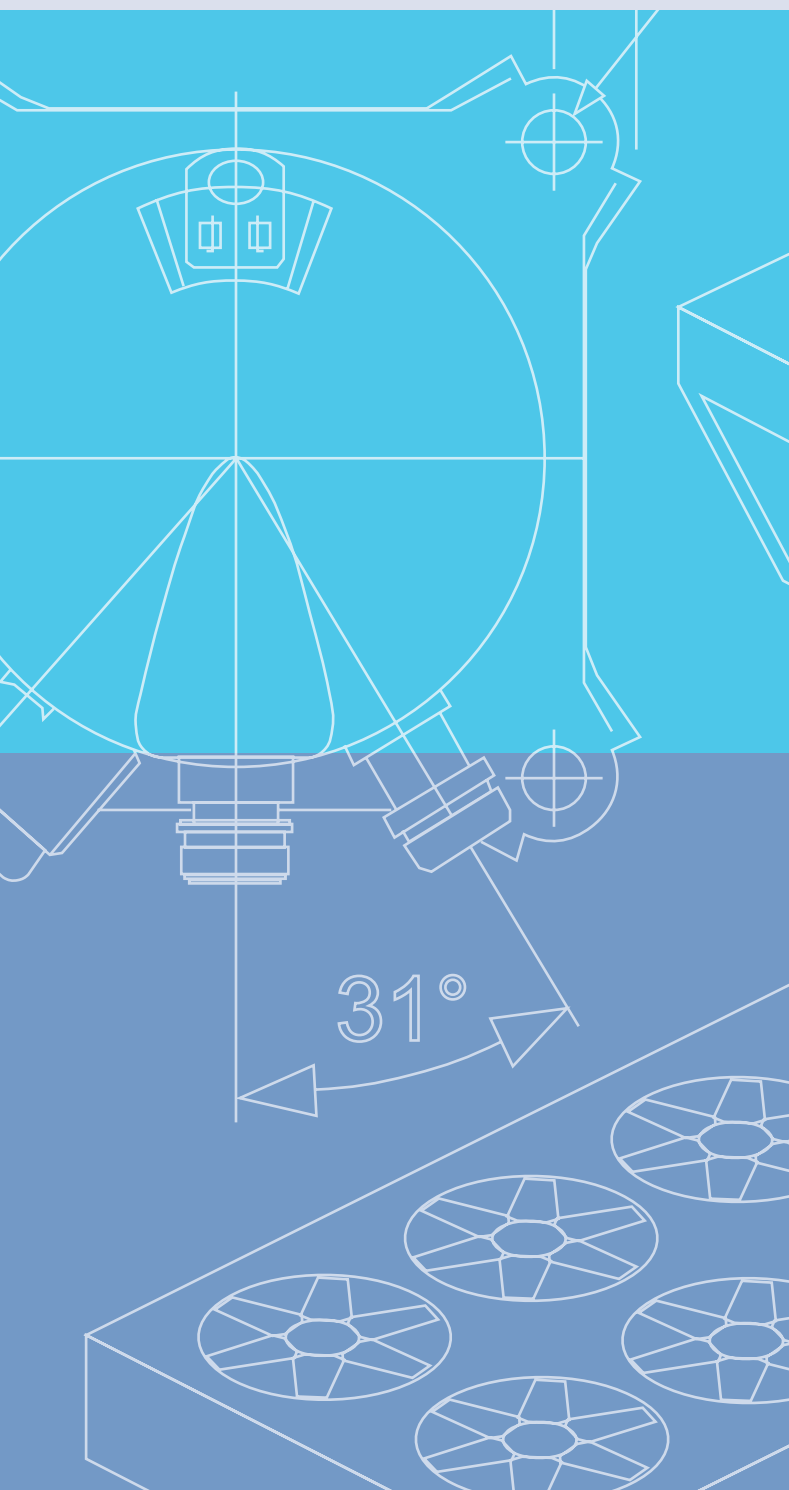




Replacement Guidelines for Scroll Compressors

ZP...K3E with ZP...KSE, ZR61KCE with ZR61KSE





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1 Introduction

Emerson Climate Technologies has successfully introduced a new range of compressors from 1.5 Hp to 5 Hp. The purpose of this guideline is to help customers in replacing the existing range of compressors.

Application: A/C, ZP with R410A
A/C, ZR with R407C/R134a

Performance: Higher efficiency (+2 to +7%)
Quiet operation (66-68 dBA)

2 Nomenclature

Z P 26K S E - TFM - 522

Bill of material number
Motor version
Oil type: E = POE oil
Model variation
Nominal capacity [BTU/h] @ 60 Hz and ARI conditions
Refrigerant: P = 410A; R = medium/high temperature
Compressor family: Z = Scroll

3 Ident numbers

	K3E		KSE			
	TFD-522	kW*	TFM-522	kW*		
R410A	ZP23K3E	8027030	4.99	ZP24KSE	8402779	5.06
	ZP26K3E	8026708	5.43	ZP29KSE	8402791	6.04
	ZP32K3E	8026695	6.73	ZP31KSE	8403614	6.50
	ZP36K3E	8818414	7.46	ZP36KSE	8833717	7.65
	ZP41K3E	8026673	8.79	ZP42KSE	8404708	8.90
	ZP54K3E	8034907	11.76	ZP54KSE	8833762	11.52
		PFJ-522	kW*	PFZ-522	kW*	
	ZP23K3E	8033471	4.95	ZP24KSE	8402768	5.06
	ZP26K3E	8034338	5.44	ZP29KSE	8402780	6.04
	ZP32K3E	8035331	6.75	ZP31KSE	8403603	6.74
	ZP36K3E	8400342	7.46	ZP36KSE	8836249	7.81
	ZP41K3E	8039468	8.86	ZP42KSE	8402666	8.90
				ZP54KSE	8836261	11.66

*R410A (En 12900)

	KCE		KSE			
	TFD-522	kW*	TFM-522	kW*		
R407C	ZR61KCE	8401801	12.43	ZR61KSE	8402188	13.06

*R407C (En 12900)



4 Technical comparisons

4.1 Performances & dimensions

4.1.1 Single phase – PFJ – R410A

	ZP23K3	ZP24KS	ZP26K3	ZP29KS	ZP32K3	ZP31KS	ZP36KS	ZP41K3	ZP42KS	ZP54KS
Cooling Capacity kW ⁽¹⁾	5.6	5.7	6.1	6.8	7.6	7.6	8.5	9.9	10.0	13.1
COP ⁽¹⁾	2.64	2.82	2.67	2.81	2.67	2.79	2.75	2.76	2.87	3.02
Sound Power, dBA	65	66	65	66	67	66	68	67	68	68
Dimensions mm	Footprint	EQUAL		EQUAL		EQUAL		EQUAL		
	Shell Diameter	167.5	139.6	167.5	139.6	167.5	139.6	167.5	167.5	167.5
	Height	362	387	362	387	384	387	419	398	419
	Suction	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	7/8"	3/4"	7/8"
	Discharge	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Weight kg	28	22	29	23	31	24	29	32	31	33

⁽¹⁾ ARI

4.1.2 Three phase – TFM – R410A

	ZP23K3	ZP24KS	ZP26K3	ZP29KS	ZP32K3	ZP31KS	ZP36KS	ZP41K3	ZP42KS	ZP54K3	ZP54KS
Cooling Capacity kW ⁽¹⁾	5.6	5.7	6.1	6.8	7.4	7.3	8.6	9.8	10.0	13.2	12.91
COP ⁽¹⁾	2.70	2.82	2.70	2.80	2.76	2.83	2.96	2.9	2.97	2.95	3.02
Sound Power, dBA	65	66	65	66	67	66	68	67	68	69	68
Dimensions mm	Footprint	EQUAL		EQUAL		EQUAL		EQUAL		EQUAL	
	Shell Diameter	167.5	139.6	167.5	139.6	167.5	139.6	167.5	167.5	185.5	167.5
	Height	362	387	362	387	384	387	419	398	419	443
	Suction	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	7/8"	3/4"	7/8"	7/8"
	Discharge	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Weight kg	28	22	29	23	31	24	29	32	31	38	33

⁽¹⁾ ARI

K3	KS
----	----

4.1.3 Three phase – TFM – R407C

	ZR61KC	ZR61KS	
Cooling Capacity kW ⁽¹⁾	14.0	14.6	
COP ⁽¹⁾	3.14	3.23	
Sound Power, dBA	71	72	
Dimensions mm	Footprint	EQUAL	
	Shell Diameter	185.5	165.2
	Height	438	417
	Suction	7/8"	7/8"
	Discharge	1/2"	1/2"
Weight kg	36	30	

⁽¹⁾ ARI

KC	KS
----	----



4.2 Differences in position and dimensions of connections; shell dimensions

All the compressors are taller than previous version, except ZP54 and ZR61. The shell diameter is smaller than previous version. The values are shown in table below.

			KS vs. K3					
			ZP24vs.ZP23	ZP29vs.ZP26	ZP31vs.ZP32	ZP36vs.ZP32	ZP42vs.ZP41	ZP54vs.ZP54
Suction	Ø	["]	Equal	Equal	Equal	7/8 vs. 3/4	Equal	Equal
	Angle	[°]	Equal	Equal	Equal	Equal	Equal	Equal
	Elevation Diff	[mm]	18	48	-1	31	0	-3
Discharge	Ø	["]	Equal	Equal	Equal	Equal	Equal	Equal
	Angle	[°]	Equal	Equal	Equal	Equal	Equal	Equal
	Elevation Diff	[mm]	25	25	4	35	5	-24
Diameter	Diff	[mm]	-28	-28	-28	0	0	-18
Shell	Height Diff	[mm]	25	25	4	35	5	-24

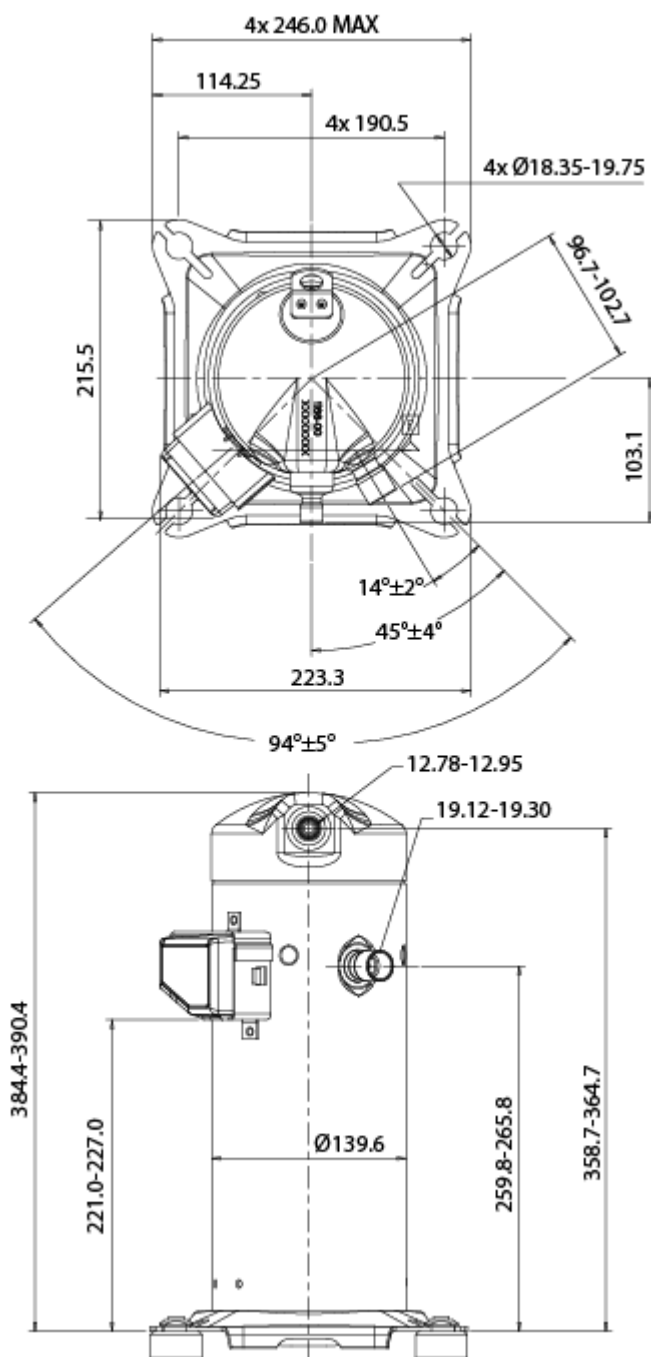
			KS vs. KC
			ZR61vs.ZR61
Suction	Ø	["]	Equal
	Angle	[o]	Equal
	Elevation Diff	[mm]	-13
Discharge	Ø	["]	Equal
	Angle	[o]	Equal
	Elevation Diff	[mm]	-21
Diameter	Diff	[mm]	-20
Shell	Height Diff	[mm]	-21



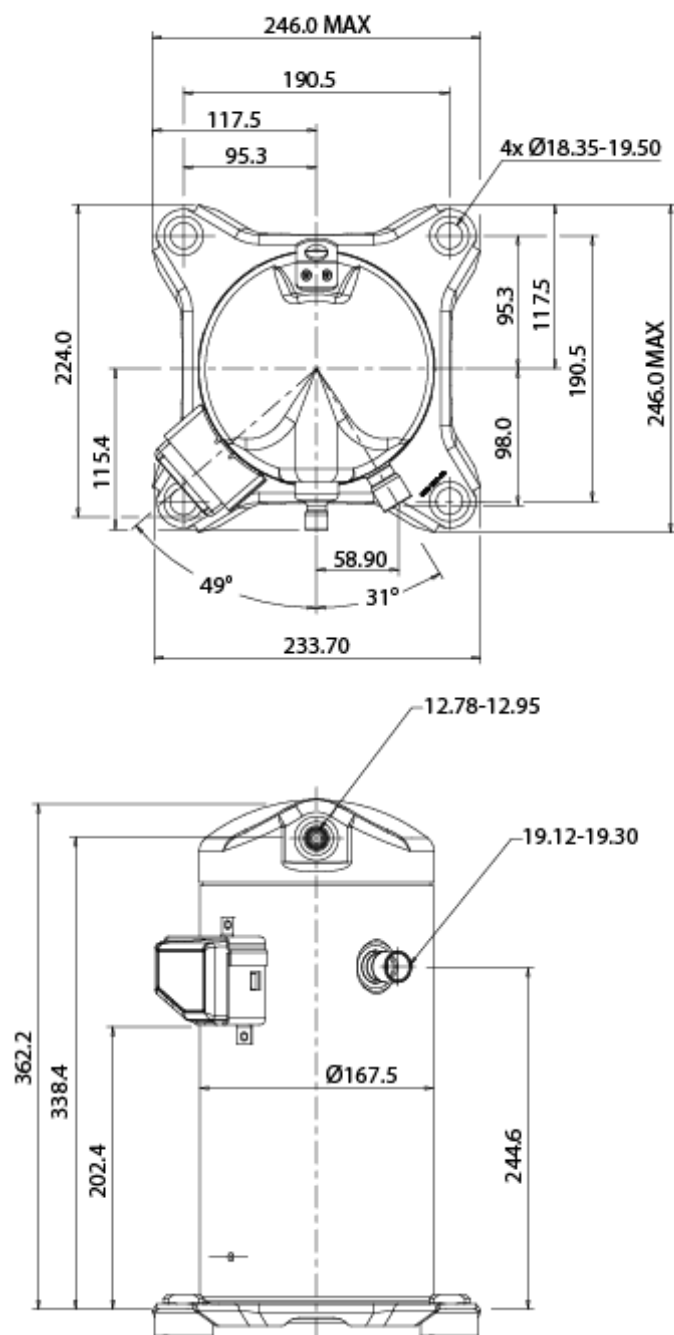
5 Drawings

5.1 ZP Compressors

ZP24KSE, ZP29KSE

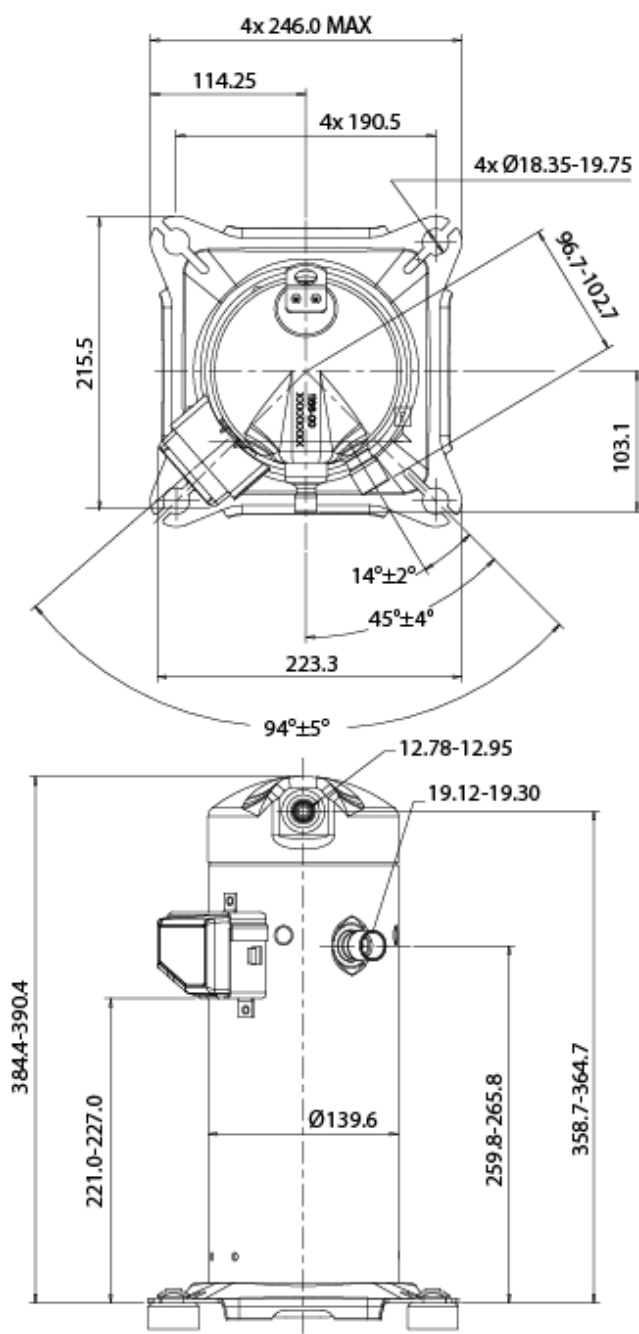


ZP23K3E, ZP26K3E

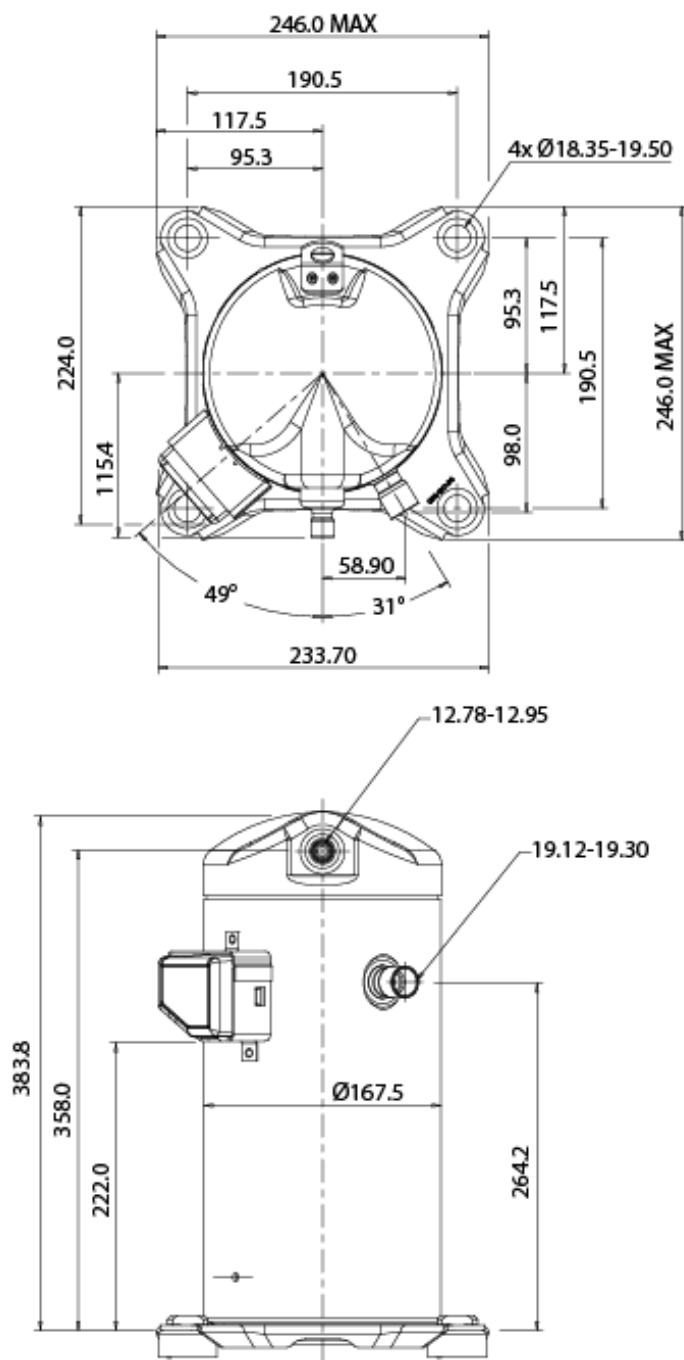




ZP31KSE

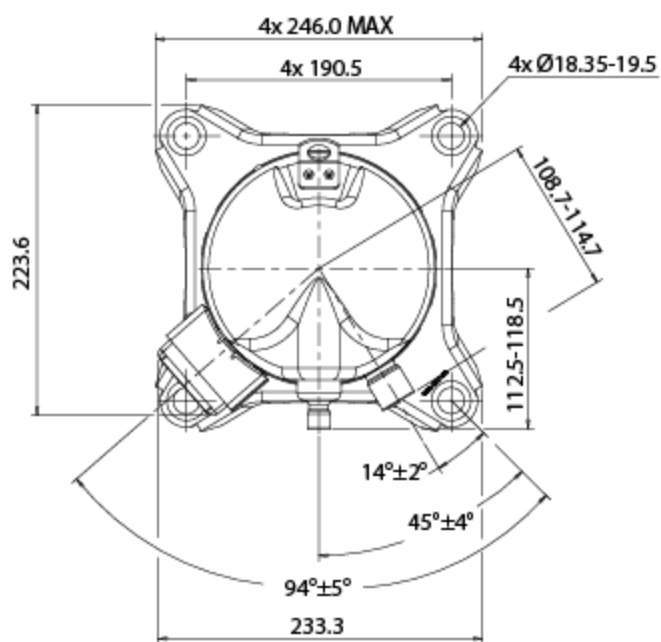


ZP32K3E

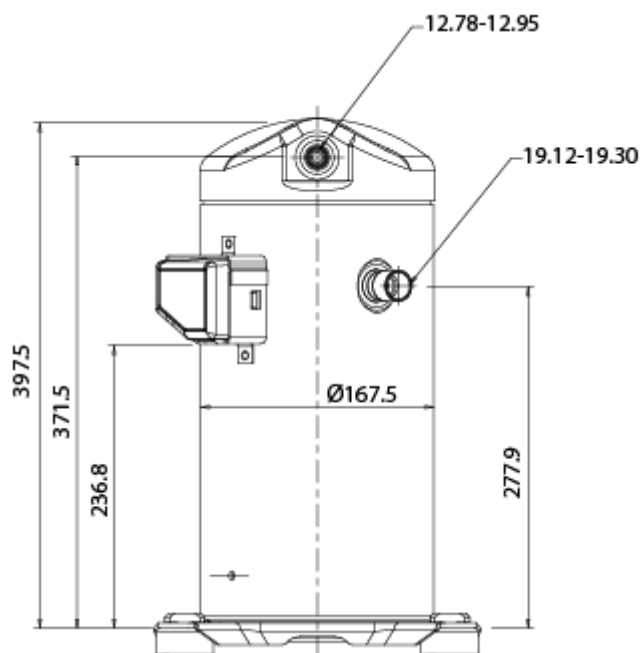
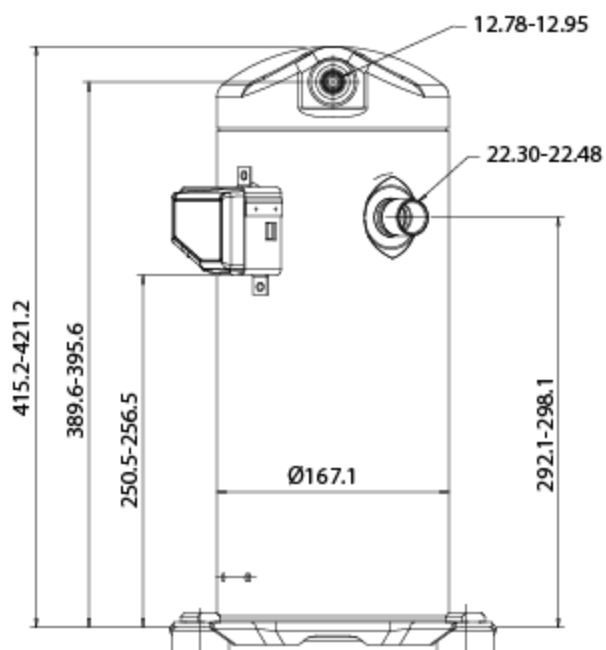
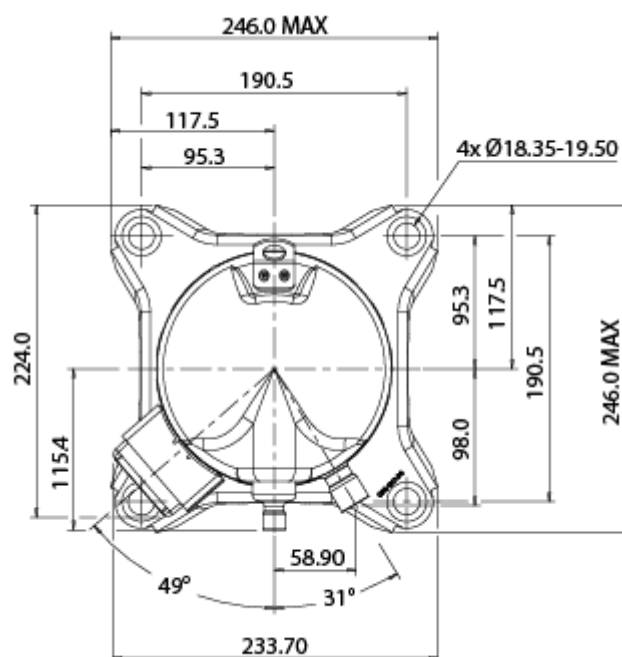




ZP36KSE, ZP42KSE

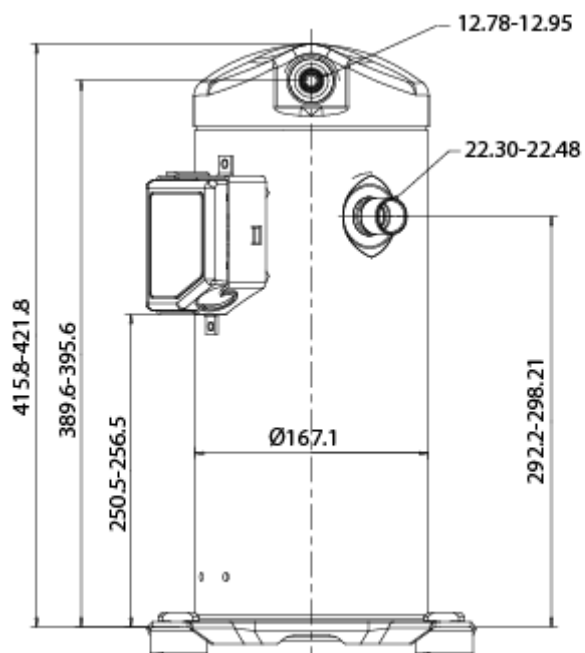
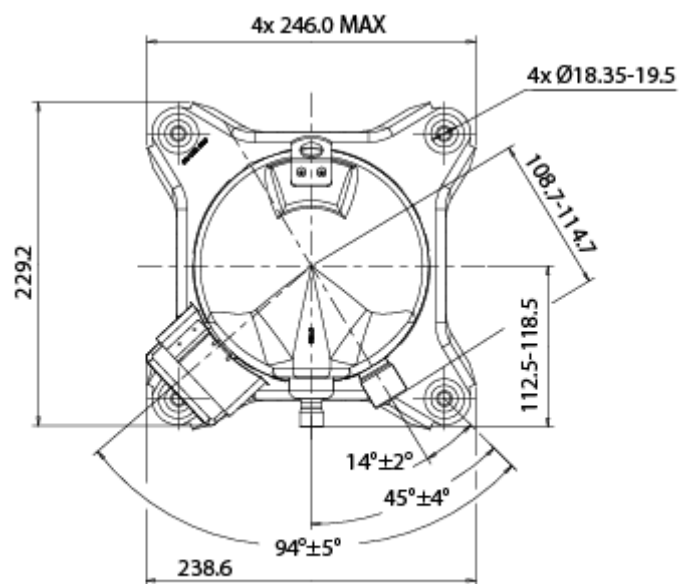


ZP36K3E, ZP41K3E

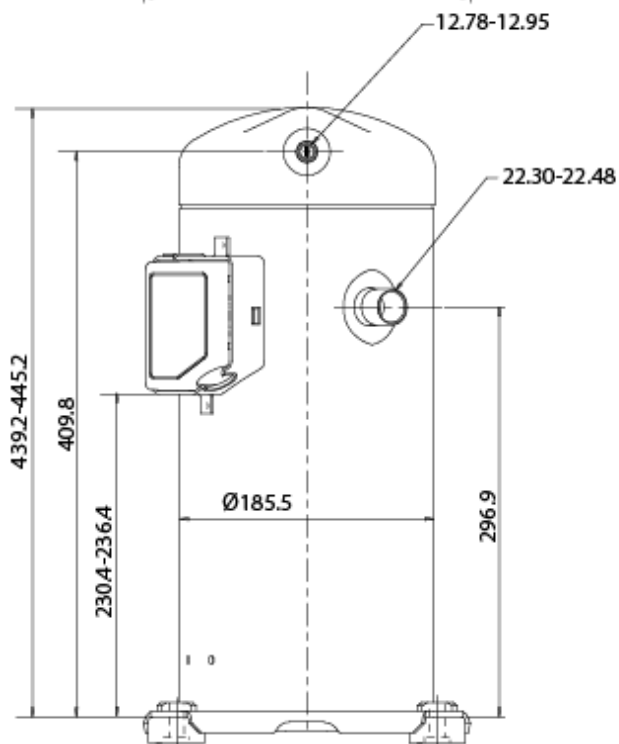
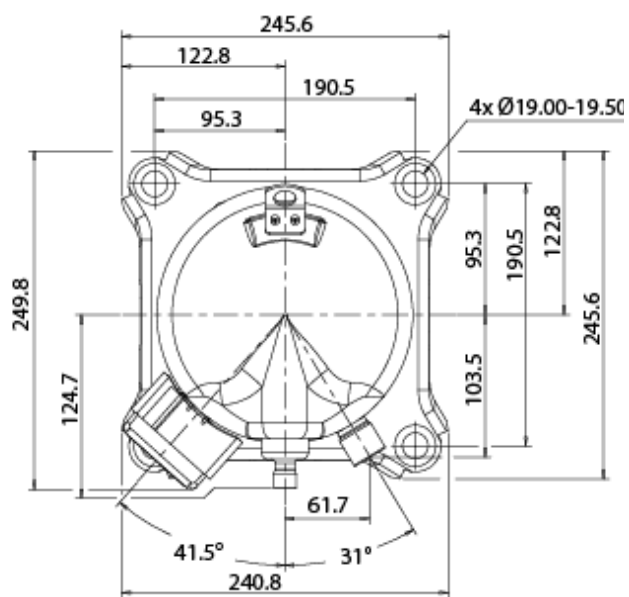




ZP54KSE



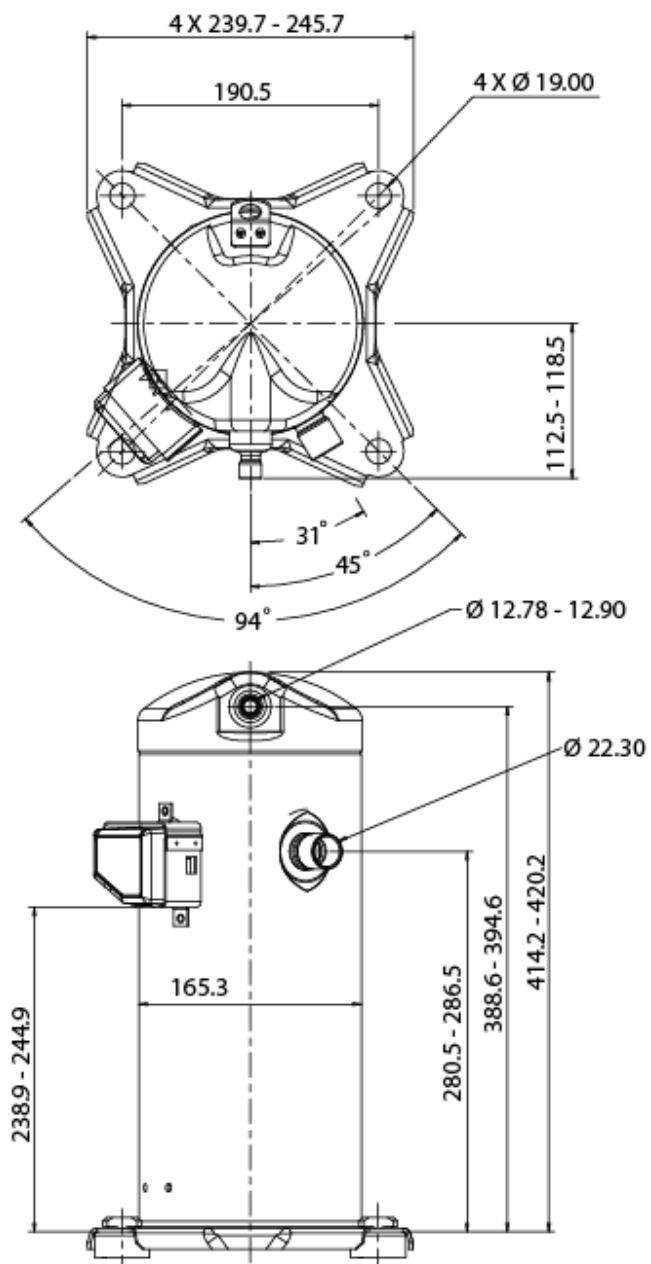
ZP54K3E



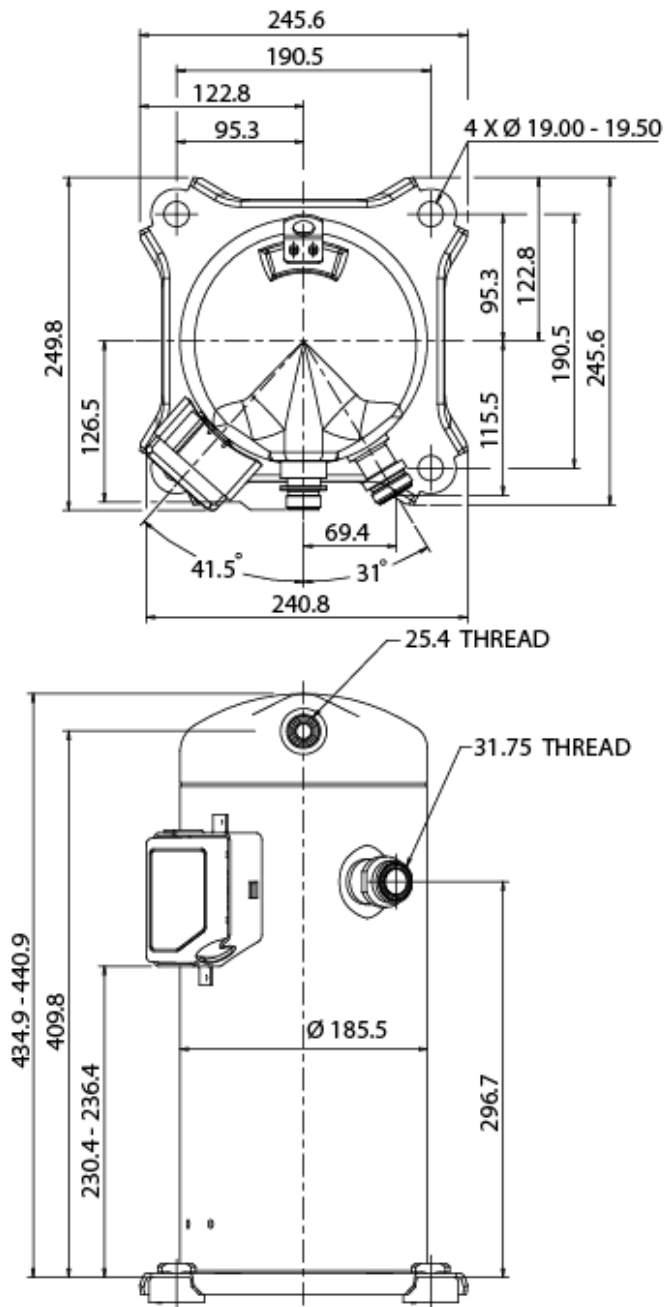


5.2 ZR Compressors

ZR61KSE



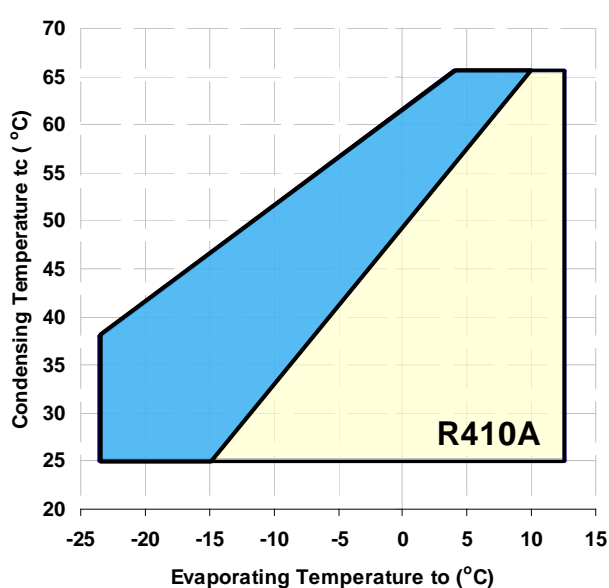
ZR61KCE





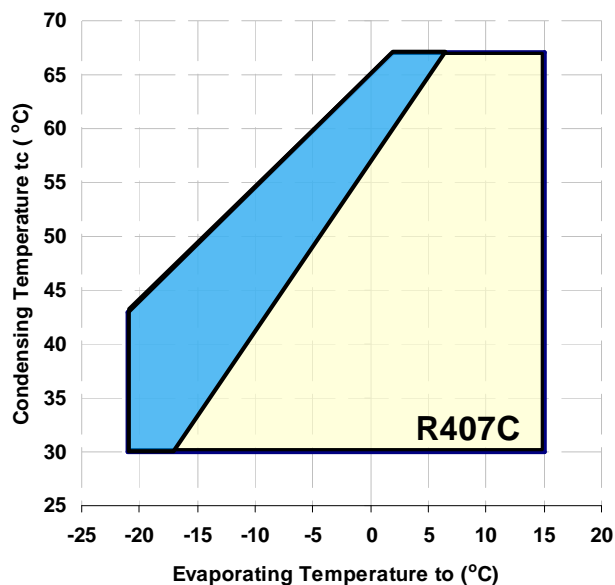




6 Operating envelopes

The operation area is the same for all generations, K3, KC and KS.



 10K Suction Superheat
 25°C Suction Gas Return



 10K Suction Superheat
 25°C Suction Gas Return

7 Motor version

The motor insulation material for both generations of scroll compressors is class B (maximum allowed operating temperature 130°C).

Motor code

Scroll compressors are available in various motor versions depending upon the size of the load. The motor versions differ in operating voltage, type of switching, number of phases, frequency and type of motor protection. A code for the motor is included in the model designation to ensure correct designation because of the many variations available during order handling and service. An example of compressor model designation is given below.

Motor Type		Motor protection device	Motor Voltage			
			V	Ph	Hz	
P	Single-phase motor	F Inherent internal klixon line break motor protection	J	220/240	1	50
				265	1	60
Z	220/240		1	50		
D	380/420		3	50		
	460		3	60		
T	Three-phase motor		M	380/420	3	50
		7	380	3	60	
		5	200/220	3	50	
			200/230	3	60	



		1~ / 50Hz		3~ / 50Hz				1~ / 60Hz		3~ / 60 Hz	
		PFJ	PFZ	TFD	TFM			PFJ	TFD	TF7	TF5
		220/240	220/240	380/420	380/420			265	460	380	200-230
K3E	ZP23					K3E	ZP23				
	ZP26						ZP26				
	ZP32						ZP32				
	ZP36						ZP36				
	ZP41						ZP41				
	ZP54						ZP54				
KSE	ZP24					KSE	ZP24				
	ZP29						ZP29				
	ZP31						ZP31				
	ZP36						ZP36				
	ZP42						ZP42				
	ZP54						ZP54				
KCE	ZR61					KCE	ZR61				
KSE	ZR61					KSE	ZR61				

8 Motor protection

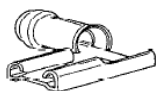
The centre letter of the motor code in the nomenclature of a Copeland Scroll™ compressor indicates which kind of motor protection device is used.

The centre letter "F" (eg, TFD) stands for inherent motor protector (Klixon) which is embedded in the stator head and interrupts the power supply of the windings internally at high current or high motor winding temperature. After the temperature has dropped down to the reset value the compressor motor restarts automatically. This protection device is always installed internally and is not accessible.

9 Cable connectors

The following table lists the recommended types of cable connectors to be used for the various electrical terminals of the compressors. "A" and "D" must fit ¼" or 6.3 mm tab sizes. "B" and "C" must be selected for diameters of 5 mm.

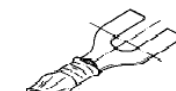
Cable sizes must be selected according to DIN ISO 0100, IEC 364 or national regulations.



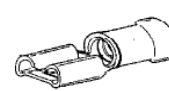
Flag receptacle (A)



Ring tongue (B)



Spade (C)



Straight receptacle (D)

	1 ~	3 ~
ZP 23 - 41 K3E	A/D	A/D
ZP 24 - 42 KSE	A/D	A/D
ZP 54 K3E		B/C
ZP 54 KSE	B/C	B/C
ZR61KCE	B/C	B/C
ZR61KSE	B/C	B/C

NOTE: For the earth connection of these compressors use a "B" Ring tongue connection.



10 Run capacitor

Run capacitors are listed in the table below.

Model	Characteristics	Ident	Model	Characteristics	Ident
ZP24KSE-PFZ	40 µF / 440V, 50Hz	8557135	ZP23K3E	40 µF / 475 V, 50 Hz	8540586
ZP29KSE-PFZ	60 µF / 440V, 50Hz	8557179	ZP26K3E	45 µF / 475 V, 50 Hz	8540597
ZP31KSE-PFZ	60 µF / 440V, 50Hz	8557179	ZP32K3E	50 µF / 475 V, 50 Hz	8540600
ZP36KSE-PFZ	60 µF / 440V, 50Hz	8557179	ZP41K3E	60 µF / 475 V, 50 Hz	8540622
ZP42KSE-PFZ	80 µF / 440V, 50Hz	8557180			
ZP54KSE-PFZ	80 µF / 440V, 50Hz	8557180			

11 BOM description

Compressor	Brazed	Rotalock	Tandem Ready	Compressor	Brazed	Rotalock	Tandem Ready
ZP23K3E to ZP32K3E	522			ZP24KSE to ZP31KSE	522		
ZP41K3E to ZP54K3E	522		422	ZP36KSE to ZP54KSE	522		422
ZR61KCE	522	523	422	ZR61KSE	522		422

12 Adapters and fittings

ZP*KS compressors only have brazed connections. For adapters and fittings please refer to tables hereunder.



Kit to transform braze into Rotalock

Model	Suction			Discharge			Suction + Discharge
	Compressor diameter	Ident	Rotalock diameter	Compressor diameter	Ident	Rotalock diameter	
ZP24KSE	1/2"	8026946	1"	3/4" o. 5/8"	8026957	1 1/4"	8030314
ZP29KSE							
ZP31KSE							
ZP36KSE							
ZP54KSE							
ZR61KSE							



Kit Valve Rotalock

Model	Suction		Discharge		Suction + Discharge
	Compressor diameter	Ident	Compressor diameter	Ident	
ZP24KSE	1 1/4" - 12, I.D. 7/8"	8032989	1" - 14, I.D. 5/8"	8032025	8025772
ZP29KSE					
ZP31KSE					
ZP36KSE					
ZP54KSE					
ZR61KSE					



13 Standard components and accessories

13.1 Mounting parts

Model Name	Ident No.
ZP24KSE	8039151
ZP29KSE	
ZP31KSE	
ZP36KSE	8000822
ZP42KSE	
ZP54KSE	
ZR61KSE	

13.2 Crankcase heater (optional)

Model Name	Electrical characteristics	Ident	Model Name	Electrical characteristics	Ident
ZP24KSE	220/240V - 40W - 550 mm 380/480V - 40W - 550 mm	8556176 -	ZP23K3E	240V - 70W - 800 mm 480V - 70W - 550 mm	8556201 8556198
ZP29KSE			ZP26K3E		
ZP31KSE			ZP22K3E		
ZP36KSE					
ZP42KSE	220/240V - 40W - 550 mm	8556234	ZP41K3E		
ZP54KSE	380/480V - 40W - 550 mm	8556256	ZP54K3E		
ZR61KSE			ZR61KCE		



14 Data sheets

14.1 ZP Compressors – Refrigerant R410A

Power supply; 380/420V - 3~ - 50 Hz; Suction superheat 10.0 K; Liquid subcooling 0.0 K.

R410A - ZP23K3E-TFD

Capacity kW	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
25		2.51	3.14	3.9	4.8	5.82	6.98	7.48	8.28	8.98
30		2.34	2.94	3.67	4.52	5.5	6.6	7.08	7.83	8.5
35		2.17	2.74	3.43	4.24	5.17	6.21	6.67	7.38	8.01
40		2.01	2.54	3.2	3.96	4.83	5.82	6.25	6.93	7.52
45			2.34	2.95	3.67	4.49	5.42	5.82	6.46	7.01
50				2.69	3.36	4.12	4.99	5.37	5.96	6.49
55					3.03	3.74	4.54	4.89	5.44	5.92
60						3.31	4.05	4.37	4.87	5.32
65							3.5	3.79	4.24	4.64

Power Input kW	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
25		0.98	1.02	1.03	1.01	0.99	0.97	0.96	0.96	0.96
30		1.09	1.13	1.14	1.13	1.11	1.1	1.1	1.11	1.12
35		1.23	1.26	1.27	1.27	1.26	1.26	1.26	1.27	1.29
40		1.39	1.42	1.43	1.43	1.42	1.43	1.44	1.46	1.48
45			1.61	1.62	1.61	1.61	1.62	1.63	1.66	1.69
50				1.84	1.83	1.83	1.84	1.86	1.88	1.92
55					2.08	2.08	2.09	2.11	2.14	2.17
60						2.36	2.37	2.39	2.42	2.46
65							2.69	2.7	2.73	2.78

R410A - ZP24KSE-TFM

Capacity kW	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
25		2.55	3.19	3.95	4.85	5.88	7.04	7.55	8.34	9.05
30		2.4	3.01	3.73	4.58	5.56	6.66	7.14	7.9	8.57
35		2.24	2.81	3.5	4.31	5.23	6.28	6.73	7.45	8.08
40		2.05	2.6	3.26	4.02	4.9	5.89	6.32	7	7.59
45			2.37	2.99	3.72	4.54	5.48	5.89	6.53	7.09
50				2.7	3.39	4.17	5.06	5.44	6.04	6.57
55					3.04	3.77	4.6	4.96	5.53	6.03
60						3.34	4.12	4.45	4.98	5.45
65							3.57	3.88	4.37	4.8

Power Input kW	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
25		1.05	1.03	1.01	0.98	0.96	0.93	0.92	0.9	0.89
30		1.18	1.17	1.15	1.12	1.1	1.07	1.06	1.05	1.04
35		1.33	1.32	1.3	1.28	1.25	1.23	1.22	1.21	1.2
40		1.51	1.5	1.48	1.45	1.43	1.4	1.39	1.38	1.37
45			1.69	1.67	1.65	1.62	1.6	1.59	1.58	1.57
50				1.89	1.87	1.84	1.81	1.8	1.79	1.78
55					2.11	2.08	2.05	2.04	2.03	2.02
60						2.35	2.32	2.31	2.29	2.28
65							2.61	2.6	2.59	2.57



R410A - ZP26K3E-TFD

Capacity kW	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
25	2.75	3.43	4.24	5.17	6.25	7.49	8.04	8.91	9.68	
30	2.6	3.25	4.01	4.9	5.93	7.12	7.64	8.46	9.2	
35	2.42	3.04	3.77	4.62	5.6	6.72	7.21	8	8.71	
40	2.24	2.83	3.52	4.32	5.24	6.31	6.78	7.52	8.19	
45		2.6	3.25	4	4.87	5.88	6.32	7.03	7.66	
50			2.97	3.67	4.49	5.43	5.85	6.51	7.1	
55				3.33	4.09	4.97	5.35	5.97	6.52	
60					3.67	4.47	4.83	5.4	5.91	
65						3.94	4.26	4.78	5.24	

Power Input kW	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
25	1.2	1.15	1.11	1.07	1.04	1	0.99	0.96	0.94	
30	1.4	1.33	1.28	1.24	1.2	1.16	1.15	1.12	1.1	
35	1.63	1.55	1.48	1.43	1.38	1.34	1.33	1.3	1.28	
40	1.9	1.8	1.72	1.65	1.59	1.54	1.52	1.5	1.47	
45		2.09	1.99	1.9	1.83	1.77	1.75	1.72	1.69	
50			2.3	2.2	2.11	2.04	2.01	1.97	1.94	
55				2.54	2.43	2.34	2.31	2.26	2.23	
60					2.8	2.69	2.65	2.6	2.55	
65						3.09	3.04	2.98	2.93	

R410A - ZP29KSE-TFM

Capacity kW	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
25	3	3.83	4.75	5.8	7	8.39	9.01	10	10.9	
30	2.74	3.57	4.47	5.49	6.65	7.98	8.57	9.52	10.38	
35	2.44	3.27	4.16	5.15	6.26	7.54	8.1	9	9.82	
40	2.11	2.94	3.82	4.78	5.85	7.07	7.6	8.46	9.23	
45		2.59	3.45	4.38	5.41	6.57	7.07	7.88	8.61	
50			3.06	3.96	4.94	6.04	6.51	7.27	7.96	
55				3.51	4.44	5.47	5.92	6.63	7.27	
60					3.91	4.88	5.29	5.95	6.54	
65						4.22	4.6	5.21	5.75	

Power Input kW	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
25	1.25	1.25	1.24	1.22	1.18	1.15	1.13	1.11	1.1	
30	1.4	1.41	1.39	1.37	1.34	1.3	1.29	1.26	1.25	
35	1.57	1.58	1.57	1.55	1.52	1.48	1.47	1.44	1.43	
40	1.76	1.78	1.77	1.75	1.72	1.69	1.67	1.65	1.63	
45		2	2	1.98	1.95	1.92	1.9	1.88	1.86	
50			2.25	2.24	2.21	2.18	2.17	2.14	2.12	
55				2.52	2.5	2.47	2.46	2.43	2.42	
60					2.82	2.79	2.78	2.76	2.74	
65						3.14	3.13	3.11	3.1	



R410A - ZP32K3E-TFD

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Capacity kW	25	3.54	4.62	5.82	7.1	8.44	9.79	10.33	11.14	11.8
	30	3.21	4.25	5.39	6.62	7.9	9.2	9.71	10.48	11.11
	35	2.87	3.86	4.96	6.14	7.36	8.61	9.1	9.83	10.43
	40	2.49	3.44	4.5	5.64	6.81	8.01	8.48	9.18	9.75
	45		2.99	4.01	5.11	6.24	7.39	7.84	8.51	9.06
	50			3.48	4.54	5.63	6.73	7.17	7.81	8.33
	55				3.91	4.97	6.03	6.45	7.07	7.57
	60					4.24	5.26	5.66	6.25	6.73
	65						4.4	4.78	5.34	5.79

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Power Input kW	25	1.42	1.39	1.35	1.31	1.26	1.22	1.2	1.18	1.16
	30	1.61	1.58	1.53	1.49	1.44	1.4	1.39	1.37	1.36
	35	1.84	1.8	1.75	1.7	1.65	1.61	1.59	1.58	1.56
	40	2.11	2.06	2	1.94	1.89	1.84	1.82	1.8	1.79
	45		2.37	2.3	2.23	2.16	2.1	2.08	2.06	2.04
	50			2.65	2.56	2.48	2.4	2.38	2.35	2.32
	55				2.95	2.85	2.76	2.72	2.68	2.65
	60					3.28	3.16	3.12	3.07	3.03
	65						3.63	3.58	3.51	3.46

R410A - ZP31KSE-TFM

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Capacity kW	25	3.24	4.13	5.12	6.25	7.54	9.04	9.71	10.78	11.75
	30	2.95	3.84	4.82	5.92	7.16	8.6	9.23	10.26	11.18
	35	2.63	3.52	4.49	5.55	6.75	8.12	8.73	9.7	10.58
	40	2.27	3.17	4.12	5.15	6.31	7.62	8.19	9.11	9.94
	45		2.79	3.72	4.72	5.83	7.08	7.62	8.49	9.28
	50			3.3	4.27	5.33	6.5	7.02	7.84	8.58
	55				3.78	4.79	5.9	6.38	7.15	7.84
	60					4.21	5.25	5.7	6.42	7.05
	65						4.55	4.96	5.61	6.2

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Power Input kW	25	1.33	1.34	1.32	1.3	1.26	1.22	1.21	1.19	1.17
	30	1.49	1.5	1.49	1.46	1.43	1.39	1.37	1.35	1.33
	35	1.67	1.68	1.68	1.65	1.62	1.58	1.56	1.54	1.52
	40	1.88	1.89	1.89	1.87	1.84	1.8	1.78	1.76	1.74
	45		2.13	2.13	2.11	2.08	2.05	2.03	2.01	1.99
	50			2.4	2.39	2.36	2.32	2.31	2.29	2.27
	55				2.69	2.67	2.63	2.62	2.6	2.58
	60					3.01	2.98	2.96	2.94	2.92
	65						3.35	3.34	3.32	3.3



R410A - ZP36KSE-TFM

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Capacity kW	25	3.88	4.79	5.86	7.12	8.62	10.4	11.2	12.5	13.68
	30	3.65	4.57	5.62	6.83	8.26	9.94	10.69	11.9	13.01
	35	3.34	4.28	5.31	6.49	7.85	9.43	10.13	11.27	12.31
	40	2.97	3.92	4.95	6.09	7.39	8.88	9.54	10.61	11.57
	45		3.5	4.53	5.64	6.88	8.29	8.91	9.91	10.81
	50			4.04	5.13	6.32	7.65	8.23	9.16	10
	55				4.56	5.7	6.96	7.5	8.37	9.14
	60					5.03	6.21	6.71	7.52	8.23
	65						5.37	5.84	6.57	7.22

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Power Input kW	25	1.52	1.51	1.49	1.46	1.43	1.39	1.37	1.34	1.31
	30	1.7	1.69	1.68	1.66	1.64	1.61	1.6	1.58	1.56
	35	1.93	1.91	1.89	1.87	1.85	1.83	1.82	1.81	1.8
	40	2.2	2.16	2.13	2.11	2.08	2.06	2.06	2.05	2.05
	45		2.47	2.42	2.38	2.35	2.32	2.32	2.31	2.31
	50			2.76	2.7	2.65	2.62	2.61	2.6	2.59
	55				3.08	3.01	2.96	2.95	2.93	2.92
	60					3.44	3.36	3.34	3.31	3.29
	65						3.83	3.8	3.75	3.72



R410A - ZP41K3E-TFD

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Capacity kW	25	4.64	5.75	7.04	8.55	10.28	12.27	13.14	14.54	15.78
	30	4.32	5.37	6.61	8.05	9.7	11.61	12.44	13.77	14.96
	35	3.99	5	6.18	7.54	9.12	10.93	11.72	12.99	14.13
	40	3.67	4.62	5.74	7.03	8.52	10.24	10.99	12.2	13.28
	45		4.24	5.29	6.5	7.91	9.53	10.24	11.38	12.4
	50			4.82	5.95	7.27	8.79	9.46	10.53	11.49
	55				5.37	6.6	8.01	8.63	9.63	10.52
	60					5.87	7.17	7.74	8.66	9.49
	65						6.24	6.76	7.59	8.34

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Power Input kW	25	1.68	1.67	1.66	1.63	1.6	1.56	1.54	1.51	1.48
	30	1.9	1.9	1.89	1.87	1.84	1.81	1.79	1.77	1.75
	35	2.13	2.14	2.13	2.11	2.09	2.06	2.05	2.03	2.01
	40	2.4	2.4	2.39	2.38	2.36	2.34	2.32	2.31	2.29
	45		2.71	2.7	2.68	2.66	2.64	2.63	2.61	2.59
	50			3.05	3.03	3	2.98	2.96	2.95	2.93
	55				3.43	3.4	3.37	3.35	3.33	3.32
	60					3.86	3.82	3.8	3.78	3.76
	65						4.34	4.33	4.3	4.27

R410A - ZP42KSE-TFM

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Capacity kW	25	4.49	5.7	7.06	8.61	10.37	12.38	13.26	14.66	15.91
	30	4.11	5.3	6.62	8.12	9.82	11.75	12.59	13.94	15.13
	35	3.71	4.87	6.16	7.61	9.25	11.1	11.91	13.19	14.34
	40	3.27	4.41	5.67	7.07	8.65	10.42	11.19	12.42	13.52
	45		3.91	5.13	6.49	8	9.69	10.43	11.6	12.64
	50			4.54	5.84	7.29	8.9	9.6	10.72	11.71
	55				5.13	6.51	8.04	8.71	9.76	10.7
	60					5.64	7.08	7.71	8.7	9.58
	65						6	6.58	7.49	8.31

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Power Input kW	25	1.71	1.7	1.68	1.66	1.63	1.58	1.56	1.53	1.49
	30	1.94	1.92	1.91	1.89	1.86	1.83	1.82	1.79	1.77
	35	2.2	2.18	2.16	2.13	2.11	2.09	2.08	2.06	2.04
	40	2.51	2.47	2.44	2.41	2.39	2.36	2.36	2.34	2.33
	45		2.82	2.77	2.73	2.7	2.67	2.66	2.65	2.64
	50			3.16	3.1	3.06	3.02	3.01	2.99	2.98
	55				3.54	3.48	3.43	3.42	3.4	3.38
	60					3.98	3.91	3.89	3.86	3.84
	65						4.48	4.45	4.41	4.38



R410A - ZP50K3E-TFD

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Capacity kW	25	5.97	7.3	8.85	10.65	12.73	15.1	16.14	17.8	19.28
	30	5.63	6.9	8.37	10.08	12.03	14.27	15.24	16.8	18.19
	35	5.27	6.5	7.91	9.53	11.37	13.48	14.4	15.87	17.18
	40	4.86	6.05	7.41	8.96	10.72	12.71	13.58	14.96	16.19
	45		5.54	6.86	8.34	10.02	11.91	12.74	14.04	15.2
	50			6.21	7.65	9.25	11.05	11.83	13.07	14.17
	55				6.83	8.37	10.09	10.84	12.01	13.05
	60					7.34	8.99	9.69	10.8	11.79
	65						7.67	8.34	9.38	10.3

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Power Input kW	25	1.99	1.97	1.94	1.9	1.85	1.8	1.78	1.76	1.74
	30	2.28	2.27	2.24	2.21	2.18	2.15	2.14	2.14	2.14
	35	2.61	2.59	2.56	2.53	2.5	2.49	2.48	2.49	2.49
	40	3.02	2.98	2.93	2.88	2.85	2.83	2.83	2.83	2.84
	45		3.45	3.37	3.3	3.24	3.21	3.2	3.2	3.21
	50			3.91	3.8	3.71	3.65	3.64	3.63	3.63
	55				4.42	4.29	4.19	4.16	4.13	4.12
	60					5	4.85	4.8	4.74	4.7
	65						5.65	5.57	5.48	5.42



R410A - ZP54K3E-TFD

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Capacity kW	25	6.3	7.73	9.39	11.32	13.55	16.09	17.21	18.99	20.58
	30	5.94	7.3	8.88	10.71	12.8	15.2	16.25	17.92	19.41
	35	5.56	6.87	8.38	10.12	12.1	14.36	15.35	16.92	18.32
	40	5.11	6.4	7.85	9.51	11.4	13.53	14.46	15.95	17.27
	45		5.84	7.26	8.85	10.65	12.68	13.56	14.96	16.21
	50			6.56	8.1	9.83	11.76	12.6	13.92	15.1
	55				7.23	8.89	10.73	11.53	12.78	13.9
	60					7.78	9.54	10.3	11.49	12.55
	65						8.14	8.85	9.97	10.96

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Power Input kW	25	2.2	2.19	2.15	2.11	2.05	2	1.98	1.95	1.94
	30	2.51	2.5	2.47	2.44	2.41	2.38	2.37	2.36	2.36
	35	2.87	2.85	2.81	2.78	2.75	2.73	2.73	2.73	2.74
	40	3.31	3.26	3.21	3.16	3.12	3.1	3.1	3.1	3.12
	45		3.76	3.68	3.6	3.54	3.51	3.5	3.5	3.51
	50			4.26	4.14	4.05	3.98	3.97	3.95	3.96
	55				4.8	4.66	4.56	4.53	4.49	4.48
	60					5.42	5.26	5.21	5.14	5.11
	65						6.11	6.04	5.94	5.87

R410A - ZP54KSE-TFM

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Capacity kW	25	5.98	7.47	9.18	11.15	13.41	15.99	17.13	18.95	20.57
	30	5.54	7	8.65	10.54	12.7	15.16	16.24	17.97	19.52
	35	5.07	6.5	8.1	9.91	11.97	14.31	15.34	16.98	18.44
	40	4.58	5.97	7.52	9.25	11.21	13.43	14.4	15.95	17.33
	45		5.4	6.89	8.54	10.4	12.5	13.42	14.88	16.18
	50			6.21	7.79	9.54	11.52	12.38	13.75	14.97
	55				6.97	8.62	10.47	11.27	12.55	13.69
	60					7.62	9.33	10.07	11.25	12.3
	65						8.06	8.74	9.81	10.76

	Cond.									
	Temp.	-20	-15	-10	-5	0	5	7	10	12.5
Power Input kW	25	2.15	2.13	2.11	2.08	2.05	2.02	2	1.98	1.96
	30	2.45	2.43	2.4	2.37	2.34	2.3	2.28	2.25	2.23
	35	2.77	2.75	2.73	2.7	2.66	2.61	2.59	2.56	2.54
	40	3.14	3.12	3.09	3.06	3.02	2.97	2.95	2.92	2.89
	45		3.53	3.51	3.47	3.43	3.37	3.35	3.32	3.29
	50			3.97	3.94	3.89	3.84	3.81	3.78	3.74
	55				4.47	4.42	4.36	4.34	4.3	4.27
	60					5.02	4.96	4.94	4.9	4.86
	65						5.64	5.62	5.58	5.54



14.2 ZR Compressors – Refrigerant R407C

Power supply; 380/420V - 3~ - 50 Hz; Suction superheat 10.0 K; Liquid subcooling 0.0 K.

R407C - ZR61KCE-TFD

	Cond. Temp.	Cond. Temp.									
		-20	-15	-10	-5	0	5	7	10	12.5	15
Capacity kW	30	4.87	6.38	8.18	10.3	12.78	15.65	16.92	18.96	20.8	22.75
	35	4.53	6	7.73	9.78	12.17	14.95	16.17	18.14	19.91	21.8
	40	4.17	5.58	7.25	9.21	11.5	14.17	15.34	17.24	18.94	20.76
	45		5.15	6.73	8.6	10.79	13.33	14.45	16.26	17.89	19.63
	50			6.2	7.96	10.03	12.43	13.5	15.22	16.77	18.43
	55				7.3	9.23	11.5	12.5	14.13	15.59	17.16
	60					8.41	10.52	11.46	12.99	14.36	15.84
	65					7.58	9.52	10.39	11.81	13.09	14.47
	67						9.11	9.96	11.32	12.57	13.91

	Cond. Temp.	Cond. Temp.									
		-20	-15	-10	-5	0	5	7	10	12.5	15
Power Input kW	30	2.44	2.46	2.48	2.49	2.52	2.58	2.61	2.68	2.76	2.85
	35	2.73	2.77	2.8	2.81	2.83	2.87	2.89	2.95	3	3.07
	40	3.03	3.1	3.14	3.16	3.18	3.21	3.22	3.26	3.3	3.36
	45		3.45	3.52	3.55	3.57	3.59	3.6	3.63	3.66	3.7
	50			3.92	3.97	4	4.02	4.03	4.05	4.07	4.1
	55				4.42	4.47	4.5	4.51	4.52	4.54	4.56
	60					4.98	5.02	5.04	5.05	5.07	5.09
	65					5.53	5.59	5.61	5.64	5.65	5.67
	67						5.84	5.86	5.88	5.9	5.92

R407C - ZR61KSE-TFM

	Cond. Temp.	Cond. Temp.									
		-20	-15	-10	-5	0	5	7	10	12.5	15
Capacity kW	30	5.73	7.11	8.73	10.67	13.03	15.9	17.2	19.35	21.32	23.47
	35	5.51	6.96	8.58	10.46	12.68	15.34	16.55	18.52	20.33	22.31
	40	5.05	6.58	8.23	10.07	12.18	14.67	15.78	17.6	19.26	21.07
	45		6.02	7.71	9.53	11.57	13.9	14.94	16.62	18.14	19.8
	50			7.05	8.88	10.86	13.06	14.03	15.59	17	18.51
	55				8.13	10.08	12.19	13.09	14.54	15.84	17.24
	60					9.25	11.29	12.15	13.5	14.71	15.99
	65					8.41	10.39	11.21	12.49	13.61	14.79
	67						10.04	10.84	12.09	13.18	14.33

	Cond. Temp.	Cond. Temp.									
		-20	-15	-10	-5	0	5	7	10	12.5	15
Power Input kW	30	2.38	2.41	2.47	2.52	2.54	2.5	2.46	2.37	2.27	2.14
	35	2.67	2.68	2.73	2.79	2.83	2.82	2.79	2.73	2.66	2.55
	40	3.04	3.03	3.06	3.11	3.16	3.17	3.16	3.12	3.07	2.99
	45		3.46	3.47	3.51	3.55	3.58	3.58	3.56	3.52	3.46
	50			3.96	3.98	4.02	4.04	4.05	4.04	4.01	3.97
	55				4.53	4.55	4.58	4.58	4.57	4.56	4.52
	60					5.17	5.18	5.18	5.18	5.16	5.14
	65					5.89	5.87	5.87	5.86	5.84	5.82
	67						6.17	6.17	6.15	6.14	6.11

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