These tables are organized by connection manufacturer, and listings show page numbers for cut-away diagrams (not to scale) for visual cross-reference with tabular data. Critical tubular and connection areas can be used with minimum yield or ultimate strengths in designs, and to calculate casing connection tensile capacity. Individual manufacturers’ representatives should be consulted before making final decisions.
Here's a choice you can rely on.

VAM® 21 is the new generation of connections designed to suit any application, no matter what the conditions are. Already adopted by over 60 oil & gas companies worldwide, VAM® 21 is proof that efficient innovation can deliver the best performance, yet still be easy to use.

VAM® 21 is the new standard.

Find your VAM® 21 solution at www.val lourec.com/OCTG
### Dimension nomenclature

- **D**: Casing nominal OD of tube, in.
- **w**: Casing weight, lb/ft
- **d**: ID (drift), in.
- **t**: Casing wall thickness, in.
- **Dc**: Connection OD, in.
- **At**: Casing wall critical cross-sectional area, sq in.
- **Ac**: Connection critical cross-sectional area, sq in.
Hunting Seal-Lock Boss (SLBBOSS) is a casing connection that is cost-competitive with API Buttress. It uses a patented sealing and unique pin-to-pin torque shoulder for enhanced compressive loading. Rugged thread form and geometry result in deep stabbing and quick make-up without cross-threading.

Hunting Big "O" Seal-Lock (SLBIGO) is a threaded and coupled, non-upset connection for large-diameter pipe. Features include 5-pitch hooked thread design with gas-tight, metal-to-metal seal and internal torque shoulder. Thread geometry and form allow for easy stabbing, quick make-up and multiple make-and-break. No welding or additional inspection is needed because it is threaded on plain-end pipe.

Hunting FJ-150 includes an ID/OD flush connection, which makes it ideal for high-grade steels and chrome. The 90° load flank and large-radius stab flank allow low hoop stresses and reduced running times. Axial metal-to-metal nose seal is created by an internal shoulder, while the external shoulder creates an external torque shoulder. Large torque shoulders allow for high torque capabilities.

Hunting Seal-Lock Flush (SLF) is a premium connection with metal-to-metal seal, hooked thread form and external torque shoulder for liner applications. It offers excellent clearance and pipe body burst. Hooked thread form and geometry provide easy make-up and eliminate radial separation between mating pin and box.

Hunting Seal-Lock Apex (SLAPEX) is a new threaded and coupled, non-upset premium connection designed to provide internal and external pressure integrity under extreme loads. It utilizes a patented sealing thread form and a metal-to-metal seal to provide performance ratings that equal or exceed pipe body ratings in tension, internal and external pressure. A negative load-flank thread and advanced connection geometry result in smooth, trouble-free running.
At TMK IPSCO we recognize that the integrity of our welded and seamless pipe, premium connections and accessories has a direct impact on the safety of our communities and our environment. That’s why each of our tubular products is manufactured at an ISO 9001:2008 and API Specification Q1 certified facility and is personally inspected during every production step by a dedicated member of our quality inspection team. Our commitment to exemplary quality control extends to a pipe traceability system and a group of experienced engineers ready to assist our customers. To find out how TMK IPSCO can make a commitment to fill your tubular needs, contact a member of our sales team today.
Hunting TKC 4040 RTC is specially designed as a low-stress, multi-cycle fracture string. This non-upset threaded and coupled connection uses the established Hunting TKC 4040 thread form and matching pin ends to create a positive torque stop.

JFE FOX is a premium threaded and coupled connection providing full pipe body performance for internal and external pressures and tension. The coupling OD is matched to the casing wall thickness to optimize clearance. Special clearance couplings are also available. The thread utilizes a unique change in thread pitch to provide more even load distribution along the threads and the contour metal to metal seal provides full gas tight sealing. Casing size range is 5 in. to 15⅞ in.

JFE Steel JFEBEAR is a premium threaded and coupled connection providing full pipe body performance for internal and external pressures and tension. The coupling OD is matched to the casing wall thickness to optimize clearance. Special clearance couplings are also available. The thread form is enhanced for ease of stabbing and running and the radial metal to metal seal provides full gas tight sealing. Casing size range is 5 in. to 9⅞ in.

JFE Steel JFELION is a premium threaded and coupled connection providing full pipe body performance for internal and external pressures, tension and compression. The coupling OD is matched to the casing wall thickness to optimize clearance. Special clearance couplings are available. The thread form is enhanced for ease of stabbing and running while the metal to metal seal provides gas tight sealing. Size range is 5½ in. to 15⅞ in. Wall thickness up to 1.500 in. Special clearance coupling options are available.

JFE Steel JFETIGER is a premium threaded and coupled connection providing full pipe body performance for internal and external pressures, tension, and 95% compression. The coupling OD is matched to the casing wall thickness to optimize clearance. Special clearance couplings are available. The thread form is enhanced for ease of stabbing and running and the radial metal to metal seal provides full gas tight sealing. Standard size range is 7 in. to 9⅞ in.

NOV Fiber Glass Systems, Star Aliphatic Amine Casing (Threaded and Coupled) features premium Advanced Composite Threads (ACT) designed in accordance with API 8rd EUE long form specifications. ACT threads are molded for a smooth, corrosion-resistant thread surface, which provides superior breakaway performance. ACT threads use graphite as an added lubricant to avoid damage and wear. The casing is designed and manufactured to resist creep and increase maximum tensile strength. Laminates can handle internal pressures up to 5,300 psi at 200°F.

NOV Fiber Glass Systems, Star Aliphatic Amine Casing (Integral Joint) features premium Advanced Composite Threads (ACT) designed in accordance with API 8rd EUE long form specifications. ACT threads are molded for a smooth, corrosion-resistant thread surface, which provides superior breakaway performance. ACT threads use graphite as an added lubricant to avoid damage and wear. The casing is designed and manufactured to resist creep and increase maximum tensile strength. Laminates can handle internal pressures up to 3,500 psi at 200°F.

NOV Fiber Glass Systems, Star Anhydride Casing (Integral Joint) features premium Advanced Composite Threads (ACT) designed in accordance with API 8rd EUE long form specifications. ACT threads are molded for a smooth, corrosion-resistant thread surface, which provides superior breakaway performance. ACT threads use graphite as an added lubricant to avoid damage and wear. The casing is designed and manufactured to resist creep and increase maximum tensile strength. Laminates can handle internal pressures up to 2,500 psi at 150°F.

NOV Fiber Glass Systems, Star Aromatic Amine Casing (Threaded and Coupled) features premium Advanced Composite Threads (ACT) designed in accordance with API 8rd EUE long form specifications. ACT threads are molded for a smooth, corrosion-resistant thread surface, which provides superior breakaway performance. ACT threads use graphite as an added lubricant to avoid damage and wear. The casing is designed and manufactured to resist creep and increase maximum tensile strength. Laminates can handle internal pressures up to 2,500 psi at 150°F.

NOV Fiber Glass Systems, Star Anhydride Casing (Integral Joint) features premium 4-thread-per-inch connectors with coarse, shallow-angle thread forms that are rugged and more resistant to stab damage and cross-threading. Mechanical O-ring seals prevent fluid penetration into the thread seal area and keep dope from entering the formation in injection applications, minimizing the need for acidizing. Threads are LTC and are available in non-galling female composite, assuring easy make-up and superior breakout performance. This casing can be run with common oilfield tools. Laminates can handle internal pressures up to 2,500 psi at 202°F.

NOV Fiber Glass Systems, Star Aromatic Amine Casing (Threaded and Coupled) features premium Advanced Composite Threads (ACT) designed in accordance with API 8rd EUE long form specifications. ACT threads are molded for a smooth, corrosion-resistant thread surface, which provides superior breakaway performance. ACT threads use graphite as an added lubricant to avoid damage and wear. The casing is designed and manufactured to resist creep and increase maximum tensile strength. Laminates can handle internal pressures up to 2,500 psi at 150°F.

Hunting TKC 4040 thread form and Coupled) features premium Advanced Composite Threads (ACT) designed in accordance with API 8rd EUE long form specifications. ACT threads are molded for a smooth, corrosion-resistant thread surface, which provides superior breakaway performance. ACT threads use graphite as an added lubricant to avoid damage and wear. The casing is designed and manufactured to resist creep and increase maximum tensile strength. Laminates can handle internal pressures up to 2,500 psi at 202°F.

NS Connection Technology NS-CC is a field-proven, high-performance threaded and coupled connection. It combines the rugged buttress thread form with a patented two-step pin nose and high-pressure, gas-tight metal-to-metal seal. It provides a joint strength greater than pipe body yield strength on API tubing while maintaining low hoop stress in the coupling, which is ideal for H2S environments. The recess-free box allows for less turbulent flow. Excellent anti-galling performance for carbon and highchrome materials is demonstrated in API 5CT testing and in the field. NS-CC has full interchangeability in a size range.
Your seamless pipe requirements – our FOCUS

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Tel. (713) 784-9990, Fax (713) 784-9980
Email: sales@vatubulars.com

voestalpine Tubulars GmbH & Co KG
www.vatubulars.com
Why Tejas TTNY?

NS Connection Technology
NS-HC is a field-proven, high-performance threaded and coupled connection. It combines the rugged buttress thread form with apatured two-step pin nose and high pressure, gas-tight metal-to-metal seal. It provides a joint strength greater than pipe body yield strength on API tubing while maintaining low hoop stress in the coupling, which is ideal for H2S environments. The recess-free bore allows for less turbulent flow. Excellent anti-gall performance for carbon and high chrome materials is demonstrated in API 5C5 testing and in the field. NS-HC has full interchangeability in a size range.

Tejas Tubular TTNY features a rugged straight to taper Connection Design. This is a double lead connection— for every revolution the connection makes up on two threads for faster make-up. The straight section is designed for deep stabbing, while the tapered section provides negative lead flank threads, capable of providing sealing to 95% Internal Pressure while preventing jump out. The primary metal-to-metal radial seal and the secondary axial metal seal, tested with combined loads of tension and compression to 95% VME, providing 100% Internal pressure with gas, at ambient and elevated temperature to 365°F.

Tejas Tubular TTXS Xtreme Series Connection is a non-upset threaded and coupled casing connection, with a size range from 4 1/2 in. to 7 in. Pin ends should provide the torque shoulder to provide a torque stop, resulting in a more cost effective production string or liner. The flush ID connection provides increased flow rates without turbulence or erosion and no restrictions during the running of downhole tools. 100% in tensile, compression and internal pressure. Interchangeable with an API Buttress connection. Tested to 20% per 100 ft in bending with combined loads provides an additional option for long laterals.

Tejas Tubular TTRS1 Reduced Stress Connection is designed to reduce stress levels experienced during multiple hydraulic fracturing stages and rotation of casing in horizontal wells. The rugged torque shoulder provides 100% compression efficiency and a higher torsional rating for drilling, not found in API Buttress connections. The axial metal contact of the pin nose to the torque shoulder provides 100% in internal pressure while bending is applied to 20% per 100 ft. The high operational torque provides for rotation of the string through high bend rates in horizontal wells. The torque shoulder provides an internal flush ID.

Because the TTNY connection:
- Is a double start connection
- Has been tested gas tight
- Has two landing threads
- Is a robust thread profile
- Has a negative thread flank to avoid jump out
- Features 100% pipe body internal yield, tensile and compressive strengths
- Is tested under pressure to 20000 ft deviations at 365°F
- Has a 20° OD bevel to provide free downhole running
- Has a near flush ID to minimize turbulence.

Contact us the next time you need a true high performance connection.

e-mail: sales@tejastubular.com
Web site: www.tejastubular.com
Phone: 1-800-469-7549
Fax: 281-822-3401

Tejas Tubular TTNY

Because the TTNY connection:
- Is a double start connection
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Phone: 1-800-469-7549
Fax: 281-822-3401
TenarisXP Buttress connection is recommended for shale and casing while drilling applications. It is API-compatible, with a special shouldered coupling design that offers extra torque and compression resistance, as well as greater make-up stability than standard buttress connections.

TenarisHydril MACII is a field-proven integral connection for heavy wall pipes.

TenarisHydril Wedge 511 is an integral TenarisHydril Wedge connection for maximum clearance. With a completely flush profile, this connection is used in applications such as horizontal and extended reach well, casing while drilling or HP/HT and deep wells, where its high compression and torque capacity are needed. It is available with Dopeless technology, which reduces environmental impact and enhances operational performance by avoiding dope applied to connections during running and storage.

TenarisHydril Wedge 513 is an integral TenarisHydril Wedge connection for maximum clearance and a metal-to-metal seal. With a completely flush profile, this connection is used in applications such as horizontal and extended reach well, casing while drilling or HP/HT and deep wells, where its high compression and torque capacity are needed. It is available with Dopeless technology, which reduces environmental impact and enhances operational performance by avoiding dope applied to connections during running and storage.

TenarisHydril Wedge 521 is a field-proven, integral TenarisHydril Wedge connection featuring exceptional compression ratings, torque capacity and running reliability, often used in deep water and deep well applications for large diameter, tight clearance intermediate strings. It also provides high torque with high cleaner for applications such as production lines in horizontal and extended reach wells. It is available with Dopeless technology, which reduces environmental impact and enhances operational performance by avoiding dope applied to connections during running and storage.

TenarisHydril Wedge 523 is a field-proven, integral TenarisHydril Wedge connection with metal-to-metal seal, featuring exceptional compression ratings, torque capacity and running reliability. Widely used in demanding applications as HP/HT, deep wells and horizontal and extended reach wells. It is available with Dopeless technology, which reduces environmental impact and enhances operational performance by avoiding dope applied to connections during running and storage.

TenarisHydril Wedge 563 is a field-proven, high performance TenarisHydril Wedge connection featuring exceptional torque and running reliability. This threaded-and-coupled connection combines the structural characteristics of the dovetail Wedge thread with the sealing reliability of a metal seal. It is available with Dopeless technology, which reduces environmental impact and enhances operational performance by avoiding dope applied to connections during running and storage.

TenarisHydril Wedge 625 is an integral TenarisHydril Wedge connection providing best-in-class tension/compression ratings together with exceptional torque capacity and running reliability. It is used in shales and horizontal and extended reach applications. It is available with Dopeless technology, which reduces environmental impact and enhances operational performance by avoiding dope applied to connections during running and storage.

TMK UP ULTRA DQX is a high performance semi-premium connection featuring tension and compression strength equal to pipe body limited to the ISO 13679 CAL II. Designed with ULTRA FullContact thread, it provides excellent bending capacity and improved reliability. Its torque energized shoulder delivers an increased torque resistance over standard DQX.

TMK UP ULTRA DQX HT boosts the same advantages as the DQX in fatigue life and minimized hoop stress, as well as tension and compression strength equal to the pipe body. Its enhanced torque energized shoulder delivers an increased torque resistance over standard DQX.
TMK BPN is an API buttress compatible semi-premium connection featuring a pin nose torque shoulder designed for high torque applications. It is specifically designed for customers seeking better-than-API performance along with the convenience of API buttress compatibility.

TMK UP CWB is a threaded and coupled semi-premium connection with improved modified buttress threads and designed to withstand high torque requirements.

TMK UP ULTRA FX is a special clearance tubing connection featuring an extended API upset and the FullContact threadform. Rated at 100% in tension and compression, this connection is ideal for WAG and CO2 injection wells, workstrings and production tubing where clearance and performance are key.

TMK UP ULTRA QX is a threaded and coupled premium connection featuring the FullContact™ threadform. It is designed to maintain gas tight pressure integrity while enduring the stresses of high torque and severe bending which has been validated by the severe CAL IV test.

TMK UP ULTRA SF is the strongest semi-flush connection with the highest tensile efficiency of any semi-flush casing connection. The connection is ideal for extended reach wells as its unique metal to metal center shoulder seal that can resist rotation up to 100% of yield. Widely accepted in the industry as one of the best, the SF’s performance has been validated by CAL IV testing protocol.

TMK UP ULTRA SF-II is the next generation of semi-flush connection designed and tested to withstand the severities of horizontal, extended reach and HP/HT wells. Designed to withstand high pressure and high torque the SF-II is ideal for the most demanding well conditions.

TMK UP PF is a premium connection with high tension and compression efficiency. Designed with a metal to metal seal, it ensures high integrity in harsh conditions under significant bending, compressive, tensile loads.

TMK UP PF ET is designed to withstand high compression and high torque requirements while maintaining a gas-tight seal under the most demanding well conditions.

TPS Technitube Röhrenwerke TPS-Multiseal-TS-4 is a high-performance, premium, two-step integral joint connection for high-pressure service. Available with medium and heavyweight tubing. Thread profile with multiple metal-to-metal seals and torque shoulders utilize four threads per inch. Increased upset length guarantees 90% reparability by recutting in case of thread damage.
VAM Connection BIG OMEGA is a high-performance, non- upset tubing and casing coupling with buttress-type threads, high-compression, tapered, metal-to-metal seal and reverse-angle shoulder. Full pipe strength is provided for tension, compression, bending and internal and external pressures. It will withstand repeated make/break and is fast running, and flush ID minimizes corrosion/erosion. It is also recommended for high-strength and special alloy materials.

Valloirec USA—Atlas Bradford HD-L is a flush OD connection with superior pressure resistance and structural integrity. Connection design features 5° internal and external (sizes <14 in.) metal-to-metal pressure seal rated to the API pipe body pressure rating, a robust hooked thread form that resists cross-threading and jump-out, and excellent resistance to cyclical combined loading including bending. Now available in sizes 2 3/8 in. through 20 in.

Valloirec USA—Atlas Bradford ST-L is a flush OD premium tubing connection featuring negative-angle load flanks and twin lead threads for superior strength. Radial metal-to-metal seals and optional seal ring provide protection against internal and external pressures. Trapped 5° external torque shoulder withstands high make-up torque. Designed for easy stabbing and fast make-up.

Valloirec USA—Atlas Bradford ATS-E is a semi-premium threaded and coupled connection with a patented thread sealing design. With robust, hooked 3-pitch thread form for 13 3/8 in. through 7–7/8 in., make-up is fast and dependable. Abutting pin noses offer enhanced torsional capabilities and ensure proper connection make-up at the rig, as well as compressive loading resistance. The couplings incorporate API Buttress coupling stock dimensions. Performance ratings were tested and verified using the ISO 13679 connection qualification standard. The ATS-E offers tensile, burst and collapse ratings equal to pipe body ratings. It is a highperformance, non-upset tubing and casing application. Connector design features a patented fatigue resistance groove in the coupling to increase fatigue life, along with a pin-to-pin torque shoulder system that greatly increases the amount of torque that can be applied. It also features an API Buttress run-out thread form, optional resilient Teflon seal ring, and uses API Buttress coupling stock. Widely accepted in the U.S. shale plays, DWC/C is now available with further options, among those a high torque (HT) option that provides torque capability above 30,000 ft-lb.

Valloirec USA—Atlas Bradford DWC/C, DWC/C-HT, DWC/C-PLUS are semi-premium threaded and coupled connections designed specifically for drilling with casing applications. Connector design features a potential fatigue resistance groove in the coupling to increase fatigue life, along with a pin-to-pin torque shoulder system that greatly increases the amount of torque that can be applied. It also features an API Buttress run-out thread form, optional resilient Teflon seal ring, and uses API Buttress coupling stock. Widely accepted in the U.S. shale plays, DWC/C-PLUS is now available with further options, among those a high torque (HT) option that provides torque capability above 30,000 ft-lb.

VAM Connection VAM 21 HT has the same design and performance as the VAM® 21TM, except for an enhanced torque shoulder. This design is ideal for applications where high torque is anticipated, such as rotation during cementing operations or tight running in deviated and horizontal wells.

Valloirec USA—Atlas Bradford DWC/C-HT, DWC/C, DWC/C-PLUS are semi-premium threaded and coupled connections designed specifically for drilling with casing applications. Connector design features a potential fatigue resistance groove in the coupling to increase fatigue life, along with a pin-to-pin torque shoulder system that greatly increases the amount of torque that can be applied. It also features an API Buttress run-out thread form, optional resilient Teflon seal ring, and uses API Buttress coupling stock. Widely accepted in the U.S. shale plays, DWC/C is now available with further options, among those a high torque (HT) option that provides torque capability above 30,000 ft-lb.

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VAM Connection VAM EDGE SF has a torque capability over 25,000 ft-lb for the most popular sizes, expanding the opportunities for drilling in shale plays, and giving access to longer lateral sections. The connection has been tested and validated to the specific shale drilling requirements, which includes a qualification against the most recent ISO13679 testing protocol.

VAM Connection VAM FJL is an integral flush joint that provides maximum running clearance and optimum strength (95% efficiency under tension) on medium wall. It features reverse-angle load flank for load transmission and jump-out prevention. Ideal for moderate-depth liners and tieback strings.

VAM Connection VAM HW ST is a threaded and coupled connection designed for HPHT applications. It is available on heavy wall pipes. A metal-to-metal seal system provides pressure integrity under high internal and external pressure. Tensile efficiency equals 100%. Hooked thread with ~3° reverse angle prevents jump-out under tension or bending. The connection also is available with special clearance 70–80% to meet with special HPHT designs.

VAM Connection VAM SG brings VAM premium sealing performance to a semi-flush connection with extremely high tension performance and increased torque capacity, validated to the specific shale drilling requirements, while remaining highly competitive in the shale play economics.

VAM Connection VAM TOP provides tubing performance in casing sizes. New steep taper, metal-to-metal seal design ensures gas-tight pressure integrity for large-OD tubing and production casing strings, even under severe mechanical and thermal combine loads. It is suitable for all types of materials (carbon and corrosion-resistant alloy) and ideal for horizontal or deviated wells.

VAM Connection VAM TOP FE (Fatigue Enhanced) is a threaded and coupled riser for offshore high-pressure drilling and production applications. Excellent fatigue performance combined with the proven design characteristics of VAM TOP, including the high-pressure metal-to-metal seal integrity. Fatigue improved thread and swoosh coupling design—result in SAF of 2.5 or better over product line. The threaded and coupled design allows high collapse and/or sour service in high-strength grades ideal for inner riser design.

VAM Connection VAM TOP HC (High Compression) is a threaded and coupled connection based on the main features of the VAM TOP connection. This connection has been designed for various high-compression applications where it may be necessary to apply extreme compressive loads to the string (variable temperature inducing compression, compaction, subsidence).
VAM Connection VAM TOP HT has the same design and performance as the VAM® TOP, except for an enhanced thread shoulder. This design is ideal for applications where high torque is anticipated, such as rotation during cementing operations or tight running in deviated and horizontal wells.

voestalpine Tubulars VAG is a threaded and coupled connection with a metal to metal seal, proven by millions of feet in service. The high contact pressure in the seal area ensures 100% gas tightness. Its internal shoulder reinforces the contact pressure in the seal area and acts as positive make-up stop. The thread design ensures high stress performance and allows easy make-up under severe conditions. Its smooth internal profile minimizes turbulence and provides good conditions for internal plastic coating.

voestalpine Tubulars VASuperior is a threaded and coupled gas tight connection with a metal to metal seal. It is designed to meet ISO 19776, CAL IV. Its internal flush profile minimizes turbulence. The high contact pressure in the seal area is reinforced by the internal shoulder. The distance of the seal area from the pin face provides improved protection against transport, handling and—most of all—installation damages. The thread design allows easy and fast make-up in the most severe conditions.

voestalpine Tubulars VAGroughneck is a joint development between voestalpine Tubulars and RAG, an Austrian oil company, especially for well applications where rotation of the casing is required (during installation or cementing). It combines the strengths of API Buttress (e.g. minimal risk of jump-out failures under bending loads) with the following advantages: The make-up is controlled by pin-to-pin contact and the connection provides double torque capability compared to API Buttress. Therefore this connection is suitable for tough field applications.

XL Systems—National Oilwell Varco XLC-S integral wedge thread connection was developed for structural applications where tension and compression strength, bending strength and fatigue performance dominate the string design criteria. XLC-S includes an external metal-to-metal seawater exclusion seal making this connection ideal for the outermost string of an offshore well. XLC-S is available in 20-in. and larger diameters. Typical applications include platform conductors or drive pipe, jackup exploratory wells, subsea well conductors or jet strings, and tieback strings.

XL Systems—National Oilwell Varco XLF is an integral connection with the threads machined directly into the pipe wall, producing the ideal connection geometry of a flush ID and flush OD profile. XLF uses wedge thread technology with a dovedel thread shape. Internal metal-to-metal seal makes XLF a choice when pressure integrity is the primary design driver. XLF is available in 20-in. and larger diameters. Typical applications include intermediate and surface casing strings, downhole liner strings, casing for deep wells with tight annular clearances, and tieback strings.

VAM Connection VAM TOP HT
voestalpine Tubulars VAG
voestalpine Tubulars VASuperior
voestalpine Tubulars VAGroughneck
XL Systems—National Oilwell Varco XLC-S
XL Systems—National Oilwell Varco XLF
WHAT IS GASTECH?

21,479
International attendees (19,012 influencers & purchasing decision makers)

2,072
International conference delegates

423
International, regional and local exhibitors

50,000
sqm gross floor space (43% increase in space)

10
Country pavilions

EXHIBIT IN INDUSTRY SPECIFIC ZONES

OFFSHORE TECHNOLOGY

FLNG
PSRU
FPSO
Upstream Technology

PORTS & MARINE

Shipyards / Ship Repair
LNG & Gas Carrier Ship Building
LNG as a Shipping Fuel
LNG Bunkering
LNG Shipping / Ship Management

LNG FACILITIES & INFRASTRUCTURE

LNG Terminals - Liquefaction & Regasification
Cryogenic Technology
LNG Storage

NATURAL GAS VEHICLE ZONE

Natural Gas for Transportation
NGV Technology
Gas as a Marine Fuel

JOIN EXHIBITORS INCLUDING

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**Diagram p. C-110**

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**Hunting—SEAL-LOCK BIG 0 (SLBGO)**

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**Diagram p. C-110**

| Type: Coupled Seal: Metal-to-metal |

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World Oil* / JANUARY 2015 C-121
### Hunting—FJ-150

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**Diagram:** p. C-110

### Hunting—SEAL-LOCK (FLS)

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**Diagram:** p. C-110
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*Maximum delta torque. Torque applied after pin contact.*

### Hunting—SEAL-LOCK APEX (SLAPEX)

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*Maximum delta torque. Torque applied after pin contact.*
### Hunting—SEAL-LOCK APEX (SLAPEX) (cont.)

#### D w d  t Dc At Ac efficiency, % efficiency, % strength, kips torque, ft-lb strength, kips torque, ft-lb

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#### Continued

### Hunting—SEAL-LOCK BOSS (SLBOSS)

#### D w d  t Dc At Ac efficiency, % efficiency, % strength, kips torque, ft-lb strength, kips torque, ft-lb

| Type | Coupled, non-upset | Seal: Threaded | Tensile Compression Joint Yield Joint Yield Joint Yield
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### Diagram p. C-110

- World Oil
- 2015 Casing Reference Tables

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**Continued**
### Hunting—SEAL-LOCK HC (SLHC) (cont.)

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### Hunting—SEAL-LOCK SEMI FLUSH (SLFS)

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**Hunting—SEAL-LOCK SEMI FLUSH (SLSF) (cont.)**

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**Hunting—TKC MMS**

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**Diagram p. C-110**

**Diag. p. C-110**

**World Oil** / JANUARY 2015  C-127

**2015 Casing Reference Tables**
### Hunting—TKC 4040 RTC

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*Maximum delta torque. Torque applied after pin nose contact.

### Diagram p. C-112

**Hunting—TKC 4040 RTC**

**JFE Steel/Hunting—Fox**
### JFE Steel/Hunting—Fox (cont.)

#### Tensile Compression Joint Yield Joint Yield Joint Yield

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#### JFE Steel—JFE Bear

#### Tensile Compression Joint Yield Joint Yield Joint Yield

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### JFE Steel—JFE LION

#### Tensile Compression Joint Yield Joint Yield Joint Yield

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2015 Casing Reference Tables

World Oil / JANUARY 2015 C-129
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<td>5.940</td>
<td>–</td>
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*Please contact JFE Steel for Compression Efficiency and Yield Torque.

### JFE Steel—JFE TIGER

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### NOV Fiber Glass Systems—Star Aliphatic Amine Casing

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**Note:** For Tensile, Compression, Joint, and Yield properties, please refer to Diagram p. C-112.
### NOV Fiber Glass Systems—Centron Downhole Casing (cont.)

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<th>Ac</th>
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| W | D  | t  | Dc  | Ac  | Lm  | Dc  | Ac  | Lm  | Dc  | Ac  | Lm  | Dc  | Ac  | Lm  | Dc  | Ac  | Lm  | Dc  | Ac  | Lm  |
| 5.000 | 13.00 | 4.421 | 0.253 | 5.512 | 3.515 | 3.773 | 3.773 | 4.579 | 100.0 | 100.0 | 302.0 | 9.500 | 415.0 | 11.540 | 472.0 | 12.560 |
| 6.625 | 20.95 | 5.894 | 0.330 | 7.833 | 5.936 | 6.176 | 6.176 | 7.028 | 100.0 | 100.0 | 555.0 | 22.170 | 661.0 | 22.170 | 555.0 | 22.170 |
| 6.000 | 21.40 | 5.842 | 0.320 | 7.487 | 6.028 | 6.272 | 6.272 | 6.680 | 100.0 | 100.0 | 530.0 | 20.560 | 672.0 | 20.560 | 530.0 | 20.560 |
| 6.250 | 23.00 | 5.895 | 0.315 | 7.968 | 6.460 | 6.524 | 6.524 | 7.223 | 100.0 | 100.0 | 581.0 | 22.920 | 692.0 | 22.920 | 581.0 | 22.920 |
| 6.000 | 26.00 | 6.416 | 0.476 | 8.367 | 8.024 | 8.080 | 8.080 | 8.440 | 100.0 | 100.0 | 601.0 | 24.010 | 816.0 | 24.010 | 601.0 | 24.010 |
| 6.250 | 28.00 | 6.749 | 0.485 | 8.643 | 8.534 | 8.589 | 8.589 | 8.961 | 100.0 | 100.0 | 629.0 | 25.150 | 864.0 | 25.150 | 629.0 | 25.150 |
| 5.000 | 28.40 | 6.530 | 0.530 | 8.350 | 8.275 | 8.330 | 8.330 | 8.752 | 100.0 | 100.0 | 565.0 | 20.670 | 778.0 | 20.670 | 565.0 | 20.670 |
| 5.500 | 30.00 | 6.999 | 0.430 | 8.465 | 8.154 | 8.270 | 8.270 | 8.651 | 100.0 | 100.0 | 578.0 | 27.840 | 895.0 | 27.840 | 578.0 | 27.840 |
| 5.500 | 32.00 | 6.784 | 0.405 | 8.759 | 8.717 | 8.774 | 8.774 | 9.193 | 100.0 | 100.0 | 574.0 | 31.570 | 910.0 | 31.570 | 574.0 | 31.570 |
| 5.500 | 35.00 | 6.519 | 0.325 | 9.492 | 9.299 | 10.161 | 10.161 | 10.638 | 100.0 | 100.0 | 605.0 | 34.940 | 1107.0 | 1107.0 | 605.0 | 34.940 |
| 5.500 | 36.25 | 6.523 | 0.325 | 9.526 | 9.329 | 10.245 | 10.245 | 10.740 | 100.0 | 100.0 | 606.0 | 35.390 | 1118.0 | 1118.0 | 606.0 | 35.390 |

Type: Threaded & coupled
Seal: Metal-to-metal

TenarisHydril—Blue

Diagram p. C-114

L-80

P-110

Q-125

Continued
### TenarisHydril—Blue (cont.)

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<th>t (in.)</th>
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<th>Ac (mm)</th>
<th>Ln (mm)</th>
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**Notes:**
- *d* refers to Connection ID.
- **Type:** Threaded & coupled
- **Seal:** Metal-to-metal
- **Efficiency, %**
- **Strength, kips**
- **Torque, ft-lb**

---

### TenarisHydril—Blue Near Flush

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<th>Ln (mm)</th>
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**Notes:**
- *d* refers to Connection ID.
- **Type:** Integral swaged, non-upset
- **Seal:** Metal-to-metal
- **Efficiency, %**
- **Strength, kips**
- **Torque, ft-lb**

---

### TenarisHydril—Blue Thermal Liner

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**Notes:**
- *d* refers to Connection ID.
- **Type:** Threaded & coupled
- **Seal:** None
- **Efficiency, %**
- **Strength, kips**
- **Torque, ft-lb**

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**World Oil** / JANUARY 2015 C-135

**Continued**
## TenarisHydrid—Blue Thermal Liner (cont.)

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**Yield torque values refer to a structural limit of the connection.**

*Refers to Connection ID.*
### TenarisHydril—ER (cont.)

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#### Diagram p. C-114

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#### Yield torque values refer to a structural limit of the connection.

### TenarisXP Buttress

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#### Diagram p. C-115

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**Tensile Compression Joint Yield Joint Yield Joint Yield Combined**

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* d refers to connection ID.

### TenarisHydril—Wedge 511

| Type: Integral, flush | Seal: Metal-to-metal |

### 2015 Casing Reference Tables

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* * refers to connection ID.
** Yield torque values refer to a structural limit of the connection.
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**Note:** *D* refers to connection ID. 
** Yield torque values refers to a structural limit of the connection.
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<td><strong>Yield torque values refers to a structural limit of the connection.</strong></td>
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<table>
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<th>Lm efficiency, %</th>
<th>P-110</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-00</td>
<td>Joint strength, kips</td>
<td>Yield torque, ft-lb</td>
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<tr>
<td>Q-125</td>
<td>Joint strength, kips</td>
<td>Yield torque, ft-lb</td>
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- **D** refers to connection ID.
- **Yield torque values refers to a structural limit of the connection.

### TenarisHydril—Wedge 523

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<th>P-110</th>
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</tr>
<tr>
<td>Q-125</td>
<td>Joint strength, kips</td>
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- **D** refers to connection ID.
- **Yield torque values refers to a structural limit of the connection.
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<th>T</th>
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<th>L</th>
<th>A</th>
<th>D</th>
<th>Coupling</th>
<th>Yield Ksi</th>
<th>Yield Ksi</th>
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Notes:
- * d refers to connection ID.
- TenarisHydril—Wedge 563
- Type: Threaded and coupled
- Seal: Metal-to-metal
- Diagram p. C-115

**Table 5.6.20:**

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| 7.625 | 9.500 | 11.750 | 13.500 | 15.000 |
| 8.625 | 10.500 | 12.750 | 14.500 | 16.000 |
| 9.500 | 11.750 | 13.500 | 15.000 | 16.500 |

Additional notes and data are provided within the table.
### TMK—ULTRA DQX

#### Type: Threaded & coupled

<table>
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<tr>
<th>D</th>
<th>w</th>
<th>d</th>
<th>t</th>
<th>Dc</th>
<th>Ac</th>
<th>Lm</th>
<th>efficiency, %</th>
<th>Ac</th>
<th>efficiency, %</th>
<th>strength, kips</th>
<th>torque, ft-lb</th>
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<td>100%</td>
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<td>743</td>
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<tr>
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<td>0.275</td>
<td>4.825</td>
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<td>4.114</td>
<td>100%</td>
<td>100%</td>
<td>589</td>
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<td>5.050</td>
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<td>100%</td>
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<td>5.550</td>
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**Yield torque values refers to a structural limit of the connection.**

### TMK—ULTRA DQX HT

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<th>Ac</th>
<th>Lm</th>
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<th>Ac</th>
<th>efficiency, %</th>
<th>strength, kips</th>
<th>torque, ft-lb</th>
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<td>100%</td>
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**Diagram p. C-115**

- **TenarisHydril—Wedge 625**
- **World Oil** / JANUARY 2015 - C-143
- **Diagram p. C-115**
### TMK—UP BPN

<table>
<thead>
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<th>Seal: Metal-to-metal</th>
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</table>

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<thead>
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<th>D (in)</th>
<th>w (in)</th>
<th>t (in)</th>
<th>Dc (in)</th>
<th>At (in³)</th>
<th>Ac (in³)</th>
<th>Tensile efficiency, %</th>
<th>Compression efficiency, %</th>
<th>Strength, kips</th>
<th>Torque, ft-lb</th>
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<td>2.063</td>
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<td>100.00%</td>
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<td>207</td>
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<td>100.00%</td>
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<tr>
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<td>100.00%</td>
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### TMK—TMK CBW

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<th>Dc (in)</th>
<th>At (in³)</th>
<th>Ac (in³)</th>
<th>Tensile efficiency, %</th>
<th>Compression efficiency, %</th>
<th>Strength, kips</th>
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### TMK—ULTRA FX

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<th>Dc (in)</th>
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<th>Ac (in³)</th>
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<th>Compression efficiency, %</th>
<th>Strength, kips</th>
<th>Torque, ft-lb</th>
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<tr>
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### TMK—UP ULTRA FJ

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<th>Dc (in)</th>
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<th>Ac (in³)</th>
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### 2015 Casing Reference Tables

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#### L-80

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#### Diagram p. C-116

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**D** - Diameter (in.), **w** - Width (in.), **d** - Depth (in.), **t** - Thickness (in.), **Ac** - Tensile efficiency, %, **At** - Compressive efficiency, %, **J** - Joint strength, kips, **Torque, ft-lb**, **Q-125** - Yield, kips, **P-110** - Yield, kips, **L-80** - Yield, kips

**World Oil** / JANUARY 2015 / C-147

**Continued**
### Casing Reference Tables

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*Contact AtlasBradford Technical Services for make-up and yield torque data.*
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### Vallorec USA-Atlas Bradford—DWC/C

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### World Oil* / JANUARY 2015 C-153

Continued...
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**Diagram p. C-117**
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**Diagram p. C-118**

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**Continued**

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**World Oil** / JANUARY 2015 C-159
### VAM Connections—VAM HW ST (cont.)

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**Notes:**
- **Diagram p. C-118**
- **Diagram p. C-118**

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**2015 Casing Reference Tables**

2015 JANUARY 2015 / WorldOil.com
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2015 Casing Reference Tables

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**Continued**

World Oil® / JANUARY 2015 C-161
### VAM Connections—VAM SLIJ (cont.)

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**Diagram p. C-118**

**Diagram p. C-118**

**Diagram p. C-118**

**Diagram p. C-118**

**Diagram p. C-118**

**Diagram p. C-118**

**Diagram p. C-118**

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**2015 Casing Reference Tables**

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**VAM Connections—VAM TOP (cont.)**

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**VAM Connections—VAM TOP FE**

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**Diagram p. C-118**

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<th>Compression efficiency, %</th>
<th>Joint Max torque, ft-lb</th>
<th>Joint Max strength, kips</th>
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**VAM Connections—VAM TOP HC**

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<tr>
<td>Max P-110 strength, kips</td>
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<td>Max D-125 strength, kips</td>
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<td>Max D-125 strength, kips</td>
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Diagrams and Reference Information:
- Diagram p. C-118: VAM Connections—VAM TOP HC
- Diagram p. C-119: VAM Connections—VAM TOP HT

**continued**

C-164 JANUARY 2015 / WorldOil.com
### VAM Connections—VAM TOP HT (cont.)

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### voestalpine Tubulars — VAGT

#### Description:
- Yield torque values available on request.

#### Joint Strength, Kips

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<tr>
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#### Joint Strength, Kips

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#### Efficiency, %

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<tr>
<td>6.625</td>
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### voestalpine Tubulars — VSsuperior

#### Description:
- Threaded & Coupled
- Seal: Metal-to-metal
- Very high pressure in the seal area and acts as positive make-up stop. The thread design ensures high stress performance and allows easy make-up under severe conditions. Its smooth internal profile minimizes turbulence and provides good conditions for internal plastic coating.

#### Tensile Compressive Joint Yield Joint Yield Joint Yield

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#### Joint Strength, Kips

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<tr>
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### Diagram p. C-119

#### Diagram p. C-119 — VAGT

#### Diagram p. C-119 — VSsuperior

#### Diagram p. C-119 — World Oil®

World Oil® / JANUARY 2015 C-165
### voestalpine Tubulars — VArougehank

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#### Description

VArougehank is a joint development between voestalpine Tubulars and RAU, an Austrian oil company, especially for well applications where rotation of the casing is required during installation or cementing. It combines the strength of API Butresses (i.e., a minimum risk of joint failure under bending loads) with the following advantages: The make-up is controlled by pin-to-pin contact and the connection provides double torque capability compared to API Butresses. Therefore this connection is suitable for tough field applications.

### XL Systems—National Oilwell Varco—XLC-S

#### Diagram: p. C-119

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C-166 JANUARY 2015 / WorldOil.com
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