

2014 TUBING REFERENCE TABLES

LISTINGS FOR PIPE
SIZES TO 5½-IN. OD

Special Supplement to

World Oil[®]

Published in November 2014

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World Oil's updated tables for pipe sizes to 5½-in. OD and production-tubing-specific couplings provide information on premium connection dimensions. The tables are organized by connection manufacturing company. Listings show page numbers for cut-away diagrams (not to scale) for visual cross-reference with tabular data. Coupling type and sealing mechanism follow manufacturer and coupling name or designation.

Critical tubular and connection areas can be used with minimum yield or ultimate strengths in designs and to calculate

coupling tensile capacity. For your convenience, connection manufacturer contact information appears on page T-133. These tables are intended as a guide when planning tubing programs. However, individual manufacturer representatives should be consulted before making final decisions. Available steel grades and an Engineer's Toolkit that includes 96 equations from API Bulletin 5C3 are available on our website at WorldOil.com.

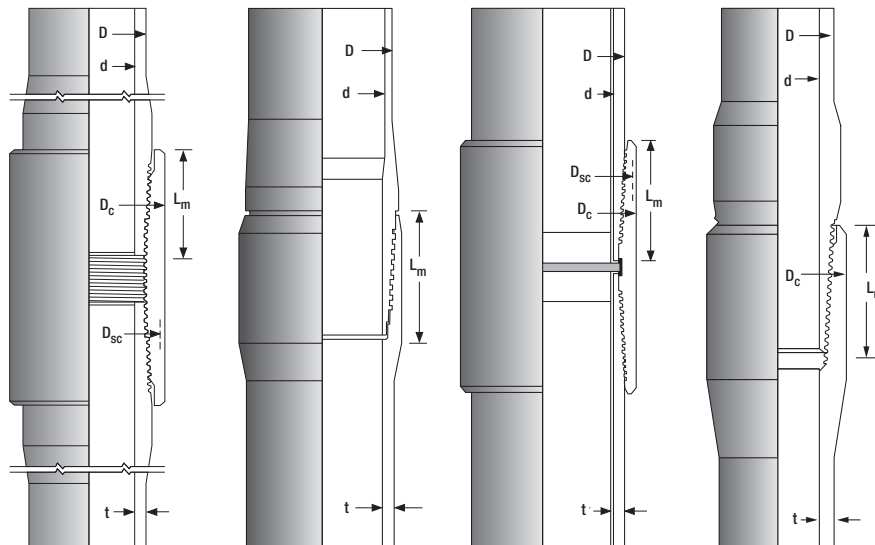
About the cover: JFEBEAR connection, developed in the late 1990s. Photo courtesy of JFE Steel Corporation.

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Dimension nomenclature

- D = Nominal OD of tube, in.
- w = Tubing weight, lb/ft
- d = Drift ID, in.
- t = Tubing wall thickness, in.
- D_c = Connection OD, in.
- D_{sc} = Connection OD (special clearance or turned down), in.
- A_t = Tubing wall critical cross-sectional area, sq in.
- A_c = Connection critical cross-sectional area, sq in.
- L_m = Make-up loss, in.



Secured

VAM[®] 21



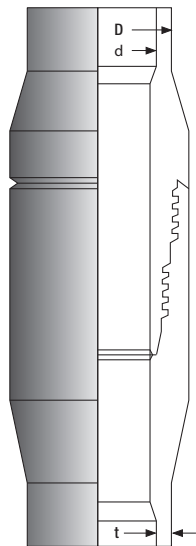
Here's a choice you can rely on.

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.

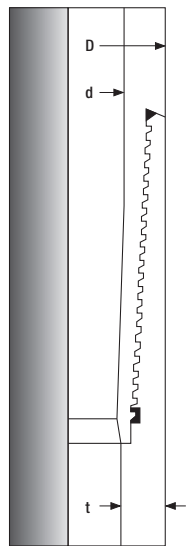
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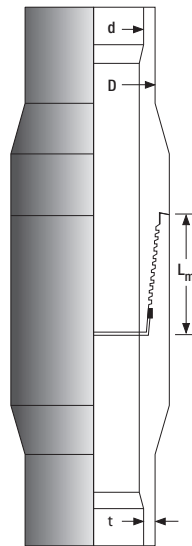




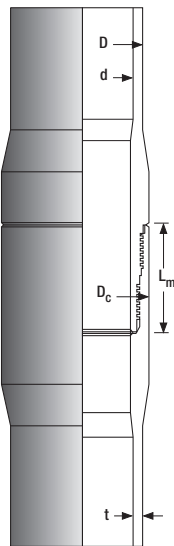
Benoit BTS is a two-step, multiseal integral joint connection designed for superior performance and durability. It comes with four-pitch (BTS-4), six-pitch (BTS-6) and eight-pitch (BTS-8) threads and is available with a protective ring for coated tubing.



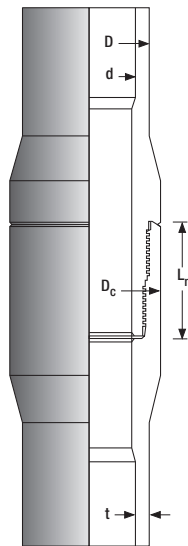
Benoit Echo/F4 is offered in tubing sizes from 2½ to 5 in. It has a flush OD with a swaged and bored pin end. Multiple seals include trapped 15° torque shoulder/external seal, metal-to-metal pin flank seal, interference thread seal, optional teflon ring, and features maximum efficiency for every weight.



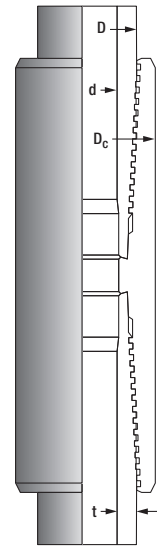
Benoit Echo/SS is a premium integral connection for applications requiring high joint strength and maximum resistance to leakage in deep, high-pressure wells. It has multiple seals, which include shoulder, teflon and interference thread seals. SS is available with metal-to-metal pin flank seal and PR ring for coating.



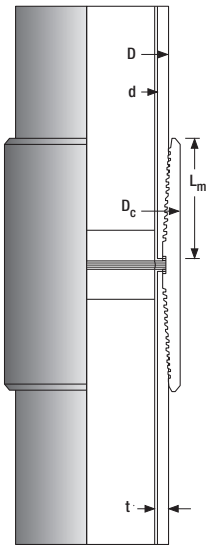
Halliburton Oeco Type A is an integral joint, two-step straight-thread connection with metal-to-metal pin flank seal and outer tapered shoulder that provides a seal and a make-up point. Straight-thread design minimizes hoop stress, permitting fast make-up and break-out. Oeco Type B is an identical connection with corrosion-protection ring.



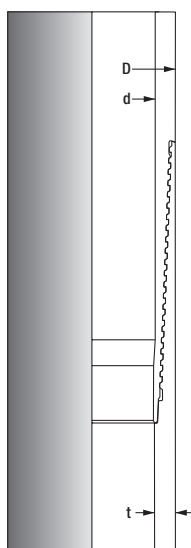
Halliburton Oeco Type C thread is designed for medium-weight pipe. It provides the same integral joint, sealing, fast make/break and over 100% efficiency as Type A, but the heavier make-up shoulder makes it especially suitable for workstrings and completions. Type D provides corrosion protection ring.



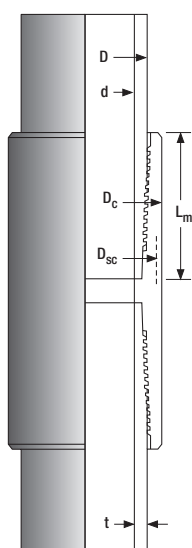
Hunting Seal-Lock Apex is a threaded-and-coupled, non-upset premium connection designed for the most severe critical service applications. This connection provides 100% internal and external pressure integrity even under high axial loads. Apex uses a patented sealing thread form and a metal-to-metal seal to ensure superior performance under the most severe conditions. A negative-load flank thread and advanced connection geometry results in smooth, trouble-free running.



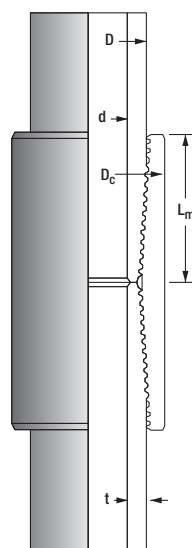
Hunting Seal-Lock FGL combines performance and pressure integrity of metal-to-metal sealing with corrosion resistance of fiberglass lining. This plain-end threaded-and-coupled connection is mated with Rice Engineering's Duoline liner for unsurpassed performance in CO₂ injection/production applications.



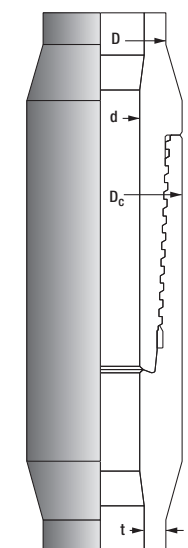
Hunting Seal-Lock Flush is an integral connection with a flush OD that provides maximum clearance for slim-hole applications. The patented hooked thread form is optimized for pipe wall thickness and virtually eliminates thread jump-out failures. The thread form can also resist pin/box disengagement under bending loads, making it an excellent choice for horizontal applications. A flank metal-to-metal seal provides a pressure rating equal to the API minimum internal pressure rating for the pipe body.



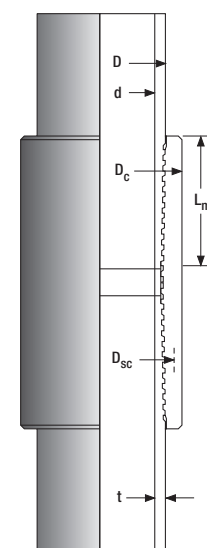
Hunting Seal-Lock HD Lock-It is threaded and coupled on plain-end, non-upset tubes. Special clearances are available. Tension strength, even hand tight, exceeds full pipe body yield strength for all sizes, weights and grades. Auxiliary resilient pressure seal rings are available. Low-stress assemblies are suitable for corrosive environments. Negative load flank threads provide for operating loads to pipe body yield as a minimum.



Hunting Seal-Lock HT is a threaded-and-coupled tubing connection designed for high-torque and deviated-hole applications. It utilizes a patented hooked thread design for sealing and a unique pin-to-pin torque shoulder to provide enhanced torsional and bending capabilities. A rugged thread design for sealing and a unique pin-to-pin torque shoulder to provide enhanced torsional and bending capabilities. A rugged thread form and advanced connection geometry results in deep stabbing and quick makeup without cross threading. High-performance and cost-effective.



Hunting Seal-Lock XP is designed for all types of workstring and production tubing applications. The connection features a metal-to-metal, gas-tight seal, dual torque shoulders, and a tapered, 5-pitch, hooked thread form. Ideally suited for multiple trips, the connection makes up in 4-5 turns and can be recut on either standard-length API EUE, or 2-step premium upsets. All weights within a size range are interchangeable.



Hunting TKC 4040 Convertible tubing connections provide superior durability in non-upset configuration. Converter ring is press-fit into J area of coupling and provides an internal torque stop and an axially loaded metal-to-metal seal.



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3,016 FT
OLYMPUS TLP

3,300 FT
BONGA

3,999 FT
PAZFLOR

4,326 FT
TUBULAR BELLS

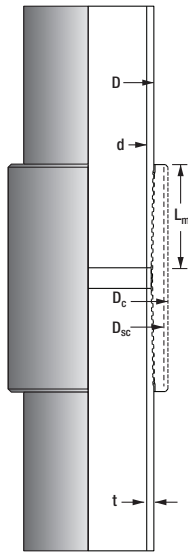
4,884 FT
KIZOMBA

6,075 FT
THUNDER HORSE

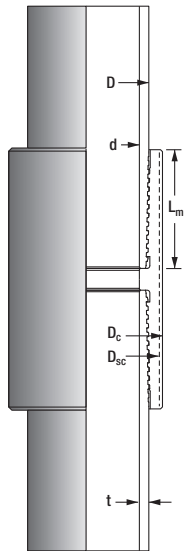
7,021 FT
BRAZILIAN PRE-SALT

8,250 FT
CASCADE & CHINOOK

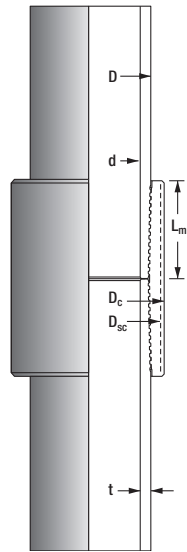
9,039 FT
INDEPENDENCE



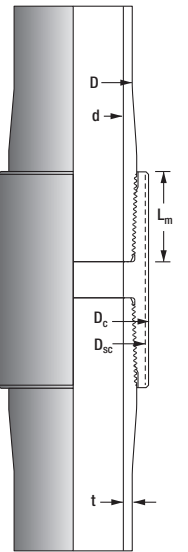
Hunting TKC 4040 HO is a non-upset threaded-and-coupled connection which combines the 4040 thread form with TKC center ring to create a rugged, internally flush bore, axial metal-to-metal seal connection. Proven in Canadian heavy-oil production where the harsh environment and repeated make-and-breaks are the rule.



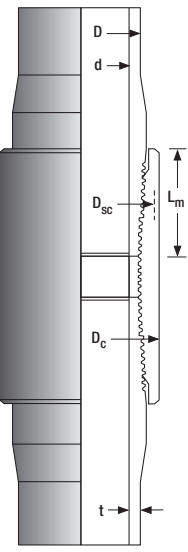
Hunting TKC 4040 HO-I is a non-upset threaded-and-coupled connection which combines the 4040 thread form with TKC integral shoulder, to create a rugged, internally flush bore, axial metal-to-metal seal connection. Proven in Canadian heavy-oil production where the harsh environment and repeated make-and-breaks are the rule.



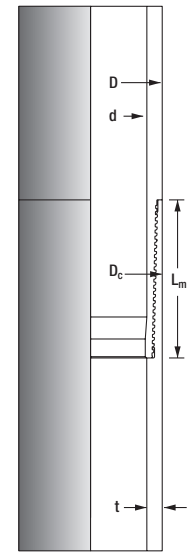
Hunting TKC 4040 RTC is specifically designed as a low-stress, multi-cycle fracture string connector to withstand the rigors imposed by deep, long-lateral, tight-gas shale drilling. Low, evenly distributed stresses significantly reduce the problems associated with hydrogen embrittlement. The rugged 4040 thread form and increased pin nose width provide for greatly improved torque capacity and connection stability needed in horizontal applications.



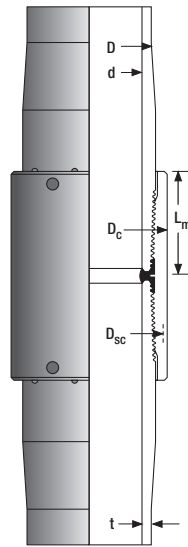
Hunting TKC Plus is a simplified version of Hunting's standard TKC 8RD, featuring straight counterbore, beveled OD and shorter length. It continues to provide proper make-up when used with API 8RD threads. Internal shoulder provides positive torque stop and metal-to-metal seal when using pins meeting TKC pin-end finish specification. It can withstand bending and torsional loads downhole within design parameters. Separate internal seals block pressure from threaded area, allowing threads to serve principally as tensile members.



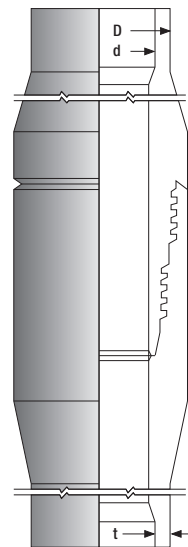
Hunting TKC Convertible upgrades coupling for critical applications. Converter ring is press-fit into J area of coupling and provides a smooth bore and positive torque stop that is ideal for work string. With torque adjustment, to allow for sufficient bearing pressure, converter ring produces a metal-to-metal seal with pressure integrity exceeding pipe body in tubing sizes.



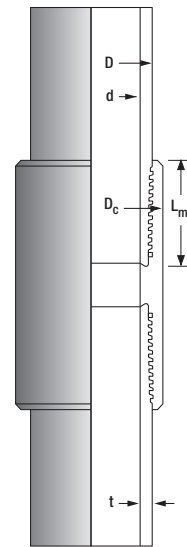
Hunting TKC FJ-150 Integral connection with a flush outside diameter provides maximum clearance for slim-hole applications. Low interference, close-tolerance, specially designed thread form provides optimum thread seal, stress control and multiple make-and-breaks. 90° load flank for optimum tensile strength.



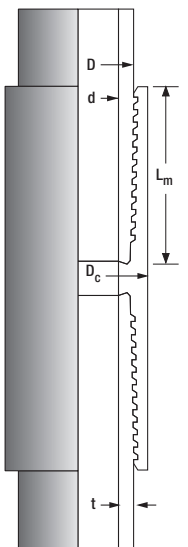
Hunting TKC MMS is a holiday-free, internal flush tubing connection when used in conjunction with properly coated API EUE pipe. Applications with severe corrosion such as wet CO₂ injection and disposal wells benefit most. It combines a proprietary coupling and gauging system to precisely assemble connections, which reduces average compressive stresses in pin and allows use of a polymeric center seal to bridge coated pin surfaces. This seal has been proven to withstand repeated make/break.



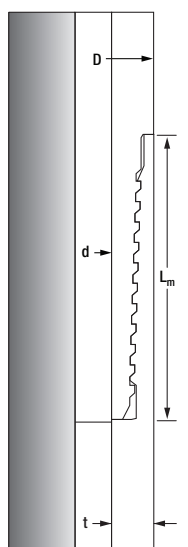
Hunting TS-HD and TS-HP are upset, integral, two-step tubing connections designed for critical well applications. The parallel/non-interference thread form ensures fast, easy-running characteristics while allowing for multiple-trip capability. Multiple, metal-to-metal seals and a large torque shoulder provide rugged, dependable critical well service. An optional ring is available for plastic coating applications.



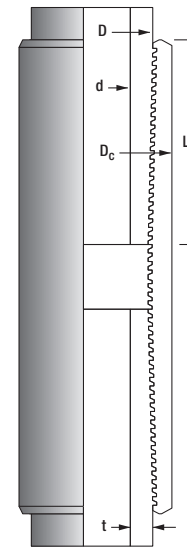
JFE Steel/Hunting Fox is a premium coupled connection plain-end tubing and casing, providing full pipe-rated strength in tension, burst, collapse and bending. Advanced contoured seal and shoulder design provide superior sealing performance and high resistance to over-torque. Design resists back-off from thermal shock and impact by storing a high level of energy in mating parts during make up. A unique change in thread pitch reduces high-stress concentrations and provides a more even load distribution among threads.



JFE Steel JFEBear is a premium threaded-and-coupled connection providing full pipe-rated strength in tension, burst and collapse. Advanced contoured seal and shoulder design provide superior sealing performance and galling resistance. Optimum thread design increases tensile and bending capacity and resistance to seal damage from compressive loads. Optimum angle for thread stabbing flank enables quick make up and increased resistance to cross threading. Available size range for tubing and casing is from 2% to 9% in.



Metal One Corp. FLUSHMAX and FLUSHMAX-II are modified SUPERMAX connection featuring both OD/ID flush surface. These are a thread seal connections and have shoulders on both the OD and ID. Double shoulders provide higher compression rating than the pipe body and superior over-torque resistance. This is ideal for liner application. Main applications are slotted liner for gravel packing and wash pipe. FLUSHMAX and FLUSHMAX-II are NOT interchangeable with SUPERMAX.

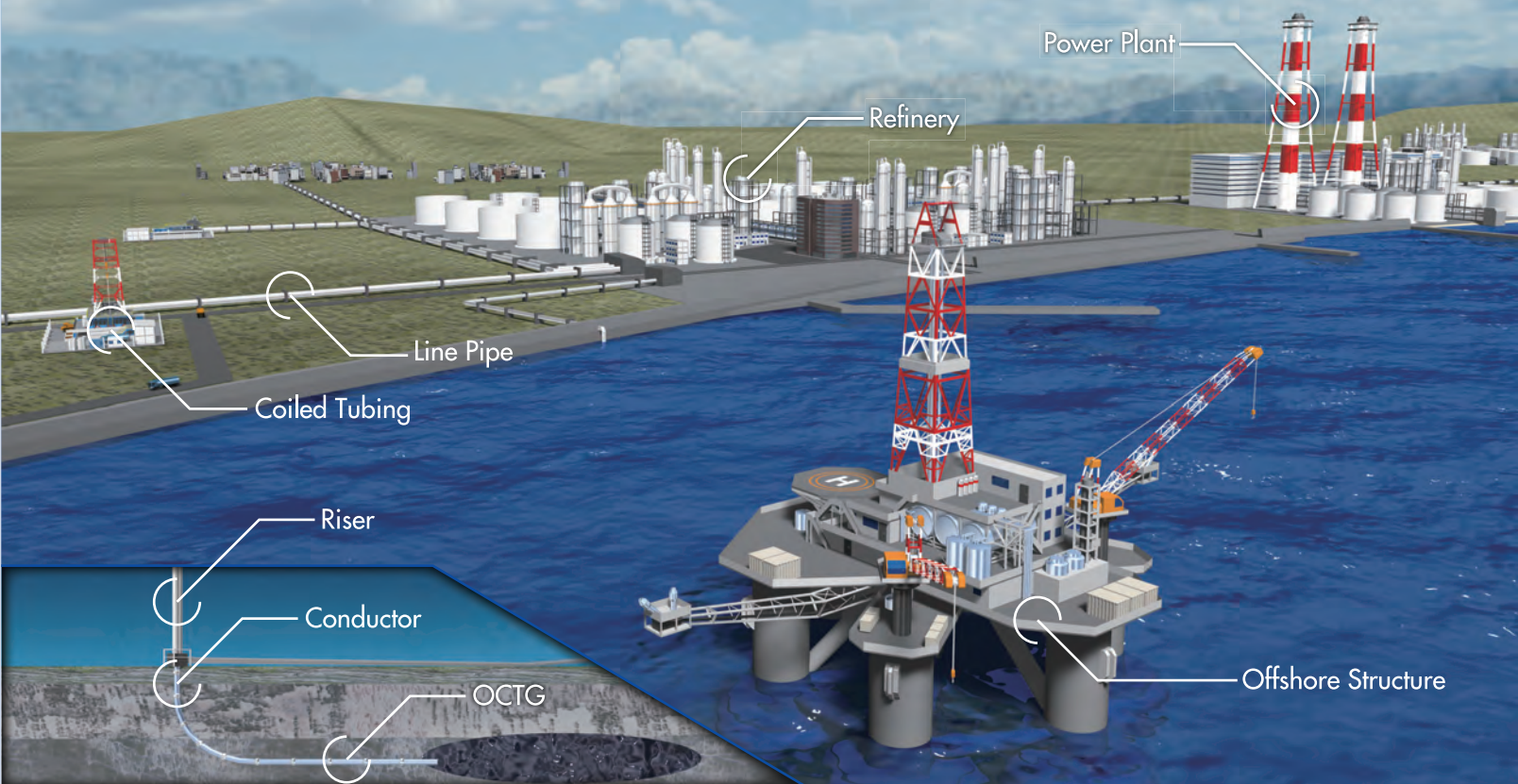


Metal One Corp. SUPERMAX is a non-upset, coupled type connection that outperforms API EUE with lesser cost. Both flanks engage to provide leak resistance equivalent to pipe body, and 2° load flank and run-out thread provide tensile strength equal to pipe body, making this an alternative for API EUE applications, low-pressure gas well applications, applications requiring smaller OD than EUE but higher joint strength than NUE, and for reclamation of EUE tubing with insufficient upset length.

Steel Solution For Energy

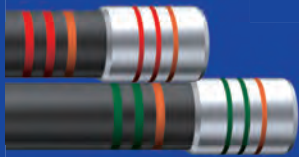
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challenging harsher environments

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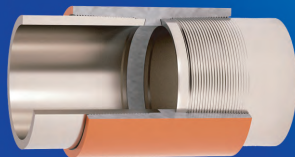


OCTG

Material (UHP™-15CR/17CR)



Premium Joint (JFEBEAR™, JFETIGER™, JFELION™)



Line Pipe

High-Strain Linepipe (HIPER™)

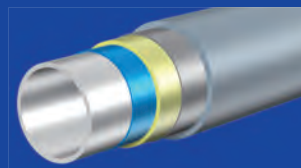


Advanced HFW Linepipe (Mighty Seam™)



Line Pipe / Conductor

DNV Grade 13Cr-2.5Mo / 2.0Mo



HFW

《X80 Heavy Wall》



Specialty Pipe

Long Length Tube for HRSG



JFE Steel Corporation

JFE

Think upset tubing is all the same?



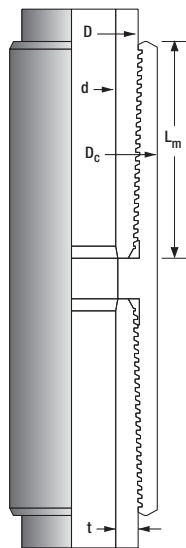
Think again.

The TTUS™ connection is a robust high performance connection specially designed to drill out plugs, make and break multiple times and help eliminate cross threading during make-up.

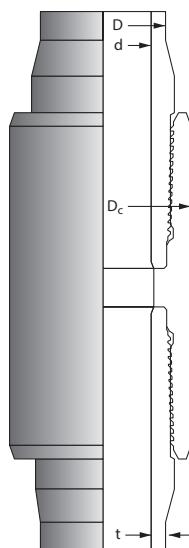
For more information on this connection call Tejas Tubular Products.

e-mail: sales@tejastubular.com

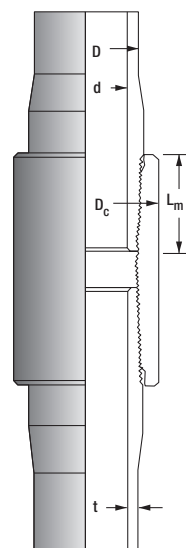
Web site: www.tejastubular.com
 Phone: 1-800-469-7549
 Fax: 281-822-3401



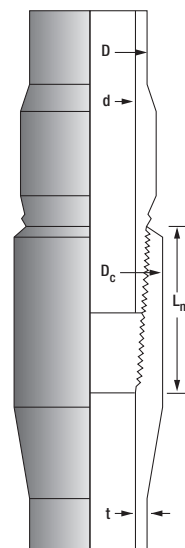
Metal One Corp. SUPERMAX-TS is a modified SUPERMAX connection with internal torque shoulder on the coupling. Features flush pipe ID to prevent flow turbulence and better resistance to over-torque. SUPERMAX-TS with resilient sealing is also available for high-pressure gas well application. This is interchangeable with standard SUPERMAX.



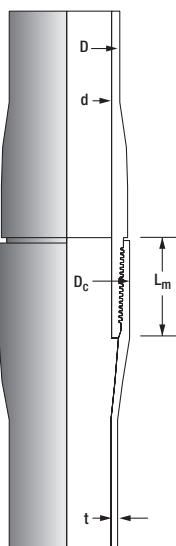
Metal One Corp. MO-EUTT is a threaded and coupled type premium connection with metal to metal seal. Pin is threaded on API EUE upset end. Upset pin end enhances high torque resistance and high compressive load resistance. Applications are tubing and casing for steam injection wells, work tubing and production tubing for high-pressure gas wells.



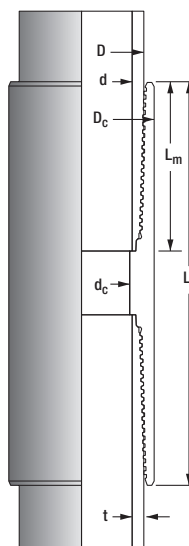
NOV Fiber Glass Systems ACT Threaded and Coupled joint is a premium molded API 8rd EUE long form connection. The threads are molded for a smooth, sealed, corrosion-resistant surface with graphite and ceramic reinforcement which provides lower breakout torque values and added lubricant to avoid damage and wear. It is designed and manufactured to resist creep, maximize tensile strength and guarantee breakout. Laminate handles up to 4,000 psi at 200°F.



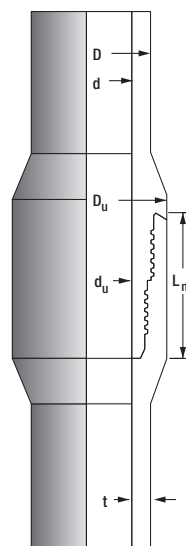
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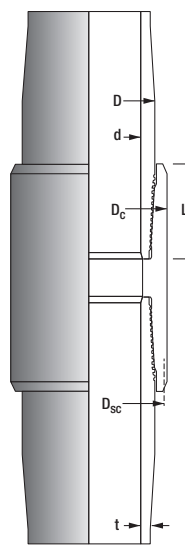
NOV Centron DHC uses premium 4-thread-per-inch connectors with coarse, shallow-angle thread forms that are rugged and more resistant to stab damage and cross-threading. Features O-ring seals that prevent fluid penetration into the thread seal area and keep dope from entering the formation in injection 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. Can be run with common oilfield tools.



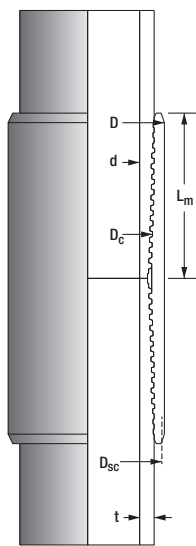
NS Connection Technology NS-CT is a threaded-and-coupled connection. It combines the rugged buttress thread form with a two-step pin nose and high-pressure, gas-tight metal-to-metal seal. It provides a joint strength greater than pipe body yield strength on API tubing while maintaining low hoop stress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



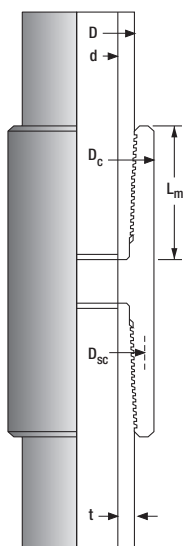
Tejas Tubular TTS6 and TTS8 are world-recognized thread design connections for usage as production tubing and work string applications. The Dual Step design on upset ends provides trouble-free stabbing and make-up with superior galling resistance. The 100% tensile, 100% gas tight internal pressure and 100% collapse efficiency, along with high torque strength, provides a trouble-free connection for HTHP application. Now available with CI—Corrosion Inhibitor Ring for internal coated pipe and CIGL—Corrosion Inhibitor Ring for Fiber Glass Lined pipe for H₂S and CO₂ environments.



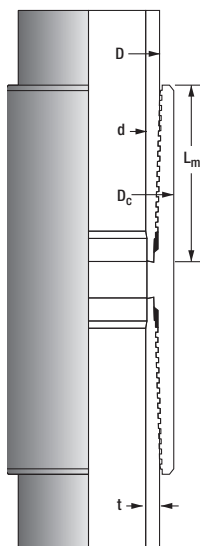
Tejas Tubular TTUS, Upset Shoulder connection is a threaded-and-coupled connection. Pin ends are upset to provide increased strength in tension, torque and compression. The connection has been designed to provide a more robust design needed when higher torque, higher compression and rotation are needed through a bend, to drill out a plug or when an API 8rd connection is not sufficient. The 7-tpi (threads per inch) thread design is similar to a buttress thread used on casing, but adapted for tubing sizes. The added torque shoulder gives the connection a stationary mechanical stop to support the higher torque and compression loading.



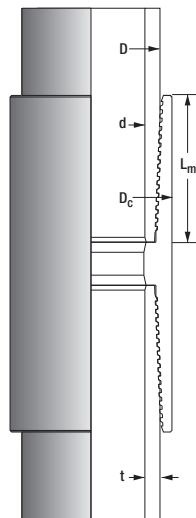
Tejas Tubular TTXS Xtreme Series Connection, a non-upset threaded-and-coupled connection, allows the pin ends to shoulder inside the coupling, resulting in a more cost-effective production string or liner. The flush bore connection provides increased flowrates with minimum turbulence, allowing for multiple make-and-breaks and unlimited recuts. The TTXS has special clearance sizes for use as liners when production strings are leaking to optimize production rates. Connection is 100% in tensile, compression and internal pressure. Thread profile is rugged, faster to make-up, and stronger in tensile and compression than an API 8rd connection.



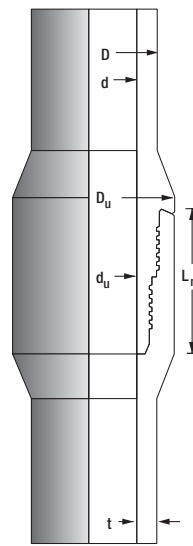
TenarisHydril 3SB is a threaded-and-coupled type premium connection for standard-wall non-upset tubing designed to maintain high leak resistance without pipe-end work because of proper thickness in main-seal area. It has a smooth bore, a spheroid type with tangent point contact and an internal shoulder metal-to-metal seals, positive torque stop, 0° load flank and 45° stabbing flank for leak-proof performance, high joint strength, easy stabbing and running and repeatable make-up.



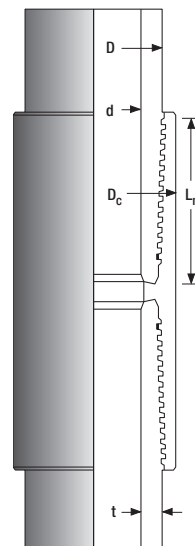
TenarisHydril Blue is a high-performance, fully tested premium connection specially designed to cover demanding service conditions. Optimized thread and seal designs provide excellent sealing performance and structural capacity under high compression, bending and over-torque requirements, with CAL IV qualification. They are available with Dopeless technology, which reduces environmental impact and enhances operational performance by avoiding dope applied to connections during running and storage. Blue is suitable for use with carbon steel and CRA steel grades. Available in tubing and casing sizes from 2% to 13% in.



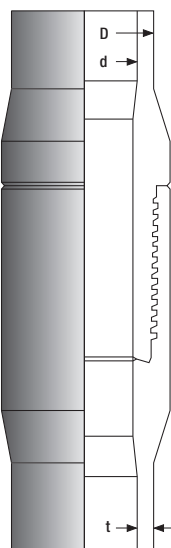
TenarisHydril Blue Thermal Liner is a robust threaded-and-coupled connection especially suited for use in slotted liners and tubing in Thermal Applications.



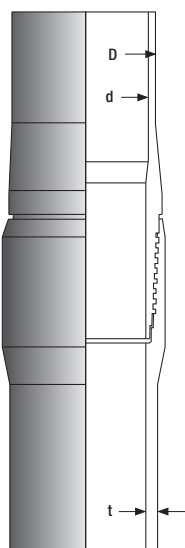
TenarisHydril CS/PH-6/PH-4 is recommended for production tubing and workstring applications. Durability of these connections is produced by combining the reusability of non-interference threads, metal seals and substantial torque shoulders. CS/PH-6/PH-4 tubing connections are available with the optional CB feature.



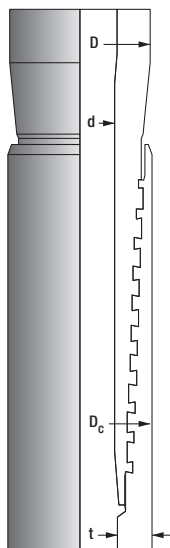
TenarisHydril MS and MS XT/XC are metal-to-metal seal connections that outperform other single metal-seal and API connections. Coupled efficiency is equivalent to pipe body. Pin end, with protected tapered sealing surface, is cut on pipe body. Box end energizes tapered sealing surface through reverse-angle internal torque shoulder. The XT/XC option provides higher compression and torque efficiency than the standard MS.



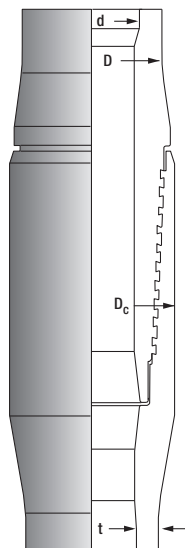
TenarisHydril PJD is an integral joint, upset tubing connection. Turned OD and bored ID allow maximum clearance and product flow. Primary external torque shoulder and secondary reverse angle shoulder ensure proper make-up and stress resistance. High-performance, conical modified buttress threads exceed pipe body strength. Internal metal-to-metal seal remains fully functional after repeated make-up, providing excellent leak resistance for high-pressure wells.



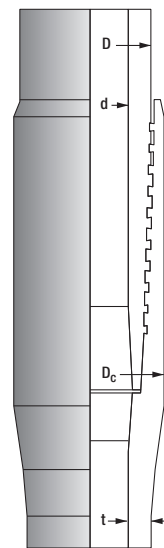
TenarisHydril Wedge 503 is offered on the lightest API tubing weights for production tubing and workstring applications. It is an integral connection machined on long API external upset ends providing pipe body strength along with a metal seal. Wedge 503 is interchangeable with Wedge 533, 553 and 563 in a given size and weight.



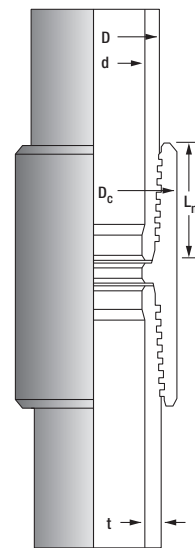
TenarisHydril Wedge 513 and Wedge 511 are integral TenarisHydril Wedge connections for maximum clearance. With a completely flush profile, these connections are used in applications such as horizontal and extended reach wells, drilling-with-tubing and as workstrings, where their high compression and torque capacity are needed. They are available with Dopeless technology, which reduces environmental impact and enhances operational performance.



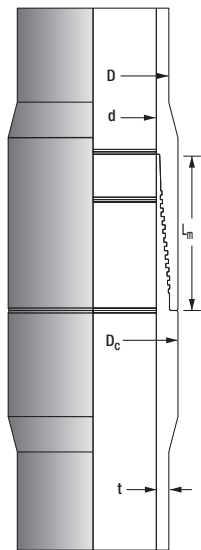
TenarisHydril Wedge 533 is a field proven, heavy upsetted TenarisHydril Wedge connection. With strong torque capabilities, it is recommended for most demanding tubing and workstring applications and has been used in many drilling-with-tubing applications. An integral connection machined on internal/external upset ends, Wedge 533 provides pipe body strength combined with the sealing reliability of a metal seal. Wedge 533 is available with optional CB feature and is interchangeable with Wedge 503, 553 and 563.



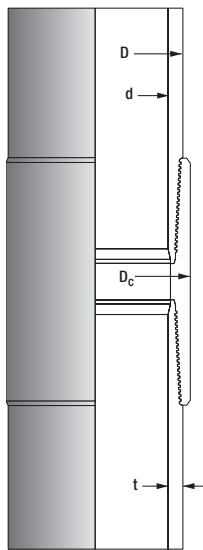
TenarisHydril Wedge 553 is a field proven, one-end upset TenarisHydril Wedge connection recommended for tubing applications and workstring service. It combines benefits of an integral connection with the reduced cost of one-end internal/external upset (OEU) pipe. It provides excellent structural characteristics of the dovetail Wedge thread with the sealing reliability of a metal-to-metal seal. Wedge 553 is available with optional CB feature and is interchangeable with Wedge 503, 533 and 563.



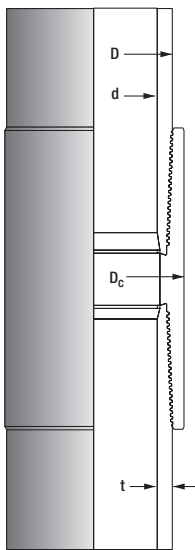
TenarisHydril Wedge 563 is a field proven, high performance TSH Wedge Connection featuring exceptional torque capacity and running reliability. This threaded-and-coupled connection combines the structural characteristics of the dovetail Wedge Thread with the sealing reliability of a metal seal. They are available with Dopeless technology, which reduces environmental impact and enhances operational performance by avoiding dope applied to connections during running and storage. Wedge 563 is available with optional CB feature and is interchangeable with Wedge 503, 533 and 553.



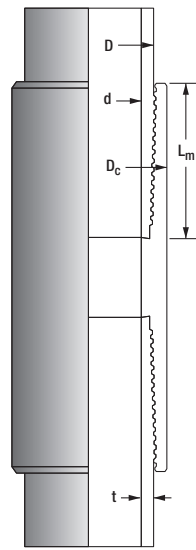
TMK Premium ULTRA-FX is a 100% tubing connection with optimum clearance. Designed with both external and internal seals, the ULTRA-FX maintains reliability and pressure integrity. The ULTRA-FX features the smallest OD of any premium upset tubing connection, which allows operators to run 2 7/8-in.-OD tubing in a hole that could normally only accommodate 2 1/8-in.-OD tubing with a threaded and coupled connection. The larger ID allows better production flow rates, which will pay for the extra costs over the life of the well.



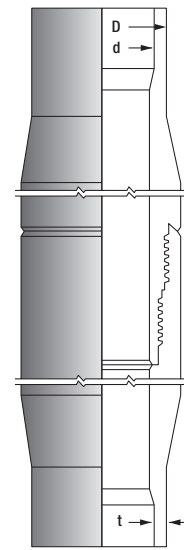
TMK Premium PF is a threaded and coupled connection with extra gas tightness used for construction and operation of directional and horizontal wells with corrosive environments.



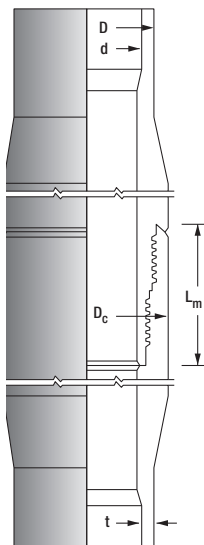
TMK Premium FMT is a threaded and coupled tubing connection with extra gas tightness properties designed for vertical and directional wells with highly corrosive environments. The TMK FMT features a trapezium thread form and a cone-and-cone metal seal, which gives the connection enhanced tension and compression resistance to high-bending loads.



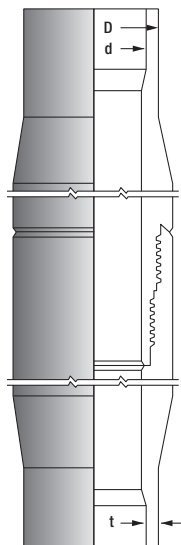
TPS Technitube Techniseal is a high-performance, non-upset tubing and casing coupling connection with buttress-type threads, tapered metal-to-metal seal and reverse-angle shoulder. Full pipe strength is provided for tension, and internal and external pressures. It will withstand repeated make/break and is fast running, and flush ID minimizes corrosion/erosion. It is also recommended for high-strength and special alloy materials.



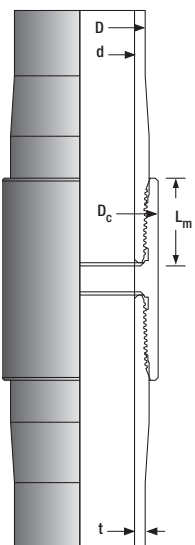
TPS Technitube Multiseal TS4 is a high-performance, premium, two-step integral connection for high-pressure service. Medium- and heavy-weight tubing. Two-step non-taper thread profile 4TPI and multiple metal-to-metal pressure seals and torque shoulders. Upset length guarantees 90% repairable connections by re-cut, in case of thread damage. TS4 TR version includes a PTFE ring, particularly developed for internally plastic-coated tubing.



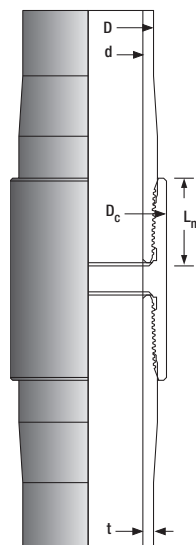
TPS Technitube Multiseal TS6 is a high-performance, premium, two-step integral connection for high-pressure service. Medium- and heavy-weight tubing. Two-step non-taper thread profile 6TPI and multiple metal-to-metal pressure seals and torque shoulders. Upset length guarantees 90% repairable connections by re-cut, in case of thread damage. Increased upset length for multiple re-cuts available. TS6 TR version includes a PTFE ring, particular developed for internally plastic-coated tubing.



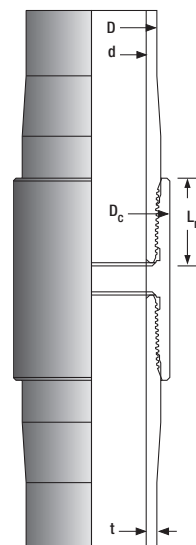
TPS Technitube Multiseal TS8 is a high-performance, premium, two-step integral connection for high-pressure service. Medium- and heavy-weight tubing. Two-step non-taper thread profile 8TPI and multiple metal-to-metal pressure seals and torque shoulders. Upset length guarantees 90% repairable connections by re-cut, in case of thread damage. Increased upset length for multiple re-cuts available. TS8 TR version includes a PTFE ring, particular developed for internally plastic-coated tubing.



TPS Technitube Optiflow couplings for standard API EUE and NUE tubing are gas-tight and eliminate flow turbulence, particularly developed for internally plastic-coated tubing. Modified, closer tolerance API 8RD threads incorporate pin-to-pin recess cross bridge for interior surface and coating continuity. Two profiled PTFE-seal rings placed in special profiled grooves in coupling thread profiles protect against corrosive attacks.



U.S. Steel-CDC is a modified API Buttress threaded and coupled connection that is specially designed, engineered and proven for casing drilling applications. This field-proven connection is ideal for casing drilling and other applications requiring the need for higher torques and rotation of the pipe. This connection is available in sizes 4% to 13%-in.



U.S. Steel-CDC HTQ is a high-torque connection that features a larger coupling OD, longer pins and carefully controlled thread tolerances. This connection is a superior choice for horizontal drilling, hydraulic fracturing and other applications requiring the need for higher torques and resistance to bending stresses. The connection is available in sizes 4% to 7-in.

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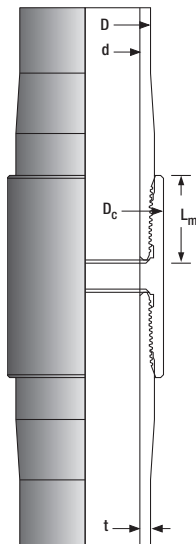
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We have been busy—aggressively on the move to meet the growing needs of energy customers around the world with the solutions and services they have come to expect. That includes the highest quality tubular connection and hydraulic power equipment, like our full line of Tubing, Casing and Drill Pipe power tongs. Onshore or offshore, rest assured that wherever you are, we are there.

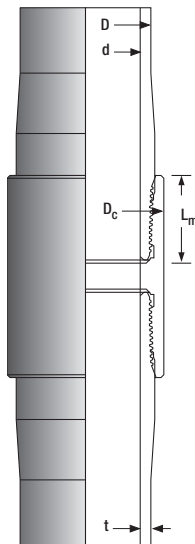
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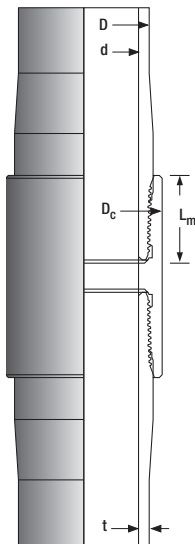




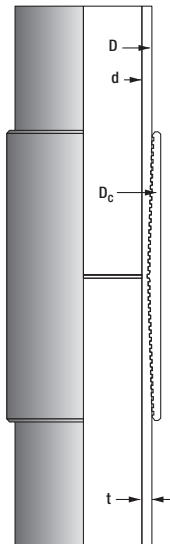
U.S. Steel-PATRIOT TC is one of the first premium connections specifically designed to overcome the challenging drilling conditions encountered in shale and other extended-reach drilling applications. This connection delivers features and benefits that manage the intense axial friction, drag and wear that are inevitable in extreme step-outs. The connection is available in sizes 4½ to 7½-in.



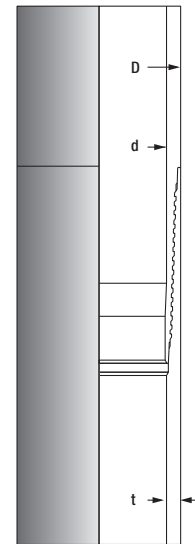
U.S. Steel-LIBERTY FJM is a flush joint connection with a true flush OD designed for clearance-critical applications. Such applications include use as a repair liner where casing has been damaged by corrosion or wear. The design of the thread form also addresses the issue of integrity under pressure by featuring both internal and external gas-tight, metal-to-metal seals. The connection is available in sizes 3½ to 7-in.



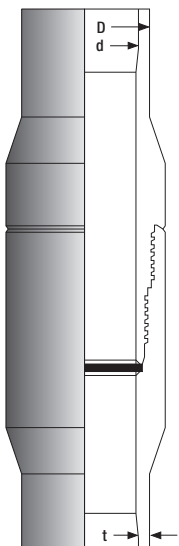
U.S. Steel-PATRIOT EBM is a premium tubing connection designed to perform in the most severe conditions, including high-pressure gas, high temperatures, corrosive service and thermal wells. The gas-tight seal delivers 100% internal pressure ratings ideal for deep horizontal and vertical wells. The connection is available in sizes 2½ to 4½-in.



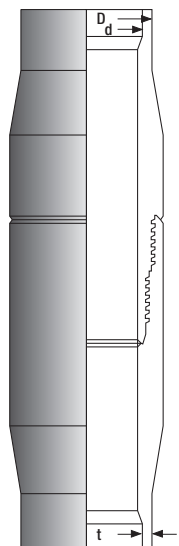
DW/C is a semi-premium threaded and coupled connection designed specifically for drilling with casing applications. Connector design features a patented fatigue-resistant groove in the coupling to increase fatigue life, along with a pin-to-pin torque shoulder system that greatly increases the amount 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 US Shale Plays, it is available with other options such as a High Torque option that provides torque capability above 30,000 ft-lb.



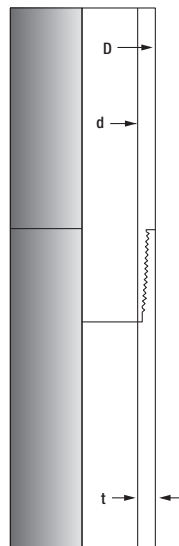
Vallourec USA HD-L is a premium flush OD connection that provides superior pressure resistance and structural integrity. Connector design features identical 5° radial metal-to-metal internal and external pressure seals rated to API internal and collapse pressure ratings for pipe body. It has a robust hooked thread form that resists cross-threading and jump-out, equal critical areas in tension and compression. It exhibits excellent resistance to cyclical, combined loading including bending, and has been successfully used for severe applications in straight and directional wells.



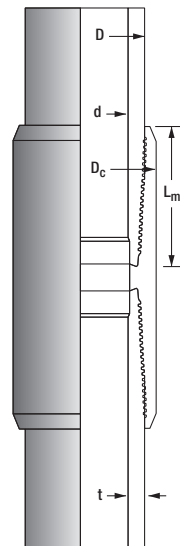
Vallourec USA RTS-6 PR and Special Clearance connections have a two-step thread that offers tensile, burst and collapse ratings equal to or exceeding that of the pipe body. Metal seals maintain pressure integrity while straight thread profile eliminates high connection stresses. Shoulders provide high compressive strength and high torque capabilities. For tubulars requiring internal plastic coating, a teflon and fiberglass ring (shown) is incorporated in connection box.



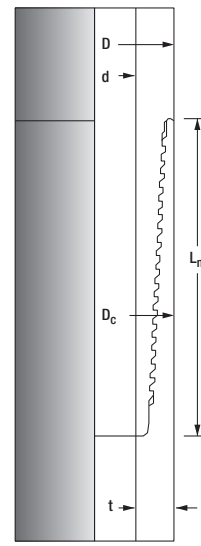
Vallourec USA RTS-8 PR and Special Clearance connections have a two-step thread that offers tensile, burst and collapse ratings equal to or exceeding that of the pipe body. Metal seals maintain pressure integrity while straight thread profile eliminates high connection stresses. Modified buttress thread and multiple torque shoulders provide high compressive strength and high torque capabilities. Available with PR ring.



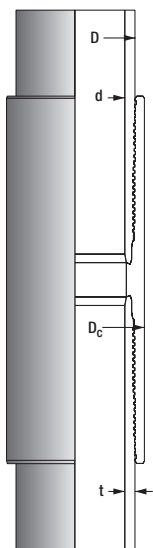
Vallourec USA ST-L is a flush OD premium tubing connection featuring negative-angle load flanks and twin lead threads to provide superior strength. Radial metal-to-metal seals and optional seal ring provide protection against internal and external pressures. Trapped 15° external torque shoulder withstands high make-up torque. Designed for easy stabbing and fast make-up.



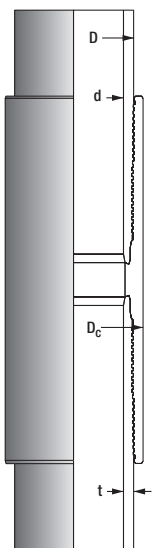
Vallourec USA TC-II is a premium threaded-and-coupled tubing and casing connection. Developed to replace the TC-4S, it features modified buttress tapered run-out thread, metal-to-metal internal radial flank seal, optional resilient teflon seal ring as backup to primary metal-to-metal seal, 15° reverse internal torque shoulder, smooth ID bore and minimized coupling OD. Performance exceeds pipe body ratings in internal pressure, external pressure, tension and compression.



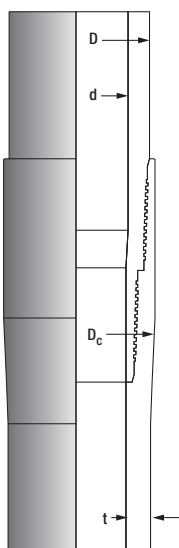
VAM FJL is a flush joint liner connection providing maximum running clearance and optimum strength for moderate depths. It offers true flush OD for maximum clearance, ID bored to greater than drift diameter and recess-free ID to reduce turbulence. Interference tapered thread has 15° reverse-load flank for load transmission and jump-out prevention, and 45° stabbing flank for easy running and resistance to damage. It also provides resistance to cross-threading. It is designed for 65% efficiency under tension on medium-wall tubing.



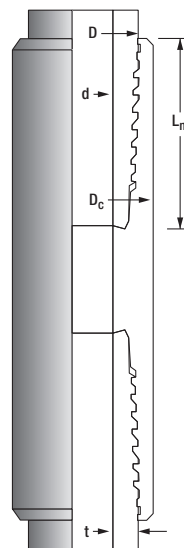
VAM 21 is the latest generation of T&C premium connection introducing an innovative and revolutionary design. Confidence thanks to ISO 13679 CAL-IV compliance within the full pipe body envelope extends the opportunities for your well designs. VAM 21 is the highest performing and most reliable VAM connection to date with excellent gas tight sealing under combined loads, extreme compression resistance (100%) and innovative VAM Effect with the VAM Stabilizer.



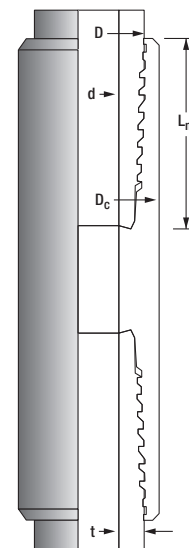
VAM 21 HT has the same design and performance as the VAM 21, except for an enhanced torque shoulder. This design is ideal for applications where high torque is anticipated, such as rotation during cementing operations or tight running in deviated and horizontal wells.



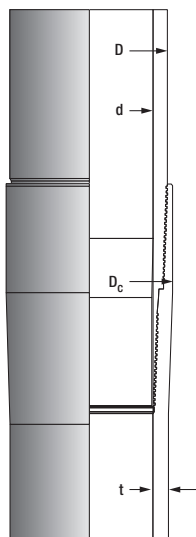
VAM SLIJ-II is a high-performance integral premium connection providing excellent gas sealability and machined-on plain-end pipe. The design combines a semi-flush OD with high tensile efficiencies and excellent structural integrity. Use VAM SLIJ-II when maximum clearance optimum joint strength is needed for production and intermediate casing, drilling liners and tie-backs.



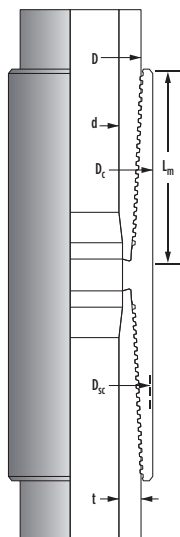
VAM TOP is the most widely used T&C premium connection, in tubing and casing sizes. It has become the standard for OCTG premium threads over the years, with the largest field record in the industry. VAM TOP product lines benefit from the most reliable performances, demonstrated through a large number of qualification tests such as ISO13679 CAL IV. The CLEANWELL option replaces both storage and running compounds.



VAM TOP HC (High Compression) and **VAM TOP HT** (High Torque) are two specific designs based on the main features of the VAM TOP connection. VAM TOP HT is ideal for applications where a high torque requirement may be anticipated. VAM TOP HC is the standard when applying extreme compressive loads to the string as a result of elevated temperature, severe bending, compaction, etc.



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



voestalpine Tubulars VAGT is a threaded-and-coupled connection with a metal-to-metal seal. 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.

**Benoit Premium
LLC — BTS-4**

Diagram p. T-110

Type: Integral, upset Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
4.500	21.60	3.500	0.500	5.500	---	6.283	6.588	4.76
4.500	24.00	3.380	0.560	5.563	---	6.932	7.224	4.76
4.500	26.50	3.240	0.630	5.688	---	7.660	7.938	4.76

**Benoit Premium Threading,
LLC — BTS-6**

Diagram p. T-110

Type: Integral, upset Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	5.95	1.867	0.254	2.906	2.782	1.692	1.856	3.05
2.375	6.20	1.853	0.261	2.938	2.794	1.733	1.885	3.05
2.375	7.70	1.703	0.336	3.125	3.002	2.152	2.290	3.05
2.875	7.90	2.323	0.276	3.438	3.312	2.254	2.444	3.04
2.875	8.70	2.259	0.308	3.500	3.365	2.484	2.672	3.04
2.875	9.50	2.195	0.340	3.625	3.419	2.708	2.910	3.04
2.875	10.70	2.091	0.392	3.688	3.595	3.058	3.237	3.04
3.500	12.95	2.750	0.375	4.313	4.189	3.682	4.395	3.35
3.500	15.80	2.548	0.476	4.500	4.367	4.522	5.216	3.35
4.000	13.40	3.340	0.330	4.625	4.514	3.805	4.117	3.32
4.500	15.50	3.826	0.337	5.125	5.021	4.407	4.743	3.34
4.500	19.20	3.640	0.430	5.313	5.170	5.498	5.922	3.34
5.500	17.00	4.892	0.304	5.920	---	4.962	4.981	3.52
5.500	20.00	4.778	0.361	6.000	---	5.828	5.834	3.52
5.500	23.00	4.670	0.415	6.090	---	6.630	6.624	3.52

**Benoit Premium Threading,
LLC — BTS-8**

Diagram p. T-110

Type: Integral, upset Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
1.050	1.20	0.824	0.113	1.327	1.300	0.333	0.527	2.22
1.050	1.50	0.742	0.154	1.327	---	0.433	0.527	2.22
1.315	1.80	1.049	0.133	1.552	1.525	0.494	0.726	2.22
1.315	2.25	0.957	0.179	1.600	---	0.639	0.729	2.22
1.660	2.40	1.380	0.140	1.883	1.858	0.669	0.747	2.22
1.660	3.02	1.278	0.191	1.927	---	0.881	0.909	2.22
1.660	3.24	1.264	0.198	1.927	---	0.909	0.943	2.22
1.900	2.90	1.610	0.145	2.113	2.094	0.799	0.864	2.22
1.900	3.64	1.500	0.200	2.162	---	1.068	1.074	2.22
1.900	4.19	1.462	0.219	2.179	---	1.157	1.185	2.22
2.063	3.25	1.751	0.156	2.335	2.295	0.935	1.024	2.23
2.063	4.50	1.613	0.225	2.460	2.407	1.299	1.407	2.23
2.375	4.70	1.995	0.190	2.700	2.655	1.304	1.392	2.31
2.375	5.30	1.939	0.218	2.750	2.700	1.477	1.558	2.31
2.875	6.50	2.441	0.217	3.220	3.166	1.812	1.862	2.39
3.500	9.30	2.992	0.254	3.915	3.859	2.590	2.755	2.84
3.500	10.30	2.922	0.289	3.915	3.914	2.915	2.982	2.84
4.000	11.00	3.476	0.262	4.405	4.359	3.077	3.264	2.84
4.500	12.75	3.958	0.271	4.920	4.861	3.600	3.827	2.89
4.500	13.50	3.920	0.290	4.955	4.890	3.836	3.979	2.89

**Benoit Premium Threading,
LLC — Echo/F4**

Diagram p. T-110

Type: Flush Seal: Metal-to-metal, seal ring

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.43	1.995	0.190	2.375	---	1.304	0.531	---
2.375	5.75	1.867	0.254	2.375	---	1.692	0.877	---
2.375	6.26	1.815	0.280	2.375	---	1.843	0.960	---
2.875	6.16	2.441	0.217	2.875	---	1.812	0.751	---
2.875	7.66	2.323	0.276	2.875	---	2.254	1.175	---
2.875	8.44	2.259	0.308	2.875	---	2.484	1.307	---
2.875	9.72	2.151	0.362	2.875	---	2.858	1.805	---
3.500	8.81	2.992	0.254	3.500	---	2.590	1.343	---
3.500	9.91	2.922	0.289	3.500	---	2.915	1.458	---
3.500	12.52	2.750	0.375	3.500	---	3.682	2.312	---
3.500	15.37	2.548	0.476	3.500	---	4.522	2.800	---
4.000	9.11	3.548	0.226	4.000	---	2.680	1.111	---
4.000	10.46	3.476	0.262	4.000	---	3.077	1.615	---
4.000	11.34	3.428	0.286	4.000	---	3.337	1.746	---
4.000	12.93	3.340	0.330	4.000	---	3.805	2.004	---
4.500	9.40	4.090	0.205	4.500	---	2.766	1.136	---
4.500	10.23	4.052	0.224	4.500	---	3.009	1.253	---
4.500	10.79	4.026	0.237	4.500	---	3.174	1.327	---
4.500	11.35	4.000	0.250	4.500	---	3.338	1.728	---
4.500	12.24	3.958	0.271	4.500	---	3.600	1.879	---
4.500	13.04	3.920	0.290	4.500	---	3.836	2.012	---
4.500	14.98	3.826	0.337	4.500	---	4.407	2.320	---
4.500	16.44	3.754	0.373	4.500	---	4.836	3.046	---
4.500	18.69	3.640	0.430	4.500	---	5.498	3.470	---
5.000	14.87	4.408	0.296	5.000	---	4.374	2.298	---
5.000	17.93	4.276	0.362	5.000	---	5.275	3.310	---

**Benoit Premium Threading,
LLC — Echo/SS**

Diagram p. T-110

Type: Integral, upset Seal: Threaded, seal ring

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
1.050	1.20	0.824	0.113	1.325	---	0.333	0.415	---
1.050	1.50	0.742	0.154	1.350	---	0.433	0.470	---
1.315	1.80	1.049	0.133	1.562	---	0.494	0.558	---
1.660	2.40	1.380	0.140	1.893	---	0.669	0.726	---
1.660	3.02	1.278	0.191	1.960	---	0.881	0.928	---
1.660	3.24	1.264	0.198	1.960	---	0.909	0.928	---
1.900	2.90	1.610	0.145	2.123	---	0.799	0.848	---
2.063	3.25	1.750	0.156	2.340	---	0.937	1.076	---
2.063	4.50	1.613	0.225	2.460	---	1.299	1.411	---
2.375	4.70	1.995	0.190	2.710	---	1.304	1.487	---
2.375	5.30	1.939	0.218	2.710	---	1.477	1.640	---
2.375	5.95	1.867	0.254	2.910	---	1.692	1.896	---
2.375	6.20	1.853	0.261	2.910	---	1.733	1.907	---
2.375	7.70	1.703	0.336	3.135	---	2.152	2.346	---
2.875	6.50	2.441	0.217	3.230	---	1.812	2.084	---
2.875	7.90	2.323	0.276	3.385	---	2.254	2.479	---
2.875	8.70	2.259	0.308	3.510	---	2.484	2.708	---
2.875	9.50	2.195	0.340	3.635	---	2.708	2.951	---
2.875	11.00	2.065	0.405	3.760	---	3.143	3.363	---
2.875	11.65	1.995	0.440	3.760	---	3.366	3.534	---
3.500	9.30	2.992	0.254	3.875	---	2.590	2.953	---
3.500	10.30	2.922	0.289	3.947	---	2.915	3.178	---
3.500	12.80	2.764	0.368	4.260	---	3.621	3.832	---
3.500	12.95	2.750	0.375	4.260	---	3.682	4.197	---
3.500	15.50	2.602	0.449	4.385	---	4.304	4.546	---
3.500	15.80	2.548	0.476	4.385	---	4.522	4.974	---

Halliburton — Oeco A & B

Diagram p. T-110

Type: Upset Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
1.315	1.80	0.955	0.133	1.552	1.525	0.494	0.574	2.23
1.315	2.25	0.848	0.179	1.600	---	0.639	0.727	2.23
1.660	2.40	1.286	0.140	1.883	1.858	0.669	0.717	2.23
1.660	3.02	1.184	0.198	1.927	---	0.909	0.938	2.23
1.660	3.24	1.184	0.191	1.927	---	0.881	0.904	2.23
1.900	2.90	1.516	0.145	2.113	2.094	0.799	0.861	2.23
1.900	3.64	1.406	0.200	2.162	---	1.068	1.071	2.23
1.900	4.19	1.368	0.219	2.179	---	1.157	1.182	2.23
2.063	3.25	1.657	0.156	2.330	2.295	0.935	1.012	2.23
2.063	4.50	1.519	0.225	2.460	2.407	1.299	1.394	2.23
2.375	4.70	1.901	0.190	2.700	2.655	1.304	1.377	2.31
2.375	5.30	1.845	0.218	2.750	2.700	1.477	1.543	2.31
2.875	6.50	2.347	0.217	3.210	3.166	1.812	1.848	2.39
3.500	9.30	2.867	0.254	3.915	3.859	2.590	2.744	2.84
3.500	10.30	2.797	0.289	3.980	3.914	2.915	2.971	2.84
4.500	12.75	3.833	0.271	4.920	4.861	3.600	3.792	2.89
4.500	13.50	3.795	0.290	4.955	4.890	3.836	3.944	2.89

Halliburton — Oeco C & D

Diagram p. T-110

Type: Upset Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	5.95	1.773	0.254	2.906	2.782	1.692	1.868	3.06
2.375	6.20	1.759	0.261	2.938	2.794	1.733	1.896	3.06
2.375	7.70	1.609	0.336	3.125	3.002	2.152	2.301	3.06
2.875	7.90	2.229	0.276	3.438	3.312	2.254	2.458	3.04
2.875	8.70	2.165	0.308	3.500	3.365	2.484	2.686	3.04
2.875	9.50	2.101	0.340	3.625	3.419	2.708	2.924	3.04
2.875	10.70	1.997	0.392	3.688	3.595	3.058	3.251	3.04
3.500	12.95	2.625	0.375	4.313	4.189	3.682	4.401	3.37
3.500	15.80	2.423	0.476	4.500	4.367	4.522	5.222	3.37
4.000	13.40	3.215	0.330	4.625	4			

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The image displays a collage of World Oil e-newsletter covers. The top cover is the 'World Oil DEEPWATER Report' dated October 29, 2012, featuring an offshore oil rig and a headline about a 'My livelihood relies on Delo' testimonial. Below it is the 'World Oil / GEOLGY & GEOPHYSICS REPORT' dated October 14, 2012, with a headline 'Maximizing mature reservoirs.' To the left is the 'World Oil SHALE ENERGY REPORT' dated October 24, 2012, featuring a 'WEBINAR INTERPRETATIONS OF MICROSEISMIC EVENTS' and a headline 'China unlikely to replicate U.S. shale gas boom'. At the bottom center is the 'World Oil / TECHNOLOGY NEWS' dated October 30, 2012, with a headline 'ASK ABOUT CUSTOM HYDRAULIC POWER UNITS STARTING AT \$125K'. Other visible covers include 'HANNON OFFSHORE DRILLING EQUIPMENT' and 'EVOLUTION THE CLEANER FASTER SMARTER DRILLING FLUID'. The collage also includes various news snippets and social media icons.

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The oil and gas industry, including Shell, has spent many millions of dollars acquiring wide-swath (WAZ) seismic data around the world. The industry also continues to develop seismic acquisition strategies and

Hunting — SEAL-LOCK FGL

Diagram p. T-110

Type: T&C Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.740	0.190	2.875	....	1.304	1.304	2.75
2.875	6.40	2.140	0.271	3.500	....	1.812	1.812	3.13
3.500	9.20	2.670	0.254	4.250	....	2.590	2.590	3.38
4.500	12.60	3.560	0.271	5.000	....	3.600	3.600	3.39

Hunting — SEAL-LOCK Flush

Diagram p. T-110

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

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.875	6.40	2.347	0.217	2.875	....	1.812	0.869	2.12
2.875	7.80	2.229	0.276	2.875	....	2.254	1.284	2.85
3.500	9.20	2.867	0.254	3.500	....	2.590	1.501	3.32
3.500	10.20	2.797	0.289	3.500	....	2.915	1.503	3.32
3.500	12.70	2.625	0.375	3.500	....	3.682	2.428	5.04
4.000	9.50	3.423	0.226	4.000	....	2.680	1.276	2.33
4.000	11.00	3.351	0.262	4.000	....	3.077	1.786	3.44
4.000	11.60	3.303	0.286	4.000	....	3.337	2.070	3.64
4.500	10.50	3.927	0.224	4.500	....	3.009	1.512	2.40
4.500	11.60	3.875	0.250	4.500	....	3.338	1.935	3.23
4.500	12.60	3.833	0.271	4.500	....	3.600	2.130	3.37
4.500	13.50	3.795	0.290	4.500	....	3.836	2.393	3.77
4.500	15.10	3.701	0.337	4.500	....	4.407	2.729	3.78
4.500	24.60	3.255	0.560	4.500	....	6.932	4.742	5.40

Hunting — SEAL-LOCK HD LOCK-IT

Diagram p. T-110

Type: T&C Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.875	2.690	1.304	1.304	3.03
2.375	5.10	1.845	0.218	2.875	2.731	1.477	1.477	3.03
2.375	5.80	1.773	0.254	2.875	2.781	1.692	1.692	3.03
2.375	6.00	1.759	0.261	2.875	2.791	1.733	1.733	3.03
2.875	6.40	2.347	0.217	3.500	3.225	1.812	1.812	3.21
2.875	7.80	2.229	0.276	3.500	3.312	2.254	2.254	3.21
2.875	8.60	2.165	0.308	3.500	3.356	2.484	2.484	3.21
3.500	9.20	2.867	0.254	4.250	3.896	2.590	2.590	3.47
3.500	10.20	2.797	0.289	4.250	3.949	2.915	2.915	3.47
3.500	12.70	2.625	0.375	4.250	4.071	3.682	3.682	3.47
4.000	9.50	3.423	0.226	4.750	4.320	2.680	2.680	3.92
4.000	11.00	3.351	0.262	4.750	4.378	3.077	3.077	3.92
4.000	11.60	3.303	0.286	4.750	4.416	3.337	3.337	3.92
4.000	13.40	3.215	0.330	4.750	4.483	3.805	3.805	3.92
4.000	19.00	2.875	0.500	4.750	4.718	5.498	5.498	3.92
4.500	11.00	3.901	0.237	5.000	4.858	3.174	3.174	3.70
4.500	11.60	3.875	0.250	5.000	4.879	3.338	3.338	3.70
4.500	12.60	3.833	0.271	5.000	4.914	3.600	3.600	3.70
4.500	13.50	3.795	0.290	5.000	4.944	3.836	3.836	3.70
4.500	15.20	3.701	0.337	5.000	5.000	4.407	4.407	3.70

Hunting — SEAL-LOCK HT

Diagram p. T-110

Type: T&C Seal: Threaded

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.063	3.25	1.657	0.156	2.450	2.342	0.935	0.935	2.07
2.375	4.60	1.901	0.190	2.875	2.707	1.304	1.304	2.22
2.375	5.20	1.845	0.218	2.875	2.748	1.477	1.477	2.22
2.375	5.80	1.773	0.254	2.875	2.798	1.692	1.692	2.22
2.375	6.00	1.759	0.261	2.875	2.807	1.733	1.733	2.22
2.875	6.40	2.347	0.217	3.500	3.247	1.812	1.812	2.47
2.875	7.80	2.229	0.276	3.500	3.333	2.254	2.254	2.47
2.875	8.60	2.165	0.308	3.500	3.377	2.484	2.484	2.47
2.875	10.50	1.997	0.392	3.500	3.484	3.059	3.059	2.47
3.500	9.20	2.867	0.254	4.250	3.916	2.590	2.590	2.99
3.500	10.20	2.797	0.289	4.250	3.968	2.915	2.915	2.99
3.500	12.70	2.625	0.375	4.250	4.090	3.682	3.682	2.99
4.000	9.50	3.423	0.226	4.500	4.376	2.680	2.680	3.08
4.000	11.00	3.351	0.262	4.500	4.434	3.077	3.077	3.08
4.000	11.60	3.303	0.286	4.500	4.471	3.337	3.337	3.08
4.500	11.60	3.875	0.250	5.000	4.910	3.338	3.338	3.34
4.500	12.60	3.833	0.271	5.000	4.944	3.600	3.600	3.34

Hunting — SEAL-LOCK XP

Diagram p. T-110

Type: Upset, integral Seal: Metal-to-metal, threaded

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.901	0.190	2.705	....	1.304	1.358	1.88
2.375	5.30	1.845	0.218	2.750	....	1.477	1.550	1.88
2.375	5.95	1.773	0.254	2.800	....	1.692	1.768	1.88
2.875	6.50	2.347	0.217	3.220	....	1.812	1.951	2.16
2.875	7.90	2.229	0.276	3.300	....	2.254	2.360	2.16
2.875	8.70	2.165	0.308	3.360	....	2.484	2.674	2.16
3.500	9.30	2.867	0.254	3.915	....	2.590	2.925	2.51
3.500	10.30	2.797	0.289	3.980	....	2.915	3.152	2.51
3.500	12.95	2.625	0.375	4.125	....	3.682	3.951	2.51
4.000	11.00	3.351	0.262	4.420	....	3.077	3.514	2.70
4.000	11.60	3.303	0.286	4.450	....	3.337	3.647	2.70
4.000	13.40	3.215	0.330	4.500	....	3.805	4.129	2.70
4.500	11.60	3.875	0.250	4.850	....	3.338	3.338	2.89
4.500	12.75	3.833	0.271	4.900	....	3.600	3.996	2.89
4.500	13.50	3.795	0.290	4.950	....	3.836	4.323	2.89
4.500	15.50	3.701	0.337	5.000	....	4.407	4.771	2.89

Hunting — TKC 4040 Convertible

Diagram p. T-110

Type: NUE, T&C Seal: Thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.875	2.725	1.304	1.230	2.87
2.375	5.80	1.773	0.254	2.875	2.725	1.692	1.618	2.87
2.875	6.40	2.347	0.217	3.500	3.275	1.812	1.722	2.87
2.875	7.80	2.229	0.276	3.500	3.275	2.254	2.164	2.87
2.875	8.60	2.165	0.308	3.500	3.275	2.484	2.394	2.87
3.500	9.20	2.867	0.254	4.250	4.000	2.590	2.481	2.87
3.500	10.20	2.797	0.289	4.250	4.000	2.915	2.806	2.87
3.500	12.70	2.625	0.375	4.250	4.000	3.682	3.572	2.87
4.000	9.50	3.423	0.226	4.750	4.485	2.680	2.554	2.87
4.000	11.00	3.351	0.262	4.750	4.485	3.077	2.951	2.87
4.500	11.60	3.875	0.250	5.000	5.000	3.338	3.390	2.87
4.500	12.60	3.833	0.271	5.000	5.000	3.600	3.459	2.87

Hunting — TKC 4040 HO

Diagram p. T-112

Type: NUE, T&C Seal: Thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.875	2.725	1.304	1.230	2.50
2.375	5.80	1.773	0.254	2.875	2.725	1.692	1.618	2.50
2.875	6.40	2.347	0.217	3.500	3.275	1.812	1.722	2.50
2.875	7.80	2.229	0.276	3.500	3.275	2.254	2.164	2.50
2.875	8.60	2.165	0.308	3.500	3.275	2.484	2.394	2.50
3.500	9.20	2.867	0.254	4.250	4.000	2.590	2.481	2.50
3.500	10.20	2.797	0.289	4.250	4.000	2.915	2.806	2.50
3.500	12.70	2.625	0.375	4.250	4.000	3.682	3.572	2.50
4.000	9.50	3.423	0.226	4.750	4.485	2.680	2.554	2.50
4.000	11.00	3.351	0.262	4.750	4.485	3.077	2.951	2.50
4.500	11.60	3.875	0.250	5.000	5.000	3.338	3.970	2.50
4.500	12.60	3.833	0.271	5.000	5.000	3.600	3.459	2.50

Hunting — TKC 4040 HO-I

Diagram p. T-112

Type: NUE, T&C Seal: Thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.875	2.725	1.304	1.230	2.50
2.375	5.80	1.773	0.254	2.875	2.725	1.692	1.618	2.50
2.875	6.40	2.347	0.217	3.500	3.275	1.812	1.722	2.50
2.875	7.80	2.229	0.276	3.500	3.275	2.254	2.164	2.50
2.875	8.60	2.165	0.308	3.500	3.275	2.484	2.394	2.50
3.500	9.20	2.867	0.254	4.250	4.000	2.590	2.481	2.50
3.500	10.20	2.797	0.289	4.250	4.000	2.915	2.806	2.50
3.500	12.70	2.625	0.375	4.250	4.000	3.682	3.572	2.50
4.000	9.50	3.423	0.226	4.750	4.485	2.680	2.554	2.50
4.000	11.00	3.351	0.262	4.750	4.485	3.077	2.951	2.50
4.500	11.60	3.875	0.250	5.000	5.000	3.338	3.970	2.50
4.500	12.60	3.833	0.271	5.000	5.000	3.600	3.459	2.50

Hunting — TKC 4040 RTC

Diagram p. T-112

Type: NUE, T&C Seal: Thread

D	w	d	t	D _c
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Hunting — TKC Convertible

Diagram p. T-112

Type: EUE, T&C Seal: Thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.901	0.190	3.063	2.910	1.304	1.594	1.99
2.375	5.95	1.773	0.254	3.063	2.910	1.692	1.982	1.99
2.875	6.50	2.347	0.217	3.668	3.460	1.812	2.162	2.18
2.875	7.90	2.229	0.276	3.668	3.460	2.254	2.604	2.18
2.875	8.70	2.165	0.308	3.668	3.460	2.484	2.834	2.18
3.500	9.30	2.867	0.254	4.500	4.180	2.590	3.190	2.43
3.500	10.30	2.797	0.289	4.500	4.180	2.915	3.515	2.43
3.500	12.95	2.625	0.375	4.500	4.180	3.682	4.282	2.43
4.000	11.00	3.351	0.262	5.000	4.625	3.077	3.761	2.56
4.500	12.75	3.833	0.271	5.563	5.125	3.600	4.369	2.68

Hunting — TKC MMS

Diagram p. T-112

Type: EUE, T&C Seal: Thread, elastomeric

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.901	0.190	3.063	2.910	1.304	1.594	2.34
2.375	5.95	1.773	0.254	3.063	2.910	1.692	1.982	2.34
2.875	6.50	2.347	0.217	3.668	3.460	1.812	2.162	2.53
2.875	7.90	2.229	0.276	3.668	3.460	2.254	2.604	2.53
2.875	8.70	2.165	0.308	3.668	3.460	2.484	2.834	2.53
3.500	9.30	2.867	0.254	4.500	4.180	2.590	3.190	2.78
3.500	10.30	2.797	0.289	4.500	4.180	2.915	3.515	2.78
3.500	12.95	2.625	0.375	4.500	4.180	3.682	4.282	2.78
4.000	11.00	3.351	0.262	5.000	4.594	3.077	3.761	2.90
4.500	12.75	3.833	0.271	5.563	5.094	3.600	4.369	3.03

Hunting — TKC FJ-150

Diagram p. T-112

Type: Flush Seal: Thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.995	0.190	2.375	-	1.304	0.610	2.36
2.375	5.80	1.867	0.254	2.375	-	1.692	0.846	2.86
2.875	5.90	2.469	0.203	2.875	-	1.704	0.852	2.86
2.875	6.40	2.441	0.217	2.875	-	1.812	0.906	2.86
2.875	7.80	2.323	0.276	2.875	-	2.254	1.178	3.36
2.875	8.60	2.259	0.308	2.875	-	2.484	1.293	3.36
3.500	7.70	3.068	0.216	3.500	-	2.228	1.114	2.86
3.500	9.20	2.992	0.254	3.500	-	2.590	1.295	2.86
3.500	10.20	2.922	0.289	3.500	-	2.915	1.585	3.86
3.500	12.70	2.750	0.375	3.500	-	3.682	1.964	3.86
4.000	9.50	3.548	0.226	4.000	-	2.680	1.340	2.86
4.000	11.00	3.476	0.262	4.000	-	3.077	1.538	2.86
4.500	10.50	4.052	0.224	4.500	-	3.009	1.505	2.86
4.500	11.60	4.000	0.250	4.500	-	3.338	1.669	2.86
4.500	13.50	3.920	0.290	4.500	-	3.836	2.083	3.86
4.500	15.20	3.826	0.337	4.500	-	4.407	2.368	3.86

Hunting — TS-HD

Diagram p. T-112

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	5.95	1.773	0.254	2.906	2.782	1.692	1.692	3.04
2.375	6.20	1.759	0.261	2.938	2.794	1.733	1.733	3.04
2.375	7.70	1.609	0.336	3.125	3.002	2.152	2.152	3.04
2.875	7.90	2.229	0.276	3.438	3.312	2.254	2.254	3.03
2.875	8.70	2.165	0.308	3.500	3.365	2.484	2.484	3.03
2.875	9.50	2.101	0.340	3.625	3.419	2.708	2.708	3.03
2.875	10.70	1.997	0.392	3.688	3.595	3.058	3.058	3.03
3.500	12.95	2.625	0.375	4.313	4.189	3.682	3.682	3.34
3.500	15.80	2.423	0.476	4.500	4.474	4.522	4.522	3.34
4.000	13.40	3.215	0.330	4.625	4.514	3.805	3.805	3.31
4.500	15.50	3.701	0.337	5.125	5.021	4.407	4.407	3.34
4.500	19.20	3.515	0.430	5.313	5.170	5.498	5.498	3.34

Hunting — TS-HP

Diagram p. T-112

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
1.050	1.20	0.730	0.113	1.327	1.300	0.333	0.333	2.22
1.050	1.50	0.648	0.154	1.327	....	0.433	0.433	2.22
1.315	1.80	0.955	0.133	1.552	1.525	0.494	0.494	2.22
1.315	2.25	0.848	0.179	1.600	....	0.639	0.639	2.22
1.660	2.40	1.286	0.140	1.883	1.858	0.669	0.669	2.22
1.660	3.02	1.184	0.191	1.927	....	0.881	0.881	2.22
1.660	3.24	1.170	0.198	1.927	....	0.909	0.909	2.22
1.900	2.90	1.516	0.145	2.113	2.094	0.799	0.799	2.22
1.900	3.64	1.406	0.200	2.162	....	1.068	1.068	2.22
1.900	4.19	1.368	0.219	2.179	....	1.157	1.157	2.22
2.063	3.25	1.657	0.156	2.335	2.295	0.935	0.935	2.22
2.063	4.50	1.519	0.225	2.460	2.407	1.299	1.299	2.22
2.375	4.70	1.901	0.190	2.705	2.655	1.304	1.304	2.30
2.375	5.30	1.845	0.218	2.750	2.700	1.477	1.477	2.30
2.875	6.50	2.347	0.217	3.220	3.166	1.812	1.812	2.38
3.500	9.30	2.867	0.254	3.915	3.859	2.590	2.590	2.83
3.500	10.30	2.797	0.289	3.980	3.914	2.915	2.915	2.83
4.000	11.00	3.351	0.262	4.417	4.359	3.077	3.077	2.83
4.500	12.75	3.833	0.271	4.920	4.861	3.600	3.600	2.88
4.500	13.50	3.795	0.290	4.955	4.890	3.836	3.836	2.88

JFE Steel/Hunting — FOX

Diagram p. T-112

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.723	....	1.304	1.482	2.31
2.375	5.80	1.773	0.254	2.782	....	1.692	1.738	2.31
2.875	6.40	2.347	0.217	3.297	....	1.812	2.256	2.68
2.875	7.80	2.229	0.276	3.297	....	2.254	2.256	2.68
2.875	8.60	2.165	0.308	3.412	....	2.484	2.862	2.68
3.500	7.70	2.943	0.216	3.878	....	2.228	2.598	3.14
3.500	9.20	2.867	0.254	3.878	....	2.590	2.598	3.14
3.500	10.20	2.797	0.289	4.053	....	2.915	3.688	3.14
3.500	12.70	2.625	0.375	4.053	....	3.682	3.688	3.14
3.500	15.50	2.423	0.476	4.150	....	4.522	4.313	3.14
4.000	9.50	3.423	0.226	4.378	....	2.680	3.083	3.47
4.000	10.70	3.351	0.262	4.378	....	3.077	3.083	3.47
4.000	13.20	3.215	0.330	4.556	....	3.805	4.332	3.47
4.500	10.50	3.927	0.224	5.000	4.882	3.009	4.374	4.44
4.500	11.60	3.875	0.250	5.000	4.882	3.338	4.374	4.44
4.500	12.60	3.833	0.271	5.000	4.882	3.600	4.374	4.44
4.500	13.50	3.795	0.290	5.000	4.882	3.836	4.374	4.44
4.500	15.10	3.701	0.337	5.000	4.882	4.407	4.374	4.44
4.500	18.90	3.515	0.430	5.000	4.882	5.498	4.374	4.44
4.500	21.50	3.375	0.500	5.000	4.882	6.283	4.374	4.44
4.500	23.70	3.255	0.560	5.000	4.882	6.932	4.374	4.44
5.000	13.00	4.369	0.253	5.563	5.391	3.773	5.487	4.64
5.000	15.00	4.283	0.296	5.563	5.391	4.374	5.487	4.64
5.000	18.00	4.151	0.362	5.563	5.391	5.275	5.487	4.64
5.000	21.40	4.001	0.437	5.563	5.391	6.264	5.487	4.64
5.000	23.20	3.919	0.478	5.563	5.391	6.791	5.487	4.64
5.000	24.10	3.875	0.500	5.563	5.391	7.069	5.487	4.64

JFE Steel—JFEBear

Diagram p. T-112

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.728	....	1.304	1.494	2.30
2.375	5.80	1.773	0.254	2.826	....	1.692	1.921	2.30
2.375	6.60	1.691	0.295	2.883	....	1.928	2.177	2.30
2.375	7.35	1.609	0.336	2.883	....	2.152	2.177	2.30
2.875	6.40	2.347	0.217	3.304	....	1.812	2.280	2.67
2.875	7.80	2.229	0.276	3.368	....	2.254	2.615	2.67
2.875	8.60	2.165	0.308	3.391	....	2.484	2.737	2.67
2.875	9.35	2.101	0.340	3.391	....	2.708	2.737	2.67
2.875	10.50	1.997	0.392	3.514	....	3.058	3.405	2.67
2.875	11.50	1.901	0.440	3.514	....	3.366	3.405	2.67
3.500	7.70	2.943	0.216	3.883	....	2.228	2.619	3.13
3.500	9.20	2.867	0.254	3.883	....	2.590	2.619	3.13
3.500	10.20	2.797	0.289	4.000	....	2.915	3.343	3.13
3.500	12.70	2.625	0.375	4.122	....	3.682	4.122	3.13
3.500	14.30	2.515	0.430	4.191	....	4.147	4.572	3.13
3.500	15.50	2.423	0.476	4.191	....	4.522	4.572	3.13
3.500	17.00	2.315	0.530	4.255	....	4.945	4.997	3.13
4.000	9.50	3.423	0.226	4.384	....	2.680	3.113	3.48
4.000	10.70	3.351	0.262	4.450	....	3.07		

Metal One Corp — Flushmax-II

Diagram p. T-112

Type : Non-upset, integral flush Seal : Threaded

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
4.500	10.50	4.052	0.224	4.500	....	3.008	1.564	2.35
4.500	11.60	4.000	0.250	4.500	....	3.336	1.735	2.35
4.500	12.75	3.958	0.271	4.500	....	3.599	1.871	2.35
4.724	12.90	3.956	0.271	4.724	....	3.789	1.970	2.35
5.000	15.00	4.408	0.296	5.000	....	4.372	2.273	2.40
5.000	18.00	4.276	0.362	5.000	....	5.272	2.741	2.40
5.500	15.50	4.950	0.275	5.500	....	4.512	2.346	2.45
5.500	17.00	4.892	0.304	5.500	....	4.960	2.579	2.45

Metal One Corp — Supermax

Diagram p. T-112

Type: Coupled Seal: Threaded, resilient (optional)

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.063	3.24	1.751	0.156	2.375	....	0.935	2.254	1.19
2.375	4.60	1.995	0.190	2.875	2.700	1.304	2.254	2.73
2.375	5.10	1.939	0.218	2.875	2.700	1.477	2.254	2.73
2.375	5.80	1.867	0.254	2.875	2.750	1.692	2.254	2.73
2.875	6.40	2.441	0.217	3.500	3.250	1.812	3.356	2.79
2.875	7.70	2.323	0.276	3.500	3.300	2.254	3.356	2.79
2.875	8.60	2.259	0.308	3.500	3.350	2.484	3.356	2.79
3.500	7.70	3.068	0.216	4.250	3.850	2.228	4.836	3.04
3.500	9.20	2.992	0.254	4.250	3.900	2.590	4.836	3.04
3.500	10.20	2.922	0.289	4.250	4.000	2.915	4.836	3.04
4.000	9.50	3.548	0.226	4.750	4.400	2.680	5.559	3.04
4.000	10.90	3.476	0.262	4.750	4.450	3.077	5.559	3.04
4.000	13.00	3.340	0.330	4.750	4.550	3.805	5.559	3.04
4.000	14.80	3.240	0.380	4.750	4.650	4.322	5.559	3.04
4.500	10.50	4.052	0.224	5.000	4.900	3.009	4.410	3.29
4.500	11.60	4.000	0.250	5.000	4.950	3.338	4.410	3.29
4.500	12.75	3.958	0.271	5.000	4.950	3.600	4.410	3.29
4.500	13.50	3.920	0.290	5.000	5.000	3.836	4.410	3.29
4.500	15.10	3.826	0.337	5.000	5.000	4.407	4.410	3.29
5.000	13.00	4.494	0.253	5.563	5.375	3.773	5.384	1.95
5.000	15.00	4.408	0.296	5.563	5.500	4.374	5.384	1.95
5.000	18.00	4.276	0.362	5.563	....	5.275	5.384	1.95

Metal One Corp — Supermax-TS

Diagram p. T-114

Type: Coupled Seal: Threaded, resilient (optional)

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.995	0.190	2.875	2.700	1.304	2.254	2.85
2.375	5.10	1.939	0.218	2.875	2.700	1.477	2.254	2.85
2.375	5.80	1.867	0.254	2.875	2.750	1.692	2.254	2.85
2.875	6.40	2.441	0.217	3.500	3.250	1.812	3.356	2.91
2.875	7.70	2.323	0.276	3.500	3.300	2.254	3.356	2.91
2.875	8.60	2.259	0.308	3.500	3.350	2.484	3.356	2.91
3.500	7.70	3.068	0.216	4.250	3.850	2.228	4.836	3.16
3.500	9.20	2.992	0.254	4.250	3.900	2.590	4.836	3.16
3.500	10.20	2.922	0.289	4.250	4.000	2.915	4.836	3.16
4.000	9.50	3.548	0.226	4.750	4.400	2.680	5.559	3.16
4.000	10.90	3.476	0.262	4.750	4.450	3.077	5.559	3.16
4.000	13.00	3.340	0.330	4.750	4.550	3.805	5.559	3.16
4.000	14.80	3.240	0.380	4.750	4.650	4.322	5.559	3.16
4.500	10.50	4.052	0.224	5.000	4.900	3.009	4.410	3.41
4.500	11.60	4.000	0.250	5.000	4.950	3.338	4.410	3.41
4.500	12.75	3.958	0.271	5.000	4.950	3.600	4.410	3.41
4.500	13.50	3.920	0.290	5.000	5.000	3.836	4.410	3.41
4.500	15.10	3.826	0.337	5.000	5.000	4.407	4.410	3.41

Metal One Corp — MO-EUTT

Diagram p. T-114

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.995	0.190	3.060	....	1.304	1.782	2.265
2.375	5.10	1.939	0.218	3.060	....	1.477	1.955	2.265
2.375	5.80	1.867	0.254	3.060	....	1.692	2.170	2.265
2.875	7.70	2.323	0.276	3.688	....	2.254	2.665	2.390
2.875	8.60	2.259	0.308	3.688	....	2.484	2.895	2.390
3.500	9.20	2.992	0.254	4.250	....	2.590	4.964	2.515
3.500	10.20	2.922	0.289	4.250	....	2.915	3.560	2.515
4.500	11.60	4.000	0.250	5.250	....	3.338	3.713	2.700
4.500	12.75	3.958	0.271	5.250	....	3.600	3.975	2.700
4.500	13.50	3.920	0.290	5.250	....	3.836	4.210	2.700
4.500	15.10	3.826	0.337	5.250	....	4.407	4.782	2.700

NOV Fiber Glass Systems, L.P. —

Diagram p. T-114

Aliphatic Amine Cured Epoxy (Up to 200°F)

Type: OD 8 Round, T&C Seal: Thread lubricant compression

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m	Pressure (psi)
1.740	0.70	1.346	0.150	2.800	....	....	....	2.06	1,500
1.740	0.70	1.346	0.150	2.800	....	....	....	2.06	2,000
1.870	1.10	1.346	0.210	3.050	....	....	....	2.06	3,000
1.890	1.10	1.346	0.230	2.900	....	....	....	2.06	2,500
1.960	1.30	1.346	0.260	3.150	....	....	....	2.06	3,500
2.040	1.50	1.346	0.300	3.300	....	....	....	2.06	4,000
2.220	0.80	1.615	0.140	3.250	....	....	....	2.56	1,250
2.330	1.10	1.846	0.190	3.250	....	....	....	2.56	1,500
2.330	1.20	1.846	0.190	3.400	....	....	....	2.56	1,750
2.370	1.40	1.846	0.220	3.400	....	....	....	2.56	2,000
2.470	1.70	1.846	0.270	3.600	....	....	....	2.56	2,500
2.510	1.80	1.846	0.280	3.700	....	....	....	2.56	3,000
2.570	2.10	1.846	0.310	3.900	....	....	....	2.56	3,500
2.600	2.30	1.846	0.330	4.100	....	....	....	2.56	4,000
2.640	1.10	2.276	0.140	3.800	....	....	....	2.88	1,000
2.720	1.30	2.276	0.180	3.800	....	....	....	2.88	1,500
2.780	1.60	2.276	0.210	4.000	....	....	....	2.88	1,750
2.780	1.60	2.276	0.210	4.000	....	....	....	2.88	2,000
2.850	1.90	1.850	0.240	4.100	....	....	....	2.88	2,250
2.900	2.00	2.276	0.270	4.200	....	....	....	2.88	2,500
2.980	2.40	2.276	0.310	4.400	....	....	....	3.13	3,000
2.980	2.40	2.276	0.310	4.400	....	....	....	3.13	3,000
3.070	2.80	2.276	0.350	4.600	....	....	....	3.13	3,500
3.260	1.50	2.815	0.160	4.600	....	....	....	3.13	1,000
3.340	1.90	2.815	0.200	4.600	....	....	....	3.13	1,500
3.390	2.00	2.815	0.220	4.800	....	....	....	3.75	1,750
3.440	2.30	2.815	0.250	4.800	....	....	....	3.75	2,000
3.580	2.90	2.815	0.320	5.100	....	....	....	3.50	2,500
3.700	3.50	2.815	0.380	5.250	....	....	....	3.75	3,000
3.740	2.40	3.205	0.210	5.000	....	....	....	3.75	1,000
3.950	5.60	2.815	0.510	7.200	....	....	....	3.50	4,000
4.270	2.60	3.725	0.210	5.800	....	....	....	3.50	1,000
4.420	3.50	3.725	0.290	5.800	....	....	....	3.50	1,500
4.430	3.60	3.725	0.290	6.100	....	....	....	4.38	1,750
4.440	6.30	3.205	0.560	7.200	....	....	....	4.38	4,000
4.560	4.40	3.725	0.360	6.100	....	....	....	4.38	2,000
4.680	5.10	3.725	0.420	6.400	....	....	....	4.38	2,500
4.830	6.80	3.725	0.490	7.600	....	....	....	4.38	3,000
5.040	8.20	3.725	0.600	7.900	....	....	....	4.38	3,500
5.180	8.70	3.725	0.670	8.200	....	....	....	4.38	4,000
5.230	3.700	4.615	0.250	6.250	....	....	....	4.38	1,000
5.410	4.900	4.615	0.340	6.600	....	....	....	4.38	1,500
5.480	5.400	4.615	0.370	6.750	....	....	....	4.38	1,750
5.480	5.500	4.615	0.370	7.000	....	....	....	4.38	2,000

NOV Fiber Glass Systems, L.P. —

Diagram p. T-114

Aliphatic Amine Cured Epoxy (Up to 200°F)

Type: OD 8 Round, intregal joint Seal: Thread lubricant compression

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m	Pressure (psi)
1.740	0.70	1.346	0.150	2.600	....	....	....	2.06	1,500
1.740	0.70	1.346	0.150	2.700	....	....	....	2.06	2,000
1.870	1.10	1.346	0.210	3.000	....	....	....	2.06	3,000
1.890	1.10	1.346	0.230	2.800	....	....	....	2.06	2,500
1.960	1.30	1.346	0.260	3.200	....	....	....	2.06	3,500
2.040	1.50	1.346	0.300	3.300	....	....	....	2.06	4,000
2.220	0.80	1.615	0.140	3.100	....	....	....	2.56	1,250
2.330	1.10	1.846	0.190	3.200	....	....	....	2.56	1,500
2.330	1.20	1.846	0.190	3.300	....	....	....	2.56	1,750
2.370	1.40	1.846	0.220	3.400	....	....	....	2.56	2,000
2.470	1.70	1.846	0.270	3.500	....	....	....	2.56	2,500
2.510	1.80	1.846	0.280						

NOV Fiber Glass Systems, L.P. — Diagram p. T-114

Anhydride Cured Epoxy (Up to 150°F)

Type: OD 8 Round, integral joint Seal: Thread lubricant compression

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m	Pressure (psi)
1.721	0.72	1.406	0.110	2.478	....	....	....	2.06	1,500
1.803	0.83	1.406	0.151	2.627	....	....	....	2.06	2,000
1.890	1.02	1.406	0.195	2.806	....	....	....	2.06	2,500
2.242	0.93	1.906	0.121	2.968	....	....	....	2.56	1,250
2.294	1.07	1.906	0.147	3.069	....	....	....	2.56	1,500
2.404	1.44	1.906	0.202	3.250	....	....	....	2.56	2,000
2.724	1.28	2.336	0.147	3.565	....	....	....	2.88	1,250
2.787	1.55	2.336	0.179	3.645	....	....	....	2.88	1,500
2.853	1.72	2.336	0.211	3.796	....	....	....	2.88	1,750
2.920	2.00	2.336	0.245	3.873	....	....	....	2.88	2,000
3.363	1.98	2.875	0.181	4.323	....	....	....	3.13	1,250
3.441	2.21	2.875	0.221	4.426	....	....	....	3.13	1,500
3.522	2.55	2.875	0.261	4.560	....	....	....	3.13	1,750
3.606	3.11	2.875	0.303	4.734	....	....	....	3.13	2,000
4.383	3.25	3.785	0.236	5.503	....	....	....	3.50	1,250
4.485	3.54	3.785	0.288	5.653	....	....	....	3.50	1,500
4.507	4.62	3.625	0.378	5.972	....	....	....	3.50	2,000
4.591	4.25	3.785	0.340	5.816	....	....	....	3.50	1,750
5.437	5.61	4.615	0.349	6.593	....	....	....	4.38	1,500

NOV Fiber Glass Systems, L.P. — Diagram p. T-114

Aromatic Amine Cured Epoxy (Up to 200°F)

Type: OD 8 Round, integral joint Seal: Thread lubricant compression

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m	Pressure (psi)
1.825	0.92	1.406	0.162	2.800	....	....	....	2.06	1,750
1.895	1.08	1.406	0.198	2.800	....	....	....	2.06	2,000
2.005	1.35	1.406	0.252	2.900	....	....	....	2.06	2,500
2.326	1.19	1.906	0.163	3.250	....	....	....	2.06	1,250
2.397	1.40	1.906	0.198	3.250	....	....	....	2.56	1,500
2.439	1.54	1.906	0.219	3.400	....	....	....	2.56	1,750
2.507	1.75	1.906	0.253	3.400	....	....	....	2.56	2,000
2.512	2.12	1.786	0.316	3.600	....	....	....	2.56	2,500
2.822	1.71	2.336	0.196	3.800	....	....	....	2.56	1,250
2.864	1.85	2.336	0.217	3.800	....	....	....	2.88	1,500
2.931	2.13	2.336	0.250	4.000	....	....	....	2.88	1,750
2.973	2.98	2.136	0.371	4.200	....	....	....	2.88	2,500
3.041	2.53	2.336	0.305	4.000	....	....	....	2.88	2,000
3.373	3.29	2.595	0.326	4.800	....	....	....	2.88	2,000
3.444	2.41	2.875	0.222	4.600	....	....	....	3.13	1,250
3.558	2.89	2.875	0.279	4.600	....	....	....	3.13	1,500
3.602	4.33	2.595	0.441	5.100	....	....	....	3.13	2,500
3.626	3.24	2.875	0.313	4.800	....	....	....	3.13	1,750
4.407	6.73	3.225	0.528	6.400	....	....	....	3.13	2,500
4.474	3.97	3.785	0.282	5.800	....	....	....	3.50	1,250
4.539	5.31	3.625	0.394	6.100	....	....	....	3.50	1,750
4.588	4.59	3.785	0.339	5.800	....	....	....	3.50	1,500
4.649	5.91	3.625	0.450	6.100	....	....	....	3.50	2,000

NOV Fiber Glass Systems, L.P. — Diagram p. T-114

Centron Tubing (Up to 210°F)

Type: OD 4 Round Mechanical O-Ring Thread, integral joint Seal: Thread lubricant compression

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m	Pressure (psi)
1.950	0.930	1.506	0.175	2.950	....	....	....	4.50	2,000
2.020	1.150	1.506	0.210	3.050	....	....	....	4.50	2,500
2.060	1.300	1.506	0.230	3.150	....	....	....	4.50	3,000
2.150	1.630	1.506	0.275	3.250	....	....	....	4.50	3,500
2.310	1.150	1.856	0.180	3.350	....	....	....	4.50	1,500
2.390	1.450	1.856	0.220	3.450	....	....	....	4.50	2,000
2.500	1.720	1.856	0.275	3.550	....	....	....	4.50	2,500
2.570	2.040	1.856	0.310	3.650	....	....	....	4.50	3,000
2.610	2.180	1.856	0.330	3.700	....	....	....	4.50	3,500
2.860	1.550	1.856	0.190	4.000	....	....	....	4.50	1,500
2.940	1.850	2.386	0.230	4.200	....	....	....	4.50	2,000
3.080	2.400	2.386	0.300	4.400	....	....	....	4.50	2,500
3.180	2.800	2.386	0.350	4.500	....	....	....	4.50	3,000
3.360	1.750	2.386	0.190	4.500	....	....	....	4.50	1,200
3.440	1.900	2.855	0.230	4.700	....	....	....	4.50	1,500
3.540	2.650	2.855	0.280	4.850	....	....	....	4.50	2,000
3.600	2.900	2.855	0.310	4.900	....	....	....	4.50	2,500
4.380	2.500	2.855	0.200	5.550	....	....	....	4.50	1,000
4.440	2.700	3.855	0.230	5.600	....	....	....	4.50	1,200
4.560	3.500	3.855	0.290	5.750	....	....	....	4.50	1,500
4.720	4.500	3.855	0.370	5.850	....	....	....	4.50	2,000
4.840	5.400	3.855	0.430	6.000	....	....	....	4.50	2,500

NS Connection Technology — Diagram p. T-114

NS-CT

Type: Coupled Seal: Metal to Metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.995	0.190	2.776	....	1.304	....	2.68
2.375	5.10	1.939	0.218	2.815	....	1.477	....	2.68
2.375	5.80	1.867	0.254	2.858	....	1.692	....	2.68
2.375	6.20	1.853	0.261	2.866	....	1.733	....	2.68
2.375	7.70	1.703	0.336	2.953	....	2.152	....	2.68
2.875	6.40	2.441	0.217	3.272	....	1.812	....	3.04
2.875	7.90	2.323	0.276	3.370	....	2.254	....	3.04
2.875	8.60	2.259	0.308	3.421	....	2.484	....	3.04
2.875	9.50	2.195	0.340	3.469	....	2.708	....	3.04
2.875	9.80	2.152	0.362	3.500	....	2.858	....	3.04
2.875	10.70	2.091	0.392	3.539	....	3.058	....	3.04
2.875	11.00	2.065	0.405	3.559	....	3.143	....	3.04
2.875	11.65	1.995	0.440	3.602	....	3.366	....	3.04
3.500	9.20	2.992	0.254	3.941	....	2.590	....	3.66
3.500	10.20	2.922	0.289	4.000	....	2.915	....	3.66
3.500	12.70	2.750	0.375	4.138	....	3.682	....	3.66
3.500	13.70	2.674	0.413	4.197	....	4.005	....	3.66
3.500	14.70	2.600	0.450	4.248	....	4.312	....	3.66
3.500	15.80	2.548	0.476	4.283	....	4.522	....	3.66
3.500	16.70	2.480	0.510	4.331	....	4.791	....	3.66
4.000	10.90	3.476	0.262	4.449	....	3.077	....	3.91
4.000	13.00	3.340	0.330	4.567	....	3.805	....	3.91
4.000	14.80	3.240	0.380	4.650	....	4.322	....	3.91
4.000	16.50	3.140	0.430	4.728	....	4.823	....	3.91
4.500	12.60	3.958	0.271	4.957	....	3.600	....	4.20
4.500	13.50	3.920	0.290	4.992	....	3.836	....	4.20
4.500	15.10	3.826	0.337	5.075	....	4.407	....	4.20
4.500	16.90	3.740	0.380	5.134	....	4.918	....	4.20
4.500	18.80	3.640	0.430	5.228	....	5.498	....	4.20
4.500	21.60	3.500	0.500	5.339	....	6.283	....	4.20
4.500	24.00	3.380	0.560	5.425	....	6.932	....	4.20

Tejas Tubular Products — TTS6 Diagram p. T-114

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	5.95	1.773	0.254	2.906	2.782	1.692	1.692	3.05
2.375	6.20	1.759	0.261	2.938	2.794	1.733	1.733	3.05
2.375	6.60	1.691	0.295	3.032	2.854	1.928	1.928	3.05
2.375	7.70	1.609	0.336	3.125	2.924	2.152	2.152	3.05
2.875	7.90	2.229	0.276	3.438	3.312	2.254	2.254	3.04
2.875	8.70	2.165	0.308	3.500	3.365	2.484	2.484	3.04
2.875	9.50	2.101	0.340	3.625	3.419	2.708	2.708	3.03
2.875	10.70	1.997	0.392	3.688	3.509	3.058	3.058	3.02
3.500	12.95	2.625	0.375	4.313	4.189	3.682	3.682	3.35
3.500	14.30	2.515	0.430	4.410	4.287	4.147	4.147	3.35
3.500	15.80	2.423	0.476	4.500	4.367	4.522	4.522	3.34
4.000	13.40	3.215	0.330	4.625	4.514	3.805	3.805	3.32
4.000	16.10	3.045	0.415	4.765	4.655	4.674	4.674	3.31
4.500	15.50	3.701	0.337	5.125	5.021	4.407	4.407	3.34
4.500	17.00	3.615	0.380	5.210	5.091	4.918	4.918	3.34
4.500	19.20	3.515	0.430	5.313	5.170	5.498	5.498	3.34

Tejas Tubular Products — TTS8 Diagram p. T-114

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
1.66	2.40	1.286	0.140	1.883	1.858	0.669	0.669	2.22
1.66	3.02	1.184	0.191	1.927	....	0.881	0.881	2.22
1.66	3.24	1.170	0.198	1.927	....	0.909	0.909	2.22
1.315	1.80	0.955	0.133	1.552	1.525	0.494	0.494	2.22
1.315	2.25	0.848	0.179	1.600	....	0.639	0.639	2.22
1.90	2.90	1.516	0.145	2.113	2.094	0.799	0.799	2.22
1.90	3.64	1.406	0.200	2.162	....	1.068	1.	

Tejas Tubular Products-TTXS

Diagram p. T-115

Type: Coupled Seal: Thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.901	0.190	2.875	2.681	1.304	1.304	2.050
2.375	5.95	1.773	0.254	2.875	2.775	1.692	1.692	2.050
2.875	6.50	2.347	0.217	3.500	3.221	1.812	1.812	2.250
2.875	7.90	2.229	0.276	3.500	3.309	2.254	2.254	2.250
2.875	8.70	2.165	0.308	3.500	3.354	2.484	2.484	2.250
3.500	9.30	2.867	0.254	4.250	3.897	2.590	2.590	2.550
3.500	12.95	2.625	0.375	4.250	4.075	3.682	3.682	2.550
4.500	12.75	3.958	0.271	5.200	4.930	3.600	3.600	2.750

TenarisHydril—3SB

Diagram p. T-115

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.901	0.190	2.874	2.701	1.305	2.370	3.743
2.375	5.30	1.845	0.218	2.874	2.701	1.477	2.370	3.743
2.375	5.95	1.774	0.254	2.874	2.732	1.691	2.370	3.743
2.375	6.20	1.759	0.261	2.874	2.774	1.733	2.370	3.743
2.375	7.70	1.610	0.336	2.874	....	2.151	2.370	3.743
2.875	6.50	2.348	0.217	3.500	3.220	1.810	3.503	3.743
2.875	7.90	2.230	0.276	3.500	3.280	2.252	3.503	3.743
2.875	8.70	2.166	0.308	3.500	3.323	2.482	3.503	3.743
2.875	9.50	2.101	0.340	3.500	3.366	2.708	3.503	3.743
2.875	10.70	1.997	0.392	3.500	....	3.058	3.503	3.743
2.875	11.00	1.971	0.405	3.500	....	3.143	3.503	3.743
2.875	11.65	1.901	0.440	3.500	....	3.367	3.503	3.743
3.500	9.30	2.867	0.254	4.252	3.882	2.590	5.031	3.775
3.500	10.30	2.797	0.289	4.252	3.933	2.916	5.031	3.775
3.500	12.80	2.639	0.368	4.252	4.051	3.622	5.031	3.775
3.500	12.95	2.624	0.375	4.252	4.059	3.683	5.031	3.775
3.500	15.10	2.477	0.449	4.252	....	4.303	5.031	3.775
3.500	15.80	2.423	0.476	4.252	....	4.521	5.031	3.775
3.500	16.70	2.355	0.510	4.252	....	4.790	5.031	3.775
3.500	17.05	2.315	0.530	4.252	....	4.945	5.031	3.775
4.000	11.00	3.351	0.262	4.752	4.402	3.075	5.792	4.056
4.000	13.40	3.215	0.330	4.752	4.492	3.804	5.792	4.056
4.000	19.00	2.875	0.500	4.752	....	5.498	5.792	4.056
4.000	22.50	2.655	0.610	4.752	....	6.495	5.792	4.056
4.500	12.75	3.833	0.271	5.201	4.921	3.599	6.163	4.306
4.500	13.50	3.794	0.290	5.201	4.921	3.838	6.163	4.306
4.500	15.50	3.701	0.337	5.201	4.996	4.408	6.163	4.306
4.500	19.20	3.515	0.430	5.201	....	5.498	6.163	4.306
4.500	21.60	3.375	0.500	5.201	....	6.284	6.163	4.306
4.500	24.00	3.255	0.560	5.201	....	6.930	6.163	4.306
4.500	26.50	3.115	0.630	5.201	....	7.659	6.163	4.306

TenarisHydril — Blue Thermal Liner

Diagram p. T-115

Type: Coupled Seal: Thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.995	0.190	2.795	2.661	1.304	1.817	2.520
2.375	5.10	1.939	0.218	2.795	2.705	1.477	1.817	2.520
2.375	5.80	1.898	0.254	2.795	2.744	1.693	1.817	2.520
2.875	6.40	2.441	0.217	3.337	3.181	1.812	2.441	2.835
2.875	7.70	2.323	0.276	3.406	3.260	2.254	2.806	2.835
2.875	8.60	2.259	0.308	3.406	3.299	2.483	2.806	2.835
3.500	9.20	3.033	0.254	3.917	3.839	2.590	2.834	3.386
3.500	10.20	2.994	0.289	3.996	3.886	2.916	3.324	3.386
3.500	12.70	2.948	0.375	4.134	3.996	3.681	4.204	3.386
4.500	10.50	4.052	0.224	4.921	4.764	3.009	3.952	4.016
4.500	11.60	4.000	0.250	4.921	4.803	3.339	3.952	4.016
4.500	12.60	3.958	0.271	4.921	4.835	3.601	3.952	4.016
4.500	13.50	4.024	0.290	4.961	4.862	3.836	4.258	4.016
4.500	15.10	3.957	0.337	5.079	4.929	4.408	5.189	4.016
4.500	17.00	3.929	0.380	5.079	4.988	4.918	5.189	4.016
4.500	23.70	3.819	0.560	5.299	5.215	6.932	6.986	4.016
5.500	15.50	4.950	0.275	6.051	5.843	4.514	6.067	4.252
5.500	17.00	4.892	0.304	6.051	5.886	4.963	6.067	4.252
5.500	20.00	4.866	0.361	6.051	5.972	5.828	6.067	4.252
5.500	23.00	4.799	0.415	6.146	6.047	6.629	6.972	4.252
5.500	26.00	4.776	0.476	6.260	6.130	7.513	8.085	4.252
5.500	26.80	4.744	0.500	6.260	6.165	7.854	8.085	4.252

TenarisHydril — Blue

Diagram p. T-115

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.961	0.190	2.776	2.646	1.304	1.668	2.655
2.375	5.10	1.929	0.218	2.776	2.681	1.477	1.668	2.655
2.375	5.80	1.882	0.254	2.827	2.720	1.693	1.893	2.655
2.375	6.30	1.846	0.280	2.846	2.752	1.843	1.981	2.655
2.375	6.60	1.850	0.295	2.862	2.768	1.928	2.052	2.655
2.375	7.35	1.811	0.336	2.913	2.811	2.153	2.283	2.655
2.875	6.40	2.421	0.217	3.307	3.161	1.812	2.279	3.202
2.875	7.80	2.354	0.276	3.346	3.236	2.254	2.485	3.202
2.875	8.60	2.291	0.308	3.386	3.276	2.483	2.692	3.202
2.875	9.35	2.244	0.340	3.437	3.311	2.708	2.967	3.202
2.875	9.80	2.224	0.362	3.449	3.335	2.858	3.030	3.202
2.875	10.50	2.201	0.392	3.488	3.370	3.058	3.246	3.202
2.875	10.70	2.177	0.405	3.504	3.382	3.143	3.333	3.202
3.500	7.70	3.031	0.216	3.937	3.772	2.229	2.895	3.616
3.500	9.20	2.984	0.254	3.937	3.823	2.590	2.895	3.616
3.500	10.20	2.921	0.289	4.016	3.870	2.916	3.388	3.616
3.500	12.70	2.815	0.375	4.150	3.976	3.681	4.245	3.616
3.500	13.70	2.787	0.413	4.150	4.020	4.005	4.245	3.616
3.500	14.30	2.752	0.430	4.169	4.035	4.148	4.374	3.616
3.500	14.70	2.736	0.449	4.193	4.059	4.304	4.529	3.616
3.500	15.50	2.736	0.476	4.228	4.087	4.521	4.765	3.616
4.000	8.20	3.555	0.190	4.441	4.276	2.274	3.340	3.805
4.000	9.50	3.492	0.226	4.441	4.287	2.680	3.340	3.805
4.000	10.90	3.449	0.262	4.441	4.335	3.077	3.340	3.805
4.000	13.20	3.374	0.330	4.567	4.425	3.805	4.232	3.805
4.000	14.85	3.299	0.380	4.610	4.488	4.321	4.543	3.805
4.000	16.10	3.280	0.415	4.661	4.531	4.673	4.917	3.805
4.000	16.50	3.252	0.430	4.681	4.547	4.822	5.061	3.805
4.000	18.90	3.110	0.500	4.776	4.630	5.498	5.763	3.805
4.500	10.50	4.016	0.224	4.921	4.780	3.009	3.641	4.012
4.500	11.60	3.976	0.250	4.921	4.815	3.339	3.641	4.012
4.500	12.60	3.937	0.271	4.961	4.846	3.601	3.946	4.012
4.500	13.50	3.898	0.290	5.000	4.870	3.836	4.255	4.012
4.500	15.20	3.843	0.337	5.047	4.933	4.408	4.628	4.012
4.500	16.60	3.819	0.375	5.106	4.992	4.860	5.099	4.012
4.500	17.00	3.811	0.380	5.114	4.992	4.918	5.162	4.012
4.500	17.70	3.787	0.402	5.146	5.020	5.175	5.416	4.012
4.500	18.90	3.760	0.430	5.189	5.051	5.498	5.768	4.012
4.500	21.50	3.622	0.500	5.287	5.138	6.284	6.577	4.012
5.000	13.00	4.441	0.253	5.512	5.315	3.773	5.051	4.579
5.000	15.00	4.370	0.296	5.512	5.354	4.374	5.051	4.579
5.000	18.00	4.283	0.362	5.630	5.445	5.275	6.085	4.579
5.000	20.30	4.228	0.408	5.650	5.508	5.885	6.259	4.579
5.000	20.80	4.213	0.422	5.673	5.524	6.070	6.470	4.579
5.000	21.40	4.205	0.437	5.693	5.543	6.265	6.645	4.579
5.000	23.20	4.154	0.478	5.756	5.594	6.791	7.212	4.579
5.000	24.10	4.110	0.500	5.787	5.622	7.068	7.497	4.579
5.000	26.70	3.988	0.562	5.874	5.693	7.835	8.291	4.579
5.500	15.50	4.933	0.275	6.063	5.831	4.514	6.006	4.677
5.500	17.00	4.882	0.304	6.063	5.874	4.963	6.006	4.677
5.500	20.00	4.811	0.361	6.102	5.953	5.828	6.381	4.677
5.500	23.00	4.717	0.415	6.181	6.024	6.629	7.141	4.677
5.500	26.00	4.638	0.476	6.307	6.102	7.513	8.378	4.677
5.500	26.80	4.610	0.500	6.307	6.134	7.854	8.378	4.677
5.500	28.40	4.551	0.530	6.350	6.169	8.275	8.807	4.677
5.500	29.70	4.528	0.562	6.382	6.209	8.719	9.123	4.677
5.500	32.60	4.449	0.625	6.469	6.283	9.571	9.998	4.677

TenarisHydril — CS

Diagram p. T-115

TenarisHydril — PH-6

Diagram p. T-115

Type: Upset, integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	5.95	1.773	0.254	2.906	2.782	1.692	....	3.05
2.375	6.20	1.759	0.261	2.938	2.794	1.733	....	3.05
2.375	6.60	1.691	0.295	3.032	2.854	1.928	....	3.05
2.375	7.70	1.609	0.336	3.125	2.924	2.152	....	3.05
2.875	7.90	2.229	0.276	3.438	3.312	2.254	....	3.04
2.875	8.70	2.165	0.308	3.500	3.365	2.484	....	3.04
2.875	9.50	2.101	0.340	3.625	3.419	2.708	....	3.03
2.875	10.70	1.997	0.392	3.688	3.509	3.058	....	3.02
3.500	12.95	2.625	0.375	4.313	4.189	3.682	....	3.35
3.500	14.30	2.515	0.430	4.410	4.287	4.147	....	3.35
3.500	15.80	2.423	0.476	4.500	4.367	4.522	....	3.34
4.000	13.40	3.215	0.330	4.625	4.514	3.805	....	3.32
4.000	16.10	3.045	0.415	4.785	4.655	4.674	....	3.31
4.500	15.50	3.701	0.337	5.125	5.021	4.407	....	3.34
4.500	17.00	3.615	0.380	5.210	5.091	4.918	....	3.34
4.500	19.20	3.515	0.430	5.313	5.170	5.498	....	3.34

TenarisHydril — PH-4

Diagram p. T-115

Type: Upset, integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.875	11.00	1.971	0.405	3.750	....	3.143	....	4.23
2.875	11.65	1.901	0.440	3.750	....	3.366	....	4.23
3.500	16.70	2.355	0.510	4.500	....	4.791	....	4.24
3.500	17.05	2.315	0.530	4.563	....	4.945	....	4.24
4.000	19.00	2.875	0.500	5.000	....	5.498	....	4.76
4.000	21.10	2.751	0.562	5.090	....	6.070	....	4.76
4.000	22.50	2.655	0.610	5.188	....	6.496	....	4.76
4.500	21.60	3.375	0.500	5.500	....	6.283	....	4.76
4.500	24.00	3.255	0.560	5.563	....	6.932	....	4.76
4.500	26.50	3.115	0.630	5.688	....	7.660	....	4.76

TenarisHydril — MS

Diagram p. T-115

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.776	....	1.305	1.730	2.520
2.375	5.10	1.845	0.218	2.776	....	1.477	1.730	2.520
2.375	5.80	1.774	0.254	2.815	....	1.691	1.903	2.520
2.875	6.40	2.348	0.217	3.337	....	1.810	2.503	2.835
2.875	7.70	2.230	0.276	3.406	....	2.252	2.868	2.835
2.875	8.60	2.166	0.308	3.406	....	2.482	2.868	2.835
3.500	7.70	2.943	0.216	3.917	....	2.230	2.891	3.386
3.500	9.20	2.867	0.254	3.917	....	2.590	2.891	3.386
3.500	10.20	2.797	0.289	3.996	....	2.916	3.382	3.386
3.500	12.70	2.625	0.375	4.134	....	3.680	4.261	3.386
4.000	10.90	3.351	0.262	4.421	....	3.075	3.435	3.701
4.000	13.00	3.215	0.330	4.551	....	3.804	4.351	3.701
4.000	14.85	3.115	0.380	4.646	....	4.321	5.033	3.701
4.500	10.50	3.927	0.224	4.921	4.875	3.009	3.984	4.016
4.500	11.60	3.875	0.250	4.921	4.875	3.339	3.984	4.016
4.500	12.60	3.833	0.271	4.921	4.875	3.599	3.984	4.016
4.500	13.50	3.794	0.290	4.961	4.875	3.838	4.289	4.016
4.500	15.10	3.701	0.337	5.079	4.875	4.408	5.220	4.016
4.500	16.60	3.624	0.375	5.079	4.875	4.862	5.220	4.016
4.500	17.00	3.615	0.380	5.079	4.875	4.918	5.220	4.016
4.500	18.90	3.515	0.430	5.114	4.875	5.498	5.504	4.016
4.500	21.50	3.375	0.500	5.213	4.875	6.284	6.302	4.016
4.500	23.70	3.255	0.560	5.291	4.875	6.930	6.952	4.016
5.000	13.00	4.369	0.253	5.563	5.374	3.776	5.513	4.252
5.000	15.00	4.283	0.296	5.563	5.374	4.376	5.513	4.252
5.000	18.00	4.151	0.362	5.563	5.374	5.272	5.513	4.252
5.000	20.30	4.059	0.408	5.563	5.374	5.884	5.513	4.252
5.000	20.80	4.031	0.422	5.563	5.374	6.070	5.513	4.252
5.000	21.40	4.001	0.437	5.563	5.374	6.265	5.513	4.252
5.000	23.20	3.919	0.478	5.563	5.374	6.791	5.513	4.252
5.000	24.10	3.875	0.500	5.563	5.374	7.068	5.513	4.252

TenarisHydril — MS XT/XC

Diagram p. T-115

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
3.500	9.20	2.867	0.254	3.917	....	2.590	2.850	3.386
4.500	10.50	3.927	0.224	4.921	4.875	3.009	3.929	4.016
4.500	11.60	3.875	0.250	4.921	4.875	3.339	3.929	4.016
4.500	12.60	3.833	0.271	4.921	4.875	3.599	3.929	4.016
4.500	13.50	3.794	0.290	4.961	4.875	3.838	4.235	4.016
4.500	15.10	3.701	0.337	5.079	4.875	4.408	5.166	4.016
4.500	17.00	3.615	0.380	5.079	4.875	4.918	5.166	4.016
4.500	23.70	3.255	0.560	5.299	4.875	6.930	6.964	4.016
5.000	13.00	4.369	0.253	5.563	5.375	3.776	5.453	4.250
5.000	15.00	4.283	0.296	5.563	5.375	4.376	5.453	4.250
5.000	18.00	4.151	0.362	5.563	5.375	5.272	5.453	4.250
5.000	20.30	4.059	0.408	5.563	5.375	5.884	5.453	4.250
5.000	20.80	4.031	0.422	5.563	5.375	6.070	5.453	4.250
5.000	21.40	4.001	0.437	5.563	5.375	6.265	5.453	4.250
5.000	23.20	3.919	0.478	5.563	5.375	6.791	5.453	4.250
5.000	24.10	3.875	0.500	5.563	5.375	7.068	5.453	4.250

TenarisHydril — PJD

Diagram p. T-115

Type: Upset, integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.901	0.190	2.795	....	1.305	1.325	2.362
2.375	5.30	1.845	0.218	2.795	....	1.477	1.494	2.362
2.375	5.95	1.774	0.254	2.913	....	1.691	1.714	2.362
2.875	6.50	2.348	0.217	3.307	....	1.810	1.838	2.756
2.875	7.90	2.230	0.276	3.425	....	2.252	2.275	2.756
2.875	8.70	2.166	0.308	3.484	....	2.482	2.499	2.756
2.875	9.60	2.101	0.340	3.543	....	2.708	2.717	2.756
3.500	9.30	2.867	0.254	4.000	....	2.590	2.688	3.228
3.500	10.30	2.797	0.289	4.000	....	2.916	3.013	3.228
3.500	12.95	2.625	0.375	4.291	....	3.680	3.757	3.228
4.000	11.00	3.351	0.262	4.469	....	3.075	3.191	3.543
4.000	13.40	3.215	0.330	4.528	....	3.804	3.900	3.543
4.500	12.75	3.833	0.271	4.961	....	3.599	3.718	3.937
4.500	13.50	3.794	0.290	4.961	....	3.838	3.960	3.937
4.500	15.50	3.701	0.337	5.079	....	4.408	4.529	3.937

TenarisHydril — Wedge 503

Diagram p. T-115

Type: API upset, integral Seal: Metal-to-metal, thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.901	0.190	2.657	....	1.304	....	3.64
2.875	6.50	2.347	0.217	3.192	....	1.812	....	3.64
3.500	9.30	2.867	0.254	3.886	....	2.590	....	3.64
4.000	11.00	3.351	0.262	4.406	....	3.077	....	3.64
4.500	11.60	3.875	0.250	4.891	....	3.338	....	3.64
4.500	12.75	3.833	0.271	4.926	....	3.600	....	3.64

TenarisHydril — Wedge 511

Diagram p. T-115

Type: Non-upset, integral flush Seal: Thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.063	3.25	1.686	0.156	2.126	....	0.935	0.574	2.227
2.063	4.50	1.548	0.225	2.126	....	1.299	0.788	2.227
2.375	4.60	1.930	0.190	2.406	....	1.304	0.781	2.227
2.375	5.10	1.887	0.218	2.406	....	1.477	0.910	2.227
2.875	6.40	2.377	0.217	2.875	....	1.812	0.996	2.227
3.500	7.70	2.973	0.216	3.500	....	2.228	1.227	2.74
3.500	9.20	2.897	0.254	3.500	....	2.590	1.578	2.74
3.500	10.20	2.827	0.289	3.500	....	2.915	1.894	2.74
4.000	9.50	3.454	0.226	4.000	....	2.680	1.657	2.74
4.000	11.00	3.382	0.262	4.000	....	3.077	2.045	2.74
4.000	11.60	3.334	0.286	4.031	....	3.337	2.299	2.74
4.000	16.10	3.077	0.415	4.000	....	4.674	2.827	3.70
4.500	10.50	3.959	0.224	4.500	....	3.009	1.902	2.74
4.500	11.00	3.934	0.237	4.500	....	3.174	2.058	2.74
4.500	11.60	3.908	0.250	4.500	....	3.338	2.218	2.74
4.500	12.60	3.865	0.271	4.500	....	3.600	2.096	2.67
4.500	13.50	3.827	0.290	4.500	....	3.836	2.326	2.67
4.500	15.10	3.733	0.337	4.500	....	4.407	2.696	3.04
5.000	15.00	4.317	0.296	5.000	....	4.374	2.654	2.67
5.000	18.00	4.185	0.362	5.000	....	5.275	3.311	3.62

TenarisHydril — Wedge 533

Diagram p. T-115

Type: Upset, integral Seal: Metal-to-metal, thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.945	0.190	2.657		1.304		3.640
2.375	5.30	1.889	0.218	2.685		1.477		3.640
2.375	5.95	1.817	0.254	2.737		1.692		3.640
2.375	6.60	1.735	0.295	2.793		1.928		3.640
2.375	7.45	1.653	0.336	2.845		2.152		3.640
2.875	6.50	2.391	0.217	3.192		1.812		3.640
2.875	7.90	2.273	0.276	3.282		2.254		3.640
2.875	8.70	2.209	0.308	3.328		2.484		3.640
2.875	9.50	2.145	0.340	3.337		2.708		4.090
2.875	10.70	2.041	0.392	3.405		3.058		4.090
2.875	11.65	1.945	0.440	3.464		3.366		4.090
3.500	9.30	2.942	0.254	3.886		2.590		3.640
3.500	10.30	2.872	0.289	3.941		2.915		3.640
3.500	12.95	2.700	0.375	4.067		3.682		3.640
3.500	14.30	2.590	0.430	4.100		4.147		4.490
3.500	15.80	2.498	0.476	4.160		4.522		4.490
3.500	16.70	2.430	0.510	4.202		4.791		4.490
3.500	17.05	2.390	0.530	4.226		4.945		4.490
4.000	11.00	3.426	0.262	4.406		3.077		3.640
4.000	11.60	3.378	0.286	4.444		3.337		3.640
4.000	13.40	3.290	0.330	4.513		3.805		3.640
4.000	14.80	3.190	0.380	4.548		4.322		4.090
4.000	16.10	3.120	0.415	4.599		4.674		4.090
4.000	19.00	2.950	0.500	4.598		5.498		5.280
4.000	21.10	2.826	0.562	4.679		6.070		5.280
4.000	22.50	2.730	0.610	4.739		6.496		5.280
4.500	11.60	3.950	0.250	4.891		3.338		3.640
4.500	12.75	3.908	0.271	4.926		3.600		3.640
4.500	13.50	3.870	0.290	4.958		3.836		3.640
4.500	15.50	3.776	0.337	4.992		4.407		4.090
4.500	16.60	3.700	0.375	5.051		4.860		4.090
4.500	17.00	3.690	0.380	5.058		4.918		4.090
4.500	19.20	3.590	0.430	5.133		5.498		4.090
4.500	21.60	3.450	0.500	5.114		6.283		5.280
4.500	24.00	3.330	0.560	5.196		6.932		5.280
4.500	26.50	3.190	0.630	5.288		7.660		5.280
5.000	21.40	4.076	0.437	5.526		6.264		5.360
5.000	24.10	3.950	0.500	5.618		7.069		5.360
5.500	15.50	4.900	0.275	5.895		4.514		3.990
5.500	17.00	4.842	0.304	5.944		4.962		3.990
5.500	20.00	4.728	0.361	6.037		5.828		3.990
5.500	23.00	4.620	0.415	6.124		6.630		3.990
5.500	28.40	4.374	0.530	6.159		8.275		4.300

TenarisHydril — Wedge 553

Diagram p. T-115

Type: One-end internal/external upset, integral Seal: Metal-to-metal, thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.945	0.190	2.657		1.304		3.640
2.375	5.30	1.889	0.218	2.685		1.477		3.640
2.375	5.95	1.817	0.254	2.737		1.692		3.640
2.375	6.60	1.785	0.295	2.793		1.928		3.640
2.375	7.45	1.703	0.336	2.845		2.152		3.640
2.875	6.50	2.391	0.217	3.192		1.812		3.640
2.875	7.90	2.273	0.276	3.282		2.254		3.640
2.875	8.70	2.259	0.308	3.328		2.484		3.640
2.875	9.50	2.195	0.340	3.337		2.708		4.090
2.875	10.70	2.091	0.392	3.405		3.058		4.090
2.875	11.65	1.995	0.440	3.464		3.366		4.090
3.500	9.30	2.942	0.254	3.886		2.590		3.640
3.500	10.30	2.872	0.289	3.941		2.915		3.640
3.500	12.95	2.750	0.375	4.067		3.682		3.640
3.500	14.30	2.640	0.430	4.100		4.147		4.490
3.500	15.80	2.548	0.476	4.160		4.522		4.490
3.500	16.70	2.480	0.510	4.202		4.791		4.490
3.500	17.05	2.440	0.530	4.226		4.945		4.490
4.000	11.00	3.426	0.262	4.406		3.077		3.640
4.000	11.60	3.378	0.286	4.444		3.337		3.640
4.000	13.40	3.340	0.330	4.513		3.805		3.640
4.000	14.80	3.240	0.380	4.548		4.322		4.090
4.000	16.10	3.170	0.415	4.599		4.674		4.090
4.000	19.00	3.000	0.500	4.598		5.498		5.280
4.000	21.10	2.876	0.562	4.679		6.070		5.280
4.000	22.50	2.780	0.610	4.739		6.496		5.280
4.500	12.75	3.908	0.271	4.926		3.600		3.640
4.500	13.50	3.870	0.290	4.958		3.836		3.640
4.500	15.50	3.826	0.337	4.992		4.407		4.090
4.500	17.00	3.740	0.380	5.058		4.918		4.090
4.500	19.20	3.640	0.430	5.133		5.498		4.090
4.500	21.60	3.500	0.500	5.114		6.283		5.280
4.500	24.00	3.380	0.560	5.196		6.932		5.280
4.500	26.50	3.240	0.630	5.288		7.660		5.280
5.000	15.00	4.358	0.296	5.430		4.374		3.990
5.000	18.00	4.276	0.362	5.535		5.275		3.990
5.000	21.40	4.076	0.437	5.526		6.264		5.360
5.000	23.20	4.044	0.478	5.586		6.791		5.360
5.000	24.10	4.000	0.500	5.618		7.069		5.360
5.500	15.50	4.900	0.275	5.899		4.514		3.990
5.500	17.00	4.842	0.304	5.948		4.962		3.990
5.500	20.00	4.778	0.361	6.040		5.828		3.990
5.500	23.00	4.670	0.415	6.124		6.630		3.990
5.500	26.00	4.483	0.476	6.084		7.513		4.300
5.500	26.80	4.435	0.500	6.119		7.854		4.300
5.500	28.40	4.374	0.530	6.163		8.275		4.300

TenarisHydril — Wedge 563

Diagram p. T-115

Type: Coupled Seal: Metal-to-metal, thread

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.70	1.945	0.190	2.875	2.657	1.304		3.640
2.375	5.30	1.889	0.218	2.875	2.685	1.477		3.640
2.375	5.95	1.817	0.254	2.875	2.737	1.692		3.640
2.375	6.60	1.785	0.295	2.875	2.793	1.928		3.640
2.375	7.45	1.703	0.336	2.875	2.845	2.152		3.640
2.875	6.50	2.391	0.217	3.500	3.192	1.812		3.640
2.875	7.90	2.273	0.276	3.500	3.282	2.254		3.640
2.875	8.70	2.259	0.308	3.500	3.328	2.484		3.640
2.875	9.50	2.195	0.340	3.500	3.337	2.708		4.090
2.875	10.70	2.091	0.392	3.500	3.405	3.058		4.090
2.875	11.65	1.995	0.440	3.500	3.464	3.366		4.090
3.500	9.30	2.942	0.254	4.250	3.886	2.590		3.640
3.500	10.30	2.872	0.289	4.250	3.941	2.915		3.640
3.500	12.95	2.750	0.375	4.250	4.067	3.682		3.640
3.500	14.30	2.640	0.430	4.250	4.100	4.147		4.490
3.500	15.80	2.548	0.476	4.250	4.160	4.522		4.490
3.500	16.70	2.480	0.510	4.250	4.202	4.791		4.490
3.500	17.05	2.440	0.530	4.250	4.250	4.945		4.490
4.000	11.00	3.426	0.262	4.750	4.406	3.077		3.640
4.000	11.60	3.378	0.286	4.750	4.444	3.337		3.640
4.000	13.40	3.340	0.330	4.750	4.513	3.805		3.640
4.000	14.80	3.240	0.380	4.750	4.548	4.322		4.090
4.000	16.10	3.170	0.415	4.750	4.599	4.674		4.090
4.000	19.00	3.000	0.500	4.750	4.598	5.498		5.280
4.000	21.10	2.876	0.562	4.750	4.679	6.070		5.280
4.000	22.50	2.780	0.610	4.750	4.750	6.496		5.280
4.500	11.60	3.950	0.250	5.200	4.891	3.338		3.640
4.500	12.75	3.908	0.271	5.200	4.926	3.600		3.640
4.500	13.50	3.870	0.290	5.200	4.958	3.836		3.640
4.500	15.50	3.826	0.337	5.200	4.992	4.407		4.090
4.500	16.60	3.750	0.375	5.200	5.051	4.860		4.090
4.500	17.00	3.740	0.380	5.200	5.058	4.918		4.090
4.500	19.20	3.640	0.430	5.200	5.133	5.498		4.090
4.500	21.60	3.500	0.500	5.200	5.114	6.283		5.280
4.500	24.00	3.380	0.560	5.200	5.196	6.932		5.280
4.500	26.50	3.240	0.630	5.300	5.300	7.660		5.280
5.000	15.00	4.358	0.296	5.563	5.404	4.374		3.990
5.000	18.00	4.276	0.362	5.563		5.275		3.990
5.000	21.40	4.076	0.437	5.750	5.507	6.264		5.360
5.000	23.20	4.044	0.478	5.750	5.568	6.791		5.360
5.000	24.10	4.000	0.500	5.750	5.600	7.069		5.360
5.500	15.50	4.900	0.275	6.050	5.873	4.514		3.990
5.500	17.00	4.842	0.304	6.050	5.921	4.962		3.990
5.500	20.00	4.778	0.361	6.050		5.828		3.990
5.500	23.00	4.670	0.415	6.050		6.630		3.990
5.500	26.00	4.498	0.476	6.125	6.057	7.513		4.300
5.500	26.80	4.450	0.500	6.12				

TMK-Premium Services

Diagram p. T-116

TMK PF (tubing)

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.6	1.995	0.19	2.874	....	1.305	2.082	2.842
2.375	5.80	1.867	0.254	2.874	....	1.693	2.082	2.842
2.375	6.60	1.785	0.295	2.874	....	1.927	2.082	2.842
2.375	7.35	1.703	0.336	2.874	....	2.151	2.082	2.842
2.875	6.40	2.441	0.217	3.500	3.276	1.812	3.198	2.94
2.875	7.80	2.323	0.276	3.500	3.276	2.254	3.198	2.94
2.875	8.60	2.259	0.308	3.500	3.276	2.483	3.198	2.94
2.875	9.35	2.195	0.340	3.500	3.276	2.708	3.198	2.94
2.875	10.50	2.091	0.392	3.500	3.276	3.058	3.198	2.94
2.875	11.50	1.995	0.440	3.500	3.276	3.367	3.198	2.94
3.500	7.70	3.068	0.216	4.252	3.862	2.231	4.743	3.241
3.500	9.20	2.992	0.254	4.252	3.862	2.590	4.743	3.241
3.500	10.30	2.922	0.289	4.252	3.862	2.916	4.743	3.241
3.500	12.70	2.750	0.375	4.252	3.862	3.680	4.743	3.241
3.500	14.30	2.640	0.430	4.252	3.862	4.146	4.743	3.241
3.500	15.50	2.548	0.476	4.252	3.862	4.521	4.743	3.241
3.500	17.00	2.440	0.530	4.252	3.862	4.945	4.743	3.241
4.000	9.50	3.548	0.226	4.752	4.37	2.680	5.487	3.556
4.000	10.70	3.476	0.262	4.752	4.37	3.075	5.487	3.556
4.000	13.20	3.340	0.330	4.752	4.37	3.804	5.487	3.556
4.000	16.10	3.170	0.415	4.752	4.37	4.673	5.487	3.556
4.500	12.75	3.958	0.271	5.201	4.894	3.599	6.031	4.123
4.500	15.10	3.826	0.337	5.201	4.894	4.408	6.031	4.123
4.500	17.00	3.740	0.380	5.201	4.894	4.918	6.031	4.123
4.500	18.80	3.640	0.430	5.201	4.894	5.498	6.031	4.123
4.500	21.50	3.5	0.5	5.201	4.894	6.284	6.031	4.123

TMK-Premium Services

Diagram p. T-116

TMK FMT

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.6	1.903	0.19	2.874	2.63	1.302	2.345	2.786
2.875	6.40	2.348	0.217	3.500	3.276	1.812	3.539	2.885
2.875	7.80	2.230	0.276	3.500	3.276	2.254	3.432	2.885
3.500	7.70	2.943	0.216	4.252	3.862	2.231	5.188	3.278
3.500	9.20	2.863	0.254	4.252	3.862	2.590	5.188	3.278
3.500	10.20	2.800	0.289	4.252	3.862	2.916	5.188	3.278
3.500	12.70	2.625	0.375	4.252	3.862	3.680	5.188	3.278
3.500	14.30	2.515	0.430	4.252	3.862	4.146	5.188	3.278
4.500	12.60	3.832	0.271	5.201	4.894	3.599	7.045	3.672
4.500	15.20	3.701	0.337	5.201	4.894	4.408	7.045	3.672
4.500	21.50	3.375	0.500	5.201	4.894	6.284	7.045	3.672

TPS Technitube Röhrenwerke —

Diagram p. T-116

Techniseal

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.995	0.190	2.707	2.628	1.304	1.393	2.20
2.375	5.10	1.939	0.218	2.736	2.628	1.477	1.520	2.20
2.375	5.80	1.867	0.254	2.785	2.707	1.692	1.733	2.20
2.875	6.40	2.441	0.217	3.240	3.159	1.812	1.925	2.52
2.875	7.70	2.323	0.276	3.337	3.274	2.254	2.424	2.52
2.875	8.60	2.259	0.308	3.364	3.274	2.484	2.568	2.52
2.875	9.80	2.151	0.362	3.435	3.337	2.858	2.946	2.52
3.500	7.70	3.068	0.216	3.841	....	2.228	2.319	2.99
3.500	9.20	2.992	0.254	3.900	3.803	2.590	2.677	2.99
3.500	10.20	2.922	0.289	3.961	3.862	2.915	3.053	2.99
3.500	12.70	2.750	0.375	4.079	3.961	3.682	3.799	2.99
3.500	13.70	2.674	0.413	4.138	4.045	4.005	4.180	2.99
3.500	14.70	2.600	0.450	4.193	4.045	4.312	4.541	2.99
3.500	15.80	2.548	0.476	4.211	4.138	4.522	4.659	2.99
4.000	9.50	3.548	0.226	4.348	....	2.680	2.788	3.26
4.000	10.90	3.476	0.262	4.407	4.327	3.077	3.194	3.26
4.000	13.00	3.340	0.330	4.516	4.366	3.805	3.954	3.26
4.000	14.80	3.240	0.380	4.606	4.469	4.322	4.602	3.26
4.000	16.50	3.140	0.430	4.656	....	4.823	4.960	3.26
4.500	10.50	4.052	0.224	4.862	4.813	3.009	3.422	3.66
4.500	11.60	4.000	0.250	4.862	4.813	3.338	3.422	3.66
4.500	12.60	3.958	0.271	4.892	4.813	3.600	3.649	3.66
4.500	13.50	3.920	0.290	4.961	4.813	3.836	4.182	3.66
4.500	15.10	3.826	0.337	5.010	4.892	4.407	4.566	3.66
4.500	16.90	3.740	0.380	5.106	....	4.918	5.333	3.66
4.500	18.80	3.640	0.430	5.146	....	5.498	5.650	3.66
4.500	21.60	3.500	0.500	5.280	....	6.283	6.746	3.66
4.500	24.60	3.380	0.560	5.333	....	6.932	7.189	3.66
5.000	13.00	4.494	0.253	5.587	5.390	3.773	5.499	4.25
5.000	15.00	4.408	0.296	5.587	5.390	4.374	5.499	4.25
5.000	18.00	4.276	0.362	5.587	5.390	5.275	5.499	4.25
5.000	20.30	4.184	0.408	5.587	5.390	5.886	5.499	4.25
5.000	20.80	4.156	0.422	5.587	5.390	6.069	5.499	4.25
5.000	21.40	4.126	0.437	5.587	5.390	6.264	5.499	4.25
5.000	23.20	4.044	0.478	5.587	5.390	6.791	5.499	4.25
5.000	24.10	4.000	0.500	5.587	5.390	7.069	5.499	4.25

TPS Technitube Röhrenwerke —

Diagram p. T-116

TPS-Multiseal TS4/TS4 TR

Type: Integral Seal: Thread with PTFE-ring

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
5.000	18.00	4.276	0.362	5.515	....	5.275	>At	5.27
5.000	20.30	4.184	0.408	5.585	....	5.886	>At	5.27
5.000	23.20	4.044	0.478	5.700	....	6.791	>At	5.27
5.000	27.00	3.880	0.560	5.835	....	7.811	>At	5.27

TPS Technitube Röhrenwerke —

Diagram p. T-116

TPS-Multiseal TS6/TS6 TR

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	5.95	1.867	0.254	2.906	2.782	1.692	>At	3.05
2.375	6.20	1.853	0.261	2.938	2.794	1.733	>At	3.05
2.375	7.70	1.703	0.336	3.125	2.924	2.152	>At	3.05
2.875	7.90	2.323	0.276	3.438	3.312	2.254	>At	3.04
2.875	8.70	2.259	0.308	3.500	3.365	2.484	>At	3.04
2.875	9.50	2.195	0.340	3.625	3.419	2.708	>At	3.04
2.875	10.70	2.091	0.392	3.688	3.509	3.058	>At	3.04
3.500	12.95	2.750	0.375	4.313	4.189	3.682	>At	3.35
3.500	15.80	2.548	0.476	4.500	4.367	4.522	>At	3.34
4.000	13.40	3.340	0.330	4.625	4.514	3.805	>At	3.32
4.500	15.50	3.826	0.337	5.125	5.021	4.407	>At	3.34
4.500	19.20	3.640	0.430	5.313	5.170	5.498	>At	3.34

TPS Technitube Röhrenwerke —

Diagram p. T-116

TPS-Multiseal TS8/TS8 TR

Type: Integral Seal: Thread with PTFE-ring

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
1.050	1.20	0.824	0.113	1.327	1.300	0.333	>At	2.22
1.050	1.50	0.742	0.154	1.327	....	0.433	>At	2.22
1.315	1.80	1.049	0.133	1.552	1.525	0.494	>At	2.22
1.315	2.25	0.957	0.179	1.600	....	0.639	>At	2.22
1.660	2.40	1.380	0.140	1.883	1.858	0.669	>At	2.22
1.660	3.02	1.278	0.191	1.927	....	0.881	>At	2.22
1.660	3.24	1.264	0.198	1.927	....	0.909	>At	2.22
1.900	2.90	1.610	0.145	2.113	2.094	0.799	>At	2.22
1.900	3.64	1.500	0.200	2.162	....	1.068	>At	2.22
1.900	4.19	1.462	0.219	2.179	....	1.157	>At	2.22
2.063	3.25	1.751	0.156	2.330	2.295	0.935	>At	2.23
2.063	4.50	1.613	0.225	2.460	2.407	1.299	>At	2.23
2.375	4.70	1.995	0.190	2.700	2.655	1.304	>At	2.31
2.375	5.30	1.939	0.218	2.750	2.700	1.477	>At	2.31
2.875	6.50	2.441	0.217	3.210	3.166	1.812	>At	2.39
3.500	9.30	2.992	0.254	3.915	3.859	2.590	>At	2.84
3.500	10.30	2.922	0.289	3.980	3.914	2.590	>At	2.84
4.000	11.00	3.476	0.262	4.417	4.359	3.077	>At	2.84
4.500	12.75	3.958	0.271	4.920	4.861	3.600	>At	2.89
4.500	13.50	3.920	0.290	4.955	4.890	3.836	>At	2.89

TPS Technitube Röhrenwerke —

Diagram p. T-116

TPS-External-Upset Optiflow

Type: Upset, coupled Seal: Thread with PTFE-ring

D	w
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U.S. Steel — CDC

Diagram p. T-116

Type: T&C Seal: Threaded

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
4.500	10.50	4.052	0.224	5.000	3.009	3.009	4.44
4.500	11.60	4.000	0.250	5.000	....	3.338	3.338	4.44
4.500	13.50	3.920	0.290	5.000	....	3.836	3.836	4.44
4.500	15.10	3.826	0.337	5.000	....	4.407	4.407	4.44
5.000	15.00	4.408	0.296	5.563	....	4.374	4.374	4.56
5.000	18.00	4.276	0.362	5.563	....	5.275	5.275	4.56
5.000	21.40	4.126	0.437	5.563	....	6.264	6.264	4.56
5.000	23.20	4.044	0.478	5.563	....	6.791	6.791	4.56
5.500	15.50	4.950	0.275	6.050	....	4.514	4.514	4.63
5.500	17.00	4.892	0.304	6.050	....	4.962	4.962	4.63
5.500	20.00	4.778	0.361	6.050	....	5.828	5.828	4.63
5.500	23.00	4.670	0.415	6.050	....	6.630	6.099	4.63
5.500	26.00	4.548	0.476	6.050	....	7.513	6.099	4.63

U.S. Steel — CDC HTQ

Diagram p. T-116

Type: T&C Seal: Threaded

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
4.500	10.50	4.052	0.224	5.250	....	3.009	3.009	4.44
4.500	11.60	4.000	0.250	5.250	....	3.338	3.338	4.44
4.500	13.50	3.920	0.290	5.250	....	3.836	3.836	4.44
4.500	15.10	3.826	0.337	5.250	....	4.407	4.407	4.44
5.000	15.00	4.408	0.296	5.775	....	4.374	4.374	4.56
5.000	18.00	4.276	0.362	5.775	....	5.275	5.275	4.56
5.000	21.40	4.126	0.437	5.775	....	6.264	6.264	4.56
5.000	23.20	4.044	0.478	5.775	....	6.791	6.791	4.56
5.500	15.50	4.950	0.275	6.300	....	4.514	4.514	4.63
5.500	17.00	4.892	0.304	6.300	....	4.962	4.962	4.63
5.500	20.00	4.778	0.361	6.300	....	5.828	5.828	4.63
5.500	23.00	4.670	0.415	6.300	....	6.630	6.630	4.63
5.500	26.00	4.548	0.476	6.300	....	7.513	7.513	4.63

U.S. Steel — PATRIOT TC

Diagram p. T-118

Type: T&C Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
4.500	11.60	4.000	0.250	4.917	....	3.338	3.338	4.53
4.500	12.60	3.958	0.271	4.954	....	3.600	3.600	4.53
4.500	13.50	3.920	0.290	4.987	....	3.836	3.836	4.53
4.500	15.10	3.826	0.337	5.067	....	4.407	4.407	4.53
4.500	16.60	3.750	0.375	5.129	....	4.860	4.860	4.53
4.500	17.00	3.740	0.380	5.137	....	4.918	4.918	4.53
4.500	18.90	3.640	0.430	5.215	....	5.498	5.498	4.53
5.000	15.00	4.408	0.296	5.496	....	4.374	4.374	4.69
5.000	18.00	4.276	0.362	5.610	....	5.275	5.275	4.69
5.000	20.30	4.184	0.408	5.686	....	5.886	5.886	4.69
5.000	20.80	4.156	0.422	5.708	....	6.069	6.069	4.69
5.000	21.40	4.126	0.437	5.732	....	6.264	6.264	4.69
5.000	23.20	4.044	0.478	5.796	....	6.791	6.791	4.69
5.500	17.00	4.892	0.304	5.980	....	4.962	4.962	4.80
5.500	20.00	4.778	0.361	6.075	....	5.828	5.828	4.80
5.500	23.00	4.670	0.415	6.162	....	6.630	6.630	4.80
5.500	26.00	4.548	0.476	6.256	....	7.513	7.513	4.80

U.S. Steel — LIBERTY FJM

Diagram p. T-118

Type: Flush Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
3.500	9.20	2.992	0.254	3.500	....	2.590	1.634	2.93
3.500	10.20	2.922	0.289	3.500	....	2.915	1.826	3.17
3.500	12.70	2.750	0.375	3.500	....	3.682	2.274	3.67
3.500	14.30	2.640	0.430	3.500	....	4.147	2.550	4.05
3.500	14.90	2.602	0.449	3.500	....	4.304	2.644	4.17
3.500	15.80	2.548	0.476	3.500	....	4.522	2.772	4.30
4.000	9.50	3.548	0.226	4.000	....	2.680	1.714	2.81
4.000	11.00	3.476	0.262	4.000	....	3.077	1.931	2.93
4.000	11.60	3.428	0.286	4.000	....	3.337	2.103	3.18
4.000	13.20	3.340	0.330	4.000	....	3.805	2.376	3.43
4.000	14.80	3.240	0.380	4.000	....	4.322	2.662	3.68
4.000	15.90	3.170	0.415	4.000	....	4.674	2.878	3.93
4.500	11.60	4.000	0.250	4.500	....	3.338	2.122	2.94
4.500	12.60	3.958	0.271	4.500	....	3.600	2.277	3.07
4.500	13.50	3.920	0.290	4.500	....	3.836	2.409	3.19
4.500	15.10	3.826	0.337	4.500	....	4.407	2.745	3.44
4.500	16.60	3.750	0.375	4.500	....	4.860	3.008	3.69
4.500	18.90	3.640	0.430	4.500	....	5.498	3.390	4.07
5.000	11.50	4.560	0.220	5.000	....	3.304	2.104	2.70
5.000	13.00	4.494	0.253	5.000	....	3.773	2.382	2.95
5.000	15.00	4.408	0.296	5.000	....	4.374	2.742	3.20
5.000	18.00	4.276	0.362	5.000	....	5.275	3.270	3.58
5.000	20.30	4.184	0.408	5.000	....	5.886	3.625	3.83
5.000	20.80	4.156	0.422	5.000	....	6.069	3.736	3.95
5.000	21.40	4.126	0.437	5.000	....	6.264	3.857	4.08
5.000	23.20	4.044	0.478	5.000	....	6.791	4.171	4.33
5.000	24.10	4.000	0.500	5.000	....	7.069	4.334	4.45
5.000	26.70	3.876	0.562	5.000	....	7.836	4.756	4.70
5.500	15.50	4.950	0.275	5.500	....	4.514	2.619	2.80
5.500	17.00	4.892	0.304	5.500	....	4.962	2.885	2.97
5.500	20.00	4.778	0.361	5.500	....	5.828	3.386	3.30
5.500	23.00	4.670	0.415	5.500	....	6.630	3.823	3.47
5.500	26.00	4.548	0.476	5.500	....	7.513	4.065	3.80
5.500	26.80	4.500	0.500	5.500	....	7.854	4.541	3.97
5.500	28.40	4.440	0.530	5.500	....	8.275	4.787	4.13
5.500	29.70	4.376	0.562	5.500	....	8.718	5.037	4.30

U.S. Steel — PATRIOT EBM

Diagram p. T-118

Type: T&C Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.995	0.190	2.775	....	1.304	1.304	3.38
2.375	5.10	1.939	0.218	2.775	....	1.477	1.477	3.38
2.375	5.80	1.867	0.254	2.775	....	1.692	1.692	3.38
2.375	6.00	1.853	0.261	2.775	....	1.733	1.733	3.38
2.375	6.30	1.815	0.280	2.775	....	1.843	1.843	3.38
2.375	6.60	1.785	0.295	2.775	....	1.928	1.928	3.38
2.375	7.35	1.703	0.336	2.775	....	2.152	2.152	3.38
2.875	6.40	2.441	0.217	3.400	....	1.812	1.812	3.38
2.875	7.80	2.323	0.276	3.400	....	2.254	2.254	3.38
2.875	8.60	2.259	0.308	3.400	....	2.484	2.484	3.38
2.875	9.35	2.195	0.340	3.400	....	2.708	2.708	3.38
2.875	9.80	2.151	0.362	3.400	....	2.858	2.858	3.38
2.875	10.50	2.091	0.392	3.400	....	3.058	3.058	3.38
2.875	11.00	2.065	0.405	3.400	....	3.143	3.143	3.38
3.500	7.70	3.068	0.216	4.150	....	2.228	2.228	3.38
3.500	9.20	2.992	0.254	4.150	....	2.590	2.590	3.38
3.500	10.20	2.922	0.289	4.150	....	2.915	2.915	3.38
3.500	12.60	2.764	0.368	4.150	....	3.621	3.621	3.38
3.500	12.70	2.750	0.375	4.150	....	3.682	3.682	3.38
3.500	13.70	2.674	0.413	4.150	....	4.005	4.005	3.38
3.500	14.30	2.640	0.430	4.150	....	4.147	4.147	3.38
3.500	14.90	2.602	0.449	4.150	....	4.304	4.304	3.38
3.500	15.40	2.548	0.476	4.150	....	4.522	4.522	3.38
4.000	8.20	3.620	0.190	4.650	....	2.274	2.274	3.50
4.000	9.50	3.548	0.226	4.650	....	2.680	2.680	3.50
4.000	10.90	3.476	0.262	4.650	....	3.077	3.077	3.50
4.000	11.60	3.428	0.286	4.650	....	3.337	3.337	3.50
4.000	12.10	3.402	0.299	4.650	....	3.476	3.476	3.50
4.000	13.20	3.340	0.330	4.650	....	3.805	3.805	3.50
4.000	14.80	3.240	0.380	4.650	....	4.322	4.322	3.50
4.000	16.10	3.170	0.415	4.650	....	4.674	4.674	3.50
4.000	16.50	3.140	0.430	4.650	....	4.823	4.823	3.50
4.500	10.50	4.052	0.224	5.150	....	3.009	3.009	3.50
4.500	11.60	4.000	0.250	5.150	....	3.338	3.338	3.50
4.500	12.60	3.958	0.271	5.150	....	3.600	3.600	3.50
4.500	13.50	3.920	0.290	5.150	....	3.836	3.836	3.50
4.500	15.20	3.826	0.337	5.150	....	4.407	4.407	3.50
4.500	16.60	3.750	0.375	5.150	....	4.860	4.860	3.50
4.500	17.00	3.740	0.380	5.150	....	4.918	4.918	3.50
4.500	17.70	3.696	0.402	5.150	....	5.175	5.175	3.50
4.500	18.90	3.640	0.430	5.150	....	5.498	5.498	3.50

Vallourec USA — HD-L

Diagram p. T-118

Type: Integral flush joint Seal: Metal-to-metal

Vallourec USA — RTS-6

Diagram p. T-118

Type: Upset integral joint Seal: Metal-to-metal

D	w	d	t	D _c	D _{st}	A _t	A _c	L _m
2.375	5.95	1.773	0.254	2.906	2.782	1.692	1.692	3.05
2.375	6.20	1.759	0.261	2.938	2.794	1.733	1.733	3.05
2.375	7.70	1.609	0.336	3.125	2.924	2.152	2.152	3.05
2.875	7.90	2.229	0.276	3.438	3.312	2.254	2.254	3.04
2.875	8.70	2.165	0.308	3.500	3.365	2.484	2.484	3.04
2.875	9.50	2.101	0.340	3.625	3.419	2.708	2.708	3.04
2.875	10.70	1.997	0.392	3.688	3.509	3.058	3.058	3.04
3.500	12.95	2.625	0.375	4.313	4.189	3.682	3.682	3.35
3.500	14.30	2.515	0.430	4.410	....	4.147	4.147	3.35
3.500	15.80	2.423	0.476	4.500	4.367	4.522	4.522	3.35
4.000	13.40	3.215	0.330	4.625	4.514	3.805	3.805	3.32
4.500	15.50	3.701	0.337	5.125	5.021	4.407	4.407	3.34
4.500	17.00	3.615	0.380	5.210	....	4.918	4.918	3.34
4.500	19.20	3.515	0.430	5.313	5.170	5.498	5.498	3.34

Vallourec USA — RTS-8

Diagram p. T-118

Type: Upset integral joint Seal: Metal-to-metal

D	w	d	t	D _c	D _{st}	A _t	A _c	L _m
1.050	1.20	0.730	0.113	1.327	1.300	0.333	0.333	2.22
1.050	1.50	0.648	0.154	1.327	....	0.433	0.433	2.22
1.315	1.80	0.955	0.133	1.552	1.525	0.494	0.494	2.23
1.315	2.25	0.863	0.179	1.600	....	0.639	0.639	2.23
1.660	2.40	1.286	0.140	1.883	1.858	0.669	0.669	2.23
1.660	3.02	1.184	0.191	1.927	....	0.881	0.881	2.23
1.660	3.24	1.170	0.198	1.927	....	0.909	0.909	2.23
1.900	2.90	1.516	0.145	2.113	2.094	0.799	0.799	2.23
1.900	3.64	1.406	0.200	2.162	....	1.068	1.068	2.23
1.900	4.19	1.368	0.219	2.179	....	1.157	1.157	2.23
2.063	3.25	1.657	0.156	2.330	2.295	0.935	0.935	2.23
2.063	4.50	1.519	0.225	2.460	2.407	1.299	1.299	2.23
2.375	4.70	1.901	0.190	2.700	2.655	1.304	1.304	2.31
2.375	5.30	1.845	0.218	2.750	2.700	1.477	1.477	2.31
2.875	6.50	2.347	0.217	3.210	3.166	1.812	1.812	2.39
3.500	9.30	2.867	0.254	3.915	3.859	2.590	2.590	2.84
3.500	10.30	2.797	0.289	3.915	....	2.915	2.915	2.84
4.000	11.00	3.351	0.262	4.417	4.359	3.077	3.077	2.84
4.500	12.75	3.833	0.271	4.920	4.861	3.600	3.600	2.89
4.500	13.50	3.795	0.290	4.955	4.890	3.836	3.836	2.89

Vallourec USA — ST-L

Diagram p. T-118

Type: Integral flush joint Seal: Metal-to-metal, threaded, optional resilient

D	w	d	t	D _c	D _{st}	A _t	A _c	L _m
2.375	4.70	1.901	0.190	2.375	....	1.304	0.575	2.02
2.375	5.95	1.773	0.254	2.375	....	1.692	0.903	3.10
2.875	6.50	2.347	0.217	2.875	....	1.812	0.892	2.54
2.875	7.90	2.229	0.276	2.875	....	2.254	1.243	3.47
2.875	8.70	2.165	0.308	2.875	....	2.484	1.407	3.87
3.500	7.70	2.943	0.216	3.500	....	2.228	1.144	2.75
3.500	9.30	2.867	0.254	3.500	....	2.590	1.295	3.00
3.500	10.30	2.797	0.289	3.500	....	2.915	1.643	3.73
3.500	12.95	2.625	0.375	3.500	....	3.682	2.380	4.31
3.500	15.80	2.423	0.476	3.500	....	4.522	3.015	5.34
4.000	9.50	3.423	0.226	4.000	....	2.680	1.259	2.50
4.000	11.00	3.351	0.262	4.000	....	3.077	1.696	3.42
4.000	11.60	3.303	0.286	4.000	....	3.337	1.885	3.75
4.000	13.40	3.215	0.330	4.000	....	3.805	2.223	4.34
4.000	13.60	3.185	0.345	4.000	....	3.961	2.336	4.54
4.000	14.80	3.115	0.380	4.000	....	4.322	2.653	3.82
4.500	9.50	3.965	0.205	4.500	....	2.766	1.345	2.45
4.500	10.50	3.927	0.224	4.500	....	3.009	1.460	2.63
4.500	11.00	3.901	0.237	4.500	....	3.174	1.698	3.09
4.500	11.60	3.875	0.250	4.500	....	3.338	1.762	2.87
4.500	12.75	3.833	0.271	4.500	....	3.600	2.010	3.57
4.500	13.50	3.795	0.290	4.500	....	3.836	2.181	3.83
4.500	15.10	3.701	0.337	4.500	....	4.407	2.597	4.47
4.500	18.80	3.515	0.430	4.500	....	5.498	3.306	3.76
5.000	13.00	4.369	0.253	5.000	....	3.773	2.054	3.25
5.000	15.00	4.283	0.296	5.000	....	4.374	2.494	3.86
5.000	18.00	4.151	0.362	5.000	....	5.275	3.103	3.16
5.000	20.30	4.059	0.408	5.000	....	5.886	3.892	4.75
5.000	20.80	4.031	0.422	5.000	....	6.069	3.729	4.00
5.000	21.40	4.001	0.437	5.000	....	6.264	4.184	5.07
5.000	23.20	3.919	0.478	5.000	....	6.791	4.588	5.52
5.000	24.10	3.875	0.500	5.000	....	7.069	4.071	3.57

Vallourec USA — TC-II

Diagram p. T-118

Type: Coupled Seal: Metal-to-metal, threaded, optional resilient

D	w	d	t	D _c	D _{st}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.675	....	1.304	1.304	2.30
2.375	5.10	1.845	0.218	2.716	....	1.477	1.477	2.30
2.375	5.80	1.773	0.254	2.766	....	1.692	1.692	2.30
2.875	6.40	2.347	0.217	3.211	....	1.812	1.812	2.54
2.875	7.80	2.229	0.276	3.297	....	2.254	2.254	2.54
2.875	8.60	2.165	0.308	3.342	....	2.484	2.484	2.54
3.100	9.20	2.375	0.300	3.561	....	2.639	2.639	2.52
3.188	6.20	2.675	0.194	3.515	....	1.825	1.825	2.07
3.500	7.70	2.943	0.216	3.827	....	2.228	2.228	3.16
3.500	9.20	2.867	0.254	3.887	....	2.590	2.590	3.16
3.500	10.20	2.797	0.289	3.940	....	2.915	2.915	3.16
3.500	12.70	2.625	0.375	4.062	....	3.682	3.682	3.16
4.000	9.50	3.423	0.226	4.355	....	2.680	2.680	3.03

4.000	10.90	3.351	0.262	4.412	....	3.077	3.077	3.03
4.000	13.00	3.215	0.330	4.517	....	3.805	3.805	3.03
4.500	10.50	3.927	0.224	4.853	....	3.009	3.009	3.10
4.500	11.60	3.875	0.250	4.896	....	3.338	3.338	3.10
4.500	12.60	3.833	0.271	4.932	....	3.600	3.600	3.10
4.500	13.50	3.795	0.290	4.961	....	3.836	3.836	3.10
4.500	15.10	3.701	0.337	5.034	....	4.407	4.407	3.10
5.000	15.00	4.283	0.296	5.428	....	4.374	4.374	4.35
5.000	18.00	4.151	0.362	5.533	....	5.275	5.275	4.35
5.000	20.30	4.059	0.408	5.603	....	5.886	5.886	4.35
5.000	20.80	4.031	0.422	5.624	....	6.069	6.069	4.35
5.000	21.40	4.001	0.437	5.646	....	6.264	6.264	4.35
5.000	23.20	3.919	0.478	5.705	....	6.791	6.791	4.35
5.000	24.10	3.875	0.500	5.736	....	7.069	7.069	4.35

VAM Connections — VAM FJL

Diagram p. T-119

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{st}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.375	....	1.304	0.704	1.89
2.375	5.10	1.845	0.218	2.375	....	1.477	0.787	2.28
2.375	5.80	1.773	0.254	2.375	....	1.692	0.936	2.99
2.375	6.30	1.721	0.280	2.375	....	1.843	1.016	2.87
2.375	7.35	1.609	0.336	2.375	....	2.152	1.183	3.70
2.875	6.40	2.347	0.217	2.875	....	1.812	1.000	2.24
2.875	7.80	2.229	0.276	2.875	....	2.254	1.172	2.91
2.875	8.60	2.165	0.308	2.875	....	2.484	1.388	3.07
2.875	9.80	2.057	0.362	2.875	....	2.858	1.573	3.82
2.875	10.70	1.971	0.405	2.875	....	3.143	2.045	5.79
3.500	7.70	2.943	0.216	3.500	....	2.228	1.223	2.13
3.500	9.20	2.867	0.254	3.500	....	2.590	1.424	2.76
3.500	10.20	2.797	0.289	3.500	....	2.915	1.598	3.31
3.500	12.70	2.625	0.375	3.500	....	3.682	2.492	3.98
3.500	13.70	2.549	0.413	3.500	....	4.005	2.714	4.45
3.500	14.70	2.477	0.449	3.500	....	4.304	2.932	4.92
3.500	15.50	2.423	0.476	3.500	....	4.522	3.075	5.24
4.000	9.50	3.423	0.226	4.000	....	2.680	1.481	2.20
4.000	10.90	3.351	0.262	4.000	....	3.077	1.698	2.80
4.000	11.30	3.303	0.286	4.000	....	3.337	1.838	3.18
4.000	13.20	3.215	0.330	4.000	....	3.805	2.544	2.99
4.000	14.80	3.115	0.380	4.000	....	4.322	2.980	3.78
4.000	16.50	3.015	0.430	4.000	....	4.823	3.323	4.41
4.500	11.60	3.875	0.250	4.500	....	3.338	2.053	2.56
4.500	12.60	3.833	0.271	4.500	....	3.600	2.053	2.56
4.500	13.50	3.795	0.290	4.500	....	3.836	2.053	2.56
4.500	15.10	3.701	0.337	4.500	....	4.407	2.882	3.21
4.500	17.00	3.615	0.3					

VAM Connections — VAM 21

Diagram p. T-119

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
5.000	18.0	4.151	0.362	5.604	....	5.275	5.389	4.08
5.000	21.4	4.001	0.437	5.699	....	6.264	6.398	4.47
5.000	23.2	3.919	0.478	5.758	....	6.791	6.928	4.47
5.500	17.0	4.767	0.304	6.018	....	4.962	5.074	4.08
5.500	20.0	4.653	0.361	6.110	....	5.828	5.956	4.08
5.500	23.0	4.545	0.415	6.195	....	6.630	6.773	4.08
5.500	26.0	4.423	0.476	6.268	....	7.513	7.674	4.47
5.500	26.8	4.375	0.500	6.303	....	7.854	8.024	4.47

VAM Connections — VAM 21 HT

Diagram p. T-119

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
5.000	18.00	4.151	0.362	5.604	....	5.275	5.389	4.08
5.000	21.40	4.001	0.437	5.699	....	6.264	6.398	4.47
5.000	23.20	3.919	0.478	5.758	....	6.791	6.928	4.47
5.500	17.00	4.775	0.304	6.018	....	4.962	5.074	4.08
5.500	20.00	4.655	0.361	6.110	....	5.828	5.956	4.08
5.500	23.00	4.535	0.415	6.195	....	6.630	6.773	4.08
5.500	26.00	4.423	0.476	6.268	....	7.513	7.674	4.47
5.500	26.80	4.375	0.500	6.303	....	7.854	8.024	4.47

VAM Connections — VAM SLIJ-II

Diagram p. T-119

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
4.500	15.10	3.701	0.337	4.646	....	4.407	3.123	....
4.500	17.00	3.615	0.380	4.646	....	4.918	3.625	....
4.500	18.90	3.515	0.430	4.654	....	5.498	4.081	....
4.500	21.50	3.375	0.500	4.661	....	6.283	4.750	....
5.000	18.00	4.151	0.362	5.098	....	5.275	3.777	....
5.000	20.30	4.059	0.408	5.136	....	5.886	4.421	....
5.000	20.80	4.031	0.422	5.146	....	6.069	4.619	....
5.000	21.40	4.001	0.437	5.158	....	6.264	4.831	....
5.000	23.20	3.919	0.478	5.190	....	6.791	5.242	....
5.000	24.10	3.875	0.500	5.193	....	7.069	5.468	....
5.000	26.70	3.751	0.562	5.203	....	7.836	6.081	....
5.000	29.20	3.625	0.625	5.214	....	8.590	6.687	....
5.500	20.00	4.653	0.361	5.594	....	5.828	4.125	....
5.500	23.00	4.545	0.415	5.635	....	6.630	4.958	....
5.500	23.80	4.501	0.437	5.653	....	6.951	5.301	....
5.500	26.00	4.423	0.476	5.678	....	7.513	5.833	....
5.500	26.80	4.375	0.500	5.706	....	7.854	6.135	....
5.500	28.40	4.315	0.530	5.719	....	8.275	6.507	....
5.500	29.70	4.251	0.562	5.733	....	8.718	6.907	....
5.500	32.00	4.151	0.612	5.742	....	9.398	7.452	....
5.500	32.60	4.125	0.625	5.748	....	9.572	7.621	....

VAM Connections — VAM TOP

Diagram p. T-119

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
2.375	4.60	1.901	0.190	2.677	....	1.304	1.330	2.44
2.375	5.10	1.845	0.218	2.719	....	1.477	1.507	2.44
2.375	5.80	1.773	0.254	2.746	....	1.692	1.727	2.89
2.375	6.30	1.721	0.280	2.781	....	1.843	1.879	2.89
2.375	6.60	1.691	0.295	2.801	....	1.928	1.967	2.89
2.375	7.35	1.609	0.336	2.852	....	2.152	2.194	2.89
2.875	6.40	2.347	0.217	3.222	....	1.812	1.848	2.51
2.875	7.80	2.229	0.276	3.275	....	2.254	2.298	3.18
2.875	8.60	2.165	0.308	3.320	....	2.484	2.535	3.18
2.875	9.35	2.101	0.340	3.364	....	2.708	2.762	3.18
2.875	9.80	2.057	0.362	3.393	....	2.858	2.914	3.18
2.875	10.50	1.997	0.392	3.431	....	3.058	3.119	3.18
2.875	10.70	1.971	0.405	3.447	....	3.143	3.206	3.18
2.875	11.50	1.901	0.440	3.470	....	3.366	3.433	3.56
3.500	6.50	3.035	0.170	3.770	....	1.778	1.814	3.03
3.500	7.70	2.943	0.216	3.846	....	2.228	2.271	3.03
3.500	9.20	2.867	0.254	3.907	....	2.590	2.643	3.03
3.500	10.20	2.797	0.289	3.961	....	2.915	2.973	3.03
3.500	12.70	2.625	0.375	4.043	....	3.682	3.756	3.82
3.500	13.70	2.549	0.413	4.095	....	4.005	4.085	3.82
3.500	14.30	2.515	0.430	4.117	....	4.147	4.230	3.82
3.500	14.70	2.477	0.449	4.142	....	4.304	4.391	3.82
3.500	15.50	2.423	0.476	4.154	....	4.522	4.612	4.26
3.500	16.70	2.355	0.510	4.196	....	4.791	4.888	4.26
3.500	18.35	2.225	0.575	4.271	....	5.284	5.391	4.26
4.000	8.20	3.495	0.190	4.300	....	2.274	2.318	3.16
4.000	9.50	3.423	0.226	4.361	....	2.680	2.733	3.16
4.000	10.90	3.351	0.262	4.420	....	3.077	3.138	3.16
4.000	11.60	3.303	0.286	4.458	....	3.337	3.404	3.16
4.000	12.10	3.277	0.299	4.478	....	3.476	3.545	3.16
4.000	13.20	3.215	0.330	4.526	....	3.805	3.882	3.16
4.000	14.80	3.115	0.380	4.552	....	4.322	4.409	4.04
4.000	16.10	3.045	0.415	4.602	....	4.674	4.765	4.04
4.000	16.50	3.015	0.430	4.623	....	4.823	4.919	4.04
4.000	18.90	2.875	0.500	4.691	....	5.498	5.609	4.55
4.000	22.20	2.655	0.610	4.827	....	6.496	6.625	4.55
4.500	10.50	3.927	0.224	4.858	....	3.009	3.069	3.22
4.500	11.60	3.875	0.250	4.902	....	3.338	3.407	3.22
4.500	12.60	3.833	0.271	4.937	....	3.600	3.671	3.22
4.500	13.50	3.795	0.290	4.968	....	3.836	3.913	3.22
4.500	15.10	3.701	0.337	5.042	....	4.407	4.495	3.22
4.500	17.00	3.615	0.380	5.063	....	4.918	5.016	4.04

4.500	17.70	3.571	0.402	5.096	....	5.175	5.280	4.04
4.500	18.90	3.515	0.430	5.137	....	5.498	5.609	4.04
4.500	21.50	3.375	0.500	5.209	....	6.283	6.410	4.55
4.500	23.70	3.255	0.560	5.289	....	6.932	7.069	4.55
4.500	26.10	3.115	0.630	5.354	....	7.660	7.814	5.02
4.500	10.50	3.927	0.224	4.827	....	3.009	3.051	3.66
4.500	11.60	3.875	0.250	4.870	....	3.338	3.381	3.66
4.500	12.60	3.833	0.271	4.906	....	3.600	3.653	3.66
4.500	13.50	3.795	0.290	4.937	....	3.836	3.896	3.66
4.500	15.10	3.701	0.337	5.012	....	4.407	4.481	3.66
4.500	17.00	3.615	0.380	5.077	....	4.918	4.995	3.66
4.500	17.70	3.571	0.402	5.110	....	5.175	5.263	3.66
4.500	18.90	3.515	0.430	5.152	....	5.498	5.596	3.66
4.500	21.50	3.375	0.500	5.248	....	6.283	6.384	3.66
4.500	23.70	3.255	0.560	5.329	....	6.932	7.055	3.66
5.000	13.00	4.369	0.253	5.400	....	3.773	3.857	4.19
5.000	15.00	4.283	0.296	5.470	....	4.374	4.462	4.19
5.000	18.00	4.151	0.362	5.577	....	5.275	5.384	4.19
5.000	20.30	4.059	0.408	5.648	....	5.886	6.009	4.19
5.000	20.80	4.031	0.422	5.669	....	6.069	6.201	4.19
5.000	21.40	4.001	0.437	5.691	....	6.264	6.395	4.19
5.000	23.20	3.919	0.478	5.750	....	6.791	6.925	4.19
5.000	24.10	3.875	0.500	5.781	....	7.069	7.211	4.19
5.500	14.00	4.887	0.244	5.876	....	4.029	4.115	4.38
5.500	15.50	4.825	0.275	5.929	....	4.514	4.608	4.38
5.500	17.00	4.767	0.304	5.978	....	4.962	5.069	4.38
5.500	20.00	4.653	0.361	6.071	....	5.828	5.944	4.38
5.500	23.00	4.545	0.415	6.156	....	6.630	6.756	4.38
5.500	26.00	4.423	0.476	6.248	....	7.513	7.659	4.38
5.500	26.80	4.375	0.500	6.283	....	7.854	8.007	4.38
5.500	28.40	4.315	0.530	6.327	....	8.275	8.437	4.38
5.500	29.70	4.251	0.562	6.372	....	8.718	8.888	4.38

VAM Connections — VAM

Diagram p. T-119

TOP HC

Type: Coupled Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
5.000	15.00	4.283	0.296	5.470	....	4.374	4.462	4.19
5.000	18.00	4.151	0.362	5.577	....	5.275	5.384	4.19
5.000	20.30	4.059	0.408	5.648	....	5.886	6.009	4.19
5.000	20.80	4.031	0.422	5.669	....	6.069	6.201	4.19
5.000	21.40	4.001	0.437	5.691	....	6.264	6.395	4.19
5.000	23.20	3.919	0.478	5.750	....	6.791	6.925	4.19
5.000	24.10	3.875	0.500	5.781	....	7.069	7.211	4.19
5.500	15.50	4.825	0.275	5.930	....	4.514	4.608	4.38
5.500	17.00	4.767	0.304	5.979	....	4.962	5.069	4.38
5.500	20.00	4.653	0.361	6.071	....	5.828	5.944	4.38
5.500	23.00	4.545	0.415					

VAM Connections — VAM SG

Diagram p. T-119

Type: Integral Seal: Metal-to-metal

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
4.500	15.10	3.701	0.337	4.678	....	4.407	3.966	6.696
5.000	21.40	4.001	0.437	5.252	....	6.264	5.638	6.502
5.000	23.20	3.919	0.478	5.276	....	6.791	6.180	7.103
5.500	20.00	4.653	0.361	5.697	....	5.828	5.070	6.335
5.500	23.00	4.545	0.415	5.720	....	6.630	5.967	6.502
5.500	26.00	4.423	0.476	5.720	....	7.513	6.762	7.443

voestalpine Tubulars — VAGT

Diagram p. T-119

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

D	w	d	t	D _c	D _{sc}	A _t	A _c	L _m
1.900	2.75	1.516	0.145	2.374	2.201	0.799	1.035	1.732
1.900	3.65	1.406	0.200	2.374	2.217	1.068	1.090	1.732
2.375	4.60	1.901	0.190	2.874	2.697	1.305	1.467	2.205
2.375	5.10	1.845	0.218	2.874	2.697	1.478	1.478	2.205
2.375	5.80	1.774	0.254	2.874	2.776	1.692	1.805	2.205
2.875	6.40	2.348	0.217	3.500	3.197	1.811	1.848	2.520
2.875	7.80	2.230	0.276	3.500	3.327	2.253	2.513	2.520
2.875	8.60	2.166	0.308	3.500	3.327	2.483	2.513	2.520
3.500	7.70	2.943	0.216	4.252	3.862	2.230	2.615	3.000
3.500	9.20	2.867	0.254	4.252	3.862	2.590	2.614	3.000
3.500	10.20	2.797	0.289	4.252	3.917	2.915	2.950	3.000
3.500	12.70	2.625	0.375	4.252	4.035	3.680	3.687	3.000
3.500	13.70	2.548	0.413	4.252	4.138	4.009	4.346	3.000
3.500	14.70	2.475	0.450	4.252	4.138	4.312	4.346	3.000
4.000	9.50	3.423	0.226	4.748	4.390	2.679	3.244	3.272
4.000	10.70	3.351	0.262	4.748	4.390	3.075	3.244	3.272
4.000	13.20	3.215	0.330	4.748	4.500	3.804	4.013	3.272
4.500	10.50	3.927	0.224	5.201	4.862	3.009	3.644	3.665
4.500	11.60	3.875	0.250	5.201	4.862	3.338	3.644	3.665
4.500	12.60	3.833	0.271	5.201	4.862	3.599	3.643	3.665
4.500	13.50	3.794	0.290	5.201	4.961	3.838	4.404	3.665
4.500	15.20	3.701	0.337	5.201	4.961	4.408	4.408	3.665
4.500	17.00	3.615	0.380	5.252	5.106	4.918	5.555	3.665
4.500	18.90	3.515	0.430	5.252	5.106	5.497	5.555	3.665

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