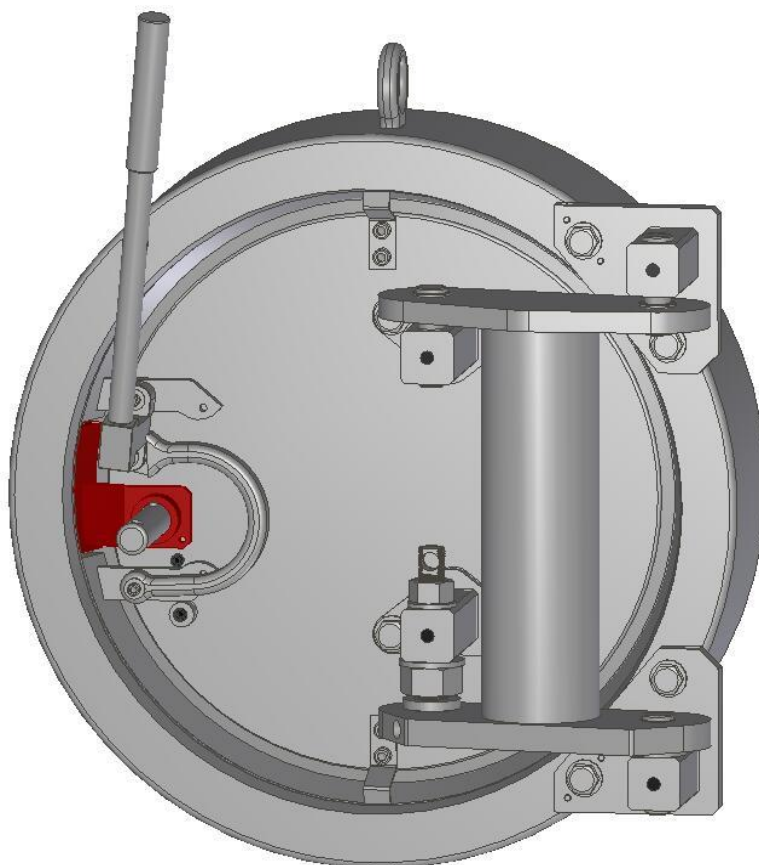


锁环型快开盲板（卧式）安装、使用、维护手册

Bandlock type QOC (Horizontal type) Installation, use and maintenance manuals

提示：在使用快开盲板之前请认真阅读本手册

Kind reminder: Please read this manual carefully before
using the Quick opening closure.



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安全警告

在快开盲板开启前，设备必须完全放空、排污

1. 快开盲板介绍 **Introduction of QOC**

1.1 产品特点 **Product feature**

本产品结构先进，外形美观，其独特的自紧式唇形密封结构，使密封性更加安全可靠，相较国内同类产品开启和关闭更为快速，手动操作更加方便。带有安全联锁机构，充分确保安全可靠。

该产品主要由盲板盖、筒体、锁环、安全联锁机构、转臂机构及开闭机构组成。使用开关手柄顺时针或逆时针转动手柄座，锁环即可涨开或收缩，从而达到快速开闭的目的。

This product has advanced structure, beautiful appearance, its unique self-tightening lip sealing structure, so that the sealing is more safe and reliable, compared with similar products in China to open and close more quickly, manual operation is more convenient. With safety interlocking mechanism, fully ensure safety and reliability.

The product mainly consists of end closure, barrel flange, bandlock, safety interlocking mechanism, arm mechanism and opening and closing mechanism. Use the switch handle to turn the handle seat clockwise or counterclockwise, bandlock can be opened or contracted, so as to achieve the purpose of rapid opening and closing.

1.2 基本结构 Basic structure

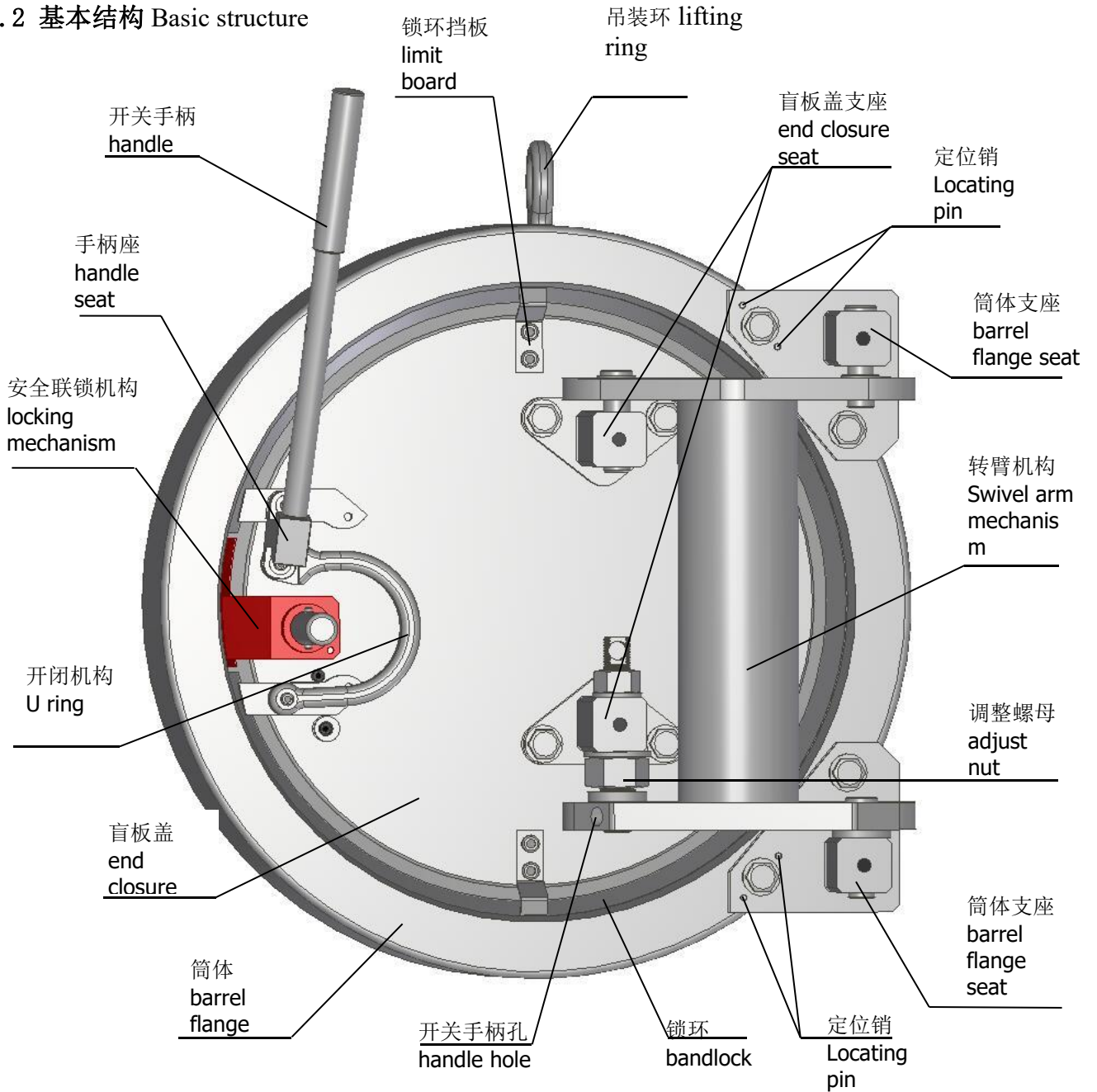


图 1 (picture 1)

1.3 应用范围 Application range

该型式快开盲板广泛应用于天然气管线、化工、医药、冶金等各个领域中的如收发球筒、槽罐、增压釜、过滤分离器、换热器等需要不定期开闭的容器设备上。

This type of quick opening closure is widely used in natural gas pipeline, chemical industry, medicine, metallurgy and other fields, such as receiving and sending ball cylinder, tank, pressurized kettle, filtration separator, heat exchanger and other containers and equipments that need to be opened and closed from time to time.

2. 安装 Install

2.1 初始安装 Initial installation

快开盲板初始安装，需符合以下要求：

Quick opening closure initial installation, need to meet the following requirements:

1)... 快开盲板内径应与设备内径一致，焊缝对口间隙应均匀一致，其最大与最小对口间隙之差 ≤ 1.0 毫米，对口错边量应符合 GB150.4-2011 标准中表 1 规定；

1) The inner diameter of the quick opening closure should be consistent with the inner diameter of the equipment, the weld counter gap should be uniform, the difference between the maximum and minimum counter gap ≤ 1.0 mm, the amount of misalignment of the counter should be consistent with the provisions of GB150.4-2011 standards in Table 1;

2)... 快开盲板与设备筒体组对之前，应先确定焊接型式：a.如采用双面焊，需拆下盲板盖（具体操作按本手册 2.2 盲板盖的拆卸）；b.如果采用单面焊，只需拿下密封圈即可，无需拆卸盲板盖；

Before the quick opening closure and the equipment barrel flange are grouped, the welding type should be determined: a. If double-sided welding is used, the end closure needs to be removed (specific operation according to the manual 2.2 Removal of end closure); b. If single-sided welding is used, just take down the sealing ring, no need to dismantle the end closure;

3)... 快开盲板与设备筒体焊接之前，请仔细阅读本手册 2.3 焊接及焊后热处理；

3) Before welding the quick opening closure with the equipment barrel flange, please read carefully 2.3 Welding and post-welding heat treatment of this manual.

4)... 快开盲板与设备组焊时，应保证设备轴线水平且与转臂机构垂直，否则易造成盲板盖的开闭不畅。

4) When the quick opening closure is welded with the equipment, it should be ensured that the axis of the equipment is horizontal and perpendicular to the swivel arm mechanism, otherwise it is easy to cause the opening and closing of the end closure to be unsmooth.

2.2 盲板盖的拆卸 removal the end closure

在快开盲板组装及维护需要拆卸盲板盖时，请按以下步骤进行：

When disassembly of the end closure is required for assembly and maintenance of the quick opening closure, please follow the steps below:

1)... 将快开盲板合适放置，拧松安全联锁机构的安全螺栓并卸下安全联锁机构，将开关手柄插入手柄座中逆时针方向旋转使锁环收缩；

1) Place the quick opening closure appropriately, loosen the safety bolts of the safety interlocking mechanism and remove the safety interlocking mechanism, insert the handle into the handle seat and rotate it counterclockwise to make the bandlock shrink;

2)... 卸下筒体支座上的六角螺栓（上下各 2 件），然后再卸下定位销并妥善保管；

2) Remove the hexagonal bolts on the barrel flange seat (2 pieces for each upper and lower part), then remove the locating pin and keep it properly;

3)... 将盲板盖及其上附属件移开并妥善放置。

3) Remove the end closure and its upper appendages and place them properly.

2.3 焊接及焊后热处理 welding and post-welding heat treatment

由于焊接过程中的焊接应力及焊接操作不当等原因，都可能导致焊接变形的产生，为防止和减小焊接变形，快开盲板与设备筒体组对及焊接时，应遵守以下规定：

Due to welding stress during the welding process and improper welding operation, etc., may lead to welding deformation, in order to prevent and minimize welding deformation, quick opening closure and equipment barrel flange pairing and welding, should comply with the following provisions:

1)... 对口间隙应均匀一致，最大与最小对口间隙之差 ≤ 1.0 毫米，对口错边量应符合 GB 150.4-2011 标准中表 1 规定。

1) Counter gap should be uniform, the difference between the maximum and minimum counter gap ≤ 1.0 mm, the amount of counter misalignment should be in accordance with the GB150.4-2011 standard in Table 1;

2)... 施焊前，需进行坡口预热或按焊接工艺规定执行；

2) Before applying welding, bevel preheating is required or according to the provisions of the welding process;

3)... 施焊时，应采用小直径焊条、小电流、对称焊、多层焊的焊接方法来控制焊接变形，对于厚壁的对接焊，允许采用自动焊盖面。

3) When applying welding, small-diameter electrode, small current, symmetrical welding and multi-layer welding should be used to control welding deformation.

焊后热处理建议：

Post-weld heat treatment recommendations:

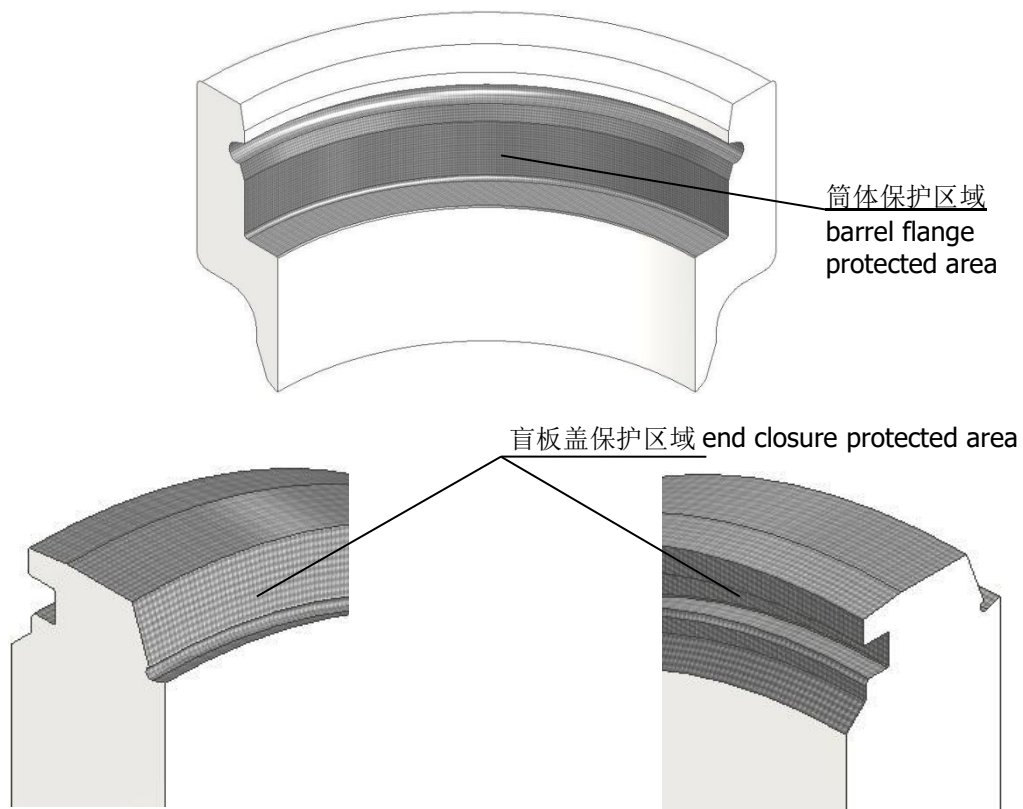
1)... 对快开盲板与设备筒体之间的环焊缝进行热处理时，应尽量采用局部热处理；

1) When heat treatment is applied to the annular weld between the quick opening closure and the equipment barrel flange, local heat treatment should be applied as far as possible;

- 2)... 如果设备制造总图的技术要求中规定设备必须进行整体热处理时，必须用岩棉、硅酸铝或其它保温材料将密封面保护起来，防止过度氧化而影响密封；
- 2) If the technical requirements of the general drawing of equipment manufacturing stipulate that the equipment must be subjected to overall heat treatment, the sealing surface must be protected by rock wool, aluminum silicate or other insulating materials to prevent excessive oxidation from affecting the sealing;
- 3)... 热处理工艺严格按 GB150.4 第 8.2 条或 ASME 标准进行，或按热处理厂家成熟的热处理工艺进行；
- 3) The heat treatment process is carried out strictly in accordance with clause 8.2 of GB150.4 or ASME standards, or in accordance with the heat treatment process matured by the heat treatment manufacturer;
- 4)... 请注意： a.如果热处理前盲板盖已经拆下来，请在热处理之后进行盲板盖安装： b.如果热处理前盲板盖未拆卸，请务必将所有密封圈拿下来； c.热处理之后应使用细砂布将密封面轻微擦拭干净，并均匀涂抹润滑脂、甘油或防锈油。
- 4) Please note: a. If the end closure has been removed before heat treatment, please install the end closure after heat treatment; b. If the end closure has not been removed before heat treatment, please make sure to take down all the seals; c. The sealing surfaces should be lightly wiped clean with a fine emery cloth and evenly coated with grease, glycerin or antirust oil after the heat treatment.

2.4 涂敷 coating

- 1)卸下安全联锁机构、开闭机构；
- 1)Remove the safety interlocking mechanism, opening and closing mechanism;
- 2)将所有密封面、筒体、盲板盖与锁环接触面、锁环、内外螺纹、紧固件、焊接坡口、不锈钢零部件、铜质件、电镀处理件等不需要喷漆的部分仔细包覆好。
- 2) Carefully wrap all sealing surfaces, barrel flange, contact surfaces of end closure and bandlock, internal and external threads, fasteners, welded bevels, stainless steel parts, copper parts, plating treatment parts, etc. that do not need to be painted.
- 3)做好以上准备可以避免影响装配精度、使用性能并达到外形美观和防止喷砂与油漆的进入。
- 3)Doing the above preparations can avoid affecting the assembly precision, the use of performance and to achieve the appearance and prevent the entry of sand blasting and paint.
- 4)喷漆的保护面详见下图中深色区域
- 4)The protective surface for spraying paint is shown in the dark-colored area in the figure below.



2.5 盲板盖的重装 reset of the end closure

重新安装头盖时，请按以下要求进行：

When reinstalling the end closure, proceed as follows:

- 1)... 首先对所有密封面进行保护；
- 1)Protect all sealing surfaces first;
- 2)... 将筒体水平放置，拆下密封圈，吊装盲板盖与筒体对放好，安装定位销，然后拧紧筒体支座上的六角螺栓（上下各 2 件）；
- 2)Place the barrel flange horizontally, remove the sealing ring, lift the end closure and the barrel flange to place it properly, install the locating pins, and then tighten the hexagonal bolts on the barrel flange seat (2 pieces each on the top and bottom);
- 3)... 将开关手柄插入手柄座中顺时针方向旋转使锁环涨开；
- 3)Insert the handle into the handle seat and rotate it clockwise to make the bandlock rise open;
- 4)... 安装安全联锁机构并拧紧安全螺栓；
- 4) Install the safety interlocking mechanism and tighten the safety bolts;
- 5)... 进行开关门操作试验，如开关不畅需进行盲板盖居中调整（按本手册 2.6 盲板盖居中调整）。

5) Carry out the test of opening and closing the door operation, if the switch is not smooth, you need to adjust the end closure centering (according to this manual 2.6 end closure centering adjustment).

2.6 盲板盖居中调整 End closure centering adjustment

1)... 快开盲板水平放置；

1)Place the quick opening closure horizontally;

2)... 将开关手柄插入手柄座中逆时针方向旋转使锁环收缩；

2)Insert the handle into the handleseat and rotate counterclockwise to shrink the bandlock;

3)... 拧松盲板盖支座上的六角螺栓（上下各 2 件）；

3)Loosen the hexagonal bolts on the seat of the end closure (2 pieces each on the top and bottom);

4)... 用塞尺分别测量盲板盖与筒体间四点间隙（ 90° 、 180° 、 270° 、 360° ），使盲板盖与筒体圆周间隙均匀一致（如下图所示）；

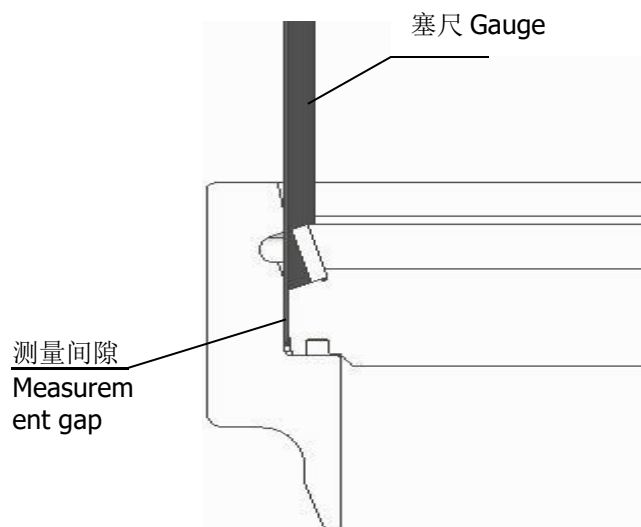
4)Measure the clearance between the end closure and the barrel flange at four points (90° , 180° , 270° , 360°) with a Gauge respectively, so that the circumferential clearance between the end closure and the barrel flange is uniform (as shown in the figure below);

5)... 调整完毕后拧紧盲板盖支座上的六角螺栓（上下各 2 件）；

5) Tighten the hexagonal bolts on the end closure seat(2 pieces each on the top and bottom) after the adjustment is completed;

6)... 利用吊装环将快开盲板吊起，由于盲板盖自重会下沉，此时可通过调整螺母调整盲板盖上下间隙均匀一致。

6) Use the lifting ring to lift the quick opening closure, due to the self-weight of the end closure will sink, at this time can be adjusted through the adjusting nut to adjust the end closure up and down the gap is uniform.



3. 开关门操作 opening and closing operation

3.1 开门操作 opening operation

注意：严格按以下要求和步骤进行！

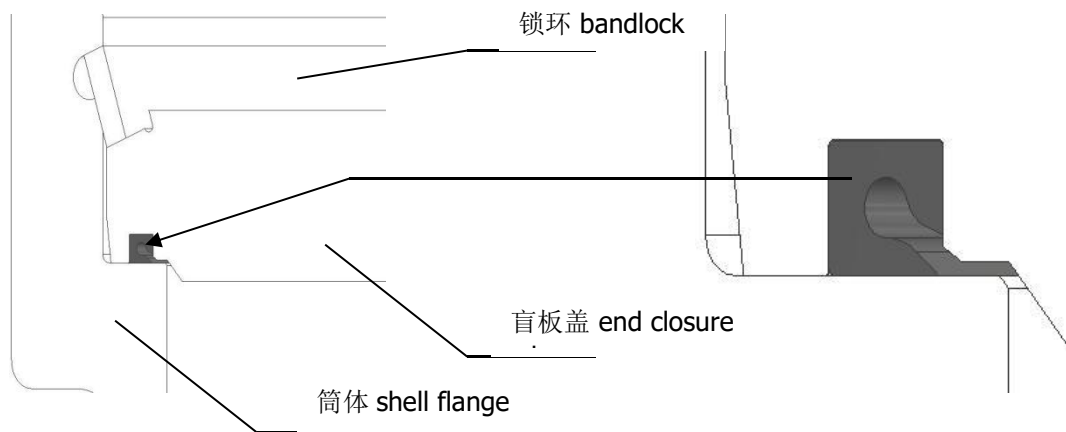
Notice: Strictly follow the following requirements and steps.

- 1)... 开门前必须保证设备内压力为零，并严格遵守安全操作规程；
1) Before opening the door, the pressure inside the equipment must be ensured to be zero, and safe operating procedures must be strictly followed.
- 2)... 拧出安全联锁机构上的安全螺栓，此时，若设备内有残压，应立即停止拧出安全螺栓动作，重新检查设备压力，确认设备内部已完全卸压后（设备上压力表指针回零），方可拧出安全螺栓并卸下安全联锁机构；
2) unscrew the safety bolts on the Locking mechanism. If there is residual pressure in the equipment, should stop removing the safety bolt immediately and recheck the equipment pressure again. Ensure that the inside pressure relief is complete (the pressure gauge pointer on the equipment returns to zero) before unscrew the safety bolt and locking mechanism.
- 3)... 将开关手柄插入手柄座中，逆时针转动手柄，使锁环收缩后，再将开关手柄插入开关手柄孔中，持续均匀用力将盲板盖打开。
3) Insert the handle into the handle seat, turn the handle counterclockwise to shrink the bandlock, then insert the handle into the switch handle hole, and continue to evenly force the end closure open.

3.2 关门操作 closing operation

- 1)... 关门之前应仔细检查密封面、密封槽以及密封圈。密封面应擦拭干净，不允许有任何影响密封的杂物存在。检查密封圈是否有损坏，橡胶是否老化，如有缺陷，必须更换；
1) Before closing the door, should carefully check the sealing surface, sealing groove and sealing ring. The sealing surface should be wiped clean, and no debris affecting the sealing is allowed. Check whether the seal ring is damaged, whether the rubber is aging, if there are defects, it must be replaced;
- 2)... 在密封槽和密封面上均匀涂抹润滑油脂，然后将密封圈装入密封槽内（先装入 12、6 点钟方向，再装入 3、9 点钟方向，安装时注意密封圈方向，见密封细节图）；
2) Evenly apply lubricating grease to the sealing groove and sealing surface, and then put the sealing ring into the sealing groove (first into the 12, 6 o'clock direction, then into the 3, 9 o'clock direction, pay attention to the direction of the sealing ring when installing, see the sealing detail drawing)

- 3)... 将开关手柄插入开关手柄孔中，推动手柄将盲板盖关上，然后用手推住盲板盖，将开关手柄插入手柄座中，顺时针转动，使锁环涨开，盲板盖即锁定；
- 3)Insert the handle into the handle hole, push the handle to close the end closure , then push the end closure with your hand, insert the handle into the handle seat, turn clockwise to make the bandlock open, and the end closure is locked
- 4)... 装入安全联锁机构并缓慢拧紧安全螺栓。
- 4)Install the locking mechanism and slowly tighten the safety bolt



密封细节图 Seal detail drawing

4. 维护保养 Maintenance

4.1 存放 storage

如快开盲板需要储存，需将密封圈卸下，并将密封面、密封槽彻底清理干净，在表面均匀涂抹防锈油，然后将密封圈重新装入，用塑料布或其它包覆材料将快开盲板整体包裹好，放入包装箱储存于室内。

If the quick opening closure needs to be stored, the sealing ring should be removed and the sealing surface and sealing groove should be thoroughly cleaned, anti-rust oil should be evenly applied to the surface, then the sealing ring should be re-installed, and the quick opening closure should be wrapped up with a plastic sheet or other wrapping materials as a whole, and then put into a packing box for storing indoors.

4.2 检查 inspection

1)... 定期或不定期检查密封圈情况，观察密封圈是否有损坏或橡胶老化，如有缺陷必须更换；

1) Regularly or irregularly check the condition of seals, observe whether the seals are damaged or rubber aging, if defective must be replaced;

2)... 定期或不定期检查安全联锁机构是否完好，安全螺栓是否有断裂，密封圈是否有损坏或老化，如有缺陷必须更换；

2) Regularly or irregularly check whether the safety interlocking mechanism is intact, whether the safety bolt is broken, whether the sealing ring is damaged or aging, if defective must be replaced;

3)... 定期或不定期检查快开盲板是否开关灵活、可靠。长期使用后盲板盖因自重可能出现垂直位移，可通过调整螺母进行调整。

3) Regularly or irregularly check whether the quick opening closure is flexible and reliable.

Vertical displacement of the end closure may occur after long-term use due to self-weight, which can be adjusted by the adjusting nut.

4.3 润滑 lubrication

定期在快开盲板各转动件、锁环滑动面以及升降丝杠加注润滑油以保证快开盲板开关灵活。

Regularly add lubricant to the rotating parts of the quick-opening closure, the sliding surface of the bandlock and the lifting screw to ensure that the quick-opening closure is opened and closed flexibly.

5. 检查和润滑记录附表

Schedule of inspection and lubrication records

检查记录 Inspection record

检查日期 Inspection date	密封圈 seal ring	安全联锁机构 safety interlocking mechanism	开、关 open/ close	检查人 inspector	备注 remarks
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(实施后请打 ✓) Tick after implementation

润 滑 记 录 Lubrication record

润滑日期 Lubrication date	检查人 inspector	备 注 remarks

(实施后请打 ✓) Tick after implementation

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