Panasonic

No. : C-SCP315H38B-00-GGS-0

APPROVAL SHEET

SPECIFICATIONS OF HERMETIC SCROLL COMPRESSOR

MODEL	C-SCP315H38B

NO.	DATE	PAGE	REVISION DETAILS	PAPCDL SIGNED	CLIENT SIGNED
△					
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REVISION RECORD

USER:

MANUFACTURER:
Panasonic Appliances Compressor (Dalian) Co., Ltd.

LEADER	PURCHASING MANAGER	TECHNICAL MANAGER	APPROVED	CHECKED	SUBMITTED

Model: C-SCP315H38B

File No: C-SCP315H38B-00-GGS-0

Section 1. General Specifications

Content		Unit	Specification
Compressor Model		—	C-SCP315H38B
Type		—	Hermetic Scroll Compressor
Application		—	High Back Pressure
Evap. Temp. Range		°C (°F)	-15~12 (5~54)
Compressor Cooling Type		—	Natural Cooling
Power Source	Phase	—	3
	Rated Voltage	V	380-415/440
	Rated Frequency	Hz	50/60
Voltage Range		V	342~456/396~484
Weight (Including Oil)		kg (lb)	66.5(146.6)
Refrigerant		—	R410A
Oil Type		—	FV68S or Equivalent
Oil Charge		ml (fl oz)	2800 (94.7)
Displacement		cm^3 (in^3) /rev	104.1(6.35)
Motor	Motor Type	—	3-PH Induction Motor
	Number of Poles	—	2
	Electrical Insulation	Class	E
	Nominal Revolution	min^{-1}	—
	Locked Rotor Ampere	A	106/111
	Winding Resistance [at 25°C (77°F)]	Ω	U-V 1.308
			U-W 1.373
			V-W 1.351
Connection Tube	Suction Line (O.D.)	mm (in)	25.4 (1.000)
	Discharge Line (O.D.)	mm (in)	19.05 (0.750)
Compressor Surface Paint		—	Black Paint

Notes

1 Voltage range is applied at standard rating conditions.

2 Motor specifications in the table are the average values for your reference.

3 ( ): All units with parentheses are reference values.

Expiration of Specification

Expiration of this specification shall be effected until issuing a notice with indication of the expiration date from the issued date . In case of improvement or elimination of this specification , it shall be handled by the revision record based on agreement between both sides.

Model: C-SCP315H38B

File No: C-SCP315H38B-00-GGS-0

Section 2. Performance Warranty

2.1 Performance

Power Source (3PH)	Hz	50	60	Remark
	V	380	440	
Capacity	W	26,000	31,400	±5%
	(BTU/hr)	88,712	107,137	reference
Input Power	W	8,600	10,400	±5%
Current	A	14.9	15.3	±5%

Standard Rating Conditions

Condensing Temp.	°C (°F)	54.4(130)
Evaporating Temp.	°C (°F)	7.2(45)
Suction Gas Temp.	°C (°F)	18.3(65)
Liquid Temp.	°C (°F)	46.1(111)
Ambient Temp.	°C (°F)	35.0(95)

2.2 Sound Level

Power Source (3PH)	Hz	50	60
	V	380	440
Sound Level	dB(A)	72Max.	74Max.

Notes

1 The operating conditions are the same as 2.1.

2 MIC location is the distance of 1m (3.28feet) from the compressor.

3 Sound Level is an average sound pressure level in four directions.

2.3 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	3.25(471)
Low Pressure	MPa(G)/psig	0.9(130.5)

2.4 Others

Content		Unit	Specification
Design Pressure	L.P. S.	MPa(G)/psig	2.21(320)
	H. P. S.	MPa(G)/psig	4.15(602)
Insulation Resistance		MΩ	100 (without refrigerant)
Dielectric Strength		V	1900 (1 minute)
Residual Moisture		mg	400

Note:

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

Section 3. Standard Accessories

3.1 Accessories List

Parts Name	Qty	Parts code	Revision No.	Note
Terminal Box Cover	1	A-0101-DSB	0	Installed on Compressor
Terminal Box Clip	1	A-0201-DSB	0	Installed on Compressor
Eyelet Rub Lead Wire	1	A-0301-DSB	0	Installed on Compressor
Mounting Grommet	4	M-0101-DSC	0	Included with Compressor
Mounting Sleeve	4	M-0202-DSC	1	Included with Compressor

3.2 The Drawing for Reference

Parts Name	Parts Code	Revision No.
Compressor Outline Drawing	D-0104-DSC	0
Mounting Parts Listing	M-5102-DSC	0
Packing Dimensions	D-0201-DSC	0
Wiring Diagram	E-0910-DSC	0

3. 3 Inernal Motor Protector (in compressor)

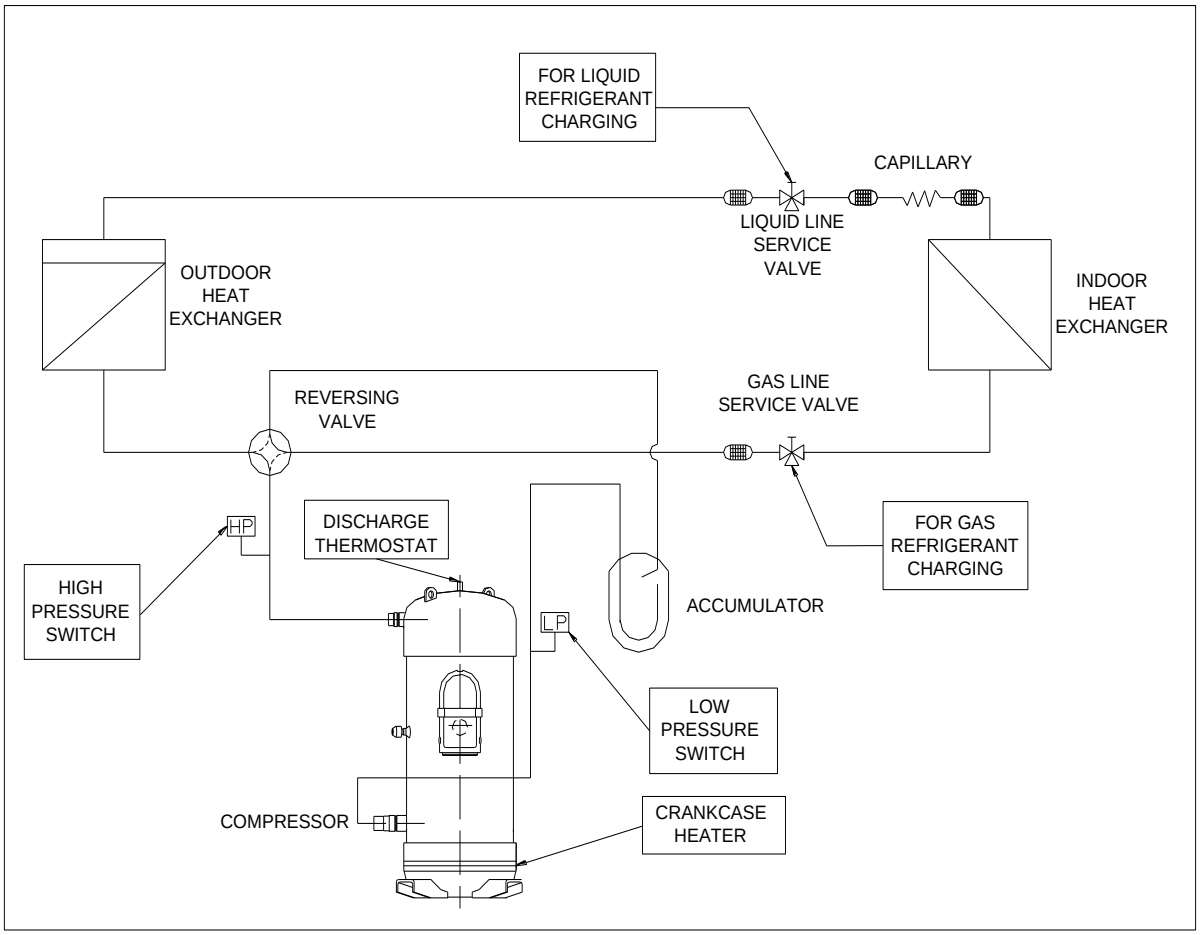
Parts Name	Specification	
Inernal Motor Protector	Trip Temprature	170±5℃
	Reset Temprature	70±10℃
	Trip Current	66A / 3~10s

Section 4. Compressor Protection

4.1 Protection Required but not Included with compressor

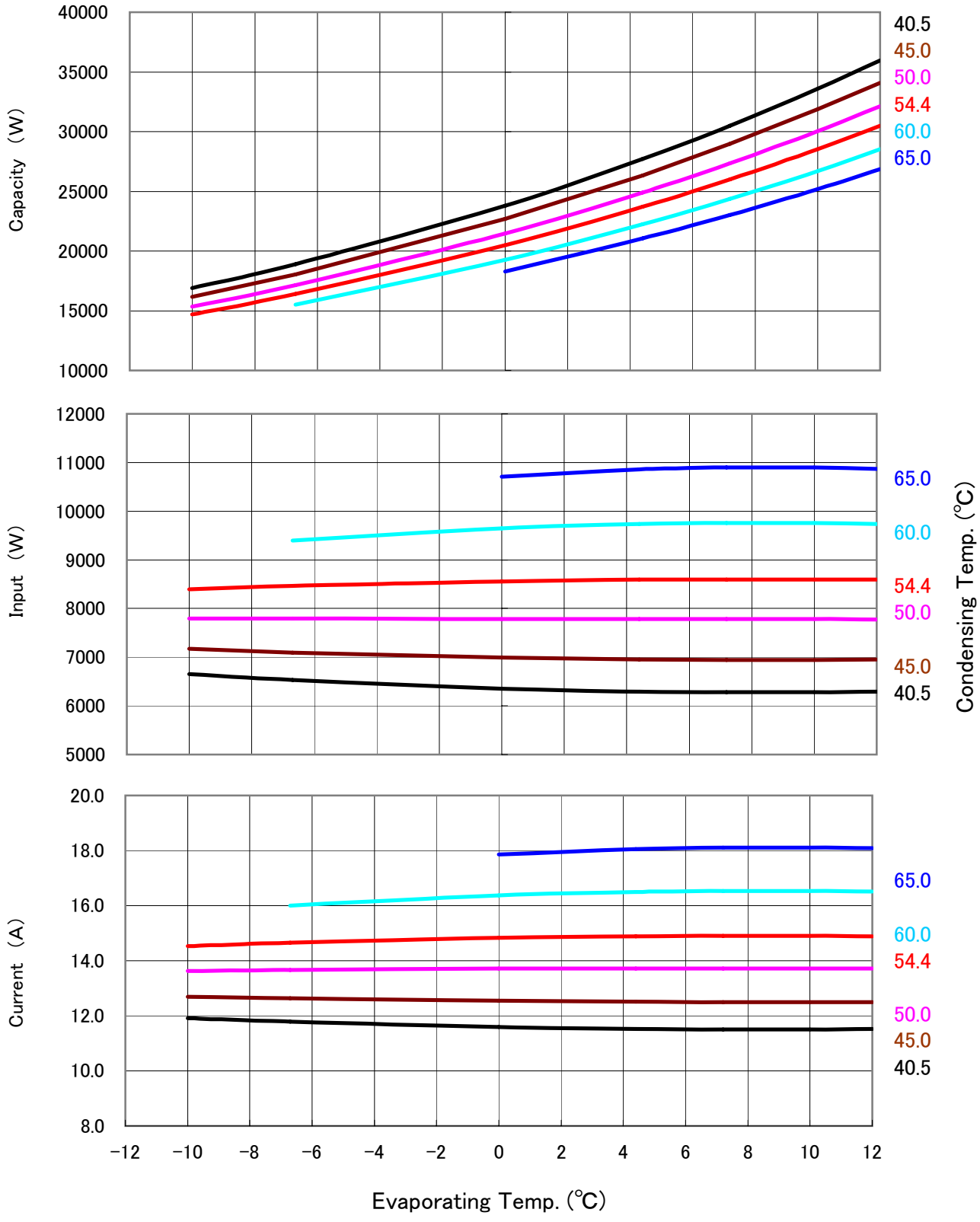
Protection Device	Items	Specifications
Reversal Defensible Relay	Features	To protect the compressor from reverse rotation
	Rated Voltage	AC380V
Crankcase Heater	Rated Power	88 Watts
Discharge Thermostat	Mounting Position	Located in the well pipe of top shell
	Trip Temperature	135±5℃(275 ±10 °F)
	Reset Temperature	86±15℃ (187 ± 27 °F)
High Pressure Switch	Setting	Cut-out seting no higher than 4.15MPa(G)
Low Pressure Switch	Setting	Cut-out seting no lower than 0.15MPa(G)

4.2 Position of the Protection and Refrigerant Charging



Section 5. Performance Data

Code No.	C-SCP315H38A
Power Source	3-PH 50Hz 380V
Condensing Temp.(℃)	40.5, 45, 50, 54.4, 60, 65
Suction Gas Superheat(K)	11.1
Sub Cooled(K)	8.3
Compressor Cooling	Natural Cooling
Refrigerant	R410A



Code No.	C-SCP315H38A
Power Source	3-PH 50Hz 380V
Condensing Temp.(℃)	40.5, 45, 50, 54.4, 60, 65
Suction Gas Superheat(K)	11.1
Sub Cooled(K)	8.3
Compressor Cooling	Natural Cooling
Refrigerant	R410A

Capacity （W）

Condensing Temp.(℃) \ Evaporating Temp.(℃)	-10	-6.7	0	4.4	7.2	10	12
40.5	16,878	18,907	23,808	27,699	30,500	33,584	35,976
45.0	16,144	18,061	22,679	26,338	28,967	31,859	34,100
50.0	15,364	17,161	21,484	24,899	27,350	30,042	32,125
54.4	14,707	16,406	20,483	23,697	26,000	28,527	30,481
60.0		15,494	19,278	22,253	24,381	26,712	28,513
65.0			18,269	21,045	23,028	25,198	26,872

Input （W）

Condensing Temp.(℃) \ Evaporating Temp.(℃)	-10	-6.7	0	4.4	7.2	10	12
40.5	6,656	6,532	6,356	6,295	6,279	6,280	6,292
45.0	7,170	7,097	6,993	6,956	6,945	6,945	6,951
50.0	7,796	7,793	7,786	7,783	7,781	7,779	7,778
54.4	8,395	8,463	8,560	8,592	8,600	8,598	8,590
60.0		9,395	9,645	9,732	9,755	9,754	9,738
65.0			10,711	10,854	10,894	10,894	10,869

Current （A）

Condensing Temp.(℃) \ Evaporating Temp.(℃)	-10	-6.7	0	4.4	7.2	10	12
40.5	11.91	11.78	11.59	11.52	11.50	11.50	11.52
45.0	12.70	12.63	12.54	12.51	12.50	12.50	12.50
50.0	13.64	13.67	13.71	13.72	13.72	13.72	13.72
54.4	14.52	14.65	14.82	14.88	14.90	14.90	14.88
60.0		15.99	16.37	16.50	16.53	16.53	16.51
65.0			17.86	18.06	18.11	18.11	18.08

Coefficients of Polynominal Formula

	Capacity （W）	Input （W）	Current （A）
C1	3.735621E+04	4.167729E+03	7.212811E+00
C2	1.226742E+03	-1.102378E+02	-1.430702E-01
C3	-4.021217E+02	-2.325106E+01	1.555649E-02
C4	2.113153E+01	6.233160E+00	8.099607E-03
C5	-1.005607E+01	2.244689E+00	3.003962E-03
C6	1.681204E+00	1.909445E+00	2.283856E-03
C7	1.265966E-01	-1.311006E-02	-1.197110E-05
C8	-1.728815E-01	-1.240986E-01	-1.677022E-04
C9	3.146374E-07	-1.289246E-06	-1.259029E-09
C10	-3.920115E-06	-1.725538E-06	-1.924604E-09

Note:The polynomial coefficients subject to change without notice.

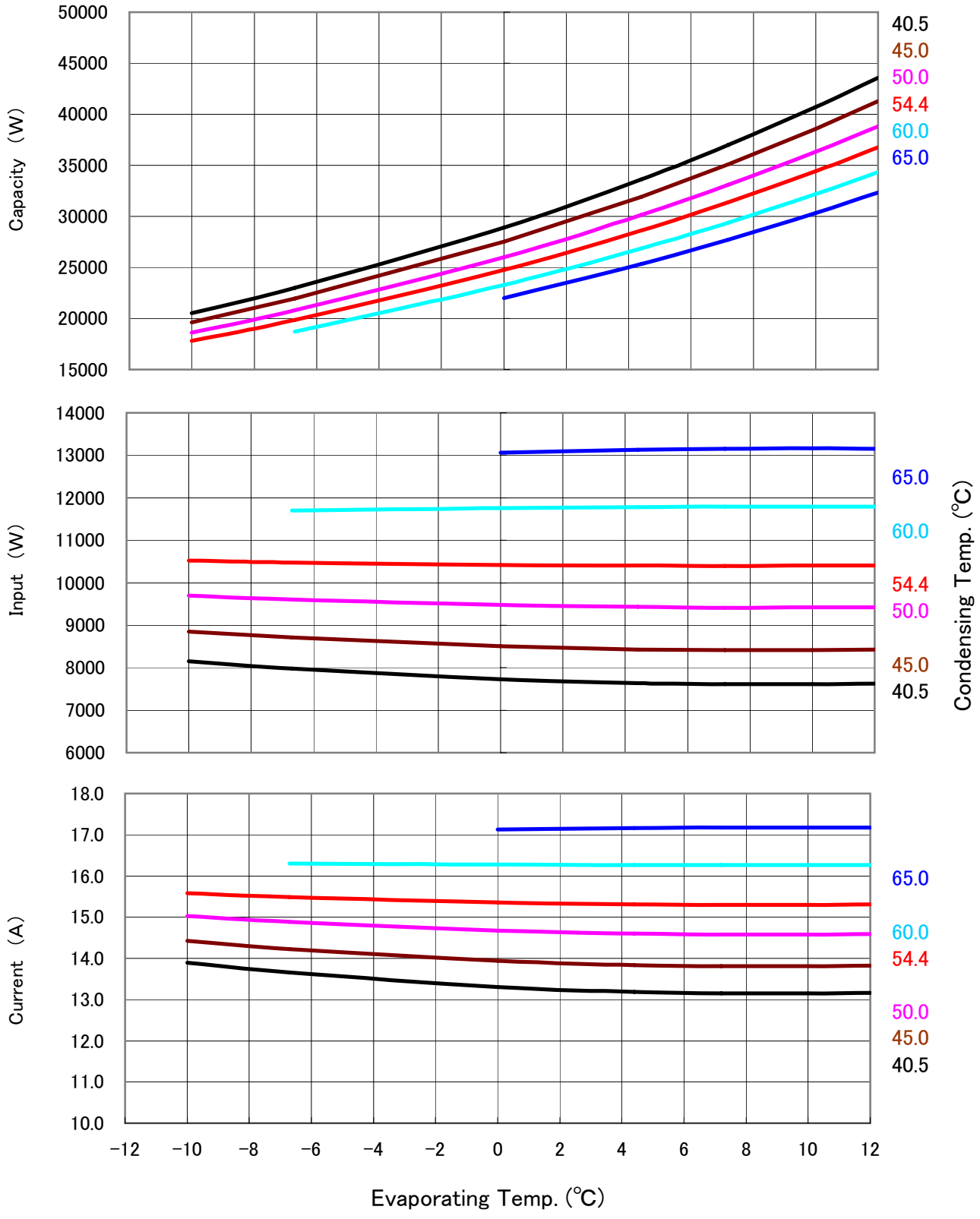
$X=C1+C2*(S)+C3*D+C4*(S^2)+C5*(S*D)+C6*(D^2)+C7*(S^3)+C8*(D*S^2)+C9*(S*D^2)+C10*(D^3)$

X——CAPACITY(W) OR POWER(W) OR CURRENT(A)

S——EVAPORATING TEMP, °C

D——CONDENSING TEMP, °C

Code No.	C-SCP315H38A
Power Source	3-PH 60Hz 440V
Condensing Temp.(℃)	40.5, 45, 50, 54.4, 60, 65
Suction Gas Superheat(K)	11.1
Sub Cooled(K)	8.3
Compressor Cooling	Natural Cooling
Refrigerant	R410A



Code No.	C-SCP315H38A
Power Source	3-PH 60Hz 440V
Condensing Temp.(℃)	40.5, 45, 50, 54.4, 60, 65
Suction Gas Superheat(K)	11.1
Sub Cooled(K)	8.3
Compressor Cooling	Natural Cooling
Refrigerant	R410A

Capacity （W）

Condensing Temp.(℃) \ Evaporating Temp.(℃)	-10	-6.7	0	4.4	7.2	10	12
40.5	20,546	22,999	28,920	33,615	36,992	40,709	43,590
45.0	19,623	21,937	27,510	31,919	35,086	38,567	41,263
50.0	18,643	20,811	26,018	30,128	33,076	36,311	38,815
54.4	17,820	19,866	24,771	28,634	31,400	34,433	36,778
60.0		18,728	23,273	26,842	29,393	32,186	34,342
65.0			22,019	25,345	27,718	30,313	32,315

Input （W）

Condensing Temp.(℃) \ Evaporating Temp.(℃)	-10	-6.7	0	4.4	7.2	10	12
40.5	8,157	7,979	7,725	7,636	7,611	7,611	7,627
45.0	8,851	8,708	8,503	8,432	8,412	8,412	8,424
50.0	9,701	9,608	9,475	9,429	9,416	9,416	9,425
54.4	10,519	10,479	10,423	10,404	10,400	10,402	10,406
60.0		11,694	11,755	11,779	11,788	11,792	11,791
65.0			13,063	13,132	13,155	13,162	13,156

Current （A）

Condensing Temp.(℃) \ Evaporating Temp.(℃)	-10	-6.7	0	4.4	7.2	10	12
40.5	13.90	13.65	13.30	13.18	13.15	13.14	13.16
45.0	14.42	14.22	13.94	13.83	13.81	13.81	13.82
50.0	15.03	14.88	14.68	14.60	14.58	14.58	14.59
54.4	15.59	15.49	15.36	15.31	15.30	15.30	15.31
60.0		16.30	16.27	16.26	16.26	16.27	16.27
65.0			17.13	17.16	17.17	17.18	17.18

Coefficients of Polynominal Formula

	Capacity （W）	Input （W）	Current （A）
C1	4.590093E+04	5.032435E+03	9.203960E+00
C2	1.490293E+03	-9.563903E+01	-1.080205E-01
C3	-5.050526E+02	-2.798741E+01	6.702326E-02
C4	2.544146E+01	5.115448E+00	5.842729E-03
C5	-1.237031E+01	1.676186E+00	1.740244E-03
C6	2.132908E+00	2.334091E+00	8.459142E-04
C7	1.498678E-01	-1.125351E-02	-8.710858E-06
C8	-2.097371E-01	-8.528698E-02	-9.025220E-05
C9	3.069633E-08	-2.685929E-07	3.681537E-10
C10	-4.854818E-06	-1.418622E-06	-6.753649E-10

Note:The polynomial coefficients subject to change without notice.

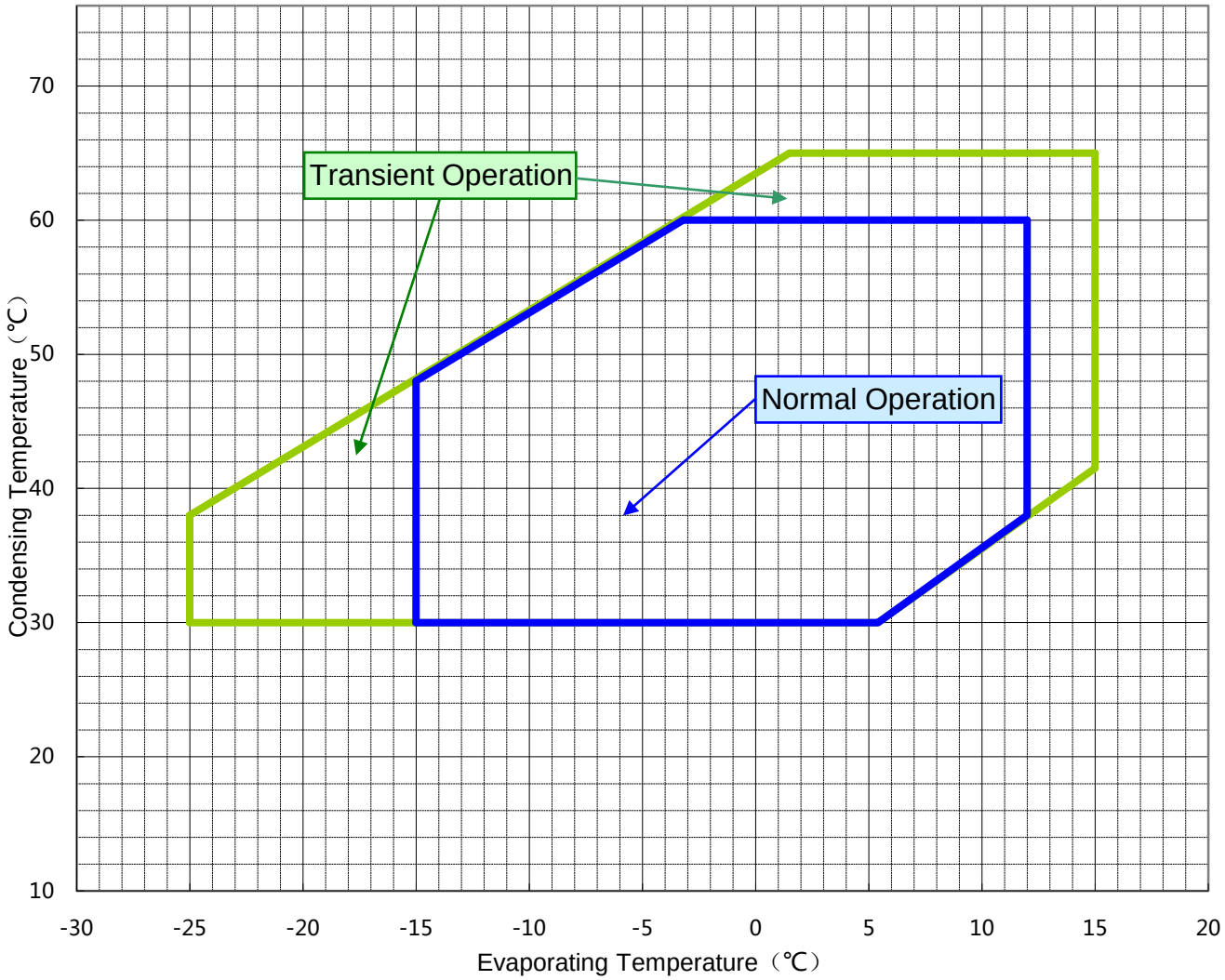
$X=C1+C2*(S)+C3*D+C4*(S^2)+C5*(S*D)+C6*(D^2)+C7*(S^3)+C8*(D*S^2)+C9*(S*D^2)+C10*(D^3)$

X——CAPACITY(W) OR POWER(W) OR CURRENT(A)

S——EVAPORATING TEMP, °C

D——CONDENSING TEMP, °C

Suction Gas Superhea : 11.1K.
Refrigerant : R410A.



Section 6. 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	Note
1	Refrigerant	R410A		
2	Evaporating Temp.	-15~12℃(5～54 ° F) 0.38~1.06MPa(G)(55～154psig)	-25~15℃(-13～59 ° F) 0.23~1.16MPa(G)(33～168psig)	
3	Condensing Temp.	30~60℃(86～140 ° F) 1.80~3.75MPa(G)(261～544psig)	65℃(149 ° F) 4.18MPa(G)(606psig)	
4	Compression Ratio	2 ~ 6	8	
5	Winding Temp.	115℃(240 °F) Max.	125℃(257 °F)	
6	Shell Bottom Temp.	90℃(194 °F) Max.		
		Evaporating Temp.+12℃(21 °F) Min.		
		Ambient Temp.+11℃(20 °F) Min.		
7	Discharge Gas Temp.	115℃(240 °F) Max.	C-SB:130℃(266°F) Max.	
			C-SC:135℃(275°F) Max.	
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 recommendable.
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: 4.15MPa(G) (602psig) Max.		By high pressure switch
		Pressure Drop: 0.15MPa(G) (22psig) 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	5° Deg.Max.		

Operation beyond the above limits must be approved by Panasonic Appliances Compressor (Dalian) Co., Ltd.

(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.

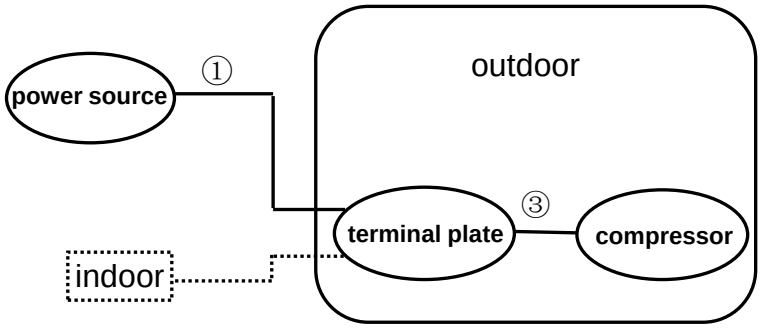
Section 7. Selection of Electrical Wire

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

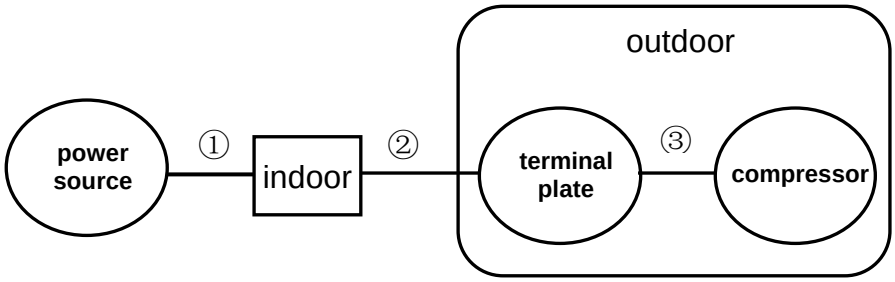
We recommend selecting the wire size from the table below.

7.1 Type of Unit

7.1.1 Window & Commercial Type Unit



7.1.2 Split Type(Separate Type)



7.2 Size Table of Electrical Wire

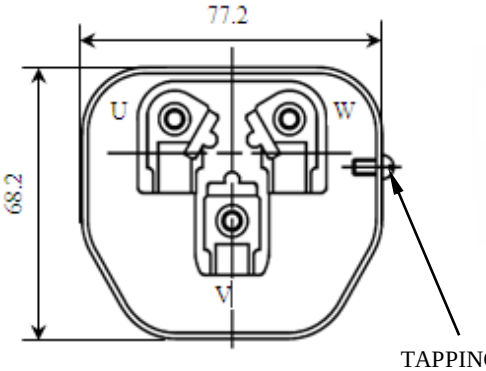
Starting current (A)	Size of electrical wire (mm^2)						
	Remark ① or Remark ①+② (heat-resistance Temperature: 60°C(140°F) min.)						Remark③ (heat-resistance Temperature: 120°C(248°F) min.)
	5m max.	10m max.	15m max.	20m max.	30m max.	50m max.	1m max.
20max.	2.0	2.0	2.0	3.5	5.5	8.0	2.0
30max.	↑	↑	3.5	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

7.3 Caution of Ground

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

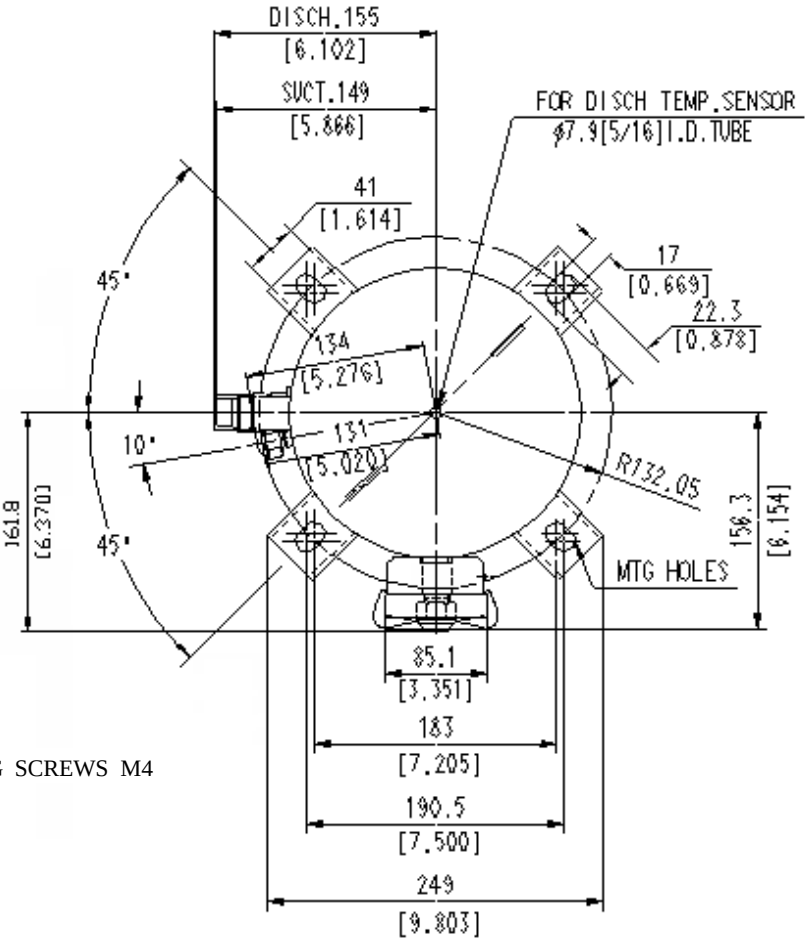
Please be sure that the system utilizes the ground connection when installed in the field.

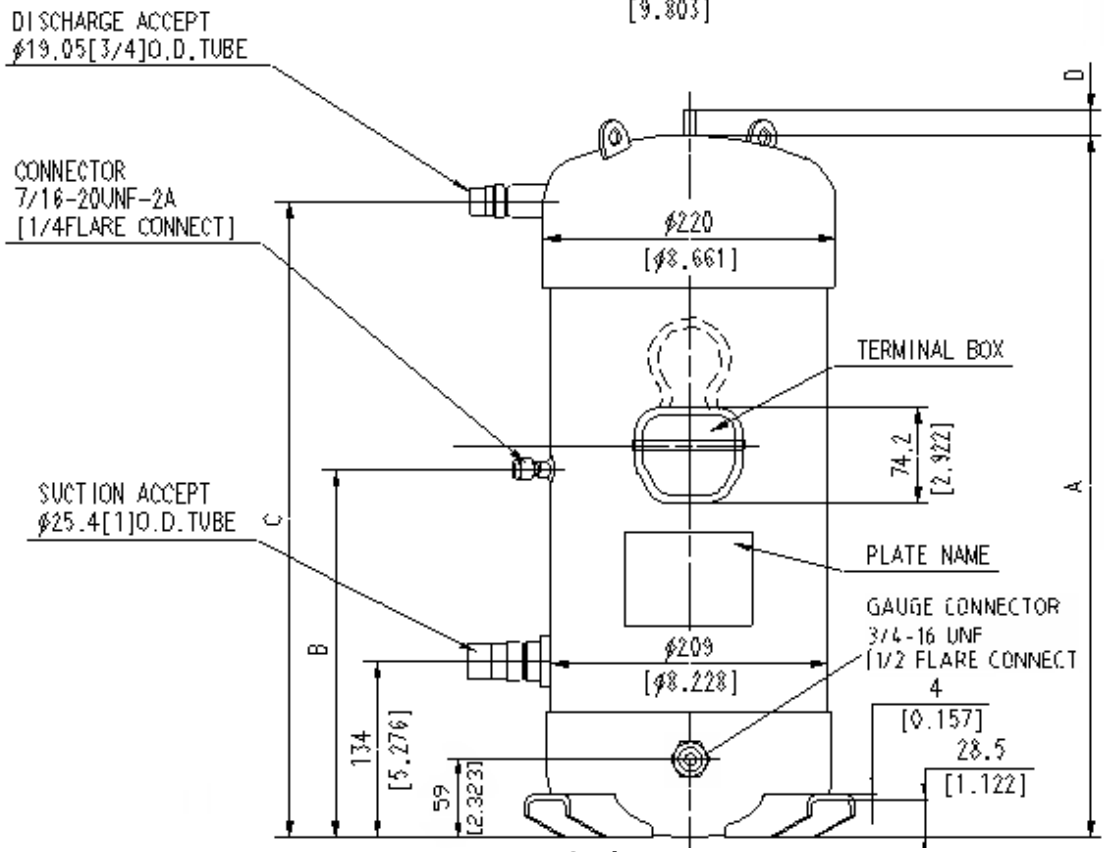
COMPRESSOR CODE	A	B	C	D
80928*8* 80918*8* 80929*8*	538 [21.181]	284 [11.181]	486 [19.134]	(7.9) [0.311]
80920*8* P315H38B	553 [21.772]	299 [11.772]	501 [19.724]	(9) [0.354]
80922*8* 80912*8*				(8.7) [0.342]



TAPPING SCREWS M4

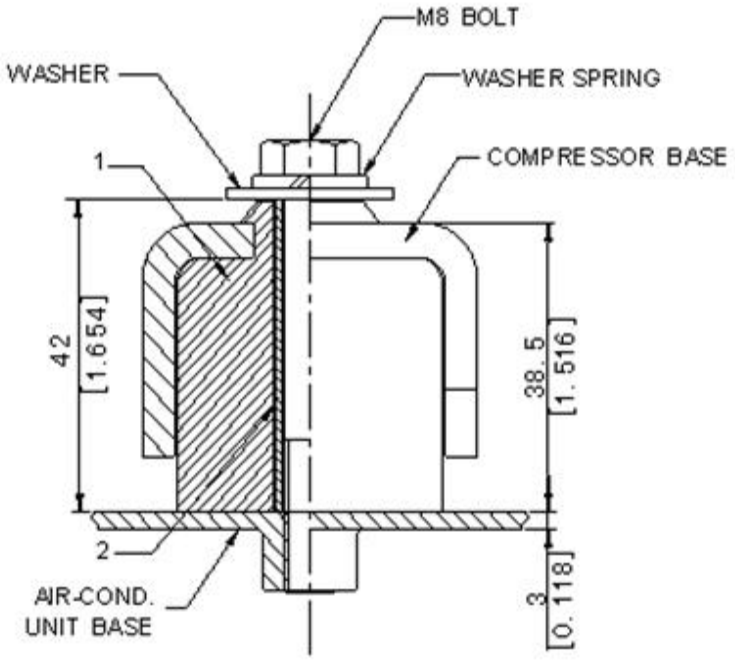
TERMINA

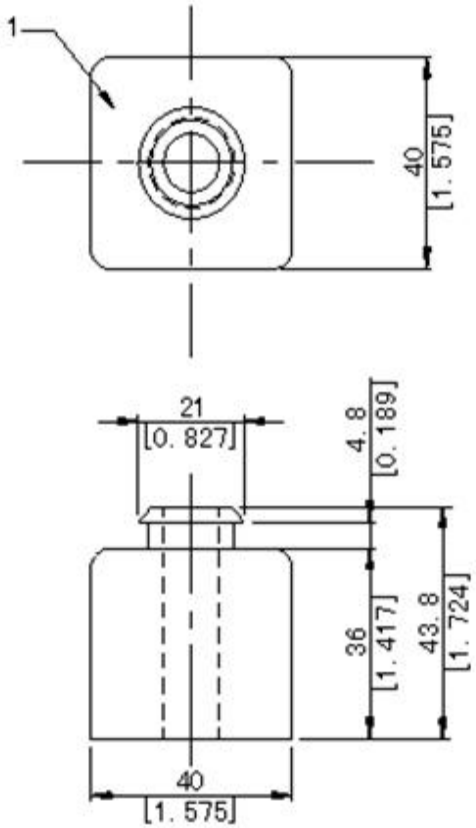


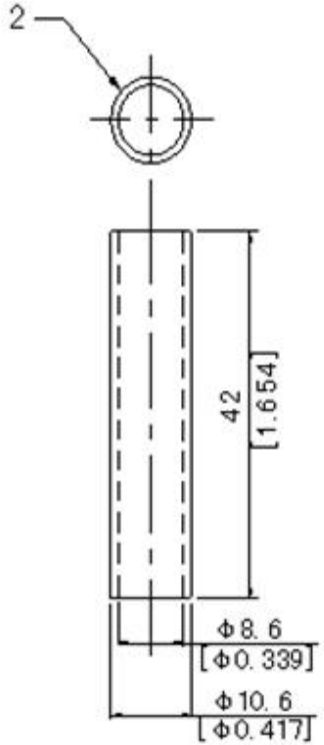


Part Code
D-0104-DSC
Name
Compressor Outline Drawing

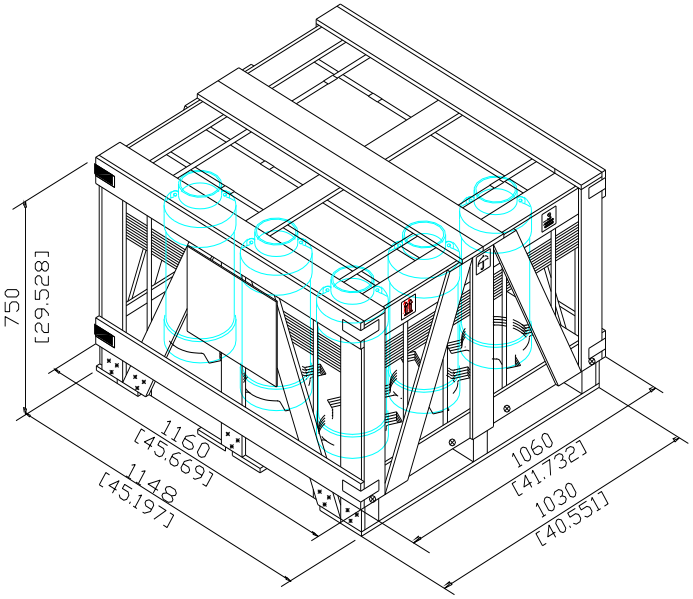
No.	Part	QTY	Name
1	M-0101-DSC	4	Mounting Grommet
2	M-0202-DSC	4	Mounting Sleeve

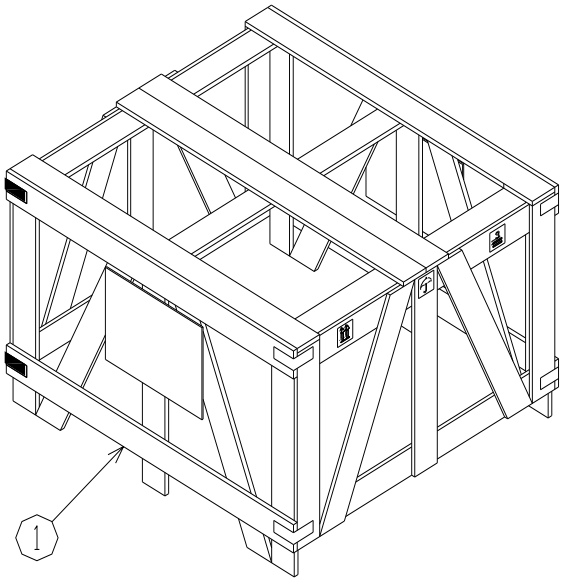


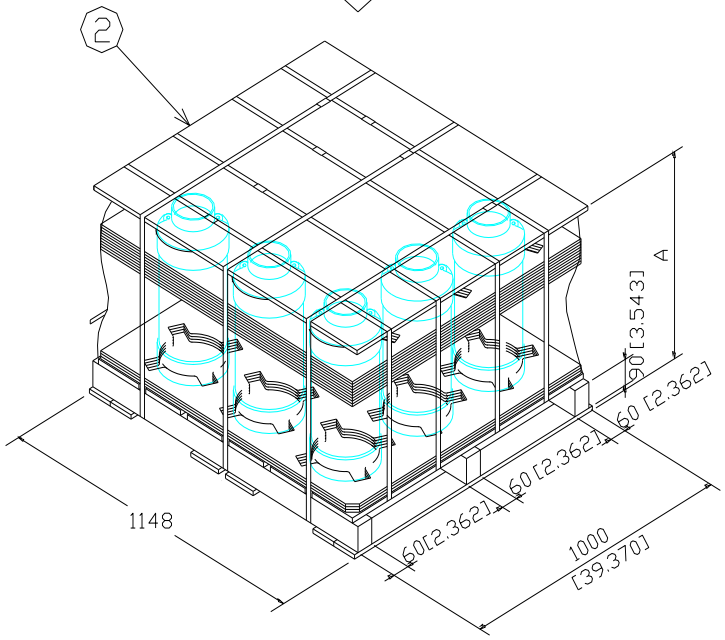




Part Code
M-5102-DSC
Name
Mounting Parts Listing







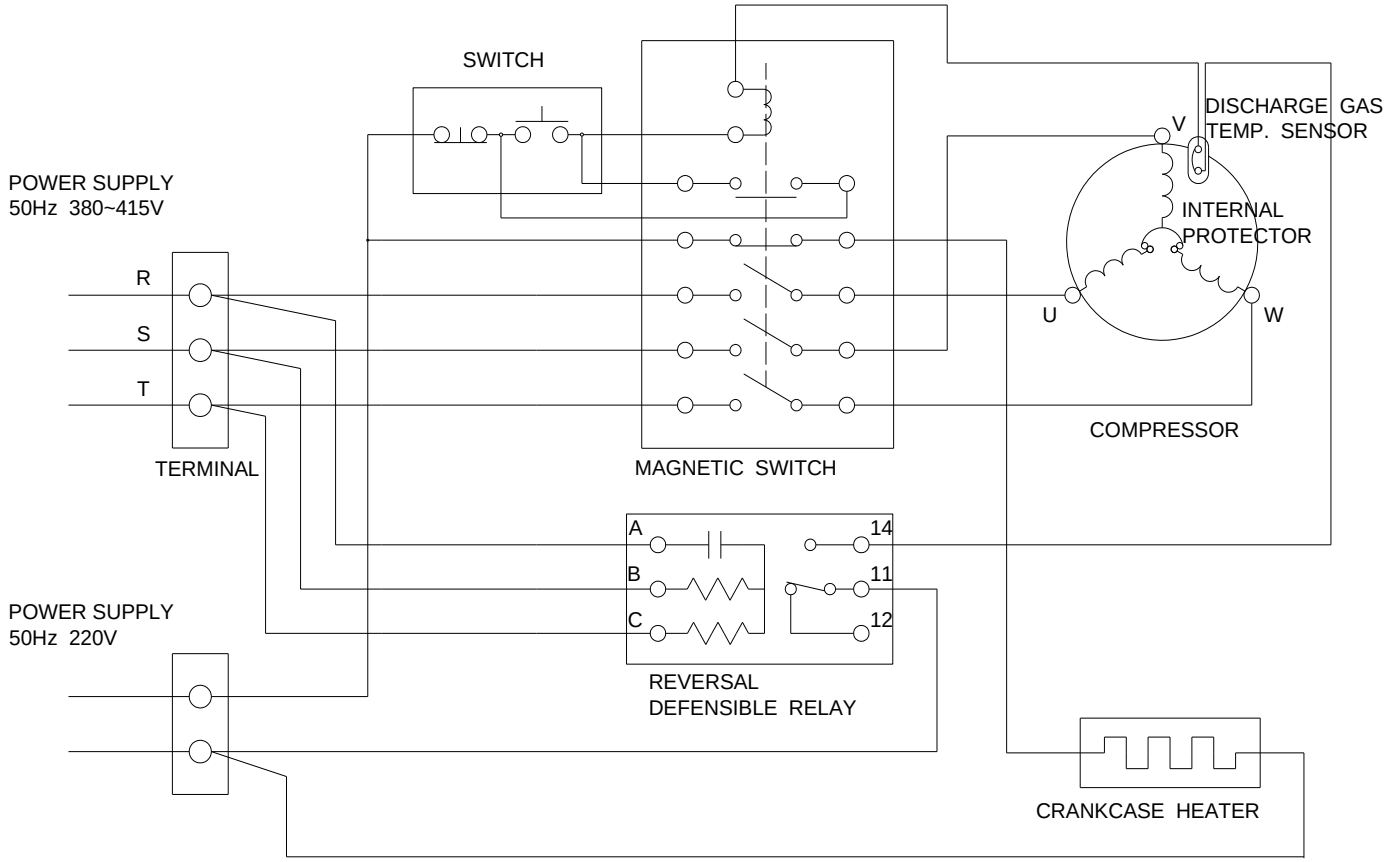
Compressor Model	A
C-SCP270H38*	697 [27.441]
C-SCP315H38*	
C-SCP360H38*	
C-SCP400H38*	

Part Code

D-0201-DSC

Name

Packing Dimensions



Part Code
E-0910-DSC
Name
Wiring Diagram