

COMPRESSORS *LINE*

Asia Pacific Catalogue



embraco
Nidec

refrigerationclub.com



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01 We are **Nidec** Global Appliance



A global partner for home and commercial refrigeration industries

With over 10,000 employees across 9 countries, Nidec Global Appliance manufactures and commercializes products for domestic and commercial applications, including refrigeration solutions and motors for washing machines, dryers and dishwashers. It is a business platform, that is part of Nidec Corporation Japan, a global leader in motors for a wide range of industries.

One of the business segments includes Embraco compressors and condensing units for refrigeration equipment. Since 1971, Embraco has been a global provider of refrigeration technology for the complete residential and commercial cold chain, counting on a broad, efficient and competitive portfolio for household, food service, food retail, merchandisers and medical applications.



Home Appliances

Products for residential freezers, refrigerators and mini-fridges.

Commercial Appliances

Compressors and cooling solutions for commercial applications, such as bottle coolers, chest freezers, reach-ins, ice machines, medical refrigerators etc.

Aftermarket

Parts distribution, replacement and retail focused on retail owners, installers and contractors.

Find out our digital tools:

PSS - Product Selector Software:

Choose the best solution for your business at: products.embraco.com/en-BR/

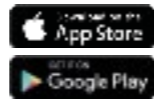
Embraco Toolbox:

7 options to facilitate your routine, such as catalog, cross reference and where to buy.

Embraco website in 11 languages:

www.embraco.com

DIGITAL TOOLS



Available in all countries and in more than 10 languages, the Embraco Toolbox App has 7 functionalities which help refrigeration professionals on their daily routine. Download the App now for Android or iOS systems

FIND INSIDE:

- CROSS-REFERENCE
- PRODUCT CATALOGUE
- DISTRIBUTOR LOCATOR
- UNIT CONVERTER
- REFRIGERANT SLIDER
- REFRIGERATION CLUB
- TROUBLESHOOTING



PSS

PRODUCT SOFTWARE SELECTOR

Choose the best solution for your cooling system at Embraco's official portfolio platform. Access: products.embraco.com

Access: products.embraco.com



REFRIGERATION CLUB

Exclusive content for refrigeration professionals in a global channel. Stay up to date and join us at: www.refrigerationclub.com

02 OUR PRODUCTS

Compressor families and their main applications

FIXED SPEED COMPRESSOR



EM: Bottle coolers, ice cream freezers, household replacement, water coolers and vending machines. Up to 1/2 HP.



EG: Household replacement and light commercial applications, horizontal freezers, reach ins, vending machines. Up to 1/3+ HP.



F: Light commercial applications, horizontal freezers, reach ins, vending machines. Up to 1/2 HP.



EH: Professional kitchens, bottle coolers, under counters, professional reach ins. 1/2 HP to 3/4 HP.



NE: Frozen food islands, professional kitchen upright coolers and freezers, display cases, ultra low temperature freezers. 1/2 to 1 HP.



NJ: Air curtain reach ins, ice machines, cold rooms, blast chillers. 1 to 2 HP.



NT: Professional kitchens upright coolers and freezers, air curtain reach ins, beer dispensers, ice machines, cold room, ultra low temperature freezers. 3/4 to 1 1/2 HP.

VARIABLE SPEED COMPRESSORS



VEM/VEH: Refrigerators and freezers, wine cooler, beverage coolers, chest freezer, medical cooler. Up to 1 HP.



VNE: Reach ins, medical and general professional kitchens. 1/2 to 1 HP.



VEG: Refrigerators and freezers, wine cooler, beverage coolers, chest freezer, medical cooler. Up to 1/3+ HP.



VES: Refrigerators and freezers, wine cooler, beverage coolers, chest freezer, medical cooler. Up to 1/3+ HP.



FMX: Refrigerators and freezers, wine cooler, beverage coolers, chest freezer, medical cooler. Up to 1/4 HP.



FMF: Upright reach ins, beer dispenser, frozen food islands, ultra low temperature freezers. Up to 1 HP.

BRAZIL LINE

EM

EMIS70HHR

COMPRESSOR FAMILY
EM

PRODUCT GENERATION

- Standard Efficiency
- I - 1ª Generation
- T - 2ª Generation
- U - 3ª Generation
- Y - 4ª Generation
- Z - 5ª Generation
- X - 6ª Generation

MECHANICAL KIT

- S - Standard mechanical kit
- Not standard

COMPRESSOR CAPACITY

In Btu/h – 60Hz – ASHRAE
Checkpoint divided by 10

REFRIGERANT CODE

- Blends
- C - R600a
- H - R134a
- U - R290
- L - R1234yf

EFFICIENCY LEVEL

- N - Standard efficiency (LBP)
- J - Intermediate efficiency (LBP)
- E - Efficiency improved 1ª generation (LBP)
- S - Efficiency improved 2ª generation (LBP)
- H - Standard efficiency (L/M/HBP)
- D - Standard efficiency (HBP)
- B - Standard efficiency (M/HBP)
- L - Efficiency improved 2ª generation (LBP)

ELECTRICAL COMPONENT

- | | |
|---|-----|
| P - PTC + cap. func. (optional) | LST |
| R Relay | |
| C - PTC + cap. func. (mandatory) | |

- | | |
|---|-----|
| X - Relay + cap. part. (mandatory) | HST |
|---|-----|

F

FFUS130HAX

COMPRESSOR FAMILY
F/EG

ELECTRICAL SYSTEM

- F** - Relay/Overload protector
Start capacitor (optional)

PRODUCT GENERATION

- Standard efficiency
- I - Improved efficiency
1st generation
- U - Improved efficiency
2nd generation (for
commercial refrigeration)

STANDARD PLATFORM

COMPRESSOR CAPACITY

Approximate capacity in Btu/h – 60 Hz
ASHRAE - Checkpoint divided by 10
(for compressor FG, FFU and FFC)

REFRIGERANT CODE

- H - R134a
- U - R290
- L - R1234yf

APPLICATION

- A - L/MBP
- B - L/M/HBP

STARTING TORQUE

- K - LST (Low starting torque)
- X - HST (High starting torque)

BRAZIL VARIABLE SPEED LINE

VEGT8HB

TECNOLOGY
VARIABLE
SPEED
COMPRESSORS

PRODUCT FAMILY
VEM/VEH

PRODUCT GENERATION

- Y - 1ª Generation
- T - 2ª Generation
- Z - 3ª Generation
- X - 4ª Generation
- C - 5ª Generation
- D - 6ª Generation

DISPLACEMENT

cm³

REFRIGERANT CODE

- H - R134a
- C - R600a
- U - R200
- L - 1234yf

EVAPORATION RANGE

- B - Extended evaporation range until 23 F (L/MBP)
- Standard evaporation range

FMFT413U

VARIABLE SPEED

F FAMILY

EFFICIENCY LEVEL

- T - Standard efficiency
- D - Top efficiency

APPLICATION AND TORQUE

- 1 - LBP / LST
- 2 - LBP / HST
- 3 - L-MBP / LST
- 4 - L-MBP / HST
- 5 - M-HBP / LST
- 6 - M-HBP / HST

DISPLACEMENT

cm³

REFRIGERANT CODE

- U - R290
- Z - R134a
- L - R1234yf
- GK - R404A

CHINA LINE

VEM / VES / FMX

VESA7U

VARIABLE SPEED FAMILY
VES/VEM/FMX

PRODUCT GENERATION
Y - 1st Generation
T - 2nd Generation
Z - 3rd Generation
X - 4th Generation
A - 5th Generation
C - 6th Generation
D - 7th Efficiency
F - 8th Generation

DISPLACEMENT
cm³

REFRIGERANT CODE
U - R290
Z - R134a
L - R1234yf
C - R600a

EM/EH

EMY3130Z

COMPRESSOR FAMILY
EM/EH

PRODUCT GENERATION
S - Standard
T - 1 Generation
U - 2 Generation
Y - 3 Generation
Z - 4 Generation
R - 5 Generation

APPLICATION CODE
1. LBP - LST
2. LBP - HST
3. L-MBP - LST
4. L-MBP - HST
5. M-HBP - LST
6. M-HBP - HST
9. M-HBP - HST

CAPACITY
The first digit is the number of zeros that you must attach to the last two digits to obtain the capacity (aprox.) in kcal/h in 50 Hz.
Ex.: 144 = 440 kcal/h em 50 Hz.

REFRIGERANT CODE
UR290
Z R134^a
E R22/R422D
GK R404^A
Y R600

EUROPE LINE

EM / NE / NT / NJ

NTU6224ZV

COMPRESSOR FAMILY
NE / NT / NJ

PRODUCT GENERATION
□ - 1^a Generation
K - 2^a Generation
U - 3^a Generation
X - 4^a Generation
D - Next Generation

APPLICATION CODE
1. LBP - LST
2. LBP - HST
3. L-MBP - LST
4. L-MBP - HST
5. M-HBP - LST
6. M-HBP - HST
9. M-HBP - HST

CAPACITY
The first digit is the number of zeros that you must attach to the last two digits to obtain the capacity (aprox.) in kcal/h in 50 Hz.
Ex.: 144 = 440 kcal/h em 50 Hz.

REFRIGERANT CODE
UR290
Z R134a
E R22/R422D
GK R404A
Y R600a

IPR VALVE – AVAILABLE FOR SOME MODELS
Available for some models

EUROPE VARIABLE SPEED LINE

VNEU217U

TECHNOLOGY
VARIABLE SPEED COMPRESSORS

COMPRESSOR FAMILY
VNE

PRODUCT GENERATION
K - 1^a Generation
U - 2^a Generation

APPLICATION CODE
2 - LBP
4 - L-MBP
6 - M/HBP

DISPLACEMENT
cm³

REFRIGERANT CODE
U - R290
Z - R134a
GK - R404A

VEM / VEH (R29)

VEMT406U

VARIABLE SPEED

PRODUCT FAMILY
VEM/VEH

EFFICIENCY LEVEL
() - Standard
U - 1st generation
T - 2nd generation
X - 3rd generation

APPLICATION AND TORQUE
1 - LBP / LST
2 - LBP / HST
3 - L-MBP / LST
4 - L-MBP / HST
5 - M-HBP / LST
6 - M-HBP / HST

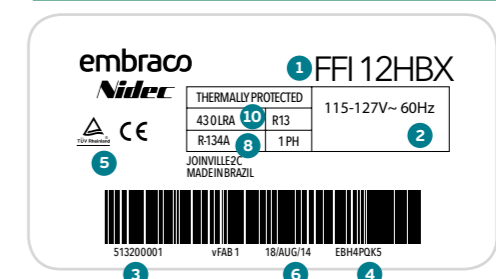
DISPLACEMENT
cm²

APPLICATION AND TORQUE
U - R290
Z - R314a
L - R1234yf
GK - R404A

NE / NT / NJ



EM / EG / F / VEM / VEH / VEG / VNE



LEGEND

- 1 Compressor model
- 2 Voltage
- 3 SKU code (BOM)
- 4 Series number
- 5 Institute approval
- 6 Production Date
- 7 Oil Type and Quantity
- 8 Refrigerant Code
- 9 Annual Consumption (nominal current, when applicable)
- 10 Locked Rotor current (LRA, when applicable)

04 APPLICATION GUIDE

Our products are classified into four main application groups in the light commercial refrigeration: merchandisers, supermarkets, professional kitchens and household refrigeration. Below you will find the portfolio for each application and relevant technical information.

MERCHANDISERS



SUPERMARKETS



PROFESSIONAL KITCHENS

HOUSEHOLD REFRIGERATION

MERCHANDISERS

GLASS DOOR HORIZONTAL FREEZERS



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-30 °C
INTERNAL CABINET TEMPERATURE	-18 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	LBP / LST

COMPRESSORS 50Hz		
Size (Liters)	R-134a (Refrigerant)	R290 (Refrigerant)
200 TO 290	EM160HER	EM2X3113U
300 TO 360	EGAS80HLR / FFUS80HAK	EM2X3117U
380 TO 420	EGAS100HLR / FFUS100HAK	EM2X3121U
430 TO 500	FFU130HAX / FFUS130HAX	EM2X3125U
500 TO 600	FFU160HAX	EMX3134U

GLASS DOOR UPRIGHT FREEZER



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-30 °C
INTERNAL CABINET TEMPERATURE	-18 °C
AMBIENT TEMPERATURE	35 °C
RELATIVE HUMIDITY	40-75 %
APPLICATION	LBP / HST

COMPRESSOR 50Hz		
Size (Liters)	R290 (Refrigerant)	R404A (Refrigerant)
200 TO 290	NEU2140U	NEU2140GK
300 TO 400	EHU2155U	NEU2155GK
400 TO 500	NEU2168U	NEU2168GK
500 TO 600	NEU2178U	NEU2178GK

UPRIGHT AIR CURTAIN COOLER



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-10 °C
INTERNAL CABINET TEMPERATURE	-5 °C
AMBIENT TEMPERATURE	25 °C
RELATIVE HUMIDITY	40-75 %
APPLICATION	MBP / LST

COMPRESSORS 50Hz		
Size (Meters)	R-134a (Refrigerant)	R404A (Refrigerant)
1,5	NT6217Z	NEU6215GK
2,25	-	NT6222GK / NT6220GK

MEAT DISPLAY CASE



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-10 °C
INTERNAL CABINET TEMPERATURE	0 °C to 7 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	M/HBP

COMPRESSOR 50Hz		
Size (Liters)	R-134a (Refrigerant)	R404A (Refrigerant)
1	FFI12HBX	-
2	FFU160HAX	NEU6215GK
3	NEU6214Z / NT6215Z / NE6217Z	-
4	-	NT6222GK / NT6220GK

BAKERY DISPLAY CASE



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-10 °C to -5 °C
INTERNAL CABINET TEMPERATURE	5 °C to 12 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	MBP / LST

COMPRESSOR 50Hz	
Size (Liters)	R-134a (Refrigerant)
1	EMI60HER
2	FFUS100HAK
3	FFUS130HAX / FFU130HAK

UPRIGHT GLASS DOOR BOTTLE COOLER



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-10 °C
INTERNAL CABINET TEMPERATURE	5 °C
AMBIENT TEMPERATURE	40,5 °C
RELATIVE HUMIDITY	40-75 %
APPLICATION	MBP / LST

COMPRESSOR 50Hz		
Size (Liters)	R-134a (Refrigerant)	R-290
100	EMI60HER	EM2X3113U
300	FFUS70HAK	EM2X3117U
400	FFUS100HAK	EM2X3121U
500 TO 600	FFUS130HAX	EM2X3125U
1000	FFU160HAX	EMX3134U

VENDING MACHINES



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-15 °C
INTERNAL CABINET TEMPERATURE	-4 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-75 %
APPLICATION	L / MBP / LST

COMPRESSOR 50Hz		
Size (Liters)	R-134a (Refrigerant)	R-290
200	EMI60HER	EM2X3113U
300	FFUS70HAK	EM2X3117U
400 TO 500	FFI10HBK	EM2X3121U
500 TO 600	FFI12HBK	EM2X3125U

SUPERMARKETS

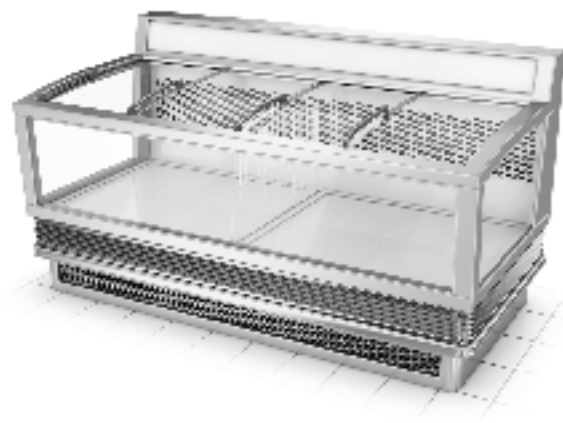
REACH INS WITH DOORS



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-10 °C to -5 °C
INTERNAL CABINET TEMPERATURE	0 °C to 10 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-75 %
APPLICATION	MBP / LST

COMPRESSOR 50Hz		
Size (Liters)	R-134a (Refrigerant)	R290
350 TO 500	-	EM2X3125U
500 TO 700	NEU6212GK	EHU6214U
700 TO 900	NEU6215GK	NEU6217U
900 TO 1000	NT6222GK	NT6222U

FROZEN FOOD ISLANDS



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-30 °C
INTERNAL CABINET TEMPERATURE	-20 °C to -15 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	LBP / LST

COMPRESSOR 50Hz			
Length (m)	R404A (Refrigerant)	R290 (Refrigerant)	VCC R290
1.5m	NEU2155GK	EHU2155U	FMFT411U
1.8m	NEU2168GK	EHU2155U	FMFT413U
2.1m	NEU2168GK	NEU2168U	FMFT413U
2.5m	NEU2178GK	NEU2178U	FMFT413U

PROFESSIONAL KITCHEN

UNDERCOUNTER AND PREP TABLE



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-15 to -5 °C
INTERNAL CABINET TEMPERATURE	0 to 10 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	MBP

COMPRESSOR 50Hz		
Size (Liters)	R-134a (Refrigerant)	R290
<300	FFU70HAK	EM2X3113U
300 - 500	FFU570HAK	EM2X3117U
500	FFU5100HAK	EM2X3121U

SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-30 °C
INTERNAL CABINET TEMPERATURE	-18 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	LBP

COMPRESSOR 50Hz			
Size (Liters)	R-134a (Refrigerant)	R404A (Refrigerant)	R290 (Refrigerant)
<120	FFU5100HAK	-	EM2X3113U
120 - 175	FFI12HBX	-	EM2X3117U
175 - 275	FFU160HAX	-	EM2X3121U
275 - 350	NEU2140Z	NEU2140GK	-
350 - 500	-	NEU2155GK / NEK2168GK	-
500 - 700	-	NEU2178GK / NT2178GK	-

REACH IN FREEZER
AND REFRIGERATOR



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-30 °C
INTERNAL CABINET TEMPERATURE	-18 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	LBP

COMPRESSOR 50Hz			
Size (Liters)	R-134a (Refrigerant)	R404A (Refrigerant)	R290 (Refrigerant)
<350	FFUS100HAK		EM2X3121U
350 - 550	FFI12HBX		EM2X3125U
500 - 650	FFU160HAX		EMX3134U
650 - 900		NEU2140GK	EMX3140U
900 - 1200		NEU2155GK / NEU2168GK	EHU2155U / NEU2168U
1200 - 1500		NEU2178GK	NEU2178U
1500		NT2180GK	NT2180U
		NT2212GK	NT2210U

SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-15 to -5 °C
INTERNAL CABINET TEMPERATURE	0 to 10 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	MBP

COMPRESSOR 50Hz			
Size (Liters)	R-134a (Refrigerant)	R404A (Refrigerant)	R290
<350	FFU70HAK	-	EM2X3113U
350 - 550	FFUS80HAK	-	EM2X3117U
500 - 650	FFUS100HAK	-	EM2X3121U
650 - 900	FFI12HBX	-	EM2X3125U
900 - 1200	FFU160HAX	-	EMX3134U
1200 - 1500	NEU6215Z / NEK6214Z / NT6217Z	NEU6215GK	EMX3140U

FAST FREEZER

SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-30 °C
INTERNAL CABINET TEMPERATURE	-18 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
APPLICATION	LBP

COMPRESSOR 60Hz	
Size (Liters)	R404A
10	NEU2178GK & NT2178GK
15	NT2180GK
20	NT2192GK & NJ2192GK
25	NJ2212GK & NJ2212GS

HOUSEHOLD APPLICATIONS

HOUSEHOLD REFRIGERATOR 1 DOOR



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-30 °C
INTERNAL CABINET TEMPERATURE	5 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
FREEZER TEMPERATURE	-18 °C
APPLICATION	LBP / LST

HOUSEHOLD REFRIGERATOR 1 DOOR		
COMPRESSOR 50Hz		
Size (Liters)	R-134a (Refrigerant)	R600a (Refrigerant)
50-100	EMIS30HHR	-
101-200	EMI45HER	EMU40CLP
201-300	EMIG60HER	EMU60CLP
301-350	EMI70HER/EMIS70HHR	EMYe70CLP

HOUSEHOLD REFRIGERATOR 2 DOORS



SYSTEM	CHARACTERISTICS
EVAPORATION TEMPERATURE	-30 °C
INTERNAL CABINET TEMPERATURE	5 °C
AMBIENT TEMPERATURE	32 °C
RELATIVE HUMIDITY	40-70 %
FREEZER TEMPERATURE	-18 °C
APPLICATION	LBP / LST

HOUSEHOLD REFRIGERATOR 2 DOORS		
COMPRESSOR 50Hz		
Size (Liters)	R-134a (Refrigerant)	R600a (Refrigerant)
250 - 310	EMIG60HER	EMU60CLP
311 - 370	EMI70HER/EMI70HHR	EMYe70CLP
371 - 510	EGAS80HLR	EGAS80CLP / EM2U80CLP
511 - 580	FFUS100HAK / EGAS100HLR	EGAS100CLP

05 TECHNICAL INFORMATION

MOTOR TORQUE

LST	LOW STARTING TORQUE Compressor with RSIR-RSCR-PSC electrical motor for systems with capillary tube and with equalized pressures at start up.
HST	HIGH STARTING TORQUE Compressor with CSIR-CSR and 3 phase electrical motor for systems with equalized or not equalized pressures at start up.

APPLICATIONS

		EVAPORATION TEMPERATURE °C	APPLICATIONS
LBP	LOW BACK PRESSURE	From -45/-35 and -10	Household refrigerators, frozen food islands, ice cream freezers
MBP	MEDIUM BACK PRESSURE	Between -15 and 0	Displays cases, reach in coolers, bottle coolers
HBP	HIGH BACK PRESSURE	Between 0 and 15	Refrigerated wine houses, Water coolers, air dehumidifiers

TEST CONDITIONS

TEST CONDITIONS	APPLICATIONS	EVAPORATION TEMPERATURE °C / °F	CONDENSING TEMPERATURE °C / °F	GAS RETURN TEMPERATURE °C / °F	SUBCOOLING K	AMBIENT TEMPERATURE °C / °F
ASHRAE	LBP	-23.3 / 10	54.4 / 130	32.2 / 90	22.2	32.2 / 90
	M/HBP	7.2 / 45	54.4 / 130	35 / 95	8.3	35 / 95
ARI	LBP	-23.3 / -9.94	48.9 / 120.02	4.4 / 39.92	0	35 / 95
	MBP	-6.7 / 19.94	48.9 / 120.02	4.4 / 39.92	0	35 / 95
	HBP	7.2 / 44.96	54.4 / 129.92	18.3 / 64.94	8.3	35 / 95
EN12900	LBP	-35	40	20	40	35
	MBP	-10	45	20	45	35
	HBP	5	50	20	50	35

COOLING TYPE

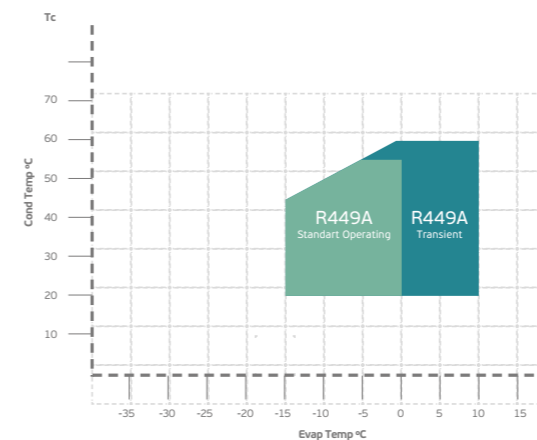
STATIC	Compressor approved for static cooling not requiring a fan motor on the condenser side.
FAN	Compressor approved for fan cooling requiring forced cooling with a fan motor on the condenser side.
STATIC/FAN (S/F)	Compressor approved for static and fan cooling which may or may not apply a fan motor on the condenser side.

BLENDS APPROVED BY EMBRACO REPLACING R12

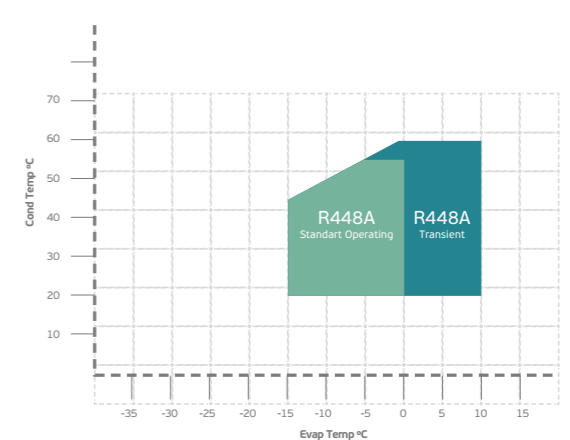
REFRIGERANTS	
ASHRAE	Nome comercial
R-401a	SUVA® MP39
R-401b	SUVA® MP66
R-409b	FORANE® FX56
R-413a	ISCEON 49

Embraco already approved R452A for NEU, NT, NJ compressor series as an alternative refrigerant for both LBP (low back pressure) and MBP (medium back pressure) applications maintaining the original R404A operating envelope. Embraco approves R449A and R448A as an alternative refrigerant for Embraco R404A compressor series NEU, NT, NJ only for MBP application with limited operating envelope as below.

MBP (R449A) - Standard Operating Envelope



MBP (R448A) - Standard Operating Envelope

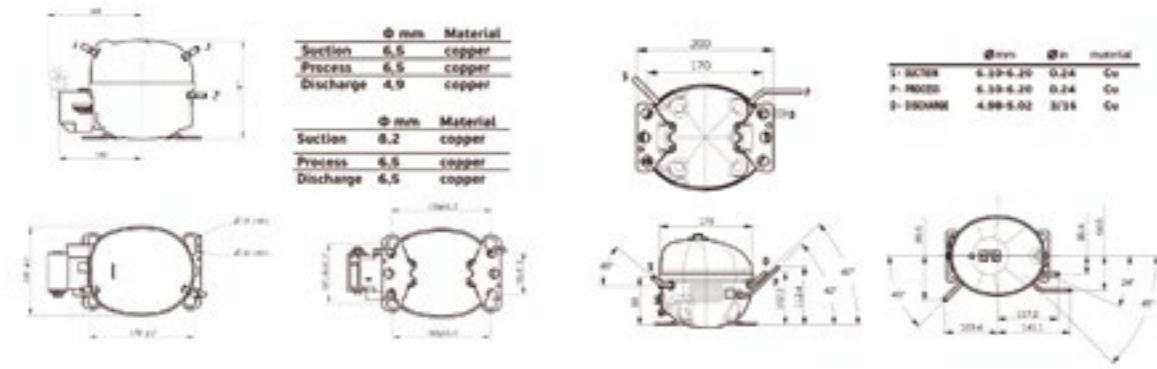


UNITS CONVERSION TABLE

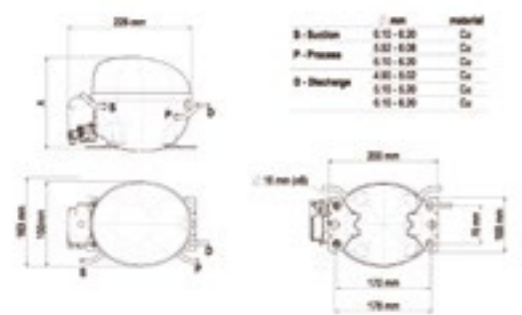
	BTU	W	kcal/h
1 BTU	-	0,293	0,252
1 W	3,412	-	0,86
1 kcal/h	3,966	1,162	-

EXTERNAL VIEWS

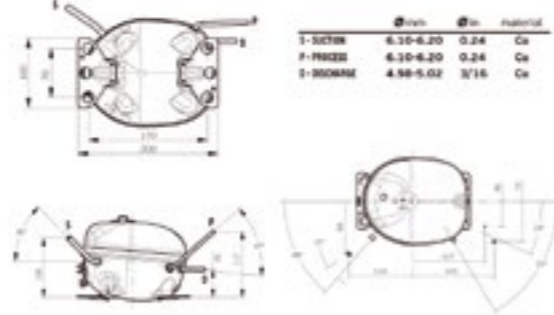
DWG 1 - EM / VEM / VEH SERIES UNIVERSAL BASE PLATE



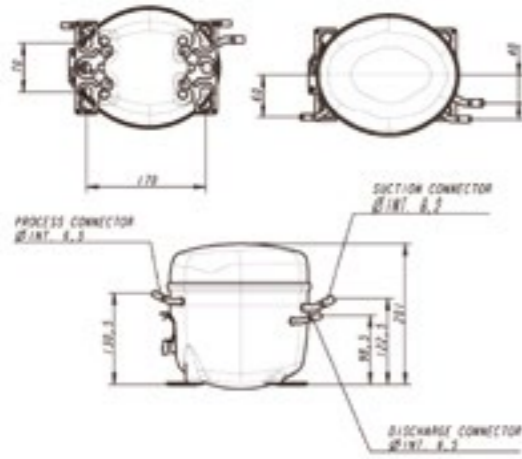
DWG 2 - EM SERIES EUROPEAN BASE PLATE



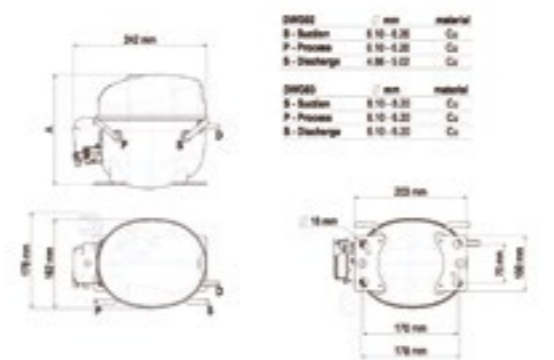
DWG 3 - VES SERIES



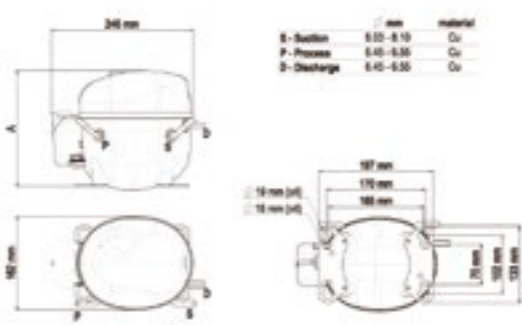
DWG 4 - EG / F / VEG SERIES UNIVERSAL BASE PLATE



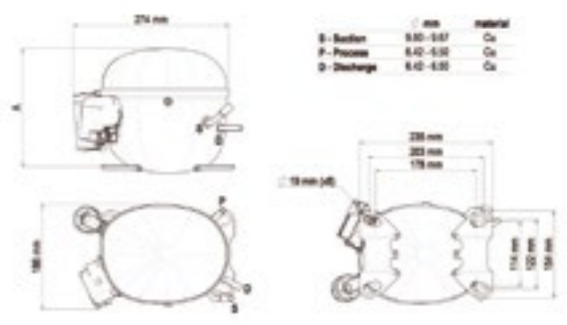
DWG 5 - NB / NE SERIES EUROPEAN BASE PLATE



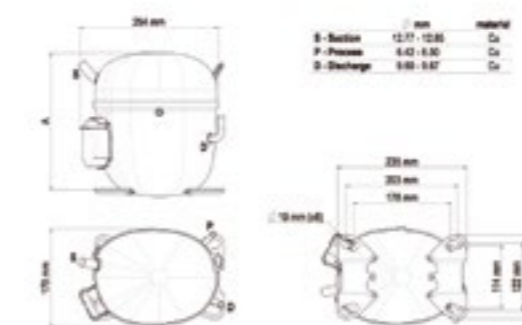
DWG 6 - NE / VNE SERIES UNIVERSAL BASE PLATE



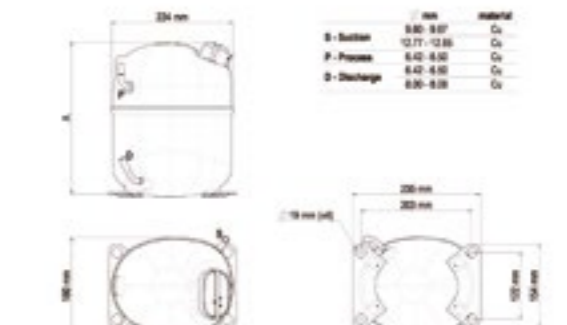
DWG 7 - NT SERIES UNIVERSAL BASE PLATE



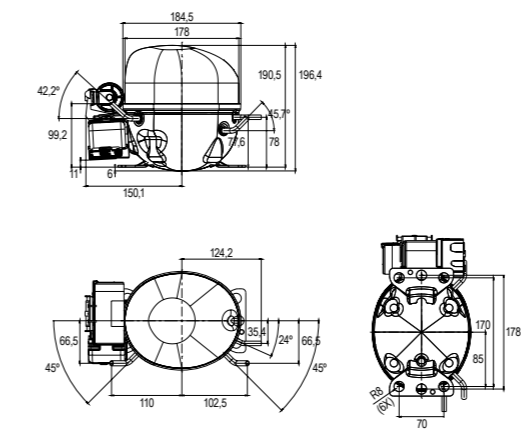
DWG 8 - NTU SERIES UNIVERSAL BASE PLATE



DWG 9 - NJ SERIES UNIVERSAL BASE PLATE



DWG 10 - EH SERIES



If you want to buy only the board, contact technical support.

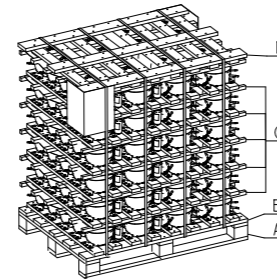
COMPRESSOR PACKAGING

MULTIPLE PACKAGING

This type of package consists of a shipping skid of 835 mm x 1150 mm on which are positioned the elements composing the packaging of various compressor layers, as listed below, secured with straps to the shipping skid

Pallet packages composition

A	SHIPPING SKID	on which the base is positioned
B	BASE	on which the first layer of compressors is positioned
C	SEPARATOR SKID	are positioned between layers, in quantities according to the compressor series
D	TOP SKID	upper element closing of the package



Characteristics of multiple wooden packaging

COMPRESSOR	QUANTITY PER PALLET (ASSEMBLED ELECTRICALS)*	QUANTITY PER CONTAINER (ASSEMBLED ELECTRICALS)*	QUANTITY PER CONTAINER (UNASSEMBLED ELECTRICALS)*	QUANTITY PER PALLET (UNASSEMBLED ELECTRICALS)*
EM	100	2500	2800	120
EG / F	72	1920	2016	80
EH	80	1760	2080	80
NE	72	1800	1800	80
NT**	36	1232	1512	44
NJ**	33	1512	1386	36
VES	120	2880	2880	120
FMX	120	2400	2880	120
VEM/VEH	100	2500	2500	100
VEG/FMF	72	1920	2016	80
VNE	72	1800	1800	80

*The data presented in this table is nominal and might be impacted by fill rate

**Consult the limit of weight for these models

SINGLE PACKAGING

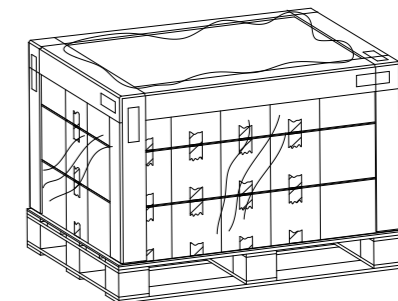
This type of package consists of a carton box and an internal separator to prevent any compressor movement. The electrical components and accessories are included in the package (assembled or attached).

Complete pallet package consists of a shipping skid of 830 mm x 1130 mm on which are placed carton boxes with compressors secured with corner strip and straps. Number of layers depends on compressor families.

Carton box for single package



Single compressor pallet package



Characteristics of complete single package

SERIES	QUANTITY PER PALLET	CODE	PACKAGING TYPE	ELECTRICAL COMPONENTS	NOTE
EM	70	A	5 layers of 14 compressors	ASSEMBLED	
EM	56	J	4 layers of 14 compressors	ASSEMBLED	
NE	56	A	4 layers of 14 compressors	NOT ASSEMBLED / ASSEMBLED	
NE	56	J	4 layers of 14 compressors	ASSEMBLED	
NE	44	F	4 layers of 11 compressors	NOT ASSEMBLED / ASSEMBLED	CSR electrical box included
NT	44	A	4 layers of 11 compressors	NOT ASSEMBLED / ASSEMBLED	
NT	44	F	4 layers of 11 compressors	NOT ASSEMBLED / ASSEMBLED	CSR electrical box included
NJ	33	A	3 layers of 11 compressors	NOT ASSEMBLED	
NJ	33	F	3 layers of 11 compressors	ASSEMBLED	CSR electrical box included

Wooden packaging and pallets are created to comply with recycling regulations and are treated according to standard ISPM No. 15 - Regulation of wood packaging material in international trade. IPPC mark is presented on the wooden palets.

PACKAGE FOR ELECTRICAL COMPONENTS AND ACCESSORIES

Electrical components and accessories if not assembled on compressors are packed separately in carton boxes. A label is applied showing the following data:

Components packing label

1. Components bill of material code (complete of electrical components and accessories)
2. Compressor model
3. Quantity
4. Customer name (optional)
5. List of electrical components and accessories shipped (code/description/quantity)

COMPRESSOR IDENTIFICATION MARKS

Labels are applied on two sides of each package and report the following data:

1. Compressor bill of material
2. Bar code of compressor bill of material (Type 39)
3. Compressor model
4. Voltage & frequency
5. Refrigerant
6. Package quantity (optional)
7. Packaging serial number
8. Bar code of packaging serial number (Type 128)

Compressor identification label for multiple packaging

The diagram shows two sides of a label for multiple packaging. Each side contains the following fields and barcodes:

- Top left: BAR CODE
- Top middle: MATERIAL
- Top right: MATERIAL
- Top far right: BAR CODE
- Middle left: MODEL
- Middle center: VOLTAGE / FREQUENCY 1, VOLTAGE / FREQUENCY 2
- Middle right: REFRIGERANT
- Bottom left: BAR CODE
- Bottom center: BAR CODE QUANTITY, BAR CODE CUSTOMER IC
- Bottom right: BAR CODE
- Bottom far right: BAR CODE CUSTOMER IC
- Bottom left corner: PACKAGING SERIAL NUMBER
- Bottom center: CUSTOMER INTERNAL CODE
- Bottom right corner: CUSTOMER INTERNAL CODE
- Bottom far right: PACKAGING SERIAL NUMBER

Compressor identification label for single packaging

The diagram shows two sides of a label for single packaging. Each side contains the following fields and barcodes:

- Top left: MODEL
- Top right: MADE IN SLOVAKIA
- Middle left: VOLTAGE/FREQUENCY
- Middle right: REFRIGERANT
- Bottom left: MATERIAL
- Bottom right: SEQUENTIAL NUMBER
- Bottom left corner: CUST. CODE:
- Bottom right corner: CUST. CODE:

Red numbers 1 through 8 are placed on the label to indicate the location of specific data points corresponding to the list in the 'COMPRESSOR IDENTIFICATION MARKS' section.

COMPRESSORS CATALOGUE

100 V 50/60 Hz

100V 50/60Hz R134a M/HBP													
Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-20	-15	-10	-5
EM20HHR	BR	2.27	100V/50-60Hz	M/HBP	LST	RSIR-CSIR	13.00	ASHRAEHBP32	60 Hz		-	-	-
EMT45HBP	CN	4.15	100V/50-60Hz	M/HBP	LST	RSIR	14.00	ASHRAEHBP46	50 Hz			246	301
EMT45HBP	CN	4.15	100V/50-60Hz	M/HBP	LST	RSIR	14.00	ASHRAEHBP46	60 Hz			287	362
EMT6170Z	CN	7.96	100V/50-60Hz	HBP	HST	CSCR	-	ASHRAEHBP46	50 Hz		304	389	483
EMT6170Z	CN	7.96	100V/50-60Hz	HBP	HST	CSCR	-	ASHRAEHBP46	60 Hz		-	-	-
NEK6170Z	SK	8.39	100V/50-60Hz	HBP	HST	CSIR	16.50	ASHRAEHBP46	50 Hz			348	427
NEK6170Z	SK	8.39	100V/50-60Hz	HBP	HST	CSIR	16.50	ASHRAEHBP46	60 Hz			422	510

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating 7.2°C / Condensing 54.4°C)					
	0	5	10	15	Capacity (W)	Efficiency (W/W)	Oil Charge (mL)	Type / Viscosity		
EM20HHR	-	-	-	-	297	2.73	160	ESTER / ISO22	Capillary Tube	SM03
EMT45HBP	372	460	565	686	450	2.80	180	ESTER / ISO22	Capillary Tube or Expansion Valve	SM33
EMT45HBP	451	555	674	807	530	2.70	180	ESTER / ISO22	Capillary Tube or Expansion Valve	SM33
EMT6170Z	594	725	882		838	2.69	180	ESTER / ISO22	Capillary Tube or Expansion Valve	NA*
EMT6170Z	-	-	-	-	975	2.55	180	ESTER / ISO22	Capillary Tube or Expansion Valve	NA*
NEK6170Z	552	724	942		820	2.17	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEK6170Z	649	844	1104		957	2.35	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13

100V 50/60Hz R1234a M/HBP													
Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-20	-15	-10	-5
EM20LHR	BR	2.27	100V/50-60Hz	HBP	LST	RSIR	13.00	ASHRAEHBP46	50 Hz				156
EM20LHR	BR	2.27	100V/50-60Hz	HBP	LST	RSIR	12.10	ASHRAEHBP46	60 Hz				192
EMT6170L	CN	7.96	100V/50-60Hz	HBP	HST	CSCR	16.50	ASHRAEHBP46	50 Hz		322	411	512
EMT6170L	CN	7.96	100V/50-60Hz	HBP	HST	CSCR	16.50	ASHRAEHBP46	60 Hz		363	465	588

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating 7.2°C / Condensing 54.4°C)					
	0	5	10	15	Capacity (W)	Efficiency (W/W)	Oil Charge (mL)	Type / Viscosity		
EM20LHR	195	239	291	348	262	2.78	160	ESTER / ISO22	Capillary Tube	SM03
EM20LHR	234	284	343	412	311	2.77	160	ESTER / ISO22	Capillary Tube	SM03
EMT6170L	630	767	927		838	2.69	180	ESTER / ISO22	Capillary Tube or Expansion Valve	SM33
EMT6170L	730	892	1074		975	2.55	180	ESTER / ISO22	Capillary Tube or Expansion Valve	SM33

100V 50/60Hz R404A M/HBP													
Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-20	-15	-10	-5
NEK6210GK	SK	8.77	100V/50-60Hz	MBP	HST	CSIR	38.00	ASHRAEHBP46	50 Hz	434	548	686	848
NEK6210GK	SK	8.77	100V/50-60Hz	MBP	HST	CSIR	38.00	ASHRAEHBP46	60 Hz	534	665	823	1009

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating 7.2°C / Condensing 54.4°C)					
	0	5	10	15	Capacity (W)	Efficiency (W/W)	Oil Charge (mL)	Type / Viscosity		
NEK6210GK	1033	1242	1475		1349	1.98	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEK6210GK	1222	1463	1731		1583	2.07	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13

100V 50/60Hz R600a M/HBP													
Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-20	-15	-10	-5
EMT45CDP	BR	6.78	100V/50-60Hz	HBP	LST	RSIR	15.40	CEFOMAFHBP	50 Hz				236
EMT45CDP	BR	6.78	100V/50-60Hz	HBP	LST	RSIR	14.30	CEFOMAFHBP	60 Hz		-	-	-

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating 7.2°C / Condensing 54.4°C)					
	0	5	10	15	Capacity (W)	Efficiency (W/W)	Oil Charge (mL)	Type / Viscosity		
EMT45CDP	308	372	428	477	419	2.59	180	MINERAL / ISO10	Capillary Tube	SM05
EMT45CDP	-	-	-	-	493	2.70	180	MINERAL / ISO10	Capillary Tube	SM05

COMPRESSORS CATALOGUE

115V 60 Hz

115V 60Hz R290 M/HBP													
Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-20	-15	-10	-5
NEK6152U	SK	5.44	115-127 V 60 Hz	MBP	HST	CSIR	25.00	ARIMBP	60 Hz	221	279	346	422
NEU6181U	SK	7.28	115-127 V 60 Hz	MBP	HST	CSIR	30.00	ASHRAEHBP46	60 Hz	393	499	626	773
NEK6210U	SK	8.77	115-127 V 60 Hz	MBP	HST	CSIR	37.00	ARIMBP	60 Hz	363	458	570	698
NEK6213U	SK	12.11	115-127 V 60 Hz	MBP	HST	CSIR	44.00	ASHRAEHBP46	60 Hz	660	807	984	1193
NEU6214U	SK	12.11	115-127 V 60 Hz	MBP	HST	CSCR	42.00	ASHRAEHBP46	60 Hz	710	888	1094	1328
NEU6214U	SK	12.11	115-127 V 60 Hz	MBP	HST	CSIR	42.00	ASHRAEHBP46	60 Hz	708	882	1084	1313
NEX4160UA	SK	14.40	115-127 V 60 Hz	L/MBP	HST	CSCR	46.00	ARIMBP	60 Hz	696	871	1070	1294
NEU6217U	SK	14.28	115-127 V 60 Hz	MBP	HST	CSIR	29.00	ASHRAEHBP46	60 Hz	818	1019	1252	1518
NEU6217U	SK	14.28	115-127 V 60 Hz	MBP	HST	CSCR	45.00	ASHRAEHBP46	60 Hz	824	1023	1258	1528
NT6217UV	SK	14.50	115-127 V 60 Hz	MBP	HST	CSIR	44.00	ARIMBP	60 Hz	495	626	793	995
NT6217UV	SK	14.50	115-127 V 60 Hz	MBP	HST	CSCR	44.00	ARIMBP	60 Hz	498	624	801	1030
NEX4170UA	SK	16.80	115-127 V 60 Hz	L/MBP	HST	CSCR	49.50	ARIMBP	60 Hz	820	1022	1251	1508
NEX6221UA	SK	16.80	115-127 V 60 Hz	M/HBP	HST	CSCR	49.50	ARIMBP	60 Hz	831	992	1211	1488
NT6220UV	SK	17.39	115-127 V 60 Hz	MBP	HST	CSCR	54.50	ARIMBP	60 Hz	620	794	996	1224
NEX4180UA	SK	18.70	115-127 V 60 Hz	L/MBP	HST	CSCR	53.00	ARIMBP	60 Hz	924	1140	1382	1650
NT6222UV	SK	20.44	115-127 V 60 Hz	MBP	HST	CSCR	54.50	ARIMBP	60 Hz	669	913	1182	1478
NTX6222UV	SK	20.44	115-127 V 60 Hz	M/HBP	HST	CSCR	60.00	ASHRAEHBP46	60 Hz	1048	1321	1656	2503

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating 7.2°C / Condensing 54.4°C)					
	0	5	10	15	Capacity (W)	Efficiency (W/W)	Oil Charge (mL)	Type / Viscosity		
NEK6152U	507	602	706		862	2.44	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEU6181U	940	1127	1334		1224	2.73	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEK6210U	843	1004	1182		1369	2.48	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEK6213U	1432	1702	2002		1846	2.14	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEU6214U	1589	1879	2197		2027	2.71	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEU6214U	1571	1857	2170		1989	2.46	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM06
NEX4160UA	1541				-	-	350	ESTER / ISO22	Capillary Tube or Expansion Valve	
NEU6217U	1817	2148	2512		2264	2.24	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM05
NEU6217U	1832	2172	2547		2351	2.56	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NT6217UV	1234	1512	1829		2103	2.53	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NT6217UV	1314	1656	2056		2178	2.81	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NEX4170UA	1791				-	-	350	ESTER / ISO22	Capillary Tube or Expansion Valve	
NEX6221UA	1823				2814	2.63	350	ESTER / ISO22	Capillary Tube or Expansion Valve	
NT6220UV	1479	1762	2071		2594	2.80	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NEX4180UA	1945				-	-	350	ESTER / ISO22	Capillary Tube or Expansion Valve	
NT6222UV	1799	2147	2521		3024	2.73	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NTX6222UV	2513	3035	3620		3323	2.84	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26

NA*: Product is implemented but this technical data is not available.
UD*: Product is under development so this technical data is still not available.



NA*: Product is implemented but this technical data is not available.
UD*: Product is under development so this technical data is still not available.



COMPRESSORS CATALOGUE

220V 50 Hz

200-220V 50 Hz / 230V 60 Hz 1 – R134a LBP													
Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-40	-35	-30	-25
EMIS30HHR	BR	3.00	200-220 V 50 Hz / 230 V 60 Hz	L/M/HBP	LST	RSIR	9.00	ASHRAELBP32	50 Hz		27	46	68
EMIS30HHR	BR	3.00	200-220 V 50 Hz / 230 V 60 Hz	L/M/HBP	LST	RSIR	9.00	ASHRAELBP32	60 Hz		36	59	85
EMIE40HER	BR	3.40	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	8.60	ASHRAELBP32	50 Hz		39	60	85
EMIE40HER	BR	3.40	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	8.60	ASHRAELBP32	60 Hz		50	75	105
EM45HNR	BR	3.77	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	9.00	ASHRAELBP32	50 Hz		41	64	87
EM45HNR	BR	3.77	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	9.00	ASHRAELBP32	60 Hz		50	74	106
EMYE70HEP	BR	5.96	200-220 V 50 Hz / 230 V 60 Hz	LBP	LST	RSIR	6.50	ASHRAELBP32	60 Hz		99	140	183
EGAS80HLR	BR	6.36	200-220 V 50 Hz / 230 V 60 Hz	LBP	LST	RSIR/CSIR	14.50	ASHRAELBP32	50 Hz		77	123	175
EGAS80HLR	BR	6.36	200-220 V 50 Hz / 230 V 60 Hz	LBP	LST	RSIR/CSIR	14.50	ASHRAELBP32	60 Hz		95	151	215
FF7,5HBK	BR	6.92	200-220 V 50 Hz / 230 V 60 Hz	L/M/HBP	LST	RSIR/CSIR	16.70	ASHRAELBP32	50 Hz		70	106	149
FF7,5HBK	BR	6.92	200-220 V 50 Hz / 230 V 60 Hz	L/M/HBP	LST	RSIR/CSIR	16.70	ASHRAELBP32	60 Hz		79	121	172
FFI7,5HAK	BR	6.76	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	14.00	ASHRAELBP32	60 Hz		104	146	202
FFI7,5HAK	BR	6.76	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	14.00	ASHRAELBP32	50 Hz		88	129	179
FFUS80HAK	BR	6.76	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	14.50	ASHRAELBP32	50 Hz			134	181
FFUS80HAK	BR	6.76	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	14.50	ASHRAELBP32	60 Hz		108	154	212
FFI8,5HAK	BR	7.15	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	16.00	ASHRAELBP32	50 Hz		93	136	188
FFI8,5HAK	BR	7.15	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	16.00	ASHRAELBP32	60 Hz		105	157	219
EGAS90HLR	BR	7.15	200-220 V 50 Hz / 230 V 60 Hz	LBP	LST	RSIR/CSIR	14.30	ASHRAELBP32	50 Hz		95	143	197
EGAS100HLR	BR	7.95	200-220 V 50 Hz / 230 V 60 Hz	LBP	LST	RSIR/CSIR	17.55	ASHRAELBP32	50 Hz		106	162	225
EGAS100HLR	BR	7.95	200-220 V 50 Hz / 230 V 60 Hz	LBP	LST	RSIR/CSIR	17.55	ASHRAELBP32	60 Hz		130	200	277
EGZS100HLC	BR	7.95	200-220 V 50 Hz / 230 V 60 Hz	LBP	LST	RSCR	8.85	ASHRAELBP32	50 Hz		115	165	225
EGZS100HLC	BR	7.95	200-220 V 50 Hz / 230 V 60 Hz	LBP	LST	RSCR	8.85	ASHRAELBP32	60 Hz		130	200	277
FFUS100HAK	BR	7.95	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	17.55	ASHRAELBP32	50 Hz			167	225
FFUS100HAK	BR	7.95	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	17.55	ASHRAELBP32	60 Hz		138	196	267
FFI10HAK	BR	9.04	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	17.50	ASHRAELBP32	50 Hz		105	153	218
FFI10HAK	BR	9.04	200-220 V 50 Hz / 230 V 60 Hz	L/MBP	LST	RSIR/CSIR	17.50	ASHRAELBP32	60 Hz			187	268
NE2121Z	SK	9.26	200-220 V 50 Hz / 230 V 60 Hz	LBP	HST	CSIR	12.60	ASHRAELBP32	50 Hz				229
NE2121Z	SK	9.26	200-220 V 50 Hz / 230 V 60 Hz	LBP	HST	CSIR	12.60	ASHRAELBP32	60 Hz		147	199	268

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating -23.3°C / Condensing 54.4°C)					
	-20	-15	-10	-5	Capacity (W)	Efficiency (W/W)	Oil Charge (mL)	Type / Viscosity		
EMIS30HHR	95	126	163	207	79	0.93	160	ESTER / ISO22	Capillary Tube	SM07
EMIS30HHR	115	150	191	241	100	1.14	160	ESTER / ISO22	Capillary Tube	SM07
EMIE40HER	116	152	194	242	95	1.18	180	ESTER / ISO10	Capillary Tube	SM01/SM02
EMIE40HER	141	183	234	293	117	1.32	180	ESTER / ISO10	Capillary Tube	SM01/SM02
EM45HNR	115	150	197	257	97	0.97	200	ESTER / ISO22	Capillary Tube	SM01/SM02
EM45HNR	145	191	243	300	123	1.15	200	ESTER / ISO22	Capillary Tube	SM01/SM02
EMYE70HEP	233	295	372		200	1.52	180	ESTER / ISO10	Capillary Tube	SM01
EGAS80HLR	235	306	390		195	1.53	230	ESTER / ISO10	Capillary Tube	SM03/SM04
EGAS80HLR	289	377	482		240	1.61	230	ESTER / ISO10	Capillary Tube	SM03/SM04
FF7,5HBK	202	266	341	431	149	1.00	280	ESTER / ISO22	Capillary Tube	SM08
FF7,5HBK	234	308	395	497	202	1.16	280	ESTER / ISO22	Capillary Tube	SM08
FFI7,5HAK	273	360	462	579	224	1.38	280	ESTER / ISO22	Capillary Tube	SM03
FFI7,5HAK	238	306	383	470	190	1.29	280	ESTER / ISO22	Capillary Tube	SM03
FFUS80HAK	239	310	395	496	185	1.29	230	ESTER / ISO10	Capillary Tube	SM08
FFUS80HAK	282	367	468	587	236	1.47	230	ESTER / ISO10	Capillary Tube	SM08
FFI8,5HAK	249	322	407	508	205	1.35	280	ESTER / ISO22	Capillary Tube	SM03
FFI8,5HAK	294	384	491	618	241	1.37	280	ESTER / ISO22	Capillary Tube	SM03
EGAS90HLR	260	335	424		218	1.50	230	ESTER / ISO10	Capillary Tube	SM03/SM04
EGAS100HLR	298	383	483		250	1.52	230	ESTER / ISO10	Capillary Tube	SM04
EGAS100HLR	366	470	593		310	1.61	230	ESTER / ISO10	Capillary Tube	SM04
EGZS100HLC	298	385	489		250	1.74	280	ESTER / ISO10	Capillary Tube	SM34
EGZS100HLC	366	470	593		308	1.76	280	ESTER / ISO10	Capillary Tube	SM34
FFUS100HAK	296	382	484	608	249	1.45	350	ESTER / ISO10	Capillary Tube	SM08
FFUS100HAK	353	456	578	723	295	1.52	350	ESTER / ISO10	Capillary Tube	SM08
FFI10HAK	300	398	509	634	249	1.30	280	ESTER / ISO22	Capillary Tube	SM03
FFI10HAK	362	471	598	749	301	1.45	280	ESTER / ISO22	Capillary Tube	SM03
NE2121Z	304	394	499	618	254	1.28	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NE2121Z	356	460	583		296	1.27	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13

200-220V 50 Hz / 230V 60 Hz 1 – R404A LBP													
Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-40	-35	-30	-25
NEU2140GK	SK	8.77	200-220 V 50 Hz / 230 V 60 Hz	LBP	HST	CSIR	30.00	ASHRAELBP32	50 Hz			395	522
NEU2140GK	SK	8.77	200-220 V 50 Hz / 230 V 60 Hz	LBP	HST	CSIR	30.00	ASHRAELBP32	60 Hz	205	289	395	522
NT2168GKV	SK	14.50	200-220 V 50 Hz / 230 V 60 Hz	LBP	HST	CSIR	54.50	ASHRAELBP32	50 Hz			435	585
NT2178GK	SK	17.39	200-220 V 50 Hz / 230 V 60 Hz	LBP	HST	CSCR	25.00	ASHRAELBP32	50 Hz	282	409	560	734
NT2178GK	SK	17.39	200-220 V 50 Hz / 230 V 60 Hz	LBP	HST	CSCR	25.00	ASHRAELBP32	60 Hz	361	513	700	922

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating -23.3°C / Condensing 54.4°C)					
	-20	-15	-10	-5	Capacity (W)	Efficiency (W/W)	Oil Charge (mL)	Type / Viscosity		
NEU2140GK	671	840	1032		573	1.36	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEU2140GK	670	840	1031		568	1.36	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NT2168GKV	763	969	1202		646	1.29	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM20
NT2178GK	934	1160	1412		800	1.15	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM20
NT2178GK	1179	1471	1799		1006	1.28	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM20

NA*: Product is implemented but this technical data is not available.
UD*: Product is under development so this technical data is still not available.



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UD*: Product is under development so this technical data is still not available.



COMPRESSORS CATALOGUE

220V 60 Hz

208-230V 60 Hz | R404A | M/HBP

Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-20	-15	-10	-5
NEK6181GK	SK	7.28	208-230 V 60 Hz	MBP	HST	CSIR	26.50	ASHRAEHBP46	60 Hz	495	564	673	817
NEK6210GK	SK	8.77	208-230 V 60 Hz	MBP	HST	CSIR	23.00	ASHRAEHBP46	60 Hz	522	644	793	972
NEK6213GK	SK	12.11	208-230 V 60 Hz	MBP	HST	CSIR	51.00	ASHRAEHBP46	60 Hz	701	877	1083	1318
NTX6220GKV	SK	12.55	208-230 V 60 Hz	M/HBP	HST	CSCR	30.00	ARIMBP	60 Hz	615	786	982	1204
NT6220GK	SK	14.50	208-230 V 60 Hz	MBP	HST	CSIR	31.00	ASHRAEHBP46	60 Hz	806	1021	1269	1307
NT6222GKV	SK	17.39	208-230 V 60 Hz	MBP	HST	CSIR	33.70	ASHRAEHBP46	60 Hz	993	1245	1550	1902
NT6222GK	SK	17.39	208-230 V 60 Hz	MBP	HST	CSIR	33.70	ASHRAEHBP46	60 Hz	993	1245	1550	1902
NT6224GKV	SK	20.44	208-230 V 60 Hz	MBP	HST	CSCR	36.00	ASHRAEHBP46	60 Hz	1176	1492	1859	2256
NJ9226GK	SK	21.71	208-230 V 60 Hz	MBP	HST	CSCR	34.00	ASHRAEHBP46	60 Hz	1035	1394	1813	2292
NT6226GKV	SK	22.37	208-230 V 60 Hz	MBP	HST	CSIR	77.00	ASHRAEHBP46	60 Hz	1301	1603	1963	2385
NJ9238GK	SK	32.67	208-230 V 60 Hz	MBP	HST	CSCR	60.00	ASHRAEHBP46	60 Hz			1998	2479

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating 7.2°C / Condensing 54.4°C)		Oil Charge (mL)	Type / Viscosity		
	0	5	10	15	Capacity (W)	Efficiency (W/W)				
NEK6181GK	992	1195	1422		1307	2.12	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEK6210GK	1178	1415	1680		1545	2.11	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEK6213GK	1582	1876	2199		2036	1.84	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NTX6220GKV	1451	1723	2021		-	-		ESTER / ISO22	Capillary Tube or Expansion Valve	
NT6220GK	1607	1952	2340		2139	2.24	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NT6222GKV	2292	2714	3163		2943	2.02	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NT6222GK	2292	2714	3163		2943	2.02	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NT6224GKV	2713	3228	3804		3512	2.25	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NJ9226GK	2831	3429	4087		3755	2.24	750	ESTER / ISO22	Capillary Tube or Expansion Valve	SM18
NT6226GKV	2869	3419	4035		3721	1.79	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NJ9238GK	3030	3650	4340		2768	1.41	750	ESTER / ISO22	Capillary Tube or Expansion Valve	SM16/SM17

208-230V 60 Hz | R290 | M/HBP

Model	Origin	Displacement	Voltage	Envelope	Torque	Motor	LRA	Test Condition	Frequency	Cooling Capacity (°C)			
										-20	-15	-10	-5
NEU6214U	SK	12.11	208-230 V 60 Hz	MBP	HST	CSCR	42.00	ASHRAEHBP46	60 Hz	664	830	1020	1066
NEU6217U	SK	14.28	208-230 V 60 Hz	MBP	HST	CSCR	29.00	ASHRAEHBP46	60 Hz	835	1034	1268	1537
NTX6225UV	SK	22.37	208-230 V 60 Hz	M/HBP	HST	CSCR	35.00	ASHRAEHBP46	60 Hz	1178	1497	1869	2295
NT6224UV	SK	22.37	208-230 V 60 Hz	MBP	HST	CSCR	33.70	ARIMBP	60 Hz	838	1073	1348	1670

Model	Cooling Capacity (°C)				Check Point		Lubricant		Expansion Device	Wiring Diagram
					(Evaporating 7.2°C / Condensing 54.4°C)		Oil Charge (mL)	Type / Viscosity		
	0	5	10	15	Capacity (W)	Efficiency (W/W)				
NEU6214U	1280	1518	1781		1631	2.44	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NEU6217U	1839	2175	2546		2354	2.64	350	ESTER / ISO22	Capillary Tube or Expansion Valve	SM13
NTX6225UV	2775	3310	3898		3596	2.85	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26
NT6224UV	2088	2579	3143		3535	2.89	450	ESTER / ISO22	Capillary Tube or Expansion Valve	SM26

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COMPRESSORS CATALOGUE TRI-PHASE

VARIABLE SPEED COMPRESSORS

06 VARIABLE SPEED COMPRESSORS

Embraco variable speed compressors are a solution for residential and commercial applications which demand fast cooling, low energy consumption, operate with a low starting voltage and with a wide operating range, low noise and vibration levels. The variable speed compressor associated with an inverter allows the compressor run in different RPM, delivering the cooling capacity needed according to the thermal load.

CONTROL MODES

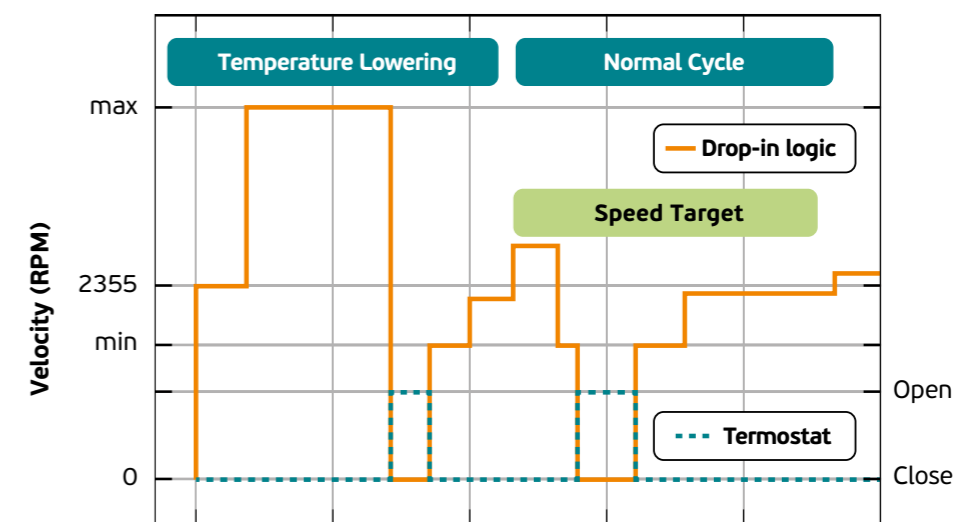
DROP-IN

Drop-In can use all kinds of inverters, where single thermostat contact is used to set the compressor running conditions. Drop-In mode allows the application to any refrigeration system with a simple ON/OFF thermostat, without the need of a rotation control signal through serial or frequency communication. The compressor speed will be adjusted automatically by the inverter, in accordance to the thermal load variation.

SMART DROP-IN

The Smart-Drop-In was designed with focus on cooling capacity, but always considering good system efficiency. This solution provides a customization tool that allows the routine to be parameterized and adjusted for each refrigeration system. The logic is divided in four main parts: Pull-down, Stability Routine, Heavy Duty Routine and Defrost Routine. The Stability, Heavy Duty and Defrost Routine begin to run in parallel after Pull-down is completed.

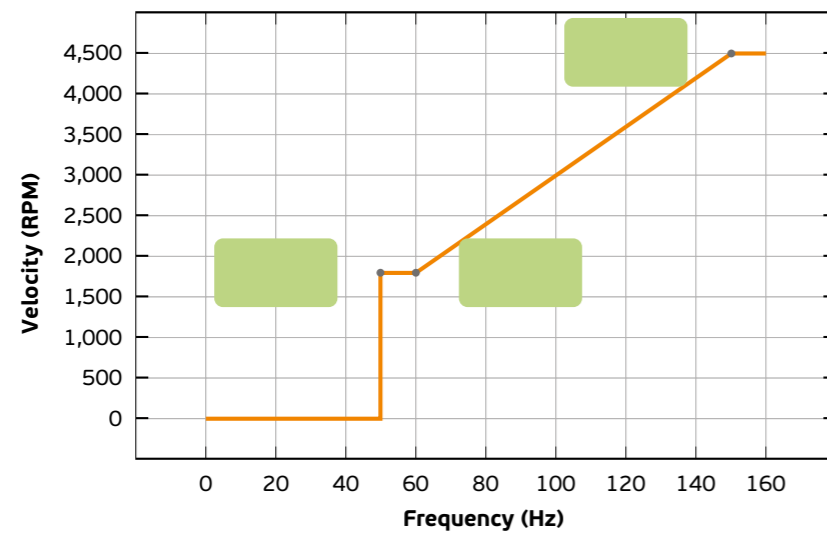
COMPRESSOR SPEED IN FUNCTION OF FREQUENCY



FREQUENCY

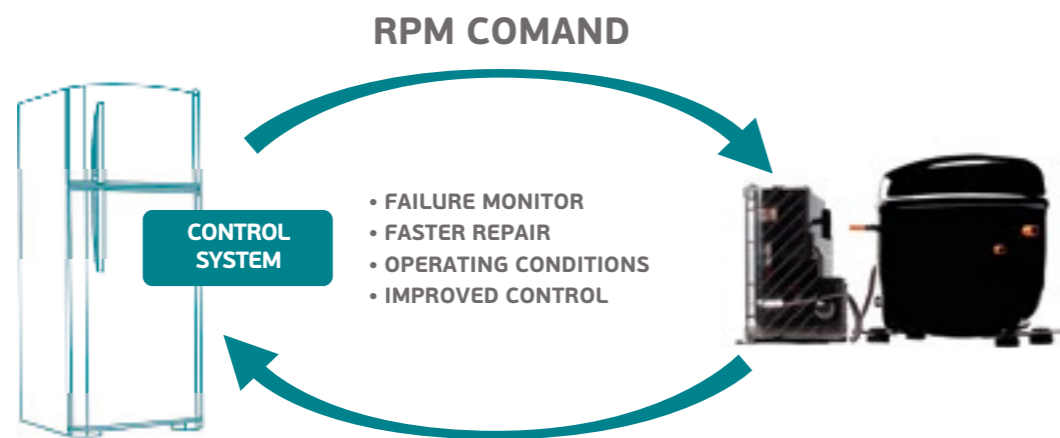
In this communication mode, the compressor's speed is controlled by a frequency signal sent to the inverter, usually generated by an electronic controller. This frequency signal is a digital wave that varies between 53 and 150 Hz. The compressor is then driven by this signal sent to the inverter

SPEED COMPRESSORS VERSUS THERMOSTAT BEHAVIOR



SERIAL

This option is used associated with an electronic thermostat, in which the inverter uses a serial communication protocol, building a communication bridge between the inverter and the controller. Based on Embraco protocol it is possible to define the compressor speed and check other parameters such as compressor RPM and failure state. This response from the inverter can be used to help diagnose system failure and/or fix it in less time than usual.



Variable Speed Compressors 115-127V 50/60Hz														
Model	Refrigerant	Voltage / Frequency	Cooling Capacity			HP	Application	Torque	Motor Type	Expansion Device	Lubricant		Weight Kg	Test Condition
			RPM	W	W / W						Oil Charge (mL)	Type / Viscosity		
VEMY4H	R134a	230 V 53-150 Hz 3 ~	2000	78	1.66	1/10	LBP	LST	BPM	Capillary Tube	220	ESTER / ISO10	7.5	ASHRAELBP32
			3000	116	1.58									
			4500	170	1.55									
VEMY6HH	R134a	230 V 53-150 Hz 3 ~	1600	99	1.65	1/10	L/M/HBP	LST	BPM	Capillary tube	220	ESTER / ISO10	7.5	ASHRAELBP32
			3000	176	1.68									
			4500	229	1.60									
VEMY6H	R134a	230 V 53-150 Hz 3 ~	2000	113	1.65	1/10	LBP	LST	BPM	Capillary Tube	220	ESTER / ISO10	7.6	ASHRAELBP32
			3000	176	1.67									
			4500	233	1.61									
VEMX6H	R1234yf	"100V 50-60Hz 1~ 200V 50-60Hz 3~ 280 DVC"	1500	87	1.59	1/10	L/MBP	LST	BPM	Capillary Tube	220	ESTER / ISO10	7.5	ASHRAELBP32
			3000	180	1.61									
			4500	275	1.63									
VEGT8HB	R134a	230 V 53-150 Hz 3 ~	1800	137	1.72	1/4	L/MBP	LST	BPM	Capillary tube	430	ESTER / ISO10	10.8	ASHRAELBP32
			3000	256	1.76									
			4500	340	1.64									
VEGT11HB	R134a	230 V 60-150 Hz 3 ~	1800	191	1.67	1/2	L/MBP	LST	BPM	Capillary tube	430	ESTER / ISO22	10.0	ASHRAELBP32
			2500	266	1.66									
			3000	322	1.66									
			3600	378	1.63									
FMFT411Z	R134a	230 V 53-167Hz 3 ~	1600	180	1.82	3/4	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	430	ESTER / ISO10	10.9	ASHRAELBP32
			5000	530	1.65									
			1600	UD*	UD*									
FMFT415Z	R134a	230 V 53-150 Hz 3 ~	5000	UD*	UD*	1	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	430	ESTER / ISO10	10.9	ASHRAELBP32
			1600	108	1.93									
VEMT404U	R290	230 V 53-167Hz 3 ~	1600	108	1.93	1/3+	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	220	ALQUILB / ISO22	7.2	ASHRAELBP32
			3000	242	1.90									
			4500	354	1.83									
VEMT406U	R290	230 V 53-167Hz 3 ~	1600 - 4500	157 - 434	1.76	1/2	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	UD	UD	UD	ASHRAELBP32
VEHT409U	R290	230 V 53-167Hz 3 ~	1600 - 4500	228 - 675	1.77	1/2+	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	UD	UD	UD	ASHRAELBP32
VEHU413U	R290	230 V 53-167Hz 3 ~	1600 - 4500	343 - 939	1.71	1	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	UD	UD	UD	ASHRAELBP32
FMFT406U	R290	230 V 46-150 Hz 3~	1800	190	1.81	1/2	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	430	ESTER / ISO22	10.3	ASHRAELBP32
			2500	248	1.79									
			3000	325	1.84									
			3600	387	1.81									
VEGT8U	R290	230 V 60-150 Hz 3 ~	4500	509	1.78	1/2	L/MBP	LST	BPM	Capillary Tube	450	ESTER / ISO22	10.3	ASHRAELBP32
			2000	273	1.76									
			3000	426	1.81									
FMFT408U	R290	230V / 60-150Hz	4500	647	1.74	1/2	L/MBP	HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.3	ASHRAELBP32
			1800	250	1.81									
			2400	334	1.83									
			3000	432	1.82									
			3600	509	1.79									
4500	609	1.75												

*Compressors tested at 100V.
Variable speed compressors for Japan market can be delivered with different electricals set up.
Nidec GA can deliver the set with 200V 50-60Hz ~3 phase input, 100V 50-60Hz single phase input or DC input, please, contact technical support for more information.



Variable Speed Compressors 115-127V 50/60Hz														
Model	Refrigerant	Voltage / Frequency	Cooling Capacity			HP	Application	Torque	Motor Type	Expansion Device	Lubricant		Weight Kg	Test Condition
			RPM	W	W / W						Oil Charge (mL)	Type / Viscosity		
FMFT411U	R290	230V / 60-150Hz	1800	349	1.78	3/4	L/MBP	LST/HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.9	ASHRAELBP32
			2400	466	1.85									
			3000	593	1.84									
			3600	684	1.80									
			4500	867	1.76									
FMF-D413UE	R290	230V / 53-167Hz	1600	331	1.95	1	L/MBP	LST/HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO10	10.9	ASHRAELBP32
			2400	490	1.99									
			3000	603	1.98									
			3600	716	1.92									
			5000	958	1.82									
FMFT213U	R290	230 V 60-150 Hz 3 ~	3000	693	1.87	1+	LBP	LST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.87	ASHRAELBP32
			4500	952	1.77									
FMFT413U	R290	230 V 60-150 Hz 3 ~	1800	403	1.76	1+	L/MBP	HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.9	ASHRAELBP32
			2500	531	1.78									
			3000	682	1.80									
			3600	777	1.76									
			4500	998	1.74									
FMFT415U	R290	230V / 53-167Hz	1600	407	1.74	1 1/4	L/MBP	HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.9	ASHRAELBP32
			2400	613	1.78									
			3000	774	1.76									
			3600	892	1.73									
			5000	1253	1.68									
VEGY6L*	R1234yf	230 V 53-150 Hz 3 ~	2000	138	1.75	1/5	L/MBP	LST	BPM	Capillary Tube	430	ESTER / ISO22	11.3	ASHRAELBP32
			3000	217	1.69									
			4500	326	1.58									
VEGD6L*	R1234yf	230 V 47-120HZ 3~	2000	141	1.90	1/5	L/M/HBP	HST	BPM	Capillary Tube or Expansion Valve	350	ESTER / ISO10	10.8	ASHRAELBP32
			4500	647	1.70									
VEMX6L	R1234yf	"100V 50-60Hz 1~ 200V 50-60Hz 3~ 280 DVC"	1500	UD*	UD*	1/10	L/MBP	LST	BPM	Capillary Tube	220	ESTER / ISO10	7.5	ASHRAEL-BP32*
			3000	UD*	UD*									
			4500	UD*	UD*									
FMFT411L	R1234yf	230 V 53-150 Hz 3 ~	1600	210	1.85	1/2	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	430	ESTER / ISO10	10.9	ASHRAELBP32
			5000	610	1.65									
FMFT415L	R1234yf	230 V 53-150 Hz 3 ~	1600	280	1.83	1	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	430	ESTER / ISO10	10.9	ASHRAELBP32
			5000	825	1.63									
FMXA6C	R600a	230 V 43-134 Hz 3~	2000	65	1.79	1/9	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.9	ASHRAELBP32
			3000	98	1.80									
			4000	121	1.70									
FMXY9C	R600a	230 V 43-134 Hz 3~	2000	98	1.71	1/6	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.8	ASHRAELBP32
			3000	145	1.75									
			4000	180	1.65									
FMXA9C	R600a	230 V 43-134 Hz 3~	2000	98	1.80	1/6	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.8	ASHRAELBP32
			3000	145	1.78									
			4000	180	1.70									
FMXC9C	R600a	230 V 43-134 Hz 3~	2000	100	1.87	1/6	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.8	ASHRAELBP32
			3000	151	1.86									
			4000	185	1.75									
VESD11C	R600a	230 V 40-150 Hz 3 ~	2000	137	1.98	1/5	LBP	LST	BPM	Capillary Tube	180	ALQUILB / ISO5	6.8	ASHRAELBP32
			3000	207	1.91									
			4500	276	1.78									

*Compressors tested at 100V.

Variable speed compressors for Japan market can be delivered with different electricals set up.
Nidec GA can deliver the set with 200V 50-60Hz ~3 phase input, 100V 50-60Hz single phase input or DC input, please, contact technical support for more information.



Variable Speed Compressors 220-240V 50/60Hz														
Model	Refrigerant	Voltage / Frequency	Cooling Capacity			HP	Application	Torque	Motor Type	Expansion Device	Lubricant		Weight Kg	Test Condition
			RPM	W	W / W						Oil Charge (mL)	Type / Viscosity		
VEMY6HH	R134a	230 V 53-150 Hz 3 ~	1600	99	1.65	1/10	L/M/HBP	LST	BPM	Capillary tube	220	ESTER / ISO10	7.5	ASHRAELBP32
			3000	176	1.68									
			4500	229	1.60									
VEGT8HB	R134a	230 V 53-150 Hz 3 ~	1800	137	1.72	1/4	L/MBP	LST	BPM	Capillary tube	430	ESTER / ISO10	10.8	ASHRAELBP32
			3000	256	1.76									
			4500	340	1.64									
VEGT11HB	R134a	230 V 60-150 Hz 3 ~	1800	191	1.67	1/2	L/MBP	LST	BPM	Capillary tube	430	ESTER / ISO22	10.0	ASHRAELBP32
			2500	266	1.66									
			3000	322	1.66									
			3600	378	1.63									
			4500	429	1.54									
FMFT411Z	R134a	230 V 53-167Hz 3 ~	1600	180	1.82	3/4	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	430	ESTER / ISO10	10.9	ASHRAELBP32
			5000	530	1.65									
VEMT404U	R290	230 V 40-150 Hz 3 ~	2000	165	1.96	1/3+	LBP	LST	BPM	Capillary Tube or Expansion Valve	220	ALQUILB / ISO22	7.2	ASHRAELBP32
			3000	242	1.92									
			4500	354	1.83									
VESA5U	R290	230 V 53-133 Hz 3 ~	2000	156	1.59	1/5	LBP	LST	BPM	Capillary tube	200	ESTER / ISO10	5.8	ASHRAELBP32
			3000	244	1.69									
			4000	328	1.72									
FMFT406U	R290	230 V 46-150 Hz 3~	1800	190	1.81	1/2	L/MBP	HST	BPM	Capillary Tube or Expansion Valve	430	ESTER / ISO22	10.3	ASHRAELBP32
			2500	248	1.79									
			3000	325	1.84									
			3600	387	1.81									
			4500	509	1.78									
VESA7U	R290	230 V 53-133 Hz 3 ~	1600	182	1.62	1/3	L/MBP	LST	BPM	Capillary tube	198	ESTER / ISO22	6.5	ASHRAELBP32
			2000	233	1.69									
			3000	363	1.74									
			4000	482	1.73									
VEGT8U	R290	230 V 60-150 Hz 3 ~	2000	273	1.76	1/2	L/MBP	LST	BPM	Capillary Tube	450	ESTER / ISO22	10.3	ASHRAELBP32
			3000	426	1.81									
			4500	647	1.74									
FMFT408U	R290	230V / 60-150Hz	1800	250	1.81	1/2	L/MBP	HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.3	ASHRAELBP32
			2400	334	1.83									
			3000	432	1.82									
			3600	509	1.79									
			4500	609	1.75									
FMFT411U	R290	230V / 60-150Hz	1800	349	1.78	3/4	L/MBP	LST/HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.9	ASHRAELBP32
			2400	466	1.85									
			3000	593	1.84									
			3600	684	1.80									
			4500	867	1.76									
FMFD413UE	R290	230V / 53-167Hz	1600	331	1.95	1	L/MBP	LST/HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO10	10.9	ASHRAELBP32
			2400	490	1.99									
			3000	603	1.98									
			3600	716	1.92									
			5000	958	1.82									
FMFT213U	R290	230 V 60-150 Hz 3 ~	3000	693	1.87	1+	LBP	LST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.87	ASHRAELBP32
			4500	952	1.77									

*Compressors tested at 100V.

Variable speed compressors for Japan market can be delivered with different electricals set up.
Nidec GA can deliver the set with 200V 50-60Hz ~3 phase input, 100V 50-60Hz single phase input or DC input, please, contact technical support for more information.



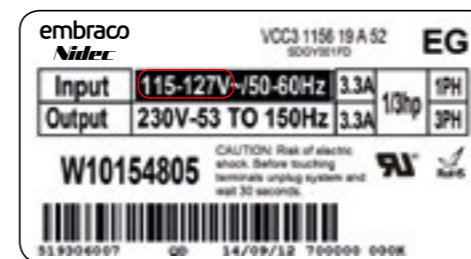
Variable Speed Compressors 220-240V 50/60Hz														
Model	Refrigerant	Voltage / Frequency	Cooling Capacity			HP	Application	Torque	Motor Type	Expansion Device	Lubricant		Weight Kg	Test Condition
			RPM	W	W / W						Oil Charge (mL)	Type / Viscosity		
FMFT413U	R290	230 V 60-150 Hz 3 ~	1800	403	1.76	1+	L/MBP	HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.9	ASHRAELBP32
			2500	531	1.78									
			3000	682	1.80									
			3600	777	1.76									
FMFT415U	R290	230V / 53-167Hz	1600	407	1.74	1 1/4	L/MBP	HST	BPM	Capillary tube or Expansion Valve	430	ESTER / ISO22	10.9	ASHRAELBP32
			2400	613	1.78									
			3000	774	1.76									
			3600	892	1.73									
VNEU217U	R290	100-300 V 33-75 Hz 3 ~	2000	535	1.47	1 1/4	LBP	HST	BPM	Capillary Tube or Expansion Valve	500	ESTER / ISO22	11.6	ASHRAELBP32
			3000	818	1.52									
			4500	1144	1.47									
FMXY4C	R600a	230 V 43-134 Hz 3~	2000	35	1.50	1/16	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.8	ASHRAELBP32
			3000	50	1.58									
			4000	71	1.57									
FMXA4C	R600a	230 V 43-134 Hz 3~	2000	36	1.65	1/16	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.9	ASHRAELBP32
			3000	54	1.64									
			4000	76	1.64									
FMXD4C	R600a	230 V 43-134 Hz 3~	2000	36	1.73	1/16	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.9	ASHRAELBP32
			3000	49	1.64									
			4000	72	1.66									
FMXY6C	R600a	230 V 43-134 Hz 3~	2000	65	1.64	1/9	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.9	ASHRAELBP32
			3000	97	1.64									
			4000	121	1.65									
FMXA6C	R600a	230 V 43-134 Hz 3~	2000	65	1.79	1/9	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.9	ASHRAELBP32
			3000	98	1.80									
			4000	121	1.70									
FMXC6C	R600a	230 V 43-134 Hz 3~	2000	65	1.82	1/9	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.8	ASHRAELBP32
			3000	98	1.78									
			4000	119	1.69									
FMXD6C	R600a	230 V 43-134 Hz 3~	2000	67	1.91	1/9	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.9	ASHRAELBP32
			3000	102	1.89									
			4000	126	1.79									
FMXY9C	R600a	230 V 43-134 Hz 3~	2000	98	1.71	1/6	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.8	ASHRAELBP32
			3000	145	1.75									
			4000	180	1.65									
FMXA9C	R600a	230 V 43-134 Hz 3~	2000	98	1.80	1/6	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.8	ASHRAELBP32
			3000	145	1.78									
			4000	180	1.70									
FMXC9C	R600a	230 V 43-134 Hz 3~	2000	100	1.87	1/6	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.8	ASHRAELBP32
			3000	151	1.86									
			4000	185	1.75									
FMXD9C	R600a	230 V 43-134 Hz 3~	2000	99	1.90	1/6	L/MBP	LST	BPM	Capillary Tube	175	ALQUILB / ISO5	4.9	ASHRAELBP32
			3000	152	1.89									
			4000	187	1.79									
VEMB11C	R600a	230 V 53-150 Hz 3 ~	2000	135	1.90	1/5	LBP	LST	BPM	Capillary Tube	450	ALQUILB / ISO5	7.6	ASHRAELBP32
			3000	204	1.89									
			4500	281	1.75									

*Compressors tested at 100V.
Variable speed compressors for Japan market can be delivered with different electricals set up.
Nidec GA can deliver the set with 200V 50-60Hz ~3 phase input, 100V 50-60Hz single phase input or DC input, please, contact technical support for more information.

Variable Speed Compressors 220-240V 50/60Hz														
Model	Refrigerant	Voltage / Frequency	Cooling Capacity			HP	Application	Torque	Motor Type	Expansion Device	Lubricant		Weight Kg	Test Condition
			RPM	W	W / W						Oil Charge (mL)	Type / Viscosity		
VESC11C	R600a	230 V 40-150 Hz 3 ~	2000	137	1.93	1/5	LBP	LST	BPM	Capillary Tube	160	ALQUILB / ISO5	6.4	ASHRAELBP32
			3000	207	1.88									
			4500	276	1.76									
VESD11C	R600a	230 V 40-150 Hz 3 ~	2000	137	1.98	1/5	LBP	LST	BPM	Capillary Tube	180	ALQUILB / ISO5	6.8	ASHRAELBP32
			3000	207	1.91									
			4500	276	1.78									
VNEK206GK	R404A	300 V 33-75 Hz 3 ~	2000	226	1.26	1/3	LBP	HST	BPM	Capillary Tube or Expansion Valve	500	ESTER / ISO22	11.6	ASHRAELBP32
			2400	260	1.27									
			3000	327	1.27									
			3600	385	1.25									
			4500	468	1.21									
VNEK212GK	R404A	300 V 33-75 Hz 3 ~	2000	245	1.11	1/2	LBP	HST	BPM	Capillary Tube or Expansion Valve	500	ESTER / ISO22	11.6	ASHRAELBP32
			2400	284	1.11									
			3000	344	1.09									
			3600	386	1.03									
VNEU213GK	R404A	100-300 V 33-75 Hz 3 ~	2000	539	1.40	3/4	LBP	HST	BPM	Capillary Tube or Expansion Valve	500	ESTER / ISO22	11.6	ASHRAELBP32
			3000	762	1.44									
			4500	1045	1.33									

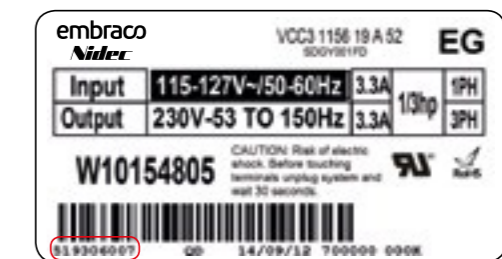
VOLTAGE:

Check what is the inverter voltage specified on the label, as seen below: The inverter must be replaced by an equivalent one with the same voltage range.



CONTROL SIGNAL:

Check which control signal is used in the original inverter. Please contact the technical support to clarify the control type for each product SKU.



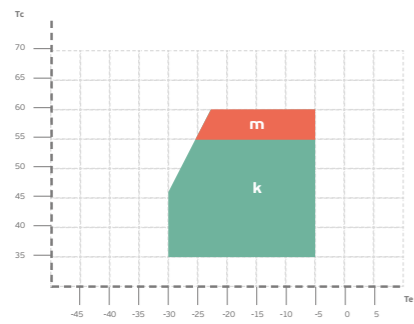
The inverter must be replaced by another one with the same voltage range

*Compressors tested at 100V.
Variable speed compressors for Japan market can be delivered with different electricals set up.
Nidec GA can deliver the set with 200V 50-60Hz ~3 phase input, 100V 50-60Hz single phase input or DC input, please, contact technical support for more information.

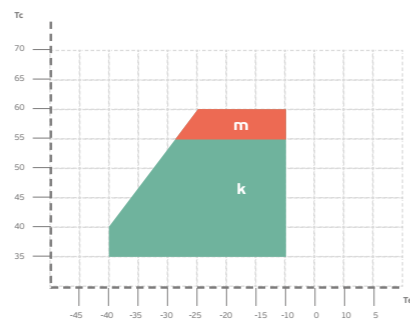
OPERATING ENVELOPE*

EMC, EMX, NE, NT, NJ, VNE, EH

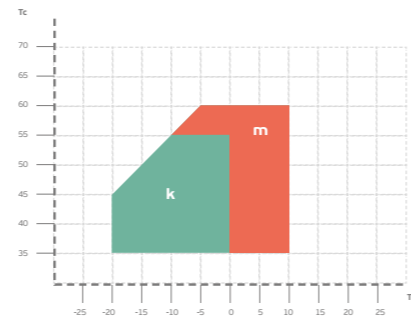
LBP
R134a - R600a



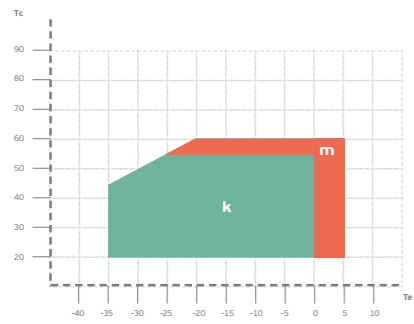
LBP
R404A/R507/R452A - R290



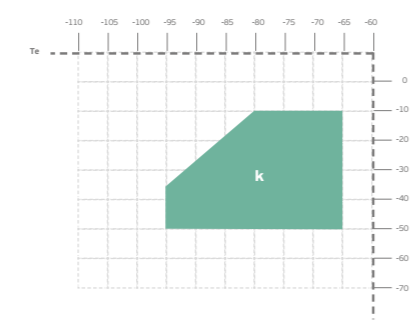
MBP
R404A/R507/R452A - R290



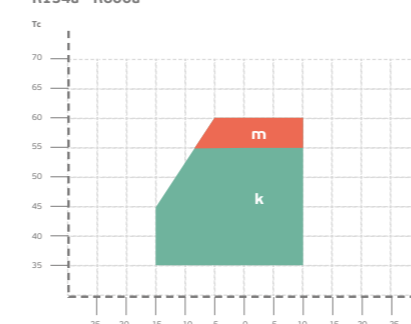
L/MBP
R290



ULBP
R508B/R170 - second stage of cascade



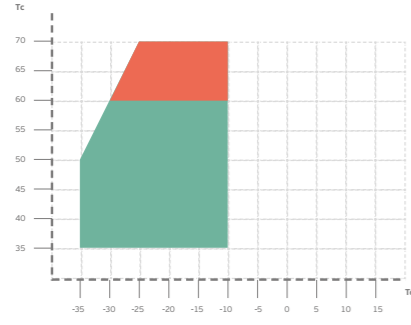
HBP
R134a - R600a



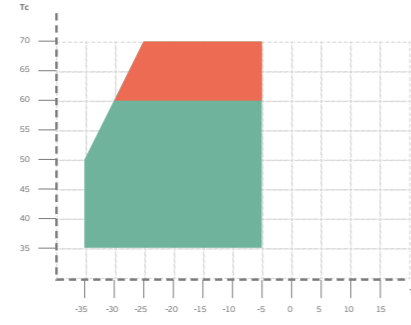
EM / EG / F / VEM / VEH / VEG / VES / FMF

Ambient temperature: 42,7 °C - Return temperature: 32,2 °C

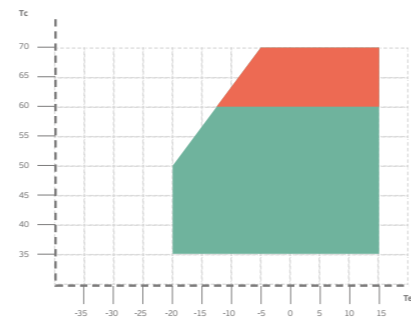
LBP
R290 - R134a - R600a



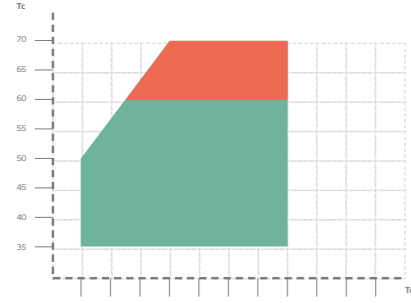
L-MBP (STANDARD)
R290 - R134a



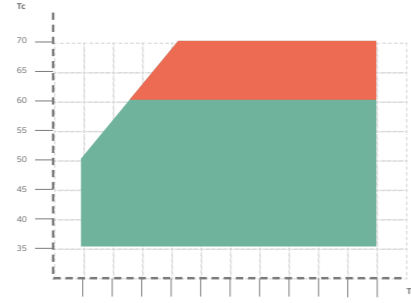
M-HBP
R134a



L-MBP EXTENDED RANGE FFUS, EM2, EM3
R290 - R134a - R600a



L-M-HBP
R134a



■ Operation Condition
■ Transient Condition

Tc Condensing Temperature
k Ambient 32°C and return gas 20°C
Te Evaporating Temperature
m Ambient 32°C and return gas 20°C (for transitory period)

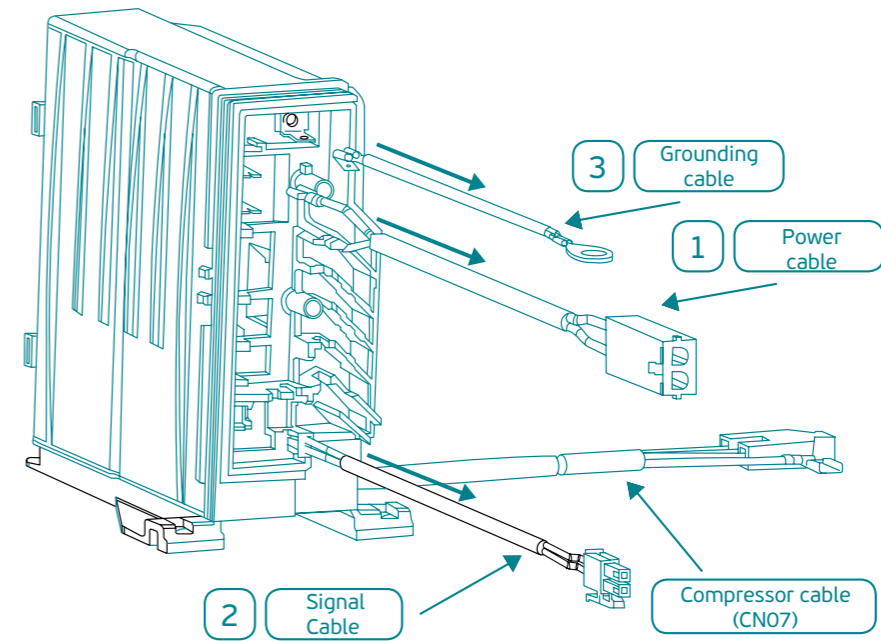
NOTE: usage of compressors outside the intended working range cannot make use of the warranty, or should be consulted with Technical support.

*Envelopes might change within compressor families, in case of a specific model, consult PSS or Embraco Technical Support.

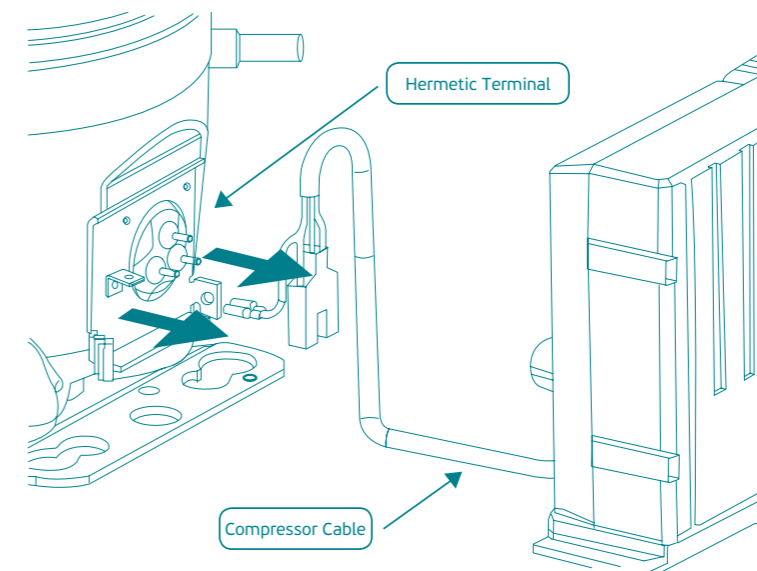
01 REPLACING A FAILED INVERTER

To replace the original inverter in the system, follow the steps:

1. Remove the Inverter plastic cover to have access to the electrical terminal;
2. Remove the power cable (1), the signal cable (2) and the grounding cable (3);



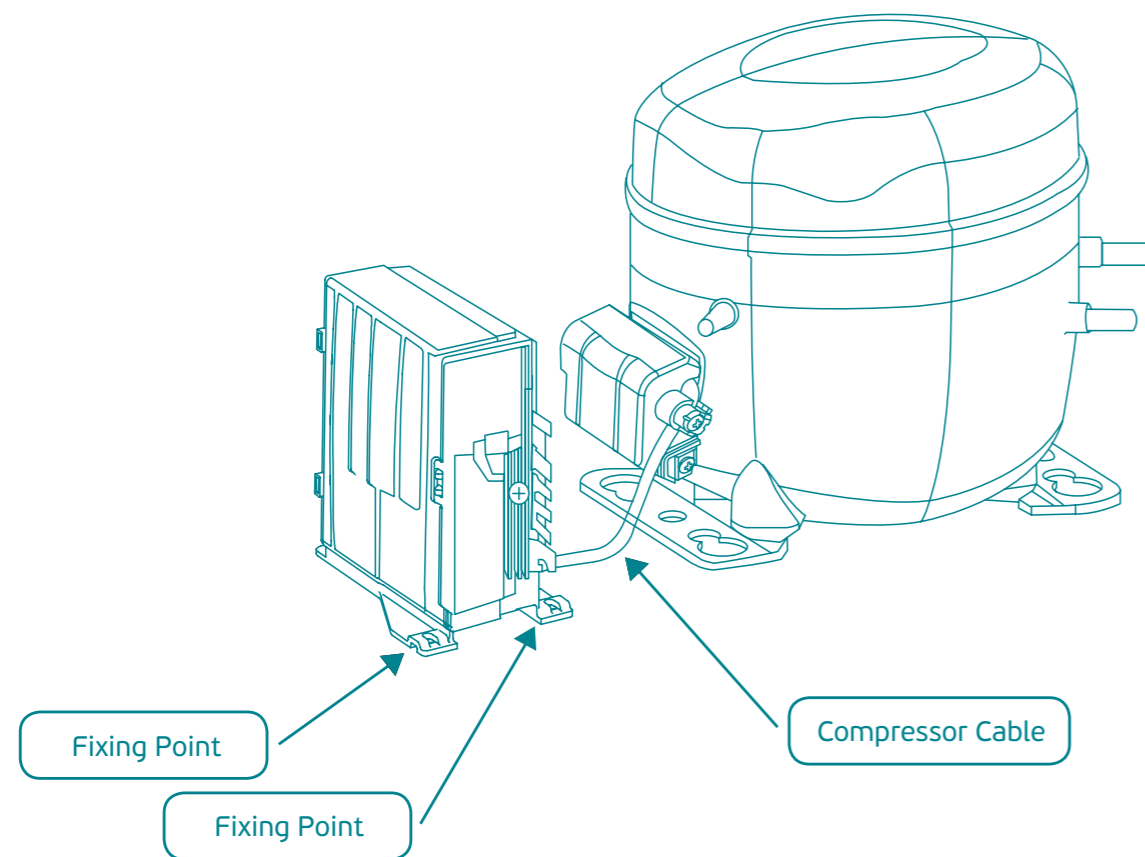
3. Disconnect the Inverter from the compressor;



4. Unscrew and remove the inverter from the system;

02 INSTALLING THE NEW INVERTER

1. Select the new inverter following the instructions shown above;
2. Fixate the Inverter on the system using the fixation points;



Obs.: If the original Inverter was mounted on the compressor, the new Inverter must be installed on the system to make sure that it doesn't move during the normal system usage.

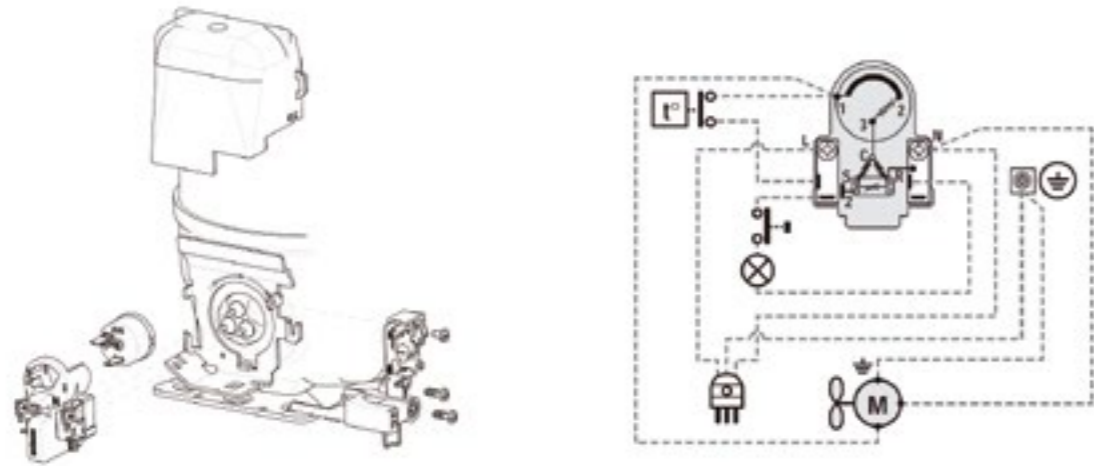
12 ELECTRICAL CONFIGURATIONS

WIRING DIAGRAMS KEY

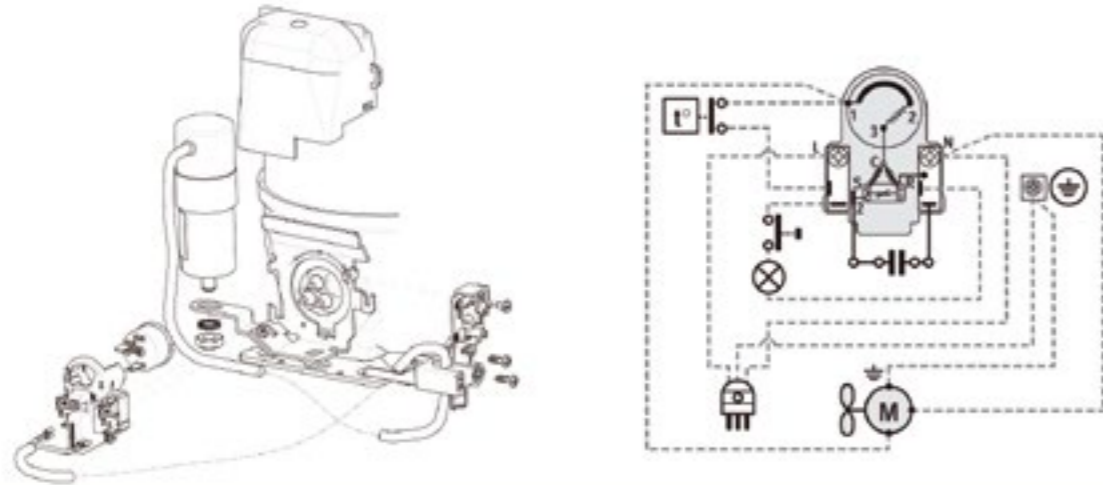
	OVERLOAD PROTECTOR		PTC START DEVICE*
	OVERLOAD PROTECTOR		INTEGRATED PTC DEVICE
	CURRENT START RELAY		CURRENT START RELAY WITH CAPACITOR CONNECTIONS
	3CR CURRENT START RELAY		3ARR3 START RELAY (VOLTAGE).
	RUN CAPACITOR		RUN CAPACITOR (MANDATORY - NOT SUPPLIED)
	OPTIONAL RUN CAPACITOR		START CAPACITOR
	FAN		PUSH BUTTON
	LAMP		SINGLE PHASE MOTOR
	3-PHASE MOTOR		THERMOSTAT
	LOW-HIGH PRESSURE SWITCH		COMMON (INTERNAL OVERLOAD PROTECTOR)
	EARTH CONNECTION		START
	3-PHASE SUPPLY		BROWN CABLE
	SINGLE PHASE SUPPLY		BLACK CABLE
	COMMON		RED CABLE
	RUN		CONNECTIONS TO BE MADE BY THE CUSTOMER (NOT SUPPLIED)
	TERMINAL BLOCK		
	WHITE CABLE		
	BLUE CABLE		
	YELLOW-GREEN CABLE		
	CONNECTIONS SUPPLIED		

WIRING DIAGRAMS

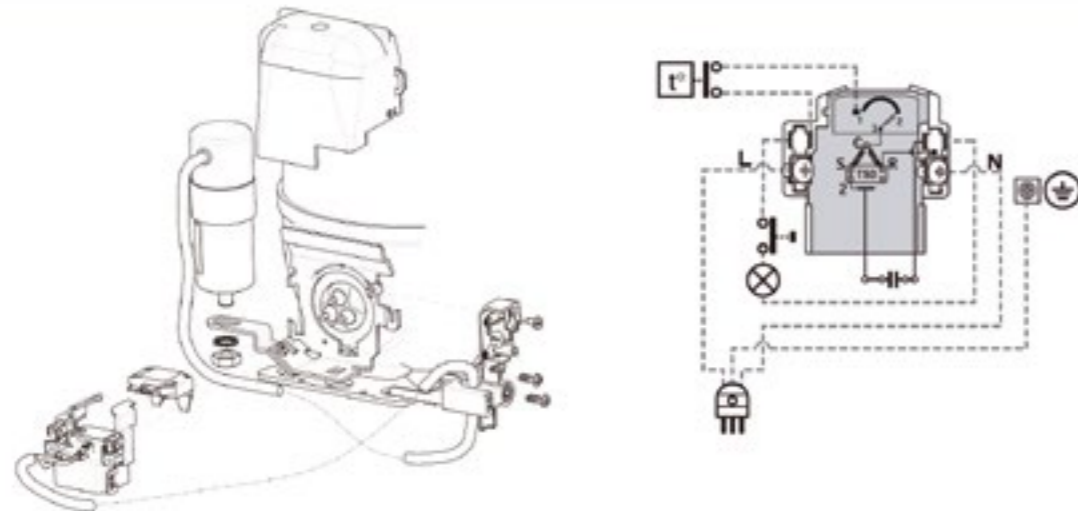
SM00 - EMT/NE SERIES RSIR PTC European Version



SM01 - EMT/NE SERIES RSCR PTC European Version

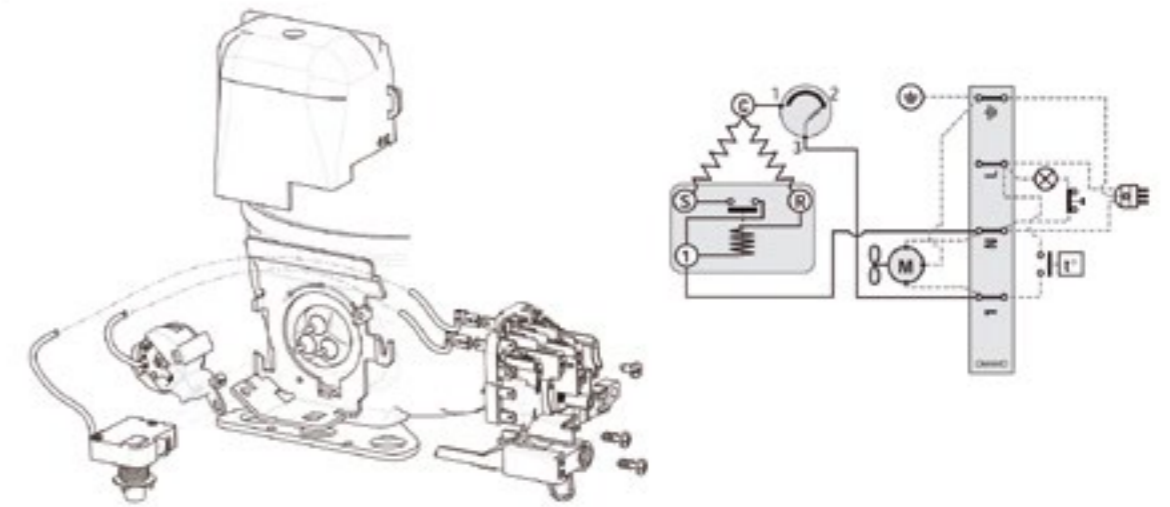


SM02 - EMT/NE SERIES RSCR TSD European Version

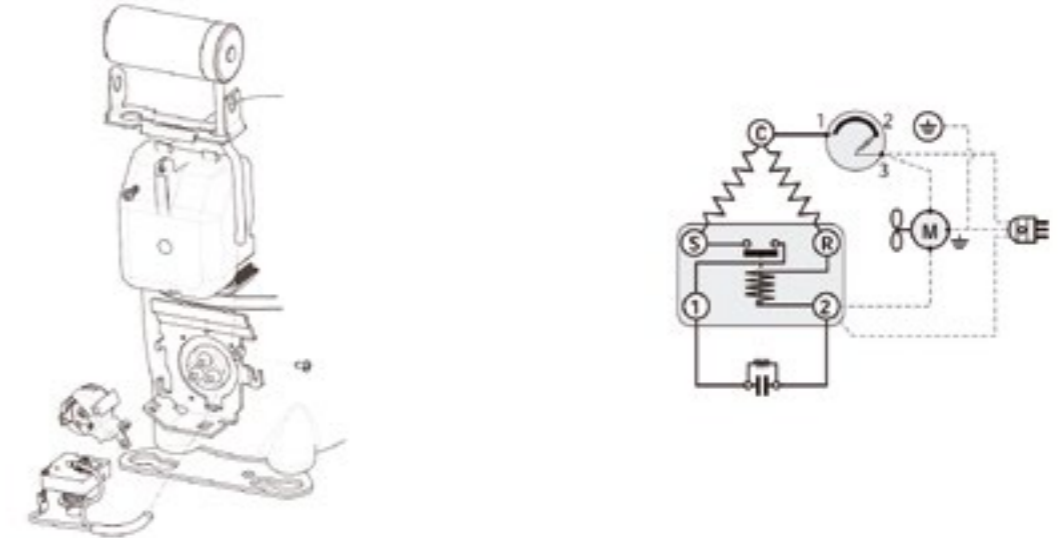


WIRING DIAGRAMS

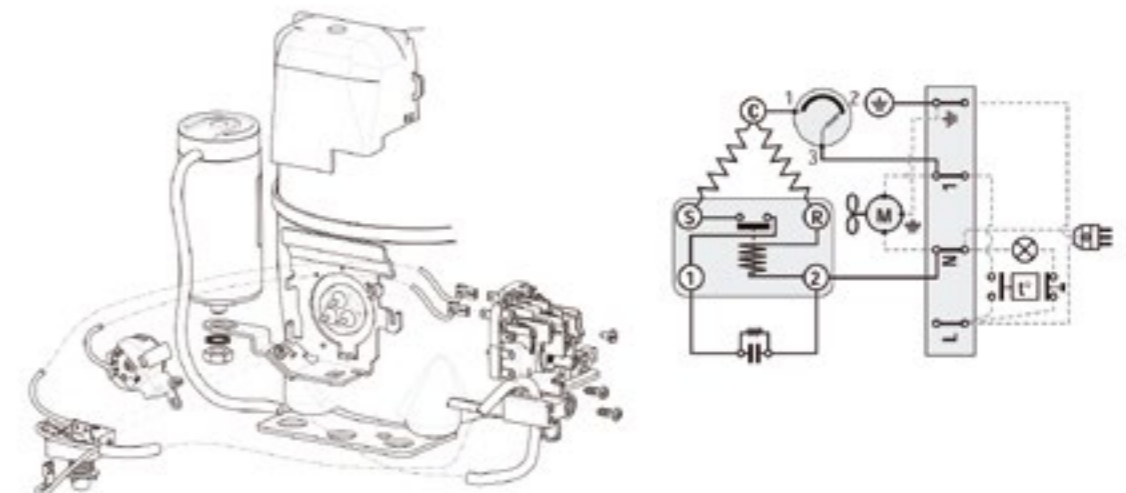
SM03 - EMT/NE SERIES RSIR Terminal Board & Start Device



SM04 - EMT/NE SERIES CSIR American Version

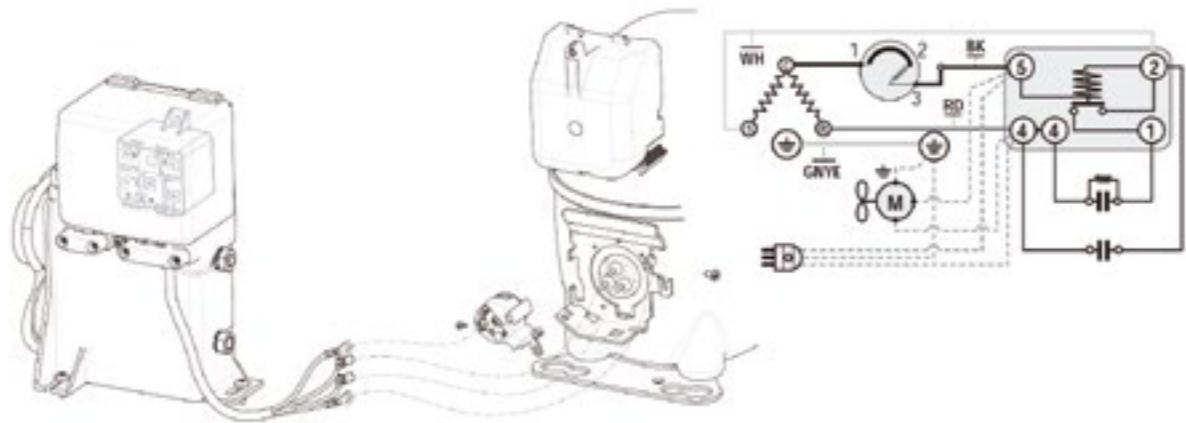


SM05 - EMT/NE SERIES CSIR Terminal Board & Start Device

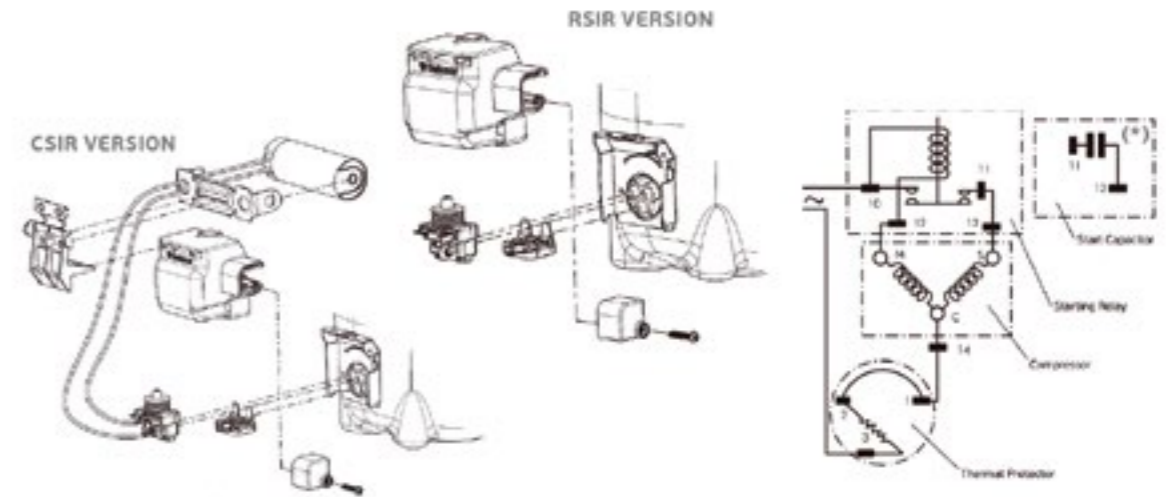


WIRING DIAGRAMS

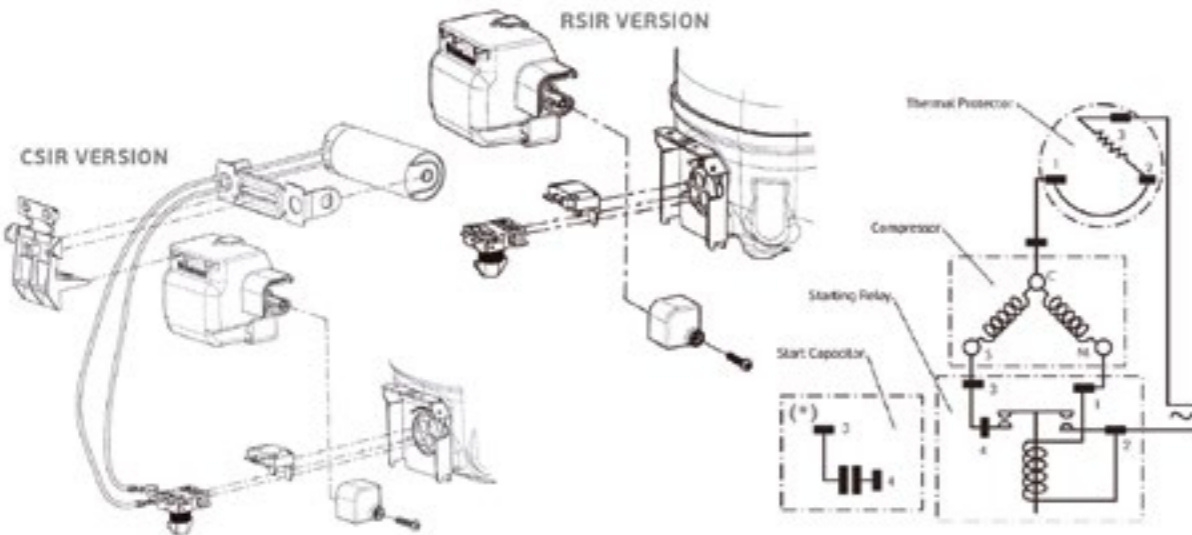
SM06 - NE SERIES CSR Box



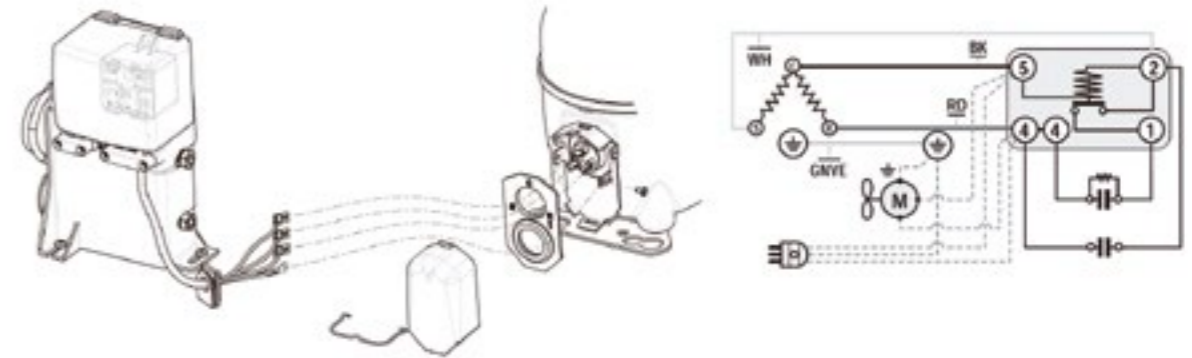
SM09 - EG



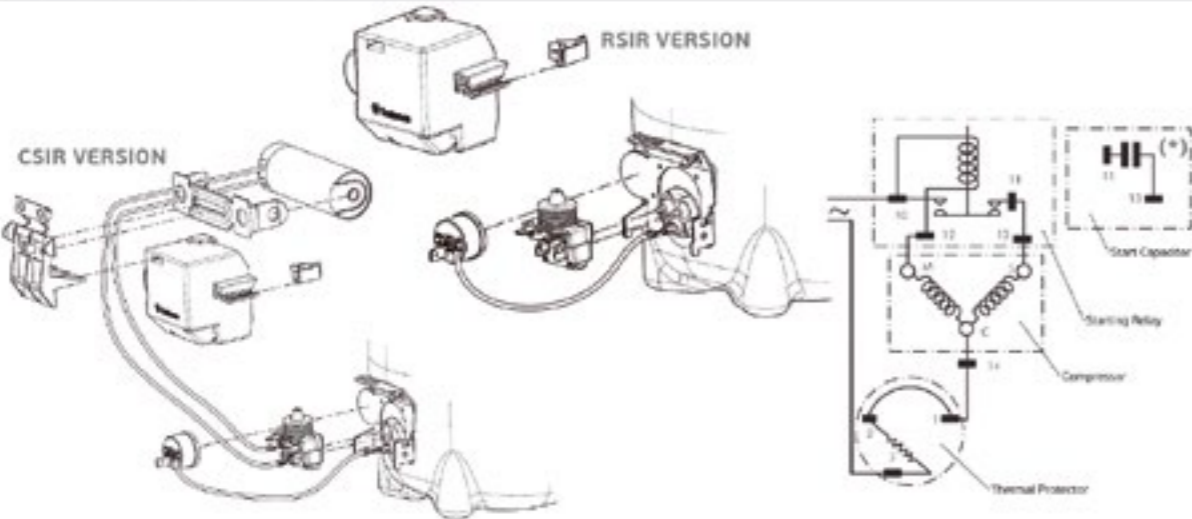
SM07 - EM/EMI



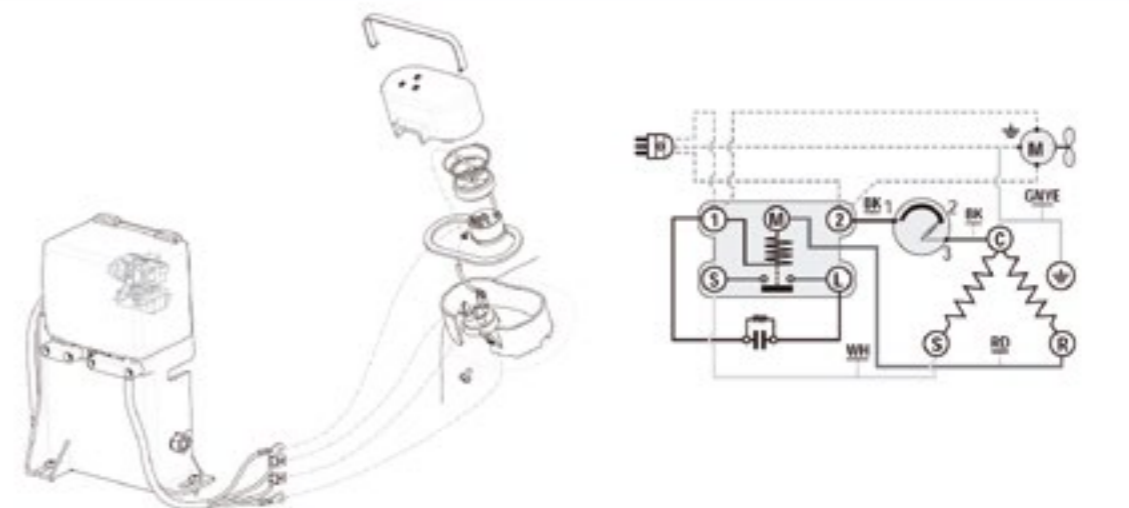
SM10 - NE CSR Box



SM08 - F COMPRESSORS



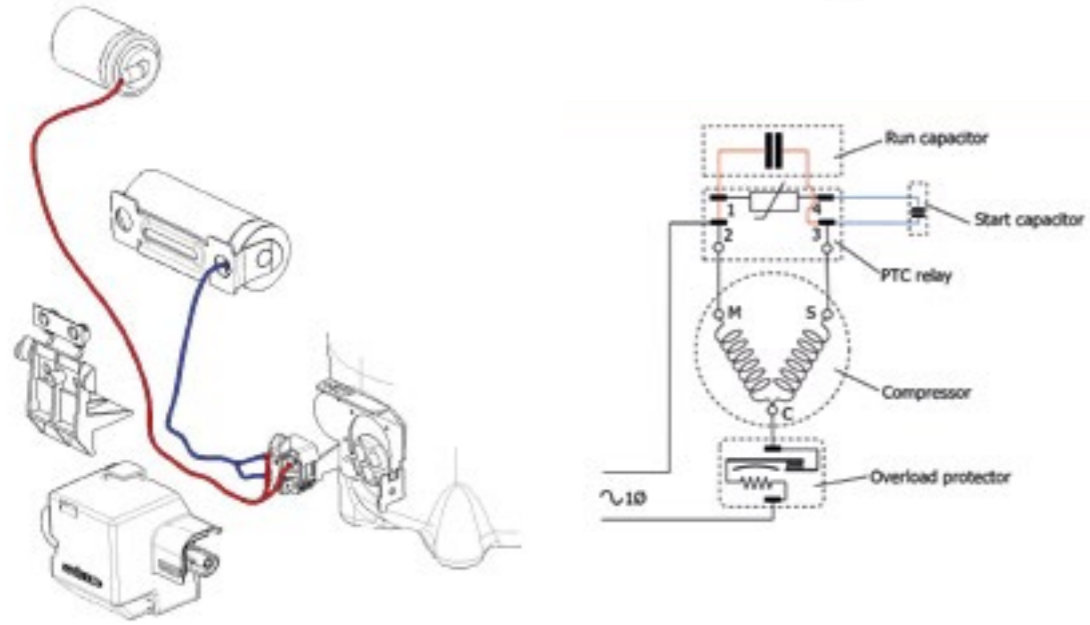
SM14 - NJ CSIR Box



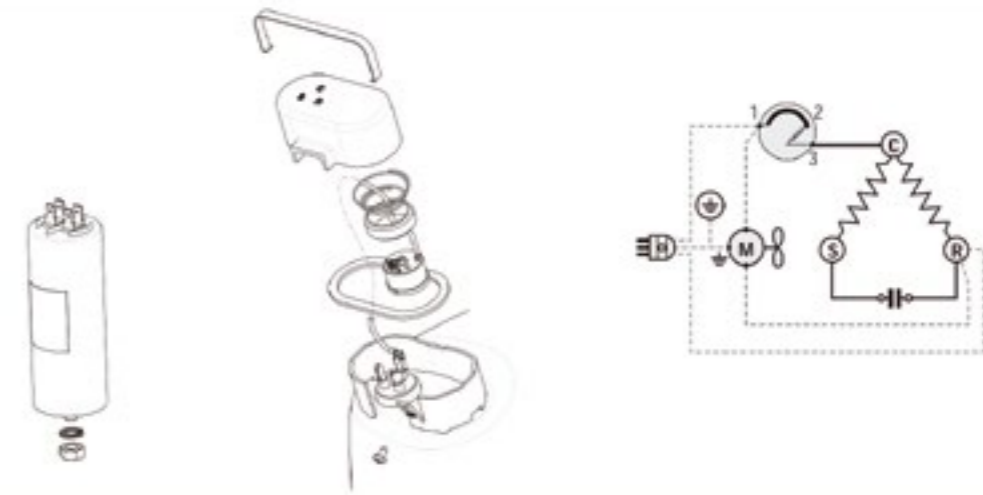
(*) Valid only for CSIR version

(*) Valid only for CSIR version

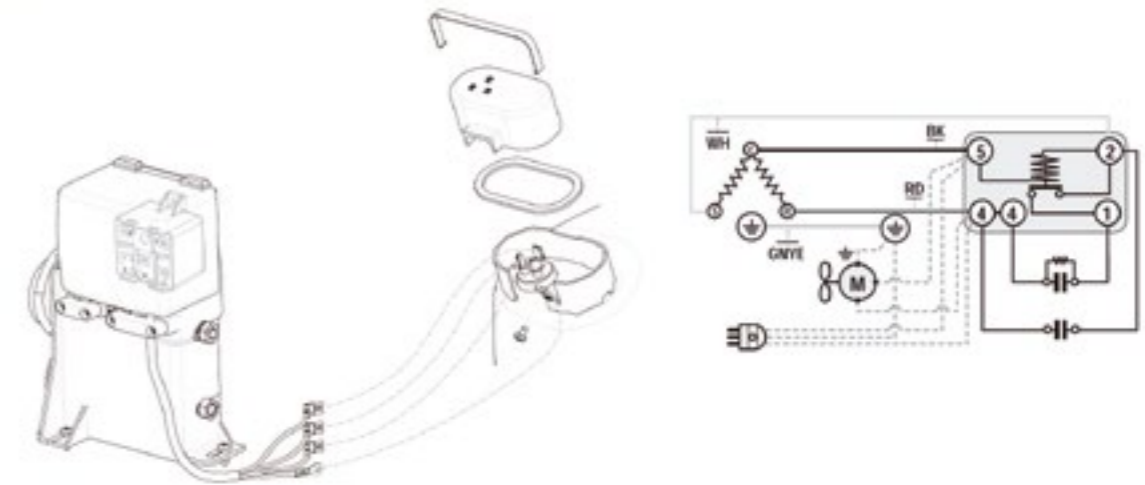
F - COMPRESSOR



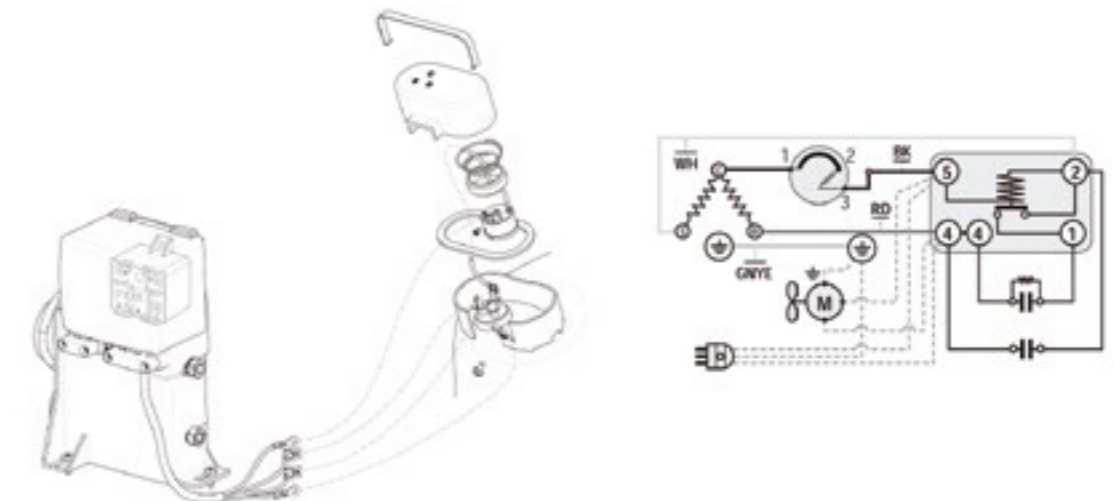
SM15 - NJ PSC



SM16 - NJ SERIES CSR Box (Internal Overload Protector)

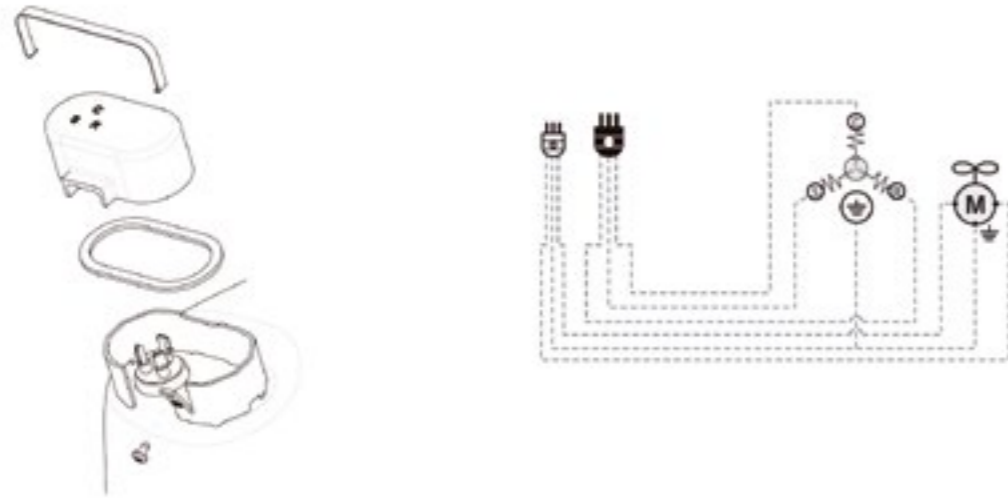


SM17 - NJ CSR Box (External Overload Protector)

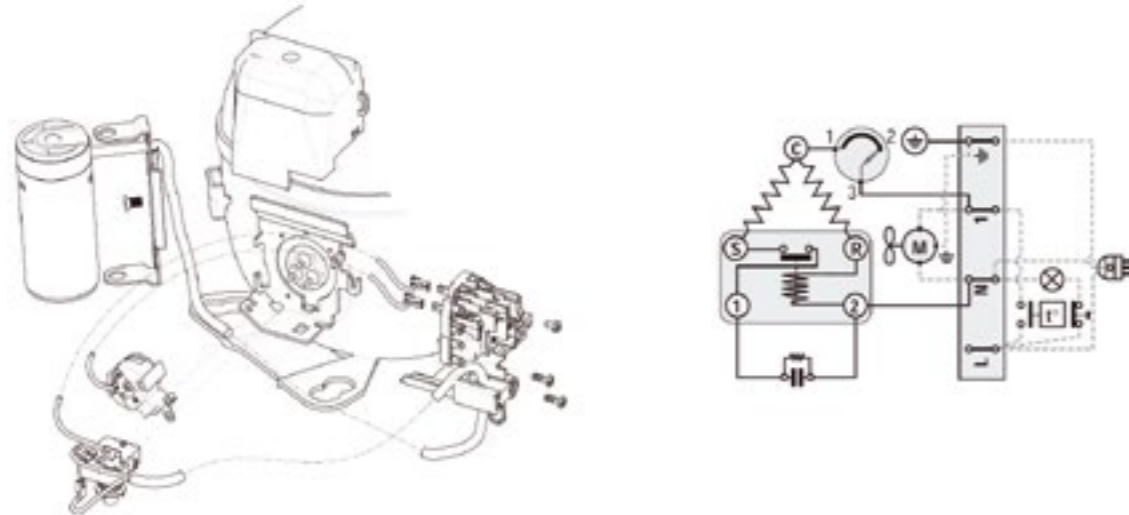


WIRING DIAGRAMS

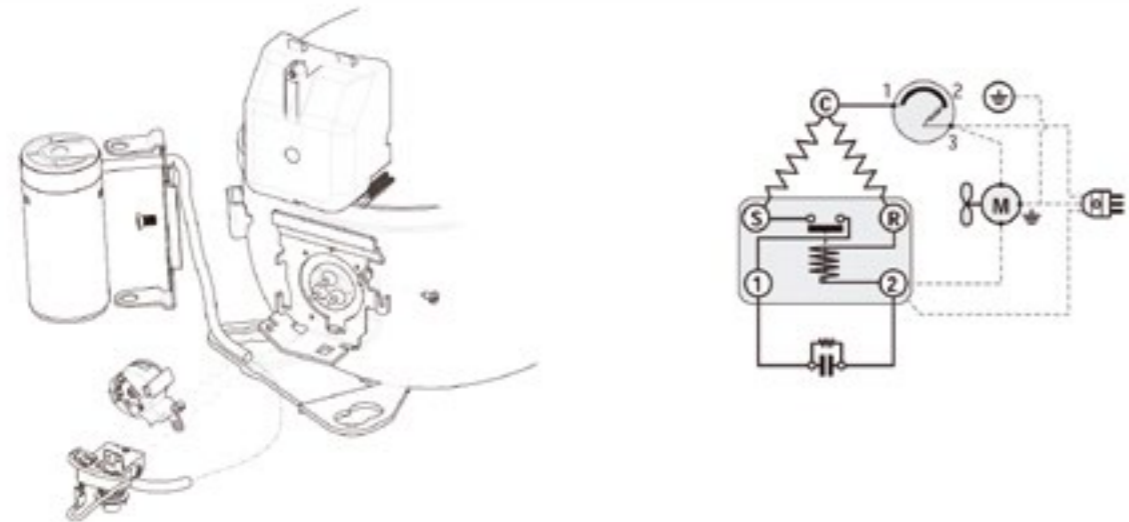
SM18 - NJ SERIES 3-Phase (Internal Overload Protector)



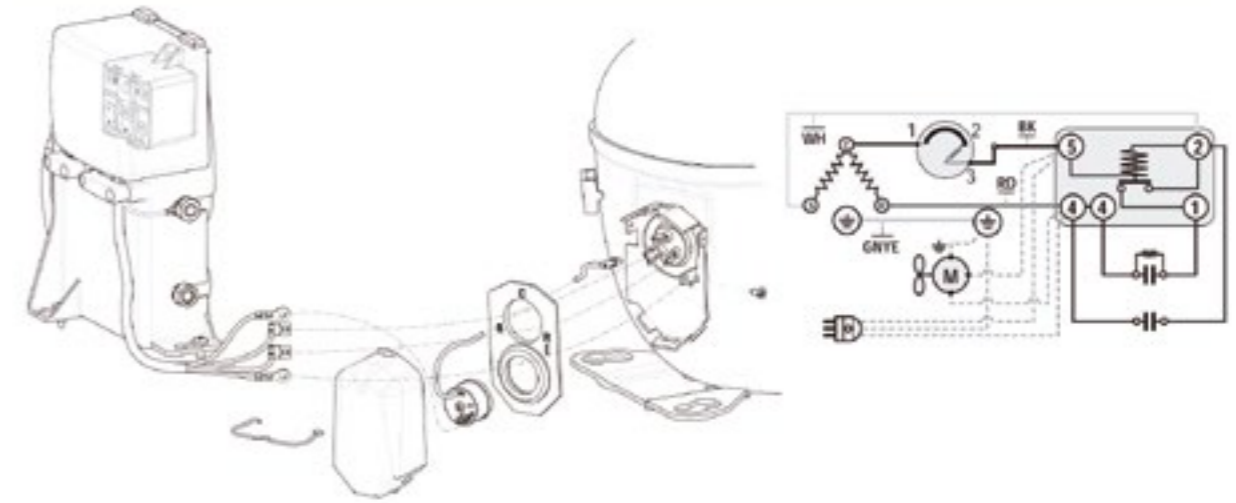
SM19 - NT SERIES CSIR Terminal Board



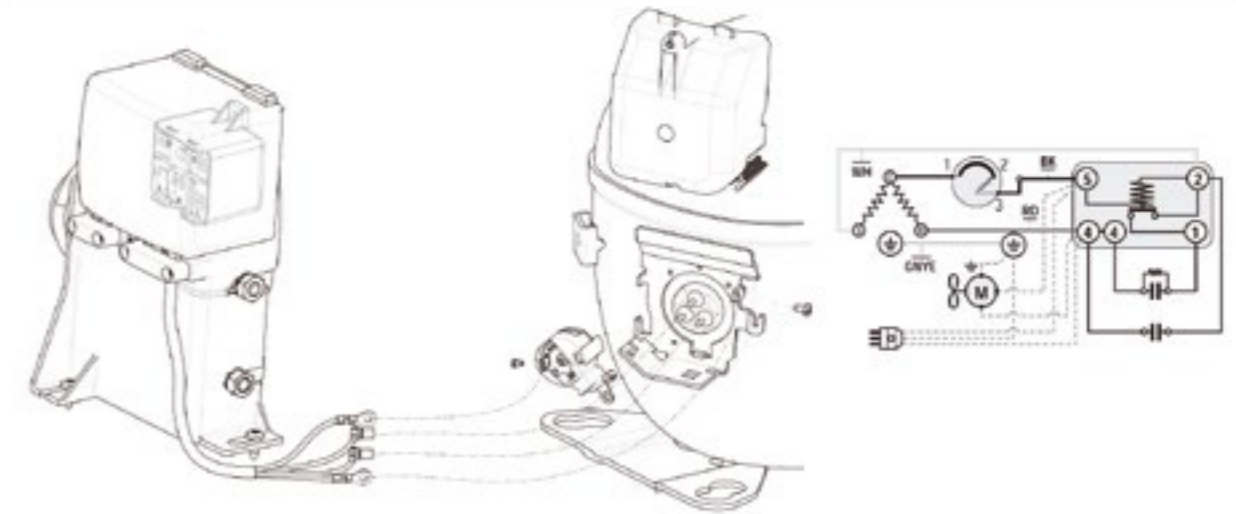
SM20 - NT SERIES CSIR - American Version



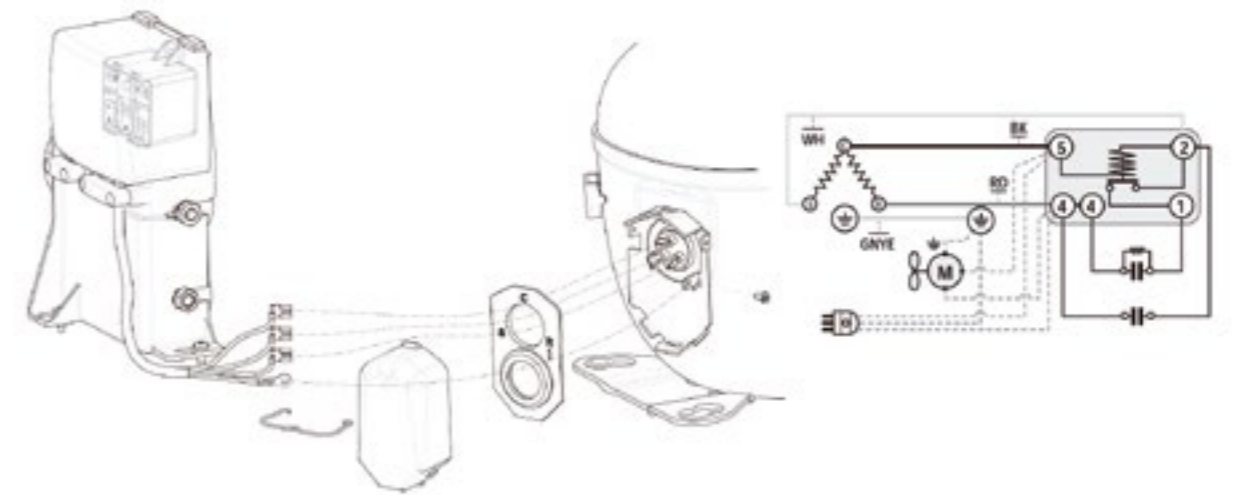
SM21 - NT SERIES CSR Box



SM23 - NT SERIES CSR Box

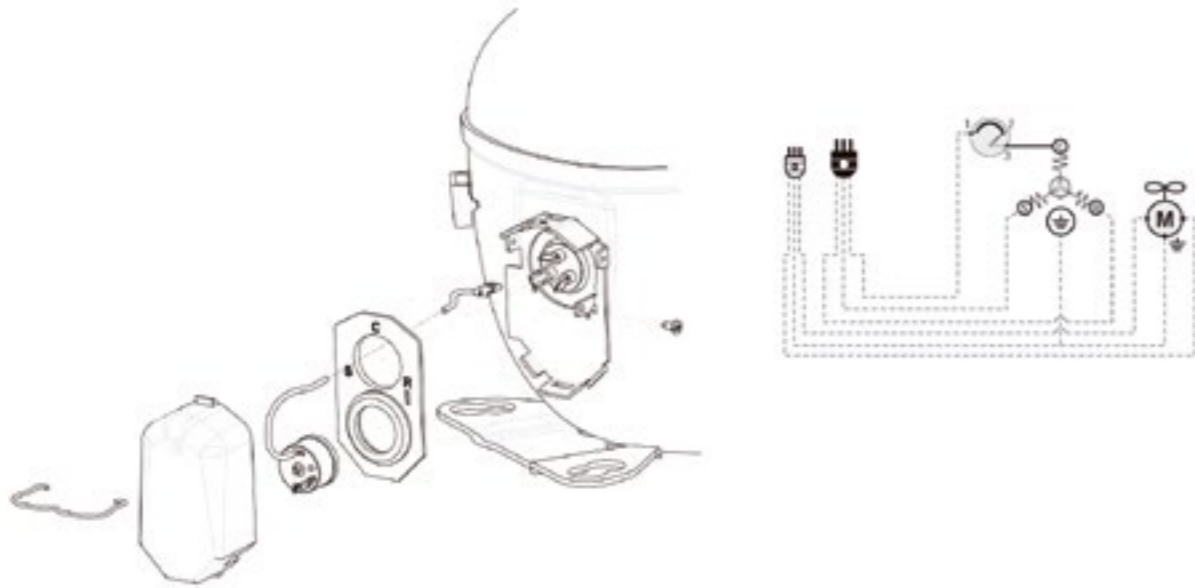


SM26 - NT SERIES CSR Box (Internal Overload Protector)

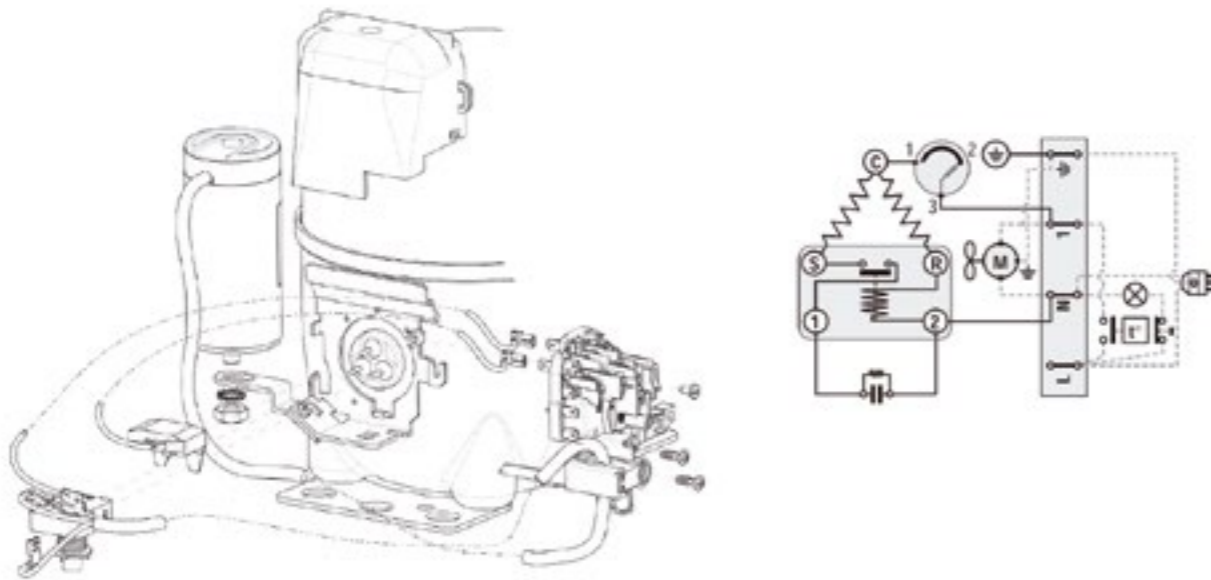


WIRING DIAGRAMS

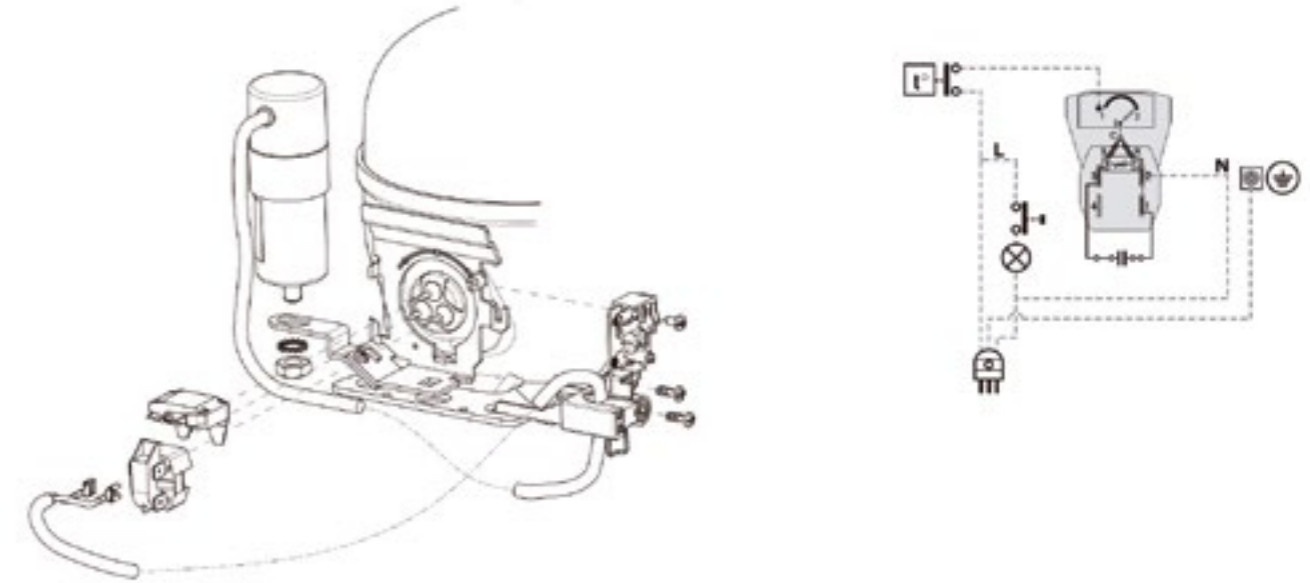
SM27 - NT SERIES 3-Phase (Internal + External Overload Protector)



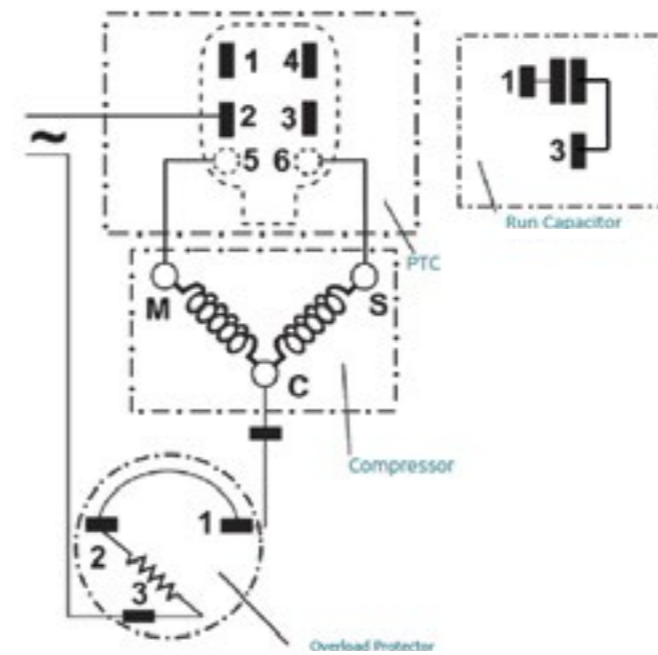
SM29 - EMX SERIES CSIR TERMINAL BOARD & START DEVICE & 4TM



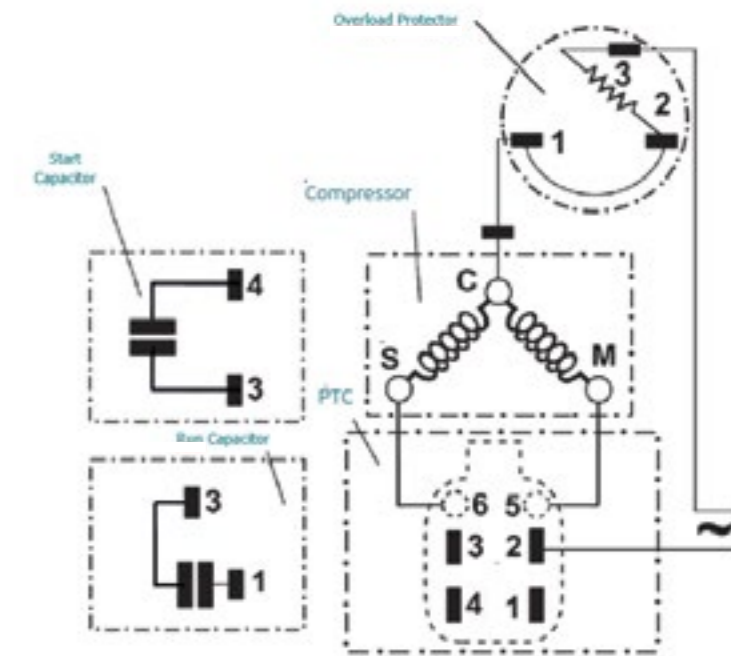
SM32 - EM RSCR PTC & 4TM



SM34 - EG,F RSCR

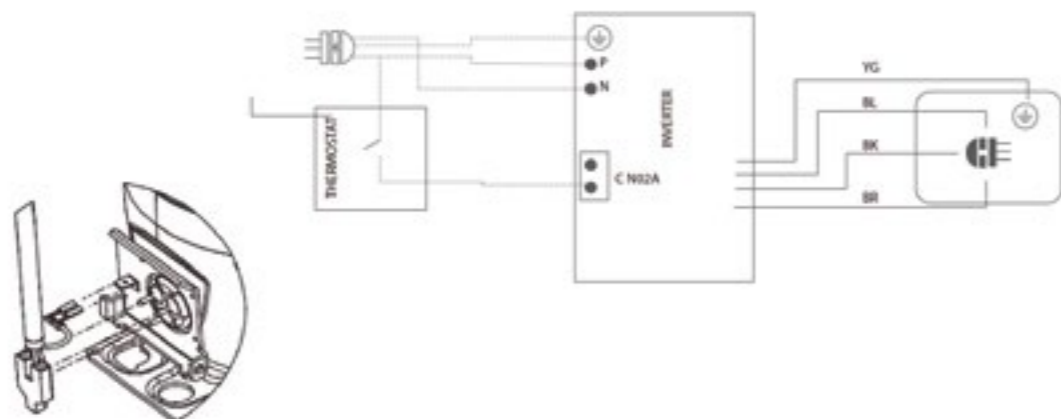


SM33 - EM CSCR

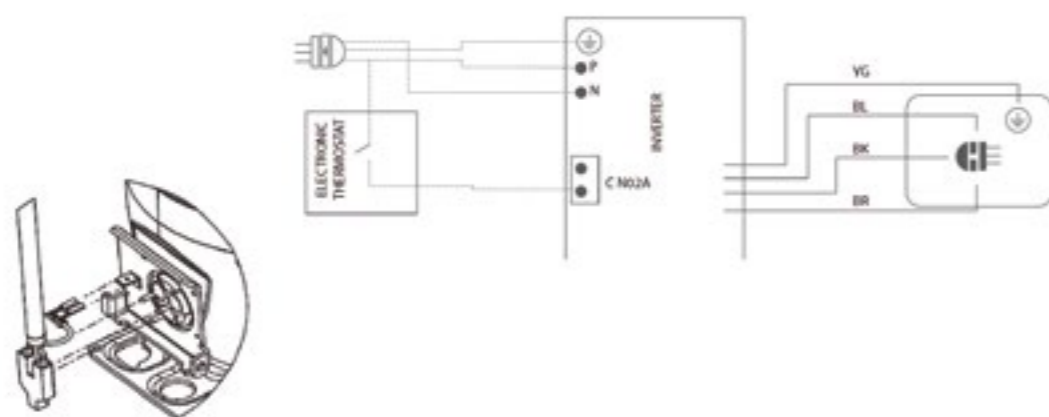


WIRING DIAGRAMS

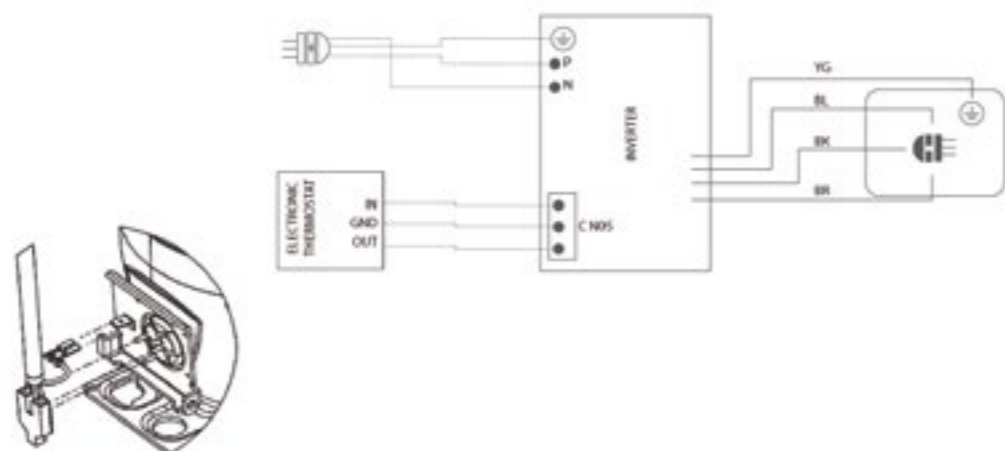
CON01 - VEMY6 / VEG (Drop-In)



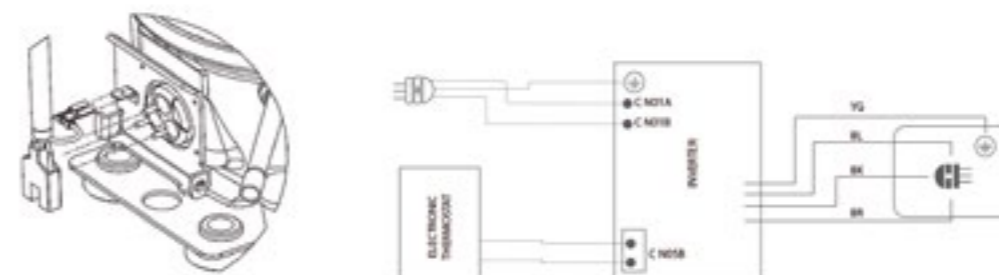
CON02 - VEM / VEG (Frequency)



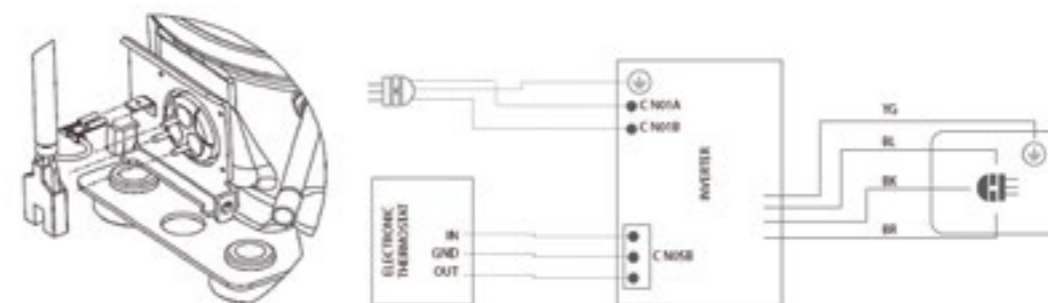
CON03 - VEMY6 / VEG (Serial)



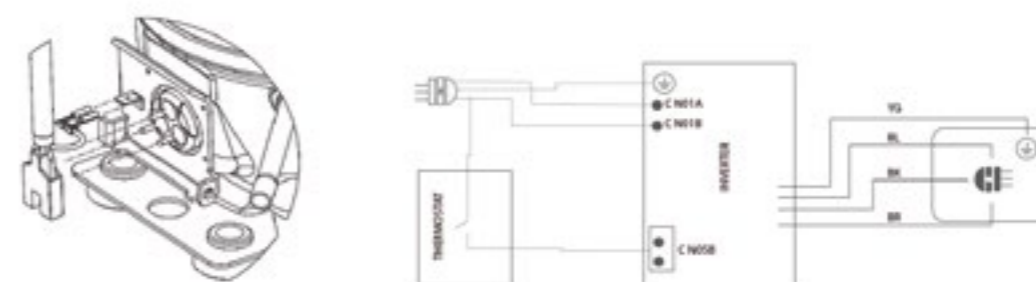
CON04 - VEM/VEH (FREQUENCY)



CON05 - VEM/VEH (SERIAL)



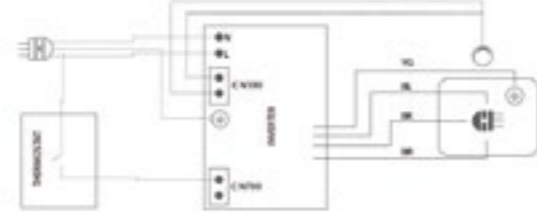
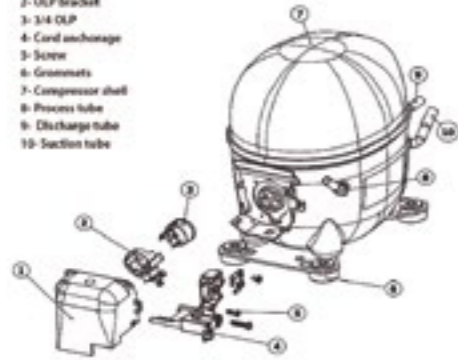
CON06 - VEM/VEH (DROP-IN)



WIRING DIAGRAMS

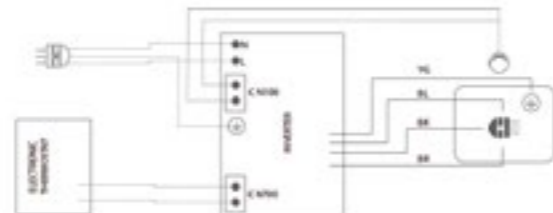
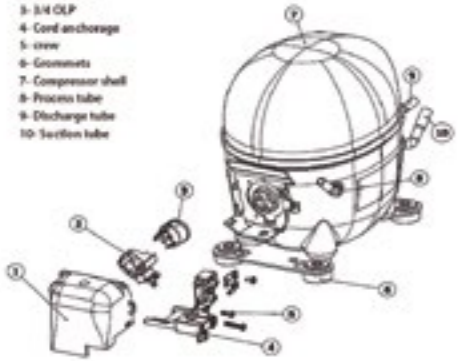
CON07 - VNE (Drop-in)

- 1- Fence cover
- 2- OLP bracket
- 3- 3/4 OLP
- 4- Cord anchorage
- 5- Screw
- 6- Grommets
- 7- Compressor shell
- 8- Process tube
- 9- Discharge tube
- 10- Section tube



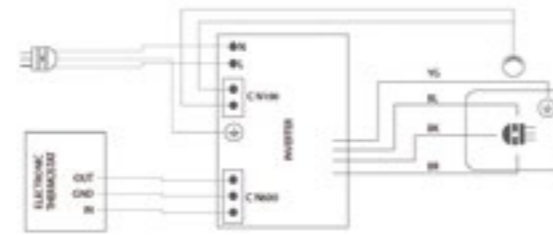
CON08 - VNE (Frequency)

- 1- Fence cover
- 2- OLP bracket
- 3- 3/4 OLP
- 4- Cord anchorage
- 5- screw
- 6- Grommets
- 7- Compressor shell
- 8- Process tube
- 9- Discharge tube
- 10- Section tube

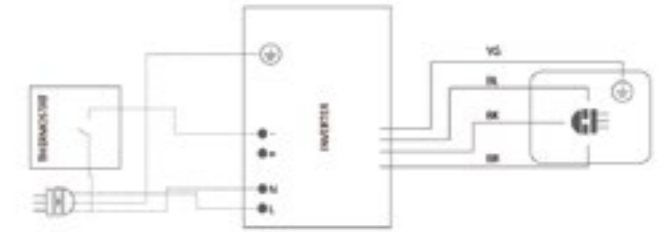
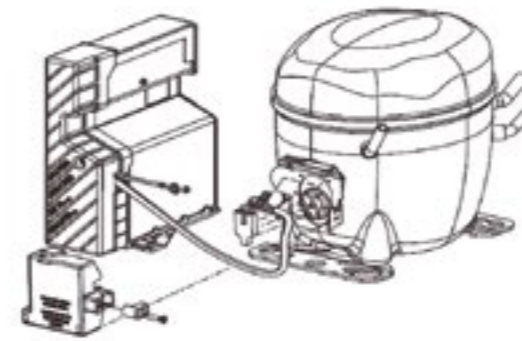


CON09 - VNE (Serial)

- 1- Fence cover
- 2- OLP bracket
- 3- 3/4 OLP
- 4- Cord anchorage
- 5- Screw
- 6- Grommets
- 7- Compressor shell
- 8- Process tube
- 9- Discharge tube
- 10- Section tube



CON10 - VEG/FMF (Drop-in)



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RECOMMENDATIONS

1 - ELECTRICAL ACCESSORIES

Before removing the compressor plastic protection cover, check if the compressor is fully disconnected from the power source and if capacitors are applied.



Never operate on any electrical accessory with the compressor connected to the power grid. Working on an electrified compressor can cause severe damages to the technician's health, causing risks of electric shocks or getting burnt.



Start and/or run capacitors must be handled carefully, because, even when disconnected, they can cause electric shocks.

When you need to remove the capacitors, disconnect this components carefully paying attention to the exposed electric terminals. After disconnected, the capacitor must be discharged. Check if the capacitance ranges (μF) printed on the label on the capacitors are in accordance with the compressor's technical data. The capacitor's voltage must be the same or higher than the specified value in the compressor's technical data. In case the capacitor or compressor's specification don't match, replace the capacitor.



The application of the wrong capacitor, not specified component, may cause overheating of these components. Overheating may cause fractures on the capacitor which can lead to the leakage of internal content burning the operator.

In the case of removing the electrical components from the compressor's hermetic terminal, first remove the overload protector and the start device (relay or PTC) applying longitudinal force on the terminal pins. Never apply transversal force on the pins of the hermetic terminal.



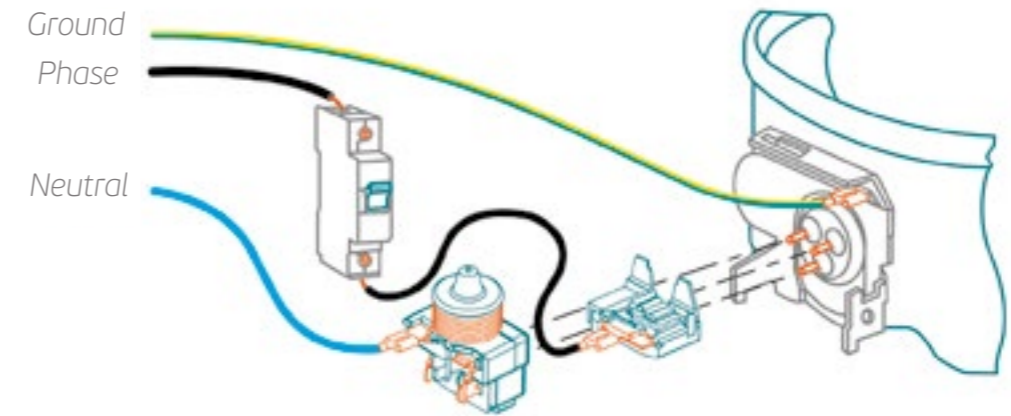
The incorrect removal of these accessories may damage the hermetic terminal on the compressor which can lead to the hermetic pins to be dislodged, causing refrigerant leakage. This situation becomes more critical in the case of flammable refrigerant utilization, since associated with an ignition source, creating a risk of and exposed flame with serious risks to the technician's physical integrity.

Cross check the code printed on the overload protector, relay or PTC with the compressor's technical data. In case they are different, replace these components for a compliant one. Universal accessories don't exist, you must always use components specified on the compressor's technical data.

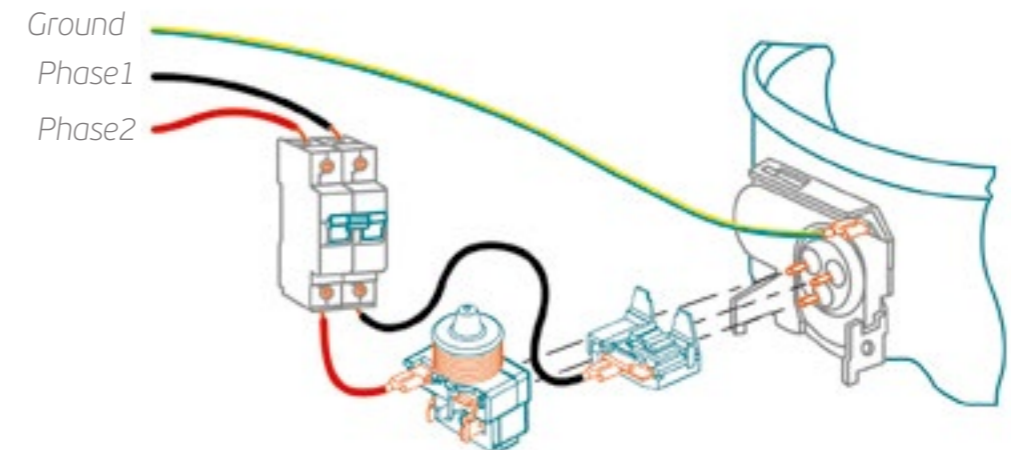


The use of incorrect electrical components, (overload protector, starting device) can cause a short circuit in the region the hermetic terminal of the compressor, which can lead to the hermetic pins to be dislodged, causing refrigerant leakage. This situation becomes more critical in the case of flammable refrigerant utilization, since associated with an ignition source, creating a risk of and exposed flame with serious risks to the technician's physical integrity.

1 - ELECTRICAL INSTALLATION



On single-phase installations, the phase wire must be protected by a circuit breaker and connected to the overload protector. The Neutral wire must be connected to the start device (Relay or PTC). The system must be grounded.



On two-phase installations, the use of a bipolar circuit breaker is mandatory, because in case of a short circuit, both phases will be protected. The system must be grounded.



When this bipolar starter isn't applied, the system is exposed to a short circuit in the region the hermetic terminal of the compressor, which can lead to the hermetic pins to be dislodged, causing refrigerant leakage. This situation becomes more critical in the case of flammable refrigerant utilization, since associated with an ignition source, creating a risk of and exposed flame with serious risks to the technician's physical integrity.



The usage of a not grounded system can generate severe risk of an electric shock on the technician.

2 - COMPRESSOR

If the compressor's replacement is necessary, be aware to these points below:

I. Check if the compressor is disconnected from the power grid.



You must never handle any electrical accessory with the compressor connected to the power grid. This can prevent several health risks to the technicians, such as electric shocks or getting burnt.

II. You must never remove the compressor without first removing all the refrigerant inside the system. You can use refrigerant recovery. In the case of replacing compressors with flammable refrigerants, such as R290 or R600a, make sure to remove the whole charge from the system.



The presence of flammable fluid residues can expose the technician to risks.

III. You must always use a pipe cutter to disconnect the pipes from the compressor. Under no circumstances, use the flame torch to disconnect the compressor tubes.



The use of a torch to disconnect the compressor from the system operating with flammable refrigerant can cause fire and release of toxic vapors.

IV. In case of compressor failure and / or internal contamination of the system, clean the refrigeration circuit with a suitable solvent, following the technical guidelines of the solvent manufacturer.



Failure to comply with the solvent manufacturer's technical guidelines may expose the technician to risk of fire or intoxication.

V. Before turning the compressor on:

- Check if the voltage specified on the compressor label in accordance with the power grid and system electrical installation, following item 1.1.



The application of a compressor with a wrong voltage can cause a short circuit in the region the hermetic terminal of the compressor, which can lead to the hermetic pins to be dislodged, causing refrigerant leakage. This situation becomes more critical in the case of flammable refrigerant utilization, since associated with an ignition source, creating a risk of an exposed flame with serious risks to the technician's physical integrity.

- Check if the electrical protection plastic cover is properly inserted.



Failure to use or improperly fix the plastic cover on the electrical terminal may expose the technician to risk of electric shock and fire.

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