

COMPRESSOR DEFINITION

Designation	EM IS20HHR
Nominal Voltage/Frequency	220 V 60 Hz
Engineering Number	513305072

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	-	-
8.2 LBP (43°C Ambient temperature)	Static	-	108 to 242 V
8.3 HBP (32°C Ambient temperature)	Fan	-	198 to 242 V
8.4 HBP (43°C Ambient temperature)	Fan	-	-
9 Maximum condensing pressures/temperature			
9.1 Operating (gauge)	16.2	[kgf/cm ²] (230 psig)	/ °C - °F
9.2 Peak (gauge)	20.6	[kgf/cm ²] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/12	[hp]
2 Displacement	2.27	[cm ³] (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 ²] (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	TUV	

D - PERFORMANCE - CHECK POINT DATA

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]
194	49	57	72	0.62	1.10	2.68	0.68	0.79

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)	129	32	38	50	0.54	0.73	2.54	0.64	0.75
-30	(-22)	178	45	52	58	0.56	1.01	3.05	0.77	0.89
-25	(-13)	243	61	71	65	0.58	1.38	3.68	0.93	1.08
-20	(- 4)	327	82	96	73	0.59	1.86	4.45	1.12	1.30
-15	(+ 5)	430	108	126	80	0.61	2.45	5.38	1.36	1.58
-10	(+14)	556	140	163	86	0.63	3.18	6.49	1.64	1.90
-5	(+23)	706	178	207	91	0.65	4.06	7.81	1.97	2.29
0	(+32)	881	222	258	96	0.67	5.10	9.36	2.36	2.74
+5	(+41)	1084	273	318	99	0.68	6.31	11.15	2.81	3.27
+10	(+50)	1317	332	386	100	0.69	7.72	13.21	3.33	3.87
+15	(+59)	1581	398	463	100	0.69	9.33	15.56	3.92	4.56

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)	90	23	26	54	0.57	0.51	1.76	0.44	0.52
-30	(-22)	141	36	41	61	0.58	0.80	2.37	0.60	0.70
-25	(-13)	207	52	61	68	0.60	1.18	3.04	0.77	0.89
-20	(- 4)	291	73	85	76	0.61	1.65	3.78	0.95	1.11
-15	(+ 5)	392	99	115	83	0.63	2.24	4.62	1.16	1.35
-10	(+14)	515	130	151	91	0.65	2.95	5.57	1.40	1.63
-5	(+23)	660	166	194	98	0.67	3.80	6.66	1.68	1.95
0	(+32)	830	209	243	104	0.69	4.80	7.91	1.99	2.32
+5	(+41)	1026	259	301	110	0.71	5.97	9.34	2.35	2.74
+10	(+50)	1251	315	366	115	0.73	7.33	10.97	2.76	3.21
+15	(+59)	1505	379	441	118	0.74	8.88	12.81	3.23	3.75

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)	51	13	15	56	0.59	0.29	0.96	0.24	0.28
-30	(-22)	103	26	30	62	0.60	0.59	1.72	0.43	0.50
-25	(-13)	169	43	49	70	0.61	0.96	2.47	0.62	0.72
-20	(- 4)	250	63	73	78	0.63	1.43	3.22	0.81	0.94
-15	(+ 5)	349	88	102	86	0.65	1.99	4.01	1.01	1.17
-10	(+14)	468	118	137	95	0.67	2.68	4.84	1.22	1.42
-5	(+23)	608	153	178	104	0.70	3.49	5.74	1.45	1.68
0	(+32)	771	194	226	113	0.72	4.46	6.74	1.70	1.97
+5	(+41)	959	242	281	121	0.75	5.58	7.85	1.98	2.30
+10	(+50)	1174	296	344	129	0.78	6.88	9.09	2.29	2.66
+15	(+59)	1417	357	415	136	0.80	8.37	10.48	2.64	3.07

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)	11	3	3	58	0.60	0.06	0.06	0.01	0.02
-30	(-22)	63	16	18	64	0.61	0.36	1.01	0.25	0.30
-25	(-13)	127	32	37	71	0.62	0.73	1.88	0.47	0.55
-20	(- 4)	206	52	60	79	0.64	1.17	2.70	0.68	0.79
-15	(+ 5)	301	76	88	89	0.66	1.72	3.47	0.88	1.02
-10	(+14)	414	104	121	99	0.69	2.37	4.23	1.07	1.24
-5	(+23)	547	138	160	110	0.72	3.14	4.99	1.26	1.46
0	(+32)	702	177	206	121	0.75	4.06	5.78	1.46	1.69
+5	(+41)	881	222	258	133	0.79	5.13	6.61	1.66	1.94
+10	(+50)	1086	274	318	144	0.82	6.36	7.50	1.89	2.20
+15	(+59)	1318	332	386	155	0.86	7.78	8.48	2.14	2.49

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	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-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		