Coreline

Installation-Operation-Maintenance Manual

2pc Flanged Ball Valve

两片式法兰球阀

Fig.150

ATEX, CE, SIL and EU1935/2004 (European food approval) for Coreline ball valves.
Coreline球阀拥有ATEX, CE, SIL以及EU1935/2004欧洲食品级认证。

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Pipe cleaning 清洁管道

Foreign matters in the pipeline may damage the sealing surface of the valve or prevent the movement of the valve ball, resulting in the valve not closing properly. In order to reduce the possibility of dangerous situations, all pipes need to be cleaned before installing the valve. Check that pipe dirt, metal chips, welding slag and other foreign objects have been removed. In addition, check the flange surface of the pipe to ensure that there is a smooth surface (If any cleaning proces after the valve is installed in pipeline, the ball valve has to be in open position and must not be activated before rinsing completed, to avoid damage of seat).
管道中的异物可能会损坏阀门的密封面或阀球堵死，导致阀门无法正常关闭。为了减少此类情况发生，所有管道都必须在安装阀门之前进行彻底清洗以清除了管道上的污垢、金属焊渣和其他异物。另外，检查管道的法兰表面以确保表面光滑（如果将阀门安装在管道中之后进行任何清洁，则球阀必须处于完全开启状态，并且在冲洗完成之前不得启动球阀，以免损坏阀座）。

Valve installation 阀门安装

There shall be flange gasket on the flange surface when the valve is installed. It is recommended that the flange installed with the valve meet the relevant standards. 安装阀门时，应在管道法兰和球阀法兰之间使用法兰垫片，且保证随阀门安装的法兰符合相关标准。

□ Check that the pipes are in a straight line and the flanges are clean and parallel. Do not install the valve between two non-parallel flange faces. 检查管道和阀门是否在一条直线上，并确保管道法兰间相互平行且无错位。禁止将阀门安装在两个不平行的法兰面之间。

□ The distance between the flanges must correspond to the face to face dimension of the ball valve. 法兰之间的距离必须对应于球阀的结构长度。

□ Carefully place the valve between the flanges. After the valve is aligned with the pipeline, then gently tighten the bolts, and finally tighten them in a staggered order. Correct tightening can avoid uneven valve pressing force, prevent leakage, and also help to avoid flange damage. 小心地将阀门放在管道法兰及法兰垫片之间。待阀门与管道对齐后，然后轻轻拧紧螺栓，最后以相对交错的顺序依次拧紧所有螺栓。正确拧紧紧固螺栓可以避免阀门因受力不均而造成泄漏，也可以避免因受力不均造成管道法兰损坏。

Fasteners used during the installation should comply with the laws, regulations and standards of the relevant countries. Those which do not meet the requirements of the relevant regulations are strictly prohibited to use for the installation. When tightening the flange bolts and nuts, a reasonable torque should be used according to the relevant regulations. 安装过程中使用的紧固件应符合相关国家的法律法规和标准。严禁在安装过程中使用任何不符合要求的零件及紧固件。拧紧法兰螺栓和螺母时，应根据相关规定使用合适的扭矩。

Operation instructions 操作说明

□ The opening and closing of the valve is done by turning the handle a quarter turn (90° turn). 在阀门全开或全关位置时，90° 旋转手柄以完全关闭或完全开启阀门。

The valve handle is marked showing proper rotation direction for “ON” and “OFF” positions. Rotation is clockwise for “OFF” (closed) and counterclockwise for “ON” (open). 阀门手柄套上印有“ON”及“OFF”标记。顺时针操作手柄阀门“OFF关闭”，逆时针操作手柄阀门“ON开启”。

- Valve in OPEN position: The handle is in line with the valve or pipeline. 阀门处于“ON”全开位置时，手柄与阀门流通方向平齐。
- Valve in CLOSED position: The handle is across the pipeline. 阀门处于“OFF”完全关闭位置时，手柄与阀门流通方向垂直。

Use and maintenance 使用和维护

The use of the valve shall be carried out in accordance with the instruction manual, and shall not exceed the design parameters. The operator must go through on-the-job training to understand the basic operationprinciple of the valve. Prevent incorrect opening and closing of valves. The operator should clearly understand the role of each valve and its position in the process pipeline to prevent misuse. It should be ensured that the valve can be opened and closed at least twice within a week to prevent the valve from being stuck due to long-term inactivity. 阀门的使用应按照说明手册进行，并且不得超过设计参数。操作人员必须接受专业培训，了解阀门的基本操作原理，从而防止错误地操作阀门。操作员应清楚地了解每个阀门在过程管线中的位置及作用以防止误操作。应确保在一周内至少可将阀门打开和关闭两次，以防止由于长期不活动而使阀门卡死。

Valves should be inspected regularly, at least every three months, or in accordance with the corresponding laws and regulations, or on-site process conditions to set the frequency of maintenance. Regularly check the valve connections for looseness and tighten in time. Check whether the valve leaks or malfunctions. If leaks or malfunctions occur, the valves and pipelines should be repaired in time on the premise of ensuring safety. 应定期检查阀门，且至少每三个月检查一次，或按照相应的法律法规或现场过程条件进行检查并设定维护频率。检查阀门是否泄漏或故障，如果发生泄漏或故障，应在确保安全的前提下及时修理阀门和管道。

If there is an actuator, attention should be paid to the actuator and its connecting mechanism during valve maintenance. Maintenance should be carried out according to the instruction manual of the actuator. 如果阀门上装有执行机构，维修阀门时应注意执行机构及其连接机构，并按照执行机构使用说明书进行相关维护。

Replace the seat and packing 更换阀座和填料

Note: Stem seal leakage may be corrected by tightening the packing nut to flatten the belleville washers. If leakage continues or the valve torque becomes excessive, then the seal/packing must be replaced. 注：通过拧紧密封螺母，压紧蝶形垫片，可以纠正阀杆密封泄漏。如果泄漏持续或阀门扭矩过大，则必须更换密封/填料。

Before replacing the thrust washer and the packing, the pipeline must be de-pressurized. 在更换填料之前，管道中的压力必须完全释放。

□ Rremove flange nuts and bolts and carefully lift the valve from the pipeline to avoid scratching or damaging serrated gasket. The big diameter valves are heavy and should be adequately supported before removing them from the line. 拆除法兰螺母和螺栓，小心地将阀门从管道上提起，以免刮伤或损坏垫片。大直径阀门很重，在把它们从管道上拆卸下来之前，应确保管道有足够的支撑。

□ Loosen the stem nut and remove the handle or actuators. Then remove lock cap, packing nuts, belleville washers and gland. 拧开阀杆螺母，移除手柄或执行机构。然后拆卸锁紧帽、填料螺母、蝶形垫片和填料压盖。

□ Use proper wrench to remove body bolt nuts, then lift the body end. The valve seat will come out with the body end and then remove the body seat and gasket. 使用适当的扳手卸下阀体螺栓螺母，然后抬起阀体端。阀座将在阀体端露出，然后移除阀座和阀体垫圈。

□ Rotate stem so the valve is in fully closed position. Carefully take out the ball to make sure there is no damage to the ball surface. 使用合适的工具旋转阀杆，使阀处于完全关闭的位置。再小心地取出阀球，以确保阀球表面没有损坏。

□ Take out the other seat. 移除另外一侧的阀座。

□ The stem must be removed from inside of the body. Slightly push the stem head to loose the stem. The stem washer and the O-ring should come out together with the stem. 阀杆必须从阀体内部拆卸下来。轻轻推阀杆头，使阀杆松动。再从阀体内部取出阀杆密封环和O形圈。

□ Remove the stem packing from the body and replace with new ones. 取出阀体轴孔内部的填料再予以更换。

Visual inspection 外观检验

Clean and inspect all the metal parts. It is not necessary to replace neither ball nor stem unless there are visual signs of abrasion or corrosion on the surfaces. 清洁并检查所有金属零件。除非表面上有明显的磨损或腐蚀迹象，否则无需更换。

We strongly recommend replacement of all soft parts whenever the valve is disassembled for reconditioning. Contact Coreline for replacement kits that contain all the replaceable parts. 强烈建议在拆卸阀门进行维修时更换所有的非金属部件。请与Coreline联系订购所需更换的零部件。

Note: The valve can be assembled and operated dry witouth any lubricant. However, a light lubrication will help in assembly and reduce initial operating torque. Lubricant used must be acceptable with the pipeline media. 注：该阀可以在不使用任何润滑剂的情况下进行组装和操作。但是，轻度润滑将有助于组装并降低初始操作扭矩。所使用的润滑剂必须满足管道介质的要求。

Assembly 装配

□ Install one seat in the body cavity with the spherical curvature facing the ball. 首先在阀体腔中安装第一个阀座，使阀座的球面曲率面向阀球。

□ Install the stem seal and O-ring on the stem and slide the stem up through the body. 将阀杆密封环及O型圈安装再阀杆上，然后从阀体内部轴孔向上装入阀杆。

□ Install packing, gland, belleville washers, and then screw the packing nut onto the stem. Lock the cap on the packing nut afterwards. 依次在从阀轴顶部装入填料组合、填料压盖、蝶形垫片，然后拧紧填料螺母。然后将螺母锁紧盖装在填料螺母上。

□ Install handle. Screw the stem nut onto the stem until the handle is secure. 安装手柄。将手柄锁紧螺母拧到阀杆上，直至手柄固定稳固。
□ Turn the handle to the fully closed position. Line up the ball slot with the stem end and slide the ball into the right position. Turn the handle to open position to keep the ball in the right place. 顺时针旋转手柄使阀门完全关闭，将球槽与阀杆端对齐，并将球滑入正确的位置，将手柄转到打开位置，以将球保持在正确的位置。
□ Install the remaining seat into the body side. 将另外一个阀座装入阀球另一侧。
□ Put the body seal gasket into the body and lineup the end flange. Be certain to align the end flanges bolt holes to the straddle valve center lines. Be careful not to damage the body seal when putting the cap end into body. 将阀体密封线放入阀体内并与阀体法兰断面对齐。务必要确保末端法兰螺栓中心处在阀门中心线上。当将阀体端盖端放入阀体时，请注意不要损坏阀体密封线。
□ Install the cap end nuts and tighten them in a staggered order to the proper torque (See Table 1). Make sure that the ball is in an open position. There should be at least one stud thread exposed on the side of the body bolt. 安装端盖端螺母并以交错的顺序将它们拧紧至适当的扭矩（请参见表1）。此过程中应确保阀球处于开启状态。阀体螺栓侧面至少应有一螺柱螺纹外露。

□ Gradually open and close the valve until a full 90° turn is obtained. The seat sealing surface will form a permanent seal shape against the ball by this process. 以90°范围缓慢开关阀门。在这个过程中，球形阀座密封面和阀球之间将产生一种永久密封形态。

Valve tests 阀门测试

Make pressure test and torque test of a re-assembly valve prior to place it back into pipeline. 将出厂后重新组装的阀门安装在管道中之前，需先对其进行压力及扭矩测试。
□ Fix the valve on the pressure test machine between a mating flanges with full bolting and suitable gaskets. Orient valve so seat to be tested is facing upwards. 用合适的法兰及垫片将阀门固定在压力试验机的工作台上。调整阀门方向，使要测试的阀座面朝上。

Pressure test 压力测试

□ Introduce 6bar air. Carefully operate the valve under the given air pressure, and then slowly close to make sure the cavity is pressurized. Put water into the upper port to cover the ball and then visually check if there are bubbles. If bubbles appear, pour water out and then operate the valve several times and recheck. Reverse the valve and put air pressure to the port just checked to check for leakage in the other port. 引入6bar气压。在给定的气压下小心操作阀门，然后缓慢关闭以确保腔体受压。将水倒入阀门上端口使其覆盖阀球，然后目测是否有气泡产生。如果出现气泡，请倒出水，然后开关操作阀门几次，再重新检查按照上面提到的方法再次进行低气压密封检查。将阀门旋转180度，向刚检查过的端口施加气压，以检查另一个端口是否有泄漏。
□ Check stem seal by covering the stem top area with water/soap solution. Tighten stem seal if leakage occurs until leakage just stops. 通过用水/肥皂溶液覆盖阀杆顶部区域来检查阀杆密封。如果发生泄漏，则拧紧阀杆密封件，直到泄漏停止为止。
□ Apply a water pressure test according to API598. 根据API598标准对阀门进行水压试验。

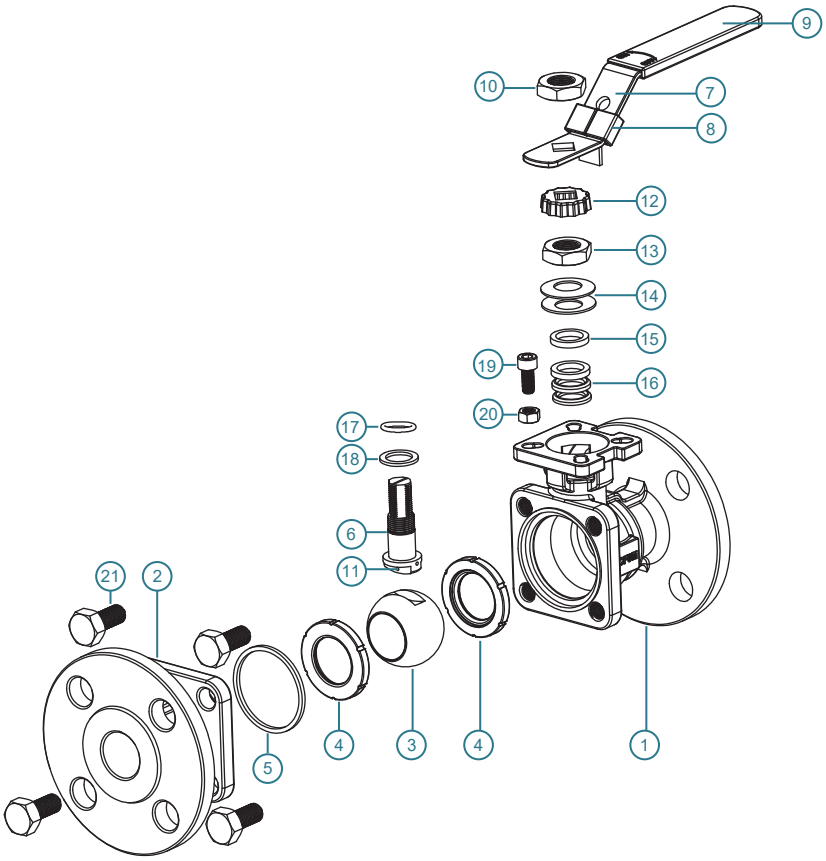
Valve torque test 阀门扭矩测试

Coreline Fig.150 ball valves are applied with below torques (See Table 1) when the valves are delivered. Coreline FIg.150球阀交付时，扭矩如下（见Table 1）。

Size		Valve torque 阀门扭矩 *)	Body bolt 阀体螺栓扭矩	Stem nut 阀轴锁紧螺母扭矩
INCH	DN	[Nm]		
1/2"	15	8	20-23	14.3
3/4"	20	8	23-26	14.3
1"	25	16	31-34	14.3
1 1/4"	32	26	34-36	19.4
1 1/2"	40	50	41-46	22.4
2"	50	55	41-46	22.4
2 1/2"	65	95	41-46	22.4
3"	80	104	56-61	32.7
4"	100	200	56-61	32.7

*) Torque values include 30% safty factor (Test: 0bar differential pressure, ambient temperature, non-lubricating). 扭矩值包括30%的安全系数（测试：0 bar压差，环境温度，无润滑）。

Table 1



Material part list 零部件材质清单

No.	Part name 零部件名称	Material 材质	No.	Part name 零部件名称	Material 材质
1	Body 阀体	A351 CF8M	9	Handle sleeve 手柄套	Vinyl
		A351 CF8	10	Nut 手柄锁紧螺母	SS304
		A216 WCB	11	Anti-static device阀轴防静电装置	SS316
2	Body cap 阀体端盖	A351 CF8M	12	Lock cap 螺母盖	SS304
		A351 CF8	13	Nut 螺母	SS304
		A216 WCB	14	Belleville washer 蝶形垫片	SS301
3	Ball 阀球	SS316	15	Gland 填料压盖	SS304
		SS304	16	V-ring packing V型填料	*) PTFE+25% carbon
4	Seat 阀座	*) PTFE+25% carbon	17	O-ring O型圈	FPM
5	Gasket 阀密封线	*) PTFE+25% carbon	18	Stem sealing 阀轴密封	PTFE
6	Stem 阀轴	SS316	19	Stop bolt 定位螺栓	SS304
		SS304	20	Nut 螺母	SS304
7	Handle 手柄	SS304	21	Body bolt 阀体螺母	SS304
8	Locking device 手柄锁	SS304			

*) Other material available on request. 如需其他材质，请联系Coreline.

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