

### COMPRESSOR DEFINITION

Designation	FMS A4C
Nominal Voltage/Frequency	230 V 90-315 Hz
Engineering Number	518000063

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 90-315	[ V / Hz ]	
4 Application type	Low-Medium Back Pressure (Hot Gas Defrost not allowed)		
4.1 Evaporating temperature range	-35°C to 0°C	(-31°F to 32°F)	
5 Motor type	BPM		
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)	-	-	-
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	6.9	[kgf/cm <sup>2</sup> ] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm <sup>2</sup> ] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/16	[hp]
2 Displacement	2.83	[cm <sup>3</sup> ] (0.173 cu.in)
2.1 Bore [mm]	15.500	
2.2 Stroke [mm]	15.000	
3 Lubricant charge	140	[ml] (4.73 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	3.58	[kg] (7.89 lb.)
5 Nitrogen charge	-	[kgf/cm <sup>2</sup> ]

### C - ELECTRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 90-315 Hz 3~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	CF01F21 M	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	CF01F21 M00 XX F	
6 Start winding resistance	13.20	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	13.20	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (90/315 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (90/315 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (90/315 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	CE - UKCA - VDE	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V2800RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
148	37	43	26	0.19	0.46	5.71	1.44	1.67	

TEST CONDITIONS: @220V4000RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
208	52	61	38	0.28	0.65	5.50	1.39	1.61	

TEST CONDITIONS: @220V6300RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
294	74	86	59	0.44	0.92	4.98	1.25	1.46	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1800RPM		ASHRAE32 Static				(Condensing temperature 35°C (+95°F))				
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	58	15	17	11	0.08	0.18	5.40	1.36	1.58
-30	(-22)	79	20	23	13	0.08	0.25	6.21	1.57	1.82
-25	(-13)	104	26	31	15	0.09	0.33	7.13	1.80	2.09
-20	(- 4)	134	34	39	16	0.10	0.42	8.20	2.07	2.40
-15	(+ 5)	170	43	50	18	0.12	0.54	9.45	2.38	2.77
-10	(+14)	212	53	62	19	0.14	0.67	10.94	2.76	3.21
-5	(+23)	262	66	77	21	0.15	0.83	12.69	3.20	3.72
0	(+32)	319	80	94	21	0.16	1.01	14.76	3.72	4.32

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1800RPM		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	52	13	15	10	0.08	0.16	4.94	1.25	1.45
-30	(-22)	72	18	21	13	0.09	0.22	5.62	1.42	1.65
-25	(-13)	95	24	28	15	0.10	0.30	6.34	1.60	1.86
-20	(- 4)	124	31	36	17	0.12	0.39	7.15	1.80	2.09
-15	(+ 5)	158	40	46	20	0.14	0.50	8.09	2.04	2.37
-10	(+14)	199	50	58	22	0.16	0.63	9.20	2.32	2.70
-5	(+23)	247	62	72	24	0.17	0.78	10.53	2.65	3.08
0	(+32)	304	76	89	25	0.17	0.96	12.11	3.05	3.55

TEST CONDITIONS: @220V1800RPM		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	40	10	12	10	0.07	0.12	4.07	1.03	1.19
-30	(-22)	60	15	18	13	0.09	0.19	4.80	1.21	1.41
-25	(-13)	84	21	25	15	0.11	0.26	5.51	1.39	1.61
-20	(- 4)	114	29	33	18	0.13	0.36	6.26	1.58	1.83
-15	(+ 5)	149	37	44	21	0.15	0.47	7.08	1.78	2.07
-10	(+14)	190	48	56	24	0.17	0.60	8.01	2.02	2.35
-5	(+23)	239	60	70	26	0.19	0.76	9.10	2.29	2.67
0	(+32)	296	75	87	29	0.19	0.94	10.39	2.62	3.05

TEST CONDITIONS: @220V2800RPM		ASHRAE32 Static			(Condensing temperature 35°C (+95°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	85	21	25	17	0.12	0.27	4.99	1.26	1.46
-30	(-22)	120	30	35	20	0.15	0.38	5.93	1.49	1.74
-25	(-13)	160	40	47	23	0.17	0.50	6.91	1.74	2.02
-20	(- 4)	207	52	61	26	0.19	0.65	8.00	2.02	2.34
-15	(+ 5)	263	66	77	28	0.21	0.83	9.27	2.34	2.72
-10	(+14)	330	83	97	31	0.23	1.04	10.78	2.72	3.16
-5	(+23)	409	103	120	32	0.24	1.29	12.61	3.18	3.70
0	(+32)	503	127	147	34	0.25	1.59	14.83	3.74	4.35

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V2800RPM		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	72	18	21	16	0.13	0.23	4.43	1.12	1.30
-30	(-22)	108	27	32	20	0.16	0.34	5.32	1.34	1.56
-25	(-13)	147	37	43	24	0.18	0.46	6.18	1.56	1.81
-20	(- 4)	193	49	57	27	0.21	0.61	7.08	1.78	2.08
-15	(+ 5)	248	62	73	31	0.23	0.78	8.09	2.04	2.37
-10	(+14)	313	79	92	34	0.25	0.99	9.27	2.33	2.72
-5	(+23)	390	98	114	37	0.27	1.23	10.69	2.69	3.13
0	(+32)	481	121	141	39	0.29	1.52	12.42	3.13	3.64

TEST CONDITIONS: @220V2800RPM		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	58	15	17	16	0.11	0.18	3.72	0.94	1.09
-30	(-22)	93	23	27	20	0.15	0.29	4.66	1.17	1.37
-25	(-13)	132	33	39	24	0.18	0.41	5.50	1.39	1.61
-20	(- 4)	177	45	52	28	0.21	0.56	6.30	1.59	1.85
-15	(+ 5)	230	58	67	32	0.24	0.72	7.13	1.80	2.09
-10	(+14)	293	74	86	36	0.27	0.92	8.07	2.03	2.36
-5	(+23)	367	93	108	40	0.30	1.16	9.18	2.31	2.69
0	(+32)	456	115	134	44	0.33	1.45	10.53	2.65	3.09

TEST CONDITIONS: @220V4000RPM		ASHRAE32 Static			(Condensing temperature 35°C (+95°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	118	30	35	26	0.19	0.37	4.59	1.16	1.34
-30	(-22)	164	41	48	30	0.22	0.51	5.54	1.40	1.62
-25	(-13)	218	55	64	34	0.25	0.68	6.51	1.64	1.91
-20	(- 4)	284	72	83	38	0.28	0.89	7.56	1.90	2.21
-15	(+ 5)	364	92	107	42	0.31	1.15	8.73	2.20	2.56
-10	(+14)	459	116	134	45	0.33	1.45	10.09	2.54	2.96
-5	(+23)	572	144	167	49	0.36	1.81	11.69	2.95	3.43
0	(+32)	704	177	206	52	0.39	2.23	13.58	3.42	3.98

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4000RPM		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	103	26	30	24	0.18	0.32	4.21	1.06	1.23
-30	(-22)	150	38	44	29	0.22	0.47	5.09	1.28	1.49
-25	(-13)	206	52	60	35	0.26	0.65	5.94	1.50	1.74
-20	(- 4)	271	68	79	40	0.30	0.85	6.83	1.72	2.00
-15	(+ 5)	349	88	102	45	0.33	1.10	7.82	1.97	2.29
-10	(+14)	441	111	129	49	0.37	1.39	8.94	2.25	2.62
-5	(+23)	549	138	161	54	0.40	1.74	10.26	2.59	3.01
0	(+32)	676	170	198	57	0.43	2.14	11.83	2.98	3.47

TEST CONDITIONS: @220V4000RPM		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	82	21	24	22	0.17	0.26	3.66	0.92	1.07
-30	(-22)	129	32	38	28	0.22	0.40	4.50	1.13	1.32
-25	(-13)	183	46	54	35	0.26	0.57	5.28	1.33	1.55
-20	(- 4)	246	62	72	41	0.30	0.77	6.05	1.53	1.77
-15	(+ 5)	320	81	94	47	0.34	1.01	6.88	1.73	2.02
-10	(+14)	408	103	119	52	0.38	1.29	7.80	1.97	2.29
-5	(+23)	510	129	149	57	0.42	1.61	8.89	2.24	2.60
0	(+32)	630	159	185	62	0.46	2.00	10.18	2.57	2.98

TEST CONDITIONS: @220V6300RPM		ASHRAE32 Static			(Condensing temperature 35°C (+95°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	174	44	51	42	0.31	0.54	4.09	1.03	1.20
-30	(-22)	233	59	68	49	0.36	0.73	4.74	1.20	1.39
-25	(-13)	310	78	91	56	0.41	0.97	5.53	1.39	1.62
-20	(- 4)	409	103	120	63	0.47	1.28	6.45	1.62	1.89
-15	(+ 5)	532	134	156	71	0.52	1.67	7.51	1.89	2.20
-10	(+14)	681	172	200	78	0.58	2.15	8.73	2.20	2.56
-5	(+23)	860	217	252	85	0.63	2.72	10.10	2.54	2.96
0	(+32)	1071	270	314	92	0.68	3.40	11.62	2.93	3.41

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V6300RPM		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	157	40	46	41	0.30	0.49	3.82	0.96	1.12
-30	(-22)	215	54	63	49	0.36	0.67	4.44	1.12	1.30
-25	(-13)	290	73	85	57	0.42	0.91	5.14	1.30	1.51
-20	(- 4)	385	97	113	65	0.48	1.21	5.94	1.50	1.74
-15	(+ 5)	502	126	147	73	0.54	1.58	6.84	1.72	2.00
-10	(+14)	643	162	188	82	0.61	2.03	7.84	1.97	2.30
-5	(+23)	812	205	238	91	0.67	2.57	8.95	2.25	2.62
0	(+32)	1011	255	296	99	0.73	3.21	10.17	2.56	2.98

TEST CONDITIONS: @220V6300RPM		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	133	34	39	39	0.29	0.42	3.43	0.87	1.01
-30	(-22)	192	48	56	47	0.35	0.60	4.06	1.02	1.19
-25	(-13)	265	67	78	56	0.41	0.83	4.73	1.19	1.39
-20	(- 4)	356	90	104	65	0.48	1.12	5.45	1.37	1.60
-15	(+ 5)	468	118	137	75	0.56	1.47	6.23	1.57	1.82
-10	(+14)	601	152	176	85	0.63	1.90	7.06	1.78	2.07
-5	(+23)	761	192	223	96	0.71	2.41	7.96	2.00	2.33
0	(+32)	948	239	278	106	0.79	3.01	8.92	2.25	2.61

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal ES/FMS		
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	Slanted 75° up		
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 +0.08/-0.08	[mm]	(0.236" +0.003"/-0.003")
3.3.1 Material	Copper(OD)		
3.3.2 Shape	Slanted 45° up		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		