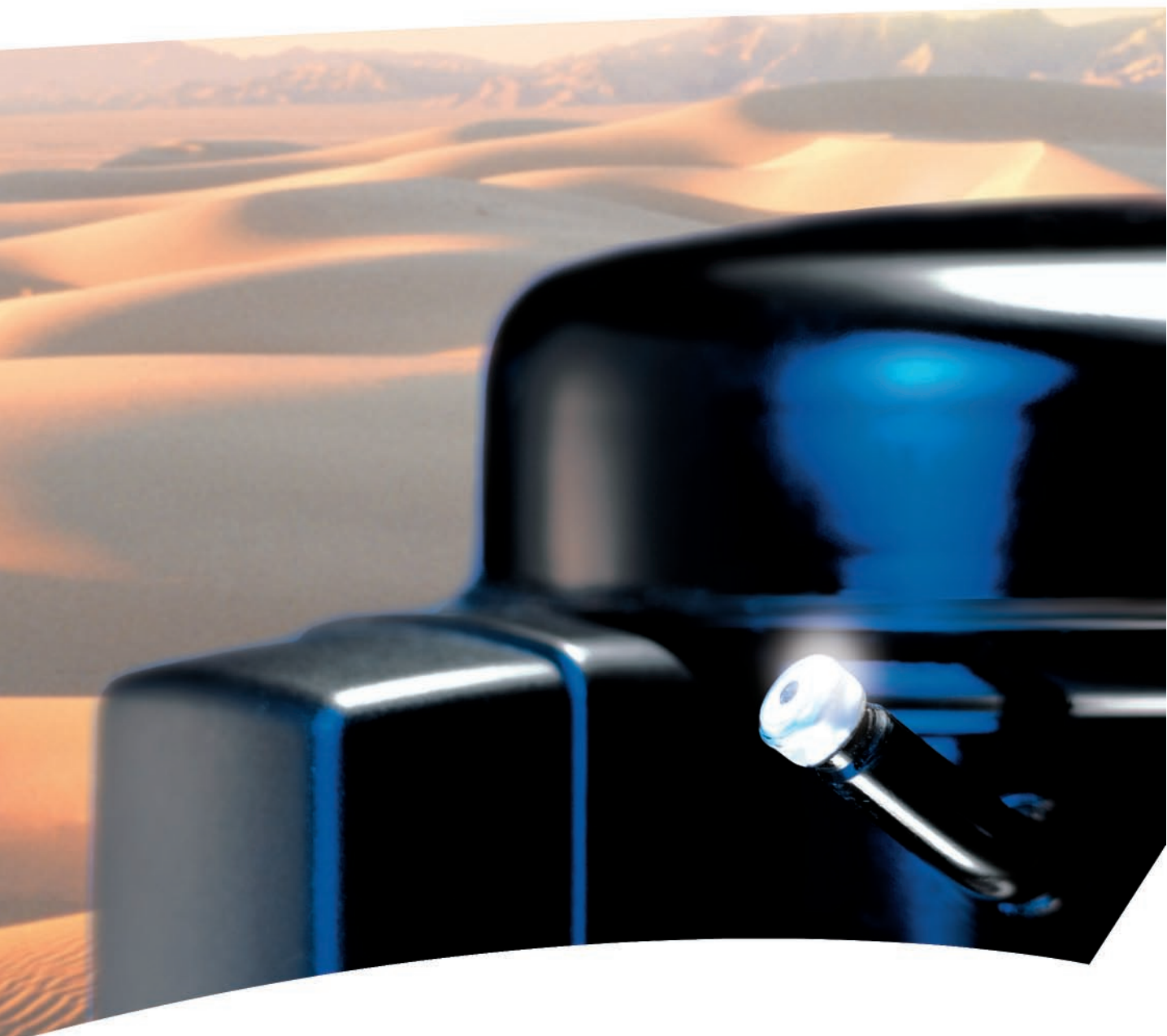


MAKING MODERN LIVING POSSIBLE

Danfoss



R134a R600a

Danfoss Compressors

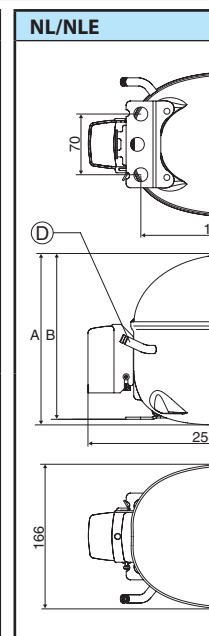
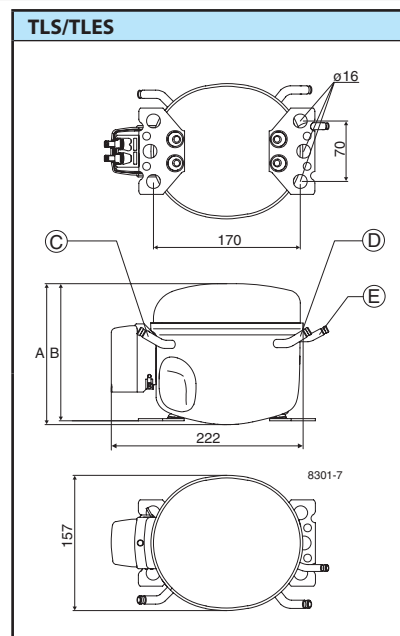
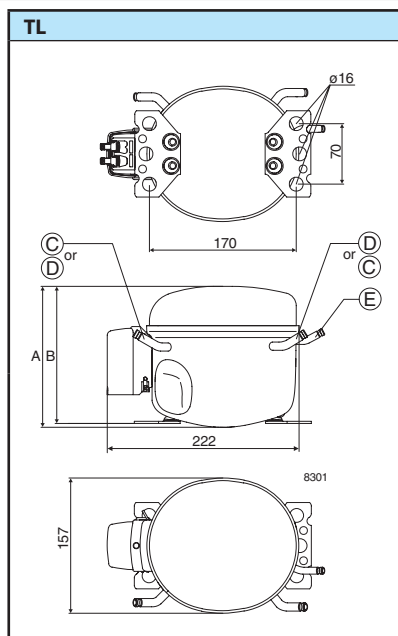
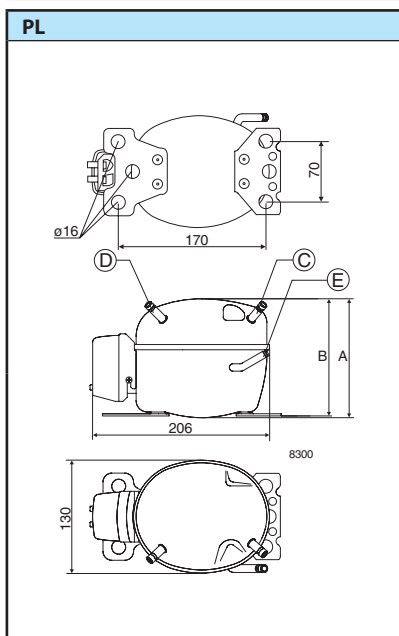
Tropical conditions

220-240 V • 50 Hz & 60 Hz

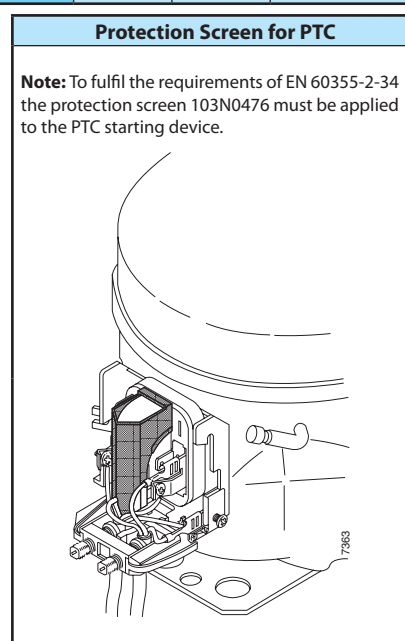
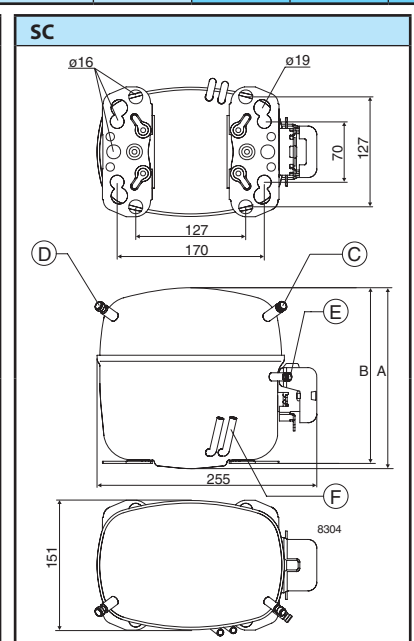
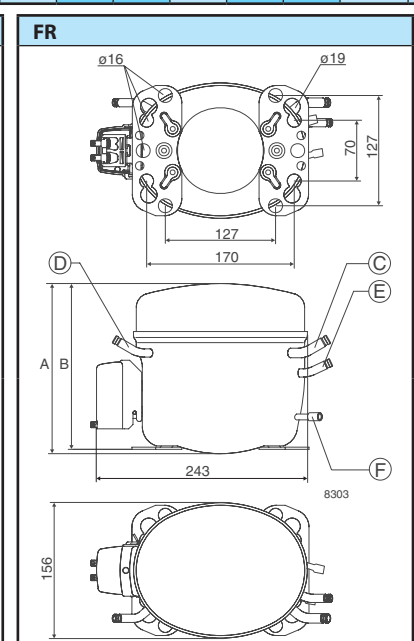
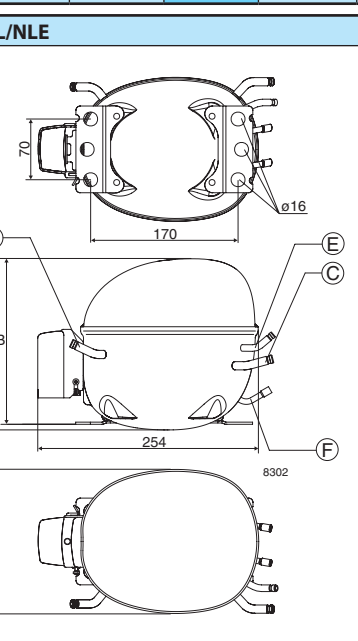
REFRIGERATION &
AIR CONDITIONING DIVISION

Quick reference

Refrigerant	Application	Compressor	Code numbers		Horsepower (approx.)	EN 12900 (CECOMAF) Capacity [W]										EN 12900 (CECOMAF) Power consumption [W]		
			Compressor	Compressor with oil cooling		Evaporating temperature [°C]										Evaporating temperature [°C]		
						-35	-30	-25	-20	-15	-10	-5	0	5	10	15	-25	-10
R134a	LBP	PL50F	101G0220		1/20	14	26	40	56	74	95						60	86
		TLS3FT	102G4324		1/16	21	34	50	69	92	120						62	93
		TLS4FT	102G4424		1/10	27	43	63	88	117	152						88	123
		TL55FT	102G4524		1/8+	48	71	98	131	170	216						114	165
		TLES5.7FT.3	102G4615		1/6	66	90	120	156	200	253						120	170
		TLES6.5FT.3	102G4703		1/5			136									139	
		NL6FT	105G6628		1/6	60	84	115	152	198	253						123	184
		NL6.1FT	105G6620		1/6	60	84	115	152	198	253						123	184
		NL7FT	105G6728	105G6738	1/5	71	100	136	181	235	299						145	220
		NL7.3FT	105G6726		1/5	71	100	136	181	235	299						145	220
		NL8.4FT	105G6865		1/4	87	120	162	213	275	350						169	252
		NL9FT	105G6828	105G6838	1/4	87	120	162	213	275	350						169	252
		NL10FT	105G6829	105G6839	1/3	113	158	213	281	361	455						215	316
		NLE7.3FT	105G6710		1/4	92	118	154	201	258	325						148	221
		SC12FT	104G8205	104G8215	1/3	103	163	233	314	408	517	645					265	380
		SC15FT	104G8505		1/2	126	197	280	376	489	620	772					311	451
	SC18FTX	104G8805		5/8	144	229	325	437	567	719	896					365	517	
	SC21FTX 50Hz	104G8105		3/4	192	296	415	553	713	901	1119					428	613	
	SC21FTX 60Hz	104G8106		3/4	240	345	470	620	800	1012	1262					475	707	
	LBP/MBP/(HBP)	TL2.5G	102G4251		1/12	11	23	36	51	69	90	116	145	179	219	264	60	84
		TL3G	102G4350		1/12		25	41	59	81	106	136	170	211	258	312	66	96
		TL4G	102G4452		1/8		41	58	80	107	140	180	226	280	342	413	83	118
		TL5G	102G4450		1/6		56	79	107	139	178	224	278	341	414	497	100	149
		FR6G	103G6660		1/5		48	83	124	171	226	290	365	452	552		109	172
		FR7.5G	103G6680	103G6690	1/5		62	99	142	193	254	325	408	505	618		126	194
		FR8.5G	103G6780	103G6790	1/4		85	123	171	228	298	381	478	592	722		151	231
		FR10G	103G6880	103G6890	1/4		92	136	188	250	324	412	516	638	779		179	265
		FR11G	103G6980		1/3		115	170	233	307	395	501	628	780		202	317	
		TL6.5MF	102G4781		1/4				174	219	279	349	425	520				202
		NL6.1MF	105G6660		1/5				141	189	245	312	390	482	588	709		187
		NL7.3MF	105G6772		1/4				179	236	304	385	480	591	719	867		227
		NL8.4MF	105G6879		1/4+				213	277	353	445	553	679	825	994		261
		NL10MF	105G6885		1/3				266	346	441	554	687	843	1023	1231		323
		NLE10MF	105G6888		1/3	88	137	194	262	343	440	554	688	845			198	308
		NL11MF	105G6151		3/8				292	380	485	609	756	927	1125	1354		360
	SC10G	104G8000		5/16	23	60	113	183	268	369	486	618	764	925	1100	181	290	
	SC12G	104G8240	104G8250	3/8	65	113	175	252	348	464	603	768	960	1182	1437	227	355	
	SC15G	104G8520	104G8530	1/2			164	290	424	568	728	908	1110	1340	1600	233	440	
	SC18G	104G8820	104G8830	1/2+			283	394	526	684	870	1087	1337	1624	1950	331	507	
	SC21G	104G8140		5/8			333	453	606	792	1012	1268	1560	1889	2256	382	575	
	SC18MFX	104G8804		5/8					720	900							497	
	SC21MFX	104G8120		2/3				530	682	866	1085	1343	1645	1996			594	
	HBP	TL4GH	104G4455		1/8					104	140	182	230	287	353	429		121
		FR7GH	103G6683	103G6692	1/5					199	255	327	417	525	655	807		192
		SC10GH	104G8041		5/16					233	352	478	613	762	927	1113		281
		SC12GH	104G8261		3/8						429	577	752	957	1196	1471		356
		SC15GH	104G8561		1/2						559	723	915	1139	1398	1698		424
		SC18GH	104G8861		1/2+						485	639	825	1047	1310	1618	1976	
	R600a	LBP/MBP	TLES4KTK	102H4436		1/20	18	28	40	55	74	96	123	154			48	69
			TLES5KTK	102H4536		1/12	28	41	57	76	99	126	159	196			61	85
TLES6KTK			102H4636		1/10	31	48	66	87	112	140					69	97	
TLES7KTK			102H4736		1/10+	40	57	77	101	130	163					81	115	
TLES8KTK			102H4836		1/8	48	66	89	116	149	188					94	134	
NLE9KTK			105H6848		1/8+	54	74	98	128	166	211					95	134	
NLE11KTK			105H6948		1/5	73	98	127	162	206	261					123	177	
NLE15KTK			105H6946		1/4	93	128	169	219	280	351					169	236	
NLE15KTK.2	105H6966		1/4	103	140	184	239	305	383					160	230			



EN 12900 (CECOMAF) Power consumption [W]			Displacement [cm ³]	Recommended compressor cooling at ambient temperature						Voltage and frequencies	Electrical Equipment					Compressor			
Evaporating temp. [°C]				38°C			43°C				LST (RSIR)		HST (CSIR)		HST (CSR)		LST/HST		
-25	-10	5		LBP	MBP	HBP	LBP	MBP	HBP		PTC Starting device		Starting relay	Starting capacitor	Starting device		Cord relief	Cover	
									spades		spades		spades						
									6.3 mm	4.8 mm	6.3 mm	6.3 mm	6.3 mm						
60	86		2.50	S						1	103N0011	103N0018				103N1010	103N0491	PL50F	
62	93		3.13	S			S			2	103N0011	103N0018	117U6007	117U5014		103N1010	103N2010	TLS3FT	
88	123		3.86	S			S			2	103N0011	103N0018	117U6004	117U5014		103N1010	103N2010	TLS4FT	
114	165		5.08	S			S			2	103N0011	103N0018	117U6000	117U5014		103N1010	103N2010	TLS5FT	
120	170		5.70	S			S			2	103N0011	103N0018	117U6004	117U5014		103N1010	103N2010	TLES5.7FT.3	
139			6.49	S			S			2/3	103N0011	103N0018				103N1010	103N2010	TLES5.5FT.3	
123	184		6.13	S			S			2/3	103N0011	103N0018	117U6000	117U5015		103N1010	103N2010	NL6FT	
123	184		6.13	S			S			2	103N0011	103N0018	117U6000	117U5015		103N1010	103N2010	NL6.1FT	
145	220		7.27	S			O/F ₁			2	103N0011	103N0018	117U6001	117U5015		103N1010	103N2010	NL7FT	
145	220		7.27	S			F ₁			2	103N0011	103N0018	117U6001	117U5015		103N1010	103N2010	NL7.3FT	
169	252		8.35	F ₁			F ₁			2	103N0011	103N0018	117U6001	117U5015		103N1010	103N2010	NL8.4FT	
169	252		8.35	O/F ₁			O/F ₁			2	103N0011	103N0018	117U6015	117U5015		103N1010	103N2010	NL9FT	
215	316		10.10	O/F ₁			O/F ₁			2	103N0011	103N0018	117U6002	117U5015		103N1010	103N2010	NL10FT	
148	221		7.27	S			S			2	103N0016	103N0021				103N1010	103N2010	NLE7.3FT	
265	380		12.87	O/F ₁			F ₂			2/3	103N0002		117U6003	117U5017		103N1004	103N2009	SC12FT	
311	451		15.28	F ₁			F ₂			2/3	103N0002		117U6005	117U5017		103N1004	103N2009	SC15FT	
365	517		17.69	F ₂			F ₂			2/3			117U6019	117U5017		103N1004	103N2009	SC18FTX	
428	613		20.95	F ₂			F ₂			2			117U6019	117U5017		103N1004	103N2009	SC21FTX 50Hz	
475	707		20.95	F ₂			F ₂			6						117-7038	103N1004	103N2009	SC21FTX 60Hz
60	84	113	2.61	S	S	S	S	S	F ₂	1/2/3	103N0011	103N0018	117U6007	117U5014		103N1010	103N2011	TL2.5G	
66	96	133	3.13	S	S	F ₂	S	S	F ₂	1/2/3	103N0011	103N0018	117U6009	117U5014		103N1010	103N2010	TL3G	
83	118	154	3.86	S	S	F ₂	S	S	F ₂	1/2/3	103N0011	103N0018	117U6004	117U5014		103N1010	103N2010	TL4G	
100	149	205	5.08	S	S	F ₂	S	S	F ₂	1/2/3	103N0011	103N0018	117U6000	117U5014		103N1010	103N2010	TL5G	
109	172	241	6.23	S	S	F ₂	S	S	F ₂	1/2/3	103N0011	103N0018	117U6000	117U5015		103N1010	103N2010	FR6G	
126	194	272	6.93	S	F ₂	F ₂	O/F ₁	F ₂	F ₂	1/2/3	103N0011	103N0018	117U6001	117U5015		103N1010	103N2010	FR7.5G	
151	231	321	7.95	O/F ₁	F ₂	F ₂	O/F ₁	F ₂	F ₂	1/2/3	103N0011	103N0018	117U6015	117U5015		103N1010	103N2010	FR8.5G	
179	265	362	9.05	O/F ₁	F ₂	F ₂	O/F ₁	F ₂	F ₂	1/2/3	103N0011	103N0018	117U6010	117U5015		103N1010	103N2010	FR17.0G	
202	317	445	11.15	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	1/2	103N0011	103N0018	117U6010	117U5015		103N1010	103N2010	FR11G	
	202	277	6.49		F ₁			F ₁		5	103N0011	103N0018	117U6004	117U5014		103N1010	103N2010	TL6.5MF	
	187	243	6.13		F ₁	F ₁		F ₁	F ₁	2/3	103N0011	103N0018	117U6015	117U5015		103N1010	103N2011	NL6.1MF	
	227	298	7.27		F ₁	F ₁		F ₁	F ₁	2/3	103N0011	103N0018	117U6015	117U5015		103N1010	103N2011	NL7.3MF	
	261	349	8.35		F ₁	F ₁		F ₁	F ₁	2/3	103N0011	103N0018	117U6016	117U5015		103N1010	103N2011	NL8.4MF	
	323	435	10.10	F ₁	F ₁	F ₁		F ₁	F ₁	2/3	103N0011	103N0018	117U6022	117U5018		103N1010	103N2011	NL10MF	
198	308	426	10.10	F ₁	F ₁		F ₁	F ₁		1	103N0011	103N0018	117U6003	117U5015		103N1010	103N2011	NLE10MF	
	360	495	11.15		F ₂	F ₂		F ₂	F ₂	5	103N0011	103N0018	117U6022	117U5018		103N1010	103N2011	NL11MF	
181	290	383	10.29	F ₁	F ₁	F ₂	F ₁	F ₂	F ₂	1/2/3	103N0002		117U6002	117U5017		103N1004	103N2009	SC10G	
227	355	493	12.87	O/F ₁	O/F ₁	F ₂	O/F ₁	F ₂	F ₂	1/2/3	103N0002		117U6003	117U5017		103N1004	103N2009	SC12G	
233	440	595	15.28	O/F ₁	O/F ₁	F ₂	O/F ₁	F ₂	F ₂	1/2/3			117U6005	117U5017		103N1004	103N2009	SC15G	
331	507	695	17.69	O/F ₁	O/F ₁	F ₂	O/F ₁	F ₂	F ₂	1/2/3			117U6019	117U5017		103N1004	103N2009	SC18G	
382	575	789	20.95	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	1/2/3						117-7028	103N1004	103N2009	SC21G
	497		17.69		F ₂			F ₂		5/6			117U6019	117U5017	117-7038	103N1004	103N2009	SC18MFX	
	594	784	20.95		F ₂			F ₂		5/6			117U6019	117U5017	117-7038	103N1004	103N2009	SC21MFX	
	121	159	3.86		F ₂	F ₂		F ₂	F ₂	1/4			117U6000	117U5014		103N1010	103N2011	TL4GH	
	192	258	6.93		O/F ₁	O/F ₁		O/F ₁	O/F ₁	1/4			117U6016	117U5015		103N1010	103N2011	FR7GH	
	281	395	10.29			F ₂			F ₂	1/4			117U6005	117U5017		103N1004	103N2008	SC10GH	
	356	487	12.87			F ₂			F ₂	1/4			117U6011	117U5017		103N1004	103N2008	SC12GH	
	424	565	15.28			F ₂			F ₂	1/4			117U6011	117U5017		103N1004	103N2008	SC15GH	
	452	605	17.69			F ₂			F ₂	1/4						117-7038	103N1004	103N2008	SC18GH
48	69		3.86	S	S		S	S		2	103N0011	103N0018				103N1010	103N2010	TLES4KTK	
61	85		5.08	S	S		S	S		2	103N0011	103N0018				103N1010	103N2010	TLES5KTK	
69	97		5.70	S			S			2	103N0011	103N0018				103N1010	103N2010	TLES6KTK	
81	115		6.49	S			S			2	103N0011	103N0018				103N1010	103N2010	TLES7KTK	
94	134		7.76	S			S			2	103N0011	103N0018				103N1010	103N2010	TLES8KTK	
95	134		8.35	S			S/F ₁ *			2/3	103N0011	103N0018				103N1010	103N2010	NLE9KTK	
123	177		11.15	S			S/F ₁ *			2/3	103N0011	103N0018				103N1010	103N2010	NLE11KTK	
169	236		14.65	S			F ₁			2	103N0011	103N0018				103N1010	103N2010	NLE15KTK	
160	230		14.65	S			S			2	103N0011	103N0018				103N1010	103N2010	NLE15KTK.2	



Compressor	Dimensions					
	Height [mm]		Connectors location/I.D. [mm]			
	A	B	Suc-tion C	Pro-cess D	Dis-charge E	Oil cooler F
PL50F	137	135	6.2	6.2	5.0	
TL53FT	173	169	6.2	6.2	5.0	
TL54FT	173	169	6.2	6.2	5.0	
TL55FT	173	169	6.2	6.2	5.0	
TLES5.7FT.3	173	169	6.2	6.2	5.0	
○ TLES6.5FT.3	173	169	6.2	6.2	5.0	
NL6FT	197	191	6.2	6.2	5.0	
NL6.1FT	188	182	6.2	6.2	5.0	
NL7FT	197	191	6.2	6.2	5.0	5.0
NL7.3FT	188	182	6.2	6.2	5.0	
NL8.4FT	190	184	6.2	6.2	5.0	
NL9FT	197	191	6.2	6.2	5.0	5.0
NL10FT	203	197	8.2	6.2	6.2	6.2
○ NLE7.3FT	203	197	6.2	6.2	5.0	
SC12FT	209	203	8.2	6.2	6.2	6.2
SC15FT	209	203	10.2	6.2	6.2	
SC18FTX	219	213	10.2	6.2	6.2	
SC21FTX 50Hz	219	213	10.2	6.2	6.2	
SC21FTX 60Hz	219	213	10.2	6.2	6.2	
TL2.5G	163	159	6.2	6.2	5.0	
TL3G	163	159	6.2	6.2	5.0	
TL4G	173	169	6.2	6.2	5.0	
TL5G	173	169	6.2	6.2	5.0	
FR6G	196	191	8.2	6.2	6.2	
FR7.5G	196	191	8.2	6.2	6.2	6.2
FR8.5G	196	191	8.2	6.2	6.2	6.2
FR10G	196	191	8.2	6.2	6.2	6.2
FR11G	196	191	8.2	6.2	6.2	
○ TL6.5MF	173	169	6.2	6.2	5.0	
NL6.1MF	190	184	8.2	6.2	6.2	
NL7.3MF	197	191	8.2	6.2	6.2	
NL8.4MF	197	191	8.2	6.2	6.2	
NL10MF	203	197	8.2	6.2	6.2	
NL11MF	203	197	8.2	6.2	6.2	
SC10G	199	193	8.2	6.2	6.2	
SC12G	209	203	8.2	6.2	6.2	6.2
SC15G	209	203	10.2	6.2	6.2	6.2
SC18G	219	213	8.2	6.2	6.2	6.2
SC21G	219	213	10.2	6.2	6.2	
○ SC18MFX	219	213	10.2	6.2	6.2	
SC21MFX	219	213	10.2	6.2	6.2	
TL4GH	173	169	6.2	6.2	5.0	
FR7GH	196	191	8.2	6.2	8.2	8.2
SC10GH	199	193	10.2	6.2	8.2	
SC12GH	209	203	10.2	6.2	8.2	
SC15GH	209	203	10.2	6.2	8.2	
SC18GH	219	213	10.2	6.2	8.2	
TLES4KTK	173	169	6.2	6.2	5.0	
TLES5KTK	173	169	6.2	6.2	5.0	
TLES6KTK	173	169	6.2	6.2	5.0	
TLES7KTK	173	169	6.2	6.2	5.0	
TLES8KTK	173	169	6.2	6.2	5.0	
NLE9KTK	197	191	6.2	6.2	5.0	
NLE11KTK	197	191	6.2	6.2	5.0	
NLE15KTK	197	191	6.2	6.2	5.0	
NLE15KTK.2	203	197	6.2	6.2	5.0	

Hermetic Compressors Type PL, TL, NL, FR, SC
R134a • R600a • 220-240 V • 50 Hz & 60 Hz
for tropical Conditions & less stable Voltage

Model designation					
Compressor design	Optimization level	Compressor size	Application range	Start characteristics	Generation
PL	Blank Standard energy level	Nominal displacement in cm ³	F R134a LBP/(MBP)	Blank => universal (principal rule)	Blank => first generation
TL			FT R134a LBP tropical		
NL	E Energy optimized (optimized motor)	Exception: For PL compressors the capacity at rating point is stated.	G R134a LBP/MBP/HBP	X = HST characteristics (expansion valve)	.2 => second generation
FR	S Semi-direct intake		MF R134a MBP	K = LST characteristics (capillary tube)	.3 => third generation
SC			KT R600a LBP/(MBP) tropical		etc.

Applications
LBP: Low Back Pressure
HBP: High Back Pressure
MBP: Medium Back Pressure

Motor types
RSIR: Resistant Start Induction Run
RSCR: Resistant Start Capacitor Run
CSIR: Capacitor Start Induction Run
CSR: Capacitor Start Run

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: High Starting Torque
HST consisting of relay and starting capacitor, is used for expansion valve control or for capillary tube control without pressure equalizing.

Test conditions EN 12900 (CECOMAF)
Application **R134a/R600a**
Condensing temperature 55°C
Ambient temperature 32°C
Suction gas temperature 32°C
Liquid temperature 55°C
No subcooling
220 V / 50 Hz / 60 Hz

1 Watt = 0.86 kcal/h
1 Watt = 3.41 Btu/h

Examples

PL		50	F		
TL	S	5	FT		
TL	ES	5.7	FT		.3
NL	E	15	KT	K	.2
FR		8.5	G		
SC		21	MF	X	

Optional IP24 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 IP24, i.e. the compressor and its electrical parts are splash-proof.



Code number	Description
103N2020	Back cover
117U5117**	IP24 starting capacitor 80µF

**replaces standard capacitor 117U5017

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 & fan cooling F₁ compulsory in 43°C ambient temperature at 60Hz (see datasheet for codenumbers).

Voltagess and frequencies

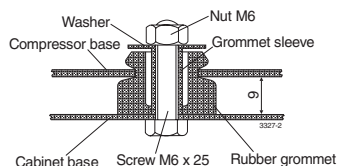
1 = 198-254 V, 50 Hz
2 = 187-254 V, 50 Hz, LBP
3 = 198-254 V, 60 Hz, LBP
4 = 198-254 V, 60 Hz
5 = 187-254 V, 50 Hz
6 = 187-254 V, 60 Hz

Conversion of capacity

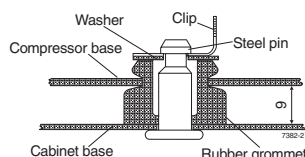
If a stated capacity is required at 32°C liquid temperature, multiply the capacity with the following factor.
From 55°C to 32°C liquid 1.231.

of EN 60355-2-34 must be applied

Mounting accessories



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



Snap-on in quantities: 118-1919

Warnings

R600a is flammable in concentrations of air between approximately 1.5% and 8.5% by volume (LEL lower explosion limit and UEL upper explosion limit).
An ignition source at a temperature higher than 460°C is needed for a combustion to occur.



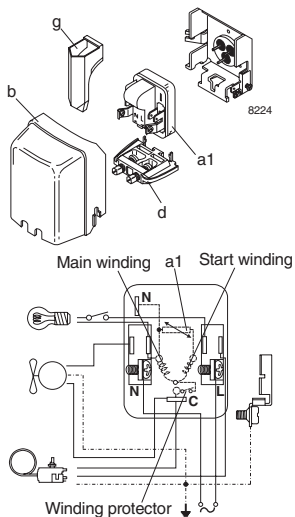
Isobutane is significantly different from R12 and R134a. This means that compressors for R600a cannot be used with R12 or R134a.
No high potential test nor start tests must be carried out while the compressor is under vacuum.
No attempt must be made to start the compressor without a complete starting device.
Allow the compressor to assume 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.

■ = outside application range

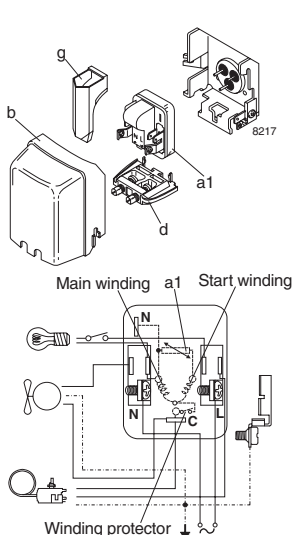
○ = preliminary data

LST - RSIR

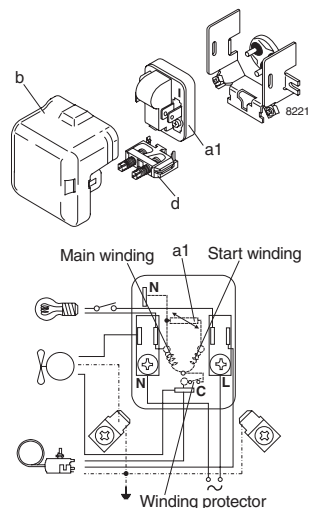
PL



TL-TLES-TLS-NL-NLE

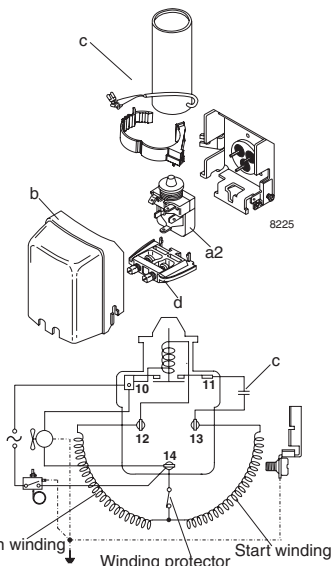


SC

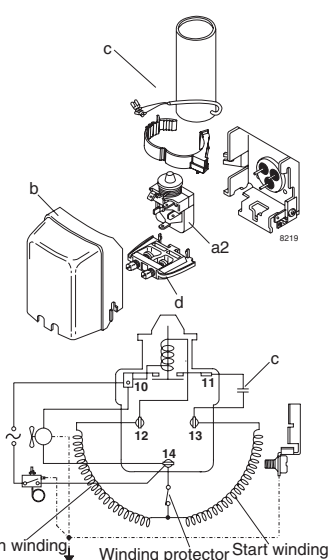


HST - CSIR

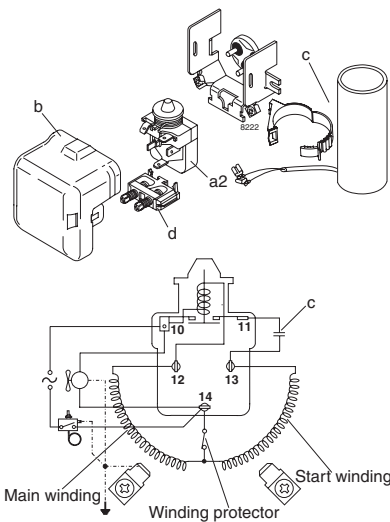
PL



TL-TLES-TLS-NL-NLE



SC

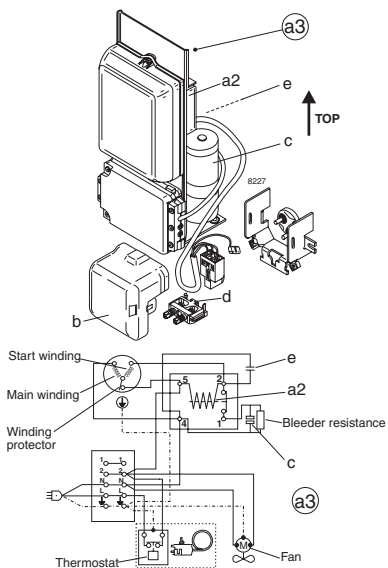


HST - CSR

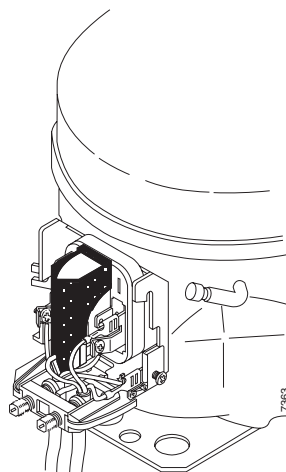
Protection Screen for PTC

Abbreviations

SC



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



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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



Applications

Our compressor range will perfectly fit various applications like:

- Refrigerators and freezers
- Laboratory and medical equipment
- Clip-on and condensing units
- Compressed air dryers
- Glass door merchandisers
- Bakery refrigeration equipment
- Low temperature display cabinets
- Vending machines
- Ice making machines
- Slush and frozen beverage makers
- Bottle coolers

Refrigeration Controls programme consists of:

<p>Thermostatic expansion valves</p>	<p>Hermetic filter drier with solid core</p>	<p>Direct or servo operated solenoid valve</p>	<p>Sight glass with moisture indicator</p>