



*** 50Hz YMZ110E1-100Specification**

Specification		Notes
Standard Model	YMZ110E1-100	Basic Model
Extended Model		
Extended Model		
Extended Model		
Extended Model		
Extended Model		

Revision Record			
Version	Reviser	Description	Date
A	LUZY	Limited Release	Jul.27,2022

Checked by

Date

Approved by

Date

1 Specification

1.1 Basic Specification

Model	YMZ110E1-100(Including Extended Model)
Type	Low Side Shell Design Horizontal Scroll Compressor
Application	Refrigeration conditioning
Refrigerant	R404A
Displacement(cc/rev)	108
Cooling Capacity(W) ^(a)	11043
Input Power(W) ^(a)	5768
RLA(A) ^(a)	10.8
Cooling COP(W/W) ^(a)	1.91
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)	17.1
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%
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	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)	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)	H3.2/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

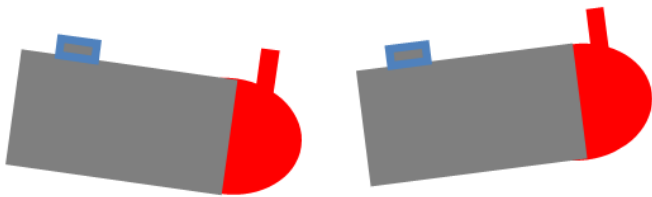
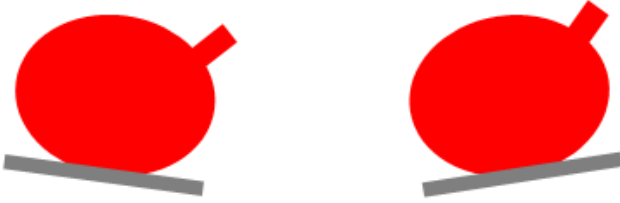
2 Rated Condition, 48 Hours Break-in-Running before implementing performance and sound testing

Item	Rated Condition	Max. Load Condition
E.T.(°C)/C.T.(°C)/S.H.(K)/ S.C.(K)/A.T.(°C)	-6.7/48.9/11.1/0/35	10/65/11.9/0/46.1
Frequency(Hz)	50	50
Cooling Capacity Deviation	≥92.5%	-
Power Deviation	≤107.5%	-
COP Deviation	≥92.5%	-

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

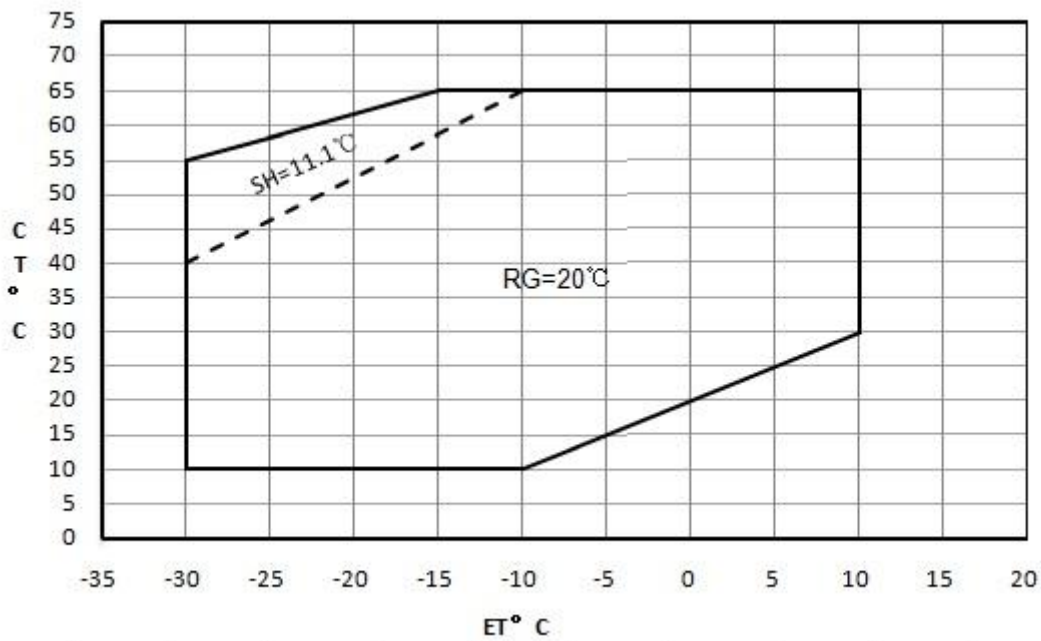
Max Tilt Angle	 +7°Tilt -7°Tilt
Max Rolling Angle	 +15°Rolling -15°Rolling

5 Accessory

YMZ110E1-100			
Item	Name	P.N.	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 0 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								
		-30	-25	-20	-15	-10	-5	0	5	10
Cooling Capacity(W)	65				4750	6991	8460	10081	11934	14098
	60			4448	5706	8242	9883	11735	13876	16387
	55	2858	3943	5170	7709	9351	11181	13279	15726	18600
	50	3327	4502	6950	8572	10361	12396	14757	17525	20779
	45	3792	6054	7637	9363	11315	13571	16212	19317	22967
	40	5110	6632	8277	10124	12255	14749	17685	21145	25207
	35	5647	7189	8913	10898	13224	15971	19220	23050	27541
	30	6190	7769	9588	11727	14265	17282	20859	25075	30012
	25	6782	8415	10345	12653	15419	18723	22645	27264	
	20	7465	9168	11226	13720	16731	20337	24620		
	15	8283	10071	12274	14971	18242	22168			
	10	9278	11168	13531	16447	19995				
Power(W)	65				7013	7336	7637	7926	8215	8517
	60			6176	6487	6768	7031	7288	7552	7834
	55	5057	5411	5717	5988	6235	6469	6703	6949	7219
	50	4700	5011	5280	5518	5739	5953	6172	6410	6676
	45	4348	4625	4864	5080	5282	5484	5698	5934	6206
	40	4005	4255	4474	4674	4867	5066	5281	5526	5811
	35	3672	3903	4110	4304	4496	4699	4925	5186	5493
	30	3351	3572	3775	3970	4170	4386	4631	4917	5255
	25	3043	3264	3471	3676	3892	4130	4402	4720	
	20	2752	2979	3199	3423	3663	3931	4239		
	15	2478	2722	2963	3213	3486	3792			
	10	2225	2492	2763	3049	3363				

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	35268.8373	p0	3108.8203
p1	1274.3006	p1	142.1560
p2	-670.7528	p2	39.4441
p3	19.7867	p3	2.6724
p4	-18.5469	p4	-4.2312
p5	8.0530	p5	0.0892
p6	0.1067	p6	0.0260
p7	-0.2332	p7	-0.0456
p8	0.0653	p8	0.0451
p9	-0.0569	p9	0.0069

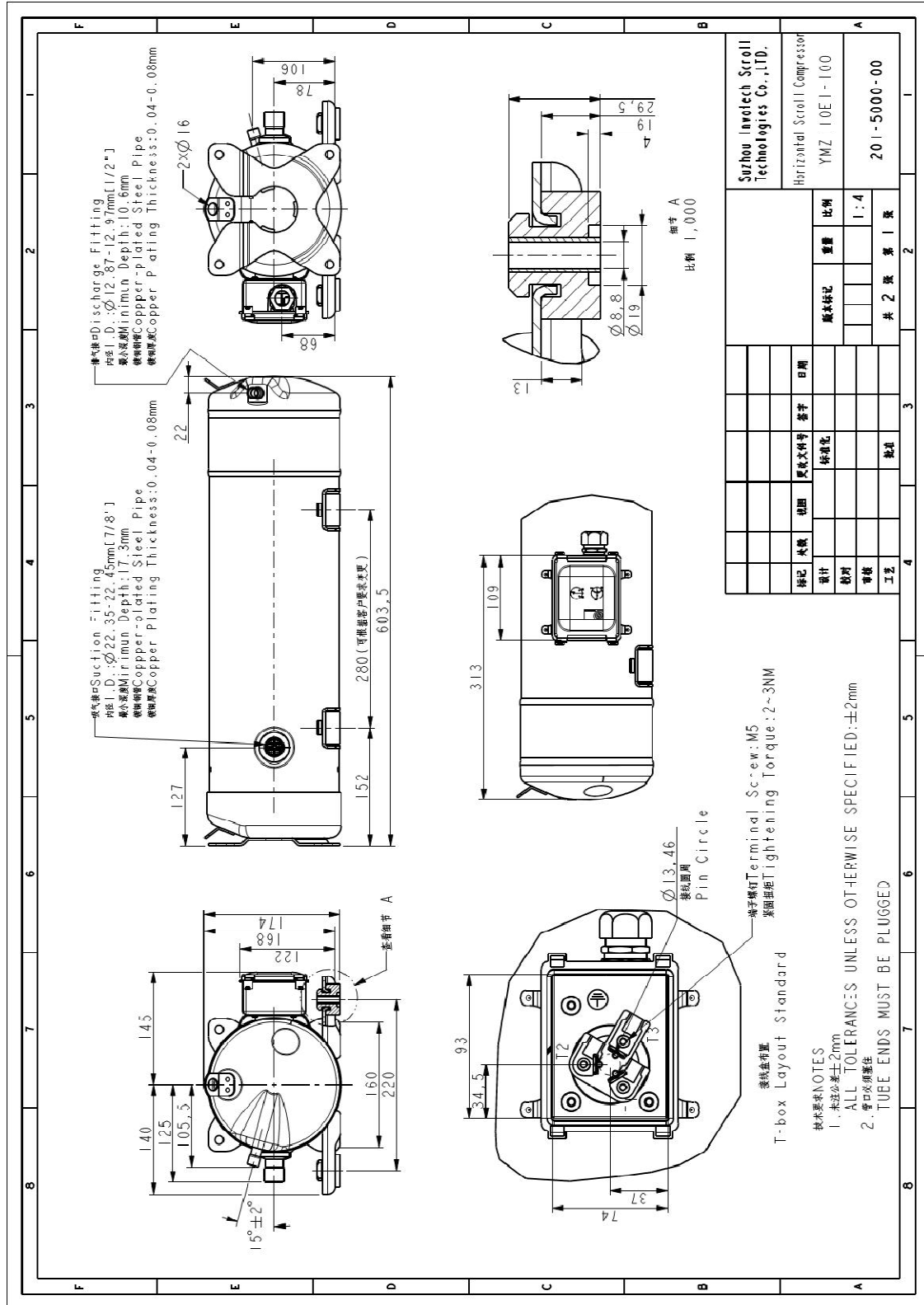
Notes: Coefficients of polynomial are based on the fitting results of some sample data, which can be used as a reference of compressor selection, but cannot completely eliminate customer's test.

8 Notes

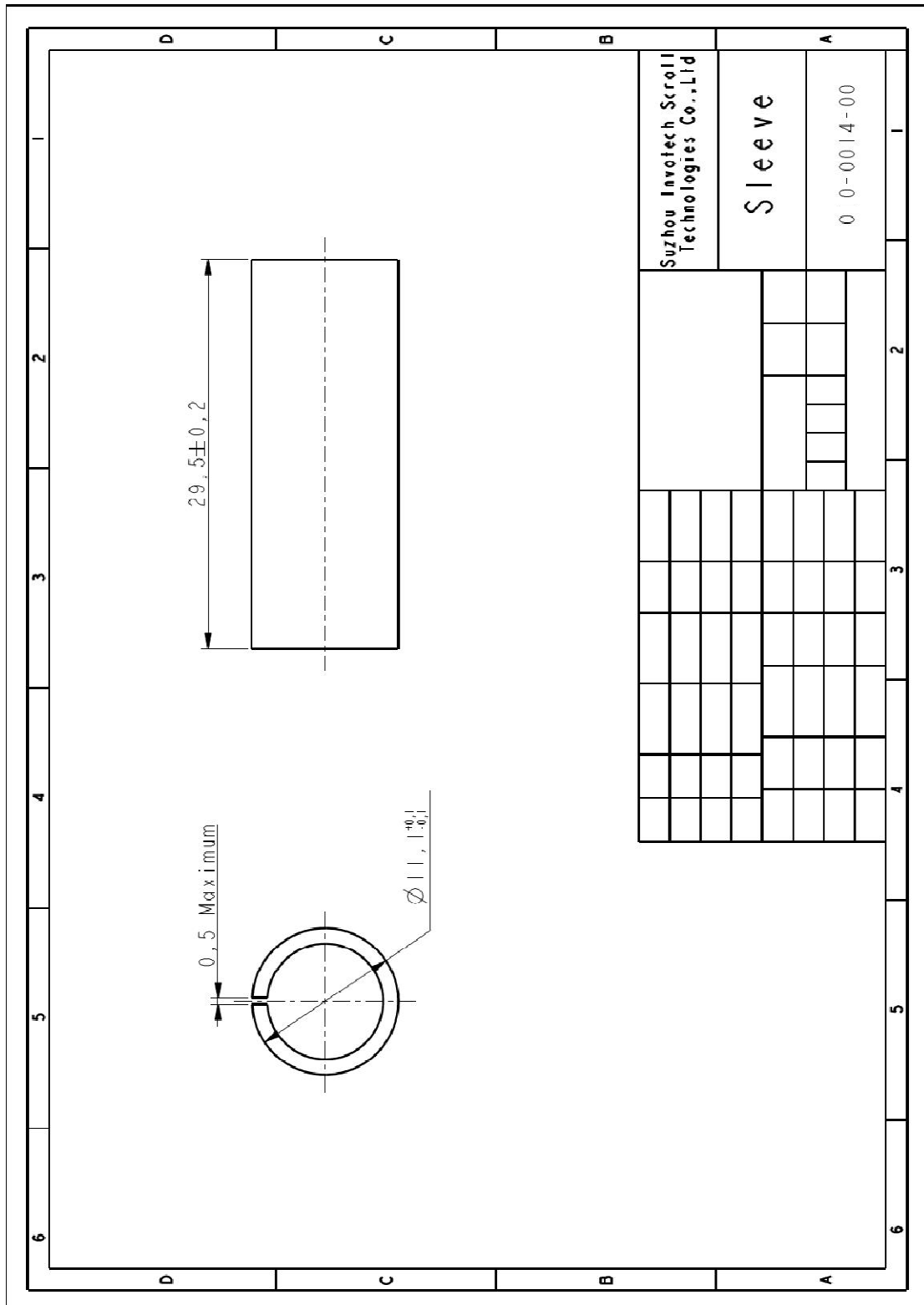
- 8.1 It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant is charged. In some cases, such as on the field site, if it is limited by the situation that can't charge the required volume of refrigerant, 50% of the required 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

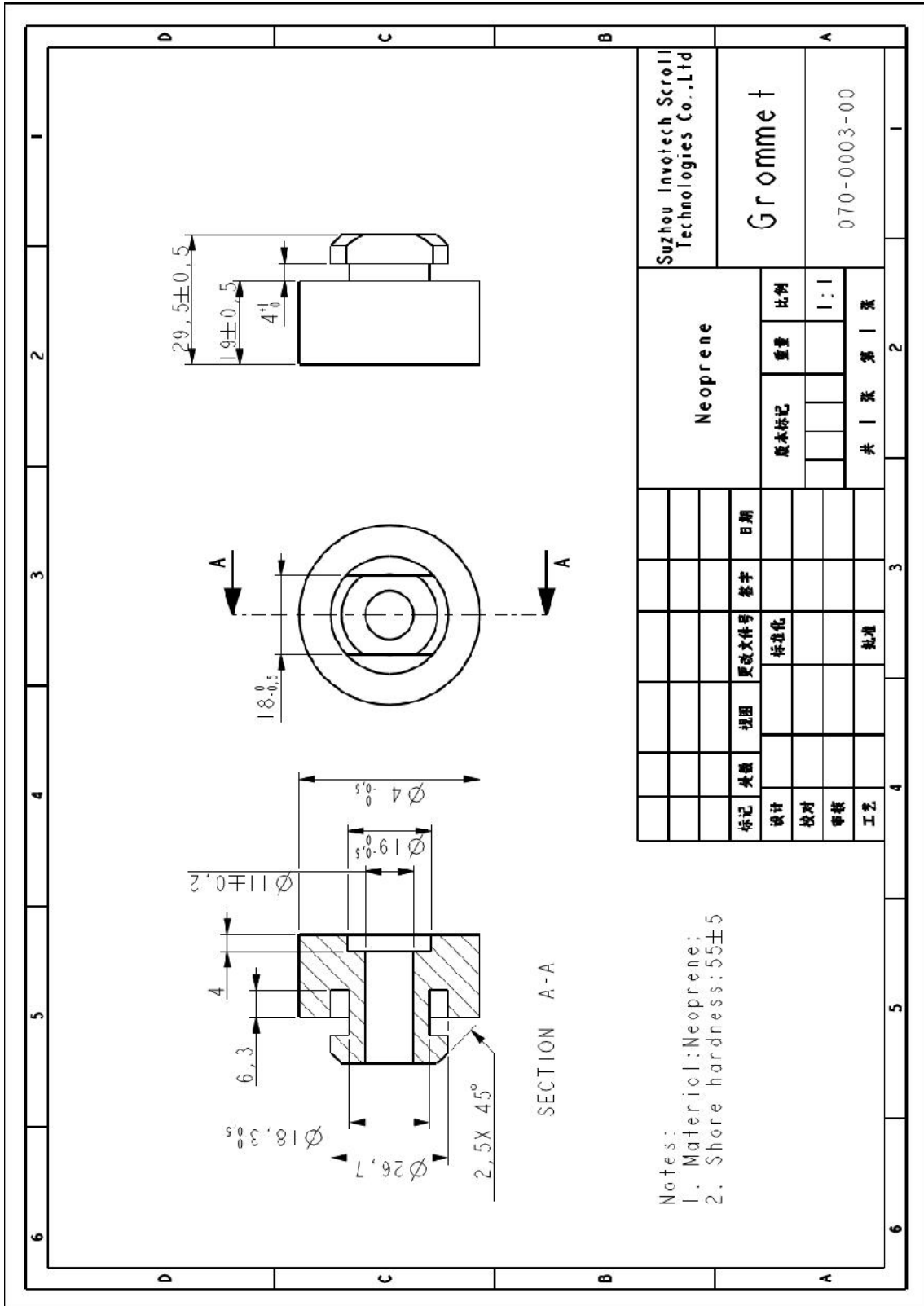
9.1 Outline Drawing



9.2 Sleeve Drawing



9.3 Grommet Drawing



10 Application

See Details in the 《YM serial MBP refrigerant scroll compressor application manual》