

Specification

Miniature Rotary DC Compressor

Model: QX1403VDL



兰溪市立志德制冷设备有限公司
RIGID HVAC CO., LTD



QX14-48 压缩机图纸清单

QX14-48 Compressor Drawings

图纸名称 Drawing Name	图号 Drawing Number
外形图 Dimensioned Sketch	QX14-WX
电路接线图 Circuit Wiring Diagram	QX14-DL
特性曲线图 Characteristic Curve	QX14-TX
橡胶垫 Rubber Grommet	QX19-35
芯柱 Stem	QX19-36
驱动器 Driver	ACRC-DC3010



QX14-48 压缩机附件清单

Accessories of QX14-48 Compressor

附件名称 Name of Accessories	图号 Drawing Number	使用数量 Quantity	提供者 Supplier		备注 Remark
			东康 Dong Fang	用户 User	
电器部件 Electrical Parts					
驱动器 Driver	ACRC-DC3010	1	○		
防振部件 Anti-vibration Parts					
橡胶垫 Rubber Grommet	QX19-35	3	○		
芯柱 Stem	QX19-36	3	○		



QX14-48 微型压缩机规格书

The Specification

for QX14-48 Miniature Compressor

性能要求:

Performance specifications:

压缩机 Compressor	形式 Type 气缸数 Number of Cylinders 排气量 Displacement (cc/rev)	全封闭旋转式电动机压缩机 Hermetic Rotary Motor Compressor 1 1.4
电动机 Motor	形式 Type 额定电压 Rated Voltage (V) 电压范围 Voltage Range (V) 额定转数 Rated Speed (rpm) 额定电流 Current (A) 最大电流 Max.Current (A) 绕组阻抗 (20℃) Ω Winding Resistance (20℃) Ω	直流无刷电机 Brushless DC motor 48 38~58 2000~6000 0.5~2.5 4.2 1.02
制冷剂 Refrigerant	种类 Type	R-134a



冷冻机油 Refrigerant Oil	种类 Type 封入量 Charge (cc)	RL-32H、RB68EP 或同等性能油 RL-32H,RB68EP or equivalent performance oil 40
压缩比 Compression ratio		必须在 8 以下 Must below 8
整机重量 (含油)Kg Total Weight (oil included) Kg		0.71
性能 Performance	转速范围 (rpm) Speed Range (rpm) 制冷量 Refrigerating Capacity (W)	2000~6000 100~300
冷凝温度 Condensing Temperature 蒸发温度 Evaporating Temperature 环境温度 Ambient Temperature 最大排气温度 Maximum Discharge temperature		27~65℃ -18~24℃ 5~43℃ 120℃
噪声 (声功率级) Noise (Sound Power Level) dB		≤48
电器配件 Electrical Parts	驱动器 Driver	ACRC-DC3010



QX-48 微型压缩机一般技术要求

General Technical Requirements for QX - 48 Miniature Compressor

1、使用基准和使用限制

Standards and Limitations for Rational Application

序号 NO.	项目 Items	使用限制值 Limitations on application
1	吸入气体温度 Suction temperature	<p>必须满足排出气体温度在规定范围内，冷冻回路应设计成使吸入气体过热度在 2℃ 以上，并防止液体回流和液压缩等现象发生。</p> <p>Must satisfy the discharge temperature kept within prescribed ranges, the refrigeration loop should be designed to keep the suction gas's degree of super-heat above 2 °C and prevent fluid from re-flux and compression.</p>
2	起动电压 Starting voltage	<p>起动电压最低为 38V，该电压是指加在压缩机端子的电压，起动时平衡压力为 0.6MPa 以下。</p> <p>Min.starting voltage is 38V, this refers to the voltage applied between terminals on the compressor, at starting equilibrium pressure below 0.6MPa.</p>
3	停开条件 Power cycle conditions	<p>从停机到重新起动时间不少于 5 分钟，每次运行时间不少于 3 分钟，累计停开 6 万次以上。</p> <p>No less than 5 minutes to restart from halt, each running time no less than 3 minutes, accumulated more than 60 thousand times to turn on and off.</p>



2、电器配件

Electrical accessories

根据电源及保护方式有以下的电器元件，具体规格在压缩机的个别规格书中。

The following controllers are used based on power supplies and protection methods, the specific specifications are listed in the individual specifications sheets.

配件名称 Name of Accessories	注意事项 Notes
控制器 Driver	<p>参考规格书的电器原理图，压缩机端子和保护器之间引线，请使用耐热导线，耐热温度$>105^{\circ}\text{C}$。</p> <p>Reference the electrical circuit diagram, connect the terminal and the protector with heat-resistant wire, which heat-resistant temperature $>105^{\circ}\text{C}$.</p>

3、安装使用注意事项

Notes for installation and application.

3.1 一般注意事项

General notes

① 请避免安装在已使用过 R12、R22、R502 等含有 cl 氯离子制冷剂的装置上。在封入制冷剂时，请不要使用用过 CFC 或 HCFC 系制冷剂的充注机。

Avoiding installing the compressor in the apparatus that used R12, R22, R502 and other containing chlorine ions refrigerant. Do not use charging machine that used for CFC or HCFC refrigerants before to seal refrigerants.

② 请不要使用含有氯离子的清洗剂来清洗系统，如果在不得不使用时，请要十分注意保证在系统内没有残留的氯元素。



特别注意：制冷系统内氯元素不纯物的含量要求在加入制冷剂气体量的 100ppm 以下。

Do not use cleaning agents containing chlorine ions to clean the compressor system. Make sure there is no residual chlorine elements left in the system if they have to be used.

Special attention: the content of chlorine-impurities in the refrigeration system must be less than 100ppm of the total refrigerant gas charged in.

③ 请使用 HFC-134a 专用干燥过滤器，在干燥过滤器开封后，请迅速安装在系统中。

Please install special drying filter for HFC-134a in the system quickly after break the seal.

④ 系统使用的配管应清洗干净，不能有加工过程中工艺油的残留物。

The pipes used in system must be clean up with no process oils left.

3.2 抽真空

Vacuum treatment

制冷系统在抽取真空时，应从高压端和低压端同时进行，真空度应达到 0.35 毛以下。

Vacuum treatment should be carried out simultaneously at both high-pressure and low-pressure sides. Vacuum degree should be below 0.35 Torr.

3.3 充注制冷剂

Refrigerant charging

系统充注制冷剂时，必须从高压端（冷凝器一侧）注制冷剂。

Refrigerant charging must from high-pressure side (condenser side).

3.4 拔除橡胶护塞

Removing rubber plugs

压缩机出厂时，机内已充入 0.01 至 0.05Mpa（表压）的高纯氮气，并用橡胶管塞密封，取管塞时应先取排气管上橡胶管塞，防止冷冻机油喷出。

The compressor is charged with high purity Nitrogen at 0.01 to 0.05 MPa (gauge pressure) and pipes are sealed with rubber plugs at the factory, the



rubber plug in the discharge pipe should be removed first to prevent refrigerant oil from spewing out.

- 3.5 压缩机与配管之间在焊接过程中，请注意不能使焊剂、粉尘、杂质等进入管路系统中，焊料请使用低熔点焊料，防止配管内产生氧化皮。

Be careful not to make flux, dust and other impurities into the pipeline systems when welding the compressor and pipes together, using low-melting-point solder to prevent pipes from oxide-scale.

- 3.6 压缩机的固定

Mounting compressor

请用本厂提供的专用减振垫，倾斜请控制在 5° 以内。

Please use the specified anti-vibration rubber cushion supplied by the factory, control the gradient within 5°.

- 3.7 起动运转

Starting

压缩机装入回路后，充入制冷剂后才能启动运转，严禁在空气中通电运行，两次起动时间应大于高低压平衡时间，约需要 3 分钟以上。

The compressor should not be started until finish the refrigerant charging after installed into systems. No running should be made when the compressor is open to air. The time between two starts should be no less than the time required to balance high and low pressure , it takes about 3 minutes or more.

- 3.8 管路保洁

Keeping pipes clean

安装时应防止金属屑、纤维、杂质等进入管路系统，请在管路中设置 100 目金属滤网。

Please install 100 mesh metal screens in pipes to prevent metal filings, fibers and other impurities from getting into pipeline system.

- 3.9 冷冻机油

Refrigerant oil

为了得到高可靠性，使用了 HFC-134a 用旋转式压缩机专用冷冻机油 RL-32H、



RB68EP 或同等性能油，这种冷冻机油具有优良的热稳定性和耐磨性，因此严禁追加封入规定以外的冷冻机油。

The refrigeration oil RL-32H, RB68EP or equivalent performance oil specially designed for HFC-134a Rotary Compressor are used for high reliability. The oil has excellent thermal stability and wear resistance , no other non-provision oil is allowed to be added in system.

3.10 制冷剂

Refrigerant

请使用高纯度 HFC-134a 制冷剂(99.9%以上， 如果可能 99.95%以上)

Please use high purity HFC-134a refrigerant. (above 99.9%, above 99.95% if possible)

3.11 一般规定

General provisions

① 压缩机应从制造之日起,一年内安装在冷冻回路中。

The compressor should be installed into refrigeration loop with in a year from the date of manufacture.

② 压缩机开封后，在 30 分钟内必须装入冷冻回路中，防止潮气进入压缩机内。

The compressor should be installed into refrigeration loop within 30 minutes after breaking the seal to prevent moisture from getting into them.

③ 压缩机切勿自行抽真空。

It's strictly prohibited to do vacuum treatment with the compressor by oneself.

④ 压缩机切勿空运转。

The compressor is strictly prohibited to run without load.

⑤ 压缩机在真空状态下请注意不能通电。

Do not power up the compressor under vacuum conditions.

⑥ 搬运时防止严重撞击、落下和翻转。

Protect the compressor from bump heavily, failing down and flipping over when handling.



⑦ 压缩机库存应放在通风的库房，周围不应有腐蚀气体存在，不能与含酸碱等腐蚀性物品共同存放，相对湿度不得超过 80%。

The compressor should be stored in storeroom well ventilated, around there should be no corrosive gas and no acid or alkali contained corrosive stuffs , relative humidity is not more than 80%.

4、压缩机质量

Quality of compressor

4.1 噪声与振动

Noise and vibration

压缩机在正常使用状态下的运转过程中，没有异常的噪声和振动发生。

No abnormal noise and vibration in the normal operation of the compressor.

4.2 绝缘强度

Dielectric strength

① 绝缘电阻：用 200V 绝缘电阻测试仪测壳体与绕组之间电阻，在常态下 20M Ω 以上。

Insulation resistance: the resistance between the shell and the windings tested by a 200V insulation resistance tester is above 20M Ω in the normal.

② 耐压：在壳体与绕组之间，加 50HZ 交流电 1000V，1 秒种应不击穿。

Voltage endurance: no breakdown within 1 second between the shell and the windings when 1000V of alternating current at 50Hz is applied.

4.3 气密性、机械强度

Air tightness , mechanical strength

① 气密性试验压力：当壳体内充入 1.9MPa(绝对压力)的干燥空气时，壳体任何部位不得变形和泄漏。

The pressure tested for air tightness: any part of the shell should not be deformed or leaked when the shell is charged with dry air at 1.9MPa (absolute pressure).

② 机械强度试验压力：当壳体内充入 8Mpa（绝对压力）的压缩空气时，壳



体不应破裂。

The pressure tested for mechanical strength: the shell should not be fractured when it is charged with compressed air at 8MPa (absolute pressure).

4.4 压缩机的残余水份含量小于 50mg。

The residual moisture content of the compressor is less than 100mg.

4.5 压缩机内部杂质含量小于 50mg。

The impurity content inside the compressor is less than 90mg.

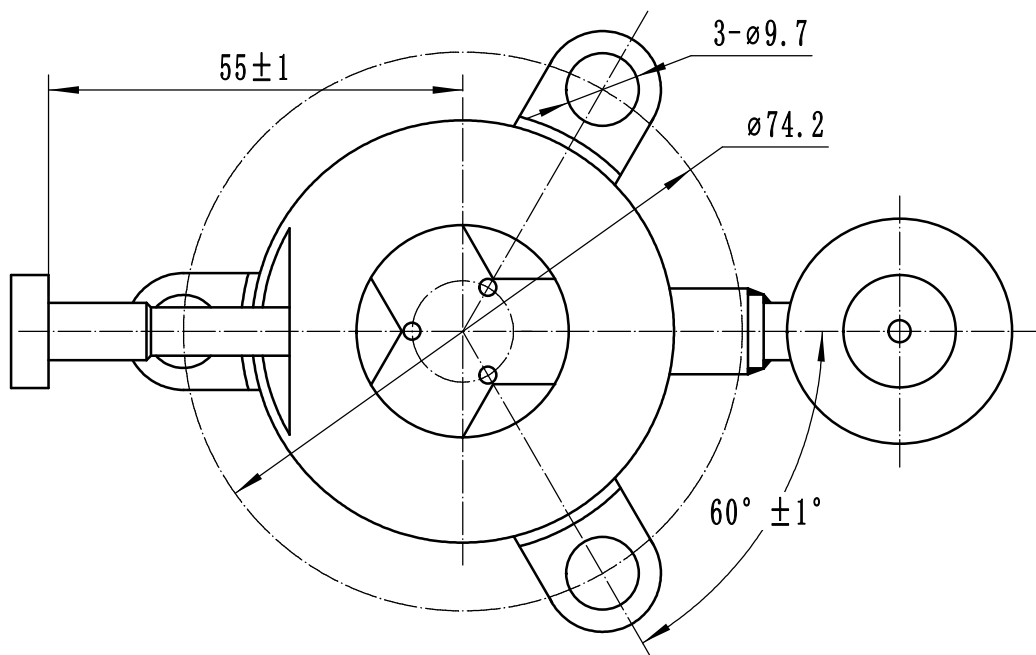
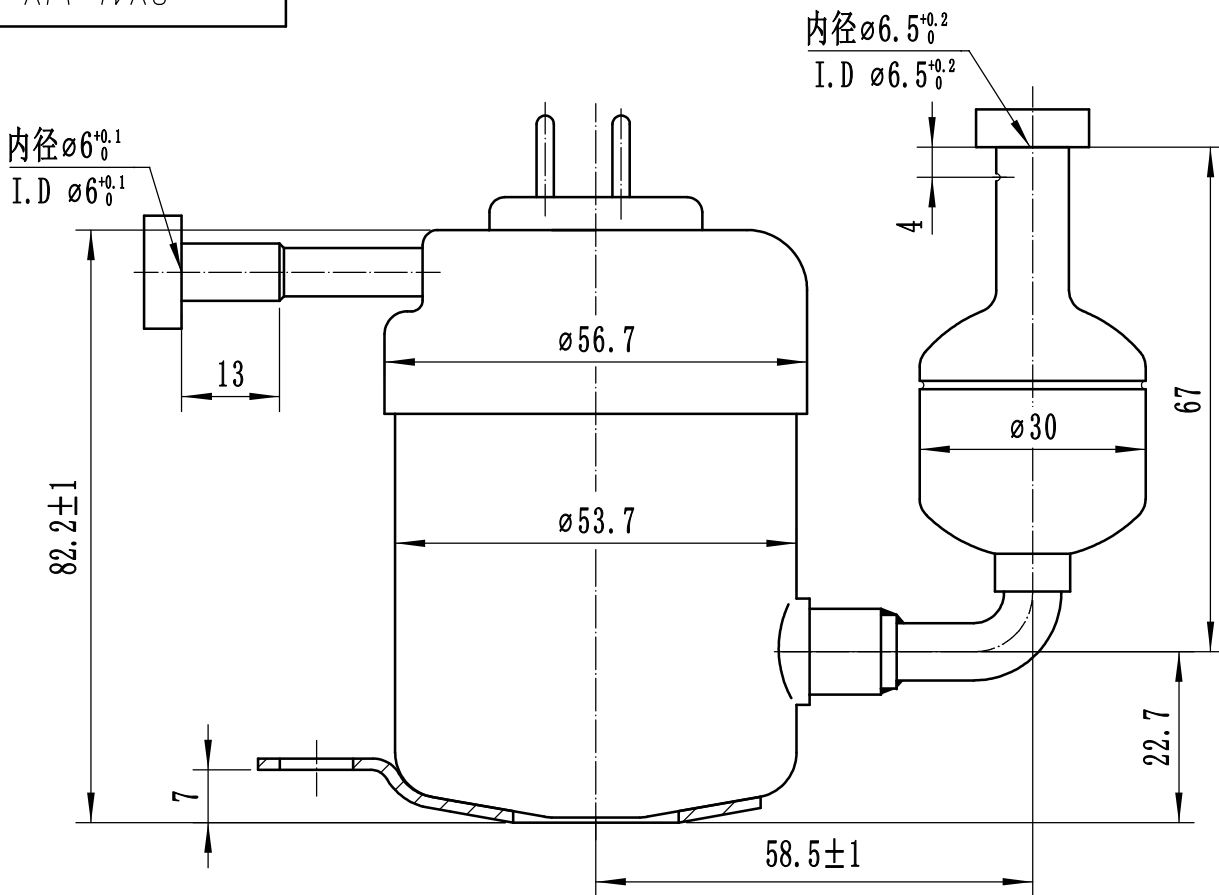
4.6 运输强度

Transport intensity

压缩机应能承受正常的搬运所发生的振动和冲击，各部不得发生异常。

The compressor should stand vibrations and shocks on account of normal transport and moving. Each part should not in abnormal situation.

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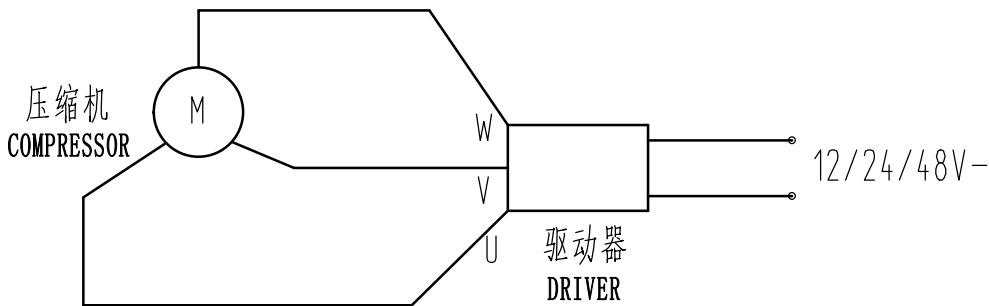
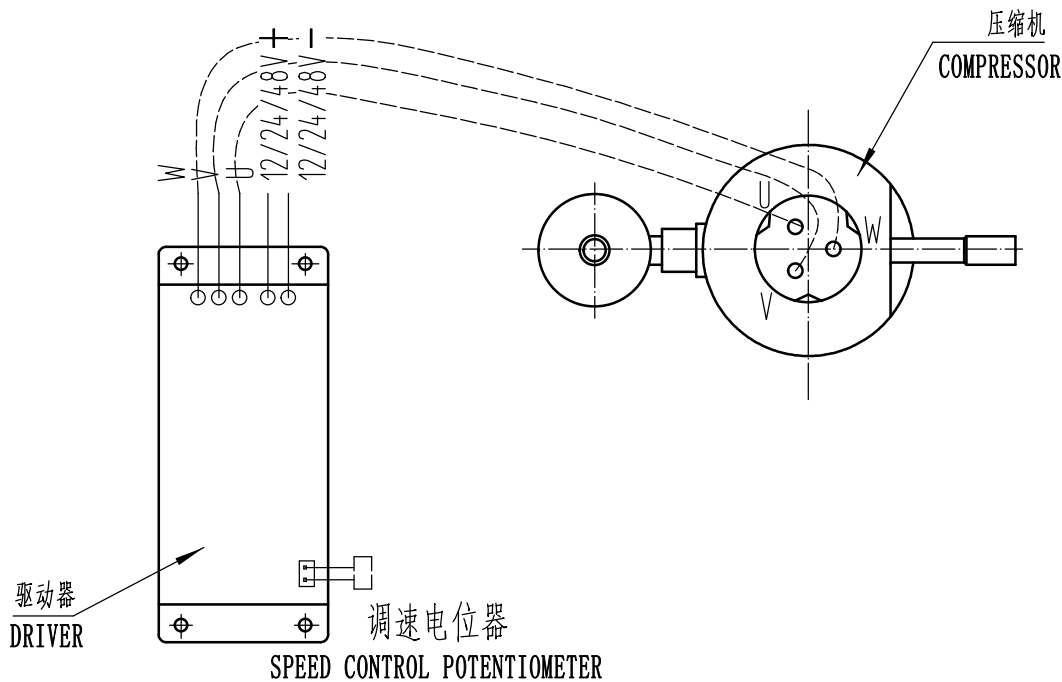


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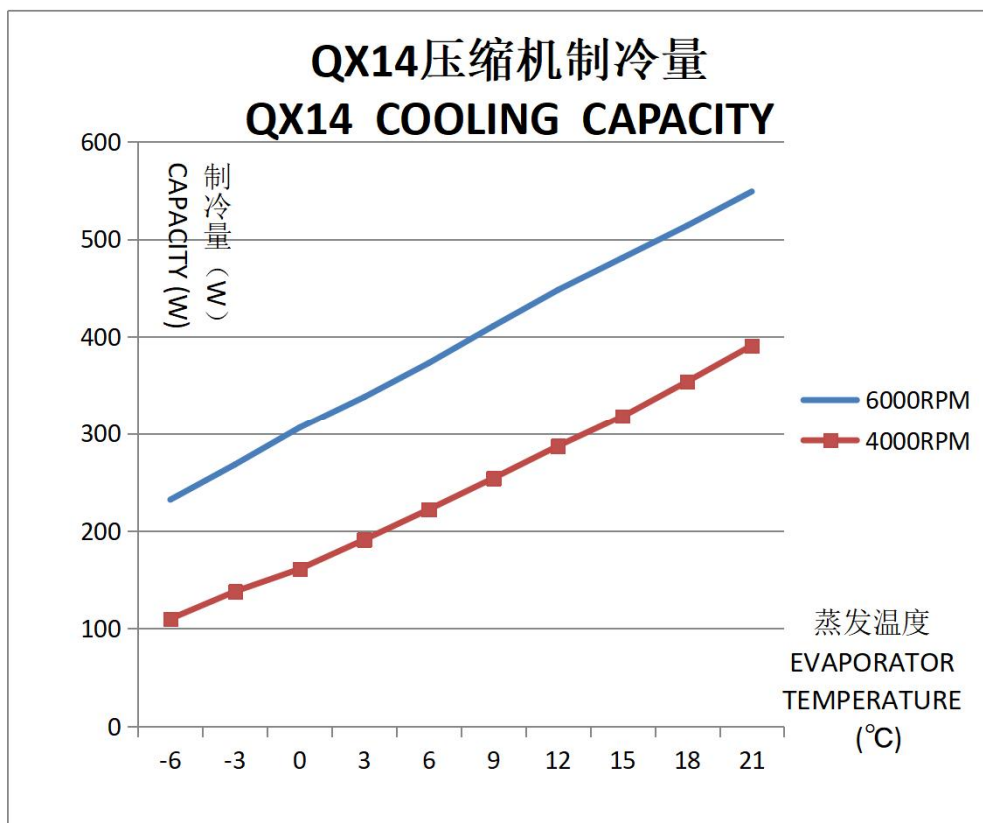
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旧底图总号						外形图 Outline Drawing					
底图总号		标记	处数	文件号	签字	日期	所属 装配号				
		设计	齐娟红			20240303	图样标记		重量	比例	
签字		校核	李力			20240303		S		1:1	
		审查									
日期		工艺检查					共 1 张		第 1 张		
		标准检查					RIGID HVAC CO., LTD				
档案员	日期	审定	王君明		20240303						
		批准									

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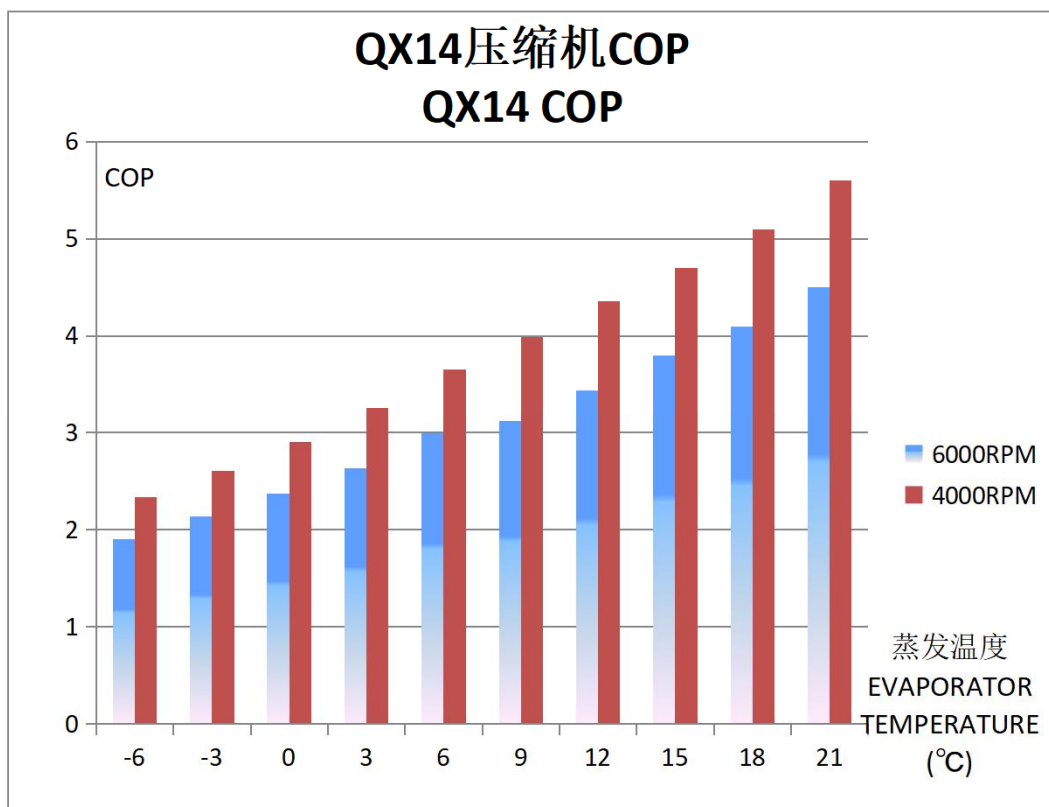


责任	签字
制图	
描图	
校对	
旧底图总号	
底图总号	
日期	签字

					QX14	QX14-DL				
						电路接线图 LEAD ROUTING	所 属 装 配 号			
标记	处数	文 件 号	签 字	日期	图 样 标 记		重 量	比 例		
设 计		齐娟红		20240303			S			
校 核		李 力		20240303						
审 查										
工 艺 检 查						共 1 张		第 1 张		
标 准 检 查						RIGID HVAC CO., LTD				
审 定		王君明		20240303						
批 准										



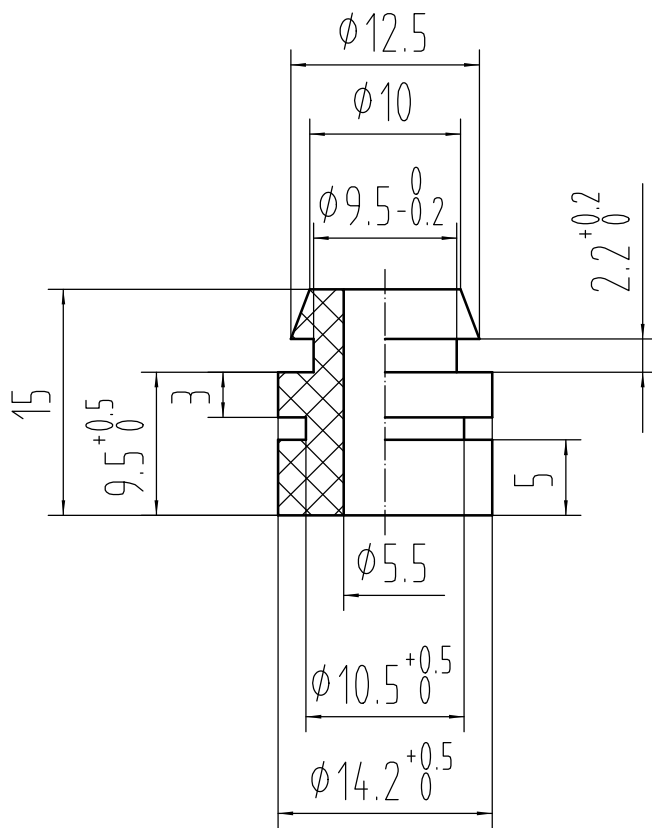
注：测试条件冷凝温度为38℃
 Annotation: Test condition Condensing Temperature 38℃



注：测试条件冷凝温度为38℃
 Annotation: Test condition Condensing Temperature 38℃



SE-61X0



技术要求 Technical Requirement

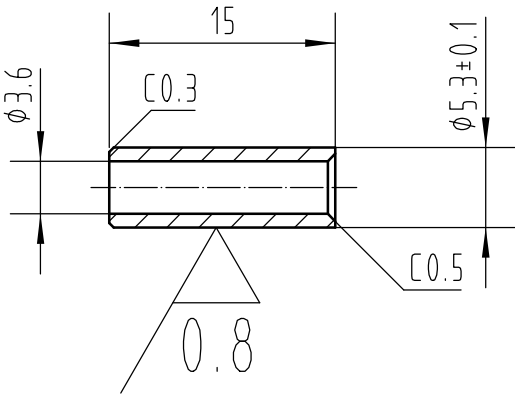
- 零件外观应平整光滑, 不应有气泡、孔眼、凹凸、划伤、毛刺及模具加工不良的痕迹;
Smooth surface no bubbles and holes;
- 有害物质含量符合ROSH及相关的环保要求;
The content of harmful substances meets ROHS and related environmental requirements;
- 硬度(邵尔A)45±2.
Shore hardness is 45±2.

借 (通) 用
件 登 记

						减振垫 shock pad	QX19-35					
旧底图总号							所 属 装 配 号		QX19-0			
底 图 总 号							图 样 标 记		重 量		比 例	
签 字							S				2:1	
日 期							共 1 张		第 1 张			
档案员 日 期						三元乙丙橡胶 EPDM		RIGID HVAC CO., LTD				
标准检查												
审 定						王君明						
批 准												

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1.6
其余



技术要求 Technical Requirement

- 1.零件两端去毛刺；
Remove burrs from both ends of the component;
2.未注公差GB/T1804-m。
general tolerance GB/T1804-m.



借（通）用
件 登 记

						QX19-36	
旧底图总号							
底图总号						芯柱	
标记						stem	
处数							
文件号							
签 字							
日期							
设计						20240303	
校核						20240303	
李力							
审查							
日期							
工艺检查							
标准检查							
档案员						共 1 张	
日 期						第 1 张	
审 定						RIGID HVAC CO., LTD	
王君明							
20240303							
批准							