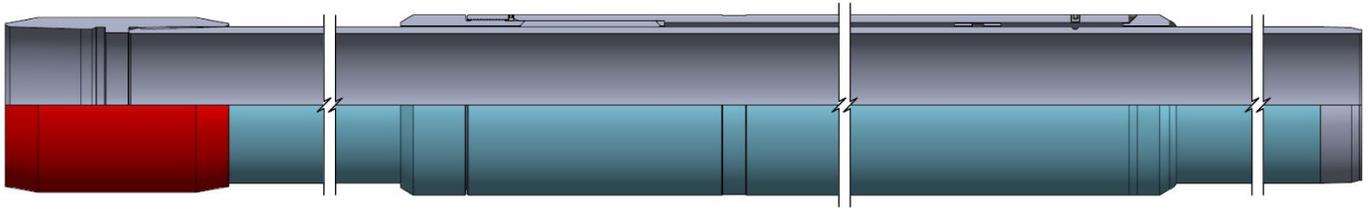


Separation Expansion Casing



In wells where different types of heat media are used to assist in production, there will usually reside thermal expansion and contraction movements of the well bore tubular. As heat is applied to the well, the tubular exposed to the heat will expand. As this heat is reduced, the tubular will cool and contract. If these tubulars are not allowed to move, these stresses will reside within the tube's material and create damage. Tubular that are not allowed to move freely can collapse with compressive loads, and part with tensile loads. Installing an Expansion Joint (EXP) within a confined tubular string, will allow movement of that tubular string, which would otherwise have been damaged from the induced stresses.

In General, the EXP consists of an inner tube inside an outer tube. The outer tube will connect to the upper section of the tubular string, and the inner tube will connect to the lower portion of the tubular string. The EXP is designed so that the inner tube can slide up and down inside the outer tube without becoming dislodged. The EXP designed movement lengths will vary depending on the application required. The Seal Assemblies that reside in these EXP will also vary on the requirements of specific wells.

The Separation Expansion Casing (SEC) is an EXP that is used in open hole thermal production and injection casing strings, when the location of the thermal expansion is unknown. The unique design of the SEC acts as a normal casing joint in the casing string. It will not act as an EXP joint unless certain tensile loads are applied to the SEC. When a predetermined set shear force is applied to the SEC, the inner barrel will separate. The SEC will now act as a normal EXP with the ability for the inner barrel to slide within the outer barrel. The SEC is not designed to hold torsional loads after it shears but can be designed in that manner if required. Several SECs are run in on casing string to ensure that all unknown forces can be restrained by the installed SECs.

Depending on the diameter of the SEC, the length of thermal expansion and contraction can range from 0.5m to 5.0m per SEC. The SEC has several different types of seal designs ranging for gas tight seals to debris type seals. The seal materials can range from elastomer to steel. The seals assemblies are thermally rated to seal under high temperatures and pressures.

APPLICATION:

- For use in vertical or horizontal thermal wells (CSS or SAGD).
- For use in wells where the tubular string is confined and requires thermal growth movements.
- Can be used in open hole injector or producer casing strings like Flow Control Devices (FCD).
- For use in wells where the Thermal loading to the casing string is unknown.

FEATURES:

- Predetermined set shear load to activate the SEC. If not activated the SEC acts as a normal casing joint.
- Seal assemblies for Debris Seal or Gas Tight Sealing capabilities.
- Up to 5-meter movement within each SEC.
- Same strength characteristics as the casing or FCD being run with.

BENEFITS:

- Economical means to protect against liner failures.
- Reliable sealing under high temperatures and pressures, during movements.
- Eliminates extensive damages to tubular strings from unknown areas of induced stresses.



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