

### COMPRESSOR DEFINITION

Designation	EM 30HNR
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513307010

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220-240 / 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/Fan	187 to 255 V	187 to 255 V
8.2 LBP (43°C Ambient temperature)	Static/Fan	187 to 255 V	187 to 255 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 <sup>2</sup> ] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm <sup>2</sup> ] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/10	[hp]
2 Displacement	3.00	[cm <sup>3</sup> ] (0.183 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	10.600	
3 Lubricant charge	170	[ml] (5.75 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	7.13	[kg] (15.72 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm <sup>2</sup> ] (2.84 to 4.27 psig)

### C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	220-240 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514032	
3 Start capacitor	38-46(230)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	5TM189KFBYY-53	
6 Start winding resistance	44.20	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	31.60	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	7.30/7.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	0.72/0.70	[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	CE - IMTRO - TUV - UKCA - VDE	

### 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]
250	63	73	76	0.58	1.42	3.30	0.83	0.97

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]
305	77	89	85	0.55	1.73	3.60	0.91	1.05

### 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)	123	31	36	56	0.55	0.69	2.18	0.55	0.64
-30 (-22)	180	45	53	64	0.56	1.02	2.82	0.71	0.83
-25 (-13)	239	60	70	70	0.57	1.36	3.45	0.87	1.01
-20 (- 4)	311	78	91	76	0.58	1.77	4.13	1.04	1.21
-15 (+ 5)	404	102	118	82	0.59	2.30	4.89	1.23	1.43
-10 (+14)	526	132	154	90	0.61	3.01	5.79	1.46	1.70

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)	91	23	27	55	0.55	0.52	1.66	0.42	0.49
-30 (-22)	153	39	45	64	0.56	0.87	2.36	0.59	0.69
-25 (-13)	214	54	63	72	0.57	1.22	3.00	0.76	0.88
-20 (- 4)	285	72	83	79	0.58	1.62	3.64	0.92	1.07
-15 (+ 5)	372	94	109	86	0.59	2.12	4.32	1.09	1.27
-10 (+14)	486	123	142	95	0.61	2.79	5.08	1.28	1.49

### 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)	53	13	16	51	0.55	0.30	1.05	0.27	0.31	
-30 (-22)	120	30	35	62	0.56	0.68	1.84	0.46	0.54	
-25 (-13)	183	46	54	71	0.57	1.04	2.52	0.64	0.74	
-20 (- 4)	252	63	74	80	0.58	1.43	3.15	0.79	0.92	
-15 (+ 5)	335	84	98	90	0.60	1.91	3.77	0.95	1.10	
-10 (+14)	441	111	129	100	0.62	2.53	4.42	1.11	1.30	

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)	158	40	46	61	0.49	0.90	2.59	0.65	0.76	
-30 (-22)	216	54	63	70	0.51	1.22	3.10	0.78	0.91	
-25 (-13)	295	74	86	79	0.54	1.67	3.73	0.94	1.09	
-20 (- 4)	393	99	115	89	0.56	2.24	4.43	1.12	1.30	
-15 (+ 5)	510	128	149	98	0.59	2.91	5.18	1.30	1.52	
-10 (+14)	643	162	189	108	0.61	3.69	5.93	1.49	1.74	

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)	123	31	36	59	0.48	0.69	2.06	0.52	0.60	
-30 (-22)	181	46	53	70	0.51	1.03	2.60	0.66	0.76	
-25 (-13)	260	66	76	81	0.53	1.48	3.22	0.81	0.94	
-20 (- 4)	358	90	105	92	0.56	2.03	3.88	0.98	1.14	
-15 (+ 5)	472	119	138	104	0.59	2.69	4.55	1.15	1.33	
-10 (+14)	602	152	176	116	0.63	3.45	5.18	1.31	1.52	

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)	71	18	21	53	0.46	0.40	1.36	0.34	0.40	
-30 (-22)	134	34	39	66	0.49	0.76	2.00	0.50	0.58	
-25 (-13)	215	54	63	80	0.52	1.22	2.67	0.67	0.78	
-20 (- 4)	314	79	92	93	0.56	1.79	3.35	0.84	0.98	
-15 (+ 5)	429	108	126	108	0.60	2.45	4.00	1.01	1.17	
-10 (+14)	558	141	164	123	0.65	3.20	4.58	1.15	1.34	

### 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		