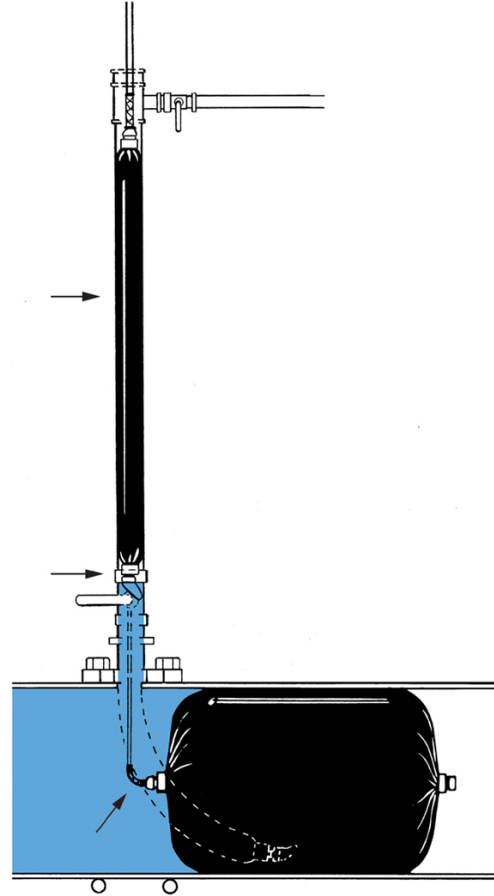




Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Hot tap plug insertion configuration



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Hot tap insertion of a 36" Multi-Flex™ Plug through an 8" Taping Valve



Hot Tap Insertion of Petersen® Multi-Flex™ Plug



- Hot tap sleeve must be installed on the pipeline to be plugged according to the manufacturers instructions. Hot tapping sleeves are available for weld-on, bolt-on and electro fusion for plastic pipe.



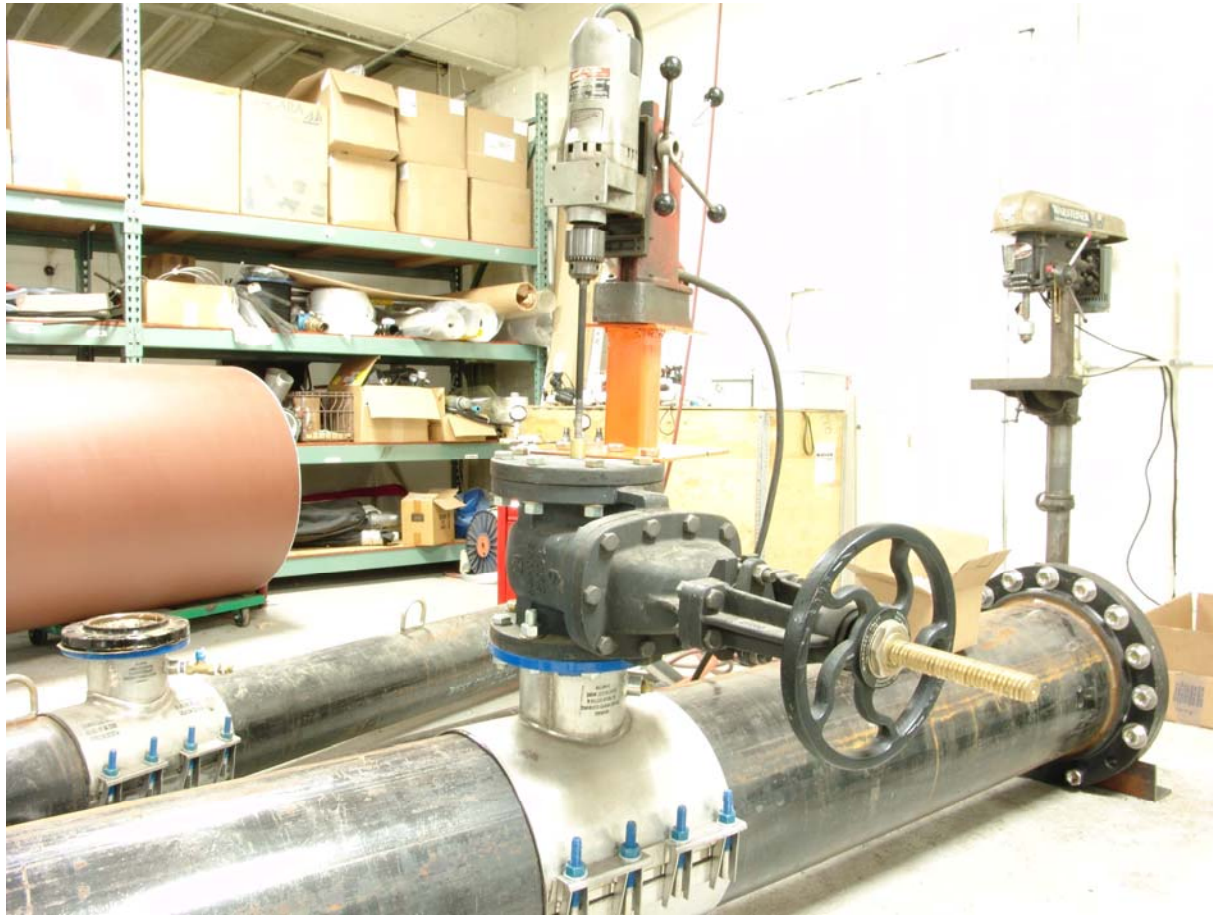
Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Attach a hot tapping full port valve to the hot tap sleeve. Apply pressure through the purge valve on the hot tapping sleeve to verify that there are no leaks.



Hot Tap Insertion of Petersen® Multi-Flex™ Plug



- Install hot tapping equipment to the full port valve. Open hot tapping valve completely and verify there are no leaks. Remove test pressure from the hot tapping sleeve and valve assembly. Insert hot tapping hole saw through the Hot Tap Valve and drill the pipe. After drilling, retract drill and close valve. Remove hot tapping equipment.



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



Components required for Hot Tap Plugging prior to assembly



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Launch Cylinder attached to Tapping Valve with Inflation Ram and Rotating Elbow attached to Multi-Flex™ Plug



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Inflation Ram Assembly with Centering Guide, Packing Seal and Tee Handle



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Rotating Elbow allows Multi-Flex™ Plug Insertion around bends



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Multi-Flex™ Hot Tapping Plug with a Directional Shoe, Rotating Elbow, and Removal Cone, attached to Inflation Ram



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Multi-Flex™ Plug is inserted into the Launch Cylinder
- *(Alternatively, Inflation Ram may be assembled with Launch Cylinder first and then plug pulled into Launch Cylinder before attaching to Tapping Valve)*



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Multi-Flex™ Plug Insertion into Launch Cylinder



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- The Packing Seal and Tee Handle Anchor is attached to the Launch Cylinder but not pushed into main pipeline



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



After Launch Cylinder and Inflation Ram is assembled, the Tapping Valve is opened to equalize pressure between the Launch Cylinder and Host Pipeline



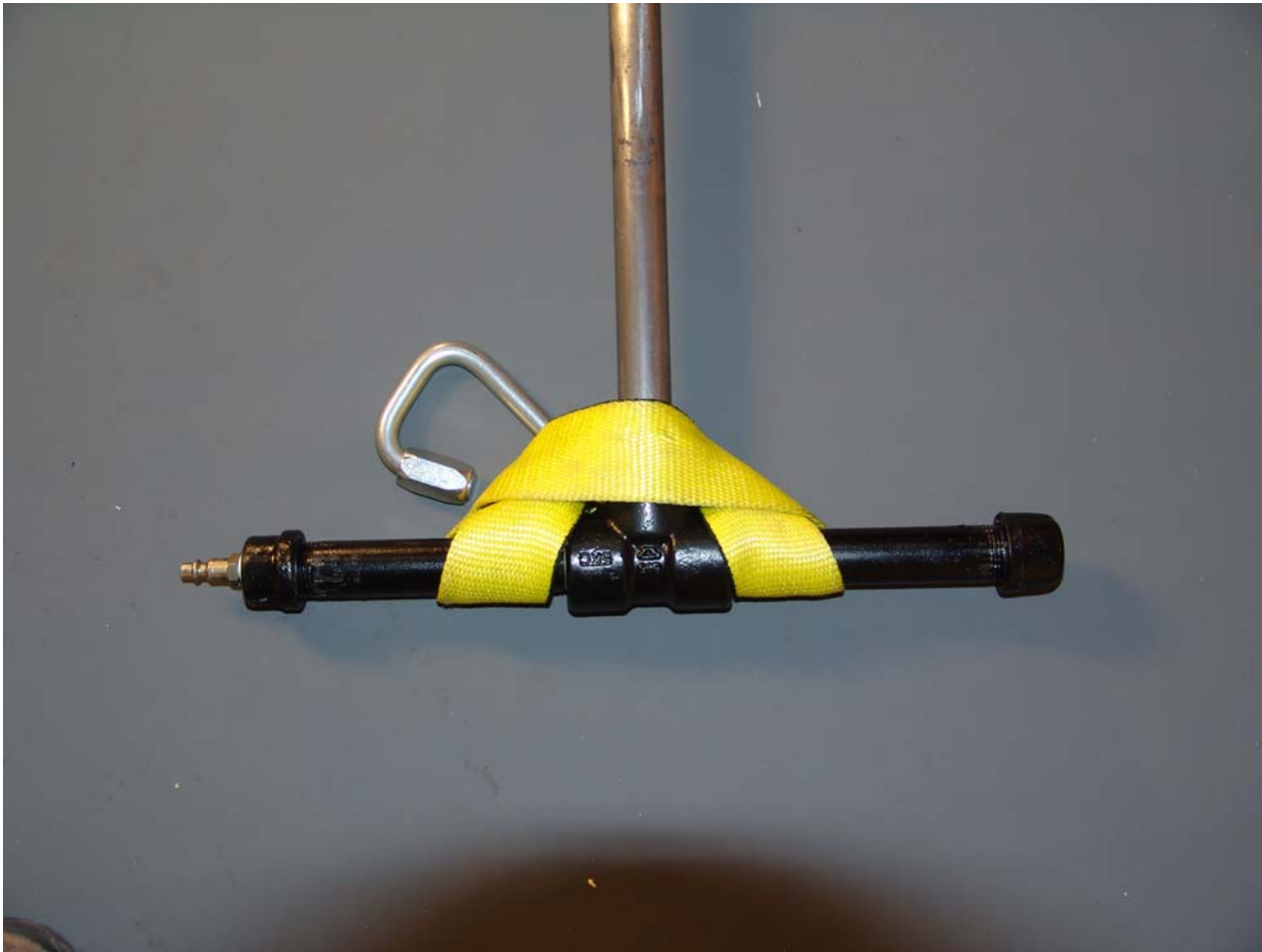
Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- The Multi Flex Plug is pushed into main pipeline with the Inflation Ram. The Inflation Ram has a stop set to have the Rotating Elbow centered in the tapped pipeline. *(Large plugs may require a winch to pull the Tee Handle to the proper position.)*



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



Tee Handle is anchored to the Launch Cylinder
to prevent pipeline line pressure ejection of the Inflation Ram



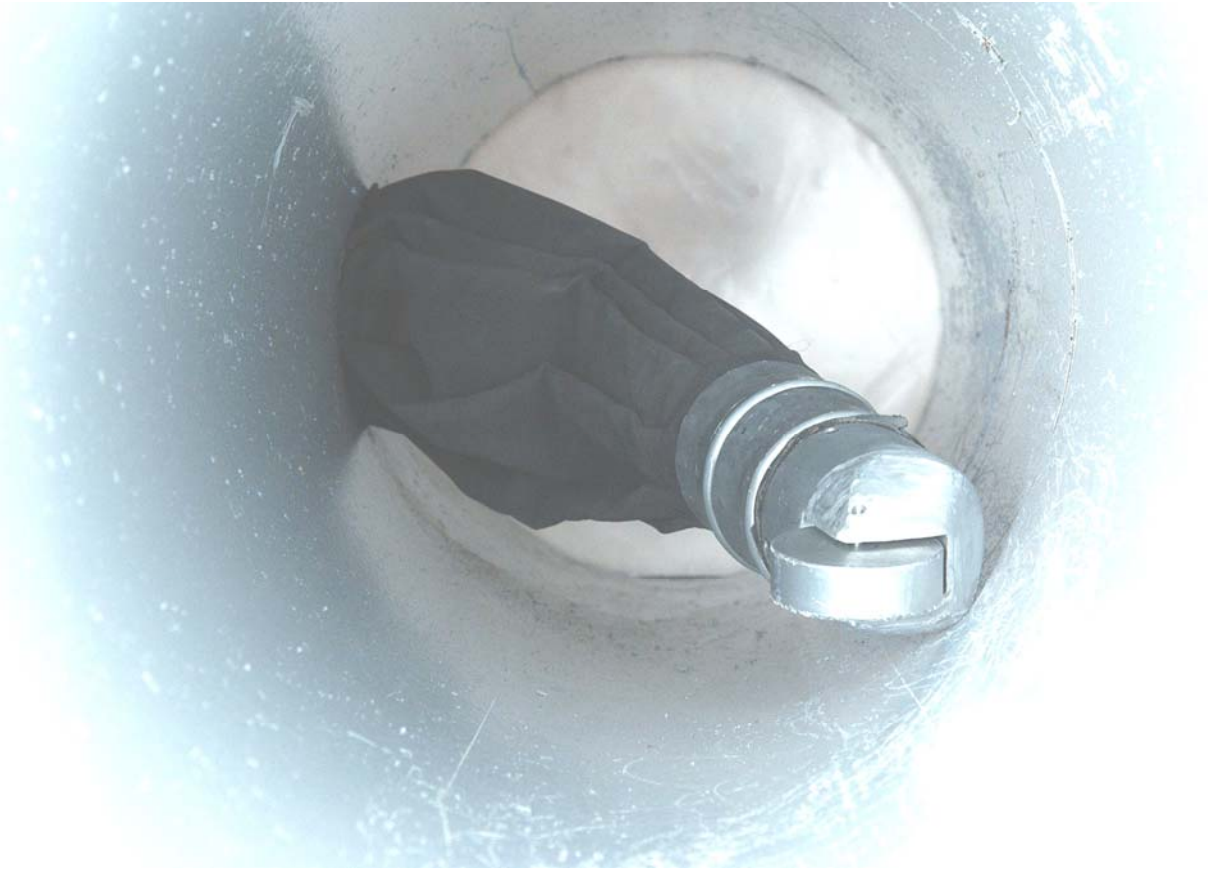
Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- The Multi-Flex™ Plug shown entering tapped pipeline



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- The Multi-Flex™ Plug shown entering tapped pipeline



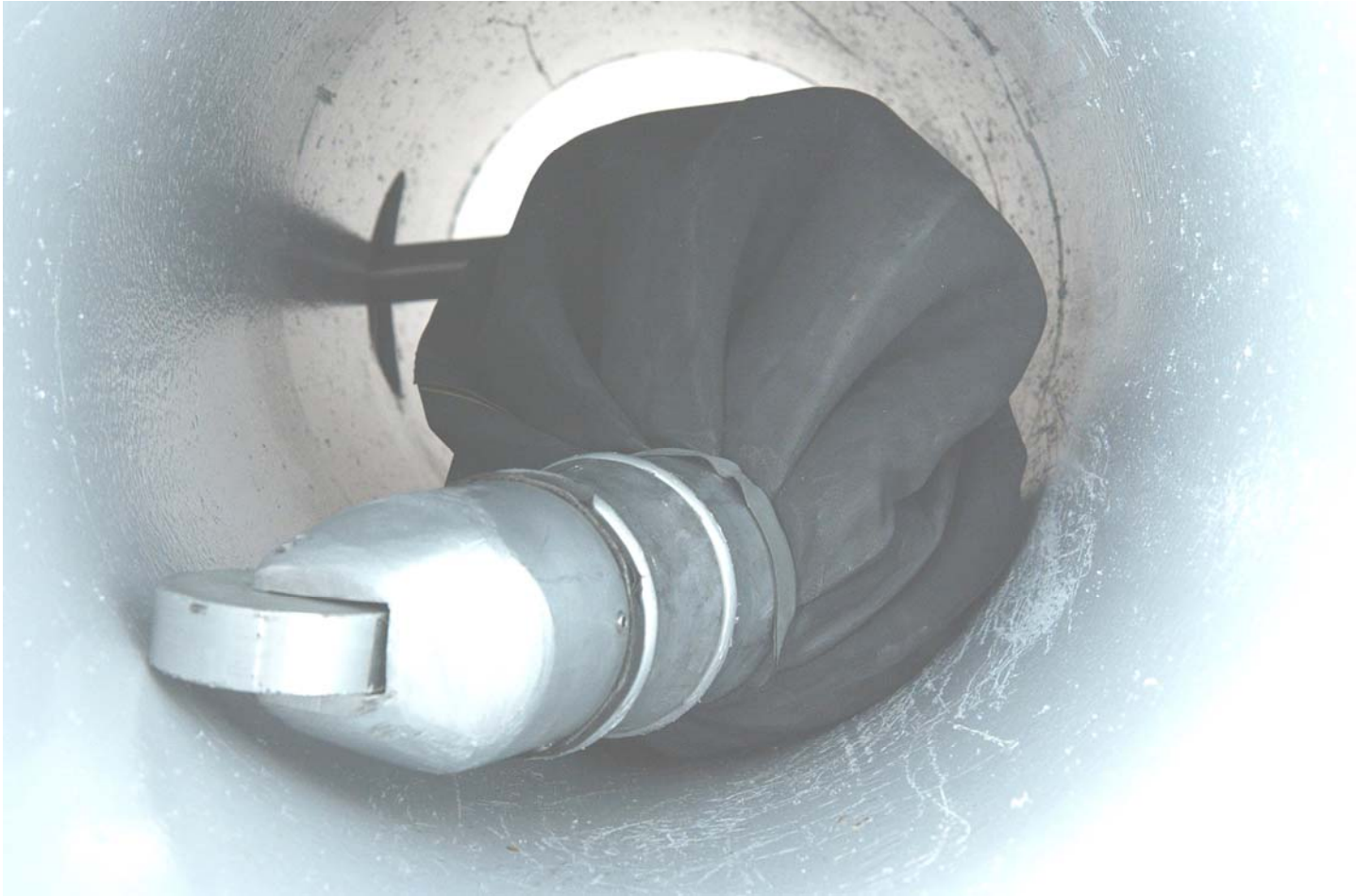
Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- The Multi-Flex™ Plug shown entering tapped pipeline



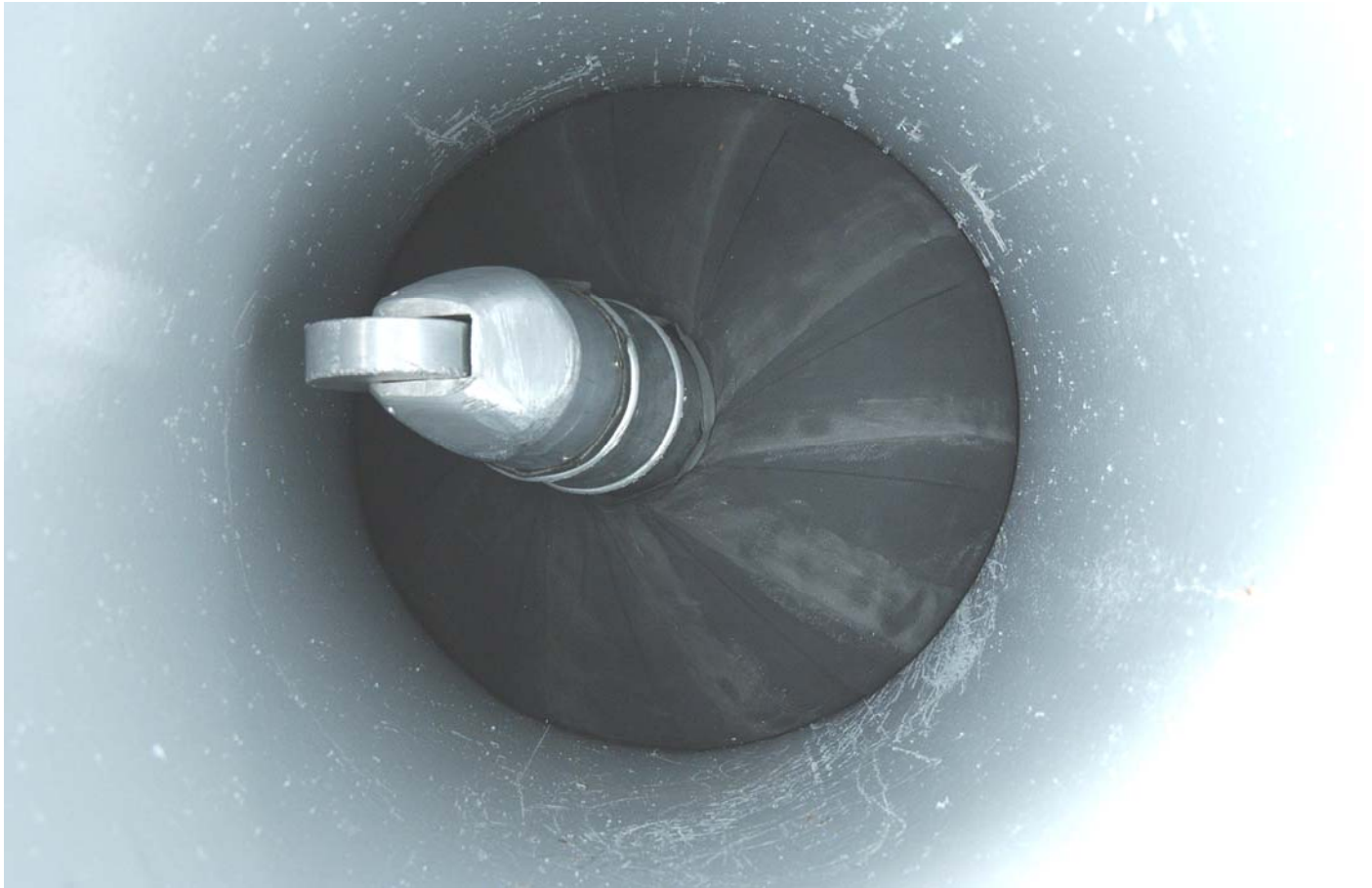
Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Multi-Flex™ Plug partially inflated



Hot Tap Insertion of Peteresen® Multi-Flex™ Plug



- Multi-Flex™ Plug inflated in host pipeline