

编号 Code:

日期 Date: 2019.7.5

# 全封闭旋转式压缩机技术规格书

## Specification of Hermetic Rotary Compressor

(参考)

**型号 Model: C-RHN153L8A**

**代号 Code: 802 409 28**

客户 Customer: \_\_\_\_\_

批准 Approval: \_\_\_\_\_

编制 Designed by	校阅 Checked by	标准化 Standardized by	审核 Reviewed by	批准 Approved by

沈阳中航机电三洋制冷设备有限公司

## 1、压缩机规格 SPECIFICATION OF COMPRESSOR

项目 Content	单位 Unit	规格 Specification
压缩机类型 Compressor type		全封闭滚动转子式压缩机 (33F) Hermetic Rotary Compressor (33F)
应用 Application		Low Back Pressure
额定功率 Rated output	W	1500
冷却方式 Cooling type		喷液冷却 Li-In
电源 Power source	相数 Number of phase	3
	电压 Rated voltage	V 380
	频率 Rated frequency	Hz 50
压缩机运转电压范围 Compressor revolution voltage range	V	342~418
气缸数 Number of cylinder		1
制冷剂 Refrigerant		R404A/R448A
冷冻机油 Oil		FV68S 或等同品 FV68S or Equivalent
冷冻机油油量 Amount of oil charge	ml	900
*整机重量 (含油) *Weight (Inc. oil)	kg	(*)
气缸容积 Displacement	cm <sup>3</sup>	32.2
电动机 Motor	电机类型 Motor type	三相感应电机 3PH Induction Motor (3IR)
	极数 Number of poles	2
	绝缘等级 Electrical insulation	级 CLASS E
	绕组电阻 (at 25°C (77° F)) Winding resistance	C(T)-R
C(T)-S		Ω 5.12 ± 5%
R-S		Ω 5.40 ± 5%
电气部品 Elecrtic Parts	过载保护器 Overload Protector	内置式 Internal
	加热器 Heater	28W 240V
联接管 Connection tube	吸气管内径 Suction tube(I.D)	mm I. D φ 12.8
	排气管内径 Discharge tube(I.D)	mm I. D φ 9.6
	L/I 内径 L/I tube (I. D)	mm I. D φ 6.5

## 2、性能 RATED PERFORMANCE

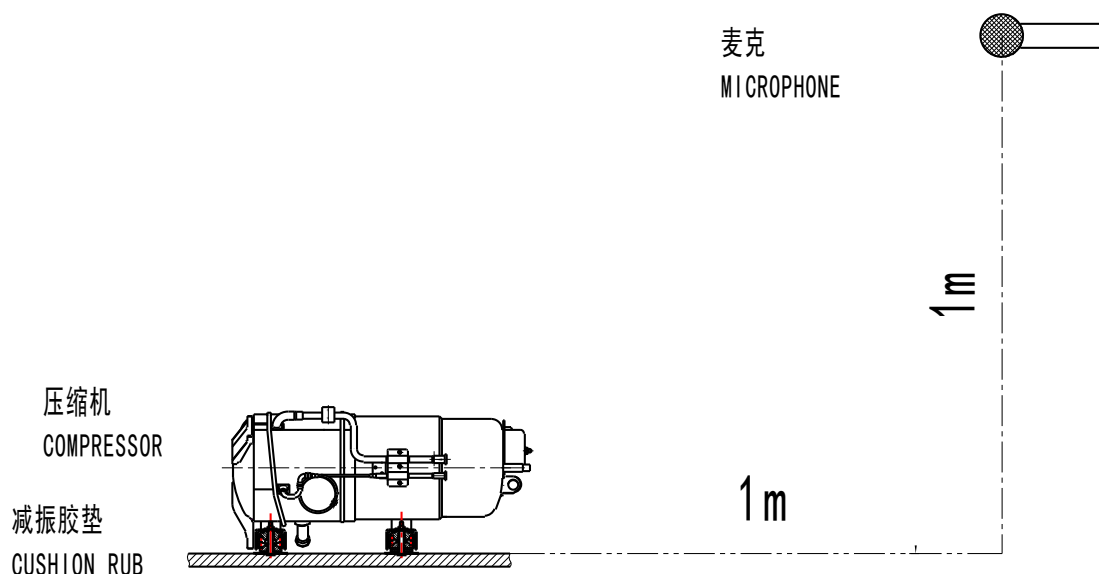
		单位 UNIT	380V 50Hz	备注 Remark
制冷能力 Capacity		W	1920	±10%
输入功率 Input		W	1800	±10%
电流 Current		A	3.47	±10%
能效比 COP		W/W	(1.07)	参考值 Reference
启动电压 Starting Voltage		V	304 min	平衡压: 1.40Mpa (G) Balanced:1.40Mpa (G)
噪声 (声压级) Noise (Sound Pressure Level)		dB (A)	61 max	声压级, 四向均值 Sound Pressure , Level Average of 4 Directions
振动 Vibration	水平 Horizontal	um	170max	半振幅、压缩机侧面 Half Amplitude, Compressor side
	圆周 Circumferential	um	210 max	

测试工况 Test conditions:

	°C	F (参考 Reference)
冷凝温度 Condensing temp	54.4	130
蒸发温度 Evaporating temp	-23.3	-10
膨胀阀前液体温度 Liquid temp. entering expansion valve	32.2	90
吸气温度 Return gas temp	18.3	65
环境温度 Ambient temp	32.2	90
压缩机冷却方式 Compressor cooling	喷液冷却 Liquid Injection	

噪声测试麦克位置:

Microphone positon



## 3、一般特性 CHARACTERISTICS

项目 Item	单位 Unit	标准 Criteria	备注
气密试验压力 Leak Tight (No Leakage) (Gauge Pressure)	MPa (G)	2.94	
破坏压力 Hydrostatic Strength (No Leakage) (Gauge Pressure)	MPa (G)	11.77	
绝缘电阻 Insulation Resistance (After Running)	MΩ	Min 100	
耐电压 Dielectric Strength	V	1800 (1Minute)	
残留水分 Residual Moisture	mg	Max 200	
杂质残留量 Residual Contamination	mg	Max 80	

(G): 表压 Gauge

## 4、零件及图纸清单 PARTS AND DRAWING LIST

部件名称 PARTS NAME	数量 Q' TY	图纸代号 PART' S CODE	备注 REMARK	提供 SUPPLY	
压缩机 COMPRESSOR	1	202 0 6913 G47 00X		Yes	---
接线盒胶垫 GASKET TERMINAL	1	201 2 5303 Q5E 00X		Yes	---
接线盒盖 COVER TERMINAL	1	201 2 6194 00A 00X		Yes	---
M5 螺母 NUT 5	1	801 2 8305 102 00X	GB6177-86-M5	Yes	---
电气组合 ELEC PARTS LIST RC	1	201 0 1421 A23 00X		---	No
加热器 HEATER	1	4 2459 600 60X		---	No

\*Yes: 提供 Supply

\*No: 不提供, 仅供参考 Out of supply, for reference

# 压缩机使用基准 (R404A)

## COMPRESSOR APPLICATION STANDARD

(R404A•LBP•FIXED•Horizontal•L/I)

为正确使用卧式旋转压缩机 (L/I 冷却), 特规定其使用基准及使用界限。

The following requirements apply to Horizontal Type Rotary Compressors (L/I)。

使用基准: 适用于常用条件下 (标准、过载、低温条件) 适用。

Standard: Applicable to operations under conditions in compliance with JIS C9612 or equivalent conditions (including standard, over-load and low-load conditions)。

使用界限: 适用于过渡条件下 (启动时、除霜时等) 的短时间运转。

Limit: Applicable to transitional short period, such as starting and early stage of defrost mode.

No	项 目 ITEM	使用基准值 Standard	使用界限值 Limit	备注 Note
1	制冷剂 Refrigerant	R404A		
2	平均蒸发温度范围 Evaporating Temp.	-45°C~-5°C (0.005~0.415Mpa(G))		
3	平均冷凝温度范围 Condensing Temp.	+30°C~+60°C (1.35~2.83MPa(G))		
4	压缩比 Compression Ratio	19Max Except very short period such as pull-down		
5	电机绕组温度 Winding Temp.	115°CMax	125°CMax	
6	外壳底部温度 Shell Bottom Temp.	上限: 100°CMax 下限: 相对冷凝压力饱和温度+0.5K 以上 Condensing temperature +0.5K Min		
7	排气温度 Discharge Gas Temp	105°Cmax	110°Cmax	距压缩机出口 50mm 处排气配管温度 at around 50mm from the Comp. discharge end
8	吸气温度 Suction Gas Temp.	18°Cmax, 吸入气体的过热度为 10K 以上 18°Cmax, Superheat:10Kmin	无吸入液体而产生的声音 (无电流及振动的增加) No excessive noise	距压缩机入口 50mm 处吸气配管温度 At around 50mm from the comp. suction head
9	运转电压 Voltage (Run)	额定电压±10% within±10% of rated voltage		压缩机端子电压 Voltage at the comp. terminal
10	启动电压 Voltage (Start)	额定电压+85%以上 85% of rated voltage or more		Dropped voltage at the comp. terminal
11	开/停周期 On/Off Period	运转时间: 至少应使油面回到指定油位所需的时间 ON period: Until the oil level returns center of the cylinder 停止时间: 至少应使高低压达到平衡所需的时间 OFF period: Until pressure balance is obtained		1 个周期: 10 分钟以上 停止时间: 3 分钟以上 At least 7minutes - ON/ 3 minutes - OFF is recommendable.

12	制冷剂封入量 Refrigerant Charge	油/制冷剂质量比 0.25 以上 Oil/Refrigerant (wt.) $\geq$ 0.25	油比重为 0.94kg/L Gravity of the oil :0.94 kg/L												
13	启停频度 Action cycle	20 万个周期以下 200000 cycles Max													
14	压缩机油面 Minimum Oil Level	上油管下端 10mm 以上 Up to 10mm above the end of the oil pipe	滑动部件充分润滑 lubrication of sliding parts												
15	异常压力上升 Pressure Rise	15F/20F: 4.90MPa (G) Max 33F : 3.92MPa (G) Max	热交换器风扇停止等 ex. Condenser fan motor failure												
16	水分 System Moisture Level	200ppm Max													
17	非冷凝气体 System non condensate gas Level	制冷回路中非冷凝气体在 1% (容积比) 以下 残留氧气 0.1% (容积比) 以下 1 Vol.% Max Residual Oxygen 0.1Vol.% Max	抽真空 24 小时后真空度应在 1.01kPa 以下 24 hrs. after vacuuming: 1.01kPa Max												
18	倾斜 Tilt	使用时压缩机的倾斜在 5° 以内 5 deg. Max													
19	其他 Other	<p>◆为防止停止时冷冻机油和制冷剂倒流到吸入侧，压缩机和特别设置储液器之间安装单向阀。 To prevent the refrigerant and oil flowing back when compressor is stopped. One-way Valve should be set between assistant stank and compressor.</p> <p>◆为防止停止时液态制冷剂流入蒸发器，在膨胀阀前(毛细管弯管处)安装电磁阀。 To prevent Liquid refrigerant inflow evaporator when compressor is stopped. Between expansion valve(capillary tube) and receiver tank(condenser), solenoid valve shall be installed.</p> <p>◆配管长度&amp;高低差 Pipe length and drop::</p> <table style="margin-left: 40px;"> <thead> <tr> <th></th> <th>长度 length</th> <th>高低差 drop</th> </tr> </thead> <tbody> <tr> <td>600W</td> <td>20m Max</td> <td>10m Max</td> </tr> <tr> <td>750~1100W</td> <td>30m Max</td> <td>10m Max</td> </tr> <tr> <td>1500~2400W</td> <td>50m Max</td> <td>20m Max</td> </tr> </tbody> </table> <p>◆抽真空在高压侧和低压侧两侧进行，在冷凝器出口侧封入液态制冷剂。 Evacuate internal section in the refrigeration system from high and low pressure sides and charge refrigerant liquid from condenser outlet side</p> <p>◆封入制冷剂后 15 分钟以内进行 1 分钟以上的连续运转。 Do idle running for at least one minutes within 15 minutes after refrigerant charge</p>			长度 length	高低差 drop	600W	20m Max	10m Max	750~1100W	30m Max	10m Max	1500~2400W	50m Max	20m Max
	长度 length	高低差 drop													
600W	20m Max	10m Max													
750~1100W	30m Max	10m Max													
1500~2400W	50m Max	20m Max													

备注 Remarks:

1. 安装注意事项 Compressor installation notes

(1) 压缩机在开封状态下，请勿放置 15 分钟以上

Installation shall be completed within 15 minutes, after removing the rubber plugs.

(2) 压缩机请勿压缩空气

Do not compress air.

(3) 压缩机在真空状态下请勿通电:

Do not energize under vacuumed condition.

(4) 压缩机在搬运时，请勿严重倾斜、跌落或受冲出

Do not tilt over when carrying.

- (5) 请勿损坏压缩机的涂装表面、接线盒盖及气液分离器等

Do not remove the paint, Cover, Accumulate.

- (6) 高压保护设定值为 2.84Mpa(G) 以下。

High pressure switch(Set less than 2.84Mpa(G))

- (7) 禁止压缩机反转

Do not revers compressor operation.

- (8) 配管（铜管）应力推荐如下

Copper Piping Stress (half amplitude).

启动/停止时 Start & Shutdown: 34.32N/mm<sup>2</sup> Max

运转 Run : 12.26N/mm<sup>2</sup> Max

# 电线的选定

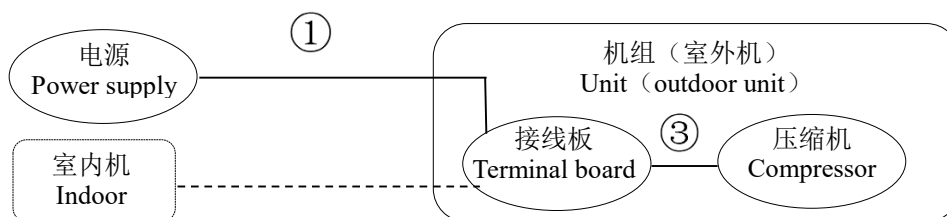
## SELECTION OF ELECTRICAL WIRE

压缩机启动时会产生很大的电流，从而造成电压下降，因为电压下降的大小有时可能会造成压缩机启动困难，所以，根据电动机启动电流，推荐 2 项的电线规格选定表

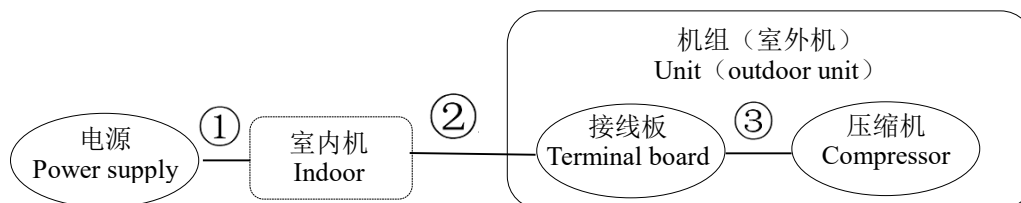
The voltage drop will be occurred due to the large current at the compressor starting. It should be difficult to start the compressor depending upon the voltage drop level, Therefore, we would recommend you to select the wire size from the below "electrical wire size selection table" which is depended on motor's starting current.

### 1、系统型式 Type of unit

(01) 一体型系统和商用系统 Window & Commercial Type unit



(02) 分体型系统 Split type (Separate type)



### 2、电线尺寸选定表 Selection of electrical wire's size table

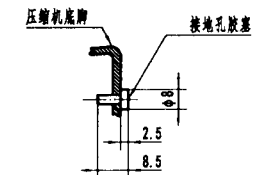
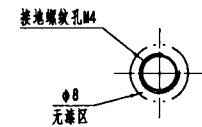
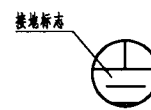
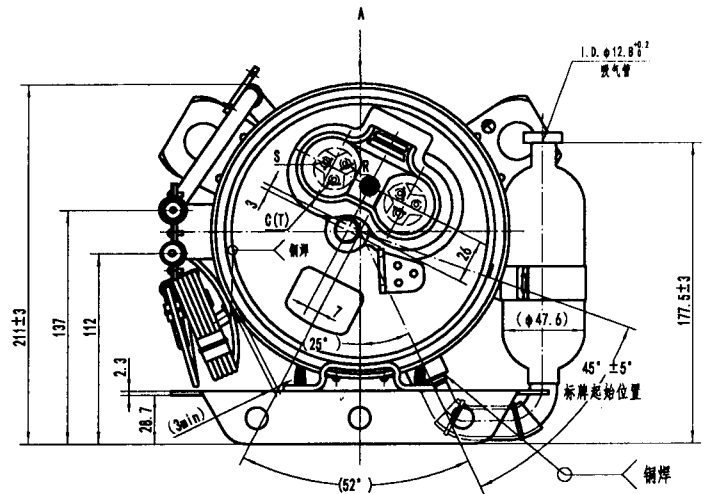
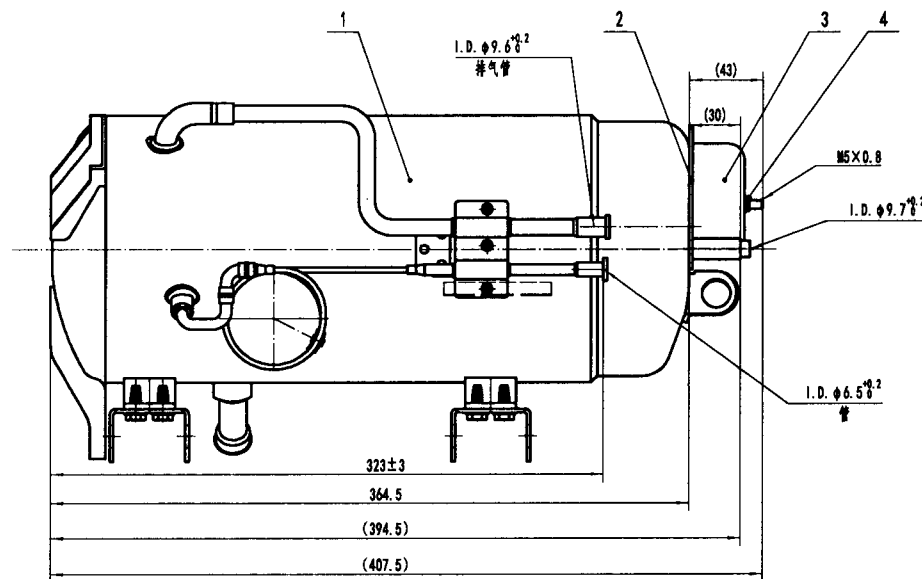
启动电流 (A) Starting Current	配线规格 Size of electrical wire (mm <sup>2</sup> )							
	记号①或记号①+② (耐热温度60℃以上) Remark③ or Remark①and② (heat-resistance Temperature: "60℃"min.)							记号③ (耐热温度120℃以上) Remark③ (heat-resistance temperature: "120℃"min.)
	3m max	5m max.	10m max	15m max.	20m max	30m max.	50m max	1m max.
20max	2.0	2.0	2.0	2.0	3.5	5.5	8.0	2.0
30max	↑	↑	↑	3.5	5.5	↑	14.0	↑
40max	↑	↑	3.5	5.5	↑	8.0	↑	↑
50max	↑	↑	↑	↑	8.0	14.0	22.0	↑
60max	↑	↑	5.5	↑	↑	↑	↑	↑
70max	3.5	3.5	↑	8.0	14.0	↑	↑	3.5
80max	↑	↑	↑	↑	↑	22.0	30.0	↑
90max	↑	↑	↑	14.0	↑	↑	↑	↑
100max	↑	↑	8.0	↑	↑	↑	38.0	↑
110max	↑	↑	↑	↑	↑	↑	↑	↑
120max	↑	5.5	↑	↑	22.0	30.0	↑	↑



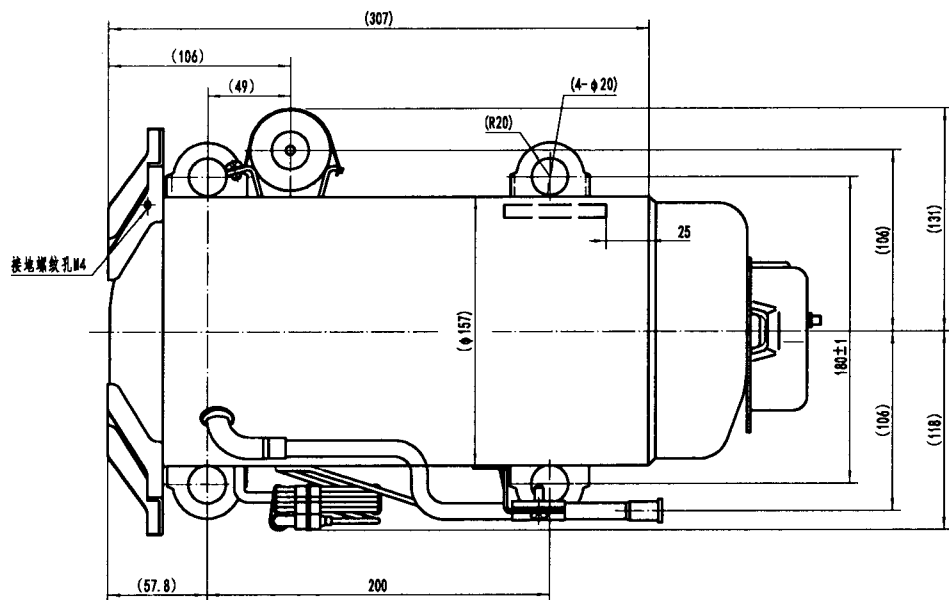
### 3、有关接地的注意事项Caution of ground

压缩机中装有本公司确认的电机保护装置，但电机保护装置并不是全部都能保护，由于种种原因，电机有时也可能有损伤，所以请在成品、机器等上设置接地部件，安装时请务必接地。

Compressor shall be used the motor protector which our company approved onl. This motor protector does not cover the protection against all. Due to the various factors the compressor's motor may occur to burn out. Therefore, please be sure that the production shall be designed with the ground and installed it in the field.



A向旋转

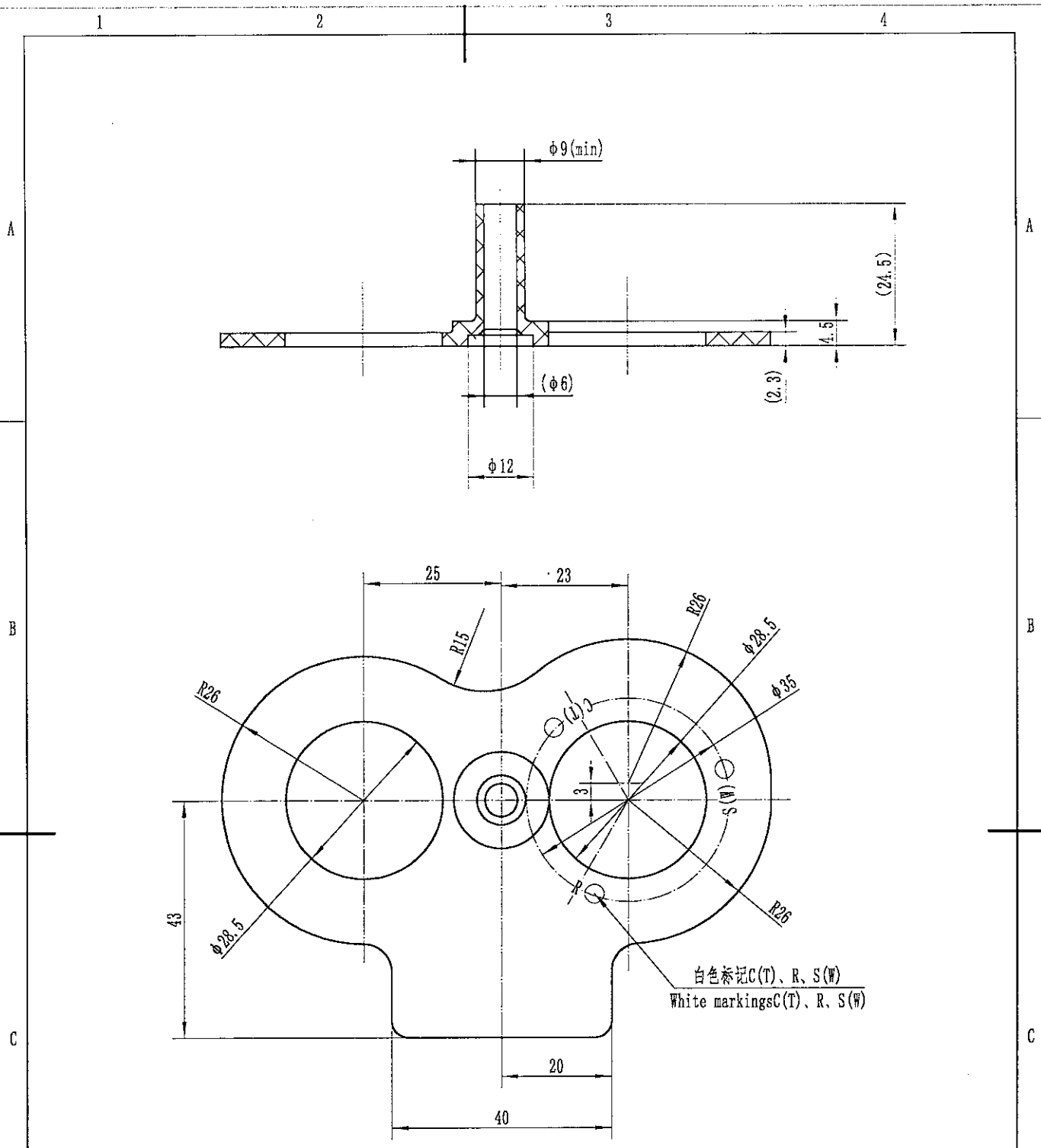


### 技术要求

1. 封入0.20MPa(G) (2kgf/cm<sup>2</sup>)的氮气;
2. 注油后, 在上盖印“NRO”;
3. M5螺母的拧紧力矩为1.47~1.96N.m (15~20kgf.cm)。

4	801 2 8305 102 00X	M5螺母	1		
3	801 2 6194 144 00X	接线盒盖	1		
2	801 2 5303 192 00X	接线盒胶垫	1		
1	802 409 28	压缩机	1		
序号	代号	名称	数量	材料	备注
				202 0 6913 G47 00X	
				图样标记 重量 比例	
				共 1 张 第 1 张	
				1:3	
				共 1 张 第 1 张	
				沈阳中航机电三洋制冷设备有限公司	
标记	数量	变更	分区	日期	
设计	张宇	标准化		2016.01.27	
日期	2016.01.27	日期		2016.01.27	
审核	张宇	批准		2016.01.27	
工艺会签		日期		2016.01.27	

### 压缩机外形图



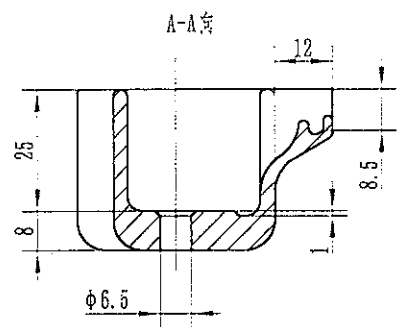
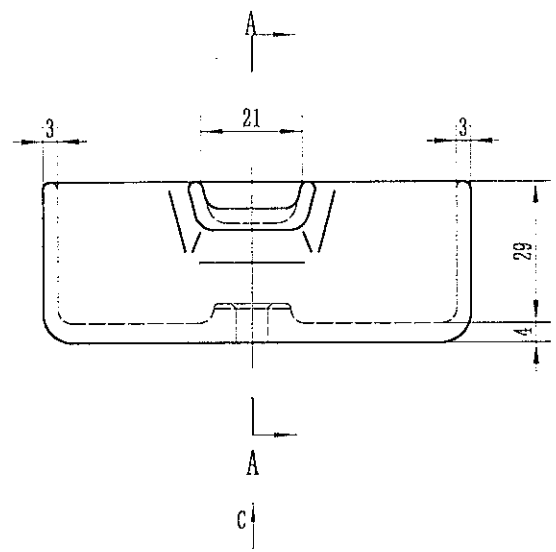
### 技术要求 NOTES

- 1、硬度: HS70±5, 颜色: 黑色  
Hardness; HS70±5, Color: Black.

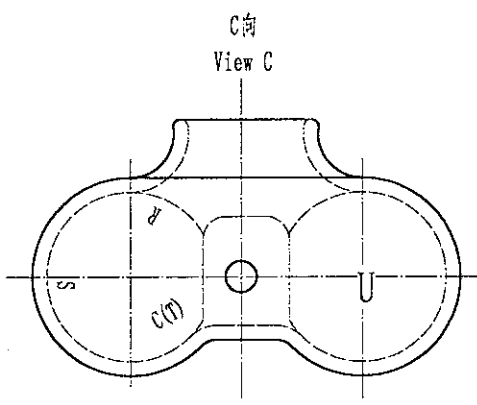
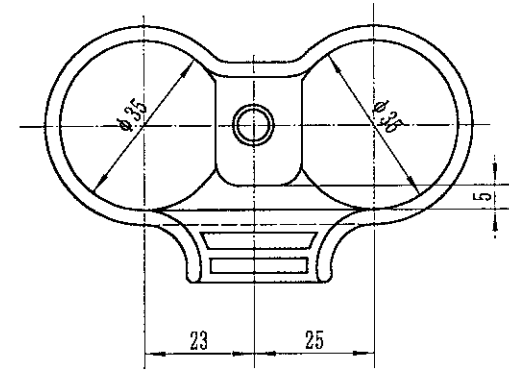
设计 Designed	马晓亮	2019.3.7	接线盒胶垫 GASKET TERMINAL 阻燃型硅橡胶 Flame retardant silicone rubber	201 2 5303 Q5E 00X		
审核 Reviewed	王永亮	2019.4.2		重量 Weight	比例 Scale	1:1
标准化 Standardized	刘阳	2019.4.2		沈阳中航机电三洋制冷设备有限公司 AVIC ELECTROMECHANICAL (SHENYANG) SANYO REFRIGERATION EQUIPMENT CO., LTD.		
批准 Approved	夏树鹏	2019.4.2				

1 2 3 4

A



B



C

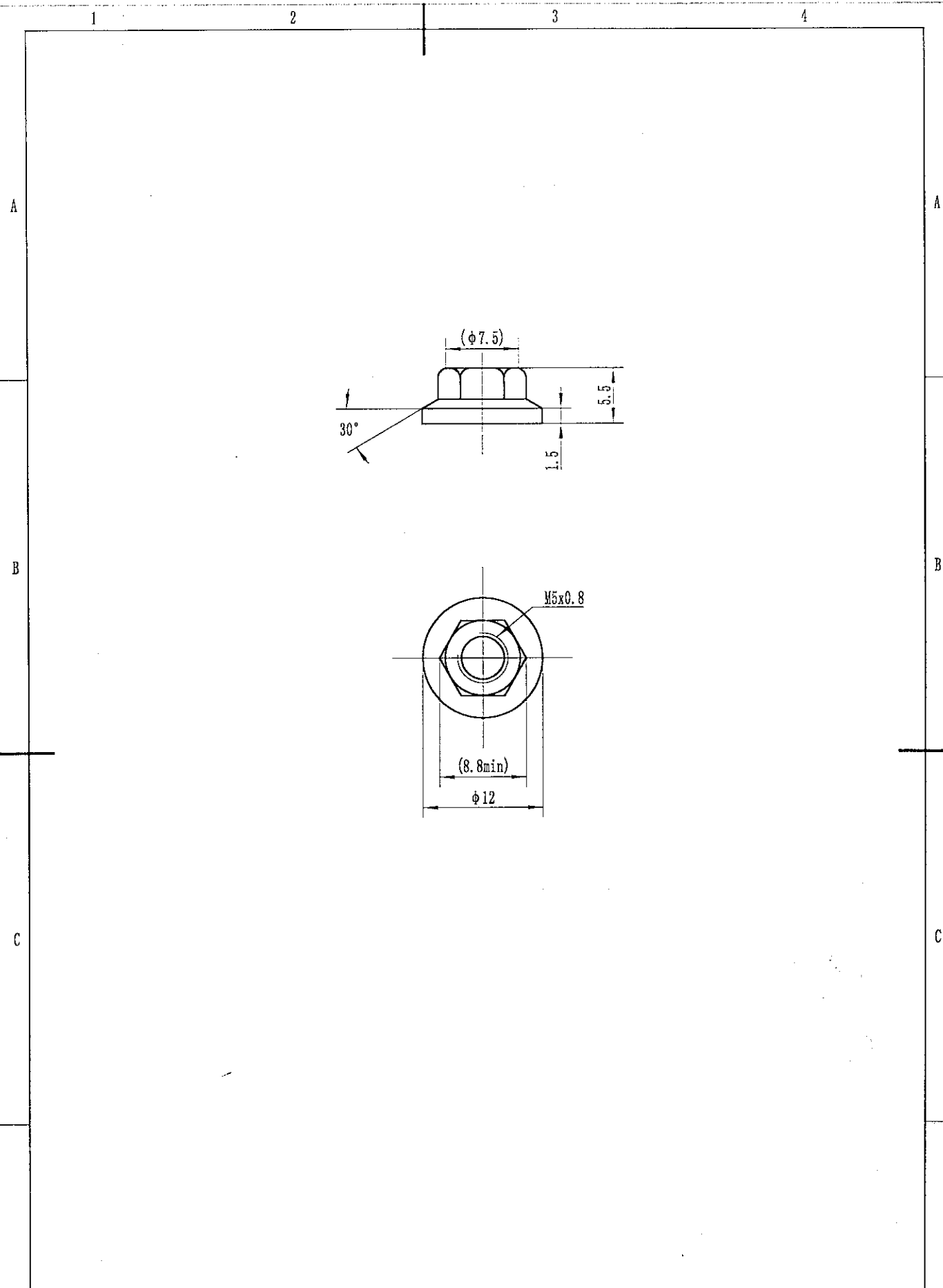
D

设计 Designed	马晓亮	2019.3.7
审核 Reviewed	王东亮	2019.4.2
标准化 Standardized	刘晶	2019.4.2
批准 Approved	王树鹏	2019.4.2

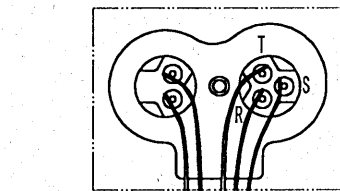
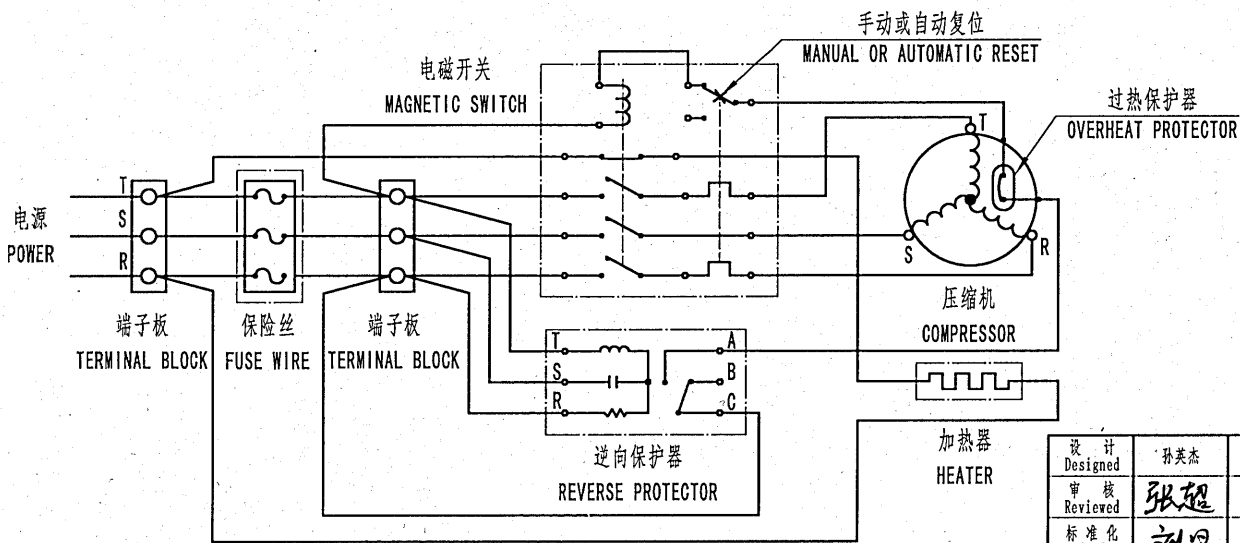
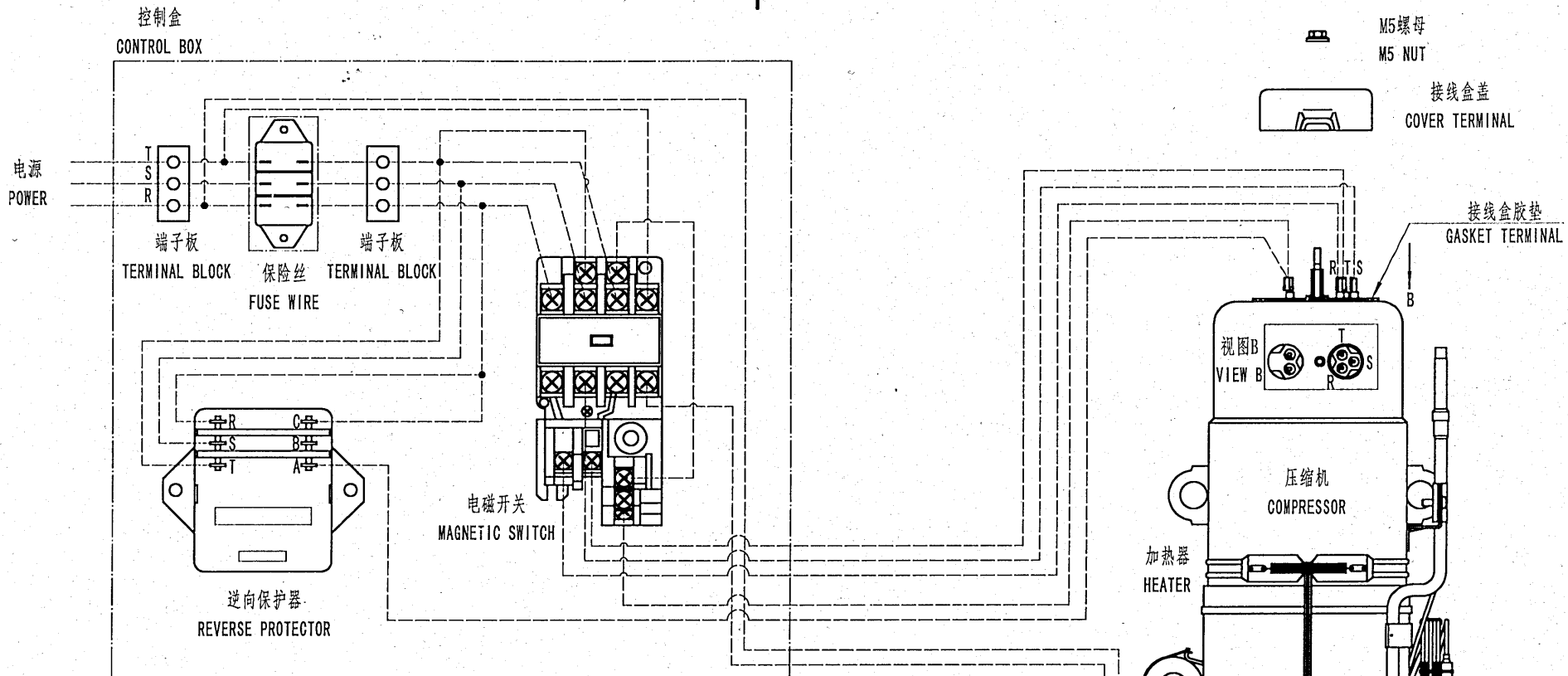
接线盒盖  
COVER TERMINAL  
PBT

201 2 6194 00A 00X	
重量 Weight	比例 Scale 1:1.5
沈阳中航机电三洋制冷设备有限公司 AVIC ELECTROMECHANICAL (SHENYANG) SANYO REFRIGERATION EQUIPMENT CO., LTD.	

1 2 3 4



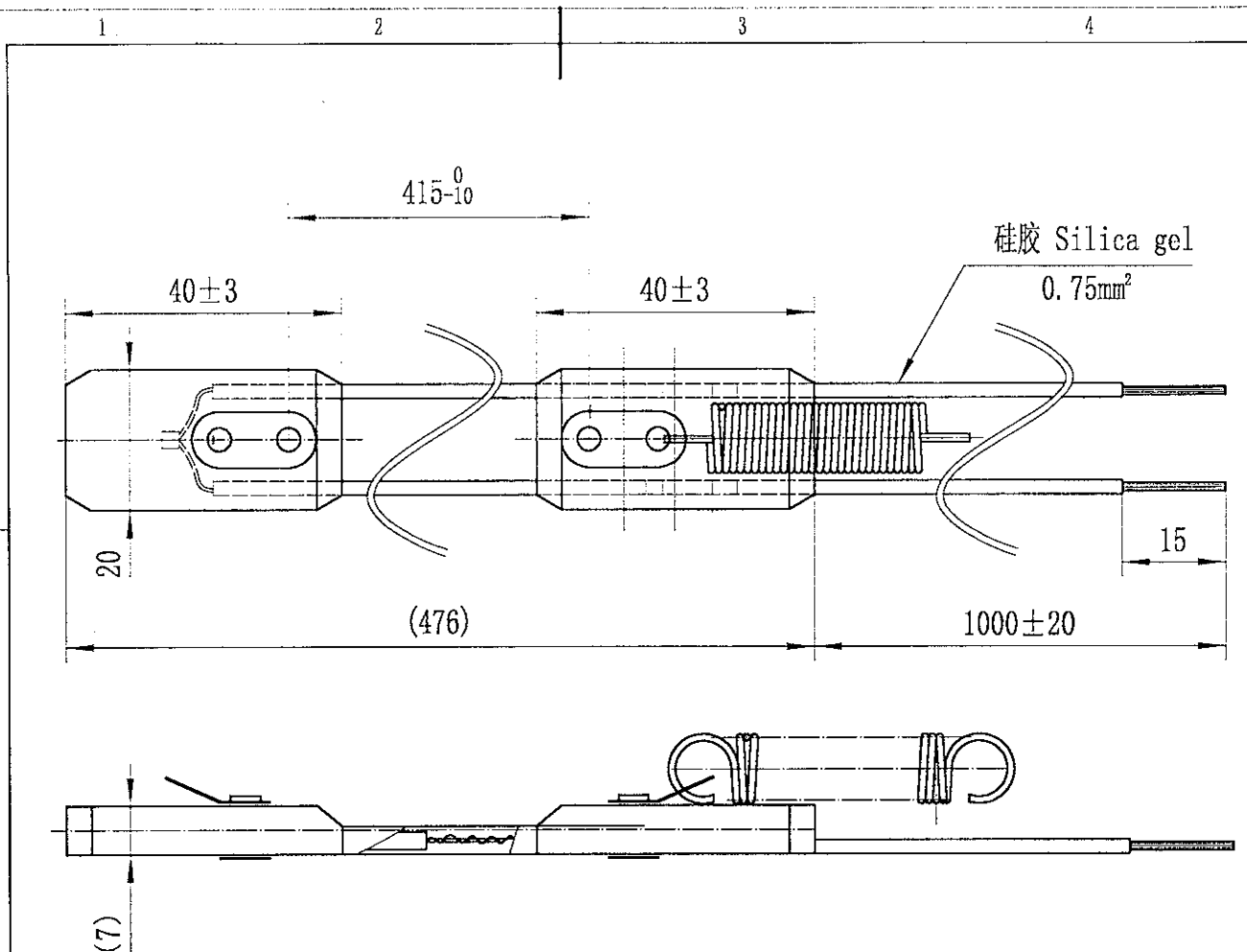
设计 Designed	马晓亮	2019.3.7	M5螺母 NUT 5	801 2 8305 102 00X	
审核 Reviewed	王承高	2019.4.2		重量Weight:	比例 Scale: 2:1
标准化 Standardized	刘磊	2019.4.2	A3	沈阳中航机电三洋制冷设备有限公司 AVIC ELECTROMECHANICAL (SHENYANG) SANYO REFRIGERATION EQUIPMENT CO., LTD.	
批准 Approved	王树刚	2019.4.2			



设计 Designed	孙英杰	2018.09.29
审核 Reviewed	张超	2018.09.29
标准化 Standardized	刘磊	2018.9.30
批准 Approved	李斌	2018.9.30

电气原理图  
ELECTRICAL DIAGRAMS

201 0 1421 A23 00X	
重量 Weight	比例 Scale
沈阳中航机电三洋制冷设备有限公司 AVIC ELECTROMECHANICAL (SHENYANG) SANYO REFRIGERATION EQUIPMENT CO., LTD.	



### 技术要求 NOTES

1. 额定值: 240V 28W;  
Rated value: 240V 28W;
2. 绝缘体阻抗: Insulator impedance  
500VDC,  $100\text{M}\Omega$  Min;
3. 耐压: Voltage resistance  
AC 1500V/min;

设计 Designed	马晓亮	2019.3.7	加热带 CRANKCASE HEATER	4 2459 600 60X		
审核 Reviewed	王秋亮	2019.4.2		重量Weight:	比例Scale	1:1
标准化 Standardized	刘晶	2019.4.2		沈阳中航机电三洋制冷设备有限公司 AVIC ELECTROMECHANICAL (SHENYANG) SANYO REFRIGERATION EQUIPMENT CO., LTD.		
批准 Approved	史超鹏	2019.4.2				