

# COOLING SOLUTIONS



**R-600a  
R-134a  
R-290  
Blends**

**Product Line**

**EM  
F  
EG**

 **Embraco®**

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# R-600a - R-134a - Blends - R-290

## 1) - COMPRESSOR COOLING TYPE

### 1.1) - Static Cooling (S)

The compressor does not require fan cooling and must be installed in such a way so as to allow cooling through ambient air, thus, preventing over heating.

### 1.2) - Fan Cooling (F)

The compressor requires a minimum air flow of 3 m/s for its cooling. Flows of lesser values must be evaluated through laboratory tests.

### 1.3) - Oil Cooling (OC)

The compressor uses an internal coil immersed in oils and connected to the hermetic system to help with compressor cooling. The use of more efficient compressors can eliminate the need for oil cooling.

## 2) - OPERATING CONDITIONS

### 2.1) - Starting and Operating Voltage

The compressors start at 90% of the nominal voltage

- Equalized pressures of up to 4 kgf/cm<sup>2</sup> manometric gauge (58 psig) (R-600a).
- Equalized pressures of up to 5 kgf/cm<sup>2</sup> manometric gauge (71 psig) (Blends).
- Equalized pressures of up to 6 kgf/cm<sup>2</sup> manometric gauge (85 psig) (R-134a).
- Equalized pressures of up to 9 kgf/cm<sup>2</sup> manometric gauge (128 psig) (R-290).

Depending on the working condition and system characteristics, the compressor can operate at even lower voltages, see performance table.

### 2.2) - Winding Temperature

The winding temperature should not exceed 130°C (266 °F) when in continuous operation. For the winding temperature evaluation we recommend the "Ohmic Resistance Measurement Method".  
(According to Application Manual Embraco).

### 2.3) - Condensing Pressure Limit

The compressors must operate in accordance with that described below:

#### R-600a

Condensing pressure must not exceed 7.7 kgf/cm<sup>2</sup> (113 psig) when in continuous operation at maximum expected ambient temperature (43°C) and the peak condensing temperature must not exceed 9.8 kgf/cm<sup>2</sup> gauge (145 psig).

#### Blends

Condensing pressure must not exceed 14.5 kgf/cm<sup>2</sup> (206 psig) when in continuous operation at maximum expected ambient temperature (43°C) and the peak condensing temperature must not exceed 18.2 kgf/cm<sup>2</sup> gauge (259 psig).

#### R-134a

Condensing pressure must not exceed 16.1 kgf/cm<sup>2</sup> (229 psig) when in continuous operation at maximum expected ambient temperature (43°C) and the peak condensing temperature must not exceed 20.53 kgf/cm<sup>2</sup> gauge (292 psig).

### 2.4) - Evaporating Temperature Range

APPLICATION	TEMPERATURE RANGE
LBP	-35°C to -10°C ( -31°F to +14°F )
L/MBP	-35°C to -5°C ( -31°F to +23°F )
M/HBP	-10°C to +15°C ( 14°F to +59°F )
HBP	-5°C to +15°C ( 23°F to +59°F )
L/M/HBP	-35°C to +15°C ( -31°F to +59°F )

## 3) - MOTOR

The compressors in the performance table are equipped with monophase, induction motors.

### 3.1) - Motor Torque

The compressor motors are denominated:

- LST - Low Starting Torque** -  
used in systems with capillary tube
- HST - High Starting Torque** -  
used in systems with expansion valve  
or with capillary tube

### 3.2) - Types of Electric Motors

**RSIR (PTCSIR) - Resistive Start - Inductive Run**  
Does not use capacitors

**CSIR - Capacitive Start - Inductive Run**  
Uses electrolytic capacitor (starting)

**RSCR (PTCSCR) - Resistive Start - Capacitive Run**  
Uses permanent capacitor (running)

**CSR (CSCR) - Capacitive Start & Run**  
Uses electrolytic (starting) and permanent capacitor  
at the same time – used with 4 terminal PTC

#### 4) - WARNINGS

Compressors must not be charged with anti-freeze agents, as their use can have adverse effects on the various materials used, jeopardizing the useful life of the compressor (the use of anti-freeze agents renders the compressor warranty null and void).

Please note the use of any capacitor other than the ones listed in the tables of this catalog or in the Application Table, will cause the starting relay and overload protector not to work properly and may even cause the compressor motor to burn.

It is recommended that manufacturers of refrigeration systems using flammable refrigerants such as R-600a and R-290, develop accurate charging, leak testing and system testing methods to guarantee that all necessary safety procedures have been met.

Use flushing agents which are compatible with the refrigerant used to clean systems.

The system to which the compressor will be assembled must be developed and adequately prepared for use with R-134a and ester oil, i.e. without anti-freeze agents, greasy residues, mineral oil, impurities in R-134a and without chlorides, alkaline residues and moisture.

The compressors must not be tested unless they are connected to the refrigeration system.

The compressor must not be subjected to high voltage or starting tests while under vacuum. All Embraco compressors have already been submitted to a 1650 V high voltage test for one second.

Gas charging and evacuating equipment must only be used for R-134a in order to avoid chloride residue contamination.

The halogen leak detectors presently used in Blends systems are not efficient with R-134a. This type of leak detector reacts with chlorine, a halogen, which is absent in R-134a. Equipment that uses helium as a tracer gas in combination with helium detectors, is recommended for the assembly lines of HFC 134a systems. There are compact electronic leak detectors on the market which are compatible with the R-134a refrigerant.

To maintain the performance presented in the performance table, the suction line must be connected to the suction connector.

For each type of refrigerant fluid there are appropriate dryer filters. (According to Application Manual Embraco).

To prevent excessive moisture from entering the compressor, the connector should be kept sealed at all times. Plugs should only be removed immediately before brazing connectors to system tubes (maximum time allowed is 15 minutes).

After replacement, the compressor and its accessories must have proper processing, and the components must be recycled according to the material group (ferrous, non-ferrous, polymers, oils, ...) directives. These recommendations are intended to minimize the adverse impacts that may be caused to the environment.

#### 5) - OIL TYPE AND SPECIFICATION

Compressors are charged with a specific quantity of completely degassed oil which is moisture free:

##### R-600a

- Mineral Naphthenic (ISO 32 / ISO 10).
- Alkylbenzene (ISO 32).

##### Blends

- Mineral Naphthenic (ISO 32).
- Alkylbenzene (ISO 32).

Note: The blends R-401a and R-401b can only be applied with alkylbenzene oil + additive.

The compressors charged with Alkylbenzene oil + additive, receive the label below.

COMPRESSOR APPROVED TO BE USED WITH BLENDS LISTED BELOW	
REFRIGERANT GAS	
ASHRAE	Commercial Name
R-401a	SUVA® MP39
R-401b	SUVA® MP66
R-409a	FORANE® FX56
R-413a	ISCEON® 49

##### R-134a

- Ester oil (ISO 22).
- Ester oil (ISO 10).
- Ester oil (ISO 7).

Note: The oil charge must not be removed or mixed.

##### R-290

- Alkylbenzene (ISO 32).

#### 6) - TEST CONDITIONS

TEMPERATURE	CHECK POINT HBP (ASHRAE)		CHECK POINT LBP (ASHRAE)		CHECK POINT (CECOMAF)	
	°C	°F	°C	°F	°C	°F
EVAPORATING TEMPERATURE	7.2	45	-23.3	-10	-25	-13
CONDENSING TEMPERATURE	54.4	130	54.4	130	55	131

#### 7) - CONVERSION

1 Watt	=	3.41 Btu/h
1 Watt	=	0.86 kcal/h
1 kcal/h	=	3.97 Btu/h
1 cu.ft.	=	28.32 liters

#### 8) - TOLERANCES

Capacity	=	±5%
Power Consumption	=	±5%
Current Consumption	=	±5%
Efficiency	=	±7%

## 9) - PERFORMANCE TABLES

# R-134a - L/MBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLACEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EM 20HHR	115-127V 60Hz	L/M/HBP	2.27	98 - 140	S/F	ISO22	221	2.00
EM 20HHR	220-240V 50-60Hz	L/M/HBP	2.27	187 - 242	S/F	ISO22	216	1.96
EMI 28HER	115-127V 60Hz	LBP	3.00	98 - 140	S	ISO10	61	0.92
EMI 28HER	220-240V 50-60Hz	LBP	3.00	198 - 242	S	ISO10	61	0.92
EMI 30HER	115-127V 60Hz	LBP	3.00	98 - 140	S	ISO10	66	0.95
EMI 30HER	220-240V 50-60Hz	LBP	3.00	98 - 140	S	ISO10	66	0.95
EM 30HHR	115V 60Hz	L/M/HBP	3.00	97 - 135	S/F	ISO22	301	1.98
EM 30HHR	220-240V 50-60Hz	L/M/HBP	3.00	187 - 242	S/F	ISO22	299	2.00
EMT 30HSC	115V 60Hz	LBP	3.00	103 - 135	S	ISO10	67	1.00
EMU 30HSC	115V 60Hz	LBP	3.00	103 - 135	S	ISO10	71	1.08
EMU 30HER	115-127V 60Hz	LBP	3.00	98 - 140	S	ISO10	75	1.06
EMU 30HER	220-240V 50-60Hz	LBP	3.00	187 - 242	S	ISO10	75	1.06
EMI 40HNR	115-127V 60Hz	LBP	3.77	98 - 140	S	ISO10	81	0.96
EMI 40HNR	220V 50-60Hz	LBP	3.77	187 - 242	S	ISO10	81	0.96
EM 45HHR	115-127V 60Hz	L/M/HBP	3.77	98 - 140	S/F	ISO22	299	2.00
EM 45HNR	220V 50-60Hz	LBP	3.77	98 - 140	S	ISO10	91	0.93
EMI 45HER	220-240V 50-60Hz	LBP	3.77	191 - 242	S	ISO10	91	1.04
EMI 45HER	115-127V 60Hz	LBP	4.08	103 - 135	S	ISO10	94	1.00
EMU 45HEP	100V 50-60Hz	LBP	3.77	85 - 110	S	ISO10	95	1.04
EMU 45HSC	220-240V 50-60Hz	LBP	3.77	187 - 242	S	ISO10	97	1.14
EMU 45HER	115-127V 60Hz	LBP	3.77	98 - 140	S	ISO10	98	1.07
EMU 45HER	220-240V 50-60Hz	LBP	3.77	191 - 242	S	ISO10	98	1.08
EMU 45HSC	115-127V 60Hz	LBP	3.77	98 - 140	S	ISO10	98	1.15
EMY 45HER	115-127V 60Hz	LBP	3.77	103 - 140	S	ISO10	98	1.12
EMY 45HSC	115-127V 60Hz	LBP	3.77	103 - 140	S	ISO10	98	1.22
EM 55HNR	115-127V 60Hz	LBP	4.60	103 - 135	S	ISO22	110	0.94
EM 55HNR	220V 50-60Hz	LBP	4.60	103 - 135	S/F	ISO22	110	0.94
EMI 55HER	115-127V 60Hz	LBP	4.60	98 - 140	S/F	ISO22	110	1.03
EMI 55HER	220V 50-60Hz	LBP	4.60	198 - 242	S/F	ISO22	110	1.03
EMI 60HER	115-127V 60Hz	LBP	4.99	98 - 135	S	ISO10	124	0.99
EMI 60HER	220V 50-60Hz	LBP	4.99	98 - 135	S	ISO10	124	0.99
EMU 60HEP	100V 50-60Hz	LBP	4.99	85 - 110	S	ISO10	128	1.09
EMU 60HSC	115-127V 60Hz	LBP	4.99	103 - 140	S	ISO10	128	1.15
EMY 60HER	115-127V 60Hz	LBP	4.99	103 - 140	S	ISO10	132	1.17
EMY 60HSC	115-127V 60Hz	LBP	4.99	103 - 140	S	ISO10	132	1.23
EMZ 60HSC	115-127V 60Hz	LBP	4.99	98 - 140	S	ISO10	132	1.30
EGYS 60HLP	115-127V 60Hz	LBP	5.09	98 - 140	S	ISO10	132	1.28
EGZS 60HLP	115-127V 60Hz	LBP	5.09	98 - 140	S	ISO10	132	1.39
EGX 60HLC	115-127V 60Hz	LBP	5.09	98 - 140	S	ISO10	132	1.41
EM 65HHC	115V 60Hz	L/M/HBP	5.54	103 - 135	S/F	ISO22	564	2.18
EM 65HNR	115-127V 60Hz	L/MBP	5.54	103 - 140	F	ISO10	141	0.91
FFI 6HAK	220V 50-60Hz	L/MBP	6.23	98 - 135	S	ISO22	147	0.99
FFV 6HAK	115-127V 60Hz	LBP	6.23	98 - 140	S	ISO10	147	1.12
FFV 6HAK	220V 50-60Hz	LBP	6.23	187 - 242	S	ISO10	147	1.12
EMY 70HER	115-127V 60Hz	LBP	5.72	98 - 140	S	ISO10	147	1.11
EMY 70HER	220V 60Hz	LBP	5.72	187 - 242	S	ISO10	147	1.11
EMY 70HSC	115-127V 60Hz	LBP	5.72	103 - 140	S	ISO10	147	1.22
FFI 6HAK	115-127V 60Hz	L/MBP	6.23	98 - 135	S	ISO22	147	0.99
EMX 70HSC	115-127V 60Hz	LBP	5.96	98 - 140	S	ISO10	150	1.33
FF 7.5HBK	115V 60Hz	L/M/HBP	6.92	103 - 135	S	ISO22	547	1.84

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

	PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR μF	STARTING CAPACITOR μF
	-35		-25		CHECK POINT DATA - 23.3						-15		-5						
					CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
	Btu/h	W	Btu/h	W	Btu/h	W			Btu/Wh	W/W	Btu/h	W	Btu/h	W					
75	22	174	51	200	59	66	0.91	3.03	0.89	339	99	585	172	LST / RSIR-CSIR	213514024	4TM730KFBYY-53	-	124-149	
75	22	181	53	200	59	66	0.65	3.03	0.89	335	98	550	161	LST / RSIR-CSIR	213514032	4TM189NFBYY-53	-	70-84	
99	29	247	72	280	82	71	0.96	3.95	1.16	472	138	-	-	LST / RSIR-CSIR	213514075	4TM734LFBYY-53	-	64-77	
99	29	247	72	280	82	71	0.51	3.95	1.16	472	138	-	-	LST / RSIR-CSIR	213514032	4TM189KFBYY-53	-	72-88	
102	30	275	81	305	89	74	0.99	4.10	1.20	482	141	-	-	LST / RSIR-CSIR	213514008	4TM734LFBYY-53	-	64-77	
111	32	271	79	305	89	74	0.52	4.10	1.20	522	153	-	-	LST / RSIR-CSIR	213514032	4TM189KFBYY-53	-	72-88	
121	36	292	86	310	91	97	1.70	3.20	0.94	527	154	853	250	LST / RSIR-CSIR	213514105	4TM757MFBYY-53	-	100-120	
110	36	293	86	310	91	90	0.70	3.44	1.01	524	154	843	247	LST / RSIR-CSIR	213514059	4TM189RHBYY-53	-	30-50	
110	32	292	86	310	91	72	0.65	4.30	1.26	505	148	-	-	LST / RSCR	490D314R7	4TM189RHBYY-53	12	-	
139	41	308	90	328	96	70	0.65	4.67	1.37	553	162	-	-	LST / RSCR	490D314R7	4TM197NFBYY-53	12	-	
144	42	311	91	345	101	76	0.94	4.57	1.34	540	158	-	-	LST / RSIR	213514075	4TM283NFBYY-53	-	-	
144	42	311	91	345	101	76	0.52	4.54	1.33	540	158	-	-	LST / RSIR-CSIR	213514016	4TM718KFBYY-53	-	-	
132	39	322	94	375	110	90	1.21	4.17	1.22	616	181	-	-	LST / RSIR-CSIR	213514075	4TM283RFBYY-53	-	88-108	
143	42	358	105	375	110	90	0.65	4.14	1.21	630	185	-	-	LST / RSIR-CSIR	213514164	4TM718KFBYY-53	-	53-64	
164	48	388	114	420	123	107	1.46	3.93	1.15	672	197	1057	310	LST / RSIR-CSIR	213514105	4TM757MFBYY-53	-	150-180	
176	51	376	110	420	123	104	0.78	4.04	1.18	676	198	-	-	LST / RSIR-CSIR	213514130	4TM718MFBYY-53	-	38-46	
160	47	376	110	420	123	93	0.68	4.50	1.32	674	197	-	-	LST / RSIR-CSIR	213514016	4TM718KFBYY-53	-	50-60	
106	31	384	112	435	127	100	1.24	4.35	1.27	700	205	-	-	LST / RSIR	213514091	4TM743KFBYY-53	-	-	
219	64	400	117	436	128	97	1.41	4.51	1.32	656	192	-	-	LST / RSIR	7M4R7MC1	4TM427NFBYY-53	-	-	
184	54	398	117	448	131	91	0.44	4.93	1.44	663	194	-	-	LST / RSCR	7M220MD3	4TM189KFBYY-53	5	-	
189	55	414	121	450	132	97	1.25	4.65	1.36	656	192	-	-	LST / RSIR	213514040	4TM757KFBYY-53	-	-	
189	55	414	121	450	132	96	0.68	4.66	1.37	656	192	-	-	LST / RSIR-CSIR	213514016	4TM718KFBYY-53	-	50-60	
199	58	412	121	450	132	90	0.81	4.97	1.46	709	208	-	-	LST / RSCR	490D314R7	4TM283NFBYY-53	12	-	
211	62	419	123	455	133	94	1.22	4.83	1.42	683	200	-	-	LST / RSIR	213514199	4TM757KFBYY-53	-	-	
211	62	419	123	455	133	88	0.80	5.14	1.51	683	200	-	-	LST / RSCR	8EA3B3	4TM283NFBYY-53	12	-	
216	63	438	128	510	149	126	1.69	4.05	1.19	777	228	-	-	LST / RSIR-CSIR	213514067	4TM762KFBYY-53	-	170-200	
173	51	436	128	510	149	126	0.86	4.05	1.19	802	235	-	-	LST / RSIR-CSIR	213514130	4TM718RFBYY-53	-	50-60	
228	67	459	134	510	149	115	1.54	4.45	1.30	807	236	-	-	LST / RSIR-CSIR	213514105	4TM757KDBYY-53	-	233-280	
228	67	458	134	510	149	115	0.75	4.45	1.30	806	236	-	-	LST / RSIR-CSIR	213514059	4TM 718NFBYY-53	-	108-130	
241	71	511	150	570	167	134	1.92	4.25	1.25	907	266	-	-	LST / RSIR-CSIR	213514083	4TM762KFBYY-53	-	158-190	
241	71	511	150	570	167	133	0.93	4.28	1.25	907	266	-	-	LST / RSIR-CSIR	213514130	4TM718REBYY-53	-	70-84	
270	79	545	160	590	173	126	1.86	4.70	1.38	914	268	-	-	LST / RSIR	490C814R7	4TM427NFBYY-53	-	-	
271	80	531	156	590	173	118	1.14	4.98	1.46	916	269	-	-	LST / RSCR	8EA3B3	4TM319NFBYY-53	12	-	
291	85	558	164	610	179	121	1.62	5.04	1.48	912	267	-	-	LST / RSIR	213514105	4TM757NFBYY-53	-	-	
291	85	558	164	610	179	115	1.02	5.31	1.56	912	267	-	-	LST / RSCR	8EA1B3	4TM319NFBYY-53	12	-	
278	82	539	158	610	179	109	0.96	5.58	1.64	938	275	-	-	LST / RSCR	TSD-115V	4TM319NFBYY-53	12	-	
254	74	537	157	610	179	110	1.32	5.54	1.62	1037	304	-	-	LST / RSIR	7M4R7MC1	4TM427KFBYY-53	-	-	
254	74	537	157	610	179	102	0.92	5.99	1.76	1037	304	-	-	LST / RSCR	TSD-115V	4TM427KFBYY-53	12	-	
253	74	537	158	610	179	100	0.88	6.08	1.78	1038	304	-	-	LST / RSCR	TSD-115V	4TM319NFBYY-53	12	-	
307	90	557	163	645	189	145	1.36	4.45	1.30	988	290	1606	471	LST / RSCR	8EA1B3	4TM427NFBYY-53	20	-	
484	142	635	186	650	190	166	2.65	3.93	1.15	1006	295	1555	456	LST / RSIR-CSIR	213514121	4TM762NFBZZ-53	-	175-228	
258	76	608	178	675	198	158	1.17	4.27	1.25	1080	317	1815	532	LST / RSIR-CSIR	213516159	4TM743KDBYY-53	-	64-77	
285	84	607	178	675	198	139	1.86	4.86	1.42	1079	316	-	-	LST / RSIR-CSIR	213516507	4TM762MFBZZ-53	-	158-190	
285	84	607	178	675	198	139	0.99	4.86	1.42	1079	316	-	-	LST / RSIR-CSIR	213516159	4TM302KFBYY-53	-	64-77	
321	94	614	180	680	199	142	1.94	4.80	1.41	1067	313	-	-	LST / RSIR-CSIR	213514083	4TM762MFBZZ-53	-	270-324	
321	94	614	180	680	199	142	1.03	4.80	1.41	1067	313	-	-	LST / RSIR-CSIR	213514148	4TM743KDBYY-53	-	88-108	
321	94	614	180	680	199	129	1.20	5.28	1.55	1067	313	-	-	LST / RSCR	8EA1B3	4TM319RFBYY-53	12	-	
301	88	619	181	680	199	160	2.32	4.25	1.25	1046	306	1798	527	LST / RSIR-CSIR	213516272	4TM762NFBZZ-53	-	158-190	
352	103	627	184	694	203	121	1.15	5.72	1.68	1057	310	-	-	LST / RSCR	TSD-115V	4TM427KFBYY-53	12	-	
272	80	618	181	695	204	178	2.44	3.90	1.14	1091	320	1749	513	LST / RSIR-CSIR	213516060	MRT30AIK-5590	-	189-227	



# R-134a - L/MBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLACEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EGAS 70HLR	115-127V 60Hz	LBP	5.56	98 - 140	S	ISO10	151	1.25
EGAS 70HLR	220-240V 50-60Hz	LBP	5.56	198 - 255	S	ISO10	151	1.25
EGUS 70HLP	115-127V 60Hz	LBP	5.56	98 - 140	S	ISO10	151	1.29
EGYS 70HLP	115-127V 60Hz	LBP	5.56	98 - 140	S	ISO10	151	1.31
EGZS 70HLC	220-240V 50-60Hz	LBP	5.56	198 - 255	S	ISO7	151	1.43
EGZS 70HLP	115-127V 60Hz	LBP	5.56	98 - 140	S	ISO10	151	1.41
EGX 70HLC	115-127V 60Hz	LBP	5.56	98 - 140	S	ISO10	151	1.44
FGI 85HAK	115-127V 60Hz	LBP	7.15	93 - 121	S	ISO22	152	0.98
EMI 70HER	220V 60Hz	LBP	5.89	187 - 242	S/F	ISO10	153	1.06
EMI 70HNR	115V 60Hz	L/MBP	5.89	103 - 127	S/F	ISO10	153	0.97
FGS 70HA	115-127V 60Hz	LBP	6.36	103 - 140	S	ISO10	153	1.20
FGS 70HA	220-240V 50-60Hz	LBP	6.36	198 - 242	S	ISO10	154	1.20
FF 8.5HBK	115V 60Hz	L/M/HBP	7.95	103 - 135	S/F	ISO22	681	1.79
FF 8.5HBK	220V 60Hz	L/M/HBP	7.95	198 - 242	S/F	ISO22	681	1.77
FFU 70HAK	115-127V 60Hz	L/MBP	6.36	98 - 140	S/F	ISO10	163	1.18
FFU 70HAK	220-240V 50-60Hz	L/MBP	6.36	98 - 140	S/F	ISO10	163	1.18
FGU 70HA	115-127V 60Hz	LBP	6.36	98 - 140	S	ISO10	163	1.26
FFI 7.5HAK	115V 60Hz	L/MBP	6.76	98 - 135	S	ISO10	166	1.08
FFV 7.5HAK	115-127V 60Hz	L/MBP	6.76	98 - 140	S	ISO10	166	1.16
FFV 7.5HAK	220-240V 50-60Hz	L/MBP	6.76	187 - 242	S	ISO10	166	1.16
FFI 7.5HAK	220-240V 50-60Hz	L/MBP	6.76	187 - 242	S	ISO10	167	1.09
FFU 80HAK	115-127V 60Hz	L/MBP	6.76	98 - 140	S/F	ISO10	177	1.18
FFU 80HAK	220-240V 50-60Hz	L/MBP	6.76	187 - 242	S/F	ISO10	177	1.18
FGU 80HA	115-127V 60Hz	LBP	6.76	98 - 140	S	ISO10	177	1.27
FGU 80HA	220-240V 50-60Hz	LBP	6.76	187 - 242	S	ISO10	177	1.27
EGAS 80HLR	115-127V 60Hz	LBP	6.36	98 - 140	S	ISO10	178	1.22
EGAS 80HLR	220-240V 50-60Hz	LBP	6.36	198 - 242	S	ISO10	178	1.27
EGUS 80HLP	115-127V 60Hz	LBP	6.36	98 - 140	S	ISO10	178	1.29
EGYS 80HLP	115-127V 60Hz	LBP	6.36	98 - 140	S	ISO10	178	1.32
EGZS 80HLC	220-240V 50-60Hz	LBP	6.36	198 - 255	S	ISO10	178	1.42
EGZS 80HLP	115-127V 60Hz	LBP	6.36	103 - 140	S	ISO10	178	1.31
EGX 80HLC	115-127V 60Hz	LBP	6.36	98 - 140	S	ISO10	178	1.45
FGS 80HA	115-127V 60Hz	LBP	7.15	103 - 140	S	ISO10	178	1.23
FGS 80HA	220-240V 50-60Hz	LBP	7.15	198 - 242	S	ISO10	179	1.23
FFI 8.5HAK	115-127V 60Hz	L/MBP	7.15	98 - 135	S	ISO10	180	1.12
FFI 8.5HAK	220-240V 50-60Hz	L/MBP	7.15	187 - 242	S/F	ISO10	180	1.12
FFV 8.5HAK	115-127V 60Hz	L/MBP	7.15	98 - 140	S	ISO10	180	1.16
FFV 8.5HAK	220-240V 50-60Hz	L/MBP	7.15	187 - 242	S	ISO10	180	1.16
FF 10HBK	115V 60Hz	L/M/HBP	9.04	103 - 127	S/F	ISO22	766	1.77
FF 10HBK	220V 60Hz	L/M/HBP	9.04	198 - 242	S/F	ISO22	766	1.77
FGS 90HA	115-127V 60Hz	LBP	7.95	103 - 140	S	ISO10	204	1.22
FGS 90HA	220-240V 50-60Hz	LBP	7.95	198 - 242	S	ISO10	204	1.23
FGU 90HA	115-127V 60Hz	LBP	7.55	98 - 140	S	ISO10	204	1.26
EGUS 90HLP	115-127V 60Hz	LBP	7.15	103 - 140	S	ISO10	206	1.30
EGYS 90HLP	115-127V 60Hz	LBP	7.15	103 - 140	S	ISO7	206	1.33
EGZS 90HLC	220-240V 50-60Hz	LBP	7.15	198 - 255	S	ISO10	206	1.42
EGZS 90HLP	115-127V 60Hz	LBP	7.15	98 - 140	S	ISO10	206	1.41
EGX 90HLC	115-127V 60Hz	LBP	7.15	98 - 140	S	ISO10	206	1.45
FFU 100HAK	115-127V 60Hz	L/MBP	7.95	98 - 140	S	ISO10	214	1.16
FFU 100HAK	220-240V 50-60Hz	L/MBP	7.95	198 - 242	S/F	ISO10	214	1.16
FFI 10HAK	115-127V 60Hz	L/MBP	9.04	103 - 135	S	ISO22	223	1.12

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
-35		-25		CHECK POINT DATA - 23.3						-15		-5						
				CAPACITY		POWER CONSUMPTION	CURRENT CONSUMPTION	EFFICIENCY										
Btu/h	W	Btu/h	W	Btu/h	W	W		Btu/Wh	W/W	Btu/h	W	Btu/h	W					
289	85	621	182	695	204	129	1.67	5.40	1.58	1125	330	-	-	LST / RSIR-CSIR	213516060	4TM762KFBYY-53	-	233-280
289	85	621	182	695	204	129	0.88	5.40	1.58	1125	330	-	-	LST / RSIR-CSIR	213516256	4TM739KFBYY-53	-	88-108
289	85	621	182	695	204	125	1.57	5.57	1.63	1125	330	-	-	LST / RSIR	7M4R7MC1	4TM427LFBYY-53	-	-
289	85	621	182	695	204	123	1.54	5.67	1.66	1125	330	-	-	LST / RSIR	7M4R7MC1	4TM427LFBYY-53	-	-
289	85	621	182	695	204	113	0.53	6.16	1.81	1125	330	-	-	LST / RSCR	7M220MD3	4TM232KFBYY-53	4	-
290	85	621	182	695	204	115	1.04	6.06	1.78	1126	330	-	-	LST / RSCR	TSD-115V	4TM319NFBYY-53	12	-
289	85	621	182	695	204	112	0.99	6.20	1.82	1125	330	-	-	LST / RSCR	TSD-115V	4TM319NFBYY-53	12	-
320	94	633	186	704	206	166	3.11	4.24	1.24	1129	331	-	-	LST / RSIR	7M4R7MC1	4TM771RFBZZ-53	-	-
343	100	647	190	705	207	154	1.08	4.58	1.34	1056	310	-	-	LST / RSIR	213514130	4TM739LFBYY-53	-	-
364	107	667	196	705	207	169	2.73	4.18	1.23	1121	329	1745	511	LST / RSIR	213514121	4TM762NFBZZ-53	-	-
325	95	664	195	705	207	136	1.20	5.20	1.52	1160	340	-	-	LST / RSCR	8EA1B3	4TM283ULBYY-53	20	-
312	91	630	185	710	208	136	0.63	5.20	1.52	1124	329	-	-	LST / RSCR	7M220MD3	4TM189NFBYY-53	5	-
363	106	674	198	740	217	198	2.88	3.74	1.10	1164	341	1887	553	LST / RSIR-CSIR	213510010	MRT22GZ-6	-	270-324
351	103	672	197	740	217	196	1.62	3.78	1.11	1162	341	1882	552	LST / RSIR-CSIR	213516230	MRP61AMZ-5590	-	88-108
319	93	676	198	750	220	147	1.93	5.10	1.49	1182	346	1893	555	LST / RSIR-CSIR	213516583	4TM762MFBZZ-53	-	175-228
319	93	676	198	750	220	147	1.00	5.10	1.49	1182	346	1893	555	LST / RSIR-CSIR	213516353	4TM283NFBYY-53	-	64-77
319	93	676	198	750	220	138	1.26	5.43	1.59	1182	346	-	-	LST / RSCR	8EA1B3	4TM445KFBYY-53	12	-
361	106	690	202	765	224	164	2.24	4.67	1.37	1230	360	1979	580	LST / RSIR-CSIR	213516060	4TM762PFBZZ-53	-	175-228
332	97	689	202	765	224	153	2.00	5.00	1.47	1223	358	1979	580	LST / RSIR-CSIR	213516272	4TM762MFBZZ-53	-	175-228
332	97	692	203	765	224	153	1.03	5.00	1.47	1234	362	2028	594	LST / RSIR-CSIR	213516159	4TM319KFBYY-53	-	64-77
361	106	695	204	770	226	164	1.18	4.70	1.38	1234	362	1984	581	LST / RSIR-CSIR	213516159	4TM743KDBYY-53	-	64-77
381	112	737	216	815	239	160	2.25	5.10	1.49	1292	379	2053	602	LST / RSIR-CSIR	213516094	4TM762PFBZZ-53	-	243-292
380	111	737	216	815	239	160	1.18	5.10	1.49	1292	379	2055	602	LST / RSIR-CSIR	213516086	4TM743KDBYY-53	-	108-130
356	104	741	217	815	239	148	1.36	5.50	1.61	1260	369	-	-	LST / RSCR	8EA1B3	4TM445KFBYY-53	12	-
356	104	740	217	815	239	148	0.69	5.51	1.61	1260	369	-	-	LST / RSCR	8EA5B3	4TM302KFBYY-53	5	-
329	96	740	217	820	240	155	2.03	5.30	1.55	1293	379	-	-	LST / RSIR-CSIR	213516567	4TM762NFBZZ-53	-	233-280
329	96	740	217	820	240	149	0.99	5.50	1.61	1293	379	-	-	LST / RSIR-CSIR	213516256	4TM743KFBYY-53	-	88-108
329	96	740	217	820	240	148	1.90	5.55	1.63	1293	379	-	-	LST / RSIR	7M4R7MC1	4TM445KFBYY-53	-	-
316	93	737	216	820	240	144	1.81	5.70	1.67	1294	379	-	-	LST / RSIR	7M4R7MC1	4TM445KFBYY-53	-	-
329	96	740	217	820	240	133	0.62	6.15	1.80	1293	379	-	-	LST / RSCR	7M220MD2	4TM283KFBYY-53	4	-
329	96	740	217	820	240	145	1.29	5.65	1.66	1293	379	-	-	LST / RSCR	7M4R7MC1	4TM445KFBYY-53	-	-
329	96	740	217	820	240	131	1.18	6.25	1.83	1293	379	-	-	LST / RSCR	TSD-115V	4TM445KFBYY-53	12	-
377	110	770	226	820	240	154	1.35	5.32	1.56	1322	387	-	-	LST / RSCR	7M4R7MD3	4TM319RFBYY-53	20	-
357	105	708	208	825	242	155	0.72	5.32	1.56	1238	363	-	-	LST / RSCR	8EA5B3	4TM189RFBYY-53	5	-
363	106	738	216	830	243	171	2.33	4.85	1.42	1319	387	2084	611	LST / RSIR-CSIR	213516132	4TM762NFBZZ-53	-	243-292
363	107	753	221	830	243	171	1.21	4.85	1.42	1317	386	2115	620	LST / RSIR-CSIR	213516078	4TM757KDBYY-53	-	64-77
382	112	766	225	830	243	166	2.23	5.00	1.47	1361	399	2126	623	LST / RSIR-CSIR	213516094	4TM762PFBZZ-53	-	243-292
382	112	766	225	830	243	166	1.20	5.00	1.47	1361	399	2126	623	LST / RSIR-CSIR	213516078	4TM743KDBYY-53	-	108-130
368	108	755	221	840	246	224	3.61	3.75	1.10	1330	390	2155	632	LST / RSIR-CSIR	213510304	MST26AJZ-6	-	460-552
368	108	755	221	840	246	215	1.83	3.90	1.14	1330	390	2155	632	LST / RSIR-CSIR	213516450	MRP56AMZ-5590	-	88-108
401	118	821	241	940	275	178	1.66	5.28	1.55	1434	420	-	-	LST / RSCR	8EA1B3	4TM437NFBYY-53	20	-
399	117	830	243	940	275	177	0.82	5.31	1.56	1433	420	-	-	LST / RSCR	7M220MC1	4TM283KFBYY-53	5	-
415	122	852	250	940	275	172	1.70	5.45	1.60	1447	424	-	-	LST / RSCR	7M4R7MB3	4TM445NFBYY-53	12	-
417	122	864	253	950	278	170	2.11	5.60	1.64	1460	428	-	-	LST / RSIR	7M4R7MC1	4TM762NFBYY-53	-	-
412	121	859	252	950	278	166	1.99	5.73	1.68	1454	426	-	-	LST / RSIR	8EA14C1	4TM437NFBYY-53	-	-
417	122	864	253	950	278	154	0.72	6.15	1.80	1460	428	-	-	LST / RSCR	7M220MD3	4TM283NFBYY-53	4	-
417	122	864	253	950	278	156	1.49	6.08	1.78	1460	428	-	-	LST / RSCR	TSD-115V	4TM437NFBYY-53	12	-
417	122	864	253	950	278	152	1.37	6.24	1.83	1460	428	-	-	LST / RSCR	TSD-115V	4TM437NFBYY-53	12	-
480	141	920	270	985	289	197	2.66	5.00	1.47	1546	453	2440	715	LST / RSIR-CSIR	213516248	4TM795KFBZZ-53	-	233-280
473	139	918	269	985	289	196	1.48	5.02	1.47	1547	453	2432	713	LST / RSIR-CSIR	213516035	4TM757KFBYY-53	-	53-64
391	115	923	271	1030	302	212	2.93	4.85	1.42	1613	473	2563	751	LST / RSIR-CSIR	213516248	4TM795KFBZZ-53	-	233-280



# R-134a - L/MBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT  cm <sup>3</sup>	OPERATING VOLTAGE RANGE  V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
FFI 10HAK	220-230V 50-60Hz	L/MBP	9.04	187 - 242	S	ISO22	223	1.12
EGZ 100HLP	115-127V 60Hz	LBP	7.95	103 - 140	S	ISO10	224	1.30
EGAS 100HLR	220-240V 50-60Hz	LBP	7.95	198 - 255	S	ISO10	228	1.26
EGZS 100HLC	220-240V 50-60Hz	LBP	7.95	198 - 255	S	ISO10	228	1.41
EGZS 100HLP	115-127V 60Hz	LBP	7.95	98 - 140	S	ISO10	228	1.38
FGS 100HA	115-127V 60Hz	LBP	9.04	103 - 135	S	ISO10	231	1.23
FGS 100HA	220-240V 50-60Hz	LBP	9.04	198 - 242	S	ISO22	231	1.22
FFI 12HBX	115-127V 60Hz	L/M/HBP	11.14	103 - 135	F	ISO22	1149	2.01
FFI 12HBX	220V 60Hz	L/M/HBP	11.14	198 - 242	S/F	ISO22	1149	1.80
FFU 130HAX	115-127V 60Hz	L/MBP	10.61	98 - 140	F	ISO10	271	1.11
FFU 130HAX	220V 60Hz	L/MBP	10.61	198 - 242	F	ISO10	271	1.09

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# R-134a - M/HBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT  cm <sup>3</sup>	OPERATING VOLTAGE RANGE  V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EM 20HHR	220-240V 50-60Hz	L/M/HBP	2.27	187 - 242	S/F	ISO22	216	1.96
EM 20HHR	115-127V 60Hz	L/M/HBP	2.27	98 - 140	S/F	ISO22	221	2.00
EM 30HHR	220-240V 50-60Hz	L/M/HBP	3.00	187 - 242	S/F	ISO22	299	2.00
EM 30HHR	115V 60Hz	L/M/HBP	3.00	97 - 135	S/F	ISO22	301	1.98
EM 45HHR	115-127V 60Hz	L/M/HBP	3.77	98 - 140	S/F	ISO22	299	2.00
EM 55HHR	115V 60Hz	HBP	4.60	98 - 135	F	ISO22	466	1.99
EM 55HHR	220-240V 50-60Hz	HBP	4.60	198 - 242	F	ISO22	466	2.05
EM 65HHC	115V 60Hz	L/M/HBP	5.54	103 - 135	S/F	ISO22	564	2.18
EM 65HHR	115V 60Hz	M/HBP	5.54	103 - 135	F	ISO22	564	1.98
EM 65HHR	220V 50-60Hz	M/HBP	5.54	103 - 135	F	ISO22	567	1.97
FF 7.5HBK	115V 60Hz	L/M/HBP	6.92	103 - 135	S	ISO22	547	1.84
FF 8.5HBK	115V 60Hz	L/M/HBP	7.95	103 - 135	S/F	ISO22	681	1.79
FF 8.5HBK	220V 60Hz	L/M/HBP	7.95	198 - 242	S/F	ISO22	681	1.77
FF 10HBK	115V 60Hz	L/M/HBP	9.04	103 - 127	S/F	ISO22	766	1.77
FF 10HBK	220V 60Hz	L/M/HBP	9.04	198 - 242	S/F	ISO22	766	1.77
FFI 12HBX	115-127V 60Hz	L/M/HBP	11.14	103 - 135	F	ISO22	1149	2.01
FFI 12HBX	220V 60Hz	L/M/HBP	11.14	198 - 242	S/F	ISO22	1149	1.80

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# R-600a - L/MBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT  cm <sup>3</sup>	OPERATING VOLTAGE RANGE  V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EMT 35CLP	100V 50-60Hz	LBP	4.50	85 - 110	S	ISO7	72	1.11
EMU 45CLP	100V 50-60Hz	LBP	5.96	85 - 110	S	ISO10	91	1.14
EGS 75CLP	115-127V 60Hz	LBP	10.08	98 - 140	S	ISO7	164	1.24
EGS 75CLP	220-240V 50-60Hz	LBP	10.08	187 - 242	S	ISO7	164	1.24
EGS 80CLP	115-127V 60Hz	L/MBP	11.14	98 - 140	S	ISO10	187	1.22
EGS 80CLP	220-240V 50-60Hz	L/MBP	11.14	187 - 242	S	ISO10	187	1.22
EGS 90CLP	220-240V 50-60Hz	LBP	12.21	187 - 242	S	ISO7	201	1.22

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

	PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
	-35		-25		CHECK POINT DATA - 23.3						-15		-5						
					CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
	Btu/h	W	Btu/h	W	Btu/h	W			Btu/Wh	W/W	Btu/h	W	Btu/h	W					
	391	115	923	270	1030	302	212	1.54	4.86	1.42	1613	473	2563	751					
472	138	939	275	1033	303	185	2.38	5.58	1.64	1580	463	-	-	LST / RSCR	TSD-115V	4TM445NFBYY-53	-	-	
452	132	949	278	1050	308	193	1.25	5.45	1.60	1609	471	-	-	LST / RSIR-CSIR	213516442	4TM757KFBYY-53	-	88-108	
452	132	949	278	1050	308	172	0.80	6.12	1.79	1609	471	-	-	LST / RSCR	7M220MD3	4TM302KFBYY-53	4	-	
452	132	949	278	1050	308	176	1.71	5.96	1.75	1609	471	-	-	LST / RSCR	7M4R7MD3	4TM445NFBYY-53	12	-	
461	135	956	280	1065	312	200	1.80	5.33	1.56	1651	484	-	-	LST / RSIR-RSCR	8EA1B3	4TM427RFBYY-53	20	-	
458	134	969	284	1065	312	201	0.93	5.29	1.55	1618	474	-	-	LST / RSCR	7M220MD3	4TM276RFBYY-53	5	-	
543	159	1045	306	1190	349	292	4.65	4.08	1.20	1892	554	3125	916	HST / CSIR	213516051	MRT22AFZ-5590	-	233-280	
533	156	1060	311	1190	349	296	2.72	4.02	1.18	1897	556	3083	903	HST / CSIR	213516485	MST40AIZ-5590	-	124-149	
524	153	1120	328	1250	366	260	4.05	4.80	1.41	2033	596	3294	965	LST/ HST / CSIR	213516051	MRT26ADK-5590	-	378-454	
524	153	1120	328	1250	366	265	2.38	4.71	1.38	2033	596	3294	965	LST/ HST / CSIR	213516584	4TM757MFBYY-53	-	88-108	

	PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE																		MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
	-15		-5		0		+5		CHECK POINT DATA + 7.2						+10		+15						
									CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
	Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W					Btu/Wh	W/W	Btu/h	W					
335	98	550	161	691	202	861	252	998	292	118	0.66	8.46	2.48	1063	312	1303	382	LST / RSIR-CSIR	213514032	4TM189NFBYY-53	-	70-84	
339	99	585	172	743	218	926	271	1020	299	118	1.28	8.64	2.53	1137	333	1376	403	LST / RSIR-CSIR	213514024	4TM730KFBYY-53	-	124-149	
524	154	843	247	1047	307	1287	377	1380	404	160	0.95	8.63	2.53	1569	460	1896	556	LST / RSIR-CSIR	213514059	4TM189RHBYY-53	-	30-50	
527	154	853	250	1059	310	1299	381	1390	407	163	2.00	8.53	2.50	1575	462	1893	555	LST / RSIR-CSIR	213514105	4TM757MFBYY-53	-	100-120	
672	197	1057	310	1299	381	1581	463	1775	520	206	2.20	8.62	2.53	1908	559	2285	669	LST / RSIR-CSIR	213514105	4TM757MFBYY-53	-	150-180	
-	-	1250	366	1556	456	1917	562	2150	630	250	2.85	8.60	2.52	2333	684	2803	822	LST / RSIR	213514067	4TM762NFBZZ-53	-	-	
-	-	1292	379	1612	472	1982	581	2150	630	242	1.35	8.88	2.60	2400	704	2868	841	LST / RSIR	213514130	4TM734KDBYY-53	-	-	
988	290	1606	471	1986	582	2415	708	2600	762	276	2.49	9.42	2.76	2893	848	3420	1002	LST / RSCR	8EA1B3	4TM427NFBYY-53	20	-	
-	-	1531	449	1899	556	2329	682	2600	762	305	3.45	8.52	2.50	2821	827	3375	989	LST / RSIR-CSIR	213514121	5TM 771RFBZZ-53	-	270-324	
-	-	1617	474	1987	582	2411	707	2615	766	308	1.77	8.49	2.49	2891	847	3424	1004	LST / RSIR-CSIR	213514172	4TM743KDBYY-53	-	88-108	
1091	320	1749	513	2167	635	2653	777	2940	862	384	3.99	7.66	2.24	3215	942	3861	1131	LST / RSIR-CSIR	213516060	MRT30AIK-5590	-	189-227	
1164	341	1887	553	2351	689	2894	848	3140	920	408	4.40	7.70	2.26	3521	1032	4240	1243	LST / RSIR-CSIR	213510010	MRT22GZ-6	-	270-324	
1162	341	1882	552	2346	688	2890	847	3140	920	410	2.31	7.66	2.24	3519	1031	4243	1244	LST / RSIR-CSIR	213516230	MRP61AMZ-5590	-	88-108	
1330	390	2155	632	2681	786	3294	965	3530	1035	462	4.90	7.64	2.24	4000	1172	4808	1409	LST / RSIR-CSIR	213510304	MST26AJZ-6	-	460-552	
1330	390	2155	632	2681	786	3294	965	3530	1035	462	2.48	7.64	2.24	4000	1172	4808	1409	LST / RSIR-CSIR	213516450	MRP56AMZ-5590	-	88-108	
1892	554	3125	916	3899	1143	4785	1402	5300	1553	612	6.80	8.66	2.54	5789	1697	6915	2027	HST / CSIR	213516051	MRT22AFZ-5590	-	233-280	
1897	556	3083	903	3819	1119	4656	1365	5300	1553	682	3.68	7.77	2.28	5600	1641	6656	1951	HST / CSIR	213516485	MST40AIZ-5590	-	124-149	

	PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
	-35		-25		CHECK POINT DATA - 23.3						-15		-5						
					CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
	Btu/h	W	Btu/h	W	Btu/h	W			Btu/Wh	W/W	Btu/h	W	Btu/h	W					
	145	42	269	79	327	96	68	1.02	4.81	1.41	445	130	-	-					
185	54	372	109	412	121	84	1.22	4.92	1.44	614	180	-	-	LST / RSIR	7M4R7MC1	4TM276RFBYY-53	-	-	
342	100	677	199	745	218	139	1.85	5.35	1.57	1133	332	-	-	LST / RSIR	7M4R7MC1	4TM427NFBYY-53	-	-	
368	108	681	199	745	218	139	0.96	5.35	1.57	1119	328	-	-	LST / RSIR	7M220MC1	4TM283KFBYY-53	-	-	
438	128	773	227	850	249	160	2.21	5.30	1.55	1311	384	2016	591	LST / RSIR	8M4R7MC1	4TM762MFBZZ-53	-	-	
438	128	772	226	850	249	160	1.14	5.30	1.55	1303	382	1999	586	LST / RSIR	7M220MC1	4TM276RFBYY-53	-	-	
472	138	838	246	915	268	173	1.19	5.29	1.55	1362	399	-	-	LST / RSIR	7M220MC1	4TM283NFBYY-53	-	-	

# Blends - L/MBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLACEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EM 20BR	115V 60Hz	L/M/HBP	2.27	98 - 135	S/F	ISO32	208	1.89
EM 20BR	220V 60Hz	L/M/HBP	2.27	187 - 242	S/F	ISO32	208	1.89
EM 30NR	115V 60Hz	LBP	3.00	103 - 127	S	ISO32	71	0.82
EM 30NR	220V 60Hz	LBP	3.00	198 - 242	S	ISO32	71	0.82
EM 30SC	115V 60Hz	LBP	3.00	103 - 135	S	ISO32	71	0.93
EM 40NR	115V 60Hz	LBP	3.77	103 - 127	S	ISO32	95	0.85
EM 40NR	220V 60Hz	LBP	3.77	198 - 242	S	ISO32	95	0.85
EMI 55ER	220-240V 50-60Hz	LBP	4.60	198 - 242	S/F	ISO32	129	1.03
EM 55NR	115V 60Hz	LBP	4.99	103 - 135	S	ISO32	132	0.93
EM 55NR	220V 60Hz	LBP	4.99	198 - 242	S	ISO32	132	0.93
EM 65NR	115V 60Hz	LBP	5.54	103 - 132	S	ISO32	143	0.96
EM 65NR	220V 60Hz	LBP	5.54	198 - 242	S	ISO32	143	0.93
FF 6BK	115V 60Hz	L/M/HBP	6.23	103 - 135	S	ISO32	902	1.60
FF 6BK	220V 60Hz	L/M/HBP	6.23	198 - 242	S	ISO32	902	1.60
FF 7.5BK	115-127V 60Hz	L/M/HBP	6.92	103 - 140	S	ISO32	902	1.60
FF 7.5BK	220V 60Hz	L/M/HBP	6.92	198 - 242	S	ISO32	902	1.60
EG 70LR	115V 60Hz	LBP	5.96	103 - 140	S	ISO32	167	1.00
EG 70LR	220V 60Hz	LBP	5.96	187 - 242	S	ISO32	167	1.00
FFU 70AK	115-127V 60Hz	L/MBP	6.36	98 - 140	S/F	ISO32	189	1.15
FFU 70AK	220-240V 50-60Hz	L/MBP	6.36	187 - 242	S/F	ISO32	189	1.15
FF 8.5BK	115V 60Hz	L/M/HBP	7.95	103 - 135	S/F	ISO32	695	1.64
FF 8.5BK	220V 60Hz	L/M/HBP	7.95	198 - 242	S/F	ISO32	695	1.71
FFU 100AK	220V 50-60Hz	L/MBP	7.95	198 - 242	S/F	ISO32	194	1.02
FFU 80AK	115-127V 60Hz	L/MBP	6.76	98 - 140	S/F	ISO32	206	1.15
FFU 80AK	220-240V 50-60Hz	L/MBP	6.76	187 - 242	S/F	ISO32	206	1.15
FF 10BK	115V 60Hz	L/M/HBP	9.04	103 - 135	S/F	ISO32	732	1.56
FF 10BK	220V 60Hz	L/M/HBP	9.04	198 - 242	S/F	ISO32	732	1.56
FFU 100AK	115-127V 60Hz	L/MBP	7.95	103 - 140	S/F	ISO32	237	1.11
FFU 100AK	220V 50-60Hz	L/MBP	7.95	198 - 242	S/F	ISO32	237	1.11
FF 11.5BK	115-127V 60Hz	L/M/HBP	11.14	103 - 140	F	ISO32	902	1.59
FF 11.5BK	220V 60Hz	L/M/HBP	11.14	198 - 242	S/F	ISO32	902	1.60
FFI 12BX	220V 60Hz	L/M/HBP	11.14	198 - 242	S/F	ISO32	1092	1.80
FFI 12BK	115V 60Hz	L/M/HBP	11.14	103 - 127	F	ISO32	1038	1.68
FFI 12BX	115V 60Hz	L/M/HBP	11.14	103 - 135	F	ISO32	1128	2.01
FFU 130AX	220V 60Hz	L/MBP	10.61	198 - 242	S/F	ISO32	305	1.02
FFU 130AX	115-127V 60Hz	L/MBP	10.61	98 - 140	F	ISO32	317	1.11

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# Blends - M/HBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLACEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EM 20BR	115V 60Hz	L/M/HBP	2.27	98 - 135	S/F	ISO32	208	1.89
EM 20BR	220V 60Hz	L/M/HBP	2.27	187 - 242	S/F	ISO32	208	1.89
FF 6BK	115V 60Hz	L/M/HBP	6.23	103 - 135	S	ISO32	902	1.60
FF 6BK	220V 60Hz	L/M/HBP	6.23	198 - 242	S	ISO32	902	1.60

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
-35		-25		CHECK POINT DATA - 23.3						-15		-5						
				CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
Btu/h	W	Btu/h	W	Btu/h	W			Btu/h	W	Btu/Wh	W/W	Btu/h	W					
76	22	182	53	200	59	69	0.94	2.90	0.85	336	98	556	163	LST / RSIR-CSIR	213514024	4TM730KFBYY-53	-	124-149
76	22	182	53	200	59	69	0.50	2.90	0.85	336	98	556	163	LST / RSIR-CSIR	213514032	4TM189NFBYY-53	-	70-84
139	41	284	83	315	92	89	1.10	3.54	1.04	494	145	-	-	LST / RSIR-CSIR	213514008	4TM734LFBYY-53	-	145-175
139	41	284	83	315	92	89	0.60	3.54	1.04	494	145	-	-	LST / RSIR-CSIR	213514016	4TM711KFBYY-53	-	38-46
139	41	284	83	315	92	78	0.73	4.01	1.18	494	145	-	-	LST / RSCR	8EA4B3	4TM197NFBYY-53	12	-
202	59	389	114	420	123	114	1.45	3.68	1.08	642	188	-	-	LST / RSIR-CSIR	213514040	4TM743PFBYY-53	-	145-175
202	59	389	114	420	123	114	0.75	3.68	1.08	642	188	-	-	LST / RSIR-CSIR	213514059	4TM711MHBY-53	-	38-46
251	73	504	148	570	167	128	0.81	4.45	1.30	887	260	-	-	LST / RSIR-CSIR	213514059	4TM718NFBYY-53	-	108-130
286	84	528	155	585	171	146	1.87	4.01	1.18	886	260	-	-	LST / RSIR	213514067	4TM762MFBYY-53	-	-
286	84	528	155	585	171	146	0.95	4.01	1.18	886	260	-	-	LST / RSIR-CSIR	213514059	4TM734LFBYY-53	-	53-64
315	92	585	171	635	186	154	1.97	4.12	1.21	957	280	-	-	LST / RSIR-CSIR	213514083	4TM757NFBYY-53	-	216-259
315	92	585	171	635	186	158	1.06	4.02	1.18	957	280	-	-	LST / RSIR-CSIR	213514148	4TM734LFBYY-53	-	53-64
360	105	600	176	655	192	168	2.05	3.90	1.14	981	287	1506	441	LST / RSIR-CSIR	213516060	MRP40AIN-5590	-	233-280
360	105	600	176	655	192	168	1.06	3.90	1.14	981	287	1506	441	LST / RSIR-CSIR	213516159	4TM739LFBYY-53	-	88-108
443	130	672	197	735	215	192	2.53	3.83	1.12	1074	315	1640	480	LST / RSIR-CSIR	213516060	MRT30AIK-5590	-	189-227
458	134	632	185	735	215	194	1.36	3.79	1.11	1077	316	1714	502	LST / RSIR-CSIR	213516078	4TM743KDBYY-53	-	64-77
391	115	701	205	740	217	172	2.33	4.30	1.26	1145	336	-	-	LST / RSIR-CSIR	213516272	4TM762NFBZZ-53	-	158-190
386	113	684	200	740	217	172	1.21	4.30	1.26	1134	332	-	-	LST / RSIR-CSIR	213516159	4TM743KDBYY-53	-	64-77
462	136	769	225	840	246	170	2.12	4.95	1.45	1253	367	1891	554	LST / RSIR-CSIR	213516272	4TM762MFBZZ-53	-	175-228
462	136	769	225	840	246	170	1.10	4.95	1.45	1253	367	1891	554	LST / RSIR-CSIR	213516159	4TM283NFBYY-53	-	64-77
446	131	777	228	850	249	223	3.14	3.81	1.12	1235	362	1886	553	LST / RSIR-CSIR	213516248	MRT26AIK-5590	-	190-250
453	133	777	228	850	249	225	1.70	3.78	1.11	1260	369	1940	569	LST / RSIR-CSIR	213516230	4TM757LFBYY-53	-	88-108
468	137	835	245	860	252	195	1.73	4.40	1.29	1332	390	1999	586	LST / RSIR-CSIR	213516035	4TM757KFBYY-53	-	53-64
485	142	835	245	910	267	184	2.39	4.95	1.45	1338	392	2034	596	LST / RSIR-CSIR	213516094	4TM762PFBZZ-53	-	243-292
485	142	835	245	910	267	184	1.26	4.95	1.45	1340	393	2036	597	LST / RSIR-CSIR	213516086	4TM743KDBYY-53	-	108-130
476	139	840	246	915	268	256	3.25	3.57	1.05	1344	394	2043	599	LST / RSIR-CSIR	213516248	MRT28AHN-5590	-	460-552
476	139	840	246	915	268	256	1.70	3.57	1.05	1344	394	2043	599	LST / RSIR-CSIR	213516035	MSP30AMK-5590	-	130-156
563	165	990	290	1050	308	219	2.96	4.80	1.41	1583	464	2389	700	LST / RSIR-CSIR	213516248	4TM771NFBZZ-53	-	233-280
558	163	994	291	1050	308	219	1.54	4.80	1.41	1574	461	2382	698	LST / RSIR-CSIR	213516035	4TM757KFBYY-53	-	53-64
767	225	1047	307	1130	331	296	4.26	3.81	1.12	1666	488	2573	754	LST / RSIR-CSIR	213516051	MST22AFK-5590	-	460-552
767	225	1047	307	1130	331	293	2.13	3.85	1.13	1666	488	2573	754	LST / RSIR-CSIR	213516450	MRP36ALK-5590	-	130-156
971	284	1282	376	1305	382	334	2.82	3.91	1.15	1881	551	3177	931	HST / CSIR	213516485	MSP36ALZ-5590	-	124-149
971	284	1282	376	1350	396	325	4.20	4.15	1.22	2040	598	3177	931	LST / RSIR-CSIR	213516183	MRT20AKN-5590	-	460-552
971	284	1282	376	1350	396	340	4.40	3.97	1.16	2040	598	3177	931	HST / CSIR	213516051	MRT16AFZ-5590	-	233-280
686	201	1233	361	1350	396	307	2.45	4.40	1.29	2040	598	3080	903	HST / CSIR	213516485	MRP36ALK-5590	-	124-149
714	209	1280	375	1405	412	295	4.25	4.76	1.40	2120	621	3200	938	HST / CSIR	213516051	MRT26ADK-5590	-	378-454

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE																		MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
-15		-5		0		+5		CHECK POINT DATA + 7.2						+10		+15						
								CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W			Btu/h	W	Btu/h	W	Btu/h	W					
336	98	556	163	696	204	858	252	920	270	113	1.26	8.14	2.39	1046	307	1261	370					
336	98	556	163	696	204	858	252	920	270	113	0.66	8.14	2.39	1046	307	1261	370					
981	287	1506	441	1835	535	2183	640	2340	686	319	3.20	7.34	2.15	2580	756	3017	884					
981	287	1506	441	1835	535	2183	640	2340	686	319	1.85	7.34	2.15	2580	756	3017	884					

# Blends - M/HBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT  cm³	OPERATING VOLTAGE RANGE  V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
FF 7.5BK	115-127V 60Hz	L/M/HBP	6.92	103 - 140	S	ISO32	902	1.60
FF 7.5BK	220V 60Hz	L/M/HBP	6.92	198 - 242	S	ISO32	902	1.60
FF 8.5BK	115V 60Hz	L/M/HBP	7.95	103 - 135	S/F	ISO32	695	1.64
FF 8.5BK	220V 60Hz	L/M/HBP	7.95	198 - 242	S/F	ISO32	695	1.71
FF 10BK	115V 60Hz	L/M/HBP	9.04	103 - 135	S/F	ISO32	732	1.56
FF 10BK	220V 60Hz	L/M/HBP	9.04	198 - 242	S/F	ISO32	732	1.56
FF 11.5BK	115-127V 60Hz	L/M/HBP	11.14	103 - 140	F	ISO32	902	1.59
FF 11.5BK	220V 60Hz	L/M/HBP	11.14	198 - 242	S/F	ISO32	902	1.60
FFI 12BK	115V 60Hz	L/M/HBP	11.14	103 - 127	F	ISO32	1038	1.68
FFI 12BX	220V 60Hz	L/M/HBP	11.14	198 - 242	S/F	ISO32	1092	1.80
FFI 12BX	115V 60Hz	L/M/HBP	11.14	103 - 135	F	ISO32	1128	2.01

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# R-290 - L/MBP - 60Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT  cm³	OPERATING VOLTAGE RANGE  V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EMI 90UEX	115-127V 60Hz	L/MBP	4.99	98 - 140	F	ISO32	205	1.08
FFU 130UAX	220-240V 50-60Hz	L/MBP	6.76	187 - 255	F	ISO32	295	1.22
FFU 160UAX	115-127V 60Hz	L/MBP	7.95	98 - 140	F	ISO32	362	1.22

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# R-134a - L/MBP - 50Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT  cm³	OPERATING VOLTAGE RANGE  V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EM 20HHR	220-240V 50-60Hz	L/M/HBP	2.27	187 - 255	S/F	ISO22	221	2.00
EMI 28HER	220-240V 50-60Hz	LBP	3.00	198 - 255	S	ISO10	53	0.89
EMI 30HER	220-240V 50-60Hz	LBP	3.00	187 - 242	S	ISO10	53	0.89
EM 30HHR	220-240V 50-60Hz	L/M/HBP	3.00	187 - 255	S/F	ISO22	301	1.98
EMU 30HER	220-240V 50-60Hz	LBP	3.00	187 - 255	S	ISO10	60	0.98
EMI 40HNR	220V 50-60Hz	LBP	3.77	187 - 255	S	ISO10	66	0.86
EM 45HNR	220V 50-60Hz	LBP	3.77	187 - 242	S	ISO10	72	0.80
EMI 45HER	220-240V 50-60Hz	LBP	3.77	187 - 255	S	ISO10	74	0.96
EM 45HHR	220-240V 50Hz	L/M/HBP	3.77	198 - 255	S	ISO22	75	0.81
EMU 45HEP	100V 50-60Hz	LBP	3.77	85 - 110	S	ISO10	76	0.97
EMU 45HER	220-240V 50-60Hz	LBP	3.77	187 - 255	S	ISO10	79	1.02
EMY 45HSC	220-240V 50Hz	LBP	3.77	198 - 255	S	ISO10	81	1.22
EMU 45HSC	220-240V 50-60Hz	LBP	3.77	187 - 255	S	ISO10	81	1.11
EM 55HNR	220V 50-60Hz	LBP	4.60	187 - 242	S	ISO22	91	0.85
EMI 55HER	220V 50-60Hz	LBP	4.60	198 - 255	S/F	ISO22	91	0.97
EM 50HNP	220-240V 50Hz	LBP	4.99	187 - 255	S	ISO22	92	0.93

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE																		MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR	
-15		-5		0		+5		CHECK POINT DATA + 7.2						+10		+15							
								CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY											
Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W			Btu/h	W	Btu/h	W	Btu/h	W						Btu/h
1074	315	1640	480	1981	581	2360	692	2550	747	367	3.83	6.95	2.04	2776	814	3228	946	LST / RSIR-CSIR	213516060	MRT30AIK-5590	-	189-227	
1077	316	1714	502	2080	610	2465	722	2600	762	360	2.03	7.22	2.12	2858	838	3250	952	LST / RSIR-CSIR	213516078	4TM743KDBYY-53	-	64-77	
1235	362	1886	553	2304	675	2796	819	3080	903	435	4.48	7.08	2.07	3368	987	4030	1181	LST / RSIR-CSIR	213516248	MRT26AIK-5590	-	190-250	
1260	369	1940	569	2364	693	2852	836	3080	903	417	2.40	7.39	2.17	3406	998	4032	1182	LST / RSIR-CSIR	213516230	4TM757LFBYY-53	-	88-108	
1344	394	2043	599	2483	728	2994	877	3240	950	481	5.01	6.74	1.98	3582	1050	4255	1247	LST / RSIR-CSIR	213516248	MRT28AHN-5590	-	460-552	
1344	394	2043	599	2483	728	2994	877	3240	950	481	2.61	6.74	1.98	3582	1050	4255	1247	LST / RSIR-CSIR	213516035	MSP30AMK-5590	-	130-156	
1666	488	2573	754	3120	914	3721	1090	4000	1172	584	6.30	6.85	2.01	4370	1281	5061	1483	LST / RSIR-CSIR	213516051	MST22AFK-5590	-	460-552	
1666	488	2573	754	3120	914	3721	1090	4000	1172	578	3.15	6.92	2.03	4370	1281	5061	1483	LST / RSIR-CSIR	213516450	MRP36ALK-5590	-	130-156	
2040	598	3177	931	3865	1133	4621	1354	4600	1348	632	6.49	7.28	2.13	5437	1593	6303	1847	LST / RSIR-CSIR	213516183	MRT20AKN-5590	-	460-552	
1881	551	3177	931	3865	1133	4621	1354	4838	1418	623	3.68	7.77	2.28	5437	1593	6303	1847	HST / CSIR	213516485	MSP36ALZ-5590	-	124-149	
2040	598	3177	931	3865	1133	4621	1354	5000	1465	577	6.80	8.67	2.54	5437	1593	6303	1847	HST / CSIR	213516051	MRT16AFZ-5590	-	233-280	

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
-35		-25		CHECK POINT DATA - 23.3						-15		-5						
				CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
Btu/h	W	Btu/h	W	Btu/h	W			W	A	Btu/Wh	W/W	Btu/h	W					
513	150	858	252	947	278	203	2.94	4.67	1.37	1274	373	1931	566	HST / CSIR	213515293	MSP36ALK-5590	-	189-227
788	231	1257	368	1360	399	257	1.61	5.28	1.55	1890	554	2821	827	HST / CSIR	213516043	4TM757LFBYY-53	-	145-175
1000	293	1609	471	1670	489	318	4.47	5.25	1.54	2425	711	3570	1046	HST / CSIR	213516051	MST26AFZ-5590	-	378-454

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
-35		-25		CHECK POINT DATA - 23.3						-15		-5						
				CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
Btu/h	W	Btu/h	W	Btu/h	W					Btu/Wh	W/W	Btu/h	W					
57	17	144	42	172	50	59	0.50	2.92	0.86	272	80	460	135	LST / RSIR-CSIR	213514032	4TM189NFBYY-53	-	70-84
80	23	217	64	245	72	63	0.56	3.86	1.13	407	119	-	-	LST / RSIR-CSIR	213514032	4TM189KFBYY-53	-	72-88
78	23	211	62	245	72	64	0.56	3.84	1.13	420	123	-	-	LST / RSIR-CSIR	213514032	4TM189KFBYY-53	-	72-88
109	32	243	71	260	76	86	0.60	3.02	0.89	437	128	707	207	LST / RSIR-CSIR	213514059	4TM189RHBY-53	-	30-50
108	32	247	72	275	81	65	0.55	4.23	1.24	443	130	-	-	LST / RSIR-CSIR	213514016	4TM718KFBYY-53	-	-
116	34	281	82	305	89	82	0.72	3.72	1.09	512	150	-	-	LST / RSIR-CSIR	213514164	4TM718KFBYY-53	-	53-64
142	42	310	91	330	97	96	0.89	3.45	1.01	546	160	-	-	LST / RSIR-CSIR	213514130	4TM718MFBYY-53	-	38-46
148	43	313	92	340	100	82	0.77	4.14	1.21	551	161	-	-	LST / RSIR-CSIR	213514016	4TM718KFBYY-53	-	50-60
145	43	294	86	348	102	99	0.86	3.50	1.03	528	155	873	256	LST / RSIR-CSIR	213514130	4TM718MFBYY-53	-	38-46
165	48	316	93	352	103	84	1.52	4.19	1.23	581	170	-	-	LST / RSIR	7M4R7MC1	4TM427NFBYY-53	-	-
171	50	337	99	365	107	83	0.74	4.40	1.29	546	160	-	-	LST / RSIR-CSIR	213514016	4TM718KFBYY-53	-	50-60
183	54	335	98	372	109	70	0.33	5.28	1.55	592	173	-	-	LST / RSCR	TSD-220V	4TM189KFBYY-53	3	-
156	46	340	100	373	109	78	0.36	4.78	1.40	556	163	-	-	LST / RSCR	7M220MD3	4TM189KFBYY-53	5	-
175	51	377	110	420	123	115	1.00	3.65	1.07	647	190	-	-	LST / RSIR-CSIR	213514130	4TM718RFBYY-53	-	50-60
199	58	387	113	420	123	100	0.75	4.20	1.23	672	197	-	-	LST / RSIR-CSIR	213514059	4TM718NFBYY-53	-	108-130
152	45	369	108	425	125	106	0.82	4.02	1.18	665	195	-	-	LST / RSIR-RSCR	8EA5B3	4TM189RHBY-53	2	-



# R-134a - L/MBP - 50Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT  cm <sup>3</sup>	OPERATING VOLTAGE RANGE  V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EMI 60HER	220V 50-60Hz	LBP	4.99	187 - 242	S	ISO22	102	0.90
EM 60HNP	220-240V 50Hz	LBP	5.54	198 - 255	S	ISO22	105	0.95
EMU 60HEP	100V 50-60Hz	LBP	4.99	85 - 110	S	ISO10	105	0.98
EMY 60HSC	220-240V 50Hz	LBP	4.99	198 - 255	S	ISO10	107	1.24
EM 65HNR	220V 50Hz	LBP	5.54	187 - 242	S	ISO22	112	0.92
EGAS 70HLR	220-240V 50-60Hz	LBP	5.56	198 - 255	S	ISO10	121	1.16
EGZS 70HLC	220-240V 50-60Hz	LBP	5.56	198 - 255	S	ISO7	121	1.38
FG 65HAK	220-240V 50Hz	LBP	6.76	198 - 255	S/F	ISO22	121	0.92
EMI 70HER	220V 50Hz	LBP	5.89	187 - 242	S/F	ISO22	123	0.93
FFV 6HAK	220V 50-60Hz	LBP	6.23	187 - 255	S	ISO10	124	1.08
FFI 6HAK	220V 50-60Hz	L/MBP	6.23	187 - 242	S	ISO22	126	0.91
FGS 70HA	220-240V 50-60Hz	LBP	6.36	198 - 255	S	ISO10	130	1.19
FFU 70HAK	220-240V 50-60Hz	L/MBP	6.36	187 - 255	S/F	ISO10	137	1.13
EMY 65HLC	220-240V 50Hz	LBP	5.96	187 - 255	S	ISO10	137	1.26
FFI 7.5HAK	220-240V 50-60Hz	L/MBP	6.76	187 - 255	S	ISO22	141	1.00
FFV 7.5HAK	220-240V 50-60Hz	L/MBP	6.76	187 - 255	S	ISO10	141	1.11
EG 70HLR	220-240V 50Hz	LBP	6.76	170 - 255	S	ISO22	142	1.10
FG 75HAK	220-240V 50Hz	LBP	7.95	198 - 255	S/F	ISO22	143	0.92
FF 8.5HBK	220-240V 50Hz	L/M/HBP	7.95	187 - 255	S/F	ISO22	681	1.77
EGAS 80HLR	220-240V 50-60Hz	LBP	6.36	198 - 255	S	ISO10	144	1.20
EGZS 80HLC	220-240V 50-60Hz	LBP	6.36	198 - 255	S	ISO10	144	1.38
FGU 80HA	220-240V 50-60Hz	LBP	6.76	187 - 255	S	ISO10	147	1.22
FFU 80HAK	220-240V 50-60Hz	L/MBP	6.76	187 - 255	S/F	ISO10	147	1.11
FGS 80HA	220-240V 50-60Hz	LBP	7.15	198 - 255	S	ISO10	151	1.22
EG 80HLR	220-240V 50Hz	LBP	7.15	170 - 255	S	ISO22	152	1.09
FFI 8.5HAK	220-240V 50-60Hz	L/MBP	7.15	187 - 255	S/F	ISO10	152	1.07
FFV 8.5HAK	220-240V 50-60Hz	L/MBP	7.15	187 - 255	S	ISO10	152	1.09
EGYS 90HLP	220-240V 50Hz	LBP	7.15	198 - 255	S	ISO10	167	1.32
EGZS 90HLC	220-240V 50-60Hz	LBP	7.15	198 - 255	S	ISO10	167	1.38
FG 85HAK	220-240V 50Hz	LBP	9.04	198 - 255	S/F	ISO22	168	0.95
FGS 90HA	220-240V 50-60Hz	LBP	7.95	198 - 255	S	ISO10	173	1.22
FFU 100HAK	220-240V 50-60Hz	L/MBP	7.95	198 - 255	S	ISO10	177	1.06
FGS 100HA	220-240V 50-60Hz	LBP	9.04	198 - 255	S	ISO22	184	1.11
FFI 10HAK	220-230V 50-60Hz	L/MBP	9.04	187 - 244	S	ISO22	184	1.03
EGAS 100HLR	220-240V 50-60Hz	LBP	7.95	198 - 255	S	ISO10	186	1.20
EGYS 100HLP	220-240V 50Hz	LBP	7.95	198 - 255	S	ISO10	186	1.32
EGZS 100HLC	220-240V 50-60Hz	LBP	7.95	198 - 255	S	ISO10	186	1.37
EG 100HLR	220-240V 50Hz	LBP	9.04	170 - 255	S	ISO22	191	1.11
FG 95HAK	220-240V 50Hz	LBP	10.61	198 - 255	S/F	ISO22	191	0.95
FFU 130HAX	220-240V 50Hz	L/MBP	10.61	187 - 255	F	ISO10	229	1.09
FGS 130HA	220-240V 50Hz	LBP	11.14	198 - 255	S	ISO22	235	1.18
FFI 12HBK	220-240V 50Hz	L/M/HBP	11.14	198 - 255	F	ISO22	974	2.06

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE															MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR μF	STARTING CAPACITOR μF
-35		-25		CHECK POINT DATA - 23.3						-15		-5							
				CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY											
Btu/h	W	Btu/h	W	Btu/h	W			Btu/Wh	W/W	Btu/h	W	Btu/h	W						
215	63	421	123	470	138	121	1.05	3.88	1.14	738	216	-	-	LST / RSIR-CSIR	213514130	4TM718REBY-53	-	70-84	
199	58	437	128	485	142	118	0.83	4.11	1.20	790	232	-	-	LST / RSIR-RSCR	8EA5B3	4TM213PFBY-53	2	-	
229	67	453	133	485	142	115	2.06	4.22	1.24	778	228	-	-	LST / RSIR	490C814R7	4TM427NFBY-53	-	-	
233	68	446	131	492	144	92	0.43	5.35	1.57	766	224	-	-	LST / RSCR	TSD-220V	4TM189KFBY-53	5	-	
312	91	473	139	520	152	130	1.05	4.00	1.17	804	236	-	-	LST / RSIR-CSIR	213514130	4TM718RFBY-53	-	70-84	
233	68	500	147	560	164	111	0.96	5.03	1.47	906	266	-	-	LST / RSIR-CSIR	213516256	4TM739KFBY-53	-	88-108	
233	68	500	147	560	164	94	0.46	5.96	1.75	906	266	-	-	LST / RSCR	7M220MD3	4TM232KFBY-53	4	-	
253	74	508	149	560	164	140	0.88	4.00	1.17	864	253	-	-	LST / HST /RSIR-CSIR	213516280	MRA58096-5590	-	64-77	
261	77	511	150	565	166	140	1.08	4.04	1.18	871	255	-	-	LST / RSIR-CSIR	213514130	4TM718RFBY-53	-	70-84	
241	71	512	150	570	167	122	1.06	4.67	1.37	919	269	-	-	LST / RSIR-CSIR	213516159	4TM302KFBY-53	-	64-77	
221	65	518	152	580	170	148	1.37	3.92	1.15	913	268	1491	437	LST / RSIR-CSIR	213516159	4TM743KDBY-53	-	64-77	
255	75	537	157	600	176	117	0.58	5.13	1.50	948	278	-	-	LST / RSCR	7M220MD3	4TM189NFBY-53	5	-	
274	80	568	166	630	185	129	1.07	4.88	1.43	998	293	1609	471	LST / RSIR-CSIR	213516353	4TM283NFBY-53	-	64-77	
287	84	555	163	631	185	116	0.53	5.46	1.60	970	284	-	-	LST / RSCR	7M220MD3	4TM232NFBY-53	4	-	
267	78	600	176	648	190	149	1.30	4.35	1.27	1028	301	1603	470	LST / RSIR-CSIR	213516159	4TM743KDBY-53	-	64-77	
296	87	597	175	650	190	136	1.13	4.78	1.40	1025	300	1636	479	LST / RSIR-CSIR	213516159	4TM319KFBY-53	-	64-77	
292	85	592	174	655	192	138	1.11	4.75	1.39	1051	308	-	-	LST / RSIR-CSIR	213516159	4TM302KFBY-53	-	72-88	
294	86	597	175	660	193	165	1.07	4.00	1.17	1046	306	-	-	LST / HST /RSIR-CSIR	213516299	MRA58103-5590	-	64-77	
279	82	572	168	662	194	174	1.45	3.80	1.11	1046	307	1728	507	LST / RSIR-CSIR	213516442	MRP61AMZ-5590	-	88-108	
266	78	600	176	665	195	128	1.07	5.20	1.52	1047	307	-	-	LST / RSIR-CSIR	213516256	4TM743KFBY-53	-	88-108	
266	78	600	176	665	195	112	0.57	5.96	1.75	1048	307	-	-	LST / RSCR	7M220MD2	4TM283KFBY-53	4	-	
322	94	610	179	675	198	128	0.64	5.27	1.54	1044	306	-	-	LST / RSCR	8EA5B3	4TM302KFBY-53	5	-	
307	90	620	182	680	199	142	1.30	4.80	1.41	1041	305	1702	499	LST / RSIR-CSIR	213516086	4TM743KDBY-53	-	108-130	
302	88	613	180	695	204	132	0.65	5.27	1.54	1090	319	-	-	LST / RSIR-RSCR	8EA5B3	4TM189RHBYY-53	5	-	
330	97	651	191	700	205	149	1.24	4.70	1.38	1085	318	-	-	LST / RSIR-CSIR	213516256	4TM232RFBY-53	-	72-88	
318	93	640	188	700	205	152	1.35	4.60	1.35	1098	322	1733	508	LST / RSIR-CSIR	213516078	4TM757KDBY-53	-	64-77	
298	87	614	180	700	205	149	1.30	4.70	1.38	1070	314	1683	493	LST / RSIR-CSIR	213516078	4TM743KDBY-53	-	108-130	
338	99	701	205	770	226	135	0.92	5.70	1.67	1183	347	-	-	LST / RSIR	2019X	AD58FYX	-	-	
338	99	701	205	770	226	129	0.71	5.96	1.75	1183	347	-	-	LST / RSCR	7M220MD3	4TM283NFBY-53	4	-	
362	106	701	205	775	227	189	1.20	4.10	1.20	1183	347	-	-	LST / HST /RSIR-CSIR	213510738	MRA58120-6	-	64-77	
358	105	687	201	800	234	152	0.78	5.26	1.54	1184	347	-	-	LST / RSIR-RSCR	8EA5B3	4TM283KFBY-53	5	-	
397	116	761	223	815	239	178	1.69	4.58	1.34	1284	376	2028	594	LST / RSIR-CSIR	213516035	4TM757KFBY-53	-	53-64	
376	110	778	228	850	249	178	1.36	4.77	1.40	1312	384	-	-	LST / RSCR	8EA17C1	4TM276RFBY-53	-	-	
363	106	750	220	850	249	191	1.73	4.45	1.30	1365	400	2171	636	LST / RSIR-CSIR	213516035	4TM757KFBY-53	-	53-64	
368	108	773	226	855	251	164	1.36	5.20	1.52	1310	384	-	-	LST / RSIR-CSIR	213516442	4TM757KFBY-53	-	88-108	
368	108	773	226	855	251	150	0.99	5.70	1.67	1310	384	-	-	LST / RSIR	7M220MC1	4TM232RFBY-53	-	-	
368	108	773	226	855	251	144	0.79	5.95	1.74	1310	384	-	-	LST / RSCR	7M220MD3	4TM302KFBY-53	4	-	
420	123	817	239	880	258	184	1.50	4.78	1.40	1389	407	-	-	LST / RSIR-CSIR	213516442	4TM319NFBY-53	-	72-88	
408	120	805	236	880	258	215	1.54	4.09	1.20	1378	404	-	-	LST / HST /RSIR-CSIR	213516256	MRA58152-5590	-	64-77	
450	132	956	280	1055	309	224	1.88	4.72	1.38	1628	477	2607	764	LST/ HST / CSIR	213516345	4TM757KFBY-53	-	88-108	
495	145	969	284	1080	317	213	1.12	5.07	1.49	1703	499	-	-	LST / RSCR	8EA5B3	4TM283RFBY-53	5	-	
519	152	979	287	1090	319	256	1.96	4.26	1.25	1699	498	2695	790	LST / RSIR-CSIR	213516035	4TM757KFBY-53	-	88-108	

# R-134a - M/HBP - 50Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLACEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EM 20HHR	220-240V 50-60Hz	L/M/HBP	2.27	187 - 255	S/F	ISO22	221	2.00
EM 30HHR	220-240V 50-60Hz	L/M/HBP	3.00	187 - 255	S/F	ISO22	301	1.98
EM 45HHR	220-240V 50Hz	L/M/HBP	3.77	198 - 255	S/F	ISO22	75	0.81
EMT 45HDR	220-240V 50Hz	L/M/HBP	3.97	187 - 255	F	ISO10	354	2.24
EM 55HHR	220-240V 50-60Hz	HBP	4.60	198 - 255	F	ISO22	394	2.13
EM 65HHR	220-240V 50Hz	HBP	5.54	198 - 255	F	ISO22	473	2.06
EM 65HHR	220V 50-60Hz	M/HBP	5.54	187 - 242	F	ISO22	477	1.89
FF 8.5HBK	220-240V 50Hz	L/M/HBP	7.95	187 - 255	S/F	ISO22	681	1.77
FFI 12HBX	220-240V 50Hz	M/HBP	11.14	198 - 255	F	ISO22	939	2.01
FFI 12HBK	220-240V 50Hz	L/M/HBP	11.14	198 - 255	F	ISO22	974	2.06

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# R-600a - L/MBP - 50Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLACEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EMT 17CLP	220-240V 50Hz	LBP	3.40	187 - 255	S	ISO7	38	0.97
EMX 20CLC	220-240V 50Hz	LBP	3.97	198 - 254	S	ISO5	46	1.24
EMY 20CLC	220-240V 50Hz	LBP	3.97	198 - 254	S	ISO5	46	1.15
EMZ 20CLC	220-240V 50Hz	LBP	3.97	187 - 255	S	ISO5	50	1.30
EMT 23CLP	220-240V 50Hz	LBP	4.50	187 - 255	S	ISO7	58	1.08
EMT 35CLP	100V 50-60Hz	LBP	4.50	85 - 110	S	ISO7	60	1.03
EMY 26CLC	220-240V 50Hz	LBP	5.19	198 - 254	S	ISO5	62	1.22
EMZ 26CLC	220-240V 50Hz	LBP	5.19	198 - 254	S	ISO5	62	1.26
EMX 26CLC	220-240V 50Hz	LBP	5.19	187 - 255	S	ISO5	63	1.34
EMT 26CLP	220-240V 50Hz	L/MBP	5.19	187 - 255	S	ISO7	64	0.98
EMU 26CLC	220-240V 50Hz	L/MBP	5.19	198 - 254	S	ISO7	64	1.07
EMT 32CLP	220-240V 50Hz	L/MBP	5.96	198 - 254	S	ISO7	73	1.00
EMU 32CLC	220-240V 50Hz	L/MBP	5.96	198 - 254	S	ISO7	73	1.08
EMY 32CLC	220-240V 50Hz	LBP	5.96	198 - 254	S	ISO5	73	1.19
EMZ 32CLC	220-240V 50Hz	LBP	5.96	198 - 254	S	ISO5	73	1.29
EMX 32CLC	220-240V 50Hz	LBP	5.96	187 - 255	S	ISO5	74	1.36
EMU 45CLP	100V 50-60Hz	LBP	5.96	85 - 110	S	ISO10	76	1.07
EMY 40CLC	220-240V 50Hz	LBP	7.23	198 - 254	S	ISO5	89	1.21
EMZ 40CLC	220-240V 50Hz	LBP	7.23	198 - 254	S	ISO5	91	1.30
EMT 40CLP	220-240V 50Hz	L/MBP	7.23	198 - 254	S	ISO7	91	1.01
EMU 40CLC	220-240V 50Hz	L/MBP	7.23	198 - 254	S	ISO7	91	1.10
EMY 46CLP	220-240V 50Hz	L/MBP	7.96	198 - 254	S	ISO7	101	1.15
EMT 46CLP	220-240V 50Hz	L/MBP	7.96	198 - 254	S	ISO7	102	1.02
EMU 46CLC	220-240V 50Hz	L/MBP	7.96	198 - 254	S	ISO7	102	1.10
EMZ 46CLC	220-240V 50Hz	LBP	7.96	187 - 255	S	ISO7	106	1.36
EMY 46CLC	220-240V 50Hz	LBP	7.96	187 - 255	S	ISO7	106	1.27
EMT 56CLP	220-240V 50Hz	LBP	9.34	198 - 254	S	ISO7	116	1.06
EMZ 55CLC	220-240V 50Hz	LBP	9.04	198 - 254	S	ISO5	117	1.31

Note: Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE																		MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
-15		-5		0		+5		CHECK POINT DATA + 7.2						+10		+15						
								CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W			W		Btu/h	W	Btu/h	W					
272	80	460	135	580	170	722	212	840	246	98	0.62	8.57	2.51	886	260	1076	315	LST / RSIR-CSIR	213514032	4TM189NFBYY-53	-	70-84
437	128	707	207	876	257	1070	314	1170	343	140	0.95	8.36	2.45	1292	379	1543	452	LST / RSIR-CSIR	213514059	4TM189RHBYY-53	-	30-50
528	155	873	256	1096	321	1356	397	1500	440	167	1.05	8.96	2.26	1657	486	2003	587	LST / RSIR-CSIR	213514130	4TM718MFBYY-53	-	38-46
645	189	996	292	1226	359	1499	439	1633	479	168	1.08	9.70	2.84	1823	534	2202	645	HST / CSIR	MTRP-0036	T0043/G5	-	64-77
-	-	1117	327	1367	401	1661	487	1820	533	198	1.25	9.19	2.69	1997	585	2377	697	LST / RSIR	213514130	4TM734KDBYY-53	-	-
-	-	1388	407	1626	476	1940	569	2180	639	245	1.42	8.90	2.61	2332	683	2800	821	LST / RSIR	213514130	4TM734LFBYY-53	-	-
-	-	1327	389	1657	486	2026	594	2200	645	270	1.91	8.15	2.39	2434	713	2881	844	LST / RSIR-CSIR	213514172	4TM743KDBYY-53	-	88-108
1046	307	1728	507	2157	632	2649	776	2880	844	339	2.00	8.50	2.49	3207	940	3835	1124	LST / RSIR-CSIR	213516442	MRP61AMZ-5590	-	88-108
-	-	2581	757	3257	955	4015	1177	4330	1269	499	2.83	8.68	2.54	4854	1423	5775	1692	HST / CSIR	213516450	4TM757UFBBYY-53	-	88-108
1699	498	2695	790	3302	968	3984	1168	4492	1316	504	2.79	8.91	2.61	4743	1390	5581	1635	LST / RSIR-CSIR	213516035	4TM757KFBYY-53	-	88-108

PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
-35		-25		CHECK POINT DATA - 23.3						-15		-5						
				CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
Btu/h	W	Btu/h	W	Btu/h	W			Btu/Wh	W/W	Btu/h	W	Btu/h	W					
75	22	154	45	170	50	41	0.30	4.18	1.23	271	79	-	-	LST / RSIR	V230	T0285/07	-	-
93	27	188	55	208	61	39	0.18	5.36	1.57	324	95	-	-	LST / RSCR	TSD-220V	4TM110KFBYY-73	2	-
100	29	187	55	213	62	43	0.20	4.95	1.45	337	99	-	-	LST / RSIR-RSCR	V230	AE23AHNX	25	-
114	33	205	60	228	67	41	0.20	5.59	1.64	371	109	-	-	LST / RSCR	TSD-220V	4TM110KFBYY-73	2	-
129	38	240	70	265	78	57	0.41	4.67	1.37	392	115	-	-	LST / RSIR	V230	T0223/07	-	-
105	31	232	68	273	80	62	1.11	4.44	1.30	390	114	-	-	LST / RSIR	V115	T0062/07	-	-
117	34	253	74	280	82	53	0.26	5.26	1.54	438	128	-	-	LST / RSIR-RSCR	V230	AE23AHNX	25	-
104	30	256	75	280	82	52	0.24	5.44	1.59	433	127	-	-	LST / RSCR	V230	T0285/07	25	-
109	32	260	76	285	84	50	0.23	5.75	1.69	433	127	-	-	LST / RSCR	TSD-220V	4TM 110NFBYY-73	25	-
136	40	264	77	290	85	69	0.45	4.22	1.24	445	130	-	-	LST / RSCR	2019	T0223/07	-	-
136	40	264	77	290	85	62	0.44	4.65	1.36	445	130	-	-	LST / RSCR	2019	4TM110NFBYY-53	-	-
158	46	304	89	330	97	76	0.32	4.34	1.27	510	150	-	-	LST / RSCR	V230	AD37FN10	-	-
158	46	304	89	330	97	70	0.45	4.68	1.37	510	150	-	-	LST / RSCR	2019	T0223/07	-	-
158	46	300	88	330	97	64	0.42	5.14	1.51	502	147	-	-	LST / RSIR-RSCR	V230	T0879/07	-	-
150	44	300	88	330	97	59	0.27	5.57	1.63	505	148	-	-	LST / RSCR	V230	T0223/07	25	-
154	45	304	89	334	98	57	0.26	5.88	1.72	509	149	-	-	LST / RSCR	TSD-220V	4TM110NFBYY-73	2	-
159	47	317	93	348	102	76	1.30	4.60	1.35	521	153	-	-	LST / RSIR	7M4R7MC1	4TM276RFBYY-53	-	-
184	54	369	108	406	119	78	0.51	5.22	1.53	622	182	-	-	LST / RSIR-RSCR	2019	AE37FN10	-	-
190	56	373	109	412	121	73	0.33	5.63	1.65	628	184	-	-	LST / RSCR	V230	T0224/07	4	-
205	60	378	111	414	121	95	0.64	4.37	1.28	627	184	-	-	LST / RSCR	2019	T0225/07	-	-
205	60	378	111	414	121	87	0.58	4.75	1.39	627	184	-	-	LST / RSCR	2019	AD37FN10	-	-
231	68	422	124	461	135	93	0.58	4.95	1.45	692	203	-	-	LST / RSCR	TSD-220V	AD37FN10	-	-
231	68	422	124	464	136	105	0.22	4.40	1.29	692	203	-	-	LST / RSCR	MSDA3	AD64FS10	-	-
231	68	422	124	464	136	98	0.62	4.75	1.39	692	203	-	-	LST / RSCR	2019	AD37FN10	-	-
236	69	440	129	484	142	82	0.39	5.87	1.72	719	211	-	-	LST / RSCR	V230	T0224/07	4	-
224	66	413	121	485	142	88	0.46	5.51	1.61	689	202	-	-	LST / RSIR-RSCR	V230	T0224/07	4	-
236	69	478	140	525	154	115	0.84	4.56	1.34	801	235	-	-	LST / RSIR-RSCR	2019	AE19BU	-	-
264	77	489	143	534	156	94	0.43	5.67	1.66	819	240	-	-	LST / RSCR	V230	T0225/07	5	-

# R-600a - L/MBP - 50Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EMX 55CLC	220-240V 50Hz	LBP	9.04	187 - 255	S	ISO5	118	1.37
EMX 66CLC	220-240V 50Hz	LBP	10.61	187 - 255	S	ISO5	137	1.37
EMX 70CLC	220-240V 50Hz	LBP	11.14	198 - 255	S	ISO5	143	1.36
EGX 80CLC	220-240V 50Hz	LBP	11.14	198 - 255	S	ISO5	149	1.47
EMZ 70CLC	220-240V 50Hz	LBP	11.14	187 - 255	S	ISO7	153	1.36
EGX 90CLC	220-240V 50Hz	LBP	12.21	198 - 255	S	ISO5	162	1.49
EGZ 90CLC	220-240V 50Hz	LBP	12.21	198 - 255	S	ISO7	167	1.40

**Note:** Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# Blends - L/MBP - 50Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
EM 30NP	220-240V 50Hz	LBP	3.00	198 - 255	S	ISO32	55	0.73
EMI 55ER	220-240V 50-60Hz	LBP	4.60	198 - 255	S/F	ISO32	104	0.99
EM 55NP	220-240V 50Hz	LBP	4.99	198 - 255	S	ISO32	106	0.86
EM 65NP	220-240V 50Hz	LBP	5.54	198 - 255	S	ISO32	123	0.90
FF 7.5BK	220-240V 50Hz	L/M/HBP	6.92	198 - 255	S	ISO32	902	1.60
FFU 70AK	220-240V 50-60Hz	L/MBP	6.36	187 - 255	S/F	ISO32	158	1.11
FF 8.5BK	220-240V 50Hz	L/M/HBP	7.95	198 - 255	S/F	ISO32	695	1.71
FFU 80AK	220-240V 50-60Hz	L/MBP	6.76	187 - 255	S/F	ISO32	169	1.10
FF 10BK	220-240V 50Hz	L/M/HBP	9.04	198 - 255	F	ISO32	632	1.70
FFI 12BK	220-240V 50Hz	L/M/HBP	11.14	198 - 255	F	ISO32	902	1.77

**Note:** Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# Blends - M/HBP - 50Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
FF 7.5BK	220-240V 50Hz	L/M/HBP	6.92	198 - 255	S	ISO32	902	1.60
FF 8.5BK	220-240V 50Hz	L/M/HBP	7.95	198 - 255	S/F	ISO32	695	1.71
FF 10BK	220-240V 50Hz	L/M/HBP	9.04	198 - 255	F	ISO32	632	1.70
FFI 12BK	220-240V 50Hz	L/M/HBP	11.14	198 - 255	F	ISO32	902	1.77

**Note:** Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

# R-290 - L/MBP - 50Hz

MODEL	VOLTAGE / FREQUENCY	APPLICATION	DISPLA- CEMENT cm <sup>3</sup>	OPERATING VOLTAGE RANGE V	COOLING TYPE*	OIL VISCOSITY	CHECK POINT DATA CECOMAF (CALCULATED)	
							CAPACITY W	COP W/W
FFU 130UAX	220-240V 50-60Hz	L/MBP	6.76	187 - 255	F	ISO32	236	1.18
FFU 160UAX	220-240V 50Hz	L/MBP	7.95	187 - 255	F	ISO32	296	1.15

**Note:** Condensing Temperature 54.4°C (129.92°F)

\*Static Cooling (S) / Fan Cooling (F)

	PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
	-35		-25		CHECK POINT DATA - 23.3						-15		-5						
					CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
	Btu/h	W	Btu/h	W	Btu/h	W					Btu/Wh	W/W	Btu/h	W					
262	77	487	143	536	157	91	0.42	5.90	1.73	818	240	-	-	LST / RSCR	TSD-220V	4TM232KFBYY-73	5	-	
312	91	565	165	624	183	106	0.49	5.91	1.73	945	277	-	-	LST / RSCR	TSD-220V	4TM232KFBYY-73	5	-	
359	105	592	174	652	191	111	0.55	5.87	1.72	966	283	-	-	LST / RSCR	TSD-220V	4TM276KFBYY-73	5	-	
365	107	624	183	679	199	107	0.49	6.33	1.86	1003	294	-	-	LST / RSCR	TSD-220V	4TM189NFBYY-53	5	-	
385	113	639	187	696	204	118	0.57	5.87	1.72	1029	302	-	-	LST / RSCR	TSD-220V	4TM232KFBYY-73	5	-	
397	116	679	199	737	216	115	0.53	6.41	1.88	1085	318	-	-	LST / RSCR	TSD-220V	4TM189NFBYY-53	4	-	
436	128	706	207	760	223	126	0.57	6.05	1.77	1091	320	-	-	LST / RSCR	7M220MD3	4TM213PFBYY-53	5	-	

	PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
	-35		-25		CHECK POINT DATA - 23.3						-15		-5						
					CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
	Btu/h	W	Btu/h	W	Btu/h	W			Btu/Wh	W/W	Btu/h	W	Btu/h	W					
102	30	219	64	245	72	78	0.33	3.16	0.93	393	115	-	-	LST / RSIR-RSCR	8EA5B3	4TM134NFBYY-53	4	-	
215	63	417	122	460	135	108	0.84	4.25	1.25	726	213	-	-	LST / RSIR-CSIR	213514059	4TM718NFBYY-53	-	108-130	
242	71	425	125	470	138	126	0.81	3.73	1.09	709	208	-	-	LST / RSIR-RSCR	8EA5B3	4TM189RHBYY-53	-	-	
252	74	498	146	545	160	140	0.92	3.89	1.14	810	237	-	-	LST / RSIR-RSCR	8EA5B3	4TM189RHBYY-53	4	-	
339	99	603	177	627	184	158	0.97	3.97	1.16	956	280	1437	421	LST / RSIR-CSIR	213516116	4TM739KFBYY-53	-	88-108	
373	109	647	189	700	205	146	1.14	4.80	1.41	1036	304	1579	463	LST / RSIR-CSIR	213516159	4TM283NFBYY-53	-	64-77	
415	122	659	193	715	210	185	1.16	3.86	1.13	1058	310	1626	476	LST / RSIR-CSIR	213516159	4TM739LFBYY-53	-	108-130	
421	123	693	203	750	220	158	1.34	4.74	1.39	1106	324	1720	504	LST / RSIR-CSIR	213516086	4TM743KDBYY-53	-	108-130	
434	127	732	215	795	233	203	1.40	3.92	1.15	1166	342	1772	519	LST / RSIR-CSIR	213516078	MSP57AMK-5590	-	53-64	
810	237	1068	313	1150	337	275	2.10	4.18	1.22	1700	498	2647	776	LST / RSIR-CSIR	213516035	MRP40APN-5598	-	88-108	

		PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE																MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR		
		-15		-5		0		+5		CHECK POINT DATA + 7.2						+10							+15	
										CAPACITY		POWER CONSUMPTION W	CURRENT CONSUMPTION A	EFFICIENCY										
		Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W	Btu/h	W			Btu/Wh	W/W	Btu/h	W						Btu/h	W
956	280	1437	421	1738	509	2086	611	2135	626	292	1.50	7.31	2.14	2486	728	2942	862	LST / RSIR-CSIR	213516116	4TM739KFBYY-53	-	88-108		
1058	310	1626	476	1977	579	2375	696	2567	752	352	1.94	7.29	2.14	2822	827	3319	973	LST / RSIR-CSIR	213516159	4TM739LFBYY-53	-	108-130		
1166	342	1772	519	2151	630	2587	758	2800	821	381	2.10	7.35	2.15	3085	904	3649	1069	LST / RSIR-CSIR	213516078	MSP57AMK-5590	-	53-64		
1700	498	2647	776	3220	944	3851	1128	4000	1172	524	2.90	7.63	2.24	4530	1328	5252	1539	LST / RSIR-CSIR	213516035	MRP40APN-5598	-	88-108		

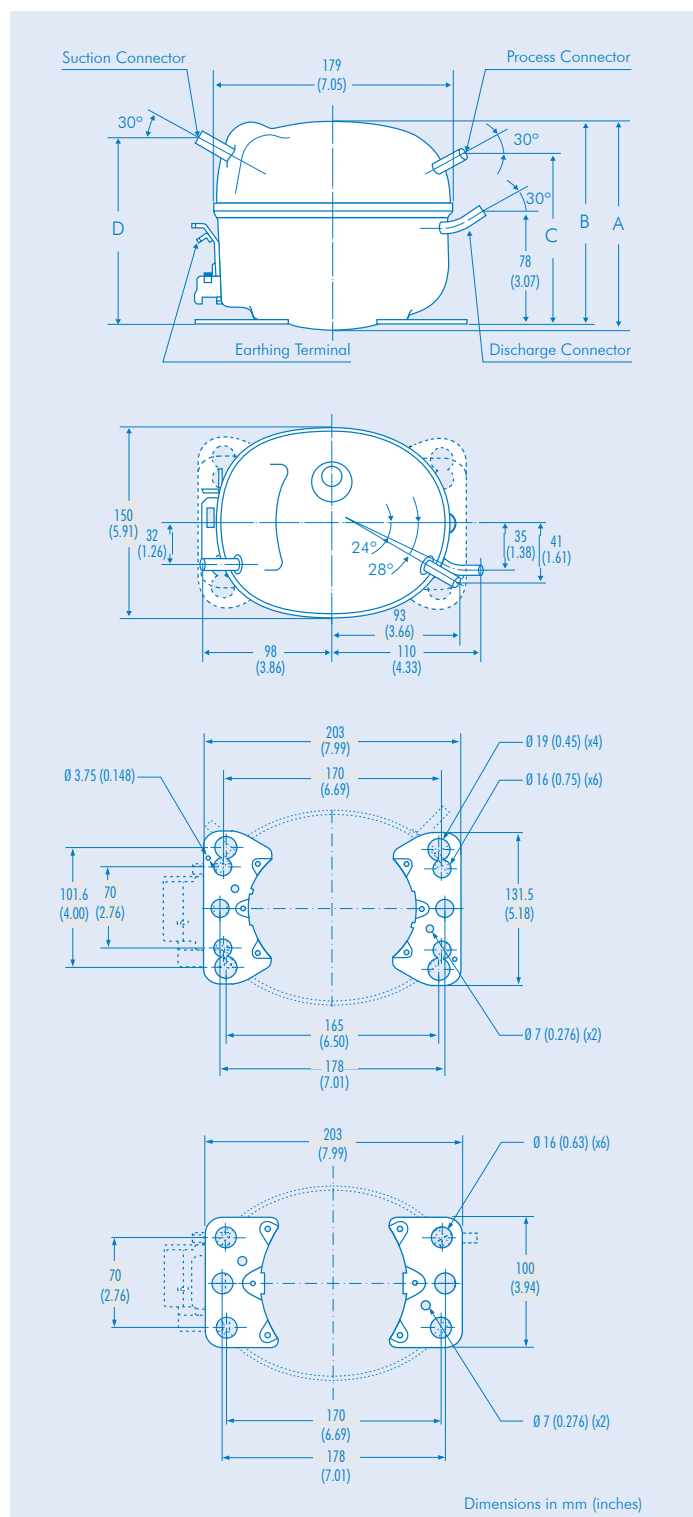
PERFORMANCE / EVAPORATING TEMPERATURE °C - ASHRAE														MOTOR TYPE	STARTING RELAY SUBASSEMBLY CODE	OVERLOAD PROTECTOR	RUN CAPACITOR	STARTING CAPACITOR
-35		-25		CHECK POINT DATA - 23.3						-15		-5						
				CAPACITY		POWER CONSUMPTION	CURRENT CONSUMPTION	EFFICIENCY										
Btu/h	W	Btu/h	W	Btu/h	W	W	A	Btu/Wh	W/W	Btu/h	W	Btu/h	W					
621	182	981	288	1090	319	214	1.66	5.10	1.49	1589	466	2420	709	HST / CSIR	213516043	4TM757LFBYY-53	-	145-175
776	228	1285	377	1363	399	275	2.26	4.96	1.45	1941	569	2841	833	HST / CSIR	213516450	4TM762MDBYY-53	-	108-130



# R-600a - R-134a - Blends - R-290

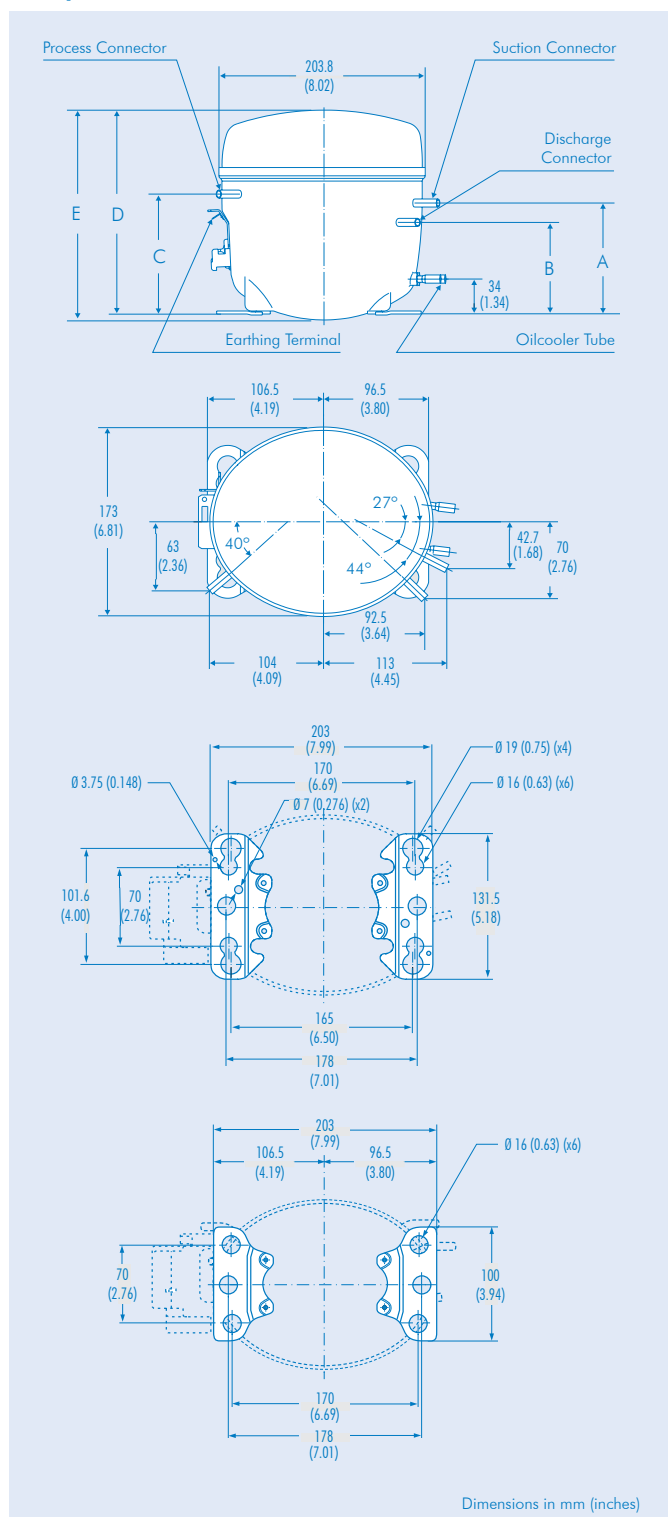
## 10) - COMPRESSOR HOUSING

### EM



COMPRESSORS	A	B	C	D
EM (tall)	168 (6.61)	166 (6.54)	150 (5.91)	155 (6.10)
EM (short)	157 (6.18)	155 (6.10)	139 (5.47)	144 (5.67)

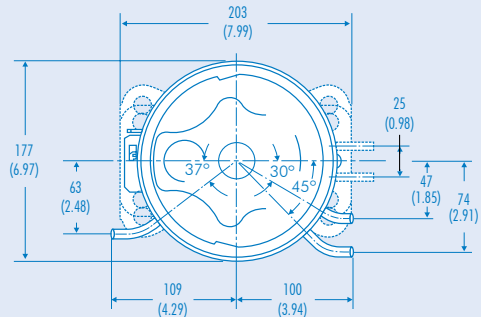
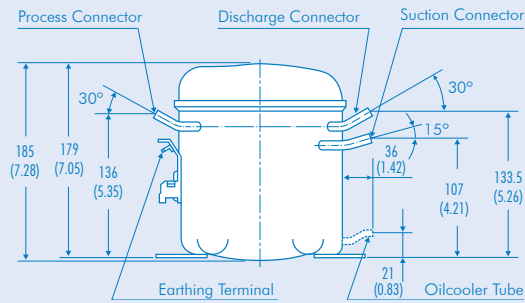
### EG / F



COMPRESSORS	A	B	C	D	E
EG / F (tall)	109 (4.29)	90 (3.54)	118 (4.65)	201 (7.91)	207 (8.15)
EG / F (short)	103 (4.06)	84 (3.31)	112 (4.41)	195 (7.68)	201 (7.91)

Compressors may be supplied with either of the above plates. Please make sure you indicate which base should be supplied.

## PW



Note: The base plates used in the PW compressors are the same as those used in the EM compressors.

Dimensions in mm (inches)

CONNECTORS INTERNAL DIAMETERS - mm (inches)														
COMPRESSORS CONNECTORS	EM								PW					
MATERIAL	COOPER					COOPER PLATED STEEL			COOPER			COOPER PLATED STEEL		
SUCTION	6.50 (0.256)	6.50 (0.256)	8.20 (0.323)	8.20 (0.323)	6.50 (0.256)	6.10 (0.240)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	8.20 (0.323)	8.20 (0.323)	6.50 (0.256)	8.20 (0.323)	6.10 (0.240)
DISCHARGE	4.94 (0.194)	6.50 (0.256)	4.94 (0.194)	6.50 (0.256)	5.10 (0.201)	5.00 (0.197)	5.00 (0.197)	6.50 (0.256)	4.94 (0.194)	6.50 (0.256)	6.50 (0.256)	5.00 (0.197)	6.50 (0.256)	5.00 (0.197)
PROCESS	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.10 (0.240)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	8.20 (0.323)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.10 (0.240)
OIL COOLER TUBE	—	—	—	—	—	—	—	—	—	—	—	4.77 (0.188)	—	—

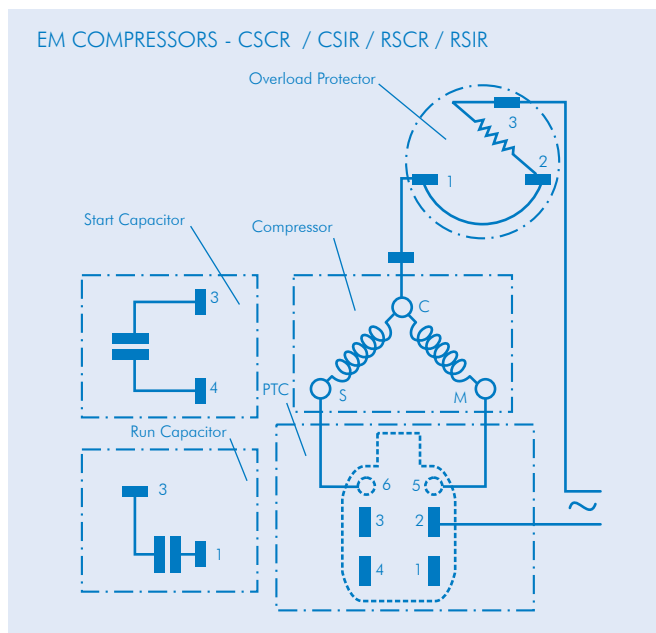
CONNECTORS INTERNAL DIAMETERS - mm (inches)															
CONNECTORS	F / EG														
	COOPER						COOPER PLATED STEEL								
MATERIAL															
SUCTION	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	8.20 (0.323)	8.20 (0.323)	6.10 (0.240)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	8.20 (0.323)	8.20 (0.323)	6.50 (0.256)
DISCHARGE	4.94 (0.194)	4.94 (0.194)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	4.94 (0.194)	5.00 (0.197)	5.00 (0.197)	5.00 (0.197)	5.00 (0.197)	6.50 (0.256)	6.50 (0.256)	5.00 (0.197)	6.50 (0.256)	6.50 (0.256)
PROCESS	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.10 (0.240)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)	6.50 (0.256)
OIL COOLER TUBE	4.90 (0.193)	5.10 (0.201)	4.90 (0.193)	6.50 (0.256)	6.50 (0.256)	—	—	4.90 (0.193)	5.10 (0.201)	6.50 (0.256)	6.50 (0.256)	5.10 (0.201)	5.10 (0.201)	6.50 (0.256)	4.77 (0.188)

For other connectors configurations, please contact our sales division.

TOLERANCE									
MATERIAL		COOPER				COOPER PLATED STEEL			
CONNECTORS		4.94 +0.08 -0.08	5.10 +0.10 -0.00	6.50 +0.12 -0.08	8.20 +0.12 -0.08	5.00 +0.18 +0.06	6.10 +0.10 -0.00	6.50 +0.12 -0.08	8.20 +0.12 -0.08
		(0.194 +0.003 -0.003)	(0.201 +0.004 -0.000)	(0.256 +0.005 -0.003)	(0.323 +0.005 -0.003)	(0.197 +0.007 +0.002)	(0.201 +0.004 -0.000)	(0.256 +0.005 -0.003)	(0.323 +0.005 -0.003)
		4.77 +0.17 -0.17	4.90 +0.02 -0.05	5.10 +0.10 -0.00	6.50 +0.09 -0.09				
		(0.188 +0.007 -0.007)	(0.193 +0.001 -0.002)	(0.201 +0.004 -0.000)	(0.256 +0.004 -0.004)				

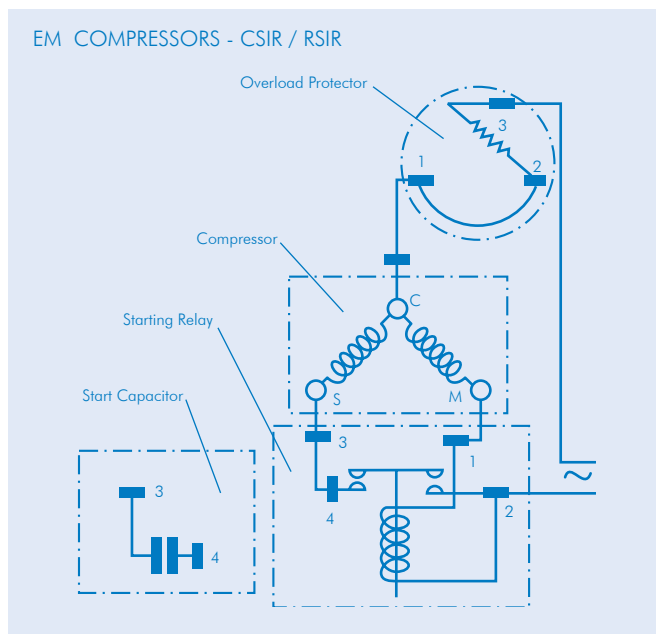
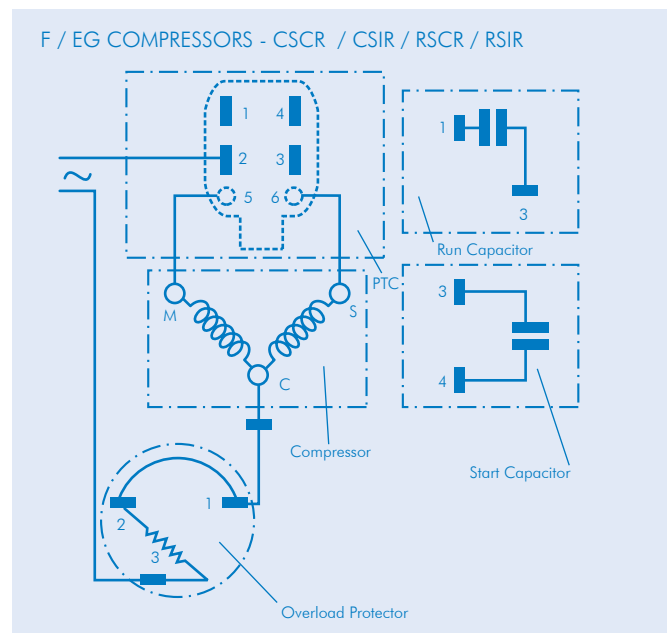
# R-600a - R-134a - Blends - R-290

## 11) - ELECTRICAL DIAGRAMS

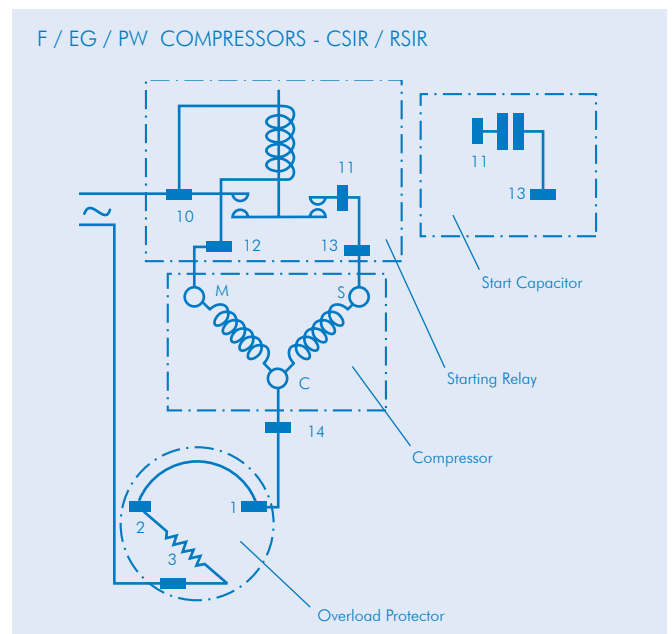


**Compressors with a run capacitor must use PTC with 3 terminals.**

**Compressors without run capacitor use PTC with 1 terminal.**



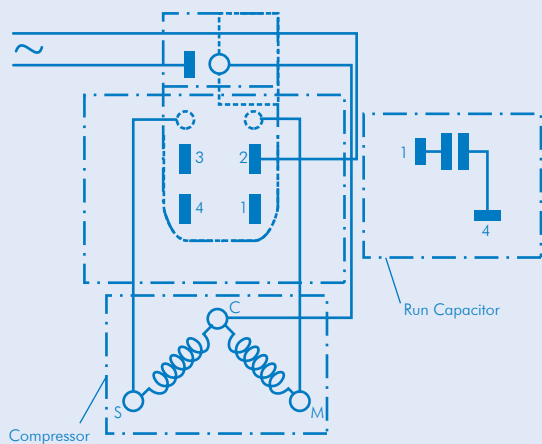
**If application of a start capacitor is necessary, then it must be connected between terminals 3 and 4. To achieve this, just rupture this bridge.**



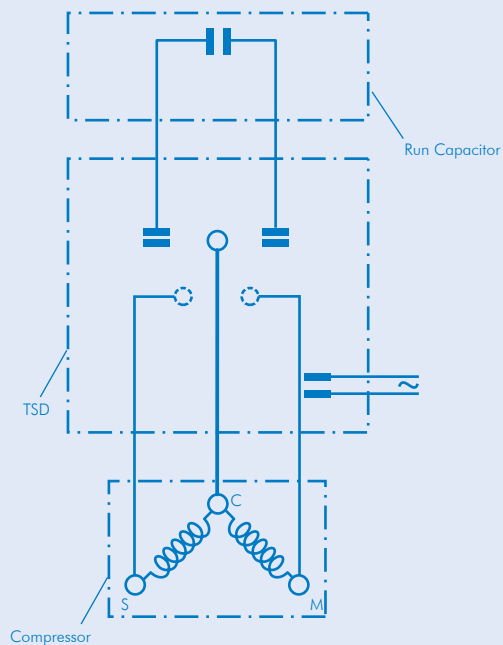
**If application of a start capacitor is necessary, then it must be connected between terminals 11 and 13. This requires a specific relay, with fast on terminals for better start capacitor installation, which can be supplied upon request.**

## 11) - ELECTRICAL DIAGRAMS

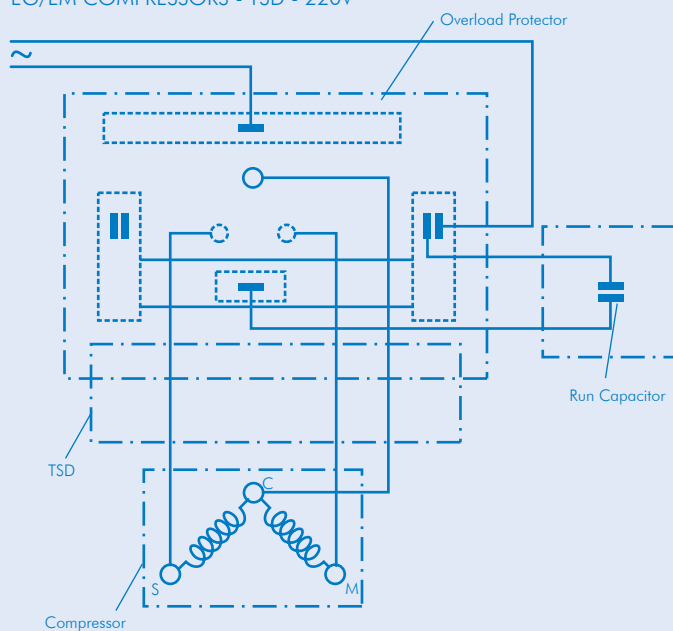
F/EG/EM COMPRESSORS - MSC



EG/EM COMPRESSORS - TSD - 115V



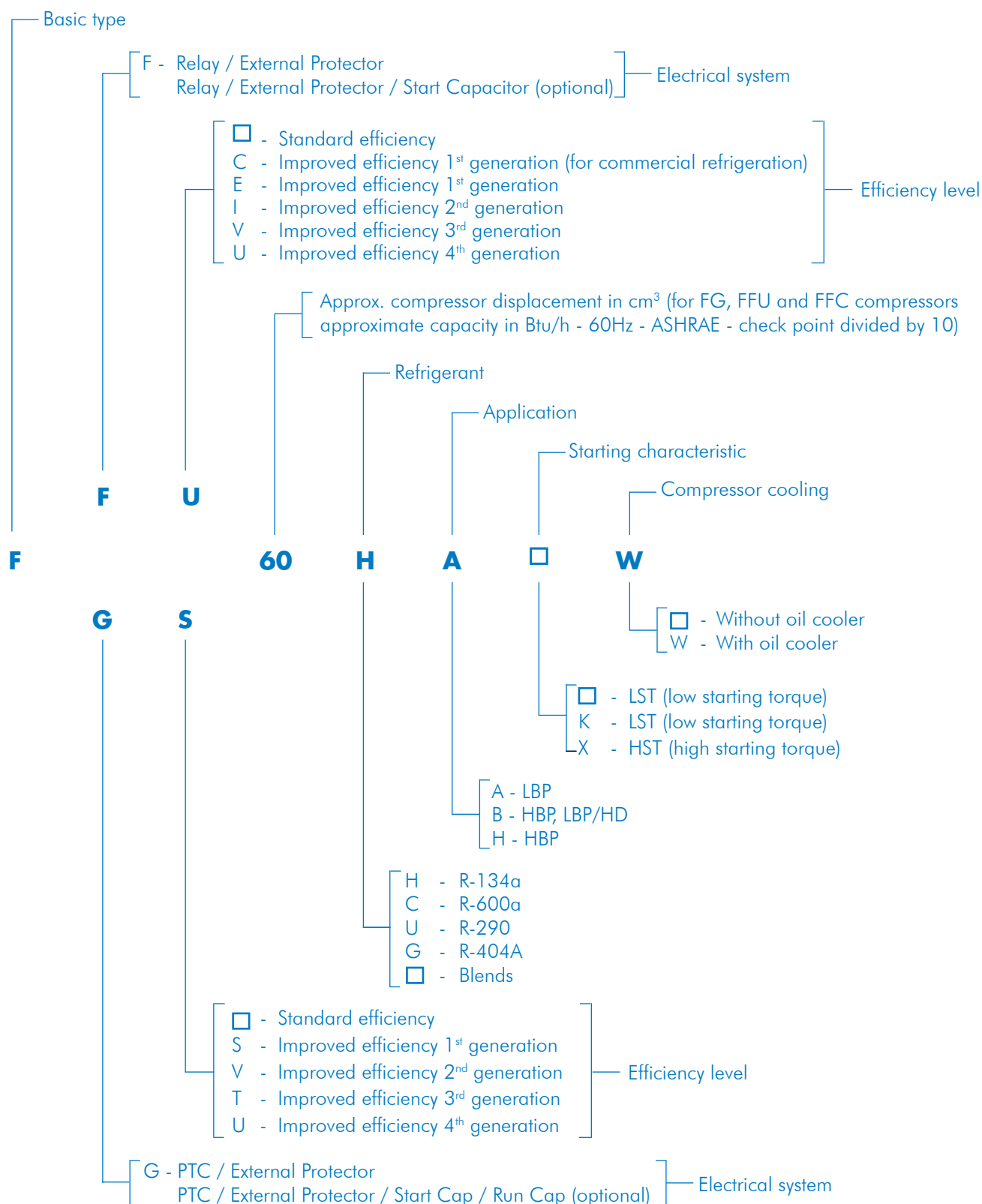
EG/EM COMPRESSORS - TSD - 220V



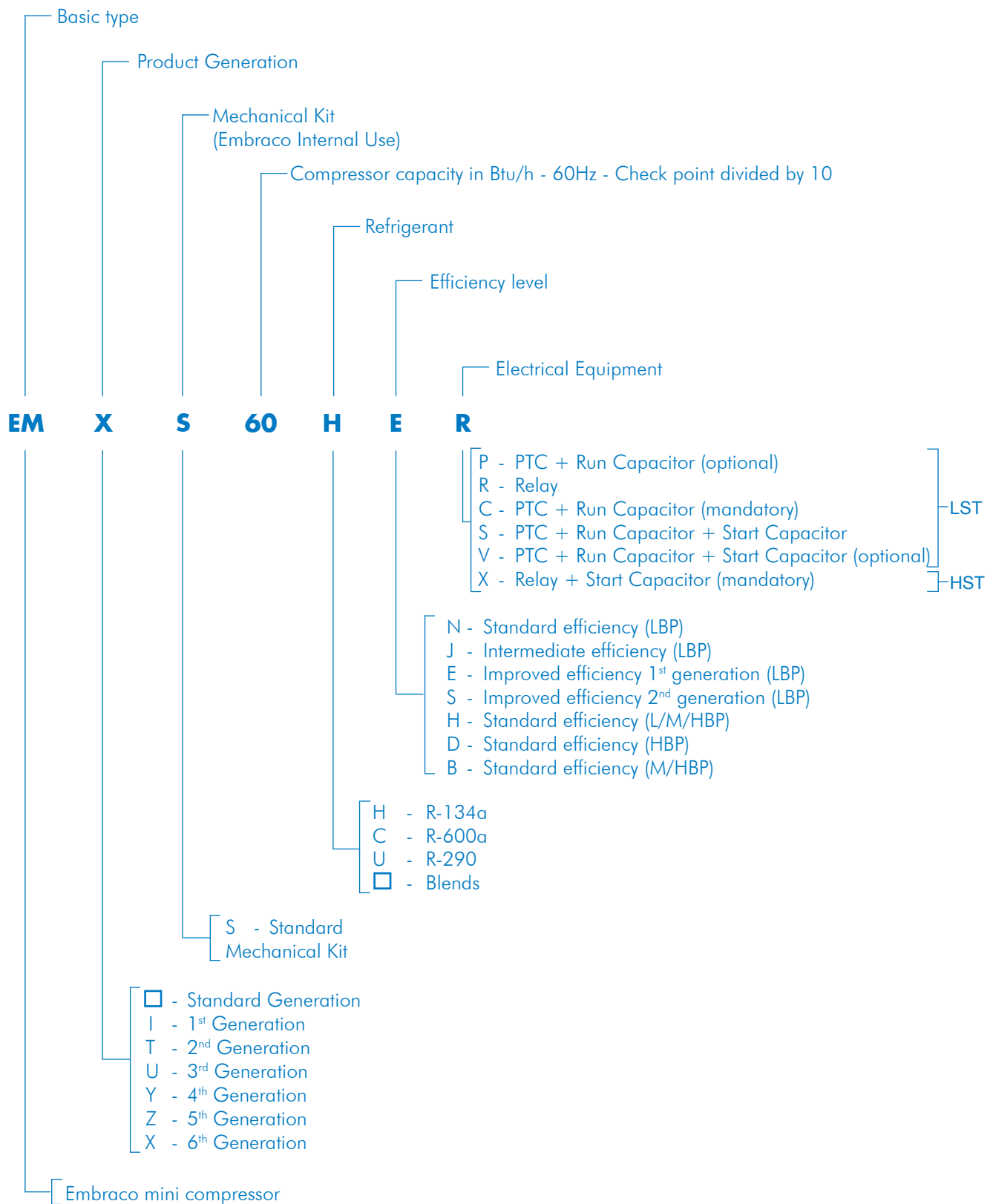
**Notice:** In order to increase the safety of our product, Embraco proposes the connection of the overload protector to the phase wire (Power Supply). The neutral wire must be connected at the starting relay.

# R-600a - R-134a - Blends - R-290

## 12) - F COMPRESSOR DENOMINATION



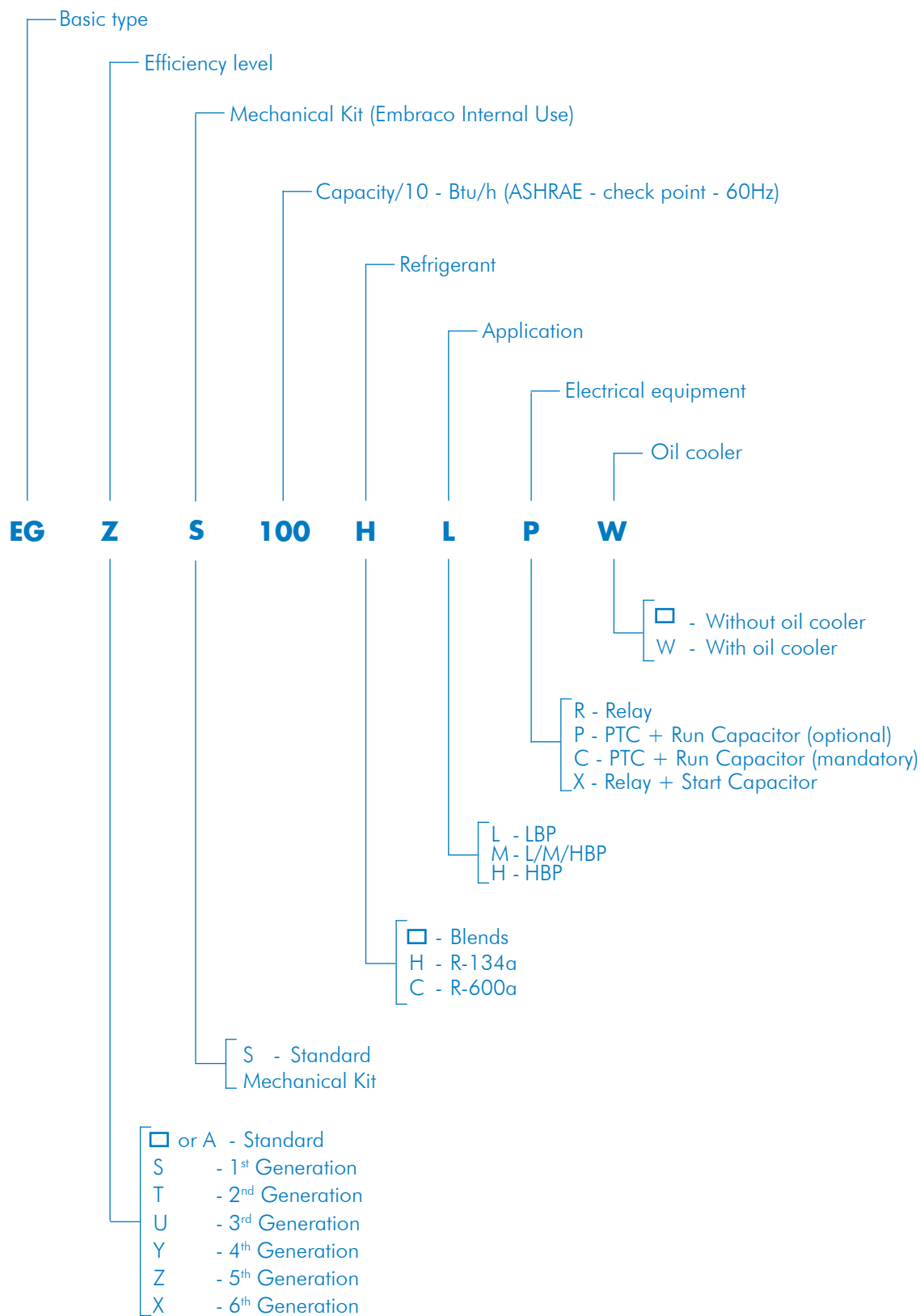
### 13) - EM COMPRESSOR DENOMINATION





# R-600a - R-134a - Blends - R-290

## 14) - EG COMPRESSOR DENOMINATION









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Embraco is participating in the United Nations Global Compact.