Transmate

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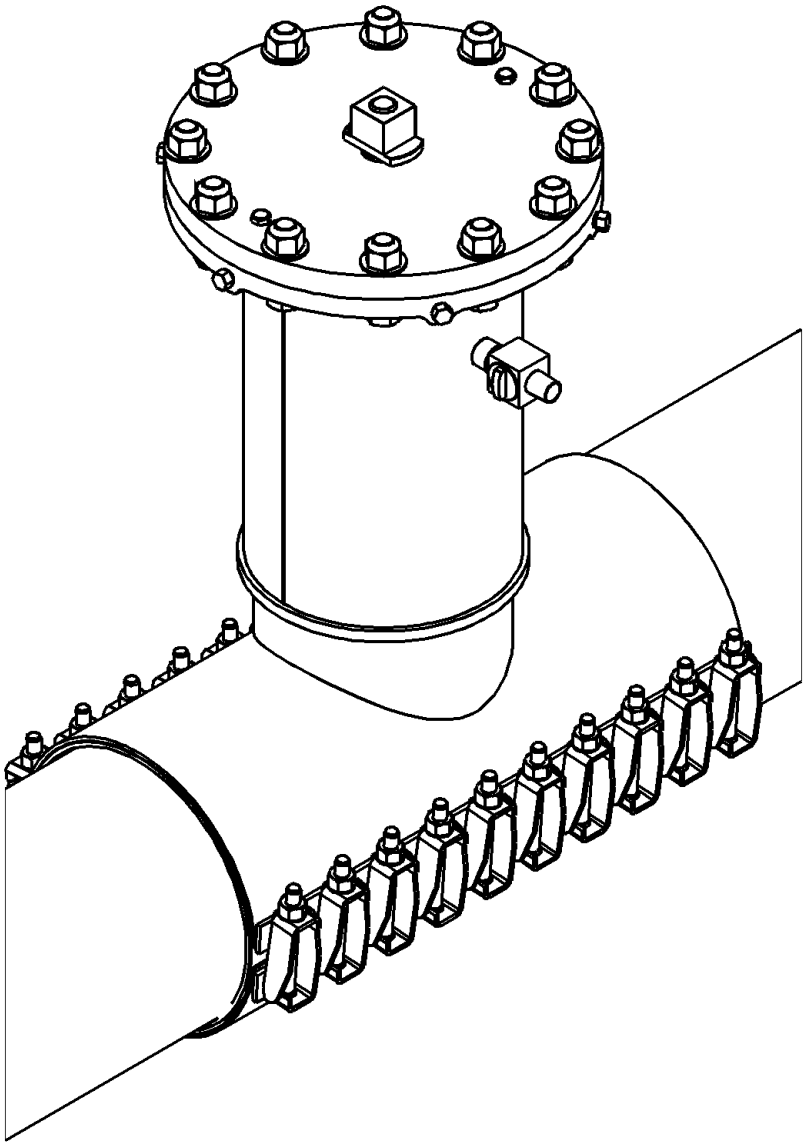
## OPERATING MANUAL

# INSERTA VALVE 2.0

## QUICK. SIMPLE. ROBUST.



9/24/2026

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Transmate
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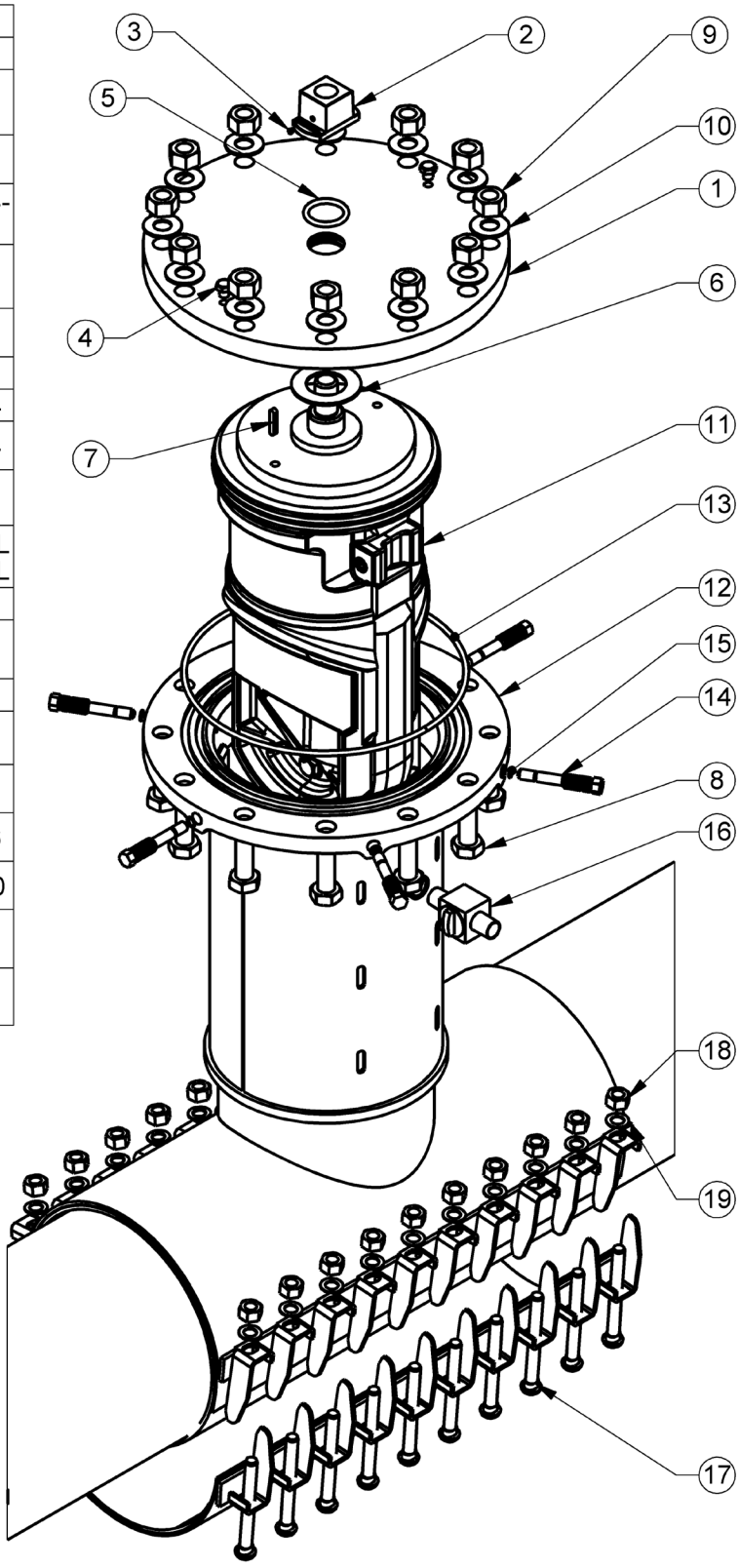
# COMPONENT LIST: VALVE

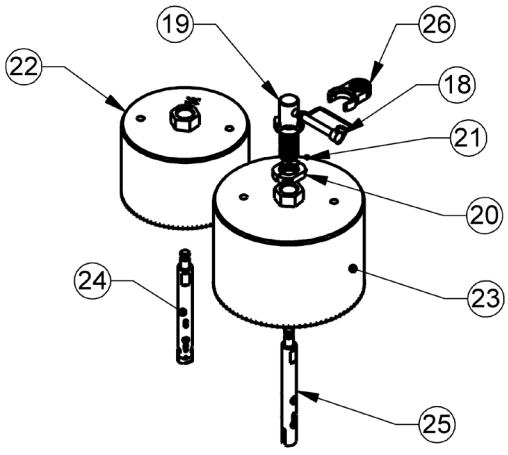
| ITEM | DESCRIPTION | PART # |
|---|---|---|
| 1 | COVER PLATE | 312-64-2 |
| 2 | OPERATING NUT | 312-01-22RE, 312-01-22LE |
| 3 | SET SCREW, 1/4-20X1/4" | 351-51-2 |
| 4 | PLUG BOLT | 8FB-HX312-64-0808R |
| 5 | COVER PLATE O-RING, -404 EPDM | 8R312E-404 |
| 6 | THRUST WASHER | 358-01-18 |
| 7 | KEY | 312-01-0708 |
| 8 | FLANGE BOLT | 8FB-HX414-04 |
| 9 | STAINLESS 7/8 NUT | 8FN-HHX4E14 |
| 10 | STAINLESS 7/8 WASHER | 8FW-414 |
| 11 | PLUG | 10IN: 312-10PL<br>12IN: 312-12PL |
| 12 | SLEEVE | SEE TABLE |
| 13 | FLANGE O-RING, -458 EPDM | 8R312E-458 |
| 14 | CROSS PIN | 312-11 |
| 15 | CROSS PIN O-RING, -013 EDM | 8R312E-013 |
| 16 | CORP STOP, 3/4" IP | 358-66-2 |
| 17 | TRACKHEAD BOLT | 8FB-TH410-06 |
| 18 | STAINLESS 5/8 NUT | 8FN-HHX4E10 |
| 19 | STAINLESS 5/8 WASHER | 8FW-410 |
| 20 | MOLYKOTE 111 LUBRICANT | 312-01-111 |

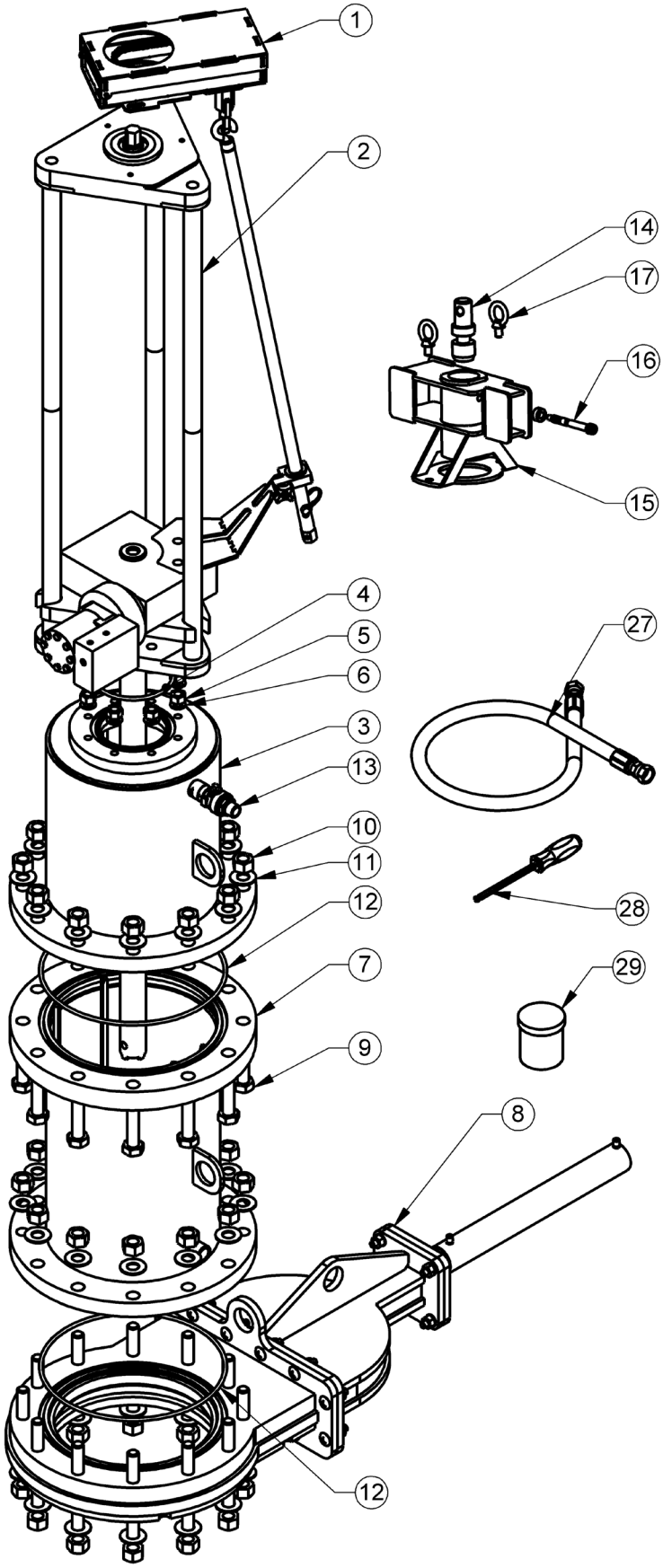
| PIPE SIZE | SLEEVE SIZE | SLEEVE RANGE |
|---|---|---|
| 10IN | 10.95 | 10.75-10.95 |
| | 11.25 | 10.85-11.25 |
| | 11.45 | 11.05-11.45 |
| | 11.80 | 11.40-11.80 |
| | 12.20 | 11.80-12.20 |
| 12IN | 12.60 | 12.20-12.60 |
| | 12.95 | 12.75-12.95 |
| | 13.20 | 12.90-13.20 |
| | 13.50 | 13.10-13.50 |
| | 13.80 | 13.40-13.80 |
| | 14.40 | 14.00-14.40 |
| | 14.60 | 14.20-14.60 |
| | 14.70 | 14.30-14.70 |



# COMPONENT LIST: INSTALL STACK

| ITEM | DESCRIPTION | PART # |
|---|---|---|
| 1 | MECHANICAL LINKAGE (OPTIONAL) | 312-58 |
| 2 | TAPPING MACHINE | 312-71TT |
| 3 | ADAPTER BELL | 312-67 |
| 4 | ADAPTER BELL O-RING, -437 EPDM | 8R312E-437 |
| 5 | ALLOY 5/8 NUT | 8FN-HHXC10 |
| 6 | ALLOY 5/8 WASHER | 8FW-Z10 |
| 7 | INSTALLATION CANISTER | 312-01 |
| 8 | SLIDE GATE | 312-56 |
| 9 | ALLOY 7/8 BOLT | 8FB-HXZ14-044 |
| 10 | ALLOY 7/8 NUT | 8FN-HHXZ14 |
| 11 | 7/8 WASHER | 8FW-Z10 |
| 12 | INSTALL STACK O-RING, -457 EPDM | 8R312E-457 |
| 13 | CORP STOP | 358-66-2 |
| 14 | INSTALLATION SHAFT ADAPTER | 312-90 |
| 15 | INSTALLATION ALIGNMENT TOOL | 312-59 |
| 16 | INSTALLATION ALIGNMENT TOOL SET SCREW | 312-59-2 |
| 17 | EYE BOLT | 8FB-EB612X78 |
| 18 | SNAP PIN | 312-91-5 |
| 19 | CUTTER ADAPTER | 312-91 |
| 20 | JAM NUT | 350-52 |
| 21 | SET SCREW | 351-52-1 |
| 22 | 10IN CUTTER (8.875 OD) | 312-01-1071 |
| 23 | 12IN CUTTER (10.500 OD) | 312-01-1084 |
| 24 | SHAFT NOSE PILOT | 358-68 |
| 25 | PVC PILOT | 358-84 |
| 26 | CUTTER ADAPTER SPACER | 312-91-SP |
| 27 | BYPASS HOSE | 358-69 |
| 28 | HEX SCREWDRIVER, 3/8" | 312-99-SD |
| 29 | TECH LUBE | 353-10-1 |



## TOOL LIST (CUSTOMER PROVIDED)

- 18" adjustable wrench
- 1-1/16 hex socket, deep
- 1-7/16 hex socket, for 7/8-9 heavy hex nuts
- 3/16in Allen wrench
- Deadfall mallet
- Torque wrench (minimum 250ft-lb)
- 3 hook lifting chain
- Crane, excavator, or similar machine with at least 9.5ft of vertical lift
- Pipe lube, for DI pipes
- Hydraulic power unit (~8GPM, 2000PSI), with ½ flush face couplings (parker FF 501/502-8FP), flow regulated to a maximum of 10 GPM
- Ladder, 8ft (not required if using mechanical linkage)
- 4x4 wood for blocking
- Level
- Water main valve key, valve exerciser, or similar that fits a 2in square operating nut.
- Cordless drill, preferred with clutch
- Drill socket adapter
- 1in hex socket
- Impact driver
- 12" adjustable wrench
- Pry bar
- Lifting sling
- 1-5/16 hex socket, for 7/8-9 hex bolts
- 3/4in hex wrench
- CLS 150 12in blind flange (for pressure testing)
- Molykote 111 or similar lubricant for EPDM O-rings

## FASTENER LIST (INCLUDED)

- Stainless flange bolt, 7/8-9 x 5in (12)
- Stainless heavy hex nut, 7/8-9 (12)
- Stainless Washer, 7/8 (12)
- Alloy hex bolt, 7/8-9 x 5in (12)
- Alloy heavy hex nuts, 7/8-9 (36)
- Alloy washers, 7/8 (36)
- Stainless track head bolts, 5/8-11 x 6in (20)
- Stainless nuts, heavy hex, 5/8-11 (20)
- stainless washers, 5/8 (20)
- Alloy heavy hex nuts, 5/8-11 (8)
- Alloy washers, 5/8 (8)
- Eye bolts, 1/2in (2)
- Snap pin, ½ x 3in (1)

## SLEEVE INSTALLATION

1. Expose pipe, recommended trench size shown below (5' x 9'). Standard install is with the slidegate inline with the pipe, but it can be rotated as needed. Clear 6" under the pipe.

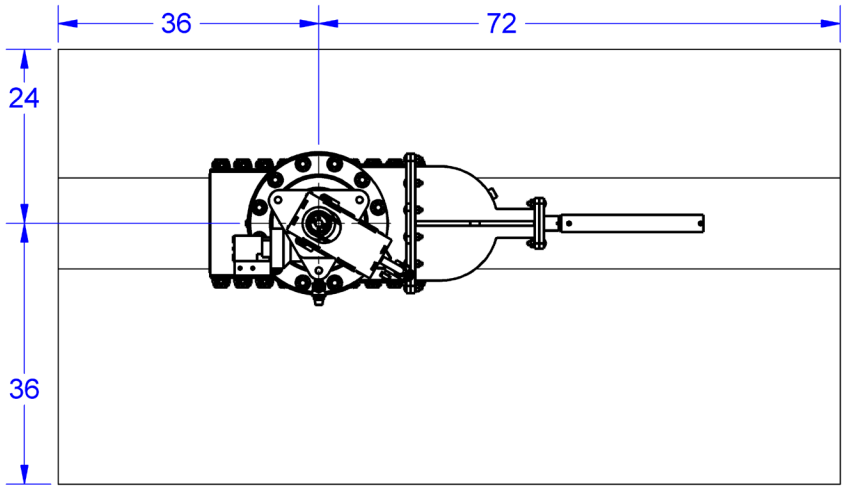



**Fig 1: Recommended Trench Dimensions**

2. Sleeve needs a minimum burial depth of:
   a) 10in sleeve: 31in from top of pipe to surface
   b) 12in sleeve: 34in from top of pipe to surface

   If there is not enough depth, contact Romac about our 90° gearbox for horizontal installation

3. Measure OD of pipe with an OD tape. If pipe OD is outside of the sleeve range STOP! Obtain the correct sleeve size and then proceed

4. Clean 36in of pipe thoroughly with soap and water, removing all dirt, rock, scale, and other material.

5. Separate the back of the sleeve from the body, gently prying if necessary. Do not warp the side bars.

6. Lubricate the pipe surface mat gasket tails. Do not lubricate when installing on PVC.

7. Set the sleeve body on top of the pipe. Be sure not to let the mat gasket fold up under the sleeve.

8. Add back half. Check that the bolt holes line up, the armors and mat gasket are tucked into the back half of the sleeve and the sidebar lugs are not interfering with each other. Add blocks to hold up the back half if needed.

9. Add trackhead bolts and washers, then hand tighten nuts.

10. Ensure sleeve is level by setting torpedo level on flange.

11. Make sure the sidebar gaps are even on both sides of the sleeve.

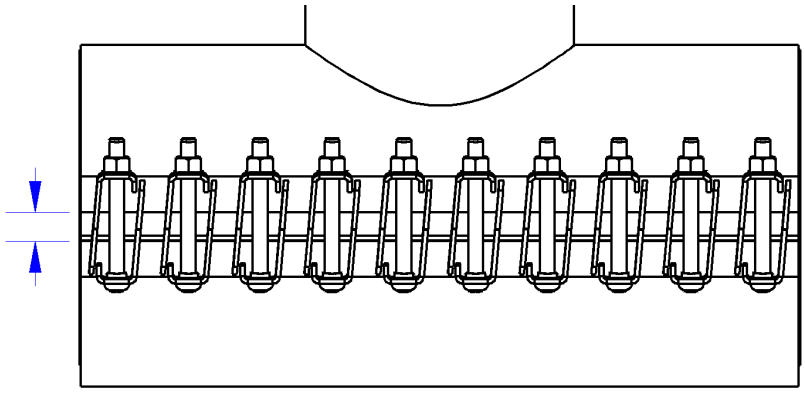


**Fig 2: Sidebar Gap**

12. Torque the bolts down, alternating sides following the below pattern. Tighten to 70ft-lb in stages: 30, 50, then 70ft-lb. For A/C pipe torque to 60 ft-lbs max.

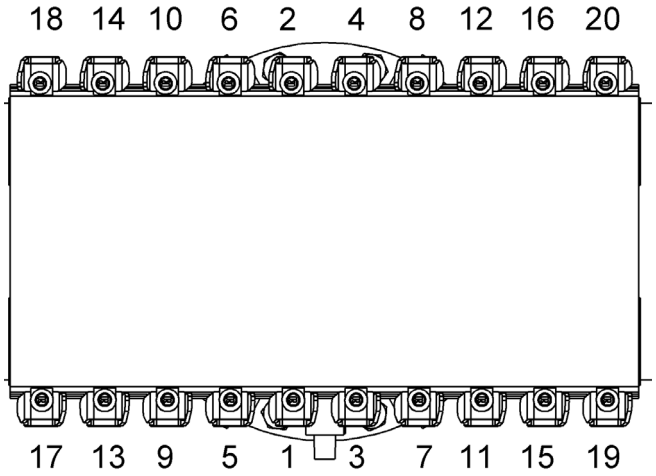



**Fig 3: Sleeve Bolt Star Pattern**

13. Wait 10 minutes then retighten to final torque.

14. Install sleeve corp stop.

15. Add sleeve flange o-ring, then bolt CLS 150 12in blind flange onto the sleeve.

16. Test sleeve to end user requirements or working pressure of the pipe (Water test 375 psi max or air test to 50 psi max).

17. Support sleeve for tap and install by blocking and adding backfill to the pipe's spring line. NOTE: FOR HORIZONTAL INSTALLATIONS PLACE ADDITIONAL BLOCKING UNDER THE SLEEVE NECK TO PREVENT ROTATION AROUND PIPE.

# TAPPING EQUIPMENT SETUP

1. Confirm that O-rings are fitted to sleeve and slidegate. Lubricate O-rings as needed. CAUTION: Check that lubricant is compatible with EPDM rubber before using on o-rings

2. Confirm that cross pins are installed on sleeve, with full open indicator lines showing.

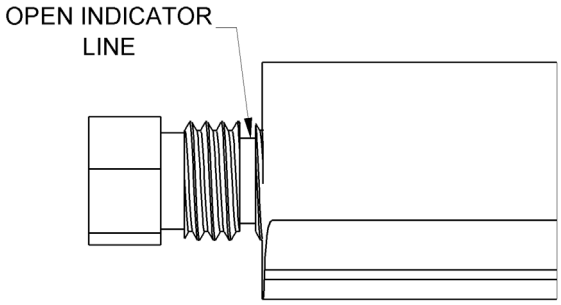



**Fig 4: Crosspin at Full Open**

3. Connect the slide gate to the hydraulic power unit and run the disk in and out to ensure it is operational and fully retracted.

4. Lift slidegate onto the sleeve.

5. Bolt slidegate to sleeve with 12 alloy heavy hex nuts and washers (7/8-9). Torque to 50 ft-lb following the 12 bolt pattern on fig 5.

6. Apply thread sealant to corp stops and install half couplings on Adaptor Bell and Installation Canister.

7. Confirm that the Adapter Bell O-ring is on Adapter Bell and lubed. CAUTION: Check that lubricant is compatible with EPDM rubber before using on o-rings

8. Install the tapping machine onto the Adapter Bell using the 5/8 heavy hex nuts and 5/8 washers. Recommended tapping machine orientation is to align lifting shackles with Adapter Bell lifting loop. Tighten bolts to 80 ft-lb following the 8 bolt star pattern in fig 5.

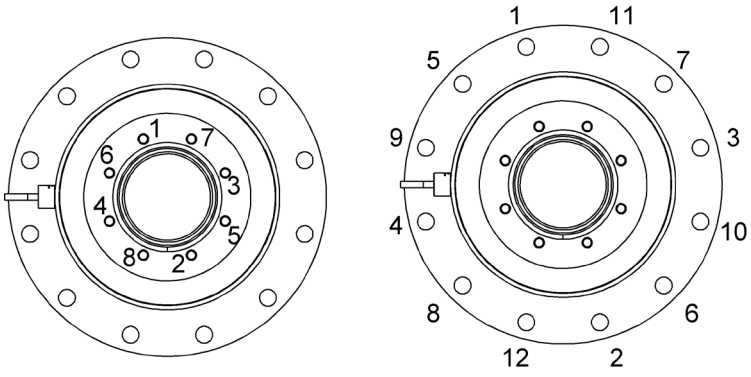



**Fig 5: Star Patterns for 8 and 12 bolts.**

9. Lay tapping machine and Adapter Bell sideways, blocking under the machine's top plate as in fig 6.

10. If using the mechanical linkage, bolt it onto the top of the tapping machine. Preferred orientation is shown in fig 1.

11. Run the tapping machine's shaft out until the snap pin hole is easily accessible. (around 20in). Use the handwheel or cordless drill with 1in hex socket for fast traverse.

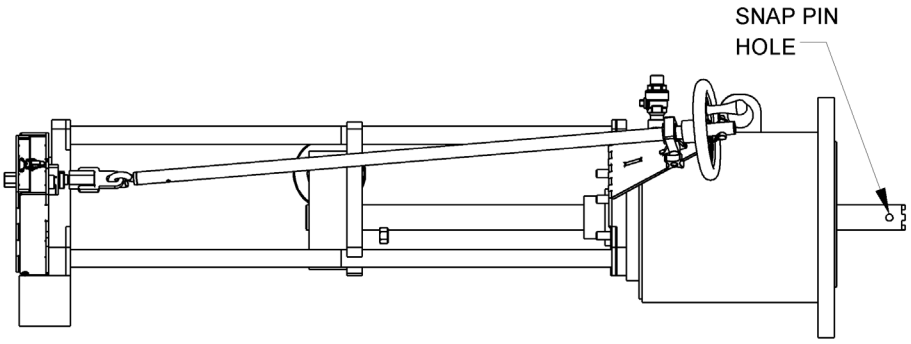



**Fig 6: Tapping Machine on its side.**

12. Slide the Cutter Adapter onto the shaft and add the snap pin through shaft and adapter.

13. Thread jam nut onto Cutter Adapter until 5/8 from bottom of Cutter adapter Collar (~2 threads). Use 3/16 allen wrench to tighten jam nut screws.

14. Screw pilot into Cutter Adapter. Tighten firmly, and secure by tightening the set screw with 3/16 allen wrench. If tapping plastic pipe, use the PVC pilot bit. Otherwise, use the shaft nose pilot and lubricate the bit with tech lube.

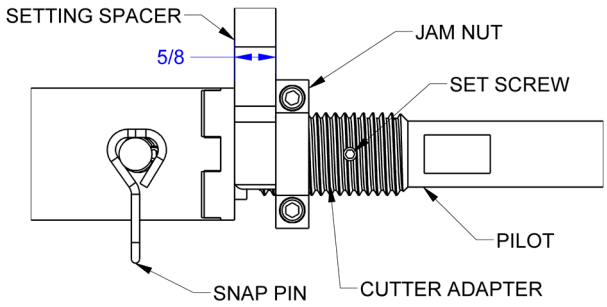



**Fig 7: Cutter Adapter Install Closeup**

15. Install cutter of proper size. **CAUTION! TIGHTEN FIRMLY AGAINST JAM NUT USING OPEN ENDED WRENCHES**.
    Cutter sizes:
    a. 10in cutter: 8.875 OD
    b. 12in cutter: 10.500 OD

16. Apply tapping compound to the cutter and pilot, then retract the shaft fully.

17. Lift the tapping machine onto the slidegate. Make sure that sleeve and Adapter Bell corp stops are aligned.

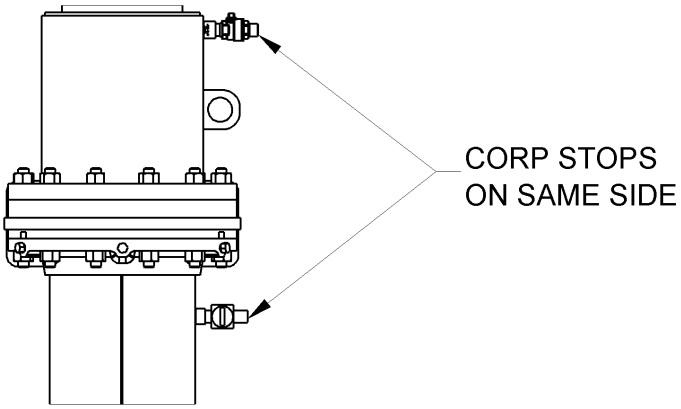



**Fig 8: Sleeve and Adapter Bell Corp Stop Alignment**

18. Bolt Adapter Bell to slidegate with 12 alloy heavy hex nuts and washers (7/8-9). Tighten to 50 ft-lb following the 12 bolt pattern on fig 4.

# TAPPING PROCEDURE:

1. Run tapping machine shaft down to 26in using either the handwheel or an electric drill and 1in hex socket for fast traversal.

**a. Caution! Ensure shaft is not turning while traversing shaft. This can cause the cutter to damage sleeve.**

**b. Do not use impact driver for fast traversal. This can damage the tapping machine bearings.**

2. Switch to the handwheel and then lower shaft until pilot bit touches the top of the pipe (28-1/4in for a 10in sleeve, 30-1/2in for a 12in sleeve), then back shaft 2 turns.

   a. While traversing into position the cutter may contact the beveled step inside the sleeve neck. If resistance is felt, continue advancing until the "pilot touching the pipe" dimension is reached.

3. Connect hydraulic power unit to the tapping machine. Required HPU specs are 8GPM at 2000psi. Do not exceed 10 GPM.

4. Turn on hydraulic power unit and move the tapping machine throttle to 10. Check that the shaft is rotating CW.

5. Feed to 36" on the tapping machine scale for a complete cut on all 10in and 12in pipes.

   a. The spade bit pilot requires a constant heavy feed on DI and CI pipe, while the PVC pilot needs a slower gradual feed rate.

   b. The shell cutters require a medium feed rate for all pipe types. If the cutter jams or tapping machine stalls, back the cutter a couple turns and open the sleeve corp stop for 30 seconds to flush the chips. Attach the bypass hose to direct the water out of the ditch if needed.

6. Retract shaft fully.

7. Set slidegate lever to neutral, connect slidegate to power unit.

8. Close slidegate. It will make a solid thump when fully closed.

9. Release pressure from Adapter Bell using corpstop. To avoid draining excess water into the ditch, attach the bypass hose to the corp stop beforehand and spray water over the ditch edge.

10. Unbolt Adapter Bell.

11. Lift tapping machine off slidegate and set down sideways, with top of tapping machine blocked up.

12. Run shaft out to 20in to access the snap pin. Confirm that coupon was retained by cutter.

## CUTTER ADAPTER DISASSEMBLY

1. It is easiest to remove the cutter and pilot bit while the adapter is on the shaft.
2. Loosen jam nut. Unthread cutter and pull it along the pilot bit to expose wrench flats on the pilot body. The pilot bit detents will stop the cutter from being completely removed.
3. Loosen the set screw securing the pilot bit, using 3/16 allen wrench.
4. Unthread the pilot bit and pull free of cutter.
5. Remove coupon from cutter.
6. Take Cutter Adapter off shaft.
7. Fully retract tapping machine shaft.

## PLUG INSTALL EQUIPMENT SETUP

1. Align Adapter Bell to Installation Canister. It is recommended to place the Installation Canister on the ground, o-ring side up, and lift the tapping machine vertically onto it. Make sure the corp stops line up.
2. Bolt Adapter Bell and Installation Canister together using the alloy hex bolts (7/8-9 x 5in), alloy heavy hex nuts (7/8-9), and alloy washers (7/8). tighten to 50 ft-lb following the 12 bolt pattern in fig 4. This makes the Install Stack.
3. Lay Install Stack on its side to load the Plug. Block under the head of the tapping machine and the sides of the Adapter Bell to prevent the install stack from rolling while the Plug is being loaded.
4. Extend tapping machine shaft to 35in, using either the handwheel or a drill and 1in socket for fast traversal.
5. Attach Installation Shaft Adapter with the snap pin.
6. Bolt Installation Alignment Tool onto the Plug, using 1/2in eye bolts.
7. Insert the Plug/Installation Alignment Tool onto the Installation Shaft Adapter. Plugs are approx. 200lb, so it is recommended to use a lifting strap. When the Installation Alignment Tool is properly seated, the Installation Shaft Adapter will be fully covered.

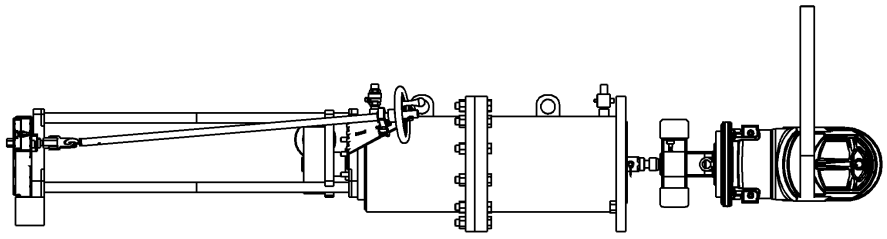


**Fig 9: Attaching Plug to Shaft**

8. Tighten Installation Alignment Tool set screw with 3/8 Hex Screwdriver. Tighten until it touches the Installation Shaft Adapter, then back off 1/4 turn.

9. Align Installation Alignment Tool with the rails and run the shaft back up. Traverse the shaft slowly until the Installation Alignment Tool ears are fully between the rails. Note that the rail gap is different on each side.

10. Lift install stack assembly onto slide gate, making sure the sleeve and install stack corp stops line up.

11. Bolt down using alloy heavy hex bolts (7/8-9) and washers. Tighten to 50 ft-lb following the 12 bolt pattern in fig 4.

12. Screw bypass hose onto the sleeve corp stop and Installation Canister corp stop.

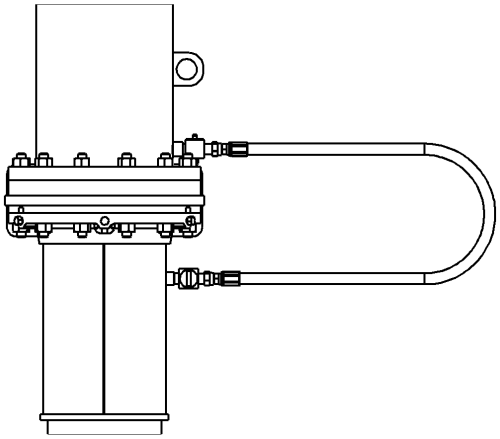


**Fig 10: Bypass Hose Attached**

13. Open corp stops to fill install stack with water through bypass hose. Bleed air through Adapter Bell corp stop.

14. **Keep open the corp stops attached to the bypass hose until Plug is fully inserted and secured by the crosspins. Failure to balance pressure between sleeve and capitalize can damage the slidegate and Plug.**

15. Retract slidegate. Slidegate will make a solid thump when fully retracted.

# PLUG INSTALL PROCEDURE

1. Run the shaft down to 29in, using either the handwheel or a drill and 1in socket for fast traversal.

2. Use handwheel to feed shaft down until the Plug is fully seated and resistance from the handwheel sharply increases. Around 31-1/2.

3. Screw in crosspins using adjustable wrench, or any ¾ hex or socket wrench. Crosspins should stop with ~1/16 gap between head and flange. If a crosspin encounters resistance while threads are still visible, plug is not fully seated.

**Warning: make sure all 6 crosspins are screwed in before draining install stack. Failure to do so can allow the Plug to eject from the sleeve, damaging Plug and tapping machine.**

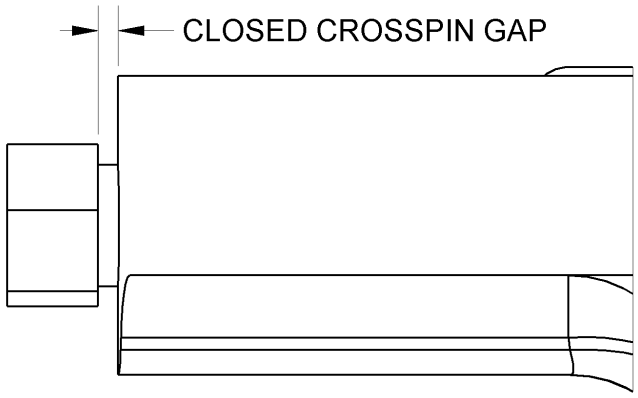



**Fig 11: Closed Crosspin**

4. Retract the shaft 3-4 turns, until the Plug is snug against the crosspins. Note: Failure to do this can cause the machine shaft to jam, requiring additional torque to break free.

5. Close corp stops, remove the bypass hose from the sleeve.

6. Drain the install stack by opening Adapter Bell and Installation Canister corp stops. Avoid excess water in the ditch by using the bypass hose to redirect the water.

7 Remove the bypass hose.

8. Use Install Canister corp stop to access the Installation Alignment Tool set screw, using 3/8 hex screwdriver.

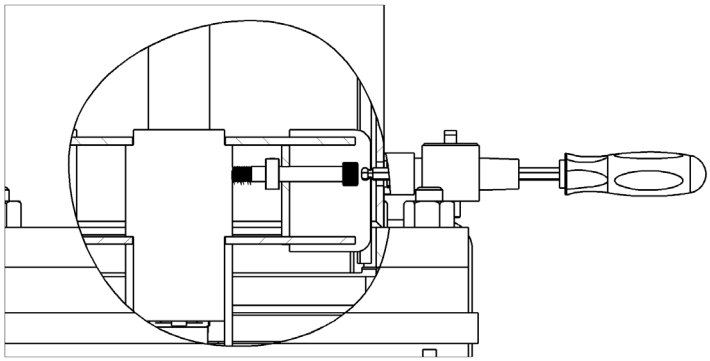


**Fig 12: Set Screw aligned with Corp Stop and Hex Screwdriver**

9. Loosen set screw until it hits the shaft collar.

10. Retract the shaft fully.

11. Unbolt the install stack from the slidegate and lift the install stack out of the ditch.

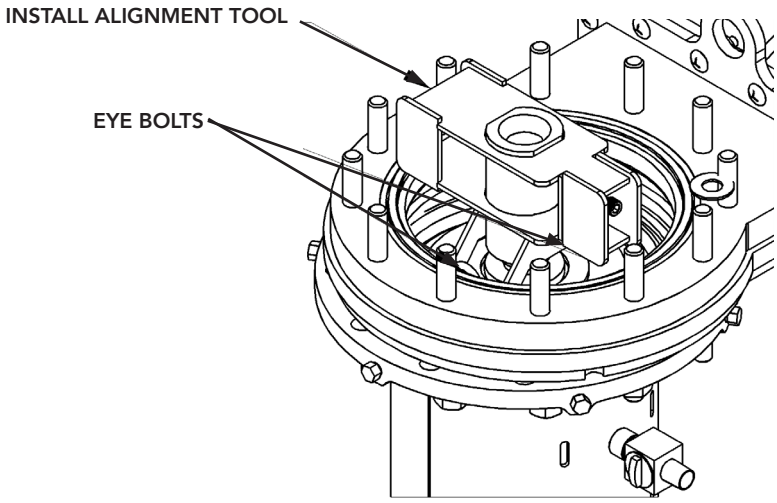



**Fig 13: Sleeve with Installation Alignment Tool and Slidegate Attached**

12. Unscrew the 1/2" eye bolts and remove the Installation Alignment Tool.

13. Unbolt slidegate and remove from the sleeve. Make sure that the sleeve o-ring remains in its groove.

14. Lube both sides of the thrust washer with molykote 111 and add it to the top of the valve stem.

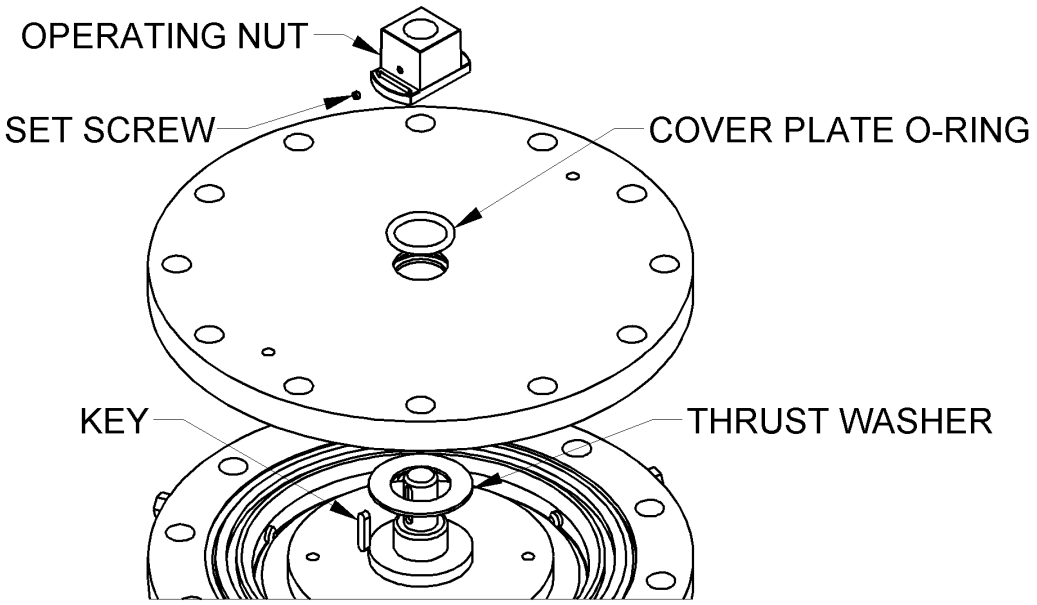



**Fig 14: Cover Plate Installation**

15. Remove the protective sticker covering the cover plate bore and check that the o-ring is properly seated in the ID groove.

16. Lift the cover plate onto the sleeve. Recommended method is to use the 1/2in eyebolts and lifting chain.

17. Bolt cover plate to the sleeve using the stainless heavy hex bolts (7/8-9 x 5in), stainless heavy hex nut (7/8-9), and stainless washers. Bolts should face downwards, with stainless washers under bolt head and nut to prevent damage to the cover plate coating. Tighten to 50 ft-lb following the 12 bolt pattern in fig 4.

18. Add key to the stem's keyway, slide operating nut onto the stem, and tighten the set screw to secure it.

19. Fill the threaded eyebolt holes with ½-13 x ½ hex head sealing bolts.

## CLOSING AND OPENING THE VALVE

1. Expose valve stem. Make sure cover plate is clean around and under the operating nut.

2. Using a 2in hydrant square socket and valve exerciser or valve key, turn the valve stem. Left open valves have a BLACK operating nut. Right open valves have a RED operating nut.

3. The turns to fully close a valve depend on the ID of the pipe. The recommended minimum closing torque is 250 ft-lb. Minimum turns to close:
   a) 10in: 35 turns
   b) 12in: 41 turns

4. Turn the valve stem in the opposite direction to open. **Note: during the first 6 opening turns, the valve stem might bounce or rapidly change resistance to turning. This is a normal effect of the valve breaking its seal with the pipe wall.**

## TRAVEL CHART

| Travel Chart | | |
|---|---|---|
| | 10in | 12in |
| Pilot Touchdown | 28-1/4 | 30-1/2 |
| Cut Depth | 36 | 36 |
| Plug Installed | 31-1/2 | 31-1/2 |