

*** 50Hz YHZ185T1-100Specification**

Specification		Notes
Standard Model	YHZ185T1-100	Basic Model
Extended Model		
Extended Model		
Extended Model		
Extended Model		
Extended Model		

Revision Record			
Version	Reviser	Description	Date

Checked by

Date

Approved by

Date

1 Specification

1.1 Basic Specification

Model	YHZ185T1-100(Including Extended Model)
Type	Low Side Shell Design Horizontal Scroll Compressor
Application	Air conditioning
Refrigerant	R407C
Displacement(cc/rev)	108
Cooling Capacity(W) ^(a)	18267
Input Power(W) ^(a)	5666
RLA(A) ^(a)	10.8
Cooling COP(W/W) ^(a)	3.22
Power Supply	380-420V/3~/50Hz or 460V/3~/60Hz
Min. Operating Voltage(V)	342
Max. Operating Voltage(V)	462
LRA(A)	85
Max. Operating Current(A) ^(b)	16.1
Rated Speed(r/min) ^(a)	2900
Compressor Weight(With Oil)(kg)	40
Oil Type	POE
Oil Kinematic Viscosity(cSt, 40°C)	32
Oil Density(kg/L, 20°C)	0.977
Primary Charge(L)	1.6
Recharge(L)	1.45
Oil Circulation Rate ^(a)	≤1.2%
Rated Sound(Sound Power)(dBA) ^(c)	73
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	78
Vibration Displacement Peak-Peak(mm) ^(d)	≤0.1
Moisture(mg)	≤600
Impurity(mg)	≤120
LVS(V) ^(e)	323
MOV (V) ^(f)	342
Start Capacitor(μF/V)	/
Start Relay	/
Run Capacitor(μF/V)	/
IP Class of Terminal Box	IP67
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)	1.8(±10%)
Line to Line Resistance UW(CR)(Ω, 25°C)	1.8(±10%)
Line to Line Resistance VW(SR)(Ω, 25°C)	1.8(±10%)
Dielectric Strength	2000VAC / 1s / 50Hz, 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)	H3.0/L2.0
Low Side(MPa)	
Compressor FreeSpace(Without Oil)	
High Side(L)	H2.6/L4.0
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

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

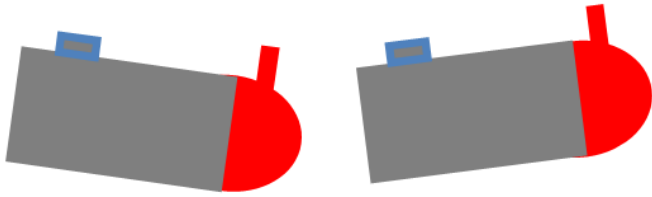

2 Rated Condition, 48 Hours Break-in-Running before implementing performance and sound testing

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
Frequency(Hz)	50	50
Cooling Capacity Deviation	≥95.0%	-
Power Deviation	≤105.0%	-
COP Deviation	≥95.0%	-

3 Internal Protector

Protection Method	Config.	Parameter		
		Vendor	Vendor1	Vendor2
Internal Overload Protector	With	Model	37HM546-XX	
		Open Temp.(°C)	140±5	
		Close Temp. (°C)	60±9	
		Short Time Trip	52A 3-10s	
		Internal Pressure Relieve Valve	With	2.76-3.10MPa

4 Max Inclination Degrees

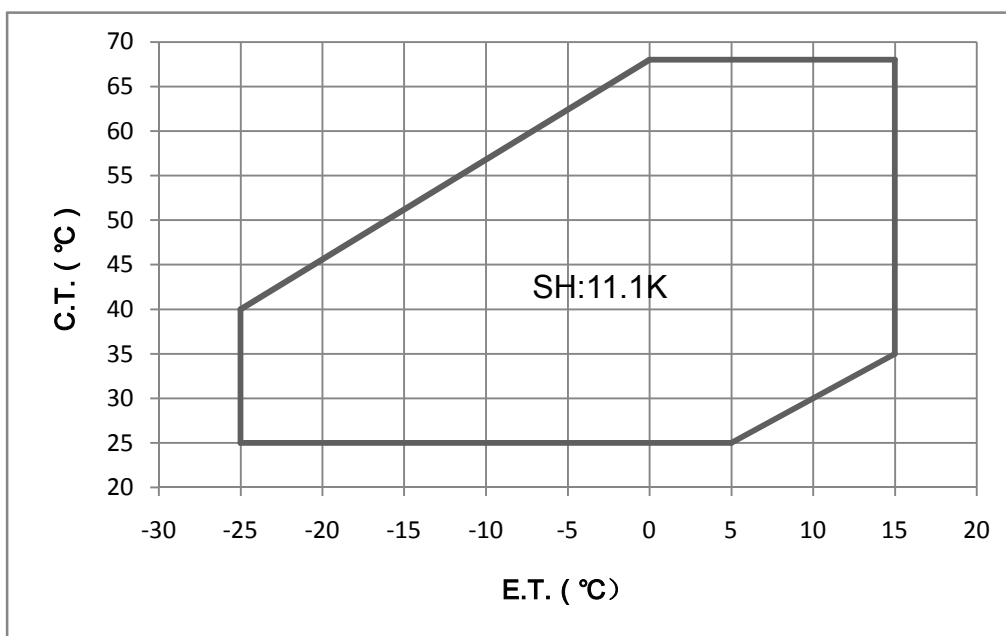
Max Tilt Angle	 +7°Tilt -7°Tilt
Max Rolling Angle	 +15°Rolling -15°Rolling

5 Accessory

YHZ185T1-100			
Item	Name	Part Number	PCS
1	Grommet	070-0003-00	4
2	Sleeve	010-0014-00	4
3			
4			
5			

6 Compressor Operating Envelope

6.1 Compressor Operating Envelope



6.2 EVI control logic(Only for EVI module)

- Recommend system subcooling 5K
- $DLT \leq 95^{\circ}\text{C}$, control superheat of injection line=5K
- $DLT > 95^{\circ}\text{C}$, control $DLT=95^{\circ}\text{C}$
- Max injection pressure $\leq 2.0\text{MPa}$

7 Compressor Performance Sheet

- Performance based on superheat is within the operating envelope, Subcooling after condenser is 8.3 K;
- Performance calculated by coefficients of polynomial is only suitable for the condition within operating envelope;
- Capacity, power can be calculated by coefficients of polynomial.

7.1 Performance Table

	C.T. °C	E.T. °C								
		-25	-20	-15	-10	-5	0	5	10	15
Cooling Capacity(W)	68						11152	13745	16717	20100
	65						11996	14717	17833	21376
	60					10640	13175	16099	19443	23240
	55				9123	11437	14134	17245	20803	24840
	50			7607	9665	12101	14945	18230	21987	26249
	45		6254	8022	10162	12705	15682	19126	23069	27541
	40	5227	6671	8480	10687	13322	16418	20007	24120	28789
	35	5773	7217	9053	11312	14026	17226	20945	25214	30066
	30	6536	7967	9815	12111	14889	18179	22014	26425	
	25	7590	8992	10838	13158	15985	19351	23287		
Power(W)	68						7520	7534	7577	7678
	65						6907	6928	6981	7096
	60					6067	6093	6125	6194	6330
	55				5418	5467	5496	5537	5620	5776
	50			4899	4989	5034	5065	5113	5209	5384
	45		4450	4600	4679	4718	4750	4804	4912	5105
	40	4012	4239	4370	4437	4470	4500	4559	4678	4886
	35	3847	4049	4161	4214	4239	4267	4329	4456	4680
	30	3654	3829	3920	3958	3974	3999	4063	4198	
	25	3383	3531	3600	3621	3626	3646	3710		

7.2 Ten Coefficients of Polynomial

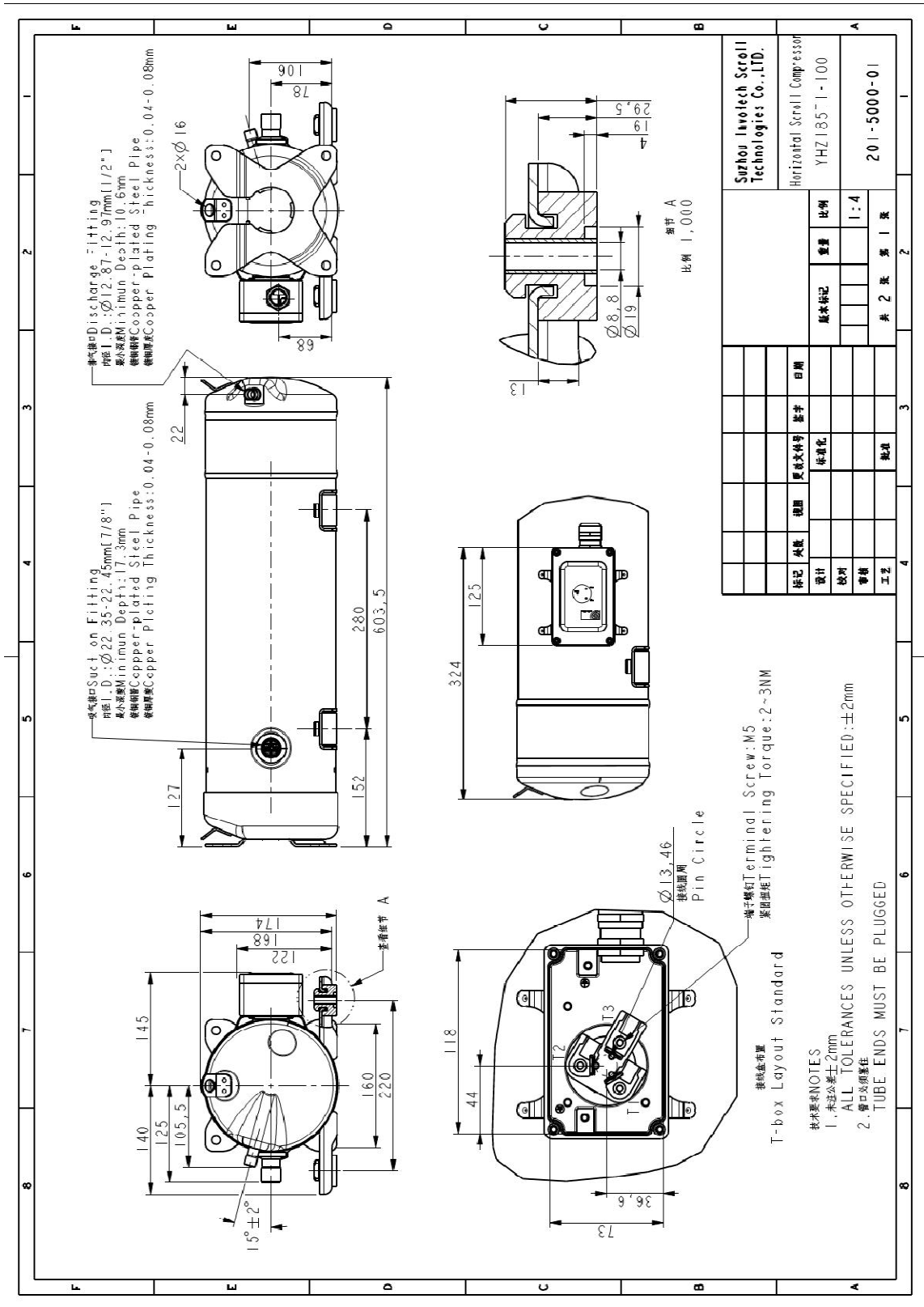
Expression	$z = p_0 + p_1*x + p_2*y + p_3*x^2 + p_4*x*y + p_5*y^2 + p_6*x^3 + p_7*x^2*y + p_8*x*y^2 + p_9*y^3$		
Description	z: Cooling Capacity(W) or Power (W) Specially: Heating Capacity(W)=Cooling Capacity(W)+Power (W) x: E.T. °C y: C.T. °C p0~p9: Coefficients of Polynomial		
Cooling Cap. Factor	Value	Power Factor	Value
p0	31048.59025	p0	-1144.7165
p1	774.53775	p1	1.02062
p2	-735.70223	p2	342.6352
p3	14.00774	p3	1.47553
p4	-0.37685	p4	0.39213
p5	13.15166	p5	-7.71284
p6	0.04244	p6	0.04134
p7	-0.10391	p7	-0.02268
p8	-0.05753	p8	-0.0055
p9	-0.09758	p9	0.06688

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.

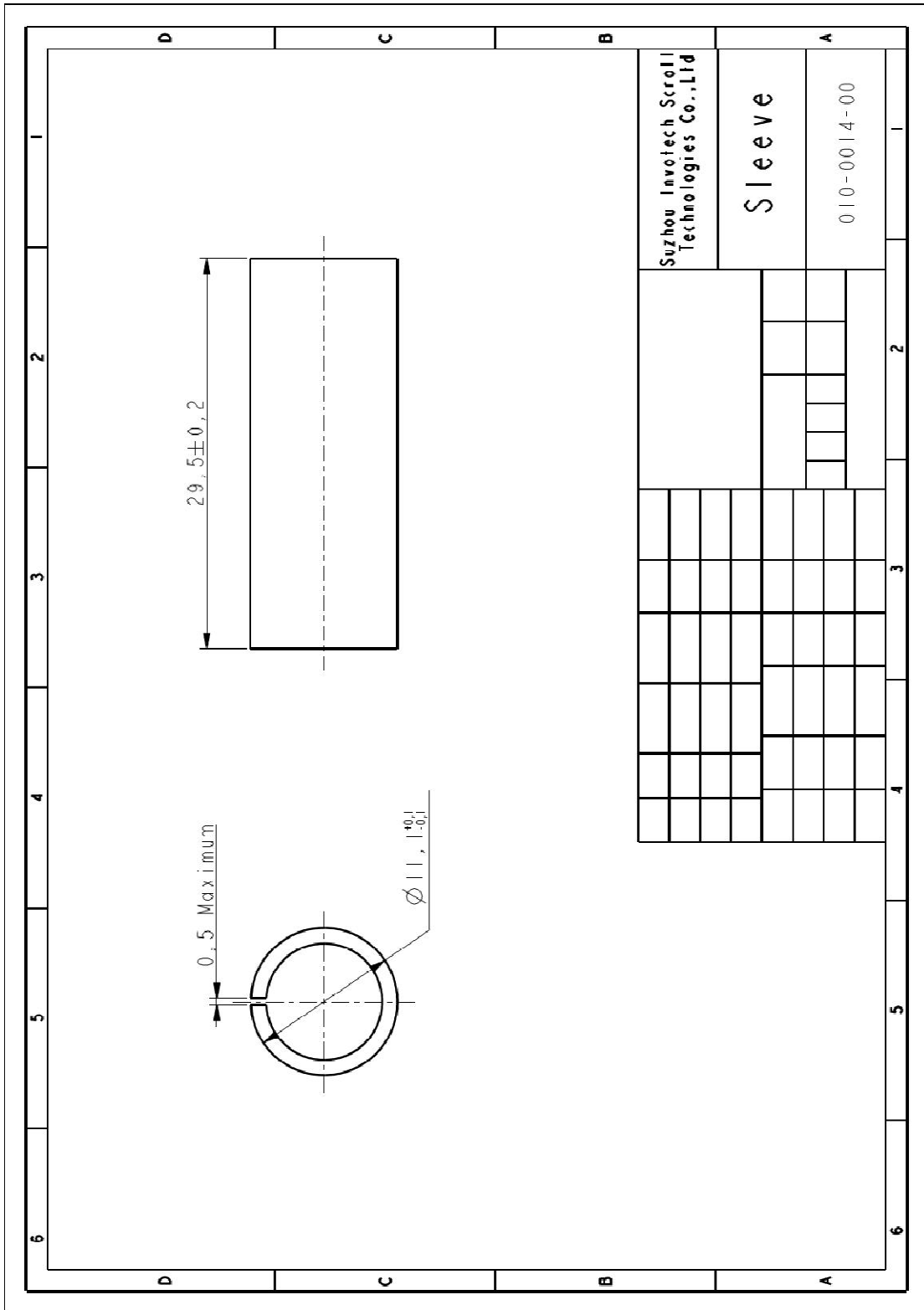
8 Notes

- 8.1 It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant is 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.
- 8.2 It is not allowed to charge the refrigerant from the suction or discharge line close 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 from the compressor, to avoid the liquid refrigerant flood back.
- 8.3 Refrigerant charge limitation: the ratio between the weight of oil and refrigerant should be ≥ 0.4 .
- 8.4 It is not allowed to vacuum by compressor, not allowed to run the compressor without refrigerant, and not allowed to run the compressor in the reversed direction for long duration.
- 8.5 The compressor can only work with approved refrigerant.
- 8.6 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.
- 8.7 When the suction and discharge plugs are removed, the assembly and brazing should be done in 15 minutes.
- 8.8 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.
- 8.9 The deviation of supplied voltage should be less than $\pm 10\%$ of rated voltage.
- 8.10 A 70W crankcase heater is recommended to avoid the refrigerant migration during the off cycle and flood start. The crankcase heater should be power on 12 hours earlier than the first start or restart after long duration off.
- 8.11 The system should be equipped with necessary protection devices, such as pressure, temperature, oil return, over-current and phase fault, etc.
- 8.12 The compressor shall be kept horizontal during installation, and shall not be placed upright or upside down.

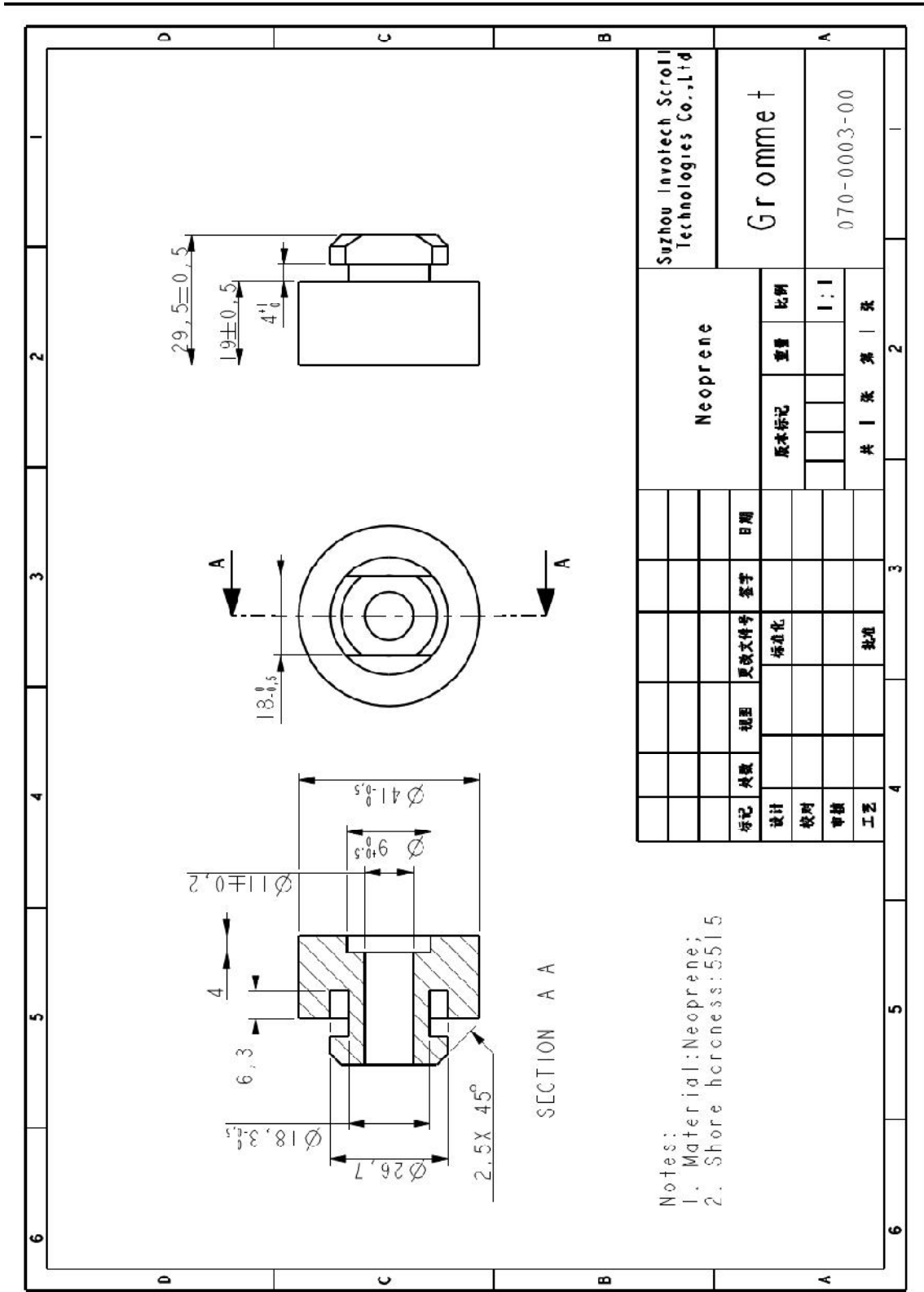
9 Drawings
9.1 Outline Drawing



9.2 Sleeve Drawing



9.3 Grommet Drawing



10 Application

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