INTARCON

REFRIGERATION UNITS
INDUSTRIAL RANGE

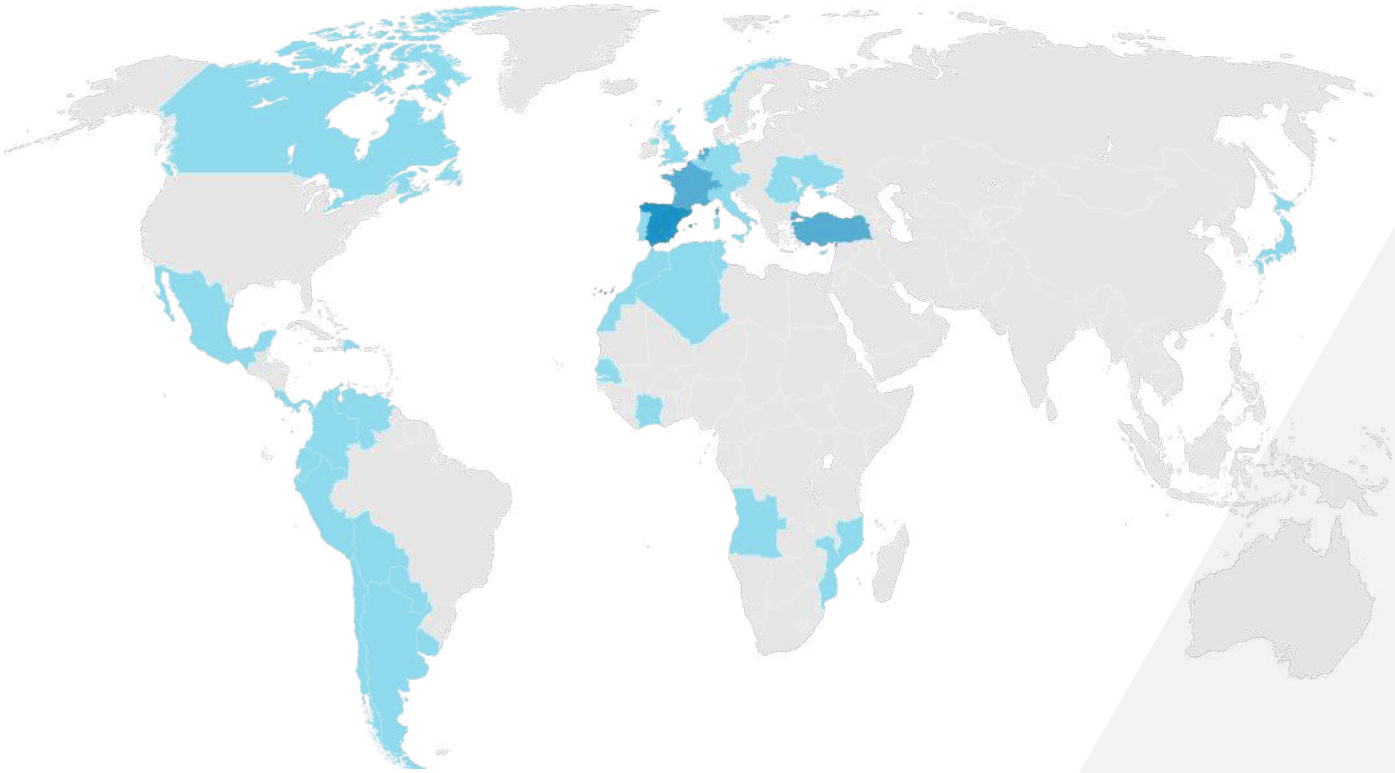
2022-2023

INTARCON

INTARCON, is a Spain-based company dedicated to designing, manufacturing, marketing and servicing a full range of refrigeration equipment for commercial and industrial sectors.

Our mission at INTARCON is to develop and offer the market a wide range of innovative solutions for the most reliable, efficient and sustainable operation of refrigeration facilities.

The INTARCON team has over 30 years of valuable experience in the fields of refrigeration, air conditioning and related thermal appliances, focusing our effort on the creation and development of a wide range of innovative refrigeration solutions.



more than
55 000
supplied units

at more than
50
countries

with more than
300
employes

RELIABILITY
EFFICIENCY
SUSTAINABILITY

Technology

Engineering excellence is in our corporate DNA. Our innovative strategy combines technology development based on well-known solutions, with innovative projects in new technologies.

Team

The commitment, know-how and experience of our employees is our greatest strength, with more than 25 % of our staff being university trained engineer, which makes us a highly technological company.

Markets and clients

Present on five continents and with subsidiaries in the Netherlands, Turkey, France and Switzerland, we develop and promote the dissemination of knowledge to create and reinvent markets through a strong focus on the customer and their needs.

Service

With a great technical capacity and a high knowledge of refrigeration systems and installations, we give international and national customer service.

Quality and environment

We supply products that exceed our customer's expectations, developing environmentally friendly products with optimal management of production waste.

Production capacity

Adaptive flexibility in the manufacture of different products contributes to our customer service. Our factory is located in Lucena, in the south of Spain, with a total surface area of 12 000 m^2.

TÜVRheinland®

CE

CEPYME 500

INNOVATIVE SME

RoHS COMPLIANT

ErP ecodesign

R-290 industrial monoblocks

New high-efficiency industrial refrigeration monoblock units with natural refrigerant R-290 for large cold stores and workrooms.

Motor evaporators R-290 waterloop

Innovative cubic evaporator concept with built-in R-290 water loop condensing unit for commercial cold rooms.

IntarCUBE INVERTER

The evolution of the popular range of variable capacity HFC mini chillers. Now with Inverter technology for silent and continuous power control from 10 to 100 %.

kiconex

The most powerful tool for the digitalisation of your refrigeration installation with Industry 4.0 technologies applied to the refrigeration sector.

R-290 chillers

A complete range of efficient water and glycol chillers with a reduced charge of natural refrigerant R-290.

ECO$_2$CUBE

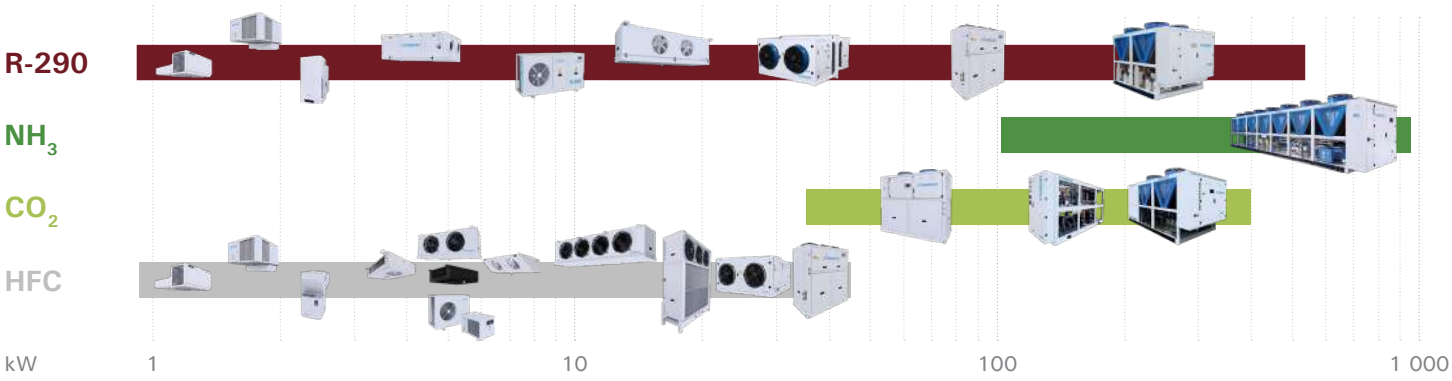
Transcritical CO_2 condensing units with built-in gas cooler in the most compact format for commercial refrigeration, for installation outdoors or in a machine room.

Footprint condensing units A2L approved

The new intarCUBE A2L approved range of footprint condensing units has been designed for medium capacity centralised commercial refrigeration applications, to operate with either R-449A refrigerant or low GWP (< 150) slightly flammable R-454C refrigerant.

NH_3 chillers and direct expansion ammolite

High-performance, high-efficiency glycol chillers and NH_3 direct expansion with all the advantages of ammonia as a natural refrigerant.



Commercial monoblocks

- Monoblock for small and medium sized cold rooms.
- Easy Plug & Play installation directly on the ceiling, door or wall of the cold room.
- Natural refrigerant R-290.

Commercial split systems

- Split system for small and medium sized cold rooms.
- Refrigerant pre-load and exempt from leak checks.
- R-134a and R-449A refrigerant with low greenhouse effect.
- Low noise units and axial or centrifugal condensing units.

Condensing units

- Tropicalised design, low noise and centrifugal fan.
- Ecodesign certification.
- Electronic and multiservice controller versions.

Footprint condensing units up to 40 kW

- Condensing units with axial or centrifugal condenser.
- Duo or trio of hermetic or scroll compressors.
- Optimised designs for each refrigerant (R-134a, R-449A and R-454C).

Industrial condensing units

- High cooling capacity for industrial applications.
- Low refrigerant charge.
- High service accessibility.

Industrial monoblock

- Scroll compressors.
- High, medium and negative temperature.
- Easy wall installation.
- Tropicalised design for ambient temperature up to 45 °C.
- Natural refrigerant R-290.

PRODUCT RANGE

Evaporating units and air coolers

- Expansion and solenoid valves as standard.
- Optimised designs for R-134a, R-449A and glycol.
- High, medium, negative temperature and deep-freezing.

intarSANIT

- Air purification and sterilization in workrooms.
- High efficiency filtration units.
- Air renewal units with active cold recovery.

Waterloop system

- R-290 water condensed motor evaporators.
- Air-coolers with hydraulic group.
- Water condensed units up to 50 °C.

HFC chillers

- Low refrigerant charge.
- Plug & Play.
- Optimised compact system, with minimum maintenance.

Glycol chillers R-290

- Operation with glycol water and reduced R-290 refrigerant charge.
- Scroll and semihermetic compressors.
- FULL INVERTER available models.

CO_2 system from 30 up to 100 kW

- Condensing units with axial or centrifugal gas cooler or centrifugal.
- Trio of positive temperature compressors and duo of negative temperature compressors.
- High performance with parallel compression.

NH_3 chillers ammolite

- Low charge ammonia technology.
- Dry expansion systems.
- Air-cooled chillers.

Direct expansion of NH_3 ammolite

- Low charge ammonia technology.
- No need for an engine room.
- On-site maintenance of the compressor.

> Refrigeration solutions that adapt to the needs of the most demanding sectors

Commercial refrigeration

Modern industrial kitchens in hotels, restaurants and hospitals have a variety of medium and low temperature cold rooms, together with a certain refrigeration demand in high temperature processing rooms, to which must be added the important refrigeration requirements of blast chillers in cold line kitchens. The refrigeration installations for this type of application must not only supply the necessary cold at different temperatures, but must also often have a low noise level.

AMARANDE HOTEL
CYPRUS

Industrial refrigeration

Industrial refrigeration installations are an essential part of the food and beverage processing industries, so the reliability and precision of the equipment is key to the quality of the process. In bakery industries, for example, cooling is essential for optimal product preparation and preservation.

OPAV PEREIRA
COLOMBIA

Supermarkets

Supermarkets are characterised by a high number of small refrigeration services at medium and low temperatures, together with significant thermal requirements for the air-conditioning of the sales room. INTARCON offers integral solutions that meet the cooling and air conditioning needs of the supermarket, taking advantage of the synergies of refrigeration production in summer and heat recovery in winter heat recovery.

ALDI
EUROPE

Other applications

Sometimes refrigeration technology goes beyond food preservation or freezing applications or industrial processes to cover the most remote and unexpected needs, the original design philosophy of manufacturing (ODM) is the method for success.

ASTROPHYSICAL OBSERVATORY - JAVALAMBRE
SPAIN

REFERENCES

THE BLACK FARMER
UNITED KINGDOM

MONTICELLO CASINO
CHILI

UNIVERSITY HOSPITAL
SPAIN

ATHENAEUM LIBRARY
SPAIN

JOVIANES
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CARREFOUR
SEVERAL COUNTRIES

EROSKI
SPAIN

BORDER INSPECTION POST
SPAIN

DELINOVA
CURAÇAO

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"A implementation on more than 40 countries"

Europe

Austria
Belgium
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Ireland
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Netherlands
Portugal
Romania
Spain
Sweden
Switzerland
Turkey

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Ecuador
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Peru
Uruguay
Venezuela

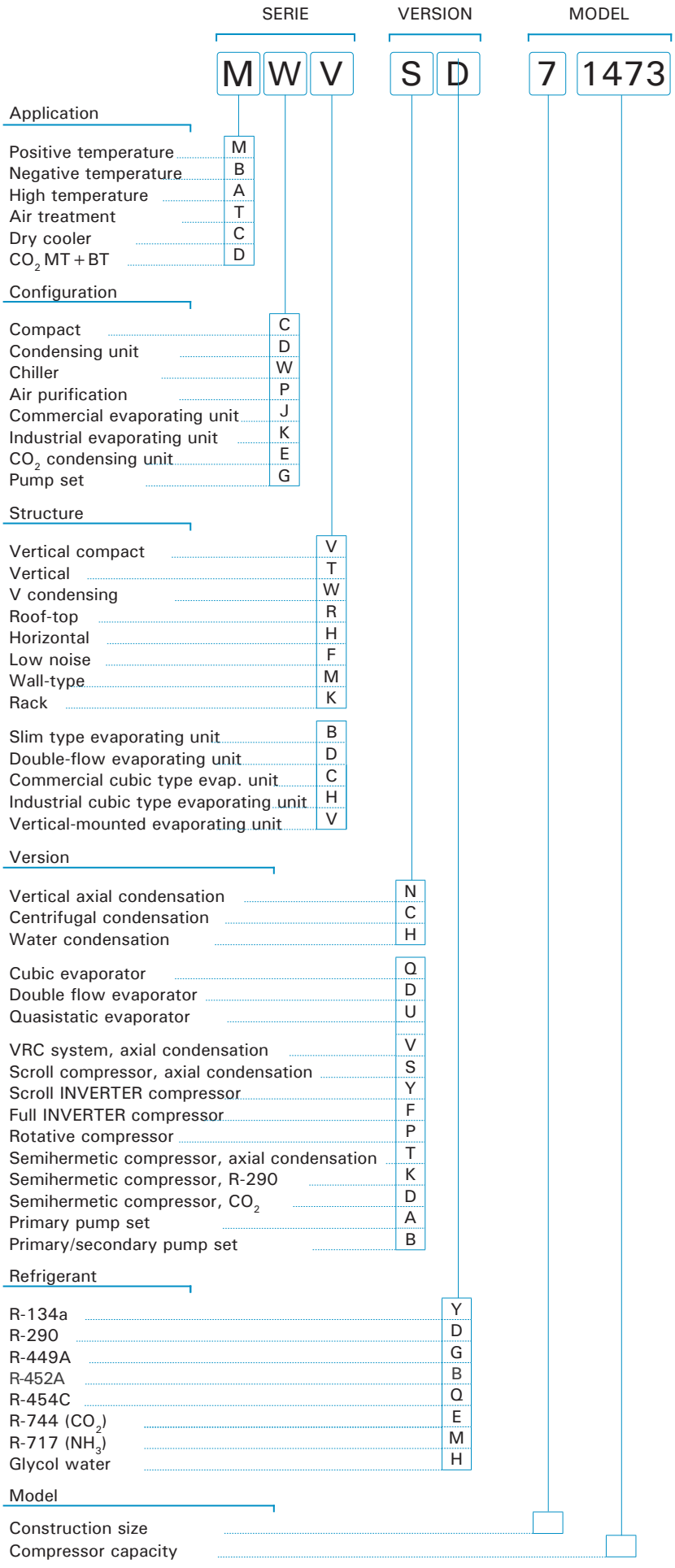
Africa

Angola
Algeria
Cape Verde
Equatorial Africa
Ivory Coast
Morocco
Mozambique
Tunisia

www.intarcon.com

"Maximun quality in our products and excellence in our service"

PRODUCT CODIFICATION



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Cold room calculation

Quick needs calculation

The chart below shows recommended cooling needs for high temperature process rooms and cold rooms at positive and negative temperature according to the calculation basis.

	Cold room volume (m³)	Recommended cooling needs for standard process handling rooms and cold storage rooms (W)				
		HIGH TEMPERATURE (12 °C)		POSITIVE TEMPERATURE (0 °C)		NEGATIVE TEMPERATURE (-20 °C)
		No floor panel		Floor panel	No floor panel	
		50 mm insulation	Without insulation	80 mm insulation		100 mm insulation
Cold room	**100**	6 400	11 100	6 400	8 000	5 100
	150	8 600	15 100	8 600	10 800	6 700
	200	10 700	18 700	10 700	13 300	8 200
	250	12 600	22 100	12 600	15 800	9 600
	300	14 500	25 300	14 500	18 100	10 900
	400	17 900	31 400	17 900	22 400	13 300
	500	21 200	37 100	21 200	26 500	15 500
	600	24 300	42 500	24 300	30 400	17 700
	800	30 100	52 700	30 100	37 700	21 600
	1 000	35 600	62 300	35 600	44 500	25 200
	1 200	40 800	71 400	40 800	51 000	28 700
	1 500	48 300	84 400	48 300	60 300	33 500
	2 000	59 900	104 700	59 900	74 800	41 000
	2 500	70 800	123 800	70 800	88 400	47 900
	3 000	81 100	141 900	81 100	101 400	54 400

Unit capacity correction

Cooling capacity indicated in this catalogue are based on the cooling performance of the unit with 35 °C ambient temperature.

To obtain cooling capacity of the unit under other ambient temperature values it is recommended to apply the following correction factors:

	AMBIENT TEMPERATURE	20 °C	25 °C	30 °C	35 °C	40 °C	45 °C
POSIT. TEMP.	**F_a: Cooling capacity factor**	1,23	1,15	1,08	1,00	0,92	0,84
	F_b: Input power factor	0,81	0,88	0,94	1,00	1,07	1,13
NEGA. TEMP.	**F_a: Cooling capacity factor**	1,33	1,22	1,11	1,00	0,89	0,77
	F_b: Input power factor	0,85	0,91	0,96	1,00	1,03	1,05

$$\text{Cooling capacity} = F_a \times P_{\text{cooling capacity}\,|\,35°C}$$

$$\text{Input power} = F_b \times P_{\text{input power}\,|\,35°C}$$

$$P_{\text{cooling capacity}\,|\,35°C} = \frac{Q_{\text{cooling capacity corrected}}}{F_a}$$

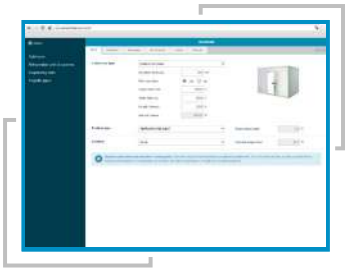
Online refrigeration calculator

For a more accurate calculation we recommend the use of our on-line refrigeration calculator, available on our web site.

Refrigeration calculator for cold room sizing and selection of cooling units.

By entering basic design data, such as cold room type, application, dimensions and insulation thickness, you will get a quick estimation based on other standard assumptions. You will also be able to customise your calculation by entering further data and to select the most suitable refrigeration unit according to your needs.

https://www.intarcon.com/en/refrigeration-calculation/



Correction of refrigeration needs

To obtain the corrected cooling load for a cold room with special characteristics, the application of a series of correction factors is proposed, based on the following:

$$Q_{\text{cooling capacity corrected}} = Q_{\text{cooling capacity}} \times F1 \times F2 \times F3 \times F4$$

Where correction factors adopt the following values:

F_1: Ambient temperature

The following correction factors can be used to obtain the cooling load at an ambient temperature other than the calculation temperature of 35 °C:

- Ambient temperature of 40 °C: **F_1 = 1.05**
- Ambient temperature of 45 °C: **F_1 = 1.10**

F_2: Breathing of fruit and vegetable products

The ripening process of fruit and vegetable products in positive temperature storage produces a considerable amount of heat. This breathing heat can represent, depending on the type of product, up to 50 % additional cooling load.

For indicative purposes, we suggest a factor:

F_2 = 1.25

F_3: High product turnover rate

The cooling capacities indicated in the table have been obtained with a conventional product rotation, according to calculation basis. A high product turnover of twice the rotation rate considered can represent up to an additional 50 % of refrigeration needs.

F_3 = 1.50

Calculation example

Calculation of an 80 m³ apple conservation cold room, isolated with an 80 mm thickness refrigeration panel, with uninsulated floor:

1. From the values in the table, the reference refrigeration load for 80 m³ is interpolated.

$$Q_{\text{cooling capacity}} = 6\,720\ \text{W}$$

2. The correction factor for the heat of respiration of fruit and vegetable products is applied: F_2 = 1.25

$$Q_{\text{cooling capacity corrected}} = Q_{\text{cooling capacity}} \times 1.25 = 8\,400\ \text{W}$$

Cooling needs calculation basis for cooling needs

Cooling needs shown for each cold room volume in product technical features charts in this catalogue have been calculated according to the following assumptions:

- Ambient temperature: 35 °C.
- Product load density: 250 kg/m³.
- Daily rotation rate depending on cold room volume: 10 % (V≤100 m³), 8 % (100 m³<V).
- Product specif c heat PT: 3.2 kJ/(kg·K), NT: 1.8 kJ/(kg·K).
- Product inlet temperature: 25 °C (PT) and -5 °C (NT).
- Insulation panel: Injected polyurethane with 40 kg/m³ density and 0.025 W/(m·K) conductivity, with 80 mm (PT) and 100 mm (NT) thick and floor panel.
- 18 daily hours compressor operation time.

superblock

Industrial monoblocks

High capacity,
minimum space

Quick and easy
installation

Low refrigerant
charge

superblock R-290

- Energy-efficient R-290 natural refrigerant.
- Tropicalised design for ambient temperature up to 45 °C.
- 100 % factory tested.
- High cooling capacity in reduced volume.

Compact industrial refrigeration equipment, manufactured in galvanised steel structure and bodywork with thermosetting polyester paint, designed for outdoor installation on the cold room wall, with easy maintenance access through hinged panels.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Semihermetic reciprocating compressor, air flow, with discharge silencer, oil separator, mounted on dampers, with internal clixon and ATEX crankcase heater, multi-stage capacity control and unloaded start.
- Large area condensing coil, in copper pipes and aluminium fins, tropicalised for ambient temperature up to 45 °C.
- High efficiency evaporating coil, in copper pipes and aluminium fins.
- Aluminium hinged condensate tray.
- Low-speed condenser motor fans, with internal electronic protection, mounted on nozzle, dynamically balanced blades and external protection grille.
- Proportional control of condensation temperature by fan speed control.
- Long-range evaporator axial motor fans, mounted on nozzles, dynamically balanced blades and external protection grille.
- Refrigeration circuit equipped with high and low pressure switches, ceramic dryer filter, sight glass and thermostatic expansion valve pre-adjusted at factory.
- Hot gas defrost for MCH and BCH series, and air defrost for ACH series.
- Heat exchanger for liquid subcooling and suction superheating.
- Independent IP55 electrical power and control panel, with thermal differential and magneto-thermal protection for compressor, fan(s) and heating elements.
- Multifunction electronic control with digital remote display.
- Mounting frame for panel mounting (4 and 5 series).
- Indoor/outdoor insulated panel injected polyurethane with 45 kg/m^3 density.

Series

- ACH - High temperature (9 °C...15 °C)
  Monoblock units designed for high temperature application cold rooms, handling and process rooms, ante rooms and refrigerated loading docks.
- MCH - Positive temperature (-5 °C...10 °C)
  Monoblock units designed for preservation of generic products in medium temperature cold rooms.
- BCH - Low temperature (-30 °C...-15 °C)
  Monoblock units designed for preservation of frozen products in negative temperature cold rooms.

Propane

Propane, or R-290, is a hydrocarbon used as a refrigerant in compact commercial and industrial refrigeration equipment. It has a low environmental impact and excellent thermodynamic properties.

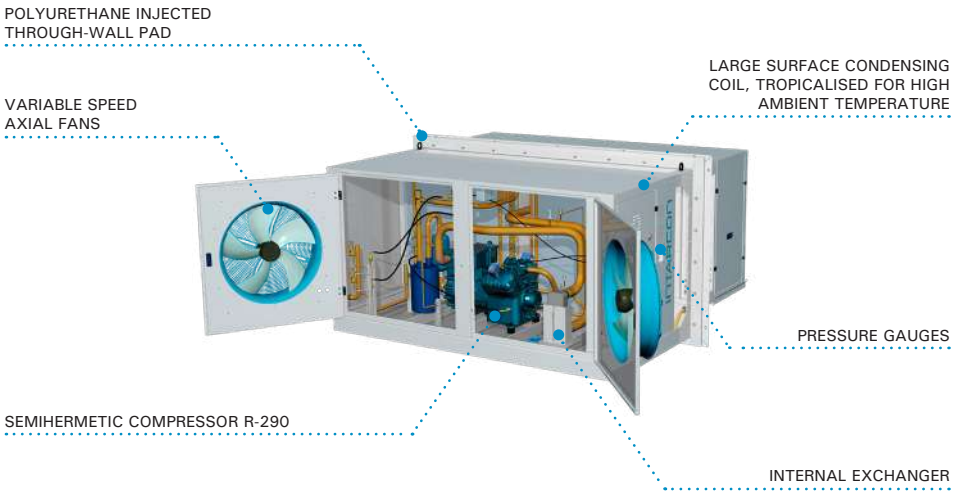
- Global Warming Potential: GWP = 0.02 according to IPCC AR6
- Boiling point at 1.013 bar (°C): -42.10
- Temperature drift (°C): 0
- Safety classification: A3. Non-toxic but extremely flammable.

Highly reliable compressors

Frascold's semihermetic reciprocating compressors are characterised by their great robustness and reliability of operation, and as they are cooled exclusively by the refrigerant gas, they provide effective soundproofing.

Electronic controller

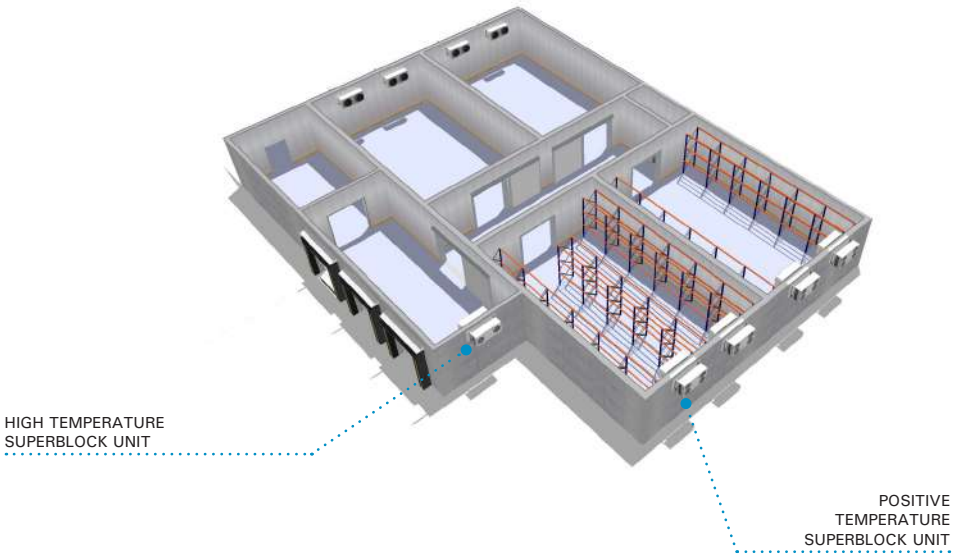
The compact superblock units come with an advanced multifunction control as standard, with an electronic board integrated in the control panel and digital remote control.



Options

- Made-to-measure extension structure for through-wall assembly.
- Anti-corrosion coil coating.
- Mounting template for installation on insulation panel (included series 4 and 5).
- Protection system for voltage drops and phase failures.
- Long range air streamer in evaporating fans.
- Thicker insulating buffer (160 or 200 mm).

Installation example



R-290 load limit

R-290 superblock units contain a low flammable refrigerant charge, class A3. In accordance with the European standard EN 378, superblock R-290 units are suitable for industrial premises with restricted access, and each unit must comply with the practical refrigerant charge limit of 8 g of R-290 per m^3 of room volume.

If necessary, in order to split the refrigerant charge, the installation of multiple units in the same room can be planned.

If the refrigerant charge in a unit is exceeded, the designer must carry out a risk assessment study and take appropriate protective measures.

For example, a working room at 12 °C with dimensions 10 m x 15 m x 4.5 m, with a volume of 675 m^3 , and a refrigeration requirement of 24 kW, allows a maximum charge per unit of 5 kg. In this case, an ACH-KD-3 071 unit can be selected, which contains less than 4 kg of R-290.

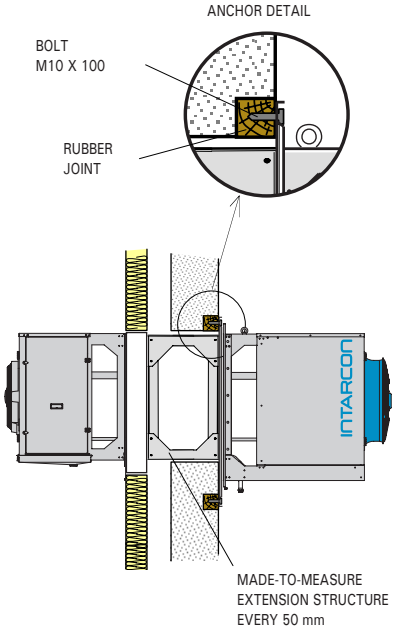
Assembly panel with mounting frame

Units includes an insulating buffer with 100 mm thickness for assembly window on the refrigerator panel of the camera.
Units of 4 and 5 series comes standard with a mounting frame which facilitates installation and improves equipment attachment to the cold room wall.

MOUNTING FRAME

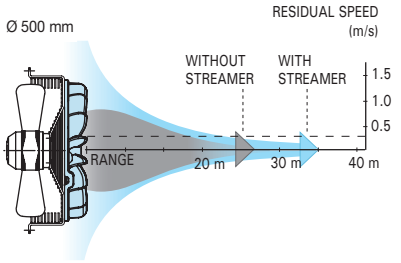
Through-wall assembly

An extension structure can be supplied by request for through-wall assembly.



Long range streamer (optional for HFC models)

Integrated as standard on R-290 models is a streamer or louvred diffuser on the fan drive, to direct the air jet with a greater reach.



Fan Ø (mm)	Range without streamer (m)	Range with streamer (m)
Ø 450	22	28
Ø 500	26	34

superblock R-290 | High temperature

Monoblock units designed for high temperature application cold rooms, handling and process rooms and refrigerated loading docks.

Special features

- Air defrost and oversized condenser.

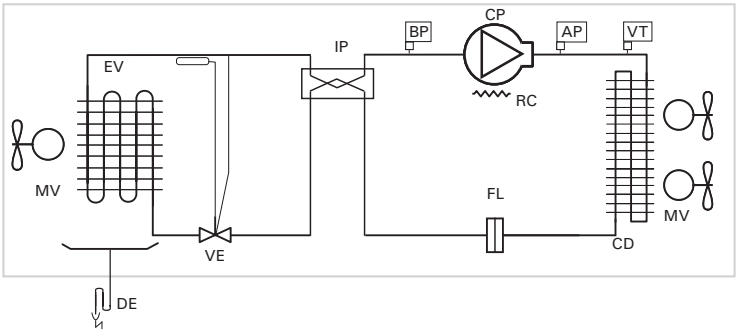
400V 3N 50Hz | High temperature | Semihermetic compressor | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Cold room temperature 18 °C 65 % HR	12 °C 75 % HR	6 °C 85 % HR	Input power (kW)	Max. current (A)	Evaporator Fan Ø (mm)	Air flow (m³/h)	Range (m)	Condenser Fan Ø (mm)	Air flow (m³/h)	Refrig. charge (kg)	Weight (kg)	SPL dB(A) [2]
R-290	1x Semihermetic	**ACH-KD-1 021**	2	B2-10	8,9	**7,9**	6,7	2,5	8,0	1x Ø 450	4 750	22	1x Ø 450	4 000	< 2,0	276	36
		ACH-KD-1 031	3	D3-13	11,2	**10,0**	8,6	3,4	10,4	1x Ø 450	4 750	22	1x Ø 450	4 000	< 2,0	285	36
		ACH-KD-2 041	4	D4-19	16,1	**14,4**	12,4	5,1	15,3	1x Ø 500	6 650	22	2x Ø 450	7 200	< 2,5	350	37
		ACH-KD-2 051	5	Q5-25	18,9	**17,0**	14,8	6,1	17,7	1x Ø 500	6 650	22	2x Ø 450	7 200	< 2,5	374	38
		ACH-KD-3 071	7	Q7-36	27,3	**24,5**	21,5	10,4	24,5	2x Ø 450	8 400	22	2x Ø 450	8 000	< 4,0	434	43
		ACH-KD-4 151	15	S15-52	40,6	**36,3**	31,6	14,8	36,6	2x Ø 500	13 300	22	4x Ø 450	14 400	< 4,0	606	45
		ACH-KD-5 201	20	S20-56	52,5	**47,0**	39,1	18,3	35,7	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5,0	867	47
		ACH-KD-5 301	30	V30-84	67,2	**61,6**	51,2	23,8	51,0	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5,0	922	51

Options

- Made-to-measure extension structure for through-wall assembly.
- Anti-corrosion coil coating.
- Mounting template for installation on insulation panel (included series 4 and 5).
- Protection system for voltage drops and phase failures.

ACH-KD refrigeration scheme



CP: COMPRESSOR
MV: MOTOR FAN
EV: EVAPORATOR
CD: CONDENSER
IP: PLATE HEAT EXCHANGER
FL: FILTER
AP: HIGH PRESSURE SWITCH
BP: LOW PRESSURE SWITCH
VE: EXPANSION VALVE
VT: VOLTAGE VARIATOR
RC: CRANKCASE RESISTOR
DE: DRAIN (NOT INCLUDED)

[1] Rated data are related to operation at cold room temperature of 12 °C and 75 % RH, and ambient temperature of 35 °C. Oversized evaporators are for a difference between evaporating temperature and air inlet temperature of DTM = 10 K (± 1.0 K). Oversized condensers are for a difference between condensing temperature and air inlet temperature of DTM = 12 K (± 2 K).

[2] Units with refrigerant load less than 10 tons of CO2 equivalent (7 kg of R-449A) exempt from leak checking, Regulation (EU) No 517/2014.

[3] Condenser sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

superblock R-290 | Positive temperature

Monoblock units designed for preservation of generic products at positive temperature cold rooms.

Special features

- Hot gas defrost and oversized evaporator to keep a relative humidity between 80 % and 85 %.

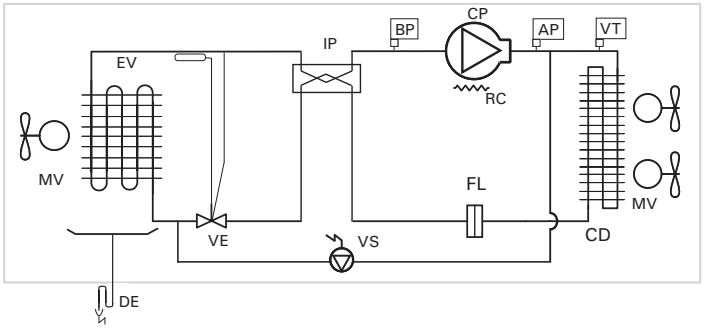
400V 3N 50Hz | Positive temperature | Semihermetic compressor | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Cold room temperature 10 °C 85 % HR	5 °C 85 % HR	0 °C 85 % HR	Input power (kW)	Max. current (A)	Evaporator Fan Ø (mm)	Air flow (m³/h)	Range (m)	Condenser Fan Ø (mm)	Air flow (m³/h)	Refrig. charge (kg)	Weight (kg)	SPL dB(A) [2]
R-290	1x Semihermetic	**MCH-KD-1 021**	2	B2-10	7,2	4,6	**5,5**	2,4	8,0	1x Ø 450	4 750	22	1x Ø 450	4 000	< 2,0	276	36
		MCH-KD-1 031	3	D3-13	9,3	6,0	**7,0**	2,9	10,4	1x Ø 450	4 750	22	1x Ø 450	4 000	< 2,0	285	36
		MCH-KD-2 041	4	D4-19	13,2	8,7	**10,0**	4,6	15,3	1x Ø 500	6 650	22	2x Ø 450	7 200	< 2,5	350	37
		MCH-KD-2 051	5	Q5-25	15,5	10,3	**11,9**	5,3	17,7	1x Ø 500	6 650	22	2x Ø 450	7 200	< 2,5	374	38
		MCH-KD-3 071	7	Q7-36	23,1	15,5	**17,7**	7,7	24,5	2x Ø 450	8 400	22	2x Ø 450	8 000	< 4,0	434	43
		MCH-KD-4 151	15	S15-52	33,5	22,3	**25,6**	11,2	36,6	2x Ø 500	13 300	22	4x Ø 450	14 400	< 4,0	606	45
		MCH-KD-5 201	20	S20-56	43,0	26,8	**33,7**	13,7	35,7	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5,0	867	47
		MCH-KD-5 301	30	V30-84	56,5	36,7	**44,5**	18,1	51,0	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5,0	922	51

Options

- Made-to-measure extension structure for through-wall assembly.
- Anti-corrosion coil coating.
- Mounting template for installation on insulation panel (included series 4 and 5).
- Protection system for voltage drops and phase failures.

MCH-KD refrigeration scheme



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CD: CONDENSER
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BP: LOW PRESSURE SWITCH
VE: EXPANSION VALVE
VT: VOLTAGE VARIATOR
RC: CRANKCASE RESISTOR
DE: DRAIN (NOT INCLUDED)

[1] Rated data are related to operation at cold room temperature of 0 °C and 85 % RH, and ambient temperature of 35 °C. Oversized evaporators are for a difference between evaporating temperature and air inlet temperature of DTM = 10 K (± 1.0 K). Oversized condensers are for a difference between condensing temperature and air inlet temperature of DTM = 10 K (± 2 K).

[2] Units with refrigerant load less than 10 tons of CO2 equivalent (7 kg of R-449A) exempt from leak checking, Regulation (EU) No 517/2014.

[3] Condenser sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

superblock R-290 | Negative temperature

Monoblock units designed for preservation of frozen products in negative temperature cold rooms.

Special features

- Hot gas defrosting in coil and tray, and drain heater.

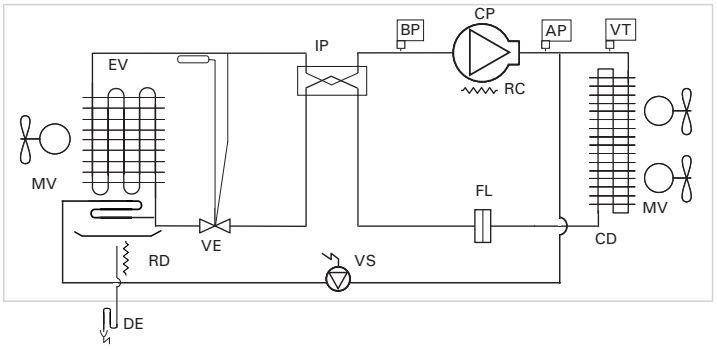
400V 3N 50Hz | Negative temperature | Semihermetic compressor | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Cold room temperature -20 °C 95 % HR	-25 °C 95 % HR	-30 °C 95 % HR	Input power (kW)	Max. current (A)	Evaporator Fan Ø (mm)	Air flow (m³/h)	Range (m)	Condenser Fan Ø (mm)	Air flow (m³/h)	Refrig. charge (kg)	Weight (kg)	SPL dB(A) [2]
R-290	1x Semihermetic	**BCH-KD-1 051**	5	Q5-25	**5,0**	4,2	3,4	3,5	15,8	1x Ø 450	5 000	22	1x Ø 450	4 000	< 2,0	315	38
		BCH-KD-2 071	7	Q7-36	**7,6**	6,5	5,3	5,5	24,0	1x Ø 500	7 000	22	2x Ø 450	7 200	< 2,5	374	43
		BCH-KD-3 201	20	S20-56	**11,9**	8,7	7,0	8,0	33,1	2x Ø 450	9 000	22	2x Ø 450	8 000	< 4,0	487	47
		BCH-KD-4 251	25	V25-71	**16,3**	12,1	8,9	10,3	43,5	2x Ø 500	14 000	22	4x Ø 450	14 400	< 4,0	664	47
		BCH-KD-5 351	35	V35-103	**23,7**	19,6	15,0	15,5	52,1	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5,0	927	50
		BCH-KD-5 501	50	Z50-154	**29,7**	25,1	19,9	20,6	80,7	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5,0	979	52

Options

- Made-to-measure extension structure for through-wall assembly.
- Anti-corrosion coil coating.
- Mounting template for installation on insulation panel (included series 4 and 5).
- Protection system for voltage drops and phase failures.
- Bi-temperature. Equipment for medium and low temperature operation.

BCH-KD refrigeration scheme



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RD: DRAIN HEATER
DE: DRAIN (NOT INCLUDED)

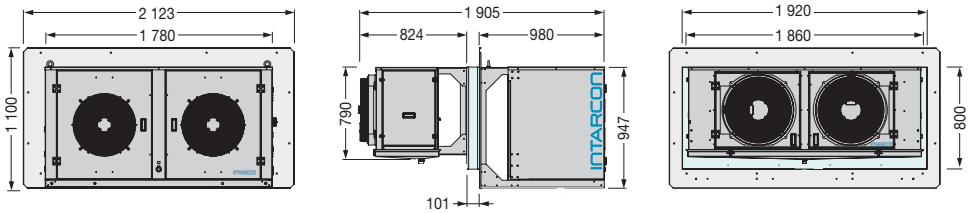
[1] Rated data are related to operation at cold room temperature of -20 °C and 95 % RH, and ambient temperature of 35 °C. Oversized evaporators are for a difference between evaporating temperature and air inlet temperature of DTM = 6.5 K (± 1.0 K). Oversized condensers are for a difference between condensing temperature and air inlet temperature of DTM = 10 K (± 2 K).

[2] Units with refrigerant load less than 10 tons of CO2 equivalent (7 kg of R-449A) exempt from leak checking, Regulation (EU) No 517/2014.

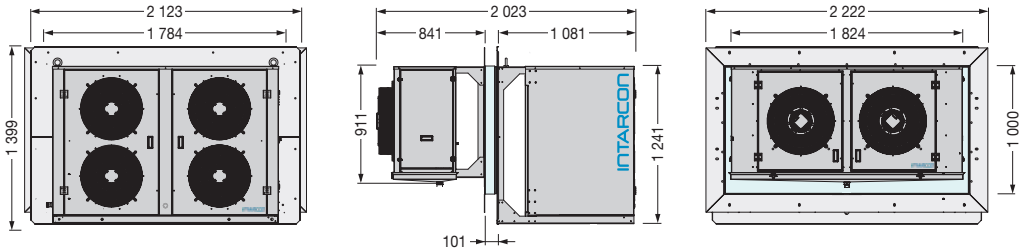
[3] Condenser sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

superblock R-290 dimensions

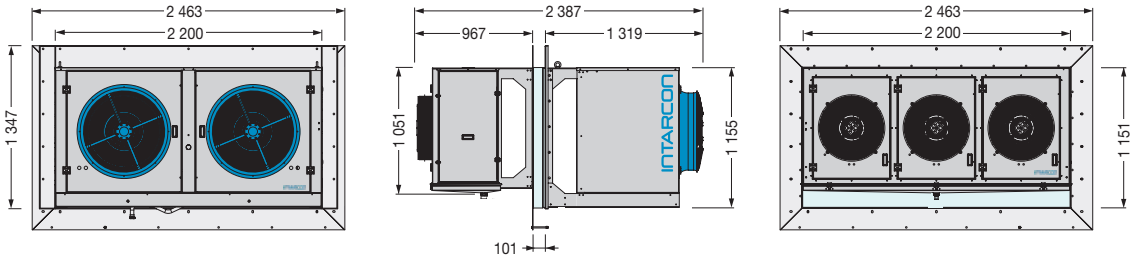
3 series



4 series



5 series



Dimensions in mm.

superblock HFC

- High cooling capacity in reduced volume.
- Tropicalised design for ambient temperature up to 45 ºC.
- 100 % factory tested.
- Scroll compressors, with noise insulation.

Refrigeration monoblock units built in a galvanised steel shell with polyester coating, designed for outdoor installation through a cold room wall, with easy maintenance access through hinged panels.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Scroll compressors with noise insulation, mounted on shock absorbers, with internal klixon and crankcase heater.
- Large area condensing coil, in copper pipes and aluminium fins, tropicalised for ambient temperature up to 45 ºC.
- High efficiency evaporating coil, in copper pipes and aluminium fins.
- Low-speed condenser motor fans, with internal electronic protection, mounted on nozzle, dynamically balanced blades and external protection grille.
- Proportional control of condensation temperature by fan speed control.
- Long-range evaporator axial motor fans, mounted on nozzles, dynamically balanced blades and external protection grille.
- Refrigeration circuit equipped with high and negative pressure switches, ceramic dryer filter, sight glass and thermostatic expansion valve pre-adjusted at factory.
- Hot gas defrost for MCH, and BCH series, and air defrost for ACH series.
- Full control and power electric panel, with thermal and differential magneto-thermal protection for compressor/s, fan/s and heaters.
- Multifunctional electronic control with remote control keyboard.
- Mounting template for installation on insulation panel (4 and 5 series).
- Indoor/outdoor insulated panel injected polyurethane with 45 kg/m^3 density.
- Liquid and vapour injection system for negative temperature models with R449A.

Series

- ACH - High temperature (9 ºC...15 ºC)
  Monoblock units designed for high temperature application cold rooms, handling and process rooms, ante rooms and refrigerated loading docks.
- MCH - Positive temperature (-5 ºC...10 ºC)
  Monoblock units designed for preservation of generic products in medium temperature cold rooms.
- BCH - Low temperature (-30 ºC...-15 ºC)
  Monoblock units designed for preservation of frozen products in negative temperature cold rooms.

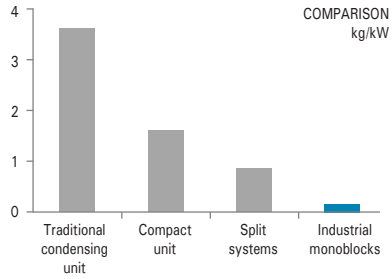
Highly reliable compressors

Copeland scroll compressors are characterised by their great robustness and reliability of operation, and as they are cooled exclusively by the refrigerant gas, they provide effective soundproofing.

Copeland's low-temperature scroll compressors feature the EVI vapour injection system, which enables an efficiency improvement of up to 25% over conventional compressors.

Reduced refrigerant charge

Superblock units have an advanced refrigerant circuit design with a small internal volume. The ecological refrigerant charge has been factory set for optimal operation.



Efficient, quiet and modulating condensing units

The tropicalised design of the condensing coil together with quiet, speed-modulated fans ensures operation at ambient temperatures of up to 45°C and maintains condensing pressure at low ambient temperatures while reducing noise emissions.

Electronic controller

Superblock units come with an advanced multifunction control as standard, with an electronic board integrated in the control panel and digital remote control.

Optionally, up to 8 units can be connected in master-slave operation via an internal LAN network and can be controlled from a single control unit.

superblock HFC | High temperature

Monoblock units designed for high temperature application cold rooms, handling and process rooms and refrigerated loading docks.

Special features

- Air defrost and oversized condenser.

400V 3N 50Hz | High temperature | Scroll compressor | R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Cold room temperature 18 °C 65 % RH	12 °C 75 % RH	6 °C 85 % RH	Input power (kW)	Max. current (A)	Evaporator Fan Ø (mm)	Air flow (m³/h)	Range (m)	Condenser Fan Ø (mm)	Air flow (m³/h)	Refrig. charge (kg)	Weight (kg)	SPL dB(A) [2]
R-449A	1x Scroll	**ACH-SG-1 0211**	3	ZB21	9.9	**8.6**	7.2	3.5	9	1x Ø 450	4 750	22	1x Ø 450	3 700	1.5	265	32
		ACH-SG-2 0291	4	ZB29	13.5	**11.6**	9.6	4.5	13	1x Ø 500	7 000	26	2x Ø 450	6 500	2.0	324	32
		ACH-SG-2 0381	5	ZB38	16.3	**14.2**	11.9	5.7	15	1x Ø 500	7 000	26	2x Ø 450	10 500	2.5	332	35
		ACH-SG-2 0451	6	ZB45	18.6	**16.3**	13.7	6.5	20	1x Ø 500	7 000	26	2x Ø 450	10 500	3.0	335	35
		ACH-SG-3 0571	8	ZB57	23.6	**20.7**	17.5	8.4	24	2x Ø 450	9 500	22	2x Ø 450	11 500	4.0	395	42
		ACH-SG-4 0761	10	ZB76	33.3	**29.1**	24.4	11.2	25	2x Ø 500	14 000	26	4x Ø 450	21 000	5.3	511	40
		ACH-SG-4 0951	13	ZB95	38.9	**34.1**	28.9	14.1	37	2x Ø 500	14 000	26	4x Ø 450	21 000	6.3	515	41
		ACH-SG-4 1141	15	ZB114	43.3	**38.2**	32.6	16.9	42	2x Ø 500	14 000	26	4x Ø 450	21 000	6.5	516	45
	2x Sc.	**ACH-SG-5 1142**	16	2x ZB57	50.5	**43.9**	36.7	15.2	39	2x Ø 500	14 000	26	2x Ø 630	26 000	11.0	749	45
		ACH-SG-5 1522	20	2x ZB76	67.0	**58.4**	49.4	21.2	49	3x Ø 500	18 000	26	2x Ø 630	26 000	12.0	812	44

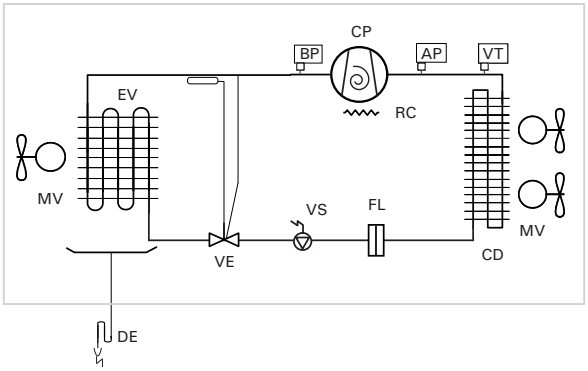
Options

- Made-to-measure extension structure for through-wall assembly.
- Anti-corrosion coil coating.
- Mounting template for installation on insulation panel (included 4 and 5 series).
- Protection system for voltage drops and phase failures.
- Long range air streamer in evaporating fans.

[1] Rated data are related to operation at cold room temperature of 12 °C and 75 % RH, and ambient temperature of 35 °C. Oversized evaporators are for a difference between evaporating temperature and air inlet temperature of DTM = 10 K (±1.0 K). Oversized condensers are for a difference between condensing temperature and air inlet temperature of DTM = 12 K (±2 K).

[2] Condenser sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

ACH-SG refrigeration scheme



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DE: DRAIN (NOT INCLUDED)

superblock HFC | Positive temperature

Monoblock units designed for preservation of generic products at positive temperature cold rooms.

Special features

- Hot gas defrost and oversized evaporator to keep a relative humidity between 80 % and 85 %.

400V 3N 50Hz | Positive temperature | Scroll compressor | R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Cold room temperature 10 °C 85 % HR	5 °C 85 % HR	0 °C 85 % HR	Input power (kW)	Max. current (A)	Evaporator Fan Ø (mm)	Evaporator Air flow (m³/h)	Evaporator Range (m)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Refrig. charge (kg)	Weight (kg)	SPL dB(A) [2]
R-449A	1x Scroll	**MCH-SG-1 0211**	3	ZB21	8.2	7.0	**5.8**	3.1	9	1x Ø 450	4 750	22	1x Ø 450	3 700	1.3	265	32
		MCH-SG-2 0291	4	ZB29	10.1	8.6	**7.3**	3.9	12	1x Ø 500	7 000	26	1x Ø 450	4 000	1.7	265	32
		MCH-SG-2 0381	5	ZB38	12.2	10.5	**9.0**	5.0	15	1x Ø 500	7 000	26	2x Ø 450	6 500	2.3	325	35
		MCH-SG-2 0451	6	ZB45	14.9	12.9	**11.1**	5.7	16	1x Ø 500	7 000	26	2x Ø 450	6 500	2.7	335	35
		MCH-SG-3 0571	8	ZB57	18.9	16.3	**14.1**	7.2	19	2x Ø 450	9 500	22	2x Ø 450	7 400	3.3	395	42
		MCH-SG-4 0761	10	ZB76	26.8	23.1	**19.8**	9.8	25	2x Ø 500	14 000	26	4x Ø 450	13 000	4.7	511	40
		MCH-SG-4 0951	13	ZB95	31.4	27.1	**23.4**	12.2	33	2x Ø 500	14 000	26	4x Ø 450	13 000	5.3	515	41
		MCH-SG-4 1141	15	ZB114	36.1	31.2	**27.0**	14.4	42	2x Ø 500	14 000	26	4x Ø 450	13 000	6.0	516	45
	2x Sc.	**MCH-SG-5 1142**	16	2x ZB57	40.5	34.9	**30.1**	13.2	39	2x Ø 500	14 000	26	2x Ø 630	15 500	11.0	749	45
		MCH-SG-5 1522	20	2x ZB76	51.6	44.6	**38.6**	18.8	50	3x Ø 500	18 000	26	2x Ø 630	15 500	11.0	792	43

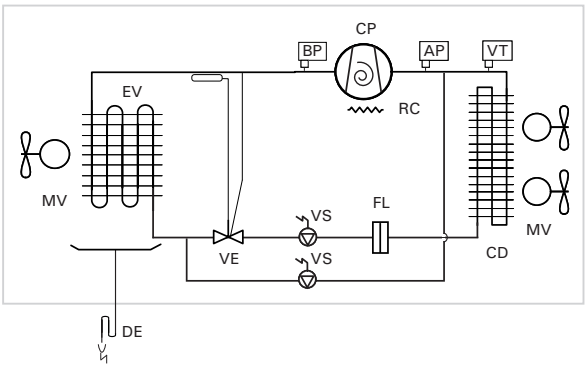
Options

- Made-to-measure extension structure for through-wall assembly.
- Anti-corrosion coil coating.
- Mounting template for installation on insulation panel (included 4 and 5 series).
- Protection system for voltage drops and phase failures.
- Long range air streamer in evaporating fans.

[1] Rated data are related to operation at cold room temperature of 0 °C and 85 % RH, and ambient temperature of 35 °C. Oversized evaporators are for a difference between evaporating temperature and air inlet temperature of DTM = 10 K (± 1.0 K). Oversized condensers are for a difference between condensing temperature and air inlet temperature of DTM = 10 K (± 2 K).

[2] Condenser sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

MCH-SG refrigeration scheme



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superblock HFC | Negative temperature

Monoblock units designed for preservation of frozen products in negative temperature cold rooms.

Special features

- Hot gas defrost in coil and tray, and electric heater for drain pipe and tray.

400V 3N 50Hz | Negative temperature | Scroll EVI compressor | R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Cold room temperature -20 °C 95 % HR	-25 °C 95 % HR	-30 °C 95 % HR	Input power (kW)	Max. current (A)	Evaporator Fan Ø (mm)	Evaporator Air flow (m³/h)	Evaporator Range (m)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Refrig. charge (kg)	Weight (kg)	SPL dB(A) [2]
R-449A	1x Scroll	BCH-SG-1 131	4	ZF13KVE	4.7	3.9	3.1	3.3	11	1x Ø 450	5 250	22	1x Ø 450	3 700	4.0	278	37
		BCH-SG-2 181	6	ZF18KVE	7.1	5.9	4.7	4.7	16	1x Ø 500	7 500	26	2x Ø 450	6 500	5.0	338	41
		BCH-SG-3 251	8	ZF25K5E	9.1	7.5	5.9	5.6	19	2x Ø 450	10 500	22	2x Ø 450	7 400	7.0	398	44
		BCH-SG-3 341	10	ZF34K5E	11.9	10.0	8.2	7.7	28	2x Ø 450	10 500	22	2x Ø 450	7 400	7.0	424	42
		BCH-SG-4 411	13	ZF41K5E	14.6	12.1	9.5	9.2	33	2x Ø 500	15 000	26	4x Ø 450	13 000	8.0	519	42
		BCH-SG-4 491	15	ZF49K5E	16.3	13.7	11.2	10.9	34	2x Ø 500	15 000	26	4x Ø 450	13 000	10.0	523	46
	2x Scroll	BCH-SG-5 502	16	2x ZF25K5E	18.1	15.0	11.8	10.9	41	2x Ø 500	15 000	26	2x Ø 630	15 500	20.0	757	47
		BCH-SG-5 682	20	2x ZF34K5E	24.0	19.9	15.7	14.9	59	2x Ø 500	15 000	26	2x Ø 630	15 500	18.0	809	45
		BCH-SG-5 822	26	2x ZF41K5E	28.6	24.1	19.8	18.2	66	3x Ø 500	20 000	26	2x Ø 630	15 500	18.0	829	46
		BCH-SG-5 982	30	2x ZF49K5E	31.1	26.7	22.2	21.6	68	3x Ø 500	20 000	26	2x Ø 630	15 500	20.0	836	49

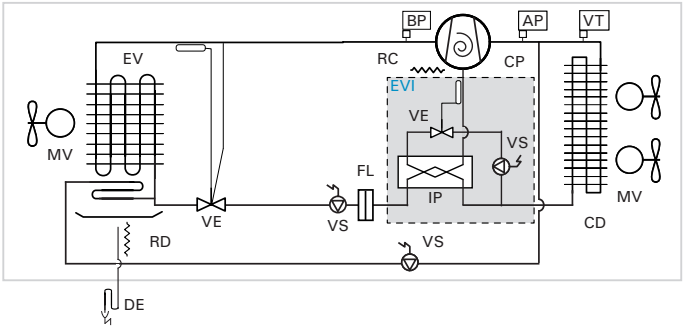
Options

- Made-to-measure extension structure for through-wall assembly.
- Anti-corrosion coil coating.
- Mounting template for installation on insulation panel (included 4 and 5 series).
- Protection system for voltage drops and phase failures.
- Long range air streamer in evaporating fans.
- Bi-temperature. Equipment for medium and low temperature operation (except 15 and 30 HP models).

[1] Rated data are related to operation at cold room temperature of -20 °C and 95 % RH, and ambient temperature of 35 °C. Oversized evaporators are for a difference between evaporating temperature and air inlet temperature of DTM = 6.5 K (±1.0 K). Oversized condensers are for a difference between condensing temperature and air inlet temperature of DTM = 10 K (±2 K).

[2] Condenser sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

BCH-SG refrigeration scheme



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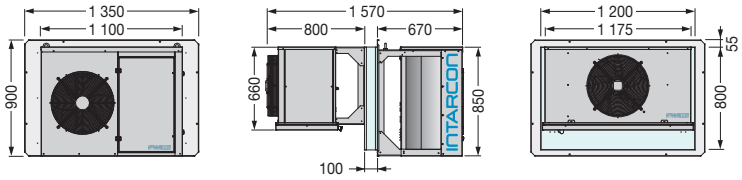
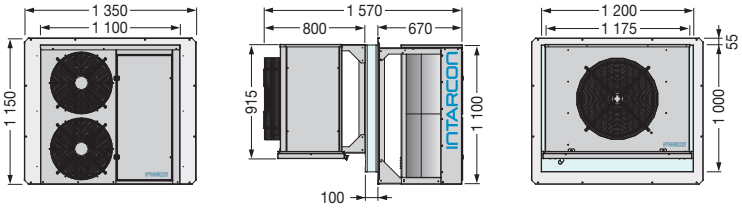
superblock HFC dimensions

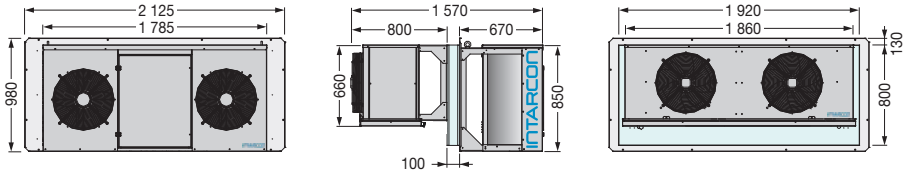
1 series



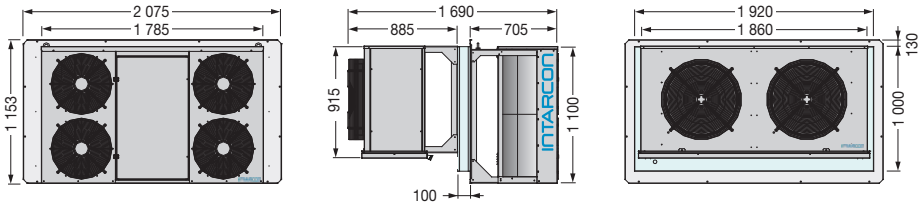
2 series



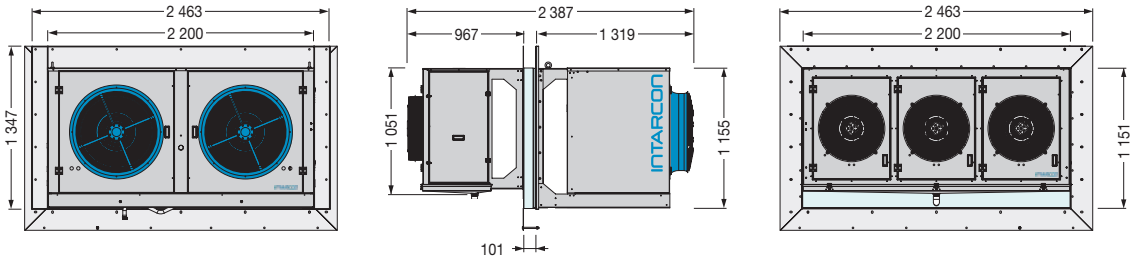
3 series



4 series



5 series



Dimensions in mm.

Condensing units

Complies with Ecodesign

VRC multi-service version

Low noise construction

Sigilus

- Tropicalised design for high ambient temperature up to 50 °C.
- Multi-service version with VRC cooling capacity modulation system.
- Liquid injection system for compressor refrigeration.

Low noise condensing units for positive and negative refrigeration with hermetic alternative or scroll compressor with noise insulation and low speed axial motor fan.

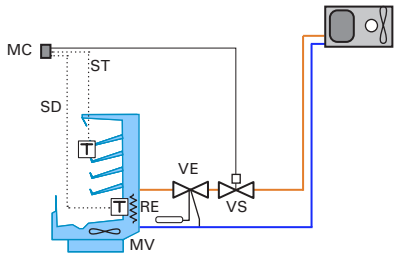
Features

- 230V 50Hz or 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- R-134a or R-449A refrigerant, other refrigerants by request.
- Reciprocating hermetic or scroll compressor, acoustically insulated with discharge muffler, mounted on shock absorbers, with crankcase heater and internal klixon.
- Large-surface condensing coil made of copper tubes and aluminium fins, with tropicalised dimensioning for ambient temperatures up to 50 °C.
- Low speed axial motor fan.
- Refrigeration circuit equipped with high and low pressure switches, ceramic filter and sight gauge.
- Digital control of condensation pressure with the optional electrical board, and all-nothing condensation control in condensers without electrical panel.
- Proportional control of condensing pressure through fan speed variation (included from MDF-NY-2086 and MDF-NG-1038 without electronic control).
- Full control and power board with compressor and motor fan protection.
- Liquid injection system for negative temperature models with R-449A.

Versions

- -N version. Without electrical board. Designed for on/off operation depending on the suction pressure (pump-down).
  With electrical board as an option. Electronic controller to manage the condensing unit and the evaporator built-in solenoid valve as an option.
- -V version (multi-service). The multi-service version features VRC system to adjust the refrigerant flow to the demand of the evaporators, keeping the pressure constant in suction the line. The VRC system is composed of a set of pressure and temperature control valves to progressively modulate cooling capacity from 100 % to 10 % of its nominal capacity, while reducing energy consumption and preventing compressor overheating.
- -S version (scroll). Version designed with scroll compressors.

Installation without electrical board (-N version)



MC: CONTROL PAD
MV: MOTOR FAN
RE: DEFROST HEATER
ST: THERMOSTAT PROBE
SD: DEFROST PROBE
VE: EXPANSION VALVE
VS: SOLENOID VALVE

Oil separator (optional)

Sigilus condensing units connected to a single evaporator usually not require an oil separator. This is recommended for long pipe lengths (> 30 m) being necessary for a suitable circuit design to ensure oil return.

Proportional condensation control

Sigilus condensing units incorporate proportional condensation control by speed variation for prolonged running times at low ambient temperature.

Triple noise insulation

Sigilus units incorporate triple noise insulation as standard:

- Insulated compressor compartment separated from air flow.
- Acoustic compressor jacket (three-phase models) and discharge muffler (hermetic models).
- Low-noise and low-speed fans, mounted on shock absorbers.

Ecodesign requirements

Coefficient of Performance (COP) and Seasonal Performance Factor (SEPR) according to Commission Regulation (EU) 2015/1095.

	Cooling capacity	Ecodesign standard
MT	0.2 < P≤ 1 kW	COP ≥ 1.40
	1 < P≤ 5 kW	COP ≥ 1.60
	5 < P≤ 20 kW	SEPR ≥ 2.55
BT	P≤ 2 kW	COP ≥ 0.95
	2 < P≤ 8 kW	SEPR ≥ 1.60

230V 50Hz / 400V 3N 50Hz | Positive temperature | Hermetic and scroll compressor | R-134a / R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Power supply	Cooling capacity EN13215 (W) [1] Evap. temp. -10 °C	Cooling capacity (W) [2] Average evaporating temperature 0 °C	-5 °C	-10 °C	-15 °C	Input power (kW)	(COP) SEPR [3]	Max. current (A)	Fan Ø mm	Flow (m³/h)	Liq-Gas cooling connection	Weight (kg)	SPL dB(A) [4]
R-134a	1x Hermetic	MDF-NY-0 010	3/8	230V	570	880	710	560	430	0.33	(1.75)	4	Ø 200	350	1/4"-3/8"	50	28
		MDF-NY-0 015	1/2	230V	795	1 200	975	775	595	0.46	(1.73)	5	Ø 200	350	1/4"-3/8"	52	29
		MDF-NY-1 015	1/2	230V	875	1 395	1 110	865	650	0.49	(1.78)	5	Ø 360	1 700	1/4"-1/2"	66	31
		MDF-NY-1 026	3/4	230V	1 340	2 160	1 710	1 315	980	0.71	(1.89)	9	Ø 360	1 700	1/4"-1/2"	74	31
		MDF-NY-1 033	1	230V	1 730	2 700	2 160	1 685	1 280	0.82	(2.11)	9	Ø 360	1 700	1/4"-5/8"	76	31
		MDF-NY-1 053	1 1/2	230V *	2 425	3 975	3 115	2 360	1 710	1.04	(2.33)	12	Ø 360	1 700	1/4"-3/4"	88	32
		MDF-NY-1 074	2	230V *	3 150	5 080	4 005	3 045	2 210	1.37	(2.29)	16	Ø 360	1 700	1/4"-3/4"	90	36
		MDF-NY-2 086 [V]	4	400V 3N	4 230	6 800	5 360	4 130	3 090	1.84	(2.32)	13	Ø 450	3 600	3/8"-7/8"	98	38
		MDF-NY-2 108 [V]	5	400V 3N	5 175	8 280	6 535	5 035	3 765	2.23	3.23	16	Ø 450	3 600	3/8"-7/8"	100	35
		MDF-NY-2 136 [V]	6 1/2	400V 3N	6 575	10 140	8 200	6 385	4 835	2.99	2.87	19	Ø 450	3 600	3/8"-1 1/8"	103	34
		MDF-NY-3 171 [V]	8	400V 3N	7 830	12 220	9 845	7 615	5 680	3.75	2.71	23	Ø 450	4 000	3/8"-1 1/8"	142	40
		MDF-NY-3 215 [V]	10	400V 3N	10 000	15 585	12 550	9 700	7 270	4.36	3.02	28	2x Ø 450	6 500	3/8"-1 1/8"	149	39
		MDF-NY-3 271 [V]	13	400V 3N	13 700	19 785	16 350	13 180	10 280	6.28	2.74	37	2x Ø 450	6 500	1/2"-1 3/8"	154	38
	2x Hermetic	MDF-NY-6 097 [V]	2x 2	400V 3N	4 580	7 415	5 830	4 475	3 320	2.10	(2.19)	16	Ø 450	3 600	3/8"-7/8"	139	32
		MDF-NY-6 109 [V]	2x 2 1/2	400V 3N	5 325	8 420	6 690	5 185	3 910	2.42	3.98	17	Ø 450	3 600	3/8"-7/8"	141	32
		MDF-NY-6 120 [V]	2x 3	400V 3N	6 425	9 730	7 910	6 240	4 820	2.92	3.92	19	Ø 450	3 600	3/8"-1 1/8"	143	31
		MDF-NY-6 137 [V]	2x 3 1/2	400V 3N	7 135	10 665	8 715	6 930	5 355	3.42	3.69	20	Ø 450	3 600	3/8"-1 1/8"	145	31
		MDF-NY-7 172 [V]	2x 4	400V 3N	7 935	12 320	9 935	7 705	5 780	3.70	3.71	25	Ø 450	4 000	3/8"-1 1/8"	187	41
		MDF-NY-7 216 [V]	2x 5	400V 3N	10 055	15 640	12 605	9 765	7 330	4.52	3.94	31	2x Ø 450	6 500	3/8"-1 1/8"	194	39
		MDF-NY-7 272 [V]	2x 6 1/2	400V 3N	12 705	18 845	15 430	12 285	9 355	6.08	3.60	37	2x Ø 450	6 500	1/2"-1 3/8"	200	38
		MDF-NY-8 320 [V]	2x 8	400V 3N	15 045	22 460	18 360	14 560	10 950	7.54	3.35	45	2x Ø 450	7 000	1/2"-1 3/8"	256	43
	1x Scroll	MDF-SY-1 021 [D]	3	400V 3N	3 320	4 805	3 960	3 235	2 620	1.37	(2.43)	8	Ø 450	3 200	1/4"-3/4"	88	20
		MDF-SY-2 029 [D]	4	400V 3N	4 165	6 025	4 965	4 055	3 285	1.78	(2.34)	11	Ø 450	3 600	3/8"-3/4"	90	20
		MDF-SY-2 038 [D]	5	400V 3N	5 520	7 945	6 565	5 365	4 350	2.28	3.60	13	Ø 450	3 600	3/8"-7/8"	98	21
		MDF-SY-2 045 [D]	6	400V 3N	6 520	9 295	7 730	6 335	5 135	2.69	3.49	14	Ø 450	3 600	3/8"-1 1/8"	101	21
		MDF-SY-3 057 [D]	7 1/2	400V 3N	8 190	11 610	9 680	7 945	6 450	3.76	3.00	17	Ø 450	4 000	3/8"-1 1/8"	118	28
		MDF-SY-3 076 [D]	10	400V 3N	11 000	15 586	12 993	10 679	8 662	4,91	3,18	21	2x Ø 450	6 500	1/2" - 1 3/8"	142	28
	2x Scroll	MDF-SY-6 030	2x 2	400V 3N	4 530	6 550	5 400	4 410	3 570	1.95	(2.33)	10	Ø 450	3 600	3/8"-7/8"	142	28
		MDF-SY-6 042 [D]	2x 3	400V 3N	6 500	9 270	7 710	6 315	5 120	2.85	4.20	15	Ø 450	3 600	3/8"-1 1/8"	149	29
		MDF-SY-7 058 [D]	2x 4	400V 3N	8 115	11 515	9 595	7 870	6 390	3.76	3.91	21	2 x Ø 450	4 000	3/8"-1 1/8"	170	31
R-449A	1x Hermetic	MDF-NG-0 008	1/3	230V	570	965	790	635	490	0.36	(1.71)	4	Ø 200	350	1/4"-3/8"	51	28
		MDF-NG-0 010	3/8	230V	735	1 210	1 000	805	635	0.46	(1.72)	5	Ø 200	350	1/4"-3/8"	51	29
		MDF-NG-0 012	1/2	230V	870	1 395	1 160	945	755	0.54	(1.74)	6	Ø 200	350	1/4"-3/8"	51	29
		MDF-NG-1 014	1/2	230V	1 075	1 870	1 515	1 200	930	0.66	(1.71)	6	Ø 360	1 700	1/4"-1/2"	66	32
		MDF-NG-1 016	5/8	230V	1 220	2 200	1 770	1 385	1 040	0.74	(1.77)	7	Ø 360	1 700	1/4"-1/2"	76	32
		MDF-NG-1 018	3/4	230V	1 525	2 630	2 140	1 710	1 310	0.88	(1.85)	8	Ø 360	1 700	1/4"-1/2"	76	32
		MDF-NG-1 024	1	230V	1 940	3 485	2 815	2 195	1 650	1.01	(2.04)	12	Ø 360	1 700	3/8"-5/8"	78	32
		MDF-NG-1 026	1 1/4	230V *	2 185	3 790	3 085	2 455	1 870	1.13	(2.05)	13	Ø 360	1 700	3/8"-5/8"	78	32
		MDF-NG-1 034	1 1/2	230V *	2 820	4 765	3 895	3 125	2 420	1.6	(1.91)	16	Ø 360	1 700	3/8"-5/8"	78	32
		MDF-NG-1 038 [V]	1 3/4	400V 3N	3 105	5 315	4 320	3 440	2 650	1.53	(2.11)	7	Ø 450	3 200	3/8"-5/8"	81	29
		MDF-NG-2 048 [V]	2	400V 3N	3 985	6 805	5 525	4 410	3 410	1.89	(2.25)	8	Ø 450	3 600	3/8"-3/4"	85	26
		MDF-NG-2 054 [V]	2 1/2	400V 3N	4 595	7 660	6 250	5 020	3 950	2.09	(2.35)	9	Ø 450	3 600	3/8"-3/4"	86	26
		MDF-NG-2 060 [V]	3	400V 3N	5 300	8 655	7 105	5 750	4 575	2.48	3.26	10	Ø 450	3 600	3/8"-3/4"	87	26
		MDF-NG-2 068 [V]	3 1/2	400V 3N	5 975	9 635	7 955	6 460	5 160	2.85	3.14	10	Ø 450	3 600	1/2"-3/4"	88	25
		MDF-NG-3 086 [V]	4	400V 3N	7 055	11 615	9 520	7 660	6 045	3.15	3.27	13	Ø 450	4 000	1/2"-7/8"	115	38
		MDF-NG-3 108 [V]	5	400V 3N	9 040	14 820	12 175	9 815	7 765	4.15	3.28	16	2x Ø 450	6 500	1/2"-7/8"	120	35
		MDF-NG-4 136 [V]	6	400V 3N	11 655	18 710	15 520	12 590	10 045	5.50	3.08	19	2x Ø 450	7 000	1/2"-1 1/8"	135	34
		MDF-NG-4 160 [V]	8	400V 3N	13 435	21 570	17 940	14 570	11 505	6.74	2.79	23	2x Ø 450	7 000	5/8"-1 1/8"	157	40
	2x Hermetic	MDF-NG-6 076 [V]	2x 1 3/4	400V 3N	5 935	9 960	8 135	6 500	5 075	2.93	3.83	13	Ø 450	3 600	1/2"-3/4"	135	33
		MDF-NG-7 097 [V]	2x 2	400V 3N	7 625	12 560	10 350	8 315	6 530	3.84	3.70	16	Ø 450	4 000	1/2"-7/8"	161	33
		MDF-NG-7 109 [V]	2x 2 1/2	400V 3N	9 015	14 800	12 150	9 795	7 750	4.26	4.03	17	2x Ø 450	6 500	1/2"-7/8"	166	33
		MDF-NG-8 137 [V]	2x 3 1/2	400V 3N	11 830	18 870	15 690	12 770	10 215	5.76	3.87	20	2x Ø 450	7 000	1/2"-1 1/8"	182	28
		MDF-NG-8 172 [V]	2x 4	400V 3N	13 695	21 800	18 160	14 785	11 715	6.43	3.95	25	2x Ø 450	7 000	5/8"-1 1/8"	202	41
	1x Scroll	MDF-SG-2 021 [D]	3	400V 3N	5 220	7 955	6 675	5 560	4 590	2.33	3.49	8	Ø 450	3 600	3/8"-7/8"	90	20
		MDF-SG-2 029 [D]	4	400V 3N	6 740	10 125	8 560	7 150	5 915	3.14	3.17	11	Ø 450	3 600	1/2"-7/8"	90	20
		MDF-SG-3 038 [D]	5	400V 3N	8 640	12 890	10 930	9 150	7 580	4.03	3.05	13	Ø 450	4 000	1/2"-1 1/8"	115	21
		MDF-SG-3 045 [D]	6	400V 3N	10 265	15 430	13 045	10 890	9 015	4.64	3.38	14	2x Ø 450	6 500	1/2"-1 1/8"	121	22
		MDF-SG-4 057 [D]	7 1/2	400V 3N	13 430	19 970	16 960	14 220	11 790	5.72	3.51	17	2x Ø 450	7 000	5/8"-1 1/8"	133	28
	2x Scroll	MDF-SG-6 030	2x 2	400V 3N	6 745	10 140	8 570	7 155	5 920	3.46	3.65	10	Ø 450	3 600	1/2"-7/8"	112	28
		MDF-SG-7 042 [D]	2x 3	400V 3N	10 315	15 505	13 110	10 945	9 060	4.83	4.05	16	2x Ø 450	6 500	1/2"-1 1/8"	139	31
		MDF-SG-8 058 [D]	2x 4	400V 3N	13 390	19 920	16 915	14 175	11 750	6.39	3.94	21	2x Ø 450	7 000	5/8"-1 1/8"	150	21

[1] Conditions based on UNE-EN 13215: Ambient temp. 32 °C, evap. temp. -10 °C (PT), 20 °C of suction temperature, refrigerant R-134a and R-449A.
[2] Cooling capacity in nominal conditions: Evaporating temperature -10 °C (PT), ambient temperature of 32 °C, overheating 10 K, refrigerant R-134a and R-449A.
[3] COP/SEPR: Coefficient of Performance according to Ecodesign Commission Regulation (EU) 2015/1095.
[4] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).
[V] Model that allow VRC system. | [D] Available models with Digital compressor. | * Units available in 400V 3N 50Hz voltage.

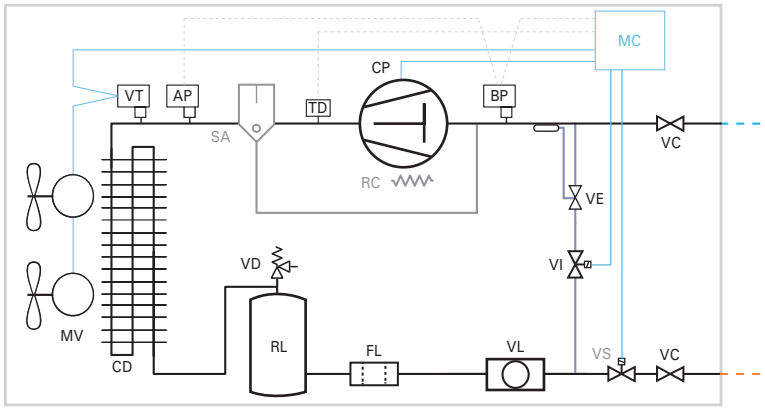
230V 50Hz / 400V 3N 50Hz | Negative temperature | Hermetic and scroll compressor | R-449A / R-452A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Power supply	Cooling capacity EN13215 (W) [1] Evap. temp. -35 °C	Cooling capacity (W) [2] Average evaporating temperature -25 °C	-30 °C	-35 °C	Input power (kW)	(COP) SEPR [3]	Max. current (A)	Fan Ø mm	Flow (m³/h)	Liq-Gas cooling connection	Weight (kg)	SPL dB(A) [4]
R-449A	1x Hermetic	**BDF-NG-0 018**	5/8	230V	**335**	795	600	**415**	0.43	(0.96)	6	Ø 200	350	1/4"-1/2"	58	28
		BDF-NG-1 026	3/4	230V	**545**	1 285	945	**655**	0.67	(0.97)	9	Ø 360	1 700	1/4"-1/2"	76	31
		BDF-NG-1 034	1 1/4	230V	**720**	1 690	1 245	**865**	0.90	(0.95)	10	Ø 360	1 700	3/8"-5/8"	79	32
		BDF-NG-1 055	1 3/4	230V *	**920**	2 425	1 745	**1 160**	1.17	(0.99)	16	Ø 360	1 700	3/8"-5/8"	85	34
		BDF-NG-1 075	2 1/2	230V *	**1 360**	3 125	2 375	**1 645**	1.56	(1.06)	24	Ø 360	1 700	3/8"-5/8"	90	36
R-452A	1x Hermetic	**BDF-NB-2 096**	3 1/2	400V 3N	**1 570**	4 055	2 930	**1 945**	1.64	(1.21)	11	Ø 450	3 600	3/8"-3/4"	98	39
		BDF-NB-2 108	4	400V 3N	**2 015**	4 700	3 475	**2 390**	1.95	1.65	13	Ø 450	3 600	3/8"-7/8"	98	37
		BDF-NB-2 136	5	400V 3N	**2 665**	5 855	4 425	**3 125**	2.59	1.60	15	Ø 450	3 600	3/8"-7/8"	98	32
		BDF-NB-3 215	7 1/2	400V 3N	**4 040**	9 125	6 865	**4 785**	3.83	1.65	24	2x Ø 450	6 500	1/2"-1 1/8"	149	39
		BDF-NB-3 271	10	400V 3N	**5 840**	11 755	9 020	**6 600**	5.13	1.68	28	2x Ø 450	6 500	1/2"-1 1/8"	149	39
	2x Hermetic	**BDF-NB-6 097**	2x 2 1/2	400V 3N	**1 585**	4 045	2 920	**1 935**	1.64	(1.20)	10	Ø 450	3 600	3/8"-7/8"	111	31
		BDF-NB-6 137	2x 3	400V 3N	**2 950**	6 105	4 665	**3 380**	2.82	1.81	18	Ø 450	3 600	3/8"-1 1/8"	115	32
		BDF-NB-7 216	2x 4	400V 3N	**4 025**	9 120	6 855	**4 770**	3.90	1.85	26	2x Ø 450	6 500	1/2"-1 1/8"	165	41
		BDF-NB-7 272	2x 5	400V 3N	**5 320**	11 280	8 565	**6 160**	5.18	1.79	30	2x Ø 450	6 500	1/2"-1 1/8"	165	37
R-449A	1x Scroll	**BDF-SG-2 013** [D]	4	400V 3N	**3 295**	5 400	4 515	**3 700**	2.78	1.74	10	Ø 450	3 600	3/8"-7/8"	103	23
		BDF-SG-3 018 [D]	6	400V 3N	**5 085**	8 360	6 985	**5 735**	3.85	1.95	15	2x Ø 450	6 500	3/8"-1 1/8"	124	27
		BDF-SG-4 025 [D]	8	400V 3N	**6 430**	10 570	8 830	**7 255**	4.52	2.08	17	2x Ø 450	7 000	3/8"-1 1/8"	136	30
		BDF-SG-4 034	10	400V 3N	**8 660**	14 285	11 915	**9 810**	6.23	2.01	26	2x Ø 450	7 000	1/2"-1 3/8"	162	28
	2x Sc.	**BDF-SG-8 026** [D]	2x 4	400V 3N	**6 590**	10 830	9 045	**7 435**	5.60	1.82	19	2x Ø 450	7 000	3/8"-1 1/8"	178	26
		BDF-SG-8 036 [D]	2x 6	400V 3N	**10 210**	16 870	14 055	**11 575**	7.90	1.97	29	2x Ø 450	7 000	1/2"-1 3/8"	181	30

Options

- Change to 400V 3N 50Hz power supply.
- Built-in oil separator (already included in -V version).
- Built-in solenoid valve with body and coil (except -V version).
- Anti-corrosion coil coating.
- Coil protection grille.
- Proportional condensation control by fan speed variator (single-phase 1 series).
- Control and power panel with electronic control unit for management of condenser and evaporator (except BDF-NG-0 018 model).
  - Larger sized multifunction electronic control.

Scheme



STANDARD
AP: HIGH PRESSURE SWITCH
BP: LOW PRESSURE SWITCH
CD: CONDENSER
CP: COMPRESSOR
FL: FILTER
MV: MOTOR FAN
RL: LIQUID VESSEL
RC: CRANKCASE HEATER
VC: SERVICE VALVE
VD: SECURITY VALVE (UP TO 1 HP)
VL: SIGHT GAUGE
VT: VOLTAGE REGULATOR

OPTIONAL
SA: OIL SEPARATOR
VS: SOLENOID VALVE
LIQUID INJECTION SYSTEM (ONLY BDF)
TD: DISCHARGE THERMOSTAT
VE: THERMOSTATIC EXPANSION VALVE
VI: LIQUID SOLENOID VALVE
ADDITIONAL -N VERSION
MC: ELECTRONIC MICRO-CONTROLLER

[1] Conditions based on UNE-EN 13215: Ambient temp. 32 °C, evap. temp. -35 °C (NT), 20 °C of suction temperature, refrigerant R-449A.

[2] Cooling capacity in nominal conditions: Evaporating temp -35 °C (NT), ambient temperature of 32 °C, overheating 10 K, refrigerant R-449A.

[3] COP/SEPR: Coefficient of Performance according to Ecodesign Directive 2015/1095/EU ErP 2015/1095/UE.

[4] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

[V] Model that allow VRC system.

* Units available in 400V 3N 50Hz voltage.

MDF-N and BDF-N (with optional electronic control)

Sigilus condensing units with optional electronic control incorporate an advanced electronic controller XM670K for the management of the condensing unit and the evaporator, being able to optionally integrate the solenoid valve.

- Multifunction remote digital control.
- Electronic board integrated in the condensing unit for 6 control relays for: compressor, condensing fan, evaporator fan, defrost, light and alarm.
- Possibility of interconnection and synchronization of up to 8 devices by LAN, managed from a single control.

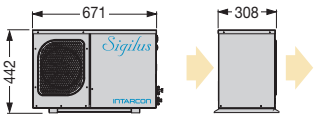
Liquid injection system

Negative temperature condensing units incorporate a safety cooling system for the motor by liquid injection into the compressor suction.

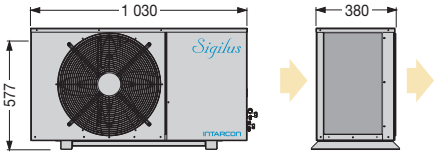
R-499A and R-448A refrigerants have high gas discharge temperature under conditions of high compression ratio and high suction gas superheat.
To protect the motor windings and preserve oil stability, compressor cooling is necessary in certain situations.

Dimensions

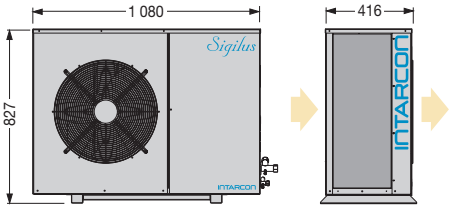
0 series



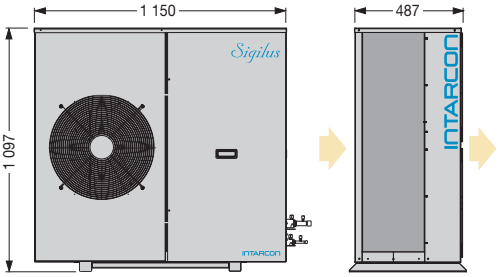
1 series



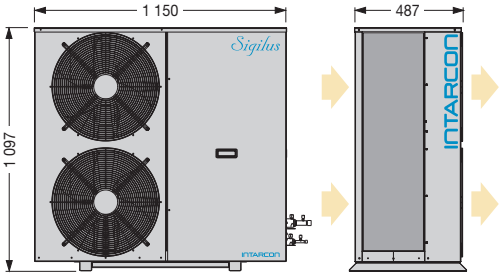
2 series



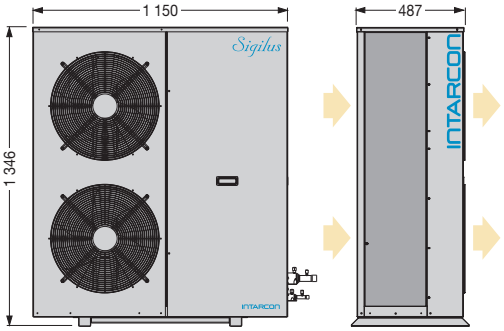
3 series - 1x Ø 450



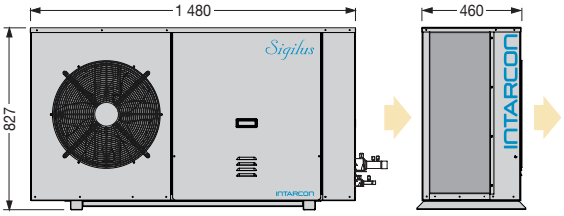
3 series - 2x Ø 450



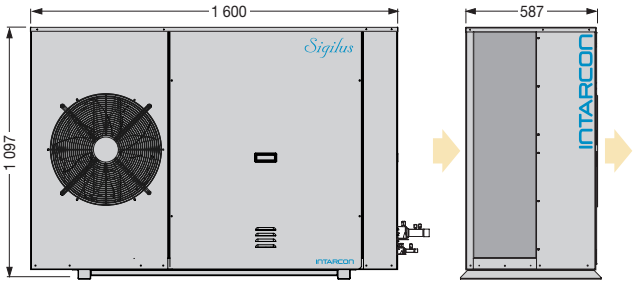
4 series



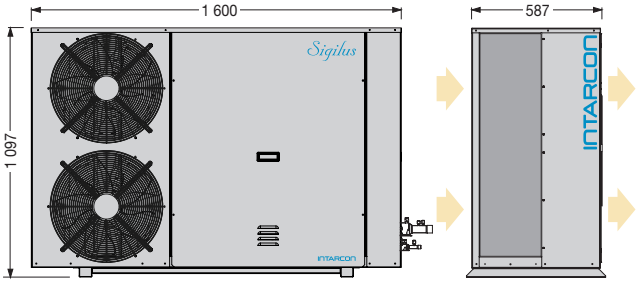
6 series



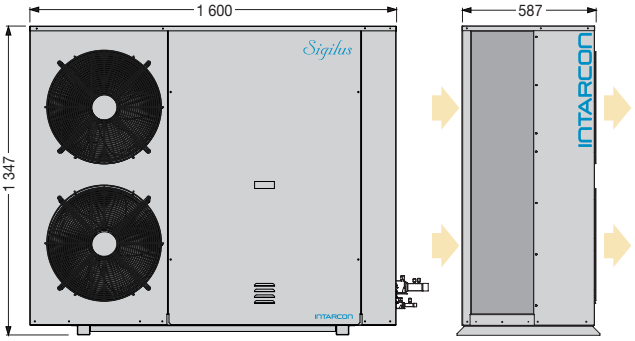
7 series - 1x Ø 450



7 series - 2x Ø 450



8 series



Dimensions in mm.

intarbox

- ❄ **Designed for ambient temperature up to 45 °C.**
- ❄ **Multi-service version with VRC cooling capacity modulation system.**
- ❄ **Liquid injection system for compressor refrigeration.**

Air-cooled packaged condensing units at positive or negative temperature, in horizontal construction with an alternative hermetic or scroll compressor, and low speed axial or centrifugal motor fan.

Features

- 230V 50Hz or 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- R-134a or R-449A refrigerant, other refrigerants by request.
- Reciprocating hermetic or scroll compressor mounted on shock absorbers, with discharge muffler and internal klixon.
- High performance condensing coil in copper pipes and aluminium fins.
- Centrifugal motor fan with available static pressure for a ducted outlet of condenser hot air (centrifugal version).
- Refrigeration circuit equipped with HP and LP switches, filter dryer, liquid receiver and sight gauge.
- Digital control of condensation pressure with the optional electrical board, and all-nothing condensation control with condensers without electrical panel.
- Proportional control of condensing pressure through fan speed variation (included in MDH series 4).
- Full control and power board with compressor and motor fan protection.
- Liquid injection system for negative temperature models with R-449A.

Versions

- -N version. Without electrical board. Designed for on/off operation depending on the suction pressure (pump-down).
  With electrical board as an option. Electronic controller to manage the condensing unit and the evaporator built-in solenoid valve as an option.
- -V version (multi-service). The multi-service version features VRC system to adjust the refrigerant flow to the demand of the evaporators, keeping the pressure constant in suction the line. The VRC system is composed of a set of pressure and temperature control valves to progressively modulate cooling capacity from 100 % to 10 % of its nominal capacity, while reducing energy consumption and preventing compressor overheating.
- -S version (scroll). Version designed with scroll compressors.

High temperature protection

New refrigerants such as R-449A are characterised by a high gas discharge temperature, especially in low-temperature equipment. For increased reliability, INTARCON low-temperature units include liquid injection cooling of the compressor.

Ecodesign of condensing units

Regulation (EU) 2015/1095 sets out a number of Ecodesign requirements. For condensing units up to 5 kW and 2 kW in positive temp. and negative temp. respectively, a minimum value requirement is set for the COP coefficient of performance, while for higher capacity equipment the requirement refers to a SEPR standardised seasonal performance.

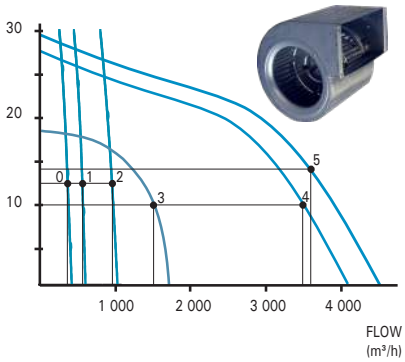
	Cooling capacity	Ecodesign
MT	0.2 < P≤ 1 kW	COP ≥ 1.40
	1 < P≤ 5 kW	COP ≥ 1.60
	5 < P≤ 20 kW	SEPR ≥ 2.55
BT	P≤ 2 kW	COP ≥ 0.95
	2 < P≤ 8 kW	SEPR ≥ 1.60

At INTARCON we have redesigned our product range to adapt to the Ecodesign directive, incorporating energy efficiency technologies, electronic motor fans and floating condensation control.

Centrifugal fan (centrifugal version)

Intarbox centrifugal motocondensers incorporate a centrifugal fan to allow ducted extraction of the hot condensing air via air ducts.

AVAILABLE STATIC PRESSURE
(**mmwc**)



230V 50Hz / 400V 3N 50Hz | Positive temperature | Hermetic or scroll compressor | R-134a / R-449A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Power supply	Cooling capacity EN13215 (W) [1] Evap. temp. -10 °C	Cooling capacity (W) [2] Average evaporating temperature 0 °C	-5 °C	-10 °C	-15 °C	Input power (kW)	(COP) SEPR [3]	Max. current (A)	Liq-Gas cooling connection	Weight (kg)	SPL dB(A) [4]	Centrifugal version Series / Model	Flow (m³/h)	ASP (Pa) [5]
R-134a	1x Hermetic	MDH-NY-0 010	3/8	230V	575	890	715	565	430	0.37	(1.54)	4	1/4"-3/8"	45	29	MDH-CY-0 010	375	80
		MDH-NY-0 015	1/2	230V	800	1 215	985	785	600	0.51	(1.58)	5	1/4"-3/8"	47	32	MDH-CY-0 015	375	80
		MDH-NY-1 015	1/2	230V	840	1 305	1 050	825	630	0.50	(1.69)	5	1/4"-1/2"	50	32	MDH-CY-1 015	575	80
		MDH-NY-1 026	3/4	230V	1 225	1 910	1 530	1 200	900	0.72	(1.72)	9	1/4"-1/2"	58	30	MDH-CY-1 026	575	80
		MDH-NY-1 033	1	230V	1 555	2 325	1 890	1 505	1 155	0.83	(1.87)	9	1/4"-1/2"	60	33	MDH-CY-1 033	575	80
		MDH-NY-2 053	1 1/2	230V *	2 210	3 505	2 785	2 130	1 565	1.06	(2.08)	12	1/4"-5/8"	70	38	MDH-CY-2 053	1 000	120
		MDH-NY-3 074	2	230V *	3 045	4 855	3 845	2 940	2 140	1.36	(2.23)	16	1/4"-3/4"	90	44	MDH-CY-3 074	1 500	140
		MDH-NY-4 086 [V]	4	400V 3N	4 160	6 660	5 270	4 065	3 040	2.02	(2.09)	14	3/8"-7/8"	97	48	MDH-CY-4 086 [V]	3 500	100
		MDH-NY-4 108 [V]	5	400V 3N	5 065	7 940	6 380	4 935	3 690	2.46	2.85	17	3/8"-7/8"	99	45	MDH-CY-4 108 [V]	3 500	100
		MDH-NY-4 136 [V]	6 1/2	400V 3N	6 410	9 595	7 825	6 215	4 720	3.33	2.56	20	3/8"-1 1/8"	102	44	MDH-CY-4 136 [V]	3 500	100
		MDH-NY-5 171 [V]	8	400V 3N	7 810	12 185	9 810	7 615	5 675	3.98	2.62	24	3/8"-1 1/8"	162	50	MDH-CY-5 171 [V]	3 600	120
		MDH-NY-5 215 [V]	10	400V 3N	9 510	14 335	11 655	9 210	6 890	4.60	2.63	29	3/8"-1 1/8"	166	59	MDH-CY-5 215 [V]	3 600	120
		MDH-NY-5 271 [V]	13	400V 3N	12 805	18 060	15 020	12 260	9 705	6.51	2.41	38	1/2"-1 3/8"	171	48	MDH-CY-5 271 [V]	3 600	120
	2x Hermetic	MDH-NY-5 137 [V]	2x 3 1/2	400V 3N	7 230	10 990	8 910	7 040	5 425	3.56	3.71	21	3/8"-1 1/8"	152	38	MDH-CY-5 137 [V]	3 600	120
		MDH-NY-5 172 [V]	2x 4	400V 3N	7 920	12 285	9 905	7 710	5 770	3.93	3.61	26	3/8"-1 1/8"	172	51	MDH-CY-5 172 [V]	3 600	120
		MDH-NY-5 216 [V]	2x 5	400V 3N	9 565	14 395	11 710	9 270	6 950	4.75	3.48	32	3/8"-1 1/8"	176	48	MDH-CY-5 216 [V]	3 600	120
		MDH-NY-5 272 [V]	2x 6 1/2	400V 3N	11 860	17 125	14 125	11 385	8 840	6.23	3.16	38	1/2"-1 3/8"	182	47	MDH-CY-5 272 [V]	3 600	120
	1x Scroll	MDH-SY-2 015	2	400V 3N	2 230	3 175	2 640	2 170	1 755	1.10	(2.06)	5	1/4"-5/8"	57	33	MDH-SCY-2 015	1 500	120
		MDH-SY-3 021 [D]	3	400V 3N	3 225	4 560	3 805	3 130	2 535	1.47	(2.22)	8	1/4"-3/4"	80	35	MDH-SCY-3 021 [D]	1 500	140
		MDH-SY-4 029 [D]	4	400V 3N	4 160	6 040	4 970	4 060	3 280	2.00	(2.10)	12	3/8"-3/4"	100	32	MDH-SCY-4 029 [D]	3 500	100
		MDH-SY-4 038 [D]	5	400V 3N	5 525	7 920	6 565	5 385	4 355	2.63	3.16	14	3/8"-7/8"	108	35	MDH-SCY-4 038 [D]	3 500	100
		MDH-SY-5 045 [D]	6	400V 3N	6 555	9 430	7 790	6 380	5 165	2.80	3.55	15	3/8"-1 1/8"	155	35	MDH-SCY-5 045 [D]	3 600	120
		MDH-SY-5 057 [D]	7 1/2	400V 3N	8 195	11 610	9 680	7 955	6 450	4.01	3.00	18	3/8"-1 1/8"	155	42	MDH-SCY-5 057 [D]	3 600	120
	2x Scroll	MDH-SY-5 042 [D]	2x 3	400V 3N	6 535	9 405	7 765	6 360	5 150	2.96	4.18	16	3/8"-1 1/8"	173	35	MDH-SCY-5 042 [D]	3 600	120
		MDH-SY-5 058 [D]	2x 4	400V 3N	8 120	11 515	9 595	7 885	6 390	4.01	3.80	22	3/8"-1 1/8"	172	35	MDH-SCY-5 058 [D]	3 600	120
		MDH-SY-5 076 [D]	2x 5	400V 3N	10 675	14 790	12 415	10 315	8 430	5.20	3.76	27	1/2"-1 3/8"	190	38	MDH-SCY-5 076 [D]	3 600	120
R-449A	1x Hermetic	MDH-NG-0 008	1/3	230V	570	975	800	640	490	0.40	(1.50)	4	1/4"-3/8"	46	31	MDH-CG-0 008	375	80
		MDH-NG-0 010	3/8	230V	745	1 225	1 010	815	640	0.50	(1.57)	5	1/4"-3/8"	46	34	MDH-CG-0 010	375	80
		MDH-NG-0 012	1/2	230V	880	1 415	1 175	955	760	0.58	(1.61)	6	1/4"-3/8"	46	34	MDH-CG-0 012	375	80
		MDH-NG-1 014	1/2	230V	1 065	1 740	1 435	1 165	925	0.67	(1.69)	6	1/4"-1/2"	50	34	MDH-CG-1 014	575	80
		MDH-NG-1 016	5/8	230V	1 190	1 985	1 630	1 310	1 020	0.75	(1.71)	7	1/4"-1/2"	60	34	MDH-CG-1 016	575	80
		MDH-NG-1 018	3/4	230V	1 440	2 325	1 925	1 565	1 240	0.90	(1.73)	8	1/4"-1/2"	60	34	MDH-CG-1 018	575	80
		MDH-NG-2 024	1	230V	1 915	3 215	2 630	2 105	1 635	1.06	(1.93)	12	3/8"-5/8"	60	35	MDH-CG-2 024	1 000	120
		MDH-NG-2 026	1 1/4	230V *	2 130	3 485	2 870	2 320	1 830	1.19	(1.91)	13	3/8"-5/8"	61	36	MDH-CG-2 026	1 000	120
		MDH-NG-2 034	1 1/2	230V *	2 635	4 240	3 525	2 865	2 260	1.66	(1.72)	16	3/8"-5/8"	61	37	MDH-CG-2 034	1 000	120
		MDH-NG-3 038 [V]*	1 3/4	400V 3N	2 985	4 890	4 025	3 250	2 555	1.51	(2.12)	6	3/8"-5/8"	78	39	MDH-CG-3 038 [V]*	1 500	140
		MDH-NG-4 048 [V]	2	400V 3N	3 955	6 685	5 430	4 345	3 390	2.07	(2.06)	13	3/8"-3/4"	95	36	MDH-CG-4 048 [V]	3 500	100
		MDH-NG-4 054 [V]	2 1/2	400V 3N	4 535	7 515	6 145	4 940	3 900	2.30	(2.13)	14	3/8"-3/4"	96	36	MDH-CG-4 054 [V]	3 500	100
		MDH-NG-4 060 [V]	3	400V 3N	5 220	8 435	6 980	5 655	4 505	2.74	2.97	15	3/8"-3/4"	97	36	MDH-CG-4 060 [V]	3 500	100
		MDH-NG-4 068 [V]	3 1/2	400V 3N	5 880	9 330	7 775	6 345	5 075	3.16	2.86	15	1/2"-3/4"	98	35	MDH-CG-4 068 [V]	3 500	100
		MDH-NG-5 086 [V]	4	400V 3N	7 050	11 600	9 515	7 655	6 040	3.34	3.21	14	1/2"-7/8"	135	48	MDH-CG-5 086 [V]	3 600	120
		MDH-NG-5 108 [V]	5	400V 3N	8 735	13 960	11 615	9 440	7 490	4.39	2.87	17	1/2"-7/8"	137	45	MDH-CG-5 108 [V]	3 600	120
		MDH-NG-5 136 [V]	6 1/2	400V 3N	11 045	16 835	14 200	11 750	9 495	5.89	2.57	20	1/2"-1 1/8"	140	44	MDH-CG-5 136 [V]	3 600	120
	2x Hermetic	MDH-NG-5 097 [V]	2x 2	400V 3N	7 620	12 545	10 340	8 310	6 530	4.05	3.61	17	1/2"-7/8"	146	39	MDH-CG-5 097 [V]	3 600	120
		MDH-NG-5 109 [V]	2x 2 1/2	400V 3N	8 710	13 940	11 595	9 425	7 475	4.50	3.68	18	1/2"-7/8"	148	39	MDH-CG-5 109 [V]	3 600	120
		MDH-NG-5 120 [V]	2x 3	400V 3N	10 005	15 515	13 015	10 740	8 605	5.41	3.49	20	1/2"-1 1/8"	150	39	MDH-CG-5 120 [V]	3 600	120
		MDH-NG-5 137 [V]	2x 3 1/2	400V 3N	11 230	16 990	14 370	11 915	9 660	6.18	3.35	21	1/2"-1 1/8"	152	38	MDH-CG-5 137 [V]	3 600	120

[1] Conditions based on UNE-EN 13215: Ambient temp. 32 °C, evap. temp. -10 °C (PT), 20 °C of suction temperature, refrigerant R-134a and R-449A.

[2] Conditions based on UNE-EN 13215: Ambient temp. 32 °C, evap. temp. -10 °C (PT), overheating 10 K, R-449A refrigerant.

[3] COP / SEPR: Coefficient of Performance according to Ecodesign Commission Regulation (EU) 2015/1095.

[4] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

[5] Available static pressure condensation for air ducts.

[V] Model that allow VRC system.

[V]* Requires proportional control of condensing pressure.

[D] Available models with Digital compressor.

* Units available with 400V 3N 50Hz power supply.

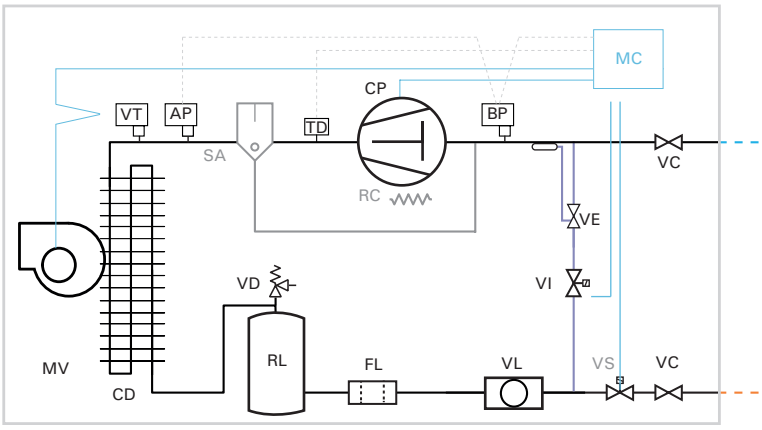
230V 50Hz / 400V 3N 50Hz | Negative temperature | Hermetic or scroll compressor | R-449A / R-452A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Power supply	Cooling capacity EN13215 (W) [1] Evap. temp. -35 °C	Cooling capacity (W) [2] Average evaporating temperature -25 °C	-30 °C	-35 °C	Input power (kW)	(COP) SEPR [3]	Max. current (A)	Liq-Gas cooling connection	Weight (kg)	SPL dB(A) [4]	Centrifugal version Series / Model	Flow (m^3/h)	ASP (Pa) [5]
R-449A	1x Hermetic	**BDH-NG-1 026**	3/4	230V	540	1 220	930	660	0.67	(0.97)	9	1/4"-1/2"	51	31	**BDH-CG-1 026**	575	80
		BDH-NG-1 034	1 1/4	230V	715	1 525	1 170	860	0.90	(0.95)	10	1/4"-1/2"	52	33	**BDH-CG-1 034**	575	80
		BDH-NG-2 055	1 3/4	230V *	915	2 265	1 700	1 165	1.21	(0.95)	13	3/8"-5/8"	61	41	**BDH-CG-2 055**	1 000	120
		BDH-NG-2 075	2 1/2	230V *	1 355	2 855	2 200	1 620	1.60	(1.02)	25	3/8"-5/8"	66	44	**BDH-CG-2 075**	1 000	120
R-452A	1x Hermetic	**BDH-NB-3 096**	3 1/2	400V 3N	1 595	3 655	2 755	1 875	1.68	(1.16)	11	3/8"-3/4"	88	49	**BDH-CB-3 096**	1 500	140
		BDH-NB-4 108	4	400V 3N	2 010	4 630	3 450	2 400	2.08	1.62	14	3/8"-7/8"	108	47	**BDH-CB-4 108**	3 500	100
		BDH-NB-5 136	5	400V 3N	2 665	5 995	4 490	3 150	2.72	1.61	16	3/8"- 1 1/8"	152	42	**BDH-CB-5 136**	3 600	100
		BDH-NB-5 215	7 1/2	400V 3N	4 040	8 750	6 575	4 730	3.92	1.60	24	1/2"- 1 1/8"	183	49	**BDH-CB-5 215**	3 600	100
	2x Herm.	**BDH-NB-5 192**	2x 3 1/2	400V 3N	3 190	7 590	5 615	3 875	3.37	1.75	22	1/2"-1 1/8"	189	52	**BHD-CB-5 192**	3 600	120
		BDH-NB-5 216	2x 4	400V 3N	4 020	8 745	6 565	4 715	3.99	1.79	26	1/2"-1 1/8"	189	50	**BDH-CB-5 216**	3 600	120
		BDH-NB-5 272	2x 5	400V 3N	5 285	10 670	8 145	5 930	5.26	1.72	29	3/8"-1 1/8"	189	45	**BDH-CB-5 272**	3 600	120
R-449A	1x Scroll	**BDH-SG-4 013** [D]	4	400V 3N	3 330	5 540	4 590	3 775	2.92	1.71	11	3/8"-7/8"	113	37	**BDH-SCG-4 013** [D]	3 500	100
		BDH-SG-4 018 [D]	6	400V 3N	5 195	7 335	7 205	5 900	4.05	1.80	16	3/8"-1 1/8"	114	41	**BDH-SCG-4 018** [D]	3 500	100
		BDH-SG-5 025 [D]	8	400V 3N	6 440	10 650	8 855	7 305	4.83	1.96	18	3/8"-1 1/8"	158	44	**BDH-SCG-5 025** [D]	3 600	120
	2x Sc.	**BDH-SG-5 026** [D]	2x 4	400V 3N	6 595	10 910	9 070	7 485	5.96	1.73	20	3/8"-1 1/8"	199	40	**BDH-SCG-5 026** [D]	3 600	120

Options

- Change to 400V 3N 50Hz power supply.
- Proportional control of condensing pressure through speed variation (axial 3 series and centrifugal 0 up to 3 series).
- Built-in oil separator (already included in -V version).
- Crankcase heater.
- Built-in solenoid valve with body and coil (except for -V version).
- Anti-corrosion coil coating.
- Non-return damper (centrifugal version).
- Adaptation of air discharge to circular duct (centrifugal version).
- Vertical discharge (centrifugal version).
- Control and power panel with electronic control unit for management of condenser and evaporator.
  - Larger sized multifunction electronic control.

DH - Centrifuge scheme



STANDARD
- AP: HIGH PRESSURE SWITCH
- BP: LOW PRESSURE SWITCH
- CD: CONDENSER
- CP: COMPRESSOR
- FL: FILTER
- MV: MOTOR FAN
- RL: LIQUID VESSEL
- VC: SERVICE VALVE
- VD: SECURITY VALVE (UP TO 1 HP)
- VL: SIGHT GAUGE
- VT: VOLTAGE REGULATOR

OPTIONAL
- SA: OIL SEPARATOR
- RC: CRANKCASE HEATER
- VS: SOLENOID VALVE

LIQUID INJECTION SYSTEM (ONLY BDH)
- TD: DISCHARGE THERMOSTAT
- VE: THERMOSTATIC EXPANSION VALVE
- VI: LIQUID SOLENOID VALVE

ADDITIONAL -N VERSION
- MC: ELECTRONIC MICRO-CONTROLLER

[1] Conditions based on UNE-EN 13215: Ambient temp. 32 °C, evap. temp. -35 °C (NT), 20 °C of suction temperature, refrigerant R-449A.

[2] Conditions based on UNE-EN 13215: Ambient temp. 32 °C, evap. temp. -35 °C (NT), overheating 10 K, R-449A refrigerant.

[3] COP / SEPR: Coefficient of Performance according to Ecodesign Commission Regulation (EU) 2015/1095.

	Cooling capacity	Ecodesign
BT	0.2 < P≤ 1 kW	COP ≥ 1.40
	1 < P≤ 5 kW	COP ≥ 1.60
	5 < P≤ 20 kW	SEPR ≥ 2.55
NT	P≤ 2 kW	COP ≥ 0.95
	2 < P≤ 8 kW	SEPR ≥ 1.60

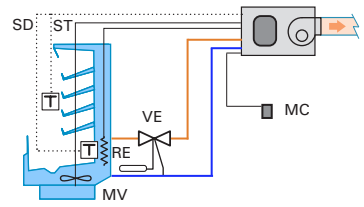
[4] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

[5] Available static pressure condensation for air ducts.

[D] Available models with Digital compressor.

* Units available with 400V 3N 50Hz power supply.

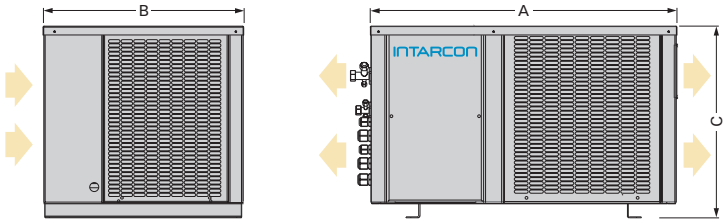
Installation scheme (-C version with electronic control)



MC: CONTROL PAD
MV: MOTOR FAN
RE: DEFROST HEATER
ST: THERMOSTAT PROBE
SD: DEFROST PROBE
VE: EXPANSION VALVE
VS: SOLENOID VALVE

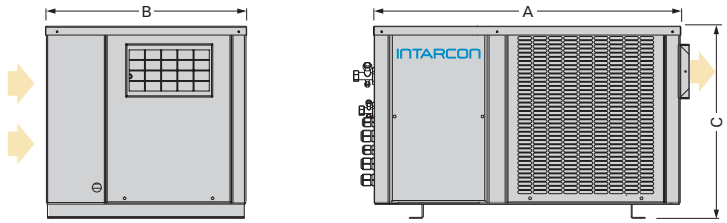
Dimensions

Axial version



Dimensions (mm)	A	B	C
0 series	600	396	355
1 series	665	435	416
2 series	835	435	500
3 series	925	580	515
4 series	1 000	615	585
5 series	1 289	757	657

Centrifugal version



Dimensions (mm)	A	B	C	Fan outlet	Hopper (optional)
0 series	600	396	355	185 x 115	Ø 150
1 series	665	435	416	185 x 115	Ø 150
2 series	835	435	500	230 x 130	Ø 200
3 series	925	580	515	266 x 236	Ø 250
4 series	1 000	615	585	305 x 266	Ø 360
5 series	1 289	757	657	305 x 266	Ø 360

Exhaust duct

Recommended size for 20 m long steel, PVC or fibreglass ducts (each elbow equals 5 m length). For flexible or semi-flexible ducts use a larger size.

- 0 series: 200 x 150 mm or Ø 150 mm
- 1 series: 200 x 200 mm or Ø 150 mm
- 2 series: 250 x 150 mm or Ø 200 mm
- 3 series: 200 x 300 mm or Ø 250 mm
- 4 and 5 series: 350 x 400 mm or Ø 360 mm

MDH-N and BDH-N (with optional electronic control)

intarbox condensing units with the optional electronic control incorporate an advanced electronic controller XM670K for the management of the condensing unit and the evaporator, being able to optionally integrate the solenoid valve.

- Multifunction remote digital control.
- Electronic board integrated in the condensing unit for 6 control relays for: compressor, condensing fan, evaporator fan, defrost, light and alarm.
- Possibility of interconnection and synchronization of up to 8 devices by LAN, managed from a single control.

XL control

For a better temperature display, the XM670K electronics can be equipped with the XL control.

Variable Refrigerant Capacity

VRC system

- Cooling capacity control.
- Constant evaporation pressure.
- Set services refrigeration production centralization.

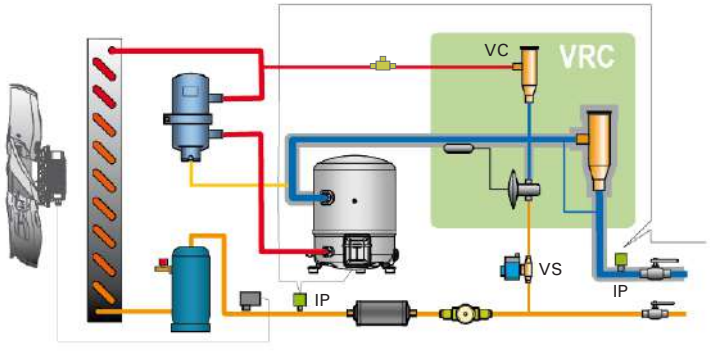
Multi-service version, featuring VRC system (Variable Refrigerant Capacity), of refrigeration capacity control, applicable to hermetic alternative compressors, consisting of:

- Suction pressure valve (VP).
- By-pass pressure valve (VC).
- Thermostatic expansion valve for liquid injection (VE).
- Pressure control switch (IP).
- Built-in oil separator.

Multi-service versions of condensing units:

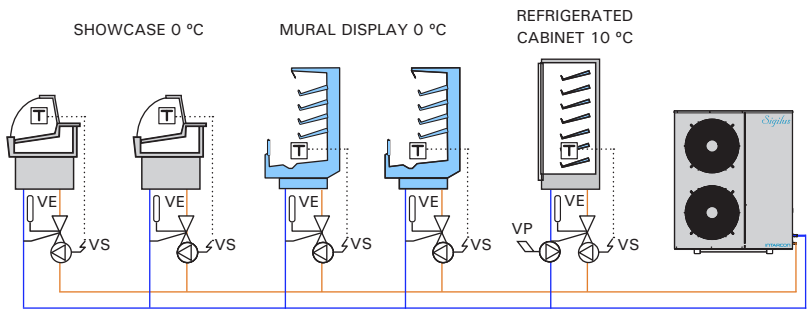
- Horizontal axial or centrifugal multi-service version.
  intarbox-multi: MDH-CV/-V series.
- Horizontal axial low-noise multi-service version.
  Sigilus-multi: MDF-V series.

Scheme



Example of multi-service installation

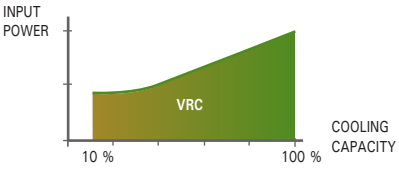
Units specifically designed for the centralisation of cooling production of several evaporators.



VRC system is composed of a set of pressure and temperature valves capable of progressive variation of a compressor's cooling capacity between 100 % and 10 % of this rated power, at the same time the system reduces electrical input power and protects the compressor, maintaining its compression ratio within security margins, eliminating the risk of overheating.

VRC system: Variable Refrigerant Capacity

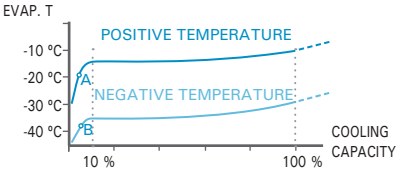
VRC system applied to a reciprocating hermetic compressor adjusts the flow of refrigerant to the evaporator unit's demand by maintaining constant pressure in the suction line.



VRC system is characterized by:

- Consisting exclusively of high reliability mechanical components.
- Keeps the evaporation pressure constant.
- Protects the compressor against the risk of engine overheating.
- Maintains the compression ratio of the compressor within the safety limits.

Condensing units equipped with VRC system allow centralizing the refrigeration production of a set of services, maintaining constant the pressure and temperature of the refrigerant in the evaporators.



VRC system can be easily regulated to set a minimum evaporation pressure. The factory setting provides the following minimum evaporation temperatures:

- Positive temperature units: -13 °C
- Negative temperature units: -35 °C

With demand below 10 % of the nominal power, the characteristic of the evaporation pressure curve falls towards the minimum value admitted by the compressor, disconnecting the low pressure switch (points A and B) and stopping the compressor.

In this way, the multi-service condensing units are designed for low-pressure stop / start control (drop down or pump down).

Alternatively, the compressor running stop can be done through an external open / closed contact.

intarCUBE

Footprint condensing units

Plug & Play installation

Low investment cost

Compact design

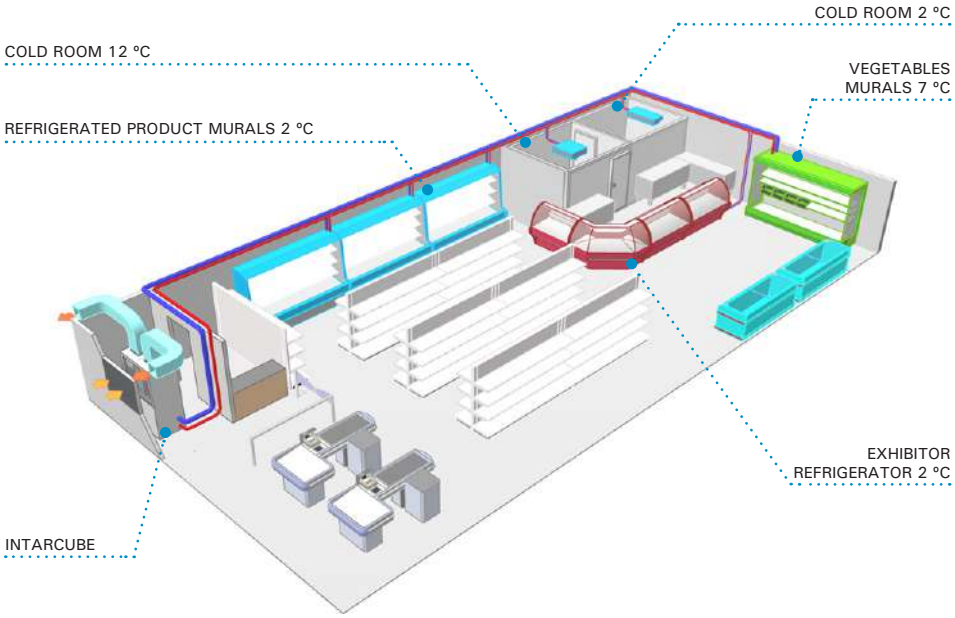
intarCUBE | Footprint condensing units

- Very compact refrigeration condensing units.
- Low investment and maintenance costs.
- Quick Plug & Play installation in new or retrofit installations.
- F-Gas 2022 and Ecodesign compliant.

Footprint condensing units with one to three compressors, with axial or centrifugal condensation, for medium and low temperature.

Applications

intarCUBE footprint condensing units are designed to centralise the refrigeration production of a set of evaporator units.



intarCUBE condensing units in centrifugal version are designed for installation in a machine room with ducted air discharge.

F-Gas regulation

At INTARCON we anticipate the environmental regulations of the European Union with low greenhouse solutions. Our condensing units comply with the scenarios of the EU regulation 517/2014 (F-Gas Regulation).

From 1 January 2022, the marketing of compact multi-compressor condensing units with HFC refrigerants for commercial use is limited to less than 40 kW of cooling capacity.

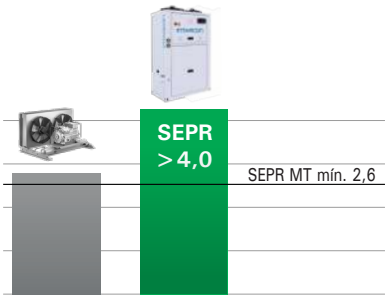
Plug & Play

INTARCON units are specifically designed and dimensioned for each R-134a or R-449A refrigerant.

They are delivered factory tested and adjusted with CE conformity certificate as a whole (pressure equipment, Ecodesign, etc.).

Ecodesign

The Ecodesign Regulation (EU) 2015/1095 applicable to condensing and mini condensing units with built-in condenser sets minimum SEPR seasonal efficiency requirements.



intarCUBE condensing units are characterised by an excellent Ecodesign efficiency even higher than 4.0.

Operational reliability

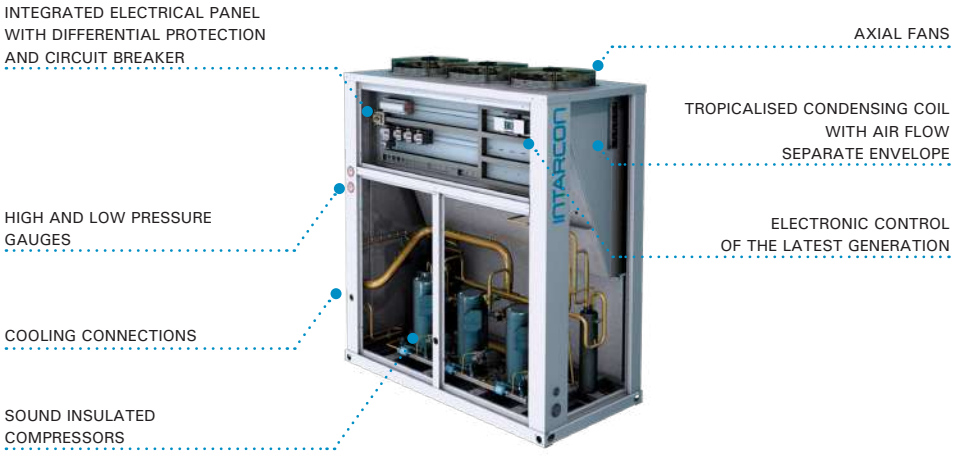
The duplication of components and back-up systems is an important design criterion. Most intarCUBE condensing units are equipped with two or more fans, tandem or trio compressors, and emergency operation (optional).

Highly reliable compressors

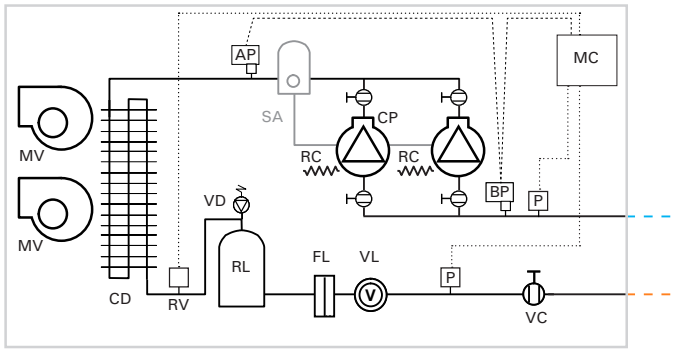
Maneurop hermetic reciprocating compressors and Copeland scroll compressors are characterised by their robustness and operational reliability. As they are cooled by the refrigerant gas, they provide effective sound insulation.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Hermetic alternative compressors, with discharge silencer, or scroll, in a soundproofed compartment independent of the air flow.
- Sound insulation of compressors, silentblocks, internal clixon and crankcase heater.
- Axial or centrifugal fans with variable speed.
- Refrigeration circuit equipped with high and low pressure switches, ceramic dryer filter, liquid receiver and sight gauge.
- Full control and power panel, with differential switch protection and MCB switch.
- Liquid injection system for negative temperature models.
- Fan for cooling the electrical panel.
- Digital compressor control (R version).



MDV-C-6 refrigeration scheme



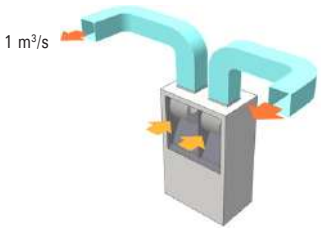
CP:	COMPRESSOR
RC:	CRANKCASE HEATER
MV:	AXIAL MOTOR FAN
CD:	CONDENSER
FL:	DRYING FILTER
VL:	SIGHT GAUGE
RL:	LIQUID RECEIVER
VD:	SECURITY VALVE
RV:	SPEED REGULATOR
VC:	SERVICE VALVE
MC:	ELECTRONIC MICROCONTROLLER
P:	PRESSURE TRANSDUCER
AP:	HIGH PRESSURE SWITCH
BP:	LOW PRESSURE SWITCH
SA:	OIL SEPARATOR (OPTIONAL)

Axial condensation

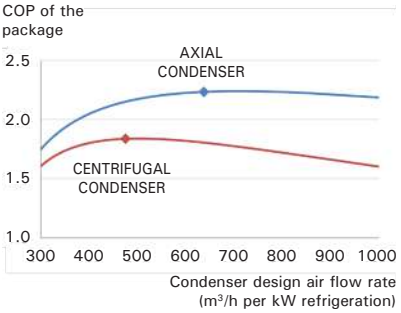
intarCUBE units are designed for outdoor installation with minimum floor space footprint. The compressors are located in a soundproofed compartment separated from the air flow, and the fans have independent air volumes to avoid air recirculation in case of fan failure.

Centrifugal condensation

intarCUBE units can be equipped with medium-pressure centrifugal turbines, which allow the condensing units to be installed in the machine room and the air to be discharged to the outside via ducts.



Our centrifugal condensers are specifically designed to maximise the performance of the unit, while adjusting the air flow to the limitations of municipal regulations.



Dimensioning of air ducts

Recommended dimensions for discharge duct in sheet metal, or fibreglass panel, depending on the equivalent length:

Series	Flow m³/h	Equivalent length (mm)	
		20 - 30 m	40 - 60 m
5 series	3 600	400 x 300	400 x 400
6 series	2 x 3 600	500 x 400	600 x 400
7 series	3 x 3 600	750 x 400	800 x 500
8 series	2 x 10 000	1 000 x 500	1 000 x 600

Each 90º circular elbow is equivalent to 5 m in length.

It is recommended to select the air intake and discharge grilles according to the following indications:

Series	Discharge		Air intake	
	Volume (m/s)	Area (m²)	Volume (m/s)	Area (m²)
5 series	< 5	0.2	< 3	0.3
6 series		0.4		0.7
7 series		0.6		1.0
8 series		1.0		2.0

400V 3N 50Hz | Positive temperature | Hermetic compressor | R-134a / R-449A

1x Hermetic	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature 0 °C	-5 °C	-10 °C	-15 °C	Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Centrifugal version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
R-134a	1x Hermetic	MDV-NY-5 0136	6.5	MTZ80	10.5	8.4	6.5	4.9	3.1	3.1	21	1x Ø 450	4 300	3/8"-1 1/8"	167	35	MDV-CY-5 0136	3 600	120
		MDV-NY-5 0171	8	MTZ100	12.2	9.8	7.6	5.7	3.9	2.8	24	1x Ø 450	4 300	3/8"-1 1/8"	189	41	MDV-CY-5 0171	3 600	120
		MDV-NY-5 0215	10	MTZ125	14.4	11.7	9.2	6.9	4.6	2.9	29	1x Ø 450	4 300	3/8"-1 1/8"	193	40	MDV-CY-5 0215	3 600	120
		MDV-NY-5 0271	13	MTZ160	18.1	15.0	12.3	9.7	6.5	2.6	38	1x Ø 450	4 300	1/2"-1 3/8"	198	39	MDV-CY-5 0271	3 600	120
	2x Hermetic	MDV-NY-5 0137	7	2x MTZ40	11.0	8.9	7.0	5.5	3.5	3.4	21	1x Ø 450	4 300	3/8"-1 1/8"	179	31	MDV-CY-5 0137	3 600	120
		MDV-NY-5 0172	8	2x MTZ50	12.3	9.9	7.7	5.8	3.9	3.4	25	1x Ø 450	4 300	3/8"-1 1/8"	199	42	MDV-CY-5 0172	3 600	120
		MDV-NY-5 0216	10	2x MTZ64	14.4	11.7	9.3	6.9	4.7	3.5	30	1x Ø 450	4 300	3/8"-1 1/8"	203	39	MDV-CY-5 0216	3 600	120
		MDV-NY-5 0272	13	2x MTZ80	17.0	14.1	11.4	8.8	6.2	3.3	40	1x Ø 450	4 300	1/2"-1 3/8"	209	38	MDV-CY-5 0272	3 600	120
		MDV-NY-6 0320	16	2x MTZ100	24.7	19.8	15.3	11.4	7.7	3.4	47	2x Ø 450	2x 3 600	1/2"-1 3/8"	318	44	MDV-CY-6 0320	2x 3 600	160
		MDV-NY-6 0430	20	2x MTZ125	29.3	23.7	18.6	13.9	8.9	3.6	57	2x Ø 450	2x 3 600	1/2"-1 5/8"	326	43	MDV-CY-6 0430	2x 3 600	160
		MDV-NY-6 0542	26	2x MTZ160	36.9	30.7	24.9	19.7	12.7	3.5	75	2x Ø 450	2x 3 600	5/8"-2 1/8"	336	42	MDV-CY-6 0542	2x 3 600	160
	3x Herm.	MDV-NY-7 0513	24	3x MTZ100	38.2	30.3	23.4	17.4	11.8	3.2	73	3x Ø 450	3x 4 750	5/8"-2 1/8"	477	46	MDV-CY-7 0513	3x 3 600	160
		MDV-NY-7 0645	30	3x MTZ125	45.6	36.7	28.5	21.3	13.6	3.5	88	3x Ø 450	3x 4 750	5/8"-2 1/8"	489	45	MDV-CY-7 0645	3x 3 600	160
		MDV-NY-7 0813	39	3x MTZ160	57.8	47.8	38.6	30.1	19.5	3.6	115	3x Ø 450	3x 4 750	7/8"-2 1/8"	504	44	MDV-CY-7 0813	3x 3 600	160
R-449A	1x Hermetic	MDV-NG-5 0086	4	MTZ50	11.6	9.5	7.6	6.0	3.3	3.3	13	1x Ø 450	4 300	1/2"-7/8"	162	39	MDV-CG-5 0086	3 600	120
		MDV-NG-5 0108	5	MTZ64	14.0	11.6	9.4	7.5	4.4	3.1	16	1x Ø 450	4 300	1/2"-7/8"	164	37	MDV-CG-5 0108	3 600	120
		MDV-NG-5 0136	6.5	MTZ80	16.8	14.2	11.7	9.5	5.8	2.8	21	1x Ø 450	4 300	1/2"-1 1/8"	167	35	MDV-CG-5 0136	3 600	120
		MDV-NG-6 0160	8	MTZ100	23.2	18.9	15.2	12.0	6.8	3.1	25	2x Ø 450	2x 3 600	5/8"-1 1/8"	254	41	MDV-CG-6 0160	2x 3 600	160
		MDV-NG-6 0215	10	MTZ125	28.1	23.3	18.8	14.9	8.6	3.1	30	2x Ø 450	2x 3 600	5/8"-1 3/8"	258	40	MDV-CG-6 0215	2x 3 600	160
		MDV-NG-6 0271	13	MTZ160	33.8	28.3	23.2	18.6	11.4	2.8	39	2x Ø 450	2x 3 600	5/8"-1 3/8"	263	39	MDV-CG-6 0271	2x 3 600	160
		MDV-NG-7 0271	13	MTZ160	38.0	31.2	25.3	20.0	11.8	3.1	43	3x Ø 450	3x 4 750	5/8"-1 3/8"	358	40	MDV-CG-7 0271	2x 3 600	160
	2x Hermetic	MDV-NG-5 0097	4	2x MTZ28	12.5	10.3	8.3	6.5	4.0	3.2	17	1x Ø 450	4 300	1/2"-7/8"	173	32	MDV-CG-5 0097	3 600	120
		MDV-NG-5 0109	5	2x MTZ32	13.9	11.6	9.4	7.5	4.5	3.4	18	1x Ø 450	4 300	1/2"-7/8"	175	32	MDV-CG-5 0109	3 600	120
		MDV-NG-5 0120	6	2x MTZ36	15.5	13.0	10.7	8.6	5.4	3.4	20	1x Ø 450	4 300	1/2"-1 1/8"	177	31	MDV-CG-5 0120	3 600	120
		MDV-NG-5 0137	7	2x MTZ40	17.0	14.4	11.9	9.7	6.1	3.4	21	1x Ø 450	4 300	1/2"-1 1/8"	179	31	MDV-CG-5 0137	3 600	120
		MDV-NG-6 0172	8	2x MTZ50	23.5	19.2	15.4	12.2	6.5	3.5	26	2x Ø 450	2x 3 600	5/8"-1 1/8"	264	42	MDV-CG-6 0172	2x 3 600	160
		MDV-NG-6 0216	10	2x MTZ64	28.3	23.5	19.0	15.1	8.5	3.5	31	2x Ø 450	2x 3 600	5/8"-1 3/8"	268	40	MDV-CG-6 0216	2x 3 600	160
		MDV-NG-6 0272	13	2x MTZ80	34.3	28.8	23.8	19.1	11.5	3.5	41	2x Ø 450	2x 3 600	5/8"-1 3/8"	274	38	MDV-CG-6 0272	2x 3 600	160
		MDV-NG-7 0320	16	2x MTZ100	45.0	37.1	29.7	23.5	13.9	3.2	51	3x Ø 450	3x 4 750	7/8"-1 5/8"	462	44	MDV-CG-7 0320	3x 3 600	160
		MDV-NG-7 0430	20	2x MTZ125	54.0	45.0	36.6	29.1	17.5	3.4	61	3x Ø 450	3x 4 750	7/8"-1 5/8"	470	43	MDV-CG-7 0430	3x 3 600	160
		MDV-NG-7 0542	26	2x MTZ160	64.2	54.2	39.9	36.3	23.0	3.3	79	3x Ø 450	3x 4 750	7/8"-2 1/8"	480	42	MDV-CG-7 0542	3x 3 600	160
	3x Hermetic	MDV-NG-7 0258	12	3x MTZ50	35.8	29.2	23.4	18.5	9.9	3.1	42	3x Ø 450	3x 4 750	5/8"-1 3/8"	445	44	MDV-CG-7 0258	3x 3 600	160
		MDV-NG-7 0324	15	3x MTZ64	43.7	36.0	29.0	23.0	12.9	3.3	49	3x Ø 450	3x 4 750	7/8"-1 5/8"	451	41	MDV-CG-7 0324	3x 3 600	160
		MDV-NG-7 0408	18	3x MTZ80	53.3	44.6	36.4	29.2	17.3	3.3	64	3x Ø 450	3x 4 750	7/8"-1 5/8"	460	40	MDV-CG-7 0408	3x 3 600	160
		MDV-NG-7 0480	24	3x MTZ100	60.6	50.8	39.9	33.2	21.2	3.3	73	3x Ø 450	3x 4 750	7/8"-2 1/8"	526	46	MDV-CG-7 0480	3x 3 600	160

400V 3N 50Hz | Negative temperature | Hermetic compressor | R-449A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature -20 °C	-25 °C	-30 °C	-35 °C	Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Centrifugal version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
R-449A	1x H.	BDV-NG-5 0215	7.5	NTZ215	11.1	8.7	6.5	4.6	3.8	1.6	24	1x Ø 450	4 300	1/2"-1 1/8"	193	40	BDV-CG-5 0215	3 600	120
		BDV-NG-5 0271	10	NTZ271	13.7	11.1	8.5	6.2	5.1	1.6	29	1x Ø 450	4 300	1/2"-1 1/8"	193	40	BDV-CG-5 0271	3 600	120
	2x Hermetic	BDV-NG-5 0192	7	2x NTZ96	9.9	7.5	5.6	3.8	3.2	1.8	22	1x Ø 450	4 300	1/2"-1 1/8"	199	43	BDV-CG-5 0192	3 600	120
		BDV-NG-5 0216	8	2x NTZ108	11.1	8.7	6.5	4.6	3.9	1.8	26	1x Ø 450	4 300	1/2"-1 1/8"	199	41	BDV-CG-5 0216	3 600	120
		BDV-NG-5 0272	10	2x NTZ136	13.3	10.6	8.1	5.8	5.1	1.7	30	1x Ø 450	4 300	1/2"-1 1/8"	199	37	BDV-CG-5 0272	3 600	120
		BDV-NG-6 0430	15	2x NTZ215	22.7	17.6	13.2	9.3	7.5	1.9	48	2x Ø 450	2x 3 600	5/8"-1 5/8"	326	43	BDV-CG-6 0430	2x 3 600	160
		BDV-NG-6 0542	20	2x NTZ271	28.1	22.5	17.3	12.5	10.1	1.9	57	2x Ø 450	2x 3 600	5/8"-2 1/8"	326	43	BDV-CG-6 0542	2x 3 600	160
	3x H.	BDV-NG-7 0645	22.5	3x NTZ215	34.9	26.9	20.2	14.0	11.5	1.9	74	3x Ø 450	3x 4 750	5/8"-2 1/8"	489	45	BDV-CG-7 0645	3x 3 600	160
		BDV-NG-7 0813	30	3x NTZ271	43.7	34.7	26.5	19.1	15.4	1.9	88	3x Ø 450	3x 4 750	5/8"-2 1/8"	489	45	BDV-CG-7 0813	3x 3 600	160

Options

- VRC system for cooling capacity modulation for hermetic compressors (V version). Includes electronic oil injection only for 3-compressor units.
- Digital Scroll system (S version).
- Oil separator (standard in tandem of two scroll compressors in low temperature, and trios in medium and low temperature).
- Anti-corrosion coil coating.
- Automatic emergency manoeuvre.
- Discharge check valve.
- Low voltage and phase change protection.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.
- Radial electronic EC fans (6 and 7 series).

[1] Conditions according to UNE-EN 13215: Ambient temp. 32 °C, average evaporating temp. of -10 °C (PT) and -35 °C (NT), SH=10 K, refrigerant R-134a and R-449A.

[2] Seasonal Performance Factor (SEPR) according to Commission Regulation (EU) 2015/1095.

[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

[4] Available static pressure condensation for air ducts.

400V 3N 50Hz | Positive temperature | Scroll compressor | R-134a / R-449A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature 0 °C	-5 °C	-10 °C	-15 °C	Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Centrifugal version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
R-134a	1x Scroll	MDV-SY-5 0451 [D]	6	ZB45	9.4	7.8	6.4	5.2	2.8	3.6	15	1x Ø 450	4 300	3/8"-1 1/8"	165	28	MDV-SCY-5 0451	3 600	120
		MDV-SY-5 0571 [D]	7.5	ZB57	11.6	9.7	8.0	6.4	4.0	3.0	18	1x Ø 450	4 300	3/8"-1 1/8"	169	32	MDV-SCY-5 0571	3 600	120
		MDV-SY-5 0761 [D]	10	ZB76	14.8	12.5	10.4	8.5	5.3	2.7	22	1x Ø 450	4 300	1/2"-1 3/8"	186	31	MDV-SCY-5 0761	3 600	120
		MDV-SY-6 0951	13	ZB95	20.0	16.5	13.5	10.9	6.1	3.4	31	2x Ø 450	2x 3 600	1/2"-1 3/8"	255	33	MDV-SCY-6 0951	2x 3 600	160
		MDV-SY-6 1141 [D]	15	ZB114	23.2	19.3	15.9	12.9	7.5	3.1	37	2x Ø 450	2x 3 600	1/2"-1 5/8"	256	35	MDV-SCY-6 1141	2x 3 600	160
	2x Scroll	MDV-SY-5 0422 [D]	6	2x ZB21	9.4	7.8	6.4	5.1	2.9	4.2	16	1x Ø 450	4 300	3/8"-1 1/8"	181	28	MDV-SCY-5 0422	3 600	120
		MDV-SY-5 0582 [D]	8	2x ZB29	11.5	9.6	7.9	6.4	4.0	3.8	22	1x Ø 450	4 300	3/8"-1 1/8"	182	28	MDV-SCY-5 0582	3 600	120
		MDV-SY-5 0762 [D]	10	2x ZB38	14.8	12.4	10.3	8.4	5.2	3.8	27	1x Ø 450	4 300	1/2"-1 3/8"	200	30	MDV-SCY-5 0762	3 600	120
		MDV-SY-6 0902 [D]	12	2x ZB45	18.9	15.6	12.8	10.3	5.4	4.6	29	2x Ø 450	2x 3 600	1/2"-1 3/8"	269	31	MDV-SCY-6 0902	2x 3 600	160
		MDV-SY-6 1142 [D]	15	2x ZB57	23.3	19.4	15.9	12.9	7.7	3.9	35	2x Ø 450	2x 3 600	1/2"-1 5/8"	278	35	MDV-SCY-6 1142	2x 3 600	160
		MDV-SY-7 1522 [D]	20	2x ZB76	31.8	26.3	21.5	17.4	9.8	4.3	48	3x Ø 450	3x 4 750	5/8"-2 1/8"	407	34	MDV-SCY-7 1522	3x 3 600	160
		MDV-SY-7 1902	26	2x ZB95	39.2	32.6	26.7	21.7	12.6	4.1	63	3x Ø 450	3x 4 750	5/8"-2 1/8"	415	35	MDV-SCY-7 1902	3x 3 600	160
		MDV-SY-7 2282 [D]	30	2x ZB114	45.3	37.9	31.3	25.4	15.5	3.9	74	3x Ø 450	3x 4 750	5/8"-2 1/8"	417	37	MDV-SCY-7 2282	3x 3 600	160
	3x Scroll	MDV-SY-6 0633 [D]	9	3x ZB21	14.4	11.8	9.7	7.8	4.2	4.5	25	2x Ø 450	2x 3 600	3/8"-1 3/8"	274	31	MDV-SCY-6 0633	2x 3 600	160
		MDV-SY-6 0873 [D]	12	3x ZB29	17.8	14.7	12.0	9.7	5.6	4.2	33	2x Ø 450	2x 3 600	1/2"-1 3/8"	276	31	MDV-SCY-6 0873	2x 3 600	160
		MDV-SY-6 1143 [D]	15	3x ZB38	23.2	19.3	15.9	12.9	7.2	4.2	42	2x Ø 450	2x 3 600	1/2"-1 5/8"	302	32	MDV-SCY-6 1143	2x 3 600	160
		MDV-SY-6 1353 [D]	18	3x ZB45	27.0	22.6	18.7	15.2	8.6	4.2	43	2x Ø 450	2x 3 600	1/2"-1 5/8"	309	32	MDV-SCY-6 1353	2x 3 600	160
		MDV-SY-6 1713 [D]	22.5	3x ZB57	32.8	27.6	23.0	18.8	12.2	3.5	51	2x Ø 450	2x 3 600	5/8"-2 1/8"	321	36	MDV-SCY-6 1713	2x 3 600	160
		MDV-SY-7 2283 [D]	30	3x ZB76	45.6	38.1	31.5	25.6	15.4	4.0	68	3x Ø 450	3x 4 750	5/8"-2 1/8"	469	35	MDV-SCY-7 2283	3x 3 600	160
		MDV-SY-7 2853	39	3x ZB95	55.2	46.4	38.7	31.7	19.9	3.7	92	3x Ø 450	3x 4 750	7/8"-2 1/8"	480	36	MDV-SCY-7 2853	3x 3 600	160
R-449A	2x Scroll	MDV-SG-5 0422 [D]	6	2x ZB21	14.8	12.6	10.6	8.8	5.2	3.7	16	1x Ø 450	4 300	1/2"-1 1/8"	181	28	MDV-SCG-5 0422	3 600	120
		MDV-SG-6 0582 [D]	8	2x ZB29	20.6	17.3	14.5	12.0	6.3	4.1	23	2x Ø 450	2x 3 600	5/8"-1 1/8"	247	31	MDV-SCG-6 0582	2x 3 600	160
		MDV-SG-6 0762 [D]	10	2x ZB38	25.9	21.9	18.3	15.2	8.3	4.0	29	2x Ø 450	2x 3 600	5/8"-1 3/8"	265	31	MDV-SCG-6 0762	2x 3 600	160
		MDV-SG-6 0902 [D]	12	2x ZB45	30.2	25.6	21.5	17.8	9.8	4.0	31	2x Ø 450	2x 4 750	5/8"-1 3/8"	269	31	MDV-SCG-6 0902	2x 3 600	160
		MDV-SG-6 1142 [D]	15	2x ZB57	37.9	32.4	27.5	23.0	12.4	4.0	37	2x Ø 450	2x 4 750	7/8"-1 5/8"	277	35	MDV-SCG-6 1142	2x 3 600	160
		MDV-SG-7 1142 [D]	15	2x ZB57	40.9	34.4	28.7	23.7	11.7	4.5	39	3x Ø 450	3x 4 750	7/8"-1 5/8"	372	35	MDV-SCG-7 1142	3x 3 600	160
		MDV-SG-7 1522 [D]	20	2x ZB76	52.4	44.6	37.7	31.4	16.8	4.1	48	3x Ø 450	3x 4 750	7/8"-2 1/8"	407	34	MDV-SCG-7 1522	3x 3 600	160
	3x Scroll	MDV-SG-6 0633 [D]	9	3x ZB21	23.3	19.6	16.4	13.6	7.3	4.0	25	2x Ø 450	2x 3 600	5/8"-1 1/8"	274	31	MDV-SCG-6 0633	2x 3 600	160
		MDV-SG-6 0873 [D]	12	3x ZB29	29.8	25.3	21.2	17.6	10.0	3.8	35	2x Ø 450	2x 4 750	5/8"-1 3/8"	276	31	MDV-SCG-6 0873	2x 3 600	160
		MDV-SG-6 1143 [D]	15	3x ZB38	36.8	31.4	26.6	22.3	13.2	3.7	43	2x Ø 450	2x 4 750	7/8"-1 5/8"	302	32	MDV-SCG-6 1143	2x 3 600	160
		MDV-SG-7 1353 [D]	18	3x ZB45	45.4	38.5	32.2	26.8	14.5	4.0	46	3x Ø 450	3x 4 750	7/8"-1 5/8"	404	33	MDV-SCG-7 1353	3x 3 600	160
		MDV-SG-7 1713 [D]	22.5	3x ZB57	57.1	48.8	39.9	34.6	18.4	4.1	55	3x Ø 450	3x 4 750	7/8"-2 1/8"	416	37	MDV-SCG-7 1713	3x 3 600	160

400V 3N 50Hz | Negative temperature | Scroll compressor | R-449A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature -20 °C	-25 °C	-30 °C	-35 °C	Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Centrifugal version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
R-449A	1x Scroll	BDV-SG-5 0131 [D]	4	ZF13KVE*	6.4	5.4	4.5	3.7	2.9	1.7	11	1x Ø 450	4 300	3/8"- 7/8"	167	29	BDV-SCG-5 0131	3 600	120
		BDV-SG-5 0181 [D]	6	ZF18KVE*	10.0	8.4	6.9	5.7	4.0	1.9	16	1x Ø 450	4 300	3/8"-1 1/8"	168	31	BDV-SCG-5 0181	3 600	120
		BDV-SG-6 0251 [D]	8	ZF25K5E*	12.5	10.5	8.7	7.1	4.6	2.1	19	2x Ø 450	2x 3 600	1/2"-1 3/8"	233	34	BDV-SCG-6 0251	2x 3 600	160
		BDV-SG-6 0341	10	ZF34K5E	16.8	14.1	11.7	9.6	6.2	2.0	28	2x Ø 450	2x 3 600	1/2"-1 3/8"	259	33	BDV-SCG-6 0341	2x 3 600	160
		BDV-SG-6 0411 [D]	13	ZF41K5E*	21.1	17.7	14.7	12.0	7.8	2.1	34	2x Ø 450	2x 4 750	1/2"-1 3/8"	259	33	BDV-SCG-6 0411	2x 3 600	160
		BDV-SG-6 0491	15	ZF49K5E	22.8	19.2	15.9	13.0	9.0	1.9	35	2x Ø 450	2x 4 750	1/2"-1 5/8"	263	35	BDV-SCG-6 0491	2x 3 600	160
	2x Scroll	BDV-SG-6 0262 [D]	8	2x ZF13KVE*	12.8	10.8	8.9	7.3	5.7	1.8	21	2x Ø 450	2x 3 600	1/2"-1 3/8"	274	32	BDV-SCG-6 0262	2x 3 600	160
		BDV-SG-6 0362 [D]	12	2x ZF18KVE*	19.8	16.7	13.8	11.3	7.9	2.0	32	2x Ø 450	2x 4 750	1/2"-1 3/8"	277	34	BDV-SCG-6 0362	2x 3 600	160
		BDV-SG-7 0502 [D]	16	2x ZF25K5E	24.8	20.8	17.2	14.2	9.2	2.0	38	3x Ø 450	3x 4 750	1/2"-1 5/8"	424	35	BDV-SCG-7 0502	3x 3 600	160
		BDV-SG-7 0682	20	2x ZF34K5E	33.5	28.2	23.4	19.0	12.8	2.1	57	3x Ø 450	3x 4 750	5/8"-2 1/8"	424	35	BDV-SCG-7 0682	3x 3 600	160
		BDV-SG-7 0822 [D]	26	2x ZF41K5E*	41.8	35.2	29.3	23.7	15.8	2.1	65	3x Ø 450	3x 4 750	5/8"-2 1/8"	424	35	BDV-SCG-7 0822	3x 3 600	160
		BDV-SG-7 0982	30	2x ZF49K5E	45.1	38.0	31.6	25.6	18.4	2.0	67	3x Ø 450	3x 4 750	5/8"-2 1/8"	431	38	BDV-SCG-7 0982	3x 3 600	160
	3x Scroll	BDV-SG-6 0393 [D]	12	3x ZF13KVE*	19.3	16.2	13.4	10.9	8.6	1.8	30	2x Ø 450	2x 4 750	1/2"-1 3/8"	315	33	BDV-SCG-6 0393	2x 3 600	160
		BDV-SG-6 0543 [D]	18	3x ZF18KVE*	29.9	25.1	20.8	17.0	12.2	1.9	46	2x Ø 450	2x 4 750	5/8"-2 1/8"	320	35	BDV-SCG-6 0543	2x 3 600	160
		BDV-SG-7 0753 [D]	24	3x ZF25K5E*	37.3	31.4	26.1	21.2	14.2	2.1	55	3x Ø 450	3x 4 750	5/8"-2 1/8"	415	38	BDV-SCG-7 0753	3x 3 600	160
		BDV-SG-7 1023	30	3x ZF34K5E	50.1	42.2	35.1	28.5	19.8	2.0	82	3x Ø 450	3x 4 750	7/8"-2 1/8"	493	37	BDV-SCG-7 1023	3x 3 600	160
		BDV-SG-7 1233 [D]	39	3x ZF41K5E*	62.4	52.6	43.8	35.6	24.7	2.0	94	3x Ø 450	3x 4 750	7/8"-2 1/8"	493	37	BDV-SCG-7 1233	3x 3 600	160

[1] Conditions according to UNE-EN 13215: Ambient temp. 32 °C, average evaporating temp. of -10 °C (PT) and -35 °C (NT), SH = 10 K, refrigerant R-134a and R-449A.

[2] Seasonal Performance Factor (SEPR) according to Commission Regulation (EU) 2015/1095.

[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

[4] Available static pressure condensation for air ducts.

[D] Available models with Digital compressor.

intarCUBE | Semihermetic compressor

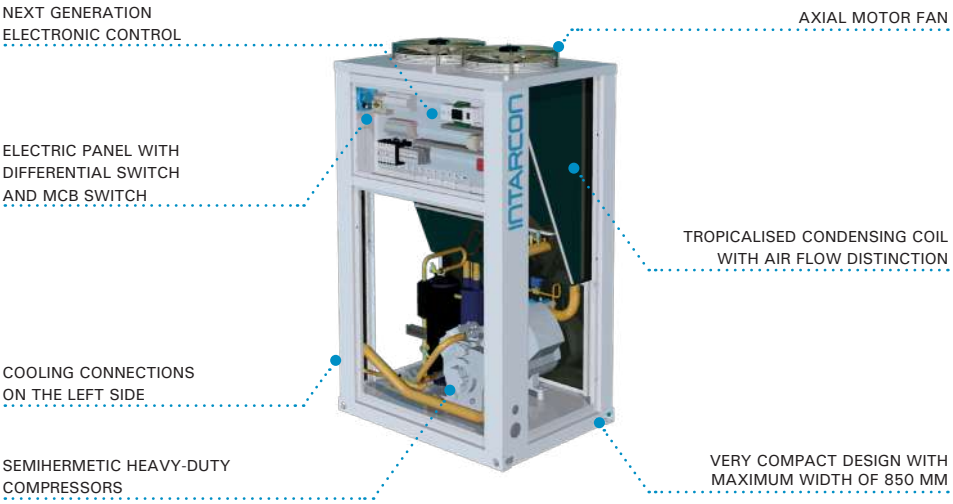
ErP ecodesign

- ❄ Axial fans for outdoor installation.
- ❄ Radial fans for indoor installation in technical rooms.
- ❄ Very compact design.

Footprint condensing units with semihermetic compressor, with axial or radial condensation of compact construction, for medium and low temperature, with electrical panel and electronic control.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages by request.
- Copeland Stream semihermetic compressor, with rotalock service valves, mounted on shock absorbers, crankcase heater and CoreSense™ electronic compressor diagnostic and protection module.
- Condenser coil made of copper pipes and aluminium fins.
- Variable speed fan condensation pressure control by voltage variation (6 and 7 series), and condensation pressure control by double speed (star-delta) of the axial motor fans (8 series).
- Cooling circuit equipped with oil separator, high and low pressure switches, ceramic filter, liquid receiver and sight glass.
- Electrical power and control panel, with differential protection and thermal and magneto-thermal protection of compressor/s and motor fan/s.
- Fan for cooling the electrical panel.



Highly reliable semihermetic compressors

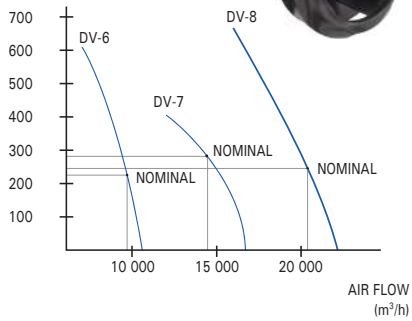
The new Copeland Stream range of semihermetic compressors provides best-in-class performance with both existing HFC refrigerants and new low-GWP refrigerants.

The range consists of four- and six-cylinder semihermetic compressors. They are available to work with variable frequency drives or with Digital modulation, to achieve continuous capacity modulation.

The CoreSense™ technology incorporated in the compressors helps to extend the life of the equipment. This technology provides advanced compressor protection, fault diagnosis, and energy consumption measurement.

Radial fan

intarCUBE cooling units are equipped with speed-modulated radial fans to allow hot condensing air to be extracted via air ducts.



400V 3N 50Hz | Positive temperature | Semihermetic compressor | R-134a / R-449A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature 0 °C	-5 °C	-10 °C	-15 °C	Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Radial version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
R-134a	1x Semihermetic	**MDV-TY-6 0131**	13	4MF-13X	29.4	24.2	19.4	15.2	8.2	3.4	36	2x Ø 450	2x 4 750	1/2"-1 5/8"	367	36	**MDV-TCY-6 0131**	2x 4 800	160
		MDV-TY-6 0151	15	4ML-15X	33.9	28.2	23.0	18.3	9.8	3.3	40	2x Ø 450	2x 4 750	5/8"-1 5/8"	370	37	**MDV-TCY-6 0151**	2x 4 800	160
		MDV-TY-6 0201	20	4MM-20X	36.5	30.4	25.0	20.0	10.9	3.2	44	2x Ø 450	2x 4 750	5/8"-2 1/8"	372	38	**MDV-TCY-6 0201**	2x 4 800	160
		MDV-TY-6 0251	25	4MU-25X	43.0	36.2	29.9	24.2	14.1	2.8	57	2x Ø 450	2x 4 750	5/8"-2 1/8"	376	40	**MDV-TCY-6 0251**	2x 4 800	160
		MDV-TY-7 0301	30	6MM-30X	55.6	46.2	37.8	30.1	16.6	3.1	67	3x Ø 450	3x 4 750	7/8" - 2 1/8"	500	40	**MDV-TCY-7 0301**	2x 7 125	250
		MDV-TY-7 0351	35	6MT-35X	60.7	50.8	41.8	33.6	18.8	3.0	74	3x Ø 450	3x 4 750	3/4" - 2 5/8"	506	41	**MDV-TCY-7 0351**	2x 7 125	250
		MDV-TY-8 0351	35	6MT-35X	64.8	53.7	43.8	34.7	19.5	3.2	72	2x Ø 630	2x 10 000	3/4" - 2 5/8"	555	41	**MDV-TCY-8 0351**	2x 10 000	230
		MDV-TY-8 0401	40	6MU-40X	69.9	57.9	47.1	37.3	21.7	3.0	81	2x Ø 630	2x 10 000	3/4" - 2 5/8"	559	43	**MDV-TCY-8 0401**	2x 10 000	230
R-449A	1x Semih.	**MDV-TG-7 0251**	25	4MH-25X	56.9	48.3	40.2	32.9	17.0	3.2	49	3x Ø 450	3x 4 750	7/8''-2 1/8''	472	37	**MDV-TCG-7 0251**	2x 7 125	250
		MDV-TG-7 0301	30	4MI-30X	61.4	52.4	43.9	36.2	18.9	3.1	54	3x Ø 450	3x 4 750	7/8''-2 1/8''	473	38	**MDV-TCG-7 0301**	2x 7 125	250
		MDV-TG-8 0301	30	4MI-30X	65.1	55.1	45.6	37.3	19.2	3.4	51	2x Ø 630	2x 10 000	1 1/8''-2 1/8''	522	39	**MDV-TCG-8 0301**	2x 10 000	230
		MDV-TG-8 0351	35	4MK-35X	77.5	66.0	55.1	45.3	25.0	3.0	66	2x Ø 630	2x 10 000	1 1/8"- 2 1/8"	536	40	**MDV-TCG-8 0351**	2x 10 000	230

400V 3N 50Hz | Negative temperature | Semihermetic compressor | R-449A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature -20 °C	-25 °C	-30 °C	-35 °C	Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Radial version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
R-449A	1x Semihermetic	**BDV-TG-6 0131**	13	4MF-13X	21.1	16.6	12.7	9.1	7.5	2.0	35	2x Ø 450	2x 4 750	5/8"- 1 5/8"	367	36	**BDV-TCG-6 0131**	2x 4 800	160
		BDV-TG-6 0151	15	4ML-15X	25.1	20.1	15.7	11.9	9.0	2.1	40	2x Ø 450	2x 4 750	5/8"- 1 5/8"	370	37	**BDV-TCG-6 0151**	2x 4 800	160
		BDV-TG-6 0201	20	4MM-20X	27.3	22.0	17.3	13.3	10.0	2.1	44	2x Ø 450	2x 4 750	5/8"- 2 1/8"	372	38	**BDV-TCG-6 0201**	2x 4 800	160
		BDV-TG-6 0251	25	4MU-25X	32.1	26.0	20.6	15.8	12.4	2.1	57	2x Ø 450	2x 4 750	5/8"- 2 1/8"	376	40	**BDV-TCG-6 0251**	2x 4 800	160
		BDV-TG-7 0301	30	6MM-30X	41.6	33.4	26.2	19.9	15.4	2.0	67	3x Ø 450	3x 4 750	5/8'' - 2 1/8''	500	40	**BDV-TCG-7 0301**	2x 7 125	250
		BDV-TG-7 0351	35	6MT-35X	45.4	36.6	28.8	22.0	17.0	2.0	74	3x Ø 450	3x 4 750	5/8'' - 2 1/8''	506	41	**BDV-TCG-7 0351**	2x 7 125	250
		BDV-TG-7 0401	40	6MU-40X	49.4	40.0	31.5	24.1	18.9	2.0	83	3x Ø 450	3x 4 750	7/8'' - 2 5/8''	510	42	**BDV-TCG-7 0401**	2x 7 125	250

Options

- Anti-corrosion coil coating.
- Automatic emergency manoeuvre.
- Discharge check valve (radial version).
- Low voltage and phase change protection.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.
- Radial electronic EC fans.
- Digital compressor control (B version).

[1] Conditions according to UNE-EN 13215: Ambient temp. 32 °C, average evaporating temp. of -10 °C (PT) and -35 °C (NT), SH = 10 K, refrigerant R-449A.

[2] Seasonal Performance Factor (SEPR) according to Commission Regulation (EU) 2015/1095.

[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

[4] Available static pressure condensation for air ducts.

intarCUBE INVERTER

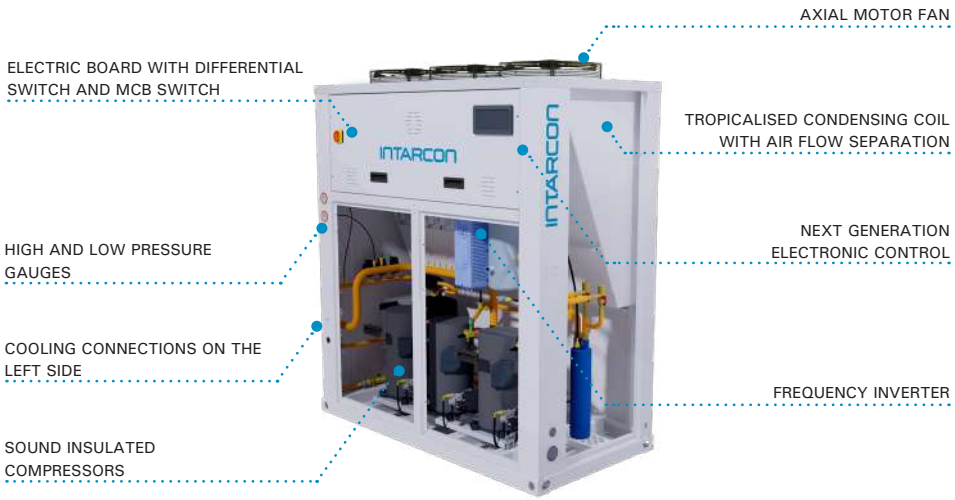
- Quiet and efficient operation.
- Low investment and maintenance costs.
- Quick installation in new or existing installations.
- F-Gas 2022 and Ecodesign compliant.

intarCUBE INVERTER range has been designed for medium capacity (15 to 40 kW) commercial centralised refrigeration applications with multiple evaporator units, such as supermarkets, industrial kitchens or small industries.

The new intarCUBE INVERTER units are positioned as an efficient and safe investment, at low cost, and within the medium-term EU F-Gas regulatory framework.

Features

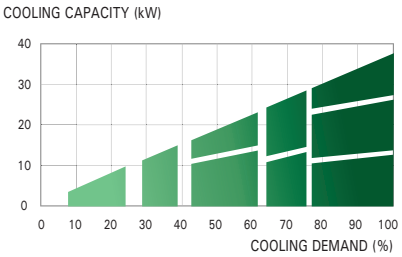
- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages by request.
- Scroll compressors with sound insulation on shock absorbers, internal clixon and crankcase heater, and oil level monitoring.
- Inverter drive of a compressor by means of frequency variation, with progressive capacity control of the total condensing unit from 15 % to 100 %.
- Condenser coil with copper pipes and aluminium fins, with air circuit separated from the compressor compartment.
- Axial or EC radial condensation fans, with independent air volumes.
- Refrigeration circuit equipped with high and low pressure switches, ceramic dryer filter, liquid receiver and sight glass.
- Full control panel integrated in the unit, with differential, MCB protection for compressors and fans.
- Certification of the condensing unit as a whole (Ecodesign, pressure equipment, etc.).

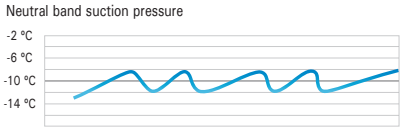


Inverter technology

Inverter control of the compressor allows progressive capacity modulation, without pulses or start-up cycles, to modulate the capacity of the condensing units from 15 % to 100 %.

The Inverter drive of one compressor is combined with the neutral band control of the other compressors to continuously adapt the cooling capacity to the demand.





Head pressure

Head pressure control by sequencing and varying fan speed, depending on load and ambient temperature, ensures that the condensing units operates at its optimum performance point.

400V 3N 50Hz | Positive temperature | Scroll INVERTER compressor | R-449A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature 0 °C	-5 °C	-10 °C	-15 °C	Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Radial version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
R-449A	2x Scroll	**MDV-YG-6 0532**	7	ZB38 + ZB15i	19.4	16.4	13.6	11.2	7.4	3.8	31	2x Ø 450	2x 4 750	5/8"-1 1/8"	285	39	**MDV-YCG-6 0532**	2x 4 800	160
		MDV-YG-6 0662	9	ZB45 + ZB21i	25.5	21.5	17.8	14.7	8.4	3.8	33	2x Ø 450	2x 4 750	5/8"-1 3/8"	300	39	**MDV-YCG-6 0662**	2x 4 800	160
		MDV-YG-6 0862	12	ZB57 + ZB29i	32.3	27.2	22.6	18.6	10.7	3.8	26	2x Ø 450	2x 4 750	5/8"-1 3/8"	300	46	**MDV-YCG-6 0862**	2x 4 800	160
	3x Scroll	**MDV-YG-7 1113**	15	2x ZB45 + ZB21i	41.1	34.5	28.6	23.6	13.3	4.0	33	3x Ø 450	3x 4 750	5/8"-1 3/8"	425	43	**MDV-YCG-7 1113**	2x 7 125	250
		MDV-YG-7 1433	20	2x ZB57 + ZB29i	51.9	43.6	36.2	29.8	16.7	4.1	42	3x Ø 450	3x 4 750	7/8"-1 5/8"	425	43	**MDV-YCG-7 1433**	2x 7 125	250
		MDV-YG-7 1523	21	2x ZB57 + ZB38i	55.8	46.7	38.9	32.0	17.9	4.1	45	3x Ø 450	3x 4 750	7/8"-1 5/8"	425	43	**MDV-YCG-7 1523**	2x 7 125	250

Options

- Anti-corrosion coating of condenser coil.
- Automatic emergency manoeuvre.
- Discharge check valve (radial version).
- Low voltage and phase change protection.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.

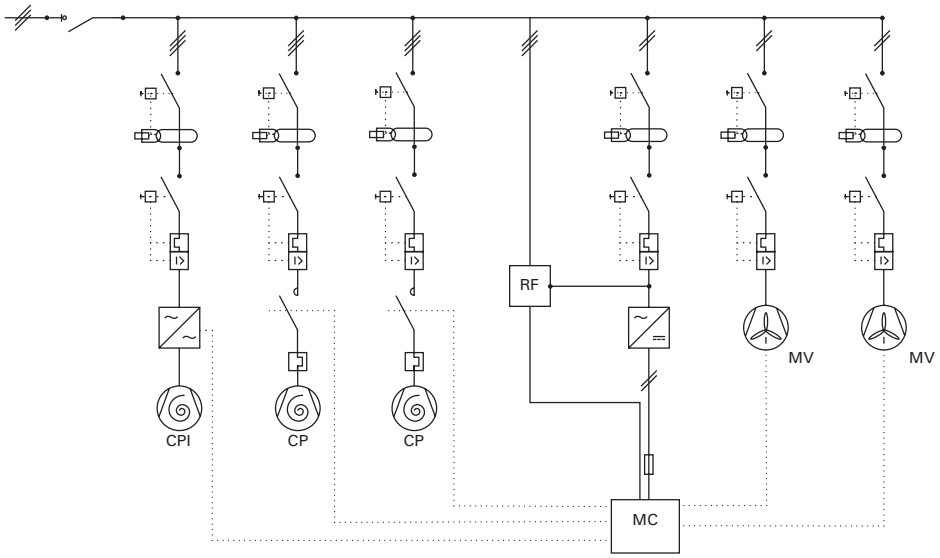
[1] Conditions according to UNE-EN 13215: Ambient temp. 32 °C, average evaporating temp. of -10 °C (PT) and -35 °C (NT), SH = 10 K, refrigerant R-449A.

[2] Seasonal Performance Factor (SEPR) according to Commission Regulation (EU) 2015/1095.

[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

[4] Available static pressure condensation for air ducts.

Wiring diagram



CP: COMPRESSOR
CPI: INVERTEER COMPRESSOR
MV: AXIAL MOTOR FAN
MC: ELECTRONIC MICROCONTROLLER
RF: PHASE CONTROL RELAY

intarCUBE *A2L approved*

ErP ecodesign

- A2L certified units.
- R-449A and R-454C refrigerants.
- Free of F-Gas tax (R-454C).
- F-Gas 2022 and Ecodesign compliant.

The intarCUBE A2L approved range of footprint condensing units has been designed for medium capacity centralised commercial refrigeration applications, equipped with semi-hermetic compressors and designed to operate with either R-449A refrigerant or low GWP (< 150) slightly flammable R-454C refrigerant.

The new intarCUBE A2L approved units are positioned as an efficient and safe, low-cost investment, becoming a very good alternative to comply with the medium-term regulatory framework on fluorinated gases in the European Union.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages by request.
- Semi-hermetic Bitzer Ecoline compressors, with rotalock service valves, mounted on dampers, with crankcase resistance.
- Compressor compartment with safety ventilation against the risk of explosive atmospheres.
- Condenser coil with copper pipes and aluminium fins, with air circuit separated from the compressor compartment.
- Axial or EC radial condensation fans, with independent air volumes.
- Refrigeration circuit equipped with high and low pressure switches, ceramic dryer filter, liquid receiver and sight glass.
- Individualised electronic oil injection system per compressor (on 2-compressor models)
- Full control panel integrated in the unit, with differential, MCB protection for compressors and fans.
- Certification of the condensing unit as a whole (Ecodesign, pressure equipment, etc.).

A2L approved

A2L approved units are factory certified for use with A2L class flammable refrigerants. They are equipped with approved components and are CE-certified in accordance with European directives:

- Pressure Equipment Directive 2014/68/EU (PED) according to category III.
- Directive 2014/34/EU (ATEX).

According to the European standard UNE EN 378, the use of A2L refrigerants in this equipment does not require an explosive atmosphere risk assessment study (ATEX) within the following charge limits:

Category A of premises (supermarket, etc.)	
- Split system (cold room in back room not sectorised)	11.4 kg
- Centralised system (wall displays and showcases in sales room)	56.7 kg
Category C of premises (factories, industrial kitchens)	
- Split system with high occupancy (e.g. workshop > 1 person per 10m2)	25 kg
- In general (cold stores)	without limit

Bitzer semi-hermetic compressors

The Bitzer Ecoline series combines high performance, quiet running, robust design and high reliability.

Centrifugal version for machine room

The intarCUBE centrifugal version is supplied with the necessary safety measures for installation in machine rooms with the corresponding risk assessment for explosive atmospheres in accordance with the UNE EN-60079 standard.

400V 3N 50Hz | Positive temperature | Semi-hermetic compressor | R-449A / R-454C

Compressor	Axial version Series / Model	Compressor HP	Compressor Model	R-449A Cooling capacity (kW) [1] Average evaporating temperature 0 °C	R-449A Cooling capacity (kW) [1] Average evaporating temperature -10 °C	R-449A Input power (kW)	R-454C Cooling capacity (kW) [1] Average evaporating temperature 0 °C	R-454C Cooling capacity (kW) [1] Average evaporating temperature -10 °C	R-454C Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Radial version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
1x Sh.	**MDV-TQ-6 0091**	9	4CES-9Y	27.5	18.7	7.8	24.2	16.4	6.7	3.5	25	2x Ø 450	2x 4 750	1/2"-1 3/8"	289	33	**MDV-TCQ-6 0091**	2x 4 800	160
1x Sh.	**MDV-TQ-6 0121**	12	4TES-12Y	32.4	22.1	9.3	28.8	19.4	7.9	3.3	30	2x Ø 450	2x 4 750	5/8"-1 3/8"	337	33	**MDV-TCQ-6 0121**	2x 4 800	160
2x Semihermético	**MDV-TQ-6 0062**	6	2x 2DES-3Y	22.8	15.2	6.2	20.0	13.3	5.3	4.1	22	2x Ø 450	2x 4 750	1/2"-1 1/8"	344	31	**MDV-TCQ-6 0062**	2x 4 800	160
2x Semihermético	**MDV-TQ-6 0102**	10	2x 4FES-5Y	29.8	20.4	8.6	26.4	17.8	7.4	4.2	26	2x Ø 450	2x 4 750	1/2"-1 3/8"	380	32	**MDV-TCQ-6 0102**	2x 4 800	160
2x Semihermético	**MDV-TQ-6 0142**	14	2x 4DES-7Y	39.4	27.6	12.6	35.5	24.3	10.9	3.9	38	2x Ø 450	2x 4 750	5/8"-1 5/8"	390	35	**MDV-TCQ-6 0142**	2x 4 800	160
2x Semihermético	**MDV-TQ-7 0182**	18	2x 4CES-9Y	52.2	36.3	15.8	46.6	31.7	13.7	4.1	47	3x Ø 450	3x 4 750	7/8"-1 5/8"	483	36	**MDV-TCQ-7 0182**	2x 7 125	250
2x Semihermético	**MDV-TQ-7 0242**	24	2x 4TES-12Y	60.5	42.3	18.7	54.6	37.2	16.1	4.0	57	3x Ø 450	3x 4 750	7/8"-2 1/8"	579	36	**MDV-TCQ-7 0242**	2x 7 125	250

400V 3N 50Hz | Negative temperature | Semi-hermetic compressor | R-449A / R-454C

Compressor	Axial version Series / Model	Compressor HP	Compressor Model	R-449A Cooling capacity (kW) [1] Average evaporating temperature -25 °C	R-449A Cooling capacity (kW) [1] Average evaporating temperature -35 °C	R-449A Input power (kW)	R-454C Cooling capacity (kW) [1] Average evaporating temperature -25 °C	R-454C Cooling capacity (kW) [1] Average evaporating temperature -35 °C	R-454C Input power (kW)	SEPR [2]	Max. current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [3]	Radial version Series / Model	Air flow (m³/h)	ASP (Pa) [4]
1x Sh.	**BDV-TQ-6 0181**	18	4HE-18Y	19.2	10.8	7.9	16.8	9.6	7.0	1.9	41	2x Ø 450	2x 4 750	1/2"-1 5/8"	381	38	**BDV-TCQ-6 0181**	2x 4 800	160
1x Sh.	**BDV-TQ-6 0281**	28	4FE-28Y	25.3	14.8	11.3	22.4	13.0	10.0	1.8	58	2x Ø 450	2x 4 750	1/2"-2 1/8"	397	43	**BDV-TCQ-6 0281**	2x 4 800	160
2x Semiherm.	**BDV-TQ-6 0182**	18	2x 4TES-9Y	20.0	10.9	8.2	17.5	9.6	7.2	2.0	45	2x Ø 450	2x 4 750	1/2"-1 5/8"	476	39	**BDV-TCQ-6 0182**	2x 4 800	160
2x Semiherm.	**BDV-TQ-6 0282**	28	2x 4NES-14Y	25.4	14.2	10.9	22.4	12.5	9.7	2.0	58	2x Ø 450	2x 4 750	1/2"-2 1/8"	482	42	**BDV-TCQ-6 0282**	2x 4 800	160
2x Semiherm.	**BDV-TQ-7 0362**	36	2x 4HE-18Y	36.7	21.0	15.7	32.1	18.5	14.0	2.1	80	3x Ø 450	3x 4 750	5/8"-2 1/8"	667	41	**BDV-TCQ-7 0362**	2x 7 125	250
2x Semiherm.	**BDV-TQ-7 0562**	56	2x 4FE-28Y	47.2	28.3	22.3	42.4	25.0	19.8	2.0	113	3x Ø 450	3x 4 750	5/8"-2 5/8"	699	46	**BDV-TCQ-7 0562**	2x 7 125	250

Options

- CRII capacity control system on compressor.
- Anti-corrosion coating of condenser coil.
- Automatic emergency manoeuvre.
- Low voltage and phase change protection.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.
- Safety system for monitoring the risk of explosive atmospheres, for installation in machinery rooms.

[1] Conditions according to UNE-EN 13215: Ambient temp. 32 °C, average evaporating temp. of -10 °C (PT) and -35 °C (NT), SH=10 K, refrigerant R-449A and R-454C.

[2] Seasonal Performance Factor (SEPR) according to Commission Regulation (EU) 2015/1095.

[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

[4] Available static pressure condensation for air ducts.

R-454C

The refrigerant R-454C is a very low global warming potential refrigerant (GWP < 150) and is exempt from the prohibitions of the F-Gas regulation.

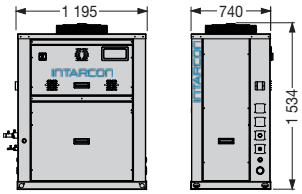
R-454C is a slightly flammable mixture of HFO and HFC refrigerants, which implies additional safety measures in equipment to manage the risk of formation of explosive atmospheres.

The working pressures and mass displacement of the compressor are somewhat lower than those of the R-449A refrigerant, so the cooling capacity developed is also 10-15% lower.

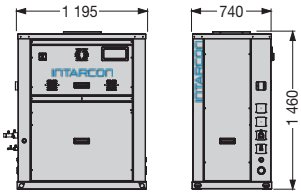
Features	R-449A	R-454C
Composition	HFC-HFO	HFO-HFC
Molecular weight	87.2	90.8
Relative density	3.1	3.2
Flammability limit	-	7,7%-15%
Boiling point [°C]	-46	-46
Slip [K]	6.1	7.8
PS (63°C) [bar] GWP (IPCC AR4)	30.2	26.8
GWP (IPCC AR4)	1398	146
Safety class	A1	A2L

Dimensions

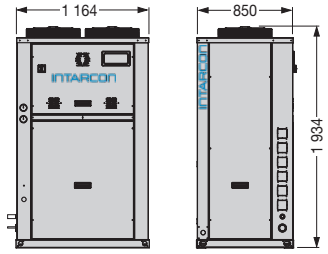
5 series - axial



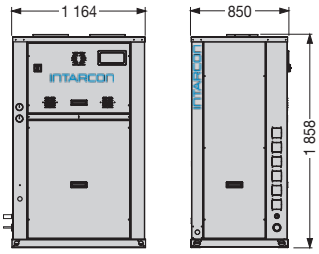
5 series - centrifugal



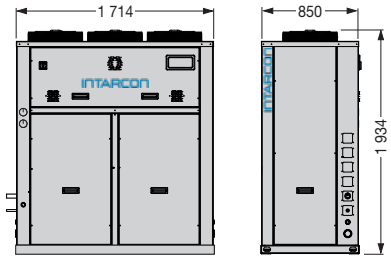
6 series - axial



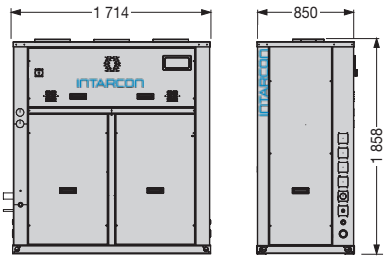
6 series - centrifugal or radial with vertical drive



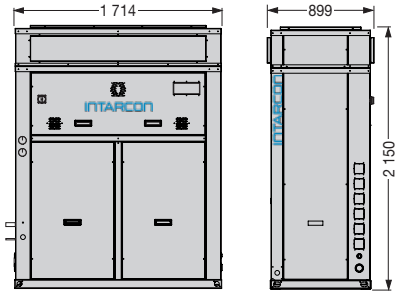
7 series - axial



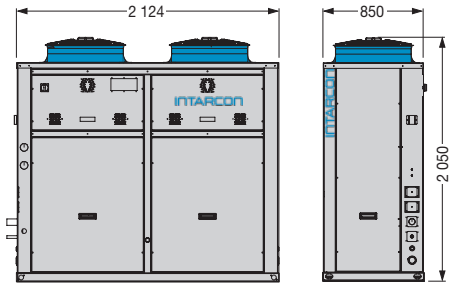
7 series - centrifugal



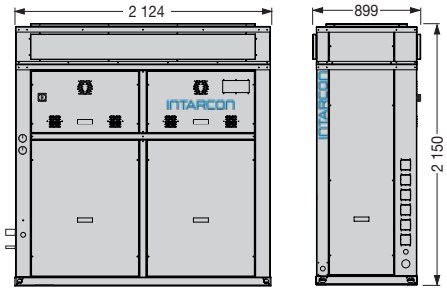
7 series - radial with vertical drive



8 series - axial



8 series - radial with vertical drive



Dimensions in mm.

Electronic control

XC control for mini refrigeration units: intarCUBE condensing units are equipped with an electronic controller:

- Capacity control by suction pressure.
- Compressor and fan management with proportional condensation control.
- Low and high pressure transducers.
- Safety control.
- Optional emergency manoeuvre by means of adjustable pressure switches with manual or automatic activation.
- Evaporator solenoid permit.

Optional

XM670K Control for cold room: intarCUBE units with one or two compressors can be equipped with joint control of evaporator and condensing unit.

- Capacity control by temperature, with management of up to 2 compressors or two power stages.
- Control of up to two independent defrosts for two evaporators in the same cold room.
- Proportional condensation control.
- Remote control.

intarWATT

Industrial condensing units with V-condenser

Complies with Ecodesign

Low refrigerant charge

Large cooling capacity

intarWatt | Industrial condensing units

- Low refrigerant charge.
- Large cooling capacity.
- Semihermetic compressors.
- Great service accessibility.

The intarWatt range consists of high-power air-cooled condensing unit for industrial applications. These equipments are characterised by a very compact construction designed for outdoor use, which integrates the semihermetic compressor set, air condensers with V-coil arrangement, and the control and power panel.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Semihermetic compressors Copeland Stream, mounted on shock absorbers and acoustically insulated with capacity modulation, rotalock service valves, crankcase heater and electronic CoreSense module protection and diagnostics.
- High-efficiency V condensing coils, made of copper pipes and aluminium fins, Ø 800 mm axial fan motors with double speed.
- Cooling circuits manufactured in annealed copper tube equipped with high and low pressure switches, service valves, safety valves, liquid receiver, filter and sight gauge.
- Oil separators and balance lines 1 and 2 compressor condensing units , oil accumulator with individual electronic fuel injection for each compressor in unit of 3 compressor.
- Electrical panel with overload and differential protection for compressor and fans.
- Electronic control with high and low pressure transducer, and suction temperature sensor, compressor discharge, liquid line, and ambient temperature; suction pressure control and condensing pressure control; management and recording of alarms; mountable remote digital display; and integration of CoreSense protections.
- Emergency manoeuvre by means of adjustable pressure switches, with manual or automatic activation in case of failure of the electronic controller.

Options

- One compressor with digital capacity control (B version).
- Microchannel aluminium coils.
- Variable speed electronic axial fan.
- Hot gas defrost.
- Anti-corrosion coil coating.
- Low voltage and phase change protection.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.
- Interior fairing of frigorific compartment.
- Suction separator.
- Suction filter.

Reduced refrigerant charge

intarWatt condensing unit benefit from a reduced refrigerant charge of 50 % compared to a traditional direct expansion system.

The multi-circuit configuration also makes it possible to split the refrigerant charge of the system, thus reducing the risk of leakage.

Highly reliable semihermetic compressors

The new range of Copeland Stream semihermetic compressors provide best-in-class performance with both existing HFC refrigerants and new low-GWP refrigerants.

The range consists of four- and six-cylinder semihermetic compressors. They are available to work with frequency inverters or with Digital modulation, to achieve continuous capacity modulation.

The CoreSense™ technology incorporated in the compressors helps to extend the life of the equipment. This technology provides advanced compressor protection, fault diagnosis, and energy consumption measurement.

Tropicalised condensing coil in V

intarWatt condensing units integrate the air condenser with coils in a V-arrangement, with a large exchange surface on a small floor plan, enabling efficient and reliable operation at high ambient temperatures.

intarWatt condensing units can integrate microchannel heat exchanger technology, achieving an even higher exchange capacity compared to tube and fin coils.

Electronic oil injection system

The 3 compressor condensing units are equipped with oil recovery, accumulation, injection and oil level control systems, which guarantee the correct lubrication of the compressors in installations with large refrigerant circuits, even when working at different pressures.

400V 3N 50Hz | Positive temperature | Semihermetic compressor | R-134a / R-449A

Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature 10 °C	5 °C	0 °C	-5 °C	-10 °C	-15 °C	-20 °C	Input power (kW)	Max. current (A)	Condenser Fan Ø (mm)	Condenser Flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [2]
R-134a	1x Semih.	MDW-TY-1 0301	30	6MM-30X	89.0	74.5	61.5	50.0	39.9	31.3	24.2	15.8	65	2x Ø 800	44 000	7/8"-2 1/8"	9 40	44
		MDW-TY-1 0351	35	6MT-35X	97.9	82.3	68.4	55.7	44.6	35.1	27.2	18.1	73	2x Ø 800	44 000	7/8"-2 1/8"	9 46	44
		MDW-TY-1 0401	40	6MU-40X	106.5	89.7	74.5	60.9	48.7	38.0	29.2	20.4	81	2x Ø 800	44 000	7/8"-2 5/8"	9 50	45
	2x Semihermetic	MDW-TY-1 0262	26	2x 4MF-13X	89.6	74.9	61.7	49.9	39.6	30.8	23.5	15.8	67	2x Ø 800	44 000	7/8"-2x 1 5/8"	1 079	43
		MDW-TY-1 0302	30	2x 4ML-15X	102.6	86.4	71.9	58.8	47.3	37.2	28.8	18.8	76	2x Ø 800	44 000	7/8"-2x 2 1/8"	1 085	44
		MDW-TY-1 0402	40	2x 4MM-20X	110.3	93.3	77.8	64.1	51.7	40.2	31.6	21.2	84	2x Ø 800	44 000	7/8"-2x 2 1/8"	1 089	44
		MDW-TY-1 0502	50	2x 4MU-25X	139.5	117.8	98.2	80.8	65.0	51.0	39.5	26.7	109	2x Ø 800	42 000	7/8"-2x 2 1/8"	1 122	46
		MDW-TY-1 0602	60	2x 6MM-30X	165.6	140.1	116.9	96.3	77.6	60.8	47.0	32.0	125	2x Ø 800	40 000	1 1/8"-2x 2 1/8"	1 205	45
		MDW-TY-1 0702	70	2x 6MT-35X	181.0	153.6	128.8	106.5	86.7	68.2	52.9	36.8	140	2x Ø 800	40 000	1 1/8"-2x 2 1/8"	1 217	46
		MDW-TY-1 0802	80	2x 6MU-40X	194.6	165.7	138.0	114.9	93.5	73.6	56.5	41.2	157	2x Ø 800	40 000	1 1/8"-2x 2 5/8"	1 225	47
	3x Semihermetic	MDW-TY-2 0453	45	3x 4ML-15X	162.0	135.5	111.4	90.1	72.2	56.8	44.0	27.4	117	4x Ø 800	88 000	1 1/8"-3x 2 1/8"	1 990	46
		MDW-TY-2 0603	60	3x 4MM-20X	175.3	147.0	121.4	98.8	79.0	62.3	48.3	30.6	128	4x Ø 800	88 000	1 1/8"-3x 2 1/8"	1 996	47
		MDW-TY-2 0753	75	3x 4MU-25X	211.5	178.5	148.6	121.9	98.1	77.0	59.7	40.5	167	4x Ø 800	88 000	1 1/8"-3x 2 1/8"	2 008	48
		MDW-TY-2 0903	90	3x 6MM-30X	258.3	217.2	180.6	147.4	117.8	92.6	71.5	47.6	190	4x Ø 800	84 000	1 1/8"-3x 2 1/8"	2 145	47
		MDW-TY-2 1053	105	3x 6MT-35X	283.1	239.2	199.5	164.3	132.2	103.9	80.5	54.3	213	4x Ø 800	84 000	1 3/8"-3x 2 1/8"	2 163	48
		MDW-TY-2 1203	120	3x 6MU-40X	306.5	259.2	216.5	178.1	143.4	112.1	86.1	61.7	238	4x Ø 800	84 000	1 3/8"-3x 2 5/8"	2 175	49
R-449A	1x Semihermetic	MDW-TG-1 0251	25	4MH-25X	88.5	75.0	62.7	51.7	42.2	33.9	26.9	16.4	47	2x Ø 800	44 000	7/8"-2 1/8"	912	43
		MDW-TG-1 0301	30	4MI-30X	95.9	81.6	68.6	56.9	46.4	37.5	29.9	18.3	52	2x Ø 800	44 000	7/8"-2 1/8"	913	43
		MDW-TG-1 0351	35	4MK-35X	114.8	98.2	83.2	69.5	57.0	46.0	36.6	24.2	67	2x Ø 800	44 000	1 1/8"-2 1/8"	927	44
		MDW-TG-1 0401	40	6MI-40X	141.3	120.6	101.9	84.9	69.3	55.9	44.4	28.0	77	2x Ø 800	42 000	1 1/8"-2 1/8"	969	47
		MDW-TG-1 0451	45	6MJ-45X	153.8	131.8	111.8	93.6	76.9	61.9	49.2	31.9	87	2x Ø 800	42 000	1 1/8"-2 5/8"	973	47
		MDW-TG-1 0501	50	6MK-50X	167.2	143.9	122.3	102.6	84.8	68.3	54.1	36.9	98	2x Ø 800	42 000	1 1/8"-2 5/8"	980	48
	2x Semihermetic	MDW-TG-1 0602	60	2x 4MI-30X	179.3	154.0	130.9	109.9	90.6	73.6	58.9	36.5	98	2x Ø 800	40 000	1 3/8"-2x 2 1/8"	1 151	44
		MDW-TG-1 0702	70	2x 4MK-35X	210.7	182.4	156.1	131.7	109.7	89.5	71.6	47.9	127	2x Ø 800	40 000	1 3/8"-2x 2 1/8"	1 179	45
		MDW-TG-2 0802	80	2x 6MI-40X	282.6	241.2	203.9	169.9	138.6	111.7	88.7	56.0	154	4x Ø 800	84 000	1 5/8"-2x 2 1/8"	1 938	50
		MDW-TG-2 0902	90	2x 6MJ-45X	307.6	263.7	223.5	187.1	153.7	123.9	98.4	63.8	174	4x Ø 800	84 000	1 5/8"-2x 2 5/8"	1 946	50
		MDW-TG-2 1002	100	2x 6MK-50X	334.4	287.8	244.6	205.3	169.5	136.5	108.2	73.8	197	4x Ø 800	84 000	1 5/8"-2x 2 5/8"	1 960	51
	3x Semihermetic	MDW-TG-2 0903	90	3x 4MI-30X	279.1	238.4	201.6	168.2	138.0	111.8	88.8	54.4	151	4x Ø 800	84 000	1 5/8"-3x 2 1/8"	2 064	47
		MDW-TG-2 1053	105	3x 4MK-35X	330.9	285.0	242.3	203.6	168.5	136.1	108.4	72.1	194	4x Ø 800	84 000	1 5/8"-3x 2 1/8"	2 106	47
		MDW-TG-2 1203	120	3x 6MI-40X	394.5	340.2	289.9	244.0	202.4	163.7	130.9	85.6	224	4x Ø 800	80 000	2 1/8"-3x 2 1/8"	2 207	51
		MDW-TG-2 1353	135	3x 6MJ-45X	425.9	368.9	315.8	266.7	222.1	181.3	144.8	97.1	255	4x Ø 800	80 000	2 1/8"-3x 2 1/8"	2 219	52
		MDW-TG-2 1503	150	3x 6MK-50X	--	398.8	342.6	290.2	242.2	198.6	158.1	110.6	289	4x Ø 800	80 000	2 1/8"-3x 2 5/8"	2 240	53

400V 3N 50Hz | Negative temperature | Semihermetic compressor | R-449A

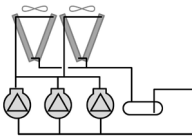
Refrigerant	Compressor	Axial version Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Average evaporating temperature -10 °C	-15 °C	-20 °C	-25 °C	-30 °C	-35 °C	Input power (kW)	Max. current (A)	Condenser Fan Ø (mm)	Condenser Flow (m³/h)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [2]
R-449A	2x Semihermetic	BDW-TG-1 0402	40	2x 4MM-20X	84,9	70,2	56,8	44,8	34,7	26,2	18,9	84	2x Ø 800	44 000	7/8"-2x 2 1/8"	1 089	44
		BDW-TG-1 0502	50	2x 4MU-25X	100,5	83,6	68,3	54,2	41,8	31,4	23,9	109	2x Ø 800	44 000	7/8"-2x 2 1/8"	1 097	46
		BDW-TG-1 0602	60	2x 6MM-30X	124,5	103,3	84,3	66,6	51,4	38,7	28,8	125	2x Ø 800	42 000	7/8"-2x 2 1/8"	1 180	45
		BDW-TG-1 0702	70	2x 6MT-35X	135,1	112,7	92,3	73,7	56,9	42,8	32,3	140	2x Ø 800	42 000	1 1/8"-2x 2 1/8"	1 192	46
		BDW-TG-1 0802	80	2x 6MU-40X	146,4	122,8	100,9	81,0	62,7	47,0	36,3	157	2x Ø 800	42 000	1 1/8"-2x 2 5/8"	1 200	47
	3x Semihermetic	BDW-TG-1 0603	60	3x 4MM-20X	123,3	102,4	83,6	66,2	51,3	38,9	28,0	122	2x Ø 800	42 000	1 1/8"-3x 2 1/8"	1 296	45
		BDW-TG-1 0753	75	3x 4MU-25X	144,3	120,9	99,3	79,8	61,7	46,4	35,6	161	2x Ø 800	42 000	1 1/8"-3x 2 1/8"	1 308	47
		BDW-TG-2 0903	90	3x 6MM-30X	188,0	155,8	126,9	100,3	77,3	58,2	43,8	190	4x Ø 800	88 000	1 1/8"-3x 2 1/8"	2 095	47
		BDW-TG-2 1053	105	3x 6MT-35X	204,2	170,1	139,1	110,8	85,6	64,5	48,9	213	4x Ø 800	88 000	1 1/8"-3x 2 1/8"	2 113	48
		BDW-TG-2 1203	120	3x 6MU-40X	221,5	185,6	152,2	122,0	94,5	71,0	54,9	239	4x Ø 800	88 000	1 1/8"-3x 2 5/8"	2 125	49

[1] Conditions according to UNE-EN 13215: Ambient temperature of 32 °C, average evaporating temperature of -10 °C (MT) and -35 °C (BT), SH = 10 K, refrigerant R-449A.

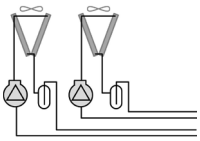
[2] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

Configurations

- **DX condensing units configuration:** Cooling circuit with parallel compressor rack and common condensation. With oil separators per compressor, common oil accumulator and level controls and electronic oil injectors for each compressor.

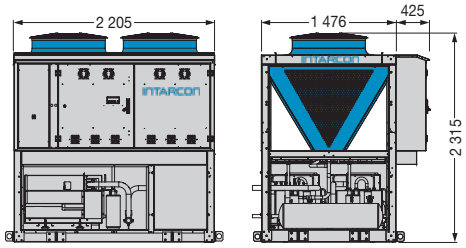


- **Multi-circuit configuration**: Multiple refrigeration circuits, each consisting of one or two compressors and a V-shaped air condenser module with two motor fans. Each circuit incorporates oil separators and balancing lines.

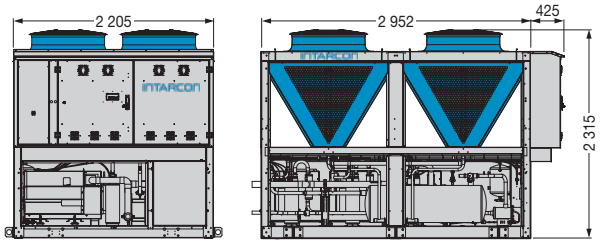


Dimensions

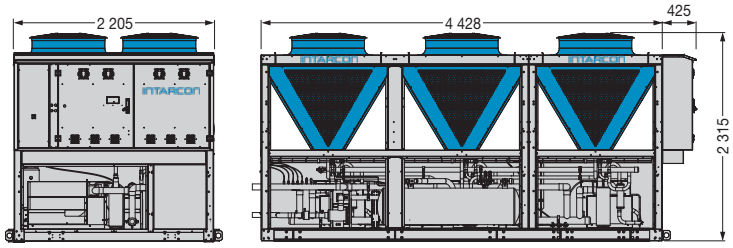
1 series



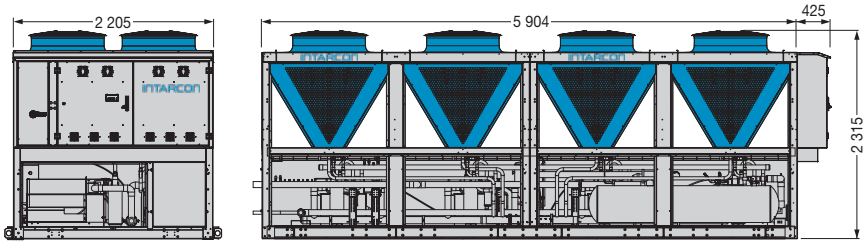
2 series



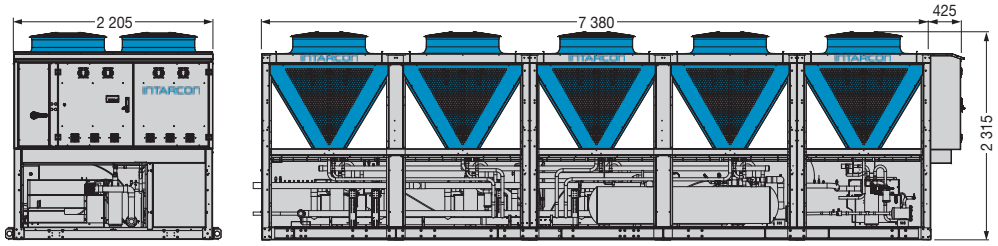
3 series



4 series



5 series



Dimensions in mm.

Sound insulation of compressors

intarWatt condensing units are equipped with acoustic compressor encapsulation, consisting of a metal enclosure with a sound-absorbing inner lining, with an acoustic attenuation of up to 9 dB(A).

Control panel

The intarWatt condensing units incorporate in the condensing unit the electrical power and electronic control panel for compressors and condenser, with the following characteristics:

- Main switch.
- Multifunction electronic controller for control of the control unit:
  - Up to 3 independent or linked aspirations.
  - Management of compressors and condensing unit fans.
  - Management of up to one compressor with proportional capacity control (digital semihermetic) per circuit.
  - Control of power stages (up to 3 stages per compressor), proportional or neutral band, depending on suction pressure.
  - Proportional control of condensing pressure by varying fan speed, with floating set point (in units with electronic EC fans).
  - High and low pressure transducers and suction, discharge and liquid line temperature probes.
  - Safety control and operation alarms for each compressor and fan alarms for each compressor and fan.
  - Abnormal operation warnings with alarm detail.
  - RS485 connection with MODBUS
  - RTU communication protocol.
  - Internal Web Server with which the following can be managed: current control status, alarms, operating data logging, parameter configuration and graphic representation of operating data.
- Digital control panel with display of parameters and operating status of the control unit.

Calculation method - Cooling connections

Suction line

The following table lists recommendations for each suction line based on the minimum and maximum cooling capacity.

Evap. temp. °C	Diameter line	GAS LINE EVAPORATOR SUCTION COMPRESSOR R-449A / R-452A / R-404A							GAS LINE EVAPORATOR SUCTION COMPRESSOR R-134a							
		Min. Cooling capacity (kW)	Cooling capacity max. (kW) for a temperature drop of saturation 1 K, as equivalent to length of line						Min. Cooling capacity (kW)	Cooling capacity max. (kW) for a temperature drop of saturation 1 K, as equivalent to length of line						
			10 m	15 m	20 m	25 m	30 m	40 m 50 m		10 m	15 m	20 m	25 m	30 m	40 m	50 m
High temperature Evaporation temperature: 0 °C	3/8"	0.2	1.3	1.0	0.9	0.8	0.7	0.6 0.5	0.2	0.8	0.7	0.6	0.5	0.4	0.4	0.3
	1/2"	0.5	3.2	2.6	2.2	1.9	1.7	1.5 1.3	0.5	2.0	1.6	1.4	1.2	1.1	0.9	0.8
	5/8"	0.9	6.1	4.9	4.2	3.7	3.3	2.8 2.5	0.9	3.8	3.1	2.6	2.3	2.1	1.8	1.6
	3/4"	1.4	10.1	8.1	6.9	6.1	5.5	4.7 4.2	1.5	6.4	5.1	4.4	3.9	3.5	3.0	2.6
	7/8"	2.0	15.8	13	11	9.6	8.7	7.4 6.5	2.2	10	8.0	6.9	6.1	5.5	4.7	4.1
	1"	3.0	22	19	16	14	13	11 9.6	3.2	15	12	10.0	8.9	8.0	6.9	6.1
	1 1/8"	4.0	28	25	22	19	17	15 13	3.7	17	16	14	12	11	9.4	8.3
	1 3/8"	7	41	41	36	32	29	25 22	6	24	24	23	21	19	16	14
	1 5/8"	10	58	58	58	52	47	40 35	9	35	35	35	33	30	25	23
	2 1/8"	21	103	103	103	103	99	84 75	19	61	61	61	61	63	54	48
	2 5/8"	35	155	155	155	155	155	145 129	32	95	95	95	95	95	93	82
	3 1/8"	55	225	225	225	225	225	225 209	50	135	135	135	135	135	135	133
	3 5/8"	80	300	300	300	300	300	300 300	75	180	180	180	180	180	180	180
	4 1/8"	115	400	400	400	400	400	400 400	100	230	230	230	230	230	230	230
Positive temperature Evaporation temperature: -10 °C	3/8"	0.2	0.9	0.7	0.6	0.5	0.5	0.4 0.4	0.2	0.55	0.44	0.37	0.33	0.30	0.25	0.22
	1/2"	0.4	2.2	1.8	1.5	1.3	1.2	1.0 0.9	0.4	1.3	1.1	0.9	0.8	0.7	0.6	0.5
	5/8"	0.8	4.2	3.4	2.9	2.5	2.3	2.0 1.7	0.7	2.6	2.1	1.8	1.5	1.4	1.2	1.1
	3/4"	1.2	7.0	5.6	4.8	4.3	3.9	3.3 2.9	1.2	4.3	3.4	2.9	2.6	2.3	2.0	1.8
	7/8"	1.7	11	8.8	7.5	6.7	6.0	5.1 4.5	1.8	6.7	5.4	4.6	4.1	3.7	3.1	2.8
	1"	2.5	15	13	11	9.7	8.8	7.5 6.7	2.6	9.9	7.9	6.7	6.0	5.4	4.6	4.1
	1 1/8"	3.5	19	18	15	13	12	10 9.1	3.0	11	10.8	9.2	8.1	7.4	6.3	5.5
	1 3/8"	5.5	28	28	25	22	20	17 15	5.0	16	17	16	14	12	11	9.4
	1 5/8"	9.0	40	40	40	36	33	28 25	7.5	23	24	25	22	20	17	15
	2 1/8"	18	70	70	70	70	69	59 52	15	41	42	43	44	42	36	32
	2 5/8"	30	105	105	105	105	105	101 90	25	62	63	64	65	66	62	55
	3 1/8"	50	155	155	155	155	155	155 146	40	90	91	92	93	94	95	89.7
	3 5/8"	65	200	200	200	200	200	200 200	60	120	121	122	123	124	125	126
	4 1/8"	90	265	265	265	265	265	265 265	75	150	151	152	153	154	155	156
Negative temperature Evaporation temperature: -30 °C	3/8"	0.2	0.4	0.3	0.3	0.2	0.2	0.2 0.2								
	1/2"	0.3	1.0	0.8	0.7	0.6	0.5	0.4 0.4								
	5/8"	0.5	1.8	1.5	1.3	1.1	1.0	0.9 0.8								
	3/4"	0.9	3.1	2.5	2.1	1.9	1.7	1.4 1.3								
	7/8"	1.2	4.8	3.9	3.3	2.9	2.6	2.2 2.0								
	1"	1.5	6.2	5.6	4.8	4.3	3.9	3.3 2.9								
	1 1/8"	2.0	8.1	7.7	6.6	5.8	5.3	4.5 4.0								
	1 3/8"	3.5	12	12	11	9.9	8.9	7.6 6.7								
	1 5/8"	5.5	17	17	17	16	14	12 11								
	2 1/8"	11	30	30	30	30	30	26 23								
	2 5/8"	18	46	46	46	46	46	45 39								
	3 1/8"	30	66	66	66	66	66	66 64								
	3 5/8"	45	90	90	90	90	90	90 90								
	4 1/8"	60	115	115	115	115	115	115 115								
Negative temperature - Vapour injection Evaporation temperature: -30 °C	3/8"	0.2	0.7	0.5	0.4	0.4	0.4	0.3 0.3								
	1/2"	0.5	1.6	1.3	1.1	1.0	0.9	0.7 0.7								
	5/8"	0.8	3.1	2.5	2.1	1.9	1.7	1.4 1.3								
	3/4"	1.3	5.1	4.1	3.5	3.1	2.8	2.4 2.1								
	7/8"	1.8	8.0	6.4	5.5	4.9	4.4	3.7 3.3								
	1"	2.5	11	9.4	8.0	7.1	6.4	5.5 4.9								
	1 1/8"	4.0	14	13	11	9.7	8.8	7.5 6.6								
	1 3/8"	6.0	20	20	19	16	15	13 11								
	1 5/8"	10	30	30	30	26	24	20 18								
	2 1/8"	18	50	50	50	50	50	43 38								
	2 5/8"	30.0	75	75	75	75	75	75 66								
	3 1/8"	50.0	110	110	110	110	110	110 110								
	3 5/8"	70.0	150	150	150	150	150	150 150								
	4 1/8"	100.0	200	200	200	200	200	200 200								

Suction pipe selection

Given a cooling capacity at a determined evaporating temperature, it is necessary to select the pipe that includes this capacity value between the minimum recommended value for the pipe and the maximum recommended value depending on the equivalent length of the pipe. To ensure the correct oil return in vertical uprights, it is recommended to select a pipe diameter where the cooling capacity is 50 % higher than the minimum recommended value.

It is recommended to avoid the selection of pipes with red data, which are associated with a cooling performance loss of more than 15 %.

It is recommended not to exceed the values indicated in blue, associated with a maximum gas velocity of 15 m/s.

Pipe insulation

In suction pipes, the following minimum insulation thickness is recommended in elastomeric foam in order to avoid surface condensation at an ambient temperature of 25 °C and 50 % RH:

- High and positive temperature: 10 mm
- Negative temperature (Evap. temp.: -30 °C): 20 mm

Calculation basis

This calculation method developed by INTARCON is provided for guidance only and it is the responsibility of the designer to carry out the appropriate checks. The calculation is only valid for the pre-dimensioning of refrigerant lines in copper piping for refrigeration use.

The maximum cooling capacities indicated for each case correspond to a pressure drop of 1 K at saturation temperature, with a gas velocity limit of 15 m/s (data in blue).

The minimum recommended cooling capacities for the suction lines correspond to a minimum velocity of 4 m/s at medium and high temperature, 5 m/s at low temperature.

All data ratings have been calculated based on a condensing temperature of 45 °C, evaporator superheat of 10 K and expansion valve subcooling of 0 K or 40 K for liquid subcooled at low temperature.

Fluid line

The following table indicates the recommended average cooling capacity for fluid piping and refrigerant charge according to the diameter.

Diameter copper line	Cooling capacity recommended in fluid line				Refrigerant load (g/m)	
	Without subcooling		With subcooling 0°C			
	R-404A / R-452A	R-134a / R-449A	R-404A	R-134a / R-449A	R-449A / R-452A	R-134a / R-449A
1/4"	2	3	4	5	20	25
3/8"	5	7	12	15	50	65
1/2"	10	14	24	30	100	120
5/8"	15	23	40	50	160	200
3/4"	23	35	55	80	240	300
7/8"	32	50	80	120	340	400
1"	43	63	105	150	450	500
1 1/8"	55	80	135	200	550	700
1 3/8"	80	120	200	300	850	1 000
1 5/8"	115	170	280	400	1 200	1 500
2 1/8"	200	300	500	700	2 100	2 500

Equivalent length

The equivalent length of a cooling line is usually between 1.2 and 5 times the actual length depending on the number of elbows and reductions. A rough estimate can be made using the values indicated in the following table:

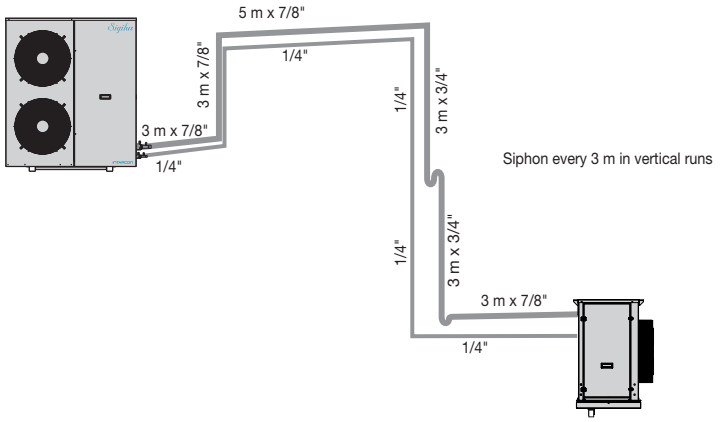
Diameter cooper line	Equivalent length (m)						
	Elbow to 90°	T-branch		Reduction	Siphon	Service angular valve	Gate service valve
		Straight flow	Derived flow				
3/8"	0.7	0.3	0.8	0.3	1.1	1.8	0.2
1/2"	0.8	0.3	0.9	0.4	1.2	2.0	0.2
5/8"	0.9	0.4	1.0	0.5	1.4	2.2	0.3
3/4"	1.0	0.4	1.2	0.6	1.6	2.5	0.3
7/8"	1.1	0.5	1.4	0.6	1.8	3.0	0.3
1"	1.2	0.5	1.5	0.7	2.0	3.5	0.3
1 1/8"	1.4	0.6	1.8	0.8	2.3	4.0	0.4
1 3/8"	1.7	0.7	2.2	1.0	2.7	5.0	0.5
1 5/8"	2.0	0.9	2.7	1.2	3.5	6.0	0.6
2 1/8"	2.5	1.1	3.3	1.5	4.3	8.0	0.7

Recommendations

In designing the layout of the refrigerant lines the following practices are recommended:

- Design the layout as straight as possible, with the minimum number of elbows, diversions and valves.
- Install a trap in vertical runs of suction line every 3 meters.
- Install the horizontal sections of the suction line in a downward slope towards the compressor.
- Evaporators refrigeration connections to the intake manifold must always be conducted through the top of the units.

Example - Refrigeration line calculation



Liquid piping selection

Given a given cooling capacity at a given evaporating temperature, the liquid pipe diameter must be selected according to the recommended cooling capacity with a range of ± 50 %.

It is recommended that liquid piping should not be insulated unless it is exposed to direct sunlight or in two-stage compression or vapour injection systems, where the piping should be insulated with a minimum 10 mm thick element to preserve liquid subcooling and prevent surface condensation.

The recommended cooling capacities for liquid lines correspond to flow rates of 1 m/s.

Calculation example

Dimensioning of refrigerant lines according to service to a 1500 W evaporator for low temperature cold rooms at -20 °C with a DT1 of 7 K.

The liquid line is dimensioned based on the recommended cooling capacity, 1/4" piping being admissible.

Initially we take an equivalent length of 1.5 times the actual length. This is: Leq = 1.5 x 20 m = 30 m.

Admitting in the suction line a pressure drop equivalent to 1K saturation temperature, if we go to the column for 30 m of low temperature pipe (-30 °C evaporation), finding that:

Pipe 3/4" pipe has a recommended maximum power of 1.7 kW, but with a loss of efficiency greater than 15 % (figures in red).

Pipe 7/8" has a minimum power of 1.5 kW, impeding the return of gas in vertical uprights.

7/8" diameter it is recommended for horizontal and descending sections, and 3/4" diameter only in vertical uprights.

We can see that the estimate of the equivalent length is correct:

Leq = 20 m + 3x 1.1 m (elbow) + 2x 1.6 m (oil trap) +2.5 m (check valve) = 29 m

HFC
Evaporating units

Easy installation

Control integrated

Design adapted

JB series – Slim-type evaporating units

- High efficiency coils.
- Built-in thermostatic expansion and solenoid valves.
- 100 % factory tested and adjusted units for the highest performance.
- Prewired electronic control (optional).

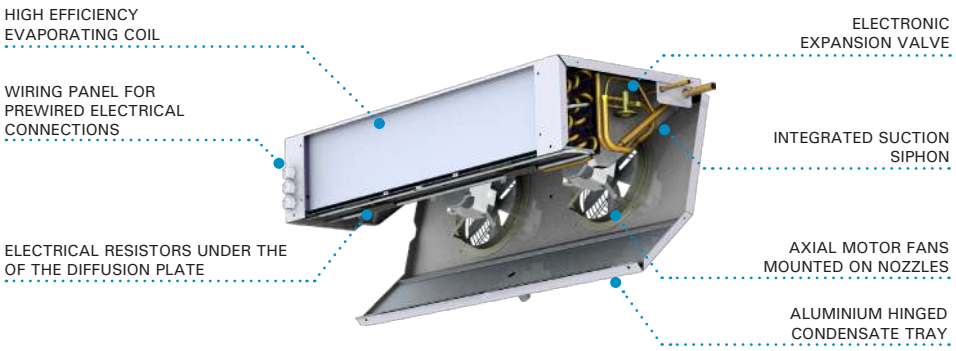
Slim-type commercial evaporating units, with inbuilt control valves, built in aluminium with polyester paint, for positive and negative temperature cold rooms.

Features

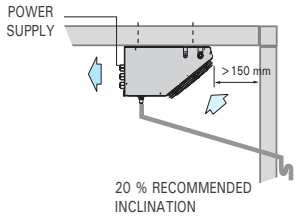
- 230V 50Hz power supply. Available in 60Hz. Other voltages on request.
- High-flow axial motor fans.
- Air-cooled high efficiency coils, built in copper pipes and aluminium fins, with 4, 5 and 6 mm fin spacing.
- Built-in solenoid valve in liquid line and built-in adjustable thermostatic expansion valve.
- Ready-to-solder cooling connections, with built-in suction trap.
- Flexible drain pipe heater (only for negative temperature models).
- Air defrost.
- Aluminium hinged condensate tray.

Options

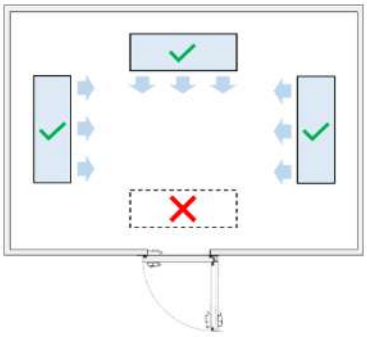
- Electrical heater defrost.
- Electronic expansion valve.
- Electronic controller with relays for fan, solenoid valve coil and electrical heaters, and temperature probes, with 5 m long electrical connection wires and 3 m long power supply wires.
- Electronic fans.
- Anti-corrosion coil coating.



Installation diagram



- Place the unit at the end of the cold room, and avoid placing it above the door. It is preferable to place the unit so the air flows lengthwise along the cold room and crosswise to the entrance door.



Electronic control (optional)

Evaporator units are combined with a compact microcontroller that integrates all control and monitoring elements without the need for an electrical panel:

- 3 control relays for: liquid solenoid valve, motor fan and defrost (16A).
- Thermostatic temperature probe and defrost probe.
- Configurable digital input.

230V 50Hz | High temperature | Positive temperature | R-134a

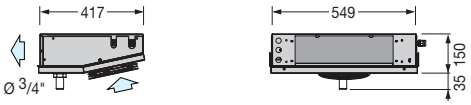
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m²)	Vol. (litres)	Fans Air flow (m³/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-134a	High	AJB-NY-1 120	1 630	1 110			4	5.2	1.0	475	1x Ø 200	70	0.3	4	1x 450	3.9	3/16"-1/2"	12
		AJB-NY-2 220	3 080	2 100			4	9.3	1.6	950	2x Ø 200	140	0.5	4	1x 700	6.1	1/4"-5/8"	18
		AJB-NY-3 325	5 130	3 500			4	17.5	2.9	1 575	3x Ø 254	210	1.4	6	2x 800	10.0	1/4"-7/8"	33
		AJB-NY-4 430	9 040	6 160			4	27.0	4.7	2 800	4x Ø 300	472	3.2	8	3x 1 000	13.0	3/8"-7/8"	41
	Positive	MJB-NY-0 117	900	610			5	2.0	0.6	300	1x Ø 172	62	0.3	3	1x 250	2.2	3/16"-3/8"	11
		MJB-NY-1 120	1 670	1 140			6	3.5	1.0	550	1x Ø 200	70	0.3	4	1x 450	3.9	3/16"-1/2"	12
		MJB-NY-2 220	2 780	1 890			6	6.3	1.6	1 050	2x Ø 200	140	0.5	4	1x 700	6.1	1/4"-5/8"	18
		MJB-NY-3 325	4 800	3 270			6	11.8	2.9	1 725	3x Ø 254	210	1.4	6	2x 800	10.0	1/4"-7/8"	33
		MJB-NY-4 430	8 150	5 560			6	18.1	4.7	3 100	4x Ø 300	480	3.5	8	3x 1 000	13.0	3/8"-7/8"	41

230V 50Hz | High temperature | Positive temperature | Negative temperature | R-449A

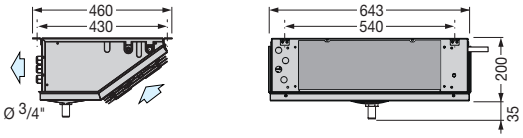
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m²)	Vol. (litres)	Fans Air flow (m³/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-449A	High	AJB-NG-1 120	1 875	1 280			4	5.2	1.0	475	1x Ø 200	70	0.3	4	1x 450	2.0	1/4"-1/2"	12
		AJB-NG-2 220	3 485	2 370			4	9.3	1.6	950	2x Ø 200	140	0.5	4	1x 700	3.0	3/8"-5/8"	18
		AJB-NG-3 325	5 910	4 030			4	17.5	2.9	1 575	3x Ø 254	210	1.4	6	2x 800	7.0	3/8"-7/8"	33
		AJB-NG-4 430	10 310	7 030			4	27.0	4.7	2 800	4x Ø 300	472	3.2	8	3x 1 000	13.0	1/2"-7/8"	41
	Positive / Negative	MJB-NG-0 117	970	660			5	2.0	0.6	300	1x Ø 172	62	0.3	3	1x 250	1.1	1/4"-1/2"	11
		BJB-NG-0 117			500	410												
		MJB-NG-1 120	1 770	1 210			6	3.5	1.0	550	1x Ø 200	70	0.3	4	1x 450	2.0	1/4"-1/2"	12
		BJB-NG-1 120			920	750												
		MJB-NG-2 220	2 940	2 000			6	6.3	1.6	1 050	2x Ø 200	140	0.5	4	1x 700	3.0	3/8"-5/8"	18
		BJB-NG-2 220			1 500	1 220												
		MJB-NG-3 325	5 020	3 420			6	11.8	2.9	1 725	3x Ø 254	210	1.4	6	2x 800	7.0	3/8"-7/8"	33
		BJB-NG-3 325			2 590	2 110												
		MJB-NG-4 430	8 720	5 940			6	18.1	4.7	3 100	4x Ø 300	480	3.5	8	3x 1 000	13.0	1/2"-7/8"	41
		BJB-NG-4 430			4 420	3 600												

Dimensions

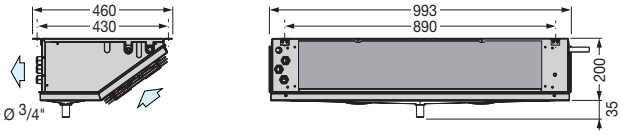
0 serie



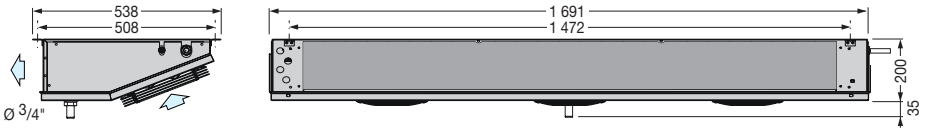
1 series



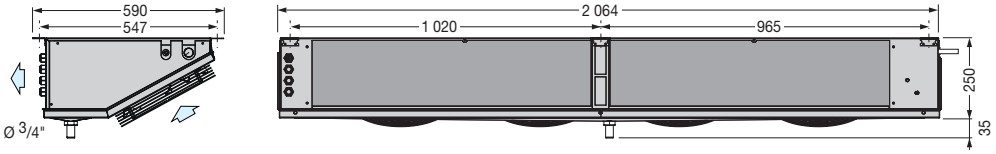
2 series



3 series



4 series



Dimensions in mm.

[1] Cooling capacity at room temperature and relative humidity, calculated from dry cooling capacity according to EN 328 standard, applying the following empirical factors:

Conditions	Reference	Rate
10 °C 85 % RH	EN 328 SC1	1.35
0 °C 85 % RH	EN 328 SC2	1.15
-18 °C 95 % RH	EN 328 SC3	1.05
-25 °C 95 % RH	EN 328 SC4	1.00

To take into account the slip in R-449A, the average evaporating temperature has been considered.

JD series – Double-flow evaporating units

- High-efficiency batteries.
- Expansion and solenoid valves.
- 100 % factory tested and adjusted units for the highest performance.
- Prewired electronic control (optional).

Double-flow evaporating units, in a low-profile design, with built-in control valves and built-in aluminium with polyester paint.

Features

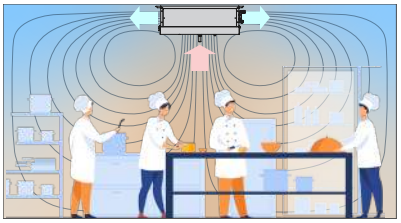
- 230V 50Hz power supply. Available in 60Hz. Other voltages on request.
- High efficiency coils, in copper pipes and aluminium fins, with 4 or 6 mm fin spacing.
- Built-in solenoid valve in liquid line and built-in adjustable thermostatic expansion valve.
- Ready-to-solder cooling connections, with built-in suction trap.
- Air defrost.

Options

- Electrical heater defrost.
- Electronic expansion valve.
- Electronic controller with fan control relays, solenoid coil, resistors, cold room and defrost temperature probes, with 5 m of electrical interconnections and 3 m supply cable.
- EC fans.
- Anti-corrosion coil coating.
- Built-in condensate pump.
- G3 filters on fans.
- Humidification / dehumidification / heating kit.

Maximum comfort in the workplace

The configuration of the motor fans in the evaporator, together with the double air supply through the coils, creates a smooth laminar air flow in the cold room with a reduced level of turbulence.



Electronic control optional (JD 1 and 2)

JD 1 and 2 evaporator units can be controlled by a compact microcontroller that integrates all the command and control elements without the need for an electrical panel:

- 3 control relays for: liquid solenoid valve, motor fan and defrost (16A).
- Thermostatic temperature probe and defrost probe.
- Configurable digital input.

Electronic control optional (JD 3, 4 and 5)

JD 3, 4 and 5 evaporator units can be combined with an advanced multi-function control, consisting of an electronic board integrated in the electrical cabinet and digital control unit.

230V 50Hz | High temperature - quasi-static | R-134a

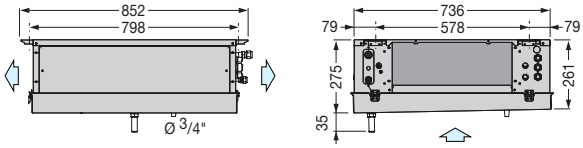
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	Coil Fin spacing (mm)	Area (m^2)	Vol. (litres)	Fans Air flow (m^3/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [2]
R-134a	High	AJD-NY-1 136	3 620	2 470	4	10.4	2.4	1 100	1x Ø 360	85	0.4	2x 4	2x 450	3.9	1/4"-5/8"	30	33
		AJD-NY-2 236	5 930	4 040	4	18.5	3.8	1 800	2x Ø 360	170	0.8	2x 4	2x 700	6.1	3/8"-7/8"	55	36
		AJD-NY-3 336	10 630	7 250	4	34.8	6.9	3 150	3x Ø 360	255	1.1	2x 4	6x 800*	6.9	3/8"-1 1/8"	68	38
		AJD-NY-4 245	14 190	9 670	4	53.7	11.0	4 000	2x Ø 450	290	1.3	2x 6	6x 1 000*	8.7	1/2"-1 3/8"	85	42
		AJD-NY-5 345	18 310	12 480	4	53.7	11.0	5 700	3x Ø 450	435	2.0	2x 6	6x 1 000*	8.7	1/2"-1 3/8"	94	44
	Quasi-static	AJD-UY-1 136	2 130	1 450	6	7.0	2.4	600	1x Ø 360	85	0.4	-	2x 450	3.9	1/4"-5/8"	30	20
		AJD-UY-2 136	3 320	2 260	6	12.5	3.8	1 000	1x Ø 360	85	0.4	-	2x 700	6.1	3/8"-7/8"	55	23
		AJD-UY-3 236	6 030	4 110	6	23.4	6.9	1 800	2x Ø 360	170	0.8	-	6x 800*	6.9	3/8"-1 1/8"	68	26
		AJD-UY-4 245	9 680	6 600	6	36.1	11.0	2 900	2x Ø 450	290	1.3	-	6x 1 000*	8.7	1/2"-1 3/8"	85	31

230V 50Hz | High temperature - quasi-static | R-449A

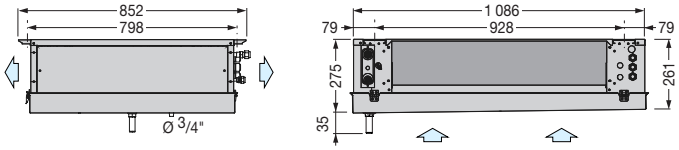
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	Coil Fin spacing (mm)	Area (m^2)	Vol. (litres)	Fans Air flow (m^3/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) [2]
R-449A	High	AJD-NG-1 136	3 890	2 650	4	10.4	2.4	1 100	1x Ø 360	85	0.4	2x 4	2x 450	3.9	1/4"-1/2"	30	33
		AJD-NG-2 236	6 410	4 370	4	18.5	3.8	1 800	2x Ø 360	170	0.8	2x 4	2x 700	6.1	3/8"-5/8"	55	36
		AJD-NG-3 336	11 430	7 790	4	34.8	6.9	3 150	3x Ø 360	255	1.1	2x 4	6x 800*	6.9	1/2"-7/8"	68	38
		AJD-NG-4 245	15 490	10 560	4	53.7	11.0	4 000	2x Ø 450	290	1.3	2x 6	6x 1 000*	8.7	5/8"-1 1/8"	85	42
		AJD-NG-5 345	19 990	13 620	4	53.7	11.0	5 700	3x Ø 450	435	2.0	2x 6	6x 1 000*	8.7	5/8"-1 1/8"	94	44
	Quasi-static	AJD-UG-1 136	2 290	1 560	6	7.00	2.4	600	1x Ø 360	85	0.4	-	2x 450	3.9	1/4"-1/2"	30	20
		AJD-UG-2 136	3 520	2 400	6	12.5	3.8	1 000	1x Ø 360	85	0.4	-	2x 700	6.1	3/8"-5/8"	55	23
		AJD-UG-3 236	6 370	4 340	6	23.4	6.9	1 800	2x Ø 360	170	0.8	-	6x 800*	6.9	1/2"-7/8"	68	26
		AJD-UG-4 245	10 320	7 030	6	36.1	11.0	2 900	2x Ø 450	290	1.3	-	6x 1 000*	8.7	1/2"-7/8"	85	31

Dimensions

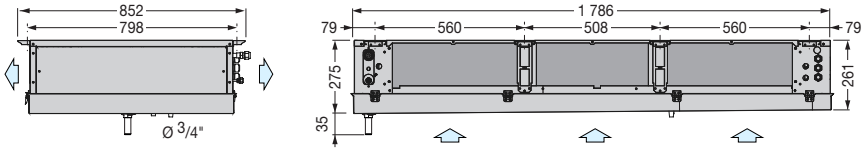
1 series



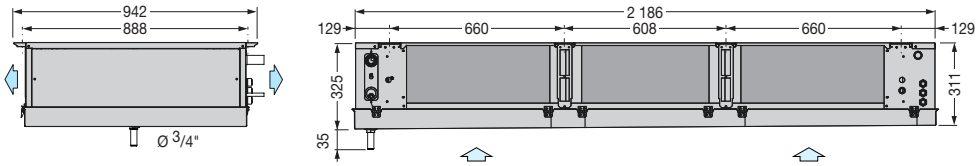
2 series



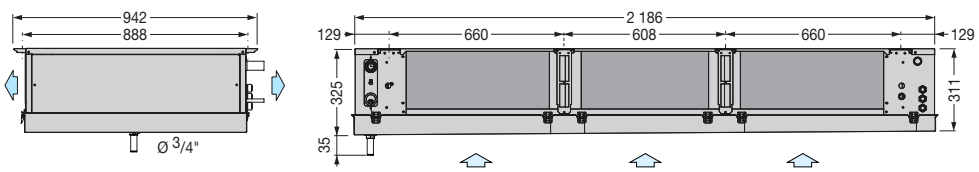
3 series



4 series



5 series



Dimensions in mm.

[1] Cooling capacity at room temperature and relative humidity, calculated from dry cooling capacity according to EN 328 standard, applying the following empirical factors:

Conditions	Reference	Rate
10 °C 85 % RH	EN 328 SC1	1.35
0 °C 85 % RH	EN 328 SC2	1.15

To take into account the slip in R-449A, the average evaporating temperature has been considered.

[2] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

*Electrical heater defrost (as an option)

AJD series are also available featuring electrical heater defrost as an option, for operation at cold room temperature between -5 °C and 5 °C.

AJD models of series 3 to 5, with electrical heater defrost, unlike the others models require 400V 3N power supply.

KD series – Industrial double-flow evaporating units

- High-efficiency batteries.
- Expansion and solenoid valves.
- 100 % factory tested and adjusted units for the highest performance.
- Electronic control (optional).

Industrial double-flow evaporating units, in a low-profile design, with built-in control valves, built-in galvanised steel shell and steel bodywork with polyester paint.

Features

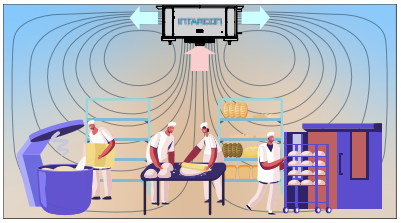
- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages on request.
- Double high efficiency coils, in copper pipes and aluminium fins, with 4 or 6 mm fin spacing.
- Built-in solenoid valve in liquid line and built-in adjustable thermostatic expansion valve.
- Double stainless steel draining pan and insulation for negative temperature.
- Air defrost.
- Low-speed and low-noise axial motor fans.
- Ready-to-solder refrigeration connections, with oil suction trap.

Options

- Electric defrosting by means of heating elements.
- Electronic expansion valve.
- Control and power panel with electronic controller and digital display, with differential magneto-thermal protection of heaters and fans, 6 control relays, cold room and defrosting temperature probes, and operating LEDS.
- G3 filters on fans.
- Humidification / dehumidification / heating kit.
- Anti-corrosion battery coating.

Maximum comfort in industrial workrooms

The configuration of the motor fans in the industrial double flow evaporator, together with the double air supply through the coils, creates a smooth laminar air flow in the cold room with a reduced level of turbulence.



Electric control panel (optional)

All units can be combined with an advanced multi-function controller, consisting of an electronic board integrated in the control panel and digital control unit.

400V 3N 50Hz | High temperature | Positive temperature | R-134a

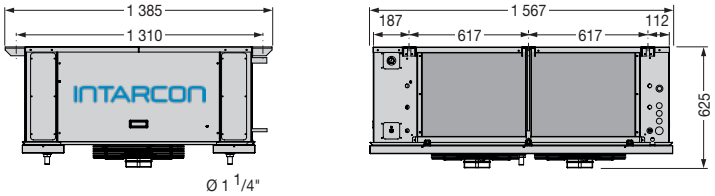
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m^2)	Vol. (litres)	Fans Air flow (m^3/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-134a	High	**AKD-NY-1 245***	21 400	14 580			4	63.4	13.6	6 500	2x Ø 450	300	1.8	2x 12	12x 800	13.9	1/2"-1 3/8"	170
		AKD-NY-2 250	29 180	19 890			4	88.0	19.0	9 500	2x Ø 500	500	1.4	2x 12	18x 800	20.8	5/8"-1 5/8"	210
		AKD-NY-3 350	40 200	27 400			4	117.6	25.4	13 500	3x Ø 500	760	2.1	2x 12	18x 1 000*	26.0	7/8"-2 1/8"	260
	Positive	**MKD-NY-1 245***	19 370	13 200			6	42.8	13.6	7 200	2x Ø 450	295	1.8	2x 12	12x 800	13.9	1/2"-1 3/8"	166
		MKD-NY-2 250	25 360	17 280			6	59.4	19.0	10 000	2x Ø 500	485	1.4	2x 12	18x 800	20.8	5/8"-1 5/8"	204
		MKD-NY-3 350	35 170	23 970			6	79.2	25.4	14 500	3x Ø 500	740	2.1	2x 12	18x 1 000*	26.0	7/8"-2 1/8"	252

400V 3N 50Hz | High temperature | Positive temperature | Negative temperature | R-449A

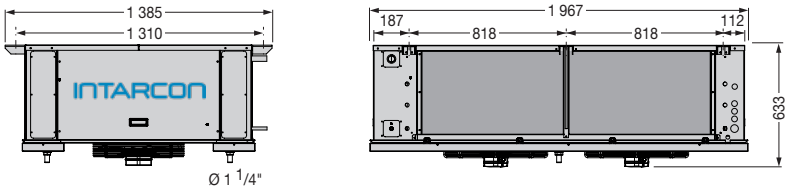
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m^2)	Vol. (litres)	Fans Air flow (m^3/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-449A	High	**AKD-NG-1 245***	23 910	16 290			4	63.4	13.6	6 500	2x Ø 450	300	1.8	2x 12	12x 800	13.9	5/8"-1 1/8"	170
		AKD-NG-2 250	33 810	23 040			4	88.0	19.0	9 500	2x Ø 500	500	1.4	2x 12	18x 800	20.8	5/8"-1 3/8"	210
		AKD-NG-3 350	46 940	31 990			4	117.6	25.4	13 500	3x Ø 500	760	2.1	2x 12	18x 1 000*	26.0	7/8"-1 5/8"	260
	Positive / Negative	**MKD-NG-1 245***	21 250	14 480			6	42.8	13.6	7 200	2x Ø 450	295	1.8	2x 12	12x 800	13.9	5/8"-1 1/8"	166
		BKD-NG-1 245*			10 690	8 720												
		MKD-NG-2 250	29 020	19 770			6	59.4	19.0	10 000	2x Ø 500	485	1.4	2x 12	18x 800	20.8	5/8"-1 3/8"	204
		BKD-NG-2 250			14 240	11 620												
		MKD-NG-3 350	40 720	27 750			6	79.2	25.4	14 500	3x Ø 500	740	2.1	2x 12	18x 1 000*	26.0	7/8"-1 5/8"	252
		BKD-NG-3 350			19 750	16 130												

Dimensions

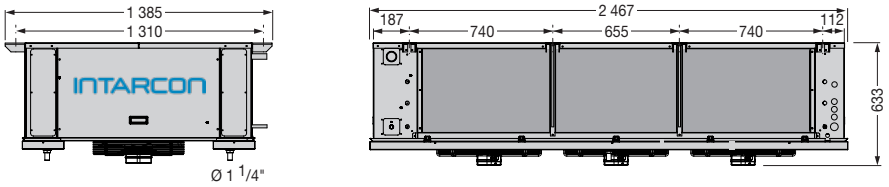
1 series



2 series



3 series



Dimensions in mm.

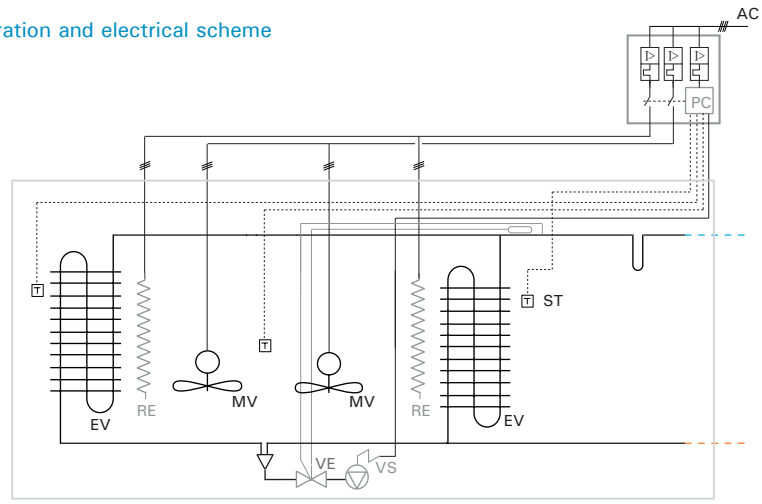
[1] Cooling capacity at room temperature and relative humidity, calculated from dry cooling capacity according to EN 328 standard, applying the following empirical factors:

Conditions	Reference	Rate
10 °C 85 % RH	EN 328 SC1	1.35
0 °C 85 % RH	EN 328 SC2	1.15
-18 °C 95 % RH	EN 328 SC3	1.05
-25 °C 95 % RH	EN 328 SC4	1.00

To take into account the slip in R-449A, the average evaporating temperature has been considered.

* Equipment with air defrosting powered at 230V 50Hz.

Refrigeration and electrical scheme



MV: MOTOR FAN
EV: EVAPORATOR
AC: ELECTRICAL CONNECTION
ST: COLD ROOM TEMPERATURE PROBE
PC: CONTROL BOARD
VE: EXPANSION VALVE
VS: SOLENOID VALVE
RE: DEFROST HEATER

JC series – Commercial cubic type evaporating units

- ❄ High efficiency coils.
- ❄ Expansion, solenoid and suction trap valves.
- ❄ 100 % factory tested and adjusted units for the highest performance.

Commercial cubic type evaporating unit, with built-in control valves, for high, positive and negative temperature cold rooms, built in galvanised steel structure and aluminium bodywork with polyester paint.

Features

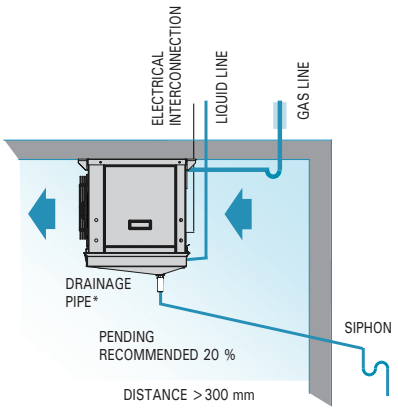
- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages on request.
- High efficiency coils, in copper pipes and aluminium fins, with 4 or 6 mm fin spacing.
- Solenoid valve in liquid line and adjustable thermostatic expansion valve integrated in the unit.
- Air defrost.
- Axial motor fans with high air flow.
- Ready-to-solder refrigeration connections, with built-in suction trap.
- Flexible drain pipe heater (for BJC models).
- Aluminium hinged condensate tray.

Options

- Electrical heater defrost with heaters inside the coil and draining pan.
- Hot gas defrost.
- Electronic expansion valve.
- Control and power board with electronic microcontroller and digital display, with differential protection MCB switch for heaters and fans, 6 relays for control, cold room and defrost temperature probes, and operation LEDs.
- Built-in humidification / deshumidification / heating kit.
- Anti-corrosion coil coating.

Installation recommendations

Maximum vertical distance between units of 15 m if the condensing unit is located higher than the evaporating unit, and of 6 m otherwise.
* Minimum drain pipe inclination of 20 % for low temperature models.



Electronic control (optional)

JC evaporator units can be controlled by a compact microcontroller that integrates all the command and control elements without the need for an electrical panel:

- 3 control relays for: liquid solenoid valve, motor fan and defrost (16A).
- Thermostatic temperature probe and defrost probe.
- Configurable digital input.

230V 50Hz | High temperature | Positive temperature | R-134a

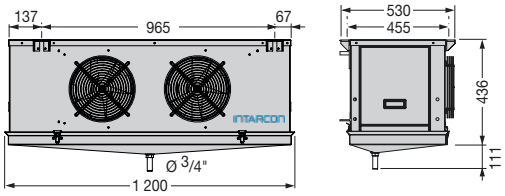
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m²)	Vol. (litres)	Fans Air flow (m³/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-134a	High	AJC-NY-1 225	4 320	2 940			4	12.4	2.7	1 500	2x Ø 254	140	1.0	4	2x 700	6.1	1/4"-7/8"	42
		AJC-NY-2 225	5 150	3 510			4	17.1	3.7	1 650	2x Ø 254	140	1.0	4	2x 800	7.0	1/4"-7/8"	49
		AJC-NY-2 325	6 390	4 360			4	17.1	3.7	2 250	3x Ø 254	210	1.4	6	3x 800	10.4	3/8"-7/8"	53
		AJC-NY-3 425	8 040	5 480			4	23.3	5.0	2 800	4x Ø 254	280	1.9	6	4x 800	13.9	3/8"-1 1/8"	66
	Positive	MJC-NY-1 225	3 680	2 500			6	8.4	2.7	1 600	2x Ø 254	140	1.0	4	2x 700	6.1	1/4"-7/8"	41
		MJC-NY-2 225	4 400	3 000			6	11.5	3.7	1 750	2x Ø 254	140	1.0	4	2x 800	7.0	1/4"-7/8"	48
		MJC-NY-2 325	5 410	3 690			6	11.5	3.7	2 400	3x Ø 254	210	1.4	6	3x 800	10.4	3/8"-7/8"	52
		MJC-NY-3 425	6 840	4 660			6	18.3	5.0	3 000	4x Ø 254	280	1.9	6	4x 800	13.9	3/8"-1 1/8"	65

230V 50Hz | High temperature | Positive temperature | Negative temperature | R-449A

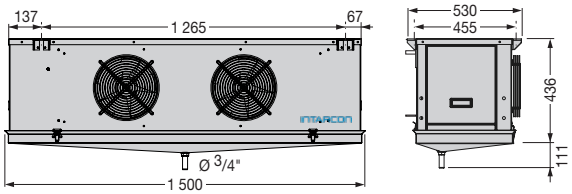
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m²)	Vol. (litres)	Fans Air flow (m³/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-449A	High	AJC-NG-1 225	4 640	3 160			4	12.4	2.7	1 500	2x Ø 254	140	1.0	4	2x 700	6.1	3/8"-5/8"	42
		AJC-NG-2 225	5 420	3 690			4	17.1	3.7	1 650	2x Ø 254	140	1.0	4	2x 800	7.0	3/8"-5/8"	49
		AJC-NG-2 325	6 710	4 570			4	17.1	3.7	2 250	3x Ø 254	210	1.4	6	3x 800	10.4	3/8"-7/8"	53
		AJC-NG-3 425	8 680	5 910			4	23.3	5.0	2 800	4x Ø 254	280	1.9	6	4x 800	13.9	3/8"-7/8"	66
	Positive / Negative	MJC-NG-1 225 BJC-NG-1 225	3 850	2 630	1 940	1 580	6	8.4	2.7	1 600	2x Ø 254	140	1.0	4	2x 700	6.1	3/8"- 5/8" 1/4"- 5/8"	42
		MJC-NG-2 225 BJC-NG-2 225	4 500	3 070	2 310	1 890	6	11.5	3.7	1 750	2x Ø 254	140	1.0	4	2x 800	7.0	3/8"- 5/8" 1/4"- 5/8"	48
		MJC-NG-2 325 BJC-NG-2 325	5 530	3 770	2 810	2 290	6	11.5	3.7	2 400	3x Ø 254	210	1.4	6	3x 800	10.4	3/8"- 7/8"	52
		MJC-NG-3 425 BJC-NG-3 425	7 240	4 930	3 640	2 970	6	18.3	5.0	3 000	4x Ø 254	280	1.9	6	4x 800	13.9	3/8"- 7/8" 3/8"-1 1/8"	65

Dimensions

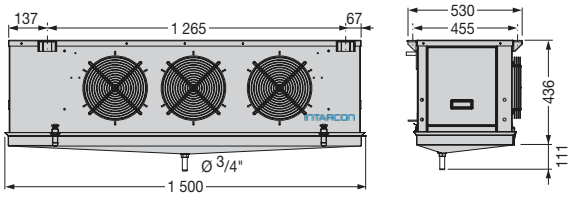
12 series



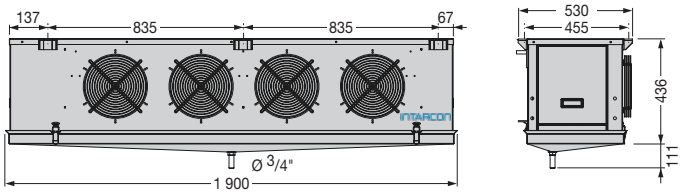
22 series



23 series



34 series



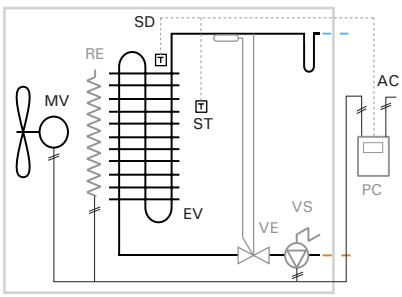
Dimensions in mm.

[1] Cooling capacity at room temperature and relative humidity, calculated from dry cooling capacity according to EN 328 standard, applying the following empirical factors:

Conditions	Reference	Rate
10 °C 85 % RH	EN 328 SC1	1.35
0 °C 85 % RH	EN 328 SC2	1.15
-18 °C 95 % RH	EN 328 SC3	1.05
-25 °C 95 % RH	EN 328 SC4	1.00

To take into account the slip in R-449A, the average evaporating temperature has been considered.

Refrigeration and electrical schema



MV: MOTOR FAN
EV: EVAPORATOR
AC: ELECTRICITY SUPPLY
ST: THERMOSTAT PROBE
SD: DEFROST PROBE
PC: CONTROL PANEL (OPTIONAL)
VS: SOLENOID VALVE (OPTIONAL)
VE: EXPANSION VALVE (OPTIONAL)
RE: DEFROST HEATER (OPTIONAL)

KC series – Cubic type evaporating units

- High efficiency coils.
- Integrated expansion valve, solenoid valve and suction siphon.
- Factory set equipment for optimum cooling performance.
- Double insulated defrost tray in negative temperature models.

Cubic type evaporating unit, with built-in control valves, for high, positive and negative temperature cold rooms, built in galvanised steel shell with polyester coating.

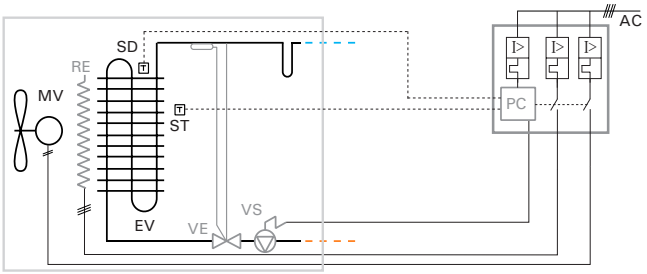
Features

- 230V 50Hz power supply. Available in 60Hz. Other voltages on request.
- High efficiency coils, in copper pipes and aluminium fins, with 4 or 6 mm fin spacing.
- Double stainless steel draining pan and insulation for negative temperature.
- Solenoid valve in liquid line and thermostatic expansion valve as standard.
- Air defrost.
- Motor fans axial with high air flow.
- Ready-to-solder refrigeration connections, with built-in suction trap.
- Flexible drain pipe heater (only for negative temperature models).

Options

- Electrical heater defrost with heaters inside the coil (change to 400V 3N 50Hz power supply).
- Hot gas defrosting.
- Electrical expansion valve.
- Control and power board with electronic microcontroller and digital display, with MCB switch for heaters and fans, 6 relays for control, cold room and defrost temperature probes, and operation LEDs.
- Built-in humidification / deshumidification / heating kit.
- Anti-corrosion coil coating.
- Long-range fan streamer.
- Fan collar heater.
- ATEX fans.

Refrigeration and electrical schema



MV:	MOTOR FAN	PC:	CONTROL PANEL (OPTIONAL)
EV:	EVAPORATOR	VS:	SOLENOID VALVE (OPTIONAL)
AC:	ELECTRICITY SUPPLY	VE:	EXPANSION VALVE (OPTIONAL)
ST:	THERMOSTAT PROBE	RE:	DEFROST HEATER (OPTIONAL)
SD:	DEFROST PROBE		

Electronic control panel (optional)

All equipment can be controlled by means of an advanced multi-function controller, consisting of an electronic board integrated in the electrical panel and digital control unit.

Electronic expansion valve

The evaporator units are optionally equipped with an electronic expansion valve.

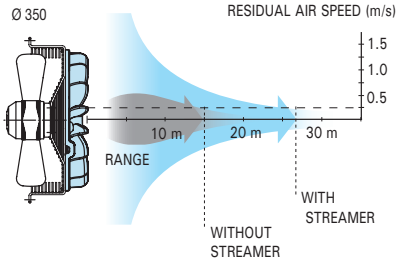
Humidification kit (optional)

Steam humidification kit with a capacity of 3 kg/h, consisting of: steam lances integrated in the evaporator unit, a submerged electrode generator cylinder, with water supply and drain valves, and electronic relative humidity controller in the cold room.

The system is only valid for mains water with conductivity between 125 and 1250 μS/cm, and total hardness between 50 and 400 mg/l $CaCO_3$ and more than twice the Cl content.

Long-range fan streamer (optional)

Optionally, a streamer is installed on the fan outlet to get a longer range.



230V 50Hz | High temperature | Positive temperature | R-134a

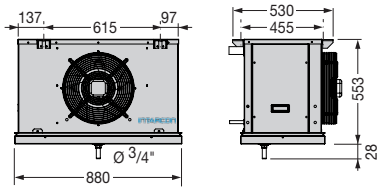
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH T1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m²)	Vol. (litres)	Fans Air flow (m³/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-134a	High	AKC-NY-0 135	6 070	4 130			4	15.8	3.2	2 000	1x Ø 350	160	0.7	15	6x 450	3.9	3/8"-7/8"	43
		AKC-NY-1 135	7 110	4 840			4	25.2	5.4	2 500	1x Ø 350	160	0.7	15	6x 700	6.1	3/8"-7/8"	56
		AKC-NY-2 235	12 280	8 370			4	34.8	7.4	4 000	2x Ø 350	325	1.4	15	6x 800	7.0	1/2"-1 1/8"	72
		AKC-NY-3 235	14 010	9 550			4	47.8	9.6	5 000	2x Ø 350	320	1.4	15	9x 800	10.4	1/2"-1 3/8"	89
		AKC-NY-3 335	16 780	11 440			4	47.8	9.6	6 000	3x Ø 350	490	2.2	15	9x 800	10.4	1/2"-1 3/8"	94
		AKC-NY-4 435	22 160	15 100			4	63.2	12.8	8 000	4x Ø 350	650	2.9	15	9x 1 000	13.0	5/8"-1 5/8"	118
	Positive	MKC-NY-0 135	5 210	3 550			6	9.6	3.2	2 100	1x Ø 350	165	0.7	15	6x 450	3.9	3/8"-7/8"	42
		MKC-NY-1 135	6 450	4 400			6	17.1	5.4	2 700	1x Ø 350	160	0.7	15	6x 700	6.1	3/8"-7/8"	54
		MKC-NY-2 235	10 550	7 190			6	21.2	7.4	4 150	2x Ø 350	325	1.4	15	6x 800	7.0	1/2"-1 1/8"	69
		MKC-NY-3 235	12 250	8 350			6	31.8	9.6	5 200	2x Ø 350	315	1.4	15	9x 800	10.4	1/2"-1 3/8"	86
		MKC-NY-3 335	14 250	9 710			6	31.8	9.6	6 200	3x Ø 350	485	2.2	15	9x 800	10.4	1/2"-1 3/8"	91
		MKC-NY-4 435	18 890	12 870			6	42.4	12.8	8 300	4x Ø 350	645	2.9	15	9x 1 000	13.0	5/8"-1 5/8"	114

230V 50Hz | High temperature | Positive temperature | Negative temperature | R-449A

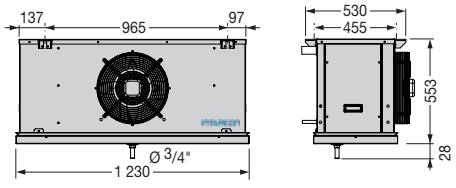
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH T1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m²)	Vol. (litres)	Fans Air flow (m³/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-449A	High	AKC-NG-0 135	6 460	4 400			4	15.8	3.2	2 000	1x Ø 350	160	0.7	15	6x 450	3.9	3/8"-7/8"	43
		AKC-NG-1 135	7 990	5 450			4	25.2	5.4	2 500	1x Ø 350	160	0.7	15	6x 700	6.1	3/8"-7/8"	56
		AKC-NG-2 235	13 800	9 410			4	34.8	7.4	4 000	2x Ø 350	325	1.4	15	6x 800	7.0	1/2"-1 1/8"	72
		AKC-NG-3 235	16 180	11 020			4	47.8	9.6	5 000	2x Ø 350	320	1.4	15	9x 800	10.4	1/2"-1 3/8"	89
		AKC-NG-3 335	19 690	13 420			4	47.8	9.6	6 000	3x Ø 350	490	2.2	15	9x 800	10.4	1/2"-1 3/8"	94
		AKC-NG-4 435	26 180	17 840			4	63.2	12.8	8 000	4x Ø 350	650	2.9	15	9x 1 000	13.0	5/8"-1 5/8"	118
	Positive / Negative	MKC-NG-0 135 BKC-NG-0 135	5 410	3 690	2 750	2 240	6	9.6	3.2	2 100	1x Ø 350	165	0.7	15	6x 450	3.9	3/8"-7/8"	42
		MKC-NG-1 135 BKC-NG-1 135	7 170	4 890	3 600	2 940	6	17.1	5.4	2 700	1x Ø 350	160	0.7	15	6x 700	6.1	3/8"-7/8"	54
		MKC-NG-2 235 BKC-NG-2 235	11 650	7 940	5 810	4 740	6	21.2	7.4	4 150	2x Ø 350	325	1.4	15	6x 800	7.0	1/2"-1 1/8"	69
		MKC-NG-3 235 BKC-NG-3 235	13 950	9 510	6 880	5 620	6	31.8	9.6	5 200	2x Ø 350	315	1.4	15	9x 800	10.4	1/2"-1 3/8"	86
		MKC-NG-3 335 BKC-NG-3 335	16 580	11 300	7 970	6 510	6	31.8	9.6	6 200	3x Ø 350	485	2.2	15	9x 800	10.4	1/2"-1 3/8"	91
		MKC-NG-4 435 BKC-NG-4 435	22 150	15 090	10 590	8 640	6	42.4	12.8	8 300	4x Ø 350	645	2.9	15	9x 1 000	13.0	5/8"-1 5/8"	114

Dimensions

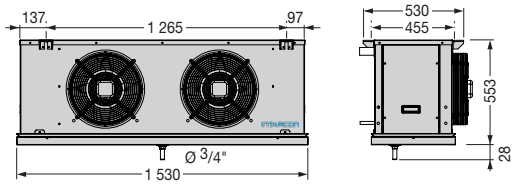
0 series



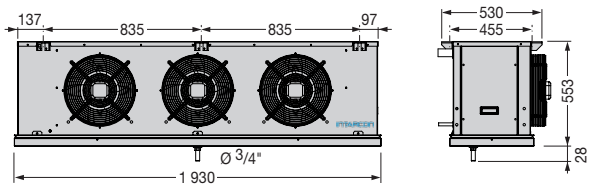
1 series



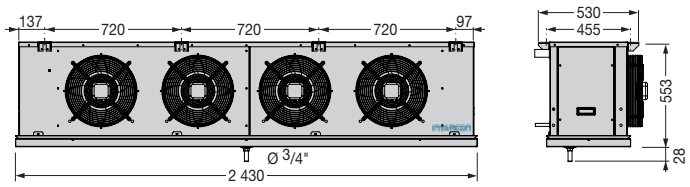
2 series



3 series



4 series



Dimensions in mm.

[1] Cooling capacity at room temperature and relative humidity, calculated from dry cooling capacity according to EN 328 standard, applying the following empirical factors:

Conditions	Reference	Rate
10 °C 85 % HR	EN 328 SC1	1.35
0 °C 85 % HR	EN 328 SC2	1.15
-18 °C 95 % HR	EN 328 SC3	1.05
-25 °C 95 % HR	EN 328 SC4	1.00

To take into account the slip in R-449A, the average evaporating temperature has been considered.

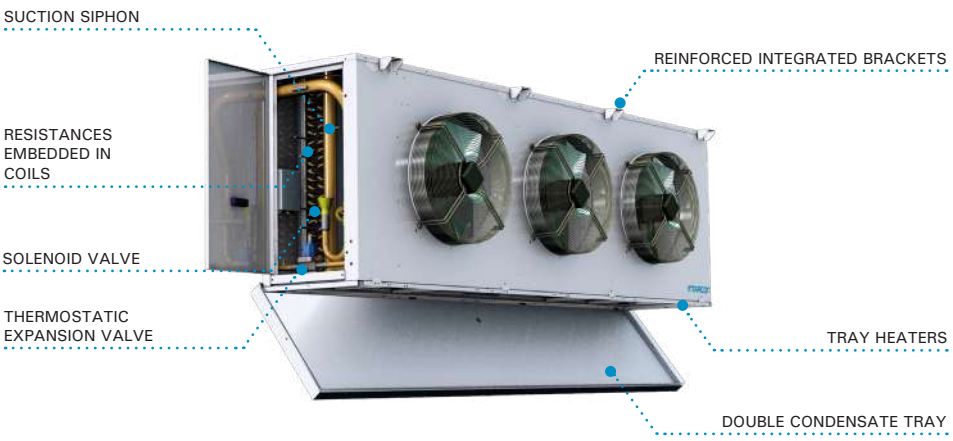
KH series – Industrial cubic type evaporating units

- ❄ High efficiency coils.
- ❄ Expansion and solenoid valves, and suction siphon integrated.
- ❄ 100 % factory tested and adjusted units for the highest performance.
- ❄ Double condensed liquid pan, insulated in low temperature models.

Industrial cubic type evaporating units, with built-in control valves, for positive, negative and high temperature cold rooms, built in galvanised steel structure and bodywork with thermosetting polyester coating.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages on request.
- Air defrost.
- Air-cooled high efficiency coils, in copper pipes and aluminium fins, with 4, 5, 7 and 10 mm fin spacing.
- Double stainless steel draining pan and insulation for negative temperature.
- Built-in solenoid valve in liquid line and thermostatic expansion valve.
- High-flow axial motor fans operating at 1300 rpm.
- Ready-to-solder refrigeration connections, with built-in suction oil trap.
- Flexible drain pipe heater (only for negative temperature models).



Electronic control panel (optional)

All equipment can be controlled by means of an advanced multi-function controller, consisting of an electronic board integrated in the electrical panel and digital control unit.

Electronic expansion valve

The evaporator units are optionally equipped with an electronic expansion valve.

Humidification kit (optional)

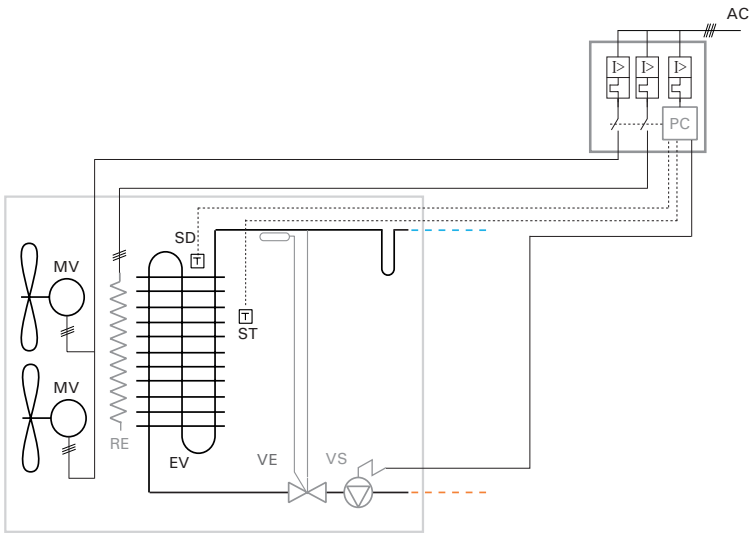
Steam humidification kit with a capacity of 3 kg/h, consisting of: steam lances integrated in the evaporator unit, a submerged electrode generator cylinder, with water supply and drain valves, and electronic relative humidity controller in the cold room.

The system is only valid for mains water with conductivity between 125 and 1250 μS/cm, and total hardness between 50 and 400 mg/l $CaCO_3$ and more than twice the Cl content.

Options

- Electrical defrost heater inside the coil and over the drain pan.
- Hot gas defrosting.
- Electrical expansion valve.
- Control and power panel with electronic microcontroller and digital display, with differential protection MCB switch for heaters and fans, 6 relays for control, cold room and defrost temperature probes, and operation LEDs.
- Built-in humidification / deshumidification / heating kit.
- Anti-corrosion coil coating.
- Long range air stream fan.
- Fan collar heater.
- ATEX fans.
- Textile ducts Warm-up.

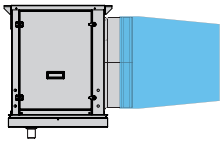
Refrigeration and electrical scheme



MV:	MOTOR FAN	PC:	CONTROL PANEL (OPTIONAL)
EV:	EVAPORATOR	VS:	SOLENOID VALVE (OPTIONAL)
AC:	ELECTRICITY SUPPLY	VE:	EXPANSION VALVE (OPTIONAL)
ST:	THERMOSTAT PROBE	RE:	DEFROST HEATER (OPTIONAL)
SD:	DEFROST PROBE		

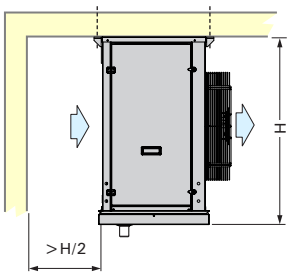
Textile ducts Warm-up

- Reduced defrosting time.
- Prevent heat dissipation from defrost toward the cold room.



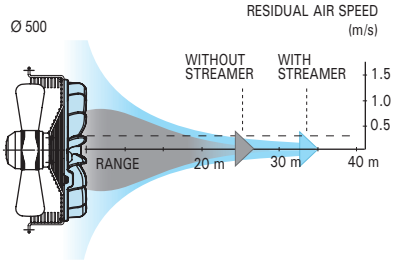
Ceiling installation (standard)

Evaporating units are ready to be fastened to the cold room roof panel.



Long-range fan streamer (optional)

Optionally, a streamer is installed on the fan outlet to get a longer range.



Fan (mm)	Range without streamer (m)	Range with streamer (m)
Ø 450	22	28
Ø 500	26	34

400V 3N 50Hz | High temperature | Positive temperature | R-134a

Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m²)	Vol. (litres)	Fans Air flow (m³/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-134a	High	**AKH-NY-1 145**	13 520	9 210			4	35	8	4 200	1x Ø 450	0.5	1.1	22	6x 700	6	1/2"- 1 1/8"	74
		AKH-NY-2 150	19 530	13 310			4	50	13	6 100	1x Ø 500	0.7	1.4	26	6x 700	6	1/2"- 1 3/8"	96
		AKH-NY-1 245	27 160	18 510			4	70	16	6 400	2x Ø 450	1.1	2.1	22	9x 800	10	1/2"- 1 5/8"	103
		AKH-NY-2 250	39 790	27 120			4	101	24	12 200	2x Ø 500	1.3	2.8	26	12x 800	14	5/8"- 2 1/8"	138
		AKH-NY-1 345	40 250	27 430			4	104	24	12 600	3x Ø 450	1.6	3.2	22	12x 1 000	17	5/8"- 2 1/8"	159
		AKH-NY-2 350	59 020	40 220			4	151	36	18 300	3x Ø 500	2.0	4.2	26	15x 1 000	22	7/8"- 2 1/8"	184
		AKH-NY-1 445	50 430	34 370			4	139	32	16 800	4x Ø 450	2.1	4.3	22	12x 1 250	22	7/8"- 2 1/8"	205
		AKH-NY-2 450	74 120	50 510			4	201	48	24 400	4x Ø 500	2.7	5.6	26	15x 1 250	27	7/8"- 2 1/8"	272
	Positive	**MKH-NY-1 145**	12 550	8 550			5	27	8	4 400	1x Ø 450	0.5	1.1	22	6x 700	6	1/2"- 1 1/8"	72
		MKH-NY-2 150	18 060	12 310			5	39	13	6 400	1x Ø 500	0.7	1.4	26	6x 700	6	1/2"- 1 3/8"	94
		MKH-NY-1 245	25 220	17 190			5	54	16	8 800	2x Ø 450	1.0	2.1	22	9x 800	10	1/2"- 1 5/8"	100
		MKH-NY-2 250	37 020	25 230			5	79	24	12 800	2x Ø 500	1.3	2.8	26	12x 800	14	5/8"- 2 1/8"	134
		MKH-NY-1 345	37 200	25 350			5	82	24	13 200	3x Ø 450	1.5	3.2	22	12x 1 000	17	5/8"- 2 1/8"	154
		MKH-NY-2 350	54 690	37 270			5	118	36	19 200	3x Ø 500	2.0	4.2	26	15x 1 000	22	7/8"- 2 1/8"	177
		MKH-NY-1 445	45 930	31 300			5	109	32	17 600	4x Ø 450	2.0	4.3	22	12x 1 250	22	7/8"- 2 1/8"	199
		MKH-NY-2 450	67 660	46 110			5	157	48	25 600	4x Ø 500	2.6	5.6	26	15x 1 250	27	7/8"- 2 1/8"	263

400V 3N 50Hz | High temperature | Positive temperature | Negative temperature | Deep-freezing | R-449A

Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC1 10 °C 85 % RH DT1 = 10 K	SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m²)	Vol. (litres)	Fans Air flow (m³/h)	Nx Ø (mm)	Power (W)	I max. (A)	Air Range (m)	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-449A	High	**AKH-NG-1 145**	16 410	11 180			4	46	12	4 000	1x Ø 450	0.5	1.1	22	6x 700	6	1/2"-1 1/8"	74
		AKH-NG-2 150	23 370	15 930			4	67	17	5 700	1x Ø 500	0.7	1.4	26	6x 700	6	5/8"-1 3/8"	96
		AKH-NG-1 245	32 600	22 220			4	93	23	8 000	2x Ø 450	1.1	2.1	22	9x 800	10	5/8"-1 3/8"	103
		AKH-NG-2 250	46 700	31 820			4	134	33	11 400	2x Ø 500	1.3	2.8	26	12x 800	14	7/8"-1 5/8"	138
		AKH-NG-1 345	48 620	33 140			4	139	33	12 000	3x Ø 450	1.6	3.2	22	12x 1 000	17	7/8"-1 5/8"	159
		AKH-NG-2 350	69 120	47 100			4	201	48	17 100	3x Ø 500	2.0	4.2	26	15x 1 000	22	7/8"-2 1/8"	184
		AKH-NG-1 445	64 000	43 620			4	186	44	16 000	4x Ø 450	2.1	4.3	22	12x 1 250	22	7/8"-2 1/8"	205
		AKH-NG-2 450	91 550	62 390			4	268	64	22 800	4x Ø 500	2.7	5.6	26	15x 1 250	27	1 1/8"-2 1/8"	272
	Positive	**MKH-NG-1 145**	15 580	10 620			5	36	12	4 200	1x Ø 450	0.5	1.1	22	6x 700	6	1/2"-1 1/8"	72
		MKH-NG-2 150	22 460	15 300			5	52	17	6 100	1x Ø 500	0.7	1.4	26	9x 700	6	5/8"-1 3/8"	93
		MKH-NG-1 245	30 900	21 060			5	73	23	8 400	2x Ø 450	1.0	2.1	22	9x 800	10	5/8"-1 3/8"	99
		MKH-NG-2 250	44 840	30 560			5	105	33	12 200	2x Ø 500	1.3	2.8	26	12x 800	14	7/8"-1 5/8"	132
		MKH-NG-1 345	46 040	31 370			5	109	33	12 600	3x Ø 450	1.5	3.2	22	12x 1 000	17	7/8"-1 5/8"	153
		MKH-NG-2 350	66 270	45 160			5	157	48	18 300	3x Ø 500	2.0	4.2	26	15x 1 000	22	7/8"-2 1/8"	175
		MKH-NG-1 445	60 550	41 260			5	145	44	16 800	4x Ø 450	2.0	4.3	22	12x 1 250	22	7/8"-2 1/8"	197
		MKH-NG-2 450	87 680	59 750			5	210	64	24 400	4x Ø 500	2.6	5.6	26	15x 1 250	27	1 1/8"-2 1/8"	260
	Negative	**BKH-NG-1 145**	12 570	8 570	6 840	5 590	7	27	12	4 500	1x Ø 450	0.5	1.1	22	6x 700	6	1/2"-1 1/8"	70
		BKH-NG-2 150	17 990	12 260	9 800	8 000	7	39	17	6 500	1x Ø 500	0.6	1.4	26	6x 700	6	1/2"-1 3/8"	90
		BKH-NG-1 245	24 680	16 820	13 430	10 970	7	54	23	9 000	2x Ø 450	1.0	2.1	22	9x 800	10	1/2"-1 3/8"	95
		BKH-NG-2 250	35 670	24 310	19 420	15 850	7	79	33	13 000	2x Ø 500	1.3	2.8	26	12x 800	14	5/8"-1 5/8"	127
		BKH-NG-1 345	36 650	24 980	19 950	16 290	7	82	33	13 500	3x Ø 450	1.4	3.2	22	12x 1 000	17	5/8"-1 5/8"	147
		BKH-NG-2 350	52 220	35 580	28 430	23 210	7	118	48	19 500	3x Ø 500	1.9	4.2	26	15x 1 000	22	7/8"-2 1/8"	167
		BKH-NG-1 445	47 640	32 470	25 940	21 170	7	109	44	18 000	4x Ø 450	1.9	4.3	22	12x 1 250	22	7/8"-2 1/8"	189
		BKH-NG-2 450	68 700	46 820	37 400	30 530	7	157	64	26 000	4x Ø 500	2.5	5.6	26	15x 1 250	27	7/8"-2 1/8"	250
	Deep-freezing	**UKH-NG-1 145**	9 140	6 230	4 980	4 060	10	25	12	4 800	1x Ø 450	0.5	1.1	22	6x 700	6	3/8"-1 1/8"	70
		UKH-NG-2 150	13 710	9 350	7 470	6 100	10	37	17	6 750	1x Ø 500	0.6	1.4	26	6x 700	6	3/8"-1 3/8"	90
		UKH-NG-1 245	19 490	13 280	10 610	8 660	10	50	23	9 600	2x Ø 450	0.9	2.1	22	9x 800	10	1/2"-1 3/8"	94
		UKH-NG-2 250	29 230	19 920	15 920	12 990	10	75	33	13 500	2x Ø 500	1.2	2.8	26	12x 800	14	1/2"-1 5/8"	126
		UKH-NG-1 345	29 290	19 960	15 950	13 020	10	75	33	14 400	3x Ø 450	1.4	3.2	22	12x 1 000	17	5/8"-2 1/8"	146
		UKH-NG-2 350	43 530	29 660	23 700	19 350	10	112	48	20 250	3x Ø 500	1.8	4.2	26	15x 1 000	22	5/8"-2 1/8"	166
		UKH-NG-1 445	36 340	24 760	19 780	16 150	10	99	44	19 200	4x Ø 450	1.9	4.3	22	12x 1 250	22	5/8"-2 1/8"	187
		UKH-NG-2 450	53 890	36 730	29 340	23 950	10	149	64	27 000	4x Ø 500	2.4	5.6	26	15x 1 250	27	7/8"-2 1/8"	248

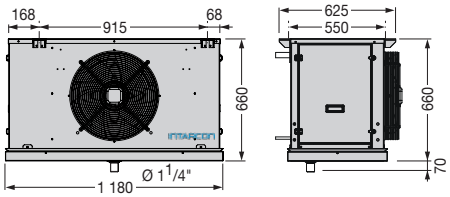
[1] Cooling capacity at room temperature and relative humidity, calculated from dry cooling capacity according to EN 328 standard, applying the following empirical factors:

Conditions	Reference	Rate
10 °C 85 % RH	EN 328 SC1	1.35
0 °C 85 % RH	EN 328 SC2	1.15
-18 °C 95 % HR	EN 328 SC3	1.05
-25 °C 95 % HR	EN 328 SC4	1.00

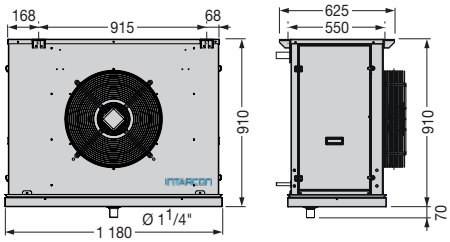
To take into account the slip in R-449A, the average evaporating temperature has been considered.

Dimensions

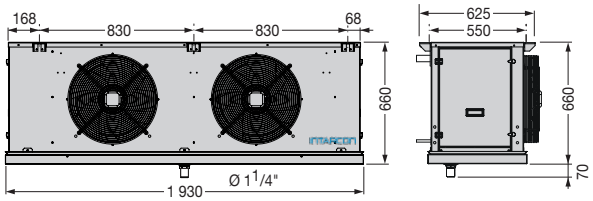
11 series



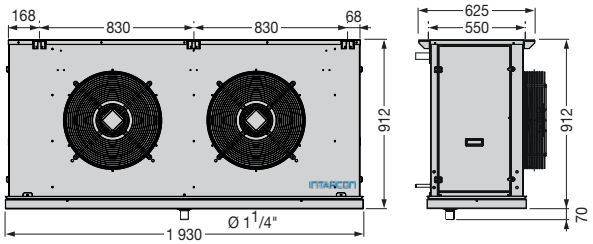
21 series



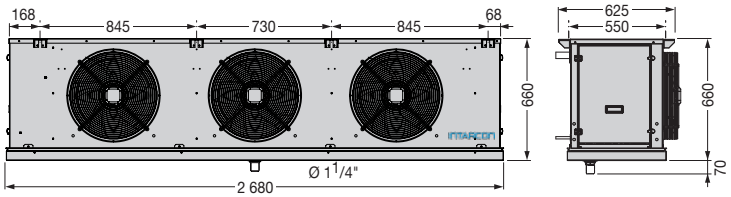
12 series



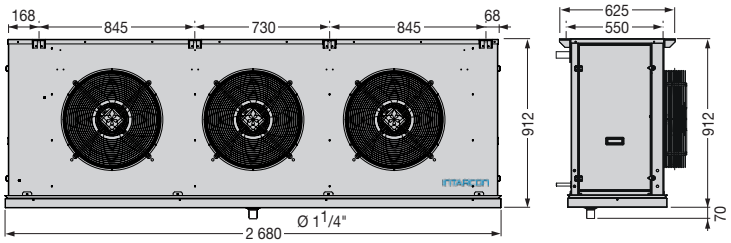
22 series



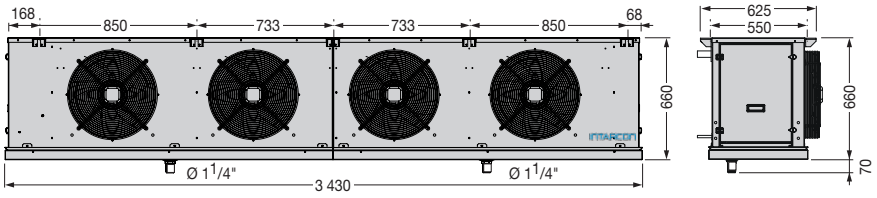
13 series



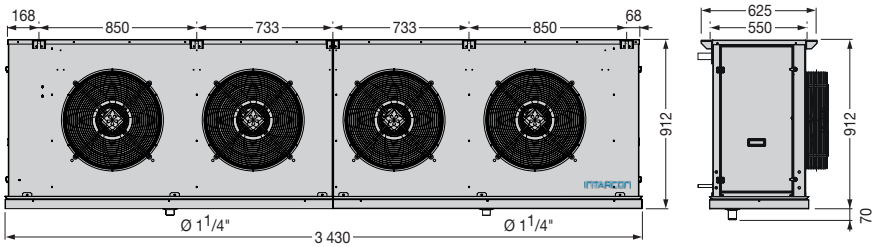
23 series



14 series



24 series



Dimensions in mm.

KV series – Deep-freezing evaporating units

- High efficiency coils.
- Expansion and solenoid valves as standard.
- 100 % factory tested and adjusted units for the highest performance.
- Easy maintenance access and cleaning.
- Static available pressure: between 100 Pa.

Vertical-mounted evaporating units designed for freezing tunnels, built in galvanised steel structure and bodywork with thermosetting polyester coating.

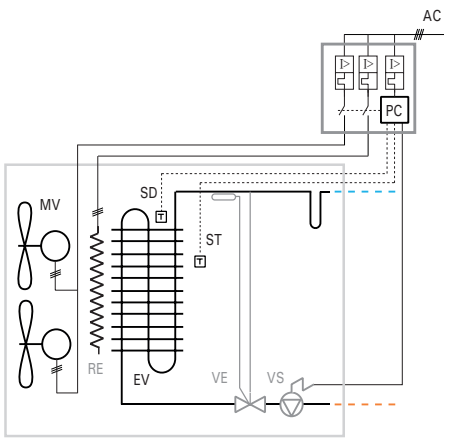
Features

- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages on request.
- Air-cooled high efficiency coils, in copper pipes and aluminium fins, with 10 mm fin spacing.
- Double stainless steel draining pan with easy access.
- Solenoid valve in liquid line and thermostatic expansion valve as standard.
- Flexible draining pan heater cable.
- High-flow axial motor fans operating at 1300 rpm and available static pressure up to 100 Pa.
- Ready-to-solder refrigeration connections, with suction trap air oil trap as standard.
- Adjustable height in 3 different positions to adapt to several models of carts.

Options

- Electrical defrost heater inside the coil and over the drain pan.
- Electronic expansion valve.
- Control and power board with electronic microcontroller and digital display, with differential protection MCB switch for heaters and fans, relays for control, cold room and defrost temperature probes, and operation LEDs.
- Anti-corrosion coil coating.

Refrigeration and electrical scheme



MV: MOTOR FAN
EV: EVAPORATOR
AC: ELECTRICITY SUPPLY
ST: THERMOSTAT PROBE
SD: DEFROST PROBE
PC: CONTROL PANEL (OPTIONAL)
VS: SOLENOID VALVE (OPTIONAL)
VE: EXPANSION VALVE (OPTIONAL)
RE: DEFROST HEATER (OPTIONAL)

Tunnel freezer

Electronic control panel

All equipment can be controlled by means of an advanced multi-function controller, consisting of an electronic board integrated in the electrical panel and digital control unit.

Electronic expansion valve

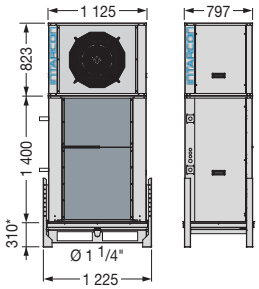
The evaporator units are optionally equipped with an electronic pulse expansion valve.

400V 3N 50Hz | Deep-freezing | R-449A

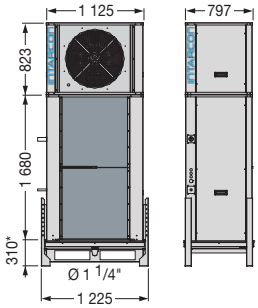
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature [1] SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	SC5 -34 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m^2)	Vol. (litres)	Fans Air flow (m^3/h)	Nx Ø (mm)	Power (W)	I max. (A)	ASP (Pa) [2]	Electrical defrost Power (W)	Intensity (A)	Liq-Gas Cooling Connection	Weight (kg)
R-449A	Depp-freezing	**UKV-NG-3 156**	9 710	7 930	**7 530**	10	62	26	8 200	1x Ø 560	1.1	2.3	100	12x 700	12	1/2"-1 3/8"	193
		UKV-NG-4 163	12 790	10 440	**9 920**	10	75	31	12 400	1x Ø 630	2.0	3.4	100	15x 700	15	1/2"-1 5/8"	226
		UKV-NG-3 256	21 190	17 300	**16 440**	10	125	51	16 400	2x Ø 560	2.2	4.6	100	18x 800	21	5/8"-2 1/8"	293
		UKV-NG-4 263	28 300	23 100	**21 950**	10	150	61	24 800	2x Ø 630	4.1	6.8	100	24x 800	28	5/8"-2 1/8"	349
		UKV-NG-3 263	32 310	26 370	**25 050**	10	187	74	25 600	2x Ø 630	4.1	6.8	100	24x 1 000	35	7/8"-2 5/8"	435
		UKV-NG-4 363	42 140	34 400	**32 680**	10	223	88	37 200	3x Ø 630	6.1	10.2	100	30x 1 000	43	7/8"-2 5/8"	450
		UKV-NG-3 363	38 040	31 060	**29 500**	10	248	98	32 800	3x Ø 630	6.1	10.2	100	24x 1 250	43	7/8"-2 5/8"	571
		UKV-NG-4 463	50 010	40 820	**38 780**	10	298	117	49 600	4x Ø 630	8.2	13.6	100	30x 1 250	54	7/8"-2 5/8"	537

Dimensions

3 156 model



4 163 model



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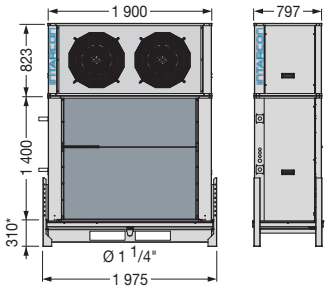

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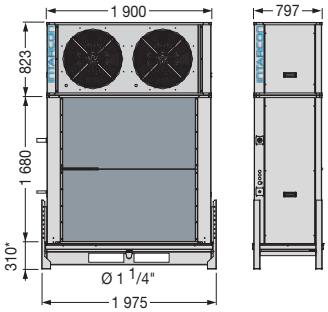

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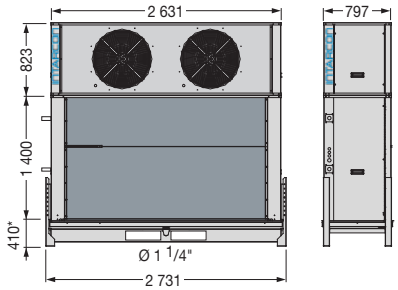

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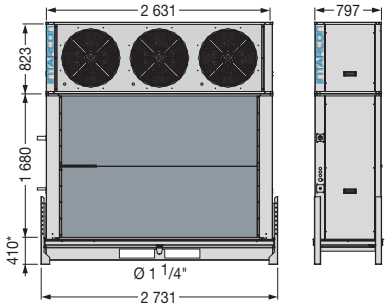
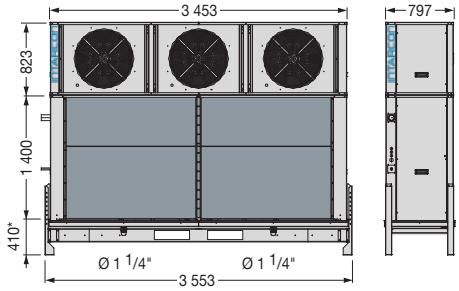
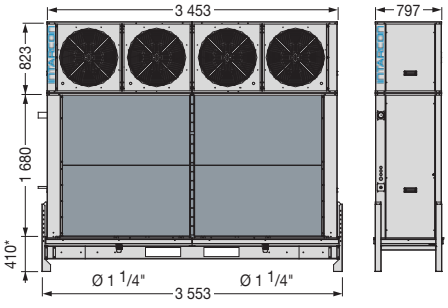


3 363 model



4 463 model



Dimensions in mm.

* Height adjustable with 3 support positions to adjust the height to the pallet or trolley.

The UKV series supports are configurable in 3 possible heights: 50, 100, 150 mm, in order to adapt to the different types of trolleys.

[1] Cooling capacity at room temperature and relative humidity, calculated from dry cooling capacity according to EN 328 standard, applying the following empirical factors:

Conditions	Reference	Rate
0 °C 85 % RH	EN 328 SC2	1.15
-18 °C 95 % RH	EN 328 SC3	1.05
-25 °C 95 % RH	EN 328 SC4	1.00
-34 °C 95 % RH	EN 328 SC5	0.95

To take into account the slip in R-449A, the average evaporating temperature has been considered.

[2] Available static pressure.

Note for transport: The evaporator units of the UKV series are supplied in 2 packages, the fan train on one side and the coil on the other side.

Control and power panel

Microcontroller

Compact control board to control evaporating units up to 3600 W defrost power. Optional for JB, JD and JC series.

- Electronic microprocessor control unit with digital display, with three control relays for solenoid valve, defrost and fans.
- Configurable digital input.
- Compact surface mounting.
- Supplied with 5 m electrical interconnections and 3 m power supply cable.

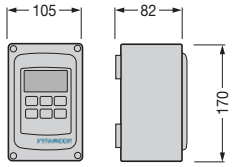
Features of the control panel

Control and power panel for evaporators in high, medium and low temperature applications, with electronic controller and digital display. Optional for JD (3 to 5), KD, KC, KH and KV series.

- White painted galvanised sheet steel cabinet with key.
- Electronic control microprocessor with digital display, with six control relays for solenoid, defrost, fans, light, alarm, and configurable auxiliary relay; temperature and defrost probes,
- General cut-off switch, differential switch, three-pole contactors and magnetothermic switches for heating elements and fans.
- Operation indicator lights.
- Connection terminal block.
- Independent control for 1 or 2 evaporator units.
- Electronics with LAN BUS communication for synchronisation of up to 8 devices (except ATM-N-01031 and MTM-N-01161).

Microcontroller dimensions

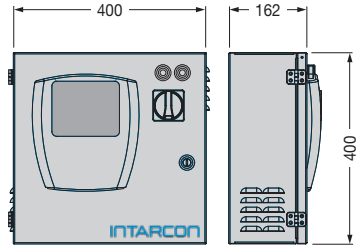
0 series



Dimensions in mm.

Control panel dimensions

1 series



Dimensions (mm)	A	B	C
size 1	400	162	400
size 2	600	162	400
size 3	650	162	550
size 4	650	162	750

Dimensions in mm.

Table of features for temperature control panel

	Model	Power supply	Max. defrost power (kW)	Max. defrost intensity (A)	Max. fans intensity (A)	VEE [1]	Application to evaporators	Control panel size [2]
For temperature control – 1 evaporating unit	**ATM-N-01031**	230V	ventilated	--	3	-	JB, JD, JC	0
	ATM-N-11031	230V	ventilated	--	3	•	KC, KD 12, JD 3-5	1
	ATM-N-13101	400V 3N	ventilated	--	10	•	KD 22-23, KH, KV 31,41,32,42	1
	ATM-N-13161	400V 3N	ventilated	--	16	•	KV 43,33,44	1
	MTM-N-01161	230V	3,6	16	3	-	JB, JD 1-2, JC	0
	MTM-N-11161	230V	3,6	16	3	•	JB, JD 1-2, JC	1
	MTM-N-13161	400V 3N	10	16	10	•	JD 3-5, KD 12, KC, KH 11-21-12, KV 31	1
	MTM-N-13201	400V 3N	12	20	10	•	KH 22, KV 41	1
	MTM-N-13321	400V 3N	20	32	10	•	KD 22-33, KH 13-23-14, KV 3256	1
	MTM-N-13401	400V 3N	25	40	10	•	KV 3263-4263, KH 24	1
	MTM-N-13641	400V 3N	2x 20	64	16	•	KV 43,33,44	2
For temperature control – 2 evaporating units	**ATM-N-11122**	230V	ventilated	--	2x 6	•	JB, JD, JC, KC, KD 12	1
	ATM-N-13202	400V 3N	ventilated	--	2x 10	•	KH, KV 31-41-32, KD 22-23	2
	ATM-N-13322	400V 3N	ventilated	--	2x 16	•	KV 43-33-44	2
	MTM-N-11322	230V	2x 3,6	2x 16	2x 6	•	JB, JD 1-2, JC	2
	MTM-N-13322	400V 3N	2x 10	2x 16	2x 10	•	KC, JD 3-5, KD 12, KH 11-21-12, KV 31	3
	MTM-N-13402	400V 3N	2x 12	2x 20	2x 10	•	KH 22, KV 41	3
	MTM-N-13642	400V 3N	2x 20	2x 32	2x 10	•	KD 22-33, KH 13-23-14-24, KV 3256-4263	3
	MTM-N-13802	400V 3N	2x 25	2x 40	2x 16	•	KV 3263	3

Options

- Control panel available in 60Hz.

[1] Optional electronic expansion valve.
[2] Optionals, such as electronic expansion valve, may modify the control panel size.

Temperature and humidity control panel (AHM models)

Cuadro de control y potencia para controlar temperatura y humedad, con controlador electrónico y display digital.

- White painted galvanised sheet steel cabinet with key.
- Electronic control microprocessor with digital display, with six control relays for solenoid, defrost, fans, light, alarm, and configurable auxiliary relay; temperature and defrost and humidity probes.
- General cut-off switch.
- Operation indicator lights.
- Connection terminal block.
- Configurable digital input.

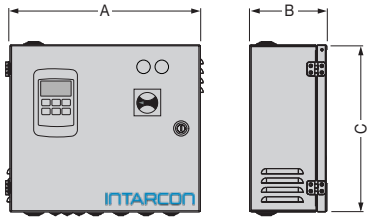
Features of humidity control panel (MHM models)

Control and power panel for evaporators in high, medium and low temperature applications, with electronic controller and digital display.

- White painted galvanised sheet steel cabinet with key.
- Electronic control microprocessor with digital display, with six control relays for solenoid, defrost, fans, light, alarm, and configurable auxiliary relay; temperature and defrost probes, and humidity
- General cut-off switch, differential switch, three-pole contactors and magnetothermic switches for heating elements and fans.
- Operation indicator lights.
- Connection terminal block.
- Configurable digital input and digital input for door microswitch.

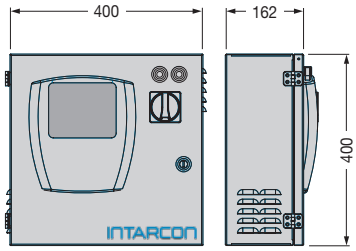
Control panel dimensions for AHM models

1 series



Control panel dimensions for MHM models

1 series



Dimensions (mm)	A	B	C
size 1	400	162	400
size 2	600	162	400
size 3	650	162	550
size 4	650	162	750

Dimensions in mm.

Table of features for para de humidity control panel

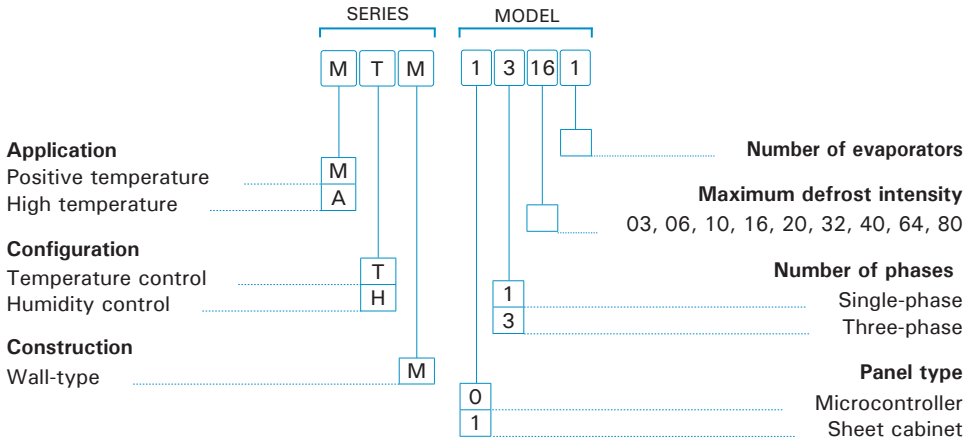
	Model	Power supply	Max. defrost power (kW)	Max. defrost intensity (A)	Max. fans intensity (A)	VEE [1]	Application to evaporators	Control panel size [2]
For humidity control 1 evaporating unit	**AHM-E-11031**	230V	ventilated	--	3	•	JB, JD, JC, KC	1
	AHM-E-13101	400V 3N	ventilated	--	10	•	KD, KH, KV 31,41,32,42	1
	MHM-N-11161	230V	3,6	16	3	•	JB, JD 1-2, JC	1
	MHM-N-13161	400V 3N	10	16	10	•	JD 3-5, KD 12, KC, KH 11-21-12, KV 31	1
	MHM-N-13201	400V 3N	12	20	10	•	KH 22, KV 41	1
	MHM-N-13321	400V 3N	20	32	10	•	KD 22-33, KH 13-23-14, KV 3256	1
	MHM-N-13401	400V 3N	25	40	10	•	KV 3263-4263, KH 24	1

[1] Optional electronic expansion valve.
[2] Optionals, such as electronic expansion valve, may modify the control panel size.

Options

- Control panel available in 60Hz.
- Control for heating resistances, or dehumidification and heating, only HM models (3 kW, 9 kW, 12 kW, 18 kW, 24 kW and 30 kW).

Nomenclature of temperature and humidity control panels



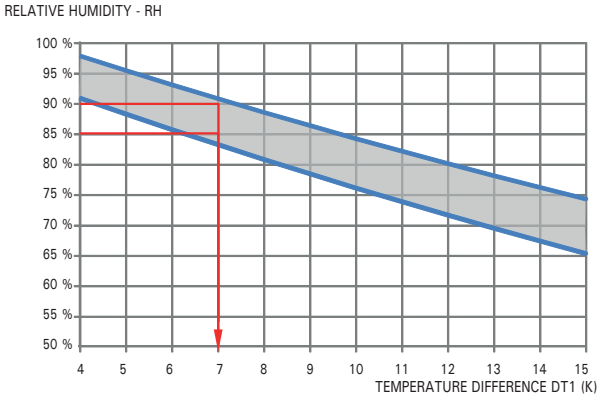
Method of calculation of evaporating units

Condiciones estándares de cálculo

Condition	Cool room temperature	Relative humidity	DT1	Superheating	Liquid temperature
SC1	10 °C	85 %	10 K	6,5 K	30 °C
SC2	0 °C	85 %	8 K	5,2 K	30 °C
SC3	-18 °C	95 %	7 K	4,5 K	20 °C
SC4	-25 °C	95 %	6 K	3,9 K	20 °C
SC5	-34 °C	95 %	6 K	3,9 K	20 °C

The cooling capacities have been calculated using standard conditions according to standard EN 328.

Choice of Temperature Difference (DT1)



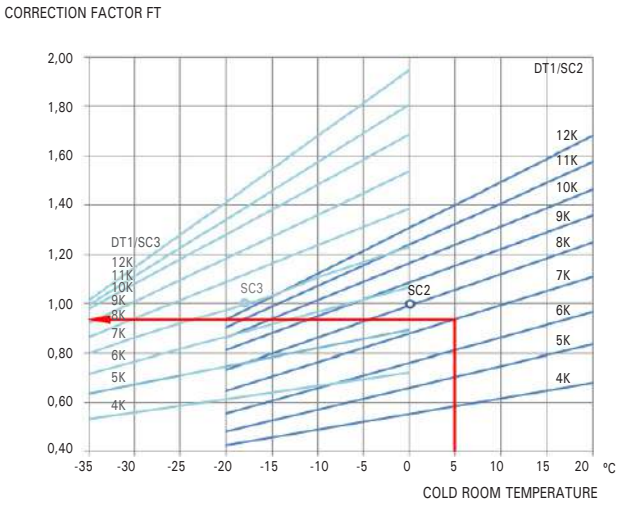
The Temperature Difference DT1 is defined as the difference between the temperature of the air entering the evaporator and the evaporating temperature of the refrigerant.

In positive temperature conservation cold rooms, the Temperature Difference in the evaporator has a great influence on the degree of humidity in the environment, in addition to other factors such as the design of the cold room, the rate of ventilation and the transpiration of the stored product.

n negative temperature cold rooms, the DT1 has little influence on the relative humidity, while an excessive DT1 will imply a lower evaporation temperature and lower performance of the compressors.

The attached graphic will allow you to choose the most suitable DT1 for sizing of the evaporator. Depending on the desired relative humidity, we look for the intersection point with the curve, obtaining the value of the new thermal jump:

Correction factor for calculation condition (FT)



To obtain the cooling capacity at another cold rooms temperatures and thermal jump, you must use the correction factor FT.

The attached graph will allow you to obtain, based on the ambient temperature and the Temperature Difference DT1, said factor, taking as reference the standard power level SC2 or SC3:

Calculation example: it is desirable to store vegetables at temperature of 5 ºC and relative humidity between 85 and 90 %,with estimated refrigeration needs of 38 kW and using refrigerant R-449A in direct expansion.

To obtain the degree of relative humidity, we choose a Temperature Difference 7 K the cold room , and we can see that this calculation condition corresponds to a correction factor FT = 0.94.
We can calculate the corrected cooling capacity:

We choose the evaporating unit MKH-NG-2350 with a cooling capacity SC2 = 45.2 kW

$$Q_c = \frac{38\ kW}{0,94} = 40,42\ kW$$

Evaporator selection

To select an evaporator, you must calculate the corrected refrigeration capacity using the following formula:

$$Q_c = \frac{Q_0}{FT}$$

Online selection and calculation of evaporators with the Calcooling software

The cooling calculator includes an advanced calculation method for refrigeration systems, based on calculation rules suggested by ASHRAE, refrigerant properties by REFPROP from the NIST and updated thermodynamic correlations for the calculation of heat transfer coefficient.

https://www.intarcon.com/en/refrigeration-calculation/

intarSANIT

STERILIZATION | PURIFICATION | VENTILATION

COVID-19 free

Safety and health

Smart solution

intarSANIT

New air conditioning and supply

- Air cold room filtration, sterilization and purification.
- Ventilation flow adaptable to occupation, and room overpressure.
- High energy efficiency with heat recovery from exhaust air.
- Easy ceiling installation.

intarSANIT-TCH is the new air conditioning and supply solution for workrooms, with heat recovery from extract air.

The ventilation unit is specifically designed for the supply of fresh air in workrooms and food processing rooms, which operate at a temperature of 10 to 15 °C.

Features

- 230V 50Hz power supply. Available in 60Hz. Others voltages by request.
- Built-in a white coated aluminium frame.
- Compact and lightweight design.
- Adjustable ventilation flow from 500 up to 1000 m^3/h.
- Compact refrigeration system with natural refrigerant R-290.
- Static and dynamic heat recovery from exhaust air.
- Air supply and extraction by centrifugal fan for connection to duct or textile diffuse.
- G4 pre-filter and F7 new air filter.

Installation scheme

Workroom ventilation

The regulations on safety and health at work stipulate a minimum ventilation flow of 50 m^3/h per worker for non-sedentary work (Directive 89/391/EEC).

UNE-EN 16798 establishes the requirements for air quality. In workrooms, at least medium air quality (IDA3) should be ensured, and high air quality (IDA1) for laboratories and clean rooms.

Cold room type	Indoor air quality UNE-EN 13779	Metabolic activity of the worker at 12°C	Level of CO_2 in the air above the outer level ppm	Ventilation flow / person (m^3/h) *
Laboratories, clean rooms	IDA 1, high quality	Light work seated 1.5 met	350	80
Workshops, handling rooms	IDA 2, good quality	Light work standing 2 met	500	75
Cutting rooms	IDA 3, medium quality	Moderate work 1.5 met	800	60
Warehouses, packing rooms, loading and unloading	IDA 4, low quality	Moderate work 1.5 met	1 200	50

Table 1. Estimated ventilation flow for rooms where contamination is due solely to worker respiration, with good air mixing by dilution.*

230V 50Hz | Ventilation | R-290

	Series / Model	Recovered power (W)	Cooling capacity (W)	Total cooling power (W) [1]	Ventilation air flow (m^3/h)	Available impulsion static pressure (Pa)	Impulsion temperature	Max. current (A)	Input power (kW)	Weight (kg)	SPL (dBA) from 3 m [2]
R-290	TCH-1	4 700	4 800	9 500	1 000	50	15.0	16	2.37	110	49
					750	80	13.5				
					500	100	12.0				

Options

- CO_2 and VOCs level control.

[1] Nominal performance for outdoor ambient conditions of 35 °C 40 % RH and indoor conditions of 12 °C.

[2] Sound pressure level, with directivity 1, measured at 3 m from the unit (non-binding value calculated from sound power).

intarSANIT | Air sterilization and purification

- ❄ Air cold room filtration, sterilization and purification.
- ❄ Double sterilizing effect: UV-C radiation and HEPA filtration.
- ❄ Easy ceiling installation.
- ❄ Sterilization system integrated in double flow evaporator unit.

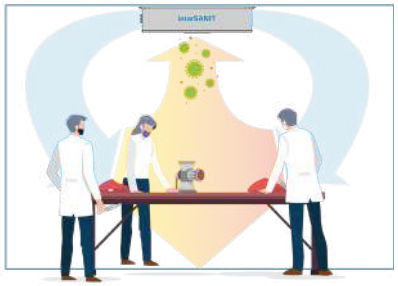
intarSANIT-TPD is the solution for the sterilization and purification of the air in food handling rooms, industrial kitchens, clean rooms and other establishments.

Ultraviolet irradiation renders the DNA of micro-organisms useless, preventing their reproduction. HEPA filtration with 99.995 % efficiency in 300 nm particles.

Features

- 230V 50Hz power supply. Available in 60Hz. Others voltages by request.
- Built-in a white coated aluminium frame.
- Compact and lightweight design.
- G4 pre-filter.
- UV-C germicidal irradiation.
- HEPA filters.
- Radial variable speed EC fan.

Installation scheme



HEPA filtration

The HEPA filters have a retention efficiency of 300 nm particles of 99.995 %. That is, for every 100 thousand particles of 0.3 microns in diameter, only 5. As shown in figure 2, the droplet size (1 micron) is greater than the MPPS (300 nm), which allows to conclude that the HEPA filter is effective at retaining aerosols.

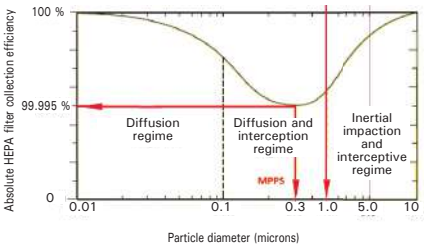


Fig. 1. Filtration efficiency of a HEPA filter. The UNE EN 1822 standard defines the filtration efficiency of a HEPA filter as the filtration performance of the particle with the highest penetration MPPS (Maximum Penetration Particle size). Particles around 0.3 µm are the most difficult for an absolute HEPA filter to trap and are what dictate the efficiency of the filter. The smallest nano-particles are easier to trap through the diffusion phenomenon, the larger ones through the impact, inertial and interception mechanisms.

230V 50Hz | Purification

Series / Model	Flow (m³/h)		Recommended room volume (m³)	Cooling capacity (kW) [1] (optional) SC1: 10 °C 85 % RH DT1 = 10 K		Coil (optional)			Fan		Max. current (A)	Input power (kW)	Range (m)	Weight (kg)	SPL (dBA) from 3 m [2]
	Min.	Max.		V. min.	V. max.	Fin spacing (mm)	Surf. (m²)	Vol. (litres)	Type	Ø mm					
TPD-3	1 500	3 000	100 - 200	4.0	6.0	5.0	13	5.8	Radial EC	1x Ø 280	2.9	0.7	6	95	49
TPD-6	3 000	6 000	200 - 400	8.0	12.0	5.0	26	7.6	Radial EC	2x Ø 280	5.8	1.3	6	180	52

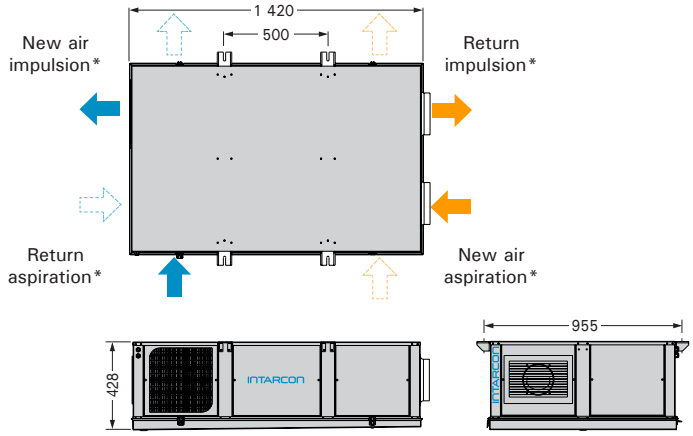
Options

- Carbon filter.
- Evaporator coils and expansion valve (R-134a or R-449A).

[1] Nominal performance for outdoor ambient conditions of 35 °C 40 % RH.
[2] Sound pressure level, with directivity 1, measured at 3 m from the unit (non-binding value calculated from sound power).

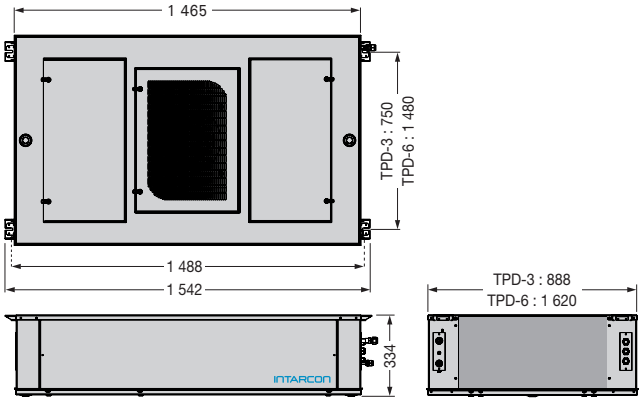
Dimensions

TCH series



* Interchangeable air connection sides.

TPD series



Dimensions in mm.

Control

iPro electronic control with distance digital display.

- Air supply temperature control.
- Room temperature control.
- Control option: remote touch display.
- Serial communication (TCH).
- Filter status control (TCH).
- Air flow control (TPD).
- External communication (TPD).

Air pathogens transmission

When talking, coughing or sneezing, small droplets are emitted that evaporate quickly and give rise to aerosols of very small particles. These micro-particles can remain in the air for hours and be transported long distances. It has been shown that the survival of viruses and bacteria in these particles is greater the lower the air temperature. The transmission of pathogens by air in closed places is favoured by the recirculation of air without sterilization or filtration treatment and the absence of ventilation with outside air, and it has been shown that these aerosols are the main contagion route of COVID-19.

The simulation of the transmission of aerosols in a process room shows that the probability of contagion in a room without ventilation is 15 times higher than a room equipped with a minimum renewal of outside air and an adequate level of filtration.

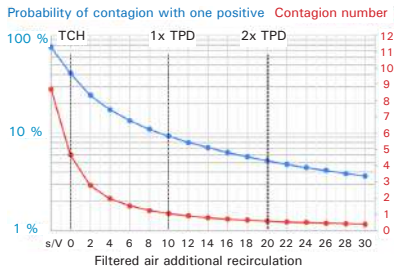
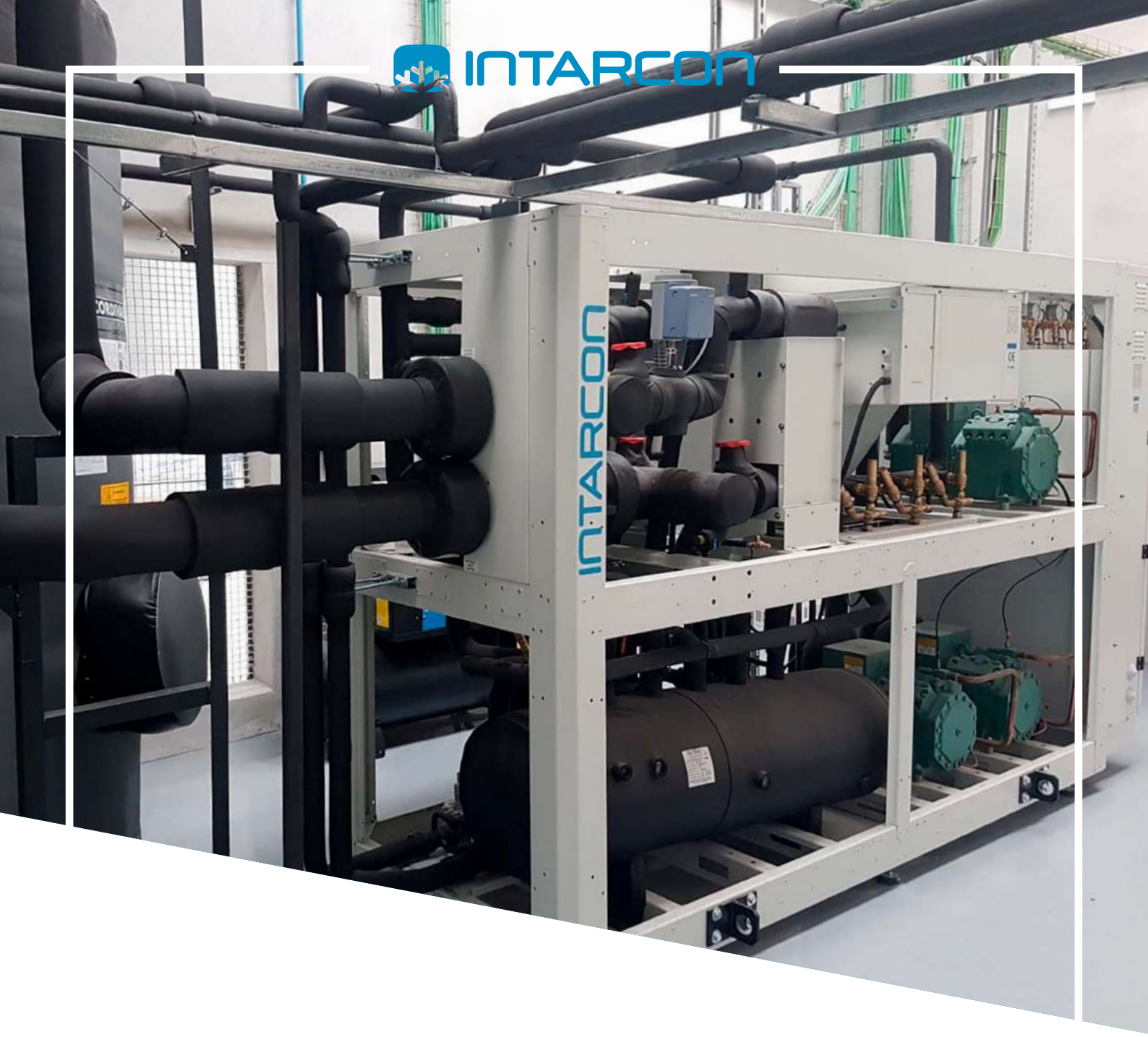


Fig. 2. Simulation of the probability of contagion given a positive in a 200 m² workroom with 13 workers at a temperature of 12 °C. Source: Prof. José L. Jiménez, Dept. of Chem. And CIRES, Univ. of Colorado-Boulder.

Ultraviolet light sterilization

Ultraviolet UV-C radiation of wavelengths of 280 nm - 200 nm damages the DNA of many micro-organisms and prevents them from reproducing. In this way, bacteria, viruses and fungi can be eliminated without leaving residues. The ultraviolet light is placed in the ventilation section to concentrate its biocidal action on the HEPA filters, the G4 pre-filter and the access doors, keeping the interior air treatment section sterile; This guarantees the best hygiene during filter replacement and unit cleaning.

Fig 3. intarSANIT complies with UNE 0048/20 June 2020, on the protection of the health and safety of workers against the risks related to exposure to artificial optical radiation.



CO_2 cooling system

Investment sustainable

100 % natural solution

Plug & Play installation

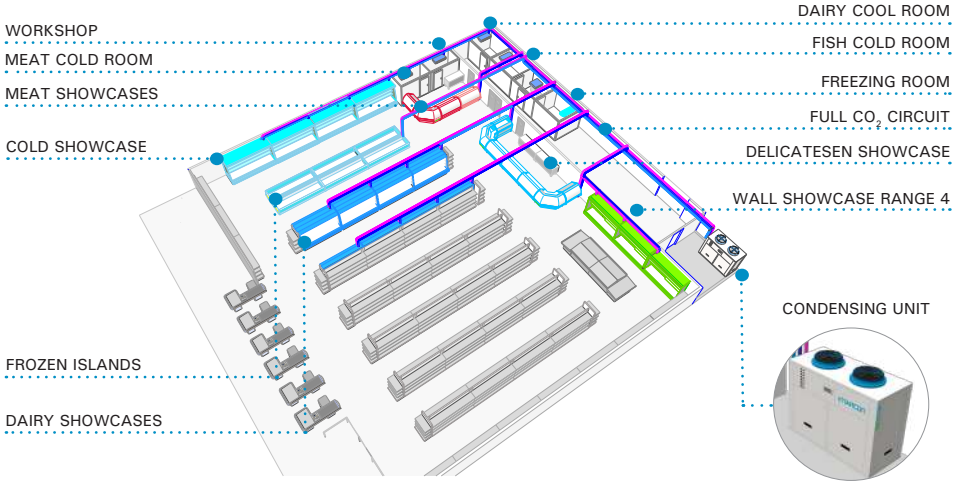
ECO$_2$CUBE | Transcritical CO$_2$ compact condensing units

- High reliability and energy efficiency in hot climates.
- Environmental sustainability.
- Fast Plug & Play installation.
- F-Gas 2022 compliant.

Transcritical CO_2 condensing units with built-in gas cooler for simultaneous production of positive and negative cooling in commercial applications from 30 to 100 kW cooling capacity.

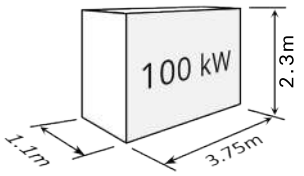
Example of installation in a supermarket

ECO$_2$CUBE has been designed to meet the refrigeration needs at different temperatures of medium-sized supermarkets and other commercial establishments.



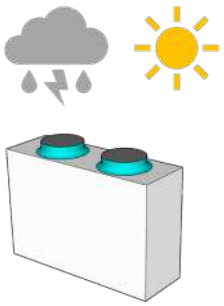
Compact design

ECO$_2$CUBE offer high performance in a small space, integrating all cooling elements in a compact design.

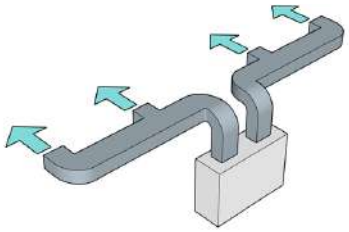


Outdoor or machine room installation

ECO$_2$CUBE can be installed in outdoors.



Or in the machine room, with a reduced air discharge flow through ducts to comply with the most stringent municipal regulations.

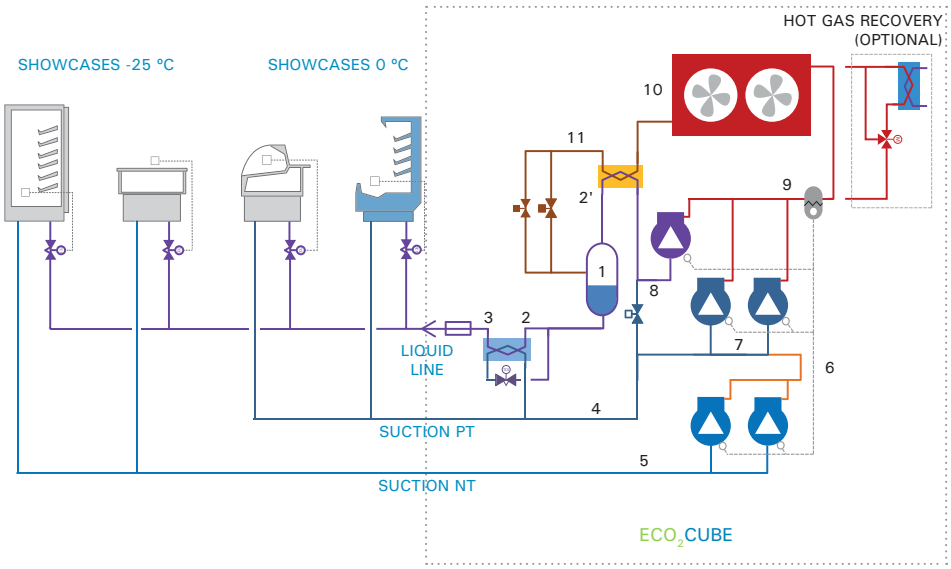


Features

- 400V 3N 50Hz power supply. Available at 60Hz. Others voltages by request.
- Casing built with galvanized steel sheet with epoxy paint for outdoor use with electrical panel and gas cooler.
- Set of semihermetic CO_2 compressor with parallel compression.
  - Up to 3 positive temperature transcritical compressors with the first one Inverter.
  - 1 Inverter parallel compressor.
  - Up to 3 negative temperature booster compressors with Inverter.
- Variable speed EC axial motor fans.
- High pressure sector (SP: 120 bar) made with high pressure copper microtubes and equipped with:
  - Separator - oil trap accumulator with filter and electronic oil injection on each compressor.
  - Condenser / gas cooler, made with high pressure copper microtubes and aluminium fins.
  - Internal economizer to ensure sufficient superheat in the parallel compressor suction.
  - High pressure switch, double safety valve.
  - Double gas cooler pressure control valve.
- Intermediate pressure sector (SP: 52 bar) made of copper tubing and equipped with:
  - CO_2 container with double safety valve (PS: 52 bar).
  - Pressure regulating valve with medium pressure relief.
  - Subcooler to ensure subcooling of the liquid line.
  - Filter drier and liquid sight glass.
- Positive temperature suction line (SP: 45 bar), made of copper tubing and equipped with a double safety valve.
- Negative temperature suction line (SP: 30 bar), made of copper tubing and equipped with a double safety valve.
- Emergency unit for CO2 maintenance.

Schematic diagram of installation principle

Configuration of 3 medium temperature compressors and 2 low temperature compressors, and optional transcritical recuperator.



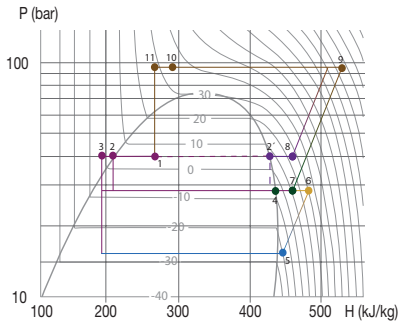
Operational reliability

System dimensioned for operation at high ambient temperatures due to parallel compression.

To ensure continuity of operation, the most critical components are duplicated or backed up in case of failure.

High efficiency

Parallel compression ensures high efficiency of the transcritical CO_2 cycle under extreme ambient temperatures.



Plug & Play

Each **ECO$_2$CUBE** unit is factory tested and adjusted prior to shipment.

They are provided with leak test and pressure test (ASP) certificates for the assembly and do not require ASP certification on site.

Refrigeration lines up to 100 kW can be executed in standard thick reinforced refrigerant copper pipe without ASP classification (application art. 4.3 of Directive 2014/68/EU).

Cooling line	PS (bar)	Max. diameter
Liquid	52	7/8" x 1.15
Suction PT	45	1 1/8" x 1.25

Hot gas defrost option

Low-pressure recirculated hot gas can meet the needs of a commercial refrigeration installation, where only part of the services require defrosting with heat supply.

The hot gas is extracted from the discharge of the compressors at a temperature of about 50 °C, and is expanded and desuperheated in the medium or low temperature services in the defrost cycle.

The available heat output for defrosting is 25 % of the cooling capacity at low temperature.

400V 3N 50Hz | Positive temperature | Negative temperature | R-744

Refrigerant	Application	Series / Model	Compressor PT	Compressor NT	Cooling capacity (kW) [1] at 32 °C ambient temp. MT Evap. temp. -8 °C	Cooling capacity (kW) [1] at 32 °C ambient temp. BT Evap. temp. -28 °C	Input power (kW)	Max. curent (A)	Ecodesign SEPR	Heat recovery capacity (kW) [2] Water 35/40 °C	Heat recovery capacity (kW) [2] Water 55/60 °C	Condenser Fan Ø (mm)	Condenser	Cooling connection Liq-Gas Liq-Suct. MT - Suct. BT
R-744	Positive and negative temperature	**MET-DE-2 2303**	3x CD4 75-4.7H	-	38.0	0.0	20.8	61	3.5	39	20	2x Ø 630	24 000	5/8"-7/8"
		DET-DE-2 2314		CDS101B	30.6	5.2	20.9	64	-					5/8"-7/8"-5/8"
		DET-DE-2 2324		CDS151B	28.1	6.9	20.8	68	-					
		DET-DE-2 2325		2x CDS101B	24.4	9.6	20.9	67	-					
		DET-DE-2 2335		2x CDS151B	19.9	12.7	21.0	68	-					
		MET-DE-2 2703	3x CD4 90-6.4H	-	52.2	0.0	28.6	72	3.5	54	27	2x Ø 630	24 000	5/8"-7/8"
		DET-DE-2 2714		CDS101B	44.8	5.2	28.6	75	-					5/8"-7/8"-5/8"
		DET-DE-2 2724		CDS151B	42.4	6.9	28.5	78	-					
		DET-DE-2 2725		2x CDS101B	38.6	9.6	28.5	78	-					
		DET-DE-2 2735		2x CDS151B	34.2	12.7	28.6	79	-					
		DET-DE-2 2745		2x CDS181B	27.1	17.7	28.9	81	-					5/8"-7/8"-7/8"
		MET-DE-2 2803	3x CD4 90-7.3H	-	59.2	0.0	32.4	72	3.5	61	30	2x Ø 630	24 000	5/8"-7/8"
		DET-DE-2 2814		CDS101B	51.7	5.2	32.4	75	-					5/8"-7/8"-5/8"
		DET-DE-2 2824		CDS151B	49.3	6.9	32.2	78	-					
		DET-DE-2 2825		2x CDS101B	45.6	9.6	32.2	78	-					
		DET-DE-2 2835		2x CDS151B	41.1	12.7	32.3	79	-					
		DET-DE-2 2845		2x CDS181B	34.0	17.7	32.6	81	-					5/8"-7/8"-7/8"
		MET-DE-3 3604	4x CD4 90-6.4H	-	69.0	0.0	35.0	96	3.5	66	33	3x Ø 630	36 000	7/8"-1 1/8"
		DET-DE-3 3615		CDS101B	62.1	4.9	35.1	99	-					7/8"-1 1/8"-5/8"
		DET-DE-3 3625		CDS151B	59.8	6.5	34.9	102	-					
		DET-DE-3 3626		2x CDS101B	56.2	9.0	35.0	102	-					
		DET-DE-3 3636		2x CDS151B	52.1	12.0	35.1	103	-					
		DET-DE-3 3646		2x CDS181B	45.4	16.6	35.5	105	-					7/8"-1 1/8"-7/8"
		MET-DE-3 3603	3x CD4 120-9.2H	-	74.6	0.0	40.8	76	3.5	77	38	3x Ø 630	36 000	7/8"-1 1/8"
		DET-DE-3 3614		CDS101B	67.1	5.2	40.7	79	-					7/8"-1 1/8"-5/8"
		DET-DE-3 3624		CDS151B	64.7	6.9	40.4	82	-					
		DET-DE-3 3725		2x CDS101B	61.0	9.6	40.4	82	-					
		DET-DE-3 3635		2x CDS151B	56.5	12.7	40.4	83	-					
		DET-DE-3 3645		2x CDS181B	49.4	17.7	40.8	85	-					7/8"-1 1/8"-7/8"
		DET-DE-3 3666		3x CDS181B	38.0	25.8	41.1	89	-					
		MET-DE-3 3704	4x CD4 90-7.3H	-	78.1	0.0	39.6	100	3.5	74	37	3x Ø 630	36 000	7/8"-1 1/8"
		DET-DE-3 3715		CDS101B	71.1	4.9	39.6	103	-					7/8"-1 1/8"-5/8"
		DET-DE-3 3825		CDS151B	68.8	6.5	39.4	106	-					
		DET-DE-3 3726		2x CDS101B	65.3	9.0	39.5	106	-					
		DET-DE-3 3736		2x CDS151B	61.1	12.0	39.6	107	-					
		DET-DE-3 3746		2x CDS181B	54.4	16.6	40.0	109	-					7/8"-1 1/8"-7/8"
		DET-DE-3 3667		3x CDS181B	43.7	24.2	40.5	113	-					
		MET-DE-3 4804	4x CD4 120-9.2H	-	99.0	0.0	49.9	101	3.5	94	47	3x Ø 630	36 000	7/8"-1 1/8"
		DET-DE-3 4815		CDS101B	92.0	4.9	49.9	104	-					7/8"-1 1/8"-5/8"
		DET-DE-3 4825		CDS151B	89.0	6.5	49.6	107	-					
		DET-DE-3 4826		2x CDS101B	85.8	9.0	49.6	107	-					
		DET-DE-3 4836		2x CDS151B	81.6	12.0	49.7	108	-					
		DET-DE-3 4846		2x CDS181B	74.9	16.6	50.1	110	-					7/8"-1 1/8"-7/8"
		DET-DE-3 4867		3x CDS181B	64.1	24.2	50.6	114	-					

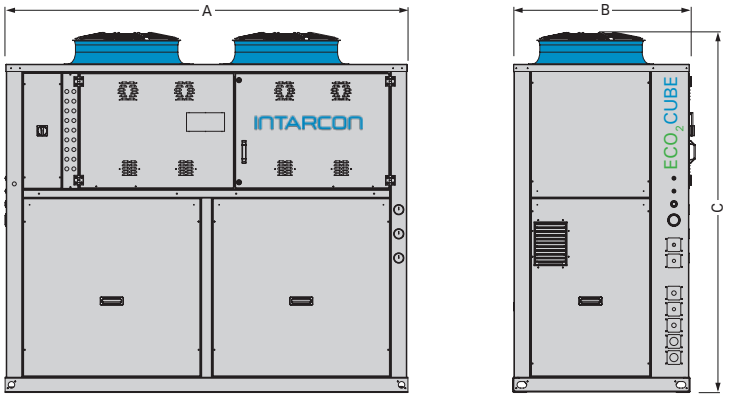
Options

- Heat recovery for DHW or heating.
- Pre-configured replacement electronics.
- Suction filter on low and/or medium temperature lines.
- Particle separator on low and/or medium temperature suction lines.
- Radial fans with EC motor for indoor installation.

[1] Nominal performance: Ambient temperature 32 °C, evaporating temperature -8 °C (PT) and -28 °C (NT).

[2] Maximum recoverable heat output of compressor discharge gas.

Dimensions



Dimensions (mm)	A	B	C
1 series	2 500	1 100	2 300
2 series	3 750	1 100	2 300

Dimensions in mm.

Electronic control

ECO_2CUBE cooling units incorporate a multifunctional electronic controller for transcritical systems, ideal for all climatic conditions, including hot climates, with the following features:

- Multifunctional electronic controller for control of the control unit:
  - Management of the PT line and NT line with CO_2 in transcritical booster configuration.
  - Management of semihermetic transcritical PT compressors (one of them Inverter).
  - Management of transcritical parallel semihermetic Inverter compressors.
  - Management of BT sub-critical semihermetic compressors (one of them Inverter).
  - Heat recovery management.
  - Management of double gas cooler pressure control valve.
  - Management of flash gas valve.
  - Management of variable speed EC electronic motor fans with floating set point.
  - Dynamic set of liquid receiver pressure: the receiver pressure set changes according to the state of the PT compressors; in this way, the energy consumption of the condensing units decreases due to a shorter running time of the parallel compressor.
  - Safety control and operation alarms for each compressor and fan.
  - Abnormal operation warnings with alarm detail.
  - RS485 connection with MODBUS RTU communication protocol.
- Digital control with display of parameters and operating status of the control unit.

ECO_2Watt

Great cooling capacity CO_2 condensing units

- Large maintenance access.
- No engine room.
- Custom design.

ECO_2Watt are great cooling capacity CO_2 condensing units, single or double suction transcritical cycle with built-in gas cooler, or in cascade cycle, designed according to the needs of the installation for a total cooling capacity between 80 and 300 kW.

Features

- Construction in galvanised sheet steel structure with epoxy paint.
- Sets of CO_2 compressors equipped with rotalock valves.
- Inverter capacity control per compressor group.
- Particulate separator and CO_2 filter.
- Oil separator and accumulator with oil filter and electronic compressor injection.
- Medium pressure CO_2 receiver (PS: 60 bar) with double safety valve.
- Economiser - liquid CO_2 subcooler.
- Instrumentation panel with pressure gauges and load taps.
- Integrated control and power panel with electronic control unit for compressor and electronic valve management.
- Emergency unit for CO_2 maintenance.

Transcritical ECO_2Watt

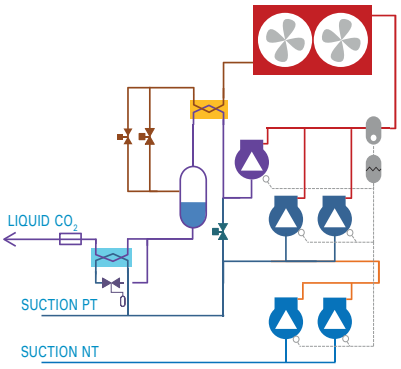
- Set of transcritical CO_2 compressors and set of compressors in parallel. Inverter drive in one compressor of each set.
- Double pressure control valve.
- Pressure regulating valve with medium pressure relief.
- Internal economiser exchanger.
- Gas cooler with copper tube coils and aluminium fins in parallel.
- PS: 120 bar. Variable speed EC axial motor fans.

Cascade ECO_2Watt

- Up to triple cascade plate heat exchanger with gravity circulation.
- High temperature refrigerant R-290 or HFC.
- Semihermetic high temperature compressors, with Inverter drive in one compressor.
- High temperature circuit made of copper, with filter, sight glass and electronic expansion valves.
- Copper tube and aluminium finned coil condenser in parallel V configuration.
- Variable speed EC axial motor fans.

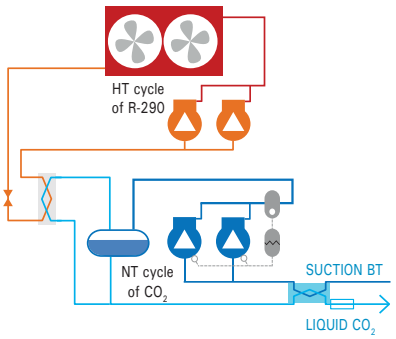
Transcritical cycle with parallel compression

The transcritical cycle with parallel compression improves energy efficiency at high ambient temperatures.



Cascade cycle

The CO_2 cascade cycle with a high temperature cycle of R-290 or HFC offers excellent refrigeration performance in low temperature applications (cold rooms or freezer tunnels).



ECO_2Rack | CO_2 compressor rack

- Large maintenance access.
- Custom design.

Rack of single or double suction CO_2 compressors in transcritical cycle, or in subcritical cycle condensed by glycol or refrigerant. **ECO_2Rack** condensing units can be built in various combinations of 2 or 3 compressors to offer a total cooling capacity of 50 to 300 kW.

Features

- Construction in galvanised sheet steel structure with epoxy paint.
- Sets of up to 3 CO_2 compressors equipped with rotalock valves.
- Inverter capacity control per compressor group.
- Particulate separator and CO_2 filter.
- Oil separator and accumulator with oil filter and electronic injection per compressor.
- Medium pressure CO_2 receiver (PS: 60 bar) with double safety valve led to the outside.
- Economiser - liquid CO_2 subcooler.
- Refrigeration circuit made of copper tube, equipped with filter drier.
- Instrumentation panel with pressure gauges and load taps.
- Integrated control and power panel with electronic control unit for compressor management and electronic valves.
- Emergency unit for CO_2 maintenance.

Subcrítical ECO_2Rack

- Up to triple stainless steel plate cascade condenser with double or triple electronic expansion valve.
- PS: 52 bar.

Transcritical ECO_2Rack

- Set of transcritical CO_2 compressors and set of compressors in parallel. Inverter drive in one compressor of each set.
- Double pressure control valve.
- Pressure regulating valve with medium pressure relief.
- Internal economiser exchanger.
- PS: 120 bar. Variable speed EC axial motor fans.

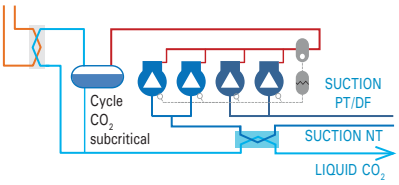
Options

- Hot gas heat recovery unit for DHW production by means of stainless steel plate heat exchanger with automatic bypass valve.
- Hot gas heat recovery unit for heating by means of stainless steel plate heat exchanger.
- Emergency unit for CO_2 maintenance.

Single or double suction subcritical cycle

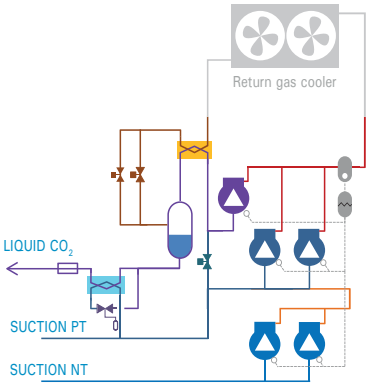
A low-temperature subcritical CO_2 condensing units can be combined in cascade with a water or glycol condensing circuit.

The double suction makes it possible to incorporate the refrigeration production of very negative temperature services (deep-freezing) or even positive temperature services.



Transcritical cycle with parallel compression

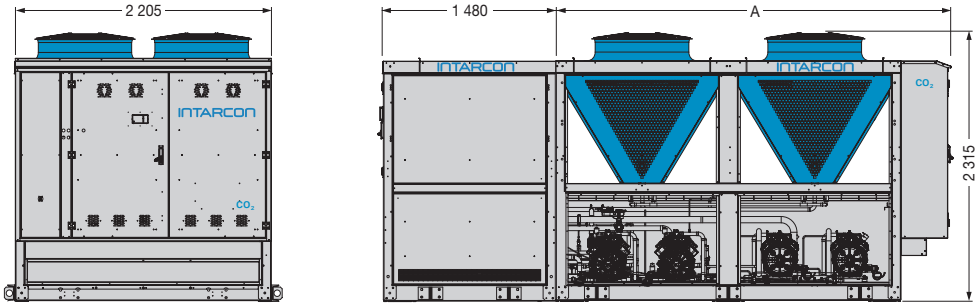
The transcritical cycle with parallel compression improves energy efficiency at high ambient temperatures.



Standard design pressures (PS)

High pressure:	120 bar
Liquid line:	52 bar
Suction positive temp.:	45 bar
Suction negative temp.:	30 bar

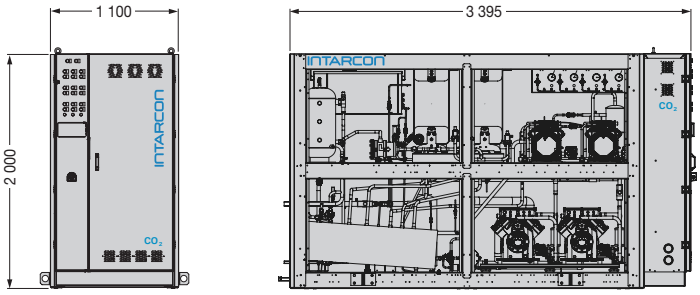
ECO_2Watt dimensions



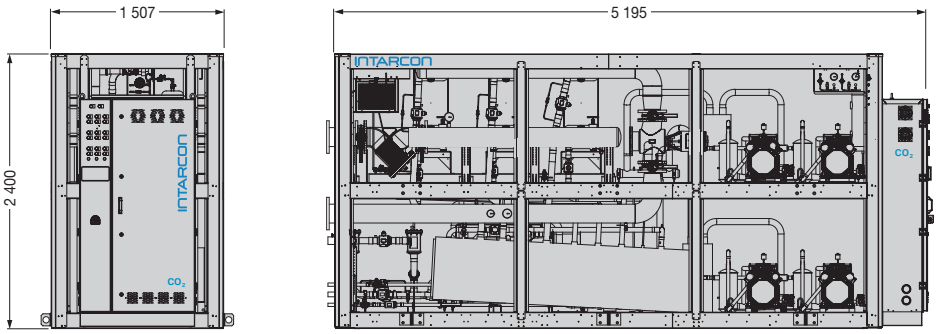
Dimensions (mm)	A
1 series	1 901
2 series	3 377
3 series	4 853
4 series	6 329
5 series	7 380

ECO_2Rack dimensions

1 series



2 series



Dimensions in mm.

JB-NE series – Low profile CO_2 evaporators

- High efficiency coils.
- Electronic expansion valves.
- Factory set equipment for optimum cooling performance.
- Electronic control (optional).

Slim-type commercial CO_2 evaporating units, with inbuilt control valves and electronic control, built in aluminium with polyester paint, for positive and negative temperature cold rooms.

Features

- 230V 50Hz power supply. Available in 60Hz. Other voltages by request.
- High-flow axial motor fans.
- Electronic expansion valve.
- High efficiency air cooling coil, made of copper tubes and aluminium fins, with 6 mm fin pitch.
- Refrigerant connections for soldering, with suction line siphon integrated in the unit.
- Flexible drain resistor (negative temperature models).

Options

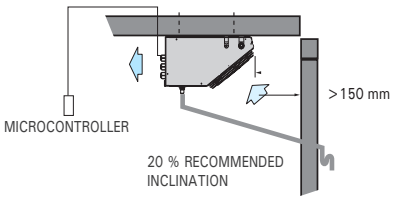
- Electric defrosting by means of heating elements.
- Hot CO_2 defrosting (consult us).
- Control panel with electrical protection and electronic control unit for control of the expansion valve driver, fans and defrosting, and light alarm.
- Anti-corrosion coil coating.
- EC fans.

High efficiency finned coils

The efficiency of a tube and fin coil is an index of the utilisation of its exchange surface, associated with a higher temperature homogeneity. INTARCON coils have an efficiency of 85 % to 90 %.

Installation recommendations

The installation of the evaporator units inside the cold store should be carried out according to the following recommendations:



- Place the unit at one end of the cold room, avoiding placing it above the door of the cold room and preferably driving it longitudinally in the cold room and transversally to the entrance door.

230V 50Hz | Positive temperature | Negative temperature | R-744

Refrigerant	Application	Series / Model	Cooling capacity according to cold room temperature (W) [1] SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 8 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Coil Area (m^2)	Coil Vol. (litres)	Fans Air flow (m^3/h)	Fans Nx Ø (mm)	Fans Power (W)	Fans I max. (A)	Fans Range (m)	Electrical defrost W	Electrical defrost A	Liq-Gas Cooling Connection	Weight (kg)
R-744	Positive / Negative	**MJB-NE-0 117** **BJB-NE-0 117**	650	510	410	5	2.0	0.6	300	1x Ø 200	62	0.3	3	1x 250	2.2	3/16"-3/16" 3/16"-3/8"	11
		MJB-NE-1 120 **BJB-NE-1 120**	1 210	940	770	6	3.5	1.0	550	1x Ø 200	70	0.3	4	1x 450	3.9	3/16"-3/16"	12
		MJB-NE-2 220 **BJB-NE-2 220**	1 990	1 550	1 270	6	6.3	1.6	1 050	2x Ø 200	140	0.5	4	1x 700	6.1	3/16" - 1/4"	17
		MJB-NE-3 325 **BJB-NE-3 325**	3 450	2 680	2 190	6	11.8	2.9	1 725	3x Ø 254	210	1.4	6	2x 800	10.4	1/4"-1/4"	32
		MJB-NE-4 430 **BJB-NE-4 430**	5 940	4 620	3 770	6	18.1	4.7	3 100	4x Ø 300	480	3.5	8	3x 1 000	13.0	1/4"- 3/8"	39

JD-NE series – Double-flow CO_2 evaporating units

- High-efficiency batteries.
- Electronic expansion valve.
- 100 % factory tested and adjusted units for the highest performance.
- Electronic control (optional).
- High comfort with low noise level.

Double-flow CO_2 evaporating units, in a low-profile design, with built-in control valves, built in galvanised steel structure and aluminium bodywork with polyester paint.

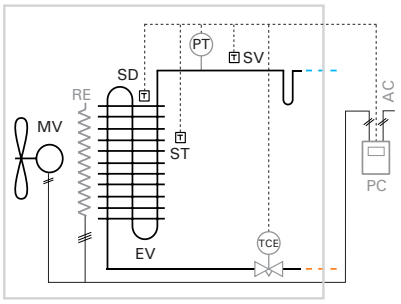
Features

- 230V 50Hz power supply. Available in 60Hz. Other voltages by request.
- High efficiency coils, in copper pipes and aluminium fins, with 6 mm fin spacing.
- Electronic expansion valve.
- Low-noise and low-speed axial motor fan.
- Ready-to-solder cooling connections, with built-in suction trap.

Options

- Electric defrosting by means of heating elements.
- Hot CO_2 defrosting (consult us).
- Electric defrosting by means of heating elements. Control panel with electrical protection and electronic control unit for controlling the expansion valve driver, fans and defrosting, and light alarm.
- Anti-corrosion coil coating.
- Integrated condensate pump.
- G3 filters on fans.
- Humidification / dehumidification / heating kit.

Cooling and electrical schematic



AC: ELECTRICAL CONNECTION
EV: EVAPORATOR
MV: MOTOR FAN
PT: PRESSURE TRANSDUCER
SD: DEFROST PROBE
ST: COLD ROOM PROBE
SV: EXPANSION VALVE PROBE
TCE: ELECTRONIC EXPANSION VALVE
PC: CONTROL PANEL (OPTIONAL)
RE: DEFROSTING RESISTOR (OPTIONAL)

230V 50Hz | Positive temperature | R-744

Refrigerant	Application	Series / Model	Cooling capacity according to cold room temperature (W) SC2 0 °C 85 % RH DT1=8 K	Coil			Fans					Electrical defrost		Liq-Gas Cooling Connection	Weight (kg)	SPL dB(A) (1)
				Fin spacing (mm)	Area (m^2)	Vol. (litres)	Air flow (m^3/h)	Nx Ø (mm)	Power (W)	I max. (A)	Range (m)	W	A			
R-744	Positive	**MJD-NE-1 136**	2 570	6	8.2	1.9	1 200	1x Ø 360	85	0.4	2x 4	2x 450	3.9	1/4"-1/4"	30	33
		MJD-NE-2 236	3 850	6	12.5	3.3	2 000	2x Ø 360	170	0.8	2x 4	2x 700	6.1	1/4"-1/4"	55	36
		MJD-NE-3 336	6 700	6	23.4	5.4	3 300	3x Ø 360	255	1.2	2x 4	6x 800*	6.9	1/4"-3/8"	68	38
		MJD-NE-4 245	9 360	6	36.1	8.7	4 400	2x Ø 450	290	1.3	2x 6	6x 1 000*	8.7	3/8"-1/2"	85	42

(1) Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

* Electrical heater defrost (as an option)

MJD series are also available featuring electrical heater defrost as an option, for operation at cold room temperature between -5 °C and 5 °C.

MJD models of series 3 and 4, with electrical heater defrost, unlike the others models require 400V 3N power supply.

JC-NE series – Commercial cubic type CO_2 evaporating units

- High-efficiency batteries.
- Electronic expansion valve and suction siphon.
- 100 % factory tested and adjusted units for the highest performance.

Commercial cubic type CO_2 evaporating unit, with built-in control valves, for high, positive and negative temperature cold rooms, built in galvanised steel structure and aluminium bodywork with polyester paint.

Features

- 230V 50Hz power supply. Available in 60Hz. Other voltages by request.
- High efficiency air cooling coil, made of copper tubes and aluminium fins, 6 mm fin pitch.
- Electronic expansion valve.
- High-flow axial motor fans.
- Cooling connections to be soldered, with suction line siphon integrated in the unit.
- Flexible drainage resistor (only for negative temperature models).

Options

- Resistance electric defrost.
- Hot CO_2 defrosting (consult us).
- Electric defrosting by means of heating elements. Control panel with electrical protection and electronic control unit for controlling the expansion valve driver, fans and defrosting, and light alarm.
- Humidification / dehumidification / heating kit.
- Anti-corrosion coil coating.

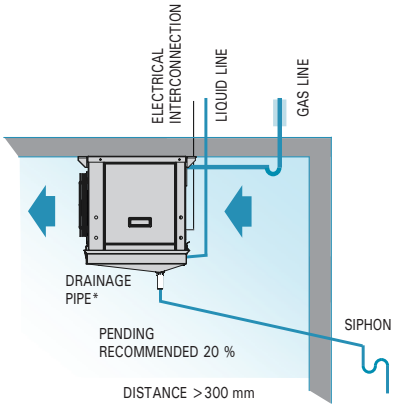
Electric control panel (optional)

All units can be combined with an advanced multi-function controller, consisting of an electronic board integrated in the control panel and digital control unit.

Installation recommendations

Maximum vertical distance between units of 15 m if the condensing unit is located higher than the evaporating unit, and of 6 m otherwise.

* Minimum drain pipe inclination of 20 % for negative temperature models.



230V 50Hz | Positive temperature | Negative temperature | R-744

Refrigerant	Application	Series / Model	Cooling capacity according to cold room temperature (W) [1] SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m^2)	Vol. (litres)	Fans Air flow (m^3/h)	Nx Ø (mm)	Power (W)	I max. (A)	Range (m)	Electrical defrost W	A	Liq-Gas Cooling Connection	Weight (kg)
R-744	Positive / Negative	MJC-NE-1 225 BJC-NE-1 225	2 650	2 050	1 670	6	8.4	2.7	1 600	2x Ø 254	140	1.0	4	2x 700	6.1	1/4"-1/4" 3/16"-1/4"	42
		MJC-NE-2 225 BJC-NE-2 225	3 130	2 410	1 970	6	11.5	3.7	1 750	2x Ø 254	140	1.0	4	2x 800	7.0	1/4"-1/4"	48
		MJC-NE-2 325 BJC-NE-2 325	3 870	2 970	2 420	6	11.5	3.7	2 400	3x Ø 254	210	1.4	6	3x 800	10.4	1/4"-3/8"	52
		MJC-NE-3 425 BJC-NE-3 425	4 990	3 840	3 140	6	18.3	5.0	3 000	4x Ø 254	280	1.9	6	4x 800	13.9	1/4"-3/8"	65

KC-NE series – Cubic type CO_2 evaporating units

- ❄ High efficiency coils.
- ❄ Electronic expansion valves and suction siphon.
- ❄ 100 % factory tested and adjusted units for the highest performance.
- ❄ Double insulated defrost tray in negative temperature models.

Cubic type CO_2 evaporating unit, with built-in control valves, for high, positive and negative temperature cold rooms, built in galvanised steel shell with polyester coating.

Features

- 230V 50Hz power supply. Available in 60Hz. Other voltages by request.
- High efficiency coils, in copper pipes and aluminium fins, with 6 mm fin spacing.
- Electronic expansion valve.
- Double stainless steel draining pan and insulation for negative temperature.
- Motor fans axial with high air flow.
- Ready-to-solder refrigeration connections, with built-in suction trap.
- Flexible drainage resistor (only for negative temperature models).

Options

- Electrical heater defrost with heaters inside the coil (change to 400V 3N 50Hz power supply).
- Hot CO_2 defrosting (consult us).
- Electric defrosting by means of heating elements. Control panel with electrical protection and electronic control unit for controlling the expansion valve driver, fans and defrosting, and light alarm.
- Humidification / dehumidification / heating kit.
- Anti-corrosion coil coating.

Electric control panel (optional)

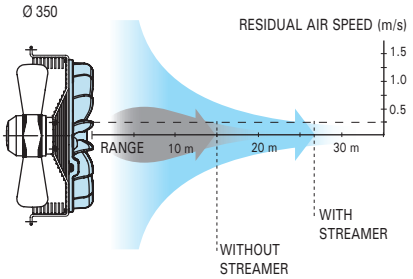
All units can be combined with an advanced multi-function controller, consisting of an electronic board integrated in the control panel and digital control unit.

Electronic expansion valve

The evaporator units are optionally equipped with an electronic pulse expansion valve.

Long-range fan streamer (optional)

Optionally, a streamer is installed on the fan outlet to get a longer range.



230V 50Hz | Positive temperature | Negative temperature | R-744

Refrigerant	Application	Series / Model	Cooling capacity according to cold room temperature (W) [1] SC1 0 °C 85 % RH DT1 = 8 K	SC2 -18 °C 95 % RH DT1 = 7 K	SC3 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Area (m^2)	Vol. (litres)	Fans Air flow (m^3/h)	Nx Ø (mm)	Power (W)	I max. (A)	Range (m)	Electrical defrost W	A	Liq-Gas Cooling Connection	Weight (kg)
R-744	Positive / Negative	MKC-NE-0 135 BKC-NE-0 135	3 790	2 910	2 380	6	9.6	3.2	2 100	1x Ø 350	165	0.7	15	6x 450	3.9	1/4"-1/4"	43
		MKC-NE-1 135 BKC-NE-1 135	4 850	3 790	3 090	6	17.1	5.4	2 700	1x Ø 350	160	0.7	15	6x 700	6.1	1/4"-3/8"	56
		MKC-NE-2 235 BKC-NE-2 235	7 690	5 970	4 870	6	21.2	7.4	4 150	2x Ø 350	325	1.4	15	6x 800	7.0	3/8"-1/2"	72
		MKC-NE-3 235 BKC-NE-3 235	9 540	7 440	6 070	6	31.8	9.6	5 200	2x Ø 350	315	1.4	15	9x 800	10.4	3/8"-1/2"	89
		MKC-NE-3 335 BKC-NE-3 335	11 550	8 950	7 310	6	31.8	9.6	6 200	3x Ø 350	485	2.1	15	9x 800	10.4	3/8"-1/2"	94
		MKC-NE-4 435 BKC-NE-4 435	15 080	11 690	9 540	6	42.4	12.8	8 300	4x Ø 350	645	2.9	15	9x 1 000	13.0	3/8"-1/2"	118

KH-NE series – Industrial cubic type CO_2 evaporating units

- Quick Plug & Play installation.
- High efficiency batteries optimised for CO_2.
- Built-in electronic valve pre-set at the factory.

Industrial cubic type CO_2 evaporating units, with built-in control valves and control board, for positive and negative temperature cold rooms, built in galvanised steel structure and bodywork with thermosetting polyester coating.

Features

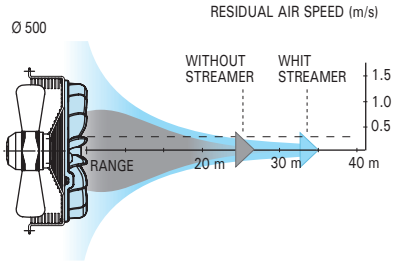
- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages by request.
- Air-cooled high efficiency coils, in copper pipes and aluminium fins, with 5, 7 and 10 mm fin spacing.
- Built-in solenoid valve in liquid line and thermostatic expansion valve.
- Ready-to-solder refrigeration connections, with built-in suction oil trap.

Options

- Electric defrosting by means of coil and condensate tray overlapping heating elements.
- Control panel with electrical protection and electronic control for controlling the expansion valve driver, fans and defrosting, and light alarm.
- Humidification / dehumidification / heating kit.
- Anti-corrosion coil coating.

Long-range fan streamer (optional)

Optionally, a streamer is installed on the fan outlet to get a longer range.



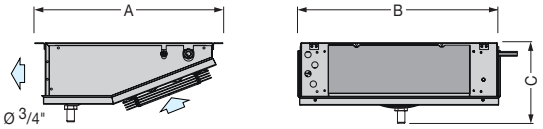
Fan (mm)	Without streamer (m)	With streamer (m)
Ø 450	22	28
Ø 500	26	34

400V 3N 50Hz | Positive temperature | Negative temperature | Deep-freezing | R-744

Refrigerant	Application	Series / Model	Cooling capacity according to cold room temperature (W) [1] SC2 0 °C 85 % RH DT1 = 8 K	SC3 -18 °C 95 % RH DT1 = 7 K	SC4 -25 °C 95 % RH DT1 = 6 K	Coil Fin spacing (mm)	Coil Area. (m^2)	Coil Vol. (litres)	Fans Air flow (m^3/h)	Fans Nx Ø (mm)	Fans Power (W)	Fans I max. (A)	Fans Range (m)	Electrical defrost W	Electrical defrost A	Liq-Gas Cooling Connection	Weight (kg)
R-744	Positive	MKH-NE-1 145	10 550			5	36	12	4 200	1x Ø 450	0.5	1.1	22	6x 700	6	3/8"-1/2"	72
		MKH-NE-2 150	15 230			5	52	17	6 100	1x Ø 500	0.7	1.4	26	6x 700	6	3/8"-1/2"	93
		MKH-NE-1 245	20 230			5	73	23	8 400	2x Ø 450	1.0	2.1	22	9x 800	10	1/2"-5/8"	99
		MKH-NE-2 250	30 100			5	105	33	12 200	2x Ø 500	1.3	2.8	26	12x 800	14	1/2"-5/8"	132
		MKH-NE-1 345	30 290			5	109	33	12 600	3x Ø 450	1.5	3.2	22	12x 1 000	17	1/2"-5/8"	153
		MKH-NE-2 350	43 340			5	157	48	18 300	3x Ø 500	2.0	4.2	26	15x 1 000	22	5/8"-7/8"	175
		MKH-NE-1 445	40 300			5	145	44	16 800	4x Ø 450	2.0	4.3	22	12x 1 250	22	5/8"-7/8"	197
		MKH-NE-2 450	59 020			5	210	64	24 400	4x Ø 500	2.6	5.6	26	15x 1 250	27	5/8"-7/8"	260
	Negative	BKH-NE-1 145	9 430	7 530	6 150	7	27	12	4 500	1x Ø 450	0.5	1.1	22	6x 700	6	3/8"-1/2"	70
		BKH-NE-2 150	13 580	10 850	8 860	7	39	17	6 500	1x Ø 500	0.6	1.4	26	6x 700	6	3/8"-1/2"	90
		BKH-NE-1 245	18 230	14 560	11 890	7	54	23	9 000	2x Ø 450	1.0	2.1	22	9x 800	10	3/8"-5/8"	95
		BKH-NE-2 250	26 890	21 480	17 540	7	79	33	13 000	2x Ø 500	1.3	2.8	26	12x 800	14	1/2"-5/8"	127
		BKH-NE-1 345	27 260	21 780	17 780	7	82	33	13 500	3x Ø 450	1.4	3.2	22	12x 1 000	17	1/2"-5/8"	147
		BKH-NE-2 350	38 930	31 100	25 390	7	118	48	19 500	3x Ø 500	1.9	4.2	26	15x 1 000	22	5/8"-7/8"	167
		BKH-NE-1 445	36 200	28 920	23 610	7	109	44	18 000	4x Ø 450	1.9	4.3	22	12x 1 250	22	5/8"-7/8"	189
		BKH-NE-2 450	52 860	42 230	34 470	7	157	64	26 000	4x Ø 500	2.5	5.6	26	15x 1 250	27	5/8"-7/8"	250
	Deep-freezing	UKH-NE-1 145	7 290	5 830	4 760	10	25	12	4 800	1x Ø 450	0.5	1.1	22	6x 700	6	3/8"-1/2"	70
		UKH-NE-2 150	10 940	8 740	7 130	10	37	17	6 750	1x Ø 500	0.6	1.4	26	6x 700	6	3/8"-1/2"	90
		UKH-NE-1 245	14 710	11 750	9 590	10	50	23	9 600	2x Ø 450	0.9	2.1	22	9x 800	10	3/8"-5/8"	94
		UKH-NE-2 250	21 770	17 400	14 200	10	75	33	13 500	2x Ø 500	1.2	2.8	26	12x 800	14	1/2"-5/8"	126
		UKH-NE-1 345	21 640	17 290	14 110	10	75	33	14 400	3x Ø 450	1.4	3.2	22	12x 1 000	17	1/2"-5/8"	146
		UKH-NE-2 350	32 110	25 650	20 940	10	112	48	20 250	3x Ø 500	1.8	4.2	26	15x 1 000	22	5/8"-7/8"	166
		UKH-NE-1 445	28 560	22 820	18 630	10	99	44	19 200	4x Ø 450	1.9	4.3	22	12x 1 250	22	5/8"-7/8"	187
		UKH-NE-2 450	43 620	34 850	28 450	10	149	64	27 000	4x Ø 500	2.4	5.6	26	15x 1 250	27	5/8"-7/8"	248

Dimensions

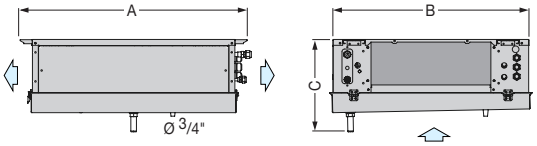
JB-NE series



Dimensions (mm)	A	B	C
0 series	417	549	185
1 series	460	643	235
2 series	460	993	235
3 series	538	1 691	235
4 series	590	2 064	285

All dimensions see page 55.

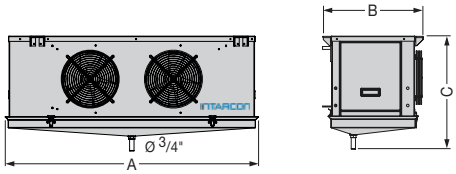
JD-NE series



Dimensions (mm)	A	B	C
1 series	852	736	310
2 series	852	1 086	310
3 series	852	1 786	310
4 series	942	2 186	360
5 series	942	2 186	360

All dimensions see page 57.

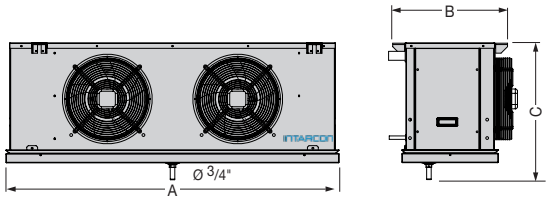
JC-NE series



Dimensions (mm)	A	B	C
12 series	1 200	530	547
22 series	1 500	530	547
23 series	1 500	530	547
34 series	1 900	530	547

All dimensions see page 61.

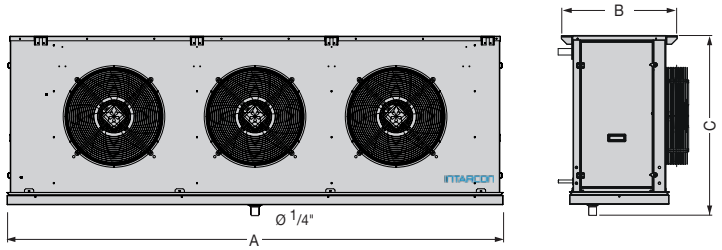
KC-NE series



Dimensions (mm)	A	B	C
0 series	880	530	581
1 series	1 230	530	581
2 series	1 530	530	581
3 series	1 930	530	581
4 series	2 430	530	581

All dimensions see page 63.

KH-NE series



Dimensions (mm)	A	B	C
11 series	1 180	625	730
21 series	1 180	625	980
12 series	1 930	625	730
22 series	1 930	625	982
13 series	2 680	625	730
23 series	2 680	625	982
14 series	3 430	625	730
24 series	3 430	625	982

All dimensions see page 67.

Waterloop system

Indirect condensation system

Indirect condensation by a water circuit

Quick and easy installation

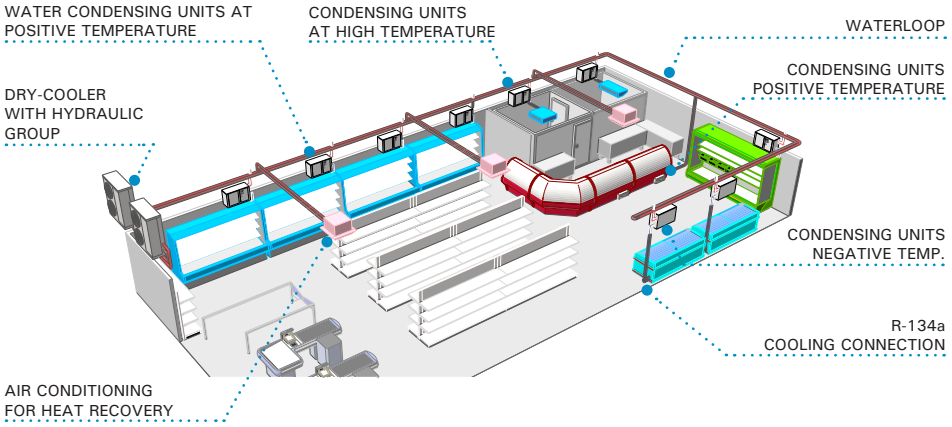
Minimal R-290 refrigerant charge

Waterloop system

Waterloop is a commercial refrigeration system, consisting of: DX cooling units distributed, with indirect condensation by a water circuit; and one or more units in parallel air-cooler connected to the condensation heat dissipation.

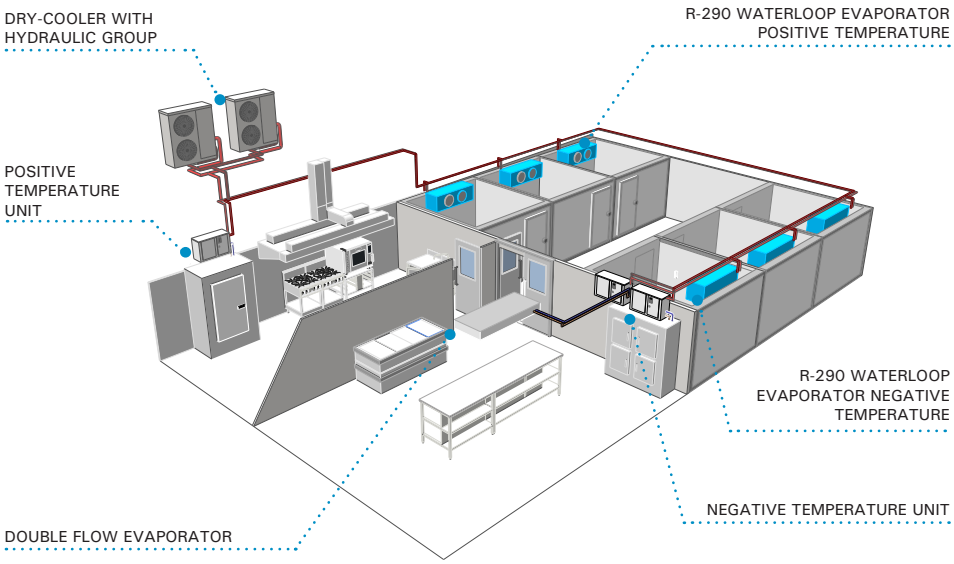
Supermarkets and food stores applications

Waterloop system allows distributed cooling production at different temperatures, with a single condensing water loop. Condensation heat recovery from the cooling units can easily be carried out in air conditioners or fan coils.



Application in industrial kitchens

Waterloop system makes possible to centralise a set of cold rooms and process rooms. The use of compact R-290 waterloop units in cold rooms and process rooms is a 100 % ecological solution free of greenhouse gases.



Ecology

Distributed cooling production allows to reduce and fractionate the load of HFC refrigerant in the installation, so that the risk of leakage is reduced.

Safety

Decentralization of the cooling production contributes a greater operation security of the installation, that guarantees a high availability of the system when faced with the isolated failure of a single unit.

The installation of a double air-cooler or dry-cooler in parallel, provides a greater operational security.

The condensation water loop contains only closed-circuit water working at low hydraulic pressure.

Simple installation

Waterloop system is very easy to install, thanks to its condensed water units pre-charged with refrigerant, and air-coolers or dry-coolers with inbuilt hydraulic unit/circuit.

Precision

Distributed cooling production allows adaptation of working temperatures to the needs of each service, thus obtaining an adequate degree of humidity for the best preservation of each product, and optimizing the performance of the systems.

Energy saving

Condensing units incorporate high-efficiency scroll compressors with R-134a or R-449A refrigerant for positive temperature, and R-449A for negative temperature.

Air-coolers or dry-coolers incorporate hydraulic group with electronic pump of variable flow, that adapts its functioning speed to the demand of the installation. Motor fans are equipped with speed regulators to reduce their consumption in low ambient temperatures or low load.

Versatility

Waterloop system is applicable both in new installations and in existing centralized direct expansion facilities, where the update of refrigeration installation is desired. In fact, existing refrigerating displays are usable and easily converted to new refrigerants.

Easy and flexible installation

Refrigeration units are supplied with service valves and factory refrigerant pre-load with service keys.

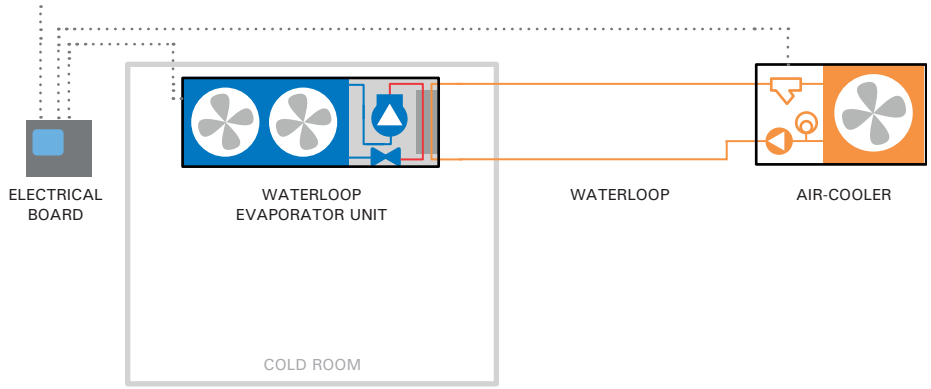
The waterloop can be made with polypropylene pipe without insulation, with service valves in each refrigeration unit, thus providing great flexibility in modifying the installation.

Tropicalised design

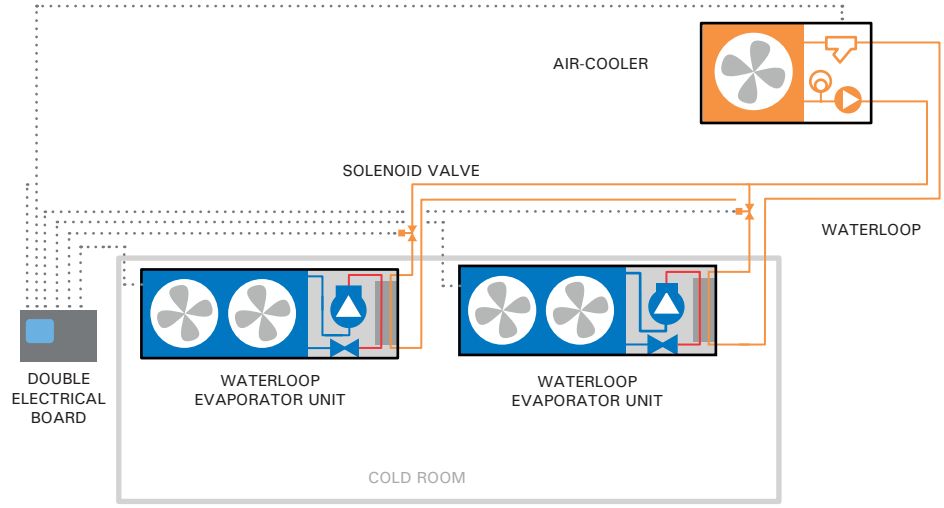
Unlike other systems on the market, the waterloop system is designed to work properly even with extreme ambient temperatures of up to 45 °C, with condensation water temperatures of up to 55 °C, and without the need to incorporate additional cooling equipment.

Waterloop system allows different configurations from a simple cold room up to a set of rooms and other refrigeration services at different temperatures.

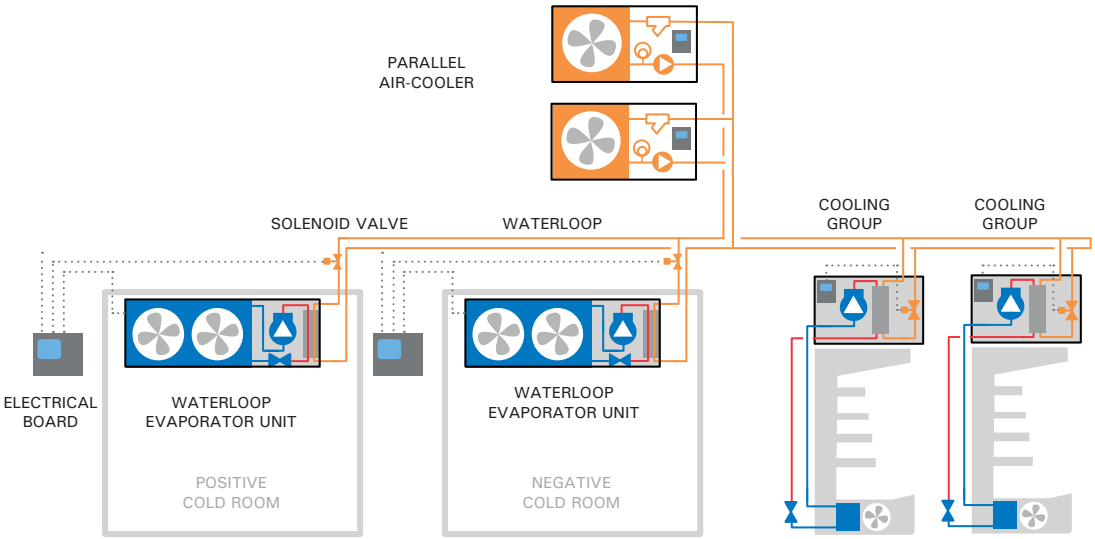
Simple installation example 1 + 1



Twin installation example



Multi installation example



Product range

Evaporator units with built-in compressor, condensed by water, and with external panel. Designed for positive or negative cold rooms temperature.

Refrigeration units condensed by water, with external panel. Designed to service refrigerated cabinets and displays.

Aero condensers with built-in hydraulic unit, at constant or variable flow, with water loop temperature control.

Waterloop

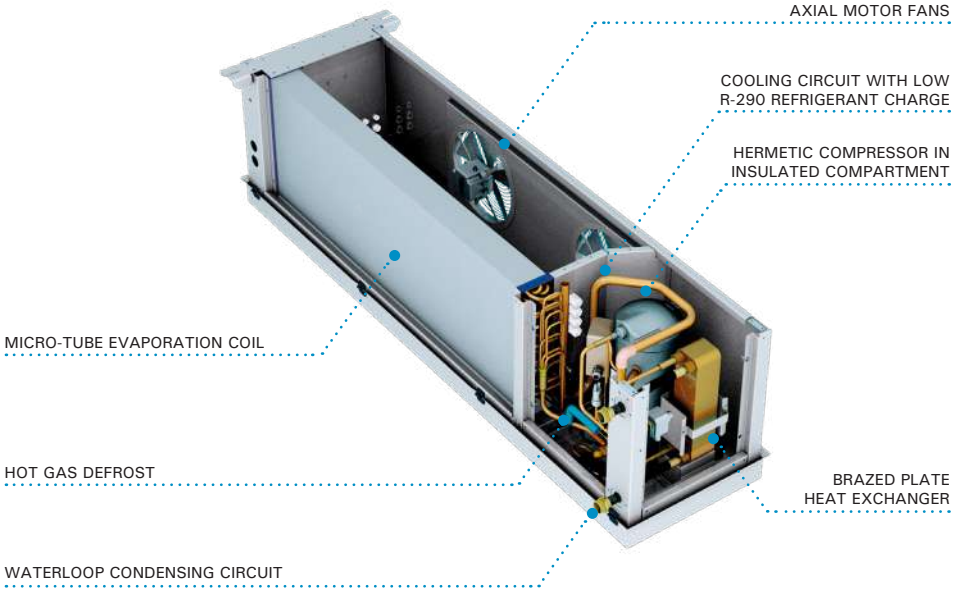
Evaporator with built-in compressor

- Compact unit condensed by water.
- Minimal R-290 refrigerant charge.
- Easy and safe installation with connection to the condensation water circuit.

Waterloop evaporator units with compressor are compact units for installation inside small cold rooms, designed with natural refrigerant R-290 and waterloop condensed.

Features

- 230V 50Hz or 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- R-290 refrigerant charge low than 0.25 kg.
- Bodywork in aluminium sheet and structure in galvanised steel lacquered in polyester paint.
- Alternative hermetic or scroll compressor integrated in thermally insulated compartment, with crankcase heater.
- Refrigeration circuit in annealed copper tube, with high pressure switch, filter drier and load valve.
- Evaporation coil in copper pipes and aluminium fins, thermostatic expansion valve and hot gas defrost.
- Axial motor fans.
- Stainless steel brazed plates heat exchanger.
- Threaded hydraulic connections.
- Control panel in white lacquered sheet metal cabinet, with MCB protection and multifunction electronic control.
- Water solenoid valve for multi-equipment waterloop installation (without assembly).



Installation

Installation of a closed loop water evaporator unit with an air cooler and general electrical panel:

Compact R-290 system

The waterloop evaporator units are hermetically sealed compact systems with a minimum charge of R-290.

They have a minimum R-290 refrigerant charge lower than the practical limit of the refrigerated volume.

Electrical board (optional)

Electrical power and control board for outside installation.

- MCB protection of compressor and manoeuvre.
- Electronic control with temperature control and recording of maximum and minimum temperatures.
- Jet Cool function.
- Energy saving function.
- Optional air condenser management with water loop temperature control and frost protection.

230V 50Hz / 400V 3N 50Hz | Positive temperature | Hermetic compressor - Scroll compressor | R-290

Refrigerant	Compressor	Serie / Modelo	Compressor HP	Compressor Power supply	Cooling capacity / cold room volume (W) [1] 0 °C W	Input power (W)	Max. current (A)	Evap. air flow (m^3/h)	Condenser pressure drop (litre/hour)	Condenser pressure drop (kPa) [2]	Hydraulic connection	Refrigerant charge (g)	Weight (kg)	Dry-cooler model [3]
R-290	1x H	MCC-ND-1 017	3/4	230V	1 430	572	7.7	1 600	350	3	3/4"	210	50	CWF-0
		MCC-ND-1 034	1 1/2	230V	2 640	1 060	16.4	1 600	650	3	3/4"	170	59	CWF-0
	1x Sc	MCC-SD-1 012	1 1/2	400V 3N	3 410	860	7.7	1 600	750	5	3/4"	265	62	CWF-1
		MCC-SD-2 017	2	400V 3N	3 930	1 070	9.0	1 700	875	5	1"	240	72	CWF-2

230V 50Hz / 400V 3N 50Hz | Negative temperature | Hermetic compressor - Scroll compressor | R-290

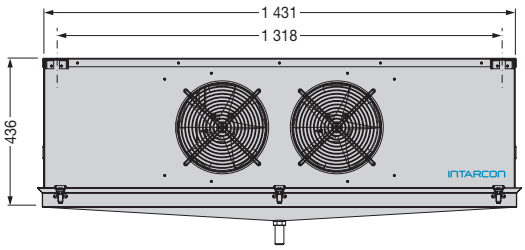
Refrigerant	Compressor	Serie / Modelo	Compressor HP	Compressor Power supply	Cooling capacity / cold room volume (W) [1] -20 °C W	Input power (W)	Max. current (A)	Evap. air flow (m^3/h)	Condenser pressure drop (litre/hour)	Condenser pressure drop (kPa) [2]	Hydraulic connection	Refrigerant charge (g)	Weight (kg)	Dry-cooler model [3]
R-290	1x H	BCC-ND-1 034	1	230V	847	800	11.0	1 600	300	3	3/4"	150	59	CWF-0
	1x Sc	BCC-SD-1 012	1 1/2	400V 3N	1 480	770	7.6	1 600	400	3	3/4"	160	68	CWF-0
		BCC-SD-2 017	2	400V 3N	1 980	1 000	8.9	1 700	525	3	1"	180	72	CWF-1

Options

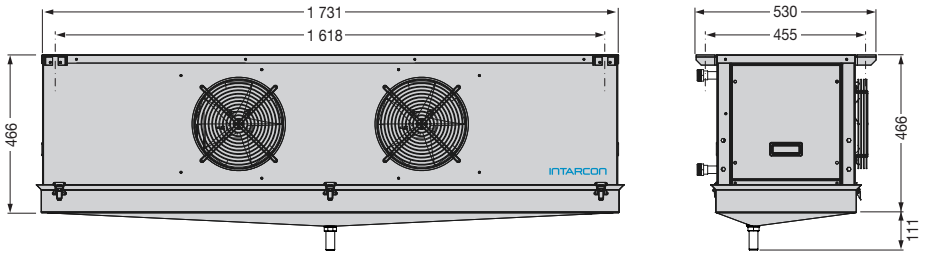
- Electrical board for twin installation .
- Without water solenoid valve for multi-equipment waterloop installation.

Dimensions

1 series



2 series



Dimensions in mm.

[1] Nominal performances refer to operation with cold room temperatures of 0 °C (PT) and -20 °C (NT) and water inlet condensation temperature of 7 °C. Estimated cold room volume according to conditions of the calculation bases (page 12).

[2] Condenser pressure drop in the water circuit.

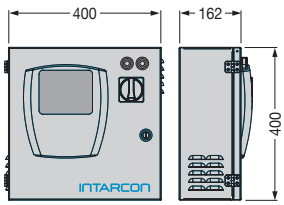
[3] Recommended air cooler model to combine with the evaporator unit.

Electrical interconnections

For the electrical interconnection from the electrical panel to the unit and to the air condenser (optional), the following interconnection cables must be provided:

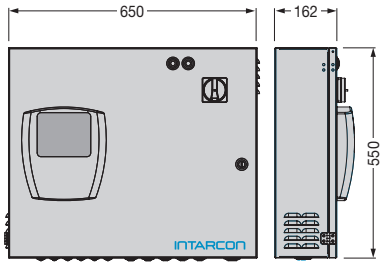
Cabinet - Evaporator	Connection
Compressor for single-phase units (except MCC-ND-1 034)*	3 x 1.5 mm^2 + T
Compressor for three-phase units and MCC-ND-1 034	3 x 2.5 mm^2 + T
Manoeuvre	7 x 1 mm^2
Probes	5 x 1 mm^2
Cabinet - Dry-cooler	**Connection**
Pump (1 + 1 system)	2 x 1.5 mm^2 + T
Fan (1 + 1 system)	3 x 1 mm^2
Probes (1 + 1 system)	3 x 1 mm^2
Pumping permit (multi system)	2 x 1 mm^2

Electrical board dimensions



Dimensions mm.

Electrical board dimensions - Twin installation



Dimensions mm.

Waterloop

Water-cooled condensing units

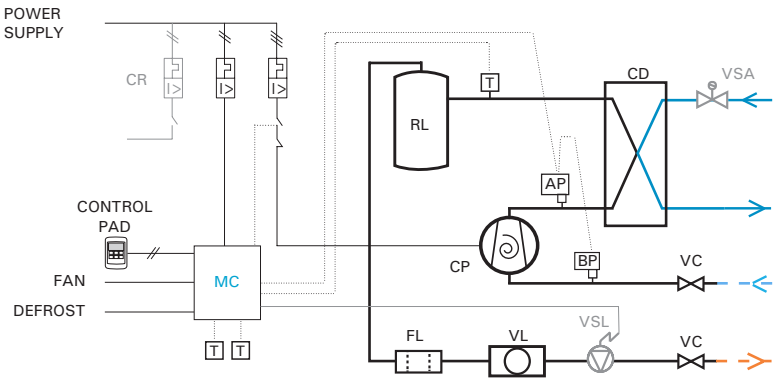
- Indirect condensation by a water circuit.
- Low noise level.
- Simple installation.
- Reduced refrigerant load.
- According to F-Gas.

Water-cooled condensing units for positive and negative temperature refrigeration, with very compact size and quiet operation, designed for on-wall or floor installation.

Features

- 230V 50Hz or 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Casing in pre-painted galvanized steel sheet, with noise insulation, with removable front panel for access to the compressor and the electrical panel.
- Acoustically insulated scroll compressor, mounted on shock absorbers.
- Horizontal construction rotary compressor (MDM-P / BDM-P).
- Stainless steel brazed plates heat exchanger. Cooling circuit with ceramic dryer filter, sight glass, HP and LP and services valves.
- Hydraulic condensation circuit made of copper pipe with threaded connections.
- Electromechanic control panel with thermomagnetic protection.
- Liquid injection system for negative temperature models with R-449A.

Refrigeration and electrical scheme

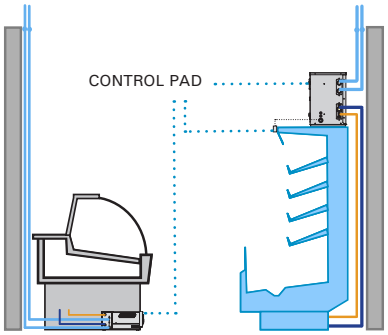


STANDARD
AP: HIGH PRESSURE SWITCH
BP: LOW PRESSURE SWITCH
CD: HEAT EXCHANGER
CP: COMPRESSOR
FL: FILTER
MC: MICRO-CONTROLLER
RL: LIQUID VESSEL
T: PROBE
VC: SHUT-OFF VALVE
VL: SIGHT GAUGE

OPTIONAL
CR: DEFROST CONTACTOR
VSA: WATER SOLENOID VALVE
VSL: LIQUID SOLENOID VALVE
OPTIONAL WITH ELECTRONIC CONTROL
MC: ELECTRONIC MICRO-CONTROLLER

Installation

Waterloop series motor condensers can be installed on the furniture, on the floor or anchored at the wall.



Rotary compressors

Hermetic rotary compressors provide greater reliability, lower noise and maximum design flexibility.

Very quiet compressors

Scroll compressors Copeland, are characterized by their great robustness and reliability of operation, and being cooled exclusively by the refrigerant gas, allow effective soundproofing.

Calculation of hydraulic connections

Visit our easy and intuitive online software to calculate the hydraulic pipes of the system.

https://intarcon.calcooling.com/

230V 50Hz / 400V 3N 50Hz | Positive temperature | Rotary compressor - Scroll compressor | R-134a / R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Compressor Power supply	Cooling capacity (W) [1] Evaporation temperature 0 °C	-5 °C	-10 °C	Input power (kW)	Max. current (A)	Condensing flow (l/h)	Hydraulic connection	Pressure drop (kPa) [2]	Liq-Gas cooling connection	Weight (kg)	SPL dB(A) [2] 1 m
R-134a	1x Rot.	**MDM-PY-0 005**	3/8	HGA-4450Y	230V	900	730	**585**	0.3	4	150	3/4"	5	1/4"-3/8"	20	36
		MDM-PY-0 007	1/2	HGA-4476Y	230V	1 255	1 030	**830**	0.5	5	250	3/4"	5	1/4"-1/2"	25	45
	1x Scroll	**MDM-SY-1 009**	1 1/4	ZS09	400V 3N *	1 855	1 540	**1 270**	0.7	3	350	3/4"	5	1/4"-5/8"	34	40
		MDM-SY-1 015	2	ZB15	400V 3N *	2 840	2 360	**1 945**	1.1	5	500	3/4"	5	1/4"-5/8"	43	37
		MDM-SY-1 021	3	ZB21	400V 3N *	4 250	3 520	**2 890**	1.5	7	750	3/4"	5	1/4"-3/4"	53	40
		MDM-SY-1 029	4	ZB29	400V 3N	5 245	4 355	**3 585**	2.0	10	950	1"	5	3/8"-7/8"	53	40
		MDM-SY-1 038	5	ZB38	400V 3N	7 095	5 880	**4 835**	2.5	13	1 250	1"	5	3/8"-7/8"	68	43
		MDM-SY-1 045	6	ZB45	400V 3N	8 320	6 915	**5 695**	2.9	13	1 500	1"	5	3/8"-1 1/8"	70	43
		MDM-SY-1 057	8	ZB57	400V 3N	10 575	8 780	**7 230**	4.0	16	1 950	1 1/4"	5	3/8"-1 1/8"	75	50
R-449A	1x Rot.	**MDM-PG-0 006**	1/2	HGA-4467Z	230V	1 285	1 055	**855**	0.5	5	200	3/4"	5	1/4"-3/8"	22	38
		MDM-PG-0 010	1	HGA-4512Z	230V	2 140	1 765	**1 440**	0.5	7	350	3/4"	5	1/4"-1/2"	27	41
	1x Scroll	**MDM-SG-1 009**	1 1/4	ZS09	400V 3N *	3 095	2 585	**2 135**	1.1	2	500	1"	5	1/4"-5/8"	34	40
		MDM-SG-1 015	2	ZB15	400V 3N *	4 860	4 050	**3 340**	1.8	5	800	1"	5	3/8"-5/8"	43	37
		MDM-SG-1 021	3	ZB21	400V 3N *	7 365	6 140	**5 080**	2.5	7	1 200	1"	5	3/8"-3/4"	53	40
		MDM-SG-1 029	4	ZB29	400V 3N	9 610	8 020	**6 635**	3.2	10	1 500	1 1/4"	5	3/8"-7/8"	53	40
		MDM-SG-1 038	5	ZB38	400V 3N	12 445	10 380	**8 540**	4.1	13	1 950	1 1/4"	5	3/8"-7/8"	68	43
		MDM-SG-1 045	6	ZB45	400V 3N	14 715	12 270	**10 130**	4.7	13	2 500	1 1/4"	5	3/8"-1 1/8"	70	43

230V 50Hz / 400V 3N 50Hz | Negative temperature | Rotary compressor - Scroll compressor | R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Compressor Power supply	Cooling capacity (W) [1] Evaporation temperature -20 °C	-25 °C	-30 °C	-35 °C	Input power (kW)	Max. current (A)	Condensing flow (l/h)	Hydraulic connection	Pressure drop (kPa) [2]	Liq-Gas cooling connection	Weight (kg)	SPL dB(A) [2] 1 m
R-449A	1xR	**BDM-PG-0 004**	1	HGA-2446Z	230V	985	785	**615**	470	0.6	5	150	3/4"	5	1/4"-1/2"	23	45
	1x Scroll	**BDM-SG-1 006**	2	ZF06	400V 3N	2 360	1 910	**1 525**	1 195	1.5	5	550	3/4"	5	1/4"-5/8"	45	39
		BDM-SG-1 009	3	ZF09	400V 3N	3 210	2 590	**2 070**	1 620	1.9	6	700	3/4"	5	3/8"-3/4"	54	44
		BDM-SG-1 011	3 1/2	ZF11	400V 3N	4 050	3 275	**2 610**	2 045	2.3	8	850	3/4"	5	3/8"-3/4"	55	45
		BDM-SG-2 013	4	ZF13	400V 3N	4 595	3 715	**2 970**	2 325	2.5	9	950	1"	5	3/8"-7/8"	55	47
		BDM-SG-2 015	5	ZF15	400V 3N	5 640	4 560	**3 640**	2 850	3.3	10	1 200	1"	5	3/8"-7/8"	73	47
		BDM-SG-2 018	6	ZF18	400V 3N	6 685	5 400	**4 310**	3 375	3.9	14	1 500	1"	5	3/8"-1 1/8"	78	49
		BDM-SG-2 025	8	ZF25	400V 3N	8 400	6 795	**5 430**	4 265	4.2	16	1 750	1 1/4"	5	3/8"-1 1/8"	78	52

Options

- Change to 230V 50Hz power supply.
- Electronic control for evaporator and compressor with temperature probes and control suitable for local or remote control.
- Refrigerant pre-load for 5 m piping.
- Built-in liquid solenoid valve with body and coil.
- Water solenoid valve.
- Dynamic balancing valve.
- Glycol water condensation.

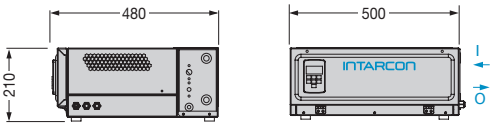
[1] Cooling capacity at nominal performances refer to operation at evaporation temperature -10 °C (PT) and -30 °C (NT), water temperature of 40 °C, 10 K super-heating and 3 K sub-cooling.

[2] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

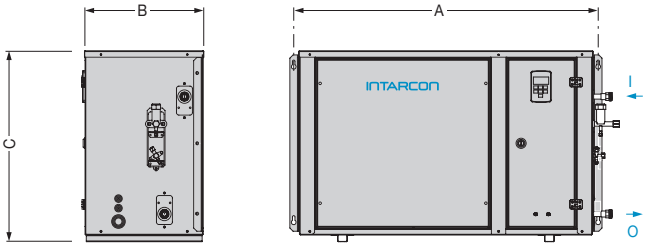
* Available units with 230V 50Hz power supply.

Dimensions

0 series



1 and 2 series



Dimensions (mm)	A	B	C
1 series	832	355	531
2 series	957	375	600

Dimensions in mm.

Waterloop | Dry-cooler with built-in hydraulic group

- ❄ Low sound level with double acoustic insulation.
- ❄ Tropicalised design for ambient temperature up to 45 °C as standard.

Dry-coolers with built-in hydraulic group, in a low-noise construction, designed for heat dissipation of the refrigeration equipment condensation waterloop.

Features

- ▶ Axial EC motor fans (except CWF-0 and CWF-1).
- ▶ High efficiency water coils with copper pipes and aluminium fins.
- ▶ Hydraulic group with variable flow electronic pump, expansion tank, security valve, filter, thermomanometers and auto-fill valve included.
- ▶ Closed membrane expansion tank.
- ▶ Threaded hydraulic connections.
- ▶ Electric power panel with protection of hydraulic pump, fan motor and frequency variator (except CWF-0 and CWF-1).

Electronic control

Waterloop dry-coolers incorporate an electronic control with the next functions:

- Variation of the water pump flow adapting to the demand, depending on the impulsion pressure.
- Waterloop temperature control by fan speed variation, with floating set-point.
- Frost protection.

230V 50Hz | Positive temperature | Water

	Series / Model	Flow control	Exchange capacity (W) (1)	Air Flow (m^3/h)	Fan (N x Ø mm)	Water flow (l/h)	Input power (kW)	Max. current (A)	Pressure drop (kPa) (2)	Cooling connection	Weight (kg)	SPL dB(A) (3)
WATER	**CWF-0**	Constant	3 000	1 700	1x Ø 360	500	0.14	1.1	100	3/4"	76	30
	CWF-1	Constant	4 700	3 200	1x Ø 450	750	0.22	1.8	100	3/4"	79	26
	CWF-2	Variable	6 000	3 700	1x Ø 450	1 000	0.24	2.0	100	1"	81	26
	CWF-3	Variable	10 000	6 500	2x Ø 450	1 500	0.44	3.6	100	1"	101	29
	CWF-4	Variable	12 000	7 000	2x Ø 450	2 000	0.48	3.9	100	1 1/4"	113	29
	CWF-6	Variable	20 000	13 000	4x Ø 450	3 000	0.88	7.0	100	1 1/2"	160	32
	CWF-8	Variable	24 000	14 000	4x Ø 450	4 000	0.96	7.5	100	1 1/2"	185	32

Options

- ▶ Water coil anti-corrosion polyurethane coating.
- ▶ Coil protection grille.

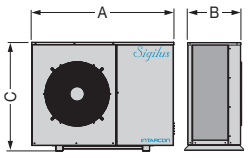
(1) Estimated heat exchange power with air temperature of 35 °C, and water inlet / outlet temperature of 45 / 40 °C.

(2) Available circuit pressure.

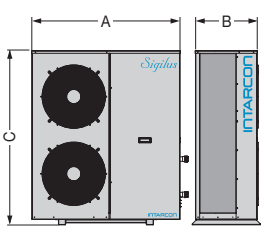
(3) Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

Dimensions

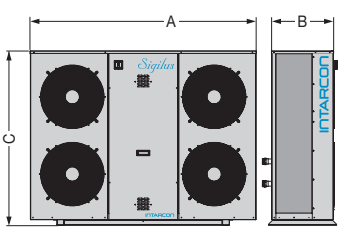
0,1 and 2 series



3 and 4 series



6 and 8 series



Dimensions (mm)	A	B	C
0 and 1 series	1 030	380	577
2 series	1 080	410	827
3 series	1 150	481	1 097
4 series	1 150	481	1 347
6 series	1 748	481	1 097
8 series	1 748	481	1 347

Glycol chillers

Indirect commercial and industrial refrigeration systems

Easy installation

100 % natural solution

Hydraulic unit incorporated

R-290 *Sigilus* | Chillers

- ❄ Tropicalised design for ambient temperature of 45 ºC.
- ❄ 100 % factory tested equipment.
- ❄ Acoustically insulated scroll compressor.
- ❄ Built-in hydraulic unit (optional).

R-290 *Sigilus* is the range of chiller in silent air-condensed construction for commercial refrigeration applications, using a low propane charge as the primary refrigerant contained in the chiller, and water or glycol as the secondary refrigerant for cold transport.

Features

- ▶ 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- ▶ R-290 refrigerant.
- ▶ Hermetic scroll compressor mounted on dampers and acoustically insulated, with internal clixon and crankcase heater.
- ▶ Large surface condensing coil, made of copper tubes and aluminium fins, with tropicalised sizing for ambient temperature of 50 ºC.
- ▶ Motor fan with proportional condensing pressure control by means of speed variation.
- ▶ Refrigeration circuit made of annealed copper tube equipped with ATEX high and low pressure switches, safety valves and filter.
- ▶ Hydraulic circuit made of copper pipe, with threaded connections, fill/drain valve, air vent, flow switch, thermometers and inlet/outlet pressure gauges.
- ▶ Electric power and control panel, with general differential protection, motor fan circuit breaker and compressor circuit breaker and thermistor.
- ▶ Electronic control with digital control interface.
- ▶ Acoustic and light alarm.
- ▶ Leak detector in the compressor compartment.

Propane

Propane, or R-290, is a hydrocarbon used as a refrigerant in compact commercial and industrial refrigeration equipment. It has a low environmental impact and excellent thermodynamic properties.

- Global Warming Potential: GWP = 0.02 according to IPCC AR6
- Boiling point at 1.013 bar (ºC): -42.10
- Temperature slide (ºC): 0
- Safety classification: A3. Non-toxic but extremely flammable.

Scroll compressor

Hermetic scroll compressors are characterised by their great robustness and reliability of operation, and as they are cooled exclusively by the refrigerant gas, they provide effective soundproofing.

400V 3N 50Hz | High temperature | Scroll compressor | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] I/O water temperature 12/7 °C	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Refrigerant charge (kg)	Water flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [3]
R-290	1x Scroll	**AWF-SD-6 017**	2 1/2	ZB17KCU	7.0	2.0	5.2	7	1x Ø 450	4 250	< 0.7	1.2	1"	140	23
		AWF-SD-6 025	4	ZB25KCU	9.8	2.8	5.6	9	1x Ø 450	4 250	< 0.7	1.7	1 1/4"	160	27
		AWF-SD-7 037	6	ZB37KCU	13.7	4.2	5.9	11	1x Ø 450	4 500	< 0.7	2.4	1 1/4"	190	29
		AWF-SD-7 049	8	ZB49KCU	17.0	5.3	5.5	19	2x Ø 450	7 000	< 0.7	2.9	1 1/2"	200	33

400V 3N 50Hz | Positive temperature | Scroll compressor | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [2] I/O 35 % propylene glycol temperature -2/-8 °C	Potencia abs. nominal (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Refrigerant charge (kg)	Glycol flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [3]
R-290	1x Scroll	**MWF-SD-6 017**	2 1/2	ZB17KCU	4.1	1.8	3.5	7	1x Ø 450	4 250	< 0.7	0.6	1"	140	23
		MWF-SD-6 025	4	ZB25KCU	5.8	2.5	3.8	9	1x Ø 450	4 250	< 0.7	0.9	1"	160	27
		MWF-SD-7 037	6	ZB37KCU	8.3	3.6	4.1	11	1x Ø 450	4 500	< 0.7	1.3	1 1/4"	190	29
		MWF-SD-7 049	8	ZB49KCU	10.4	4.6	4.0	19	2x Ø 450	7 000	< 0.7	1.6	1 1/4"	200	33

Options

- Built-in hydraulic module.
- Protective grille for external coil.
- Polyurethane coating on the condensing coil.
- Low voltage and phase change protection.

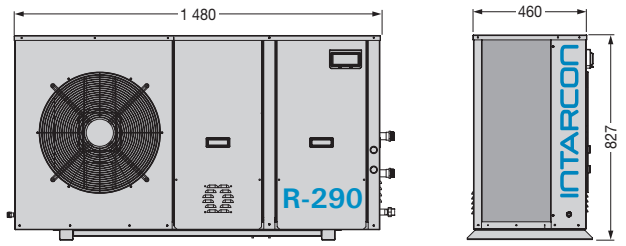
[1] Nominal performance high temperature: 35 °C ambient temperature with water inlet/outlet at 12/7 °C.

[2] Nominal performance positive temperature: 35 °C ambient temperature with glycol inlet/outlet at -2/-8 °C, with a propylene glycol concentration of 35 %.

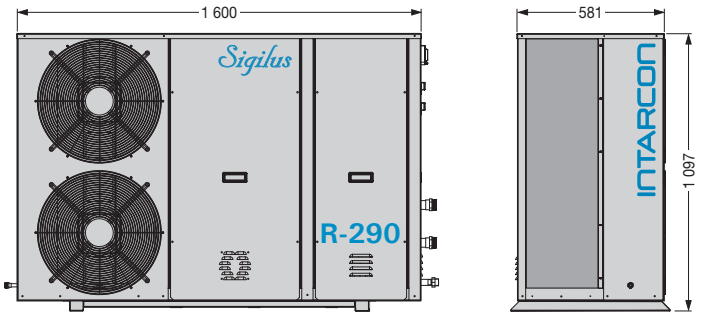
[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

Dimensions

6 series



7 series



Dimensions in mm.

intarCUBE R-290 | Chillers

- ❄ Natural refrigerant R-290.
- ❄ High energy efficiency.
- ❄ Easy installation.

Water or glycol chiller for commercial and industrial refrigeration applications with reduced R-290 load, in vertical footprint construction with optional built-in hydraulic unit.

Features

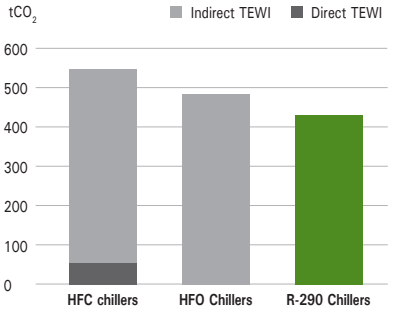
- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- R-290 refrigerant.
- Self-supporting body made of galvanised steel sheet with polyester paint for outdoor use, with thermo-acoustic insulation of elastomeric foam. Side panels that can be opened around the entire perimeter.
- Separate compressor compartment with leak detector and ATEX extraction fan.
- Tandem or trio of scroll compressors for R-290 with acoustic insulation; or tandem of semihermetic compressors for R-290 with capacity control and unloaded start, with crankcase unloaded, with crankcase heater.
- Refrigerating circuit made of annealed copper tube with soldered joints, filter drier, pressure filter drier, ATEX high and low pressure switches, pressure transducers and temperature probes.
- Condenser coil of copper microtube and aluminium fins.
- Electronic fans.
- Electrical control and power panel with magneno-thermal and differential protection independent of compressors, fans and pumps.
- Stainless steel plate evaporator with electronic expansion valve.
- Economiser by means of internal heat exchanger.
- Programmable Emerson electronic control unit with refrigeration control, condensing fan control with floating set point, pump control, etc.
- Threaded hydraulic connections.
- Glycerine pressure gauges.

Natural refrigerant R-290

R-290 or propane is naturally occurring in the environment with virtually zero greenhouse effect (GWP = 0.02 according to IPCC AR6).

R-290 has excellent thermodynamic properties and high efficiency in refrigeration production.

The TEWI or overall global warming impact of R-290 chiller is 20 % lower than that of HFC, not only because of the zero direct effect, but also due to the higher energy efficiency.



TEWI over a 15-year life cycle of a 100 kW refrigeration chiller. Calculation of electricity consumption according to Ecodesign. Annual leakage rate of 5 %. Emission factor 0.15 kg CO_2/kWh.

Reduced refrigerant charge

intarCUBE chillers are designed with a reduced R-290 charge of less than 5 kg, respecting the refrigerant charge limits in publicly accessible premises.

Safety measures against the risk of explosive atmospheres are incorporated. R-290 is a flammable refrigerant, class A3, which is confined in a ventilated envelope in compliance with EN 378 standard.

400V 3N 50Hz | High temperature | Scroll or semihermetic compressor | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] I/O water temperature 12/7 °C	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Water flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [4]
R-290	2x Scroll	**AWV-SD-6 0502**	8	2x ZB25KCU	**19.7**	6.0	6.7	19	2x Ø 450	9 000	3.4	1 1/2"	400	31
		AWV-SD-6 0742	12	2x ZB37KCU	**27.6**	9.1	6.7	26	2x Ø 450	9 000	4.7	2"	410	32
		AWV-SD-6 0982	16	2x ZB49KCU	**33.3**	11.9	6.3	34	2x Ø 450	9 000	5.7	2"	430	36
	3x Scroll	**AWV-SD-7 0753**	12	3x ZB25KCU	**29.7**	8.8	7.1	27	3x Ø 450	14 400	5.1	2"	550	32
		AWV-SD-7 1113	18	3x ZB37KCU	**41.7**	13.0	7.2	38	3x Ø 450	14 400	7.1	2"	570	34
		AWV-SD-7 1473	24	3x ZB49KCU	**50.4**	17.1	6.6	50	3x Ø 450	14 400	8.6	2 1/2"	640	38
	2x Semih.	**AWV-KD-8 0242**	24	2x S12-42AXH	**64.5**	21.5	7.0	45	2x Ø 630	20 000	11.0	2 1/2"	909	47
		AWV-KD-8 0302	30	2x S15-52AXH	**74.7**	26.9	6.8	59	2x Ø 630	20 000	12.8	2 1/2"	924	49
		AWV-KD-8 0402	40	2x S20-56AXH	**79.7**	31.0	6.4	73	2x Ø 630	20 000	13.6	2 1/2"	936	51

400V 3N 50Hz | Positive temperature | Scroll or semihermetic compressor | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [2] I/O 35 % propylene glycol temperature -2/-8 °C	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Glycol flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [4]
R-290	2x Scroll	**MWV-SD-6 0502**	8	2x ZB25KCU	**11.9**	5.4	3.6	19	2x Ø 450	9 000	1.8	1 1/4"	400	31
		MWV-SD-6 0742	12	2x ZB37KCU	**17.3**	7.5	3.8	26	2x Ø 450	9 000	2.6	1 1/2"	410	32
		MWV-SD-6 0982	16	2x ZB49KCU	**21.2**	9.5	3.8	34	2x Ø 450	9 000	3.2	1 1/2"	430	36
	3x Scroll	**MWV-SD-7 0753**	12	3x ZB25KCU	**17.9**	8.0	3.8	27	3x Ø 450	14 400	2.7	1 1/2"	550	32
		MWV-SD-7 1113	18	3x ZB37KCU	**25.8**	11.1	4.1	38	3x Ø 450	14 400	4.0	2"	570	34
		MWV-SD-7 1473	24	3x ZB49KCU	**31.8**	13.8	4.1	50	3x Ø 450	14 400	4.9	2"	640	38
	2x Semih.	**MWV-KD-8 0242**	24	2x S12-42AXH	**38.9**	17.0	4.0	45	2x Ø 630	20 000	6.0	2"	909	47
		MWV-KD-8 0302	30	2x S15-52AXH	**45.4**	20.1	4.0	59	2x Ø 630	20 000	7.0	2"	924	49
		MWV-KD-8 0402	40	2x S20-56AXH	**48.5**	22.9	3.9	73	2x Ø 630	20 000	7.4	2"	936	51

Options

- Machine room version with EC radial fans for exhaust air ducting.
- Anti-corrosion treatment based on polyurethane coating for the condensing coil.
- Electronic control and spare driver.
- Silentblocks for equipment installation.
- Heat recovery (20 or 80 % heat from the condenser) for hot water generation.
- Built-in hydraulic group made of copper pipe with threaded connections, with glycol circulating pump with stainless steel body and impeller, and optional backing pump, expansion vessel, safety valve, mesh filter, thermometers and pressure gauges, air vent and drainage inlet (except 8 series and units with heat recovery).
- External hydraulic group.

[1] Nominal performance high temperature: 35 °C ambient temperature with water inlet/outlet at 12/7 °C.

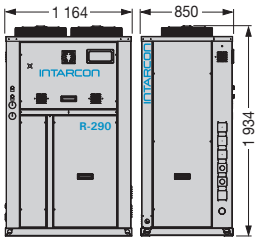
[2] Nominal performance positive temperature: 35 °C ambient temperature with glycol inlet/outlet at -2/-8 °C, with a propylene glycol concentration of 35 %.

[3] Seasonal performance factor (SEPR) according to Commission Regulation (EU) 2015/1095 and (EU) 2016/2281.

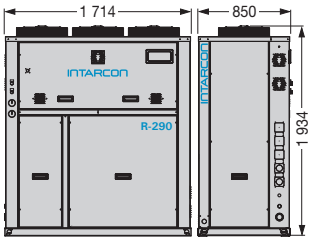
[4] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

Dimensions

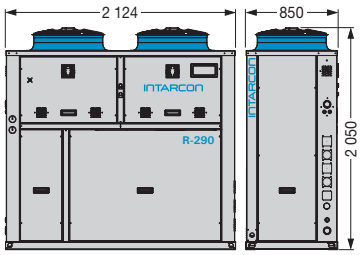
6 series - axial



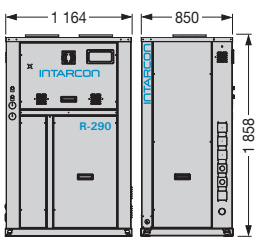
7 series - axial



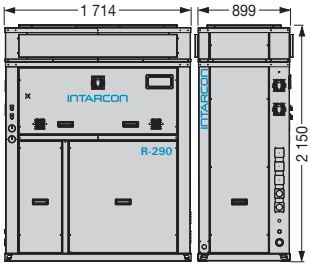
8 series - axial



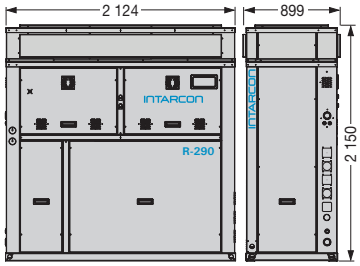
6 series - radial



7 series - radial



8 series - radial



Dimensions in mm.

intarWatt R-290 | Chillers

- Built-in hydraulic unit (optional).
- Low refrigerant charge R-290.
- No need for machine room.
- Plug & Play system.
- Optimised compact system, with minimum maintenance.

Water or glycol chiller for outdoor industrial refrigeration applications.

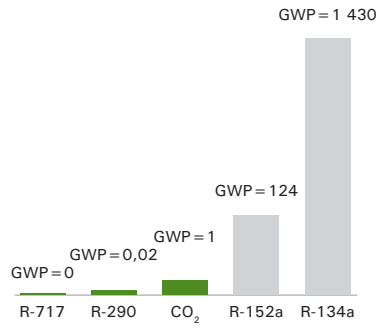
Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Reduce refrigerant charge of R-290.
- Manufactured with galvanised steel casing and polyester paint.
- Semihermetic compressor tandem for R-290 with capacity control and unloaded start, crankcase heater.
- Oil separator and oil balancing line.
- Micro-tube V condensing coil with aluminium fins and 7 mm copper pipes.
- Two electronic fans per V with variable speed.
- Plate heat exchanger with electronic expansion valve per circuit.
- Heat exchanger for liquid subcooling and suction superheating.
- Cooling circuit made of annealed copper or steel tube with soldered connections, filter drier, ATEX high and low pressure switches, pressure transducers and temperature probes.
- Hydraulic circuit made of copper pipe with threaded or flanged connections, fill/drain valve, air vent, flow switch, thermometers and inlet/outlet pressure gauges.
- External IP55 electrical panel with extraction fan. Individual protection of compressors and fans.
- Progamable Emerson control, with variable refrigeration control (digital compressor only), condensing pressure control with floating set point, and variable glycol flow control.

Natural, environmentally friendly and efficient refrigerant

R-290 or propane is a natural refrigerant with a very low greenhouse effect (GWP = 0.02 according to IPCC AR6), widely available on the market. It is a pure substance, with no evaporation slip, and has excellent thermodynamic performance, comparable only to ammonia (R-717) or difluoroethane (R-152a).

Glycol and brine are liquid, biodegradable, food grade secondary refrigerants.



R-290 is a low toxicity, but high flammability (class A3) refrigerant. The chiller comply with the safety requirements of the European standard EN-378:2016, especially with regard to refrigerant charge limitations in outdoor installations, or machine rooms.

Reliable cold distribution, free of refrigerant leaks

Cooling distribution is carried out by pumping glycol water or brine at low pressure through hydraulic piping, free of refrigerant leaks, with no risk of service interruption and low maintenance costs.

Variable glycol flow operation

Variable liquid flow control system adjust circulator pump speed to cooling demand and modulates the cooling capacity of the compressors according to the temperature and the glycol flow rate, to ensure a constant flow temperature.

400V 3N 50Hz | High temperature | Semihermetic compressors | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) I/O water temperature 12/7 °C [1]	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Water flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [4]
R-290	2x Semihermetics	AWW-KD-1 0502	50	2x V25-71	107	35	6.6	81	2x Ø 800	46 000	18.3	DN80	1 510	50
		AWW-KD-1 0602	60	2x V30-84	125	42	6.6	95	2x Ø 800	46 000	21.4	DN80	1 510	53
		AWW-KD-1 0702	70	2x V35-103	151	49	6.8	101	2x Ø 800	44 000	25.8	DN80	1 520	52
		AWW-KD-1 0802	80	2x Z40-126	175	62	6.3	129	2x Ø 800	44 000	30.0	DN80	1 620	55
		AWW-KD-1 1002	100	2x Z50-154	195	76	5.8	157	2x Ø 800	44 000	33.4	DN100	1 630	55
	4x Semiherm.	AWW-KD-2 1204	120	2x2x V30-84	250	85	6.6	191	4x Ø 800	92 000	42.8	DN100	3 030	56
		AWW-KD-2 1404	140	2x2x V35-103	302	98	6.8	203	4x Ø 800	88 000	51.7	DN100	3 050	55
		AWW-KD-2 1604	160	2x2x Z40-126	350	124	6.3	259	4x Ø 800	88 000	59.9	DN125	3 240	58
		AWW-KD-2 2004	200	2x2x Z50-154	390	152	5.8	314	4x Ø 800	88 000	66.8	DN125	3 260	58
	6x Semih.	AWW-KD-3 2106	210	3x2x V35-103	453	147	6.8	305	6x Ø 800	132 000	77.5	DN125	4 570	57
		AWW-KD-3 2406	240	3x2x Z40-126	525	186	6.3	389	6x Ø 800	132 000	89.9	DN125	4 860	60
		AWW-KD-3 3006	300	3x2x Z50-154	585	228	5.8	471	6x Ø 800	132 000	100.1	DN150	4 880	60
	8x Se.	AWW-KD-4 3208	320	4x2x Z40-126	700	248	6.3	519	8x Ø 800	176 000	119.8	DN150	6 480	61
		AWW-KD-4 4008	400	4x2x Z50-154	780	304	5.8	628	8x Ø 800	176 000	133.5	DN150	6 510	61

400V 3N 50Hz | Positive temperature | Semihermetic compressors | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) I/O 35 % propylene glycol temperature -2/-8 °C [2]	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Glycol flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [4]
R-290	2x Semihermetics	MWW-KD-1 0502	50	2x V25-71	61	28	3.6	81	2x Ø 800	46 000	9.4	2 1/2"	1 510	50
		MWW-KD-1 0602	60	2x V30-84	73	33	3.8	95	2x Ø 800	46 000	11.2	2 1/2"	1 510	53
		MWW-KD-1 0702	70	2x V35-103	89	38	4.1	101	2x Ø 800	44 000	13.7	DN80	1 520	52
		MWW-KD-1 0802	80	2x Z40-126	107	46	4.1	129	2x Ø 800	44 000	16.4	DN80	1 620	55
		MWW-KD-1 1002	100	2x Z50-154	120	55	4.0	157	2x Ø 800	44 000	18.4	DN80	1 630	55
	4x Semiherm.	MWW-KD-2 1204	120	2x2x V30-84	147	67	3.8	191	4x Ø 800	92 000	22.5	DN100	3 030	56
		MWW-KD-2 1404	140	2x2x V35-103	179	76	4.1	203	4x Ø 800	88 000	27.3	DN100	3 050	55
		MWW-KD-2 1604	160	2x2x Z40-126	215	93	4.1	259	4x Ø 800	88 000	32.9	DN100	3 240	58
		MWW-KD-2 2004	200	2x2x Z50-154	241	110	4.1	314	4x Ø 800	88 000	36.9	DN100	3 260	58
	6x Semih.	MWW-KD-3 2106	210	3x2x V35-103	268	115	4.1	305	6x Ø 800	132 000	41.0	DN100	4 570	57
		MWW-KD-3 2406	240	3x2x Z40-126	322	140	4.1	389	6x Ø 800	132 000	49.3	DN125	4 860	60
		MWW-KD-3 3006	300	3x2x Z50-154	361	165	4.1	471	6x Ø 800	132 000	55.3	DN125	4 880	60
	8x Se.	MWW-KD-4 3208	320	4x2x Z40-126	429	187	4.1	519	8x Ø 800	176 000	65.7	DN125	6 480	61
		MWW-KD-4 4008	400	4x2x Z50-154	481	220	4.1	628	8x Ø 800	176 000	73.6	DN125	6 510	61

Options

- Hydraulic group.
- Variable flow pump to control glycol flow.
- Anti-corrosion treatment based on polyurethane coating for the condensing coil.
- Electronic control and spare driver.
- Silentblocks for equipment installation.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.
- Independent compressor compartment with leak detector and ATEX extraction fans.

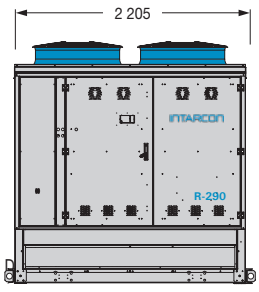
[1] Nominal performance high temperature: 35 °C ambient temperature with water inlet/outlet at 12/7 °C.

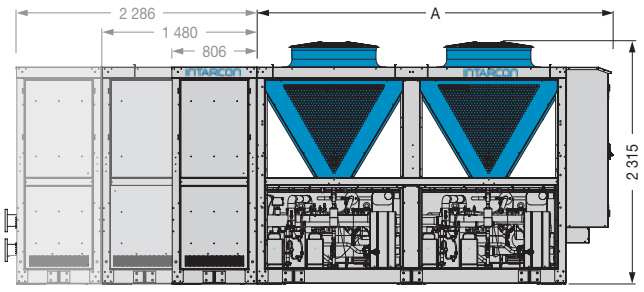
[2] Nominal performance positive temperature: 35 °C ambient temperature with glycol inlet/outlet at -2/-8 °C, with a propylene glycol concentration of 35 %.

[3] Seasonal performance factor (SEPR) according to Commission Regulation (EU) 2015/1095 and (EU) 2016/2281.

[4] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

Dimensions





Pump set [*]

Dimensions (mm)	A
1 series	1 901
2 series	3 377
3 series	4 853
4 series	6 329

[*] Dimension of the additional module according to the configuration of the pump set of the equipment.

Full INVERTER R-290 chillers

- Full INVERTER compressors.
- Natural refrigerant R-290.
- High energy efficiency.
- Easy installation.

Water or glycol chillers for commercial and industrial refrigeration applications with reduced R-290 load and full INVERTER compressors.

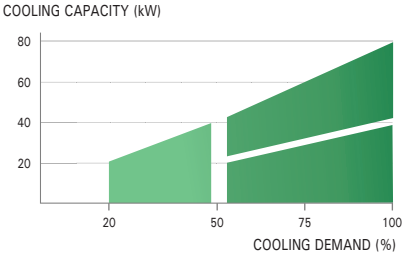
Features

- 400V 3 50Hz power supply. Available in 60Hz. Others voltages by request.
- Reduce refrigerant charge of R-290.
- Self-supporting body made of galvanised sheet steel with polyester weatherproof paint.
- Separate compressor compartment with leak detector and ATEX extraction fan (optional in WW series).
- Semihermetic R-290 compressors with unloaded start-up, with ATEX class crankcase heater, with Inverter drive in each compressor (Full INVERTER).
- Cooling circuit made of annealed copper tube with soldered connections, filter drier, ATEX high and low pressure switches, pressure transducers and temperature probes, and ducted safety valve by cooling circuit with common discharge.
- In WW without acoustic panel, one leak detector is equipped in sizes 1 and 2, two detectors in sizes 3 and 4, and three detectors in size 5. In WW with acoustic panel, a single detector and an ATEX centrifugal exhaust fan in continuous operation are equipped. In WT, a single detector and ATEX axial extraction fans in continuous operation are equipped.
- Microchannel condenser coils with Polyester Powder Coating treatment.
- Variable flow electronic fans.
- Stainless steel plate evaporators with electronic expansion valve.
- Hydraulic circuit made of copper pipe with threaded connections, fill/drain valve, air vent, flow switch, thermometers and inlet/outlet pressure gauges.
- Single electrical panel in WT, WW-1, WW-2, WW-3. Double electrical panel with independent electrical connection in WW-4 and WW-5. Watertight electrical control and power panel, with differential switch and magneto-thermal switch for manoeuvre. In WW-1: Differential switch and circuit breaker for each compressor and each fan. In WT, WW-2, WW-3, WW-4, WW-5: Common differential switch for compressor and fans, and circuit breaker for each compressor and for each condenser fan.
- Independent electrical connection to the extraction fan and leak detector, with differential and circuit breaker protection.
- Can be combined with external primary or secondary hydraulic groups GV series for WT units, or GW series (with connection possibility) for WW units.
- Programmable Emerson electronic control unit with refrigeration control with floating set point (external signal 0-10 V), condensing fan control with floating set point, pump control, external signal for Silence mode, alarm light and acoustic leak detection light. Independent electrical panel for the hydraulic unit.

Full INVERTER

The Full INVERTER system provides precise control over the glycol supply temperature, in the face of a variable refrigeration demand.

This system controls sequentially and simultaneously the capacity of the compressors, varying the motor speed from 30 to 70Hz, and avoiding starts and stops, with significant energy savings.



Reduced refrigerant charge

Full INVERTER WT series
R-290 < 5 kg/circ.

Full INVERTER WW series
R-290 < 10 kg/circ.

The R-290 chiller units are designed with multiple refrigerant circuits in parallel, with independent condensers.
Each circuit has a reduced refrigerant charge of R-290, to comply with the charge limits of the European standard EN378, to allow the chillers to be installed even outdoors in commercial establishment.

Category of the establishment	Location of equipment	
	Indoor (type 1)	Outdoor (type 3)
A. Public access	1.5 kg	5 kg
B. Supervised access	2.5 kg	10 kg
C. Restricted access	10 kg	No limit

400V 3 50Hz | High temperature | Semihermetic compressor Full INVERTER | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] I/O water temperature 12/7 °C [1]	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Water flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [4]
R-290	1x Semiherm.	AWT-FD-1 0121	12i	S12-42AXH Full Inverter	37	13.7	5.6	25	1x Ø 800	17 000	6.3	2"	790	48
		AWT-FD-1 0151	15i	S15-52AXH Full Inverter	44	16.7	5.8	32	1x Ø 800	17 000	7.5	2"	800	49
		AWT-FD-1 0201	20i	S20-56AXH Full Inverter	48	19.1	5.9	39	1x Ø 800	17 000	8.2	2"	805	50
		AWT-FD-1 0251	25i	V25-71AXH Full Inverter	56	23.5	5.9	40	1x Ø 800	17 000	9.6	2 1/2"	860	50
	2x Semihermetic	AWT-FD-2 0242	24i	2x S12-42AXH Full Inverter	73	27.6	5.6	50	2x Ø 800	34 000	12.5	2 1/2"	1 130	51
		AWT-FD-2 0302	30i	2x S15-52AXH Full Inverter	87	33.6	5.8	64	2x Ø 800	34 000	14.9	3"	1 140	52
		AWT-FD-2 0402	40i	2x S20-56AXH Full Inverter	96	38.3	5.9	79	2x Ø 800	34 000	16.4	3"	1 150	53
		AWT-FD-2 0502	50i	2x V25-71AXH Full Inverter	112	47.1	5.9	81	2x Ø 800	34 000	19.2	3"	1 260	53
		AWW-FD-1 0502	50i	2x V25-71AXH Full Inverter	115	45.5	6.4	82	2x Ø 800	46 000	19.7	DN80	1 525	51
		AWW-FD-1 0702	70i	2x V35-103AXH Full Inverter	156	64.2	6.4	102	2x Ø 800	44 000	26.7	DN80	1 540	53
		AWW-FD-2 0802	80i	2x Z40-126AXH Full Inverter	213	75.4	6.8	138	4x Ø 800	92 000	36.5	DN100	2 780	56
		AWW-FD-2 1002	100i	2x Z50-168AXH Full Inverter	267	103.0	6.6	165	4x Ø 800	88 000	45.7	DN100	2 785	58
		AWW-FD-2 1502	150i	2x W75-228AXH Full Inverter	340	141.3	6.2	231	4x Ø 800	88 000	58.4	DN125	2 953	61
	3x Sh.	AWW-FD-3 1203	120i	3x Z40-126AXH Full Inverter	320	113.0	6.4	207	6x Ø 800	138 000	54.7	DN125	4 160	58
		AWW-FD-3 1503	150i	3x Z50-168AXH Full Inverter	401	155.0	6.8	248	6x Ø 800	132 000	68.5	DN125	4 170	60
		AWW-FD-3 2253	225i	3x W75-228AXH Full Inverter	513	212.4	6.2	347	6x Ø 800	132 000	88.0	DN125	4 421	63
	4x Sh.	AWW-FD-4 2004	200i	4x Z50-168AXH Full Inverter	534	206.0	6.8	330	8x Ø 800	176 000	91.4	DN125	5 550	61
		AWW-FD-4 3004	300i	4x W75-228AXH Full Inverter	684	283.2	6.2	463	8x Ø 800	176 000	117.3	DN150	5 889	64
	5x	AWW-FD-5 3755	375i	5x W75-228AXH Full Inverter	855	354.0	6.2	579	10x Ø 800	220 000	146.6	DN150	7 357	65

400V 3 50Hz | Positive temperature | Semihermetic compressor Full INVERTER | R-290

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] I/O 35 % propylene glycol temperature -2/-8 °C [2]	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Glycol flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [4]
R-290	1x Semiherm.	MWT-FD-1 0121	12i	S12-42AXH Full Inverter	24	13.2	3.2	26	1x Ø 800	17 000	3.7	2"	790	48
		MWT-FD-1 0151	15i	S15-52AXH Full Inverter	29	15.6	3.4	33	1x Ø 800	17 000	4.5	2"	800	49
		MWT-FD-1 0201	20i	S20-56AXH Full Inverter	32	17.6	3.4	41	1x Ø 800	17 000	4.9	2"	805	50
		MWT-FD-1 0251	25i	V25-71AXH Full Inverter	37	21.3	3.5	42	1x Ø 800	17 000	5.7	2"	860	50
	2x Semihermetic	MWT-FD-2 0242	24i	2x S12-42AXH Full Inverter	48	26.6	3.2	52	2x Ø 800	34 000	7.4	2 1/2"	1 130	51
		MWT-FD-2 0302	30i	2x S15-52AXH Full Inverter	58	31.3	3.4	67	2x Ø 800	34 000	8.8	2 1/2"	1 140	52
		MWT-FD-2 0402	40i	2x S20-56AXH Full Inverter	62	35.6	3.4	81	2x Ø 800	34 000	9.5	2 1/2"	1 150	53
		MWT-FD-2 0502	50i	2x V25-71AXH Full Inverter	74	42.7	3.5	83	2x Ø 800	34 000	11.3	2 1/2"	1 260	53
		MWW-FD-1 0502	50i	2x V25-71AXH Full Inverter	77	41.2	3.8	82	4x Ø 500	46 000	11.8	DN80	1 525	51
		MWW-FD-1 0702	70i	2x V35-103AXH Full Inverter	109	56.7	4.1	102	4x Ø 500	44 000	16.7	DN80	1 540	53
		MWW-FD-2 0802	80i	2x Z40-126AXH Full Inverter	141	70.5	3.9	138	4x Ø 800	92 000	21.6	DN100	2 780	56
		MWW-FD-2 1002	100i	2x Z50-168AXH Full Inverter	180	92.8	4.0	165	4x Ø 800	88 000	27.6	DN100	2 785	58
		MWW-FD-2 1502	150i	2x W75-228AXH Full Inverter	227	125.9	4.0	231	4x Ø 800	88 000	34.9	DN100	2 953	61
	3x Sh.	MWW-FD-3 1203	120i	3x Z40-126AXH Full Inverter	212	106.0	3.9	206	6x Ø 800	138 000	32.5	DN100	4 160	58
		MWW-FD-3 1503	150i	3x Z50-168AXH Full Inverter	270	139.0	4.0	247	6x Ø 800	132 000	41.3	DN100	4 170	60
		MWW-FD-3 2253	225i	3x W75-228AXH Full Inverter	342	189.3	4.0	347	6x Ø 800	132 000	52.6	DN125	4 421	63
	4x Sh.	MWW-FD-4 2004	200i	4x Z50-168AXH Full Inverter	360	186.0	4.0	330	8x Ø 800	176 000	55.1	DN125	5 550	61
		MWW-FD-4 3004	300i	4x W75-228AXH Full Inverter	455	251.8	4.0	463	8x Ø 800	176 000	69.8	DN125	5 889	64
	5x	MWW-FD-5 3755	375i	5x W75-228AXH Full Inverter	568	314.8	4.0	579	10x Ø 800	220 000	87.3	DN150	7 357	65

Options

- Change to Bitzer Full INVERTER compressor, except 75HP models (on request).
- Partial (20 %) or total (100 %) heat recovery.
- Kit for low outdoor temperature operation (< -15°C) with pressure control valves, liquid receiver, electrical panel heating.
- Coil made of copper microtube and aluminium fins, with optional polyurethane corrosion protection.
- WT series only: Integrated primary hydraulic unit with glycol circulating pump, expansion tank, safety valve, mesh filter, thermometers and pressure gauges, air vent, drain port and service valves, with the possibility of a reserve pump.
- Electronic radial fans.
- Trigger coil in magneto-thermal control switch.
- Electronic controller and spare driver.

[1] Nominal performance high temperature: 35 °C ambient temperature with water inlet/outlet at 12/7 °C.

[2] Nominal performance positive temperature: 35 °C ambient temperature with glycol inlet/outlet at -2/-8 °C, with a propylene glycol concentration of 35 %.

[3] Seasonal performance factor (SEPR) according to Commission Regulation (EU) 2015/1095 and (EU) 2016/2281.

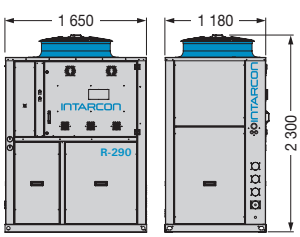
[4] Sound pressure level with compressor(s) operating at 50 Hz, directivity 1, measured at 10 m from the source (non-binding value calculated from sound power).

Dimensions WW (mm)	A
1 series	1 947
2 series	3 422
3 series	4 899
4 series	6 848
5 series	8 329

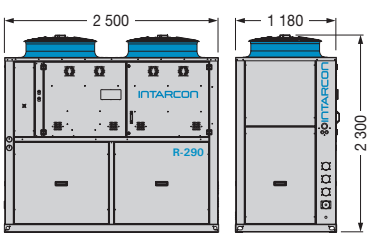
[*] Dimension of the additional module according to the configuration of the pump set of the equipment.

Dimensions

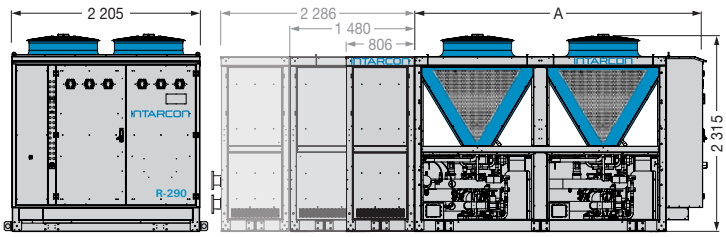
WT-1 series



WT-2 series



WW series



Dimensions in mm.

Pump set [*]

Sigilus | Chillers HFC

- Operation with glycol water.
- Minimum coolant charge.
- Integrated hydraulic circuit.

Air-cooled water or glycol condensing chillers, with silent operation and compact construction in galvanised steel bodywork and structure in polyester paint for outdoor installation.

Features

- 230V 50Hz or 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Hermetic reciprocating or scroll compressor, acoustically insulated, with discharge silencer (in hermetic reciprocating compressor), mounted on dampers, with internal clixon and crankcase heater.
- Large-surface condensing coil made of copper tubes and aluminium fins, with tropicalised dimensioning for ambient temperatures up to 50 °C.
- Low-speed, nozzle-mounted motor fans, dynamically balanced propellers and external protection grilles.
- Proportional condensing pressure control by means of fan speed variation (optional on single-phase models).
- Cooling circuit equipped with high and low pressure switches, ceramic filter and sight glass.
- Stainless steel plate heat exchanger.
- Electric power and control panel, with differential and magneto-thermal protection for compressor, fan/s and hydraulic pump.
- Hydraulic circuit made of copper pipe with threaded connections, fill/drain valve, air vent, flow switch, thermometers and inlet/outlet pressure gauges. Threaded connections.
- Liquid injection in low temperature models with R-449A.

Highly reliable compressors

Maneurop hermetic reciprocating compressors are characterised by their great robustness and reliability of operation, and as they are cooled exclusively by the refrigerant gas, they provide effective soundproofing.

Efficient, quiet and modulating condensing units

Motor fans with variable speed, maintain condensing pressure at low ambient temperatures with reduced noise level.

Brazed plate heat exchanger

The chiller unit incorporate a stainless steel plate heat exchanger with copper brazing.

Triple soundproofing

Sigilus chillers incorporate triple acoustic insulation:

- Compressor compartment soundproofed and separated from the air flow.
- Compressors with acoustic jacket, and hermetic reciprocating compressors with discharge silencer.
- Low speed los noise fans, on anti-vibration structure.

230V 50Hz / 400V 3N-50Hz | Positive temperature | Hermetic compressor | R-134a

Refrigerant	Compressor	Series / Model	Compressor: HP	Compressor: Power supply	Compressor: Model	Cooling capacity (kW) [1] Water outlet temperature (°C) % propylene glycol by volume: 0 °C PG 25 %	Cooling capacity (kW) [1] Water outlet temperature (°C) % propylene glycol by volume: -8 °C PG 35 %	Input power (kW)	Ecodesign SEPR [2]	Max. input current (A)	Condenser: Fan Ø (mm)	Condenser: Air flow (m³/h)	Water flow (m³/h)	Pressure drop (kPa) [3]	Available pressure (kPa) With hydraulic group (optional) [4]	Hydraulic connection	Weight (kg)	SPL dB(A) [5]
R-134a	1x Hermético	**MWF-NY-5 053**	1 1/2	230V	FH4518Y*	3.0	**2.0**	1.2	3.1	12	Ø 360	1 700	0.3	12	99	3/4"	108	28
		MWF-NY-5 074	2	230V	FH4525Y*	3.8	**2.7**	1.6	2.9	16	Ø 360	1 700	0.5	19	91	3/4"	110	35
		MWF-NY-6 108	5	400V 3N	MTZ64	5.7	**3.9**	2.2	2.9	17	Ø 450	3 700	0.6	17	92	1"	120	36
		MWF-NY-7 171	8	400V 3N	MTZ100	9.4	**6.6**	3.8	2.8	24	Ø 450	4 000	1.0	14	92	1 1/4"	177	41
		MWF-NY-7 272	13	400V 3N	MTZ160	14.4	**10.7**	6.2	2.7	39	2x Ø 450	6 500	1.6	40	150	1 1/4"	194	39

230V 50Hz / 400V 3N-50Hz | Negative temperature | Scroll compressor | R-449A

Refrigerant	Compressor	Series / Model	Compressor: HP	Compressor: Power supply	Compressor: Model	Cooling capacity (kW) [1] Water outlet temperature (°C) % ethylene glycol by volume: -20 °C EG 45 %	Cooling capacity (kW) [1] Water outlet temperature (°C) % ethylene glycol by volume: -25 °C EG 50 %	Input power (kW)	Ecodesign SEPR [2]	Max. input current (A)	Condenser: Fan Ø (mm)	Condenser: Air flow (m³/h)	Glycol flow (m³/h)	Pressure drop (kPa) [3]	Available pressure (kPa) With hydraulic group (optional) [4]	Hydraulic connection	Weight (kg)	SPL dB(A) [5]
R-449A	1x Scroll	**BWF-SG-6 013**	4	400V 3N	ZF13KVE EVI	5.6	**4.7**	3.8	1.9	11	Ø 450	3 700	0.9	40	180	1"	123	34
		BWF-SG-7 018	6	400V 3N	ZF18KVE EVI	8.4	**7.1**	5.2	2.1	17	2x Ø 450	6 500	1.4	42	150	1 1/4"	144	29
		BWF-SG-8 025	8	400V 3N	ZF25K5E EVI	10.7	**9.1**	6.2	2.2	19	2x Ø 450	7 000	1.8	40	140	1 1/4"	166	32

Options

- Built-in hydraulic unit with glycol circulating pump, expansion vessel, safety valve, mesh filter, air vent and filling valve (positive temperature models).
- Proportional condensing control (standard on three-phase models).
- Coil anti-corrosion coating.
- External coil protection grille.

Control panel

- 230V 50Hz or 400V 3N 50Hz power supply.
- Main switch.
- Multifunction electronic controller, with the following functions:
  - Compressor, fans and circulator pump management.
  - Proportional control of condensing pressure by varying fan speed (three-phase models).
  - Glycol inlet/outlet probes and evaporating temperature probe.
  - Safety control and operation alarms.
  - RS485 connection with MODBUS RTU communication protocol.

* Models available in 400V 3N 50Hz.

[1] Nominal performance refer to positive temperature operation at I/O temperature of -2/-8 °C of propylene glycol at 35 % concentration, and at negative temperature, I/O -19/-25 °C ethylene glycol at 50 % concentration by volume, for an ambient temperature of 35 °C.

[2] Seasonal performance factor (SEPR) according to Commission Regulation (EU) 2015/1095.

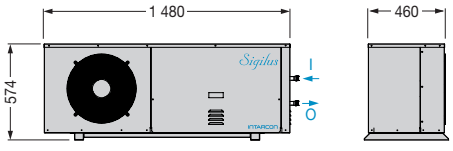
[3] Pressure drop in the heat exchanger.

[4] Pressure available in kPa for chiller with circulator pump. Consult pressure available for other hydraulic unit configurations.

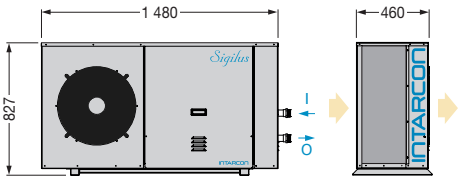
[5] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

Dimensions

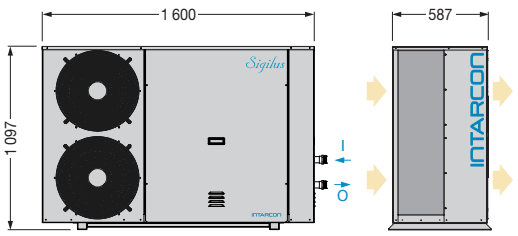
5 series



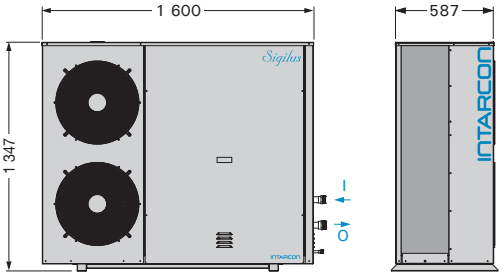
6 series



7 series



8 series



Dimensions in mm.

intarCUBE | HFC footprint chillers

- Low refrigerant charge.
- No need for machine room.
- Plug & Play system.
- Optimised compact system with minimum maintenance.

Water or glycol footprint chiller, in compact body construction and galvanised steel structure in polyester paint for installation outdoors or in a machine room.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Rack of hermetic reciprocating or scroll compressors mounted on dampers, acoustically insulated, with rotalock service valves, internal clixon, crankcase resistor, and check valves and discharge silencer (on models with hermetic reciprocating compressor).
- Condensing coil with large exchange surface, in copper tubes and aluminium fins, with tropicalised dimensioning for ambient temperatures of 45 °C.
- Low consumption axial and centrifugal motor fans with variable speed, with internal electronic protection, mounted on nozzle, dynamically balanced propellers and external protection grilles.
- Modulating condensing pressure control.
- Copper brazed stainless steel plate heat exchanger with frost protection.
- Cooling circuit in annealed copper tube equipped with high and low pressure switches, pressure transducers, service valves, thermostatic expansion valve, sight glass and filter.
- Hydraulic circuit made of copper pipe with threaded connections, fill/drain valve, air vent, flow switch, thermometers and inlet/outlet pressure gauges.
- Electric power and control panel, with general differential and magneto-thermal protection for compressors, fans and hydraulic pump.
- Electronic control with control of power stages, high and low pressure transducers, anti-frost control and digital control interface.

Highly reliable compressors

Hermetic reciprocating scroll compressors are robust and reliable in operation and, as they are cooled exclusively by the refrigerant gas, they provide effective soundproofing.

Copeland's low-temperature scroll compressors feature the EVI system for vapour injection, which enables an efficiency improvement of up to 25 % over conventional compressors.

Efficient, quiet and modulating condensing units

Motor fans with variable speed, maintain condensing pressure at low ambient temperatures with reduced noise level.

Brazed plate heat exchanger

The chiller incorporate a copper brazed stainless steel plate heat exchanger.

400V 3N-50Hz | Positive temperature | Scroll compressor | R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Water outlet temperature (°C) % propylene glycol by volume -8 °C 35 %	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Water flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [3]
R-449A	2x Scroll	**MWV-SG-6 0582**	8	2x ZB29	12.6	6.6	3.1	23	2x Ø 450	2x 3 600	1.9	1 1/2"	247	31
		MWV-SG-6 0762	10	2x ZB38	16.2	8.3	3.2	29	2x Ø 450	2x 3 600	2.5	1 1/2"	265	31
		MWV-SG-6 0902	12	2x ZB45	19.0	9.9	3.1	31	2x Ø 450	2x 4 750	2.9	1 1/2"	269	31
		MWV-SG-6 1142	16	2x ZB57	24.2	12.2	3.3	37	2x Ø 450	2x 4 750	3.7	1 1/2"	269	35
	3x Scroll	**MWV-SG-7 1353**	18	3x ZB45	28.4	14.7	3.3	46	3x Ø 450	3x 4 750	4.4	2"	404	33
		MWV-SG-7 1713	24	3x ZB57	36.5	18.1	3.1	55	3x Ø 450	3x 4 750	5.6	2"	404	37
		MWV-SG-8 1713	24	3x ZB57	37.4	18.8	3.1	52	2x Ø 630	2x 10 000	5.7	2"	453	37
		MWV-SG-8 2283	30	3x ZB76	48.5	26.0	3.3	66	2x Ø 630	2x 10 000	7.4	2 1/2"	518	36

Options

- Machine room version with EC radial fans for exhaust air ducting.
- Integrated hydraulic unit with glycol circulating pump, shut-off valves, expansion vessel, safety valve, mesh filter, air vent and drain valve.
- Anti-corrosion coated coil.
- Electromechanical emergency control by means of adjustable thermostat, with manual or automatic activation in case of failure of the electronic controller.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.

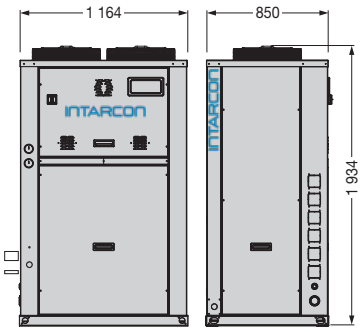
[1] Nominal performance refer to positive temperature operation at I/O temperature of -2/-8 °C of propylene glycol at 35 % concentration, for an ambient temperature of 35 °C.

[2] Seasonal performance factor (SEPR) according to ErP directive 2015/1095/EU.

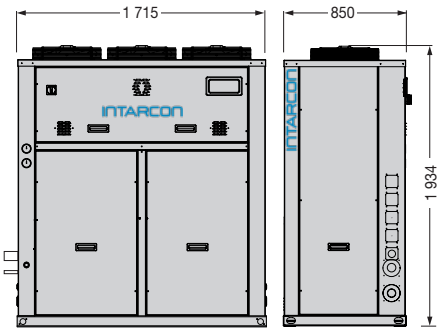
[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

Dimensions

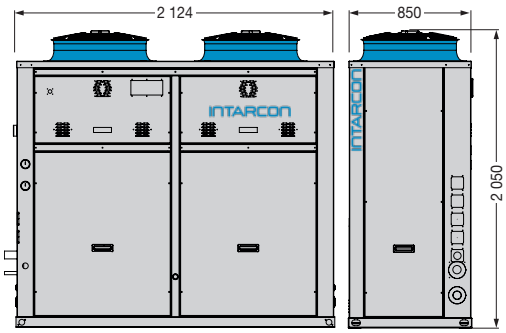
6 series - axial



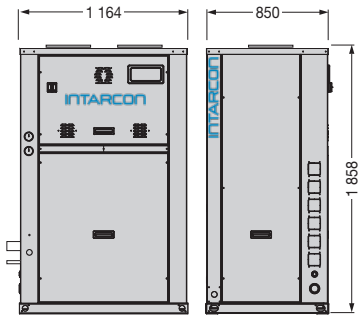
7 series - axial



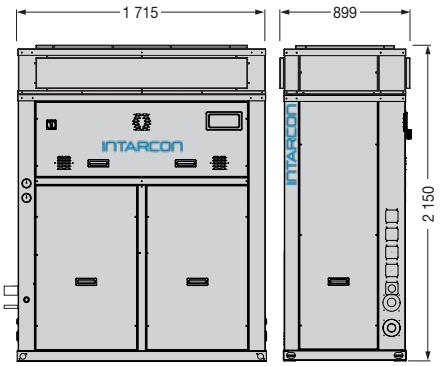
8 series - axial



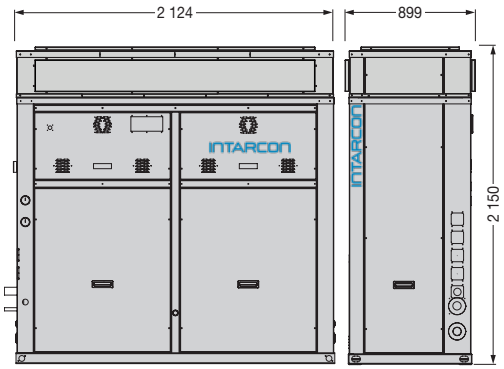
6 series - radial



7 series - radial



8 series - radial



Dimensions in mm.

intarWatt | HFC industrial chillers

- Built-in hydraulic circuit (optional).
- No need for machine room.
- Minimum refrigerant charge.
- Optimised compact system with minimum maintenance.

Air-cooled water or glycol chillers for industrial applications. They are characterised by a very compact construction, designed for outdoor use, which integrates the semihermetic compressors, air condensers with V-coil arrangement, plate heat exchanger and the control panel.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Semihermetic Copeland Stream compressors, damper-mounted and acoustically insulated, with power partialisation, rotalock service valves, crankcase heater and electronic protection and diagnostics module.
- High-efficiency condensing coils in V-arrangement, made of copper tubes and aluminium fins, with double-speed axial motor fans Ø 800 mm.
- Cooling circuits made of annealed copper or steel tube equipped with high and low pressure switches, service valves, filter and sight glass.
- Copper brazed stainless steel plate heat exchanger with anti-freeze heating element.
- Hydraulic circuit made of copper pipe with threaded connections, fill/drain valve, flow switch, thermometers and inlet/outlet pressure gauges. Threaded connections up to 2 1/2" and following with flange connection.
- Electric control panel with thermal, magneto-thermal and differential protection for each compressor and fan.
- Electronic control with control of power stages, high and low pressure transducers, anti-freeze control and digital control interface.

Options

- Integrated hydraulic unit (see page 116).
- Secondary pump and/or frequency converter.
- Variable speed EC electronic fans.
- Anti-corrosion coating on condensing coil.
- Cooling circuit closing panels.
- Interior fairing of frigorific compartment.
- Motor guards with manual reset on compressors.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.

Highly reliable compressors

New Copeland Stream range of semihermetic compressors provides best-in-class performance with both existing HFC refrigerants and new low-GWP refrigerants.

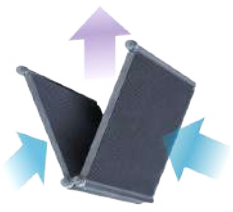
The range consists of four- and six-cylinder semihermetic compressors, with power matching.

The CoreSense™ technology incorporated in the compressors helps to extend the life of the equipment. This technology provides advanced compressor protection, fault diagnosis and energy consumption measurement.

Tropicalised condensing coil in V

intarWatt chillers integrate the air condenser with coils in a V-arrangement, with a large exchange surface on a small floor plan, allowing efficient and reliable operation at high ambient temperatures.

intarWatt chillers can integrate microchannel heat exchanger technology, achieving an even higher exchange capacity compared to tube and fin coils.



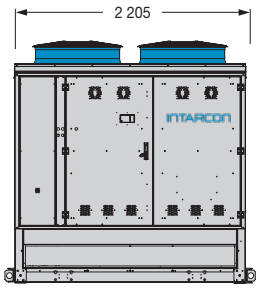
Sound insulation of compressors

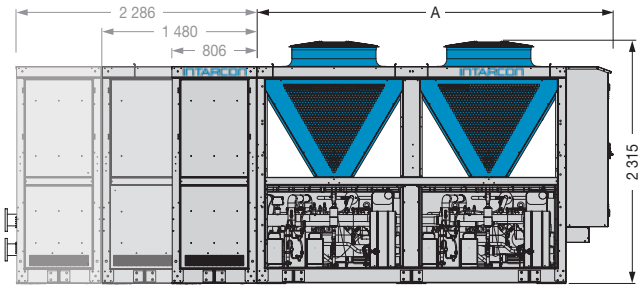
intarWatt chillers are equipped with acoustic compressor encapsulation, consisting of a metal enclosure with a sound-absorbing inner lining, with an acoustic attenuation of up to 9 dB(A).

400V 3N 50Hz | Positive temperature | Semihermetic compressor | R-134a / R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Water outlet temperature (°C) % propylene glycol by volume -8 °C 35 %	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Water flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [3]
R-134a	2x Semihermetic	MWW-TY-1 0302	40	2x 4ML-15X	44	20.7	3.1	76	2x Ø 800	44 000	6.8	2 1/2"	1 085	49
		MWW-TY-1 0402	40	2x 4MM-20X	49	22.1	3.3	83	2x Ø 800	42 000	7.4	2 1/2"	1 114	50
		MWW-TY-1 0502	50	2x 4MU-25X	57	27.3	3.2	109	2x Ø 800	42 000	8.8	2 1/2"	1 122	52
		MWW-TY-1 0602	60	2x 6MM-30X	72	33.0	3.4	125	2x Ø 800	40 000	11.0	DN80	1 205	52
		MWW-TY-1 0702	70	2x 6MT-35X	79	36.7	3.3	140	2x Ø 800	40 000	12.1	DN80	1 217	52
		MWW-TY-1 0802	80	2x 6MU-40X	83	40.5	3.2	157	2x Ø 800	40 000	12.8	DN80	1 225	54
	4x Semihermetic	MWW-TY-2 0604	60	4x 4ML-15X	88	41.4	3.1	152	4x Ø 800	88 000	13.6	DN80	2 170	52
		MWW-TY-2 0804	80	4x 4MM-20X	97	44.2	3.3	166	4x Ø 800	84 000	14.8	DN80	2 228	53
		MWW-TY-2 1004	100	4x 4MU-25X	114	54.6	3.2	218	4x Ø 800	84 000	17.5	DN80	2 244	55
		MWW-TY-2 1204	120	4x 6MM-30X	144	66.0	3.5	250	4x Ø 800	80 000	22.1	DN100	2 410	55
		MWW-TY-2 1404	140	4x 6MT-35X	157	73.4	3.4	280	4x Ø 800	80 000	24.1	DN100	2 434	55
		MWW-TY-2 1604	140	4x 6MU-40X	166	81.0	3.2	314	4x Ø 800	80 000	25.5	DN100	2 450	57
	6x Semih.	MWW-TY-3 1806	180	6x 6MM-30X	216	99	3.4	420	6x Ø 800	120 000	33.1	DN125	3 615	56
		MWW-TY-3 2106	240	6x 6MT-35X	236	110	3.3	471	6x Ø 800	120 000	36.2	DN125	3 651	57
		MWW-TY-3 2406	300	6x 6MU-40X	250	122	3.2	456	6x Ø 800	120 000	38.3	DN125	3 675	59
R-449A	1x Semihermetic	MWW-TG-1 0251	25	4MH-25X	38	19.6	2.6	47	2x Ø 800	44 000	5.8	2 1/2"	912	47
		MWW-TG-1 0301	30	4MI-30X	41	20.7	2.7	52	2x Ø 800	44 000	6.2	2 1/2"	913	47
		MWW-TG-1 0351	35	4MK-35X	48	25.5	2.6	67	2x Ø 800	44 000	7.3	2 1/2"	927	49
		MWW-TG-1 0401	50	6MI-40X	61	30.1	2.9	77	2x Ø 800	42 000	9.3	DN80	969	54
		MWW-TG-1 0451	45	6MJ-45X	66	33.6	2.8	87	2x Ø 800	42 000	10.1	DN80	973	55
		MWW-TG-1 0501	50	6MK-50X	71	37.6	2.7	98	2x Ø 800	42 000	10.8	DN80	980	56
	2x Semihermetic	MWW-TG-1 0602	60	2x 4MI-30X	78	38.3	3.0	98	2x Ø 800	40 000	11.9	DN80	1 151	50
		MWW-TG-1 0702	70	2x 4MK-35X	89	48.1	2.7	127	2x Ø 800	40 000	13.7	DN80	1 179	52
		MWW-TG-2 0802	80	2x 6MI-40X	122	60.3	2.9	154	4x Ø 800	84 000	18.7	DN100	1 938	57
		MWW-TG-2 0902	90	2x 6MJ-45X	132	67.3	2.8	174	4x Ø 800	84 000	20.2	DN100	1 946	58
		MWW-TG-2 1002	100	2x 6MK-50X	141	75.2	2.7	197	4x Ø 800	84 000	21.6	DN100	1 960	59
	4x Sh.	MWW-TG-2 1204	120	4x 4MI-30X	155	77.4	2.9	196	4x Ø 800	80 000	23.8	DN100	2 302	53
		MWW-TG-2 1404	140	4x 4MK-35X	179	96.3	2.7	254	4x Ø 800	80 000	27.4	DN100	2 358	55
	3x Semih.	MWW-TG-3 1203	120	3x 6MI-40X	183	90.4	2.9	231	6x Ø 800	126 000	28.1	DN100	2 907	59
		MWW-TG-3 1353	135	3x 6MJ-45X	197	101	2.8	261	6x Ø 800	126 000	30.2	DN100	2 919	60
		MWW-TG-3 1503	150	3x 6MK-50X	212	113	2.7	294	6x Ø 800	126 000	32.5	DN100	2 940	61
	6x Sh.	MWW-TG-3 1806	180	6x 4MI-30X	233	116	3.0	295	6x Ø 800	120 000	35.7	DN125	3 453	55
		MWW-TG-3 2106	210	6x 4MK-35X	268	144	2.7	382	6x Ø 800	120 000	41.1	DN125	3 537	56

Dimensions





Pump set [*]

Dimensions (mm)	A
1 series	1 901
2 series	3 377
3 series	4 853
4 series	6 329

[*] Dimension of the additional module according to the configuration of the pump set of the equipment.

Dimensions in mm.

[1] Nominal performance refer to positive temperature operation at I/O temperature of -2/-8 °C of propylene glycol at 35 % concentration, for an ambient temperature of 35 °C.

[2] Seasonal performance factor (SEPR) according to Commission Regulation (EU) 2015/1095.

[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

Pump sets for WV series

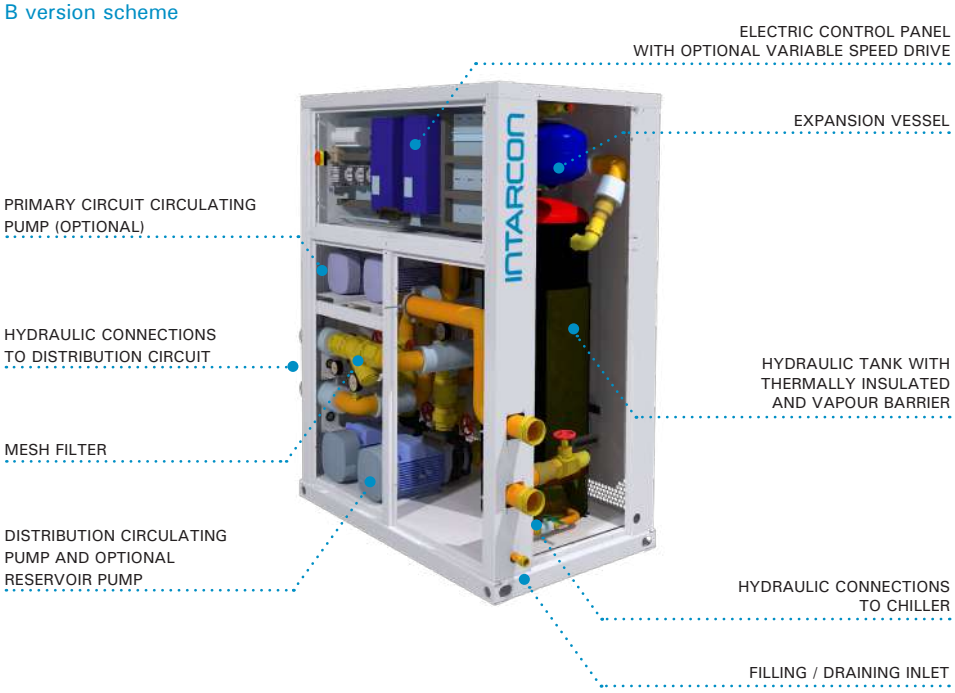
- Easily integrated modular construction.
- Optimised water and glycol assemblies.
- Reduced footprint.

Closed-circuit pump sets glycol, assembled in galvanised sheet steel bodywork and structure with polyester paint for outdoor installation.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Glycol circulating pump with stainless steel impeller and optional back-up pump.
- Buffer tank with high density polyurethane foam insulation and vapour barrier (AH-2 and B series).
- Closed membrane expansion tank and safety valve calibrated to 4 bar.
- Mesh filter.
- Glycerine thermometers and pressure gauges.
- Air vent.
- Drain connection.
- Threaded hydraulic connections.
- Electrical control and power panel with magneto-thermal protection and independent differential for each pump, and electronic control unit for the management and rotation of secondary circuit pumps.

B version scheme

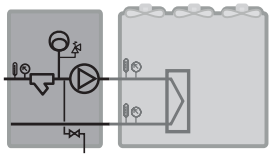


Versions

- A version

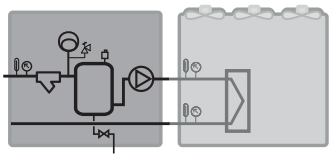
GV-AH-1: Primary pump set

Simple hydraulic unit with circulating pump, mesh filter and expansion vessel.



GV-AH-2: Primary pump set unit with buffer tank

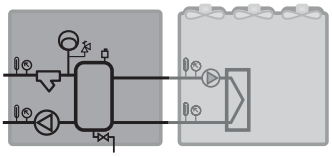
Pump set with medium or high pressure circulating pump at constant flow rate, for connection to one or more chillers.



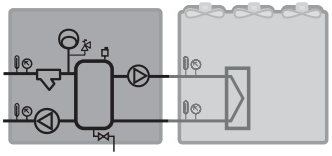
- B version

GV-BH-2: Secondary circuit pump set

Secondary circuit hydraulic unit, with buffer tank and medium or high pressure circulating pump at constant or variable flow rate (optional), for connection to one or more chiller equipped with primary circuit pump.



Optional: low-pressure primary pump in hydraulic unit, for connection to a chillers.



400V 3N 50Hz | High temperature | Water

	Series / Model	Water flow (m^3/h) 7 °C [1]	Main pump (kW)	Available pressure (kPa) [3]	Inertia tank except 1 series (litres)	Expansion vessel (litres)	Hydraulic connection	Auxiliary primary pump B version (kW)	Service weight (kg)
WATER	AGV-AH-2 006 AGV-BH-2 006	3 to 6	1.1	300 to 200	100	5	2"	0.65	655
	AGV-AH-2 009 AGV-BH-2 009	6 to 9	1.5	250 to 200	100	5	2"	0.65	670
	AGV-AH-2 012 AGV-BH-2 012	9 to 12	1.5	230 to 160	100	5	2 1/2"	0.65	680
	AGV-AH-2 015 AGV-BH-2 015	12 to 15	2.2	280 to 230	200	8	2 1/2"	0.65	800
	AGV-AH-2 020 AGV-BH-2 020	15 to 20	2.2	270 to 180	200	8	3"	1.10	805
	AGV-AH-2 025 AGV-BH-2 025	20 to 25	4.0	240 to 170	200	15	3"	2.20	860

400V 3N 50Hz | Positive temperature | Glycol

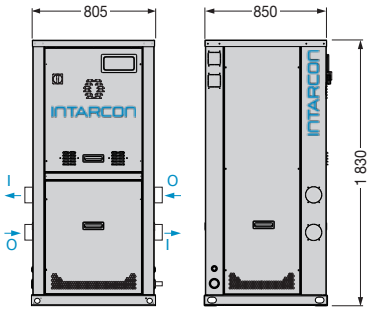
	Series / Model	Flow MPG 35 % (m^3/h) -8 °C [2]	Main pump (kW)	Available pressure (kPa) [3]	Inertia tank except 1 series (litres)	Expansion vessel (litres)	Hydraulic connection	Auxiliary primary pump B version (kW)	Service weight (kg)
GLYCOL	MGV-AH-2 003 MGV-BH-2 003	2 to 4	0.65	220 to 150	100	5	1 1/2"	0.46	600
	MGV-AH-2 004 MGV-BH-2 004	2 to 4	1.1	320 to 230	100	5	1 1/2"	0.46	615
	MGV-AH-2 005 MGV-BH-2 005	4 to 6	1.1	270 to 150	100	5	2"	0.65	650
	MGV-AH-2 006 MGV-BH-2 006	4 to 6	1.5	290 to 230	100	5	2"	0.65	675
	MGV-AH-2 008 MGV-BH-2 008	6 to 9	1.5	240 to 150	100	8	2"	0.65	680
	MGV-AH-2 009 MGV-BH-2 009	6 to 9	2.2	290 to 220	100	8	2"	0.65	690
	MGV-AH-2 012 MGV-BH-2 012	9 to 12	2.2	270 to 200	200	15	2 1/2"	1.10	800
	MGV-AH-2 015 MGV-BH-2 015	12 to 15	4.0	230 to 200	200	15	2 1/2"	1.10	840

Options

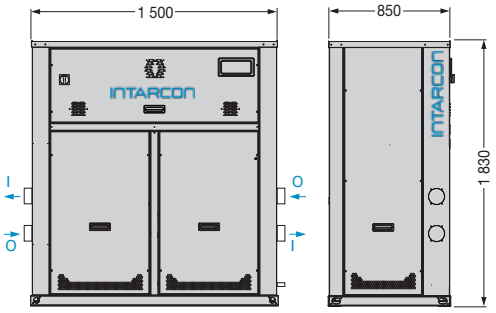
- Back-up main pump.
- Variable speed drive on main pump.
- Auxiliary back-up pump.
- Electronic control for heat recovery.

Dimensions

1 series



2 series



Dimensions in mm.

[1] Performance calculated for pumping water at 7°C.

[2] Performance calculated for pumping 35 % propylene glycol concentration at -8°C.

[3] Hydraulic pressure available for the distribution circuit and the chiller.

Primary circuit auxiliary pump

Auxiliary pump in the primary circuit is a low-pressure pump sized with an available pressure of about 100 kPa, enough to overcome the pressure drop of he exchanger of the chiller and a small section of piping.

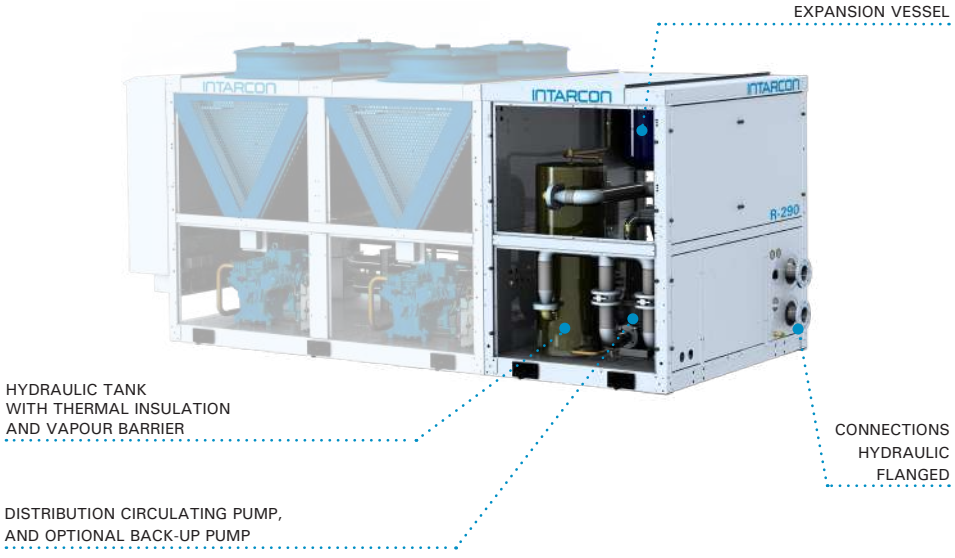
Pump sets for WW series

- Integrated modular construction.
- Optimised assemblies for water and glycol.
- Reduced footprint.

Pump sets for water or glycol in closed circuit, assembled in galvanised sheet steel bodywork and structure with polyester paint for outdoor installation and coupled to the chillers.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Glycol circulating pumps with stainless steel impeller and optional reserve pump.
- Buffer tank with high density polyurethane foam insulation and vapour barrier (depending on version).
- Closed membrane expansion vessel.
- Mesh filter.
- Glycerine thermometers and pressure gauges.
- Air vent.
- Drain inlet.
- Flanged hydraulic connections.
- Electrical control and power panel with magneto-thermal protection and independent differential for each pump, and electronic control unit for pump management and rotation.
- Pump sets incorporated in WW series, except WW-FD 4 and 5.

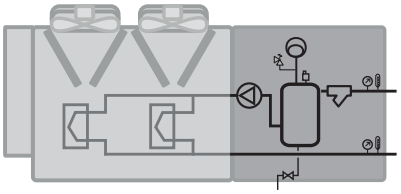


Versions

- A versions

  GW-AH: Primary pump set with tank

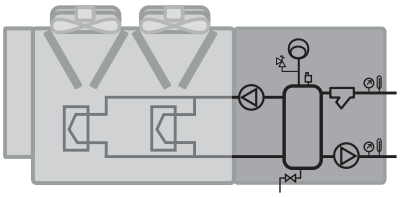
  Pump set with medium or high pressure circulating pump at constant flow rate, assembled together with the chiller.



- B versions

  GW-BH: Secondary pump set

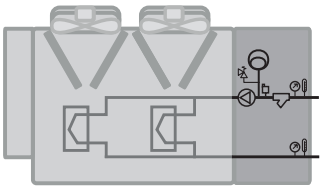
  Pump set with secondary circuit, buffer tank and medium or high pressure circulating pump at constant or variable flow rate (optional), with primary circuit pumps, assembled together with the chiller.



- N versions

  GW-NH: Pumping group

  Hydraulic unit with constant flow circulating pump.



400V 3N 50Hz | High temperature | Water

	Series / Model	Water flow (m^3/h) 7 °C [1]	Main pump (kW)	Available pressure (kPa) [3]	Inertia tank except N version (litres)	Expansion vessel (litres)	Hydraulic connection	Auxiliary primary pump B version (kW)
WATER	**AGW-AH-0 025 AGW-BH-1 025**	10 to 30	3.0	250 to 150	200	8	DN80	1.1
	AGW-AH-0 030 AGW-BH-1 030	20 to 30	4.0	300 to 200	200	8	DN80	1.1
	AGW-AH-1 040 AGW-BH-1 040	25 to 40	4.0	200 to 150	200	15	DN100	1.5
	AGW-AH-1 050 AGW-BH-1 050	30 to 50	5.5	300 to 150	200	15	DN100	1.5
	AGW-AH-1 055 AGW-BH-1 055	40 to 55	7.5	300 to 200	200	24	DN100	2.2
	AGW-AH-1 070 AGW-BH-2 070	50 to 75	7.5	200 to 150	200	24	DN125	4.0
	AGW-AH-1 090 AGW-BH-2 090	60 to 90	11	250 to 150	500	35	DN125	4.0

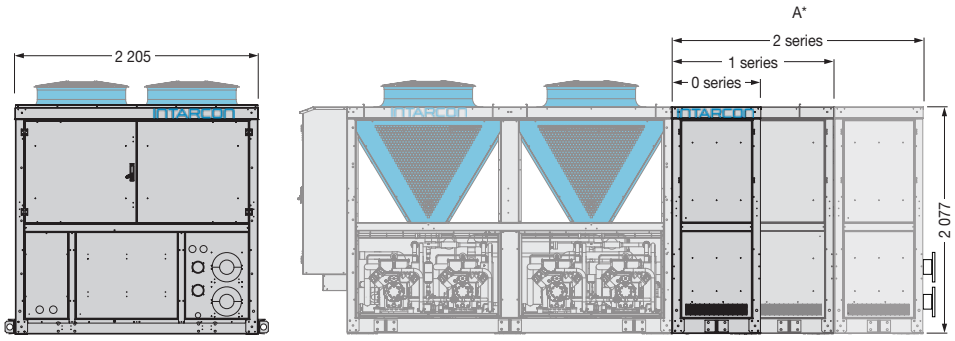
400V 3N 50Hz | Positive temperature | Glycol

	Series / Model	Flow MPG 35 % (m^3/h) -8 °C [2]	Main pump (kW)	Available pressure (kPa) [3]	Inertia tank except N version (litres)	Expansion vessel (litres)	Hydraulic connection	Auxiliary primary pump B version (kW)
GLYCOL	**MGW-AH-0 015 MGW-BH-1 015**	10 to 15	4.0	300 to 200	200	24	2 1/2"	0.75
	MGW-AH-0 025 MGW-BH-1 025	10 to 25	3.0	250 to 150	200	24	DN80	1.1
	MGW-AH-1 030 MGW-BH-1 030	20 to 30	4.0	250 to 150	200	35	DN100	1.1
	MGW-AH-1 035 MGW-BH-1 035	25 to 35	4.0	200 to 150	200	35	DN100	1.5
	MGW-AH-1 045 MGW-BH-1 045	30 to 45	5.5	250 to 150	200	50	DN100	1.5
	MGW-AH-1 050 MGW-BH-1 050	35 to 50	7.5	300 to 200	200	50	DN100	2.2
	MGW-AH-1 060 MGW-BH-2 060	40 to 60	7.5	200 to 150	200	50	DN125	3.0
	MGW-AH-1 070 MGW-BH-2 070	50 to 70	11.0	250 to 150	500	50	DN125	3.0
	MGW-AH-1 085 MGW-BH-2 085	65 to 85	15.0	250 to 150	500	50	DN125	3.0

Options

- Back-up main pump.
- Variable speed drive on main pump.
- Auxiliary back-up pump.

Dimensions



Dimensions (mm)	A
0 series	806
1 series	1 480
2 series	2 286

* Pump set according to configuration.

Dimensions in mm.

[1] Performance calculated for pumping water at 7°C.

[2] Performance calculated for pumping 35 % propylene glycol concentration at -8°C.

[3] Hydraulic pressure available for the distribution circuit and the chiller.

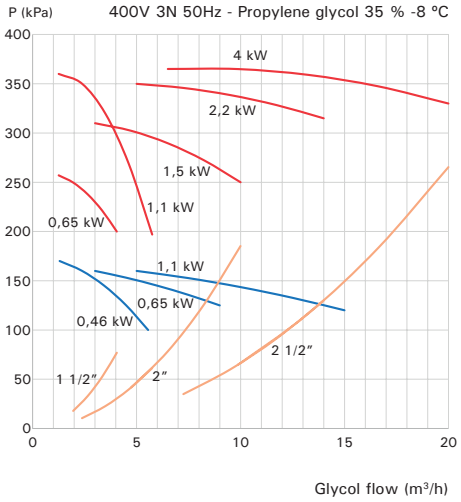
Auxiliary pump in the primary circuit

The auxiliary pump in the primary circuit is a low-pressure pump sized with an available pressure of about 50 to 100 kPa, enough to overcome the pressure drop of the exchanger of the chiller and a small section of piping.

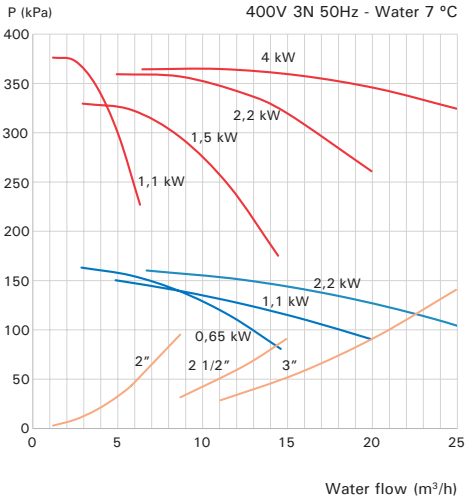
Pump sets

Characteristic curves

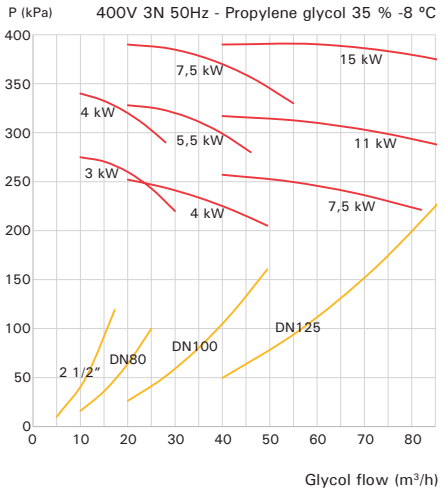
MWV series



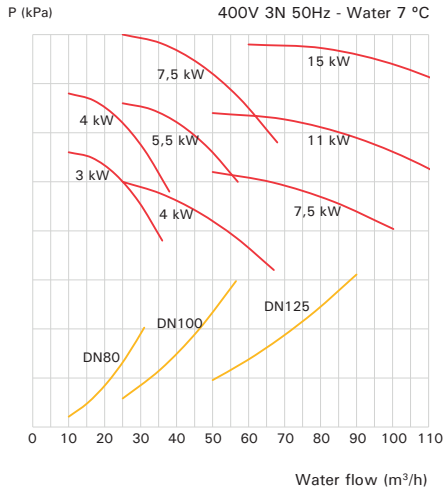
Serie AWV



MWW series



AWW series



— Main pump.

— Primary circuit booster pump.

— Pressure drop characteristic of the hydraulic unit.

The attached curves allow the operating point of the system to be checked on the basis of the pump characteristic curve and taking into account the internal pressure drop curve of the hydraulic unit.

In pump set with primary and secondary circuit (GV-BH and GW-BH versions), the hydraulic resistor of the chiller is compensated by the primary circuit pump.

For units with a single pumping unit (GV-AH and GW-AH version), the heater of the chiller must be taken into account and added to the available pressure required for the distribution circuit. The following values are recommended:

- WV series: 30-40 kPa.
- WW series: 40-50 kPa.

Example of selection

It is intended to select a pump set to be combined with the 35 % propylene glycol chiller, model MWW-FD-3 1503, with a cooling capacity of 260 kW at a temperature range of -2/-8 °C, it a glycol flow rate of 47.5 m³/h and an available pressure for the distribution circuit of 200 kPa.

For the required flow rate we are looking for the pump that results in a water column of 20 m between the characteristic curves of the pump and the DN100 pipe pump set, which corresponds to the hydraulic connections of the chiller. The 7.5 kW pump and DN100 connections characterise the pump set model MGW-BH-1 050.

Optionally, this hydraulic unit can be equipped with a primary circuit pump.

Air coolers

Easy installation

Control integrated

Wide range of cooling capacity

JB-NH series – Slim type air coolers

- Glycol water.
- High efficiency battery.
- Integrated solenoid valve.
- Pre-wired electronic control (optional).

Slim type air-cooled with glycol water, equipped with control valves and optional pre-wired electronic control, built in aluminium body with polyester paint, for small cold rooms at high and medium temperatures.

Features

- 230V 50Hz power supply. Available in 60Hz. Others voltages by request.
- High efficiency air cooling coil, made of copper tubes and aluminium fins, with 4 and 6 mm fin pitch.
- Stainless steel condensate tray (only AJB-NH series).
- High-flow axial motor fans.
- Optimised hydraulic circuit for glycol water.
- Air defrosting.
- Threaded hydraulic connections.
- Solenoid regulating valve integrated in the unit.

Options

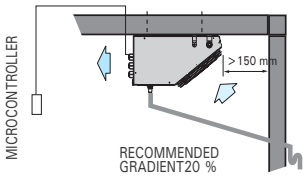
- Electric defrosting by heating elements in coil and condensate tray.
- Electronic control unit with fan control relays and solenoid coil, and cold room and defrosting temperature probes.
- Electronic fans.
- Anti-corrosion coil coating.

High efficiency finned coils

The efficiency of a tube and fin coil is an index of the utilisation of its exchange surface, associated with a higher temperature homogeneity. INTARCON coils have an efficiency of 85 % to 90 %.

Installation recommendations

The installation of the cooling units inside the cold store should be carried out according to the following recommendations:



- Place the unit at one end of the cold room, avoiding placing it above the door of the cold room and preferably driving it longitudinally in the cold room and transversally to the entrance door.

230V 50Hz | High temperature | Positive temperature | Glycol water

Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature		Coil			Fan					Hydraulic circuit			Electrical defrost		Weight
			10 °C / 85 % RH (0 °C / 5 °C) PG 25 %	0 °C / 85 % RH (-10 °C / -5 °C) PG 35 %	Fin spacing (mm)	Area (m^2)	Vol. (litres)	Air flow (m^3/h)	Nx Ø (mm)	Capacity (W)	Max. current (A)	Range (m)	Flow (m^3/h)	Pressure drop (kPa)	Hydraulic connection	W	A	(kg)
PROPYLENE GLYCOL	High	**AJB-NH-1 120**	1 060	980	4	5.2	1.0	475	1x Ø 200	62	0.3	4	0.2	20	3/4"	1x 450	2.0	11
		AJB-NH-2 220	1 700	1 590	4	9.3	1.6	950	2x Ø 200	124	0.5	4	0.4	26	3/4"	1x 700	3.0	12
		AJB-NH-3 325	2 600	2 430	4	17.4	2.9	1 575	3x Ø 254	210	1.4	6	0.7	15	1"	2x 800	7.0	18
		AJB-NH-4 430	4 380	4 100	4	26.8	4.7	2 800	4x Ø 300	472	3.2	8	1.3	27	1"	3x 1 000	13.0	33
	Positive	**MJB-NH-1 120**	970	900	6	3.5	1.0	550	1x Ø 200	62	0.3	4	0.1	13	3/4"	1x 450	2.0	11
		MJB-NH-2 220	1 550	1 450	6	6.3	1.6	1 050	2x Ø 200	124	0.5	4	0.2	16	3/4"	1x 700	3.0	12
		MJB-NH-3 325	2 430	2 270	6	11.8	2.9	1 725	3x Ø 254	210	1.4	6	0.4	10	1"	2x 800	7.0	18
		MJB-NH-4 430	4 030	3 780	6	18.1	4.7	3 100	4x Ø 300	472	3.2	8	0.8	17	1"	3x 1 000	13.0	33

JD-NH series – Double-flow air coolers

- ❄ Glycol water.
- ❄ High efficiency coil.
- ❄ Integrated solenoid valve.
- ❄ Pre-wired electronic control (optional).
- ❄ High comfort with low noise level.

Double-flow ceiling-type air-cooled units, with glycol water, equipped with control valves and optional pre-wired electronic control, built in galvanised steel structure and aluminium body with polyester paint.

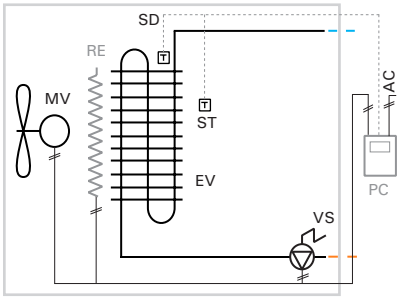
Features

- 230V 50Hz power supply. Available in 60Hz. Others voltages by request.
- High efficiency air cooling coil, made of copper tubes and aluminium fins, with 4 and 6 mm fin pitch.
- Stainless steel insulated condensate tray (except UH- series).
- Low speed silent axial motor fans.
- Optimised hydraulic circuit for glycol water.
- Air defrosting.
- Threaded hydraulic connections.
- Solenoid control valve integrated in the unit.

Options

- Electric defrosting by heating elements in coil and condensate tray.
- Electronic control unit with fan control relays and solenoid oil, cold room and defrosting temperature probes.
- G3 filters on fans.
- Dehumidification / humidification / heating kit.
- Anti-corrosion coil coating.

Hydraulic and electrical schematic



MV: MOTOR FAN
EV: EVAPORATOR
AC: POWER SUPPLY
ST: COLD ROOM PROBE
SD: DEFROST PROBE
VS: SOLENOID VALVE
PC: CONTROL PANEL (OPTIONAL)
RE: DEFROST HEATER (OPTIONAL)

*Electric defrost (optional)

AJD series is also available with the option of electric defrost, for operation at ambient temperatures between -5°C and 5°C.

The models of the AJD 3 and 4 series that incorporate the optional electric heaters, unlike the rest of the models in the series, require a 400V 3N electrical connection.

230V 50Hz | High temperature | Positive temperature | Glycol water

Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature		Coil			Fan					Hydraulic circuit			Electrical defrost		Weight (kg)	SPL dB(A) (1)
			10 °C / 85 % HR (0 °C / 5 °C) PG 25 %	0 °C / 85 % RH (-10 °C / -5 °C) PG 35 %	Fin spacing (mm)	Area (m²)	Vol. (litres)	Air flow (m³/h)	Nx Ø (mm)	Capacity (W)	Max. current (A)	Range (m)	Flow (m³/h)	Pressure drop (kPa)	Hydraulic connection	W	A		
PROPYLENE GLYCOL	High	AJD-NH-1 136	2 250	2 100	4	10.4	2.4	1 100	1x Ø 360	85	0.4	2x 4	0.5	24	3/4"	2x 450	3.9	30	33
		AJD-NH-2 236	3 330	3 110	4	18.6	3.8	1 800	2x Ø 360	170	0.8	2x 4	0.8	24	1"	2x 700	6.1	55	36
		AJD-NH-3 336	5 290	4 950	4	34.8	6.9	3 150	3X Ø 360	255	1.1	2x 6	1.4	15	1"	6x 800*	6.9	68	38
		AJD-NH-4 245	8 530	8 010	4	53.7	11.0	5 200	2x Ø 450	280	1.3	2x 6	2.5	25	1 1/4"	6x 1 000*	8.7	85	42
		AJD-NH-4 345	8 820	8 270	4	53.7	11.0	5 700	3x Ø 450	420	1.9	2x 6	2.6	27	1 1/2"	6x 1 000*	8.7	94	44
	Quasistatic	AJD-UH-1 136	1 410	860	6	7.0	2.4	600	1x Ø 360	85	0.2	2x 4	0.2	10	3/4"	2x 450	3.9	30	20
		AJD-UH-2 136	2 420	1 500	6	12.5	3.8	1 000	1x Ø 360	85	0.3	2x 4	0.3	10	3/4"	2x 700	6.1	55	23
		AJD-UH-3 236	4 310	2 610	6	23.4	6.9	1 800	2x Ø 360	170	0.5	2x 6	0.5	10	1"	6x 800*	6.9	68	26
		AJD-UH-4 245	7 350	4 750	6	36.1	11.0	2 900	2x Ø 450	280	1.3	2x 6	1.0	10	1"	6x 1 000*	8.7	85	31

(1) Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

KD-NH series – Industrial double-flow air coolers

- Glycol water.
- Large working rooms.
- Integrated solenoid valve.
- Pre-wired electronic control (optional).

Industrial air-cooling units of double-flow ceiling type, with glycol water, equipped with control valves, built in galvanised steel structure and steel bodywork with polyester paint.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Other voltages on request.
- High efficiency double air cooling coil, made of copper tubes and aluminium fins, with 4 and 6 mm fin pitch.
- Air defrosting.
- Stainless steel hinged condensate tray.
- Low speed low noise axial motor fans.
- Optimised hydraulic circuit for operation with glycol water.
- Threaded hydraulic connections.
- Solenoid control valve integrated in the unit.

Options

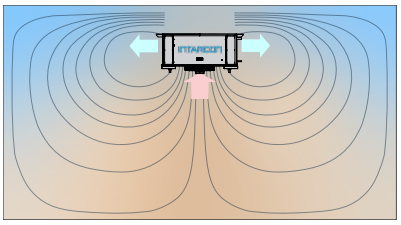
- Electric defrosting by heating elements in coil and condensate tray.
- Control and power panel with electronic microprocessor and digital display, with magneto-thermal protection of heaters and fans, 6 control relays, chamber and defrosting temperature probes, and operation indicator lights.
- Humidification / dehumidification / heating kit.
- Anti-corrosion coil coating.

Electronic control panel (optional)

All units can be combined with an advanced multi-function controller, consisting of an electronic board integrated in the control panel and digital control unit.

Maximum comfort in the workplace

The configuration of the motor fans in the cooler, together with the double air flow through the coils, creates a smooth laminar air flow in the chamber with a reduced level of turbulence.



400V 3N 50Hz | High temperature | Positive temperature | Glycol water

Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature		Coil			Fans					Hydraulic circuit			Electrical defrost		Weight (kg)
			10 °C / 85 % RH (0 °C / 5 °C) PG 25 %	0 °C / 85 % RH (-10 °C / -5 °C) PG 35 %	Fin spacing (mm)	Area (m^2)	Vol. (litres)	Air flow (m^3/h)	Nx Ø (mm)	Capacity (kW)	Max. current (A)	Range (m)	Flow (m^3/h)	Pressure drop (kPa)	Hydraulic connections	W	A	
PROPYLENE GLYCOL	High	**AKD-NH-1 245***	**12 970**	10 070	4	63.4	13.6	6 500	2x Ø 450	300	1.2	2x 12	3.4	4.7	1 1/4"	12x 800	13.9	170
		AKD-NH-2 250	**17 760**	16 560	4	88.0	19.0	9 500	2x Ø 500	500	1.4	2x 12	5.0	6.0	1 1/2"	18x 800	20.8	210
		AKD-NH-3 350	**21 620**	20 240	4	117.6	25.4	13 500	3x Ø 500	760	2.1	2x 12	6.6	3.3	2"	18x 1 000	26.0	260
	Positive	**MKD-NH-1 245***	11 800	**10 970**	6	42.8	13.6	7 200	2x Ø 450	295	1.2	2x 12	2.2	3.3	1 1/4"	12x 800	13.9	170
		MKD-NH-2 250	15 860	**14 760**	6	59.4	19.0	10 000	2x Ø 500	485	1.4	2x 12	3.2	4.5	1 1/2"	18x 800	20.8	210
		MKD-NH-3 350	19 640	**18 360**	6	79.2	25.4	14 500	3x Ø 500	740	2.1	2x 12	3.9	2.1	2"	18x 1 000	26.0	260

* Models with air defrosting powered at 230V 50Hz.

JC-NH series – Commercial cubic type air coolers

- Glycol water.
- High efficiency coil.
- Integrated solenoid valve.

Commercial cubic type air-cooled chillers, with glycol, equipped with control valves and optional pre-wired electronic control, built in galvanised steel structure and aluminium body with polyester paint.

Features

- 230V 50Hz power supply. Available in 60Hz. Other voltages on request.
- High efficiency air cooling coil, made of copper tubes and aluminium fins, with 6 mm fin pitch.
- Air defrosting.
- Axial motor fans.
- Optimised hydraulic circuit for glycol water.
- Threaded hydraulic connections.
- Solenoid control valve integrated in the unit.

Options

- Electric defrosting by heating elements in coil and condensate tray.
- Electronic control unit with fan control relays and solenoid coil, and chamber and defrosting temperature probes.
- Humidification / dehumidification / heating kit.
- Anti-corrosion coil coating.

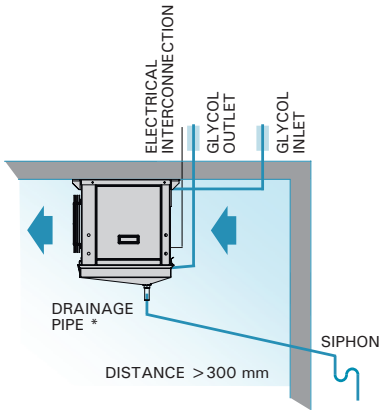
Electrical control (optional)

JC air-cooled can be controlled by a compact microcontroller that integrates all the command and control elements without the need for an electrical panel:

- 3 control relays for: liquid solenoid valve, motor fan and defrost (16A).
- Thermostatic temperature probe and defrost probe.
- Configurable digital input.

Installation recommendations

* Minimum drain pipe inclination of 20 %.



230V 50Hz | Positive temperature | Glycol water

Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature		Coil			Fans					Hydraulic circuit			Electrical defrost		Weight (kg)
			10 °C / 85 % RH (0 °C / 5 °C) PG 25 %	0 °C / 85 % RH (-10 °C / -5 °C) PG 35 %	Fin spacing (mm)	Area (m²)	Vol. (litres)	Air flow (m³/h)	Nx Ø (mm)	Capacity (kW)	Max. current (A)	Range (m)	Flow (m³/h)	Pressure drop (kPa)	Hydraulic connections	W	A	
PROPYLENE	Positive	**MJC-NH-1 225**	3 700	3 316	6	12.4	2.7	1 500	2x Ø 254	140	0.96	4	0.6	21	1"	2x 700	6.1	42
		MJC-NH-2 225	4 370	3 900	6	17.1	3.7	1 650	2x Ø 254	140	0.96	4	0.7	7	1"	2x 800	10.4	49
		MJC-NH-2 325	5 340	4 780	6	17.1	3.7	2 250	3x Ø 254	210	1.44	6	0.9	10	1"	3x 800	10.4	53
		MJC-NH-3 425	6 950	6 230	6	23.3	5.0	2 800	4x Ø 254	280	1.92	6	1.15	21	1 1/4"	4x 800	13.9	66

KC-NH series – Cubic type air coolers

- Glycol water.
- High efficiency coil.
- Integrated solenoid valve.
- Double defrost tray.

Cubic type air-cooled with glycol water, equipped with control valves and optional pre-wired electronic control, for high and medium temperature cold rooms, built in structure and bodywork in galvanised steel with polyester painted.

Features

- 230V 50Hz power supply. Available in 60Hz. Others voltages by request.
- High efficiency air cooling coil, made of copper tubes and aluminium fins, with 4 and 6 mm fin pitch.
- Air defrosting.
- Double stainless steel hinged condensate tray.
- High-flow axial motor fans.
- Optimised hydraulic circuit for glycol water.
- Threaded hydraulic connections.
- Control of solenoid valve integrated in the unit.

Options

- Electric defrosting by means of resistors embedded in coil and condensate tray.
- Control and power panel with electronic microprocessor and digital display, with magneto-thermal protection of heaters and fans, 6 control relays, cold room and defrosting temperature probes, and operation indicator lights.
- Long-range streamer, for installation on drive fans to direct the air flow to a greater extent.
- Dehumidification / humidification / heating kit.
- Anti-corrosion coil coating.

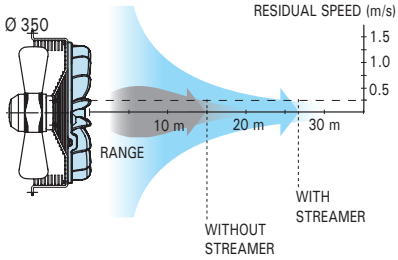
Humidification kit (optional)

Steam humidification kit with a capacity of 3 kg/h, consisting of: steam lances integrated in the evaporator unit, a submerged electrode generator cylinder, with water supply and drain valves, and electronic relative humidity controller in the cold room.

The system is only valid for mains water with conductivity between 125 and 1250 μS/cm, and total hardness between 50 and 400 mg/l $CaCO_3$ and more than twice the Cl content.

Long range streamer (optional)

As an option, a streamer or louvred diffuser can be installed above the fan discharge to direct the air jet over a greater range.



230V 50Hz | High temperature | Positive temperature | Glycol water

Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature		Coil			Fans					Hydraulic circuit			Electrical defrost		Weight (kg)
			10 °C / 85 % RH (0 °C / 5 °C) PG 25 %	0 °C / 85 % RH (-10 °C / -5 °C) PG 35 %	Fin spacing (mm)	Area (m^2)	Vol. (litres)	Air flow (m^3/h)	Nx Ø (mm)	Capacity (kW)	Max. current (A)	Range (m)	Flow (m^3/h)	Pressure drop (kPa)	Hydraulic connections	400V 3N 50Hz W	400V 3N 50Hz A	
PROPYLENE GLYCOL	High	**AKC-NH-0 135**	**3 590**	3 350	4	15.8	3.2	2 000	1x Ø 350	163	0.7	15	0.8	27	1"	6x 450	3.9	43
		AKC-NH-1 135	**4 660**	4 320	4	25.2	5.4	2 500	1x Ø 350	160	0.7	15	1.3	59	1"	6x 700	6.1	56
		AKC-NH-2 235	**7 040**	6 580	4	34.8	7.4	4 000	2x Ø 350	325	1.4	15	1.9	58	1 1/4"	6x 800	6.9	72
		AKC-NH-3 235	**8 650**	8 060	4	47.8	9.6	5 000	2x Ø 350	320	1.4	15	2.6	59	1 1/4"	9x 800	10.4	89
		AKC-NH-3 335	**9 700**	9 090	4	47.8	9.6	6 000	3x Ø 350	490	2.2	15	3.0	59	1 1/4"	9x 800	10.4	94
		AKC-NH-4 435	**11 430**	10 730	4	63.2	12.8	8 000	4x Ø 350	650	2.9	15	3.6	38	1 1/4"	9x 1 000	12.9	118
	Positive	**MKC-NH-0 135**	3 180	**2 970**	6	9.6	3.2	2 100	1x Ø 350	160	0.7	15	0.4	16	1"	6x 450	3.9	43
		MKC-NH-1 135	4 210	**3 900**	6	17.1	5.4	2 700	1x Ø 350	160	0.7	15	0.8	45	1"	6x 700	6.1	56
		MKC-NH-2 235	6 250	**5 830**	6	21.2	7.4	4 150	2x Ø 350	325	1.4	15	1.2	38	1"	6x 800	6.9	72
		MKC-NH-3 235	7 730	**7 180**	6	31.8	9.6	5 200	2x Ø 350	315	1.4	15	1.6	46	1 1/4"	9x 800	10.4	89
		MKC-NH-3 335	8 630	**8 050**	6	31.8	9.6	6 200	3x Ø 350	485	2.1	15	1.8	53	1 1/4"	9x 800	10.4	94
		MKC-NH-4 435	10 290	**9 640**	6	42.4	12.8	8 300	4x Ø 350	645	2.8	15	2.1	24	1 1/4"	9x 1 000	12.9	118

KH-NH series – Industrial cubic type air coolers

- Glycol water.
- High efficiency coils.
- Integrated solenoid valve.
- Double defrost tray.

Industrial cubic air-cooled units, with glycol water, equipped with control valves, for high, positive and negative temperature cold rooms, built in galvanised steel structure and bodywork with polyester paint.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- High efficiency air cooling coil, made of copper tubes and aluminium fins, with 4 and 5 mm fin spacing.
- Air defrosting.
- Double stainless steel hinged condensate tray.
- High-flow axial fans at 1 300 rpm.
- Optimised hydraulic circuit for glycol water.
- Threaded hydraulic connections.
- Solenoid valve for control integrated in the unit.

Options

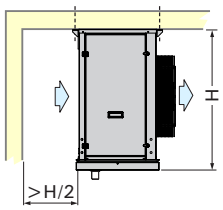
- Electric defrosting by means of resistors embedded in coil and condensate tray.
- Electronic control unit with fan control relays and solenoid coil, as well as chamber temperature and defrosting probes.
- Anti-corrosion coil coating.

Electronic control panel (optional)

All units can be combined with an advanced multi-function controller, consisting of an electronic board integrated in the control panel and digital control unit.

Ceiling mounting

Air coolers units are prepared for fixing to the ceiling of the chamber.



400V 3N 50Hz | High temperature | Positive temperature | Glycol water

Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature		Coil			Fans					Hydraulic circuit			Electric defrost		Weight (kg)
			10 °C / 85 % HR (0 °C / 5 °C) PG 25 %	0 °C / 85 % RH (-10 °C / -5 °C) PG 35 %	Fin spacing (mm)	Area (m^2)	Vol. (litres)	Air flow (m^3/h)	Nx Ø (mm)	Capacity (kW)	Max. current (A)	Range (m)	Flow (m^3/h)	Pressure drop (kPa)	Hydraulic connections	kW	A	
PROPYLENE GLYCOL	High	**AKH-NH-1 145**	**7 740**	7 290	4	46	12	4 000	1x Ø 450	0.5	1.1	22	1.4	16	1 1/4"	6x 700	6	74
		AKH-NH-2 150	**11 490**	10 810	4	67	17	5 700	1x Ø 500	0.7	1.4	26	2.1	16	1 1/4"	6x 700	6	96
		AKH-NH-1 245	**13 970**	13 180	4	93	23	8 000	2x Ø 450	1.1	2.1	22	2.5	17	1 1/2"	9x 800	10	103
		AKH-NH-2 250	**20 380**	19 220	4	134	33	11 400	2x Ø 500	1.3	2.8	26	3.7	17	2"	12x 800	14	138
		AKH-NH-1 345	**19 580**	18 490	4	139	33	12 000	3x Ø 450	1.6	3.2	22	3.5	23	2"	12x 1 000	17	159
		AKH-NH-2 350	**29 110**	27 450	4	201	50	17 100	3x Ø 500	2.0	4.2	26	5.2	22	2"	15x 1 000	22	184
		AKH-NH-1 445	**26 030**	24 660	4	186	44	16 000	4x Ø 450	2.1	4.3	22	4.6	48	2"	12x 1 250	22	205
		AKH-NH-2 450	**38 820**	36 600	4	268	66	22 800	4x Ø 500	2.7	5.6	26	6.8	48	2"	15x 1 250	27	272
	Positive	**MKH-NH-1 145**	7 330	**6 915**	5	36	12	4 200	1x Ø 450	0.5	1.1	22	1.3	11	1 1/4"	6x 700	6	72
		MKH-NH-2 150	10 880	**10 250**	5	52	17	6 100	1x Ø 500	0.7	1.4	26	1.9	11	1 1/4"	6x 700	6	93
		MKH-NH-1 245	13 280	**12 540**	5	73	23	8 400	2x Ø 450	1.0	2.1	22	2.3	14	1 1/2"	9x 800	10	99
		MKH-NH-2 250	19 390	**18 300**	5	105	33	12 200	2x Ø 500	1.3	2.8	26	3.4	14	2"	12x 800	14	132
		MKH-NH-1 345	18 650	**17 630**	5	109	33	12 600	3x Ø 450	1.5	3.2	22	3.2	20	2"	12x 1 000	17	153
		MKH-NH-2 350	27 720	**26 200**	5	157	48	18 300	3x Ø 500	2.0	4.2	26	4.8	20	2"	15x 1 000	22	175
		MKH-NH-1 445	24 870	**23 510**	5	145	44	16 800	4x Ø 450	2.0	4.3	22	4.5	43	2"	12x 1 250	22	197
		MKH-NH-2 450	36 960	**34 930**	5	210	64	24 400	4x Ø 500	2.6	5.6	26	6.5	42	2"	15x 1 250	27	260

KJ-NH series – Industrial cubic type air coolers

- Glycol.
- Large surface area coils.
- Easy installation.

Industrial air coolers for large cold rooms with glycol or brine as secondary refrigerant, built in galvanised sheet steel bodywork with polyester coating.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- 5/8" copper tube bore and aluminium fins, in large exchange surface geometry, with 4.5 and 7 mm fin spacing.
- Long-range axial motor fans Ø 630 and Ø 800 mm.
- Optimised hydraulic circuit for glycol.
- Threaded hydraulic connections.
- Design pressure: 10 bar.

Optimised design

Air coolers designed to work with glycol or brine, with limited pressure drop and large exchange surface.

The special tube geometry of the industrial air coolers reduces frost formation and allows spacing of defrost cycles.

In addition, the counter-current circuit design improves the exchange efficiency. All this results in higher humidity in the cold room and less product loss.

400V 3N 50Hz | High temperature | Positive temperature | Glycol water

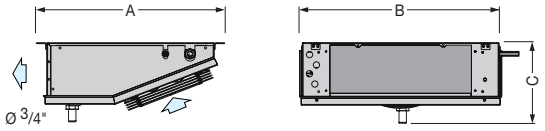
Refrigerant	Application	Series / Model	Cooling capacity (W) according to cold room temperature		Coil			Fans					Hydraulic circuit			Electrical defrost		Weight (kg)
			10 °C 85 % HR PG 25% 0/5°C	0 °C 85 % HR PG 35% -10/-5°C	Fin spacing (mm)	Area (m^2)	Vol. (litres)	Air flow (m^3/h)	Nx Ø (mm)	Capacity (kW)	Max. current (A)	Range (m)	Flow (l/s)	Pressure drop (kPa)	Hydraulic connections	kW	A	
PROPYLENE GLYCOL	High	**AKJ-NH-1 263**	**27.7**	27.4	4.5	369	65	19 500	2x Ø 630	1.7	3.3	35	1.4	41	2"	20	29	375
		AKJ-NH-1 363	**37.2**	36.9	4.5	554	98	29 500	3x Ø 630	2.6	5.0	35	1.9	27	2"	30	43	550
		AKJ-NH-1 463	**49.6**	49.2	4.5	738	130	39 000	4x Ø 630	3.5	7.0	35	2.5	59	2"	40	58	725
		AKJ-NH-2 280	**46.9**	46.4	4.5	655	114	35 000	2x Ø 800	3.1	6.0	45	2.4	77	2"	40	58	650
		AKJ-NH-2 380	**63.0**	62.3	4.5	982	171	52 000	3x Ø 800	4.6	9.0	45	3.2	51	2 1/2"	50	72	900
		AKJ-NH-2 480	**77.3**	76.8	4.5	1 310	228	69 500	4x Ø 800	6.1	12.0	45	3.5	77	2 1/2"	60	87	1 150
	Positive	**MKJ-NH-1 263**	25.2	**24.5**	7	243	65	21 500	2x Ø 630	1.8	3.4	35	1.3	35	2"	20	29	325
		MKJ-NH-1 363	34.1	**33.5**	7	365	98	32 500	3x Ø 630	2.7	5.0	35	1.8	30	2"	30	43	475
		MKJ-NH-1 463	45.5	**44.7**	7	486	130	43 000	4x Ø 630	3.6	7.0	35	2.3	57	2"	40	58	625
		MKJ-NH-2 280	42.7	**41.6**	7	432	114	38 500	2x Ø 800	3.2	6.0	45	2.1	60	2"	40	58	575
		MKJ-NH-2 380	57.8	**56.4**	7	649	171	57 500	3x Ø 800	4.8	9.0	45	2.9	45	2 1/2"	50	72	825
		MKJ-NH-2 480	74.2	**71.4**	7	865	228	76 500	4x Ø 800	6.3	12.0	45	3.4	79	2 1/2"	60	87	1 075

Options

- Electric defrosting by overlapping heating elements in coil and condensate tray.
- Anti-corrosion coil coating.

Dimensions

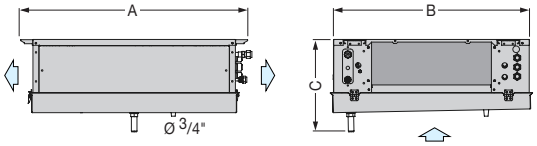
JB series



Dimensions (mm)	A	B	C
1 series	460	643	235
2 series	460	993	235
3 series	538	1 691	235
4 series	590	2 064	285

All dimensions see page 55.

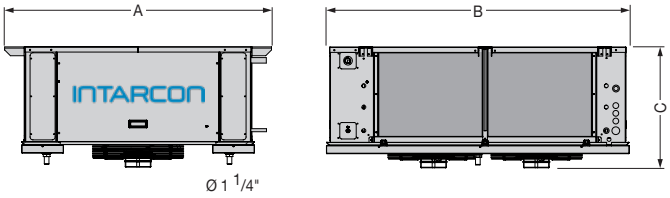
JD series



Dimensions (mm)	A	B	C
1 series	852	736	310
2 series	852	1 086	310
3 series	852	1 786	310
4 series	942	2 186	360
5 series	942	2 186	360

All dimensions see page 57.

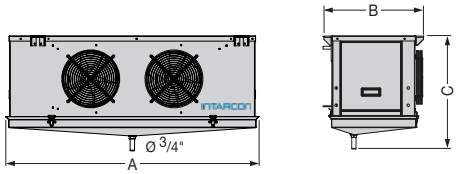
KD series



Dimensions (mm)	A	B	C
1 series	1 385	1 567	625
2 series	1 385	1 967	633
3 series	1 385	2 467	633

All dimensions see page 59.

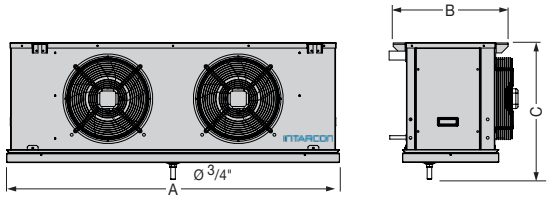
JC series



Dimensions (mm)	A	B	C
12 series	1 200	530	547
22 series	1 500	530	547
23 series	1 500	530	547
34 series	1 900	530	547

All dimensions see page 61.

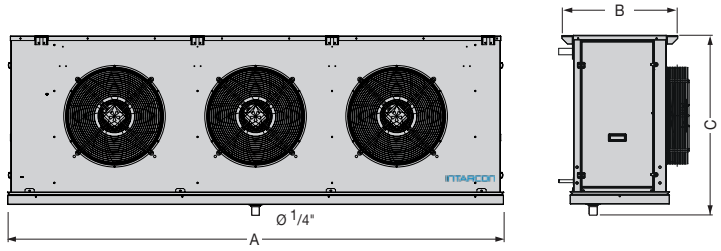
KC series



Dimensions (mm)	A	B	C
0 series	880	530	581
1 series	1 230	530	581
2 series	1 530	530	581
3 series	1 930	530	581
4 series	2 430	530	581

All dimensions see page 63.

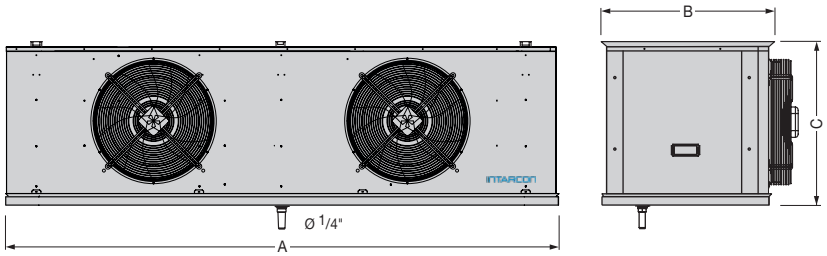
KH series



Dimensions (mm)	A	B	C
11 series	1 180	625	730
21 series	1 180	625	980
12 series	1 930	625	730
22 series	1 930	625	982
13 series	2 680	625	730
23 series	2 680	625	982
14 series	3 430	625	730
24 series	3 430	625	982

All dimensions see page 67.

KJ series



Dimensions (mm)	A	B	C
12 series	3 000	960	970
13 series	4 200	960	970
14 series	5 400	960	970
22 series	3 800	1 050	1 270
23 series	5 400	1 050	1 270
24 series	7 000	1 050	1 270

Hydraulic piping calculation

The following table shows the properties of the main secondary fluids as well as the maximum recommended cooling capacity for the different hydraulic pipe diameters.

Fluid	Nominal diameter	Inches	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 ¼"	1 ½"	2"	2 ½"	3"	3 ½"	4"	5"	6"
		DN	10	15		20		25		32	40	50	65	80		100	125	150
Copper (DIN 1057)	Dext.		15.0	18.0		22.0		28.0		35.0	42.0	54.0	64.0	76.0	88.9	108.0	133.0	159.0
Galvanised steel (DIN EN 10255)			17.2	21.3		26.9		33.7		42.4	48.3	60.3		76.1	88.9	114.3	139.7	168.3
Carbon steel / Stainless steel (DIN EN 10220/10216)			17.2	21.3		26.9		33.7		42.4	48.3	60.3		76.1	88.9	114.3	139.7	168.3
PEX, PB, 10 bar, SDR 9				20.0		25.0		32.0		40.0	50.0	63.0	75.0	90.0	110.0	125.0	160.0	200.0
PE, PB class 2, 10 bar, SDR 11			16.0	20.0	22.0	25.0	28.0	32.0		40.0	50.0	63.0	75.0	90.0				
ABS, PP-R, 10 bar, SDR 17						25.0			32.0	40.0	50.0	63.0		75.0	90.0	110.0	140.0	160.0

Fluid	%	Fluid temp. (°C)	Frozen temp (°C)	Density (kg/m³)	Specific heat (kJ/kg·K)	Viscosity (mPA·s)	Duct W/mK	Max. recommended cooling capacity(kW) (calculated for a temperature differente of 5 K and a pressure drop of 400 Pa/m)																
Water		7	0	1 000	4.21	1.4	0.58	1.4	2.6	3.5	4.7	6.9	8.7	12	17	29	57	93	153	236	396	666	967
Ethanol	30 %	-10	-17	975	3.65	12.7	0.45	0.4	0.9	1.4	2.2	3.8	4.9	6.8	10	17	35	58	96	150	254	450	747
Propylene glycol	15 %	5	-4	1 015	4.04	2.9	0.51	1.2	2.2	3.0	4.1	6.0	7.5	10	15	26	50	82	135	210	353	619	943
Propylene glycol	25 %	0	-9	1 026	3.91	5.6	0.46	1.0	1.8	2.6	3.5	5.1	6.5	8.9	13	22	44	73	120	187	315	555	915
Propylene glycol	30 %	-5	-13	1 033	3.84	9.1	0.44	0.6	1.4	2.2	3.0	4.5	5.7	7.9	12	20	40	66	110	171	290	512	847
Propylene glycol	35 %	-10	-17	1 040	3.76	16	0.43	0.3	0.8	1.3	2.0	3.4	4.8	6.9	10	18	36	59	98	154	263	466	773
Propylene glycol	40 %	-15	-22	1 047	3.68	28	0.41		0.4	0.7	1.1	1.9	2.6	4.1	7	15	31	52	86	136	233	416	694
Propylene glycol	45 %	-20	-27	1 055	3.59	54	0.40			0.4	0.5	1.0	1.3	2.1	3.6	7.9	21	43	74	117	202	363	610
Propylene glycol	50 %	-25	-32	1 062	3.51	110	0.38					0.5	0.6	1	1.7	3.8	10	22	45	86	169	307	520
Propylene glycol	55 %	-30	-39	1 070	3.41	239	0.37								0.8	1.7	4.7	9.7	20	39	85	196	412
Propylene glycol	60 %	-40	-46	1 079	3.30	969	0.37											2.3	4.9	9.4	20	47	99
Hot propylene glycol	50 %	20	-32	1 038	3.63	6.1	0.38	0.9	1.7	2.3	3.2	4.7	5.9	8.2	12	20	41	67	111	172	291	512	845
Ethylene glycol	10 %	5	-3	1 018	4.02	2.1	0.54	1.3	2.3	3.2	4.3	6.3	7.9	11	16	27	52	86	141	218	366	640	940
Ethylene glycol	20 %	0	-8	1 036	3.82	3.4	0.50	1.1	2.0	2.8	3.8	5.6	7.0	9.6	14	24	47	77	127	197	331	581	910
Ethylene glycol	30 %	-5	-15	1 056	3.62	5.8	0.47	0.9	1.7	2.4	3.2	4.8	6.1	8.3	12	21	41	68	112	175	296	520	858
Ethylene glycol	35 %	-10	-19	1 066	3.51	8.6	0.45	0.6	1.4	2.1	2.9	4.3	5.4	7.5	11	19	38	62	103	161	273	481	795
Ethylene glycol	40 %	-15	-23	1 077	3.39	13	0.44	0.4	0.9	1.4	2.2	3.8	4.8	6.6	9.7	17	34	56	94	147	249	441	731
Ethylene glycol	45 %	-20	-28	1 088	3.27	21	0.43		0.6	0.9	1.4	2.4	3.3	5.2	8.4	15	30	50	84	132	225	399	663
Ethylene glycol	50 %	-25	-34	1 100	3.15	34	0.42			0.5	0.8	1.4	2.0	3.1	5.3	12	26	44	74	116	199	356	595
Ethylene glycol	55 %	-30	-40	1 112	3.01	57	0.41				0.5	0.8	1.1	1.8	3	6.7	18	37	63	101	174	312	524
Alkali	18 %	-10	-28	942	4.25	2.7	0.44	1.2	2.2	3.1	4.1	6.1	7.6	10	15	26	51	83	137	213	358	627	919
Alkali	21 %	-20	-37	939	4.27	4.3	0.41	1.1	2.0	2.8	3.8	5.6	7.0	10	14	24	48	78	129	201	339	596	921
Alkali	25 %	-30	-45	933	4.30	7.4	0.37	0.8	1.7	2.5	3.4	5.0	6.3	9	13	22	44	72	120	187	316	557	921
Calcium chloride	15 %	0	-11	1 086	4.04	2.4	0.55	1.3	2.3	3.3	4.4	6.4	8.1	11	16	27	54	88	144	223	375	657	1 009
Calcium chloride	20 %	-5	-17	1 117	3.99	3.5	0.54	1.2	2.2	3.0	4.1	6.0	7.6	10	15	26	51	83	137	213	359	630	1 024
Calcium chloride	25 %	-20	-29	1 143	3.96	9.9	0.51	0.6	1.5	2.4	3.3	4.9	6.2	8.5	12	22	43	71	118	185	313	553	916
Calcium chloride	30 %	-30	-55	1 278	3.93	25	0.48	0.3	0.6	1.0	1.6	2.8	3.8	6.1	10	19	38	64	107	168	286	509	848
Sodium chloride	10 %	0	-7	1 078	4.12	2.0	0.60	1.4	2.5	3.4	4.6	6.7	8.4	11	17	28	56	91	149	231	388	679	1 021
Sodium chloride	15 %	-5	-12	1 120	4.08	2.6	0.59	1.3	2.4	3.3	4.4	6.5	8.2	11	16	28	54	89	147	227	382	669	1 051
Sodium chloride	20 %	-10	-17	1 161	4.05	4.1	0.56	1.2	2.2	3.1	4.1	6.1	7.7	10	15	26	52	85	139	217	365	641	1 056
Lithium chloride	10 %	-5	-12	1 056	3.60	3.0	0.59	1.1	2.0	2.7	3.7	5.4	6.8	9.3	13	23	45	75	122	190	320	561	873
Lithium chloride	15 %	-15	-25	1 082	3.35	6.0	0.56	0.8	1.6	2.2	3.0	4.5	5.6	7.8	11	19	39	64	105	163	276	486	802
Potassium formate Freezium	25 %	-5	-15	1 155	3.12	2.7	0.51	1.0	1.8	2.6	3.4	5.0	6.3	8.7	12	21	42	69	113	176	295	517	827
Hycool20, Freezium	30 %	-10	-20	1 206	2.93	3.8	0.50	0.9	1.7	2.3	3.1	4.6	5.7	7.9	11	20	39	63	104	162	272	478	787
Hycool30, Freezium	35 %	-25	-30	1 269	2.73	7.1	0.45	0.7	1.4	1.9	2.6	3.9	4.9	6.7	9.7	17	33	55	91	142	240	423	698
Tyfoxit F15	25 %	-5	-15	1 232	3.17	3.6	0.52	1.0	1.8	2.5	3.4	5.0	6.4	8.7	13	22	43	70	115	178	300	527	867
Tyfoxit F40	40 %	-25	-40	1 354	2.65	11	0.44	0.5	1.0	1.7	2.4	3.5	4.5	6.2	9	16	31	52	86	134	228	402	665
Potassium acetate Tyfoxit	60 %	-10	-20	1 162	3.20	6.4	0.48	0.8	1.6	2.2	3.0	4.4	5.6	7.6	11	19	38	63	103	161	272	479	790
Tyfoxit	70 %	-25	-31	1 193	3.10	17	0.45	0.3	0.7	1.1	1.7	3.0	4.1	6	8.9	16	31	52	87	136	231	410	681
Tyfoxit	80 %	-35	-40	1 222	3.00	44	0.43		0.3	0.4	0.7	1.1	1.6	2.5	4.4	9.4	25	42	70	112	192	344	576
Potassium acetate-formate Temper -10		0	-10	1 090	3.54	2.8	0.51	1.1	2.0	2.8	3.7	5.5	6.9	9.4	14	23	46	75	124	192	323	566	887
Temper -15		-5	-15	1 120	3.39	3.8	0.49	1.0	1.8	2.5	3.4	5.0	6.4	9.4	13	22	43	70	115	180	302	530	873
Temper -20		-10	-20	1 149	3.23	5.1	0.47	0.9	1.7	2.3	3.1	4.6	5.8	8	12	20	39	65	107	167	281	494	814
Temper -30		-20	-30	1 190	3.00	10	0.44	0.5	1.1	1.8	2.5	3.8	4.8	6.6	9.6	17	33	55	92	143	242	428	708
Temper -40		-30	-40	1 225	2.88	24	0.41		0.5	0.8	1.2	2.0	2.8	4.4	7.6	14	28	46	77	121	206	367	611
Temper -55		-45	-55	1 267	2.62	58	0.38			0.3	0.4	0.8	1.1	1.7	2.9	6.5	18	35	59	94	162	292	490
Temper -60		-50	-60	1 288	2.59	108	0.38					0.4	0.6	0.9	1.6	3.5	9.5	20	41	79	141	256	434
Betaine (Thermera AC)		-5	-15	1 075	3.12	8.1	0.4	0.6	1.3	1.9	2.6	3.9	4.9	6.8	9.9	17	34	56	93	145	246	433	716
Betaine (Thermera R)		-20	-35	1 110	2.80	48	0.3			0.3	0.5	0.9	1.2	2	3.4	7.4	20	36	61	97	167	299	501

Flow velocities of the given fluid for the different pipe sections: Laminar flow regime | > 0.5 m/s | > 1 m/s | > 1.5 m/s | > 2 m/s | >2.5 m/s

ammolite
ammonia refrigeration

NH_3 refrigeration system

Smart installation

100 % natural solution

Reliability and safety

ammolite | NH_3 chillers

- Plug & Play.
- Low ammonia charge.
- No machine room.
- No water consumption.

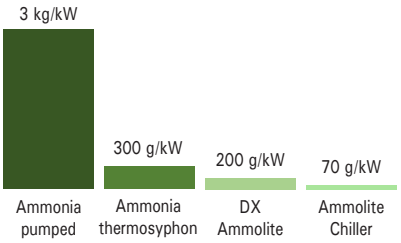
Industrial refrigeration chiller with low ammonia charge technology developed by INTARCON, for positive and negative temperature air-condensed applications. Compact construction built in galvanised steel body and chassis with polyester paint, for outdoor installation.

Features

- 400V 3 50Hz power supply. Available in 60Hz. Other voltages on request.
- Semihermetic screw compressors with variable speed permanent magnet motor. Suction filter, oil filter, discharge check valve. Suction and discharge valves integrated in the compressor.
- Miscible oil.
- High efficiency vertical oil separator.
- Tropicalised condenser with aluminium microchannel coils, with Polyester Powder Coating treatment.
- Oil cooler with stainless steel tube coils and aluminium fins.
- Variable speed EC motor fans for condensing pressure and oil temperature control.
- Evaporator with stainless steel welded plates with stainless steel welding.
- Electronic expansion valve, and electronic liquid injection valve for compressor cooling in extreme conditions.
- Stainless steel refrigeration circuit per compressor with decanter. Filter service valves, sight glasses, pressure switches and high and low pressure transducers.
- Stainless steel hydraulic circuit with fill/drain valve, air vent, flow switch, inlet and outlet thermometers and pressure gauges.
- Closed economiser with plate heat exchanger for liquid subcooling and medium pressure injection (only in negative temperature models).
- Electrical control panel. Frequency variator per compressor. Differential protection. Individual magneto-thermal and thermal protection for compressor and fans.
- Electronic control with digital control panel, cooling capacity control, condensation control, VI variation, start/stop sequence, compressor, fan and pump safety and stop sequence, compressor/s, fans and pumps safeties. Web interface and external communication.

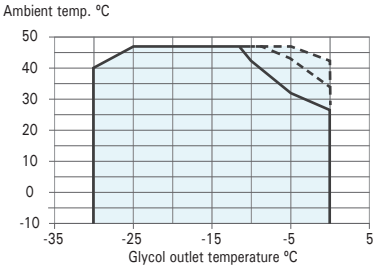
Low ammonia charge

Ammonia is a natural refrigerant with zero greenhouse effect. Thanks to the critical charge design and low charge components, we have achieved the lowest specific refrigerant charge of only 70 g per kW refrigerant.



Tropicalised condenser up to 47 °C

The integrated microchannel condenser offers a high exchange capacity, which, together with efficient oil cooling in air coils and liquid injection protection, allows the system to operate at ambient temperatures of up to 47 °C.



Heat recovery in oil

Optionally, partial heat recovery can be integrated, by means of oil heat recovery, and full heat recovery, by means of a parallel condenser.

Virtual tour

A virtual tour of the ammolite MWW-MPM-7 is available on our website.

Semihermetic screw compressors

SRM compressors are characterised by their small size, low noise level and low vibration.

The screw is designed with high compression pressure and variable VI. It is driven by an integrated permanent magnet motor on high precision roller bearings, with a service life of sixty thousand hours.

400V 3 50Hz | Positive temperature | Semihermetic screw compressors | R-717

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] I / O propylene glycol -2 / -8 °C	Compressor input power (kW)	Total input power (kW)	Ecodesign SEPR [3]	Max. current (A)	Condenser + Oil cooler Fans Ø (mm)	Condenser + Oil cooler Air flow (m^3/h)	Glycol flow (m^3/h)	Pressure drop (kPa)	Hydraulic connection	Weight (kg)	SPL dB(A) [4]
R-717	1x Semih.	**MWW-MPM-3 1201**	120	SRS14MM	249	96	105	4.4	296	6x Ø 800	114 000	38.2	35	DN100	3 765	60.4
		MWW-MPM-4 1701	170	SRS16SM	317	113	125	4.6	321	8x Ø 800	160 000	48.6	40	DN125	5 020	64.6
		MWW-MPM-4 1801	180	SRS16LM	369	131	143	4.7	321	8x Ø 800	182 000	56.6	45	DN125	5 020	64.6
	2x Semih.	**MWW-MPM-5 2402**	240	2x SRS14MM	499	193	211	4.3	584	10x Ø 800	228 000	76.5	35	DN150	6 275	63.2
		MWW-MPM-7 3402	340	2x SRS16SM	634	225	251	4.6	635	14x Ø 800	320 000	97.2	40	DN150	8 785	67.6
		MWW-MPM-7 3602	360	2x SRS16LM	738	261	287	4.7	635	14x Ø 800	320 000	113	45	DN150	8 785	67.6

400V 3 50Hz | Negative temperature | Semihermetic screw compressors | R-717

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [2] I / O ethylene glycol -19 / -25 °C	Compressor input power (kW)	Total input power (kW)	Ecodesign SEPR [3]	Max. current (A)	Condenser + Oil cooler Fans Ø (mm)	Condenser + Oil cooler Air flow (m^3/h)	Glycol flow (m^3/h)	Pressure drop (kPa)	Hydraulic connection	Weight (kg)	SPL dB(A) [4]
R-717	1x Semih.	**BWW-MPM-3 1201**	120	SRS14MM	131	94	103	1.9	306	6x Ø 800	114 000	22.6	25	DN100	3 765	60.4
		BWW-MPM-3 1701	170	SRS16SM	160	114	123	2.1	324	6x Ø 800	114 000	27.6	30	DN125	3 765	64.5
		BWW-MPM-4 1801	180	SRS16LM	193	132	144	2.1	333	8x Ø 800	182 000	33.3	35	DN125	5 020	64.6
	2x Semih.	**BWW-MPM-5 2402**	240	2x SRS14MM	262	189	207	2.0	597	10x Ø 800	228 000	45.2	25	DN150	6 275	63.2
		BWW-MPM-5 3402	340	2x SRS16SM	320	229	247	2.1	632	10x Ø 800	228 000	55.2	30	DN150	6 275	67.4
		BWW-MPM-7 3602	360	2x SRS16LM	387	263	289	2.1	650	14x Ø 800	320 000	66.8	35	DN150	8 785	67.6

Options

- Multi-tube stainless steel tube evaporator.
- Stainless steel tube condenser and aluminium fins.
- Variable glycol flow rate.
- Condensation heat recovery.
- Total heat recovery (80 %).
- Hydraulic unit with back-up pump.

[1] Nominal performance positive temperature: 35 °C ambient temperature with glycol inlet/outlet at -2/-8 °C, with a propylene glycol concentration of 35 %.

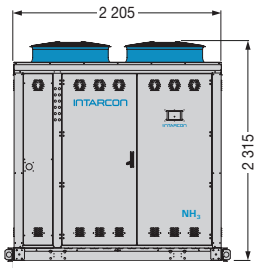
[2] Nominal performance positive temperature: 35 °C ambient temperature with glycol inlet/outlet at -19/-25 °C, with a ethylene glycol concentration of 50 %.

[3] Seasonal performance factor (SEPR) according to Commission Regulation (EU) 2015/1095.

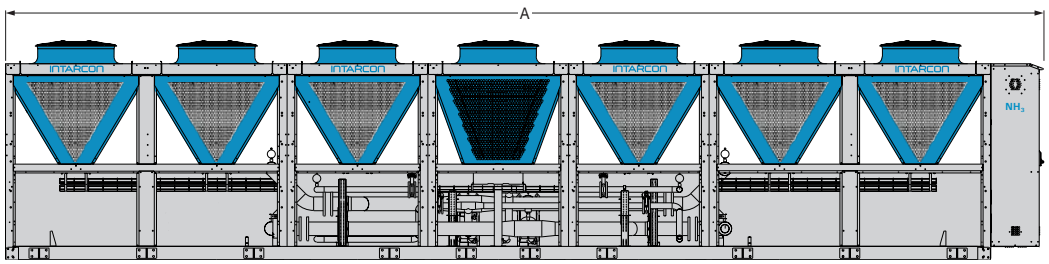
[4] Free field sound pressure level with compressors operating at full load (180 Hz, 3600 r.p.m.), directivity 1, measured at 10 metres from the source (non-binding value calculated from sound power)

Note: Lower cooling capacity models on request.

Dimensions



Dimensions in mm



Dimensions (mm)	A
3 series	4 977
4 series	6 454
5 series	7 960
7 series	10 883

ammolite DX | NH_3 direct expansion

- Plug & Play.
- Low ammonia charge.
- No machine room.
- No water consumption.

Direct expansion ammonia refrigeration condensing unit with low charge technology developed by INTARCON for low temperature industrial applications. Compact air-condensed construction and built in galvanised steel body and chassis with polyester paint, for outdoor installation.

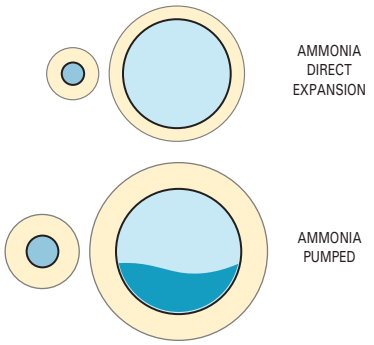
Features

- 400V 3 50Hz power supply. Available in 60Hz. Others voltages by request.
- Semihermetic screw compressors with variable speed permanent magnet motor. Suction filter, check valve, suction and discharge valves integrated in the compressor.
- Miscible oil with return through suction, no bleeding required.
- High efficiency vertical oil separator.
- Tropicalised condenser with aluminium microchannel coils, with Polyester Powder Coating treatment.
- Oil cooler with stainless steel tube coils and aluminium fins.
- Variable speed EC motor fans for condensing pressure and oil temperature control.
- Electronic liquid injection valve for compressor cooling in extreme conditions.
- Stainless steel cooling circuit with liquid vessel. Filter service valves, sight glasses, pressure switches and high and low pressure transducers.
- Closed economiser with plate heat exchanger for liquid subcooling and medium pressure injection.
- Electrical power and control panel. Frequency variator per compressor. Differential protection, magneto-thermal and individual thermal protection for compressor and fans.
- Electronic control with digital control board, cooling capacity control, condensation control, VI variation by solenoid, start and stop sequence, compressor, and fans safeties. Web interface and external communication.

Low-charge technology

Low ammonia charge technology is based on direct expansion of refrigerant as opposed to traditional pumped ammonia systems, with the following advantages:

- 90 % ammonia load reduction.
- Smaller section refrigeration lines.
- Higher energy efficiency.
- Lower pressure loss in refrigeration lines.
- Lower cooling losses.
- Direct condensation without water consumption.



Ammonia pipe comparison

Reduced maintenance

Low-load ammonia technology is low-maintenance every ten thousand operating hours, with no purging or oil replenishment required.

Hot glycol defrost (optional)

Heat recovery from the oil allows the accumulation of hot glycol, which is pumped to the evaporators during defrost cycles.

This system is the most energy efficient and reliable, as it does not subject the evaporator to sudden changes in pressure and temperature.

400V 3 50Hz | Negative temperature | Semihermetic screw compressor | R-717

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Evaporating temperature -30 °C	Compressor input power (kW)	Total input power (kW)	Max. current (A)	Condenser + Oil cooler Fans Ø (mm)	Condenser + Oil cooler Air flow (m^3/h)	Cooling connection Liq-Gas	Weight (kg)	SPL dB(A) [2]
R-717	1x Semiher.	**BDW-MM-3 1201**	120	SRS14MM	106	75	84	288	6x Ø 800	114 000	DN15 - DN65	3 500	60,4
		BDW-MM-3 1701	170	SRS16SM	131	94	103	313	6x Ø 800	114 000	DN20 - DN80	4 300	64,5
		BDW-MM-4 1801	180	SRS16LM	157	105	118	321	8x Ø 800	182 000	DN20 - DN80	5 020	64,6
	2x Semiher.	**BDW-MM-4 2402**	240	2x SRS14MM	212	155	170	576	8x Ø 800	182 000	DN20 - DN100	5 400	63,0
		BDW-MM-5 3402	340	2x SRS16SM	262	186	205	619	10x Ø 800	228 000	DN20 - DN100	6 275	67,4
		BDW-MM-7 3602	360	2x SRS16LM	313	209	236	635	14x Ø 800	320 000	DN25 - DN100	8 785	67,6

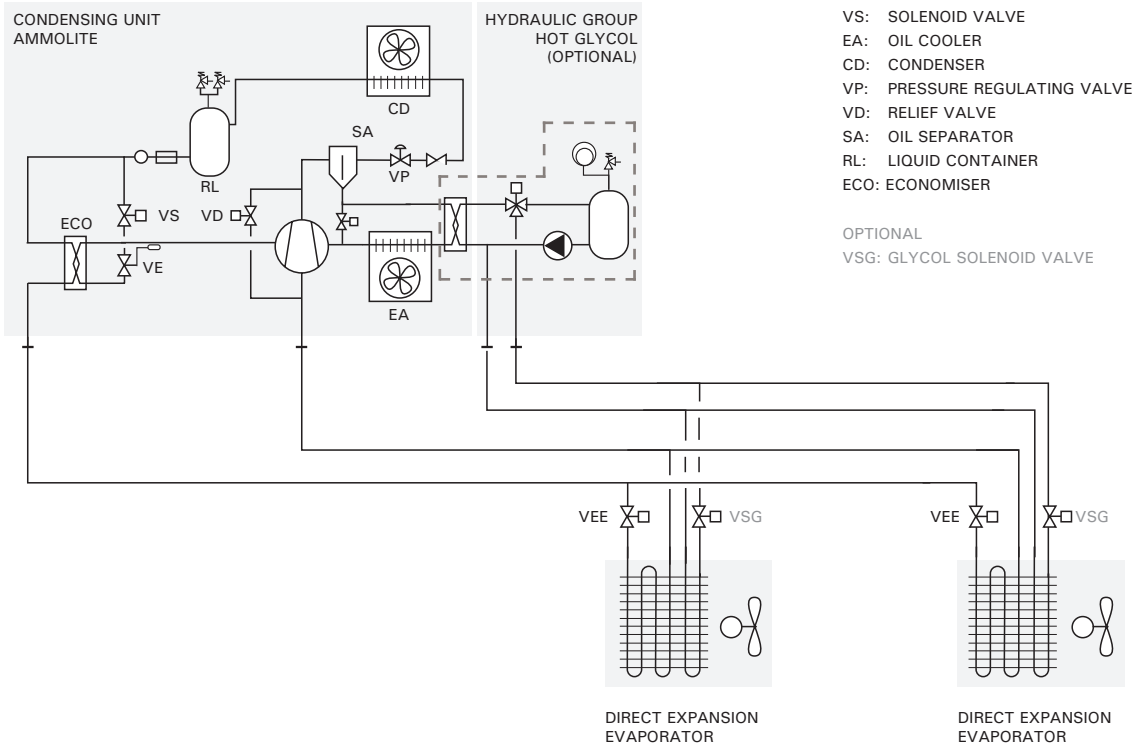
Options

- Heat recovery for production of hot defrost glycol.
- Variable glycol flow rate.
- Condensation heat recovery.
- Stainless steel tube condenser and aluminium fins.
- Hydraulic group for accumulation and pumping of hot glycol.

[1] Nominal performance for negative temperature: ambient temperature 35 °C with evaporating temperature at -30 °C.

[2] Free field sound pressure level with compressors operating at full load (180 Hz, 3600 r.p.m.), directivity 1, measured at 10 metres from the source (non-binding value calculated from sound power).

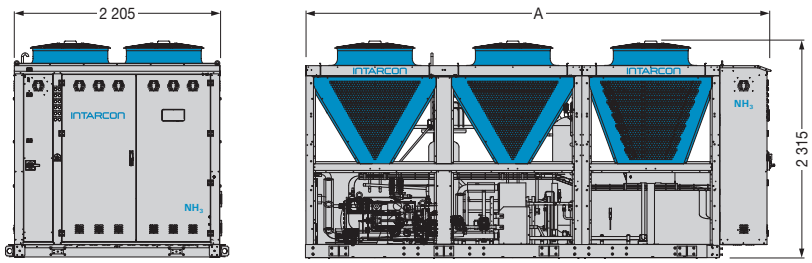
Refrigeration scheme



BCG: HOT GLYCOL CIRCULATING PUMP
VEE: ELECTRONIC EXPANSION VALVE
VS: SOLENOID VALVE
EA: OIL COOLER
CD: CONDENSER
VP: PRESSURE REGULATING VALVE
VD: RELIEF VALVE
SA: OIL SEPARATOR
RL: LIQUID CONTAINER
ECO: ECONOMISER

OPTIONAL
VSG: GLYCOL SOLENOID VALVE

Dimensions



Dimensiones (mm)	A
3 series	4 977
4 series	6 454
5 series	7 960
7 series	10 883

Dimensions in mm.

ammolite

KJ series – NH_3 direct expansion evaporators

- Low ammonia charge.
- Large surface area coils.
- Easy installation.

Industrial evaporators for large cold rooms with direct expansion of ammonia, built in galvanised sheet steel bodywork with polyester coating.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Coil of 5/8" stainless steel tubes and aluminium fins, in large exchange surface geometry, with 7 and 10 mm fin spacing.
- Coolant distributor and suction manifold, optimised for direct expansion of ammonia.
- Axial motor fans Ø 630 and Ø 800 mm long range.

Ammonia dry expansion

Evaporators designed to work with ammonia in direct expansion, with refrigerant distribution capillaries and suction manifold.

The special tube geometry of the industrial evaporators reduces frost formation and allows spacing of defrost cycles.

The counter-current circuit design facilitates gas reheating.

Thanks to the ammonia-miscible oil, oil return to the compressor occurs naturally during operation.

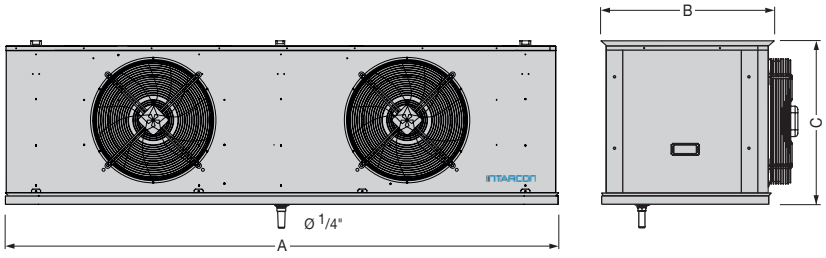
400V 3N 50Hz | Negative temperatura | Deep-freezing | R-717

Refrigerant	Application	Series / Model	Cooling capacity according to cold room temperature (W) SC2 0 °C 85 % RH DT1 = 8K	SC3 -18 °C 95 % RH DT1 = 7K	SC4 -25 °C 95 % RH DT1 = 6K	Coil Fin spacing (mm)	Area (m^2)	Vol. (litres)	Fans Air flow (m^3/h)	Nx Ø (mm)	Power (kW)	Max. current (A)	Range (m)	Electrical defrost kW	A	Cooling connection Liq-Gas	Weight (kg)
R-717	Negative	**BKJ-NM-1 263**	42.3	33.8	27.6	7	243	65	21 500	2x Ø 630	1.8	3.4	35	20	29	DN10 - DN40	325
		BKJ-NM-1 363	63.9	51.0	41.7	7	365	98	32 500	3x Ø 630	2.7	5	35	30	43	DN15 - DN50	475
		BKJ-NM-1 463	81.5	65.1	53.1	7	486	130	43 000	4x Ø 630	3.6	7	35	40	58	DN15 - DN50	625
		BKJ-NM-2 280	72.7	58.1	47.4	7	432	115	38 500	2x Ø 800	3.2	6	45	40	58	DN15 - DN50	575
		BKJ-NM-2 380	109.0	87.0	71.1	7	649	173	57 500	3x Ø 800	4.8	9	45	50	72	DN15 - DN65	825
		BKJ-NM-2 480	132.7	106.1	86.6	7	865	230	76 500	4x Ø 800	6.3	12	45	60	87	DN15 - DN65	1 075
	Deep-freezing	**UKJ-NM-1 263**	34.7	27.7	22.6	10	176	65	22 000	2x Ø 630	1.8	3.4	35	20	29	DN10 - DN40	325
		UKJ-NM-1 363	52.0	41.5	33.9	10	263	96	33 000	3x Ø 630	2.7	5	35	30	43	DN15 - DN50	475
		UKJ-NM-1 463	66.7	53.3	43.5	10	351	127	44 000	4x Ø 630	3.6	7	35	40	58	DN15 - DN50	625
		UKJ-NM-2 280	59.5	47.5	38.8	10	312	114	39 500	2x Ø 800	3.2	6	45	40	58	DN15 - DN50	575
		UKJ-NM-2 380	89.2	71.3	58.2	10	468	171	59 000	3x Ø 800	4.8	9	45	50	72	DN15 - DN65	825
		UKJ-NM-2 480	109.0	87.1	71.1	10	624	228	78 500	4x Ø 800	6.3	12	45	60	87	DN15 - DN65	1 075

Options

- Defrosting by imbricated heating elements.
- Hot glycol defrosting.
- Anti-corrosion coating of coil.

Dimensions



Dimensions (mm)	A	B	C
12 series	3 000	960	970
13 series	4 200	960	970
14 series	5 400	960	970
22 series	3 800	1 050	1 270
23 series	5 400	1 050	1 270
24 series	7 000	1 050	1 270

Electronic control and monitoring

4.0
industry

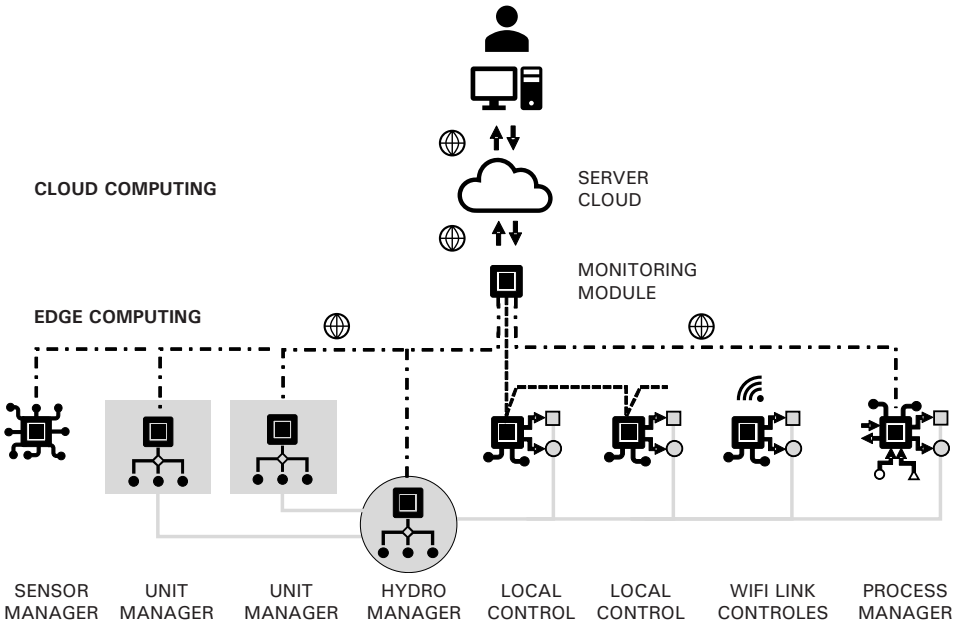
Reliability

Saving
energy

Advanced process control systems

- Highly versatile modular system.
- High reliability.
- Industry 4.0 technologies.

Control systems for thermal processes in industry, with modular architecture, quick to install and easily expandable and scalable. Control modules with customised programming and parameterisation, and cloud-based supervision system.



Process Manager control module

Control of processes under controlled temperature and humidity conditions, applicable to the control of processes in the food industry, such as:

- Temperature lowering.
- Ultra-freezing of foodstuffs.
- Drying, maturing and curing of hams, cheeses and sausages.
- Ripening and degreening of fruit.

Extensive possibilities for control and monitoring of various process parameters:

- Control of ambient temperature and humidity conditions.
- Control of ventilation and air diffusion.
- Controlled atmosphere management (e.g. CO_2 concentration, ethylene, etc.).
- Control of evaporators.
- Product control (internal temperature and PH).
- Control of phases and stages of the process.
- Recording of operating parameters.
- Hazard analysis and critical points (HACCP).
- Customised user interface.

Modular design

The modular design of the control and control system provides great versatility to the installation, high operational reliability, and easy and quick installation.

Sensorisation

Sensorisation of equipment and installations enables accurate and instantaneous knowledge of process status, intelligent control and facilitates decision making.

Edge Computing

Local computing enables real-time data processing, instantaneous, autonomous and reliable.

Hyperconnectivity

Control platform of INTARCON is equipped with hyperconnectivity to the cloud via fixed (Ethernet), wireless (Wifi) or mobile (4G) communication lines.

Cloud Computing

Cloud computing enables secure and unlimited data storage with wide and fast accessibility from anywhere.

Local control interface

Control modules are equipped with an optimised local interface to facilitate basic operations by the user. They also allow full interaction with the control parameterisation as well as data download via USB.

Hydro manager module control

Module for control of hydraulic systems for circulation and accumulation of cold and heat, applicable to the control of processes with hydraulic circuits, such as:

- Heat and cold distribution management by means of heat transfer fluid (glycol or brine).
- Hydrocooling of food products.
- Accumulation of cold in ice basins.
- Heat recovery from refrigeration condensers.
- Management of hot glycol defrosting of evaporators.

It has programmed functions for system control:

- Management and rotation of circulator pumps.
- Control of primary/secondary circuits.
- Management of control valves and mixing valves.
- Control of storage temperatures.
- Parallel control of thermal generators and chillers.

Unit manager control module

Module for the control of condensing units and chiller:

- Management and rotation of compressors and condensers.
- Control of compressor capacity according to demand.
- Control of multiple refrigeration circuits.
- Energy management with floating set points.
- Safety and alarms.

IntarSensor module

Probe reading and data acquisition modules for monitoring and control of equipment and processes:

- Pressure transducers.
- Temperature and humidity probes.
- Atmosphere control probes (CO_2, ethylene, etc.).
- Flow meters.
- Product immersion probes: temperature and PH.

Monitoring module

Remote monitoring and control module with kiconex technology, for data acquisition and storage in the cloud. It also allows remote parameterisation and master management of the installation.

- Geolocation of installations.
- Integration of multiple devices from different manufacturers.
- Layout of control panel and operation synoptic.
- Reading of parameters in real time.
- Historical data logging.
- Multi-user interface with access profiles.
- Intelligent programming.
- Energy management of the installation.
- Documentary management of the installation.

Control modules

The control modules are based on Emerson's iPRO platform. They use high-level programming based on extensively tested and proven control loops.

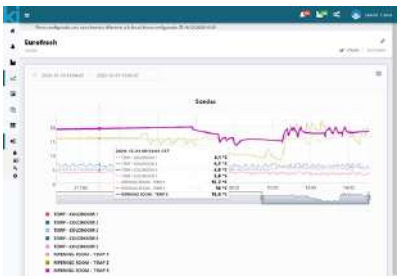
Dedicated monitoring interface

The centralised monitoring and control interface is specifically developed for the control of thermal processes, based on web technology, and accessible from any device with internet access.

Geolocalisation of installations

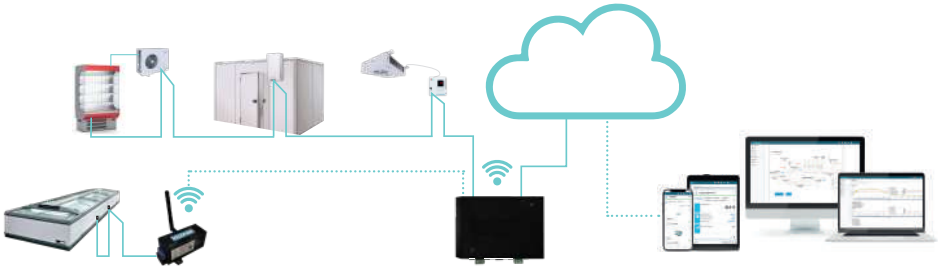
Management of multiple devices

Layout and installation overviews



Graphical data representation

Connected services 4.0 | INTARCON connected services



- Safety and control.
- Operational reliability.
- Increased productivity.
- Energy savings.

Remote control, monitoring and auditing services for refrigeration equipment and installations using kiconex technology.

1. Remote access

Access the control of your installation from any device with an internet connection, receive notifications on your mobile phone and view the log of alarms, temperatures and other parameters.

Our condensing units and chiller come with pre-installed kiconex technology as standard, with internet connectivity, and an advanced data storage and cloud computing service.

We offer you basic access so that you can always keep your installation under control, know the evolution of storage temperatures and the operating status of your equipment.

In addition, with our professional access service you can remotely diagnose the proper functioning of the installation and coordinate a greater number of equipment and maintenance personnel.

2. Proactive monitoring

We offer you a remote support service to resolve any incident. Receive regular reports on the operating status and performance of your refrigeration installation, and suggestions for improvement.

Our support technicians, through remote access with secure connection, carry out a thorough analysis of the operating conditions of your installation and compare it with our extensive experience in auditing refrigeration installations.

With our corrective assistance service, we react to a problem in your installation to solve it remotely or diagnose the solution accurately.

To ensure the proper functioning of your installation and anticipate any problems, we offer a proactive diagnosis service, where we periodically check various preventive control points.

3. Smart optimisation

We optimise the operation of your refrigeration system. We look for the most reliable, most energy-efficient, most productive settings and we implement intelligent operation of the installation adapted to your needs.

Our engineers will audit your installation and collect the specifications, and then design a customised programme to optimise the refrigeration installation, integrating Industry 4.0 technologies, such as: sensorisation and hyperconnectivity of equipment, cloud computing, and intelligent and predictive programming.

With our analysis and optimisation service for your installation, we guarantee significant energy savings from the outset. By integrating intelligent and predictive programming we can take your installation to the highest level of efficiency.

kiconex monitoring and control platform

Access your installation from anywhere and from any device.

Visualise the operation of your installation graphically and intuitively.

Digital worker

And if your installation does not have the kiconex system and you just want to solve a specific problem, our digital operator is at your disposal.

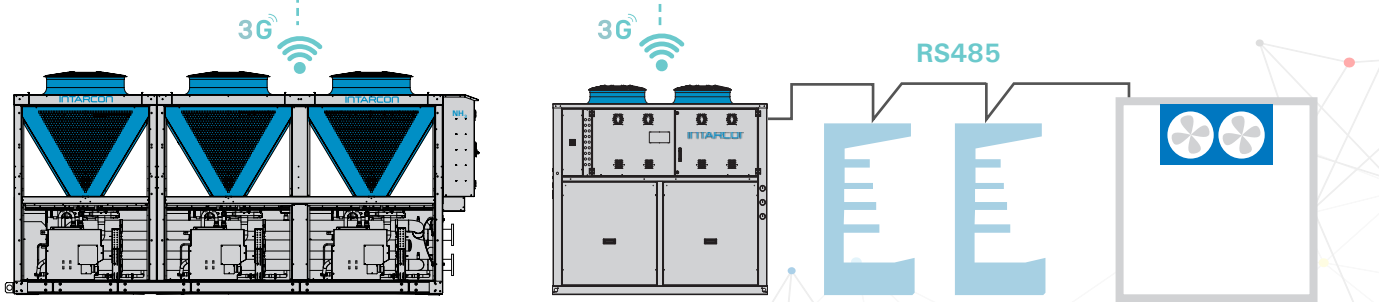
Table of services

	Remote access		Proactive monitoring		Smart optimisation	
	Basic	Professional	Corrective assistance	Proactive diagnosis	Analysis and optimisation	Smart programming
Remote access to equipment status	●	●	●	●	●	●
Remote configuration of parameters	●	●	●	●	●	●
Remote access to historical data	●	●	●	●	●	●
Display of alarms	●	●	●	●	●	●
Multi-user access		●	●	●	●	●
Operating diagrams and overviews		●	●	●	●	●
Advanced alarm management		●	●	●	●	●
Remote configuration support			●	●	●	●
Incident analysis and operating status			●	●	●	●
Periodic status reports				●	●	●
Analysis of improvements and corrective suggestions				●	●	●
Audit and optimisation analysis					●	
Sensorisation of the installation					○	○
Smart programming						●
Predictive programming						●

Remote access

Proactive monitoring

Smart optimisation



Package dimensions

Series		Model	Standard packaging (road transport)						Reinforced packaging (marine transport)					
			Package dimensions (mm)			Package/s dimensions (mm)			Package dimensions (mm)			Package/s dimensions (mm)		
			Length	Width	Height	Length	Width	Height	Length	Width	Height	Length	Width	Height
Industrial monoblocks		CH - 1	1 590	1 400	1 180	-	-	-	1 630	1 440	1 240	-	-	-
		CH - 2	1 590	1 400	1 390	-	-	-	1 630	1 440	1 450	-	-	-
		CH - 3	1 750	2 120	1 390	-	-	-	1 790	2 160	1 360	-	-	-
		CH - 4	1 750	2 120	1 550	-	-	-	1 790	2 160	1 610	-	-	-
		CH - 5	2 350	2 350	1 361	-	-	-	2 350	2 350	1 361	-	-	-
Evaporator units and air coolers	Slim type	JB - 0	660	510	290	-	-	-	700	550	350	-	-	-
		JB - 1	740	521	340	-	-	-	780	561	400	-	-	-
		JB - 2	1 090	521	340	-	-	-	1 130	561	400	-	-	-
		JB - 3	1 790	595	340	-	-	-	1 830	635	400	-	-	-
		JB - 4	2 165	635	400	-	-	-	2 205	675	460	-	-	-
	Double flow	JD - 1	740	910	410	-	-	-	780	950	470	-	-	-
		JD - 2	1 090	910	410	-	-	-	1 130	950	470	-	-	-
		JD - 3	1 790	910	410	-	-	-	1 830	950	470	-	-	-
		JD - 4	2 190	1 000	460	-	-	-	2 230	1 040	520	-	-	-
		JD - 5	2 190	1 050	460	-	-	-	2 230	1 090	520	-	-	-
	Industrial double flow	KD - 1	1 600	1 340	810	-	-	-	1 640	1 380	870	-	-	-
		KD - 2	2 000	1 340	810	-	-	-	2 040	1 380	870	-	-	-
		KD - 3	2 500	1 340	810	-	-	-	2 540	1 380	870	-	-	-
	Cubic type	KC - 01	920	650	736	-	-	-	960	690	796	-	-	-
		JC -1 / KC - 11	1 270	650	736	-	-	-	1 310	690	796	-	-	-
		JC - 2 / KC - 22	1 570	650	736	-	-	-	1 610	690	796	-	-	-
		JC - 3 / KC - 32 - 33	1 970	600	736	-	-	-	2 010	690	796	-	-	-
		KC - 44	2 650	600	836	-	-	-	2 690	690	896	-	-	-
	Industrial cubic type	KH - 11	1 400	750	946	-	-	-	1 440	790	1 006	-	-	-
		KH - 21	1 400	750	1 200	-	-	-	1 440	790	1 260	-	-	-
		KH - 12	2 150	750	946	-	-	-	2 190	790	1 006	-	-	-
		KH - 22	2 150	750	1 200	-	-	-	2 190	790	1 260	-	-	-
		KH - 13	2 900	750	946	-	-	-	2 940	790	1 006	-	-	-
		KH - 23	2 900	750	1 200	-	-	-	2 940	790	1 260	-	-	-
		KH - 14	3 650	750	946	-	-	-	3 690	790	1 006	-	-	-
		KH - 24	3 650	750	1 200	-	-	-	3 690	790	1 260	-	-	-
		KJ - 12	3 030	980	990	-	-	-	3 070	1 020	1 050	-	-	-
		KJ - 13	4 230	980	990	-	-	-	4 270	1 020	1 050	-	-	-
		KJ - 14	5 430	980	990	-	-	-	5 470	1 020	1 050	-	-	-
		KJ - 22	3 830	1 070	1290	-	-	-	3 870	1 110	1 350	-	-	-
		KJ - 23	5 430	1 070	1290	-	-	-	5 470	1 110	1 350	-	-	-
		KJ - 24	7 030	1 070	1290	-	-	-	7 070	1 110	1 350	-	-	-
	Deep-freezing	KV - 31	1 425	825	1 870	1 155	825	850	1 465	865	1 930	1 195	865	910
		KV - 3256	2 175	825	1 870	1 930	825	850	2 215	865	1 930	1 970	865	910
		KV - 3263	2 935	825	1 870	2 665	825	850	2 975	865	1 930	2 705	865	910
		KV - 33	3 675	825	1 870	3 485	825	850	3 715	865	1 930	3 525	865	910
		KV - 41	1 425	825	2 120	1 155	825	850	1 465	865	2 180	1 195	865	910
		KV - 42	2 175	825	2 120	1 930	825	850	2 215	865	2 180	1 970	865	910
		KV - 43	2 935	825	2 120	2 665	825	850	2 975	865	2 180	2 705	865	910
		KV - 44	3 675	825	2 120	3 485	825	850	3 715	865	2 180	3 525	865	910
Condensing units and chillers	intarbox	DH - 0	700	460	475	-	-	-	740	500	535	-	-	-
		DH - 1	738	495	556	-	-	-	778	535	616	-	-	-
		DH - 2	973	495	640	-	-	-	1 013	535	700	-	-	-
		DH - 3	1 015	640	655	-	-	-	1 055	680	715	-	-	-
		DH - 4	1 145	670	725	-	-	-	1 185	710	785	-	-	-
		DH - 5	1 475	815	796	-	-	-	1 515	855	856	-	-	-
	Siglus	DF / WF - 0	730	365	562	-	-	-	770	405	622	-	-	-
		DF / WF - 1	1 150	430	720	-	-	-	1 190	470	780	-	-	-
		DF / WF - 2	1 200	466	970	-	-	-	1 240	506	1 030	-	-	-
		DF / WF - 3	1 310	547	1 240	-	-	-	1 350	587	1 300	-	-	-
		DF / WF - 4	1 310	547	1 490	-	-	-	1 350	587	1 550	-	-	-
		DF / WF - 5	1 680	840	650	-	-	-	1720	580	710	-	-	-
		DF / WF - 6	1 680	540	970	-	-	-	1 720	580	1 030	-	-	-
		DF / WF - 7	1 800	660	1 260	-	-	-	1 840	700	1 320	-	-	-
		DF / WF - 8	1 800	660	1 510	-	-	-	1 840	700	1 570	-	-	-
	intarCUBE	DV / WV - 5	1 304	790	1 674	-	-	-	1 344	830	1 734			
		DV / WV - 6	1 304	900	2 074	-	-	-	1 344	940	2 134	-	-	-
		DV / WV - 7	1 820	900	1 980	-	-	-	1 860	940	2 040	-	-	-
		DV / WV - 8	2 310	900	2 190	-	-	-	2 350	940	2 250	-	-	-
		WT - 1	1 650	1 180	2 297	-	-	-	1 690	1 220	2 357	-	-	-
		WT - 2	2 376	1 180	2 297	-	-	-	2 416	1 220	2 357	-	-	-

Series	Model	Standard packaging (road transport)						Reinforced packaging (marine transport)					
		Package dimensions (mm)			Package/s dimensions (mm)			Package dimensions (mm)			Package/s dimensions (mm)		
		Length	Width	Height	Length	Width	Height	Length	Width	Height	Length	Width	Height
Condensing units and chillers / interWatt	DW / WW - 1	1 805	2 296	2 500	-	-	-	1 805	2 296	2 415	-	-	-
	DW / WW - 2	3 290	2 315	2 500	-	-	-	3 290	2 315	2 450	-	-	-
	DW / WW - 3	4 735	2 315	2 500	-	-	-	4 735	2 315	2 450	-	-	-
	DW / WW - 4	6 233	2 315	2 500	-	-	-	6 233	2 315	2 450	-	-	-
	DW / WW - 5	7 710	2 315	2 500	-	-	-	7 710	2 315	2 450	-	-	-
interSANIT	TCH - 1	1 560	1 030	650	-	-	-	1 600	1 070	710	-	-	-
	TPD - 3	1 700	950	600	-	-	-	1 740	990	660	-	-	-
	TPD - 6	1 700	1 680	600	-	-	-	1 740	1 720	660	-	-	-
CO_2 systems	ET - 1	2 550	1 150	2 300	-	-	-	2 610	1 210	2 360	-	-	-
	ET - 2	3 800	1 150	2 300	-	-	-	3 860	1 210	2 360	-	-	-
	EK - 1	3 350	1 150	2 060	-	-	-	3 410	1 210	2 120	-	-	-
	EK - 2	4 350	1 150	2 060	-	-	-	4 410	1 210	2 120	-	-	-
	EW - 1	1 805	2 296	2 415	-	-	-	1 805	2 296	2 415	-	-	-
	EW - 2	3 290	2 315	2 450	-	-	-	3 290	2 315	2 450	-	-	-
	EW - 3	4 735	2 315	2 450	-	-	-	4 735	2 315	2 450	-	-	-
	EW - 4	6 233	2 315	2 450	-	-	-	6 233	2 315	2 450	-	-	-
Waterloop system	CC - 1	1 590	600	650	-	-	-	1 630	640	710	-	-	-
	CC - 2	1 890	600	680	-	-	-	1 930	640	740	-	-	-
	DM - 0	600	500	380	-	-	-	640	540	440	-	-	-
	DM - 1	1 000	420	680	-	-	-	1 040	460	740	-	-	-
	DM - 2	1 170	450	760	-	-	-	1 210	490	820	-	-	-
	CWF - 0 / 1	1 190	440	720	-	-	-	1 230	480	780	-	-	-
	CWF - 2	1 220	480	970	-	-	-	1 260	520	1 030	-	-	-
	CWF - 3	1 310	550	1 250	-	-	-	1 350	590	1 310	-	-	-
	CWF - 4	1 340	580	1 500	-	-	-	1 380	620	1 560	-	-	-
	CWF - 6	1 900	580	1 250	-	-	-	1 940	620	1 310	-	-	-
	CWF - 8	1 900	580	1 500	-	-	-	1 940	620	1 560	-	-	-
Ammolite	WW - MPM - 2	3 520	2 200	2 500	-	-	-	3 560	2 240	2 375	-	-	-
	WW - MPM - 3	4 980	2 200	2 500	-	-	-	5 020	2 240	2 375	-	-	-
	WW - MPM - 4	6 480	2 200	2 500	-	-	-	6 520	2 240	2 375	-	-	-
	WW - MPM - 5	7 960	2 200	2 500	-	-	-	8 000	2 240	2 375	-	-	-
	WW - MPM - 7	10 920	2 200	2 500	-	-	-	10 960	2 240	2 375	-	-	-

Sales terms

Except in case of agreement with INTARCON, the following general sales terms prevail:

Price
The prices indicated in this list, except for typographical errors, are retail prices with cash payment, do not include VAT or indirect taxes, and will remain in force during the period of validity of this catalogue or until a new edition.

Installation
The buyer admits that INTARCON's products are capital goods for integration in a refrigeration installation. To that effect, the buyer assumes obedience to any applicable law and to guarantee the quality of the installation, which, in any case, is to be done by an authorised installer.

Orders
The orders are to be placed in writing and to be confirmed by the seller through a pro forma invoice indicating the shipping date. The seller reserves the right to refuse an order. Once manufacturing has started, no cancellations will be accepted.

Packaging
Prices include standard packaging for road transport, not suitable for overseas transport.

Delivery
The delivery of INTARCON goods is according to FCA INTARCON (Pl Los Santos, 14900 Lucena, Córdoba - Spain) according to Incoterms 2020 of the ICC. The only accepted delivery claims are those received in written on the delivering note within 24 hours from the delivery.

Refunds
No refunds will be accepted without prior authorisation from the manufacturer and, in any case, an amount no less than 10 % of the purchasing price will be deducted as a return cost.

Technical-features
The information and features in this catalogue are given as an indication, technical data can be changed with no prior communication, and should be confirmed when placing an order.

Warranty
The seller guarantees the product against any manufacturing default for 12 months from delivering date.

During the warranty period the manufacturer will cover the repair of the product in its facilities, the replacement of the product or the supply of spare parts for defective components, which is less burdensome and technically feasible. The cost and taxes on the refrigerant are expressly excluded from the warranty coverage when it has not been supplied by the manufacturer in hermetically sealed appliances. The warranty does not cover on-site labour for the replacement of the product or spare parts, nor the indirect damages or consequential losses that may be attributed to the malfunction of the product. Specifically, the manufacturer may not be responsible for the Tax on Fluorinated Gases stipulated in Law 16/2013, emitted into the atmosphere as a result of a leakage of a refrigeration unit subject to a tightness and resistance test by the refrigeration installer and a periodic leak control according to Regulations 517-2014 on F-Gas and Safety for Refrigeration Installations.

Payment
Unless agreement with the manufacturer, the payment of the invoices will be in cash. The seller of the goods reserves the right to block delivery of the orders in the case that any risk in payment is perceived.

Lawsuits
INTARCON's product trade is ruled by Spanish laws. Any conflict or argument is to be submitted to the judgment of the Córdoba Chamber of Commerce. In case of disagreement, both parties will relinquish to any jurisdiction to which may pertain and they will submit to the Court of Lucena (Córdoba) Spain.

Notes

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