

<b>Engineering Memo</b>		<b>Document #:</b> BLTN-032
		<b>Revision:</b> B
<i>Reporting Upset OD on 6.625" IEU Drill Pipe/Slip-Proof™</i>		<b>Created By:</b> Jim Brock
		<b>Release Date:</b> Jan 11, 2018

## Purpose

This bulletin is to document the changes in Grant Prideco's method for dimensioning the finished upset OD/Slip-Proof™ tube OD on 6 5/8" IEU pipe. Grant Prideco adopted a new standard for upset OD/Slip-Proof™ tube OD dimensioning in the 4th quarter of 2014 with the installation of the Titan welder and the design of single piece Slip-Proof™ sections.

This bulletin is to document how WSI will incorporate these GP changes going forward.

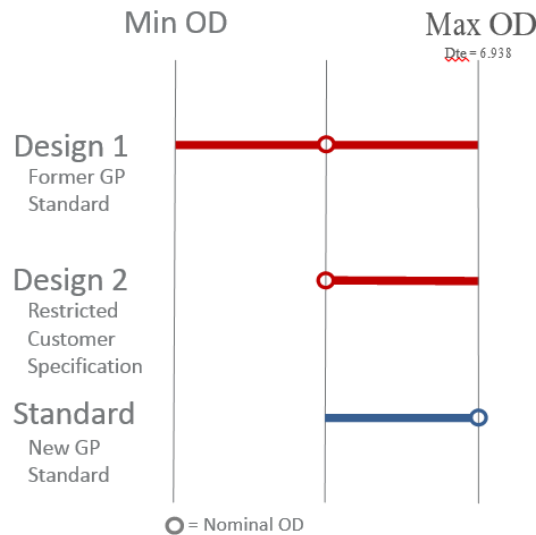
Reference: Grant Prideco Product Bulletin PR-42.0-2017Jan03-EXT *Standardization of 6-5/8 Slip-Proof™ Outside Diameter*

Reference: *Engineering Memo-011 – Slip-Proof™ Weld Area.*

## Details

### Grant Prideco Internal Changes:

The API maximum  $D_{TE}$  for 6 5/8" IEU is 6.938" per API 5DP. Grant Prideco has always used the  $D_{TE}$  dimension as the maximum OD for their IEU upset and Slip-Proof™ tube. Internally, Grant Prideco has made changes to the nominal OD dimension and tolerances. These changes were driven by historic weld area limitations and customer special requirements.



Design 1: The former GP standard had a nominal dimension of 6.906" with a plus/minus (+/-) tolerance. Maximum OD is 6.938".

Design 2: GP also had a special requirement design for WSI that had a nominal dimension of 6.906" with a tolerance of +0.032. That was driven by maximizing the weld strength for assets such as 6 5/8" 0.938" UD-165 Slip-Proof™ landing string. Maximum OD is 6.938".

Design 3: The latest GP standard has a nominal dimension of 6.938" with a minus (-) only tolerance. Maximum OD is 6.938".

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Going forward Grant Prideco will utilize Design 3 for all 6 5/8" OD IEU Slip-Proof™ . Design 3 increases the minimum weld OD which increases minimum weld area/strength and maintains API D<sub>TE</sub> as the maximum OD. The change to Design 3 provides Grant Prideco consistency for manufacturing across all sizes of Slip-Proof™ products.

This change only affects the 6 5/8" OD IEU Slip-Proof™ products in the upset, weld, and Slip-Proof™ OD and wall dimensions. Standard 6 5/8" IEU tubes will continue to use the nominal dimensions +/- tolerance criteria as in Design 1 above.

**Impact of Changing the Nominal Dimension:**

**Functionally, there is no difference in Designs 1, 2 and 3. All three designs are interchangeable.** As shown in the figure above, the range of Design 3 is within the range of the two previous designs. The maximum 6.938" OD is consistent and within the API 5DP D<sub>TE</sub> requirement. Slips, elevators, and other pipe handling equipment are not affected.

It is standard practice in the industry to use the nominal dimension to calculated performance properties. Given the same ID, increasing the OD nominal dimension from 6.906" (Designs 1 and 2) to 6.938" (Design 3) would increase the calculated tensile and slip crushing values of the Slip-Proof™ tube section. WSI disagrees with using the max tolerance value for calculating tensile and slip crushing capacity. However, the additional 1/32" in Slip-Proof™ tube OD the does not affect the load rating of the landing string assembly as, typically, the 6-5/8" tube tensile capacity is the limiting factor.

The change in nominal OD results in a slight increase in the minimum allowable OD inspection criteria for the Slip-Proof™ section. Grant Prideco recognizes that this change does have an impact on customers when new Design 3 product is purchased and intermixed with existing Design 1 and 2 product. In order to address this issue, **Grant Prideco as advises that customers may inspect and qualify the product based on either 6.906 in. or 6.938 in. at their discretion. It however is incumbent upon them to clearly communicate to the end user to which standard the product has been inspected**

**Future WSI Practice:**

***This bulletin provides notice to WSI customers that 6-5/8" Slip-Proof product will be inspected and qualified based on 6.906" nominal OD.***

For all 6-5/8" Slip-Proof™ assets, WSI will use:

- 6.906" for the upset and Slip-Proof™ tube nominal OD
- 1.703" for the nominal Slip-Proof™ wall thickness

The FASTR Performance Sheets will be revised to reflect the max D<sub>TE</sub> as 6.938" and the Slip-Proof™ OD will remain the nominal dimension of 6.906" with a wall thickness 1.703". All reference and accessory designation will remain 6.906". Performance properties and inspection criteria will be determined based on the above nominal dimensions. This will allow consistent inspection criteria for mixed assets in inventory.

Questions from inspectors are anticipated with mixed orders of new criteria and previous 2014 criteria. This document as well as the Grant Prideco bulletin will be references for inspection questions.

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Note: Pre-2014 inventory has a weld in the slip area where new orders of Slip-Proof™ will have a solid slip area.

Note: These dimensions are not addressed in DS-1.

Note: This document initiated as Document MENO-028. With Revision 1, this document will be reissued as Document BTLN-032 for external distribution.

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