



*** 50Hz YMZ46E1-100Specification**

Specification		Notes
Standard Model	YMZ46E1-100	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	YMZ46E1-100(Including Extended Model)
Type	Low Side Shell Design Horizontal Scroll Compressor
Application	Medium Temp.Refrigeration
Refrigerant	R404A
Displacement(cc/rev)	46.6
Cooling Capacity(W) ^(a)	4484
Input Power(W) ^(a)	2487
RLA(A) ^(a)	5.1
Cooling COP(W/W) ^(a)	1.80
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)	6.9
Rated Speed(r/min) ^(a)	2900
Compressor Weight(With Oil)(kg)	33
Oil Type	POE
Oil Kinematic Viscosity(cSt, 40°C)	32
Oil Density(kg/L, 20°C)	0.977
Primary Charge(L)	1.4
Recharge(L)	1.25
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)	≤0.08
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	IP54
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)	3.307(±10%)
Line to Line Resistance UW(CR)(Ω, 25°C)	3.307(±10%)
Line to Line Resistance VW(SR)(Ω, 25°C)	3.307(±10%)
Dielectric Strength	2000VAC / 1s / 50Hz, 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)	H3.2/L2.0
Low Side(MPa)	
Compressor FreeSpace(Without Oil)	
High Side(L)	H2.6/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

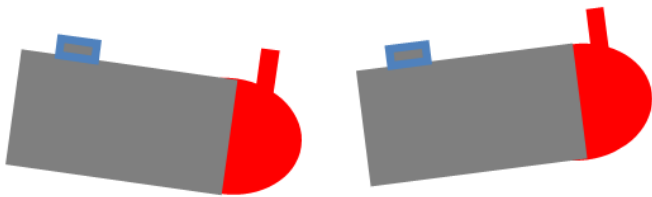
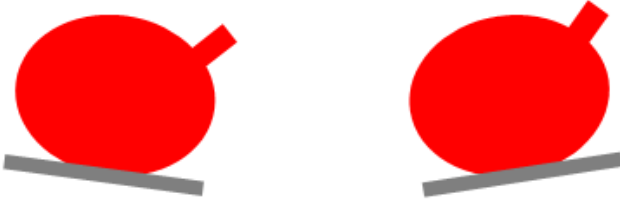
2 Rated Condition, 48 Hours Break-in-Running before implementing performance and sound testing

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	10/65/11.9/0/46.1
Frequency(Hz)	50	50
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	37HM222-XX	
		Open Temp.(°C)	120±5	
		Close Temp. (°C)	60±9	
		Short Time Trip	32A 3-10s	
		Internal Pressure Relieve Valve	With	2.76-3.10MPa

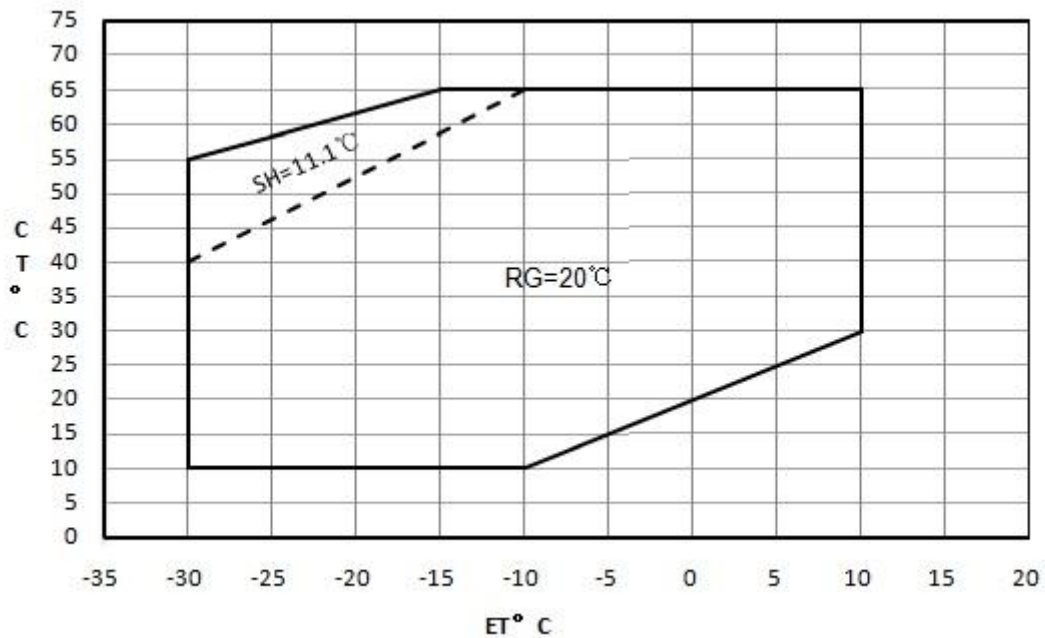
4 Max Inclination Degrees

Max Tilt Angle	 <p>+7°Tilt -7°Tilt</p>
Max Rolling Angle	 <p>+15°Rolling -15°Rolling</p>

5 Accessory

YMZ46E1-100			
Item	Name	P.N.	PCS
1	Grommet	070-0003-00	4
2	Sleeve	010-0014-00	4
3			
4			
5			

6 Compressor Operating Envelope



7 Compressor Performance Sheet

- Performance based on superheat is within the operating envelope, Subcooling after condenser is 0 K;
- Performance calculated by coefficients of polynomial is only suitable for the condition within operating envelope;
- Capacity, power can be calculated by coefficients of polynomial.

7.1 Performance Table

	C.T. °C	E.T. °C								
		-30	-25	-20	-15	-10	-5	0	5	10
Cooling Capacity(W)	65				2417	2831	3336	3959	4728	5668
	60			2259	2718	3251	3888	4653	5574	6678
	55	1535	1999	2495	3051	3693	4449	5344	6407	7662
	50	1661	2189	2760	3403	4142	5005	6020	7211	8607
	45	1827	2407	3043	3759	4584	5544	6665	7974	9499
	40	2018	2640	3328	4107	5006	6050	7266	8682	10323
	35	2222	2874	3601	4432	5393	6510	7810	9320	11067
	30	2424	3093	3850	4721	5732	6910	8283	9876	11716
	25	2610	3286	4060	4959	6009	7237	8670	10334	
	20	2767	3438	4217	5132	6210	7476	8958		
Power(W)	65				2983	3143	3283	3404	3504	3583
	60			2618	2772	2910	3031	3135	3222	3292
	55	2136	2292	2436	2568	2686	2791	2882	2960	3022
	50	2007	2138	2259	2371	2473	2565	2647	2717	2776
	45	1879	1987	2089	2184	2273	2355	2429	2496	2554
	40	1753	1841	1926	2008	2086	2161	2231	2297	2357
	35	1629	1700	1772	1843	1914	1985	2054	2122	2188
	30	1509	1567	1628	1692	1759	1828	1899	1972	2046
	25	1395	1442	1495	1555	1621	1692	1768	1849	
	20	1288	1327	1376	1434	1501	1577	1661		

7.2 Ten Coefficients of Polynomial

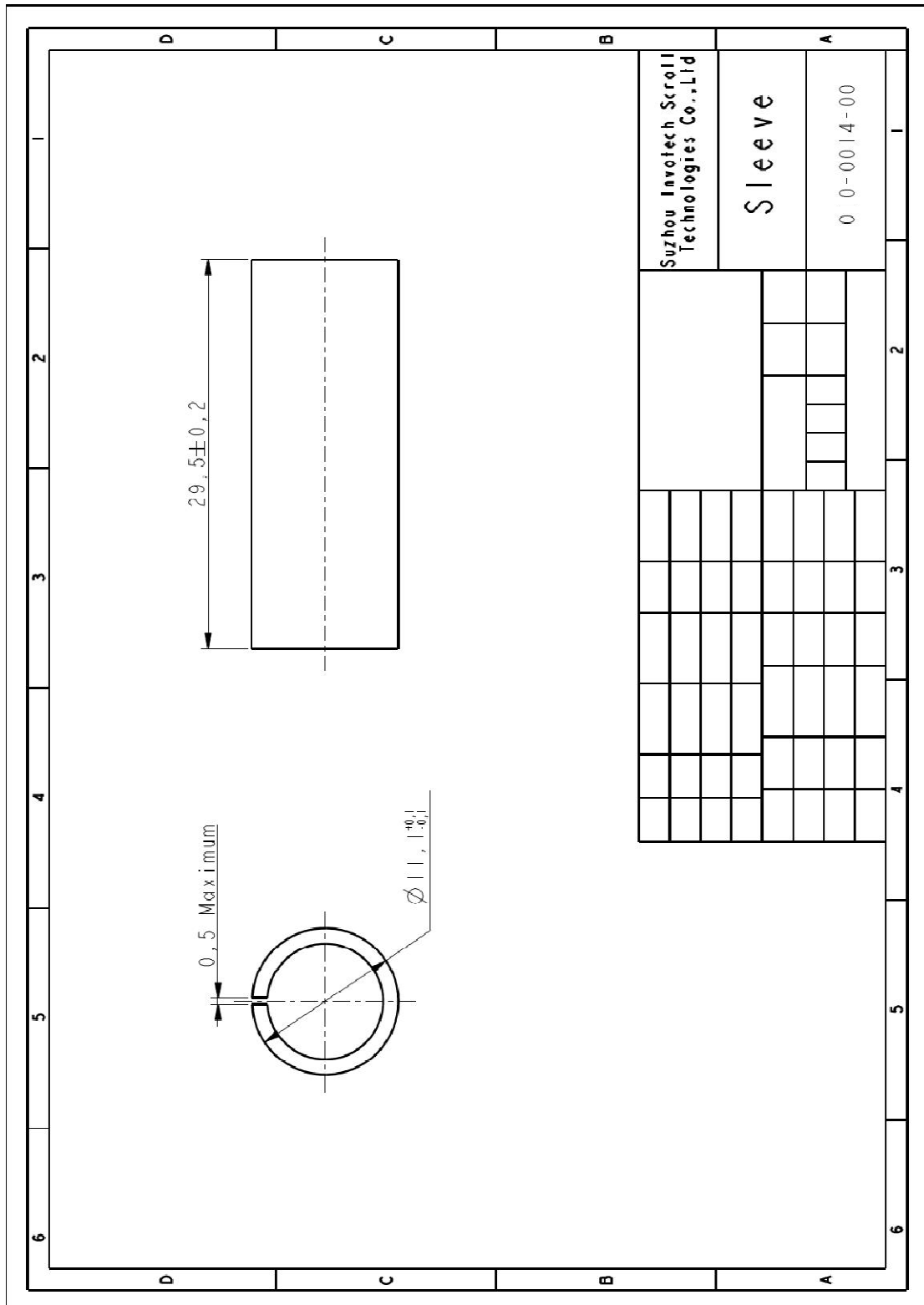
Expression	$z = p_0 + p_1*x + p_2*y + p_3*x^2 + p_4*x*y + p_5*y^2 + p_6*x^3 + p_7*x^2*y + p_8*x*y^2 + p_9*y^3$		
Description	z: Cooling Capacity(W) or Power (W) Specially: Heating Capacity(W)=Cooling Capacity(W)+Power (W) x: E.T. °C y: C.T. °C p0~p9: Coefficients of Polynomial		
Cooling Cap. Factor	Value	Power Factor	Value
p0	8841.17282	p0	1510.21633
p1	339.92631	p1	31.34073
p2	65.7748	p2	-4.29782
p3	5.71232	p3	0.41088
p4	-0.08122	p4	-0.92493
p5	-3.36663	p5	0.62802
p6	0.03561	p6	-4.98X10 ⁻⁴
p7	-0.04327	p7	-0.01261
p8	-0.04647	p8	0.01203
p9	0.01845	p9	-0.00175

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.

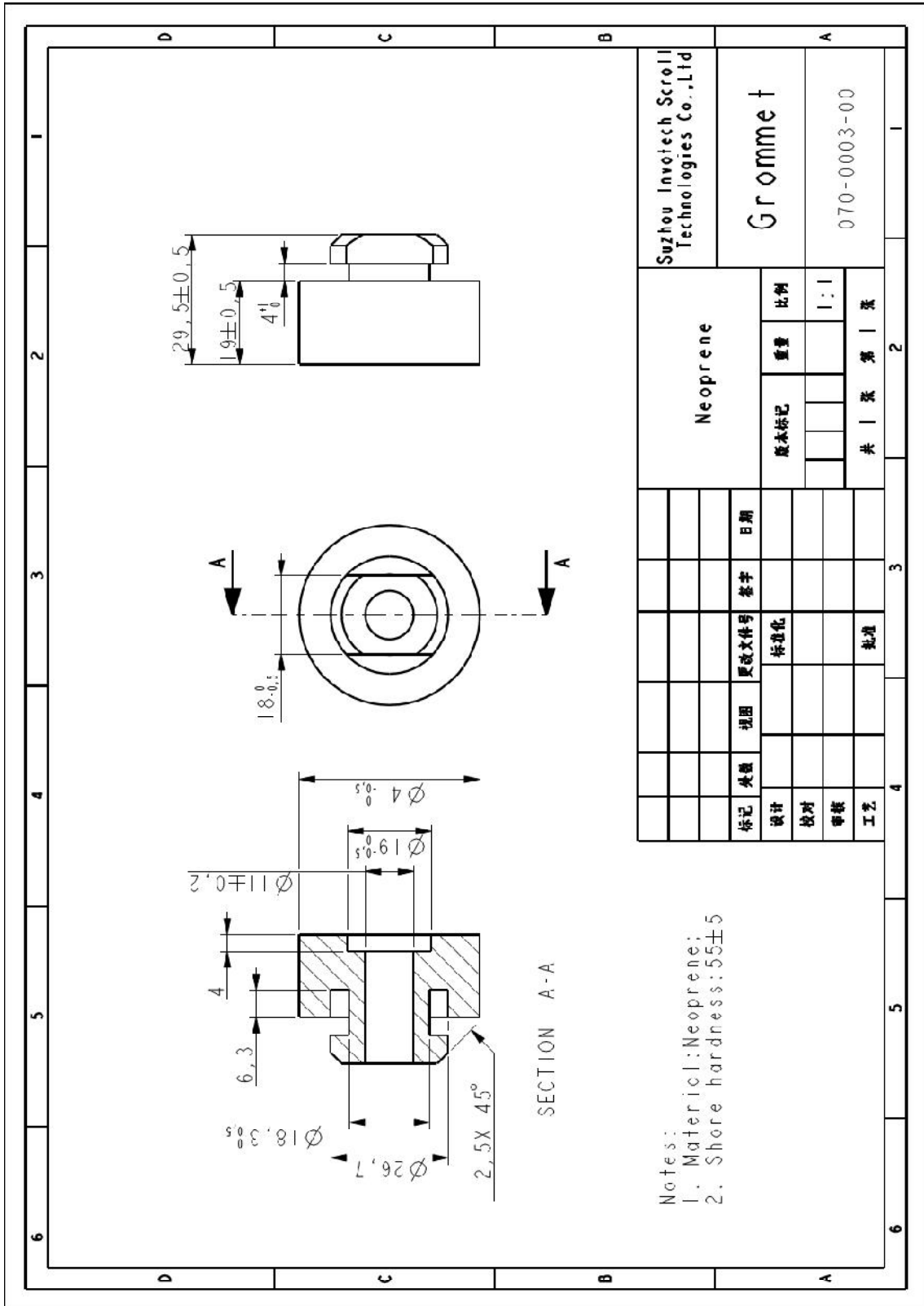
8 Notes

- 8.1 It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant is 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.
- 8.2 It is not allowed to charge the refrigerant from the suction or discharge line close 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 from the compressor, to avoid the liquid refrigerant flood back.
- 8.3 Refrigerant charge limitation: the ratio between the weight of oil and refrigerant should be ≥ 0.4 .
- 8.4 It is not allowed to vacuum by compressor, not allowed to run the compressor without refrigerant, and not allowed to run the compressor in the reversed direction for long duration.
- 8.5 The compressor can only work with approved refrigerant.
- 8.6 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.
- 8.7 When the suction and discharge plugs are removed, the assembly and brazing should be done in 15 minutes.
- 8.8 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.
- 8.9 The deviation of supplied voltage should be less than $\pm 10\%$ of rated voltage.
- 8.10 A 70W crankcase heater is recommended to avoid the refrigerant migration during the off cycle and flood start. The crankcase heater should be power on 12 hours earlier than the first start or restart after long duration off.
- 8.11 The system should be equipped with necessary protection devices, such as pressure, temperature, oil return, over-current and phase fault, etc.
- 8.12 The compressor shall be kept horizontal during installation, and shall not be placed upright or upside down.

9.2 Sleeve Drawing



9.3 Grommet Drawing



10 Application

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