

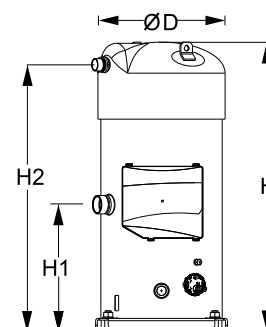
Datasheets

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



General Characteristics

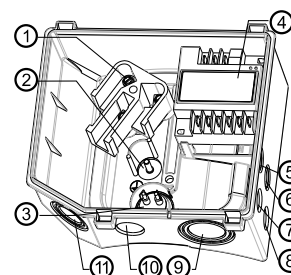
Model number (on compressor nameplate)		SH380A4ABE
Code number for Singlepack*		120H0255
Code number for Industrial pack**		120H0256
Drawing number		8556091b
Suction and discharge connections		Brazed
Suction connection		1-5/8" ODF
Discharge connection		1-1/8" ODF
Oil sight glass		Threaded
Oil equalisation connection		2-1/4" Rotolock
Oil drain connection		1/4" flare
LP gauge port		Schrader
IPR valve		Yes
Reverse rotation protection		Electronic module
Swept volume	345 cm ³ /rev	
Displacement @ Nominal speed	60.0 m ³ /h @ 2900 rpm - 72.5 m ³ /h @ 3500 rpm	
Net weight	159 kg	
Oil charge	6,7 litre, POE - 160SZ	
Maximum system test pressure Low Side / High side	30 bar(g) / 45 bar(g)	
Maximum differential test pressure	37 bar	
Maximum number of starts per hour	12	
Refrigerant charge limit	14,5 kg	
Approved refrigerants	R410A	

Dimensions


D=333,2 mm
H=755,3 mm
H1=331 mm
H2=696,5 mm
H3=- mm

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 25°C	0.418 Ω
Rated Load Amps (RLA)	56.4 A
Maximum Continuous Current (MCC)	79 A
Locked Rotor Amps (LRA)	320 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	21 Nm

Parts shipped with compressor

Mounting kit with rigid grommets, bolts, nuts, sleeves and washers
Electronic protection module mounted in terminal box
Initial oil charge
Installation instructions

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

*Singlepack: Compressor in cardboard box

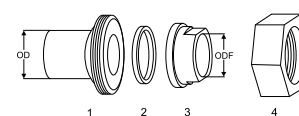
**Industrial pack: 4 Unboxed compressors on pallet (order per multiples of 4)

Rotolock accessories, suction side
Code no.

Solder sleeve, P03 (2-1/4" Rotolock, 1-5/8" ODF)	8153006
Rotolock valve, V03 (2-1/4" Rotolock, 1-5/8" ODF)	8168026
Rotolock adapter (2"1/4 Rotolock, 1"5/8 ODF)	12020432
Gasket, 2-1/4"	8156133

Rotolock accessories, discharge side
Code no.

Solder sleeve, P02 (1-3/4" Rotolock, 1-1/8" ODF)	8153004
Angle adapter, C02 (1-3/4" Rotolock, 1-1/8" ODF)	8168005
Rotolock valve, V02 (1-3/4" Rotolock, 1-1/8" ODF)	8168028
Rotolock adapter (1-3/4" Rotolock, 1-1/8" ODF)	12020364
Gasket, 1-3/4"	8156132

Solder sleeve adapter set


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

Rotolock accessories, sets
Code no.

Solder sleeve adapter set, (2-1/4" Rotolock, 1-5/8" ODF), (1-3/4" Rotolock, 1"1/8 ODF)	7765028
Valve set, V03 (2-1/4"~1-5/8"), V02 (1-3/4"~1-1/8")	7703383
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	12020571

Crankcase heaters
Code no.

Surface sump heater + bottom insulation, 56 W, 24 V, CE mark, UL	12020360
Surface sump heater + bottom insulation, 56 W, 230 V, CE mark, UL	12020376
Surface sump heater + bottom insulation, 56 W, 400 V, CE mark, UL	12020377
Surface sump heater + bottom insulation, 56 W, 460 V, CE mark, UL	12020378
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
Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers	8156138
Acoustic hood for scroll compressor	12020022
Acoustic bottom insulation for scroll compressor	12020353
Discharge thermostat kit	7750009

Spare parts
Code no.

Electronic motor protection module, 115/230 V	8169016
Mounting kit for 1 scroll compressor including 4 hexagon rigid grommets, 4 sleeves, 4 bolts, 4 washers	7777045
Oil sight glass with gaskets (black & white)	8156019
Gasket for oil sight glass (white teflon)	8156129
Terminal box 210 x 190 incl. cover	12020458
T block connector 60 x 75 mm	8173021

Performance data at 50 Hz, EN 12900 rating conditions

R410A

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)							
	-25	-20	-15	-10	-5	0	5	10

Cooling capacity in W

30	31 721	39 606	48 843	59 622	72 134	86 568	103 114	121 962	143 303
35	29 640	37 234	46 095	56 415	68 382	82 187	98 019	116 069	136 527
40	-	34 752	43 185	52 991	64 361	77 484	92 550	109 749	129 270
45	-	32 136	40 088	49 328	60 048	72 435	86 682	102 976	121 509
50	-	-	36 780	45 402	55 418	67 018	80 392	95 729	113 220
55	-	-	-	41 189	50 448	61 207	73 656	87 983	104 380
60	-	-	-	-	45 115	54 981	66 451	79 715	94 964
65	-	-	-	-	-	48 314	58 753	70 901	84 950

Power input in W

30	16 508	16 696	16 826	16 941	17 084	17 296	17 621	18 102	18 781
35	18 152	18 408	18 577	18 702	18 825	18 988	19 235	19 608	20 150
40	-	20 285	20 513	20 666	20 788	20 922	21 110	21 394	21 819
45	-	22 345	22 650	22 851	22 992	23 115	23 263	23 478	23 804
50	-	-	25 006	25 275	25 454	25 585	25 712	25 877	26 123
55	-	-	-	27 954	28 189	28 348	28 474	28 607	28 793
60	-	-	-	-	31 217	31 423	31 565	31 687	31 831
65	-	-	-	-	-	34 825	35 004	35 133	35 255

Current consumption in A

30	33.66	33.99	34.18	34.30	34.42	34.61	34.95	35.50	36.34
35	35.55	35.97	36.21	36.35	36.45	36.60	36.87	37.32	38.03
40	-	38.20	38.51	38.68	38.80	38.92	39.13	39.49	40.09
45	-	40.74	41.14	41.37	41.51	41.63	41.80	42.09	42.59
50	-	-	44.17	44.47	44.65	44.78	44.93	45.18	45.59
55	-	-	-	48.05	48.29	48.45	48.60	48.81	49.16
60	-	-	-	-	52.48	52.69	52.85	53.05	53.35
65	-	-	-	-	-	57.56	57.76	57.96	58.23

Mass flow in kg/h

30	662	816	993	1 196	1 430	1 697	2 002	2 348	2 739
35	652	807	984	1 188	1 423	1 691	1 996	2 343	2 735
40	-	795	973	1 177	1 412	1 680	1 986	2 333	2 726
45	-	781	959	1 163	1 398	1 666	1 972	2 319	2 712
50	-	-	942	1 146	1 380	1 648	1 953	2 300	2 692
55	-	-	-	1 125	1 358	1 625	1 930	2 276	2 667
60	-	-	-	-	1 333	1 599	1 902	2 247	2 638
65	-	-	-	-	-	1 569	1 871	2 214	2 603

Coefficient of performance (C.O.P.)

30	1.92	2.37	2.90	3.52	4.22	5.01	5.85	6.74	7.63
35	1.63	2.02	2.48	3.02	3.63	4.33	5.10	5.92	6.78
40	-	1.71	2.11	2.56	3.10	3.70	4.38	5.13	5.92
45	-	1.44	1.77	2.16	2.61	3.13	3.73	4.39	5.10
50	-	-	1.47	1.80	2.18	2.62	3.13	3.70	4.33
55	-	-	-	1.47	1.79	2.16	2.59	3.08	3.63
60	-	-	-	-	1.45	1.75	2.11	2.52	2.98
65	-	-	-	-	-	1.39	1.68	2.02	2.41

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

Cooling capacity	80 392	W
Power input	25 712	W
Current consumption	44.93	A
Mass flow	1 953	kg/h
C.O.P.	3.13	

Pressure switch settings

Maximum HP switch setting	45	bar(g)
Minimum LP switch setting	1.5	bar(g)
LP pump down setting	2.3	bar(g)

Sound power data

Sound power level	83	dB(A)
With acoustic hood	77	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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Performance data at 50 Hz, ARI rating conditions

R410A

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)							
	-25	-20	-15	-10	-5	0	5	10

Cooling capacity in W

30	34 257	42 726	52 638	64 194	77 595	93 042	110 735	130 875	153 661
35	32 218	40 423	49 987	61 113	74 002	88 856	105 878	125 269	147 230
40	-	38 017	47 182	57 826	70 153	84 366	100 669	119 264	140 354
45	-	35 487	44 202	54 315	66 032	79 557	95 095	112 851	133 029
50	-	-	41 034	50 569	61 631	74 425	89 158	106 038	125 271
55	-	-	-	46 592	56 961	68 990	82 890	98 869	117 138
60	-	-	-	-	52 082	63 333	76 393	91 476	108 796
65	-	-	-	-	-	57 705	69 983	84 247	100 718

Power input in W

30	16 508	16 696	16 826	16 941	17 084	17 296	17 621	18 102	18 781
35	18 152	18 408	18 577	18 702	18 825	18 988	19 235	19 608	20 150
40	-	20 285	20 513	20 666	20 788	20 922	21 110	21 394	21 819
45	-	22 345	22 650	22 851	22 992	23 115	23 263	23 478	23 804
50	-	-	25 006	25 275	25 454	25 585	25 712	25 877	26 123
55	-	-	-	27 954	28 189	28 348	28 474	28 607	28 793
60	-	-	-	-	31 217	31 423	31 565	31 687	31 831
65	-	-	-	-	-	34 825	35 004	35 133	35 255

Current consumption in A

30	33.66	33.99	34.18	34.30	34.42	34.61	34.95	35.50	36.34
35	35.55	35.97	36.21	36.35	36.45	36.60	36.87	37.32	38.03
40	-	38.20	38.51	38.68	38.80	38.92	39.13	39.49	40.09
45	-	40.74	41.14	41.37	41.51	41.63	41.80	42.09	42.59
50	-	-	44.17	44.47	44.65	44.78	44.93	45.18	45.59
55	-	-	-	48.05	48.29	48.45	48.60	48.81	49.16
60	-	-	-	-	52.48	52.69	52.85	53.05	53.35
65	-	-	-	-	-	57.56	57.76	57.96	58.23

Mass flow in kg/h

30	658	811	987	1 189	1 421	1 686	1 988	2 331	2 718
35	648	802	979	1 181	1 413	1 679	1 982	2 326	2 714
40	-	791	967	1 170	1 403	1 669	1 972	2 317	2 705
45	-	777	953	1 156	1 389	1 655	1 958	2 302	2 691
50	-	-	936	1 139	1 371	1 637	1 940	2 284	2 672
55	-	-	-	1 118	1 349	1 614	1 917	2 260	2 647
60	-	-	-	-	1 325	1 588	1 889	2 231	2 618
65	-	-	-	-	-	1 558	1 858	2 198	2 583

Coefficient of performance (C.O.P.)

30	2.08	2.56	3.13	3.79	4.54	5.38	6.28	7.23	8.18
35	1.77	2.20	2.69	3.27	3.93	4.68	5.50	6.39	7.31
40	-	1.87	2.30	2.80	3.37	4.03	4.77	5.57	6.43
45	-	1.59	1.95	2.38	2.87	3.44	4.09	4.81	5.59
50	-	-	1.64	2.00	2.42	2.91	3.47	4.10	4.80
55	-	-	-	1.67	2.02	2.43	2.91	3.46	4.07
60	-	-	-	-	1.67	2.02	2.42	2.89	3.42
65	-	-	-	-	-	1.66	2.00	2.40	2.86

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

Cooling capacity	90 466	W
Power input	28 181	W
Current consumption	48.21	A
Mass flow	2 065	kg/h
C.O.P.	3.21	

Pressure switch settings

Maximum HP switch setting	45	bar(g)
Minimum LP switch setting	1.5	bar(g)
LP pump down setting	2.3	bar(g)

Sound power data

Sound power level	83	dB(A)
With acoustic hood	77	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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