

COMPRESSOR DEFINITION

Designation	EM 20NR
Nominal Voltage/Frequency	115 V 60 Hz
Engineering Number	513303009

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	Blend		
3 Nominal voltage and frequency	115 / 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	-	103 to 127 V
8.2 LBP (43°C Ambient temperature)	Static	-	103 to 127 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing pressures/temperature			
9.1 Operating (gauge)	14.5	[kgf/cm ²] (206 psig)	/ °C - °F
9.2 Peak (gauge)	18.2	[kgf/cm ²] (259 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	ALQUILB / ISO32	
4 Weight (with oil charge)	6.61	[kg] (14.57 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 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514024	
3 Start capacitor	145-175(115)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	MRA58091-5590	
6 Start winding resistance	21.80	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	11.70	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	8.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	0.90	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	UL	

D - PERFORMANCE - CHECK POINT DATA

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]
205	52	60	66	0.80	1.50	3.10	0.78	0.91

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)	89	23	26	48	0.69	0.65	1.88	0.47	0.55
-30 (-22)	139	35	41	56	0.74	1.02	2.48	0.63	0.73
-25 (-13)	202	51	59	64	0.79	1.48	3.16	0.80	0.92
-20 (- 4)	278	70	81	72	0.84	2.04	3.86	0.97	1.13
-15 (+ 5)	365	92	107	81	0.89	2.69	4.54	1.14	1.33
-10 (+14)	464	117	136	90	0.95	3.42	5.16	1.30	1.51

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)	78	20	23	47	0.69	0.57	1.64	0.41	0.48
-30 (-22)	122	31	36	56	0.74	0.89	2.20	0.55	0.64
-25 (-13)	181	46	53	64	0.79	1.33	2.85	0.72	0.83
-20 (- 4)	254	64	74	72	0.84	1.86	3.53	0.89	1.04
-15 (+ 5)	339	85	99	80	0.89	2.49	4.21	1.06	1.23
-10 (+14)	436	110	128	90	0.95	3.21	4.84	1.22	1.42

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)	24	6	7	47	0.69	0.17	0.51	0.13	0.15
-30 (-22)	63	16	18	56	0.74	0.46	1.12	0.28	0.33
-25 (-13)	118	30	34	64	0.79	0.86	1.83	0.46	0.53
-20 (- 4)	186	47	55	72	0.84	1.37	2.58	0.65	0.76
-15 (+ 5)	269	68	79	80	0.89	1.98	3.34	0.84	0.98
-10 (+14)	364	92	107	90	0.95	2.69	4.05	1.02	1.19

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		