ENGINEERING TOMORROW



Datasheets

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





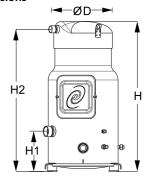




General Characteristics

Model number (on compressor nameplate)	SZ185S4RC	SZ185S4CC	
Code number for Singlepack*	SZ185-4RI	SZ185-4CAI	
Code number for Industrial pack**	SZ185-4RM	SZ185-4CAM	
Drawing number	8551119b	8551056c	
Suction and discharge connections	Rotolock	Brazed	
Suction connection	2-1/4 " Rotolock	1-5/8 " ODF	
Discharge connection	1-3/4 " Rotolock	1-1/8 " ODF	
Suction connection with supplied sleeve	1-3/8 " ODF		
Discharge connection with supplied sleeve	7/8 " ODF		
Oil sight glass	Threaded	Threaded	
Oil equalisation connection	3/8" flare SAE	3/8" flare SAE	
Oil drain connection	1/4" flare	1/4" flare	
LP gauge port	Schrader	Schrader	
IPR valve	None	None	
Swept volume	249.9 c	m3/rev	
Displacement @ Nominal speed	43.5 m3/h @ 2900 rpm	- 52.5 m3/h @ 3500 rpm	
Net weight	100) kg	
Oil charge	6.2 litre, Po	OE - 160SZ	
Maximum system test pressure Low Side / High side	25 bar(g) ,	/ 32 bar(g)	
Maximum differential test pressure	24	<mark>bar</mark>	
Maximum number of starts per hour	1	2	
Refrigerant charge limit	13.5	5 kg	
Approved refrigerants	R407C, R134a, R404A, R507A		

Dimensions



D=317 mm H=678 mm H1=180 mm H2=643 mm H3=- mm

Electrical Characteristics

Nominal voltage	380-400V/3/50Hz - 460V/3/60Hz
Voltage range	342-440 V @ 50Hz - 414-506 V @ 60Hz
Winding resistance (between phases) +/- 7% at 25℃	<mark>0.77 Ω</mark>
Maximum Must Trip current (MMT)	35 A
Locked Rotor Amps (LRA)	175 A
Motor protection	Internal thermostat, ext. overload protector needed

Recommended Installation torques

Suction Rotolock nut or valve	130 Nm
Discharge Rotolock nut or valve	110 Nm
Oil sight glass	50 Nm
Power connections / Earth connection	3 Nm / 2 Nm
Terminal box cover screws	2.3 Nm
Mounting bolts	21 Nm

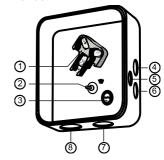
Parts shipped with compressor

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)

Terminal box



IP54 (with cable gland)

- 1: Power connection, 3 x 4.8 mm (3/16")
- 2: Earth M5
- 3: Thermostat connector
- 4: Knock-out Ø 22 mm (7/8") for 1/2" conduit
- 5: Knock-out Ø 16.5 mm (0.65")
- 6: Knock-out Ø 20.5 mm (0.81")
- 7: Double knock-out Ø 32.1 mm (1.26") & Ø 25.4 mm (1")
- 8: Double knock-out Ø 44 mm (1-3/4") for 1-1/4" conduit & Ø 34 mm (1-3/8") for 1" conduit



Danfoss scroll compressor. SZ185-4

Performance data at 50 Hz, EN 12900 rating conditions

R407C

Cond. temp. in	Evaporating temperature in °C (to)								
°C (tc)	-20	-15	-10	-5	0	5	10	15	
Cooling capacity	in W								
30	16 496	21 007	26 387	32 726	40 115	48 644	58 403	69 483	
35	15 417	19 792	24 990	31 102	38 217	46 425	55 816	66 481	
40	14 305	18 513	23 500	29 353	36 163	44 020	53 012	63 231	
45	14 305	17 169	21 913	29 353	33 953	44 020	49 989	59 730	
		17 109				+		+	-
50	-	-	20 228	25 474	31 583	38 643	46 744	55 975	-
55	-	-	-	23 340	29 052	35 667	43 275	51 963	-
60	-	-	-	-	26 357	32 495	39 576	47 689	-
65	-	-	-	-	23 494	29 122	35 642	43 143	-
Power input in W	!				•				
30	7 675	7 756	7 828	7 887	7 928	7 947	7 941	7 904	-
35	8 560	8 643	8 717	8 779	8 823	8 847	8 845	8 814	-
40	9 561	9 646	9 724	9 789	9 837	9 866	9 869	9 844	-
45	-	10 783	10 864	10 933	10 986	11 019	11 028	11 010	-
50	-	-	12 153	12 226	12 284	12 323	12 338	12 326	-
55	-	-	-	13 685	13 748	13 793	13 815	13 810	-
60	-	-	-	-	15 393	15 444	15 473	15 476	-
65	-	-	-	-	17 235	17 293	17 329	17 340	-
•		•	1		•	•	•		
Current consum	ption in A	T		T	T	T	T		
30	16.77	16.89	17.00	17.09	17.14	17.16	17.14	17.07	-
35	17.72	17.85	17.97	18.06	18.12	18.15	18.14	18.08	-
40	18.87	19.00	19.12	19.22	19.30	19.33	19.33	19.28	-
45	-	20.38	20.50	20.61	20.69	20.74	20.75	20.71	-
50	-	-	22.13	22.24	22.33	22.39	22.42	22.40	-
55	-	-	-	24.15	24.26	24.33	24.37	24.36	-
60	-	-	-	-	26.49	26.57	26.62	26.63	-
65	-	-	-	-	29.05	29.15	29.22	29.25	-
Mass flow in kg/l				1					
30	344	430	530	646	778	929	1 100	1 292	-
35	337	425	526	643	776	928	1 099	1 292	-
40	330	418	520	638	772	924	1 096	1 288	-
45	-	411	513	631	765	918	1 089	1 282	-
50	-	-	504	622	756	908	1 079	1 271	-
55	-	-	-	610	744	895	1 065	1 256	-
60	-	-	-	-	728	878	1 047	1 237	-
65	-	-	-	-	708	857	1 024	1 212	-
Coefficient of pe	rformance (C.C).P.)							
30	2.15	2.71	3.37	4.15	5.06	6.12	7.35	8.79	-
35	1.80	2.29	2.87	3.54	4.33	5.25	6.31	7.54	-
40	1.50	1.92	2.42	3.00	3.68	4.46	5.37	6.42	-
45	-	1.59	2.02	2.51	3.09	3.76	4.53	5.43	-
50	-	-	1.66	2.08	2.57	3.14	3.79	4.54	_
55		_	-	1.71	2.11	2.59	3.13	3.76	_
60	-	-	-	-	1.71	2.10	2.56	3.08	
00		-	ļ <u> </u>	-	1.71	۷.۱۷	2.06	2.49	

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

Cooling capacity	38 643	W	
Power input	12 323	W	
Current consumption	22.39	Α	
Mass flow	908	kg/h	
C.O.P.	3.14		

to: Evaporating temperature at dew point

Rating conditions : Superheat = 10 K , Subcooling = 0 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	85	dB(A)
With accoust	ic hood	73	dB(A)

Tolerance according EN12900

tc: Condensing temperature at dew point



Danfoss scroll compressor. SZ185-4

Performance data at 50 Hz, EN 12900 rating conditions

R134a

Cond. temp. in				Evapora	ating temperature	in °C (to)			
°C (tc)	-15	-10	-5	0	5	10	15		
						•			
Cooling capacity	y in W		•			T			
35	12 952	16 610	20 911	25 918	31 698	38 315	45 836	-	-
40	12 108	15 640	19 786	24 611	30 179	36 557	43 810	-	-
45	11 243	14 632	18 606	23 232	28 572	34 693	41 660	-	-
50	10 361	13 589	17 376	21 784	26 879	32 725	39 388	-	-
55	-	12 517	16 097	20 271	25 102	30 657	36 998	-	-
60	-	-	14 774	18 696	23 246	28 490	34 492	-	-
65	-	-	-	17 061	21 312	26 227	31 870	-	-
70	-	-	-	15 369	19 303	23 869	29 132	-	1
Power input in V	v								
35	6 066	6 139	6 198	6 240	6 260	6 253	6 215	_	_
40	6 679	6 755	6 819	6 866	6 892	6 893	6 863		
45	7 371	7 452	7 521	7 574	7 607	7 615	7 593	_	_
50	8 150	8 235	8 310	8 369	8 409	8 426	8 413	-	-
55	- 8 150	9 112	9 193	9 259	9 307	9 332	9 329	-	-
60	-								-
65	-	-	10 176	10 250	10 307 11 414	10 341	10 348	-	
70	<u>-</u>	-	-	11 349 12 562		11 458	11 476	-	-
10	-	-	<u> </u>	12 502	12 637	12 691	12 720	-	-
Surrent concum	ntion in A								
current consum	•	15 10	15 17	15 21	15.00	15 10	15 11		
35	15.02	15.10	15.17	15.21	15.22	15.19	15.11	-	-
40	15.60	15.70	15.77	15.82	15.84	15.82	15.75	-	
45	16.31	16.41	16.50	16.56	16.59	16.58	16.53	-	-
50	17.15	17.26	17.36	17.43	17.47	17.48	17.44	-	-
55	-	18.26	18.37	18.45	18.50	18.53	18.51	-	-
60	-	-	19.54	19.64	19.71	19.74	19.74	-	-
65	-	-	-	21.00	21.09	21.14	21.16	-	-
70	-	-	-	22.56	22.66	22.73	22.77	-	-
Mass flow in kg/		T -004	105	T ====		1 000	1 000 1		
35	314	394	485	589	707	839	986	-	-
40	309	390	482	587	705	838	986	-	-
45	302	384	477	583	702	835	983	-	-
50	296	378	472	578	697	830	979	-	-
55	-	371	465	571	691	824	973	-	-
60	-	-	457	564	683	816	964	-	-
65	-	-	-	554	673	806	954	-	-
70	-	-	-	544	662	794	941	-	-
Danettinia in the	£a	\ D \							
Coefficient of pe	•		2.07	4.45	F 00	0.40	7.07		
35	2.14	2.71	3.37	4.15	5.06	6.13	7.37	-	-
40	1.81	2.32	2.90	3.58	4.38	5.30	6.38	-	-
45	1.53	1.96	2.47	3.07	3.76	4.56	5.49	-	-
50	1.27	1.65	2.09	2.60	3.20	3.88	4.68	-	-
55	-	1.37	1.75	2.19	2.70	3.29	3.97	-	-
60	-	-	1.45	1.82	2.26	2.76	3.33	-	-
65	-	-	-	1.50	1.87	2.29	2.78	-	-
70	-	-	-	1.22	1.53	1.88	2.29	-	-
						_			
ominai perforn	nance at to = 5 °	C, tc = 50 °C				Pressure switch			

Cooling capacity	26 879	W	
Power input	8 409	W	
Current consumption	17.47	Α	
Mass flow	697	kg/h	
C.O.P.	3.20		

to: Evaporating temperature at dew point

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

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)

Tolerance according EN12900

tc: Condensing temperature at dew point



Danfoss scroll compressor. SZ185-4

Performance data at 50 Hz, EN 12900 rating conditions

R134a

Cond. temp. in				Evapora	ating temperature	in °C (to)			
°C (tc)	-15	-10	-5	0	5	10	15		
						•			
Cooling capacity	y in W		•			T			
35	12 952	16 610	20 911	25 918	31 698	38 315	45 836	-	-
40	12 108	15 640	19 786	24 611	30 179	36 557	43 810	-	-
45	11 243	14 632	18 606	23 232	28 572	34 693	41 660	-	-
50	10 361	13 589	17 376	21 784	26 879	32 725	39 388	-	-
55	-	12 517	16 097	20 271	25 102	30 657	36 998	-	-
60	-	-	14 774	18 696	23 246	28 490	34 492	-	-
65	-	-	-	17 061	21 312	26 227	31 870	-	-
70	-	-	-	15 369	19 303	23 869	29 132	-	1
Power input in V	v								
35	6 066	6 139	6 198	6 240	6 260	6 253	6 215	_	_
40	6 679	6 755	6 819	6 866	6 892	6 893	6 863		
45	7 371	7 452	7 521	7 574	7 607	7 615	7 593	_	_
50	8 150	8 235	8 310	8 369	8 409	8 426	8 413	-	-
55	- 8 150	9 112	9 193	9 259	9 307	9 332	9 329	-	-
60	-								-
65	-	-	10 176	10 250	10 307 11 414	10 341	10 348	-	
70	<u>-</u>	-	-	11 349 12 562		11 458	11 476	-	-
10	-	-	<u> </u>	12 502	12 637	12 691	12 720	-	-
Surrent concum	ntion in A								
current consum	•	15 10	15 17	15 21	15.00	15 10	15 11		
35	15.02	15.10	15.17	15.21	15.22	15.19	15.11	-	-
40	15.60	15.70	15.77	15.82	15.84	15.82	15.75	-	
45	16.31	16.41	16.50	16.56	16.59	16.58	16.53	-	-
50	17.15	17.26	17.36	17.43	17.47	17.48	17.44	-	-
55	-	18.26	18.37	18.45	18.50	18.53	18.51	-	-
60	-	-	19.54	19.64	19.71	19.74	19.74	-	-
65	-	-	-	21.00	21.09	21.14	21.16	-	-
70	-	-	-	22.56	22.66	22.73	22.77	-	-
Mass flow in kg/		T -004	105	T ====		1 000	1 000 1		
35	314	394	485	589	707	839	986	-	-
40	309	390	482	587	705	838	986	-	-
45	302	384	477	583	702	835	983	-	-
50	296	378	472	578	697	830	979	-	-
55	-	371	465	571	691	824	973	-	-
60	-	-	457	564	683	816	964	-	-
65	-	-	-	554	673	806	954	-	-
70	-	-	-	544	662	794	941	-	-
Danettinia in the	£a	\ D \							
Coefficient of pe	•		2.07	4.45	F 00	0.40	7.07		
35	2.14	2.71	3.37	4.15	5.06	6.13	7.37	-	-
40	1.81	2.32	2.90	3.58	4.38	5.30	6.38	-	-
45	1.53	1.96	2.47	3.07	3.76	4.56	5.49	-	-
50	1.27	1.65	2.09	2.60	3.20	3.88	4.68	-	-
55	-	1.37	1.75	2.19	2.70	3.29	3.97	-	-
60	-	-	1.45	1.82	2.26	2.76	3.33	-	-
65	-	-	-	1.50	1.87	2.29	2.78	-	-
70	-	-	-	1.22	1.53	1.88	2.29	-	-
						_			
ominai perforn	nance at to = 5 °	C, tc = 50 °C				Pressure switch			

Cooling capacity	26 879	W	
Power input	8 409	W	
Current consumption	17.47	Α	
Mass flow	697	kg/h	
C.O.P.	3.20		

to: Evaporating temperature at dew point

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

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)

Tolerance according EN12900

tc: Condensing temperature at dew point



Danfoss scroll compressor. SZ185-4

Performance data at 50 Hz, EN 12900 rating conditions

R407C

Cond. temp. in				Evapora	iting temperature	in °C (to)			
°C (tc)	-20	-15	-10	-5	0	5	10	15	
Cooling capacity	in W								
30	16 496	21 007	26 387	32 726	40 115	48 644	58 403	69 483	
35	15 417	19 792	24 990	31 102	38 217	46 425	55 816	66 481	
40	14 305	18 513	23 500	29 353	36 163	44 020	53 012	63 231	
45	14 305	17 169	21 913	29 353	33 953	44 020	49 989	59 730	
		17 109				+		+	-
50	-	-	20 228	25 474	31 583	38 643	46 744	55 975	-
55	-	-	-	23 340	29 052	35 667	43 275	51 963	-
60	-	-	-	-	26 357	32 495	39 576	47 689	-
65	-	-	-	-	23 494	29 122	35 642	43 143	-
Power input in W	!				•				
30	7 675	7 756	7 828	7 887	7 928	7 947	7 941	7 904	-
35	8 560	8 643	8 717	8 779	8 823	8 847	8 845	8 814	-
40	9 561	9 646	9 724	9 789	9 837	9 866	9 869	9 844	-
45	-	10 783	10 864	10 933	10 986	11 019	11 028	11 010	-
50	-	-	12 153	12 226	12 284	12 323	12 338	12 326	-
55	-	-	-	13 685	13 748	13 793	13 815	13 810	-
60	-	-	-	-	15 393	15 444	15 473	15 476	-
65	-	-	-	-	17 235	17 293	17 329	17 340	-
•		•	1		•	•	•		
Current consum	ption in A	T		T	T	T	T		
30	16.77	16.89	17.00	17.09	17.14	17.16	17.14	17.07	-
35	17.72	17.85	17.97	18.06	18.12	18.15	18.14	18.08	-
40	18.87	19.00	19.12	19.22	19.30	19.33	19.33	19.28	-
45	-	20.38	20.50	20.61	20.69	20.74	20.75	20.71	-
50	-	-	22.13	22.24	22.33	22.39	22.42	22.40	-
55	-	-	-	24.15	24.26	24.33	24.37	24.36	-
60	-	-	-	-	26.49	26.57	26.62	26.63	-
65	-	-	-	-	29.05	29.15	29.22	29.25	-
Mass flow in kg/l				1					
30	344	430	530	646	778	929	1 100	1 292	-
35	337	425	526	643	776	928	1 099	1 292	-
40	330	418	520	638	772	924	1 096	1 288	-
45	-	411	513	631	765	918	1 089	1 282	-
50	-	-	504	622	756	908	1 079	1 271	-
55	-	-	-	610	744	895	1 065	1 256	-
60	-	-	-	-	728	878	1 047	1 237	-
65	-	-	-	-	708	857	1 024	1 212	-
Coefficient of pe	rformance (C.C).P.)							
30	2.15	2.71	3.37	4.15	5.06	6.12	7.35	8.79	-
35	1.80	2.29	2.87	3.54	4.33	5.25	6.31	7.54	-
40	1.50	1.92	2.42	3.00	3.68	4.46	5.37	6.42	-
45	-	1.59	2.02	2.51	3.09	3.76	4.53	5.43	-
50	-	-	1.66	2.08	2.57	3.14	3.79	4.54	_
55		_	-	1.71	2.11	2.59	3.13	3.76	_
60	-	-	-	-	1.71	2.10	2.56	3.08	
00		-	ļ <u> </u>	-	1.71	۷.۱۷	2.06	2.49	

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

Cooling capacity	38 643	W	
Power input	12 323	W	
Current consumption	22.39	Α	
Mass flow	908	kg/h	
C.O.P.	3.14		

to: Evaporating temperature at dew point

Rating conditions : Superheat = 10 K , Subcooling = 0 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	85	dB(A)
With accoust	ic hood	73	dB(A)

Tolerance according EN12900

tc: Condensing temperature at dew point



Danfoss scroll compressor. SZ185-4

Performance data at 60 Hz, EN 12900 rating conditions

R407C

Cond. temp. in				Evapora	ating temperature	in °C (to)			
°C (tc)	-20	-15	-10	-5	0	5	10	15	
Cooling capacity	in W								
30	20 450	25 793	32 178	39 714	48 510	58 674	70 316	83 546	
35	19 090	24 267	30 430	37 687	46 148	55 919	67 112	79 834	
40	17 715	22 689	28 593	35 535	43 622	52 964	63 668	75 844	
45	-	21 063	26 671	33 259	40 937	49 810	59 989	71 580	
50		21 003	24 667	30 865	38 095	46 463	56 077	67 045	-
55	-	-	-	28 356	35 101	42 925	51 935	62 240	
60	-	-	-	-	31 955	39 196	47 564	57 165	
65	-	-	-	-	28 657	35 276	42 960	51 813	
03					20 037	33 210	42 900	31013	
ower input in W	1	_			1		1		
30	9 172	9 325	9 467	9 592	9 694	9 768	9 807	9 806	-
35	10 194	10 352	10 500	10 634	10 746	10 832	10 885	10 899	-
40	11 344	11 508	11 664	11 807	11 931	12 029	12 097	12 128	-
45	-	12 809	12 974	13 128	13 264	13 377	13 461	13 510	-
50	-	-	14 447	14 613	14 762	14 891	14 992	15 060	-
55	-	-	-	16 276	16 441	16 586	16 706	16 794	-
60	-	-	-	-	18 316	18 479	18 618	18 728	-
65	-	-	-	-	20 404	20 586	20 746	20 878	-
current consum				T	T		T	T	
30	15.98	16.16	16.32	16.46	16.56	16.62	16.63	16.58	-
35	17.05	17.23	17.41	17.56	17.67	17.75	17.79	17.76	-
40	18.30	18.50	18.68	18.85	18.99	19.09	19.14	19.15	-
45	-	19.98	20.18	20.36	20.52	20.64	20.73	20.76	-
50	-	-	21.92	22.12	22.30	22.45	22.56	22.63	-
55	-	-	-	24.15	24.35	24.53	24.68	24.78	-
60	-	-	-	-	26.72	26.92	27.10	27.24	-
65	-	-	-	-	29.41	29.65	29.86	30.03	-
Mass flow in kg/l	n								
30	426	528	646	783	941	1 120	1 323	1 552	_
35	418	521	641	779	938	1 118	1 322	1 551	_
40	408	513	633	773	932	1 112	1 317	1 546	_
45	-	504	625	764	923	1 104	1 307	1 536	_
50	_	-	615	753	912	1 092	1 295	1 522	_
55		_	-	741	898	1 077	1 278	1 504	_
60		-	-	-	882	1 059	1 258	1 482	
65		-	_	-	864	1 038	1 234	1 455	
		1	1	1	1 301	. 300	. 201	00	
Coefficient of pe	•	1		Т			1	1	
30	2.23	2.77	3.40	4.14	5.00	6.01	7.17	8.52	-
35	1.87	2.34	2.90	3.54	4.29	5.16	6.17	7.32	-
40	1.56	1.97	2.45	3.01	3.66	4.40	5.26	6.25	-
45	-	1.64	2.06	2.53	3.09	3.72	4.46	5.30	-
50	-	-	1.71	2.11	2.58	3.12	3.74	4.45	-
55	-	-	-	1.74	2.13	2.59	3.11	3.71	-
60	-	-	-	-	1.74	2.12	2.55	3.05	-
65	-	-	-	-	1.40	1.71	2.07	2.48	-

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

-,		
Cooling capacity	46 463	W
Power input	14 891	W
Current consumption	22.45	Α
Mass flow	1 092	kg/h
C.O.P.	3.12	

to: Evaporating temperature at dew point

Rating conditions : Superheat = 10 K , Subcooling = 0 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

5	Sound power level	88	dB(A)
١	With accoustic hood	76	dB(A)

Tolerance according EN12900

tc: Condensing temperature at dew point

