操作手册 Operating Manual

旋转阀 Rotary valves

适用型号：颗粒高压系列 RGH

Applicable to：Granular High-Pressure Series RGH

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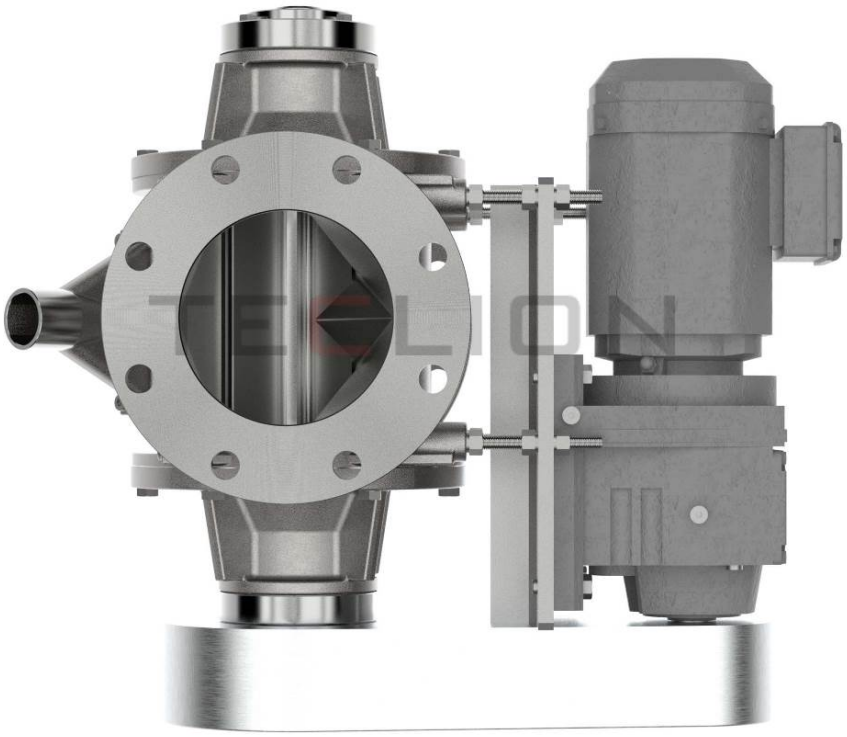

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1 概述

1 Summary

本操作手册是该产品的组成部分，包含操作和维修等重要说明，便于设备或系统维护人员学习整个设备的使用及安装过程。

This operating manual is an integral part of the product and contains important instructions such as operation and maintenance, which can make it easierfor equipment or system maintenance personnel to learn how to use and install the equipment.

本手册包含一些重要的安全及维护信息，它能够指导操作人员正确的、安全的、更经济的使用该产品设备。使用之前认真阅读该手册，可以有效避免设备损伤，降低维护成本，减少停车时间，最大程度的延长设备的使用寿命。

This manual contains some important safety and maintenance information, which can guide operators to use the product and equipment correctly, safely and economically. A careful read of the manual before use can effectively avoid equipment damage, reduce maintenance costs and shutdown time, and maximize the service life of the equipment.

建议将该手册放在设备附近位置。

It is recommended to put the manual near the equipment.

操作手册字迹清晰并且易于理解。确保设备和设备运行负责人及设备操作人员已仔细阅读并理解本操作手册。若对指南内容存在疑问或欲了解更多信息,请联系科狮公司。

The operation manual is legible and easy to understand. Ensure that the person in charge of equipment and equipment operation and equipment operators have carefully read and understood all of it. If you have any questions about the contents of the guide or want more information, please contact us.

设备部分信息需结合产品样本查询。（手册中已经指出）。

Some information of the equipment needs to be queried in combination with product samples. (This has been pointed out in the manual).

由于不遵守本手册警告的不当操作以及对于其他鉴定为非正常操作引起的伤害和事故，损失及相关维护费将由用户自己承担。

Users themselves shall bear the losses and related maintenance costs due to improper operations that do not comply with the warnings in this manual and other injuries and accidents identified as abnormal operations.

2 初次使用

2 First use

- 旋转阀主要用于：
  The rotary valve is mainly used for:
  定量卸料
  Quantitative unloading
  关风
  Air shut off
  连续输送
  Continuous conveying
  气力输送
  Pneumatic conveying
- 旋转阀按照相关的标准和技术水平设计和制造，但不正当的操作仍然会 给人身造成伤害甚至伤残或死亡。不正当的使用也可能不利于关联设备的正常运作。
- The rotary valve is designed and manufactured according to relevant standards and technical levels, but improper operation will still cause personal injury or even disability or death. Improper use may also be detrimental to the normal operation of associated equipment.
- 所有机械工作只可由经过培训的专业人员执行。本操作手册中所涉及的 专业人员是指熟悉安装位置、机械安装、产品的故障排除与维护并具备以下资质的人员：
- All mechanical work can only be performed by trained professionals, which refer to those who are familiar with the installation position, mechanical installation, troubleshooting and maintenance of products and have the following qualifications:
- 接受过机械专业的培训（如机械工程师或机电工程师）并通过结业考试。
- Having received mechanical training (such as mechanical engineers or electromechanical engineers) and passed the completion examination
- 了解本操作手册
- a comprehensive understanding of the manual.
- 旋转阀不适合用于输送不稳定化学品及高等级易爆物品。

- Rotary valve is not suitable for conveying unstable chemicals and high-grade explosives.
- 使用该设备，除手册规定外，还应按照国家规定的其它相关安全和环保 条例正确操作。配件（如电机、减速机等）的相关使用规定请参照配件的操作手册。
- When using this equipment, in addition to the manual, it should also be operated correctly in accordance with other relevant national safety and environmental protection regulations. Please refer to the operating manual of accessories for relevant use regulations of accessories (such as motors, reducers, etc.).
- 建议在标定的设计压力下正确使用该设备。
- It is recommended to use the equipment correctly under the calibrated design pressure.
- 只要设备的电气配件得到正确的防护，旋转阀允许在室内或室外使用。
- As long as the electrical accessories of the equipment are properly protected, the rotary valve can be used indoors or outdoors.
- 若未明确，则禁止在存在爆炸隐患的区域内使用。
- If there is no clear recommended , it is forbidden to use the valve in areas with explosion hazards.
- 对于与设备配合的多种防爆配件组合使用的情况，允许的危险使用环境取较低的防爆等级。
- For the combination of various explosion-proof accessories combined with the equipment, the allowable dangerous use environment takes a lower explosion-proof level.
- 旋转阀通过设定转子与壳体之间的间隙来达到关风的效果，但由于间隙（虽然不大）的存在，压缩空气通过它时会发生内漏，若没有持续的压缩空气供给，不能期望通过一台旋转阀起到保压作用。
- The rotary valve can shut the air off by setting the gap between the rotor and the shell. However, due to the existence of the gap (although not large), internal leakage will occur when the compressed air passes through it. If there is no continuous supply of compressed air, it cannot be expected to play a role in maintaining pressure through a rotary valve.

3 安全须知

3 Safety instructions

3.1 警告图标及其含义

3.1 Warning icons and their meanings

本手册内的安全提示组成如下:

The safety tips in this manual are composed as follows:

有用的提示或技巧。
Useful tips or techniques.

危险！直接面临或可能出现的危险情况。
Danger! Directly facing or possible dangerous situations.

机械危险！可能造成伤残甚至死亡。
Mechanical hazard! It may cause disability or even death.

爆炸危险!
Explosion hazard!

3.2 管理措施

3.2 Management measures

- 本使用手册需置于设备附近。
- This manual should be put near the equipment.
- 除本手册外，使用及维护者仍需遵守公司、国家相关的安全和环保等 规章制度，防止意外的发生。

- In addition to this manual, users and maintainers still need to abide by the relevant safety and environmental protection rules and regulations of the company and the state to prevent accidents.
- 涉及本设备的所有机械工作，须经过手册培训方可操作。
- All mechanical work involving this equipment must be trained in the manual before operation.
- 使用组织可以参考本手册，对安全条例做适当的增补。
- The user organization can refer to this manual to make appropriate additions to the safety regulations.
- 使用或维护本设备时，不允许将杂物（如绳索、塑料袋、零件等）置 于阀门内，同时不允许长发、衣服松散者、佩戴首饰者操作，都有可能引起意外。
- When using or maintaining this equipment, it is not allowed to put sundries (such as ropes, plastic bags, parts, etc.) in the valve, and it is not allowed to operate by people with long hair, loose clothes, and jewelry, which may cause accidents.
- 重视所有的安全警示。
- Pay attention to all safety warnings.
- 阀门发生意外，应立即停机并上报相关人员,防止由阀门引起系统安全问题。
- In case of an accident, the valve shall be shut down immediately and reported to relevant personnel to prevent system safety problems caused by the valve.
- 未经科狮公司授权，不得对阀门设备的附件、机体进行更改。否则将引起不可预知的危险。
- The accessories and main body of the valve equipment shall not be changed without the authorization of TECLION. Otherwise, it will cause unpredictable danger.
- 设备零件更换，其规格型号需经制造商技术确认。
- The specification and model of equipment parts to be replaced shall be confirmed by the manufacturer.
- 塑料件（如软管）需定期更换，即便未有可见瑕疵。
- Plastic parts (such as hoses) need to be replaced regularly, even if there are no visible defects.

- 依据操作手册，定期对设备进行复检。
- Recheck the equipment regularly according to the operation manual.
- 用户维护车间，需配齐维修用的相关设备和工具。
- The user's maintenance workshop needs to be equipped with relevant equipment and tools for maintenance.
- 注意防火。
- Watch out for fire!

3.3 目标群体及要求

3.3 Target groups and requirements

- 设备操作和维护者，必须是经过授权的达到法定年龄的健康人员。
- Equipment operation and maintainer must be authorized healthy personnel reaching the legal age.
- 设备操作和维护者，必须是通过培训和明确职责的人员。
- Equipment operators and maintainers must be trained and have clear responsibilities.
- 本设备涉及的电气部分，只可由经过培训的了解本操作手册的专业电 气人员执行。
- The electrical part of this equipment can only be carried out by trained professional electrical personnel who understand this operating manual.
- 其他工作如运输、仓储、运行和废弃处理等必须有受过相应培训的人 员进行。
- Other work such as transportation, storage, operation and waste disposal must be carried out by appropriately trained personnel.
- 本设备涉及的压力管道的安装和维护，需受过培训的人员进行。
- The installation and maintenance of pressure pipes involved in this equipment shall be carried out by trained personnel.

3.4 安装和开车阶段

3.4 Installation and start-up stages

- 设备安装前，需检查与其对接的管道或其他设备内部已经被清理、清 洗干净。
- Before equipment installation, it is necessary to check that the pipes or other devices connected with it have been cleaned.
- 勿将杂物留在系统内。
- Do not leave sundries in the system.
- 应确保阀门安装后，无装配应力。（拉力、压力、扭力）
- Ensure that there is no assembly stress (such as tension, pressure and torque) after the valve is installed.
- 阀门通电时，应确保转子转向朝标示的方向。（标示一般在阀体或防 w 护罩上）。
- When the valve is energized, ensure that the rotor turns in the direction indicated. (The mark indicating the right direction is usually on the valve body or protective cover).
- 带轴气封的阀门，需先通入压缩空气，才可以带料运转，且必须在系统停止且阀门卸料完毕方可关掉。
- The valve with shaft air seal can be operated with materials only after compressed air is introduced, and can be closed only after the system stops and the valve is unloaded.
- 带轴气封的阀门，轴封部位通入压缩空气，其压力一般推荐高于系统 风送压力 0.05MPa。
- For the valve with shaft air seal, the shaft seal part is filled with compressed air, and its pressure is generally recommended to be 0.05Mpa higher than the system air supply pressure.
- 设备投入运行前，建议试车一段时间。
- Before the equipment is put into operation, it is recommended to do a test run for a period of time.

3.5 分类的危险警告

3.5 Classified hazard warning

3.5.1 电

3.5.1 Electricity

- 电气维护人员需经过专业的培训并取得资格。
- Electrical maintenance personnel shall receive professional training and obtain qualification.
- 设备维护时应确保电磁阀电源和气源已被切断，且相关联的系统可能 引起意外的电气设备也应该被切断。如输送风机等。
- During equipment maintenance, ensure that the power and air supply of the solenoid valve have been cut off, and the electrical devices that may cause accidents by the associated system (such as conveying fan, etc.) should also be cut off.
- 设备的电气部分必须定期检查，损坏的接线盒、接线端子、密封接头、 应该及时更换，且应确保电缆接点牢靠。
- The electrical part of the equipment must be checked regularly, and the damaged junction box, terminal block and sealing joint should be replaced in time, and the cable contact should be ensured to be firm.
- 若由于生产需求，例行检查时不得断电停车的，应该安排一个能够及 时切断设备电源的人员应急。
- If it is not allowed to cut off power during routine inspection due for the sake of production, a person who can cut off the power supply of the equipment in time should be there in case of emergency.

3.5.2 危险气体、粉尘、蒸汽

3.5.2 Dangerous gas, dust and steam

- 虽然设备已经设计了密封系统，但仍然不能保证使用过程中气体零泄 漏，对于危险环境，经常检查泄漏情况也是避免危险发生的有效方法。
- Although the equipment has been designed with a sealing system, it still cannot guarantee zero gas leakage during use. For dangerous environments, regular inspection of leakage is also an effective way to avoid danger.

- 焊接、切割、打磨设备时，应确保环境内和设备内部不含有爆炸性介质，且此类工作一定要得到相关部门的授权，方可操作。
- When welding, cutting and grinding the equipment, ensure that there is no explosive medium in the environment and inside the equipment. Such work must be authorized by relevant departments before operation.
- 对于使用氮气输送的介质，设备投入运行前需检查是否有氮气外漏。
- For the medium transported by nitrogen, check whether there is nitrogen leakage before the equipment is put into operation.

3.5.3 噪音

3.5.3 Noise

- The noise of the equipment during no-load operation is less than 80dB.
- 设备空载运转噪音低于 80db。
- 电驱动的设备，噪音主要来自于驱动电机和齿轮箱。
- For electrically driven equipment, the noise mainly comes from the driving motor and gearbox.

3.5.4 其他

3.5.4 Others

- 处理油脂或其它化学物质时应该遵循相关的安全和环保条例。
- Relevant safety and environmental regulations should be followed when handling grease or other chemicals.
- 伴热设备运行时，表面温度可能会达到危险的水平,所以维护人员需格外小心被烫伤，必要时需做隔热处理。
- When the heat tracing equipment is running, the surface temperature may reach a dangerous level, so the maintenance personnel should be extra careful of being scalded, and heat insulation treatment should be done if necessary.

3.6 可能引起险情的潜在危险源

3.6 Potential hazard sources that may cause dangerous situations

旋转阀属于连续运转设备，即使正常使用也不可避免的产生局部热量，科狮公司依据相关防爆标准，将其视为可能存在的危险源，并做了统计，在阀门

设计之初对危险源充分考虑，并设计了应对措施，以保证正常维护和使用的阀门可以用于危险环境。

Rotary valve belongs to continuous operation equipment, and even normal use will inevitably generate local heating. According to relevant explosion-proof standards, TECLION regards it as a possible hazard source, and makes statistics about it. At the beginning of valve design, it fully considers the hazard source, and designs countermeasures to ensure that the valve under normal maintenance and use can be used in hazardous environment.

3.6.1 转子轴承

3.6.1 Rotor bearing

转子负载较大时，其两点支撑的轴承在正常运转时也可能因摩擦而生热，当轴承损坏或干摩擦时生热现象尤其严重。

When the rotor is overloaded, the bearing supported by two points may also generate heat due to friction during normal operation, especially when the bearing is damaged or dry friction.

设计避免：

Notice：

- 轴承出厂时已注入整个寿命周期的润滑脂，未拆装的阀门可以不必段添加润滑脂,拆装后重装的阀门必须重新注入新的润滑脂。
- The bearing has been filled with grease throughout its life cycle when it leaves the factory. The valve that has not been disassembled and assembled does not need to be filled with grease. The valve that has been disassembled and reinstalled must be refilled with new grease.
- 轴承被设计为约束为低转速区间。即使阀门运转状态良好，当达到轴 承设计寿命 90%时，也是有必要更换轴承的。标准系列旋转阀的轴承 设计寿命均不低于 30000h。
- The bearing is designed to be constrained to a low speed range. Even if the valve operates well, it is necessary to replace the bearing when it reaches 90% of the design life of the bearing. The design life of the bearing of a standard rotary valve is not less than 30000h.
- 轴承内侧设有防尘圈，用来阻挡因轴封失效泄漏的物料和环境粉尘。

  Dust ring is provided inside the bearing to prevent material and environmental dust due to shaft seal failure.

3.6.2 轴封部位

3.6.2 Shaft seal

轴封部位密封件与轴摩擦生热，当输送的介质渗入到摩擦副内时，生热现象尤为严重。

When the shaft seal seals and the shaft friction and heat generation, when the transfer media penetrate into the friction pair, the heat generation phenomenon is particularly serious.

设计避免：

Notice：

选择低摩擦密封件和低摩擦系数的密封材料，并在密封件与转子日会间增加气封装置，阻止介质渗入，流动的压缩空气在一定程度上也带走了摩擦产生的热量。

- Choose low friction seals and sealing materials with low friction coefficient, and add air sealing devices between the seals and the rotor to prevent the infiltration of media. The flowing compressed air also takes away the heat generated by friction to a certain extent.
- 对于没有条件提供压缩空气的危险场合，请联系科狮技术部。
- For dangerous occasions where compressed air is not available, please contact the technology department of TECLION.

3.6.3 转子与端盖之间

3.6.3 Between rotor and end cover

介质渗入转子侧板与阀盖之间的间隙时，不断的积累产生摩擦生热。

When the medium seeps into the gap between the rotor side plate and the valve cover, it constantly accumulates and generates friction heat.

设计避免：

Notice：

- 对于含容易塑化粉末的介质，闭式转子与端盖之间通入压缩空气阻挡介质渗入侧端间隙。
- For the medium containing easily plasticized powder, compressed

air should be introduced between the closed rotor and the end cover to prevent the medium from penetrating into the side end gap.

- 对特殊物料适当加大侧端缝隙也是有利的。
- It is also beneficial to appropriately enlarge the side gap for special materials.
- 侧板倒角可以大大降低摩擦。
- Side plate chamfer can greatly reduce friction.
- 壳体下料口斜槽可以打破导致塑化的连续旋转挤压。
- The chute at the blanking opening of the shell can break the continuous rotary extrusion that leads to plasticization.

3.6.4 链条

3.6.4 Chain

对于链条传动的旋转阀,滚子链在正常运转时也不可避免的与链轮产生摩擦，缺油润滑时可造成机械损伤。

For the chain-driven rotary valve, the roller chain will inevitably have friction with the sprocket during normal operation, and mechanical damage may be caused in case of lack of oil lubrication.

设计避免：

Notice：

设计为低速运转，防护罩开有注油窗口，定期注油润滑。尤其恶劣环境下 需增加润滑频率。

The chain is designed to operate at a low speed. The protective cover is equipped with an oil filling window for regular oil lubrication. Especially in harsh environments, it is necessary to increase the lubrication frequency.

3.6.5 转子与壳体间

3.6.5 Between the rotor and the shell

- 当转子与髓间隙混入介质或其它异物时，容易产生摩擦甚至刮擦。
- When the medium or other foreign matters are mixed in the gap between the rotor and clearance, it is easy to produce friction or even scratch.
- 静电，壳体与转子间隙产生放电现象。
- Electrostatic discharge occurs between the shell and the rotor。
- 环境温度影响或空气中的粉尘长期积聚于阀体表面，不良的散热条件容易产生危险。
- Due to the influence of ambient temperature or the long-term accumulation of dust in the air on the surface of the valve body, poor heat dissipation conditions are prone to danger.
- 旋转阀内掉入金属异物。
- Metal foreign matters fall into the rotary valve.

设计避免：

Notice：

- 对于颗粒状物料设有高效防剪切装置，粉末料叶片顶端刃状处理以降低摩擦。此外不稳定化学品、引燃温度级别较高的易燃易爆品均不适合采用此设备。
- For granular materials, it is equipped with an efficient anti shear device, and the top of the powder blade is treated like a blade to reduce friction. In addition, unstable chemicals and inflammables and explosives with high ignition temperature are not suitable for this equipment.
- 转子和壳体间阻值必须处于合理的范围，且壳体设计有接地点。
- The resistance between the rotor and the shell must be within a reasonable range, and the shell is designed with a grounding point.
- 设备周边应有良好的通风对流环境，不得将设备置于封闭的狭小空间。维护人员需定期清理附于外壳的粉尘，恶劣环境需增加清理频率。
- There should be a good ventilation and convection environment around the equipment, and the equipment should not be placed in a closed narrow space. Maintenance personnel should regularly clean the dust attached to the shell, and the cleaning frequency should be increased in harsh environments.
- 对于可能掉入金属异物风险高的危险场合，请联系科狮技术部。
- For dangerous occasions with high risk of metal foreign matters falling in, please contact our technology department.

3.6.6 清洗型旋转阀

3.6.6 Cleanable rotary valve

- 驱动离合处，不恰当使用时会产生危险。
- Danger may appear when the drive clutch is used improperly.
- 阀盖打开时容易产生管道内部介质与气体泄漏。
- When the valve cover is opened, it is easy to cause medium and gas leakage in the pipeline.

设计避免：

Notice：

- 驱动离合已被设计的很可靠。只要安装到位就不会产生相对摩擦， 危险场合禁止转子未回装到位就对驱动通电。
- The drive clutch has been designed to be very reliable. As long as it is installed in place, there will be no relative friction. In dangerous situations, it is forbidden to energize the drive before the rotor is reinstalled in place.
- 确保清洗时，管道内部介质已经被输送完毕，且危险气体已被排除。
- Ensure that the medium inside the pipeline has been transported and the dangerous gas has been eliminated during cleaning.

4 运输和仓储
4 Transportation and storage

4.1 包装
4.1 Packaging

除合同另有约定，按照 GB/T13384-2008《机电产品包装通用技术条件》货物交付时应该检查其包装是否完整，内部设备是否完好。

Unless there are special clauses in the contract, the goods shall be delivered in accordance with gb/t13384-2008 *General Technical Conditions for Packaging of Mechanical and Electrical Products*. The packaging and the equipment contained shall be checked for completeness.

返厂维修设备时，也应该按照上述标准打包。

When the equipment is sent to the factory for repair, it should also be packed according to the above standards.

注意

Attention

必须按照预定的支点来支撑设备，若设备未标明支撑点，应该固定设备法兰。

The equipment must be supported according to the predetermined fulcrum, and if the equipment has no support point, the equipment flange shall be fixed.

4.2 拆包
4.2 Unpacking

拆包无法避免人为和环境因素的影响，一般需要设备监管人员指导，避免拆包过程中对设备配件造成损伤。

During unpacking, the influence of human and environmental factors is

unavoidable. Generally, this process requires the guidance of equipment supervisors to avoid damage to equipment accessories.

注意包装箱上的提示符号。

Pay attention to the prompt symbols on the packing box.

4.3 仓储

4.3 Storage

储存设备，请按照下述条件执行:

- Please store the equipment according to the following conditions:
- 防潮、防尘。
- Ensure a moisture- and dust-proof environment.
- 室内存放，温度控制在+5∽+40℃
- The indoor temperature should be kept between +5~+40 Celsius degree if indoor storage is needed.
- 远离腐蚀液、油、油漆、热辐射。
- Keep the equipment away from corrosive liquid, oil, paint and thermal radiation.
- 由于设备配有气控元件等，还应参照配件规定的仓储条件。
- Since the equipment is equipped with accessories such pneumatic components, the storage requirements of the accessories should also be referred to.
- 应保证设备气控元件进气口被防尘封堵。
- Ensure that the air inlet of the air control element of the equipment is blocked against dust.
- 若非封闭式存放，请将设备置于木质垫板上，必要时需有支撑。
- If it is not stored in a closed environment, please place the equipment on a wooden base plate and support it if necessary.

注意 Attention

禁止将设备置于过软、过窄的底座上，防止放置时发生倾倒。必要时需对设备多点支撑，保证其安放稳固。

Do not place the equipment on a too soft and narrow base to prevent dumping when placed. When necessary, the equipment should be supported more points to ensure that it is stable.

4.4 供货范围

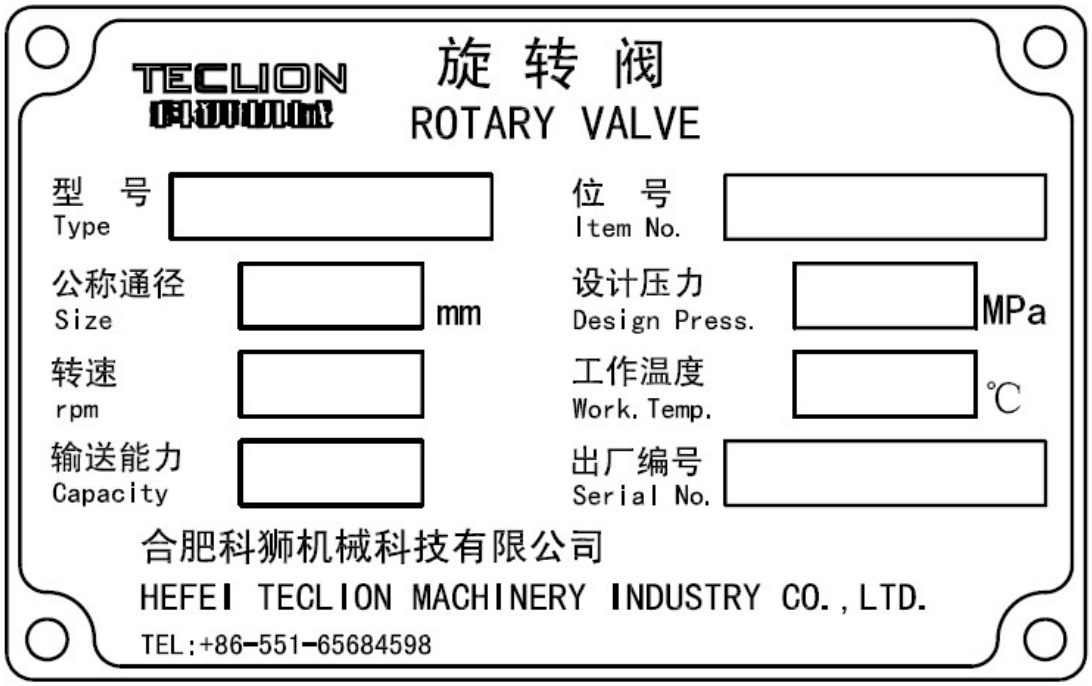
4.4 Scope of supply

除另有约定，随机有装箱清单，请核对物品完整。

Unless otherwise stipulated in the contract, please check the integrity of the items according to the packing list attached.

5 技术资料
5 Technical information

5.1 铭牌
5.1 Nameplate



设备出厂时，铭牌已按设备情况填写相关内容，并固定于设备体上，为保证设 备情况的可追溯性，请勿移走。若使用过程中有脱落，请用户自行固定。

When the equipment leaves the factory, the nameplate has been filled in according to the equipment conditions and fixed on the equipment body. In order to ensure the traceability of the equipment conditions, do not remove it. If it falls off during use, please fix it by yourself.

5.2 型号说明
5.2 Model description

提示 Tips

有关型号描述的详细情况以及其他信息可以参考产品样本或咨询科狮公司。

For details of model description and other information, please refer to product samples or consult TECLION.

序号 Number	1	2	3	4	5	6	7	8	9	10	11	12	13
型号 Model	R	G	M	150	H	R	—	C	6	D	—	S	J

序号 Model	描述 Depscriptin	字母分类 Alphabetical classification
1	产品大类：旋转阀 Product category: rotary valve	R 旋转 R revolving
2	旋转阀适用的介质类型 Applicable media type of rotary valve	D:粉末 D: dust G:颗粒 G: granule
3	旋转阀适用的工况类型 Applicable working condition type of rotary valve	H:高压 H:high-voltage C:小容积快速清洗（默认双杆导轨） C: Small volume quick cleaning (the default setting is double-bar guide rail)
4	旋转阀公称通径 DN Nominal diameter of rotary valve DN	80-500 80-500
5	旋转阀法兰等级 Flange level of rotary valve	空白：PN10 H: PN20 Blank: PN10 H: PN20
6	旋转阀法兰形式 Flange form of rotary valve	空白：平面法兰 R：凸面法兰 Blank: flat flange R: convex flange
7	间隔 Distance	—
8	转子大形式区分 Rotor form classification	空白：开式转子 C:闭式转子 Blank: open C: closed
9	转子容积 Rotor volume	实际容积 Actual volume -

10	转子类型 Rotor type	D:计量式 D: metered P：抛光 P： polished S:浅底做小容积 S: small volume with shallow bottom W:转子硬化 W: rotor hardening B:镶刀片 B: insert blade X: X 型转子 X: X-type rotor M:锯齿状 M: serrated
11	间隔 Distance	—

12	旋转阀材质 Rotary valve material	1、 奥氏体不锈钢 1、 Austenitic stainless steel S：304SS S304SS SL304L SL304L SS316 SS316 SSL316L SSL316L ST321 ST321 SST310S SST310S R2: 2Cr13 R2: 2Cr13 2、 碳钢 2、 Carbon steel C:WCB C:WCB CS:外壳 WCB+转子 304 CS:shell WCB+rotor304

5.3 设备应用范围
5.3 Application scope

- 颗粒高压系列 RGH
- Granular high pressure series RGH

适用于粉末或颗粒物料，气力输送密相输送。
Suitable for dense phase pneumatic conveying of powder or granular materials.

5.4 设备允许使用工况
5.4 Allowable working conditions

旋转阀类型 Rotary valve type	颗粒高压系列 Granular high pressure series
	RGH RGH
允许使用压差 Mpa Allowable pressure differential MPa	0.35 0.35
允许使用温度℃ Allowed temperature for use℃	标准配置的阀门：-30~120 Standard valve：-30~120

注意 Attention

阀门允许使用压力及使用温度，应严格按照铭牌标称。
The allowable pressure and temperature of the valve shall be in strict accordance with the nameplate.

提示 Tip

超过标称工况使用，请咨询科狮公司。
For use that is not under the standard working conditions, please consult TECLION company.

5.5 噪音

5.5 Noise

在正常情况下，阀门不带载运转时的声音远低于驱动运转时产生的噪音。

Under normal circumstances, the noise generated by valves operating without load is much lower than that by valves being driven.

带料时的噪音主要来自物料与接触部位的金属摩擦产生的声音。正常的操作，噪音均低于 75db。

The noise generated by valves carrying materials mainly comes from friction between the materials and the metal at the contact part. In normal operation, the noise is lower than 75db.

注意

Attention

用户需对非正常的噪音提高警惕,如金属刮擦时产生的尖锐噪音，以及设备动作时剧烈震动等。必要时需及时停车处理。

Users need to be vigilant against abnormal noises, such as sharp noises generated during metal scraping, and violent vibrations during equipment operation. If necessary, stop the vehicle in time.

5.6 漏气和耗气情况

5.6 Gas Escape and Consumption

5.6.1 漏气

5.6.1 Gas Escape

当旋转阀进出口有压力差时，由于转子与壳体之间间隙的存在，压缩空气就不可避免的从高压区向低压区逸出。

When a pressure difference occurs at the inlet and outlet of the rotary valves,because there is a gap between the rotor and the housing, compressed air will inevitably escape from the high pressure area to the low pressure area.

漏气位置有以下三点:

- 转子与阀体之间的间隙
- 转子与阀盖之间的间隙
- 转子卸料后空腔带走的空气

There are three points where gas is possible to escape:

- gap between the rotor and the valve body
- gap between the rotor and the bonnet
- air taken out of the cavity when the rotor discharges

漏气量与压差大小，阀门规格，使用温度，转速，物料情况等因素有关，所以没有统一的漏气量指标，出厂时间隙量由设计给定。

The amount of gas escape has something to do with the pressure difference, the valve specifications, the temperature when in operation, the rotation speed, the condition of the materials, etc. Therefore, there is no standardized indicator for gas escape. The clearance is defined according to the design at the factory.

当旋转阀进料口逸出大量气体时，就可能会对流动性不佳的物料产生影响，所以对气力输送装置，配套的排气料斗也是必要的。When the rotary valve inlet escapes a large amount of gas, it may have an impact on the poor liquid materials, so it is also necessary for the pneumatic conveying device, supporting the exhaust hopper.

提示 Tips

系统设计时所需的漏气量指标可以参考产品样本，每种类型和口径的阀门均配有相应的理论漏气量曲线，若需更准确的实际漏气量请联系科狮公司。

The air leakage index required by the system design can refer to the product sample. Each type and caliber valve is equipped with the corresponding theoretical air leakage curve. If more accurate actual air leakage is needed, please contact TECLION Company.

5.6.2 耗气

5.6.2 Gas Consumption

配有轴气封装置的阀门，在运转时需要消耗一定量的压缩空气，耗气量 与阀门规格相关，请咨询科狮公司。

Valves with shaft gas seal devices will consume a certain amount of compressed air when in operation. The amount of gas consumption is related to the valve specification. Please contact TECLION for further information.

5.7 设备材质

5.7 Material Qualiy

请参考 5.2 型号说明序号 12。

Please refer to 5.2 Model Description item 12.

5.8 设备重量

5.8 Equipment Weight

请参考产品样本。

Please refer to the samples.

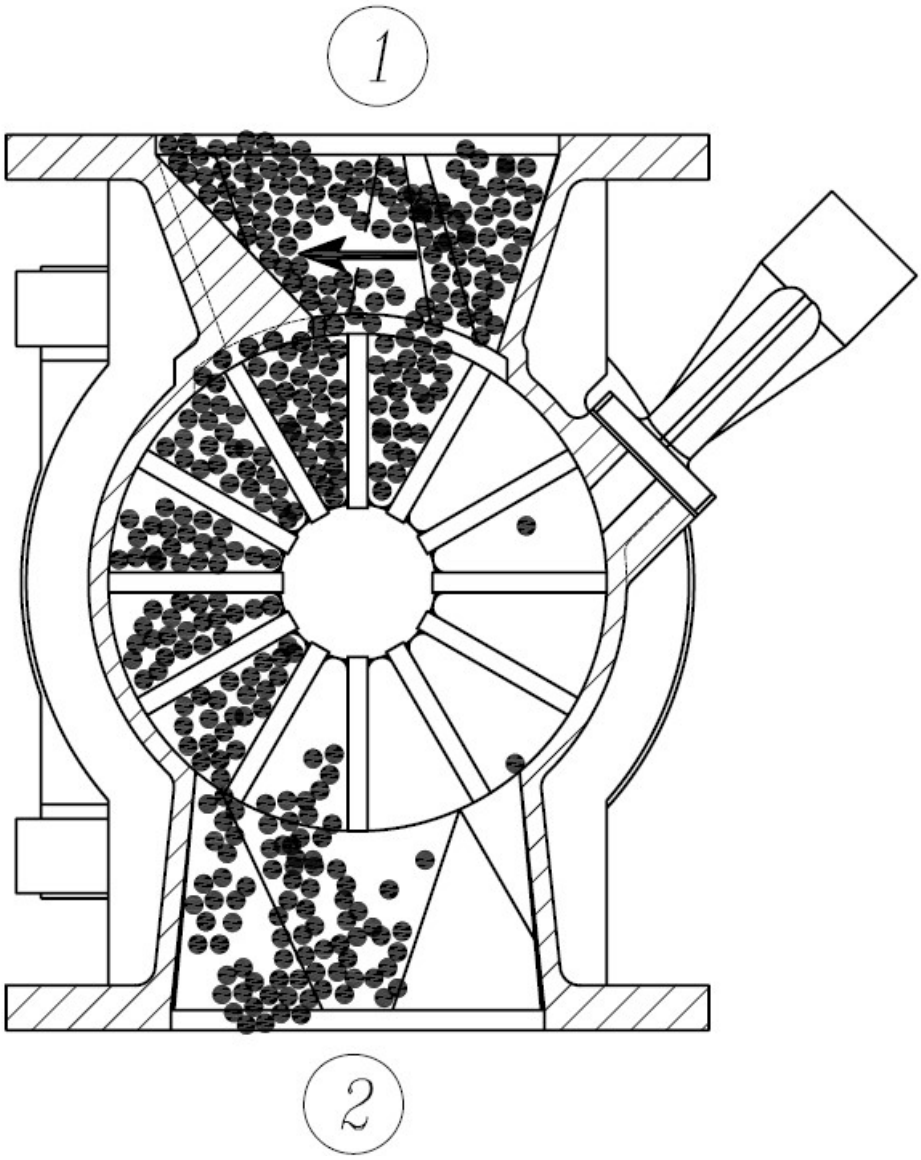
5.9 旋转阀卸料方式及基本构造
5.9 The Discharge Method of Rotary Valves and Basic Structures

在阀体内腔，星形转子连续转动，转子的 V 形腔每次经过进料口 1,都会被填满，当被填满的 V 形腔按箭头方向旋转至下料口 2 时，在重力作用下, 物料落入下法兰所连接的装置,完成卸料。

In the inner cavity of the valve body, the star-shaped rotor rotates constantly.Evert time when the V-shaped cavity of the rotor passes the inlet 1, it will be filled.When the stuffed V-shaped cavity rotates in the direction of the arrow to the outlet 2, under the influence of gravity,the materials fall into the device connected with the lower flange.

在一定转速范围内，卸料量与转子转速成正比。

Within a centain range of rotation speed, the discharge volume is proportional to the rotation speed of the rotor.



5.9.1 旋转阀卸料示意图

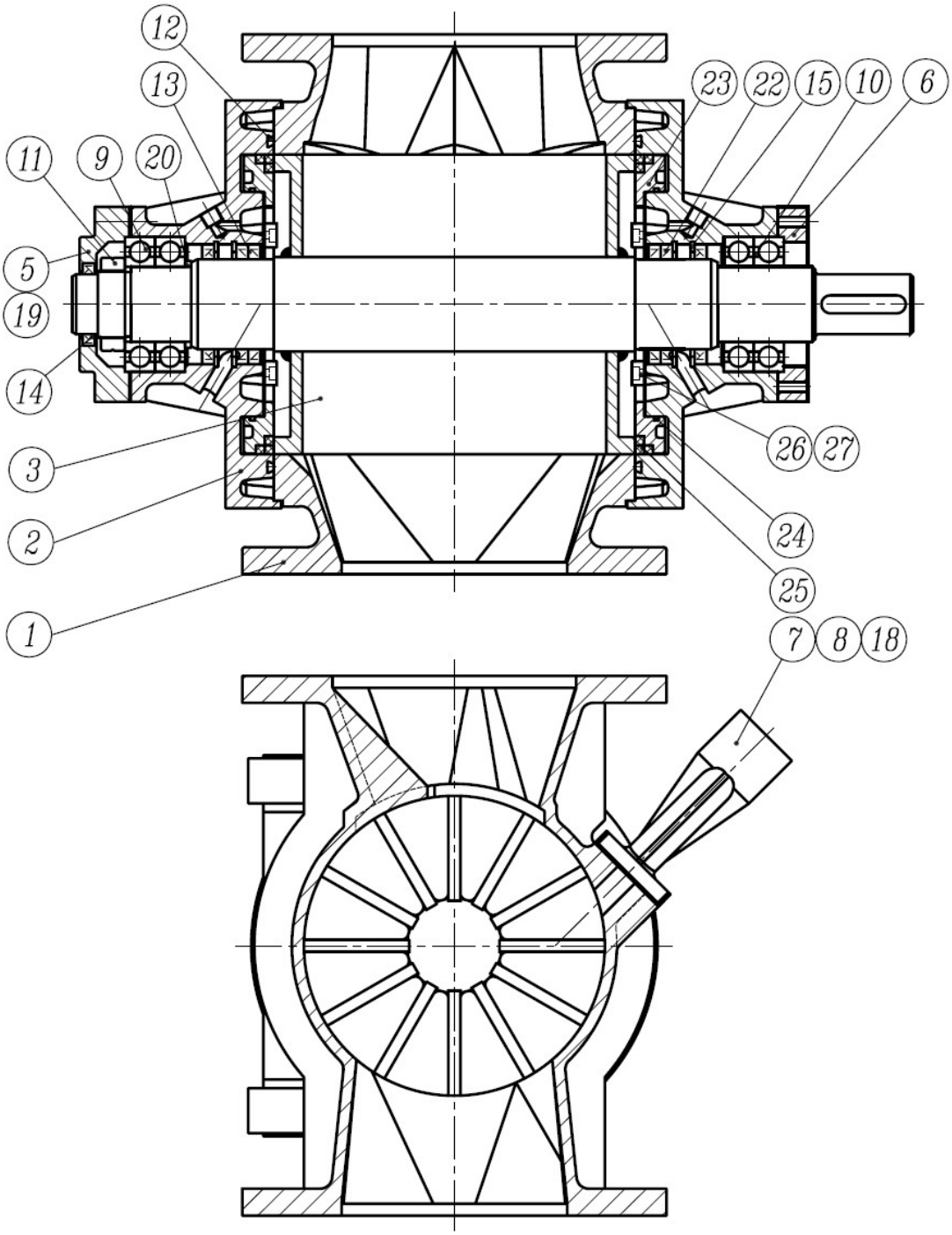
5.9.1 Rotary Valve Discharge Diagram

5.10 装配图

5.10 Assembly Diagram

5.10.1 RGH 颗粒高压系列

5.10.1 RGH particulate high-pressure model

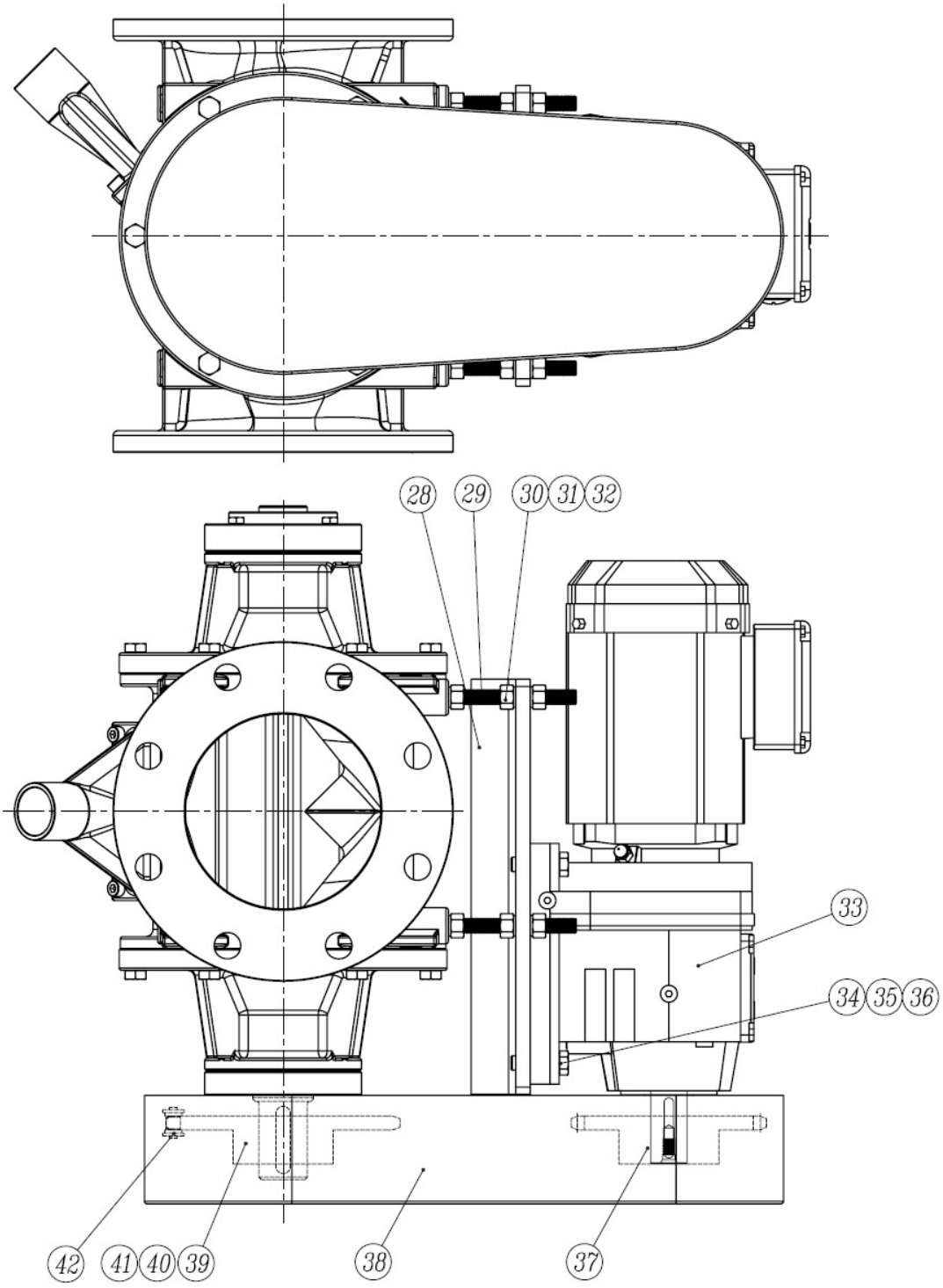


5.10.2 旋转阀带减速机

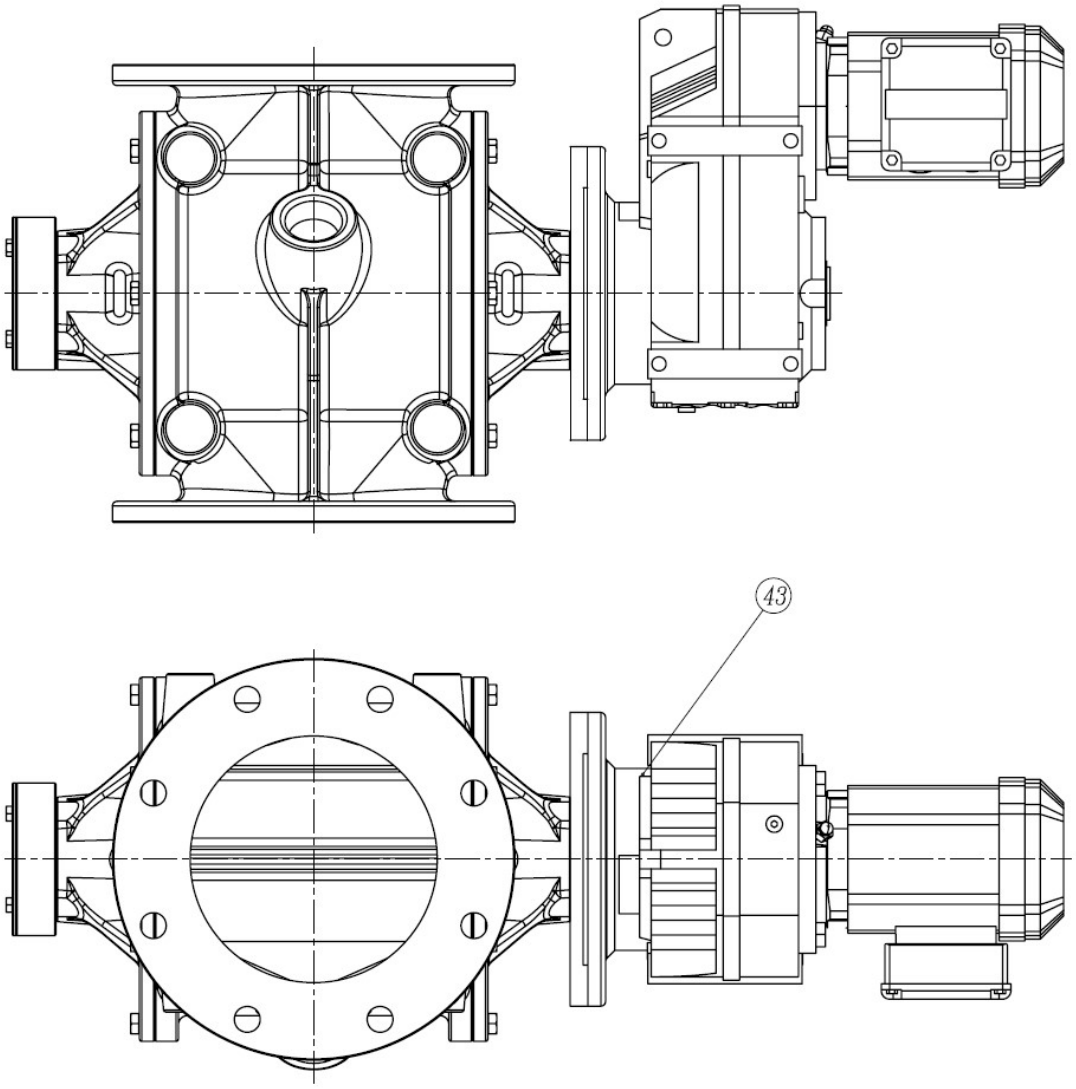
5.10.2 Rotary valves with gear reducers

5.10.2.1 链条驱动

5.10.2.1 Drive chain



5.10.2.2 减速机直连
5.10.2.2 Directly-connected gear reducers

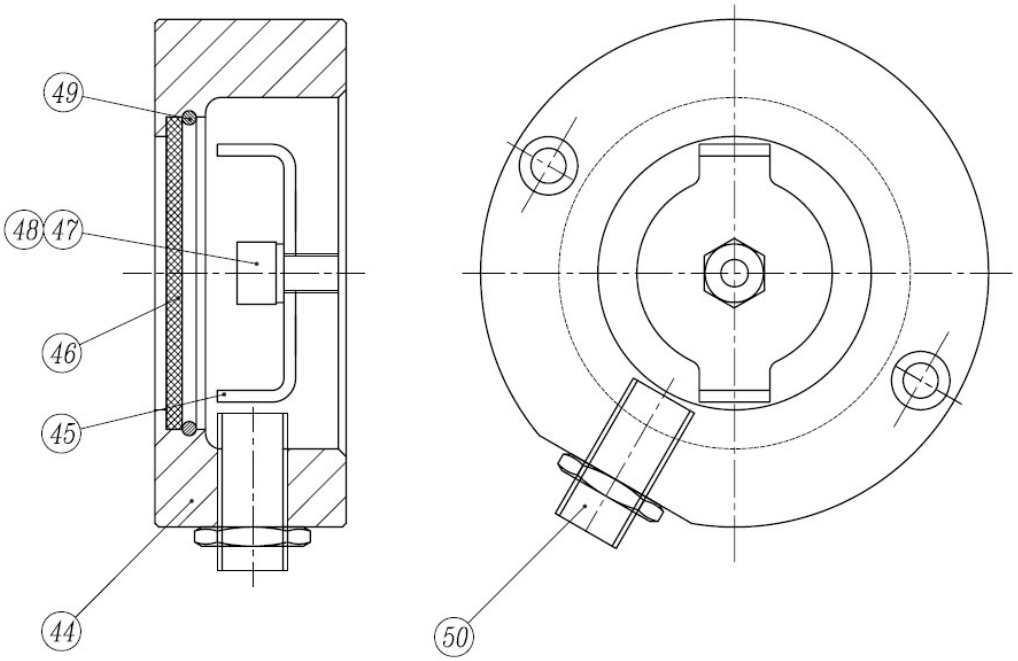


5.10.3 功能套件

5.10.3 Function kit

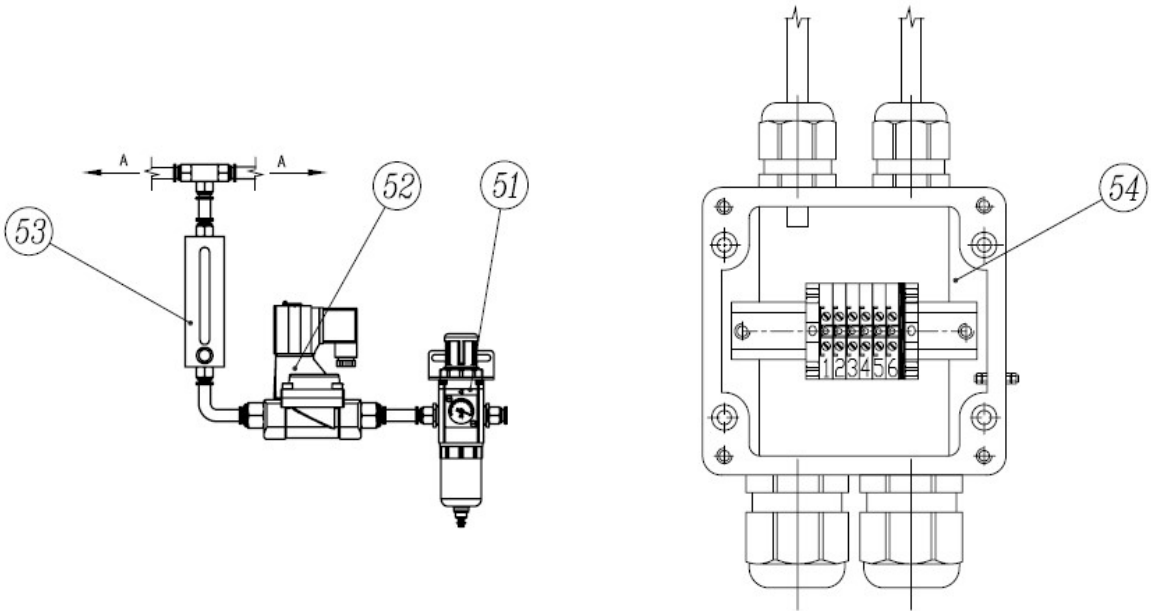
5.10.3.1 速度开关

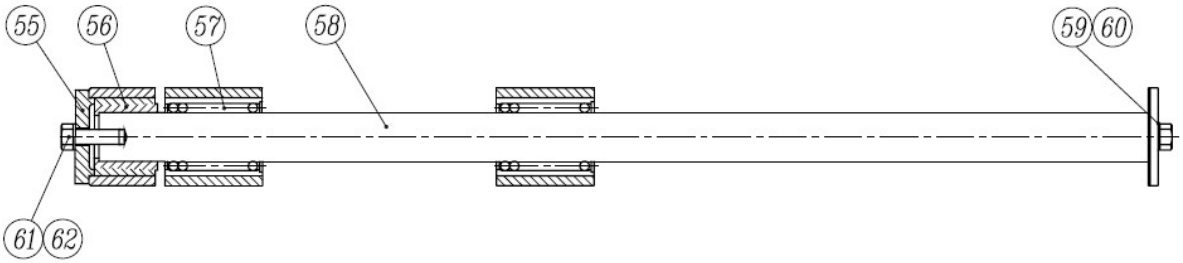
5.10.3.1 Speed switches



5.10.3.2 轴封和接线盒

5.10.3.2 Shaft seal and junction box





提示 Tips

其它特殊要求和疑问，请联系科狮公司

Any other special request or question will be responded when you contact TECLION.

5.10.4 明细表 Detail list

♦标识属于非标配件，可选配

marks illustrate that these accessories are non-standard and optional.

1	阀体	32	弹簧垫圈 GB/T93
2	阀盖	33	减速机
3	转子	34	螺栓 GB/T5783
4	迷宫	35	弹簧垫圈 GB/T93
5	轴承压盖	36	平垫圈
6	轴承压盖	37	链轮顶
7	平衡管	38	防护组件
8	密封垫	39	链轮
9	轴承 GB/T292	40	紧定螺钉 GB/T77
10	轴承 GB/T276	41	平键 GB/T1096
11	锁紧陽母	42	滚子链 GB/T1243
12	0 型圈 GB/T3452.1	43	减速机
13	唇封 GB/T13871	44	传感器护罩♦
14	唇封 GB/T13871	45	感应片♦
15	子 L 用弹性挡圈 GB/T893.1	46	有机玻璃
16	螺栓 GB/T5783	47	螺钉 GB/T70.U
17	小垫圈 GB/T848	48	弹簧垫圈 GB/T93
18	螺钉 GB/T70.1	49	钢丝挡圈
19	螺钉 GB/T70.1	50	传感器♦
20	调整垫	51	过滤调压阀
21	孔用弹性挡圈 GB/T893.1	52	电磁阀♦
22	唇封 GB/T13871	53	海量计
23	密封座	54	接线盒
24	O 型圈 GB/T3452.1	55	顶盖♦
25	密封圈	56	涨紧装置
26	导止环	57	直线轴承
27	螺钉 GB/T70.1	58	导轨
28	电机板	59	挡圈♦
29	螺柱	60	缓冲垫♦
30	螺母 GB/T6170	61	螺栓
31	平垫圈	62	垫片♦

1	Valve Body	32	Spring Washer GB/T93
2	Bonnet	33	Gear Reducer
3	Rotor	34	Bolt GB/T5783
4	Maze	35	Spring Washer GB/T93
5	Bearing Gland	36	Flat Washer
6	Bearing Gland	37	Chain Wheel
7	Balanced Pipe	38	Protective Component
8	Gasket	39	Chain Wheel
9	Bearing GB/T292	40	Set Screw GB/T77
10	Bearing GB/T276	41	Flat Key GB/T1096
11	Lock Nut	42	Roller Chain GB/T1243
12	O-ring GB/T3452.1	43	Gear Reducer
13	Lip Seal GB/T13871	44	Sensor Shield♦
14	Lip Seal GB/T13871	45	Inductor♦
15	Elastic Circlip for Bores GB/T893.1	46	Organic Glass
16	Bolt GB/T5783	47	Screw GB/T70.U
17	Small Washer GB/T848	48	Spring Washer GB/T93
18	Screw GB/T70.1	49	Roundwire Snap Ring
19	Screw GB/T70.1	50	Sensor♦
20	Adjusting Shim	51	Pressure Regulating Filter Valve
21	Elastic Circlip for Bores GB/T893.1	52	Magnetic Valve♦
22	Lip Seal GB/T13871	53	Flow Meter
23	Sealing Base	54	Junction Box
24	O-ring GB/T3452.1	55	Top Cap♦
25	Sealing Ring	56	Tension Device
26	Guide-and-Stop Ring	57	Linear Bearing
27	Screw GB/T70.1	58	Guideway
28	Motor Board	59	Retainer Ring ♦
29	Stud	60	Buffer♦
30	Nut GB/T6170	61	Bolt.
31	Flat Washer	62	Shim♦

注意 Attention

阴影标识属于易损件，可做备品备件，有损坏时需及时更换。

The accessories with shaded signs are perishable. These can be kept as spare parts, for timely replacement of the damaged ones.

5.11 结构说明

5.11 Structure Specification

5.11.1 一般说明

5.11.1 General Description

- 经过专业设计的阀体①，通过上下法兰分别接于系统管道，可以牢 靠的支撑整个阀门,通过专用的支架也可以将其固定于地面或其它支座上。（支架需定做）

- The professionally-designed valve body① is connected with the pipeline system by upper and lower flanges.This structure can hold the whole valve firmly.It can also be fixed on the ground or other bases by special stands.（The bracket needs to be customized)

- 转子③，通过轴承⑨和。形成两点支撑，固定在两边的阀盖②上。

- The rotor③ is fixed on the bonnet② on both sides through the two-point support shaped by the bearing⑨ and ⑩。

注意 Attention

旋转阀尾端轴承部位有时置有调整薄片，一般出厂时已标定厚度不可丢失和随意互换，若丢失或损坏请联系科狮公司。

The bearing part at the end of the valve is sometimes equipped with adjusting sheets with labelled thicknesses at the factory.These adjusting sheets cannot be changed by other ones and thus replacement is denied when the original ones are lost. If any loss or damage happens, please contact TECLION.

- 油封⑬和迷宫④加上轴封套件就构成了轴气封装置，将压缩空气引入过滤调压阀就可以使用。

- An oil seal⑬ and a maze④ plus a shaft seal kit combine to form a shaft gas seal device.It can be put into use when compressed air is directed into pressure regulating filter valve。

提示 Tips

引入压缩空气还是氮气，由物料属性决定，调节压力高于系统 压力 0.05MPa 即可。

Introduce compressed air or nitrogen, determined by the material attribute, the adjustment pressure is 0.05MPa.

- 平衡管 G）出气口允许接入四个位置：排气料斗，料仓顶部，中央除尘系统，除尘布袋（仅适用于颗粒介质）

- The gas outlet of the balanced pipe⑦ is allowed to connect four parts:the exhaust hopper, the top of the silo, the central dusting system, and the dusting bag（only applied to granular matters）

- 减速机旧通过链传动带动旋转阀运转，在防护组件够上开有注油孔，供定期润滑链条使用。

- The gear reducers㊸ help the rotary valves rotate through drive chains. There are holes in the protective components㊽ for oil filling, in order to lubricate the chains regularly.

- 传感器位用于监测旋转阀运转情况，感应片酒与传感器位间隙值 一般 3-5mm。

- The sensor㊿is designed for monitoring the rotation of the rotary valves.The clearance between the inductor㊺and the sensor㊿is 3-5mm in general.

- 清洗型旋转阀配有导轨机构，导轨&和直线轴承©用于支撑拖出的转子和阀盖。
- The cleaning-type rotary valve is equipped with the guideway mechanism.The guideway&and the linear bearing are designed for supporting the rotor and the bonnet that are pulled out.

5.11.2 轴承部位

5.11.2 The bearing part

- 尾端（非驱动端）轴承⑨用于定位转子③，由锁紧螺母。固定。
- Bearings⑨ at the back end（not the drive end）are designed for locating the rotor③.They are fixed by the lock nut⑪.

注意 Attention
锁紧螺母须使用扳手锁紧，不得采用冲头。
The locking nut shall be locked by a wrench and not punch.

- 尾端轴承⑨内有时会置有调整薄片，取出时需注意其安装位置，且不要丢失和倒换。
- Sometimes there are adjusting sheets placed in the bearing at the end⑨.It is suggested to pay attention to its installation position before you take them out, and do not miss them or displace them.
- 驱动端轴承⑩用于支撑转子③。
- The bearings at the drive end⑩ are designed for supporting the rotor③.
- 驱动端轴承设计为可以游动，防止温度或其它因素引起转子位移而导致轴承卡死。
- The drive end bearing is designed to swim to prevent rotor displacement caused by temperature or other factors.

提示 Tips

轴承设计寿命至少 30000h,只要正常使用且没有粉尘进入轴承，更换轴封等易损件时，旧轴承可以继续使用。

The designed lifespan for a bearing extends at least 30000h. As long as it is used properly and no dust is taken in, an old bearing can still function after the perishable accessories like shaft seals are replaced.

提示 Tips

出厂时轴承位已填充了整个寿命周期的润滑脂，正常使用时不必再添加润滑脂，不过当维修拆装后，必须填入新润滑脂。

The bearing seats have been filled with lubricating greases for a whole lifespan at the factory. It is unnecessary to add more when in use. However, fresh grease must be added after it encounters maintenance or disassembly.

5.11.3 链条传动

5.11.3 Chain transmission

- 滚子链需适时通过防护组件的上的注油孔补充润滑脂。
- The roller chain should be complemented with lubricating grease through the oil filling hole in the protective component㊽ at the right moment.
- 用户可通过调整螺母㊿调节链条松紧度。(松紧程度请参考图 A-5)
- Users can adjust the tightness of the chains with the adjust ting nut㊿. (the tightness refers to Figure A-5)

5.11.4 轴封部位

5.11.4 Shaft Seal

- 含有粉末的物料，旋转阀都配有轴封装置，用户仅需把压缩空气引入过滤调压阀㊿的进气口即可。

- For materials with powders, the rotary valves are equipped with shaft seal devices. Users just need to direct compressed air into the gas inlet of the pressure regulating filter valve⑤①.

选配套件流量计⑤③，其读数会随着过滤调压阀⑤③的调节而变化,调压阀读数一般高于系统压力 0.05MPa 即可，且不超过 0.15MPa。

The flow meter⑤③ reading of optional kits will change due to the adjustment of the pressure regulating filter valve⑤①.In general, the reading on the pressure regulating valve should be 0.05MPa higher than the system pressure and no higher than 0.15MPa.

提示 Tips

高压旋转阀 RGH 系列，压力出厂时已调好，现场不必再调整，即便 压力表读数超过 0.15MPa。若必须调整，请联系科狮公司。

High pressure rotary valve RGH series, the pressure has been adjusted when the factory, do not need to adjust the site, even if the pressure gauge reading exceeds 0.15MPa. If necessary, please contact TECLION.

5.11.5 速度开关部位

5.11.5 Speed switch part

- 传感器位用于检测转子运转情况。
- The sensor is designed for monitoring the rotating condition of the rotor.
- 传感器 O 与感应片酒之间间距以传感器样本推荐值为准。出厂时已安装在合适位置。
- The spacing between the sensor O and the sensor plate wine is subject to the recommended value of the sensor sample. Factory delivery is already installed in a suitable location.

- 对于其他信号形式 (模拟信号 4∽20mA、机械式等) ,将配有信号转换器。信号转换器的调节和接线方式请参照其产品样本。
- For other signal forms（analog signal 4∽20mA, mechanical form, etc.）,they will be equipped with signal converters.The method of the signal converter's adjustment and wiring connections refer to its samples.
- 传感器一般置于尾端阀盖轴承压盖位置。

  Sensors are generally placed at the position of the bearing glands which belong to the bonnet at the end.

6 分解和装配
6 Disassembly and Assembly

6.1 旋转阀安装于管道
6.1 Install Rotary Valves on Pipes

6.1.1 所需工具/辅助材料

6.1.1 Necessary tools /Auxiliary materials

1. 扳手套件 Wrench kit
2. 起重设备 Lifting equipment
3. 紧固件、密封垫（若需要请联系科狮公司）Fastener,Gasket（Please contact TECLION if necessary）
4. 螺丝刀 Screwdriver
5. 上述工具非供货范围 Tools above will not be provided by us

6.1.2 安装的先决条件

6.1.2 Installation prerequisites

注意 Attention

不正当安装可能造成阀门和配件损伤。

Inapproriate installation might cause damage to the valve and its accessories.

仔细阅读本章节中的说明

Read the illustrations carefully in this chapter.

危险 Danger

旋转阀属于较重物品，安装时需要辅助支撑，防止挤压、坠空。

The rotary valve is heavy. It requires auxiliary supports during the installation to avoid squash or falloff.

注意 Attention

起吊或搬抬设备时，不得将施力点置于连接薄弱部位（如接线盒支架）。

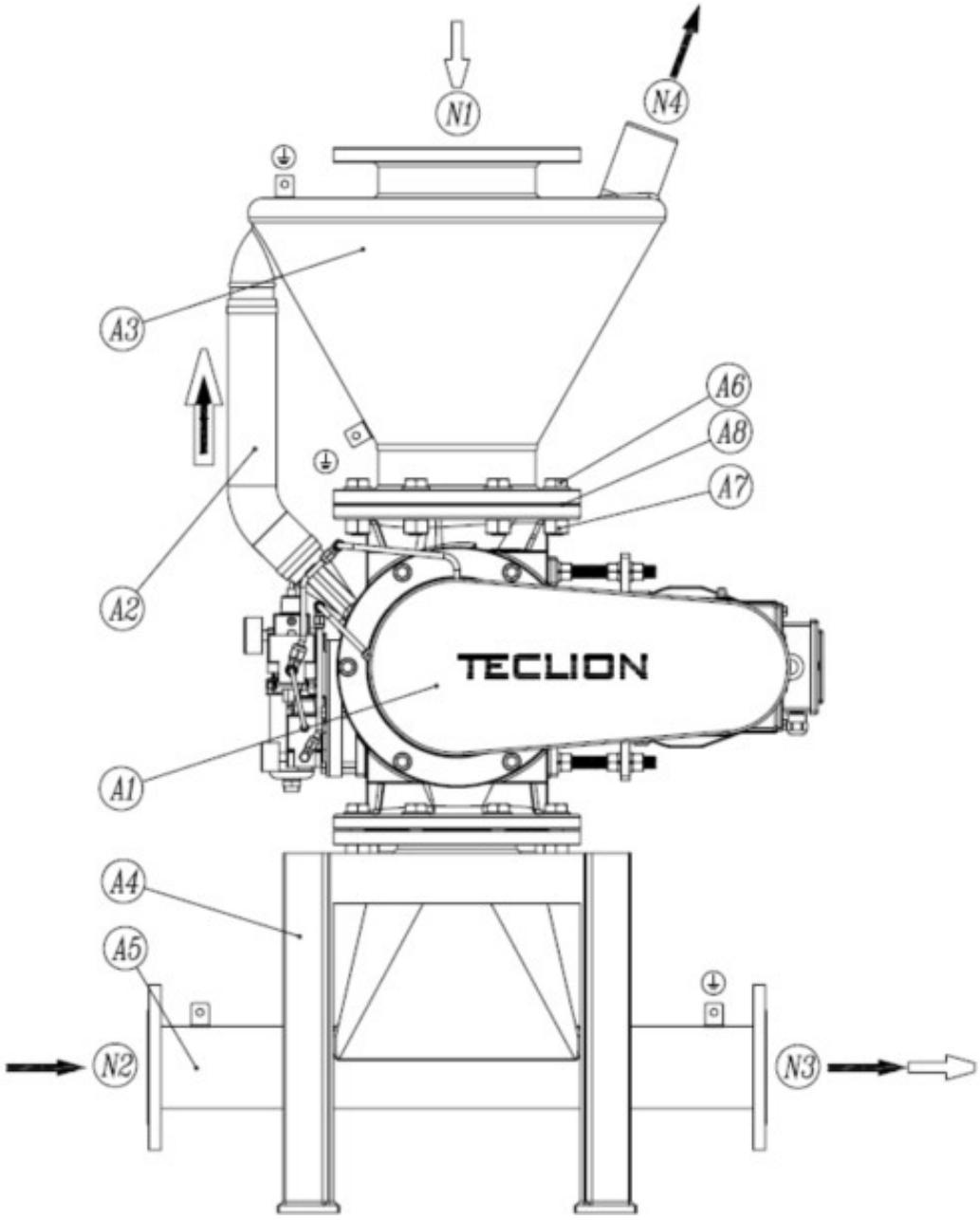
When hoisting or lifting the equipment, it is not allowed to focus your strength onto the weak parts of the connections such as the junction box stand.

检查下列各点要求是否得到满足

Check whether the requirements listed below are fully met:

- 旋转阀在运输或者仓储过程中未遭受损坏。（必要时可通电试运转）
- The rotary valves are not impaired during the transport and storage process.（electrified test run is permitted when neccessary）
- 旋转阀法兰标准与对接法兰标准一致。（可查阅随机的技术资料）
- The standard of rotary valve flanges and that of mating flanges are identical.（random technical data are available to refer to）
- 安装空间足够。
- There is enough space for installation.
- 对接管道内已经被清理干净。
- The connecting pipe has been cleared inside out.
- 电机铭牌上标注的电压与电源电压一致。
- The voltage labeled on the motor nameplate is identical to the voltage supply.
- 对接管道已良好的接地。
- The connecting pipe has properly touched the ground.
- 必须彻底清除对接法兰表面上的防锈剂、污垢或类似污染。
- The anti-rusting agent, dirt and similar pollutions on mating flanges must be thoroughly purged.

6.1.3 典型安装图
6.1.3 Typical installation diagram



A-1 典型安装图
A-1 Typical Installation Diagram

符号说明 Symbol description

A1	Rotary Valve	A7	Nut
A2	Pipeline	N1	Material Inlet
A3	Exhaust Hopper	N2	Gas Inlet
A4	Stand	N3	Outlet for the Mixture of Air and Materials
A5	Material Boots	N4	Vent
A6	Bolt		
	Electrostatic Grounding Point	Material Flow Direction	Gas Flow Direction

A1	旋转阀	A7	螺母
A2	管路	N1	物料入口
A3	排气料斗	N2	气流入口
A4	支架	N3	气流与物料混合物出口
A5	料靴	N4	排气口
A6	螺栓		
9	静电接地点	⇨物料流向	⇨气体流向

6.1.4 安装说明

6.1.4 Installation Instructions

- N1 口与进料管道连接。
- connect N1 inlet with feed pipes
- N2 口与进气管道连接。
- connect N2 inlet with intake pipes
- N3 口与出料管道连接。
- connect N3 outlet with dischare pipes
- N4 除尘排空或接于料仓顶部。
- exhaust the gas in N4 and then dust it or connect it with the top of the silo
- 重力流落料时，省略料靴 A5。
- When the materials fall of gravity flow, the material boots A5 can be omitted.

危险 Danger

静电不但可能对人体造成伤害，而且也可能引爆危险环境，对设备运转也是不利的，所以需严格按照要求静电接地。
Static electricity can not only do harm to human body, but also have a chance to iginite hazardous environment.It is also detrimental to equipment functioning.Therefore, users must ensure the static electricity grounded as demanded.

6.2 旋转阀与管道分离

6.2 Separate Rotary Valves with Pipes

- 所需工具同 6.1.1 列出。
- 拆除螺栓 A6 和螺母 A7。
- 拆除其他管线安装紧固件。
- 拆除电缆和其他管线。

- The tools needed have been listed in 6.1.1
- Dismantle the bolt A6 and nut A7
- Dismantle other fasteners installed on pipelines
- Dismantle cables and other pipelines

危险 Danger

旋转阀属于较重物品，拆卸时需要辅助支撑，防止挤压、坠空。
The rotary valve is heavy. It requires auxiliary supports during the dismantling to avoid squash or falloff.

注意 Attention

起吊或搬抬设备时，不得将施力点置于连接薄弱部位（如防护罩、电机等）。清洗型转阀搬抬或起吊时不得施力于导向轴。

When hoisting or lifting the equipment, it is not allowed to focus your strength onto the weak parts of the connections such as protective shields and motors.

When hoisting or lifting the cleaning-type rotary valves, it is not allowed to focus your strength onto the guide shaft.

6.3 分解旋转阀

6.3 Disassemble the rotary valves

- 所需工具同 6.4.1 列出
- Tools required have been listed in 6.4.1
- 分解时请严格按照使用手册步骤。
- Please follow the steps in this manual when you disassemble the equipment.

注意 Attention

科狮公司生产的旋转阀交货时已经安装调试至最佳状态，所以不允许用户对新的设备进行拆解，不允许对设备上的紧固件进行重新预紧和松解。

The rotary valves produced by TECLION have been installed and adjusted to its best condition at the factory.Therefore, users are not allowed to disassemble new equipment or pre-tighten and loosen the fasteners on the equipment again.

注意 Attention

分解旋彎前应确保电机已经停转，必要时需将电机与电缆分离, 且将链条拆下。

Ensure that the motor is stopped, separate the motor from the cable, and remove the chain if necessary.

注意 Attention

零件的机加工面放到台子上时需垫橡胶垫该防划伤。

When the machining surface of spare parts is about to touch the platform, a rubber mat is suggested to avoid scuffing.

提示 Tips

分解前用塞尺测量并记录转子与尾端和驱动端阀盖以及转子与阀体之间的间隙。更换转子的，其间隙量请咨询科狮公司。

Measure and record the gap between the rotor and the tail end and the drive end valve caps and between the rotor and the valve body with a plug ruler before decomposition. Change the rotor, please consult TECLION company.

6.3.1 一般型背包式的分解（参照图 5.10.1，5.10.2，5.10.4）

6.3.1 Disassemble general knapsack-type rotary valves (refer to Figure 5.10.1, 5.10.2, 5.10.4)

6.3.1.1 按分离步骤将旋转阀从系统管道上取下，置于稳定的工作台上。保证其得到良好的支撑。

6.3.1.1 Take down the rotary valve from the system pipe as the separation steps require, and then put it onto a stable working platform. Ensure it

has a solid support.

6.3.1.2 用螺丝刀和扳手将防护组件短打开

6.3.1.2 Open theh protective components㊽ with a screwdriver and a wrench

6.3.1.3 用尖嘴钳取下滚子链㊷

6.3.1.3 Take down the roller chain㊷ with a needle-nose pliers

6.3.1.4 用拉马取下链轮㊲ 和 ㊴。

6.3.1.4 Take down chain wheels㊲ and ㊴ with a puller

6.3.1.5 将减速机⑬带电机板㉘拆下。

6.3.1.5 Remove the reducer ⑬ with motor plate ㉘

6.3.1.6 将螺柱㉙取下。

6.3.1.6 Take down the stud㉙

6.3.1.7 将驱动端阀盖②上的螺栓 ⑯松解

6.3.1.7 Loosen the bolt ⑯ on the bonnet ② at the drive end

6.3.1.8 将螺栓⑯旋入阀盖上的螺纹顶丝孔

6.3.1.8 Screw the bolt ⑯ into the threaded jackscrew hole on the bonnet

6.3.1.9 用拉马将驱动端阀盖取下

6.3.1.9 Take down the bonnet at the drive end with a puller

6.3.1.10 将尾端阀盖②上的螺栓⑯松懈

6.3.1.10 Loosen the bolt ⑯ on the bonnet at the back end ②

6.3.1.11 将螺栓⑯旋入阀盖上的螺纹顶经孔将转子带尾端阀盖从壳体中空心抽出。

6.3.1.11 Turn the bolt ⑯ into the threaded top of the bonnet and hollow out the rotor belt tail end valve cap from the housing.

6.3.1.12 松解螺钉⑲并取下轴承压盖⑤

6.3.1.12 Loosen the screw⑲ and take down the bearing gland⑤.

6.3.1.13 内六角扳手松解锁紧螺母⑪上的 3 个紧定螺钉，取下锁紧螺母⑪。

6.3.1.13 Loosen the three set screws on the lock nut⑪ with a Allen wrench, and

then take down the lock nut⑪.

6.3.1.14 此时用拉马可以将转子与尾端阀盖分离。

6.3.1.14 At this moment, you can separate the rotor and the bonnet at the back end with a puller.

6.3.1.15 取下轴承⑨和⑩。

6.3.1.15 Take down bearings⑨ and ⑩.

6.3.1.16 取下孔用弹性挡圈⑮后取出唇封⑬和迷宫④。

6.3.1.16 Take down the elastic circlip for bores⑮ and take out lip seals⑬ and maze④.

危险 Danger

分解前勿将手伸入阀体腔大力扳动转子，否则可能引起剪切。

Do not put your hand into the valve body cavity before decomposition to vigorously pull the rotor, otherwise it may cause shear。

提示 Tips

阀盖上配有速度传感器的，应该先将传感器部件拆除。

If the bonnet is equipped with speed sensors, the sensors should be dismantled first.

提示 Tips

清洗型旋转阀拆解基本上同上述步骤，导轨拆解时禁止大力敲击。

The steps of dismantling cleaning-type rotary valves are basically identical to what is mentioned above. Don't strike it hard when you disassemble the guideway.

6.4 装配旋转阀

6.4 Assemble the rotary valves

6.4.1 所需工具/辅助材料

6.4.1 Necessary tools /Auxiliary materials

- general wrench kit
- locknut wrench
- inner hexagon spanner
- puller
- bearing installation tools kit
- lubricating grease
- screwdriver
- hammer, copper rod
- A measurement tool may be required (feeler, vernier caliper, depthometer)
- Tools above will not be provided by us

- 常规扳手套件
- 锁紧螺母扳手
- 内六角扳手
- 拉马
- 轴承安装工具套件
- 润滑脂
- 螺丝刀
- 锤，铜棒
- 可能需要测量工具（塞尺、游标卡尺、深度尺）
- 所有上述工具均不在供货范围

6.4.2 安装先决条件

6.4.2 Installation prerequisites

注意

Attention

不正当安装可能造成旋转阀及减速机、电机损伤

Incorrect installation might cause damage to the rotary valves, the gear reducer and the motor.

可能造成财产损失

Property loss might be brought about.

仔细阅读本章节中的说明

Read the instructions in this section carefully

检查下列各点要求是否得到满足：

Check whether the requirements listed below are fully met：

- 转子与调整垫、轴承等配件规格尺寸吻合（拆解时做好标记）
- The specification and size of the rotor fits that of the adjusting shim, bearings and other accessories.（Make marks when you dismantle it）
- 必须彻底清除安装表面的防锈剂、污垢或类似污染。必须使用常用 的溶剂。不得让清洗剂进入到轴密封环的密封唇上：否则会损坏材料！
- The anti-rusting agent, dirt and similar pollutions on the installation surface must be thoroughly purged. The solvent must be a common one. Don't leak the detergent into the lip seal on the shaft sealing ring, or the materials will be damaged.
- 所有零件均是完好无损的
- All parts are intact.
- 使用合适的润滑油和润滑脂

- Use proper lubricating oil and grease.
- 在腐蚀性的环境条件请保护好未有效防腐的零部件
- Protect the non-antiseptic spare parts from the corrosive environment

6. 4. 3 一般型背包式的装配（参照图 5.10.1, 5.10.2, 5.10.4）

6. 4. 3 Assemble general knapsack-type rotary valves（refer to Figure 5.10.1, 5.10.2, 5.10.4）

6.4.3.1 将转子③置于阀体①腔中。

6.4.3.1 Place rotor③ into the cavity of the valve body①

6.4.3.2 将迷宫④，唇封⑬，孔用弹性挡圈⑮装入阀盖②中。

6.4.3.2 Put the maze④, lip seals⑬ and holes into the bonnet② with elastic rings⑮.

6.4.3.3 唇封口涂抹润滑脂后，将阀盖装到转子轴上

6.4.3.3 Daub lubricating grease onto the lip seal, and then install the bonnet onto the rotor shaft.

6.4.3.4 装入调整垫片⑥

6.4.3.4 Put in adjusting shim⑥

提示 Tips

调整垫片以及轴承之间均有可能置有调整薄片，注意不要漏装。

There might be adjusting sheets between the adjusting shims and the bearings, please don’t miss them.

6.4.3.5 用工具将轴承⑨压入阀盖②。

6.4.3.5 Press the bearing⑨ into the bonnet② with tools

6.4.3.6 装入锁紧螺母⑪。

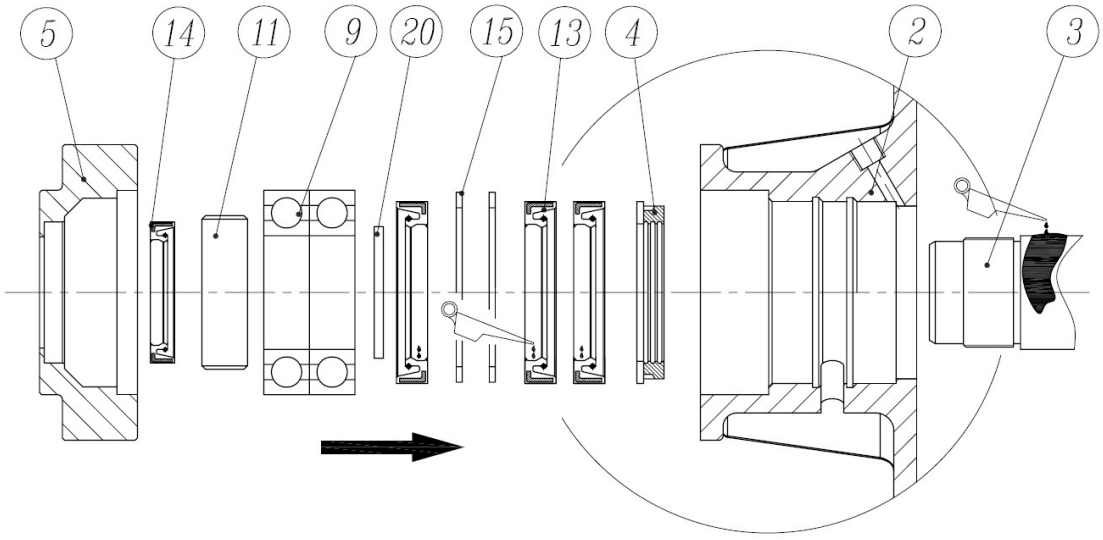
6.4.3.6 Put in lock nuts⑪。

6.4.3.7 将唇封⑭装入轴承压盖⑤后与阀盖②紧固。

6.4.3.7 Put the lip seal⑭ into the bearing gland⑤ and then fix it with the bonnet②

6.4.3.8 照上述步骤安装驱动端阀盖。

6.4.3.8 Install the bonnet at the drive end by steps mentioned above



A-2 轴封轴承安装图

A-2 Shaft Sealing and Bearing Installation Diagram

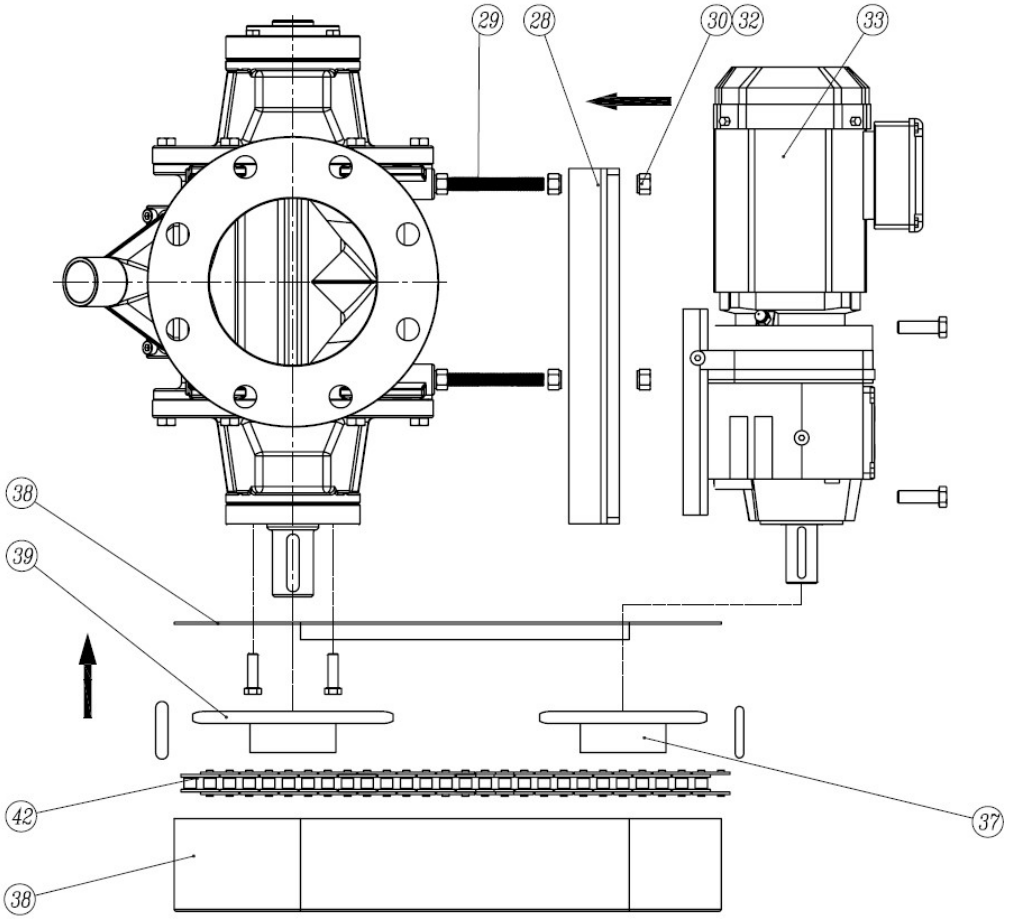
提示 Tips

旋转阀出厂时间隙已调整好，按步骤安装到位间隙即能锁定。

The clearances between rotary valves have been well-adjusted at the factory. These clearances can be fixed as long as you install them properly step by step.

6.4.3.9 安装链轮，防护组件，滚子链和减速机

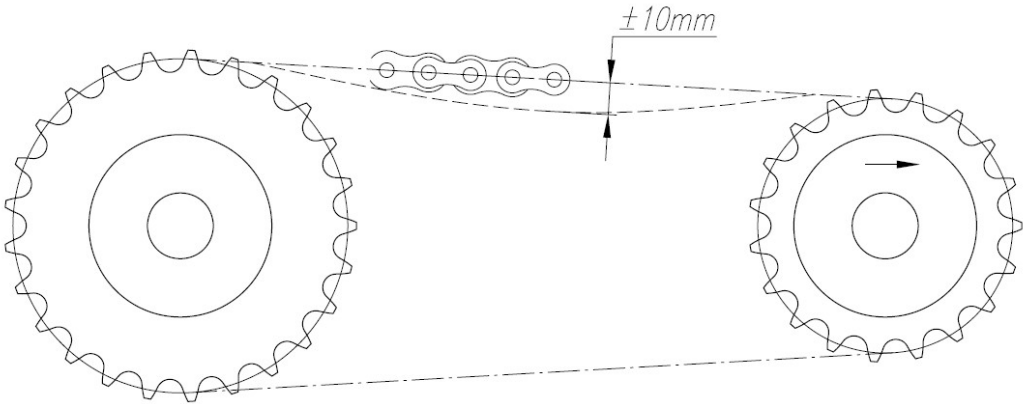
6.4.3.9 Install the chain wheel, protective components, roller chains and gear reducers。



A-3 减速机、链轮、防护罩安装图
A-3 Installation Diagram for Gear Reducer, Chain wheel and Protective Shield

6.4.3.10 滚子链张紧度调节

6.4.3.10 Adjust the tightness of the roller chains



A-4 滚子链调节图
A-4 Roller Chains Adjustment Diagram

7 开车调试
7 Start-up debugging

7.1 开车准备
7.1 Start-up preparation

旋转阀检修组装完毕或新机，均需试车运行检查，以保证装于系统后能够良好的运转。

After the rotary valve is repaired and assembled or the new machine, it shall be tested to ensure good operation after installation in the system。

- 新机到货开箱后需检查机器完好性，有必要通知科狮公司其收货情况
- After the equipment leaves the factory, its integrity should be checked. The receiving situation should be reported to TECLION.
- 调试人员需经过专业的培训，且已阅读本手册
- The operators should be well trained and have already read this manual
- 试车过程中应该严格遵守相关安全规章制度
- Relevant safety regulations should be strictly followed during the test run.
- 原则上旋转阀开车时/进出口均需安全遮盖，防止杂物落入
- In principle, when the rotary valves start to run they should be covered safely as well as the inlets and outlets, to avoid falling of junk.
- 确定电缆电压符合电机铭牌规定
- Make sure that the voltage of the cables fits the regulation on motor nameplates
- 检查减速机电机接线，保证运转方向无误，若反向，请将电机三相线其 中两相对调
- Check the motor wiring of the reducer to ensure the correct operation direction. If reverse, adjust two of the three-phase lines of the motor
- 确认设备已良好的接地
- Make sure that the equipment has touched the ground well
- 确认滚子链防护罩已经被安装到位。且已被良好的润滑
- Make sure that the protective shield of the roller chains has been well installed and well lubricated.

- 配置轴气封的旋转阀，不带料空转时可以不通入压缩空气，但带料试车 前一定先通入压缩空气

Equipped with the rotary valve of the shaft air seal, the compressed air can be blocked without material idling, but the compressed air must be passed into the first before the material test.

7.2 空转运行

7.2 Snull running

空转运行过程中出现任何问题，请查"投入运行"篇 8.3 节

Any problems you face during the test run without materials can refer to "Official operation" 8.3

- 启动电机 Start the motor
- 检查运转方向是否正确 Check the running direction
- 注意是否有尖锐噪音 Pay attention to whether there is sharp noise
- 按照减速机手册检查减速机运转情况 Check the functioning situation of the gear reducer according to its manual.

7.3 带料试车

7.3 Working equipment loaded with materials

确定空转运行良好后即可带料试车

Make sure the idling is run well

- 开始运转 24 个小时，请检查设备外围紧固件是否有松动，若有松动请重新拧紧。
- For 24 hours, please check the peripheral fasteners of the equipment for loosening. If there is loosening, please tighten again。
- 检查是否有异常震动，正常粉末旋转阀带料试车时，机体不会产生震动，颗粒物料由于不可避免的切料发生，会有轻微的剪切塑料的声音，但也 不足以引起异常震动。若出现异常请及时停车并联系科狮公司。

- Check whether there is an abnormal shake. Usually there is no machine shake when the powder rotary valves go under a test run with materials. The particle materials will be inevitably cropped, so subtle noise of shearing plastics will be made. However, this noise is too subtle to cause any abnormal shake. If you face this problem, please stop the operation and contact TECLION.

7.4 安全须知
7.4 Safety instructions

危险 Danger

试车阶段，不管设备是否通电运转，禁止将手从任何部位伸入转子腔。必须伸入清理异物时，请先将电缆从电源解除。

At the test run phase, no matter whether the electricity is connected, don't reach your hands into the rotor cavity from any parts of it. If it is a must for junk cleaning, please cut off the power supply first.

危险 Danger

勿将手伸入转动的链条部位。Do not extend your hand into the rotating chain part.

危险 Danger

带料开车时发生不明原因转子卡死，需及时断电处理，勿用铁器、木棒等伸入转子腔内疏通。

If the rotor get stuck for unknown reason when operating with materials, the power should be cut immediately. Don't reach things such as steel and wooden rods into the cavity for dredging.

注意 Attention

开车前务必确保转子腔内没有混入杂物（编织袋、布料、螺栓、术头、泥浆等）

Before the start-up, make sure there is no junk wihin the rotor cavity such as woven bags, cloth, blots, wood, and mud.

带料运转前务必确认转子转向正确

Before the start-up, make sure the rotor runs in the right direction.

8 投入运行

8 Official operation

8.1 正常运转

8.1 Working in a normal condition

正常带料运转的旋转阀有以下指标:

Normally working rotary valves with materials have indicators mentioned below:

- 落料顺畅 The materials can fall down smoothly
- 无异响 No abnormal noise is made.
- 无卡死现象 No card dead phenomenon.
- 无异常生热现象，如端盖温度明显高于介质的温度，轴承部位生热严重

  No abnormal heat generation occurs. For example, the temperature of the end cap is higher than that of the medium. There is an intense heat generation at the bearing parts.
- 电机电流低于额定电流且基本平稳 The current of the motor is lower than the rated current and it remains stable.
- 输送坚硬的大颗粒状物料时，链条可能会有短暂跳动，属于正常现象 When transporting hard and huge pellet materials, the chains might jump briefly, which is a normal situation.

8.2 关闭设备

8.2 Turning off the equipment

正常的旋转阀一般是连续运转的。当遇到以下情况时需要关闭设备:

Normal rotary valves often rotate constantly. The equipment must be shut down if these situations happen:

- 物料已经输送完毕 The materials have been all transported.
- 检修需要 Maintenance needs.
- 发生故障 A breakdown happens.

注意 Attention

旋转阀停车前需确认下料口物料已经被输送完毕，没有堆积。否则再次启动有可能被卡死

Make sure the materials in the feed opening have been transported completely before the rotary valves stop running and they are not piled up, or they will be stuck when operated again.

关闭系统需按照正常的流程，先切断落入阀的介质流，再关闭旋转阀电机，然后再关闭轴封气源

close the system, follow the normal process, first cut off the medium flow falling into the valve, then close the rotary valve motor, and then close the shaft seal air source.

设备启停需按照用户管理规则

The start and stop of the equipment should follow the regulations on user management.

提示 Tips

RD 粉末系列和 RG 颗粒系列均设计成允许带料启动，但仍然有不 可预见的启动卡阻现象，若一次尝试不能正常启动，最多尝试三次, 且每次持续时间不得超过 5 秒。若仍不能启动，请清理卸料口堆积的物料

Both of RD powder edition and RG particle edition are designed available to carry materials. However, there is still unpredictable sticking phenomenon when they start running.If once it cannot start up properly, then you should try no more than three times, and no more than five seconds for each try. If it still doesn't work, please clear the piled materials at the discharge outlet.

8.3 运行过程中常见问题处理

8.3 The solutions to common problems during operation

设备运行过程中出现一些小问题，允许用户根据下表自行处理，必要时请联系科狮公司。未获准许，不得擅自拆解旋转阀。

Tiny problems during operation can be solved according to this chart by users.If necessary, please contact TECLION. You are not allowed to

dismantle the rotary valve by yourself without permission.

下表中列出的问题解决方法不是唯一的。

The solutions to these questions listed below are not exclusive:

常见问题	可能的原因	对应措施
电机不运转	•电机接线不正常 •阀门转子被卡死	■重新检查接线是否良好 ■排除异物
下料不顺畅	•进料口架桥 •转子腔被异物填死 •间隙漏气量太大	•清理进料口 •清理异物 •检查是否已磨损严重
'响亮的尖锐声	•物料在间隙中被挤压塑化	·联系科狮公司
粉尘从逸料口落出	•轴封失效	·更换轴封元件
专子不运转但电机运转	•转子被卡死 •轴承被抱死 •链条断了 •链条太松	•检查并联系科狮公司 •更换轴承 •更换链条 ·调整链条松紧度
转子被卡死	•.异物落入转子腔 •物料温度异常 •壳体受外界应力变形	·清理异物并检查转子是否被损坏 ·联系科狮公司 ·解除外界应力

Common problems	Possible reasons	Corresponding measures
The motor stop functioning	•The motor wiring has problems •The rotor of the valves is stuck	■Check again whether the wiring is well-connected ■Clear junk
Materials cannot fall down smoothly	•The feed inlet makes bridges •The rotor cavity is stuffed by junk •The gas leak phenomenon in the	•Clear the feed inlet . •Clear junk •Check whether it is heavily wore
Loud noise is heard	•The materials are squeezed and plasticized between the clearances	Contact TECLION
Powders fall from the escape port	Shaft seal is invalid	Replace the shaft seal elements
The rotor does not run but the motor does	•The rotor get stuck •The bearing is locked •The chain is broken •The chain is too loose	•contact TECLION after check •Replace the bearing •Replace the chain Adjust the tightness of the chain
The rotor get stuck	•.Junk gets into the rotor cavity •The temperature of the materials is abnormal	•Clear junk and check whether the rotor has been damaged Contact TECLION

当按照上述措施仍然不能解决问题时，请及时联系科狮公司客服。

If the problem is still not solved after you do what is mentioned above, please contact TECLION for timely customer service.

8.4 设备长期停车超过三个月

8.4 A long-term shutdown for more than three months

8.4.1 长期停车之前

8.4.1 Before the shutdown

- 保持设备运转，直至卸料完毕
- Keep the equipment running till the discharge is done.
- 停车后存储请参照"运输和仓储"
- The storage after stop running refer to "transportation and storage"

8.4.2 长期停车之后

8.4.2 After the shutdown

- 清理附着设备表面的异物
- Clear junk attached on the equipment surface.
- 清除落入转子内腔的异物
- Clear junk that falls into the inner cavity of the rotor
- 按照"开车调试"步骤进行调试
- Debug the equipment according to the steps mentioned in "start-up debugging"

9 保养和维护

9 Caring and Maintenance

9.1 建议

9.1 Advice

- 检查运转的设备,需参照各章节安全须知，避免意外。
- When checking the running equipment, it is necessary to refer to the safety instructions in each chapter to avoid accidents.
- 任何的操作失误，都有可能引起较大的经济损失，所以定期保养和检查是有必要的。
- Any misoperation may cause great economic losses, so regular maintenance and inspection are necessary.
- 旋转阀的使用寿命与正确的使用和保养息息相关，并且受到很多其他系统和环境及人为因素的影响。
- The service life of rotary valve is closely related to the correct use and maintenance, and is affected by many other systematical, environmental and human factors.
- 定期清理设备表面灰尘、油污，也有助于延长使用寿命。
- Regular cleaning of dust and oil on the surface of the equipment will also help to prolong its service life.
- 检查设备时应保证人体不与运转的部件接触，必要时需断电停机。
- When checking the equipment, ensure that the human body does not contact with the running parts, and stop off if necessary.

9.2 检查设备

9.2 Equipment inspections

良好运转的设备也需要定期检查:

Well-functioning equipment also needs regular inspection:

- 检查设备运转是否正常，有无异物和卡料，有无异常噪音，排料是否 A 顺畅等。

- Check whether the equipment operates normally, whether there are foreign matters and stuck materials, whether there is abnormal noise, whether the discharge is smooth, etc。
- 检查所有外围紧固件是否有松动。及时拧紧。
- Check all peripheral fasteners for looseness and tighten them in time.
- 检查法兰连接处密封是否有效。
- Check if the sealing at the flange connection is effective.
- 检查设备轴封是否有效。
- Check whether the equipment shaft seal is effective.
- 配有轴气封的，检查压缩空气压力是否正常。
- If the equipment is equipped with shaft air seal, check whether the compressed air pressure is normal.
- 检查电机有无缺相。
- Check the motor for phase loss.
- 按电机减速机维护手册检查驱动是否正常。
- Check whether the drive is normal according to the maintenance manual of motor reducer.

9.3 润滑油

9.3 Lubricants

设备出厂时轴承已经注入一个寿命周期的润滑脂，故一般情况下车岬 部位无需润滑，除非设计有注油孔或环境极其恶劣，热辐射较严重等。

When the equipment leaves the factory, the bearing has been injected with grease for a life cycle, so generally, the bearing parts do not need lubrication, unless there are oil injection holes designed or the environment is extremely harsh or the heat radiation is serious.

- 设备出厂时，轴封密封件部位无需润滑。除非设计有注油孔。
- When the equipment leaves the factory, the shaft seal parts do not need lubrication. Unless oil filling hole is designed.

- 新设备运转 2000∽2500 小时后，需对滚子链注油润滑，2#锂基脂或 其它低速、中等∽高等负荷、抗水润滑油或润滑脂。
- After the new equipment operates for 2000 ~ 2500 hours, the roller chain needs to be lubricated with oil, 2# lithium grease or other low-speed, medium- or high-load, water-resistant lubricating oil or grease.
- 电机减速机润滑保养，请参照其产品使用手册。
- For lubrication and maintenance of motor reducer, please refer to its product manual.

9.4 保养周期
9.4 Maintenance period

注意 Attention
拆解保养前需确保驱动电源已被切断，并且保证设备不会被误启动
Before disassembly and maintenance, ensure that the driving power supply has been cut off and that the equipment will not be started by mistake.

保专内容	保养周期	
	每个季度或每运转 2500 小时	每年或每运转 9000 小时
检查外围紧固件是否松动	●	
检查轴封是否泄漏	●	
检查链条是否松动，所需要，重新调整:	●	
检查链条是否润滑良好	●	
检查气封元件正常工作	●	
检查气封耗气量是否正常（带流量计的直段 读数）	●	
带注油嘴的，检查设备是否需要注油润滑	●	
检查轴承是否正常运转	●	
高压型阀（RGH 型）检查盘根是否需更换	●	
检查高压型盘根密封副转字金属面是否光 滑，必要时抛光处理		●
盘根式轴封检查盘根是否失效	●	
更换轴封元件	●	
清洗型转阀直线轴承加润滑油	●	
驱动设备	查看电机减速机使用手册	

Maintenance items	Maintenance period	
	Every quarter or every 2500 hours of operation	Every year or every 9000 hours of operation
Check whether the peripheral fasteners are loose	●	
Check the shaft seal for leakage	●	
Check whether the chain is loose. If necessary, readjust it	●	
Check whether the chain is well lubricated	●	
Check whether the gas seal elements work well	●	
Check whether the gas consumption of gas seal is normal (straight section reading with flowmeter)	●	
If there is an oil nozzle, check whether the equipment needs oil lubrication	●	
Check whether the bearing operates normally	●	
Check whether the packing of high-pressure valve (RGH type) needs replacing	●	
Check whether the metal surface of the high-pressure packing seal auxiliary rotor is smooth and polish it if necessary		●
Check whether the packing is invalid if there is a packing shaft seal	●	
Replace shaft seal element	●	
Add lubricating oil to linear bearing of cleanable rotary valve	●	
Driving equipment	Check the operating manual of motor reducer	