

### COMPRESSOR DEFINITION

Designation	<b>F F10BK</b>
Nominal Voltage/Frequency	<b>220 V 60 Hz</b>
Engineering Number	<b>513200108</b>

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	Blend		
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	RSIR/CSIR		
6 Starting torque	LST - Low Starting Torque		
7 Expansion device	Capillary tube		
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 pressures/temperature			
9.1 Operating (gauge)	14.5	[kgf/cm <sup>2</sup> ] (206 psig)	/ °C - °F
9.2 Peak (gauge)	18.2	[kgf/cm <sup>2</sup> ] (259 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/4+	[hp]
2 Displacement	9.04	[cm <sup>3</sup> ] (0.552 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	280	[ml] (9.47 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO32	
4 Weight (with oil charge)	10.8	[kg] (23.81 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	213516035/213516043	
3 Start capacitor	130-156(150)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	MSP30AMK-5590	
6 Start winding resistance	26.09	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	5.94	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	18.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	2.60	[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 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]	
3240	816	949	481	2.61	24.26	6.74	1.70	1.97	

TEST CONDITIONS: @220V60Hz			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]	
3240	816	949	481	2.61	24.26	6.74	1.70	1.97	

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]	
915	231	268	256	1.70	6.70	3.57	0.90	1.05	

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]	
915	231	268	256	1.70	6.70	3.57	0.90	1.05	

### E - PERFORMANCE - CURVES

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]
-35	(-31)	549	138	161	192	1.50	4.00	2.86	0.72	0.84
-30	(-22)	724	182	212	219	1.58	5.30	3.29	0.83	0.96
-25	(-13)	928	234	272	247	1.67	6.79	3.74	0.94	1.10
-20	(- 4)	1167	294	342	277	1.77	8.55	4.22	1.06	1.24
-15	(+ 5)	1448	365	424	308	1.89	10.64	4.70	1.19	1.38
-10	(+14)	1780	448	521	342	2.02	13.11	5.21	1.31	1.53
-5	(+23)	2168	546	635	378	2.17	16.03	5.73	1.44	1.68
0	(+32)	2620	660	768	418	2.33	19.47	6.27	1.58	1.84
+5	(+41)	3143	792	921	460	2.52	23.49	6.82	1.72	2.00
+10	(+50)	3745	944	1097	506	2.72	28.14	7.39	1.86	2.17
+15	(+59)	4431	1117	1298	556	2.94	33.50	7.98	2.01	2.34

### E - PERFORMANCE - CURVES

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)	472	119	138	192	1.50	3.43	2.50	0.63	0.73
-30	(-22)	640	161	187	219	1.58	4.68	2.93	0.74	0.86
-25	(-13)	835	210	245	247	1.67	6.12	3.38	0.85	0.99
-20	(- 4)	1065	268	312	277	1.77	7.81	3.85	0.97	1.13
-15	(+ 5)	1337	337	392	308	1.89	9.82	4.34	1.09	1.27
-10	(+14)	1657	418	486	342	2.02	12.21	4.85	1.22	1.42
-5	(+23)	2034	513	596	378	2.17	15.04	5.37	1.35	1.57
0	(+32)	2473	623	725	418	2.33	18.39	5.91	1.49	1.73
+5	(+41)	2983	752	874	460	2.52	22.29	6.47	1.63	1.89
+10	(+50)	3570	900	1046	506	2.72	26.84	7.04	1.77	2.06
+15	(+59)	4241	1069	1243	556	2.94	32.07	7.63	1.92	2.24

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)	432	109	127	192	1.50	3.15	2.22	0.56	0.65
-30	(-22)	582	147	170	219	1.58	4.26	2.63	0.66	0.77
-25	(-13)	758	191	222	247	1.67	5.56	3.06	0.77	0.90
-20	(- 4)	968	244	284	277	1.77	7.10	3.51	0.88	1.03
-15	(+ 5)	1219	307	357	308	1.89	8.95	3.97	1.00	1.16
-10	(+14)	1518	382	445	342	2.02	11.18	4.46	1.12	1.31
-5	(+23)	1871	472	548	378	2.17	13.84	4.96	1.25	1.45
0	(+32)	2287	576	670	418	2.33	17.00	5.48	1.38	1.61
+5	(+41)	2773	699	812	460	2.52	20.72	6.02	1.52	1.77
+10	(+50)	3334	840	977	506	2.72	25.07	6.58	1.66	1.93
+15	(+59)	3980	1003	1166	556	2.94	30.10	7.15	1.80	2.10

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