

COMPRESSOR DEFINITION

Designation	EM IS30HHR
Nominal Voltage/Frequency	220 V 50-60 Hz
Engineering Number	513305051

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 temperature			
9.1 Operating	14.2	[kgf/cm²] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm²] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/10	[hp]
2 Displacement	3.00	[cm ³] (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 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	213514016	
3 Start capacitor	-	[μF(VAC minimum)]
4 Run capacitor	-	[μF(VAC minimum)]
5 Motor protection	4TM718MFBYY-53	
6 Start winding resistance	35.30	[Ωat 25°C (77°F)] +/- 8%
7 Run winding resistance	29.00	[Ωat 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	CCC - IRAM - TUV - UL	

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 Fan			(Condensing temperature 35°C (+95°F))					
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)	161	41	47	67	0.81	0.91	2.41	0.61	0.71
-30	(-22)	220	55	64	73	0.82	1.25	3.02	0.76	0.88
-25	(-13)	298	75	87	79	0.83	1.69	3.72	0.94	1.09
-20	(- 4)	395	100	116	86	0.84	2.25	4.53	1.14	1.33
-15	(+ 5)	513	129	150	93	0.85	2.93	5.47	1.38	1.60
-10	(+14)	653	165	191	100	0.86	3.74	6.55	1.65	1.92
-5	(+23)	816	206	239	106	0.87	4.69	7.79	1.96	2.28
0	(+32)	1003	253	294	110	0.88	5.80	9.21	2.32	2.70
+5	(+41)	1214	306	356	114	0.88	7.07	10.81	2.72	3.17
+10	(+50)	1452	366	425	116	0.89	8.51	12.62	3.18	3.70
+15	(+59)	1716	432	503	116	0.89	10.13	14.65	3.69	4.29

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		ASHRAE32 Fan			(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)	134	34	39	67	0.83	0.75	2.04	0.51	0.60
-30	(-22)	192	48	56	73	0.83	1.09	2.69	0.68	0.79
-25	(-13)	269	68	79	80	0.83	1.53	3.38	0.85	0.99
-20	(- 4)	366	92	107	88	0.84	2.09	4.14	1.04	1.21
-15	(+ 5)	484	122	142	96	0.85	2.76	4.97	1.25	1.46
-10	(+14)	624	157	183	104	0.86	3.57	5.89	1.48	1.73
-5	(+23)	786	198	230	113	0.88	4.52	6.92	1.74	2.03
0	(+32)	973	245	285	120	0.89	5.63	8.07	2.03	2.37
+5	(+41)	1184	298	347	127	0.91	6.89	9.37	2.36	2.75
+10	(+50)	1421	358	416	132	0.93	8.33	10.82	2.73	3.17
+15	(+59)	1685	425	494	136	0.94	9.95	12.44	3.13	3.64

TEST CONDITIONS: @220V50Hz		ASHRAE32 Fan			(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)	96	24	28	66	0.83	0.54	1.47	0.37	0.43
-30	(-22)	152	38	45	72	0.83	0.87	2.20	0.55	0.64
-25	(-13)	227	57	67	80	0.83	1.30	2.92	0.74	0.86
-20	(- 4)	322	81	94	89	0.84	1.84	3.66	0.92	1.07
-15	(+ 5)	438	110	128	98	0.85	2.50	4.42	1.12	1.30
-10	(+14)	576	145	169	109	0.87	3.30	5.23	1.32	1.53
-5	(+23)	736	186	216	119	0.89	4.23	6.10	1.54	1.79
0	(+32)	921	232	270	129	0.91	5.32	7.03	1.77	2.06
+5	(+41)	1130	285	331	139	0.94	6.57	8.06	2.03	2.36
+10	(+50)	1365	344	400	149	0.96	8.00	9.19	2.32	2.69
+15	(+59)	1627	410	477	157	0.99	9.60	10.45	2.63	3.06

TEST CONDITIONS: @220V50Hz		ASHRAE32 Fan			(Condensing temperature 65°C (+149°F))					
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)	59	15	17	63	0.83	0.33	0.82	0.21	0.24
-30	(-22)	111	28	33	69	0.83	0.64	1.68	0.42	0.49
-25	(-13)	183	46	54	77	0.83	1.04	2.48	0.63	0.73
-20	(- 4)	274	69	80	87	0.84	1.56	3.25	0.82	0.95
-15	(+ 5)	386	97	113	98	0.86	2.20	3.99	1.00	1.17
-10	(+14)	520	131	152	110	0.88	2.97	4.72	1.19	1.38
-5	(+23)	676	170	198	123	0.90	3.89	5.46	1.38	1.60
0	(+32)	857	216	251	137	0.94	4.95	6.23	1.57	1.82
+5	(+41)	1062	268	311	150	0.97	6.18	7.03	1.77	2.06
+10	(+50)	1293	326	379	163	1.01	7.58	7.89	1.99	2.31
+15	(+59)	1551	391	455	176	1.05	9.16	8.82	2.22	2.58

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V60Hz		Fan								
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)	194	49	57	66	0.65	1.10	2.87	0.72	0.84
-30	(-22)	271	68	79	74	0.67	1.54	3.63	0.91	1.06
-25	(-13)	362	91	106	82	0.69	2.06	4.42	1.11	1.30
-20	(- 4)	472	119	138	89	0.70	2.69	5.28	1.33	1.55
-15	(+ 5)	605	152	177	97	0.72	3.45	6.25	1.57	1.83
-10	(+14)	764	193	224	105	0.74	4.37	7.34	1.85	2.15
-5	(+23)	956	241	280	112	0.77	5.49	8.59	2.17	2.52
0	(+32)	1183	298	347	119	0.79	6.84	10.04	2.53	2.94
+5	(+41)	1451	366	425	125	0.80	8.44	11.71	2.95	3.43
+10	(+50)	1763	444	516	129	0.82	10.33	13.63	3.43	3.99
+15	(+59)	2124	535	622	133	0.84	12.54	15.83	3.99	4.64

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V60Hz		Fan								
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)	156	39	46	65	0.66	0.88	2.48	0.63	0.73
-30	(-22)	237	60	69	73	0.67	1.35	3.28	0.83	0.96
-25	(-13)	330	83	97	81	0.69	1.88	4.06	1.02	1.19
-20	(- 4)	441	111	129	91	0.71	2.51	4.86	1.22	1.42
-15	(+ 5)	573	144	168	100	0.73	3.26	5.69	1.44	1.67
-10	(+14)	730	184	214	110	0.76	4.18	6.61	1.66	1.94
-5	(+23)	918	231	269	120	0.78	5.28	7.62	1.92	2.23
0	(+32)	1140	287	334	129	0.82	6.59	8.77	2.21	2.57
+5	(+41)	1401	353	410	139	0.85	8.15	10.09	2.54	2.96
+10	(+50)	1704	430	499	147	0.88	9.99	11.61	2.93	3.40
+15	(+59)	2056	518	602	155	0.91	12.13	13.35	3.36	3.91

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V60Hz		Fan								
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)	118	30	34	64	0.67	0.66	1.88	0.47	0.55
-30	(-22)	198	50	58	72	0.67	1.13	2.75	0.69	0.80
-25	(-13)	289	73	85	81	0.69	1.65	3.54	0.89	1.04
-20	(- 4)	396	100	116	92	0.71	2.26	4.28	1.08	1.25
-15	(+ 5)	523	132	153	103	0.74	2.98	5.02	1.26	1.47
-10	(+14)	674	170	197	115	0.77	3.86	5.77	1.45	1.69
-5	(+23)	853	215	250	128	0.81	4.91	6.57	1.66	1.93
0	(+32)	1066	269	312	141	0.85	6.16	7.45	1.88	2.18
+5	(+41)	1315	331	385	154	0.90	7.66	8.45	2.13	2.47
+10	(+50)	1607	405	471	167	0.95	9.42	9.58	2.41	2.81
+15	(+59)	1944	490	570	180	1.00	11.47	10.88	2.74	3.19

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Fan			(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)	91	23	27	60	0.66	0.51	1.40	0.35	0.41
-30	(-22)	166	42	49	69	0.67	0.95	2.35	0.59	0.69
-25	(-13)	251	63	74	79	0.68	1.43	3.17	0.80	0.93
-20	(- 4)	350	88	103	92	0.71	1.99	3.90	0.98	1.14
-15	(+ 5)	467	118	137	105	0.74	2.66	4.55	1.15	1.33
-10	(+14)	607	153	178	120	0.79	3.47	5.17	1.30	1.51
-5	(+23)	774	195	227	136	0.84	4.45	5.78	1.46	1.69
0	(+32)	972	245	285	152	0.89	5.62	6.42	1.62	1.88
+5	(+41)	1206	304	353	169	0.96	7.02	7.10	1.79	2.08
+10	(+50)	1480	373	434	187	1.03	8.68	7.88	1.99	2.31
+15	(+59)	1799	453	527	205	1.10	10.62	8.77	2.21	2.57

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		

