AC Motor**

| UNIT GENERAL SPECS | PFWB(C)-4R-[Size]-V | | | 06 | 09 | 12 | 15B | 18 | 24 | 30 | 36 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Configuration | | | 2 PIPE | | | | | | | | |
| | Number of Fan Blowers | | | 1 | 2 | | | | 4 | | | |
| | Power Supply (V/Ph/Hz) | | | 230 / 1 / 50 \| 220 /1 / 60 | | | | | | | | |
| AIR | Air Flow | H | m³/h | 350 | 504 | 677 | 840 | 970 | 1350 | 1575 | 1935 | 2204 |
| | | M | | 280 | 432 | 540 | 697 | 827 | 1170 | 1440 | 1710 | 2034 |
| | | L | | 210 | 342 | 450 | 607 | 677 | 990 | 1224 | 1350 | 1700 |
| COOLING | Cooling Capacity | H | kW | 1.87 | 2.55 | 3.33 | 4.06 | 4.8 | 6.79 | 8.29 | 9.81 | 11.37 |
| | | M | | 1.59 | 2.27 | 2.84 | 3.54 | 4.23 | 6.1 | 7.72 | 8.89 | 10.79 |
| | | L | | 1.27 | 1.9 | 2.45 | 3.19 | 3.62 | 5.36 | 6.83 | 7.4 | 9.41 |
| | Sensible Cooling Capacity | H | | 1.29 | 1.79 | 2.32 | 2.86 | 3.35 | 4.76 | 5.81 | 6.86 | 7.98 |
| | | M | | 1.08 | 1.57 | 1.95 | 2.46 | 2.93 | 4.23 | 5.37 | 6.15 | 7.54 |
| | | L | | 0.86 | 1.31 | 1.68 | 2.2 | 2.49 | 3.7 | 4.72 | 5.09 | 6.5 |
| HEATING | Heating Capacity | H | kW | 2.09 | 2.92 | 3.91 | 4.82 | 5.59 | 7.63 | 8.88 | 10.77 | 12.16 |
| | | M | | 1.78 | 2.6 | 3.32 | 4.22 | 4.94 | 6.91 | 8.36 | 9.9 | 11.49 |
| | | L | | 1.43 | 2.17 | 2.88 | 3.81 | 4.25 | 6.09 | 7.43 | 8.24 | 10.06 |
| | Max. Electric Heater | | | 1 | 1.5 | 2 | | | 3 | | | |
| SOUND | Pressure Level ( Outlet ) | | db(A) | 41/39/33 | 43/40/36 | 46/43/39 | 51/46/43 | 51/48/44 | 51/48/46 | 55/51/49 | 57/54/50 | 60/58/56 |
| | Power Level ( Outlet ) | | | 50/48/42 | 52/49/45 | 55/52/48 | 60/55/52 | 60/57/53 | 60/57/55 | 64/60/58 | 66/63/59 | 69/67/65 |
| ELECTRICAL (Fan Motor) | Power Input¹ | H | W | 39 | 50 | 70 | 81 | 93 | 150 | 176 | 214 | 235 |
| | | M | | 34 | 44 | 57 | 72 | 86 | 130 | 163 | 201 | 224 |
| | | L | | 31 | 40 | 51 | 64 | 80 | 120 | 157 | 192 | 222 |
| | Fan Motor Running Current | H | A | 0.17 | 0.22 | 0.3 | 0.35 | 0.4 | 0.65 | 0.77 | 0.93 | 1.02 |
| | Fan Motor Starting Current | | | 0.51 | 0.65 | 0.91 | 1.06 | 1.21 | 1.96 | 2.3 | 2.79 | 3.07 |
| HYDRONIC | Cooling Water Flow Rate | H | L/h | 321 | 437 | 571 | 696 | 822 | 1164 | 1422 | 1681 | 1950 |
| | | M | | 272 | 389 | 487 | 607 | 725 | 1045 | 1323 | 1523 | 1850 |
| | | L | | 218 | 326 | 419 | 546 | 620 | 919 | 1171 | 1269 | 1614 |
| | Cooling Pressure Drop | H | kPa | 98.46 | 27 | 50.56 | 27.13 | 37.58 | 39.76 | 61.89 | 90.24 | 127.15 |
| | | M | | 73.14 | 21.89 | 37.94 | 21.23 | 29.93 | 32.76 | 54.35 | 75.57 | 115.63 |
| | | L | | 49.25 | 15.93 | 29.03 | 17.54 | 22.6 | 25.99 | 43.64 | 54.39 | 90.44 |
| | Heating Water Flow Rate | H | L/h | 358 | 500 | 670 | 827 | 958 | 1308 | 1522 | 1846 | 2085 |
| | | M | | 306 | 446 | 570 | 724 | 848 | 1184 | 1433 | 1698 | 1970 |
| | | L | | 246 | 372 | 493 | 652 | 729 | 1043 | 1273 | 1413 | 1725 |
| | Heating Pressure Drop | H | kPa | 15.05 | 28.60 | 56.34 | 30.74 | 41.42 | 41.08 | 59.06 | 90.55 | 122.01 |
| | | M | | 11.31 | 23.25 | 42.09 | 24.18 | 33.21 | 34.33 | 53.01 | 77.90 | 110.17 |
| | | L | | 7.64 | 16.79 | 32.44 | 20.06 | 25.33 | 27.35 | 42.86 | 55.97 | 86.67 |
| | Water Content | | L | 0.88 | 0.99 | 1.28 | 1.59 | 1.68 | 2.32 | 2.63 | 2.92 | 3.23 |

***TESTING CONDITIONS***

*Cooling mode: Return air temperature: 27°C DB / 19°C WB Inlet / outlet water temperature: 7°C / 12°C*
*Heating mode: Return air temperature: 20°C Inlet / outlet water temperature: 45°C / 40°C*

*(1): Fan motor power includes PCB power input.*
*(e): Specifications follow Eurovent test data for the year of publication.*
***For non-standard conditions (i.e: High ΔT requirements) please refer to Eurovent certified selection software.***
*Please visit www.eurovent-certification.com for more information.*

## TECHNICAL SPECIFICATIONS

Hydronic Universal (Cabinet), 3+1 row (Auxiliary Heating coil),4 pipe with AC Motor

| | | | | 06B | 09 | 12B | 15B | 18 | 24B | 30B | 36B | 40C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNIT GENERAL SPECS | PFWB(C)-3+1R-[SIZE]-P | | | | | | | | | | | |
| | Configuration | | | 4 PIPE | | | | | | | | |
| | Number of Fan Blowers | | | 1 | 2 | | | | 4 | | | |
| | Power Supply (V/Ph/Hz) | | | 230/1/50 \| 220/1/60 | | | | | | | | |
| AIR | Air Flow | H | $m^3/h$ | 350 | 504 | 677 | 840 | 970 | 1350 | 1575 | 1935 | 2204 |
| | | M | | 280 | 432 | 540 | 697 | 827 | 1170 | 1440 | 1710 | 2034 |
| | | L | | 210 | 342 | 450 | 607 | 677 | 990 | 1224 | 1350 | 1700 |
| COOLING | Cooling Capacity | H | kW | 1.7 | 2.34 | 2.98 | 3.8 | 4.49 | 5.9 | 6.95 | 8.47 | 9.59 |
| | | M | | 1.44 | 2.08 | 2.57 | 3.27 | 3.96 | 5.3 | 6.47 | 7.67 | 9.09 |
| | | L | | 1.16 | 1.73 | 2.23 | 2.92 | 3.39 | 4.66 | 5.73 | 6.39 | 7.93 |
| | Sensible Cooling Capacity | H | | 1.23 | 1.73 | 2.22 | 2.75 | 3.22 | 4.34 | 5.07 | 6.15 | 6.95 |
| | | M | | 1.03 | 1.53 | 1.91 | 2.35 | 2.81 | 3.83 | 4.68 | 5.52 | 6.56 |
| | | L | | 0.82 | 1.27 | 1.65 | 2.1 | 2.39 | 3.37 | 4.12 | 4.57 | 5.66 |
| HEATING | Heating Capacity | H | kW | 1.69 | 2.29 | 3.06 | 3.81 | 4.27 | 5.9 | 6.89 | 8.22 | 9.29 |
| | | M | | 1.43 | 2.02 | 2.6 | 3.32 | 3.83 | 5.35 | 6.41 | 7.52 | 8.77 |
| | | L | | 1.14 | 1.71 | 2.25 | 2.96 | 3.3 | 4.67 | 5.67 | 6.31 | 7.72 |
| SOUND | Pressure Level ( Outlet ) | | db(A) | 41/39/33 | 43/40/36 | 46/43/39 | 51/46/43 | 51/48/44 | 51/48/46 | 55/51/49 | 57/54/50 | 60/58/56 |
| | Power Level ( Outlet ) | | | 50/48/42 | 52/49/45 | 55/52/48 | 60/55/52 | 60/57/53 | 61/57/55 | 64/60/58 | 66/63/59 | 69/67/65 |
| ELECTRICAL (Fan Motor) | Power Input (Cooling) [1] | H | W | 39 | 56 | 70 | 80 | 93 | 150 | 176 | 214 | 235 |
| | | M | | 34 | 49 | 60 | 72 | 86 | 130 | 163 | 201 | 224 |
| | | L | | 31 | 45 | 53 | 70 | 80 | 120 | 157 | 192 | 222 |
| | Power Input (Heating) [1] | H | | 40 | 56 | 70 | 81 | 93 | 150 | 176 | 214 | 235 |
| | | M | | 34 | 49 | 60 | 72 | 86 | 130 | 163 | 201 | 224 |
| | | L | | 31 | 45 | 53 | 64 | 80 | 120 | 157 | 192 | 222 |
| | Running Current | H | A | 0.17 | 0.22 | 0.3 | 0.35 | 0.4 | 0.65 | 0.77 | 0.93 | 1.02 |
| HYDRONIC | Cooling Water Flow Rate | H | L/h | 292 | 405 | 526 | 668 | 770 | 1011 | 1192 | 1451 | 1643 |
| | | M | | 247 | 360 | 449 | 583 | 679 | 908 | 1109 | 1315 | 1559 |
| | | L | | 199 | 302 | 387 | 525 | 581 | 799 | 982 | 1096 | 1360 |
| | Cooling Pressure Drop | H | kPa | 9.5 | 18 | 10.7 | 18 | 25.2 | 7.5 | 11.5 | 17.3 | 23.2 |
| | | M | | 7.3 | 14.7 | 8.4 | 13.9 | 20.3 | 6.5 | 9.96 | 14.6 | 21.2 |
| | | L | | 4.9 | 10.8 | 6.6 | 11.5 | 15.6 | 5.2 | 8.1 | 10.7 | 16.8 |
| | Heating Water Flow Rate | H | L/h | 145 | 196 | 262 | 326 | 366 | 506 | 590 | 705 | 796 |
| | | M | | 122 | 173 | 223 | 285 | 329 | 458 | 549 | 645 | 752 |
| | | L | | 98.1 | 147 | 193 | 254 | 282 | 401 | 486 | 541 | 662 |
| | Heating Pressure Drop | H | kPa | 4.79 | 8.71 | 17.4 | 30.2 | 38.6 | 12.6 | 18.5 | 27.6 | 37.2 |
| | | M | | 3.61 | 7.03 | 13.2 | 24 | 32.1 | 10.7 | 16.3 | 23.7 | 33.7 |
| | | L | | 2.47 | 5.31 | 10.3 | 19.7 | 24.8 | 8.5 | 13.3 | 17.6 | 27.1 |
| | Water Content | | L | 0.88 | 0.99 | 1.28 | 1.59 | 1.68 | 2.32 | 2.63 | 2.92 | 3.23 |

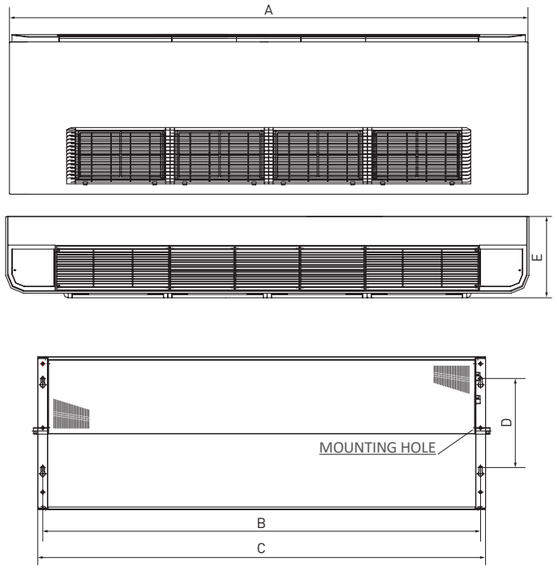
***TESTING CONDITIONS***

*Cooling mode: Return air temperature: 27°C DB / 19°C WB Inlet / outlet water temperature: 7°C / 12°C*
*Heating mode: Return air temperature: 20°C Inlet / outlet water temperature: 65°C / 55°C*

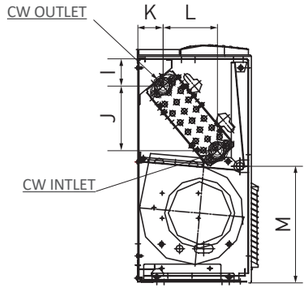
***For High ΔT Condition Requirements, please refer to Selection Software.***

## DIMENSIONAL DRAWINGS, DATA & WEIGHTS

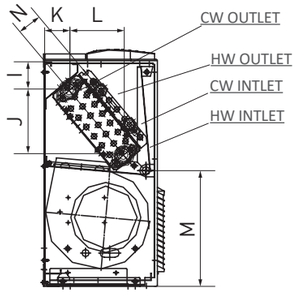
With decorative cabinet




### 2 PIPE




### 4 PIPE




| Model | Unit Dimensions (mm) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N[1] |
| PFWBC 06 | 858 | 578 | 608 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |
| PFWBC 09 | 908 | 628 | 658 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |
| PFWBC 12 | 1058 | 778 | 808 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |
| PFWBC 15 | 1208 | 928 | 958 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |
| PFWBC 18 | 1258 | 978 | 1008 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |
| PFWBC 24 | 1608 | 1328 | 1358 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |
| PFWBC 30 | 1758 | 1478 | 1508 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |
| PFWBC 36 | 1908 | 1628 | 1658 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |
| PFWBC 40 | 2058 | 1778 | 1808 | 270 | 250 | 235 | 484 | 494 | 57 | 134 | 52 | 112.5 | 242 | 50 |

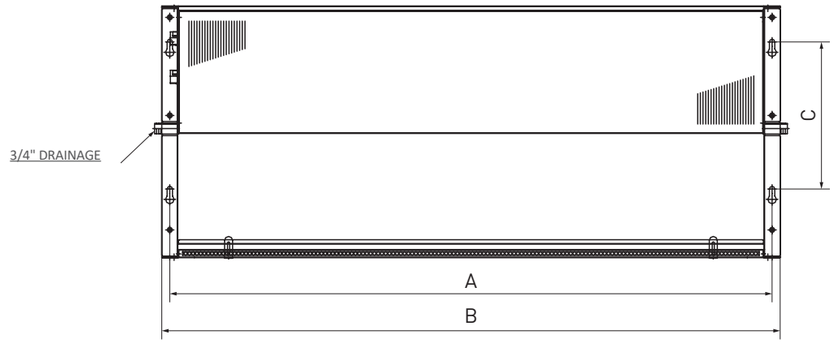
| PFWBC | | | | 06 | 09 | 12 | 15 | 18 | 24 | 30 | 36 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTIONS | Water | Type | In | Socket (Threaded Female) | | | | | | | | |
| | | | Out | 19.05 (3/4") | | | | | | | | |
| | | mm (in) | | | | | | | | | | |
| | Condensate Drainage | mm (in) | | 19.05 (3/4") FOR 4 PIPE ONLY (1/2") | | | | | | | | |
| WEIGHT | Net | kg | | 22 | 24 | 26 | 30 | 32 | 47 | 47 | 49 | 54 |

*(1): Value only valid for 4-pipe units.*

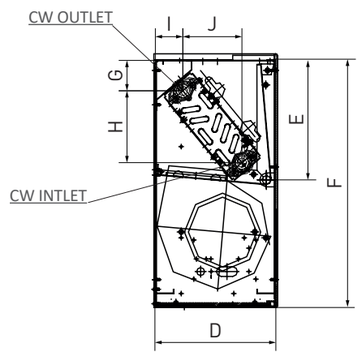


## DIMENSIONAL DRAWINGS, DATA & WEIGHTS

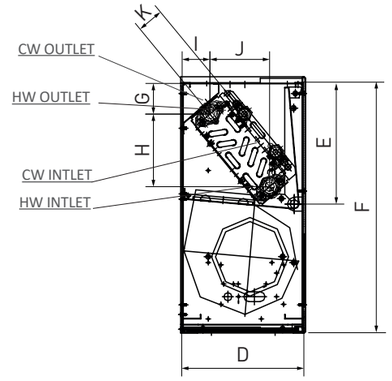
Without decorative cabinet




### 2 PIPE




### 4 PIPE

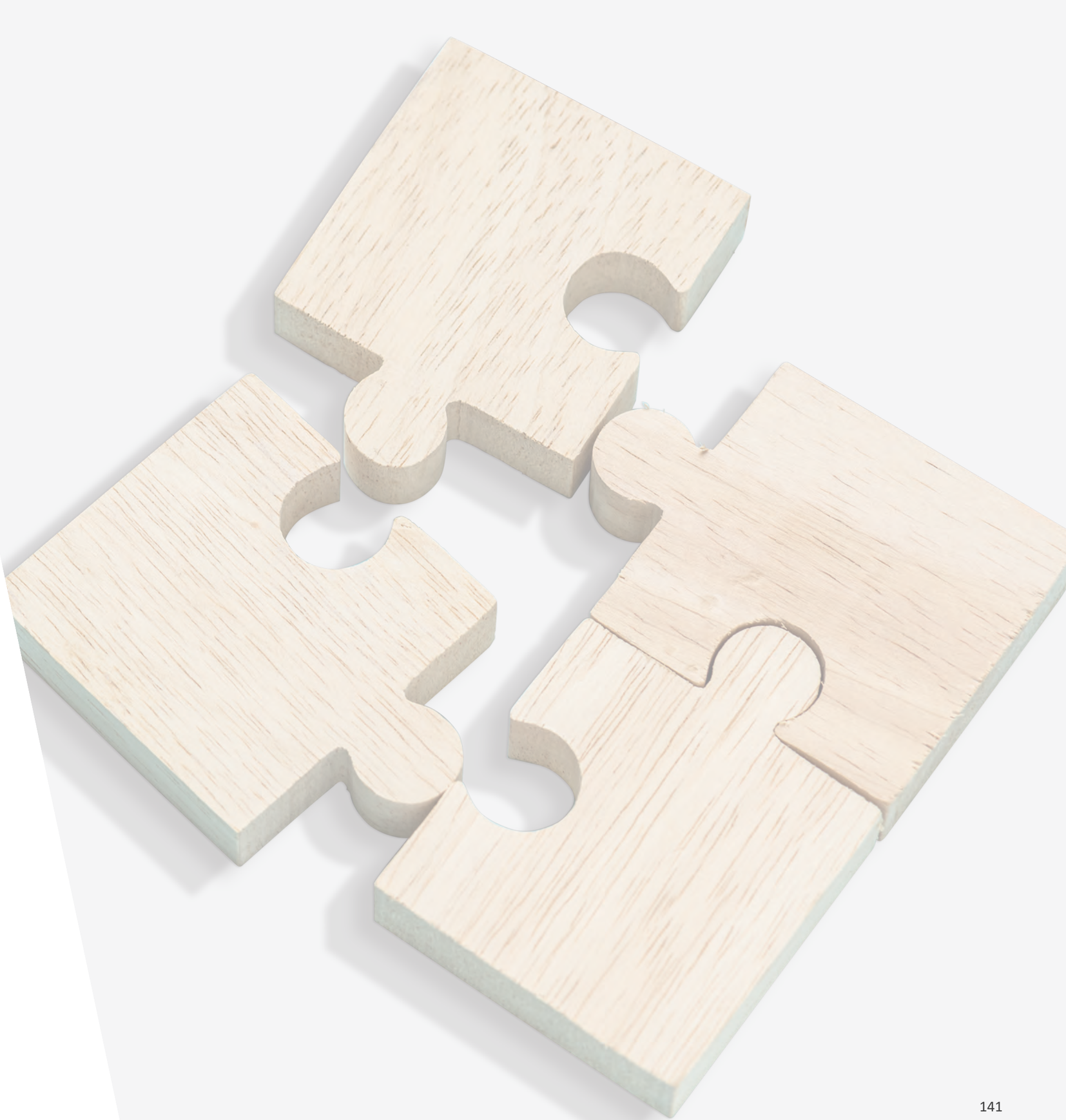



| Model | Unit Dimensions (mm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K[1] |
| PFWB 06 | 578 | 608 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |
| PFWB 09 | 628 | 658 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |
| PFWB 12 | 778 | 808 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |
| PFWB 15 | 928 | 958 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |
| PFWB 18 | 978 | 1008 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |
| PFWB 24 | 1328 | 1358 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |
| PFWB 30 | 1478 | 1508 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |
| PFWB 36 | 1628 | 1658 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |
| PFWB 40 | 1778 | 1808 | 270 | 230 | 223 | 460 | 57 | 134 | 52 | 112.5 | 50 |

| PFWB | | | | 06 | 09 | 12 | 15 | 18 | 24 | 30 | 36 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTIONS | Water | Type | In | Socket (Threaded Female) | | | | | | | | |
| | | | Out | 19.05 (3/4") | | | | | | | | |
| | | mm (in) | | | | | | | | | | |
| | Condensate Drainage | mm (in) | | | | | | | | | | |
| WEIGHT | Net | kg | | 22 | 24 | 26 | 30 | 32 | 47 | 47 | 49 | 54 |

*(1): Value only valid for 4-pipe units.*

# ACCESSORIES FOR **FAN COILS**



# 01. CONTROLLERS

## [WWP-V3] WIRED WALL PAD CONTROL (FOR TOTAL CONTROL)

Features: 7 days ON/OFF timer program | Addressable Main and Secondary units allowing control of up to 32 Secondary units via a single Main Unit with set or check of each unit parameters individually | Error display with addressable error diagnostic (Main unit Wall Pad displays Secondary unit address and error type) | One-Touch Global Control (Global Control Main Unit Wall Pad controls all units in the group) | Onboard Room Air Temperature Sensor.

## [IRHS-V1] REMOTE INFRARED HANDSET (FOR TOTAL CONTROL)

With Global Control functionality for Main and Secondary Unit groups.

# 02. CONTROL OPTIONS

## ABS LED RECEIVER

IR receiver in ABS housing with up to 180cm (70in) length prewiring, which can be connected with TOTAL controls only. LED lights show working mode or error mode.

## DIFERENTIAL PRESSURE TRANSDUCER

This device converts the air pressure difference to a proportional electrical output (0-10 VDC/0-5 VDC/4-20 mA). It is suitable for detecting abnormal airflow at the fan coil unit for safety (cutting off electric heater) or maintenance (air filter cleaning) purposes.



# 03. VALVE KITS

## 2 or 3 WAY BYPASS THERMOELECTRIC VALVES

2-way or 3-way valve bodies with ON/OFF or modulating actuators integrated with copper piping connection kits.

** Piping connection kits vary among the different ranges.*

## 2 or 3 WAY BYPASS BALL VALVES

2-way or 3-way bypass ball valve bodies with motorized or 24VAC modulating actuators integrated with Copper Piping Connection Kits.

** Piping connection kits vary among the different ranges.*

# 04. UPGRADED FILTERS

All our fan coils come with an standard nylon filter installed as standard.
If you want an upgrade on those filters, you can choose between:

## G4 (MERV 8)

Available with 3M HAF grade.

## F8 (MERV 14)

| Range | G4 (MERV 8) | | F8 (MERV 14) |
|---|---|---|---|
| | STANDARD | WITH 3M HAF GRADE | |
| PCGH-3R EC and AC | X | X | |
| CHV2 EC and AC | X | X | |
| PDWA EC and AC | X | X | |
| PDL EC | X | X | |
| PDWD EC | X | X | |
| PDWC EC and AC | X | X | |
| PDWB EC and AC | X | X | X |
| HAHU EC and AC | X | X | X |
| VAHU EC | X | X | X |
| PFWB(C) EC and AC | X | X | |

# 05. ELECTRIC HEATERS

## PTC ELECTRIC HEATER KIT(1)

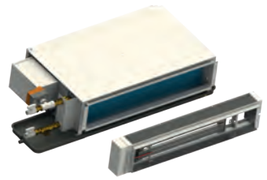
With 2-stage safety cut-out and can be configured as booster heaters or primary heaters.

## TUBE ELECTRIC HEATER KIT(1)

With 2-stage safety, cut-outs can be configured as booster heaters or primary heaters. It can be easily installed on-site or in stock via plug-and-play wiring and brackets.

## MODULE ELECTRIC HEATER KIT(1)

The electric heater module is supplied for winter heating as an alternative to the auxiliary hot water coil. We offer a complete range of electric heaters kits, easy to connect to control box, with mounting fixture. The electric heater configuration is selectable by the DIP switch on the internal control board.



| Range | Module EH Kit | PTC EH Kit | Tube EH Kit |
|---|---|---|---|
| SWC EC | - | From 0.75 to 1.5 KW | - |
| PCGH-3R EC | - | - | From 1 to 4 KW |
| PCSL EC | - | From 0.5 to 1 KW | - |
| PDWA EC | From 1 to 6 KW | - | - |
| PDL EC | From 3 to 9 KW | - | - |
| PDWSL EC | From 1.5 to 3 KW | - | - |
| PDWB EC | From 3 to 9 KW (380V/3Ph) | - | - |
| HAHU EC | From 4.5 to 24 KW (400V/3Ph) | - | - |
| VAHU EC | From 4.5 to 9 KW (400V/3Ph) | - | - |
| PFWB(C) EC | - | From 1 to 3 KW | - |

** Non-standard electric heater sizes available under request. Contact us for further information.*
***The Electric Reheater Kits can be retrofited to the Ducted 4-Pipe ranges on special request.*

*(1)* ***ELECTRIC HEATER SAFETIES*** *Each Heater Kit includes an Auto-Klixon Thermal Switch, a Fuse & Contact Relay factory wired & tested. Additional Safeties including Manual Overheat Stat & Air Pressure Safety are available under request*



# 06. DRAIN PANS

## STAINLESS STEEL DRAIN PAN

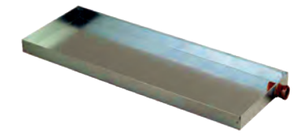
To choose between left or right side coil connections.

## PAINTED STEEL DRAIN PAN

**For Horizontal installations:** Painted steel drain pans for built-in horizontal floor standing fixed wall installations with right or left-sided coil connections.

**For Vertical installations:** Painted steel drain pans for suspended ceiling installations with right or left-sided coil connections.

| Range | Stainless Steel | Painted Steel for Horizontal Installations | Painted Steel for Vertical Installations |
|---|---|---|---|
| PDWA EC and AC | X | | |
| PDL EC | X | | |
| PDWSL EC | X | | |
| PDWD EC | X | | |
| PDWC EC and AC | X | | |
| PDWB EC and AC | X | | |
| HAHU EC and AC | X | | |
| PFWB(C) EC and AC | X | X | X |





# 07. FLANGES

## FLANGES

**For Fresh Air:** Allows up to 15% of unit airflow up to a maximum of 100m³/h (59CFM) as fresh air intake (per connection). Cassette comes with knock out fresh air connection holes. ABS plastic flanges use only two screws for fixture to unit. Available for PCGH-3R Cassette range.

**For Branch Duct:** For delivery of treated air to adjacent spaces with 2 connectors per single fan model. Available for PCGH-3R Cassette ranges.

# OUR
# FAN COILS

## INTELLIGENT FAN COIL SYSTEMS

With more than 20 years specialized in the design, production and commercialization worldwide of hydronic products, we have the firm conviction that the fan coil terminals are one of the most critical parts of a water-based HVAC system, as they provide comfort and energy conditions directly demanded by the end-users.

This conviction led us to create the intelligent fan coils, a new fan coil generation conceived as an individual intelligent point of control, designed to provide reliable performance and the highest efficiency operation with ultimate design flexibility.

The Intelligent fan coils are produced with the highest quality materials, the most efficient components and best manufacturing practices to make them the best comfort and efficiency solution for water-based HVAC projects.



## THE WIDEST RANGE

Polar Global HVAC Systems has the widest range of fan coils in the world, adapted to each specific market requirement with a wide variety of accessories and options.

We have a complete range of EC and AC hydronic fan coils, Eurovent and AHRI performance and sound listed, as well as CE and ETL approvals. Note within the +1800 models/sizes we produce, ducted unit designs vary between the USA, EU and the Middle East.

We understand the need that many projects require special solutions, and we do our best to offer the maximum levels of flexibility to customize products according to the project requirements.

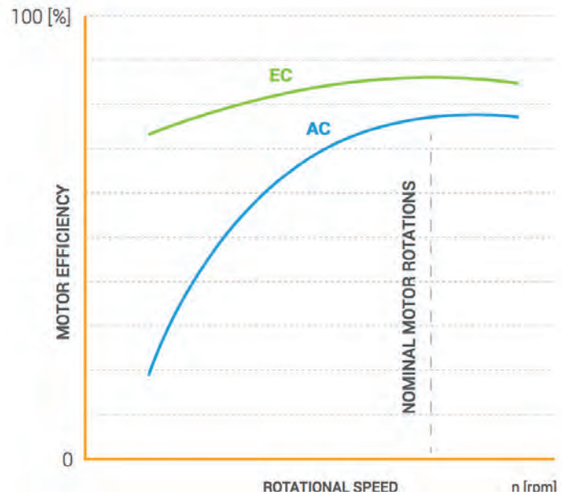

## INTELLIGENT EFFICIENT MOTORS

The Intelligent fan coils offer energy-efficient products that use DC motors with variable speed modulation using an integrated EC motor driver.

The units with EC motors have energy savings at set H/M/L speeds between 30% to 50% compared to traditional on/off AC motors. In auto mode, as airflow continuously varies between 20% and 100% of the maximum high-speed airflow (step-less progression), energy savings are between 50 – 70% , while precisely meeting the required cooling and heating loads of the space.

This innovation eliminates the need for the motor to turn off and on periodically to maintain the desired temperature of the environment, leading to total energy savings of up to 50% on an installation/project basis. Modulation of airflow to meet the heating and cooling requirements of the space will also result in reducing temperature fluctuations within the space and reducing fan noise.

### COMPARISON OF MOTOR EFFICIENCY

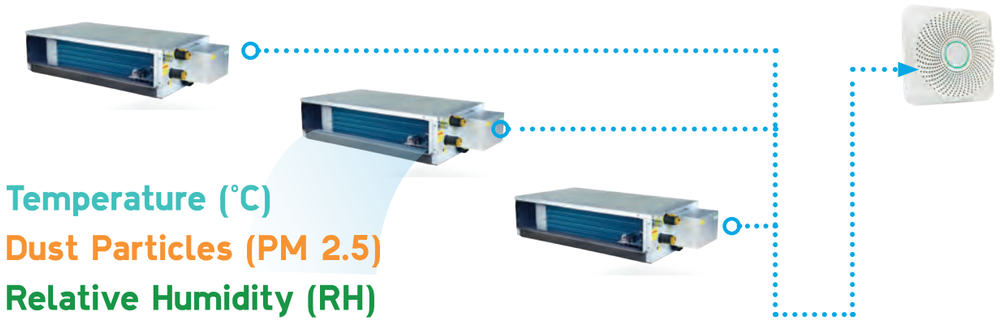



A 0-5VDC signal originated from an inverter board integrated into the onboard unit controller drives the motor, using PID logic to modulate within 0-10V speed RPMs in Energy Saving Auto - Mode (ESM).

## INTELLIGENT AIR QUALITY CONTROL

The Intelligent fan coil system's integrated control logic continuously checks air quality data such as PM2.5 or $CO^2$ coming from the AQI transducer to provide the utmost air quality comfort.

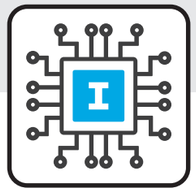
Polar Air fan coil systems also offer high-efficiency filter options to ensure efficient air cleaning and allow fresh air ducts to be connected directly to the units.



## DIFFERENT CONTROL OPTIONS TO OFFER FLEXIBILITY

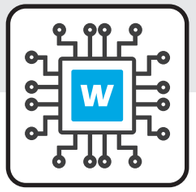
All Polar Air fan coil units offer maximum levels of control flexibility, allowing configuration by two types of control logic to satisfy specific application requirements.

Both types of controls are built-in. We offer user-friendly controllers, such as wall pads, remote handsets or thermostats as optional accessories to control the units, depending on the selected control type and project requirements.




### [I-TYPE CONTROL]

CONTROLLED WITH POLAR AIR WALL PAD AND IR HANDSET




### [W-TYPE CONTROL]

CONTROLLED WITH EXTERNAL 3RD PARTY THERMOSTAT.


## TOTAL CONTROL PCB WITH INTELLIGENT FUNCTIONALITY [I-TYPE]

The PCB (printed circuit board) microprocessor intelligent control board controls the operation of the indoor fan motor, ON/OFF or modulating water valves, and electric heaters (if fitted) to maintain room conditions at a user-defined set point.

This control type is field programmable using easy to set configuration directly through the wired wall pad or dipswitches (on specific models) and controlled via infra-red handset and/or the wired wall pad (optional items).

- Full control logic connectivity via Modbus RTU with a BMS/PMS or using a gateway with other communication protocols, allowing local configurations.
- Auto Fan Speed control for EC motor adjusting motor signal input from O to 5VDC by PID calculation every IO seconds, and airflow adjustment from I5 to IOO%.
- Modulating Valve Control Under Energy Saving Mode to adjust the water flow IOO% according to the room temperature and set temperature. The controller adjusts the modulating valve signal via Modbus.
- Auto Restart function using non-volatile memory to save the set operation parameters when the system is turned off or in case of system failure or cessation of power supply.
- Master-Slave connectivity with up to 255 terminal units network connection using Modbus open protocol and controlled via our Wired Wall Pad controller. (Global or Addressable)
- Drain Pump control (If installed)
- Autodynamic balancing function for Variable Water Flow system installations. The water flow is controlled with temperature difference ΔT between the water inlet and outlet to ensure correct heat transfer from water to air.

## FLEXIBLE CONTROL PCB [W-TYPE]

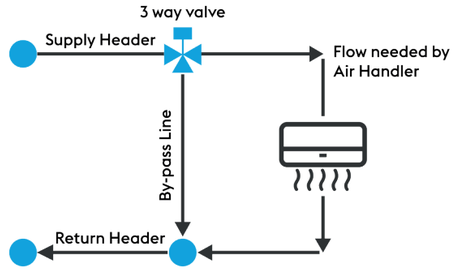
This control option features flexible functionality for external thermostat applications, allowing the independent control of drain pumps, offering zone control product operations, and limited LED diagnostics. In products where louvers are required, this control allows the stepping motors to open the louver at the maximum position or close them when the power of the unit is OFF.

- Independent control of drain pumps (if installed)
- Zone control operations
- Limited LED Diagnostics
- Louver control (when applicable).

## CONSTANT VS VARIABLE FLOW APPLICATIONS

In Constant flow installations, typically using 3-way valves, the amount of water flowing through the system does not change as the load changes. When the load on the system is 100%, all of the water flows through the terminal unit coil. When less cooling or heating is needed, the 3-way valve starts to divert the water flow to the bypass and away from the terminal unit coil. As a result, there is less flow going through the terminal unit coil, but the total volume of water going through the fan coil “circuit” is the same. This system design negatively affects the overall energy efficiency of chillers and boilers because the differential temperature in the system remains low. The water leaving the coils blends with the water bypassed, which results in the low temperature differential (delta T). Furthermore, since the flow in the system remains constant at ALL loads, there is no opportunity to use a speed-controlled pump to save energy. Constant flow designs are not suitable for energy-efficient buildings with the current energy efficiency regulations.

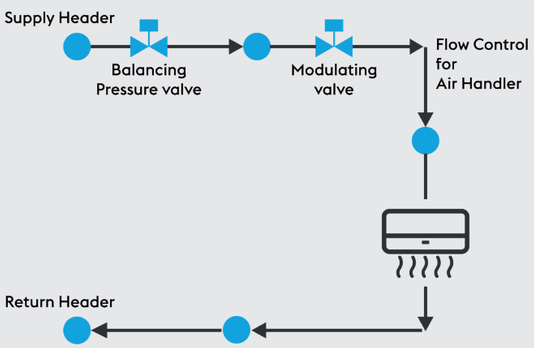
### CONSTANT FLOW DIAGRAM




The suitable design for new installations requires the use of variable water flow systems.

In Variable flow installation, 2-way valves control the water through the terminal units. When the load is 100%, the valve is fully opened, and when less cooling or heating is needed, it closes to reduce the flow. Variable flow systems can be very energy efficient because there is a flow reduction in the installation when there is no need for full capacity. On average, an installation runs on 40 to 60% of its capacity most of the time, and pumping costs have significant savings when there is efficient pump speed control. Variable flow can also maximize the differential temperature in the system, which means that chillers and boilers run at optimal efficiency. Proper design and good commissioning (balancing) of a system with 2-way valves are critical to its operation. The system must be appropriately balanced to ensure the correct flows during full and partial load conditions using pressure compensating balancing valves (not manual circuit setters). This process adds additional components, added material cost and additional labour to install and balance.

### VARIABLE FLOW DIAGRAM



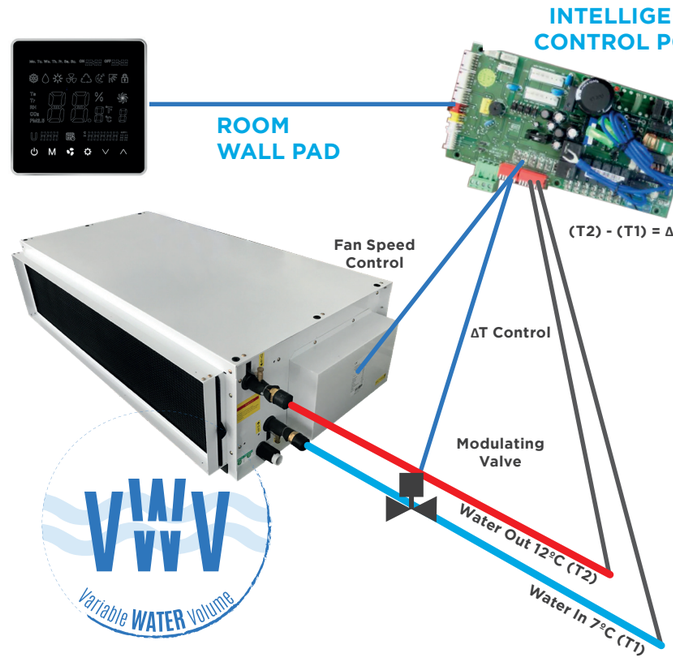



## AUTODYNAMIC BALANCING SYSTEMS

Variable water flow system designs depend on differential pressure control valves (DPCV) to maximize energy savings and operational benefits. This type of system design aims to match the system's energy output to the building's load requirements in real-time. When a room thermostat indicates a comfort need in an area, the control system drives the valve actuators to open or close accordingly.

As the valves open or close, the flow rate changes, allowing the system pump to adjust the speed according to the new demand. With the variation of pump speed, the overall energy output of the entire system also changes, which affects the output of the heat pump or the chiller.

From the pump perspective, energy savings are easily understood since they represent about 6% of the total energy consumption of the HVAC system. Pumping energy is proportional to the cube of pump speed so reducing the speed of the pump to 50% can reduce the energy input by 87.5%! Characterized Modulating 2-way valves have been designed to operate on a direct linear relationship between the required energy output and valve position (50% open equals 50% output) but only when the differential pressure in the system is kept constant. This becomes difficult in a system with constantly variable pumping.




The Polar Air intelligent FCUs control logic includes auto dynamic-balancing function to compensate for the pressure differential by measuring the delta (Δ) at the inlet and outlet water temperature points. The water flow is controlled with temperature difference ΔT between the water inlet and outlet to ensure correct heat transfer from water to air. Keeping water temperature ΔT constant keeps the unit running efficiently and reduces the overall installation system's operating costs.

The autodynamic balancing function uses an inlet-outlet coil sensor that allows the unit to maintain a constant water temperature delta T and manage the water demand. The algorithms of the unit controller modify the fan motor speed and the opening of the valves accordingly. Therefore, the fan coil will adjust its operation most efficiently to reach comfort space requirements. This allows the optimization of the 2-way valve modulation and increases the energy efficiency of the variable flow system while eliminating the need to add expensive DPCVs.