



## INDUSTRIAL CHILLER - MRM

## Air cooled water chiller

MRM industrial grade water chillers are available in cooling capacity range from 58 to 580 KW, with water working temperatures range from 0°C to 25°C and suitable for indoor or outdoor installation. The standard configuration is designed for an ambient temperature up to 45°C (for higher temperatures, consult the MRT range with R134a gas).

According to the model, these units are equipped with up to four hermetic rotary Scroll compressors in one or two refrigeration circuits with ozone-friendly refrigerant R410A, axial-flow fans and microchannel full-aluminium condenser.

The MRM range offers a large number of model variations that covers all process cooling requirements and climate conditions.



### Versions:

- **Fan type**

- **AC:** on-off asynchronous fans
- **EC:** brushless EC variable speed fans
- **EH:** high pressure EC fans, suitable for ducting indoor installation

- **Evaporator type**

- **BP:** brazed-plate
- **S&T:** shell-and-tube

- **Water configuration type**

- **N:** no pumps and tanks
- **M:** with evaporator pump only
- **P:** with tank and process pump
- **S:** with tank, evaporator pump and process pump



Scroll & Tandem-Scroll

## Advantages

- **Maximum efficiency and reliability**, at full load and part loads, by using multi-circuit and multi-compressor systems
- **Accurate multi-step management of the cooling capacity in multi-compressors/circuit models**, in order to precisely meet the most demanding needs of the industrial applications
- **Wide operating ambient temperature range**, from -25°C up to +45°C, granting high performance in any weather location
- **Operating versatility and high flexibility of installation** thanks to a large number of variations and accessories available
- **Plug&play and modular design** for easy installation and future expandability, thanks to the integrated hydronic group version
- **Reduced refrigerant volume** and easy to clean aluminum microchannel condensers
- **Last generation microprocessor control** with touch screen interface and ready to be connected to the digital supervisor system (MiND™)
- **Easy service** thanks to the recording in the local memory of the operating status, working conditions and alarm history



# Industrial Chiller - MRM



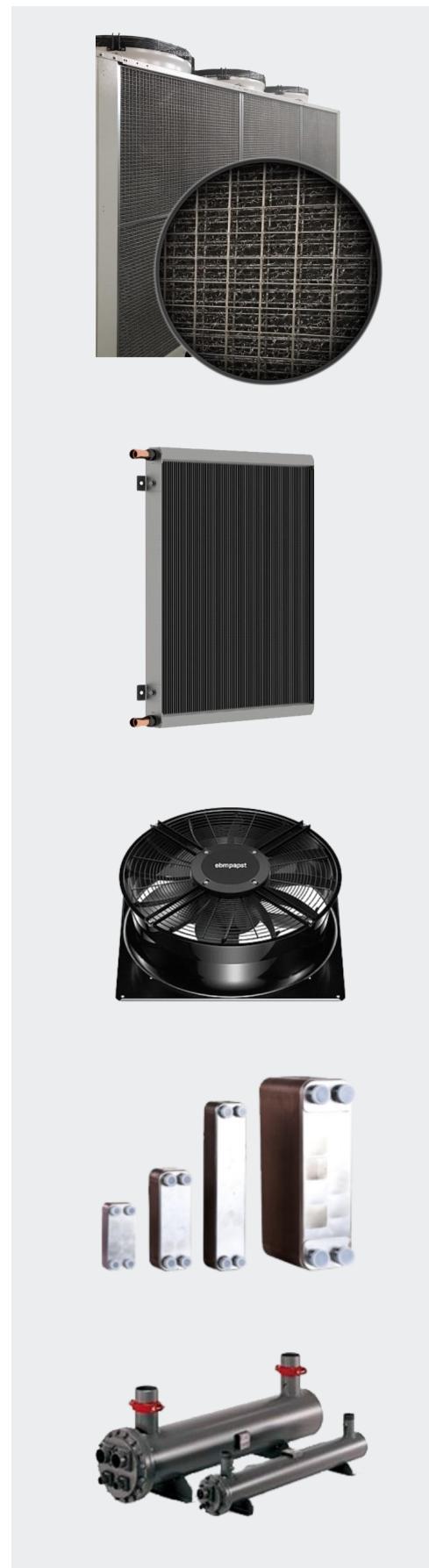
## Technical features:

### Chiller system:

- Scroll & Twin Scroll Compressors;
- 1 or 2 refrigerant circuits;
- R410A refrigerant;
- High and low pressure gauges.

### High efficiency microchannel aluminium condenser

- Higher efficiency and performances
  - heat exchange from +20% to +40% compared with finned tube models;
  - reduction of air-side pressure drops;
  - lower weight and reduced dimensions;
  - thinner profile than finned tube models;
  - 60% lower weight compared to finned tube models.
- Proven reliability
  - robust design and easy to clean with pressurized water;
  - process and materials proven over time;
  - engineered with long-life aluminium alloys.
- Low cost
  - lower refrigerant charge;
  - optimized material cost;
- Factory equipped with the standard pollen filter
  - Galvanized metal frame and protective grille;
  - Aluminium filament filter material.



### Fan type

- **AC:** asynchronous on-off fans
  - For temperatures greater than -15 °C (-5 °C with MRM402 and MRM404)
- **EC:** brushless fans with variable speed
  - For ambient temperatures greater than -25 °C
- **EH:** high head EC fans
  - Suitable for ducting on indoor installations (heat recovery)
  - For ambient temperatures greater than -25 °C

### Evaporator

- **BP:** brazed plates
  - all configurations available;
  - SS316L copper brazed plates;
  - oversized exchange surface;
  - reduced dimensions and high-efficiency herringbone pattern.
- **S&T:** shell & tube
  - available with N and M configurations only;
  - cleanable;
  - gas and water low approach;
  - carbon steel body and copper pipes;
  - anti-corrosion extra thick design.

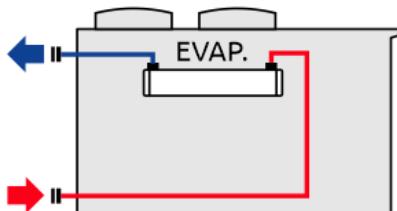


# Industrial Chiller - MRM

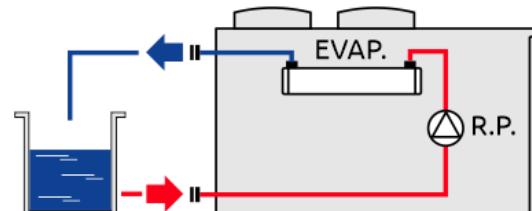


## Technical features:

- Self water-filling
- Chilled-water storage tank pressurized and insulated
- Galvanized steel frame and panels, painted with polyester powders
- Stainless steel pumps

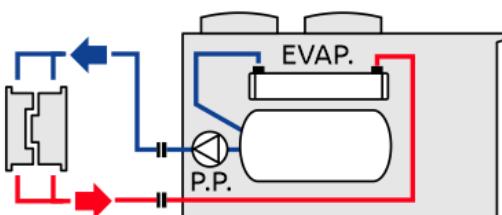


**N:** without pumps and tank

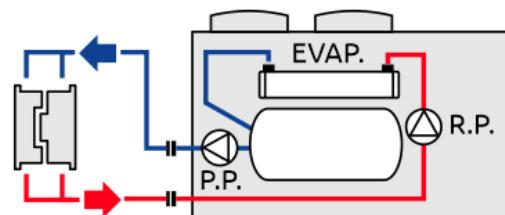


**M:** with evaporator's pump only

Process pumping stations available on request for GPP/GPV series, with and without inverters, recirculating pumping stations and its storage tanks.



**P:** with tank and process pump



**S:** with tank, recirculating and process pumps

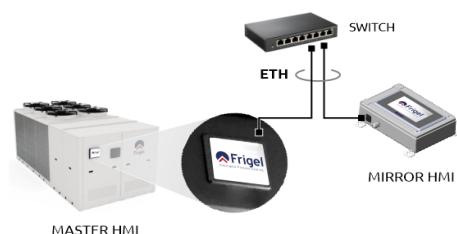
## Options

- Cold Climate for no glycol systems when Tamb<0°C
- Electrical cabinet heater for glycol systems when Tamb<-10°C
- Remote control with double display
- Y water filters
- Optional feet for ground support
- Electronic thermostatic valve (included on MRM402 and MRM404 models)

## Mirror HMI Remote panel



**Direct connection**



**Connection through access point**



Summit Process Cooling: Vanguard Tame Park, Tamworth,  
Staffordshire B77 5DY T: +44(0)1827 213401 |

[www.summitprocesscooling.co.uk](http://www.summitprocesscooling.co.uk) | [sales@summitprocesscooling.co.uk](mailto:sales@summitprocesscooling.co.uk)



# Industrial Chiller - MRM



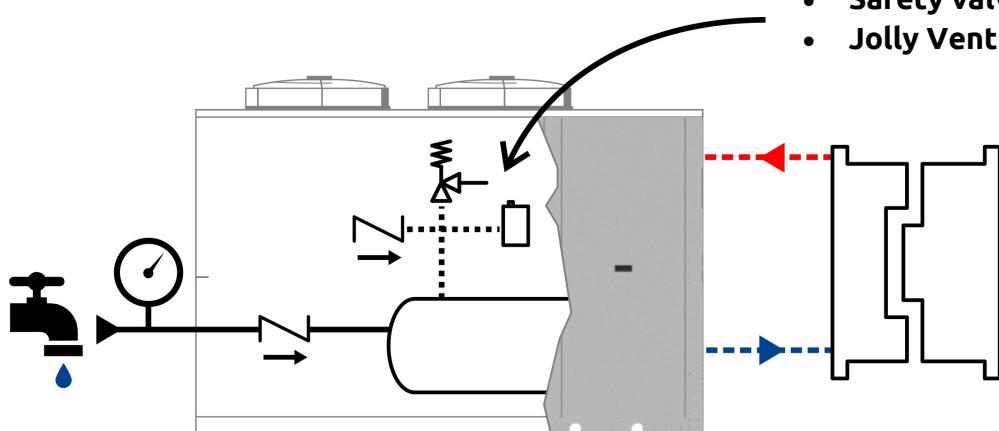
## Hydraulic supply

### Standard models with internal tank "P"

- Filling by water system
- The pressure of the inner tank is determined by the water supply
- External water and glycol charging kits available (please contact Frigel).

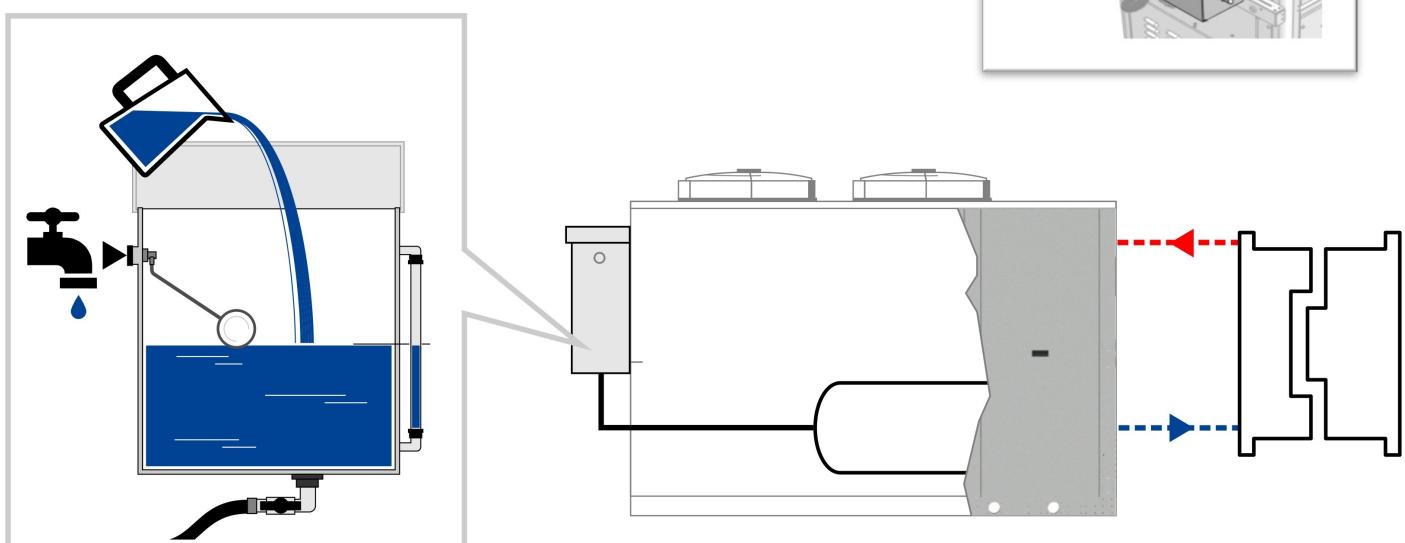
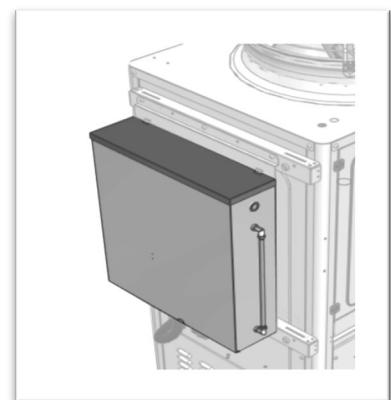
#### SAFETY DEVICES

- Vacuum breaker valve
- Safety valve
- Jolly Vent Valve



### Models with internal tank "P", "S" and tray for manual loading

- Consisting of a stainless steel tray with flap lid
- Allows manual loading of water, or water-glycol mixture
- Allows automatic loading with float if connected to water system
- Equipped with internal visual level indicator.



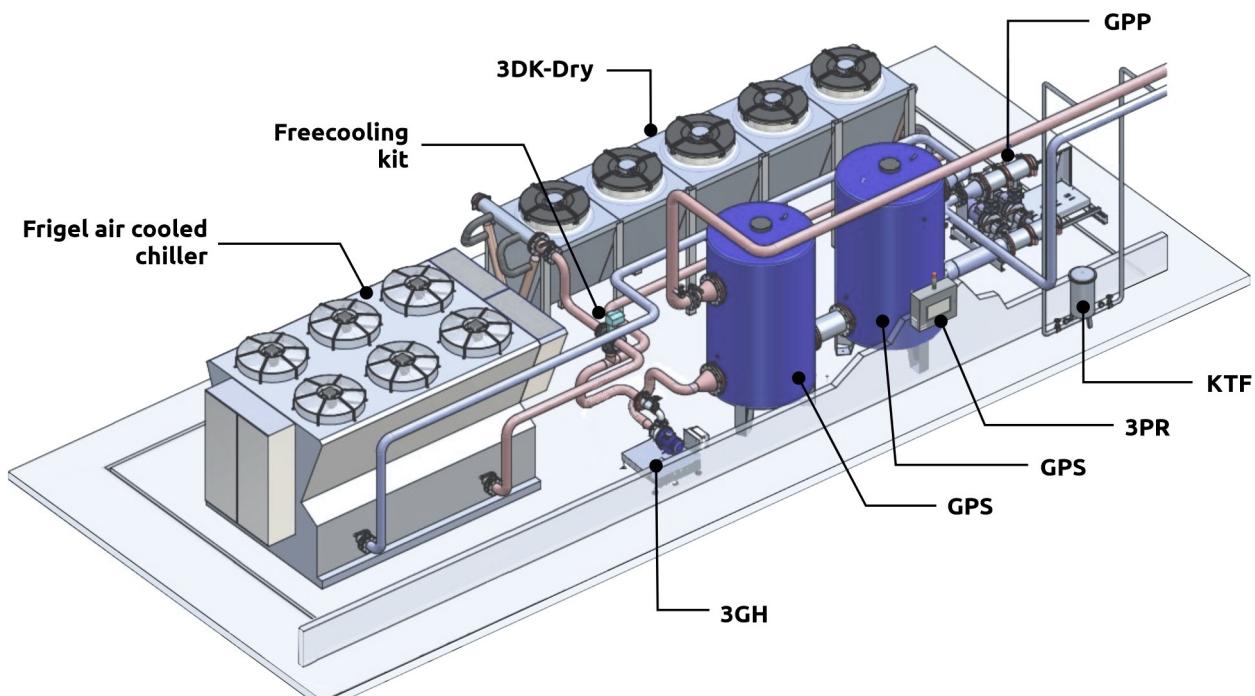
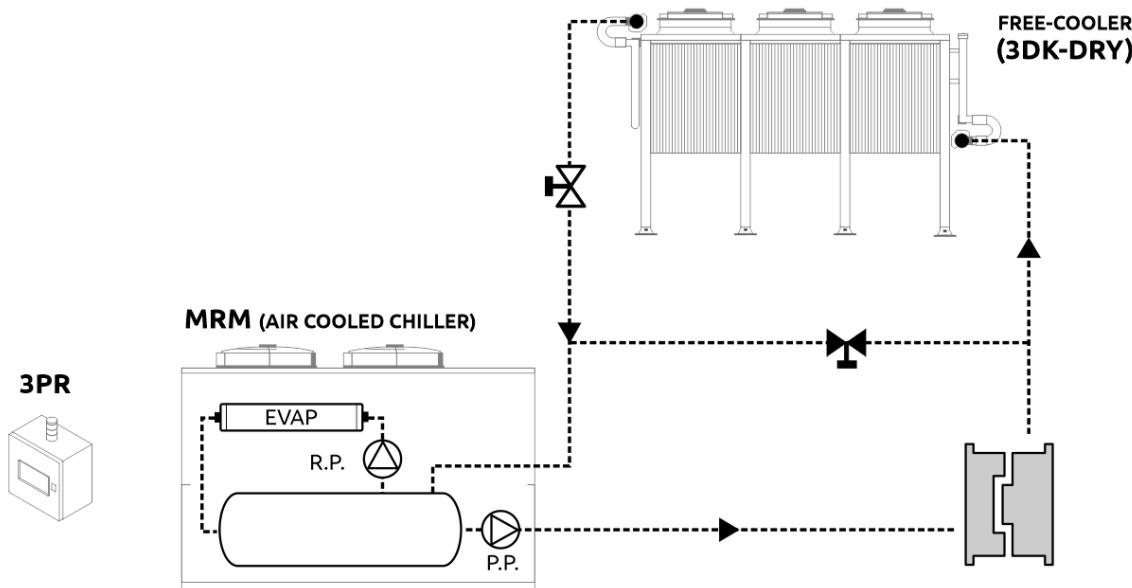
# Industrial Chiller - MRM



## Freecooling option

Through the control panel, it is possible to combine an air/water cooler to the refrigerating unit to create a freecooling system.

Using the ambient air, the system allows to cool the water return from the process, by shutting down, partially and/or completely, the refrigerating unit, with consequent energy saving.



The above scheme is for illustrative purposes only



# Industrial Chiller - MRM



## Technical data

50Hz

| Industrial Chiller Air cooled - Medium capacity - MRM |  |                       |                        |   |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
|---|--|-----------------------|------------------------|---|------------------------|------------------------|------------------------|------------------------|------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--|----------------------------|----------------------------|-------------------|---------|
| Model   |  | 201                   | 251                    | 301   | 311                    | 401                    | 202                    | 252                    | 302                    | 312                        | 402                        | 204                        | 254                        | 304                                      | 314                        | 404                        |                   |         |
| Power supply voltage and frequency                    |  |                       |                        |   |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
| Cooling capacity (*)                                  | 15°C/25°C (*)                                | kW                    | 81                     | 97  | 120                    | 125                    | 157                    | 161                    | 192                    | 227                        | 242                        | 297                        | 314                        | 375                                      | 445                        | 474                        | 581               |         |
| (R410A)   | 10°C/35°C                                    | kW                    | 63                     | 76  | 94                     | 98                     | 123                    | 125                    | 150                    | 178                        | 182                        | 233                        | 244                        | 293                                      | 350                        | 356                        | 456               |         |
| SEPR  |  |                       | 5,59                   | 5,57  | 5,23                   | 6,00                   | 5,80                   | 6,68                   | 6,51                   | 6,21                       | 6,58                       | 6,53                       | 6,19                       | 6,13                                     | 5,89                       | 5,98                       | 6,19              |         |
| Max set point temp.                                   |  | °C                    | 25                     | 25  | 25                     | 25                     | 25                     | 25                     | 25                     | 25                         | 25                         | 25                         | 25                         | 25                                       | 25                         | 25                         | 25                |         |
| Min set point temp. (no glycol)                       |  | °C                    | 7                      | 7   | 7                      | 7                      | 7                      | 7                      | 7                      | 7                          | 7                          | 7                          | 7                          | 7  | 7                          | 7                          | 7                 |         |
| Min set point temp. (with glycol)                     |  | °C                    | 0                      | 0   | 0                      | 0                      | 0                      | 0                      | 0                      | 0                          | 0                          | 0                          | 0                          | 0  | 0                          | 0                          | 0                 |         |
| Min ambient temp.                                     |  | °C                    | -25                    | -25   | -25                    | -25                    | -25                    | -25                    | -25                    | -25                        | -25                        | -25                        | -25                        | -25                                      | -25                        | -25                        | -25               |         |
| Max ambient temp.                                     |  | °C                    | 50                     | 50  | 45                     | 50                     | 50                     | 50                     | 45                     | 45                         | 50                         | 45                         | 50                         | 45                                       | 50                         | 45                         | 50                |         |
| Type  |  |                       |                        |   |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
| Capacity control                                      |  | Scroll                |                        |   |                        |                        |                        | Multis scroll          |                        |                            |                            |                            |                            | ON/OFF (4 compressors = 0-25-50-75-100%) |                            |                            |                   |         |
| Compressor  | Full Load Ampere (FLA)                       | A                     | 38,8                   | 46,8  | 59,8                   | 59,8                   | 73,4                   | 38,8                   | 46,8                   | 59,8                       | 59,8                       | 73,4                       | 38,8                       | 46,8                                     | 59,8                       | 59,8                       | 73,4              |         |
|   | N° Circuits                                  | N°                    | 1                      |   |                        |                        |                        |                        | 2                      |                            |                            |                            |                            |  | 4                          |                            |                   |         |
| Type Material   |  | Microchannel Aluminum |                        |   |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
| Air condenser   |  | Nominal flow rate     | m³/h                   | 35.000  | 35.000                 | 35.000                 | 53.000                 | 53.000                 | 53.000                 | 53.000                     | 51.000                     | 69.000                     | 69.000                     | 106.000                                  | 106.000                    | 102.000                    | 138.000           | 138.000 |
| Fans (***)  | N°   | 2                     | 2                      | 2   | 3                      | 3                      | 3                      | 3                      | 3                      | 3                          | 4                          | 4                          | 6                          | 6  | 6                          | 8                          | 8                 |         |
|   | AC fan (Axial) (Not ductable)                | kW                    | 2,0                    | 2,0   | 2,0                    | 2,0                    | 2,0                    | 2,0                    | 2,0                    | 2,0                        | 2,0                        | 2,0                        | 2,0                        | 2,0                                      | 2,0                        | 2,0                        | 2,0               |         |
|   | A  | 3,9                   | 3,9                    | 3,9   | 3,9                    | 3,9                    | 3,9                    | 3,9                    | 3,9                    | 3,9                        | 3,9                        | 3,9                        | 3,9                        | 3,9                                      | 3,9                        | 3,9                        | 3,9               |         |
|   | EC fan (Axial) (Not ductable)                | kW                    | 1,9                    | 1,9   | 1,9                    | 1,9                    | 1,9                    | 1,9                    | 1,9                    | 1,9                        | 1,9                        | 1,9                        | 1,9                        | 1,9                                      | 1,9                        | 1,9                        | 1,9               |         |
|   | A  | 2,9                   | 2,9                    | 2,9   | 2,9                    | 2,9                    | 2,9                    | 2,9                    | 2,9                    | 2,9                        | 2,9                        | 2,9                        | 2,9                        | 2,9                                      | 2,9                        | 2,9                        | 2,9               |         |
|   | EH fan (Axial high pressure head) (Ductable) | kW                    | 2,8                    | 2,8   | 2,8                    | 2,8                    | 2,8                    | 2,8                    | 2,8                    | 2,8                        | 2,8                        | 2,8                        | 2,8                        | 2,8                                      | 2,8                        | 2,8                        | 2,8               |         |
|   | With diffuser                                | A                     | 4,4                    | 4,4   | 4,4                    | 4,4                    | 4,4                    | 4,4                    | 4,4                    | 4,4                        | 4,4                        | 4,4                        | 4,4                        | 4,4                                      | 4,4                        | 4,4                        | 4,4               |         |
|   | Available pressure head [Pa]                 | 150                   | 150                    | 150   | 150                    | 150                    | 150                    | 150                    | 150                    | 150                        | 150                        | 150                        | 150                        | 150                                      | 150                        | 150                        | 150               |         |
| Evaporator  |  | Type                  |                        | Brazed plate/Shell-and-tube                   |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
| Evaporator Brazed plate                               |  | nom                   | m³/h                   | 14  | 17                     | 21                     | 22                     | 27                     | 28                     | 33                         | 39                         | 42                         | 51                         | 54                                       | 64                         | 77                         | 82                | 100     |
|   |  | nom                   | bar                    | 1   | 0,8                    | 0,9                    | 0,9                    | 0,9                    | 0,9                    | 0,9                        | 0,7                        | 0,8                        | 0,8                        | 1,1                                      | 1,1                        | 0,9                        | 0,9               | 0,9     |
| Evaporator Shell-and-tube                             |  | nom                   | m³/h                   | 14  | 16                     | 20                     | 26                     | 26                     | 26                     | 31                         | 38                         | 49                         | 49                         | 53                                       | 62                         | 75                         | 97                | 97      |
|   |  | nom                   | bar                    | 0,8   | 0,7                    | 0,8                    | 0,8                    | 0,8                    | 0,8                    | 0,6                        | 0,9                        | 0,8                        | 0,8                        | 0,9                                      | 1,1                        | 0,9                        | 1,0               | 1,0     |
| Process pump  | Type   |                       | Centrifugal            |   |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
|   | Quantity                                     |                       | 1                      | 1   | 1                      | 1                      | 1                      | 1                      | 1                      | 1                          | 1                          | 1                          | 1                          | 1  | 1                          | 1                          | 1                 |         |
|   | kW   |                       | 3                      | 3   | 3                      | 3                      | 4                      | 4                      | 4                      | 4                          | 4                          | 7,5                        | 7,5                        | 7,5                                      | 7,5                        | 7,5                        | 9,2               |         |
|   | min  | m³/h                  | 6                      | 6   | 6                      | 6                      | 12                     | 12                     | 12                     | 12                         | 12                         | 24                         | 24                         | 24                                       | 24                         | 24                         | 42                |         |
|   | max  | bar                   | 20                     | 20  | 20                     | 20                     | 42                     | 42                     | 42                     | 42                         | 42                         | 72                         | 72                         | 72                                       | 72                         | 72                         | 132               |         |
| Evaporator pump                                       | Type   |                       | Centrifugal            |   |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
|   | kW   |                       | 1,1                    | 1,1   | 1,1                    | 1,1                    | 1,5                    | 1,5                    | 1,5                    | 1,5                        | 1,5                        | 3                          | 3                          | 3  | 3                          | 3                          | 4                 |         |
|   | Full Load Ampere (FLA)                       | A                     | 3,2                    | 3,2   | 3,2                    | 3,2                    | 4,3                    | 4,3                    | 4,3                    | 4,3                        | 4,3                        | 6,6                        | 6,6                        | 6,6                                      | 6,6                        | 6,6                        | 9,6               |         |
|   | min  | m³/h                  | 6                      | 6   | 6                      | 6                      | 12                     | 12                     | 12                     | 12                         | 12                         | 24                         | 24                         | 24                                       | 24                         | 24                         | 36                |         |
|   | max  | bar                   | 20                     | 20  | 20                     | 20                     | 42                     | 42                     | 42                     | 42                         | 42                         | 72                         | 72                         | 72                                       | 72                         | 72                         | 114               |         |
| Tank  |  | Material              |                        | Galvanized steel with internal Teflon coating |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
| Process water connections                             |  | Volume                | L                      | 300   | 300                    | 300                    | 500                    | 500                    | 500                    | 500                        | 500                        | 750                        | 750                        | 750                                      | 750                        | 750                        | 1000              | 1000    |
| Expansion valve                                       |  | Type                  |                        | VIC FLANGE 741                                |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
| Max operating current                                 |  | A                     | 57,4 (SP+RP+E H)       | 65,4 (SP+RP+E H)                              | 78,4 (SP+RP+E H)       | 82,8 (SP+RP+E H)       | 100,5 (SP+RP+E H)      | 104,7 (SP+RP+E H)      | 120,7 (SP+RP+E H)      | 146,7 (SP+RP+E H)          | 151,1 (SP+RP+E H)          | 185,3 (SP+RP+E H)          | 202,5 (SP+RP+E H)          | 234,5 (SP+RP+E H)                        | 286,5 (SP+RP+E H)          | 295,3 (SP+RP+E H)          | 356,9 (SP+RP+E H) |         |
| Power supply cable                                    |  | Size                  | 3x35+1x25mm² PVC @40°C | 3x35+1x25mm² PVC @40°C                        | 3x50+1x25mm² PVC @40°C | 3x50+1x25mm² PVC @40°C | 3x70+1x35mm² PVC @40°C | 3x70+1x35mm² PVC @40°C | 3x95+1x50mm² PVC @40°C | 2X(3x50+1x25mm²) PVC @40°C | 2X(3x50+1x25mm²) PVC @40°C | 2X(3x70+1x35mm²) PVC @40°C | 2X(3x70+1x35mm²) PVC @40°C | 2X(3x95+1x50mm²) PVC @40°C               | 2X(3x95+1x50mm²) PVC @40°C | 3X(3x70+1x35mm²) PVC @40°C |                   |         |
| Unit Full Load Ampere (FLA)                           |  | AC Fan                | 57,2                   | 65,2  | 78,2                   | 82,5                   | 100,2                  | 104,4                  | 120,4                  | 146,4                      | 150,7                      | 184,9                      | 201,9                      | 233,9                                    | 285,9                      | 294,5                      | 356,1             |         |
|   |  | EC fan                | 55,4                   | 63,4  | 76,4                   | 79,8                   | 97,5                   | 101,7                  | 117,7                  | 143,7                      | 147,1                      | 181,3                      | 196,5                      | 228,5                                    | 280,5                      | 287,3                      | 348,9             |         |
|   |  | EH fan                | 57,4                   | 65,4  | 78,4                   | 82,8                   | 100,5                  | 104,7                  | 120,7                  | 146,7                      | 151,1                      | 185,3                      | 202,5                      | 234,5                                    | 286,5                      | 295,3                      | 356,9             |         |
| Sound level   |  | dB(A) 10 m            | 55                     | 55  | 59                     | 61                     | 61                     | 58                     | 58                     | 62                         | 64                         | 64                         | 61                         | 61                                       | 65                         | 67                         | 67                |         |
| Protection level                                      |  |                       | IP44                   |   |                        |                        |                        |                        |                        |                            |                            |                            |                            |  |                            |                            |                   |         |
| Refrigerant Charge (R410A)                            |  | kg                    | 15                     | 15,5  | 16                     | 28,5                   | 28,5                   | 29,5                   | 30,5                   | 34                         | 43                         | 43                         | 59                         | 61                                       | 68                         | 86                         | 86                |         |
| Net weight  |  | kg                    | 935                    | 945   | 975                    | 1.300                  | 1.450                  | 1.600                  | 1.680                  | 1.750                      | 2.400                      | 2.600                      | 3.100                      | 3.200                                    | 3.300                      | 3.600                      | 3.800             |         |
| Operating weight (***) (R410A)                        |  | kg                    | 1.250                  | 1.261   | 1.291                  | 1.829                  | 1.979                  | 2.130                  | 2.211                  | 2.284                      | 3.193                      | 3.393                      | 3.909                      | 4.011                                    | 4.118                      | 4.686                      | 4.886             |         |

- (\*) Nominal Cooling capacity (water temperature/ambient temperature°C)
- (\*\*) Not considering the water in pipes and in exchangers
- (\*\*\*) AC fans in case of Ambient Temperature >15°C (>-5°C in case of MRM402 and MRM404) / Use EC fans in case of Ambient Temperature >25°C / Use EH fans in case of Ambient Temperature >25°C
- Nominal flow rate and pressure drop at nominal cooling capacity
- Available supply voltage: 400V±10%/3/50Hz; 460V±10%/3/60Hz; 380V±10%/3/60Hz
- On request: UL electrical panel for 60Hz versions
- Capacity with process water temperature DeltaT = 5°C
- in case of lower set point, contact Frigel
- Add glycol in case of low ambient 0°C - Add glycol in case of set point lower than +7°C
- Pumps rated up to 35% of Glycol
- Glycol percentage: 20% glycol in weight -> from 0°C to the minimum set point temperature / 25% glycol in weight -> from -5°C to 0°C
- Not suitable for demi-water (due to ferrous components)
- Max water working pressure: 6 bar



# Industrial Chiller - MRM



## Technical data

60Hz

| Industrial Chiller Air cooled - Medium capacity - MRM |  |   |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
|---|--|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|---|---|---|--|---|---|
| Model   |  | 201   | 251                                | 301                                | 311                                | 401                                | 202                                | 252                                | 302                                | 312                                | 402                                | 204                                     | 254                                     | 304                                     | 314                                      | 404                                     |   |
| Power supply voltage and frequency                    |  |   |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
| Cooling capacity (*)                                  | 15°C/25°C (*)                                | kW  | 74                                 | 97                                 | 117                                | 130                                | 151                                | 148                                | 191                                | 223                                | 252                                | 287                                     | 288                                     | 374                                     | 437                                      | 493                                     | 562                                     |
| (R410A)   | 10°C/35°C                                    | kW  | 58                                 | 76                                 | 91                                 | 103                                | 118                                | 115                                | 149                                | 174                                | 188                                | 225                                     | 224                                     | 292                                     | 342                                      | 370                                     | 441                                     |
| SEPR  |  |   | 5,45                               | 5,43                               | 5,29                               | 5,88                               | 5,39                               | 6,23                               | 6,39                               | 6,11                               | 6,36                               | 5,98                                    | 5,87                                    | 5,98                                    | 5,82                                     | 5,85                                    | 5,73                                    |
| Max set point temp.                                   |  | °C  | 25                                 | 25                                 | 25                                 | 25                                 | 25                                 | 25                                 | 25                                 | 25                                 | 25                                 | 25                                      | 25                                      | 25                                      | 25                                       | 25                                      | 25                                      |
| Min set point temp. (no glycol)                       |  | °C  | 7                                  | 7                                  | 7                                  | 7                                  | 7                                  | 7                                  | 7                                  | 7                                  | 7                                  | 7                                       | 7                                       | 7                                       | 7  | 7                                       | 7                                       |
| Min set point temp. (with glycol)                     |  | °C  | 0                                  | 0                                  | 0                                  | 0                                  | 0                                  | 0                                  | 0                                  | 0                                  | 0                                  | 0                                       | 0                                       | 0                                       | 0  | 0                                       | 0                                       |
| Min ambient temp.                                     |  | °C  | -25                                | -25                                | -25                                | -25                                | -25                                | -25                                | -25                                | -25                                | -25                                | -25                                     | -25                                     | -25                                     | -25                                      | -25                                     | -25                                     |
| Max ambient temp.                                     |  | °C  | 50                                 | 50                                 | 45                                 | 50                                 | 50                                 | 50                                 | 45                                 | 45                                 | 50                                 | 45                                      | 50                                      | 45                                      | 45                                       | 50                                      | 45                                      |
| Compressor  | Type   | Scroll  |                                    |                                    |                                    |                                    |                                    | Multiscroll                        |                                    |                                    |                                    |   |   |   |  |   |   |
|   | Capacity control                             | ON/OFF (0-100%)                               |                                    |                                    |                                    |                                    |                                    | ON/OFF (2 compressors = 0-50-100%) |                                    |                                    |                                    |   |   |   | ON/OFF (4 compressors = 0-25-50-75-100%) |   |   |
|   | Full Load Ampere (FLA)                       | A   | 31,6                               | 39,4                               | 48,6                               | 48,6                               | 62,0                               | 31,6                               | 39,4                               | 48,6                               | 48,6                               | 62,0                                    | 31,6                                    | 39,4                                    | 48,6                                     | 48,6                                    | 62,0                                    |
|   | N°   |   | 1                                  |                                    |                                    |                                    |                                    |                                    | 2                                  |                                    |                                    |   |   |   | 4  |   |   |
|   | Circuits                                     | N°  | 1                                  |                                    |                                    |                                    |                                    |                                    | 1                                  |                                    |                                    |   |   |   | 2  |   |   |
|   | Totally installed                            | HP  | 15                                 | 20                                 | 25                                 | 25                                 | 30                                 | 30                                 | 40                                 | 50                                 | 50                                 | 60                                      | 60                                      | 80                                      | 100                                      | 100                                     | 120                                     |
| Air condenser   | Type   | Microchannel Aluminium                        |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
|   | Material                                     | Nominal flow rate                             |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
| Fans (***)  | N°   | m³/h  | 36.385                             | 36.385                             | 36.385                             | 54.340                             | 54.340                             | 54.340                             | 54.340                             | 51.775                             | 69.160                             | 69.160                                  | 108.680                                 | 108.680                                 | 103.550                                  | 138.320                                 | 138.320                                 |
|   | AC fan (Axial) (Not ductable)                | kW  | 2,2                                | 2,2                                | 2,2                                | 2,2                                | 2,2                                | 2,2                                | 2,2                                | 2,2                                | 2,2                                | 2,2                                     | 2,2                                     | 2,2                                     | 2,2                                      | 2,2                                     | 2,2                                     |
|   | EC fan (Axial) (Not ductable)                | A   | 3,8                                | 3,8                                | 3,8                                | 3,8                                | 3,8                                | 3,8                                | 3,8                                | 3,8                                | 3,8                                | 3,8                                     | 3,8                                     | 3,8                                     | 3,8                                      | 3,8                                     | 3,8                                     |
|   | EH fan (Axial high pressure head) (Ductable) | kW  | 1,9                                | 1,9                                | 1,9                                | 1,9                                | 1,9                                | 1,9                                | 1,9                                | 1,9                                | 1,9                                | 1,9                                     | 1,9                                     | 1,9                                     | 1,9                                      | 1,9                                     | 1,9                                     |
|   | With diffuser                                | A   | 2,9                                | 2,9                                | 2,9                                | 2,9                                | 2,9                                | 2,9                                | 2,9                                | 2,9                                | 2,9                                | 2,9                                     | 2,9                                     | 2,9                                     | 2,9                                      | 2,9                                     | 2,9                                     |
|   | Available pressure head [Pa]                 | 150   | 150                                | 150                                | 150                                | 150                                | 150                                | 150                                | 150                                | 150                                | 150                                | 150                                     | 150                                     | 150                                     | 150                                      | 150                                     |   |
|   | Quantity                                     | 1   | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                       | 1                                       | 1                                       | 1  | 1                                       |   |
|   | kW   | 3,0   | 3,0                                | 3,0                                | 3,0                                | 4,0                                | 4,0                                | 4,0                                | 4,0                                | 4,0                                | 4,0                                | 4,0                                     | 4,0                                     | 4,0                                     | 4,0                                      | 4,0                                     |   |
|   | min  | 6   | 6                                  | 6                                  | 6                                  | 12                                 | 12                                 | 12                                 | 12                                 | 12                                 | 12                                 | 12                                      | 12                                      | 12                                      | 12                                       | 12                                      |   |
|   | max  | 24  | 24                                 | 24                                 | 24                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                      | 50                                      | 50                                      | 50                                       | 50                                      |   |
| Process pump  | Type   | 1   | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                       | 1                                       | 1                                       | 1  | 1                                       | 1                                       |
|   | Quantity                                     | 1   | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                       | 1                                       | 1                                       | 1  | 1                                       | 1                                       |
|   | kW   | 3,0   | 3,0                                | 3,0                                | 3,0                                | 4,0                                | 4,0                                | 4,0                                | 4,0                                | 4,0                                | 4,0                                | 4,0                                     | 4,0                                     | 4,0                                     | 4,0                                      | 4,0                                     | 4,0                                     |
|   | min  | 6   | 6                                  | 6                                  | 6                                  | 12                                 | 12                                 | 12                                 | 12                                 | 12                                 | 12                                 | 12                                      | 12                                      | 12                                      | 12                                       | 12                                      | 12                                      |
|   | max  | 24  | 24                                 | 24                                 | 24                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                      | 50                                      | 50                                      | 50                                       | 50                                      | 50                                      |
|   | bar  | 4,1   | 4,1                                | 4,1                                | 4,1                                | 3,7                                | 3,7                                | 3,7                                | 3,7                                | 3,7                                | 3,7                                | 3,7                                     | 3,7                                     | 3,7                                     | 3,7                                      | 3,7                                     | 3,7                                     |
| Evaporator pump                                       | Type   | 1   | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                  | 1                                       | 1                                       | 1                                       | 1  | 1                                       | 1                                       |
|   | kW   | 2,2   | 2,2                                | 2,2                                | 2,2                                | 3,0                                | 3,0                                | 3,0                                | 3,0                                | 3,0                                | 3,0                                | 3,0                                     | 3,0                                     | 3,0                                     | 3,0                                      | 3,0                                     | 3,0                                     |
|   | min  | 6   | 6                                  | 6                                  | 6                                  | 12                                 | 12                                 | 12                                 | 12                                 | 12                                 | 12                                 | 12                                      | 12                                      | 12                                      | 12                                       | 12                                      | 12                                      |
|   | max  | 24  | 24                                 | 24                                 | 24                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                 | 50                                      | 50                                      | 50                                      | 50                                       | 50                                      | 50                                      |
|   | bar  | 3,1   | 3,1                                | 3,1                                | 3,1                                | 2,8                                | 2,8                                | 2,8                                | 2,8                                | 2,8                                | 2,8                                | 2,8                                     | 2,8                                     | 2,8                                     | 2,8                                      | 2,8                                     | 2,8                                     |
|   | min  | 1,7   | 1,7                                | 1,7                                | 1,7                                | 1,0                                | 1,0                                | 1,0                                | 1,0                                | 1,0                                | 1,0                                | 1,0                                     | 1,0                                     | 1,0                                     | 1,0                                      | 1,0                                     | 1,0                                     |
| Tank  | Material                                     | Galvanized steel with internal Teflon coating |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
|   | Volume                                       | L   | 300                                | 300                                | 300                                | 500                                | 500                                | 500                                | 500                                | 500                                | 750                                | 750                                     | 750                                     | 750                                     | 750                                      | 1000                                    | 1000                                    |
| Process water connections                             | Type   | VIC.FLANGE 741 ASME                           |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
|   | In/out                                       | DN50 2"                                       | DN50 2"                            | DN50 2"                            | DN50 2"                            | DN80 3"                            | DN80 3"                            | DN80 3"                            | DN80 3"                            | DN100 4"                           | DN100 4"                           | DN100 4"                                | DN100 4"                                | DN100 4"                                | DN100 4"                                 |   |   |
| Expansion valve                                       | Type   | Mechanical                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
|   |  | Electronic                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
| Max operating current                                 |  | A   | 50,1 (SP+RP+E H)                   | 57,9 (SP+RP+E H)                   | 67,1 (SP+RP+E H)                   | 71,5 (SP+RP+E H)                   | 88,8 (SP+RP+E H)                   | 90,0 (SP+RP+E H)                   | 105,6 (SP+RP+E H)                  | 124,0 (SP+RP+E H)                  | 128,4 (SP+RP+E H)                  | 136,8 (SP+RP+E H)                       | 175,0 (SP+RP+E H)                       | 206,2 (SP+RP+E H)                       | 243,0 (SP+RP+E H)                        | 251,8 (SP+RP+E H)                       | 308,1 (SP+RP+E H)                       |
|   | Power supply cable                           | Size  | 3x35+1x16mm <sup>2</sup> PVC @40°C | 3x35+1x25mm <sup>2</sup> PVC @40°C | 3x35+1x25mm <sup>2</sup> PVC @40°C | 3x50+1x25mm <sup>2</sup> PVC @40°C | 3x70+1x35mm <sup>2</sup> PVC @40°C | 3x70+1x35mm <sup>2</sup> PVC @40°C | 3x70+1x35mm <sup>2</sup> PVC @40°C | 3x95+1x50mm <sup>2</sup> PVC @40°C | 3x95+1x50mm <sup>2</sup> PVC @40°C | 2X(3x50+1x25mm <sup>2</sup> ) PVC @40°C | 2X(3x50+1x25mm <sup>2</sup> ) PVC @40°C | 2X(3x70+1x35mm <sup>2</sup> ) PVC @40°C | 2X(3x70+1x35mm <sup>2</sup> ) PVC @40°C  | 2X(3x95+1x35mm <sup>2</sup> ) PVC @40°C | 2X(3x95+1x35mm <sup>2</sup> ) PVC @40°C |
| Unit Full Load Ampere (FLA)                           | AC fan                                       | A   | 49,0                               | 56,8                               | 66,0                               | 69,9                               | 87,2                               | 88,4                               | 104,0                              | 122,4                              | 126,3                              | 161,7                                   | 171,8                                   | 203,0                                   | 237,0                                    | 247,6                                   | 303,9                                   |
|   | EC fan                                       |   | 48,1                               | 55,9                               | 65,1                               | 68,5                               | 85,8                               | 87,0                               | 102,6                              | 121,0                              | 124,4                              | 159,8                                   | 169,0                                   | 200,2                                   | 237,0                                    | 243,8                                   | 300,1                                   |
|   | EH fan                                       |   | 50,1                               | 57,9                               | 67,1                               | 71,5                               | 88,8                               | 90,0                               | 105,6                              | 124,0                              | 128,4                              | 163,8                                   | 175,0                                   | 206,2                                   | 243,0                                    | 251,8                                   | 308,1                                   |
| Sound level   | dB(A) 10 m                                   |   | 54                                 | 58                                 | 58                                 | 61                                 | 61                                 | 57                                 | 61                                 | 61                                 | 64                                 | 64                                      | 60                                      | 64                                      | 64                                       | 67                                      | 67                                      |
|   | Protection level                             |   | IP44                               |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |   |   |   |  |   |   |
| Refrigerant Charge (R410A)                            | kg   |   | 14,8                               | 15,3                               | 15,8                               | 28,5                               | 28,5                               | 29,5                               | 30,5                               | 34                                 | 43                                 | 43                                      | 59                                      | 61                                      | 68                                       | 86                                      | 86                                      |
|   | Net weight                                   | kg  | 935                                | 945                                | 975                                | 1.300                              | 1.450                              | 1.600                              | 1.680                              | 1.750                              | 2.400                              | 2.600                                   | 3.100                                   | 3.200                                   | 3.300                                    | 3.600                                   | 3.800                                   |
| Operating weight (***) (R410A)                        | kg   |   | 1.250                              | 1.260                              | 1.291                              | 1.829                              | 1.979                              | 2.130                              | 2.211                              | 2.284                              | 3.193                              | 3.393                                   | 3.909                                   | 4.011                                   | 4.118                                    | 4.686                                   | 4.886                                   |

- (\*) Nominal Cooling capacity (water temperature/ambient temperature °C)
- (\*\*) Not considering the water in pipes and in exchangers
- (\*\*\*) AC fans in case of Ambient Temperature >15°C (>-5°C in case of MRM402 and MRM404) / Use EC fans in case of Ambient Temperature >-25°C / Use EH fans in case of Ambient Temperature >-25°C
- Nominal flow rate and pressure drop at nominal cooling capacity
- Available supply voltage: 400V±10%/3/50Hz; 460V±10%/3/60Hz; 380V±10%/3/60Hz
- On request: UL electrical panel for 60Hz versions
- Altitude limit: 2600 m a.s.l.
- Capacity with process water temperature DeltaT = 5°C
- in case of lower set point, contact Frigel
- Add glycol in case of low ambient 0°C - Add glycol in case of set point lower than +7°C
- Pumps rated up to 35% of Glycol
- Glycol percentage: 20% glycol in weight -> from 0°C to the minimum set point temperature / 25% glycol in weight -> from -5°C to 0°C
- Not suitable for demi-water (due to ferrous components)
- Max water working pressure: 6 bar



# Industrial Chiller - MRM

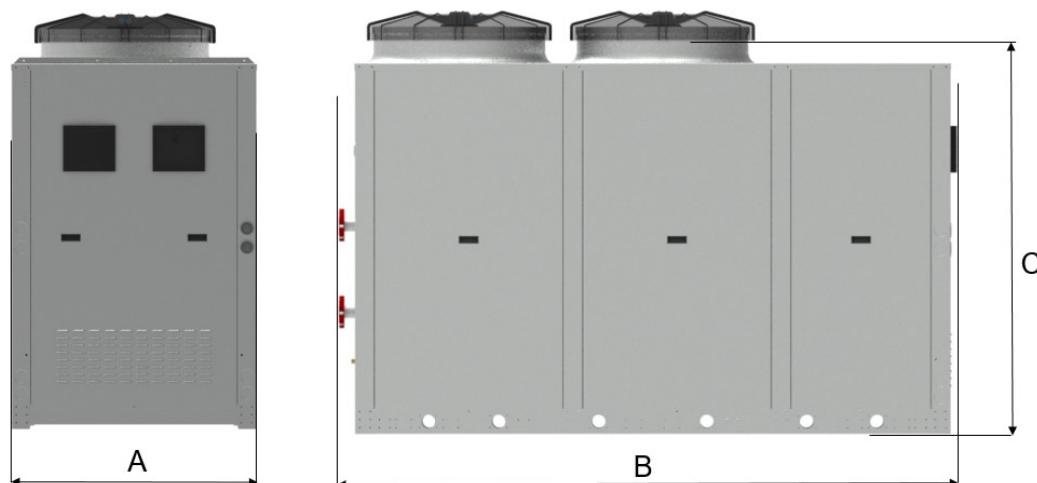


## Dimensional technical data

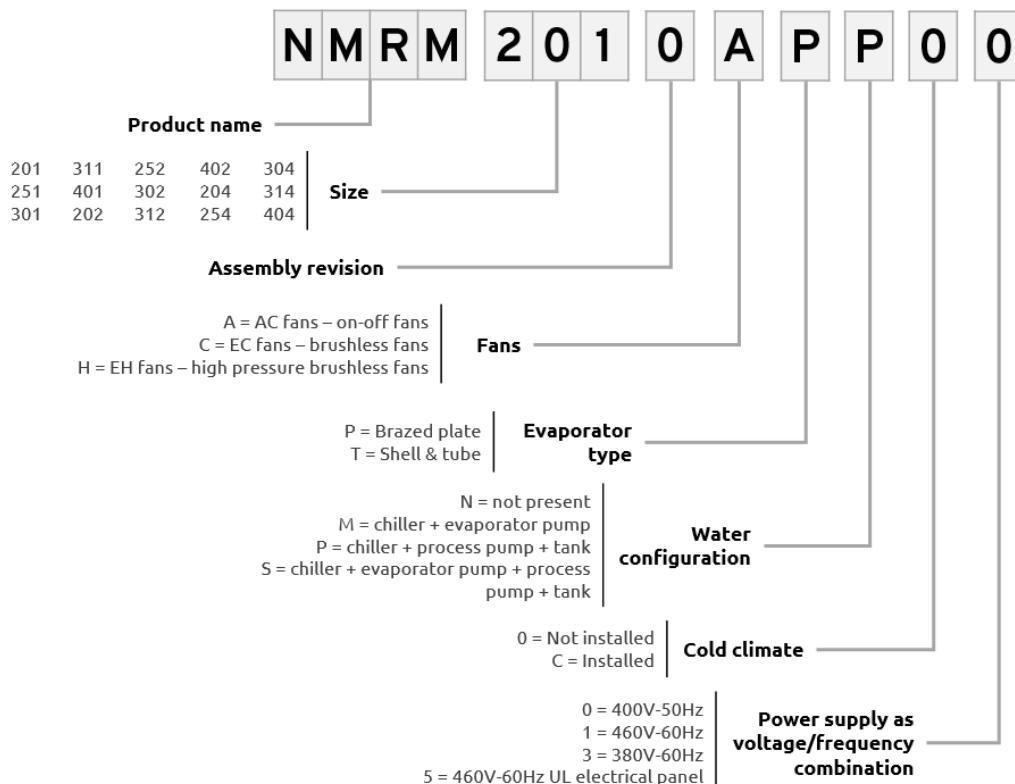
Industrial Chiller Air cooled - Medium capacity - MRM

| Model | 201   | 251   | 301   | 311   | 401   | 202   | 252   | 302   | 312   | 402   | 204   | 254   | 304   | 314   | 404   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A mm  | 1.165 | 1.165 | 1.165 | 1.165 | 1.165 | 1.165 | 1.165 | 1.165 | 1.165 | 1.165 | 2.137 | 2.137 | 2.137 | 2.137 | 2.137 |
| B mm  | 2.875 | 2.875 | 2.875 | 3.800 | 3.800 | 4.545 | 4.545 | 4.545 | 5.470 | 5.470 | 4.545 | 4.545 | 4.545 | 5.470 | 5.470 |
| C mm  | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 | 1.975 |

Dimensions refer to units in basic configuration, without added options



## Order Code



Summit Process Cooling: Vanguard Tame Park, Tamworth,  
Staffordshire B77 5DY T: +44(0)1827 213401 |  
[www.summitprocesscooling.co.uk](http://www.summitprocesscooling.co.uk) | [sales@summitprocesscooling.co.uk](mailto:sales@summitprocesscooling.co.uk)

