

COMPRESSOR DEFINITION

Designation	EM U45HEP
Nominal Voltage/Frequency	100 V 50-60 Hz
Engineering Number	513308094

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	100 / 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		
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	85 to 110 V	85 to 110 V
8.2 LBP (43°C Ambient temperature)	Static	85 to 110 V	85 to 110 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	14.2	[kgf/cm ²] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm ²] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/6	[hp]
2 Displacement	3.77	[cm ³] (0.230 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	13.300	
3 Lubricant charge	160	[ml] (5.41 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	7.18	[kg] (15.83 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	100 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	PTC	
2.1 Starting device	7M4R7MC1/8EA14C1/8M4R7MC1/QPS2-A4R7MG1/QPS2-X4.7	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	5TM427NFBYY-53	
6 Start winding resistance	10.40	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	4.40	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	9.20/8.50	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	1.95/1.70	[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		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @100V50Hz			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]
352	89	103	84	1.52	2.00	4.19	1.06	1.23

TEST CONDITIONS: @100V60Hz			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]
436	110	128	97	1.41	2.48	4.51	1.14	1.32

E - PERFORMANCE - CURVES

TEST CONDITIONS: @100V50Hz			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)	184	46	54	62	1.42	1.04	2.94	0.74	0.86
-30	(-22)	249	63	73	69	1.45	1.41	3.65	0.92	1.07
-25	(-13)	348	88	102	77	1.49	1.98	4.48	1.13	1.31
-20	(- 4)	476	120	139	88	1.54	2.71	5.40	1.36	1.58
-15	(+ 5)	628	158	184	98	1.60	3.58	6.38	1.61	1.87
-10	(+14)	800	202	234	109	1.66	4.58	7.40	1.86	2.17

TEST CONDITIONS: @100V50Hz			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)	163	41	48	63	1.40	0.92	2.61	0.66	0.77
-30	(-22)	222	56	65	69	1.43	1.26	3.26	0.82	0.95
-25	(-13)	314	79	92	79	1.48	1.78	3.99	1.00	1.17
-20	(- 4)	434	109	127	91	1.55	2.47	4.78	1.20	1.40
-15	(+ 5)	578	146	169	103	1.63	3.30	5.60	1.41	1.64
-10	(+14)	742	187	217	116	1.71	4.25	6.43	1.62	1.88

E - PERFORMANCE - CURVES

TEST CONDITIONS: @100V50Hz		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)	132	33	39	61	1.41	0.75	2.14	0.54	0.63	
-30 (-22)	186	47	54	68	1.44	1.05	2.77	0.70	0.81	
-25 (-13)	272	69	80	79	1.49	1.55	3.46	0.87	1.01	
-20 (- 4)	387	97	113	92	1.56	2.20	4.17	1.05	1.22	
-15 (+ 5)	525	132	154	107	1.65	3.00	4.89	1.23	1.43	
-10 (+14)	682	172	200	123	1.75	3.91	5.57	1.40	1.63	

TEST CONDITIONS: @100V60Hz		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)	237	60	69	70	1.21	1.34	3.37	0.85	0.99	
-30 (-22)	325	82	95	78	1.24	1.84	4.14	1.04	1.21	
-25 (-13)	425	107	125	88	1.32	2.41	4.87	1.23	1.43	
-20 (- 4)	545	137	160	98	1.42	3.10	5.61	1.41	1.64	
-15 (+ 5)	692	174	203	109	1.54	3.95	6.38	1.61	1.87	
-10 (+14)	877	221	257	121	1.65	5.02	7.22	1.82	2.12	

TEST CONDITIONS: @100V60Hz		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)	217	55	64	68	1.21	1.23	3.17	0.80	0.93	
-30 (-22)	302	76	89	80	1.25	1.71	3.77	0.95	1.10	
-25 (-13)	398	100	117	92	1.35	2.26	4.34	1.09	1.27	
-20 (- 4)	512	129	150	104	1.47	2.91	4.92	1.24	1.44	
-15 (+ 5)	653	165	191	118	1.61	3.73	5.54	1.40	1.62	
-10 (+14)	829	209	243	132	1.74	4.75	6.25	1.57	1.83	

TEST CONDITIONS: @100V60Hz		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)	175	44	51	57	0.81	0.99	3.10	0.78	0.91	
-30 (-22)	260	66	76	74	0.95	1.47	3.49	0.88	1.02	
-25 (-13)	354	89	104	91	1.14	2.01	3.87	0.98	1.13	
-20 (- 4)	465	117	136	108	1.36	2.64	4.28	1.08	1.25	
-15 (+ 5)	601	151	176	126	1.59	3.43	4.74	1.19	1.39	
-10 (+14)	771	194	226	145	1.82	4.42	5.29	1.33	1.55	

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		