

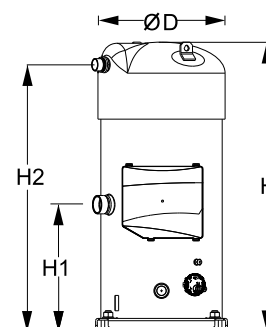
Datasheets

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



General Characteristics

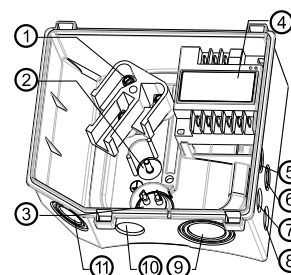
Model number (on compressor nameplate)		SH485A4AAA
Code number for Singlepack*		120H1062
Code number for Industrial pack**		120H1063
Drawing number		8556133d
Suction and discharge connections		Brazed
Suction connection		1-5/8" ODF
Discharge connection		1-3/8" ODF
Oil sight glass		Threaded
Oil equalisation 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	442.6 cm ³ /rev	
Displacement @ Nominal speed	77.0 m ³ /h @ 2900 rpm - 93.0 m ³ /h @ 3500 rpm	
Net weight	175 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	17 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	380-415V/3/50Hz - 460V/3/60Hz
Voltage range	340-457 V @ 50Hz - 414-506 V @ 60Hz
Winding resistance (between phases) +/- 7% at 25°C	0.231 Ω
Rated Load Amps (RLA)	72.9 A
Maximum Continuous Current (MCC)	90 A
Locked Rotor Amps (LRA)	413 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

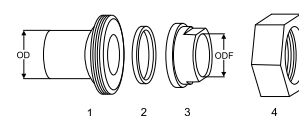
**Industrial pack: 4 Unboxed compressors on pallet (order per multiples of 4)

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

Miscellaneous accessories
Code no.

Electronic soft start kit MCD201-055-T6-CV1	175G5205
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
Mounting for 1 scroll compressor including 4 triangle rigid spacer, 4 sleeves, 4 bolts, 4 washers	12020495

Spare parts
Code no.

Electronic motor protection module, 24 V AC	12020584
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 80 x 80 mm	8173331

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	41 369	51 379	63 164	76 971	93 049	111 646	133 008	157 383	185 020
35	38 829	48 454	59 718	72 868	88 153	105 819	126 115	149 289	175 588
40	-	45 434	56 137	68 591	83 043	99 741	118 932	140 864	165 785
45	-	-	52 357	64 075	77 655	93 344	111 391	132 042	155 547
50	-	-	48 311	59 254	71 923	86 565	103 428	122 760	144 808
55	-	-	-	54 064	65 782	79 338	94 978	112 950	133 503
60	-	-	-	-	59 167	71 597	85 975	102 549	121 568
65	-	-	-	-	-	-	76 354	91 491	108 936

Power input in W

30	20 536	20 975	21 365	21 647	21 765	21 662	21 279	20 559	19 446
35	22 604	23 044	23 472	23 830	24 061	24 108	23 914	23 421	22 571
40	-	25 354	25 790	26 193	26 507	26 674	26 638	26 340	25 723
45	-	-	28 385	28 803	29 169	29 426	29 517	29 384	28 970
50	-	-	31 325	31 727	32 115	32 431	32 619	32 620	32 378
55	-	-	-	35 031	35 410	35 755	36 009	36 114	36 013
60	-	-	-	-	39 122	39 465	39 754	39 932	39 942
65	-	-	-	-	-	-	43 922	44 143	44 233

Current consumption in A

30	39.79	40.48	41.01	41.33	41.40	41.18	40.63	39.72	38.40
35	42.38	43.06	43.63	44.05	44.28	44.27	43.98	43.39	42.43
40	-	46.06	46.63	47.11	47.45	47.60	47.54	47.21	46.58
45	-	-	50.13	50.62	51.02	51.30	51.41	51.31	50.96
50	-	-	54.25	54.70	55.12	55.47	55.71	55.79	55.68
55	-	-	-	59.46	59.86	60.24	60.56	60.78	60.86
60	-	-	-	-	65.35	65.72	66.08	66.39	66.62
65	-	-	-	-	-	-	72.37	72.74	73.06

Mass flow in kg/h

30	863	1 059	1 285	1 545	1 844	2 188	2 581	3 028	3 535
35	854	1 051	1 276	1 535	1 834	2 176	2 567	3 012	3 516
40	-	1 040	1 265	1 524	1 821	2 162	2 551	2 994	3 495
45	-	-	1 252	1 510	1 807	2 146	2 533	2 973	3 472
50	-	-	1 237	1 495	1 790	2 127	2 513	2 951	3 446
55	-	-	-	1 476	1 770	2 106	2 490	2 925	3 418
60	-	-	-	-	1 748	2 082	2 464	2 897	3 387
65	-	-	-	-	-	-	2 435	2 865	3 352

Coefficient of performance (C.O.P.)

30	2.01	2.45	2.96	3.56	4.28	5.15	6.25	7.66	9.51
35	1.72	2.10	2.54	3.06	3.66	4.39	5.27	6.37	7.78
40	-	1.79	2.18	2.62	3.13	3.74	4.46	5.35	6.44
45	-	-	1.84	2.22	2.66	3.17	3.77	4.49	5.37
50	-	-	1.54	1.87	2.24	2.67	3.17	3.76	4.47
55	-	-	-	1.54	1.86	2.22	2.64	3.13	3.71
60	-	-	-	-	1.51	1.81	2.16	2.57	3.04
65	-	-	-	-	-	-	1.74	2.07	2.46

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

Cooling capacity	103 428	W
Power input	32 619	W
Current consumption	55.71	A
Mass flow	2 513	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	89	dB(A)
With acoustic hood	85	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	44 676	55 427	68 072	82 874	100 094	119 995	142 838	168 884	198 395
35	42 205	52 605	64 760	78 936	95 397	114 407	136 227	161 122	189 353
40	-	49 703	61 333	74 849	90 516	108 600	129 365	153 077	179 999
45	-	-	57 731	70 553	85 394	102 521	122 202	144 704	170 294
50	-	-	-	65 999	79 986	96 132	114 707	135 980	160 221
55	-	-	-	61 157	74 274	89 426	106 885	126 926	149 822
60	-	-	-	-	68 304	82 473	98 839	117 679	139 275
65	-	-	-	-	-	-	90 949	108 712	129 156

Power input in W

30	20 536	20 975	21 365	21 647	21 765	21 662	21 279	20 559	19 446
35	22 604	23 044	23 472	23 830	24 061	24 108	23 914	23 421	22 571
40	-	25 354	25 790	26 193	26 507	26 674	26 638	26 340	25 723
45	-	-	28 385	28 803	29 169	29 426	29 517	29 384	28 970
50	-	-	-	31 727	32 115	32 431	32 619	32 620	32 378
55	-	-	-	35 031	35 410	35 755	36 009	36 114	36 013
60	-	-	-	-	39 122	39 465	39 754	39 932	39 942
65	-	-	-	-	-	-	43 922	44 143	44 233

Current consumption in A

30	39.79	40.48	41.01	41.33	41.40	41.18	40.63	39.72	38.40
35	42.38	43.06	43.63	44.05	44.28	44.27	43.98	43.39	42.43
40	-	46.06	46.63	47.11	47.45	47.60	47.54	47.21	46.58
45	-	-	50.13	50.62	51.02	51.30	51.41	51.31	50.96
50	-	-	-	54.70	55.12	55.47	55.71	55.79	55.68
55	-	-	-	59.46	59.86	60.24	60.56	60.78	60.86
60	-	-	-	-	65.35	65.72	66.08	66.39	66.62
65	-	-	-	-	-	-	72.37	72.74	73.06

Mass flow in kg/h

30	858	1 053	1 277	1 535	1 832	2 173	2 563	3 007	3 508
35	849	1 044	1 268	1 526	1 822	2 161	2 549	2 990	3 489
40	-	1 034	1 257	1 514	1 809	2 148	2 534	2 972	3 468
45	-	-	1 245	1 501	1 795	2 132	2 516	2 952	3 445
50	-	-	-	1 485	1 778	2 113	2 495	2 929	3 420
55	-	-	-	1 467	1 759	2 092	2 473	2 904	3 392
60	-	-	-	-	1 737	2 069	2 447	2 876	3 361
65	-	-	-	-	-	-	2 418	2 845	3 327

Coefficient of performance (C.O.P.)

30	2.18	2.64	3.19	3.83	4.60	5.54	6.71	8.21	10.20
35	1.87	2.28	2.76	3.31	3.96	4.75	5.70	6.88	8.39
40	-	1.96	2.38	2.86	3.41	4.07	4.86	5.81	7.00
45	-	-	2.03	2.45	2.93	3.48	4.14	4.92	5.88
50	-	-	-	2.08	2.49	2.96	3.52	4.17	4.95
55	-	-	-	1.75	2.10	2.50	2.97	3.51	4.16
60	-	-	-	-	1.75	2.09	2.49	2.95	3.49
65	-	-	-	-	-	-	2.07	2.46	2.92

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

Cooling capacity	116 386	W
Power input	35 648	W
Current consumption	60.05	A
Mass flow	2 659	kg/h
C.O.P.	3.26	

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	89	dB(A)
With acoustic hood	85	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	49 675	61 736	75 890	92 457	111 752	134 097	159 809	189 209	222 617
35	46 605	58 158	71 669	87 454	105 829	127 111	151 617	179 666	211 576
40	-	54 442	67 264	82 221	99 628	119 798	143 049	169 694	200 051
45	-	-	62 651	76 731	93 119	112 126	134 066	159 251	187 995
50	-	-	57 797	70 947	86 260	104 045	124 612	148 270	175 330
55	-	-	-	64 805	78 977	95 469	114 586	136 634	161 919
60	-	-	-	-	71 128	86 228	103 786	124 103	147 478
65	-	-	-	-	-	-	91 742	110 118	131 344

Power input in W

30	25 120	25 443	25 851	26 253	26 561	26 687	26 543	26 038	25 086
35	27 759	27 996	28 378	28 814	29 216	29 496	29 564	29 333	28 714
40	-	30 900	31 210	31 635	32 085	32 473	32 710	32 706	32 373
45	-	-	34 418	34 786	35 239	35 689	36 048	36 226	36 135
50	-	-	38 071	38 336	38 746	39 213	39 648	39 963	40 068
55	-	-	-	42 354	42 676	43 115	43 581	43 987	44 243
60	-	-	-	-	47 099	47 463	47 915	48 366	48 727
65	-	-	-	-	-	-	52 721	53 171	53 592

Current consumption in A

30	39.23	40.03	40.62	41.01	41.19	41.18	40.99	40.62	40.07
35	42.20	42.99	43.61	44.06	44.35	44.49	44.49	44.35	44.08
40	-	46.33	46.95	47.45	47.83	48.10	48.27	48.34	48.33
45	-	-	50.74	51.27	51.72	52.10	52.42	52.69	52.91
50	-	-	55.05	55.59	56.10	56.57	57.03	57.47	57.91
55	-	-	-	60.50	61.04	61.60	62.17	62.77	63.41
60	-	-	-	-	66.65	67.26	67.93	68.67	69.48
65	-	-	-	-	-	-	74.39	75.25	76.23

Mass flow in kg/h

30	1 036	1 271	1 542	1 854	2 215	2 629	3 103	3 642	4 254
35	1 024	1 259	1 530	1 843	2 202	2 616	3 089	3 627	4 238
40	-	1 246	1 517	1 828	2 187	2 600	3 072	3 609	4 217
45	-	-	1 500	1 811	2 170	2 581	3 051	3 586	4 193
50	-	-	1 482	1 792	2 148	2 558	3 027	3 560	4 165
55	-	-	-	1 769	2 124	2 532	2 999	3 530	4 132
60	-	-	-	-	2 097	2 503	2 967	3 496	4 096
65	-	-	-	-	-	-	2 932	3 458	4 054

Coefficient of performance (C.O.P.)

30	1.98	2.43	2.94	3.52	4.21	5.02	6.02	7.27	8.87
35	1.68	2.08	2.53	3.04	3.62	4.31	5.13	6.13	7.37
40	-	1.76	2.16	2.60	3.11	3.69	4.37	5.19	6.18
45	-	-	1.82	2.21	2.64	3.14	3.72	4.40	5.20
50	-	-	1.52	1.85	2.23	2.65	3.14	3.71	4.38
55	-	-	-	1.53	1.85	2.21	2.63	3.11	3.66
60	-	-	-	-	1.51	1.82	2.17	2.57	3.03
65	-	-	-	-	-	-	1.74	2.07	2.45

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

Cooling capacity	124 612	W
Power input	39 648	W
Current consumption	57.03	A
Mass flow	3 027	kg/h
C.O.P.	3.14	

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	91	dB(A)
With acoustic hood	87	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	53 645	66 600	81 788	99 546	120 213	144 125	171 620	203 036	238 709
35	50 657	63 140	77 721	94 737	114 526	137 426	163 773	193 907	228 163
40	-	59 558	73 490	89 722	108 593	130 439	155 598	184 407	217 204
45	-	-	69 082	84 489	102 399	123 150	147 078	174 522	205 818
50	-	-	-	79 022	95 930	115 544	138 201	164 238	193 992
55	-	-	-	73 308	89 173	107 608	128 951	153 540	181 711
60	-	-	-	-	82 111	99 327	119 315	142 414	168 960
65	-	-	-	-	-	-	109 279	130 846	155 725

Power input in W

30	25 120	25 443	25 851	26 253	26 561	26 687	26 543	26 038	25 086
35	27 759	27 996	28 378	28 814	29 216	29 496	29 564	29 333	28 714
40	-	30 900	31 210	31 635	32 085	32 473	32 710	32 706	32 373
45	-	-	34 418	34 786	35 239	35 689	36 048	36 226	36 135
50	-	-	-	38 336	38 746	39 213	39 648	39 963	40 068
55	-	-	-	42 354	42 676	43 115	43 581	43 987	44 243
60	-	-	-	-	47 099	47 463	47 915	48 366	48 727
65	-	-	-	-	-	-	52 721	53 171	53 592

Current consumption in A

30	39.23	40.03	40.62	41.01	41.19	41.18	40.99	40.62	40.07
35	42.20	42.99	43.61	44.06	44.35	44.49	44.49	44.35	44.08
40	-	46.33	46.95	47.45	47.83	48.10	48.27	48.34	48.33
45	-	-	50.74	51.27	51.72	52.10	52.42	52.69	52.91
50	-	-	-	55.59	56.10	56.57	57.03	57.47	57.91
55	-	-	-	60.50	61.04	61.60	62.17	62.77	63.41
60	-	-	-	-	66.65	67.26	67.93	68.67	69.48
65	-	-	-	-	-	-	74.39	75.25	76.23

Mass flow in kg/h

30	1 030	1 263	1 532	1 843	2 200	2 611	3 081	3 616	4 222
35	1 018	1 252	1 521	1 831	2 188	2 599	3 068	3 601	4 205
40	-	1 239	1 507	1 817	2 173	2 583	3 050	3 583	4 185
45	-	-	1 491	1 800	2 156	2 564	3 030	3 561	4 161
50	-	-	-	1 780	2 135	2 541	3 006	3 535	4 133
55	-	-	-	1 758	2 111	2 515	2 978	3 505	4 101
60	-	-	-	-	2 083	2 486	2 947	3 471	4 065
65	-	-	-	-	-	-	2 911	3 433	4 024

Coefficient of performance (C.O.P.)

30	2.14	2.62	3.16	3.79	4.53	5.40	6.47	7.80	9.52
35	1.82	2.26	2.74	3.29	3.92	4.66	5.54	6.61	7.95
40	-	1.93	2.35	2.84	3.38	4.02	4.76	5.64	6.71
45	-	-	2.01	2.43	2.91	3.45	4.08	4.82	5.70
50	-	-	-	2.06	2.48	2.95	3.49	4.11	4.84
55	-	-	-	1.73	2.09	2.50	2.96	3.49	4.11
60	-	-	-	-	1.74	2.09	2.49	2.94	3.47
65	-	-	-	-	-	-	2.07	2.46	2.91

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

Cooling capacity	140 556	W
Power input	43 278	W
Current consumption	61.78	A
Mass flow	3 205	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	91	dB(A)
With acoustic hood	87	dB(A)

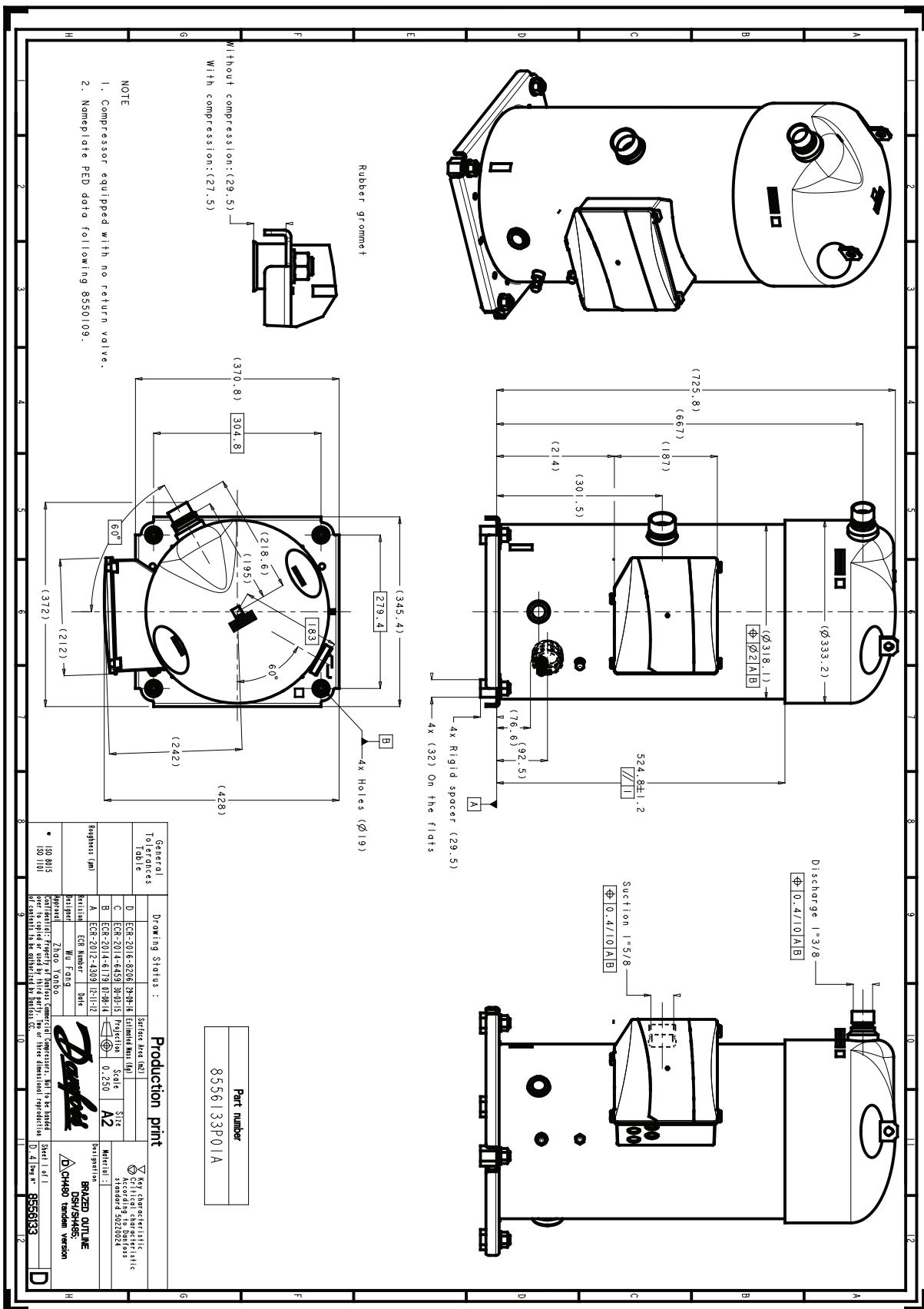
to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

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

Tolerance according EN12900

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General To be filled in		Drawing Status :		Production print	
D	ECH-2016-32206	38-38-16	Estimated Man (kg)	Scale	A2
C	ECH-2014-64459	30-30-15	Projection	0.250	
B	ECH-2014-6119	01-08-14			
A	ECH-2012-4399	12-11-12			
Project	Wu Fang	Date			
Design	Zhao Yanbo				

Key characteristic
CHAOS version
BRASED OUTLINE
DANFOSS
MANEUROP
8556133