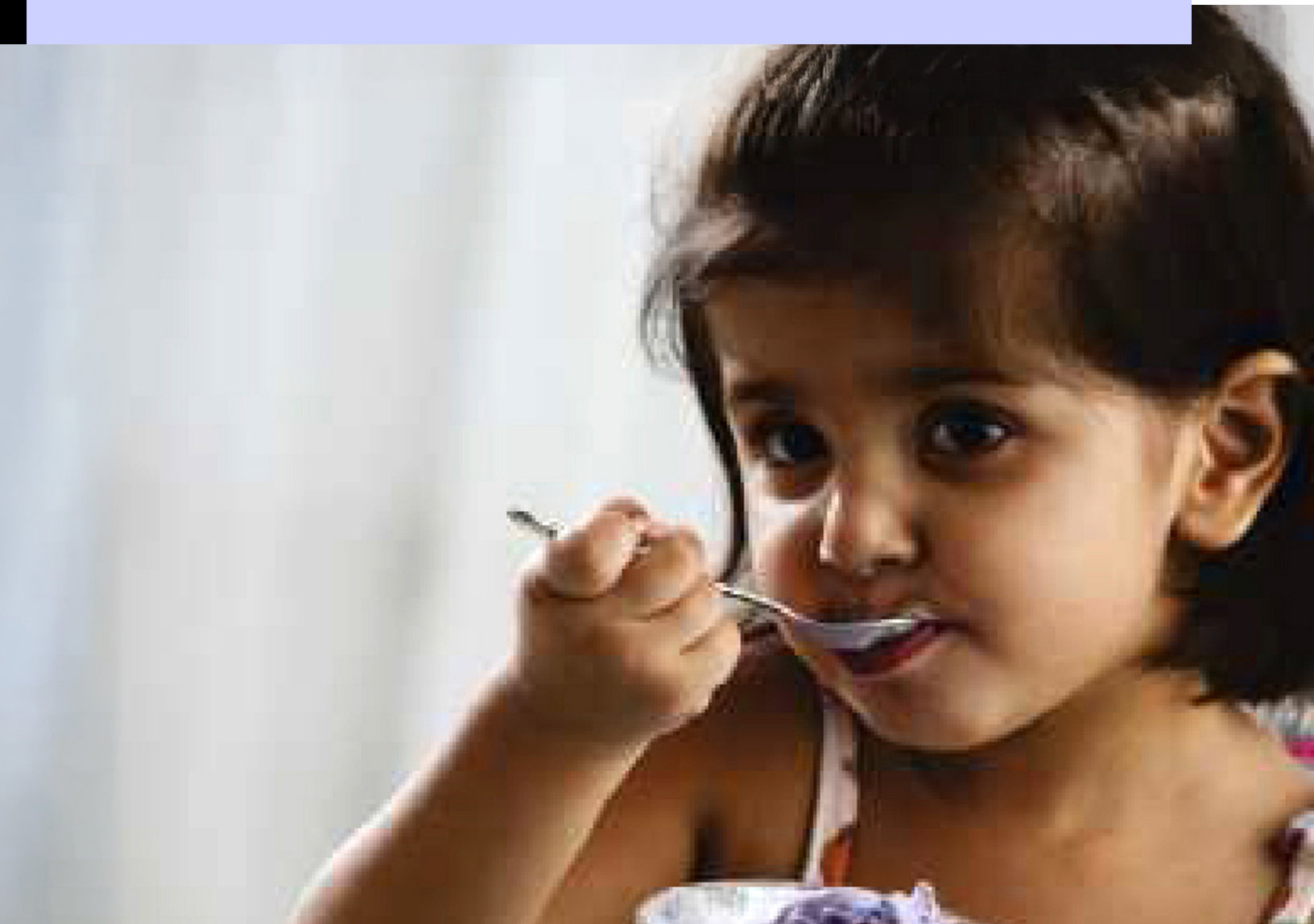


Appliance cross reference data for hermetic reciprocating compressor



Dear Customer,

Greetings from Copeland!

This ready reckoner is intended to serve as a quick reference guide for refrigeration system component sizing. We strongly recommend the users to look at these details as a **‘starting point’**, while building new refrigeration appliances. The system needs to be qualified in a test room with controlled ambient temperature and product load conditions to finalize the system component specs.

System details mentioned in this folder are initial recommendations and may need fine-tuning for optimum appliance performance. For standard appliances, the optimum system operating parameters are provided at appropriate places, for reference.

Other than the evaporator and condenser sizing, using the correct length of capillary tubing and appropriate amount of refrigerant charge becomes a critical element of system balancing.



We recommend the users to start with the capillary tubing suggested in this folder and suitably balance the refrigeration system, following below guideline:

Observed parameters			System problem
High superheat	Low sub cooling	-	Low charge
Low superheat	High sub cooling	-	High charge
High superheat	High sub cooling	-	Capillary tube to restrictive
Low superheat	Low sub cooling	Higher evaporating temperature	Capillary tube not restrictive enough
Low superheat	Low sub cooling	Low evaporating temperature	Inadequate indoor coil or air flow

For any more clarifications or support, please contact your nearest Copeland sales representative or technical help desk on 1-800-209-1700.

Warm regards,

Technical support team

Color scheme of refrigerants





ECZ hermetic reciprocating compressor

Copeland’s next generation refrigeration solutions

Copeland’s fractional horse power compressors are known in India, for more than four decades, for their wide range, ease of application, efficiency, reliability and excellent after-sales service—including “repair services” even beyond warranty period.

It has been our endeavor to continuously innovate and offer enhanced product value to be the best in the world. These meet varied cooling needs of our customers in both domestic and exports market.

ECZ Platform comprises 7 compressor models which are in the range of 0.18 to 0.37HP.

ECZ compressor features—

- 10% plus energy efficient
- Compact shape
- Dual frequency- motor capability
- Unique mount on accessories
- CB certified models
- Low running cost
- High product quality andreliability
- Opportunity to optimise appliance cost

Water cooler

Next gen. ECZ R134a models	ECZ421HG-11B	ECZ444HG-11M ECZ434HG-11M	-	-	-	-	-
Current R134a models	KCE419HAG	KCE444HAG KCJ444HAG	KCJ467HAG KCN463HAG	KCJ498HAG	KCM511CAL	KCM514CAL [#]	KCM522CAL [#]
R22 models	-	KCE443HAE	KCE461HAE	KCJ511HAE [#]	KCJ513HAE [#]	CR22K6M [#]	CR30K6M [#]
*Capacity ltrs./hr.	20	40	60	100	150	200	300
Condenser size (inch) (length x height) 3/8" O.D. tube 10-12 FPI	9 x 9 x 2 rows	11 x 10 x 3 rows	13 x 12 x 3 rows	18 x 15 x 2 rows	22 x 16 x 2 rows	22 x 16 x 3 rows	22 x 16 x 4 rows
Condenser fan motor	1/83 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/20 HP x 1,350 RPM	1/20 HP x 930 RPM	1/12 HP x 930 RPM	1/5 HP x 930 RPM	1/4 HP x 1,350 RPM
Condenser fan	8" DIA X 4 blade	9" DIA X 4 blade	10" DIA X 4 blade	12 1/2" DIA X 6 blade	15" DIA X 6 blade	15" DIA X 6 blade	15" DIA X 6 blade
Evaporator size O.D tube (inch) x length (ft.)	5/16 x 30	3/8 x 50	3/8 x 70	3/8 x (45 x 2 circuit)	3/8 x (65 x 2 circuit)	3/8 x (95 x 2 circuit)	3/8 x 125 x 2 circuit)
Capillary tube (for ECZ/current model) bore x length	0.050" x 10 ft. x 1 NO.	ECZ 0.055" x 4 ft. x 1 NO./ current-0.050" x 5 ft. x 1 NO.	0.050" x 5 ft. x 2 NO.	0.055" x 39" x 2 NO.	0.055" x 31" x 2 NO.	0.064" x 29" x 2 NO.	0.064" x 28" x 2 NO.

[#]Capacity as per IS 1475 Standard.

Note: [#]While using these compressor models in storage type water coolers, start capacitors and start relay need not to be used.



Copeland controller model—XR02CX
(suitable for all above compressor models)



Chest type bottle cooler

No. of 250 ml bottles	120-140	150-200	220-250	260-310	360-430	650-800
Cabinet volume (ltrs.)	110-120	130-160	200-220	240-260	330-360	700-800
Condenser size (inch) (length x height) 3/8" O.D. Tube 10-12FPI	9 x 9 x 2 rows	10 x 11 x 2 rows	10 x 9 x 3 rows	13 x 12 x 2 row (or) 11" x 10 x 3 rows	13 x 12 x 3 rows	14 x 14 x 4 rows
Condenser fan motor	1/83 HP x 1,350 RPM	1/50 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/20 HP x 1,350 RPM	1/20 HP x 1,350 RPM
Condenser fan	8" DIA	10" DIA	8" DIA	10" DIA	10" DIA	12" DIA
Evaporator size O.D tube (inch) x length (ft.)	5/16 x 30	5/16 x 40	3/8 x 50	3/8 x 60	3/8 x 85	3/8 x (70 x 2 circuit)
Capillary tube bore x length	0.044" x 10 ft. x 1 NO.	0.044" x 10 ft. x 1 NO.	0.046" x 9 ft. x 1 NO.	0.050" x 8 ft. x 1 NO.	0.050" x 8 ft. x 1 NO.	0.050" x 55" x 2 NO.



Copeland controller model—XR02CX
(suitable for all above compressor models)



Typical system operating parameters

Parameters	R134a		R22		R404A	
Ambient temperature (°C)	35	43	35	43	35	43
Suction pressure (psig) (bar)	18 to 20 1.2 to 1.3	30 to 32 2 to 2.2	40 to 43 2.7 to 3	55 3.8	50 to 55 3.4 to 3.8	65 4.4
Discharge pressure (psig) (bar)	164 to 174 11 to 12	187 to 199 12.7 to 13.7	280 to 290 19 to 20	380 26	355 24	455 31
Return gas temperature (°C)	16	21	10 to 13	21	13 to 15	24
*Top shell temperature (°C)	43 to 60	49 to 71	36 to 46	50 to 56	38 to 48	52 to 58

^{*}Shell temp. could slightly vary with different platform models like KCJ, KCN, KCE

Air conditioner

R22 models	KCJ511HAE	KCJ513HAE	CR22K6M	CR30K6M
Cooling capacity	0.75 TR	1 TR	1.5 TR	2 TR
Condenser size (inch) (length x height) 3/8" O.D.Tube 13 FPI	18" x 15" x 2 rows	22" x 16" x 2 rows	22" x 16" x 3 rows	22" x 16" x 4 rows
Condenser fan motor	1/12 HP x 930 RPM	1/10 HP x 930 RPM	1/5 HP x 930 RPM	1/4 HP x 1,350 RPM
Condenser fan	12 1/2" DIA. x 6 blade	13 1/2" DIA x 6 blade	16" DIA x 6 blade	16" DIA x 6 blade
Evaporator/condenser air flow qty.	300/600 CFM	375/750 CFM	450/940 CFM	625/1,200 CFM
Evaporator size (inch) (length x height) 3/8" O.D.Tube 13 FPI	14 x 14 x 2 rows	15 x 15 x 2 rows	15 x 15 x 3 rows	15 x 15 x 4 rows
Evaporator blower	7" DIA x 3 1/4"W	7" DIA x 3 1/4"W	8 1/2" DIA x 4" W	8 1/2" DIA x 4"W
Capillary tube bore x length	0.055" x 22" x 1 NO. (or) 0.055" x 40" x 2 NO.	0.055" x 32" x 2 NO.	0.064" x 30" x 2 NO.	0.064" x 28" x 2 NO.



Copeland controller model—IC200CX
(suitable for all above compressor models)



Typical system operating parameters

Parameters	R22	
Ambient temperature (°C)	35	43
Suction pressure (psig) (bar)	70 to 72 4.8 to 4.9	85 5.8
Discharge pressure (psig) (bar)	280 to 290 19 to 20	380 26
Return gas temperature (°C)	10 to 13	21
*Top shell temperature (°C)	35 to 46	50 to 56

*Shell temp. could slightly vary with different platform models like KCJ, CR

Deep freezer

Next gen. ECZ R134a models	ECZ380LG-11M	-	ECZ416LG-13M	-	-	-
Current R134a models	KCN372LAG	KCJ412LAG	KCN415LAG	- KCJ423LAG		-
	KCN396LAG	KCN411LAG				
R404A models	-	-	KCN414LAL	KCN418LAL	KCN422LAL KCJ430LAL	KCJ450LAL
*Nominal capacity hard top (ltrs.)	300/400	450	500	600	800/1,100	1,800
*Nominal capacity glass top (ltrs.)	200/300	300	400	500	700/1,000	1,700
Condenser size (inch) (length x height) 3/8" O.D.Tube 13 FPI	9 x 9 x 2 rows	11 x 10 x 2 rows	13 x 13 x 2 rows	13 x 13 x 3 rows	14 x 14 x 4 rows	18 x 16 x 4 rows
Condenser fan motor	1/83 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/20 HP x 1,350 RPM	1/5 HP x 1,350 RPM
Condenser fan	9" DIA	9" DIA	9" DIA	12" DIA	12" DIA	15" DIA
Evaporator size O.D tube (inch) x length (ft.)	5/16 x 30	3/8 x 60	3/8 x 95	3/8 x 95	3/8 x (65 x 2 circuit)	1/2 x (100 x 2 circuit)
Capillary tube (for ECZ/current model) bore x length	ECZ 0.036" x 10' x 1 NO./ current 0.031" x 12' x 1 NO.	0.036" x 12' x 1 NO.	ECZ 0.036" x 13' x 1 NO./ legacy 0.044" x 8' x 1 NO.	0.050" x 8' x 1 NO.	0.050" x 10' x 1 NO.	0.044" x 10' x 2 NO.

Note: *These compressors can also be suitable for slightly higher capacity deep freezers with very effective insulation, high conductivity inner cabinet material, good evaporator bonding & a very well balanced refrigeration system.



Copeland controller model—XR02CX (off cycle defrost)
(suitable for all above compressor models)



Typical system operating parameters

Parameters	R134a		R404A	
Ambient temperature (°C)	32	43	32	43
Suction pressure (psig) (bar)	1 to 2 0 to 0.1	0 to 5 0 to 0.3	22 to 24 1.5 to 1.6	21 to 31 1.4 to 2.1
Discharge pressure (psig) (bar)	160 11	175 to 190 12 to 13	293 20	316 to 340 22 to 23
Return gas temperature (°C)	10	18.3	10	18.3
*Top shell temperature (°C)	66	77	66	77

*Shell temp. could slightly vary with different platform models like KCJ, KCN

Visi cooler

No. of case (ltrs.)	2 (70-120)	4 (220-260)	7 (350-400)	9 (400-650)	9 (850)
Condenser size (inch) (length x height) 3/8"O.D. tube 6-11 FPI	10 x 9 x 2 rows	11 x 10 x 2 rows	10 x 9 x 3 rows	11 x 10 x 3 rows	13 x 12 x 3 rows
Condenser fan motor	1/83 HP x 1,350 RPM	1/50 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/20 HP x 1,350 RPM
Condenser fan	8" DIA	9" DIA	8 "DIA x 5 blade	9 "DIA x 5 blade	12 "DIA x 4 blade
Evaporator size inch) (length x height) 3/8"O.D. tube, 6-11 FPI	11 x 10 x 2 rows	12 x 11 x 2 rows	14 x 12 x 2 rows	17 x 14 x 2 rows	17 x 14 x3 rows
Capillary tube bore x length	0.044" x 10' x 1 NO.	0.044" x 10' x 1 NO.	0.046" x 9' x 1 NO.	0.050" x 7' x 1 NO.	0.050" x 8' x 1 NO.



Typical system operating parameters

Parameters	R134a	
Ambient temperature (°C)	35	43
Suction pressure (psig) (bar)	18 to 20 1.2 to 1.3	30 to 32 2 to 2.2
Discharge pressure (psig) (bar)	164 to 174 11 to 12	187 to 199 12.7 to13.7
Return gas temperature (°C)	16	21
*Top shell temperature (°C)	43 to 60	49 to 71

*Shell temp. could slightly vary with different platform models like, KCJ, KCN, KCE

Pastry cooler

Pastry cooler size (ft.)	2'	3'	4'	5'-6'
Cabinet volume(ltrs.)	110-120	240-260	300-360	450-600
Condenser size (inch) (length x height) 3/8" O.D. tube 10-12 FPI	9 x 9 x 2 rows	13 x 12 x 2 rows (or) 11 x 10 x 3 rows	13 x 12 x 3 rows	14 x 14 x 4 rows
Condenser fan motor	1/83 HP x 1,350 RPM	1/36 HP x 1,350 RPM	1/20 HP x 1,350 RPM	1/20 HP x 1,350 RPM
Condenser fan	8" DIA	10" DIA	10" DIA	12" DIA
Evaporator size O.D. tube (inch) x length (ft.)	5/16 x 30	3/8 x 60	3/8 x 85	3/8 x (70 x 2 circuit)
Capillary tube bore x length	0.044" x 10 ft x 1 NO.	0.050" x 8 ft x 1 NO. For KCE443HAE 0.055" x 55" x 1 NO.	0.050" x 8 ft x 1 NO.	0.050" x 8 ft x 1 NO.



Typical system operating parameters

Parameters	R134a		R22		R404A	
Ambient temperature (°C)	35	43	35	43	35	43
Suction pressure (psig) (bar)	18 to 20 1.2 to 1.3	30 to 32 2 to 2.2	40 to 43 2.7 to 3	55 3.8	50 to 55 3.4 to 3.8	65 4.4
Discharge pressure (psig) (bar)	164 to 174 11 to 12	187 to 199 12.7 to13.7	280 to 290 19 to 20	380 26	355 24	455 31
Return gas temperature (°C)	16	21	10 to 13	21	13 to 15	24
*Top shell temperature (°C)	43 to 60	49 to 71	36 to 46	50 to 56	38 to 48	52 to 58

*Shell temp. could slightly vary with different platform models like KCJ, KCN, KCE

Panel cooler

Next gen. ECZ R134a models	ECZ421HG-11B	ECZ426HG-11M	ECZ431HG-11M
Current R134a models	KCE419HAG	KCE425HAG	KCE425HAG
*Panel cooler capacity (watt)	450	600	700
Condenser size (inch) (length x height) 1/4" O.D. tube10-12 FPI	9 x 5 x 4 rows	9 x 5 x 4 rows	8 x 7 x 3 rows
Condenser fan motor	1/20 HP x 1,350 RPM	1/20 HP x 1,350 RPM	1/20 HP x 1,350 RPM
Condenser fan	5" DIA	5" DIA	5" DIA
Evaporator size (inch) (length x height) 5/16" O.D Tube 13 FPI	11 x 2 x 4 rows	11 x 2 x 4 rows	8 x 6 x 3 rows
Capillary tube (for ECZ/legacy model) bore x length	0.050" x 30' x 1 NO.	0.050" x 30' x 1 NO.	0.044" x 48" x 1 NO.

Note: *Panel cooler desired temperature = 28°C



Copeland controller model—XR02CX
(suitable for all above compressor models)



Typical system operating parameters

Parameters	R134	
Ambient temperature (°C)	35	43
Suction pressure (psig) (bar)	45 to 50 3.1 to 3.4	58 to 63 4.1 to 4.3
Discharge pressure (psig) (bar)	170 to 180 11.7 to 12.4	190 to 200 13.7 to 13.8
Return gas temperature (°C)	18 to 20	22 to 25
*Top shell temperature (°C)	41 to 44	47 to 55

Cold room (+4°C room temperature)

Next gen. ECZ R134a models	KCM511CAL	KCM511CAL	KCM514CAL	KCM522CAL	-	-	-
R22 models	KCJ513HAE	CR22K6M	CR30K6M	CR36K6M	CR42K6M	CR53KQM	CR62KQM
R404A models	KCJ484CAL	KCM511CAL	KCM514CAL	KCM519CAL	KCM522CAL	-	-
App. room size* (ft.)	10 x 6 x 8	10 x 10 x 8	12 x 12 x 8	18 x 12 x 8	18 x 16 x 8	20 x 20 x 8	20 x 32 x 8
Condenser size (inch) (length x height) 3/8" O.D. tube 6-11 FPI	20 x 16 x 3 rows	22 x 18 x 3 rows	22 x 20 x 3 rows	22 x 20 x 4 rows	24 x 22 x 4 rows	26 x 24 x 4 rows	26 x 26 x 4 rows
Condenser fan	14" DIA, 1,300 RPM	14" DIA, 1,300 RPM	14" DIA, 1,300 RPM	15" DIA, 1,400 RPM	15" DIA, 1,400 RPM X 2 NO.	16" DIA, 1,400 RPM X 2 NO.	15" DIA, 1,800 RPM X 2 NO.
Evaporator size (inch) (length x height) 3/8" O.D Tube 6-8 FPI	22 x 16 x 4 rows	22 x 20 x 4 rows	24 x 22 x 4 rows	26 x 24 x 4 rows	28 x 26 x 4 rows	30 x 28 x 4 rows	32 x 29 x 4 rows
Evaporator airflow qty.	1,150 CFM	1,450 CFM	1,750 CFM	2,000 CFM	2,300 CFM	2,600 CFM	2,900 CFM
TXV (alco make)	R134a-TIE-MW (Orifice 001)	R134a-TIE-MW (Orifice 001)	R134a-TIE-MW (Orifice 002)	R134a-TIE-MW (Orifice 003)	-	-	-
	R22-TIE-MW (Orifice 001)	R22-TIE-MW (Orifice 001)	R22-TIE-MW (Orifice 002)	R22-TIE-MW (Orifice 002)	R22-TIE-MW (Orifice 003)	R22-TIE-MW (Orifice 004)	R22-TIE-MW (Orifice 004)
	R404A-TIE-MW (Orifice 002)	R404A-TIE-MW (Orifice 002)	R404A-TIE-MW (Orifice 002)	R404A-TIE-MW (Orifice 003)	R404A-TIE-MW (Orifice 003)	-	-

*These are preliminary room sizes for cold room. Please verify the product load and select suitable compressor model.



Copeland controller model—XR02CX
(suitable for all above compressor models)



Softy ice cream machine

Next gen. ECZ R134a models	KCJ423LAG	-	-	-	-	-
R404A models	KCJ430LAL	KCJ450LAL	KCM511CAL	KCM514CAL	KCM519CAL	KCM522CAL
Capacity of churner (ltrs.)	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	30 to 40
Condenser size (inch) (length x height) 3/8" O.D. tube 13 FPI	14 x 14 x 4 rows	18 x 16 x 4 rows	22 x 18 x 3 rows	22 x 18 x 4 rows	22 x 20 x 4 rows	24 x 22 x 4 rows
Condenser fan	12" DIA, 1,350 RPM	14 DIA, 1,350 RPM	16" DIA, 1,300 RPM	16" DIA, 1,300 RPM	18" DIA, 1,400 RPM	18" DIA, 1,400 RPM
Evaporator size O.D tube (inch) x length (ft.)	1/2 x 15	1/2 x 25	1/2 x 30	1/2 x 40	1/2 x 54	1/2 x 60
Capillary tube bore x length	0.050" x 7 ft. x 2 NO.	0.060" x 6 ft. x 2 NO.	0.060" x 6 ft. x 2 NO.	0.060" x 5 ft. 6" x 2 NO.	0.060" x 5 ft. x 2 NO.	0.060" x 4 ft. 6" x 2 NO.



Copeland controller model—XR02CX (suitable for all above compressor models)



Water chiller

Next gen. R134a models	-	KCM519CAL	KCM522CAL	-	-	-	-	-	-	-
R22 models	-	CR22K6M	CR30K6M	CR36K6M	CR42K6M	CR47KQM	CR53KQM	CR57KQM	CR62KQM	CR72KQM
R404A models	KCJ484CAL	KCM511CAL	KCM514CAL	KCM519CAL	KCM522CAL	-	-	-	-	-
Approx. chilled water flow rate (LPH)*	600	830	1,000	1,400	1,600	1,800	2,000	2,200	2,400	2,600
Compressor capacity # (btu/Hr.)	-	15,528	17,822	-	-	-	-	-	-	-
	-	16,200	21,800	25,900	31,100	36,100	40,648	42,600	47,000	52,240
	11,412	16,500	21,400	27,200	31,500	-	-	-	-	-
Condenser size (inch)(length x height) 3/8" O.D. tube 13 FPI	20 x 16 x 3 rows	22 x 18 x 3 rows	22 x 20 x 3 rows	22 x 20 x 4 rows	24 x 22 x 4 rows	34 x 28 x 3 rows	34 x 32 x 3 rows	33 x 26 x 4 rows	36 x 26 x 4 rows	40 x 26 x 4 rows
Condenser fan	14" DIA, 1,300 RPM	14" DIA, 1,300 RPM	15" DIA, 1,300 RPM	15" DIA, 1,400 RPM	18" DIA, 1,400 RPM	16" DIA, 1,400 RPM	16" DIA, 1,400 RPM X 2 NO.	16" DIA, 1,800 RPM X 2 NO.	16" DIA, 1,800 RPM X 2 NO.	19" DIA, 1,800 RPM X 2 NO
Evaporator type	Select suitable model of BPHE/Shell & Tube HE from your known reliable source									
Coil in tank type evaporator length (ft.) x O.D tube (inch)	130 x 3/8 (65 x 2 circuit)	200 x 3/8 (100 x 2 circuit)	260 x 3/8 (130 x 2 circuit)	330 x 3/8 (82 x 4 circuits)	400 x 3/8 (100 x 4 circuits)	460 x 3/8 (115 x 4 circuits)	520 x 1/2 (130 x 4 circuits)	580 x 1/2 (145 x 4 circuits)	640 x 1/2 (160 x 4 circuits)	700 x 1/2 (175 x 4 circuits)
Thermostatic expansion valve (alco make)	-	R134a-TIE-MW (Orifice 003)	R134a-TIE-MW (Orifice 003)	-	-	-	-	-	-	-
	R22-TIE-HW (Orifice 001)	R22-TIE-HW (Orifice 002)	R22-TIE-HW (Orifice 003)	R22-TIE-HW (Orifice 003)	R22-TIE-HW (Orifice 003)	R22-TIE-HW (Orifice 003)	R22-TIE-HW (Orifice 004)	R22-TIE-HW (Orifice 004)	R22-TIE-HW (Orifice 004)	R22-TIE-HW (Orifice 005)
	R404A-TIE-SW (Orifice 002)	R404A-TIE-SW (Orifice 003)	R404A-TIE-SW (Orifice 003)	R404A-TIE-SW (Orifice 004)	R404A-TIE-SW (Orifice 004)	-	-	-	-	-



Copeland controller model—XR02CX (suitable for all above compressor models)



#Rating conditions—Evaporating temp. = 4.4°C, Condensing temp. = 54.4°C
Sub cooling=8.3K, Return gas temp.=35°C
*Water inlet temperature: 15°C
Water outlet temperature: 10°C

Ice candy machine

Appliance size (no. of candies of 60 ml/day)	2,350	4,000	6,000	12,000
Condenser size (inch) (length x height) 3/8" O.D. tube 10-12 FPI	18 x 16 x 4 rows	22 x 16 x 4 rows	25 x 22 x 3 rows	36 x 32 x 3 rows
Condenser fan motor	1/15 HP x, 1,350 RPM	1/12 H.P x 1,100 RPM	1/10 H.P x 1,350 RPM	1/6 H.P x 1,350 RPM
Condenser fan	15" DIA	16" DIA	18" DIA	20" DIA
Evaporator size O.D tube (inch) x length (ft.)	3/8" O.D. (75' + 75')	1/2" O.D. (100' + 100')	1/2" O.D. (130' + 130')	1/2 O.D. (225' + 225')
Capillary tube bore x length	0.050" x 8' x 1 NO.	0.060" x 7' x 2 NO.	0.064" x 10' x 2 NO.	0.090" x 12' x 2 NO.



Copeland controller model—XR02CX/XR06CX (off cycle defrost) (suitable for all above compressor models)



Typical system operating parameters

Parameters	R404A	
Ambient temperature (°C)	32	43
Suction pressure (psig) (bar)	(22 to 24) 1.5 to 1.6	(21 to 31) 1.4 to 2.1
Discharge pressure (psig) (bar)	(293) 20	(316 to 340) 22 to 23
Return gas temperature (°C)	10	18.3

*Top shell temperature (°C)	62 to 67	72 to 78
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*Shell temp. could slightly vary with different platform models like KCJ, KCM

System practice guidelines:

- All ECZ models are capable of handling 50/60 Hz dual frequency supply.
- Recommended only for stationary application.
- Use only for specified refrigerant/application.
- Gas charging to be done by monitoring suction temp, not by top shell temp.
- Gas charging by monitoring top shell temp. will lead to refrigerant flooding.
- The suction & process tube are not interchangeable.
- The low temp. models have a special patented oil, hence field top up is not recommended.
- Products are certified for CB, hence use of genuine electrical accessories for safe operation.
- Ensure proper earthing for safe operation.
- The unique protector senses the internal temp. through fusite pin & hence need to ensure proper fitment all the time.
- Pumping check in open air is not recommended, as it will lead to moisture entry into the compressor.
- Do not run the compressor in vacuum with R134a refrigerant.
- Use two stage rotary vacuum pump of minimum 50 LPM capacity.
- Evaporator circuit should be from bottom to top.
- Remove compressor tube rubber plugs just 10 minutes prior to brazing.
- Use trichloroethylene to flush the components.
- Use bright annealed copper tubes and keep all coils and tubes Nitrogen charged & sealed.
- Use separate set of gauges, hoses, cylinders for different refrigerant and keep them labeled.



COPELAND

**ENGINEERED FOR
SUSTAINABILITY**

About Copeland

Copeland is a global leader in sustainable heating, cooling, refrigeration and industrial solutions. We help commercial, industrial, refrigeration and residential customers reduce their carbon emissions and improve energy efficiency. We address issues like climate change, growing populations, electricity demands and complex global supply chains with innovations that advance the energy transition, accelerate the adoption of climate friendly low GWP (Global Warming Potential) and natural refrigerants, and safeguard the world's most critical goods through an efficient and sustainable cold chain. We have over 18,000 employees, with feet on the ground in 50 countries—a global presence that makes it possible to serve customers wherever they are in the world and meet challenges with scale and speed. Our industry-leading brands and diversified portfolio deliver innovation and technology proven in over 200 million installations worldwide. Together, we create sustainable solutions that improve lives and protect the planet today and for future generations. For more information, visit copeland.com.

To learn more, visit copeland.com

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