



油咀管汇 操作保养手册

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2005年8月

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1. 设备图片



2. 油咀管汇简介

油咀管汇是控制油井流体流动的设备，标准的油咀管汇配有 2” 固定油咀和 2” 可调油咀。固定油咀用于在油井稳定流速下使用，便于精确的产能测试分析，选用的油咀尺寸需维持油咀上下方的临界流动状况，意即油咀管汇下游的任意变动，如改变燃烧臂，都不影响油气井的流动特征。可调油咀仅在流动早期或洗井时使用。

3. 技术参数

工作环境	防硫
内径	3"
压力等级	10,000 psig / 70Mpa
最高温度等级	250 degF / 121 C
最低温度等级	-20 degF / -28.9 C
阀的类型	闸阀
阀的配置	Front 3-1/16" manual 10K Back 3-1/16" manual 10K Bypass 3-1/16" manual 10K
油咀的配置	1 x 2" 固定油咀 1 x 2" 可调油咀
进口扣型	3" Fig. 1502 Hammer union thread
出口扣型	3" Fig 1502 Hammer union wing
管线密封类型	FR58/90 (Anson Superseals)
泄压孔	带针型阀 1/2" NPT 孔
重量	3400 kg / 3400 公斤
尺寸	1.83 x 2.13 meters / 1.83 x 2.13 米
标准	
一般标准	API 6A, Mat'l EE (Hard Faced), PSL-2, P-U, PR1
防硫标准	NACE MR.01.75
管线标准	ANSI B31.3
认证	Lloyds
辅助项	提升专用绳套

每套碳化钨油咀包括：**4/64" 至 1" 增量为 4/64" (16 件)**
1" 至 2" 增量为 1/8" (8 件)

4. 系统安装

1. 油咀管汇安装在下游数据头的上游，上游数据头或地面安全阀或除砂器的下游。连入流程后确保接地点正确接地；
2. 检查这口井用的油咀是否齐全；
3. 拆掉可调油咀，检查油咀杆和油咀座，如损坏则需更换；
4. 可调油咀装回并调零。
5. 拆掉固定油咀堵头，检查丝扣，密封面，并涂一薄层黄油，装好第一次需要的固定油咀，（千万不要忘记装油咀）
6. 所有的阀门先全开，然后全部关上，记录开关的圈数；
7. 固定油咀和可调油咀的泄压孔上要装双针阀，用最外面的针阀进行控制

可调油咀调零方法：

1. 首先将油咀调至最大；
2. 将由壬砸紧，注意可调油咀尺寸的观察口朝上；
3. 松开刻度套的锁定螺丝；
4. 将可调油最完全调到最小；
5. 将刻度套上的零刻度对准观察口；
6. 用锁定螺丝固定刻度套，这时就是零的位置。

5. 操作:

开井（假设所有阀门都已关上）

1. 关闭泄压针阀，打开压力表观察下游压力；
2. 将可调油咀设定在需要的尺寸，（油咀通常有小到大，并且逐渐放大）；
3. 检查并确认下游设备已准备就绪；
4. 先开可调油咀下游的闸阀，然后再开上游的闸阀；
5. 如需要上紧可调油咀的锁定螺丝；
6. 观察下游压力，如产量增大，上游压力变小说明油咀刺坏了；如产量变小，上游压力增大说明油咀堵了；

到油咀

1. 缓慢打开固定油咀的下游阀门，检查是否有漏的地方；
2. 一个人以固定的速度缓慢打开固定油咀上游阀门，同时另一个人关闭可调油咀上游阀门，原则上尽可能保持下游压力不变；
3. 关闭可调油咀下游阀门；
4. 如需检查可调油咀则首先要泄压；

如果需要换油咀，则先要将流动倒到可调油咀那一侧，先将可调油咀调到固定油咀要换的尺寸，然后按照上面的方法倒油咀。

如需地面关井，要先关上游阀门，然后关下游阀门；

为了获得准确的测试数据，要保证油咀管汇在临界流动状态，即下游压力小于上游压力的一半，这时下游的任何操作都不会影响到上游的流动状态。

6. 保养:

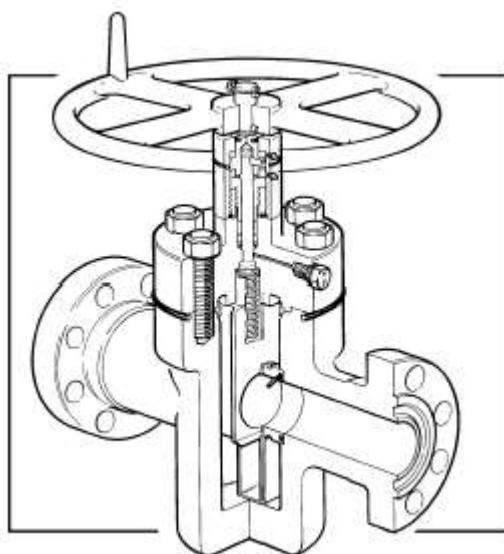
- | | |
|-----------|--------|
| 1. “E”型闸阀 | 第 9 页 |
| 2. 可调油咀 | 第 20 页 |
| 3. 固定油咀 | 第 22 页 |

“E” TYPE GATE VALVE (M27)

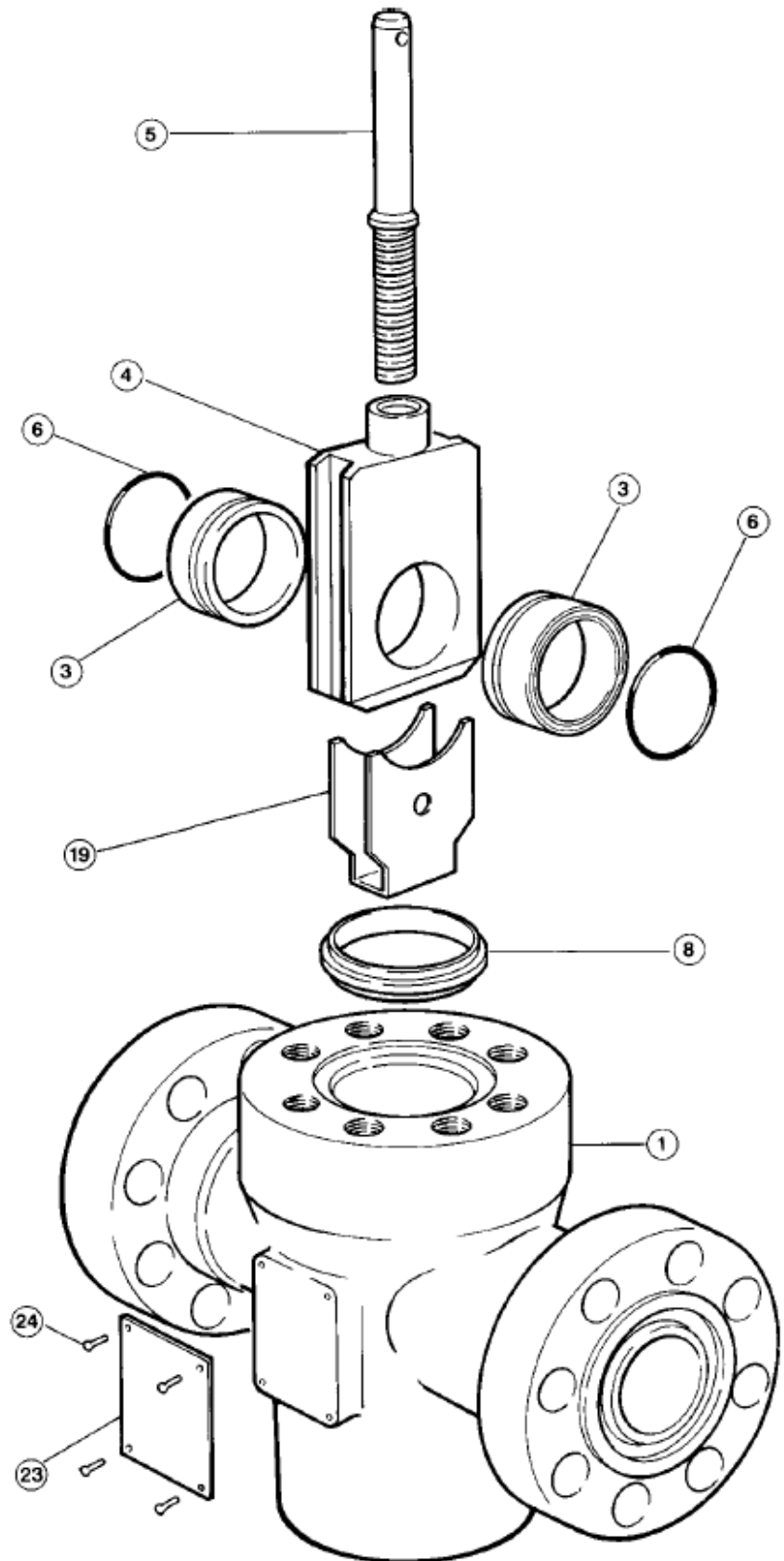
“E”型闸阀

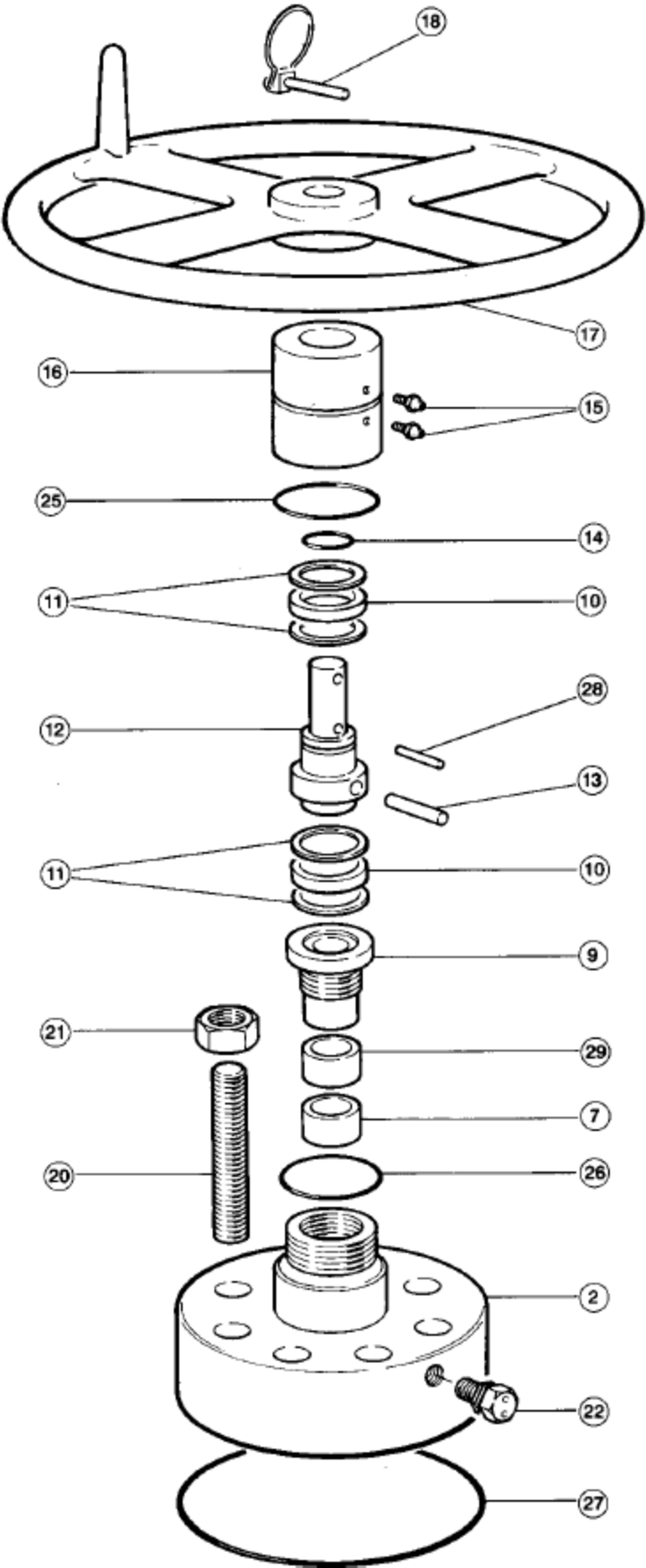
OPERATING & SERVICE INSTRUCTIONS

操作和保养指南



1. Body 阀本体
2. Bonnet 阀罩
3. Seat 阀座
4. Gate 闸板
5. Stem 阀杆
6. Seat Seal 阀座密封
7. Stem Seal 阀杆密封
8. Bonnet Seal 阀罩密封
9. Packing Gland 盘根压帽
10. Thrust Bearing 止推轴承
11. Bearing Race 滚珠座圈
12. Stem Adaptor 阀杆接头
13. Adaptor Pin 阀杆接头销钉
14. 'O'ring O 形圈
15. Grease Fitting 黄油注入头
16. Bearing Cap 轴承盖
17. Handwheel 手轮
18. Retaining Pin 止动销
19. Skirt 闸板罩
20. Bonnet Stud 阀罩螺杆
21. Bonnet Nut 阀罩螺帽
22. Grease Nipple 注脂接头
23. Name Plate 铭牌
24. Drive Rivet 铭牌螺钉
25. 'O'ring O 形圈
26. 'O'ring O 形圈
27. 'O'ring O 形圈
28. Shear Pin 剪销
29. Stem Bush 阀杆金属衬套





Dismantling 拆开保养

General – During the service and dismantling operations described below a large amount of grease will be present inside the valve cavity. This grease may also be contaminated with some of the line fluids that have been passed through the valve. It is important therefor to ensure adequate precautions are taken to protect service operators and the environment from contamination during disposal and clean up operations.

通常_在下面叙述的拆开保养过程中在阀的内腔会发现大量密封脂。这些密封脂会被流经的某些流体所污染。因此在处理废物和清洗的时候采取足够的防范措施防止操作人员和环境受到污染是很重要的。

Anson E Type Gate Valves are in-line repairable and all routine maintenance such as packing change out, seat replacement and refurbishment may be performed in site.

“E”型闸阀可在管线上维修，所有例行保养工作如换盘根，更换阀座和安装也可在现场进行。

1. If the valve is to be dismantled in the flowline isolate by closing and locking / chaining valves upstream and downstream of the subject valve and label them ,”CAUTION DO NOT USE”. Ensure all pressure has been dissipated from the valve by using a stinger (part number 17538) applied to the grease nipple (22).
如在管线上拆开保养，关闭此阀的上游和下游阀并锁死，贴上标签“注意不能使用”。用插管(部件号 17538)顶上注脂接头(22)，保证阀的所有压力均放掉。
2. Pull out the retaining pin (18) and remove handwheel (17)
拔掉止动销(18)，取走手轮(17)。
3. Remove shear pin (28) and unscrew bearing cap (16) using a 24In pipe wrench. Remove “O”rings (25) from bearing cap (16). If they require replacement, remove grease fittings (15).
取走剪销(28)，用 24” 管钳拧下轴承盖(16)。从轴承盖(16)上除去 O 形圈(25)。如需更换黄油咀 (15)就取下来。
4. Replace shear pin (28) and handwheel (17) and run the valve to the closed position. This will “jack” the stem (5) onto its selective back seat. Remove shear pin (28) and handwheel (17).
装上剪销(28)和手轮(17)，操作闸阀到关闭位置。这就会把阀杆(5)挤到可选择的后座内。取下剪销(28)和手轮(17)。
5. Gently tap the adaptor pin (13) from the stem adaptor (12).
从阀杆接头(12)上轻轻砸掉阀杆接头销钉(13)。

6. Pull the stem adaptor (12) from the stem (5) c/w thrust bearings (10) and bearing races (11). Remove “O” ring (14) to enable thrust bearing (10) and bearing races (11) to be removed from the stem adaptor (12).
从阀杆(5)上拔出阀杆接头(12)，带出止推轴承(10)和滚珠座圈(11)。除去 O 形圈(14)，使止推轴承(10)和滚珠座圈(11)从阀杆接头上取下来。
7. Unscrew packing gland (9) from the bonnet (2) using a 24ln pipe wrench. NOTE ensure the threads on the bonnet (2) are not damaged by the pipe wrench.
用 24”管钳从阀罩(2)上拧下盘根压帽(9)。注意不要让管钳伤到阀罩(2)上的丝扣。
8. The stem seal (7) may now be removed from the bonnet (2) by pumping grease beneath the seal via the grease fitting (22).
现在通过注脂接头(22)从阀杆密封下面注黄油把阀杆密封(7)从阀罩(2)上顶出来。
9. Remove “O” ring (27) and if required grease fitting (22).
取下 O 形圈(27)，如需要也取下注脂接头(22)。
10. Unscrew nuts (21) from studs (20) and lift the bonnet (2) from the body (1) stem (5) and studs (20).
阀罩螺帽(21)从阀罩螺杆(20)上拧下来，由阀本体(1)，阀杆(5)和阀罩螺杆(20)上提走阀罩(2)。
11. Remove the bonnet seal (8).
取下阀罩密封(8)。
12. Remove the stem (5) and gate (4) from the body (1). Unscrew the stem (5) from the gate (4).
把阀杆(5)和闸板(4)从阀本体上取出。从闸板(4)上卸下阀杆(5)。
13. If required remove the studs (20) from the body (1).
如需要从阀本体(1)上取出阀罩螺杆(20)。
14. Remove the seats (3) from the body (1), remove the seat seals (6) from the seats (3).
从阀本体(1)内取出阀座(3)，从阀座(3)上卸下阀座密封(6)。
15. Remove skirt (19) from the body (1).
由阀本体(1)内取出闸板罩(19)。
16. If required and for ease of maintenance the bonnet assembly may be removed as a unit by conducting steps 9 to 12 and removing the bonnet assembly as a whole. This will allow access to the body cavity if an inspection of the gate and seats is all that is required.
如需要，并为了保养方便，阀罩总成通过 9 到 12 步可作为整体取出。如只需要检查闸板和阀座就可进入阀内腔了。

Inspection 检查

Thoroughly degrease all parts to allow close inspection of the sealing surfaces. Seal replacement is recommended regardless of condition. Particular close inspection should be applied to the following areas :-

完全除去所有部件上的黄油，精确检查密封面。无论密封好坏，建议全部更换。下面几个面要特别仔细检查：

- Gate and seat sealing surfaces for wear or damage
闸板和阀座密封面上的磨损或伤痕
- Stem threads for wear or damage
阀杆丝扣的磨损或伤痕
- Thrust Bearings and Bearing Races for wear or pitting
止推轴承和滚珠座圈的磨损或麻点
- Seat Pockets for corrosion or damage
阀座口袋的腐蚀或伤痕

IF IN DOUBT REPLACE
如有疑问请更换

Assembly 安装

1. Before commencing the assembly ensure every part is clean and free from foreign matter.
安装前保证每个部件都是干净的，并远离其它无关物品。
2. Place the skirt (19) in the body (1)
闸板罩(19)放入阀本体(1)中。
3. Assemble seat seals (6) to the seats (3)
阀座密封(6)装到阀座(3)上。
4. Assemble the seats (6) to the seat pockets in the body (1). A fine coating of body filler grease may be applied to the surface of the seat pocket.
阀座(6)放到阀本体(1)的阀座口袋内。阀座口袋的表面好坏涂一层内腔用密封脂。
5. Lightly lubricate the gate (4) with body filler and insert between seats (6) and skirt (19) in the body (1).
将内腔用密封脂涂少许在闸板(4)上润滑，插入阀座(6)和阀本体(1)内的闸板罩(19)中间。
6. Lubricate the stem threads (5) with body filler and screw into the gate (4).
用内腔密封脂润滑阀杆(5)丝扣，并拧到闸板(4)上。
7. If they have been removed replace studs (20) in the body (1), using anti-seize (part No. 15471) on the threads.
如已取出就要更换阀本体(1)上的阀座螺杆(20)，在丝扣上涂防粘扣油(部件号15471)。
8. Place seal (8) in body (1)
将阀罩密封放在阀本体(1)槽内。
9. If it has been removed or requires replacing, insert grease nipple (22) into the bonnet (2). (see note after trouble shooting chart page 6)
如已取出或需要更换，把黄油嘴(22)装到阀罩(2)上。(参见问题查找表后的注释)
10. Place bonnet (2) over studs (20) stem (5) and onto body (1) seal (8).
把阀罩(2)放到阀罩螺杆(20)，阀杆(5)，阀本体(1)和阀罩密封(8)上。
11. Secure bonnet (2) to body (1) with nuts (21) [see fig 1]
用阀罩螺帽(21)把阀罩(2)拧紧到阀本体(1)上。
12. Place seal (7) over stem (5) and into bonnet (2). The seal should be placed over the stem with the open end containing the springs facing the pressure *ie* as the seal enters the bonnet the springs should not be visible. Place the stem bush (29) over the stem (5) and force the seal (7) and stem bush (29) into the bonnet (2) using the packing gland (9).

把阀杆密封(7)放到阀杆(5)上并塞进阀罩(2)内。装阀杆密封时其开口带弹簧端应朝向对于一侧，如阀杆密封进入阀罩后就看不到弹簧了。阀杆金属衬套(29)放到阀杆(5)上，并用盘根压帽(9)将阀杆密封(7)和阀杆金属衬套(29)压入阀罩(2)中。

13. Screw the packing gland (9) fully home into the bonnet (2) using a 24In pipe wrench applying approximately 200ft.lbs of torque.
用 24”管钳，把盘根压帽(9)完全上到阀罩(2)上，用大约 200ft.lbs 的扭矩上紧。
14. Assemble thrust bearings (10) and bearing races (11) to stem adaptor (12) using bearing grease (part No.17651). Place stem adaptor (12) over stem (5). Align holes in the stem adaptor (12) with the hole in the stem (5) and secure with pin (13). Ensure the pin does not protrude outside the stem adaptor.
抹好轴承黄油(部件号 17651)把止推轴承(10)和滚珠座圈(11)装到阀杆接头(12)上。再把阀杆接头(12)放到阀杆(5)上。对齐阀杆接头(12)和阀杆(5)上的孔并用销钉(13)固定。确保销钉不要露到阀杆接头外面。
15. Place “O”ring (14) in stem adaptor (12)
装阀杆接头(12)上的 O 形圈。
16. Place “O”ring (26) onto bonnet (2).
装阀罩(2)上的 O 形圈。
17. Screw bearing cap (16) onto bonnet (2) using 24In pipe wrench applying approximately 200ft.lbs.
用 24”管钳和大约 200ft.lbs 的扭矩把轴承盖(16)上到阀罩(2)上。
18. Place “O”ring (25) onto bearing cap (16), and if they have been removed or require replacement, screw grease fittings (15) in to position on bearing cap (16).
取出或更换轴承盖(16)上的 O 形圈(25)，重新装上，黄油嘴(15)拧到轴承盖(16)上。
19. Replace shear pin (28) into stem adaptor (12). Place handwheel (17) over stem adaptor (12), locating shear pin (28) into the slot on the handwheel. Secure with retaining pin (18)
再把剪销(28)放入阀杆接头(12)中。把手轮(17)装到阀杆接头(12)上，再将剪销(28)放到手轮的槽中。用止动销(18)固定好。

Trouble Shooting 问题解答

Symptom 现象	Cause 原因	Remedy 解决办法
Valve not sealing 阀不密封	Build up of contaminates 污物积聚	Strip and clean out body cavity. 打开并清洗阀内腔
	Gate seat damage or undue wear 阀罩损坏或不当磨损	Strip, inspect and replace if necessary. 如需要则打开, 检查并更换损坏部件
	Damaged seat / body interface 阀座和本体之间密封面损坏	
	Ice in body 阀本体内结冰	Inject dehydrating agent. Methanol, glycol, etc. 注脱水剂甲醇, 乙二醇等。
	Not backed off on closure 关闭时没后退	Back off one half turn on closure. 关闭时向后退半圈
High operating torque 阀开关费力	Damaged / worn threads 丝扣损坏或磨损	Strip, inspect and replace if necessary. 如需要则打开, 检查并更换损坏部件
	Damaged Thrust bearings 止推轴承损坏	
	Damaged gear box 轴承盒损坏	
	Lack of lubrication 缺少润滑油	Lubricate 加油润滑
Valve not closing 阀关不上	Damaged shear pin 剪销损坏	Replace shear pin & investigate reason for failure- probably associated with high torque 更换剪销, 并再次查找关不上的原因, 可能与扭矩太大有关。
Leaking to atmosphere 外表刺漏	Damaged bonnet seal. 阀罩密封损坏	Strip, inspect and replace if necessary. 如需要则打开, 检查并更换损坏部件
	Damaged grease fitting. 黄油嘴损坏	
	Damaged / worn stem seal 阀杆密封损坏或磨损	

Important 重点

Grease nipple replacement item 22

黄油嘴(22)的更换

Valves up to 10,000 psi - In the event of having to replace a grease nipple ensure that the threads in the body and on the fitting are clean and apply Sealant Ref.20627 to the fitting before screwing into the body.

最高工作压力 10,000psi 闸阀 不得不更换黄油嘴时保证阀本体和黄油嘴上的丝扣清洁, 拧到本体前用 20627 号黄油润滑黄油嘴丝扣。

Valves over 10,000 psi – Grease nipples for these valves will be special parallel thread high pressure connections, apply an anti-seize type of lubrication to the threads.

工作压力超过 10000psi 闸阀 此类阀的黄油嘴为特殊高压平扣, 丝扣使用防粘扣类润滑油。

Valve Record 闸阀工作记录

Valve Description 闸阀技术参数								
Size 尺寸:			Class 等级:			End Connection 扣型:		
Model 型号:			Trim:			Serial No 系列号.		
Operator identification 操作人员确认:								
Date installed or put in to service 安装或使用日期:								
Service application 使用申请: Max. flowing pressure 最大流压: Max ΔP 最大压差:								
Service temperature 工作温度:								
Maintenance / operation record 保养/使用记录								
			Lubrication 润滑情况					
Date 日期	Operate d	Δ.P 压 差	Bod y 本 体	Bearin g s 轴 承	Gear Box *齿 轮 盒	Stem Leak Check 阀 杆 泄 漏 检 查	Servic e 使 用	Inspection Reports 检 查 报 告

. ΔP = Differential Pressure 压差 * If applicable 使用时

Recommended Lubricants 推荐润滑油

Body Cavity - Barrier Grease 阀内腔隔离黄油-

Temperature -20 °F to +250 °F (API Class P-U) 17537 (40lb Tin)

温度(-29C-121C), (API 等级 P-U), 部件号 17537(每听 40 磅)

Temperature -75 °F to 250 °F (API Class K-L) 24104 (40lb Tin)

温度(-59C-121C), (API 等级 K-L), 部件号 24104 (每听 40 磅)

Bearing Grease 轴承黄油-

部件号 20441 CE (6.6lb Tin) (每听 6.6 磅)

Pressure Retaining Threads 承压丝扣-

Liquid "O"ring - Ref. 20627 (1lb Tin)

液体 "O 形圈", 部件号 20627, (每听 11 磅)

Anti- Seize Compound 防粘扣润滑脂-

Copper Based Anti-Seize Compound - Ref. 15471 (1lb Tin)

铜质防粘扣油-部件号 15471(每听 11 磅)

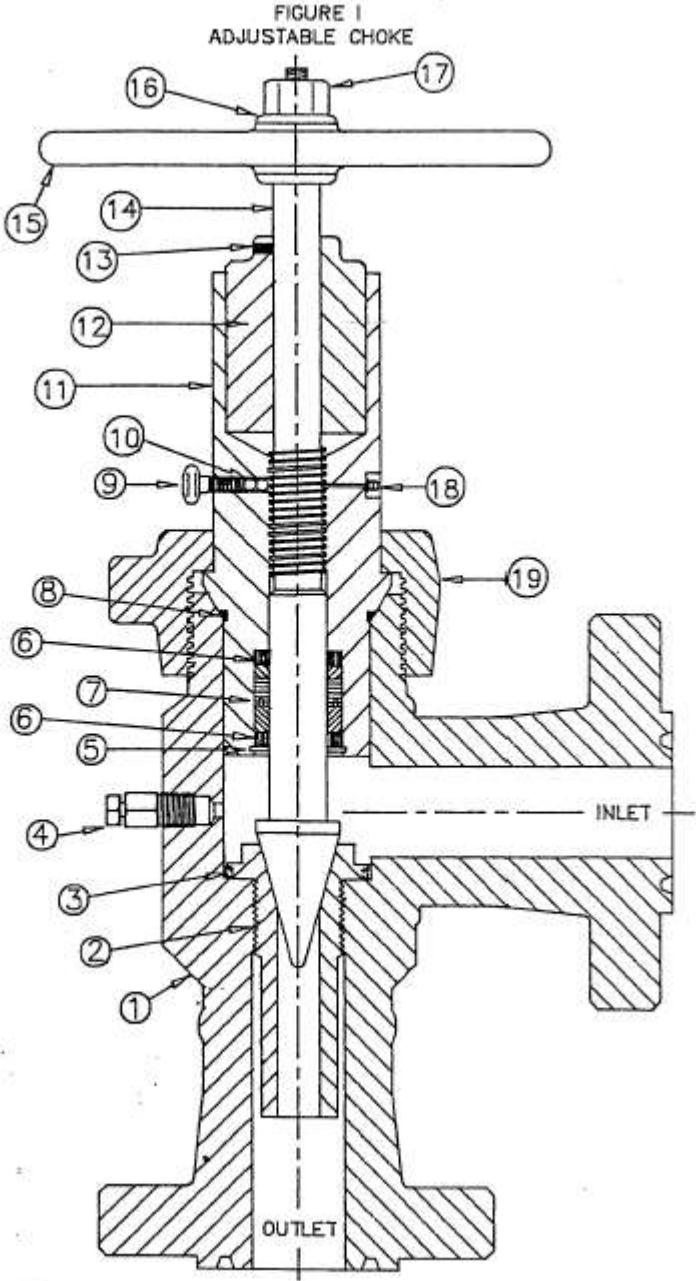
Maintenance Intervals 保养间隔

Will depend very much upon the service conditions and frequency of operation. However, the following should be observed as a minimum :-

取决于工作环境和频率。但至少遵守下面 2 条:

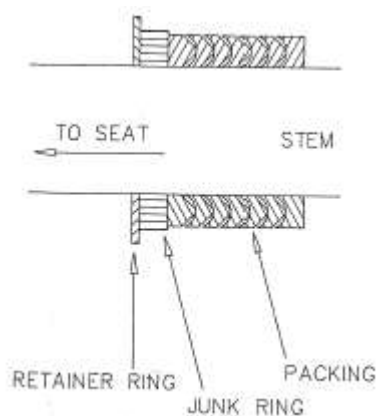
1. Annually grease the bearings.
每年润滑一次轴承。
2. As a minimum quarterly, re-inject barrier grease via the grease nipple.
至少每季通过黄油嘴注入密封脂。

可调油咀



可调油咀零部件表

序号	数量	名称
1	1	BODY
2	1	SEAT
3	1	SEAT GASKET
4	1	BODY VENT FITTING
5	1	PACKING RETAINER RING
6	2	JUNK RING
7	1	STEM PACKING
8	1	O-RING
9	1	THUMB SCREW
10	2	NYLON BALLS
11	1	BONNET
12	1	INDICATOR
13	1	INDICATOR SET SCREW
14	1	STEM
15	1	HANDWHEEL
16	1	WASHER
17	1	HEX NUT
18	1	GREASE FITTING
19	1	WING NUT



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序号	数量	名称
1	1	RETAINING RING
2	1	BLANKING CAP
3	1	O-RING
4	1	WING NUT
5	1	BODY
6	2	BODY VENT FITTING

