

### COMPRESSOR DEFINITION

Designation	<b>F FC110HBX</b>
Nominal Voltage/Frequency	<b>220 V 60 Hz</b>
Engineering Number	<b>513202009</b>

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220 / 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	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)	Static	-	198 to 242 V
8.2 LBP (43°C Ambient temperature)	Static	-	198 to 242 V
8.3 HBP (32°C Ambient temperature)	Fan	-	198 to 242 V
8.4 HBP (43°C Ambient temperature)	Fan	-	198 to 242 V
9 Maximum condensing temperature			
9.1 Operating	14.2	[kgf/cm <sup>2</sup> ] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm <sup>2</sup> ] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/3+	[hp]
2 Displacement	9.50	[cm <sup>3</sup> ] (0.580 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	21.000	
3 Lubricant charge	280	[ml] (9.47 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	11.43	[kg] (25.20 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 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213516450/213516477	
3 Start capacitor	145-175(252)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM757MDBYY-53	
6 Start winding resistance	9.23	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	6.16	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	19.60	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	2.55	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	3.11	[A] - Measured according to UL 984
11 Approval boards certification	CE - IMTRO - KC - TUV - UKCA	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V60Hz			ASHRAEHBP32 Static		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]	
4538	1144	1330	469	2.62		9.68	2.44	2.84	

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]	
1120	282	328	228	1.74	6.36	4.92	1.24	1.44	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz			ASHRAE32 Static		(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)	716	180	210	148	1.44	4.05	4.72	1.19	1.38	
-30 (-22)	933	235	273	173	1.56	5.31	5.36	1.35	1.57	
-25 (-13)	1212	305	355	201	1.68	6.90	6.04	1.52	1.77	
-20 (- 4)	1561	393	457	231	1.79	8.88	6.77	1.71	1.98	
-15 (+ 5)	1987	501	582	263	1.90	11.33	7.58	1.91	2.22	
-10 (+14)	2498	629	732	295	1.99	14.29	8.50	2.14	2.49	
-5 (+23)	3101	781	909	327	2.09	17.83	9.53	2.40	2.79	
0 (+32)	3805	959	1115	357	2.17	22.00	10.71	2.70	3.14	
+5 (+41)	4617	1164	1353	385	2.25	26.87	12.06	3.04	3.53	
+10 (+50)	5545	1397	1625	409	2.32	32.50	13.59	3.42	3.98	
+15 (+59)	6597	1662	1933	429	2.39	38.95	15.32	3.86	4.49	

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)	543	137	159	163	1.53	3.06	3.53	0.89	1.03	
-30 (-22)	784	198	230	185	1.63	4.45	4.36	1.10	1.28	
-25 (-13)	1084	273	318	211	1.73	6.17	5.18	1.31	1.52	
-20 (- 4)	1450	365	425	240	1.84	8.26	6.02	1.52	1.76	
-15 (+ 5)	1891	476	554	273	1.94	10.78	6.89	1.74	2.02	
-10 (+14)	2413	608	707	306	2.04	13.81	7.82	1.97	2.29	
-5 (+23)	3024	762	886	341	2.15	17.39	8.82	2.22	2.59	
0 (+32)	3733	941	1094	375	2.25	21.58	9.93	2.50	2.91	
+5 (+41)	4546	1146	1332	407	2.36	26.46	11.15	2.81	3.27	
+10 (+50)	5473	1379	1604	437	2.47	32.07	12.52	3.15	3.67	
+15 (+59)	6519	1643	1910	464	2.58	38.48	14.05	3.54	4.12	

### E - PERFORMANCE - CURVES

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)	461	116	135	174	1.58	2.60	2.66	0.67	0.78
-30	(-22)	706	178	207	195	1.67	4.02	3.60	0.91	1.06
-25	(-13)	1007	254	295	221	1.77	5.73	4.49	1.13	1.31
-20	(- 4)	1370	345	401	253	1.87	7.81	5.34	1.35	1.57
-15	(+ 5)	1804	455	529	287	1.99	10.30	6.19	1.56	1.81
-10	(+14)	2317	584	679	325	2.11	13.26	7.05	1.78	2.07
-5	(+23)	2916	735	855	364	2.24	16.77	7.94	2.00	2.33
0	(+32)	3609	910	1058	404	2.37	20.87	8.89	2.24	2.61
+5	(+41)	4404	1110	1290	444	2.52	25.63	9.91	2.50	2.91
+10	(+50)	5308	1338	1555	483	2.67	31.10	11.04	2.78	3.23
+15	(+59)	6329	1595	1854	520	2.83	37.36	12.28	3.09	3.60

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)	382	96	112	180	1.60	2.15	2.04	0.51	0.60
-30	(-22)	610	154	179	203	1.69	3.48	3.00	0.76	0.88
-25	(-13)	891	224	261	232	1.79	5.07	3.87	0.98	1.13
-20	(- 4)	1231	310	361	267	1.91	7.01	4.67	1.18	1.37
-15	(+ 5)	1639	413	480	307	2.04	9.34	5.41	1.36	1.58
-10	(+14)	2122	535	622	351	2.19	12.13	6.12	1.54	1.79
-5	(+23)	2688	677	788	398	2.35	15.44	6.81	1.72	2.00
0	(+32)	3345	843	980	446	2.53	19.33	7.52	1.90	2.20
+5	(+41)	4100	1033	1201	496	2.72	23.85	8.27	2.08	2.42
+10	(+50)	4962	1250	1454	546	2.93	29.07	9.06	2.28	2.65
+15	(+59)	5937	1496	1740	594	3.16	35.05	9.93	2.50	2.91

### 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	Slanted		
3.2 DISCHARGE	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.2.1 Material	Copper plated steel		
3.2.2 Shape	Slanted		
3.3 PROCESS	8.2 +0.12/-0.08	[mm]	(0.323" +0.005"/-0.003")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		