

Refrigeration Product Catalogue



Copeland[®]
brand products


EMERSON[™]
Climate Technologies

EMERSON. CONSIDER IT SOLVED.[™]

Company Profile



▲ Karad Plant

Emerson is a global company that brings together technology and engineering to provide innovative solutions for our customers in a wide range of industrial, commercial, and consumer markets. Our priority is to design, produce and deliver products, systems, and solutions that make people's lives better.

Emerson Climate Technologies (India) Limited is offering innovative, energy efficient, environment friendly and reliable compressors to a broad range of customers across India and overseas, for the last four decades.



▲ Atit Plant

Fractional and Integral Horse Power compressors provide perfect cooling, creating value for its users. The compressors are manufactured in Karad and Atit Plants, which have state-of-the-art facilities and acclaimed to have “Gold Rating” under Emerson’s Plant Technology Franchise Standards.

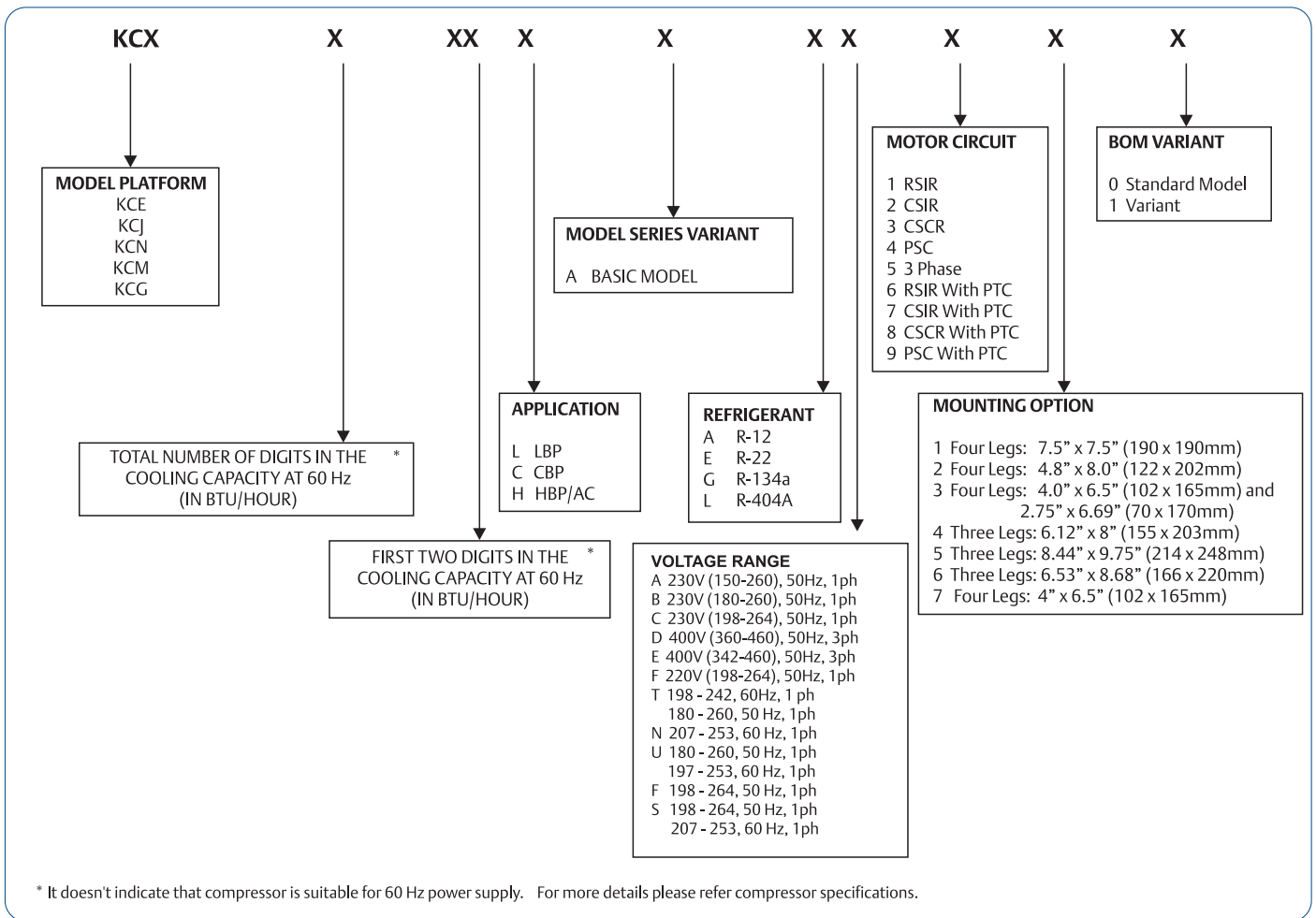
The performance of the compressors is optimized using CAE facilities. The components are sourced internationally and have been subjected to stringent Qualification Standards of Emerson Climate Technologies. The performance of compressors is validated by testing in a suitable appliance at an ambient of 46°C.

The countrywide Sales and Service network of Emerson Climate Technologies (India) Limited, is positioned to provide prompt service to our customers.

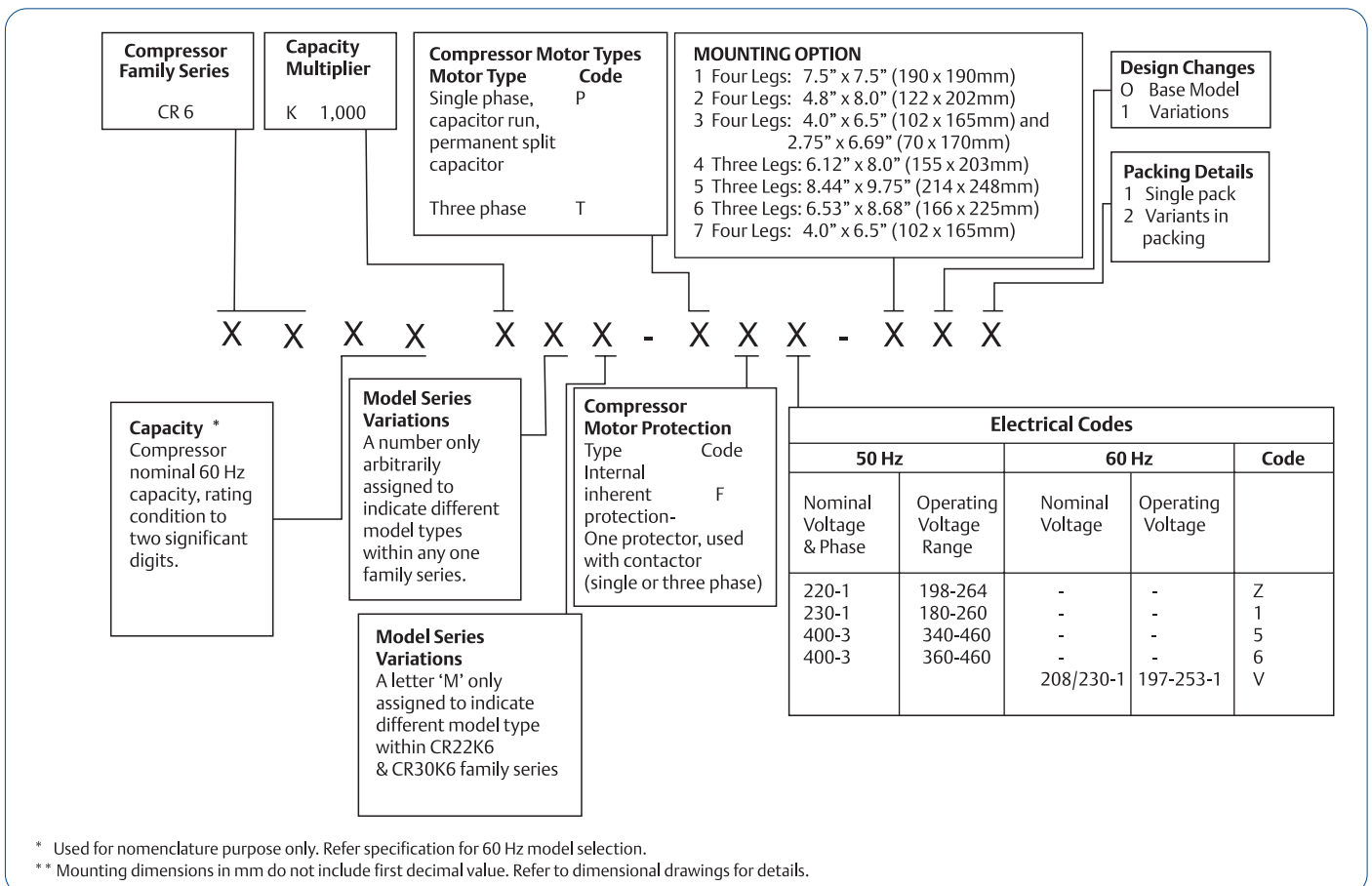


▲ Computer Aided Engineering Facility

KCX Series Compressor Nomenclature



CR6 Series Compressor Nomenclature



Performance Nominals

High Back Pressure

Commercial Back Pressure

Model	HP	Displacement cc per Rev	Capacity						Cooling Type (CFM)	Oil Charge Qty (cc)	Net Wt. (Kg.)
			7.2°C			-6.7°C					
			Btu/Hr.	kCal/Hr.	Watt	Btu/Hr.	kCal/Hr.	Watt			
R134a, 50 Hz, 1 Phase											
KCE419HAG	1/6	5.79	1585	399	465	860	217	252	Fan 350	310	10.2
KCN413CAG	1/6	6.15	-	-	-	1080	272	316	Fan 350	340	9.7
KCE425HAG	1/5	7.58	2145	541	629	1075	271	315	Fan 350	310	10.8
KCN416CAG	1/5	7.31	-	-	-	1380	348	404	Fan 350	340	9.7
KCE432HAG	1/4	9.42	2690	678	788	1330	332	390	Fan 350	310	11.8
KCE444HAG	3/8	12.05	3675	926	1077	1880	474	551	Fan 350	310	11.8
KCJ444HAG	3/8	12.58	3700	932	1084	1720	433	504	Fan 350	890	20.2
KCN463HAG	1/2	15.33	5250	1323	1539	3130	789	917	Fan 350	380	11.5
KCJ467HAG	1/2	18.27	5600	1411	1640	2830	713	829	Fan 350	890	21.0
KCJ498HAG	3/4 +	25.91	8200	2067	2403	4100	1033	1201	Fan 350	890	21.5
KCM511CAL	1	40.8	12050	3037	3531	-	-	-	Fan 400	1330	29.8
KCM514CAL	1 1/2	51.47	15800	3982	4629	-	-	-	Fan 400	1330	32.5
KCM519CAL	1 3/4	59.65	19100	4813	5596	-	-	-	Fan 400	1330	34.9
KCM522CAL	2	72.08	22100	5569	6475	-	-	-	Fan 400	1330	34.9
R134a, 50 Hz, 3 Phase											
KCM519CAL	1 3/4	59.65	19100	4813	5596	-	-	-	Fan 400	1330	31.0
KCM522CAL	2 1/4	72.08	22100	5569	6475	-	-	-	Fan 400	1330	32.7
R134a, 60 Hz, 1 Phase											
KCE432HAG	1/4	9.42	3225	813	944	1595	402	467	Fan 350	310	11.8
KCE444HAG	3/8	12.05	4275	1077	1252	2187	551	640	Fan 350	310	11.8
KCN463HAG	1/2	15.33	6300	1588	1845	3443	868	1008	Fan 350	380	11.5
KCJ467HAG	1/2	18.27	6700	1688	1964	3120	786	914	Fan 350	890	21.0
KCJ498HAG	3/4 +	25.91	9250	2331	2710	4633	1168	1357	Fan 350	890	21.5
R22, 50 Hz, 1 Phase											
KCE443HAE	1/3	8.00	3600	907	1055	1620	408	475	Fan 350	510	11.8
KCE461HAE	2 1/2	11.50	5100	1285	1494	2590	653	759	Fan 350	510	13.4
KCJ511HAE	1	18.27	9150	2356	2740	4210	1061	1234	Fan 350	905	21.5
KCJ513HAE	1 1/4	25.91	12800	3226	3750	6366	1604	1865	Fan 350	890	22.5
CR22K6M-PF1	1 1/2+	40.80	19000	4788	5568	8920	2248	2614	Fan 400	1330	29.8
CR30K6M-PF1	2 1/2	51.47	25000	6300	7327	12000	3024	3516	Fan 400	1330	32.5
CR36K6-PFZ	3	59.65	30100	7585	8821	14200	3578	4161	Fan 400	1330	34.9
CR42K6-PFZ	3 1/2	72.09	36100	9097	10580	17300	4360	5069	Fan 400	1330	34.9
R22, 50 Hz, 3 Phase											
CR22K6M-TFM	1 1/2+	40.80	18350	4624	5377	8260	2082	2420	Fan 400	1330	29.5
CR30K6M-TFM	1/2	51.47	24400	6149	7149	11600	2923	3399	Fan 400	1330	30.0
CR36K6-TF6	3	59.65	29900	7535	8763	14500	3654	4249	Fan 400	1330	31.0
CR42K6-TF5	3 1/2	72.09	35100	7585	8821	17200	4334	5040	Fan 400	1330	32.7
KCG554HAE	4 1/2	99.96	45000	11340	13180	-	-	-	Fan 400	2250	50.1
KCG562HAE	5	117.66	52000	11057	15240	-	-	-	Fan 400	2250	50.7
KCG572HAE	6	133.22	60000	15120	17585	-	-	-	Fan 400	2250	51.4
R22, 60 Hz, 1 Phase											
KCJ511HAE	1	18.27	10500	2646	3077	4210	1061	1234	Fan 350	905	21.5
R404A, 50 Hz, 1 Phase											
KCJ422CAL	1/4	8.00	-	-	-	1800	454	527	Fan 350	890	20.0
KCJ438CAL	1/2	11.50	-	-	-	3200	806	938	Fan 350	890	21.5
KCJ461CAL	3/4	18.27	-	-	-	5100	1285	1494	Fan 350	890	21.5
KCJ484CAL	1	25.91	-	-	-	7000	1764	2051	Fan 350	890	22.5
KCM511CAL	1 3/8	40.80	-	-	-	9000	2268	2637	Fan 400	1330	29.8
KCM514CAL	1 3/4	51.47	-	-	-	12000	3024	3516	Fan 400	1330	32.5
KCM519CAL	2 3/8	59.65	-	-	-	16100	4057	4717	Fan 400	1330	34.9
KCM522CAL	2 3/4	72.09	-	-	-	18300	4612	5362	Fan 400	1330	34.9
R404A, 50 Hz, 3 Phase											
KCM519CAL	2 3/8	59.65	-	-	-	15800	3981	4582	Fan 400	1330	31.0
KCM522CAL	2 3/4	72.09	-	-	-	18300	4611	5343	Fan 400	1330	32.7
R12, 50 Hz, 1 Phase											
KCE431HAA	1/4	9.42	2600	655	762	1330	335	390	Fan 350	510	11.8
KCE443HAA	1/3	12.05	3610	910	1058	1975	498	579	Fan 350	510	11.8
KCJ443HAA	1/3	12.58	3650	920	1069	2100	529	615	Fan 350	510	20.0
KCJ461HAA	1/2	18.27	5100	1285	1494	2900	731	850	Fan 350	890	21.0
KCJ494HAA	3/4	25.91	7900	1991	2315	4200	1058	1231	Fan 350	890	21.5

Performance Nominals

Low Back Pressure

Model	HP	Displacement cc per Rev	Capacity			Cooling Type (CFM)	Oil Charge Qty (cc)	Net Wt. (Kg.)
			-23.3°C					
			Btu/Hr.	kCal/Hr.	Watt			
R134a, 50 Hz, 1 Phase								
KCN372LAG	1/5	7.31	600	151	176	Oil / Fan 260	340	10.2
KCN396LAG	1/4	9.00	800	202	234	Oil / Fan 260	340	10.2
KCN411LAG	1/3	11.10	960	242	281	Fan 350	380	11.5
KCJ411LAG	1/3	16.35	1025	258	300	Fan 350	890	20.2
KCJ412LAG	1/3	18.27	1000	252	293	Fan 350	890	21.0
KCN415LAG	3/8	15.33	1260	318	369	Fan 350	380	11.5
KCJ423LAG	1/2	32.61	1925	485	564	Fan 350	890	22.5
R404A, 50 Hz, 1 Phase								
KCJ430LAL	3/4	16.35	2425	611	711	Fan 350	890	22.5
KCJ450LAL	1 1/4	32.64	4100	1033	1201	Fan 350	890	25.0
R12, 50 Hz, 1 Phase								
KCE336LAA	1/10	4.49	300	76	88	Oil / Fan 260	510	10.2
KCE345LAA	1/8	5.48	375	95	110	Oil / Fan 260	510	10.2
KCE360LAA	1/6	7.58	500	126	147	Oil / Fan 260	510	10.2
KCJ410LAA	1/4	12.58	875	221	256	Fan 350	890	20.0
KCJ415LAA	3/4	18.27	1330	335	390	Fan 350	890	21.0
KCJ427LAA	5/8	32.64	2260	570	662	Fan 350	890	22.5

Rating Conditions

Ambient Temperature	Evaporating Temperature	Condensing Temperature	Sub Cooled Liquid Temp Expansion Device	Suction Gas Temperature	Suction Pressure				Discharge Pressure				
					R134a	R12	R22	R404A	R134a	R12	R22	R404A	
°F	°F	°F	°F	°F	psig	psig	psig	psig	psig	psig	psig	psig	
High Back Pressure													
95	45	130	115	95	40	42	77	93.7	196	180	300	354	
Commercial Back Pressure													
95	20	130	115	95	18	---	---	55.6	196	---	---	354	
Low Back Pressure													
90	-10	130	90	90	1.9	4.5	---	24.6	196	180	---	354	

Permitted Evaporating Temperature Range in °C

KCE, KCJ, KCN, KCM KCG, CR	HBP	CBP	LBP
R134a	-17.8 to 12.8 *	-17.8 to 12.8	-28.8 to -6.7 **
R22	-6.7 to 12.8	N.A.	N.A.
R404A	N.A.	-17.8 to 10.0	-40.0 to -6.7
R12	-6.7 to 12.8	N.A.	-28.8 to -6.7

* Except KCN463HAG / KCJ498HAG : -6.7 to 12.8

** Except KCN : -35 to -6.7

Electrical Specifications

High Back Pressure

Commercial Back Pressure

Model	Power (W)	Current (A)	LRA (A)	Voltage Range	Motor Type	Start Capacitor (Mfd)	Run Capacitor (Mfd)	Relay		OLP
								Potential / PTC	Current	
R134a, 50 Hz, 1 Phase										
KCE419HAG	245	1.60	11	180-260	RSIR				KARP3627	TAE15/H3
KCN413CAG	180	0.86	10	180-260	CSCR	40/60	6	PTC-KCP14PO	KAT0411/H3	
	210	1.3	8.5	198-264	CSIR	40/60	-	-	KARP-3141	TAE12/H3
KCE425HAG	360	2.30	14	180-260	CSIR	40/60	-	-	KARP4241	KAT0072/H3
KCN416CAG	220	1.00	10	180-260	CSCR	40/60	6	PTC-KCP14PO	KAT0413/H3	
KCE432HAG	375	2.80	12.5	180-260	CSIR	40/60			KARP4241	KAT0072/H3
KCE444HAG	475	2.20	13	180-260	CSCR	40/60	10	LT85002 OR PTC-KCP14PO		KAT0072/K3 OR T0072/K3
	575	3.20	16	198-264	CSIR	40/60	-	-	KARP4741	KAT0747/H3
KCJ444HAG	450	2.80	17	180-260	CSIR	80/100	-	-	KARP4841	MRT36ALX-112 OR KAT0159/B2
KCN463HAG	615	2.70	14	180-260	CSCR	80/100	15	LT85002		KAT0463/B2
KCJ467HAG	675	3.90	23	180-260	CSIR	80/100			KARP5641	MRA12024-112 OR KAT0733/B2
KCJ498HAG	975	5.90	32	198-264	CSIR	80/100		AC85001	-	MS-24-AJX-112 OR KAT0163/B2
KCM511CAL	1140	5.40	54	180-260	CSCR	80/100	36	AC85004	-	INTERNAL
KCM514CAL	1535	7.90	72	180-260	CSCR	150/200	45	AC85001	-	INTERNAL
KCM519CAL	1820	10.00	85	180-260	CSCR	130/156 OR 120/150	40 OR 45	AC85004	-	INTERNAL
KCM522CAL	2050	10.20	104	180-260	CSCR	189/227 OR 150/200	60 OR 65	AC85005	-	INTERNAL
R134a, 50 Hz, 3 Phase										
KCM519CAL	1830	4.20	41	342-460	3PH	-	-	-	-	INTERNAL
KCM522CAL	2060	4.40	45	342-460	3PH	-	-	-	-	INTERNAL
R134a, 60 Hz, 1 Phase										
KCE432HAG	470	2.75	12.5	207-253	CSIR	40/60		-	KARP4241	KAT0072/H3
KCE444HAG	550	2.35	13	207-253	CSCR	40/60	10	PTC-KCP14PO		KAT0072/K3 OR T0072/K3
KCN463HAG	810	3.65	14	197-253	CSCR	80/100	15	LT85002		KAT0463/B2
KCJ467HAG	820	4.20	23	198-242	CSIR	80/100	-		MTRP5941	KAT0733/B2
KCJ498HAG	1120	6.10	28	207-253	CSIR	80/100	-	AC85001	-	KAT0167/B2
R22, 50 Hz, 1 Phase										
KCE443HAE	475	2.30	13	180-260	PSC/CSCR*	40/60*	10	LT85002*		KAT0072/K3 OR KAT 0159/B2
KCE461HAE	675	3.10	17	180-260	PSC/CSCR*	60/80*	15	LT85003*		MRT36ALX-112
KCJ511HAE	1020	4.70	25	180-260	PSC/CSCR*	80/100*	25	LT85002*		INTERNAL
KCJ513HAE	1440	6.80	30	180-260	PSC/CSCR*	80/100*	36	AC85001*		INTERNAL
CR22K6M-PF1	1750	7.20	44	180-260	CSCR*	80/100*	36	AC85004*		INTERNAL
CR30K6M-PF1	2350	11.00	72	180-260	CSCR*	150/200*	45	AC85001*		INTERNAL
CR36K6-PFZ	2720	13.60	85	198-264	CSCR	130/156 OR	40 OR	AC85004	-	INTERNAL
						120/150	45			
CR42K6-PFZ	3240	15.40	104	198-264	CSCR	189/227 OR 150/200	60 OR 65	AC85005	-	INTERNAL
R22, 50 Hz, 3 Phase										
CR22K6M-TFM	1750	3.20	20	342-462	3PH	-	-	-	-	INTERNAL
CR30K6M-TFM	2275	4.20	28	342-462	3PH	-	-	-	-	INTERNAL
CR36K6-TF6	2680	4.90	41	360-460	3PH	-	-	-	-	INTERNAL
CR42K6-TF5	3300	6.10	45	340-460	3PH	-	-	-	-	INTERNAL
KCG554HAE	4450	7.20	44	360-460	3PH	-	-	-	-	INTERNAL
KCG562HAE	5250	8.50	49	360-460	3PH	-	-	-	-	INTERNAL
KCG572HAE	6100	10.20	55	360-460	3PH	-	-	-	-	INTERNAL
R22, 60 Hz, 1 Phase										
KCJ511HAE	1175	5.30	23	197-253	CSCR	80/100	25	LT85002	-	INTERNAL

Electrical Specifications

High Back Pressure

Commercial Back Pressure

Model	Power (W)	Current (A)	LRA (A)	Voltage Range	Motor Type	Start Capacitor (Mfd)	Run Capacitor (Mfd)	Relay		OLP
								Potential / PTC	Current	
R404A, 50 Hz, 1 Phase										
KCJ422CAL	400	2.40		180-260	CSIR	80/100	-	-	KARP4741	KAT0463/B2
KCJ438CAL	625	3.70		180-260	CSIR	80/100	-	-	KARP5641/ MTRP5641	T0732/B2
KCJ461CAL	925	4.50		180-260	CSCR	80/100	25	LT85002	-	INTERNAL
KCJ484CAL	1250	6.20		180-260	CSCR	80/100	25	AC85001	-	INTERNAL
KCM511CAL	1385	6.30	54	180-260	CSCR	80/100	36	AC85004	-	INTERNAL
KCM514CAL	1840	8.70	72	180-260	CSCR	150/200	45	AC85001	-	INTERNAL
KCM519CAL	2360	12.30	85	180-260	CSCR	130/156 OR 120/150	40 OR 45	AC85004	-	INTERNAL
KCM522CAL	2600	12.00	104	180-260	CSCR	189/227 OR 150/200	60 OR 65	AC85005	-	INTERNAL
R404A, 50 Hz, 3 Phase										
KCM519CAL	2325	4.70	41	342-460	3PH	-	-	-	-	INTERNAL
KCM522CAL	2600	5.20	45	342-460	3PH	-	-	-	-	INTERNAL
R12, 50 Hz, 1 Phase										
KCE431HAA	410	2.50		180-260	CSIR	40/60	-	-	KARP4741	KAT0072/B2
KCE443HAA	450	2.30	13	180-260	CSCR	40/60	10	LT85002	-	KAT0072/K3
KCJ443HAA	450	2.80	16	198-264	CSIR	40/60	-	-	KARP5341	MRA6985-112
KCJ461HAA	675	4.00	24	180-260	CSIR	80/100	-	-	KARP5641	KAT0165/B2 OR MRA 2024-112 OR KAT0733/B2
KCJ494HAA	1000	5.90	32	198-264	CSIR	80/100	-	AC85001	-	T0163/B2 OR KAT0159/B2

Low Back Pressure

Model	Power (W)	Current (A)	LRA (A)	Voltage Range	Motor Type	Start Capacitor (Mfd)	Run Capacitor (Mfd)	Relay		OLP
								Potential / PTC	Current	
KCN372LAG	159	1.34	10	180-260	CSIR RSIR	40/60			KARP3141	TAE15/H3
KCN396LAG	205	1.85	10	180-260	CSIR	40/60	-	-	KARP4141/MTRP14141	TAE5M/H3
KCN411LAG	245	2.10	10	180-260	CSIR	40/60	-	-	KARP4241 OR MTRP4241	KAT0072/H3
	245	2.10	10	180-260	RSIR			KCP15-RO		KAT0072/H3
KCJ411LAG	280	2.20	22	180-260	CSIR	80/100	-	-	KARP4841	KAT0159/B2
KCJ412LAG	310	2.75	24	180-260	CSIR	80/100	-	-	KARP5641	KAT0159/B2
KCN415LAG	325	2.00	14	180-260	CSCR	80/100	10	LT85002	-	KAT0072/B2
KCJ423LAG	485	3.00	30	198-264	CSCR	150/200	10	LT85003	-	MRA12011-112 OR KAT0732/B2
R404A, 50 Hz, 1 Phase										
KCJ430LAL	580	3.2	30	180-260	CSCR	150/200	10	LT85003	-	INTERNAL
KCJ450LAL	975	5	50	180-260	CSCR	50/200	25	AC85004	-	INTERNAL
R12, 50 Hz, 1 Phase										
KCE336LAA	120	1.25	9	150-260	RSIR	-	-	-	KARP2827	TAE7/H3
KCE345LAA	140	1.1	9	180-260	RSIR	-	-	-	KARP3227	TAE7/H3
KCE360LAA	210	1.8	10	180-260	CSIR	40/60	-	-	KARP4141	TAE5M/H3
KCJ410LAA	300	2.3	16	180-260	CSIR	80/100	-	-	KARP4841	MRA6985-112 OR KAT0164/B2
KCJ415LAA	390	2.9	24	180-260	CSIR	80/100	-	-	KARP5641	MRT36ALX-112 OR KAT0159/B2
KCJ427LAA	530	3.2	30	180-260	CSCR	150/200	10	LT85003		MRA12011-112 OR KAT0732/B2

* These are optional Accessories to be used for CSCR Circuit

Applications

Low Back Pressure

- Deep Freezer
- Refrigerator
- Ice Cube machine
- Walk-in Freezer
- Laboratory Appliance

Commercial Back Pressure

- Bottle Cooler
- Visi Cooler
- Display Cabinet
- Pastry Cabinet
- Softy Ice Cream

High Back Pressure

- Water Cooler
- Oil Coolers / Panel Cooler
- Water Chiller
- Refrigerated Air Dryer
- Walk in Cooler
- Milk Cooler

Model Selection Guide

Deep Freezer		
Hard Top (Ltr)	Glass Top (Ltr)	Model
300	200	KCN372LAG
400	300	KCN396LAG
450	300	KCN411LAG
450	300	KCJ411LAG
450	300	KCJ412LAG
500	400	KCN415LAG
800	-	KCJ423LAG
1100	-	KCJ430LAL
1800	-	KCJ450LAL

Cold Room (+4 C Room Temperature)			
Room Size (cft)	R22	R134a	R404A
500	KCJ513HAE	KCM511CAL	KCJ484CAL
800	CR22K6M	KCM511CAL	KCM511CAL
1200	CR30K6M	KCM514CAL	KCM514CAL
1600	CR30K6M	KCM519CAL	KCM514CAL
2000	CR36K6	KCM522CAL	KCM519CAL
2500	CR42K6	-	KCM522CAL
3000	KCG554HAE	-	-
5000	KCG562HAE	-	-

Water Cooler		
Capacity (Ltr/Hr)	R22	R134a
20	-	KCE419HAG
40	-	KCE444HAG/ KCJ444HAG
60	KCE461HAE	KCN463HAG/ KCJ467HAG
100	KCJ511HAE	KCJ498HAG
150	KCJ513HAE	KCM511CAL
200	CR22K6M	KCM514CAL
300	CR30K6M	KCM522CAL

Water Chiller			
Flow Rate (Ltr/Hr)	R22	R134a	R404A
600	KCJ513HAE	KCM514CAL	KCJ484CAL
800	CR22K6M	KCM519CAL	KCM511CAL
1000	CR30K6M	KCM522CAL	KCM514CAL
1400	CR36K6	-	KCM519CAL
1600	CR42K6	-	KCM522CAL
2000	KCG554HAE	-	-
2400	KCG562HAE	-	-
2800	KCG572HAE	-	-

Water inlet temperature - 10 °C
Water outlet temperature - 5 °C

Bottle Cooler		
Capacity(Ltr)	R22	R134a
100-120	-	KCE419HAG
150-200	-	KCE425HAG/ KCN413CAG
220-250	-	KCE432HAG/KCN416CAG
260-350	KCE443HAE	KCE444HAG/KCJ444HAG
350-500	KCE461HAE	KCN463HAG/KCJ467HAG
600-800	KCJ511HAE	KCJ498HAG

Visicooler	
Case	Model
2 (110 ltr)	KCE419HAG
4 (150 ltr)	KCE425HAG/ KCN413CAG
7 (250 ltr)	KCE432HAG/KCN416CAG
9 (400 ltr)	KCE444HAG/KCJ444HAG
12(650 ltr)	KCN463HAG

Softy Machine	
Capacity (Ltr)	R404A
15	KCM511CAL
20	KCM514CAL
30	KCM519CAL
40	KCM522CAL

Note: As per Government of India notification w.e.f. 01-01-2003, R12 should not be used for manufacturing new appliances.

Guidelines For Achieving Optimum Appliance Performance

Deep Freezer

- Evaporator circuit should be bottom to top
- Minimum 75mm PUF insulation
- Capillary to suction line heat exchanger of 6" improves the performance

Walk-in Freezer

- Proper heat load should be estimated for selecting number of systems.
- Adequate wall and floor insulation with ante room to be provided.
- Initial pull down time will range from 18 to 24 hrs.
- Hot gas defrost method should not be used.
- Use proper capacity strip heaters placed equidistant across the width of evaporator coil.

Softy Ice-cream Machine

- Precooling of softy mix to 4° C should be achieved through separate refrigeration system.
- Compressor cycling should not exceed 6 cycles.

Ice Candy

- Use suction line accumulator of 3" dia x 8" height having oil return orifice.
- Evaporator feeding from bottom to top.
- Use stirrer in brine tank for brine circulation to achieve uniform brine temperature.
- Correct % mix of brine and water is important to achieve desired brine temperature.
- -20° C of brine temperature will ensure 20 minute batch time of hard candies.

Copeland Brand Products are used for several other applications. Above guidelines are apart from system design details. For details contact nearest Emerson Climate Technologies (India) Limited office.

Notes

1. Electrical rating is 230 V, 50 Hz and 230 V, 60 Hz for single phase models and, 400 V, 50 Hz for three phase models.
2. Operating voltage range signifies the range of voltage for which the compressor can start and run up to 43°C ambient.
3. Cooling capacity and power consumption are nominal values at specified rating conditions and subject to ±5% variation.
4. Direct air flow on glass terminal cover should be avoided.
5. Compressors with CSIR, CSCR circuit and three phase models may be used with thermostatic expansion valve.
6. Compressors with RSIR Circuit must use capillary tube only.
7. All compressors use two pole motors.
8. Compressors for specific applications are rated for IS-10617 Part I and Part III-1983.
9. All run capacitor should have a rating of 440 VAC and start capacitor 275 VAC surge, unless otherwise specified by Emerson Climate Technologies (India) Limited.

Useful Conversions

Pressure

1 micron	= 0.001 mm
0.1 mm Hg	= 100 microns
1 mm Hg	= 1 Torr
1 kg / cm ²	= 14.223 psig
1 bar	= 14.504 psig
1 bar	= 1.0197 kg/cm ²

Temperature

°F	= °R+460
°C	= 1.8 x °F + 32

Volume

1ft ³	= 28.3 Liters
1ft ³	= 0.0283 meter ³
1 metre ³	= 35.315 ft ³
1 metre ³	= 1000 Liters
1cc	= 1 milliliter
1 oz	= 29.57 milliliter

Energy

Watt / hr x 0.8598	= kcal/hr
Watt / hr x 3.413	= Btu/hr
1 ton	= 12000 Btu/hr
1 kilojoule	= 0.95 Btu
kcal/hr x 3.968	= Btu/hr

Area

1ft ²	= 0.0929 metre ²
1metre ²	= 10.758 ft ²

Distance

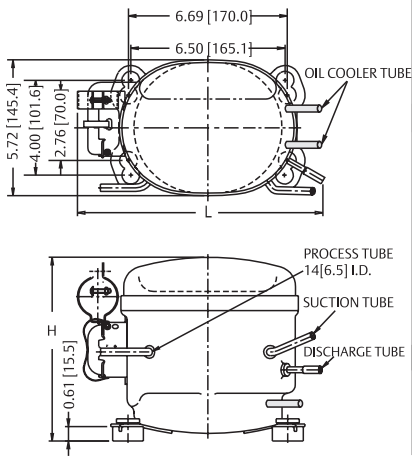
1 inch	= 25.4 mm
1 ft	= 12 inch
1 meter	= 3.28 foot
1 meter	= 39.36 inch
1 yard	= 36 inch

Weight

1ton	= 1000 kg
1 kg	= 2.2 pounds (lb)

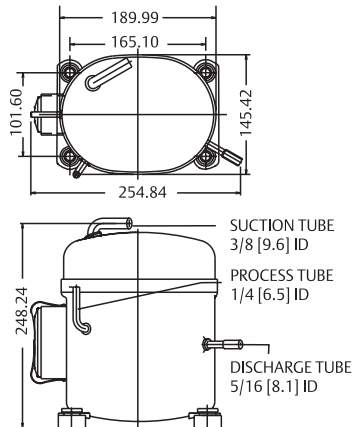
Dimensional Drawings

KCE

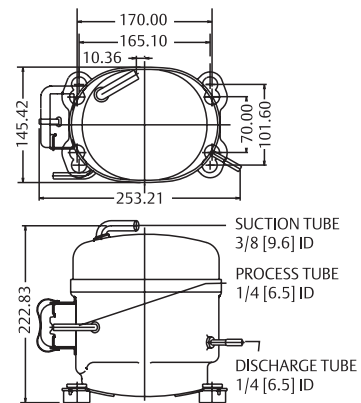


Model	Suction ID		Discharge ID		L	H	Oil Cooler Tube		Capacitor Mounting Bracket Provision
	inch	mm	inch	mm			inch	mm	
R134a High Back Pressure									
KCE419HAG	1 / 4	6.5	1 / 4	6.5	253	196	—	—	No
KCE425HAG	1 / 4	6.5	1 / 4	6.5	257	196	—	—	Yes
KCE432HAG	5 / 16	8.0	1 / 4	6.5	257	212	—	—	Yes
KCE444HAG	5 / 16	8.0	1 / 4	6.5	253	212	—	—	No
R12 High Back Pressure									
KCE431HAA	5 / 16	8.0	1 / 4	6.5	257	212	—	—	Yes
KCE443HAA	5 / 16	8.0	1 / 4	6.5	253	212	—	—	No
R12 Low Back Pressure									
KCE336LAA	1 / 4	6.5	3 / 16	4.9	253	196	3 / 16	4.9	No
KCE345LAA	1 / 4	6.5	1 / 4	6.5	253	196	3 / 16	4.9	No
KCE360LAA	1 / 4	6.5	1 / 4	6.5	253	196	3 / 16	4.9	No

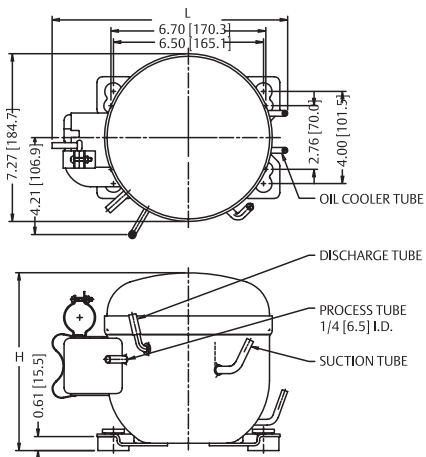
KCE461HAE



KCE443HAE

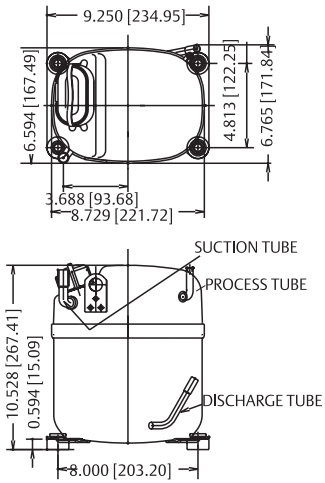


KCN

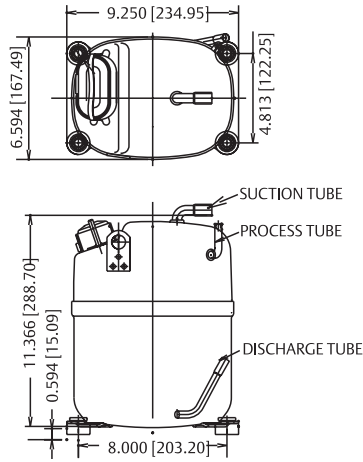


Model	Suction ID		Discharge ID		L	H	Oil Cooler Tube		Capacitor mounting
	Inch	mm	inch	mm			inch	mm bracket Provision	
KCN372LAG	1 / 4	6.5	1 / 4	6.5	259	189	3 / 16	4.9	NO
KCN396LAG	1 / 4	6.5	1 / 4	6.5	259	196	3 / 16	4.9	YES
KCN411LAG	5 / 16	8.0	5 / 16	8.0	250	202	—	—	YES
KCN415LAG	5 / 16	8.0	5 / 16	8.0	250	202	—	—	YES
KCN463HAG	5 / 16	8.0	5 / 16	8.0	244	202	—	—	YES
KCN413CAG	1 / 4	6.5	1 / 4	6.5	244	189	—	—	YES
KCN416CAG	1 / 4	6.5	1 / 4	6.5	244	189	—	—	YES

KCJ

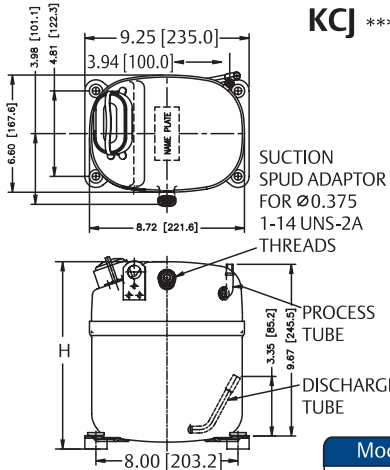


KCJ423LAG / KCJ427LAA / KCJ513HAE / KCJ511HAE



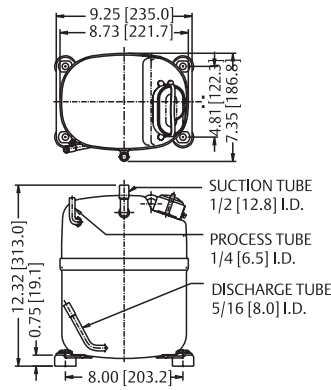
Model	Suction ID		Discharge ID		L	H
	inch	mm	inch	mm		
KCJ444HAG						
KCJ467HAG						
KCJ461HAA	1 / 2	12.8	5 / 16	8.0	235	268
KCJ443HAA						
KCJ411LAG						
KCJ412LAG						
KCJ415LAA	1 / 2	12.8	5 / 16	8.0	235	268
KCJ410LAA						
KCJ498HAG	1 / 2	12.8	5 / 16	8.0	235	280
KCJ494HAA						
KCJ423LAG	1 / 2	12.8	5 / 16	8.0	245	323
KCJ427LAA						
KCJ511HAE	1 / 2	12.8	5 / 16	8.0	245	301
KCJ513HAE	1 / 2	12.8	3 / 8	9.6	245	312

KCJ *** CAL

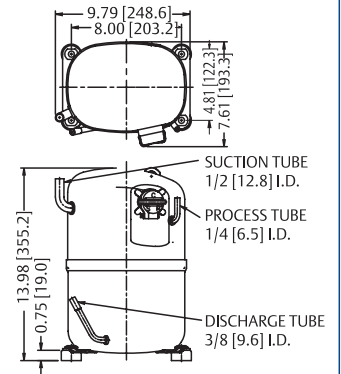


Model	Height (mm)
KCJ422CAL	267.9
KCJ438CAL	274.9
KCJ461CAL	283.0
KCJ484CAL	292.2

KCJ430LAL

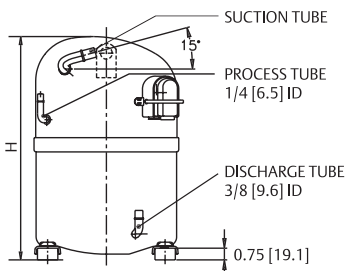
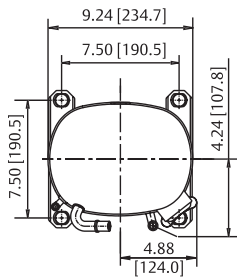


KCJ450LAL

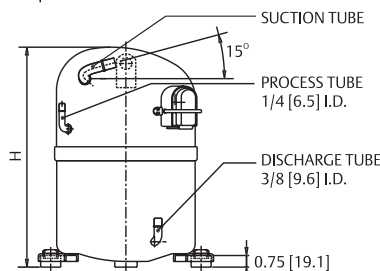
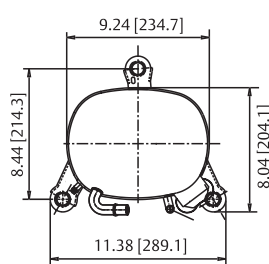


CR22K6M / CR30K6M

SQUARE MOUNT

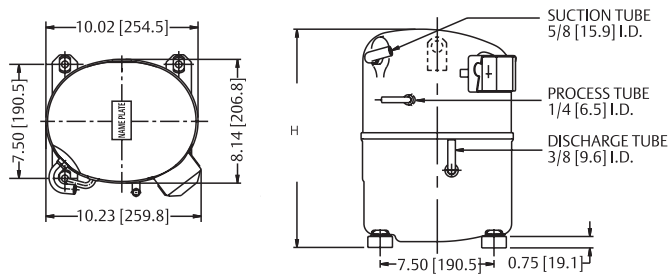


TRIANGULAR MOUNT



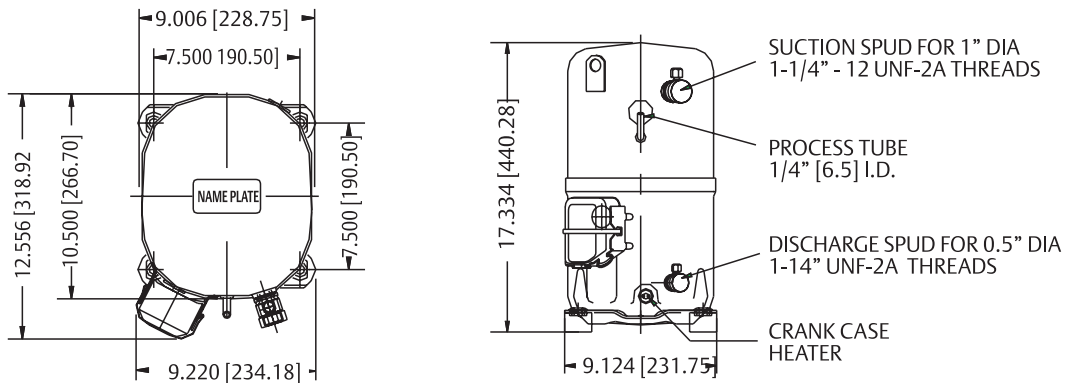
Model	Suction Tube ID		Height	
	inch	mm	inch	mm
CR22K6M	1/2	12.8	14.2	361
CR30K6M	5/8	15.9	14.9	381

CR36 / CR42



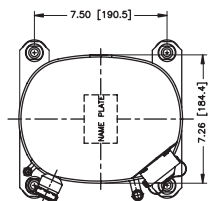
Model	Suction ID	Discharge ID	Height (mm)
CR36K6-PFZ	5/8"	3/8"	371.5
CR36K6-TF6	5/8"	3/8"	365.2
CR42K6-PFZ	3/4"	3/8"	384.2
CR42K6-TF5	3/4"	3/8"	384.2

KCG

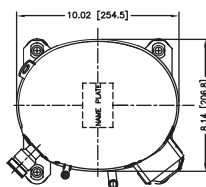


KCM

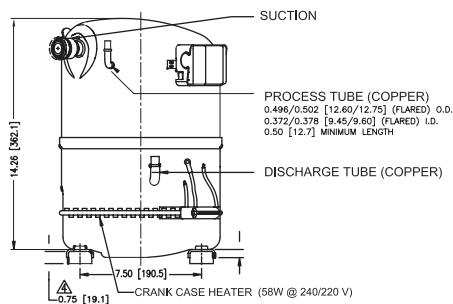
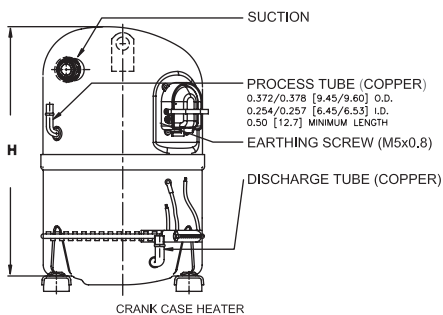
KCM 511CAL/KCM514CAL



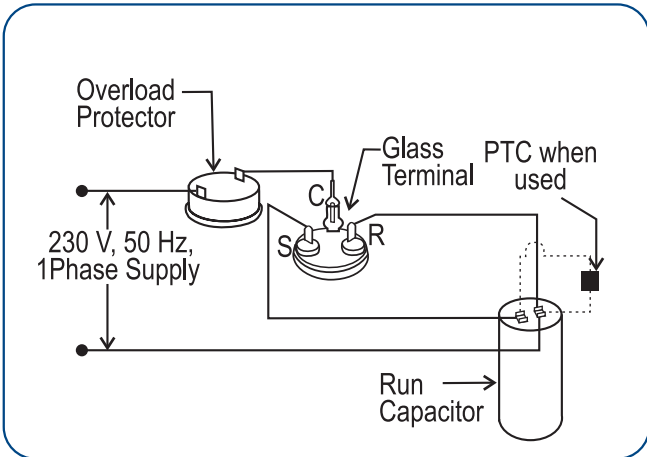
KCM 519CAL/KCM522CAL



Model	Suction Spud	Discharge ID	Height (mm)
KCM511CAL	Ø0.750 1-14 UNS2A Rolled Threads	3/8"	361.0
KCM514CAL	Ø0.625 1 1/4 12UNF 2A Rolled Threads	3/8"	360.0
KCM519CAL	Ø0.625 1 1/4 12UNF 2A Rolled Threads	3/8"	371.5
KCM522CAL	Ø0.625 1 1/4 12UNF 2A Rolled Threads	3/8"	384.2

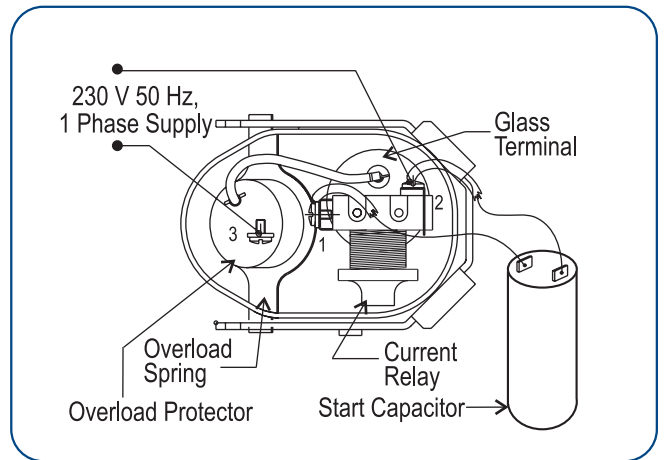


Wiring Diagrams

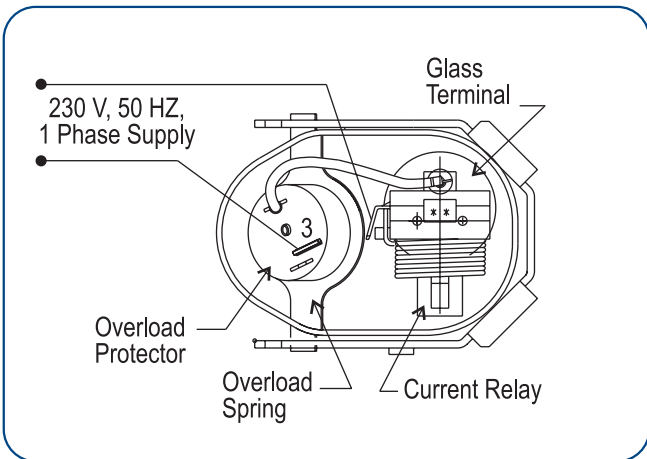


PERMANENT SPLIT CAPACITOR (PSC)

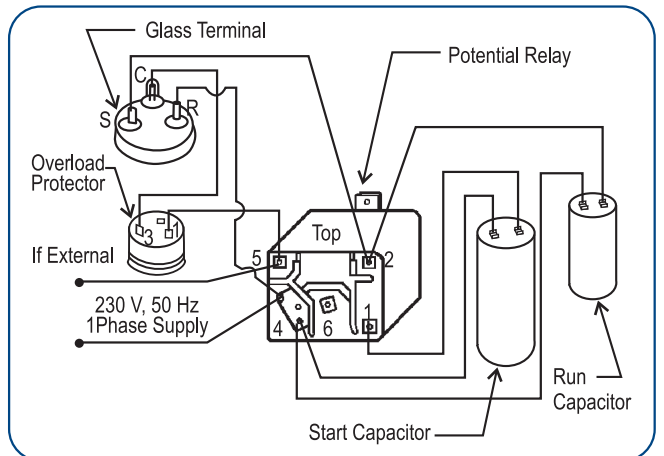
CAPACITOR START INDUCTION RUN (CSIR) WITH PLUG-IN START RELAY



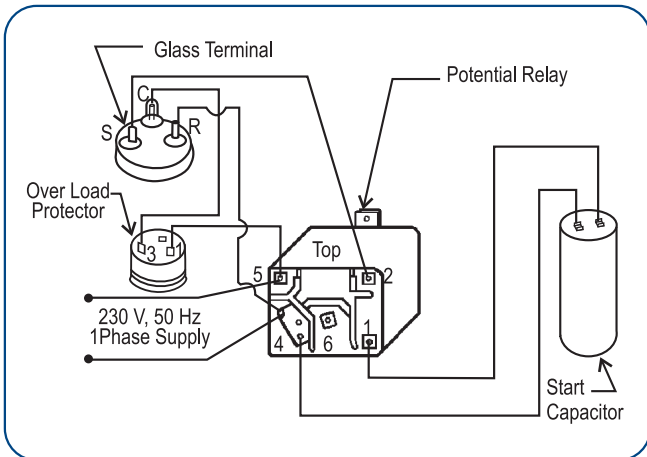
RESISTANCE START INDUCTION RUN (RSIR) WITH PLUG-IN START RELAY



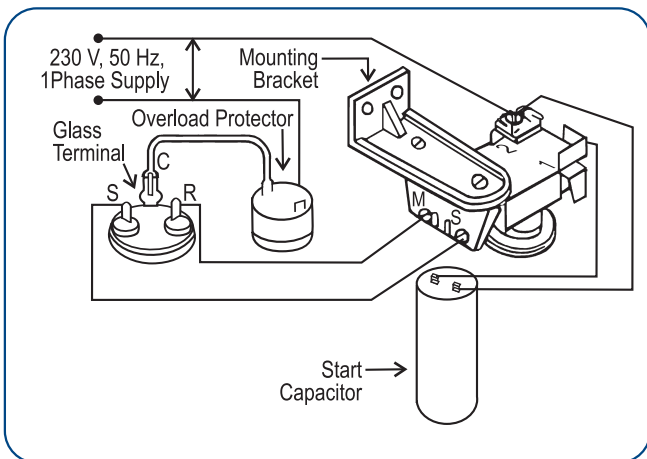
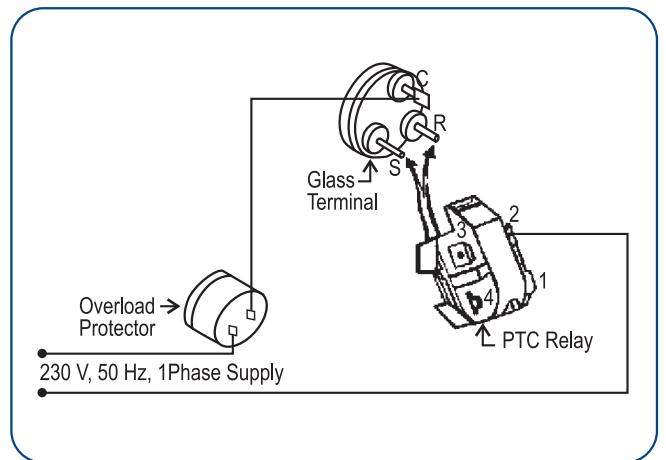
CAPACITOR START CAPACITOR RUN (CSCR)



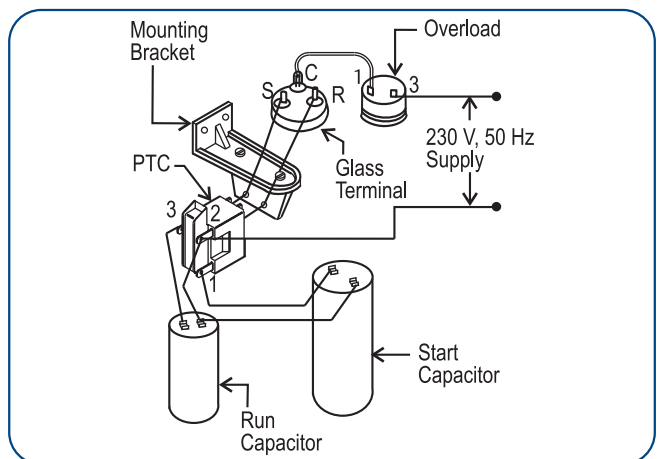
Wiring Diagrams



RESISTANCE START INDUCTION RUN (RSIR) WITH PTC RESISTOR



CAPACITOR START CAPACITOR RUN (CSCR) WITH PTC



Emerson Climate Technologies' Best Practices Guide

System Cleanliness

- It is absolutely necessary that all impurities / contamination like moisture, burr, cleaning agent and chemicals are removed from the system before operation in order to avoid compressor failures.
- All system components have to be de-hydrated and should be Nitrogen charged till they are taken for assembly. Use bright annealed refrigeration grade Copper tubes.
- Use tri-chloro Ethylene for flushing followed by dry air or Nitrogen to remove the trace of tri-chlo Ethylene.

Brazing

- While brazing all the joints purge low pressure Nitrogen through the tube. This will avoid internal oxidation and formation of contamination. Use adequate amount of flux while brazing.
- The joints have to be free from oil and grease before brazing. For Copper to Copper joints use phosphorous Copper as brazing alloy and Copper - Silver for Copper to Steel joints. Oxy Acetylene is best suited for brazing.

Leak Testing

- The system has to be adequately pressurized with dry air or Nitrogen.
- Use of electronic leak detectors is the best way to detect leaks.
- Conventional methods of checking the leaks can also be used.
- Do not pressurize the system with air and R134a.

Evacuation

Effective evacuation of the system ensures removal of moisture. For achieving desired vacuum level of 200 microns:

- Pull vacuum from both sides
- Heat the system with bulbs or infra red lamps
- Use Copper tubes to connect the vacuum pump and the system
- The connecting Copper tubes have to be short in length and bigger in diameter
- Use adequately sized two stage rotary vacuum pump having anti-suckback provision
- Use electronic vacuum gauge to measure the vacuum level
- Never use a hermetic compressor for evacuation. It is not meant for evacuation and cannot achieve desired vacuum level

Refrigerant Charging

- Quality and quantity of refrigerant immensely influences the performance and reliability of any refrigeration system.
- Refrigerant should be procured from genuine source. Use digital weigh balance during refrigerant charging.
- Maintain a separate set of hoses, tubes, valves for different refrigerants. Do not use anti-choke as it damages the compressor.
- Use pressure temperature chart of refrigerant for achieving optimum system performance.

Compressor Mounting

- Torque the nut adequately and ensure that the washer / bolt head rest on the sleeve and not on the rubber grommet.
- The suction and discharge piping should be properly looped to avoid vibrations and refrigerant leakages. The compressor should not be held rigidly by any means.
- These compressors are not suitable for mobile applications.

Electricals

- Always check the voltage across C & R terminals. Voltage at this point should fall within the prescribed operating voltage range. If the supply voltage conditions are poor, use appropriately sized voltage stabilizer with low, high voltage cutout and On-delay timer.
- Always use genuine electrical accessories supplied by Emerson Climate Technologies.
- Earthing the appliance is necessary from the safety stand point.
- All electrical joints have to be firm and properly insulated.

Attending The Field Complaints

Verify the field complaint based on facts and observations made through use of proper tools and equipment. Rule out all the possibilities before replacing the compressor. Analyze the compressor independently for its proper functioning.

Removing of compressor from the system without understanding the root cause will lead to another compressor failure.

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As we are constantly endeavoring to improve the performance of our models, the specifications mentioned here are subject to change from time to time.
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Refrigeration Catalogue 150108