

### COMPRESSOR DEFINITION

Designation	EM IS20HHR
Nominal Voltage/Frequency	220 V 60 Hz
Engineering Number	513305022

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220 / 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	-	198 to 242 V
8.2 LBP (43°C Ambient temperature)	Static	-	198 to 242 V
8.3 HBP (32°C Ambient temperature)	Fan	-	198 to 242 V
8.4 HBP (43°C Ambient temperature)	Fan	-	198 to 242 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)	6.81	[kg] (15.01 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	220 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514000/213515006	
3 Start capacitor	72-88(180)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM718KDBYY-53	
6 Start winding resistance	32.00	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	38.20	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	9.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	0.76	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	0.82	[A] - Measured according to UL 984
11 Approval boards certification	CE - TUV - UKCA	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V60Hz			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	130	0.78		8.07	2.03	2.36	

TEST CONDITIONS: @220V60Hz			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]	
196	49	57	71	0.61	1.11	2.77	0.70	0.81	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz			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)	146	37	43	60	0.60	0.83	2.40	0.60	0.70
-30 (-22)	190	48	56	66	0.61	1.08	2.87	0.72	0.84
-25 (-13)	252	63	74	72	0.62	1.43	3.49	0.88	1.02
-20 (- 4)	332	84	97	77	0.63	1.89	4.27	1.08	1.25
-15 (+ 5)	434	109	127	83	0.65	2.47	5.21	1.31	1.53
-10 (+14)	559	141	164	89	0.66	3.20	6.31	1.59	1.85
-5 (+23)	709	179	208	94	0.67	4.08	7.58	1.91	2.22
0 (+32)	887	223	260	99	0.68	5.13	9.04	2.28	2.65
+5 (+41)	1094	276	321	103	0.69	6.37	10.68	2.69	3.13
+10 (+50)	1333	336	391	107	0.71	7.81	12.52	3.15	3.67
+15 (+59)	1606	405	470	110	0.72	9.48	14.55	3.67	4.26

TEST CONDITIONS: @220V60Hz			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)	102	26	30	59	0.60	0.57	1.80	0.45	0.53
-30 (-22)	149	38	44	65	0.61	0.85	2.35	0.59	0.69
-25 (-13)	212	53	62	71	0.62	1.21	3.00	0.76	0.88
-20 (- 4)	292	74	86	78	0.63	1.66	3.73	0.94	1.09
-15 (+ 5)	392	99	115	85	0.65	2.24	4.57	1.15	1.34
-10 (+14)	514	129	151	92	0.66	2.94	5.52	1.39	1.62
-5 (+23)	659	166	193	99	0.68	3.79	6.58	1.66	1.93
0 (+32)	830	209	243	106	0.70	4.80	7.76	1.96	2.27
+5 (+41)	1028	259	301	113	0.72	5.98	9.07	2.28	2.66
+10 (+50)	1257	317	368	120	0.75	7.36	10.51	2.65	3.08
+15 (+59)	1517	382	444	126	0.77	8.95	12.09	3.05	3.54

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		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)	62	16	18	56	0.60	0.35	1.12	0.28	0.33
-30	(-22)	111	28	33	62	0.61	0.63	1.80	0.45	0.53
-25	(-13)	174	44	51	69	0.62	0.99	2.51	0.63	0.74
-20	(- 4)	253	64	74	77	0.63	1.44	3.26	0.82	0.95
-15	(+ 5)	349	88	102	86	0.65	1.99	4.04	1.02	1.18
-10	(+14)	466	117	136	94	0.67	2.66	4.88	1.23	1.43
-5	(+23)	604	152	177	104	0.70	3.47	5.76	1.45	1.69
0	(+32)	766	193	224	113	0.72	4.43	6.71	1.69	1.97
+5	(+41)	954	240	280	123	0.75	5.55	7.73	1.95	2.27
+10	(+50)	1170	295	343	133	0.79	6.86	8.82	2.22	2.59
+15	(+59)	1417	357	415	143	0.83	8.36	10.00	2.52	2.93

TEST CONDITIONS: @220V60Hz		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)	17	4	5	49	0.60	0.09	0.32	0.08	0.09
-30	(-22)	66	17	19	56	0.61	0.38	1.17	0.30	0.34
-25	(-13)	128	32	37	64	0.62	0.73	1.99	0.50	0.58
-20	(- 4)	203	51	60	73	0.63	1.16	2.79	0.70	0.82
-15	(+ 5)	295	74	86	83	0.65	1.68	3.57	0.90	1.05
-10	(+14)	405	102	119	94	0.68	2.31	4.33	1.09	1.27
-5	(+23)	534	135	157	105	0.71	3.07	5.10	1.28	1.49
0	(+32)	686	173	201	118	0.74	3.96	5.86	1.48	1.72
+5	(+41)	862	217	253	130	0.78	5.02	6.63	1.67	1.94
+10	(+50)	1065	268	312	143	0.83	6.24	7.42	1.87	2.17
+15	(+59)	1296	327	380	157	0.88	7.65	8.23	2.07	2.41

### 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		