



# INSTA-VALVE 250 **INSERTION VALVES**

4"–12" Installation Instructions





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## Section 1.0.0 — General Safety Warnings

These instructions depict using the most up-to-date Hydra-Stop insertion valves, installation equipment, and accessories. **Please be sure you are following the instructions for your equipment.**

## Section 1.0.1 — General Safety Precautions

Before using the equipment, carefully read and understand all safety messages in this manual and the manual provided with the pressure test kit. Follow prescribed maintenance procedures to keep the equipment in good working condition.

## Section 1.0.2 — Personal Protection

Hydra-Stop recommends installers wear proper personal protective equipment including, but not limited to:

- Hard Hat
- Safety Shoes
- Safety Glasses
- Ear Protection
- Gloves

Avoid wearing jewelry like rings, wristwatches, necklaces, or bracelets. If working near traffic, wear ear protection that allows you to hear the traffic for safety.

## Section 1.0.3 — Keep Spectators Away from the Installation Area

Keep all spectators and other workers away from machines and work area(s) while operating.

## Section 1.0.4 — Clear Work Area

Clear the work area of all objects that might interfere with the proper operation of any tools. Avoid placing tools or other objects where they can fall into the excavation.

## Section 1.0.5 — Do Not Work in an Unsupported Trench

Do not work in a trench with unstable sides, which could cave in. Specific shoring or sloping trench wall requirements are available from several sources, including Federal and State offices. Contact suitable authorities for these requirements before working in the trench. We recommend a minimum 5'x 5' excavation.

**NOTE:** Locate the existing pipe joints or fittings in the area and use the appropriate restraint methods, if necessary.

## Section 1.0.6 — Check Laws and Regulations

Know and obey all Federal, State, and Local laws and

regulations that apply to your work situation.

## Section 1.0.7 — Handling the Equipment

To avoid back injury, use proper lifting techniques. Follow all equipment instructions when lifting heavy loads.

## Section 1.0.8 — Check Hardware and Equipment

Ensure all air or hydraulic line couplings are tightened and secured to eliminate the chance of accidental uncoupling. Use hose connection retaining devices such as locking rings, clips, pins, chains, or cables. Identify all equipment and tools necessary for the size of Insta-Valve 250 you intend to install (please refer to the tool list in Appendix A). Inspect equipment to verify it is in good working condition and free of wear and damage before use. Never start an operation if the equipment is not in proper working order. Contact Hydra-Stop if the equipment is not in working order.

**NOTE:** Store equipment in a clean and dry environment.

## Section 1.0.9 — Do Not Exceed Load Rating on Any Lifting Equipment

This includes but is not limited to lifting magnets or eyebolts and straps. 12" knife gate lifting assists, and 3/4" eye bolts should ONLY be used for lifting 8" and 12" temporary gate valves, respectively.

## Section 1.0.10 — Additional Safety Information

**WARNING:** Failure to follow the above safety instructions or those in this manual could result in serious injury. Any operation involving work on a pipe containing liquids or gases under pressure is potentially hazardous. Correct procedures must be followed in the use and maintenance of this equipment to maintain a safe working environment.

Only those trained in the procedures stated in this manual and fully aware of the potential hazards of working on pipes containing liquids or gases under pressure should operate this equipment.

The purchaser of this equipment is responsible for its maintenance and use and the operators' training, competence, and safety.

**If you encounter any difficulty using this equipment at any time, please contact Hydra-Stop immediately at 708-389-5111.**

# WARNING!

If you have older installation equipment or are using installation equipment from another manufacturer, check the psi rating for each component before proceeding.

Never attempt to install Insta-Valve insertion valves at pressures greater than 150 psi if your equipment is not rated for 250 psi installation.

For 10" and 12" installations, your P20 must be bored to 13".

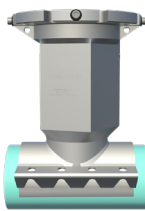
If you have questions regarding equipment psi ratings, contact Hydra-Stop at 708-389-5111.

**2.0.0 Mount Valve Body on Pipe**

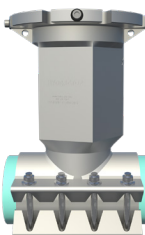
**IMPORTANT:** Read the installation instructions COMPLETELY before installing the Insta-Valve 250 valve body. Failure to follow the instructions will void the product warranty. Also, follow local safety regulations and use personal protection equipment (PPE) as required by National, State, and Local regulations.



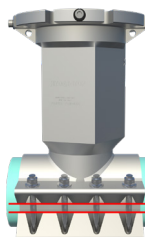
**FIGURE 1**



**FIGURE 2**



**FIGURE 3**



**FIGURE 4**

**2.0.1)** Inspect the valve body to ensure no damage has occurred during shipment or storage (see Figure 1).

**2.0.2)** Locate the valve cartridge and the container of stainless-steel mounting hardware. Store in a clean, safe location.

**2.0.3)** Measure the pipe outside diameter where the Insta-Valve 250 is installed to ensure the correct insertion valve is used.

**2.0.4)** Thoroughly clean the pipe surface to remove all loose debris and material where the valve body will be installed. Inspect for flaws (e.g., gouges, protrusions, excessive corrosion, etc.). Irregular surfaces should be avoided to ensure maximum gasket sealing.

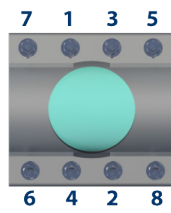
**2.0.5)** Liberally lubricate the top and bottom of the pipe and mat and throat gaskets with a soap and water solution. Ensure the branch gasket is adequately lubricated.

**2.0.6)** Mount the top half of the valve body on the pipe in the position required for permanent installation (see Figure 2). Do not rotate the top half of the valve body after it is positioned on the pipe.

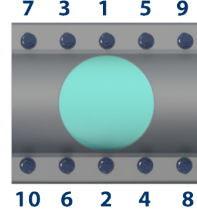
**2.0.7)** Install the bottom half of the valve body over the tapered ends of the mat gasket, ensuring they are flat and smooth against the pipe surface. Inspect the gasket to ensure tapered ends are not folded or rolled under.

**2.0.8)** Install stainless steel carriage bolts, washers, and nuts (see Figure 3). Finger-tighten nuts, ensuring gaps between the top and bottom halves of the valve body are the same front-to-back and side-to-side within 1/8" (see Figure 4).

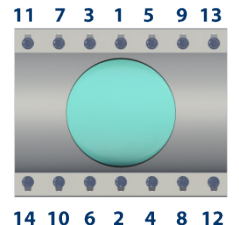
**2.0.9)** Using a torque wrench, tighten nuts following the proper pattern (see tightening patterns,



**FIGURE 5**  
4" –6" Bolt  
Tightening Pattern



**FIGURE 6**  
8" Bolt  
Tightening Pattern

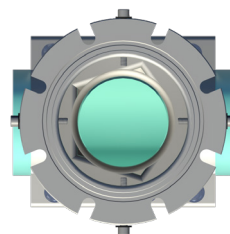


**FIGURE 7**  
10" and 12" Bolt  
Tightening Pattern

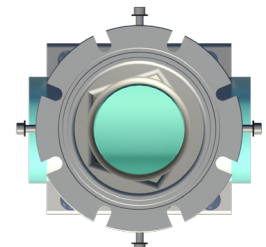
Figures 5-7). Repeat the tightening pattern in no more than 25 ft.-lb. increments until the recommended torque is reached.

**2.0.10)** Wait 10 minutes for the gasket to fully seat, then retighten the bolts to the recommended torque three additional times following the tightening pattern.

**2.0.11)** Check the inside of the valve body outlet to ensure the gasket is properly seated. The completion pins are shipped in the fully installed position. Back out and flush the completion pins with the flange's ID (see Figures 8 and 9).



**FIGURE 8**  
Completion pins NOT flush with inner valve flange.  
**DO NOT ATTEMPT VALVE INSTALLATION WITH PINS IN THIS POSITION.**



**FIGURE 9**  
Completion pins flush with I.D. of flange. This is correct position to begin pressure test and continue with installation procedure.

**INSTALLATION BEST PRACTICES:**

- Keep nuts and bolts clean and free of debris.
- Adequately lubricate pipe, mat, and branch gaskets. Ensure the branch gasket is adequately lubricated. Do not use grease or pipe lubricant.
- Avoid rotating the top half of Insta-Valve 250 once placed on the pipe.
- Do not use an impact wrench to tighten nuts; you will gall the bolts and damage the valve.
- Block and support the pipe before installing the tapping machine.
- Ensure all pipe joints are restrained prior to proceeding to valve insertion operation.
- Label the valve body with a paint pen or permanent marker with the tightening pattern and required torque.

**RECOMMENDED TORQUE**

**4"–8" Insta-Valve 250**

CI / DI Pipe	115 ft.-lbs.
PVC Pipe	55 ft.-lbs.
AC Pipe	75 ft.-lbs.

**10"–12" Insta-Valve 250**

CI / DI Pipe	65 ft.-lbs.
PVC Pipe	55 ft.-lbs.
AC Pipe	60 ft.-lbs.

### 2.1.0 Pressure Test Valve Body



FIGURE 10

**2.1.1)** Fill the valve body with water (see Figure 10). Approximately 5-10 gallons of water are needed.

**2.1.2)** Apply food-grade lubricant to pressure test plug O-ring.

**2.1.3)** Ensure set pins have been backed out and are flush with the I.D. of the flange.

**2.1.4)** Install the Quick Pressure Test Plug into the top of the valve body (see Figure 11).

**NOTE:** The Quick Pressure Test Plug is blue for 4"–8" and red for 10"–12" Insta-Valve 250s.

**2.1.5)** Insert 4 flange bolts into the 4 mounting holes of the pressure test plug assembly. Finger-tighten a washer and nut onto each of the four bolts (see Figure 12).

**2.1.6)** Connect the Pressure Test Tree to the Quick Pressure Test Plug (see Figure 13).

**2.1.7)** Connect the Pressure Test Pump to the Pressure Test Tree. You must use a hydrostatic method of pressurizing the valve body. DO NOT use a compressible medium such as air.

**2.1.8)** Follow local rules for the recommended length of the pressure test.

**2.1.9)** After completing the pressure test, use the ball valve to blow off pressure before removing the Quick Pressure Test Plug.

**NOTE:** Do not exceed recommended pressure test specifications.

**Minimum Test Pressure:** 1.5 times the system working pressure.

**Maximum Test Pressure:** 375 psi.

**2.1.10)** Follow the tightening pattern and re-torque carriage bolts to the recommended torque before continuing.

### 2.2.0 Installing the Temporary Gate Valve

**2.2.1)** Install O-ring into valve body flange O-ring groove.

**2.2.2)** Install the temporary gate valve.

**4"–8" Insta-Valve 250**

8" temporary gate valve

**10"–12" Insta-Valve 250**

12" temporary gate valve



FIGURE 14

If possible, avoid positioning the valve at the true 3, 6, 9, or 12 o'clock position to allow access to the completion pins (see Figure 14).

**NOTE:** Temporary gate valves are single-direction valves that must be positioned top-up.

- The 8" temporary gate valve must be installed with the O-ring groove facing up.

- The 12" gate temporary valve must be installed with the red bar facing up (see Figure 15).

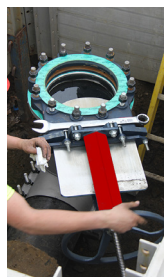


FIGURE 15

**2.2.3)** Bolt the temporary gate valve to the top of the Insta-Valve 250 flange using the bolts, nuts, and washers provided with the installation equipment, using a cross-tightening pattern.

**2.2.4) For 4"–8" Insta-Valve 250:** Install the O-ring in the groove of the 8" temporary gate valve (see Figure 14). Install the temporary gate valve bypass jumper.

**For 10"–12" Installations:** Install the green fiber gasket (without holes) on the top side of the temporary gate valve (see Figure 15).

**2.2.5)** Fully open the temporary gate valve and ensure proper alignment with no obstructions.

### 2.3.0 Setting up the Hydra-Tapper for Core Sampling

#### NOTES:

- Hydra-Stop recommends always performing a core sample to ensure the appropriate valve cartridge is used.
  - The 4" Insta-Valve 250 does not require core sampling.
  - If the pipe I.D. is known, proceed to 2.11.0 Preparing the Hydra-Tapper for Non-Core Sample Valve Insertion Line Tap on page 13.
- The P20 Assembly is only used for 10"–12" Insta-Valve 250s. **Any mention of the P20 Assembly in the instructions is regarding only the 10" and 12" Insta-Valve 250.**

**2.3.1) For 10"–12" Insta-Valve 250 only,** bolt the Hydra-Tapper to the P-20 component using the bolts and nuts included with Hydra-Tapper equipment (see Figure 16).

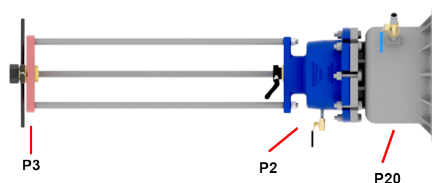


FIGURE 16

**2.3.2)** Select the proper size saw mandrel. Saw mandrel length required for core sampling and tapping:

4"–8" Insta-Valve 250	10"–12" Insta-Valve 250
41" Saw Mandrel	55" Saw Mandrel

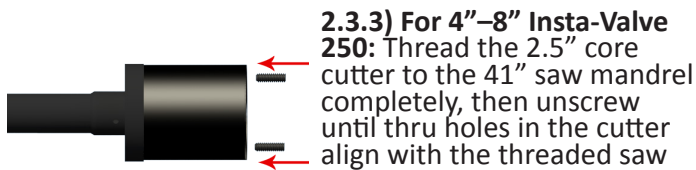


FIGURE 17

**2.3.3) For 4"–8" Insta-Valve 250:** Thread the 2.5" core cutter to the 41" saw mandrel completely, then unscrew until thru holes in the cutter align with the threaded saw mandrel holes. Insert and thread both 1/4-20 x 3/4" set screws from the inside of the cutter. These set screws prevent the cutter from over-tightening and locking on the saw mandrel (see Figure 17).

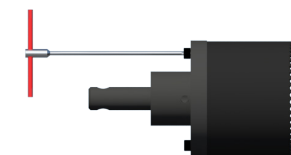


FIGURE 18

**For 10"–12" Insta-Valve 250:** Screw the 4" cutter to the adaptor and lock it in place with cutter hardware (see Figure 18).

**2.3.4)** Loosen and remove the Allen-head pilot drill retaining set screw located on the side of the saw mandrel flange base.

**2.3.5)** Select the proper size pilot drill for installation.

4"–8" Insta-Valve 250	10"–12" Insta-Valve 250
Requires the 5/8" X 6" long pilot drill.	Requires the 6" pilot bit with the 3 3/4" cutter.

**NOTE:** Tapping PVC or steel pipe will require a twist-style pilot drill.

**2.3.6)** Visually locate the tapered relief on the base of the pilot drill. Notice the stop or ledge at the base of the taper (see Figure 19).



FIGURE 19

**2.3.7)** Mark the flat of the taper with a visible marking agent (see Figure 20).



FIGURE 20

**2.3.8)** For 4"–8" Insta-Valve 250: Align the pilot drill flat with the Allen-head set screw and insert the pilot drill into the 41" saw mandrel (see Figure 21).



FIGURE 21

**For 10"–12" Insta-Valve 250:** Align the pilot drill flat with the Allen-head set screw and insert the pilot drill through the center of the coring adaptor (see Figure 22).



FIGURE 22

**2.3.9)** Confirm you have completely inserted the pilot drill and engaged the tapered flat. Look into set screw hole for the marking on the pilot drill. Adjust the pilot drill until you can see the marking (see Figure 23).



FIGURE 23

**2.3.10)** Once aligned, insert and tighten the set screw. Test pull the pilot drill to ensure the set screw is properly locked in place against the pilot drill ledge. Check the coupon retaining clips and ensure they move freely.

**NOTE:** Wear gloves when pulling on the pilot drill. Edges may be sharp.

**2.3.11) For 4"–8" Insta-Valve 250:** Attach the corresponding centering ring for the size of the Insta-Valve being installed to the top of the saw mandrel flange using 5/16"–18 x 1.25" bolts through to the top of the centering ring. Ensure a wider portion of the centering ring is positioned away from the mandrel plate and cutter assembly (see Figure 24).

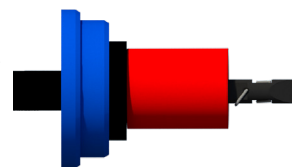


FIGURE 24

**For 10"–12" Insta-Valve 250:** Thread the adaptor/cutter onto the saw mandrel until tight, then back off until the adaptor through-hole aligns with the saw mandrel through-hole.



FIGURE 25

**NOTE:** The through hole is a modification made to the saw mandrel to accept the 3/8" set pin included in the kit (see Figure 25).

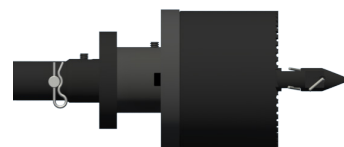


FIGURE 26

Insert set screw and cotter clip to lock adaptor in place (see Figure 26).

Attach the Centering Ring to the Coring Adaptor Ring using 1/2"–13 x 2" Hardware (see Figure 27).

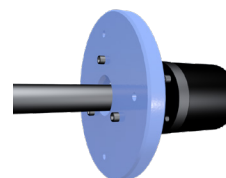


FIGURE 27

**2.3.12)** Make sure the saw mandrel is clean and free of rust or grime (steel wool can be used to clean and smooth the surface).

**2.3.13)** To help the saw mandrel slide freely through the packing nut assembly, lubricate the end with a dab of the food-grade lubricant provided with the equipment.

**2.3.14)** Insert the coring assembly completely into the Hydra-Tapper tapping machine.

**For the 10"–12" Insta-Valve 250,** the saw mandrel flange bottoms out inside the P-20 component.

**2.3.15)** Hand-tighten the clamp lever on the packing nut assembly to keep the assembled shell cutter and saw mandrel in place.

**NOTE:** Do not use tools to tighten the clamp lever.

**2.4.0 Installing the Hydra-Tapper**

**2.4.1)** Using a strap or sling, install the Hydra-Tapper onto the temporary gate valve and align the bolt slots.

**NOTE:** Use extreme caution not to damage the shell cutter or pilot drill as the unit is raised and placed on the temporary gate valve. Note the position of the fully retracted cutting assembly.

**2.4.2)** To secure the assembly, install and cross-tighten the bolts, nuts, and washers. If not already installed, thread the 1/4" nipple and ball valve into the P2 tap housing and wrench tighten. Teflon tape or thread sealant can be used.

**2.4.3)** Hold and control the exposed saw mandrel, loosen the packing nut assembly clamp lever, and slowly lower the saw mandrel until the pilot drill rests on the pipe's center top. Ensure the shell cutter/centering ring spins freely in a clockwise direction.

**NOTE:** The centering ring ensures the core sample is centered.

**NOTE:** If the tap is done on PVC and the material melts, the centering tool in the next section will still function properly to center the tap, but the coupon may be difficult to remove.

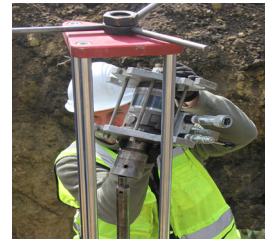
**2.4.4)** Slide a stop collar over the saw mandrel.

**2.4.5)** Set the cutting depth by measuring from the top of the packing nut assembly to the lower side of the stop collar.

Size	Core Sample Depth
6" Insta-Valve 250	3.5"
8" Insta-Valve 250	3.5"
10" Insta-Valve 250	4.5"
12" Insta-Valve 250	4.75"

**2.4.4)** Install the drive unit by lifting it above the saw mandrel and sliding it into the three (3) guide bars.

**2.4.5)** Lower the drive unit onto the machined hex of the saw mandrel. Confirm the drive unit is fully seated onto the machined hex of the saw mandrel (see Figure 28).



**FIGURE 28**

**2.4.6)** Install the feed screw by threading it through the OS & Y bearing of the Hydra-Tapper until the feed screw engages the top of the drive unit.

**NOTE:** Do not apply downward force, which can damage the pilot drill.

**2.4.7)** When the feed screw contacts the top of the drive unit, back off one full turn.

**2.4.8)** Install the upper and lower restraint pins and cotter clips to join the saw mandrel, drive motor, and feed screw into a single assembly.

**2.5.0 Performing the Core Sample**

**2.5.1)** Ensure the 1/4" ball valve on the Hydra-Tapper P2 housing is open.

**For the 10"–12" Insta-Valve 250,** also open the ball valve on the P20 housing.

**2.5.2)** Attach the hoses to connect the drive unit power source to the drive unit. **The hydraulic drive unit requires 9 GPM at 1800 PSI, and the air drive unit requires 90 CFM at 90 PSI.**

**2.5.3)** Ensure the drive unit lever control is in the neutral position. Always run the drive unit clockwise.

**NOTE:** Avoid reversing, as this will damage the carbide on the pilot drill and carbide teeth on the sampling cutter.

**2.5.4)** Engage the drive unit and confirm the saw mandrel is rotating clockwise. Slowly turn the handle assembly clockwise, keeping slight, constant pressure until the tap is complete. The tap is complete when the stop collar contacts the packing nut assembly.

**NOTE:** Do not overfeed the tap. Overfeeding the tap will cause the shell cutter to jam.

**2.5.5)** Close the ball valve on the P2 tap housing of the Hydra-Tapper as water fills the housing and flows from the valve.

**For the 10"–12" Insta-Valve 250,** also close the ball valve on the P20 housing.

**2.5.7)** Return the drive unit lever control to the neutral position. Disconnect drive unit hoses.

**2.5.8)** Tighten the packing nut assembly clamp lever to lock the saw mandrel in place. Remove the feed screw, drive unit, and one operating handle.

2.5.9) Place a 1 1/16" box-end wrench over the hex on the saw mandrel and use the wrench as a lever brake to hold it in place (see Figure 29).



FIGURE 29

2.5.10) Loosen the packing nut assembly clamp lever and allow the pressure to slowly raise the cutter assembly fully into the tapping/P20 housing.

2.5.11) Confirm the shell cutter and saw mandrel assembly are fully retracted and lock the saw mandrel in place by tightening the packing nut assembly clamp lever.

2.5.12) Close the temporary gate valve.

2.5.13) Open the 1/4" tapping machine ball valve and discharge the pressure to relieve the pressure on the Hydra-Tapper. Then, open the temporary gate valve ball valve to drain the tapping assembly.

### 2.6.0 Removing the Hydra-Tapper

2.6.1) Connect the slings or straps to the Hydra-Tapper. Unbolt and remove the Hydra-Tapper/P20 Assembly from the temporary gate valve. Place the Hydra-Tapper in a dry and safe work area in a horizontal position with the point of the red P3 pointing down.

2.6.2) Loosen the packing nut assembly clamp lever.

2.6.3) Remove cutter and saw mandrel assembly.

2.6.4) Remove the coupon by loosening the Allen-head pilot drill retaining set screw. Remove the pilot drill from the saw mandrel stud.

2.6.5) Flip the pilot drill, insert its point end through the hole in the coupon past the retaining clips, and use it to pull the coupon out of the cutter.

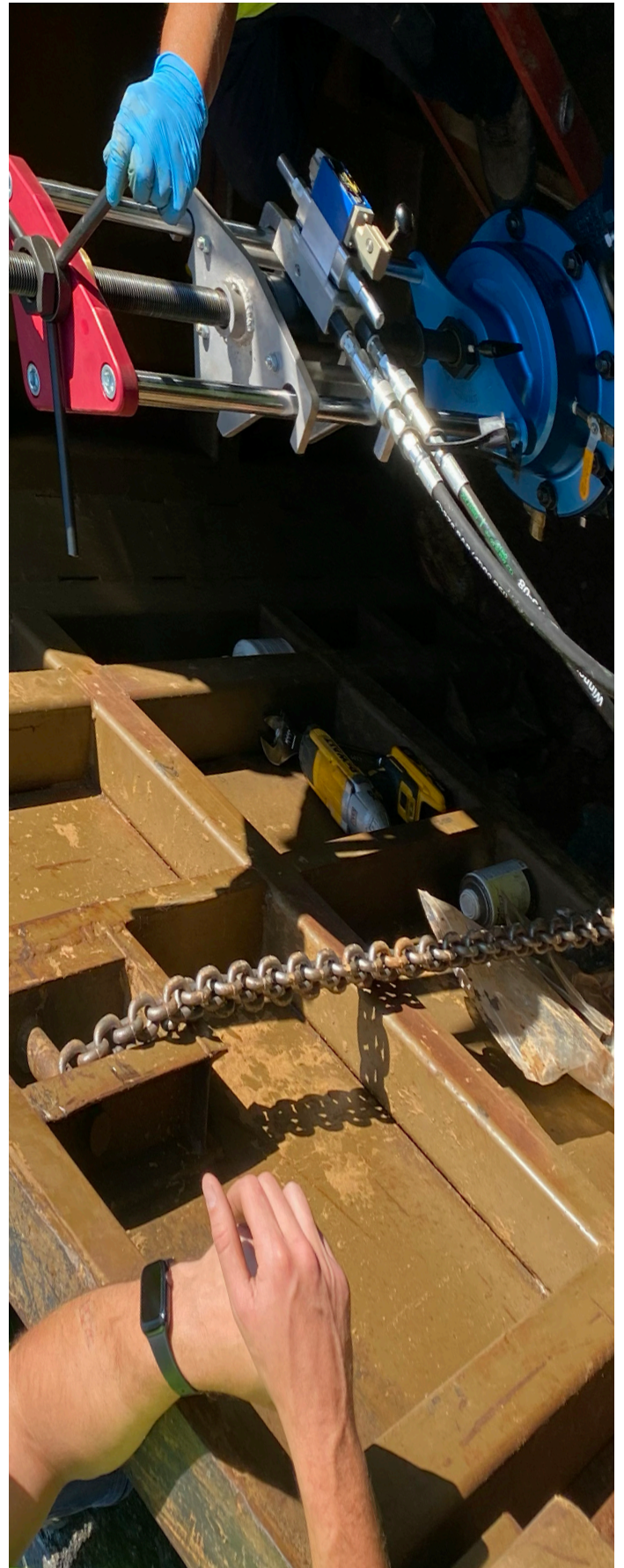
**NOTE:** Wear gloves when removing the coupon. Coupon edges may be sharp.

2.6.7) Measure coupon thickness to calculate the inner diameter.

An undersized cutter and cartridge should be used if the pipe I.D. (Inner Diameter = [Outer diameter minus (2 \* wall thickness)]) is:

Nominal Size Pipe	Smaller Than
6"	5.75"
8"	7.80"
10"	9.70"
12"	11.70"

**NOTE:** Ensure you are using the correct shell cutter for your application. Please refer to the Valve Cartridge and Cutter Sizing Chart on the next page.



**VALVE CARTRIDGE AND CUTTER SIZING CHART**

	4"-12" INSTA-VALVE 250 <b>OPEN LEFT</b> VALVE CARTRIDGES ( <b>BLACK</b> Operating Nut)				Cutter Selection	
	Nominal Size	Cartridge ID Range	Hydra-Stop Part Number — Description	Side Seal Length	Cutter Size	Cutter Color
<b>OPEN LEFT</b>	4"	3.75 - 4.35	25CARTLH04-250 — 4" Open Left Cartridge, IV250	N/A	3.8"	BLACK
	6"	5.75 - 6.340	25CARTLH06-250 — 6" Open Left Cartridge, IV250	N/A	5.8"	BLACK
		5.45-5.75	25CARTLH06-250-U5.5 — 6" Open Left Cartridge, IV250 5.5 Undersized	1.75"	5.5"	RED
	8"	7.80 - 8.50	25CARTLH08-250 — 8" Open Left Cartridge, IV250	N/A	7.9"	BLACK
		7.40-7.80	25CARTLH08-250-U7.5 — 8" Open Left Cartridge, IV250 7.5 Undersized	3.50"	7.5"	RED
		7.40-7.80	25CARTLH08-250-U7.5-AC — 8" Open Left Cartridge, IV250 7.5 Undersized AC	3.50"	7.5"	RED
	10"	9.70 - 10.40	25CARTLH10-250 — 10" Open Left Cartridge, IV250	N/A	9.8"	BLACK
		9.40-9.70	25CARTLH10-250-U9.5 — 10" Open Left Cartridge, IV250 9.5 Undersized	4.75"	9.5"	RED
		9.40-9.70	25CARTLH10-250-U9.5-AC — 10" Open Left Cartridge, IV250 9.5 Undersized AC	4.50"	9.5"	RED
	12"	11.70 - 12.40	25CARTLH12-250 — 12" Open Left Cartridge, IV250	N/A	11.8"	BLACK
		11.00-11.40	25CARTLH12-250-U11.1 — 12" Open Left Cartridge, IV250 11.1 Undersized	4.875"	11.1"	BLUE
		11.40-11.70	25CARTLH12-250-U11.5 — 12" Open Left Cartridge, IV250 11.5 Undersized	4.50"	11.5"	RED
		11.40-11.70	25CARTLH12-250-U11.5-AC — 12" Open Left Cartridge, IV250 11.5 Undersized AC	3.50"	11.5"	RED

	4"-12" INSTA-VALVE 250 <b>OPEN RIGHT</b> VALVE CARTRIDGES ( <b>RED</b> Operating Nut)				Cutter Selection	
	Nominal Size	Cartridge ID Range	Hydra-Stop Part Number — Description	Side Seal Length	Cutter Size	Cutter Color
<b>OPEN RIGHT</b>	4"	3.75–4.35	25CARTRH04-250 — 4" Open Right Cartridge, IV250	N/A	3.8"	BLACK
	6"	5.75–6.34	25CARTRH06-250 — 6" Open Right Cartridge, IV250	N/A	5.8"	BLACK
		5.45–5.75	25CARTRH06-250-U5.5 — 6" Open Right Cartridge, IV250 5.5 Undersized	1.75"	5.5"	RED
	8"	7.80–8.50	25CARTRH08-250 — 8" Open Right Cartridge, IV250	N/A	7.9"	BLACK
		7.40–7.80	25CARTRH08-250-U7.5 — 8" Open Right Cartridge, IV250 7.5 Undersized	3.50"	7.5"	RED
		7.40–7.80	25CARTRH08-250-U7.5-AC — 8" Open Right Cartridge, IV250 7.5 Undersized AC	3.50"	7.5"	RED
	10"	9.70–10.40	25CARTRH10-250 — 10" Open Right Cartridge, IV250	N/A	9.8"	BLACK
		9.40–9.70	25CARTRH10-250-U9.5 — 10" Open Right Cartridge, IV250 9.5 Undersized	4.75"	9.5"	RED
		9.40–9.70	25CARTRH10-250-U9.5-AC — 10" Open Right Cartridge, IV250 9.5 Undersized AC	4.50"	9.5"	RED
	12"	11.70–12.40	25CARTRH12-250 — 12" Open Right Cartridge, IV250	N/A	11.8"	BLACK
		11.00–11.40	25CARTRH12-250-U11.1 — 12" Open Right Cartridge, IV250 11.1 Undersized	4.875"	11.1"	BLUE
		11.40–11.70	25CARTRH12-250-U11.5 — 12" Open Right Cartridge, IV250 11.5 Undersized	4.50"	11.5"	RED
		11.40–11.70	25CARTRH12-250-U11.5-AC — 12" Open Right Cartridge, IV250 11.5 Undersized AC	3.50"	11.5"	RED

**NOTES:**

- Valve cartridges include operating nut, operating nut retention nut and friction washer.
- Valve cartridges are available in open left or open right configurations.
- Undersized valve cartridges require the use of undersized cutters. See Hydra-Core Pipe Wall Sampling Kit operating instructions for reference.
- Undersized AC valve cartridges must be used in AC applications.

**2.6.8)** Remove the cutter from the saw mandrel.

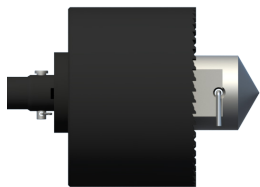
**2.6.9)** Disassemble core sampling equipment. Be sure to remove the centering ring from the cutter assembly.

**NOTE:** The coupon must be removed before the cutter set screws and cutter can be removed.

**2.7.0) Post-Core Sampling Line Tapping**

**2.7.0)** Depending on pipe I.D., attach the appropriate cutter — standard or undersized — to the saw mandrel and secure it with the standard cutter hardware as normal. Refer to the Valve Cartridge and Cutter Sizing Chart above.

**2.7.1)** Insert the centering tool into the pilot bit hole, align the through-hole with the saw mandrel through-hole, and lock it in place with a cotter pin and clip (see Figure 30).



**FIGURE 30**

Size	Centering Tool
4"–8" Insta-Valve 250	2.5"
10"–12" Insta-Valve 250	4.5"

**2.7.2)** Make sure the saw mandrel is clean and free of rust or grime (steel wool can be used to clean and smooth the surface).

**2.7.3)** To help the saw mandrel slide freely through the packing nut assembly, lubricate the end with a dab of the food-grade lubricant provided with the equipment.

**2.7.4)** Insert tapping assembly completely into Hydra-Tapper/P20 Assembly.

**2.7.5)** Hand-tighten the clamp lever on the packing nut assembly to keep the assembled shell cutter and saw mandrel in place.

**NOTE:** Do not use tools to tighten the clamp lever.

**2.8.0) Installing the Hydra-Tapper**

**2.8.1)** Using a strap or sling, install the Hydra-Tapper onto the temporary gate valve and align the bolt slots.

**NOTE:** Use extreme caution not to damage the shell cutter or centering tool drill as the unit is raised and placed on the temporary gate valve (**for the 10"–12" Insta-Valve 250**, the cutter will extend past the end of the P20 Assembly). Note the position of the fully retracted cutting assembly.

**2.8.2)** To secure the assembly, install and cross-tighten the bolts, nuts, and washers. If not already installed, thread the 1/4" nipple and ball valve into the tap housing and wrench tighten. Teflon tape or thread sealant can be used.

**2.8.3)** Ensure the ball valve on the Hydra-Tapper P2 is open.

**2.8.4)** For 4"–8" Insta-Valve 250, open the valve on the temporary gate valve bypass jumper and allow pressure to equalize.

**2.8.5)** Slowly open the temporary gate valve and allow time for the assembly to fully equalize.

**2.8.6)** Close the tapping machine ball valve when fluid flows from the ball valve.

**2.8.7)** Hold and control the exposed saw mandrel, loosen the packing nut assembly clamp lever, and slowly lower the saw mandrel until the cutter is resting on the top of the pipe. Ensure the shell cutter spins freely in a clockwise direction.

**2.8.8)** Tighten the packing nut assembly clamp lever.

**2.8.9)** Slide a stop collar over the saw mandrel.

**2.8.10)** Set the cutting depth by measuring from the top of the packing nut assembly to the lower side of the stop collar. Tighten the stop collar to the correct measurement, as shown below.

Nominal Size Pipe	Cutting Depth
4"	2.5"
6"	3.5"
8"	4.5"
10"	6"
12"	7"

**NOTE:** See Figure 31 for a measuring example.

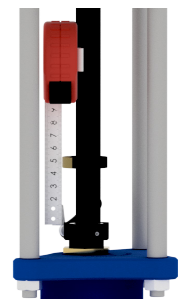
**2.8.11)** Install the drive unit by lifting it above the saw mandrel and sliding it into the three (3) guide bars.

**2.8.12)** Lower the drive unit onto the machined hex of the saw mandrel. Confirm the drive unit is fully seated onto the machined hex of the saw mandrel (see Figure 32).

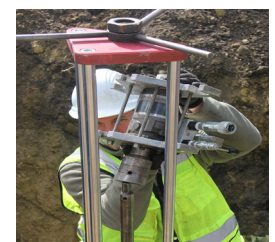
**2.8.13)** Install the feed screw by threading it through the OS & Y bearing of the Hydra-Tapper until the feed screw engages the top of the drive unit.

**2.8.14)** When the feed screw contacts the top of the drive unit, back off one full turn.

**2.8.15)** Install the upper and lower restraint pins and cotter clips to join the saw mandrel, drive motor, and feed screw into a single assembly.



**FIGURE 31**  
(Measurement shown is for reference only)



**FIGURE 32**

**2.9.0 Performing the Line Tap**

**2.9.1)** Ensure the ball valve(s) on the Hydra-Tapper P2 and P20 housing is open.

**2.9.2)** Attach the hoses to connect the drive unit power source to the drive unit. **The hydraulic drive unit requires 9 GPM at 1800 PSI, and the air drive unit requires 90 CFM at 90 PSI.**

**2.9.3)** Ensure the drive unit lever control is in the neutral position. Always run the drive unit clockwise.

**NOTE:** Avoid reversing, as this will damage the carbide on the pilot drill and carbide teeth on the sampling cutter.

**2.9.4)** Engage the drive unit and confirm the saw mandrel is rotating clockwise. Slowly turn the handle assembly clockwise, keeping slight, constant pressure until the tap is complete. The tap is complete when the stop collar contacts the packing nut assembly.

**NOTE:** Do not overfeed the tap. Overfeeding the tap will cause the shell cutter to jam.

**2.9.5)** Return the drive unit lever control to the neutral position. Disconnect drive unit hoses.

**2.9.6)** Loosen the stop collar and continue to advance the feed screw an additional two complete revolutions to ensure the cut is complete. The shell cutter should spin freely.

- **If the shell cutter DOES spin freely**, disconnect the drive unit power source from the drive unit.
- **If the shell cutter DOES NOT spin freely**, engage the drive unit, and confirm the saw mandrel is rotating clockwise. Slowly turn the handle assembly clockwise for an additional two (2) complete revolutions and return to step 2.9.4.

**2.9.7)** Slowly turn the handle assembly counterclockwise until the stop collar has reached the starting measurement.

Nominal Size Pipe	Cutting Depth
4"	2.5"
6"	3.5"
8"	4.5"
10"	6"
12"	7"

**2.9.10)** Tighten the packing nut assembly clamp lever to lock the saw mandrel in place. Remove the feed screw. Remove the drive unit.

**2.9.11)** Place a 1 1/16" box-end wrench over the hex on the saw mandrel and use the wrench as a lever brake to hold it in place (see Figure 33).

**2.9.12)** Loosen the packing nut assembly clamp lever and allow the pressure to slowly raise the cutter

assembly fully into the tapping housing.

**2.9.13)** Confirm the shell cutter and saw mandrel assembly are fully retracted and lock the saw mandrel in place by tightening the packing nut assembly clamp lever.

**2.9.14)** Close the temporary gate valve.



**FIGURE 33**

**2.10.0 Removing the Hydra-Tapper**

**2.10.1)** Relieve the pressure from the Hydra-Tapper by opening the 1/4" tapping machine ball valve and discharging the pressure. Open the temporary gate valve ball valve to drain the tapping assembly.

**2.10.2)** Connect the slings or straps to the Hydra-Tapper. Unbolt and remove the Hydra-Tapper/P20 Housing from the temporary gate valve. Place the Hydra-Tapper in a horizontal position with the point of the red P3 pointing down.

**2.10.3)** Loosen the packing nut assembly clamp lever.

**2.10.4)** Remove the cutter and saw mandrel assembly.

**2.10.5)** Remove the coupon by loosening the Allen-head pilot drill retaining set screw. Remove the pilot drill from the saw mandrel stud.

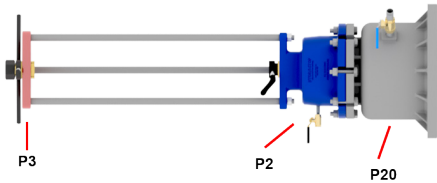
**2.10.6)** Flip the pilot drill, insert its point end through the hole in the coupon past the retaining clips, and use it to pull the coupon out of the cutter.

**NOTE:** Wear gloves when removing the coupon. Coupon edges may be sharp.

**2.10.7)** Proceed to step 3.0.0 – Preparing the Hydra-Tapper for Valve Insertion on page 18.

**2.11.0 Preparing the Hydra-Tapper for Non-Core Sample Valve Insertion Line Tap**

**2.11.1) For 10"–12" Insta-Valve 250 only,** bolt the Hydra-Tapper to the P-20 component using the bolts and nuts included with Hydra-Tapper equipment (see Figure 34).



**FIGURE 34**

**2.11.2)** Select the proper size saw mandrel. Saw mandrel length required for core sampling and tapping:

4"–8" Insta-Valve 250	10"–12" Insta-Valve 250
41" Saw Mandrel	55" Saw Mandrel

**2.11.3)** Select the proper size shell cutter. Hydra-Stop valve insertion shell cutters are shipped painted black. If you repaint them in the future, Hydra-Stop recommends painting them black.

Insta-Valve Size	Shell Cutter Size
4" Insta-Valve 250	3.8"
6" Insta-Valve 250	5.8"
8" Insta-Valve 250	7.9"
10" Insta-Valve 250	9.8"
12" Insta-Valve 250	11.8"

**NOTE:** Ensure you are using the correct shell cutter for your application. Please refer to the **Valve Cartridge and Cutter Sizing Chart** on the next page.



**VALVE CARTRIDGE AND CUTTER SIZING CHART**

4"-12" INSTA-VALVE 250 <b>OPEN LEFT</b> VALVE CARTRIDGES ( <b>BLACK</b> Operating Nut)				Cutter Selection		
Nominal Size	Cartridge ID Range	Hydra-Stop Part Number — Description	Side Seal Length	Cutter Size	Cutter Color	
<b>OPEN LEFT</b>	4"	3.75 - 4.35	25CARTLH04-250 — 4" Open Left Cartridge, IV250	N/A	3.8"	BLACK
	6"	5.75 - 6.340	25CARTLH06-250 — 6" Open Left Cartridge, IV250	N/A	5.8"	BLACK
		5.45-5.75	25CARTLH06-250-U5.5 — 6" Open Left Cartridge, IV250 5.5 Undersized	1.75"	5.5"	RED
	8"	7.80 - 8.50	25CARTLH08-250 — 8" Open Left Cartridge, IV250	N/A	7.9"	BLACK
		7.40-7.80	25CARTLH08-250-U7.5 — 8" Open Left Cartridge, IV250 7.5 Undersized	3.50"	7.5"	RED
		7.40-7.80	25CARTLH08-250-U7.5-AC — 8" Open Left Cartridge, IV250 7.5 Undersized AC	3.50"	7.5"	RED
	10"	9.70 - 10.40	25CARTLH10-250 — 10" Open Left Cartridge, IV250	N/A	9.8"	BLACK
		9.40-9.70	25CARTLH10-250-U9.5 — 10" Open Left Cartridge, IV250 9.5 Undersized	4.75"	9.5"	RED
		9.40-9.70	25CARTLH10-250-U9.5-AC — 10" Open Left Cartridge, IV250 9.5 Undersized AC	4.50"	9.5"	RED
	12"	11.70 - 12.40	25CARTLH12-250 — 12" Open Left Cartridge, IV250	N/A	11.8"	BLACK
		11.00-11.40	25CARTLH12-250-U11.1 — 12" Open Left Cartridge, IV250 11.1 Undersized	4.875"	11.1"	BLUE
		11.40-11.70	25CARTLH12-250-U11.5 — 12" Open Left Cartridge, IV250 11.5 Undersized	4.50"	11.5"	RED
11.40-11.70		25CARTLH12-250-U11.5-AC — 12" Open Left Cartridge, IV250 11.5 Undersized AC	3.50"	11.5"	RED	

4"-12" INSTA-VALVE 250 <b>OPEN RIGHT</b> VALVE CARTRIDGES ( <b>RED</b> Operating Nut)				Cutter Selection		
Nominal Size	Cartridge ID Range	Hydra-Stop Part Number — Description	Side Seal Length	Cutter Size	Cutter Color	
<b>OPEN RIGHT</b>	4"	3.75–4.35	25CARTRH04-250 — 4" Open Right Cartridge, IV250	N/A	3.8"	BLACK
	6"	5.75–6.34	25CARTRH06-250 — 6" Open Right Cartridge, IV250	N/A	5.8"	BLACK
		5.45–5.75	25CARTRH06-250-U5.5 — 6" Open Right Cartridge, IV250 5.5 Undersized	1.75"	5.5"	RED
	8"	7.80–8.50	25CARTRH08-250 — 8" Open Right Cartridge, IV250	N/A	7.9"	BLACK
		7.40–7.80	25CARTRH08-250-U7.5 — 8" Open Right Cartridge, IV250 7.5 Undersized	3.50"	7.5"	RED
		7.40–7.80	25CARTRH08-250-U7.5-AC — 8" Open Right Cartridge, IV250 7.5 Undersized AC	3.50"	7.5"	RED
	10"	9.70–10.40	25CARTRH10-250 — 10" Open Right Cartridge, IV250	N/A	9.8"	BLACK
		9.40–9.70	25CARTRH10-250-U9.5 — 10" Open Right Cartridge, IV250 9.5 Undersized	4.75"	9.5"	RED
		9.40–9.70	25CARTRH10-250-U9.5-AC — 10" Open Right Cartridge, IV250 9.5 Undersized AC	4.50"	9.5"	RED
	12"	11.70–12.40	25CARTRH12-250 — 12" Open Right Cartridge, IV250	N/A	11.8"	BLACK
		11.00–11.40	25CARTRH12-250-U11.1 — 12" Open Right Cartridge, IV250 11.1 Undersized	4.875"	11.1"	BLUE
		11.40–11.70	25CARTRH12-250-U11.5 — 12" Open Right Cartridge, IV250 11.5 Undersized	4.50"	11.5"	RED
11.40–11.70		25CARTRH12-250-U11.5-AC — 12" Open Right Cartridge, IV250 11.5 Undersized AC	3.50"	11.5"	RED	

**NOTES:**

- Valve cartridges include operating nut, operating nut retention nut and friction washer.
- Valve cartridges are available in open left or open right configurations.
- Undersized valve cartridges require the use of undersized cutters. See Hydra-Core Pipe Wall Sampling Kit operating instructions for reference.
- Undersized AC valve cartridges must be used in AC applications.

**2.11.4)** Select the proper size pilot drill for installation.

Insta-Valve Size	Pilot Drill Size
4" Insta-Valve 250	5/8" x 6"
6" Insta-Valve 250	5/8" x 6"
8" Insta-Valve 250	5/8" x 7 1/4"
10" Insta-Valve 250	3/4" x 10 5/16"
12" Insta-Valve 250	3/4" x 10 5/16"

**NOTE:** Tapping PVC or steel pipe will require a twist-style pilot drill.

**NOTE:** Failure to use the proper size or type of pilot drill will result in a failed installation.

**2.11.5)** Loosen and remove the Allen-head pilot drill retaining set screw located on the side of the saw mandrel flange base.

**2.11.6)** Visually locate the tapered relief on the base of the pilot drill. Notice the stop or ledge at the base of the taper (see Figure 35).



FIGURE 35

**2.11.7)** Mark the flat of the taper with a visible marking agent (see Figure 36).



FIGURE 36

**2.11.8)** Align the pilot drill flat with the Allen-head set screw and insert the pilot drill through the center of the saw mandrel stud (see Figure 37).

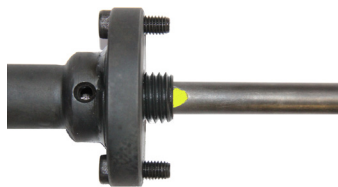


FIGURE 37

**2.11.9)** Confirm you have completely inserted the pilot drill and engaged the tapered flat. Look into the set screw hole for the marking on the pilot drill. Adjust the pilot drill until you can see the marking (see Figure 38).

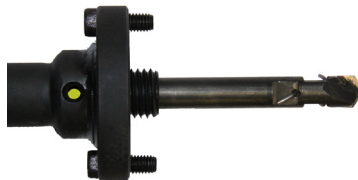


FIGURE 38

**2.11.10)** Once aligned, insert and tighten the set screw. Test pull the pilot drill to ensure the set screw is properly locked in place against the pilot drill ledge. Check the coupon retaining clips so they move freely (see Figure 39).

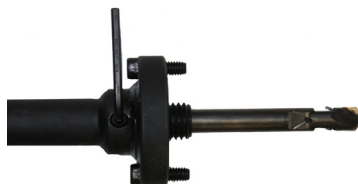


FIGURE 39

**NOTE:** Wear gloves when pulling on the pilot drill. Edges may be sharp.

**2.11.11)** Loosen and back out the two Allen-head cap screws on the flange of the saw mandrel until flush with the face of the flange.

**2.11.12)** Thread the appropriate shell cutter all the way onto the threaded stud of the saw mandrel flanged end.

**2.11.13)** Back off the cutter to align the holes in the base of the shell cutter with the Allen-head cap screws and thread them through the holes.

- **For the 4"–8" Insta-Valve 250:** Tighten Allen-head cap screws.
- **For the 10"–12" Insta-Valve 250:** Thread screws from inside the shell cutters and then into the saw mandrel holes (see Figure 40). Then thread the nylon lock nuts onto Allen-head cap screws and tighten (see Figure 41).



FIGURE 40



FIGURE 41

**2.11.14)** Make sure the saw mandrel is clean and free of rust or grime (steel wool can be used to clean and smooth the surface).

**2.11.15)** To help the saw mandrel slide freely through the packing nut assembly, lubricate the end with a dab of the food-grade lubricant provided with the equipment.

**2.11.16)** Insert the assembled shell cutter and saw mandrel into the Hydra-Tapper until the saw mandrel flange bottoms out inside the Hydra-Tapper. **For the 10"–12" Insta-Valve 250,** the saw mandrel flange bottoms out inside the P-20 component.

**2.11.17)** Hand-tighten the clamp lever on the packing nut assembly to keep the assembled shell cutter and saw mandrel in place.

**NOTE:** Do not use tools to tighten the clamp lever.

### 2.12.0 Installing the Hydra-Tapper

**2.12.1)** Using a strap or sling, install the assembled Hydra-Tapper onto the 8" temporary gate valve and align the bolt slots.

**NOTE:** Use extreme caution not to damage the shell cutter or pilot drill as the unit is raised and placed on the temporary gate valve. Note the position of the fully retracted cutting assembly.

**2.12.2)** To secure the assembly, install and cross-tighten the bolts, nuts, and washers. If not already installed,

thread the 1/4" nipple and ball valve into the P2 tap housing and wrench tighten. Teflon tape or thread sealant can be used.

**2.12.3)** Hold and control the exposed saw mandrel, loosen the packing nut assembly clamp lever, and slowly lower the saw mandrel until the pilot drill rests on the pipe's center top. Ensure the shell cutter/centering ring spins freely in a clockwise direction.

**2.12.4)** Slide the stop collar over the saw mandrel.

**2.12.5)** Set the cutting depth by measuring from the top of the packing nut assembly to the lower side of the stop collar.

Nominal Size Pipe	Cutting Depth
4"	3"
6"	4"
8"	5"
10"	6"
12"	7"

**NOTE:** See Figure 42 for a measuring example.

**2.12.6)** Install the drive unit by lifting it above the saw mandrel and sliding it into the three (3) guide bars.

**2.12.7)** Lower the drive unit onto the machined hex of the saw mandrel. Confirm the drive unit is fully seated onto the machined hex of the saw mandrel (see Figure 43).

**2.12.8)** Install the feed screw by threading it through the OS & Y bearing of the Hydra-Tapper until the feed screw engages the top of the drive unit.

**NOTE:** Do not apply downward force, which can damage the pilot drill.

**2.12.9)** When the feed screw contacts the top of the drive unit, back off one full turn.

**2.12.10)** Install the upper and lower restraint pins and cotter clips to join the saw mandrel, drive motor, and feed screw into a single assembly.

**2.13.0 Performing the Line Tap**

**2.13.1)** Ensure the ball valve on the Hydra-Tapper P2 and P20 housing is open.

**2.13.2)** Attach the hoses to connect the drive unit power source to the drive unit. **The hydraulic drive unit requires 9 GPM at 1800 PSI, and the air drive unit requires 90 CFM at 90 PSI.**

**2.13.3)** Ensure the drive unit lever control is in the neutral position. Always run the drive unit clockwise.

**NOTE:** Avoid reversing, as this will damage the carbide on the pilot drill and carbide teeth on the sampling cutter.

**2.13.4)** Engage the drive unit and confirm that the saw mandrel is rotating clockwise. Slowly turn the handle assembly clockwise, keeping slight, constant pressure until the tap is complete. Close the ball valve on the Hydra-Tapper's P2/P20 housing as water fills the housing and flows from the valve. The tap is complete when the bottom of the stop collar contacts the top of the packing nut assembly.

**NOTE:** Do not overfeed the tap. Overfeeding the tap will cause the shell cutter to jam.

**2.13.5)** Return the drive unit lever control to the neutral position.

**2.13.6)** Loosen the stop collar and continue to advance the feed screw an additional two complete revolutions to ensure the cut is complete. The shell cutter should spin freely.

- If the shell cutter does spin freely, disconnect the drive unit power source from the drive unit.
- If the shell cutter does not spin freely, engage the drive unit, and confirm the saw mandrel is rotating clockwise. Slowly turn the handle assembly clockwise for an additional two (2) complete revolutions and return to step 2.13.4.

**2.13.7)** Slowly turn the handle assembly counterclockwise until the stop collar has reached the starting measurement.

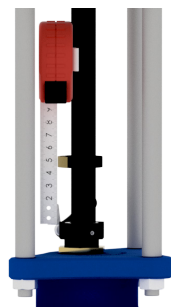
Nominal Size Pipe	Cutting Depth
4"	3"
6"	4"
8"	5"
10"	6"
12"	7"

**2.13.8)** Tighten the packing nut assembly clamp lever to lock the saw mandrel in place. Remove the feed screw. Remove the drive unit.

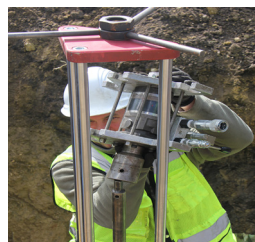
**2.13.9)** Place a 1 1/16" box-end wrench over the hex on the saw mandrel and use the wrench as a lever brake to hold it in place (see Figure 44).

**2.13.10)** Loosen the packing nut assembly clamp lever and allow the pressure to slowly raise the cutter assembly fully into the tapping housing.

**2.13.11)** Confirm the shell cutter and saw mandrel assembly are fully retracted and lock the saw mandrel in place by tightening the packing nut assembly clamp lever.



**FIGURE 42**  
(Measurement shown is for reference only)



**FIGURE 43**



**FIGURE 44**

**2.13.12)** Close the temporary gate valve.

**2.14.0 Removing the Hydra-Tapper**

**2.14.1)** Relieve the pressure from the Hydra-Tapper by opening the 1/4" tapping machine ball valve and discharging the pressure. Open the temporary gate valve ball valve to drain the tapping assembly.

**2.14.2)** Connect the slings or straps to the Hydra-Tapper. Unbolt and remove the Hydra-Tapper/P20 Housing from the temporary gate valve. Place the Hydra-Tapper in a dry and safe work area.

**2.14.3)** Remove stop collar.

**2.14.4)** Loosen the packing assembly clamp lever.

**2.14.5)** Remove cutter and saw mandrel assembly.

**2.14.6)** Remove the coupon by loosening the Allen-head pilot drill retaining set screw. Remove the pilot drill from the saw mandrel stud.

**2.14.7)** Flip the pilot drill, insert its point end through the hole in the coupon past the retaining clips, and use it to pull the coupon out of the cutter.

**NOTE:** Wear gloves when removing the coupon. Coupon edges may be sharp.

**2.14.8)** Inspect the coupon for pipe thickness and condition.

**2.14.9)** Remove cutter from saw mandrel.

**2.14.10) Proceed to step 3.0.0 – Preparing the Hydra-Tapper for Valve Insertion**

**3.0.0 Preparing the Hydra-Tapper for Valve Insertion**

**3.0.1)** Locate the proper valve-inserting equipment.

4"–8" Insta-Valve 250	10"–12" Insta-Valve 250
4"–8" Insertion Housing	10"–12" Insertion Housing
48 1/2" Insertion Tool	59" Insertion Tool
Guide Plate	Guide Plate
Stop Collar	Stop Collar
Auto Equalization Adapter	Auto Equalization Adapter

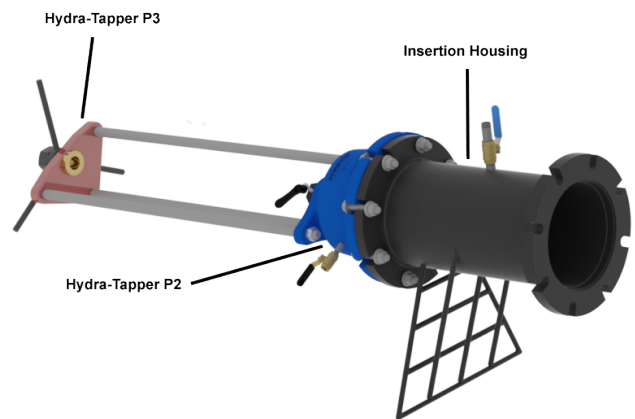
**3.0.2) For the 4"–8" Insta-Valve 250,** stand the insertion housing on a flat surface with the O-ring grooved flange facing up. Place the O-ring into the insertion housing O-ring groove. If not already installed, thread the 3/4" nipple and ball valve into the insertion housing and wrench tighten. Teflon tape or thread sealant can be used.

**For the 10"–12" Insta-Valve 250,** stand the insertion housing on a flat surface. Place a green fiber gasket (included with equipment) between the insertion housing and the tapping machine / P 20 assembly. Install the 3/4" nipple and ball valve.

**3.0.3)** Place the Hydra-Tapper/P20 Assembly on top of the insertion housing, with the pointed end of the P3 facing the same direction as the housing's step stand. Cross-tighten with the supplied 5/8-11 x 3 1/4 Square Head Black Oxide Bolts, Nuts, and Washers.

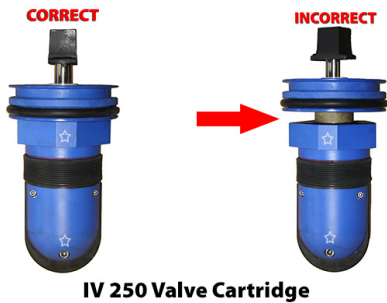
**3.0.4)** Tip and lay the insertion housing and Hydra-Tapper/P20 Assembly on its stand (see Figure 45).

**NOTE:** Unthread and remove one handle from the tapping machine to avoid damage when laying the assembly on the side.



**FIGURE 45**

**3.0.5)** The Insta-Valve 250 valve cartridge consists of top and bottom sections. The top and bottom sections must be firmly tightened together. Prior to removing the operating nut, hold the base of the valve cartridge and turn the valve stem firmly in the opening direction with a pipe wrench or valve key (see Figure 46).



IV 250 Valve Cartridge

FIGURE 46

**3.0.6)** Remove the operating nut and the white Teflon friction washer from the valve stem. Remove the Auto Equalization Valve NPT plug. Set aside in a safe place.

**3.0.8)** Hand-tighten the Auto-E pin into the check valve. Push down the pin to ensure it can actuate (see Figures 47 and 48).

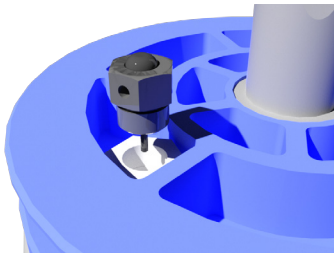


FIGURE 47



FIGURE 48

**3.0.9)** Place the end of the insertion tool over the valve stem. Tighten the Insta-Valve 250 valve cartridge and insertion tool together by turning the knurled handle of the insertion tool clockwise until snug. Tighten the 3/4" insertion tool lock nut at the knurled handle's base. The raised face at the end of the insertion tool must sit flush against the valve cartridge (see Figures 49 and 50).

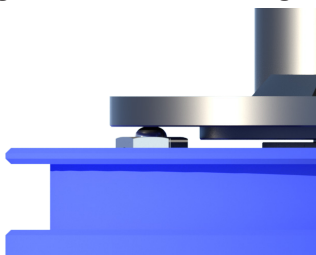


FIGURE 49  
Insertion tool making contact with the auto equalization pin.

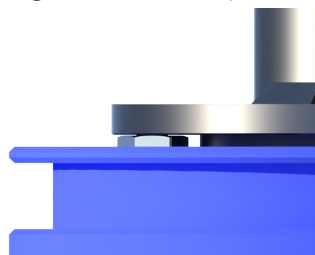


FIGURE 50  
Raised Face of Insertion tool installed flush to cartridge.

**CAUTION:** Ensure there are no gaps between the insertion tool, valve cartridge, and feed screw. The valve cartridge should remain in tight contact with the insertion tool and act as a single unit.

**3.0.10)** Make sure the insertion tool is clean and free of rust or grime (steel wool can be used to clean and smooth the surface). Lubricate the end of the insertion tool with a dab of the food-grade lubricant provided with the equipment to help it slide freely through the packing nut assembly. Ensure the packing nut assembly clamp lever is loose.

**3.0.11)** Insert the assembled valve cartridge and insertion tool through the insertion housing and tapping assembly until the top of the valve cartridge is approximately 2.5" from the bottom flange of the insertion housing. Ensure the shorter, truncated side of the valve cartridge marked with a star faces upwards (see Figure 51).

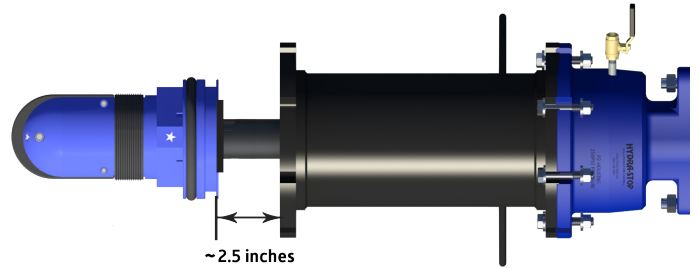


FIGURE 51

**3.0.12)** Slide the stop collar over the knurled handle of the insertion tool. Align the three (3) slots of the triangular-shaped guide plate with the three (3) guide bars and slide it over the knurled handle of the insertion tool.

**3.0.13)** Set up the corresponding Insta-Valve 250 alignment gauge (4"–8" or 10"–12") for the appropriate size being installed (4", 6", 8", 10", or 12").

**NOTE:** Refer to the alignment gauge instructions shipped with the Insta-Valve 250 Alignment Gauge Kit.

**3.0.14)** Set the curved portion of the alignment gauge within the lock pin groove of the valve cartridge. Slide the valve cartridge towards the insertion housing until the alignment gauge touches the insertion housing. The two (2) gauge pins will seat in the top two holes of the insertion housing (see Figure 52).

**3.0.15)** Ensure the flat of the alignment gauge arm remains aligned with the truncated side of the valve cartridge (see Figure 53).

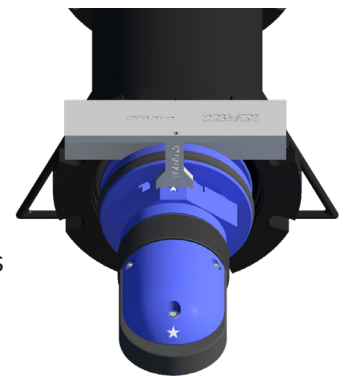


FIGURE 52

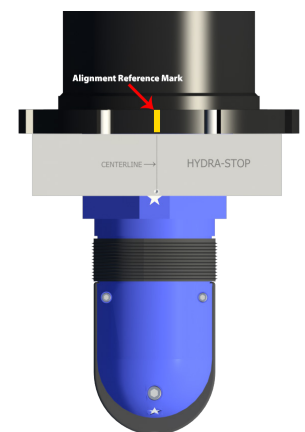


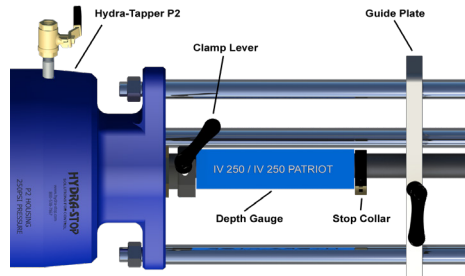
FIGURE 53

**3.0.16)** Place the Insta-Valve 250 Insertion Depth Gauge on the insertion tool.

Insta-Valve Size	Depth Gauge
<b>4"–8" Insta-Valve 250</b>	7.5"
<b>10"–12" Insta-Valve 250</b>	4.25"

Place one end of the insertion gauge against the packing nut assembly. Slide the stop collar towards the insertion gauge until it contacts the insertion gauge. This automatically sets the proper depth for insertion. Lock the stop collar.

**3.0.17)** Slide and place the corresponding guide plate within 2" of the stop collar, then lock the clamp lever (see Figure 54).



**FIGURE 54**

**3.0.18)** Make a reference mark on the insertion housing aligned with the centerline of the Alignment Gauge (see Figure 55).

**3.0.19)** Remove the Insta-Valve 250 Insertion Depth Gauge.

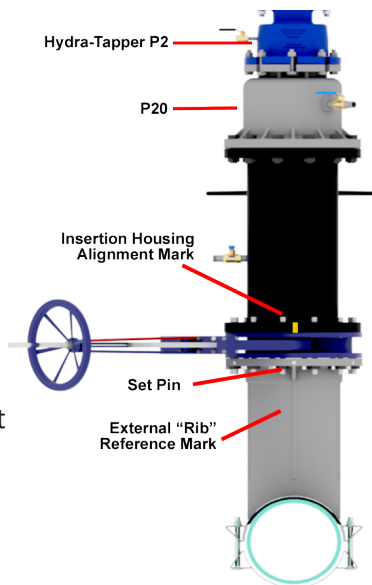
**3.0.20)** Slide the valve cartridge back to the original 2.5" measurement away from the insertion housing. Remove the Insta-Valve 250 Alignment Gauge.

**3.0.21)** Lubricate the completion plug O-ring with food-grade lubricant provided with the equipment. **DO NOT** lubricate the cartridge wipe seal or resilient wedge.

**3.0.22)** Slide the valve cartridge assembly fully into the insertion housing.

**3.0.23)** Tighten the clamp lever on the packing nut assembly to keep the assembled valve cartridge and insertion tool in place.

**NOTE:** Do not use tools to tighten the clamp lever.



**FIGURE 55**

**3.1.0 Install Insta-Valve 250 Insertion Equipment**

**3.1.1) For the 4"–8" Insta-Valve 250,** make sure the O-ring in the temporary gate valve is still properly seated in the O-ring groove and safely lift the insertion equipment onto the temporary gate valve.

**For the 10"–12" Insta-Valve 250,** place a green fiber gasket without holes (included with equipment) between the insertion housing and the temporary gate valve. Safely lift the insertion equipment and place it onto the temporary valve.

**3.1.2)** Align the insertion housing reference mark made in step 3.0.18 with

- The point of the pentagon valve body that is in line with the direction of the pipe or the "star" on the valve **for 4" and 6" valves.**
- The external "rib" of the valve body that ribs align with a set pin hole and is in line with the direction of the pipe **for 8"–12" valves.**

(See Figure 55)

**3.1.3)** Cross-tighten the insertion assembly in place using the bolts, nuts, and washers provided.

**3.2.0 Install the Insta-Valve 250 Valve Cartridge**

**3.2.1)** Loosen the packing nut clamp lever. Lower the valve cartridge/insertion tool assembly until it touches the temporary gate valve. Retighten the packing nut assembly clamp lever. It is critical to install the 30" feed screw over the knurled handle of the insertion tool until the feed screw bottoms out on the locking nut washer.

**NOTE:** Failure to follow step 3.2.1 could result in damaged equipment and failed installation.

**3.2.2)** Install the feed screw by threading it through the top plate of the Hydra-Tapper until 2-3 inches are exposed under the top plate of the Hydra-Tapper.

**3.2.3)** Slide and place a second guide plate over the end of the feed screw to keep the feed screw from spinning as you turn the Hydra-Tapper OS&Y handles (see Figure 56).

**3.2.4)** Continue advancing the feed screw until the feed screw bottoms out on the locking nut washer.

**3.2.5) For the 4"–8" Insta-Valve 250,** open the ball valves on the tapping machine's P2, the insertion housing, and the temporary gate valve bypass jumper. Allow pressure to equalize.

**For the 10"–12" Insta-Valve 250,** open the ball valves on the tapping machine's P2 and the insertion housing. Slowly open the temporary gate valve until the insertion housing begins to fill. Then, stop opening the temporary gate valve.



**FIGURE 56**

**3.2.6)** Close the insertion housing ball valve once fluid reaches the ball valve. Wait for fluid to reach the tapping housing ball valve and close the ball valve. Allow the insertion/tap housings to fully pressurize.

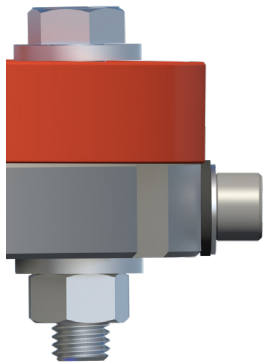
**3.2.7)** Fully open the temporary gate valve.

**3.2.8)** Loosen the packing nut assembly clamp lever and begin advancing the valve cartridge insertion assembly.

**3.2.9)** Continue advancing the feed screw until the valve cartridge assembly is completely seated. The valve cartridge assembly is completely seated when the bottom of the stop collar is flush to 1/8" from the top of the packing nut assembly.

**CAUTION:** Do not advance the feed screw quickly. Advancing the feed screw slowly allows for re-pressurization above the cartridge, allowing it to advance easily during the valve cartridge installation process.

**NOTE:** If the distance exceeds 1/8 of an inch, fully retract the valve cartridge from the installation housing. Close the temporary gate valve, return to 3.0.0 Preparing the Hydra-Tapper for Valve Insertion, and repeat all installation steps.

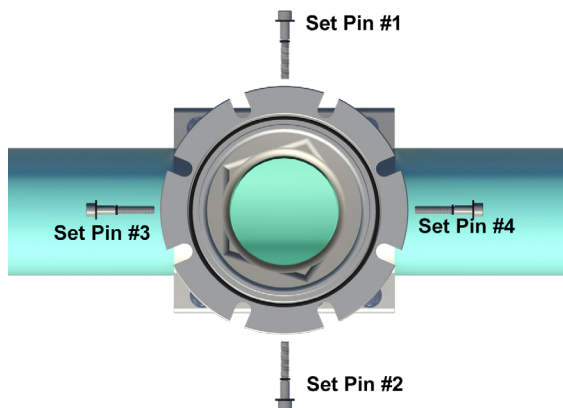


**FIGURE 57**

**3.2.10)** Lock the valve cartridge assembly in place by cross-tightening the Allen-head completion pins (**4 pins for 4"–8" installations, 6 pins for 10"–12" installations**). Tighten each until the head of the completion pin bottoms out against the flange, as seen in Figure 57. Do not over-tighten.

Figure 58 shows a cross-tightening pattern that starts with Completion Pin #1 and so on. You may start with any of the pins as #1; however, be sure to follow a cross-tightening pattern with the remaining pins.

**NOTE:** Do not start the next step until all completion pins have been properly set.



**FIGURE 58**

**NOTE:** Temporary Gate Valve removed for clarity. Completion Pins are shown removed for location purposes only.

**3.2.11)** Raise the feed screw 1" to expose the insertion tool lock nut.

**3.2.12)** Attach a 10' hose to the 3/4" ball valve on the insertion housing, then run the opposite end to a discharge location outside of the excavation.

**3.2.13)** Use a 3/4" open-ended wrench to loosen the lock nut until the outer shaft of the insertion tool can be raised to allow the auto-equalizing check valve to close.

**3.2.14)** Slowly open the ball valve. A light stream of water will begin to flow from the hose.

**3.2.15)** Continue to turn the insertion tool lock nut, raising the feed screw 1" at a time, as needed, to fully disengage the insertion tool from the valve cartridge.

**3.2.16)** The light stream of water (4 gallons per minute) out of the 3/4" ball valve should begin to decrease and stop as the insertion tool is disengaged from the valve cartridge.

**3.2.17)** Lock the clamp lever.

**3.2.18)** Remove the feed screw.

**3.2.19)** Loosen the clamp lever.

**3.2.20)** Raise the insertion tool to the start position, where the knurled handle extends past the tapping machine's P3 and secure it in place by tightening the clamp lever.

**3.2.21)** Remove the Insta-Valve 250 insertion equipment and temporary gate valve. Confirm that the O-ring is placed on top of the Insta-Valve 250 flange.

**3.2.22)** Unthread and remove the Auto-Equalization Pin Assembly.

**3.2.23)** Place the white Teflon washer onto the valve stem.

**3.2.24)** Teflon tape the threads and replace the 3/8" Auto-Equalization NPT Plug into the stainless-steel check valve.

**3.2.25)** Lubricate the O-ring in the bore of the Insta-Valve 250 bonnet and install it over the valve stem, with the recess facing down.

**3.2.26)** Align bolt holes.

**3.2.27)** Cross-tighten the bolts, nuts, and washers that came with the Insta-Valve 250.

**3.2.28)** Set the 2" operating nut on the valve stem and thread the operating locking nut on it.

**3.2.29)** Install the Valve Box Adapter by placing it on the Insta-Valve valve bonnet, centering the Valve Box Adaptor around the operating nut between the valve bonnet mounting bolts (see Figure 59).

**3.2.30)** Install the valve box of your choice.

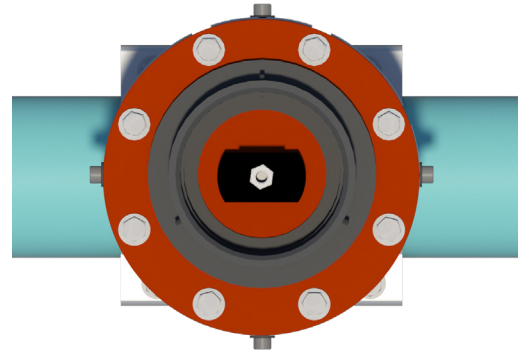
**3.2.31)** Fully close and open the Insta-Valve 250 to confirm a successful installation. The Insta-Valve 250 operates at three (3) turns-per-inch plus/minus three (3)

turns depending on the type and condition of the inside diameter of the pipe. Count your turns when opening or closing the Insta-Valve 250 to ensure the valve is fully in the desired position (open or closed).

**3.2.32)** Fully disassemble, clean, and store equipment.

**3.2.33)** Be sure to put away your tools in a clean and dry area.

**3.2.34)** Order replacement parts, if necessary, to replace lost, damaged, or worn components.



**FIGURE 59**





# INSTA-VALVE 250 **INSERTION VALVES**

Appendix A — Technician Tool List



**Appendix A — Technician Tool List****MISCELLANEOUS SUPPLIES**

- Tape Measure
- O.D. Tape Measure
- Torpedo Level
- Channel Lock Pliers
- Waterproof or Paint Marker
- Teflon Tape
- WD-40
- Chlorine Sprayer
- Spray bottle with soap and water
- Food-Grade Grease (such as Primo-Lube)
- Pressure Test Kit including nipple assembly
- Razor Knife

**WRENCHES AND RATCHETS**

- 1/2" or 3/4" drive Ratchet Wrench
- 15/16" Socket
- 1-1/16" Extra Deep Socket
- 1-1/4" Extra Deep Socket
- 1-5/16" Extra Deep Socket
- 1-7/16" Extra Deep Socket
- Crescent Wrench
- Torque Wrench (150 lbs.)
- 3/4" Open End Wrench
- 15/16" Open End Wrench
- 1-1/16" Open End Wrench
- 1-1/4" Open End Wrench
- 1-5/16" Open End Wrench
- 1-7/16" Open End Wrench
- 2 1/4" Tight Clearance Wrench
- 18" Pipe Wrench

**ALLEN AND HEX WRENCHES**

- 9/16" Allen Wrench
- 5/8" Allen Wrench
- 5/32" T-Handle Allen Wrench
- 3/16" T-Handle Allen Wrench
- 1/8" T-Handle Hex Wrench
- 1/4" T-Handle Allen Wrench
- 1/4" Extra Long T-Handle Hex Wrench
- 5/16" T-Handle Allen Wrench
- 5/16" Extra Long T-Handle Hex Wrench
- 3/8" T-Handle Allen Wrench

**USER SUPPLIED EQUIPMENT**

- Safety Equipment
- Hard Hat
- Safety Glasses
- Safety Shoes
- Fall Protection
- Hearing Protection
- Work Gloves
- Small Slings
- 10' Garden Hose

**NOTE:** Have two sets of open-end wrenches on hand to allow multiple people to assist in installation.



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# VALVE BODY INSTALLATION INSTRUCTIONS

4"–12" Insta-Valve 250

**IMPORTANT:** Read installation instructions COMPLETELY before installing the Insta-Valve 250 valve body. Failure to follow installation instructions will void product warranty. Follow local safety regulations and use personal protection equipment (PPE) as required by national, state, and local regulations.

## INSTALLATION INSTRUCTION STEPS

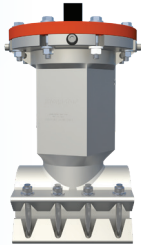


Figure 1



Figure 2

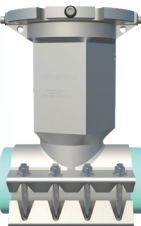


Figure 3

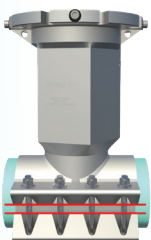


Figure 4

1) Inspect the valve body to ensure no damage has occurred during shipment or storage (see Figure 1).

2) Locate valve cartridge and box containing stainless steel mounting hardware. Store in a clean, safe location.

3) Measure pipe outside diameter where the Insta-Valve 250 is being installed to ensure the correct insertion valve is being used.

4) Thoroughly clean the pipe surface with a wire brush where the valve body will be installed to ensure all loose debris and material is removed. Inspect for flaws (ex. gouges, protrusions, excessive corrosion, etc.). Irregular surfaces should be avoided to assure maximum gasket sealing.

5) Liberally lubricate top and bottom of pipe and mat and throat gaskets with a soap/water solution. Ensure branch gasket is adequately lubricated.

6) Mount the top half of the valve body on the pipe in the position required for permanent installation (see Figure 2). Do not rotate the top half of the valve body after it is positioned on the pipe.

7) Install the bottom half of the valve body over the tapered ends of the mat gasket ensuring they are flat and smooth against the pipe surface. Visually inspect gasket to ensure tapered ends are not folded or rolled under themselves.

8) Install stainless steel carriage bolts, washers, and nuts (see Figure 3). Finger tighten nuts, ensuring gaps between top half and bottom half of the valve body are the same front-to-back and side-to-side within 1/8" (see Figure 4).

9) Using a torque wrench, tighten nuts in proper pattern. Tightening patterns (see Figures 5-7 on next page) for each size valve are on the reverse side of this document. Repeat tightening pattern in no more than 25 ft.-lbs. increments until recommended torque is reached.

10) Wait 10 minutes to allow the gasket to fully seat then retighten bolts to recommended torque three additional times following the tightening pattern.

### RECOMMENDED TORQUE:

#### 4"–8" Insta-Valve 250

Cl / DI Pipe: 115 ft.-lbs.

PVC Pipe: 55 ft.-lbs.

AC Pipe: 75 ft.-lbs.

#### 10"–12" Insta-Valve 250

Cl / DI Pipe: 65 ft.-lbs.

PVC Pipe: 55 ft.-lbs.

AC Pipe: 60 ft.-lbs.

Installation instructions and best practices continued on next page.

# VALVE BODY INSTALLATION INSTRUCTIONS

4"–12" Insta-Valve 250

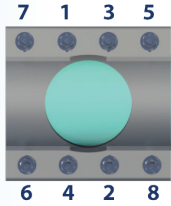


Figure 5  
4" –6" Bolt Tightening Pattern

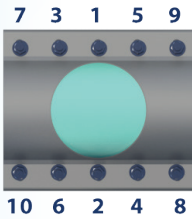


Figure 6  
8" Bolt Tightening Pattern

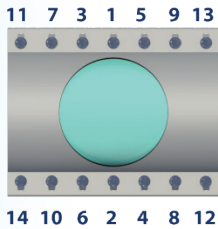


Figure 7  
10" and 12" Bolt Tightening Pattern

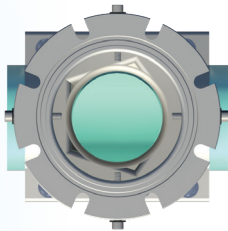


Figure 8  
Completion pins NOT flush with inner valve flange.  
**DO NOT ATTEMPT VALVE INSTALLATION WITH PINS IN THIS POSITION.**

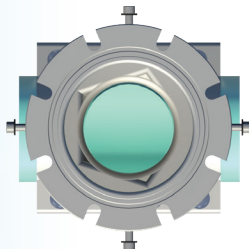


Figure 9  
Completion pins flush with I.D. of flange. This is correct position to begin pressure test and continue with installation procedure.

11) Check inside of valve body outlet to ensure gasket is properly seated. Completion pins are shipped in the fully installed position. Backout and ensure completion pins are flush with I.D. of the flange (see Figures 8 and 9).

12) Fill valve body with water. Install Quick Pressure Test Plug (from Hydra-Q.I.K. kit) or test flange. Perform pressure test to ensure a complete seal between the valve body and pipe.

**NOTE:** DO NOT use a compressible medium such as air.

- Minimum Test Pressure: 1.5 times the system working pressure
- Maximum Test Pressure: 375 psi

13) Remove the Quick Pressure Test Plug or test flange.

14) Following the tightening pattern, re-torque carriage bolts to recommended torque before continuing.

15) Properly block (support) Insta-Valve 250 valve body and ensure pipe joints are properly restrained. Proceed with valve insertion operation.

## INSTALLATION BEST PRACTICES:

- Keep nuts and bolts clean and free of debris.
- Adequately lubricate pipe and Insta-Valve 250 gaskets with soap and water solution paying special attention to AC pipe. Ensure branch gasket is adequately lubricated. Do not use grease or pipe lubricant.
- Avoid rotating top half of Insta-Valve 250 once placed on pipe.
- Do not use a powered wrench to tighten nuts. You will gall the bolts and damage the valve.
- Block / support the pipe before installing the tapping machine.
- Ensure all pipe joints are restrained prior to proceeding to valve insertion operation.
- Label valve body with a paint pen or permanent marker with the tightening pattern as a visual reminder of the tightening pattern.
- Publication Date: March 2021

**Call Hydra-Stop for technical support at 708.389.5111  
and visit us on the web at [www.hydra-stop.com](http://www.hydra-stop.com).**

# 4"–12" INSTA-VALVE® 250

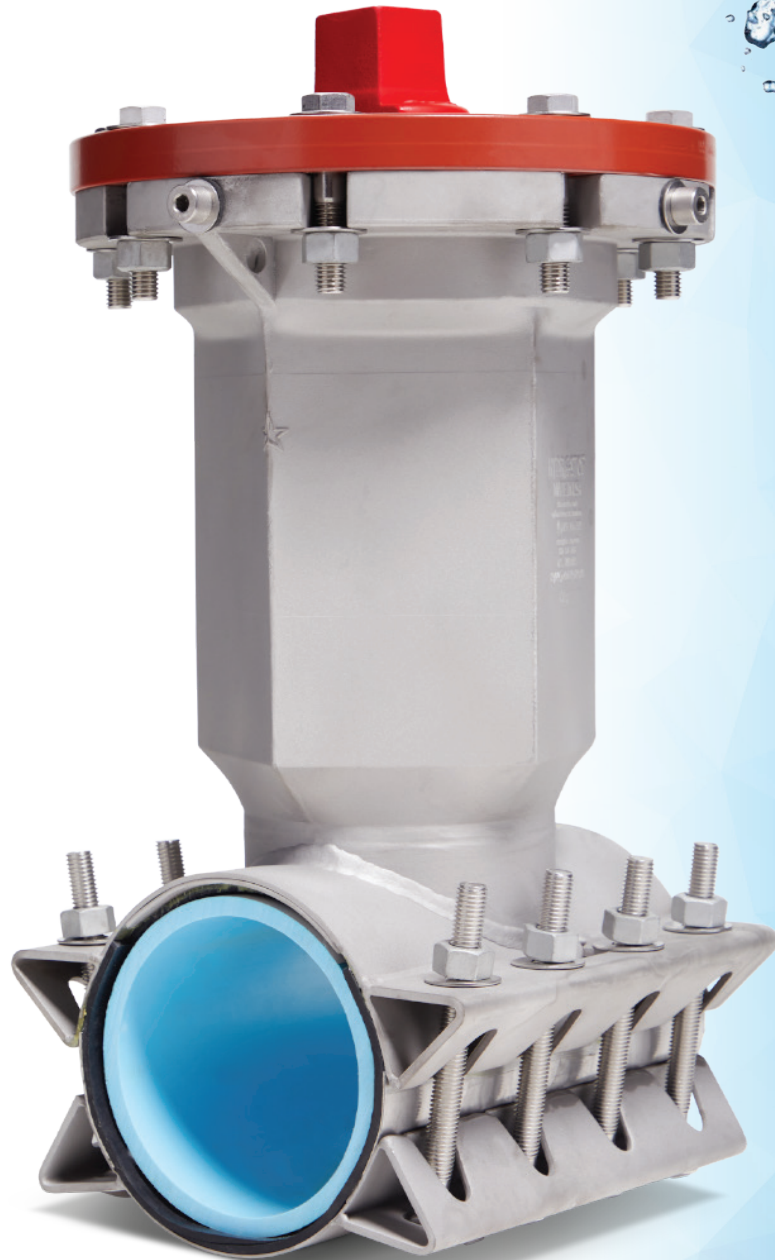
**The reliability, strength, quality and value are unmatched.**  
**When your project calls for the best, specify the Insta-Valve 250 insertion valve.**

## KEY FEATURES

- 250 psi working pressure
- Requires no system shutdown
- Eliminates 100 percent of the costs related to shutting down a system
- Engineered valve cartridge for a drip tight seal
- Exceeds AWWA C509/515 Proof of Design Standards
- Maintains NSF 61 and ANSI 372 certification by UL
- Stainless steel construction
- Permanent asset for site-specific control
- Can be installed on all common pipe types in any orientation in as little as 1 hour
- No need to ream or sever the pipe, only a single tap needed for installation
- AIS-compliant option available
- Bevel gear available for horizontal installation

## HOW IT WORKS

The installation of the Hydra-Stop Insta-Valve 250 insertion valve is accomplished through a single circular hole — commonly known as a “tap” — cut under full line pressure into the top of the pipe without the need to ream or sever the pipe. By installing the Insta-Valve 250 right where a control point is needed, you gain a permanent asset allowing system control and maintenance in the same manner as a resilient seated gate valve.



# INSTA-VALVE® 250 <sup>4"-12"</sup>

## FREQUENTLY ASKED QUESTIONS

**Q. What sizes are available?**

**A.** The Insta-Valve 250 is available in 4" through 12" diameters.

**Q. Can the Insta-Valve 250 be installed off-center?**

**A.** Yes. The Insta-Valve 250 can be installed in any position on the pipe.

**Q. Does the Insta-Valve 250 work with all common types of pipe?**

**A.** Yes. The Insta-Valve 250 can be installed on all common types of pipes, including AC, CI, DI and PVC pipe.

**Q. How many excavations are required to install an Insta-Valve 250?**

**A.** Only one small excavation is needed to install the Insta-Valve 250, requiring an excavation size as little 5' x 5'.

**Q. Does the Insta-Valve 250 install easily?**

**A.** Yes. The Insta-Valve 250 can be installed in as little as one hour. Simply mount the Insta-Valve 250 valve body, make a simple tap with your Hydra-Tapper™ and install your Insta-Valve 250 valve cartridge.

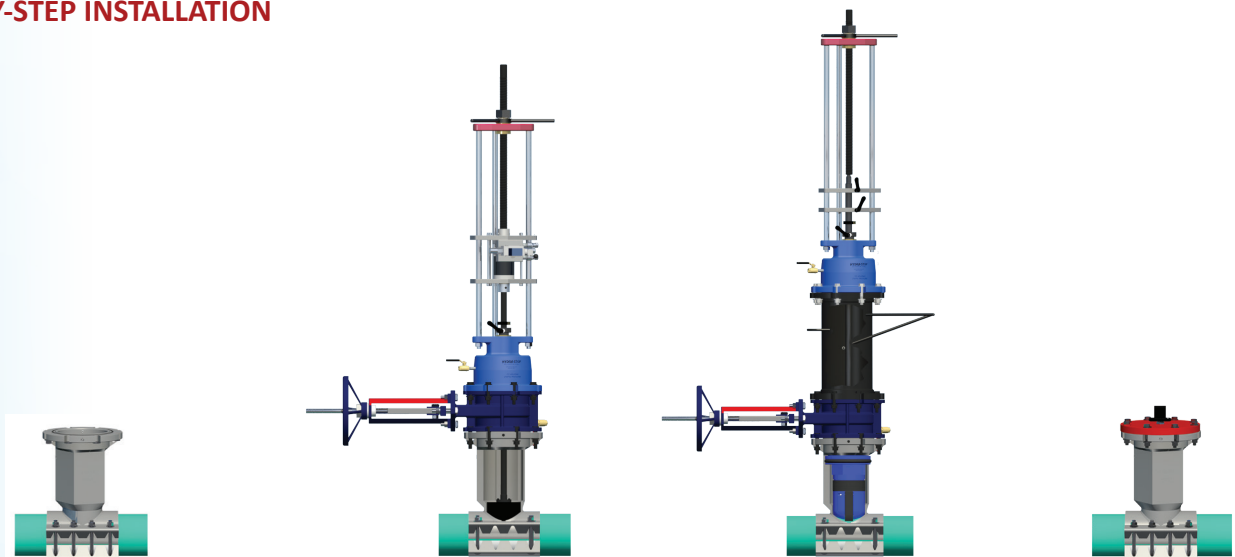
**Q. How does the Insta-Valve 250 seal?**

**A.** The Insta-Valve 250 seals in three ways: throat gasket, wipe seal and valve paddle. Working together, these seals optimize the sealing characteristics of the Insta-Valve 250, providing the best performance and reliability of any valve insertion technology available today.

**Q. Is the Insta-Valve 250 a permanent valve?**

**A.** Yes, the Insta-Valve 250 is a permanent valve designed to provide years of trouble-free operation.

## STEP-BY-STEP INSTALLATION



Step 1: Mount and pressure test

Step 2: Perform tap

Step 3: Insert cartridge

Step 4: Operate valve as needed

# SETUP AND USAGE INSTRUCTIONS

## Bevel Gear Actuator for the Insta-Valve 250

Installation procedure changes for installing an Insta-Valve 250 in a horizontal orientation.

- A) Installing an Insta-Valve 250 Installed in a Horizontal Orientation
- B) Pressure Test Procedure on a Horizontally Installed Insta-Valve
- C) Positioning the Temporary Gate Valve in a Horizontal Installation
- D) Mounting and Supporting the Hydra-Tapper During Horizontal Operation
- E) Mandatory Core Sampling
- F) Set Pin Installation
- G) Mounting and Using the Actuator
- H) Final Installation Steps

These changes are outlined below.

### A) Installing an Insta-Valve 250 Installed in a Horizontal Orientation

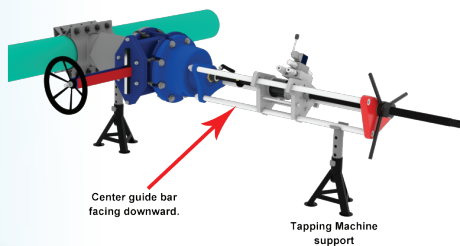
**A.1)** Liberally lubricate top and bottom of pipe and mat and throat gaskets with a soap/water solution. Ensure branch gasket is adequately lubricated. Initially mount the top half of the valve body on the pipe in a vertical position.

**A.2)** Install the bottom half of the valve body over the tapered ends of the mat gasket ensuring they are flat and smooth against the pipe surface. Visually inspect gasket to ensure tapered ends are not folded or rolled under themselves.

**A.3)** Install stainless steel carriage bolts, washers, and nuts. Leave the nuts loose on the bolts.

**A.4)** Using a crane (or available lift), hook onto the body's flange and gently rotate the clamp along the pipe until the body is lying parallel to the ground.

**A.5)** Block the body well to ensure its position is kept for permanent installation.



**A.6)** Be sure that blocking the body does not interfere with the ability to get to the carriage bolts on the underside of the body or with any flange hardware to be used during or after installation.

### B) Pressure Test Procedure on a Horizontally Installed Insta-Valve

- B.1)** Install the pressure testing blind flange (8TIPRSKT08-HP or 8TIPRSKT12-HP).
- B.2)** Remove the topmost completion plug set pin. Fill the valve body with water using the pressure test plate and let air release out of the set pin hole
- B.3)** Once the valve is filled, replace the set pin
- B.4)** Connect a pressure test assembly to the pressure test flange.
- B.5)** Connect pressure test assembly to your pressure source for pressure testing. Hydra-Stop recommends using a hydrostatic method of pressurizing the valve body.

**NOTE: DO NOT use a compressible medium such as air.**

**B.6)** Follow local rules for the recommended length of the pressure test.

**B.7)** After completing pressure test, use ball valve to blow-off pressure before removing pressure test flange.

**B.8)** Follow the tightening pattern and re-torque carriage bolts to recommended torque before continuing.

**NOTE: DO NOT exceed recommended pressure test specifications.**

- Minimum Test Pressure: 1.5 times system working pressure.
- Maximum Test Pressure: 375 psi.

### C) Positioning the Temporary Gate Valve in a Horizontal Installation

**C.1)** Use approved grease to hold the temporary gate valve O-ring in place.

### D) Mounting and Supporting the Hydra-Tapper During Horizontal Operation

**D.1)** The Hydra-Tapper should be installed with the center guide bar oriented toward the ground to simplify tapping process (see image to the left).

**D.2)** Support the Hydra-Tapper while in the horizontal position. Use blocks or a jack stand for support.

### E) Mandatory Core Sampling

**E.1)** Hydra-Stop **requires** performing a core-sample on a horizontally mounted Insta-Valve. Core sampling will ensure that the tap is positioned properly and allows for proper operation.

**E.2)** Use of the feed screw to push the cutter into place may be required. This must be done cautiously so as not to break the cutter teeth.

# SETUP AND USAGE INSTRUCTIONS

## Bevel Gear Actuator for the Insta-Valve 250

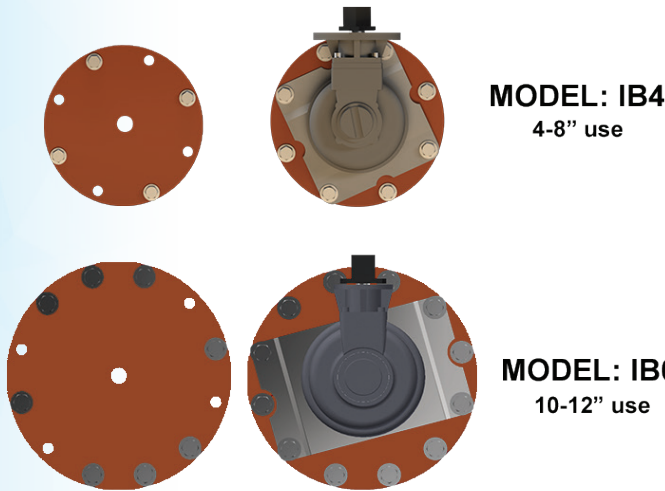
E.3) Tapping depth should be set to 1/2 Pipe OD.

### F) Set Pin Installation

F.1) Start with the bottom most pin.

### G) Mounting and Using the Actuator

G.1) Leave four of the bolt holes open for the gearbox (see figure to the below). Cross tighten the bolts, nuts, and washers on the remaining bolts.



**MODEL: IB4**  
4-8" use

**MODEL: IB6**  
10-12" use

**NOTE:** If the gearbox does not match up to the valve stem, turn the gearbox's input rod until the inner drive bushing and valve stem geometry are lined up.

G.2) Install the gearbox/mounting plate over the valve stem. Ensure that the mounting plate bolt holes line up with those on the bonnet so that the gearbox input rod is pointing up. Set the 2" gearbox operating nut on the gearbox's input rod and tighten down the set pin.

G.3) Fully open/close the valve to confirm a successful installation. The Insta-Valve 250 with a gearbox is 3 turns-per-inch plus 3 turns times 3 depending on the type and condition of the inside diameter of the pipe

### H) Final Installation Steps

H.1) Once installation is complete, place the valve adaptor over the bevel gear's flange in the correct orientation. The adaptor fits a 6.90 O.D. pipe (see image to the right).



**Bevel Gear Valve Adaptor**

H.2) Included in the bevel gear kit is a 1.4" x 4" sticker that should be installed after the valve has been buried. It is important for the sticker to be placed in a visible area for future operators.

### DIMENSIONS AND TORQUES

Gearbox	Ratio	Weight	Length
4-8 IV IB4	3:1	35 lbs.	12.5"
10-12 IV IB6	3:1	62 lbs.	15"

4" Open Left Bevel Gear Actuator

# Turns to Close/Open: 45 +/- 3

Maximum Torque: 155 ft. lbs.

**WARNING:** Operating above the maximum torque can damage the valve.

### TRENCH SIZE

Full Equipment Stack up dimensions:

Valve Size	Full Equipment Length (ft)*	Width (in)	Depth (in)**
4"	10'	50"	12"-22"
6"	10.5'	50"	12"-24"
8"	11'	50"	12"-26"
10"	12'	62"	18"-30"
12"	12.5'	62"	18"-32"

\*Trench should be made longer than the listed lengths for comfortable movement around the pipe and equipment.

\*\*Vertical install is recommended if the measurement from the top of the pipe to ground level is greater than the depth upper limit.

### MAX GEARBOX INPUT TORQUE

Valve Size	Approx # Turns (on Gearbox)	Max Input Torque
4"	45	155 ft. lbs.
6"	63	155 ft. lbs.
8"	81	155 ft. lbs.
10"	97	195 ft. lbs.
12"	115	195 ft. lbs.

**WARNING:** Exceeding the maximum torque can damage the gearbox and valve stem, resulting in problems operating the valve.

# PRODUCT SPECIFICATIONS

4"–12" Insta-Valve 250

## Material Specifications:

- Body Armor Shields:** 16-gauge 304 stainless steel\*
- Body Mounting Bolts:** 304 stainless steel, 5/8-11 UNC6.
- Body Sealing Gasket:** BUNA-N rubber
- Body:** 304 stainless steel
- Bonnet and Body Mounting Nuts:** 304 stainless steel, nuts coated to prevent galling
- Bonnet Bolts:** 304 stainless steel, 5/8" UNC rolled thread
- Bonnet:** Epoxy-coated carbon steel
- Cartridge Seal:** EPDM
- Completion Pin:** 300 series stainless steel, coated to prevent galling
- Completion Pin Washer:** BUNA-N rubber
- Completion Pin O-Ring:** BUNA-N rubber
- Completion Plug O-Ring:** BUNA-N rubber
- Auto Equalization Check Valve:** 304 stainless steel
- Completion Plug:** Reinforced composite polymer
- Flange O-Ring:** BUNA-N rubber
- Flange:** 304 stainless steel
- IV 250 Valve Cartridge:** Reinforced composite polymer
- Mounting Body – Bottom:**  
4"–8" 14-gauge 304 stainless steel; 10"–12" 7-gauge 304 stainless steel
- Mounting Body – Top:**  
4"–8" 11-gauge 304 stainless steel; 10"–12" 10-gauge 304 stainless steel
- Mounting Lugs:** 304 stainless steel
- Operating Nut:** Steel, cast
- Resilient Wedge:** Reinforced EPDM
- Stem Collar:** No lead brass
- Valve Body:** 304 stainless steel
- Valve Stem:** 304 stainless steel
- Washers:** 5/8" 304 stainless steel

\* For 4"–8" only, 10"–12" does not have require body armor shields.

## Design Specifications:

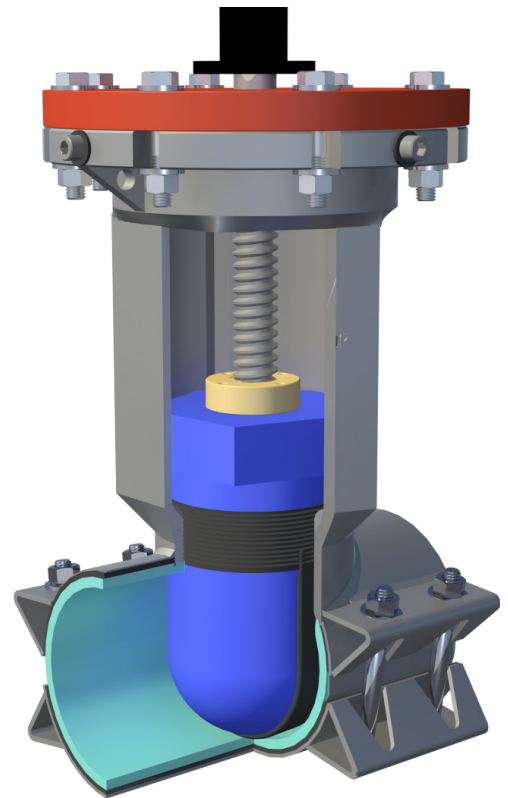
- Factory Pressure Test:** Each Insta-Valve 250 is pressure tested and serialized for traceability before leaving our manufacturing facility.
- Integrated Lifting Gussets:** Incorporated to facilitate safe handling.
- Insta-Valve 250 Valve Body Test and Working Pressures:** 250 psi working pressure. Maximum 375 psi valve body test pressure.
- Welds:** Welds fully passivated for improved corrosion resistance.

The 4"–12" Insta-Valve 250 is NSF/ANSI Standard 61 and NSF/ANSI Standard 372 to meet the regulatory requirements for the U.S. and Canada, assuring safe use in drinking water systems.

Option available to meet purchasing requirements specified in the "Build America, Buy America Act", "Buy American Act", "Buy America", and "American Iron and Steel".

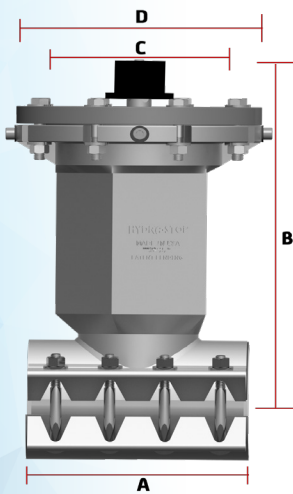
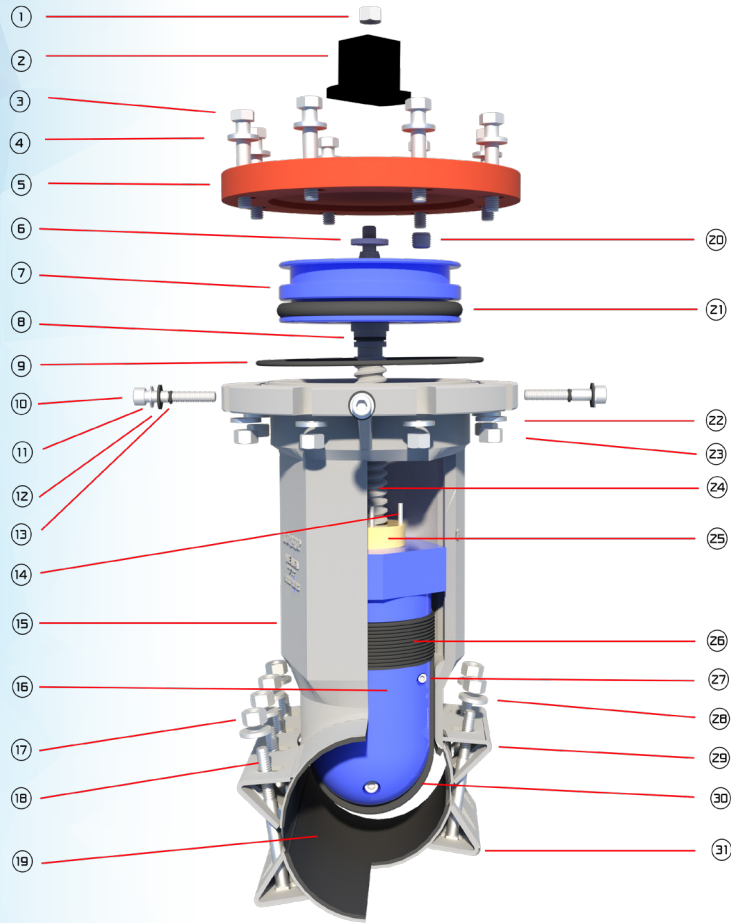
Covered by United States Patent No. 9,829,141,B2 and United States Patent No. 9,644,779,B2. Additional patents pending. Specifications subject to change without notice.

Publication Date: April 2025



# PRODUCT CUT SHEET

## 4"–12" Insta-Valve 250



Weights and Dims					
Size	A	B	C	D	Approx. Weight
4"	12"	18.6"	8.4"	13.5"	138 lbs.
6"	12"	21.5"	8.4"	13.5"	173 lbs.
8"	16"	24.6"	8.4"	13.5"	229 lbs.
10"	24"	30"	17"	19"	370 lbs.
12"	24"	33"	17"	19"	425 lbs.

C DIM=CASTING I.D.

Other Specifications	
Valve Body Minimum Test Pressure: 1.5 times system working pressure	
Valve Body Maximum Test Pressure: 375 psi Maximum Working Pressure: 250 psi	
Option available to meet "Build America, Buy America Act", "Buy American Act", "Buy America", and "American Iron and Steel" requirements.	
The 4"–12" Insta-Valve 250 is NSF/ANSI Standard 61 and NSF/ANSI Standard 372 to meet the regulatory requirements for the U.S. and Canada, assuring safe use in drinking water systems.	

### INSTA-VALVE 250 ASSEMBLY

ITEM	DESCRIPTION	MATERIAL	QTY
1	OPERATING NUT ATTACHING NUT	304 STAINLESS STEEL*	1
2	OPERATING NUT	STEEL, CAST	1
3	BONNET BOLTS 4"–8"	304 STAINLESS STEEL*	8
	BONNET BOLTS 10"–12"	304 STAINLESS STEEL*	12
4	BONNET WASHERS 4"–8"	304 STAINLESS STEEL	16
	BONNET WASHERS 10"–12"	304 STAINLESS STEEL	24
5	BONNET	EPOXY COATED CARBON STEEL	1
6	THRUST WASHER	TEFLON	1
7	COMPLETION PLUG	REINFORCED COMPOSITE POLYMER	1
8	VALVE STEM O-RING	RUBBER, BUNA-N	1
9	FLANGE O-RING 4"–12"	RUBBER, BUNA-N	1
10	COMPLETION PIN 4"–8"	300 SERIES STAINLESS STEEL*	4
	COMPLETION PIN 10"–12"	300 SERIES STAINLESS STEEL*	6
11	COMPLETION PIN WASHER 4"–8"	304 STAINLESS STEEL	4
	COMPLETION PIN WASHER 10"–12"	304 STAINLESS STEEL	6
12	COMPLETION PIN WASHER 4"–8"	RUBBER, BUNA-N	4
	COMPLETION PIN WASHER 10"–12"	RUBBER, BUNA-N	6
13	COMPLETION PIN O-RING 4"–8"	RUBBER, BUNA-N	4
	COMPLETION PIN O-RING 10"–12"	RUBBER, BUNA-N	6
14	VALVE PIN 4"–12"	STAINLESS STEEL	4
15	IV 250 VALVE BODY	304 STAINLESS STEEL	1
16	IV 250 CARTRIDGE	REINFORCED COMPOSITE POLYMER	1
17	BODY MOUNT NUTS 4"–6"	304 STAINLESS STEEL*	8
	BODY MOUNT NUTS 8"	304 STAINLESS STEEL*	10
	BODY MOUNT NUTS 10"–12"	304 STAINLESS STEEL*	14
18	BODY MOUNT CARRIAGE BOLTS 4"–6"	304 STAINLESS STEEL*	8
	BODY MOUNT CARRIAGE BOLTS 8"	304 STAINLESS STEEL*	10
	BODY MOUNT CARRIAGE BOLTS 10"–12"	304 STAINLESS STEEL*	14
19	BODY SEALING GASKET	RUBBER, BUNA-N	1
20	CHECK VALVE NPT PLUG	304 STAINLESS STEEL	1
21	COMPLETION PLUG O-RING	RUBBER, BUNA-N	1
22	BONNET WASHERS 4"–8"	304 STAINLESS STEEL	8
	BONNET WASHERS 10"–12"	304 STAINLESS STEEL	12
23	BONNET NUTS 4"–8"	304 STAINLESS STEEL*	8
	BONNET NUTS 10"–12"	304 STAINLESS STEEL*	12
24	VALVE STEM	304 STAINLESS STEEL	1
25	STEM COLLAR	NO LEAD BRASS	1
26	CARTRIDGE SEAL	EPDM	1
27	WEDGE BOLT	STAINLESS STEEL 18-8	1
28	BODY MOUNT WASHERS 4"–6"	304 STAINLESS STEEL	8
	BODY MOUNT WASHERS 8"	304 STAINLESS STEEL	10
	BODY MOUNT WASHERS 10"–12"	304 STAINLESS STEEL	14
29	MOUNTING BODY — TOP	304 STAINLESS STEEL	1
30	RESILIENT WEDGE	EPDM	1
31	MOUNTING BODY — BOTTOM	304 STAINLESS STEEL	1

\* Coated to prevent galling.

Proprietary Information: This property of Hydra-Stop shall not be used, reproduced, or distributed without written consent. All design and invention rights are reserved. Covered by United States Patent No. 9,829,141,B2 and United States Patent No. 9,644,779,B2. Additional patents pending. Specifications subject to change without notice.  
Publication Date: April 2025



# Insta-Valve® 250 PROOF-OF-DESIGN STANDARDS

Exceeding AWWA C509/C515 proof-of-design standards.

Only one insertion valve meets or exceeds AWWA C509/C515 Proof-of-Design Standards: the Insta-Valve® 250 from Hydra-Stop. We put the valve through vigorous testing to prove it.

Hydra-Stop's team of engineers tested our Insta-Valve® 250 insertion valves against the AWWA C509/C515 standards developed for resilient wedge seated gate valves. Since proof-of-design testing plays a more significant role than fabrication, material, or other standards, we set out to prove that the Insta-Valve® 250 could exceed the proof-of-design standards written for a resilient seated gate valve.

To do this, we:

- Selected two Insta-Valve® 250 insertion valves for testing
- Conducted the four tests required by C509/C515 proof-of-design standards: hydrostatic gate test, torque test, leakage test, and hydrostatic shell test
- Evaluated the results comparing our valve to the standard

How did the Insta-Valve® 250 perform? Let's find out!

“The design of any product is only as good as its performance. Without performance, the product is merely an expensive paperweight.”



# EXCEEDING AWWA C509/C515 PROOF-OF-DESIGN STANDARDS

## HYDROSTATIC GATE TEST



### ✓ THE TESTING STANDARD

Valve shall be hydrostatically tested with twice the specified rated pressure applied to each side of the gate and zero pressure on the other side. Test to be made in each direction across the gate for a minimum period of 5 minutes. No part of the valve or gate shall remain visually deformed by the test.

Reference: AWWA C509/C515 Standard Section 5.1.1.1

### EXCEEDED STANDARDS

#### THE TEST

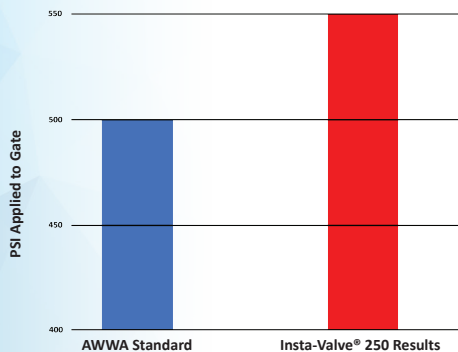
The Insta-Valve® 250 was fully closed, then the gate valve was pressurized on each side of the gate to 550 PSI with 0 pressure on the other side (exceeding the 500 PSI requirement) for 5 minutes.

#### THE RESULT

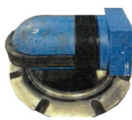
The valve was tested and remained fully operational. After the valve was disassembled and inspected, no damage or deformity was found in any valve component.

#### TEST SUMMARY

Insta-Valve® 250 performance **EXCEEDED** the hydrostatic gate test standard.



Valve Pressurized



Valve Cartridge After Testing

## TORQUE TEST



### ✓ THE TESTING STANDARD

Valve shall be over-torqued in the open and closed position to demonstrate that no distortion of the valve stem or thrust collar or damage to the resilient seat occurred as evidenced by the failure to seal at the rated pressure. For valves using stainless-steel stems there shall be no visible evidence of galling on the stem, thrust collar or stem nut.

Reference: AWWA C509/C515 Standard Section 5.1.1.2

### EXCEEDED STANDARDS

#### THE TEST

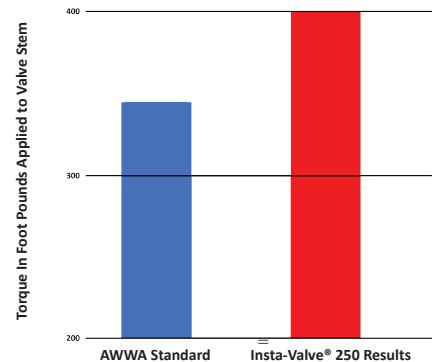
400 foot-pounds of torque were applied to the valve stem in both open and closed positions exceeding the 350 foot-pounds requirement by 50 foot-pounds. A torque wrench was used to measure the amount of torque applied.

#### THE RESULT

The valve was disassembled for inspection, and no damage occurred to any valve component. No galling was noted on the stem, thrust collar, or stem nut.

#### TEST SUMMARY

Insta-Valve® 250 performance **EXCEEDED** the torque test standard.



Torque being applied



Valve stem after test



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EMAIL US NOW  
[contact\\_us@hydra-stop.com](mailto:contact_us@hydra-stop.com)



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708-389-5111

## LEAKAGE TEST



### ✓ THE TESTING STANDARD

One prototype valve shall be fully operated and closed to a seal for 500 complete cycles with sufficient flow that the valve is at the rated working pressure for the pressure differential at the point of closing. The valve shall be closed under rated pressure differential applied alternately to each side of the gate after completion of the tests.

Reference: AWWA C509/C515 Standard Section 5.1.1.3

### MEETS STANDARDS

#### THE TEST

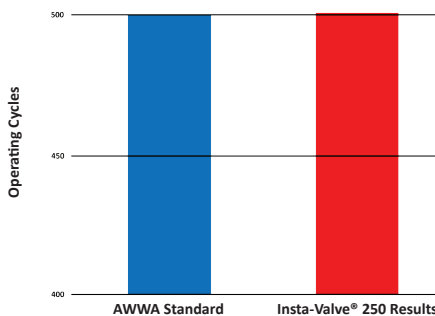
501 cycles were performed at 250 PSI. The closing torque, number of turns to close, and leakage rate were recorded for all cycles. The valve cartridge was inspected and photographed every 25 cycles.

#### THE RESULT

No damage to any valve component was noted. The Insta-Valve® 250 achieved shutdown and a .0005% leakage of available GPM was recorded.\*\*

#### TEST SUMMARY

Insta-Valve® 250 performance **MET** the leakage test standard



**RESULTS:**  
**SHUTDOWN**  
.0005% Leakage\*

\*.0005 of Available GPM in a 6" line @ 65 psi

\*\*Achieving shutdown can be affected by the condition of the host pipe.

## HYDROSTATIC SHELL TEST



### ✓ THE TESTING STANDARD

Valve shall be tested to 2.5 times the rated working pressure with the gate in the open position. For a period of 5 minutes there shall be no rupture or cracking of the valve body, valve bonnet or seal plate. No part of the valve shall remain visibly deformed after the test.

Reference: AWWA C509/C515 Standard Section 5.1.1.4

### EXCEEDED STANDARDS

#### THE TEST

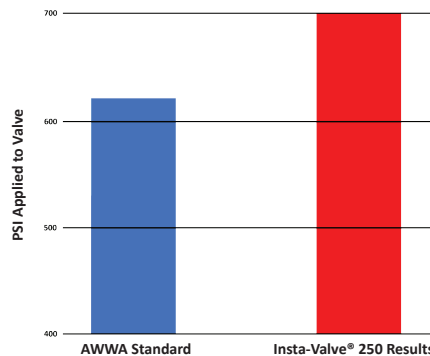
The valve was pressurized to 700 PSI, 75 PSI above the 625 PSI requirement, and maintained for 5 minutes and 55 seconds.

#### THE RESULT

No rupture or cracking of the valve body or valve bonnet occurred. Post-test inspection showed no damage to any valve component. Operation and performance were unaffected.

#### TEST SUMMARY

Insta-Valve® 250 performance **EXCEEDED** the hydrostatic shell test standard.



Test to 700 PSI

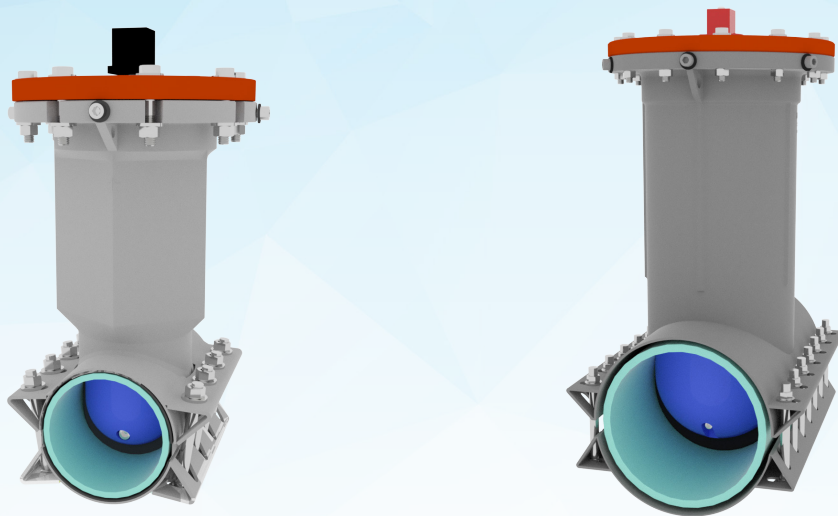


5 minute Test Duration



# INSTA-VALVE 250 **INSERTION VALVES**

4"–12" Insertion Valve Specifications — Revised April 2025



All insertion valves shall conform to the following:

Insertion valve shall be a stainless steel body resilient wedge gate valve, designed for permanent use in potable water, sewage, raw water, reclaimed water, irrigation, and backflow control systems. The design will allow the valve to be installed into an existing pressurized pipeline while maintaining constant pressure and service without system shutdown. No restraining devices, restraining fasteners, or transition gaskets shall be required for the installation or operation of the valve.

### **Installation Method:**

- Traditional line tapping methods shall be used for the installation of all insertion valves to allow removal of a single coupon for system evaluation. Reaming the pipe, complete removal of a section of pipe (top and bottom), or milling a slot in the pipe shall be prohibited.

### **Trained and Authorized Installer:**

- All insertion valves must be installed by companies trained and authorized by the approved valve manufacturer. This will ensure high-quality installation and guarantee the warranty of the product.

### **Valve Body Construction:**

- All insertion valves shall have a stainless steel body and a reinforced composite polymer valve cartridge to provide superior corrosion resistance, strength, and a pressure rating that meets or exceeds the requirements of resilient seated gate valves. The insertion valve shall be stainless steel construction for corrosion resistance, maximum toughness, and strength.
- All insertion valves must be capable of working on Cast/Grey Iron or Ductile Iron Class A, B, C and D, IPS PVC, C900 and C909 PVC, Steel and AC pipe diameters without changing either top or bottom portion of split valve body or using a transition gasket.
- All insertion valves must provide a solid support of the host pipe through the entire laying length of the valve body. No gaps or space between the valve body and host pipe shall be accepted.
- All insertion valves shall be rated for 250 psig maximum working pressure. The pressure rating must be permanently marked into the body.
- All insertion valves must be hydrostatically pressure tested to 1.25 times of the system operating pressure (minimum) or 1.5 times of the insertion valves 250 psig maximum pressure rating. The test shall be sustained for a minimum of 15 minutes. Once the pressure test is effectively achieved the insertion valve body must not be moved in accordance with AWWA Standards. If the insertion valve body is moved the pressure test must be completed again. Any movement, repositioning, loosening, and/or re-tightening must be retested before the pipe is tapped.

### **Bonnet Construction:**

- All insertion valves shall have a carbon steel epoxy-coated bonnet.

**Resilient Wedge Gate Assembly:**

- Insertion valves shall have an EPDM-molded resilient wedge seal. The resilient wedge seal will be affixed into a reinforced nylon composite polymer valve cartridge. The entire assembly shall be inert and impervious to corrosion.
- The nylon composite polymer valve cartridge shall be engineered to contact the interior of the host pipe and an engineered sealing surface in the valve body to create a seal. The resilient wedge shall be reinforced to resist abrasion, thus extending the life and quality of the shutdown where the wedge contacts the host pipe.
- Pressure equalization on the down or upstream side of the closed wedge shall not be necessary to open the valve.
- The wedge shall be symmetrical and seal equally well with flow in either direction.
- The resilient wedge must ride inside a minimum of four body channels to maintain wedge alignment throughout its travel and to achieve maximum fluid control regardless of high or low flow pressure or velocity.
- Insertion valves shall have a full size, full port flow way that is unobstructed, and free of depressions to provide optimum flow and sealing and not trap tuberculation or debris.

**Valve Dimensions and Weight:**

- Maximum height of the valve from the center of the host pipe to the top of the operating nut shall not exceed the following dimensions:
  - 4" = 18.6"
  - 6" = 21.5"
  - 8" = 24.6"
  - 10" = 30"
  - 12" = 33"
- Maximum laying length of the valve body shall not exceed the following dimensions:
  - 4" = 12"
  - 6" = 12"
  - 8" = 16"
  - 10" = 24"
  - 12" = 24"
- Maximum weight of the valve shall not exceed the following weight:
  - 4" = 138 lbs.
  - 6" = 173 lbs.
  - 8" = 229 lbs.
  - 10" = 370 lbs.
  - 12" = 425 lbs.

## **Fusion-Bonded Epoxy / E Coating:**

- Insertion valves shall have all stainless steel bodies and fasteners with an epoxy-coated carbon steel valve bonnet. The use of epoxy coatings for protection against corrosion is deemed insufficient for any component other than the valve bonnet.

## **Gaskets and Stem Seals:**

- Insertion valves shall utilize four O-rings to seal between valve body to valve bonnet and valve stem. These O-rings are installed to ensure the 250-psig pressure worthiness and prevent ground water and/or foreign materials from entering the valve.

## **Valve Stem:**

- Insertion valves shall be NRS (non-rising stem) and operate with standard 3 turns per diameter inch to open and close.
- Insertion valves shall be operated by a 2" square wrench nut — open left or open right.
- The gate valve stem shall be made of stainless steel.
- The gate valve stem shall be able to withstand torque of 700 ft. lbs. of torque without compromising operation.
- The NRS stem must have an integral stem collar manufactured of no lead bronze. Two-piece stem collars are not acceptable. The stem shall be affixed into the valve cartridge to maintain stem alignment, low torque, and continuous operation of the valve.

## **Hardware:**

- All bonnet and valve body fastener hardware shall be stainless steel.
- Valve cartridge locking pins shall be made of 304 domestic stainless steel and coated to prevent galling.

## **Split Restraint Devices and Fasteners:**

- Insertion valves that require the use of external or integral split restraint devices and or restraint fasteners is prohibited.

## **Quality Assurance:**

- Insertion valves shall be factory pressure tested and serialized for traceability before leaving the manufacturing facility to assure quality. Proof of successful factory pressure test must be made available upon customer request within three business days.

**Domestic Purchasing Requirements:**

Does this project require a domestic product? (check one box)

YES

The domestic option of the Insta-Valve 250 insertion valve is required for use, as it meets the requirements specified in the Build America, Buy America Act (BABA), "Buy American Act", "Buy America", and "American Iron and Steel".

NO

The non-domestic option of the Insta-Valve 250 insertion valve is acceptable for use.

**Value Added Features and Benefits:**

- All moving and operating parts must be removable, repairable, and/or replaceable under pressure to ensure easy repair of broken or damaged parts.
- Insertion valves must have the ability to be converted to a line stop fitting in the field without modification.

The 4"–12" insertion valve shall be a Hydra-Stop Insta-Valve 250 (patents pending) or written preapproved equal.

APPROVED BY:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_/\_\_\_/\_\_\_

# PRODUCT OPERATION AND MAINTENANCE

## INSTA-VALVE 250

### Operation and Maintenance of the 4—12” Insta-Valve 250

The ongoing maintenance of valves installed in a distribution system is essential. Exercising valves (closing and opening) should be done yearly to ensure they continue to work over a long period. Many manufacturers’ warranties can be void if the valves in a distribution system are not operated regularly.

The following paragraphs are excerpts from the AWWA Manual of Water Services, Chapter 5, Operation and Maintenance.

*Valves in a distribution system are too important to be allowed to sit idle with no maintenance over a number of years. Neglect almost always ensures that the valves will be inoperable, inaccessible, or unable to be located when needed. A practical valve maintenance program can be designed for initial implementation at a low cost, ultimately resulting in cost savings for the water system and in more reliable service for its customers.*

### PLANNING A MAINTENANCE SCHEDULE

*Before implementing a maintenance program, operators should develop a list of system priorities. A high priority might be the largest part of the system (based on the assumption that it carries the most water), or it might be the oldest part of the system (because those valves have not been operated for the longest period of time). Other priorities could be the part of the system that serves the most critical customers, such as hospitals. Regardless of the criteria used and priorities set, an improvement in the system can be achieved immediately if a pilot maintenance program focuses on the most troublesome areas.*

*One of the major problems in implementing a scheduled preventive maintenance program for valves is the apparent magnitude of the job. There may be hundreds of valves in even a small distribution system. However, if a systematic maintenance schedule is applied, the task becomes less daunting. In general, the following rules for operation, inspection, and maintenance apply:*

- *Inspections should be made of each valve on a regularly scheduled basis (annually if possible) and at more frequent intervals for valves with a 16-in. diameter and larger.*
- *Inspection should include examining the condition of the valve box or vault, operating the valve several times, and lubricating where required.*
- *Preventive maintenance should be performed as necessary or as suggested by the manufacturer.*
- *All gate valves should be cycled from full open to full close and back to open at least once every two years. Caution should be exercised when large valves in critical single-source transmission mains are cycled to the fully closed position. Some valves (such as butterfly valves that have a seating where a resilient coating meets stainless steel, or valves with actuators isolated from the contents of the line) may need less exercise. Follow manufacturers’ guidelines.*
- *Repairs should be made promptly and correctly. Records of all operation and maintenance should be maintained. Computer programs are available for such record keeping.*

### VALVE MAINTENANCE PROCEDURES

*A valve that has not been operated for a number of years needs to be closed by using a series of up and down motions. Crews should follow these guidelines to close a valve properly:*

1. *Begin with a steady amount of torque in the direction necessary to close the valve, moving through 5 to 10 rotations.*
2. *Reverse for two or three rotations.*
3. *Reverse again and rotate 5 to 10 more turns in the closing direction.*

# PRODUCT OPERATION AND MAINTENANCE

## INSTA-VALVE 250

4. Repeat this procedure until full closure is attained.
5. Once the valve is fully closed, it should be opened a few turns so that high-velocity water flowing under the gates can move the remainder of the sediment downstream with more force and clear the bottom part of the valve body for seating.
6. Fully close the valve again.

*The reason for this cautious approach is that debris and sediment often build up on the cartridge, valve stem, or resilient wedge. If this material is compacted while the valve is being closed, the torque required to close the valve continues to build as the material is loaded. If the procedure described above is used, the stem and other parts are "scrubbed" by a series of back-and-forth motions, and water in the system can flush the debris that has broken loose away.*

### Hydra-Stop Notes

- 1) Hydra-Stop recommends noting the location, size, installation date, and any other pertinent data for future reference. Keeping track of the valves in your system will assist crews in locating operable valves for routine maintenance or during an emergency.
- 2) As mentioned in the AWWA document, Hydra-Stop recommends inspecting your Insta-Valve 250 annually and exercising it at least once every two years.
- 3) If the installed valve is visible, make sure to observe the general condition of the valve. Do you see any leaks? Do you observe moisture in the soil or surrounding the valve? Are all the bolts and nuts fastened to the valve? Is there any extensive corrosion?
- 4) If you cannot visually inspect the valve, your only maintenance course is to operate and exercise the valve. Hydra-Stop recommends following the AWWA advice (steps 1-6 above) on closing and opening a valve during maintenance inspections.
- 5) Insta-Valve 250 Insertion Valves operate at three turns per inch, closing or opening within +/- 3 turns of a standard gate valve for most pipe types and classes. Additional turns may be required for certain pipe types and classes. Please contact your Hydra-Stop representative should you have additional questions.
- 6) In the unlikely event that a valve cartridge becomes damaged or inoperable, replace the valve cartridge by reversing the installation process and installing the replacement cartridge. Contact Hydra-Stop or the company that installed your valve for assistance.
- 7) For Customer Service or Technical Support, contact Hydra-Stop at 708-389-5111 or visit the Hydra-Stop website at [www.hydra-stop.com](http://www.hydra-stop.com).