

### COMPRESSOR DEFINITION

Designation	EM IS20HHR
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	513305032

### 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	-	103 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	-	103 to 140 V
8.3 HBP (32°C Ambient temperature)	Fan	-	103 to 140 V
8.4 HBP (43°C Ambient temperature)	Fan	-	103 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	160	[ml] (5.41 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	6.77	[kg] (14.93 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	213514180/213515011	
3 Start capacitor	161-193(150)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	CP4TMF180K61	
6 Start winding resistance	18.50	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	9.80	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	11.62	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	1.43	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	1.58	[A] - Measured according to UL 984
11 Approval boards certification		

### D - PERFORMANCE - CHECK POINT DATA

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]	
1050	265	308	123	1.39		8.51	2.14	2.49	

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	1.04	1.14	3.02	0.76	0.88	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz			ASHRAE32 Fan		(Condensing temperature 35°C (+95°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)	128	32	37	53	0.99	0.72	2.36	0.60	0.69
-30 (-22)	182	46	53	56	1.02	1.04	3.17	0.80	0.93
-25 (-13)	247	62	72	61	1.04	1.40	3.98	1.00	1.17
-20 (- 4)	325	82	95	67	1.07	1.85	4.84	1.22	1.42
-15 (+ 5)	419	106	123	73	1.10	2.39	5.77	1.45	1.69
-10 (+14)	534	135	156	79	1.13	3.05	6.81	1.72	1.99
-5 (+23)	672	169	197	86	1.16	3.86	7.99	2.01	2.34
0 (+32)	838	211	245	91	1.19	4.84	9.34	2.35	2.74
+5 (+41)	1033	260	303	96	1.22	6.02	10.90	2.75	3.19
+10 (+50)	1263	318	370	100	1.25	7.40	12.70	3.20	3.72
+15 (+59)	1530	385	448	102	1.28	9.03	14.77	3.72	4.33

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]	[W/W]
-35 (-31)	86	22	25	48	0.99	0.48	1.91	0.48	0.56
-30 (-22)	140	35	41	53	1.01	0.80	2.69	0.68	0.79
-25 (-13)	205	52	60	59	1.04	1.17	3.45	0.87	1.01
-20 (- 4)	282	71	83	66	1.07	1.61	4.20	1.06	1.23
-15 (+ 5)	376	95	110	74	1.10	2.15	4.99	1.26	1.46
-10 (+14)	491	124	144	83	1.14	2.81	5.85	1.47	1.71
-5 (+23)	628	158	184	92	1.18	3.61	6.81	1.72	1.99
0 (+32)	793	200	232	101	1.23	4.59	7.90	1.99	2.32
+5 (+41)	988	249	290	109	1.28	5.75	9.16	2.31	2.68
+10 (+50)	1217	307	357	116	1.33	7.13	10.62	2.68	3.11
+15 (+59)	1482	374	434	121	1.39	8.75	12.32	3.10	3.61

### 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)	50	13	15	48	0.98	0.28	1.09	0.27	0.32
-30	(-22)	101	26	30	53	1.00	0.58	1.92	0.48	0.56
-25	(-13)	162	41	47	60	1.03	0.92	2.68	0.67	0.78
-20	(- 4)	236	59	69	69	1.07	1.34	3.40	0.86	0.99
-15	(+ 5)	326	82	96	78	1.11	1.86	4.11	1.04	1.20
-10	(+14)	436	110	128	89	1.16	2.50	4.85	1.22	1.42
-5	(+23)	570	144	167	100	1.21	3.28	5.66	1.43	1.66
0	(+32)	730	184	214	111	1.27	4.22	6.56	1.65	1.92
+5	(+41)	921	232	270	121	1.34	5.36	7.59	1.91	2.22
+10	(+50)	1145	289	336	131	1.42	6.71	8.78	2.21	2.57
+15	(+59)	1407	354	412	140	1.50	8.30	10.16	2.56	2.98

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)	16	4	5	42	0.97	0.09	0.36	0.09	0.10
-30	(-22)	60	15	18	47	0.99	0.35	1.29	0.33	0.38
-25	(-13)	114	29	33	55	1.02	0.65	2.12	0.53	0.62
-20	(- 4)	180	45	53	64	1.05	1.03	2.87	0.72	0.84
-15	(+ 5)	263	66	77	75	1.10	1.50	3.58	0.90	1.05
-10	(+14)	366	92	107	86	1.16	2.09	4.28	1.08	1.25
-5	(+23)	492	124	144	99	1.23	2.83	5.00	1.26	1.46
0	(+32)	645	163	189	112	1.30	3.73	5.77	1.45	1.69
+5	(+41)	828	209	243	124	1.39	4.82	6.63	1.67	1.94
+10	(+50)	1044	263	306	137	1.49	6.12	7.62	1.92	2.23
+15	(+59)	1298	327	380	148	1.59	7.66	8.75	2.21	2.57

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EG/F/AMEM version 2		
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	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	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		