*** 50Hz YM90P1100Specification**

Specification		Notes
Standard Model	YM90P1-100	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	YM90P1-100(Including Extended Models)
Type	Low Side Shell Design Scroll Compressor
Application	Medium Temp.Refrigeration
Refrigerant	R290
Displacement(cc/rev)	98.3
Cooling Capacity(W)[a]	8951
Input Power(W)[a]	3836
RLA(A)[a]	7.1
Cooling COP(W/W)[a]	2.33
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]	11.2
Rated Speed(r/min)[a]	2900
Compressor Weight(With Oil)(kg)	33
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%	-

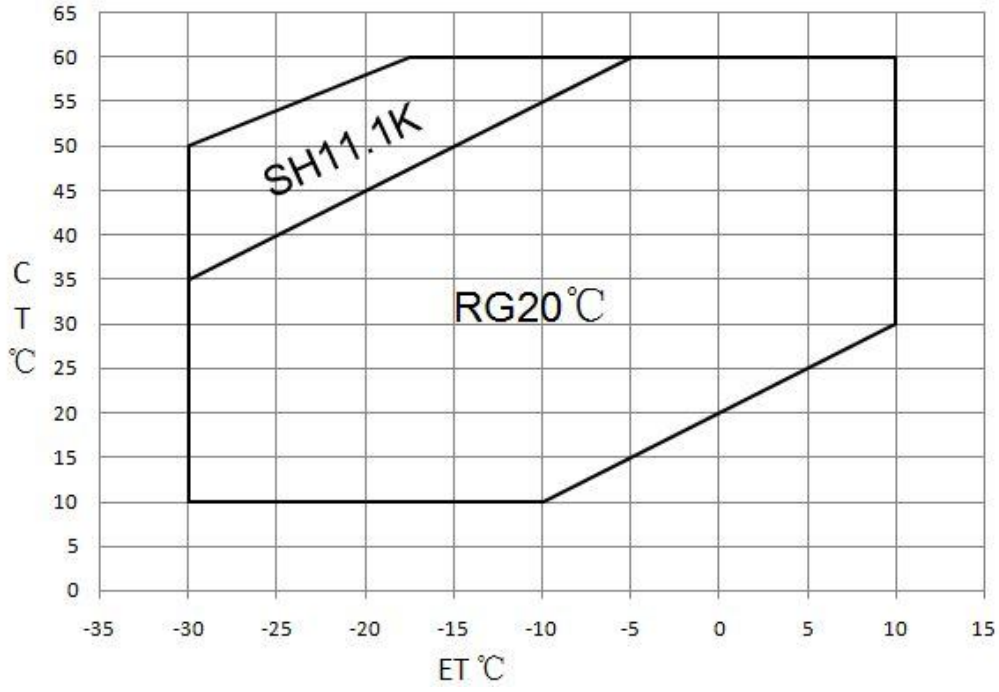
3 Internal Protector

Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor1	Vendor2
		Model	UP18KY08B-XX	
		Open Temp.(℃)	120±5	
		Close Temp. (℃)	60±10	
		Short Time Trip	42A 3-10s	A s
Internal Pressure Relieve Valve	With	2.76-3.10MPa		

4 Accessory

YM90P1-100			
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				5932	7124	8500	10076	11865	13881
	55		4325	5262	6366	7652	9133	10823	12738	14891
	50	3779	4621	5626	6809	8184	9765	11566	13602	15887
	45	4028	4923	5992	7249	8709	10385	12293	14447	16859
	40	4278	5221	6349	7677	9217	10985	12995	15261	17798
	35	4517	5505	6688	8081	9698	11553	13661	16036	18691
	30	4737	5764	6998	8452	10141	12079	14280	16759	19530
	25	4925	5988	7268	8780	10536	12553	14843	17422	
	20	5072	6167	7489	9053	10873	12964	15339		
	15	5167	6289	7649	9262	11141	13302			
	10	5201	6345	7739	9396	11330				
Power(W)	60				4168	4390	4585	4756	4904	5032
	55		3441	3681	3895	4085	4253	4401	4531	4645
	50	3029	3256	3460	3642	3805	3950	4079	4195	4299
	45	2887	3077	3249	3403	3542	3668	3783	3888	3986
	40	2740	2898	3041	3172	3291	3402	3506	3605	3701
	35	2584	2713	2831	2942	3046	3146	3243	3340	3439
	30	2410	2515	2613	2708	2801	2893	2988	3087	3192
	25	2215	2298	2381	2463	2549	2639	2735	2840	
	20	1990	2057	2128	2203	2285	2376	2478		
	15	1732	1786	1848	1919	2002	2098			
	10	1432	1478	1536	1608	1695				

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	16444.076	p0	1284.201871
p1	568.02772	p1	35.88317408
p2	-13.20663	p2	70.24434451
p3	6.8344527	p3	0.61131979
p4	-2.83249	p4	-1.03802613
p5	-2.378723	p5	-0.689865412
p6	0.0190205	p6	0.002627265
p7	-0.0428	p7	-0.017702001
p8	-0.017252	p8	0.01618011
p9	0.0138316	p9	0.008058015

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

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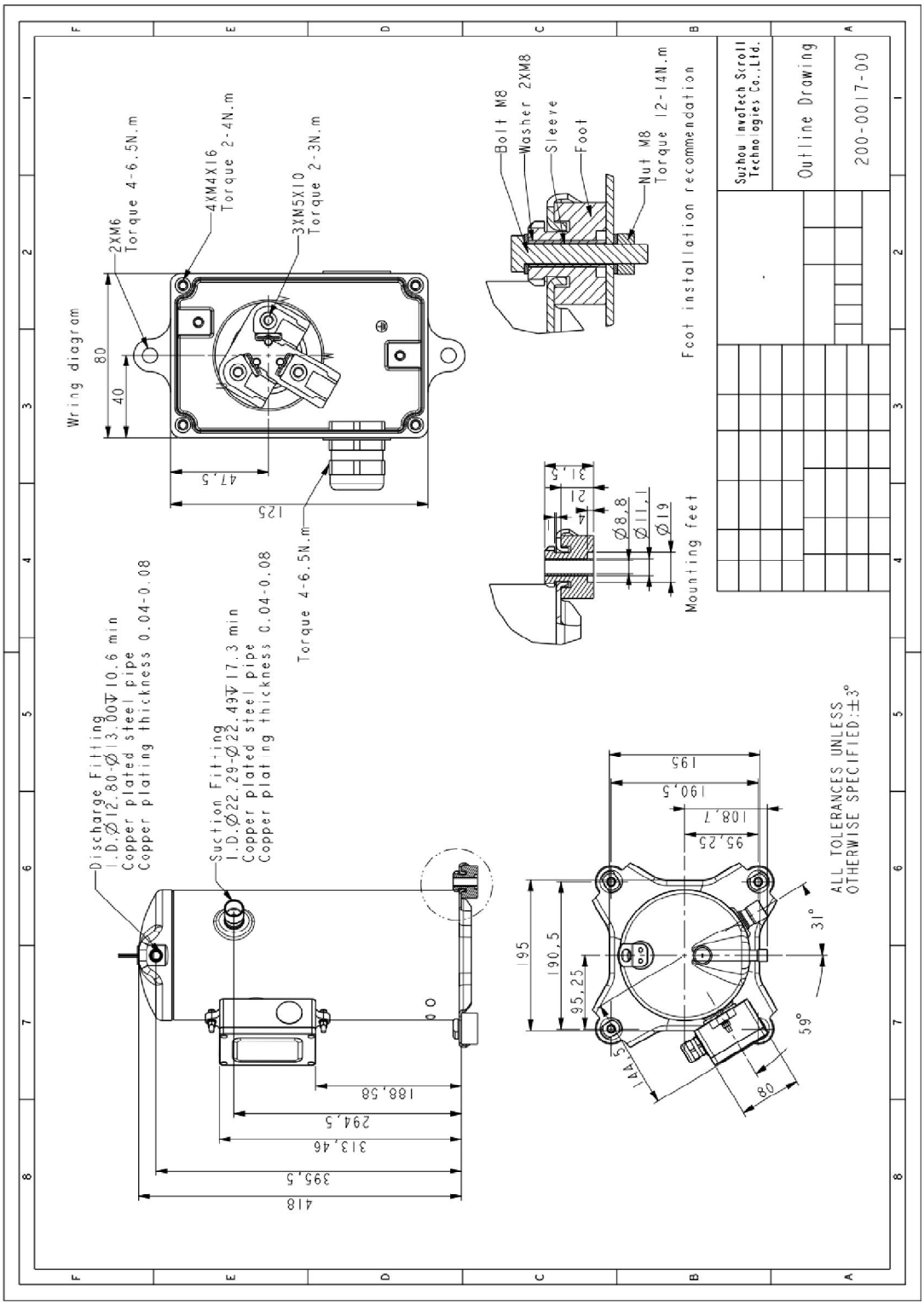
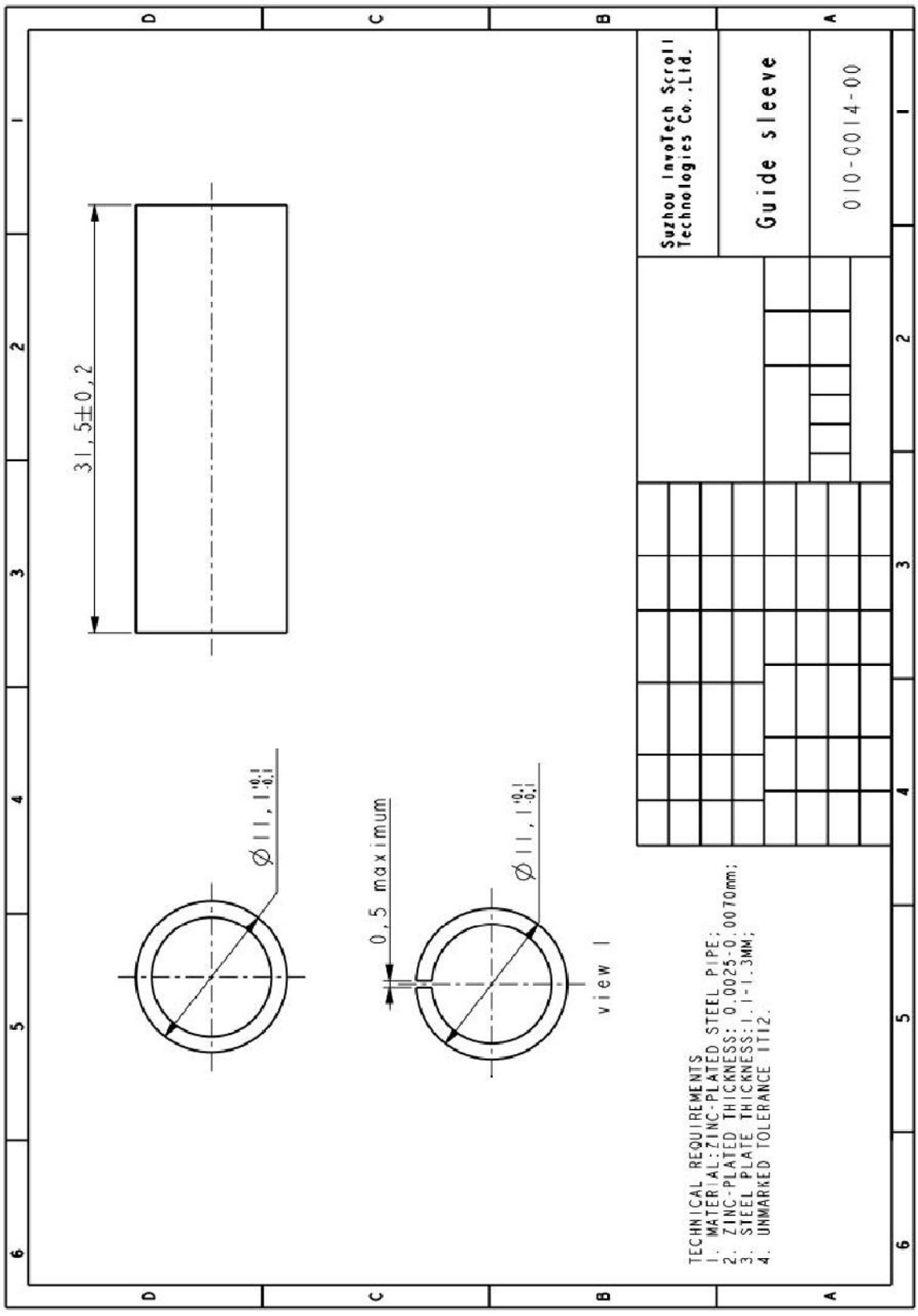
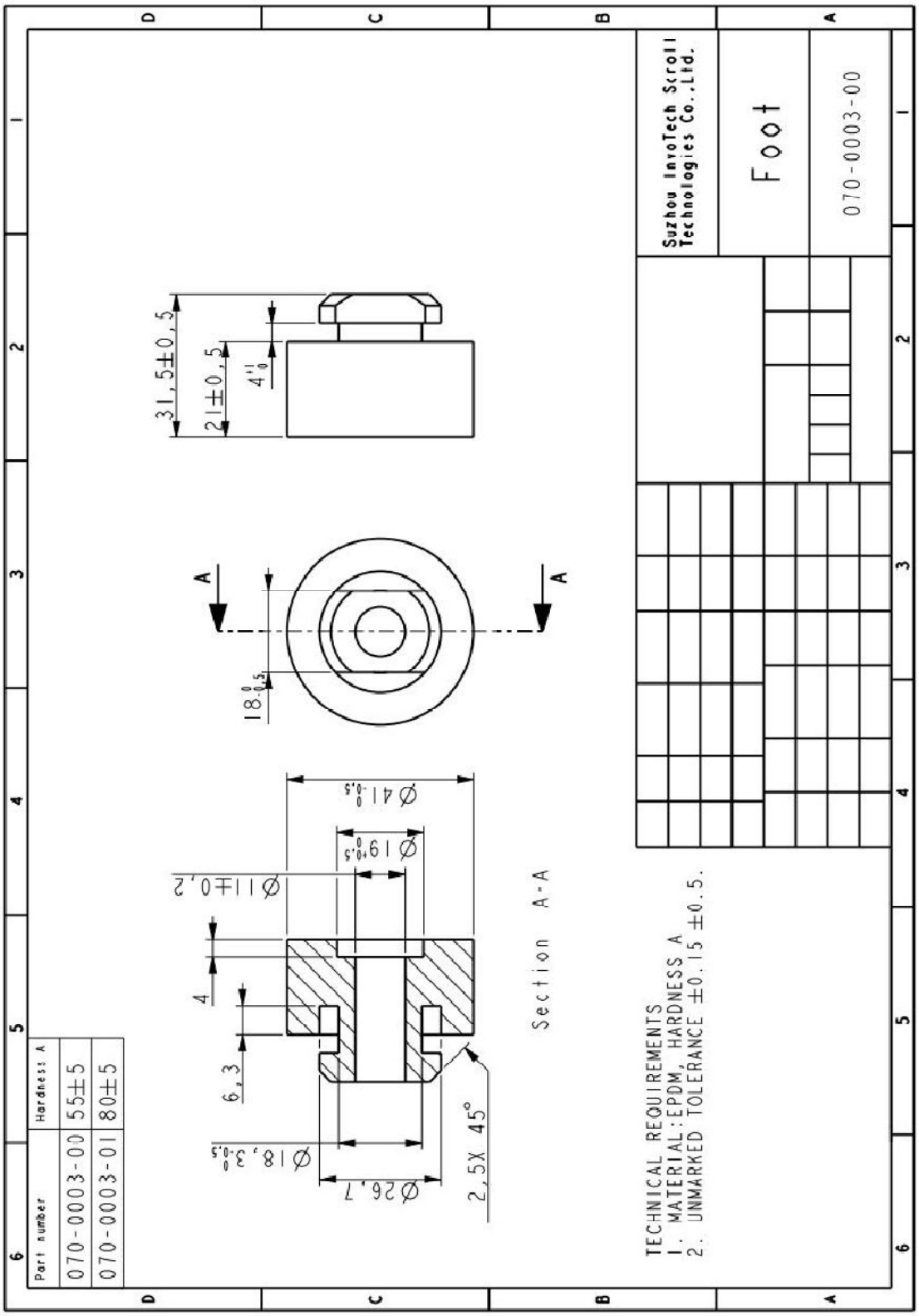


8.2 Sleeve Drawing



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》