

MAKING MODERN LIVING POSSIBLE



Datasheets

Performer[®] scroll compressors **SM / SY / SZ / SH**



FRCC.UD.120806.193418

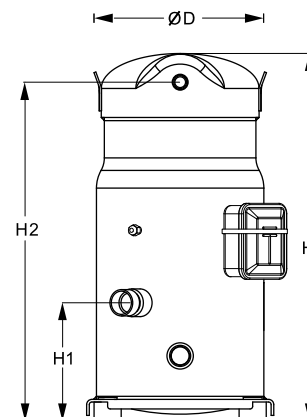
www.danfoss.com/odsg

Performer[®]
Air Conditioning Scroll Compressors

General Characteristics

Model number (on compressor nameplate)		SM120S4VC
Code number for Singlepack*		SM120-4VI
Code number for Industrial pack**		SM120-4VM
Drawing number		8552037b
Suction and discharge connections		Brazed
Suction connection		1-3/8" ODF
Discharge connection		7/8" ODF
Oil sight glass		Threaded
Oil equalization connection		3/8" flare SAE
Oil drain connection		None
LP gauge port		Schrader
IPR valve		None
Swept volume		10.17 in3/rev
Displacement @ Nominal speed		1024 cfh @ 2900 rpm - 1236 cfh @ 3500 rpm
Net weight		161 lbs
Oil charge		110 oz, Mineral - 160P
Maximum system test pressure Low Side / High side		363 psi / 464 psi
Maximum differential test pressure		348 psi
Maximum number of starts per hour		12
Refrigerant charge limit		22 lbs
Approved refrigerants		R22, R417A-160SZ

Dimensions

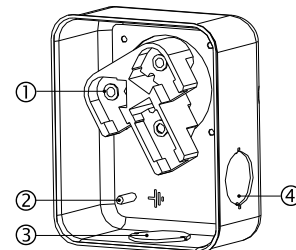


D=10 inch, H=22 inch,
H1=7 inch, H2=20.3 inch

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 77°F	1.05 Ω
Rated Load Amps (RLA)	20.7 A
Maximum Continuous Current (MCC)	29 A
Locked Rotor Amps (LRA)	130 A
Motor protection	Internal overload protector

Terminal box



IP54 (with cable gland)

- 1: Power connection, 3 x 4.8 mm (3/16")
- 2: Earth M4-12
- 3: Knock-out Ø 29 mm (1.14")
- 4: Knock-out Ø 25.5 mm (1.00")

Recommended Installation torques

Oil sight glass	37 ft.lbs
Power connections / Earth connection	2 ft.lbs / 1 ft.lbs
Mounting bolts	15 ft.lbs

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, 1-1/8" ODF & 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.

Mineral oil, 160P, 2 liter can	7754001
Mineral oil, 160P, 5 liter can	7754002

Crankcase heaters
Code no.

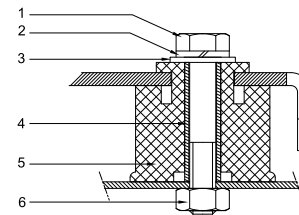
Surface sump heater + bottom insulation, 48 W, 24 V, CE mark, UL	120Z0361
Surface sump heater + bottom insulation, 48 W, 230 V, CE mark, UL	120Z0380
Surface sump heater + bottom insulation, 48 W, 400 V, CE mark, UL	120Z0381
Surface sump heater + bottom insulation, 48 W, 460 V, CE mark	120Z0382
Belt type crankcase heater, 65 W, 460 V, CE mark, UL	120Z0466
Belt type crankcase heater, 65 W, 230 V, CE mark, UL	7773107
Belt type crankcase heater, 65 W, 400 V, CE mark, UL	7773117
Belt type crankcase heater, 65 W, 400 V, CE mark, UL	120Z0039

Miscellaneous accessories
Code no.

Electronic soft start kit, MCI 25 C	7705007
Soft start kit with statoric resistors, prewired box, SCR03	7705001
Acoustic hood for scroll compressor S110-S120	7755010
Discharge thermostat kit	7750009

Spare parts
Code no.

Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers	8156138
Oil sight glass with gaskets (black & white)	8156019
Gasket for oil sight glass (white teflon)	8156129
Service kit for terminal box 96 x 115 mm, including 1 cover, 1 clamp, 1 T block connector 52 x 57 mm, 1 cable gland	8156135
T block connector 2.1" x 2.3"	8173230

Mounting kit


- 1: Bolt (4x)
- 2: Lock washer (4x)
- 3: Flat washer (4x)
- 4: Sleeve (4x)
- 5: Grommet (4x)
- 6: Nut (4x)

Performance data at 60 Hz, ARI rating conditions
R22

Cond. temp. in °F (tc)	Evaporating temperature in °F (to)								
	0	10	20	30	35	40	45	50	55

Cooling capacity in Btu/h

90	58 342	74 284	92 984	114 689	126 746	139 647	153 423	168 106	183 725
100	54 998	70 485	88 612	109 626	121 293	133 775	147 103	161 308	176 420
110	-	66 487	83 964	104 210	115 449	127 473	140 314	154 002	168 568
120	-	62 298	79 047	98 448	109 220	120 748	133 064	146 196	160 178
130	-	-	73 871	92 349	102 615	113 609	125 359	137 898	151 257
140	-	-	-	85 919	95 641	106 061	117 209	129 115	141 812
150	-	-	-	-	-	98 114	108 620	119 855	131 851

Power input in W

90	6 711	6 751	6 797	6 847	6 874	6 902	6 931	6 961	6 993
100	7 538	7 573	7 611	7 653	7 675	7 698	7 722	7 746	7 771
110	-	8 509	8 540	8 573	8 590	8 607	8 625	8 643	8 661
120	-	9 573	9 595	9 618	9 629	9 640	9 652	9 663	9 675
130	-	-	10 789	10 800	10 805	10 810	10 815	10 819	10 823
140	-	-	-	12 131	12 130	12 128	12 126	12 122	12 118
150	-	-	-	-	-	13 606	13 596	13 585	13 572

Current consumption in A

90	11.55	11.63	11.70	11.78	11.82	11.86	11.89	11.93	11.97
100	12.43	12.49	12.56	12.63	12.66	12.69	12.72	12.75	12.78
110	-	13.52	13.58	13.63	13.66	13.68	13.71	13.73	13.75
120	-	14.73	14.78	14.82	14.84	14.85	14.87	14.88	14.89
130	-	-	16.17	16.20	16.21	16.22	16.23	16.23	16.23
140	-	-	-	17.80	17.80	17.80	17.80	17.79	17.78
150	-	-	-	-	-	19.62	19.60	19.59	19.57

Mass flow in lbs/h

90	769	965	1 191	1 449	1 592	1 743	1 904	2 075	2 256
100	754	952	1 180	1 440	1 584	1 736	1 898	2 069	2 250
110	-	937	1 166	1 427	1 571	1 723	1 885	2 057	2 238
120	-	919	1 148	1 409	1 553	1 705	1 867	2 038	2 220
130	-	-	1 126	1 386	1 529	1 681	1 842	2 013	2 194
140	-	-	-	1 358	1 500	1 651	1 811	1 981	2 160
150	-	-	-	-	-	1 614	1 772	1 940	2 118

Energy Efficiency Ratio (E.E.R.)

90	8.69	11.00	13.68	16.75	18.44	20.23	22.14	24.15	26.27
100	7.30	9.31	11.64	14.32	15.80	17.38	19.05	20.82	22.70
110	-	7.81	9.83	12.16	13.44	14.81	16.27	17.82	19.46
120	-	6.51	8.24	10.24	11.34	12.53	13.79	15.13	16.56
130	-	-	6.85	8.55	9.50	10.51	11.59	12.75	13.98
140	-	-	-	7.08	7.88	8.74	9.67	10.65	11.70
150	-	-	-	-	-	7.21	7.99	8.82	9.71

Nominal performance at to = 45 °F, tc = 130 °F

Cooling capacity	125 359	Btu/h	Current consumption	16.23	A
Power input	10 815	W	Mass flow	1 842	lbs/h
E.E.R.	11.59				

Pressure switch settings

Maximum HP switch setting	406	psi(g)
Minimum LP switch setting	7	psi(g)
LP pump down setting	19	psi(g)

T 0 : Evaporating temperature at dew point

T C : Condensing temperature at dew point

Rating conditions : Superheat = 20 °F , Subcooling = 15 °F

All performance data +/- 5%

Sound power data

Sound power level	78	dB(A)
With acoustic hood	70	dB(A)

