

COMPRESSOR DEFINITION

Designation	F F112HBX
Nominal Voltage/Frequency	220 V 60 Hz
Engineering Number	513307554

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 - 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	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	1/3+	[hp]
2 Displacement	11.14	[cm ³] (0.680 cu.in)
2.1 Bore [mm]	26.000	
2.2 Stroke [mm]	21.000	
3 Lubricant charge	270	[ml] (9.13 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	9	[kg] (19.84 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

C - ELECTRICAL 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	213515021	
3 Start capacitor	88-108(330)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	DRB230N61A2F	
6 Start winding resistance	19.87	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	4.90	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V60Hz			ASHRAEHBP32 Fan		Evaporating temperature (Condensing temperature)		7.2°C (44.96°F) 54.4°C (129.92°F)		
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
5085	1281	1490	541	3.17		9.40	2.37	2.75	

TEST CONDITIONS: @220V60Hz			ASHRAELBP32 Fan		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
1229	310	360	257	2.18	6.98	4.78	1.20	1.40	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz			ASHRAE32 Fan		(Condensing temperature 35°C (+95°F))				
Evaporating temperature	Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	647	163	190	173	1.99	3.66	3.76	0.95	1.10
-30 (-22)	888	224	260	199	2.03	5.04	4.51	1.14	1.32
-25 (-13)	1203	303	352	226	2.08	6.84	5.35	1.35	1.57
-20 (- 4)	1596	402	468	255	2.14	9.09	6.26	1.58	1.83
-15 (+ 5)	2074	523	608	286	2.22	11.83	7.22	1.82	2.11
-10 (+14)	2640	665	774	321	2.30	15.11	8.19	2.06	2.40
-5 (+23)	3299	831	967	359	2.40	18.97	9.17	2.31	2.69
0 (+32)	4056	1022	1189	401	2.52	23.46	10.11	2.55	2.96
+5 (+41)	4916	1239	1440	447	2.64	28.61	11.01	2.77	3.23
+10 (+50)	5882	1482	1724	499	2.79	34.47	11.83	2.98	3.47
+15 (+59)	6960	1754	2039	557	2.94	41.09	12.55	3.16	3.68

TEST CONDITIONS: @220V60Hz			ASHRAE32 Fan		(Condensing temperature 45°C (+113°F))				
Evaporating temperature	Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	602	152	176	178	1.98	3.40	3.36	0.85	0.99
-30 (-22)	822	207	241	209	2.02	4.67	3.96	1.00	1.16
-25 (-13)	1117	281	327	241	2.08	6.35	4.66	1.17	1.37
-20 (- 4)	1490	375	437	275	2.16	8.48	5.44	1.37	1.60
-15 (+ 5)	1947	491	570	310	2.25	11.10	6.28	1.58	1.84
-10 (+14)	2492	628	730	349	2.36	14.26	7.15	1.80	2.10
-5 (+23)	3130	789	917	390	2.48	17.99	8.03	2.02	2.35
0 (+32)	3865	974	1133	436	2.62	22.35	8.89	2.24	2.61
+5 (+41)	4703	1185	1378	485	2.78	27.37	9.71	2.45	2.85
+10 (+50)	5647	1423	1655	540	2.96	33.09	10.47	2.64	3.07
+15 (+59)	6703	1689	1964	600	3.15	39.57	11.14	2.81	3.27

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Fan			(Condensing temperature 55°C (+131°F))					
Evaporating temperature	Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	555	140	163	169	2.00	3.14	3.21	0.81	0.94	
-30 (-22)	759	191	222	206	2.06	4.32	3.67	0.92	1.08	
-25 (-13)	1037	261	304	244	2.13	5.90	4.25	1.07	1.24	
-20 (- 4)	1393	351	408	283	2.22	7.94	4.92	1.24	1.44	
-15 (+ 5)	1833	462	537	324	2.33	10.46	5.65	1.42	1.66	
-10 (+14)	2361	595	692	367	2.46	13.51	6.43	1.62	1.89	
-5 (+23)	2981	751	873	413	2.61	17.13	7.23	1.82	2.12	
0 (+32)	3698	932	1084	462	2.78	21.38	8.03	2.02	2.35	
+5 (+41)	4518	1138	1324	516	2.97	26.29	8.79	2.22	2.58	
+10 (+50)	5443	1372	1595	574	3.18	31.90	9.51	2.40	2.79	
+15 (+59)	6480	1633	1899	637	3.41	38.26	10.15	2.56	2.97	

TEST CONDITIONS: @220V60Hz		ASHRAE32 Fan			(Condensing temperature 65°C (+149°F))					
Evaporating temperature	Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	465	117	136	163	1.96	2.62	2.87	0.72	0.84	
-30 (-22)	656	165	192	206	2.03	3.73	3.22	0.81	0.94	
-25 (-13)	921	232	270	250	2.12	5.24	3.69	0.93	1.08	
-20 (- 4)	1264	318	370	295	2.23	7.20	4.26	1.07	1.25	
-15 (+ 5)	1690	426	495	342	2.36	9.64	4.91	1.24	1.44	
-10 (+14)	2203	555	646	390	2.51	12.61	5.62	1.42	1.65	
-5 (+23)	2809	708	823	442	2.69	16.15	6.36	1.60	1.86	
0 (+32)	3512	885	1029	496	2.89	20.30	7.10	1.79	2.08	
+5 (+41)	4317	1088	1265	554	3.11	25.12	7.83	1.97	2.29	
+10 (+50)	5228	1317	1532	616	3.35	30.63	8.52	2.15	2.50	
+15 (+59)	6249	1575	1831	683	3.62	36.89	9.14	2.30	2.68	

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal		
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	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	Straight		
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	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		