操作手册 Operating Manual

旋转阀 Rotary valves

适用型号：粉末系列 RDW,RDM,RDC,RDL

颗粒系列 RGW,RGM

Applicable model: Powder series RDW,RDM,RDC,RDL

Granular series RGW,RGM

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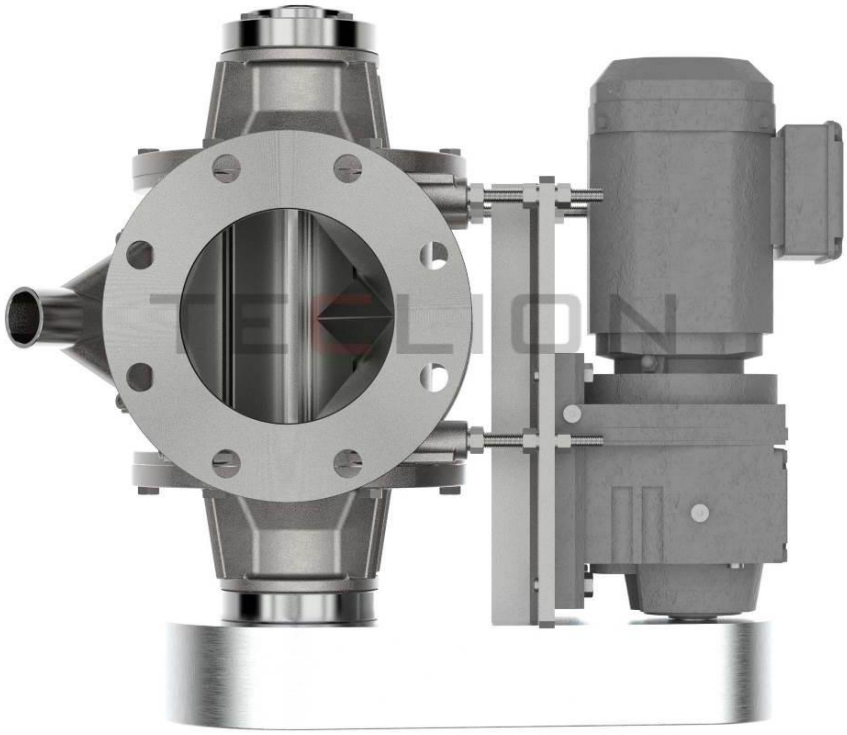

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1 概述

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。

- Rotary valves are designed and manufactured according to the relevant standards and technical levels, but improper operation can still cause personal injury, even disability or death. Improper use may also be detrimental to the normal operation of the 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 a trained professional. Professionals involved in this operation manual refer to the personnel familiar with the installation location, mechanical installation, troubleshooting and maintenance of the 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
- Received mechanical professional training (such as mechanical engineer or mechanical engineer) and passed the completion examination
- 了解本操作手册
- Understand this operation 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 valves are not suitable for transporting unstable chemicals and high-grade explosive items.
- 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。
- Besides the manual, the equipment shall be operated correctly in accordance with other relevant safety and environmental protection regulations stipulated by the state. Refer to the operating manual for accessories (such as motor, reducer, 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 device 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。
- Rotary valves are allowed for indoor or outdoor use as long as the electrical fittings of the equipment are properly protected.

- 若未明确，则禁止在存在爆炸隐患的区域内使用。
- If not clear, the use is prohibited in areas where potential explosion risks exist.
- 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 achieves the effect of closing the wind by setting the gap between the rotor and the shell, but due to the existence of the gap (although small), the compressed air will leak through it. If there is no continuous compressed air supply, it cannot be expected to hold the 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, the user and maintenance shall comply by the company and national rules and regulations on safety and environmental protection 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 the equipment shall be operated by manual training.
- 使用组织可以参考本手册，对安全条例做适当的增补。
- Use organizations may refer to this manual for appropriate additions to 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 the equipment, sundries (such as ropes, plastic bags, parts, etc.) are not allowed to be placed in the valve, and long hair, loose clothes, and jewelry wearer are not allowed to operate, 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

- 设备空载运转噪音低于 80db。
- The noise of the equipment during no-load operation is less than 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再添加润滑脂，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，并在密封件与转子腔之间增加气封装置，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

- 当转子与壳体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。
返厂维修设备时，也应该按照上述标准打包。
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.

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

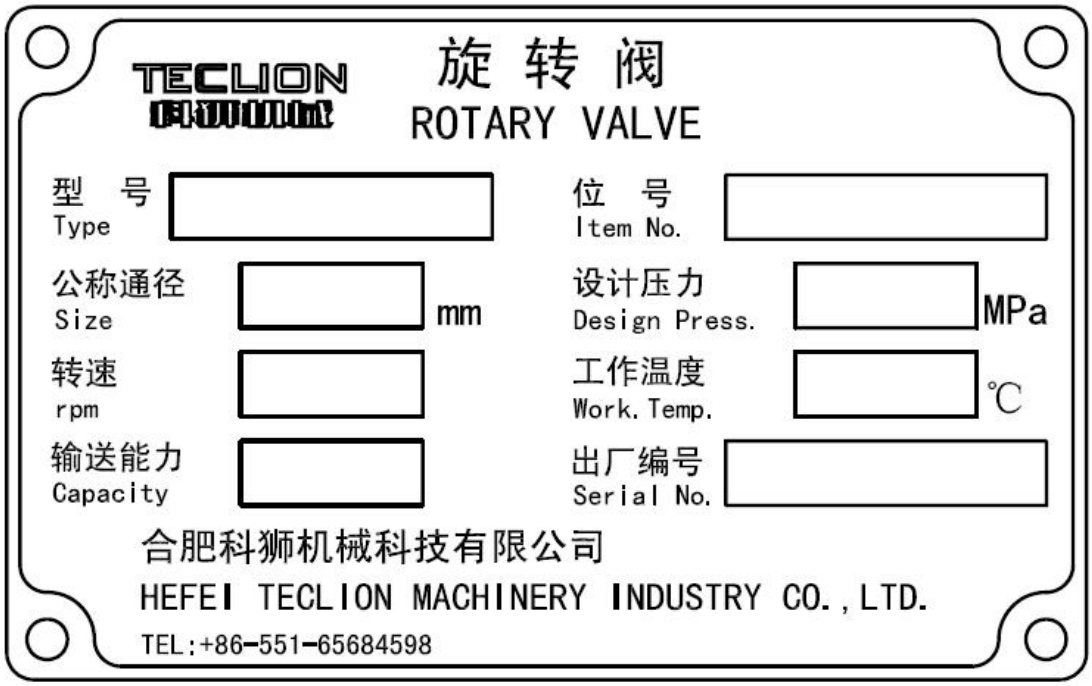
4.4 Scope of supply

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

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 旋转阀 R revolving
2	旋转阀适用的介质类型 Applicable media type of rotary valve	D：粉末 G：颗粒 D: dust G: granule
3	旋转阀适用的工况类型 Applicable working condition type of rotary valve	W：小容积（粉末） W: Small volume (powder) M：大容积（粉末） M: Large volume (powder) 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
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 S:304SS SL:304L SS:316 SSL:316L ST:321 SST:310S R2：2Cr13 2、碳钢 2、 Carbon steel 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

▯ 粉末系列 RDW,RDM,RDC

▯ Powder series RDW,RDM,RDC

适用于粉末物料，重力流或气力输送稀相输送。

Suitable for powder materials, gravity flow or pneumatic transport thin phase transport

▯ 颗粒系列 RGM,RGH

▯ Granular series RGM,RGH

适用于粉末或颗粒物料，气力输送密相输送。

Suitable for powder or particulate matter material, pneumatic conveying dense phase transport

5.4 设备允许使用工况

5.4 Allowable working conditions

旋转阀类型 Rotary valve type	粉末系列 RDW,RDM,RDC Powder series RDW,RDM,RDC	颗粒系列 Granular series	
		RGM	RGH
允许使用压力 MPa Permission to use pressure MPa	0.15	0.15	0.35
允许使用温度 ℃ Allowed temperature for use°C	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 strictly according to 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。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。
Under normal circumstances, the sound of the valve running without load is much lower than the noise generated during the drive operation. The noise when taking the material mainly comes from the sound caused by the metal friction between the material and the contact site. Normal operation, the noise is below 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 there is a pressure difference between the inlet and outlet of the rotary valve, the compressed air inevitably escapes from the high pressure area due to the gap between the rotor and the shell.

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 Equipment material

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

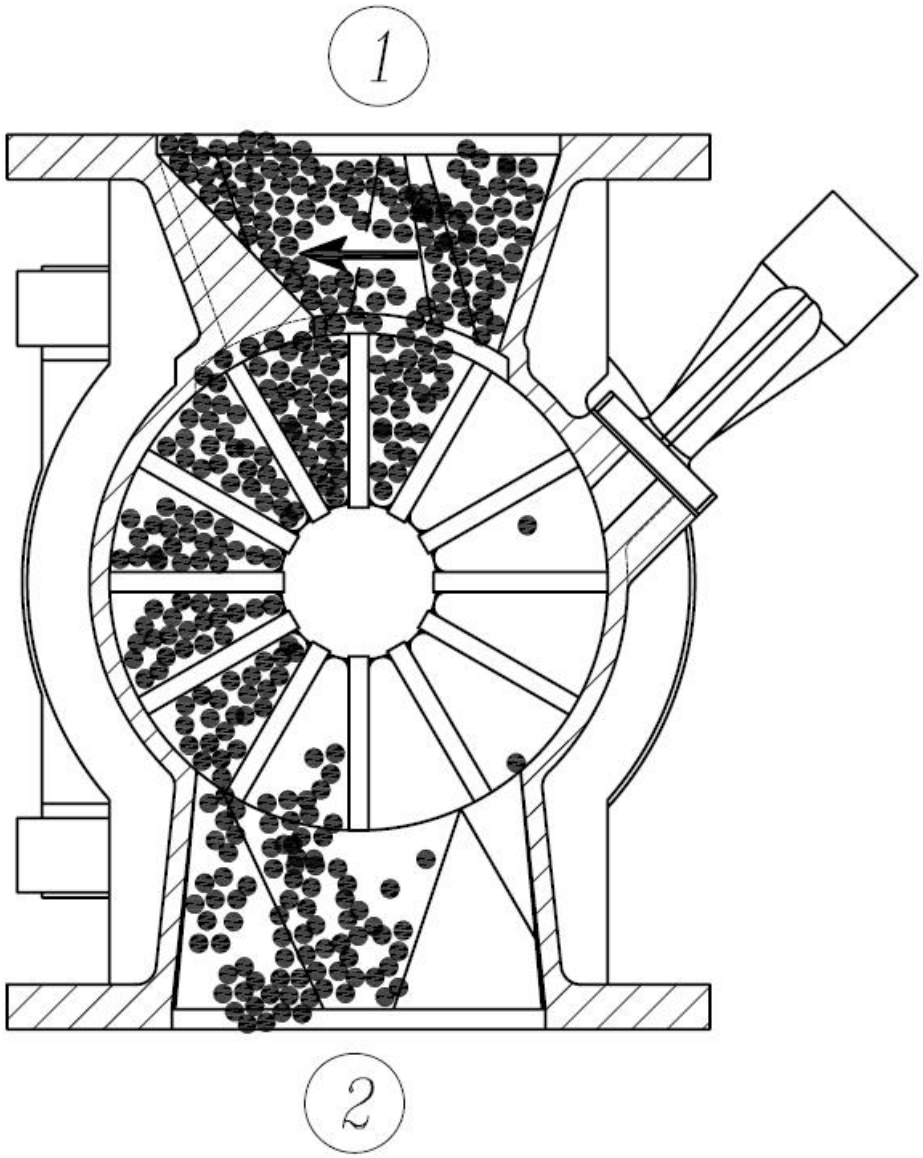
5.9 The Discharge Method of Rotary Valves and Basic Structures

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

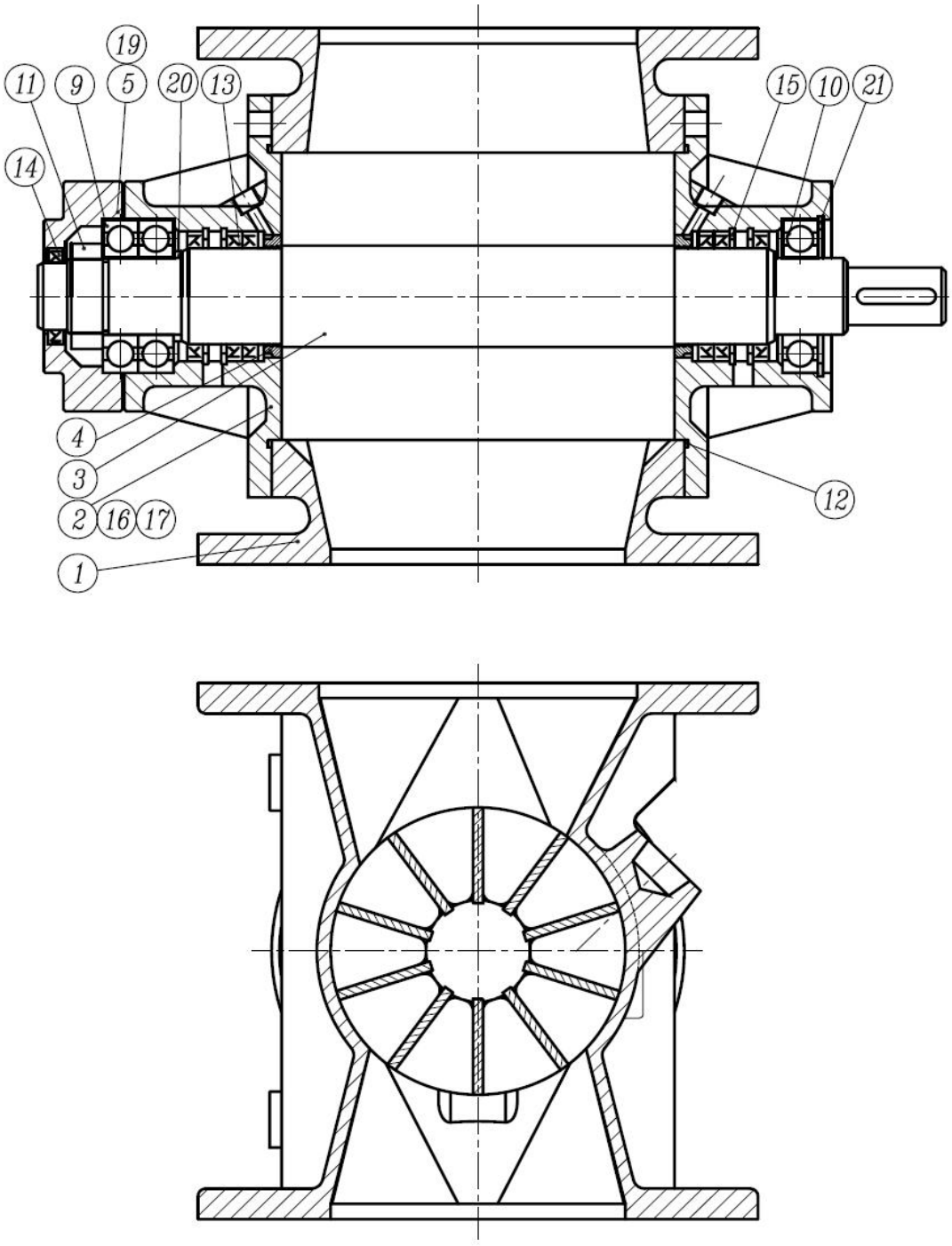
5.9.1 Rotary Valve Discharge Diagram

5.10 装配图

5.10 Assembly Diagram

5.10.1 粉末系列 RDW,RDM

5.10.1 Powder series RDW RDM

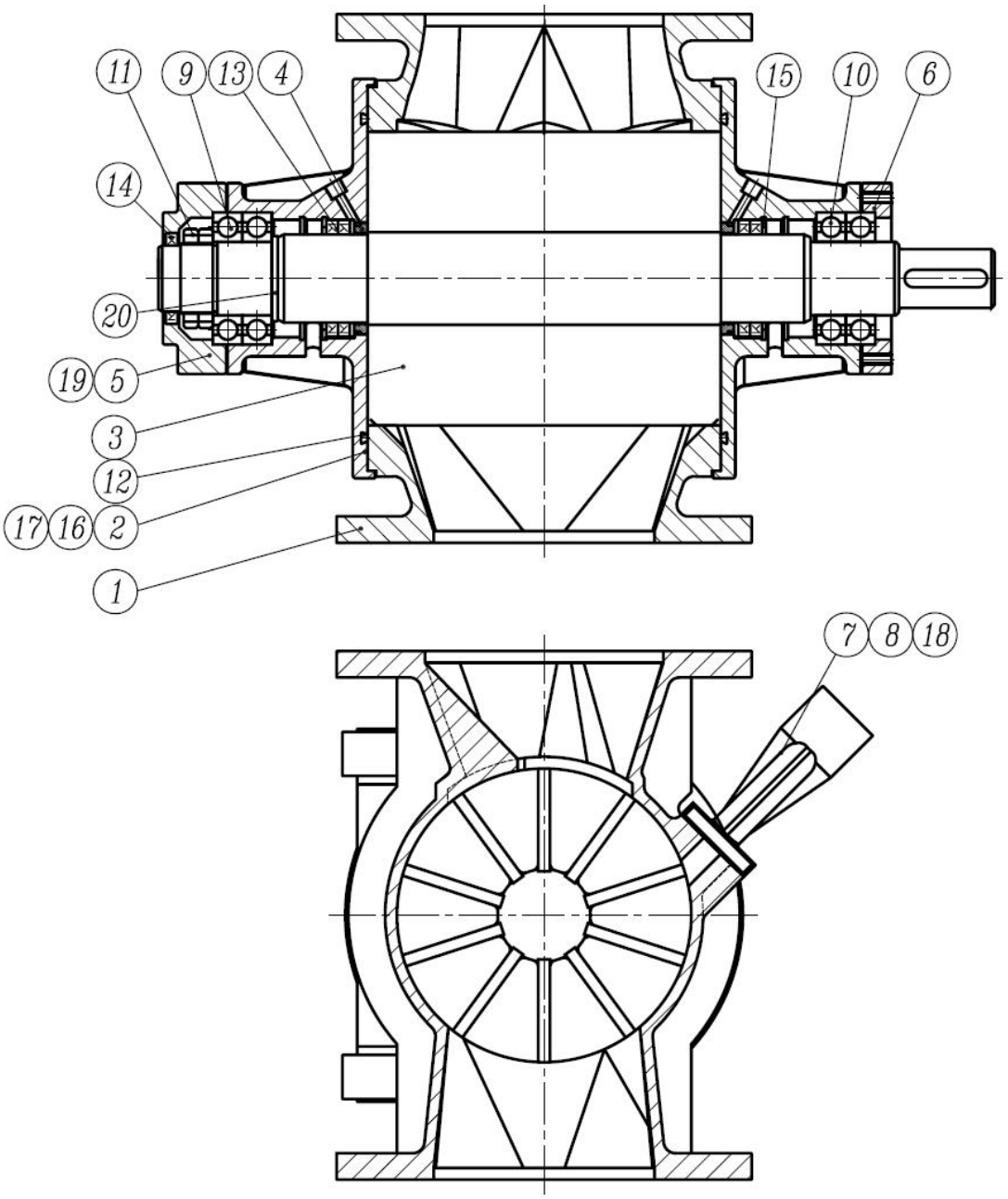


5.10.1 粉末系列 RDW,RDM 剖面图

5.10.1Powder series RDW, RDM profile drawing

5.10.2 颗粒系列 RGW

5.10.2 Granule Series RGW



5.10.2 颗粒系列 RGW 剖面图

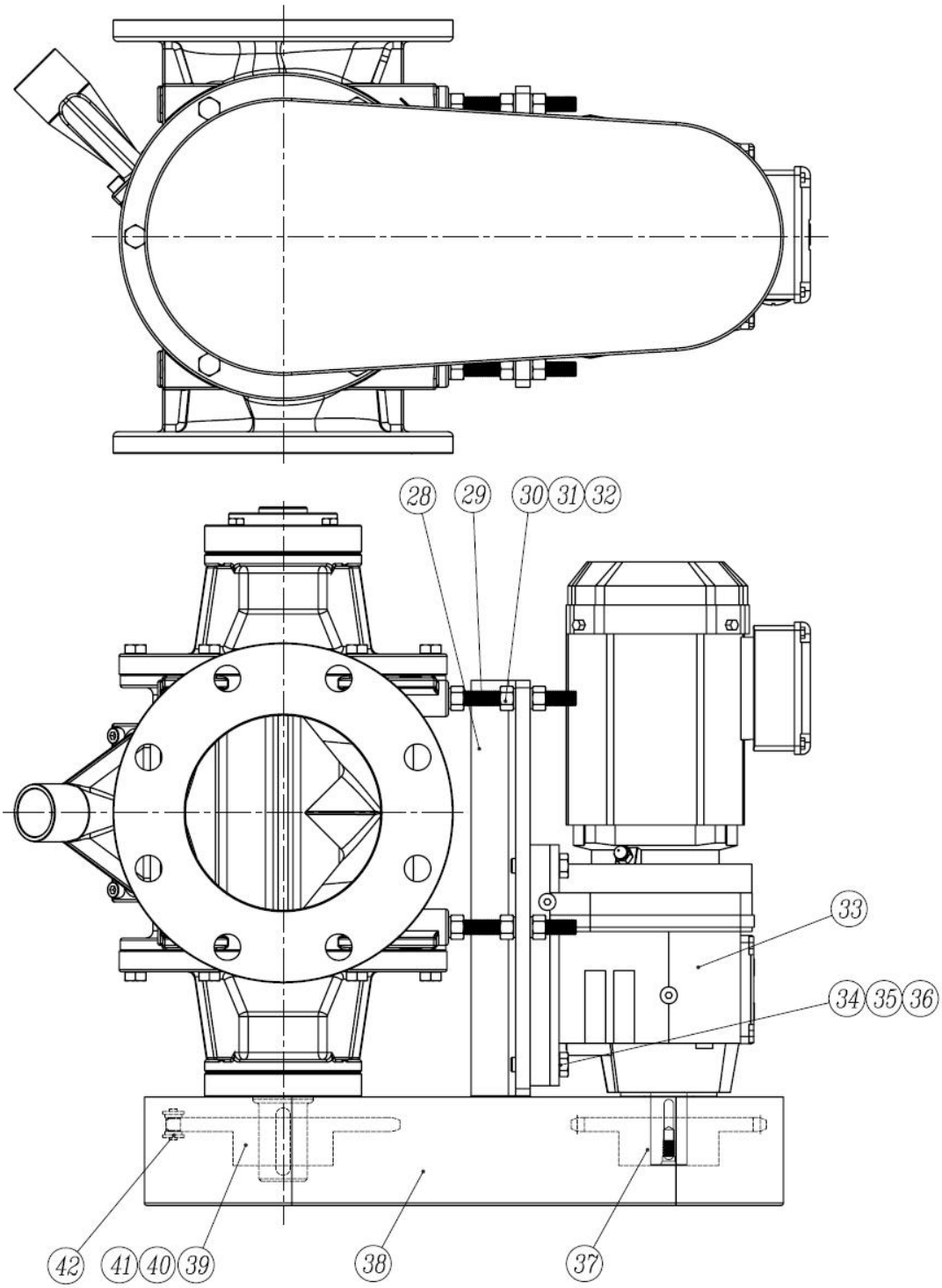
5.10.2 Granule series RGW profile

5.10.3 旋转阀带减速机

5.10.3 Rotary valve belt speed reducer

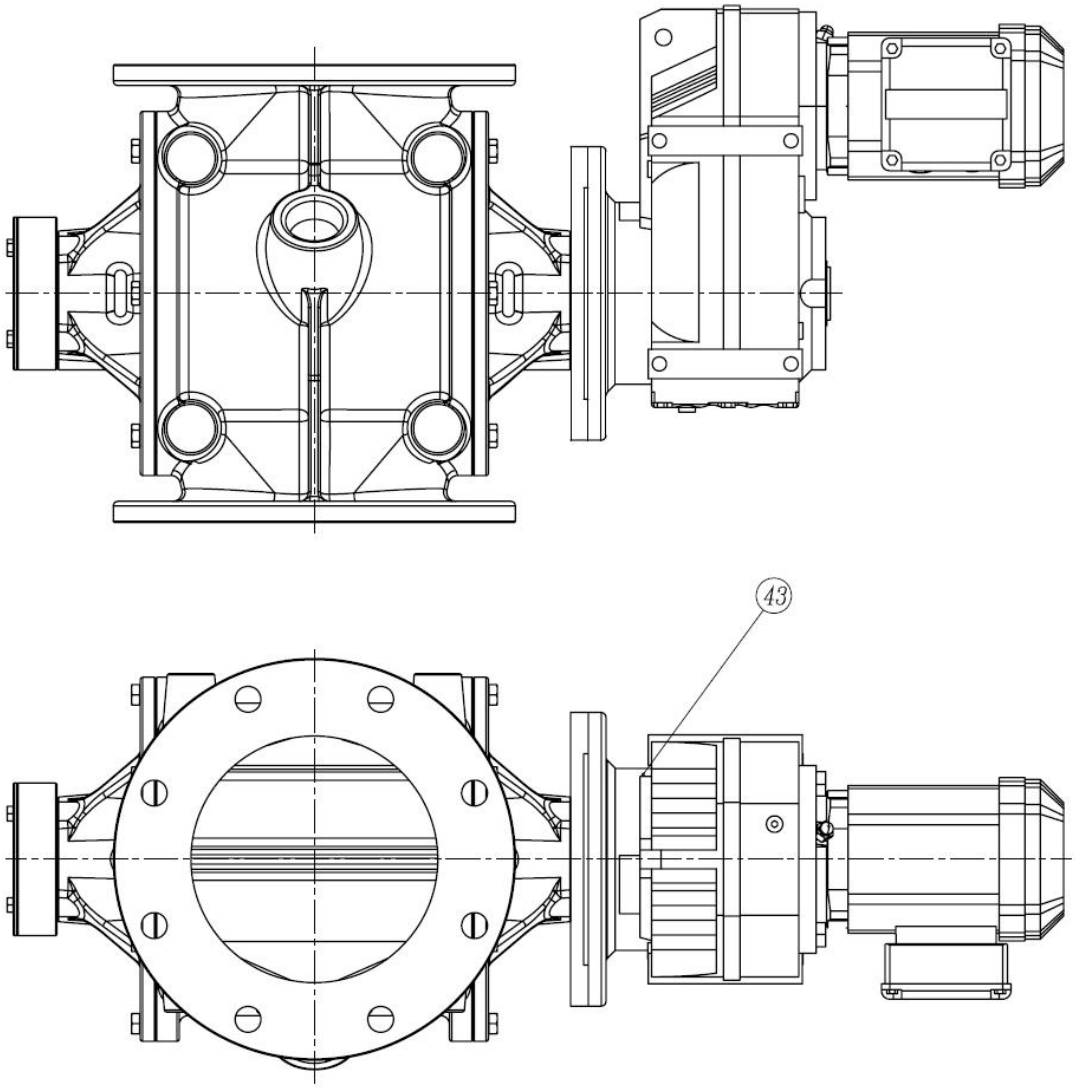
5.10.3.1 链条驱动

5.10.3.1 chain drive



5.10.3.2 减速机直连

5.10.3.2 The reducer is directly connected

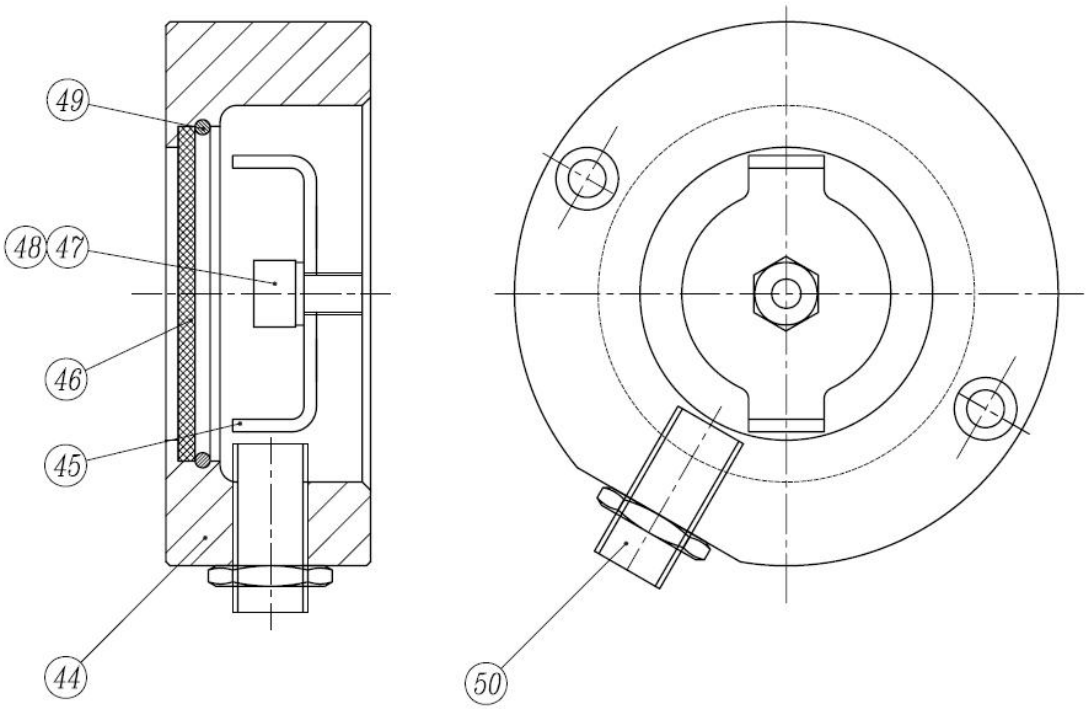


5.10.4 功能套件

5.10.4 Function Kit

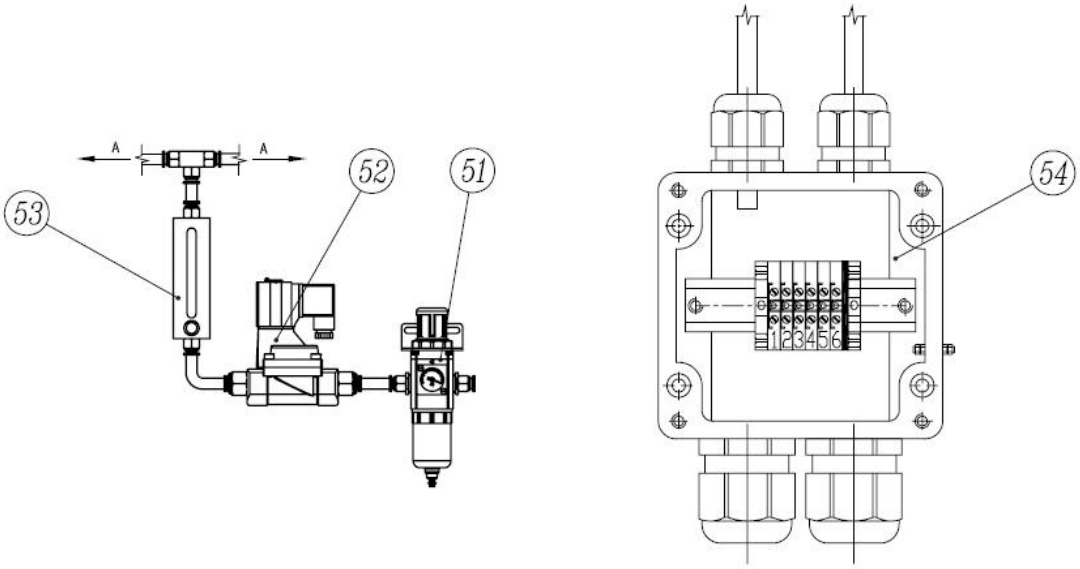
5.10.4.1 速度开关

5.10.4.1 Speed switch

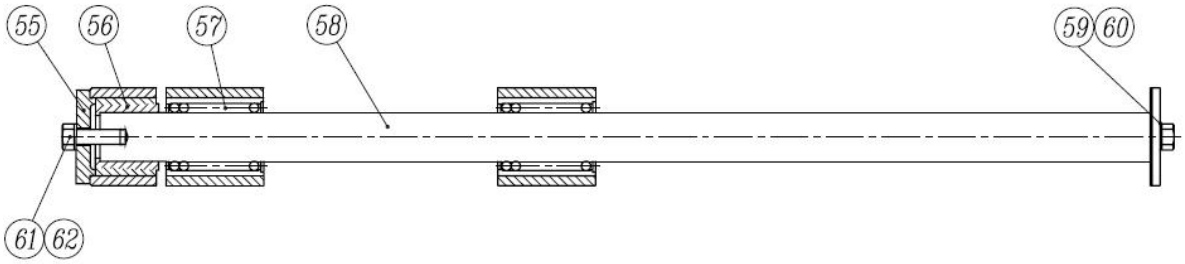


5.10.4.2 轴封和接线盒

5.10.4.2 Axle seal and junction box



5.10.4.3 快速清洗导轨机构
5.10.4.3 Quick cleaning of the guide rail mechanism



提示 NOTE

其它特殊要求和疑问，请联系科狮公司。
For other special requirements and questions, please contact TECLION Company

5.10.5 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
2 阀盖
3 转子
4 迷宫
5 轴承压盖
6 轴承压盖
7 平衡管
8 密封垫
9 轴承 GB/T292
10 轴承 GB/T276
11 锁紧螺母
12 O 型圈 GB/T3452.1
13 唇封 GB/T13871
14 唇封 GB/T13871
15 孔用弹性挡圈 GB/T893.1
16 螺栓 GB/T5783
17 小垫圈 GB/T848
18 螺钉 GB/T70.1
19 螺钉 GB/T70.1
20 调整垫
21 孔用弹性挡圈 GB/T893.1
22 唇封 GB/T13871
23 密封座
24 O 型圈 GB/T3452.1
25 密封圈
26 导止环
27 螺钉 GB/T70.1
28 电机板
29 螺柱
30 螺母 GB/T6170
31 平垫圈
32 弹簧垫圈 GB/T93
33 减速机
34 螺栓 GB/T5783
35 弹簧垫圈 GB/T93
36 平垫圈
37 链轮
38 防护组件
39 链轮
40 紧定螺钉 GB/T77
41 平键 GB/T1096
42 滚子链 GB/T1243
43 减速机
44 传感器护罩◆
45 感应片◆
46 有机玻璃◆
47 螺钉 GB/T70.1◆
48 弹簧垫圈 GB/T93◆
49 钢丝挡圈◆
50 传感器◆
51 过滤调压阀
52 电磁阀◆
53 流量计◆
54 接线盒◆
55 顶盖◆
56 涨紧装置◆
57 直线轴承◆
58 导轨◆
59 挡圈◆
60 缓冲垫◆
61 螺栓◆
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⑩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⑤1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⑦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㉝通过链传动带动旋转阀运转，在防护组件㊳上开有注油孔，供定期润滑链条使用。

- The gear reducers㉝ help the rotary valves rotate through drive chains. There are holes in the protective components㊳ for oil filling, in order to lubricate the chains regularly.

- 传感器㊿用于监测旋转阀运转情况，感应片㊺与传感器㊿间隙值一般 3-5mm。

- The sensor ㊿ is designed for monitoring the rotation of the rotary valves.The clearance between the inductor ㊺ and the sensor㊿is 3-5mm in general.

- 清洗型旋转阀配有导轨机构，导轨㊽和直线轴承㊼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 ㊽ 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⑪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㊳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 component㊳ at the right moment.
- 用户可通过调整螺母㉚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 nut㉚. (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㊶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 valve㊶.

- 选配套件流量计㊸，其读数会随着过滤调压阀㊶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 meter㊸ reading of optional kits will change due to the adjustment of the pressure regulating filter valve㊶.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㊿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㊿与感应片㊺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
2. 起重设备
3. 紧固件、密封垫（若需要请联系科狮公司）
4. 螺丝刀
5. 上述工具非供货范围

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.

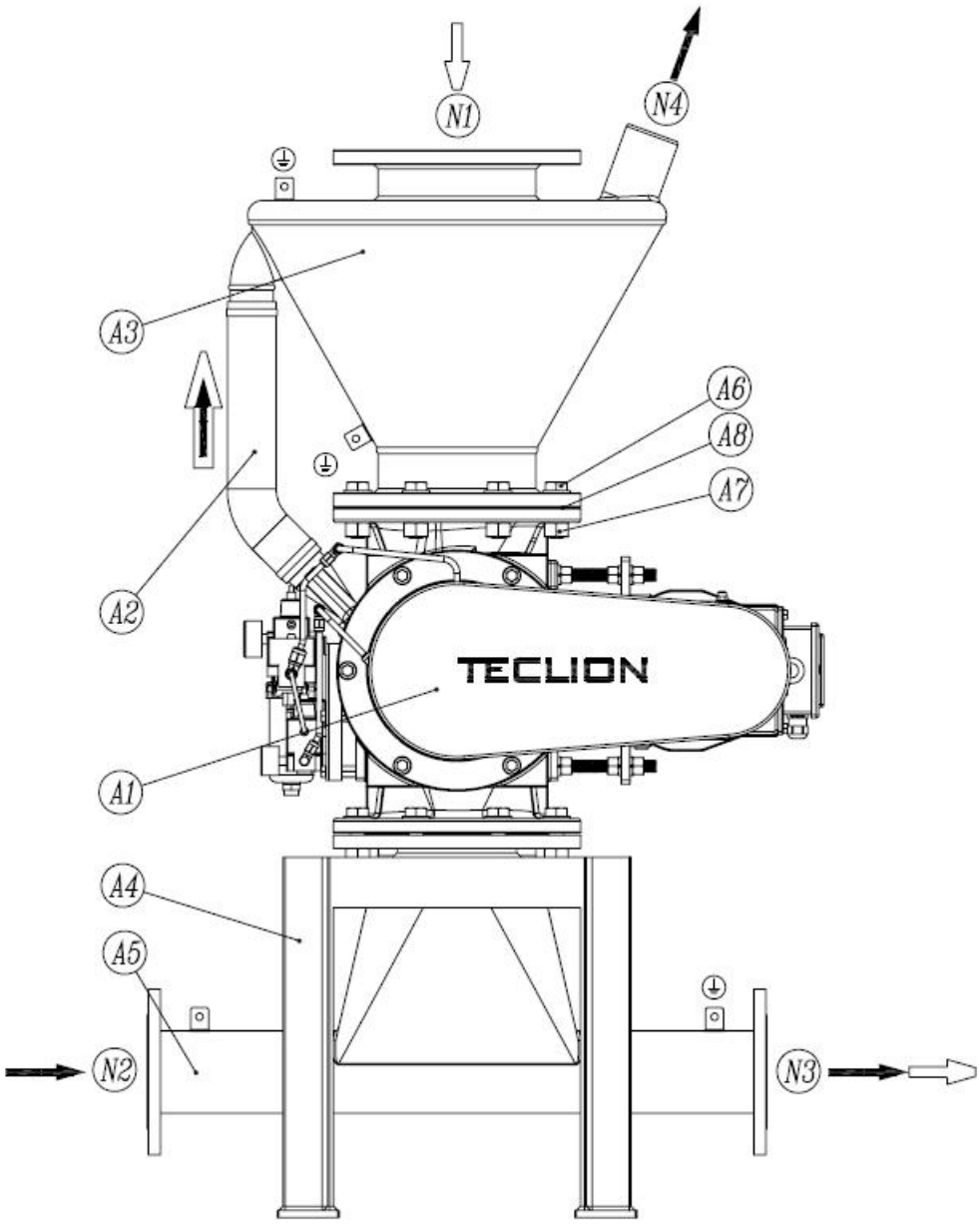
检查下列各点要求是否得到满足：

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

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		

静电接地点 Electrostatic connection site

物料流向 Material flow

气体流向 Gas flow

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。 N1 is connected with the feed pipe oipe
- N2 口与进气管道连接。 N2 port is connected to the intake air duct
- N3 口与出料管道连接。 N3 port is connected with the discharge pipe
- N4 除尘排空或接于料仓顶部。 N4 Dust removal is emptied or connected to the top of the bin
- 重力流落料时，省略料靴 A5。 When gravity falls on the material,omit the material boot A5

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。

Electroelectricity may not only cause harm to human body, but also may detonate a dangerous environment, which is also adverse to the operation of equipment, so it is necessary to strictly in accordance with the requirements of electrostatic grounding.

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。 The tools needed have been listed in 6.1.1
- 拆除螺栓 A6 和螺母 A7。 Dismantle the bolt A6 and nut A7
- 拆除其他管线安装紧固件。 Dismantle other fasteners installed on pipelines
- 拆除电缆和其他管线。 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
- The required tools are listed as in 6.4.1
- 分解时请严格按照使用手册步骤。
- Please follow the manual when decomposition

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 valve produced by TECLION company has been installed and tested at the best state at the time of delivery, so the user is not allowed to dismantle the new equipment, and it is not allowed to re-tighten and loosen the fasteners on the equipment

注意 Attention

分解旋转阀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。

Before breaking down the rotary valve, ensure that the motor has 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以防划伤。

The machining surface of the parts is placed on the table to prevent scratches.

提示 NOTE

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 valve cap and the rotor and the valve body before disassembly The gap between. Change the rotor, please consult the 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 General type of backpack type decomposition

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。

6.3.1.1 Remove the rotary valve from the system pipe and place it on a stable workbench.

6.3.1.2 保证其得到良好的支撑。

6.3.1.2 Ensure that it is well supported.

6.3.1.3 用螺丝刀和扳手将防护组件㊳打开。

6.3.1.3 Open the protective assembly with a screwdriver and a wrench

6.3.1.4 用尖嘴钳取下滚子链㊷。

6.3.1.4 Remove the roller chain with a tip-clamp

6.3.1.5 用拉马取下链轮㊲和㊴。

6.3.1.5 Remove the sprocket and with the horse

6.3.1.6 将减速机㉝带电机板㉘拆下。

6.3.1.6 Remove the reducer belt motor plate

6.3.1.7 将螺柱㉙取下。

6.3.1.7 Remove the stud 29

6.3.1.8 将驱动端阀盖②上的螺栓⑯松解。

6.3.1.8 Release the bolts on the drive end bonnet

6.3.1.9 将螺栓⑯旋入阀盖上的螺纹顶丝孔。

6.3.1.9 Turn the bolt into the threaded wire hole in the bonnet

6.3.1.10 用拉马将驱动端阀盖取下。

6.3.1.10 Remove the drive end bonwith the horse.

6.3.1.11 将尾端阀盖②上的螺栓⑯松解。

6.3.1.11 Release the bolts on the tail-end bonnet.

6.3.1.12 将螺栓⑯旋入阀盖上的螺纹顶丝孔，将转子带尾端阀盖从壳体中小心抽出。

6.3.1.12 Turn the bolt into the threaded wire hole in the bonnet and carefully remove the rotor belt tail end bonnet from the housing.

6.3.1.13 松解螺钉⑲并取下轴承压盖⑤。

6.3.1.13 Release the screws and remove the bearing cap

6.3.1.14 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。

6.3.1.14 The inner hexagon wrench releases the 3 tightening screws on the lock nut and remove the lock nut

6.3.1.15 此时用拉马可以将转子与尾端阀盖分离。

6.3.1.15 At this point, the rotor can be separated from the tail end bonnet

6.3.1.16 取下轴承⑨和⑩。

6.3.1.16 Remove bearings 9 and 10

6.3.1.17 取下孔用弹性挡圈⑮后取出唇封⑬和迷宫④。

6.3.1.17 Remove the hole and remove the lip seal and maze

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 NOTE

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 a speed sensor, the sensor components should be removed first.

提示 NOTE

清洗型旋转阀拆解基本上同上述步骤，导轨拆解时.

The cleaning type rotary valve disassembly is basically the above steps, when the guide rail is dismantled

6.4 装配旋转阀

6.4 Assemble rotating valve

6.4.1 所需工具/辅助材料

6.4.1 Required tools / auxiliary materials

- 常规扳手套件 Regular wrench kit
- 锁紧螺母扳手 Lock nut wrench
- 内六角扳手 inner hexagon spanner
- 拉马（二爪） Rama (two claws)
- 轴承安装工具套件 Bearing mounting tool kit
- 润滑脂 lubricating grease
- 螺丝刀 bolt driver
- 锤，铜棒 Hammer, copper rod
- 可能需要测量工具（塞尺、游标卡尺、深度尺）

  Measurement tools (plug gauge, vernier caliper, depth gauge) may be required

- 所有上述工具均不在供货范围
- All of the above tools are out of supply

6.4.2 安装先决条件

6.4.2 Install prerequisites

注意 NOTE

不正当安装可能造成旋转阀及减速机、电机损伤。
可能造成财产损失
仔细阅读本章节中的说明

Improper installation may cause damage to the rotary valve, speed reducer and motor. May cause property damage
Read the instructions in this section carefully

检查下列各点要求是否得到满足：

Check that the following requirements are 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).
- Rotor matches specifications and dimensions of accessories such as adjusting pad and bearing (mark when disassembly)
- 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！
- Rrust, dirt or similar contamination from the mounting surface must be thoroughly removed. Common solvents must be used. Do not allow detergent to enter the sealing lip of shaft seal: otherwise damage material!
- 所有零件均是完好无损的。
- All the parts are left intact.
- 使用合适的润滑油和润滑脂。
- Use a suitable lubricant 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 parts in corrosive environmental conditions.

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 General backpack-type assembly (see 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 the rotor in the valve body chamber.

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 maze, lip seals and holes into the bonnet with elastic rings.

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 After the lip seal applies the grease, attach the valve cover to the rotor shaft.

6.4.3.4 装入调整垫片⑳.

6.4.3.4 Put in the adjustment gasket 20.

提示 NOTE

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。

Adjustment flakes may be placed between the adjustment spacers and bearings, pay careful not to miss.

6.4.3.5 用工具将轴承⑨压入阀盖②。

6.4.3.5 Press the bearing into the bonnet with the tool.

6.4.3.6 装入锁紧螺母⑪。

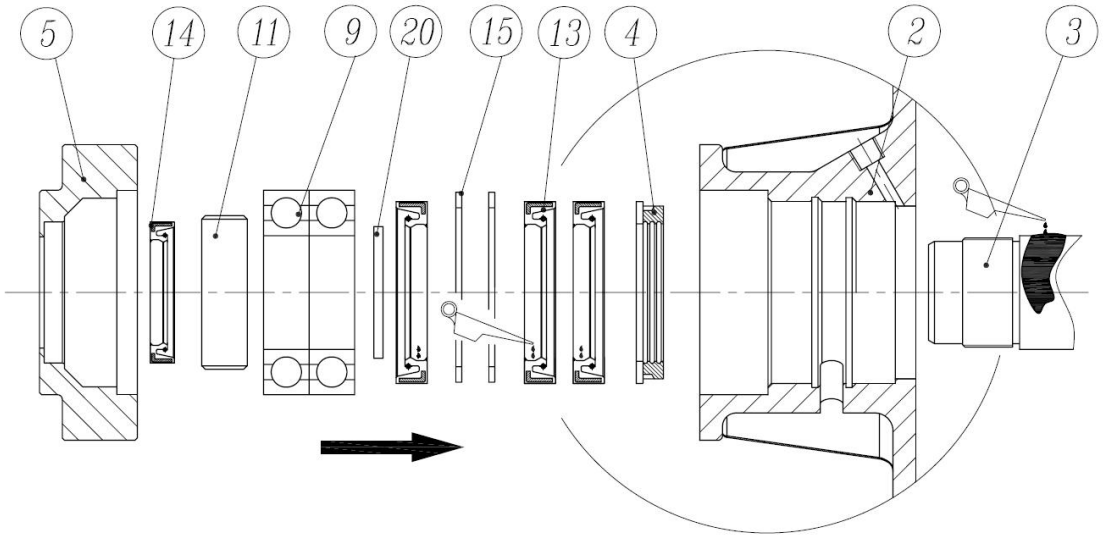
6.4.3.6 Fit the lock nut11

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 Tighten the bonnet after sealing the lip into the bearing cover.

6.4.3.8 照上述步骤安装驱动端阀盖。

6.4.3.8 Install the drive end valve cover as described above.



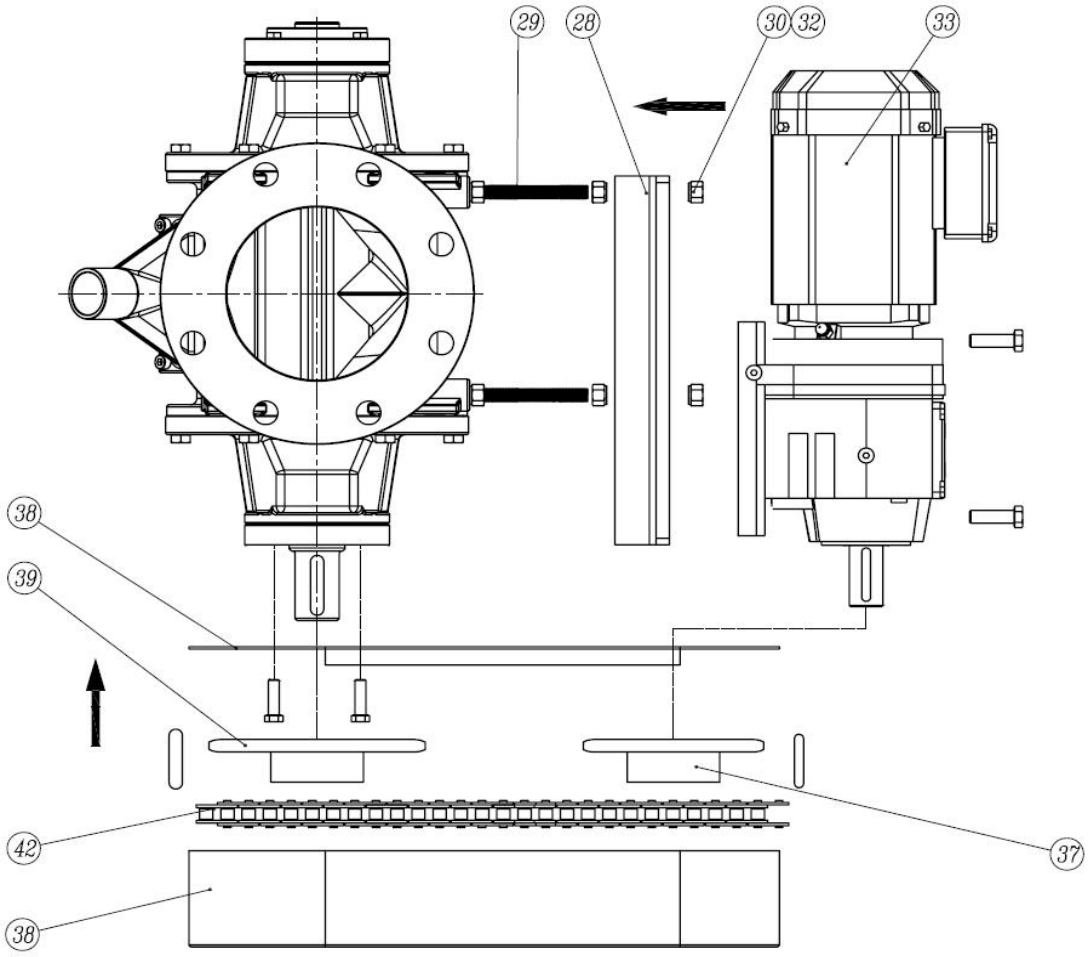
A-2 轴封轴承安装图
A-2 Installation drawing of shaft seal bearing

提示 NOTE

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 clearance of the rotary valve leaves the factory, and the gap can be locked in place according to the steps.

6.4.3.9 安装链轮，防护组件，滚子链和减速机。

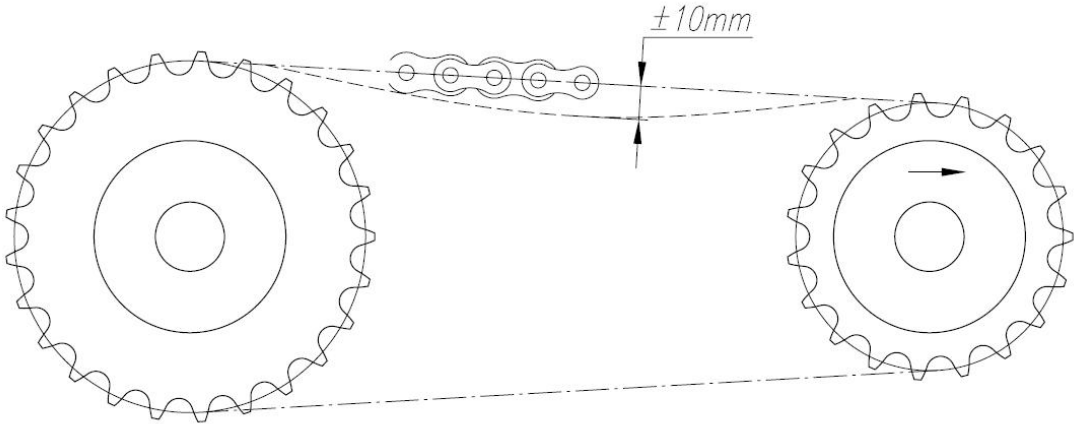
6.4.3.9 Install the sprockets, protective components, roller chains and reducer.



A-3 减速机、链轮、防护罩安装图
A-3 Installation diagram of reducer, sprocket and shield

6.4.3.10 滚子链张紧度调节。

6.4.3.10 Roller chain tension regulation.



A-4 滚子链调节图
A-4 Rolling chain 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 arrival of the new machine to check the integrity of the machine, it is necessary to inform the company of the receiving situation
- 调试人员需经过专业的培训，且已阅读本手册。
- Commissioning personnel shall receive professional training and have read this manual.
- 试车过程中应该严格遵守相关安全规章制度。
- Relevant safety rules and regulations should be strictly observed during the commissioning process.
- 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 rotating valve is driven, the entrance and exit should be covered safely to prevent debris from falling in.
- 确定电缆电压符合电机铭牌规定。
- Determine the cable voltage according to the motor nameplate requirements.
- 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。

- Confirm that the equipment is well grounded。
- 确认滚子链防护罩已经被安装到位。且已被良好的润滑。
- Verify that the roller chain shield is installed in place. And it has been 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。

For any problems during idling operation, please check section 8.3

- 启动电机。
- starting dynamo 。
- 检查运转方向是否正确。
- Check that the running direction is correct。
- 注意是否有尖锐噪音。
- Note for sharp noise。
- 按照减速机手册检查减速机运转情况。
- Check the speed reducer operation according to the speed reducer manual.

7.3 带料试车

7.3 Test with material

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 abnormal vibration, the normal powder rotating valve with material test run, the body will not produce vibration, particulate material due to the inevitable cutting material, there will be a slight cutting plastic sound, but also not enough to cause abnormal vibration. If there is anything, please stop and contact TECLION company.

7.4 安全须知

7.4 safety instruction

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。

During the commissioning stage, do not extend the hand into the rotor cavity from any part, whether the equipment is powered on or not. When the foreign body must be cleared, remove the cable from 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。

When the rotor dies for unknown reasons, the power cut should be cut off in time. Do not use iron tools and wooden sticks to reach into the rotor cavity to dredge.

注意 NOTE

开车前务必确保转子腔内没有混入杂物（编织袋、布料、螺栓、木头、泥浆等）

带料运转前务必确认转子转向正确。

No mixing in rotor cavity (woven bags, cloth, bolts, wood, mud, etc.) Make sure the rotor turns correctly before running.

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：

The rotary valve with normal operation has the following indicators:

- 落料顺畅。
- The falling material is smooth
- 无异响。
- No different sound
- 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。
- There is no abnormal thermogenic phenomenon, such as the end cover temperature is significantly higher than the temperature of the medium, the bearing site heating is serious.
- 电机电流低于额定电流且基本平稳。
- The motor current is below the rated current and is basically 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, large, granular materials, the chain may jump briefly, which is normal.

8.2 关闭设备

8.2 closing device

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 generally operate continuously. The device needs to be turned off when:

- 物料已经输送完毕。

- The material has been delivered completed。
- 检修需要。
- Maintenance needs
- 发生故障。
- A breakdown happens.

注意 NOTE

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。
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。
设备启停需按照用户管理规则。

Before stopping the rotary valve, the outlet material has been transported and there is no accumulation. Otherwise, start again. To 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. Equipment start and stop shall be conducted according to the user management rules.

提示 NOTE

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 the RD powder series and the RG particle series are designed to allow material startup, but there are still unforeseen start jam phenomenon. If one attempt does not start normally, up to three attempts, and each time should last no more than 5 seconds. If still not start, clean the material at the unloading port.

8.3 运行过程中常见问题处理

8.3 Common problem handling 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。

If there are some small problems during the operation of the equipment, users are allowed to deal with them by themselves according to the following table. Please contact Kshi if necessary. The rotary valve shall not be disassembled without permission.

下表中列出的问题解决方法不是唯一的。

The problem solutions listed in the following table are not unique.

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
转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

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。

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 clearance is severe	•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 • The shell become out of	•Clear junk and check whether the rotor has been damaged Contact TECLION Relieve external stress

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 shut down

- 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。
- Clean up the foreign objects on the surface of the attached equipment.
- 清除落入转子内腔的异物。
- Remove the foreign bodies falling into the lumen of the rotor.
- 按照“开车调试”步骤进行调试。
- Follow the "start-up commissioning" steps for commissioning.

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。
- Check the running equipment and refer to the safety instructions of each section 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 operation error, it is likely to cause greater economic losses, so regular maintenance and inspection is 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 the rotary valve is closely related to the correct use and maintenance, and it is affected by many other systems and 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 equipment surface can also help to prolong the 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 requires 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，排料是否顺畅等。
- Check whether the equipment is running normally, whether there

are foreign body and material stuck, whether there is abnormal noise, smooth discharge, etc.

- 检查所有外围紧固件是否有松动。及时拧紧。
- Check all peripheral fasteners for loosening. Tighten in time.
- 检查法兰连接处密封是否有效。
- Check that the flange connection seal is valid.
- 检查设备轴封是否有效。
- Check that the equipment shaft seal is valid.
- 配有轴气封的，检查压缩空气压力是否正常。
- With a shaft air seal, check whether the compressed air pressure is normal.
- 检查电机有无缺相。
- Check the motor.
- 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 motor reducer maintenance manual.

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，故一般情况下轴承部位无需润滑，除非设计有注油孔或环境极其恶劣，热辐射较严重等。
- The bearing has been injected with a life cycle of grease when the equipment leaves the factory, so the bearing part generally does not need lubrication, unless the design has an oil injection hole or the environment is extremely harsh, and the heat radiation is more 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。
- The shaft seal seals shall not be lubricated during the equipment. Unless oil injection holes are 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 2000~2500 hours, lubricating the roller chain, 2 # lithium base lipid or other low speed, medium ~ high load, water-resistant lubricant or grease.
- 电机减速机润滑保养，请参照其产品使用手册。
- For the lubrication and maintenance of the motor reducer, please refer to its product use manual.

9.4 保养周期

9.4 Maintenance period

注意 NOTE

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 dismantling the maintenance, ensure that the drive power is disconnected and that the equipment is not misstarted

保养内容	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(带流量计的直接读数)	●	
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子金属面是否光滑，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	●	
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	