

COMPRESSOR DEFINITION

Designation	NJ 2178E
Nominal Voltage/Frequency	208-230 V 60 Hz
Engineering Number	143RD11

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-22		
3 Nominal voltage and frequency	208-230 / 60	[V / Hz]	
4 Application type	Low Back Pressure R22		
4.1 Evaporating temperature range	-30°C to -10°C	(-22°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)	21.7	[kgf/cm ²] (309 psig)	/ °C - °F
9.2 Peak (gauge)	24.2	[kgf/cm ²] (344 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation		[hp]
2 Displacement	23.51	[cm ³] (1.435 cu.in)
2.1 Bore [mm]	38.087	
2.2 Stroke [mm]	20.650	
3 Lubricant charge	750	[ml] (25.36 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO46	
4 Weight (with oil charge)	21.7	[kg] (47.84 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	208-230 V 60 Hz 1~ (Single phase)	
2 Starting device type	Voltage Relay	
2.1 Starting device	RVA2L3C-112	
3 Start capacitor	88-108(330)	[µF(VAC minimum)]
4 Run capacitor	20(400)	[µF(VAC minimum)]
5 Motor protection	15HM2444	
6 Start winding resistance	5.29	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	2.05	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification		

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]
3642	918	1067	832	4.00	19.89	4.38	1.10	1.28

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]
-30	(-22)	3011	759	882	657	3.18	16.39	4.58	1.15	1.34
-25	(-13)	3935	992	1153	753	3.64	21.47	5.23	1.32	1.53
-20	(- 4)	5095	1284	1493	849	4.11	27.89	6.00	1.51	1.76
-15	(+ 5)	6493	1636	1903	946	4.58	35.69	6.87	1.73	2.01
-10	(+14)	8133	2050	2383	1043	5.07	44.90	7.80	1.97	2.29

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]
-30	(-22)	2707	682	793	672	3.20	14.73	4.04	1.02	1.18
-25	(-13)	3610	910	1058	787	3.75	19.70	4.59	1.16	1.34
-20	(- 4)	4725	1191	1384	903	4.32	25.86	5.23	1.32	1.53
-15	(+ 5)	6054	1526	1774	1022	4.92	33.26	5.92	1.49	1.74
-10	(+14)	7600	1915	2227	1142	5.55	41.94	6.66	1.68	1.95

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]
-30	(-22)	2428	612	711	670	3.24	13.21	3.62	0.91	1.06
-25	(-13)	3294	830	965	803	3.85	17.97	4.10	1.03	1.20
-20	(- 4)	4349	1096	1274	939	4.51	23.80	4.63	1.17	1.36
-15	(+ 5)	5593	1409	1639	1080	5.22	30.73	5.19	1.31	1.52
-10	(+14)	7030	1772	2060	1224	5.97	38.79	5.74	1.45	1.68

F - EXTERNAL CHARACTERISTICS

1 Base plate	American Standard		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	12.77 +0.08/+0.00	[mm]	(0.503" +0.003"/+0.000")
3.1.1 Material	Copper		
3.1.2 Shape	Vertical		
3.2 DISCHARGE	8 +0.07/+0.00	[mm]	(0.315" +0.003"/+0.000")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted		
3.3 PROCESS	6.42 +0.08/+0.00	[mm]	(0.253" +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		