

### COMPRESSOR DEFINITION

Designation	EM 30HNR
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513307036

### 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	160	[ml] (5.41 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	7.12	[kg] (15.70 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	4TM189KFBYY-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	74	0.62	1.42	3.40	0.86	1.00

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	81	0.56	1.73	3.75	0.95	1.10

### 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)	104	26	30	55	0.57	0.59	1.87	0.47	0.55
-30	(-22)	165	41	48	61	0.58	0.93	2.69	0.68	0.79
-25	(-13)	235	59	69	68	0.60	1.33	3.46	0.87	1.01
-20	(- 4)	320	81	94	75	0.62	1.82	4.25	1.07	1.25
-15	(+ 5)	424	107	124	83	0.64	2.42	5.09	1.28	1.49
-10	(+14)	553	139	162	91	0.66	3.17	6.04	1.52	1.77

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)	72	18	21	52	0.57	0.41	1.40	0.35	0.41
-30	(-22)	136	34	40	60	0.58	0.77	2.26	0.57	0.66
-25	(-13)	207	52	61	68	0.60	1.18	3.05	0.77	0.89
-20	(- 4)	292	74	86	77	0.62	1.66	3.80	0.96	1.11
-15	(+ 5)	394	99	116	86	0.64	2.25	4.57	1.15	1.34
-10	(+14)	520	131	152	96	0.67	2.98	5.40	1.36	1.58

### 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	47	0.56	0.23	0.86	0.22	0.25	
-30 (-22)	100	25	29	56	0.57	0.57	1.73	0.44	0.51	
-25 (-13)	165	42	48	66	0.59	0.93	2.48	0.63	0.73	
-20 (- 4)	241	61	71	77	0.61	1.37	3.16	0.80	0.93	
-15 (+ 5)	333	84	98	88	0.64	1.90	3.81	0.96	1.12	
-10 (+14)	448	113	131	100	0.67	2.56	4.49	1.13	1.31	

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)	130	33	38	58	0.49	0.74	2.27	0.57	0.66	
-30 (-22)	213	54	62	67	0.52	1.20	3.18	0.80	0.93	
-25 (-13)	306	77	90	77	0.56	1.74	3.97	1.00	1.16	
-20 (- 4)	411	104	120	87	0.59	2.34	4.69	1.18	1.38	
-15 (+ 5)	530	134	155	98	0.62	3.03	5.39	1.36	1.58	
-10 (+14)	665	168	195	108	0.66	3.81	6.12	1.54	1.79	

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)	91	23	27	55	0.48	0.52	1.67	0.42	0.49	
-30 (-22)	171	43	50	64	0.51	0.97	2.68	0.68	0.79	
-25 (-13)	262	66	77	75	0.54	1.49	3.51	0.88	1.03	
-20 (- 4)	367	93	108	88	0.58	2.09	4.21	1.06	1.23	
-15 (+ 5)	487	123	143	101	0.63	2.78	4.81	1.21	1.41	
-10 (+14)	623	157	183	115	0.68	3.57	5.38	1.36	1.58	

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)	45	11	13	50	0.47	0.26	0.89	0.22	0.26	
-30 (-22)	123	31	36	59	0.50	0.70	2.08	0.52	0.61	
-25 (-13)	214	54	63	71	0.53	1.21	3.04	0.77	0.89	
-20 (- 4)	319	80	94	85	0.57	1.82	3.79	0.96	1.11	
-15 (+ 5)	441	111	129	101	0.63	2.52	4.40	1.11	1.29	
-10 (+14)	580	146	170	119	0.69	3.32	4.90	1.24	1.44	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EG/F/AMEM version 2		
2 Tray holder	Yes		
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		