

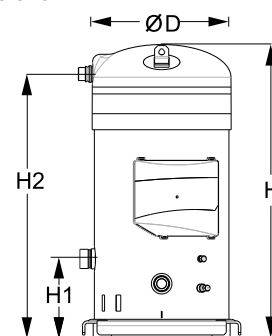
Datasheets

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



**General Characteristics**

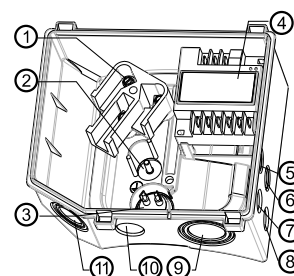
Model number (on compressor nameplate)		<b>SZ380A4CBE</b>
Code number for Singlepack*		SZ380A4CBI
Code number for Industrial pack**		SZ380A4CBM
Drawing number		8556093b
Suction and discharge connections		Brazed
Suction connection		2-1/8" ODF
Discharge connection		1-3/8" ODF
Oil sight glass		Threaded
Oil equalisation connection		1/2" flare
Oil drain connection		1/4" flare
LP gauge port		Schrader
IPR valve		Yes
Reverse rotation protection		Electronic module
Swept volume	531.2 cm <sup>3</sup> /rev	
Displacement @ Nominal speed	92.4 m <sup>3</sup> /h @ 2900 rpm - 111.6 m <sup>3</sup> /h @ 3500 rpm	
Net weight	158 kg	
Oil charge	8.4 litre, POE - 160SZ	
Maximum system test pressure Low Side / High side	20 bar(g) / 29.6 bar(g)	
Maximum differential test pressure	24 bar	
Maximum number of starts per hour	12	
Refrigerant charge limit	20 kg	
Approved refrigerants	R407C, R134a	

**Dimensions**


D=344 mm  
 H=726.9 mm  
 H1=195.7 mm  
 H2=654 mm  
 H3=- mm

**Electrical Characteristics**

Nominal voltage	380-415V/3/50Hz - 460V/3/60Hz
Voltage range	340-457 V @ 50Hz - 414-506 V @ 60Hz
Winding resistance (between phases) +/- 7% at 25°C	0.410 Ω
Rated Load Amps (RLA)	56.4 A
Maximum Continuous Current (MCC)	79 A
Locked Rotor Amps (LRA)	300 A
Motor protection	Electronic protection module, 115/230 V

**Terminal box**


IP54 (with cable gland)

- 1: Power connection, 3 x 4.8 mm (3/16")
- 2: Earth M5
- 3: Thermistor connector
- 4: Electronic protection module
- 5: Double knock-out Ø 22.5 mm (7/8") & Ø 16.5 mm (0.65")
- 6: Double knock-out Ø 22.5 mm (7/8") & Ø 16.5 mm (0.65")
- 7: Knock-out Ø 20.7 mm (0.81")
- 8: Knock-out Ø 20.7 mm (0.81")
- 9: Triple knock-out Ø 50.8 mm (2") & Ø 43.7 mm (1.72") & Ø 34.5 mm (1.35")
- 10: Knock-out Ø 25.5 mm (1.00")
- 11: Triple knock-out Ø 40.5 mm (1.59") & Ø 32.2 mm (1.27") & Ø 25.5 mm (1")

**Recommended Installation torques**

Oil sight glass	50 Nm
Power connections / Earth connection	3 Nm / 2 Nm
Mounting bolts	40 Nm

**Parts shipped with compressor**

Mounting kit with grommets and sleeves
Electronic protection module mounted in terminal box
Initial oil charge
Installation instructions

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

\*Singlepack: Compressor in cardboard box

\*\*Industrial pack: 4 Unboxed compressors on pallet (order per multiples of 4)

**Rotolock accessories, suction side**
**Code no.**

Flange type valve, V12 (Flange ~ 2"1/8)	120Z0320
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**Rotolock accessories, discharge 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, sets**
**Code no.**

Flange	120Z0317
Valve set, V12 (flange ~ 2"1/8), V10(1"3/4~1"3/8)	120Z0316
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.**

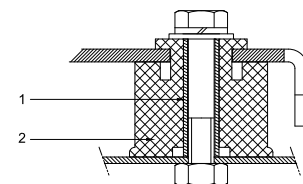
Surface sump heater + bottom insulation, 80 W, 24 V, CE mark, UL	120Z0359
Surface sump heater + bottom insulation, 80 W, 230 V, CE mark, UL	120Z0372
Surface sump heater + bottom insulation, 80 W, 400 V, CE mark, UL	120Z0373
Surface sump heater + bottom insulation, 80 W, 460 V, CE mark, UL	120Z0374
Belt type crankcase heater, 130 W, 230 V, CE mark, UL	7773122
Belt type crankcase heater, 130 W, 400 V, CE mark, UL	7773123

**Miscellaneous accessories**
**Code no.**

Electronic soft start kit, MCI 50 CM	7705009
Acoustic hood for scroll compressor S380	7755022
Bottom insulation for scroll compressor	120Z0355
Discharge thermostat kit	7750009

**Spare parts**
**Code no.**

Electronic motor protection module, 115/230 V	8169016
Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves	8156144
Oil sight glass with gaskets (black & white)	8156019
Gasket for oil sight glass (white teflon)	8156129
Terminal box 210 x 190 incl. cover	120Z0458
T block connector 60 x 75 mm	8173021

**Mounting kit**


1: Sleeve (4x)

2: Grommet (4x)

Bolts, nuts and washers not included

**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	35 242	44 275	55 011	67 668	82 459	99 601	119 308	141 797	-
35	33 285	42 021	52 363	64 527	78 729	95 184	114 107	135 714	-
40	31 207	39 605	49 512	61 143	74 715	90 442	108 540	129 224	-
45	29 019	37 039	46 470	57 528	70 429	85 388	102 620	122 341	-
50	-	34 335	43 250	53 694	65 883	80 033	96 359	115 076	-
55	-	31 506	39 864	49 653	61 090	74 390	89 769	107 441	-
60	-	-	36 324	45 418	56 062	68 472	82 863	99 449	-
65	-	-	-	-	50 812	62 291	75 653	91 113	-

**Power input in W**

30	15 293	15 644	15 958	16 258	16 566	16 903	17 291	17 753	-
35	16 920	17 309	17 648	17 958	18 261	18 580	18 937	19 352	-
40	18 721	19 158	19 531	19 862	20 172	20 483	20 818	21 197	-
45	20 719	21 216	21 634	21 995	22 322	22 636	22 959	23 312	-
50	-	23 505	23 979	24 381	24 735	25 062	25 384	25 723	-
55	-	26 052	26 591	27 045	27 437	27 787	28 118	28 452	-
60	-	-	29 495	30 011	30 450	30 834	31 185	31 525	-
65	-	-	-	-	33 801	34 229	34 610	34 965	-

**Current consumption in A**

30	29.28	29.58	29.99	30.48	31.05	31.67	32.32	32.98	-
35	31.22	31.57	32.00	32.48	33.01	33.55	34.09	34.60	-
40	33.40	33.83	34.30	34.80	35.31	35.80	36.25	36.65	-
45	35.87	36.41	36.96	37.49	38.00	38.47	38.86	39.17	-
50	-	39.35	40.00	40.60	41.15	41.61	41.97	42.22	-
55	-	42.72	43.49	44.18	44.79	45.27	45.63	45.83	-
60	-	-	47.47	48.28	48.97	49.51	49.88	50.07	-
65	-	-	-	-	53.74	54.36	54.78	54.99	-

**Mass flow in kg/h**

30	742	918	1 122	1 358	1 629	1 939	2 292	2 692	-
35	735	912	1 118	1 354	1 626	1 937	2 290	2 689	-
40	726	904	1 110	1 347	1 619	1 929	2 282	2 681	-
45	713	892	1 099	1 336	1 607	1 917	2 269	2 666	-
50	-	878	1 084	1 320	1 591	1 899	2 250	2 646	-
55	-	860	1 065	1 300	1 570	1 877	2 225	2 619	-
60	-	-	1 042	1 276	1 544	1 849	2 195	2 586	-
65	-	-	-	-	1 513	1 816	2 159	2 547	-

**Coefficient of performance (C.O.P.)**

30	2.30	2.83	3.45	4.16	4.98	5.89	6.90	7.99	-
35	1.97	2.43	2.97	3.59	4.31	5.12	6.03	7.01	-
40	1.67	2.07	2.53	3.08	3.70	4.42	5.21	6.10	-
45	1.40	1.75	2.15	2.62	3.16	3.77	4.47	5.25	-
50	-	1.46	1.80	2.20	2.66	3.19	3.80	4.47	-
55	-	1.21	1.50	1.84	2.23	2.68	3.19	3.78	-
60	-	-	1.23	1.51	1.84	2.22	2.66	3.15	-
65	-	-	-	-	1.50	1.82	2.19	2.61	-

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

Cooling capacity	80 033	W
Power input	25 062	W
Current consumption	41.61	A
Mass flow	1 899	kg/h
C.O.P.	3.19	


**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	87.5	dB(A)
With acoustic hood	80.5	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%

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# Datasheet, performance data

# Danfoss scroll compressor. SZ380-4

## 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	37 798	47 431	58 867	72 333	88 054	106 253	127 156	150 985	-
35	35 874	45 230	56 292	69 287	84 441	101 978	122 125	145 104	-
40	33 823	42 862	53 510	65 994	80 540	97 376	116 727	138 818	-
45	31 659	40 341	50 534	62 466	76 366	92 461	110 978	132 143	-
50	-	37 679	47 377	58 718	71 932	87 248	104 893	125 096	-
55	-	34 891	44 055	54 766	67 256	81 755	98 492	117 697	-
60	-	-	40 584	50 627	62 356	76 003	91 799	109 975	-
65	-	-	-	-	57 260	70 024	84 849	101 970	-

### Power input in W

30	15 293	15 644	15 958	16 258	16 566	16 903	17 291	17 753	-
35	16 920	17 309	17 648	17 958	18 261	18 580	18 937	19 352	-
40	18 721	19 158	19 531	19 862	20 172	20 483	20 818	21 197	-
45	20 719	21 216	21 634	21 995	22 322	22 636	22 959	23 312	-
50	-	23 505	23 979	24 381	24 735	25 062	25 384	25 723	-
55	-	26 052	26 591	27 045	27 437	27 787	28 118	28 452	-
60	-	-	29 495	30 011	30 450	30 834	31 185	31 525	-
65	-	-	-	-	33 801	34 229	34 610	34 965	-

### Current consumption in A

30	29.28	29.58	29.99	30.48	31.05	31.67	32.32	32.98	-
35	31.22	31.57	32.00	32.48	33.01	33.55	34.09	34.60	-
40	33.40	33.83	34.30	34.80	35.31	35.80	36.25	36.65	-
45	35.87	36.41	36.96	37.49	38.00	38.47	38.86	39.17	-
50	-	39.35	40.00	40.60	41.15	41.61	41.97	42.22	-
55	-	42.72	43.49	44.18	44.79	45.27	45.63	45.83	-
60	-	-	47.47	48.28	48.97	49.51	49.88	50.07	-
65	-	-	-	-	53.74	54.36	54.78	54.99	-

### Mass flow in kg/h

30	738	913	1 116	1 350	1 620	1 928	2 279	2 675	-
35	731	908	1 112	1 347	1 617	1 926	2 276	2 673	-
40	722	899	1 104	1 340	1 610	1 918	2 269	2 664	-
45	710	888	1 093	1 328	1 598	1 906	2 255	2 650	-
50	-	873	1 078	1 313	1 582	1 888	2 237	2 630	-
55	-	855	1 059	1 293	1 561	1 866	2 212	2 603	-
60	-	-	1 037	1 269	1 535	1 838	2 182	2 570	-
65	-	-	-	-	1 505	1 805	2 146	2 532	-

### Coefficient of performance (C.O.P.)

30	2.47	3.03	3.69	4.45	5.32	6.29	7.35	8.50	-
35	2.12	2.61	3.19	3.86	4.62	5.49	6.45	7.50	-
40	1.81	2.24	2.74	3.32	3.99	4.75	5.61	6.55	-
45	1.53	1.90	2.34	2.84	3.42	4.08	4.83	5.67	-
50	-	1.60	1.98	2.41	2.91	3.48	4.13	4.86	-
55	-	1.34	1.66	2.02	2.45	2.94	3.50	4.14	-
60	-	-	1.38	1.69	2.05	2.46	2.94	3.49	-
65	-	-	-	-	1.69	2.05	2.45	2.92	-

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

Cooling capacity	89 551	W
Power input	27 589	W
Current consumption	44.98	A
Mass flow	2 016	kg/h
C.O.P.	3.25	

### 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	87.5	dB(A)
With acoustic hood	80.5	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%

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