

### COMPRESSOR DEFINITION

Designation	EM 30HHR
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513307141

### 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-Medium-High Back Pressure		
4.1 Evaporating temperature range	-35°C to 15°C	(-31°F to 59°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	187 to 255 V	187 to 242 V
8.2 LBP (43°C Ambient temperature)	Static	187 to 255 V	187 to 242 V
8.3 HBP (32°C Ambient temperature)	Fan	187 to 255 V	187 to 242 V
8.4 HBP (43°C Ambient temperature)	Fan	187 to 255 V	187 to 242 V
9 Maximum condensing pressures/temperature			
9.1 Operating (gauge)	16.2	[kgf/cm <sup>2</sup> ] (230 psig)	/ °C - °F
9.2 Peak (gauge)	20.6	[kgf/cm <sup>2</sup> ] (293 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 / ISO22	
4 Weight (with oil charge)	7.49	[kg] (16.51 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	213514059	
3 Start capacitor	38-46(240)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM189RHBYY-53	
6 Start winding resistance	47.80	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	23.10	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	8.50/8.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	1.20/1.10	[A] - Measured according to UL 984
11 Approval boards certification	CCC - TUV - UL - VDE	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V50Hz			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]
1170	295	343	140	0.95		8.36	2.11	2.45

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[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1170	295	343	140	0.95		8.36	2.11	2.45

TEST CONDITIONS: @220V60Hz			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]
1380	348	404	160	0.95		8.63	2.17	2.53

TEST CONDITIONS: @220V60Hz			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]
1380	348	404	160	0.95		8.63	2.17	2.53

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]
260	66	76	86	0.60	1.48	3.02	0.76	0.88

TEST CONDITIONS: @220V50Hz			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]
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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]
310	78	91	90	0.70	1.76	3.44	0.87	1.01

TEST CONDITIONS: @220V60Hz			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]
310	78	91	90	0.70	1.76	3.44	0.87	1.01

### 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)	143	36	42	65	0.81	0.81	2.17	0.55	0.63
-30 (-22)	200	50	59	73	0.82	1.13	2.76	0.69	0.81
-25 (-13)	271	68	79	81	0.83	1.54	3.39	0.85	0.99
-20 (- 4)	359	91	105	88	0.85	2.04	4.09	1.03	1.20
-15 (+ 5)	466	117	137	96	0.86	2.66	4.87	1.23	1.43
-10 (+14)	594	150	174	104	0.87	3.40	5.76	1.45	1.69
-5 (+23)	745	188	218	110	0.89	4.28	6.77	1.71	1.98
0 (+32)	921	232	270	117	0.90	5.32	7.92	1.99	2.32
+5 (+41)	1124	283	329	122	0.91	6.54	9.22	2.32	2.70
+10 (+50)	1356	342	397	127	0.92	7.95	10.71	2.70	3.14
+15 (+59)	1619	408	474	130	0.93	9.56	12.39	3.12	3.63

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)	107	27	31	68	0.82	0.60	1.57	0.40	0.46
-30 (-22)	168	42	49	75	0.83	0.95	2.26	0.57	0.66
-25 (-13)	241	61	71	83	0.84	1.37	2.94	0.74	0.86
-20 (- 4)	329	83	96	91	0.86	1.87	3.63	0.91	1.06
-15 (+ 5)	434	109	127	99	0.87	2.48	4.35	1.10	1.27
-10 (+14)	559	141	164	108	0.89	3.20	5.12	1.29	1.50
-5 (+23)	704	177	206	117	0.91	4.05	5.96	1.50	1.75
0 (+32)	872	220	256	126	0.93	5.04	6.89	1.74	2.02
+5 (+41)	1066	269	312	134	0.95	6.20	7.92	2.00	2.32
+10 (+50)	1287	324	377	142	0.97	7.54	9.08	2.29	2.66
+15 (+59)	1537	387	450	149	0.98	9.07	10.39	2.62	3.04

### 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]
-35	(-31)	69	17	20	70	0.83	0.39	0.94	0.24	0.28
-30	(-22)	131	33	38	77	0.84	0.75	1.75	0.44	0.51
-25	(-13)	205	52	60	84	0.85	1.17	2.49	0.63	0.73
-20	(- 4)	291	73	85	93	0.86	1.66	3.20	0.81	0.94
-15	(+ 5)	393	99	115	102	0.88	2.24	3.88	0.98	1.14
-10	(+14)	512	129	150	113	0.90	2.93	4.55	1.15	1.33
-5	(+23)	650	164	190	123	0.92	3.73	5.25	1.32	1.54
0	(+32)	809	204	237	134	0.95	4.68	5.97	1.51	1.75
+5	(+41)	992	250	291	146	0.98	5.77	6.75	1.70	1.98
+10	(+50)	1200	302	352	157	1.00	7.03	7.60	1.92	2.23
+15	(+59)	1435	362	421	168	1.04	8.47	8.55	2.15	2.50

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]
-35	(-31)	158	40	46	64	0.67	0.89	2.37	0.60	0.69
-30	(-22)	240	61	70	74	0.69	1.37	3.19	0.81	0.94
-25	(-13)	331	84	97	83	0.70	1.89	3.98	1.00	1.17
-20	(- 4)	437	110	128	93	0.72	2.48	4.76	1.20	1.39
-15	(+ 5)	561	141	164	102	0.75	3.20	5.55	1.40	1.63
-10	(+14)	708	178	208	112	0.77	4.05	6.39	1.61	1.87
-5	(+23)	884	223	259	122	0.80	5.08	7.31	1.84	2.14
0	(+32)	1093	276	320	131	0.83	6.32	8.32	2.10	2.44
+5	(+41)	1341	338	393	141	0.86	7.80	9.47	2.39	2.78
+10	(+50)	1631	411	478	151	0.90	9.56	10.78	2.72	3.16
+15	(+59)	1968	496	577	160	0.93	11.62	12.27	3.09	3.60

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]
-35	(-31)	108	27	32	66	0.67	0.61	1.67	0.42	0.49
-30	(-22)	196	49	57	77	0.69	1.11	2.51	0.63	0.74
-25	(-13)	291	73	85	87	0.71	1.66	3.29	0.83	0.97
-20	(- 4)	398	100	117	98	0.74	2.27	4.04	1.02	1.18
-15	(+ 5)	522	132	153	109	0.77	2.98	4.78	1.21	1.40
-10	(+14)	668	168	196	120	0.81	3.82	5.55	1.40	1.63
-5	(+23)	840	212	246	132	0.84	4.83	6.37	1.61	1.87
0	(+32)	1043	263	306	143	0.88	6.03	7.27	1.83	2.13
+5	(+41)	1283	323	376	154	0.92	7.47	8.28	2.09	2.43
+10	(+50)	1564	394	458	165	0.96	9.17	9.42	2.37	2.76
+15	(+59)	1891	476	554	177	1.00	11.16	10.74	2.71	3.15

### 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)	79	20	23	68	0.68	0.44	1.21	0.30	0.35
-30	(-22)	168	42	49	80	0.70	0.96	2.05	0.52	0.60
-25	(-13)	261	66	77	92	0.73	1.49	2.81	0.71	0.82
-20	(- 4)	365	92	107	104	0.76	2.08	3.51	0.88	1.03
-15	(+ 5)	484	122	142	116	0.80	2.76	4.18	1.05	1.23
-10	(+14)	623	157	183	129	0.84	3.57	4.86	1.22	1.42
-5	(+23)	787	198	231	142	0.88	4.52	5.57	1.40	1.63
0	(+32)	980	247	287	154	0.92	5.66	6.33	1.60	1.85
+5	(+41)	1207	304	354	167	0.97	7.03	7.18	1.81	2.10
+10	(+50)	1474	371	432	180	1.02	8.64	8.15	2.05	2.39
+15	(+59)	1785	450	523	193	1.07	10.53	9.26	2.33	2.71

### 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		