

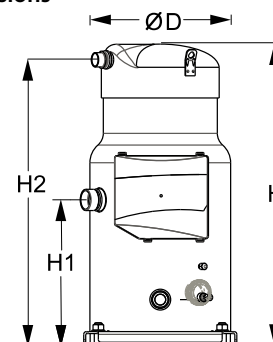
Datasheets

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



General Characteristics

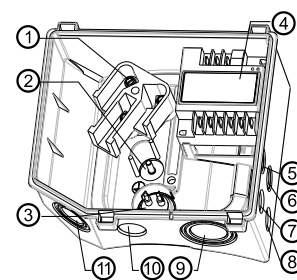
Model number (on compressor nameplate)		SH295A4AAE
Code number for Singlepack*		120H0825
Code number for Industrial pack**		120H0826
Drawing number		8556089g
Suction and discharge connections		Brazed
Suction connection		1-5/8" ODF
Discharge connection		1-1/8" ODF
Oil sight glass		Threaded
Oil equalisation connection		2-1/4" Rotolock
Oil drain connection		1/4" flare
LP gauge port		Schrader
IPR valve		None
Reverse rotation protection		Electronic module
Swept volume	276.2 cm ³ /rev	
Displacement @ Nominal speed	48.1 m ³ /h @ 2900 rpm - 58.0 m ³ /h @ 3500 rpm	
Net weight	111 kg	
Oil charge	6.7 litre, POE - 160SZ	
Maximum system test pressure Low Side / High side	34.3 bar(g) / 48.7 bar(g)	
Maximum differential test pressure	37 bar	
Maximum number of starts per hour	12	
Refrigerant charge limit	13.5 kg	
Approved refrigerants	R410A	

Dimensions


D=317.5 mm
 H=682.5 mm
 H1=331 mm
 H2=647.5 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	0,52 Ω
Rated Load Amps (RLA)	44.3 A
Maximum Continuous Current (MCC)	62 A
Locked Rotor Amps (LRA)	260 A
Motor protection	Electronic protection module, 24 V AC

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

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)	120Z0432
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)	120Z0364
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	120Z0571

Crankcase heaters
Code no.

Surface sump heater + bottom insulation, 56 W, 24 V, CE mark, UL	120Z0360
Surface sump heater + bottom insulation, 56 W, 230 V, CE mark, UL	120Z0376
Surface sump heater + bottom insulation, 56 W, 400 V, CE mark, UL	120Z0377
Surface sump heater + bottom insulation, 56 W, 460 V, CE mark, UL	120Z0378
Belt type crankcase heater, 75 W, 230 V, CE mark, UL	7773108
Belt type crankcase heater, 75 W, 400 V, CE mark, UL	7773118
Belt type crankcase heater, 75 W, 460 V, CE mark, UL	120Z0464

Miscellaneous accessories
Code no.

Electronic soft start kit, MCI 50 CM	037N0401
Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers	8156138
Acoustic hood for scroll compressor	120Z0022
Acoustic bottom insulation for scroll compressor	120Z0353
Discharge thermostat kit	7750009

Spare parts
Code no.

Electronic motor protection module, 24 V AC	120Z0584
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	120Z0458
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	15

Cooling capacity in W

30	25 556	32 088	39 744	48 650	58 930	70 709	84 113	99 267	116 296
35	23 908	30 153	37 456	45 941	55 734	66 960	79 744	94 212	110 488
40	-	28 127	35 045	43 079	52 354	62 997	75 130	88 881	104 374
45	-	-	32 496	40 049	48 776	58 803	70 256	83 259	97 938
50	-	-	29 794	36 834	44 983	54 365	65 106	77 330	91 164
55	-	-	-	33 419	40 958	49 664	59 663	71 079	84 037
60	-	-	-	-	36 687	44 686	53 912	64 488	76 541
65	-	-	-	-	-	-	47 837	57 543	68 659

Power input in W

30	12 986	13 097	13 178	13 259	13 372	13 547	13 817	14 211	14 762
35	14 396	14 545	14 642	14 720	14 810	14 941	15 147	15 457	15 903
40	-	16 137	16 266	16 355	16 435	16 538	16 694	16 934	17 290
45	-	-	18 060	18 175	18 260	18 347	18 468	18 653	18 933
50	-	-	20 036	20 190	20 295	20 381	20 481	20 624	20 842
55	-	-	-	22 412	22 550	22 650	22 743	22 859	23 030
60	-	-	-	-	25 038	25 165	25 266	25 369	25 507
65	-	-	-	-	-	-	28 060	28 165	28 285

Current consumption in A

30	26.10	26.28	26.40	26.50	26.62	26.81	27.11	27.57	28.22
35	27.74	27.97	28.11	28.21	28.32	28.47	28.70	29.07	29.62
40	-	29.90	30.08	30.20	30.30	30.43	30.62	30.91	31.37
45	-	-	32.34	32.50	32.61	32.72	32.88	33.13	33.50
50	-	-	34.92	35.13	35.27	35.39	35.54	35.74	36.06
55	-	-	-	38.13	38.32	38.47	38.61	38.80	39.07
60	-	-	-	-	41.79	41.98	42.14	42.33	42.58
65	-	-	-	-	-	-	46.16	46.36	46.60

Mass flow in kg/h

30	534	661	807	975	1 168	1 386	1 634	1 913	2 226
35	526	653	799	967	1 159	1 378	1 625	1 904	2 216
40	-	643	789	957	1 149	1 367	1 614	1 892	2 203
45	-	-	778	945	1 136	1 354	1 600	1 877	2 187
50	-	-	764	931	1 121	1 337	1 582	1 858	2 167
55	-	-	-	914	1 103	1 319	1 562	1 837	2 145
60	-	-	-	-	1 083	1 297	1 540	1 813	2 119
65	-	-	-	-	-	-	1 514	1 785	2 089

Coefficient of performance (C.O.P.)

30	1.97	2.45	3.02	3.67	4.41	5.22	6.09	6.99	7.88
35	1.66	2.07	2.56	3.12	3.76	4.48	5.26	6.10	6.95
40	-	1.74	2.15	2.63	3.19	3.81	4.50	5.25	6.04
45	-	-	1.80	2.20	2.67	3.21	3.80	4.46	5.17
50	-	-	1.49	1.82	2.22	2.67	3.18	3.75	4.37
55	-	-	-	1.49	1.82	2.19	2.62	3.11	3.65
60	-	-	-	-	1.47	1.78	2.13	2.54	3.00
65	-	-	-	-	-	-	1.70	2.04	2.43

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

Cooling capacity	65 106	W
Power input	20 481	W
Current consumption	35.54	A
Mass flow	1 582	kg/h
C.O.P.	3.18	

Pressure switch settings

Maximum HP switch setting	46.1	bar(g)
Minimum LP switch setting	1.5	bar(g)
LP pump down setting	1.7	bar(g)

Sound power data

Sound power level	82	dB(A)
With acoustic hood	76	dB(A)

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

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

Tolerance according EN12900

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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	15

Cooling capacity in W

30	27 599	34 616	42 833	52 380	63 391	75 997	90 330	106 521	124 703
35	25 987	32 736	40 618	49 766	60 314	72 394	86 138	101 679	119 150
40	-	30 770	38 288	47 009	57 066	68 592	81 721	96 587	113 323
45	-	-	35 831	44 098	53 637	64 585	77 075	91 243	107 223
50	-	-	-	41 026	50 026	60 373	72 205	85 658	100 867
55	-	-	-	37 803	46 246	55 979	67 143	79 873	94 309
60	-	-	-	-	42 352	51 475	61 979	74 003	87 689
65	-	-	-	-	-	-	56 981	68 375	81 403

Power input in W

30	12 986	13 097	13 178	13 259	13 372	13 547	13 817	14 211	14 762
35	14 396	14 545	14 642	14 720	14 810	14 941	15 147	15 457	15 903
40	-	16 137	16 266	16 355	16 435	16 538	16 694	16 934	17 290
45	-	-	18 060	18 175	18 260	18 347	18 468	18 653	18 933
50	-	-	-	20 190	20 295	20 381	20 481	20 624	20 842
55	-	-	-	22 412	22 550	22 650	22 743	22 859	23 030
60	-	-	-	-	25 038	25 165	25 266	25 369	25 507
65	-	-	-	-	-	-	28 060	28 165	28 285

Current consumption in A

30	26.10	26.28	26.40	26.50	26.62	26.81	27.11	27.57	28.22
35	27.74	27.97	28.11	28.21	28.32	28.47	28.70	29.07	29.62
40	-	29.90	30.08	30.20	30.30	30.43	30.62	30.91	31.37
45	-	-	32.34	32.50	32.61	32.72	32.88	33.13	33.50
50	-	-	-	35.13	35.27	35.39	35.54	35.74	36.06
55	-	-	-	38.13	38.32	38.47	38.61	38.80	39.07
60	-	-	-	-	41.79	41.98	42.14	42.33	42.58
65	-	-	-	-	-	-	46.16	46.36	46.60

Mass flow in kg/h

30	531	657	802	969	1 160	1 377	1 623	1 900	2 210
35	523	649	794	961	1 152	1 369	1 614	1 890	2 200
40	-	639	785	951	1 142	1 358	1 603	1 878	2 187
45	-	-	773	939	1 129	1 345	1 588	1 863	2 170
50	-	-	-	925	1 114	1 329	1 571	1 845	2 151
55	-	-	-	908	1 096	1 310	1 552	1 824	2 128
60	-	-	-	-	1 076	1 289	1 529	1 799	2 102
65	-	-	-	-	-	-	1 504	1 772	2 073

Coefficient of performance (C.O.P.)

30	2.13	2.64	3.25	3.95	4.74	5.61	6.54	7.50	8.45
35	1.81	2.25	2.77	3.38	4.07	4.85	5.69	6.58	7.49
40	-	1.91	2.35	2.87	3.47	4.15	4.90	5.70	6.55
45	-	-	1.98	2.43	2.94	3.52	4.17	4.89	5.66
50	-	-	-	2.03	2.46	2.96	3.53	4.15	4.84
55	-	-	-	1.69	2.05	2.47	2.95	3.49	4.09
60	-	-	-	-	1.69	2.05	2.45	2.92	3.44
65	-	-	-	-	-	-	2.03	2.43	2.88

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

Cooling capacity	73 196	W
Power input	22 505	W
Current consumption	38.29	A
Mass flow	1 670	kg/h
C.O.P.	3.25	

Pressure switch settings

Maximum HP switch setting	46.1	bar(g)
Minimum LP switch setting	1.5	bar(g)
LP pump down setting	1.7	bar(g)

Sound power data

Sound power level	82	dB(A)
With accoustic hood	76	dB(A)

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

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

Tolerance according EN12900

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Performance data at 60 Hz, EN 12900 rating conditions
R410A

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

Cooling capacity in W

30	31 881	39 491	48 440	58 905	71 060	85 083	101 150	119 437	140 122
35	29 814	37 127	45 693	55 686	67 283	80 658	95 986	113 444	133 207
40	-	34 683	42 825	52 308	63 304	75 989	90 537	107 121	125 916
45	-	-	39 828	48 757	59 111	71 062	84 783	100 447	118 227
50	-	-	36 683	45 015	54 681	65 851	78 696	93 388	110 097
55	-	-	-	41 049	49 974	60 307	72 218	85 876	101 448
60	-	-	-	-	44 905	54 331	65 231	77 770	92 113
65	-	-	-	-	-	-	57 450	68 733	81 693

Power input in W

30	15 528	15 767	15 957	16 153	16 407	16 772	17 302	18 049	19 067
35	17 129	17 438	17 663	17 858	18 074	18 366	18 786	19 389	20 226
40	-	19 240	19 525	19 744	19 949	20 193	20 530	21 012	21 694
45	-	-	21 554	21 822	22 041	22 263	22 542	22 931	23 483
50	-	-	23 760	24 103	24 362	24 587	24 834	25 154	25 602
55	-	-	-	26 597	26 921	27 176	27 415	27 693	28 062
60	-	-	-	-	29 729	30 039	30 297	30 558	30 873
65	-	-	-	-	-	-	33 490	33 758	34 047

Current consumption in A

30	24.88	25.25	25.51	25.73	26.00	26.38	26.95	27.79	28.97
35	26.76	27.24	27.55	27.79	28.03	28.33	28.78	29.45	30.42
40	-	29.38	29.79	30.07	30.30	30.56	30.92	31.45	32.23
45	-	-	32.25	32.60	32.86	33.10	33.39	33.82	34.44
50	-	-	34.96	35.42	35.73	35.98	36.24	36.59	37.09
55	-	-	-	38.56	38.96	39.25	39.51	39.80	40.20
60	-	-	-	-	42.58	42.94	43.22	43.49	43.82
65	-	-	-	-	-	-	47.41	47.69	47.99

Mass flow in kg/h

30	663	812	985	1 182	1 409	1 668	1 964	2 299	2 677
35	654	804	976	1 174	1 401	1 660	1 955	2 290	2 667
40	-	794	966	1 164	1 390	1 649	1 943	2 277	2 654
45	-	-	954	1 151	1 377	1 635	1 929	2 262	2 637
50	-	-	941	1 137	1 361	1 618	1 911	2 242	2 617
55	-	-	-	1 120	1 343	1 599	1 890	2 220	2 592
60	-	-	-	-	1 323	1 576	1 865	2 193	2 564
65	-	-	-	-	-	-	1 838	2 164	2 532

Coefficient of performance (C.O.P.)

30	2.05	2.50	3.04	3.65	4.33	5.07	5.85	6.62	7.35
35	1.74	2.13	2.59	3.12	3.72	4.39	5.11	5.85	6.59
40	-	1.80	2.19	2.65	3.17	3.76	4.41	5.10	5.80
45	-	-	1.85	2.23	2.68	3.19	3.76	4.38	5.03
50	-	-	1.54	1.87	2.24	2.68	3.17	3.71	4.30
55	-	-	-	1.54	1.86	2.22	2.63	3.10	3.62
60	-	-	-	-	1.51	1.81	2.15	2.55	2.98
65	-	-	-	-	-	-	1.72	2.04	2.40

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

Cooling capacity	78 696	W
Power input	24 834	W
Current consumption	36.24	A
Mass flow	1 911	kg/h
C.O.P.	3.17	

Pressure switch settings

Maximum HP switch setting	46.1	bar(g)
Minimum LP switch setting	1.5	bar(g)
LP pump down setting	1.7	bar(g)

Sound power data

Sound power level	86	dB(A)
With acoustic hood	82	dB(A)

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

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

Tolerance according EN12900

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Performance data at 60 Hz, ARI rating conditions
R410A

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

Cooling capacity in W

30	34 429	42 602	52 204	63 421	76 440	91 446	108 625	128 165	150 251
35	32 407	40 307	49 551	60 324	72 812	87 203	103 682	122 436	143 650
40	-	37 942	46 789	57 080	69 001	82 739	98 479	116 408	136 712
45	-	-	43 915	53 686	65 002	78 049	93 012	110 079	129 436
50	-	-	-	50 139	60 811	73 129	87 278	103 445	121 816
55	-	-	-	46 434	56 425	67 976	81 272	96 501	113 848
60	-	-	-	-	51 840	62 585	74 991	89 244	105 530
65	-	-	-	-	-	-	68 432	81 671	96 857

Power input in W

30	15 528	15 767	15 957	16 153	16 407	16 772	17 302	18 049	19 067
35	17 129	17 438	17 663	17 858	18 074	18 366	18 786	19 389	20 226
40	-	19 240	19 525	19 744	19 949	20 193	20 530	21 012	21 694
45	-	-	21 554	21 822	22 041	22 263	22 542	22 931	23 483
50	-	-	-	24 103	24 362	24 587	24 834	25 154	25 602
55	-	-	-	26 597	26 921	27 176	27 415	27 693	28 062
60	-	-	-	-	29 729	30 039	30 297	30 558	30 873
65	-	-	-	-	-	-	33 490	33 758	34 047

Current consumption in A

30	24.88	25.25	25.51	25.73	26.00	26.38	26.95	27.79	28.97
35	26.76	27.24	27.55	27.79	28.03	28.33	28.78	29.45	30.42
40	-	29.38	29.79	30.07	30.30	30.56	30.92	31.45	32.23
45	-	-	32.25	32.60	32.86	33.10	33.39	33.82	34.44
50	-	-	-	35.42	35.73	35.98	36.24	36.59	37.09
55	-	-	-	38.56	38.96	39.25	39.51	39.80	40.20
60	-	-	-	-	42.58	42.94	43.22	43.49	43.82
65	-	-	-	-	-	-	47.41	47.69	47.99

Mass flow in kg/h

30	659	808	979	1 175	1 400	1 657	1 950	2 282	2 656
35	650	799	970	1 167	1 392	1 649	1 942	2 273	2 647
40	-	790	960	1 157	1 381	1 638	1 930	2 261	2 634
45	-	-	949	1 144	1 368	1 624	1 915	2 245	2 617
50	-	-	-	1 130	1 353	1 607	1 897	2 226	2 597
55	-	-	-	1 113	1 335	1 588	1 877	2 204	2 573
60	-	-	-	-	1 314	1 566	1 853	2 178	2 545
65	-	-	-	-	-	-	1 826	2 148	2 513

Coefficient of performance (C.O.P.)

30	2.22	2.70	3.27	3.93	4.66	5.45	6.28	7.10	7.88
35	1.89	2.31	2.81	3.38	4.03	4.75	5.52	6.31	7.10
40	-	1.97	2.40	2.89	3.46	4.10	4.80	5.54	6.30
45	-	-	2.04	2.46	2.95	3.51	4.13	4.80	5.51
50	-	-	-	2.08	2.50	2.97	3.51	4.11	4.76
55	-	-	-	1.75	2.10	2.50	2.96	3.48	4.06
60	-	-	-	-	1.74	2.08	2.48	2.92	3.42
65	-	-	-	-	-	-	2.04	2.42	2.84

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

Cooling capacity	88 508	W
Power input	27 205	W
Current consumption	39.21	A
Mass flow	2 018	kg/h
C.O.P.	3.25	

Pressure switch settings

Maximum HP switch setting	46.1	bar(g)
Minimum LP switch setting	1.5	bar(g)
LP pump down setting	1.7	bar(g)

Sound power data

Sound power level	86	dB(A)
With acoustic hood	82	dB(A)

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

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

Tolerance according EN12900

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