

### COMPRESSOR DEFINITION

Designation	F F18,5HAK
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513201400

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220-240 / 50-60	[ V / Hz ]	
4 Application type	Low-Medium Back Pressure		
4.1 Evaporating temperature range	-35°C to -5°C	(-31°F to 23°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/Fan	187 to 255 V	187 to 242 V
8.2 LBP (43°C Ambient temperature)	Static/Fan	187 to 255 V	187 to 242 V
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 <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	1/4+	[hp]
2 Displacement	7.15	[cm <sup>3</sup> ] (0.436 cu.in)
2.1 Bore [mm]	22.500	
2.2 Stroke [mm]	18.000	
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)	11.39	[kg] (25.11 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	220-240 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213516078/213516086	
3 Start capacitor	64-77(200)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM757KDBYY-53	
6 Start winding resistance	29.70	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	8.35	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	17.00/16.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	1.80/1.75	[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	CCC - IRAM - TUV - UL - VDE	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V50Hz			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]	
702	177	206	157	1.34	3.99	4.49	1.13	1.32	

TEST CONDITIONS: @220V50Hz			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]	
702	177	206	157	1.34	3.99	4.49	1.13	1.32	

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]	
823	207	241	176	1.23	4.68	4.68	1.18	1.37	

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]	
823	207	241	176	1.23	4.68	4.68	1.18	1.37	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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]
-35	(-31)	381	96	112	114	1.21	2.16	3.33	0.84	0.97
-30	(-22)	518	131	152	130	1.25	2.93	4.00	1.01	1.17
-25	(-13)	690	174	202	146	1.28	3.92	4.77	1.20	1.40
-20	(- 4)	904	228	265	161	1.31	5.14	5.63	1.42	1.65
-15	(+ 5)	1163	293	341	177	1.35	6.64	6.55	1.65	1.92
-10	(+14)	1474	372	432	195	1.40	8.45	7.53	1.90	2.21
-5	(+23)	1842	464	540	216	1.46	10.60	8.55	2.15	2.51

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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)	314	79	92	111	1.21	1.78	2.87	0.72	0.84
-30	(-22)	462	116	135	131	1.25	2.62	3.53	0.89	1.03
-25	(-13)	637	160	187	151	1.29	3.62	4.23	1.07	1.24
-20	(- 4)	846	213	248	170	1.33	4.81	4.97	1.25	1.46
-15	(+ 5)	1093	275	320	191	1.39	6.24	5.72	1.44	1.68
-10	(+14)	1385	349	406	213	1.45	7.93	6.48	1.63	1.90
-5	(+23)	1726	435	506	238	1.54	9.93	7.24	1.82	2.12

TEST CONDITIONS: @220V50Hz		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)	250	63	73	105	1.21	1.41	2.39	0.60	0.70
-30	(-22)	405	102	119	129	1.25	2.30	3.09	0.78	0.90
-25	(-13)	581	146	170	152	1.30	3.30	3.78	0.95	1.11
-20	(- 4)	783	197	229	175	1.35	4.45	4.46	1.12	1.31
-15	(+ 5)	1016	256	298	200	1.41	5.80	5.11	1.29	1.50
-10	(+14)	1285	324	377	226	1.50	7.36	5.71	1.44	1.67
-5	(+23)	1597	402	468	255	1.61	9.18	6.25	1.58	1.83

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)	430	108	126	121	1.04	2.43	3.52	0.89	1.03
-30	(-22)	607	153	178	144	1.10	3.44	4.21	1.06	1.23
-25	(-13)	822	207	241	167	1.17	4.67	4.93	1.24	1.45
-20	(- 4)	1080	272	317	191	1.25	6.15	5.69	1.43	1.67
-15	(+ 5)	1391	350	408	214	1.34	7.94	6.50	1.64	1.90
-10	(+14)	1761	444	516	239	1.43	10.09	7.37	1.86	2.16
-5	(+23)	2198	554	644	264	1.53	12.64	8.30	2.09	2.43

### 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)	360	91	105	119	1.05	2.03	3.06	0.77	0.90
-30	(-22)	536	135	157	143	1.11	3.04	3.74	0.94	1.09
-25	(-13)	748	189	219	169	1.19	4.25	4.40	1.11	1.29
-20	(- 4)	1004	253	294	197	1.28	5.71	5.07	1.28	1.49
-15	(+ 5)	1311	330	384	227	1.39	7.48	5.75	1.45	1.69
-10	(+14)	1676	422	491	259	1.51	9.61	6.45	1.63	1.89
-5	(+23)	2108	531	618	294	1.65	12.13	7.19	1.81	2.11

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)	301	76	88	115	1.03	1.70	2.60	0.66	0.76
-30	(-22)	465	117	136	140	1.09	2.63	3.29	0.83	0.96
-25	(-13)	664	167	195	168	1.18	3.77	3.93	0.99	1.15
-20	(- 4)	906	228	266	200	1.29	5.16	4.54	1.14	1.33
-15	(+ 5)	1198	302	351	234	1.42	6.84	5.13	1.29	1.50
-10	(+14)	1548	390	454	272	1.57	8.87	5.69	1.43	1.67
-5	(+23)	1964	495	576	314	1.73	11.30	6.25	1.58	1.83

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal		
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		