MAKING MODERN LIVING POSSIBLE

Datasheets

Danfoss scroll compressors
SM / SY / SZ / SH / WSH

FRCC.UD.140606.223257

General Characteristics

Model number (on compressor nameplate)		**SZ161T4VC**
Code number for Singlepack*		SZ161-4VAI
Code number for Industrial pack**		SZ161-4VAM
Drawing number		8551106b
Suction and discharge connections		Brazed
Suction connection		1-3/8 " ODF
Discharge connection		7/8 " ODF
Oil sight glass		Threaded
Oil equalisation connection		3/8" flare SAE
Oil drain connection		None
LP gauge port		Schrader
IPR valve		None
Swept volume	216,6 cm3/rev	
Displacement @ Nominal speed	37.7 m3/h @ 2900 rpm - 45.5 m3/h @ 3500 rpm	
Net weight	88 kg	
Oil charge	3,6 litre, POE - 160SZ	
Maximum system test pressure Low Side / High side	25 bar(g) / 32 bar(g)	
Maximum differential test pressure	24 bar	
Maximum number of starts per hour	12	
Refrigerant charge limit	12,5 kg	
Approved refrigerants	R407C, R134a, R404A, R507A	

Electrical Characteristics

Nominal voltage	380-400V/3/50Hz - 460V/3/60Hz
Voltage range	340-440 V @ 50Hz - 414-506 V @ 60Hz
Winding resistance (between phases) +/- 7% at 25ºC	0.94 Ω
Rated Load Amps (RLA)	22.9 A
Maximum Continuous Current (MCC)	32 A
Locked Rotor Amps (LRA)	145 A
Motor protection	Internal overload protector

Recommended Installation torques

Oil sight glass	50 Nm
Power connections / Earth connection	3 Nm / 2 Nm
Mounting bolts	21 Nm

Parts shipped with compressor

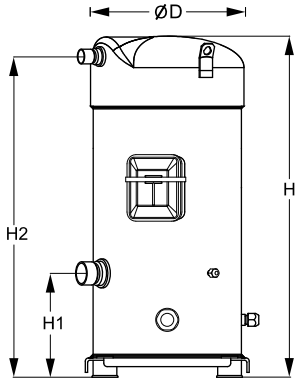
Mounting kit with grommets, bolts, nuts, sleeves and washers
Initial oil charge
Installation instructions

Approvals : CE certified, UL certified (file SA6873), -

*Singlepack: Compressor in cardboard box

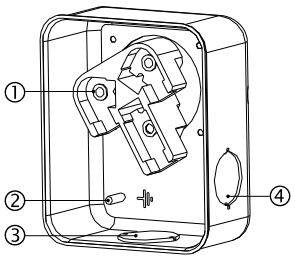
**Industrial pack: 6 Unboxed compressors on pallet (order per multiples of 6)

Dimensions



D=266 mm
H=591 mm
H1=180 mm
H2=556 mm
H3=- mm

Terminal box



IP54 (with cable gland)

1: Power connection, 3 x 4.8 mm (3/16")
2: Earth M4-12
3: Knock-out Ø 29 mm (1.14")
4: Knock-out Ø 25.5 mm (1.00")

Rotolock accessories, suction side	Code no.
Solder sleeve, P10 (1-3/4" Rotolock, 1-3/8" ODF)	8153003
Rotolock valve, V10 (1-3/4" Rotolock, 1-3/8" ODF)	8168022
Gasket, 1-3/4"	8156132

Rotolock accessories, discharge side	Code no.
Rotolock valve, V05 (1-1/4" Rotolock, 7/8" ODF)	8168030
Gasket, 1-3/4"	8156132

Rotolock accessories, sets	Code no.
Solder sleeve adapter set (1-3/4" Rotolock, 1-3/8" ODF), (1-1/4" Rotolock, 7/8" ODF)	7765006
Valve set, V10 (1-3/4"~1-3/8"), V05 (1-1/4"~7/8")	7703392
Gasket set, 1-1/4", 1-3/4", 2-1/4", OSG gaskets black & white	8156013

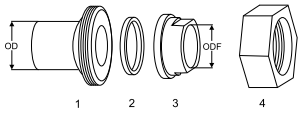
Oil / lubricants	Code no.
POE lubricant, 160SZ, 1 litre can	7754023
POE lubricant, 160SZ, 2.5 litre can	120Z0571

Crankcase heaters	Code no.
Surface sump heater + bottom insulation, 48 W, 24 V, CE mark, UL	120Z0361
Surface sump heater + bottom insulation, 48 W, 230 V, CE mark, UL	120Z0380
Surface sump heater + bottom insulation, 48 W, 400 V, CE mark, UL	120Z0381
Surface sump heater + bottom insulation, 48 W, 460 V, CE mark, UL	120Z0382
Belt type crankcase heater, 65 W, 460 V, CE mark, UL	120Z0466
Belt type crankcase heater, 65 W, 230 V, CE mark, UL	7773107
Belt type crankcase heater, 65 W, 400 V, CE mark, UL	7773117
Belt type crankcase heater, 65 W, 400 V, CE mark, UL	120Z0039

Miscellaneous accessories	Code no.
Electronic soft start kit, MCI 25 C	7705007
Acoustic hood for scroll compressor S148-S161 (except code 3)	7755017
Bottom insulation for scroll compressor	120Z0356
Discharge thermostat kit	7750009

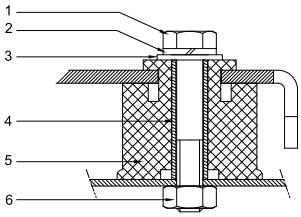
Spare parts	Code no.
Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers	8156138
Oil sight glass with gaskets (black & white)	8156019
Gasket for oil sight glass (white teflon)	8156129
Service kit for terminal box 96 x 115 mm, including 1 cover, 1 clamp	8156135
T block connector 52 x 57 mm	8173230

Solder sleeve adapter set



1: Rotolock adapter (Suc & Dis)
2: Gasket (Suc & Dis)
3: Solder sleeve (Suc & Dis)
4: Rotolock nut (Suc & Dis)

Mounting kit



1: Bolt (4x)
2: Lock washer (4x)
3: Flat washer (4x)
4: Sleeve (4x)
5: Grommet (4x)
6: Nut (4x)

Performance data at 50 Hz, EN 12900 rating conditions

R407C

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-20	-15	-10	-5	0	5	10	15	
Cooling capacity in W									
30	14 373	18 308	22 989	28 516	34 994	42 523	51 208	61 151	-
35	13 496	17 301	21 806	27 113	33 326	40 547	48 877	58 421	-
40	12 582	16 238	20 550	25 620	31 550	38 444	46 403	55 530	-
45	-	15 129	19 230	24 045	29 675	36 224	43 793	52 486	-
50	-	-	17 855	22 396	27 708	33 894	41 056	49 297	-
55	-	-	-	20 682	25 658	31 464	38 201	45 972	-
60	-	-	-	-	23 533	28 941	35 235	42 518	-
65	-	-	-	-	21 342	26 333	32 167	38 945	-
Power input in W									
30	6 651	6 704	6 745	6 781	6 818	6 862	6 920	6 997	-
35	7 443	7 502	7 545	7 579	7 611	7 647	7 693	7 755	-
40	8 336	8 400	8 446	8 479	8 507	8 535	8 570	8 618	-
45	-	9 417	9 466	9 500	9 524	9 545	9 569	9 603	-
50	-	-	10 625	10 659	10 680	10 694	10 709	10 730	-
55	-	-	-	11 974	11 993	12 001	12 007	12 015	-
60	-	-	-	-	13 481	13 485	13 481	13 478	-
65	-	-	-	-	15 163	15 162	15 151	15 136	-
Current consumption in A									
30	14.34	14.41	14.47	14.52	14.58	14.65	14.74	14.85	-
35	15.21	15.28	15.34	15.39	15.43	15.48	15.53	15.59	-
40	16.21	16.30	16.37	16.41	16.44	16.47	16.49	16.52	-
45	-	17.49	17.57	17.62	17.64	17.65	17.66	17.66	-
50	-	-	18.98	19.04	19.06	19.07	19.06	19.04	-
55	-	-	-	20.70	20.74	20.74	20.72	20.69	-
60	-	-	-	-	22.69	22.70	22.68	22.64	-
65	-	-	-	-	24.95	24.98	24.97	24.92	-
Mass flow in kg/h									
30	302	379	469	572	692	828	984	1 161	-
35	298	375	465	569	689	825	981	1 157	-
40	293	371	461	564	684	820	976	1 152	-
45	-	365	455	558	677	813	968	1 144	-
50	-	-	447	551	669	805	959	1 133	-
55	-	-	-	542	659	794	947	1 120	-
60	-	-	-	-	648	781	933	1 105	-
65	-	-	-	-	635	767	917	1 088	-
Coefficient of performance (C.O.P.)									
30	2.16	2.73	3.41	4.21	5.13	6.20	7.40	8.74	-
35	1.81	2.31	2.89	3.58	4.38	5.30	6.35	7.53	-
40	1.51	1.93	2.43	3.02	3.71	4.50	5.41	6.44	-
45	-	1.61	2.03	2.53	3.12	3.80	4.58	5.47	-
50	-	-	1.68	2.10	2.59	3.17	3.83	4.59	-
55	-	-	-	1.73	2.14	2.62	3.18	3.83	-
60	-	-	-	-	1.75	2.15	2.61	3.15	-
65	-	-	-	-	1.41	1.74	2.12	2.57	-

Nominal performance at to = 5 °C, tc = 50 °C

Cooling capacity	33 894	W
Power input	10 694	W
Current consumption	19.07	A
Mass flow	805	kg/h
C.O.P.	3.17	

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Pressure switch settings

Maximum HP switch setting	29.5	bar(g)
Minimum LP switch setting	0.5	bar(g)
LP pump down setting	1	bar(g)

Sound power data

Sound power level	79	dB(A)
With accoustic hood	71	dB(A)

to: Evaporating temperature at dew point
tc: Condensing temperature at dew point
Rating conditions : Superheat = 10 K , Subcooling = 0 K

All performance data +/- 5%

Performance data at 50 Hz, ARI rating conditions

R407C

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-20	-15	-10	-5	0	5	10	15	
Cooling capacity in W									
30	15 416	19 614	24 600	30 482	37 368	45 364	54 577	65 113	-
35	14 545	18 622	23 442	29 113	35 744	43 441	52 312	62 463	-
40	13 636	17 574	22 210	27 652	34 010	41 391	49 903	59 653	-
45	-	16 478	20 912	26 109	32 177	39 224	47 360	56 691	-
50	-	-	19 559	24 492	30 252	36 950	44 693	53 590	-
55	-	-	-	22 811	28 248	34 579	41 913	50 360	-
60	-	-	-	-	26 175	32 124	39 035	47 018	-
65	-	-	-	-	24 050	29 602	36 077	43 585	-
Power input in W									
30	6 651	6 704	6 745	6 781	6 818	6 862	6 920	6 997	-
35	7 443	7 502	7 545	7 579	7 611	7 647	7 693	7 755	-
40	8 336	8 400	8 446	8 479	8 507	8 535	8 570	8 618	-
45	-	9 417	9 466	9 500	9 524	9 545	9 569	9 603	-
50	-	-	10 625	10 659	10 680	10 694	10 709	10 730	-
55	-	-	-	11 974	11 993	12 001	12 007	12 015	-
60	-	-	-	-	13 481	13 485	13 481	13 478	-
65	-	-	-	-	15 163	15 162	15 151	15 136	-
Current consumption in A									
30	14.34	14.41	14.47	14.52	14.58	14.65	14.74	14.85	-
35	15.21	15.28	15.34	15.39	15.43	15.48	15.53	15.59	-
40	16.21	16.30	16.37	16.41	16.44	16.47	16.49	16.52	-
45	-	17.49	17.57	17.62	17.64	17.65	17.66	17.66	-
50	-	-	18.98	19.04	19.06	19.07	19.06	19.04	-
55	-	-	-	20.70	20.74	20.74	20.72	20.69	-
60	-	-	-	-	22.69	22.70	22.68	22.64	-
65	-	-	-	-	24.95	24.98	24.97	24.92	-
Mass flow in kg/h									
30	301	377	466	569	688	823	978	1 153	-
35	296	374	463	566	685	820	975	1 150	-
40	291	369	458	561	680	816	970	1 145	-
45	-	363	452	555	673	809	962	1 137	-
50	-	-	445	548	665	800	953	1 126	-
55	-	-	-	539	656	789	941	1 113	-
60	-	-	-	-	644	777	928	1 099	-
65	-	-	-	-	631	763	912	1 081	-
Coefficient of performance (C.O.P.)									
30	2.32	2.93	3.65	4.50	5.48	6.61	7.89	9.31	-
35	1.95	2.48	3.11	3.84	4.70	5.68	6.80	8.05	-
40	1.64	2.09	2.63	3.26	4.00	4.85	5.82	6.92	-
45	-	1.75	2.21	2.75	3.38	4.11	4.95	5.90	-
50	-	-	1.84	2.30	2.83	3.46	4.17	4.99	-
55	-	-	-	1.91	2.36	2.88	3.49	4.19	-
60	-	-	-	-	1.94	2.38	2.90	3.49	-
65	-	-	-	-	1.59	1.95	2.38	2.88	-

Nominal performance at to = 7.2 °C, tc = 54.4 °C

Cooling capacity	37 986	W
Power input	11 838	W
Current consumption	20.52	A
Mass flow	855	kg/h
C.O.P.	3.21	

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 11.1 K , Subcooling = 8.3 K

Pressure switch settings

Maximum HP switch setting	29.5	bar(g)
Minimum LP switch setting	0.5	bar(g)
LP pump down setting	1	bar(g)

Sound power data

Sound power level	79	dB(A)
With accoustic hood	71	dB(A)

All performance data +/- 5%

Performance data at 50 Hz, EN 12900 rating conditions

R134a

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-15	-10	-5	0	5	10	15		
Cooling capacity in W									
35	11 083	14 149	17 797	22 105	27 153	33 017	39 777	-	-
40	10 421	13 366	16 860	20 984	25 813	31 428	37 906	-	-
45	9 742	12 555	15 887	19 816	24 419	29 774	35 960	-	-
50	9 049	11 723	14 883	18 607	22 973	28 060	33 945	-	-
55	-	10 874	13 853	17 363	21 483	26 292	31 867	-	-
60	-	-	12 801	16 089	19 954	24 475	29 730	-	-
65	-	-	-	14 789	18 390	22 614	27 540	-	-
70	-	-	-	13 470	16 796	20 714	25 302	-	-
Power input in W									
35	5 178	5 229	5 274	5 315	5 351	5 381	5 406	-	-
40	5 752	5 808	5 857	5 898	5 933	5 961	5 980	-	-
45	6 389	6 450	6 502	6 545	6 579	6 603	6 618	-	-
50	7 100	7 166	7 222	7 266	7 299	7 320	7 330	-	-
55	-	7 968	8 027	8 072	8 104	8 123	8 127	-	-
60	-	-	8 927	8 974	9 006	9 021	9 020	-	-
65	-	-	-	9 983	10 013	10 026	10 020	-	-
70	-	-	-	11 108	11 138	11 148	11 137	-	-
Current consumption in A									
35	13.01	13.05	13.06	13.05	13.05	13.05	13.08	-	-
40	13.52	13.57	13.59	13.59	13.59	13.60	13.63	-	-
45	14.13	14.19	14.22	14.23	14.23	14.24	14.27	-	-
50	14.85	14.92	14.96	14.98	14.99	15.00	15.03	-	-
55	-	15.78	15.84	15.86	15.88	15.89	15.92	-	-
60	-	-	16.86	16.90	16.92	16.94	16.97	-	-
65	-	-	-	18.10	18.12	18.15	18.18	-	-
70	-	-	-	19.48	19.52	19.54	19.58	-	-
Mass flow in kg/h									
35	269	337	414	504	607	724	857	-	-
40	267	334	412	502	605	722	855	-	-
45	264	332	410	500	602	719	851	-	-
50	260	328	406	496	598	715	846	-	-
55	-	324	402	492	593	709	840	-	-
60	-	-	398	486	588	703	833	-	-
65	-	-	-	481	581	695	825	-	-
70	-	-	-	474	574	687	815	-	-
Coefficient of performance (C.O.P.)									
35	2.14	2.71	3.37	4.16	5.07	6.14	7.36	-	-
40	1.81	2.30	2.88	3.56	4.35	5.27	6.34	-	-
45	1.52	1.95	2.44	3.03	3.71	4.51	5.43	-	-
50	1.27	1.64	2.06	2.56	3.15	3.83	4.63	-	-
55	-	1.36	1.73	2.15	2.65	3.24	3.92	-	-
60	-	-	1.43	1.79	2.22	2.71	3.30	-	-
65	-	-	-	1.48	1.84	2.26	2.75	-	-
70	-	-	-	1.21	1.51	1.86	2.27	-	-

Nominal performance at to = 5 °C, tc = 50 °C

Cooling capacity	22 973	W
Power input	7 299	W
Current consumption	14.99	A
Mass flow	598	kg/h
C.O.P.	3.15	

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 10 K , Subcooling = 0 K

Pressure switch settings

Maximum HP switch setting	20.5	bar(g)
Minimum LP switch setting	0.5	bar(g)
LP pump down setting	0.5	bar(g)

Sound power data

Sound power level	0	dB(A)
With accoustic hood	0	dB(A)

All performance data +/- 5%

Performance data at 50 Hz, ARI rating conditions

R134a

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-15	-10	-5	0	5	10	15		
Cooling capacity in W									
35	12 004	15 298	19 212	23 826	29 223	35 483	42 689	-	-
40	11 349	14 528	18 293	22 727	27 912	33 930	40 861	-	-
45	10 675	13 729	17 337	21 581	26 545	32 310	38 958	-	-
50	9 987	12 907	16 349	20 395	25 128	30 631	36 986	-	-
55	-	12 069	15 335	19 173	23 667	28 899	34 953	-	-
60	-	-	14 302	17 923	22 169	27 122	32 865	-	-
65	-	-	-	16 653	20 641	25 307	30 734	-	-
70	-	-	-	15 371	19 095	23 466	28 568	-	-
Power input in W									
35	5 178	5 229	5 274	5 315	5 351	5 381	5 406	-	-
40	5 752	5 808	5 857	5 898	5 933	5 961	5 980	-	-
45	6 389	6 450	6 502	6 545	6 579	6 603	6 618	-	-
50	7 100	7 166	7 222	7 266	7 299	7 320	7 330	-	-
55	-	7 968	8 027	8 072	8 104	8 123	8 127	-	-
60	-	-	8 927	8 974	9 006	9 021	9 020	-	-
65	-	-	-	9 983	10 013	10 026	10 020	-	-
70	-	-	-	11 108	11 138	11 148	11 137	-	-
Current consumption in A									
35	13.01	13.05	13.06	13.05	13.05	13.05	13.08	-	-
40	13.52	13.57	13.59	13.59	13.59	13.60	13.63	-	-
45	14.13	14.19	14.22	14.23	14.23	14.24	14.27	-	-
50	14.85	14.92	14.96	14.98	14.99	15.00	15.03	-	-
55	-	15.78	15.84	15.86	15.88	15.89	15.92	-	-
60	-	-	16.86	16.90	16.92	16.94	16.97	-	-
65	-	-	-	18.10	18.12	18.15	18.18	-	-
70	-	-	-	19.48	19.52	19.54	19.58	-	-
Mass flow in kg/h									
35	268	335	412	501	604	720	852	-	-
40	265	333	410	500	602	718	850	-	-
45	262	330	408	497	599	715	846	-	-
50	259	327	404	493	595	711	842	-	-
55	-	323	400	489	590	705	836	-	-
60	-	-	396	484	585	699	828	-	-
65	-	-	-	478	578	692	820	-	-
70	-	-	-	472	571	683	811	-	-
Coefficient of performance (C.O.P.)									
35	2.32	2.93	3.64	4.48	5.46	6.59	7.90	-	-
40	1.97	2.50	3.12	3.85	4.70	5.69	6.83	-	-
45	1.67	2.13	2.67	3.30	4.03	4.89	5.89	-	-
50	1.41	1.80	2.26	2.81	3.44	4.18	5.05	-	-
55	-	1.51	1.91	2.38	2.92	3.56	4.30	-	-
60	-	-	1.60	2.00	2.46	3.01	3.64	-	-
65	-	-	-	1.67	2.06	2.52	3.07	-	-
70	-	-	-	1.38	1.71	2.10	2.57	-	-

Nominal performance at to = 7.2 °C, tc = 54.4 °C

Cooling capacity	26 065	W
Power input	8 013	W
Current consumption	15.77	A
Mass flow	640	kg/h
C.O.P.	3.25	

Pressure switch settings

Maximum HP switch setting	20.5	bar(g)
Minimum LP switch setting	0.5	bar(g)
LP pump down setting	0.5	bar(g)

Sound power data

Sound power level	0	dB(A)
With accoustic hood	0	dB(A)

to: Evaporating temperature at dew point
tc: Condensing temperature at dew point
Rating conditions : Superheat = 11.1 K , Subcooling = 8.3 K

All performance data +/- 5%