

# Panasonic

No.:

## APPROVAL SHEET SPECIFICATIONS OF HERMETIC SCROLL COMPRESSOR

MODEL	C-SDVN543H0C
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NO.	DATE	PAGE	REVISION DETAILS	PAPCDL SIGNED	CLIENT SIGNED

REVISION RECORD

USER:

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

APPROVED	PURCHASING MANAGER	TECHNICAL MANAGER	LEADER	CHECKED	SUBMITTED

## 1. General Specifications

### 1.1 Specifications

Contents		Unit	Specifications
Compressor Type		—	Hermetic Scroll Compressor
Internal Pressure		—	High Pressure
Application		—	High Back Pressure
Rated Output (60s <sup>-1</sup> )		W	8000
Compressor Cooling Type		—	Natural Cooling
Power Source		—	DC Inverter Circuit
Weight (Including Oil)		kg (lb)	39(86.0)
Revolution Range		s <sup>-1</sup>	15~120
Refrigerant		—	R410A
Oil Type		—	FV68S
Oil Charge		ml (fl oz)	1600(54.1)
Displacement		cm <sup>3</sup> (in <sup>3</sup> ) /rev	80.5(4.91)
Motor	Motor Type	—	DC Brushless Motor
	Number of Poles	—	6
	Electrical Insulation	—	E
	Winding Resistance [at 20°C (68°F)]	Ω	U-V 0.185 U-W 0.185 V-W 0.185
Connection Tube (※1)	Suction Line (O.D.)	mm (in)	25.4 (1.000)
	Discharge Line (O.D.)	mm (in)	15.88 (0.625)
Compressor Surface Paint		—	Black Paint

#### Notes

( ): All units with parentheses are reference values.

※1 Accept O.D. Tube.

#### Expiration of Specification

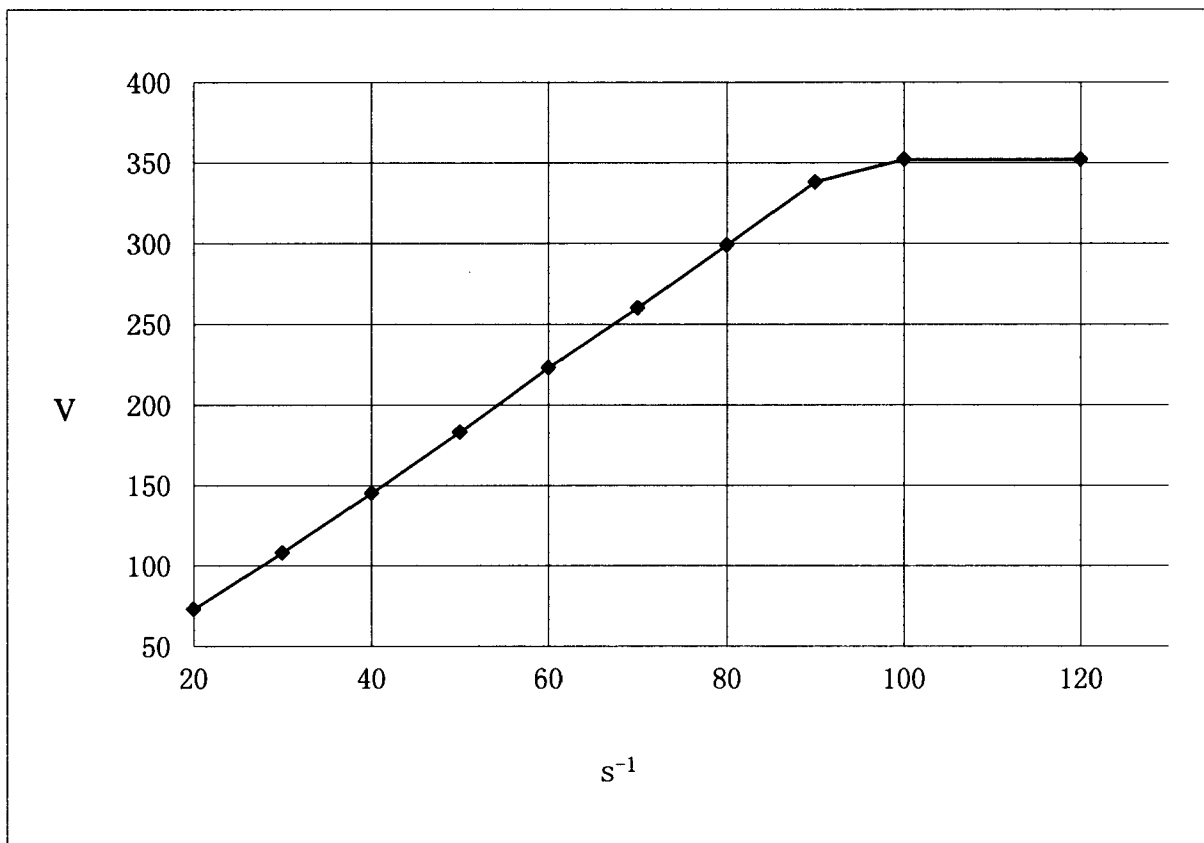
Expiration of this specification shall be effected until issuing a notice with indication of the expiration date from the issued date. In case of improvement or elimination of this specification, it shall be handled by the revision record based on agreement between both sides.

## 1.2 Voltage-Speed (Reference)

ARI Conditions		
Condensing Temp.	°C	54.4
Evaporating Temp.	°C	7.2
Suction Gas Superheat	K	11.1
Sub Cooling	K	8.3
Compressor Cooling	—	Natural Cooling
Refrigerant	—	R410A

### Vector control voltage vs Rotation speed

Voltage (V)	73	108	145	183	223	260	299	338	352	352
Rotation Speed (s <sup>-1</sup> )	20	30	40	50	60	70	80	90	100	120



Note: This curve is based on the test with a specified inverter. The curve will be different according to the operation with different inverter.

## 2. Performance Warranty

### 2.1 Performance

Rotation Speed	s <sup>-1</sup>	60	Remarks
Input Voltage to Compressor	V	223	
Capacity (Cooling)	W	26,700	±5%
	(BTU/hr)	91,100	reference
Input (Compressor)	W	7,950	±5%
Current (Compressor)	A	24.5	±5%
COP (Compressor)(Cooling)	—	(3.36)	±5%

Notes: Above test data was measured at Panasonic calorimeter with DC inverter(YASKAWA A1000) and accumulator after 24 hours operation. The inverter loss is not contained in above test data.

### Standard Rating Conditions

Electric Supply (to Inverter)	—	3PH-50Hz-380V
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 (115)
Ambient Temp.	°C (°F)	35.0 (95)

### 2.2 Requirement for Inverter

Starting Speed	s <sup>-1</sup>	5 Min.
Accelerating Rate	s <sup>-1</sup> /sec	1~3
Starting Pressure	MPa	Suction Pressure below 2.1MPa (Pressure Difference below 0.2MPa)
On/Off Period	Times/h	6 Max.

### 2.3 Sound Level and Vibration

Sound Level	dB(A)	72Max.
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#### Notes

- 1 The operating conditions are the same as 2.1, at 60s<sup>-1</sup>.
- 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.

### 2.4 Others

Content	Unit	Specification
Design Pressure	L.P.S.	MPa(G)/psig
	H.P.S.	MPa(G)/psig
Insulation Resistance	MΩ	100 Min. (without refrigerant)
Dielectric Strength (Leakage Current < 10mA)	V	1800 (1 minute)
Residual Moisture	mg	200 Max.

#### Note:

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

### 3. Standard Accessories

#### 3.1 Accessories List

Parts Name	Qty	Parts code	Revision No.	Remarks
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	-----	-----	Installed on Compressor
Mounting Grommet	4	M-0101-DSB	0	Included with Compressor
Mounting Sleeve	4	M-0201-DSD	0	Included with Compressor
Screw Special	2	B-0101-DSB	0	Installed on Compressor

#### 3.2 The Drawing for Reference

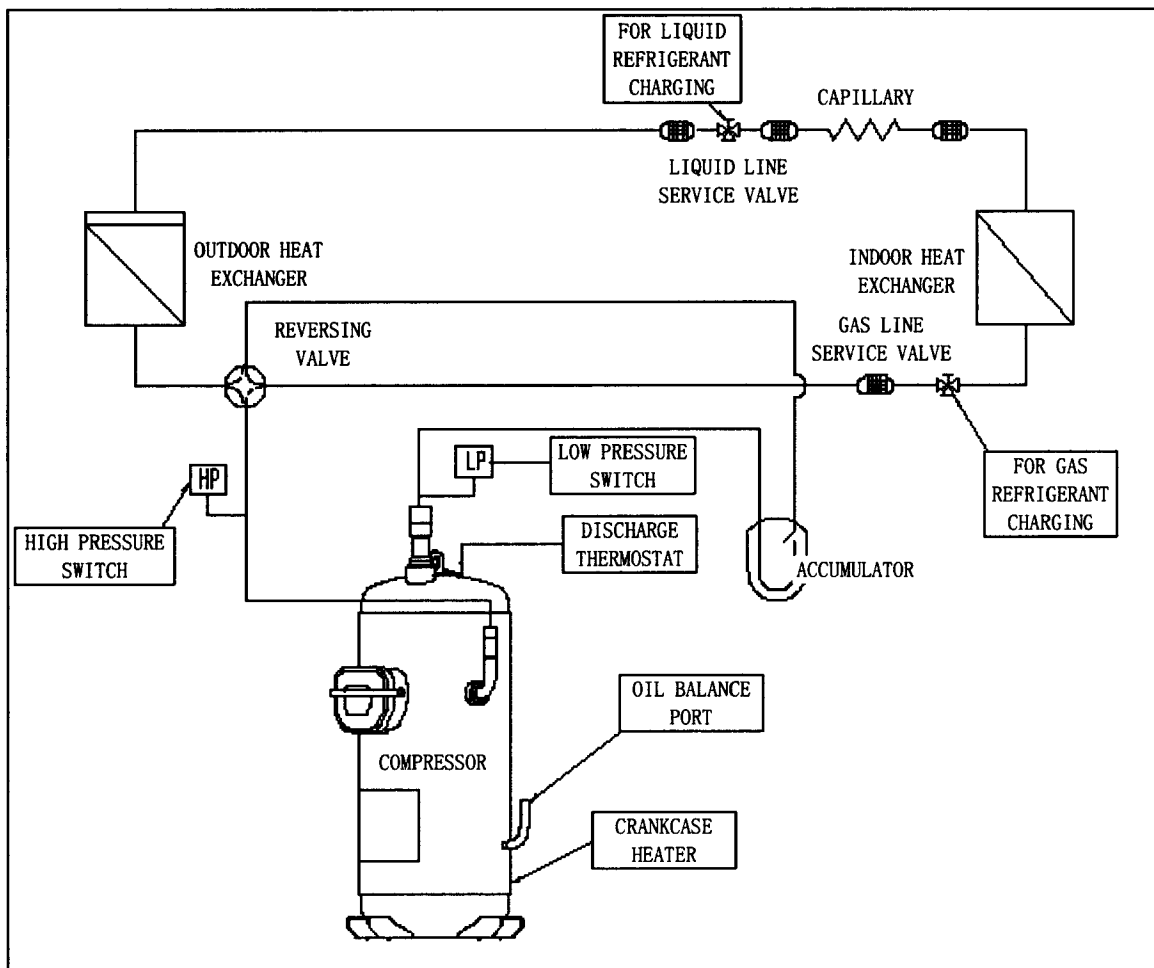
Parts Name	Parts Code	Revision No.
Compressor Outline Drawing	D-0106-DSD	0
Mounting Parts Listing	M-5101-DSD	0
Packing Dimensions	D-0203-DSB	0
Wiring Diagram	4-E-1295-DSD	0

## 4. Compressor Protection

### 4.1 Protection Required( not Included with compressor)

Protection Device	Items	Specifications
Crankcase Heater	Rated Power	35 Watts
Discharge Thermostat	Mounting Position	10cm within discharge port (or endcap top)
	Trip Temperature	115±5°C
	Reset Temperature	95±10°C
High Pressure Switch	Setting	Cut-out setting no higher than 4.15Mpa(G)
Low Pressure Switch	Setting	Cut-out setting no lower than 0.15Mpa(G)

### 4.2 Position of the Protection and Refrigerant Charging

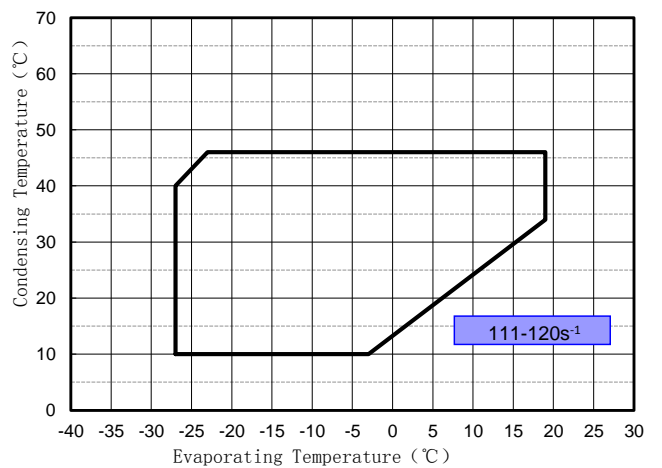
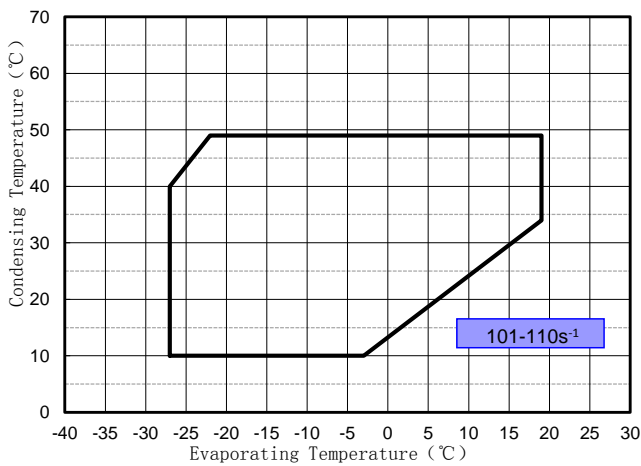
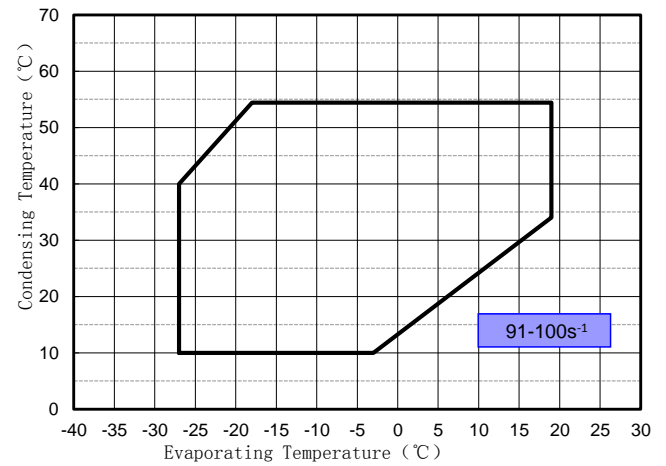
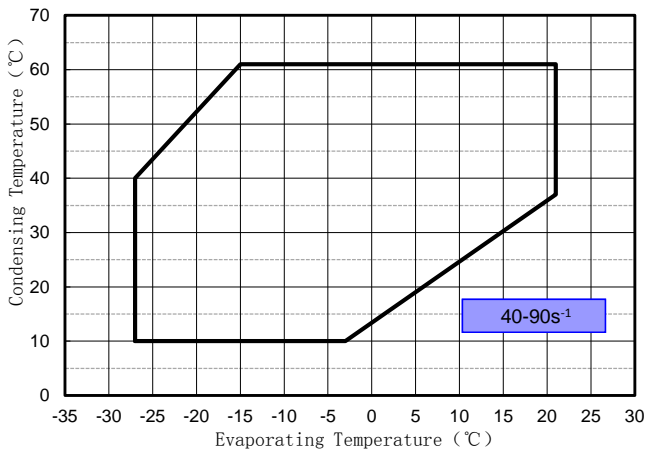
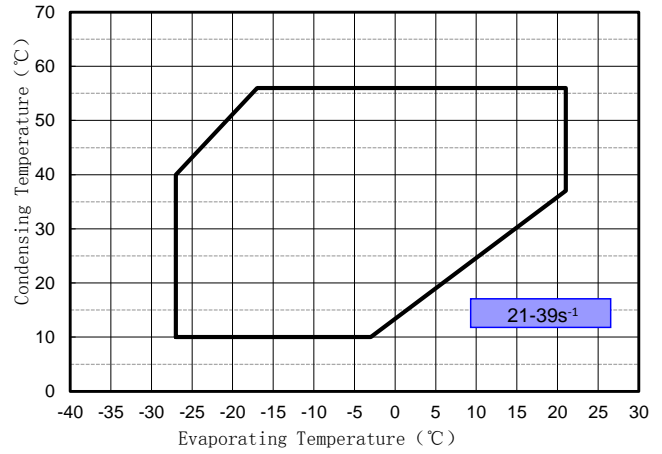
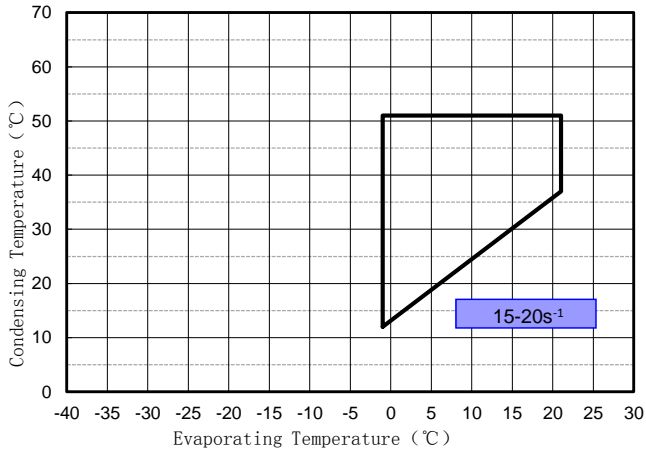


## 5. Operation Envelope

Suction Gas Superheating : 11.1K, Discharge Gas Temp. < 115°C

Refrigerant : R410A.

During continuous operation under 20s<sup>-1</sup>, every 60min, please increase the rotation speed to 40-75s<sup>-1</sup>(at suitable rotation speed) for at least 1min operation, for better oil return.



**6.1 Performance Curves (30s<sup>-1</sup>)(Reference)**

<b>Power Source</b>	<b>DC 3PH 108V</b>
<b>Rotation Speed:</b>	<b>30 s<sup>-1</sup></b>
<b>Refrigerant</b>	<b>R410A</b>
<b>Cooling Type</b>	<b>Natural Cooling</b>
<b>Suction Gas Superheat</b>	<b>11.1K</b>
<b>Sub Cooling</b>	<b>8.3K</b>

**CAPACITY(W)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	7,590	9,080	10,210	12,980	15,180	16,780	18,550	19,920
40.0	7,070	8,470	9,540	12,150	14,240	15,750	17,430	18,730
45.0	6,580	7,900	8,910	11,370	13,350	14,780	16,370	17,600
50.0	6,130	7,360	8,310	10,640	12,510	13,860	15,370	16,540
54.4		6,920	7,820	10,030	11,810	13,100	14,530	15,650
60.0			7,240	9,310	10,980	12,190	13,540	14,600

**POWER(W)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	2,720	2,670	2,640	2,570	2,530	2,500	2,480	2,460
40.0	3,170	3,110	3,070	2,990	2,950	2,910	2,880	2,860
45.0	3,760	3,690	3,640	3,550	3,500	3,460	3,420	3,400
50.0	4,500	4,410	4,360	4,250	4,180	4,140	4,100	4,070
54.4		5,170	5,110	4,980	4,900	4,850	4,800	4,760
60.0			6,210	6,060	5,960	5,900	5,840	5,800

**CURRENT(A)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	13.6	13.3	13.1	12.8	12.6	12.4	12.3	12.2
40.0	15.9	15.6	15.4	14.9	14.7	14.5	14.3	14.2
45.0	19.0	18.6	18.3	17.8	17.5	17.2	17.0	16.9
50.0	23.0	22.4	22.1	21.4	21.0	20.7	20.4	20.2
54.4		26.4	26.0	25.2	24.6	24.3	24.0	23.7
60.0			31.9	30.8	30.1	29.7	29.2	28.9

**NOTE:**

\* The performance values are varied by Driver characteristics.



## 6.2 Performance Curves (60s<sup>-1</sup>)(Reference)

<b>Power Source</b>	<b>DC 3PH 223V</b>
<b>Rotation Speed:</b>	<b>60 s<sup>-1</sup></b>
<b>Refrigerant</b>	<b>R410A</b>
<b>Cooling Type</b>	<b>Natural Cooling</b>
<b>Suction Gas Superheat</b>	<b>11.1K</b>
<b>Sub Cooling</b>	<b>8.3K</b>

### CAPACITY(W)

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	15,440	18,480	20,820	26,500	31,040	34,340	37,980	40,820
40.0	14,430	17,270	19,430	24,710	28,940	31,990	35,370	38,000
45.0	13,650	16,320	18,360	23,330	27,310	30,180	33,360	35,830
50.0	12,830	15,330	17,240	21,880	25,590	28,280	31,240	33,550
54.4		14,500	16,310	20,680	24,180	26,700	29,490	31,660
60.0			15,190	19,250	22,490	24,820	27,410	29,410
65.0				18,060	21,090	23,270	25,680	27,560

### POWER(W)

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	5,070	5,000	4,950	4,860	4,800	4,760	4,720	4,700
40.0	5,790	5,720	5,670	5,570	5,510	5,470	5,420	5,400
45.0	6,510	6,430	6,370	6,270	6,200	6,160	6,120	6,090
50.0	7,420	7,340	7,280	7,170	7,100	7,050	7,010	6,980
54.4		8,250	8,190	8,070	8,000	7,950	7,900	7,870
60.0			9,490	9,370	9,290	9,240	9,190	9,150
65.0				10,670	10,580	10,530	10,480	10,440

### CURRENT(A)

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	15.2	14.9	14.8	14.5	14.2	14.1	14.0	13.9
40.0	17.6	17.3	17.1	16.7	16.5	16.3	16.2	16.1
45.0	20.1	19.7	19.5	19.1	18.8	18.6	18.4	18.3
50.0	23.3	22.9	22.6	22.1	21.7	21.5	21.3	21.2
54.4		26.1	25.8	25.1	24.7	24.5	24.3	24.1
60.0			30.3	29.6	29.1	28.8	28.5	28.3
65.0				34.1	33.5	33.2	32.8	32.6

### NOTE:

\* The performance values are varied by Driver characteristics.

### 6.3 Performance Curves (90s<sup>-1</sup>)(Reference)

<b>Power Source</b>	<b>DC 3PH 338V</b>
<b>Rotation Speed:</b>	<b>90 s<sup>-1</sup></b>
<b>Refrigerant</b>	<b>R410A</b>
<b>Cooling Type</b>	<b>Natural Cooling</b>
<b>Suction Gas Superheat</b>	<b>11.1K</b>
<b>Sub Cooling</b>	<b>8.3K</b>

#### **CAPACITY(W)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	23,500	28,150	31,710	40,390	47,340	52,380	57,950	62,290
40.0	21,770	26,080	29,390	37,440	43,890	48,560	53,730	57,760
45.0	20,440	24,490	27,590	35,160	41,220	45,629	50,480	54,260
50.0	19,050	22,830	25,720	32,780	38,440	42,540	47,080	50,610
54.4		21,450	24,180	30,820	36,140	40,000	44,270	47,600
60.0			22,450	28,490	33,420	36,990	40,950	44,030

#### **POWER(W)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	8,370	8,410	8,440	8,490	8,530	8,560	8,580	8,600
40.0	9,470	9,480	9,490	9,510	9,520	9,530	9,540	9,550
45.0	10,510	10,500	10,490	10,470	10,460	10,450	10,440	10,440
50.0	11,820	11,770	11,730	11,660	11,620	11,590	11,560	11,540
54.4		13,020	12,950	12,830	12,750	12,700	12,650	12,610
60.0			14,680	14,470	14,340	14,250	14,170	14,110

#### **CURRENT(A)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
40.0	16.4	16.3	16.3	16.2	16.1	16.1	16.1	16.0
45.0	18.5	18.4	18.3	18.1	18.0	17.9	17.8	17.8
50.0	21.3	21.1	20.9	20.6	20.4	20.2	20.1	20.0
54.4		23.7	23.5	23.0	22.7	22.5	22.3	22.2
60.0			27.2	26.5	26.0	25.7	25.4	25.2

**NOTE:**

\* The performance values are varied by Driver characteristics.

#### 6.4 Performance Curves (120s<sup>-1</sup>)(Reference)

<b>Power Source</b>	<b>DC 3PH 352V</b>
<b>Rotation Speed:</b>	<b>120 s<sup>-1</sup></b>
<b>Refrigerant</b>	<b>R410A</b>
<b>Cooling Type</b>	<b>Natural Cooling</b>
<b>Suction Gas Superheat</b>	<b>11.1K</b>
<b>Sub Cooling</b>	<b>8.3K</b>

#### **CAPACITY(W)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	31,020	37,160	41,860	53,310	62,490	69,140	76,500	82,230
40.0	28,740	34,430	38,790	49,420	57,930	64,100	70,920	76,240
45.0	26,980	32,330	36,430	46,410	54,420	60,210	66,630	71,630
50.0	25,140	30,130	33,950	43,270	50,740	56,150	62,140	66,810
54.4		28,320	31,910	40,680	47,710	52,800	58,440	62,830
60.0			29,500	37,610	44,120	48,830	54,050	58,120

#### **POWER(W)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	11,860	11,920	11,960	12,040	12,090	12,130	12,160	12,180
40.0	13,420	13,440	13,450	13,480	13,500	13,510	13,520	13,530
45.0	14,890	14,880	14,860	14,840	14,820	14,810	14,800	14,790
50.0	16,750	16,680	16,630	16,530	16,470	16,430	16,390	16,360
54.4		18,450	18,360	18,190	18,070	18,000	17,930	17,880
60.0			20,800	20,510	20,320	20,200	20,080	19,990

#### **CURRENT(A)**

Condensing Temperature(°C)	Evaporating Temperature(°C)							
	-15	-10	-6.7	0	4.4	7.2	10	12
35.0	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7
40.0	22.7	22.6	22.6	22.5	22.4	22.3	22.3	22.2
45.0	25.7	25.5	25.4	25.1	25.0	24.8	24.7	24.7
50.0	29.6	29.2	29.0	28.5	28.2	28.0	27.9	27.7
54.4		32.9	32.6	31.9	31.5	31.2	30.9	30.7
60.0			37.7	36.7	36.1	35.7	35.3	35.0

#### **NOTE:**

\* The performance values are varied by Driver characteristics.



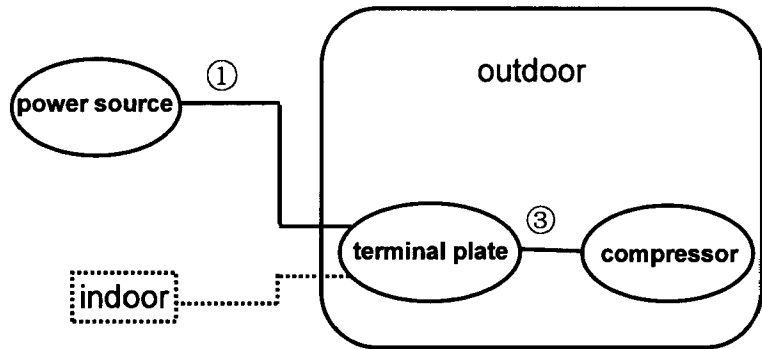
## 8. Selection of Electrical Wire

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

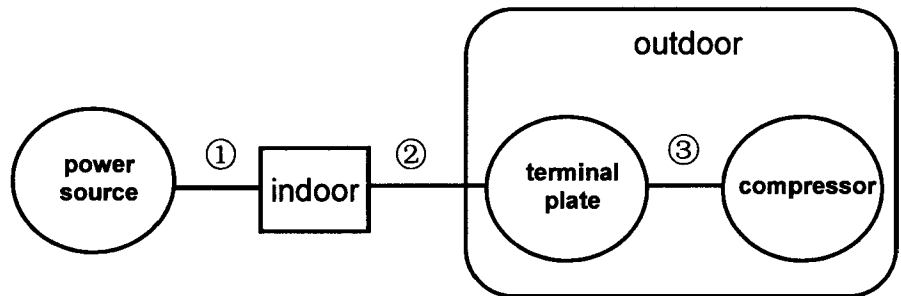
We recommend selecting the wire size from the table below.

### 8.1 Type of Unit

#### 8.1.1 Window & Commercial Type Unit



#### 8.1.2 Split Type(Separate Type)



### 8.2 Size Table of Electrical Wire

Starting current (A)	Size of electrical wire (mm <sup>2</sup> )							Remark③ (heat-resistance Temperature: 120°C(248°F) min.)
	Remark ① or Remark ①+② (heat-resistance Temperature: 60°C(140°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	

### 8.3 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.

Residual current circuit breaker is required to install.

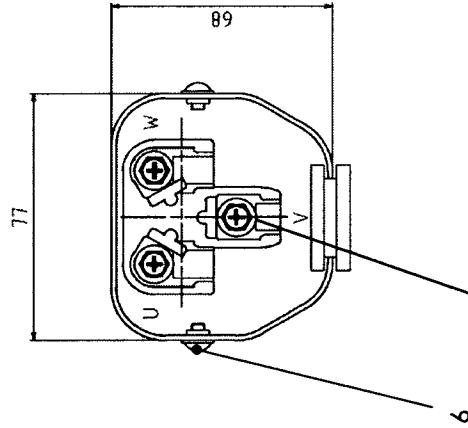
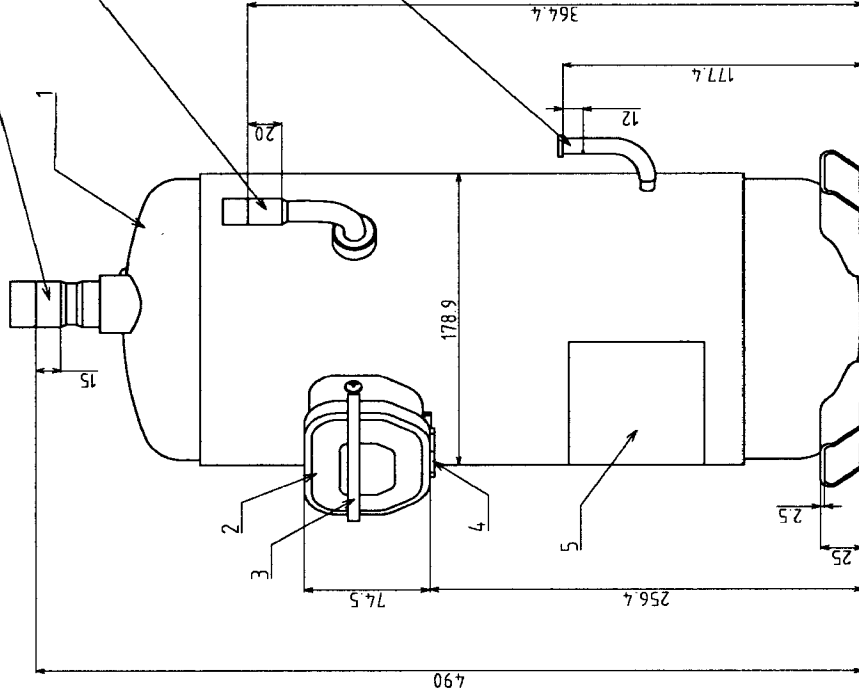
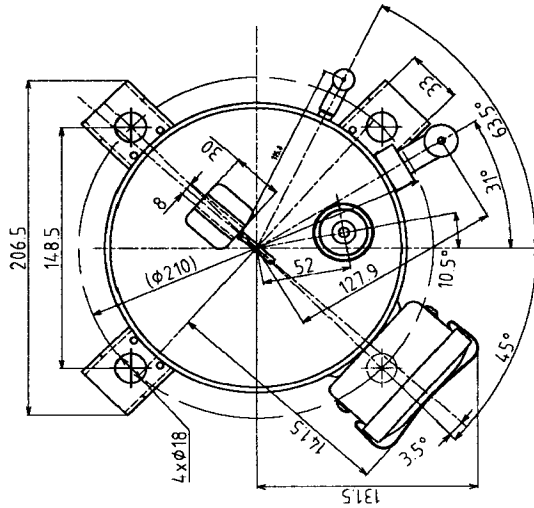
**No. Part Code Qty Name**

- 1 C-SDVN543H0C 1 Compressor
- 2 A-0101-DSB 1 Terminal Box Cover
- 3 A-0201-DSB 1 Terminal Box Clip
- 4 A-0301-DSB 1 Eyelet Rub Lead W
- 5 B-0101-DSB 1 Nameplate
- 6 B-0101-DSB 2 Screw Special

Suction Tube  
Accept  $\phi 25.4(8/8)$   
O.D.Tube

Discharge Tube  
Accept  $\phi 15.9(5/8)$   
O.D.Tube

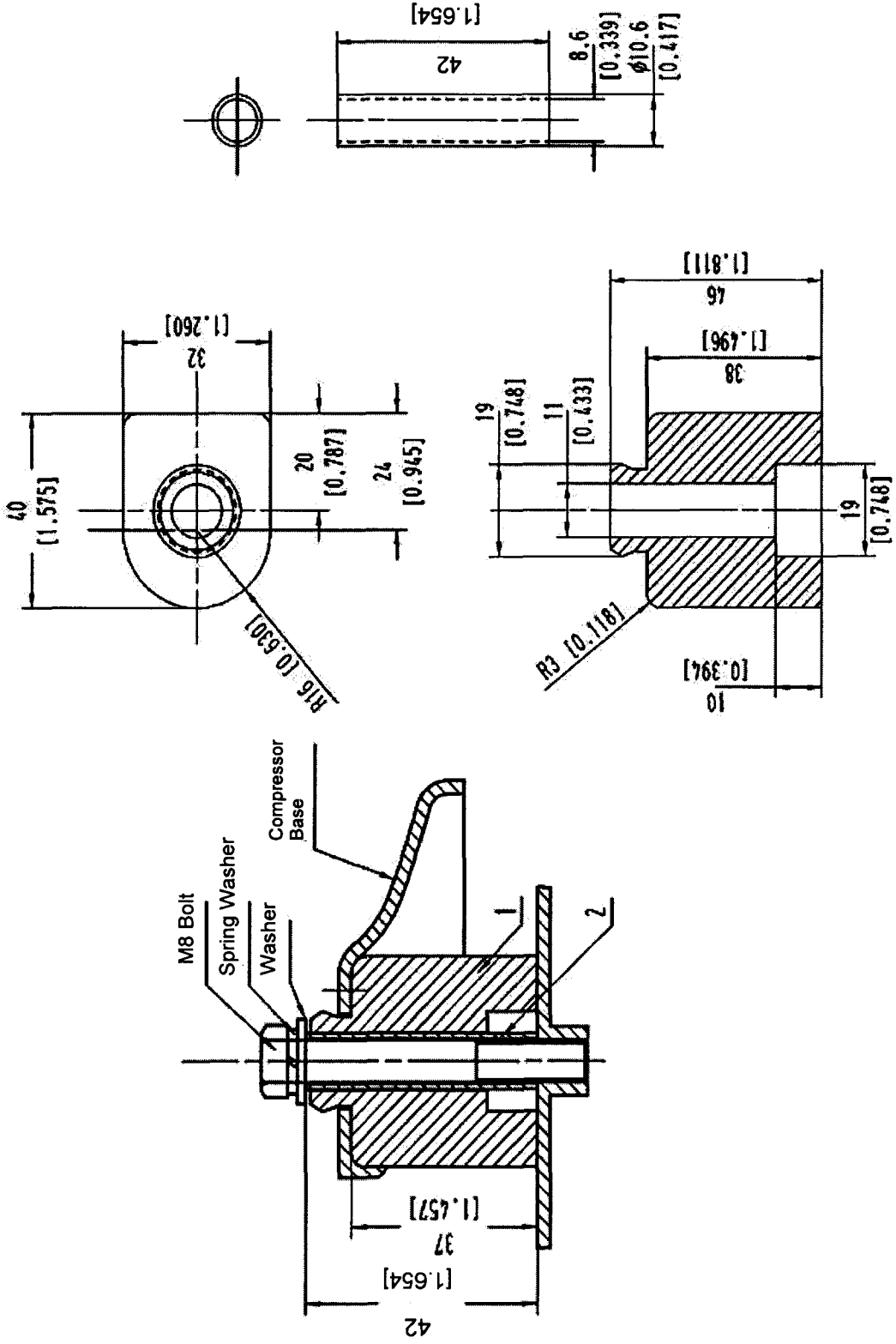
Oil Balance Tube  
Accept  $\phi 6.0$  O.D.Tube



Bolt 5  
Bolt tightening torque  
is 2.5~3.0 N.m

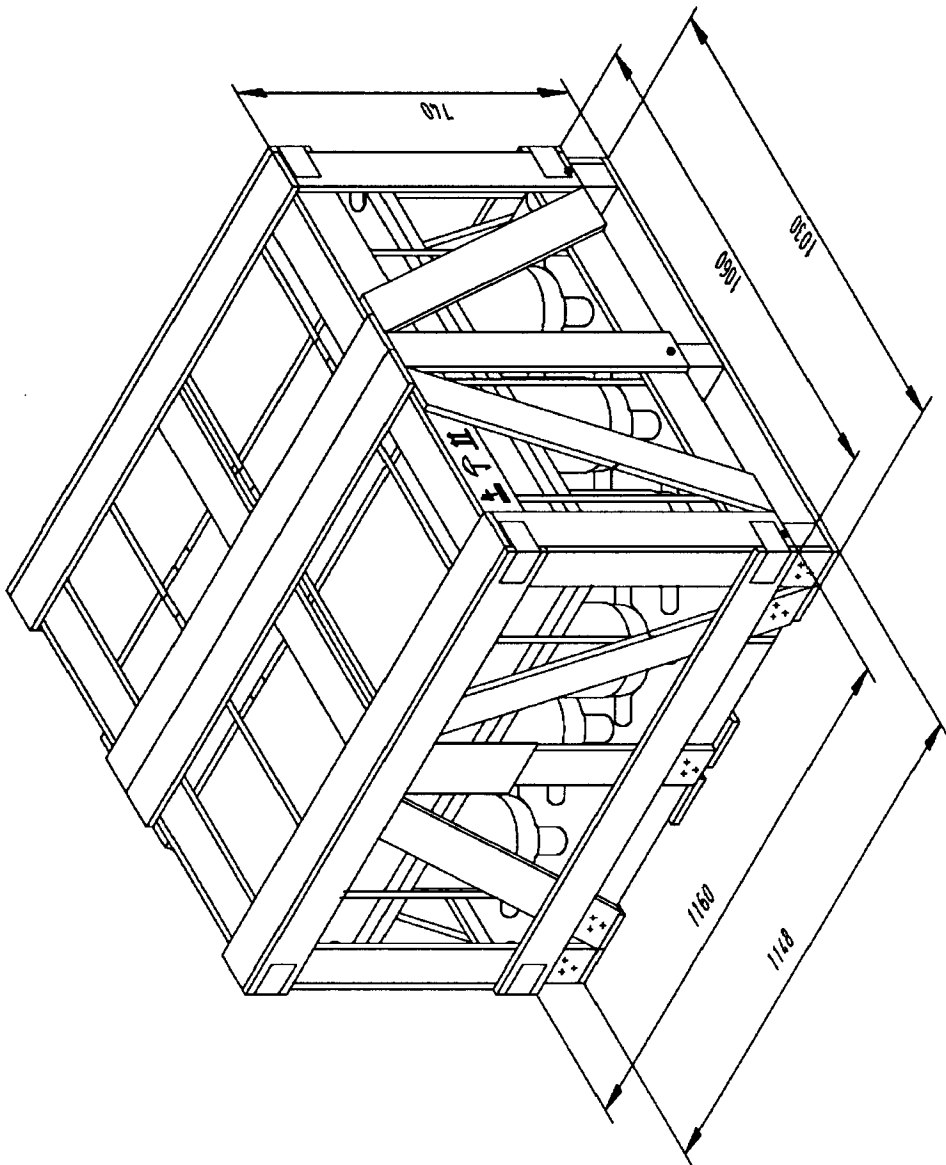
**Part Code**  
D-0106-DSD-0  
**Name**  
Compressor Outline Drawing

No.	Part	QTY	Name
1	M-0101-DSB	4	Mounting Grommet
2	M-0201-DSD	4	Mounting Sleeve

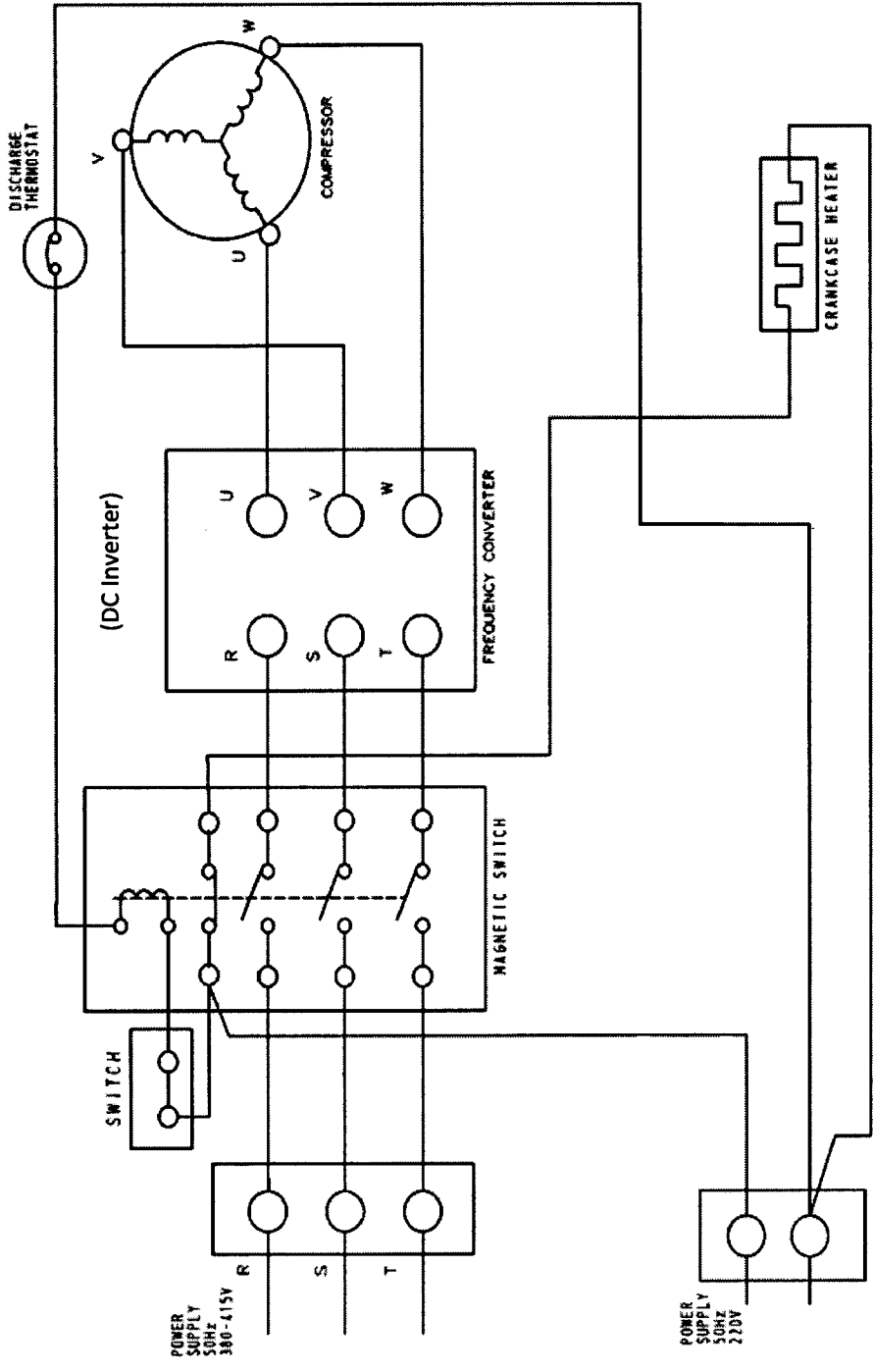


Part Code  
M-5101-DSD-0  
Name  
Mounting Parts Listing

Part Code  
D-0203-DSB-0  
Name  
Packing Dimensions







Part Code  
 E-0912-DSD-0  
 Name  
 Wiring Diagram