COMPRESSOR DEFINITION

Designation	**EM 20HHR**
Nominal Voltage/Frequency	**220-240 V 50-60 Hz**
Engineering Number	**513307350**

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220-240 / 50-60	[V / Hz]	
4 Application type	Low-Medium-High Back Pressure		
4.1 Evaporating temperature range	-35°C to 15°C	(-31°F to 59°F)	
5 Motor type	RSIR/CSIR		
6 Starting torque	LST - Low Starting Torque		
7 Expantion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32ºC Ambient temperature)	Static	187 to 255 V	187 to 242 V
8.2 LBP (43ºC Ambient temperature)	Static	187 to 255 V	187 to 242 V
8.3 HBP (32ºC Ambient temperature)	Fan	187 to 255 V	187 to 242 V
8.4 HBP (43ºC Ambient temperature)	Fan	187 to 255 V	187 to 242 V
9 Maximum condensing temperature			
9.1 Operating	14.2	[kgf/cm²] (202 psig)	/ ºC - ºF
9.2 Peak	15.9	[kgf/cm²] (226 psig)	/ ºC - ºF
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/12	[hp]
2 Displacement	2.27	[cm³] (0.139 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	8.000	
3 Lubricant charge	160	[ml] (5.41 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	6.81	[kg] (15.01 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm²] (2.84 to 4.27 psig)

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	220-240 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514032/213515225	
3 Start capacitor	72-88(150)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM189NFBYY-53	
6 Start winding resistance	50.30	[Ω at 25ºC (77ºF)] +/- 8%
7 Run winding resistance	31.80	[Ω at 25ºC (77ºF)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	6.50/6.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	0.65/0.60	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	0.75/0.70	[A] - Measured according to UL 984
11 Approval boards certification	CCC - IRAM - ISI - TUV - VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: **@220V50Hz**			**CECOMAFHBP** **Fan**		Evaporating temperature (Condensing temperature	**5°C (41°F)** **55°C (131°F))**		
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
840	212	246	98	0.62	6.05	8.57	2.16	2.51

TEST CONDITIONS: **@220V50Hz**			**CECOMAFLBP** **Fan**		Evaporating temperature (Condensing temperature	**-25°C (-13°F)** **55°C (131°F))**		
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
172	43	50	59	0.50	1.20	2.92	0.74	0.86

E - PERFORMANCE - CURVES

TEST CONDITIONS: **@220V50Hz**		**CECOMAF** **Fan**					(Condensing temperature **45ºC (+113ºF))**			
Evaporating temperature		Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	78	20	23	48	0.48	0.48	1.66	0.42	0.49
-30	**(-22)**	126	32	37	51	0.49	0.81	2.45	0.62	0.72
-25	**(-13)**	182	46	53	56	0.50	1.17	3.20	0.81	0.94
-20	**(- 4)**	248	62	73	62	0.51	1.59	3.94	0.99	1.16
-15	**(+ 5)**	326	82	95	68	0.53	2.09	4.74	1.19	1.39
-10	**(+14)**	417	105	122	74	0.54	2.67	5.63	1.42	1.65
-5	**(+23)**	524	132	154	79	0.56	3.36	6.68	1.68	1.96
0	**(+32)**	650	164	190	83	0.57	4.19	7.92	2.00	2.32
+5	**(+41)**	795	200	233	86	0.58	5.17	9.42	2.37	2.76
+10	**(+50)**	963	243	282	87	0.60	6.31	11.22	2.83	3.29
+15	**(+59)**	1154	291	338	86	0.61	7.65	13.37	3.37	3.92

TEST CONDITIONS: **@220V50Hz**		**CECOMAF** **Fan**					(Condensing temperature **55ºC (+131ºF))**			
Evaporating temperature		Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	56	14	16	44	0.48	0.40	1.34	0.34	0.39
-30	**(-22)**	94	24	28	49	0.49	0.67	2.00	0.50	0.59
-25	**(-13)**	141	36	41	55	0.50	0.99	2.60	0.66	0.76
-20	**(- 4)**	199	50	58	62	0.52	1.39	3.19	0.80	0.94
-15	**(+ 5)**	269	68	79	69	0.53	1.88	3.82	0.96	1.12
-10	**(+14)**	354	89	104	76	0.55	2.48	4.54	1.14	1.33
-5	**(+23)**	456	115	133	83	0.57	3.22	5.40	1.36	1.58
0	**(+32)**	576	145	169	89	0.59	4.11	6.46	1.63	1.89
+5	**(+41)**	717	181	210	93	0.61	5.16	7.75	1.95	2.27
+10	**(+50)**	882	222	258	95	0.63	6.41	9.34	2.35	2.74
+15	**(+59)**	1071	270	314	95	0.66	7.87	11.26	2.84	3.30

E - PERFORMANCE - CURVES

TEST CONDITIONS: **CECOMAF** (Condensing temperature **65ºC (+149ºF))**
@220V50Hz **Fan**

Evaporating temperature		Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	34	9	10	43	0.48	0.27	0.73	0.18	0.21
-30	**(-22)**	63	16	19	48	0.49	0.49	1.37	0.35	0.40
-25	**(-13)**	102	26	30	55	0.50	0.79	1.95	0.49	0.57
-20	**(- 4)**	152	38	44	62	0.51	1.19	2.50	0.63	0.73
-15	**(+ 5)**	215	54	63	70	0.53	1.69	3.09	0.78	0.91
-10	**(+14)**	294	74	86	78	0.55	2.33	3.75	0.95	1.10
-5	**(+23)**	391	98	114	85	0.57	3.12	4.55	1.15	1.33
0	**(+32)**	507	128	148	91	0.59	4.09	5.53	1.39	1.62
+5	**(+41)**	645	162	189	96	0.62	5.24	6.74	1.70	1.97
+10	**(+50)**	806	203	236	99	0.64	6.61	8.23	2.07	2.41
+15	**(+59)**	994	250	291	99	0.67	8.20	10.06	2.53	2.95

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Straight		
3.2 DISCHARGE	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted		
3.3 PROCESS	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		