

### COMPRESSOR DEFINITION

Designation	EM U45HER
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513308031

### 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	187 to 255 V	191 to 242 V
8.2 LBP (43°C Ambient temperature)	Static	187 to 255 V	191 to 242 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
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	1/8	[hp]
2 Displacement	3.77	[cm <sup>3</sup> ] (0.230 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	13.300	
3 Lubricant charge	170	[ml] (5.75 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	7.78	[kg] (17.15 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	213514016	
3 Start capacitor	53-64(190)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM718KFBYY-53	
6 Start winding resistance	33.50	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	20.60	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	10.00/9.30	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	0.95/0.83	[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	TUV	

### 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]
365	92	107	83	0.74	2.07	4.40	1.11	1.29

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]
450	113	132	97	0.68	2.56	4.66	1.17	1.37

### 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)	199	50	58	61	0.63	1.12	3.26	0.82	0.95
-30 (-22)	280	71	82	69	0.67	1.59	4.03	1.01	1.18
-25 (-13)	364	92	107	77	0.70	2.07	4.69	1.18	1.38
-20 (- 4)	460	116	135	86	0.73	2.62	5.34	1.35	1.56
-15 (+ 5)	576	145	169	95	0.75	3.29	6.04	1.52	1.77
-10 (+14)	720	181	211	105	0.78	4.13	6.86	1.73	2.01

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)	169	43	50	61	0.63	0.96	2.78	0.70	0.81
-30 (-22)	251	63	74	70	0.67	1.42	3.57	0.90	1.05
-25 (-13)	335	85	98	79	0.70	1.90	4.23	1.06	1.24
-20 (- 4)	430	108	126	90	0.73	2.45	4.81	1.21	1.41
-15 (+ 5)	545	137	160	101	0.77	3.11	5.40	1.36	1.58
-10 (+14)	687	173	201	113	0.80	3.93	6.08	1.53	1.78

### 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)	142	36	42	59	0.62	0.80	2.40	0.60	0.70	
-30 (-22)	225	57	66	69	0.66	1.27	3.22	0.81	0.94	
-25 (-13)	309	78	90	80	0.70	1.75	3.87	0.97	1.13	
-20 (- 4)	403	101	118	92	0.74	2.29	4.40	1.11	1.29	
-15 (+ 5)	515	130	151	106	0.79	2.94	4.89	1.23	1.43	
-10 (+14)	654	165	192	120	0.83	3.75	5.42	1.37	1.59	

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)	226	57	66	66	0.55	1.28	3.40	0.86	1.00	
-30 (-22)	345	87	101	80	0.60	1.95	4.28	1.08	1.25	
-25 (-13)	454	114	133	91	0.65	2.58	4.98	1.26	1.46	
-20 (- 4)	569	143	167	102	0.68	3.24	5.62	1.42	1.65	
-15 (+ 5)	707	178	207	112	0.72	4.04	6.32	1.59	1.85	
-10 (+14)	883	223	259	122	0.77	5.06	7.19	1.81	2.11	

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)	186	47	54	64	0.54	1.05	2.89	0.73	0.85	
-30 (-22)	305	77	89	80	0.61	1.73	3.76	0.95	1.10	
-25 (-13)	411	104	121	93	0.66	2.34	4.41	1.11	1.29	
-20 (- 4)	522	132	153	106	0.71	2.97	4.96	1.25	1.45	
-15 (+ 5)	653	164	191	118	0.76	3.72	5.53	1.39	1.62	
-10 (+14)	819	206	240	131	0.82	4.69	6.23	1.57	1.82	

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)	130	33	38	59	0.53	0.73	2.24	0.56	0.66	
-30 (-22)	253	64	74	78	0.60	1.43	3.13	0.79	0.92	
-25 (-13)	361	91	106	95	0.67	2.05	3.78	0.95	1.11	
-20 (- 4)	470	119	138	110	0.73	2.68	4.28	1.08	1.26	
-15 (+ 5)	598	151	175	126	0.79	3.41	4.77	1.20	1.40	
-10 (+14)	758	191	222	141	0.86	4.34	5.34	1.35	1.57	

### 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	Slanted		
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		