

COMPRESSOR DEFINITION

Designation	EM 20HBR
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	513307228

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		
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	-	98 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	-	98 to 140 V
8.3 HBP (32°C Ambient temperature)	Fan	-	98 to 140 V
8.4 HBP (43°C Ambient temperature)	Fan	-	98 to 140 V
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		[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	350	[ml] (11.84 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	7.1	[kg] (15.65 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	115-127 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514180	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM734KFBYY-53	
6 Start winding resistance	18.20	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	10.40	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	9.50	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	1.15	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V60Hz			ASHRAEHBP32 Static		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]	
985	248	289	122	1.31		8.07	2.03	2.36	

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]	
985	248	289	122	1.31		8.07	2.03	2.36	

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]	
180	45	53	66	0.94	1.02	2.73	0.69	0.80	

TEST CONDITIONS: @115V60Hz			ASHRAELBP32 Fan		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]	
180	45	53	66	0.94	1.02	2.73	0.69	0.80	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		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)						0.00	0.00	0.00	0.00	0.00
-30	(-22)						0.00	0.00	0.00	0.00	0.00
-25	(-13)						0.00	0.00	0.00	0.00	0.00
-20	(- 4)						0.00	0.00	0.00	0.00	0.00
-15	(+ 5)						0.00	0.00	0.00	0.00	0.00
-10	(+14)						0.00	0.00	0.00	0.00	0.00
-5	(+23)						0.00	0.00	0.00	0.00	0.00
0	(+32)						0.00	0.00	0.00	0.00	0.00
+5	(+41)						0.00	0.00	0.00	0.00	0.00
+10	(+50)						0.00	0.00	0.00	0.00	0.00
+15	(+59)						0.00	0.00	0.00	0.00	0.00

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		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)					0.00	0.00	0.00	0.00	0.00
-30	(-22)					0.00	0.00	0.00	0.00	0.00
-25	(-13)					0.00	0.00	0.00	0.00	0.00
-20	(- 4)					0.00	0.00	0.00	0.00	0.00
-15	(+ 5)					0.00	0.00	0.00	0.00	0.00
-10	(+14)					0.00	0.00	0.00	0.00	0.00
-5	(+23)					0.00	0.00	0.00	0.00	0.00
0	(+32)					0.00	0.00	0.00	0.00	0.00
+5	(+41)					0.00	0.00	0.00	0.00	0.00
+10	(+50)					0.00	0.00	0.00	0.00	0.00
+15	(+59)					0.00	0.00	0.00	0.00	0.00

TEST CONDITIONS: @115V60Hz		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)					0.00	0.00	0.00	0.00	0.00
-30	(-22)					0.00	0.00	0.00	0.00	0.00
-25	(-13)					0.00	0.00	0.00	0.00	0.00
-20	(- 4)					0.00	0.00	0.00	0.00	0.00
-15	(+ 5)					0.00	0.00	0.00	0.00	0.00
-10	(+14)					0.00	0.00	0.00	0.00	0.00
-5	(+23)					0.00	0.00	0.00	0.00	0.00
0	(+32)					0.00	0.00	0.00	0.00	0.00
+5	(+41)					0.00	0.00	0.00	0.00	0.00
+10	(+50)					0.00	0.00	0.00	0.00	0.00
+15	(+59)					0.00	0.00	0.00	0.00	0.00

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	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		