

Copeland F-Series

Water-cooled scroll units - 60Hz

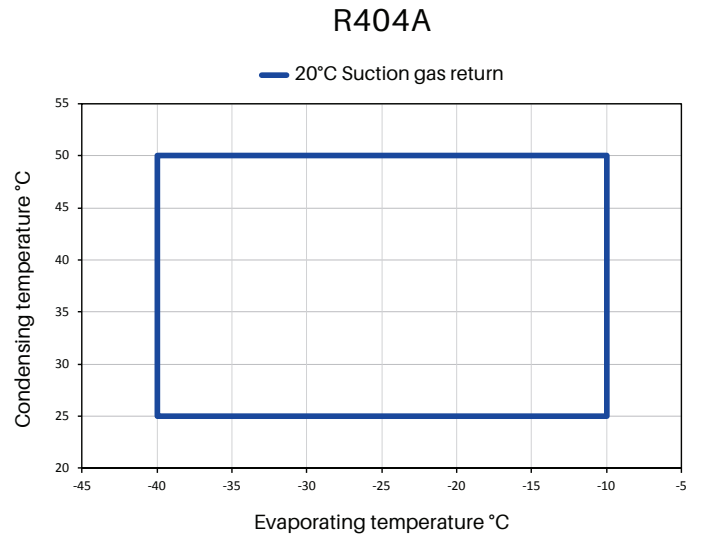
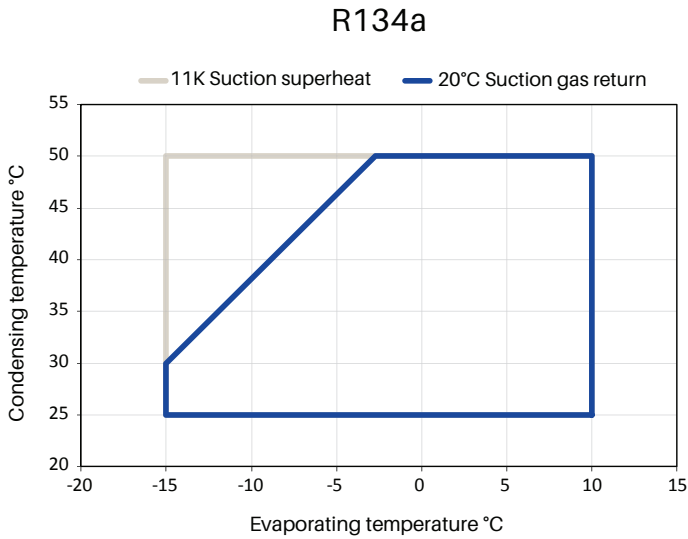


Copeland is a pioneer in scroll compressors. Copeland Scroll already has over 150 Million units installed worldwide. Scroll compressor has lesser moving parts as compared to a reciprocating compressor. This enables Copeland Scroll water cooled condensing unit to offer compact design, high efficiency, low sound levels and increased reliability.

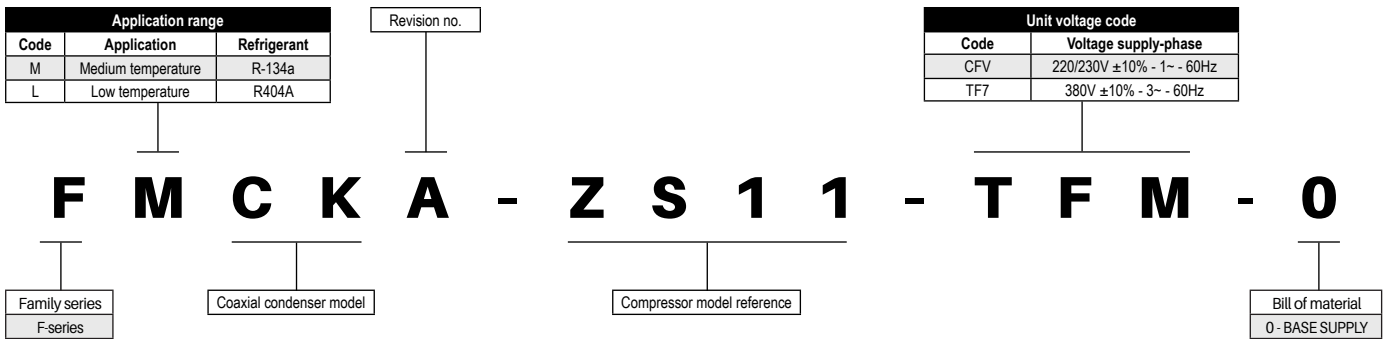
Unique features

- Compact design
- Optimal layout of components for easy serviceability
- Co-axial condenser
- Liquid receiver, HP/LP switch and crankcase heater
- Copeland Scroll compressor
 - Proven reliability
 - Lower sound levels and pulsations
 - Dual compliance for superior efficiency and better liquid handling

Envelopes



Nomenclature



Medium temperature

Condensing unit model	Condensing temperature (°C)	Capacity (kW)					Total power input (kW)				
		Evaporating temperature (°C)									
		-15	-10	-5	0	5	-15	-10	-5	0	5
FMCKA-ZS11-TF7	30	1.85	2.30	2.83	3.45	4.15	0.67	0.69	0.71	0.71	0.71
	35	1.77	2.20	2.70	3.30	4.00	0.72	0.75	0.78	0.79	0.80
	40	1.69	2.10	2.58	3.15	3.80	0.79	0.82	0.85	0.88	0.89
	45	1.61	2.00	2.45	3.00	3.60	0.86	0.90	0.94	0.97	0.99
FMCKA-ZB15-TF7	30	2.38	2.99	3.71	4.56	5.55	0.91	0.91	0.91	0.92	0.93
	35	2.19	2.85	3.54	4.36	5.31	1.01	1.01	1.02	1.03	1.04
	40	2.06	2.62	3.37	4.15	5.05	1.12	1.13	1.13	1.14	1.15
	45	1.93	2.47	3.19	3.93	4.79	1.24	1.25	1.26	1.27	1.28
FMCKA-ZB19-TF7	30	2.74	3.45	4.28	5.26	6.40	1.03	1.04	1.04	1.05	1.07
	35	2.52	3.28	4.09	5.03	6.12	1.15	1.16	1.16	1.17	1.18
	40	2.38	3.03	3.89	4.79	5.83	1.28	1.29	1.29	1.30	1.31
	45	2.23	2.85	3.68	4.53	5.53	1.42	1.43	1.44	1.45	1.46
FMCNA-ZB21-TF7	30	3.46	4.35	5.40	6.64	8.07	1.27	1.28	1.29	1.30	1.31
	35	3.18	4.14	5.15	6.34	7.72	1.42	1.42	1.43	1.44	1.46
	40	3.00	3.82	4.90	6.03	7.35	1.57	1.58	1.59	1.61	1.62
	45	2.81	3.59	4.64	5.72	6.97	1.74	1.76	1.77	1.79	1.80
FMCNA-ZB26-TF7	30	3.99	5.02	6.24	7.67	9.33	1.45	1.46	1.47	1.48	1.50
	35	3.67	4.78	5.95	7.32	8.92	1.61	1.62	1.63	1.65	1.66
	40	3.46	4.41	5.66	6.97	8.49	1.79	1.80	1.82	1.83	1.85
	45	3.24	4.15	5.36	6.60	8.05	1.99	2.00	2.02	2.04	2.05
FMCNA-ZB29-TF7	30	4.68	5.84	7.22	8.84	10.73	1.64	1.65	1.67	1.68	1.69
	35	4.29	5.55	6.88	8.43	10.25	1.85	1.86	1.87	1.89	1.90
	40	4.02	5.10	6.52	8.01	9.75	2.08	2.09	2.10	2.11	2.12
	45	3.74	4.78	6.16	7.58	9.23	2.32	2.33	2.34	2.35	2.37
FMCNA-ZB38-TF7	30	5.77	7.31	9.09	11.17	13.59	2.05	2.08	2.10	2.12	2.14
	35	5.30	6.96	8.67	10.66	12.98	2.28	2.31	2.34	2.36	2.38
	40	5.00	6.42	8.25	10.15	12.35	2.53	2.57	2.60	2.62	2.65
	45	4.69	6.05	7.82	9.63	11.72	2.82	2.86	2.88	2.91	2.93
FMCPA-ZB45-TF7	30	7.01	8.79	10.94	13.45	16.33	2.35	2.37	2.39	2.41	2.43
	35	6.44	8.37	10.44	12.86	15.63	2.63	2.65	2.68	2.70	2.72
	40	6.04	7.70	9.91	12.23	14.90	2.93	2.96	2.99	3.01	3.03
	45	5.63	7.21	9.35	11.58	14.12	3.27	3.30	3.33	3.36	3.38

Note: Operating conditions : 20°C suction gas return temperature and 3K subcooling

■ 11K suction superheat

Medium temperature

Condensing unit model	Condensing temperature (°C)	Water flow rate (l/s)					Pressure drop (kPa)				
		Evaporating temperature (°C)									
		-15	-10	-5	0	5	-15	-10	-5	0	5
FMCKA-ZS11-TF7	30	0.10	0.12	0.14	0.17	0.21	4.8	6.6	8.4	11.2	14.4
	35	0.09	0.12	0.14	0.17	0.20	4.8	6.1	8.4	10.9	14.2
	40	0.09	0.12	0.14	0.16	0.19	4.8	6.1	8.0	10.2	13.5
	45	0.09	0.11	0.13	0.16	0.19	4.8	6.1	7.7	10.2	12.8
FMCKA-ZB15-TF7	30	0.13	0.16	0.19	0.23	0.28	6.9	9.9	13.4	17.9	24.2
	35	0.13	0.15	0.19	0.22	0.27	6.9	9.4	13.0	17.3	22.9
	40	0.13	0.15	0.18	0.22	0.26	6.9	9.2	12.3	17.0	22.1
	45	0.12	0.15	0.18	0.22	0.26	6.2	8.7	12.3	16.3	21.4
FMCKA-ZB19-TF7	30	0.15	0.18	0.22	0.27	0.32	9.0	12.0	16.8	22.8	30.1
	35	0.15	0.18	0.22	0.26	0.31	8.3	12.0	16.1	22.1	29.3
	40	0.15	0.17	0.21	0.26	0.30	8.3	11.3	15.5	21.4	27.9
	45	0.14	0.17	0.21	0.25	0.30	8.3	11.3	15.0	20.4	27.0
FMCNA-ZB21-TF7	30	0.18	0.23	0.28	0.33	0.40	11.7	12.3	13.5	15.0	17.5
	35	0.18	0.22	0.27	0.33	0.39	11.7	12.3	13.1	14.8	17.0
	40	0.18	0.22	0.26	0.32	0.38	11.7	12.3	12.8	14.4	16.8
	45	0.18	0.22	0.26	0.32	0.37	11.7	12.3	12.8	14.4	16.1
FMCNA-ZB26-TF7	30	0.21	0.26	0.32	0.39	0.46	11.7	13.0	14.6	16.7	20.6
	35	0.21	0.25	0.31	0.38	0.45	11.7	13.0	14.2	16.4	19.9
	40	0.20	0.25	0.30	0.37	0.44	11.7	13.0	14.2	16.4	19.2
	45	0.20	0.25	0.30	0.36	0.43	11.7	12.4	13.9	15.7	19.0
FMCNA-ZB29-TF7	30	0.23	0.28	0.34	0.42	0.50	12.4	13.7	15.3	18.1	22.6
	35	0.23	0.28	0.34	0.41	0.49	12.4	13.7	15.3	17.8	21.9
	40	0.22	0.27	0.33	0.40	0.48	12.4	13.0	14.9	17.4	21.3
	45	0.22	0.27	0.33	0.39	0.46	12.4	13.0	14.6	17.1	20.6
FMCNA-ZB 38-TF7	30	0.31	0.38	0.46	0.56	0.67	13.8	16.3	20.3	26.8	36.6
	35	0.30	0.37	0.45	0.55	0.66	13.8	16.3	19.9	25.8	35.1
	40	0.30	0.36	0.44	0.53	0.64	13.8	16.3	19.6	25.1	33.5
	45	0.29	0.36	0.43	0.52	0.62	13.8	15.6	19.2	24.2	32.2
FMCPA-ZB45-TF7	30	0.37	0.45	0.55	0.66	0.80	8.3	12.0	16.8	22.8	29.9
	35	0.36	0.44	0.54	0.65	0.78	8.3	11.3	16.1	21.7	29.1
	40	0.35	0.43	0.53	0.63	0.75	7.6	11.3	15.5	20.7	27.7
	45	0.35	0.42	0.51	0.61	0.73	7.6	10.6	14.8	20.0	26.4

Note: Operating conditions : 20°C suction gas return temperature and 3K subcooling

Low temperature

Condensing unit model	Condensing temperature (°C)	Capacity (kW)						Total power input (kW)					
		Evaporating temperature (°C)											
		-40	-35	-30	-25	-20	-15	-40	-35	-30	-25	-20	-15
FLCKA-ZF06-CFV	30	1.58	2.00	2.49	3.08	3.72	4.51	1.37	1.39	1.45	1.54	1.65	1.77
	35	1.48	1.89	2.36	2.90	3.52	4.25	1.52	1.53	1.58	1.66	1.77	1.89
	40	1.38	1.77	2.21	2.71	3.28	3.96	1.70	1.69	1.73	1.81	1.91	2.03
	45	1.28	1.66	2.07	2.53	3.05	3.69	1.89	1.87	1.90	1.97	2.07	2.19
FLCNA-ZF09-CFV	30	2.23	2.82	3.52	4.31	5.25	6.36	1.71	1.76	1.83	1.93	2.04	2.17
	35	2.11	2.67	3.31	4.07	4.95	5.98	1.88	1.93	1.99	2.08	2.19	2.32
	40	1.98	2.51	3.11	3.81	4.63	5.60	2.08	2.11	2.17	2.26	2.36	2.49
	45	1.85	2.34	2.91	3.55	4.31	5.19	2.29	2.32	2.38	2.45	2.55	2.68
FLCNA-ZF11-CFV	30	2.75	3.49	4.34	5.36	6.54	7.91	2.05	2.13	2.23	2.36	2.52	2.71
	35	2.62	3.31	4.13	5.07	6.18	7.47	2.26	2.33	2.43	2.56	2.71	2.89
	40	2.47	3.11	3.87	4.75	5.80	7.01	2.49	2.56	2.66	2.78	2.93	3.10
	45	2.31	2.91	3.60	4.43	5.39	6.48	2.74	2.81	2.91	3.03	3.17	3.34
FLCNA-ZF13-TF7	30	3.04	3.92	4.94	6.12	7.47	9.00	2.24	2.30	2.39	2.50	2.65	2.82
	35	2.86	3.68	4.63	5.74	7.02	8.48	2.46	2.52	2.60	2.71	2.85	3.02
	40	2.69	3.44	4.32	5.35	6.54	7.92	2.70	2.76	2.85	2.95	3.09	3.25
	45	2.53	3.20	3.99	4.93	6.04	7.32	2.98	3.05	3.13	3.23	3.36	3.52
FLCNA-ZF15-TF7	30	3.86	4.87	6.07	7.48	9.14	11.07	2.70	2.79	2.92	3.07	3.26	3.49
	35	3.65	4.60	5.72	7.05	8.60	10.41	2.94	3.06	3.19	3.35	3.53	3.76
	40	3.42	4.32	5.36	6.59	8.03	9.71	3.19	3.34	3.49	3.66	3.85	4.07
	45	3.19	4.02	4.98	6.11	7.44	8.99	3.47	3.65	3.83	4.01	4.21	4.43
FLCPA-ZF18-TF7	30	4.60	5.85	7.29	8.97	10.94	13.25	3.27	3.37	3.52	3.72	3.96	4.24
	35	4.37	5.54	6.90	8.47	10.30	12.45	3.57	3.66	3.81	4.02	4.26	4.54
	40	4.13	5.23	6.49	7.94	9.64	11.63	3.88	3.98	4.13	4.34	4.59	4.87
	45	3.89	4.91	6.07	7.40	8.96	10.78	4.21	4.32	4.48	4.69	4.95	5.24

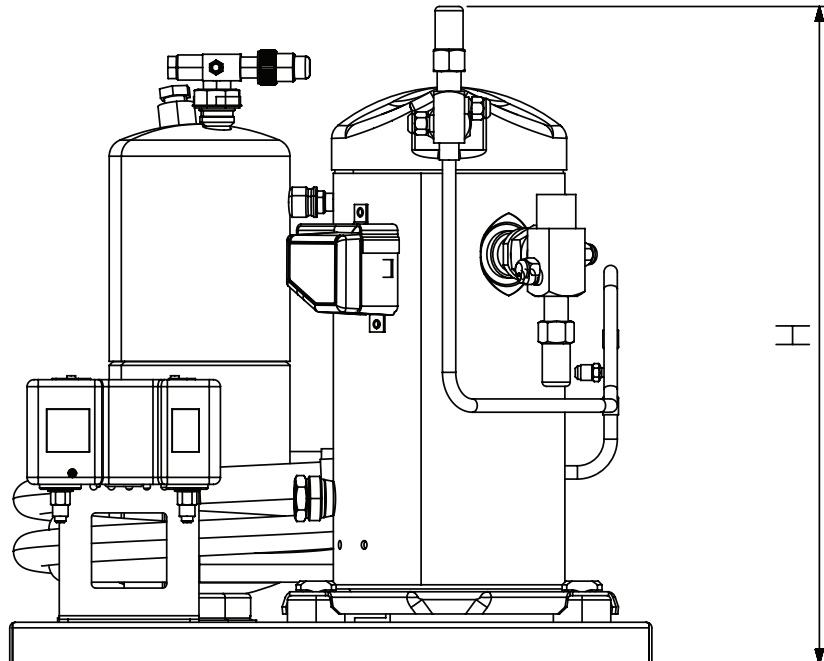
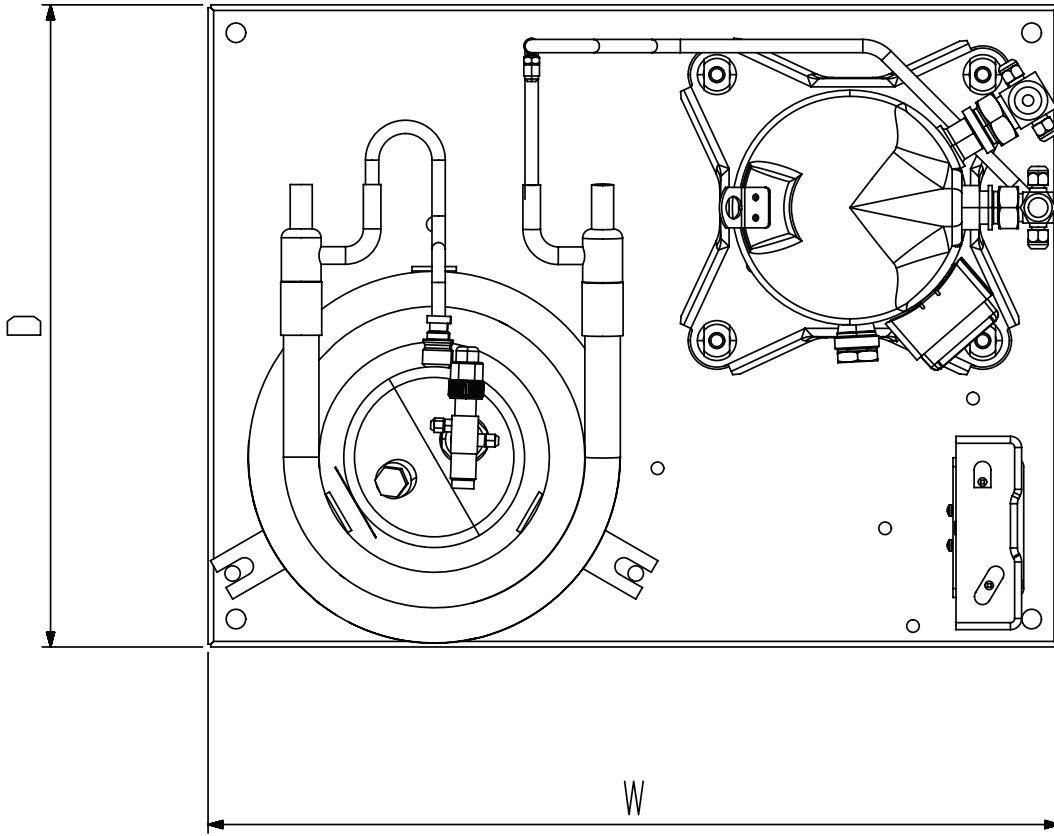
Note: Operating conditions : 20°C suction gas return temperature and 3K subcooling

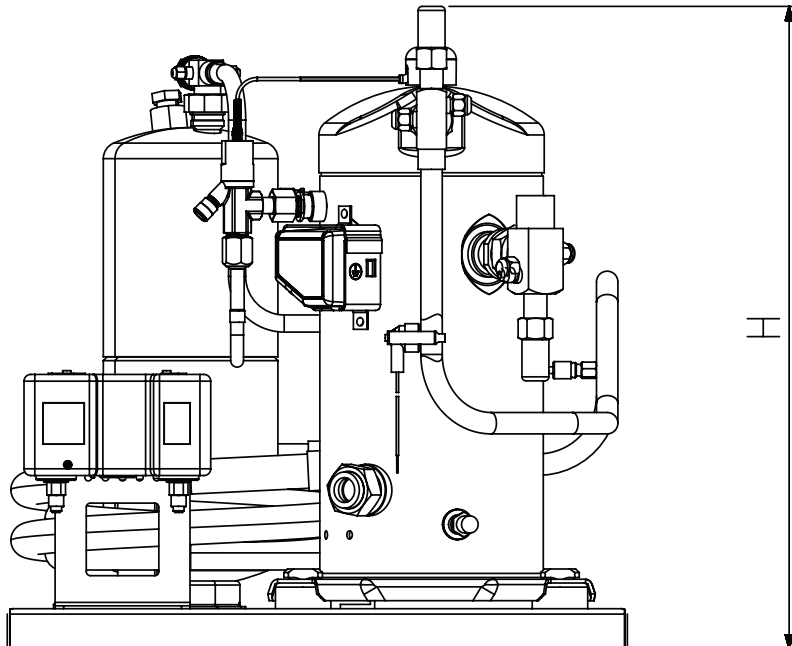
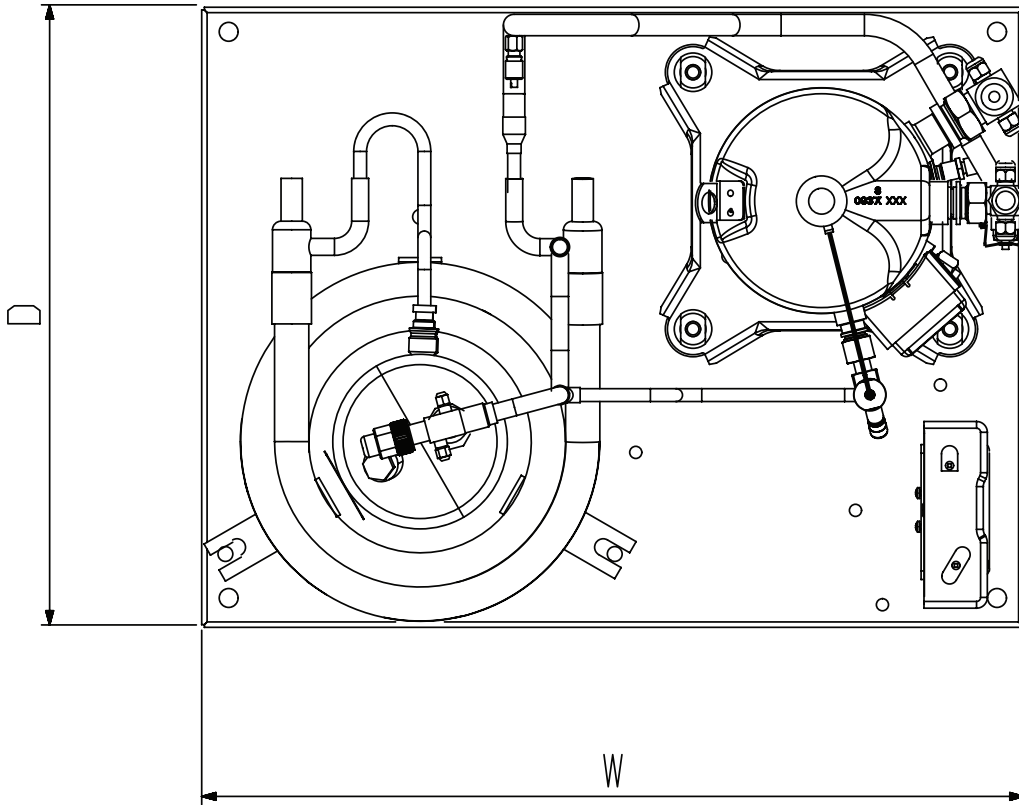
■ 11K suction superheat

Low temperature

Condensing unit model	Condensing temperature (°C)	Capacity (kW)						Total power input (kW)					
		Evaporating temperature (°C)											
		-40	-35	-30	-25	-20	-15	-40	-35	-30	-25	-20	-15
FLCKA-ZF06-CFV	30	0.10	0.12	0.15	0.17	0.21	0.25	4.8	6.6	8.4	11.2	14.9	19.3
	35	0.10	0.12	0.14	0.17	0.20	0.24	4.8	6.1	8.4	10.9	14.2	18.6
	40	0.10	0.12	0.14	0.17	0.19	0.23	4.8	6.1	8.0	10.5	13.5	17.9
	45	0.10	0.12	0.14	0.16	0.19	0.22	4.8	6.1	8.0	10.2	12.8	16.6
FLCNA-ZF09-CFV	30	0.13	0.16	0.19	0.24	0.28	0.33	11.0	11.6	11.7	12.4	13.2	15.2
	35	0.13	0.16	0.19	0.23	0.27	0.32	11.0	11.6	11.7	12.4	13.2	14.5
	40	0.13	0.16	0.19	0.22	0.26	0.31	11.0	11.0	11.7	12.0	13.2	14.5
	45	0.13	0.16	0.18	0.22	0.26	0.30	11.0	11.0	11.7	12.0	12.6	13.8
FLCNA-ZF11-CFV	30	0.16	0.20	0.24	0.29	0.35	0.42	11.7	11.7	12.4	13.7	15.5	17.9
	35	0.16	0.20	0.24	0.28	0.34	0.40	11.7	11.7	12.4	13.4	15.3	17.3
	40	0.16	0.20	0.23	0.28	0.33	0.39	11.7	11.7	12.4	13.4	14.8	17.3
	45	0.16	0.19	0.23	0.27	0.32	0.37	11.0	11.7	12.4	13.4	14.6	16.6
FLCNA-ZF13-TF7	30	0.18	0.22	0.27	0.33	0.39	0.47	11.7	12.3	13.1	14.8	17.0	20.7
	35	0.18	0.22	0.26	0.32	0.38	0.45	11.7	12.3	12.8	14.4	16.8	20.0
	40	0.18	0.22	0.25	0.31	0.37	0.43	11.7	12.3	12.8	14.1	16.1	18.6
	45	0.18	0.21	0.25	0.30	0.35	0.42	11.7	11.7	12.8	14.1	15.5	17.9
FLCNA-ZF15-TF7	30	0.23	0.28	0.33	0.40	0.48	0.57	12.4	13.0	14.9	17.4	21.4	27.6
	35	0.22	0.27	0.33	0.39	0.46	0.56	12.4	13.0	14.6	17.1	20.6	26.2
	40	0.22	0.27	0.32	0.38	0.45	0.53	12.4	13.0	14.2	16.4	19.7	24.8
	45	0.21	0.26	0.31	0.37	0.44	0.51	12.4	13.0	14.2	16.4	19.0	23.5
FLCPA-ZF18-TF7	30	0.27	0.33	0.40	0.48	0.58	0.69	4.8	7.3	9.8	13.2	17.8	23.5
	35	0.27	0.33	0.39	0.47	0.56	0.66	4.8	6.8	9.5	12.6	17.1	22.1
	40	0.26	0.32	0.38	0.45	0.54	0.64	4.8	6.6	9.1	11.9	15.7	21.4
	45	0.26	0.32	0.37	0.44	0.52	0.61	4.8	6.6	8.4	11.6	15.0	20.0

Note: Operating conditions : 20°C suction gas return temperature and 3K subcooling





Mechanical data

Condensing unit model	Compressor model	Receiver capacity (l)	Depth/width [D / W] (mm)	Height [H] (mm)	Suction Ø [SL] (")	Liquid Ø [LL] (")	Water inlet ODF (")	Water outlet ODF (")	Net weight (kg)	Gross weight (kg)
FMCKA-ZS11-TF7	ZS11KAE-TF7-600	3.9	460/610	495	5/8	1/2	5/8	5/8	39	49
FMCKA-ZB15-TF7	ZB15KQE-TF7-559	3.9	460/610	471	3/4	1/2	5/8	5/8	42	52
FMCKA-ZB19-TF7	ZB19KQE-TF7-559	3.9	460/610	471	7/8	1/2	5/8	5/8	44	54
FMCNA-ZB21-TF7	ZB21KQE-TF7-559	7.9	570/680	496	7/8	1/2	7/8	7/8	60	75
FMCNA-ZB26-TF7	ZB26KQE-TF7-559	7.9	570/680	510	7/8	1/2	7/8	7/8	62	77
FMCNA-ZB29-TF7	ZB29KQE-TF7-559	7.9	570/680	527	1 1/8	1/2	7/8	7/8	66	81
FMCNA-ZB38-TF7	ZB38KQE-TF7-559	7.9	570/680	545	1 1/8	1/2	7/8	7/8	71	86
FMCPA-ZB45-TF7	ZB45KQE-TF7-559	7.9	610/725	555	1 1/8	1/2	1-1/8	1-1/8	76	91
FLCKA-ZF06-CFV	ZF06KQE-PFV-551	3.9	460/610	477	3/4	1/2	5/8	5/8	45	55
FLCNA-ZF09-CFV	ZF09KQE-PFV-551	7.9	570/680	501	3/4	1/2	7/8	7/8	62	77
FLCNA-ZF11-CFV	ZF11KQE-PFV-551	7.9	570/680	515	7/8	1/2	7/8	7/8	62	77
FLCNA-ZF13-TF7	ZF13KQE-TF7-551	7.9	570/680	546	7/8	1/2	7/8	7/8	73	88
FLCNA-ZF15-TF7	ZF15KQE-TF7-551	7.9	570/680	546	1 1/8	1/2	7/8	7/8	73	88
FLCPA-ZF18-TF7	ZF18KQE-TF7-551	7.9	610/725	546	1 1/8	1/2	1-1/8	1-1/8	76	91

Electrical data

Condensing unit model	Compressor model	Compressor maximum operating current	Compressor locked rotor current (A)
FMCKA-ZS 11-TF7	ZS11KAE-TF7-600	3.9	29
FMCKA-ZB 15-TF7	ZB15KQE-TF7-559	5.1	27
FMCKA-ZB 19-TF7	ZB19KQE-TF7-559	6.0	30
FMCNA-ZB 21-TF7	ZB21KQE-TF7-559	7.2	39
FMCNA-ZB 26-TF7	ZB26KQE-TF7-559	8.8	41
FMCNA-ZB 29-TF7	ZB29KQE-TF7-559	10.0	54
FMCNA-ZB 38-TF7	ZB38KQE-TF7-559	13.0	64
FMCPA-ZB 45-TF7	ZB45KQE-TF7-559	13.1	70
FLCKA-ZF 06-CFV	ZF06KQE-PFV-551	17.1	61
FLCNA-ZF 09-CFV	ZF09KQE-PFV-551	20.2	88
FLCNA-ZF 11-CFV	ZF11KQE-PFV-551	24.7	109
FLCNA-ZF 13-TF7	ZF13KQE-TF7-551	10.0	57
FLCNA-ZF 15-TF7	ZF15KQE-TF7-551	12.0	64
FLCPA-ZF 18-TF7	ZF18KQE-TF7-551	14.0	70



About Copeland

Copeland, a global provider of sustainable climate solutions, combines category-leading brands in compression, controls, software and monitoring for heating, cooling and refrigeration. With best-in-class engineering and design and the broadest portfolio of modulated solutions, we're not just setting the standard for compressor leadership; we're pioneering its evolution. Combining our technology with our smart energy management solutions, we can regulate, track and optimize conditions to help protect temperature-sensitive goods over land and sea, while delivering comfort in any space. Through energy-efficient products, regulation-ready solutions and expertise, we're revolutionizing the next generation of climate technology for the better.

To learn more, visit copeland.com

(11/23) Copeland F-Series water-cooled scroll units - 60Hz

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