

## Introduction

Operators are typically unsatisfied with rig time requirements to run large OD conductor casing. Run rates of 1 to 2 joints per hour (jts./hr.) for 18 5/8" 87.50 ppf, K-55 API Buttress (API BC) Casing are not uncommon in the Marcellus and Utica formation plays. Smaller land rigs present problems with handling large diameter casing. When relatively fine, 5-pitch buttress threads are used on large diameter casing, such as 18 5/8" OD, on a small rig, the running difficulties compound. Large OD casing with API BC threads is difficult to stab and achieve proper, initial thread engagement. These combined difficulties consume considerable amounts of rig time adding significant cost in the deployment of relatively short conductor casing strings.

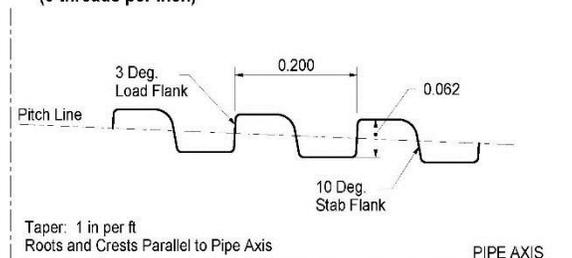
## Action

GB Tubulars presented the GB 3P Connections as an alternate to API BC for large diameter conductor casing. The GB 3P uses a proprietary 3-pitch threadform for 16", 18 5/8", and 20" OD Casing. See figures for comparison between API BC and GB 3P threadforms. The GB 3P Connection is designed for deep, easy stabbing, cross-thread resistance, and faster makeup. These combined features result in typical run rates of 6 to 10 jts/hr.

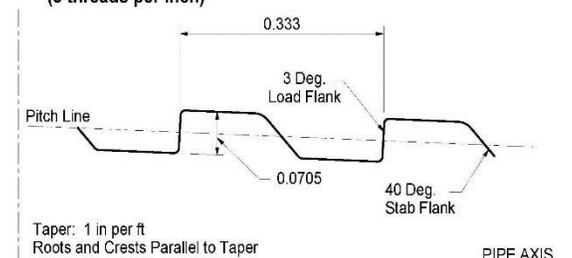
The GB 3P makes up in 6 to 10 turns from a typical rig stab. API BC often takes multiple stab attempts to assure proper thread engagement and normally takes between 8 and 12 turns for full power tight makeup.

Additionally, the GB 3P has an internal torque shoulder that provides a positive indication that power tight makeup is complete. API BC is made up to position relative to the API Triangle Stamp leaving some uncertainty about proper assembly due to machining tolerances among the mating parts.

API BTC Thread  
16" OD and Larger  
(5 threads per inch)



GB 3P Thread  
16" OD and Larger  
(3 threads per inch)



	<b>Case History No. 2</b> <b>24 Jts. 18 5/8" OD, 87.50 ppf, K-55 GB 3P</b> <b>Greene County, PA</b>	September 14, 2015
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GB Tubulars provided a thread representative to assist with running 18 5/8" OD, 87.50 ppf, K-55 Casing. The string, consisting of 24 joints, was run on August 19, 2015.

### **Description of Operations**

GB Tubulars representatives arrived on location at 3:00 AM. The casing was laid out on racks in preparation for running. There were 24 joints; one was equipped with a Float Shoe and Float Collar that were threadlocked together to avoid breakout during drill out operations. Both pin and box thread protectors were in place. All 24 joints were used on this well.

Box thread protectors were removed, threads were cleaned, and Bestolife 2000 thread compound was applied to coupling threads per GBT Running Procedures. Pin thread protectors were removed once each joint was raised to the rig floor. Thread compound was applied accordingly to the pins before stabbing. Applied torque was measured using an analog torque gauge in ft-lbs. The casing run started at 10:21 AM and the job was complete at 2:30 PM.

### **Running Statistics**

24 joints were run in 4 hours and 9 minutes which equates to a run rate of 5.8 jts./hr. Similar casing runs with API BC on this rig would take more than 19 hours.

The GB 3P Connections stabbed consistently and made up without cross-threading. One of the joints had to be stabbed a second time due to stabbing misalignment. The threads were cleaned and inspected visually for the second, successful makeup attempt. This isolated incident consumed 7 extra minutes of rig time.

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The following table presents statistics from this casing run.

<b>Statistic</b>	<b>Shldr Tq (ft-lbs)</b>	<b>Final TQ (ft-lbs)</b>
Minimum	4,500	16,800
Maximum	12,000	22,000
Average	6,562	18,468
Median	6,000	18,100
Std. Dev	1,735	1,133

### **Summary**

Based on the total day rate for a typical land rig and accounting for the cost difference between API BC and GB 3P Connections. The estimated total savings realized by running the GB 3P Connection over API BC exceeded \$40,000 on this well.

The GB 3P ran as designed demonstrating easier stabbing, no cross threading, and faster makeup. These features provided significant savings in overall deployment costs to the Operator.