

**COMPRESSOR DEFINITION**

Designation	<b>FF US100HAK</b>
Nominal Voltage/Frequency	<b>115-127 V 60 Hz</b>
Engineering Number	<b>513200942</b>

**A - APPLICATION / LIMIT WORKING CONDITIONS**

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	115-127 / 60	[ V / Hz ]	
4 Application type	Low-Medium Back Pressure (Light Commercial)		
4.1 Evaporating temperature range	-35°C to 0°C	(-31°F to 32°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	-	103 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	-	103 to 140 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing pressures/temperature			
9.1 Operating (gauge)	16.2	[kgf/cm <sup>2</sup> ] (230 psig)	/ °C - °F
9.2 Peak (gauge)	20.6	[kgf/cm <sup>2</sup> ] (293 psig)	
10 Maximum winding temperature	130	[ °C ]	

**B - MECHANICAL DATA**

1 Commercial designation	1/3	[hp]
2 Displacement	7.95	[cm <sup>3</sup> ] (0.485 cu.in)
2.1 Bore [mm]	22.500	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	230	[ml] (7.78 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	10.45	[kg] (23.04 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	115-127 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	Current Relay	
2.1 Starting device	213516248/213516264	
3 Start capacitor	233-280(110)	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM 771NFBZZ-53	
6 Start winding resistance	14.70	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	2.30	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	30.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	3.68	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	4.35	[A] - Measured according to UL 984
11 Approval boards certification	IMTRO - TUV - UL	

**D - PERFORMANCE - CHECK POINT DATA**
**E - PERFORMANCE - CURVES**

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V60Hz		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	588	148	172	131	2.48	3.32	4.48	1.13	1.31	
-30 (-22)	803	202	235	151	2.54	4.55	5.28	1.33	1.55	
-25 (-13)	1050	265	308	172	2.63	5.96	6.11	1.54	1.79	
-20 (- 4)	1345	339	394	193	2.75	7.66	7.00	1.76	2.05	
-15 (+ 5)	1703	429	499	214	2.87	9.72	7.99	2.01	2.34	
-10 (+14)	2139	539	627	236	3.01	12.25	9.10	2.29	2.67	
-5 (+23)	2667	672	782	258	3.16	15.35	10.36	2.61	3.04	
0 (+32)	3304	833	968	279	3.32	19.10	11.80	2.97	3.46	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V60Hz		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	528	133	155	139	2.58	2.99	3.82	0.96	1.12	
-30 (-22)	740	187	217	160	2.63	4.20	4.58	1.16	1.34	
-25 (-13)	984	248	288	183	2.72	5.59	5.35	1.35	1.57	
-20 (- 4)	1275	321	374	207	2.84	7.26	6.13	1.55	1.80	
-15 (+ 5)	1627	410	477	233	2.99	9.29	6.97	1.76	2.04	
-10 (+14)	2057	518	603	260	3.17	11.78	7.90	1.99	2.31	
-5 (+23)	2578	650	755	289	3.37	14.83	8.94	2.25	2.62	
0 (+32)	3206	808	940	317	3.59	18.54	10.12	2.55	2.97	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V60Hz		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	458	115	134	142	2.66	2.59	3.24	0.82	0.95	
-30 (-22)	667	168	195	165	2.69	3.78	4.02	1.01	1.18	
-25 (-13)	907	228	266	190	2.77	5.15	4.75	1.20	1.39	
-20 (- 4)	1192	300	349	218	2.90	6.78	5.46	1.38	1.60	
-15 (+ 5)	1538	387	451	248	3.08	8.77	6.19	1.56	1.81	
-10 (+14)	1959	494	574	281	3.30	11.22	6.97	1.76	2.04	
-5 (+23)	2472	623	724	316	3.56	14.22	7.83	1.97	2.29	
0 (+32)	3091	779	906	352	3.85	17.87	8.79	2.21	2.58	

**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)	380	96	111	142	2.73	2.15	2.68	0.67	0.78	
-30 (-22)	584	147	171	165	2.74	3.31	3.49	0.88	1.02	
-25 (-13)	818	206	240	193	2.82	4.65	4.23	1.07	1.24	
-20 (- 4)	1097	276	321	225	2.96	6.24	4.91	1.24	1.44	
-15 (+ 5)	1435	362	420	259	3.16	8.19	5.57	1.40	1.63	
-10 (+14)	1848	466	542	298	3.42	10.59	6.23	1.57	1.83	
-5 (+23)	2351	593	689	339	3.73	13.53	6.94	1.75	2.03	
0 (+32)	2960	746	867	383	4.09	17.11	7.71	1.94	2.26	

TEST CONDITIONS: @220V60Hz		ASHRAE32 Fan			(Condensing temperature 35°C (+95°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)	609	153	178	134	2.48	3.45	4.51	1.14	1.32	
-30 (-22)	805	203	236	154	2.55	4.56	5.24	1.32	1.54	
-25 (-13)	1058	267	310	174	2.64	6.01	6.09	1.54	1.79	
-20 (- 4)	1372	346	402	195	2.77	7.81	7.05	1.78	2.07	
-15 (+ 5)	1750	441	513	217	2.90	9.99	8.10	2.04	2.37	
-10 (+14)	2196	553	643	238	3.04	12.58	9.25	2.33	2.71	
-5 (+23)	2713	684	795	259	3.19	15.61	10.47	2.64	3.07	
0 (+32)	3305	833	968	280	3.32	19.11	11.77	2.97	3.45	

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]	[W/W]
-35 (-31)	541	136	159	142	2.58	3.06	3.83	0.97	1.12	
-30 (-22)	735	185	215	162	2.63	4.17	4.54	1.14	1.33	
-25 (-13)	985	248	289	184	2.72	5.60	5.33	1.34	1.56	
-20 (- 4)	1296	326	380	208	2.85	7.37	6.19	1.56	1.81	
-15 (+ 5)	1669	421	489	234	3.01	9.53	7.10	1.79	2.08	
-10 (+14)	2109	532	618	261	3.19	12.08	8.07	2.03	2.36	
-5 (+23)	2620	660	768	289	3.39	15.07	9.08	2.29	2.66	
0 (+32)	3204	807	939	317	3.59	18.52	10.12	2.55	2.97	

**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)	471	119	138	145	2.66	2.66	3.27	0.82	0.96
-30	(-22)	662	167	194	166	2.68	3.75	3.99	1.00	1.17
-25	(-13)	909	229	266	191	2.77	5.16	4.74	1.20	1.39
-20	(- 4)	1214	306	356	219	2.91	6.91	5.53	1.39	1.62
-15	(+ 5)	1582	399	464	249	3.10	9.03	6.34	1.60	1.86
-10	(+14)	2015	508	591	281	3.32	11.54	7.16	1.80	2.10
-5	(+23)	2518	635	738	316	3.58	14.49	7.98	2.01	2.34
0	(+32)	3093	780	906	352	3.85	17.88	8.80	2.22	2.58

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)	399	101	117	145	2.72	2.26	2.75	0.69	0.80
-30	(-22)	586	148	172	167	2.73	3.33	3.50	0.88	1.03
-25	(-13)	828	209	243	194	2.81	4.70	4.26	1.07	1.25
-20	(- 4)	1127	284	330	226	2.96	6.42	5.01	1.26	1.47
-15	(+ 5)	1488	375	436	260	3.17	8.49	5.74	1.45	1.68
-10	(+14)	1914	482	561	298	3.44	10.96	6.44	1.62	1.89
-5	(+23)	2408	607	706	340	3.75	13.85	7.10	1.79	2.08
0	(+32)	2973	749	871	384	4.10	17.19	7.73	1.95	2.26

**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	Slanted		
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	Slanted		
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	Slanted		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		