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 60 Hz. 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.

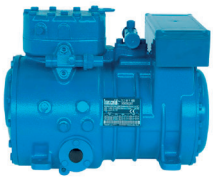
Propane

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.

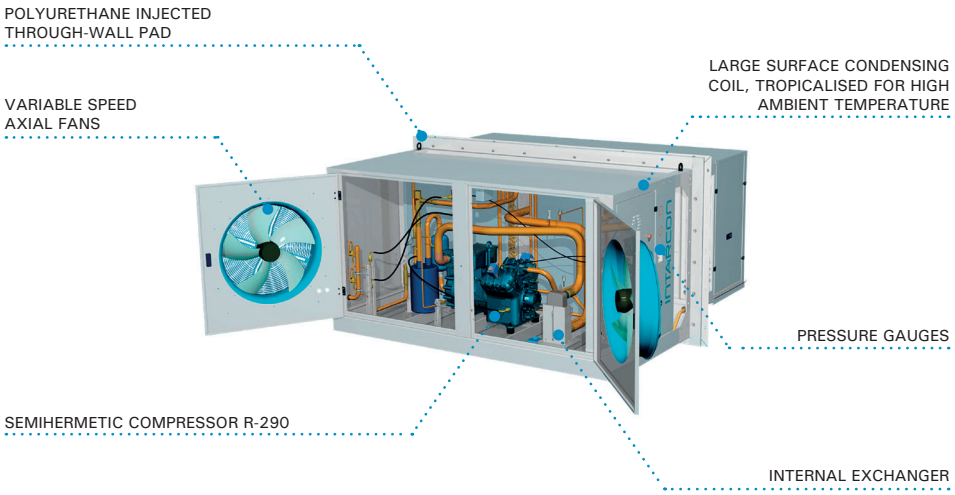
Highly reliable compressors

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

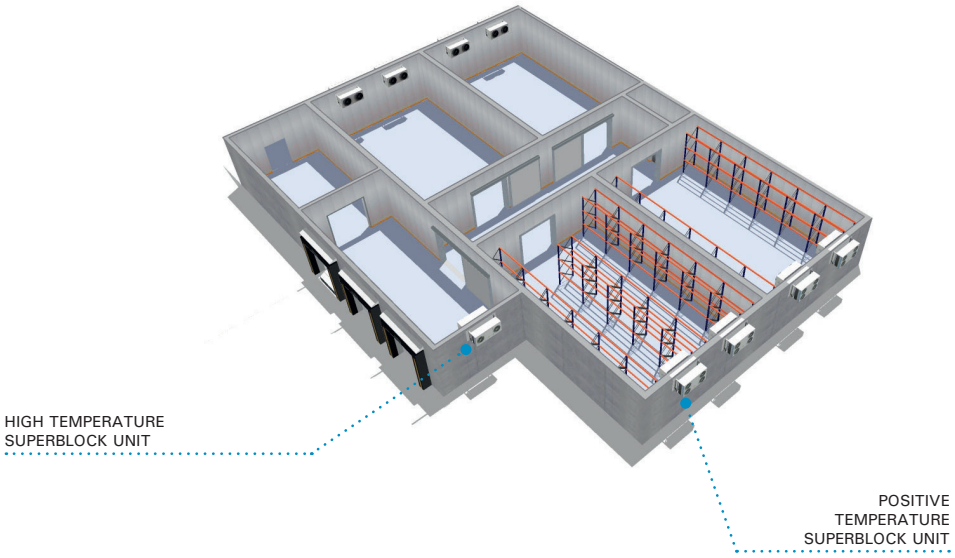
The compact superblock units come with an advanced multifunction control as standard, with an electronic board integrated in the control panel and digital remote control.



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.

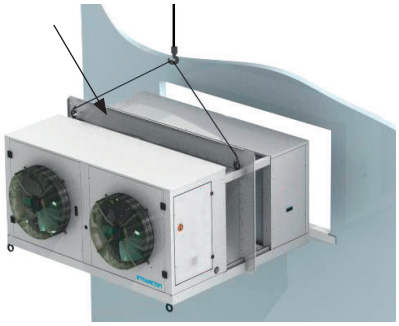
If the refrigerant charge in a unit is exceeded, the designer must carry out a risk assessment study and take appropriate protective measures.

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

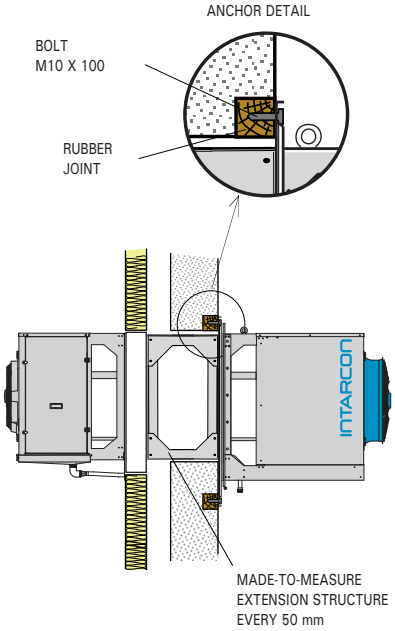
Units includes an insulating buffer with 100 mm thickness for assembly window on the refrigerator panel of the camera.
Units of 4 and 5 series comes standard with a mounting frame which facilitates installation and improves equipment attachment to the cold room wall.

MOUNTING FRAME



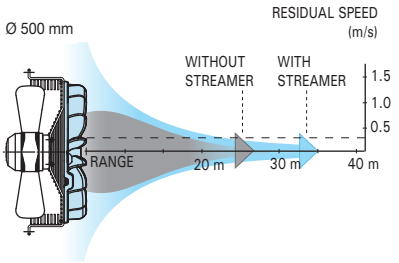
Through-wall assembly

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.

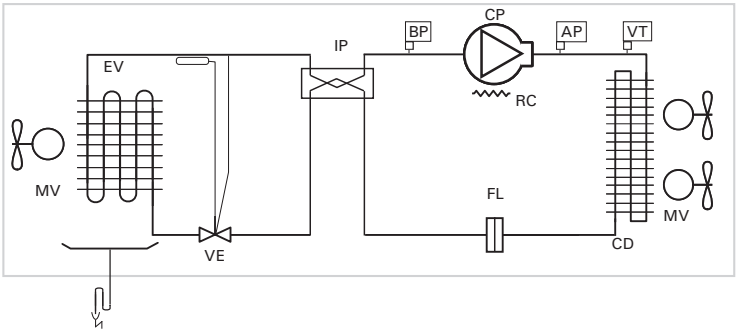
400V 3N 50Hz | High temperature | Semihermetic compressor | R-290

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-3 071**	7	Q7-36	25.3	**24.5**	20.1	9.4	25	2x Ø 450	8 400	22	2x Ø 450	8 000	< 4.0	430	43
		ACH-KD-4 151	15	S15-52	38.3	**36.3**	29.8	13.4	37	2x Ø 500	13 300	22	4x Ø 450	14 400	< 4.0	600	46
		ACH-KD-5 201	20	S20-56	50.8	**47.0**	37.6	15.0	44	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5.0	860	48
		ACH-KD-5 301	30	V30-84	64.4	**61.6**	50.1	20.5	52	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5.0	920	50

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

[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] Sound pressure level of the condenser referred to dB(A) sound pressure level, measured in the open field at 10 m distance.

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 %.

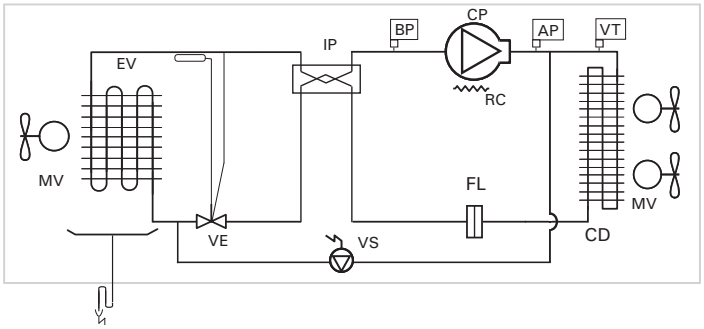
400V 3N 50Hz | Positive temperature | Semihermetic compressor | R-290

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-3 071**	7	Q7-36	22.7	19.9	**17.7**	8.0	25	2x Ø 450	8 400	22	2x Ø 450	8 000	< 4.0	430	43
		MCH-KD-4 151	15	S15-52	33.5	29.1	**25.6**	11.7	37	2x Ø 500	13 300	22	4x Ø 450	14 400	< 4.0	600	46
		MCH-KD-5 201	20	S20-56	43.8	37.8	**33.7**	13.4	44	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5.0	860	48
		MCH-KD-5 301	30	V30-84	57.2	49.7	**44.5**	17.8	52	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5.0	920	50

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



CP: COMPRESSOR
MV: MOTOR FAN
EV: EVAPORATOR
CD: CONDENSER
IP: PLATE HEAT EXCHANGER
FL: FILTER
VS: SOLENOID VALVE
AP: HIGH PRESSURE SWITCH
BP: LOW PRESSURE SWITCH
VE: EXPANSION VALVE
VT: VOLTAGE VARIATOR
RC: CRANKCASE RESISTOR

[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] Sound pressure level of the condenser referred to dB(A) sound pressure level, measured in the open field at 10 m distance.

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.

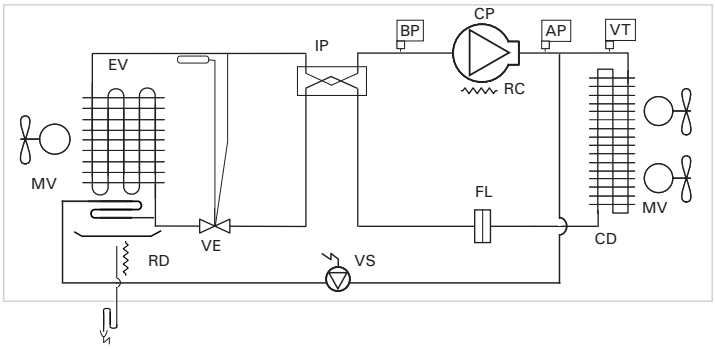
400V 3N 50Hz | Negative temperature | Semihermetic compressor | R-290

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-3 201**	20	S20-56	**11.9**	9.7	7.7	8.0	41	2x Ø 450	9 000	22	2x Ø 450	8 000	< 4.0	430	48
		BCH-KD-4 251	25	V25-71	**16.3**	13.3	10.7	10.8	45	2x Ø 500	14 000	22	4x Ø 450	14 400	< 4.0	600	47
		BCH-KD-5 351	35	V35-103	**23.7**	18.7	14.2	15.0	56	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5.0	860	49
		BCH-KD-5 501	50	Z50-154	**29.7**	23.5	17.4	20.1	83	3x Ø 500	18 000	22	2x Ø 630	21 000	< 5.0	920	46

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



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
VS: SOLENOID VALVE
VT: VOLTAGE VARIATOR
RC: CRANKCASE RESISTOR
RD: DEFROSTING HEATER

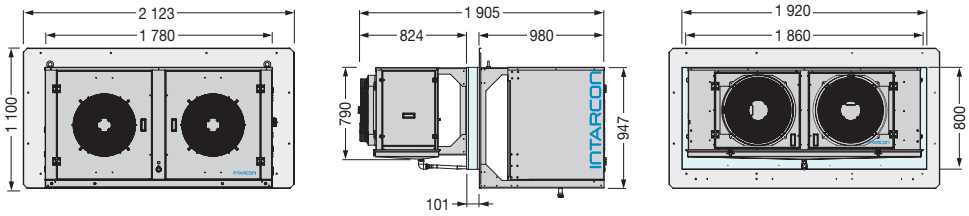
[1] Rated data are related to operation at cold room temperature of -20 °C and 95 % RH, , and ambient temperature of 35 °C. Oversized evaporators are for a difference between evaporating temperature and air inlet temperature of DTM = 6.5 K (± 1.0 K). Oversized condensers are for a difference between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

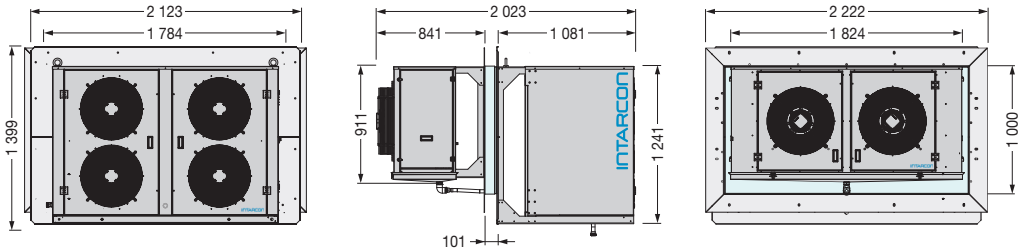
[3] Sound pressure level of the condenser referred to dB(A) sound pressure level, measured in the open field at 10 m distance.

superblock R-290 dimensions

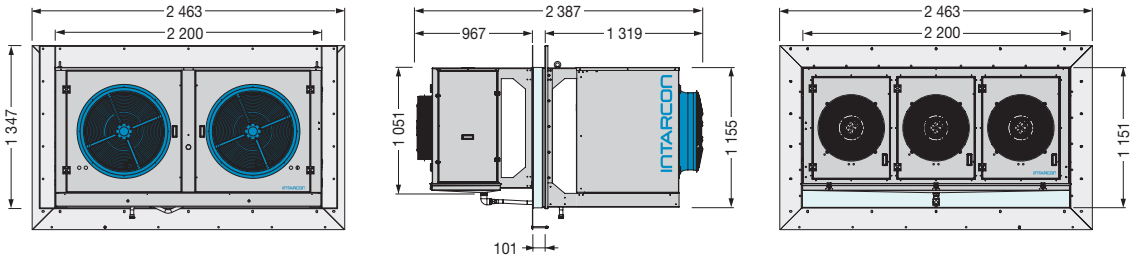
3 series



4 series



5 series



Dimensions in mm.