

### COMPRESSOR DEFINITION

Designation	EM IS30HHR
Nominal Voltage/Frequency	220 V 50-60 Hz
Engineering Number	513305019

### 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-High Back Pressure		
4.1 Evaporating temperature range	-35°C to 15°C	(-31°F to 59°F)	
5 Motor type	RSIR		
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	198 to 242 V	198 to 242 V
8.2 LBP (43°C Ambient temperature)	Static	198 to 242 V	198 to 242 V
8.3 HBP (32°C Ambient temperature)	Fan	198 to 242 V	198 to 242 V
8.4 HBP (43°C Ambient temperature)	Fan	198 to 242 V	198 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)	6.77	[kg] (14.93 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 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514016	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM718MFBYY-53	
6 Start winding resistance	35.30	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	29.00	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	9.00/8.80	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	0.94/0.82	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	1.04/0.93	[A] - Measured according to UL 984
11 Approval boards certification	IRAM - TUV	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V50Hz			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]	
1240	312	363	140	0.94		8.89	2.24	2.60	

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]	
1480	373	434	162	0.93		9.14	2.30	2.68	

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]	
270	68	79	86	0.83	1.53	3.16	0.80	0.93	

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]	
340	86	100	88	0.69	1.93	3.88	0.98	1.14	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		ASHRAE32 Static					(Condensing temperature 35°C (+95°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)	163	41	48	66	0.82	0.92	2.46	0.62	0.72
-30	(-22)	225	57	66	71	0.82	1.28	3.14	0.79	0.92
-25	(-13)	299	75	88	77	0.82	1.70	3.83	0.97	1.12
-20	(- 4)	387	98	113	84	0.83	2.20	4.56	1.15	1.34
-15	(+ 5)	494	124	145	92	0.84	2.81	5.38	1.36	1.58
-10	(+14)	622	157	182	99	0.85	3.56	6.32	1.59	1.85
-5	(+23)	774	195	227	105	0.86	4.45	7.44	1.87	2.18
0	(+32)	954	240	280	111	0.87	5.52	8.76	2.21	2.57
+5	(+41)	1166	294	342	115	0.88	6.78	10.34	2.61	3.03
+10	(+50)	1411	356	413	116	0.89	8.27	12.22	3.08	3.58
+15	(+59)	1694	427	496	116	0.89	10.00	14.42	3.63	4.23

### E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V50Hz		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	114	29	33	68	0.83	0.64	1.72	0.43	0.50
-30	(-22)	180	45	53	73	0.83	1.02	2.48	0.63	0.73
-25	(-13)	257	65	75	80	0.83	1.46	3.20	0.81	0.94
-20	(- 4)	348	88	102	88	0.83	1.98	3.92	0.99	1.15
-15	(+ 5)	457	115	134	96	0.85	2.61	4.67	1.18	1.37
-10	(+14)	587	148	172	105	0.86	3.36	5.51	1.39	1.61
-5	(+23)	740	187	217	113	0.87	4.26	6.46	1.63	1.89
0	(+32)	921	232	270	121	0.89	5.33	7.58	1.91	2.22
+5	(+41)	1132	285	332	127	0.90	6.59	8.91	2.24	2.61
+10	(+50)	1377	347	404	132	0.92	8.07	10.48	2.64	3.07
+15	(+59)	1659	418	486	135	0.93	9.79	12.34	3.11	3.62

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V50Hz		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	91	23	27	65	0.83	0.51	1.41	0.36	0.41
-30	(-22)	157	40	46	71	0.83	0.89	2.25	0.57	0.66
-25	(-13)	233	59	68	79	0.83	1.33	2.99	0.75	0.88
-20	(- 4)	323	81	95	88	0.83	1.84	3.69	0.93	1.08
-15	(+ 5)	430	108	126	98	0.85	2.45	4.37	1.10	1.28
-10	(+14)	556	140	163	108	0.86	3.18	5.09	1.28	1.49
-5	(+23)	707	178	207	119	0.88	4.06	5.88	1.48	1.72
0	(+32)	883	223	259	129	0.91	5.11	6.79	1.71	1.99
+5	(+41)	1090	275	319	139	0.93	6.34	7.85	1.98	2.30
+10	(+50)	1330	335	390	147	0.95	7.79	9.11	2.30	2.67
+15	(+59)	1606	405	471	153	0.98	9.48	10.62	2.67	3.11

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@220V50Hz		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	58	15	17	62	0.83	0.33	0.84	0.21	0.25
-30	(-22)	119	30	35	69	0.82	0.68	1.75	0.44	0.51
-25	(-13)	190	48	56	78	0.82	1.08	2.51	0.63	0.74
-20	(- 4)	273	69	80	89	0.83	1.56	3.18	0.80	0.93
-15	(+ 5)	373	94	109	101	0.85	2.13	3.79	0.95	1.11
-10	(+14)	493	124	144	114	0.87	2.82	4.38	1.10	1.28
-5	(+23)	636	160	186	127	0.90	3.65	5.00	1.26	1.46
0	(+32)	804	203	236	140	0.93	4.65	5.68	1.43	1.67
+5	(+41)	1002	252	294	153	0.97	5.83	6.48	1.63	1.90
+10	(+50)	1232	311	361	165	1.01	7.22	7.43	1.87	2.18
+15	(+59)	1498	378	439	175	1.04	8.85	8.57	2.16	2.51

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(Condensing temperature 35°C (+95°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)	178	45	52	62	0.64	1.01	2.85	0.72	0.83
-30	(-22)	259	65	76	70	0.66	1.47	3.68	0.93	1.08
-25	(-13)	352	89	103	78	0.67	2.00	4.49	1.13	1.32
-20	(- 4)	461	116	135	87	0.70	2.62	5.32	1.34	1.56
-15	(+ 5)	590	149	173	95	0.72	3.37	6.20	1.56	1.82
-10	(+14)	745	188	218	104	0.74	4.26	7.20	1.81	2.11
-5	(+23)	930	234	272	112	0.76	5.35	8.36	2.11	2.45
0	(+32)	1149	289	337	119	0.78	6.64	9.71	2.45	2.85
+5	(+41)	1406	354	412	125	0.80	8.19	11.32	2.85	3.32
+10	(+50)	1707	430	500	129	0.81	10.01	13.22	3.33	3.87
+15	(+59)	2056	518	603	132	0.82	12.14	15.47	3.90	4.53

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)	149	38	44	63	0.65	0.84	2.45	0.62	0.72
-30	(-22)	229	58	67	70	0.66	1.30	3.31	0.84	0.97
-25	(-13)	320	81	94	79	0.68	1.82	4.09	1.03	1.20
-20	(- 4)	425	107	125	88	0.70	2.42	4.82	1.22	1.41
-15	(+ 5)	550	139	161	99	0.72	3.13	5.56	1.40	1.63
-10	(+14)	698	176	205	110	0.75	3.99	6.35	1.60	1.86
-5	(+23)	875	221	257	120	0.78	5.03	7.23	1.82	2.12
0	(+32)	1086	274	318	131	0.82	6.28	8.26	2.08	2.42
+5	(+41)	1333	336	391	140	0.85	7.76	9.48	2.39	2.78
+10	(+50)	1623	409	476	149	0.88	9.51	10.94	2.76	3.20
+15	(+59)	1959	494	574	156	0.91	11.56	12.67	3.19	3.71

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)	122	31	36	61	0.66	0.69	1.94	0.49	0.57
-30	(-22)	201	51	59	69	0.66	1.15	2.88	0.73	0.84
-25	(-13)	290	73	85	78	0.68	1.65	3.68	0.93	1.08
-20	(- 4)	391	99	115	89	0.70	2.23	4.37	1.10	1.28
-15	(+ 5)	511	129	150	101	0.73	2.92	5.01	1.26	1.47
-10	(+14)	653	165	191	115	0.77	3.74	5.65	1.42	1.65
-5	(+23)	823	207	241	128	0.81	4.73	6.32	1.59	1.85
0	(+32)	1024	258	300	142	0.86	5.92	7.07	1.78	2.07
+5	(+41)	1262	318	370	156	0.91	7.34	7.96	2.00	2.33
+10	(+50)	1540	388	451	170	0.96	9.03	9.02	2.27	2.64
+15	(+59)	1863	470	546	183	1.01	11.00	10.30	2.60	3.02

### 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)	77	20	23	57	0.65	0.43	1.27	0.32	0.37
-30	(-22)	155	39	46	65	0.65	0.89	2.35	0.59	0.69
-25	(-13)	241	61	71	76	0.67	1.38	3.22	0.81	0.94
-20	(- 4)	339	85	99	88	0.70	1.93	3.93	0.99	1.15
-15	(+ 5)	454	114	133	103	0.73	2.59	4.53	1.14	1.33
-10	(+14)	590	149	173	119	0.78	3.37	5.06	1.27	1.48
-5	(+23)	752	189	220	136	0.83	4.32	5.57	1.40	1.63
0	(+32)	944	238	277	154	0.90	5.45	6.10	1.54	1.79
+5	(+41)	1171	295	343	173	0.96	6.81	6.71	1.69	1.97
+10	(+50)	1438	362	421	192	1.04	8.42	7.43	1.87	2.18
+15	(+59)	1748	441	512	210	1.12	10.32	8.32	2.10	2.44

### 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		