

### COMPRESSOR DEFINITION

Designation	<b>T 2178GK</b>
Nominal Voltage/Frequency	<b>208-230 V 60 Hz</b>
Engineering Number	<b>936ED68</b>

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-404A		
3 Nominal voltage and frequency	208-230 / 60	[ V / Hz ]	
4 Application type	Low Back Pressure R404A		
4.1 Evaporating temperature range	-40°C to -10°C	(-40°F to 14°F)	
5 Motor type	CSCR		
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 pressures/temperature			
9.1 Operating (gauge)	25.7	[kgf/cm <sup>2</sup> ] (365 psig)	/ °C - °F
9.2 Peak (gauge)	28.7	[kgf/cm <sup>2</sup> ] (408 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1-	[hp]
2 Displacement	20.44	[cm <sup>3</sup> ] (1.247 cu.in)
2.1 Bore [mm]	36.990	
2.2 Stroke [mm]	19.030	
3 Lubricant charge	550	[ml] (18.60 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	17.25	[kg] (38.03 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	208-230 V 60 Hz 1~ (Single phase)	
2 Starting device type	Voltage Relay	
2.1 Starting device	3ARR3B10A3	
3 Start capacitor	88-108(330)	[μF(VAC minimum)]
4 Run capacitor	15(450)	[μF(VAC minimum)]
5 Motor protection	3HM198-105	
6 Start winding resistance	5.50	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	2.40	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	32.20	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	4.60	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	UL	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @208V60Hz			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]
3644	918	1068	891	2.79	24.70	4.09	1.03	1.20

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @208V50Hz			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)	1383	348	405	440	0.74	9.29	3.12	0.79	0.91
-35	(-31)	1941	489	569	548	1.38	13.09	3.56	0.90	1.04
-30	(-22)	2584	651	757	653	2.00	17.48	3.99	1.00	1.17
-25	(-13)	3333	840	977	754	2.61	22.64	4.42	1.11	1.30
-20	(- 4)	4210	1061	1234	853	3.23	28.75	4.91	1.24	1.44
-15	(+ 5)	5237	1320	1535	950	3.84	35.98	5.48	1.38	1.61
-10	(+14)	6434	1621	1885	1045	4.44	44.51	6.18	1.56	1.81

TEST CONDITIONS: @208V50Hz			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)	1082	273	317	408	0.68	7.26	2.64	0.67	0.77
-35	(-31)	1670	421	489	516	1.29	11.24	3.23	0.81	0.95
-30	(-22)	2330	587	683	626	1.91	15.73	3.73	0.94	1.09
-25	(-13)	3081	776	903	737	2.56	20.89	4.19	1.06	1.23
-20	(- 4)	3947	995	1156	850	3.22	26.90	4.64	1.17	1.36
-15	(+ 5)	4947	1247	1450	965	3.90	33.92	5.11	1.29	1.50
-10	(+14)	6104	1538	1788	1083	4.60	42.14	5.65	1.42	1.65

TEST CONDITIONS: @208V50Hz			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)	792	200	232	377	0.63	5.30	2.13	0.54	0.62
-35	(-31)	1411	356	414	486	1.21	9.48	2.87	0.72	0.84
-30	(-22)	2087	526	612	600	1.84	14.07	3.47	0.87	1.02
-25	(-13)	2841	716	832	720	2.50	19.22	3.96	1.00	1.16
-20	(- 4)	3694	931	1082	847	3.21	25.12	4.38	1.10	1.28
-15	(+ 5)	4668	1176	1368	980	3.96	31.94	4.77	1.20	1.40
-10	(+14)	5784	1458	1695	1120	4.76	39.85	5.16	1.30	1.51

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @208V60Hz		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)	1550	391	454	515	0.76	10.42	2.99	0.75	0.88
-35	(-31)	2227	561	653	641	1.41	15.02	3.49	0.88	1.02
-30	(-22)	3000	756	879	763	2.04	20.29	3.95	1.00	1.16
-25	(-13)	3892	981	1140	882	2.67	26.44	4.42	1.11	1.29
-20	(- 4)	4929	1242	1444	998	3.29	33.66	4.92	1.24	1.44
-15	(+ 5)	6137	1546	1798	1111	3.91	42.17	5.50	1.39	1.61
-10	(+14)	7539	1900	2209	1223	4.54	52.15	6.18	1.56	1.81

TEST CONDITIONS: @208V60Hz		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)	1266	319	371	477	0.70	8.49	2.65	0.67	0.78
-35	(-31)	1955	493	573	604	1.32	13.16	3.23	0.81	0.95
-30	(-22)	2726	687	799	732	1.96	18.41	3.73	0.94	1.09
-25	(-13)	3605	908	1056	862	2.61	24.44	4.19	1.06	1.23
-20	(- 4)	4617	1164	1353	994	3.28	31.47	4.64	1.17	1.36
-15	(+ 5)	5787	1458	1696	1129	3.98	39.69	5.11	1.29	1.50
-10	(+14)	7141	1799	2092	1267	4.70	49.30	5.64	1.42	1.65

TEST CONDITIONS: @208V60Hz		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)	991	250	291	442	0.64	6.63	2.26	0.57	0.66
-35	(-31)	1692	426	496	569	1.24	11.37	2.95	0.74	0.86
-30	(-22)	2463	621	722	702	1.87	16.60	3.50	0.88	1.03
-25	(-13)	3330	839	976	843	2.55	22.54	3.96	1.00	1.16
-20	(- 4)	4318	1088	1265	991	3.27	29.37	4.37	1.10	1.28
-15	(+ 5)	5452	1374	1598	1146	4.04	37.31	4.75	1.20	1.39
-10	(+14)	6757	1703	1980	1310	4.86	46.55	5.15	1.30	1.51

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	9.6 +0.07/+0.00	[mm]	(0.378" +0.003"/+0.000")
3.1.1 Material	Copper		
3.1.2 Shape	Vertical		
3.2 DISCHARGE	6.42 +0.08/+0.00	[mm]	(0.253" +0.003"/+0.000")
3.2.1 Material	Copper		
3.2.2 Shape	Vertical		
3.3 PROCESS	9.6 +0.07/+0.00	[mm]	(0.378" +0.003"/+0.000")
3.3.1 Material	Copper		
3.3.2 Shape	Vertical		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		