

# H&P'S NEW AUTOMATED HIGH TORQUE WRENCH LEADS TO 60% LESS DEFORMATION WHEN APPLYING FORCE TO DRILLPIPE

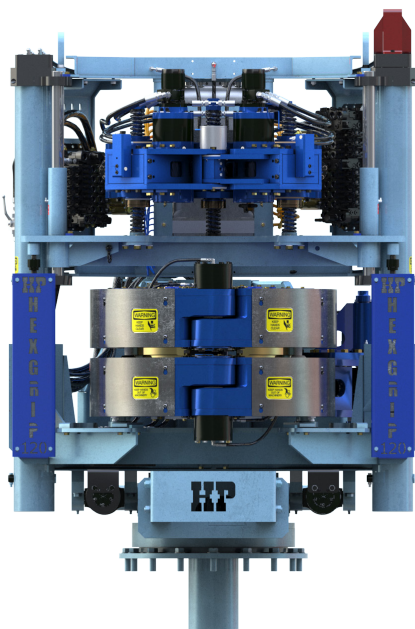
Tubular Connections Up To 100,000 ft-lbs. and Break-Out Connections at 120,000 ft-lbs.

## Overview

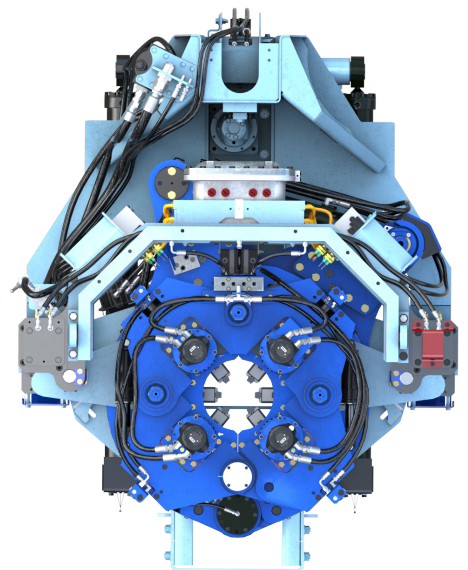
Since the beginning of the shale revolution in the early 2000's, we have seen significant changes in how wells are drilled. As operators continue to iterate and drill longer laterals with premium connections and larger pipe, we will continue to see a need for higher torque ratings in all aspects of downhole equipment. Achieving higher torque ratings require new solutions to streamline the process of breaking high-torqued equipment without sacrificing safety, speed, or equipment life.

## Challenge

An exploration and production (E&P) company with operations in the Midland Basin was battling over-torqued connections and trying to mitigate the resulting drillpipe damage. Between Q3 and Q4 of 2021, a considerable number of their drilling connections had to be broken with manual tongs. In addition to slowing the connection process down and reducing the life of the drillpipe, a larger threat was the added safety exposure. With tong events attributing to a large percentage of crew time in the red zone, they knew they needed a new solution that could break connections at a higher torque than 60,000 ft-lbs.



**OPERATOR SEES A  
90% REDUCTION  
IN HAVING TO USE  
MANUAL TONGS TO  
BREAK A CONNECTION**



## PROJECT OVERVIEW

### Location

Permian Basin

### Outcomes

- Increased Reliability
- Enhanced Bit & BHA Integrity
- Reduced Human Variability

### Technology & Services

Rig Floor Automation

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## Solution

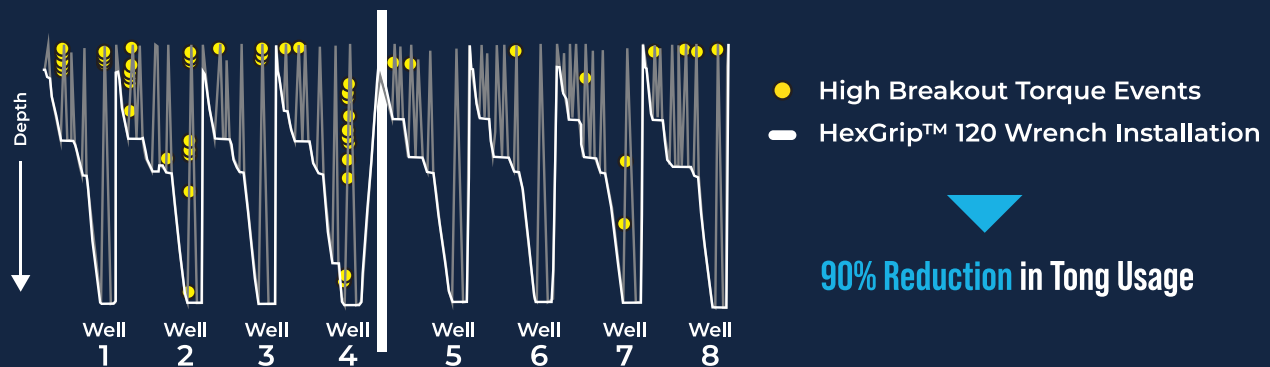
H&P introduced the HexGrip™ 120 wrench, a newly released proprietary tool designed to help solve the torque challenges the industry is facing and provide ancillary benefits to operators. This high-torque automatic wrench is capable of making tubular connections up to 100,000 ft.-lbs. and breaking out connections at 120,000 ft.-lbs., making it ideal for long lateral applications that require higher torque. Its centrifugal grip has 6 dies in a 360° pattern to hold the tool without egging the tubular box - leading to 60% less deformation when applying force to the drillpipe. With the touch of a button, it enables remote control automation of a tubular connection, reducing human interaction and the possibility of an accident.

With the HexGrip 120 wrench, the operator was able to collect a host of data points that provided analytics of tubulars and downhole dynamics. This list included make-up and break-out torques to help ensure that the pipe was torqued to specification and to identify any over torque events downhole.

## Outcomes

**The operator saw a 90% reduction in manual tong usage** over six months when compared to the previous six months, prior to installation. This led to 14 less tong events per well, or an average of one hour of savings per well. It also recorded a breakout up to 103,000 ft.-lbs. and had an extremely low variance in make-up torques. After 10,000 connections were made and broken, the HexGrip 120 only averaged a 0.21% deviation from intended torque, delivering more precise, consistent connection make-ups. Most importantly, with enabled automation, crew members interacted with the tool significantly less, reducing the exposure level of the drill floor.

## HIGH BREAKOUT TORQUE EVENTS



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