

COMPRESSOR DEFINITION

Designation	EM I40HNR
Nominal Voltage/Frequency	220 V 50-60 Hz
Engineering Number	513303010

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220 / 50-60	[V / Hz]	
4 Application type	Low Back Pressure		
4.1 Evaporating temperature range	-35°C to -10°C	(-31°F to 14°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	187 to 255 V	187 to 242 V
8.2 LBP (43°C Ambient temperature)	Static	187 to 255 V	187 to 242 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
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	1/10	[hp]
2 Displacement	3.77	[cm ³] (0.230 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	13.300	
3 Lubricant charge	170	[ml] (5.75 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	7.15	[kg] (15.76 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 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514164	
3 Start capacitor	53-64(220)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM718KFBYY-53	
6 Start winding resistance	33.70	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	23.70	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	8.80/8.60	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	0.85/0.95	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V50Hz			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]
305	77	89	82	0.72	1.73	3.72	0.94	1.09

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]
375	95	110	91	0.65	2.13	4.14	1.04	1.21

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz			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)	159	40	46	60	0.68	0.90	2.65	0.67	0.78
-30	(-22)	237	60	69	68	0.68	1.34	3.48	0.88	1.02
-25	(-13)	328	83	96	77	0.70	1.86	4.25	1.07	1.25
-20	(- 4)	436	110	128	86	0.72	2.48	5.03	1.27	1.47
-15	(+ 5)	569	143	167	97	0.75	3.25	5.83	1.47	1.71
-10	(+14)	732	184	214	108	0.78	4.19	6.72	1.69	1.97

TEST CONDITIONS: @220V50Hz			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)	113	28	33	57	0.67	0.64	1.95	0.49	0.57
-30	(-22)	190	48	56	67	0.67	1.08	2.82	0.71	0.83
-25	(-13)	277	70	81	78	0.69	1.57	3.60	0.91	1.06
-20	(- 4)	382	96	112	89	0.72	2.17	4.33	1.09	1.27
-15	(+ 5)	508	128	149	101	0.76	2.90	5.06	1.27	1.48
-10	(+14)	662	167	194	114	0.79	3.79	5.81	1.46	1.70

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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)	41	10	12	52	0.67	0.23	0.77	0.19	0.23	
-30 (-22)	122	31	36	64	0.68	0.69	1.83	0.46	0.54	
-25 (-13)	213	54	62	77	0.70	1.21	2.75	0.69	0.81	
-20 (- 4)	318	80	93	89	0.73	1.81	3.57	0.90	1.05	
-15 (+ 5)	444	112	130	103	0.77	2.53	4.34	1.09	1.27	
-10 (+14)	596	150	175	117	0.82	3.41	5.10	1.28	1.49	

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)	188	47	55	62	0.56	1.06	3.06	0.77	0.90	
-30 (-22)	292	74	86	73	0.57	1.66	4.02	1.01	1.18	
-25 (-13)	406	102	119	85	0.61	2.31	4.77	1.20	1.40	
-20 (- 4)	537	135	157	99	0.66	3.06	5.42	1.37	1.59	
-15 (+ 5)	691	174	202	113	0.72	3.94	6.07	1.53	1.78	
-10 (+14)	874	220	256	127	0.78	5.01	6.83	1.72	2.00	

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)	139	35	41	59	0.55	0.79	2.33	0.59	0.68	
-30 (-22)	243	61	71	71	0.57	1.38	3.42	0.86	1.00	
-25 (-13)	354	89	104	84	0.61	2.01	4.22	1.06	1.24	
-20 (- 4)	480	121	141	100	0.67	2.73	4.84	1.22	1.42	
-15 (+ 5)	626	158	183	117	0.74	3.57	5.38	1.36	1.58	
-10 (+14)	800	202	234	134	0.81	4.58	5.94	1.50	1.74	

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)	57	14	17	53	0.53	0.32	1.10	0.28	0.32	
-30 (-22)	168	42	49	66	0.55	0.95	2.46	0.62	0.72	
-25 (-13)	285	72	83	82	0.60	1.62	3.45	0.87	1.01	
-20 (- 4)	413	104	121	99	0.66	2.35	4.18	1.05	1.22	
-15 (+ 5)	560	141	164	119	0.74	3.20	4.74	1.20	1.39	
-10 (+14)	733	185	215	140	0.83	4.20	5.25	1.32	1.54	

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 plated steel		
3.1.2 Shape	Straight		
3.2 DISCHARGE	5 +0.18/-0.06	[mm]	(0.197" +0.007"/-0.002")
3.2.1 Material	Copper plated steel		
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 plated steel		
3.3.2 Shape	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		