Torque-Position Assembly Guidelines for API Casing and Tubing Connections

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1 Scope

This document provides alternative connection assembly procedures to those found in API 5B (power turns) and those found in API 5C1 (optimum torque). The procedures set forth are referred to as “torque-position” because the make-up torque and final position are used as acceptance criteria for the assembly operation. The connections are threaded in accordance with API 5B. The torque-position assembly parameters have been developed for most SC (short round thread casing), LC (long round thread casing), BC (buttress thread casing), and EU (external upset tubing) connections.

Torque-position is a precision assembly method that relies on a controlled process for successful implementation. When defined threading and assembly procedures are followed, the performance of the resulting assembled connection is optimized.

2 Normative References

This document contains no normative references. For a list of documents and articles associated with API TR 5TP and torque-position assembly guidelines, please see the Bibliography.

3 Terms and Definitions

For the purposes of this document, the following definitions apply.

3.1
addendum
The distance from the crest cone to the pitch cone.

3.2
connection
A connection is defined as a single pin assembled into one side of a coupling.

3.3
crest diameter
A measurement of the diameter of the crests of the pin or coupling threads at a specified axial position measured from the pin nose or coupling face.

3.4
field-end make-up
The side or end of the coupling that is assembled at the rig floor as the pipe is being run into the well.

3.5
mill-end make-up
The side of the coupling that is assembled (bucked on) before the pipe is shipped to the field location. This connection assembly operation is typically performed at the facility where the pin end is threaded (mill or thread processor). See Figure 1.

3.6
position band
A stenciled color mark applied at a specific axial distance from the nose of the pin that serves as an external reference point for the position of the pin within the coupling during assembly (see Figure 3). In addition, the position of the coupling face can be compared visually to judge for acceptance or rejection of the final assembly (see Figure 2).