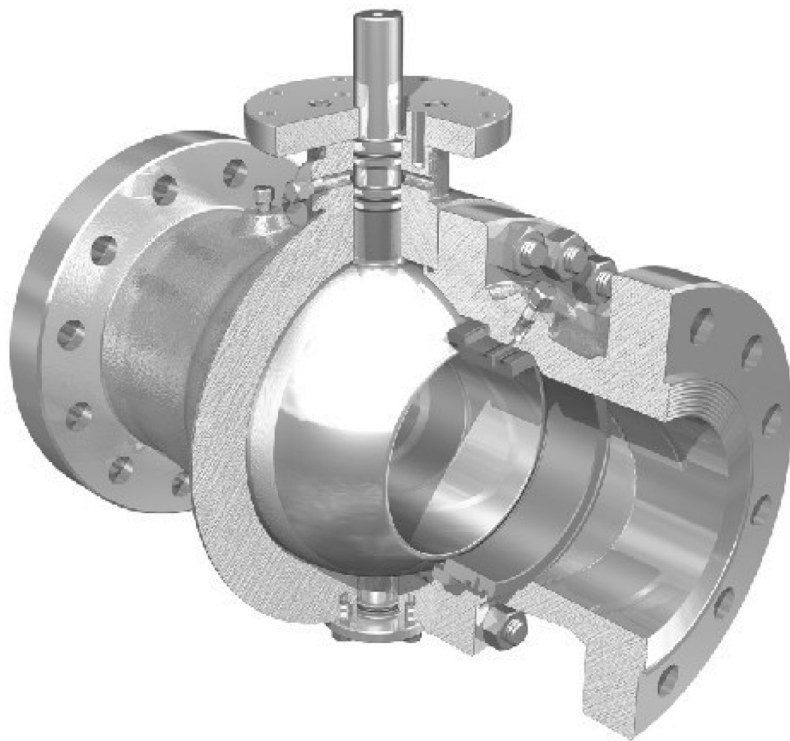


# BALL VALVE MAINTENANCE

**GUIDELINES FOR TRUNNION BALL VALVES:  
COMMISSIONING, HYDROSTATIC PRESSURE TESTING,  
PIGGING, AND TROUBLESHOOTING**



# CAMERON

**NORTHRUP EQUIPMENT COMPANY**

595 Fifth Street - P.O. Box 1802  
Parkersburg, West Virginia 26102

**1-800-922-9247**

[sales@northrupequipmentcompany.com](mailto:sales@northrupequipmentcompany.com)



**NORTHRUP  
EQUIPMENT  
COMPANY**

Manufacturer's Representative for  
**CAMERON DISTRIBUTED VALVES**

Selling Quality Products Since 1920  
Through Authorized Supply Stores

# VALVE COMMISSIONING

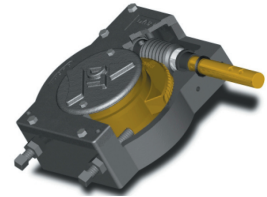
- **Design phase of project** - *Proper selection criteria for new valves*

- **Shipping, Handling** - *Proper lifting and storage practices*

1. Make sure to use lifting lugs or wrap straps around the body of the valve when lifting, do not lift the valve by wrapping chains or straps around the gear operator or stem of the valve.
2. Store valves inside out of the weather if possible, make sure that end caps remain in place until installation. Transport and store in the fully open position.

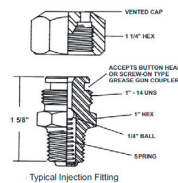
- **Inspection** - *Inspect valve and components*

1. Inspect valve for any damage caused in shipping.
2. Check to make sure all fittings are tight and in working order.
3. Check the gear operator to confirm gear case is properly greased.



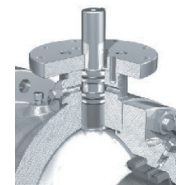
- **Fitting identification** - *ALWAYS consult the valve manufacture to positively identify the location, style and design features of various fittings. Valve model and serial number will be needed for accurate identification.*

1. Seat sealant injection fitting.
2. Stem sealant injection fitting.
3. Body vent or drain fitting.
4. Body relief fitting.
5. Pipe fittings and unknown fittings.



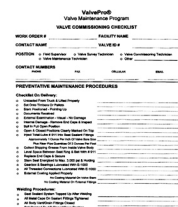
- **Pre-Lubrication** - *Lubricate all valves prior to installation*

1. Grease both seat sealant injection fittings until enough grease will cover the seat pocket of the valve in the full open position.
2. Do not grease stem injection fitting.
3. Replace end caps after greasing the valve and keep in place until installation.



- **Proper documentation and record keeping** -

*serial number, size, manufacture, top works and location of the valve.*



# HYDROSTATIC TESTING & PIGGING GUIDELINES

- **Hydrostatic Testing** *When ball valves are installed in a piping system that requires hydrostatic testing of the adjoining pipe, follow these procedures to minimize any damage that could occur to the sealing surface and seat seals inside the valve.*

1. The valve should be in the fully open position when the injection of test fluids begins. This will allow any pipeline debris to be flushed through the valve bore and out of the piping.
2. Once the piping system has been purged of the debris and the system has been completely filled with the test fluid, the ball should be placed in the partially open position (approximately 10 degrees from the fully open position). This allows test fluid into the body cavity of the valve.
3. The valve is now ready to be pressure tested.
4. Upon completion of hydrostatic pressure testing, the valve should be returned to the fully open position before removing the test fluid from the piping system. The test fluid in the body cavity can be drained through the body drain port located on the lower portion of the valve body.
5. Close the body bleed fitting and return the valve to required operating position, either fully opened or fully closed.
6. If the valve is equipped with seat sealant injection fittings, the valve seat pockets should be filled with an approved valve lubricant to displace any test fluid from behind the seats.

- **Pigging**

1. Make sure valves are in the full open position before pigging the system.
2. After the pig passes thru the valve and into the receiver or launcher, do not cycle the valve closed. Grease each seat one half ounce per inch per seat ring then cycle the valve closed.
3. Drain the body drain fitting.

# REGULAR MAINTENANCE

- **Maintenance should begin prior to installation**

1. Change out faulty or suspect fittings.
2. Fill the seat sealant system; spread the sealant inside in the “seat pocket”.
3. Check and set the valve stops.
4. Fully document all service performed.

- **Top –Up the Seat Sealant System**

1. Immediately after welding (if valve is a weld end valve).
2. After the hydrostatic test.
3. After repeated cycling.

- **Annual Maintenance Steps**

1. Drain body cavity.
2. Inject flush in seat sealant injection fitting if necessary.
3. Inject grease in seat seal injection fittings, 1/2 ounce per inch per seat ring.
4. Cycle the valve open and closed several times. If you cannot cycle valve completely open or closed, cycle it partially.
5. Document all maintenance of each valve.



# TROUBLE- SHOOTING

Trouble	Probable Cause	Remedy
The valve is hard to operate.	Actuator Unit	Refer to actuator maintenance manual or remove actuator cover and check stem adaptation and linkage for damage.
	Infrequent operation - lack of lubrication	Lubricate seats with valve lubricant and actuator with suitable industrial grease.
	Ice in valve operator	Apply heat or inject antifreeze solution into valve, but consult with authorized dealer prior to using remedy on operators.
	There is a build up in the seat area due to line contaminates.	Clean the seat area as outlined in Routine Seat Cleaning.
Ball is not properly aligned with bores of seats.	Restrictions in bore of valve or stop not set properly	Remove bore restrictions or check stop in worm gear actuator and/or actuator limit switches.
Erratic Operation	Damaged actuator unit	Replace broken or damaged parts
	Restriction of pneumatic actuator vent	Remove restriction
	Faulty power supply	Check power supply
	Infrequent operation - lack of lubrication	Lubricate seats with valve lubricant and actuator with suitable industrial grease
Valve is leaking between tailpiece and body.	Damaged O-Ring seal	Disassemble and replace O-Rings.
Leakage around valve stem	Damaged O-Ring seal	Inject valve sealant into stem fitting (if present) or replace stem O-Ring.
Valve will not fully close.	Ice in body of valve	Apply heat or inject antifreeze solution into body of valve. Drain periodically to eliminate water accumulation.
	Improper setting of actuator limit switches or stops in worm gear	Reset actuator limit switches or stops for proper closing
	Infrequent operation - lack of lubrication	Lubricate seats with valve lubricant and actuator with suitable industrial grease.
Grease fitting leaking	Damaged Fitting	Tighten safety cap or replace safety cap if damaged <b>WARNING:</b> Never remove entire grease fitting when valve is under pressure.
	Trash in fitting	Inject a small amount of cleaner into fitting to dislodge trash.
Valve will not seal.	Contamination around seat area due to service	Clean the seat area as outlined in Routine Seat Cleaning.
	Damaged seat face or seat O-Ring	Inject seat sealant for temporary seal or replace seats
	Valve not fully closed	Check that operator or limit-switches do not stop the rotation of ball prior to reaching the fully closed position.
	Valve stops incorrectly set	Adjust stops on actuator
Gear operator hard to operate or stuck	Water in gear	Drain water and lubricate if possible. Replace weather seal if applicable.
Pneumatic operators excessive chatter during operation	Low air flow	Increase air flow and operation speed
	Dried operator seals	Lubricate operator cylinder and seals with approved lubricant
	Restriction in vent	Clear restriction
	Actuator was undersized for service conditions	Check torque requirements of valve for service conditions
	Service conditions require routine maintenance and/or lubrication	Refer to operator maintenance manual



Manufacturer's Representative for  
CAMERON DISTRIBUTED VALVES

Selling Quality Products Since 1920  
Through Authorized Supply Stores

595 Fifth Street - P.O. Box 1802  
Parkersburg, West Virginia 26102  
**1-800-922-9247**  
sales@northrupequipmentcompany.com

## NORTHROP EQUIPMENT COMPANY CONTACTS

Frank Northrup, President..... 304-482-5493 (cell)  
fnorthrup@northrupequipmentcompany.com

### Representatives

Walt Elmquist (PA/NY) ..... 814-706-9547 (cell)  
welmquist@northrupequipmentcompany.com

Tim Northrup (PA/OH/WV) ..... 304-483-6280 (cell)  
tnorthrup@northrupequipmentcompany.com

Ron Lewis (WV/KY)..... 304-541-2204 (cell)  
rlewis@northrupequipmentcompany.com

### Inside Sales

Kathy Mullen ..... 304-428-6331 (office)  
kathy.mullen@c-a-m.com

Josh Roberts ..... 304-428-6331 (office)  
joshua.roberts@c-a-m.com

### D&B Valve Repair

Randy McMurray ..... 304-428-1264 (shop)  
Adam McAtee ..... 304-428-1264 (shop)

## Cameron Distributed Valves Contacts

WKM-DEMCO-WHEATLEY-AOP

400 Southpointe Boulevard, Suite 415  
Canonsburg, Pennsylvania 15317  
724-416-0343 FAX: 724-416-0396

Brett Wesley, NE District Manager ... 412-552-0170 (cell)

### Product Managers

Kevin Nix (Ball Valves)..... 405-629-0439  
Steve Isaacson (Gate/Butterfly) ..... 405-616-2584  
David Atkinson (Check Valves)..... 405-616-2554

### CAMSERV - After Market Services

Wes Kemper, Senior Field Service ..... 740-654-4260

# TOP TEN LIST

1. Know your ball valve – is it a trunnion or a floater?  
Know how it functions.
2. Make sure you have maintenance manuals for every valve, do not hesitate to call manufacturer for information or access it online.
3. Remember that ball valves will leak if out of alignment by a few degrees. In operation they should be fully opened or closed.
4. Know the features and the functions of fittings on the valve.
5. Use back up wrenches when removing caps off of buttonheads, drain, and vent fittings.
6. If the stem seal is working properly and is not leaking DO NOT grease the stem lube fitting.
7. Flushing, greasing, and operating ball valves on a regular basis will improve performance – by reducing seat to ball seizure
8. Don't use an automotive grease gun to inject sealants and lubricants into ball valves.
9. As a rule, when commissioning, pigging and hydrotesting, grease up to one ounce per inch per seat ring. Annual maintenance of 1/4 ounce per inch per seat ring is suggested. (On sealant injection with a hand pump it will take approximately 25 strokes per ounce. try to)
10. Document valve location, size, manufacturer, class, top works, commissioning and maintenance.

