

Maintenance & Operating Instructions

For

Dixon Bayco

5204SFI API Valves

For Sales and Service Contact

USA:

Dixon Bayco USA
Chestertown, Maryland
Phone: 410-778-2000
Fax: 410-778-4702
Toll Free: 800-355-1991
E-mail: dixonbayco@dixonvalve.com

Canada:

Dixon Group Canada Limited
Innisfil (Barrie), Ontario
Phone: 705-436-1125
Fax: 705-436-6251
Toll Free: 877-963-4966
E-mail: isales@dixongroupcanada.com

Europe:

Dixon Group Europe Ltd
Preston, England
Phone: +44 (0)1772 323529
Fax: +44 (0)1772 314664
E-mail: enquiries@dixoneurope.co.uk

Asia Pacific:

Dixon (Asia Pacific) Pty Ltd Wingfield,
South Australia
Phone: +61 8 8202 6000
Fax: +61 8 8202 6099
E-mail: enquiries@dixonvalve.com.au

Mexico:

Dixva, S. de R.L. de C.V.
Monterrey, N.L.
Phone: 01-800-00-DIXON (34966)
Fax: 01-81-8354-8197
E-mail: contactenos@dixonvalve.com.mx



The Right Connection®

dixonvalve.com

5204SFI API Valves

ITEM	PART NO.	DESCRIPTION	QTY.	REPAIR KITS					
				5204K1	5204K2	5204K3	5204K4	5204K11	5204K13
1	341791	Body - Pipe End	1						
2	390812	Shaft	1						
3	390813	Shaft Spacer	1						
4	111557	Shaft Bearing	1		Y				
5	390814	Stop Pin	1						
6	111558	Poppet Bearing	1		Y				
7	111550	Cam	1						
8	111560	Retaining Ring	1						
9	111552	O-Ring	1		Y				
10	110208	Roll Pin	2						
11	111561	Grease Fitting	1						
12	111565	Handle Spring	1						
13	111553	O-ring	1		Y				
14	111573	Washer	1						
15	111574	Washer	1						
16	111579	Back-up Ring	1						
17	111580	U-Cup	1		Y				
18	112055	Retaining Ring	1						Y
19	112028	O-ring	2						Y
20	391143	Acrylic Sight Glass	1						Y
21	341615	Nose Ring	1			Y			
22	341616	Handle	1						
23	341617	Poppet Subassembly	1						
24	111556	- Poppet Roller Bearing	1		Y				
25	111566	- Pin	1						
26	390815	- Poppet Roller	1		Y				
27	111551	- O-Ring	1	Y	Y				
28	111554	O-Ring	1		Y	Y	Y		
29	111568	Screw	8			Y	Y	Y	
30	111562	Washer	1						
31	111563	Cotter Pin	1						
32	111564	Main Spring	1						
33	111569	Lock Washer	8			Y	Y	Y	
34	111559	Handle Pin	1						

*Use Relevant Repair Kit

Repair kit 5204K1: Poppet o-ring

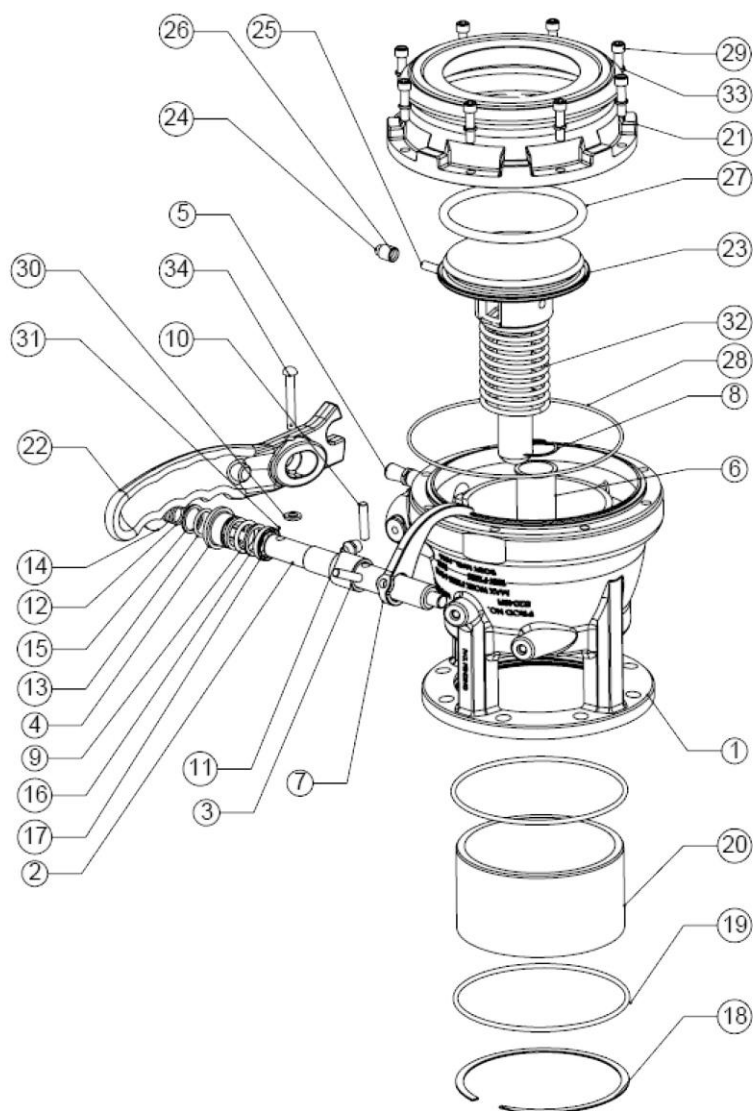
Repair kit 5204K2: Complete rebuild kit; all o-rings and bearings

Repair kit 5204K3: Anodized nose ring with screws

Repair kit 5204K4: Bayloy nose ring with screws

Repair kit 5204K11: Nose ring hardware kit

Repair kit 5204K13: Sight glass kit



These instructions and recommendations are provided to ensure proper operation and long service life of Dixon Bayco 5204SFI API. Parts are identified by the item number on the assembly drawing and part list.

Maintenance and Part Replacement

Semi-Annual Inspection

Visual inspection of the valve operation can be done while the valve is still attached to the tank. All safety precautions that apply to the use of the valve must be followed and all the lines must be empty.

1. Visually examine 5204SFI API for worn or damaged parts, or any other condition that may affect the operation of the valve.
2. Visually examine nose ring (21) for cavities, scratches, or other deformation of the sealing surface.
3. Visually examine shaft (2) for significant dirt accumulation that could cause shaft seal leakage.
4. Check that the handle (22) automatically positions at an angle to the valve body (1) with detent end away from the stop pin (5).
5. Visually examine stop pin (5) for signs of wear and deformation. When the handle is moved to open position, it should remain firmly latched on the stop pin (5). If the handle cannot stay securely in the latched open position due to stop pin (5) wear, stop pin (5) should be replaced. Locking pliers can be used to unscrew the stop pin (5).
6. Visually examine the sight glass (20) for damage or sign of leakage, check the sight glass for cracks. If the sight glass is cloudy, the color of the sight glass changed, or visible cracks are seen, or leakage can be found from the sight glass or the O-rings (19), replace the sight glass. See the **“REPLACEMENT OF SIGHT GLASS”** section for how to replace the sight glass.
7. To check the handle performance, open and close the API valve a few times. The handle should move unobstructed and smoothly.
8. When released from the latched (or open) position, the poppet (23) should instantly close and center.

9. Using a non-scratching tool, (piece of wood), push the poppet open without using the operating handle. Push the poppet to the side and make sure that the poppet reseats and centers itself when closed slowly.


If any of the checks described above fails, additional maintenance is required.

Yearly Inspection and Maintenance

The 5204SFI API can be disassembled and the seals may be replaced while the valve is still attached to the trailer. The sight glass (20) and O-rings (19) can only be replaced when the valve is removed from the trailer. See the “**REPLACEMENT OF SIGHT GLASS**” section for how to replace the sight glass.

It is recommended to draw a line (using a felt-tip pen) across the joint between the pipe end (1) and the nose ring (21). The line is used later in assembly to rotate the nose ring (21) from the starting position, which helps balance out wear of the coupling surface.

Disassembly – Part I

 **THE POPPET IS HELD UNDER CONSIDERABLE SPRING TENSION. WHENEVER THE NOSE RING (21) OR POPPET (23) ARE REMOVED OR REASSEMBLED, THE VALVE MUST BE LATCHED IN THE OPEN POSITION OR THE POPPET OTHERWISE RESTRAINED (LOAD ONLY). PERSONAL INJURIES MAY RESULT IF THIS PRECAUTION IS NOT TAKEN.**

WHERE POLISHING IS INDICATED, USE NOT LESS THAN 600 GRIT POLISHING CLOTHS.

1. Inspect nose ring (21) for scratches on sealing surface. If there are any scratches on the sealing surface, the nose ring (21) should be replaced to avoid valve leakage. Faces without hard coating should be polished around the bore and only in circumferential direction.
2. Poppet (23) should be inspected for scoring or raised metal on the stem. Any raised metal on the poppet stem should be removed with a fine flat file and polished in axial direction.
3. Inspect poppet bearing (6) for intrusion of any foreign material on the inside diameter. Any foreign material on the inside diameter should be carefully removed with a sharp tool and polished.

4. On completion of poppet (23) and poppet bearing (6) inspection, test the bearing (6) on the poppet (23) without the spring (32) to make sure that the bearing (6) smoothly slides along the poppet (23) stem. If this is not the case, the bearing should be replaced.
5. Test rotation of the poppet roller (26) around the pin (25). If the rotation is difficult, the roller bearing should be replaced. To access the roller bearing, support the poppet (23) and release the pin (25) using a ¼" pin punch.
6. Check the handle (22) for free and easy movement of the opening and closing cycle. Operation of the handle (22) normally requires limited effort. If operating the handle (22) involves stronger force, it implies the need to clean and possibly replace the shaft bearing (4) and the shaft (2).
7. Poppet O-ring (27) and main O-ring (28) should be inspected for cracks, scratches, missing material, unusual hardness, softness, roughness, and other signs of chemical damage. Do not remove poppet O-ring from the poppet at this stage.
8. At this point it may be decided to replace the main O-ring (28) and reassemble the valve if the first part of the inspection did not reveal any damage or malfunction of the parts, or to continue with Part II of disassembly and replace all the O-rings if there are any additional concerns regarding the performance of the valve. Steps 5 through 8 of the Assembly section describe how to assemble the valve from this point.

Disassembly – Part II

1. To remove two roll pins (10), turn the handle until the pin is accessible and drive out each pin in turn using ¼" pin punch. If this is done with the valve attached to the tank, take precautions to ensure that the pins (10) do not enter upstream piping. To remove the cam arm roll pin (10), ensure that the handle is rotated to a position such that the roll pin will be clear of the deflector cone (valve body) as it is driven out. If the roll pin appears not to drive further than approximately ¼", check for contact between the roll pin and deflector cone and slightly adjust the rotation of the handle to allow sufficient clearance.
2. Take out handle (22) with shaft assembly, shaft spacer (3) and cam (7).

3. Remove shaft bearing (4), O-ring (9), back-up ring (16) and u-cup (17) from the pipe end (1) stuffing box.
4. Examine stuffing box area of the pipe end (1) for corrosion and, if required, polish in circumferential direction.
5. To disassemble handle from shaft assembly, remove cotter pin (31), washer (30), handle pin (34), washer (14), spring (12), washer (15), and O-ring (13).
6. Polish sealing surfaces of the shaft (2) in a circumferential direction. Remove any burrs that might have occurred during pin punching. Carefully remove poppet O-ring (27) without damaging the sealing surface of the poppet (23). Even the smallest scratches on the O-ring groove will cause leakage.

Cleaning, Inspection and Replacement of Disassembled Parts

Clean well and visually examine all the parts of the API. Remove any burrs and sharp edges that could damage the seals during reassembly. Replace any damaged parts.

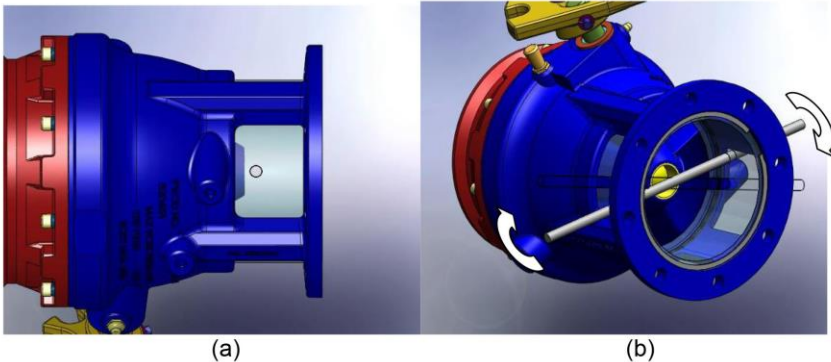
Assembly

1. Before assembly, apply lubricant to the inside diameter of the pipe end (1) stuffing box, to the u-cup (17), back-up ring (16), O-ring (9), and shaft bearing (4). Insert u-cup (17) followed by back-up ring (16), O-ring (9), and shaft bearing (4) inside pipe end (1) stuffing box.
2. Lubricate shaft (2) and install it through the bearing (4) into the body (1) driving it through the shaft spacer (3) and the cam (7). Insert pins (10) into the shaft holes.
3. Lubricate O-ring (13) and install it on the shaft (2). Continue installing washer (15), spring (12), washer (14), and handle (22). Insert handle pin (34). Position handle with detent end away from the stop pin and then install washer (30) and cotter pin (31).
4. Liberally lubricate poppet O-ring (27) and install it on the poppet (23) preventing torsion of the O-ring during assembly as it may cause leakage. It is recommended to press on the full edge of the O-ring (27) until it snaps around the poppet (27), and then push it into the O-ring groove from opposite sides.

5. Install spring (32) and poppet (23) into the pipe end (1). Lead the cam (7) over poppet roller (26) and latch the handle (22) in the open position.
6. With lock washers (33) installed on each of the eight screws (29), apply 'never-seize' on the screw threads.
7. Liberally grease O-ring (28) and install it on the nose ring (21). Use the radial line drawn in the step 1 of disassembly and starting from the initial alignment. Rotate the nose ring (21) one bolt hole clockwise. Bolt screws with washers and 'anti-seize' applied to the screw threads. Tighten using a crisscross flange torquing sequence.
8. To ensure proper operation of the valve, repeat the steps of the Semi-annual inspection.

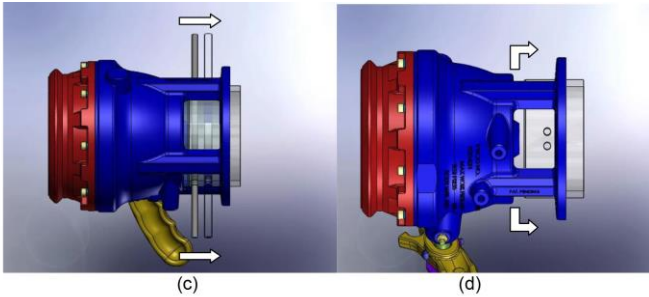
Replacement of Sight Glass

Remove the 5204SFI API from the trailer. Remove the sight glass (20) from the pipe end (1).



a.) Drill a through hole on the sight glass (20) as shown; make sure not to damage any other parts. Apply penetrating oil to sight glass (20) on outside and bottom end for easy removal.

b.) Use screw drivers or any round rod through the hole. Twist the sight glass by the screw drivers or the rod to loosen the sight glass. Make sure not to damage the pipe end.



c.) Remove the retaining ring (18) from the groove of the pipe end (1). Push the sight glass out by the screw drivers or the rod. Make sure not to damage the pipe end.

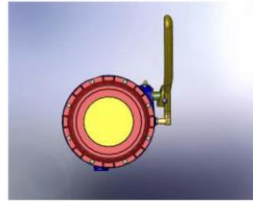
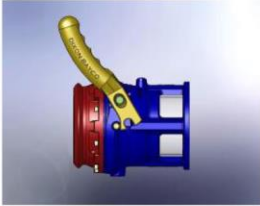
d.) Once the sight glass passes the inside O-ring, remove the screw drivers or the rod. Continue to push the sight glass out from the inside end by the screw drivers or the rod till the sight glass is out. Make sure not to damage the pipe end.

Remove the O-rings (item 19, 2 pieces) from the grooves of the pipe end (1). Clean all grooves and the inside of the pipe end (1) to remove any debris and oil. Make sure not to scratch or damage the grooves and inside of the pipe end.

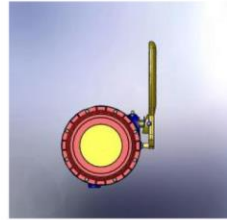
Lubricate **NEW** O-rings (item 19, 2 pieces) and put them into the grooves in the piped end (1).

Install the **NEW** sight glass (20) and make sure that the side with a chamfer gets into the pipe end (1) first. Push the sight glass evenly into the piped end till the side with a chamfer stops by the pipe end. Use the old sight glass as a tool to push the new sight glass, if necessary.

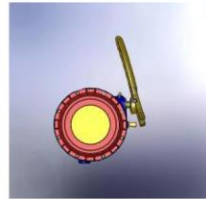
Install the **NEW** retaining ring (18) into the groove of the pipe end.



Valve fully open



Valve semi-open



Valve closed

! Maximum operating temperature is 140°F. Do not clean the sight glass by steam! Failure to follow the warning will void the warranty.

Dixon Bayco Warranty

For complete warranty information, please refer to the latest Dixon catalog.