

COMPRESSOR DEFINITION

Designation	EM X6181U
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	721BI80

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	220-240 / 50-60	[V / Hz]	
4 Application type	Medium Back Pressure (Commercial Compressors)		
4.1 Evaporating temperature range	-20°C to 10°C	(-4°F to 50°F)	
5 Motor type	CSIR		
6 Starting torque	HST - High 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)	-	-	-
8.2 LBP (43°C Ambient temperature)	-	-	-
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 ²] (262 psig)	/ °C - °F
9.2 Peak	20.6	[kgf/cm ²] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/3	[hp]
2 Displacement	6.92	[cm ³] (0.422 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	150	[ml] (5.07 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	8	[kg] (17.64 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

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	MTRPH-0027-65	
3 Start capacitor	53-64(330)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM319NFBYY-153	
6 Start winding resistance	17.70	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	7.85	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	13.00/13.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	-	[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	VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V50Hz			ASHRAEHBP46 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]	
3328	839	975	337	2.02	11.39	9.88	2.49	2.90	

TEST CONDITIONS: @220V60Hz			ASHRAEHBP46 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]	
3938	992	1154	407	2.18	13.48	9.68	2.44	2.84	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz			ASHRAE46 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]	
-20 (- 4)	1562	394	458	199	1.57	4.41	7.85	1.98	2.30	
-15 (+ 5)	1902	479	557	213	1.61	5.39	8.90	2.24	2.61	
-10 (+14)	2317	584	679	225	1.64	6.59	10.29	2.59	3.01	
-5 (+23)	2803	706	821	234	1.67	8.01	12.00	3.02	3.52	
0 (+32)	3357	846	984	240	1.69	9.65	14.03	3.54	4.11	
+5 (+41)	3977	1002	1165	243	1.72	11.50	16.39	4.13	4.80	
+10 (+50)	4660	1174	1365	244	1.74	13.58	19.07	4.81	5.59	

TEST CONDITIONS: @220V50Hz			ASHRAE46 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]	
-20 (- 4)	1370	345	402	216	1.63	4.18	6.38	1.61	1.87	
-15 (+ 5)	1673	422	490	236	1.69	5.13	7.11	1.79	2.08	
-10 (+14)	2043	515	599	252	1.74	6.29	8.07	2.03	2.36	
-5 (+23)	2478	625	726	267	1.78	7.66	9.25	2.33	2.71	
0 (+32)	2975	750	872	279	1.82	9.26	10.65	2.68	3.12	
+5 (+41)	3532	890	1035	288	1.86	11.07	12.26	3.09	3.59	
+10 (+50)	4145	1045	1215	295	1.90	13.09	14.10	3.55	4.13	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		ASHRAE46 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]
-20	(- 4)	1182	298	346	230	1.68	3.94	5.09	1.28	1.49
-15	(+ 5)	1443	364	423	255	1.75	4.83	5.69	1.43	1.67
-10	(+14)	1766	445	517	277	1.82	5.94	6.41	1.62	1.88
-5	(+23)	2147	541	629	297	1.88	7.26	7.24	1.83	2.12
0	(+32)	2583	651	757	315	1.94	8.79	8.19	2.06	2.40
+5	(+41)	3073	774	900	331	2.00	10.54	9.26	2.33	2.71
+10	(+50)	3612	910	1059	346	2.07	12.50	10.44	2.63	3.06

TEST CONDITIONS: @220V60Hz		ASHRAE46 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]
-20	(- 4)	1792	452	525	223	1.41	5.06	8.04	2.03	2.36
-15	(+ 5)	2192	552	642	242	1.49	6.21	9.06	2.28	2.66
-10	(+14)	2684	676	786	258	1.55	7.63	10.39	2.62	3.04
-5	(+23)	3265	823	957	272	1.61	9.33	12.02	3.03	3.52
0	(+32)	3938	992	1154	283	1.65	11.32	13.93	3.51	4.08
+5	(+41)	4701	1185	1377	292	1.69	13.60	16.13	4.07	4.73
+10	(+50)	5554	1400	1628	298	1.71	16.19	18.61	4.69	5.45

TEST CONDITIONS: @220V60Hz		ASHRAE46 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]
-20	(- 4)	1593	401	467	246	1.49	4.86	6.52	1.64	1.91
-15	(+ 5)	1935	488	567	269	1.58	5.93	7.22	1.82	2.11
-10	(+14)	2359	595	691	290	1.67	7.26	8.13	2.05	2.38
-5	(+23)	2867	722	840	309	1.75	8.86	9.24	2.33	2.71
0	(+32)	3456	871	1013	326	1.83	10.75	10.56	2.66	3.09
+5	(+41)	4128	1040	1210	342	1.90	12.94	12.06	3.04	3.53
+10	(+50)	4883	1230	1431	357	1.96	15.42	13.73	3.46	4.02

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE46 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]
-20	(- 4)	1386	349	406	267	1.58	4.62	5.16	1.30	1.51
-15	(+ 5)	1683	424	493	295	1.69	5.63	5.72	1.44	1.68
-10	(+14)	2054	518	602	322	1.81	6.91	6.40	1.61	1.88
-5	(+23)	2499	630	732	348	1.92	8.45	7.19	1.81	2.11
0	(+32)	3019	761	885	374	2.03	10.28	8.07	2.03	2.37
+5	(+41)	3613	911	1059	399	2.15	12.40	9.05	2.28	2.65
+10	(+50)	4282	1079	1255	423	2.26	14.81	10.12	2.55	2.97

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 42° up + 45° to Back		
3.2 DISCHARGE	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.2.1 Material	Copper		
3.2.2 Shape	Straight		
3.3 PROCESS	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted 46°		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		