

COMPRESSOR DEFINITION

Designation	FM FT406U
Nominal Voltage/Frequency	230 V 46-150 Hz
Engineering Number	513805032

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	230 / 46-150	[V / Hz]	
4 Application type	Low-Medium Back Pressure (Light Commercial - Curves until T.Evap -		
4.1 Evaporating temperature range	-40°C to 0°C	(-40°F to 32°F)	
5 Motor type	BPM		
6 Starting torque	HST - High starting torque		
7 Expansion device	Capillary tube or Expansion valve		
8 Compressor cooling	Operating voltage range		
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	-	-	-
8.2 LBP (43°C Ambient temperature)	-	-	-
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	18.4	[kgf/cm ²] (262 psig)	/ °C - °F
9.2 Peak	20.6	[kgf/cm ²] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/2	[hp]
2 Displacement	6.44	[cm ³] (0.393 cu.in)
2.1 Bore [mm]	22.500	
2.2 Stroke [mm]	16.200	
3 Lubricant charge	430	[ml] (14.54 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO22	
4 Weight (with oil charge)	10.28	[kg] (22.66 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm ²] (2.84 to 4.27 psig)

C - ELECTRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 46-150 Hz 3~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	CF10B04 W 0.0 X	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	INVERTER CF03B01 N X	
6 Start winding resistance	10.55	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	10.55	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	-	[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		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @100V1400RPM			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]
539	136	158	87	1.21	1.60	6.20	1.56	1.82

TEST CONDITIONS: @100V1800RPM			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]
692	174	203	109	1.48	2.06	6.38	1.61	1.87

TEST CONDITIONS: @100V3000RPM			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]
1174	296	344	184	2.50	3.49	6.39	1.61	1.87

TEST CONDITIONS: @100V3600RPM			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]
1340	338	393	221	2.88	3.99	6.07	1.53	1.78

TEST CONDITIONS: @100V4500RPM			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]
1468	370	430	241	3.13	4.37	6.09	1.53	1.78

E - PERFORMANCE - CURVES

TEST CONDITIONS: @100V1400RPM		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]
-40	(-40)	257	65	75	45	0.66	0.76	5.75	1.45	1.68
-35	(-31)	332	84	97	53	0.77	0.98	6.32	1.59	1.85
-30	(-22)	422	106	124	60	0.87	1.25	6.98	1.76	2.05
-25	(-13)	528	133	155	68	0.96	1.57	7.79	1.96	2.28
-20	(- 4)	654	165	192	74	1.05	1.95	8.78	2.21	2.57
-15	(+ 5)	804	203	236	80	1.12	2.41	10.02	2.52	2.94
-10	(+14)	981	247	287	85	1.18	2.95	11.54	2.91	3.38
-5	(+23)	1188	299	348	89	1.23	3.59	13.40	3.38	3.93
0	(+32)	1429	360	419	91	1.26	4.34	15.65	3.94	4.59

TEST CONDITIONS: @100V1400RPM		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]
-40	(-40)	230	58	67	46	0.67	0.68	5.04	1.27	1.48
-35	(-31)	313	79	92	56	0.81	0.93	5.61	1.41	1.64
-30	(-22)	407	103	119	66	0.94	1.21	6.20	1.56	1.82
-25	(-13)	516	130	151	75	1.06	1.53	6.85	1.73	2.01
-20	(- 4)	642	162	188	84	1.17	1.91	7.61	1.92	2.23
-15	(+ 5)	789	199	231	92	1.27	2.36	8.52	2.15	2.50
-10	(+14)	960	242	281	99	1.36	2.89	9.65	2.43	2.83
-5	(+23)	1159	292	339	105	1.43	3.50	11.03	2.78	3.23
0	(+32)	1388	350	407	109	1.49	4.22	12.72	3.20	3.73

TEST CONDITIONS: @100V1400RPM		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]
-40	(-40)	195	49	57	46	0.68	0.57	4.19	1.05	1.23
-35	(-31)	285	72	83	59	0.85	0.84	4.85	1.22	1.42
-30	(-22)	383	97	112	71	1.01	1.14	5.44	1.37	1.59
-25	(-13)	493	124	144	83	1.16	1.46	6.01	1.52	1.76
-20	(- 4)	617	156	181	94	1.30	1.84	6.61	1.67	1.94
-15	(+ 5)	760	192	223	104	1.43	2.28	7.29	1.84	2.14
-10	(+14)	925	233	271	114	1.55	2.78	8.10	2.04	2.37
-5	(+23)	1114	281	326	122	1.65	3.37	9.09	2.29	2.66
0	(+32)	1331	335	390	129	1.74	4.05	10.30	2.59	3.02

E - PERFORMANCE - CURVES

TEST CONDITIONS: @100V3000RPM		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]
-40	(-40)	555	140	163	104	1.43	1.64	5.34	1.34	1.56
-35	(-31)	720	181	211	119	1.62	2.13	6.03	1.52	1.77
-30	(-22)	914	230	268	136	1.81	2.71	6.74	1.70	1.97
-25	(-13)	1144	288	335	152	2.01	3.40	7.53	1.90	2.21
-20	(- 4)	1418	357	416	168	2.21	4.23	8.45	2.13	2.48
-15	(+ 5)	1742	439	511	182	2.39	5.22	9.56	2.41	2.80
-10	(+14)	2124	535	622	195	2.55	6.40	10.92	2.75	3.20
-5	(+23)	2571	648	753	205	2.68	7.78	12.58	3.17	3.69
0	(+32)	3089	778	905	211	2.77	9.39	14.60	3.68	4.28

TEST CONDITIONS: @100V3000RPM		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]
-40	(-40)	512	129	150	106	1.50	1.51	4.81	1.21	1.41
-35	(-31)	686	173	201	124	1.72	2.03	5.54	1.39	1.62
-30	(-22)	882	222	258	142	1.95	2.61	6.21	1.57	1.82
-25	(-13)	1107	279	324	161	2.18	3.29	6.89	1.74	2.02
-20	(- 4)	1369	345	401	180	2.40	4.08	7.64	1.92	2.24
-15	(+ 5)	1673	422	490	197	2.61	5.01	8.50	2.14	2.49
-10	(+14)	2029	511	594	213	2.79	6.10	9.53	2.40	2.79
-5	(+23)	2441	615	715	226	2.94	7.38	10.79	2.72	3.16
0	(+32)	2918	735	855	236	3.05	8.87	12.34	3.11	3.62

TEST CONDITIONS: @100V3000RPM		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]
-40	(-40)	435	110	127	105	1.48	1.28	4.15	1.05	1.22
-35	(-31)	635	160	186	128	1.79	1.88	4.92	1.24	1.44
-30	(-22)	851	214	249	152	2.11	2.52	5.57	1.40	1.63
-25	(-13)	1088	274	319	177	2.42	3.23	6.16	1.55	1.80
-20	(- 4)	1355	341	397	202	2.72	4.04	6.73	1.70	1.97
-15	(+ 5)	1657	418	486	225	3.00	4.96	7.35	1.85	2.15
-10	(+14)	2003	505	587	248	3.26	6.03	8.07	2.03	2.36
-5	(+23)	2400	605	703	268	3.48	7.25	8.94	2.25	2.62
0	(+32)	2853	719	836	285	3.65	8.67	10.03	2.53	2.94

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@100V3600RPM		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-40 (-40)	662	167	194	130	1.75	1.96	5.06	1.28	1.48	
-35 (-31)	852	215	250	149	1.99	2.52	5.71	1.44	1.67	
-30 (-22)	1098	277	322	170	2.25	3.26	6.44	1.62	1.89	
-25 (-13)	1400	353	410	192	2.52	4.16	7.27	1.83	2.13	
-20 (- 4)	1756	443	515	213	2.78	5.24	8.23	2.08	2.41	
-15 (+ 5)	2165	546	634	232	3.02	6.49	9.35	2.36	2.74	
-10 (+14)	2624	661	769	248	3.21	7.90	10.64	2.68	3.12	
-5 (+23)	3134	790	918	259	3.35	9.48	12.14	3.06	3.56	
0 (+32)	3691	930	1082	265	3.42	11.22	13.86	3.49	4.06	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@100V3600RPM		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-40 (-40)	601	151	176	136	1.83	1.77	4.44	1.12	1.30	
-35 (-31)	784	197	230	156	2.08	2.32	5.05	1.27	1.48	
-30 (-22)	1021	257	299	179	2.37	3.03	5.70	1.44	1.67	
-25 (-13)	1313	331	385	203	2.67	3.90	6.41	1.62	1.88	
-20 (- 4)	1656	417	485	228	2.97	4.94	7.21	1.82	2.11	
-15 (+ 5)	2050	517	601	251	3.25	6.14	8.11	2.04	2.38	
-10 (+14)	2493	628	730	272	3.50	7.50	9.15	2.30	2.68	
-5 (+23)	2983	752	874	289	3.71	9.02	10.34	2.61	3.03	
0 (+32)	3519	887	1031	301	3.85	10.70	11.72	2.95	3.43	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@100V3600RPM		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-40 (-40)	571	144	167	140	1.86	1.69	4.04	1.02	1.18	
-35 (-31)	738	186	216	160	2.13	2.18	4.64	1.17	1.36	
-30 (-22)	957	241	281	185	2.43	2.84	5.24	1.32	1.53	
-25 (-13)	1228	310	360	211	2.76	3.65	5.84	1.47	1.71	
-20 (- 4)	1549	390	454	239	3.10	4.62	6.49	1.64	1.90	
-15 (+ 5)	1919	484	562	266	3.43	5.75	7.21	1.82	2.11	
-10 (+14)	2335	588	684	291	3.74	7.03	8.01	2.02	2.35	
-5 (+23)	2797	705	820	313	4.01	8.46	8.93	2.25	2.62	
0 (+32)	3303	832	968	331	4.22	10.04	9.98	2.52	2.92	

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@100V4500RPM		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-40 (-40)	774	195	227	156	2.08	2.29	4.96	1.25	1.45	
-35 (-31)	982	247	288	175	2.32	2.91	5.59	1.41	1.64	
-30 (-22)	1219	307	357	193	2.53	3.61	6.32	1.59	1.85	
-25 (-13)	1494	376	438	209	2.73	4.44	7.16	1.80	2.10	
-20 (- 4)	1817	458	532	223	2.91	5.42	8.15	2.05	2.39	
-15 (+ 5)	2196	553	643	237	3.07	6.58	9.29	2.34	2.72	
-10 (+14)	2640	665	774	249	3.22	7.95	10.63	2.68	3.11	
-5 (+23)	3159	796	926	260	3.35	9.56	12.17	3.07	3.57	
0 (+32)	3763	948	1103	270	3.47	11.44	13.94	3.51	4.08	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@100V4500RPM		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-40 (-40)	747	188	219	160	2.12	2.20	4.69	1.18	1.37	
-35 (-31)	948	239	278	182	2.40	2.80	5.21	1.31	1.53	
-30 (-22)	1173	296	344	203	2.65	3.48	5.78	1.46	1.69	
-25 (-13)	1431	361	419	222	2.89	4.25	6.44	1.62	1.89	
-20 (- 4)	1731	436	507	240	3.12	5.16	7.20	1.81	2.11	
-15 (+ 5)	2081	524	610	257	3.32	6.23	8.08	2.04	2.37	
-10 (+14)	2492	628	730	273	3.52	7.50	9.12	2.30	2.67	
-5 (+23)	2972	749	871	288	3.69	8.99	10.32	2.60	3.02	
0 (+32)	3531	890	1035	302	3.86	10.73	11.72	2.95	3.43	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@100V4500RPM		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-40 (-40)	709	179	208	163	2.16	2.09	4.34	1.09	1.27	
-35 (-31)	907	229	266	188	2.47	2.69	4.82	1.21	1.41	
-30 (-22)	1125	283	330	212	2.76	3.34	5.32	1.34	1.56	
-25 (-13)	1369	345	401	234	3.04	4.07	5.87	1.48	1.72	
-20 (- 4)	1650	416	484	255	3.30	4.92	6.49	1.63	1.90	
-15 (+ 5)	1977	498	579	275	3.55	5.92	7.19	1.81	2.11	
-10 (+14)	2358	594	691	294	3.78	7.09	8.01	2.02	2.35	
-5 (+23)	2803	706	821	313	4.00	8.48	8.96	2.26	2.62	
0 (+32)	3321	837	973	330	4.21	10.09	10.06	2.54	2.95	

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	Slanted 90° + 60° UP / 50°		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		