

### COMPRESSOR DEFINITION

Designation	<b>F GS90HA</b>
Nominal Voltage/Frequency	<b>220-240 V 50-60 Hz</b>
Engineering Number	<b>513208200</b>

### 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 Back Pressure		
4.1 Evaporating temperature range	-35°C to -10°C	(-31°F to 14°F)	
5 Motor type	RSCR		
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	198 to 255 V	198 to 242 V
8.2 LBP (43°C Ambient temperature)	Static	198 to 255 V	198 to 242 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)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/4+	[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	350	[ml] (11.84 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	11.2	[kg] (24.69 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	PTC	
2.1 Starting device	7M220MD3/8EA17C3/8EA5B3	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	5(330)	[µF(VAC minimum)]
5 Motor protection	4TM283NFBYY-53	
6 Start winding resistance	14.60	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	9.70	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	8.50/7.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	1.26/1.30	[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	

### 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]
800	202	234	154	0.78	4.55	5.21	1.31	1.53

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]
940	237	275	180	0.84	5.34	5.21	1.31	1.53

### 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)	411	104	120	106	0.59	2.33	3.87	0.98	1.13
-30 (-22)	590	149	173	124	0.67	3.34	4.73	1.19	1.39
-25 (-13)	795	200	233	144	0.76	4.51	5.53	1.39	1.62
-20 (- 4)	1034	260	303	164	0.85	5.88	6.33	1.59	1.85
-15 (+ 5)	1311	330	384	183	0.94	7.49	7.15	1.80	2.09
-10 (+14)	1635	412	479	203	1.02	9.37	8.05	2.03	2.36

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)	366	92	107	105	0.59	2.07	3.47	0.87	1.02
-30 (-22)	538	136	158	126	0.67	3.05	4.27	1.08	1.25
-25 (-13)	737	186	216	148	0.77	4.18	4.99	1.26	1.46
-20 (- 4)	969	244	284	171	0.87	5.51	5.68	1.43	1.66
-15 (+ 5)	1240	312	363	195	0.97	7.08	6.37	1.61	1.87
-10 (+14)	1557	392	456	219	1.07	8.92	7.12	1.79	2.09

### 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]	[W/W]
-35 (-31)	304	76	89	99	0.57	1.72	3.07	0.77	0.90	
-30 (-22)	473	119	139	123	0.66	2.68	3.85	0.97	1.13	
-25 (-13)	670	169	196	148	0.76	3.80	4.52	1.14	1.33	
-20 (- 4)	900	227	264	175	0.88	5.12	5.14	1.30	1.51	
-15 (+ 5)	1170	295	343	204	1.00	6.68	5.74	1.45	1.68	
-10 (+14)	1486	374	435	233	1.13	8.51	6.37	1.61	1.87	

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)	474	119	139	114	0.56	2.68	4.14	1.04	1.21	
-30 (-22)	684	172	200	137	0.66	3.88	4.96	1.25	1.45	
-25 (-13)	922	232	270	162	0.77	5.24	5.69	1.43	1.67	
-20 (- 4)	1202	303	352	189	0.89	6.84	6.39	1.61	1.87	
-15 (+ 5)	1536	387	450	216	1.03	8.77	7.11	1.79	2.08	
-10 (+14)	1937	488	567	245	1.16	11.10	7.90	1.99	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]	[W/W]
-35 (-31)	394	99	115	111	0.53	2.23	3.59	0.90	1.05	
-30 (-22)	594	150	174	136	0.64	3.36	4.35	1.10	1.27	
-25 (-13)	824	208	241	164	0.77	4.68	5.02	1.26	1.47	
-20 (- 4)	1097	276	321	194	0.91	6.24	5.64	1.42	1.65	
-15 (+ 5)	1426	359	418	227	1.07	8.14	6.28	1.58	1.84	
-10 (+14)	1824	460	534	261	1.24	10.45	6.97	1.76	2.04	

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)	317	80	93	99	0.52	1.79	3.19	0.80	0.93	
-30 (-22)	502	127	147	128	0.62	2.85	3.90	0.98	1.14	
-25 (-13)	719	181	211	160	0.75	4.08	4.50	1.13	1.32	
-20 (- 4)	981	247	288	195	0.91	5.58	5.05	1.27	1.48	
-15 (+ 5)	1301	328	381	233	1.09	7.43	5.59	1.41	1.64	
-10 (+14)	1691	426	496	273	1.29	9.69	6.18	1.56	1.81	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal		
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 plated steel		
3.1.2 Shape	Straight		
3.2 DISCHARGE	5 +0.18/-0.06	[mm]	(0.197" +0.007"/-0.002")
3.2.1 Material	Copper plated steel		
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 plated steel		
3.3.2 Shape	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		