*** 50Hz YM60P1100Specification**

Specification		Notes
Standard Model	YM60P1-100	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	YM60P1-100(Including Extended Models)
Type	Low Side Shell Design Scroll Compressor
Application	Medium Temp.Refrigeration
Refrigerant	R290
Displacement(cc/rev)	67.8
Cooling Capacity(W)[a]	6203
Input Power(W)[a]	2744
RLA(A)[a]	5.3
Cooling COP(W/W)[a]	2.26
Power Supply	380-420V/3~/50Hz or 460V/3~/60Hz
Min. Operating Voltage(V)	342
Max. Operating Voltage(V)	462
LRA(A)	45
Max. Operating Current(A)[b]	7.8
Rated Speed(r/min)[a]	2900
Compressor Weight(With Oil)(kg)	31
Oil Type	PAG
Oil Kinematic Viscosity(cSt, 40℃)	32
Oil Density(kg/L, 20℃)	0.999
Primary Charge(L)	1.4
Recharge(L)	1.25
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)	≤500
Impurity(mg)	≤100
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℃)	3.577(±10%)
Line to Line Resistance UW(CR)(Ω, 25℃)	3.649(±10%)
Line to Line Resistance VW(SR)(Ω, 25℃)	3.514(±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/L3.8
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%	-

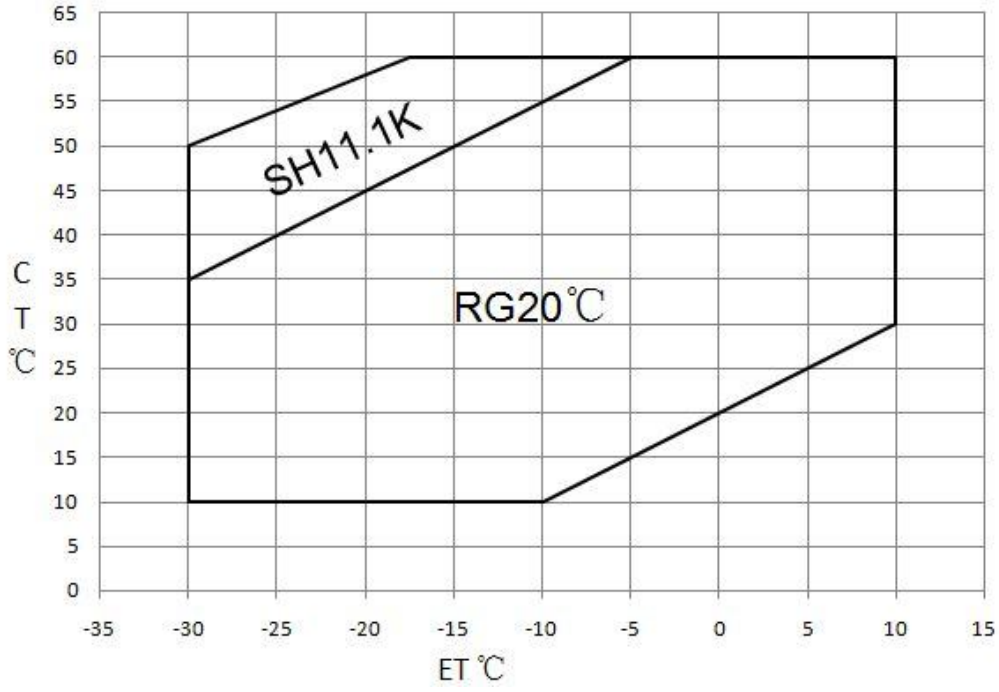
3 Internal Protector

Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor1	Vendor2
		Model	37HM222-XX	3HPD-XXX
		Open Temp.(℃)	120±5	120±5
		Close Temp. (℃)	60±9	60±9
		Short Time Trip	32A 3-10s	32A 3-10s
Internal Pressure Relieve Valve	With	2.76-3.10MPa		

4 Accessory

YM60P1-100			
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				4124	4953	5910	7005	8249	9650
	55		3007	3658	4426	5320	6349	7525	8856	10352
	50	2627	3213	3911	4734	5689	6788	8041	9456	11045
	45	2801	3423	4166	5040	6055	7220	8546	10043	11721
	40	2974	3630	4414	5337	6408	7637	9034	10610	12373
	35	3141	3827	4650	5618	6742	8032	9497	11148	12994
	30	3293	4007	4865	5876	7050	8398	9928	11651	13577
	25	3424	4163	5053	6104	7325	8727	10319	12112	
	20	3526	4287	5206	6294	7559	9013	10664		
	15	3592	4372	5318	6439	7745	9247			
	10	3616	4411	5380	6532	7877				
Power(W)	60				2972	3131	3270	3392	3497	3589
	55		2454	2625	2778	2913	3033	3139	3232	3313
	50	2160	2322	2467	2597	2713	2817	2909	2991	3066
	45	2059	2195	2317	2427	2526	2616	2698	2773	2843
	40	1954	2067	2169	2262	2347	2426	2500	2571	2640
	35	1843	1935	2019	2098	2172	2243	2313	2382	2452
	30	1719	1793	1864	1931	1997	2063	2131	2202	2276
	25	1579	1639	1698	1757	1818	1882	1951	2025	
	20	1419	1467	1517	1571	1629	1694	1767		
	15	1235	1274	1318	1369	1428	1497			
	10	1021	1054	1095	1147	1209				

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	11432.2	p0	915.8478609
p1	394.90247	p1	25.59062479
p2	-9.181472	p2	50.0958098
p3	4.7514271	p3	0.435971894
p4	-1.969195	p4	-0.740283933
p5	-1.653729	p5	-0.491987885
p6	0.0132234	p6	0.001873674
p7	-0.029756	p7	-0.012624448
p8	-0.011994	p8	0.011539088
p9	0.009616	p9	0.005746695

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.

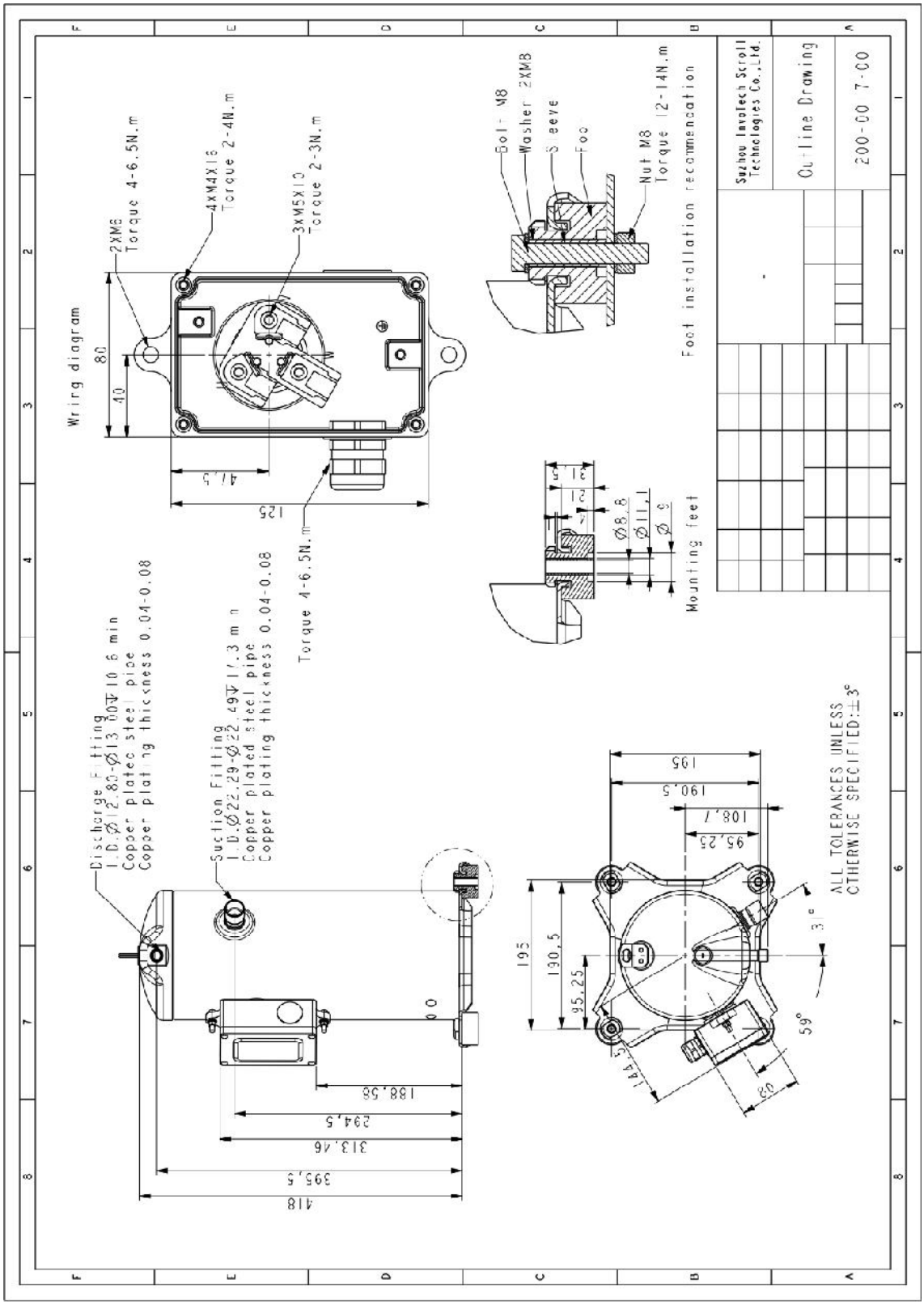
7.10 A 70W crankcase heater is recommended to avoid the refrigerant migration during the off circle and flood start. The crankcase heater should be power on 12 hours earlier than the first start or restart after long duration off.

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

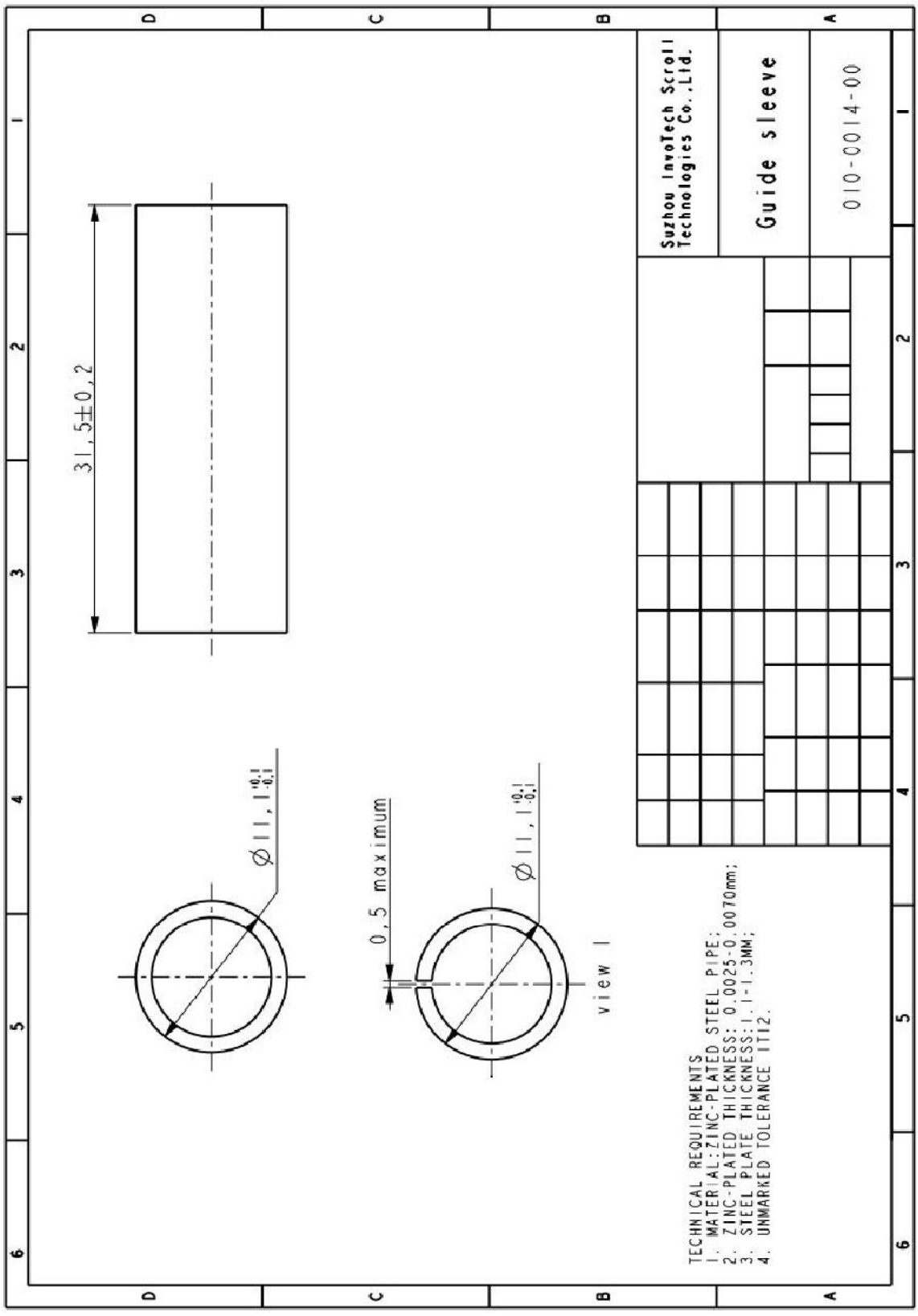
7.12 The compressor is not allowed to lay down or place upside down during transportation, stock and installation. The maximum inclination is 15° when the compressor is running.

8 Drawings

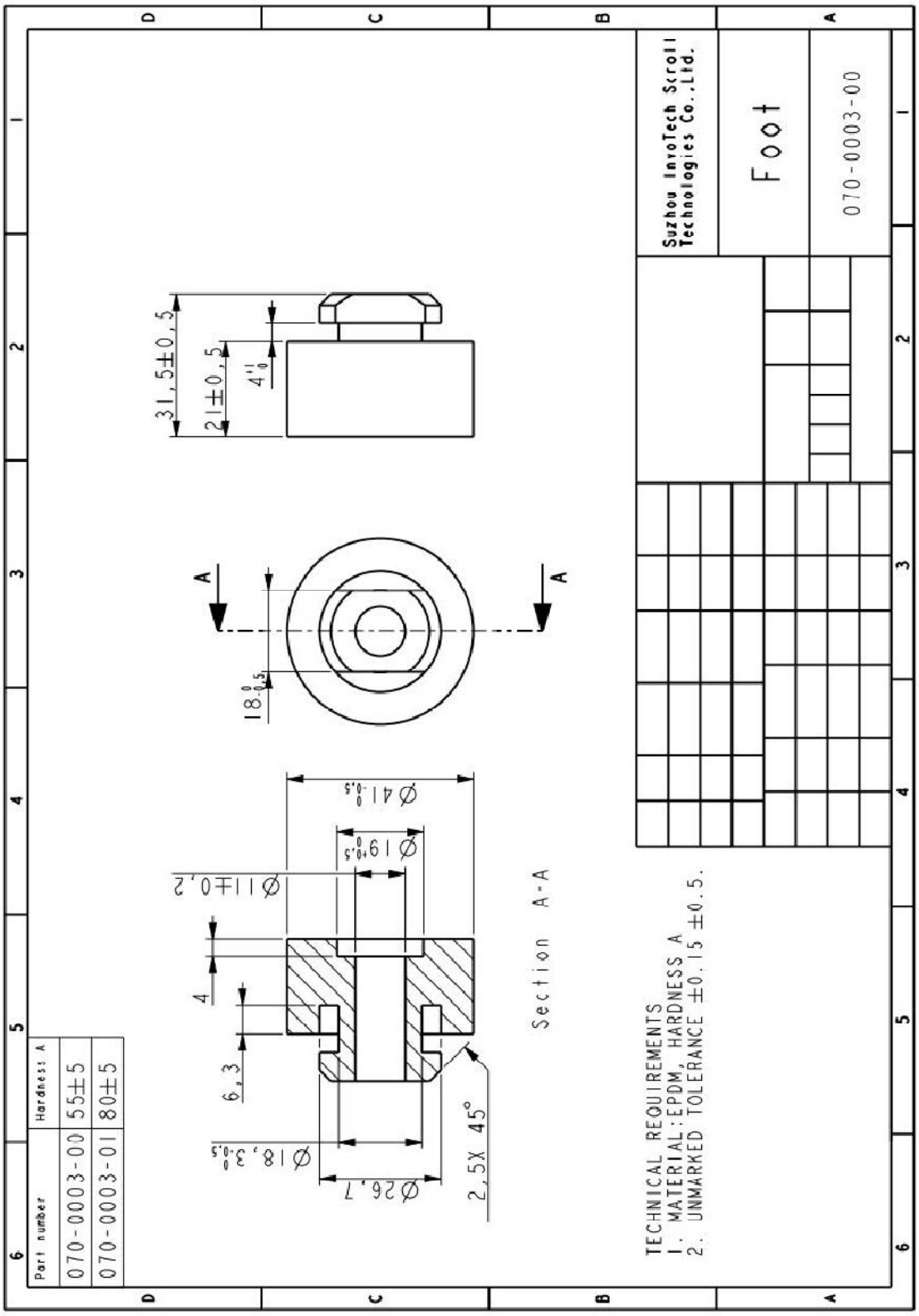
8.1 Outline Drawing



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》