

### COMPRESSOR DEFINITION

Designation	EM IS20HHR
Nominal Voltage/Frequency	220 V 60 Hz
Engineering Number	513305018

### 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 Static		(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	57	0.59	0.72	2.21	0.56	0.65
-30 (-22)	173	44	51	62	0.60	0.98	2.76	0.69	0.81
-25 (-13)	233	59	68	68	0.61	1.33	3.42	0.86	1.00
-20 (- 4)	311	78	91	74	0.62	1.77	4.21	1.06	1.23
-15 (+ 5)	410	103	120	80	0.64	2.34	5.14	1.30	1.51
-10 (+14)	531	134	156	86	0.65	3.04	6.23	1.57	1.82
-5 (+23)	678	171	199	91	0.66	3.90	7.48	1.88	2.19
0 (+32)	853	215	250	96	0.67	4.93	8.91	2.24	2.61
+5 (+41)	1058	266	310	101	0.68	6.16	10.52	2.65	3.08
+10 (+50)	1295	326	380	105	0.70	7.59	12.33	3.11	3.61
+15 (+59)	1569	395	460	109	0.72	9.26	14.35	3.62	4.20

TEST CONDITIONS: @220V60Hz			ASHRAE32 Static		(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)	101	26	30	55	0.59	0.57	1.90	0.48	0.56
-30 (-22)	148	37	43	61	0.60	0.84	2.48	0.62	0.73
-25 (-13)	209	53	61	67	0.61	1.19	3.12	0.79	0.91
-20 (- 4)	285	72	84	74	0.62	1.62	3.82	0.96	1.12
-15 (+ 5)	380	96	111	82	0.64	2.17	4.62	1.16	1.35
-10 (+14)	496	125	145	89	0.65	2.84	5.50	1.39	1.61
-5 (+23)	635	160	186	97	0.67	3.65	6.50	1.64	1.90
0 (+32)	801	202	235	105	0.69	4.63	7.61	1.92	2.23
+5 (+41)	994	251	291	112	0.71	5.79	8.84	2.23	2.59
+10 (+50)	1219	307	357	120	0.74	7.14	10.22	2.58	2.99
+15 (+59)	1477	372	433	127	0.77	8.72	11.75	2.96	3.44

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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)	66	17	19	53	0.59	0.37	1.27	0.32	0.37
-30	(-22)	114	29	33	59	0.60	0.65	1.96	0.49	0.57
-25	(-13)	174	44	51	66	0.61	0.99	2.65	0.67	0.78
-20	(- 4)	248	63	73	74	0.62	1.41	3.35	0.84	0.98
-15	(+ 5)	339	85	99	82	0.64	1.93	4.08	1.03	1.19
-10	(+14)	448	113	131	91	0.66	2.56	4.84	1.22	1.42
-5	(+23)	579	146	170	101	0.68	3.33	5.65	1.42	1.66
0	(+32)	734	185	215	111	0.71	4.24	6.52	1.64	1.91
+5	(+41)	915	231	268	122	0.74	5.33	7.46	1.88	2.19
+10	(+50)	1126	284	330	133	0.78	6.60	8.48	2.14	2.48
+15	(+59)	1368	345	401	143	0.83	8.07	9.59	2.42	2.81

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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)	15	4	4	48	0.59	0.08	0.29	0.07	0.09
-30	(-22)	64	16	19	54	0.60	0.37	1.17	0.29	0.34
-25	(-13)	122	31	36	61	0.61	0.70	1.99	0.50	0.58
-20	(- 4)	193	49	56	70	0.62	1.10	2.76	0.70	0.81
-15	(+ 5)	278	70	81	80	0.64	1.58	3.50	0.88	1.03
-10	(+14)	380	96	111	91	0.66	2.17	4.22	1.06	1.24
-5	(+23)	501	126	147	103	0.69	2.88	4.92	1.24	1.44
0	(+32)	645	163	189	115	0.72	3.73	5.63	1.42	1.65
+5	(+41)	813	205	238	128	0.76	4.73	6.35	1.60	1.86
+10	(+50)	1009	254	296	142	0.81	5.91	7.08	1.79	2.08
+15	(+59)	1234	311	362	156	0.87	7.28	7.86	1.98	2.30

### F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard 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	Straight		
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		