

# > RGW

## WATER-WATER CHILLERS AND HEAT PUMPS FOR INDOOR INSTALLATION



Unit with closing panels

### Available range

#### Unit type

|    |   |
|----|---|
| IR | Chiller   |
| IW | Heat pump<br>(reversible on the water side)             |
| IP | Heat pump<br>(reversible on the refrigerant side)       |
| BR | Chiller Brine   |
| BW | Heat pump Brine<br>(reversible on the water side)       |
| BP | Heat pump Brine<br>(reversible on the refrigerant side) |

#### Version

|    |              |
|----|--------------|
| VB | Base version |
|----|--------------|

#### Acoustic setting up

|    |                            |
|----|----------------------------|
| AB | Base setting up            |
| AS | Low noise setting up       |
| AX | eXtra low noise setting up |

### Unit description

This series of water-water chillers and heat pumps satisfies the cooling and heating requirements of commercial and industrial plants of medium size.

All the units are suitable for indoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit is equipped with 2 scroll compressors, mounted on rubber vibration-damper supports, plant side heat exchanger brazed plate-type in stainless steel (AISI 316), complete with thermal insulation shell and differential pressure switch, source side exchanger brazed plate-type in stainless steel (AISI 316), complete with thermal insulation (IW, IP, BW, BP only) and differential pressure switch. (IP, BP only), thermostatic

expansion valve or electronic expansion valve (standard for IP, BP), 4-way valve, dehydrator filter, refrigerant circuit protected by refrigerant safety valve, low and high pressure switches, electrical panel for power and control complete with main breaker power supply with door lock function microprocessor controller with keyboard-display, and phase sequence controller (standard). When developing the range special attention has been paid to the choice of heat exchangers in order to obtain high efficiencies at full and partial loads to maximise the seasonal efficiency rating (ESEER) and therefore reduce consumption and running costs. The units can be chosen in Basic setting up (AB) (unit without closing panels), Low noise setting up (AS), featuring closing panels coated with acoustic material, Extra Low noise setting up (AX) featuring closing panels coated with superior acoustic material and soundproofing jackets on the compressors.

A wide range of accessories completes the commercial offer. These include pumping modules with 1 or 2 pumps available with standard or high head with a maximum of 4 pumps: 2 on plant side and 2 on source side.

The electronic controller can manage the various condensation control systems of the numerous applications required, enabling the control of 2-way or 3-way modulating valves (also offered as accessories) or the control of pumps under INVERTER. The units can therefore be combined with liquid coolers (dry-coolers), cooling towers, geothermal boreholes or use for water cooling city or well water. All the units are carefully built in compliance with the current regulations and individually tested. Installation therefore only requires the electrical and hydraulic connection.

### Options

#### Pumping Modules

Available on various configurations:

- 1 or 2 pumps plant side
- 1 or 2 pumps source side
- pumps standard, high and extra high pressure head

#### Expansion valve

- thermostatic
- electronic (standard for IP, BP)

Suitable for outdoor installation

### Accessories

Rubber vibration dampers

Remote controller

Serial Interface Modbus-RS 485

Programmer clock

Phase sequence and voltage controller

Low temperature kit

High and low pressure gauges

High temperature thermostat

Compressors shut-off valves

(for IR, BR, IW, BW only)

Outdoor air sensor

Water flow switch

Victaulic hydraulic fittings

Victaulic bends

Victaulic water shut-off valves

Victaulic water filter

2-way valve for cond./evap control

3-way valve for cond./evap control

Compressors start-up with soft starter

Compressors power factor correction

Electrical load protection with thermal magnetic circuit breakers

**NET NOMINAL performances - Standard plants - EUROVENT certified data**

| IR     |                             | 70.2        | 80.2        | 90.2        | 105.2       | 120.2       | 135.2       | 150.2       | 170.2       | 190.2       | 215.2       | 240.2       |       |
|--------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------|
| W30W7  | Cooling capacity            | 69,5        | 78,5        | 91,4        | 104,3       | 117,2       | 132,1       | 146,9       | 168,8       | 190,5       | 214,3       | 238,1       | kW    |
|        | Power input                 | 16,4        | 18,1        | 21,9        | 25,2        | 28,6        | 32,3        | 36,3        | 41,3        | 46,4        | 53,0        | 59,7        | kW    |
|        | <b>EER</b>                  | <b>4,23</b> | <b>4,34</b> | <b>4,17</b> | <b>4,14</b> | <b>4,10</b> | <b>4,09</b> | <b>4,05</b> | <b>4,09</b> | <b>4,11</b> | <b>4,04</b> | <b>3,99</b> | W/W   |
|        | <b>ESEER</b>                | <b>5,22</b> | <b>5,26</b> | <b>5,07</b> | <b>5,04</b> | <b>5,02</b> | <b>5,03</b> | <b>5,05</b> | <b>5,03</b> | <b>5,07</b> | <b>5,03</b> | <b>5,04</b> | W/W   |
|        | Water flow rate plant side  | 3,3         | 3,8         | 4,4         | 5,0         | 5,6         | 6,4         | 7,1         | 8,1         | 9,2         | 10,3        | 11,5        | l/s   |
|        | Pressure drops plant side   | 47          | 38          | 40          | 41          | 44          | 42          | 45          | 46          | 48          | 48          | 49          | kPa   |
|        | Water flow rate source side | 4,0         | 4,5         | 5,3         | 6,1         | 6,8         | 7,7         | 8,6         | 9,8         | 11,1        | 12,5        | 13,9        | l/s   |
|        | Pressure drops source side  | 68          | 55          | 59          | 60          | 65          | 62          | 66          | 67          | 70          | 71          | 72          | kPa   |
| IW     |                             | 70.2        | 80.2        | 90.2        | 105.2       | 120.2       | 135.2       | 150.2       | 170.2       | 190.2       | 215.2       | 240.2       |       |
| W30W7  | Cooling capacity            | 69,5        | 78,5        | 91,4        | 104,3       | 117,2       | 132,1       | 146,9       | 168,8       | 190,5       | 214,3       | 238,1       | kW    |
|        | Power input                 | 16,4        | 18,1        | 21,9        | 25,2        | 28,6        | 32,3        | 36,3        | 41,3        | 46,4        | 53,0        | 59,7        | kW    |
|        | <b>EER</b>                  | <b>4,23</b> | <b>4,34</b> | <b>4,17</b> | <b>4,14</b> | <b>4,10</b> | <b>4,09</b> | <b>4,05</b> | <b>4,09</b> | <b>4,11</b> | <b>4,04</b> | <b>3,99</b> | -     |
|        | <b>ESEER</b>                | <b>5,22</b> | <b>5,26</b> | <b>5,07</b> | <b>5,04</b> | <b>5,02</b> | <b>5,03</b> | <b>5,05</b> | <b>5,03</b> | <b>5,07</b> | <b>5,03</b> | <b>5,04</b> | -     |
|        | Water flow rate plant side  | 3,34        | 3,77        | 4,40        | 5,02        | 5,64        | 6,35        | 7,07        | 8,12        | 9,17        | 10,32       | 11,47       | l/s   |
|        | Pressure drops plant side   | 47          | 38          | 40          | 41          | 44          | 42          | 45          | 46          | 48          | 48          | 49          | kPa   |
|        | Water flow rate source side | 4,03        | 4,54        | 5,32        | 6,07        | 6,83        | 7,71        | 8,58        | 9,84        | 11,09       | 12,52       | 13,94       | l/s   |
|        | Pressure drops source side  | 68          | 55          | 59          | 60          | 65          | 62          | 66          | 67          | 70          | 71          | 72          | kPa   |
| W10W45 | Heating capacity            | 78,7        | 87,6        | 103,8       | 117,9       | 132,1       | 149,2       | 166,5       | 190,7       | 215,0       | 242,3       | 270,6       | kW    |
|        | Power input                 | 20,6        | 22,5        | 27,1        | 30,9        | 34,8        | 39,2        | 44,1        | 50,2        | 56,5        | 63,8        | 71,4        | kW    |
|        | <b>COP</b>                  | <b>3,81</b> | <b>3,90</b> | <b>3,84</b> | <b>3,82</b> | <b>3,80</b> | <b>3,81</b> | <b>3,78</b> | <b>3,80</b> | <b>3,81</b> | <b>3,80</b> | <b>3,79</b> | -     |
|        | Water flow rate plant side  | 3,73        | 4,16        | 4,92        | 5,59        | 6,26        | 7,07        | 7,88        | 9,03        | 10,18       | 11,47       | 12,80       | l/s   |
|        | Pressure drops plant side   | 58          | 46          | 50          | 51          | 54          | 52          | 56          | 57          | 59          | 59          | 61          | kPa   |
|        | Water flow rate source side | 4,03        | 4,54        | 5,32        | 6,07        | 6,83        | 7,71        | 8,58        | 9,84        | 11,09       | 12,52       | 13,94       | l/s   |
|        | Pressure drops source side  | 68          | 55          | 59          | 60          | 65          | 62          | 66          | 67          | 70          | 71          | 72          | kPa   |
|        | IP                          |             | 70.2        | 80.2        | 90.2        | 105.2       | 120.2       | 135.2       | 150.2       | 170.2       | 190.2       | 215.2       | 240.2 |
| W30W7  | Cooling capacity            | 68,1        | 77,0        | 89,6        | 102,3       | 114,9       | 129,5       | 144,0       | 165,4       | 186,8       | 210,1       | 233,4       | kW    |
|        | Power input                 | 16,2        | 17,9        | 21,6        | 24,9        | 28,2        | 31,8        | 35,8        | 40,7        | 45,7        | 52,3        | 58,9        | kW    |
|        | <b>EER</b>                  | <b>4,20</b> | <b>4,31</b> | <b>4,14</b> | <b>4,11</b> | <b>4,07</b> | <b>4,07</b> | <b>4,03</b> | <b>4,07</b> | <b>4,09</b> | <b>4,02</b> | <b>3,96</b> | -     |
|        | <b>ESEER</b>                | <b>5,16</b> | <b>5,20</b> | <b>5,02</b> | <b>5,01</b> | <b>5,00</b> | <b>5,01</b> | <b>5,02</b> | <b>5,00</b> | <b>5,02</b> | <b>5,00</b> | <b>5,01</b> | -     |
|        | Water flow rate plant side  | 3,3         | 3,7         | 4,3         | 4,9         | 5,5         | 6,2         | 6,9         | 8,0         | 9,0         | 10,1        | 11,2        | l/s   |
|        | Pressure drops plant side   | 45          | 36          | 38          | 39          | 42          | 40          | 43          | 44          | 46          | 46          | 47          | kPa   |
|        | Water flow rate source side | 3,95        | 4,45        | 5,22        | 5,96        | 6,71        | 7,57        | 8,43        | 9,66        | 10,89       | 12,29       | 13,69       | l/s   |
|        | Pressure drops source side  | 66          | 53          | 56          | 58          | 62          | 60          | 64          | 65          | 68          | 68          | 70          | kPa   |
| W10W45 | Heating capacity            | 77,7        | 86,6        | 102,8       | 116,8       | 130,8       | 147,7       | 165,4       | 188,8       | 212,8       | 239,8       | 267,9       | kW    |
|        | Power input                 | 20,7        | 22,5        | 27,1        | 31,0        | 34,9        | 39,3        | 44,2        | 50,3        | 56,4        | 64,0        | 71,6        | kW    |
|        | <b>COP</b>                  | <b>3,76</b> | <b>3,85</b> | <b>3,80</b> | <b>3,77</b> | <b>3,75</b> | <b>3,76</b> | <b>3,74</b> | <b>3,76</b> | <b>3,77</b> | <b>3,75</b> | <b>3,74</b> | -     |
|        | Water flow rate plant side  | 3,7         | 4,1         | 4,9         | 5,5         | 6,2         | 7,0         | 7,8         | 8,9         | 10,1        | 11,4        | 12,7        | l/s   |
|        | Pressure drops plant side   | 57          | 45          | 49          | 50          | 53          | 51          | 55          | 56          | 58          | 58          | 60          | kPa   |
|        | Water flow rate source side | 3,95        | 4,45        | 5,22        | 5,96        | 6,71        | 7,57        | 8,43        | 9,66        | 10,89       | 12,29       | 13,69       | l/s   |
|        | Pressure drops source side  | 66          | 53          | 56          | 58          | 62          | 60          | 64          | 65          | 68          | 68          | 70          | kPa   |

Data declared according to **EN 14511**. The values are referred to units without options and accessories.  
**EER** (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit  
**COP** (Coefficient Of Performance) = ratio of the total heating capacity to the effective power input of the unit

**ESEER** (European Seasonal Energy Efficiency Ratio)  
 = Unit in **A CLASS**.  
**W30W7** = source : water in 30°C out 35°C / plant : water in 12°C out 7°C  
**W10W45** = source : water in 10°C / plant : water in 40°C out 45°C

**Acoustic performances**

| Base setting up (AB)              | 70.2 | 80.2 | 90.2 | 105.2 | 120.2 | 135.2 | 150.2 | 170.2 | 190.2 | 215.2 | 240.2 |       |
|-----------------------------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Sound power level <sup>(E)</sup>  | 75   | 76   | 77   | 77    | 77    | 78    | 78    | 79    | 79    | 80    | 80    | dB(A) |
| Sound pressure level at 1 meter   | 59   | 60   | 61   | 61    | 61    | 62    | 62    | 63    | 63    | 64    | 64    | dB(A) |
| Sound pressure level at 5 meters  | 49   | 50   | 51   | 51    | 51    | 52    | 52    | 53    | 53    | 54    | 54    | dB(A) |
| Sound pressure level at 10 meters | 44   | 45   | 46   | 46    | 46    | 47    | 47    | 48    | 48    | 49    | 49    | dB(A) |
| Low noise setting up (AS)         | 70.2 | 80.2 | 90.2 | 105.2 | 120.2 | 135.2 | 150.2 | 170.2 | 190.2 | 215.2 | 240.2 |       |
| Sound power level <sup>(E)</sup>  | 71   | 72   | 73   | 73    | 73    | 74    | 74    | 75    | 75    | 76    | 76    | dB(A) |
| Sound pressure level at 1 meter   | 55   | 56   | 57   | 57    | 57    | 58    | 58    | 59    | 59    | 60    | 60    | dB(A) |
| Sound pressure level at 5 meters  | 45   | 46   | 47   | 47    | 47    | 48    | 48    | 49    | 49    | 50    | 50    | dB(A) |
| Sound pressure level at 10 meters | 40   | 41   | 42   | 42    | 42    | 43    | 43    | 44    | 44    | 45    | 45    | dB(A) |
| eXtra low noise setting up (AX)   | 70.2 | 80.2 | 90.2 | 105.2 | 120.2 | 135.2 | 150.2 | 170.2 | 190.2 | 215.2 | 240.2 |       |
| Sound power level <sup>(E)</sup>  | 67   | 68   | 69   | 69    | 69    | 70    | 70    | 71    | 71    | 72    | 72    | dB(A) |
| Sound pressure level at 1 meter   | 51   | 52   | 53   | 53    | 53    | 54    | 54    | 55    | 55    | 56    | 56    | dB(A) |
| Sound pressure level at 5 meters  | 41   | 42   | 43   | 43    | 43    | 44    | 44    | 45    | 45    | 46    | 46    | dB(A) |
| Sound pressure level at 10 meters | 36   | 37   | 38   | 38    | 38    | 39    | 39    | 40    | 40    | 41    | 41    | dB(A) |

**(E): EUROVENT certified data**

The acoustic performances are referred to units operating in cooling mode at nominal conditions W30/W7.  
 Unit placed in free field on reflecting surface (directional factor equal to 2).

The sound power level is measured according to ISO 9614 standard.

The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

**Technical data**

| Unit                                     | 70.2                          | 80.2 | 90.2 | 105.2 | 120.2 | 135.2 | 150.2 | 170.2 | 190.2 | 215.2 | 240.2 |         |
|--|-------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Power supply                             | 400 - 3 - 50                  |      |      |       |       |       |       |       |       |       |       | V-ph-Hz |
| Compressor type                          | scroll                        |      |      |       |       |       |       |       |       |       |       | -       |
| N° compressors / N° refrigerant circuits | 2 / 1                         |      |      |       |       |       |       |       |       |       |       | n°      |
| Plant side heat exchanger type           | stainless steel brazed plates |      |      |       |       |       |       |       |       |       |       | -       |
| Source side heat exchanger type          | stainless steel brazed plates |      |      |       |       |       |       |       |       |       |       | -       |
| IN/OUT Plant side hydraulic fittings     | 2" 1/2 VICTAULIC              |      |      |       |       |       |       |       |       |       |       | "       |
| IN/OUT Source side hydraulic fittings    | 2" 1/2 VICTAULIC              |      |      |       |       |       |       |       |       |       |       | "       |

**Electrical data**

| Standard unit   | 70.2 | 80.2 | 90.2 | 105.2 | 120.2 | 135.2 | 150.2 | 170.2 | 190.2 | 215.2 | 240.2 |    |
|---|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| <b>FLA</b> - Full load current at maximum tolerated conditions                      | 45   | 51   | 62   | 68    | 74    | 82    | 90    | 105   | 120   | 142   | 164   | A  |
| <b>FLI</b> - Full load power input at maximum tolerated conditions                  | 26   | 29   | 34   | 40    | 45    | 50    | 55    | 63    | 72    | 83    | 93    | kW |
| <b>MIC</b> - Maximum instantaneous current of the unit                              | 141  | 166  | 204  | 256   | 262   | 309   | 317   | 355   | 370   | 454   | 476   | A  |
| <b>MIC SS</b> - Maximum instantaneous current of the unit with soft starter options | 93   | 110  | 135  | 166   | 172   | 200   | 208   | 231   | 246   | 296   | 318   | A  |
| Unit with high head modulating pump   | 70.2 | 80.2 | 90.2 | 105.2 | 120.2 | 135.2 | 150.2 | 170.2 | 190.2 | 215.2 | 240.2 |    |
| <b>FLA</b> - Full load current at maximum tolerated conditions                      | 60   | 66   | 77   | 83    | 89    | 103   | 111   | 129   | 144   | 169   | 191   | A  |
| <b>FLI</b> - Full load power input at maximum tolerated conditions                  | 35   | 38   | 42   | 48    | 54    | 62    | 67    | 77    | 86    | 98    | 109   | kW |
| <b>MIC</b> - Maximum instantaneous current of the unit                              | 155  | 180  | 219  | 271   | 277   | 330   | 338   | 379   | 394   | 481   | 503   | A  |
| <b>MIC SS</b> - Maximum instantaneous current of the unit with soft starter options | 108  | 124  | 149  | 181   | 187   | 221   | 229   | 255   | 270   | 323   | 345   | A  |

**Operating range**

| Temperature                         | Unit type          | Cooling |     | Heating |          |      |
|-------------------------------------|--------------------|---------|-----|---------|----------|------|
|                                     |                    | min     | max | min     | max      |      |
| Water inlet temperature source side | IR, IW, IP, BR, BP | 20 (5*) | 50  | 10      | 25 (40*) | (°C) |
| Water outlet temperature plant side | IR, IW, IP         | 5       | 20  | 25      | 55       | (°C) |
| Water outlet temperature plant side | BR, BP             | -12     | 5   | 25      | 55       | (°C) |

\* with condensation / evaporation control devices

**CONTROL SYSTEM**

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions :

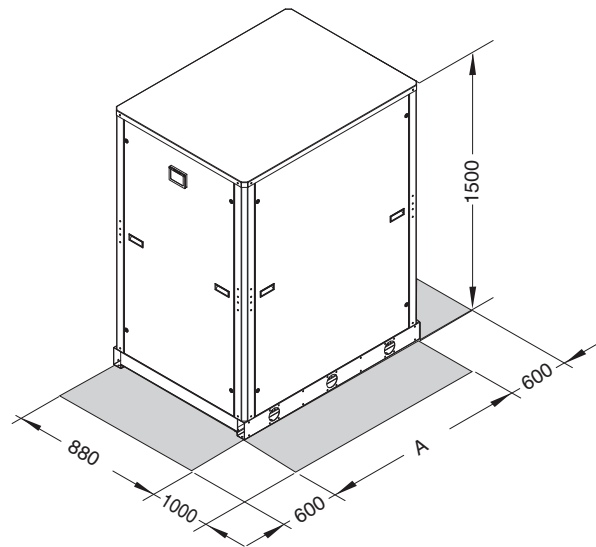
- Adaptive function
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Condensation / evaporation control
- Remote stand by
- Remote cooling-heating



## DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT

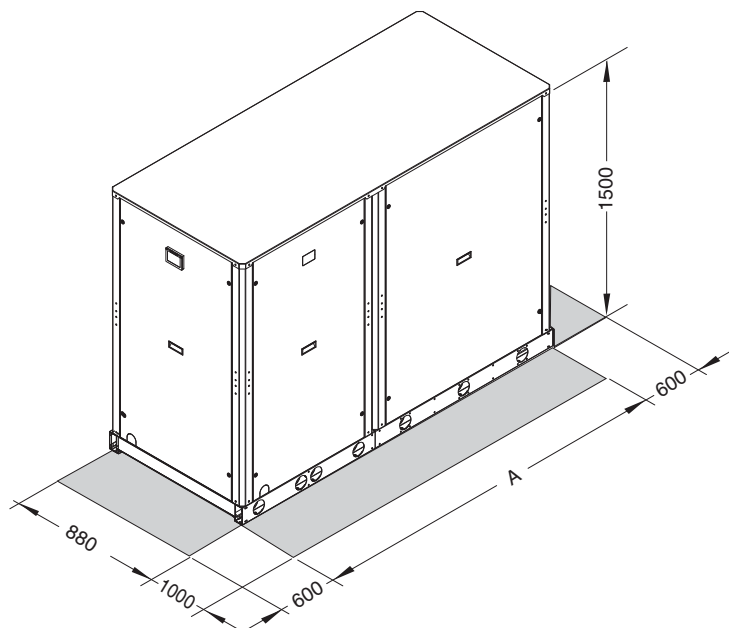
(reference drawing: unit with closing panel)

### STANDARD UNIT



|               |                          | 70.2 | 80.2 | 90.2 | 105.2 | 120.2 | 135.2 | 150.2 | 170.2 | 190.2 | 215.2 | 240.2 |    |
|---------------|--------------------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| STANDARD UNIT | A                        | 880  |      |      |       |       |       |       |       |       |       |       | mm |
|               | Operating maximum weight | 404  | 416  | 427  | 548   | 635   | 668   | 696   | 741   | 771   | 812   | 844   | kg |

### STANDARD UNIT+ PUMPING MODULE MP



|  |   | 70.2 | 80.2 | 90.2 | 105.2 | 120.2 | 135.2 | 150.2 | 170.2 | 190.2 | 215.2 | 240.2 |    |
|--|---|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| STANDARD UNIT+<br>PUMPING<br>MODULE MP | A<br>(2+2 extra high head pumps)                        | 2055 |      |      |       |       |       |       |       |       |       |       | mm |
|  | Operating maximum weight<br>(2+2 extra high head pumps) | 809  | 817  | 828  | 1059  | 1146  | 1225  | 1253  | 1321  | 1351  | 1415  | 1447  | kg |