

Petersen® 150-Series Completion Plug Installation Instructions

WARNING SAFETY IS EVERYONE'S RESPONSIBILITY!

Read and understand before using Petersen® Plugs. Failure to comply may result in property damage, serious injury or death! Very high forces are involved in many pipeline-plugging situations. Forces increase dramatically as pressure and pipe diameter increase. Extreme care must be taken to assure the safe use of any Pipe Plug. If you do not understand these instructions or how to calculate the forces involved, consult a qualified professional engineer to advise you. These instructions must be available to all Petersen® Completion Plug users. All workers on the job must be trained for proper use.

1. Completion Plug Flange Installation: (Install between tapping sleeve and tapping valve.)

- 1.1. **Bolt the Completion Plug Flange** to the tapping sleeve using a ring gasket. Ensure the recessed groove on the Flange ID faces upward. Verify that the Completion Plug Flange ID is aligned with the hot tap sleeve. Secure with stud bolts and hex nuts provided.
- 1.2. **Place the notched Ring Gasket and Spacer Ring** on top of the Completion Plug Flange. Be sure the lip on the Spacer Ring seats into the Flange groove.
- 1.3. **Attach the tapping valve** onto the Spacer Ring using the ring gasket and hex nuts provided. Do not tighten.
- 1.4. Insert the Alignment Tool to align the hot tap valve and the Completion Plug Flange before tightening the nuts. After alignment, tighten the nuts and remove the Alignment Tool.
- 1.5. **Advance the Lock Pins** into the Flange ID opening until they stop.
- 1.6. **Screw the Positioning Ram into the Completion Plug without the O-ring installed.**
- 1.7. **Slip the Packing Seal onto the Positioning Ram.**
- 1.8. **Attach the Pulley Assembly to the Positioning Ram.**
- 1.9. **Put one end of the Chain Hoist through the Pulley Assembly** and secure to one Anchor Lug. Connect the other end of the chain to the other Anchor Lug.
- 1.10. **Secure Completion Plug near Packing Seal Flange with Chain Hoist.**
- 1.11. **Open the tapping valve completely.**
- 1.12. **Place the Ring Gasket and the Completion Plug with Packing Seal** onto the tapping valve.
- 1.13. **Using the Chain Hoist insert the Completion Plug into the Completion Plug Flange** until it stops against the Lock Pins, thereby validating that the Plug inserts properly.
- 1.14. **Secure the Packing Seal** to the tapping valve with three hex bolts and nuts on three sides.
- 1.15. **Position the Stop Collar on the Positioning Ram** 1-1/2" (38mm) above the Packing Seal and tighten.
- 1.16. **Retract the Lock Pins** until they stop.
- 1.17. **Continue inserting the Completion Plug into the Completion Plug Flange until the Stop Collar rests against the Packing Seal.**
- 1.18. **Advance the Lock Pins inward** to ensure they engage the groove in the Completion Plug. If necessary adjust the Stop Collar to allow the Lock Pins to engage the groove smoothly.
- 1.19. **Position the Lock Collar directly on top of the Packing Seal and tighten securely.**
- 1.20. **Retract the Lock Pins** until they stop, then with the Chain Hoist pull the Completion Plug out of the Completion Plug Flange.
- 1.21. **Remove the bolts holding the Packing Seal to the tapping valve** and remove the Packing Seal, Positioning Ram, and the Completion Plug from the tapping valve.
- 1.22. **Attach the tapping machine** to the valve and make the hot tap per tapping instructions.

2. Completion Plug Installation:

- 2.1. **Install the O-ring on the Completion Plug.**
- 2.2. **Install the Completion Plug, Positioning Ram, and the Packing Seal** onto the tapping valve using the ring gasket, then secure with hex bolts, Anchor Lugs and nuts provided.
- 2.3. **Put one end of the Chain Hoist through the Pulley Assembly** and secure to one Anchor Lug. Connect the other end of the chain to the other Anchor Lug.

- 2.4. **Secure Completion Plug near Packing Seal Flange with Chain Hoist.**
 - 2.5. **Equalize the pressure by closing the Packing Seal Drain Valve** and then opening the tapping valve completely while holding the Completion Plug off the valve gate.
 - 2.6. **Make sure the Completion Plug Lock Pins are fully retracted.**
 - 2.7. **Push the Completion Plug into the Completion Plug Flange** until the O-ring starts to seal against the Completion Plug Flange. The Stop Collar will be approximately 1-1/2" (38mm) from the Packing Seal.
 - 2.8. **Use one of the below two methods to push the Completion Plug into position.**
 - 2.9. **Alternative One:** Apply pressure to the top of the Completion Plug by connecting an external air or water source through the Drain Valve on the Packing Seal. Slowly increase pressure until the Completion Plug is in position and the Stop Collar is against the Packing Seal.
 - 2.10. **Alternative Two:** Connect a hose from the drain valve on the tapping sleeve to the Drain Valve on the Packing Seal to equalize the pressure above and below the Completion Plug. Manually or with the Chain Hoist push the Completion Plug into place with the Stop Collar against the Packing Seal.
 - 2.11. **With the Completion Plug in place, advance all Lock Pins** until they stop, completely engaging the groove in the Completion Plug. Adjust the Packing Seal pressure if necessary for smooth adjustment of the Lock Pins.
 - 2.12. **Release the pressure** on the Completion Plug by opening the Drain Valve or removing the hot tap sleeve hose.
 - 2.13. **Unscrew the Positioning Ram from the Completion Plug.**
 - 2.14. **Remove the Packing Seal** and Positioning Ram from the tapping valve.
 - 2.15. **Re-torque all the hex nuts** that hold the Completion Plug Flange to the hot tap sleeve.
 - 2.16. **Remove the tapping valve.** Loosen the hex nuts on the valve while holding the nut on the opposite end of the stud bolt. Be sure not to turn studs or the Completion Plug Flange may leak.
 - 2.17. **Clean the top of the Completion Plug** and coat with a silicone spray lubricant.
 - 2.18. **Insert the Debris Plug** into the Completion Plug hand tight after applying grease to the threads.
 - 2.19. **Install a blind flange** on the Completion Plug Flange over the Spacer Ring using the ring gasket and proper bolt torque.
- 3. 3. Completion Plug Removal:**
- 3.1. **Remove the blind flange** from the Completion Plug Spacer Ring.
 - 3.2. **Inspect the gasket** and replace if necessary.
 - 3.3. **Clean the top of the Completion Plug** and remove the debris plug from center.
 - 3.4. **Install a full port valve onto the Completion Plug Flange over the Spacer Ring** with hex nuts. Open the valve completely.
 - 3.5. **Screw the Positioning Ram into the Completion Plug.**
 - 3.6. **Slip the Ring Gasket and Packing Seal** onto the Positioning Ram then onto the valve.
 - 3.7. **Insert bolts and 2 Anchor Lugs** on opposite sides through Packing Seal and valve flanges and secure with nuts.
 - 3.8. **Position the Stop Collar on the Positioning Ram** against the Packing Seal to prevent the Completion Plug from inadvertently moving inward during removal.
 - 3.9. **Install the Pulley Assembly** onto the Positioning Ram and tighten the setscrews.
 - 3.10. **Thread the Chain Hoist chain through the Pulley Assembly and connect each end to the Anchor Lugs. Remove slack in chain.**
 - 3.11. **Equalize** the pressure above and below the Completion Plug by connecting the Drain Valve on the Completion Plug **Packing Seal** to the tapping sleeve port or an external pressure source.
 - 3.12. **When pressure is equalized** the Completion Plug Locking Pins should turn easily. Retract the Locking Pins to release the Completion Plug.
 - 3.13. **Slowly release pressure** from above the Completion Plug and allow the pipeline pressure to push it out controlling the movement with the Chain Hoist.
 - 3.14. **When the Completion Plug clears** the full port valve, close the valve.
 - 3.15. **Release the pressure** on the Completion Plug Drain Valve.
 - 3.16. **Remove the Packing Seal, Positioning Ram, and Completion Plug** from the tapping valve.
 - 3.17. **Re-torque all the nuts on the valve flange.**