*** 50Hz YM101P1 100Specification**

Specification		Notes
Standard Model	YM101P1-100	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	YM101P1-100(Including Extended Model)
Type	Low Side Shell Design Scroll Compressor
Application	Medium Temp.Refrigeration
Refrigerant	R290
Displacement(cc/rev)	108
Cooling Capacity(W)[a]	10099
Input Power(W)[a]	4312
RLA(A)[a]	7.9
Cooling COP(W/W)[a]	2.34
Power Supply	380-420V/3~/50Hz or 460V/3~/60Hz
Min. Operating Voltage(V)	342
Max. Operating Voltage(V)	462
LRA(A)	60
Max. Operating Current(A)[b]	12.3
Rated Speed(r/min)[a]	2900
Compressor Weight(With Oil)(kg)	38
Oil Type	PAG
Oil Kinematic Viscosity(cSt, 40℃)	32
Oil Density(kg/L, 20℃)	0.999
Primary Charge(L)	1.6
Recharge(L)	1.45
Oil Circulation Rate[a]	≤1%
Rated Sound(Sound Power)(dBA)[c]	74
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	79
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(℃)	130(B Class)
Line to Line Resistance UV(CS)(Ω, 25℃)	2.63(±10%)
Line to Line Resistance UW(CR)(Ω, 25℃)	2.65(±10%)
Line to Line Resistance VW(SR)(Ω, 25℃)	2.58(±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)	H2.1/L1.7
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.(℃)	-6.7/48.9/11.1/0/35	10/60/11.9/0/46.1
Cooling Capacity Deviation	≥92.5%	-
Power Deviation	≤107.5%	-
COP Deviation	≥92.5%	-

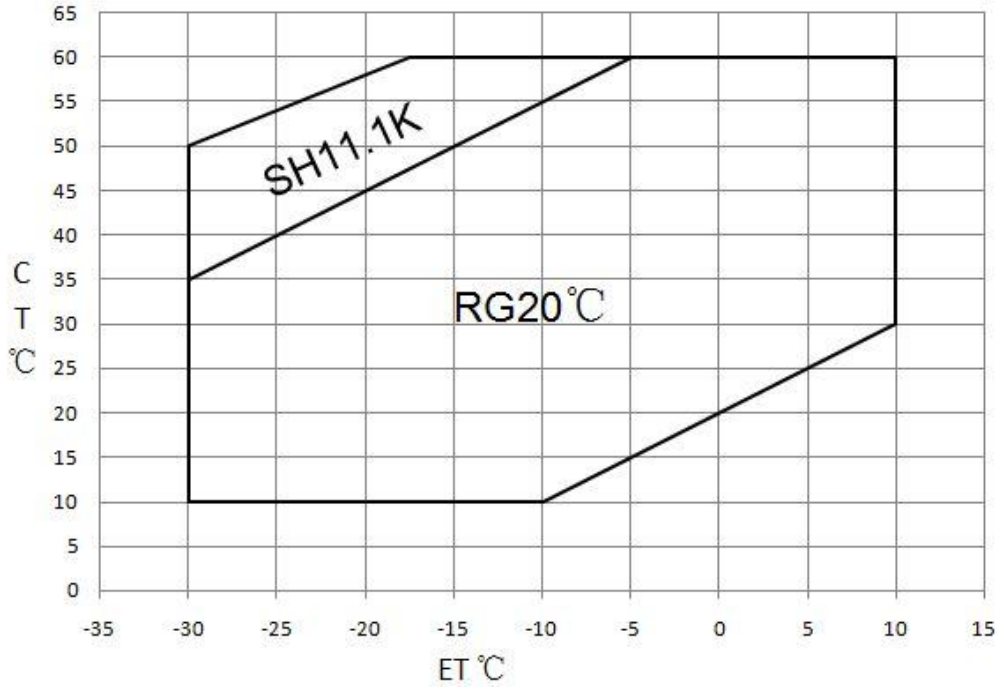
3 Internal Protector

Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor1	Vendor2
		Model	37HM544-XX	
		Open Temp.(℃)	145±5	
		Close Temp. (℃)	60±9	
		Short Time Trip	41A 3-10s	A s
Internal Pressure Relieve Valve	With	2.76-3.10MPa		

4 Accessory

YM101P1-100			
Item	Name	P.N.	PCS
1	Grommet	070-0003-00	4
2	Sleeve	010-0014-00	4
3			
4			
5			

5 Compressor OperatingEnvelope



6 Compressor Performance Sheet

- Performance Based on Superheat is within the OperatingEnvelope,Subcooling after Condenser is 0K；
- 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.(℃)	-30	-25	-20	-15	-10	-5	0	5	10
Cooling Cap.(W)	60				6703	8050	9605	11386	13407	15686
	55		4887	5946	7194	8647	10320	12230	14394	16827
	50	4270	5222	6357	7694	9247	11034	13069	15370	17952
	45	4552	5563	6771	8191	9841	11736	13891	16325	19051
	40	4834	5900	7175	8675	10415	12413	14684	17245	20111
	35	5105	6221	7558	9132	10959	13055	15437	18120	21121
	30	5352	6514	7908	9551	11460	13650	16137	18938	22069
	25	5565	6767	8213	9921	11906	14185	16773	19687	
	20	5731	6968	8462	10230	12287	14649	17333		
	15	5839	7107	8643	10466	12589	15031			
	10	5877	7170	8745	10617	12803				
Power(W)	60				4668	4916	5135	5327	5493	5636
	55		3853	4122	4362	4575	4764	4930	5075	5203
	50	3392	3647	3875	4079	4261	4424	4568	4698	4814
	45	3233	3447	3638	3811	3967	4108	4236	4354	4464
	40	3069	3246	3406	3552	3686	3810	3927	4038	4146
	35	2894	3038	3171	3295	3411	3523	3632	3741	3851
	30	2700	2816	2927	3033	3137	3241	3347	3458	3575
	25	2480	2574	2666	2759	2855	2955	3063	3181	
	20	2229	2304	2383	2467	2559	2661	2775		
	15	1939	2000	2070	2150	2243	2350			
	10	1604	1655	1720	1801	1899				

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	18581.806	p0	1438.306095
p1	641.87132	p1	40.18915497
p2	-14.92349	p2	78.67366585
p3	7.7229316	p3	0.684678165
p4	-3.200713	p4	-1.162589266
p5	-2.687957	p5	-0.772649262
p6	0.0214932	p6	0.002942537
p7	-0.048364	p7	-0.019826241
p8	-0.019495	p8	0.018121723
p9	0.0156297	p9	0.009024977

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.

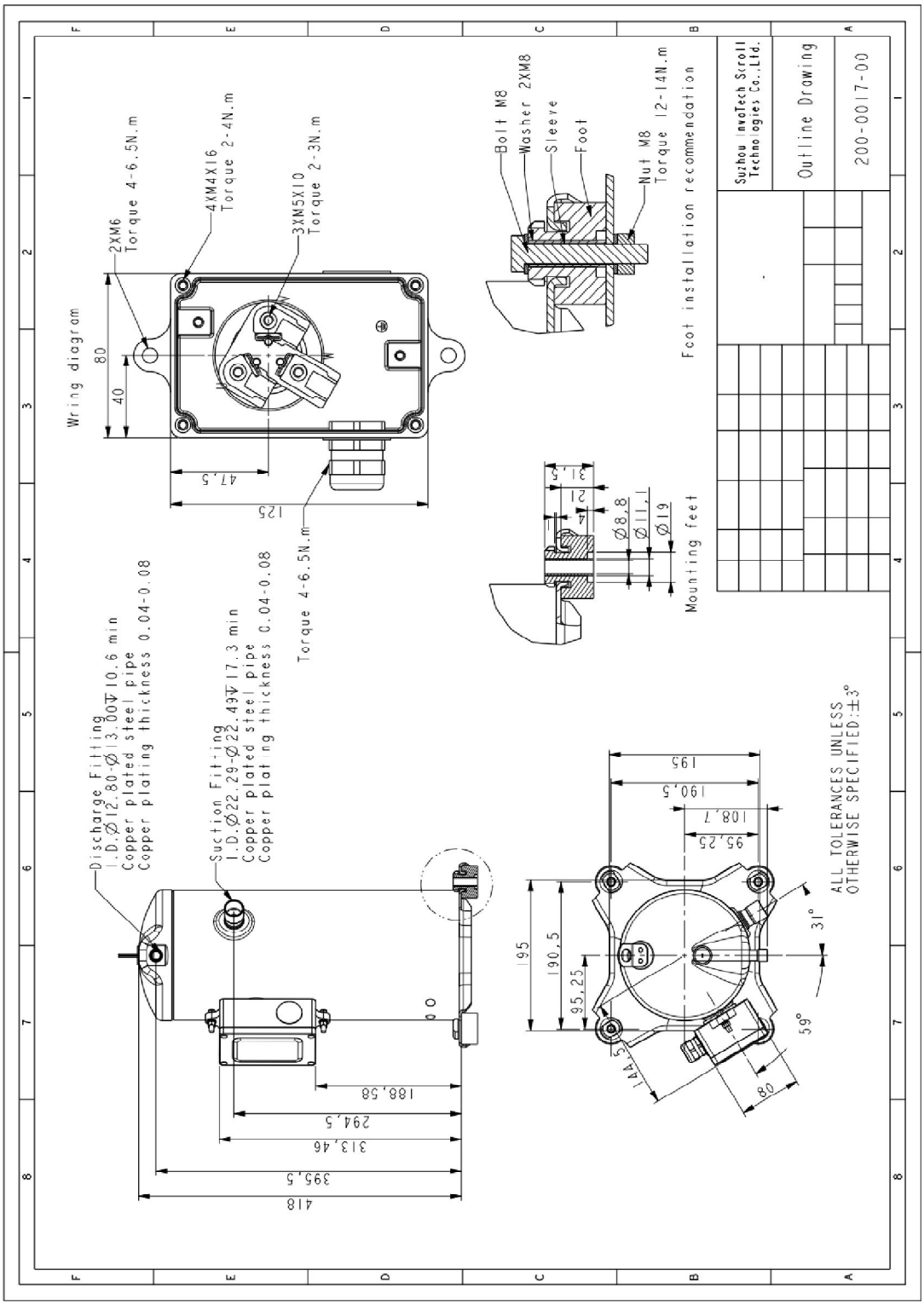
7.10 A 70W crankcase heater is recommended to avoid the refrigerant migration during the off circle and flood start. The crankcase heater should be power on 12 hours earlier than the first start or restart after long duration off.

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

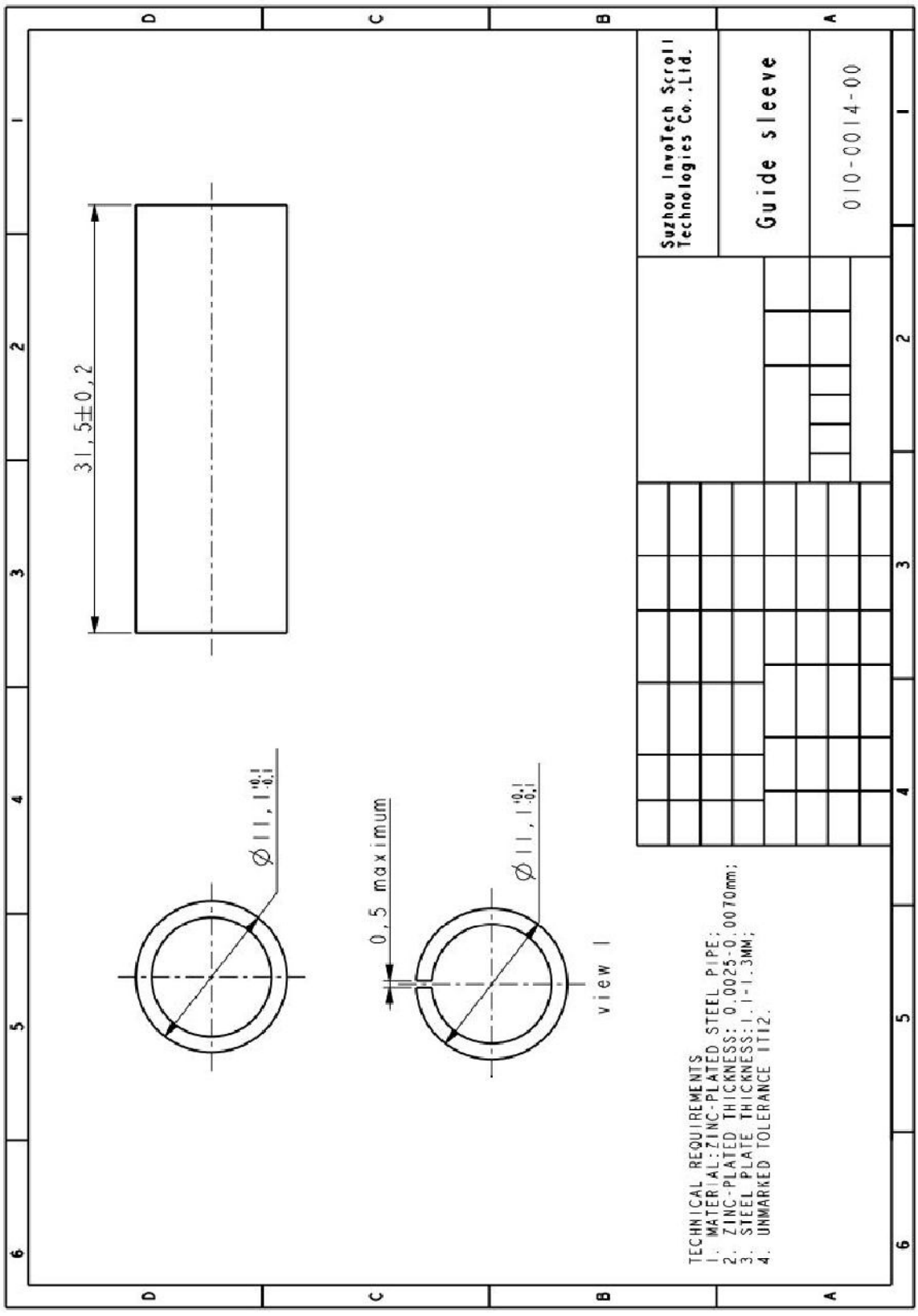
7.12 The compressor is not allowed to lay down or place upside down during transportation, stock and installation. The maximum inclination is 15° when the compressor is running.

8 Drawings

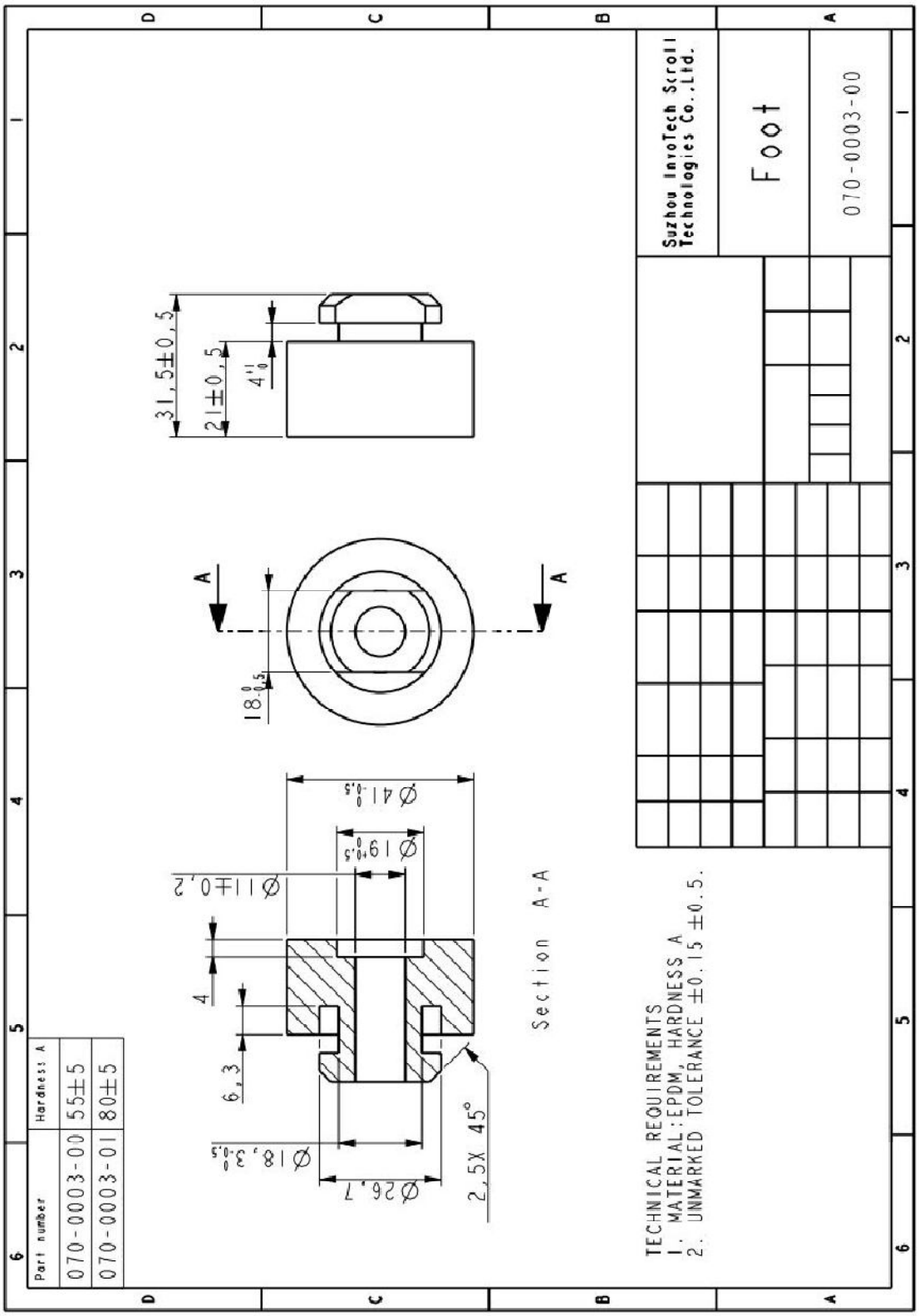
8.1 Outline Drawing



8.2 Sleeve Drawing



8.3 Grommet Drawing



9 Single Phase Compressor Wiring Diagram

Only for single phase

10 Application

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