COMPRESSOR DEFINITION

Designation	**EM IS20HHR**
Nominal Voltage/Frequency	**115-127 V 60 Hz**
Engineering Number	**513305083**

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	115-127 / 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 Expantion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32ºC Ambient temperature)	Static	-	103 to 140 V
8.2 LBP (43ºC Ambient temperature)	Static	-	103 to 140 V
8.3 HBP (32ºC Ambient temperature)	Fan	-	103 to 140 V
8.4 HBP (43ºC Ambient temperature)	Fan	-	103 to 140 V
9 Maximum condensing temperature			
9.1 Operating	14.2	[kgf/cm²] (202 psig)	/ ºC - ºF
9.2 Peak	15.9	[kgf/cm²] (226 psig)	/ ºC - ºF
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/12	[hp]
2 Displacement	2.27	[cm³] (0.139 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	8.000	
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/cm²] (2.84 to 4.27 psig)

C - ELECTRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	115-127 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213514180/213515011	
3 Start capacitor	161-193(150)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	5TM734KFBYY-53	
6 Start winding resistance	18.50	[Ω at 25ºC (77ºF)] +/- 8%
7 Run winding resistance	9.80	[Ω at 25ºC (77ºF)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	11.62	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	1.43	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	1.58	[A] - Measured according to UL 984
11 Approval boards certification	CE - TUV - UKCA - UL	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: **@115V60Hz**			**ASHRAEHBP32** **Fan**		Evaporating temperature (Condensing temperature	**7.2°C (44.96°F)** **54.4°C (129.92°F))**		
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1050	265	308	123	1.39		8.51	2.14	2.49

TEST CONDITIONS: **@115V60Hz**			**ASHRAELBP32** **Static**		Evaporating temperature (Condensing temperature	**-23.3°C (-9.94°F)** **54.4°C (129.92°F))**		
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
200	50	59	66	1.04	1.14	3.02	0.76	0.88

E - PERFORMANCE - CURVES

TEST CONDITIONS: **@115V60Hz**		**ASHRAE32** **Static**			(Condensing temperature **35ºC (+95ºF))**					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	112	28	33	48	0.98	0.63	2.35	0.59	0.69
-30	**(-22)**	166	42	49	54	1.01	0.95	3.02	0.76	0.88
-25	**(-13)**	232	58	68	61	1.04	1.32	3.76	0.95	1.10
-20	**(- 4)**	312	79	91	67	1.06	1.77	4.61	1.16	1.35
-15	**(+ 5)**	409	103	120	74	1.09	2.33	5.58	1.41	1.63
-10	**(+14)**	527	133	154	80	1.12	3.02	6.67	1.68	1.95
-5	**(+23)**	668	168	196	85	1.15	3.84	7.90	1.99	2.32
0	**(+32)**	835	210	245	91	1.18	4.83	9.29	2.34	2.72
+5	**(+41)**	1031	260	302	96	1.21	6.00	10.85	2.73	3.18
+10	**(+50)**	1258	317	369	100	1.24	7.38	12.59	3.17	3.69
+15	**(+59)**	1520	383	445	104	1.27	8.97	14.53	3.66	4.26

TEST CONDITIONS: **@115V60Hz**		**ASHRAE32** **Static**			(Condensing temperature **45ºC (+113ºF))**					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	80	20	24	46	0.98	0.45	1.83	0.46	0.54
-30	**(-22)**	135	34	39	53	1.00	0.77	2.53	0.64	0.74
-25	**(-13)**	200	50	59	60	1.03	1.14	3.27	0.82	0.96
-20	**(- 4)**	279	70	82	67	1.06	1.59	4.05	1.02	1.19
-15	**(+ 5)**	374	94	110	75	1.09	2.13	4.89	1.23	1.43
-10	**(+14)**	489	123	143	83	1.13	2.80	5.81	1.47	1.70
-5	**(+23)**	626	158	183	91	1.18	3.60	6.82	1.72	2.00
0	**(+32)**	788	199	231	99	1.23	4.56	7.94	2.00	2.33
+5	**(+41)**	979	247	287	107	1.28	5.70	9.17	2.31	2.69
+10	**(+50)**	1200	302	351	114	1.34	7.03	10.52	2.65	3.08
+15	**(+59)**	1454	366	426	122	1.40	8.58	12.03	3.03	3.52

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V60Hz **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	50	13	15	44	0.98	0.28	1.21	0.30	0.35
-30	**(-22)**	103	26	30	51	0.99	0.59	2.00	0.50	0.59
-25	**(-13)**	165	42	48	58	1.02	0.94	2.77	0.70	0.81
-20	**(- 4)**	240	60	70	67	1.05	1.37	3.54	0.89	1.04
-15	**(+ 5)**	331	83	97	76	1.09	1.89	4.32	1.09	1.27
-10	**(+14)**	441	111	129	85	1.14	2.52	5.12	1.29	1.50
-5	**(+23)**	572	144	168	95	1.20	3.28	5.96	1.50	1.75
0	**(+32)**	727	183	213	106	1.26	4.20	6.85	1.73	2.01
+5	**(+41)**	909	229	266	117	1.34	5.29	7.80	1.97	2.29
+10	**(+50)**	1122	283	329	128	1.43	6.57	8.83	2.22	2.59
+15	**(+59)**	1367	344	400	139	1.52	8.07	9.95	2.51	2.92

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **65ºC (+149ºF))**
@115V60Hz **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	12	3	3	40	0.97	0.06	0.31	0.08	0.09
-30	**(-22)**	60	15	17	46	0.98	0.34	1.25	0.31	0.36
-25	**(-13)**	117	29	34	54	1.00	0.67	2.11	0.53	0.62
-20	**(- 4)**	186	47	55	64	1.03	1.06	2.92	0.74	0.86
-15	**(+ 5)**	270	68	79	74	1.08	1.54	3.68	0.93	1.08
-10	**(+14)**	372	94	109	85	1.14	2.13	4.42	1.11	1.29
-5	**(+23)**	495	125	145	97	1.21	2.84	5.14	1.29	1.51
0	**(+32)**	641	161	188	110	1.29	3.70	5.85	1.48	1.72
+5	**(+41)**	813	205	238	124	1.39	4.73	6.58	1.66	1.93
+10	**(+50)**	1014	256	297	138	1.50	5.94	7.33	1.85	2.15
+15	**(+59)**	1248	314	366	152	1.63	7.37	8.12	2.05	2.38

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal		
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 30° up + 24° to Back		
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	Slanted parallel BP+28°to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		