产品规格书 Specification		备注 Notes
标准型号 Standard model	YIM50E1G-100	基础型号 Basic model
拓展型号 Extended model		
拓展型号 Extended model		

修订记录 Revision record			
版本 Version	修订人 Reviser	描述 Description	日期 Date
A	GuoJiabao	Preliminary	2021.10.13
B	GuoJiabao		2022.5.12

审核人 Checked　　日期 Date

批准人 Approved　　日期 Date

*1 规格参数 Specification parameters

1.1 基本性能指标 Basic Performance	
型号 Model	YIM50E1G-100（包括拓展型号） （Include Extended model）
型式 Type	低压腔式全封闭直流变频涡旋压缩机 LP Cavity Hermetic Scroll Compressor
应用 Application	冷藏 Medium Temp Refrigeration
制冷剂 Refrigerant	R404A
排量 Displacement (cm^3/rev)	50.0
制冷量 Capacity (W) (a)	8480
输入功率(驱动器侧) Input Power(W) (a) (Inverter side)	4300
运行电流(驱动器侧) Running Current(A) (a) (Inverter side)	7.2
制冷能效比(COP) (a)	1.97
额定电压 (驱动器侧) Rated Voltage (V) (Inverter side)	380-420V
相数-频率(驱动器侧) Phase- Hertz (Inverter side)	3~ 50/60 HZ
最低运行电压 (驱动器侧) Lowest Running Voltage (V) (Inverter side)	342
最高运行电压(驱动器侧) Highest Running Voltage (V)(Inverter side)	462
最大运行电流(驱动器侧) Highest Running Current (b) (A)(Inverter side)	12.5
额定转速（Rated Motor Speed（r/min）(c)	4500
压缩机重量（含油） Compressor Weight With Oil (kg)	29.5
润滑油型号 Oil	POE（32cSt,40℃）
压缩机加油量(初次注油，L) (重新注油，L) Oil Charge (First Charge, L) (Recharge, L)	1.40 1.25
吐油量 Oil Circulation (%) (f)	<1%
噪音 dB (声功率级) Rated Sound (Sound Power) (g	76
运行范围内最大运行噪音 dB(声功率级) Max Running Sound (Sound Power)	81
最大振动 (mm，峰 - 峰值) Maximum Vib. (mm, Peak-Peak) (h)	0.10

最大水分含量 Maximum Moisture (mg)	500
最大杂质含量 Maximum Impurity (mg)	100
最低启动电压(驱动器侧) Lowest Voltage Start (V) (d)	323
最大负载运行时最低电压 (V) (e) (驱动器侧) MOV (V) (e)	342
1.2 电机参数 Motor Specifications	
电机形式 Motor Type	永磁同步电动机 Permanent magnet synchronous motor
电机级数 Pole	4
转动惯量 kg·m²	1.617×10-3
运转频率(Hz) Running frequency (Hz)	60~180
运行转速(RPM) Running speed (RPM)	1800~5400
线间电阻 Line resistance UV(CR)(Ω, 25℃)	0.495(±10%)
线间电阻 Line resistance VW(RS)(Ω, 25℃)	0.495(±10%)
线间电阻 Line resistance UW(SC)(Ω, 25℃)	0.495(±10%)
电机启动电压(V)@900RPM/8N·m Start voltage (V)	51~380
磁束量(mWb.t)@20℃ Magnentic flux (mWb.t)@20℃	690.9
退磁电流(A)@110℃ Demagnetization current(A)@110℃	97
反电动势@1000RPM counter electromotive force@1000RPM	50
q 轴电感(mH) q axis inductance (mH)	见表 1 See Table1
d 轴电感(mH) d axis inductance (mH)	见表 1 See Table1
力矩电流系数 Torque current coefficient	见表 2 See Table2
最大允许运行电流(A) Highest Running Current (A)	25
电机绝缘温度℃ Motor Insulation Temperature℃	130（B 级）（Lever B）
三相端子之间电阻(Ω) @25℃ Resistance @ 25 ℃ Ambient (Ω)	0.495（ ± 10%）
绝缘耐压(V) Insulation Voltage (V)	2000
泄露电流(mA) Leakage Current (mA)	<5
绝缘电阻(MΩ) Insulation Resistance (MΩ)	>20
接地电阻(Ω) Ground Resistance (Ω)	<0.1
1.3 安全运行限制 Safe Running Conditions	

最大运行压力 Highest Running Pressure	
高压侧 High Side (Mpa)	4.3
低压侧 Low Side (Mpa)	2.0
压缩机内空余容积（不含油） Spare volume in compressor (Except oil)	
高压侧 High Side (L)	0.9
低压侧 Low Side (L)	6.3
气密性试验压力(Mpa)	3.8
排气温度上限 Max Discharge Temperature	120℃
启停周期 Compressor Start-off Revolution	开关机间隔 3min 以上 The switching interval is more than 3 minutes
加减速限制(r/s) Acceleration and deceleration limit (r/s)	2-5

性能指标工况说明 Running Condition Notes：

a) 试验工况：第一额定点,开 EVI
Test Condition: First Rated Running Point；

b) 试验工况：蒸发/冷凝/过热/过冷/环境温度 10/65/11.9/8.3/46.1℃,运行电压为额定电压 90%；
Test Condition: ET/CT/SH/SC/AT 10/65/11.9/8.3/46.1℃, 90% Rated Voltage；

c) 试验工况：第一额定点；
Test Condition: First Rated Running Point

d) 排气压力，吸气压力=40℃制冷剂饱和压力；
Discharge Pressure & Suction Pressure= Refrigerant 40℃ Saturation Absolute Pressure

e) 过负荷试验工况：蒸发/冷凝/过热/过冷/环境温度 10/65/11.9/8.3/46.1℃;(4500RPM)
Running Over Load Condition: ET/CT/SH/SC/AT10/65/11.9/8.3/46.1℃(4500RPM)

f) 第一额定点工况，油循环率；
First Rated Point, Oil circulation

g) 第一额定点工况，A 加权声功率级平均值；
First Rated Point, A class average sound power

h) 第一额定点工况，运行时压缩机外壳法向最大位移；
First Rated Point, Maximal Shell Running Displacement Under Normal Direction

表 1：q 轴电感，d 轴电感
Table1：q-axis inductance，d-axis inductance

压缩机电流(A)	0.0	1.0	2.0	3.0	4.0	5.0	10.0	15.0	20.0	25.0
Lq（mH）	9.15	12.29	12.06	11.14	10.55	10.14	8.80	7.62	6.66	5.92
Ld（mH）	2.67	2.95	2.96	2.95	2.96	3.01	3.00	2.97	2.92	2.88

表 2：力矩电流系数参数

Table2：Torque current coefficient parameter

运行实效值电流(A) Operating actual value current(A)	10.62	11.95	13.63	15.67	10.55
运行力矩(N.m) Operating torque(N.m)	8.0	10.0	12.0	14.0	8.0

2 额定工况， 制冷量和能效比不低于名义值 95%，功率和电流不高于名义值 105% (性能与噪音值需在额定试验工况运行 48 小时磨合后进行测试)

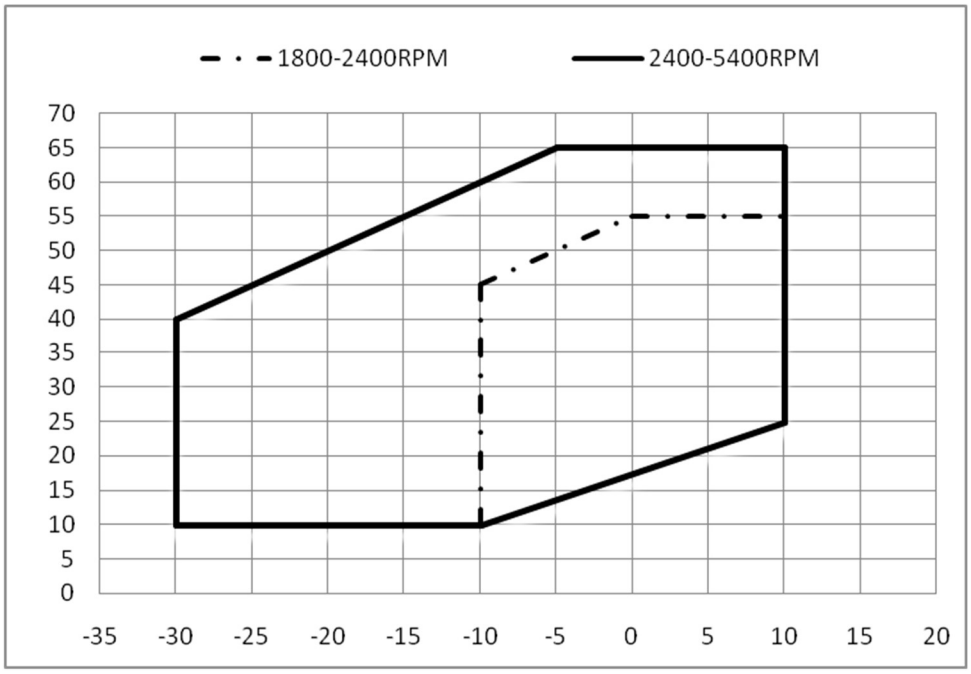
Rated Condition，Allowed capacity and cop ≥95% Rated，power≤105 Rated (Performance And Sound Test Needed 48hrs Break In Running)

序号 SN	参数 Parameter	第一额定点 First Rated Condition	最大负载工况 Maximum load
1	蒸发温度 ET℃	-6.7	10
2	冷凝温度 CT℃	48.9	65
3	环境温度 AT℃	35.0	46.1
4	回气温度 SH℃	4.4	21.9
5	过热 SC℃	11.1	11.9
6	过冷℃	0	8.3
7	电源(驱动器侧)Power supply(drive side)	380V 3~ 50Hz	380V 3~ 50Hz
8	转速 RPM	4500	5400
9	制冷量允差 Refrigerating capacity tolerance	≥95.0%	-
10	功率允差 Power tolerance	≤105.0%	-
11	能效允差 COP tolerance	≥95.0%	-

3 压缩机附件 Compressor accseeories

YIM50E1G-100			
附件 Accessory	名称 Description	料号 P/N	数量 PCS
1	脚垫 Rubber Grommet	070-0003-03	4
2	导套 Sleeve	010-0014-02	4

4 压缩机运行范围 Compressor Running Envelop



5 压缩机性能参数表（4500RPM）

Compressor performance table

- 性能参数基于吸气过热度 11.1K，冷凝过冷度 8.3K；
  Cap And Power Is Under 11.1℃ Superheat，8.3℃ sub cooling

类型	蒸发温度ET(℃) / 冷凝温度CT（℃）	-30	-25	-20	-15	-10	-5	0	5	10
制热量(W) Cap	65						5922	7333	9039	11075
	60					5610	6938	8538	10446	12696
	55				5172	6418	7913	9693	11792	14246
	50			4641	5805	7196	8847	10796	13076	15724
	45		4049	5132	6417	7942	9740	11847	14299	17130
	40	3428	4429	5611	7008	8657	10591	12847	15460	18464
	35	3730	4808	6079	7578	9340	11400	13795	16558	19726
	30	4041	5185	6535	8125	9991	12167	14690	17594	20914
	25	4360	5561	6979	8650	10609	12892	15532	18567	22030
	20	4687	5934	7411	9153	11195	13573	16322		
	15	5022	6305	7830	9633	11748	14212			
	10	5364	6673	8236	10090	12268				
功率(W) Power	65						5975	6021	6042	6041
	60					5344	5414	5461	5488	5499
	55				4758	4843	4909	4958	4993	5017
	50			4221	4315	4392	4456	4508	4552	4591
	45		3739	3834	3915	3985	4048	4105	4159	4214
	40	3317	3405	3483	3553	3617	3680	3742	3808	3880
	35	3033	3100	3162	3222	3283	3346	3416	3495	3586
	30	2773	2820	2867	2918	2976	3042	3121	3214	3324
	25	2529	2557	2592	2636	2691	2762	2850	2958	3090
	20	2298	2308	2331	2369	2424	2500	2599	2724	
	15	2073	2067	2079	2112	2168	2250			
	10	1848	1827	1830	1859	1918				

转速修正系数

Speed correction factor

修正后的参数 Corrected parameters	制冷量 Refrigerating capacity：$z_n = a*z_{4500}$ 功率 Power：$z_n = b*z_{4500}$	
物理量解释 Physical quantity interpretation	z_n:转速 n 时的制冷量 W 或功率 W; z_n: z_{4500}:转速 4500RPM 时的制冷量 W 或功率 W; z_{4500}: 特别说明：制热量 W = 制冷量 W + 功率 W a: 制冷量修正系数 a: Refrigerating capacity correction factor b: 功率修正系数 b: Power correction factor	
转速 Speed（RPM）	制冷量修正系数 a Refrigerating capacity correction factor a	功率修正系数 b Power correction factorb
1800	0.381	0.413
3000	0.663	0.662
4500	1.000	1.000
5400	1.196	1.222

说明：多项式的系数是基于一定样本数据的拟合结果，其数据可供压缩机选型参考，但无法完全替代用户的测试。

Note：the coefficients of polynomials are based on the fitting of results of certain sample data. The data can be used as a reference for compressor selection, but can not completely the user’s test.

6 注意事项

1) 压缩机不得抽真空、真空运行、压缩空气、空转或逆转；

The compressor should not be used to be operated under vacuum, compress air, run without load or reverse;

2) 压缩机吸排气塞打开后，放置时间不超过 15 分钟；

The compressor should not be opened in the atmosphere for more than 15 minutes;

3) 压缩机连续运行需 10 分钟以上，停机再次启动间隔 3 分钟以上，不得频繁启停，以免压缩机内润滑油随冷媒被大量地排出压缩机；

The compressor continuous running time should be more than 10minutes，the duration between two start-ups shall exceed three minutes, the compressor should not start/stop frequently to avoiding oil being pumped together with the refrigerant;

4) 压缩机启动前，排气压力-吸气压力≤0.3Mpa；

5) Before starting, discharge pressure – suction pressuret≤0.3Mpa;

6) 运行电压范围，应在额定电压的±10%以内；

The running voltage shall be within ±10% of the rated voltage;

7) 低温工况的应用，由于大量冷媒可能会迁移到压缩机腔体内，沉积在压缩机底部，对于压缩机的启动会造成润滑及回油不良，建议加装曲轴加热装置；

8) In low temperature application，because lots of refrigerant may migrate to the compressor cavity, deposit at the bottom of the compressor, it may cause the problem of lubrication and oil return, it is better to install the crankshaft heating device;

9) 系统应配置必要的压力、温度、过流、缺相等保护及回油装置等；

10) The system should set basic protection of pressure, temperature, over-current, phase-loss and oil return device etc.

11) 压缩搬运，安装过程中不得平方、倒置；

12) Do not put the compressor horizontally or put it upside down.

13) 启动转速控制 Starting speed limit:

9.1 环境温度≥10℃ ，3000RPM

9.1 Ambient temperature≥10℃ ，3000RPM

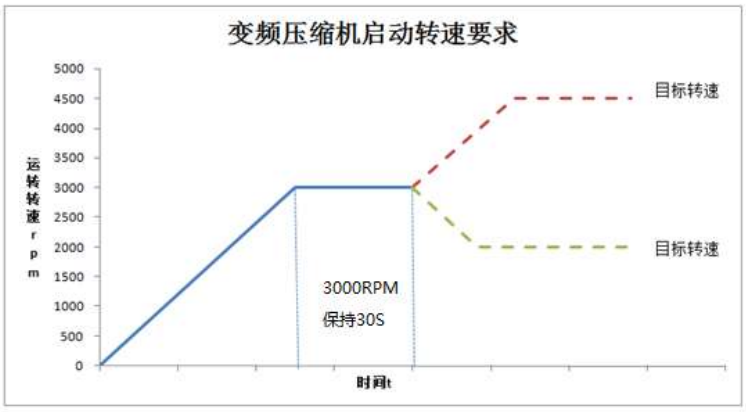
9.2 0℃≤环境温度＜10℃，4500RPM

9.2 0℃≤Ambient temperature＜10℃，4500RPM

9.3 环境温度＜0℃，4800RPM

9.3 Ambient temperature＜0℃，4800RPM

9.4 启动控制方案：



14) 运行转速限制 Running speed limit:

参照运行范围 Refer to running envelope

15) 除霜转速控制 Defrost speed limit

当压缩机通过四通换向阀换向方式进行除霜时，压缩机运行转速不低于 4800RPM；

If using four-way reversing valve to defrost，compressor running speed ≥ 4800RPM；

16) 除霜四通换向阀选择 Defrost four-way reversing valve select

直流变频涡旋压缩机转速是逐渐升至目标值，压缩机排气流量也是逐渐上升至额定值，必须选用中间泄露量较低的变频专用四通换向阀；

The speed of inverter scroll compressor is gradually rising to the target speed, as well as the dispalcement of scroll compressor. It should to choose the special four-way reversing valve with low mid-leakage for the inverter scroll compressor

17) 最大制冷剂充注量 Maximum refrigerant charge

最大制冷剂充注量(Kg)=油量(L)/0.3，低于此值，压缩机带液启动的可能性较小；大于此值，系统上需额外增加加热带并且额外补油，补油量（L）=增加的制冷剂充注量（Kg）*0.35，回气温度控制等装置以避免压缩机的带液启动。

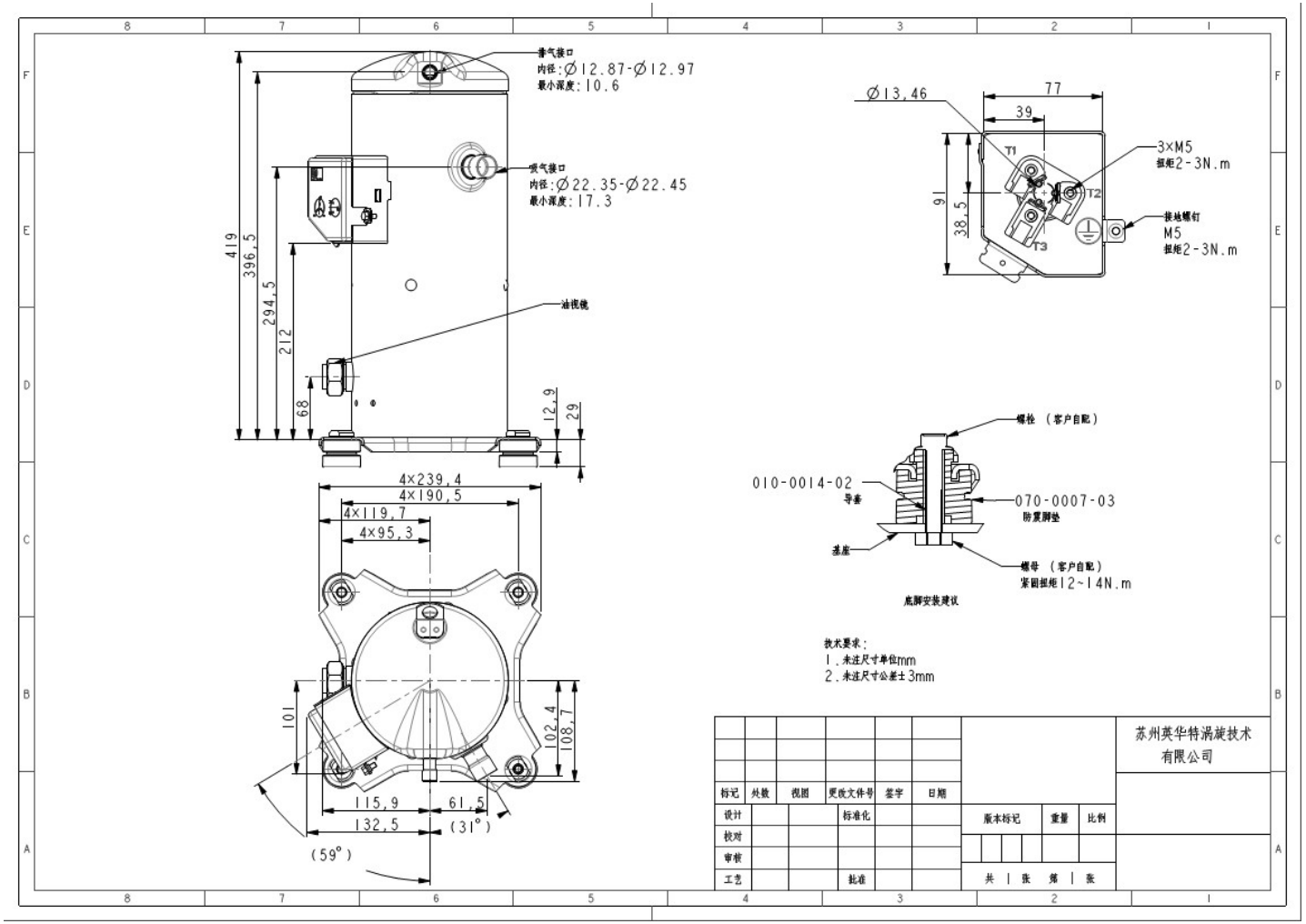
Maximum refrigerant filling amount (Kg)= oil amount (L)/0.3, lower than this value, the possibility of starting the compressor with liquid is small; If the value is greater than this, additional heating belt and additional oil supplementation shall be added to the system. The amount of oil supplementation (L) = increased refrigerant filling amount (Kg) *0.35, return temperature control and other devices shall be used to avoid starting the compressor with liquid.

18) 油分 Oil content

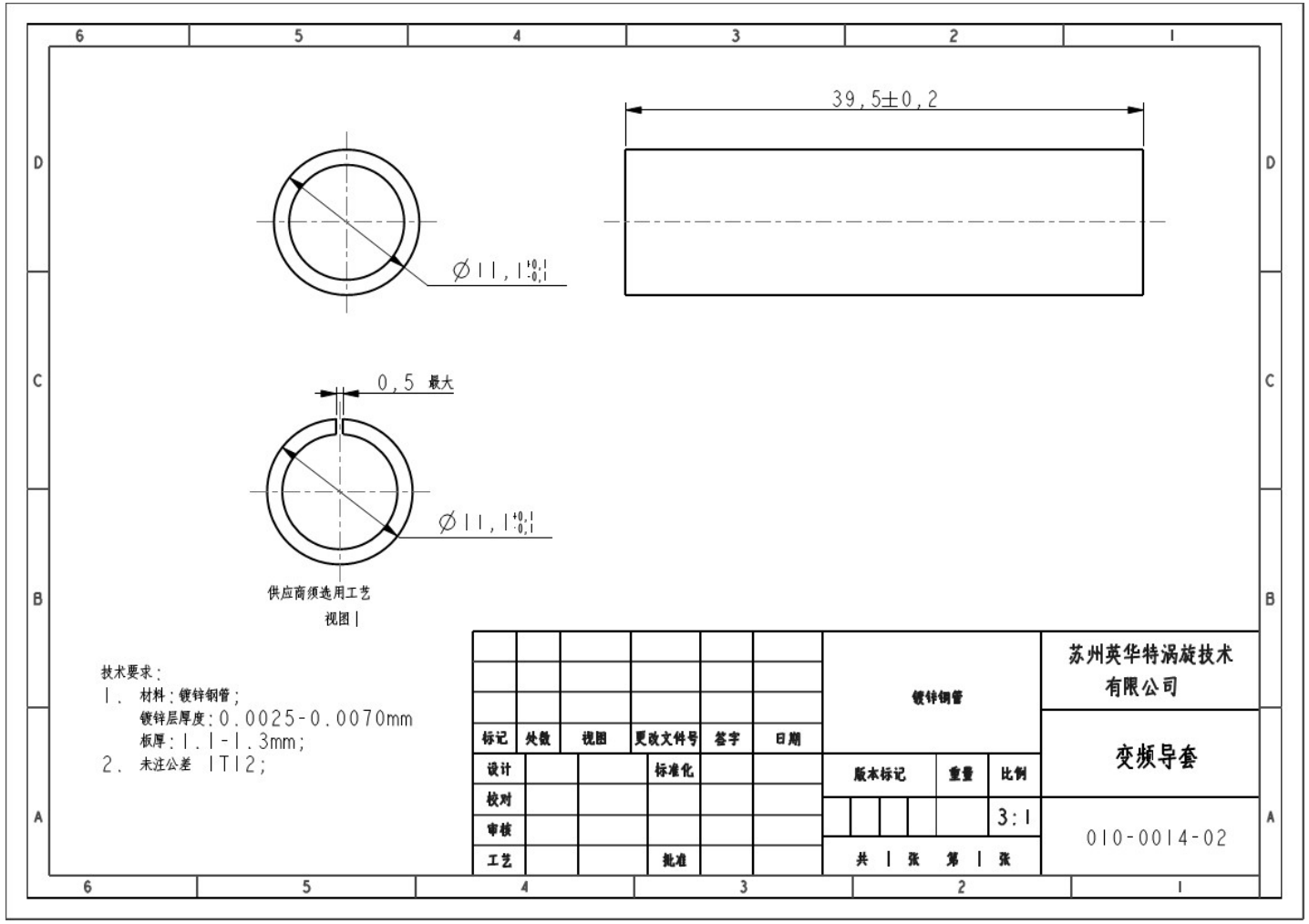
变频压缩机运行范围较广，在低转速下流速比较小，回油能力较差，需要加油分帮助回油。

Variable frequency compressor has a wide range of operation, and the flow rate is relatively small at low speed, and the oil return capacity is relatively poor.

7 压缩机外形图 Compressor Outline Dimensions



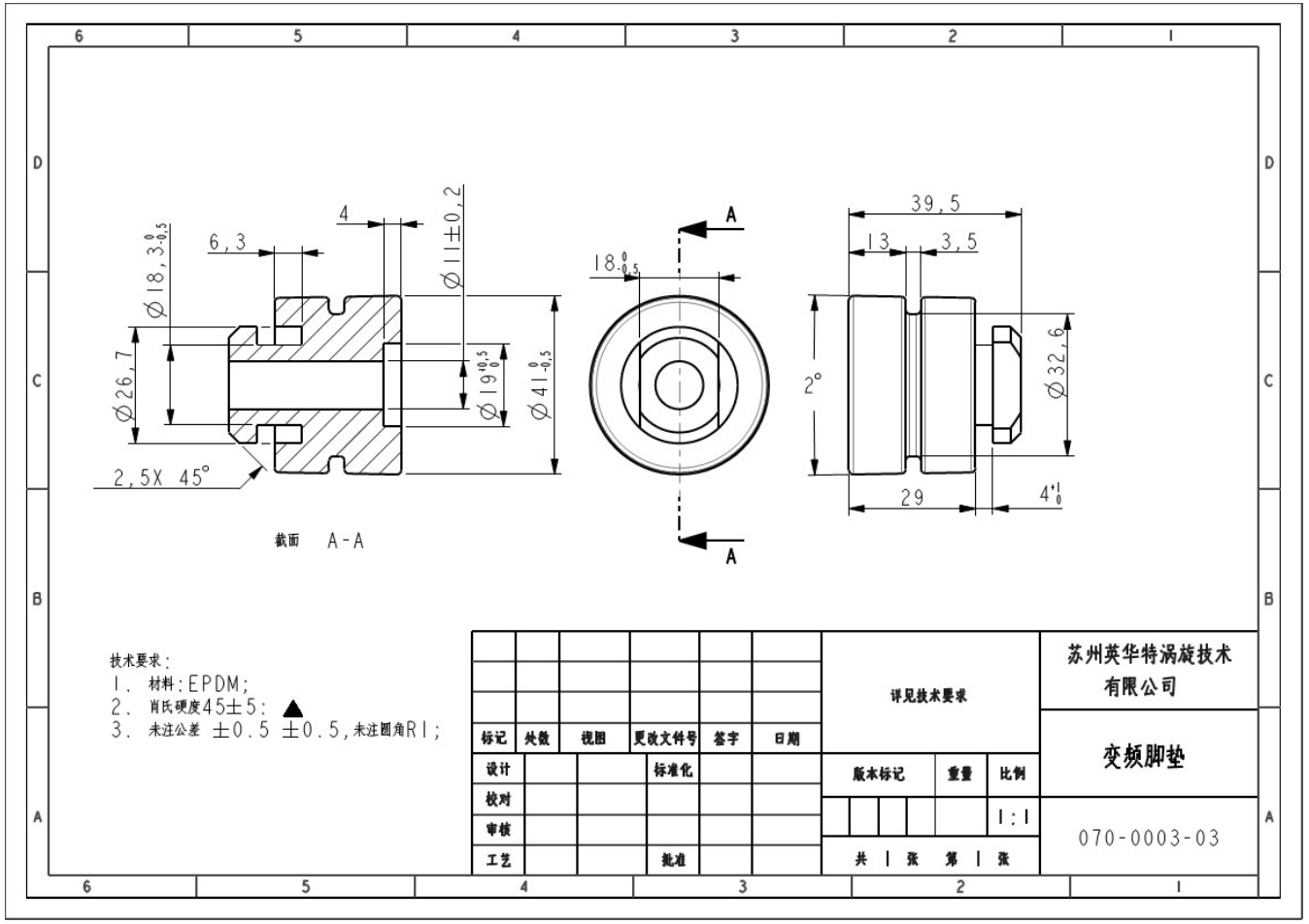
8.导套尺寸示意图 Dimension diagram of guide



9.压缩机底脚示意图 Schematic diagram of compressor base Angle

脚垫材质 Floor mat material:EPDM

脚垫颜色 Transparent:黑色 Black



10.接线盒示意图。Schematic diagram of junction box cover

接线盒材质 Junction box cover material:ABS

接线盒颜色 Color of junction box cover:黑色 Black

接线盒 IP 等级 Terminal box IP level:IP21