

Copeland Scroll™

ZFKQ compressor



Copeland Scroll™


EMERSON™
Climate Technologies

Pioneering Technologies For Best-In-Class Products

Emerson Climate Technologies is the world's leading provider of heating, ventilation, air conditioning and refrigeration solutions for residential, commercial and industrial applications, supporting the industry with advanced technology, technical support and training services.

For more than 80 years, we have been introducing innovative technology to the market, from the first semi-hermetic and hermetic compressors in the 1940s and 1950s, the high efficiency Discus semi-hermetic, air conditioning and heating scroll compressors in the 1980s and 1990s, to the new Stream semi-hermetic and the digital scroll compressor technology of today.

Based on this, we have developed an unequalled range of solutions for the refrigeration and air conditioning markets. In recent years, we have become a major solution provider to the air conditioning and refrigeration industry. Our range of Copeland™ brand products addresses the diverse needs of all of these markets. With scrolls and semi-hermetic compressors available for all main refrigerants, equipped with smart electronics and capable of modulation, Emerson Climate Technologies has taken compressor technology to new heights.

Our Vision:

Emerson Climate Technologies, With Our Partners,
Will Provide Global Solutions To Improve Human Comfort,
Safeguard Food And Protect The Environment.



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Emerson Climate Technologies developed the ZFKQ range of Copeland Scroll™ compressors to provide the best performance in low ambient temperatures. The series has a wide application envelope that can operate from -40°C to +7°C evaporating temperature. Its optimized design perfectly fits frozen food application requirements while its scroll compliance mechanism makes it highly tolerant of liquid slugging.

The range consists of:

- The ZF*KQ/E models that operate with liquid injection in order to control discharge temperature and extend the operating envelope.
- The ZFI*KQ/E models that are optimized for vapor injection with the use of a subcooler. This boosts the refrigeration system's cooling capacity and efficiency. Summit models (ZFI50 to ZFI68) come with CoreSense™ options. CoreSense delivers enhanced reliability and performance through advanced diagnostic and protection measures.

Features and Benefits

High Efficiency All Year Round

- The unique Copeland Compliant Scroll design patented by Emerson Climate Technologies operates under continuous scroll flank contact, maintained by centrifugal force. This minimizes gas leakage while maximizing efficiency.
- With its capability for condensing operation down to 4°C on low temperature applications, Copeland Scroll™ technology provides the best seasonal efficiencies.
- Equipped with dynamic discharge valve that allows the discharge gas to reach desired pressure. This helps reduce efficiency loss by preventing gas re-compression.
- The vapor injection technology allows ZFI*KQE compressors to perform higher efficiency than single-stage compressors at low temperature operation condition. Thus makes ZFI*KQE the best in-class performance.

Compactness

- The small footprint of Copeland Scroll compressors enables compact system designs.
- Weight and dimensions for refrigeration equipment is reduced with increased capacity per compressor weight.

Robustness and Reliability

- The Copeland Compliant Scroll design is tolerant to stresses caused by liquid slugging, flooded starts and debris commonly found in refrigeration systems.
- Easy to service and maintain due to their compact size and lightweight, simple design.
- Engineered for optimum performance with today's chlorine-free refrigerants.
- The Copeland Scroll compressor design has several inherent reliability advantages:
 - 70% fewer moving parts than reciprocating compressors
 - Axial & radial scroll compliance provides improved liquid handling capability
 - Hermetic design reduces leak potential
- Redesigned suction gas flow results in lower oil circulation and better motor cooling.

Compressor Protection

- 2–7.5 HP (all BOM) and 10–15 HP (BOM 567) compressors are supplied with internal thermal protectors that prevent motor overheating in case of loss of phase or low refrigerant charge.
- 10–15 HP (BOM 565) models feature an electronic module that, in addition to ensuring discharge and motor temperature protection, provides missing phase detection and protects from reverse rotation, overload, low refrigerant charge and low voltage.

Smooth Operation

- All Copeland Scroll compressors are designed with a discharge check valve that isolates the high pressure discharge gas. This allows the compressor to start unloaded, resulting in low inrush currents.
- Smooth operations are made possible by the continuous compression process. This generates less vibration than reciprocating technology.

Sound Shell for Application with Low Noise Requirements

- For urban or domestic areas where sound attenuation is of increasing concern, Emerson Climate Technologies has developed a dedicated sound shell for Copeland Scroll compressors from 7–15 HP. It encapsulates the compressor entirely and minimizes sound leaks.
- Groundbreaking design techniques and materials derived from the automotive industry were utilized to design the sound shell. The use of low pressure reaction injection molded parts (notably for the top cap, terminal box and the base of the compressor) allows a 10–12 dBA sound attenuation.



Delivers Unmatched Energy Efficiency: 5%–20% Improvement

- Motor, scroll and bearing redesign minimize annual energy consumption.
- Precision machined scrolls provide the highest isentropic efficiency and wear-in for improved performance over time.
- New valving technology adjusts the scroll compression ratio based on operating condition, significantly improving low ambient performance.
- Using vapor injection improves system capacity by 50% and efficiency by 20% on average at the low temperature rating condition.

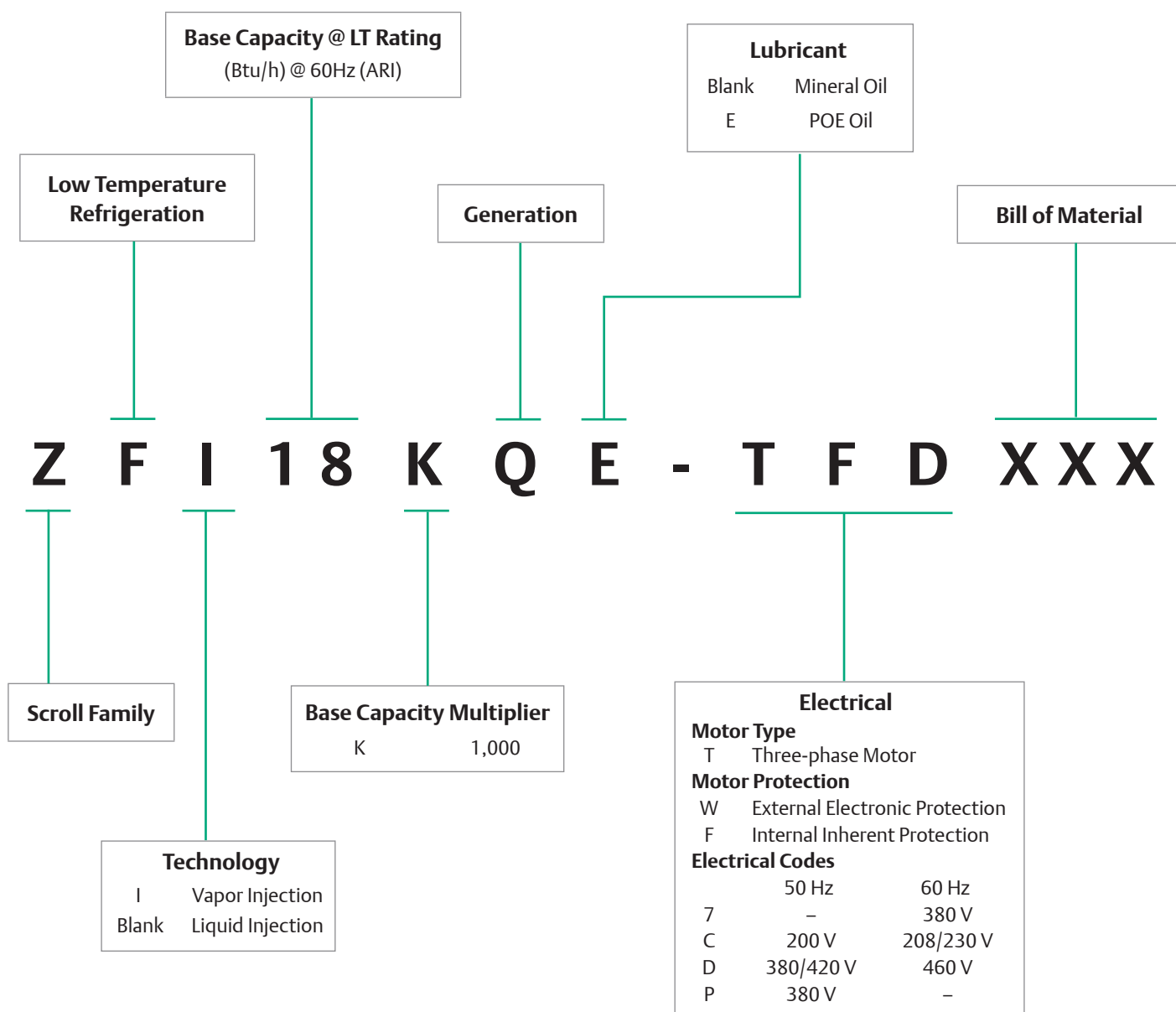
Equipped with CoreSense™

- Onboard CoreSense provide advanced features to ensure optimum system operation.
 - Sends early warning signs of system issues through LED alerts and remote communications capability
 - Protects compressor when catastrophic conditions are detected to prevent costly failures
 - Improves speed and accuracy of system troubleshooting by displaying fault codes

CoreSense Features:
Discharge temperature protection
Motor protection
Asset information
Compressor proofing
Remote reset
Current sensing diagnostics
Modbus communications

Note: * Available on BOM 565 for models ZFI50KQE, ZFI59KQE, ZFI68KQE

Nomenclature

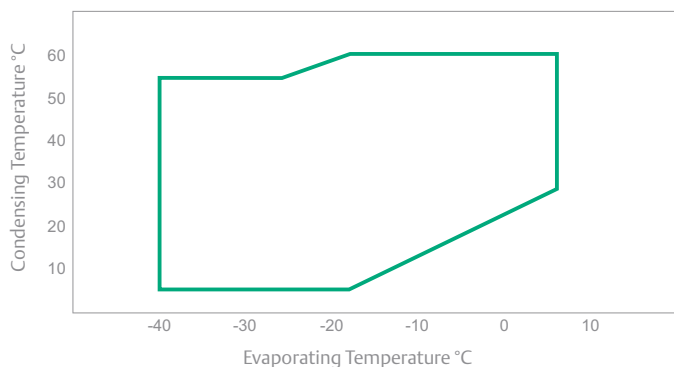


Bill of Material

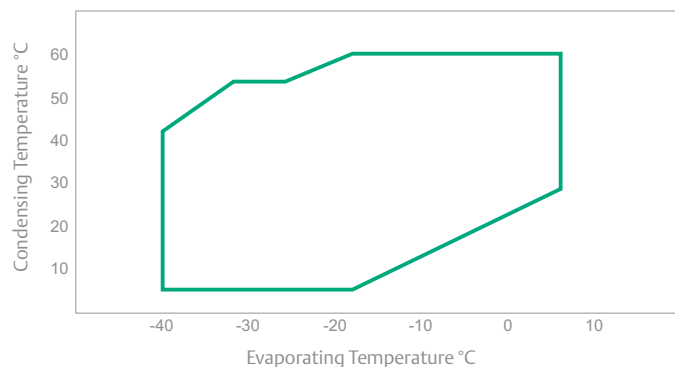
Compressor Model	BOM Number	Rotalock Connection	Oil Sight Glass	Schrader Valve	CoreSense™
Liquid Injection					
ZF06-25KQE	551	✓	✓	✓	-
ZF34-49KQE	567	✓	✓	✓	-
Vapor Injection					
ZFI20-36KQE	552	✓	✓	✓	-
ZFI50-68KQE	567	✓	✓	✓	-
ZF Vapor Injection With CoreSense					
ZFI50-68KQE	565	✓	✓	✓	✓

Operating Envelopes

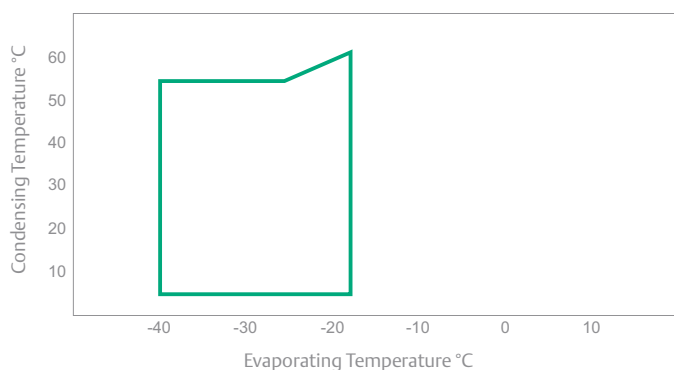
R404A ZF06-49KQE



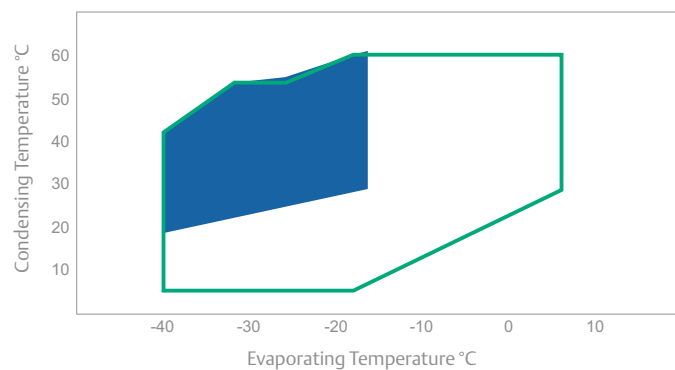
R404A ZFI20-68KQE



R407F ZF06-49KQE



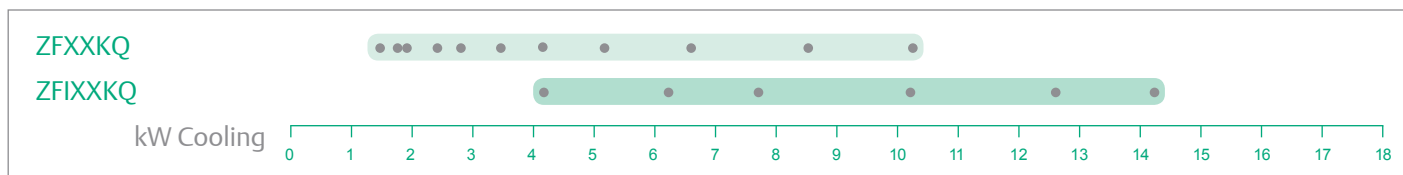
R407F ZFI20-68KQE



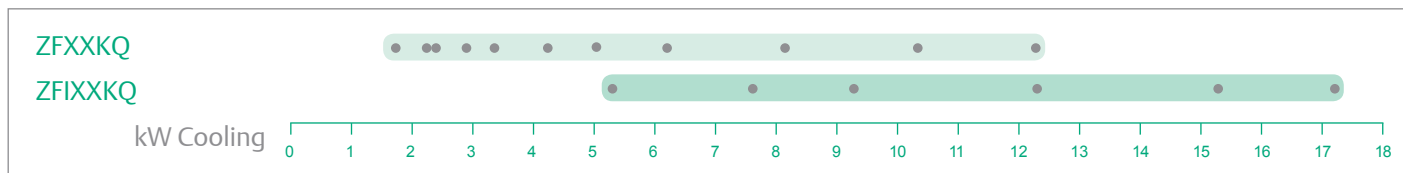
Note: When the system runs inside the blue area, EVI and Demand Cooling are required.

Product Line-up

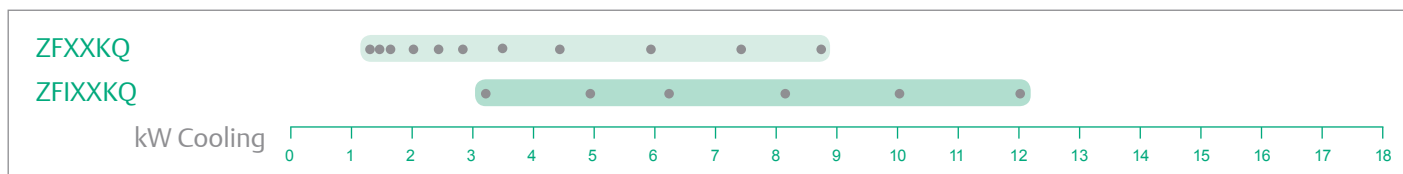
R404A - 50 Hz



R404A - 60 Hz



R407F - 50 Hz



Note: Based on -35°C Evaporator Temperature / 40°C Condensing Temperature

Performance Data

TFC: 200 V ; 3-Phase, 50 Hz

TFD: 380/420 V ; 3-Phase, 50 Hz

TFP: 380 V ; 3-Phase, 50 Hz

Liquid Injection

R404A

Model	kW	Cond. Temp. °C	Evap. Temp. °C										
			-40	-35	-30	-25	-20	-15	-10	-5	0	5	7
ZF06KQE TFC TFD TFP	Q	30	1.29	1.61	2.00	2.47	3.01	3.64	4.38	5.22	6.19	7.29	7.76
		40	1.13	1.43	1.77	2.18	2.65	3.20	3.84	4.57	5.41	6.37	6.79
		50	0.95	1.21	1.51	1.84	2.24	2.70	3.23	3.85	4.56	5.38	5.74
	P	30	1.18	1.24	1.30	1.38	1.46	1.55	1.65	1.76	1.88	2.00	2.06
		40	1.41	1.47	1.53	1.60	1.68	1.77	1.86	1.97	2.09	2.21	2.27
		50	1.73	1.77	1.83	1.89	1.97	2.05	2.14	2.24	2.36	2.48	2.53
ZF08KQE TFC TFD TFP	Q	30	1.58	1.98	2.47	3.03	3.70	4.48	5.38	6.42	7.61	8.96	9.54
		40	1.39	1.75	2.18	2.67	3.26	3.93	4.72	5.62	6.66	7.84	8.35
		50	1.17	1.49	1.85	2.27	2.75	3.32	3.97	4.73	5.61	6.61	7.05
	P	30	1.40	1.47	1.55	1.64	1.74	1.85	1.96	2.09	2.23	2.38	2.45
		40	1.68	1.74	1.82	1.90	2.00	2.10	2.22	2.34	2.48	2.63	2.70
		50	2.05	2.11	2.18	2.25	2.34	2.44	2.55	2.67	2.80	2.95	3.01
ZF09KQE TFC TFD TFP	Q	30	1.71	2.18	2.72	3.35	4.10	4.97	5.97	7.13	8.45	9.96	10.61
		40	1.53	1.93	2.41	2.95	3.60	4.34	5.21	6.22	7.37	8.69	9.26
		50	1.31	1.66	2.06	2.51	3.04	3.66	4.39	5.23	6.21	7.34	7.83
	P	30	1.46	1.48	1.52	1.58	1.66	1.74	1.85	1.97	2.10	2.24	2.30
		40	1.78	1.79	1.81	1.86	1.93	2.01	2.11	2.22	2.34	2.48	2.53
		50	2.17	2.17	2.19	2.22	2.28	2.35	2.44	2.54	2.66	2.79	2.85
ZF11KQE TFC TFD TFP	Q	30	2.18	2.75	3.41	4.19	5.10	6.17	7.41	8.85	10.50	12.40	13.22
		40	1.94	2.45	3.02	3.70	4.48	5.40	6.48	7.73	9.17	10.84	11.57
		50	1.64	2.08	2.57	3.13	3.78	4.55	5.45	6.51	7.74	9.17	9.80
	P	30	1.80	1.83	1.87	1.95	2.04	2.15	2.28	2.42	2.59	2.76	2.84
		40	2.14	2.16	2.20	2.27	2.35	2.46	2.58	2.71	2.87	3.03	3.10
		50	2.54	2.56	2.61	2.68	2.76	2.86	2.98	3.11	3.25	3.41	3.48
ZF13KQE TFC TFD TFP	Q	30	2.44	3.14	3.96	4.91	6.01	7.26	8.70	10.32	12.14	14.18	15.06
		40	2.17	2.76	3.46	4.28	5.24	6.34	7.61	9.06	10.70	12.54	13.34
		50	1.93	2.38	2.93	3.59	4.38	5.31	6.39	7.63	9.06	10.68	11.39
	P	30	1.87	1.93	2.00	2.08	2.19	2.30	2.44	2.59	2.76	2.95	3.03
		40	2.27	2.33	2.41	2.49	2.59	2.70	2.83	2.97	3.13	3.30	3.37
		50	2.78	2.85	2.93	3.02	3.12	3.23	3.35	3.48	3.62	3.78	3.85
ZF15KQE TFC TFD TFP	Q	30	3.00	3.87	4.88	6.05	7.40	8.97	10.77	12.84	15.19	17.86	19.03
		40	2.65	3.40	4.26	5.26	6.43	7.79	9.37	11.20	13.29	15.68	16.72
		50	2.34	2.92	3.61	4.41	5.36	6.48	7.80	9.34	11.13	13.20	14.11
	P	30	2.21	2.33	2.45	2.58	2.73	2.90	3.09	3.31	3.56	3.85	3.97
		40	2.68	2.82	2.95	3.09	3.24	3.41	3.60	3.80	4.04	4.30	4.41
		50	3.26	3.42	3.58	3.73	3.90	4.07	4.25	4.45	4.67	4.92	5.02
ZF18KQE TFC TFD TFP	Q	30	3.68	4.67	5.82	7.16	8.74	10.59	12.75	15.27	18.17	21.50	22.96
		40	3.27	4.15	5.14	6.30	7.65	9.24	11.11	13.29	15.82	18.74	20.02
		50	2.79	3.54	4.37	5.33	6.45	7.77	9.33	11.16	13.31	15.82	16.92
	P	30	2.79	2.89	3.01	3.14	3.29	3.46	3.65	3.85	4.07	4.30	4.40
		40	3.29	3.40	3.53	3.67	3.83	4.00	4.18	4.38	4.59	4.82	4.91
		50	3.92	4.04	4.18	4.33	4.49	4.67	4.85	5.05	5.26	5.48	5.57
ZF25KQE TFC TFD TFP	Q	30	4.57	5.79	7.28	9.04	11.04	13.26	15.68	18.29	21.06	23.98	25.19
		40	4.06	5.09	6.38	7.92	9.67	11.64	13.79	16.10	18.57	21.16	22.23
		50	3.61	4.41	5.46	6.73	8.21	9.88	11.72	13.71	15.83	18.06	18.98
	P	30	3.03	3.31	3.54	3.76	4.00	4.30	4.67	5.16	5.80	6.63	7.01
		40	3.43	3.80	4.11	4.39	4.69	5.03	5.44	5.95	6.60	7.42	7.81
		50	3.84	4.31	4.72	5.09	5.46	5.85	6.32	6.87	7.55	8.39	8.78
ZF34KQE TFC TFD TFP	Q	30	5.88	7.54	9.44	11.66	14.23	17.21	20.67	24.65	29.21	34.41	36.68
		40	5.16	6.65	8.33	10.25	12.48	15.06	18.05	21.52	25.50	30.06	32.06
		50	4.35	5.64	7.06	8.67	10.52	12.67	15.17	18.08	21.46	25.35	27.07
	P	30	4.04	4.27	4.51	4.77	5.05	5.35	5.66	6.00	6.36	6.74	6.90
		40	4.69	4.99	5.28	5.58	5.88	6.19	6.51	6.83	7.17	7.51	7.65
		50	5.47	5.84	6.20	6.55	6.89	7.23	7.56	7.89	8.22	8.54	8.67

Notes:

1. Q for Capacity; P for Power. Units in kW:

2. All ZF*KQE values are rated at return gas temperature: 18.3°C and Subcooling: 0 K

Performance Data

TFC: 200 V ; 3-Phase, 50 Hz

TFD: 380/420 V ; 3-Phase, 50 Hz

TFP: 380 V ; 3-Phase, 50 Hz

R404A

Model	kW	Cond. Temp. °C	Evap. Temp. °C										
			-40	-35	-30	-25	-20	-15	-10	-5	0	5	7
ZF41KQE TFC TFD TFP	Q	30	7.53	9.57	11.91	14.62	17.80	21.52	25.86	30.91	36.73	43.43	46.37
		40	6.67	8.51	10.56	12.90	15.62	18.79	22.50	26.83	31.85	37.66	40.21
		50	5.61	7.23	8.99	10.95	13.21	15.83	18.90	22.50	26.72	31.62	33.80
	P	30	5.07	5.40	5.75	6.11	6.48	6.88	7.30	7.75	8.22	8.73	8.94
		40	5.95	6.33	6.72	7.12	7.52	7.94	8.36	8.81	9.27	9.75	9.95
		50	6.95	7.40	7.85	8.29	8.74	9.18	9.63	10.09	10.55	11.03	11.22
ZF49KQE TFC TFD TFP	Q	30	9.09	11.48	14.32	17.66	21.57	26.10	31.30	37.25	43.99	51.58	54.87
		40	8.02	10.15	12.64	15.55	18.94	22.86	27.37	32.53	38.40	45.04	47.92
		50	6.74	8.59	10.72	13.17	16.01	19.30	23.09	27.44	32.42	38.08	40.54
	P	30	6.24	6.53	6.90	7.33	7.81	8.32	8.84	9.36	9.87	10.33	10.51
		40	7.36	7.67	8.06	8.52	9.02	9.57	10.13	10.69	11.23	11.74	11.93
		50	8.73	9.07	9.48	9.97	10.51	11.09	11.69	12.29	12.88	13.44	13.65

Note:

1. All ZF*KQE values are rated at return gas temperature: 18.3°C and Subcooling: 0 K

Vapor Injection

Model	kW	Cond. Temp. °C	Evap. Temp. °C										
			-40	-35	-30	-25	-20	-15	-10	-5	0	5	7
ZFI20KQE TFC TFD TFP	Q	30	3.45	4.30	5.26	6.34	7.55	8.93	10.48	12.24	14.22	16.44	17.41
		40	3.27	4.10	5.03	6.09	7.30	8.68	10.25	12.04	14.05	16.32	17.31
		50		3.74	4.64	5.69	6.89	8.28	9.87	11.68	13.73	16.05	17.05
	P	30	2.11	2.17	2.24	2.32	2.40	2.47	2.52	2.56	2.56	2.53	2.51
		40	2.65	2.70	2.76	2.84	2.92	3.00	3.07	3.13	3.17	3.17	3.17
		50		3.46	3.50	3.56	3.62	3.70	3.77	3.83	3.88	3.91	3.91
ZFI26KQE TFC TFD TFP	Q	30	5.16	6.32	7.66	9.20	10.97	13.00	15.31	17.94	20.92	24.26	25.71
		40	5.13	6.17	7.39	8.82	10.48	12.42	14.64	17.19	20.09	23.36	24.78
		50		6.03	7.12	8.42	9.96	11.78	13.90	16.34	19.15	22.33	23.72
	P	30	3.13	3.30	3.46	3.61	3.75	3.89	4.02	4.14	4.26	4.38	4.43
		40	3.73	3.95	4.15	4.35	4.52	4.69	4.84	4.99	5.12	5.24	5.29
		50		4.83	5.08	5.31	5.53	5.72	5.89	6.05	6.19	6.32	6.37
ZFI36KQE TFC TFD TFP	Q	30	6.52	8.06	9.81	11.78	13.95	16.31	18.87	21.62	24.55	27.66	28.95
		40	6.34	7.73	9.35	11.18	13.22	15.46	17.91	20.55	23.38	26.40	27.66
		50		7.50	8.92	10.56	12.42	14.49	16.76	19.24	21.92	24.79	25.99
	P	30	3.60	3.86	4.10	4.32	4.54	4.76	4.98	5.20	5.44	5.69	5.79
		40	4.23	4.62	4.96	5.27	5.54	5.78	6.00	6.20	6.39	6.56	6.63
		50		5.45	5.95	6.38	6.75	7.07	7.34	7.56	7.74	7.88	7.93
ZFI50KQE TFC TFD TFP	Q	30	9.02	10.68	12.85	15.47	18.49	21.84	25.47	29.32	33.34	37.45	39.11
		40	8.58	10.20	12.28	14.78	17.64	20.79	24.18	27.75	31.44	35.19	36.70
		50		9.59	11.61	14.01	16.72	19.69	22.86	26.17	29.56	32.97	34.33
	P	30	4.82	5.20	5.54	5.85	6.14	6.42	6.73	7.06	7.43	7.86	8.05
		40	5.77	6.21	6.60	6.97	7.31	7.66	8.02	8.41	8.85	9.34	9.56
		50		7.43	7.88	8.30	8.70	9.10	9.52	9.97	10.47	11.03	11.28
ZFI59KQE TFC TFD TFP	Q	30	11.17	13.22	15.91	19.16	22.89	27.05	31.54	36.31	41.28	46.38	48.43
		40	10.63	12.63	15.21	18.31	21.84	25.74	29.94	34.36	38.93	43.58	45.44
		50		11.87	14.38	17.34	20.70	24.38	28.31	32.40	36.60	40.83	42.51
	P	30	5.97	6.45	6.87	7.25	7.61	7.96	8.33	8.74	9.21	9.74	9.98
		40	7.15	7.70	8.18	8.63	9.06	9.49	9.94	10.42	10.96	11.58	11.85
		50		9.21	9.76	10.28	10.78	11.28	11.80	12.36	12.98	13.67	13.98
ZFI68KQE TFC TFD TFP	Q	30	12.66	14.99	18.04	21.73	25.97	30.68	35.78	41.19	46.82	52.60	54.93
		40	12.05	14.32	17.25	20.76	24.77	29.20	33.96	38.97	44.15	49.42	51.54
		50		13.46	16.30	19.67	23.48	27.65	32.10	36.75	41.51	46.31	48.22
	P	30	6.94	7.49	7.98	8.42	8.84	9.25	9.69	10.16	10.70	11.32	11.60
		40	8.31	8.95	9.51	10.03	10.53	11.03	11.55	12.11	12.74	13.46	13.77
		50		10.71	11.35	11.95	12.53	13.11	13.72	14.37	15.08	15.89	16.24

Notes:

1. Q for Capacity; P for Power. Units in kW:

2. All ZFI*KQE values are rated at return gas temperature: 18.3°C and Max Subcooling

Performance Data

TFD: 380/420 V ; 3-Phase, 50 Hz
Liquid Injection

R407F

Model	kW	Cond. Temp. °C	Evap. Temp. °C					
			-40	-35	-30	-25	-20	-18
ZF06KQE TFD	Q	30	1.03	1.34	1.71	2.16	2.68	2.91
		40	1.03	1.34	1.71	2.16	2.68	2.65
		50	0.81	1.06	1.37	1.73	2.14	2.33
	P	30	1.09	1.12	1.18	1.25	1.32	1.34
		40	1.36	1.38	1.44	1.50	1.57	1.60
		50	1.75	1.76	1.80	1.86	1.94	1.97
ZF08KQE TFD	Q	30	1.23	1.59	2.03	2.56	3.19	3.46
		40	1.11	1.44	1.85	2.33	2.89	3.14
		50	0.97	1.26	1.62	2.05	2.54	2.76
	P	30	1.30	1.34	1.40	1.49	1.57	1.60
		40	1.62	1.65	1.71	1.79	1.87	1.90
		50	2.08	2.09	2.14	2.22	2.30	2.34
ZF09KQE TFD	Q	30	1.43	1.77	2.26	2.87	3.55	3.83
		40	1.27	1.58	2.04	2.59	3.19	3.43
		50	1.12	1.41	1.83	2.32	2.83	3.03
	P	30	1.46	1.46	1.50	1.56	1.61	1.63
		40	1.78	1.80	1.85	1.90	1.94	1.95
		50	2.20	2.25	2.31	2.37	2.40	2.41
ZF11KQE TFD	Q	30	1.80	2.22	2.85	3.63	4.50	4.86
		40	1.60	2.00	2.85	3.29	4.06	4.37
		50	1.41	1.78	2.31	2.93	3.59	3.85
	P	30	1.75	1.77	1.83	1.92	1.99	2.02
		40	2.13	2.17	2.25	2.33	2.40	2.42
		50	2.65	2.72	2.82	2.92	2.99	3.00
ZF13KQE TFD	Q	30	2.05	2.59	3.34	4.25	5.27	5.71
		40	1.86	2.29	2.94	3.77	4.72	5.14
		50	1.66	1.98	2.53	3.27	4.15	4.54
	P	30	1.71	1.80	1.90	1.99	2.07	2.10
		40	2.16	2.24	2.33	2.43	2.51	2.55
		50	2.85	2.91	2.99	3.06	3.14	3.18
ZF15KQE TFD	Q	30	2.54	3.13	3.97	5.02	6.26	6.80
		40	2.29	2.80	3.54	4.49	5.63	6.13
		50	1.98	2.40	3.06	3.93	4.97	5.43
	P	30	2.09	2.19	2.31	2.44	2.55	2.59
		40	2.56	2.71	2.86	3.00	3.12	3.16
		50	3.25	3.46	3.65	3.81	3.94	3.97
ZF18KQE TFD	Q	30	3.07	3.81	4.85	6.13	7.63	8.28
		40	2.79	3.43	4.35	5.51	6.87	7.47
		50	2.46	3.01	3.83	4.88	6.12	6.66
	P	30	2.51	2.63	2.80	2.97	3.11	3.15
		40	3.12	3.26	3.44	3.64	3.80	3.85
		50	3.94	4.08	4.27	4.49	4.67	4.73
ZF25KQE TFD	Q	30	3.87	4.81	6.12	7.74	9.63	10.45
		40	3.52	4.33	5.49	6.95	8.67	9.42
		50	3.11	3.80	4.83	6.15	7.72	8.41
	P	30	3.09	3.24	3.44	3.65	3.83	3.87
		40	3.84	4.00	4.23	4.47	4.68	4.74
		50	4.85	5.02	5.25	5.51	5.74	5.81
ZF34KQE TFD	Q	30	5.31	6.65	8.49	10.77	13.42	14.57
		40	4.75	5.94	7.60	9.69	12.12	13.17
		50	4.07	5.10	6.61	8.52	10.75	11.72
	P	30	3.89	4.19	4.51	4.79	4.98	5.02
		40	4.74	5.13	5.52	5.87	6.13	6.19
		50	5.95	6.40	6.86	7.28	7.59	7.67

Notes:

1. Q for Capacity; P for Power. Units in kW:

2. All ZF*KQE values are rated at return gas temperature: 18.3°C and Subcooling: 0 K

Performance Data

TFD: 380/420 V ; 3-Phase, 50 Hz

R407F

Model	kW	Cond. Temp. °C	Evap. Temp. °C					
			-40	-35	-30	-25	-20	-18
ZF41KQE TFD	Q	30	6.52	8.10	10.28	12.98	16.12	17.49
		40	5.90	7.30	9.25	11.70	14.56	15.81
		50	5.03	6.29	8.09	10.33	12.96	14.10
	P	30	4.66	5.07	5.49	5.86	6.11	6.16
		40	5.75	6.22	6.72	7.16	7.48	7.56
		50	7.22	7.75	8.30	8.80	9.18	9.29
ZF49KQE TFD	Q	30	7.91	9.77	12.42	7.91	9.77	21.30
		40	7.12	8.74	11.13	7.12	8.74	19.28
		50	6.07	7.50	9.68	6.07	7.50	17.22
	P	30	5.82	6.21	6.68	5.82	6.21	7.53
		40	7.21	7.64	8.16	7.21	7.64	9.22
		50	9.18	9.62	10.17	9.18	9.62	11.35

Note:

1. All ZF*KQE values are rated at return gas temperature: 18.3°C and Subcooling: 0 K

Vapor Injection

Model	kW	Cond. Temp. °C	Evap. Temp. °C										
			-40	-35	-30	-25	-20	-15	-10	-5	0	5	7
ZFI20KQE TFD	Q	30	2.63	3.38	4.21	5.17	6.28	7.57	9.08	10.81	12.82	15.12	16.13
		40	2.40	3.13	3.95	4.89	5.98	7.24	8.70	10.40	12.36	14.61	15.60
		50		2.78	3.58	4.49	5.55	6.77	8.19	9.85	11.75	13.95	14.91
	P	30	1.80	1.79	1.84	1.93	2.03	2.10	2.12	2.07	1.90	1.59	1.42
		40	2.34	2.30	2.34	2.43	2.53	2.63	2.68	2.67	2.56	2.32	2.19
		50		3.08	3.10	3.17	3.28	3.39	3.47	3.50	3.44	3.27	3.16
ZFI26KQE TFD	Q	30	3.93	5.03	6.18	7.51	9.15	11.21	13.83	17.11	21.19	26.19	28.47
		40	3.88	4.92	6.00	7.25	8.80	10.76	13.26	16.42	20.36	25.21	27.44
		50		4.79	5.79	6.95	8.40	10.25	12.62	15.65	19.45	24.14	26.30
	P	30	2.66	2.74	2.81	2.89	3.00	3.15	3.37	3.67	4.07	4.60	4.84
		40	3.36	3.43	3.50	3.59	3.70	3.87	4.10	4.42	4.84	5.38	5.63
		50		4.42	4.48	4.57	4.69	4.86	5.10	5.43	5.86	6.42	6.68
ZFI36KQE TFD	Q	30	4.94	6.39	7.87	9.54	11.55	14.06	17.22	21.19	26.13	32.19	34.96
		40	4.71	6.15	7.58	9.17	11.06	13.42	16.39	20.14	24.81	30.57	33.22
		50		5.74	7.13	8.63	10.40	12.59	15.37	18.89	23.30	28.76	31.27
	P	30	3.13	3.28	3.42	3.56	3.75	4.01	4.37	4.87	5.53	6.39	6.80
		40	3.96	4.12	4.26	4.42	4.63	4.92	5.32	5.86	6.57	7.48	7.91
		50		5.26	5.42	5.60	5.83	6.15	6.59	7.17	7.93	8.90	9.35
ZFI50KQE TFD	Q	30	6.81	8.40	10.26	12.51	15.27	18.67	22.81	27.83	33.85	40.98	44.17
		40	6.43	8.05	9.88	12.04	14.66	17.85	21.74	26.45	32.09	38.80	41.80
		50		7.53	9.36	11.46	13.96	16.98	20.63	25.05	30.35	36.65	39.48
	P	30	3.84	4.11	4.29	4.45	4.63	4.89	5.28	5.85	6.65	7.73	8.25
		40	5.00	5.20	5.35	5.52	5.74	6.08	6.58	7.29	8.27	9.56	10.18
		50		6.57	6.69	6.86	7.13	7.54	8.15	9.00	10.16	11.66	12.37
ZFI59KQE TFD	Q	30	8.47	10.44	12.75	15.55	18.98	23.20	28.35	34.59	42.07	50.93	54.90
		40	8.00	10.01	12.28	14.97	18.22	22.19	27.03	32.88	39.89	48.22	51.96
		50		9.36	11.63	14.24	17.35	21.10	25.65	31.14	37.72	45.55	49.07
	P	30	4.78	5.10	5.33	5.53	5.76	6.08	6.57	7.27	8.27	9.61	10.25
		40	6.21	6.46	6.66	6.86	7.14	7.56	8.18	9.07	10.28	11.89	12.66
		50		8.17	8.32	8.53	8.86	9.37	10.13	11.19	12.63	14.50	15.38
ZFI68KQE TFD	Q	30	10.16	12.53	15.30	18.66	22.78	27.84	34.02	41.51	50.48	61.12	65.88
		40	9.59	12.01	14.74	17.96	21.87	26.63	32.43	39.45	47.87	57.87	62.35
		50		11.23	13.96	17.09	20.82	25.32	30.78	37.37	45.27	54.66	58.88
	P	30	5.71	6.10	6.37	6.60	6.88	7.27	7.84	8.69	9.87	11.48	12.25
		40	7.42	7.72	7.95	8.19	8.53	9.03	9.77	10.83	12.28	14.21	15.12
		50		9.75	9.94	10.19	10.58	11.19	12.10	13.37	15.08	17.32	18.37

Notes:

1. Q for Capacity; P for Power. Units in kW:

2. All ZFI*KQE values are rated at return gas temperature: 18.3°C and Max Subcooling

Performance Data

TF7: 380 V ; 3-Phase, 60 Hz
TFC: 208/230 V ; 3-Phase, 60 Hz
TFD: 460 V ; 3-Phase, 60 Hz

R404A

Liquid Injection

Model	kW	Cond. Temp. °C	Evap. Temp. °C										
			-40	-35	-30	-25	-20	-15	-10	-5	0	5	7
ZF06KQE TF7 TFC TFD	Q	30	1.50	1.90	2.36	2.90	3.53	4.27	5.12	6.12	7.27	8.59	9.17
		40	1.30	1.67	2.08	2.55	3.10	3.73	4.47	5.32	6.32	7.47	7.97
		50	1.11	1.44	1.79	2.19	2.63	3.15	3.76	4.46	5.29	6.25	6.68
	P	30	1.27	1.29	1.35	1.43	1.53	1.64	1.75	1.85	1.94	1.99	2.01
		40	1.58	1.57	1.61	1.68	1.78	1.89	2.01	2.13	2.23	2.32	2.35
		50	1.94	1.91	1.92	1.98	2.07	2.18	2.30	2.44	2.57	2.69	2.73
ZF08KQE TF7 TFC TFD	Q	30	1.91	2.40	2.98	3.67	4.47	5.42	6.51	7.77	9.20	10.83	11.53
		40	1.68	2.12	2.63	3.23	3.94	4.75	5.70	6.79	8.05	9.47	10.09
		50	1.42	1.80	2.24	2.74	3.33	4.01	4.80	5.72	6.78	7.99	8.52
	P	30	1.58	1.64	1.72	1.81	1.93	2.05	2.19	2.33	2.47	2.62	2.68
		40	1.92	1.96	2.02	2.10	2.21	2.33	2.46	2.61	2.76	2.92	2.99
		50	2.41	2.41	2.45	2.51	2.59	2.70	2.83	2.97	3.12	3.28	3.35
ZF09KQE TF7 TFC TFD	Q	30	2.11	2.67	3.32	4.09	4.98	6.02	7.23	8.62	10.22	12.05	12.85
		40	1.87	2.36	2.93	3.59	4.36	5.26	6.30	7.51	8.91	10.51	11.21
		50	1.59	2.02	2.50	3.05	3.68	4.43	5.31	6.33	7.51	8.89	9.49
	P	30	1.59	1.64	1.70	1.79	1.89	2.02	2.16	2.32	2.50	2.69	2.77
		40	1.93	1.96	2.02	2.10	2.19	2.31	2.45	2.60	2.78	2.96	3.05
		50	2.35	2.37	2.42	2.49	2.57	2.68	2.81	2.96	3.13	3.31	3.39
ZF11KQE TF7 TFC TFD	Q	30	2.61	3.30	4.12	5.08	6.19	7.49	8.99	10.72	12.68	14.90	15.87
		40	2.32	2.94	3.65	4.48	5.44	6.57	7.88	9.38	11.10	13.06	13.92
		50	1.99	2.50	3.10	3.79	4.60	5.54	6.64	7.92	9.39	11.07	11.81
	P	30	1.91	1.98	2.07	2.19	2.34	2.51	2.71	2.94	3.19	3.47	3.58
		40	2.31	2.38	2.47	2.58	2.72	2.88	3.06	3.27	3.50	3.76	3.86
		50	2.80	2.87	2.96	3.07	3.21	3.36	3.53	3.73	3.95	4.18	4.29
ZF13KQE TF7 TFC TFD	Q	30	2.93	3.78	4.77	5.90	7.21	8.69	10.36	12.24	14.34	16.67	17.67
		40	2.58	3.29	4.14	5.12	6.27	7.58	9.08	10.78	12.70	14.84	15.76
		50	2.26	2.80	3.47	4.27	5.22	6.34	7.64	9.13	10.82	12.74	13.57
	P	30	2.24	2.30	2.39	2.50	2.65	2.82	3.03	3.28	3.56	3.89	4.03
		40	2.70	2.76	2.85	2.95	3.09	3.25	3.44	3.67	3.92	4.22	4.35
		50	3.30	3.37	3.45	3.55	3.68	3.83	4.01	4.21	4.45	4.71	4.83
ZF15KQE TF7 TFC TFD	Q	30	3.72	4.70	5.85	7.22	8.82	10.68	12.85	15.34	18.18	21.41	22.82
		40	3.28	4.14	5.14	6.31	7.69	9.30	11.17	13.33	15.82	18.65	19.89
		50	2.78	3.51	4.34	5.31	6.45	7.79	9.36	11.18	13.28	15.71	16.77
	P	30	2.70	2.79	2.92	3.07	3.26	3.49	3.78	4.13	4.54	5.02	5.24
		40	3.19	3.34	3.49	3.66	3.85	4.07	4.32	4.62	4.96	5.36	5.54
		50	3.77	3.98	4.19	4.40	4.62	4.84	5.08	5.36	5.66	6.01	6.16
ZF18KQE TF7 TFC TFD	Q	30	4.44	5.64	7.04	8.66	10.56	12.78	15.36	18.34	21.78	25.71	27.43
		40	3.96	5.02	6.22	7.61	9.24	11.14	13.36	15.95	18.94	22.39	23.90
		50	3.44	4.34	5.33	6.48	7.81	9.38	11.23	13.40	15.94	18.88	20.18
	P	30	3.27	3.37	3.52	3.72	3.96	4.24	4.55	4.88	5.23	5.59	5.73
		40	3.88	3.98	4.13	4.34	4.59	4.87	5.19	5.53	5.88	6.24	6.39
		50	4.57	4.68	4.85	5.07	5.33	5.63	5.96	6.31	6.68	7.05	7.20
ZF25KQE TF7 TFC TFD	Q	30	5.49	6.98	8.74	10.81	13.21	15.97	19.12	22.69	26.70	31.19	33.12
		40	4.90	6.15	7.67	9.48	11.60	14.07	16.91	20.15	23.82	27.95	29.74
		50	4.40	5.38	6.59	8.09	9.88	12.00	14.48	17.35	20.63	24.35	25.96
	P	30	3.63	3.96	4.28	4.60	4.90	5.21	5.53	5.87	6.24	6.63	6.80
		40	4.06	4.50	4.91	5.30	5.68	6.04	6.41	6.78	7.16	7.56	7.72
		50	4.46	5.03	5.56	6.06	6.52	6.97	7.40	7.82	8.24	8.67	8.84
ZF34KQE TF7 TFC TFD	Q	30	7.18	9.20	11.52	14.22	17.36	21.00	25.22	30.07	35.64	41.98	44.75
		40	6.30	8.11	10.16	12.51	15.22	18.37	22.03	26.25	31.11	36.68	39.11
		50	5.31	6.88	8.61	10.57	12.83	15.46	18.51	22.06	26.18	30.93	33.02
	P	30	5.08	5.37	5.68	6.01	6.36	6.73	7.13	7.55	8.00	8.48	8.68
		40	5.91	6.28	6.65	7.02	7.40	7.79	8.19	8.60	9.02	9.46	9.63
		50	6.89	7.35	7.80	8.25	8.68	9.10	9.52	9.93	10.34	10.75	10.91

Notes:

1. Q for Capacity; P for Power. Units in kW:
2. All ZF*KQE values are rated at return gas temperature: 18.3°C and Subcooling: 0 K

Performance Data

TF7: 380 V ; 3-Phase, 60 Hz
TFC: 208/230 V ; 3-Phase, 60 Hz
TFD: 460 V ; 3-Phase, 60 Hz

R404A

Model	kW	Cond. Temp. °C	Evap. Temp. °C										
			-40	-35	-30	-25	-20	-15	-10	-5	0	5	7
TF7 ZF41KQE TFC TFD	Q	30	9.08	11.53	14.34	17.62	21.45	25.93	31.16	37.24	44.26	52.32	55.86
		40	8.04	10.25	12.72	15.54	18.82	22.64	27.11	32.32	38.38	45.37	48.45
		50	6.75	8.72	10.83	13.20	15.91	19.07	22.77	27.11	32.19	38.10	40.72
	P	30	6.11	6.51	6.92	7.36	7.81	8.29	8.80	9.34	9.91	10.51	10.77
		40	7.17	7.63	8.10	8.57	9.06	9.56	10.08	10.61	11.17	11.75	11.99
		50	8.37	8.92	9.45	9.99	10.52	11.06	11.60	12.15	12.71	13.29	13.52
TF7 ZF49KQE TFC TFD	Q	30	10.95	13.84	17.25	21.28	25.99	31.44	37.71	44.88	53.00	62.15	66.11
		40	9.66	12.23	15.23	18.74	22.82	27.54	32.97	39.19	46.26	54.26	57.73
		50	8.12	10.35	12.91	15.87	19.29	23.25	27.82	33.06	39.06	45.87	48.85
	P	30	7.52	7.87	8.31	8.83	9.41	10.02	10.65	11.28	11.89	12.45	12.66
		40	8.86	9.24	9.71	10.26	10.87	11.53	12.20	12.87	13.53	14.15	14.38
		50	10.52	10.92	11.43	12.01	12.67	13.36	14.08	14.81	15.52	16.19	16.44

Note:

1. All ZF*KQE values are rated at return gas temperature: 18.3°C and Subcooling: 0 K

Vapor Injection

Model	kW	Cond. Temp. °C	Evap. Temp. °C										
			-40	-35	-30	-25	-20	-15	-10	-5	0	5	7
TF7 ZFI20KQE TFC TFD	Q	30	4.29	5.30	6.44	7.74	9.21	10.88	12.77	14.91	17.32	20.02	21.18
		40	4.24	5.20	6.30	7.55	8.97	10.60	12.44	14.54	16.90	19.56	20.71
		50		4.97	6.02	7.22	8.61	10.19	12.00	14.06	16.38	19.00	20.14
	P	30	2.58	2.72	2.86	2.98	3.09	3.19	3.28	3.35	3.42	3.47	3.48
		40	3.14	3.31	3.46	3.61	3.75	3.88	4.00	4.10	4.19	4.27	4.30
		50		4.03	4.22	4.39	4.56	4.72	4.86	5.00	5.12	5.24	5.28
TF7 ZFI26KQE TFC TFD	Q	30	6.33	7.85	9.53	11.41	13.53	15.92	18.64	21.73	25.22	29.15	30.86
		40	6.07	7.53	9.12	10.89	12.88	15.12	17.68	20.57	23.85	27.56	29.18
		50		7.07	8.56	10.20	12.05	14.14	16.51	19.20	22.27	25.74	27.25
	P	30	3.70	3.95	4.19	4.44	4.69	4.95	5.23	5.52	5.84	6.18	6.32
		40	4.35	4.69	5.01	5.31	5.61	5.90	6.19	6.48	6.79	7.11	7.24
		50		5.68	6.07	6.44	6.78	7.11	7.42	7.72	8.02	8.31	8.43
TF7 ZFI36KQE TFC TFD	Q	30	7.77	9.64	11.69	14.01	16.67	19.78	23.40	27.62	32.53	38.20	40.71
		40	7.59	9.22	11.06	13.19	15.70	18.66	22.17	26.31	31.16	36.80	39.29
		50		9.10	10.61	12.43	14.66	17.37	20.65	24.58	29.24	34.72	37.16
	P	30	4.34	4.71	5.03	5.32	5.60	5.90	6.23	6.62	7.10	7.68	7.94
		40	5.08	5.57	6.00	6.40	6.78	7.18	7.61	8.09	8.66	9.32	9.62
		50		6.58	7.14	7.65	8.15	8.66	9.20	9.78	10.44	11.20	11.54
TF7 ZFI50KQE TFC TFD	Q	30	10.85	12.85	15.46	18.62	22.25	26.29	30.66	35.30	40.13	45.08	47.08
		40	10.33	12.28	14.79	17.80	21.23	25.02	29.10	33.40	37.84	42.36	44.17
		50		11.54	13.97	16.86	20.13	23.70	27.52	31.50	35.58	39.69	41.33
	P	30	5.78	6.24	6.65	7.02	7.36	7.71	8.07	8.46	8.91	9.43	9.66
		40	6.93	7.45	7.92	8.36	8.77	9.19	9.62	10.09	10.61	11.21	11.47
		50		8.92	9.45	9.95	10.43	10.92	11.42	11.97	12.56	13.24	13.53
TF7 ZFI59KQE TFC TFD	Q	30	13.45	15.93	19.17	23.08	27.58	32.59	38.01	43.75	49.74	55.88	58.35
		40	12.81	15.21	18.33	22.06	26.31	31.02	36.07	41.40	46.90	52.50	54.75
		50		14.30	17.32	20.90	24.95	29.38	34.10	39.04	44.10	49.19	51.22
	P	30	7.19	7.77	8.27	8.73	9.16	9.59	10.04	10.53	11.09	11.74	12.02
		40	8.62	9.27	9.86	10.40	10.92	11.43	11.97	12.56	13.21	13.95	14.27
		50		11.10	11.76	12.38	12.99	13.59	14.22	14.89	15.64	16.47	16.84
TF7 ZFI68KQE TFC TFD	Q	30	15.20	18.00	21.66	26.08	31.17	36.83	42.95	49.44	56.21	63.14	65.95
		40	14.47	17.19	20.71	24.92	29.74	35.05	40.76	46.78	53.00	59.33	61.87
		50		16.16	19.57	23.62	28.19	33.20	38.54	44.12	49.84	55.59	57.88
	P	30	8.33	9.00	9.58	10.11	10.61	11.11	11.63	12.20	12.84	13.59	13.93
		40	9.98	10.74	11.42	12.04	12.64	13.24	13.87	14.54	15.30	16.15	16.53
		50		12.85	13.62	14.34	15.04	15.74	16.46	17.25	18.11	19.08	19.50

Notes:

1. Q for Capacity; P for Power. Units in kW:

2. All ZFI*KQE values are rated at return gas temperature: 18.3°C and Max Subcooling

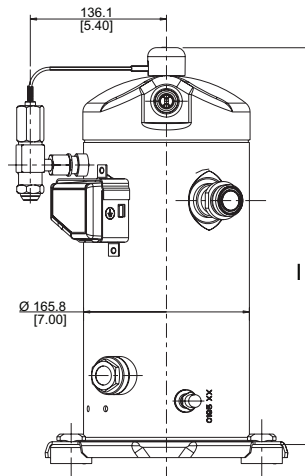
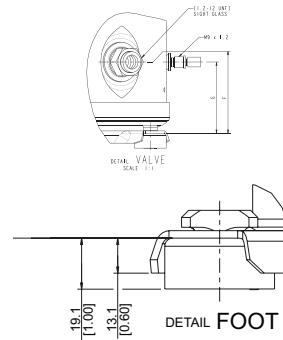
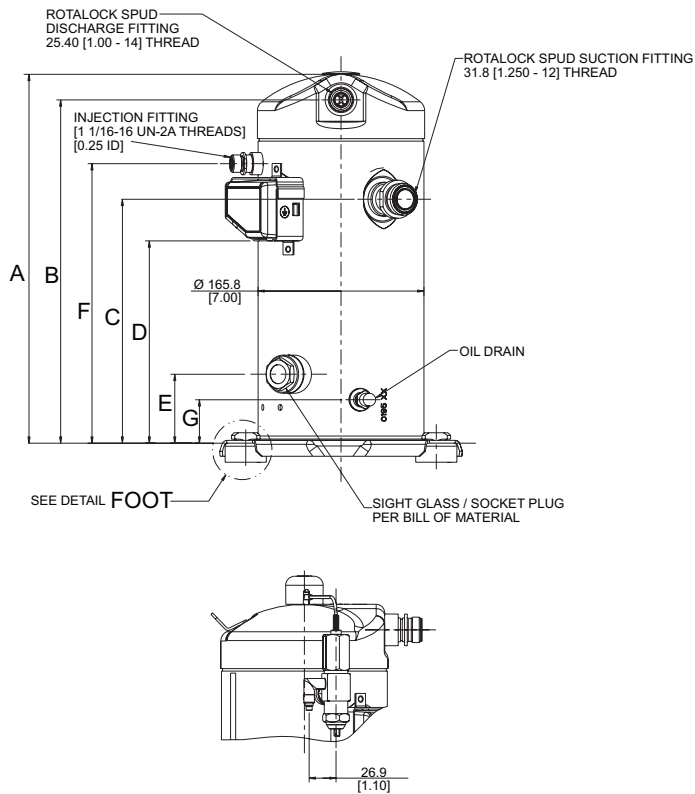
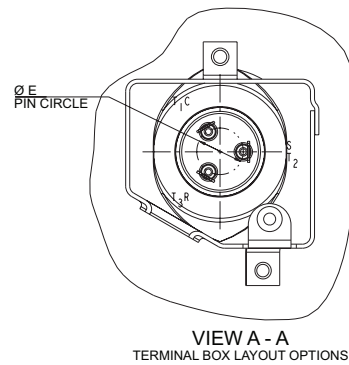
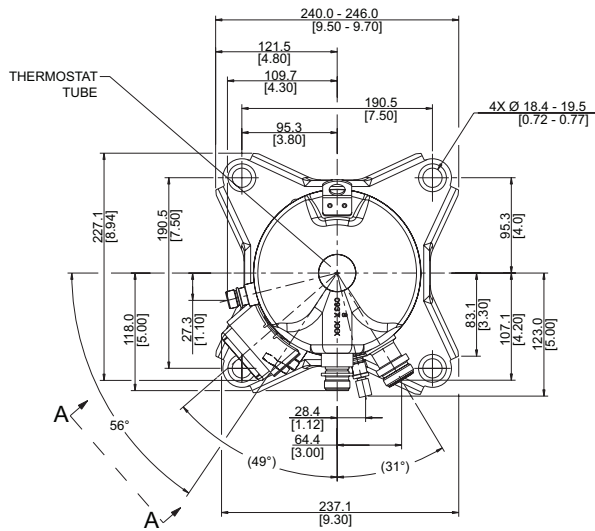
Technical Data

Compressor Model		Liquid Injection											
		ZF06KQE	ZF08KQE	ZF09KQE	ZF11KQE	ZF13KQE	ZF15KQE	ZF18KQE	ZF25KQE	ZF34KQE	ZF41KQE	ZF49KQE	
Nominal Horsepower		HP	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.5	10.0	13.0	15.0
Displacement		m³/hr	7.1	7.3	8.0	10.0	11.7	14.4	17.1	21.4	29.1	35.3	42.4
Locked Rotor Current		Amps	26	32	40	46	52	64	74	102	100	118	139
Maximum Operating Current			5	6	6	7	8	10	12.5	13.7	25	29	30
Winding Resistance at 25°C		Ohm	7.10	5.94	4.83	4.03	3.64	2.75	2.27	1.74	1.24	1.24	1.09
Rotalock Connection	Suction Size	in	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 3/4	1 3/4	1 3/4
	Discharge Size	in	1	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4
Dimensions	Length	mm	241	241	243	243	283	283	283	283	328	328	363
	Width		241	241	242	242	246	246	246	246	296	296	312
	Height		382	405	405	418	469	469	469	469	546	546	564
Oil Quantity		L	1.30	1.48	1.45	1.45	1.77	1.77	1.77	1.89	3.37	3.37	3.37
Net Weight		kg	25	27	27	29	39	36	39	39	63	63	66

Compressor Model			Vapor Injection					
			ZFI20KQE	ZFI26KQE	ZFI36KQE	ZFI50KQE	ZFI59KQE	ZFI68KQE
Nominal Horsepower	HP		4.0	6.0	7.5	10.0	13.0	15.0
Displacement	m ³ /hr		11.7	17.1	21.4	29.1	35.3	42.4
Locked Rotor Current	Amps		64	74	102	100	118	139
Maximum Operating Current			9	13	16	25	29	30
Winding Resistance at 25°C	Ohm		2.75	2.27	1.74	1.24	1.24	1.09
Rotalock Connection	Suction Size	in	1 1/4	1 1/4	1 1/4	1 3/4	1 3/4	1 3/4
	Discharge Size	in	1	1	1 1/4	1 1/4	1 1/4	1 1/4
Dimensions	Length	mm	257	308	308	328	328	363
	Width		246	246	246	296	296	312
	Height		438	438	438	546	546	564
Oil Quantity	L		1.77	1.77	1.77	3.37	3.37	3.37
Net Weight	kg		39	39	39	63	63	66

Dimensional Drawings

ZF06KQE - ZF11KQE



Model Number	mm[in-TPI]							
	A	B	C	D	E	F	G	I
ZF06KQ	368.7 [14.52]	343.1 [13.51]	243.8 [9.60]	202.2 [7.96]	68.9 [2.71]	279.4 [11.00]	43.4 [1.70]	396.7 [15.62]
ZF08KQ	391.3	365.7	263.7	222.1	74.6	302.0	49.1	419.3
ZF09KQ	[15.41]	[14.40]	[10.38]	[8.74]	[2.93]	[11.88]	[1.93]	[17.05]
ZF11KQ	405.0 [15.94]	379.4 [14.94]	276.4 [10.88]	234.8 [9.24]	74.6 [2.93]	315.7 [12.42]	49.1 [1.93]	433.0 [17.05]

Notes:

(1) All Tolerances $\pm 1.5\text{mm}$ [0.06in] unless otherwise specified

(2) Due to accumulated assembly tolerances, the listed components may vary from the mounting holes as shown below:

All Fittings: $\pm 3.0\text{m}$ [0.12in]

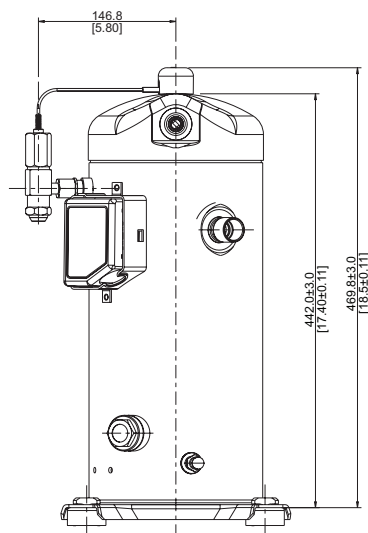
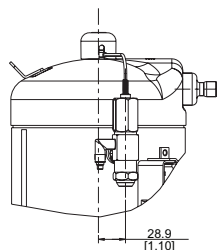
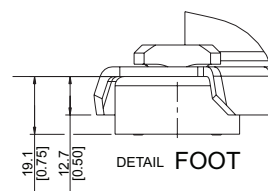
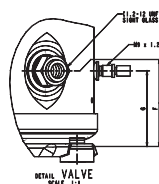
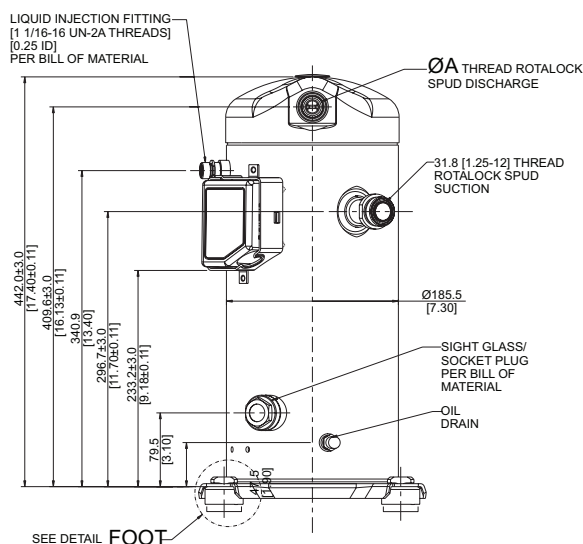
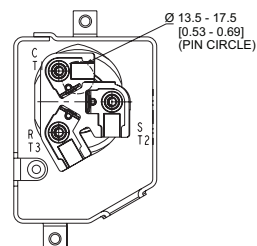
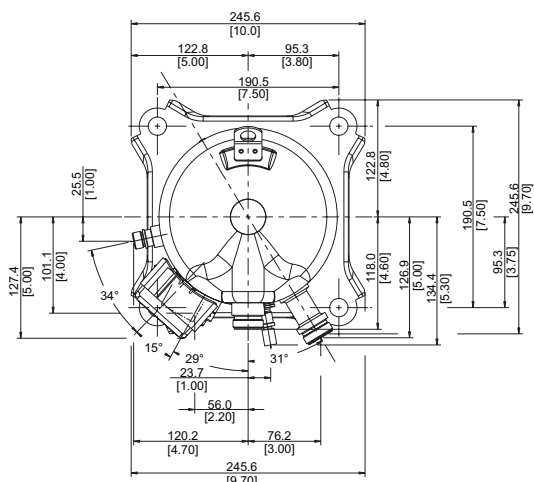
(3) Tube ends must be plugged

(4) Rotalock fittings are shown

(5) All units are in mm[inch]

Dimensional Drawings

ZF13KQE - ZF25KQE



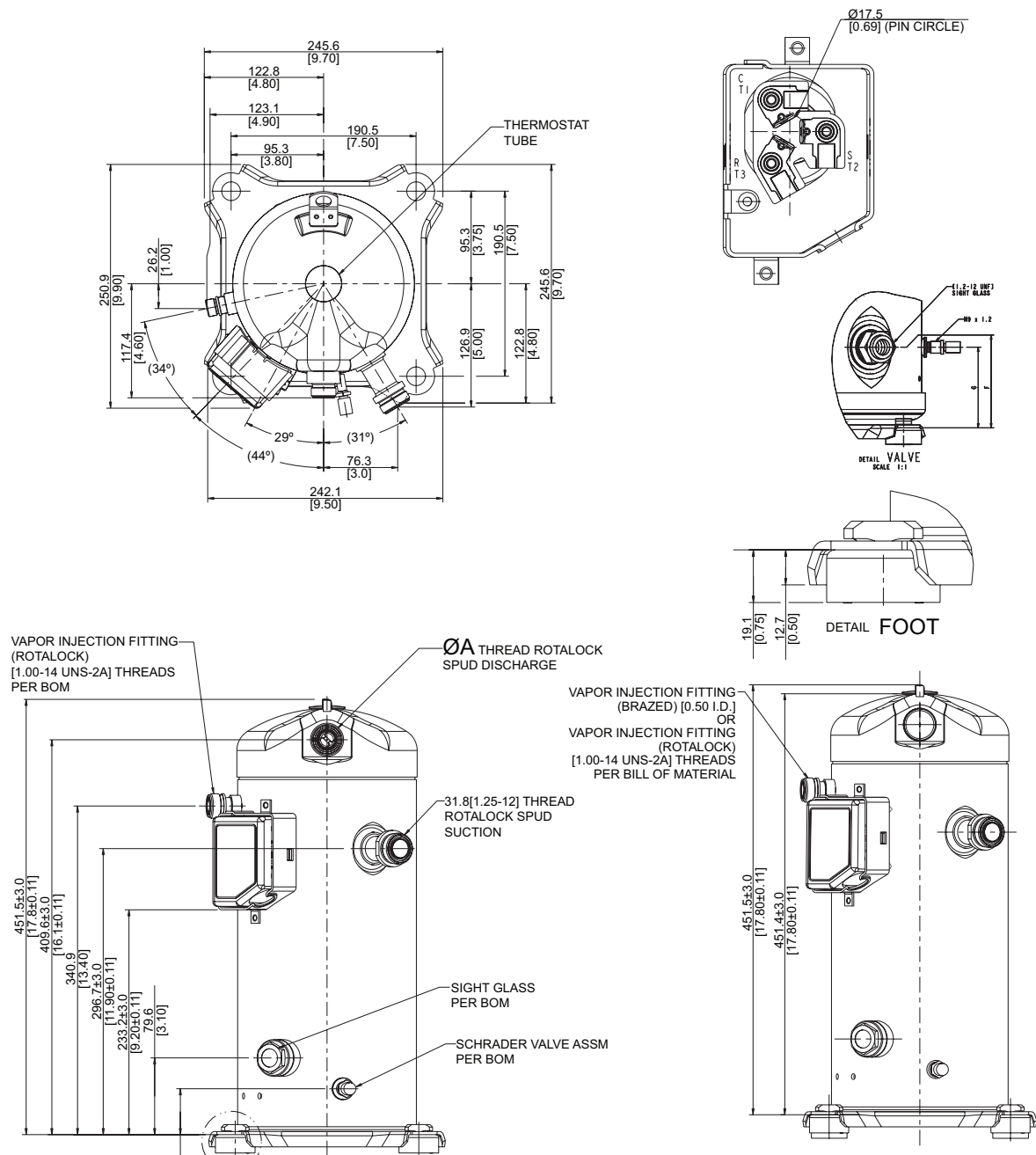
Model Number	$\varnothing A$ mm(in-TPI)
ZF13KQE	25.4(1.00-14.00)
ZF15KQE	25.4(1.00-14.00)
ZF18KQE	25.4(1.00-14.00)
ZF25KQE	31.75(1.25-12.00)

Notes:

- (1) All Tolerances $\pm 1.5\text{mm}$ [0.06in] unless otherwise specified
- (2) Due to accumulated assembly tolerances, the listed components may vary from the mounting holes as shown below:
All Fittings: $\pm 3.0\text{mm}$ [0.12in]
- (3) Tube ends must be plugged
- (4) Stub tube fittings are shown
- (5) All units in mm[inch]

Dimensional Drawings

ZFI20KQE, ZFI26KQE, ZFI36KQE



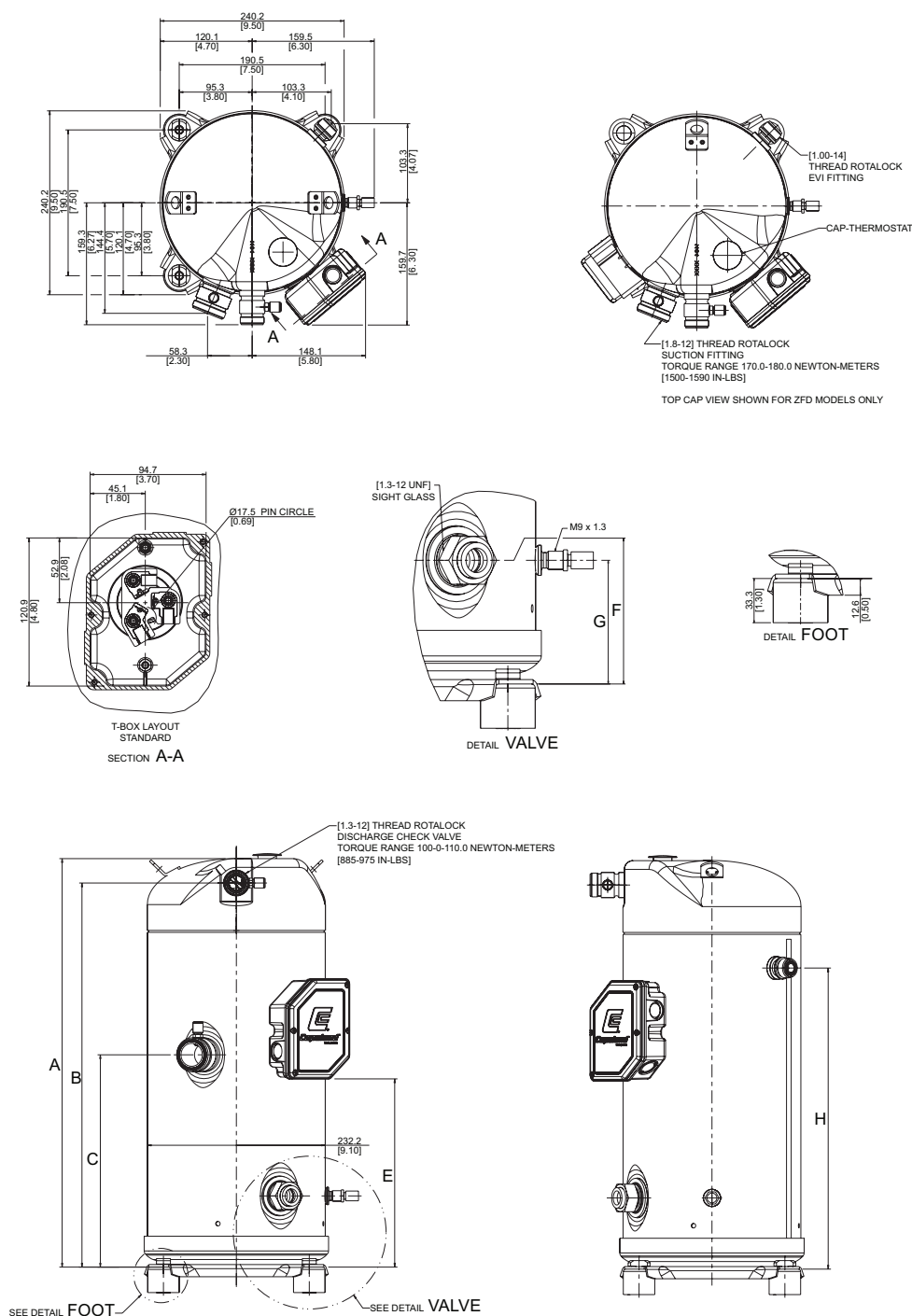
Model Number	ØA mm(in-TPI)
ZFI20KQE	25.4(1.00-14.00)
ZFI26KQE	25.4(1.00-14.00)
ZFI36KQE	31.75(1.25-12.00)

Notes:

- Notes:
- (1) All Tolerances $\pm 1.5\text{mm}$ [0.06in] unless otherwise specified
 - (2) Due to accumulated assembly tolerances, the listed components may vary from the mounting holes as shown below:
All Fittings: $\pm 3.0\text{m}$ [0.12in]
 - (3) Tube ends must be plugged
 - (4) Stub tube fittings are shown
 - (5) All units in mm[inch]

Dimensional Drawings

ZF34KQE, ZF41KQE, ZF49KQE without CoreSense



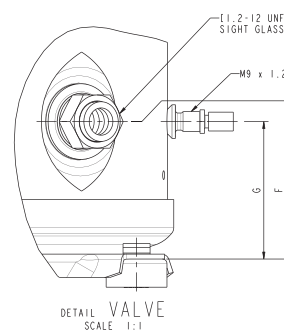
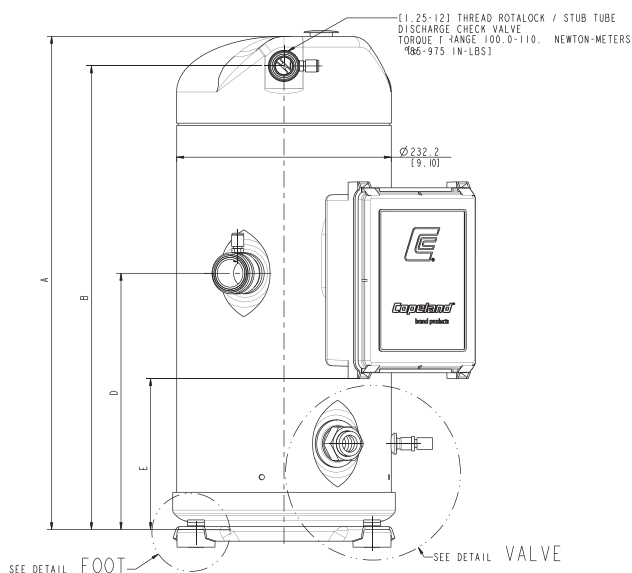
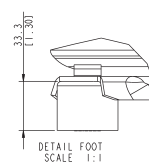
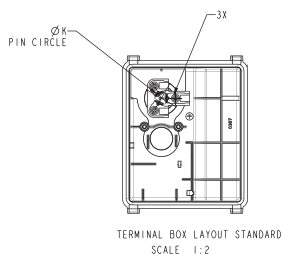
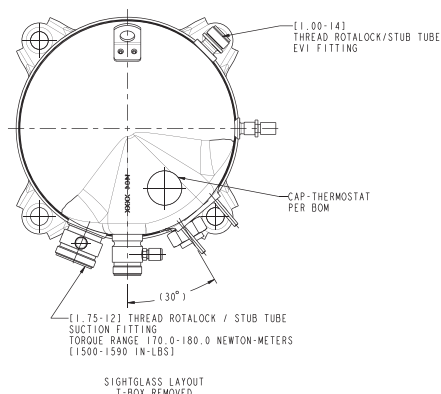
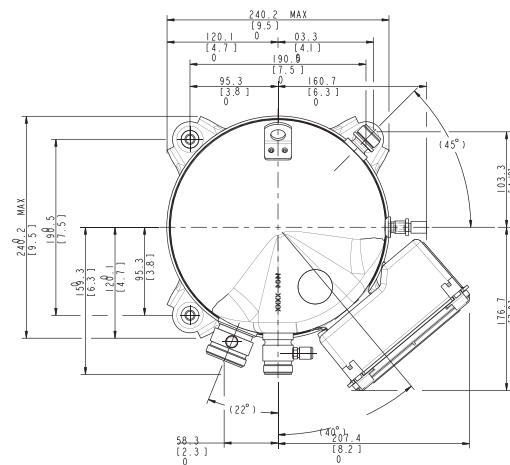
Model Number	mm[in-TPI]						
	A	B	C	E	F	G	H
ZF34KQE	533.6 [21.0]	501.8 [19.75]	277.3 [10.91]	245.7 [9.67]	93.0 [3.66]	93.0 [3.66]	393.3 [15.49]
ZF41KQE							
ZF49KQE	551.5 [21.7]	519.5 [20.45]	295.0 [11.61]	263.6 [10.37]	92.6 [3.64]	92.6 [3.64]	441.0 [16.18]

Notes:

- (1) All Tolerances $\pm 1.5\text{mm}$ [0.06in] unless otherwise specified
- (2) Due to accumulated assembly tolerances, the listed components may vary from the mounting holes as shown below:
All Fittings: $\pm 3.0\text{mm}$ [0.12in]
- (3) Tube ends must be plugged
- (4) Rotalock fittings are shown
- (5) All units in mm[inch]

Dimensional Drawings

ZFI50KQE, ZFI59KQE, ZFI68KQE without CoreSense



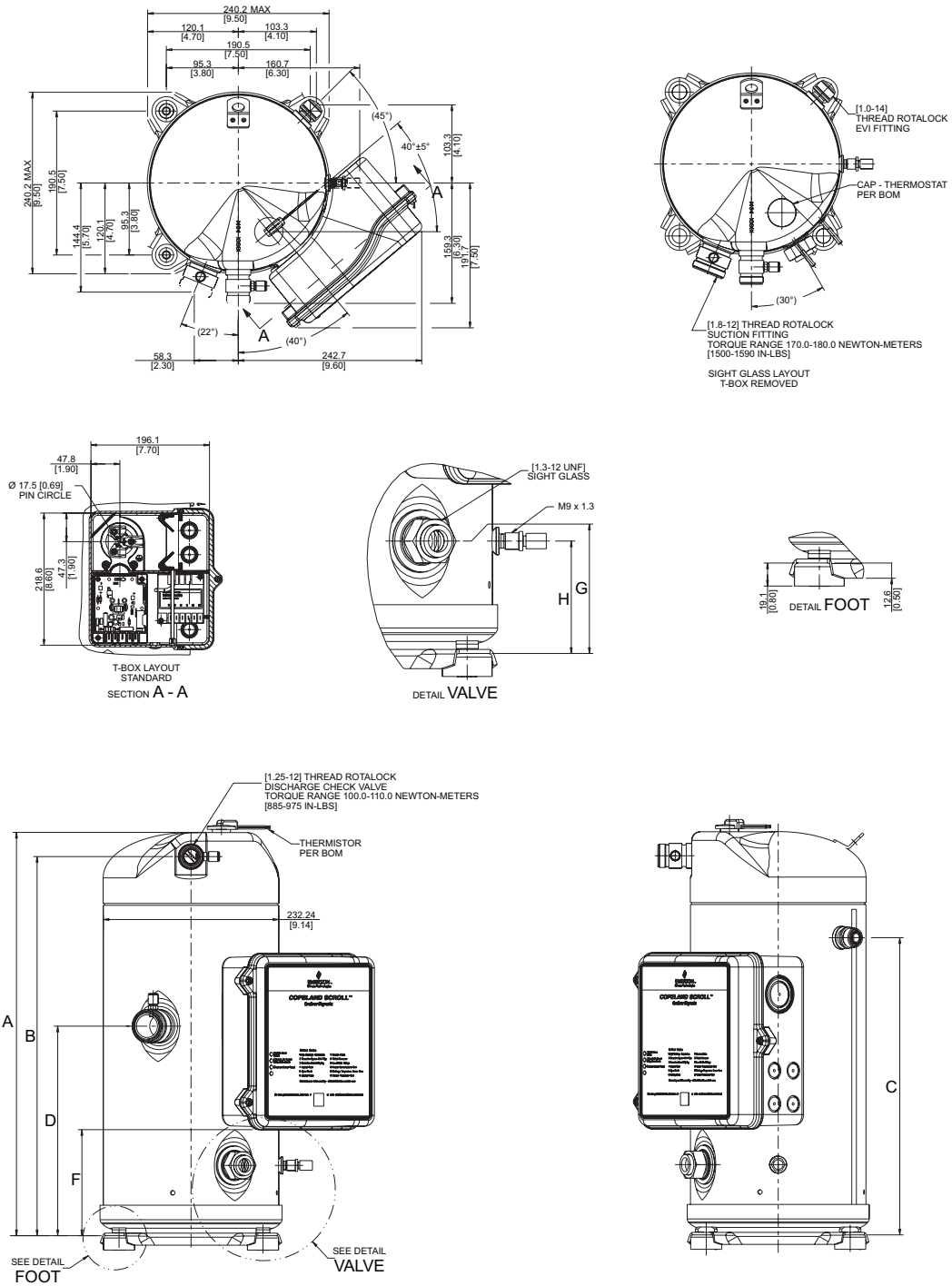
Model Number	mm[in-TPI]					
	A	B	D	E	F	G
ZFI50KQE	533.6 (21.01)	501.8 (19.76)	277.3 (10.92)	163.3 (6.43)	93.0 (3.66)	93.0 (3.66)
ZFI59KQE						
ZFI68KQE	551.5 (21.71)	519.5 (20.45)	295.0 (11.61)	163.3 (6.43)	92.6 (3.64)	92.6 (3.64)

Notes:

- (1) All Tolerances $\pm 1.5\text{mm}$ [0.06in] unless otherwise specified
- (2) Due to accumulated assembly tolerances, the listed components may vary from the mounting holes as shown below:
All Fittings: $\pm 3.0\text{mm}$ [0.12in]
- (3) Tube ends must be plugged
- (4) Rotolock fittings are shown
- (5) All units in mm[inch]

Dimensional Drawings

ZFI50KQE, ZFI59KQE, ZFI68KQE with CoreSense



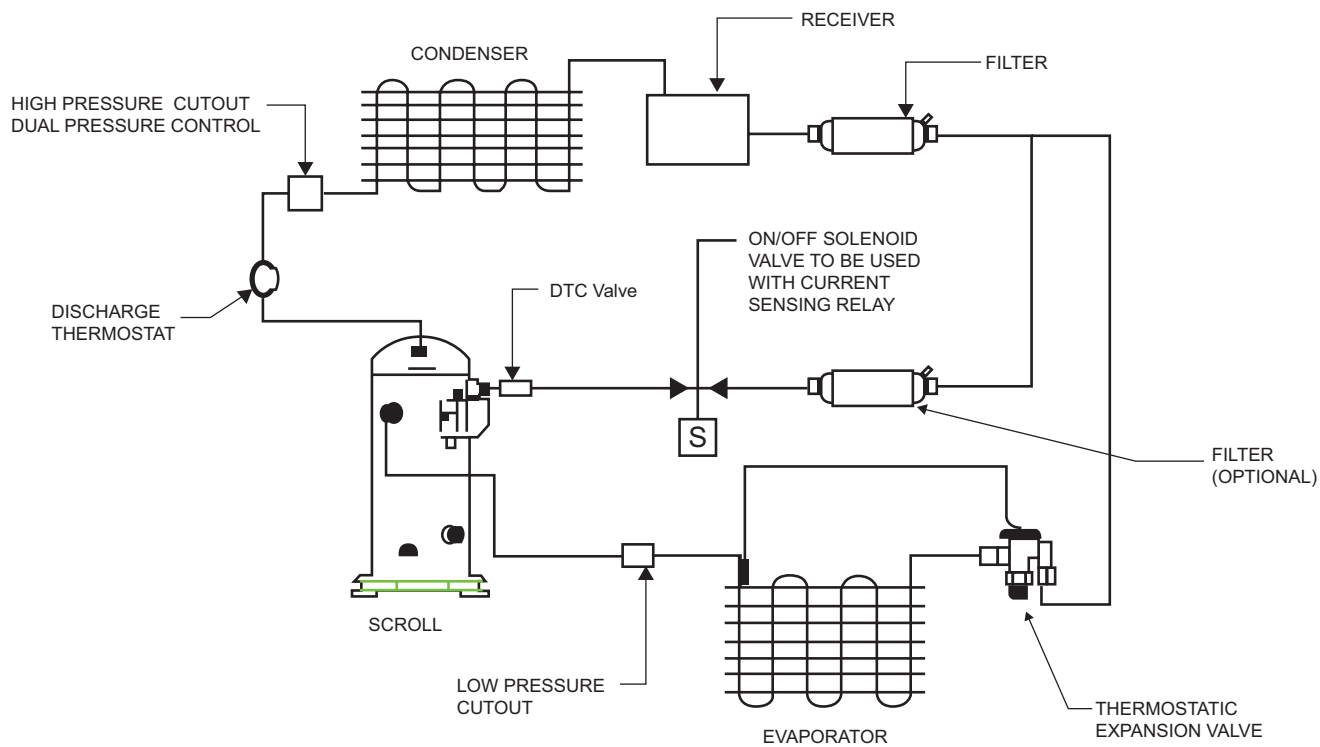
Model Number	mm[in-TPI]						
	A	B	C	D	F	G	H
ZFI50KQE	533.6	501.8	393.3	277.3	140.3	93.0	93.0
ZFI59KQE	[21.00]	[19.76]	[15.48]	[10.92]	[5.53]	[3.66]	[3.66]
ZFI68KQE	551.5	519.5	411.0	295.0	158.0	92.6	92.6
	[21.70]	[20.45]	[16.18]	[11.61]	[6.22]	[3.64]	[3.64]

Notes:

- (1) All Tolerances $\pm 1.5\text{mm}$ [0.06in] unless otherwise specified
- (2) Due to accumulated assembly tolerances, the listed components may vary from the mounting holes as shown below:
All Fittings: $\pm 3.0\text{m}$ [0.12in]
- (3) Tube ends must be plugged
- (4) Rotalock fittings are shown
- (5) All units in mm[inch]

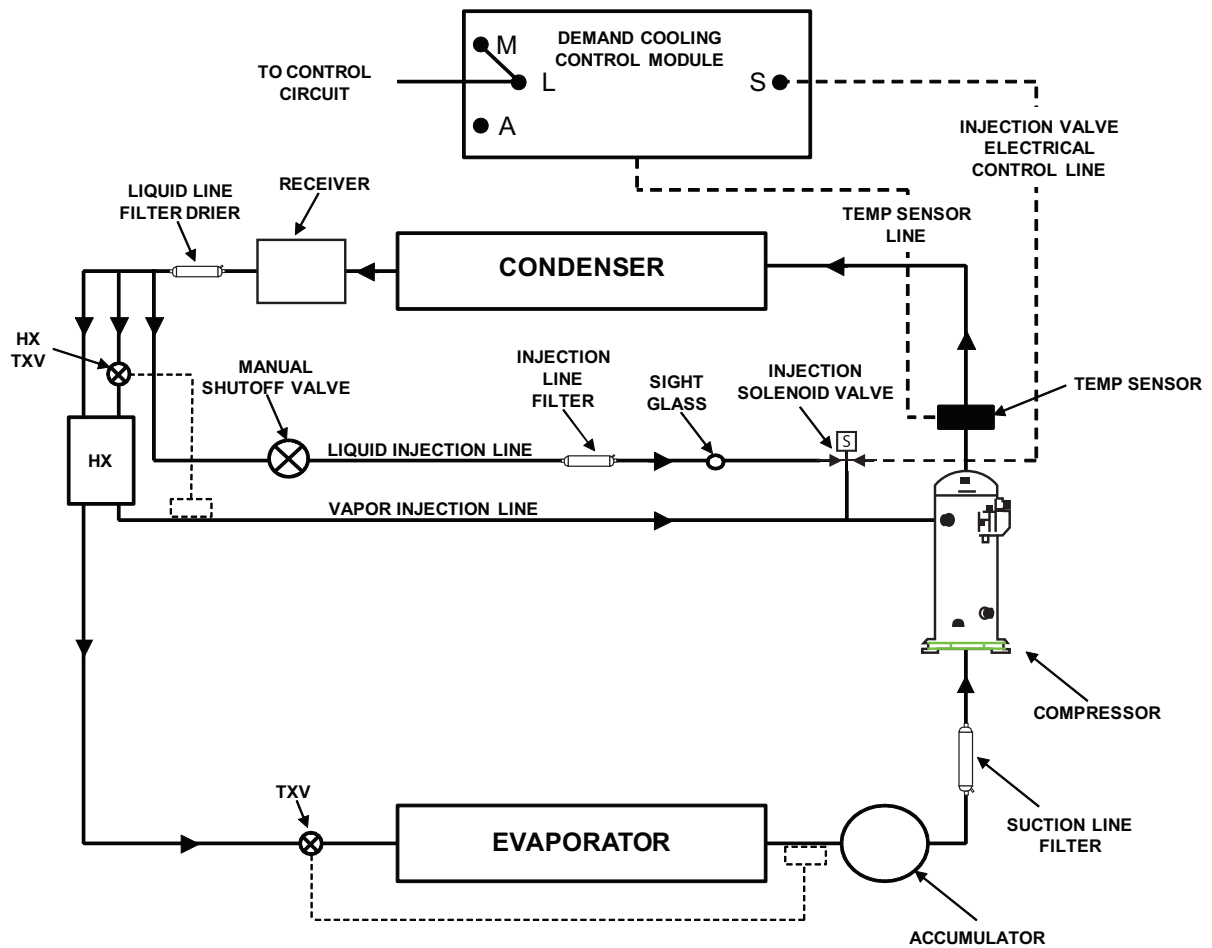
Schematic Diagram

Liquid Injection Schematic



Schematic Diagram

Dual Injection and Vapor Injection



Notes

[illegible]

Contact Lists

Asia Pacific Headquarters

Emerson Climate Technologies

Suite No. 2503-8, 25/F,
Exchange Tower, 33 Wang Chiu Road,
Kowloon Bay, Kowloon, Hong Kong
Tel: (852) 2866 3108
Fax: (852) 2520 6227

Australia

Emerson Climate Technologies Australia Pty Ltd

356 Chisholm Road
Auburn NSW 2144, Australia
Tel: (612) 9795 2800
Fax: (612) 9738 1699

China - Beijing

Emerson Climate Technologies (Suzhou) Co. Ltd

Beijing Sales Office
Room 1017 JianWei Building,
66 Nan Lishi Road, XiCheng District,
Beijing, PRC
Tel: (8610) 5763 0488
Fax: (8610) 5763 0499

China - Guangzhou

Emerson Climate Technologies (Suzhou) Co. Ltd

Guangzhou Sales Office
508-509 R&F Yinglong Plaza,
No. 76 Huangpu Road West,
Guangzhou, PRC
Tel: (8620) 2886 7668
Fax: (8620) 2886 7622

China - Shanghai

Emerson Climate Technologies (Suzhou) Co. Ltd

Shanghai Sales Office
1801 Building B, New CaoHejing
International Business Center,
391 Guiping Rd, Shanghai, PRC
Tel: (8621) 3418 3968

India - Mumbai

Emerson Climate Technologies (India) Ltd

Unit No. 4,5,6 & 7, Bhaveshwar Arcade
LBS Marg, Opp. Shreyas Cinema
Ghatkopar (West)
Mumbai 400 086, Maharashtra, India
Tel: (9122) 2500 6630 / 2500 6632
Fax: (9122) 2500 6570

India - PUNE

Emerson Climate Technologies (India) Ltd

Plot No. 23, Rajiv Gandhi Infotech Park,
Phase - II, Hinjewadi,
Pune 411 057, Maharashtra, India
Tel: (9120) 2553 4988
Fax: (9120) 2553 6350

Indonesia

PT Emerson Indonesia

Wisma 46 - Kota BNI, 16th Floor, Suite 16.01,
Jl. Jend.Sudirman Kav.1.
Jakarta 10220, Indonesia
Tel: (6221) 2513003
Fax: (6221) 2510622

Japan

Emerson Japan Ltd

Shin-yokohama Tosho Building
No. 3-9-5 Shin-Yokohama, Kohoku-ku
Yokohama 222-0033 Japan
Tel: (8145) 475 6371
Fax: (8145) 475 3565

South Korea

Emerson Electric Korea Ltd.

3F POBA Gangnam Tower, 119 Nonhyun-
Dong, Gangnam-Gu, Seoul 135-010 Korea
Tel: (822) 3483 1500
Fax: (822) 592 7883

Malaysia

Emerson Electric (Malaysia) Sdn. Bhd.

Level M2, Blk A, Menara PKNS-PJ
Jalan Yong Shook Lin
46050 Petaling Jaya, Selangor, Malaysia
Tel: (603) 7949 9222
Fax: (603) 7949 9333

Middle East & Africa

Emerson Climate Technologies

PO Box 26382
Jebel Ali Free Zone – South
Dubai, UAE
Tel: (9714) 811 8100
Fax: (9714) 886 5465

Philippines

Emerson Climate Technologies

23rd Floor San Miguel Properties Centre
#7 St. Francis Street, Ortigas Center,
Mandaluyong City, Philippines
Tel: (632) 689 7200

Taiwan

Emerson Electric (Taiwan) Co. Ltd

3F No. 2 DunHua South Road Sec.1,
Taipei (105), Taiwan
Tel: (8862) 8161 7688
Fax: (8862) 81617614

Thailand - Bangkok

Emerson Electric (Thailand) Ltd

34th Floor, TCIF Tower,
1858/133, Bangna Trad,
Bangkok 10260, Thailand
Tel: (662) 716 4700
Fax: (662) 751 4241

Vietnam

Emerson Climate Technologies - Vietnam

Suite 307-308,
123 Truong Dinh St., Dist.3
Ho Chi Minh, Vietnam
Tel: (84) 908 009 189

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