

COMPRESSOR DEFINITION

Designation	F GS90HA
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513209541

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 ²] (230 psig)	/ °C - °F
9.2 Peak (gauge)	20.6	[kgf/cm ²] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/4+	[hp]
2 Displacement	7.95	[cm ³] (0.485 cu.in)
2.1 Bore [mm]	22.500	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	280	[ml] (9.47 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	11.2	[kg] (24.69 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	220-240 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	152	0.78	4.55	5.26	1.33	1.54

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	177	0.82	5.34	5.31	1.34	1.56

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)	390	98	114	98	0.51	2.21	3.98	1.00	1.17
-30 (-22)	551	139	162	116	0.61	3.12	4.76	1.20	1.39
-25 (-13)	750	189	220	136	0.72	4.26	5.52	1.39	1.62
-20 (- 4)	991	250	290	157	0.83	5.64	6.30	1.59	1.84
-15 (+ 5)	1279	322	375	179	0.93	7.30	7.13	1.80	2.09
-10 (+14)	1618	408	474	201	1.05	9.27	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)	355	89	104	97	0.51	2.01	3.62	0.91	1.06
-30 (-22)	500	126	146	115	0.64	2.83	4.35	1.10	1.27
-25 (-13)	682	172	200	136	0.76	3.87	5.03	1.27	1.47
-20 (- 4)	907	229	266	160	0.89	5.16	5.69	1.43	1.67
-15 (+ 5)	1178	297	345	186	1.01	6.73	6.36	1.60	1.86
-10 (+14)	1501	378	440	211	1.14	8.60	7.10	1.79	2.08

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)	264	67	77	90	0.47	1.49	2.96	0.74	0.87
-30	(-22)	411	104	121	110	0.60	2.33	3.74	0.94	1.10
-25	(-13)	596	150	175	134	0.74	3.38	4.44	1.12	1.30
-20	(- 4)	822	207	241	162	0.88	4.68	5.08	1.28	1.49
-15	(+ 5)	1095	276	321	192	1.02	6.25	5.71	1.44	1.67
-10	(+14)	1419	358	416	223	1.16	8.13	6.36	1.60	1.86

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)	474	119	139	117	0.53	2.68	4.03	1.02	1.18
-30	(-22)	684	172	200	137	0.63	3.88	4.98	1.25	1.46
-25	(-13)	922	232	270	160	0.73	5.24	5.77	1.45	1.69
-20	(- 4)	1202	303	352	186	0.84	6.84	6.49	1.64	1.90
-15	(+ 5)	1536	387	450	213	0.95	8.77	7.23	1.82	2.12
-10	(+14)	1937	488	568	240	1.08	11.10	8.07	2.03	2.36

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)	394	99	115	117	0.54	2.23	3.38	0.85	0.99
-30	(-22)	593	150	174	138	0.64	3.36	4.28	1.08	1.25
-25	(-13)	824	208	241	164	0.75	4.68	5.02	1.26	1.47
-20	(- 4)	1097	276	321	193	0.87	6.24	5.68	1.43	1.66
-15	(+ 5)	1426	359	418	225	1.00	8.14	6.33	1.60	1.86
-10	(+14)	1824	460	535	257	1.15	10.45	7.08	1.78	2.07

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]
-35	(-31)	318	80	93	108	0.49	1.80	2.94	0.74	0.86
-30	(-22)	502	127	147	132	0.60	2.85	3.80	0.96	1.11
-25	(-13)	719	181	211	161	0.73	4.08	4.48	1.13	1.31
-20	(- 4)	981	247	288	194	0.86	5.58	5.06	1.28	1.48
-15	(+ 5)	1301	328	381	230	1.02	7.43	5.64	1.42	1.65
-10	(+14)	1691	426	496	268	1.20	9.69	6.29	1.59	1.84

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		