

Secop strives to be the first choice for partners searching for leading-edge refrigeration solutions and premium customer experience.

Secop is committed to delivering advanced refrigeration compressors and controls, offering customers tailored sustainable solutions for light commercial, battery-driven, and special cooling applications.

HERMETIC COMPRESSORS

SECCP

AC VOLTAGE



ENERGY
OPTIMIZED



WIDE APPLICATION
RANGE



STATIONARY
COOLING

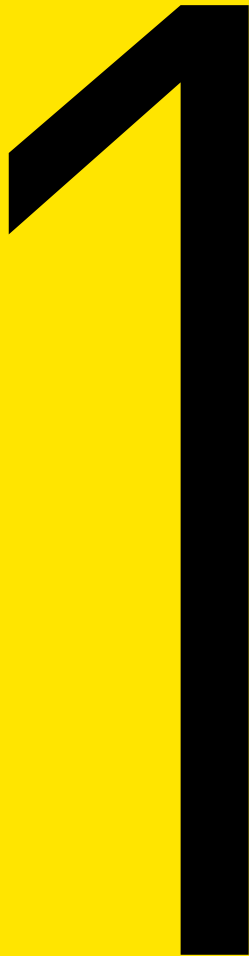




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SECOP HERMETIC RECIPROCATING COMPRESSORS



1.1 SECOP HERMETIC RECIPROCATING COMPRESSORS

The Secop range of hermetic reciprocating AC compressors packs a mighty punch in a small package. Compact design, efficient motors and low energy consumption are the main features in hermetic compressors that build on over 60 years of reliability and quality.

This catalogue contains information on Secop hermetic refrigeration compressors ranging from 115 V to 240 V.

The Secop hermetic refrigeration compressor programme consists of the types P / T / D / K / N / F / S and G-Series compressors designed for household or light commercia applications. All of the compressor types are designed for refrigeration systems using the designated refrigerants listed below.



Refrigerant	R134a (type label stripe colour: blue), chemical formula: CH ₂ FCF ₃	type label colour
Voltages & frequencies	220–240 V, 50 & 60 Hz 115 V, 60 Hz	yellow green
Basic types	220– 240 V: PL, TL, TF, NL, NF, FR, SC, SC Twin 115 V: PL, TF, TL, NF, NL, FF, SC	

Refrigerant	R404A/R507 (type label stripe colour: lilac), chemical formula R404A: CHF ₂ CF ₃ / CH ₃ CF ₃ / CH ₂ FCF ₃ chemical formula R507: CHF ₂ CF ₃ / CH ₃ CF ₃	type label colour
Voltages & frequencies	220–240 V, 50 & 60 Hz 115 V, 60 Hz	yellow green
Basic types	220– 240 V: PL, TL, TF, NL, NF, FR, SC, SC Twin 115 V: PL, TF, TL, NF, NL, FF, SC	

Refrigerant	R407C (type label stripe colour: lilac), chemical formula: CH ₂ F ₂ / CHF ₂ CF ₃ / CH ₂ FCF ₃	type label colour
Voltage & frequency	220–240 V, 50 Hz	yellow
Basic types	SC, SC Twin	

Refrigerant	R290 (type label stripe colour: red), chemical formula: C ₃ H ₈	type label colour
Voltages & frequencies	220–240 V, 50 & 60 Hz 115 V, 60 Hz	yellow green
Basic types	TL, DL, NL, SC	

Refrigerant	R600a (type label stripe colour: red), chemical formula: C ₄ H ₁₀	type label colour
Voltages & frequencies	220–240 V, 50 & 60 Hz 115 V, 60 Hz	yellow green
Basic types	PL, TL, NL	

Note: Direct current compressors and variable speed compressors have a grey label.

K-Series	Refrigerant	R600a [no colour stripe], Chemical formula: C ₄ H ₁₀	type label colour
	Voltage & frequency	220–240 V, 50 & 60 Hz	Yellow
	Basic types	HMK, HKK, HTK, HXK, HZK	
	Refrigerant	R134a [blue area on type label], chemical formula: CH ₂ FCF ₃	type label colour
	Voltage & frequency	220–240 V, 50 Hz	Yellow
	Basic types	GTK	

1.1.1
VOLTAGES AND
FREQUENCIES

Secop AC refrigeration compressors are designed for the main voltage 220 V 50 Hz and 115 V 60 Hz. The compressors can also be used at other voltages and frequencies. Thus 220 V compressors can also be used on 240 V 50 Hz mains as the higher voltage tends to amplify the motor capacity. Some compressors can be used on 60 Hz mains, for instance 220 V 60 Hz and 230 V 60 Hz, however dependent on the application, the compressor, and the type. The rated voltages 100 V 50 Hz, 120 V 60 Hz, 127 V 60 Hz, 110 V 50 Hz and 127 V 50 Hz will strengthen the motors. The rated voltages 110 V 60 Hz and 100 V 60 Hz will weaken the motors. If used at 50 Hz the motors will be strengthened but the compressor capacity will be reduced by approx. 17 %.

1.1.2
REFRIGERANTS

Refrigerants with certain molecular structures have been identified as substances that can be harmful to the environment. Two properties are critical: the ozone depleting potential (ODP) and the global warming potential (GWP). The first negative property is covered by the Montreal Protocol ('Montreal Protocol on Substances that Deplete the Ozone Layer') from 1987 which is an international agreement designed to protect the earth's ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion. The result was the replacement of HCFC (halogenated chlorofluorocarbon, R22) refrigerants with HFC (hydrofluorocarbon, e.g. R134a) refrigerants which have an ODP of zero (or close to zero). The significant downside of HFC refrigerants is their high global warming potential since they belong to the category of green-house gases. This fact was discovered after the Montreal Protocol was adopted and was recently covered by an amendment adopted in Kigali in October 2016. Before this amendment, the United States and the EU had introduced regulations to define the phase down and replacement of these HFCs on a federal level.

Secop has been a pioneer and early adopter of hydrocarbons as refrigerants and believes the most efficient and economical friendly substances for use in cooling appliances are isobutane (R600a) and propane (R290). Secop recommends the first one as a replacement for household appliances and small capacities in the light commercial segment and the latter one for medium to large light commercial applications. Secop is also aware that the transition towards hydrocarbons is challenging for manufacturers as well as for service providers and not always feasible in the short term.

Tests have so far shown good results with refrigerant R452A as a drop-in replacement for R404A and R507. Based on this information, Secop allows the use of R452A on all its R404A and R507 released compressors. It is the customer's responsibility to validate the application, and they should carefully consider the requirements and drawbacks when changing from R404A/R507 to R452A in their application.

The HFO (hydrofluoroolefin) R1234yf can be used as drop-in for replacing R134a in the short-term for most of the applications. R1234yf is classified as flammable according to relevant safety standards. It is more expensive than R134a, however, it holds remarkably less greenhouse potential than R134a. Our R134a compressors can be used for testing with this refrigerant, and we will be more than happy to assist you in discovering that right solution for you and when it comes to the approval procedure. Investigations into material compatibility have so far shown good results with refrigerant R1234yf in Secop R134a compressors. These results must be confirmed in ongoing long-term tests. Currently, testing system performance can be conducted using compressors originally designed for R134a. The same application limits as described on the R134a data sheet may be used, however, partly with changed electrical equipment. Since R1234yf is classified as a flammable refrigerant, the compressors must be used with starting equipment approved for flammable refrigerants. The compressors designed for R134a do not have a safety approval for flammable refrigerants like R1234yf.

1.1.2.1
HANDLING OF
REFRIGERANTS

To ensure reasonable refrigeration system life, the refrigerant must have a maximum moisture content of 20 ppm (20 mg/kg). Do not fill the refrigerant from a large container into a filling bottle through several container sizes, as with every drawing-off the water content in the refrigerant is increased considerably.

1.1.2.2
CHARGING WITH
REFRIGERANT

Normally, charging with refrigerant is no problem with a suitable charge, provided that the charging amount of the refrigeration system equipment is known.

Always charge the refrigerant amount and type stated by the refrigerator manufacturer. In most cases this information is stated on the refrigerator type label. The different compressor brands contain different amounts of oil, so when converting to another brand it may be advisable to correct the amount of refrigerant. Charge of refrigerant can be made by weight or volume.

Flammable refrigerants like R600a and R290 must always be charged by weight. Charging by volume must be made with a refrigerant charging cylinder. The refrigerant R404A and all other refrigerants in the 400 series must always be charged as liquid.

If the charging amount is unknown, charging must be done gradually until the temperature distribution above the evaporator is correct. However, mostly it will be more appropriate to overcharge the system and then gradually draw off refrigerant until the correct charge has been obtained. The refrigerant charge must be made with the compressor running, the refrigerator without load and with the door closed.

The correct charge is characterized by the temperature being the same from the inlet to the outlet of the evaporator. At the compressor suction connector the temperature must be approx. ambient temperature. Thus transfer of moisture to the refrigerator insulation is avoided.

Systems with an expansion valve must be charged with refrigerant until there are no bubbles in the sight glass, which should be placed as close to the expansion valve as possible.

1.1.2.3
FLAMMABLE
REFRIGERANTS
R290 AND R600a

R600a (isobutane) and R290 (propane) are a hydrocarbons. Hydrocarbon refrigerants are flammable and are only allowed for use in appliances that meet the requirements set out in the latest revision of EN/IEC 60335-2-34. Consequently, R600a and R290 are only allowed to be used in appliances designed for this refrigerant and fulfil the above-mentioned standard. R600a and R290 are heavier than air and the concentration will always be highest at the floor. R600a must only be stored and transported in approved containers and must be handled according to existing guidelines.

Do not use the refrigerants R600a or R290 near an open fire. The refrigeration systems must be opened with a tube cutter.

The flammability limits are approx. as follows,

Refrigerant	R600a	R290
Lower limit	1.5 % by vol. (38 g/m³)	2.1 % by vol. (39 g/m³)
Upper limit	8.5 % by vol. (203 g/m³)	9.5 % by vol. (177 g/m³)
Ignition temperature	460 °C	470 °C



To properly perform maintenance and repair work on R600a or R290 systems, service staff must be properly trained in handling flammable refrigerants. This includes knowledge of tools, transportation of the compressor and refrigerant, and the relevant regulations and safety precautions when carrying out service and repair work.

Do not use open fire when working with refrigerants R600a and R290!

Conversions from refrigerants R12 or R134a to R600a is not permitted, as the refrigerators are not approved for operation with flammable refrigerants, and the electrical safety has not been tested according to existing standards either. The same applies to conversions from refrigerants R22, R502 or R134a to R290.

Secop compressors that use flammable refrigerants R600a and R290 are equipped with a yellow warning label as shown.

1.1.3
CONNECTORS

Some compressors are supplied with sealed connectors, which consist of a thick walled copper plated steel tube with great corrosion resistance and good braze bility. The connectors are welded in the compressor housing and thus the welding cannot be destroyed by overheating during brazing operations. The sealing is an aluminium cap which gives a tight sealing. The seal is easily removed with an ordinary pair of pliers or with the tool shown in the figure.

Compressor with copper connectors are sealed with rubber plugs.

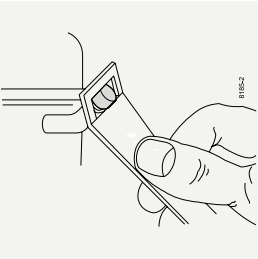
Refer to chapter 13.1 for connector positions.

Oil cooler tubes are made of copper and the connectors are sealed with rubber plugs. 220 V compressors are normally supplied with millimetre tubes, while 115 V compressors are supplied with inch tubes. All connectors have a shoulder to provide optimal brazing conditions. Drifting of the connectors for more than 0.3 mm is not allowed.

Compressors with an "S" in the model denomination and all NL/DL types have a direct intake system, which means increased capacity. The suction connectors at these compressors must be connected to the suction line to prevent capacity loss.

For the refrigerants R600a and R290, process tubes can be closed with a LOKRING® connection.

Brazing is not allowed during servicing systems with flammable refrigerants.



1.1.4 HFC REFRIGERANTS (R134a)

The HFC refrigerant R134a and HFC mixtures require Polyester type oil. Contamination of components and systems with mineral oil and alkylbenzols must be avoided. Greasy substances and other long-chained, high molecular substances not dissolved must not be present. Manufacturing processes which require a lubricant can be done with Polyester oil approved for the compressors. Procedures for mounting, evacuation and charging must be carried out in such a way that contamination with chlorine refrigerants is avoided. HFC refrigeration systems must always have a drier with 3 Angstrom Molecular Sieves.

1.1.5 COMPRESSOR DESIGNATIONS

The first letter (P, T, D, N, F, S or G) indicates the compressor series whereas the second indicates the motor protection placing. Nominal displacement is indicated by a number, which – for practical reasons – has been approximated to the actual displacement.

Between the indicators for compressor series and displacement the identification marking for the optimization of the compressor is given.

The letter following the marking for nominal displacement indicates which refrigerant must be used as well as the field of application of the compressor. LBP (Low Back Pressure) indicates the range of low evaporating temperatures, MBP (Medium Back Pressure) the range of medium evaporating temperatures, and HBP (High Back Pressure) the range of evaporating temperatures.

The extra "T" indicates a compressor intended for the tropics.

The final letter in the compressor marking provides information on starting torque. If, as standard, the compressor is intended for LST and HST, this place is left empty.

"K" also indicates low starting torque (Capillary tube, LST = Low Starting Torque) and "X" high starting torque (Expansion valve, HST = High Starting Torque)

1.1.6 DESIGN

All Secop hermetic reciprocating compressors for R404A/R507 and R407C from the TL, TF, NL, FR and SC range are standard efficiency types. Furthermore, all compressors for R290 from the TL, NL and SC range are standard efficiency types as well. All compressors for R134a with the denominations PL, PLE, TLS, TFS, TLES, NL, NF and NLE are designs with semi direct intake.

Using the wrong suction connector on designs with direct intake. is not allowed, as the compressor will not function. Using the wrong suction connector on PL, PLE, TLS, TFS, TLES, NL, NF and NLE compressors will lead to reduced capacity and efficiency.

All compressors for R600a are designed with semi direct intake. Using the wrong suction connector will lead to reduced capacity and efficiency. Please note that the suction and process connectors on all TLS, TFS, and TLES compressors have been interchanged as compared with the basic TL compressors.

1.1.7 COMPRESSOR DIMENSIONS

The built in conditions (total height, weight, tube dimensions etc.) are specified in the individual datasheets including dimensioned sketches.

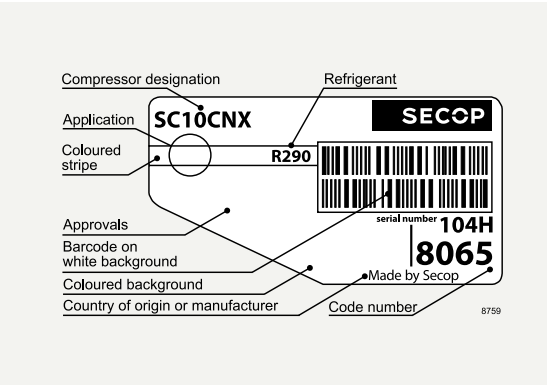
1.1.8 TYPE LABEL

All compressors for 220–240 V have a yellow label with the type designation. Compressors for 115 V have a green label with the type designation.

Direct current compressors and variable speed compressors have a grey label.

The label for "R404A R507" or "R404A R407C R507" has a lilac stripe. The label for "R134a" has a blue stripe. The labels for "R290" and "R600a" both have a red stripe.

The country of origin indicated on the compressor paper label and on the compressor varies depending on the manufacturing place **[see 1.9]**



Barcode format

A Secop compressor type label contains two barcode lines. The first line is the full code number of the compressor and the second line is the compressor serial number. These barcodes contain 8 characters each and are printed in code 128.

Serial number

The compressor serial number will also be written in normal letters below the barcodes

The serial number contains 8 digits, written in characters 0...9 and A...Z, without I and O.

1.1.9 DATE CODE FORMAT & COUNTRY OF ORIGIN

Secop compressors have a manufacturing date code stamping on the housing.

The content of the coding (Fig.1) is in two lines according to the example below:

H4485C [6 characters]
051D11R [7 characters, 8 characters for BD Micro]

COMPOSITION OF LINE 1

H4485: Compressor type information
[102H4485 = H4485]
C: Internal Secop code

COMPOSITION OF LINE 2

05: Production week
1: Production year
D: Production day
A = Monday, B = Tuesday,
C = Wednesday, D=Thursday, etc.
11: Production hour 00 to 23 or
shift code -1, -2, -3
R: Internal production location code
A to G, U Germany:
A until week 50/2005
D until week 35/2006
U until week 08/2010
K to N Slovenia:
K until week 39/2012
L until week 34/2011
M until week 02/2012
N until week 02/2012
A, D, L,M, R, U Slovakia:
A from week 01/2006
D from week 38/2006
L from week 45/2011
M from week 09/2012
R from week 01/2005
U from week 12/2010
S, R Mexico:
R up to week 27/2004
W to Z China

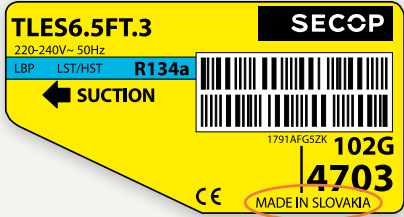


Fig.1 Needle print coding on compressor housing and country of origin on type label



1.1.10 COUNTRY OF ORIGIN ON TYPE LABEL

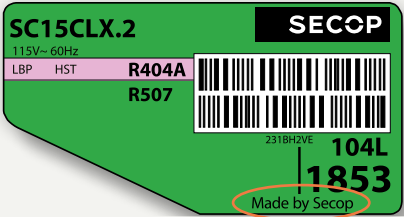
Fig.2 Slovakia



On BD Micro compressors (code number 109Z ...), the production year is indicated by two digits, e.g. "11" for 2011 and a serial number behind the location code.

The country of origin (in capital letters) or the manufacturer will also be marked on the typelabel,

Fig.3 China



Examples:

MADE IN SLOVAKIA
→ for compressors made in Slovakia (Fig.2)

Made by Secop | optional label "Made in China"
→ for compressors made in China (Fig.3)

Key to AC Compressor Type Designation (P / T / D / N / F / S / G-Series)

1	1b				2					
Compressor design	Protector location				Optimization level					
	Internal		External		Low ← Standard → High					
	PTC LST	Relay HST	PTC	Relay						
P	L				L	Blank	E ^{a)}	Semi-direct intake		
T								S		
D			T				E ^{b)}	Semi-direct or direct intake	Y ^{a b)}	X ^{a)}
N				F						U ^{a)}
F	R									
S	C			C			E	Direct intake		
G	S							Semi-direct intake		

L = Low

Blank = Standard

S = Semi-direct intake
E = Energy-optimized
Y = High energy-optimized +
X = High energy-optimized ++
U = High energy-optimized +++

3		4		5	6
Compressor size		Application range	Refrigerant	Code letter for starting characteristics	Generation
Capacity at rating point	Displacement				
20 30 35 50		C = LBP CL = LBP CM = LBP	R22 R404A/R507 R22	NOTE: Starting characteristics or Specific conditions cannot be used at the same time	Blank → first generation
	2.5, 3, 4 4.5, 4.8, 5 5.7, 6, 6.5 7, 7.5, 8 8.7, 9, 10	CN = LBP/MBP CNL = LBP D = HBP	R290 R290 R22		
	4, 4.8 5.7, 6.5 7.5, 8.7 9.4, 10	DL = HBP DN = HBP F = LBP/[MBP] FT = LBP tropical	R404A/R507, R407C R290 R134a		
	5.2, 5.5, 5.7 6, 6.1, 7, 7.3 8.0, 8.4, 8.8, 9 10, 11, 12.6 13, 13.3, 15	G = LBP/MBP/HBP GH = Heat pump GHH = Heat pump optimized	R134a R134a R134a		
	6 7.5 8.5 10 11	K = LBP/[MBP] KT = LBP/[MBP] tropical MF = MBP MK = MBP	R600a R600a R134a R600a		
	10 12 15 18 21	ML = MBP MN = MBP S = LBP/HBP (service)	R404A/R507 R290 R426A R401A/R401B R409A/R409B		
	18 21 26 34	ST = LBP tropical (service)	R426A R401A/R401B R409A/R409B		

a) = Run capacitor compulsory
b) = Run capacitor optional

Key to AC Compressor Type Designation (Variable Speed Compressors)

1	2		3
Compressor design	Optimization level		Compressor size
	Low ← Standard → High		Displacement
DLV	Blank		4.0 5.7
NLV			8.0 10 12.6
SLV		E	12 15 18

- 1 The first letter of the denomination (P, T, D, N, F, S, or G) indicates the compressor series.
LV or V means variable speed compressor.
- 1b The second letter for fixed speed compressors indicates motor protection placing.
- 2 L, E, Y, X and U mean different energy optimization steps. S means semi direct suction. On all these mentioned types the indicated suction connector has to be used. Using the wrong connector as suction connector will lead to reduced capacity and efficiency.
- 3 A number indicates the displacement in cm³, but for PL compressors the number indicates the nominal capacity.
The letter after the displacement indicates which refrigerant must be used as well as the field of application for the compressor.

4		5	6
Application range	Refrigerant	Code letter for starting characteristics	Generation
F = LBP/(MBP) K = LBP/(MBP) CL = LBP ML = MBP CN = LBP/MBP CNL = LBP MN = MBP	R134a R600a R404A/R507 R404A/R507 R290 R290 R290	Blank → universal (principal rule) K = LST characteristics (capillary tube) X = HST characteristics (expansion valve)	Blank → first generation .1 → updated first generation .2 → second generation

- 4 LBP (Low Back Pressure) indicates the range of low evaporating temperatures, typically -10°C down to -35°C or even -45°C, for use in freezers and refrigerators with freezer compartments. MBP (Medium Back Pressure) indicates the range of medium evapo rating temperatures, typically -20°C up to 0°C, such as in cold cabinets, milk coolers, ice machines and water coolers. HBP (High Back Pressure) indicates high evaporating temperatures, typically -5°C up to +15°C, such as in dehumidifiers and some liquid coolers. T as extra character indicates a compressor intended for tropical application. This means high ambient temperatures and capability of working with more unstable power supply.
- 5 The next letter in the compressor denomination provides information on the starting torque. If, as principal rule, the compressor is intended for LST (Low Starting Torque) and HST (High Starting Torque), the place is left empty.
The starting characteristics depend on the electrical equipment chosen. K indicates LST (capillary tube and pressure equalization during standstill) and X indicates HST (expansion valve or no pressure equalization).
- 6 The final letter (separated by a dot) mentions the generation of the compressor.

1.2

APPLICATION RANGE

R290	CN Compressors with denominations ending with CN are designed for low evaporating temperatures (LBP Low Back Pressure) and medium evaporating temperatures (MBP Medium Back Pressure) for use in commercial refrigerators, freezers, glass door merchandisers and similar applications in regions with normal supply voltage.
	CNL Compressors with denominations ending with CNL are designed for low evaporating temperatures (LBP Low Back Pressure) for use in commercial freezers and similar applications in regions with normal supply voltage.
	MN Compressors with denominations ending with MN are designed for medium evaporating temperatures (MBP Medium Back Pressure) for use in commercial refrigerators, freezers and similar applications in regions with normal supply voltage.

R404A/R507 and R407C	CL Compressors with denominations ending with CL are primarily designed for low evaporating temperatures (LBP Low Back Pressure) for use in commercial refrigerators, freezers and similar applications in regions with normal supply voltage.
	ML Compressors with denominations ending with ML are primarily designed for medium evaporation temperatures (MBP Medium Back Pressure) for use in commercial refrigerators, bottle coolers, ice machines and similar applications.
	DL Compressors with denominations ending with DL are primarily designed for high evaporation temperatures (HBP High Back Pressure) for use in commercial refrigerators, liquid coolers, dehumidifiers, refrigerated display counters, vending machines, heat pumps and similar applications.

R600a	K All compressors for R600a have denominations ending with K after the number for displacement or capacity. They are designed for low operating temperatures (LBP Low Back Pressure) for use in refrigerators, freezers and similar applications.
	KK Compressors with endings K and KK are designed for regions with stable supply voltage.
	KTK Compressors with endings KTK are designed for less stable supply voltage and tropical conditions.
	MK Compressors with endings MK are designed for medium operating temperatures (MBP Medium Back Pressure) for use in commercial refrigerators like bottle coolers.
	Some of the smaller TLS-K, TLES-K, TLY-K and the PLE-K compressors are also released for medium operating temperatures (MBP Medium Back Pressure).
	None of the compressors are released for high evaporation temperatures (HBP High Back Pressure).

R134a – 115 V R134a – 220–240 V	F Compressors with denominations ending with F are primarily designed for low evaporating temperatures (LBP Low Back Pressure/ MBP Medium Back Pressure on small displacements) for use in refrigerators, freezers and similar applications in regions with stable supply voltage.
	FT Compressors with denominations ending with FT are F-types designed for low evaporation temperatures (LBP Low Back Pressure) for use in refrigerators, freezers and similar applications operating in regions with unstable supply voltage.
	FK Compressors with denominations ending with FK are F-types designed for low evaporation temperatures with LST starting characteristics (capillary tube)
	FX Compressors with denominations ending with FX are F-types designed for low evaporation temperatures with HST starting characteristics.
	G Compressors with denominations ending with G are primarily designed for high evaporation temperatures (HBP High Back Pressure) for use in liquid coolers, dehumidifiers, refrigerated display counters, vending machines and similar applications. The compressors can also be used for ‘Heavy Duty’ purposes at low evaporating temperatures for use in refrigerators, freezers and similar applications operating in regions with unstable supply voltage.

R134a – 115 V	GK Compressors with denominations ending with GK are G-types designed for high evaporating temperatures with LST starting characteristics (capillary tube).
	GX Compressors with denominations ending with GX are G-types designed for high evaporating temperatures with HST starting characteristics (expansion valve).

R134a – 220–240 V	GH Compressors with denominations ending with GH are designed for high evaporating temperatures for cooling of electronic cabinets and for use in heat pump systems.
	GHH Compressors with denominations ending with GHH are optimized versions of GH compressors.
	MF Compressors with denominations ending with MF are primarily designed for medium evaporation temperatures (MBP Medium Back Pressure) for use in commercial refrigerators, bottle coolers, ice machines and similar applications.



1.3

MOTORS BREAKDOWN TORQUE

The motor designation relates to the output at a load corresponding to half the breakdown torque. The concept "breakdown torque" expresses the highest load the motor is capable of handling without stopping. When testing a compressor in practice, motor breakdown torque should be sufficiently high to enable the motor to handle extreme conditions.

The load the compressor is capable of withstanding is illustrated by "breakdown curves" and the operating conditions the compressor is capable of withstanding are thus made clear. These curves are determined by maintaining a constant suction pressure (evaporating temperature) and subsequently allowing the compressor to work at an increasing back pressure on a constant voltage. If the load becomes too high, the number of revolutions will fall while current consumption increases and finally the compressor will stop.

The figure illustrates the load limits for compressors TL – "F" and TL – "G" on various under voltages and the same motor temperature. In addition, the limit for TL – "G" at 60Hz has been included in the diagram.

The diagram also shows a typical example of the load fluctuations to which a compressor is subjected from start up to stationary operation in a refrigerant circuit with capillary tube throttling. The pressure sequence, determined by the start condition and system composition, is called "system characteristics". In this example the start condition is determined by the occurrence of pressure and temperature equalization in the refrigeration system at 43°C.

For a compressor to be able to handle the shown load sequence, it is a precondition that the breakdown curve at a specific voltage does not intersect the system curve.

It can be seen from the figure that the sequence of the breakdown curve for a TL – "G" at 60 Hz is more or less the same as the curve for a TL – "F" at 50Hz. In the example shown consideration should be given to the inclusion of a G compressor if refrigeration appliances designed for 230V 50Hz are to be connected to a 220V or 230V 60Hz mains supply. Furthermore, improved under voltage properties are obtained at the same frequency by the stronger motor of a G compressor, than is the case with a corresponding "F" compressor. This is the reason why "G" types are an excellent solution in fields with heavier under voltage, while the "F" type is used in household refrigeration and freezing appliances intended for countries with a more stable power supply.

Higher motor torque will be required for operation at high evaporating temperatures (HBP) than for operation at low evaporating temperatures (LBP). "G" compressors are suitable for this field and can thus be characterized as R134a universal compressors.

Energy – optimized compressors are characterized by a minimum in mechanical and electrical losses but high volumetric efficiency. With a view to achieving high motor efficiency, well defined application conditions, limited under voltage and a proper system curve should be taken into consideration when dimensioning the compressor. Here, the careful dimensioning of system components (condenser surface, condenser volume and capillary tubes) is necessary.

SYSTEM AND BREAKDOWN CHARACTERISTICS

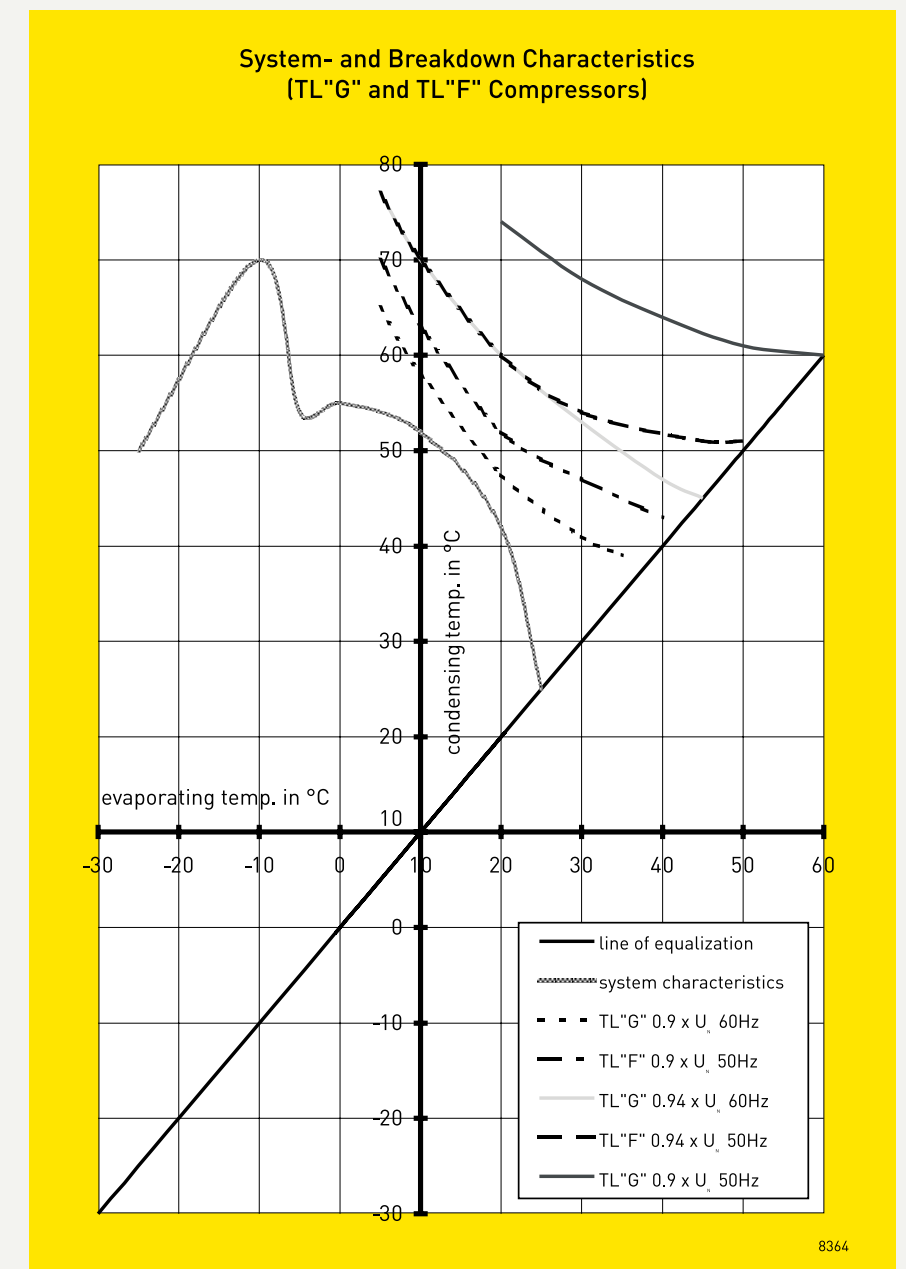


Fig. : Presentation of system and breakdown curves

Seen from this point of view, "F" compressors are a better solution in terms of energy consumption than the "G" types, and are intended for household refrigeration appliances. In all cases the precondition for trouble free operation is a stable supply voltage (min. 90% of line voltage) and suitable system dimensioning.

1.4

PRECONDITION FOR LONG OPERATING LIFE

In order to achieve trouble free operation and long operating life for a hermetic compressor, the following preconditions should be observed:

1. Sufficient starting torque of the compressor motor to allow the motor to start at the pressure conditions in the refrigeration system.
2. Sufficient breakdown torque to allow the motor to handle the load conditions at start up and during operation.
3. When the refrigeration system is in operation, the temperature in the compressor should not rise to levels which could damage its components. Consequently, condensing and compression temperatures should be kept as low as possible.
4. Precise dimensioning of the refrigeration system in question and careful evaluation of the operating conditions of the compressor at expected maximum loads.
5. Sufficient cleanliness and low residual humidity in the circuit.

1.4.1 MOTOR OVERLOAD

Compressor start up is influenced by the starting and/ or breakdown torque of the motor. If starting and/ or breakdown torque is insufficient, the compressor either cannot start or the start will be hampered and delayed because the motor protector is activated. Repeated start attempts subject the motor to overload, which sooner or later will result in failure. Faults of this kind can mostly be avoided by using the correct compressor/ motor combination. Secop offers the best solution for nearly all applications. It is a question of selecting the correct compressor for difficult fields of application.

1.4.2 THERMAL OVERLOAD

Operating conditions resulting in thermal decomposition of the materials used in the compressor must be avoided to ensure long compressor life. The materials relevant in this relation are motor insulation, refrigerant and oil.

The motor insulation consists of the insulating enamel for the copper wires, the slot liner of the stator iron, bandages and feeder cables.

As early as 1960, Secop (Danfoss Compressors) introduced fully synthetic insulation materials on all its compressors and the enamel for the wire insulation and the insulating system itself has improved continuously ever since. The result is constantly improved protection against motor overload. Like all other CFC gases, R12 and R502 were found to be harmful to the environment and were consequently prohibited. These refrigerants were used together with mineral oils. A so called Spauschus reaction between oil and refrigerant could consequently occur at high temperatures, which led to valve coking, especially at high residual humidity.

1.5

DESIGN LIMITS

In order to secure a satisfying lifetime of the compressor, some design criteria for the appliances must be fulfilled. Both the condensing temperature and the compressor temperature should be kept as low as possible. This can be done by using well dimensioned condenser surfaces and by ensuring good ventilation around the compressor under all operating conditions.

In order to protect the compressor against overload, the compressor must start and work properly through pressure peaks obtained in the highest ambient temperature and lowest working voltage. These limitations ensure a protection of valves, gaskets, oil, and motor insulation. Refrigerants R134a, R404A or R507 used today need improved oils. They are only used in connection with special quality polyester oils.

Because of these new oil types and the application of the above mentioned refrigerants there is – in practice – no longer any danger of valve coking.

Restrictions on condensing and motor temperatures are now set to protect the motor and thus increase its life.

For the application of Secop compressors in household and commercial refrigeration using the available refrigerants, we recommend the following rules to be observed:

1.5.1 COIL TEMPERATURE

Coil temperature must not exceed 125°C during continuous operation.

For limited periods of time, e.g. during compressor start up or in the case of short load peaks, the temperature should not exceed 135°C.

For commercial refrigeration with R134a the same limits as for household refrigeration apply.

However, fan cooling of the compressor is recommended.

1.5.2 CONDENSING TEMPERATURE

When using R600a or R134a the condensing temperature during continuous operation must not exceed 60°C. During limited load peaks the temperature must not exceed 70°C. In commercial refrigeration using R404A and R507 the condensing temperature limit is 55°C during continuous operation and 60°C in the case of load peaks. All CL and DL compressors are fan cooled.



1.6

ELECTRICAL EQUIPMENT /
MOTOR SYSTEMS

The compressors are equipped with a single phase AC motor. The electrical equipment of Secop AC compressor series P, T, D, N, F, S and G (electrics with relay, starting device, capacitor, cord relief and cover) is classified as "normal tight" (IP20). The motor protector is built into the motor (winding protector). Exceptions include compressors with the denominations TF and NF and some SCs. Earth connections are located on the bracket around the current lead in of the compressor.

No high potential test or start tests must be carried out while the compressor is under vacuum.

No attempt must be made to start the compressor without a complete starting device.

R134a	With some exceptions these compressors are designed with universal motors which means that they can obtain a high (HST) or low starting torque (LST) depending on the external electricalequipment used.
R600a	Nearly all compressors for R600a are designed only for use with Low Starting Torque (LST).
R290	All compressors for R290 are designed for use with Low Starting Torque (LST) or High Starting Torque (HST).
R404A/R507 and R407C	All compressors for R404A/R507 and R407C are designed only for use with High Starting Torque (HST).

1.6.1 LST (RSIR)	Compressors with the motor type Resistant Start Induction Run (RSIR) have a starting device for Low Starting Torque (LST). The design of the electrical equipment depends on the actual compressor design. The following designs of starting devices exist: a) PTC + cord relief + cover, the motor protector is built into the motor (winding protector), b) Relay housing incl. motor protector + cord relief + cover (alternative: terminal board with cord relief) The PTC starting device requires pressure equalization before each start. This starting device is normally used in well designed refrigerating systems with capillary tube as throttling device. The PTC needs a compressor standstill period of 5 minutes to cool down before each start.
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1.6.2 LST (RSCR)	Compressors with the motor type Resistant Start Capacitor Run (RSCR) have a starting device for Low Starting Torque (LST). This starting device consists of a PTC and a run capacitor. The PTC starting device requires pressure equalization before each start. This starting device is normally used in well designed refrigerating systems with capillary tube as throttling device. The PTC needs a compressor standstill period of 5 minutes to cool down before each start.
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1.6.3 HST (CSR)	Compressors with the motor type Capacitor Start Run (CSR) have a starting device for High Starting Torque (HST). The following designs of starting devices exist: a) Relay + starting capacitor + run capacitor + terminal board + cord relief + cover b) Relay + starting capacitor (with bracket) + run capacitor + cover/ protector/ protector holder (parts of compressor), used for compressors which have an external protector. The starting capacitor is designed for short time cut in. "1.7% ED", which is stamped on the starting capacitor, means for instance max. 10 cut ins per hour each with a duration of 6 seconds.
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1.6.4 HST (CSIR)	Compressors with the motor type Capacitor Start Induction Run (CSIR) have a starting device for High Starting Torque (HST). This starting device consists of a starting relay and a starting capacitor. The following designs of starting devices exist: a) Relay + starting capacitor + cord relief + cover b) Relay housing including motor protector + starting capacitor + cord relief (2x) c) Relay + starting capacitor (with bracket) + cover/ protector/ protector holder (parts of the compressor), used for compressors which have an external protector.
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The starting device requires no pressure equalization before each start and is normally used in refrigerating systems with expansion valve as throttling device or in capillary tube systems where pressure equalizing is not obtained during standstill periods.

The starting capacitor is designed for short time cut in. "1.7% ED", which is stamped on the starting capacitor, means for instance max. 10 cut ins per hour each with duration of 6 seconds (normally shorter than 1 sec).

1.6.5 CONNECTIONS	The electrical equipment is equipped with connectors depending on the ordered code number, Starting relays 6.3 mm spade connectors only PTCs 6.3 or 4.8mm spade connectors and screws The power supply must be connected as shown in the wiring diagrams for the chosen electrical equipment given in the actual datasheets. The compressor application must factor in power supply from an electrical circuit with the appropriate fuse or circuit breaker. In addition, the use of a GFCI (Ground Fault Circuit Interrupter) or RCD (Residual Current Device) is recommended. External protectors are always pre-assembled.
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1.6.6 APPROVALS	The compressors have been approved in respect of safety by testing authorities in the majority of Western European countries. Actual standards to which the compressors have been approved are specified in the individual data sheets. Approval markings appear on the compressor type labels. Most compressors which are capable of running at 60Hz have been approved in respect of safety by testing authority UL. UL approval markings appear on a separate approval mark label. Actual standards to which the compressors have beenapproved are specified in the individual data sheets.	
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1.6.7 VARIABLE SPEED °CCD® CONTROLLERS (ELECTRONIC UNITS)	Full load operation is extremely rare in most cooling applications, restricted to a few days per year. That is why Secop has built variable-speed control into the DLV, NLV, SLV and SLVE-Series. This unique technology makes capacity automatical-ly adapt to your actual requirement. The compressor runs at low speed most of the time, thus minimizing energy consumption. On top of this, system efficiency is greatly improved thanks to reduced loss when less heat is transferred via the evaporator and condenser. Overall, this equates to substantial energy savings. Tool4Cool® is a unique PC software tool that enables you to precisely configure your Secop's Cool Capacity Drive (°CCD®) variable-speed compressors to your cooling systems. The variable-speed compressor motors are elec-tronically controlled. No attempt needs be made to start the compressor without a complete electronic unit, as specified in the data sheet for the com-pressor type in question. The °CCD® electronic unit has a built-in overload protection as well as thermal protection. When this protection is activated, the electronic unit will	protect the compressor motor as well as itself. The electronic unit will also automatically restart the compressor after a certain time. The electronic unit provides the compressor with High Starting Torque (HST) which means pressure-equalization of the system before start is not necessary. The compressors are equipped with permanent magnet rotors (PM motor) and three identical stator windings. The electronic unit (attached or detached) controls the PM motor. Connecting the motor to AC power, by fault, will damage the magnets and lead to drastically reduced efficiency, or even nonfunctioning. For more information on which starting device to use on individual compressors, please refer to the actual data sheets (some compressors have limita-tions for either LST or HST). and to our "Operating Instructions" and "Instructions". The compressor application must factor in power supply from an electrical circuit with the appropriate fuse or circuit breaker. In addition, the use of a GFCI (Ground Fault Circuit Interrupter) or RCD (Residual Current Device) is recommended.
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1.6.8
ePTC

Introduction

The asynchronous motor of a single phase AC powered compressor has two windings, a main and an auxiliary winding. The auxiliary winding is powered high at start by means of a starting device, then powered down, often still utilized continuously by means of a run capacitor. The starting device of our standard PTC starters is a "Positive Temperature Coefficient" resistor, PTC. When heated up during the start phase, the PTC almost cuts off the current to the auxiliary winding, leaving only enough current to keep itself heated to this closing level. The associated heat loss amounts to approximately 2.5 W. With the ePTC this loss can be reduced down to approximately 0.4 W by an extra electronic circuit.

Features

The electronic design of the starting device offers some strong features such as:

- Compressor restart possible after a few seconds.
Only a very short cooling time is necessary due to the electronic design.
- Operational wattage loss reduced by 2 watt
- PTC protection screen not needed, surface temp. < 82 °C (179.6 °F)
- Temperature resistant up to min. 60 °C (140 °F)

Functional description

The main component of the ePTC is the same PTC pill like in other 220–240V 103N.... Secop PTC starters. Thus the start of the compressor motor is performed in the same way. In standard PTC start-

ers the >2 W energy loss to keep the PTC heated during compressor operation are not avoidable. In the ePTC a small electronic circuit cuts off the current through the PTC a short time after start and thus reduces the energy loss down to an approx 0.4W. The switch used is a Triac, an electronic AC switch, controlled by a timer circuit. As the timer circuit has a short reset time and the main PTC cools down during compressor operation, the full start torque will be available after approx 6 seconds compressor off time. However, if it is a LST starting device, full pressure equalization is needed before start.

Connection & Terminals

The wiring diagram shows how to make the connections. The two screw terminals marked N and L are for supply voltage. The spade on the L terminal and the spade marked C are for the thermostat. The spade marked S at the top right position is internally connected to the start (or auxiliary) fusite terminal. This spade together with N is used for a run capacitor. The spade marked N at the top left position is internally connected to the neutral screw terminal. The spade marked C at the bottom position is internally connected to the common fusite terminal. On the rear side of the ePTC starter there are three holes. The hole in the bottom is for the common fusite terminal on the compressor. The top left hole is for the start fusite terminal and the top right hole is for the main fusite terminal. The ePTC starter is mounted with the C spade downwards.

EMC optimised ePTC versions ("E-2")

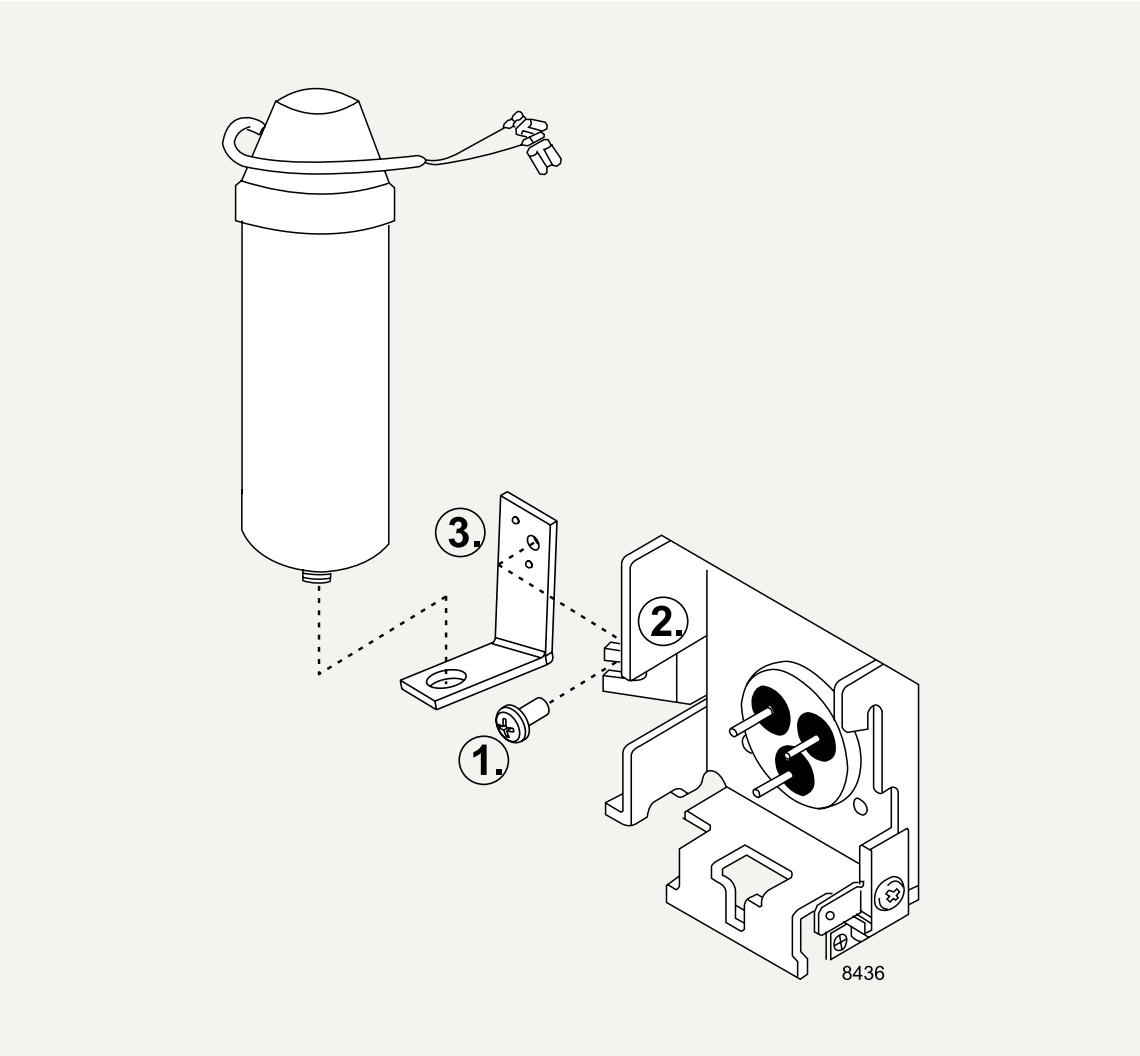
Starting second quarter 2012 Secop has shipped EMC optimised ePTC versions ("E-2"). An added "gate cap" filter on the PCB ensures improved Electromagnetic Compatibility (EMC). All other components remain unchanged.

1.6.9
RUN CAPACITOR
HOLDER

A run capacitor holder is available for the "Energy optimized" and "High Energy optimized" compressor range. This optional part is fixed to the run capacitor for 220V directly and earth connected on the compressor shell, concentrating all electrical accessories on the compressor. This will save space in the machine compartment. See drawing four mounting seequence.

Code numbers

run capacitor holder	117-0300
screw M4 x 8 PZD 2	117-0301

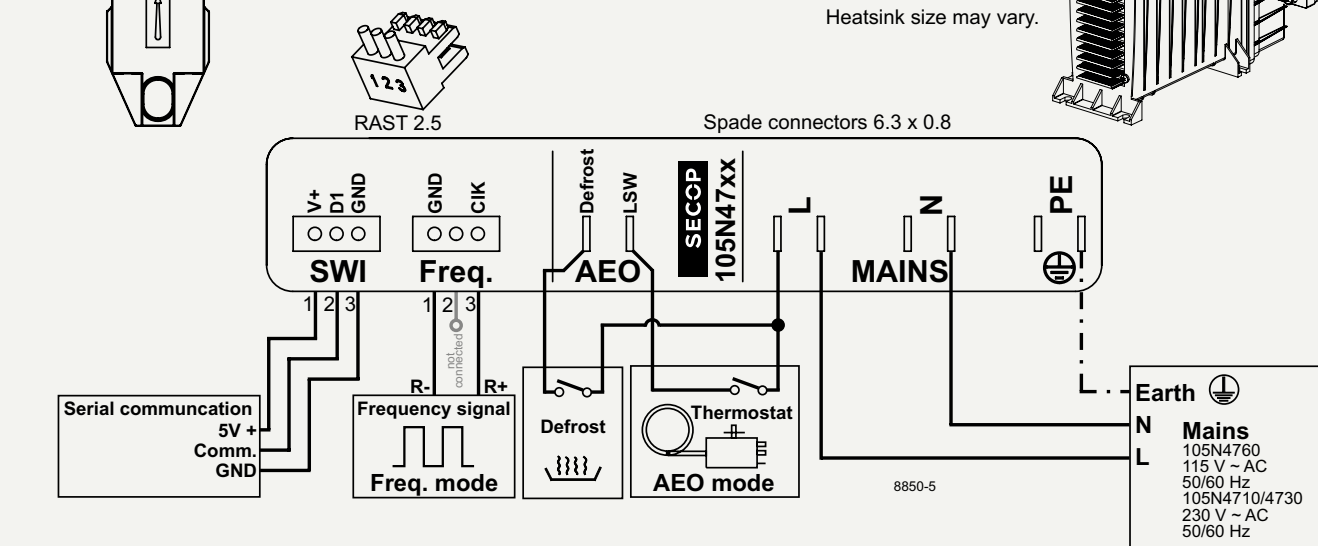


Technical data

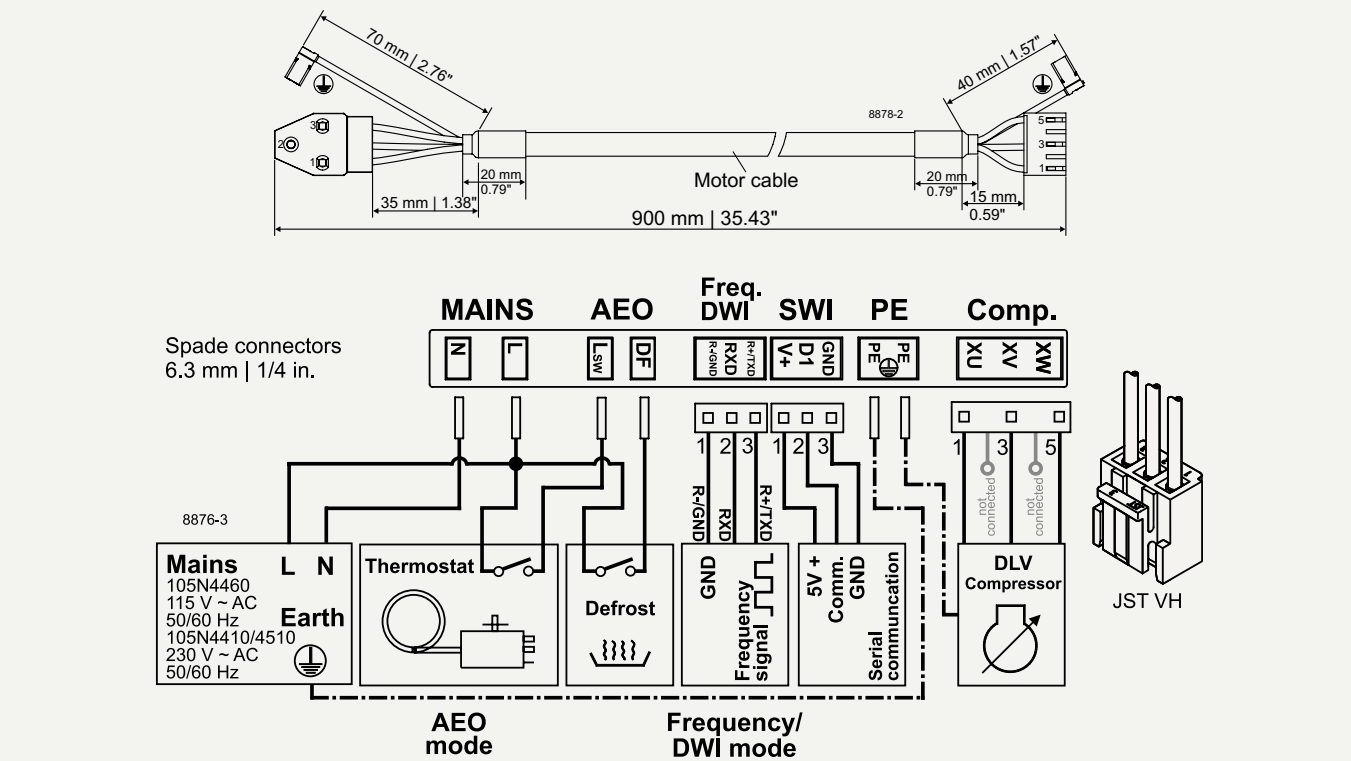
Electronically controlled PTC (version E-2) can alternatively be used for P / T / D / N / F / S -Series		
Code number	103N0050 (25 Ohm) 103N0055 (38 Ohm)	103N0058 (5 Ohm)
Nominal supply voltage	220 – 240 V, 50/60 Hz	115 V, 60 Hz
Minimal supply voltage	187 V	90 V
Maximal supply voltage	254 V	140 V
Power consumption	approx. 0.4 W (after 2 s)	approx. 0.5 W (after 2 s)
Spade connectors	4.8 mm (3/16 inch)	6.3 mm (1/4 inch)
Cables	temperature resistant up to min. 60 °C (140 °F)	
Run capacitor	optional	
Ambient temperatures	from 0 °C (32 °F) to 50 °C (122 °F) during operation from -20 °C (-4 °F) to 70 °C (158 °F) during transport	
Enclosure	IP 00	
PTC protection screen	not needed, surface temp. < 82 °C (179.6 °F)	

HST - 105N47xx Series Controller, with PFC

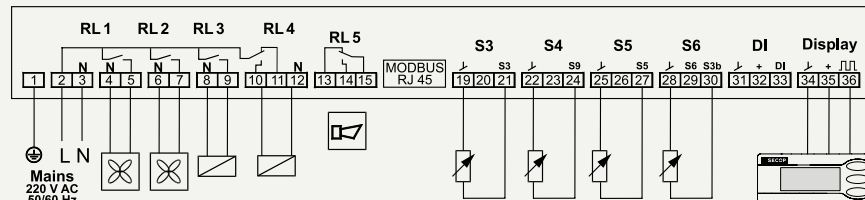
SLVE, 208-230 V, 50/60 Hz

PFC = power factor correction
 $\text{Line} = 500 \sqrt{1000 - 0.9994}$

DLV, 220-240 V, 50/60 Hz

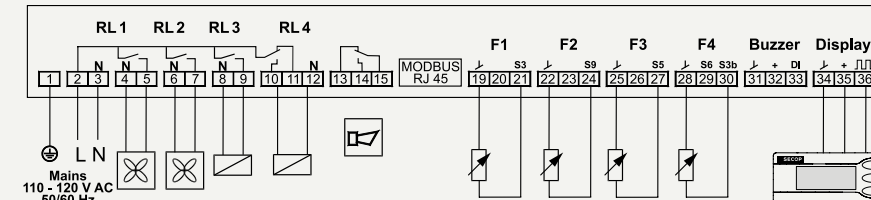


PFC = power factor correction according to EN 61000-3-2:2014



Mains	red
R L 1	blue
R L 2	yellow
R L 3	black
R L 4	grey
R L 5	green
S3	red
S4	blue
S5	yellow
S6	black
DI	grey
Display	green

PFC = power factor correction according to EN 61000-3-2:2014



Mains	red
R L 1	blue
R L 2	yellow
R L 3	black
R L 4	grey
-	green
F1	red
F2	blue
F3	black
F4	yellow
Buzzer	grey
Display	green

upper part of label: orange

LST - RSIR

PL-DLE

Main winding a1 Start winding
Winding protector

LST - RSIR

TL/TLES/TLS/TLY - NL/NLE - FR

Main winding a1 Start winding
Winding protector

LST - RSCR

PLE - DLE/DLX/DLY

Main winding a1 Start winding
Winding protector

HST - CSIR

PL - DLE

Main winding a2 Start winding
Winding protector

HST - CSIR

TL/TLES/TLS - NL/NLE - FR

Main winding a2 Start winding
Winding protector

LST - RSCR

TLES/TLS/TLX/TLY - NLE/NLU/NLX/NLY

Main winding a1 Start winding
Winding protector

Legend

- a1: PTC or ePTC starting device
- a2: Starting relay
- a3: Starting device
- b: Cover
- b1: Clamp (part of compressor)
- b2: Gasket (part of compressor)
- c: Starting capacitor
- d: Cord relief
- e: Run capacitor
- f: Protector
- g: Protection screen for PTC
- h: Holder

PTC protection screen

Note:
To fulfil the requirements of EN 60335-2-34 the protection screen 103N0476 must be applied to the PTC starting device.

SC Twin

Winding protector Starting capacitor Run capacitor Bleeder resistance
Main winding Starting relay Start winding
Thermostat Time delay relay Safety pressure control Fan
Remove wire L-1 if time delay is used Remove wire 1-2 if thermostat 2 is used

LST - RSIR

TF/TFS - NF - FF - external protector

Main winding a2 Start winding
Motor protector

LST - RSIR

TT - external protector

Main winding a1 Start winding
Motor protector

LST - RSIR

TF - NF - FF - external protector

Main winding a2 Start winding
Motor protector

HST - CSIR

TFS - NF - FF - external protector

Main winding a2 Start winding
Motor protector

HST - CSIR

FF - external protector

Main winding a2 Start winding
Motor protector

LST - RSCR

TF - NF - FF - external protector

Main winding a2 Start winding
Motor protector

HST - CSR

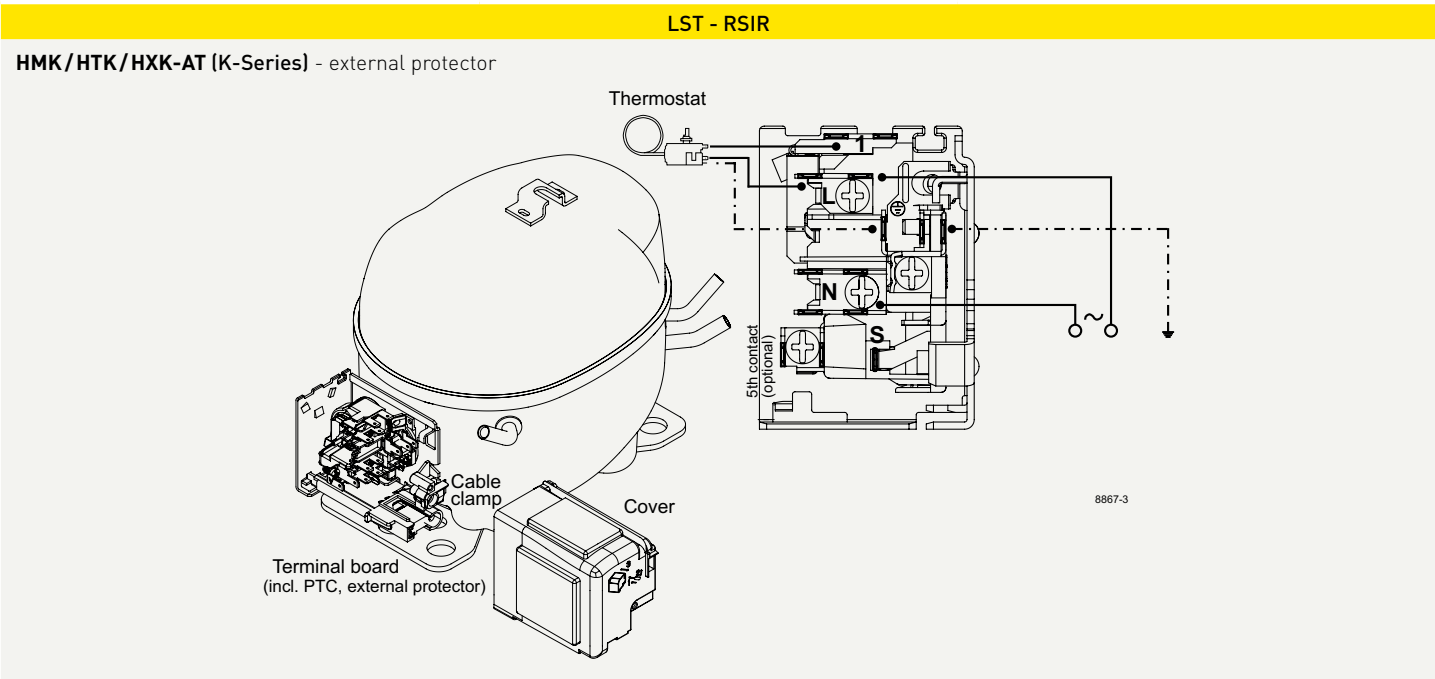
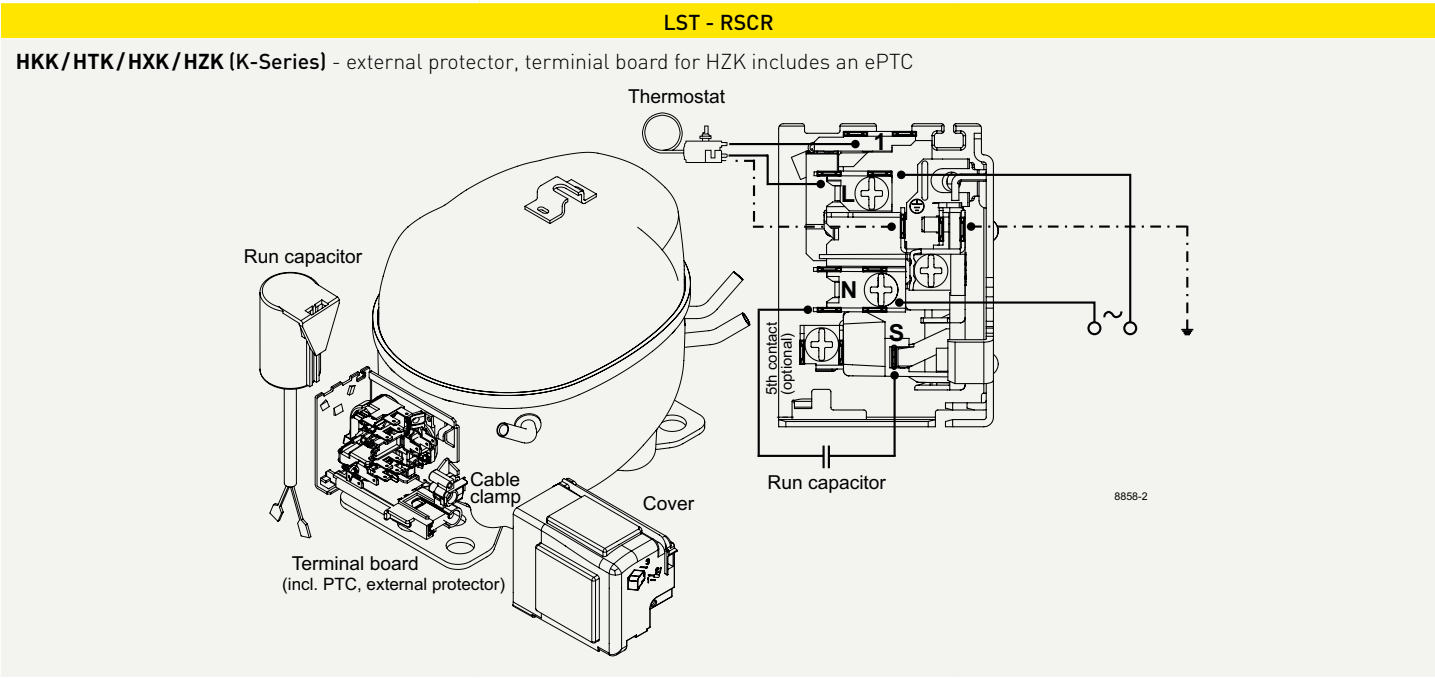
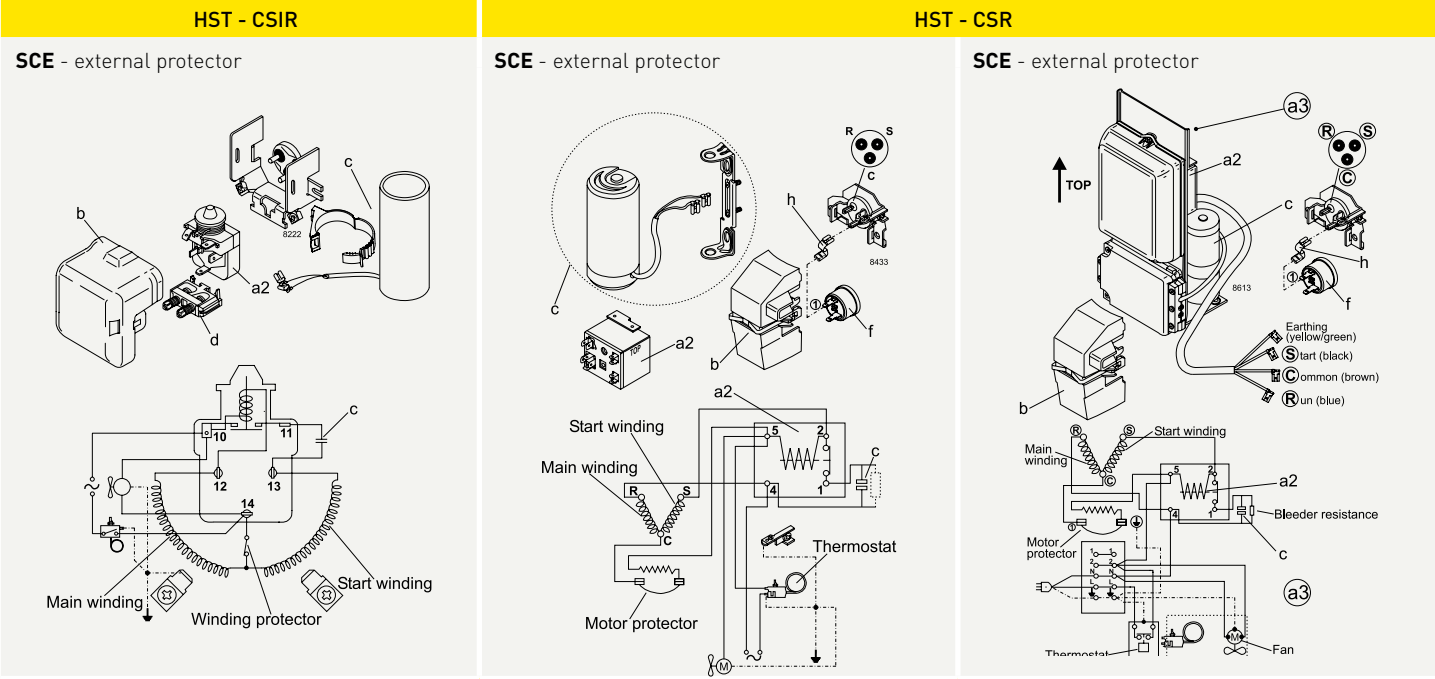
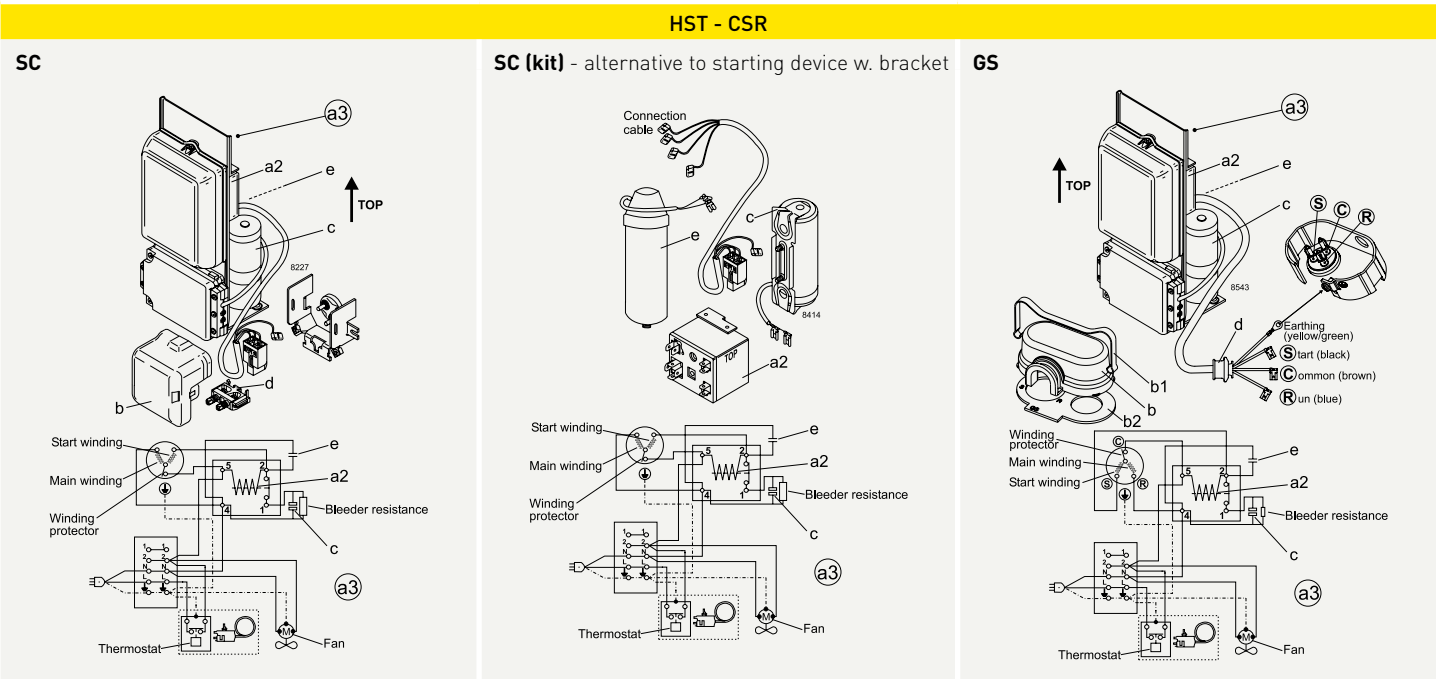
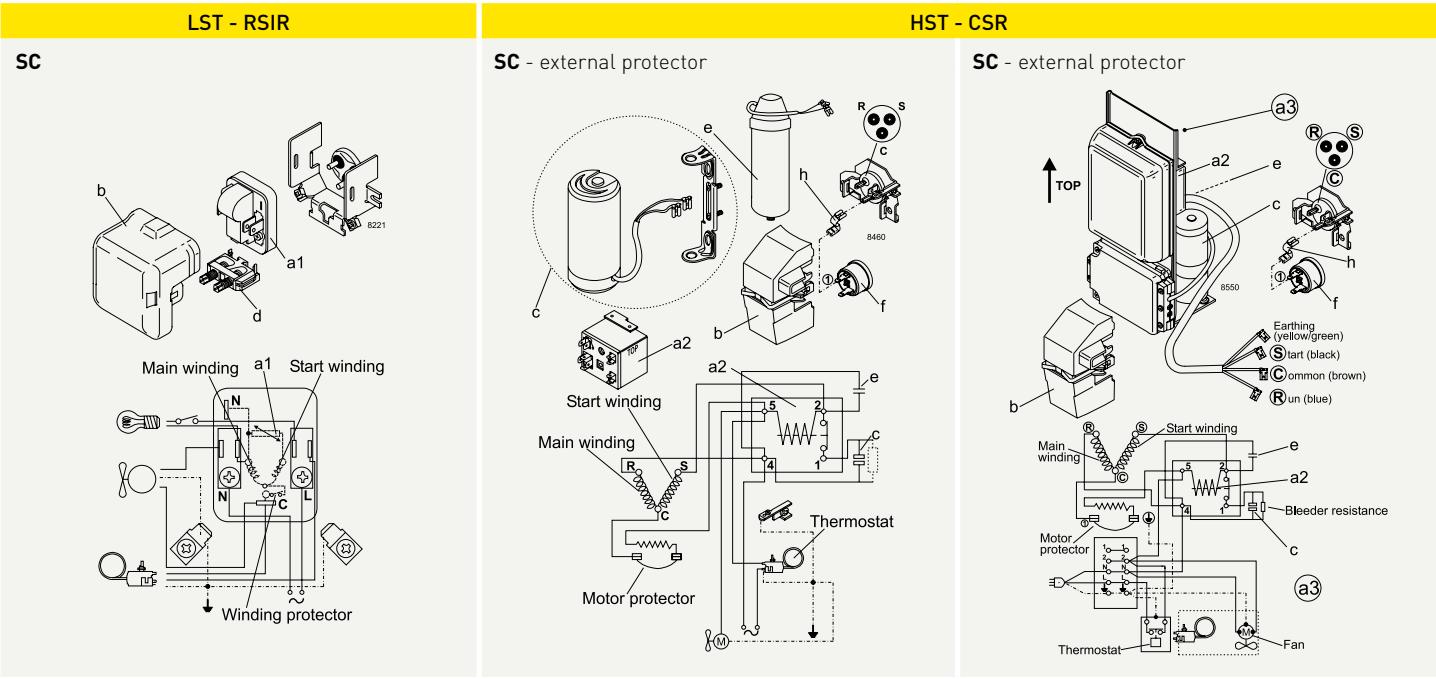
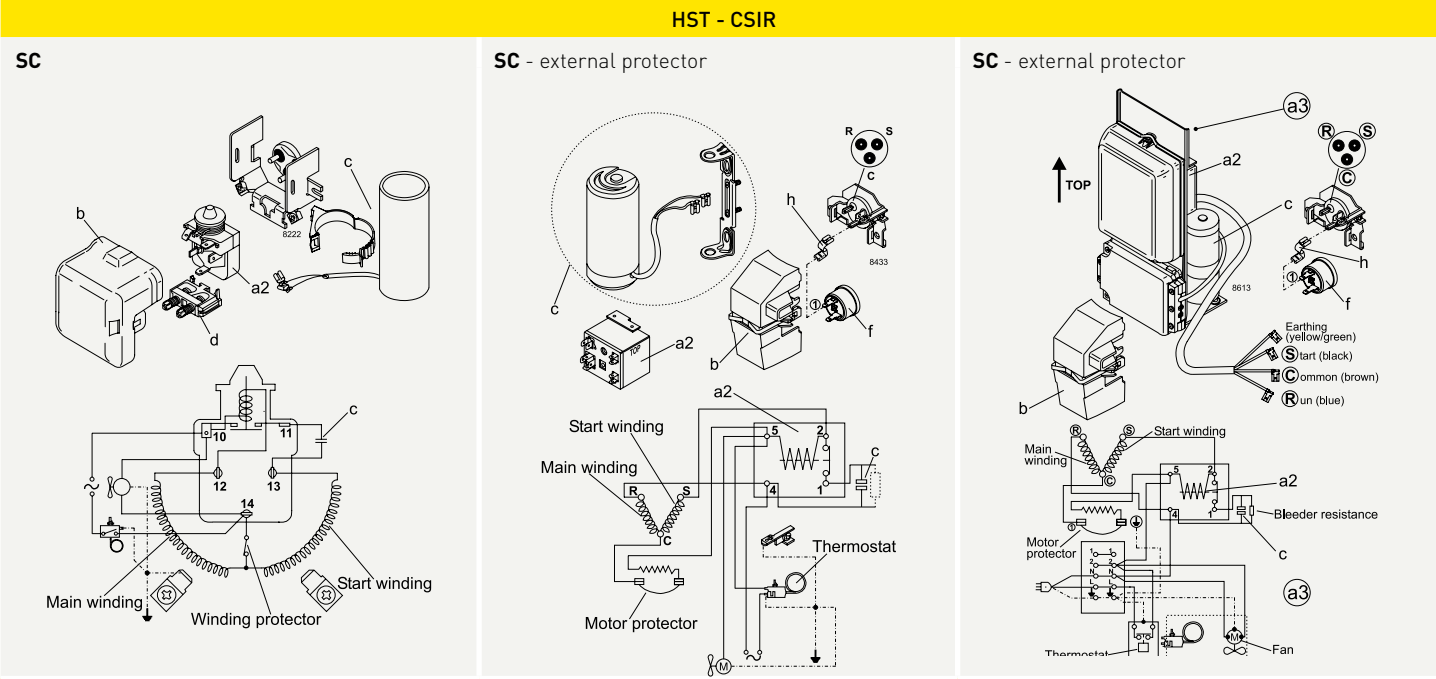
SC Twin

Starting relay Starting capacitor Run capacitor Bleeder resistance
Main winding Starting relay Start winding
Thermostat Time delay relay Safety pressure control Fan
Remove wire L-1 if time delay is used Remove wire 1-2 if thermostat 2 is used

LST - RSCR

TTE/TTY - NTX/NTY - external protector

Main winding a1 Start winding
Motor protector



1.7 IP44 EQUIPMENT FOR SC COMPRESSORS

As the expansion of refrigeration and air conditioning technology into new application areas is ongoing, traditional applications face an increasing use worldwide.

Consequently, refrigeration equipment is more often operated under extreme conditions and hermetic compressors have to meet the resulting requirements.

One of these requirements is the adequate protection of the compressor and its outside electrical parts against moisture and water.

Secop now offers special accessories, which provide a better IP protection class for a major part of the SC compressor models.

All SC models for 220–240V/50Hz or 208–230V/60Hz with CSIR motor can be IP upgraded.

The equipment consists of one additional part, the so called "back cover", and an upgraded starting capacitor (Fig.1).

When using this equipment, the protection class is increased to IP44, i.e. the compressor and its electrical parts are splash-proof (Fig.2).

Code number	Description
103N2020	Back cover
117U5117*	IP44 starting capacitor 80µF

*replaces standard capacitor 117U5017

This equipment may be used with VDE approved compressors.

Starting capacitors with other capacities can be upgraded on demand.



Fig.1 Back cover 103N2020 + starting capacitor 117U5117



Fig.2 IP44 Equipment mounted on a SC compressor

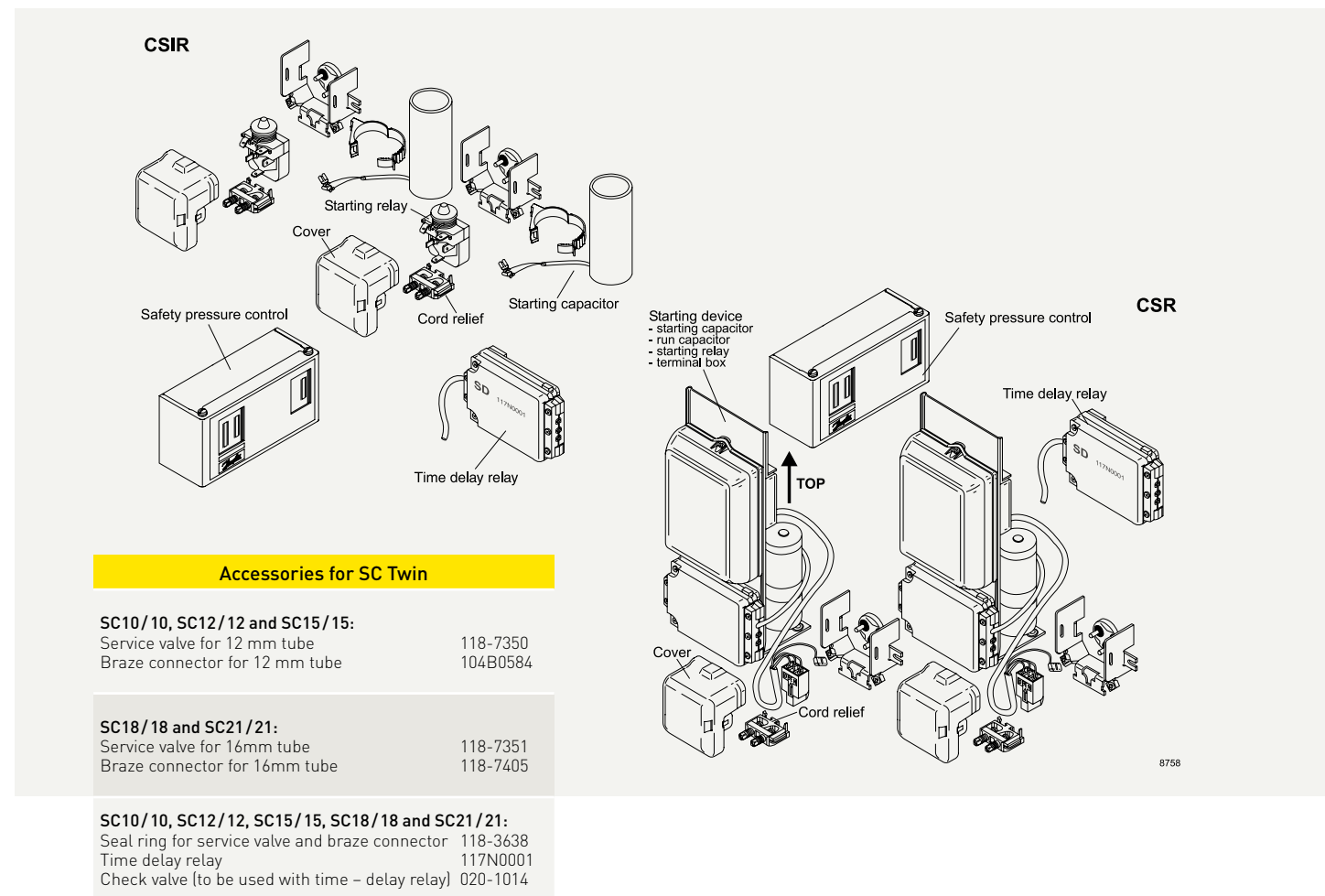
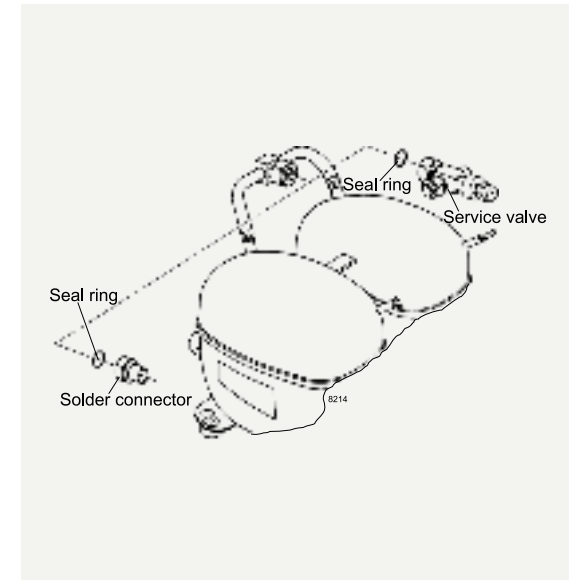
1.8 TWIN COMPRESSORS

The twin version consists of two SC compressors mounted on a common base plate. The two compressors are joined by an oil-equalizing tube and also have an intake manifold with screw connector for a service valve or a braze connector (these parts are supplied as accessories, please refer to data sheets for more info).

Each twin compressor is supplied with two sets of electrical equipment and mounting accessories.

To ensure optimum starting characteristics and the smallest possible mains load we recommend that the compressors be equipped with a time delay relay for start of the second compressor. Twin compressors can operate with capacity regulation depending on the controls used.

Depending on the motor type (CSR/CSIR) all accessories needed are illustrated in the drawing below.



1.9

MOISTURE AND IMPURITIES

The compressors are dried to a maximum moisture content of 60 to 75 mg depending on the compressor size. The maximum impurity content is 40 to 50 mg depending on the compressor size.

Secop compressors leave the factories with a moisture load less or equal 125 ppm. This ppm rate includes a safety factor for a storing time up to one year or longer. In addition of storing time and storing conditions the moisture level will increase. A level between 200 and 250 ppm in general is not critical and will not harm the compressors or systems, where the compressors will be implemented.

Measurement method

With this measurement method, the total moisture in the air volume will be measured. The water, which is fixed in the plastic structure and the oil, will only be measured indirectly. Within 24 hours equilibrium between the humidity contents of the air and compressor parts is reached.

The limit of 125 ppm is very low, if we consider that the surrounding air contains approx. 8000 ppm at 22°C and a relative humidity load of 40 %.

Test parameters	demand
Conditioning	24 h, room temperature
Condition of compressor	charged with oil
Measurement temperature	room temperature
Measurement time	1-2 min
Medium	dew point
Measurement cell	electrical hydrometer
Demand	max.125 ppm H2O

1.10

CONDITION AT DELIVERY / WARNINGS

The compressors are delivered without mounted starting devices on pallets. The standard pack can be stacked and is intended for transport by forklift truck. The bottom pallet has the dimensions 1144 x 800mm.

Quantities per pallets are specified in the individual data sheets.

Electrical equipment is packed in separate boxes.

The most important performance controls carried out during manufacturing are,

→ **A high potential insulation test with 1650V for 1 second**

→ **Pumping capacity**

→ **Tightness of discharge side and discharge valve**

→ **Tightness of compressor housing**

→ **Check of the right oil charge**

→ **Noise test**

The compressors are supplied with sealed connectors and the sealing should not be removed before the system assembly takes place. (max. 15 minutes with open connectors).

The compressors are supplied charged with dried and degassed oil, which is normally sufficient for the lifetime of the compressor. The refrigeration systems and the system components must be dimensioned in such a way that the oil can be lead back continuously to the compressor housing without accumulating in the system, e.g. without the oil pockets and with sufficient gas velocity. The compressors use polyolester or mineral oils and are approved only for these oils and **for the refrigerant to be used**. The oil charge is specified in the individual data sheets.

A high potential test with 1650V for 1 second is carried out on all compressors before delivery.

No high potential test or start tests must be carried out while the compressor is under vacuum.

No attempt must be made to start the compressor without a complete starting device.

Allow the compressor to reach a temperature above 10°C before starting the first time in order to avoid starting problems.

Anti freeze agents must not be used in the compressors as such agents are damaging to several of the materials used. In particular, the ethyl or methyl alcohol contents of such anti freeze agents have a destructive effect on the synthetic motor insulation

1.11

CONVERSIONS

FROM R404A TO R452A

At Secop, product development is focused on high efficiency and eco-friendly products. We believe – as all the major market stakeholders – that hydrocarbon refrigerants (isobutane R600a and propane R290) are the best solution for all applications.

The use of R404A is under pressure due to global regulations, however special attention is given to F-gas regulation in Europe. Secop recommends the move to hydrocarbon refrigerant solutions (R600a and R290) which perfectly meet the increasing market demand for high efficiency while utilizing natural refrigerants with very low GWPs.

We understand that there is a transition period, where specific applications will use different refrigerants

FROM R134a TO R600a OR R290

Conversions from refrigerants R134a to R600a are not permitted as 1:1 replacements, as the refrigerator must be approved for operation with flammable refrigerants, and the electrical safety has to be tested according to existing standards. The same applies to conversions from refrigerants R502 or R134a to R290.

In many cases of transition from non-flammable to flammable refrigerants the appliance cabinet must be modified for safety or other reasons.

Refrigerant containing system parts according to IEC/EN 60335 must withstand a specified pressure

FROM R134a TO R1234yf OR R513A AND R452A

R1234yf is a future refrigerant candidate in auto air conditioning replacing R134a. Likewise it might be used in DC-powered applications where redesign of the system to propane is not possible.

R1234yf is classified as flammable in the relevant safety standards. It is more expensive than R134a, however holds remarkably less greenhouse potential than R134a.

Our R134a compressors can be used for testing with this refrigerant and we are ready to support you in your investigation and approval procedure.

Investigations on material compatibility have so far shown good results with refrigerant R1234yf in Secop R134a compressors. These results must be confirmed in the ongoing long term tests.

At present, testing system performance can be carried out with the compressors originally designed for R134a. The same application limits as described on the R134a data sheet may be used.

The compressors designed for R134a do currently (03/2020) not have a safety approval for flammable

while application redesign to hydrocarbons is not possible in a short time. Tests have so far shown good results with refrigerant R452A as a drop-in replacement for R404A.

Based on this information, Secop allows the use of R452A on all its R404A released compressors. It is the customer’s responsibility to validate the application and they should carefully consider the requirements and constrains when changing the R404A to R452A in their application.

(Please refer to Product Bulletin “Refrigerant R452A in Secop Compressors”)

without leaking. High pressure side must withstand saturation overpressure of 70 °C times 3.5, low pressure side must withstand saturation overpressure of 20 °C times 5.

Secop (formerly Danfoss Compressors) has been a pioneer and early adopter of hydrocarbons as refrigerants and offers a variety of suitable compressors for R600a and R290.

(Please refer to Application Guideline “Practical Application of Refrigerants R600a and R290 in Small Hermetic Systems”).

refrigerants like R1234yf, but might be available in approved variants within the near future.

(Please refer to Product Bulletin “Refrigerant R1234yf in Secop Compressors”)

Various new refrigerant types have been developed by the chemical industry to offer alternative solutions to hydrocarbons while some high-GWP refrigerants are to be phased out due to global regulations.

R513A and R452A are refrigerants which are designed to work as “drop-in” or replacement refrigerants for R134a and R404A. Secop ran development projects to verify that existing compressor types are compatible with these new refrigerants. As a result, most of Secop R134a compressors have now been additionally released for R513A and most R404A compressors have been released for R452A (all including approvals by the relevant authorities).

(Please refer to Product Bulletin “Multi-Refrigerant Release of Secop Compressor Types, R513A and R452A”)

1.12

MAX. REFRIGERANT CHARGE

R404A/R507 AND R407C R134a 115 V / 220–240 V

Only the refrigerant amount which is necessary for the system to function must be charged. The refrigerant amount may be critical, regarding oil foaming and liquid hammer after long standstill periods. Because of this, limitations of refrigerant charges have been introduced.

SC Twin: max. 2200g **SC:** max. 1300g **FR, FF:** max. 900g

TL, TF: max. 400g **NL, NF:** max. 400g

If the permissible limit of refrigerant charge stated in the compressor data sheet is exceeded the oil will foam in the compressor after a cold start and may result in a damaged valve system in the compressor. The refrigerant charge must never exceed the amount that can be contained in the condenser side of the system.

If these limitations cannot be complied with, the risk may be reduced if a crankcase heater is properly used or if a pump down system is established.

Compressor type	Max. refrigerant charge			
	R134a	R600a	R290	R404A
P-Series	300 g / 10.6 oz.	120 g / 4.2 oz.	–	–
T-Series	400 g / 14.1 oz.*	150 g / 5.3 oz.	150 g / 5.3 oz.	600 g / 21.2 oz.
D-Series, DLV	–	150 g / 5.3 oz.	150 g / 5.3 oz.	–
K-Series HKK, HMK, HTK, HXK, HZK, GTK	400 g / 14.1 oz.*	150 g / 5.3 oz.	–	–
TL-G	600 g / 21.2 oz.	150 g / 5.3 oz.	150 g / 5.3 oz.	–
N-Series, NLV	400 g / 14.1 oz.*	150 g / 5.3 oz.	150 g / 5.3 oz.	400 g / 14.1 oz.*
F-Series	900 g / 31.2 oz.	150 g / 5.3 oz.	–	850 g / 30 oz.
S-Series, SLV, SLVE	1300 g / 45.9 oz.	–	150 g / 5.3 oz.	1300 g / 45.9 oz.
G-Series	2000 g / 70.5 oz.	–	–	2000 g / 70.5 oz.
SC Twin	2200 g / 77.6 oz.	–	–	2200 g / 77.6 oz.

* Single types with higher limits available, see data sheets

Please refer to the compressor data sheets, as the maximum refrigerant charge may deviate on single types from the statements in the form. The maximum charge of 150g for R600a and R290 is an upper safety limit of the appliance standards, whereas the other weights are stated to avoid liquid hammer.

R290 / R600a

According to the European Standard EN 60335-2-24 or draft IEC 60335-2-89, which must be complied with, the refrigerant charge must not exceed 150g.

Commercially available R600a and R290 must not be used because the fuel grades of these products are of a variable composition. These products may also contain impurities which could significantly reduce the reliability and performance of the system and lead to premature failure. All Secop compressors for R600a and R290 are released for a base purity of 97% or better. Impurity limits shall comply with DIN 8960 of 1998 (extended version of ISO 916).

All users of refrigerant R600a should refer to the chemical data safety sheets for full information on the safe handling of R600a and R290.

In general the charge of R600a or R290 is approximately 40–50% by weight than that for HFC.

The refrigerant charge must never be too large to be contained on the condenser side of the refrigeration system. Only the refrigerant amount which is necessary for the system to function must be charged.

1.13

VARIABLE-SPEED COMPRESSORS – CAPILLARY & CHARGE DETERMINATION

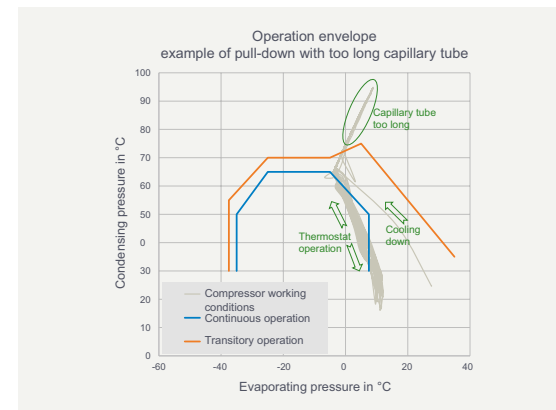
CAPILLARY DETERMINATION

The capillary tube is generally the counterpart for the compressor. It can be optimized for only one working condition. So it has to be determined for the appliance working conditions and fit to the compressor size. The subcooling in front of the capillary inlet should be at least 1 K. The capillary has to be adapted to:

- Refrigerant
- Refrigeration capacity at working conditions
- Suction tube length

The recommended capillary tube length is around 2 meters, then a sufficient internal heat exchanger can be built-in connection with the suction tube.

- a) To provide a high level of energy efficiency, the capillary tube should be determined at the cabinet running conditions which appear under energy efficiency measurements. As variable speed compressors are usually optimized for low speed, these running conditions should also be at low compressor speed.
- b) For high pull-down speed, the capillary tube can be calculated at the same running conditions as for energy efficiency but with maximum compressor running speed.



- c) After each calculation, the capillary tube has to be tested for fitting to the appliance. If too high condensing pressure levels occur in pull-down, then the capillary tube length has to be shortened (see the following diagram). In addition, too small condenser areas can lead to unallowed high condensing temperatures.
- d) Once the capillary tube has been designed, the refrigerant charge has to be determined.

CHARGE DETERMINATION

Determining the charge can be done when the following points are fulfilled:

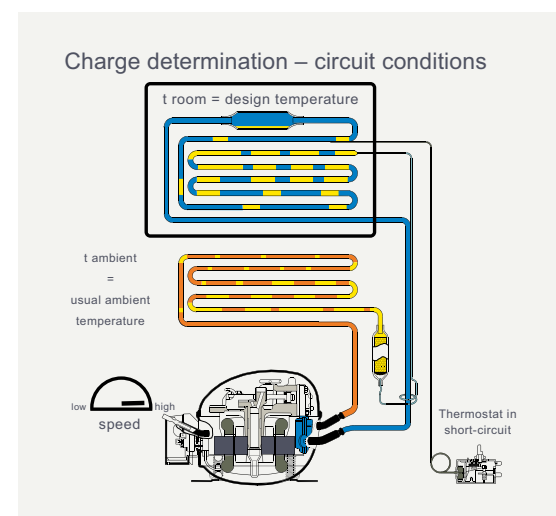
- System components are selected
- Capillary tube size is fixed

Then the charge determination should be done during continuous operation within the main appliance (running condition at normal ambient temperature¹ and at maximum compressor speed²).

When conducting the test, the following parameters should be measured to get an overview of the appliance running conditions:

- Compressor power consumption
- Compressor speed
- Return gas temperature of the compressor
- Temperature of the evaporator inlet, middle, and outlet

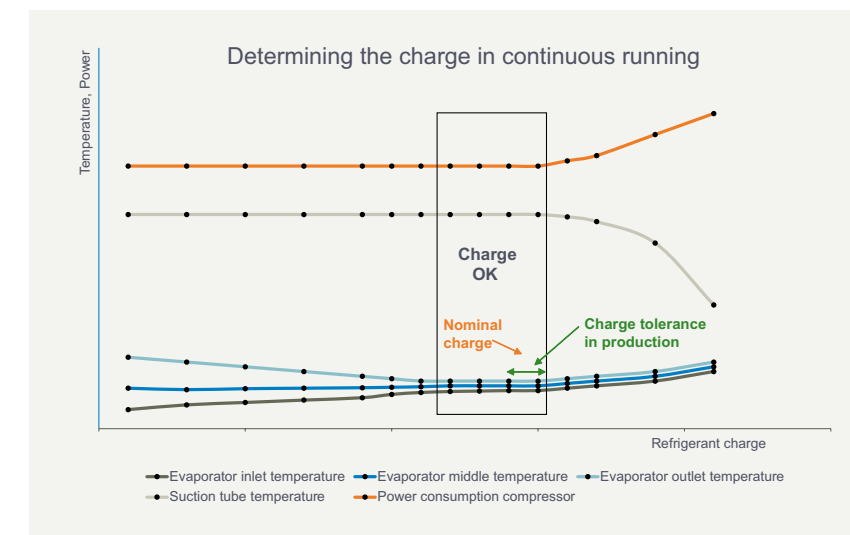
The test is started using a lower charge. Afterwards, the filling has to be increased stepwise until there is a small overcharge. The following diagram indicates in which area the charge is okay.



¹ With higher ambient temperatures less refrigerant charge is necessary due to higher thermal load in the evaporator.

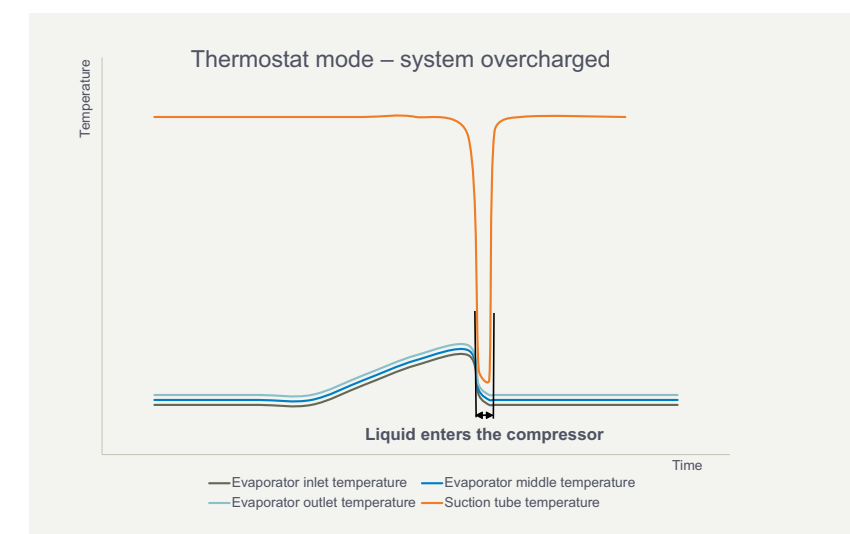
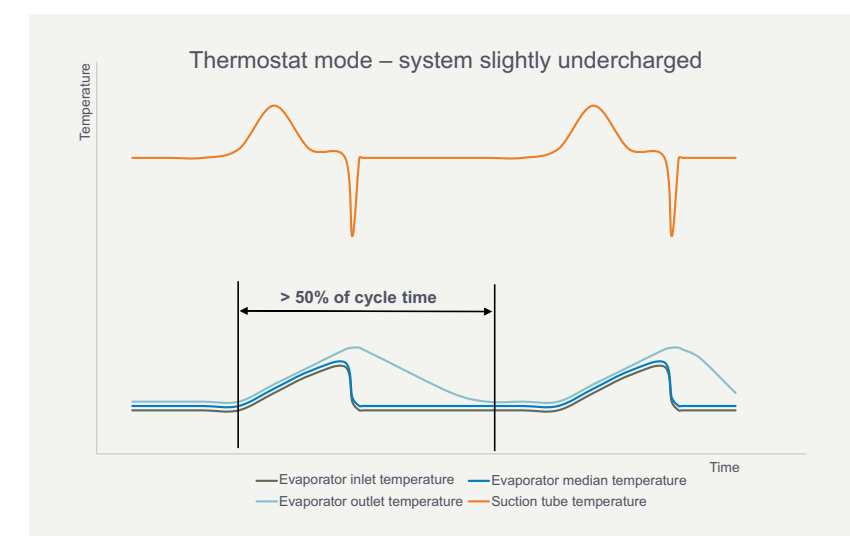
² At maximum compressor speed the lowest refrigerant charge is necessary for the system.

THERMOSTAT OPERATION MODE



Followed by the charge determination in continuous running the appliance should be checked in thermostat operation mode. The compressor should run for several running cycles in thermostat operation mode.

Afterwards there must be superheating for all conditions. Otherwise, the liquid enters the compressor from the evaporator. Then the optimal charge has to be adapted to a lower charge.



Measurements showed, that different capillary tube size within the same cabinet leads to a different refrigerant charge required.

Capillary tube size	Capillary volume flow	Refrigerant charge
long	low	more
medium	average	average
short	high	less

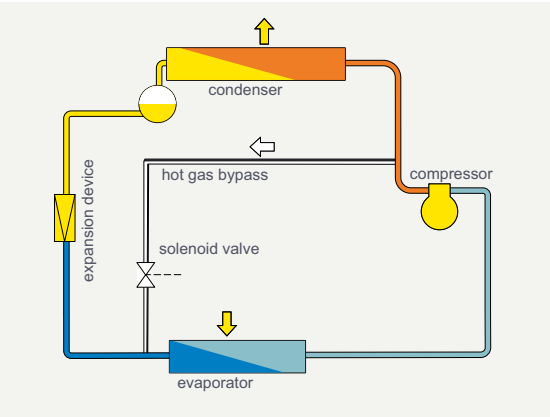
1.14

HOT GAS DEFROST WITH SECOP COMPRESSORS

COOLING CYCLE DESIGN

Hot gas defrost is used in various kinds of cooling cabinets (e.g. commercial freezers, ice cube makers, etc.) to remove ice from evaporator surfaces.

A bypass tube is added to the standard cooling circuit between the compressor discharge tube and condenser inlet. This bypass creates a shortcut from the compressor to evaporator inlet and can be switched open or closed, in most cases by controlling a solenoid-valve.



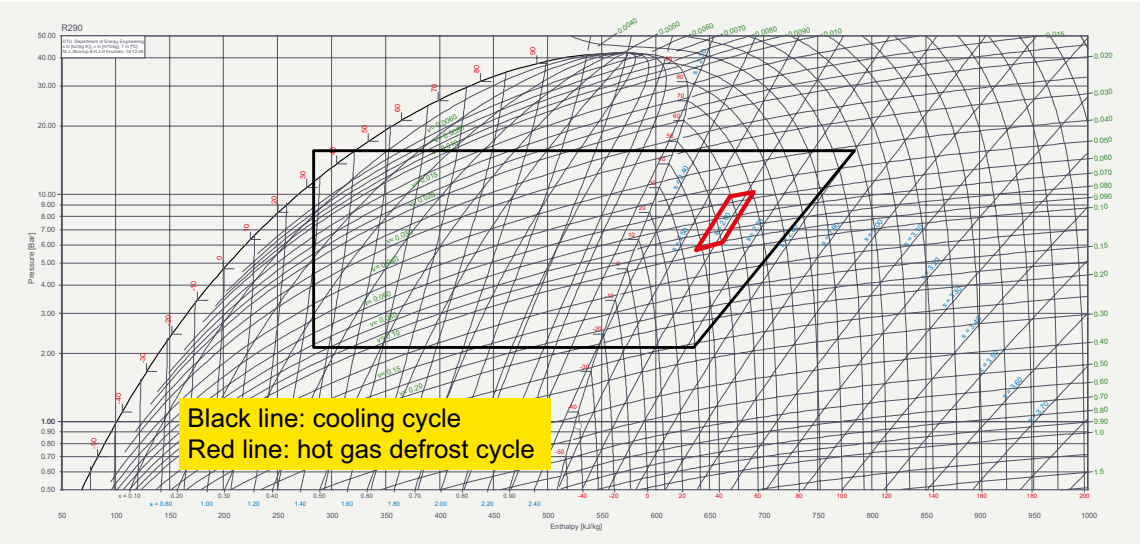
FUNCTION – GAS FLOW

Hot gas bypass is inactive (solenoid valve is closed): The cooling system operates similar to a system without hot gas bypass. The tubing design (length, diameter, position of solenoid valve) may slightly influence refrigerant demand and dynamic behavior.

Hot gas bypass is active (solenoid valve is open): After switching the solenoid valve open (when the compressor is running), most of the discharge gas (high pressure, high temperature) leaving the compressor will take the “low restriction path” in the bypass tube. Without having a check valve near the condenser inlet, refrigerant from the condenser will also start evaporating (due to pressure equalization to evaporator), cooling down, and flowing through the bypass line into the evaporator. Due to equalization of pressure differences (condenser/evaporator) and forced mass flow of the compressor, hot refrigerant gas will be pushed into the evaporator inlet. Cold gas and liquid refrigerant will then be pushed out of the evaporator into the suction line and finally into the compressor.

The compressor runs similar to the usual state: intake → compression of gas → discharge.

Since the pressure difference is low after the solenoid valve is opened, the gas temperature after compressing is comparably low. This nearly cold gas is heated up by the hot components of the compressor (compressor cools down) and will finally continue to circulate: compressor → bypass → evaporator → compressor, until the solenoid valve is closed again.



FUNCTION – DEFROSTING

The hot gas from condenser and from compressor that enters the evaporator will transfer heat which warms up and finally melts ice on the evaporator surface.

The amount of heat which can be used for melting ice on the evaporator surface is limited. In fact, heat from the compressor (temperature × mass × specific heat capacity) and heat from the refrigerant inside the condenser can be transferred into the evaporator for defrosting.

HOT GAS DEFROST – SPECIAL DEMANDS FOR THE COMPRESSOR

Once the temperature of compressor and temperature of condenser are stabilized (with solenoid valve open), only very little heat will be generated by the compressor. If defrosting after temperature stabilization is not completed, the use of external heaters should be considered to avoid very long hot-gas-operation times.

COMPRESSOR DESIGN FOR HOT GAS DEFROST – BEARINGS

Running hot gas defrost in a cooling system creates a special overload situation for the compressor. Increased robustness and a special design of some components are needed for a compressor which can also operate in hot gas defrost.

Special demands are given for: bearings, valves, suction muffler.

When the bypass valve is open, fast flowing gas enters the evaporator and mixes with the liquid (and also gas) refrigerant which is already inside the evaporator. In case no effective liquid/gas separator is installed between evaporator inlet and compressor, gas and liquid refrigerant will be pushed/sucked into the compressor. Some of the liquid refrigerant will evaporate due to the high temperature inside the compressor, but some other liquid refrigerant will mix with the compressor oil.

In order to lubricate the bearings inside the compressor (crankshaft, connecting rod, piston), oil from the bottom of the compressor is pumped into the bearings. During hot gas defrosting, when liquid refrigerant flows back into the compressor, a mixture of oil and refrigerant will be pumped up to lubricate the bearings.

When this mixture enters the bearing gap, it will be heated up by friction and hot bearing surfaces. This rise in temperature will cause the liquid refrigerant to evaporate (even in high pressure ambient). Since it is now gas instead of liquid, the refrigerant needs much more volume and pushes some oil out of the bearing gap to be able to also “escape”.

Special demand for compressors with hot gas defrost capability is to have a very robust slide bearing setup (large surface area, high viscosity oil, high oil quantity) which operates without wear even when the oil is mixed with liquid refrigerant.

COMPRESSOR DESIGN FOR HOT GAS DEFROST – VALVES

When the hot gas bypass is active (the solenoid valve is open) the discharge pressure is quite low (creates no problem for the compressor) and suction pressure is very high. Suction pressure in this phase is still lower than during a pull down, so every compressor should be able to handle this situation. However, the total time operating at very high suction pressures is much higher for “hot gas defrost compressors” than for others. As a result, the valve system design must simply be more robust (e.g. higher valve stiffness) to be reliable for the entire lifetime.

In case small droplets of liquid refrigerant manage to enter the compression volume (between piston, cylinder and valve plate) hopefully all of the liquid will evaporate when it comes into contact with the hot surrounding surfaces. This event will create extremely high pressure (only for a single stroke) inside the cylinder and create high strain for the compressor mechanics. Bending the valves is no problem (due to the opening height limiter) but impact speed/forces between valve and limiter or valve and valve plate must be kept inside the design limits even for these random pressure peaks.

COMPRESSOR DESIGN FOR HOT GAS DEFROST – SUCTION MUFFLER

Compressing a small amount of liquid (can be refrigerant or oil) will lead to valve damage (often a permanent small deformation initially and finally breaking of the valve due to lowered fatigue limit) or direct fracture of connecting rod or crankshaft with higher amount of liquid.

To avoid this “liquid hammer”, the suction path of the compressor must be able to separate gas and liquid. “Old fashioned” compressors have been designed in a way, which very effectively and safely separates gas and liquid (suction gas connector on the compres-

sor shell and suction gas inlet to the pump unit are far away from each other). Unfortunately, this design offers a low rate of energy efficiency since the suction gas is heated up significantly. High efficiency compressors with ability to defrost hot gas use large volume suction mufflers and feature a special design for gas/liquid separation. Comparing old versus energy efficient design clearly shows that the old design is capable of tolerating a higher liquid intake. Energy efficient compressor and hot gas defrost is possible but the cabinet may need to be adapted.

CABINET / COOLING SYSTEM DESIGN FOR HOT GAS DEFROST

Without any doubt, the compressor has to be designed in a special way to be able to withstand hot gas defrost operation with the needed reliability but features of the cabinet also contribute on a significant level. Refrigerant charge, evaporator design, length

of suction tube, gas/liquid separator, flow restriction in hot gas bypass, control algorithms (compressor, solenoid valve) and compressor: all these components must be in “harmony” to run hot gas defrost without damaging the compressor.

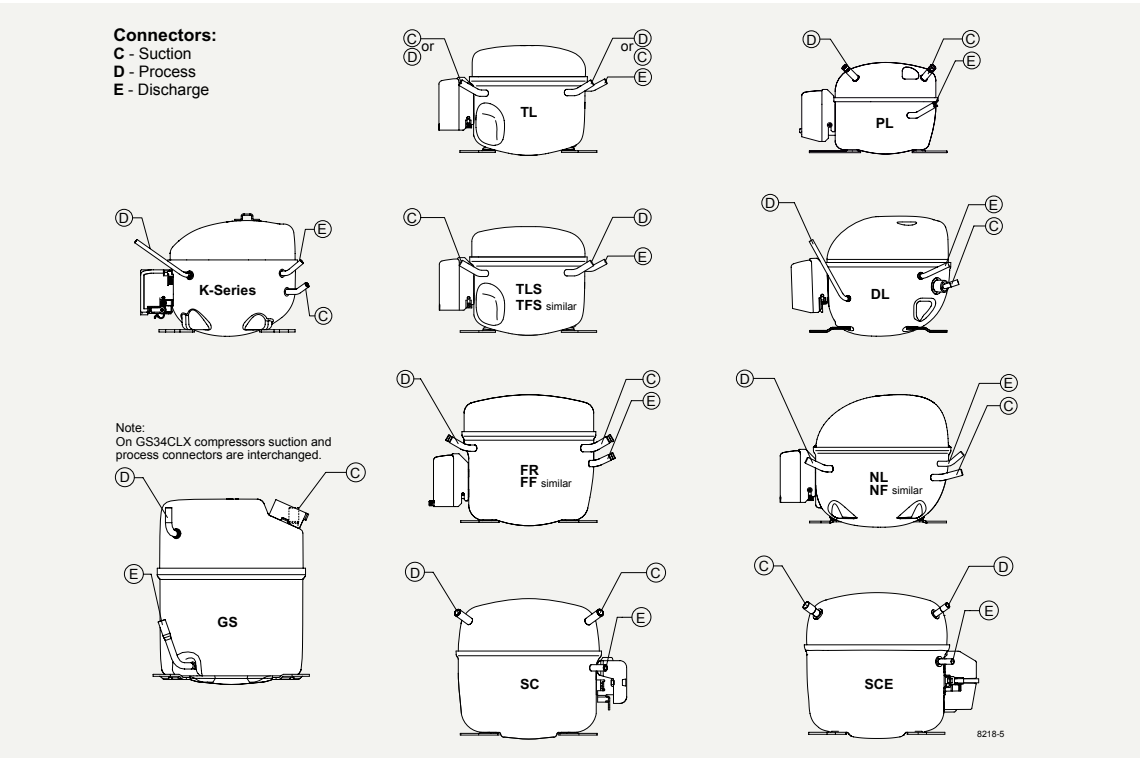
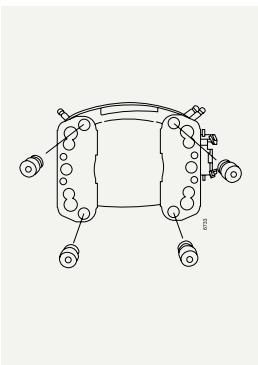
1.15 MOUNTING

1.15.1 CONNECTOR POSITIONS

Brazing problems caused by oil in the connectors can be avoided by placing the compressor on its base plate some time before brazing it into the system. The compressor must never be placed upside down when mounting the rubber grommets in the base plate. Instead place the compressor on its side with the connectors upwards. The system should be closed within 15 minutes to avoid moisture and dirt penetration.

Tightening torque for M6 bolt joint mountings should be 5 Nm ± 0,5 (hand-tight).
The positions of connectors are found in the sketches.

C means suction and must always be connected to the suction line. **E** means discharge and must be connected to the discharge line. **D** means process and is used for processing the system.



Some compressors are supplied with sealed connectors, which consist of a thick-walled copper plated steel tube with great corrosion resistance and good braze ability. The connectors are welded in the compressor housing and thus the weld cannot be destroyed by overheating during brazing operations. The seal is an aluminum cap which gives a tight seal. Compressor with copper connectors are sealed with rubber plugs. The aluminum cap sealing ("capsolut") offers a tight sealing. The seal ensures that the compressors have not been opened after leaving Secop's production lines. In addition to that, the seal makes a protecting charge of nitrogen superfluous.

Compressors with an "S" in the model denomination and all NL/DL/SCE types have a direct intake system, which means increased capacity. The suction connectors at these compressors must be connected to the suction line to prevent capacity loss.

Oil cooler tubes are made of copper and the connectors are sealed with rubber plugs too.

1.16 MOUNTING ACCESSORIES

Mounting	Code number	Bolt / pin dimension	Comp. base hole	Type of packaging	Compressor series	Parts list
Bolt joint	118-1917	M6 metric	16 mm	Single pack for one compressor	P- / T- / D- / N- / F- / S-Series	I
Bolt joint	118-1918	M6 metric	16 mm	Industrial pack in any quantity	P- / T- / D- / N- / F- / S-Series	I
Bolt joint	107B9150	M8 metric	19 mm	Single pack for one compressor	G-Series	II
Bolt joint	118-1946	1/4 inch	16 mm	Single pack for one compressor	P- / T- / D- / N- / F- / S-Series	III
Bolt joint	118-1949	1/4 inch	19 mm	Single pack for one compressor	all with 19 mm base holes (except G-Series)	IV
Snap-on	118-1947	Ø 7.3 mm	16 mm	Single pack for one compressor	P- / T- / D- / N- / F- / S-Series	V
					K-Series	
Snap-on	118-1919	Ø 7.3 mm	16 mm	Industrial pack in any quantity	P- / T- / D- / N- / F- / S-Series	V
					K-Series	

Parts list (4 pcs. per compressor needed)			Symbol drawings
I	Sleeve Ø 8 mm x 6.4 mm x 0.8 mm	112-2052	
	Washer Ø 20 mm x Ø 6.7 mm x 1 mm	112-2053	
	Bolt M6 x 25 mm	681X1130	
	Nut M6	118-3659	
	Rubber grommet 16 mm	118-3661	
II	Sleeve Ø 11 mm x 8.6 mm x 1.2 mm	107B9152	
	Washer Ø 20 mm x Ø 8.8 mm x 1.2 mm	107B9155	
	Bolt M8 x 40 mm	107B9153	
	Nut M8	107B9154	
	Rubber grommet 19 mm	107B9151	
III	Sleeve Ø 8.3 mm x 6.7 mm x 0,8 mm	112-2088	
	Washer Ø 20 mm x Ø 6.7 mm x 1 mm	112-2053	
	Bolt 1/4 x 1 inch, 20 UNC	119-3002	
	Nut 1/4 inch, 20 UNC	119-3031	
	Rubber grommet 16 mm	118-3661	
IV	Sleeve Ø 9.5 mm x 7.9 mm x 0,8 mm	112-2085	
	Washer Ø 20 mm x Ø 6.7 mm x 1 mm	112-2053	
	Bolt 1/4 x 1 1/4 inch, 20 UNC	119-3002	
	Nut 1/4 inch, 20 UNC	119-3031	
	Rubber grommet 19 mm	118-3666	
V	Steel pin	118-3586	
	Washer Ø 21 x Ø 8.1 mm x 0.9 mm	118-3588	
	Clip	118-3585	
	Rubber Grommet 16 mm	118-3661	

SHIPMENT POSITIONS OF REFRIGERATION APPLIANCES

When refrigeration appliances are shipped in the normal vertical position, this will normally not cause any damage to the compressor.

If transported in horizontal position, the compressor must be oriented as shown in the table on the next page to prevent the accumulation of oil in the muffler and subsequent risk of damage. It is important to note that the compressor must be securely fastened and well supported during transportation.

Refrigeration appliances can be safely transported in horizontal position:

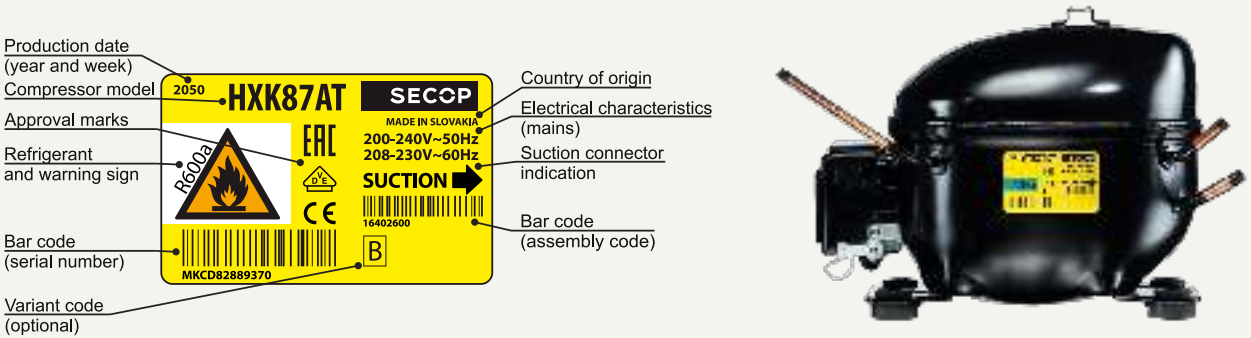
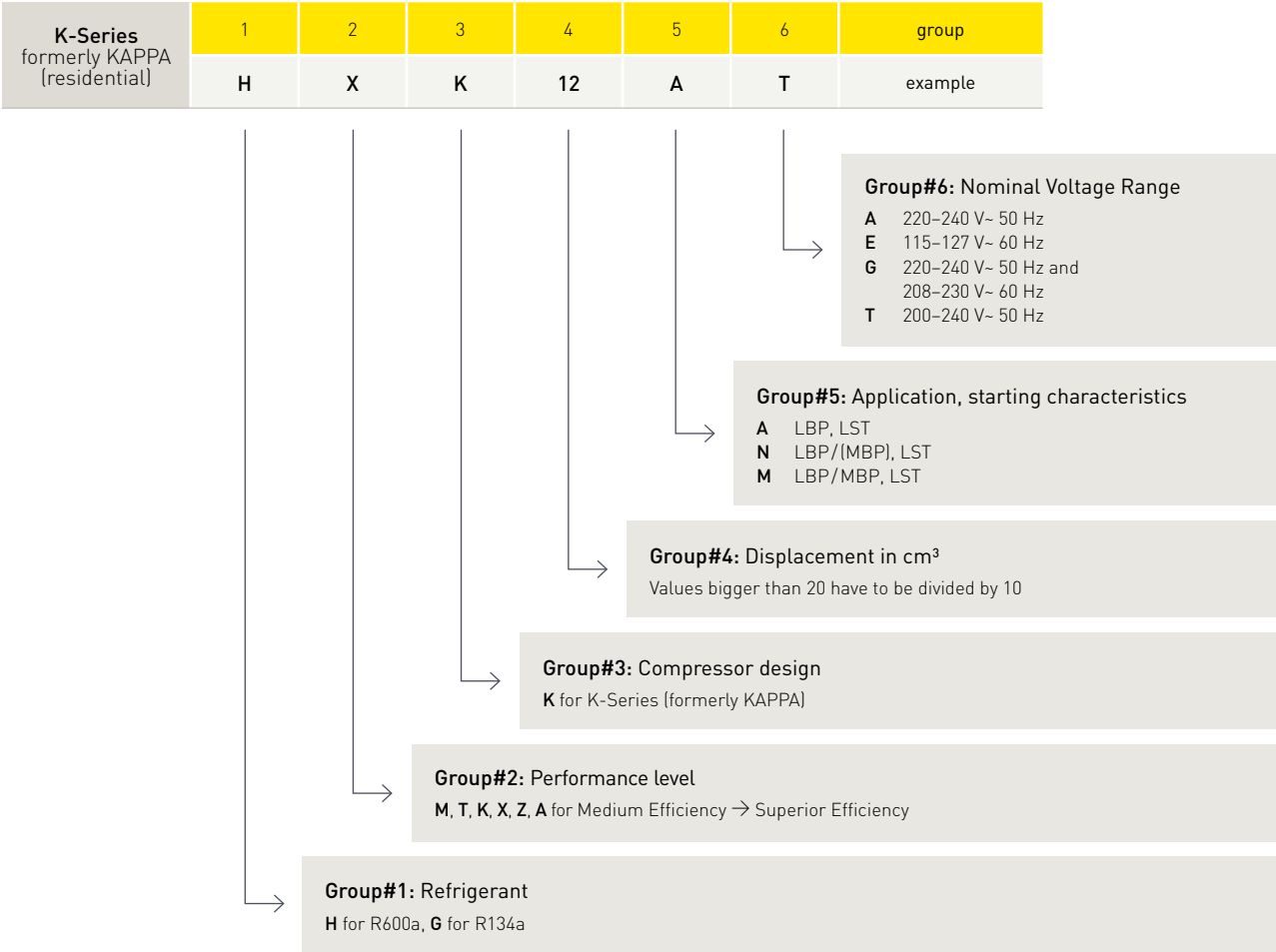
- with trucks on roads and motorways in good condition
- by ship in containers
- on railways in good condition

Compressors	Shipment positions of refrigeration appliances – Position X must not be used				
	Connectors up	Electrical lead-in up	Connectors down	Electrical lead-in down	Base plate up
D-Series					
K-Series					

Compressors	Shipment positions of refrigeration appliances – Position X must not be used				
	Connectors up	Electrical lead-in up	Connectors down	Electrical lead-in down	Base plate up
P-Series					
T-Series					
N-Series					
F-Series					
S-Series					
G-Series					

1.18

K-SERIES IN DETAIL –
DENOMINATION/TYPE LABEL



GTK compressor with blue area on type label for R134a

1.19

K-SERIES IN DETAIL –
MOTOR TYPES/APPROVALS

1.19.1
MOTOR TYPES

RSIR:	Resistance start – inductive run Start winding is interrupted after start-up by a PTC.
RSCR:	Resistance start – capacitive run For higher efficiency the auxiliary winding is supporting the main winding by a run capacitor.
RSIR/RSCR:	Depending on requirements motor can be used as RSIR or RSCR type.

1.19.2
CERTIFICATE
REFERENCES



HXX

VDE, (ICE)	EAC
Certificate No.	Certificate No.
40023933	TC RU D-AT.AG27.B.00381 TC RU D-AT.Ag27.B.00382 TC RU D-AT.AG27.B.00383

HKK

VDE, (ICE)	EAC
Certificate No.	Certificate No.
40010874	TC RU D-AT.AG27.B.00381
40031157	TC RU D-AT.AG27.B.00382
-	TC RU D-AT.AG27.B.00383

HTK

VDE, (ICE)	EAC
Certificate No.	Certificate No.
40003038	TC RU D-AT.AG27.B.00381 TC RU D-AT.AG27.B.00382

HMK

VDE, (ICE)	EAC
Certificate No.	Certificate No.
40016826	TC RU D-AT.AG27.B.00381 TC RU D-AT.AG27.B.00382

HZK

VDE, (ICE)
Certificate No.
40040794

GTK

VDE, (ICE)
Certificate No.
40052834

1.20

K-SERIES IN DETAIL – DELIVERY CONDITIONS/ APPLICATION CONDITIONS

1.20 DELIVERY CONDITIONS

Max. solid impurities ^(*)	[mg]	30
Max. soluble impurities ^(*)	[mg]	600
Max. total compressor water content ^(*)	[mg]	100

(*) When delivered

1.20.1 APPLICATIONS CONDITIONS

Max. ambient temp. ¹	[°C]	43
Max. steady discharge temp. ²	[°C]	120
Max. peak discharge temp. ^{2, 5}	[°C]	135
Max. steady condensing temp. ³	[°C]	60
Max. peak condensing temp. ^{3, 5}	[°C]	70
Max. winding temp. ⁴	[°C]	130

¹ static
² measured on discharge tube, 50 mm from the schell
³ measured in the middle of condenser
⁴ calculated out of the measured difference of resistance
⁵ max. 5 % life time

1.20.2 OIL TRANSPORT OF THE COMPRESSOR IN THE REFRIGERATION CIRCUIT

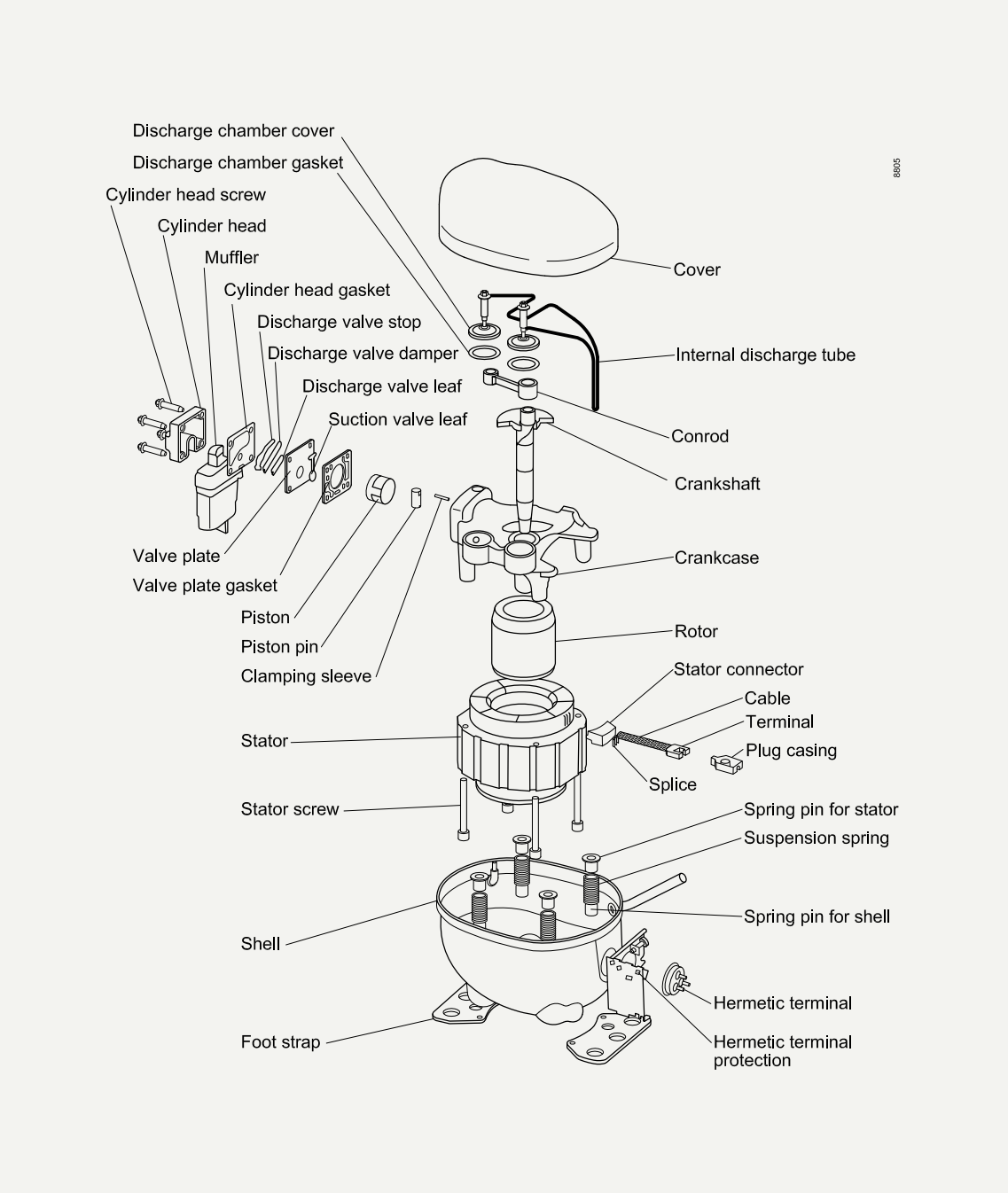
Average value of the transported oil in the refrigeration circuit:
2.5 g oil/kg R600a mass flow per hour.
Tolerance:
±2.5 g oil/kg R600a mass flow per hour.



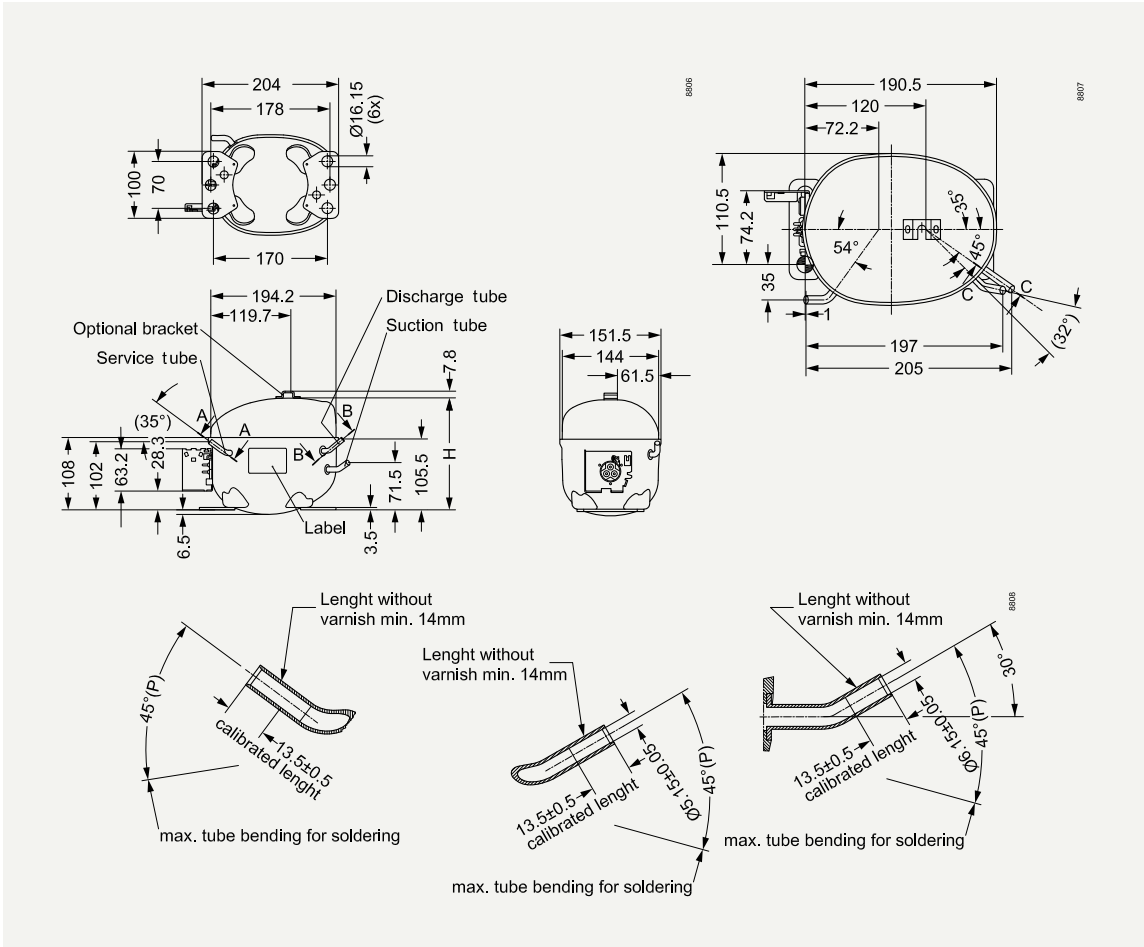
1.21

K-SERIES IN DETAIL – DRAWINGS

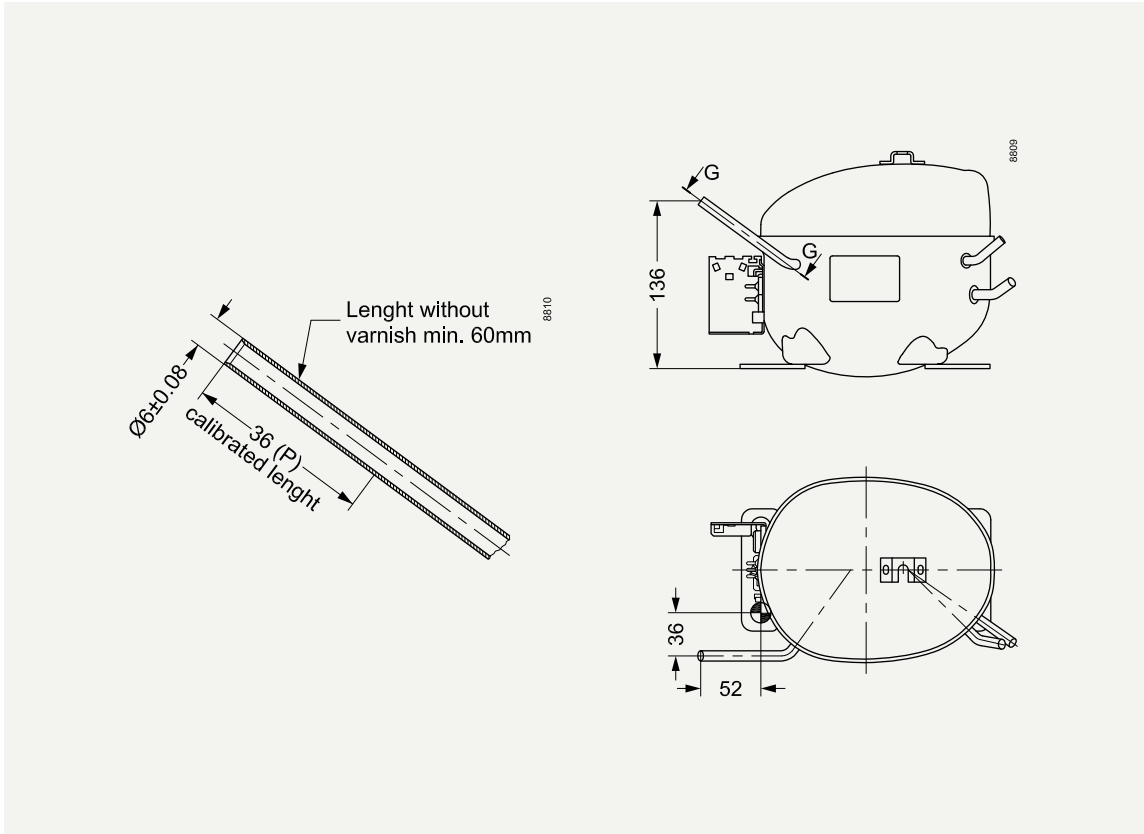
1.21.1 3D SKETCH



1.21.1
OUTLINE DIMENSIONS
WITH SHORT SERVICE
TUBE

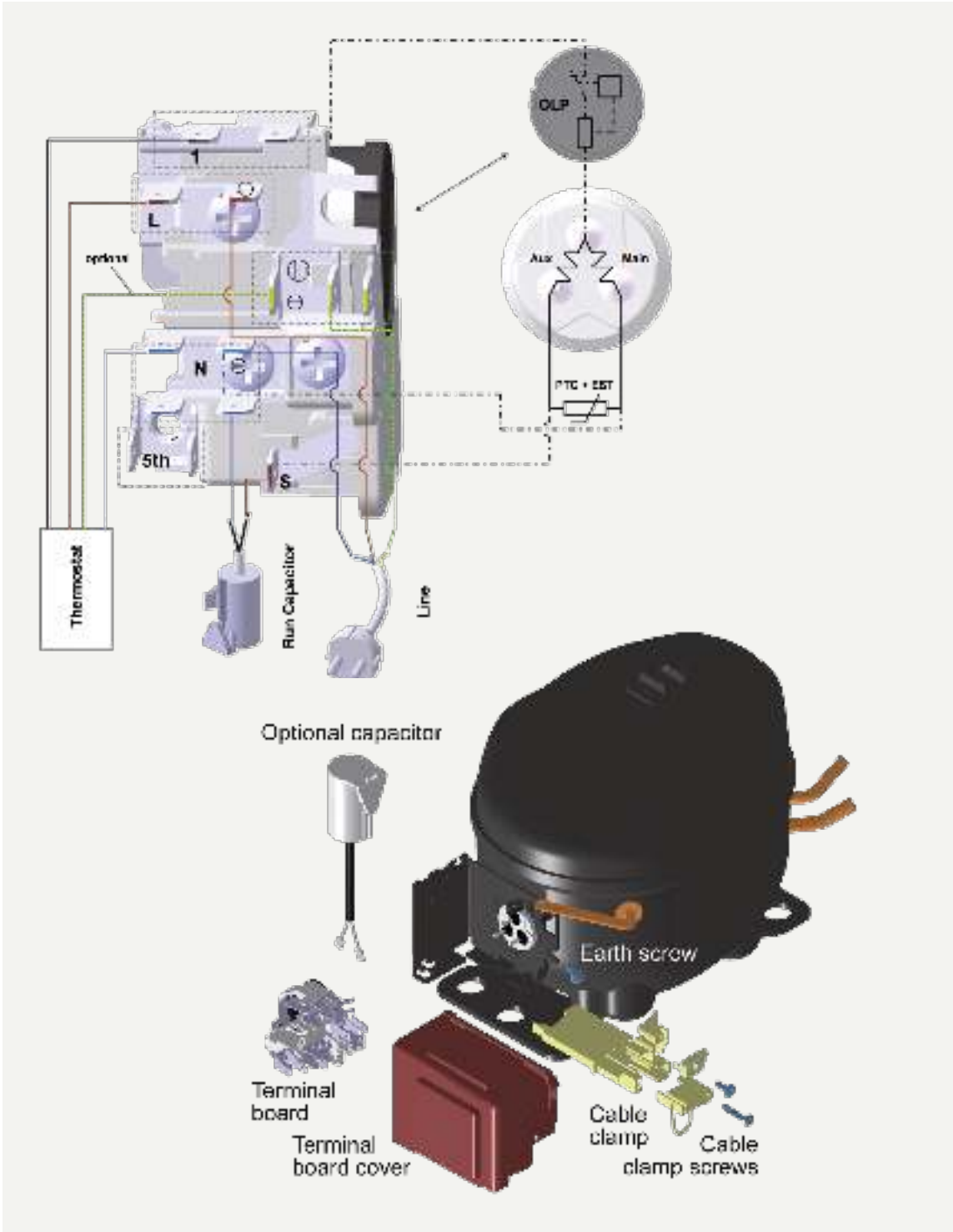


1.21.2
OUTLINE DIMENSIONS
WITH LONG SERVICE
TUBE



1.22 K-SERIES IN DETAIL – ELECTRICAL COMPONENTS

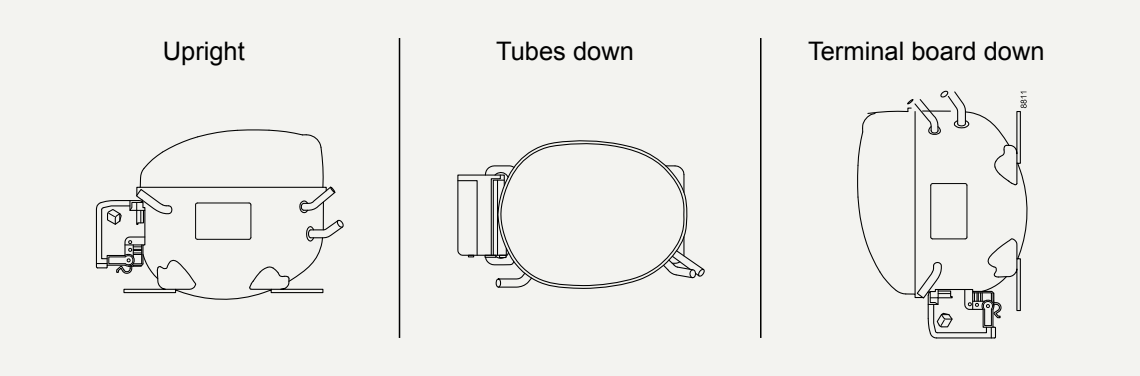
1.22.1
TERMINAL BOARD
AND ASSEMBLY



1.23

K-SERIES IN DETAIL – TRANSPORT, PACKING, PALLETIZATION

1.23.1 RECOMMENDED TRANSPORT POSITIONS WHEN FITTED INTO APPLIANCES



1.23.2 PACKING AND PALLETIZATION

Packing-type		Layers	Quantity	Compressors per layer L×Q	Pallet Size L×W mm
One-Way packaging	Wood-EPS *	4	80	5×4 = 20	1120×820
		5	100	5×4 = 20	1120×820
	Single packaging	5	60	4×3 = 12	1120×820

*Optional protection and reinforcement with cardboard-box and PE top foil.

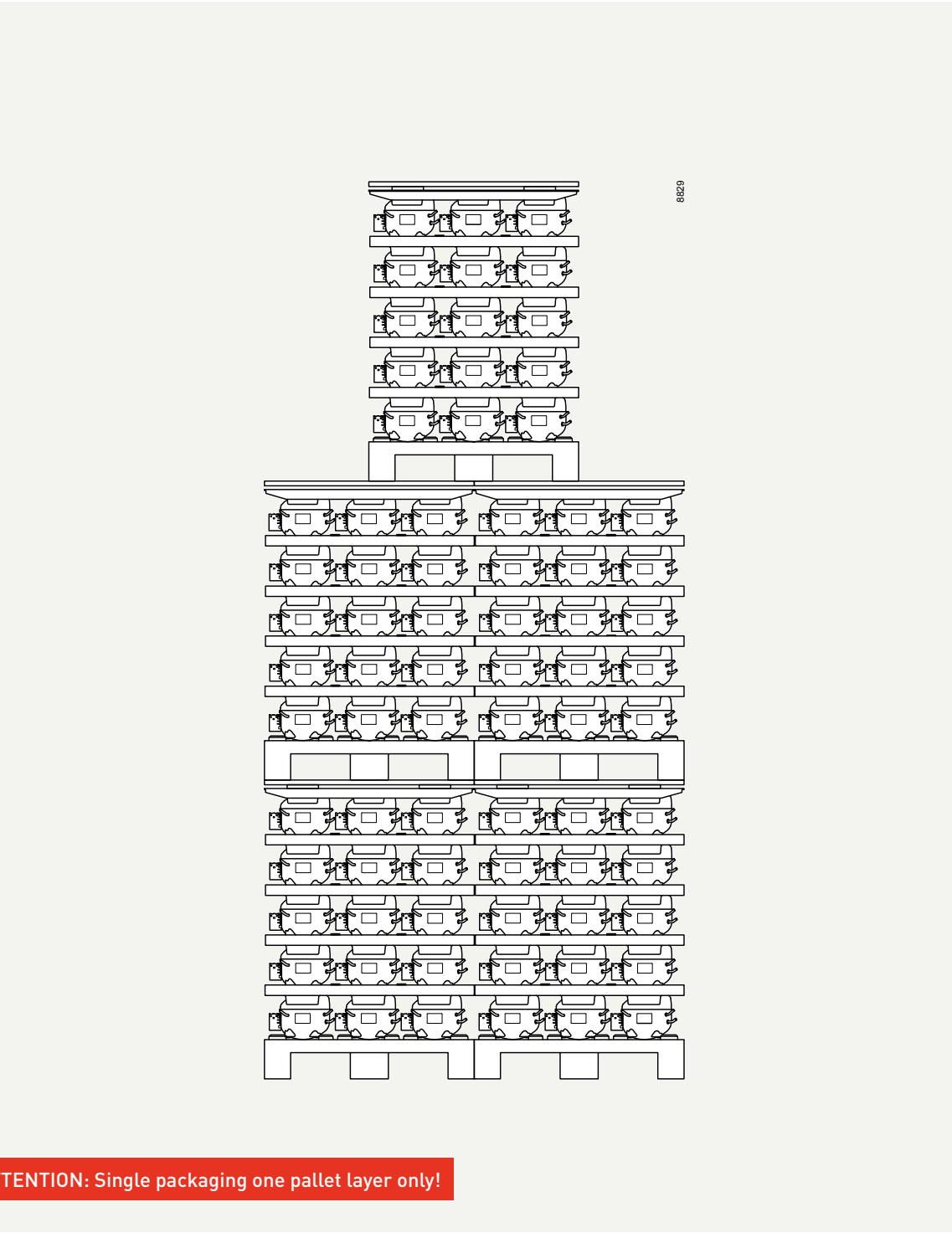
1.23.3 TRANSPORT

Packing-type		Layers	Stacking height Number of pallets		
			Truck	Container	Train 1, 2
One-Way packaging	Wood-EPS	4	1	–	–
		5	1	–	–
	Wood-EPS + cardboard-box	4	1	–	1
		5	1	–	1
	Wood-EPS + cardboard-box + PE top foil	4	1	2	1
		5	1	2	1
	Single packaging	5	1	1	–

1 → Train transport according UIC-Codex 526-1. In sliding wall wagon with lockable bulkhead only;
2 → Train loading according BT Band 2 Rail Cargo Austria, Loading guideline 100.1; Contact of pallet to bulk head is mandatory;
respectively the maximum distance of 45 mm has to be guaranteed. Maximum weight of goods between bulk heads is 5 t.

1.23.4 WAREHOUSE STORING

One Way packaging max. 3 pallet layers – 3rd layer with offset.



1.23.5 RECYCLING OF COMPRESSORS

Oil and gas must be recycled separately. Afterwards the compressor must be removed from the refrigerator and has to be given to a scrap metal recycling unit.

COMPRESSOR
DATA

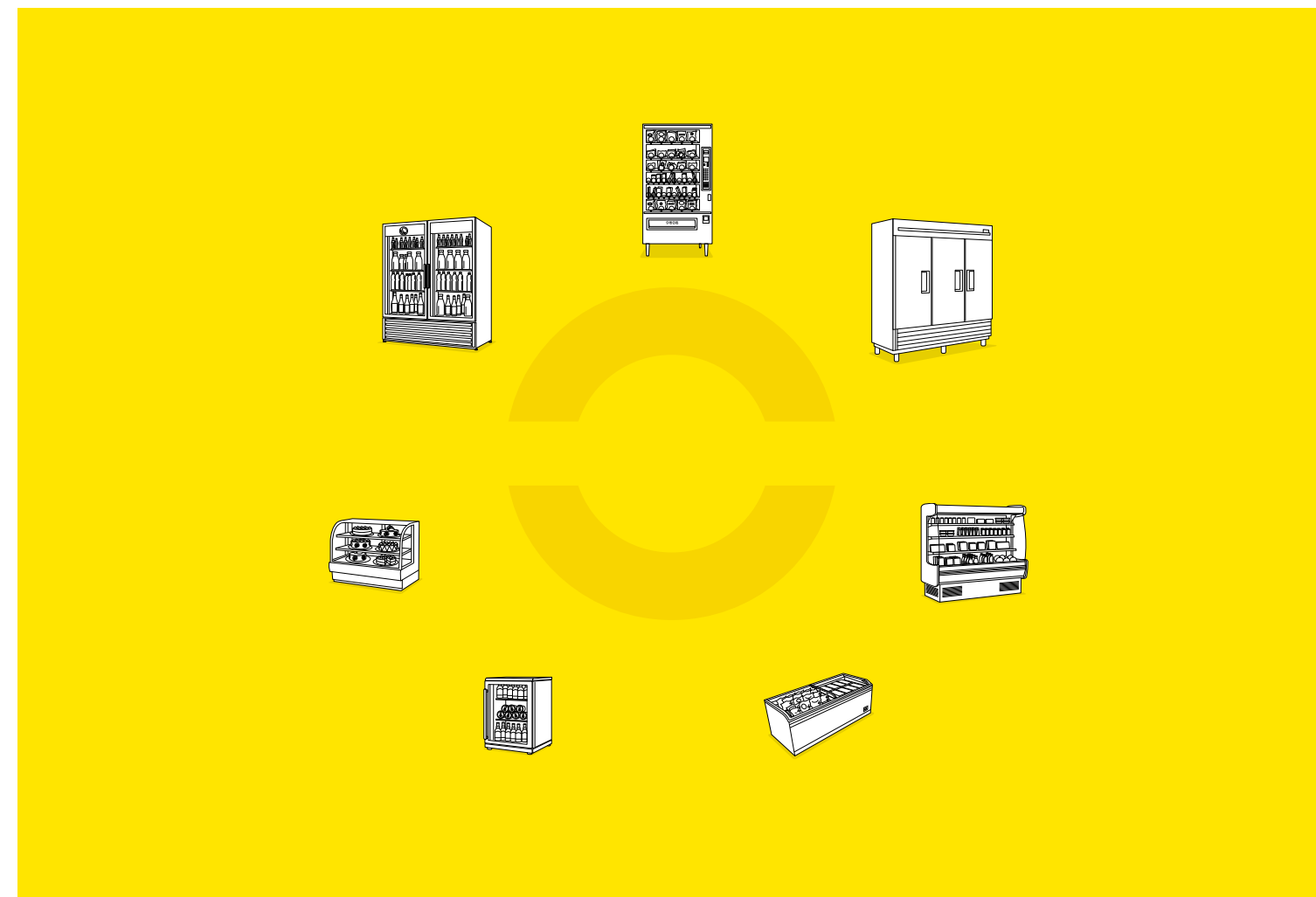
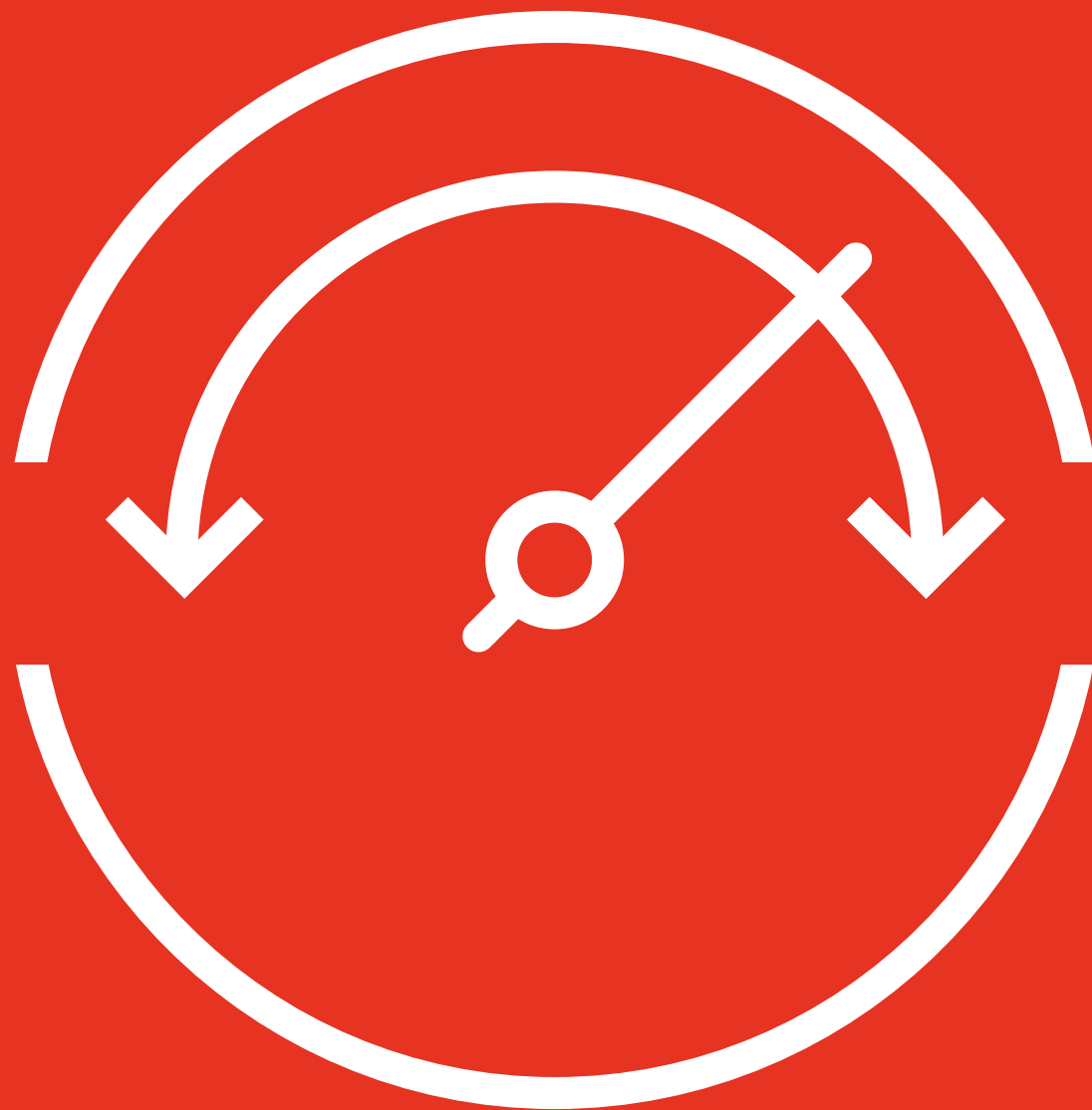
2



2 Compressor Data

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R404A / R507 · 220–240 V · 50 / 60 Hz 208–230 V · 60 Hz	92

VARIABLE-SPEED DRIVE COMPRESSORS



R290

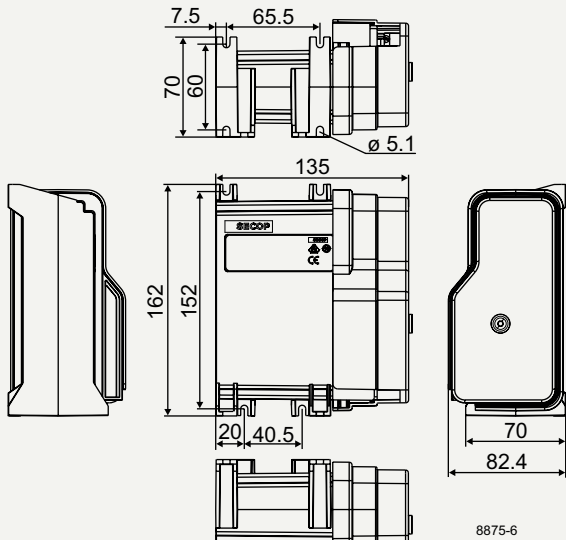
100–127V
208/220–240V
50/60 Hz

DLV-Series · R290 · 100–127 V · 220–240 V · 50/60 Hz

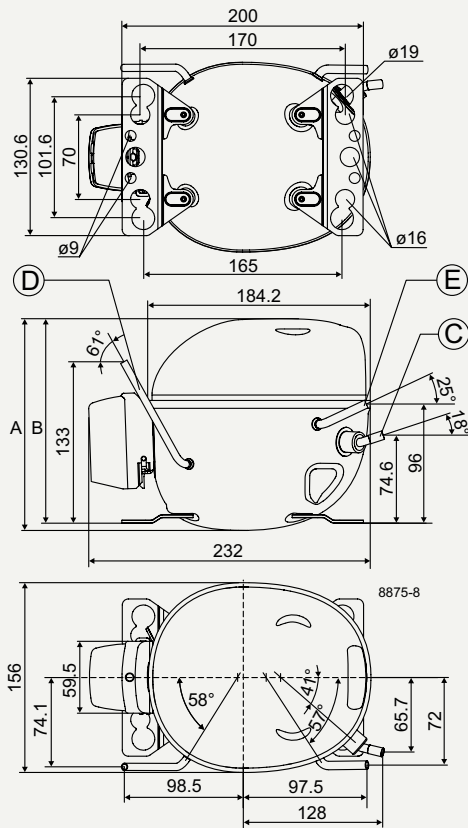
Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement [cm³]	Voltage and frequencies (dual frequency type with 50/60 Hz)
									LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C			
			-35	-15	-5	0	10	15	Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP		
									[W]	[W/W]	[W]	[W/W]	[W]	[W/W]		
DLV4.0CN 2000 rpm	102H3486	L/MBP	58	179	274	333	–	–	120	1.54	229	2.22	386	3.27	4.00	90–140 V, 50/60 Hz
DLV4.0CN 4500 rpm	102H3486	L/MBP	136	420	642	779	–	–	280	1.58	537	2.22	904	3.25	4.00	90–140 V, 50/60 Hz
DLV5.7CN 2000 rpm	102H4604	L/MBP	109	278	413	496	–	–	195	1.69	346	2.18	570	3.06	5.70	90–140 V, 50/60 Hz
DLV5.7CN 4500 rpm	102H4604	L/MBP	249	639	947	1138	–	–	446	1.61	795	2.08	1308	2.92	5.70	90–140 V, 50/60 Hz
DLV4.0CN 2000 rpm	102H3496	L/MBP	63	175	269	329	–	–	119	1.51	224	2.10	–	–	4.00	180–270 V, 50/60 Hz
DLV4.0CN 4500 rpm	102H3496	L/MBP	–	437	655	789	–	–	299	1.71	549	2.31	911	3.24	4.00	180–270 V, 50/60 Hz
DLV5.7CN 2000 rpm	102H3497	L/MBP	100	270	404	485	–	–	185	1.64	339	2.20	–	–	5.70	180–270 V, 50/60 Hz
DLV5.7CN 4500 rpm	102H3497	L/MBP	–	631	922	1103	–	–	448	1.68	775	2.18	1264	2.98	5.70	180–270 V, 50/60 Hz
DLV4.0CN 2000 rpm	102H3498	L/MBP	63	175	269	329	–	–	119	1.51	224	2.10	–	–	4.00	180–270 V, 50/60 Hz
DLV4.0CN 4500 rpm	102H3498	L/MBP	–	437	655	789	–	–	299	1.71	549	2.31	911	3.24	4.00	180–270 V, 50/60 Hz
DLV5.7CN 2000 rpm	102H3698	L/MBP	100	270	404	485	–	–	185	1.64	339	2.20	–	–	5.70	180–270 V, 50/60 Hz
DLV5.7CN 4500 rpm	102H3698	L/MBP	–	631	922	1103	–	–	448	1.68	775	2.18	1264	2.98	5.70	180–270 V, 50/60 Hz

DLV-Series °CCD® Controllers

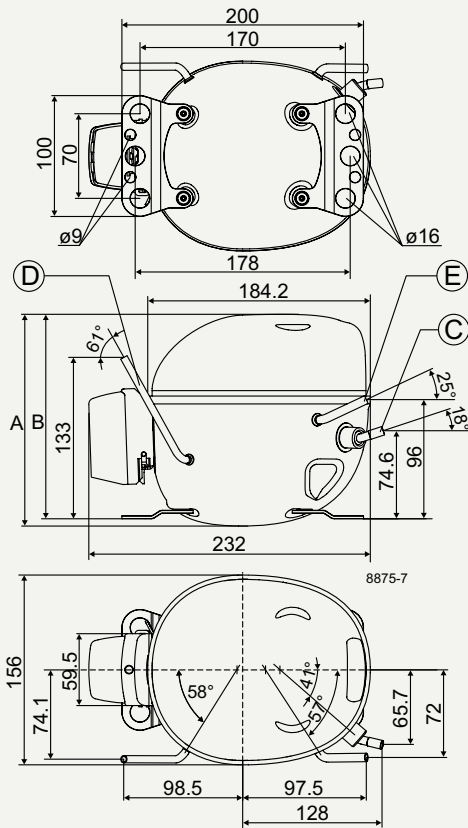
Compressor	Code number	DLV 105N4460 Standard	DLV 105N4410 Standard	DLV 105N4510 Standard, PFC
		Voltage range: 90–140 V, 50/60 Hz	Voltage range: 180–270 V, 50/60 Hz	Voltage range: 180–270 V, 50/60 Hz
		Inputs: Thermostat, defrost, communication, frequency signal	Inputs: Thermostat, defrost, communication, frequency signal	Inputs: Thermostat, defrost, communication, frequency signal
DLV4.0CN	102H3486	✓	–	–
DLV5.7CN	102H4604	✓	–	–
DLV4.0CN	102H3496	–	✓	✓
DLV5.7CN	102H3497	–	✓	✓
DLV4.0CN	102H3498	–	✓	✓
DLV5.7CN	102H3698	–	✓	✓



DLV 102H3486, 102H4604, 102H3496, 102H3497



DLV 102H3498, 102H3698

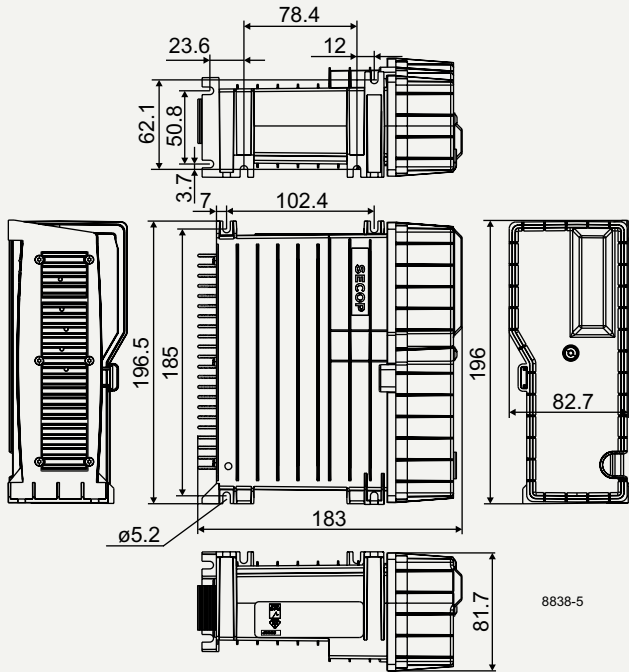


NLV-Series · R290 · 100–240 V · 220–240 V · 50/60 Hz

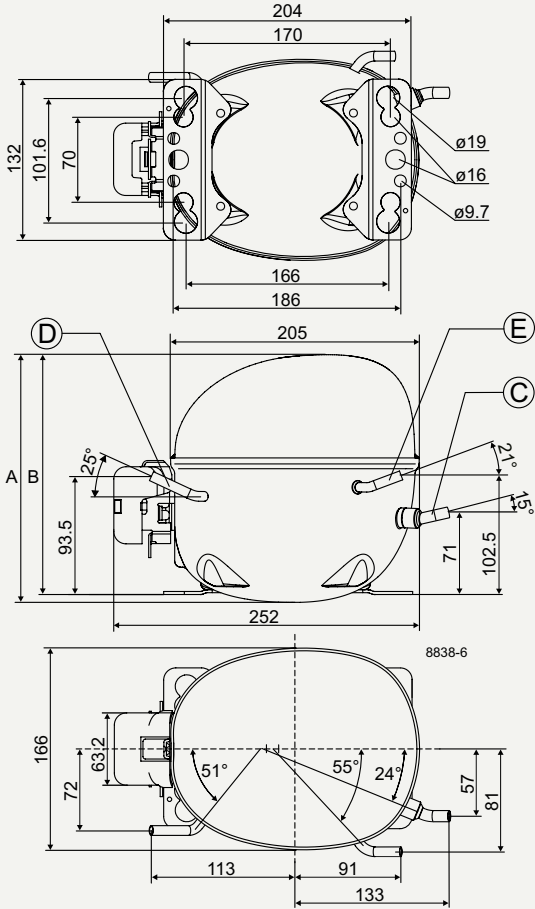
Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement [cm³]	Voltage and frequencies (dual frequency type with 50/60 Hz)
							LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C					
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]		
NLV8.0CN 2000 rpm	105H7800	L/MBP	150	388	584	703	–	–	265	1.73	489	2.26	804	3.23	7.96	90–270 V, 50/60 Hz
NLV8.0CN 4500 rpm	105H7800	L/MBP	–	826	1252	1510	–	–	558	1.72	1049	2.29	1731	3.14	7.96	90–270 V, 50/60 Hz
NLV10CN 2000 rpm	105H7000	L/MBP	203	509	758	907	–	–	352	1.74	636	2.20	1031	3.08	10.09	90–270 V, 50/60 Hz
NLV10CN 4500 rpm	105H7000	L/MBP	–	1085	1617	1941	–	–	749	1.76	1357	2.22	2217	2.93	10.09	90–270 V, 50/60 Hz
NLV12.6CN 2000 rpm	105H6355	L/MBP	246	605	897	1076	–	–	422	1.68	753	2.17	1230	2.86	12.55	180–270 V, 50/60 Hz
NLV12.6CN 2000 rpm	105H6355	L/MBP	–	1344	1995	2393	–	–	938	1.66	1675	2.05	2736	2.62	12.55	180–270 V, 50/60 Hz
NLV8.0CN 2000 rpm	105H7801	L/MBP	150	388	584	703	–	–	265	1.73	489	2.26	804	3.23	7.96	90–270 V, 50/60 Hz
NLV8.0CN 4500 rpm	105H7801	L/MBP	–	826	1252	1510	–	–	558	1.72	1049	2.29	1731	3.14	7.96	90–270 V, 50/60 Hz
NLV10CN 2000 rpm	105H7001	L/MBP	203	509	758	907	–	–	352	1.74	636	2.20	1031	3.08	10.09	90–270 V, 50/60 Hz
NLV10CN 4500 rpm	105H7001	L/MBP	–	1085	1617	1941	–	–	749	1.76	1357	2.22	2217	2.93	10.09	90–270 V, 50/60 Hz
NLV12.6CN 2000 rpm	105H6356	L/MBP	246	605	897	1076	–	–	422	1.68	753	2.17	1230	2.86	12.55	180–270 V, 50/60 Hz
NLV12.6CN 2000 rpm	105H6356	L/MBP	–	1344	1995	2393	–	–	938	1.66	1675	2.05	2736	2.62	12.55	180–270 V, 50/60 Hz

NLV-Series °CCD® Controllers

Compressor	Code number	NLV 105N4710 Standard, PFC	NLV 105N4760 Multi Voltage, PFC
		Voltage range: 180–270 V, 50/60 Hz	Voltage range: 90–270 V, 50/60 Hz
		Inputs: Thermostat, defrost, communication, frequency signal	Inputs: Thermostat, defrost, communication, frequency signal
NLV8.0CN	105H7800	✓	✓
NLV10CN	105H7000	✓	✓
NLV12.6CN	105H6355	✓	✓
NLV8.0CN	105H7801	✓	✓
NLV10CN	105H7001	✓	✓
NLV12.6CN	105H6356	✓	✓



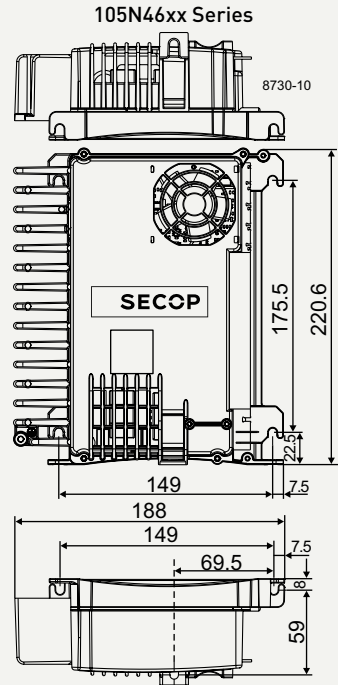
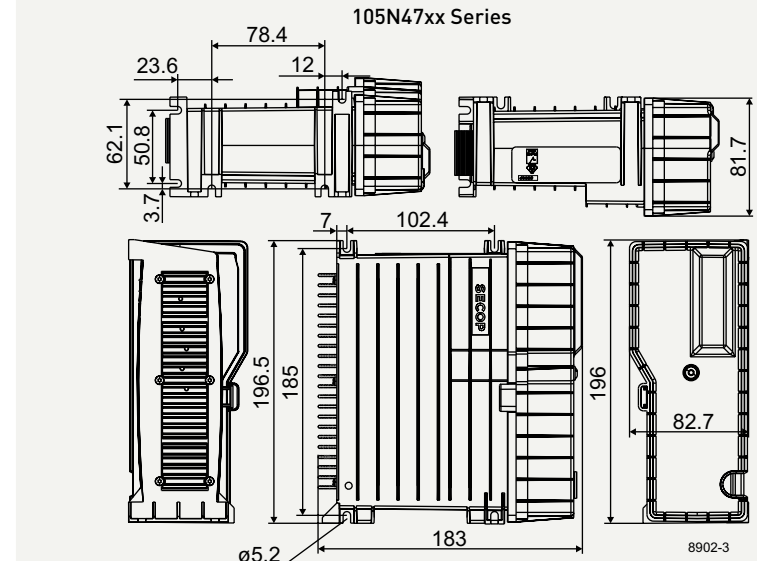
NLV



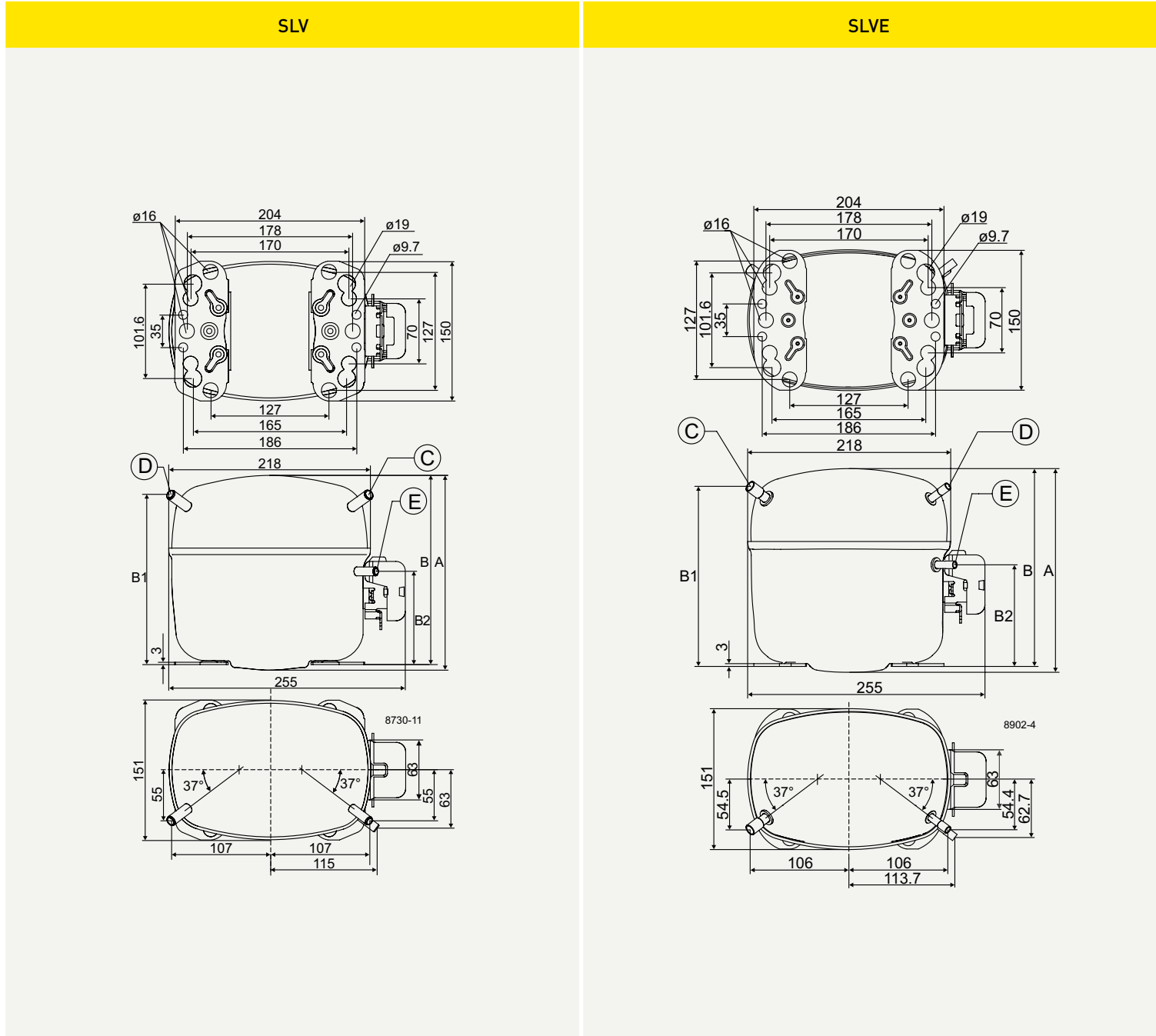
SLV- / SLVE-Series · R290 · 110–120 V · 220–240 V · 208–240 V · 50/60 Hz																
Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement	Voltage and frequencies [*dual frequency type with 50/60 Hz]
									LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C			
			-35	-15	-5	0	10	15	Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP		
			[W]	[W/W]	[W]	[W/W]	[W]	[W/W]	[cm³]							
SLV15CNK 2000 rpm	104H8578	LBP	232	665	–	–	–	–	446	1.31	–	–	–	–	15.28	95–135 V, 50/60 Hz
SLV15CNK 4000 rpm	104H8578	LBP	438	1297	–	–	–	–	888	1.42	–	–	–	–	15.28	95–135 V, 50/60 Hz
SLV15CNK.2 2000 rpm	104H8541	LBP	232	665	–	–	–	–	446	1.32	–	–	–	–	15.28	180–254 V, 50/60 Hz
SLV15CNK.2 4000 rpm	104H8541	LBP	438	1297	–	–	–	–	888	1.42	–	–	–	–	15.28	180–254 V, 50/60 Hz
SLVE18CN 2200 rpm	104H8841	L/MBP	353	964	1427	1708	–	–	666	1.73	1199	2.21	–	–	17.69	180–270 V, 50/60 Hz
SLVE18CN 4500 rpm	104H8841	L/MBP	–	1726	2554	3057	4268	–	1192	1.67	2146	2.14	3485	2.98	17.69	180–270 V, 50/60 Hz

SLV- / SLVE-Series °CCD® Controllers

Compressor	Code number	SLV	SLV	SLVE
		105N467x Series	105N46xx Series	105N47xx Series
		General Purpose, PFC	General Purpose, PFC	Standard, PFC
		Voltage range:	Voltage range:	Voltage range:
		95–135 V, 50/60 Hz	180–254 V, 50/60 Hz	180– 270 V, 50/60 Hz
		Inputs:	Inputs:	Inputs:
		Modbus, integrated temp. controller	Modbus, integrated temp. controller	Thermostat, defrost, communication, frequency signal
SLV15CNK	104H8578	✓	–	–
SLV15CNK.2	104H8541	–	✓	–
SLVE18CN	104H8841	–	–	✓



Power	Compressor Cooling (refer to data sheet)	CECOMAF Capacity [W] Tc=55°C, Tliq=55°C, Tsuc=32°C Evaporating temperature [°C]						CECOMAF						Dimensions						Connection	
		-35	-15	-5	0	10	15	LBP rating point -25°C / 55°C		MBP rating point -10°C / 55°C		HBP rating point 5°C / 55°C		Height [mm]		Connectors location / I.D. [mm]			Cord relief	Cover	
								Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP	A (I.D.)	B (I.D.)	Suction	Process	Dis-charge			
[HP]								[W]	[W/W]	[W]	[W/W]	[W]	[W/W]	A (I.D.)	B (I.D.)	C (I.D.)	D (I.D.)	E (I.D.)			
2/5	F2	187	536	–	–	–	–	329	1.01	668	1.46	–	–	199	193	10.20	6.20	6.20	–	103N2008	
5/6	F2	352	1048	–	–	–	–	657	1.10	1284	1.54	–	–	199	193	10.20	6.20	6.20	–	103N2008	
2/5	F2	187	536	–	–	–	–	329	1.01	668	1.46	–	–	199	193	10.20	6.20	6.20	–	103N2008	
5/6	F2	352	1048	–	–	–	–	657	1.10	1284	1.54	–	–	199	193	10.20	6.20	6.20	–	103N2008	
3/5	F2	285	780	1152	1377	–	–	497	1.34	954	1.85	–	–	219	213	10.20	6.20	6.20	–	103N2008	
1 1/4	F2	–	1396	2063	2466	3430	–	889	1.29	1708	1.79	2920	2.51	219	213	10.20	6.20	6.20	–	103N2008	



HERMETIC COMPRESSORS HC REFRIGERANTS



International System of Units

R290
R600a

208–230 V · 60 Hz
220–240 V · 50/60 Hz
220–240 V · 50 Hz
200–240 V · 50/60 Hz

Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement [cm³]	Voltage and frequencies (*dual frequency type with 50/60 Hz)	Compressor cooling [refer to data sheet]
									LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]			
TL3CN	102H4380	L/MBP	49	161	249	303	–	–	105	0.91	208	1.38	–	–	3.13	198–254 V, 50 Hz	F1
TL4CN	102H4490	L/MBP	76	212	316	379	–	–	146	1.07	265	1.46	–	–	3.86	198–254 V, 50 Hz	F1
TL5CN	102H4590	L/MBP	109	296	436	521	–	–	205	1.18	367	1.53	–	–	5.08	198–254 V, 50 Hz	F1
DLE4CN	102H4465	L/MBP	103	276	400	468	–	–	191	1.48	338	1.97	511	2.60	4.00	198–254 V, 50 Hz	F2
DLE4.8CN	102H4565	L/MBP	128	339	494	595	–	–	242	1.56	415	1.98	693	2.81	4.80	198–254 V, 50 Hz	F2
DLE5.7CN	102H4653	L/MBP	168	415	603	722	–	–	298	1.53	507	1.97	832	2.70	5.70	198–254 V, 50 Hz	F2
DLE6.5CN	102H4765	L/MBP	168	446	652	782	–	–	315	1.53	548	1.92	902	2.62	6.50	198–254 V, 50 Hz	F2
DLE7.5CN	102H4853	L/MBP	209	519	765	918	–	–	366	1.47	643	1.91	1055	2.56	7.48	198–254 V, 50 Hz	F2
DLE4CNT	102H4460	L/MBP	103	276	400	468	–	–	191	1.48	338	1.97	511	2.60	4.00	187–254 V, 50 Hz	F2
DLE5.7CNT	102H4685	L/MBP	168	415	603	722	–	–	298	1.53	507	1.97	832	2.70	5.70	187–254 V, 50 Hz	F2
NL7CN	105H6756	L/MBP	174	474	712	859	–	–	325	1.35	597	1.81	–	–	7.27	198–254 V, 50 Hz	F1
NL9CN	105H6856	L/MBP	205	548	815	979	–	–	380	1.39	684	1.80	–	–	8.35	198–254 V, 50 Hz	F1
NLE8.8CN	105H6880	L/MBP	236	611	893	1068	1497	–	431	1.57	751	1.98	1220	2.68	8.76	198–254 V, 50 Hz	F2
NLE10CN	105H6175	L/MBP	267	702	1038	1240	1722	–	486	1.47	872	1.89	1409	2.53	10.09	198–254 V, 50 Hz	F2
NLE11CNL	105H6174	LBP	300	778	1143	–	–	–	540	1.52	962	1.92	–	–	11.15	198–254 V, 50 Hz	F2
NLE12.6CNL	105H6378	LBP	355	861	1274	–	–	–	611	1.63	1069	2.00	–	–	12.55	198–254 V, 50 Hz	F2
NLE11MN	105H6177	MBP	–	795	1166	1391	1929	–	562	1.58	981	2.01	1579	2.70	11.15	198–254 V, 50 Hz	F2
NLE12.6MN	105H6377	MBP	–	855	1261	1510	2114	–	602	1.56	1060	1.97	1725	2.56	12.55	198–254 V, 50 Hz	F2
NLU8.8DN	105H6085	M/HBP	–	569	862	1045	1488	1751	392	1.60	721	2.17	1210	3.09	8.76	187–254 V, 50 Hz	F2
SC10CNX	104H8065	L/MBP	175	547	853	1042	–	–	358	1.27	711	1.79	–	–	10.29	198–254 V, 50 Hz	F2
SC12CNX	104H8265	L/MBP	227	711	1110	1372	–	–	475	1.31	923	1.79	–	–	12.87	198–254 V, 50 Hz	F2
SC15CNX	104H8565	L/MBP	251	918	1415	1717	–	–	597	1.35	1183	1.83	–	–	15.28	198–254 V, 50 Hz	F2
SC18CNX	104H8865	L/MBP	315	1106	1684	2032	–	–	727	1.36	1410	1.74	–	–	17.69	198–254 V, 50 Hz	F2
SC12CNX.2	104H8266	LBP	230	742	–	–	–	–	491	1.20	–	–	–	–	12.87	198–254 V, 50 Hz	F2
SC15CNX.2	104H8566	LBP	345	928	–	–	–	–	624	1.32	–	–	–	–	15.28	198–254 V, 50 Hz	F2
SC18CNX.2	104H8866	LBP	342	1194	–	–	–	–	797	1.31	–	–	–	–	17.69	198–254 V, 50 Hz	F2
SC21CNX.2	104H8166	LBP	462	1399	–	–	–	–	962	1.45	–	–	–	–	20.95	198–254 V, 50 Hz	F2
SC10MNX	104H8075	MBP	–	575	921	1132	–	–	351	1.19	766	1.70	1329	2.57	10.29	198–254 V, 50 Hz	F2
SC12MNX	104H8275	MBP	–	757	1195	1461	–	–	474	1.13	995	1.77	1707	2.61	12.87	198–254 V, 50 Hz	F2
SC15MNX	104H8575	MBP	–	967	1409	1679	–	–	680	1.51	1187	1.75	1907	2.40	15.28	198–254 V, 50 Hz	F2
SC18MNX	104H8875	MBP	–	1109	1622	1943	–	–	777	1.31	1364	1.71	2237	2.33	17.69	198–254 V, 50 Hz	F2
SCE15CNLX	104H8548	LBP	319	1004	1522	–	–	–	667	1.52	1276	2.05	–	–	15.28	198–254 V, 50 Hz	F2
SCE18CNLX	104H8848	LBP	404	1179	1775	–	–	–	793	1.51	1489	2.03	–	–	17.69	198–254 V, 50 Hz	F2
SCE21CNLX	104H8163	LBP	512	1397	2081	–	–	–	956	1.61	1748	2.08	–	–	20.95	198–254 V, 50 Hz	F2
SCE21CNLX	104H8164	LBP	497	1381	2062	–	–	–	939	1.49	1732	1.87	–	–	20.95	207–242 V, 50 Hz	F2
SCE15CNX	104H8540	L/MBP	319	1002	1524	1836	–	–	664	1.62	1277	2.23	2100	3.13	15.28	198–254 V, 50 Hz	F2
SCE18CNX	104H8840	L/MBP	400	1206	1818	2183	–	–	809	1.63	1525	2.24	2488	3.14	17.69	198–254 V, 50 Hz	F2
SCE15MNX	104H8549	MBP	–	995	1513	1822	2550	–	659	1.49	1267	2.04	2083	2.84	15.28	198–254 V, 50 Hz	F2
SCE18MNX	104H8849	MBP	–	1193	1789	2144	–	–	809	1.46	1501	1.97	2437	2.75	17.69	198–254 V, 50 Hz	F2
SCE21MNX	104H8160	MBP	–	1443	2091	2492	–	–	1002	1.64	1762	2.11	2852	2.91	20.95	198–254 V, 50 Hz	F2

Dimensions						LST (RSIR & RSCR)					Run capacitor (RC)		HST (CSIR & CSR)			LST/HST	
Height [mm]		Connectors location/I.D. [mm]			alt. connectors available	refer to data sheet for more info					→ optional → compulsory*		*alt. cable lengths avail.			Cord relief	Cover
		Suction	Process	Dis-charge E (I.D.)		PTC starting device		PTC starting device with RC connector		ePTC			Starting relay	Starting capacitor	Starting device*		
		Spades				Spades		Spades		Spades	Spades		Spades		Spades		
A	B	C (I.D.)	D (I.D.)	E (I.D.)		6.3 mm	4.8 mm	6.3 mm	4.8 mm	4.8 mm	6.3 mm	4.8 mm	6.3 mm	6.3 mm	6.3 mm		
163	159	6.2	6.2	5	X	103N0011	103N0018	–	–	–	–	–	117U7004	117U5014	–	103N1010	103N2010
173	169	6.2	6.2	5	–	103N0011	103N0018	–	–	–	–	–	117U7004	117U5014	–	103N1010	103N2010
173	169	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	117U7000	117U5014	–	103N1010	103N2010
175	169	6.2	6.2	5	X	–	–	–	–	103N0050	–	117-7129	117U7000	117U5014	–	103N1010	103N0491
175	169	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7129	117U7001	117U5014	–	103N1010	103N0491
175	169	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7129	117U7015	117U5015	–	103N1010	103N0491
175	169	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7129	117U7016	117U5015	–	103N1010	103N0491
175	169	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	–	117U7002	117U5015	–	103N1010	103N0491
175	169	6.2	6.2	5	–	–	–	–	–	103N0050	–	117-7129	117U7000	117U5014	–	103N1010	103N0491
175	169	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7129	117U7015	117U5015	–	103N1010	103N0491
203	197	8.2	6.2	6.2	–	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	117U7002	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	X	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	117U7002	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7119	117U7002	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7119	117U7002	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7119	117U7002	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	–	–	–	–	–	103N0050	–	117-7119	117U7003	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	–	–	–	–	–	103N0050	–	117-7119	117U7003	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7119	117U7005	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	X	–	–	–	–	103N0050	–	117-7119	117U7011	117U5015	–	103N1010	103N2010
203	197	8.2	6.2	6.2	–	–	–	–	–	–	117-7111 *	–	117-7425	117U5389	–	103N1010	103N2010
209	203	8.2	6.2	6.2	–	–	–	–	–	–	–	–	–	117U5372	117-7025	103N1004	103N2009
209	203	8.2	6.2	6.2	–	–	–	–	–	–	–	–	–	117U5372	117-7025	103N1004	103N2009
209	203	10.2	6.2	6.2	X	–	–	–	–	–	–	–	–	117U5373	117-7031	103N1004	103N2009
209	203	10.2	6.2	6.2	X	–	–	–	–	–	–	–	–	117U5373	117-7052	103N1004	103N2009
209	203	8.2	6.2	6.2	X	–	–	–	–	–	–	–	117U7003	117U5017	–	103N1004	103N2009
209	203	8.2	6.2	6.2	–	–	–	–	–	–	–	–	117U7005	117U5017	–	103N1004	103N2009
219	213	10.2	6.2	6.2	–	–	–	–	–	–	–	–	117U7011	117U5017	–	103N1004	103N2009
219	213	10.2	6.2	6.2	X	–	–	–	–	–	–	–	117U7013	117U5012	–	103N1004	103N2009
209	203	8.2	6.2	6.2	–	–	–	–	–	–	–	–	117U7005	117U5017	–	103N1004	103N2008
219	213	8.2	6.2	6.2	–	–	–	–	–	–	–	–	117U7019	117U5017	–	103N1004	103N2008
219	213	8.2	6.2	6.2	–	–	–	–	–	–	–	–	117U7011	117U5017	–	103N1004	103N2008
219	213	10.2	6.2	6.2	–	–	–	–	–	–	–	–	117U7403	117U5017	–	103N1004	117U1033
219	213	10.2	6.2	6.2	X	–	–	–	–	–	–	–	117U7405	117U5017	–	103N1004	117U1033
219	213	10.2	6.2	6.2	–	–	–	–	–	–	117-7112 *	–	117-7600	117U5373	117-7806	–	117U1028
219	213	10.2	6.2	6.2	–	–	–	–	–	–	–	–	117U7400	117U5017	–	–	117U1033
219	213	10.2	6.2	6.2	–	–	–	–	–	–	117-7112 *	–	117-7429	117U5373	117-7810	103N1004	117U1033
219	213	10.2	6.2	6.2	–	–	–	–	–	–	117-7112 *	–	117-7600	117U5373	117-7806	103N1004	117U1033
219	213	10.2	6.2	6.2	–	–	–	–	–	–	–	–	117U7405	117U5017	–	103N1004	117U1033
219	213	10.2	6.2	6.2	X	–	–	–	–	–	–	–	117U7406	117U5017	–	103N1004	117U1033
219	213	10.2	6.2	6.2	–	–	–	–	–	–	117-7112 *	–	117-7425	117U5373	117-7800	–	117U1028

Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement [cm³]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling cooling [refer to data sheet]
									LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]			
DLE4.8CNT	102H4587	L/MBP	130	334	498	600	–	–	232	1.38	417	1.95	694	2.82	4.80	187–254 V, 50 Hz *	F2
DLE5.7CNT	102H4678	L/MBP	166	415	606	726	–	–	295	1.46	510	1.95	835	2.75	5.70	187–254 V, 50 Hz *	F2
NLE8.0CNT	105H6073	L/MBP	–	553	824	991	–	–	377	1.45	692	2.02	1137	2.92	7.96	187–242 V, 50 Hz *	F2
NLE8.8CNT	105H6088	L/MBP	276	738	1086	1296	–	–	511	1.56	914	2.05	1469	2.80	8.76	187–253 V, 60 Hz	F2
NLE10CNT	105H6179	L/MBP	–	735	1076	1278	–	–	511	1.49	906	1.92	1440	2.59	10.09	187–242 V, 50 Hz *	F2
NLE11CNLT	105H6109	LBP	416	979	–	–	–	–	669	1.65	–	–	–	–	11.15	187–253 V, 60 Hz	F2
NLE11MNT	105H6199	MBP	–	965	1395	1654	–	–	–	–	1176	2.02	1866	2.73	11.15	187–253 V, 60 Hz	F2
SC18CNLX.2	104H8877	LBP	457	1268	1823	–	–	–	922	1.45	1533	1.92	–	–	17.69	198–254 V, 60 Hz	F2
SC21CNLX.2	104H8177	LBP	570	1552	2201	–	–	–	1138	1.45	1856	1.78	–	–	20.95	198–254 V, 60 Hz	F2
SCE15CNLX	104H8577	LBP	249	1210	1857	–	–	–	769	1.64	1555	2.27	–	–	15.28	187–253 V, 60 Hz	F2
SCE15CNLX	104H8588	LBP	250	1205	1848	–	–	–	764	1.47	1548	2.02	–	–	15.28	187–253 V, 60 Hz	F2
SCE18CNLX	104H8878	LBP	298	1434	2198	–	–	–	910	1.67	1841	2.30	–	–	17.69	187–253 V, 60 Hz	F2
SCE18CNLX	104H8888	LBP	440	1385	2066	–	–	–	940	1.50	1734	1.93	–	–	17.69	187–253 V, 60 Hz	F2
SCE21CNLX	104H8173	LBP	526	1646	2484	–	–	–	1102	1.65	2082	2.14	–	–	20.95	187–253 V, 60 Hz	F2
SCE21CNLX	104H8174	LBP	452	1582	2409	–	–	–	1042	1.43	2017	1.89	–	–	20.95	198–253 V, 60 Hz	F2
SCE15MNX	104H8579	MBP	–	1221	1852	2226	–	–	792	1.64	1552	2.25	2546	3.19	15.28	187–253 V, 60 Hz	F2
SCE15MNX	104H8589	MBP	–	1208	1828	2196	–	–	786	1.52	1533	2.03	2511	2.85	15.28	187–253 V, 60 Hz	F2
SCE18MNX	104H8879	MBP	–	1431	2146	2569	–	–	942	1.62	1802	2.21	2924	3.11	17.69	187–253 V, 60 Hz	F2
SCE18MNX	104H8889	MBP	–	1427	2137	2557	–	–	941	1.46	1794	1.96	2910	2.76	17.69	187–253 V, 60 Hz	F2

Dimensions						LST [RSIR & RSCR] refer to data sheet for more info				Run capacitor (RC)		HST (CSIR & CSR) *alt. cable lengths avail.			LST / HST	
Height [mm]		Connectors location / I.D. [mm]			alt. connectors available	PTC starting device		PTC starting device with RC connector		ePTC	→ optional → compulsory*	Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
A	B	Suction	Process	Dis-charge E (I.D.)		Spades		Spades		Spades	→ optional → compulsory*	Spades		Spades		
		C (I.D.)	D (I.D.)	E (I.D.)		6.3 mm	4.8 mm	6.3 mm	4.8 mm	4.8 mm		6.3 mm	4.8 mm	6.3 mm		
175	169	8.2	6.5	6.5	X	–	–	–	–	103N0050	–	117-7129	117U7002	117U5015	–	103N1010
175	169	8.2	6.5	6.5	X	–	–	–	–	103N0050	–	117-7129	117U7002	117U5015	–	103N1010
203	197	8.2	6.5	6.5	–	–	–	–	–	103N0050	–	117-7119	117U7003	117U5014	–	103N1010
203	197	8.2	6.5	6.5	–	–	–	–	–	103N0050	–	117-7119	117U7022	117U5381	–	103N1010
203	197	8.2	6.5	6.5	–	–	–	–	–	103N0050	–	117-7119	117U7050	117U5014	–	103N1010
203	197	8.2	6.5	6.5	–	–	–	–	–	103N0050	–	117-7165	117U7005	117U5014	–	103N1010
203	197	8.2	6.5	6.5	–	–	–	–	–	103N0050	–	117-7119	117U7050	117U5014	–	103N1010
219	213	9.63	6.5	6.5	–	–	–	–	–	–	–	–	–	117U5373	117-7039	103N1004
219	213	9.63	6.5	6.5	–	–	–	–	–	–	–	–	–	117U5373	117-7066	103N1004
219	213	9.63	6.5	6.5	–	–	–	–	–	–	117U7121 *	–	117-7602	117U5373	117-7809	–
219	213	9.63	6.5	6.5	–	–	–	–	–	–	–	–	–	117U5076	–	–
219	213	9.63	6.5	6.5	X	–	–	–	–	–	117U7121 *	–	117-7602	117U5373	117-7809	–
219	213	9.63	6.5	6.5	X	–	–	–	–	–	–	–	–	117U5076	–	–
219	213	9.63	6.5	6.5	–	–	–	–	–	–	117U7121 *	–	117-7603	117U5373	117-7811	–
219	213	9.63	6.5	6.5	–	–	–	–	–	–	–	–	–	117U5076	–	–
219	213	9.63	6.5	6.5	–	–	–	–	–	–	117U7121 *	–	117-7601	117U5373	117-7808	–
219	213	9.63	6.5	6.5	–	–	–	–	–	–	–	–	–	117U5076	–	–
219	213	9.63	6.5	6.5	X	–	–	–	–	–	117U7121 *	–	117-7445	117U5373	117-7807	–
219	213	9.63	6.5	6.5	X	–	–	–	–	–	–	–	–	117U7412	117U5076	–



Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement [cm³]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling [refer to data sheet]
									LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]			
PLE35K	101H0360	MBP	–	63	106	133	–	–	38	0.91	88	1.56	–	–	2.50	198–254 V, 50 Hz	S
TLES4KK.3	102H4438	LBP	23	91	–	–	–	–	57	1.18	–	–	–	–	4.01	198–254 V, 50 Hz	S
TLES4.8KK.3	102H4579	LBP	34	115	–	–	–	–	74	1.30	–	–	–	–	4.78	198–254 V, 50 Hz	S
TLES4.8KK.3	102H4596	LBP	34	115	–	–	–	–	74	1.30	–	–	–	–	4.78	198–254 V, 50 Hz	S
TLES5.7KK.3	102H4694	LBP	45	139	–	–	–	–	91	1.32	–	–	–	–	5.70	198–254 V, 50 Hz	S
TLES6.5KK.3	102H4783	LBP	55	163	–	–	–	–	108	1.31	–	–	–	–	6.49	198–254 V, 50 Hz	S
TLES7.5KK.3	102H4838	LBP	64	189	–	–	–	–	125	1.31	–	–	–	–	7.48	198–254 V, 50 Hz	S
TLES8.7KK.3	102H4939	LBP	75	221	–	–	–	–	147	1.33	–	–	–	–	8.67	198–254 V, 50 Hz	S
TLES5KTK	102H4536	LBP	34	121	194	240	–	–	77	1.22	162	1.78	–	–	5.08	187–254 V, 50 Hz	S
TLES6KTK	102H4636	LBP	38	136	–	–	–	–	89	1.23	–	–	–	–	5.70	187–254 V, 50 Hz	S
TLES10KTK.3	102H4050	LBP	89	249	–	–	–	–	168	1.36	–	–	–	–	10.13	187–254 V, 50 Hz	S
NLE10KK.4	105H6867	LBP	90	252	–	–	–	–	170	1.51	–	–	–	–	10.09	198–254 V, 50 Hz	S
NLE11KK.4	105H6952	LBP	100	283	–	–	–	–	190	1.56	–	–	–	–	11.15	198–254 V, 50 Hz	S
NLE13KK.4	105H6939	LBP	121	334	–	–	–	–	226	1.56	–	–	–	–	13.25	198–254 V, 50 Hz	S
NLE15KK.4	105H6968	LBP	134	374	–	–	–	–	253	1.53	–	–	–	–	14.65	198–254 V, 50 Hz	S
NLE9KTK	105H6071	LBP	66	202	–	–	–	–	131	1.33	–	–	–	–	8.35	187–254 V, 50 Hz *	S
NLE11KTK	105H6948	LBP	88	251	–	–	–	–	168	1.31	–	–	–	–	11.15	187–254 V, 50 Hz *	S
NLE11KTK.2	105H6173	LBP	102	295	–	–	–	–	198	1.51	–	–	–	–	11.15	187–254 V, 50 Hz	S
NLE13KTK.2	105H6929	LBP	117	338	–	–	–	–	227	1.52	–	–	–	–	13.25	187–254 V, 50 Hz	S
NLE15KTK.2	105H6966	LBP	129	383	–	–	–	–	254	1.52	–	–	–	–	14.65	187–254 V, 50 Hz	S
NLE15MKK	105H6533	MBP	–	375	586	718	–	–	248	1.49	491	1.99	852	2.50	14.65	198–254 V, 50 Hz	S
NLX10KK.1	105H6104	LBP	82	262	–	–	–	–	172	1.74	–	–	–	–	10.09	198–254 V, 50 Hz	S
NLX13KK.1	105H6304	LBP	111	337	–	–	–	–	223	1.75	–	–	–	–	13.25	198–254 V, 50 Hz	S
NLX15KK.2	105H6977	LBP	135	377	–	–	–	–	255	1.87	–	–	–	–	14.65	198–254 V, 50 Hz	S
NLX15KK.3	105H6506	LBP	132	388	–	–	–	–	254	1.85	–	–	–	–	14.65	198–254 V, 50 Hz	S
NLU10KK.1	105H6193	LBP	86	267	–	–	–	–	176	1.98	–	–	–	–	10.09	198–254 V, 50 Hz	S
NLU11KK.1	105H6198	LBP	99	301	–	–	–	–	200	1.97	–	–	–	–	11.15	198–254 V, 50 Hz	S
NLU13KK.1	105H6372	LBP	114	348	–	–	–	–	230	1.98	–	–	–	–	13.25	198–254 V, 50 Hz	S

Electrical equipment

Dimensions						LST (RSIR & RSCR)					Run capacitor (RC)		HST (CSIR & CSR)			LST/HST	
Height [mm]		Connectors location/I.D. [mm]			alt. connectors available	refer to data sheet for more info					→ optional → compulsory*		Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
A	B	Suction	Process	Dis-charge E (I.D.)		Spades		Spades		Spades	Spades		Spades		Spades		
		C (I.D.)	D (I.D.)			6.3 mm	4.8 mm	6.3 mm	4.8 mm	4.8 mm	6.3 mm	4.8 mm	6.3 mm	6.3 mm	6.3 mm		
137	135	6.2	6.2	5	–	–	–	103N0016	103N0021	–	117-7117 *	117-7119 *	–	–	–	103N1010	103N0491
163	159	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
163	159	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
163	159	6.2	4.5	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
163	159	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
163	159	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
163	159	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7131	117-7132	–	–	–	103N1010	103N2010
163	159	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
173	169	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
173	169	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
173	169	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
190	183	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
190	183	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
190	183	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
197	190	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
197	190	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	–	–	–	103N1010	103N2010
197	190	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	–	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	–	–	–	103N0016	103N0021	103N0050	117-7131 *	117-7132 *	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	–	–	–	103N0016	103N0021	103N0050	117-7117 *	117-7119 *	–	–	–	103N1010	103N2010
203	197	8.2	6.2	6.2	X	–	–	103N0016	103N0021	103N0050	117-7117 *	117-7119 *	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	–	–	–	–	103N0021	103N0050	–	117-7140 *	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	X	–	–	–	103N0021	103N0055	–	117-7139 *	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	X	–	–	–	103N0021	103N0055	–	117-7139 *	–	–	–	103N1010	103N2010
203	197	6.2	6.2	5	–	–	–	–	103N0021	103N0055	117-7131 *	117-7132 *	–	–	–	103N1010	103N2010



K-Series AA · R600a · 220–240 V · 50 Hz

Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement [cm³]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling cooling [refer to data sheet]
									LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]			
HKK55AA	CD000039	LBP	39	145	224	–	–	–	93	1.71	188	2.29	–	–	5.60	187–264 V, 50 Hz	S
HKK70AA	CD000040	LBP	54	180	276	–	–	–	117	1.74	233	2.26	–	–	6.60	187–264 V, 50 Hz	S
HKK80AA	CD000041	LBP	67	207	316	–	–	–	136	1.77	266	2.29	–	–	8.10	187–264 V, 50 Hz	S
HKK95AA	CD000042	LBP	84	251	376	–	–	–	168	1.80	318	2.28	–	–	9.60	187–264 V, 50 Hz	S
HKK12AA	CD000043	LBP	100	291	428	–	–	–	199	1.80	363	2.25	–	–	11.20	187–264 V, 50 Hz	S
HMK80AA	CD000165	LBP	67	206	314	–	–	–	136	1.50	265	1.99	–	–	8.10	187–264 V, 50 Hz	S
HMK95AA	CD000164	LBP	81	252	381	–	–	–	167	1.53	322	2.01	–	–	9.60	187–264 V, 50 Hz	S
HMK12AA	CD000163	LBP	99	291	425	–	–	–	198	1.53	361	1.93	–	–	11.20	187–264 V, 50 Hz	S
HTK55AA	CD000034	LBP	39	146	225	–	–	–	93	1.55	190	2.12	–	–	5.60	187–264 V, 50 Hz	S
HTK70AA	CD000035	LBP	53	181	267	–	–	–	117	1.61	227	2.29	–	–	6.60	187–264 V, 50 Hz	S
HTK80AA	CD000036	LBP	67	207	316	–	–	–	136	1.61	266	2.19	–	–	8.10	187–264 V, 50 Hz	S
HTK95AA	CD000037	LBP	86	251	382	–	–	–	167	1.64	322	2.14	–	–	9.60	187–264 V, 50 Hz	S
HTK12AA	CD000038	LBP	99	290	426	–	–	–	198	1.64	361	2.06	–	–	11.20	187–264 V, 50 Hz	S
HXK55AA	CD000045	LBP	44	148	224	–	–	–	97	1.83	189	2.32	–	–	5.60	187–264 V, 50 Hz	S
HXK70AA	CD000110	LBP	57	181	277	–	–	–	118	1.86	233	2.35	–	–	6.64	187–264 V, 50 Hz	S
HXK80AA	CD000096	LBP	71	210	316	–	–	–	140	1.90	267	2.38	–	–	8.10	187–264 V, 50 Hz	S
HXK87AA	CD000103	LBP	79	230	349	–	–	–	154	1.90	294	2.52	–	–	8.80	187–264 V, 50 Hz	S
HXK95AA	CD000085	LBP	89	254	380	–	–	–	171	1.91	321	2.39	–	–	9.60	187–264 V, 50 Hz	S
HXK12AA	CD000095	LBP	100	295	434	–	–	–	200	1.90	368	2.37	–	–	11.10	187–264 V, 50 Hz	S
HZK80AA	CD000094	LBP	71	210	316	–	–	–	140	1.97	267	2.48	–	–	8.10	187–264 V, 50 Hz	S
HZK95AA	CD000078	LBP	85	254	376	–	–	–	171	1.99	319	2.54	–	–	9.60	187–264 V, 50 Hz	S
HZK12AA	CD000077	LBP	102	293	430	–	–	–	200	1.98	365	2.50	–	–	11.10	187–264 V, 50 Hz	S

K-Series AT · R600a · 200–240 V · 50/60 Hz

Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling cooling [refer to data sheet]
									LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP			
			[W]	[W/W]	[W]	[W/W]	[W]	[W/W]									
HXK70AT	CD000124	LBP	60	178	–	–	–	–	119	1.72	–	–	–	–	6.64	170–264 V, 50 Hz	S
HXK80AT	CD000135	LBP	70	208	–	–	–	–	140	1.75	–	–	–	–	8.10	170–264 V, 50 Hz *	S
HXK87AT	CD000136	LBP	89	229	–	–	–	–	154	1.75	–	–	–	–	8.80	170–264 V, 50 Hz *	S
HXK95AT	CD000137	LBP	76	254	–	–	–	–	174	1.75	–	–	–	–	9.60	170–264 V, 50 Hz *	S
HXK12AT	CD000219	LBP	115	295	–	–	–	–	198	1.73	–	–	–	–	11.12	170–264 V, 50 Hz *	S
HXK13AT	CD000222	LBP	131	335	–	–	–	–	226	1.65	–	–	–	–	12.50	170–264 V, 50 Hz *	S

Electrical equipment · Spare parts · Accessories

Dimensions						Run capacitor	Terminal board		Terminal board	Cable clamp	Cover	Evaporation tray	All-in-one equipment
Height [mm]		Connectors location [mm]			alt. connectors available	→ optional → compulsory*	→ PTC → external protector		→ ePTC → external protector	screws not included	V0 material optional	plastic	→ cover → cable clamp + screws → earthing screw
A	B	Suction	Process	Dis-charge		Spades	Spades		Spades				
		C (I.D.)	D (O.D.)	E (I.D.)		4.8 6.3 mm	4.8 mm	6.3 mm	4.8 mm				
159	–	6.15	6.00	5.15	X	2.5 µF *	ZHFF	DHFF	–	113410_	157595_	162991_	161680_
159	–	6.15	6.00	5.15	X	3 µF *	ZHF6	DHF6	–	113410_	157595_	162991_	161680_
159	–	6.15	6.00	5.15	X	3 µF *	ZHF4	DHF4	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF *	ZAFC	DAFC	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF *	ZAFP	DAFP	–	113410_	157595_	162991_	161680_
159	–	6.15	6.00	5.15	X	–	ZAF5	DAF5	–	113410_	157595_	162991_	161680_
159	–	6.15	6.00	5.15	X	–	ZAF5	DAF5	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	–	ZAFP	DAFP	–	113410_	157595_	162991_	161680_
159	–	6.15	6.00	5.15	X	2 µF	ZHF0	DHF0	–	113410_	157595_	162991_	161680_
159	–	6.15	6.00	5.15	X	3 µF	ZAF7	DAF7	–	113410_	157595_	162991_	161680_
159	–	6.15	6.00	5.15	X	3 µF	ZAFC	DAFC	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF	ZAFC	DAFC	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF	ZAF9	DAF9	–	113410_	157595_	162991_	161680_
159	–	6.15	6.00	5.15	X	3 µF *	ZAF6	DAF6	ZXF6	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	3 µF *	ZAF6	DAF6	ZXF6	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	3 µF *	ZAF4	DAF4	ZXF4	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF *	ZAF5	DAF5	ZXF5	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF *	ZAF5	DAF5	ZXF5	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF *	ZAFP	DAFP	ZXFP	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	3 µF *	–	–	ZXF4	113410_	157595_	162991_	161680_
170	–	6.15	6.00	5.15	X	4 µF *	–	–	ZXF5	113410_	157595_	162991_	161680_
170	–	6.15	6.00	5.15	X	4 µF *	–	–	ZXFP	113410_	157595_	162991_	161680_

Electrical equipment · Spare parts · Accessories

Dimensions						Run capacitor	Terminal board		Terminal board	Cable clamp	Cover	Evaporation tray	All-in-one equipment
Height [mm]		Connectors location [mm]			alt. connectors available	→ optional → compulsory*	→ PTC → external protector		→ ePTC → external protector	screws not included	V0 material optional	plastic	→ cover → cable clamp + screws → earthing screw
A	B	Suction	Process	Dis-charge		Spades	Spades		Spades				
		C (I.D.)	D (O.D.)	E (I.D.)		4.8 6.3 mm	4.8 mm	6.3 mm	4.8 mm				
167	–	6.15	6.00	5.15	X	4 µF	ZAF5	DAF5	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF	ZCF5	DCF5	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF	ZCFC	DCFC	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF	ZCFP	DCFP	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF	ZCF9	DCF9	–	113410_	157595_	162991_	161680_
167	–	6.15	6.00	5.15	X	4 µF	ZCF9	DCF9	–	113410_	157595_	162991_	161680_



HERMETIC COMPRESSORS HFC REFRIGERANTS



International System of Units

R134a · R513A
R404A · R452A

208–230V · 60 Hz
220–240V · 50/60 Hz
220–240V · 50 Hz
200–240V · 50 Hz

Compressor [*with oil cooler connector]	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement [cm³]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling [refer to data sheet]
									LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]			
PL20F	101G0100	MBP	–	45	81	103	–	–	24	0.55	66	1.08	–	–	1.41	198–254 V, 50 Hz	S
PL50F	101G0220	LBP	18	92	–	–	–	–	56	0.89	–	–	–	–	2.50	198–254 V, 50 Hz	S
PL50F	101G0222	MBP	–	92	149	184	–	–	56	0.92	123	1.37	–	–	2.50	198–254 V, 50 Hz	F1
PL50F	101G0223	MBP	–	92	149	184	–	–	56	0.92	123	1.37	–	–	2.50	198–254 V, 50 Hz	F1
TL2.5F	102G4200	L/MBP	–	81	136	170	–	–	46	0.80	112	1.31	–	–	2.61	198–254 V, 50 Hz	S
TL3F	102G4300	L/MBP	–	101	171	214	–	–	59	0.85	141	1.32	–	–	3.13	198–254 V, 50 Hz	S
TL4F	102G4400	LBP	38	133	–	–	–	–	84	0.98	–	–	–	–	3.86	198–254 V, 50 Hz	S
TL5F	102G4501	LBP	53	178	–	–	–	–	113	1.06	–	–	–	–	5.08	198–254 V, 50 Hz	S
TLS5F	102G4520	LBP	59	210	–	–	–	–	134	1.15	–	–	–	–	5.08	198–254 V, 50 Hz	S
TLS6F	102G4620	LBP	72	227	–	–	–	–	143	1.14	–	–	–	–	5.70	198–254 V, 50 Hz	S
TLS7F	102G4720	LBP	82	257	–	–	–	–	164	1.15	–	–	–	–	6.49	198–254 V, 50 Hz	S
TLES3F	102G4310	L/MBP	–	115	192	240	–	–	70	1.07	158	1.57	–	–	3.13	198–254 V, 50 Hz	S
TLES4F	102G4410	LBP	41	154	–	–	–	–	97	1.16	–	–	–	–	3.86	198–254 V, 50 Hz	S
TLES5F	102G4510	LBP	62	210	–	–	–	–	134	1.22	–	–	–	–	5.08	198–254 V, 50 Hz	S
TLES6F	102G4610	LBP	72	227	–	–	–	–	143	1.20	–	–	–	–	5.70	198–254 V, 50 Hz	S
TLES5.7FT.3	102G4573	LBP	82	248	–	–	–	–	163	1.30	–	–	–	–	5.70	187–254 V, 50 Hz	S
TLES6FT.3	102G4609	LBP	82	248	–	–	–	–	163	1.30	–	–	–	–	5.70	187–254 V, 50 Hz	S
TFS4.5FT	102G4433	LBP	56	193	309	–	–	–	123	1.12	256	1.65	–	–	4.63	176–242 V, 50 Hz	S
TLS3FT	102G4325	LBP	26	115	–	–	–	–	69	1.07	–	–	–	–	3.13	187–254 V, 50 Hz	S
TLS4FT	102G4424	LBP	34	145	–	–	–	–	88	0.97	–	–	–	–	3.86	187–254 V, 50 Hz	S
TLS5FT	102G4524	LBP	59	210	–	–	–	–	134	1.12	–	–	–	–	5.08	187–254 V, 50 Hz	S
NL6F	105G6606	LBP	64	247	–	–	–	–	152	1.22	–	–	–	–	6.13	198–254 V, 50 Hz	S
NL7F	105G6706	LBP	87	294	–	–	–	–	187	1.21	–	–	–	–	7.27	198–254 V, 50 Hz	S
NL8F	105G6822	LBP	100	307	–	–	–	–	201	1.24	–	–	–	–	7.95	198–254 V, 50 Hz	S
NL9F	105G6802	LBP	92	332	–	–	–	–	213	1.21	–	–	–	–	8.35	198–254 V, 50 Hz	S
NLE9F	105G6805	LBP	101	335	–	–	–	–	211	1.33	–	–	–	–	8.35	198–254 V, 50 Hz	S
NL11F	105G6900	LBP	126	435	–	–	–	–	274	1.22	–	–	–	–	11.15	198–254 V, 50 Hz	F2
NF9FX	105G6841	L/MBP	113	356	575	715	–	–	229	1.09	475	1.59	856	2.28	8.34	198–242 V, 50 Hz	F1
NF11FX	105G6944	L/MBP	141	454	725	898	–	–	294	0.97	600	1.41	1070	2.02	11.15	198–242 V, 50 Hz	F2
NL6.1FT	105G6620	LBP	74	245	–	–	–	–	157	1.21	–	–	–	–	6.13	187–254 V, 50 Hz	S
NL7FT	105G6718	LBP	88	290	–	–	–	–	186	1.22	–	–	–	–	7.27	187–254 V, 50 Hz	S
NL7.3FT	105G6726	LBP	88	290	–	–	–	–	186	1.22	–	–	–	–	7.27	187–254 V, 50 Hz	S
NL8.4FT	105G6055	LBP	107	340	–	–	–	–	220	1.23	–	–	–	–	8.35	187–254 V, 50 Hz	F1
NL9FT	105G6828	LBP	107	340	–	–	–	–	220	1.23	–	–	–	–	8.35	187–254 V, 50 Hz	S
NL10FT	105G6188	LBP	141	434	–	–	–	–	284	1.25	–	–	–	–	10.09	187–254 V, 50 Hz	S
NL11MF	105G6156	M/HBP	–	471	756	938	1400	1687	–	–	626	1.61	1121	2.19	11.15	187–254 V, 50 Hz	F2
NLE10MF	105G6888	MBP	110	425	687	854	–	–	268	1.28	568	1.71	1023	2.32	10.09	198–254 V, 50 Hz	F1
NLE10MF.2	105G6187	L/MBP	116	457	735	914	1372	–	290	1.45	608	1.94	1097	2.61	10.09	198–254 V, 50 Hz	F2
NLE11MF.2	105G6197	MBP	–	513	821	1018	1509	–	331	1.41	680	1.88	1211	2.50	11.15	198–242 V, 50 Hz	F2
FR11G	103G6980	L/M/HBP	–	380	621	780	–	–	236	1.10	513	1.50	–	–	11.15	187–254 V, 50 Hz	F1
SC15F	104G8500	LBP	126	545	901	–	–	–	324	1.11	745	1.59	–	–	15.28	198–254 V, 50 Hz	F1
SC15MFX	104G8501	MBP	–	569	951	1185	1749	–	326	1.10	785	1.66	1408	2.31	15.28	198–254 V, 50 Hz	F2
SC18F	104G8800	LBP	159	640	1041	–	–	–	389	1.17	863	1.62	–	–	17.69	198–254 V, 50 Hz	F1
SC10GHH*	104G8071	HBP	–	321	580	750	1173	1426	–	–	472	1.69	931	2.62	10.29	198–254 V, 50 Hz	F1
SC15GHH*	104G8571	HBP	–	533	897	1128	1746	2154	–	–	739	1.84	1382	2.66	15.28	198–254 V, 50 Hz	F1
SC186H	104G8860	HBP	–	666	1061	1338	2048	2482	–	–	875	1.62	1632	2.27	17.69	198–254 V, 50 Hz	F2
SC21F	104G8100	LBP	228	742	1218	–	–	–	458	1.14	1007	1.54	–	–	20.95	198–254 V, 50 Hz	F1
SC21FTX	104G8105	LBP	241	884	1391	–	–	–	569	1.27	1156	1.76	–	–	20.95	187–254 V, 50 Hz	F2
SC21MFX	104G8120	MBP	–	819	1304	1616	2408	–	532	1.21	1081	1.65	1929	2.30	20.95	187–254 V, 50 Hz	F2
SCE21MFX	104G8150	MBP	–	817	1371	1714	–	–	480	1.29	1130	1.82	2043	2.37	20.95	198–244 V, 50 Hz	F2
SC12/12G	104G8280	L/M/HBP	162	865	1498	1907	2942	3582	497	1.03	1228	1.60	2340	2.29	25.74	187–254 V, 50 Hz	F2
SC15/15G	104G8580	L/M/HBP	–	1054	1808	2255	3338	3996	521	1.01	1491	1.56	2682	2.20	30.56	187–254 V, 50 Hz	F2
SC18/18G	104G8880	L/M/HBP	–	1298	2150	2688	4026	4843	782	1.12	1774	1.63	3225	2.24	35.38	187–254 V, 50 Hz	F2
SC21/21G	104G8180	L/M/HBP	–	1508	2520	3156	4704	5621	921	1.13	2076	1.67	3777	2.29	41.90	187–254 V, 50 Hz	F2
GS26GHX	107B0702	HBP	–	1087	1746	2172	3268	3960	–	–	1445	1.79	2611	2.50	26.30	198–254 V, 50 Hz	F2
GS26MFX	107B0700	MBP	–	1078	1747	2170	–	–	–	–	1446	1.82	–	–	26.30	198–254 V, 50 Hz	F2
GS34MFX	107B0701	MBP	–	1400	2284	2848	–	–	–	–	1888	1.80	3424	2.44	33.80	198–254 V, 50 Hz	F2
GS26MFX	107B0700	MBP	–	1078	1747	2170	–	–	–	–	1446	1.82	–	–	26.30	198–254 V, 50 Hz	F2
GS34MFX	107B0701	MBP	–	1400	2284	2848	–	–	–	–	1888	1.80	3424	2.44	33.80	198–254 V, 50 Hz	F2

Alternative refrigerant R513A, please refer to our data sheets



Electrical equipment

Dimensions						LST (RSIR & RSCR)					Run capacitor (RC)		HST (CSIR & CSR)			LST/HST	
Height [mm]		Connectors location/I.D. [mm]			alt. connectors available	refer to data sheet for more info					→ optional → compulsory*		*alt. cable lengths avail.			Cord relief	Cover
A	B	Suction C (I.D.)	Process D (I.D.)	Dis-charge E (I.D.)		PTC starting device		PTC starting device with RC connector		ePTC			Starting relay	Starting capacitor	Starting device*		
						Spades		Spades		Spades	Spades		Spades		Spades		
						6.3 mm	4.8 mm	6.3 mm	4.8 mm	4.8 mm	6.3 mm	4.8 mm	6.3 mm	6.3 mm	6.3 mm		
129	127	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	-	-	-	103N1010	103N0491
137	135	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	-	-	-	103N1010	103N0491
137	135	6.2	6.2	5	-	-	-	-	-	-	-	-	117U6021	117U5014	-	103N1010	103N0491
137	135	6.5	6.5	5	-	-	-	-	-	-	-	-	117U6021	117U5014	-	103N1010	103N0491
163	159	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	-	-	-	103N1010	103N2010
163	159	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6007	117U5014	-	103N1010	103N2010
163	159	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6009	117U5014	-	103N1010	103N2010
173	169	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6004	117U5014	-	103N1010	103N2010
173	169	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6004	117U5014	-	103N1010	103N2010
173	169	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6004	117U5014	-	103N1010	103N2010
173	169	6.2	6.2	5	-	103N0011	103N0018	103N0016	103N0021	-	117-7117	117-7119	117U6000	117U5014	-	103N1010	103N2010
173	169	6.2	6.2	5	-	103N0011	103N0018	103N0016	103N0021	-	117-7117	117-7119	-	-	-	103N1010	103N2010
173	169	6.2	6.2	5	-	103N0011	103N0018	103N0016	103N0021	-	117-7117	117-7119	-	-	-	103N1010	103N2010
173	169	6.2	6.2	5	-	103N0011	103N0018	103N0016	103N0021	-	117-7117	117-7119	-	-	-	103N1010	103N2010
173	169	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	-	117-7117	117-7119	-	-	-	103N1010	103N2010
173	169	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	117U6004	117U5014	-	103N1010	103N2010
173	169	6.2	6.2	5	-	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	117U6004	117U5014	-	103N1010	103N2010
173	169	6.5	6.5	5	X	-	-	-	-	-	-	-	-	-	-	117U0349	117U1023
173	169	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6007	117U5014	-	103N1010	103N2010
173	169	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6004	117U5014	-	103N1010	103N2010
173	169	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6000	117U5014	-	103N1010	103N2010
188	181	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6004	117U5015	-	103N1010	103N2010
190	183	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6000	117U5015	-	103N1010	103N2010
197	191	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6001	117U5015	-	103N1010	103N2010
197	191	8.2	6.2	6.2	-	103N0011	103N0018	-	-	-	-	-	117U6001	117U5015	-	103N1010	103N2010
197	191	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	-	117-7117	117-7119	-	-	-	103N1010	103N2010
203	197	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6002	117U5015	-	103N1010	103N2010
203	197	8.2	6.5	6.5	X	-	-	-	-	-	-	-	117U4140	117U5018	-	117U0349	117U1021
203	197	8.2	6.5	6.5	X	-	-	-	-	-	-	-	117U4139	117U5018	-	117U0349	117U1023
188	182	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6000	117U5015	-	103N1010	103N2010
197	191	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6001	117U5015	-	103N1010	103N2010
188	182	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6001	117U5015	-	103N1010	103N2010
190	184	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6001	117U5015	-	103N1010	103N2010
197	191	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6015	117U5015	-	103N1010	103N2010
203	197	8.2	6.2	6.2	X	103N0011	103N0018	-	-	103N0050	-	117-7119	117U6002	117U5015	-	103N1010	103N2010
203	197	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6022	117U5018	-	103N1010	103N2011
203	197	8.2	6.2	6.2	-	103N0011	103N0018	-	-	-	-	-	117U6003	117U5015	-	103N1010	103N2010
203	197	8.2	6.2	6.2	-	-	-	-	-	103N0050	-	117-7119	117U6002	117U5015	-	103N1010	103N2010
203	197	8.2	6.2	6.2	-	-	-	-	-	103N0050	-	117-7119	117U6003	117U5015	-	103N1010	103N2010
196	191	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6010	117U5015	-	103N1010	103N2010
209	203	8.2	6.2	6.2	-	103N0011	-	-	-	-	-	-	117U6003	117U5017	-	103N1004	103N2009
209	203	10.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2008
209	203	10.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2009
209	203	10.2	6.2	8.2	-	-	-	-	-	-	-	-	-	117U5372	117-7025	103N1004	103N2009
209	203	10.2	6.2	8.2	X	-	-	-	-	-	-	-	-	117U5373	117-7027	103N1004	103N2009
219	213	10.2	6.2	8.2	-	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6019	117U5017	117-7039	103N1004	103N2009
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	117U7411	117U5017	-	103N1004	117U1033
249	244	12	6.2	6.2	-	-	-	-	-	-	-	-	117U6003	117U5017	-	103N1004	103N2009
249	244	12	6.2	6.2	-	-	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2009
259	254	16	6.2	6.2	-	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
259	254	16	6.2	6.2	-	-	-	-	-	-	-	-	-	117U5373	117-7029	103N1004	103N2009
259	247	12.9	6.5	8.2	-	-	-	-	-	-	-	-	-	-	117-7070	-	107B9101
259	247	12.9	6.5	8.2	-	-	-	-	-	-	-	-	-	-	117-7055	-	107B9101
259	247	12.9	6.5	8.2	-	-	-	-	-	-	-	-	-	-	117-7056	-	107B9101
259	247	12.9	6.5	8.2	-	-	-	-	-	-	-	-	-	-	117-7055	-	107B9101
259	247	12.9	6.5	8.2	-	-	-	-	-	-	-	-	-	-	117-7056	-	107B9101

R134a · 220–240 V · 50/60 Hz | 208–230 V · 60 Hz

Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]							ASHRAE						Displacement [cm³]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling [refer to data sheet]
										LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP				
									[W]	[W/W]	[W]	[W/W]	[W]	[W/W]				
PL35G	101G0250	L/M/HBP	–	66	111	140	214	261	39	0.79	91	1.27	170	1.83	2.00	198–254 V, 50 Hz *	F1	
TL2.5G	102G4251	L/M/HBP	14	86	144	181	273	331	51	0.82	119	1.32	218	1.86	2.61	187–254 V, 50 Hz *	S	
TL3G	102G4350	L/M/HBP	–	100	169	212	322	390	58	0.85	139	1.34	257	1.86	3.13	187–254 V, 50 Hz *	S	
TL4G	102G4452	L/M/HBP	–	133	223	280	425	515	81	0.94	184	1.46	340	2.15	3.86	187–254 V, 50 Hz *	S	
TL4GH	102G4455	HBP	–	130	226	286	440	535	–	–	185	1.44	350	2.14	3.86	198–254 V, 50 Hz *	F2	
TL5G	102G4550	L/M/HBP	–	173	278	345	515	619	109	1.03	230	1.43	412	1.94	5.08	187–254 V, 50 Hz *	S	
TLES6.5FT.3	102G4724	LBP	89	283	–	–	–	–	183	1.33	–	–	–	–	6.49	187–254 V, 50 Hz *	S	
TLES7FT.4	102G4708	LBP	89	283	–	–	–	–	183	1.33	–	–	–	–	6.49	187–254 V, 50 Hz *	S	
NL6FT	105G6628	LBP	74	245	–	–	–	–	157	1.21	–	–	–	–	6.13	187–254 V, 50 Hz *	S	
NF7FX	105G6743	L/MBP	97	324	522	646	–	–	205	1.12	432	1.66	766	2.35	7.27	198–242 V, 50 Hz *	S	
NF10FX	105G6846	L/MBP	127	418	671	832	–	–	267	0.94	556	1.42	991	2.06	10.09	198–242 V, 50 Hz *	F1	
NL6.1MF	105G6660	MBP	–	234	388	485	732	885	–	–	320	1.61	585	2.33	6.13	187–254 V, 50 Hz *	S	
NL7.3MF	105G6772	MBP	–	293	477	596	895	1081	–	–	394	1.64	716	2.32	7.27	187–254 V, 50 Hz *	F1	
NL8.4MF	105G7802	MBP	–	343	551	686	1028	1240	–	–	456	1.64	822	2.27	8.35	187–254 V, 50 Hz *	F1	
NL10MF	105G6885	MBP	–	428	687	853	1273	1534	–	–	569	1.64	1019	2.27	10.09	187–254 V, 50 Hz *	F1	
NLE12.6MF.2	105G6387	L/MBP	241	545	895	1120	1671	–	355	1.48	738	1.98	1341	2.66	12.55	198–254 V, 50 Hz *	F2	
NLE12.6MFT	105G6388	L/MBP	241	545	895	1120	1671	–	355	1.48	738	1.98	1341	2.66	12.55	187–254 V, 50 Hz *	F2	
FR6G	103G6660	L/M/HBP	–	212	360	453	687	–	120	1.04	296	1.59	548	2.20	6.23	187–254 V, 50 Hz *	F1	
FR7GH	103G6683	HBP	–	247	407	519	817	1007	0	–	334	1.60	645	2.44	6.93	198–254 V, 50 Hz *	F2	
FR7.5G	103G6680	L/M/HBP	–	240	403	506	769	–	140	1.06	331	1.57	613	2.18	6.93	187–254 V, 50 Hz *	F1	
FR8.5G	103G6780	L/M/HBP	–	283	473	594	898	–	172	1.08	389	1.56	718	2.15	7.95	187–254 V, 50 Hz *	F1	
FR10G	103G6880	L/M/HBP	–	309	511	640	969	–	189	1.01	421	1.48	773	2.07	9.05	187–254 V, 50 Hz *	F1	
SC10G	104G8000	L/M/HBP	30	333	603	766	1149	1368	168	0.87	493	1.59	923	2.35	10.29	187–254 V, 50 Hz *	F2	
SC10GH	104G8041	HBP	–	289	592	761	1156	1392	–	–	481	1.56	925	2.28	10.29	198–254 V, 50 Hz *	F2	
SC12FT	104G8205	LBP	129	506	802	–	–	–	321	1.15	666	1.64	–	–	12.87	187–254 V, 50 Hz *	F1	
SC15FT	104G8505	LBP	157	606	958	–	–	–	386	1.18	796	1.65	–	–	15.28	187–254 V, 50 Hz *	F2	
SC12G	104G8240	L/M/HBP	81	433	749	954	1471	1791	248	1.03	614	1.60	1170	2.29	12.87	187–254 V, 50 Hz *	F2	
SC12G	104G8245	MBP	–	461	865	1128	1805	–	–	–	702	1.65	1422	2.45	12.87	187–254 V, 60 Hz	F2	
SC12GH	104G8261	HBP	–	377	718	936	1489	1835	–	–	583	1.51	1175	2.34	12,87	198–254 V, 50 Hz *	F2	
SC15G	104G8520	L/M/HBP	–	527	904	1127	1669	1998	260	1.01	745	1.56	1341	2.20	15.28	187–254 V, 50 Hz *	F2	
SC15G	104G8526	MBP	–	583	1035	1303	1953	–	–	–	850	1.67	1565	2.38	15.28	187–254 V, 60 Hz	F2	
SC15GH	104G8561	HBP	–	377	718	936	1489	1835	–	–	583	1.51	1175	2.34	12,87	198–254 V, 50 Hz *	F2	
SC18FTX	104G8805	LBP	181	703	1113	–	–	–	448	1.17	924	1.68	–	–	17.69	187–254 V, 50 Hz *	F2	
SC18G	104G8820	L/M/HBP	–	658	1081	1348	2011	2417	397	1.13	893	1.58	1612	2.21	17.69	187–254 V, 50 Hz *	F2	
SC18G	104G8823	MBP	–	711	1186	1500	2315	–	–	–	976	1.76	1838	2.51	17.69	187–254 V, 60 Hz	F2	
SC18GH	104G8861	HBP	–	602	1025	1302	2015	2465	–	–	841	1.74	1599	2.57	17.69	198–254 V, 50 Hz *	F2	
SC18MFX	104G8804	MBP	–	685	1107	1380	2076	–	434	1.15	916	1.63	1660	2.28	17.69	187–254 V, 50 Hz *	F2	
SC21FTX	104G8106	LBP	298	990	1563	–	–	–	641	1.29	1298	1.69	–	–	20.95	187–254 V, 60 Hz	F2	
SC21G	104G8140	L/M/HBP	–	755	1261	1579	2352	2810	461	1.23	1039	1.68	1889	2.40	20,95	187–254 V, 50 Hz *	F2	
SC21G	104G8143	L/M/HBP	–	815	1419	–	–	–	446	1.08	1164	1.66	–	–	20.95	198–254 V, 60 Hz	F2	

K-Series AT · R134a · 200–240 V · 50 Hz

Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]					ASHRAE						Displacement	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling [refer to data sheet]	
								LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C					
			-35	-15	-5	0	10	15	Cooling capacity	COP	Cooling capacity	COP	Cooling capacity				COP
									[W]	[W/W]	[W]	[W/W]	[W]				[W/W]
GTK55AT	CD000153	LBP	69	261				170	1.55	-	-	-	-	5.60	170-264 V, 50 Hz	S	
GTK70AT	CD000154	LBP	97	311				205	1.60	-	-	-	-	6.64	170-264 V, 50 Hz	S	
GTK80AT	CD000155	LBP	107	352				232	1.60	-	-	-	-	7.70	170-264 V, 50 Hz	S	

Electrical equipment

Dimensions						LST (RSIR & RSCR)					Run capacitor (RC)			HST (CSIR & CSR)			LST /HST	
Height [mm]		Connectors location /I.D. [mm]			all connectors available	refer to data sheet for more info					→ optional → compulsory*			*alt. cable lengths avail.			Cord relief	Cover
		Suction	Process	Dis-charge E (I.D.)		PTC starting device		PTC starting device with RC connector		ePTC				Starting relay	Starting capacitor	Starting device*		
A	B	C (I.D.)	D (I.D.)	E (I.D.)		Spades		Spades		Spades	Spades			Spades		Spades		
					6.3 mm	4.8 mm	6.3 mm	4.8 mm	4.8 mm	6.3 mm	4.8 mm	6.3 mm	6.3 mm	6.3 mm				
137	135	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6021	117U5014	-	103N1010	103N0491	
163	159	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6007	117U5014	-	103N1010	103N2011	
163	159	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6009	117U5014	-	103N1010	103N2011	
173	169	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6004	117U5014	-	103N1010	103N2010	
173	169	6.2	6.2	5	-	-	-	-	-	-	-	-	117U6000	117U5014	-	103N1010	103N2011	
173	169	6.2	6.2	5	X	103N0011	103N0018	-	-	-	-	-	117U6000	117U5014	-	103N1010	103N2010	
173	169	6.2	6.2	5	X	103N0011	103N0018	103N0016	103N0021	-	117-7117	117-7119	117U6016	117U5014	-	103N1010	103N2010	
173	169	6.5	6.5	5	-	103N0011	103N0018	103N0016	103N0021	-	117-7117	117-7119	117U6016	117U5014	-	103N1010	103N2010	
197	191	6.2	6.2	5	-	103N0011	103N0018	-	-	-	-	-	117U6000	117U5015	-	103N1010	103N2010	
203	197	8.2	6.5	6.5	X	-	-	-	-	-	-	-	117U4140	117U5018	-	117U0349	117U1023	
203	197	8.2	6.5	6.5	X	-	-	-	-	-	-	-	117U4139	117U5018	-	117U0349	117U1021	
190	184	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6015	117U5015	-	103N1010	103N2011	
197	191	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6016	117U5015	-	103N1010	103N2011	
197	191	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6016	117U5015	-	103N1010	103N2011	
203	197	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6022	117U5018	-	103N1010	103N2011	
203	197	8.2	6.2	6.2	-	-	-	-	-	103N0050	-	117-7119	117U6005	117U5015	-	103N1010	103N2010	
203	197	8.2	6.2	6.2	-	-	-	-	-	103N0050	-	117-7119	117U6005	117U5015	-	103N1010	103N2010	
196	191	8.2	6.2	6.2	-	103N0011	103N0018	-	-	-	-	-	117U6000	117U5015	-	103N1010	103N2010	
196	191	8.2	6.2	8.2	-	-	-	-	-	-	-	-	117U6016	117U5015	-	103N1010	103N2011	
196	191	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6001	117U5015	-	103N1010	103N2010	
196	191	8.2	6.2	6.2		103N0011	103N0018	-	-	-	-	-	117U6015	117U5015	-	103N1010	103N2010	
196	191	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6010	117U5015	-	103N1010	103N2010	
199	193	8.2	6.2	6.2	-	103N0011	-	-	-	-	-	-	117U6002	117U5017	-	103N1004	103N2009	
209	203	10.2	6.2	8.2	-	-	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2008	
209	203	8.2	6.2	6.2	-	103N0011	-	-	-	-	-	-	117U6003	117U5017	-	103N1004	103N2009	
209	203	10.2	6.2	6.2	X	103N0011	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2009	
209	203	8.2	6.2	6.2	X	103N0011	-	-	-	-	-	-	117U6003	117U5017	-	103N1004	103N2009	
209	203	10.2	6.5	6.5	X	-	-	-	-	-	-	-	117U6011	117U5017	-	103N1004	103N2008	
209	203	10.2	6.2	8.2	-	-	-	-	-	-	-	-	117U6011	117U5017	-	103N1004	103N2008	
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009	
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009	
219	213	10.2	6.5	6.5	X	-	-	-	-	-	-	-	-	117U5373	117-7039	103N1004	103N2008	
219	213	10.2	6.2	8.2	-	-	-	-	-	-	-	-	-	117U5373	117-7039	103N1004	103N2008	
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6019	117U5017	117-7027	103N1004	103N2008	
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	-	117U5373	117-7039	103N1004	103N2008	
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	-	117U5373	117-7029	103N1004	103N2009	
219	213	10.2	6.2	6.2	X	-	-	-	-	-	117-7121*	-	117-7427	117U5373	117-7039	103N1004	103N2008	

Electrical equipment · Spare parts · Accessories

Dimensions						Run capacitor	Terminal board		Terminal board	Cable clamp	Cover	Evaporation tray	All-in-one equipment
Height [mm]		Connectors location [mm]			all connectors available	→ optional → compulsory*	→ PTC → external protector		→ ePTC → external protector	screws not included	V0 material optional	plastic	→ cover → cable clamp + screws → earthing screw
A	B	Suction C (I.D.)	Process D (O.D.)	Dis-charge E (I.D.)		Spades	Spades		Spades				
						4.8 6.3 mm	4.8 mm	6.3 mm	4.8 mm				
167	–	6.15	6.00	5.15		X	4 µF	ZCFC	DCFC				
167	–	6.15	6.00	5.15	X	4 µF	DCFP	DCFC	–	113410_	157595_	162991_	161680_
170	–	6.15	6.00	5.15	X	4 µF	DCFP	DCFC	–	113410_	157595_	162991_	161680_

Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]						ASHRAE						Displacement [cm³]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling [refer to data sheet]
			LBP rating point -23.3°C / 54.4°C			MBP rating point -6.7°C / 54.4°C			HBP rating point 7.2°C / 54.4°C								
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]			
TL4CL	● 102U2071	LBP	75	240	390	-	-	-	152	1.03	310	1.39	-	-	3.86	198-254 V, 50 Hz	F2
NL7CLX	● 105F3710	LBP	200	576	876	-	-	-	388	1.31	704	1.60	-	-	7.27	198-254 V, 50 Hz	F2
NL8.4CLX	105F3800	LBP	218	627	953	-	-	-	422	1.28	765	1.54	-	-	8.35	198-254 V, 50 Hz	F2
NL9CLX	105F3802	LBP	236	674	-	-	-	-	457	1.34	-	-	-	-	8.35	198-254 V, 50 Hz	F2
FR6CL	103U2670	LBP	149	393	605	-	-	-	268	1.04	484	1.19	-	-	6.23	198-254 V, 50 Hz	F2
FR6DL	103U2680	M/HBP	-	403	599	730	1058	-	-	-	481	1.20	819	1.57	6.23	198-254 V, 50 Hz	F2
FR7.5CL	103U2790	LBP	158	433	657	-	-	-	294	1.03	528	1.15	-	-	6.93	198-254 V, 50 Hz	F2
FR8.5CL	103U2890	LBP	171	492	-	-	-	-	332	0.98	-	-	-	-	7.95	198-254 V, 50 Hz	F2
SC10CL	● 104L2523	LBP	116	615	1014	-	-	-	366	1.10	811	1.43	-	-	10.29	198-254 V, 50 Hz	F2
SC10DL	104L2525	M/HBP	-	644	1051	1300	1916	2295	-	-	837	1.51	1478	2.15	10.29	198-254 V, 50 Hz	F2
SC12CL	● 104L2623	LBP	165	857	1397	-	-	-	516	1.10	1112	1.50	-	-	12.87	198-254 V, 50 Hz	F2
SC12DL	104L2625	M/HBP	-	865	1407	1728	2508	2984	-	-	1122	1.57	1942	2.26	12.87	198-254 V, 50 Hz	F2
SC15CL	● 104L2853	LBP	180	1101	1678	-	-	-	697	1.20	1349	1.50	-	-	15.28	198-254 V, 50 Hz	F2
SC15CLX.2	104L2896	LBP	339	1097	-	-	-	-	724	1.18	-	-	-	-	15.28	198-254 V, 50 Hz	F2
SC15DL	104L2856	M/HBP	-	1034	1641	2012	2928	3492	-	-	1311	1.56	2265	2.25	15.28	198-254 V, 50 Hz	F2
SC15MLX	104L2869	MBP	-	1117	1718	2102	-	-	762	1.20	1375	1.56	2371	2.16	15.28	198-254 V, 50 Hz	F2
SC18CL	● 104L2123	LBP	374	1220	1882	-	-	-	803	1.22	1508	1.50	-	-	17.69	198-254 V, 50 Hz	F2
SC18CLX.2	104L2197	LBP	415	1343	-	-	-	-	886	1.20	-	-	-	-	17.69	198-254 V, 50 Hz	F2
SC18MLX	104L2139	MBP	-	1306	2001	2446	-	-	894	1.27	1603	1.64	2757	2.27	17.69	198-254 V, 50 Hz	F2
SC18MLX.3	104L2146	MBP	-	1384	2097	2552	-	-	959	1.34	1683	1.67	2862	2.28	17.68	198-254 V, 50 Hz	F2
SC21CL	● 104L2322	LBP	442	1386	-	-	-	-	905	1.18	-	-	-	-	20.95	198-254 V, 50 Hz	F2
SC10/10CL	104L4087	LBP	264	1327	2157	-	-	-	803	1.13	1717	1.45	-	-	20.58	198-254 V, 50 Hz	F2
SC10/10DL	104L4091	M/HBP	-	1288	2103	2601	3832	4590	-	-	1674	1.51	2955	2.15	20.58	198-254 V, 50 Hz	F2
SC12/12CL	104L4088	LBP	330	1715	2794	-	-	-	1032	1.10	2224	1.50	-	-	25.74	198-254 V, 50 Hz	F2
SC12/12DL	104L4092	M/HBP	-	1730	2814	3456	5016	5967	-	-	2244	1.57	3885	2.26	25.74	198-254 V, 50 Hz	F2
SC15/15CL	104L4089	LBP	360	2202	3356	-	-	-	1395	1.20	2699	1.50	-	-	30.56	198-254 V, 50 Hz	F2
SC15/15DL	104L4093	M/HBP	-	2068	3282	4024	5856	6983	-	-	2622	1.56	4529	2.25	30.56	198-254 V, 50 Hz	F2
SC18/18CL	104L4090	LBP	748	2440	3762	-	-	-	1606	1.22	3016	1.50	-	-	35.38	198-254 V, 50 Hz	F2
SC18/18CLX.2	104L4035	LBP	823	2670	-	-	-	-	1761	1.20	-	-	-	-	35.36	198-254 V, 50 Hz	F2
SC18/18MLX	104L4100	MBP	748	2440	3762	-	-	-	1606	1.22	3016	1.50	-	-	35.38	198-254 V, 50 Hz	F2
SC21/21CL	● 104L4094	LBP	884	2773	-	-	-	-	1810	1.18	-	-	-	-	41.90	198-254 V, 50 Hz	F2
GS21MLX	107B0502	MBP	-	1578	2486	3070	-	-	-	-	1984	1.79	3514	2.53	21.20	198-254 V, 50 Hz	F2
GS26CLX	107B0500	LBP	614	2017	-	-	-	-	1323	1.35	-	-	-	-	26.30	198-254 V, 50 Hz	F2
GS26MLX	● 107B0503	MBP	-	1925	2987	3643	-	-	1239	1.33	2392	1.72	4085	2.34	26.30	198-254 V, 50 Hz	F2
GS34CLX	107B0501	LBP	943	2874	4412	-	-	-	1917	1.45	3537	1.74	-	-	33.80	198-254 V, 50 Hz	F2

Dimensions						LST (RSIR & RSCR)					Run capacitor (RC)		HST (CSIR & CSR)			LST/HST	
Height [mm]		Connectors location/I.D. [mm]			alt. connectors available	refer to data sheet for more info					→ optional → compulsory*		*alt. cable lengths avail.			Cord relief	Cover
A	B	Suction C (I.D.)	Process D (I.D.)	Dis-charge E (I.D.)		PTC starting device		PTC starting device with RC connector		ePTC			Starting relay	Starting capacitor	Starting device*		
						6.3 mm	4.8 mm	6.3 mm	4.8 mm	4.8 mm	6.3 mm	4.8 mm	6.3 mm	6.3 mm	6.3 mm		
173	169	6.2	6.2	5	-	-	-	-	-	-	-	-	117U6000	117U5014	-	103N1010	103N2010
203	197	8.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6002	117U5015	-	103N1010	103N2010
203	197	8.2	6.2	6.2	X	103N0011	103N0018	-	-	-	-	-	117U6003	117U5015	-	103N1010	103N2010
203	197	8.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6003	117U5015	-	103N1010	103N2010
196	191	8.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6015	117U5015	-	103N1010	103N2010
196	191	8.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6010	117U5015	-	103N1010	103N2010
196	191	8.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6016	117U5015	-	103N1010	103N2010
196	191	8.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6010	117U5015	-	103N1010	103N2010
209	203	8.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6003	117U5017	-	103N1004	103N2009
209	203	8.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2009
209	203	8.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2009
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	-	117U5373	117-7029	103N1004	103N2009
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	117U6013	117U5012	-	103N1004	103N2009
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	-	117U5373	117-7027	103N1004	103N2009
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	117U6013	117U5012	-	103N1004	103N2009
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	-	117U5373	117-7027	103N1004	103N2009
219	213	10.2	6.2	6.2	-	-	-	-	-	-	-	-	-	-	117-7027	103N1004	103N2009
219	213	10.2	6.2	6.2	X	-	-	-	-	-	-	-	-	-	117-7027	103N1004	103N2009
249	244	12	6.2	6.2	-	-	-	-	-	-	-	-	117U6003	117U5017	-	103N1004	103N2009
249	244	12	6.2	6.2	-	-	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2009
249	244	12	6.2	6.2	-	-	-	-	-	-	-	-	117U6005	117U5017	-	103N1004	103N2009
259	254	12	6.2	6.2	-	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
259	254	12	6.2	6.2	X	-	-	-	-	-	-	-	117U6019	117U5017	-	103N1004	103N2009
259	254	16	6.2	6.2	-	-	-	-	-	-	-	-	-	117U5373	117-7029	103N1004	103N2009
259	254	16	6.2	6.2	-	-	-	-	-	-	-	-	-	-	117-7027	103N1004	103N2009
259	254	12	6.2	6.2	-	-	-	-	-	-	-	-	117U6013	117U5012	-	103N1004	103N2009
259	254	10.2	6.2	6.2	-	-	-	-	-	-	-	-	-	117U5373	117-7027	103N1004	103N2009
259	254	16	6.2	6.2	-	-	-	-	-	-	-	-	-	117U5373	117-7027	103N1004	103N2009
259	247	16.1	6.5	9.7	-	-	-	-	-	-	-	-	-	-	117-7070	-	107B9101
259	247	12.9	6.5	8.2	-	-	-	-	-	-	-	-	-	-	117-7056	-	107B9101
279	267	16.1	6.5	9.7	-	-	-	-	-	-	-	-	-	-	117-7072	-	107B9101
279	267	12.9	6.5	8.2	X	-	-	-	-	-	-	-	-	-	117-7074	-	107B9101

R404A/R507 · 220–240 V · 50/60 Hz | 208–230 V · 60 Hz

Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]							ASHRAE						Displacement [cm³]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling cooling [refer to data sheet]
										LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]				
NF7MLX	105F3720	MBP	–	547	851	1039	1503	–	–	682	1.49	1164	2.12	7.27	187–254 V, 50 Hz *	F2		
NL6.1MLX	105F3611	MBP	–	455	711	869	–	–	291	1.14	569	1.61	975	2.31	6.13	187–254 V, 50 Hz *	F2	
SC10CLX	104L2533	L/MBP	130	655	1064	–	–	–	396	1.11	847	1.51	–	–	10.29	198–254 V, 50 Hz *	F2	
SC10MLX	104L2506	MBP	–	722	1127	1380	–	–	–	–	902	1.54	1553	2.18	10.29	187–254 V, 50 Hz *	F2	
SC12CLX	104L2695	LBP	226	1097	–	–	–	–	698	1.23	–	–	–	–	12.87	198–254 V, 60 Hz	F2	
SC12CLX.2	104L2699	LBP	317	1085	–	–	–	–	707	1.27	–	–	–	–	12.87	187–254 V, 60 Hz	F2	
SC12CLX.2	104L2697	LBP	278	899	–	–	–	–	593	1.15	–	–	–	–	12.87	198–254 V, 50 Hz *	F2	
SC12MLX	104L2606	MBP	–	886	1369	1670	–	–	584	1.15	1096	1.56	1873	2.18	12.87	187–254 V, 50 Hz *	F2	
SC15CLX	104L2854	LBP	235	1213	–	–	–	–	774	1.23	–	–	–	–	15.28	198–254 V, 60 Hz	F2	
SC15CLX.2	104L2897	LBP	413	1337	–	–	–	–	882	1.33	–	–	–	–	15.28	187–254 V, 60 Hz	F2	
SC15MLX.2	104L2803	MBP	–	1233	1896	2320	–	–	841	1.20	1518	1.56	2617	2.16	15.28	187–254 V, 60 Hz	F2	
SC18CLX.2	104L2195	LBP	520	1554	–	–	–	–	1114	1.39	–	–	–	–	17.69	187–254 V, 60 Hz	F2	
SC18MLX	104L2138	MBP	–	1521	2328	2839	–	–	1033	1.18	1866	1.47	3186	1.99	17.69	187–254 V, 60 Hz	F2	
SC12/12CLX	104L4034	LBP	450	2182	–	–	–	–	1389	1.23	–	–	–	–	25.74	198–254 V, 60 Hz	F2	
GS21CLX	107B0506	LBP	584	1918	–	–	–	–	1258	1.35	–	–	–	–	21.20	187–254 V, 60 Hz	F2	
GS21MLX	107B0509	MBP	–	2043	3134	3819	–	–	1345	1.46	2513	1.86	4293	2.55	21.20	187–254 V, 60 Hz	F2	
GS26CLX	107B0505	LBP	719	2114	–	–	–	–	1425	1.21	–	–	–	–	26.30	187–254 V, 60 Hz	F2	

Electrical equipment

Dimensions						LST (RSIR & RSCR)					Run capacitor (RC)		HST (CSIR & CSR)			LST/HST	
Height [mm]		Connectors location/I.D. [mm]			alt. connectors available	refer to data sheet for more info					→ optional → compulsory*		Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
A	B	Suction C (I.D.)	Process D (I.D.)	Dis-charge E (I.D.)		Spades		Spades		Spades	Spades		Spades		Spades		
						6.3 mm	4.8 mm	6.3 mm	4.8 mm	4.8 mm	6.3 mm	4.8 mm	6.3 mm	6.3 mm	6.3 mm		
203	197	9.7	6.5	6.5	X	–	–	–	–	–	–	–	117U4139	117U5018	–	117U0349	117U1021
203	197	8.2	6.5	6.5	X	–	–	–	–	–	–	–	117U6022	117U5015	–	103N1010	103N2011
209	203	8.2	6.2	6.2	X	–	–	–	–	–	–	–	117U6005	117U5017	–	103N1004	103N2008
209	203	8.2	6.5	6.5	–	–	–	–	–	–	–	–	117U6011	117U5017	–	103N1004	103N2008
219	213	8.2	6.2	6.2	X	–	–	–	–	–	–	–	117U6019	117U5017	–	103N1004	103N2008
219	213	9.63	6.5	6.5	X	–	–	–	–	–	–	–	–	–	117-7027	103N1004	103N2008
219	213	8.2	6.2	6.2	X	–	–	–	–	–	–	–	117U6019	117U5017	–	103N1004	103N2008
219	213	8.2	6.5	6.5	–	–	–	–	–	–	–	–	117U6011	117U5017	–	103N1004	103N2008
219	213	10.2	6.2	6.2	–	–	–	–	–	–	–	–	–	117U5373	117-7039	103N1004	103N2008
219	213	9.63	6.5	6.5	X	–	–	–	–	–	–	–	–	117U5373	117-7039	103N1004	103N2008
219	213	9.63	6.5	6.5	–	–	–	–	–	–	–	–	–	–	117-7058	103N1004	103N2008
219	213	9.63	6.5	6.5	X	–	–	–	–	–	–	–	–	117U5373	117-7066	103N1004	103N2008
219	213	9.63	6.5	6.5	–	–	–	–	–	–	–	–	–	–	117-7066	103N1004	103N2008
259	254	12	6.2	6.2	–	–	–	–	–	–	–	–	117U6019	117U5017	–	103N1004	103N2009
259	247	12.9	6.5	8.2	–	–	–	–	–	–	–	–	–	–	117-7073	–	107B9101
279	267	12.9	6.5	9.7	–	–	–	–	–	–	–	–	–	–	117-7073	–	107B9106
279	267	12.9	6.5	8.2	–	–	–	–	–	–	–	–	–	–	117-7073	–	107B9101

R407C · 220–240 V · 50 Hz

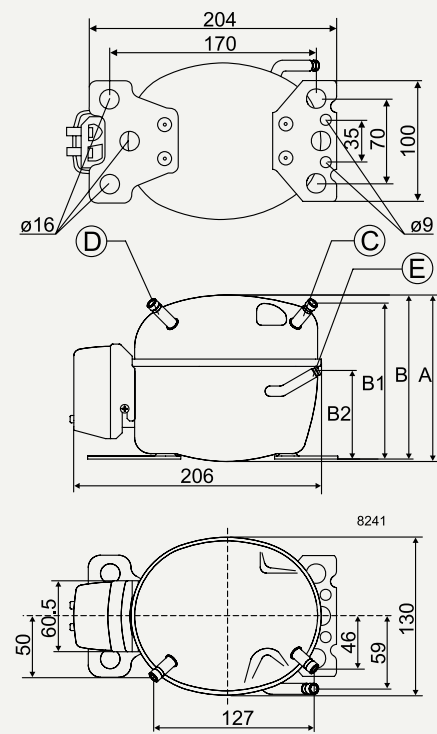
Compressor	Code number	Application	ASHRAE Capacity [W] Tc=54.4°C, Tliq=32.2°C, Tsuc=32.2°C Evaporating temperature [°C]							ASHRAE						Displacement	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling [refer to data sheet]
										LBP rating point -23.3°C / 54.4°C		MBP rating point -6.7°C / 54.4°C		HBP rating point 7.2°C / 54.4°C				
			-35	-15	-5	0	10	15	Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP				
			[W]	[W/W]	[W]	[W/W]	[W]	[W/W]	[cm³]									
SC10DL	104L2525	M/HBP	–	469	842	1074	1653	2013	–	–	685	1.57	1308	2.32	10.29	198–254 V, 50 Hz	F2	
SC12DL	104L2625	M/HBP	–	621	1087	1385	2144	2620	–	–	886	1.58	1692	2.38	12.87	198–254 V, 50 Hz	F2	
SC15DL	104L2856	M/HBP	–	782	1351	1709	2612	3174	–	–	1104	1.70	2069	2.59	15.28	198–254 V, 50 Hz	F2	
SC10/10DL	104L4091	M/HBP	–	937	1685	2148	3307	4026	–	–	1371	1.57	2615	2.32	20.58	198–254 V, 50 Hz	F2	
SC12/12DL	104L4092	M/HBP	–	1241	2174	2769	4287	5239	–	–	1772	1.58	3384	2.38	25.74	198–254 V, 50 Hz	F2	
SC15/15DL	104L4093	M/HBP	–	1563	2703	3419	5224	6348	–	–	2208	1.70	4137	2.59	30.56	198–254 V, 50 Hz	F2	

Electrical equipment

Dimensions					LST (RSIR & RSCR) refer to data sheet for more info						Run capacitor (RC)		HST (CSIR & CSR) *alt. cable lengths avail.			LST /HST	
Height [mm]		Connectors location / I.D. [mm]			alt. connectors available	PTC starting device		PTC starting device with RC connector		ePTC	→ optional → compulsory*		Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
A	B	Suction	Process	Dis-charge E (I.D.)		Spades		Spades		Spades	Spades		Spades		Spades		
		C (I.D.)	D (I.D.)	E (I.D.)		6.3 mm	4.8 mm	6.3 mm	4.8 mm	4.8 mm	6.3 mm	4.8 mm	6.3 mm	6.3 mm	6.3 mm		
209	203	8.2	6.2	6.2	X	–	–	–	–	–	–	–	117U6005	117U5017	–	103N1004	103N2009
219	213	10.2	6.2	6.2	X	–	–	–	–	–	–	–	117U6019	117U5017	–	103N1004	103N2009
219	213	10.2	6.2	6.2	X	–	–	–	–	–	–	–	–	117U5373	117-7029	103N1004	103N2009
249	244	12	6.2	6.2	–	–	–	–	–	–	–	–	117U6005	117U5017	–	103N1004	103N2009
259	254	12	6.2	6.2	–	–	–	–	–	–	–	–	117U6019	117U5017	–	103N1004	103N2009
259	254	16	6.2	6.2	–	–	–	–	–	–	–	–	–	117U5373	117-7029	103N1004	103N2009



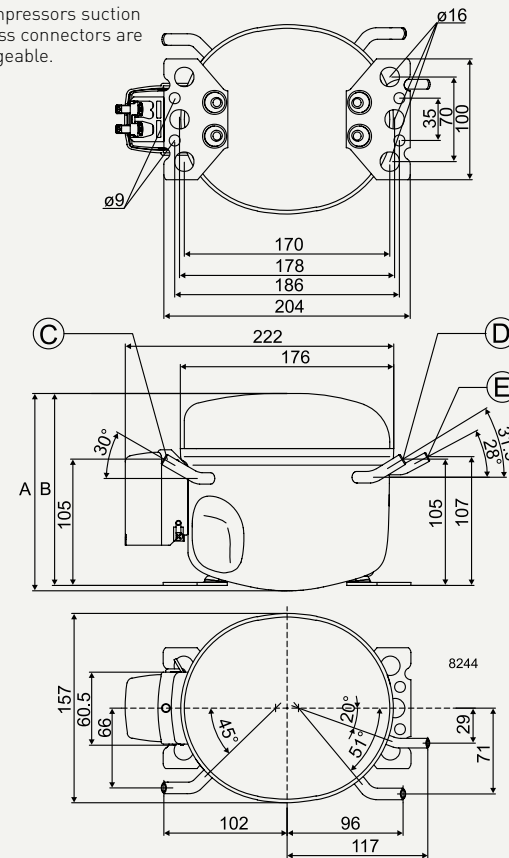
PL / PLE



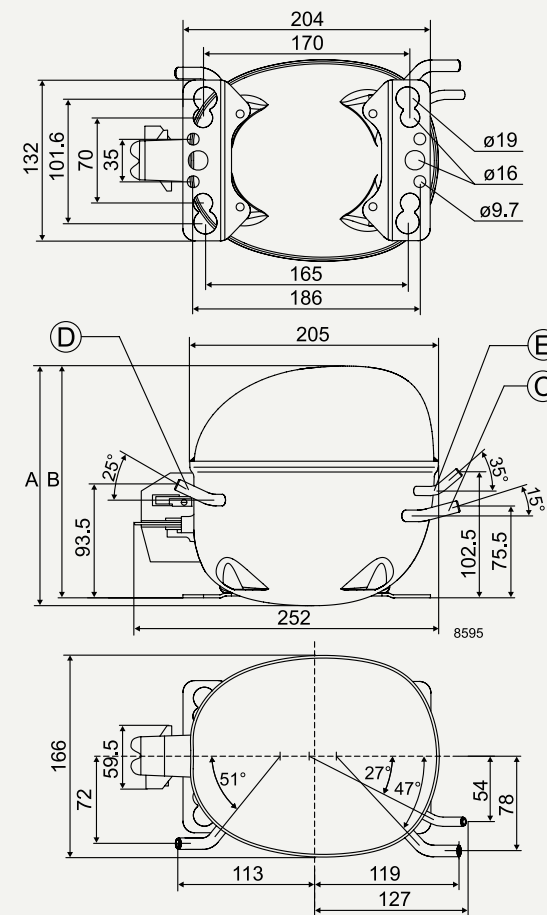
TL / TLS / TLES (TFS similar)

Note:

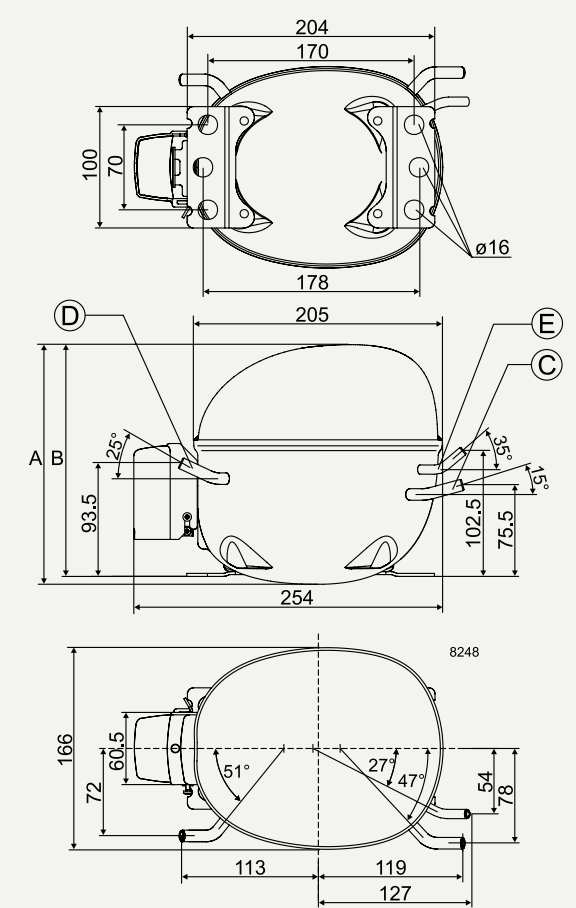
On TL compressors suction and process connectors are interchangeable.



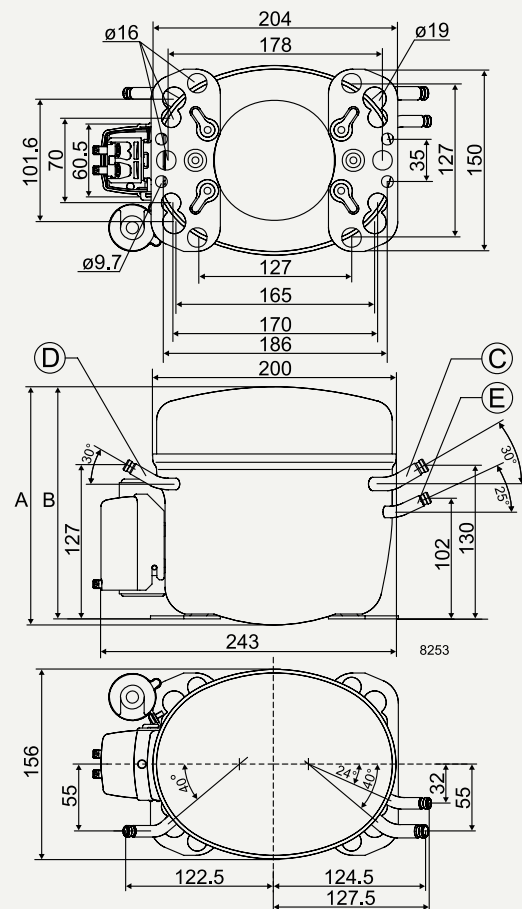
NF



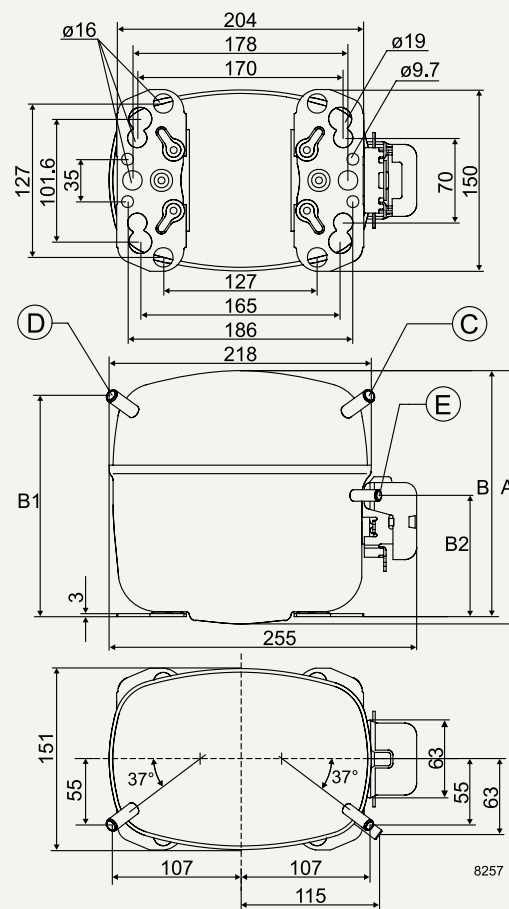
NL / NLE



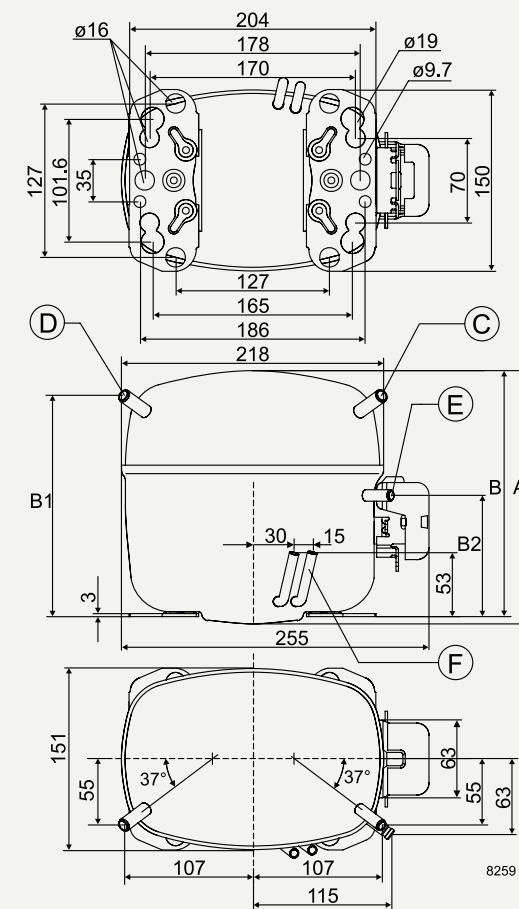
FR



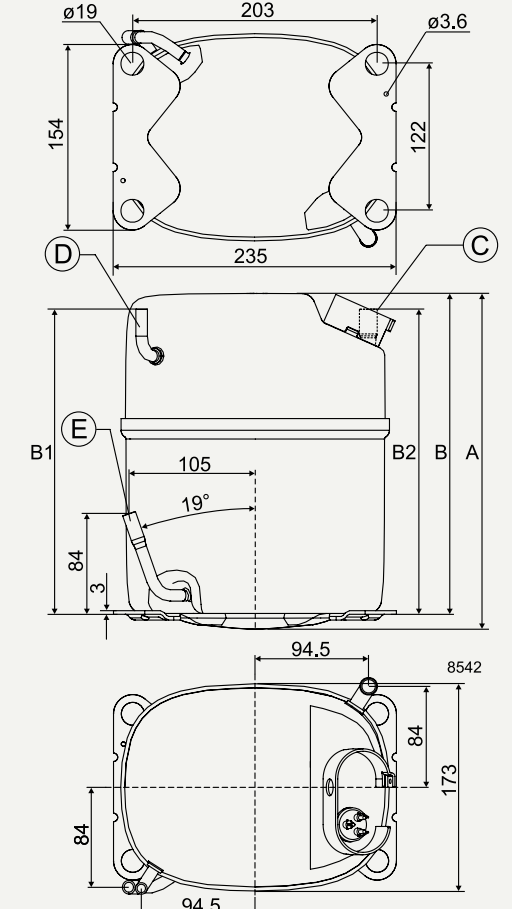
SC



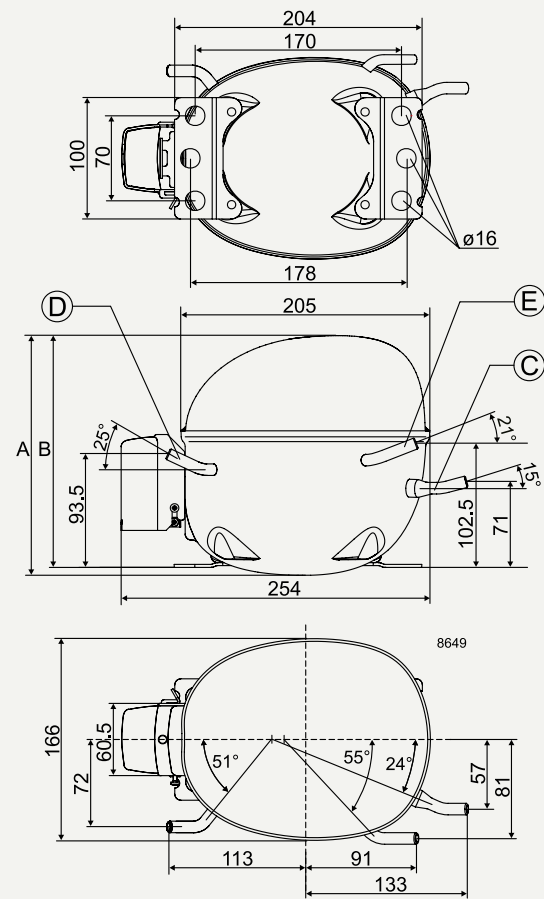
SC-GHH (w. additional oil cooler connector)



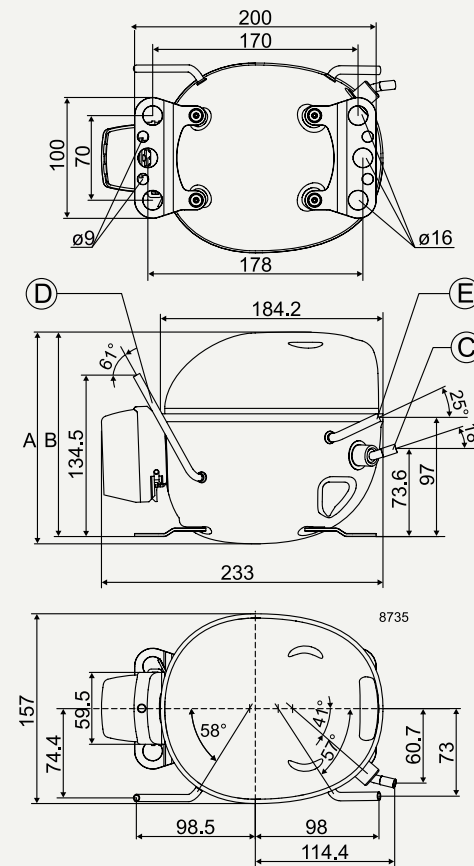
GS (GS34CLX has interchanged connectors)



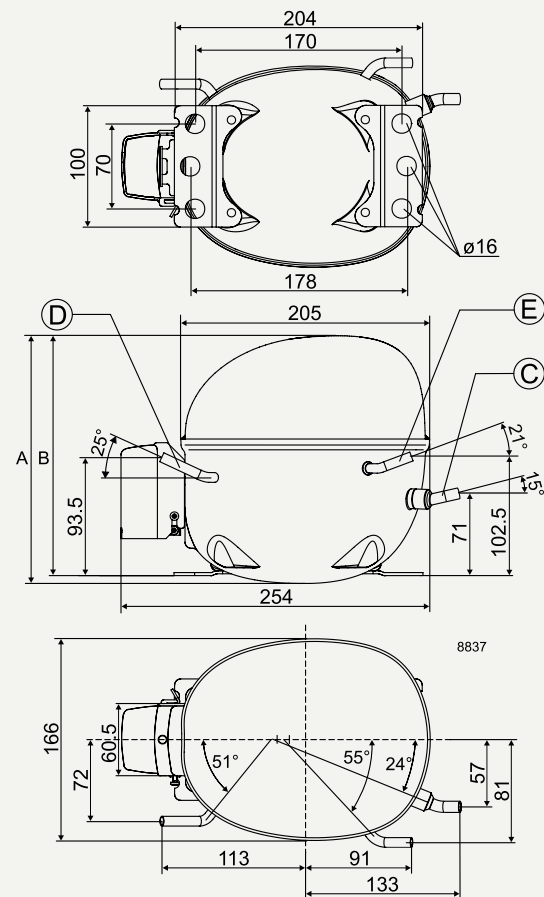
R600a: NLX / NLU



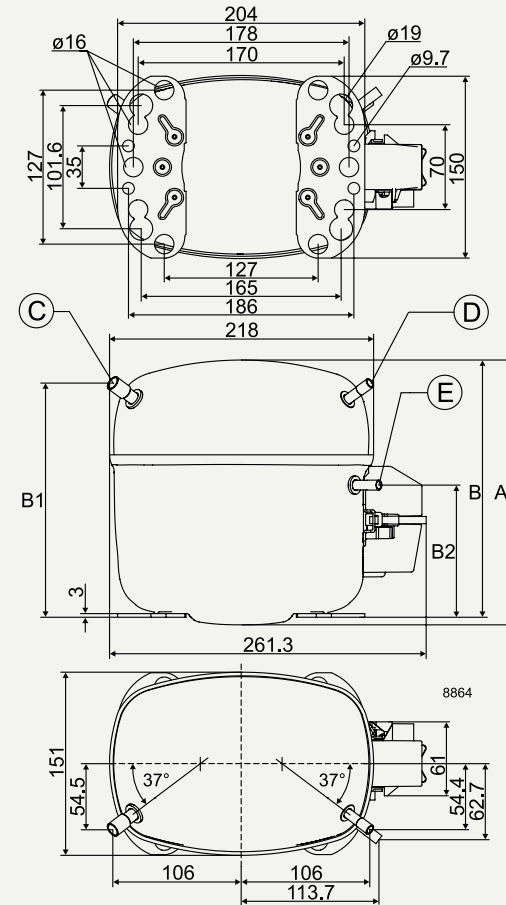
R290: DLE



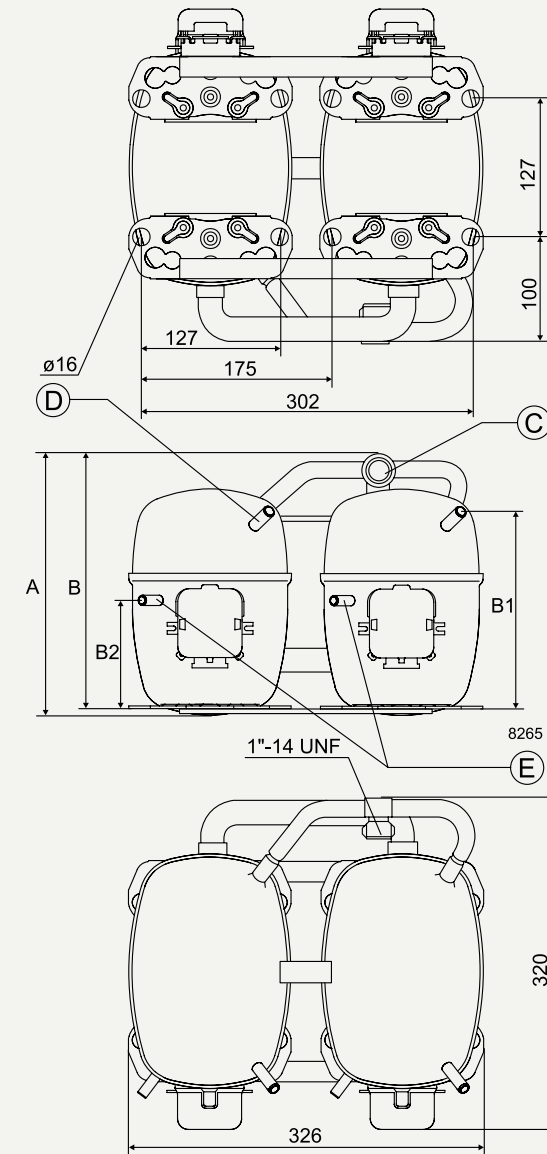
R290: NLE / NLU



R290: SCE



SC-Twin



Accessories for SC Twin

SC10/10, SC12/12 and SC15/15:

Service valve for 12 mm tube

118-7350

Solder connector for 12 mm tube

104B0584

SC18/18 and SC21/21:

Service valve for 16mm tube

118-7351

Solder connector for 16mm tube

118-7405

SC18/18 and SC21/21:

Seal ring for service valve and solder connector

118-3638

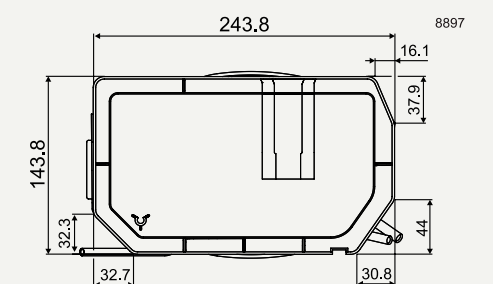
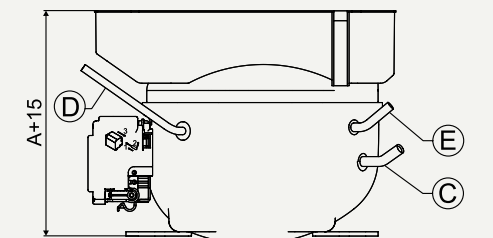
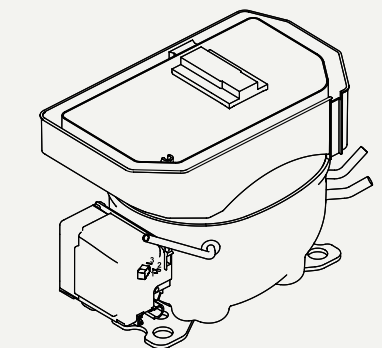
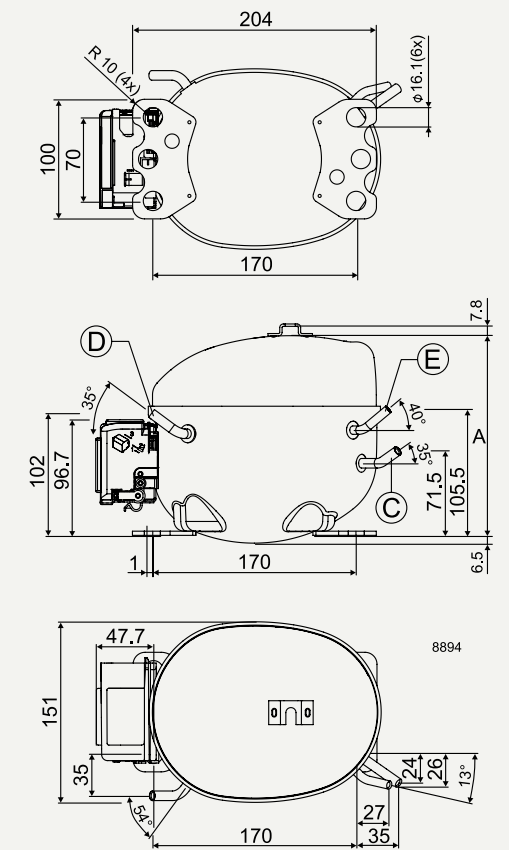
Time delay relay

117N0001

Check valve (to be used with time delay relay)

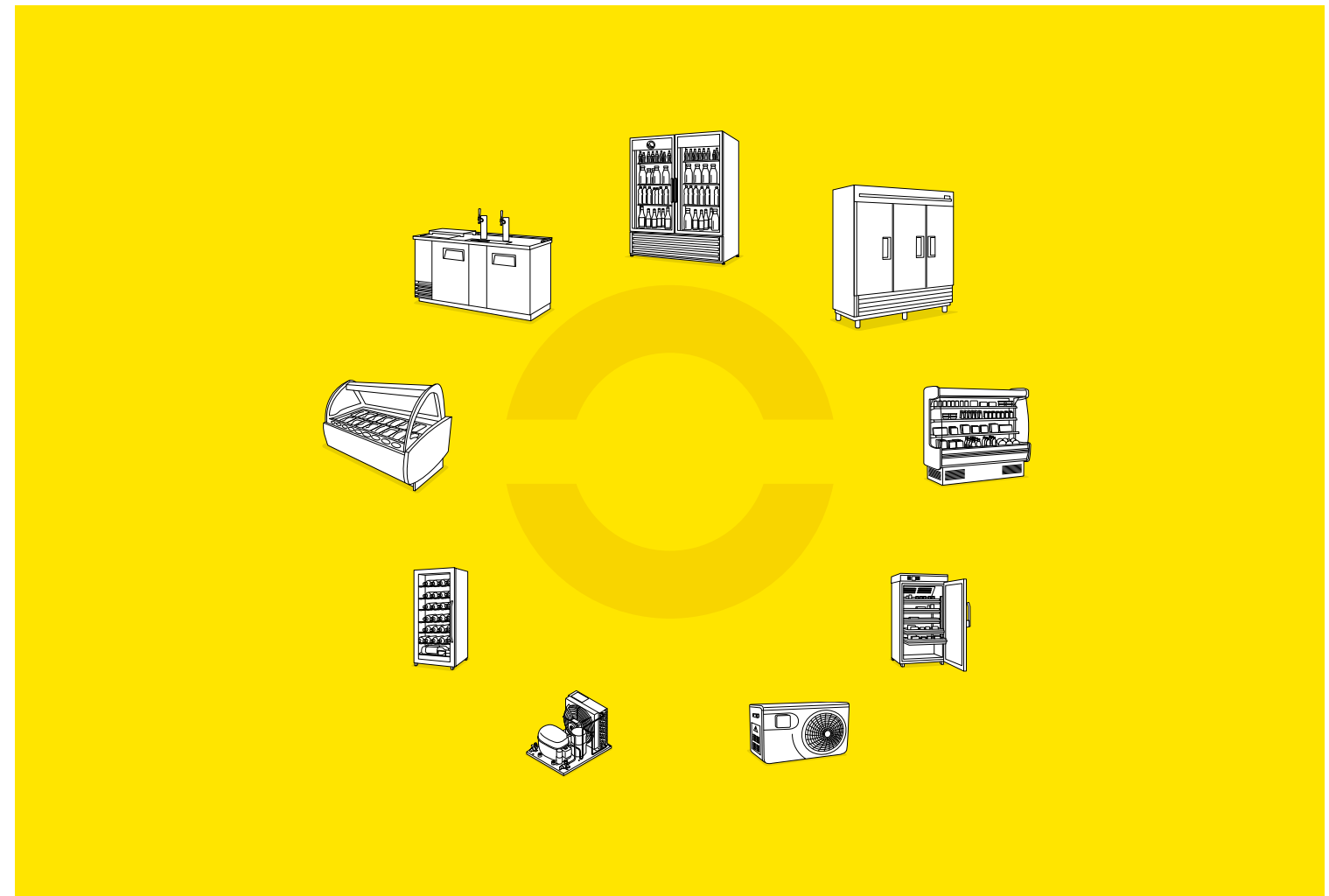
020-1014

GTK / HKK / HMK / HTK / HXK / HZK (K-Series)



HERMETIC COMPRESSORS

HC, HFC REFRIGERANTS | 60 Hz



Imperial Units

R600a | R290
R134a · R513A
R404A · R452A

208–230V · 60 Hz
220–240V · 50/60 Hz
200–240V · 50/60 Hz
115–127V · 60 Hz
110–127V · 50/60 Hz

R600a · 115–127 V · 60 Hz

Compressor	Code number	Application	ASHRAE Capacity [BTU/h] Tc=130°F, Tliq=90°F, Tsuc=90°F Evaporating temperature [°F]						ASHRAE						Displacement	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling cooling [refer to data sheet]
									LBP rating point -10°F / 130°F		MBP rating point 20°F / 130°F		HBP rating point 45°F / 130°F				
			-31	-13	5	14	32	50	Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER			
			[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]			
NLE11KTK	105H5942	L/MBP	360	602	1059	1342	1959	–	665	4.18	1390	5.70	–	–	0.68	95–135 V, 60 Hz	F1
NLE13KTK	105H5949	L/MBP	415	707	1182	1487	2227	–	773	4.13	1545	5.52	–	–	0.81	95–135 V, 60 Hz	F1

R600a · 220–240 V · 50/60 Hz

Compressor	Code number	Application	ASHRAE Capacity [BTU/h] Tc=130°F, Tliq=90°F, Tsuc=90°F Evaporating temperature [°F]						ASHRAE						Displacement	Voltage and frequencies (*dual frequency type with 50/60 Hz)	Compressor cooling cooling (refer to data sheet)
									LBP rating point -10°F / 130°F		MBP rating point 20°F / 130°F		HBP rating point 45°F / 130°F				
			-31	-13	5	14	32	50	Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER			
			[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]			
NLE9KTK	105H6071	LBP	262	473	801	1022	–	–	519	4.41	–	–	–	–	0.51	198–253 V, 60 Hz *	S
NLE11KTK	105H6948	LBP	349	609	992	1259	–	–	662	4.39	–	–	–	–	0.68	198–254 V, 60 Hz *	S

K-Series AT · R600a · 200–240 V · 50/60 Hz

Compressor	Code number	Application	ASHRAE Capacity [BTU/h] Tc=130°F, Tliq=90°F, Tsuc=90°F Evaporating temperature [°F]						ASHRAE						Displacement	Voltage and frequencies (*dual frequency type with 50/ 60 Hz)	Compressor cooling cooling [refer to data sheet]
									LBP rating point -10°F / 130°F		MBP rating point 20°F / 130°F		HBP rating point 45°F / 130°F				
			-31	-13	5	14	32	50	Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER			
									[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]			
HXK80AT	CD000135	LBP	291	526	851	1054	–	–	573	6.04	–	–	–	–	0.49	198–253 V, 60 Hz *	S
HXK87AT	CD000136	LBP	365	577	934	1158	–	–	627	6.04	–	–	–	–	0.54	198–253 V, 60 Hz *	S
HXK95AT	CD000137	LBP	399	630	1020	1265	–	–	685	6.04	–	–	–	–	0.59	198–253 V, 60 Hz *	S
HXK12AT	CD000219	LBP	468	741	1196	1492	–	–	805	5.97	–	–	–	–	0.68	198–253 V, 60 Hz *	S
HXK13AT	CD000222	LBP	517	819	1321	1648	–	–	889	5.69	–	–	–	–	0.76	198–253 V, 60 Hz *	S

R290 · 115–127 V · 60 Hz

Compressor	Code number	Application	ASHRAE Capacity [BTU/h] Tc=130°F, Tliq=90°F, Tsuc=90°F Evaporating temperature [°F]						ASHRAE						Displacement	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling cooling (refer to data sheet)
									LBP rating point -10°F / 130°F		MBP rating point 20°F / 130°F		HBP rating point 45°F / 130°F				
			-31	-13	5	14	32	50	Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER			
									[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[cu.in]		
TL4CNX.2	102H3490	L/MBP	365	664	1058	1305	1929	–	722	4.31	1336	6.12	–	–	0.24	95–135 V, 60 Hz	F2
DLE4CN	102H3482	L/MBP	436	725	1130	1387	2030	–	783	5.11	1415	6.94	–	–	0.24	95–135 V, 60 Hz	F2
DLE4.8CN	102H3582	L/MBP	526	899	1392	1696	2446	–	972	5.00	1722	6.82	–	–	0.29	95–135 V, 60 Hz	F2
DLE5.7CN	102H3682	L/MBP	660	1101	1689	2052	2945	–	1188	5.10	2080	6.69	–	–	0.35	95–135 V, 60 Hz	F2
DLE6.5CN	102H3792	L/MBP	697	1189	1832	2241	3295	–	1283	5.11	2286	6.69	–	–	0.40	95–135 V, 60 Hz	F2
NL8.4CNX.2	105H6090	L/MBP	909	1534	2384	2919	4259	–	1658	5.01	2975	6.55	–	–	0.51	95–135 V, 60 Hz	F2
NLE8.0CN	105H6093	L/MBP	831	1431	2214	2705	3952	–	1546	5.36	2756	7.08	–	–	0.49	95–135 V, 60 Hz	F2
NLE8.8CN	105H6094	L/MBP	1007	1621	2518	3076	4424	–	1751	5.37	3125	7.11	–	–	0.53	95–135 V, 60 Hz	F2
NLE10CN	105H6194	L/MBP	1184	1921	2962	3604	5145	–	2073	5.20	3651	6.98	–	–	0.62	103–127 V, 60 Hz	F2
NLE11CNL	105H5981	LBP	1306	2118	3297	4006	–	–	2291	5.54	–	–	–	–	0.68	95–135 V, 60 Hz	F2
NLE11MN	105H5980	MBP	–	2104	3331	4055	5790	8007	2292	5.24	4106	6.97	6558	9.38	0.68	95–127 V, 60 Hz	F2
SC10CNX.2	104H7070	L/MBP	531	1361	2480	3172	4868	–	1525	3.98	3302	6.38	–	–	0.63	95–135 V, 60 Hz	F2
SC12CNX.2	104H7270	L/MBP	961	1902	3171	3955	5876	–	2088	4.40	4065	6.39	–	–	0.79	95–135 V, 60 Hz	F2
SC15MNX	104H7570	MBP	–	2070	3945	4772	6744	–	2429	4.25	4795	6.04	–	–	0.93	100–127 V, 60 Hz	F2
SC18MNX	104H7870	MBP	–	2838	4415	5343	7780	–	3090	4.65	5419	6.22	–	–	1.08	103–127 V, 60 Hz	F2
SCE15CNLX	104H7578	LBP	966	2467	4169	5158	–	–	2731	5.38	5269	7.36	–	–	0.93	103–127 V, 60 Hz	F2
SCE18CNLX	104H7878	LBP	1257	2937	4824	6010	–	–	3223	5.56	6209	7.36	–	–	1.08	103–127 V, 60 Hz	F2
SCE21CNLX	104H7178	LBP	1615	3397	5530	6824	–	–	3720	5.47	6981	7.12	–	–	1.28	103–127 V, 60 Hz	F2
SCE15MNX	104H7579	MBP	–	–	4073	5099	7534	–	–	–	5241	6.99	–	–	0.93	103–127 V, 60 Hz	F2
SCE18MNX	104H7879	MBP	–	–	4854	6013	8728	–	–	–	6134	7.26	–	–	1.08	103–127 V, 60 Hz	F2

Electrical equipment

Dimensions						LST (RSIR & RSCR) refer to data sheet for more info					Run capacitor (RC)		HST (CSIR & CSR) *alt. cable lengths avail.			LST/HST	
Height [inch]		Connectors location/I.D. [inch]			all connectors available	PTC starting device		PTC starting device with RC connector		ePTC	→ optional → compulsory*		Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
A	B	Suction	Process	Dis-charge E (I.D.)		Spades		Spades		Spades	Spades		Spades		Spades		
		1/4 inch	3/16 inch	1/4 inch		3/16 inch	3/16 inch	1/4 inch	3/16 inch	1/4 inch	1/4 inch	1/4 inch					
7.8	7.5	0.32	0.26	0.26	–	103N0026	103N0023	103N0027	103N0024	–	117-7118	117-7120	–	–	–	103N1010	103N2011
7.8	7.5	0.32	0.26	0.26	–	103N0026	103N0023	103N0027	103N0024	–	117-7118	117-7120	–	–	–	103N1010	103N2011

Electrical equipment

Dimensions						LST (RSIR & RSCR)					Run capacitor (RC)		HST (CSIR & CSR)			LST/HST	
Height [inch]		Connectors location/I.D. [inch]			all connectors available	refer to data sheet for more info					→ optional → compulsory*		Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
A	B	Suction	Process	Dis-charge E		Spades		Spades		Spades	Spades		Spades		Spades		
		1/4 inch	3/16 inch	1/4 inch		3/16 inch	3/16 inch	1/4 inch	3/16 inch	1/4 inch	1/4 inch	1/4 inch					
7.8	7.5	0.24	0.24	0.20		X	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	–	–		
7.8	7.5	0.24	0.24	0.20	–	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	–	–	–	103N1010	103N2010

Electrical equipment · Spare parts · Accessories

Dimensions					alt. connectors available	Run capacitor	Terminal board		Terminal board	Cable clamp	Cover	Evaporation tray	All-in-one equipment
Height [mm]		Connectors location [mm]				→ optional → compulsory*	→ PTC → external protector		→ ePTC → external protector	screws not included	V0 material optional	plastic	→ cover → cable clamp + screws → earthing screw
A	B	Suction	Process	Dis-charge E (I.D.)		Spades	Spades		Spades				
		C (I.D.)	D (O.D.)	E (I.D.)		3/16 1/4 inch	3/16 inch	1/4 inch	3/16 inch				
6.6	–	0.24	0.24	0.20	X	4 µF	ZCF5	DCF5	–	113410_	157595_	162991_	161680_
6.6	–	0.24	0.24	0.20	X	4 µF	ZCFC	DCFC	–	113410_	157595_	162991_	161680_
6.6	–	0.24	0.24	0.20	X	4 µF	ZCFP	DCFP	–	113410_	157595_	162991_	161680_
6.6	–	0.24	0.24	0.20	X	4 µF	ZCF9	DCF9	–	113410_	157595_	162991_	161680_
6.7	–	0.24	0.24	0.20	X	4 µF	ZCF9	DCF9	–	113410_	157595_	162991_	161680_

Electrical equipment

Dimensions						LST (RSIR & RSCR) refer to data sheet for more info					Run capacitor [RC]		HST (CSIR & CSR) *alt. cable lengths avail.			LST/HST	
Height [inch]		Connectors location/I.D. [inch]			alt. connectors available	PTC starting device		PTC starting device with RC connector		ePTC	→ optional → compulsory*		Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
A	B	Suction	Process	Dis-charge E (I.D.)		Spades		Spades		Spades	Spades		Spades		Spades		
		1/4 inch	3/16 inch	1/4 inch		3/16 inch	3/16 inch	1/4 inch	3/16 inch	1/4 inch	3/16 inch	1/4 inch	1/4 inch				
6.8	6.7	0.26	0.26	0.20	-	-	-	-	-	-	-	-	117U7005	117U5023	-	103N1010	103N2011
6.9	6.7	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7118	117-7120	117U7022	117U5023	-	103N1010	103N0492
6.9	6.7	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7118	117-7120	117U7011	117U5023	-	103N1010	103N0492
6.9	6.7	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7118	117-7120	117U7011	117U5023	-	103N1010	103N0492
6.9	6.7	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7118	-	117U7013	117U5023	-	103N1010	103N0492
8.0	7.8	0.32	0.26	0.26	X	-	-	-	-	-	-	-	117U7013	117U5035	-	103N1010	103N2011
8.0	7.8	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7147	117-7146	117U7013	117U5023	-	103N1010	103N2011
8.0	7.8	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7114	-	117U7014	117U5025	-	103N1010	103N2011
8.0	7.8	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7118	117-7120	117U7018	117U5025	-	103N1010	103N2011
8.0	7.8	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7114	-	117U7020	117U5039	-	103N1010	-
8.0	7.8	0.32	0.26	0.26	X	-	-	-	-	103N0058	117-7114	-	117U7020	117U5023	-	103N1010	-
8.2	8.0	0.38	0.26	0.26	-	-	-	-	-	-	-	-	117U7020	117U5023	-	103N1004	103N2008
8.2	8.0	0.38	0.26	0.26	X	-	-	-	-	-	-	-	117U7020	117U5023	-	103N1004	103N2008
8.6	8.4	0.38	0.26	0.26	-	-	-	-	-	-	117-7114	-	117-7441	117U5043	117-7053	-	117U1021
8.6	8.4	0.38	0.26	0.26	-	-	-	-	-	-	-	-	-	-	117-7053	-	117U1021
8.6	8.4	0.38	0.26	0.26	-	-	-	-	-	-	-	117-7133	117-7441	117U5350	117-7801	-	117U1021
8.6	8.4	0.38	0.26	0.26	X	-	-	-	-	-	-	117-7133	117-7441	117U5350	117-7801	-	117U1021
8.6	8.4	0.38	0.26	0.26	-	-	-	-	-	-	-	117-7133	117-7443	117U5379	117-7805	-	117U1021
8.6	8.4	0.38	0.26	0.26	-	-	-	-	-	-	-	117-7133	117-7441	117U5350	117-7801	-	117U1021
8.6	8.4	0.38	0.26	0.26	-	-	-	-	-	-	-	117-7133	117-7443	117U5379	117-7805	-	117U1021

Compressor	Code number	Application	ASHRAE Capacity [BTU/h] Tc=130°F, Tliq=90°F, Tsuc=90°F Evaporating temperature [°F]						ASHRAE						Displacement [cu.in]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling [refer to data sheet]
									LBP rating point -10°F / 130°F		MBP rating point 20°F / 130°F		HBP rating point 45°F / 130°F				
			-31	-13	5	14	32	50	Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER			
									[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]			
PL30F	101G9100	L/M/HBP	–	89	187	252	422	657	103	2.03	270	4.07	522	6.41	0.09	90–127 V, 60 Hz *	S
PL50F	101G9202	L/MBP	–	155	290	374	585	–	175	2.70	391	4.42	–	–	0.12	103–127 V, 60 Hz	S
TL2.5G	102G3255	L/M/HBP	–	169	336	460	788	1226	190	2.65	498	4.91	976	7.46	0.16	103–127 V, 60 Hz	S
TL2.5F	102G3206	LBP	–	182	339	446	–	–	202	3.12	470	4.53	–	–	0.16	103–127 V, 60 Hz	S
TL3F	102G3300	LBP	–	228	411	538	–	–	253	3.29	571	4.58	–	–	0.19	103–127 V, 60 Hz	S
TF3.5F	102G3304	LBP	128	273	502	653	–	–	305	3.26	–	–	–	–	0.22	95–135 V, 60 Hz	S
TL4G	102G3460	L/M/HBP	–	226	435	576	945	1444	255	2.66	613	4.16	1153	5.85	0.24	90–135 V, 60 Hz *	S
TFS4F	102G3431	LBP	149	317	600	785	–	–	356	3.66	–	–	–	–	0.24	95–135 V, 60 Hz	S
TLS4.5F	102G3425	LBP	238	432	760	976	–	–	477	3.70	1018	5.11	–	–	0.28	103–127 V, 60 Hz	S
TFS4.5FT	102G3432	L/MBP	238	432	760	976	1514	–	477	3.75	1018	5.17	–	–	0.28	95–135 V, 60 Hz	S
NF5.5FX	105G5623	L/MBP	281	628	1098	1398	2165	–	696	4.12	1454	5.71	–	–	0.37	95–135 V, 60 Hz	F2
NF6.1FX.2	105G5631	L/MBP	293	648	1161	1490	2315	–	721	4.06	1554	6.09	–	–	0.37	95–135 V, 60 Hz	F1
NF6FK	105G5628	L/MBP	270	603	1054	1342	2079	–	668	3.88	1396	5.38	–	–	0.37	95–135 V, 60 Hz	F2
NF7FK	105G5728	L/MBP	383	759	1275	1608	2468	–	834	4.09	1665	5.48	–	–	0.44	95–135 V, 60 Hz	F2
NF7FX	105G5723	L/MBP	395	783	1314	1657	2545	–	860	4.00	1717	5.54	–	–	0.44	95–135 V, 60 Hz	F2
NF7.3FX.2	105G5722	L/MBP	387	806	1413	1801	2776	–	893	3.95	1872	5.81	–	–	0.44	95–135 V, 60 Hz	F1
NF8.4FX.2	105G5918	L/MBP	–	934	1613	2047	3138	–	1031	4.16	2123	5.88	–	–	0.51	95–135 V, 60 Hz	F1
NF9FX	105G5920	L/MBP	–	852	1454	1848	2864	–	937	3.83	1923	5.54	–	–	0.51	95–135 V, 60 Hz	F2
NF10FX	105G5941	L/MBP	–	952	1625	2060	3184	–	1048	4.01	2140	5.48	–	–	0.62	95–135 V, 60 Hz	F2
NF11FX	105G5945	MBP	477	996	1726	2199	3419	–	1100	3.72	2290	5.19	–	–	0.68	95–135 V, 60 Hz	F2
NF11FX.2	105G5916	MBP	–	–	2054	2615	4025	–	–	–	2717	5.62	–	–	0.69	95–135 V, 60 Hz	F2
FF6GK	103G5680	L/M/HBP	–	357	796	1101	1886	2907	415	3.15	1195	5.40	2320	7.86	0.38	103–127 V, 60 Hz	F1
FF7.5GK	103G5780	L/M/HBP	–	452	934	1264	2105	3189	516	3.48	1356	5.41	2556	7.51	0.42	103–127 V, 60 Hz	F1
FF8.5GX	103G5880	L/M/HBP	–	588	1133	1496	2407	3563	662	3.17	1584	4.94	2871	6.87	0.49	103–127 V, 60 Hz	F2
FF10GX	103G5980	L/M/HBP	–	634	1235	1637	2652	3953	715	3.08	1737	4.84	3179	6.79	0.55	103–127 V, 60 Hz	F2
SC12G	104G7250	L/M/HBP	203	873	1799	2395	3927	6016	1007	3.38	2548	5.33	4795	7.64	0.79	103–127 V, 60 Hz	F1
SC15FTX	104G7505	LBP	677	1406	2412	3051	–	–	1552	3.83	3160	5.00	–	–	0.93	90–135 V, 60 Hz	F2
SC15G	104G7550	L/M/HBP	–	1085	2183	2898	4663	6882	1237	3.76	3071	5.43	5551	7.24	0.93	103–127 V, 60 Hz	F1
SC18G	104G7800	L/M/HBP	–	1142	2522	3323	5255	7779	1356	3.36	3496	5.06	6255	6.86	1.08	95–135 V, 60 Hz	F2

Electrical equipment

Dimensions						LST (RSIR & RSCR) refer to data sheet for more info					Run capacitor (RC)		HST (CSIR & CSR) *alt. cable lengths avail.			LST / HST	
Height [inch]		Connectors location/I.D. [inch]			alt. connectors available	PTC starting device		PTC starting device with RC connector		ePTC	→ optional → compulsory*		Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
A	B	Suction	Process	Dis-charge		Spades		Spades		Spades	Spades		Spades		Spades		
		C (I.D.)	D (I.D.)	E (I.D.)		1/4 inch	3/16 inch	1/4 inch	3/16 inch	3/16 inch	1/4 inch	3/16 inch	1/4 inch	1/4 inch	1/4 inch		
5.3	5.2	0.26	0.26	0.20	–	103N0026	103N0023	–	–	–	–	–	117U6000	117U5015	–	103N1010	103N0492
5.3	5.2	0.26	0.26	0.20	–	103N0026	103N0023	–	–	–	–	–	117U6000	117U5015	–	103N1010	103N0492
6.4	6.3	0.26	0.26	0.20	X	103N0026	103N0023	–	–	–	–	–	–	–	–	103N1010	103N2011
6.4	6.3	0.26	0.26	0.20	X	103N0026	103N0023	–	–	–	–	–	–	–	–	103N1010	103N2011
6.4	6.3	0.26	0.26	0.20	–	103N0026	103N0023	–	–	–	–	–	–	–	–	103N1010	103N2011
6.8	6.7	0.26	0.26	0.20	X	–	–	–	–	–	–	–	–	–	–	117U0349	117U1021
6.8	6.7	0.26	0.26	0.20	X	103N0026	103N0023	–	–	–	–	–	117U6003	117U5023	–	103N1010	103N2011
6.8	6.7	0.26	0.26	0.20	X	–	–	–	–	–	–	–	–	–	–	117U0349	117U1021
6.4	6.3	0.26	0.26	0.20	–	103N0026	103N0023	–	–	–	–	–	117U6003	117U5023	–	103N1010	103N2011
6.8	6.7	0.26	0.26	0.19	X	–	–	–	–	–	–	–	117U4126	117U5022	–	117U0349	117U1021
7.8	7.5	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4127	117U5025	–	117U0349	117U1021
7.8	7.5	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4127	117U5025	–	117U0349	117U1021
8.0	7.8	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4132	117U5022	–	117U0349	117U1021
8.0	7.8	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4132	117U5022	–	117U0349	117U1021
7.8	7.5	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4061	117U5025	–	117U0349	117U1021
7.8	7.5	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4061	117U5025	–	117U0349	117U1021
7.8	7.5	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4129	117U5025	–	117U0349	117U1021
7.8	7.5	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4129	117U5022	–	117U0349	117U1021
8.0	7.8	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4123	117U5028	–	117U0349	117U1021
8.0	7.8	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4151	117U5028	–	117U0349	117U1021
7.7	7.5	0.32	0.26	0.26	–	–	–	–	–	–	–	–	–	–	–	117U0349	117U1021
7.7	7.5	0.32	0.26	0.26	–	–	–	–	–	–	–	–	–	–	–	117U0349	117U1021
7.7	7.5	0.32	0.26	0.26	–	–	–	–	–	–	–	–	117U4060	117U5041	–	117U0349	117U1021
7.7	7.5	0.32	0.26	0.26	–	–	–	–	–	–	–	–	117U4061	117U5040	–	117U0349	117U1021
8.2	8.0	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U6020	117U5023	–	103N1004	103N2008
8.2	8.0	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U6020	117U5023	–	103N1004	103N2008
8.2	8.0	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U6020	117U5023	–	103N1004	103N2008
8.6	8.4	0.38	0.26	0.26	–	–	–	–	–	–	–	–	117-7441	117U5042	117-7053	–	117U1021



● Alternative refrigerant R513A, please refer to our data sheets



Compressor	Code number	Application	ASHRAE Capacity [BTU/h] Tc=130°F, Tliq=90°F, Tsuc=90°F Evaporating temperature [°F]							ASHRAE						Displacement [cu.in.]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling [refer to data sheet]
			-31	-13	5	14	32	50	LBP rating point -10°F / 130°F		MBP rating point 20°F / 130°F		HBP rating point 45°F / 130°F					
									Cooling capacity [BTU/h]	EER	Cooling capacity [BTU/h]	EER	Cooling capacity [BTU/h]	EER				
PL35G	101G0250	L/M/HBP	–	145	270	349	546	–	163	2.98	364	4.30	–	–	0.12	198–254 V, 60 Hz *	F1	
TL2.5G	102G4251	L/M/HBP	60	179	342	447	715	1080	202	2.88	471	4.55	864	6.35	0.16	198–254 V, 60 Hz *	S	
TL3G	102G4350	L/M/HBP	–	202	402	530	–	–	231	3.15	562	4.59	–	–	0.19	198–254 V, 60 Hz *	S	
TL4G	102G4452	L/M/HBP	–	295	539	701	–	–	329	3.60	737	5.05	–	–	0.24	198–254 V, 60 Hz *	S	
TL4GH	102G4455	HBP	–	–	507	682	1123	1716	–	–	728	4.86	1368	6.80	0.24	198–254 V, 60 Hz *	F2	
TL5G	102G4550	L/M/HBP	–	387	683	874	–	–	429	3.84	–	–	–	–	0.31	198–254 V, 60 Hz *	S	
TLES6.5FT.3	102G4724	LBP	355	664	1130	1438	–	–	729	4.65	–	–	–	–	0.40	198–254 V, 60 Hz *	S	
TLES7FT.4	102G4708	LBP	355	664	1130	1438	–	–	729	4.65	–	–	–	–	0.40	198–254 V, 60 Hz *	S	
NL6FT	105G6628	LBP	248	502	841	1058	–	–	551	4.16	–	–	–	–	0.37	198–254 V, 60 Hz *	S	
NF7FX	105G6743	L/MBP	389	787	1320	1661	2545	–	864	4.02	1719	5.56	–	–	0.44	198–242 V, 60 Hz	F1	
NF10FX	105G6846	L/MBP	512	937	1529	1924	2988	–	1021	3.90	1996	5.23	–	–	0.62	198–242 V, 60 Hz *	F2	
NL6.1MF	105G6660	L/MBP	185	498	947	1239	1994	–	562	3.97	1308	5.54	–	–	0.37	187–254 V, 60 Hz *	S	
NL7.3MF	105G6772	L/MBP	313	677	1199	1539	2418	–	751	4.06	1609	5.42	–	–	0.44	187–254 V, 60 Hz *	F1	
NL8.4MF	105G7802	L/MBP	329	759	1377	1779	2819	–	847	4.20	1867	5.53	–	–	0.51	187–254 V, 60 Hz *	F1	
NL10MF	105G6885	L/MBP	465	985	1716	2190	3417	–	1090	4.40	2283	5.66	–	–	0.62	187–254 V, 60 Hz *	F1	
NLE12.6MF.2	105G6387	L/MBP	1009	1368	2276	2937	4677	–	1481	5.34	3088	7.14	–	–	0.77	198–254 V, 60 Hz *	F2	
NLE12.6MFT	105G6388	L/MBP	1009	1368	2276	2937	4677	–	1481	5.34	3088	7.14	–	–	0.77	198–254 V, 60 Hz *	F2	
FR6G	103G6660	L/M/HBP	–	394	842	1126	–	–	459	3.60	1199	5.58	–	–	0.38	198–254 V, 60 Hz *	F1	
FR7GH	103G6683	M/HBP	–	–	952	1244	2047	3203	–	–	1320	5.53	2537	7.71	0.42	198–254 V, 60 Hz *	F2	
FR7.5G	103G6680	L/M/HBP	–	476	962	1268	–	–	547	3.71	1340	5.38	–	–	0.42	198–254 V, 60 Hz *	F1	
FR8.5G	103G6780	L/M/HBP	–	586	1113	1458	–	–	661	3.79	1539	5.13	–	–	0.49	198–254 V, 60 Hz *	F1	
FR10G	103G6880	L/M/HBP	–	647	1235	1611	–	–	731	3.57	1696	4.93	–	–	0.55	198–254 V, 60 Hz *	F1	
SC10G	104G8000	L/M/HBP	119	565	1331	1831	–	–	670	2.95	1972	5.43	–	–	0.63	198–254 V, 60 Hz *	F2	
SC10GH	104G8041	HBP	–	–	1361	1793	2909	4446	–	–	1899	5.08	3544	6.89	0.63	198–254 V, 60 Hz *	F2	
SC12FT	104G8205	LBP	531	1152	2020	2576	–	–	1276	4.04	2680	5.44	–	–	0.79	198–254 V, 60 Hz *	F1	
SC15FT	104G8505	LBP	655	1395	2417	3069	–	–	1542	4.09	3185	5.54	–	–	0.93	198–254 V, 60 Hz *	F2	
SC12G	104G8240	L/M/HBP	318	865	1722	2297	–	–	983	3.50	2451	5.47	–	–	0.79	198–254 V, 60 Hz *	F2	
SC12G	104G8245	MBP	–	–	1573	2200	3852	6162	–	–	2401	5.65	4860	8.38	0.79	187–254 V, 60 Hz	F2	
SC12GH	104G8261	HBP	–	–	1573	2168	3734	5923	–	–	2350	5.52	4680	8.13	0.79	198–254 V, 60 Hz *	F2	
SC15G	104G8520	L/M/HBP	–	1114	2182	2867	–	–	1263	3.64	3020	5.58	–	–	0.93	198–254 V, 60 Hz *	F2	
SC15G	104G8526	MBP	–	–	1988	2720	4449	6668	–	–	2907	5.69	5348	8.11	0.93	187–254 V, 60 Hz	F2	
SC15GH	104G8561	HBP	–	–	1792	2459	4292	6927	–	–	2673	5.70	5449	8.17	0.93	198–254 V, 60 Hz *	F2	
SC18FTX	104G8805	LBP	796	1650	2857	3632	–	–	1823	4.11	3774	5.69	–	–	1.08	198–254 V, 60 Hz *	F2	
SC18G	104G8820	L/M/HBP	–	1422	2632	3407	–	–	1596	3.86	3572	5.41	–	–	1.08	198–254 V, 60 Hz *	F2	
SC18G	104G8823	MBP	–	–	2426	3158	5122	7903	–	–	3336	6.03	6282	8.57	1.08	187–254 V, 60 Hz	F2	
SC18GH	104G8861	HBP	–	–	2426	3158	5122	7903	–	–	3336	6.03	6282	8.57	1.08	198–254 V, 60 Hz *	F2	
SC18MFX	104G8804	MBP	–	–	2822	3595	5598	8355	–	–	3744	5.96	6697	8.09	1.08	187–254 V, 60 Hz *	F2	
SC21FTX	104G8106	LBP	1017	1985	3379	4278	–	–	2184	4.39	4437	5.77	–	–	1.28	187–254 V, 60 Hz	F2	
SC21G	104G8140	L/M/HBP	–	1304	2780	3729	–	–	1516	3.67	3980	5.69	–	–	1.28	198–254 V, 60 Hz *	F2	
SC21G	104G8143	L/M/HBP	–	1304	2780	3729	–	–	1516	3.67	3980	5.69	–	–	1.28	198–254 V, 60 Hz	F2	

Electrical equipment

Dimensions						LST (RSIR & RSCR)					Run capacitor (RC)		HST (CSIR & CSR)			LST/HST	
Height [inch]		Connectors location/I.D. [inch]			all. connectors available	refer to data sheet for more info					→ optional → compulsory*		*alt. cable lengths avail.			Cord relief	Cover
		Suction	Process	Dis-charge E (I.D.)		PTC starting device		PTC starting device with RC connector		ePTC			Starting relay	Starting capacitor	Starting device*		
						Spades		Spades		Spades	Spades		Spades		Spades		
A	B	C (I.D.)	D (I.D.)	E (I.D.)		1/4 inch	3/16 inch	1/4 inch	3/16 inch	3/16 inch	1/4 inch	3/16 inch	1/4 inch	1/4 inch	1/4 inch		
5.4	5.3	0.24	0.24	0.20	X	103N0011	103N0018	–	–	–	–	–	117U6021	117U5014	–	103N1010	103N0491
6.4	6.3	0.24	0.24	0.20	X	103N0011	103N0018	–	–	–	–	–	117U6007	117U5014	–	103N1010	103N2011
6.4	6.3	0.24	0.24	0.20	X	103N0011	103N0018	–	–	–	–	–	117U6009	117U5014	–	103N1010	103N2010
6.8	6.7	0.24	0.24	0.20	X	103N0011	103N0018	–	–	–	–	–	117U6004	117U5014	–	103N1010	103N2010
6.8	6.7	0.24	0.24	0.20	–	–	–	–	–	–	–	–	117U6000	117U5014	–	103N1010	103N2011
6.8	6.7	0.24	0.24	0.20	X	103N0011	103N0018	–	–	–	–	–	117U6000	117U5014	–	103N1010	103N2010
6.8	6.7	0.24	0.24	0.20	X	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	117U6016	117U5014	–	103N1010	103N2010
6.8	6.7	0.26	0.26	0.20	–	103N0011	103N0018	103N0016	103N0021	–	117-7117	117-7119	117U6016	117U5014	–	103N1010	103N2010
7.8	7.5	0.24	0.24	0.20	–	103N0011	103N0018	–	–	–	–	–	117U6000	117U5015	–	103N1010	103N2010
8.0	7.8	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4140	117U5018	–	117U0349	117U1023
8.0	7.8	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4139	117U5018	–	117U0349	117U1021
7.5	7.2	0.32	0.24	0.24	X	103N0011	103N0018	–	–	–	–	–	117U6015	117U5015	–	103N1010	103N2011
7.8	7.5	0.32	0.24	0.24	X	103N0011	103N0018	–	–	–	–	–	117U6016	117U5015	–	103N1010	103N2011
7.8	7.5	0.32	0.24	0.24	X	103N0011	103N0018	–	–	–	–	–	117U6016	117U5015	–	103N1010	103N2011
8.0	7.8	0.32	0.24	0.24	X	103N0011	103N0018	–	–	–	–	–	117U6022	117U5018	–	103N1010	103N2011
8.0	7.8	0.32	0.24	0.24	–	–	–	–	–	103N0050	–	117-7119	117U6005	117U5015	–	103N1010	103N2010
8.0	7.8	0.32	0.24	0.24	–	–	–	–	–	103N0050	–	117-7119	117U6005	117U5015	–	103N1010	103N2010
7.7	7.5	0.32	0.24	0.24	–	103N0011	103N0018	–	–	–	–	–	117U6000	117U5015	–	103N1010	103N2010
7.7	7.5	0.32	0.24	0.32	–	–	–	–	–	–	–	–	117U6016	117U5015	–	103N1010	103N2011
7.7	7.5	0.32	0.24	0.24	X	103N0011	103N0018	–	–	–	–	–	117U6001	117U5015	–	103N1010	103N2010
7.7	7.5	0.32	0.24	0.24		103N0011	103N0018	–	–	–	–	–	117U6015	117U5015	–	103N1010	103N2010
7.7	7.5	0.32	0.24	0.24	X	103N0011	103N0018	–	–	–	–	–	117U6010	117U5015	–	103N1010	103N2010
7.8	7.6	0.32	0.24	0.24	–	103N0011	–	–	–	–	–	–	117U6002	117U5017	–	103N1004	103N2009
8.2	8.0	0.40	0.24	0.32	–	–	–	–	–	–	–	–	117U6005	117U5017	–	103N1004	103N2008
8.2	8.0	0.32	0.24	0.24	–	103N0011	–	–	–	–	–	–	117U6003	117U5017	–	103N1004	103N2009
8.2	8.0	0.40	0.24	0.24	X	103N0011	–	–	–	–	–	–	117U6005	117U5017	–	103N1004	103N2009
8.2	8.0	0.32	0.24	0.24	X	103N0011	–	–	–	–	–	–	117U6003	117U5017	–	103N1004	103N2009
8.2	8.0	0.40	0.26	0.26	X	–	–	–	–	–	–	–	117U6011	117U5017	–	103N1004	103N2008
8.2	8.0	0.40	0.24	0.32	–	–	–	–	–	–	–	–	117U6011	117U5017	–	103N1004	103N2008
8.2	8.0	0.40	0.24	0.24	X	–	–	–	–	–	–	–	117U6005	117U5017	–	103N1004	103N2009
8.2	8.0	0.40	0.26	0.26	X	–	–	–	–	–	–	–	117U6011	117U5017	–	103N1004	103N2008
8.2	8.0	0.40	0.24	0.32	X	–	–	–	–	–	–	–	117U6011	117U5017	–	103N1004	103N2008
8.6	8.4	0.40	0.24	0.24	X	–	–	–	–	–	–	–	117U6019	117U5017	–	103N1004	103N2009
8.6	8.4	0.40	0.24	0.24	X	–	–	–	–	–	–	–	117U6019	117U5017	–	103N1004	103N2009
8.6	8.4	0.40	0.26	0.26	X	–	–	–	–	–	–	–	–	117U5373	117-7039	103N1004	103N2008
8.6	8.4	0.40	0.24	0.32	–	–	–	–	–	–	–	–	–	117U5373	117-7039	103N1004	103N2008
8.6	8.4	0.40	0.24	0.24	–	–	–	–	–	–	–	–	117U6019	117U5017	117-7027	103N1004	103N2008
8.6	8.4	0.40	0.24	0.24	–	–	–	–	–	–	–	–	–	117U5373	117-7039	103N1004	103N2008
8.6	8.4	0.40	0.24	0.24	X	–	–	–	–	–	–	–	–	117U5373	117-7029	103N1004	103N2009
8.6	8.4	0.40	0.24	0.24	X	–	–	–	–	–	117-7121*	–	117-7427	117U5373	117-7039	103N1004	103N2008

R404A/R507 · 115–127 V · 60 Hz

Compressor	Code number	Application	ASHRAE Capacity [BTU/h] Tc=130°F, Tliq=90°F, Tsuc=90°F Evaporating temperature [°F]							ASHRAE						Displacement [cu.in]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling cooling [refer to data sheet]
										LBP rating point -10°F / 130°F		MBP rating point 20°F / 130°F		HBP rating point 45°F / 130°F				
			-31	-13	5	14	32	50	Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER				
									[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]				
TF4CLX	● 102U2102	L/MBP	340	642	1059	1320	1965	–	703	3.83	1302	4.77	–	–	0.24	103–135 V, 60 Hz	F2	
TFS4.5CLX	102U2115	LBP	477	852	1369	1692	–	–	927	4.07	–	–	–	–	0.28	103–135 V, 60 Hz	F2	
NF5.5CLX	105F1621	L/MBP	653	1147	1837	2271	3354	–	1247	4.20	2233	5.22	–	–	0.37	95–135 V, 60 Hz	F2	
NF7CLX	● 105F1721	L/MBP	776	1412	2300	2859	4254	–	1541	4.19	2819	5.33	–	–	0.44	95–135 V, 60 Hz	F2	
SC10CL	104L1503	L/MBP	443	1258	2388	3105	4914	–	1422	3.37	3135	4.86	–	–	0.63	103–127 V, 60 Hz	F2	
SC12CL	104L1603	LBP	771	2131	3744	4691	–	–	2378	3.78	–	–	–	–	0.79	103–127 V, 60 Hz	F2	
SC12CLX.2	● 104L1696	LBP	1036	2241	3771	4696	–	–	2470	3.89	4625	4.89	–	–	0.79	103–127 V, 60 Hz	F2	
SC12MLX	104L1606	MBP	–	–	3500	4409	6735	–	–	–	4386	5.20	–	–	0.79	95–135 V, 60 Hz	F2	
SC15CLX.2	● 104L1853	LBP	1409	2739	4564	5704	–	–	3005	4.12	5636	5.34	–	–	0.93	103–127 V, 60 Hz	F2	
SC15MLX	104L1805	MBP	–	–	4101	5165	7886	–	–	–	5136	4.80	–	–	0.93	95–135 V, 60 Hz	F2	
SC15MLX.2	104L1807	MBP	–	–	4212	5246	7892	–	–	–	5187	5.14	–	–	0.93	103–127 V, 60 Hz	F2	
SC18CLX.2	● 104L2198	LBP	1712	3393	5121	6156	–	–	3664	4.48	5974	5.31	–	–	1.08	103–127 V, 60 Hz	F2	
SC18MLX	● 104L2105	MBP	–	–	5191	6456	9691	–	–	–	6378	5.03	–	–	1.08	103–127 V, 60 Hz	F2	

R404A / R507 · 220–240 V · 50/60 Hz | 208–230 V · 60 Hz

Compressor	Code number	Application	ASHRAE Capacity [BTU/h] Tc=130°F, Tliq=90°F, Tsuc=90°F Evaporating temperature [°F]						ASHRAE						Displacement [*dual frequency type with 50/60 Hz]	Voltage and frequencies [*dual frequency type with 50/60 Hz]	Compressor cooling cooling [refer to data sheet]
									LBP rating point -10°F / 130°F		MBP rating point 20°F / 130°F		HBP rating point 45°F / 130°F				
									Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER			
			-31	-13	5	14	32	50	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]			
NF7MLX	105F3720	MBP	–	–	2260	2843	4291	–	–	2819	5.33	–	–	0.44	187–254 V, 60 Hz *	F2	
NL6.1MLX	105F3611	MBP	–	–	1853	2331	3518	–	–	2311	5.52	–	–	0.37	187–254 V, 60 Hz *	F2	
SC10CLX	104L2533	L/MBP	529	1576	2786	3489	–	–	1763	3.95	–	–	–	0.63	198–254 V, 60 Hz *	F2	
SC10MLX	104L2506	MBP	–	1620	2874	3650	5578	–	1805	3.91	3636	5.22	–	0.63	187–254 V, 60 Hz *	F2	
SC12CLX	104L2695	LBP	771	2131	3744	4691	–	–	2378	4.20	–	–	–	0.79	198–254 V, 60 Hz	F2	
SC12CLX.2	104L2699	LBP	1081	2187	3704	4652	–	–	2408	4.33	–	–	–	0.79	187–254 V, 60 Hz	F2	
SC12CLX.2	104L2697	LBP	1081	2187	3704	4652	–	–	2408	4.07	–	–	–	0.79	198–254 V, 60 Hz *	F2	
SC12MLX	104L2606	MBP	–	1998	3445	4339	6563	–	2212	4.02	4305	5.18	–	0.79	187–254 V, 60 Hz *	F2	
SC15CLX	104L2854	LBP	800	2360	4141	5179	–	–	2636	4.20	–	–	–	0.93	198–254 V, 60 Hz	F2	
SC15CLX.2	104L2897	LBP	1409	2739	4564	5704	–	–	3005	4.53	–	–	–	0.93	187–254 V, 60 Hz	F2	
SC15MLX.2	104L2803	MBP	–	–	4210	5243	7918	–	–	5188	5.32	–	–	0.93	187–254 V, 60 Hz	F2	
SC18CLX.2	104L2195	LBP	1774	3516	5306	6379	–	–	3797	4.76	–	–	–	1.08	187–254 V, 60 Hz	F2	
SC18MLX	104L2138	MBP	–	–	5191	6456	9691	–	–	6378	5.03	–	–	1.08	187–254 V, 60 Hz	F2	
SC12/12CLX	104L4034	LBP	1533	4240	7450	9334	–	–	4733	4.18	–	–	–	1.57	198–254 V, 60 Hz	F2	
GS21CLX	107B0506	LBP	1993	3902	6548	8216	–	–	4286	4.60	–	–	–	1.29	187–254 V, 60 Hz	F2	
GS21MLX	107B0509	MBP	–	4156	6973	8695	13036	–	4580	4.99	8587	6.34	–	1.29	187–254 V, 60 Hz	F2	
GS26CLX	107B0505	LBP	2453	4456	7216	8995	–	–	4854	4.14	–	–	–	1.60	187–254 V, 60 Hz	F2	

Electrical equipment

Dimensions						LST (RSIR & RSCR) refer to data sheet for more info			Run capacitor (RC)		HST (CSIR & CSR) *alt. cable lengths avail.			LST/HST	
Height [inch]		Connectors location/I.D. [inch]			alt. connectors available	PTC starting device		PTC starting device with RC connector	ePTC	→ optional → compulsory*	Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
		Suction	Process	Dis-charge E (I.D.)		Spades		Spades	Spades	Spades	Spades		Spades		
A	B	C (I.D.)	D (I.D.)	E (I.D.)		1/4 inch	3/16 inch	1/4 inch	3/16 inch	3/16 inch	1/4 inch	3/16 inch	1/4 inch	1/4 inch	1/4 inch
6.8	6.7	0.26	0.26	0.20	X	–	–	–	–	–	–	–	117U4148	117U5025	–
6.8	6.7	0.26	0.26	0.26	X	–	–	–	–	–	–	–	117U4148	117U5025	–
8.0	7.8	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4061	117U5025	–
7.8	7.5	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U4129	117U5022	–
8.2	8.0	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U6020	117U5023	–
8.2	8.0	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U6020	117U5023	–
8.2	8.0	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U6020	117U5023	–
8.6	8.4	0.32	0.26	0.26	–	–	–	–	–	–	117-7133	–	117-7441	117U5042	117-7053
8.6	8.4	0.38	0.26	0.26	–	–	–	–	–	–	117-7114	–	117-7441	117U5043	117-7045
8.6	8.4	0.38	0.26	0.26	–	–	–	–	–	–	117-7114	–	117-7441	117U5043	117-7045
8.6	8.4	0.38	0.26	0.26	–	–	–	–	–	–	117-7114	–	117-7441	117U5043	117-7045
8.6	8.4	0.38	0.26	0.26	–	–	–	–	–	–	117-7114	–	117-7441	117U5043	117-7045
8.6	8.4	0.38	0.26	0.26	X	–	–	–	–	–	117-7114	–	117-7441	117U5043	117-7045
8.6	8.4	0.38	0.26	0.26	–	–	–	–	–	–	117-7114	–	117-7441	117U5043	117-7045

Electrical equipment

Dimensions						LST (RSIR & RSCR) refer to data sheet for more info			Run capacitor (RC)		HST (CSIR & CSR) *alt. cable lengths avail.			LST/HST	
Height [inch]		Connectors location/I.D. [inch]			alt. connectors available	PTC starting device		PTC starting device with RC connector	ePTC	→ optional → compulsory*	Starting relay	Starting capacitor	Starting device*	Cord relief	Cover
		Suction	Process	Dis-charge E (I.D.)		Spades		Spades	Spades	Spades	Spades		Spades		
A	B	C (I.D.)	D (I.D.)	E (I.D.)		1/4 inch	3/16 inch	1/4 inch	3/16 inch	3/16 inch	1/4 inch	3/16 inch	1/4 inch	1/4 inch	1/4 inch
8.0	7.8	0.38	0.26	0.26	X	–	–	–	–	–	–	–	117U4139	117U5018	–
8.0	7.8	0.32	0.26	0.26	X	–	–	–	–	–	–	–	117U6022	117U5015	–
8.2	8.0	0.32	0.24	0.24	X	–	–	–	–	–	–	–	117U6005	117U5017	–
8.2	8.0	0.32	0.26	0.26	–	–	–	–	–	–	–	–	117U6011	117U5017	–
8.6	8.4	0.32	0.24	0.24	X	–	–	–	–	–	–	–	117U6019	117U5017	–
8.6	8.4	0.38	0.26	0.26	X	–	–	–	–	–	–	–	–	–	117-7027
8.6	8.4	0.32	0.24	0.24	X	–	–	–	–	–	–	–	117U6019	117U5017	–
8.6	8.4	0.32	0.26	0.26	–	–	–	–	–	–	–	–	117U6011	117U5017	–
8.6	8.4	0.40	0.24	0.24	–	–	–	–	–	–	–	–	–	117U5373	117-7039
8.6	8.4	0.38	0.26	0.26	X	–	–	–	–	–	–	–	–	117U5373	117-7039
8.6	8.4	0.38	0.26	0.26	–	–	–	–	–	–	–	–	–	117-7058	103N1004
8.6	8.4	0.38	0.26	0.26	X	–	–	–	–	–	–	–	117U5373	117-7066	103N1004
8.6	8.4	0.38	0.26	0.26	–	–	–	–	–	–	–	–	–	117-7066	103N1004
10.2	10.0	0.47	0.24	0.24	–	–	–	–	–	–	–	–	117U6019	117U5017	–
10.2	9.7	0.51	0.26	0.32	–	–	–	–	–	–	–	–	–	–	117-7073
11.0	10.5	0.51	0.26	0.38	–	–	–	–	–	–	–	–	–	–	117-7073
11.0	10.5	0.51	0.26	0.32	–	–	–	–	–	–	–	–	–	–	117-7073

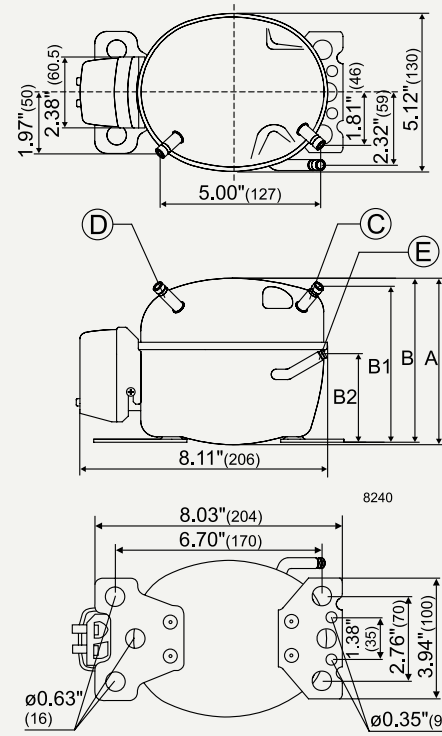


● Alternative refrigerant R452A, please refer to our data sheets

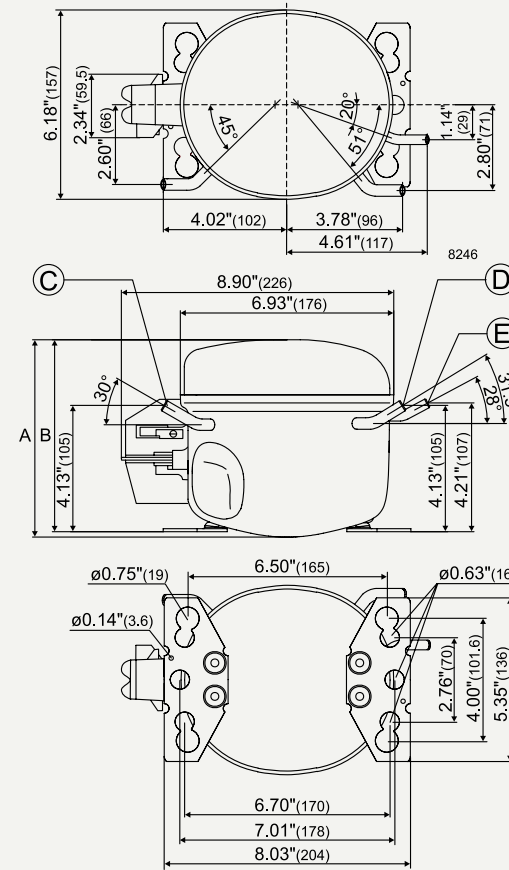


R452A

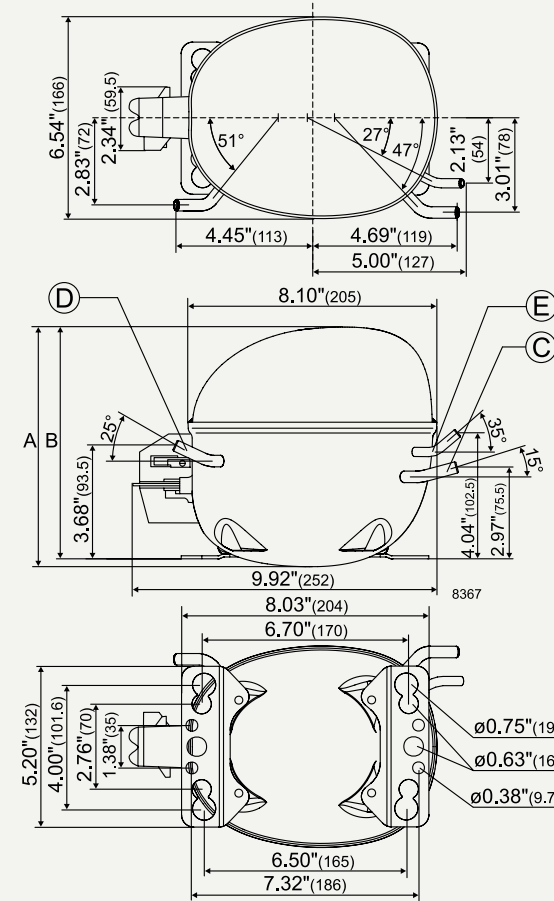
PL



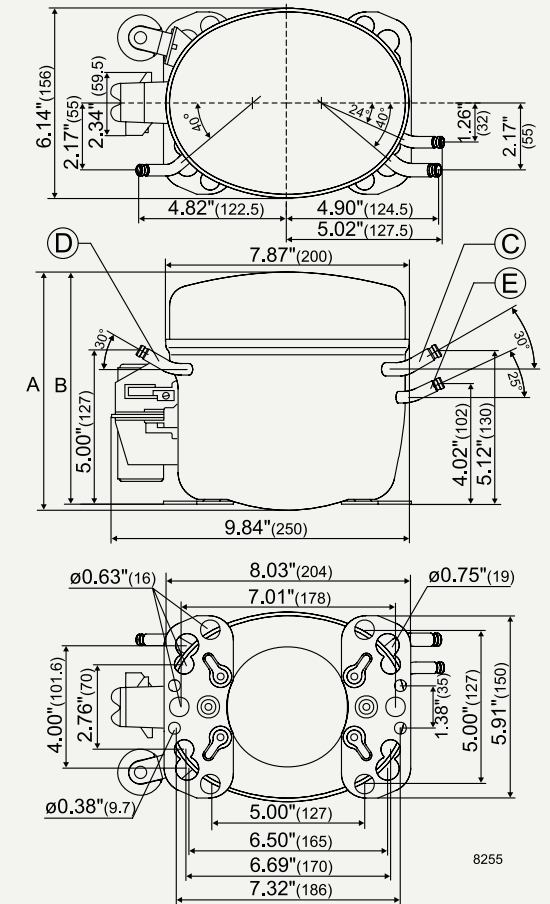
TF / TFS



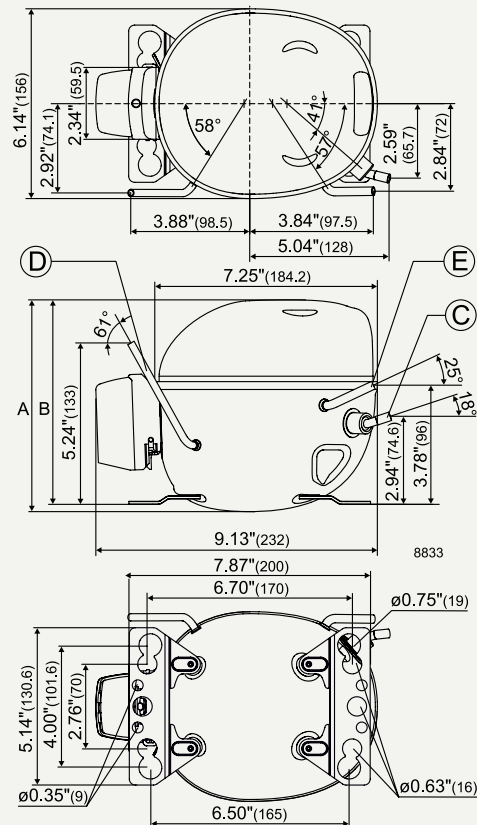
NF



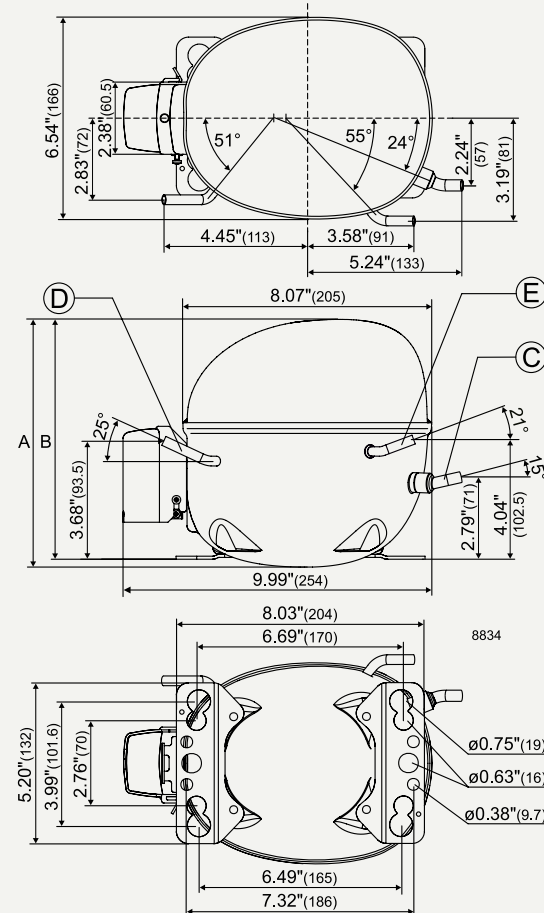
FF (FR similar)



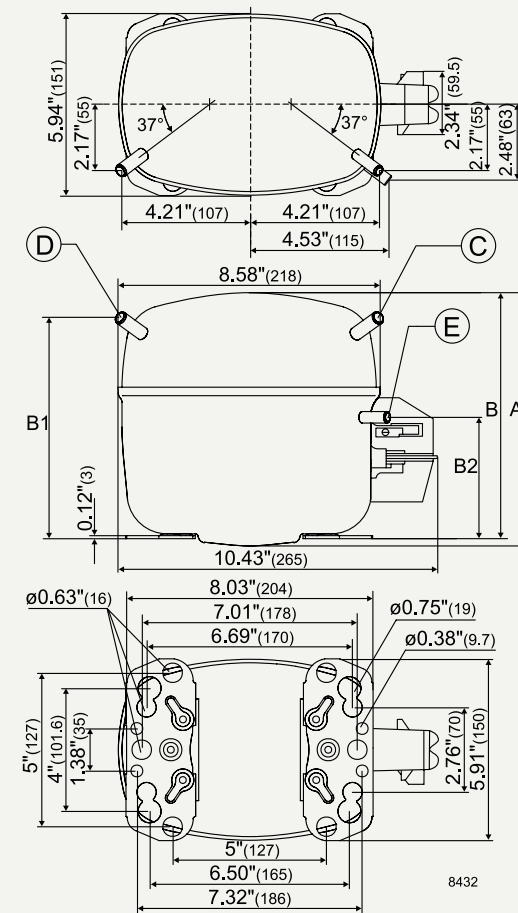
R290: DLE



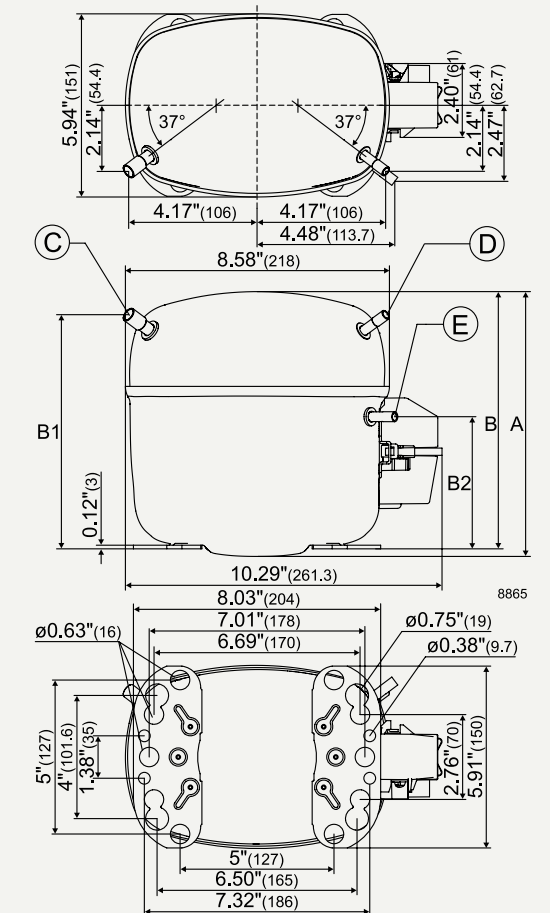
R290: NLE



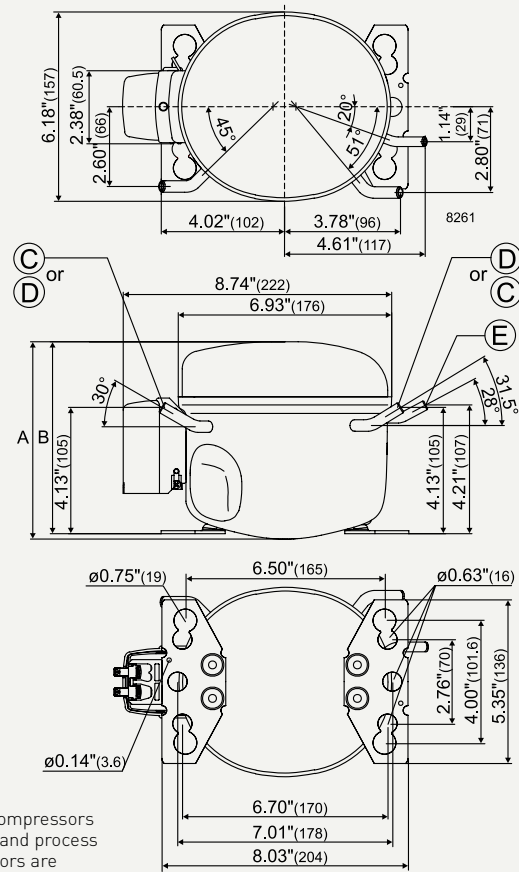
SC (external protector)



R290: SCE



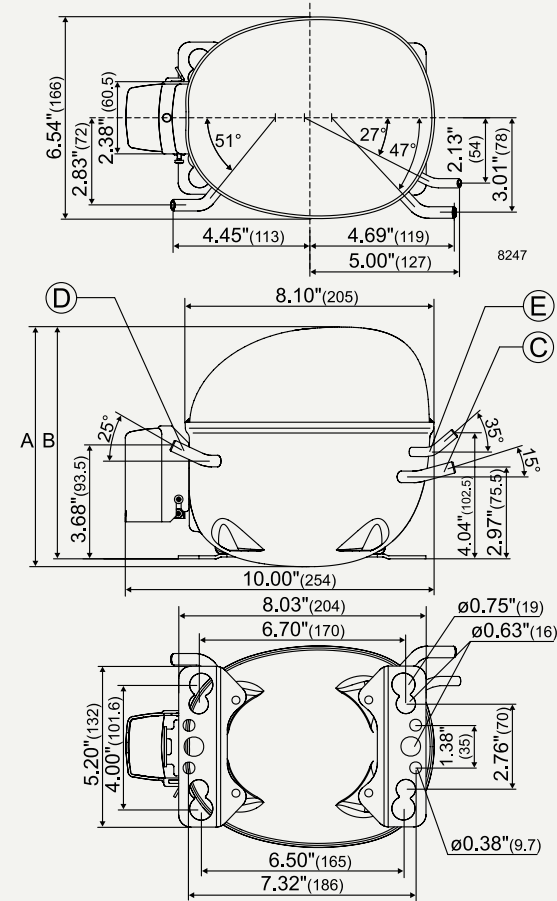
TL



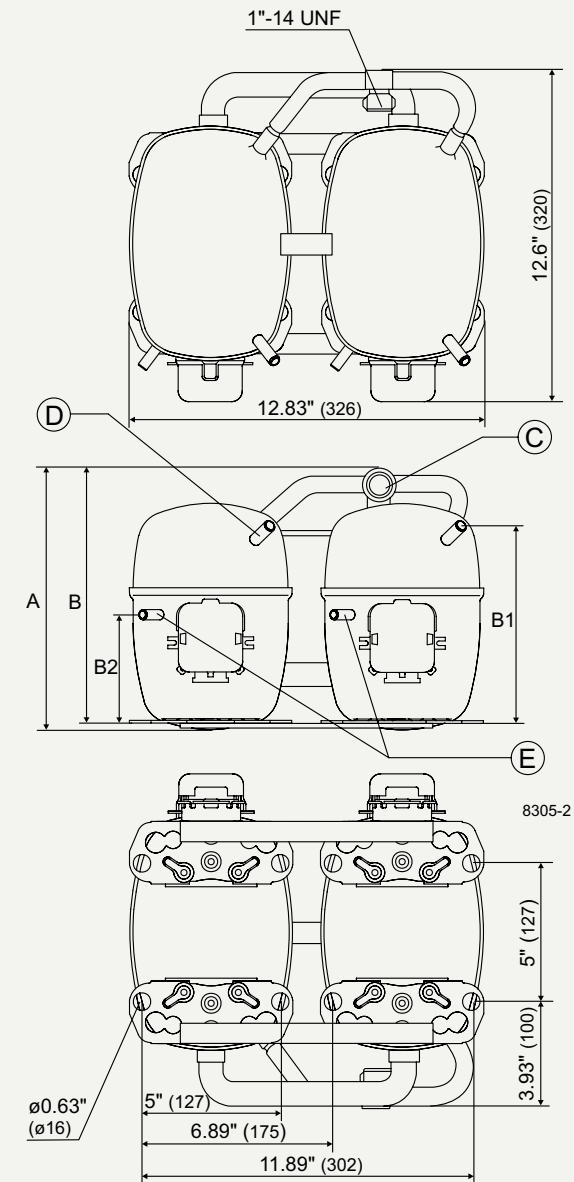
Note:

On TL compressors suction and process connectors are interchangeable.

NL (NLE similar)



SC-Twin



Accessories for SC Twin

SC10/10, SC12/12 and SC15/15:

Service valve for 12 mm tube

118-7350

Solder connector for 12 mm tube

104B0584

SC18/18 and SC21/21:

Service valve for 16mm tube

118-7351

Solder connector for 16mm tube

118-7405

SC18/18 and SC21/21:

Seal ring for service valve and solder connector

118-3638

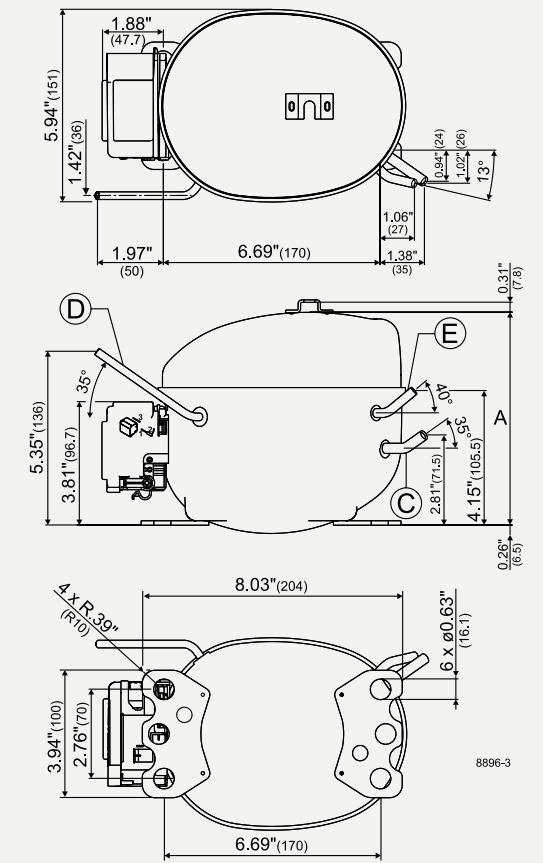
Time delay relay

117N0001

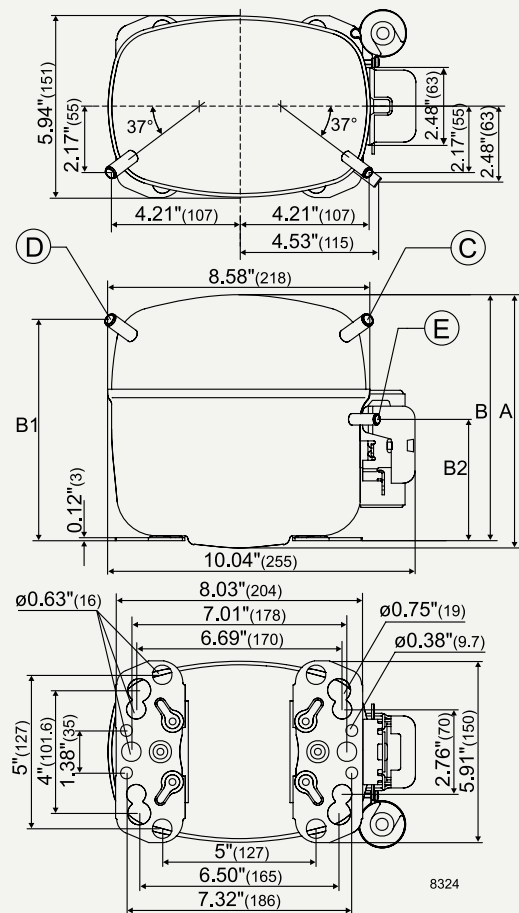
Check valve (to be used with time delay relay)

020-1014

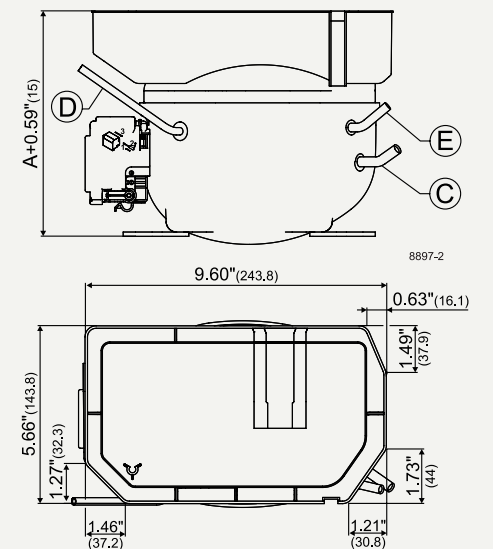
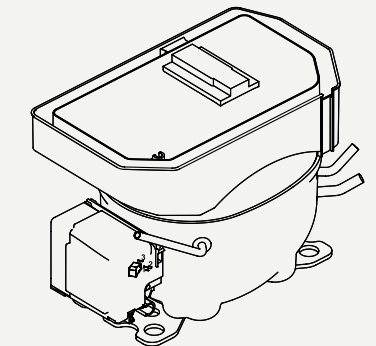
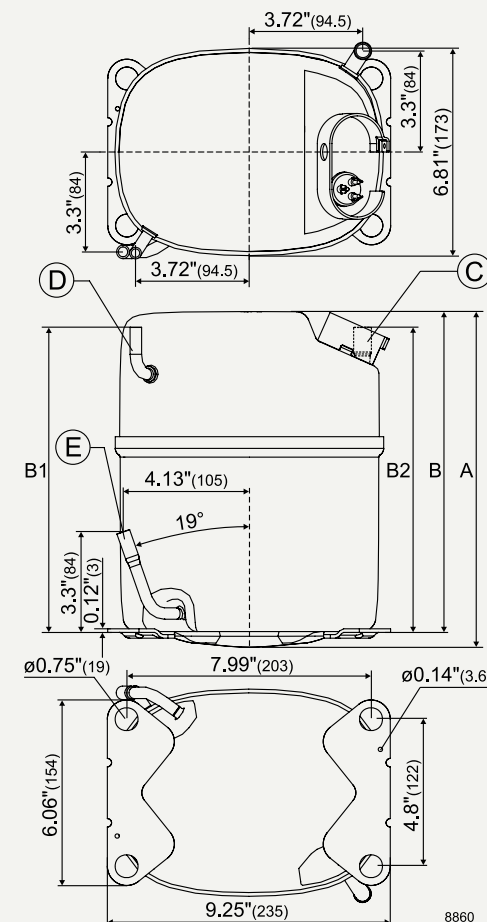
HXX (K-Series)



SC



GS



PRODUCT SELECTOR

selector.secop.com

The screenshot shows the 'Application' tab of the Secop Product Selector. A large table lists compressor models with columns for Designation, Refrigerant, Application, and Performance. Numbered callouts indicate key features: 1 points to the 'Designation' column, 2 to the 'Refrigerant' column, 3 to the 'Application' column, and 4 to the 'Performance' column. The table includes a search bar and various filter icons.

With its responsive web design, the latest version of Secop's Product Selector is working on various hardware platforms (PCs, tablets, smartphones, etc.) and features 10 languages.

The idea behind the new version is to set filters to find the right compressor for your cooling application, similar to the popular spreadsheet programs.

Also a simple data sheet search is possible via the third tab in the top menu. It is also possible to download all data sheets (or your selection) in one *.zip file or 3D model CAD files.

Functions of the Secop Product Selector – Application Search Level 1:

- Set one or more filters for Voltage, Refrigerant, Application, Motor to get a selection of possible hits quickly.
- Or type in the first letters of the compressor designation to display a table of compressors matching with your input (or code number).

For more technical information:

- When you find an interesting compressor, simply click on its code number to open Application search Level 2 which gives you a quick overview about variants of this model and some more technical data.
- Click on the pdf-symbol on the right border of the data line to open the compressor data sheet.

WORKSHEET FUNCTIONS

- Click on the filter icon to start sorting of the table.
- Move over the filter icon to open the filter dialogue and set the filter.
- Click on the pdf icon to open the datasheet.

Functions of the Secop Product Selector – Performance Search Level 1:

- Set one or more filters for Motor, Refrigerant, or Application to get a selection of possible hits quickly.
- Appliance-guided compressor search:
 - select application area in the pull down dialogue in the top right corner
 - set filter (→ yes) to the desired application type listed up in right area of the table(move the table if needed: keep middle mouse button pushed while moving mouse to left or right)
 - set more filters to Refrigerant, Motor and Voltage to further specializing of the results
- Performance-guided compressor search:
 - select physical units and operation condition of the performance data (dialogue in top left corner)
 - type in ranges of cooling capacity or acceptable efficiency into performance filters
 - click on filter icon to sort the table (capacity or efficiency)
- Model-focused search: Type in the first letters of the compressor designation to show a table compressors matching with your input (or code number).

For more technical information:

- When you found an interesting compressor simply click on its Designation to open Performance search Level 2 which gives you a fast overview about most important technical data.
- Click on the pdf symbol on the right border of the data-line to open the compressor data sheet.

WORKSHEET FUNCTIONS

- Click on the filter icon to start sorting of the table.
- Move over the filter icon to open the filter dialogue and set the filter.
- Click on the pdf icon to open the datasheet.
- Move over the filter icon to set the filter range.

SECOP GROUP: AROUND THE WORLD

SECOP

12

international
partners for
advanced
developments

33

laboratories
located in Austria,
Germany, Slovakia,
China, US, and
Turkey

180

R&D engineers
and technicians

440

patents globally

50+

countries with
customer support

WE SUPPORT



Since 2011 Secop has been committed to the UN Global Compact corporate responsibility initiative and its principles in the areas of human rights, labor, the environment and anti-corruption.



Secop is the expert for advanced hermetic compressor technologies and cooling solutions in commercial refrigeration. We develop high performance stationary and mobile cooling solutions for leading international commercial refrigeration manufacturers and are the first choice when it comes to leading hermetic compressors and electronic controls for refrigeration solutions for light commercial and DC-powered applications.

Secop has a long track record of successful projects to adopt energy efficient and green refrigerants that feature innovative solutions for both compressors and control electronics.

- | | |
|---------------------------------|---|
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| Turin: Sales | Tianjin: Sales, R&D, Logistics and Manufacturing |
| Gleisdorf: R&D | Atlanta: Sales, R&D and Logistics |



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