*** YH150A7 100Specification**

Specification		Notes
Standard Model	YH150A7-100	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	YH150A7-100(Including Extended Model)
Type	Low Side Shell Design Scroll Compressor
Application	Air-condition Refrigeration
Refrigerant	R22
Displacement(cc/rev)	83.3
Cooling Capacity(W)[a]	18000
Input Power(W)[a]	5250
RLA(A)[a]	17
Cooling COP(W/W)[a]	3.42
Power Supply	208-230V/3~/60Hz
Min. Operating Voltage(V)	187
Max. Operating Voltage(V)	253
LRA(A)	136
Max. Operating Current(A)[b]	23.8
Rated Speed(r/min)[a]	3500
Compressor Weight(With Oil)(kg)	31
Oil Type	3GS
Oil Kinematic Viscosity(cSt, 40℃)	32
Oil Density(kg/L, 20℃)	0.902
Primary Charge(L) Recharge(L)	1.6 1.45
Oil Circulation Rate[a]	≤1%
Rated Sound(Sound Power)(dBA)[c]	71
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	76
Vibration Displacement Peak-Peak(mm)[d]	≤0.1
Moisture(mg)	≤500
Impurity(mg)	≤100
LVS(V)[e]	177
MOV (V)[f]	187
Start Capacitor(μF/V)	/
Start Relay	/
Run Capacitor(μF/V)	/
IP Class of Terminal Box	IP21
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℃)	0.572(±10%)
Line to Line Resistance UW(CR)(Ω, 25℃)	0.572(±10%)
Line to Line Resistance VW(SR)(Ω, 25℃)	0.572(±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)	H1.0/L3.6
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

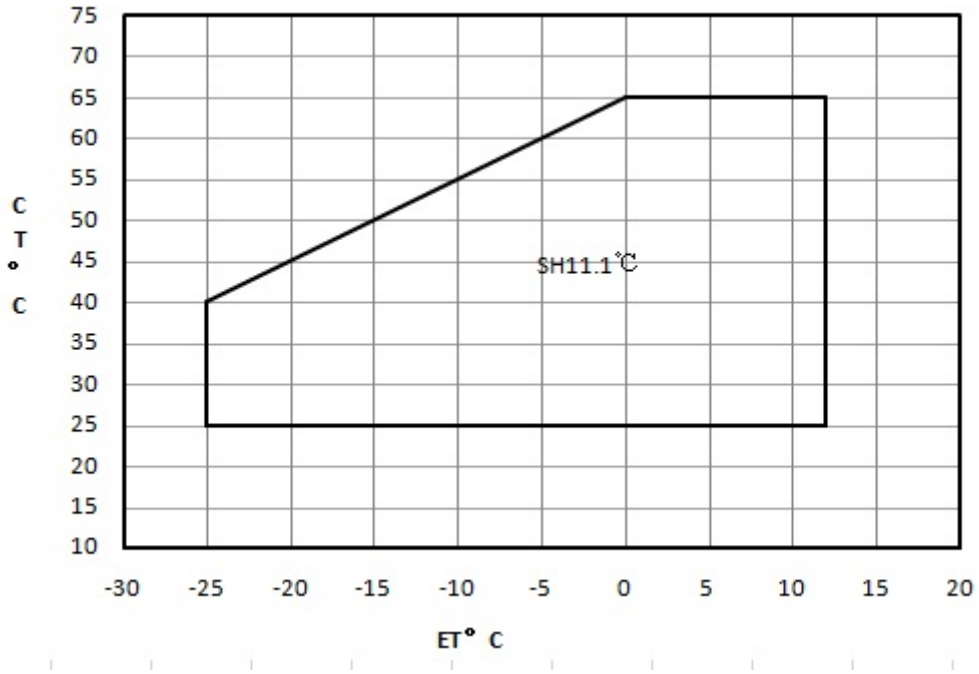
Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor1	Vendor2
		Model	UP28LA05B-XX	
		Open Temp.(℃)	125±5	
		Close Temp. (℃)	70±10	
		Short Time Trip	103A 3-10s	A s
Internal Pressure Relieve Valve	With	2.76-3.10MPa		

4 Accessory

YH150A7-100			
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						12048	14583	17482
	60					10621	12954	15626	18670
	55				9230	11369	13823	16623	19805
	50			7890	9845	12088	14654	17577	20889
	45		6616	8395	10437	12778	15449	18486	21921
	40	5424	7035	8885	11009	13438	16208	19352	22902
	35	5780	7447	9362	11559	14071	16932	20175	23833
	30	6138	7854	9827	12090	14676	17620	20955	24714
	25	6499	8256	10279	12600	15254	18274	21693	25545
Power (W)	65						6668	6661	6667
	60					5956	5956	5960	5977
	55				5309	5324	5334	5348	5375
	50			4711	4749	4773	4792	4814	4849
	45		4144	4215	4261	4293	4318	4348	4390
	40	3593	3704	3781	3834	3871	3903	3938	3985
	35	3199	3315	3398	3456	3498	3535	3574	3625
	30	2849	2969	3056	3117	3163	3202	3244	3298
	25	2531	2654	2743	2807	2854	2895	2938	2993

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	21036.024	p0	1359.27396
p1	700.68	p1	5.2272
p2	-94.08	p2	72.36108
p3	8.856	p3	0.014442
p4	-1.572	p4	0.257968
p5	-0.641947	p5	-0.799286
p6	0.044754	p6	0.012224
p7	-0.034599	p7	0.001238
p8	-0.029737	p8	-0.005742
p9	-0.000584	p9	0.014501

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.

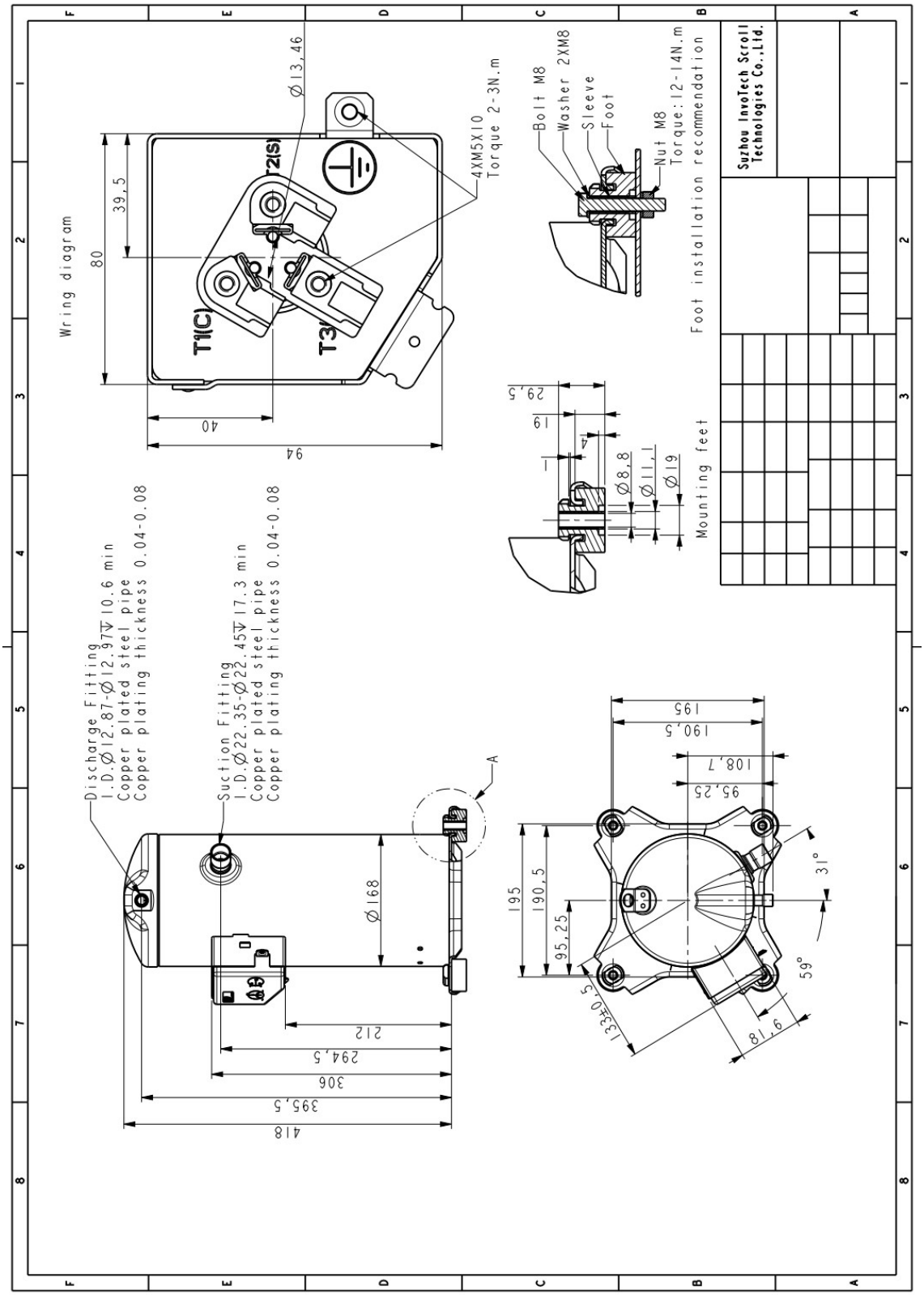
7.10 A 70W crankcase heater is recommended to avoid the refrigerant migration during the off circle and flood start. The crankcase heater should be power on 12 hours earlier than the first start or restart after long duration off.

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

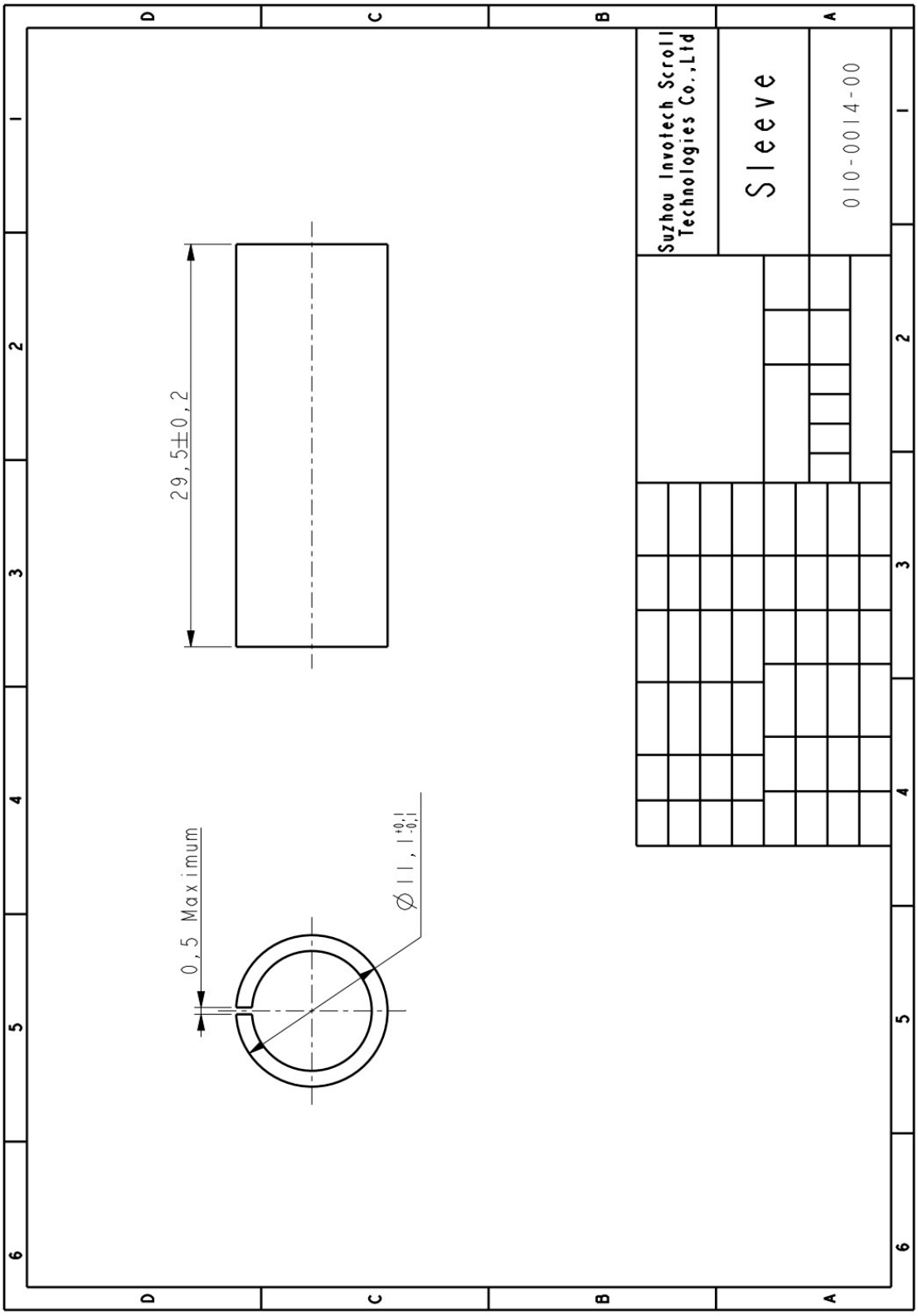
7.12 The compressor is not allowed to lay down or place upside down during transportation, stock and installation. The maximum inclination is 15° when the compressor is running.

8 Drawings

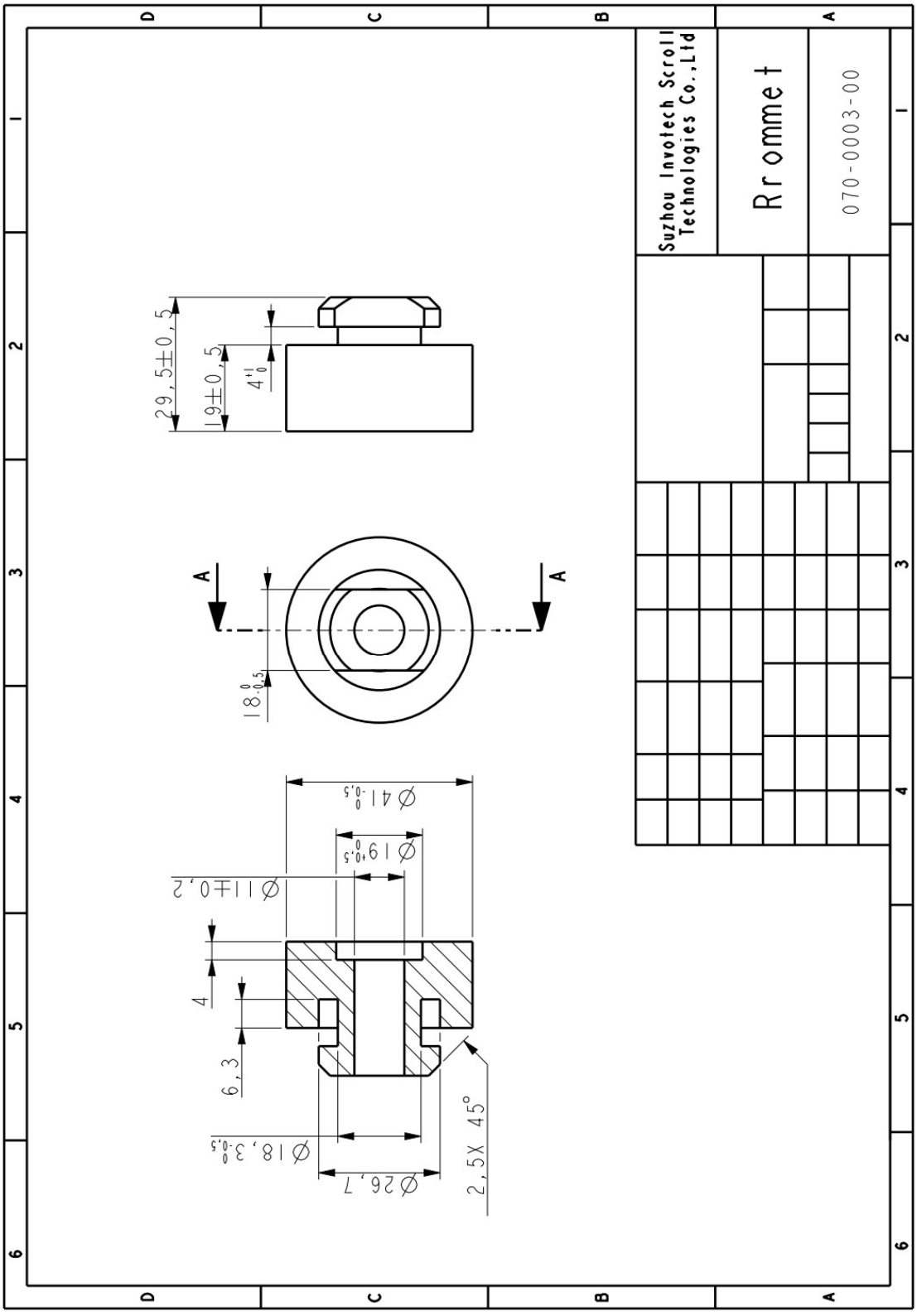
8.1 Outline Drawing



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》