

Quick reference

Light commercial reciprocating compressors **for freezers**

R404A - R507 - R134a - R290 220 - 240V 50 / 60 Hz



Refrigerant	Frequency	Compressor	Code numbers		Horsepower (approx.)	Capacity (W) at test conditions										Power consumption (W)	Displacement	Recommended compressor cooling at ambient temperatures															
						Evaporating temperature (°C)												32°C			38°C			43°C									
			Compressor	Compressor with oil cooling		-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	-25		-10	cm3	LBP	MBP	HBP	LBP	MBP	HBP	LBP	MBP	HBP					
R134a	50 Hz	PL50F	101G0220		1/12			14	26	40	45	56	74	95		60	86	2.50	S			S											
		R404A/R507	50 Hz	TL4CL	102U2071		1/8	52	65	84	110	142	155	182	230	286	352	140	198	3.86	F2	F2	F2	F2	F2								
				R290	50 Hz	TL3CN	102H4380		1/10			38	54	75	99	108	128	161	200	244	108	135	3.13	F1	F1	F1	F1	F1					

Applications

- LBP** = Low Back Pressure
- MBP** = Medium Back Pressure
- HBP** = High Back Pressure

Motor types

- RSIR** = Resistant Start Induction Run
- RSCR** = Resistant Start Capacitor Run
- CSIR** = Capacitor Start Induction Run
- CSR** = Capacitor Start Run

Voltage and frequencies

- 1** = 198-254V, 50Hz
- 2** = 187-254V, 50Hz, LBP
- 3** = 198-254V, 60Hz, LBP
- 4** = 198-254V, 60Hz, HBP
- 5** = 198-254V, 60Hz, MBP
- 6** = 207-254V, 60Hz, HBP
- 7** = 187-254V, 50Hz, MBP
- 8** = 187-254V, 60Hz, MBP
- 9** = 187-254V, 60Hz, LBP

Compressor cooling

- S** = Static cooling normally sufficient
- O** = Oil cooling
- F₁** = Fan cooling 1.5 m/s (compressor compartment temp. equal to ambient temperature)
- F₂** = Fan cooling 3.0 m/s necessary
- ***** = Run capacitor 4 µF compulsory

Starting devices

- LST** = Low Starting Torque
- LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
- HST** = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.

Electrical equipment GS compressors

* = Gasket/cover/clamp are parts of compressor

Compressor	Voltage & frequencies	Electrical equipment							Dimensions (mm)						
		LST (RSIR)		HST (CSIR)		HST (CSR)		LST / HST		Height		Connectors location / I.D mm			
		PTC starting device		Starting relay	Starting capacitor	Starting device	Starting kit					Suction	Process	Dis-charge	Oil cooler
		Spades 6.3 mm	Spades 4.8 mm	Spades 6.3 mm	Spades 6.3 mm	Spades 6.3 mm	Spades 6.3 mm	Cord relief	Cover	A	B	C	D	E	F
PL50F	1	103N0011	103N0018					103N1010	103N0491	137	135	6.2	6.2	5.0	
TLS3FT	2	103N0011	103N0018	117U6007	117U5014			103N1010	103N2011	173	169	6.2	6.2	5.0	
TLS4FT	2	103N0011	103N0018	117U6004	117U5014			103N1010	103N2010	173	169	6.2	6.2	5.0	
TLS5FT	2	103N0011	103N0018	117U6000	117U5014			103N1010	103N2010	173	169	6.2	6.2	5.0	
NL6FT	2/3	103N0011	103N0018	117U6000	117U5015			103N1010	103N2010	197	191	6.2	6.2	5.0	
NL7FT	2	103N0011	103N0018	117U6001	117U5015			103N1010	103N2010	197	191	6.2	6.2	5.0	5.0
NL9FT	2	103N0011	103N0018	117U6015	117U5015			103N1010	103N2010	197	191	6.2	6.2	5.0	5.0
NL10FT	2	103N0011	103N0018	117U6002	117U5015			103N1010	103N2010	203	197	8.2	6.2	6.2	6.2
SC12FT	2/3	103N0011		117U6003	117U5017			103N1004	103N2009	209	203	10.2	6.2	6.2	6.2
SC15FT	2/3	103N0011		117U6005	117U5017			103N1004	103N2009	209	203	10.2	6.2	6.2	6.2
SC18FTX	2/3			117U6019	117U5017			103N1004	103N2009	219	213	10.2	6.2	6.2	6.2
SC21FTX	2			117U6019	117U5017			103N1004	103N2009	219	213	10.2	6.2	6.2	6.2
PL35G	1/5	103N0011	103N0018	117U6021	117U5014			103N1010	103N0491	137	135	6.2	6.2	5.0	
TL2.5G	1/2/3/4	103N0011	103N0018	117U6007	117U5014			103N1010	103N2011	163	159	6.2	6.2	5.0	
TL3G	1/2/3	103N0011	103N0018	117U6009	117U5014			103N1010	103N2010	163	159	6.2	6.2	5.0	
TL4G	1/2/3	103N0011	103N0018	117U6004	117U5014			103N1010	103N2010	173	169	6.2	6.2	5.0	
TL5G	1/2/3	103N0011	103N0018	117U6000	117U5014			103N1010	103N2010	173	169	6.2	6.2	5.0	
FR6G	1/2/3	103N0011	103N0018	117U6000	117U5015			103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
FR7.5G	1/2/3	103N0011	103N0018	117U6001	117U5015			103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
FR8.5G	1/2/3	103N0011	103N0018	117U6015	117U5015			103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
FR10G	1/2/3	103N0011	103N0018	117U6010	117U5015			103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
SC12FT	2/3	103N0011		117U6003	117U5017			103N1004	103N2009	209	203	8.2	6.2	6.2	6.2
SC15FT	2/3	103N0011		117U6005	117U5017			103N1004	103N2009	209	203	10.2	6.2	6.2	6.2
SC18FTX	2/3			117U6019	117U5017			103N1004	103N2009	219	213	10.2	6.2	6.2	6.2
SC21FTX	9					117-7039		103N1004	103N2008	219	213	10.2	6.2	6.2	6.2
TL4CL	1			117U6000	117U5014			103N1010	103N2010	173	169	6.2	6.2	5.0	
FR6CL	1			117U6015	117U5015			103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
FR7.5CL	1			117U6016	117U5015			103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
FR8.5CL	1			117U6010	117U5015			103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
NL7CLX	1	103N0011	103N0018	117U6002	117U5015			103N1010	103N2010	203	197	8.2	6.2	6.2	6.2
SC10CLX	1/3			117U6005	117U5017			103N1004	103N2008	209	203	8.2	6.2	6.2	6.2
SC12CL	1			117U6005	117U5017			103N1004	103N2009	209	203	8.2	6.2	6.2	6.2
SC12CLX.2	1/3			117U6019	117U5017			103N1004	103N2008	219	213	8.2	6.2	6.2	6.2
SC15CL	1			117U6019	117U5017			103N1004	103N2009	219	213	10.2	6.2	6.2	6.2
SC15CLX.2	1			117U6019	117U5017			103N1004	103N2009	219	213	8.2	6.2	6.2	6.2
SC18L	1					117-7027		103N1004	103N2009	219	213	10.2	6.2	6.2	6.2
SC18CLX.2	1			117U6013	117U5012			103N1004	103N2009	219	213	10.2	6.2	6.2	6.2
SC21CL	1					117-7027		103N1004	103N2009	219	213	10.2	6.2	6.2	6.2
GS26CLX	1					117-7056		107B9100/9101/9104*	259	247	12.9	6.5	8.2	8.2	8.2
GS34CLX	1					117-7074		107B9100/9101/9104*	279	267	12.9	6.5	8.2	8.2	8.2
SC10CLX	3/4			117U6005	117U5017			103N1004	103N2008	209	203	8.2	6.2	6.2	6.2
SC12CLX	3			117U6019	117U5017			103N1004	103N2008	219	213	8.2	6.2	6.2	6.2
SC12CLX.2	1/3			117U6019	117U5017			103N1004	103N2008	219	213	8.2	6.2	6.2	6.2
SC15CLX	3					117-7039		103N1004	103N2008	219	213	10.2	6.2	6.2	6.2
SC15CLX.2	9					117-7039		103N1004	103N2008	219	213	9.7	6.5	6.5	6.5
SC18CLX.2	9					117-7066		103N1004	103N2008	219	213	9.7	6.5	6.5	6.5
GS21CLX	9					117-7073		107B9100/9101/9104*	279	247	12.9	6.5	8.2	8.2	8.2
TL3CN	1	103N0011	103N0018	117U7004	117U5014			103N1010	103N2010	163	159	6.2	6.2	5.0	
TL4CN	1	103N0011	103N0018	117U7004	117U5014			103N1010	103N2010	173	169	6.2	6.2	5.0	
TL5CN	1	103N0011	103N0018	117U7000	117U5014			103N1010	103N2010	173	169	6.2	6.2	5.0	
NL7CN	1	103N0011	103N0018	117U7002	117U5015			103N1010	103N2010	203	197	8.2	6.2	6.2	6.2
NL9CN	1	103N0011	103N0018	117U7002	117U5015			103N1010	103N2010	203	197	8.2	6.2	6.2	6.2
SC10CNX	1					117-7025	117-9719	103N1004	103N2009	209	203	8.2	6.2	6.2	6.2
SC12CNX	1					117-7025	117-9719	103N1004	103N2009	209	203	8.2	6.2	6.2	6.2
SC12CNX.2	1			117U7003	117U5017			103N1004	103N2009	209	203	8.2	6.2	6.2	6.2
SC15CNX	1					117-7031	117-9711	103N1004	103N2009	209	203	10.2	6.2	6.2	6.2
SC15CNX.2	1			117U7005	117U5017			103N1004	103N2009	209	203	8.2	6.2	6.2	6.2
SC18CNX	1					117-7052	117-9718	103N1004	103N2009	209	203	10.2	6.2	6.2	6.2
SC18CNX.2	1			117U7011	117U5017			103N1004	103N2009	209	203	10.2	6.2	6.2	6.2
SC21CNX.2	1			117U7013	117U5012			103N1004	103N2009	219	213	10.2	6.2	6.2	6.2

Test conditions

Test Conditions	EN 12900 CECOMAF (220 V / 50 & 60 Hz)	EN 12900 CECOMAF (220 V / 50 & 60 Hz)	EN 12900 CECOMAF (220 V / 50 & 60 Hz)
Compressors	PL/TL/TLS/NL/FR/SC	TL/NL/FR/SC	GS
Refrigerant	R134a	R404A/R507 - R290	R404A/R507
Condensing temperature	55°C	45°C	40°C
Ambient temperature	32°C	32°C	32°C
Suction gas temperature	32°C	32°C	20°C
Liquid temperature	no sub cooling	no sub cooling	no sub cooling

Warnings

R290 is flammable in concentrations of air between approximately 2.1% and 9.5% by volume (LEL lower explosion limit and UEL upper explosion limit). An ignition source at a temperature higher than 470°C is needed for combustion to occur.



Model designation

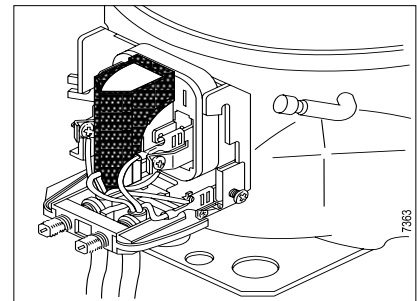
Compressor design	Optimization level	Compressor size	Application range	Start characteristics	Generation
PL	Blank : Standard energy level S: Semi direct intake	Nominal displacement in cm ³ Exception: For PL compressors the capacity at rating point is stated	CN: R290 / LBP CL: R404A/R507 LBP F: R134a LBP / (MBP) FT: R134a LBP tropical G: R134a LBP / MBP / HBP	Blank: Universal (principal rule) X = HST Characteristics (expansion valve)	Blank > first generation .2 > Second generation .3 > third generation etc...
TL					
NL					
FR					
SC					
GS					

Examples

Compressor design	Optimization level	Compressor size	Application range	Start characteristics	Generation
PL		35	G		
TL	S	5	FT		
NL		7	CL	X	
SC		15	CN	X	.2
GS		26	CL	X	

Protection screen for PTC

Note: To fulfil the requirements of EN 60355-2-34 the protection screen 103N0476 must be applied to the PTC starting device.



Optional IP44 equipment for SC compressors

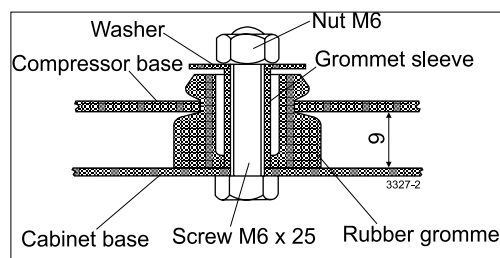
Danfoss now offers special accessories, which provide a better IP protection class for a major part of the SC compressor models. All SC models for 220-240V/50Hz or 208-230V/60Hz and CSIR motor can be IP upgraded. The equipment consists of one additional part, the so called "back cover", and a special starting capacitor. Both are used instead of the normal starting capacitor. When using this equipment, the protection class is increased to IP44, i.e. the compressor and its electrical parts are splash-proof.



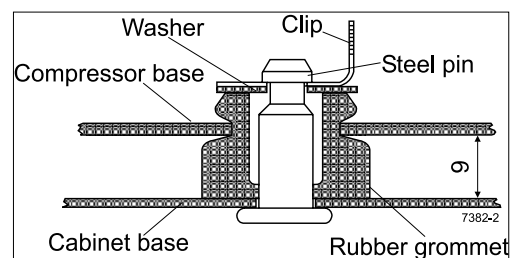
Code number	Description
130N2020	Back cover
117U5117**	IP44 starting capacitor 80µF
** replaces standard capacitor 117U5017	

Mounting accessories

The mounting accessories for the compressors are available in two versions, with bolt joint or snap-on joint. The rubber grommets are designed for the 16 mm holes of the baseplate.

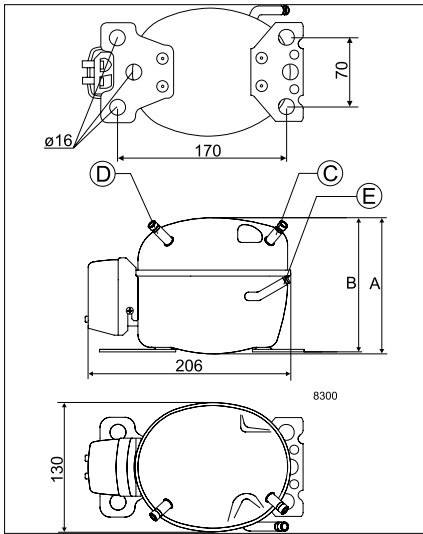


Bolt joint for
 one compressor : 118-1917
 in quantities : 118-1918

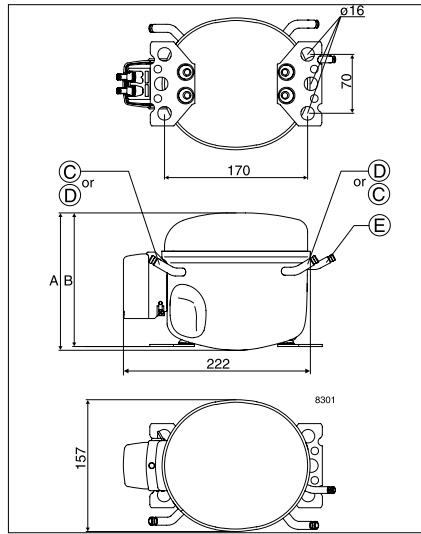


Snap-on
 in quantities: 118-1919

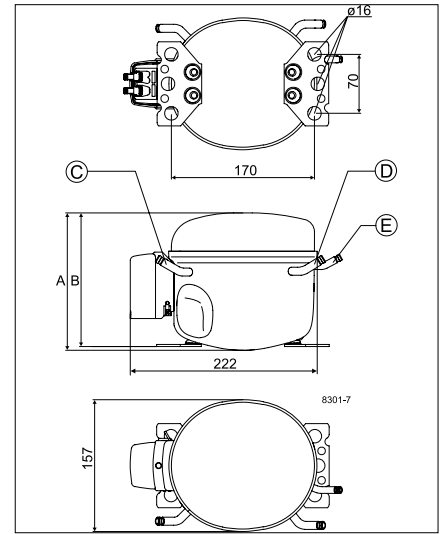
PL



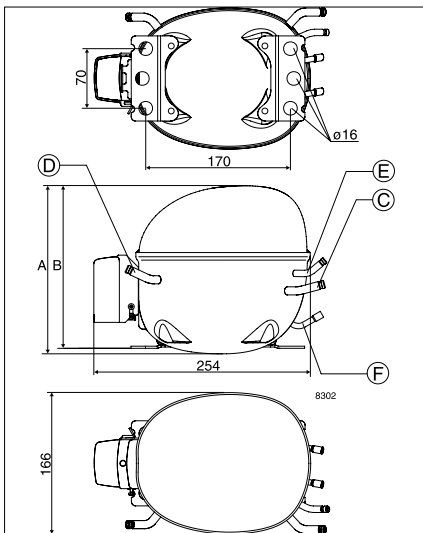
TL



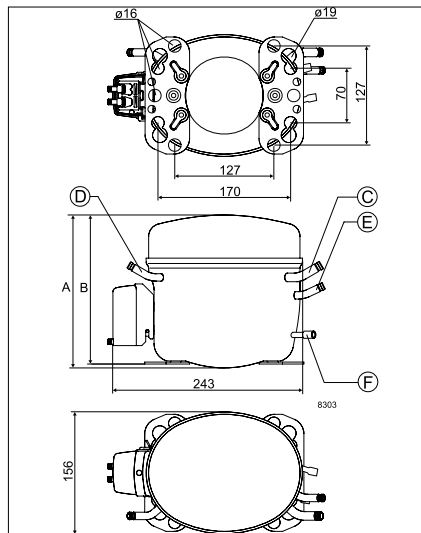
TLS



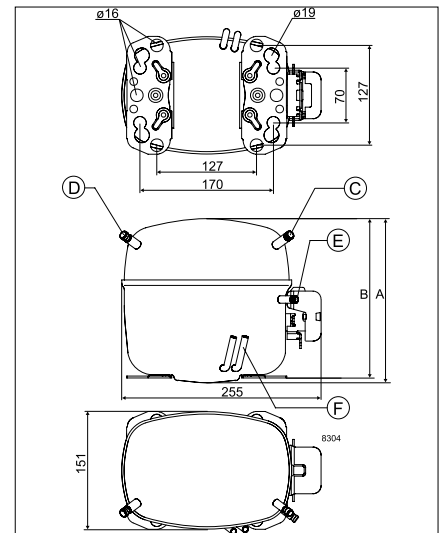
NL



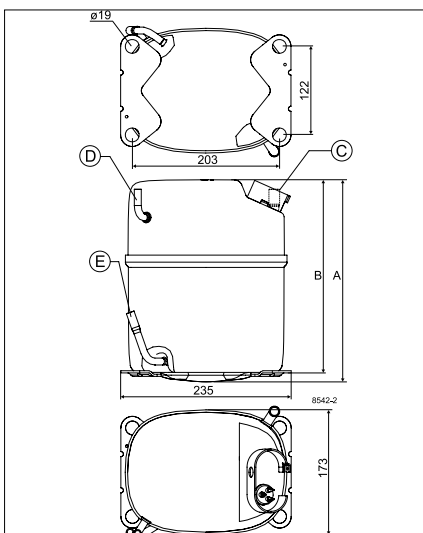
FR



SC

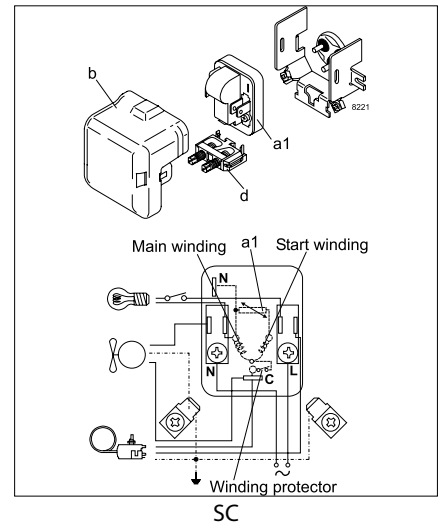
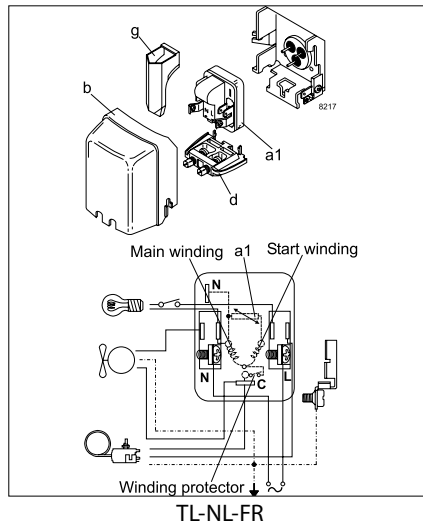
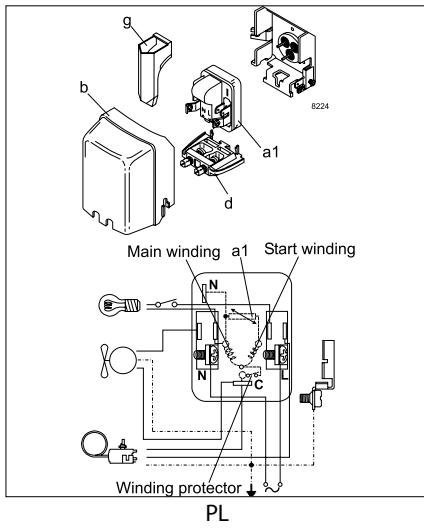


GS

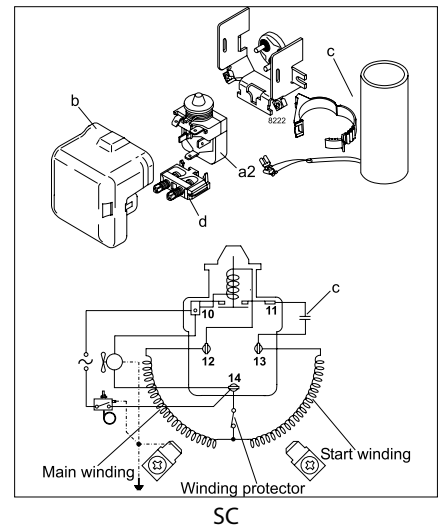
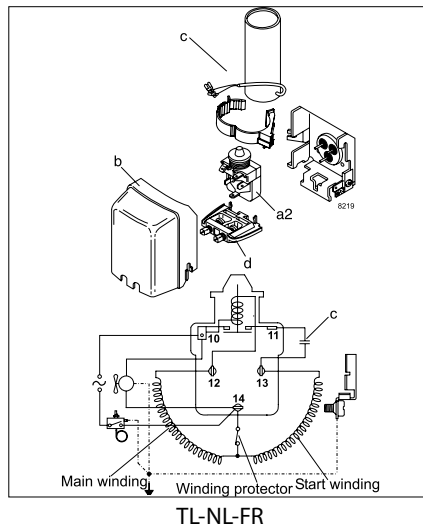
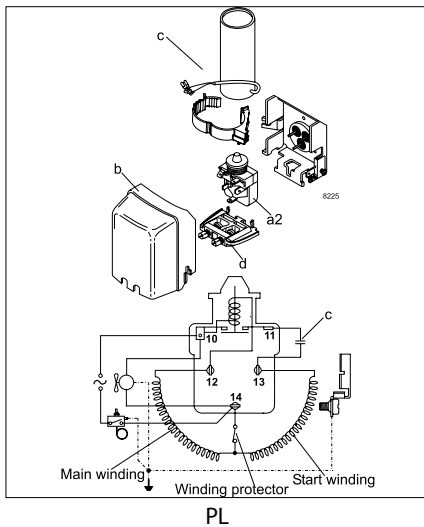


Note: On GS34CLX compressors suction and process connectors are interchanged

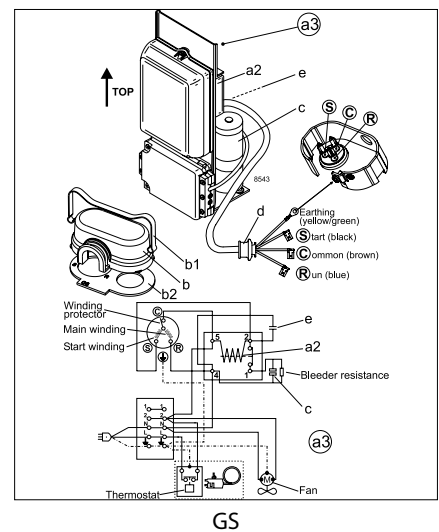
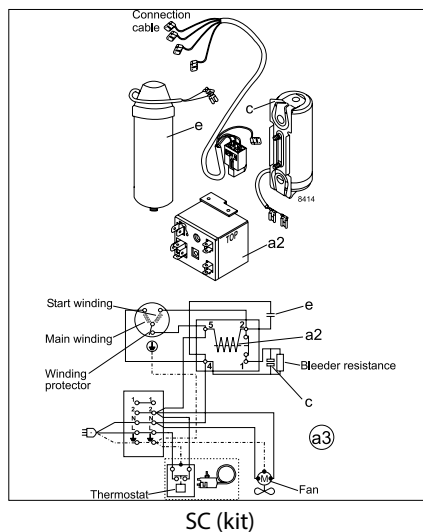
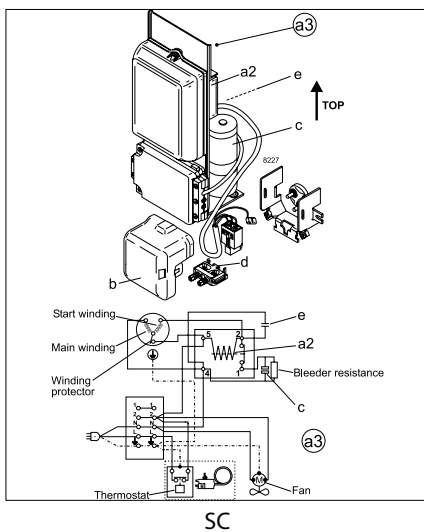
LST - RSIR



HST - CSIR



HST - CSR



Legend :

- a1:** PTC 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
- g:** Protection screen for PTC

Quick reference

R404A - R507 - R134a - R290 220 - 240V 50 / 60 Hz

Danfoss Commercial Compressors

is a worldwide manufacturer of compressors and condensing units for refrigeration and HVAC applications. With a wide range of high quality and innovative products we help your company to find the best possible energy efficient solution that respects the environment and reduces total life cycle costs.

We have 40 years of experience within the development of hermetic compressors which has brought us amongst the global leaders in our business, and positioned us as distinct variable speed technology specialists. Today we operate from engineering and manufacturing facilities spread across three continents.



Our products can be found in a variety of applications such as rooftops, chillers, residential air conditioners, heatpumps, coldrooms, supermarkets, milk tank cooling and industrial cooling processes.

<http://cc.danfoss.com>

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