

*** 50Hz YM73P1100Specification**

Specification		Notes
Standard Model	YM73P1-100	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	YM73P1-100(Including Extended Models)
Type	Low Side Shell Design Scroll Compressor
Application	Medium Temp.Refrigeration
Refrigerant	R290
Displacement(cc/rev)	83.3
Cooling Capacity(W) ^(a)	7682
Input Power(W) ^(a)	3370
RLA(A) ^(a)	6.4
Cooling COP(W/W) ^(a)	2.28
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)	9.5
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(°C)	130(B Class)
Line to Line Resistance UV(CS)(Ω, 25°C)	2.63(±10%)
Line to Line Resistance UW(CR)(Ω, 25°C)	2.65(±10%)
Line to Line Resistance VW(SR)(Ω, 25°C)	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)	H2.1/L1.7
Low Side(MPa)	
Compressor FreeSpace(Without Oil)	
High Side(L)	H1.0/L3.6
Low Side(L)	
Max. Refrigerant Charge(kg)	See Notes
Discharge Temperature Limit(°C)	≤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°C
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)/C.T.(°C)/S.H.(K)/ S.C.(K)/A.T.(°C)	-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%	-

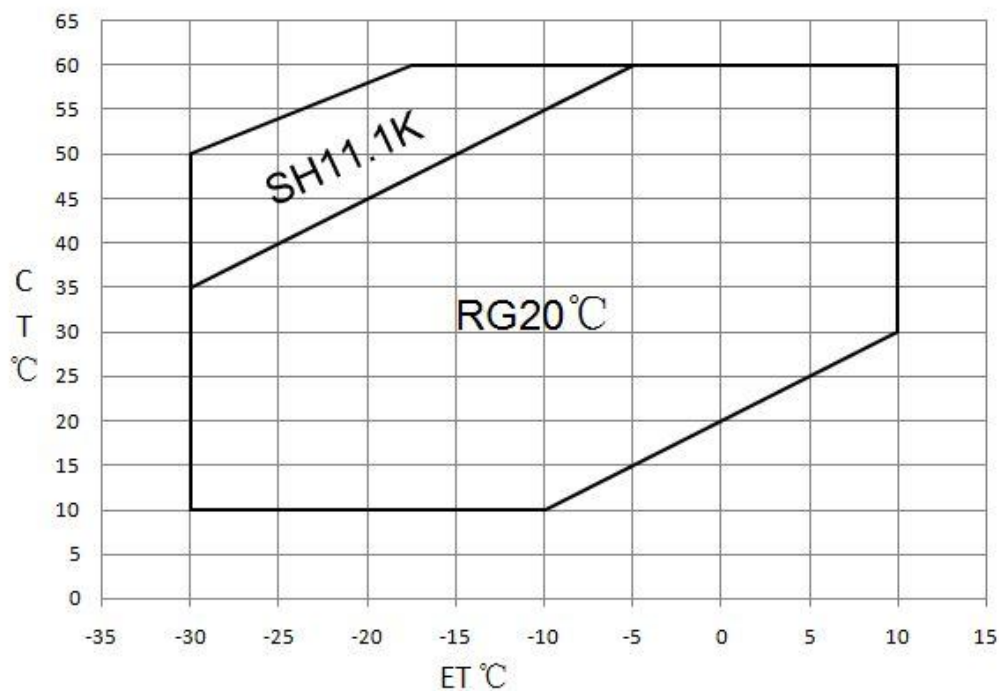
3 Internal Protector

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

4 Accessory

YM73P1-100			
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) C.T. (°C)	-30	-25	-20	-15	-10	-5	0	5	10
		Cooling Cap. (W)	60				5114	6141	7328	8686
55			3729	4536	5488	6596	7873	9330	10981	12837
50	3258		3984	4850	5870	7055	8418	9971	11726	13696
45	3473		4244	5165	6249	7508	8953	10598	12454	14534
40	3688		4501	5474	6618	7946	9470	11203	13156	15343
35	3894		4746	5766	6966	8360	9960	11777	13824	16113
30	4083		4969	6033	7286	8742	10413	12311	14448	16836
25	4246		5162	6266	7569	9083	10821	12796	15019	
20	4372		5316	6456	7804	9373	11176	13223		
15	4455		5422	6594	7984	9604	11467			
10	4484	5470	6671	8100	9767					
Power(W)	60				3656	3851	4022	4172	4302	4414
	55		3018	3229	3417	3584	3731	3861	3975	4075
	50	2657	2856	3035	3195	3337	3465	3578	3680	3771
	45	2532	2699	2850	2985	3107	3217	3318	3410	3496
	40	2404	2542	2668	2782	2887	2984	3075	3162	3247
	35	2266	2379	2484	2581	2672	2759	2845	2930	3016
	30	2114	2206	2292	2375	2457	2538	2621	2708	2800
	25	1943	2016	2088	2161	2236	2315	2399	2491	
	20	1746	1805	1866	1932	2004	2084	2173		
	15	1519	1567	1621	1684	1756	1841			
10	1256	1297	1347	1410	1487					

6.2 Ten Coefficients of Polynomial

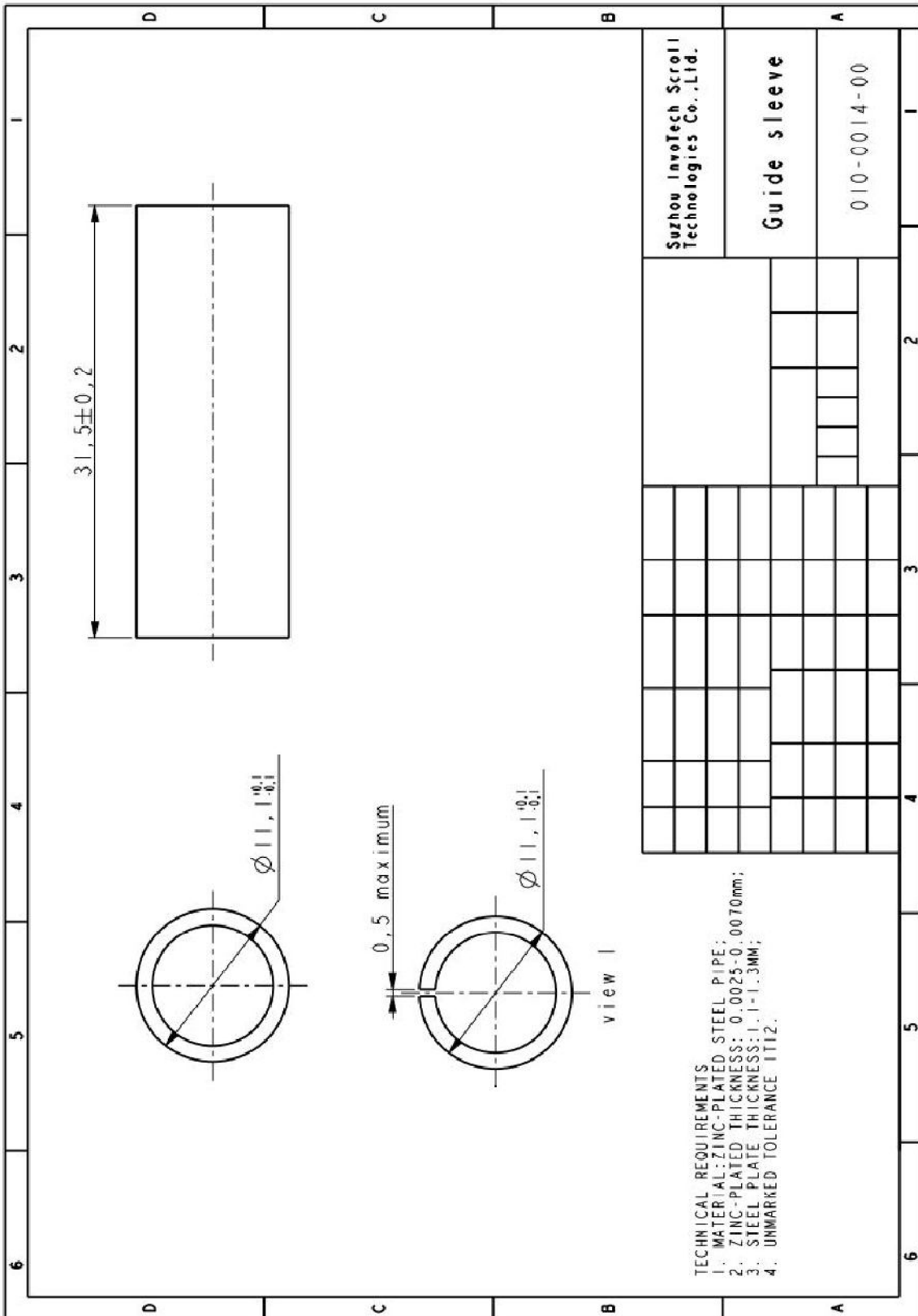
Expression	$z = p_0 + p_1 \cdot x + p_2 \cdot y + p_3 \cdot x^2 + p_4 \cdot x \cdot y + p_5 \cdot y^2 + p_6 \cdot x^3 + p_7 \cdot x^2 \cdot y + p_8 \cdot x \cdot y^2 + p_9 \cdot y^3$		
Description	z: Cooling Capacity(W) or Power (W) Specially: Heating Capacity(W)=Cooling Capacity(W)+Power (W) x: E.T. °C y: C.T. °C p0~p9: Coefficients of Polynomial		
Cooling Cap. Factor	Value	Power Factor	Value
p0	14175.928	p0	1126.492869
p1	489.67907	p1	31.47646849
p2	-11.38502	p2	61.61784606
p3	5.8917696	p3	0.53624543
p4	-2.441801	p4	-0.910549237
p5	-2.050624	p5	-0.605145098
p6	0.016397	p6	0.002304619
p7	-0.036897	p7	-0.015528071
p8	-0.014873	p8	0.014193079
p9	0.0119238	p9	0.007068434

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.

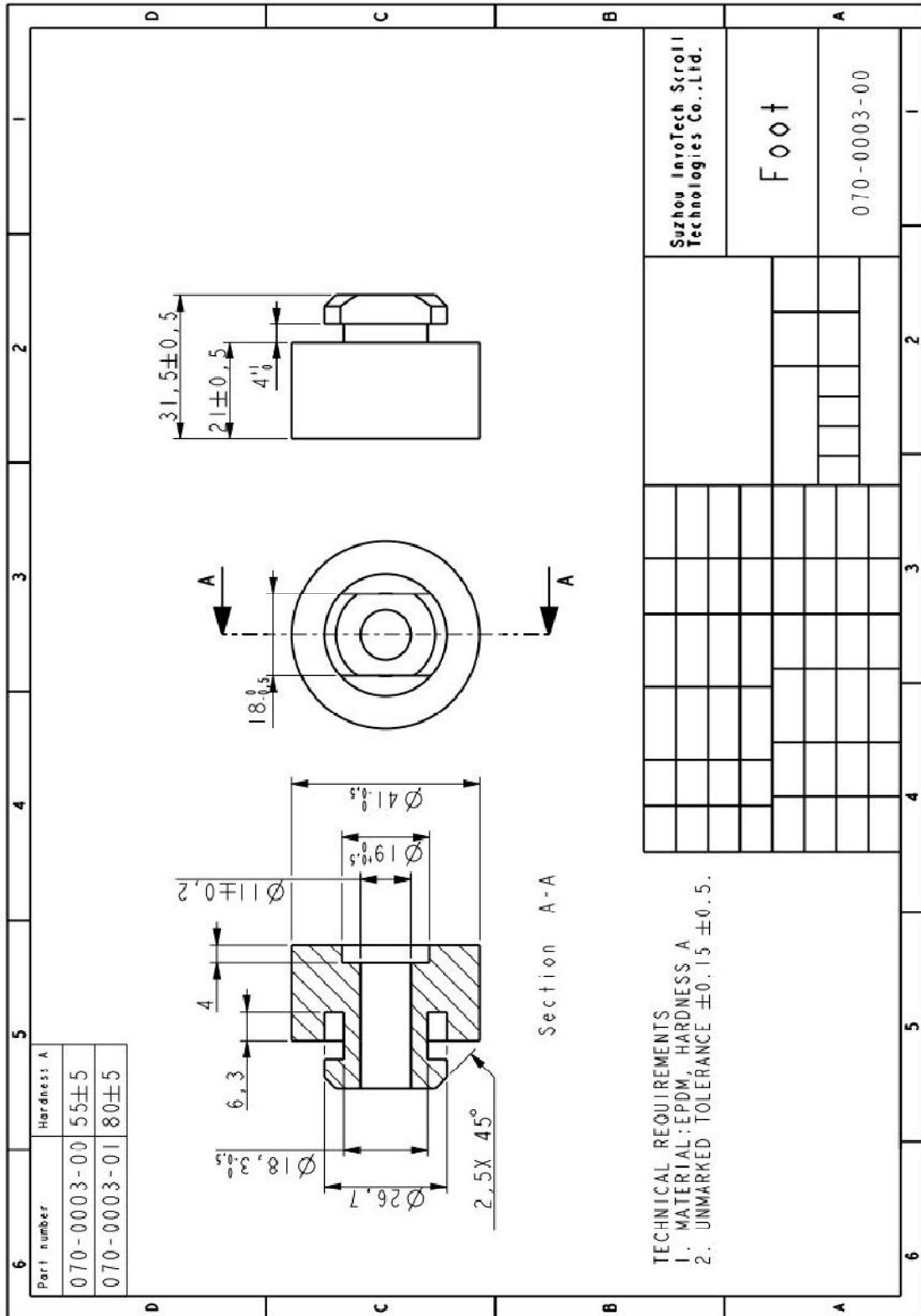
7 Notes

- 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 ($\geq 50\%$ 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 $\pm 10\%$ 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.

8.2 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》