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HTHP Pressure Relief Tool

US Patent 9,375,715

Part No. 170-91

Instruction Manual

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Ver. 2.0

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Introduction

High temperature, high pressure filtration cells are designed to test the sealing characteristics of drilling fluids and cement. Unfortunately, sometimes the test fluid seals the entire cell, making it difficult to release the pressure. A clogged cell is a safety hazard for lab personnel. Without a safe way to release pressure, everyone in the lab is at risk.

The HTHP Pressure Relief Tool provides a safe way to release the pressure in a clogged cell. It screws onto the cell cap using the existing valve stem port. Then, using a T-handle, the operator can drive a pin into the cell to puncture through any obstruction. The pressure will then vent safely through the vent pipe, away from people and equipment.

Components

#130-77-069	High Pressure Fitting
#170-17	O-ring for Valve Stem
#170-91-001	Valve Stem
#170-91-002	Body
#170-91-003	Plunger Rod
#170-91-004	Plunger Stop
#170-91-005	Puncture Pin
#170-91-006	End Cap
#170-91-007	Handle
#171-23-2	Safety Pin with Lanyard

Safety

Trapped pressure inside an HTHP filtration cell can be very dangerous. Take the following precautions before attempting to open the cell:

1. Always wear appropriate personal protective equipment (PPE).
2. Never attempt to open a hot cell. Make sure the fluid in the cell has cooled down to ambient temperature.
3. Make sure the cell caps and pressure ports are pointed away from people and equipment.
4. Place a rag or towel over the valve stem and **slowly** unscrew and remove it. If the pressure is still not released, then use the HTHP Pressure Relief Tool to remove the obstruction.

Procedure

1. Remove the valve stem and inspect both o-rings. Replace any that show signs or wear or damage.
2. Replace the valve stem and secure it in place with the safety pin.
3. Screw the valve stem on the HTHP Pressure Relief Tool into the valve stem port on the cell cap.
4. Point the vent pipe away from people and equipment.
5. Slowly turn the t-handle clockwise. You should feel some resistance and a small burst of released pressure when the pin punctures the obstruction.
6. Slowly turn the t-handle counterclockwise. The remaining pressure will vent when the pin is free of the obstruction.
7. Unscrew and remove the valve stem from the cell cap.
8. Clean the HTHP Pressure Relief Tool:
 - a. Remove the safety pin and valve stem.
 - b. Flush the valve stem, body, and vent pipe with water (for water-based fluids) or solvent (for oil-based fluids).
 - c. Allow all components to dry before reassembling.

