

> RGC

AIR-WATER CHILLERS AND HEAT PUMPS FOR INDOOR INSTALLATION



Available range

Unit type

| | |
|----|---|
| IR | Chiller |
| IP | Heat pump (reversible on the refrigerant side) |
| BR | Chiller Brine |
| BP | Heat pump Brine (reversible on the refrigerant side) |

Version

| | |
|----|------------------------|
| VB | Base version |
| VD | Desuperheater version |
| VR | Total recovery version |

Acoustic setting up

| | |
|----|----------------------|
| AB | Base setting up |
| AS | Low noise setting up |

Source temperature level

| | |
|---|--------------------------|
| M | Medium temperature level |
| A | High temperature level |

Unit description

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

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

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve (standard for IR) or electronic expansion valve (standard for IP / option

for IR), reverse cycle valve, dehydrator filter, double inlet centrifugal fans with forward curved blades, finned coil made of copper pipes and aluminium louvered fins with subcooling section. The circuit is protected by a safety gas valve, high and low pressure switches and differential pressure switch on the plate heat exchanger. The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module available in the configurations :

- Storage tank arranged as buffer on the flow or as primary-secondary buffer
- 1 or 2 pumps
- standard or high head pump
- modulating pump

Expansion valve

- thermostatic
- electronic (standard for IP)

Compressor starting

- standard (contactors)
- soft starter

Fans control

- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection

- fuses
- thermal magnetic circuit breakers

Coil condensate tray

(standard for IP)

Accessories

Rubber vibration dampers

Spring vibration dampers

Coil protection grilles

Tank antifreeze electrical heater

Remote control

Modbus serial interface on RS485

Programmer clock

Phase sequence and voltage controller

Low temperature kit (standard for IP)

High and low pressure gauges

High temperature thermostat

Coil shut off valves

Outdoor air sensor

Water flow switch

Victaulic hydraulic fittings

NET NOMINAL performances - Standard plants - EUROVENT certified data

| IR | Base setting up (AB) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 | |
|-------|---------------------------|---------------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| A35W7 | Cooling capacity | 45,0 | 53,0 | 58,1 | 68,2 | 78,1 | 90,3 | 101 | 111 | 125 | 142 | 157 | 179 | 198 | kW |
| | Power input | 15,7 | 18,8 | 20,8 | 24,1 | 28,0 | 32,5 | 35,9 | 39,9 | 45,1 | 51,5 | 57,1 | 64,6 | 71,6 | kW |
| | EER | 2,87 | 2,82 | 2,79 | 2,83 | 2,79 | 2,78 | 2,81 | 2,78 | 2,77 | 2,76 | 2,75 | 2,77 | 2,77 | W/W |
| | ESEER | 3,93 | 3,90 | 3,85 | 3,91 | 3,84 | 3,93 | 3,86 | 3,93 | 3,82 | 3,89 | 3,77 | 3,80 | 3,82 | W/W |
| | Water flow rate | 2,16 | 2,56 | 2,80 | 3,29 | 3,76 | 4,35 | 4,87 | 5,35 | 6,02 | 6,83 | 7,55 | 8,60 | 9,56 | l/s |
| | Pressure drops | 40 | 56 | 55 | 51 | 50 | 48 | 46 | 44 | 48 | 47 | 48 | 48 | 50 | kPa |
| IR | Low noise setting up (AS) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 | |
| A35W7 | Cooling capacity | 45,0 | 53,0 | 58,1 | 68,2 | 78,1 | 90,3 | 101 | 111 | 125 | 142 | 157 | 179 | 198 | kW |
| | Power input | 15,7 | 18,8 | 20,8 | 24,1 | 28,0 | 32,5 | 35,9 | 39,9 | 45,1 | 51,5 | 57,1 | 64,6 | 71,6 | kW |
| | EER | 2,87 | 2,82 | 2,79 | 2,83 | 2,79 | 2,78 | 2,81 | 2,78 | 2,77 | 2,76 | 2,75 | 2,77 | 2,77 | W/W |
| | ESEER | 3,93 | 3,90 | 3,85 | 3,91 | 3,84 | 3,93 | 3,86 | 3,93 | 3,82 | 3,89 | 3,77 | 3,80 | 3,82 | W/W |
| | Water flow rate | 2,16 | 2,56 | 2,80 | 3,29 | 3,76 | 4,35 | 4,87 | 5,35 | 6,02 | 6,83 | 7,55 | 8,60 | 9,56 | l/s |
| | Pressure drops | 40 | 56 | 55 | 51 | 50 | 48 | 46 | 44 | 48 | 47 | 48 | 48 | 50 | kPa |
| IP | Base setting up (AB) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 | |
| A35W7 | Cooling capacity | 43,5 | 52,4 | 57,0 | 66,7 | 73,6 | 88,5 | 98 | 109 | 121 | 137 | 153 | 177 | 196 | kW |
| | Power input | 15,5 | 19,0 | 20,7 | 24,1 | 27,0 | 32,3 | 35,7 | 39,8 | 44,5 | 50,3 | 56,3 | 63,5 | 71,2 | kW |
| | EER | 2,81 | 2,76 | 2,75 | 2,77 | 2,73 | 2,74 | 2,75 | 2,74 | 2,72 | 2,72 | 2,72 | 2,79 | 2,75 | W/W |
| | ESEER | 3,84 | 3,82 | 3,80 | 3,80 | 3,73 | 3,87 | 3,78 | 3,87 | 3,73 | 3,84 | 3,72 | 3,82 | 3,79 | W/W |
| | Water flow rate | 2,09 | 2,53 | 2,75 | 3,21 | 3,54 | 4,26 | 4,73 | 5,26 | 5,83 | 6,59 | 7,36 | 8,50 | 9,46 | l/s |
| | Pressure drops | 37 | 55 | 53 | 49 | 44 | 46 | 43 | 43 | 45 | 44 | 46 | 47 | 49 | kPa |
| A7W45 | Heating capacity | 48,1 | 58,1 | 63,2 | 74,5 | 83,0 | 99,6 | 110 | 125 | 136 | 154 | 173 | 197 | 216 | kW |
| | Power input | 15,6 | 19,1 | 20,9 | 24,4 | 27,6 | 33,5 | 35,9 | 41,1 | 44,9 | 51,8 | 56,9 | 65,1 | 71,7 | kW |
| | COP | 3,08 | 3,04 | 3,02 | 3,05 | 3,01 | 2,97 | 3,06 | 3,04 | 3,03 | 2,97 | 3,04 | 3,03 | 3,01 | W/W |
| | Water flow rate | 2,28 | 2,75 | 2,99 | 3,53 | 3,93 | 4,72 | 5,21 | 5,92 | 6,45 | 7,31 | 8,17 | 9,32 | 10,2 | l/s |
| | Pressure drops | 45 | 65 | 63 | 59 | 55 | 57 | 53 | 54 | 55 | 54 | 56 | 56 | 57 | kPa |
| | IP | Low noise setting up (AS) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 |
| A35W7 | Cooling capacity | 43,5 | 52,4 | 57,0 | 66,7 | 73,6 | 88,5 | 98 | 109 | 121 | 137 | 153 | 177 | 196 | kW |
| | Power input | 15,5 | 19,0 | 20,7 | 24,1 | 27,0 | 32,3 | 35,7 | 39,8 | 44,5 | 50,3 | 56,3 | 63,5 | 71,2 | kW |
| | EER | 2,81 | 2,76 | 2,75 | 2,77 | 2,73 | 2,74 | 2,75 | 2,74 | 2,72 | 2,72 | 2,72 | 2,79 | 2,75 | W/W |
| | ESEER | 3,84 | 3,82 | 3,80 | 3,80 | 3,73 | 3,87 | 3,78 | 3,87 | 3,73 | 3,84 | 3,72 | 3,82 | 3,79 | W/W |
| | Water flow rate | 2,09 | 2,53 | 2,75 | 3,21 | 3,54 | 4,26 | 4,73 | 5,26 | 5,83 | 6,59 | 7,36 | 8,50 | 9,46 | l/s |
| | Pressure drops | 37 | 55 | 53 | 49 | 44 | 46 | 43 | 43 | 45 | 44 | 46 | 47 | 49 | kPa |
| A7W45 | Heating capacity | 48,1 | 58,1 | 63,2 | 74,5 | 83,0 | 99,6 | 110 | 125 | 136 | 154 | 173 | 197 | 216 | kW |
| | Power input | 15,6 | 19,1 | 20,9 | 24,4 | 27,6 | 33,5 | 35,9 | 41,1 | 44,9 | 51,8 | 56,9 | 65,1 | 71,7 | kW |
| | COP | 3,08 | 3,04 | 3,02 | 3,05 | 3,01 | 2,97 | 3,06 | 3,04 | 3,03 | 2,97 | 3,04 | 3,03 | 3,01 | W/W |
| | Water flow rate | 2,28 | 2,75 | 2,99 | 3,53 | 3,93 | 4,72 | 5,21 | 5,92 | 6,45 | 7,31 | 8,17 | 9,32 | 10,2 | l/s |
| | Pressure drops | 45 | 65 | 63 | 59 | 55 | 57 | 53 | 54 | 55 | 54 | 56 | 56 | 57 | kPa |

NET NOMINAL performances - Radiant plants

| IR | Base setting up (AB) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 | |
|--------|----------------------|------|------|------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-----|
| A35W18 | Cooling capacity | 58,3 | 68,5 | 75,1 | 88,2 | 100,6 | 116 | 131 | 144 | 162 | 184 | 202 | 231 | 257 | kW |
| | Power input | 17,1 | 20,8 | 22,9 | 26,4 | 30,8 | 35,6 | 39,4 | 43,6 | 49,4 | 56,4 | 62,5 | 70,7 | 78,5 | kW |
| | EER | 3,41 | 3,29 | 3,28 | 3,34 | 3,27 | 3,26 | 3,32 | 3,30 | 3,28 | 3,26 | 3,23 | 3,27 | 3,27 | W/W |
| | Water flow rate | 2,81 | 3,33 | 3,64 | 4,27 | 4,87 | 5,64 | 6,35 | 6,98 | 7,84 | 8,89 | 9,8 | 11,2 | 12,4 | l/s |
| | Pressure drops | 68 | 95 | 93 | 86 | 84 | 81 | 78 | 75 | 81 | 80 | 81 | 81 | 84 | kPa |
| IP | Base setting up (AB) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 | |
| A35W18 | Cooling capacity | 56,3 | 67,8 | 73,7 | 86,3 | 95,2 | 115 | 127 | 141 | 157 | 177 | 198 | 228 | 254 | kW |
| | Power input | 16,9 | 20,9 | 22,8 | 26,4 | 29,7 | 35,2 | 39,0 | 43,4 | 48,8 | 54,9 | 61,7 | 69,5 | 78,1 | kW |
| | EER | 3,33 | 3,24 | 3,23 | 3,27 | 3,21 | 3,27 | 3,26 | 3,25 | 3,22 | 3,22 | 3,21 | 3,28 | 3,25 | W/W |
| | Water flow rate | 2,72 | 3,29 | 3,57 | 4,18 | 4,60 | 5,54 | 6,16 | 6,83 | 7,60 | 8,55 | 9,56 | 11,0 | 12,3 | l/s |
| | Pressure drops | 63 | 92 | 89 | 82 | 75 | 78 | 74 | 72 | 77 | 74 | 77 | 79 | 83 | kPa |
| A7W35 | Heating capacity | 51,1 | 61,7 | 67,1 | 79,0 | 88,0 | 106 | 117 | 132 | 144 | 164 | 183 | 209 | 229 | kW |
| | Power input | 12,9 | 15,7 | 17,3 | 20,1 | 22,7 | 27,9 | 29,8 | 34,0 | 37,1 | 43,0 | 47,2 | 54,3 | 59,6 | kW |
| | COP | 3,96 | 3,93 | 3,88 | 3,93 | 3,88 | 3,80 | 3,93 | 3,88 | 3,88 | 3,81 | 3,88 | 3,85 | 3,84 | W/W |
| | Water flow rate | 2,42 | 2,91 | 3,17 | 3,74 | 4,17 | 5,02 | 5,54 | 6,26 | 6,83 | 7,74 | 8,65 | 9,89 | 10,8 | l/s |
| | Pressure drops | 50 | 72 | 70 | 66 | 61 | 64 | 60 | 60 | 62 | 60 | 63 | 63 | 64 | kPa |

Data declared according to EN 14511. The values are referred to units without options and accessories.

EER (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

COP (Coefficient Of Performance) = ratio of the total heating capacity to the effective power input of the unit

ESEER (European Seasonal Energy Efficiency Ratio) = Unit in A CLASS.

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C

A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C

A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C

A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The **Total Recovery Version (VR)** allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desuperheater Version (VD) - NET NOMINAL performances

| IR | Base setting up (AB) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 | |
|-------------|------------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| A35W7 - W45 | Cooling capacity | 46,8 | 55,1 | 60,3 | 71 | 81,1 | 93,8 | 105 | 115 | 130 | 148 | 163 | 185 | 206 | kW |
| | Total power input | 15,3 | 18,3 | 20,3 | 23,4 | 27,3 | 31,8 | 35,1 | 38,9 | 44 | 50,3 | 55,8 | 63 | 69,9 | kW |
| | EER | 3,05 | 3 | 2,98 | 3,03 | 2,97 | 2,95 | 2,99 | 2,96 | 2,95 | 2,94 | 2,92 | 2,94 | 2,95 | W/W |
| | HRE | 3,93 | 3,86 | 3,84 | 3,88 | 3,83 | 3,8 | 3,86 | 3,85 | 3,83 | 3,81 | 3,8 | 3,82 | 3,83 | W/W |
| | Water flow rate | 2,25 | 2,66 | 2,91 | 3,42 | 3,91 | 4,52 | 5,06 | 5,54 | 6,26 | 7,12 | 7,84 | 8,93 | 9,94 | l/s |
| | Water pressure drop | 43 | 60 | 59 | 55 | 54 | 52 | 50 | 47 | 52 | 51 | 52 | 52 | 54 | kPa |
| | Heating recovery capacity | 13,5 | 15,7 | 17,6 | 20 | 23,6 | 27,1 | 30,4 | 34,4 | 38,4 | 44 | 49,3 | 55,4 | 61,3 | kW |
| | Water flow rate recovery | 0,65 | 0,75 | 0,84 | 0,96 | 1,13 | 1,29 | 1,45 | 1,64 | 1,83 | 2,1 | 2,36 | 2,65 | 2,93 | l/s |
| | Water pressure drop recovery | 6 | 9 | 11 | 14 | 19 | 15 | 18 | 11 | 14 | 18 | 22 | 18 | 21 | kPa |
| | IP | Base setting up (AB) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 |
| A35W7 - W45 | Cooling capacity | 45,3 | 54,5 | 59,3 | 69,3 | 76,5 | 92,1 | 102 | 113 | 126 | 143 | 159 | 183 | 204 | kW |
| | Total power input | 15,1 | 18,5 | 20,1 | 23,5 | 26,4 | 31,5 | 34,9 | 38,7 | 43,4 | 49,1 | 54,9 | 62,1 | 69,5 | kW |
| | EER | 3 | 2,94 | 2,94 | 2,95 | 2,9 | 2,92 | 2,93 | 2,92 | 2,9 | 2,91 | 2,89 | 2,95 | 2,94 | W/W |
| | HRE | 3,86 | 3,76 | 3,79 | 3,78 | 3,77 | 3,75 | 3,77 | 3,78 | 3,76 | 3,77 | 3,75 | 3,8 | 3,77 | W/W |
| | Water flow rate | 2,18 | 2,63 | 2,86 | 3,34 | 3,68 | 4,43 | 4,92 | 5,45 | 6,07 | 6,88 | 7,64 | 8,84 | 9,84 | l/s |
| | Water pressure drop | 41 | 59 | 57 | 53 | 48 | 50 | 47 | 46 | 49 | 48 | 49 | 51 | 53 | kPa |
| | Heating recovery capacity | 13 | 15,2 | 17 | 19,4 | 22,9 | 26,2 | 29,2 | 33,2 | 37,1 | 42,4 | 47,5 | 52,4 | 58,1 | kW |
| | Water flow rate recovery | 0,62 | 0,73 | 0,81 | 0,93 | 1,09 | 1,25 | 1,4 | 1,59 | 1,77 | 2,03 | 2,27 | 2,5 | 2,78 | l/s |
| | Water pressure drop recovery | 6 | 8 | 10 | 13 | 18 | 14 | 17 | 10 | 13 | 17 | 21 | 16 | 19 | kPa |

Total Recovery Version (VR) - NET NOMINAL performances

| IR | Base setting up (AB) | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 | |
|-------------|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----|
| A35W7 - W45 | Cooling capacity | 46,8 | 55,1 | 60,3 | 71 | 81,1 | 93,8 | 105 | 115 | 130 | 148 | 163 | 185 | 206 | kW |
| | Total power input | 13,9 | 16,9 | 18,4 | 21,4 | 25,3 | 27,9 | 31,1 | 35 | 40 | 44,4 | 49,9 | 55,3 | 62,1 | kW |
| | EER | 3,36 | 3,25 | 3,28 | 3,31 | 3,2 | 3,36 | 3,38 | 3,29 | 3,25 | 3,33 | 3,26 | 3,35 | 3,32 | W/W |
| | HRE | 7,67 | 7,46 | 7,52 | 7,58 | 7,35 | 7,67 | 7,71 | 7,52 | 7,45 | 7,61 | 7,47 | 7,65 | 7,59 | W/W |
| | Water flow rate | 2,25 | 2,66 | 2,91 | 3,42 | 3,91 | 4,52 | 5,06 | 5,54 | 6,26 | 7,12 | 7,84 | 8,93 | 9,94 | l/s |
| | Water pressure drop | 43 | 60 | 59 | 55 | 54 | 52 | 50 | 47 | 52 | 51 | 52 | 52 | 54 | kPa |
| | Heating recovery capacity | 60 | 71,2 | 77,8 | 91,4 | 105 | 120 | 135 | 148 | 168 | 190 | 210 | 238 | 265 | kW |
| | Water flow rate recovery | 2,87 | 3,4 | 3,72 | 4,37 | 5,02 | 5,73 | 6,45 | 7,07 | 8,03 | 9,08 | 10 | 11,4 | 12,7 | l/s |
| | Water pressure drop recovery | 35 | 49 | 41 | 45 | 50 | 48 | 52 | 47 | 52 | 51 | 52 | 55 | 55 | kPa |

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

EER (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

HRE (Heat Recovery Efficiency) = ratio of the total capacity of the system (heating plus cooling capacity) to the effective power input

A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

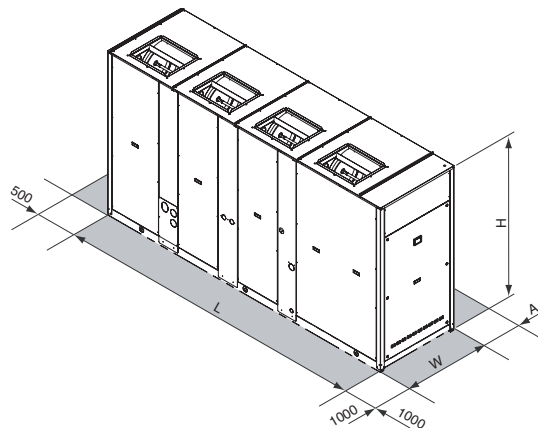
CONTROL SYSTEM

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

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heatingg



DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



| | 40.2 | 50.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 115.2 | 130.2 | 145.2 | 160.2 | 180.2 | 200.2 | |
|---------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|----|
| L | | | 2501 | | | | 3343 | | | 3343 | | 4097 | | mm |
| W | | | 954 | | | | 1104 | | | 1104 | | 1104 | | mm |
| H | | | 1760 | | | | 1760 | | | 2160 | | 2160 | | mm |
| A | | | | 1600 | | | | | | 2000 | | | | mm |
| Operating maximum weight* | 1078 | 1082 | 1102 | 1143 | 1168 | 1684 | 1765 | 1825 | 2000 | 2042 | 2094 | 2423 | 2467 | kg |

* Weight refers to the unit IP with tank and pumping module 2 pumps.