PANASONIC SCROLL COMPRESSORS

Code : 809 123 88

Model : C-SCN903H8K

Aproveed for R407C, R448A, R449A, R134a, R513A, R404A

Panasonic Appliances Compressor (Dalian) Co.,Ltd.

Section 1. General Specifications

Model	C-SCN903H8K	**Electrical**	380-415 Volts 3 Phase 50Hz
Refrigerant	R407C		440-460 Volts 3 Phase 60Hz

Nominal Performance at ARI

Power Source		50Hz-380V	60Hz-440V
Capacity	(W)	34900	
Power	(W)	11300	
Current	(A)	18.9	
COP	(W/W)	3.09	
Mass Flow	(kg/h)	835	

Rating Conditions (MID Point)

Condensing Temperature(℃)	54.4
Evaporating Temperature(℃)	7.2
Return Gas temperature(℃)	18.3
Liquid Temperature(℃)	43.8
Ambient Temperature(℃)	35

Motor

	50Hz	60Hz
Voltage Range(V)	342-456	396-506
RLA (A)	21.6	
MCC (A)	30.2	
LRA (A)	96	
RPM (min^{-1})	2900	3450

Compressor

Maximum Discharge Temp(℃)	135
Displacement (cm^3/rev)	205.4
Weight (with oil kg)	69.5

Oil

Oil Type	FV68S
Initial Charge (ml)	2800
Re-charge (ml)	2600

Electrical Components

Motor Protector Type	Internal
Run Capacitor Rating (MFD/Volts)	n/a

Winding Resistance at 25ºC

U-V	1.308
U-W	1.373
V-W	1.351

Sound level

	50Hz/380V	60Hz/440V
(db)	72Max	74Max

Nominal performance values +/-5% with 1 hr run-in.
Ratings with air over compressor.
Sound level is an average sound pressure level in fou directions. MIC location is the distance of 1m from the compressor Specifications subject to change without notice.

Minimum Starting Voltage

Power Source (3PH)	Hz	50	60
Minimum Starting Voltage	V	304	352

Conditions

Compressor Temp.	°C (°F)	10~60(50~140)
Ambient Temp.	°C (°F)	10~40(50~105)
High Pressure	MPa(G)/psig	2(290)
Low Pressure	MPa(G)/psig	0.5(72)

Inernal Motor Protector (in compressor)

Parts Name	Specification	
Inernal Motor Protector	TripTemp.	170±5℃
	Reset Temp.	70±10℃
	Trip Current	66A / 3~10s

Others

Content		Unit	Specification
Design Pressure	L.P. S.	MPa(G)/psig	1.6(232)
	H. P. S.	MPa(G)/psig	3.2(464)
Insulation Resistance		MΩ	100 (without refrigerant)
Dielectric Strength		V	2300 (1 second)
Residual Moisture		mg	400

Note:

1. The insulation resistance be measured with a DC500V megohm test

Accessories List

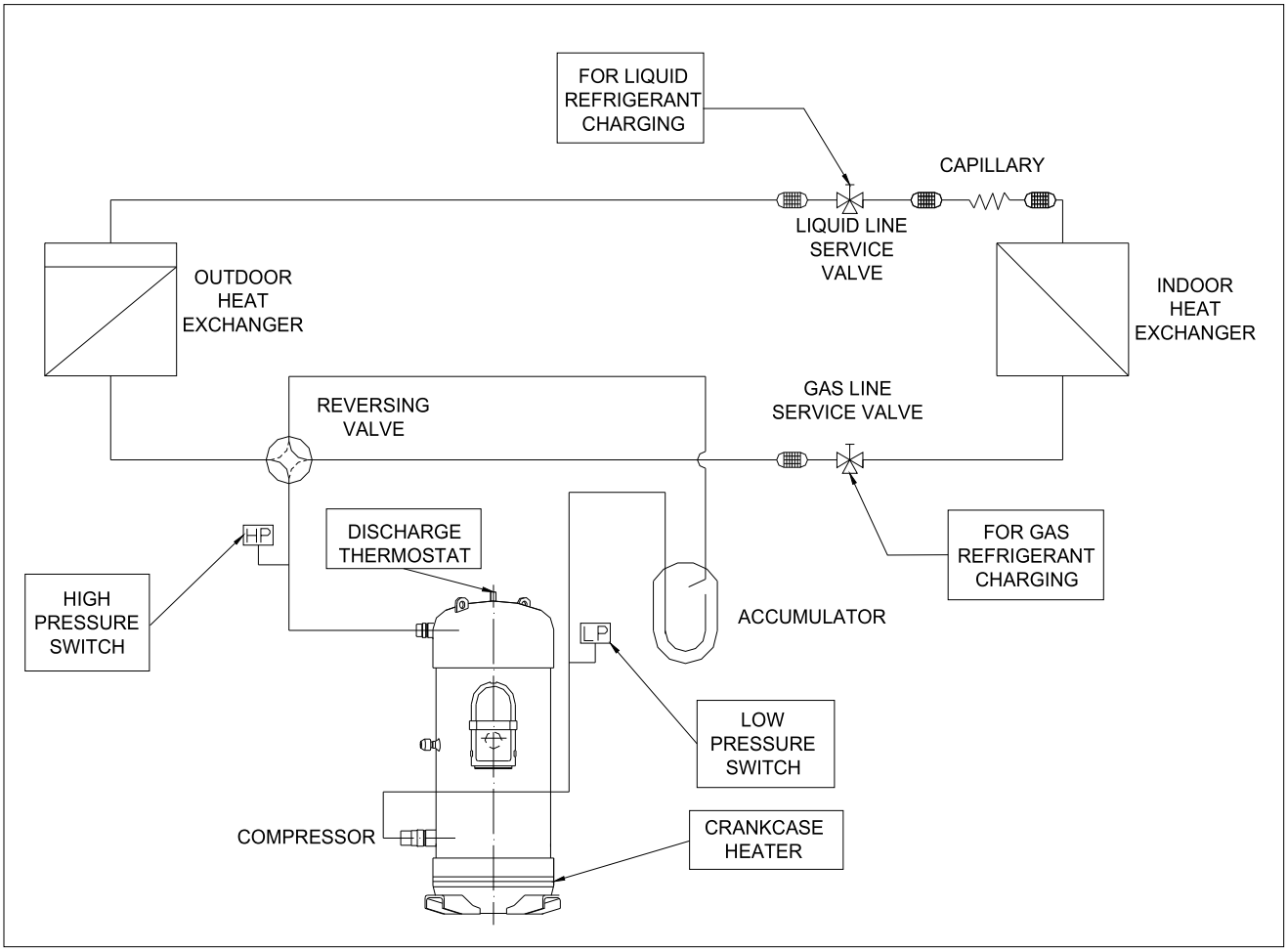
Parts Name	Qty	Parts code	Revision No.	Note
Terminal Box Cover	1	A-0101-DSC	0	Installed on Compressor
Terminal Box Clip	1	A-0201-DSC	0	Installed on Compressor
Insulating Grommet	1	A-0301-DSC	0	Installed on Compressor
Gasket Terminal	1	A-0401-DSC	0	Installed on Compressor
Mounting Grommet	4	M-0101-DSC	0	Included with Compressor
Mounting Sleeve	4	M-0201-DSC	0	Included with Compressor

Section 2. Compressor Protection

2.1 Protection Required but not Included with compressor

Protection Device	Items	Specifications
Reversal Defensible Relay	Features	To protect the compressor from reverse rotation
	Rated Voltage	AC380V
Crankcase Heater	Rated Power	88 Watts
Discharge Thermostat	Mounting Position	Located in the well pipe of top shell
	Trip Temperature	135±5℃(275 ± 10 °F)
	Reset Temperature	86±15℃ (187 ± 27 °F)
High Pressure Switch	Setting	Cut-out seting no higher than 3.2MPa(G)
Low Pressure Switch	Setting	Cut-out seting no lower than 0.05MPa(G)

2.2 Position of the Protection and Refrigerant Charging



Section 3. Performance data

PERFORMANCE DATA

Compressor Model(Code)	**C-SCN903H8K (809 123 88)**
Power Source	**3PH 50Hz 380-415V**
Suction Gas Superheat(K)	**9**
Sub Cooling(K)	**8.3**
Compressor Cooling	**Natural Cooling**
Refrigerant	**R407C**

CAPACITY(W)

Condensing Temperature(℃)	Evaporating Temperature(℃)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	19,690	24,030	27,410	35,810	42,680	47,720	53,360	57,790
40.5	18,020	22,000	25,100	32,800	39,100	43,720	48,890	52,960
45.0	16,750	20,450	23,330	30,500	36,360	40,660	45,480	49,260
50.0	15,430	18,840	21,500	28,110	33,520	37,490	41,930	45,430
54.4		17,530	20,010	26,160	31,200	34,900	39,040	42,290
60.0			18,260	23,880	28,490	31,870	35,650	38,630
65.0				22,040	26,290	29,420	32,910	35,660

POWER(W)

Condensing Temperature(℃)	Evaporating Temperature(℃)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	6,930	7,120	7,220	7,350	7,380	7,380	7,360	7,330
40.5	7,840	8,020	8,120	8,250	8,280	8,290	8,280	8,260
45.0	8,720	8,880	8,970	9,100	9,140	9,150	9,160	9,150
50.0	9,820	9,960	10,040	10,160	10,210	10,240	10,260	10,260
54.4		11,020	11,080	11,200	11,260	11,300	11,330	11,360
60.0			12,560	12,660	12,740	12,800	12,860	12,900
65.0				14,100	14,200	14,270	14,360	14,430

CURRENT(A)

Condensing Temperature(℃)	Evaporating Temperature(℃)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	12.0	12.4	12.6	12.8	12.9	12.9	12.8	12.8
40.5	13.5	13.8	14.0	14.2	14.3	14.3	14.3	14.2
45.0	14.9	15.2	15.3	15.6	15.6	15.6	15.6	15.6
50.0	16.7	16.9	17.0	17.2	17.3	17.3	17.3	17.3
54.4		18.6	18.6	18.7	18.8	18.9	19.0	19.0
60.0			20.9	20.9	21.0	21.1	21.3	21.4
65.0				23.1	23.2	23.3	23.5	23.6

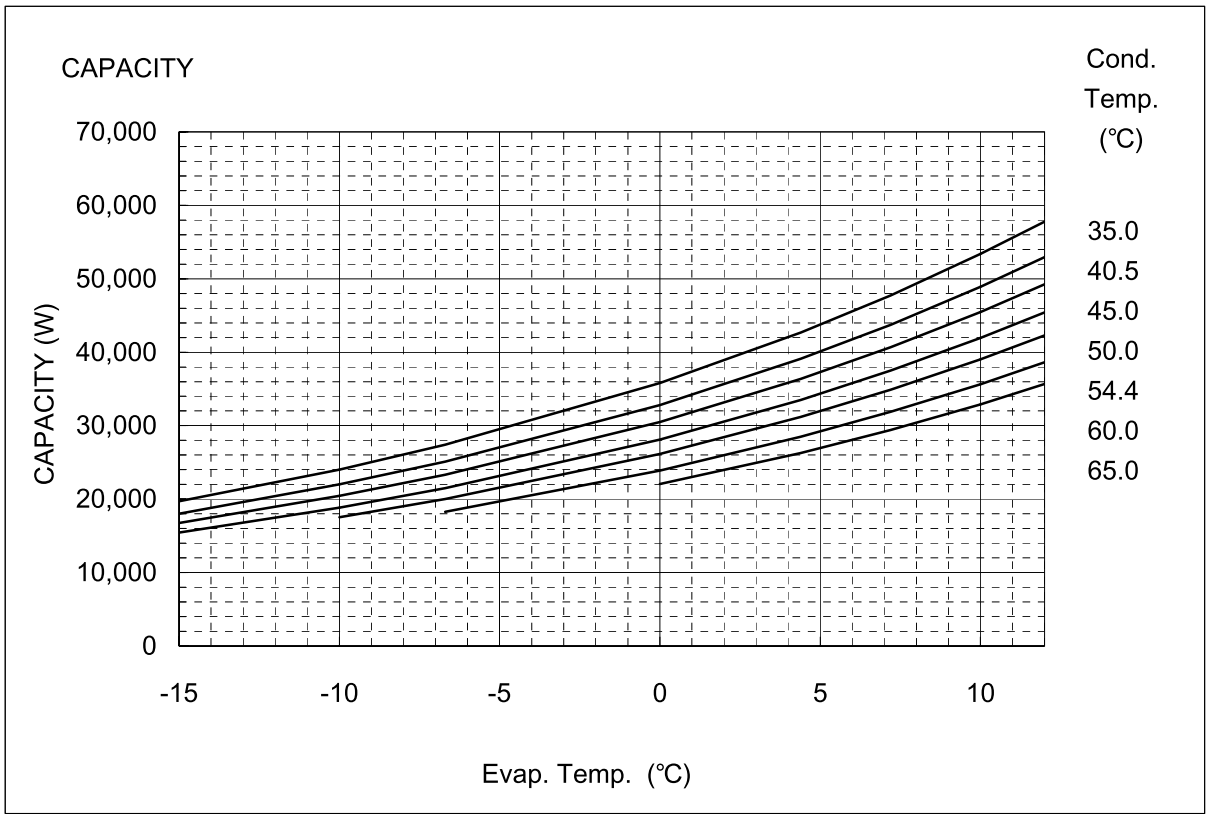
NOTE:

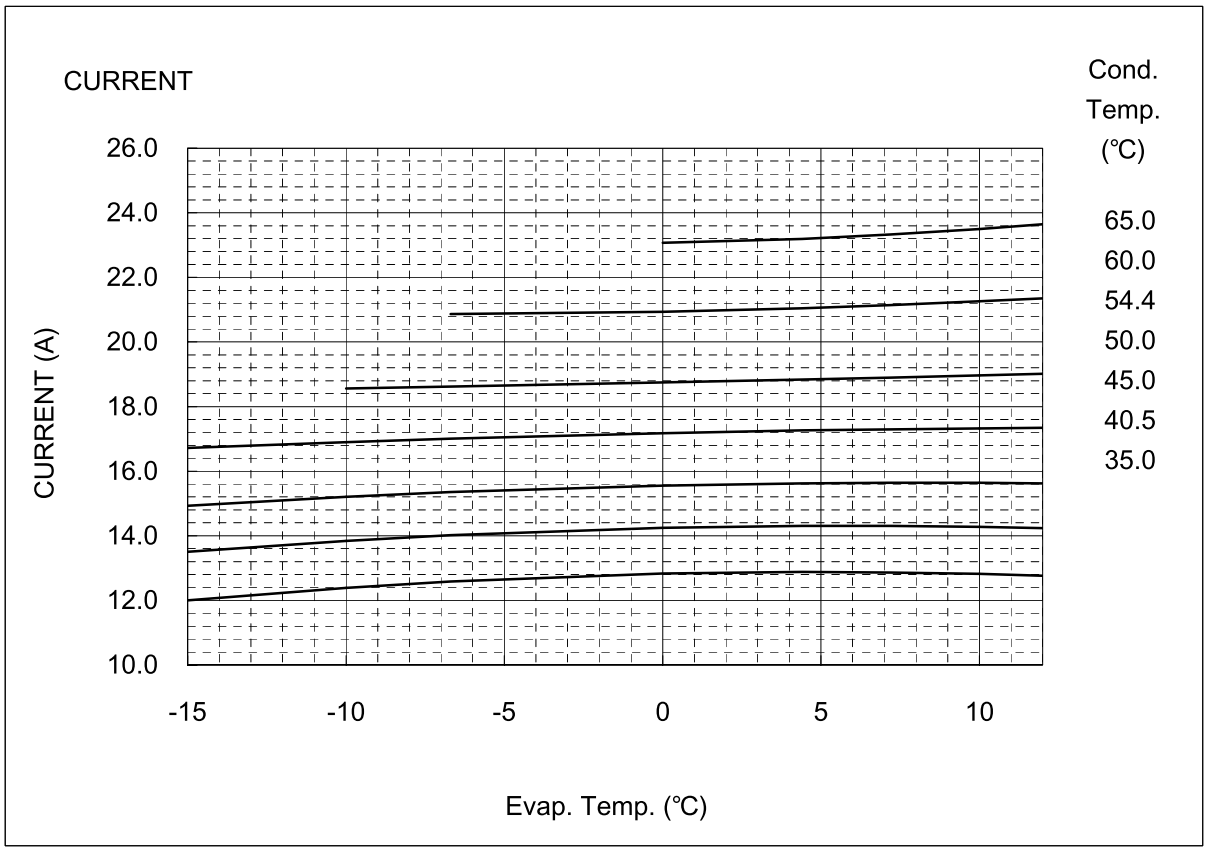
*** The performance values subject to change without notice**

*** The performance values are based on MID point method**

Compressor Model(Code) **C-SCN903H8K (809 123 88)**

Power Source **3PH 50Hz 380-415V**





COEFFICIENTS OF PERFORMANCE CURVES

Compressor Model	**C-SCN903H8K (809 123 88)**
Power Source	**3PH 50Hz 380-415V**
Suction Gas Superheat (K)	**9**
Sub Cooling (K)	**8.3**
Compressor Cooling	**Natural Cooling**
Refrigerant	**R407C**

X=C1+C2*(S)+C3*D+C4*(S2)+C5*(S*D)+C6*(D2)+C7*(S3)+C8*(D*S2)+C9*(S*D2) +C10*(D3)

X——CAPACITY(W) OR POWER(W) OR CURRENT(A) OR FLOW(kg/h)

S——EVAPORATING TEMP, °C

D——CONDENSING TEMP, °C

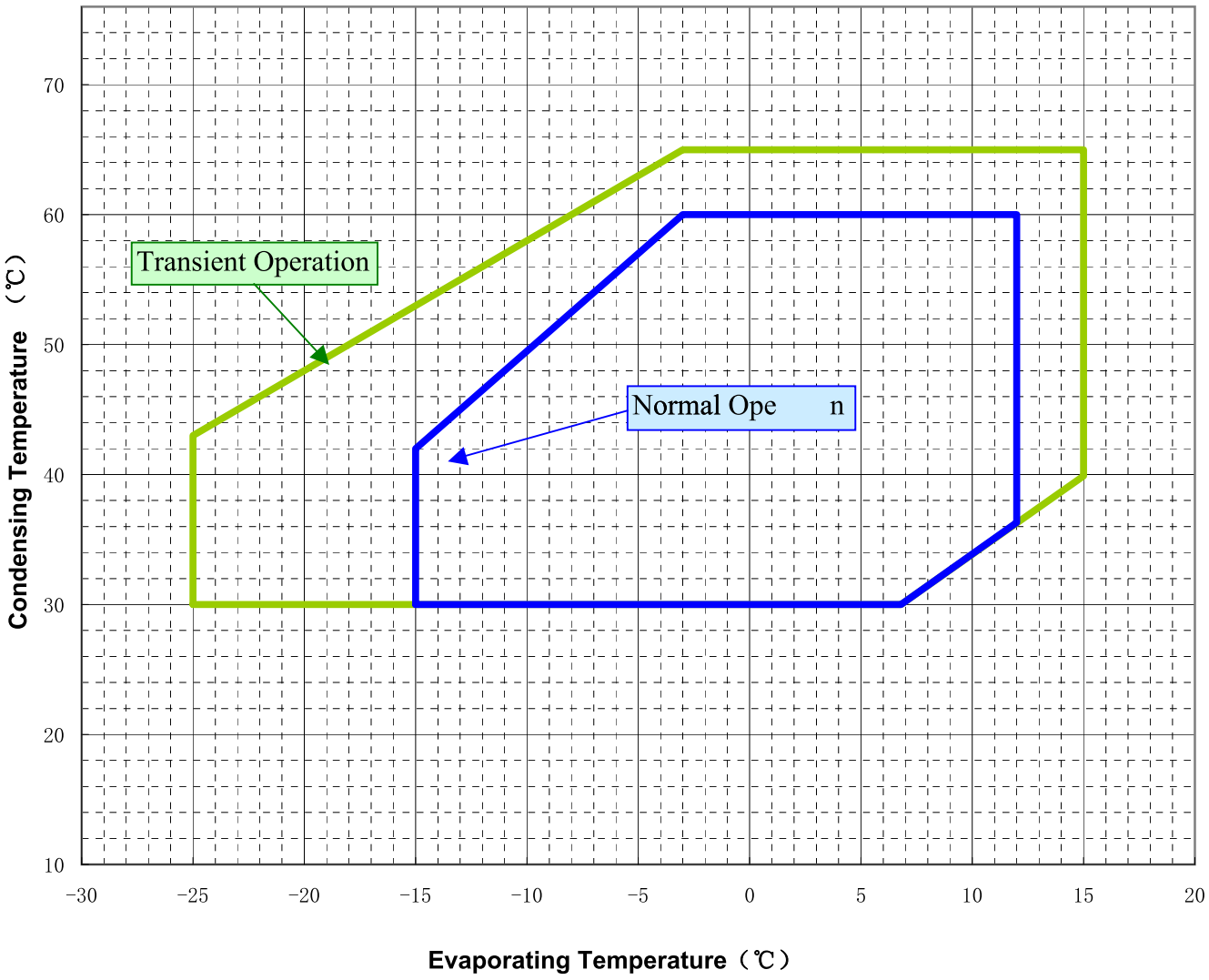
380V-50Hz	CAPACITY (W)	POWER (W)	CURRENT (A)
C1	6.025574E+04	5.368588E+03	9.059758E+00
C2	2.451302E+03	1.372821E+01	2.449943E-02
C3	-8.283006E+02	-3.385155E+01	-1.759710E-02
C4	4.256880E+01	-2.996130E+00	-7.324320E-03
C5	-3.466004E+01	-2.783444E-01	-2.297702E-04
C6	3.701802E+00	2.590459E+00	3.592793E-03
C7	3.175990E-01	4.044492E-03	1.061394E-05
C8	-3.899505E-01	5.141902E-02	1.377047E-04
C9	1.615954E-01	5.854275E-03	2.941146E-06
C10	-2.701611E-08	-3.076689E-08	-5.415134E-11

Note:The polynomial coefficients subject to change without notice.

Panasonic Appliances Compressor (Dalian) Co.,Ltd.

Section 4. Operating Envelope

Suction Gas
Superheat :9K
Refrigerant : R407C



Section 5. Application Standard & Limit

The following requirements apply to vertical type hermetic scroll compressors:

Standard: Applicable to ordinary conditions in Japan JIS B8616 or standards relative to JIS B8616, such as standard rating conditions, maximum operating conditions, low temperature conditions, etc.

Limit: Applicable to transitional brief period of time, such as start-up and beginning of defrost mode.

No.	Item	Standard	Limit	Remark
1	Refrigerant	R407C(Refrigerant must meet a criterion)		
2 2	Average Evap. Temp.	-15~12℃(5～54 ° F) 0.20~0.65MPa(G)(29～94psig)	-25~15℃(-13～59 ° F) 0.07~0.73MPa(G)(10～106psig)	Average temp. of evaperator Inlet and outlet.
3	Average Cond.Temp.	30~60℃(86～140 ° F) 1.17~2.56MPa(G)(170～371psig)	65℃(149 ° F) 2.88MPa(G)(418psig)	Average temp. of condensor Inlet and outlet.
4	Compression Ratio	2 ~ 6	10	
5	Winding Temp.	115℃(240 °F) Max.	125℃(257 °F)	
6	Shell Bottom Temp.	90℃(194 °F) Max.		
		Evaporating Temp.+12℃(21 °F) Min.		Operating
		Ambient Temp.+11℃(20 °F) Min.		Not Operating
7	Discharge Gas Temp.	115℃(240 °F) Max.	C-SB:130℃(266°F) Max.	Temp. within 10cm of the discharge fitting.
			C-SC:135℃(275°F) Max.	Temp. inside of the copper pipe on the top of compressor
8	Suction Gas Temp.	Superheat: 5K(10 °F)Min.	No excessive noise.	It should meet the requirement of item 5, 6, 7 and 14 within 30cm of the suction fitting.
9	Running Voltage	Within ±10% of the rated voltage		Voltage at compressor terminals.
10	Starting Voltage	Three Phase Models: 85% of the rated voltage min.		Voltage at compressor terminals.
		Single Phase Models: 90% of the rated voltage min.		
11	On/Off Cycling	On Period: Until the oil level returns to the center of the lower bearing Off Period: Until balance of high and low pressure is obtained		For at least 7 minutes - on/3 minutes-off is recommended.
12	Refrigerant Charge	Oil/Refrigerant(wt.)≥0.35.		Specific gravity of the Oil:0.94.
13	Life Time	200,000 cycle		
14	Minimum Oil Level	C-SB:Center of the lower bearing	C-SB:Bottom of the lower bearing	
		C-SC:No less than 70% of the initial oil charge		
15	Abnormal Pressure Rise/Drop	Pressure Rise: 3.20MPa(G) (464psig) Max.		By high pressure switch
		Pressure Drop: 0.05MPa(G) (7.3psig) Min.		By low pressure switch
16	System Moisture Level	200ppm Max.		
17	System Uncondensable Gas Level	1 Vol.% Max. Residual Oxygen 0.1 Vol.% Max.		24 hrs. after vacuuming: 1.01kPa Max.
18	Tilt	5Deg.Max.		

(G): Gauge Pressure

Notes

1 Installation should be completed within 15 minutes after removing the rubber plugs.

2 Do not use the compressor to compress air.

3 Do not energize the compressor under vacuumed conditon.

4 Evacuation and Refrigerant charge ： Evacuate internal section in the refrigeration system from high and low pressure sides and charge liquid refrigerant from condenser outlet side. Additional charge shall be done with gas condition from low side.

5 Do not tilt over the compressor while carrying it.

6 Do not remove the paint.

7 Crankcase heater is required when the oil sump temperature is too low to meet the requirement of item 6 on page7.

8 Voltage fluctuation between compressor terminals, during operation, shall be within 2% of the rated voltage.

9 Do not operate compressor in reverse rotational direction.

10 Suction strainers are recommended for all applications.

11 Copper Piping Stress	Start/Shutdown	34.32 N/mm^2 Max.
	Run	12.26 N/mm^2 Max.

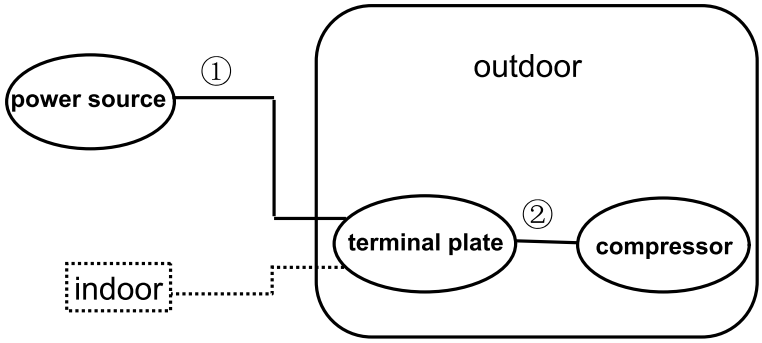
Section 6. Selection of Electrical Wire

Voltage drop may occur due to the large current draw during compressor starting.

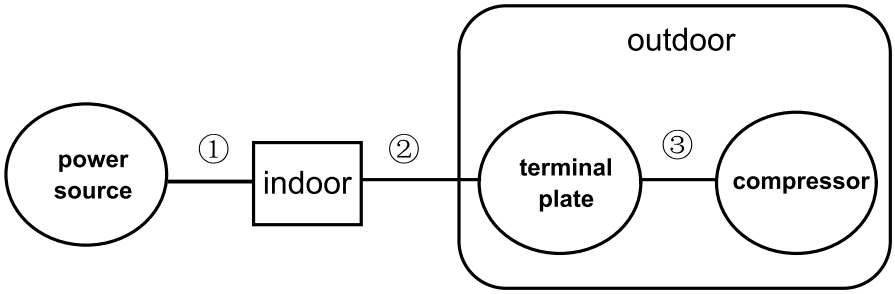
We recommend selecting the wire size from the table below.

6.1 Type of Unit

6.1.1 Window & Commercial Type Unit



6.1.2 Split Type(Separate Type)



6.2 Size Table of Electrical Wire

Starting current (A)	Size of electrical wire (mm^2)						
	Remark ① or Remark ①+② (heat-resistance Temperature: 60°C(140°F) min.)						Remark③ (heat-resistance Temperature: 120°C(248°F) min.)
	5m max.	10m max.	15m max.	20m max.	30m max.	50m max.	1m max.
20max.	2.0	2.0	2.0	3.5	5.5	8.0	2.0
30max.	↑	↑	3.5	5.5	↑	14.0	↑
40max.	↑	3.5	5.5	↑	8.0	↑	↑
50max.	↑	↑		8.0	14.0	22.0	↑
60max.	↑	5.5	↑	↑			↑
70max.	3.5	↑	8.0	14.0	↑	↑	3.5
80max.	↑	↑			22.0	30.0	↑
90max.	↑	↑	14.0	↑	↑		↑
100max.	↑	8.0	↑	↑		38.0	↑
110max.	↑	↑					↑
120max.	5.5	↑	↑	22.0	30.0	↑	↑
140max.	↑	14.0	↑	↑		50.0	5.5
160max.	↑	↑	22.0	↑	↑		↑
180max.	↑	↑			38.0	60.0	8.0
200max.	8.0	↑	↑	30.0	↑	↑	↑
220max.	↑	↑			50.0	80.0	↑
240max.	↑	↑					14.0

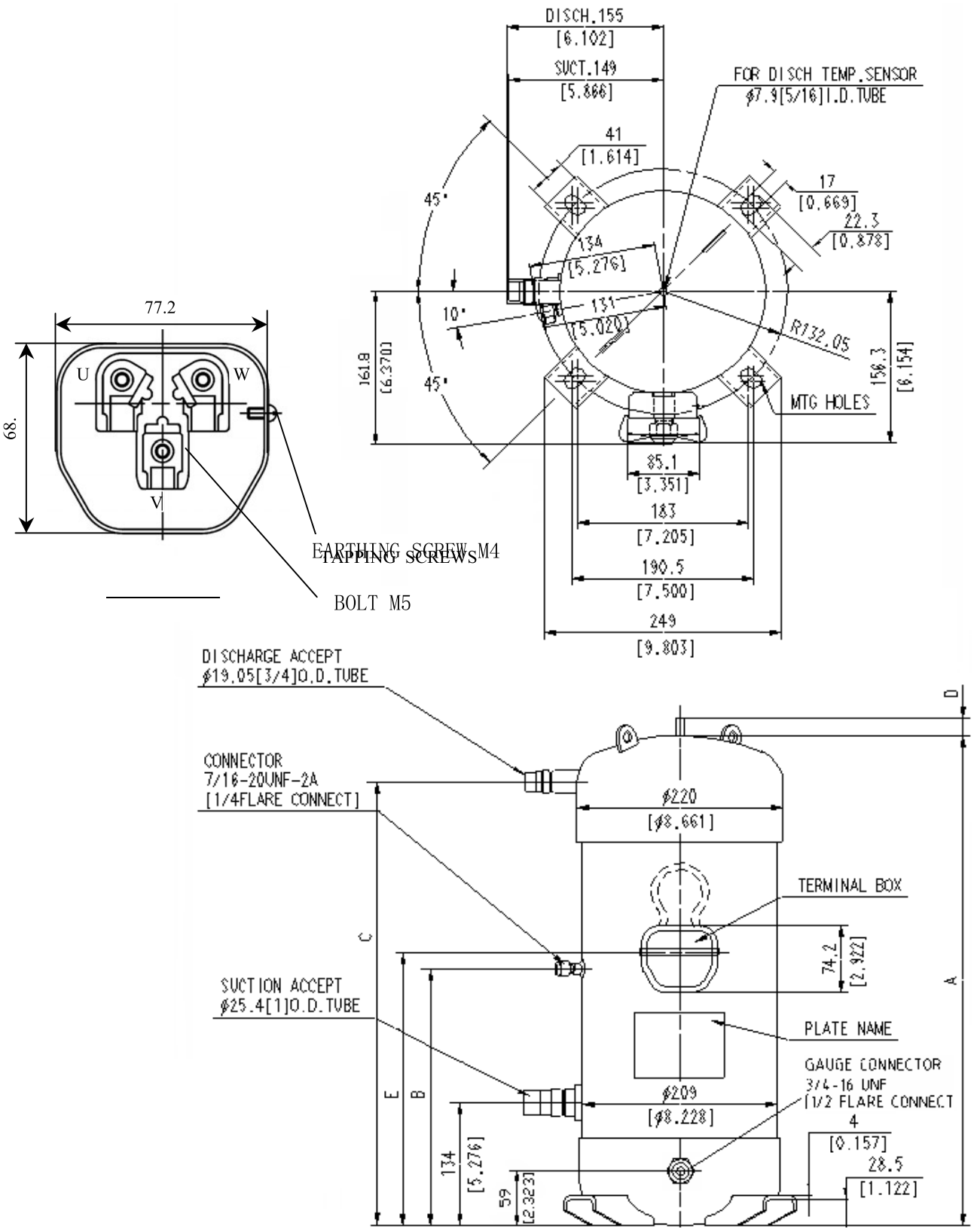
The internal motor protector does not protect the compressor against all possible conditions.

Please be sure that the system utilizes the ground connection when installed in the field.

Section 7. Drawings

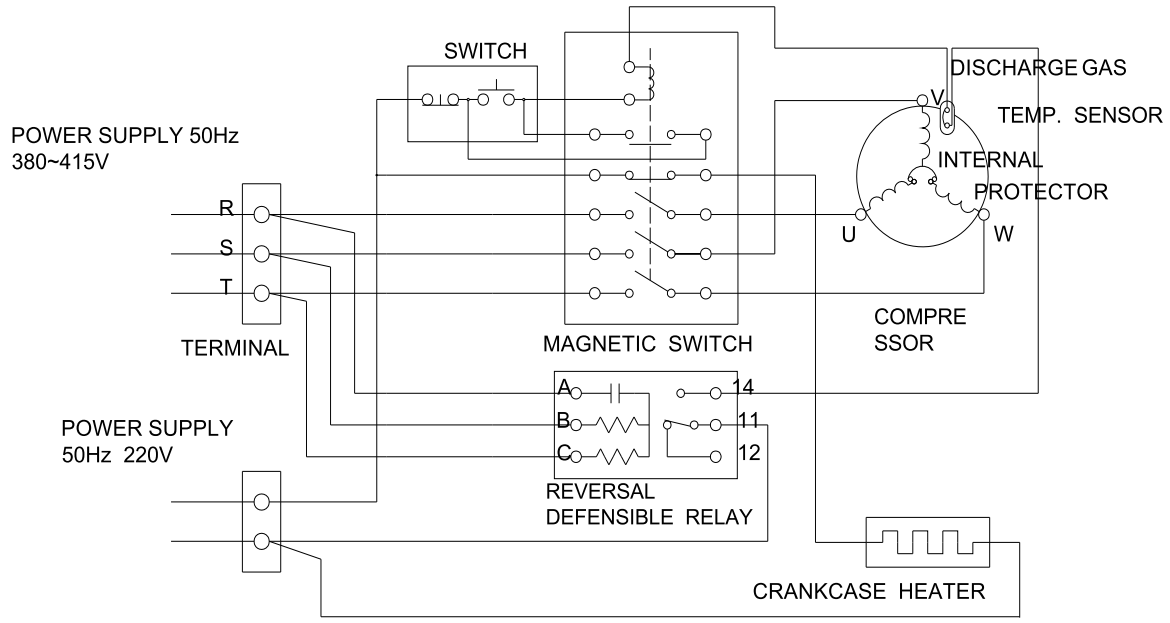
7.1. Dimensional Sketch

C-SC Series



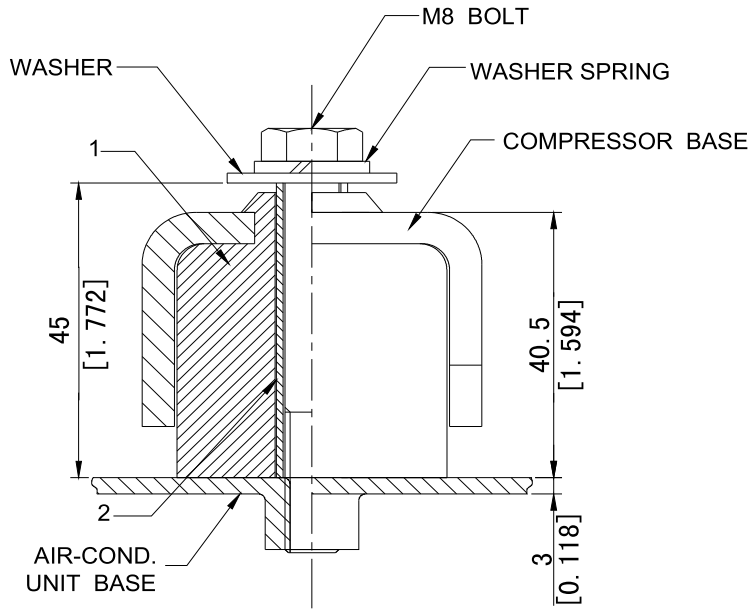
Compressor Code	A	B	C	D
809 *8* 8*（8HP）	538	284	486	8
809 *9* 8*（9HP）				
809 *0* 8*(10HP)	553	299	501	9
809 *2* 8*(12HP)				

7.2. Wiring & mounting sketch

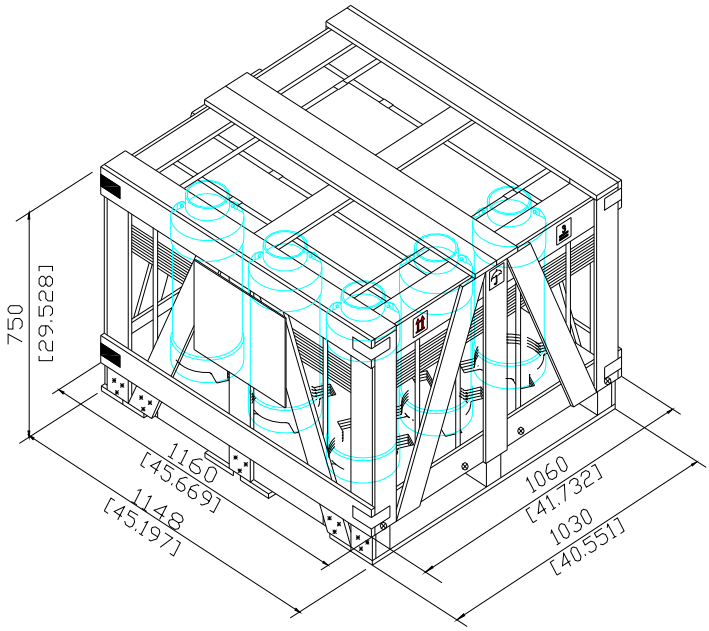


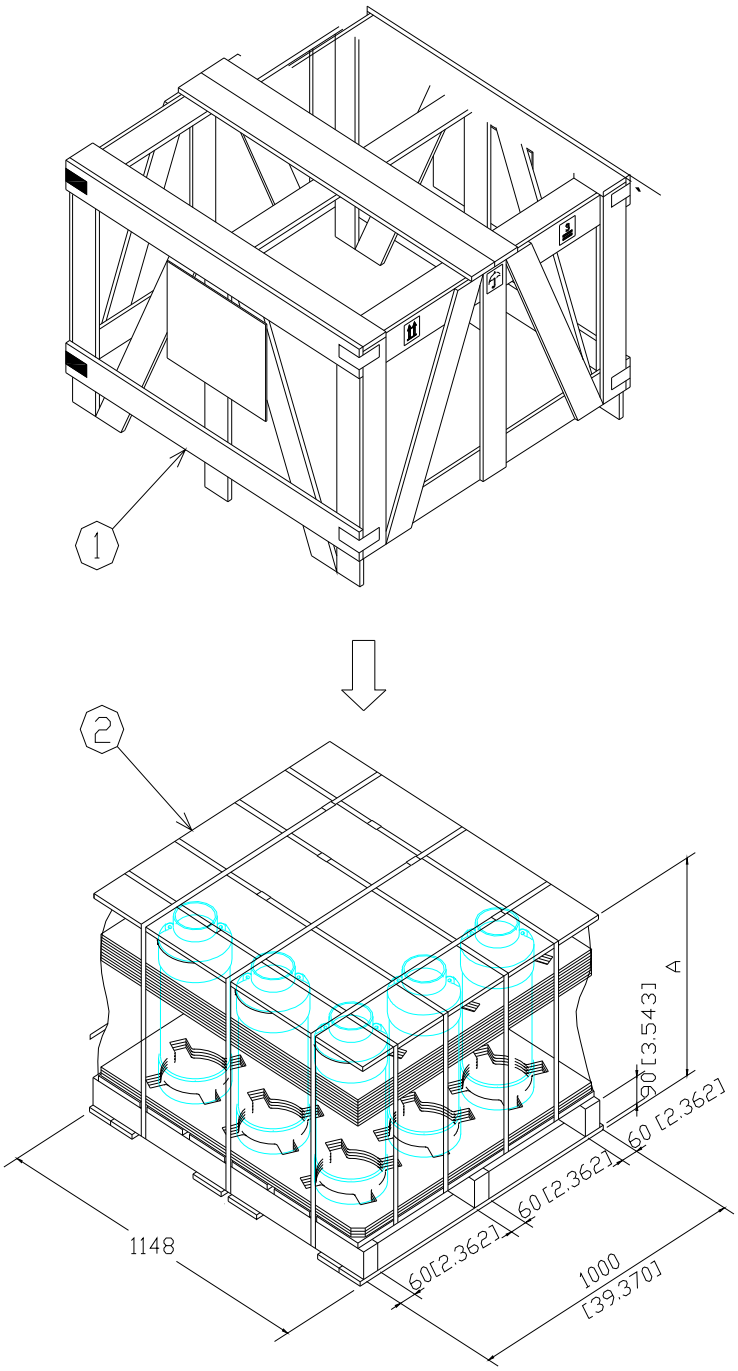
Part Code
E-0910-DSC Name
Wiring Diagram

MOUNTING SKETCH



7.2. Packing dimensios





Compressor Code	A
80928*8*	682 [26.850]
80918*8*	
80929*8*	
80920*8*	697 [27.441]
80910*8*	
80922*8*	
80912*8*	