

ENGINEERING
TOMORROW

Danfoss

Quick reference

Danfoss scroll compressors **SM SY SZ**

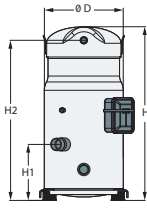
R407C - R134a - R22 - 50 Hz



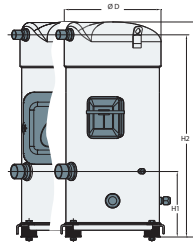
<http://cc.danfoss.com>

Quick reference

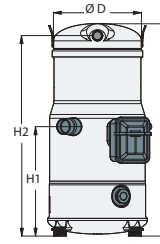
Product range single compressors



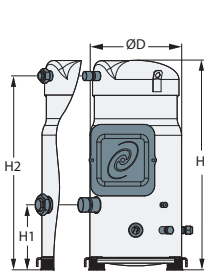
	D	H	H1	H2
S084-090-100	254	508	142	465
S110-120	254	558	178	515



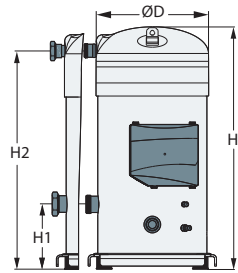
	D	H	H1	H2
S148-161	266	591	180	556



	D	H	H1	H2
S112	243	535	278	504
S124-147	243	540	278	509



	D	H	H1	H2
S175-185	316	678	180	641



	D	H	H1	H2
S240	344	727	196	654
S300	344	738	196	665
S380	344	762	196	689

All dimensions in mm

Model	Motor voltage code		
	400V/3/50Hz - 460V/3/60Hz	230/3/50Hz	500/3/50Hz - 575/3/60Hz
	4	6	7
SM/SZ084-090-100-110-120	●	●	●
SM/SZ148-161	●	●	●
SM112-124-147	●		
SM/SZ175-185	○ ●	○ ●	○ ●
SY185	○ ●		
SY/SZ240-300	○ ●	○ ●	○ ●
SY/SZ380	●		

○ Rotolock version ● Brazed version

Technical specifications

Model	Nominal tons 60 Hz	Nominal cooling capacity ①		Power input ①	Max. operating current ②	COP ①	E.E.R. ①	Sound power	Swept volume	Displacement ③	Oil charge	Net weight ④	
	TR	W	Btu/h	kW	A	W/W	Btu/h/W	dB(A)	cm ³ /rev	m ³ /h	dm ³	kg	
R22	SM084	7	20400	69600	6.12	17	3.33	11.4	70	114.5	19.9	3.25	64
	SM090	7.5	21800	74400	6.54	17	3.33	11.4	70	120.5	21.0	3.25	65
	SM100	8	23100	78800	6.96	18	3.33	11.4	70	127.2	22.1	3.25	65
	SM110	9	25900	88400	7.82	20	3.32	11.3	75	144.2	25.1	3.25	73
	SM112	9.5	27600	94200	7.92	21	3.49	11.9	75	151.5	26.4	3.3	64
	SM120	10	30100	102700	8.96	24	3.36	11.5	75	166.6	29.0	3.25	73
	SM124	10.5	31200	106500	8.75	23	3.56	12.2	73	169.5	29.5	3.3	64.2
	SM147	12	36000	122900	10.08	26	3.57	12.2	74	193.5	33.7	3.3	67
	SM148	12	36100	123200	10.8	29	3.34	11.4	79	199	34.6	3.6	88
	SM161	13	39000	133100	11.59	31	3.37	11.5	79.5	216.6	37.7	3.6	88
	SM175	14	42000	143300	12.47	34	3.37	11.5	80	233	40.5	6.2	100
	SM/SY185	15	45500	155300	13.62	35	3.34	11.4	80	249.9	43.5	6.2	100
	SY240	20	61200	208900	18.2	47	3.36	11.5	82	347.8	60.5	8	150
	SY300	25	78200	266900	22.83	58	3.43	11.7	82	437.5	76.1	8	157
	SY380	30	94500	322500	27.33	69	3.46	11.8	87	531.2	92.4	8.4	158
R407C	SZ084	7	19300	65900	6.13	17	3.15	10.8	71	114.5	19.9	3.25	64
	SZ090	7.5	20400	69600	6.45	17	3.16	10.8	72	120.5	21.0	3.25	65
	SZ100	8	21600	73700	6.84	18	3.15	10.8	73	127.2	22.1	3.25	65
	SZ110	9	24600	84000	7.76	20	3.17	10.8	77	144.2	25.1	3.25	73
	SZ120	10	28600	97600	8.99	24	3.17	10.8	77	166.6	29.0	3.25	73
	SZ148	12	35100	119800	10.99	29	3.19	10.9	79	199	34.6	3.6	88
	SZ161	13	38000	129700	11.84	31	3.21	11.0	79	216.6	37.7	3.6	88
	SZ175	14	40100	136900	12.67	34	3.17	10.8	81	233	40.5	6.2	100
	SZ185	15	43100	147100	13.62	35	3.16	10.8	81	249.9	43.5	6.2	100
	SZ240	20	59100	201700	18.55	47	3.19	10.9	83.5	347.8	60.5	8	150
	SZ300	25	72700	248100	22.73	58	3.2	10.9	84	437.5	76.1	8	157
SZ380	30	89600	305800	27.59	69	3.25	11.1	87.5	531.2	92.4	8.4	158	

① at ARI standard rating conditions: 7.2°C evaporating temperature, 54.4°C condensing temperature, 8.3 K subcooling, 11.1 K superheat,

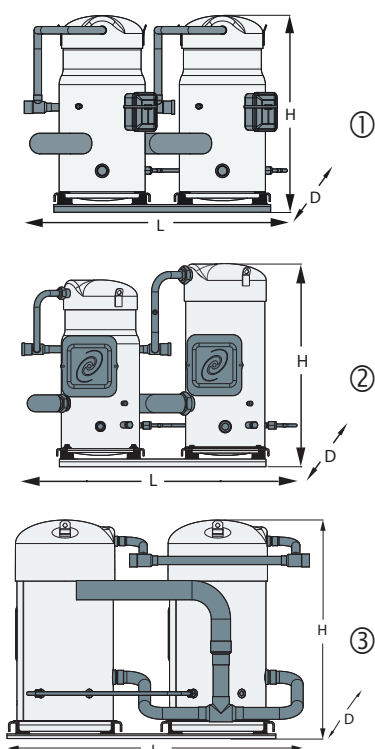
② for +15°C evap. temp.; +68°C cond. temp. under nominal voltage 400V / 3 / 50 Hz, -10%

③ displacement at nominal speed: 2900 rpm at 50 Hz,

④ net weight with oil charge

Quick reference

Product range tandem compressors



Outline n°	Model	Composition	Voltage code			Dimensions (mm)			
			4	6	7	L	D	H	
			400/3/50 460/3/60	230/3/50	500/3/50 575/3/60				
①	SM/SZ170	S084 + S084	●	●	●	757	432	532	
	SM/SZ180	S090 + S090	●	●	●	757	432	532	
	SM/SZ200	S100 + S100	●	●	●	757	432	532	
	SM/SZ220	S110 + S110	●	●	●	777	443	582	
	SM/SZ242	S120 + S120	●	●	●	777	443	582	
	SM248	S124 + S124	○			844	445	564	
	SM272	S124 + S147	○			844	445	564	
	SM294	S147 + S147	○			844	445	564	
	SM/SZ296	S148 + S148	●	●	●	924	438	614	
	SM/SZ322	S161 + S161	●	●	●	924	438	614	
②	SM/SZ350	S175 + S175	●	●	●	1004	495	717	
	SM/SZ370	S185 + S185	●	●	●	1004	495	717	
	SM/SZ268	S148 + S120	●	●	●	930	441	614	
	SM/SZ271	S161 + S110	●	●	●	930	441	614	
	SM/SZ281	S161 + S120	●	●	●	930	441	614	
	SY/SZ425	S240 + S185	○	○	○	1029	552	729	
	SY/SZ485	S300 + S185	○	○	○	1029	552	740	
	③	SY/SZ482	S240 + S240	○	○	○	984	510	730
		SY/SZ540	S300 + S240	○	○	○	984	510	740
		SY/SZ600	S300 + S300	○	○	○	984	510	740
SY/SZ620		S240 + S380	○			1058	595	770	
SY/SZ680		S300 + S380	○			1058	595	770	
SY/SZ760		S380 + S380	○			1063	595	770	

● Factory built tandems

○ Tandems to be achieved by assembly of individual compressors. Specific outline drawings of tandems, trio and quadro units are available, refer to FRCC.PC.005.

Nameplate reference

Family, lubricant & refrigerant	Nominal capacity	Voltage	Version	Evolution index	
SZ SY	185 300	- 4 7	R CA	C A	Single compressors Single compressors

Family, lubricant & refrigerant
SM: Scroll, Mineral oil, R22/R417A*
SY: Scroll, POE lubricant, R22/R417A (and R407C for SY185-240-300)
SZ: Scroll, POE lubricant, R407C - R134a (and R404A, R507A for SZ084 to SZ185)

Nominal capacity
 in thousand Btu/h at 60 Hz, R22, ARI conditions

Motor voltage code
3: 200-230V/3~/60 Hz
4: 380-400V/3~/50 - 460V/3~/60 Hz
6: 230V/3~/50 Hz
7: 500V/3~/50 Hz - 575V/3~/60 Hz
9: 380V/3~/60 Hz

Motor protection type	Connection	Module voltage	Applies to	
Internal overload protector	V : brazed		S 084-090-100-110-120-148-161	
	A : brazed		S 112-124-147	
Internal thermostat	C : brazed		S 175-185	
	R : rotolock			
Electronic protection module	P : brazed	24 V AC		S 240 - 300
	X : brazed	230 V		
	S : rotolock	24 V AC		
	Y : rotolock	230 V		
	CA : C: brazed	A: 24V AC	S 380	
	CB : B: 115/230V	B: 115/230V		
PA : P: rotolock	A: 24V AC			
PB : B: 115/230V	B: 115/230V			

* When SM compressors are used with R417A, the factory charged mineral oil 160P must be replaced by polyolester oil 1605Z

Further reference

For more exhaustive information on Danfoss scroll compressors single & tandem units, please refer to the following documents:

Online datasheet generator:

www.danfoss.com/odsg - a tool providing user-friendly access to full technical data, performance data & outline drawings for each individual compressor.

Selection and application guidelines for SM, SY and SZ Danfoss single scroll compressors - reference FRCC.PC.003. and for SM, SY and SZ Danfoss scroll compressors in parallel installation - reference FRCC.PC.005.

Above documents and datasheet generator are available on the Danfoss Commercial Compressors internet website: <http://cc.danfoss.com>

Quick reference
Performance data R134a

Model	To	-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
SZ084	35	6 200	2.8	8 000	2.8	10 100	2.8	12 600	2.8	15 400	2.7	18 700	2.7	22 400	2.6
	55	-	-	6 100	4.3	7 900	4.3	9 900	4.3	12 400	4.3	15 100	4.3	18 300	4.2
SZ090	35	6 700	2.9	8 600	2.9	10 900	3.0	13 400	2.9	16 400	2.9	19 800	2.9	23 600	2.8
	55	-	-	6 600	4.5	8 500	4.6	10 700	4.6	13 200	4.6	16 000	4.5	19 300	4.5
SZ100	35	7 300	3.1	9 400	3.1	11 700	3.1	14 400	3.1	17 500	3.1	21 000	3.1	25 000	3.1
	55	-	-	7 300	4.8	9 300	4.8	11 500	4.9	14 100	4.9	17 100	4.9	20 400	4.8
SZ110	35	8 200	3.5	10 500	3.5	13 200	3.5	16 200	3.5	19 800	3.5	23 800	3.5	28 400	3.5
	55	-	-	8 100	5.4	10 400	5.4	13 000	5.5	16 000	5.5	19 400	5.5	23 300	5.4
SZ120	35	9 400	4.0	12 000	4.0	15 100	4.1	18 700	4.1	22 800	4.1	27 500	4.1	32 900	4.0
	55	-	-	9 300	6.2	11 900	6.3	14 900	6.3	18 400	6.3	22 400	6.3	27 000	6.2
SZ148	35	11 200	5.0	14 400	5.0	18 100	5.0	22 600	5.0	27 900	5.0	34 000	5.0	41 100	5.0
	55	-	-	11 200	7.7	14 200	7.7	17 900	7.7	22 100	7.7	27 100	7.8	32 800	7.8
SZ161	35	12 000	5.2	15 300	5.2	19 200	5.3	23 800	5.3	29 200	5.4	35 500	5.4	42 700	5.4
	55	-	-	12 100	8.0	15 300	8.0	19 200	8.1	23 700	8.1	28 900	8.1	35 000	8.1
SZ175	35	13 200	5.7	16 900	5.8	21 200	5.8	26 200	5.9	32 100	5.9	38 700	5.9	46 200	5.8
	55	-	-	13 100	8.6	16 700	8.6	21 000	8.7	26 000	8.7	31 700	8.8	38 100	8.8
SZ185	35	14 000	6.1	18 000	6.1	22 600	6.2	27 900	6.2	34 100	6.3	41 200	6.3	49 200	6.2
	55	-	-	13 900	9.1	17 800	9.2	22 400	9.3	27 700	9.3	33 700	9.3	40 600	9.3
SZ240	35	18 900	8.4	23 900	8.5	29 900	8.6	37 100	8.7	45 700	8.7	56 000	8.8	68 200	8.9
	55	-	-	18 800	12.3	23 800	12.5	29 700	12.6	36 700	12.7	45 000	12.9	54 700	13.0
SZ300	35	23 700	10.2	30 000	10.4	37 500	10.5	46 300	10.6	56 700	10.7	68 900	10.8	82 800	11.0
	55	-	-	23 600	15.2	29 700	15.4	37 100	15.7	45 800	15.9	56 000	16.1	67 800	16.4
SZ380	35	30 200	12.3	38 000	12.5	47 300	12.7	58 200	12.9	71 000	13.1	85 800	13.4	102 900	13.6
	55	-	-	30 100	18.1	37 800	18.4	46 900	18.7	57 600	19.0	70 000	19.2	84 500	19.4
SZ170	35	12 200	5.5	15 700	5.6	19 900	5.6	24 800	5.5	30 400	5.5	36 800	5.4	44 000	5.3
	55	-	-	11 900	8.6	15 500	8.6	19 600	8.6	24 300	8.6	29 800	8.5	36 000	8.4
SZ180	35	13 300	5.9	17 000	5.9	21 400	5.9	26 500	5.9	32 300	5.8	39 000	5.8	46 500	5.7
	55	-	-	13 100	9.1	16 800	9.1	21 100	9.1	26 000	9.1	31 600	9.1	38 000	9.0
SZ200	35	14 500	6.2	18 400	6.2	23 000	6.3	28 400	6.3	34 500	6.2	41 400	6.2	49 200	6.1
	55	-	-	14 400	9.6	18 200	9.7	22 700	9.7	27 800	9.7	33 600	9.7	40 200	9.7
SZ220	35	16 300	7.0	20 700	7.0	25 900	7.1	32 000	7.1	39 000	7.1	46 900	7.0	56 000	6.9
	55	-	-	16 100	10.8	20 500	10.9	25 600	10.9	31 400	10.9	38 200	10.9	45 900	10.9
SZ242	35	18 600	8.0	23 700	8.1	29 700	8.1	36 800	8.1	44 900	8.1	54 200	8.1	64 900	8.0
	55	-	-	18 300	12.5	23 400	12.5	29 300	12.5	36 200	12.5	44 200	12.5	53 300	12.4
SZ268	35	20 600	9.0	26 400	9.1	33 200	9.1	41 200	9.1	50 600	9.1	61 400	9.1	73 900	9.0
	55	-	-	20 100	13.9	25 700	14.0	32 300	14.0	39 900	14.0	48 800	14.0	59 100	14.0
SZ271	35	20 200	8.7	25 800	8.7	32 300	8.8	40 000	8.9	48 900	8.9	59 200	8.9	71 000	8.9
	55	-	-	19 900	13.4	25 300	13.5	31 600	13.5	39 000	13.6	47 600	13.6	57 400	13.6
SZ281	35	21 400	9.2	27 300	9.3	34 300	9.3	42 400	9.4	51 900	9.4	62 900	9.4	75 500	9.4
	55	-	-	21 000	14.2	26 800	14.3	33 500	14.3	41 500	14.4	50 600	14.4	61 200	14.3
SZ296	35	22 100	10.0	28 300	10.0	35 700	10.0	44 500	10.0	54 900	10.0	67 000	10.0	80 900	10.0
	55	-	-	22 000	15.4	28 100	15.4	35 200	15.4	43 500	15.5	53 300	15.5	64 700	15.6
SZ322	35	23 700	10.4	30 100	10.5	37 800	10.5	46 900	10.6	57 600	10.7	69 900	10.8	84 100	10.8
	55	-	-	23 800	15.9	30 200	16.0	37 800	16.1	46 600	16.2	56 900	16.2	68 900	16.2
SZ350	35	26 000	11.4	33 200	11.5	41 800	11.6	51 700	11.7	63 100	11.8	76 200	11.7	91 100	11.7
	55	-	-	25 700	17.1	33 000	17.3	41 400	17.4	51 200	17.5	62 400	17.5	75 100	17.5
SZ370	35	27 600	12.1	35 400	12.3	44 500	12.4	55 000	12.5	67 200	12.5	81 100	12.5	96 900	12.4
	55	-	-	27 400	18.2	35 100	18.4	44 100	18.5	54 500	18.6	66 400	18.7	79 900	18.6

Rating conditions:

To: Evaporating temperature in °C

Tc: Condensing temperature in °C

Qo: Cooling capacity in W

Pe: Power input in kW

Superheat = 11.1 K

Subcooling = 8.3 K

Voltage: 400 V / 3 / 50 Hz

Quick reference
Ordering reference

Model	Connections	Motor protection	SM /SY compressors in single pack			SZ compressors in single pack		
			4	6	7	4	6	7
			460/3/60 380-400/3/50	230/3/50	575/3/60 500/3/50	460/3/60 380-400/3/50	230/3/50	575/3/60 500/3/50
S 084	Brazed	Internal	SM084-4VI	SM084-6VI	SM084-7VI	SZ084-4VI	SZ084-6VI	SZ084-7VI
S 090	Brazed	Internal	SM090-4VI	SM090-6VI	SM090-7VI	SZ090-4VI	SZ090-6VI	SZ090-7VI
S 100	Brazed	Internal	SM100-4VI	SM100-6VI	SM100-7VI	SZ100-4VI	SZ100-6VI	SZ100-7VI
S 110	Brazed	Internal	SM110-4VI	SM110-6VI	SM110-7VI	SZ110-4VI	SZ110-6VI	SZ110-7VI
S 120	Brazed	Internal	SM120-4VI	SM120-6VI	SM120-7VI	SZ120-4VI	SZ120-6VI	SZ120-7VI
S 148	Brazed	Internal	SM148-4VAI	SM148-6VAI	SM148-7VAI	SZ148-4VAI	SZ148-6VAI	SZ148-7VAI
S 161	Brazed	Internal	SM161-4VAI	SM161-6VAI	SM161-7VAI	SZ161-4VAI	SZ161-6VAI	SZ161-7VAI
S 175	Brazed	Thermostat	SM175-4CAI	SM175-6CAI	SM175-7CAI	SZ175-4CAI	SZ175-6CAI	SZ175-7CAI
	Brazed	Module 24V AC	SM175-4PCI	-	SM175-7PCI	SZ175-4PCI	-	SZ175-7PCI
	Rotolock	Thermostat	SM175-4RI	SM175-6RI	SM175-7RI	SZ175-4RI	SZ175-6RI	SZ175-7RI
	Rotolock	Module 24V AC	SM175-4SCI	-	SM175-7SCI	SZ175-4SCI	-	SZ175-7SCI
S 185	Brazed	Thermostat	SM185-4CAI	SM185-6CAI	SM185-7CAI	SZ185-4CAI	SZ185-6CAI	SZ185-7CAI
	Brazed	Module 24 V AC	SM185-4PCI	-	SM185-7PCI	SZ185-4PCI	-	SZ185-7PCI
	Brazed	Module 230 V	SM185-4XCI	-	-	SZ185-4XCI	-	-
	Rotolock	Thermostat	SM185-4RI	SM185-6RI	SM185-7RI	SZ185-4RI	SZ185-6RI	SZ185-7RI
	Rotolock	Module 24 V AC	SM185-4SCI	-	SM185-7SCI	SZ185-4SCI	-	SZ185-7SCI
	Rotolock	Module 230 V	SM185-4YCI	-	-	SZ185-4YCI	-	-
SY185 *	Brazed	Thermostat	SY185-4CAI	-	-	-	-	-
	Rotolock	Thermostat	SY185-4RI	-	-	-	-	-
S 240	Brazed	Module 24V AC	SY240A4AAI	SY240A6CAI	SY240A7CAI	SZ240A4CAI	SZ240A6CAI	SZ240A7CAI
	Brazed	Module 115-230V AC	SY240A4ABI	SY240A6CBI	SY240A7CBI	SZ240A4CBI	SZ240A6CBI	SZ240A7CBI
	Rotolock	Module 24V AC	SY240A4MAI	SY240A6PAI	SY240A7PAI	SZ240A4PAI	SZ240A6PAI	SZ240A7PAI
	Rotolock	Module 115-230V AC	SY240A4MBI	SY240A6PBI	SY240A7PBI	SZ240A4PBI	SZ240A6PBI	SZ240A7PBI
S 300	Brazed	Module 24V AC	SY300A4AAI	SY300A6CAI	SY300A7CAI	SZ300A4CAI	SZ300A6CAI	SZ300A7CAI
	Brazed	Module 115-230V AC	SY300A4ABI	SY300A6CBI	SY300A7CBI	SZ300A4CBI	SZ300A6CBI	SZ300A7CBI
	Rotolock	Module 24V AC	SY300A4MAI	SY300A6PAI	SY300A7PAI	SZ300A4PAI	SZ300A6PAI	SZ300A7PAI
	Rotolock	Module 115-230V AC	SY300A4MBI	SY300A6PBI	SY300A7PBI	SZ300A4PBI	SZ300A6PBI	SZ300A7PBI
S 380	Brazed	Module 24V AC	SY380A4CAI	-	-	SZ380A4CAI	-	-
	Brazed	Module 115-230V AC	SY380A4CBI	-	-	SZ380A4CBI	-	-

* No module version available

SM/SY and SZ compressors in industrial pack: use numbers from above table and replace the last digit by «M». Example: SY240A4CAM, except for compressors with voltage code 6 and 7 which are not available in industrial pack.

Model	Connections	Motor protection	SM112-124-147 compressors in industrial pack			SM112-124-147 compressors in single pack		
			4	6	7	4	6	7
			460/3/60 380-400/3/50	230/3/50	575/3/60 500/3/50	460/3/60 380-400/3/50	230/3/50	575/3/60 500/3/50
SM112	Brazed	Internal	120H0612	-	-	120H0611	-	-
SM124	Brazed	Internal	120H0186	-	-	120H0185	-	-
SM147	Brazed	Internal	120H0311	-	-	120H0191	-	-

Danfoss Commercial Compressors

is a worldwide manufacturer of compressors and condensing units for refrigeration and HVAC applications. With a wide range of high quality and innovative products we help your company to find the best possible energy efficient solution that respects the environment and reduces total life cycle costs.

We have 40 years of experience within the development of hermetic compressors which has brought us amongst the global leaders in our business, and positioned us as distinct variable speed technology specialists. Today we operate from engineering and manufacturing facilities spread across three continents.



Our products can be found in a variety of applications such as rooftops, chillers, residential air conditioners, heatpumps, coldrooms, supermarkets, milk tank cooling and industrial cooling processes.

<http://cc.danfoss.com>

Danfoss Commercial Compressors, BP 331, 01603 Trévoux Cedex, France | +334 74 00 28 29

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