



**WORKSTRINGS INTERNATIONAL®**

"YOUR FIRST CHOICE IN DOWNHOLE TUBULAR RENTALS"

A SUPERIOR ENERGY SERVICES COMPANY



**The Premier Rental Tool Company  
in the World**

[www.workstringsinternational.com](http://www.workstringsinternational.com)



Workstrings International® provides the highest quality downhole rental tubulars and associated accessories, value-added engineering services and operational support while maintaining the industry's highest health, safety and environmental standards.

- Certified Cargo Baskets
- Pipe Handling Seminars
- Elevators (2  $\frac{3}{8}$ " - 7  $\frac{5}{8}$ ")  
Hydraulic and Manual
- Lower Kelly Valves, IBOPs, Safety Valves  
On-Site Valve Repair Facility
- FASTR® Slip System  
Slips, Master Bushings, Bowls,  
Backsaver®
- Subsea Riser/B.O.P./Wellhead Washtool
- Landing String (5" - 7  $\frac{5}{8}$ ")
- 6  $\frac{5}{8}$ " FASTR® 2.0-2.5 MM lbs Landing String
- Landing String and Drill Pipe Pup Joints
- Drill Pipe (2  $\frac{7}{8}$ " - 6  $\frac{5}{8}$ ")  
All NC (API) Connections and Specialty  
connections such as HT, XT, XTM, CTM, GTM  
and TurboTorque®
- Heavy Weight Drill Pipe (3  $\frac{1}{2}$ " - 6  $\frac{5}{8}$ ")  
Slick, Spiral and Tri-Spiral
- Crossover Subs, Pump-In Subs, Drill Collar Lift Sub
- Drill Collars (3  $\frac{1}{8}$ " - 9  $\frac{1}{2}$ ") Spiral or Slick
- Bit Subs

# FASTR® Landing String System

The **FASTR®** Landing String System consists of 6 5/8" FH Slip-Proof® Landing String design that features a 6ft Slip-Proof® section which prevents the crushing of the tubular by the **FASTR®** slip system. It is rated to 2.0 – 2.5 MM Lbs. The special designed box taper provides increased elevator hoisting capacity and is certified to 1000 Ton.



### FASTR® 1000 Ton Slips

Optimum angle and length for better load distribution



The FASTR® Slip System is used for handling loads of up to 1000 Ton encountered when landing long strings of casing in deep water operations. The FASTR® Landing String System provides safe and reliable operation using standard rig equipment.



### Split/Solid Insert Bowl

Uniquely designed to accommodate the FASTR® slips



### FASTR® Landing String

- Tensile and slip crushing capacity for 2.0 MM lbs and 2.5 MM lbs
- Standard 6 5/8" FH connections for easy make-up and handling



### Hydraulic 1000 Ton Elevator

Dressed with special designed inserts for handling the 6 5/8" Slip-Proof® Landing String



### Backsaver®

Hydraulically operated

## Engineering Services

Workstrings International® has a staff of Petroleum Engineers supporting domestic and international projects by providing the following services to our customers:



**DRILL STRING DESIGN:** An optimum design model utilizing a premium software package that meets all of the rig constraints for each hole section based on trajectory, hydraulics, surface torque, available overpull, and slip crushing

**LANDING STRING DESIGN:** An optimum design for each tubular section based on inspection criteria, pipe management, slip crushing, slip type, and dynamic loading considerations when landing casing strings and liners

**TUBULAR PERFORMANCE ANALYSIS:** An in-house developed calculator as per API 5C3 utilized to evaluate tension, torsion, burst, and collapse of tubulars and accessories, with or without biaxial loading

**ACCESSORY ANALYZER:** The Accessory Analyzer is used to determine the tensile, burst and collapse of crossover subs and pup joints

**CONNECTION ANALYSIS:** Evaluation of the mechanical properties of API and proprietary connections

**TUBULAR STRETCH ANALYSIS:** Calculation of drill string stretch at given intervals, considering the effects of the well path and buoyancy, to determine the cumulative stretch

**SLIP-CRUSHING:** Empirical calculations based on the maximum axial loads that can be safely applied without damaging the pipe for a specific slip design

**STIFFNESS ANALYSIS:** A section moduli ratio of stiff to limber components used primarily as a guideline to evaluate the impact of unlike components in the BHA

### ENGINEERING SUPPORT

Optimized Tubular Project Design • Torque and Drag Modeling • Hydraulics Modeling • Landing String Design  
Reduced Collapse Calculations • Tubular Connection Analysis • Finite Element Analysis • Project Management

## Challenging Drilling & Completion Projects

The Workstrings Engineering and Marketing teams have been involved in more than 60% of the deepwater wells drilled and completed in the Gulf of Mexico over the past several years—many record setting in depth, pressure, test depth and discovery.

- Several projects required designs for preliminary drilling plans, following through to the completion of the well.
- Some cases developed brand new connections to handle combined loads during completions.
- Others are slimhole drilling designs and innovative designs to meet the customer’s challenges and design limitations.

**This list reflects a sample of challenging projects for major operators and independents:**

### Tahiti

7-9 Wells (Well Depths to 30,000' and casing strings with loads of 1.50 MM lbs)
Design drill string and landing string for the drilling planning stages
Design workstring for testing and completing
Detailed design for each phase of completion for available overpull
Special connection, CTM57, designed for deep high pressure completions

### Northwood

Deepest well drilled in GOM to 35,955', 2009
Deepened well with 4 ½" XTM40

### Deep Blue

Design drill string and landing string for 35,000' well and 16.0 ppg mud
Redesign drill string for sidetrack at 24,000' to 30,000'

### K2

FASTR® 2.0 MM lbs Landing String system with loads to 2.0 MM lbs.
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### Boomvang

Design drill string to cleanout a gas export line with surface torque limits
Cleanout from surface to mudline at 3,400' to 22,000'

### Jack / St. Malo

FASTR® 2MM lbs Landing String for casing strings with loads of 1.75 MM lbs
Design well test string using CTM57
Design future casing loads to maximize the rig's capabilities up to 1.70 MM lbs

### Forestar Minerals

Design slim hole drill string
Deepening from 5 ½" casing from 12,000' to 15,000' in 16.5 ppg mud

### South Pass 60

21,000' extended reach well with 60° to 65° angles
Design drill string
Completed 20 days ahead of schedule due to optimized drillstring

### Colombia

• New connection, XT27, for slimhole drilling, re-entries
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