

Datasheets

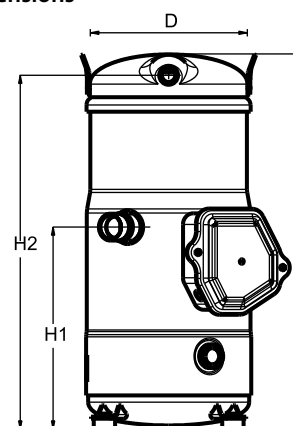
Danfoss scroll compressors **SM / SY / SZ / SH / WSH**



General Characteristics

Model number (on compressor nameplate)		SH184A4ALC
Code number for Singlepack*		120H0361
Code number for Industrial pack**		120H0362
Drawing number		8560023e
Suction and discharge connections		Brazed
Suction connection		1-3/8" ODF
Discharge connection		7/8" ODF
Oil sight glass		Threaded
Oil equalisation connection		1-3/4" Rotolock
Oil drain connection		None
LP gauge port		Schrader
IPR valve		None
Swept volume		170.3 cm ³ /rev
Displacement @ Nominal speed		29.6 m ³ /h @ 2900 rpm - 35.8 m ³ /h @ 3500 rpm
Net weight		72 kg
Oil charge		3.6 litre, POE - 160SZ
Maximum system test pressure Low Side / High side		33.3 bar(g) / 48.7 bar(g)
Maximum differential test pressure		37 bar
Maximum number of starts per hour		12
Refrigerant charge limit		7.9 kg
Approved refrigerants		R410A

Dimensions

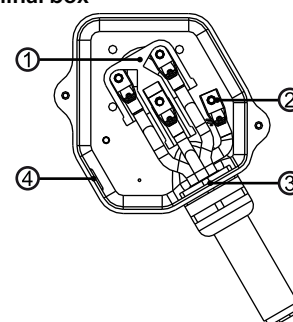


D=243 mm
H=555 mm
H1=300 mm
H2=525 mm
H3=- mm

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°C	0.83 Ω
Rated Load Amps (RLA)	27.6 A
Maximum Continuous Current (MCC)	38.6 A
Locked Rotor Amps (LRA)	197 A
Motor protection	Internal overload protector

Terminal box



IP54 (with cable gland)
1: Power connection, 3 x 4.8 mm (3/16")
2: Earth M4
3: Hole Ø 40.5 mm (1.59")
4: Knock-out Ø 16.5 mm (0.65")

Recommended Installation torques

Oil sight glass	50 Nm
Power connections / Earth connection	3 Nm / 2 Nm
Mounting bolts	15 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: 8 Unboxed compressors on pallet (order per multiples of 8)

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)	120Z0405
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, 80 W, 24 V, CE mark, UL	120Z0388
Surface sump heater, 80 W, 230 V, CE mark, UL	120Z0389
Surface sump heater, 80 W, 400 V, CE mark, UL	120Z0390
Surface sump heater, 80 W, 460 V, CE mark, UL	120Z0391

Miscellaneous accessories
Code no.

Electronic soft start kit, MCI 25 C	7705007
Acoustic hood for scroll compressor SH184	120Z0135
Gasket, 1-3/4"	8156132
Discharge thermostat kit	7750009

Spare parts
Code no.

Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers	120Z0066
Oil sight glass with gaskets (black & white)	8156019
Terminal box cover	120Z0413
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	15 942	19 789	24 318	29 617	35 776	42 885	51 031	60 304	70 794
35	14 844	18 570	22 929	28 010	33 903	40 696	48 479	57 341	67 370
40	-	17 344	21 502	26 335	31 930	38 378	45 767	54 186	63 724
45	-	-	20 015	24 567	29 835	35 906	42 870	50 815	59 831
50	-	-	18 442	22 684	27 592	33 256	39 764	47 205	55 669
55	-	-	-	20 660	25 179	30 404	36 426	43 332	51 212
60	-	-	-	-	22 571	27 327	32 831	39 171	46 437
65	-	-	-	-	-	-	28 956	34 700	41 320

Power input in W

30	7 648	7 812	7 984	8 159	8 329	8 489	8 633	8 754	8 848
35	8 533	8 678	8 839	9 009	9 182	9 353	9 515	9 662	9 788
40	-	9 609	9 752	9 912	10 083	10 258	10 432	10 598	10 751
45	-	-	10 766	10 910	11 072	11 246	11 426	11 606	11 779
50	-	-	11 924	12 046	12 193	12 359	12 539	12 726	12 914
55	-	-	-	13 361	13 487	13 640	13 813	14 001	14 198
60	-	-	-	-	14 997	15 130	15 291	15 474	15 674
65	-	-	-	-	-	-	17 015	17 187	17 383

Current consumption in A

30	17.44	17.69	17.91	18.10	18.29	18.51	18.76	19.07	19.46
35	18.28	18.54	18.75	18.93	19.11	19.31	19.54	19.82	20.18
40	-	19.53	19.74	19.92	20.09	20.27	20.48	20.74	21.07
45	-	-	20.92	21.10	21.26	21.43	21.62	21.86	22.17
50	-	-	22.31	22.49	22.65	22.82	23.00	23.23	23.51
55	-	-	-	24.14	24.30	24.46	24.64	24.86	25.13
60	-	-	-	-	26.24	26.40	26.58	26.79	27.04
65	-	-	-	-	-	-	28.85	29.05	29.30

Mass flow in kg/h

30	330	407	494	594	709	841	991	1 161	1 352
35	326	403	490	591	706	838	988	1 157	1 349
40	-	398	485	586	701	833	982	1 152	1 343
45	-	-	479	580	694	826	975	1 144	1 334
50	-	-	472	572	686	817	965	1 133	1 323
55	-	-	-	563	677	806	954	1 121	1 310
60	-	-	-	-	666	794	940	1 106	1 294
65	-	-	-	-	-	-	925	1 090	1 276

Coefficient of performance (C.O.P.)

30	2.08	2.53	3.05	3.63	4.30	5.05	5.91	6.89	8.00
35	1.74	2.14	2.59	3.11	3.69	4.35	5.10	5.93	6.88
40	-	1.81	2.20	2.66	3.17	3.74	4.39	5.11	5.93
45	-	-	1.86	2.25	2.69	3.19	3.75	4.38	5.08
50	-	-	1.55	1.88	2.26	2.69	3.17	3.71	4.31
55	-	-	-	1.55	1.87	2.23	2.64	3.09	3.61
60	-	-	-	-	1.51	1.81	2.15	2.53	2.96
65	-	-	-	-	-	-	1.70	2.02	2.38

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

Cooling capacity	39 764	W
Power input	12 539	W
Current consumption	23.00	A
Mass flow	965	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	75	dB(A)
With acoustic hood	69	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

Cooling capacity in W

30	17 216	21 348	26 207	31 888	38 485	46 092	54 803	64 711	75 912
35	16 134	20 160	24 865	30 343	36 689	43 999	52 366	61 886	72 652
40	-	18 973	23 492	28 738	34 804	41 787	49 782	58 884	69 188
45	-	-	22 069	27 051	32 808	39 436	47 030	55 688	65 504
50	-	-	-	25 266	30 686	36 931	44 100	52 288	61 594
55	-	-	-	23 371	28 430	34 271	40 992	48 693	57 471
60	-	-	-	-	26 057	31 479	37 743	44 950	53 200
65	-	-	-	-	-	-	34 491	41 231	48 990

Power input in W

30	7 648	7 812	7 984	8 159	8 329	8 489	8 633	8 754	8 848
35	8 533	8 678	8 839	9 009	9 182	9 353	9 515	9 662	9 788
40	-	9 609	9 752	9 912	10 083	10 258	10 432	10 598	10 751
45	-	-	10 766	10 910	11 072	11 246	11 426	11 606	11 779
50	-	-	-	12 046	12 193	12 359	12 539	12 726	12 914
55	-	-	-	13 361	13 487	13 640	13 813	14 001	14 198
60	-	-	-	-	14 997	15 130	15 291	15 474	15 674
65	-	-	-	-	-	-	17 015	17 187	17 383

Current consumption in A

30	17.44	17.69	17.91	18.10	18.29	18.51	18.76	19.07	19.46
35	18.28	18.54	18.75	18.93	19.11	19.31	19.54	19.82	20.18
40	-	19.53	19.74	19.92	20.09	20.27	20.48	20.74	21.07
45	-	-	20.92	21.10	21.26	21.43	21.62	21.86	22.17
50	-	-	-	22.49	22.65	22.82	23.00	23.23	23.51
55	-	-	-	24.14	24.30	24.46	24.64	24.86	25.13
60	-	-	-	-	26.24	26.40	26.58	26.79	27.04
65	-	-	-	-	-	-	28.85	29.05	29.30

Mass flow in kg/h

30	328	404	491	591	705	835	984	1 152	1 342
35	324	400	487	587	702	832	981	1 149	1 339
40	-	395	482	582	697	827	975	1 143	1 333
45	-	-	476	576	690	820	968	1 136	1 324
50	-	-	-	569	682	811	959	1 125	1 313
55	-	-	-	560	672	801	947	1 113	1 300
60	-	-	-	-	661	789	934	1 098	1 284
65	-	-	-	-	-	-	919	1 082	1 266

Coefficient of performance (C.O.P.)

30	2.25	2.73	3.28	3.91	4.62	5.43	6.35	7.39	8.58
35	1.89	2.32	2.81	3.37	4.00	4.70	5.50	6.41	7.42
40	-	1.97	2.41	2.90	3.45	4.07	4.77	5.56	6.44
45	-	-	2.05	2.48	2.96	3.51	4.12	4.80	5.56
50	-	-	-	2.10	2.52	2.99	3.52	4.11	4.77
55	-	-	-	1.75	2.11	2.51	2.97	3.48	4.05
60	-	-	-	-	1.74	2.08	2.47	2.90	3.39
65	-	-	-	-	-	-	2.03	2.40	2.82

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

Cooling capacity	44 661	W
Power input	13 732	W
Current consumption	24.52	A
Mass flow	1 019	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	75	dB(A)
With acoustic hood	69	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

Cooling capacity in W

30	19 312	23 907	29 292	35 571	42 848	51 230	60 822	71 728	84 055
35	18 103	22 537	27 715	33 741	40 719	48 755	57 952	68 416	80 251
40	-	21 093	26 034	31 777	38 425	46 083	54 854	64 842	76 152
45	-	-	24 245	29 674	35 960	43 207	51 518	60 997	71 746
50	-	-	22 342	27 423	33 313	40 115	47 930	56 860	67 008
55	-	-	-	25 007	30 464	36 780	44 057	52 395	61 895
60	-	-	-	-	27 363	33 144	39 829	47 517	56 306
65	-	-	-	-	-	-	35 077	42 024	50 000

Power input in W

30	9 296	9 511	9 734	9 954	10 161	10 345	10 495	10 600	10 650
35	10 232	10 438	10 660	10 889	11 114	11 324	11 510	11 659	11 763
40	-	11 484	11 695	11 922	12 155	12 381	12 592	12 776	12 924
45	-	-	12 867	13 083	13 312	13 545	13 771	13 980	14 161
50	-	-	14 206	14 399	14 616	14 845	15 076	15 298	15 502
55	-	-	-	15 901	16 094	16 308	16 534	16 761	16 978
60	-	-	-	-	17 776	17 966	18 176	18 397	18 616
65	-	-	-	-	-	-	20 030	20 234	20 446

Current consumption in A

30	17.62	17.84	18.02	18.20	18.41	18.70	19.08	19.60	20.29
35	18.48	18.72	18.91	19.08	19.27	19.52	19.86	20.32	20.94
40	-	19.74	19.95	20.12	20.30	20.53	20.82	21.23	21.78
45	-	-	21.17	21.35	21.53	21.73	22.00	22.37	22.86
50	-	-	22.58	22.79	22.97	23.17	23.42	23.75	24.19
55	-	-	-	24.45	24.65	24.85	25.08	25.39	25.80
60	-	-	-	-	26.59	26.80	27.03	27.32	27.69
65	-	-	-	-	-	-	29.27	29.55	29.91

Mass flow in kg/h

30	402	492	595	714	849	1 005	1 181	1 381	1 606
35	397	488	592	711	848	1 004	1 181	1 381	1 607
40	-	483	587	707	844	1 000	1 178	1 379	1 605
45	-	-	581	701	838	994	1 172	1 373	1 600
50	-	-	573	693	830	986	1 164	1 365	1 592
55	-	-	-	682	819	975	1 153	1 353	1 580
60	-	-	-	-	806	962	1 139	1 339	1 565
65	-	-	-	-	-	-	1 122	1 321	1 546

Coefficient of performance (C.O.P.)

30	2.08	2.51	3.01	3.57	4.22	4.95	5.80	6.77	7.89
35	1.77	2.16	2.60	3.10	3.66	4.31	5.04	5.87	6.82
40	-	1.84	2.23	2.67	3.16	3.72	4.36	5.08	5.89
45	-	-	1.88	2.27	2.70	3.19	3.74	4.36	5.07
50	-	-	1.57	1.90	2.28	2.70	3.18	3.72	4.32
55	-	-	-	1.57	1.89	2.26	2.66	3.13	3.65
60	-	-	-	-	1.54	1.84	2.19	2.58	3.02
65	-	-	-	-	-	-	1.75	2.08	2.45

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

Cooling capacity	47 930	W
Power input	15 076	W
Current consumption	23.42	A
Mass flow	1 164	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	78	dB(A)
With acoustic hood	72	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

Cooling capacity in W

30	20 856	25 791	31 568	38 298	46 092	55 061	65 317	76 970	90 131
35	19 677	24 467	30 055	36 550	44 066	52 711	62 599	73 839	86 543
40	-	23 075	28 443	34 676	41 883	50 176	59 666	70 464	82 682
45	-	-	26 734	32 674	39 544	47 455	56 519	66 846	78 548
50	-	-	-	30 544	37 048	44 549	53 157	62 984	74 141
55	-	-	-	28 288	34 396	41 457	49 580	58 878	69 461
60	-	-	-	-	31 588	38 179	45 788	54 528	64 508
65	-	-	-	-	-	-	41 782	49 934	59 281

Power input in W

30	9 296	9 511	9 734	9 954	10 161	10 345	10 495	10 600	10 650
35	10 232	10 438	10 660	10 889	11 114	11 324	11 510	11 659	11 763
40	-	11 484	11 695	11 922	12 155	12 381	12 592	12 776	12 924
45	-	-	12 867	13 083	13 312	13 545	13 771	13 980	14 161
50	-	-	-	14 399	14 616	14 845	15 076	15 298	15 502
55	-	-	-	15 901	16 094	16 308	16 534	16 761	16 978
60	-	-	-	-	17 776	17 966	18 176	18 397	18 616
65	-	-	-	-	-	-	20 030	20 234	20 446

Current consumption in A

30	17.62	17.84	18.02	18.20	18.41	18.70	19.08	19.60	20.29
35	18.48	18.72	18.91	19.08	19.27	19.52	19.86	20.32	20.94
40	-	19.74	19.95	20.12	20.30	20.53	20.82	21.23	21.78
45	-	-	21.17	21.35	21.53	21.73	22.00	22.37	22.86
50	-	-	-	22.79	22.97	23.17	23.42	23.75	24.19
55	-	-	-	24.45	24.65	24.85	25.08	25.39	25.80
60	-	-	-	-	26.59	26.80	27.03	27.32	27.69
65	-	-	-	-	-	-	29.27	29.55	29.91

Mass flow in kg/h

30	399	489	591	709	844	998	1 173	1 371	1 594
35	395	485	588	707	842	997	1 173	1 371	1 595
40	-	480	584	703	839	994	1 170	1 369	1 593
45	-	-	577	696	832	988	1 164	1 364	1 588
50	-	-	-	688	824	979	1 156	1 355	1 580
55	-	-	-	678	814	969	1 145	1 344	1 568
60	-	-	-	-	801	955	1 131	1 329	1 553
65	-	-	-	-	-	-	1 114	1 312	1 535

Coefficient of performance (C.O.P.)

30	2.24	2.71	3.24	3.85	4.54	5.32	6.22	7.26	8.46
35	1.92	2.34	2.82	3.36	3.96	4.65	5.44	6.33	7.36
40	-	2.01	2.43	2.91	3.45	4.05	4.74	5.52	6.40
45	-	-	2.08	2.50	2.97	3.50	4.10	4.78	5.55
50	-	-	-	2.12	2.53	3.00	3.53	4.12	4.78
55	-	-	-	1.78	2.14	2.54	3.00	3.51	4.09
60	-	-	-	-	1.78	2.13	2.52	2.96	3.47
65	-	-	-	-	-	-	2.09	2.47	2.90

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

Cooling capacity	53 988	W
Power input	16 451	W
Current consumption	24.99	A
Mass flow	1 231	kg/h
C.O.P.	3.28	

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	78	dB(A)
With acoustic hood	72	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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