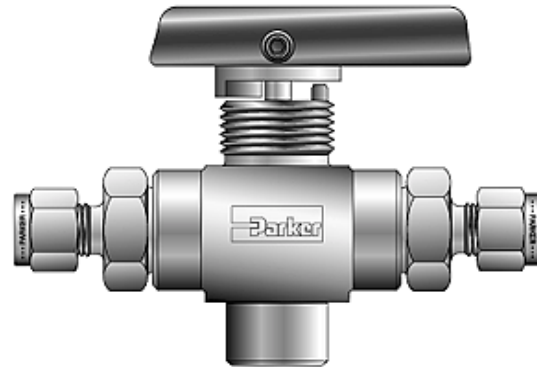


HB Series Ball Valve



MAXIMUM ALLOWABLE WORKING PRESSURES

Table 1

Maximum Allowable Working Pressure versus Seat Material

Seat Material	Stainless Steel Body Material
PCTFE	6,000 psig at 70 °F 41.4 MPa at 21 °C
PEEK	10,000 psig at 70 °F 68.9 MPa at 21 °C

Table 2

Maximum Allowable Working Pressure versus Port Ends

Port Size	Pressure Rating @100 °F (38 °C)	End Connections	
		Port1	Port2
2F	10,000 psig	1/8" Female NPT	
4F	10,000 psig	1/4" Female NPT	
4FL	10,000 psig	1/4" Female NPT Long	
M6	10,000 psig	6mm CPI™ and ALOK®	
4Z	10,000 psig	1/4" CPI™	
4A	10,000 psig	1/4" ALOK®	
M8	7,975 psig	8mm CPI™ and ALOK®	
M10	6,525 psig	10mm CPI™ and ALOK®	
M12	6,162 psig	12mm CPI and ALOK	
6Z	6,600 psig	3/8" CPI™	
6A	6,600 psig	3/8" ALOK®	
8Z	6,300 psig	1/2" CPI™	
8A	6,300 psig	1/2" ALOK®	



Figure 1: HB Series Ball Valve Cross Sectional View

DISASSEMBLY

WARNING: MAKE CERTAIN THE SYSTEM IN WHICH THE VALVE IS INSTALLED IS EXHAUSTED OF ALL PRESSURE BEFORE STARTING VALVE REMOVAL. CYCLE THE VALVE TWICE TO REMOVE ANY ENTRAPPED PRESSURE. FAILURE TO DO SO CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

1. Verify that the Ball Valve Maintenance Kit being used is appropriate for the Valve's size and service requirements. Always contact your authorized Parker representative if any questions arise.
2. Remove the Handle by turning the Set Screw counter-clockwise with size 3/32 hex socket wrench.
3. Remove the Ball Valve Body from its mounting panel hole, if applicable, by turning the Panel Nut counter-clockwise.
6. To access the Seats and the Ball, secure the Body at the wrench flats and remove the two port End Connectors, using a 7/8 hex wrench.
7. Carefully remove both End Connectors from the Valve Body.
8. Push the Stem and Ball Trunnion out through the bottom port.
9. Examine the Ball Trunnion for damage. If the Ball Trunnion is damaged call your authorized Parker representative for the appropriate kit.
10. Refer to Figure 2: Gently remove all Stem Seals, Seat Assemblies, and Seat Retainer seals (8,9,12,13,14,16,17, and 19)

REASSEMBLY

Note: The port orientation is important when assembling the STEM (4) and BALL TRUNNION (5). Keep the orientation consistent with Figure 1 and Figure 3.

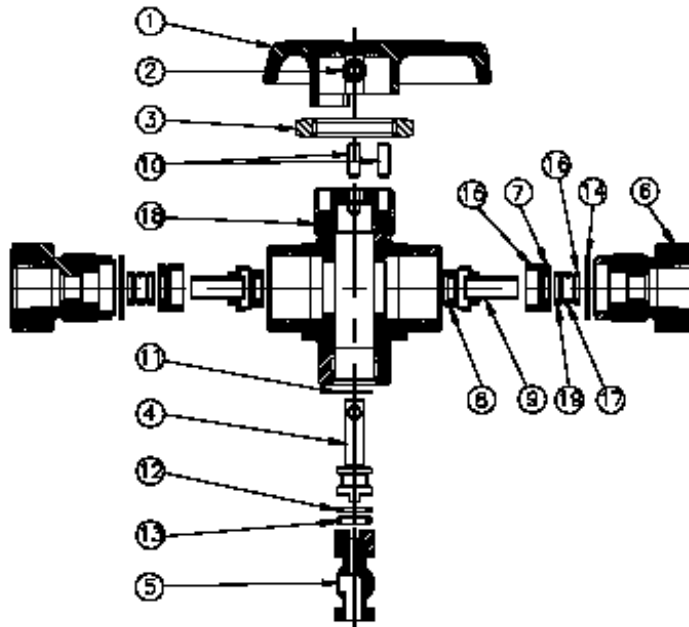


Figure 2: HB Series Ball Valve Exploded View

1. Lubricate each of the PORT END CONNECTOR (6) threads.
2. Refer to Figure 1 and 2. Insert the SEAT RETAINER O-RING BACK-UP (19), SEAT RETAINER O-RING (17) and SEAT RETAINER O-RING BACK-UP (16) slide the components into the PORT END CONNECTOR (6) counter-bore until the SEAT RETAINER O-RING BACK-UP (16) touches the bottom of the counter-bore. Insert the SPRING WASHER (7) into the larger counter-bore of each PORT END CONNECTOR (6). Insert the SPRING (15) into the larger counter-bore of each End Connectors (6).
3. Lubricate the smaller diameter and SEAT (8) of the SEAT RETAINER AND SEAT SUB ASSEMBLY with the same type lubricant as in step 1. Insert the SEAT RETAINER AND SEAT SUB ASSEMBLY from Step 4 into the PORT END CONNECTOR (6) assembly of Step 2. Assure the SEAT RETAINER AND SEAT SUB ASSEMBLY sits firmly against the SPRING (15). Two of these sub-assemblies are required for each valve.
4. Then insert the CONNECTOR END SEAL (14) into the groove of the end opposite the port end of the PORT END CONNECTOR (6).
5. Refer to Figures 1 and 2. Place the STEM WASHER (11) over the shaft of the STEM (4). Slide the STEM WASHER (11) down the shaft of the STEM (4) until it contacts the flange.
6. Refer to Figures 1 and 2. Place the STEM O-RING (13) onto the STEM (4) o-ring groove. Slide a single STEM O-RING BACK-UP(12) onto the STEM (4) o-ring groove next to the STEM O-RING (13).
7. Lubricate the STEM O-RING BACK-UP (12) and STEM O-RING (13) with the same type lubricant as in Step 1. Insert the STEM ASSEMBLY (Handle side first) from Step 6 into the bottom of the VALVE BODY (18) until the STEM (4) drops through the stem hole of the VALVE BODY (18). Insert a pin through the STEM (4) handle screw hole and pull the STEM ASSEMBLY until it bottoms in the VALVE BODY (18) stem bore.
8. Lubricate the BALL TRUNNION (5) with the same type lubricant as in Step 1. Holding the VALVE BODY (18) with the bottom port on top, drop the BALL TRUNNION (5) through the bottom port (slot end first). Turn the STEM ASSEMBLY until the BALL TRUNNION (5) and the STEM ASSEMBLY engage (Refer to Figure 3 for proper orientation).
9. Turn the STEM (4) to assure the side hole is 90° (in the off position) from each of the side ports of the VALVE BODY (18).

10. Insert one of the PORT END CONNECTOR (6) sub-assemblies from step 3 into one port of the BODY (18). Thread the PORT END CONNECTOR (6) into the BODY (18) until it is finger tight against the BALL TRUNNION (5).
11. Insert second of the PORT END CONNECTOR (6) sub-assembly from step 3 into the opposite port of the BODY (18). Thread the PORT END CONNECTOR (6) into the BODY (18) until the it is finger tight against the BALL TRUNNION (5).
12. Torque the two PORT END CONNECTOR (6) in the assembly at the same time to 50 Ft-lbs +5/-5 Ft-lbs. (A gap will still be present between the end of the BODY (18) and the PORT END CONNECTOR (6)).

Table 1

Seat Material	Torque (+5/-5 Ft-Lbs)
PCTFE (K)	40
PEEK (PKR)	50

13. Place the HANDLE (1) on to the STEM (4) and orient HANDLE (1) to the mark as shown in Figure 3.
14. Insert SET SCREW (2) through the HANDLE (1) and STEM (4) and tighten to 15 in-lbs +2/-2 in-lbs.
15. Turn the stem through at least one full cycle in each direction to verify proper operation of the valve.

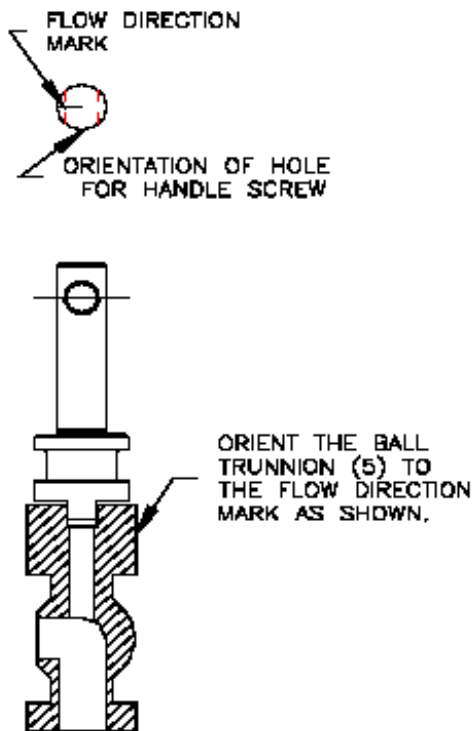


Figure 3: Stem Assembly and Orientation

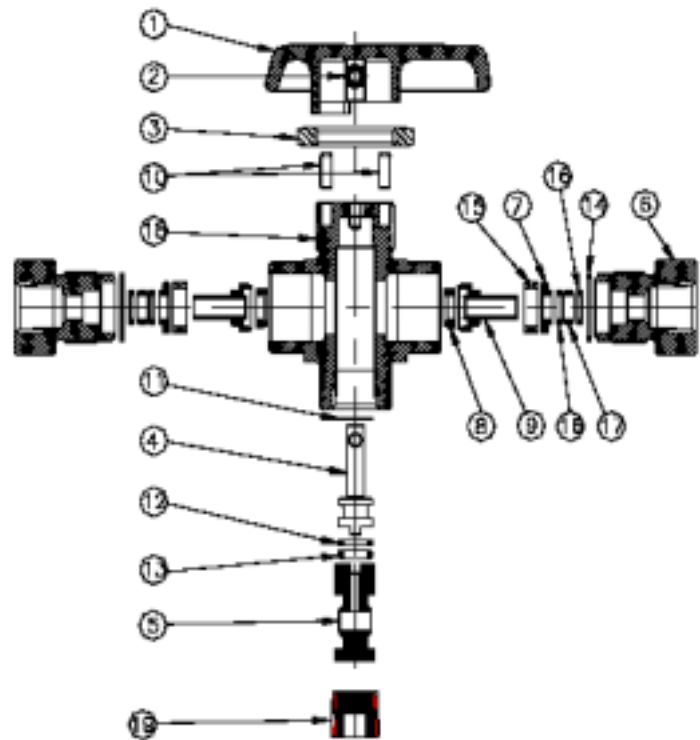


Figure 4:
HB Series Two-Way Ball Valve Exploded View

VALVE CONNECTOR MAKE-UP INSTRUCTIONS

MALE AND FEMALE PIPE PORTS

Wrench flats are provided on the Valve Body. It is recommended a smooth-jawed wrench or vise be used to grip the Valve Body.

1. On the male threaded part of the connection, apply a high quality pipe joint compound or PTFE tape made for this purpose. When PTFE tape is used, it is recommended two full turns of tape be applied. PTFE tape should not be overhanging or covering the first thread
2. Engage the Valve and the other component part together, until hand-tight.
3. With a proper wrench, holding both the Valve and the component part, continue to tighten to achieve a leak-tight joint.

ULTRASEAL CONNECTIONS

1. Insert the proper O-Ring into the UltraSeal fitting's O-Ring groove. Position the UltraSeal gland sealing face against the O-Ring, and then advance the Nut to a finger-tight position.
2. A positive seal is obtained by advancing the Nut no less than 1/4 turn from the finger-tight position. Proper UltraSeal make-up is achieved when a sharp rise in required application torque occurs, which indicates proper seal face contact and O-Ring seal compression into the UltraSeal groove.

VACUSEAL CONNECTIONS

1. A positive seal is obtained by advancing the Nut 1/8 turn from the finger-tight position.
2. A new gasket should be installed upon each fitting re-make to insure system pressure integrity.

TUBE FITTING CONNECTIONS

1. Insert the tube into the Valve port until the tube bottoms out in the Valve Body. Care should be exercised to insure the tube is properly aligned with the Valve Body and port.
2. Normal make-up for US Customary port sizes 1 thru 3 (1/16 thru 3/16 inch) and SI port sizes 2 thru 4 (2 thru 4 mm) is 3/4 turn from finger tight. Normal make-up for US Customary port sizes 4 thru 16 (1/4 thru 1 inch) and SI port sizes 5 thru 25 (5 thru 25 mm) is 1 1/4 turn from finger tight. For larger port sizes consult Parker Ferrule Presetting Tool Instructions.

PLEASE FOLLOW THE ABOVE DIRECTIONS FOR COUNTING THE NUMBER OF TURNS FOR PROPER FITTING MAKE-UP. DO NOT MAKE-UP TUBE FITTINGS BY TORQUE OR "FEEL". VARIABLES SUCH AS TUBING AND FITTING TOLERANCES, TUBE WALL THICKNESS, AND THE LUBRICITY OF NUT LUBRICANTS CAN RESULT IN AN IMPROPERLY ASSEMBLED TUBE FITTING CONNECTION.

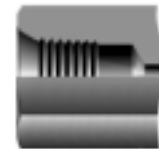
A -Two ferrule A-LOK®
compression port



Z -Single ferrule CPI™
compression port



F -ANSI/ASME B1.20.1
Internal pipe threads



V -VacuSeal face
seal port



Q -UltraSeal face
seal port



M -ANSI/ASME B1.20.1
External pipe threads



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

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ALL PARKER VALVES MUST PASS A RIGID OPERATIONAL AND LEAKAGE TEST BEFORE LEAVING THE FACTORY. IT IS RECOMMENDED AFTER ANY REASSEMBLY, THE VALVE SHOULD BE TESTED BY THE USER FOR OPERATION AND LEAKAGE. IF THESE INSTRUCTIONS ARE NOT FULLY COMPLIED WITH, THE REPAIRED PRODUCT MAY FAIL AND CAUSE DAMAGE TO PROPERTY OR INJURY TO PERSONS. PARKER HANNIFIN CANNOT ASSUME RESPONSIBILITY FOR PERFORMANCE OF A CUSTOMER SERVICED VALVE.



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