*** YH230A7 100Specification**

Specification		Notes
Standard Model	YH230A7-100	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	YH230A7-100(Including Extended Model)
Type	Low Side Shell Design Scroll Compressor
Application	Air-condition Refrigeration
Refrigerant	R22
Displacement(cc/rev)	123
Cooling Capacity(W)[a]	28182
Input Power(W)[a]	8107
RLA(A)[a]	26.5
Cooling COP(W/W)[a]	3.48
Power Supply	208-230V/3~/60Hz
Min. Operating Voltage(V)	187
Max. Operating Voltage(V)	253
LRA(A)	241
Max. Operating Current(A)[b]	36.37
Rated Speed(r/min)[a]	3500
Compressor Weight(With Oil)(kg)	53
Oil Type	3GS
Oil Kinematic Viscosity(cSt, 40℃)	32
Oil Density(kg/L, 20℃)	0.902
Primary Charge(L) Recharge(L)	2.7 2.55
Oil Circulation Rate[a]	≤1%
Rated Sound(Sound Power)(dBA)[c]	75
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	80
Vibration Displacement Peak-Peak(mm)[d]	≤0.12
Moisture(mg)	≤1100
Impurity(mg)	≤140
LVS(V)[e]	177
MOV (V)[f]	187
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(℃)	130(B Class)
Line to Line Resistance UV(CS)(Ω, 25℃)	0.25(±10%)
Line to Line Resistance UW(CR)(Ω, 25℃)	0.25(±10%)
Line to Line Resistance VW(SR)(Ω, 25℃)	0.25(±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) Low Side(MPa)	H3.0/L2.0
Compressor FreeSpace(Without Oil)	
High Side(L) Low Side(L)	H0.9/L6.5
Max. Refrigerant Charge(kg)	See Notes
Discharge Temperature Limit(℃)	≤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℃
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.T.(℃)/S.H.(K)/ S.C.(K)/A.T.(℃)	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 Internal Protector

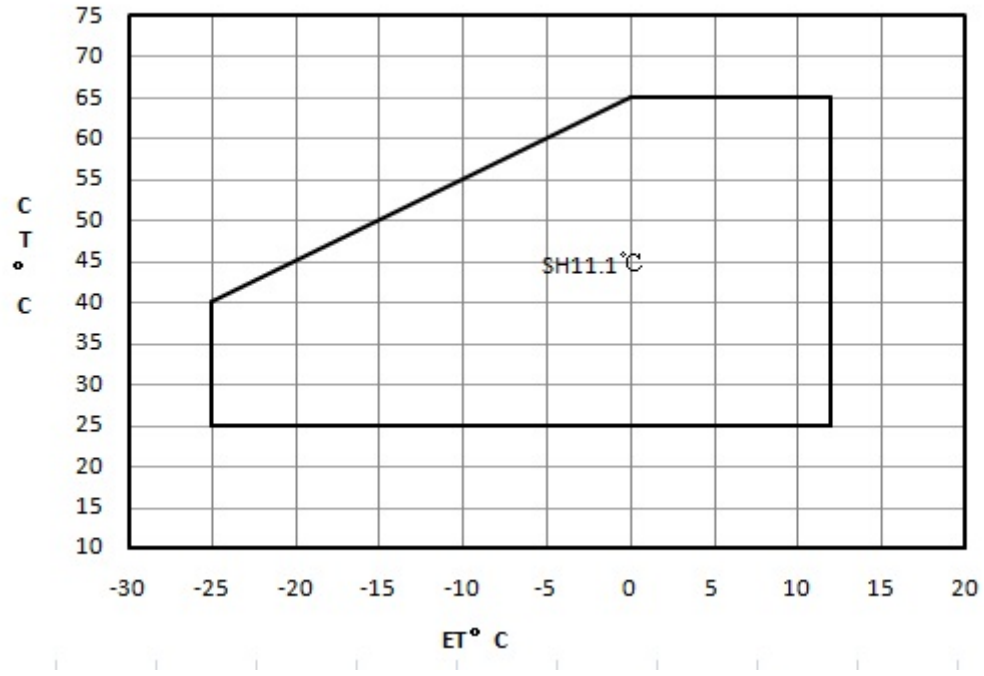
Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor1	Vendor2
		Model	UP28NA03B-XX	
		Open Temp.(℃)	135±5	
		Close Temp. (℃)	70±10	
		Short Time Trip	120A 3-10s	A s
Internal Pressure Relieve Valve	With	2.76-3.10MPa		

4 Accessory

YH230A7-100			
Item	Name	P.N.	PCS
1	Grommet	070-0003-00	4
2	Sleeve	010-0014-00	4
3			
4			
5			

5 Compressor Operating Envelope

5.1 Compressor Operating Envelope



5.2 EVI control logic(only for the compressors with EVI module)

- Recommend system subcooling 5K
- DLT≤95℃,control superheat of injection line=5K
- DLT＞95℃,control DLT=95℃
- Max injection pressure≤2.0MPa

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

Item	E.T.(℃) / C.T.(℃)	-25	-20	-15	-10	-5	0	5	10
Cooling Cap. (W)	65						18569	22476	26944
	60					16370	19965	24082	28774
	55				14226	17523	21303	25620	30524
	50			12161	15173	18630	22585	27089	32194
	45		10197	12938	16086	19693	23810	28491	33785
	40	8359	10842	13694	16966	20711	24980	29825	35297
	35	8908	11478	14429	17815	21686	26095	31093	36732
	30	9460	12105	15145	18632	22619	27156	32296	38090
	25	10016	12724	15842	19419	23509	28163	33433	39371
Power(W)	65						10188	10176	10186
	60					9100	9099	9105	9132
	55				8112	8134	8149	8170	8212
	50			7198	7256	7293	7321	7355	7409
	45		6332	6439	6510	6558	6598	6642	6707
	40	5489	5658	5776	5857	5914	5963	6016	6088
	35	4888	5065	5191	5280	5345	5400	5460	5538
	30	4352	4536	4668	4763	4833	4892	4956	5038
	25	3866	4055	4191	4288	4361	4423	4489	4573

6.2 Ten Coefficients of Polynomial

Expression	z = p0 + p1*x + p2*y + p3*x^2 + p4*x*y + p5*y^2 + p6*x^3 + p7*x^2*y + p8*x*y^2 + p9*y^3		
Description	z:Cooling Capacity(W) or Power (W) Specially: Heating Capacity(W)=Cooling Capacity(W)+Power (W) x: E.T. ℃ y: C.T. ℃ p0~p9: Coefficients of Polynomial		
Cooling Cap. Factor	Value	Power Factor	Value
p0	32420.707082	p0	2076.695553
p1	1079.887579	p1	7.986104
p2	-144.996037	p2	110.553087
p3	13.648862	p3	0.022065
p4	-2.422765	p4	0.394123
p5	-0.989369	p5	-1.221148
p6	0.068974	p6	0.018676
p7	-0.053324	p7	0.001892
p8	-0.04583	p8	-0.008773
p9	-0.0009	p9	0.022155

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 (>=50% initial charge volume), the suggested minimum interval duration between start and stop is 3 minutes.

7.9 The deviation of supplied voltage should be less than +/-10% of rated voltage.

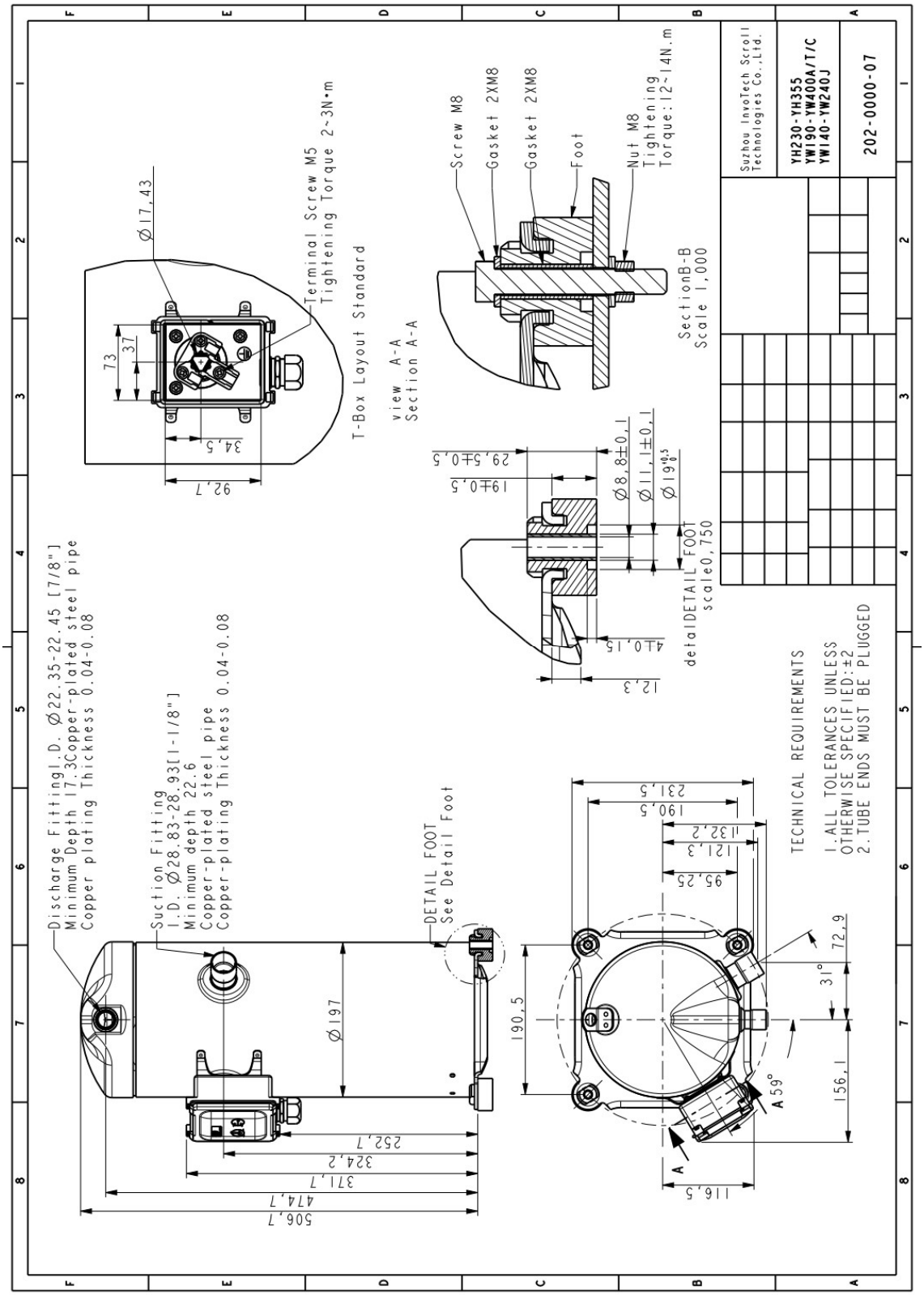
7.10 A 90W crankcase heater is recommended to avoid the refrigerant migration during the off circle and flood start. The crankcase heater should be power on 12 hours earlier than the first start or restart after long duration off.

7.11 The system should be equipped with necessary protection devices, such as pressure, temperature, oil return, overcurrent and phase fault, etc.

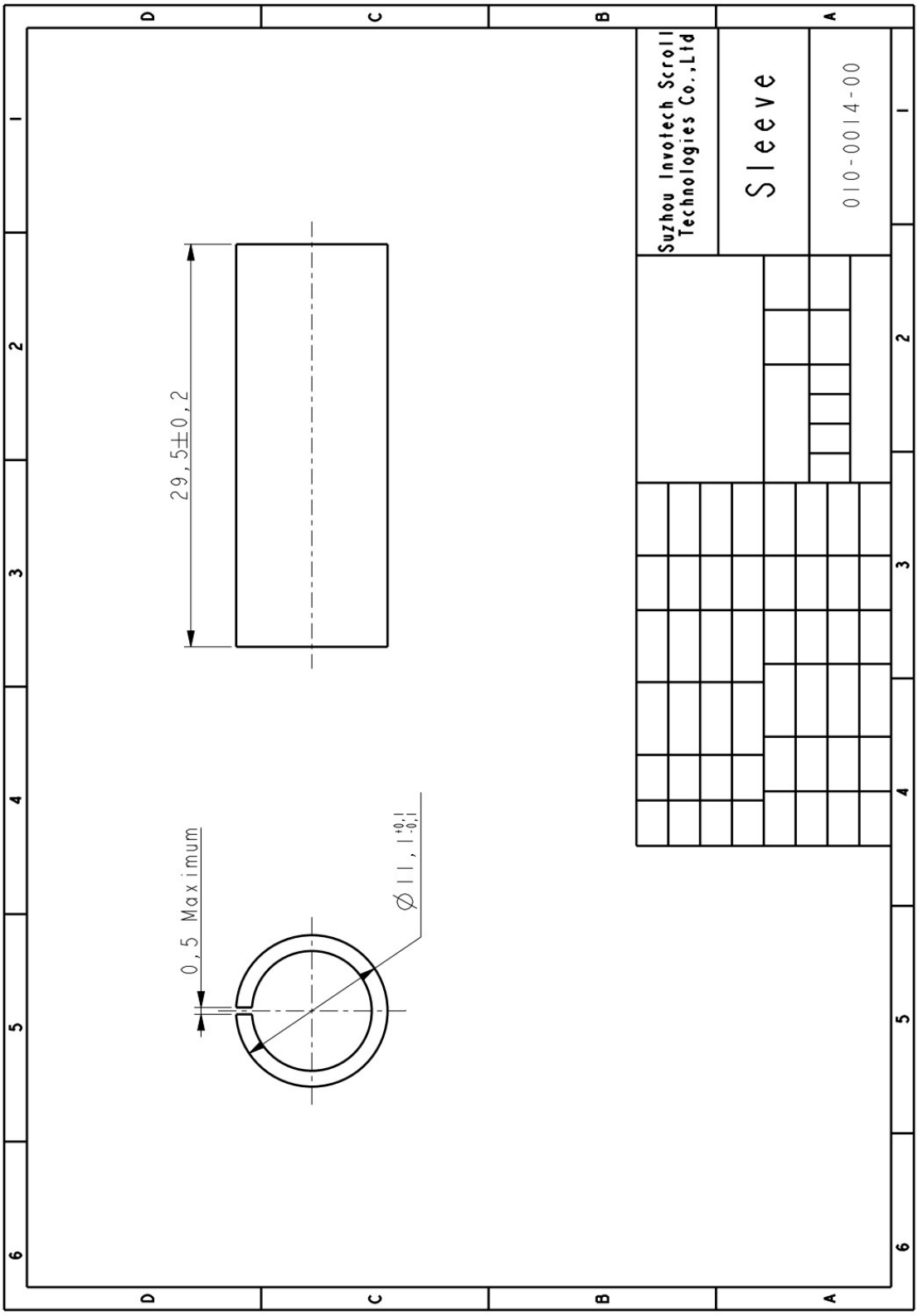
7.12 The compressor is not allowed to lay down or place upside down during transportation, stock and installation. The maximum inclination is 15° when the compressor is running.

8 Drawings

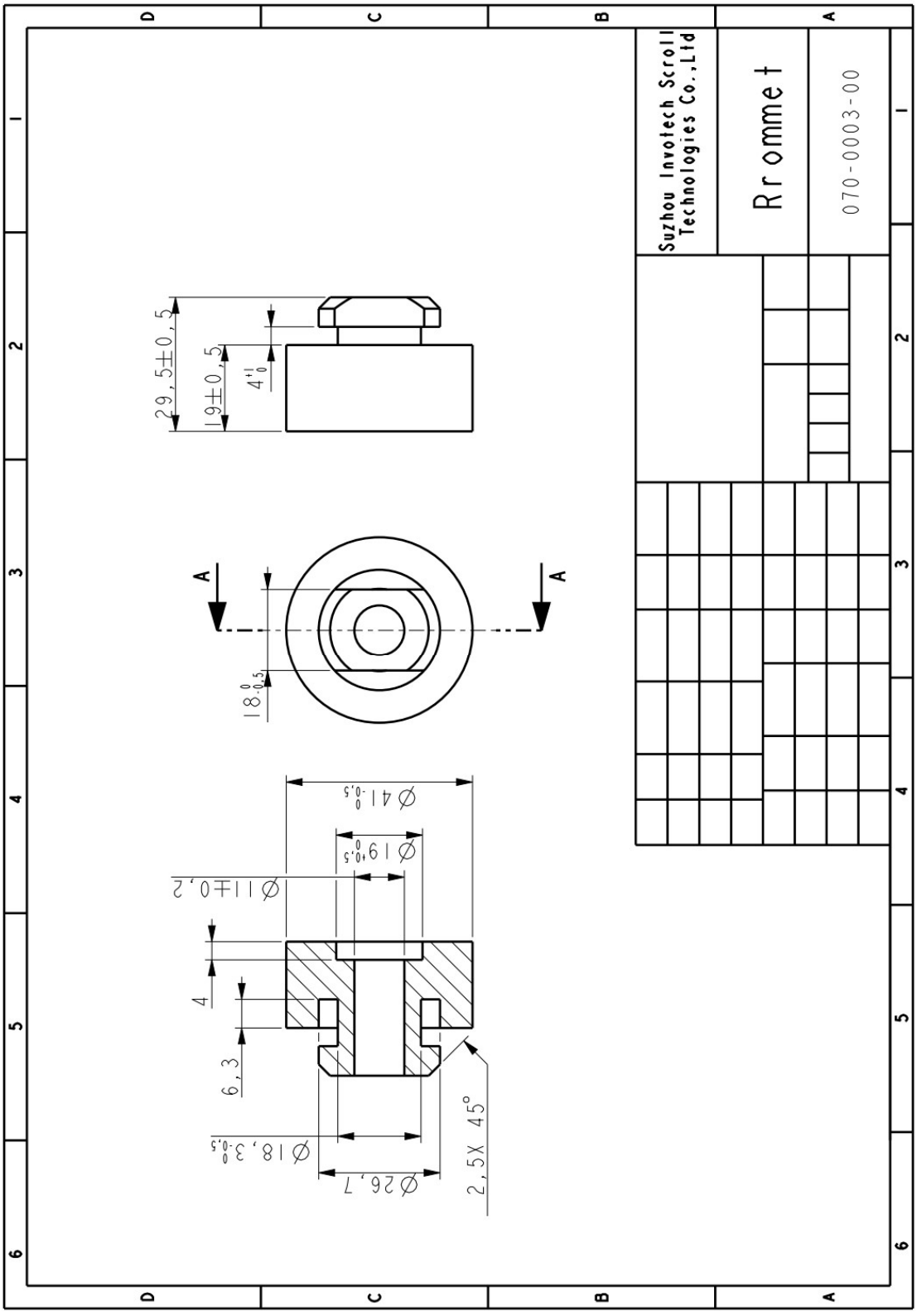
8.1 Outline Drawing



8.2 Sleeve Drawing



8.3 Grommet Drawing



9 Single Phase Compressor Wiring Diagram

Only for single phase

10 Application

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