FAST
TRATTAMENTO DELL'ARIA

Trattamento dell'aria

# EGEA RWV R134a

Water cooled chillers and motoevaporating units
with screw compressors
Capacities from 80 kW to 538 kW

CE

FAST
COMPANY QUALITY SYSTEM
ICIM
ISO 9001 - Cert. n° 0882/0
CISQ IQNet

**SELECTION, USE, INSTALLATION AND MAINTENANCE MANUAL**

GB

0702-6180675-rev.0

# Summary

## EGEA RWV R134a F-H-ME GENERALITIES

The EGEA-RWV-R134a series is made of 14 sizes of water cooled chillers and motoevaporating units with screw compressors covering a range of capacities from 80 to 538 kW.
They have been designed to operate with extremely low noise level, high reliability, efficiency and easy maintenance. All the units undergo a very strict and detailed factory test before delivery. The structure of the units allows for both an outdoor and indoor installation.
The refrigeration circuit is charged with R134a refrigerant.
The high reliability of the components employed, as well as the strict tests which all units must undergo, grant a very high quality standard.

## AVAILABLE VERSIONS

**F**: water cooled chillers
**H**: heat pump version with cycle inversion on hydraulic circuuit
**ME**: motoevaporating units

## STANDARD VERSIONS AND ACCESSORIES

| EGEA RWV R134a (F-H-ME) | 086 - 326 | 366 - 546 |
|---|---|---|
| Microprocessor | S | S |
| Electronic expansion valve | S | S |
| Main switch | S | S |
| Stepless capacity control 25-100% | S | S |
| Flow switch | S | S |
| On/off free contact | S | S |
| General alarm free contact | S | S |
| Pressure gauges | S | S |
| Second high pressure switch | S | S |
| Low-Noise execution | S | O |
| Antivibration mounts | O | O |
| Evaporator electric heater | O | O |
| Oil level control | O | O |
| Compressor discharge temp. sensor | O | O |
| RS 485 card | O | O |
| MODBUS gateway | O | O |

S: standard - O: optional

**COMPONENTS DESCRIPTION EGEA RWV R134a (F-H-ME) 086-546**

**COMPRESSORS**
Semihermetic twin screw compressors provided with internal thermal protection and crankcase heater. Y/Δ motors are provided to reduce the starting currents. The unit cooling capacity is controlled by means of a slide valve, thus a stepless capacity control from 25% to 100% is possible.

**EVAPORATOR (no ME)**
Stainless steel plate heat exchanger with closed cells polyurethane thermal insulation. In order to protect the exchanger a flow switch is provided as a standard on all the units.

**CONDENSER**
Stainless steel plate heat exchanger.

**CONTROL AND SAFETY DEVICES**
Microprocessor with the following main functions: stepless cooling capacity control from 25% to 100% based on the inlet water temperature; setting of all the operating parameters; display of chilled water inlet and outlet temperature; display of the alarms; compressors timer setting; alarms reset; automatic starting after power failure..

**ELECTRICAL PANEL**
Double door casing including: main switch, thermal protection on auxiliary circuits, compressors contactors.

**REFRIGERATION CIRCUIT**
The refrigeration circuit includes: electronic expansion valve, drier-filter, high and low pressures transducers, high pressure switch with manual reset, low pressure switch with automatic reset, high and low pressure valves.

**FRAME**
Robust galvanized steel base and frame, epoxy painted. Stainless steel screws. .

**EGEA RWV R134a F-H-ME 086 - 156**

| **Size** | | **086** | **106** | **126** | **146** | **156** |
|---|---|---|---|---|---|---|
| Cooling capacity (1) | [kW] | 80,4 | 97,6 | 113,0 | 130,6 | 147,9 |
| Input power (1) | [kW] | 20,4 | 25,6 | 31,2 | 35,1 | 39,5 |
| Heating capacity H (2) | [kW] | 102,4 | 126,2 | 144,9 | 168,3 | 192,5 |
| **Compressors Type** | | | | **Screw** | | |
| Compressors /circuit | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Input power (each) | [kW] | 20,4 | 25,6 | 31,2 | 35,1 | 39,5 |
| Max. input power (each) | [kW] | 34 | 41 | 52 | 65 | 78 |
| Input current (each) | [A] | 38,5 | 45,6 | 55,1 | 62,7 | 69,7 |
| Max. input current (each) | [A] | 56 | 65 | 79 | 98 | 124 |
| Starting current | [A] | 153 | 169 | 206 | 257 | 290 |
| **Capacity control** | | | | **Stepless control from 25% to 100%** | | |
| **Evaporator / number** | | | | **Plate/1** | | |
| Liquid flow | [$m^3/h$] | 13,8 | 16,8 | 19,4 | 22,5 | 25,4 |
| Pressure drop | [kPa] | 16 | 21 | 21 | 22 | 23 |
| **Condenser / number** | | | | **Plate/1** | | |
| Liquid flow | [$m^3/h$] | 17,2 | 21,0 | 24,5 | 28,2 | 31,9 |
| Pressure drop | [kPa] | 21 | 25 | 26 | 35 | 30 |
| **Sound pressure level [dB(A)]** | | | | | | |
| At 1 m in free field | | 62 | 62 | 62 | 62 | 63 |
| **Dimensions and weights** | | | | | | |
| Length | [mm] | 1600 | 1600 | 1600 | 1600 | 1600 |
| Width | [mm] | 721 | 721 | 721 | 721 | 721 |
| Height | [mm] | 1845 | 1845 | 1845 | 1845 | 1845 |
| Weight | [kg] | 856 | 874 | 1085 | 1106 | 1147 |
| Refrigerant charge | [kg] | 10 | 12 | 14 | 14 | 17 |

(1) Cond. in/out temp. 30/35°C, evap. in/out temp. 12/7°C

(2) Cond. in/out temp. 15/10°C, evap. in/out temp. 40/45°C

| **Size** | | **086** | **106** | **126** | **146** | **156** |
|---|---|---|---|---|---|---|
| **Total Electrical Data** | | | | **(400 V - 3 ph - 50 Hz)** | | |
| Nominal input power | (kW) | 20,4 | 25,6 | 31,2 | 35,1 | 39,5 |
| Max. input power | (kW) | 34 | 41 | 52 | 65 | 78 |
| Nominal input current | (A) | 38,5 | 45,6 | 55,1 | 62,7 | 69,7 |
| Max. input current | (A) | 56 | 65 | 79 | 98 | 124 |
| Max. starting current | (A) | 153 | 169 | 206 | 257 | 290 |

**EGEA RWV R134a F-H-ME 186 - 326**

| **Size** | | **186** | **206** | **256** | **296** | **326** |
|---|---|---|---|---|---|---|
| Cooling capacity (1) | [kW] | 178,1 | 198,0 | 250,0 | 281,5 | 320,0 |
| Input power (1) | [kW] | 44,1 | 51,2 | 60,8 | 69,2 | 76,9 |
| Heating capacity H (2) | [kW] | 225,7 | 255,4 | 321,2 | 359,9 | 409,3 |
| **Compressors Type** | | | | **Screw** | | |
| Compressors /circuit | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Input power (each) | [kW] | 44,1 | 51,2 | 60,8 | 69,2 | 76,9 |
| Max. input power (each) | [kW] | 88 | 96 | 110 | 120 | 131 |
| Input current (each) | [A] | 77,2 | 86,2 | 106 | 121,9 | 134,6 |
| Max. input current (each) | [A] | 144 | 162 | 182 | 196 | 214 |
| Starting current | [A] | 350 | 423 | 520 | 612 | 665 |
| **Capacity control** | | | | **Stepless control from 25% to 100%** | | |
| **Evaporator / number** | | | | **Plate/1** | | |
| Liquid flow | [$m^3/h$] | 30,6 | 34,1 | 43 | 48,4 | 55 |
| Pressure drop | [kPa] | 22 | 23 | 22 | 20 | 20 |
| **Condenser / number** | | | | **Plate/1** | | |
| Liquid flow | [$m^3/h$] | 37,8 | 42,4 | 52,9 | 59,7 | 67,6 |
| Pressure drop | [kPa] | 29 | 27 | 25 | 27 | 27 |
| **Sound pressure level [dB(A)]** | | | | | | |
| At 1 m in free field | [dB(A)] | 63 | 63 | 63 | 64 | 64 |
| **Dimensions and weights** | | | | | | |
| Length | [mm] | 1600 | 1600 | 1600 | 1800 | 1800 |
| Width | [mm] | 721 | 721 | 721 | 1000 | 1000 |
| Height | [mm] | 1845 | 1845 | 1845 | 1915 | 1915 |
| Weight | [kg] | 1201 | 1240 | 1707 | 1873 | 1973 |
| Refrigerant charge | [kg] | 21 | 24 | 34 | 38 | 46 |

(1) Cond. in/out temp. 30/35°C, evap. in/out temp. 12/7°C

(2) Cond. in/out temp. 15/10°C, evap. in/out temp. 40/45°C

| **Size** | | **186** | **206** | **256** | **296** | **326** |
|---|---|---|---|---|---|---|
| **Total Electrical Data** | | | | **(400 V - 3 ph -50 Hz)** | | |
| Nominal input power | [kW] | 44,1 | 51,2 | 60,8 | 69,2 | 76,9 |
| Max. input power | [kW] | 88 | 96 | 110 | 120 | 131 |
| Nominal input current | [A] | 77,2 | 86,2 | 106 | 121,9 | 134,6 |
| Max. input current | [A] | 144 | 162 | 182 | 196 | 214 |
| Max. starting current | [A] | 350 | 423 | 520 | 612 | 665 |

**EGEA RWV R134a F-H-ME 366 - 546**

| **Size** | | **366** | **436** | **486** | **546** |
|---|---|---|---|---|---|
| Cooling capacity (1) | [kW] | 369,9 | 425,8 | 475,9 | 537,4 |
| Input power (1) | [kW] | 83,8 | 95,8 | 110,3 | 121,3 |
| Heating capacity H (2) | [kW] | 468,3 | 543,6 | 607,5 | 687,5 |
| **Compressors Type** | | | **Screw** | | |
| Compressors /circuit | | 1/1 | 1/1 | 1/1 | 1/1 |
| Input power (each) | [kW] | 83,8 | 95,8 | 110,3 | 121,3 |
| Max. input power (each) | [kW] | 155 | 204 | 204 | 222 |
| Input current (each) | [A] | 142,6 | 158,5 | 190,1 | 207,5 |
| Max. input current (each) | [A] | 280 | 310 | 320 | 360 |
| Starting current | [A] | 436 | 465 | 586 | 650 |
| **Capacity control** | | **Stepless control from 25% to 100%** | | | |
| **Evaporator / number** | | | **Plate/1** | | |
| Liquid flow | [$m^3/h$] | 63,6 | 73,2 | 81,9 | 92,4 |
| Pressure drop | [kPa] | 52 | 55 | 57 | 60 |
| **Condenser / number** | | | **Plate/1** | | |
| Liquid flow | [$m^3/h$] | 77,3 | 88,9 | 99,9 | 112,3 |
| Pressure drop | [kPa] | 69 | 73 | 76 | 80 |
| **Sound pressure level [dB(A)]** | | | | | |
| At 1 m in free field | [dB(A)] | 85 | 85 | 85 | 85 |
| At 1 m in free field (LN) | [dB(A)] | 70 | 70 | 70 | 70 |
| **Dimensions and weights** | | | | | |
| Length | [mm] | 2100 | 2100 | 2100 | 2100 |
| Width | [mm] | 830 | 830 | 830 | 830 |
| Height | [mm] | 2081 | 2081 | 2081 | 2081 |
| Weight | [kg] | 2711 | 2792 | 2887 | 2942 |
| Refrigerant charge | [kg] | 51 | 55 | 58 | 60 |

(1) Cond. in/out temp. 30/35°C, evap. in/out temp. 12/7°C

(2) Cond. in/out temp. 15/10°C, evap. in/out temp. 40/45°C

| **Size** | | **366** | **436** | **486** | **546** |
|---|---|---|---|---|---|
| **Total Electrical Data** | | | **(400 V - 3 ph -50 Hz)** | | |
| Nominal input power | [kW] | 83,8 | 95,8 | 110,3 | 121,3 |
| Max. input power | [kW] | 155 | 204 | 204 | 222 |
| Nominal input current | [A] | 142,6 | 158,5 | 190,1 | 207,5 |
| Max. input current | [A] | 280 | 310 | 320 | 360 |
| Max. starting current | [A] | 436 | 465 | 586 | 650 |

## EGEA RWV R134a F-H-ME 086 - 206

twc: cond. in/out temp. [°C]
twe: evap. in/out temp. [°C]
*: condensing temp. [°C]

Pf: Cooling capacity [kW]
Pa: Input power [kW]
Pt: Heating capacity [kW] (H)

| Size | | 15/30 | | (35*) | 30/35 | | (40*) | 35/40 | | (45*) | 40/45 | | (50*) | 45/50 | | (55*) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pf | Pt | Pa | Pf | Pt | Pa | Pf | Pt | Pa | Pf | Pt | Pa | Pf | Pt | Pa |
| 086 | 5 | 82,4 | 98,6 | 17,1 | 74,4 | 93,4 | 20 | 69,9 | 90,8 | 22,3 | 64,9 | 88,2 | 24,5 | 60 | 85,4 | 26,7 |
| | 6 | 85,6 | 101,9 | 17,2 | 77,4 | 96,6 | 20,2 | 72,5 | 93,8 | 22,4 | 67,5 | 91 | 24,7 | 62,6 | 88,2 | 26,9 |
| | 7 | 88,8 | 105,3 | 17,4 | 80,4 | 99,8 | 20,4 | 75,3 | 96,8 | 22,6 | 70,2 | 93,9 | 24,9 | 65,1 | 90,8 | 27 |
| | 8 | 92 | 108,7 | 17,6 | 83,3 | 102,9 | 20,6 | 78,1 | 99,8 | 22,8 | 72,9 | 96,7 | 25 | 67,6 | 93,4 | 27,2 |
| | 9 | 95,3 | 112,1 | 17,8 | 86,3 | 106,1 | 20,8 | 80,9 | 102,8 | 23 | 75,6 | 99,5 | 25,2 | 70,2 | 96,2 | 27,4 |
| | 10 | 98,6 | 115,6 | 18 | 89,3 | 109,2 | 20,9 | 83,8 | 105,8 | 23,2 | 78,3 | 102,4 | 25,4 | 72,7 | 98,9 | 27,6 |
| 106 | 5 | 99,5 | 119,9 | 21,4 | 90,3 | 114,1 | 25,1 | 84,9 | 111,5 | 28 | 79,6 | 108,9 | 30,8 | 74,1 | 106 | 33,6 |
| | 6 | 103,5 | 124 | 21,6 | 94 | 118,1 | 25,4 | 88,4 | 115,2 | 28,2 | 82,8 | 112,3 | 31 | 77,2 | 109,3 | 33,8 |
| | 7 | 107,5 | 128,3 | 21,9 | 97,8 | 121,9 | 25,6 | 91,9 | 118,9 | 28,4 | 86,1 | 115,7 | 31,2 | 80,3 | 112,6 | 34 |
| | 8 | 111,5 | 132,5 | 22,1 | 101,3 | 125,9 | 25,9 | 95,3 | 122,6 | 28,7 | 89,7 | 119,3 | 31,5 | 83,3 | 115,8 | 34,2 |
| | 9 | 115,5 | 136,8 | 22,4 | 105 | 129,8 | 26,1 | 98,8 | 126,3 | 28,9 | 92,6 | 122,7 | 31,7 | 86,4 | 119,1 | 34,4 |
| | 10 | 119,6 | 141,1 | 22,7 | 108,6 | 133,7 | 26,4 | 102,3 | 129,9 | 29,1 | 95,9 | 126,2 | 31,9 | 89,5 | 122,4 | 34,6 |
| 126 | 5 | 116,3 | 141,4 | 26,5 | 104,3 | 133,6 | 30,8 | 96,8 | 129,1 | 34 | 89,3 | 124,6 | 37,2 | 81,7 | 120 | 40,3 |
| | 6 | 121 | 146,3 | 26,7 | 108,6 | 138,1 | 31 | 100,9 | 133,4 | 34,2 | 93,1 | 128,6 | 37,4 | 85,3 | 123,8 | 40,5 |
| | 7 | 125,7 | 151,3 | 26,9 | 113 | 142,6 | 31,2 | 104,9 | 137,6 | 34,4 | 96,9 | 132,6 | 37,6 | 88,9 | 127,7 | 40,8 |
| | 8 | 130,5 | 156,2 | 27,1 | 117,3 | 147,2 | 31,5 | 109 | 141,9 | 34,6 | 100,8 | 136,7 | 37,8 | 92,5 | 131,5 | 41 |
| | 9 | 135,3 | 161,2 | 27,3 | 121,6 | 151,7 | 31,7 | 113,1 | 146,3 | 34,9 | 104,6 | 140,8 | 38,1 | 96,1 | 135,2 | 41,2 |
| | 10 | 140,1 | 166,3 | 27,6 | 126 | 156,3 | 31,9 | 117,2 | 150,5 | 35,1 | 108,5 | 144,9 | 38,3 | 99,7 | 139,1 | 41,5 |
| 146 | 5 | 134 | 161,8 | 29,3 | 120,7 | 153,4 | 34,4 | 112,5 | 148,9 | 38,3 | 104,4 | 144,6 | 42,3 | 96,2 | 140 | 46,1 |
| | 6 | 139,4 | 167,4 | 29,6 | 125,6 | 158,7 | 34,8 | 117,2 | 154 | 38,7 | 108,8 | 149,3 | 42,6 | 100,3 | 144,4 | 46,4 |
| | 7 | 144,8 | 173,1 | 29,9 | 130,6 | 163,9 | 35,1 | 121,9 | 159 | 39 | 113,3 | 154,1 | 42,9 | 104,5 | 149 | 46,8 |
| | 8 | 150,2 | 178,9 | 30,2 | 135,5 | 169,1 | 35,4 | 126,6 | 163,9 | 39,3 | 117,7 | 158,7 | 43,2 | 108,7 | 153,4 | 47,1 |
| | 9 | 155,6 | 184,6 | 30,5 | 140,5 | 174,5 | 35,8 | 131,3 | 169 | 39,7 | 122,2 | 163,6 | 43,6 | 112,9 | 157,9 | 47,4 |
| | 10 | 161,1 | 190,5 | 30,9 | 145,5 | 179,8 | 36,1 | 136 | 174 | 40 | 126,6 | 168,3 | 43,9 | 117,1 | 162,5 | 47,8 |
| 156 | 5 | 150,8 | 181,7 | 32,5 | 136,7 | 173,4 | 38,6 | 128,3 | 169,4 | 43,3 | 120 | 165,6 | 48 | 111,6 | 161,6 | 52,6 |
| | 6 | 156,9 | 188,2 | 32,9 | 142,3 | 179,4 | 39 | 133,6 | 175,1 | 43,7 | 125 | 171 | 48,4 | 116,2 | 166,6 | 53 |
| | 7 | 163,1 | 194,8 | 33,4 | 147,9 | 185,4 | 39,5 | 138,9 | 180,8 | 44,1 | 130 | 176,4 | 48,8 | 120,9 | 171,5 | 53,3 |
| | 8 | 169,2 | 201,3 | 33,8 | 153,5 | 191,4 | 39,9 | 144,2 | 186,5 | 44,5 | 135 | 181,7 | 49,2 | 125,6 | 176,6 | 53,7 |
| | 9 | 175,3 | 207,9 | 34,3 | 159,1 | 197,4 | 40,3 | 149,5 | 192,2 | 44,9 | 140 | 187,1 | 49,6 | 130,3 | 181,7 | 54,1 |
| | 10 | 181,6 | 214,6 | 34,8 | 164,7 | 203,5 | 40,8 | 154,8 | 197,9 | 45,4 | 145 | 192,5 | 50 | 135 | 186,8 | 54,5 |
| 186 | 5 | 182,3 | 217,4 | 37 | 164,5 | 205,6 | 43,3 | 153,8 | 199,5 | 48,1 | 143 | 193,3 | 52,9 | 132,2 | 187 | 57,7 |
| | 6 | 189,7 | 225,1 | 37,2 | 171,3 | 212,8 | 43,7 | 160,2 | 206,3 | 48,5 | 149,1 | 199,7 | 53,3 | 138 | 193,1 | 58 |
| | 7 | 197,1 | 232,8 | 37,6 | 178,1 | 220 | 44,1 | 166,7 | 213,1 | 48,8 | 155,2 | 206,1 | 53,6 | 143,7 | 199,2 | 58,4 |
| | 8 | 204,5 | 240,6 | 38 | 184,9 | 227,1 | 44,4 | 173,1 | 219,8 | 49,2 | 161,3 | 212,6 | 54 | 149,5 | 205,6 | 58,8 |
| | 9 | 211,8 | 248,3 | 38,4 | 191,7 | 234,3 | 44,8 | 179,6 | 226,7 | 49,6 | 167,4 | 219,1 | 54,4 | 155,3 | 211,4 | 59,1 |
| | 10 | 219,3 | 256,2 | 38,8 | 198,5 | 241,4 | 45,2 | 186 | 233,5 | 50 | 173,6 | 225,7 | 54,8 | 161,1 | 217,6 | 59,5 |
| 206 | 5 | 201,7 | 242,2 | 42,7 | 182,9 | 230,6 | 50,2 | 171,9 | 225 | 55,9 | 160,9 | 219,4 | 61,6 | 149,8 | 213,8 | 63,3 |
| | 6 | 209,9 | 250,9 | 43,2 | 190,4 | 238,6 | 50,7 | 179 | 232,6 | 56,4 | 167,6 | 226,6 | 62,1 | 156,1 | 220,4 | 67,7 |
| | 7 | 218,2 | 259,7 | 43,7 | 198 | 246,6 | 51,2 | 186,2 | 240,3 | 56,9 | 174,3 | 233,7 | 62,5 | 162,5 | 227,2 | 68,1 |
| | 8 | 226,4 | 268,5 | 44,3 | 205,5 | 254,7 | 51,8 | 193,3 | 247,8 | 57,4 | 181,1 | 241 | 63 | 168,8 | 234 | 68,6 |
| | 9 | 234,7 | 277,2 | 44,7 | 213,1 | 262,8 | 52,3 | 200,5 | 255,5 | 57,9 | 187,8 | 248,1 | 63,5 | 175,1 | 240,7 | 69 |
| | 10 | 243 | 286,1 | 45,3 | 220,7 | 270,9 | 52,8 | 207,6 | 263,1 | 58,4 | 194,6 | 255,4 | 64 | 181,5 | 247,5 | 69,5 |

## EGEA RWV R134a F-H-ME 256 - 546

twc: cond. in/out temp. [°C]
twe: evap. in/out temp. [°C]
*: condensing temp. [°C]

Pf: Cooling capacity [kW]
Pa: Input power [kW]
Pt: Heating capacity [kW] (H))

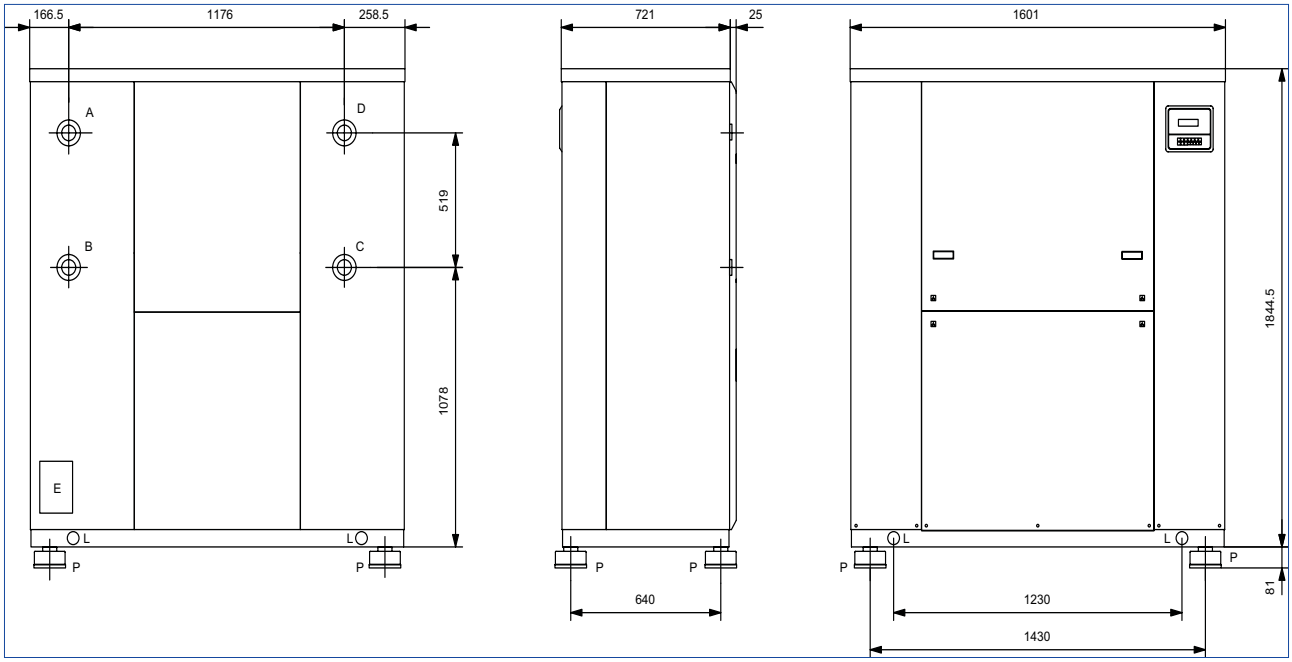
| Size | | 15/30 | | (35*) | 30/35 | | (40*) | 35/40 | | (45*) | 40/45 | | (50*) | 45/50 | | (55*) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pf | Pt | Pa | Pf | Pt | Pa | Pf | Pt | Pa | Pf | Pt | Pa | Pf | Pt | Pa |
| 256 | 5 | 254,8 | 302,8 | 50,5 | 232 | 288,9 | 59,9 | 219 | 282,8 | 67,2 | 206 | 276,7 | 74,6 | 193 | 270,7 | 81,8 |
| | 6 | 264,8 | 313,1 | 50,9 | 241,2 | 298,6 | 60,4 | 227,7 | 292 | 67,7 | 214,3 | 285,6 | 75 | 200,8 | 279 | 82,3 |
| | 7 | 274,8 | 323,5 | 51,3 | 250,3 | 308,1 | 60,8 | 236,5 | 301,3 | 68,2 | 222,6 | 294,3 | 75,5 | 208,7 | 287,4 | 82,8 |
| | 8 | 284,8 | 333,9 | 51,7 | 259,5 | 317,7 | 61,3 | 245,2 | 310,4 | 68,6 | 230,9 | 303,1 | 76 | 216,6 | 295,7 | 83,3 |
| | 9 | 294,7 | 344,3 | 52,1 | 268,7 | 327,3 | 61,7 | 253,9 | 319,5 | 69,1 | 239,2 | 311,9 | 76,5 | 224,4 | 304 | 83,8 |
| | 10 | 304,7 | 354,7 | 52,6 | 277,8 | 336,9 | 62,2 | 262,7 | 328,8 | 69,6 | 247,5 | 320,7 | 77 | 232,3 | 312,4 | 84,3 |
| 296 | 5 | 286,5 | 341,4 | 57,8 | 260 | 324 | 67,4 | 244,4 | 315,4 | 74,7 | 228,9 | 306,7 | 81,9 | 213,3 | 297,9 | 89,1 |
| | 6 | 298,2 | 353,9 | 58,7 | 270,7 | 335,6 | 68,3 | 254,7 | 326,5 | 75,6 | 238,7 | 317,4 | 82,8 | 222,6 | 308 | 89,9 |
| | 7 | 309,9 | 366,5 | 59,5 | 281,5 | 347,2 | 69,2 | 265 | 337,6 | 76,4 | 248,5 | 327,9 | 83,6 | 231,9 | 318,2 | 90,8 |
| | 8 | 321,6 | 378,9 | 60,4 | 292,3 | 358,9 | 70,1 | 275,3 | 348,7 | 77,3 | 258,3 | 338,6 | 84,5 | 241,2 | 328,2 | 91,6 |
| | 9 | 333,3 | 391,5 | 61,2 | 303 | 370,5 | 71 | 285,5 | 359,8 | 78,2 | 268,1 | 349,2 | 85,4 | 250,5 | 338,4 | 92,5 |
| | 10 | 345,1 | 404,2 | 62,2 | 313,8 | 382,2 | 72 | 295,8 | 370,9 | 79,1 | 277,9 | 359,9 | 86,3 | 259,8 | 348,5 | 93,4 |
| 326 | 5 | 324,5 | 385 | 63,7 | 295,3 | 366,9 | 75,4 | 278,7 | 358,9 | 84,4 | 262 | 350,8 | 93,5 | 245,3 | 342,6 | 102,4 |
| | 6 | 338 | 399,2 | 64,4 | 307,7 | 380,1 | 76,2 | 290,3 | 371,2 | 85,2 | 273 | 362,5 | 94,2 | 255,6 | 353,6 | 103,2 |
| | 7 | 351,5 | 413,4 | 65,1 | 320 | 393,1 | 76,9 | 302 | 383,6 | 85,9 | 284 | 374,2 | 94,9 | 266 | 364,7 | 103,9 |
| | 8 | 365 | 427,6 | 65,9 | 332,3 | 406 | 77,6 | 313,7 | 396,1 | 86,7 | 295 | 385,9 | 95,7 | 276,3 | 375,7 | 104,6 |
| | 9 | 378,6 | 441,8 | 66,5 | 344,7 | 419,2 | 78,4 | 325,3 | 408,3 | 87,4 | 306 | 397,6 | 96,4 | 286,6 | 386,7 | 105,4 |
| | 10 | 392,1 | 456 | 67,3 | 357 | 432,1 | 79,1 | 337 | 420,7 | 88,1 | 317 | 409,3 | 97,2 | 297 | 397,8 | 106,1 |
| 366 | 5 | 375 | 441,1 | 69,6 | 341,3 | 419,7 | 82,5 | 321,9 | 409,7 | 92,4 | 302,6 | 399,9 | 102,4 | 283,2 | 389,9 | 112,3 |
| | 6 | 390,5 | 457,2 | 70,2 | 355,6 | 434,5 | 83,1 | 335,6 | 424 | 93,1 | 315,7 | 413,7 | 103 | 295,6 | 402,9 | 112,9 |
| | 7 | 406 | 473,3 | 70,8 | 369,9 | 449,5 | 83,8 | 349,3 | 438,3 | 93,7 | 328,7 | 427,2 | 103,7 | 308,1 | 416 | 113,6 |
| | 8 | 421,6 | 489,6 | 71,5 | 384,2 | 464,5 | 84,5 | 363 | 452,7 | 94,4 | 341,8 | 441 | 104,4 | 320,5 | 429,1 | 114,3 |
| | 9 | 437,1 | 505,7 | 72,2 | 398,5 | 479,4 | 85,2 | 376,7 | 467 | 95,1 | 354,8 | 454,6 | 105 | 332,9 | 442,1 | 114,9 |
| | 10 | 452,7 | 521,9 | 72,9 | 412,8 | 494,3 | 85,8 | 390,3 | 481,3 | 95,8 | 367,9 | 468,3 | 105,7 | 345,3 | 455,1 | 115,6 |
| 436 | 5 | 430,4 | 505,3 | 78,9 | 393,6 | 483,5 | 94,6 | 373,3 | 474,9 | 106,9 | 353,1 | 466,4 | 119,3 | 332,8 | 457,8 | 131,6 |
| | 6 | 447,8 | 523,3 | 79,5 | 409,7 | 500,1 | 95,2 | 388,8 | 491 | 107,6 | 367,8 | 481,7 | 119,9 | 346,9 | 472,6 | 132,3 |
| | 7 | 465,3 | 541,4 | 80,1 | 425,8 | 516,8 | 95,8 | 404,2 | 507 | 108,2 | 382,6 | 497,2 | 120,6 | 361 | 487,4 | 133 |
| | 8 | 482,8 | 559,4 | 80,6 | 441,9 | 533,6 | 96,5 | 419,7 | 523,1 | 108,9 | 397,4 | 512,6 | 121,3 | 375,1 | 502,1 | 133,7 |
| | 9 | 500,2 | 577,4 | 81,2 | 458,1 | 550,3 | 97,1 | 435,1 | 539,2 | 109,6 | 412,2 | 528,1 | 122 | 389,2 | 516,9 | 134,4 |
| | 10 | 517,7 | 595,5 | 81,9 | 474,2 | 567,1 | 97,8 | 450,6 | 555,3 | 110,2 | 427 | 543,6 | 122,7 | 403,3 | 531,6 | 135,1 |
| 486 | 5 | 481,8 | 568,4 | 91,1 | 438,9 | 540,9 | 107,4 | 414,5 | 528,5 | 120 | 390,1 | 516 | 132,5 | 365,7 | 503,5 | 145 |
| | 6 | 501,8 | 589,6 | 92,4 | 457,4 | 560,9 | 108,9 | 432,2 | 547,5 | 121,4 | 407,1 | 534,3 | 133,9 | 381,9 | 520,9 | 146,3 |
| | 7 | 521,8 | 611 | 93,9 | 475,9 | 580,7 | 110,3 | 450 | 566,7 | 122,8 | 424,1 | 552,6 | 135,3 | 398,2 | 538,5 | 147,7 |
| | 8 | 541,7 | 636,2 | 95,3 | 494,3 | 600,5 | 111,8 | 467,7 | 585,7 | 124,2 | 441,1 | 570,9 | 136,6 | 414,4 | 556 | 149 |
| | 9 | 561,7 | 653,6 | 96,8 | 512,8 | 620,3 | 113,2 | 485,5 | 604,8 | 125,6 | 458,1 | 589,2 | 138 | 430,7 | 573,6 | 150,4 |
| | 10 | 581,8 | 675,1 | 98,2 | 531,3 | 640,3 | 114,7 | 503,2 | 623,9 | 127 | 475,1 | 607,5 | 139,4 | 447 | 591,1 | 151,7 |
| 546 | 5 | 541,5 | 636 | 99,5 | 495,3 | 608,4 | 119 | 469,8 | 597,5 | 134,4 | 444,4 | 586,8 | 149,9 | 418,9 | 575,8 | 165,2 |
| | 6 | 564,4 | 659,9 | 100,5 | 516,3 | 630,4 | 120,1 | 489,9 | 618,7 | 135,6 | 436,5 | 607 | 151 | 437 | 595 | 166,3 |
| | 7 | 587,4 | 683,9 | 101,6 | 537,4 | 625,6 | 121,3 | 510 | 639,9 | 136,7 | 482,5 | 627 | 152,1 | 455,1 | 614,2 | 167,5 |
| | 8 | 610,3 | 707,8 | 102,6 | 558,5 | 674,8 | 122,4 | 530 | 660,9 | 137,8 | 501,6 | 647,1 | 153,1 | 473,1 | 633,3 | 168,6 |
| | 9 | 633,3 | 731,8 | 103,7 | 579,5 | 696,8 | 123,5 | 550 | 682 | 138,9 | 520,7 | 667,3 | 154,3 | 491,4 | 652,4 | 169,7 |
| | 10 | 656,2 | 755,8 | 104,8 | 600,6 | 719 | 124,6 | 570,2 | 703,2 | 140 | 539,8 | 687,5 | 155,5 | 509,3 | 671,6 | 170,8 |

## APPLICATION LIMITS EGEA RWV R134a F - H - ME

| | | |
|---|---|---|
| Max./min cond. inlet temp. (1) | [°C] | 50/15 |
| Max./min cond. outlet temp. | [°C] | 55/25 |
| Cond. max/min DELTA T | [°C] | 18/4 |
| Max./min evap. inlet temp. (1) | [°C] | 18/8 |
| Max./min evap. outlet temp. | [°C] | 15/4 |
| Evap. max/min DELTA T | [°C] | 4/8 |

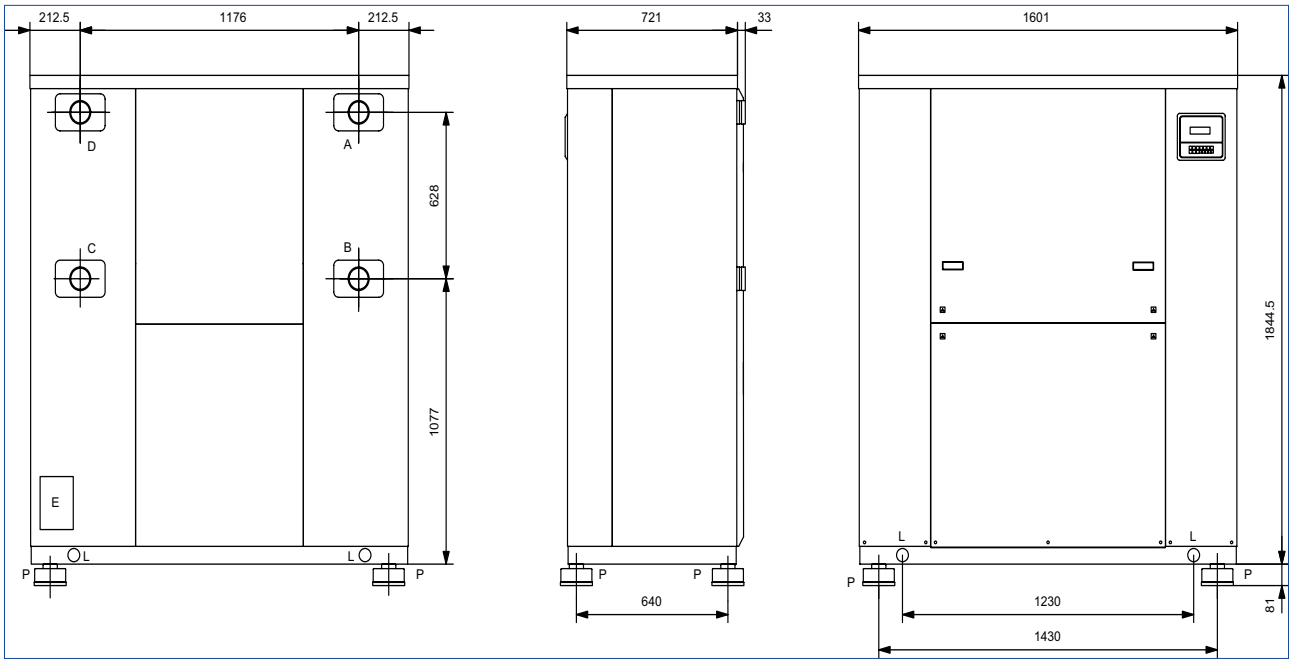
(1) chilled water temp. 12/7°C

## EGEA RWV R134a F-H-ME 086-146



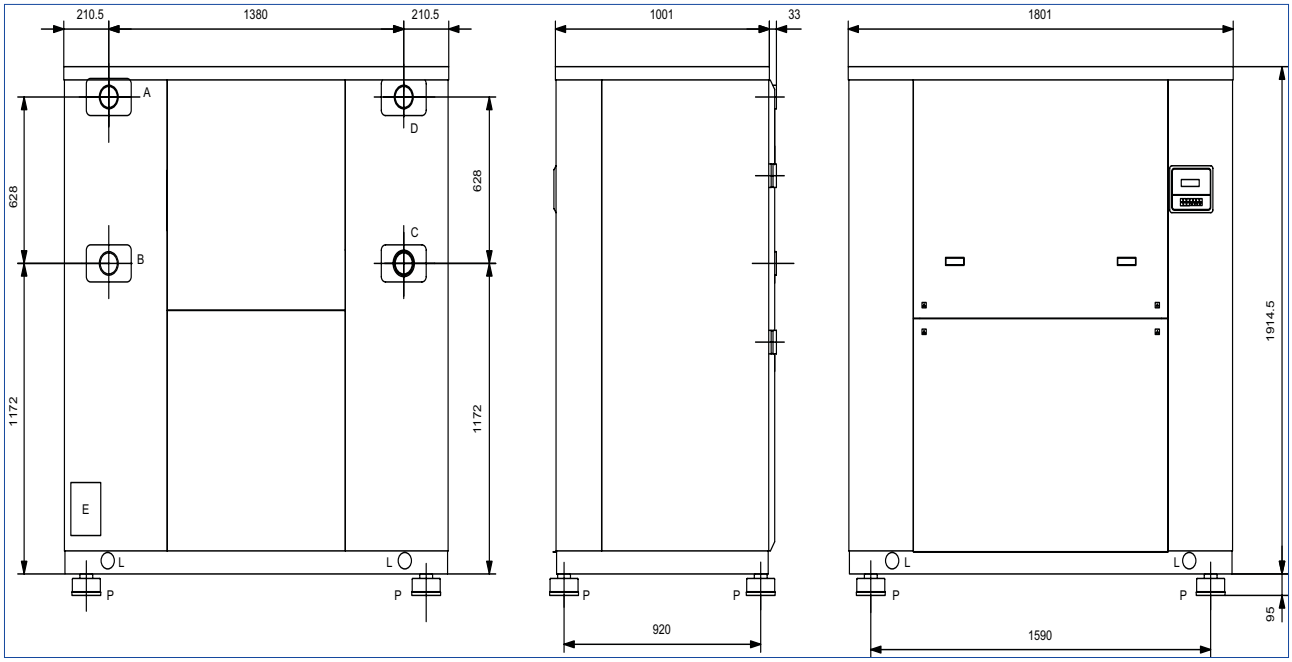

A: evap. water inlet 2” GAS
B: evap. water outlet 2” GAS
C: cond. water inlet 2” GAS
D: cond. water outlet 2” GAS
E: electrical cables inlet

## EGEA RWV R134a F-H-ME 156-206



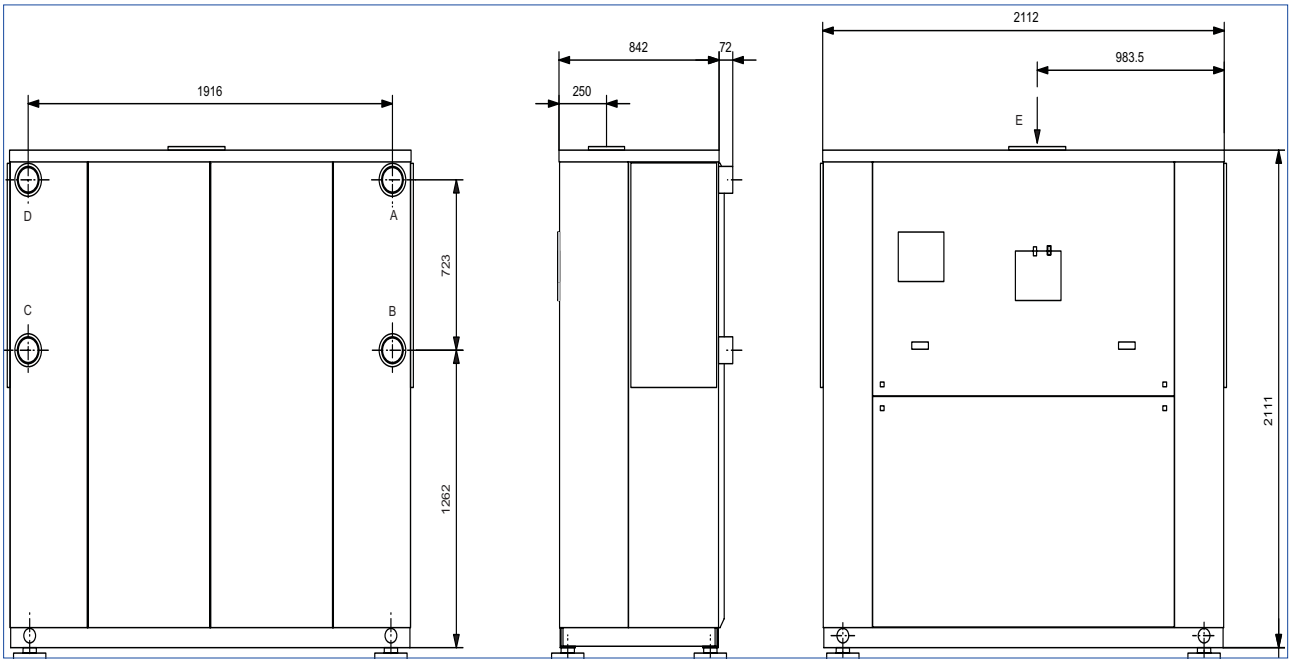

A: evap. water inlet DN 80 Victaulic
B: evap. water outlet DN 80 Victaulic
C: cond. water inlet DN 80 Victaulic
D: cond. water outlet DN 80 Victaulic
E: electrical cables inlet

## EGEA RWV R134a F-H-ME 256-326




A: evap. water inlet DN 80 Victaulic
B: evap. water outlet DN 80 Victaulic
C: cond. water inlet DN 80 Victaulic
D: cond. water outlet DN 80 Victaulic
E: electrical cables inlet

## EGEA RWV R134a F-H-ME 366-536




A: evap. water inlet DN 100 Victaulic
B: evap. water outlet DN 100 Victaulic
C: cond. water inlet DN 100 Victaulic
D: cond. water outlet DN 100 Victaulic
E: electrical cables inlet

## SAFETY

The FAST chiller EGEA-RWV-R134a series have been designed in order to minimize all the possible risks for the operators safety. Please, read carefully the following instruction in order to be aware of the possible dangerous situations while operating with the unit.

## ACCESS TO THE UNIT

Only authorized personnel are entitled to access to unit. The operators must operate with the unit using adequate safety devices and gear.

## RESIDUAL RISKS

The unit installation, start-up, switch-off, maintenance must respect the indications given in the product technical documentation and, in any case, preventing any possible dangerous situation. Please, consider the following possibly hazardous situations.

| Component | Residual risk | possible cause | precautions |
|---|---|---|---|
| heat exchange coil | small cuts | touch | avoid touch, use protective gloves |
| fan grille and fan | injuries | insertion of objects through the grille while the fan is operating | do not insert any object through the fan grille or lay anything upon it |
| inside the unit: compressor and supply pipe | burns | touch | avoid touch, use protective gloves |
| inside the unit: metal components and electrical cables | intoxications, electrocutions, serious burns | defect of insulation of supply cables upstream the electrical panel; metal components under tension | adequate insulation for the for the supply cables; pay extreme attention when putting all the metal components to earth |
| around the unit | intoxications, serious burns | fire caused by short circuit or overheating of the supply cables upstream the electrical panel | cables section and protection devices of the supply cables as per law in force |

## RECEIPT AND STORAGE

On receipt of the goods, verify they have not been damaged and they conform to what indicated in the transport documents. Damages or incomplete supplies must be immediately notified.
Store the units in suitable warehouses (temperatures from -20°C to max. +55°C).

## HANDLING

The units can be handled both with fork lifters or cranes. When handling the unit, pay special attention not to damage the condensing coil. Before moving the units, check their dimensions reported in the present manual. It is recommended to handle the units still packaged.

**Lifting with fork lifter**

Lift the unit with a fork lifter of adequate loading capacity, verify that the forks lenght is at least 1200 mm.
Place the forks following the instructions shown in the figure below. **Be sure the unit is in perfect stable balance.**

**Lifting with crane**

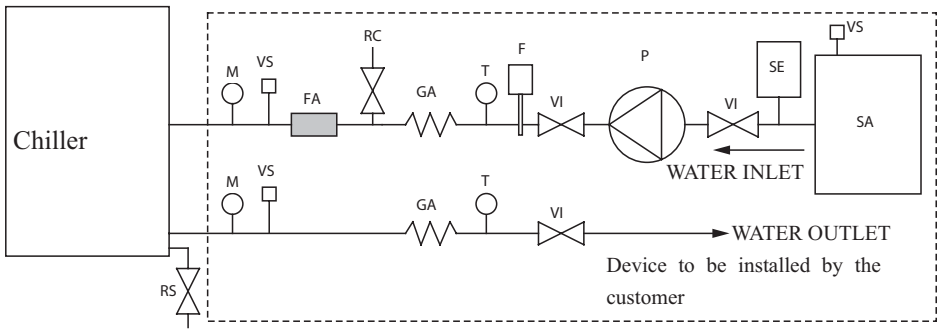
When lifting the unit, follow the instructions shown in the figure below. Make sure the cables can bear the full weight of the unit and ensure they are firmly fixed, preventing any possible interference; the forks, to be threaded into the holes in the basement, must have a 42 mm diameter (1” 1/4). Block the ends of the forks with safety pins to prevent the cables sliding off. **Be sure the unit is in perfect stable balance.**

## POSITIONING

Install the unit respecting the clerances indicated in the dimensional drawings. Lay the unit on an even surface, robust enough to bear its weight.

**Antivibrations dampers**
Rubber antivibration dampers are supplied as an option. Fitted to the holes in the basement, they prevent vibrations transmission.

**Hydraulic connections: unit without hydraulic kit**
In addition to what mentioned above, install a pump, a storage tank and an expansion vessel as shown in the figure below.




| | | |
|---|---|---|
| M = pressure gauge | RC = charge shut-off valve | RS = discharge shut-off valve |
| VS = air relief valve | FA = water filter | GA = antivibration pipe |
| T = thermometer | VI = shut-off valve | F = flow switch |
| P = pump | SE = expansion vessel | SA = storage tank |

**WIRING CONNECTIONS**

The inlet for the electrical feeding cables is shown in the dimensional drawings. Remove the front panel in the upper part of the unit to access the electric board; refer to the power and current values indicated in the present manual to size the electrical feeding cables. The electrical wiring drawings, with all the remaining documentation present in the compressor cabinet, are supplied with the unit.

Pay special attention to the following:
- only qualified personnel are entitled to access and operate with the wiring connections;
- protect the electrical feeding cables against short-circuit and overload with protection devices as per law in force;
- choose a cable section conforming the protection device and considering all the possible influencing factors (temperature, insulation, length ect.);
- Perform all the operations to put the unit to earth with the utmost care;
- check if the electrical feeding system is **3-phases** or **3-phases with neutral wire.**

A couple of terminals (free-contacts), one for the remote general alarm and one for the remote ON-OFF, are present in the terminal plate of the electric board.
**Pay particular attention to the electrical wirings drawings, supplied with the units, when connecting a condensing unit to the internal unit and to the room thermostat**

## START UP

Before starting the unit check the electric, hydraulic and cooling circuits.

**Preliminary checks - electric circuit**
Before proceeding with the checklist reported below, be sure that the electric feeding line is disconneted and the disconnection switch is locked. Proceed as follows:
- remove the front panel in the upper part of the unit;
- turn the main switch to “0” (OFF);
- open the door of the electrical board;
- verify that the feeding cables have been correctly sized;
- verify that the unit has been correctly put to earth;
- verify the tightening of the bolts that fix the wires to the electrical components present in the electric board.
- close the door of the electric board.

It is possible now to feed the unit connecting the feeding line through the disconnection switch and turning the main switch to “1” (ON). Using a voltmeter check the values of the phase tension; the value must be 400 V ± 10%.
Calculate the mean value of the phase tension (RS+ST+RT)/3 and the proportional difference between each of the phase tensions and the calculated mean value. The maximum difference must not exceed 3%. **The warranty will no longer be valid with higher values.**

**EXAMPLE:**
R-S = 397 V ; S-T = 406 V ; R-T = 395 V  mean value: (397+406+395)/3 = 399,3 V

proportional difference: (406 - 397) / 399,3 x 100 = **2,25%**
(406 - 395) / 399,3 x 100 = **2,75%**
(397 - 395) / 399,3 x 100 = **0,5%**

**Preliminary checks - hydraulic circuit**
**- v**erify the correct connection between the unit and the plant pipes;
- verify that the hydraulic shut-off valves are open;
- verify that the plant is charged;
- release all the air from the plant;
- verify that the circulation pump is working and the rotation direction is clockwise;
- verify that the water flow conform to the design one**; be sure the water flow is always steady**.

**Preliminary checks - cooling circuit**
Check the components of the cooling circuit. Verify that the compressors lubricant is at the correct level at the half of the sight glass.

**Start-up**
Turn the main switch on the electric board to "ON" and proceed as follows:

- push the "on/off" button on the keyboard (downwards arrow for 2÷3 sec.) and select the operating mode (chiller or heat pump) through the "MODE" button (in heat pump units verify the remote on/off contacts are bridged); verify there are no alarms on the display.

The units start to operate 3 minutes after the signal given on the inlet water temperature.

**WARNING! The rotation direction of the screw compressors is very important; if the phase sequence is uncorrect they rotate on the wrong side becoming loud and risking serious damages. In this case change immediately the phase sequence. To verify the correct rotation direction, connect the pressure switches to the pressure gauges, correct evaporation and condensing pressure values should be read.**

**Running condition**
The microprocessor controls the cooling capacity depending on the plant thermal load. Verify the water inlet and outlet temperatures: the difference between those two values should not exceed 7°C. Low water flow or air through the plant may cause a higher temperature difference.

**Unit switch on and switch off**
Push "on/off" button on the microprocessor board (downwards arrow for 2-3 sec.) or open the remote on/off contacts.
During long stop periods disconnect the unit through the main switch on the electric board.

## WINTER STOP

If the hydraulic circuit has been charged with water, it is mandatory to blow it out at the end of summer to prevent it from freezing during winter. If the circuit has been charged with glycol-water mixture, the operation is not necessary.
Before winter begins, verify the glycol concentration with a densimeter; if necessary, refill the circuit..

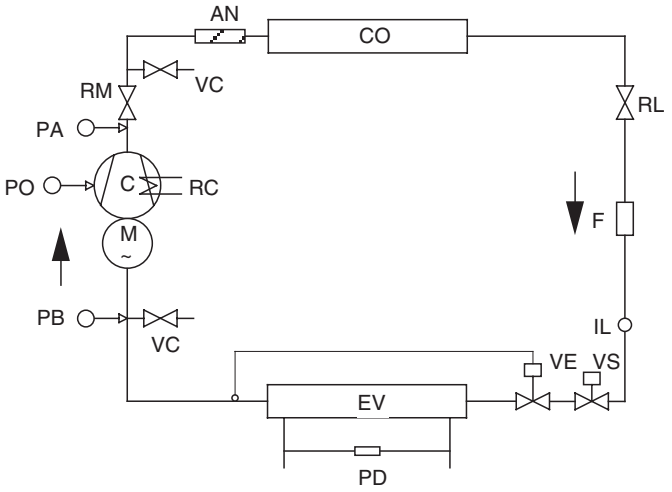
**Maintenance**
We suggest a monthly maintenance procedure to be carried out as follows:
- verify the tightening of the bolts fixing the fans to the grilles and the grilles to the unit structure;
- verify the condensing coils are clean to guarantee an efficient heat exchange. Remove all the dirt on their surface with a jet of air. The aluminium fins are 0,12 mm thin, throw the jet of air perperndicularly to the coils surface to prevent damages to them and, in any case, pay particular attention to all the cleaning procedure.
If the fins are damaged, line them up with a suitable tool (metal comb).
Before operating on the coils, wear protective gloves; the accidental contact with the fins may cause small cuts.
- verify the insulation of the electrical feeding cables is not damaged;
- verify the tightening of the bolts that fix the wires to the electrical components present in the electrical board.
- verify the hydraulic circuit has no leakages;
- check, while the compressors are operating, the supply and suction pressures. Remove the panels of the compressors cabinet and connect the pressure switches to the pressure gauges in the cooling circuit. Only qualified operators are entitled to operate with the cooling circuit.
- check the oil level of the compressors through the sight glass.

## UNIT DISMANTLING

Only qualified operators are entitled to dismantle the unit; recover the refrigerant and the compressors lubricant as per law in force.

## REFRIGERATION CIRCUIT DIAGRAMS

### EGEA RWV-R134a REFRIGERATION CIRCUIT




**KEY**

| | | |
|---|---|---|
| C = compressor | F = drier-filter | VS = solenoid valve |
| PA = high pressure switch | IL = sight glass | AN = antivibration pipe |
| PB = low pressure switch | PD = flow switch | RC = crankcase heater |
| VC = refrigerant service connections | PO = oil flow switch | VE = expansion valve |
| CO = condenser | RM = compr. discharge shut-off valve | RL = liquid line shut-off valve |
| EV = evaporator | | |

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CE

*Technical data shown in this booklet are not binding.*
*FAST S.p.A. shall have the right to introduce at any time whatever modifications deemed necessary to the improvement of the product.*


**FAST**
**TRATTAMENTO DELL'ARIA**

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