

### COMPRESSOR DEFINITION

Designation	EM 20HHR
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	PROT-WRP-02

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	115-127 / 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 Expansion device	Capillary tube		
8 Compressor cooling	Operating voltage range		
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Static	-	98 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	-	98 to 140 V
8.3 HBP (32°C Ambient temperature)	Fan	-	98 to 140 V
8.4 HBP (43°C Ambient temperature)	Fan	-	98 to 140 V
9 Maximum condensing temperature			
9.1 Operating	14.2	[kgf/cm <sup>2</sup> ] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm <sup>2</sup> ] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/12	[hp]
2 Displacement	2.27	[cm <sup>3</sup> ] (0.139 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	8.000	
3 Lubricant charge	170	[ml] (5.75 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	6.98	[kg] (15.39 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm <sup>2</sup> ] (2.84 to 4.27 psig)

### C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	115-127 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514024	
3 Start capacitor	124-149(90)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM734KFBYY-53	
6 Start winding resistance	24.90	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	8.15	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	9.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	1.15	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	1.30	[A] - Measured according to UL 984
11 Approval boards certification	CE - TUV - UKCA - UL	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V60Hz			ASHRAEHBP32 Static		Evaporating temperature (Condensing temperature)		7.2°C (44.96°F) 54.4°C (129.92°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]	
1020	257	299	118	1.28		8.64	2.18	2.53	

TEST CONDITIONS: @115V60Hz			ASHRAEHBP32 Fan		Evaporating temperature (Condensing temperature)		7.2°C (44.96°F) 54.4°C (129.92°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]	
1020	257	299	118	1.28		8.64	2.18	2.53	

TEST CONDITIONS: @115V60Hz			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°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]	
200	50	59	66	0.91	1.14	3.03	0.76	0.89	

TEST CONDITIONS: @115V60Hz			ASHRAELBP32 Fan		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°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]	
200	50	59	66	0.91	1.14	3.03	0.76	0.89	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Fan					(Condensing temperature 45°C (+113°F))			
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]
-35	(-31)	110	28	32	51	0.84	0.62	2.13	0.54	0.62
-30	(-22)	154	39	45	57	0.87	0.87	2.68	0.67	0.78
-25	(-13)	213	54	62	64	0.91	1.21	3.32	0.84	0.97
-20	(- 4)	289	73	85	71	0.95	1.65	4.06	1.02	1.19
-15	(+ 5)	385	97	113	78	0.99	2.19	4.92	1.24	1.44
-10	(+14)	501	126	147	85	1.04	2.86	5.89	1.49	1.73
-5	(+23)	639	161	187	92	1.08	3.67	7.00	1.76	2.05
0	(+32)	802	202	235	98	1.13	4.64	8.24	2.08	2.41
+5	(+41)	991	250	290	104	1.17	5.77	9.62	2.43	2.82
+10	(+50)	1207	304	354	108	1.21	7.07	11.16	2.81	3.27
+15	(+59)	1452	366	426	112	1.26	8.57	12.86	3.24	3.77

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Fan			(Condensing temperature 55°C (+131°F) )					
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)	73	18	21	48	0.81	0.41	1.54	0.39	0.45	
-30 (-22)	115	29	34	55	0.85	0.65	2.12	0.53	0.62	
-25 (-13)	171	43	50	62	0.89	0.98	2.75	0.69	0.80	
-20 (- 4)	245	62	72	71	0.94	1.39	3.43	0.87	1.01	
-15 (+ 5)	336	85	99	79	0.99	1.92	4.19	1.06	1.23	
-10 (+14)	448	113	131	88	1.05	2.56	5.03	1.27	1.47	
-5 (+23)	582	147	170	97	1.11	3.34	5.95	1.50	1.74	
0 (+32)	739	186	217	106	1.17	4.27	6.96	1.75	2.04	
+5 (+41)	922	232	270	114	1.23	5.37	8.07	2.03	2.36	
+10 (+50)	1132	285	332	122	1.30	6.63	9.29	2.34	2.72	
+15 (+59)	1371	345	402	130	1.36	8.09	10.64	2.68	3.12	

TEST CONDITIONS: @115V60Hz		ASHRAE32 Fan			(Condensing temperature 65°C (+149°F) )					
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)	39	10	11	45	0.80	0.22	0.88	0.22	0.26	
-30 (-22)	77	19	22	52	0.84	0.44	1.53	0.39	0.45	
-25 (-13)	129	32	38	60	0.89	0.74	2.19	0.55	0.64	
-20 (- 4)	197	50	58	69	0.94	1.13	2.86	0.72	0.84	
-15 (+ 5)	284	72	83	79	1.01	1.62	3.56	0.90	1.04	
-10 (+14)	390	98	114	90	1.08	2.23	4.30	1.08	1.26	
-5 (+23)	518	130	152	101	1.15	2.97	5.07	1.28	1.49	
0 (+32)	668	168	196	113	1.23	3.86	5.90	1.49	1.73	
+5 (+41)	844	213	247	124	1.31	4.91	6.78	1.71	1.99	
+10 (+50)	1046	264	307	135	1.40	6.13	7.73	1.95	2.26	
+15 (+59)	1277	322	374	146	1.49	7.54	8.75	2.21	2.56	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal
2 Tray holder	No
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	Slanted parallel to Base Plate
3.2 DISCHARGE	6.5 +0.12/-0.08 [mm] (0.256" +0.005"/-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 parallel to Base Plate
3.4 Oil cooler (Copper)	No [mm]
3.5 Connector sealing	Rubber Plugs