

Datasheets

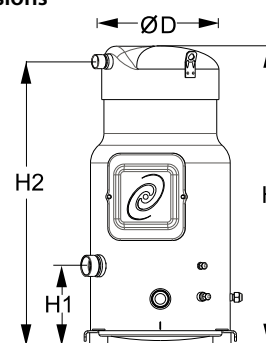
# Danfoss scroll compressors **SM / SY / SZ / SH / WSH**



**General Characteristics**

Model number (on compressor nameplate)	SZ175S4RC	SZ175S4CC
Code number for Singlepack*	SZ175-4RI	SZ175-4CAI
Code number for Industrial pack**	SZ175-4RM	SZ175-4CAM
Drawing number	8551119b	8551056c
Suction and discharge connections	Rotolock	Brazed
Suction connection	2-1/4" Rotolock	1-5/8" ODF
Discharge connection	1-3/4" Rotolock	1-1/8" ODF
Suction connection with supplied sleeve	1-3/8" ODF	
Discharge connection with supplied sleeve	7/8" ODF	
Oil sight glass	Threaded	Threaded
Oil equalisation connection	3/8" flare SAE	3/8" flare SAE
Oil drain connection	1/4" flare	1/4" flare
LP gauge port	Schrader	Schrader
IPR valve	None	None
Swept volume	233 cm <sup>3</sup> /rev	
Displacement @ Nominal speed	40.5 m <sup>3</sup> /h @ 2900 rpm - 48.9 m <sup>3</sup> /h @ 3500 rpm	
Net weight	100 kg	
Oil charge	6,2 litre, POE - 160SZ	
Maximum system test pressure Low Side / High side	25 bar(g) / 32 bar(g)	
Maximum differential test pressure	24 bar	
Maximum number of starts per hour	12	
Refrigerant charge limit	13,5 kg	
Approved refrigerants	R407C, R134a, R404A, R507A	

**Dimensions**

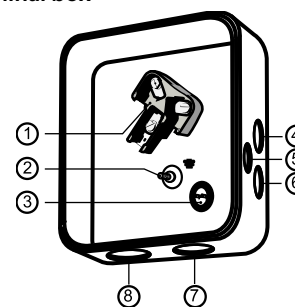


D=317 mm  
H=678 mm  
H1=180 mm  
H2=643 mm  
H3=- mm

**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	0.77 Ω
Maximum Must Trip current (MMT)	35 A
Locked Rotor Amps (LRA)	175 A
Motor protection	Internal thermostat, ext. overload protector needed

**Terminal box**



IP54 (with cable gland)

- 1: Power connection, 3 x 4.8 mm (3/16")
- 2: Earth M5
- 3: Thermostat connector
- 4: Knock-out Ø 22 mm (7/8") for 1/2" conduit
- 5: Knock-out Ø 16.5 mm (0.65")
- 6: Knock-out Ø 20.5 mm (0.81")
- 7: Double knock-out Ø 32.1 mm (1.26") & Ø 25.4 mm (1")
- 8: Double knock-out Ø 44 mm (1-3/4") for 1-1/4" conduit & Ø 34 mm (1-3/8") for 1" conduit

**Recommended Installation torques**

Suction Rotolock nut or valve	130 Nm
Discharge Rotolock nut or valve	110 Nm
Oil sight glass	50 Nm
Power connections / Earth connection	3 Nm / 2 Nm
Terminal box cover screws	2,3 Nm
Mounting bolts	21 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: 6 Unboxed compressors on pallet (order per multiples of 6)

**Rotolock accessories, suction side**

**Code no.**

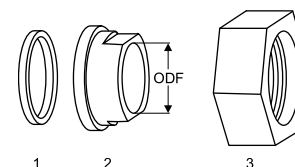
Solder sleeve, P08 (2-1/4" Rotolock, 1-3/8" ODF)	8153005
Solder sleeve, P03 (2-1/4" Rotolock, 1-5/8" ODF)	8153006
Rotolock valve, V08 (2-1/4" Rotolock, 1-3/8" ODF)	8168025
Rotolock valve, V03 (2-1/4" Rotolock, 1-5/8" ODF)	8168026
Gasket, 2-1/4"	8156133

**Rotolock accessories, discharge side**

**Code no.**

Solder sleeve, P07 (1-3/4" Rotolock, 7/8" ODF)	8153013
Solder sleeve, P02 (1-3/4" Rotolock, 1-1/8" ODF)	8153004
Angle adapter, C07 (1-3/4" Rotolock, 7/8" ODF)	8168008
Angle adapter, C02 (1-3/4" Rotolock, 1-1/8" ODF)	8168005
Rotolock valve, V07 (1-3/4" Rotolock, 7/8" ODF)	8168032
Rotolock valve, V02 (1-3/4" Rotolock, 1-1/8" ODF)	8168028
Gasket, 1-3/4"	8156132

**Gaskets, sleeves and nuts**



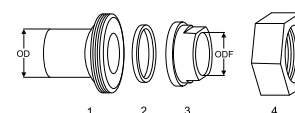
- 1: Gasket
- 2: Solder sleeve
- 3: Rotolock nut

**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, V08 (2-1/4"~1-3/8"), V07 (1-3/4"~7/8")	7703010
Gasket set, 1-1/4", 1-3/4", 2-1/4", OSG gaskets black & white	8156013

**Solder sleeve adapter set**



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

**Oil / lubricants**

**Code no.**

POE lubricant, 160SZ, 1 litre can	7754023
POE lubricant, 160SZ, 2.5 litre can	12020571

**Crankcase heaters**

**Code no.**

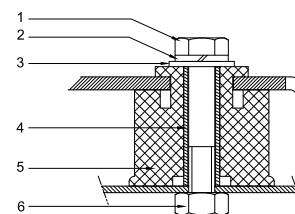
Surface sump heater + bottom insulation, 56 W, 24 V, CE mark, UL	12020360
Surface sump heater + bottom insulation, 56 W, 230 V, CE mark, UL	12020376
Surface sump heater + bottom insulation, 56 W, 400 V, CE mark, UL	12020377
Surface sump heater + bottom insulation, 56 W, 460 V, CE mark, UL	12020378
Belt type crankcase heater, 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	12020464

**Miscellaneous accessories**

**Code no.**

Electronic soft start kit, MCI 25 C	7705007
Acoustic hood for scroll compressor S175-S185	7755007
Acoustic bottom insulation for scroll compressor	12020353
Discharge thermostat kit	7750009

**Mounting kit**



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

**Spare parts**

**Code no.**

Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers	8156138
Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers, 2 rotolock nuts, 2 solder sleeves, 2 gaskets	8156147
Oil sight glass with gaskets (black & white)	8156019
Gasket for oil sight glass (white teflon)	8156129
Terminal box 186 x 198 mm, incl cover	8156139
T block connector 60 x 75 mm	8173021

**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	15 352	19 551	24 558	30 458	37 334	45 272	54 354	64 666	-
35	14 349	18 420	23 258	28 946	35 568	43 207	51 948	61 873	-
40	13 314	17 230	21 871	27 319	33 657	40 969	49 338	58 849	-
45	-	15 979	20 395	25 574	31 600	38 556	46 525	55 591	-
50	-	-	18 827	23 709	29 394	35 965	43 505	52 096	-
55	-	-	-	21 723	27 039	33 195	40 276	48 362	-
60	-	-	-	-	24 530	30 243	36 834	44 384	-
65	-	-	-	-	21 865	27 103	33 172	40 153	-

**Power input in W**

30	7 140	7 215	7 283	7 337	7 375	7 394	7 387	7 353	-
35	7 959	8 037	8 106	8 163	8 205	8 227	8 225	8 196	-
40	8 890	8 969	9 041	9 102	9 147	9 173	9 176	9 153	-
45	-	10 027	10 102	10 166	10 215	10 246	10 255	10 237	-
50	-	-	11 302	11 370	11 424	11 460	11 474	11 463	-
55	-	-	-	12 728	12 787	12 828	12 849	12 844	-
60	-	-	-	-	14 317	14 365	14 392	14 394	-
65	-	-	-	-	16 030	16 084	16 117	16 127	-

**Current consumption in A**

30	15.59	15.71	15.81	15.89	15.94	15.96	15.94	15.87	-
35	16.48	16.60	16.71	16.79	16.85	16.88	16.87	16.82	-
40	17.55	17.68	17.79	17.88	17.95	17.98	17.98	17.94	-
45	-	18.95	19.07	19.17	19.24	19.29	19.30	19.27	-
50	-	-	20.58	20.68	20.77	20.83	20.85	20.83	-
55	-	-	-	22.46	22.56	22.63	22.66	22.66	-
60	-	-	-	-	24.63	24.71	24.76	24.77	-
65	-	-	-	-	27.02	27.11	27.17	27.20	-

**Mass flow in kg/h**

30	320	400	493	601	724	865	1 023	1 202	-
35	314	395	490	598	722	864	1 023	1 202	-
40	307	389	484	594	719	860	1 020	1 199	-
45	-	382	478	587	712	854	1 014	1 193	-
50	-	-	469	579	704	845	1 004	1 183	-
55	-	-	-	568	692	833	991	1 169	-
60	-	-	-	-	677	817	974	1 151	-
65	-	-	-	-	659	797	953	1 128	-

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

30	2.15	2.71	3.37	4.15	5.06	6.12	7.36	8.79	-
35	1.80	2.29	2.87	3.55	4.33	5.25	6.32	7.55	-
40	1.50	1.92	2.42	3.00	3.68	4.47	5.38	6.43	-
45	-	1.59	2.02	2.52	3.09	3.76	4.54	5.43	-
50	-	-	1.67	2.09	2.57	3.14	3.79	4.54	-
55	-	-	-	1.71	2.11	2.59	3.13	3.77	-
60	-	-	-	-	1.71	2.11	2.56	3.08	-
65	-	-	-	-	1.36	1.69	2.06	2.49	-

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

Cooling capacity	35 965	W
Power input	11 460	W
Current consumption	20.83	A
Mass flow	845	kg/h
C.O.P.	3.14	

**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	81	dB(A)
With acoustic hood	73	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**
**R407C**

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

**Cooling capacity in W**

30	16 466	20 944	26 279	32 558	39 868	48 296	57 930	68 857	-
35	15 464	19 827	25 003	31 082	38 148	46 291	55 598	66 154	-
40	14 429	18 648	23 637	29 486	36 281	44 110	53 060	63 218	-
45	-	17 404	22 178	27 769	34 264	41 750	50 314	60 045	-
50	-	-	20 623	25 928	32 093	39 208	47 358	56 633	-
55	-	-	-	23 960	29 767	36 482	44 190	52 979	-
60	-	-	-	-	27 284	33 569	40 806	49 081	-
65	-	-	-	-	24 640	30 468	37 205	44 938	-

**Power input in W**

30	7 140	7 215	7 283	7 337	7 375	7 394	7 387	7 353	-
35	7 959	8 037	8 106	8 163	8 205	8 227	8 225	8 196	-
40	8 890	8 969	9 041	9 102	9 147	9 173	9 176	9 153	-
45	-	10 027	10 102	10 166	10 215	10 246	10 255	10 237	-
50	-	-	11 302	11 370	11 424	11 460	11 474	11 463	-
55	-	-	-	12 728	12 787	12 828	12 849	12 844	-
60	-	-	-	-	14 317	14 365	14 392	14 394	-
65	-	-	-	-	16 030	16 084	16 117	16 127	-

**Current consumption in A**

30	15.59	15.71	15.81	15.89	15.94	15.96	15.94	15.87	-
35	16.48	16.60	16.71	16.79	16.85	16.88	16.87	16.82	-
40	17.55	17.68	17.79	17.88	17.95	17.98	17.98	17.94	-
45	-	18.95	19.07	19.17	19.24	19.29	19.30	19.27	-
50	-	-	20.58	20.68	20.77	20.83	20.85	20.83	-
55	-	-	-	22.46	22.56	22.63	22.66	22.66	-
60	-	-	-	-	24.63	24.71	24.76	24.77	-
65	-	-	-	-	27.02	27.11	27.17	27.20	-

**Mass flow in kg/h**

30	318	398	491	598	720	860	1 017	1 195	-
35	312	393	487	595	718	859	1 017	1 195	-
40	305	387	482	591	715	855	1 014	1 192	-
45	-	380	475	584	708	849	1 008	1 186	-
50	-	-	467	576	700	840	998	1 176	-
55	-	-	-	565	688	828	986	1 162	-
60	-	-	-	-	673	812	969	1 144	-
65	-	-	-	-	655	793	948	1 121	-

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

30	2.31	2.90	3.61	4.44	5.41	6.53	7.84	9.36	-
35	1.94	2.47	3.08	3.81	4.65	5.63	6.76	8.07	-
40	1.62	2.08	2.61	3.24	3.97	4.81	5.78	6.91	-
45	-	1.74	2.20	2.73	3.35	4.07	4.91	5.87	-
50	-	-	1.82	2.28	2.81	3.42	4.13	4.94	-
55	-	-	-	1.88	2.33	2.84	3.44	4.12	-
60	-	-	-	-	1.91	2.34	2.84	3.41	-
65	-	-	-	-	1.54	1.89	2.31	2.79	-

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

Cooling capacity	40 106	W
Power input	12 667	W
Current consumption	22.41	A
Mass flow	897	kg/h
C.O.P.	3.17	

**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	81	dB(A)
With acoustic hood	73	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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Performance data at 50 Hz, EN 12900 rating conditions

R134a

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

Cooling capacity in W

35	12 171	15 608	19 649	24 353	29 784	36 002	43 069	-	-
40	11 378	14 696	18 592	23 125	28 358	34 351	41 165	-	-
45	10 565	13 749	17 483	21 829	26 847	32 599	39 145	-	-
50	9 735	12 769	16 326	20 468	25 255	30 749	37 010	-	-
55	-	11 760	15 124	19 046	23 586	28 804	34 763	-	-
60	-	-	13 880	17 565	21 841	26 768	32 407	-	-
65	-	-	-	16 030	20 024	24 642	29 944	-	-
70	-	-	-	14 441	18 137	22 428	27 373	-	-

Power input in W

35	5 701	5 770	5 826	5 865	5 884	5 877	5 842	-	-
40	6 277	6 349	6 409	6 454	6 478	6 478	6 450	-	-
45	6 928	7 004	7 069	7 119	7 150	7 157	7 137	-	-
50	7 661	7 741	7 811	7 867	7 904	7 920	7 908	-	-
55	-	8 565	8 641	8 704	8 749	8 772	8 769	-	-
60	-	-	9 566	9 635	9 688	9 720	9 727	-	-
65	-	-	-	10 668	10 729	10 770	10 787	-	-
70	-	-	-	11 808	11 878	11 929	11 956	-	-

Current consumption in A

35	14.11	14.20	14.26	14.30	14.31	14.27	14.20	-	-
40	14.67	14.75	14.82	14.87	14.89	14.87	14.81	-	-
45	15.33	15.43	15.50	15.56	15.59	15.58	15.54	-	-
50	16.12	16.22	16.31	16.38	16.42	16.43	16.39	-	-
55	-	17.16	17.26	17.34	17.39	17.41	17.40	-	-
60	-	-	18.36	18.46	18.52	18.56	18.56	-	-
65	-	-	-	19.74	19.82	19.87	19.89	-	-
70	-	-	-	21.20	21.30	21.37	21.40	-	-

Mass flow in kg/h

35	295	370	456	554	664	788	927	-	-
40	290	366	453	551	662	787	926	-	-
45	284	361	449	548	659	784	924	-	-
50	278	355	443	543	655	780	920	-	-
55	-	349	437	537	649	774	914	-	-
60	-	-	430	530	642	767	906	-	-
65	-	-	-	521	633	757	896	-	-
70	-	-	-	511	622	746	884	-	-

Coefficient of performance (C.O.P.)

35	2.13	2.71	3.37	4.15	5.06	6.13	7.37	-	-
40	1.81	2.31	2.90	3.58	4.38	5.30	6.38	-	-
45	1.52	1.96	2.47	3.07	3.76	4.55	5.48	-	-
50	1.27	1.65	2.09	2.60	3.20	3.88	4.68	-	-
55	-	1.37	1.75	2.19	2.70	3.28	3.96	-	-
60	-	-	1.45	1.82	2.25	2.75	3.33	-	-
65	-	-	-	1.50	1.87	2.29	2.78	-	-
70	-	-	-	1.22	1.53	1.88	2.29	-	-

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

Cooling capacity	25 255	W
Power input	7 904	W
Current consumption	16.42	A
Mass flow	655	kg/h
C.O.P.	3.20	

Pressure switch settings

Maximum HP switch setting	20.5	bar(g)
Minimum LP switch setting	0.5	bar(g)
LP pump down setting	0.5	bar(g)

Sound power data

Sound power level	0	dB(A)
With acoustic hood	0	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

R134a

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

Cooling capacity in W

35	13 182	16 876	21 211	26 249	32 054	38 691	46 222	-	-
40	12 390	15 974	20 172	25 047	30 664	37 085	44 375	-	-
45	11 576	15 033	19 078	23 774	29 186	35 376	42 408	-	-
50	10 745	14 058	17 934	22 434	27 624	33 566	40 325	-	-
55	-	13 053	16 742	21 031	25 983	31 661	38 129	-	-
60	-	-	15 508	19 568	24 265	29 663	35 825	-	-
65	-	-	-	18 050	22 476	27 577	33 416	-	-
70	-	-	-	16 480	20 619	25 407	30 907	-	-

Power input in W

35	5 701	5 770	5 826	5 865	5 884	5 877	5 842	-	-
40	6 277	6 349	6 409	6 454	6 478	6 478	6 450	-	-
45	6 928	7 004	7 069	7 119	7 150	7 157	7 137	-	-
50	7 661	7 741	7 811	7 867	7 904	7 920	7 908	-	-
55	-	8 565	8 641	8 704	8 749	8 772	8 769	-	-
60	-	-	9 566	9 635	9 688	9 720	9 727	-	-
65	-	-	-	10 668	10 729	10 770	10 787	-	-
70	-	-	-	11 808	11 878	11 929	11 956	-	-

Current consumption in A

35	14.11	14.20	14.26	14.30	14.31	14.27	14.20	-	-
40	14.67	14.75	14.82	14.87	14.89	14.87	14.81	-	-
45	15.33	15.43	15.50	15.56	15.59	15.58	15.54	-	-
50	16.12	16.22	16.31	16.38	16.42	16.43	16.39	-	-
55	-	17.16	17.26	17.34	17.39	17.41	17.40	-	-
60	-	-	18.36	18.46	18.52	18.56	18.56	-	-
65	-	-	-	19.74	19.82	19.87	19.89	-	-
70	-	-	-	21.20	21.30	21.37	21.40	-	-

Mass flow in kg/h

35	294	368	454	551	661	784	922	-	-
40	288	364	451	548	659	783	921	-	-
45	283	359	446	545	656	780	919	-	-
50	276	354	441	540	651	776	915	-	-
55	-	347	435	534	646	770	909	-	-
60	-	-	428	527	638	763	901	-	-
65	-	-	-	518	629	753	891	-	-
70	-	-	-	508	619	742	879	-	-

Coefficient of performance (C.O.P.)

35	2.31	2.92	3.64	4.48	5.45	6.58	7.91	-	-
40	1.97	2.52	3.15	3.88	4.73	5.72	6.88	-	-
45	1.67	2.15	2.70	3.34	4.08	4.94	5.94	-	-
50	1.40	1.82	2.30	2.85	3.49	4.24	5.10	-	-
55	-	1.52	1.94	2.42	2.97	3.61	4.35	-	-
60	-	-	1.62	2.03	2.50	3.05	3.68	-	-
65	-	-	-	1.69	2.09	2.56	3.10	-	-
70	-	-	-	1.40	1.74	2.13	2.59	-	-

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

Cooling capacity	28 603	W
Power input	8 655	W
Current consumption	17.28	A
Mass flow	699	kg/h
C.O.P.	3.30	

Pressure switch settings

Maximum HP switch setting	20.5	bar(g)
Minimum LP switch setting	0.5	bar(g)
LP pump down setting	0.5	bar(g)

Sound power data

Sound power level	0	dB(A)
With acoustic hood	0	dB(A)

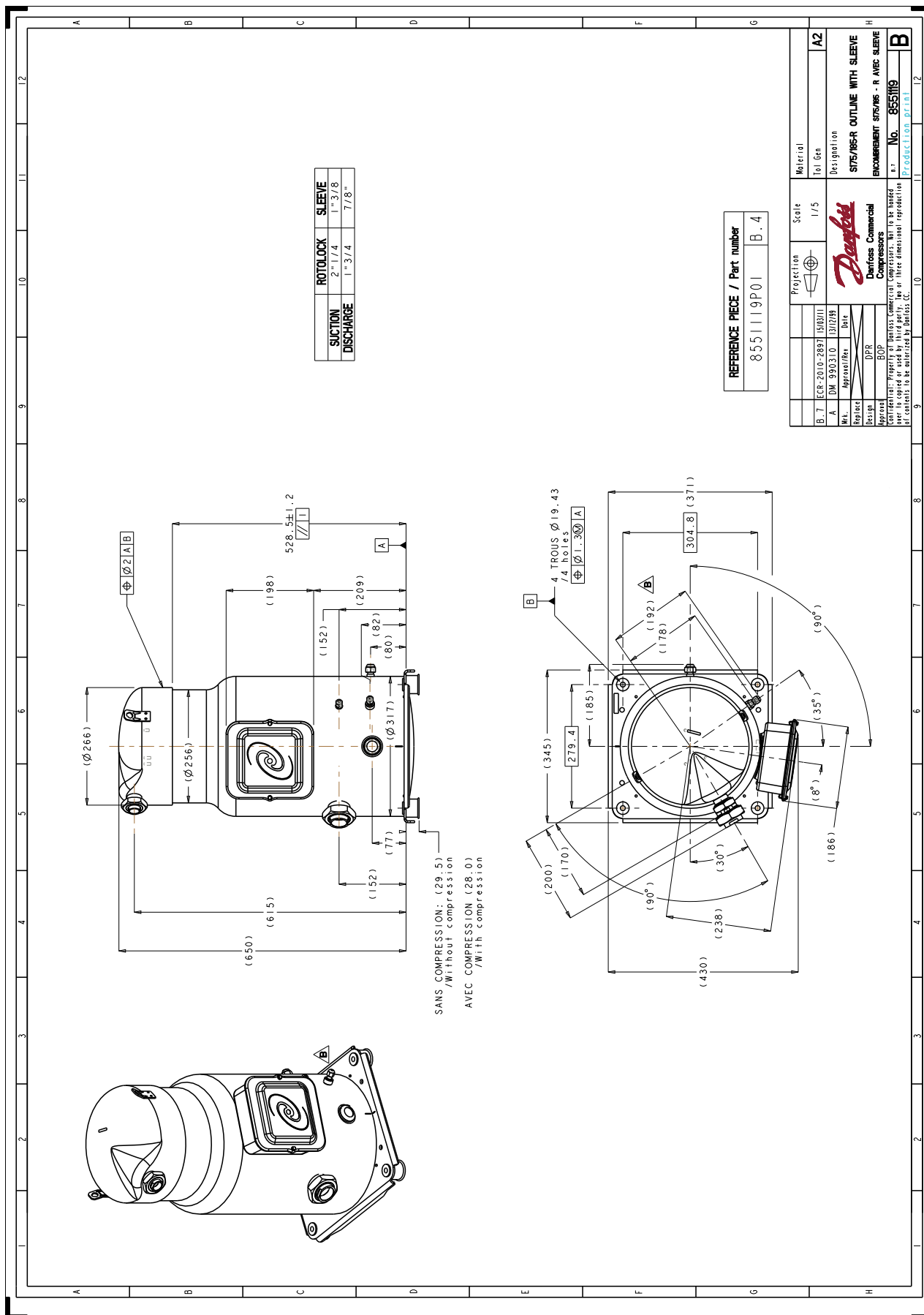
to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

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

All performance data +/- 5%

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