



60 Hz F-series water-cooled scroll units

Product catalogue

COPELAND™


EMERSON™



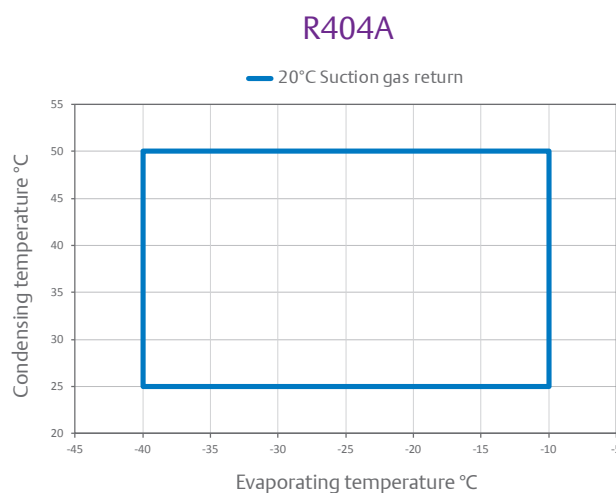
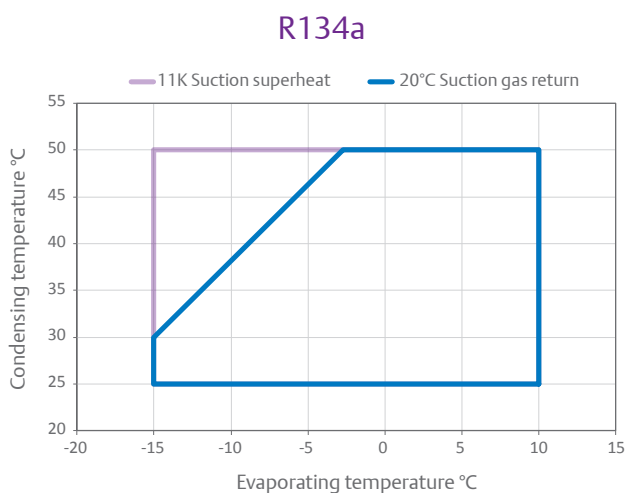
Emerson is a pioneer in scroll compressors. Its leading brand Copeland Scroll™ already has over 100 million units installed worldwide. Scroll compressor has lesser moving parts as compared to a reciprocating compressor. This enables Emerson’s scroll water cooled condensing unit to offer compact design, 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
- Water valve
- Pre-wired electrical junction box
- Copeland Scroll compressor
 - Proven reliability
 - Lower sound levels and pulsations
 - Dual compliance for superior efficiency and better liquid handling



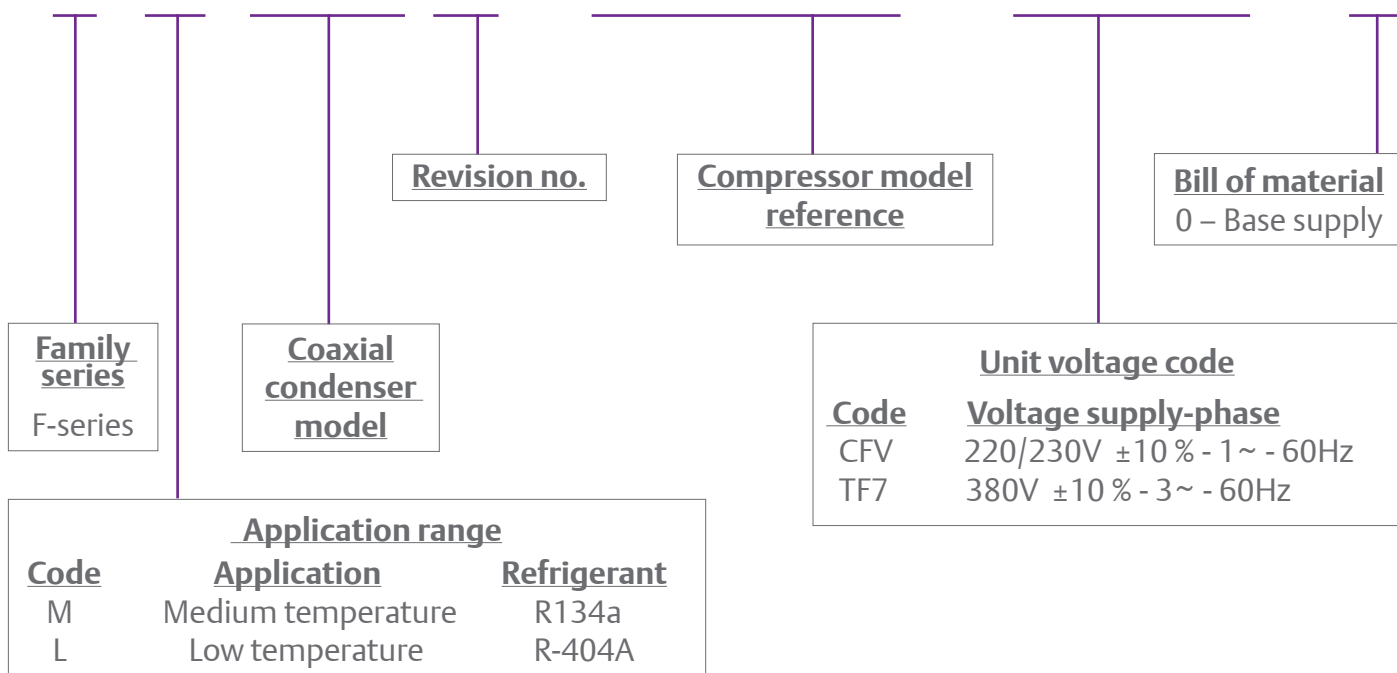
Envelopes





Nomenclature

F M C K A - Z S 1 1 - T F M - 0



Performance data

Medium temperature

R134a

Condensing unit model	Condensing temperature (°C)	Capacity (kW)					Power Input (kW)				
		Evaporating temperature (°C)									
		-15	-10	-5	0	5	-15	-10	-5	0	5
FMCKA-ZS 11-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-ZB 15-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-ZB 19-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-ZB 21-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-ZB 26-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-ZB 29-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-ZB 38-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-ZB 45-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

 11 K suction superheat

Fluid data

Medium temperature

R134a

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-ZS 11-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-ZB 15-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-ZB 19-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-ZB 21-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-ZB 26-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-ZB 29-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-ZB 45-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

Performance data

Low temperature

R404a

Condensing unit model	Condensing temperature (°C)	Capacity (kW)						Power Input (kW)					
		Evaporating temperature (°C)											
		-40	-35	-30	-25	-20	-15	-40	-35	-30	-25	-20	-15
FLCKA-ZF 06-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-ZF 09-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-ZF 11-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-ZF 13-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-ZF 15-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-ZF 18-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

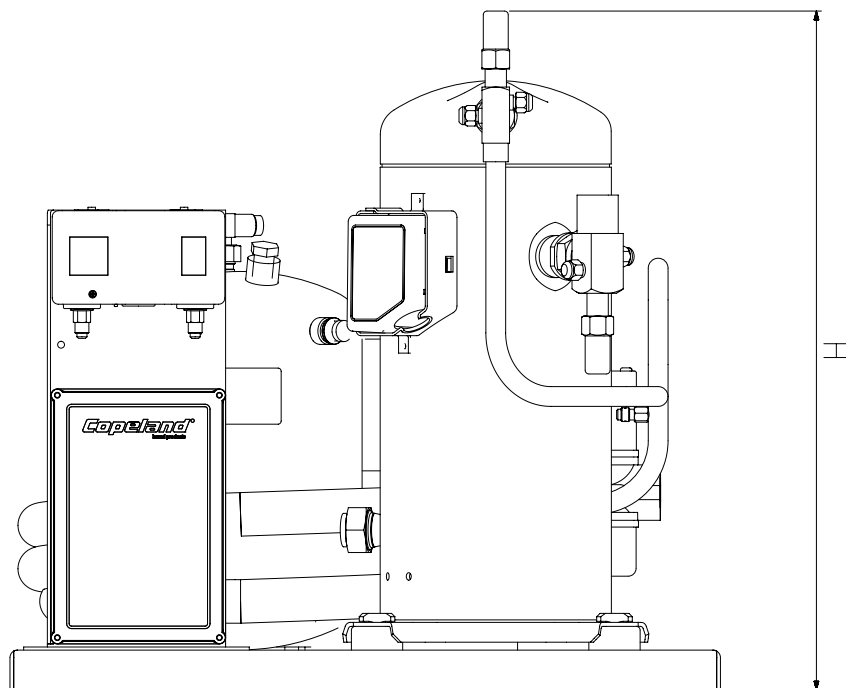
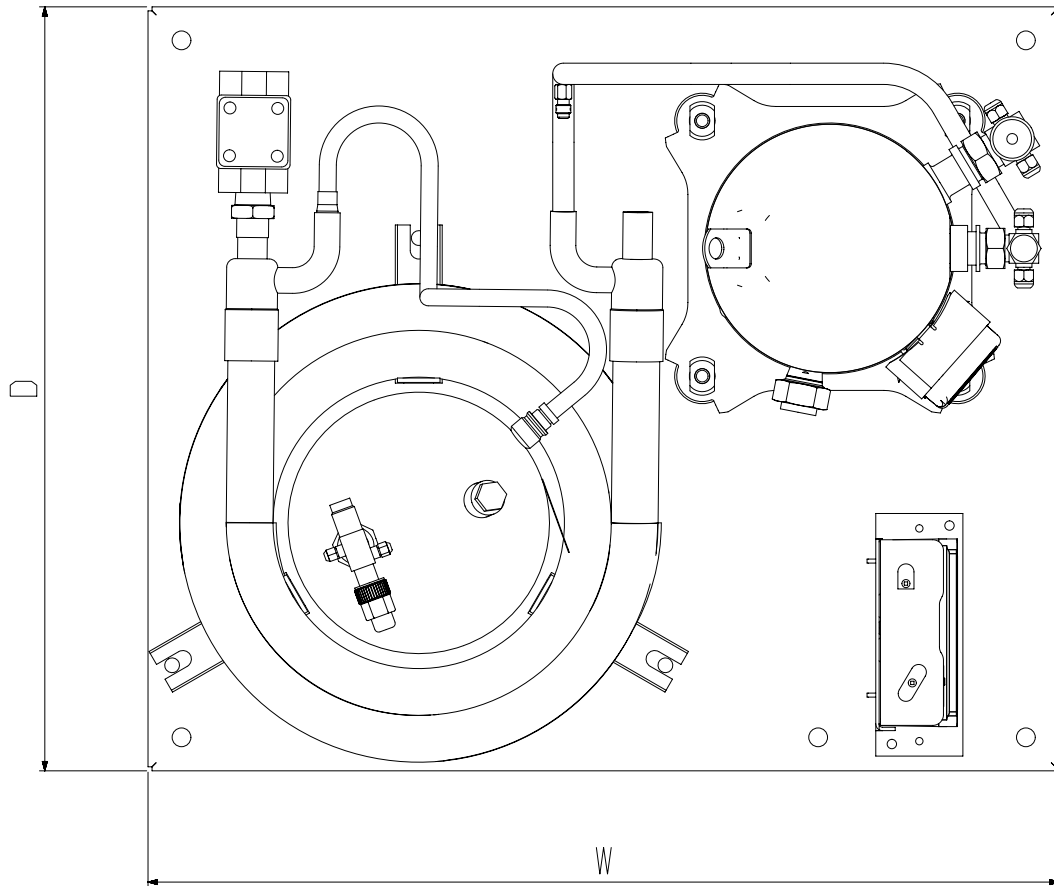
Fluid data

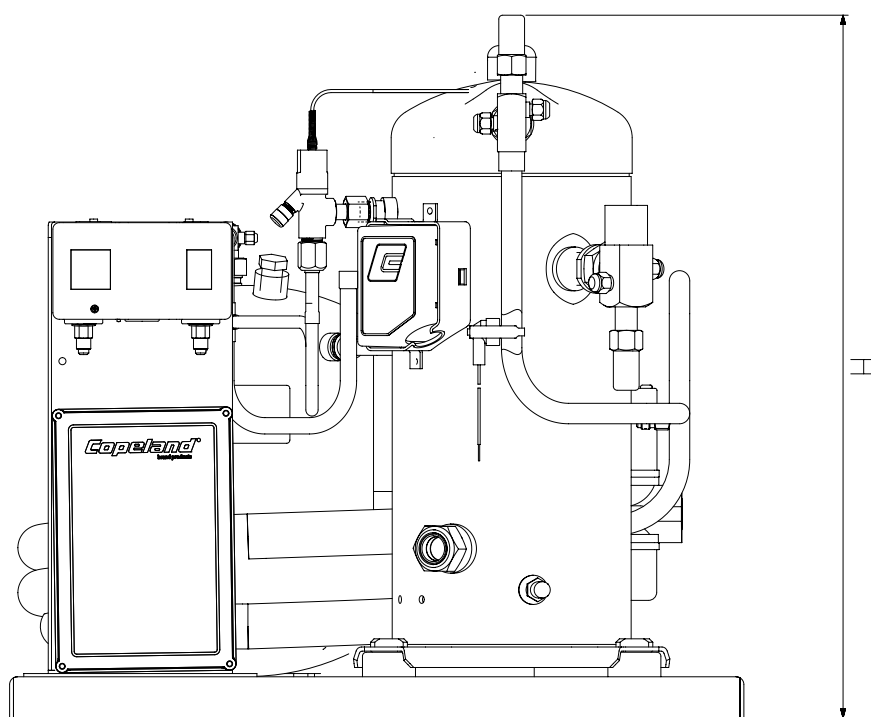
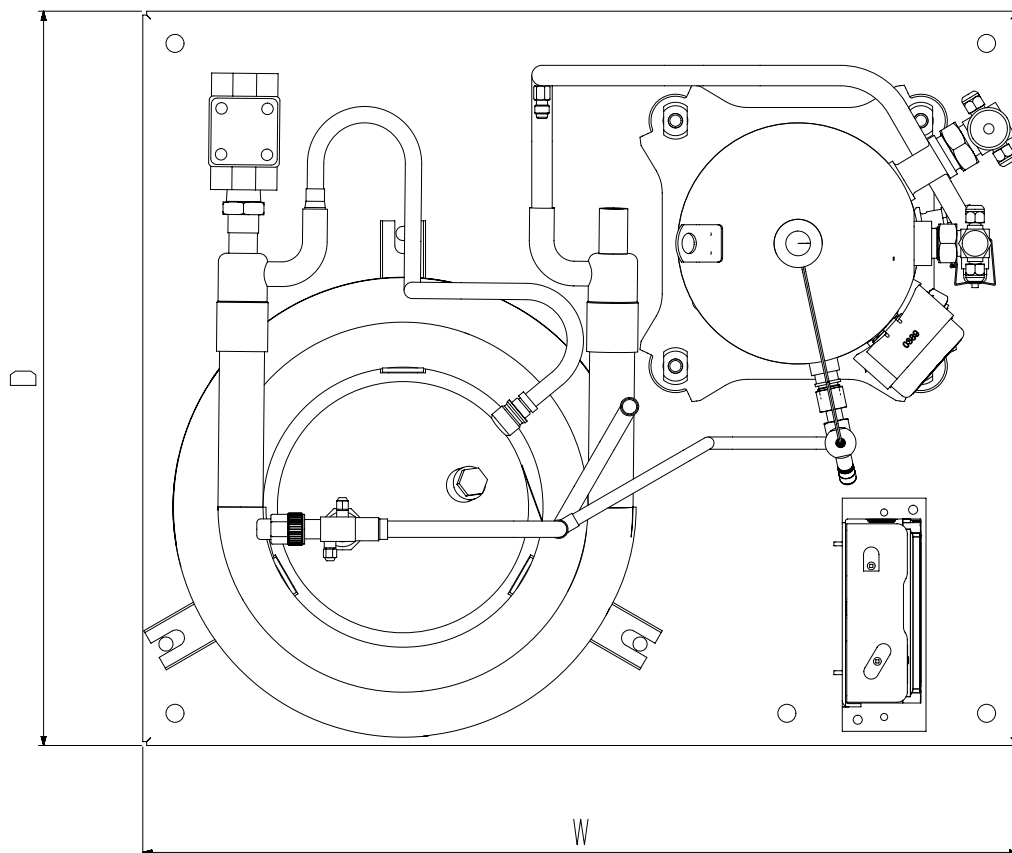
Low temperature

R404a

Condensing unit model	Condensing temperature (°C)	Water flow rate (l/s)						Pressure drop (kPa)					
		Evaporating temperature (°C)											
		-40	-35	-30	-25	-20	-15	-40	-35	-30	-25	-20	-15
FLCKA-ZF 06-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-ZF 09-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-ZF 11-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-ZF 13-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-ZF 15-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-ZF 18-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 FPT (")	Water outlet ODF (")	Net weight (kg)	Gross weight (kg)
FMCKA-ZS 11-TF7	ZS11KAE-TF7-600	3.9	460/610	495	5/8	1/2	3/8	5/8	39	49
FMCKA-ZB 15-TF7	ZB15KQE-TF7-559	3.9	460/610	471	3/4	1/2	3/8	5/8	42	52
FMCKA-ZB 19-TF7	ZB19KQE-TF7-559	3.9	460/610	471	7/8	1/2	3/8	5/8	44	54
FMCNA-ZB 21-TF7	ZB21KQE-TF7-559	7.9	570/680	496	7/8	1/2	3/4	7/8	60	75
FMCNA-ZB 26-TF7	ZB26KQE-TF7-559	7.9	570/680	510	7/8	1/2	3/4	7/8	62	77
FMCNA-ZB 29-TF7	ZB29KQE-TF7-559	7.9	570/680	527	1 1/8	1/2	3/4	7/8	66	81
FMCNA-ZB 38-TF7	ZB38KQE-TF7-559	7.9	570/680	545	1 1/8	1/2	3/4	7/8	71	86
FMCPA-ZB 45-TF7	ZB45KQE-TF7-559	7.9	610/725	555	1 1/8	1/2	3/4	1-1/8	76	91
FLCKA-ZF 06-CFV	ZF06K4E-PFV-551	3.9	460/610	477	3/4	1/2	3/8	5/8	45	55
FLCNA-ZF 09-CFV	ZF09K4E-PFV-551	7.9	570/680	501	3/4	1/2	3/4	7/8	62	77
FLCNA-ZF 11-CFV	ZF11K4E-PFV-551	7.9	570/680	515	7/8	1/2	3/4	7/8	62	77
FLCNA-ZF 13-TF7	ZF13KQE-TF7-551	7.9	570/680	546	7/8	1/2	3/4	7/8	73	88
FLCNA-ZF 15-TF7	ZF15KQE-TF7-551	7.9	570/680	546	1 1/8	1/2	3/4	7/8	73	88
FLCPA-ZF 18-TF7	ZF18KQE-TF7-551	7.9	610/725	546	1 1/8	1/2	3/4	1-1/8	76	91

Note: Maximum water pressure : 10 bar

Electrical data

Condensing unit model	Compressor model	Compressor maximum operating current (A)	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	ZF06K4E-PFV-551	17.1	61
FLCNA-ZF 09-CFV	ZF09K4E-PFV-551	20.2	88
FLCNA-ZF 11-CFV	ZF11K4E-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

Contact list

United Arab Emirates

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