

COMPRESSOR DEFINITION

Designation	F F16HAK
Nominal Voltage/Frequency	220 V 50-60 Hz
Engineering Number	513200023

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220 / 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 242 V	187 to 242 V
8.2 LBP (43°C Ambient temperature)	Static/Fan	187 to 242 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 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	1/5	[hp]
2 Displacement	6.23	[cm ³] (0.380 cu.in)
2.1 Bore [mm]	21.000	
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)	10.5	[kg] (23.15 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 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213516159/213516353	
3 Start capacitor	64-77(220)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM743KDBYY-53	
6 Start winding resistance	29.70	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	13.00	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	13.50/13.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	1.65/1.50	[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	CE - IRAM - TUV - UKCA - 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]
580	146	170	148	1.37	3.30	3.92	0.99	1.15

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]
675	170	198	158	1.17	3.84	4.27	1.08	1.25

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]	[W/W]
-35	(-31)	277	70	81	107	1.24	1.57	2.57	0.65	0.75
-30	(-22)	428	108	125	122	1.25	2.43	3.48	0.88	1.02
-25	(-13)	591	149	173	138	1.27	3.36	4.30	1.08	1.26
-20	(- 4)	777	196	228	153	1.30	4.42	5.08	1.28	1.49
-15	(+ 5)	996	251	292	169	1.33	5.68	5.89	1.48	1.73
-10	(+14)	1258	317	369	185	1.37	7.21	6.79	1.71	1.99
-5	(+23)	1574	397	461	201	1.42	9.05	7.83	1.97	2.29

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)	217	55	64	104	1.24	1.23	2.09	0.53	0.61
-30	(-22)	358	90	105	121	1.26	2.03	2.94	0.74	0.86
-25	(-13)	512	129	150	139	1.28	2.91	3.69	0.93	1.08
-20	(- 4)	692	174	203	158	1.32	3.94	4.40	1.11	1.29
-15	(+ 5)	907	229	266	177	1.36	5.18	5.12	1.29	1.50
-10	(+14)	1168	294	342	197	1.41	6.69	5.91	1.49	1.73
-5	(+23)	1485	374	435	217	1.48	8.54	6.84	1.72	2.00

E - PERFORMANCE - CURVES

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]
-35	(-31)	147	37	43	96	1.25	0.83	1.55	0.39	0.45
-30	(-22)	274	69	80	115	1.26	1.55	2.37	0.60	0.69
-25	(-13)	417	105	122	136	1.28	2.37	3.07	0.77	0.90
-20	(- 4)	588	148	172	158	1.32	3.35	3.72	0.94	1.09
-15	(+ 5)	796	201	233	181	1.37	4.55	4.38	1.10	1.28
-10	(+14)	1053	265	309	206	1.43	6.03	5.09	1.28	1.49
-5	(+23)	1368	345	401	231	1.51	7.87	5.93	1.49	1.74

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]
-35	(-31)	325	82	95	107	1.04	1.84	3.02	0.76	0.89
-30	(-22)	493	124	144	128	1.09	2.80	3.84	0.97	1.13
-25	(-13)	674	170	198	148	1.14	3.83	4.57	1.15	1.34
-20	(- 4)	887	224	260	169	1.19	5.05	5.26	1.33	1.54
-15	(+ 5)	1148	289	336	191	1.26	6.55	6.00	1.51	1.76
-10	(+14)	1474	371	432	215	1.33	8.45	6.84	1.72	2.00
-5	(+23)	1883	475	552	240	1.42	10.83	7.87	1.98	2.31

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]
-35	(-31)	254	64	74	105	1.01	1.44	2.44	0.62	0.72
-30	(-22)	422	106	124	126	1.06	2.39	3.31	0.83	0.97
-25	(-13)	603	152	177	149	1.12	3.42	4.04	1.02	1.19
-20	(- 4)	815	205	239	173	1.19	4.64	4.71	1.19	1.38
-15	(+ 5)	1075	271	315	199	1.27	6.14	5.38	1.35	1.58
-10	(+14)	1401	353	410	228	1.37	8.02	6.12	1.54	1.79
-5	(+23)	1809	456	530	259	1.49	10.41	7.00	1.76	2.05

E - PERFORMANCE - CURVES

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)	183	46	54	93	1.00	1.04	1.96	0.49	0.57
-30	(-22)	341	86	100	117	1.05	1.93	2.86	0.72	0.84
-25	(-13)	512	129	150	143	1.11	2.91	3.58	0.90	1.05
-20	(- 4)	714	180	209	171	1.19	4.06	4.19	1.06	1.23
-15	(+ 5)	963	243	282	202	1.29	5.50	4.77	1.20	1.40
-10	(+14)	1279	322	375	237	1.41	7.32	5.38	1.36	1.58
-5	(+23)	1676	422	491	275	1.55	9.64	6.10	1.54	1.79

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EG/F		
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	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-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		