

*** 50Hz YH450T1G-100 Specification**

Specification		Notes
Standard Model	YH450T1-100	Basic Model
Extended Model	YH450T1G-100	
Extended Model		

Revision Record			
Version	Reviser	Description	Date
A	GJB		2022/12/8
B			

Checked by

Date

Approved by

Date

1 Specification

1.1 Basic Specification

Model	YH450T1-100
Type	Low Side Shell Design Scroll Compressor
Application	Air conditioning
Refrigerant	R407C
Displacement(cc/rev)	246.0
Cooling Capacity(W) ^(a)	42220
Input Power(W) ^(a)	13156
RLA(A) ^(a)	20.5
COP(W/W) ^(a)	3.21
Power Supply	380-420V/3~/50Hz or 460V/3~/60Hz
Min. Operating Voltage(V)	342
Max. Operating Voltage(V)	462
LRA(A)	170.0
Max. Operating Current(A) ^(b)	31.5
Rated Speed(r/min) ^(a)	2900
Compressor Weight(With Oil)(kg)	95
Oil Type	POE
Oil Kinematic Viscosity(cSt, 40°C)	32
Oil Density(kg/L, 20°C)	0.977
Primary Charge(L)	4.2
Recharge(L)	4.0
Oil Circulation Rate ^(a)	<1
Rated Sound(Sound Power)(dBA) ^(c)	77
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	84
Vibration Displacement Peak-Peak(mm) ^(d)	≤0.12
Moisture(mg)	≤2000
Impurity(mg)	≤220
LVS(V) ^(e)	323
MOV (V) ^(f)	342
Start Capacitor(μF/V)	/
Start Relay	/
Run Capacitor(μF/V)	/
IP Class of Terminal Box	IP54
Compressor Color	Black

1.2 Motor Parameters

Motor Type	Three-phase asynchronous motor
Motor Pole	2
Motor Insulation Class(°C)	130 (B Class)
Line to Line Resistance UV(CS)(Ω, 25°C)	0.686 (± 10%)
Line to Line Resistance UW(CR)(Ω, 25°C)	0.686 (± 10%)
Line to Line Resistance VW(SR)(Ω, 25°C)	0.686 (± 10%)
Dielectric Strength	2000VAC / 1s / 50Hz or 60Hz, Leakage Current≤5mA
Insulation Resistance(MΩ)	≥20
Ground Resistance(Ω)	≤0.1

1.3 Safety Operating Limit

Tightness Test Pressure(MPa)	3.8-4.0
Max. Operating Pressure	
High Side(MPa)	H3.2/L2.0
Low Side(MPa)	
Compressor FreeSpace(Without Oil)	
High Side(L)	H1.75/L13.3
Low Side(L)	
Max. Refrigerant Charge(kg)	See Notes
Discharge Temperature Limit(°C)	≤125 (120mm to compressor discharge connection and well insulated)
Start-Stop Interval	See Notes

1.4 Performance Condition:

Condition	Condition Description
a	Rated Condition
b	Max. Load Condition, 90% Rated Voltage
c	Rated Condition, A Weighted Sound Power
d	Rated Condition, Max Operating Normal Displacement of Compressor Housing
e	Discharge Pressure and Suction Pressure: Saturated Refrigerant Pressure at 40°C
f	Max. Load Condition

2 Rated Condition, 48 Hours Break-in-Running before implementing Performance and Sound Testing

Item	Rated Condition	Max. Load Condition
E.T.(°C)/C.T.(°C)/S.H.(K)/ S.C.(K)/A.T.(°C)	7.2/54.4/11.1/8.3/35	11.9/65.5/11.9/8.3/46.1
Cooling Capacity Deviation	≥95.0%	/
Power Deviation	≤105.0%	/
COP Deviation	≥95.0%	/

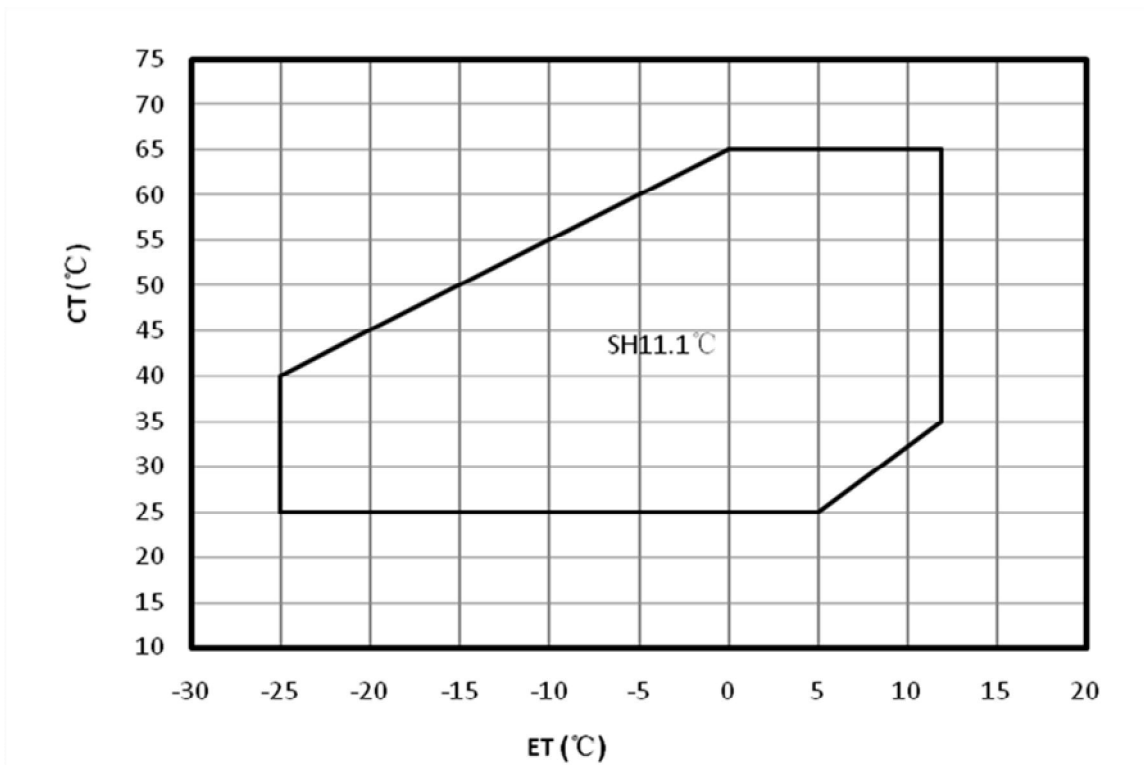
3 Protector

Protection Method	Config	Parameter		
		Model	INT69-E1	SE-E1
External Overload Protector	With	Open Temp.(°C)	150±5	150±5
		Supply Voltage(V)	115-230	208-240
		Reset Method	Restart after power off	Restart after power off
		Internal Pressure Relieve Valve	2.76-3.10MPa	

4 Accessory

Item	Name	P.N.	PCS
1	Grommet	070-3033-00	4
2	Sleeve	010-3033-00	4
3	Grommet Screw	GB/T5783-2000	4
	Grommet Nut	GB/T6170-2000	4
4	Grommet Washer	GB/T96.1 10	8

5 Compressor Operating Envelope



6 Compressor Performance Sheet

- Performance Based on Superheat is within the Operating Envelope, Subcooling after Condenser is 8.3K;
- Performance Calculated by Coefficients of Polynomial is Only Suitable for the Condition within Operating Envelope
- Capacity, Power can be Calculated by Coefficients of Polynomial

6.1 Performance Table

类型 Item	蒸发温E.T.(°C)	-25	-20	-15	-10	-5	0	5	10
	冷凝温度C.T.(°C)								
制冷量(W) Cooling Cap	65						28261	34207	41007
	60					24914	30386	36652	43793
	55				21651	26669	32423	38992	46456
	50			18508	23092	28354	34373	41229	48998
	45		15520	19691	24482	29972	36239	43362	51419
	40	12722	16501	20841	25822	31522	38019	45393	53721
	35	13557	17468	21961	27114	33006	39716	47323	55905
	30	14398	18423	23050	28358	34425	41331	49153	
	25	15244	19366	24110	29555	35780	42864	50884	
功率(W) Power	65						16674	16655	16672
	60					14894	14893	14902	14946
	55				13277	13314	13338	13372	13440
	50			11780	11876	11936	11982	12038	12126
	45		10364	10539	10655	10734	10798	10872	10977
	40	8984	9261	9454	9586	9680	9759	9847	9965
	35	8000	8290	8497	8642	8748	8838	8936	9064
	30	7123	7425	7641	7795	7909	8007	8112	
	25	6328	6636	6859	7018	7138	7240	7348	

6.2 Ten Coefficients of Polynomial

Expression	$z = p_0 + p_1*x + p_2*y + p_3*x^2 + p_4*x*y + p_5*y^2 + p_6*x^3 + p_7*x^2*y + p_8*x*y^2 + p_9*y^3$		
Description	z: Cooling Capacity(W) or Power (W) Specially: Heating Capacity(W)=Cooling Capacity(W)+Power (W) x: E.T. °C y: C.T. °C p0~p9: Coefficients of Polynomial		
Cooling	Value	Power Factor	Value
p0	49343.16372	p0	3398.94396
p1	1643.550509	p1	13.0709194
p2	-220.6788147	p2	180.943109
p3	20.7730823	p3	0.03611292
p4	-3.687362848	p4	0.64506457
p5	-1.505783838	p5	-1.9986617
p6	0.104976953	p6	0.03056687
p7	-0.081157861	p7	0.00309613
p8	-0.069751309	p8	-0.0143591
p9	-0.001370223	p9	0.03626066

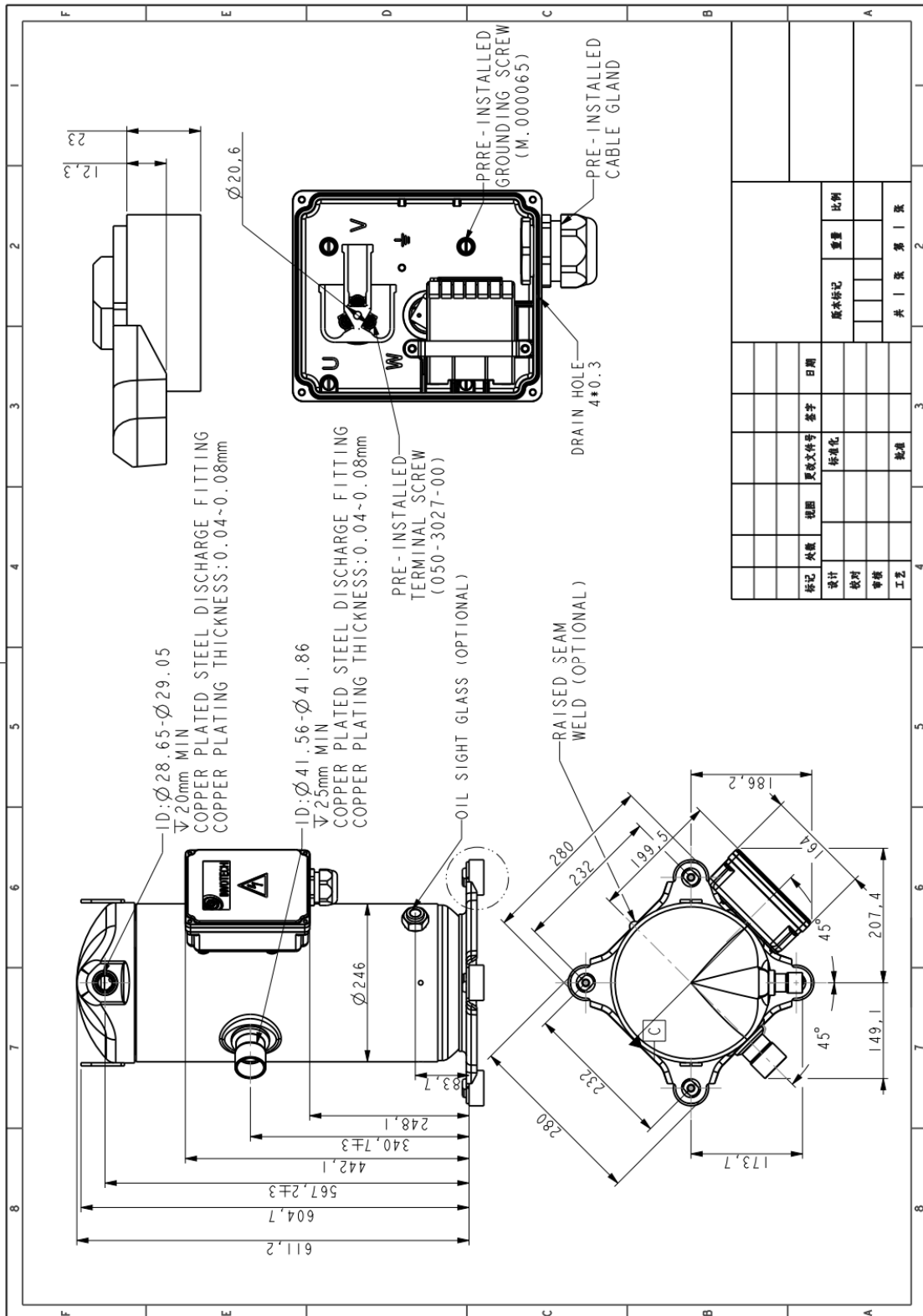
Notes: Coefficients of polynomial are based on the fitting results of some sample data, which can be used as a reference of compressor selection, but cannot completely eliminate customer's test.

7 Notes

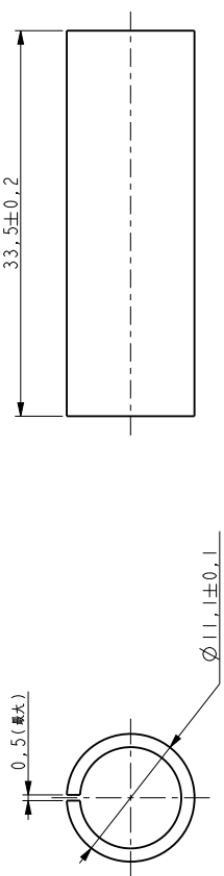
- 7.1 It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant charged. In some cases, such as on the field site, if it is limited by the situation that can't charge the required volume of refrigerant, 50% of the required refrigerant is charged necessary before the compressor starts. Double check the system and make sure everything is under safe status, then power on the compressor and charge the remained refrigerant when the compressor is running.
- 7.2 It is not allowed to charge the refrigerant from the suction or discharge line closes to the compressor. The charge port should be arranged on the connection pipe of suction line accumulator or receiver, which is on the side far away to the compressor, to avoid the liquid refrigerant flood back.
- 7.3 Refrigerant charge limitation: the ratio between the weight of oil and refrigerant should be ≥ 0.4 .
- 7.4 It is not allowed to vacuum by compressor, not allowed to run the compressor without refrigerant, and not allowed to run the compressor on the reversed direction for long duration.
- 7.5 The compressor can only work with approved refrigerant.
- 7.6 The compressor is not allowed to work outside its envelope, the system should guarantee the suction line superheat and avoid the liquid refrigerant flood back.
- 7.7 When the suction and discharge plugs are removed, the assembly and brazing should be done in 15 minutes.
- 7.8 The frequently start/stop should be avoided. The suggested minimum continuous running time is 10 minutes to guarantee the safe oil level ($\geq 50\%$ initial charge volume), the suggested minimum interval duration between start and stop is 3 minutes.
- 7.9 Before startup, Discharge pressure-Suction pressure $\leq 0.3\text{Mpa}$.
- 7.10 The deviation of supplied voltage should be less than $\pm 10\%$ of rated voltage.
- 7.11 A 120W crankcase heater is recommended to avoid the refrigerant migration during the off circle and flood start. The crankcase heater should be power on 12 hours earlier than the first start or restart after long duration off.
- 7.12 The system should be equipped with necessary protection devices, such as pressure, temperature, oil return, overcurrent and phase fault, etc.
- 7.13 The compressor is not allowed to lay down or place upside down during transportation, stock and installation. The maximum inclination is 15° when the compressor is running.

8 Drawings

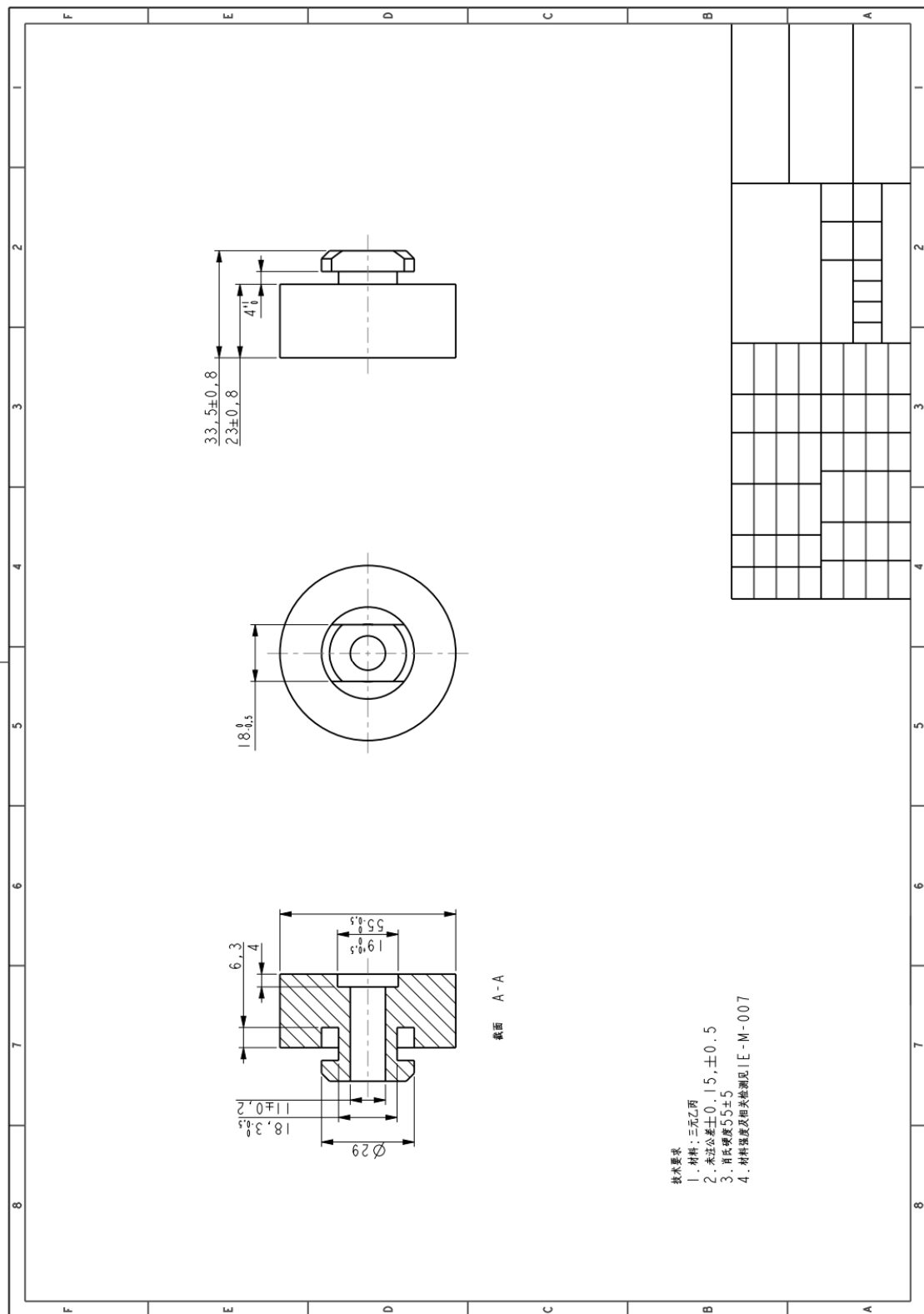
8.1 Outline Drawing



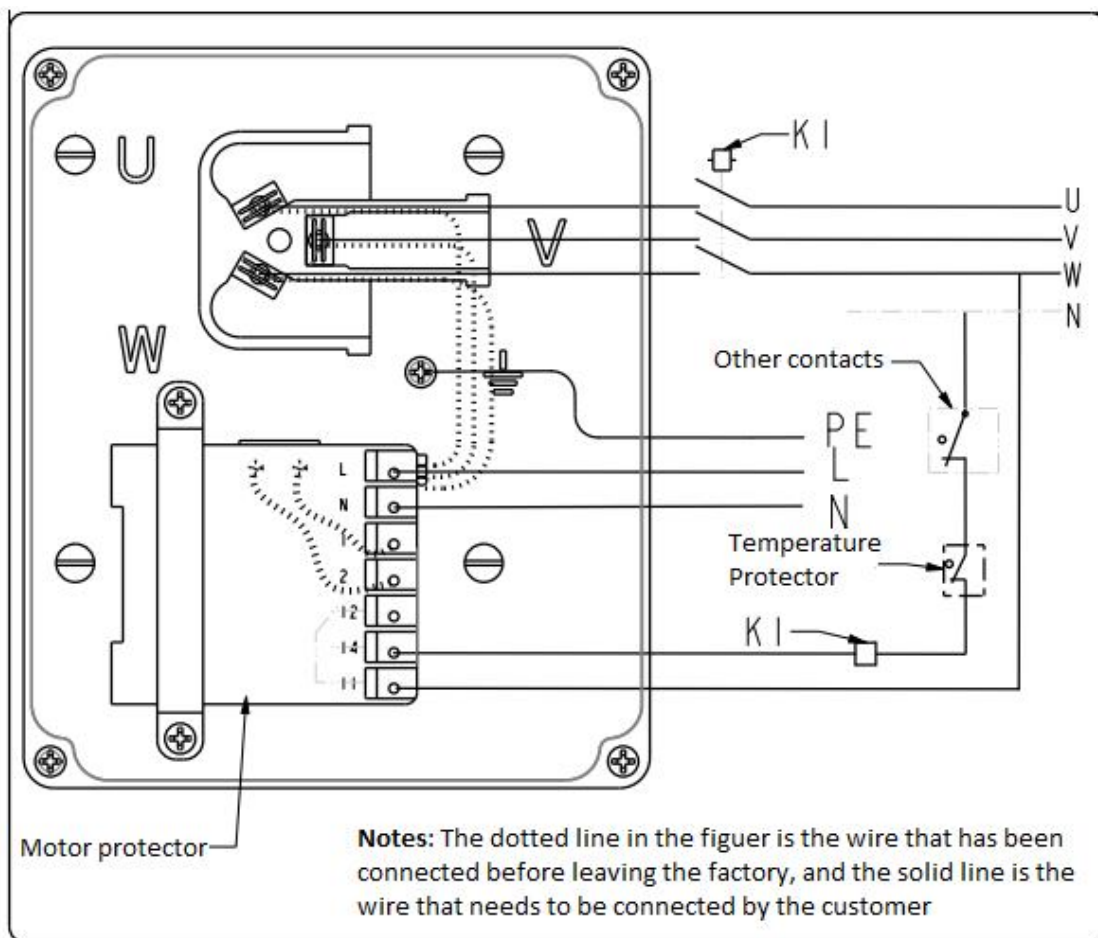
8.2 Sleeve Drawing

6	5	4	3	2	1																														
																																			
<p>技术要求</p> <p>1. 镀锌层厚度: 0.0025-0.0070mm</p> <p>振厚: 1.1-1.3mm</p>																																			
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8.3 Grommet Drawing



9 Diagram of wiring



10 Application

See Details in the 《YH serial air-condition scroll compressor application manual》