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. Use genuine electrical accessories for safe operation.
- Ensure proper earthing for safe operation.
- The unique protector senses the internal temp. through fusite pin hence there is a need to ensure proper fitment at all times
- 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.

ASIA10 - 8030Z - R02 - 10/2018

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CONSIDER IT SOLVED.

Appliance Cross Reference Data For Hermetic Reciprocating Compressor

COPELAND

EMERSON

Dear Customer,

Greetings from Emerson!

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 Emerson sales representative or Technical Help Desk on 1800-209-1700.

Warm regards,

Technical Support Team

Colour Scheme of Refrigerants

R134a **R22** **R404A**

Water Cooler

Next Gen. ECZ R134a Models	ECZ421HG-11B	ECZ444HG-11M ECZ434HG-11M	-	-	-	-	-
Current R134a Models	KCE419HAG	KCE444HAG	KCJ467HAG KCN463HAG	KCJ498HAG	KCJ513HAG	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 10-12FPI	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 (45x2 Circuit)	3/8 x (65x2 Circuit)	3/8 x (95x2 Circuit)	3/8 x (125x2 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 1NO./ Current-0.050" x 5 ft. x 1NO.	0.050" x 5 ft. x 2 NO.	0.055" x 39" x 2 NO.	0.055" x 31" x 2NO.	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.

Typical System Operating Parameters

Parameters	R134a		R22	
Ambient Temperature (°C)	35	43	35	43
Suction Pressure (psig) (Bar)	33 to 38 2.2 to 2.6	47 to 50 3.2 to 3.4	70 to 72 4.8 to 4.9	85 325
Discharge Pressure (psig) (Bar)	165 to 175 11 to 12	185 to 200 12.7 to13.7	280 19 to 20	325 26
Return Gas Temperature (°C)	16	21	10 to 13	21

Chest Type Bottle Cooler

Next Gen. ECZ R134a Models	ECZ421HG-11B	ECZ426HG-11M	ECZ431HG-11M ECZ434HG-11M	ECZ444HG-11M		
Current R134a Models	KCE 419HAG	KCE425HAG	KCE432HAG	KCE444HAG	KCN463HAG	KCJ498HAG
		KCN413CAG	KCN416CAG	KCJ444HAG	KCJ467HAG	
R22 Models	-	-	-	KCE443HAE	KCE461HAE	KCJ511HAE*
R404A Models	-	-	-	KCJ422CAL	KCJ438CAL	KCJ461CAL
No. of 250ml 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 (70x2Circuit)
Capillary Tube Bore x Length	0.044" x 10 ft. x 1NO.	0.044" x 10 ft. x 1NO.	0.046" x 9 ft. x 1NO.	0.050" x 8 ft. x 1NO.	0.050" x 8 ft. x 1NO.	0.050" x 55" x 2NO.

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	350 26	355 24	420 31
Return Gas Temperature (°C)	16	21	10 to 13	21	13 to15	24

Air-conditioner

R22 Models	KCJ511HAE	KCJ513 HAE	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 13FPI	18" x 15" x 2 ROWS	22" x 16" x 2 ROWS	22" x 16" x 3 ROWS	22" x 16" x 4ROWS
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 ½" 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 13FPI	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 1NO. (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.

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

Deep Freezer

Next Gen. ECZ R134a Models	ECZ380LG ECZ396LAG	ECZ411LAG	ECZ416LG	-	-	-
Current R134a Models	KCN372LAG KCN396LAG	KCJ412LAG KCN411LAG	KCN415LAG	-	KCJ423LAG	-
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 13FPI	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 85	3/8 x 95	3/8 x (65x2 Circuit)	1/2 x (100x2 Circuit)
Capillary Tube (For ECZ/ Current Model) Bore x Length	ECZ 0.036"x10'x1NO./ Current 0.031"x12'x1NO.	0.036" x 12' x 1NO.	ECZ 0.036" x13' x 1 NO./ Legacy 0.044" x 8' x 1NO.	0.050" x 8' x 1NO.	0.050" x 10' x 1NO.	0.044" x 10' x2NO.

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.

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

Visi Cooler

Next Gen. ECZ R134a Models	ECZ421HG-11B	ECZ426HG-11M	ECZ431HG-11M ECZ434HG-11M	ECZ444HG-11M	-
Current R134a Models	KCE 419HAG	KCE425HAG	KCE432HAG	KCE444HAG	KCN463HAG
		KCN413CAG	KCN416CAG	KCJ444HAG	
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 6-11FPI	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 x 3 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

Pastry Cooler

Next Gen. ECZ R134a Models	ECZ421HG-11B	ECZ444HG-11M	-	-
Current R134a Models	KCE 419HAG	KCE444HAG	KCJ467HAG	KCJ498HAG
		KCJ444HAG	KCN463HAG	KCJ482HAG
R22 Models	-	KCE443HAE	KCE461HAE	KCJ511HAE
R404A Models	-	KCJ422CAL	KCJ438CAL	KCJ461CAL
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 10-12FPI	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 (70X2 Circuit)
Capillary Tube Bore x Length	0.044" x 10 ft x 1 NO.	0.050" x 8 ft x 1NO. For KCE443HAE 0.055" x 55" x 1NO.	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

Panel Cooler

R134a Models	ECZ421HG / KCE419HAG	ECZ426HG / KCE425HAG	ECZ444HG / KCE444HAG	KCJ511HAG	KCJ513HAG
*Panel Cooler Capacity (watt)	450	600	1000	2000	3000
Condenser Size (inch) (Length x Height) 1/4 O.D. Tube10-12 FPI	8 x 9 ½ x 3 Rows	8 ½ x 5 x 4 Rows	9 x 12 x 3 Rows	14 x 9 x 5 Rows	14 x 9 x 7 Rows
Condenser Fan Motor	1/20 HP x 1,350 RPM	1/20 HP x 1,350 RPM	1/20 HP x 1,350RPM	1/20 HP x 1,350RPM	1/20 HP x 1,350RPM
Condenser Fan	5"DIA	5"DIA	5"DIA	5"DIA	5"DIA
Evaporator Size (inch) (Length x Height) 5/16 O.D Tube 13 FPI	7 ½ x 6 x 2 Rows	7 ½ x 6 x 3 Rows	9 x 3 x 5 Rows	14 x 6 x 3 Rows	14 x 8 x 3 Rows
Capillary Tube (For ECZ/Legacy Model) Bore x Length	0.050" x 35" x 1 No.	0.050" x 30" x 1 No.	0.050" x 18" x 1 No.	0.050" x 34" x 2 Nos.	0.064" x 32" x 2 Nos.

NOTE: *Panel Cooler desired temperature = 28°C

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 to13.8
Return Gas Temperature (°C)	18 to 20	22 to 25

Cold Room

(+ 4°C Room Temperature)

Next Gen. R134a Models	KCM511CAL / KCJ513HAG	KCM514CAL / KCM519CAL	KCM519CAL	KCM522CAL	-	-	-
R22 Models	KCJ513HAE	-	CR22K6M	CR30K6M	CR36K6M	CR42K6M	CR57KQM-TFD
R407C Models	-	CR22K6ME	-	CR30K6ME-PF1 / CR29K6ME-TFM	CR42K6ME	CR47K6ME-TFM	CR62K6ME-TFM
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
Average Product Load [Kg/Day]	1000	1500	2000	2500	3000	3500	4000
Condenser Size (inch) (Length x Height) 3/8"O.D. Tube 6-11FPI	14 x 12 x 3 ROWS	15 x 14 x 3 ROWS	16 x 16 x 3 ROWS	18 x 14 x 4 ROWS	18 x 18 x 4 ROWS	20 x 18 x 4 ROWS	26 x 20 x 4 ROWS
Condenser Fan	10"DIA, 1,200 RPM	12"DIA, 1,200 RPM	14"DIA, 1,200 RPM	12"DIA, 1,300 RPM	16"DIA, 1,300 RPM	16"DIA, 1,300 RPM	16"DIA, 1,800 RPM / 10"DIA, 1,200 RPM x 2 NO.
Evaporator Size (inch) (Length x Height) 3/8"O.D. Tube 6-8FPI	10 x 11 x 4 ROWS	12 x 12 x 4 ROWS	14 x 12 x 4 ROWS	14 x 14 x 4 ROWS	18 x 14 x 4 ROWS	18 x 16 x 4 ROWS	20 x 20 x 4 ROWS
Evaporator Airflow Qty.	1,000 CFM	1,200 CFM	1,750 CFM	1,850 CFM	2,200 CFM	2,500 CFM	2,950 CFM
TXV (Alco Make)	R134a-TIE-MW (Orifice 001)	TIE-MW[002"], AAE-3/4MC	TIE-MW[003"], AAE-1MC	TIE-MW[004"], AAE 1 -1/2MC	TIE-MW[004"], AAE- 2 MC	TIE-MW[004"], AAE-2 MC	TIE-MW[006"], AAE-2-1/2MC
	R22-TIE-HW (Orifice 001)	TIE-HW[001"], AAE-1HC	TIE-HW[002"], AAE1-1/2HC	TIE-HW[002"], AAE 1 -1/2HC	TIE-HW[003"], AAE- 2HC	TIE-HW[003"], AAE-2HC	TIE-HW[004"], AAE-2-1/2HC
	R404C-TIE-HW (Orifice 001)	AAE-1 NC, TIE-NW[001"]	AAE 1 -1/4 NC, TIE-NW[002"]	AAE 1 -1/4 NC, TIE-NW[002"]	AAE-2NC, TIE-NW[003"]	AAE-2NC, TIE-NW[003"]	TIE-NW[004"], AAE- 2-1/2NC
	R404A-TIE-SW (Orifice 002)	AAE-1S, TIE-SW[002"]	AAE-1S, TIE-SW[003"]	AAE-1 -1/4S, TIE-SW[003"]	AAE-2S, TIE-SW[004"]	AAE-2S, TIE-SW[004"]	AAE- 2-1/2S, TIE-SW[005"]

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

Softy Ice- Cream Machine

Next Gen. R134aModels	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 13FPI	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	1,350 RPM, 12"DIA	1,350 RPM, 14"DIA	1,300 RPM, 16"DIA	1,300 RPM, 16"DIA	1,400 RPM, 18"DIA	1,400 RPM, 18"DIA
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 2NO.	0.060" x 6 ft. x 2NO.	0.060" x 6 ft. x 2NO.	0.060" x 5 ft. 6" x 2NO.	0.060" x 5 ft. x 2NO.	0.060" x 4 ft. 6" x 2NO.

Water Chiller

Next Gen. R134aModels	-	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 13FPI	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, 1300 RPM	14" DIA,1300 RPM	15" DIA,1300 RPM	15" DIA,1400 RPM	18" DIA, 1400 RPM	16" DIA,1400 RPM	16" DIA, 1400 RPM x 2NO.	16" DIA, 1800 RPM x 2NO.	16" DIA, 1800 RPM x 2NO.	19" DIA, 1800 RPM x 2NO.
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 (65x2 Circuit)	200 x 3/8 (100x2 Circuit)	260 x 3/8 (130x2 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 x1 / 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)	-	-	-	-	-

#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

R404A Models	KCJ430LAL	KCJ450LAL	KCM475LAL	KCM515LAL
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., 10-12FPI	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	1/15H.P x 1,350 RPM	1/12H.P x 1,100 RPM	1/10H.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.

Typical System Operating Parameters

Parameters	R404A	
Ambient Temperature (°C)	32	43
Suction Pressure (psig)	(22 to 24)	(21 to 31)
(Bar)	1.5 to 1.6	1.4 to 2.1
Discharge Pressure (psig)	(293)	(316 to 340)
(Bar)	20	22 to 23
Return Gas Temperature (°C)	10	18.3

Freezer On Wheels

R134a Compressor Model	**ECZ 380 LG**	**ECZ 411 LG**	**ECZ 416 LG**
R404A Compressor Model	**ECZ 412 LL**	**ECZ 417 LL**	**ECZ 419 LL**
FoW Nominal Capacity (Ltrs)	100-110	165-200	250-300
Condense Size (Inch) Size: 3/8"OD; 13FPI (R134a)	8" X 8" X 2 Rows	8" X 8" X 2 Rows	8" X 10" X 2 Rows
Condense Size (Inch) Size: 3/8"OD; 13FPI (R404A)	8" X 10" X 2 Rows	10" X 8" X 2 Rows	13" X 13" X 2 Rows
Condenser Fan Motor	20 W, 1400 rpm	20 W, 1400 rpm	20 W, 1400 rpm
Condenser Fan Size (Diameter)	8" Dia	8" Dia	12" Dia
Evaporator Size R134A	40' X 5/16"	65' X 5/16"	80' X 3/8"
Evaporator Size R404A	70' X 3/8"	80' X 3/8"	95' X 3/8"
Capillary Tube (R134a)	0.036" X 10' X 1 No.	0.036" X 10' X 1 No.	0.036" X 12' X 1 No.
Capillary Tube (R404A)	0.036 " X 8'9" X 1 No.	0.036" X 8'3" X 1 No.	0.040" X 10' X 1 No

Typical System Operating Parameters

Refrigerant	**R134a**	**R404a**	**R134a**	**R404a**	**R134a**	**R404a**
Parameters	At The Beginning Of Pull Down Cycle STAGE 1		At The Time Of PCM Freezing STAGE 2		At The End Of The Cycle (PCM/ Glycol is Completely Frozen) STAGE 3	
Suction Pressure (Psig)	9 to 10	25 to 30	3 to 4	12 to 16	0 to1 (Might Run In Vacuum Too)	8 to10
Discharge Pressure (°C)	160 to 175	290 to 300	135 to145	250 to 260	125 to 135	230 to 240
Suction Temp (°C)	22 to 25	22 to 25	-2 to -5	-6 to -7	-10 to -12	-19 to -21
Liquid Temp (°C)	43 to 44	43 to 44	40 to 42	40 to 42	37 to 39	37 to 39
Superheat (°C)	35 to 39	41 to 45	18 to 20	18 to 20	12 to 15	12 to 15
Subcooling (°C)	4 to 5	4 to 5	1 to 2	1 to 2	0.5 to 1.5	0.5 to 1.5

Note : The parameters mentioned above are tentative parameters at 35 °C ambient. The pressures during PCM/Glycol freezing (STAGE 2) depends on the freezing point of chemical concentration being used.