

COMPRESSOR DEFINITION

Designation	EM 45HNR
Nominal Voltage/Frequency	220 V 50-60 Hz
Engineering Number	513307028

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-Medium Back Pressure		
4.1 Evaporating temperature range	-35°C to -5°C	(-31°F to 23°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/Fan	187 to 242 V	187 to 242 V
8.2 LBP (43°C Ambient temperature)	Static/Fan	187 to 242 V	187 to 242 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	14.2	[kgf/cm ²] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm ²] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/8	[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	160	[ml] (5.41 fl.oz)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	7.52	[kg] (16.58 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	213514130/213515004	
3 Start capacitor	38-46(220)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	5TM718MFBYY-53	
6 Start winding resistance	38.00	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	20.50	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	9.50/9.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	1.05/0.90	[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	UL	

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]
330	83	97	96	0.89	1.88	3.45	0.87	1.01

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]
420	106	123	104	0.78	2.39	4.04	1.02	1.18

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)	182	46	53	78	0.88	1.03	2.33	0.59	0.68
-30	(-22)	260	66	76	86	0.91	1.47	3.01	0.76	0.88
-25	(-13)	350	88	102	95	0.92	1.99	3.70	0.93	1.08
-20	(- 4)	457	115	134	104	0.93	2.60	4.42	1.11	1.29
-15	(+ 5)	588	148	172	113	0.94	3.36	5.20	1.31	1.52
-10	(+14)	749	189	220	123	0.96	4.29	6.09	1.53	1.78
-5	(+23)	946	238	277	133	0.99	5.44	7.11	1.79	2.08

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)	140	35	41	77	0.89	0.79	1.84	0.46	0.54
-30	(-22)	218	55	64	86	0.91	1.24	2.53	0.64	0.74
-25	(-13)	308	78	90	96	0.93	1.75	3.20	0.81	0.94
-20	(- 4)	414	104	121	107	0.94	2.36	3.88	0.98	1.14
-15	(+ 5)	544	137	159	118	0.95	3.10	4.60	1.16	1.35
-10	(+14)	702	177	206	130	0.98	4.02	5.40	1.36	1.58
-5	(+23)	897	226	263	142	1.01	5.16	6.31	1.59	1.85

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]
-35	(-31)	103	26	30	73	0.88	0.58	1.40	0.35	0.41
-30	(-22)	179	45	53	84	0.90	1.02	2.11	0.53	0.62
-25	(-13)	266	67	78	96	0.92	1.51	2.77	0.70	0.81
-20	(- 4)	369	93	108	108	0.94	2.10	3.42	0.86	1.00
-15	(+ 5)	494	125	145	121	0.95	2.82	4.09	1.03	1.20
-10	(+14)	649	163	190	135	0.98	3.72	4.81	1.21	1.41
-5	(+23)	838	211	246	149	1.02	4.82	5.62	1.42	1.65

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]
-35	(-31)	223	56	65	78	0.72	1.26	2.86	0.72	0.84
-30	(-22)	306	77	90	90	0.76	1.74	3.44	0.87	1.01
-25	(-13)	417	105	122	102	0.79	2.37	4.12	1.04	1.21
-20	(- 4)	555	140	163	114	0.82	3.16	4.88	1.23	1.43
-15	(+ 5)	717	181	210	126	0.86	4.09	5.70	1.44	1.67
-10	(+14)	903	227	265	138	0.90	5.17	6.55	1.65	1.92
-5	(+23)	1111	280	325	150	0.95	6.39	7.40	1.87	2.17

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]
-35	(-31)	173	44	51	75	0.71	0.98	2.29	0.58	0.67
-30	(-22)	260	65	76	89	0.75	1.47	2.94	0.74	0.86
-25	(-13)	373	94	109	102	0.79	2.12	3.63	0.92	1.06
-20	(- 4)	511	129	150	117	0.83	2.91	4.36	1.10	1.28
-15	(+ 5)	673	170	197	132	0.88	3.84	5.10	1.29	1.49
-10	(+14)	857	216	251	147	0.93	4.91	5.82	1.47	1.71
-5	(+23)	1061	267	311	163	0.99	6.10	6.50	1.64	1.91

E - PERFORMANCE - CURVES

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)	129	33	38	70	0.70	0.73	1.85	0.47	0.54
-30	(-22)	217	55	64	85	0.74	1.23	2.55	0.64	0.75
-25	(-13)	330	83	97	101	0.79	1.88	3.26	0.82	0.96
-20	(- 4)	467	118	137	118	0.84	2.66	3.95	1.00	1.16
-15	(+ 5)	625	157	183	136	0.89	3.57	4.61	1.16	1.35
-10	(+14)	804	203	236	155	0.95	4.60	5.19	1.31	1.52
-5	(+23)	1002	252	293	176	1.03	5.76	5.69	1.43	1.67

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		