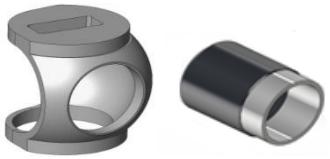
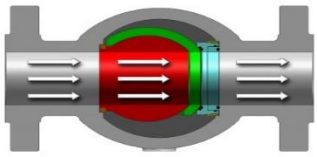
HCV Valve "Trunnion"
INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS (HWT)

GENERAL INFORMATION:

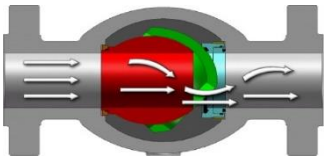
The HCV Valve incorporates a segmented sphere or HEMI, which is attached to the stem-driver assembly. The stem-driver assembly rotates the HEMI around a stationary core which directs the flow through the valve. When the HEMI is in the open position, the HEMI sealing area, seat ring, and internal trim parts are not directly exposed to the flow stream. The tapered HEMI's final movement into the seat ring achieves a unique mechanical seal for low pressure and low differential service. The line pressure force behind the HEMI also causes a piston area seal effect, creating zero leakage. The HCV Valve is Bi-Directional, there is a Preferred or Normal Flow Direction which provides optimum sealing performance and seal life, especially in dirty, contaminated fluids. If flow and pressure are in the Non-Preferred Direction, the pressure activated seat ring provides sealing. The HEMI and other components are all contained within a cartridge, which is attached to the bonnet. The parallel machined body permits easy installation and removal of the cartridge. Your HCV Valve can be provided with the operating options illustrated below. Other options are available upon request.



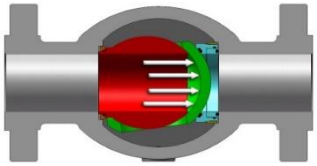
Hemi Core



Open



Partial Open

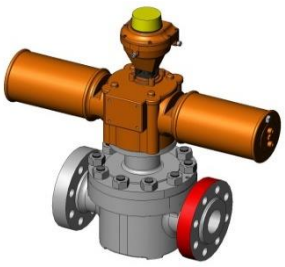


Closed

Lever Operated

Adapted for Actuator

Gear Operated



Pneumatic Actuator

STORAGE:

- Prior to storage or installation, inspect for any damage that may have occurred during shipment. If damaged, contact your shipper immediately.
- Make sure that the valve flange protectors remain in place during storage.
- If the HCV Valve is stored outside, cover any portion of the exposed valve body to avoid accumulation of water and debris.

UNPACKING:

- Remove any packing material and valve flange protectors from the HCV Valve.
- Inspect the valve bore for foreign matter and, if necessary, clean the valve body. When lifting the valve into position, utilize an appropriate lifting device to avoid damage to the valve. Use slings, end flanges or eyebolts in the provided tapped holes.

WARNING: When lifting a valve with an attached actuator assembly, be aware that the center of gravity may be above the lifting point. Support must be given to prevent the valve and actuator assembly from rotating. Failure to do so can cause serious injury to personnel and/or damage to the equipment.

INSTALLATION:

WARNING: Always follow standard safety procedures when working on the pipeline and the HCV Valve. Failure to do so can cause serious injury and damage to the equipment and/or personnel.

- Check to see that the HCV Valve test and drain plugs are installed and tightened securely to avoid leakage.
- Install the HCV Valve so that the preferred inlet, located by the red flange of the valve body, is toward the pump or pressure source.
- Orient the valve in piping to allow clearance and access to the wrench/ operator.
- Flanged valves should be installed using the proper gasket (not supplied) and defined Flange Installation procedure.
- Piping should be thoroughly flushed prior to valve operation and the body drained after testing to remove test fluid and debris that may have accumulated in the body during testing.
- Install the valve operator according to the manufacturer's guidelines.
- Operate (dry run) the HCV Valve by cycling the HEMI several times to test and ensure the opening and closing **of the HEMI.**
- Your HCV Valve is now ready for service.

OPERATIONS:

- Prior to valve operation, make sure that the HCV Valve has been installed in the pipeline with the preferred inlet upstream in the normal flow direction.

NOTE: The HCV Valve is bi-directional and will seal in either direction. Utilizing preferred inlet in the normal flow direction will allow for optimum service life and performance.

The HCV Valve operates 90° from the open to full closed position. Do not over torque in the closed position. Over torque may cause damage to the valve and void the warranty.

- The HCV Valve is a Torque Seated valve and maximum closing torque for the appropriate pressure should be applied at the end of the close cycle. Under high differential pressures, the un-seating torque may be as high as the seated torque.

PNEUMATIC, HYDRAULIC OR ELECTRIC ACTUATORS:

If the actuator has been installed prior to receipt or installation:

- Check that air, hydraulic and electrical supply lines are connected per the manufacturer's specifications and instructions.
- Using the manual override, place the HCV Valve in the mid position. Check to see that the actuator mounting bolts are securely tightened.
- Actuate the **OPEN** button or switch and make sure that the actuator travel counterclockwise towards the open position. If it does not, make the appropriate piping or wiring changes and/or adjustments.

In the case when an electric or pneumatic actuator has not been previously mounted on the HCV Valve bonnet, mount the actuator and tighten the nuts on the four studs securely. Make sure that the bolting between the actuator and the HCV Valve are tightened to the correct torque. Install the pneumatic or electrical wiring and cable to the actuator according to the manufacturer's instructions. After placing the operator on the HCV Valve, rotate the position of the HEMI approximately ¼ turn to determine if the HEMI moves to the closed position. If the HEMI does not completely close the port, adjust the actuator stop to reposition the valve's closed position. Turn the actuator to the open position and observe if the HEMI moves completely to the open position. A full port opening should be visible. The HEMI will be in the full open position at zero degrees. Only turn the HCV Valve until the valve indicator terminates at the valve's closed stop. **Do not attempt to over close the HCV Valve.**

WARNING: The Integral Position Stops in the valve are not intended as the Actuator/ Operator Stop. Always adjust the Actuator/ Operator Stops to engage prior to the valve integral stops.

MAINTENANCE:

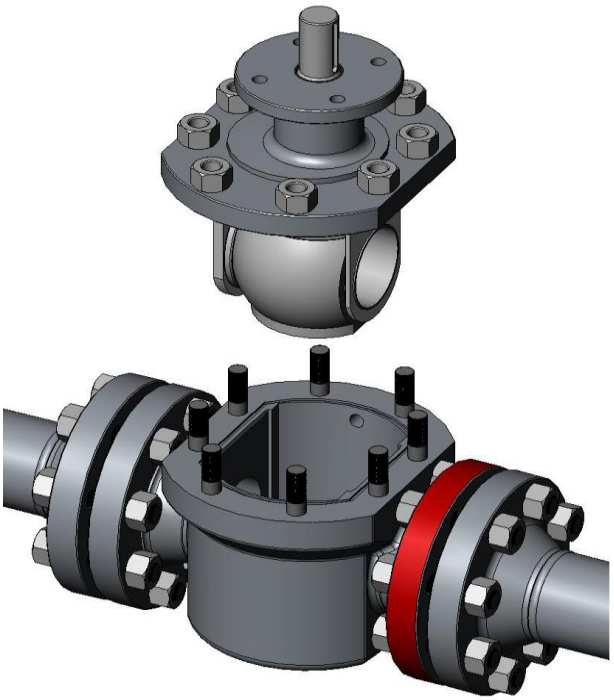
The HCV Valve does not require periodic lubrication or maintenance to provide continuous trouble-free service. The HCV Valve is a Torque Seated Valve and maximum rated torque must be applied in the closed position. If the HCV Valve does not seal properly, or if there are difficulties opening or closing the valve, it may be due to foreign material deposits within the cartridge of the valve body. Cleaning may be required in order to remove the debris or material. The following step should be taken:

1. Isolate the HCV Valve section and depressurize/ drain the pipeline.
2. Release any pressure which may be trapped in the HCV Valve body cavity by opening the bonnet's vent plug and venting to the atmosphere.
3. Remove the bottom drain plug and flush from the vent through the drain plug. The HEMI must be in the **OPEN POSITION**.
4. If an actuator is positioned on the valve, reverse the steps described in the Pneumatic, Hydraulic or Electric Actuators section for the removal of the actuator.
5. To remove a manual lever, back off on the set screw and remove the lever or handle.
6. Remove the cartridge from the valve body. Look for damage to the HEMI and Seat Ring. If damaged, replace with a new cartridge.
7. Clean the cartridge by flushing all the inside surfaces of the cartridge with clean water. Flush several times with the HEMI in the open and closed positions to remove any deposited debris.
8. Make sure that no foreign matter is between the HEMI and the cartridge's side plates.
9. Reinstall the cartridge according to the steps described below.
10. Reinstall the Actuator according to the steps described in the Pneumatic, Hydraulic or Electric Actuators section.
11. Reinstall the manual lever on the valve by tightening the set screw to the valve stem.

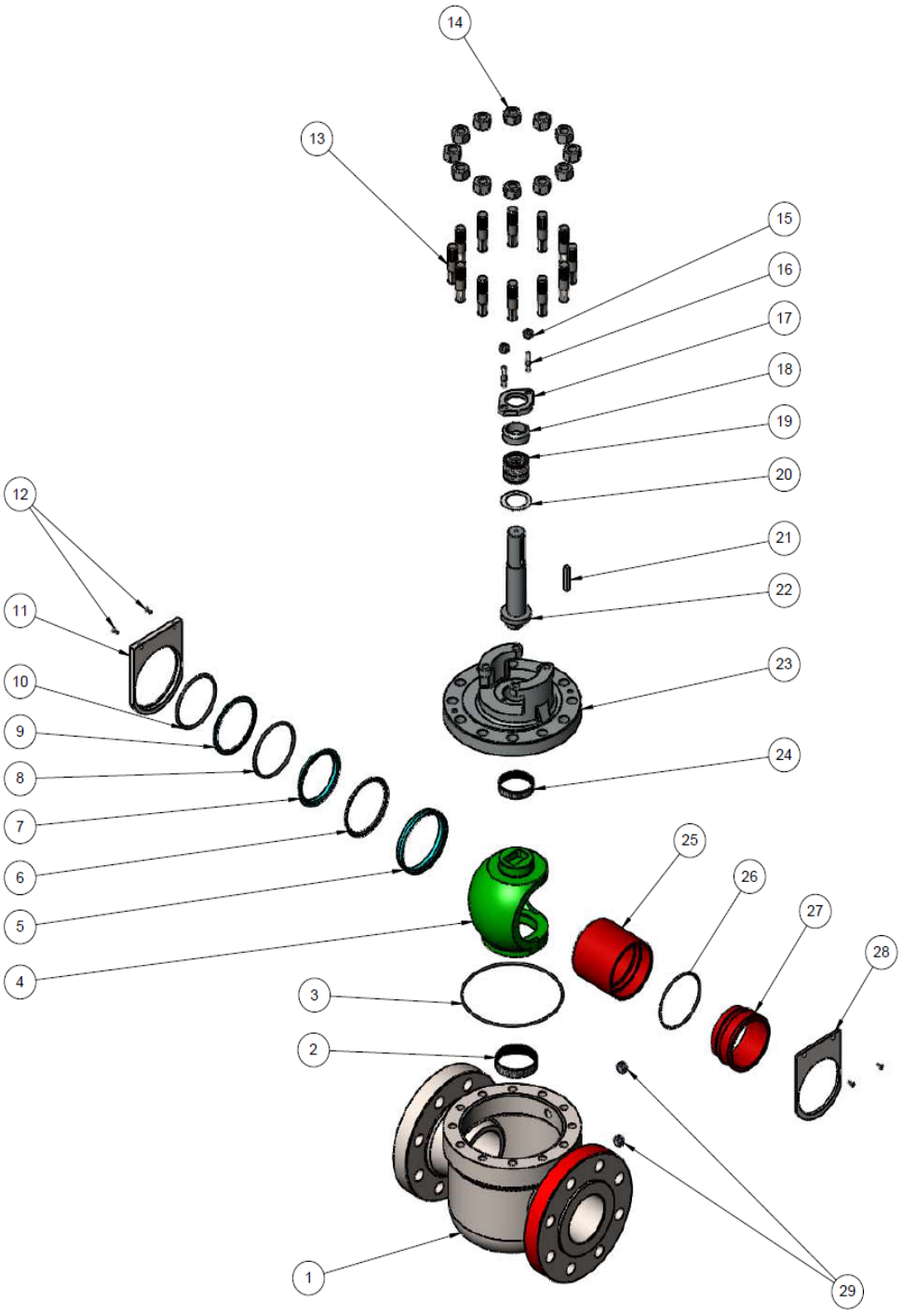
CARTRIDGE REPLACEMENT AND INSTALLATION:

If the cartridge must be replaced, proceed with the following steps.

1. Remove the actuator, if any, as described in the Pneumatic, Hydraulic or Electric Actuators section.
2. Remove the protective covering from the new cartridge assembly.
3. The replacement cartridge unit has been bolted to the bonnet for easy installation into the HCV body. If the cartridge is difficult to remove, attach a lifting device to the two eye bolts or jack screws located on top of the bonnet. The cartridge must be pulled straight up from the body to ensure easy removal.
4. Remove and replace the old O-Ring from the upper flange of the HCV. Replace with a new O-Ring by pressing the O-Ring into the groove of the valve body's upper flange. The replacement O-Ring has been shipped loose with the new cartridge.
5. Prior to installing the new cartridge, clean the inside of the valve body and apply grease to the machined areas of the body.
6. Slowly install the new cartridge unit into the valve body.
7. Match the wide portion of the cartridge to the wide portion of the valve body and lower the cartridge into the valve body.
8. Replace the nuts on each stud and torque to the required foot pounds.
9. Replace the actuator or gear operator onto the bonnet by following the directions in the Pneumatic, Hydraulic or Electric Actuators section.
10. Reinstall the manual lever, if any, and tighten down the set screw.
11. Open and close the valve to assure proper sealing and operation.



ITEM NO.	DESCRIPTION
1	BODY
2	BEARING
3	O-RING
4	HEMI
5	SEAT EXTERNAL
6	SEAT INSERT
7	SEAT INTERNAL
8	O-RING
9	SEAT MIDDLE
10	O-RING
11	SEAT RETAINER
12	CAP SCREW
13	STUDS
14	NUTS
15	NUTS
16	STUDS
17	GLAND PLATE
18	FOLLOWER
19	PACKING SET
20	WASHER
21	KEY
22	STEM
23	BONNET
24	BEARING
25	CORE FRONT
26	O-RING
27	CORE REAR
28	CORE RETAINER
29	PIPE PLUG



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