



# ELECTROPROJECT SOFT TORQUE

Operational Soft Torque System for rigs worldwide

# ELECTROPROJECT SOFT TORQUE (EPST)

Cost savings of thousands to millions

'Stick-slip' is a common occurrence in drilling operations that can result in torsional drilling vibrations, which cause detrimental effects for drilling performance and equipment. Following a long period of inferior performance with existing commercial systems, ElectroProject Soft Torque has been successfully deployed on several rigs worldwide with impressive results.

## DOCUMENTED RESULTS

- Elimination of Stick Slip
- Improved well bore
- Lower torque vibrations
- Less wear and tear on down hole tools
- Up to 40% ROP improvement
- Improved steerable system performance
- Reduced bit damage, longer bit runs
- Savings from thousands to millions

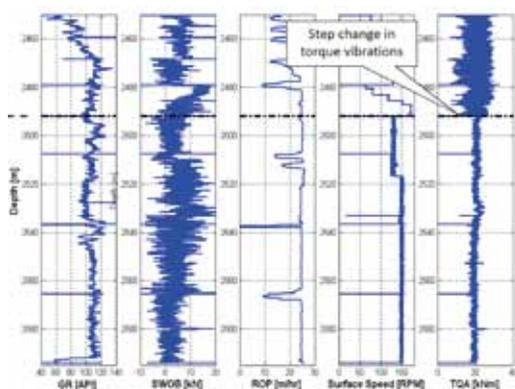
COMPARISON OF BIT WEAR



WITHOUT EPST



WITH EPST

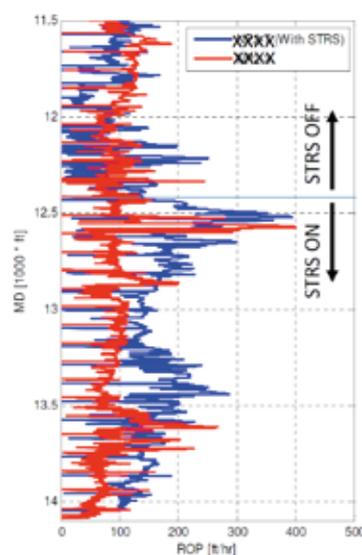


Source: Shell E&P

### EPST NORTH SEA

#### North Sea Jack-up rig AC

6% inclination  
 12¼" section; PDC  
 5½" DP to surface  
 2450-5550 metres  
 Salts & hard abrasive sands



Source: Shell E&P

### EPST QATAR

Comparison batch drilled 8½" with and without EPST 'ON'

# EPST PROVEN TECHNOLOGY

Experience shows that a relatively constant speed of the drill bit is optimal for effective penetration, low drill bit wear and good steering conditions.

## EPST, dedicated 'Stick-Slip' mitigation improves drill performance

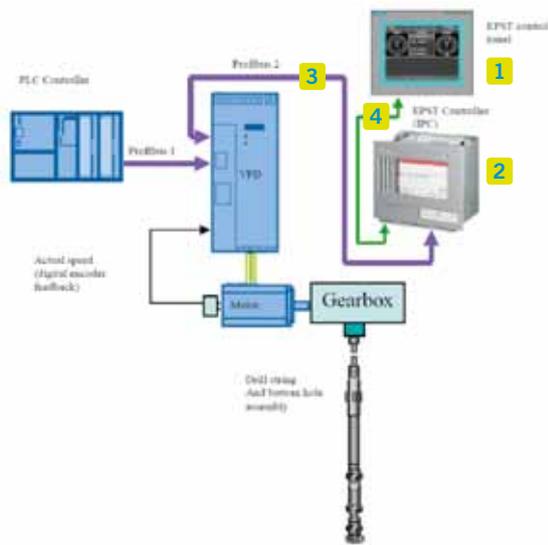
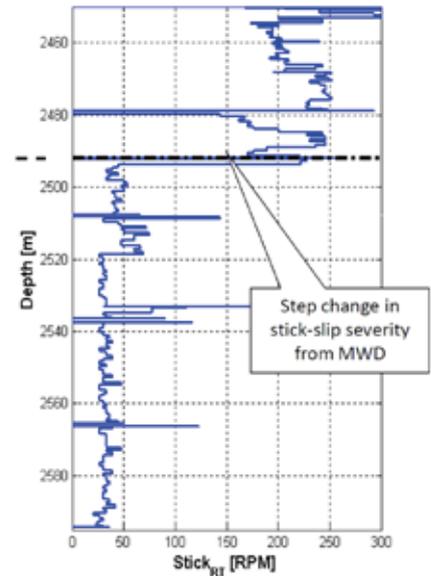
At certain depths and depending on drill conditions, including friction on bit, drill speed and weight on bit, the drill bit can 'stick' down hole while the drill string keeps rotating. The drill pipe acts as a torsional spring. At a certain torque value, the 'stick' friction is overcome and the drill bit suddenly increases in speed while the drill pipe 'unwinds' itself. This sudden increase in speed

can damage the bit. Also, steering rotary drilling operation is very difficult under 'stick-slip' conditions.

The EPST system is especially designed to mitigate 'Stick-Slip' behaviour to improve drill performance. The results are impressive.

**INVESTMENT COSTS EQUAL ONE DAY OF STICK SLIP MITIGATION.**

DOWNHOLE STICK SLIP



### EPST includes the following components:

- 1 A touch panel to operate the system.
- 2 An industrial PC (IPC). The Soft Torque controller.
- 3 An additional communication interface with variable frequency drive (VFD) or SCR
- 4 Ethernet communication between touch panel and IPC

## SYSTEM ADVANTAGES

1. The EPST system is designed to be easily implemented in modern drive systems.
2. The EPST controller is a stand-alone and a rig specific  $\mu$ -processor-based controller.
3. It can operate without any interface with the rig controls.
4. No changes are needed in the existing rig controls.
5. Implementation can be completed within hours. Down time is reduced to an absolute minimum. The average down time while commissioning is one hour.
6. EPST can be switched 'ON' or 'OFF' on demand by using the high resolution touch screen without limiting TD control abilities.
7. EPST includes a high resolution touch screen. Independent of the rig control capabilities, the state-of-the-art visualisation equipment presents real time data to identify down hole drill behaviour.
8. EPST includes WITS communication.
9. EPST includes state-of-the-art data logging.

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