



*QR & QX Piston Hermetic
to Copeland Scroll*

Replacement Guidelines

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QR / QX



Copeland Scroll

QR - QX Replacement by Copeland Scroll

QR to Copeland Scroll Cross-Reference

QR85K1 QR90K1 QR11M1 QR12M1 QR15M1	ZR81KC/KCE ZR90K3/K3E ZR11M3/M3E ZR12M3/M3E ZR16M3/M3E	
	QR	Copeland Scroll
Refrigerants B.O.M. Voltages	R22 520, 521 & 551 TFD/TFC [QR 90 - TFE]	R22, R407C & R134a 551 (522 & 523 - ZR81 only) TWC/D/E/R [ZR 81 - TFD/5]

QX to Copeland Scroll Cross-Reference

QX52K1 QX65K1 QX72K1 QX86K1	ZR81KCE ZR90K3E ZR11M3E ZR12M3E	
	QX	Copeland Scroll
Refrigerants B.O.M. Voltages	R134a 551 TFD	R22, R407C & R134A 551, 870 & 871 (522 & 523 - ZR81 only) TWC/D/E/R [ZR 81 - TFD/5]

Voltages and B.O.M

Voltages: $\pm 10\%$ / ~ / Hz

TFD	380 - 420 / 3 / 50
TFC	200 - 240 / 3 / 50
TF5	200 - 220 / 3 / 50
TFE	500 / 3 / 50
TWC	200 / 3 / 50
TWD	380 - 420 / 3 / 50
TWE	500 / 3 / 50
TWR	220 - 240 / 3 / 50

B.O.M.

- 520 Brazing Stub Tubes (QR)
- 521 Rotalock Threaded Stubs (QR)
- 522 Brazing Stub Tubes (ZR81)
- 523 Rotalock Threaded Stubs (ZR81)
- 551 Rotalock Threaded Stubs, Oil Sight Glass (QR/QX & ZR)

Cross-Reference Technical Comparisons

QR - Copeland Scroll

R22, R407C 50Hz @ARI

PRODUCT		QR85	ZR81	QR90	ZR90	QR11	ZR11
Cooling Capacity	kW	20	19.89	22.08	21.53	24.59	26.26
Power Input	kW	6.88	5.82	7.44	6.61	8.49	7.93
Efficiency	COP	2.91	3.42	2.97	3.26	2.9	3.31
Displacement	m3/hr	29.16	19.2	30.89	20.9	34.31	24.9
Refrigerants		R22	R22, R407C	R22	R22, R407C	R22	R22, R407C
Motor Version		TFD, TFC	TFD, TF5	TFC/D/E	TWC/D/E/R	TFD, TFC	TWC/D/E/R
MOC	A	13.5	13	14.5	14.6	16.3	17.9
LRA	A	91	101	91	99	97	123
Sound Pressure	dBa	63	61	63	64	65	65
Length (L)	mm	335	242	335	319	335	319
Width (B)	mm	360	242	360	357	360	357
Height (H)	mm	475	462 ± 3	475	542± 3	475	542 ± 3
Footprint	mm	220x220	190x190	220x220	220x220	220x220	220x220
Suction Brazing	Inch	1 1/8	7/8	1 1/8	1 3/8	1 1/8	1 3/8
Discharge Brazing	Inch	3/4	3/4	3/4	7/8	3/4	7/8
Oil Charge	l	3.6	1.65	3.6	4	3.6	4
Net Weight	kg	68	41	68	91	68	91
Gross Weight	kg	73	45	73	96	73	96

PRODUCT		QR12	ZR12	QR15	ZR16
Cooling Capacity	kW	28.26	30.43	34.93	37.41
Power Input	kW	10.14	9.11	12.89	11.19
Efficiency	COP	2.79	3.34	2.71	3.34
Displacement	m3/hr	38.6	28.7	46.32	35.6
Refrigerants		R22	R22, R407C	R22	R22, R407C
Motor Version		TFD, TFC	TWC/D/E/R	TFC/D/E	TWC/D/E/R
MOC	A	19	19.2	24.2	25.6
LRA	A	104	127	135	167
Sound Pressure	dBa	65	65	66	68
Length (L)	mm	335	319	335	319
Width (B)	mm	360	357	360	357
Height (H)	mm	475	542± 3	475	550 ± 3
Footprint	mm	220x220	220x220	220x220	220x220
Suction Brazing	Inch	1 1/8	1 3/8	1 1/8	1 3/8
Discharge Brazing	Inch	3/4	7/8	3/4	7/8
Oil Charge	l	3.6	4	3.6	4
Net Weight	kg	69	92	73	98
Gross Weight	kg	74	97	77	103

Cross-Reference Technical Comparisons

QX - Copeland Scroll

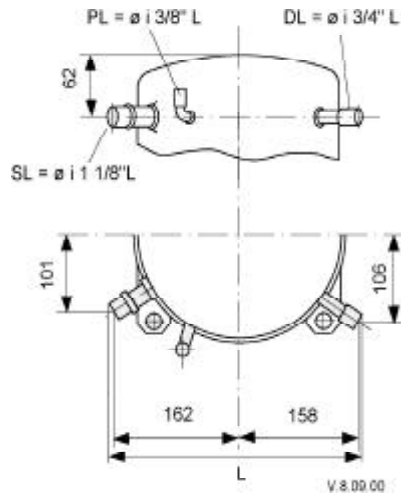
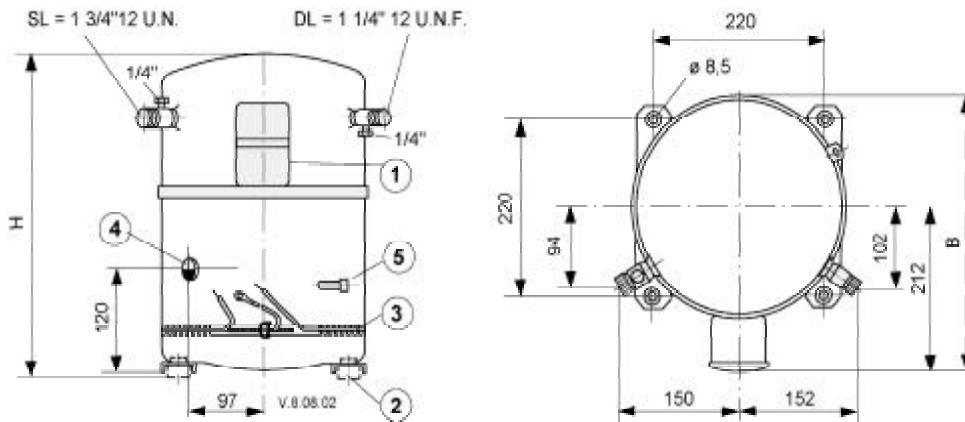
R134a, 50Hz @ARI

PRODUCT		QX52	ZR81
Cooling Capacity	kW	12.81	13.28
Power Input	kW	4.37	4
Efficiency	COP	2.97	3.32
Displacement	m3/hr	29.16	19.2
Refrigerants		R134a	R134a
Motor Version		TFD	TFD
MOC	A	8.5	16
LRA	A	70	101
Sound Pressure	dB(A)	63	61
Length (L)	mm	335	242
Width (B)	mm	360	242
Height (H)	mm	475	462 ± 3
Footprint	mm	220x220	190x190
Suction Brazing	Inch	1 1/8	7/8
Discharge Brazing	Inch	3/4	3/4
Oil Charge	l	3.6	1.65
Net Weight	kg	67	41
Gross Weight	kg	72	45

PRODUCT		QX65	ZR90	QX72	ZR11
Cooling Capacity	kW	16.09	14.49	18.1	17.82
Power Input	kW	5.53	4.62	6.38	5.61
Efficiency	COP	2.91	3.14	2.84	3.18
Displacement	m3/hr	34.3	20.9	38.6	24.9
Refrigerants		R134a	R134a	R134a	R134a
Motor Version		TFD	TWC/D/E/R	TFD	TWC/D/E/R
MOC	A	12.1	15.1	13.8	18
LRA	A	91	99	91	123
Sound Pressure	dB(A)	63	64	65	65
Length (L)	mm	335	319	335	319
Width (B)	mm	360	357	360	357
Height (H)	mm	475	542 ± 3	475	542 ± 3
Footprint	mm	220x220	220x220	220x220	220x220
Suction Brazing	Inch	1 1/8	1 3/8	1 1/8	1 3/8
Discharge Brazing	Inch	3/4	7/8	3/4	7/8
Oil Charge	l	3.6	4	3.6	4
Net Weight	kg	68	91	68	91
Gross Weight	kg	73	96	73	96

PRODUCT		QX86	ZR12
Cooling Capacity	kW	21.86	20.65
Power Input	kW	8.13	6.44
Efficiency	COP	2.67	3.2
Displacement	m3/hr	46.3	28.7
Refrigerants		R134a	R134a
Motor Version		TFD	TWC/D/E/R
MOC	A	1	20.7
LRA	A	104	127
Sound Pressure	dB(A)	65	65
Length (L)	mm	335	319
Width (B)	mm	360	357
Height (H)	mm	475	542 ± 3
Footprint	mm	220x220	220x220
Suction Brazing	Inch	1 1/8	1 3/8
Discharge Brazing	Inch	3/4	7/8
Oil Charge	l	3.6	4
Net Weight	kg	69	92
Gross Weight	kg	74	97

QR & QX Drawings with Dimensions



Version with stub tubes

QR & QX

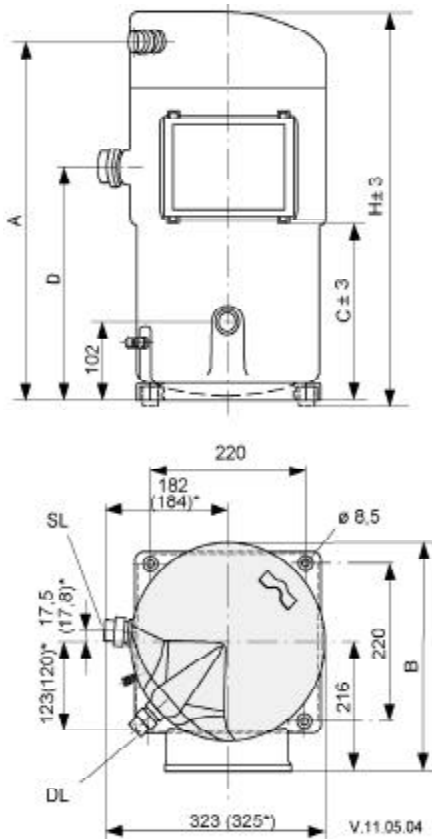
- SL = suction line (L = sweat)
- DL = discharge line (L = sweat)
- PL = process line (L = sweat)
- 1 = terminal box
- 2 = rubber mounting
- 3 = crankcase heater
- 4 = sight glass
- 5 = oil level test valve

PRODUCT		QR & QX
Length(L)	mm	335
Width(B)	mm	360
Height(H)	mm	475
Footprint	mm	220x220
Suction-brazing	Inch	1 1/8
Discharge brazing	Inch	3/4

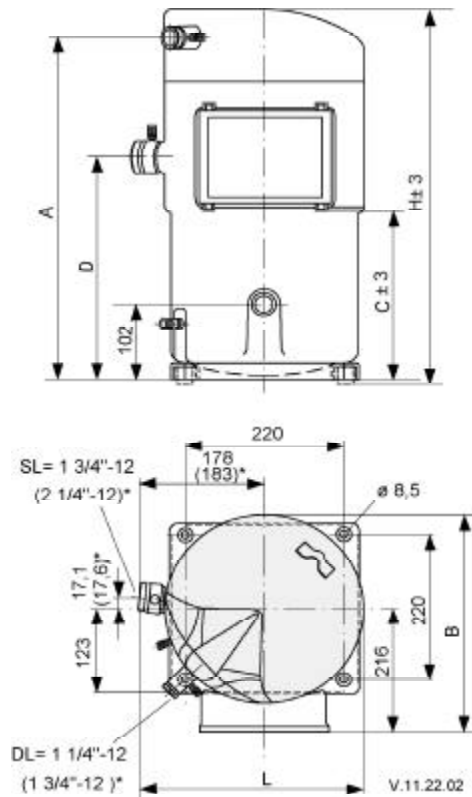
Copeland Scroll Drawings with Dimensions

ZR90K3 / K3E to ZR16M3 / ZR12M3E

Brazing



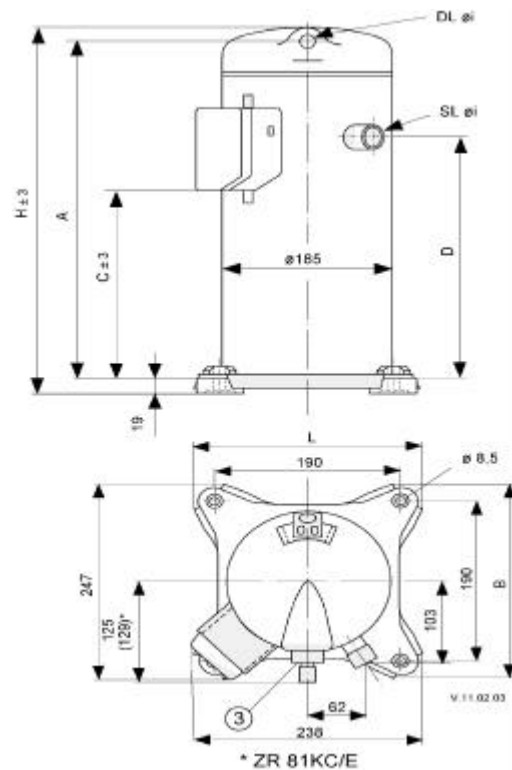
Rotalock



* ZR 19 M3 / M3E

PRODUCT		ZR81	ZR90	ZR11
Length(L)	mm	242	319	319
Width(B)	mm	242	357	357
Height(H)	mm	462± 3	542± 3	542± 3
Footprint	mm	190x190	220x220	220x220
Dimension A	mm	414	497	497
Dimension C	mm	233± 3	225± 3	225 ± 3
Dimension D	mm	297	318	318
Suction-brazing	Inch	7/8	1 3/8	1 3/8
Discharge brazing	Inch	3/4	7/8	7/8
PRODUCT		ZR12	ZR16	
Length(L)	mm	319	319	
Width(B)	mm	357	357	
Height(H)	mm	542± 3	550± 3	
Footprint	mm	220x220	220x220	
Dimension A	mm	497	512	
Dimension C	mm	225± 3	225± 3	
Dimension D	mm	318	318	
Suction-brazing	Inch	1 3/8	1 3/8	
Discharge brazing	Inch	7/8	7/8	

ZR81KC / KCE



* ZR 81KC/E

Model Nomenclature

Q R 15M 1 - TFD - 521

1 2 3 4 5 6

- 1 Compressor line - 4 cylinder
- 2 R = High/medium temperature R22
X = High temperature R134a with ester oil
- 3 Nominal capacity in BTU/hr at 60 Hz and ARI conditions using multiplier “K” for 1000 and “M” for 10000
- 4 Model variation
- 5 Electrical data
- 6 Bill of Material

Z R 16M 3 E - TWD - 551

1 2 3 4 5 6 7

- 1 Compressor family: Z = Compliant scroll
- 2 R = Single high/medium temperature
Z or RT = Tandem
- 3 Nominal capacity in BTU/hr at 60 Hz and ARI conditions using multiplier “K” for 1000 and “M” for 10000
- 4 Model variation
- 5 Ester oil
- 6 Electrical data
- 7 Bill of Material