

embraco**COMPRESSOR TECHNICAL DATA****COMPRESSOR DEFINITION**

Designation	F FI12HBK
Nominal Voltage/Frequency	220-240 V 50 Hz
Engineering Number	513200015

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220-240 / 50	[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	RSIR/CSIR		
6 Starting torque	LST - Low Starting Torque		
7 Expantion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Fan	198 to 255 V	-
8.2 LBP (43°C Ambient temperature)	Fan	198 to 255 V	-
8.3 HBP (32°C Ambient temperature)	Fan	198 to 255 V	-
8.4 HBP (43°C Ambient temperature)	Fan	198 to 255 V	-
9 Maximum condensing pressures/temperature			
9.1 Operating (gauge)	16.2	[kgf/cm²] (230 psig)	/ °C - °F
9.2 Peak (gauge)	20.6	[kgf/cm²] (293 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	280	[ml] (9.47 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	10.9	[kg] (24.03 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	220-240 V 50 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213516035/213516043	
3 Start capacitor	88-108(220)	[μF(VAC minimum)]
4 Run capacitor	-	[μF(VAC minimum)]
5 Motor protection	CP4TMF210N52A2	
6 Start winding resistance	29.90	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	5.70	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50 Hz)	20.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50 Hz)	2.50	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50 Hz)	3.00	[A] - Measured according to UL 984
11 Approval boards certification	CCC - IRAM - UL - VDE	

UPDATE: 19DEC2012

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embraco**COMPRESSOR TECHNICAL DATA****D - PERFORMANCE - CHECK POINT DATA**

TEST CONDITIONS: @220V50Hz			ASHRAEHBP32 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]
4492	1132	1316	504	2.79		8.91	2.25	2.61

TEST CONDITIONS: @220V50Hz			ASHRAELBP32 Fan		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F))	
Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1090	275	319	256	1.96	6.19	4.26	1.07	1.25

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz			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)	553	139	162	187	1.87	3.13	2.94	0.74	0.86
-30 (-22)	762	192	223	214	1.91	4.33	3.62	0.91	1.06
-25 (-13)	1038	262	304	242	1.97	5.90	4.35	1.10	1.27
-20 (- 4)	1383	348	405	272	2.05	7.87	5.12	1.29	1.50
-15 (+ 5)	1799	453	527	303	2.13	10.26	5.94	1.50	1.74
-10 (+14)	2289	577	671	336	2.23	13.10	6.80	1.71	1.99
-5 (+23)	2853	719	836	370	2.35	16.41	7.69	1.94	2.25
0 (+32)	3495	881	1024	406	2.47	20.21	8.60	2.17	2.52
+5 (+41)	4217	1063	1236	442	2.60	24.54	9.52	2.40	2.79
+10 (+50)	5019	1265	1471	480	2.75	29.41	10.46	2.64	3.07
+15 (+59)	5905	1488	1730	518	2.90	34.86	11.40	2.87	3.34

TEST CONDITIONS: @220V50Hz			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)	514	130	151	184	1.89	2.91	2.71	0.68	0.79
-30 (-22)	713	180	209	215	1.93	4.05	3.31	0.83	0.97
-25 (-13)	974	245	285	247	2.00	5.54	3.95	1.00	1.16
-20 (- 4)	1300	328	381	282	2.08	7.40	4.62	1.16	1.35
-15 (+ 5)	1693	427	496	319	2.18	9.65	5.32	1.34	1.56
-10 (+14)	2155	543	631	357	2.30	12.33	6.03	1.52	1.77
-5 (+23)	2687	677	787	398	2.44	15.44	6.76	1.70	1.98
0 (+32)	3292	830	965	440	2.59	19.03	7.50	1.89	2.20
+5 (+41)	3972	1001	1164	483	2.75	23.11	8.23	2.08	2.41
+10 (+50)	4729	1192	1386	528	2.93	27.71	8.97	2.26	2.63
+15 (+59)	5565	1402	1631	575	3.12	32.85	9.69	2.44	2.84

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COMPRESSOR TECHNICAL DATA

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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)	395	100	116	175	1.87	2.22	2.32	0.58	0.68
-30	(-22)	608	153	178	211	1.92	3.46	2.91	0.73	0.85
-25	(-13)	880	222	258	249	2.00	5.01	3.53	0.89	1.03
-20	(- 4)	1212	305	355	289	2.10	6.90	4.16	1.05	1.22
-15	(+ 5)	1606	405	471	332	2.22	9.16	4.81	1.21	1.41
-10	(+14)	2065	520	605	377	2.37	11.82	5.45	1.37	1.60
-5	(+23)	2590	653	759	424	2.53	14.89	6.09	1.54	1.79
0	(+32)	3183	802	933	474	2.71	18.40	6.73	1.70	1.97
+5	(+41)	3847	970	1127	525	2.91	22.38	7.34	1.85	2.15
+10	(+50)	4583	1155	1343	578	3.13	26.85	7.94	2.00	2.33
+15	(+59)	5394	1359	1581	633	3.36	31.84	8.51	2.14	2.49



COMPRESSOR TECHNICAL DATA

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	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		