

### COMPRESSOR DEFINITION

Designation	EM I90UEX
Nominal Voltage/Frequency	220 V 60 Hz
Engineering Number	513307140

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	220 / 60	[ V / Hz ]	
4 Application type	Low-Medium Back Pressure		
4.1 Evaporating temperature range	-35°C to -5°C	(-31°F to 23°F)	
5 Motor type	CSIR		
6 Starting torque	HST - Hight starting torque		
7 Expansion device	Capillary tube or Expansion valve		
8 Compressor cooling	Operating voltage range		
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Fan	-	187 to 242 V
8.2 LBP (43°C Ambient temperature)	Fan	-	187 to 242 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	18.4	[kgf/cm <sup>2</sup> ] (262 psig)	/ °C - °F
9.2 Peak	20.6	[kgf/cm <sup>2</sup> ] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/4+	[hp]
2 Displacement	4.99	[cm <sup>3</sup> ] (0.305 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	14.400	
3 Lubricant charge	160	[ml] (5.41 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO32	
4 Weight (with oil charge)	8.09	[kg] (17.84 lb.)
5 Nitrogen charge	-	[kgf/cm <sup>2</sup> ]

### C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	220 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213515000	
3 Start capacitor	53-64(250)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM283ULBYY-53	
6 Start winding resistance	19.60	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	8.90	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	12.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	2.05	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	2.40	[A] - Measured according to UL 984
11 Approval boards certification	CE - IRAM - TUV - UKCA - UL	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V60Hz			ASHRAELBP32 Fan		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]
947	239	277	203	1.52	2.82	4.67	1.18	1.37

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz			ASHRAE32 Fan		(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]	[W/W]
-35	(-31)	663	167	194	148	1.39	1.43	4.27	1.08	1.25
-30	(-22)	771	194	226	163	1.42	2.31	4.80	1.21	1.41
-25	(-13)	940	237	275	177	1.46	3.46	5.45	1.37	1.60
-20	(- 4)	1165	294	341	190	1.49	4.33	6.24	1.57	1.83
-15	(+ 5)	1443	364	423	203	1.53	4.38	7.16	1.80	2.10
-10	(+14)	1770	446	519	215	1.56	3.07	8.20	2.07	2.40
-5	(+23)	2141	540	627	228	1.59	- 0.14	9.36	2.36	2.74

TEST CONDITIONS: @220V60Hz			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)	502	127	147	154	1.41	1.77	3.45	0.87	1.01
-30	(-22)	700	177	205	171	1.44	2.11	4.21	1.06	1.23
-25	(-13)	930	234	272	188	1.49	2.93	4.99	1.26	1.46
-20	(- 4)	1187	299	348	204	1.53	3.68	5.78	1.46	1.69
-15	(+ 5)	1467	370	430	220	1.58	3.83	6.58	1.66	1.93
-10	(+14)	1766	445	517	236	1.63	2.83	7.39	1.86	2.17
-5	(+23)	2080	524	610	253	1.67	0.14	8.21	2.07	2.41

TEST CONDITIONS: @220V60Hz			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)	493	124	144	159	1.43	1.87	3.16	0.80	0.93
-30	(-22)	718	181	210	178	1.47	1.74	3.97	1.00	1.16
-25	(-13)	945	238	277	197	1.52	2.30	4.68	1.18	1.37
-20	(- 4)	1170	295	343	216	1.57	3.01	5.29	1.33	1.55
-15	(+ 5)	1388	350	407	236	1.63	3.32	5.79	1.46	1.70
-10	(+14)	1597	402	468	257	1.69	2.70	6.19	1.56	1.81
-5	(+23)	1791	451	525	279	1.75	0.60	6.48	1.63	1.90

### 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)	481	121	141	161	1.43	- 0.13	2.92	0.74	0.86
-30	(-22)	669	169	196	183	1.48	- 0.66	3.59	0.91	1.05
-25	(-13)	830	209	243	204	1.53	- 0.28	4.05	1.02	1.19
-20	(- 4)	959	242	281	227	1.59	0.46	4.29	1.08	1.26
-15	(+ 5)	1053	265	309	251	1.65	1.01	4.31	1.09	1.26
-10	(+14)	1107	279	324	276	1.72	0.84	4.10	1.03	1.20
-5	(+23)	1117	282	327	303	1.79	- 0.60	3.68	0.93	1.08

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EG/F/AMEM version 2		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	8.2 +0.12/-0.08	[mm]	(0.323" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Straight		
3.2 DISCHARGE	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-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		