ARCTICO2

ARCTICO2 AG

COMMERCIAL REFRIGERATION UNITS

- Natural refrigerant CO_2 (R744), offering energy-efficient cooling with minimal environmental impact (ODP 0, GWP 1)
- Suitable for commercial facilities
- Compact design ensures easy handling and installation, even in confined spaces
- Anti-corrosion construction ensures reliable operation in all climatic conditions
- Standard units come with advanced features, including frequency converters and proportional modulation, ensuring optimized energy efficiency and performance

KEY ADVANTAGES - NATURAL REFRIGERANT CO_2 (R744)

LONG-TERM COST-EFFECTIVENESS

ARCTICO2 AG units offer significant savings through superior energy efficiency, minimal refrigerant leakage, and reduced maintenance costs, leading to lower total ownership expenses.

REGULATORY COMPLIANCE

CO_2, as a natural refrigerant, ensures compliance with upcoming regulations on phasing out synthetic refrigerants, such as those with high GWP, thus protecting your investment from future regulatory changes.

INCENTIVES AND SUBSIDIES

Many countries provide incentives and subsidies for the installation of eco-friendly refrigeration systems, like those using CO_2, reducing the upfront costs.

SUSTAINABILITY IMAGE

Using CO_2 as a refrigerant demonstrates a strong commitment to environmental sustainability, improving corporate reputation and attracting eco-conscious clients.

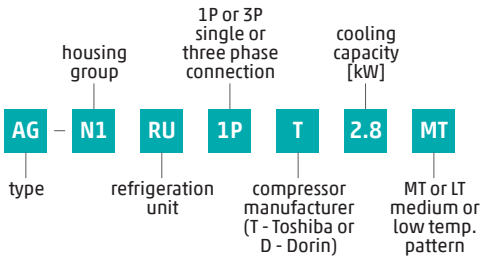
EXTENDED LIFESPAN

ARCTICO2 AG units are built for durability, equipped with high-quality components and advanced control systems, ensuring a long operational life and steady returns on investment .

TABLE WITH OPTIONS

OPTION	ARTICO2 AG MT	ARTICO2 AG LT
BASIC	• hermetic rotary compressor • gas cooler with EC fan • liquid receiver • HPV and RPRV valves • safety valve up to 80 bar • filter-drier • sight glass • HP compressor protective pressure switch • magnetic valve pressure equalization to protect the compressor at its start • non-return valve on the pressure side of the compressor	• semi-hermetic two-stage piston compressor • gas cooler / intercooler with EC fan • liquid receiver • HPV and RPRV valves • safety valve up to 80 bar • filter-drier • sight glass • HP compressor protective pressure switch • oil separator with heater (+ oil filter, solenoid valve, inspection glass)
CONTROLLER	• Carel Hecu CO_2	• Carel uRack CO_2

NOMENCLATURE

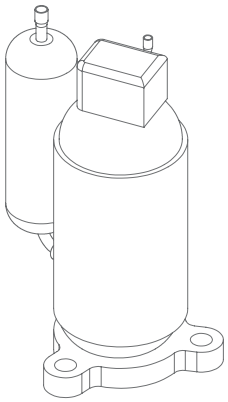


TRANSCRITICAL TECHNOLOGY FOR LOWER COOLING CAPACITIES REQUIREMENTS

Awareness of the need for environmental protection increases by the day. As one of the measures aimed at reducing greenhouse gas emissions, the F-Gas regulation was introduced in 2015, which limits and prohibits the use of HFC refrigerants in air conditioning and refrigeration units. At the same time, the use of natural refrigerants is encouraged, one of which is CO_2. Carbon dioxide is a suitable replacement for existing refrigerants due to its characteristics such as ODP = 0 and GWP = 1. An additional advantage of carbon dioxide is its low price and easy availability, which makes it an ideal replacement for the existing HFC refrigerants.

APPLICATION IN MT UNITS

Arctic AC compressor units are placed on a base (with housing) in three housing groups. Each design group is divided into two subgroups. The subgroup "a" is used when, as an option, the compressor unit is not equipped with a liquid separator. The subgroup "b" is used when the unit is equipped with a liquid separator.

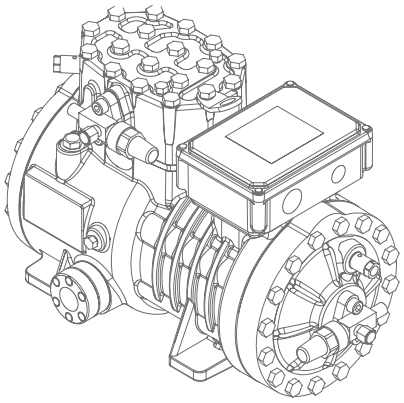


MB Frigo has developed 4 models with different cooling functions in two dimensional sizes. Condensing units are designed to work in warm climates where the air temperature can reach up to +46°C. Also, the evaporation working range spans from -15°C to +5°C. Specially designed, air-cooled gas cooler of curved design, equipped with continuously regulated EC fans, which maintain pressure in a narrow area and are working almost silently. Thanks to this curved design of the gas cooler, the unit is compact, small in dimensions and has a small floor plan area.

In cooperation with the company CAREL, we adapted the control software especially for our units. With a simple local control, network management of units is also possible, i.e. establishment of remote monitoring and control of all stored parameters, thus
fulfilling the HACCP requirements.

APPLICATION IN LT UNITS

For the application in LT units, we have developed CO_2 condensing units that operate in subcritical and transcritical areas. The chiller is powered by a two-stage semi-hermetic compressor.



MB Frigo has developed 5 models with different cooling functions in two dimensional sizes. The evaporation working range spans from -30°C to -25°C. Smaller LT units also use an air-cooled curved gas cooler, which is equipped with a continuously regulated EC fan, which maintains pressure in a narrow area and are working almost silently. Thanks to this curved design of the gas cooler, the unit is compact, small in dimensions and has a small floor plan area. The version of the LT unit with two fans is also cooled by EC fans. Therefore, even stronger refrigeration units are designed for quiet operation.

Local and network management of units, i.e. remote monitoring and control of all parameters, is also enabled on LT units.

TECHNICAL DATA

DEVICE DATA

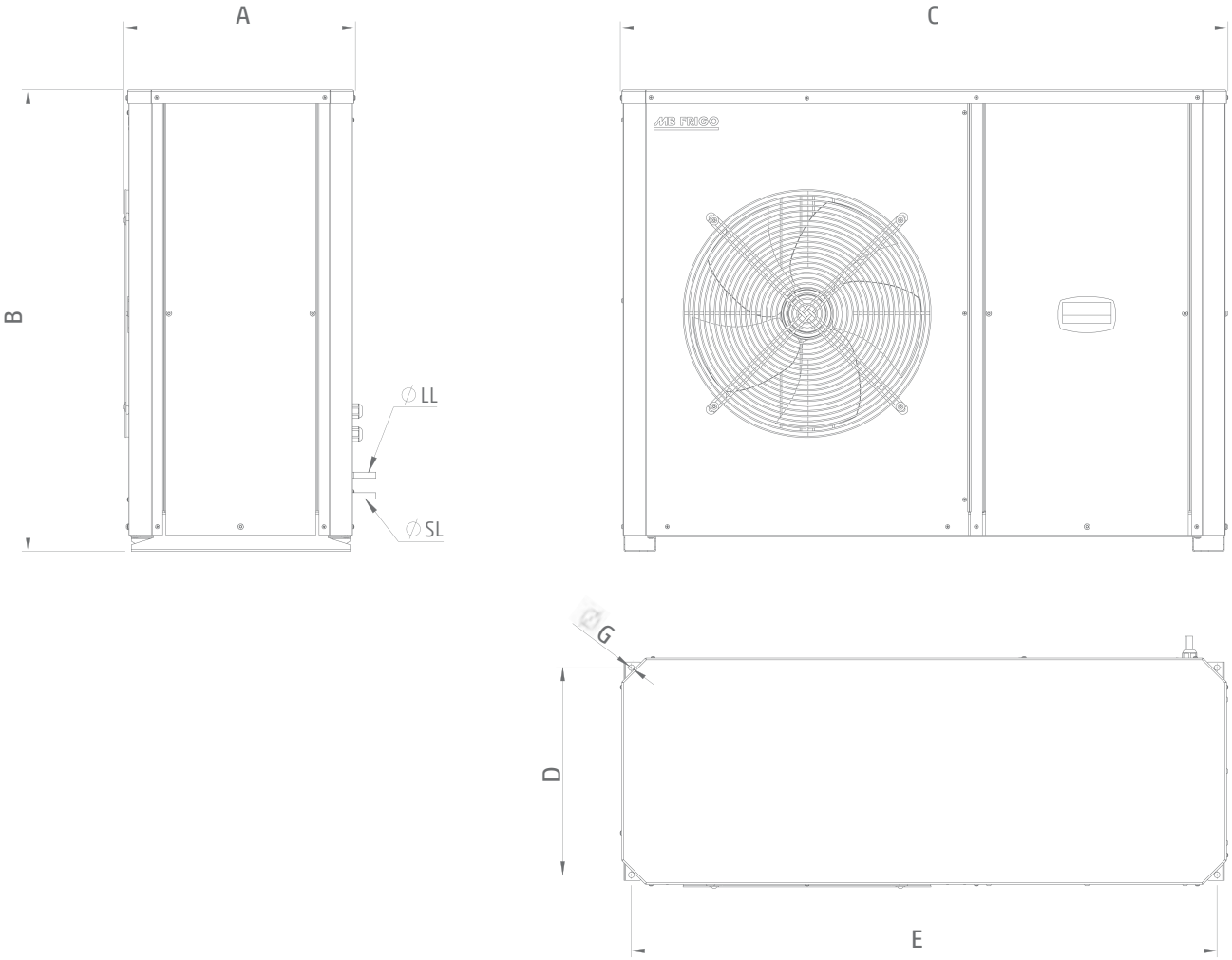
MT MODEL	Name	ARCTICO2 30	ARCTICO2 45	ARCTICO2 67	ARCTICO2 100
	Type	AG-N1RU1PT2.8MT	AG-N2RU1PT4.2MT	AG-N2RU1PT6MT	AG-N3RU3PT9MT
Compressor	Type	DY30N1F-10FU	DY45N1F-10FU	DY67L1F-10FU	RY100L1F-10FU
	Power supply	230 V/1~/50 Hz			
Max. current		12.5 A	18 A	24 A	18 A
Cooling capacity[1]	min. (25 rps)	0.7 kW	1 kW	1.5 kW	2.25 kW
	max. (100 rps)	2.8 kW	4.2 kW	6 kW	9 kW
Liquid tank	PS[2]	80 bar			
	PED	II			
Fan type		1 x Ø450 mm (EC)			2 x Ø450 mm (EC)
Connecting pipes	øSL	3/8"	3/8"	1/2"	5/8"
	øLL	3/8"	3/8"	1/2"	1/2"
PS[2]	high/medium/low	120/80/80 bar			

LT MODEL	Name	ARCTICO2 300	ARCTICO2 350	ARCTICO2 360	ARCTICO2 1200	ARCTICO2 1500
	Type	AG-N4RU3PD1.6LT	AG-N4RU3PD2UT	AG-N4RU3PD2.5UT	AG-N6RU3PD9UT	AG-N6RU3PD12UT
Compressor	Type	CD2S300	CD2S350	CD2S360	CD2S1200	CD2S1500
	Power supply	400 V/3~/50 Hz				
Max. current		6.0	7.3	7.5	28.0	34.0
Cooling capacity[1]		1.6 kW	2 kW	2.5 kW	9 kW	12 kW
Liquid tank	PS[2]	90 bar				
	PED	II				
Fan type		1 x Ø450 mm (EC)			2 x Ø450 mm (EC)	
Connecting pipes	øSL	3/8"	3/8"	3/8"	3/4"	7/8"
	øLL	3/8"	3/8"	3/8"	1/2"	1/2"
PS[2]	high/medium/low	120/80/80 bar				

1 Evaporation temperature -7°C, temperature at the gas cooler exit +35°C, total superheating 10K liquid subcooling
2 Maximum allowed pressure

TECHNICAL DATA

REFRIGERANT UNIT



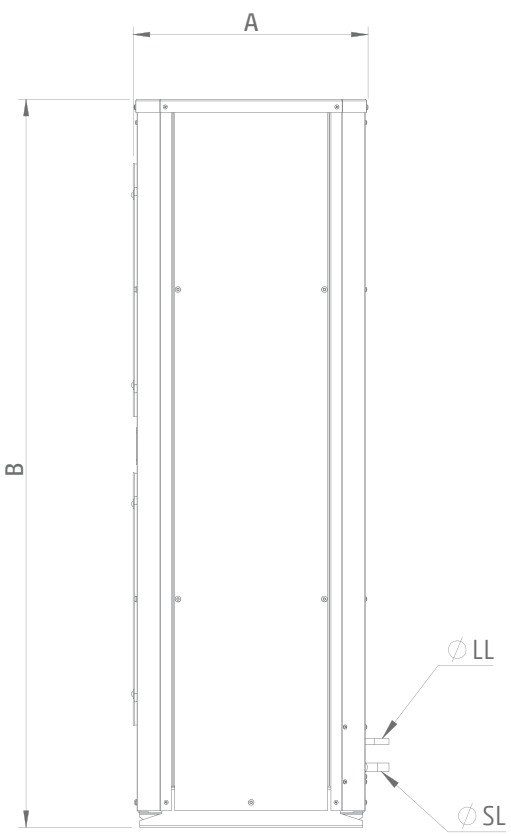
Refrigeration unit		DIMENSIONS (mm)						WEIGHT[4] (kg)
MT model	Type	A	B	C	D	E	G	
ARCTICO2 30	AG-N1RU1PT2.8MT	448	893	1176	400	1133	11	105
ARCTICO2 45	AG-N2RU1PT4.2MT	448	893	1176	400	1133	11	120
ARCTICO2 67	AG-N2RU1PT6MT	448	893	1176	400	1133	11	121

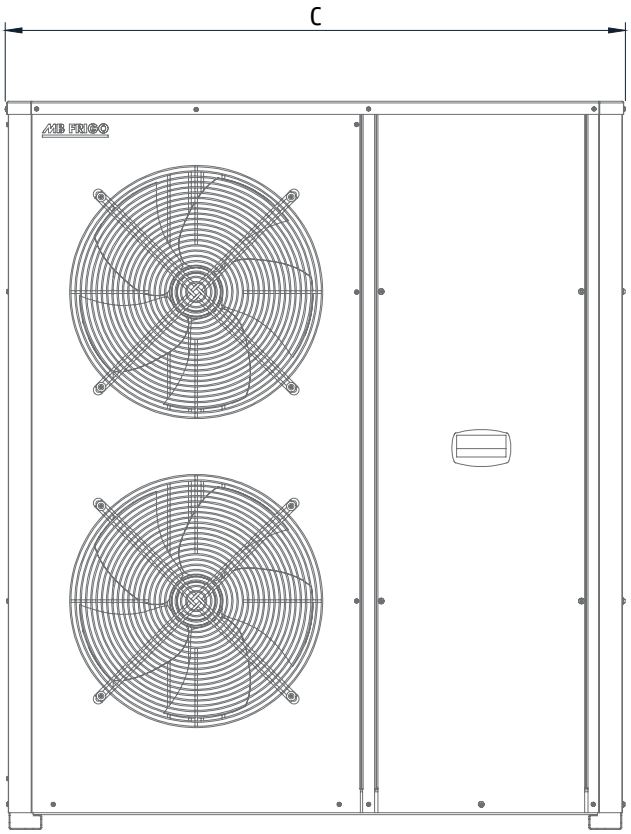
Refrigeration unit		DIMENSIONS (mm)						WEIGHT[4] (kg)
LT model	Type	A	B	C	D	E	G	
ARCTICO2 300	AG-N4RU3PD1.6LT	593	890	1351	516	1310	11	231
ARCTICO2 350	AG-N4RU3PD2LT	593	890	1351	516	1310	11	231
ARCTICO2 360	AG-N4RU3PD2.5LT	593	890	1351	516	1310	11	231

4 Units weights include protective housing, power supply and protection.

TECHNICAL DATA

REFRIGERANT UNIT



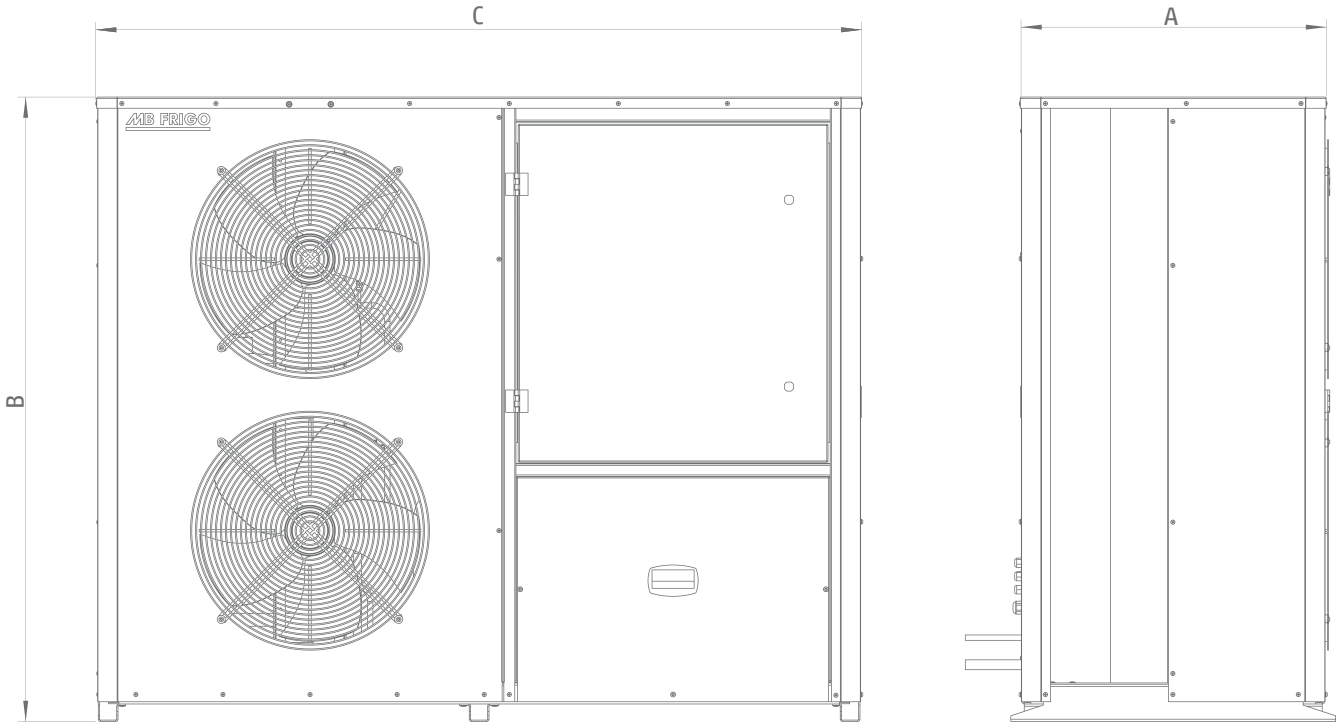


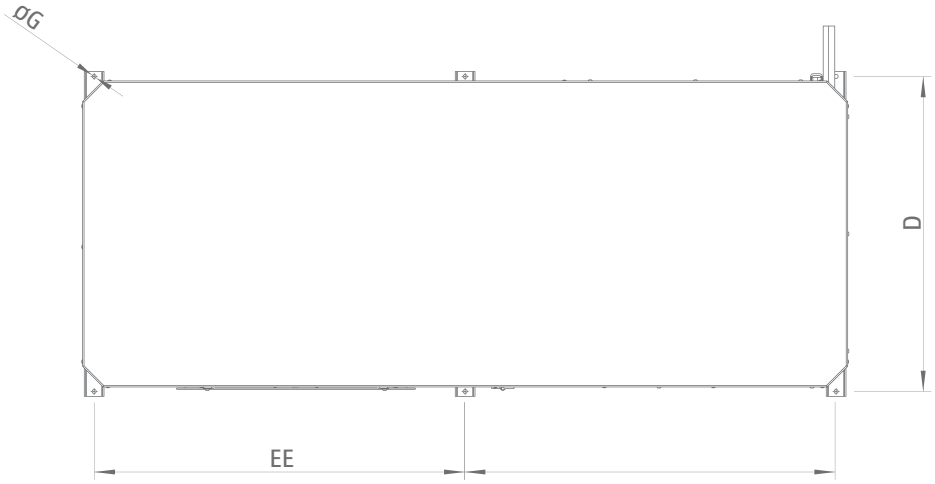
Refrigeration unit		DIMENSIONS (mm)						WEIGHT[4] (kg)
MT model	Type	A	B	C	D	E	G	
ARCTICO2 100	AG-N3RU3PT9MT	446	1381	1176	400	1133	11	165

4 Units weights include protective housing, power supply and protection.

TECHNICAL DATA

REFRIGERANT UNIT





Refrigeration unit		DIMENSIONS (mm)						WEIGHT[4] (kg)
LT model	Type	A	B	C	D	E	G	
ARCTICO2 1200	AG-N6RU3PD9LT	725	1394	1712	703	828	11	530
ARCTICO2 1500	AG-N6RU3PD12LT	725	1394	1712	703	828	11	530

4 Units weights include protective housing, power supply and protection.

Every sketch, every line is the beginning of creating unique products tailored to your needs.
We bring your ideas to life through custom-made refrigeration equipment, produced according to your specifications.