



Subs

Subs are generally part of most drill strings and have two main functions:

- To cross-over connections
- As a disposable component or/and to extend the life of a more expensive drill stem member

This means that subs have to be manufactured from selected bars of alloy steel, heat-treated to provide the strength and toughness required to carry the entire weight of the drill-string or to withstand high torque differentials. Generally, subs exceed API specifications for drill pipe tool joint mechanical properties.

Rotary Substitutes (Subs) are classified into four main categories:

- **Bit Subs or Crossover Subs** are used to connect the drill bit to the first piece of BHA equipment or to cross-over connections in the drill string. Drill bits are manufactured with a pin making make-up impossible without a bit sub.
- **Lift Subs or Handling Subs** are used to lift BHA components from the catwalk to the rig floor.
- **Top Drive Subs or Saver Subs** serve as the sacrificial element between the drill string and the top drive, reducing repair and maintenance costs.
- **Workover Subs or Circulating Subs** are used to limit the allowable fluid-circulation rates.

Rigid Wrenches

Genuine Rigid Pipe Wrenches and parts are world-renowned for their unsurpassed toughness and serviceability. The original heavy-duty pipe wrench has earned the confidence of pipe wrench professionals for more than 80 years because it does the job right the first time, every time.

These straight pipe wrenches have a sturdy, cast-iron housing and I-beam handle with full-floating forged hook jaw, featuring self-cleaning threads with replaceable hook and heel jaws. 36", 48", and 60" straight pipe wrenches are usually in stock, along with all replacement parts. Many parts for small wrenches are also in stock.