



Direct Drive Selection Guide



CONTENTS

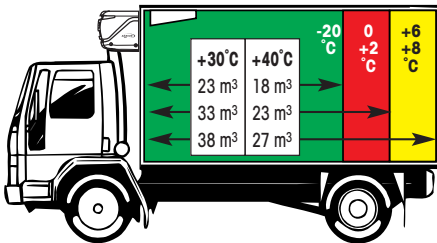
How to use this selection guide	p. 3
Transport temperatures for perishable goods	p. 4
Calculating the vehicle body's thermal rating	p. 5
Recommendations	p. 6
A.T.P. Europe regulations	p. 7-8
Multi-temperature units	
- Specifications	p. 9
- Special test procedure and certification	p. 10-11
World-wide ambient temperature charts	p. 12-13
Refrigeration unit selection charts	
- ambient temperature +30°C	p. 14-15
- ambient temperature +40°C	p. 16-17
VATNA refrigeration unit selection chart	p. 18-19
12-Volt Alternator units	
- NEOS 100	p. 20-21
Direct-drive units	
- VIENTO 200	p. 22-23
- VIENTO 300	p. 24-25
- VIENTO 350	p. 26-27
- XARIOS 150	p. 28-29
- XARIOS 200	p. 30-31
- ZEPHYR 30S	p. 32-33
- XARIOS 300	p. 34-35
- XARIOS 350	p. 36-37
- XARIOS 500	p. 38-39
- XARIOS 600	p. 40-41
Direct-drive multitemperature units	
- XARIOS 350 M1°	p. 42-47
- XARIOS 600 M1°	p. 48-53
VATNA refrigeration units	
- VATNA 150 H	p. 54-55
- VATNA 200 H - B	p. 56-57
- VATNA 300 H - B	p. 58-59
- VATNA 400 H - B	p. 60-61
Notes	p. 62-64

Our company is constantly seeking to improve the quality of its products and therefore reserves the right to modify their characteristics without prior notice.

HOW TO USE THIS SELECTION GUIDE

- Selecting a refrigeration unit depends on many factors such as ambient temperature, the type of products transported, the use conditions for the vehicle, the truck body insulation, the frequency of door openings etc. Users are therefore recommended to read all the chapters in this manual before selecting their refrigeration unit.
- The characteristics of the units described in this guide are given for guidance only and correspond to the ATP requirements applicable on the date of printing.
- A diagram indicates the maximum volumes for use of each refrigeration unit, based on the ambient temperature and the temperature required inside the truck body: Green: use temperature -20°C , Red: use temperature from 0 to $+2^{\circ}\text{C}$, Yellow: use temperature from $+6$ to $+8^{\circ}\text{C}$.

Example : for use in an ambient temperature of $+30^{\circ}\text{C}$ with an application temperature ranging from 0 to $+2^{\circ}\text{C}$, the maximum volume of the truck body should be 33 m^3 .



- Selecting refrigeration units in relation to body/box volume is based on the following criteria:

- **safety coefficients:**

at 0°C : 4.5 instead of 1.75 (ATP regulation)

at -20°C : 2.5 instead of 1.75 (ATP regulation)

These coefficients cover the types of applications most commonly encountered and take into account the deterioration over time of the isothermal K value. Do not forget to compare the thermal rating (see page 5) of the box with the refrigerating capacity of the unit on standby operation if the unit is frequently used on standby.

- **door openings:** Safety coefficients authorize 20 door openings for 3 minutes each over a period of 8 hours. If the frequency of opening is likely to be higher, we recommend you increase the refrigerating capacity by 5% for every ten additional openings.

- For vehicles which do not correspond to the standards indicated above, you should calculate the heat balance for the body/box (p. 5) or contact your local Carrier representative.

TRANSPORT TEMPERATURE

During loading, check the internal temperature of the goods to be transported.

FROZEN PRODUCTS

- 25°C Ice and ice cream
- 18°C Deep frozen foods
- 18°C Organs for opotherapy
- 18°C Fishery products
- 14°C Butter and edible fats, including cream to be used for butter making
- 12°C Egg products, offal, rabbit, poultry and game
- 10°C Meat

CHILLED PRODUCTS

- +2°C Fresh fish (in ice), crustaceans and shellfish (excluding live ones)
- +3°C Cooked dishes and prepared foods, pastry creams, fresh pastries, sweet dishes and egg products
- +3°C Meat and cooked meats pre-packaged for consumer use
- +3°C Offal
- +3°C Poultry, rabbit and game
- +4°C Non-sterilized, untreated, unpasteurised or fermented milk, fresh cream, cottage cheese and curd
- +6°C Milk for industrial processing
- +6°C Cooked meats other than those which have been salted, smoked, dried or sterilized
- +6°C Chilled eggs in their shells
- +6°C Butter, soft or blue cheeses
- +7°C Meat

WITHOUT PRIOR CHILLING

- +4/6°C Fresh fruit and vegetables
- +4/6°C Flowers
- +7/8°C Bulbs
- +10°C Non-stabilized animal fats other than butter
- +10°C Pressed or cooked cheeses

The above information is given for reference purposes only, and may be overridden on the transporter or the consignee's advice. More detailed information may be obtained from your Carrier Transicold distributor.

CALCULATING THE VEHICLE BODY'S THERMAL RATING

To determine the thermal rating of the vehicle body, use one of the following formulae:

- Ventilated units:

$$P = K \times Ms \times \Delta T (\text{int. } T - \text{ext. } T) \times 1,75$$

- Refrigeration units:

$$P = K \times Ms \times \Delta T (\text{int. } T - \text{ext. } T) \times 1,35$$

P = Quantity of heat (in Watts) penetrating through the body walls for refrigeration applications, or quantity of cold air penetrating inside the body for heating applications.

K = Isothermal factor of the body in Watts per $\text{m}^2 \times ^\circ\text{K}$ (Kelvin).

Ms = Mean body surface area in m^2
calculated as follows:

$$Ms = \sqrt{(\text{int. } s \times \text{ext. } s)}$$

int. s: total interior surface area of all body walls

ext. s: total exterior surface area of all body walls.

int. T - minimum temperature (in centigrade) to be obtained inside the body for regulated temperature applications.

- maximum temperature (in centigrade) to be obtained inside the body for heating applications.

ext. T: - maximum outside temperature (in centigrade) for regulated temperature applications.

- minimum outside temperature (in centigrade) heating applications.

1,75 : **Minimum** ATP safety factor for ventilated evaporator units (power tests).

1,35 : **Minimum** ATP safety factor for eutectic refrigeration units (power tests).

RECOMMENDATIONS

The following recommendations should be observed when using refrigeration units.

In a very cold climate:

- Hot gas heating is recommended when transporting goods requiring positive temperatures ($\geq 0^{\circ}\text{C}$).

In a hot climate:

- The vehicle should always be parked in the shade.

When loading:

- Do not obstruct the evaporator with the loaded goods.
- Make sure that air circulation is not impeded.

When transporting fresh products:

- Defrost manually 30 minutes after loading.

When transporting frozen products:

- If the hygrometry ratio is high, initiate a manual defrost 30 minutes after loading.
- Shut down the unit when you open the doors to avoid excessive frosting of the evaporator.

When transporting ice cream:

- Use protective curtains if the doors are to be opened frequently.
- Shut down the unit when you open the doors.
- With small-bodied vehicles ($< 22 \text{ m}^3$) choose an electric system in preference to a direct drive mechanism.

For urban deliveries:

- Use protective curtains.
- Shut down the unit when you open the doors.
- Before loading, pre-refrigerate the vehicle body to a temperature at least as low as that of the goods to be transported.

For long journeys:

- Check that the unit is operating correctly.
- In the event of a problem arising, contact the nearest service center, or call our 24-hours-a-day, 7-days-a-week service as soon as possible.

Always:

- Take regular care of your unit as advised by CARRIER in order to avoid any unnecessary problems.

EXTRACT OF A.T.P. EUROPE REGULATIONS (March 1974)

APPROVAL OF VEHICLES DESTINED FOR THE CARRIAGE OF PERISHABLE GOODS.

Before putting a refrigerated or holdover vehicle into use, it must be approved by the regional health authorities.

CHARACTERISTICS OF VEHICLES USED FOR CARRYING PERISHABLE GOODS.

The refrigerated unit is an insulated unit with a cooling system which makes it possible, at a mean outside temperature of +30°C, to lower the temperature inside the empty body and to maintain this low temperature as follows:

CLASS A: Refrigerated unit equipped with a cooling system allowing the selection of temperatures between +12°C and 0°C inclusive.

CLASS B: Refrigerated unit equipped with a cooling system allowing the selection of temperatures between +12°C and -10°C inclusive.

CLASS C: Refrigerated unit equipped with a cooling system allowing the selection of temperatures between +12°C and -20°C inclusive.

The cooling capacity of a unit is determined by a test carried out in one of the registered testing centers and certified by an official report.

CERTIFICATION: Two types of test are used in France.

1- Measurement of efficiency according to ATP standards

Testing is carried out on the refrigerated vehicles (unit mounted on the body).

At an ambient temperature of +30°C, the unit must lower the inside temperature to a value below that of the required class and maintain this temperature for 12 hours with the addition of heat corresponding to 35% of the insulation :

$$K \times Ms \times \Delta T \times 1,35$$

K = insulating factor, Ms = mean surface area of the walls in m²

$$Ms = \sqrt{(\text{mean interior surface area} \times \text{mean exterior surface area})}$$

This test is certified by an official report covering both the unit and body.

2- Special testing of unit and body

(Valid only in France, Germany and Italy)

Based on the reports certifying the insulation of the body and the refrigeration capacity of the unit, the unit + body assembly may be approved using the following formula:

$$K \times Ms \times \Delta T \times 1,75$$

K = insulating factor, Ms = mean surface area of the walls in m²

Ms = $\sqrt{(\text{mean interior surface area} \times \text{mean exterior surface area})}$

NOTE: The K factor of bodies intending to be classified as B or C must not exceed 0,4 W/m² °C.

SIGNS, IDENTIFICATION MARKS AND PLATES TO BE ATTACHED:

REFRIGERATED UNIT

This reference must be followed by the appropriate identification marks from the following list:

Standard Class A refrigerated unit	FNA
Reinforced Class A refrigerated unit	FRA
Reinforced Class B refrigerated unit	FRB
Reinforced Class C refrigerated unit	FRC

In addition to the above identification marks, the date (month and year) of expiry of the approval certificate must be indicated.

Example : MODEL

FRC

6 - 2010 (6 = June, 2010 = year)

IMPORTANT

Check the expiry date of the approval certificate regularly. This certificate, or equivalent temporary approval documents, must be supplied when requested by qualified persons.

In the case of transformation of an insulated vehicle for refrigerated operation, a request for modification of the approval certificate must be addressed to the regional health authorities.

NOTE : There are other rules and regulations applicable to the transport of temperature-sensitive cargo (ARI for the USA – JIS for Japan). For further information on these regulations, please contact our technical departments.

MULTI-TEMPERATURE UNITS

Specifications

When ordering units destined to be fitted in multi-compartment vehicle bodies, you should provide detailed specifications indicating the following:

- Interior and exterior length of the body,
- Interior and exterior width of the body,
- Interior and exterior height of the body,
- K factor of the body,
- Configuration of the box,
- Type of partition (mobile or fixed),
- Ambient temperature,
- Temperature required inside compartments,
- Products to be transported,
- Road operation and standby operation,
- Truck battery voltage: 12V or 24V,
- Type of use (long distance, local distribution, etc.),
- Other useful information.

Our technicians are at your disposal to assist you in selecting a unit which corresponds to your customer's requirements.



XARIOS 350 Mt°



XARIOS 600 Mt°

MULTI-TEMPERATURE UNITS

Special test procedure and certification

1. Total nominal capacity of the host unit

The unit, equipped with one or two evaporators selected by the manufacturer for a maximum operating surface, is tested to measure the total refrigeration capacities A at -20°C and B at 0°C .

	EVAP N1	EVAP N2	TOTAL NOMINAL
-20°C	a1	a2	A
0°C	b1	b2	B

The total nominal capacity A of the host unit shall be greater than 1.75 times the needs Q of the total body for the specified class – $A \geq 1.75 Q$

$Q = K \times Ms \times \Delta T$, see Extract of ATP Europe regulations p. 7

2. Measure of the capacity of each evaporator with the host unit

These capacities are measured for each evaporator at -20°C and 0°C . The knowledge of these capacities x_i at -20°C and y_i at 0°C will enable the calculation of the useful capacities of these evaporators with the host unit.

	EVAP N1	EVAP N2
-20°C	x1	x2
0°C	y1	y2

3. Test one configuration with 2 evaporators under temperature regulation

These tests are done to verify the good quality of the temperature control of the system, and to determine the mean evaporator factor U for 2 compartments.

4. Calculation of the useful capacities of the evaporators

The useful capacities to be used to match multi-temperature refrigeration Equipment to multi-compartment vehicle bodies are considered to be U% multiplied by the individual evaporator capacity as operating in conjunction with the condensing unit.

For 2 compartments: $X_i = U x_i$ and $Y_i = U y_i$

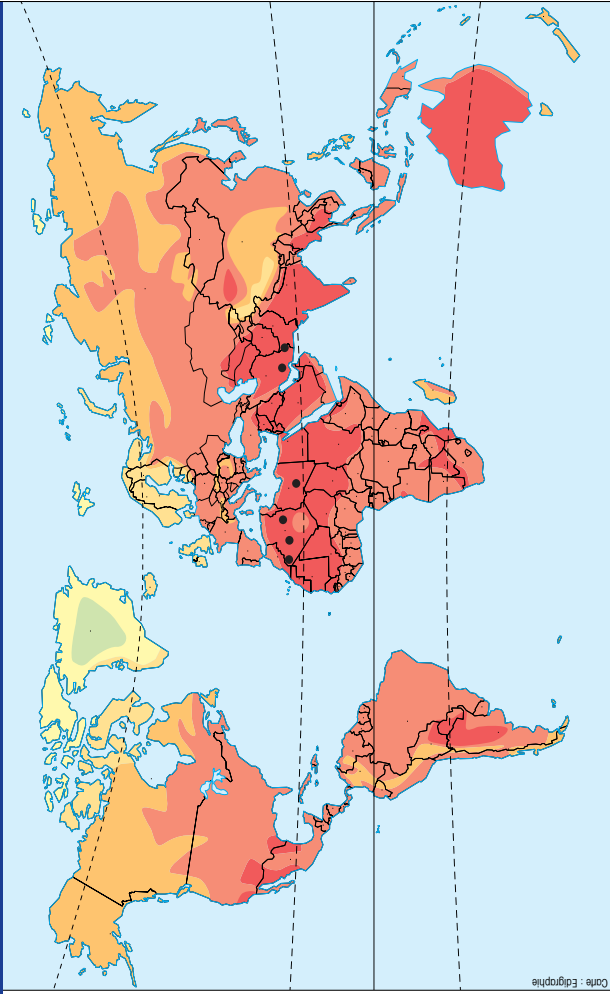
5. The useful values of the test report are resumed in the typical following table:

CAPACITIES	TOTAL NOMINAL	USEFUL CAPACITIES OF THE EVAPORATORS	
		N1	N2
-20/30°C	A	X1	X2
-10/30°C	C	Z1	Z2
0/30°C	B	Y1	Y2
+12/30°C	B	Y1	Y2

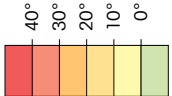
The capacities C and Zi at -10°C are calculated by interpolation between capacities at -20°C and at 0°C. The capacities at 12°C are considered equal to the ones at 0°C.

Useful capacity Xi of each evaporator operating alone at -20/30°C conditions must be at least 1.75 times the needs Qi of the corresponding compartment in its biggest dimensions: $X_i \geq 1.75 Q_i$.

MAXIMUM AIR TEMPERATURE (average year - in centigrade)



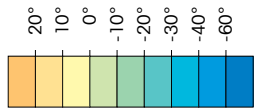
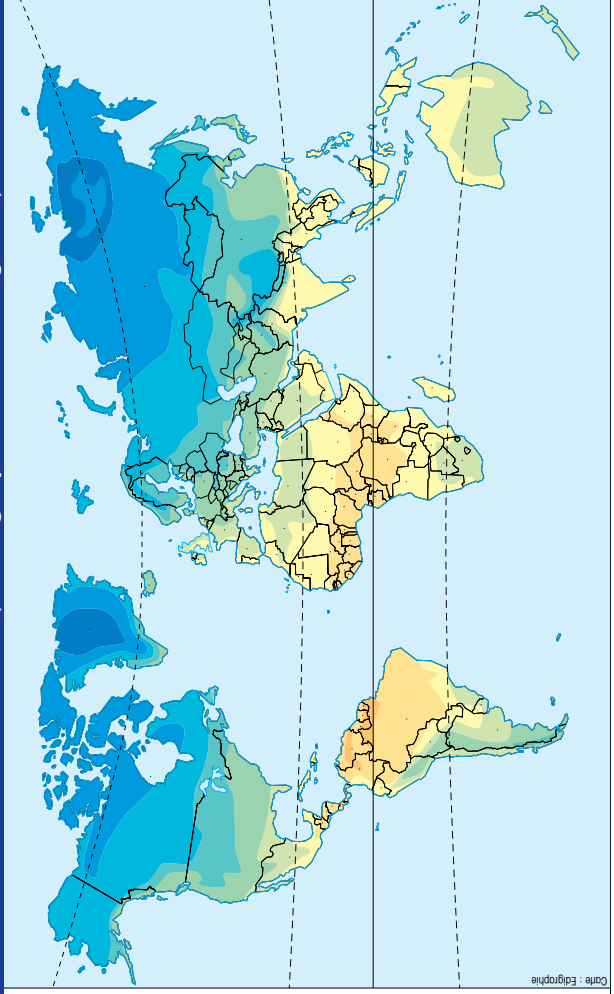
Carte : Edigraphe



Region where temperatures are often above 50°C

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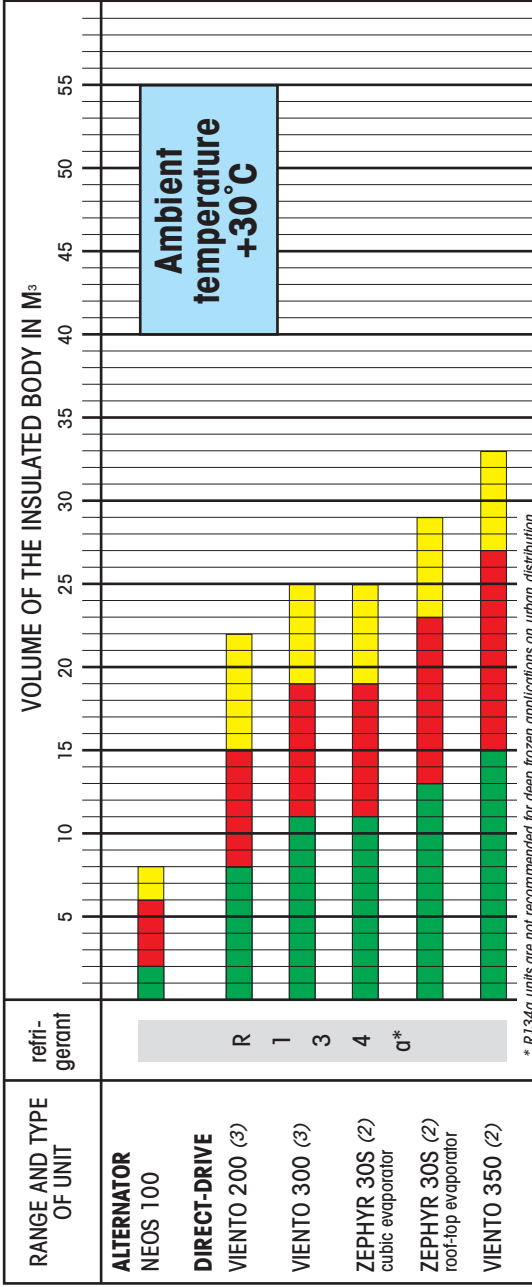
MINIMUM AIR TEMPERATURE (average year - in centigrade)



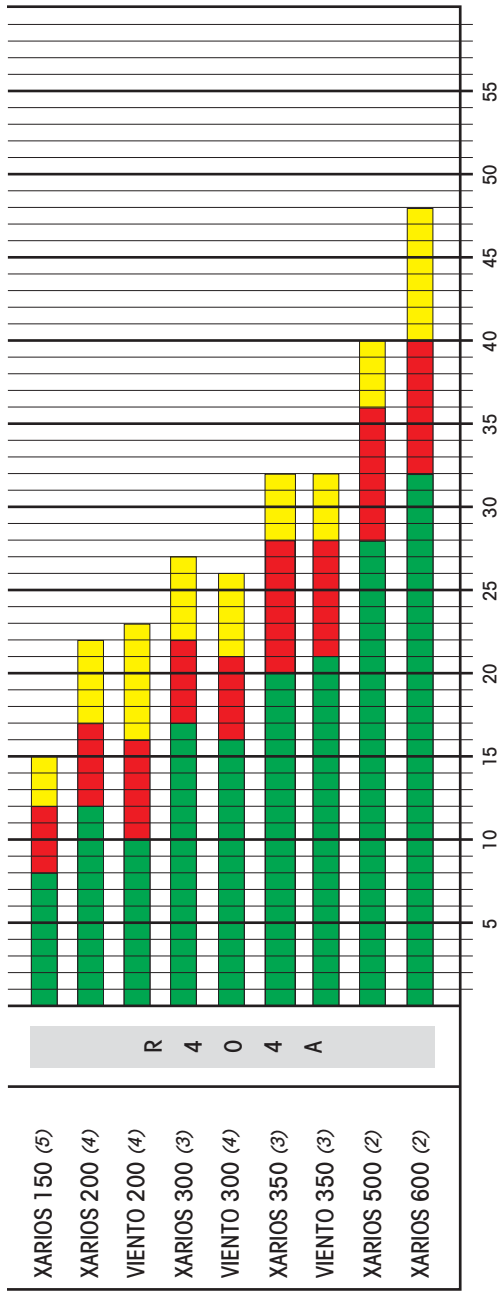
Carte : Edigraphie

12 VOLT ALTERNATOR AND DIRECT-DRIVE UNIT SELECTION GUIDE

Classification	C	A	
Temperature	-20°C (-4°F)	0° +2°C (+32° +35°F)	+6° +8°C (+43° +46°F)
Required K factor	0,32 Watts/m ² °C	0,40 Watts/m ² °C	



* R134a units are not recommended for deep frozen applications on urban distribution.



(1) equipped with road compressor 5H09 at 2400 rpm - (2) equipped with road compressor TMT16 at 2400 rpm - (3) equipped with road compressor TMT15 at 2400 rpm (4) equipped with road compressor TMT3 at 2400 rpm - (5) equipped with road compressor UP90 at 2400 rpm

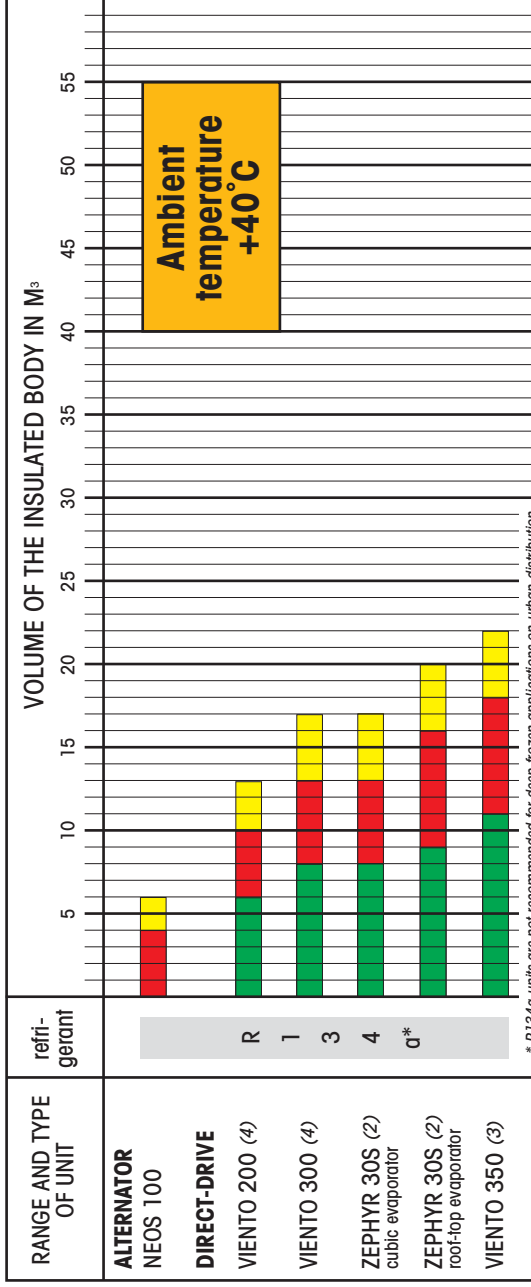
Note : This selection table is intended as a guide. It has been compiled using experience acquired in normal utilization of our equipment in transport and distribution. Conformity to these recommendations should guarantee your total satisfaction. **The maximum volumes indicated in the table above are given for a road compressor operating at 2400 rpm. Since the speed of the road compressor depends on the vehicle motor speed, the unit's refrigerating capacity varies in relation to the use made of the vehicle. Take into account the unit's standby performance characteristics or consult us if the unit is frequently used on standby.**

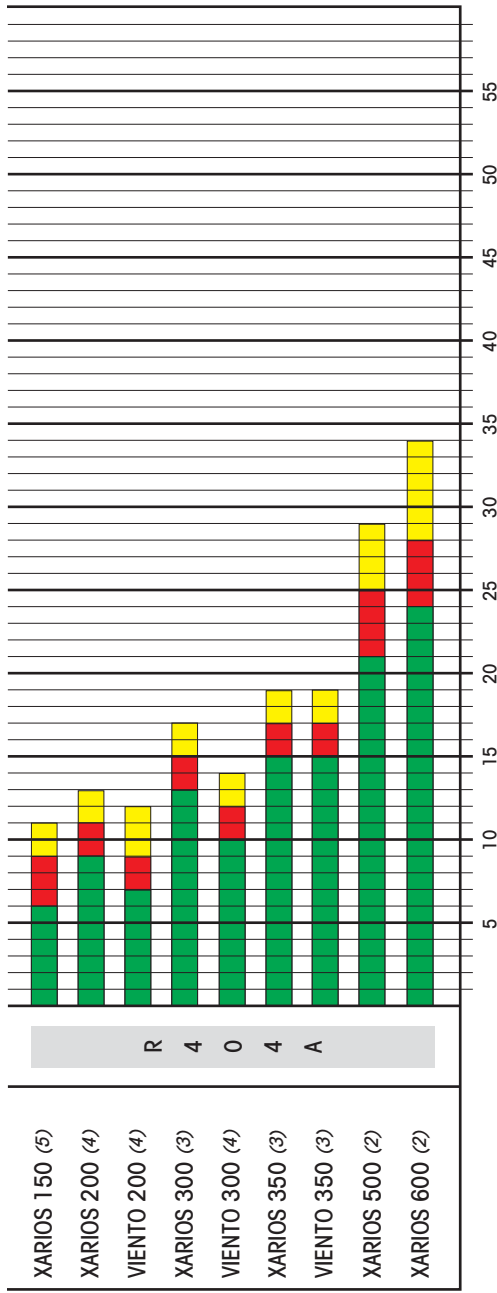
In case of operation in high ambient temperature or for difficult types of transport (fresh meat, cheese, vegetables, etc.), it is advised to base your choice on a volume equivalent to the next lowest temperature range. For example, with a XARIOS 300 - R404A, volume should not exceed 17 m³. When one of the parameters (volume, K factor or outside temperature) differs from the above data, you should apply the following formula: $P = K \times Ms \times \Delta T \times 1,75$ after referring to the refrigerating capacities.

LIMITS OF USE OF THE ABOVE TABLE : • Altitude \leq 1500 m • Relative humidity \leq 70%. For other conditions of use, please consult us.

12 VOLT ALTERNATOR AND DIRECT-DRIVE UNIT SELECTION GUIDE

Classification	C	A
Temperature	-20°C (-4°F)	0° +2°C (+32° +35°F)
Required K factor	0,32 Watts/m ² °C	+6° +8°C (+43° +46°F)
		0,40 Watts/m ² °C





(1) equipped with road compressor 5H09 at 2400 rpm - (2) equipped with road compressor TM16 at 2400 rpm - (3) equipped with road compressor TM15 at 2400 rpm - (4) equipped with road compressor TM13 at 2400 rpm - (5) equipped with road compressor UP90 at 2400 rpm

Note : This selection table is intended as a guide. It has been compiled using experience acquired in normal utilization of our equipment in transport and distribution. Conformity to these recommendations should guarantee your total satisfaction. **The maximum volumes indicated in the table above are given for a road compressor operating at 2400 rpm. Since the speed of the road compressor depends on the vehicle motor speed, the unit's refrigerating capacity varies in relation to the use made of the vehicle. Take into account the unit's standby performance characteristics or consult us if the unit is frequently used on standby.**

In case of operation in high ambient temperature or for difficult types of transport (fresh meat, cheese, vegetables, etc.), it is advised to base your choice on a volume equivalent to the next lowest temperature range. For example, with a XARIOS 300 - R404A, volume should not exceed 13 m³. When one of the parameters (volume, K factor or outside temperature) differs from the above data, you should apply the following formula: $P = K \times Ms \times \Delta T \times 1,75$ after referring to the refrigerating capacities.

LIMITS OF USE OF THE ABOVE TABLE : • Altitude \leq 1500 m • Relative humidity \leq 70%. For other conditions of use, please consult us.

VATNA REFRIGERATING UNIT SELECTION GUIDE (using eutectic plates)

REFRIGERANT R404A	Classification	C
	Temperature	RRC 12 hours at -20°C (-4°F)
	Required K factor	0,27 Watts/m ² °C

Please consult us for any questions concerning the selection of a VATNA unit, and fill in the isothermal questionnaire before returning it

TYPE OF UNIT	BOX VOLUME IN M ³	MIN. NO. OF PLATES ON CEILING	ACCUMULATED CAPACITY Wh and kJ	WEIGHT		KMs (max.) W/°C R404A
				units (H)	kg plates	
152 2 plates	6,3 *	0	5335 Wh 22300 kJ	90	162	6,3
203 3 plates	7,2 *	1	8000 Wh 33500 kJ	140	243	7,2
204 4 plates	8,6 *	2	10670 Wh 44700 kJ	140	324	8,6
305 5 plates	10,9 *	3	13335 Wh 55800 kJ	195	405	10,9
306 6 plates	11,8 *	4	16000 Wh 67000 kJ	195	486	11,8
407 7 plates	14,5 *	5	18670 Wh 78200 kJ	195	567	14,5
408 8 plates	17,8 *	6	21335 Wh 89400 kJ	195	648	17,8

Ambient temperature +30°C

* KMs (max.) = K factor x Mean surface area of walls [Ms = √(int. s x ext. s)]. The KMs factors indicated are the maximum KMs factors.

VATNA REFRIGERATING UNIT SELECTION GUIDE (using eutectic plates)

REFRIGERANT R404A	Classification	C
	Temperature	RRC 12 hours at -20°C (-4°F)
	Required K factor	0,27 Watts/m ² °C

Please consult us for any questions concerning the selection of a VATNA unit, and fill in the isothermal questionnaire before returning it

TYPE OF UNIT	BOX VOLUME IN M ³	MIN. NO. OF PLATES ON CEILING	ACCUMULATED CAPACITY Wh and kJ	WEIGHT		KMs (max.) W/°C R404A
				units (H)	kg plates	
152 2 plates	5,3 *	0	5 335 Wh 22300 kJ	90	162	5,3
203 3 plates	5,9 *	1	8 000 Wh 33500 kJ	140	243	5,9
204 4 plates	7,1 *	2	10 670 Wh 44700 kJ	140	324	7,1
305 5 plates	9,1 *	3	13 335 Wh 55800 kJ	195	405	9,1
306 6 plates	9,8 *	4	16 000 Wh 67000 kJ	195	486	9,8
407 7 plates	12,1 *	5	18 670 Wh 78200 kJ	195	567	12,1
408 8 plates	14,8 *	6	21 335 Wh 89400 kJ	195	648	14,8

Ambient temperature +40°C

* KMs (max.) = K factor x Mean surface area of walls [Ms = √(int. s x ext. s)]. The KMs factors indicated are the maximum KMs factors.

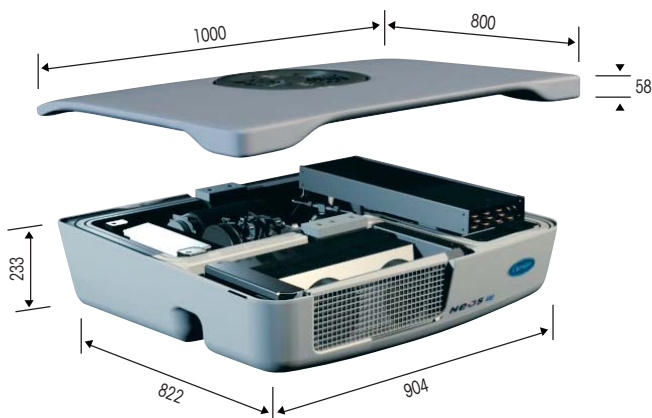
NEOS 100

for your delivery vehicles

NEOS 100

Roof-top module

Weight: 4 kg



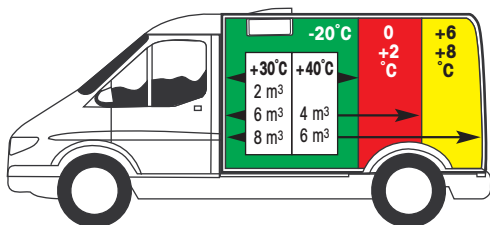
Condenser

Total weight including roof top

Road version: 64 kg

Road/standby version: 67,5 kg





Certificate no.	M626
Evaporator	Integrated
Airflow (AMCA 21085)	700 m ³ /h
Refrigerant	R134a*
Capacity at -20/+30°C	425 W
Capacity at 0/+30°C	1140 W

Operation	<ul style="list-style-type: none"> • 12 V on road. The vehicle must have an alternator of at least 125 A and a 90 A/h battery (see our "12 VDC power kit" catalogue). • 230/1/50 Hz-60 Hz on standby
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Evaporator	Integrated
Defrost	Automatic hot gas (standard)
Standard equipment	Cab command

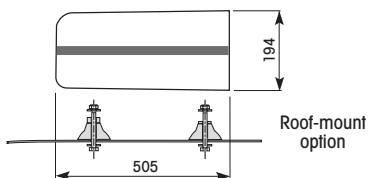
* Not recommended for deep frozen applications on urban distribution.

VIENTO 200

for your delivery vehicles



Condenser
Weight: 20 kg

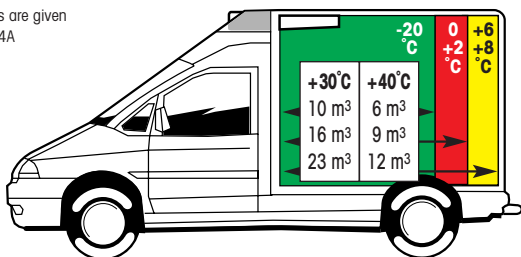


Évaporator MZS 600
Weight: 13 kg



Évaporator MZS 850
Weight: 17 kg

Volumes are given
for R404A



Certificate no.	M622	M621
Road compressor	TM13 (2400 rpm)	5H09 (2400 rpm)
Evaporator	MZS 850	MZS 600
Refrigerant	R134a*	R404A
Airflow (AMCA 21085)	1000 m ³ /h	700 m ³ /h
Capacity at -20/+30°C	960 W	1025 W
Capacity at 0/+30°C	1950 W	2000 W

Operation • Road

Road compressor Consult our kit catalogue

Defrost Automatic or manual
Defrost interval selection possible
(1, 2, 3, 4, 5 or 6 hours)

Standard equipment • Cab command with microprocessor

Factory options

- Fresh applications only (R model)
- Fresh and frozen applications with oil separator and hot gas defrost (S model)
- Fresh and frozen applications with oil separator, hot gas defrost and hot gas heating for low ambient temperatures (T model)

Accessories

- Condenser roof-mount or roof-cut accessories
- Road compressor mounting kit
- Road compressor
- Voltage reducer for 24 VDC vehicles
- Extension connection set for flexible evaporator positioning

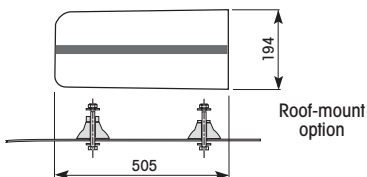
* Not recommended for deep frozen applications on urban distribution.

VIENTO 300

for your delivery vehicles



Condenser
Weight: 21 kg

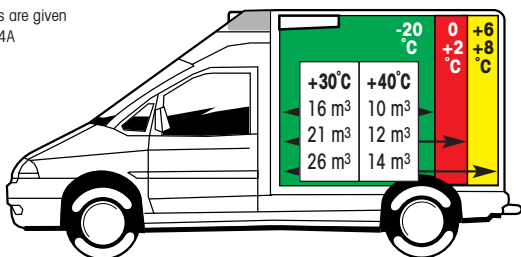


Evaporator MZL 850
Weight: 17 kg



Evaporator MZS 850
Weight: 17 kg

Volumes are given
for R404A



Certificate no.	M607	M609
Road compressor	TM15 (2400 rpm)	TM13 (2400 rpm)
Evaporator	MZL 850	MZS 850
Refrigerant	R134a*	R404A
Airflow (AMCA 21085)	1000 m ³ /h	1000 m ³ /h
Capacity at -20/+30°C	1330 W	1620 W
Capacity at 0/+30°C	2600 W	2740 W

Operation • Road

Road compressor Consult our kit catalogue

Defrost Automatic or manual
Defrost interval selection possible
(1, 2, 3, 4, 5 or 6 hours)

Standard equipment • Cab command with microprocessor

Factory options

- Fresh applications only (R model)
- Fresh and frozen applications with oil separator and hot gas defrost (S model)
- Fresh and frozen applications with oil separator, hot gas defrost and hot gas heating for low ambient temperatures (T model)

Accessories

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- Road compressor mounting kit
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- Voltage reducer for 24 VDC vehicles
- Extension connection set for flexible evaporator positioning

* Not recommended for deep frozen applications on urban distribution.

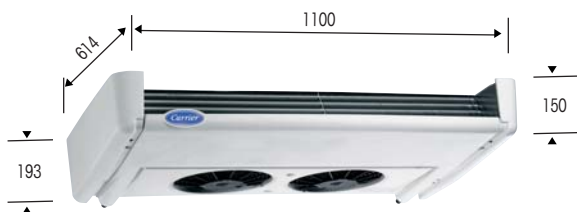
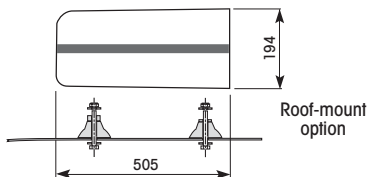
VIENTO 350

for your delivery vehicles



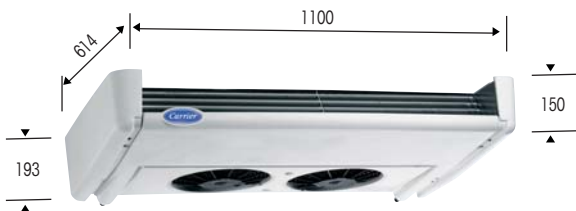
Condenser

Weight: 22 kg



Evaporator MZL 1100

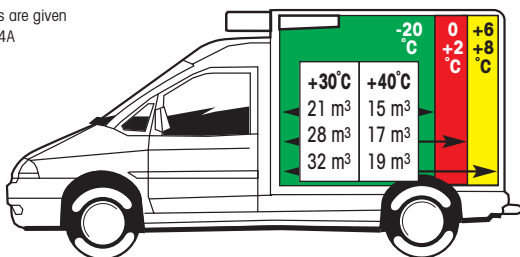
Weight: 23 kg



Evaporator MZS 1100

Weight: 23 kg

Volumes are given
for R404A



Certificate no.	M611	M610
Road compressor	TM16 (2400 rpm)	TM15 (2400 rpm)
Evaporator	MZL 1100	MZS 1100
Refrigerant	R134a*	R404A
Airflow (AMCA 21085)	1600 m ³ /h	1600 m ³ /h
Capacity at -20/+30°C	1610 W	2060 W
Capacity at 0/+30°C	3300 W	3470 W

Operation • Road

Road compressor Consult our kit catalogue

Defrost Automatic or manual
Defrost interval selection possible
(1, 2, 3, 4, 5 or 6 hours)

Standard equipment • Cab command with microprocessor

Factory options

- Fresh applications only (R model)
- Fresh and frozen applications with oil separator and hot gas defrost (S model)
- Fresh and frozen applications with oil separator, hot gas defrost and hot gas heating for low ambient temperatures (T model)

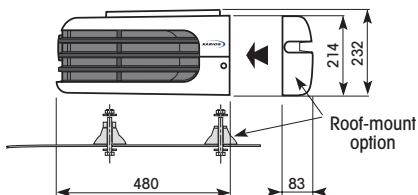
Accessories

- Condenser roof-mount or roof-cut accessories
- Road compressor mounting kit
- Road compressor
- Operation on 24 VDC vehicles
- Extension connection set for flexible evaporator positioning

* Not recommended for deep frozen applications on urban distribution.

XARIOS 150

for your delivery vehicles



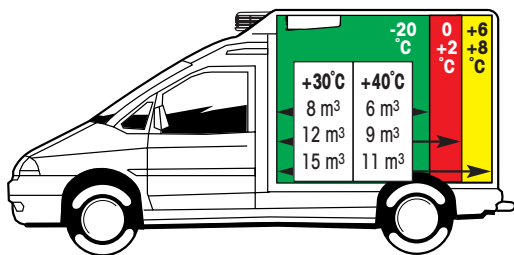
Road and standby version condenser

Weight: 54 kg



Roof-mount evaporator MXS 600

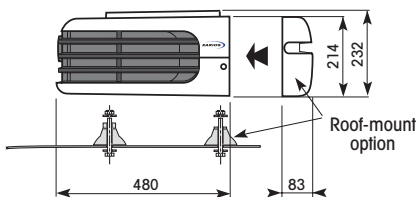
Weight: 15 kg



Certificate no.	M513 add2
Road compressor	5H09
Evaporator	MXS 600
Refrigerant	R404A
Airflow (AMCA 21085)	650 m ³ /h
Capacity at -20/+30°C	950 W
Capacity at 0/+30°C	1800 W
Operation	<ul style="list-style-type: none"> • Road and standby
Standby voltage	<ul style="list-style-type: none"> • 230/1/50 Hz • 400/3/50 Hz • 230/1/60 Hz
Road compressor	Consult our kit catalogue
Standby compressor	CTD HA090-Rotary
Defrost	Automatic or manual Defrost interval selection possible (1, 2, 3, 4, 5 or 6 hours)
Standard equipment (S model)	<ul style="list-style-type: none"> • Xarios microprocessor control • Standby / road compressor hourmeter • Operation on 12 VDC vehicles
Factory options	<ul style="list-style-type: none"> • Hot gas heating system (T model) • Liquid injection for ambients above 42°C
Accessories or options	<ul style="list-style-type: none"> • Condenser roof-mount accessories • Condenser roof cut mounting kit • Road compressor mounting kit • 2,5 m or 6 m extension of evaporator connections • Drain water heater • Door switch • Voltage reducer for 24 VDC vehicles

XARIOS 200

for your delivery vehicles



Road and standby version condenser

Weight: 54 kg



Roof-mount evaporator MXS 850

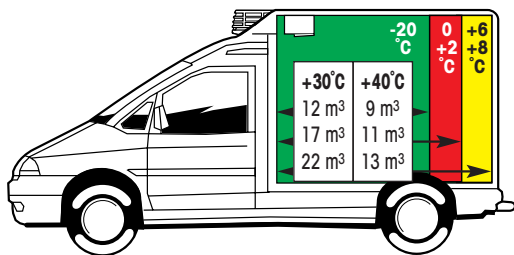
Weight: 19 kg



Vertical evaporator MXV 850

Weight: 17 kg

159 ▶ | ◀



Certificate no.	M591-B
Road compressor	TM13 (2400 rpm)
Evaporator	MXS 850 / MXV 850
Refrigerant	R404A
Airflow (AMCA 21085)	840 m ³ /h / 840 m ³ /h
Capacity at -20/+30°C	1300 W
Capacity at 0/+30°C	2300 W

Operation • Road and standby

Standby voltage

- 230/1/50 Hz
- 400/3/50 Hz
- 230/1/60 Hz

Road compressor Consult our kit catalogue

Standby compressor CTD HA090-Rotary

Defrost Automatic or manual
Defrost interval selection possible
(1, 2, 3, 4, 5 or 6 hours)

Standard equipment (S model)

- Xarios microprocessor control
- Standby / road compressor hourmeter
- Liquid injection for compressor reliability
- Operation on 12 VDC vehicles

Factory options • Hot gas heating system (T model)

Accessories or options

- Condenser roof-mount accessories
- Condenser roof cut mounting kit
- Road compressor mounting kit
- 2,5 m or 6 m extension of evaporator connections
- Drain water heater
- Door switch
- Voltage reducer for 24 VDC vehicles

ZEPHYR 30S

for your delivery vehicles



**Road and standby
version condenser**
Weight: 76 kg



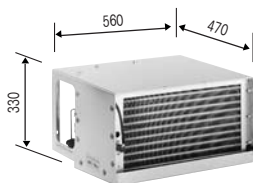
Roof-mount

558

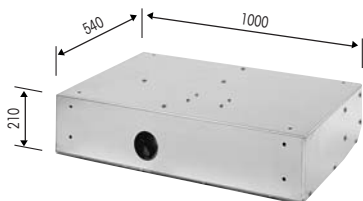


488

Front-mount

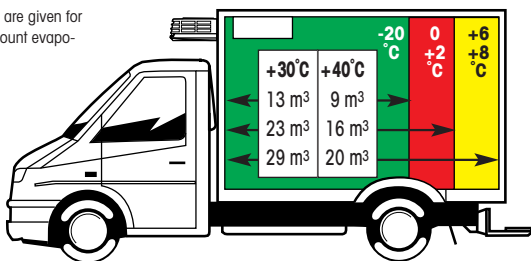


Cubic evaporator R134a
Weight: 24 kg



Roof-mount evaporator R134a
Weight: 23 kg

Volumes are given for a roof-mount evaporator.



Certificate no.	M553	M553
Road compressor	TM16 (2400 rpm)	TM16 (2400 rpm)
Evaporator	Cubic	Roof-mount
Refrigerant	R134a*	R134a*
Airflow (AMCA 21085)	790 m ³ /h	1060 m ³ /h
Capacity at -20 / +30°C	1325 W	1500 W
Capacity at 0 / +30°C	2860 W	3060 W

Operation • Road and standby

Standby voltage

- 400/3/50 Hz
- 230/1/50 Hz
- 400/3/60 Hz

Road compressor Consult our kit catalogue

Standby compressor TM16 / 161 cm³

Evaporator Cubic or roof-mount

Defrost Automatic or manual
Defrost interval selection possible
(1, 2, 3, 4, 5 or 6 hours)

Standard equipment (T model)

- Mini cab command with microprocessor
- Oil separator kit
- White front-grill
- Operation on 12 VDC vehicles

Factory options • Liquid injection for ambients above 42°C

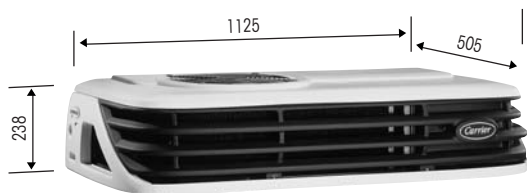
Accessories or options

- Condenser roof-mount accessories
- Road compressor mounting kit
- Voltage reducer for 24 VDC vehicles

* Not recommended for deep frozen applications on urban distribution.

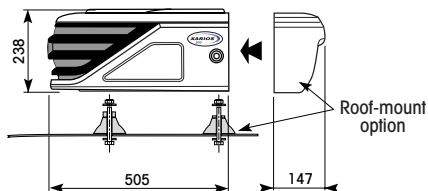
XARIOS 300

for your delivery vehicles



Road and standby version condenser

Weight: 66 kg



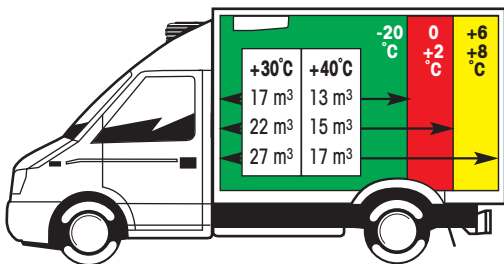
Roof-mount evaporator MXS 850

Weight: 19 kg



Vertical evaporator MXV 850

Weight: 17 kg



Certificate no.	M518 add2	M555
Road compressor	TM15 (2400 rpm)	TM15 (2400 rpm)
Evaporator	MXS 850	MXV 850
Refrigerant	R404A	R404A
Airflow (AMCA 21085)	840 m ³ /h	770 m ³ /h
Capacity at -20/+30°C	1700 W	1655 W
Capacity at 0/+30°C	2860 W	2730 W

Operation • Road and standby

Standby voltage • 400/3/50 Hz
• 230/1/50 Hz

Road compressor Consult our kit catalogue

Standby compressor CTD HB135-Rotary

Defrost Automatic or manual
Defrost interval selection possible
(1, 2, 3, 4, 5 or 6 hours)

Standard equipment (S model)

- Xarios microprocessor control
- Standby compressor hourmeter
- Liquid injection for compressor reliability

Factory options

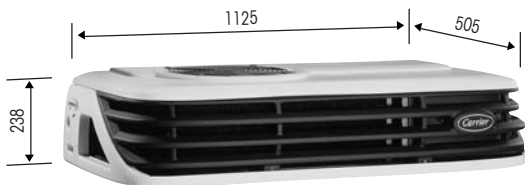
- Hot gas heating system (T model)
- Operation on 12 or 24 VDC vehicles

Accessories or options

- Condenser roof-mount accessories
- Condenser roof cut mounting kit
- Road compressor mounting kit
- 2,5 m or 6 m extension of evaporator connections
- Drain water heater
- Door switch

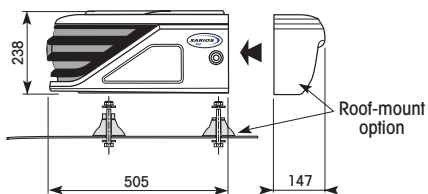
XARIOS 350

for your delivery vehicles



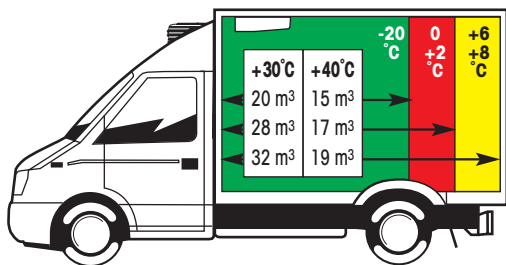
Road and standby version condenser

Weight: 84 kg



Roof-mount evaporator MXS 1100

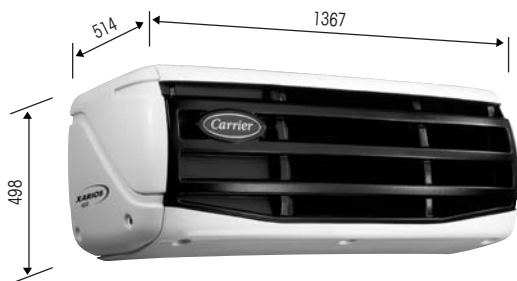
Weight: 29 kg



Certificate no.	M628
Road compressor	TM15 (2400 rpm)
Evaporator	MXS 1100
Refrigerant	R404A
Airflow (AMCA 21085)	1500 m ³ /h
Capacity at -20/+30°C	1900 W
Capacity at 0/+30°C	3300 W
Operation	<ul style="list-style-type: none"> • Road and standby
Standby voltage	<ul style="list-style-type: none"> • 400/3/50 Hz • 230/1/50 Hz
Road compressor	Consult our kit catalogue
Standby compressor	TM15 / 147 cm ³
Defrost	Automatic or manual Defrost interval selection possible (1, 2, 3, 4, 5 or 6 hours)
Standard equipment (S model)	<ul style="list-style-type: none"> • Xarios microprocessor control • Standby compressor hourmeter • Liquid injection for compressor reliability
Factory options	<ul style="list-style-type: none"> • Hot gas heating system (T model) • Operation on 12 or 24 VDC vehicles
Accessories or options	<ul style="list-style-type: none"> • Condenser roof-mount accessories • Condenser roof cut mounting kit • Road compressor mounting kit • 2,5 m or 6 m extension of evaporator connections • Drain water heater • Door switch
Variants	<ul style="list-style-type: none"> • Multi temperature unit

XARIOS 500

for your delivery vehicles



Road and standby version condenser

Weight: 144 kg

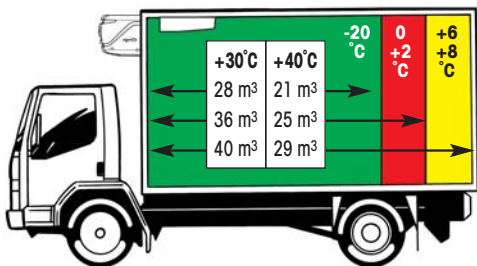
Road version condenser

Weight: 80 kg



Roof-mount evaporator MXL 1100

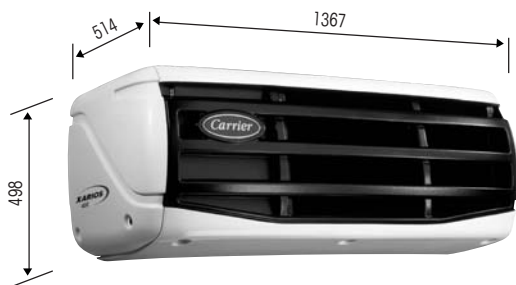
Weight: 29 kg



Certificate no.	M581-A
Road compressor	TM16 (2400 rpm)
Evaporator	MXL 1100
Refrigerant	R404A
Airflow (AMCA 21085)	1500 m ³ /h
Capacity at -20/+30°C	2650 W
Capacity at 0/+30°C	4750 W
Operation	<ul style="list-style-type: none"> • Road • Road and standby
Standby voltage	<ul style="list-style-type: none"> • 400/3/50 Hz • 230/3/60 Hz • 230/3/50 Hz • 400/3/60 Hz
Road compressor	Consult our kit catalogue
Standby compressor	06VM306 / 113 cm ³
Defrost	Automatic or manual Defrost interval selection possible (1, 2, 3, 4, 5 or 6 hours)
Standard equipment (S model)	<ul style="list-style-type: none"> • Xarios microprocessor control • Standby / road compressor hourmeter • Liquid injection for compressor reliability
Factory options	<ul style="list-style-type: none"> • Hot gas heating system (T model) • Operation on 12 or 24 VDC vehicles
Accessories or options	<ul style="list-style-type: none"> • Road compressor mounting kit • Water drain heaters • Door switch • 2,5 m or 6 m extension of evaporator connections

XARIOS 600

for your delivery vehicles



Road and standby version condenser

Weight: 147 kg

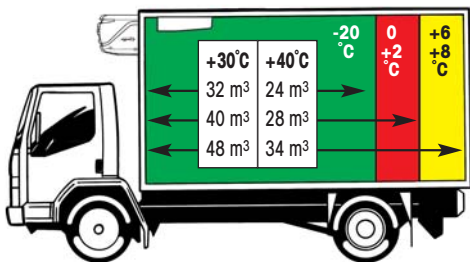
Road version condenser

Weight: 83 kg



Roof-mount evaporator MXL 1550

Weight: 42 kg



Certificate no.	M589-A, M589-C
Road compressor	TM16 (2400 rpm)
Evaporator	MXL 1550
Refrigerant	R404A
Airflow (AMCA 21085)	2100 m ³ /h
Capacity at -20/+30°C	3030 W
Capacity at 0/+30°C	5700 W

Operation	<ul style="list-style-type: none"> • Road • Road and standby
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Standby voltage	<ul style="list-style-type: none"> • 400/3/50 Hz • 230/3/60 Hz • 230/3/50 Hz • 400/3/60 Hz
------------------------	--

Road compressor	Consult our kit catalogue
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Standby compressor	06VM307 / 129 cm ³ 06VR41 / 188 cm ³ *
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Defrost	Automatic or manual Defrost interval selection possible (1, 2, 3, 4, 5 or 6 hours)
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Standard equipment (T model)	<ul style="list-style-type: none"> • Xarios microprocessor control • Standby / road compressor hourmeter • Liquid injection for compressor reliability • Hot gas heating system
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Factory options	<ul style="list-style-type: none"> • Operation on 12 or 24 VDC vehicles
------------------------	--

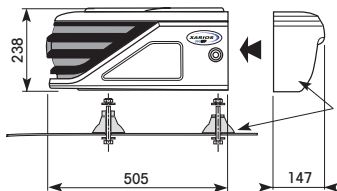
Accessories or options	<ul style="list-style-type: none"> • Road compressor mounting kit • Water drain heaters • Door switch • 2,5 m or 6 m extension of evaporator connections
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Variants	<ul style="list-style-type: none"> • Multi temperature unit
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*High standby capacity version

XARIOS 350 Mt°

for your delivery vehicles



Roof-mount option



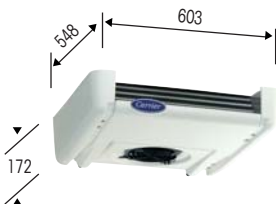
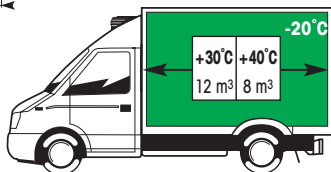
Road and standby version condenser

Weight: 87 kg

Road version condenser

Weight: 43 kg

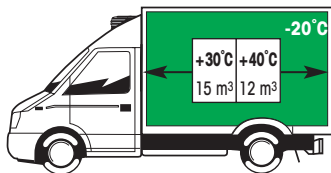
Urban distribution



Roof-mount evaporator MXS 600

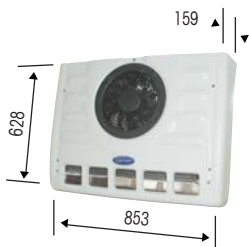
Weight: 15 kg

Very few door openings



Roof-mount evaporator MXS 850

Weight: 19 kg



Vertical evaporator MXV 850

Weight: 17 kg



Certificate no.	M526 add1		
Road compressor	TM15 (2400 rpm)		
Refrigerant	R404A		
Capacity at -20/+30°C	1820 W		
Evaporator	MXS 600*	MXS 850	MXV 850
Airflow (AMCA 21085)	650 m ³ /h	840 m ³ /h	770 m ³ /h
Capacity at -20/+30°C	1285 W	1610 W	1655 W
Capacity at 0/+30°C	2290 W	2850 W	2730 W

Operation

- Road
- Road and standby

Standby voltage

- 230/1/50 Hz
- 400/3/50 Hz

Road compressor Consult our kit catalogue

Standby compressor TM15 / 147 cm³

Defrost Automatic or manual
Defrost interval selection possible
(1, 2, 3, 4, 5 or 6 hours)

Standard equipment (T model)

- Xarios microprocessor control
- Mode automatic or Priority (APi Control Logic®)
- Standby / road compressor hourmeter
- Hot gas heating
- Liquid injection for compressor reliability
- Operation on 12 VDC vehicles

Accessories or options

- Road compressor mounting kit
- Extension of evaporator connections, 2, 4, or 6 m
- Condenser roof-mount accessories
- Condenser roof-cut mounting kit
- Water drain heaters

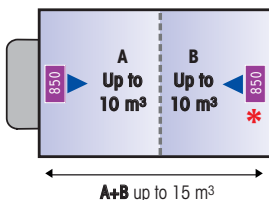
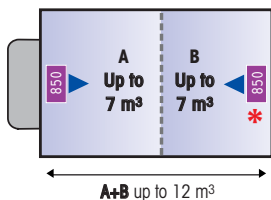
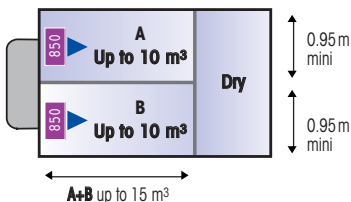
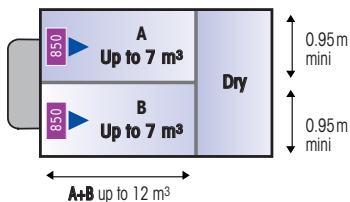
*Not recommended for deep frozen applications. Prefer the MXV 850 and MXS 850 for such applications.

XARIOS 350 M^t°

Configurations MXS 850 + MXS 850

Urban distribution

Very few door openings



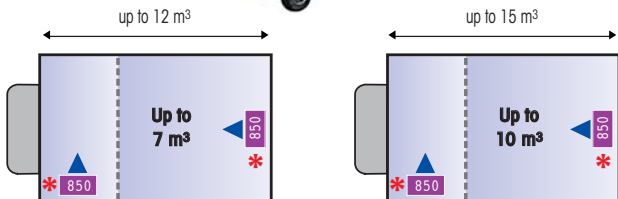
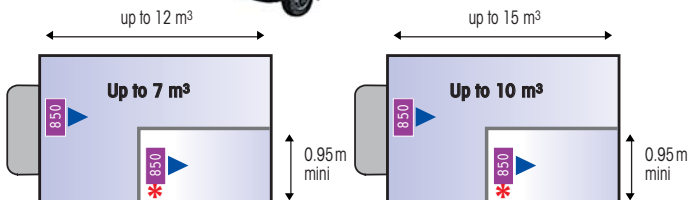
Temperatures in compartments are completely reversible: from -20°C to + 10°C.

* Extension kit

Configurations MXS 850 + MXS 850

Urban distribution

Very few door openings



Volumes are given for +30°C ambient temperature.
For other configurations please consult us.

* Extension kit

XARIOS 350 M^t°

Configurations MXS 600** + MXS 850

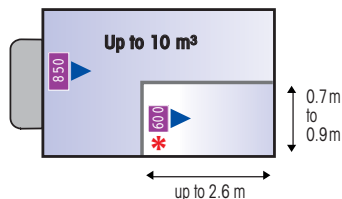
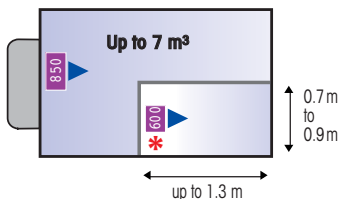
Urban distribution

Very few door openings



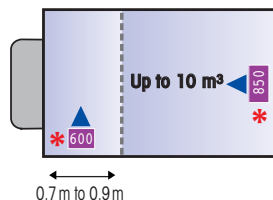
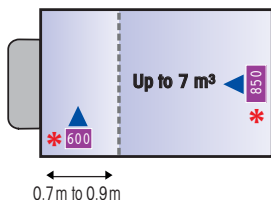
up to 12 m³

up to 15 m³



up to 12 m³

up to 15 m³



**Not recommended for deep frozen applications. Prefer the MXV 850 and MXS 850 for such applications.

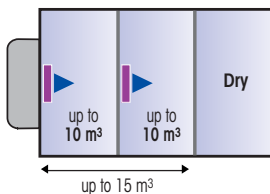
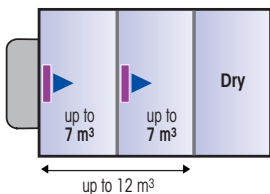
Temperatures in compartments are completely reversible: from -20°C to +10°C.

* Extension kit

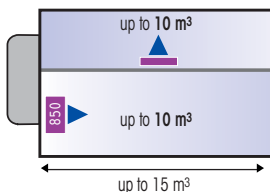
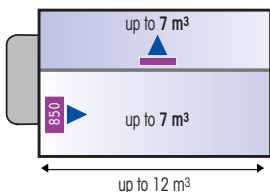
Urban distribution

Very few door openings

Configurations MXV 850 + MXV 850



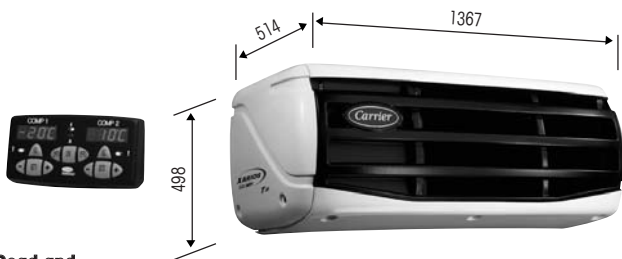
Configurations MXS 850 + MXV 850



Volumes are given for +30°C ambient temperature.
For other configurations please consult us.

XARIOS 600 Mt°

for your delivery vehicles



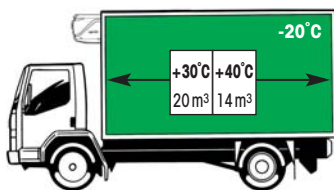
Road and standby version condenser

Weight: 152 kg

Road version condenser

Weight: 88 kg

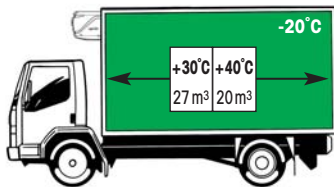
Urban distribution



Roof-mount evaporator MXS 600

Weight: 15 kg

Very few door openings



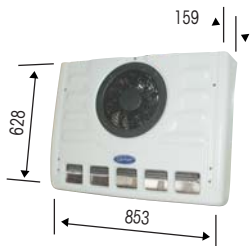
Roof-mount evaporator MXS 850

Weight: 19 kg



Roof-mount evaporator MXL 1100

Weight: 29 kg



Vertical evaporator MXV 850

Weight: 17 kg



Certificate no.	M585			
Road compressor	TM16 (2400 rpm)			
Refrigerant	R404A			
Capacity at -20 / +30°C	3090 W			
Evaporator	MXS 600*	MXV 850	MXS 850	MXL 1100
Airflow (AMCA 21085)	645 m ³ /h	770 m ³ /h	840 m ³ /h	1500 m ³ /h
Capacity at -20 / +30°C	1300 W	2000 W	1900 W	2545 W
Capacity at 0 / +30°C	2620 W	3435 W	3480 W	4505 W

Operation	<ul style="list-style-type: none"> • Road • Road and standby
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Standby voltage	<ul style="list-style-type: none"> • 400/3/50 Hz
------------------------	---

Road compressor	Consult our kit catalogue
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Standby compressor	06VM307 / 129 cm ³
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Defrost	Automatic or manual Defrost interval selection possible (1, 2, 3, 4, 5 or 6 hours)
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Standard equipment (T model)	<ul style="list-style-type: none"> • Xarios microprocessor control • Mode automatic or Priority (APi Control Logic®) • Standby / road compressor hourmeter • Hot gas heating • Liquid injection for compressor reliability
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Factory options	<ul style="list-style-type: none"> • Operation on 12 or 24 VDC vehicles
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Accessories or options	<ul style="list-style-type: none"> • Road compressor mounting kit • Extension of evaporator connections, 2, 4, or 6 m • Water drain heater
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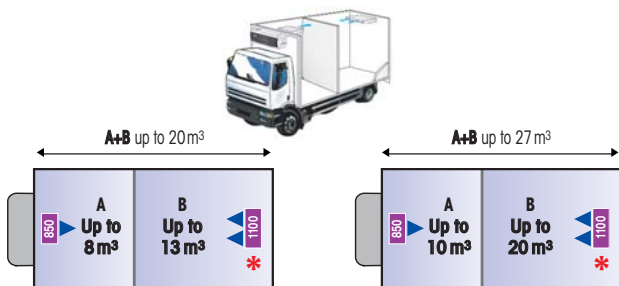
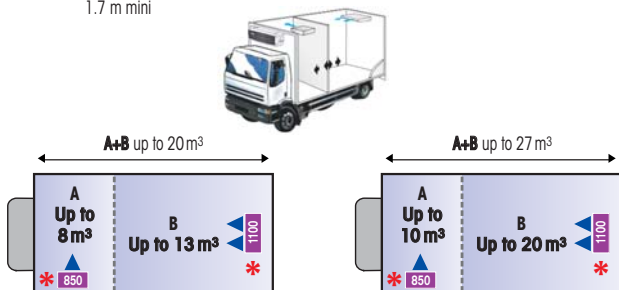
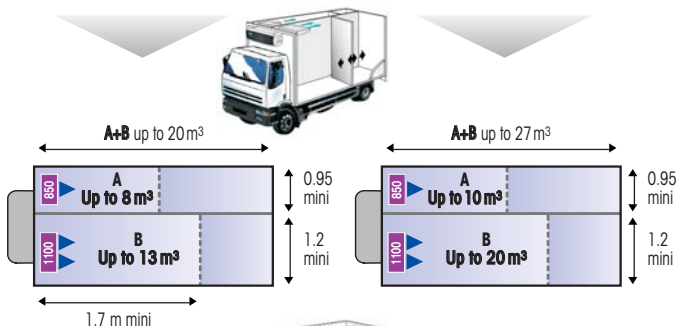
*Not recommended for deep frozen applications. Prefer the MXV 850 and MXS 850 for such applications.

XARIOS 600 M^t°

Configurations MXS 850 + MXL 1100

Urban distribution

Very few door openings



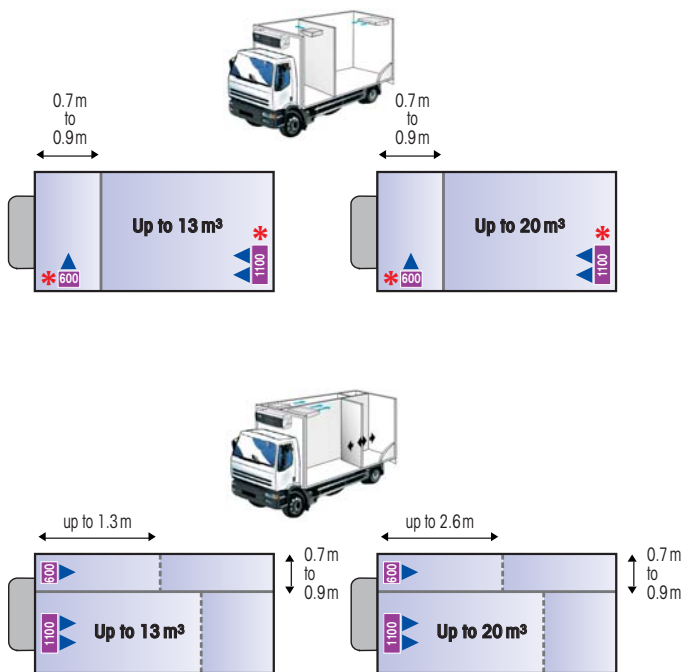
Temperatures in compartments are completely reversible: from -20°C to + 10°C.

* Extension kit

Configurations MXS 600** + MXL 1100

Urban distribution

Very few door openings



**Not recommended for deep frozen applications. Prefer the MXV 850 and MXS 850 for such applications.

Volumes are given for +30°C ambient temperature.

For other configurations please consult us.

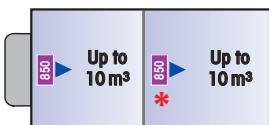
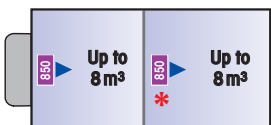
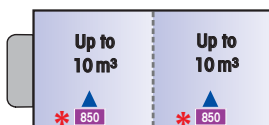
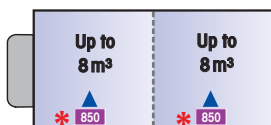
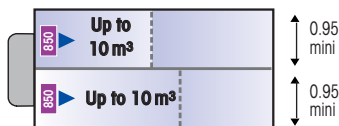
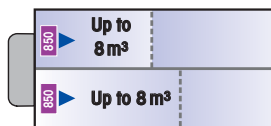
* Extension kit

XARIOS 600 M^t°

Configurations MXS 850 + MXS 850

Urban distribution

Very few door openings



Temperatures in compartments are completely reversible: from -20°C to + 10°C.

* *Extension kit*

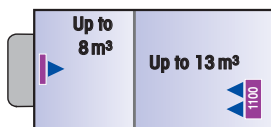
Configurations MXV 850 + MXL 1100

Urban distribution

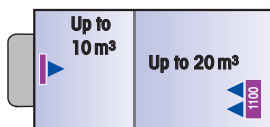
Very few door openings



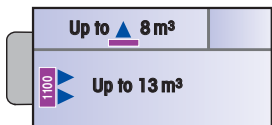
Up to 20 m³



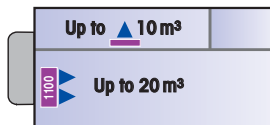
Up to 27 m³



Up to 20 m³



Up to 27 m³

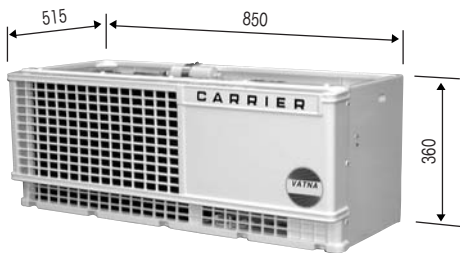


Volumes are given for +30°C ambient temperature.
For other configurations please consult us.

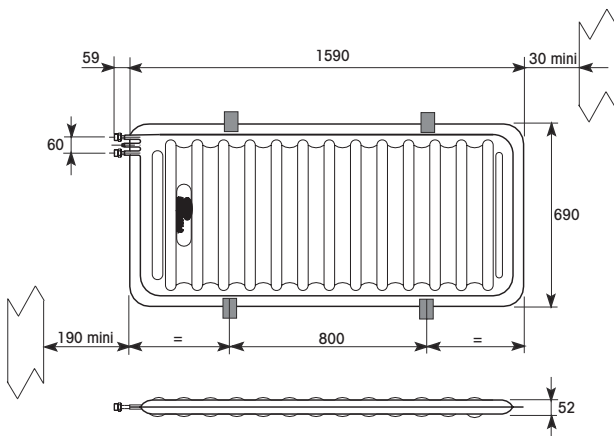
VATNA 150 H

for your delivery vehicles

VATNA 150 H

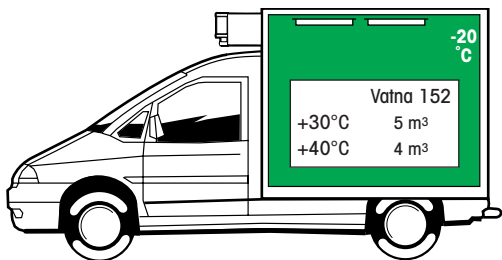


Weight: 90 kg



Weight: 81 kg

Thickness: 52 mm



CAPACITY - Ambient temperature +30°C

REFRIGERANT R404A

VATNA 152 - 2 plates

Certificate no. BX RE 988 (04/10/02)

KMs 6,3 W/°C

Accumulated capacity 22300 kJ

MOTOCOMPRESSOR

Type CT 159 D

Displacement 105 cm³

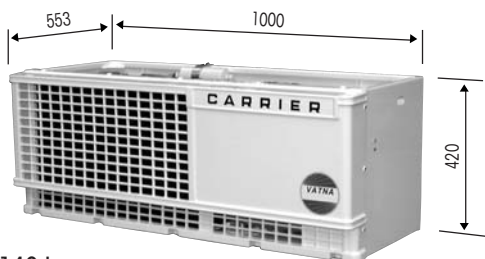
STANDBY VOLTAGE 400/3/50 Hz

**ACCESSORIES
OR OPTIONS**

- Standby cable

VATNA 200 H - B

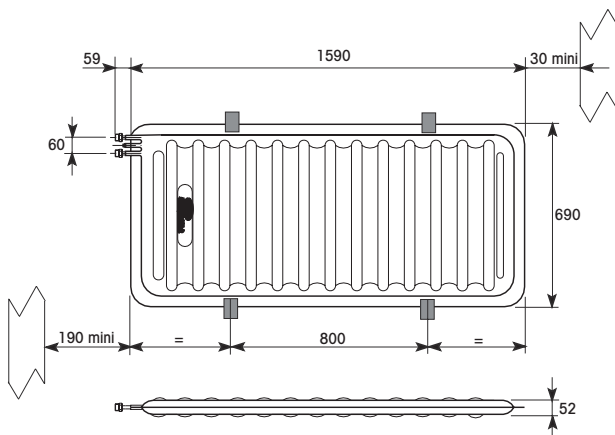
for your delivery vehicles



Weight: 140 kg



Weight: 145 kg



Weight: 81 kg

Thickness: 52 mm



CAPACITY - Ambient temperature + 30°C

REFRIGERANT R404A

VATNA 203 - 3 plates

Certificate no. BX RE1037 (14/04/05)

KMs 7,2 W/°C

Accumulated capacity 33500 kJ

VATNA 204 - 4 plates

Certificate no. BX RE1034 (16/11/04)

KMs 8,6 W/°C

Accumulated capacity 44700 kJ

MOTOCOMPRESSOR

Type CT 215 D

Displacement 167 cm³

STANDBY VOLTAGE 400/3/50 Hz

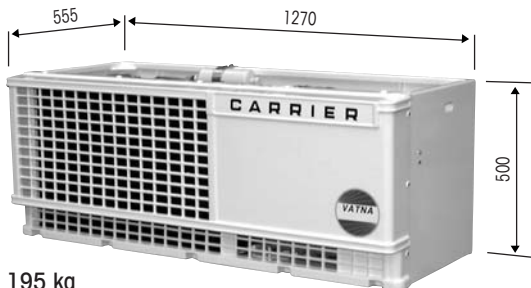
ACCESSORIES OR OPTIONS

- Standby cable

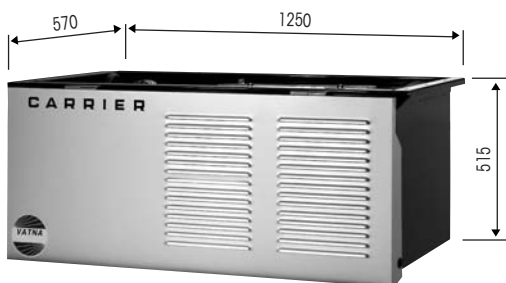
VATNA 300 H - B

for your delivery vehicles

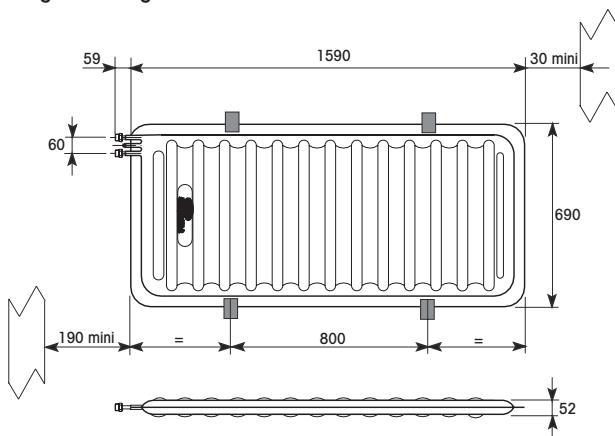
VATNA 300 H - B



Weight: 195 kg

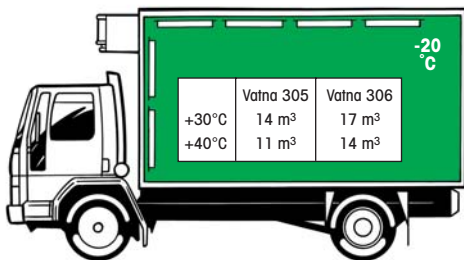


Weight: 185 kg



Weight: 81 kg

Thickness: 52 mm



CAPACITY - Ambient temperature +30°C

REFRIGERANT R404A

VATNA 305 - 5 plates

Certificate no. BX RE 985
(26/09/02)

KMs 10,9 W/°C

Accumulated capacity 55800 kJ

VATNA 306 - 6 plates

Certificate no. BX RE 1028 Cor.1
(19/10/04)

KMs 11,8 W/°C

Accumulated capacity 67000 kJ

MOTOCOMPRESSOR

Type CT 318 D

Displacement 208 cm³

STANDBY VOLTAGE 400/3/50 Hz

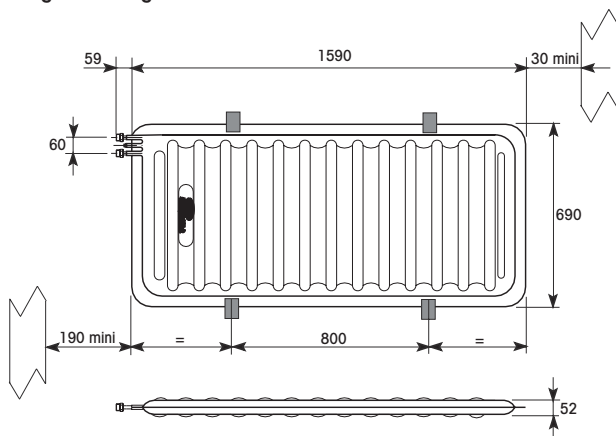
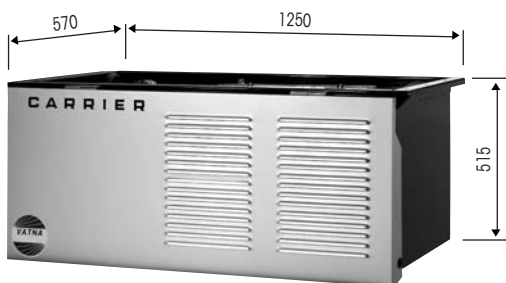
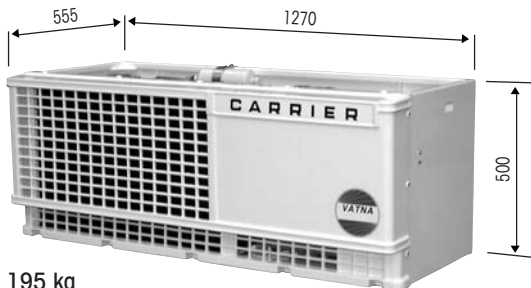
ACCESSORIES OR OPTIONS

- Standby cable

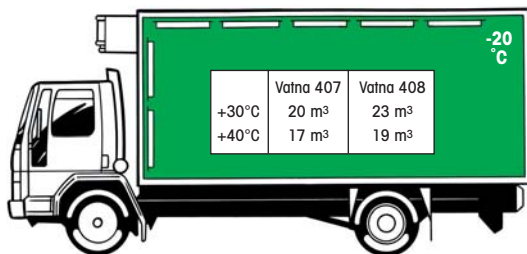
VATNA 400 H - B

for your delivery vehicles

VATNA 400 H - B



Weight: 81 kg
Thickness: 52 mm



CAPACITY - Ambient temperature +30°C

REFRIGERANT R404A

VATNA 407 - 7 plates

Certificate no. BX RE 1026 Cor.1
(13/08/04)

KMs 14,5 W/°C

Accumulated capacity 78200 kJ

VATNA 408 - 8 plates

Certificate no. BX RE 1025
(12/08/04)

KMs 17,8 W/°C

Accumulated capacity 89400 kJ

MOTOCOMPRESSOR

Type CT 423 D

Displacement 258 cm³

STANDBY VOLTAGE 400/3/50 Hz

ACCESSORIES OR OPTIONS

- Standby cable



Our company is constantly seeking to improve the quality of its products and, therefore, reserves the right to modify its products without prior notice.



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