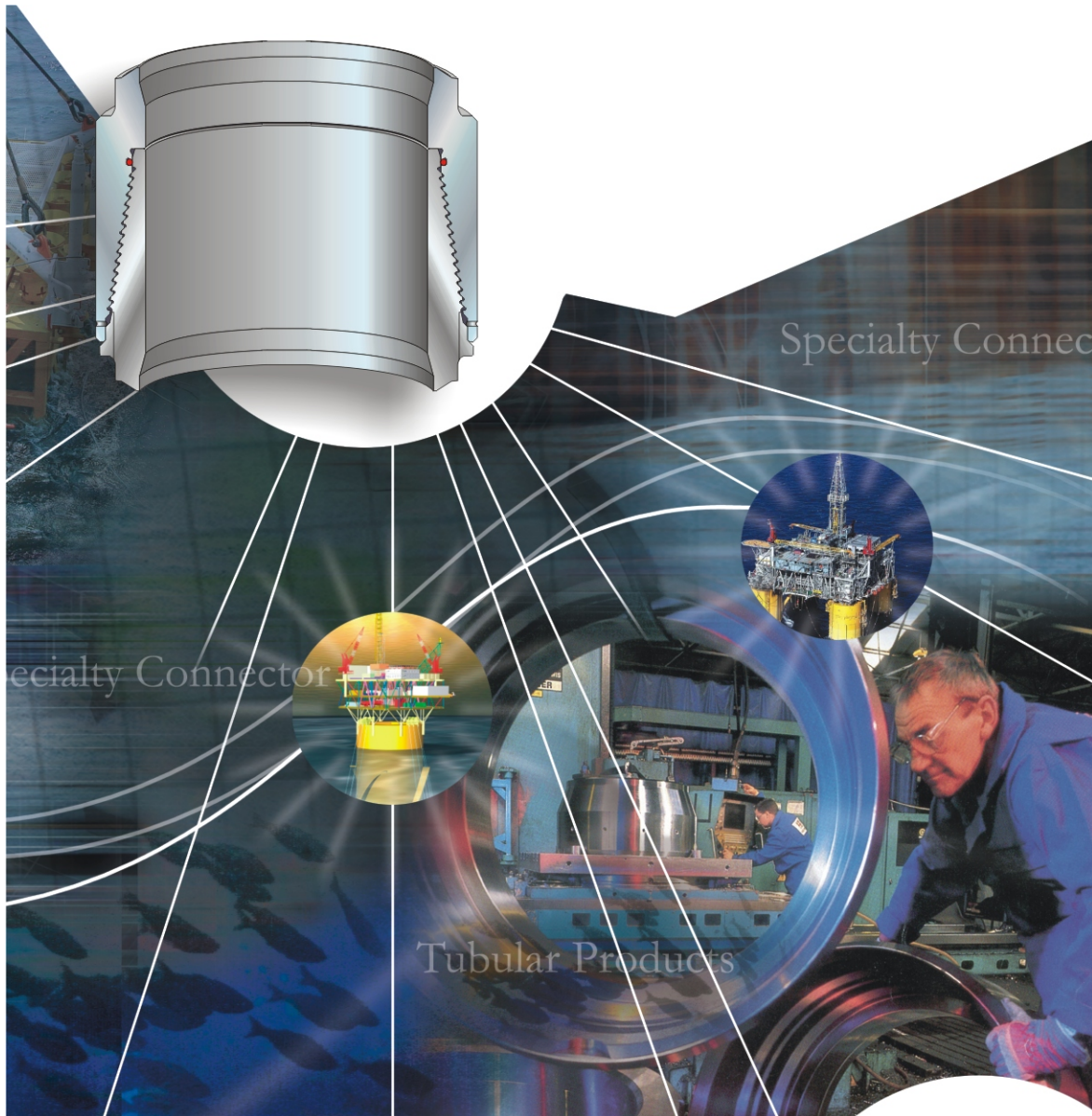


# Specialty Connector and Tubular Products

Vetco Gray's Family of Connector Products  
for Land, Platform, Jackup, Floater & Deepwater Applications



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Vetco Gray supplies field-proven connectors and accessories for every drilling area in the world. For the best value in today's market, you can depend on Vetco Gray.



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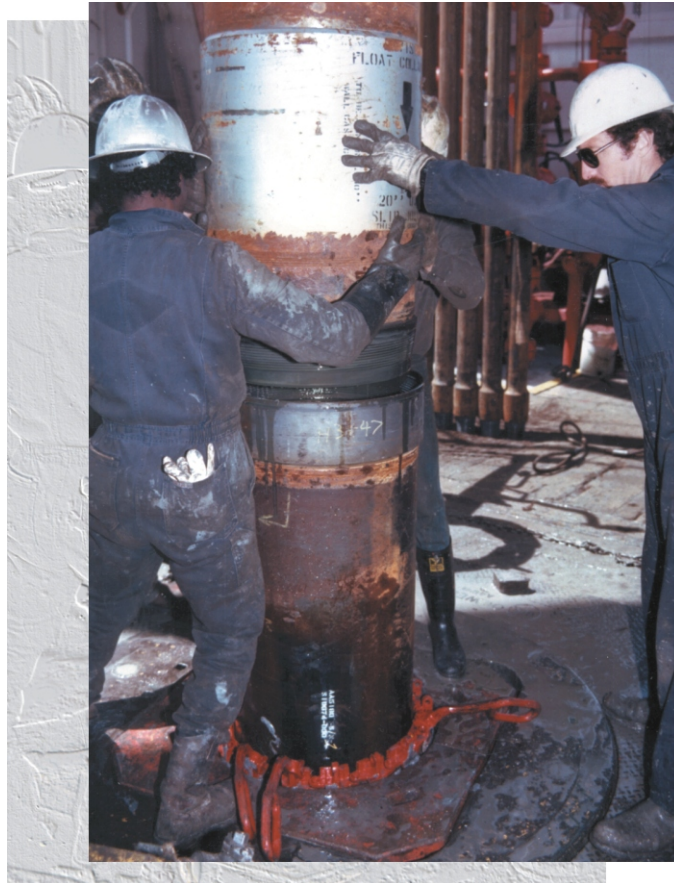
Vetco Gray is the pioneer in fast, simple and economical conductor and casing joint makeup for all drilling applications in both threaded and mechanical connectors.

Vetco Gray's threaded connectors are precision tool joints that simplify makeup of large diameter casing to save valuable rig time. Quick, accurate stabbing and virtual elimination of cross threading during initial engagement are ensured by the combination of the thread form and the tapered connector profile. A resilient seal in most threaded connectors ensures a high-pressure seal with a minimum of torque for increased operational safety.

For drilling applications that require non-rotation, reusable, mechanical connectors, the Squinch Joint<sup>®</sup> product line has become the choice of operators worldwide.

Regardless of whether threaded or mechanical, all Vetco Gray conductor and casing connectors are designed and verified by extensive testing and analysis for compatibility with the strength and capacities of the pipe. The variety of sizes and field-proven styles available in the Vetco Gray connector product line allows selection of the most suitable and economical connector for any type of application.

We offer a complete system approach through design, engineering analysis, and supply. Working together, we can establish



*Vetco Gray connectors save time and money on the rig. For example, running time for the 20" RL-4S<sup>™</sup> can average less than 4 minutes per joint from pick up to fill up, versus 12 to 14 minutes per joint for 20" buttress.*

requirements, such as applications, pipe sizes, coating, handling, circulation and installation; thus optimizing your complete drilling operation.

Vetco Gray has an industry approved Quality Assurance program to ensure that connectors are manufactured to stringent design specifications. All connectors are machined on state-of-the-art numerically controlled equipment. Each connector is inspected for dimensional accuracy and reliability.

The time and cost saving advantages of threaded and mechanical large diameter conductor and casing connectors are enhanced by the Complete Joint Service available worldwide from Vetco Gray's manufacturing plants. Connectors are welded to customer specified pipe prior to shipment, eliminating the need for field welding and inspections. Full documentation on pipe material and weld quality is provided as required.

## — Complete Joint Service —

The time and cost saving advantages of large diameter conductor and casing connectors are enhanced by the availability of the worldwide Vetco Gray Complete Joint Service. Eliminating the need for field welding and inspection, connectors are welded to customer specified pipe prior to shipment. Welding and inspection processes are performed under ideal conditions and full documentation on pipe material and weld quality is provided as required.

Our expertise in materials, welding and inspection ensures that the material properties of the connector, weld and pipe are maintained throughout the manufacturing process of a complete joint. Thorough

control and documentation of the welding and inspection processes assure traceability and verification of the material properties and provide consistent, demonstrable quality.

Vetco Gray provides heavy-duty protectors that prevent damage to the connectors from the time they leave the plant until they are used on the rig floor.

Prompt delivery of tubulars and connectors is assured from our worldwide manufacturing facilities, such as those in Houston, Texas; Montrose, Scotland; Singapore; and Brazil.



*At Vetco Gray, our welders are trained and certified to ensure the integrity of the materials.*



## Rental and Running Tools

Vetco Gray has rental and running tools, including circulating heads, bull tongs and crossover subs available to rent for all tubular products.

- ❖ Drive subs to interface with hydraulic and pneumatic hammers for a variety of Vetco Gray connectors
- ❖ Heavy duty elevators for handling 30" pipe for ALT-2 and ST-2 Squinch Joint connectors and RL-4's
- ❖ Circulating heads to cross over from Vetco Gray connectors to 2" line pipe or Weco Union connections to permit washout operations after cementing
- ❖ Adjustable, chain type bull tongs for easy makeup of threaded connections
- ❖ Crossover subs to convert Vetco Gray connectors to buttress and 8-RD thread forms



## Field Service

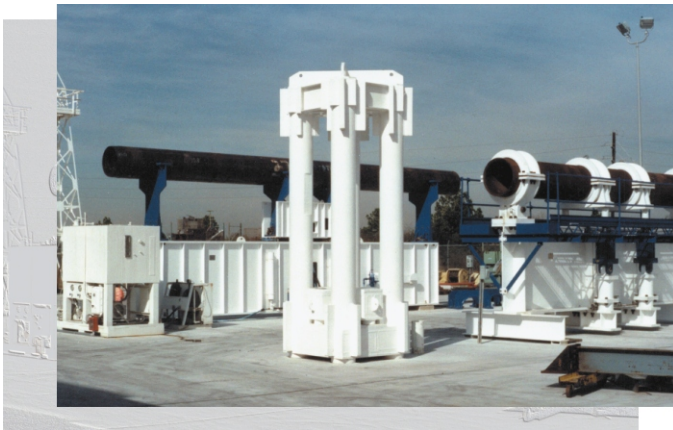
Field service technicians are on call twenty-four hours a day, 365 days a year, at all Vetco Gray locations worldwide. Repair and testing services are available, in addition to our standard installation service. Vetco Gray offers services that include maintenance programs, field inspection of existing equipment and engineering backup for unique situations.

## Training

Vetco Gray offers complete, practical, up to date product and systems technical training courses in the design configuration, installation and operation of drilling equipment for jackup, platform, floater and deepwater applications. Courses feature the latest methods for increasing operational efficiency, reliability and safety in basic product lines.

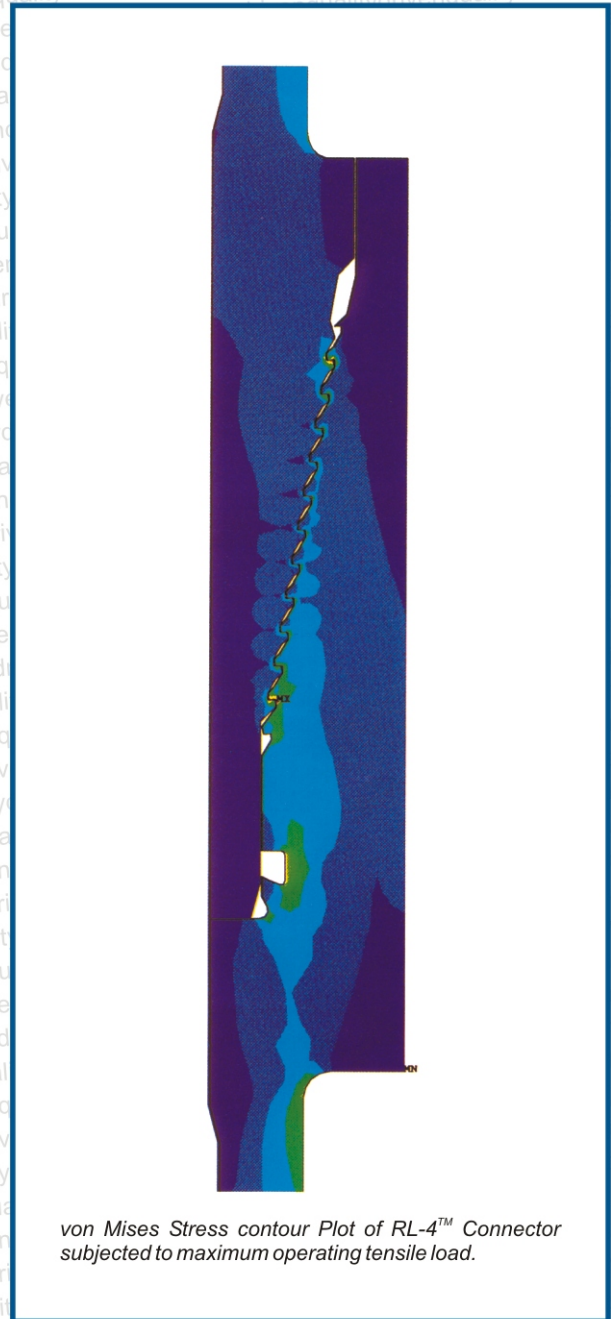
## — Technical and Test Data —

Vetco Gray is dedicated to providing fully analyzed and tested, reliable, modular components and subsystems that, when combined in projects, meet customer requirements in the most dependable, cost effective manner. Our expert engineering staff continually designs, develops, and tests new products to meet the ever changing needs of the industry while supporting a full line of standard, proven products already tested and used extensively throughout the world.



*Vetco Gray's Research and Development's testing yard, bending capacity testing machines with tubulars.*

Engineering, testing and analysis utilize modern engineering tools, such as Pro/Engineer, CAD, finite element analysis, internally-developed design computer programs, metallurgical laboratories, elastomer laboratories, as well as a completely outfitted R&D laboratory for functional and load testing. Load testing equipment includes tension, compression and bending test fixtures, bending fatigue test fixtures and a variety of pressure testing fixtures. Functional testing includes makeup, breakout, and stabbing tests. The results of all these tests are compared with the analysis to establish rated capacities. Test data is available on request.



*von Mises Stress contour Plot of RL-4™ Connector subjected to maximum operating tensile load.*

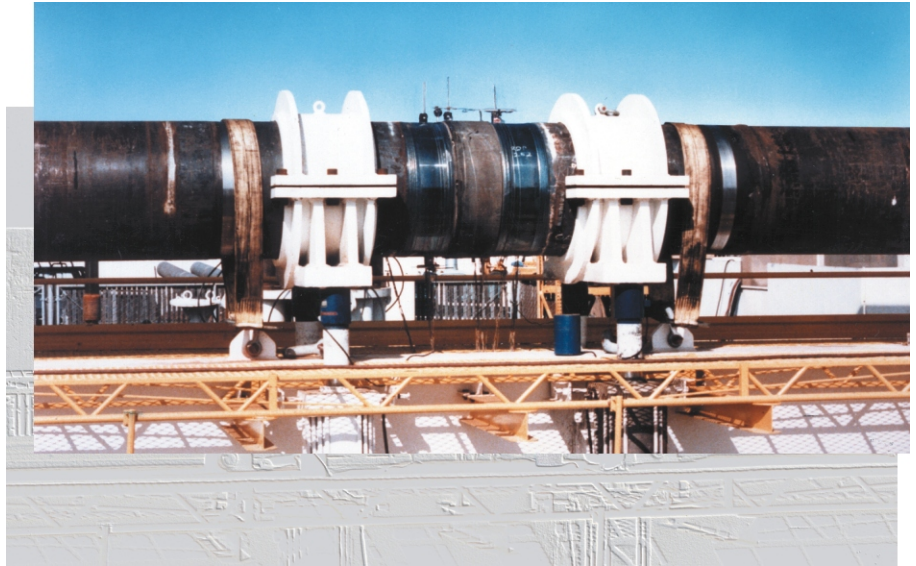
All Vetco Gray conductor and casing connectors are subjected to comprehensive functional and full-scale structural test programs to prove the functionality of each connector and verify the analytical design techniques used.



## — Complete — Analytical Services

Since 1980, Vetco Gray has been offering complete analytical services to assist customers in the design and strength assessment of conductors, risers, and tieback strings for specific applications. Capabilities include analyses of riser or conductor static strength and pile driving response as well as fatigue and fracture mechanics assessment. Analysis models used in these analyses can include intermediate support points, gaps at the support points, intermediate strings, and soil stiffness.

Vetco Gray uses the latest analysis techniques available to the industry. Some of the software programs used are ANSYS<sup>1</sup> for linear elastic finite element analysis (FEA), STARIS<sup>2</sup> for marine drilling and production risers analysis, PATRAN<sup>3</sup> for 3-D finite element modeling, and ABAQUS<sup>4</sup> for analysis of large deflection and non-linear material problems. Various other software programs and hardware are available to support complete project execution and reporting.



*Our experienced, expert engineers can perform complete analysis on all the components that go into the various riser systems to provide the strength and fatigue related data needed to understand the structural behavior of different system configurations and applications. By working closely with Design, Manufacturing and Field Service; Vetco Gray analysts are able to provide practical results that assist customers in selecting structurally adequate and cost effective equipment designs.*

Each riser or conductor system and application is significantly different and has its own particular analysis requirements. However, common to all applications is the strength and stability check on the outer string. In all cases, the outer string plus at least one of the inner strings are modeled on ANSYS. From the FEA, the maximum bending moment and stress at any location may be obtained.

Fatigue or fracture mechanics analysis is generally done only for long-term applications, such as platform wells. The fatigue life of a

system can be calculated using classical stress or strain life techniques. Fatigue life can also be assessed using fracture mechanics methods and NASCRAC - the industry accepted coding. Total damage or life for any point in the structure can be obtained for conductor, welds and connectors.

A system can be assessed for effects of a pile-driving hammer on a conductor. This analysis calculates the peak pipe wall stress during driving to determine if the conductor material strength is acceptable.

<sup>1</sup> ANSYS is a registered trademark of Ansys Inc.

<sup>2</sup> STARIS is a registered trademark of Starmark Offshore.

<sup>3</sup> PATRAN is a registered trademark of The MacNeal-Schwendler Corporation.

<sup>4</sup> ABAQUS is a registered trademark of Hibbitt, Karlsson and Sorensen, Inc.

### *RapidLock™* — *RL Connectors* —

The RapidLock thread form is a unique, self-locking connector that creates a pre-load force between the pin and the box. The RapidLock connector has a helix angle less than the critical coefficient of friction in a ratio similar to that of 4-1/2" API IF drill pipe. Testing has confirmed the application of pulsed torque to 97% of the breakout torque value with no backoff. The positive stop on the connector and the five-degree backrake angle of the thread form combine to reduce any beelling tendency. The load flanks contact only after the connector is fully stabbed, and since the minimum rotation for makeup reduces metal-to-metal friction, the potential for thread galling is greatly reduced.



*RL-4 Pin and Box*



*RL-4 anti-rotation tab and hand-held locking tool*






For driven or tieback applications, all RL-4 conductor connector as well as RL-4S casing connectors can be equipped with a secondary locking system where four integral locking tabs are machined on the box and four slots in the pin. This provides added protection against connector backoff without the use of strapping or thread-locking compound. The RL-4 style connectors feature four-start threads that provide make-up with only 1/4 to 1/2 turn of the suspended pipe. The RL-1 style connectors have a single start thread that makes-up in 1-1/3 to 2-1/3 turns.

After make-up, the box tab is cut to fit with a portable, hand held locking tool that shears the tab and forces it into the corresponding slot on the pin. To release, the anti-rotation tab can be pried out, cut out with the releasing head on the locking tool or cut with an acetylene torch. As an alternative, additional torque above that of the makeup torque, can be applied to overcome the locking tabs. The connector can then be released and reused.



# Specialty Connector & Tubular Products

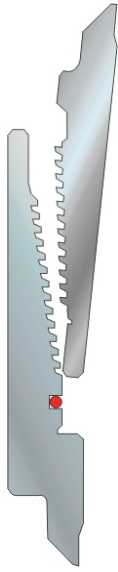
Vetco Gray Inc.

Connector Reference Chart*					
	LAND Applications	PLATFORM Applications	JACKUP Applications	FLOATER Applications	DEEPWATER Applications
RL-4		X	X	X	X
RL-4RB		X	X	X	X
RL-4C	X	X	X	X	
RL-1C	X	X	X	X	
RL-4F		X	X	X	X
RL-1F		X	X	X	X
RL-4H		X	X	X	X
RL-4HC					X
RL-1HC					X
RL-4S	X	X	X	X	X
RL-1S	X	X	X	X	
SR-20		X	X		
ALT-2		X	X	X	
ALT-2HT					X
ST-2		X	X	X	
ST-2RB		X	X	X	
ST-2HP		X	X	X	
ST-2HP RB		X	X	X	
DMR			X		
TTR	X	X	X		

\* Connectors may be used in applications other than noted.

## Quarter-Turn Makeup

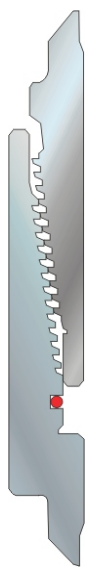
**Initial Stab**



1

*Four separate, identical interlocking threads start 90 degrees apart at the beginning of the thread form and engage simultaneously.*


**Self-Alignment**



2

*Self-aligning dual stab guides on the pin and box bring the connector into full alignment before the threads engage, preventing cross threading.*


**Fully Stabbed Before Rotation**



3

*Easy stabbing is assured by the geometry of the connectors, which allows over 95% of the pin to be swallowed by the box before rotation. Weight is slacked off before rotation.*

**After Quarter Turn Makeup**



4

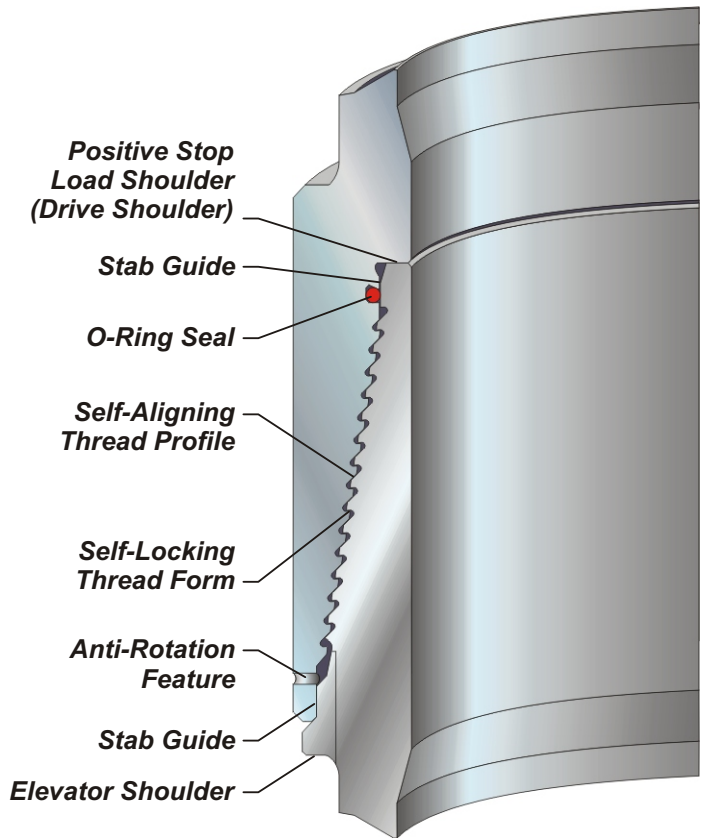
*One quarter-turn at the recommended torque fully shoulders and pre-loads the connection and energizes the seal. Positive makeup is visually verified.*

## — RL-4™ Connector —

The rigid, pre-loaded RL-4 high strength connector has been the overwhelming choice of Platform and Floater operators since its introduction to the drilling industry in the early 1980's. In Jackup applications, the RL-4 is very effective as the large-diameter connector, recommended for use with long conductor strings or in areas with high currents. The RL-4 connector features four-start threads, which provide make-up with only 1/4 to 1/2 turn of the suspended pipe. The RL-4 is ideal for deepwater, multi-slot applications.

RL-4 conductor connectors are equipped with a secondary locking system where four integral locking tabs are machined on the box to align with four slots on the pin. This integral anti-rotation feature provides added protection against connector back-off without the use of weld-on straps or thread-locking compounds. Engagement of the anti-rotation feature is particularly valuable in driving, tieback, high current or deepwater applications.

Standard Specification for pin and box sets, see page 18  
Pipe Grade Capacities, see pages 25-28



RL-4™ Connector

## Features & Benefits

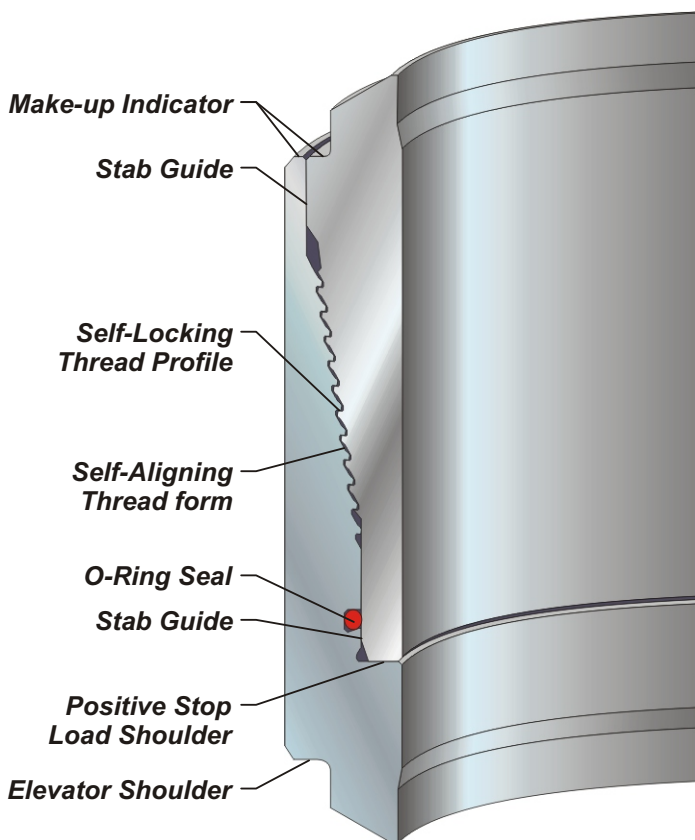
- ❖ Fast 1/4 turn makeup
- ❖ Self-locking, four-start thread form
- ❖ Self-aligning thread profile to prevent cross threading
- ❖ High stab angle with dual stab guides
- ❖ Pre-loaded for strength and rigidity
- ❖ Positive stop load shoulder
- ❖ Available in 28" - 42" diameters
- ❖ Driveable, Releasable, Reusable
- ❖ Integral anti-rotation feature
- ❖ Excellent in harsh environmental conditions
- ❖ Available in Reduced Bore configuration
  - ❖ Access through restricted areas
- ❖ Negative backrake angle on thread reduces beelling tendency
- ❖ Eliminates need for power tongs and casing crews
- ❖ Dual O-ring version available for thread protections



## — RL-4C Connector —

The RL-4C is recommended to save valuable running time for non-driven casing strings. This pre-loaded, light, compact, economical connector is compatible with the strength and capacity of the pipe and is for use in Land, Platform, Jackup and Floater applications. The RL-4C connector features four-start threads, which provide make-up with only 1/4 to 1/2 turn of the suspended pipe. The RL-1C connection makes up in 1-1/3 to 2-1/3 turns.

Standard Specification for pin and box sets, see page 18  
Pipe Grade Capacities, see pages 23-27



RL-4C Connector



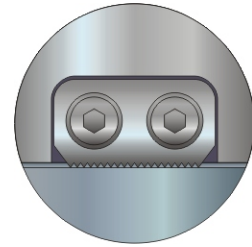
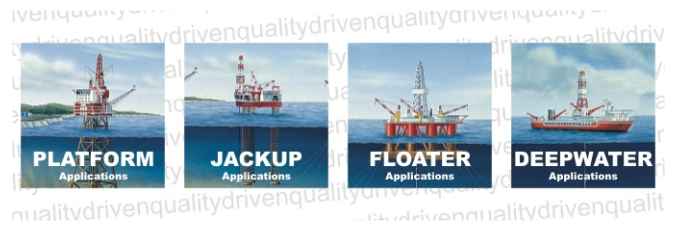
## Features & Benefits

- ❖ Fast 1/4 turn makeup
- ❖ Patented, self-locking, four-start thread form
- ❖ Self-aligning thread profile to prevent cross threading
- ❖ High stab angle with dual stab guides
- ❖ Pre-loaded for strength and rigidity
- ❖ Positive stop load shoulder
- ❖ Visual verification makeup indicator
- ❖ Available in 16" - 20" diameter
- ❖ 16" passes through a standard subsea wellhead housing
- ❖ 20" passes through a 21-1/4" annular BOP or diverter and accepts standard mudline equipment
- ❖ Negative backrake angle on thread reduces belling tendency
- ❖ Eliminates need for power tongs and casing crews

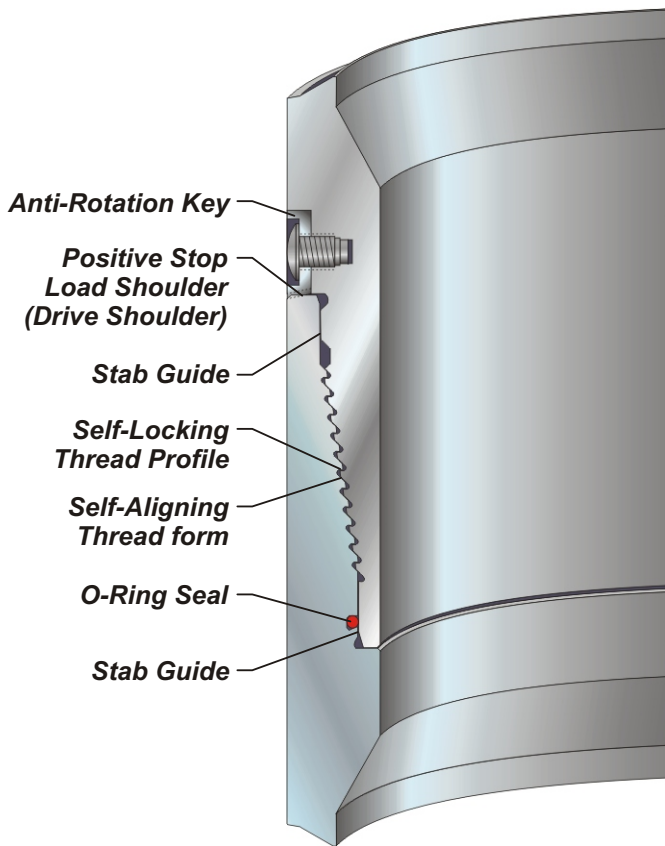
## RL-4F Connector

The RL-4F pre-loaded, high strength connector has a flush outside diameter for jetting, driving and drilling in Platform, Jackup, Floater and Deepwater applications. The RL-4F connector features four-start threads, which provide make-up with only 1/4 to 1/2 turn of the suspended pipe. The RL-1F connection makes up in one to two turns. An anti-rotation key is installed at the pin and box interface to provide additional torque resistance.

Standard Specification for pin and box sets, see page 19  
Pipe Grade Capacities, see pages 23-27



Anti-Rotation Key  
Standard on RL-4F style connectors



RL-4F Connector

## Features & Benefits

- ❖ Fast 1/4 turn makeup
- ❖ Patented, self-locking, four-start thread form
- ❖ Self-aligning thread profile to prevent cross threading
- ❖ High bending capacity
- ❖ Pre-loaded for strength and rigidity
- ❖ High strength anti-rotation keys
- ❖ Available in 24" - 36" diameters
- ❖ Flush OD for jetting, driving and drilling through restricted areas

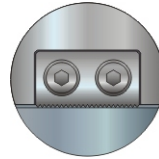


## — *RL-4H Connector* —

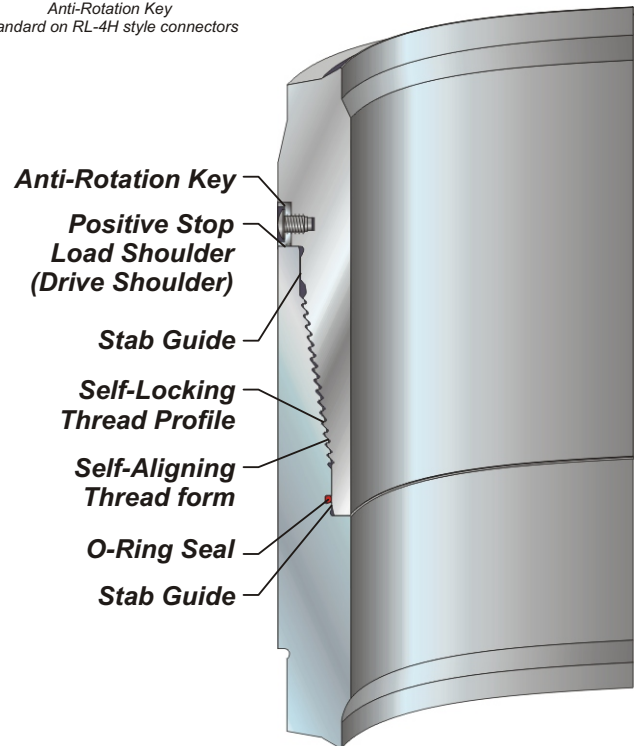
The RL-4H and the RL-4HC pre-loaded, high strength connectors are the strongest connectors available for DDCV, TLP and Deepwater Drillships requiring high bending and fatigue capabilities, and are also for use in Platform and Jackup applications. The RL-4H and RL-4HC connectors feature four-start threads, which provide make-up with only 1/4 to 1/2 turn of the suspended pipe. The RL-1HC connection makes up in one to two turns.

All RL-4H style connectors shoulder out on the OD at the pin and box interface and have a secondary shoulder on the inside. Anti-rotation keys are installed at the pin and box interface to provide additional torque resistance.

Standard Specification for pin and box sets, see page 19  
Pipe Grade Capacities, see pages 23-27



Anti-Rotation Key  
Standard on RL-4H style connectors



RL-4HC Connector

## Features & Benefits

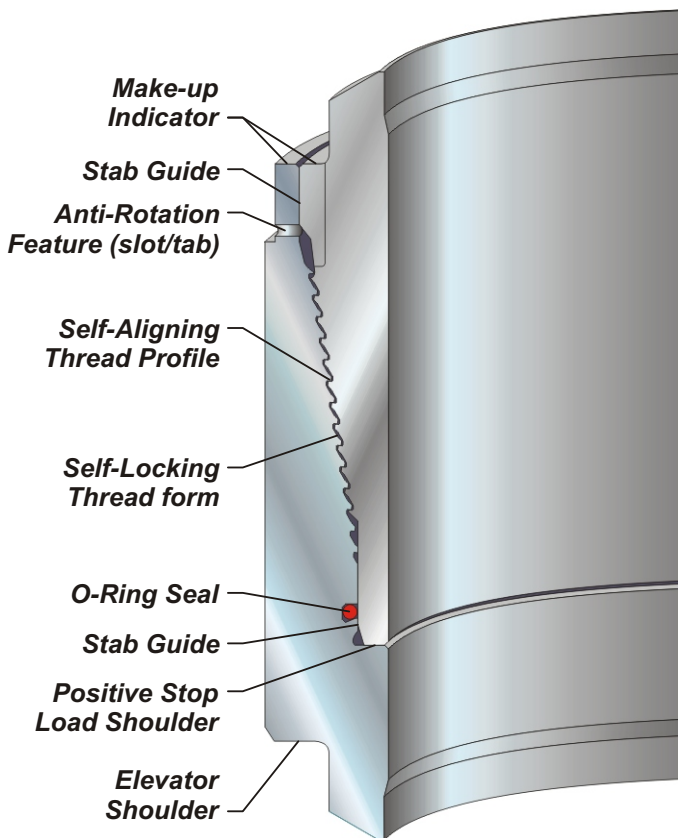
- ❖ Fast 1/4 turn makeup
- ❖ Self-locking, four-start thread form
- ❖ Self-aligning thread profile to prevent cross threading
- ❖ High stab angle with dual stab guides
- ❖ Pre-loaded for strength and rigidity
- ❖ Positive stop load shoulder
- ❖ Available in 28" - 38" diameters
- ❖ Driveable, Releasable, Reusable
- ❖ High strength anti-rotation keys
- ❖ Excellent in harsh environmental conditions
- ❖ Available in Reduced Bore configuration
  - ❖ Access through restricted areas
- ❖ Negative backrake angle on thread reduces belling tendency
- ❖ Eliminates need for power tongs and casing crews

## — RL-4S Connector —

The RL-4S pre-loaded, high strength connector has been field-proven in many different applications, environments and drilling programs for Land, Platform, Jackup and Floater applications, including highly deviated deep wells. The RL-4S connector features four-start threads, which provide make-up with only 1/4 to 1/2 turn of the suspended pipe. The RL-1S connection makes up in 1-1/3 to 2-1/3 turns.

RL-4S casing connectors are equipped with a secondary locking system where four integral locking tabs are machined on the box to align with four slots on the pin. This integral anti-rotation feature provides added protection against connector backoff without the use of weld-on straps or thread-locking compounds. Activation of the anti-rotation feature is recommended in driving, tieback, high current, or deepwater applications.

Standard Specification for pin and box sets, see page 18  
Pipe Grade Capacities, see pages 23-27



RL-4S Connector



## Features & Benefits

- ❖ Fast 1/4 turn makeup
- ❖ Patented, self-locking, four-start thread form
- ❖ Self-aligning thread profile to prevent cross threading
- ❖ High stab angle with dual stab guides
- ❖ Pre-loaded for strength and rigidity
- ❖ Positive stop load shoulder
- ❖ Flush shoulder on pin provides verification of proper make-up
- ❖ Available in 16" - 26" diameters
- ❖ Driveable, Releasable, Reusable
- ❖ High strength anti-rotation tabs
- ❖ 20" accepts standard mudline equipment
- ❖ Negative backrake angle on thread reduces beelling tendency
- ❖ Eliminates need for power tongs and casing crews
- ❖ Dual O-ring version available for thread protection

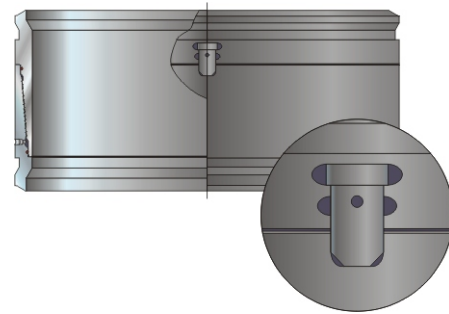
*Vetco Gray connectors save time and money on the rig. For example, running time for the 20" RL-4S can average less than 4 minutes per joint from pick up to fill up, versus 12 to 14 minutes per joint for 20" buttress.*



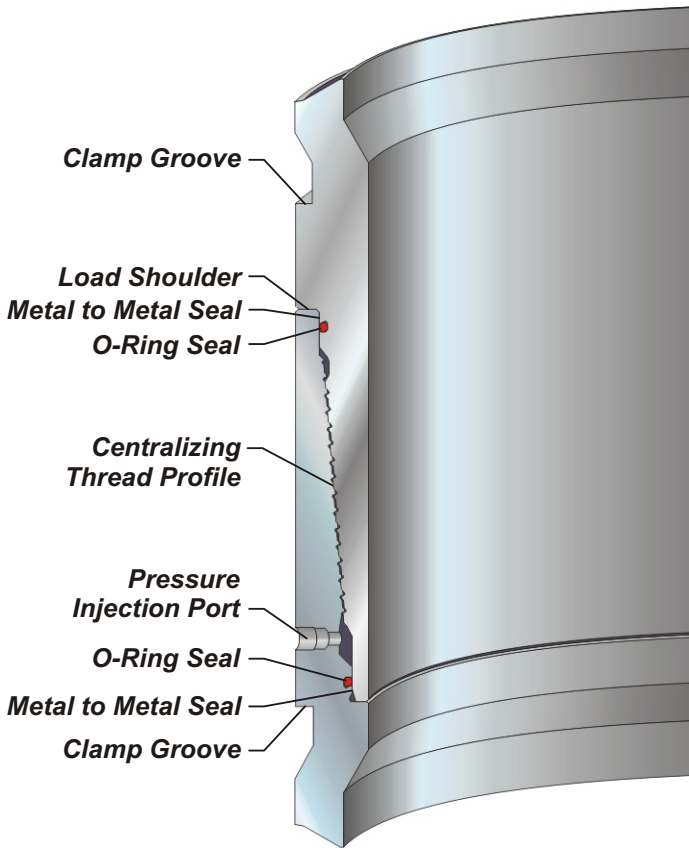
## — SR-20 Connector —

The pre-loaded, high strength SR-20 is especially designed for long term fatigue applications on Platforms and Jackups, the central element of a platform conductor system that is simple, economical and efficient.

Standard Specification for pin and box sets, see page 22  
Pipe Grade Capacities, see pages 23-27



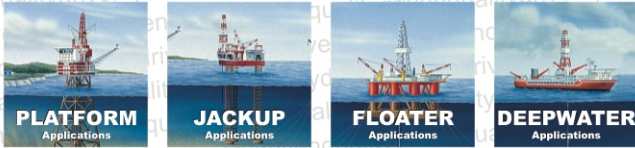
Alignment Key  
Standard on SR-20 style connectors



SR-20 Connector

## Features & Benefits

- ❖ Patented two-start interference-fit thread form
- ❖ High radial pre-load for strength, rigidity and long term fatigue life
- ❖ Dual metal-to-metal sealing for corrosion protection
- ❖ High stab angle
- ❖ Available in 20" - 32" diameters
- ❖ Fast, snap-together makeup in less than one second using special clamp tool; One turn release
- ❖ High driving efficiency, Releasable, Reusable

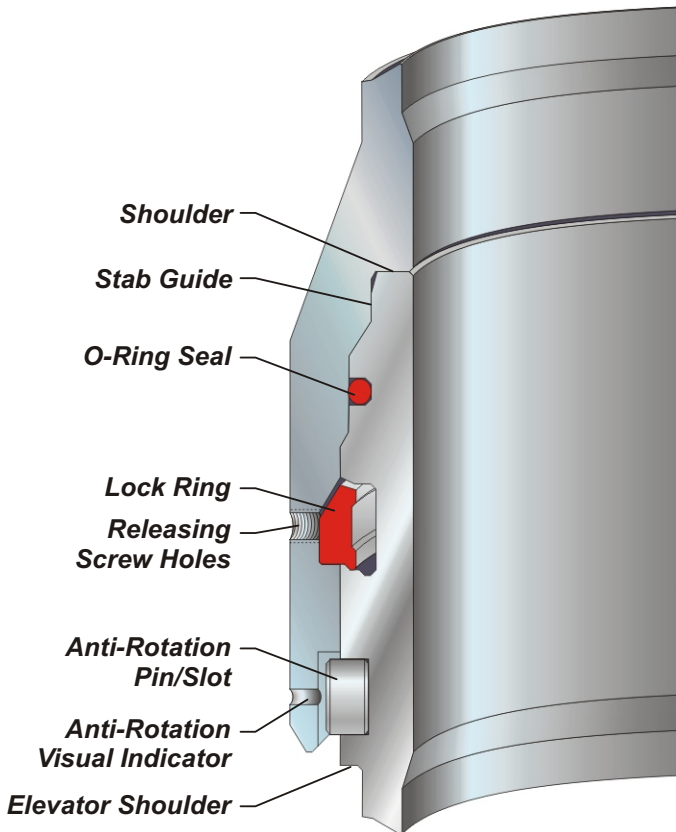


## — ALT-2 Sqrunch Joint® —

For over 25 years, Sqrunch Joints have been used in non-rotation, weight-set applications on Floaters, Jackups and Platforms. When higher bending capacity is needed in a non-rotating connection, the ALT-2 can be used for connecting pipe joints up to 42”.

The ALT-2HT is designed for use in deepwater dynamically positioned applications where high torque resistance may be needed to compensate for rig movement and rotation.

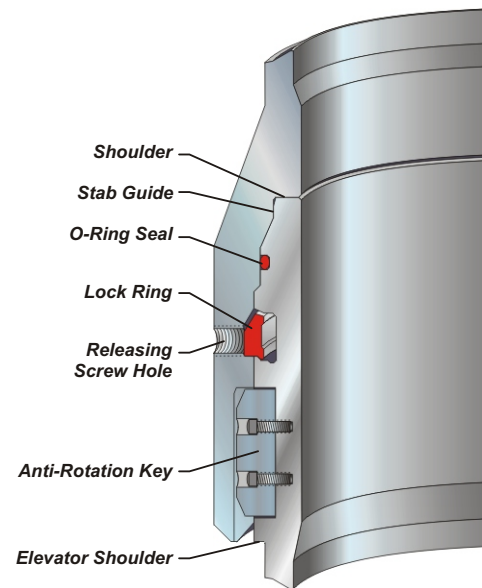
Standard Specifications for pin and box sets, see page 20  
Pipe Grade Capacities, see pages 23-27



ALT-2 Connector

## Features & Benefits

- ❖ Heavy-duty
- ❖ Compatible with larger wall thickness and higher strength conductor pipe
- ❖ Available in 20" - 42" diameters
- ❖ Wide shoulder for driving applications
- ❖ Anti-rotation pin and slot prevent rotation after makeup
- ❖ 20" utilized with 18-3/4" housing as a high pressure extension for high bending loads
- ❖ Available in High Torque resistant configuration.
  - ◆ Four anti-rotation keys for high torque resistance
  - ◆ Available in 20" - 36" diameters



ALT-2HT Connector

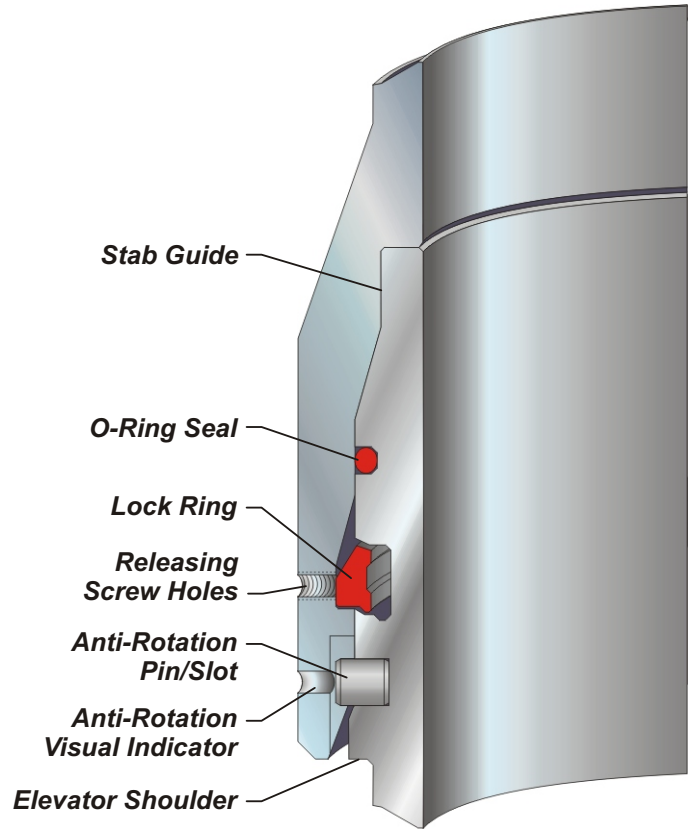


## — ST-2 Squunch Joint® —

Squunch Joints have been used for over 25 years in non-rotation, non-driving, weight-set applications for Floaters, Jackups and Platforms. Recommended for non-rotation makeup on conductor strings that are run into a pre-drilled hole and cemented into place.

The ST-2 is a reusable, mechanical release connector that has been field-proven worldwide. The ST-2 is available with a reduced bore configuration for passage through restricted areas, as well as a high performance option for use in increased load applications.

Standard Specification for pin and box sets, see page 21  
Pipe Grade Capacities, see pages 23-27



ST-2 Connector

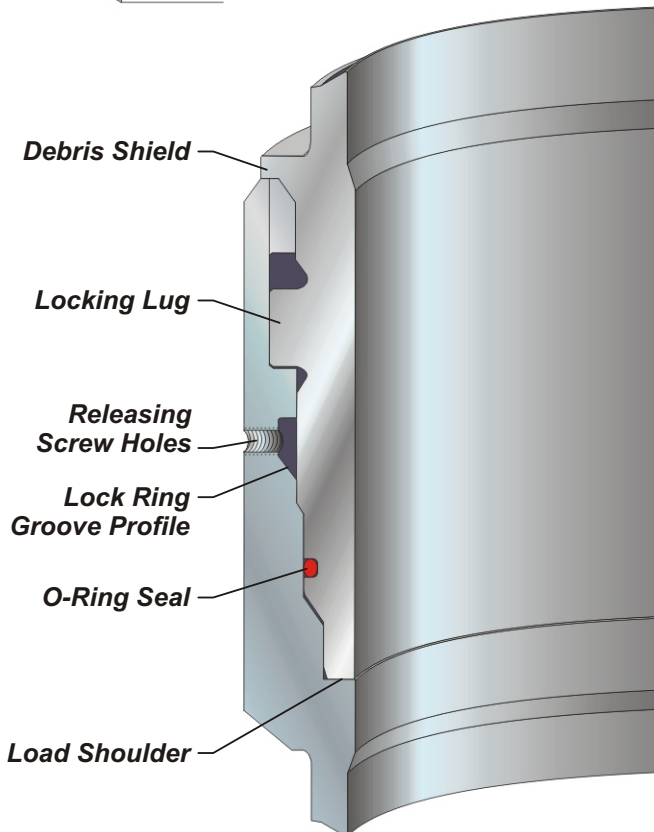
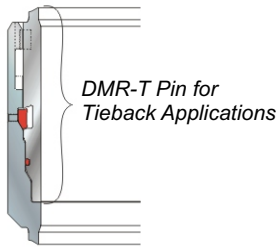
## Features & Benefits

- ❖ Standard duty
- ❖ Fast release capability
- ❖ Available in 30" diameter
- ❖ Reusable
- ❖ Weight-set for easy stabbing operation, no rotation required
- ❖ Anti-rotation pin and slot prevent rotation after makeup
- ❖ In most cases, the pin and box connectors are interchangeable, regardless of wall thickness
- ❖ Available in Reduced Bore configuration
  - ❖ Access through restricted areas
- ❖ Available in High Performance option
  - ❖ Increased load applications

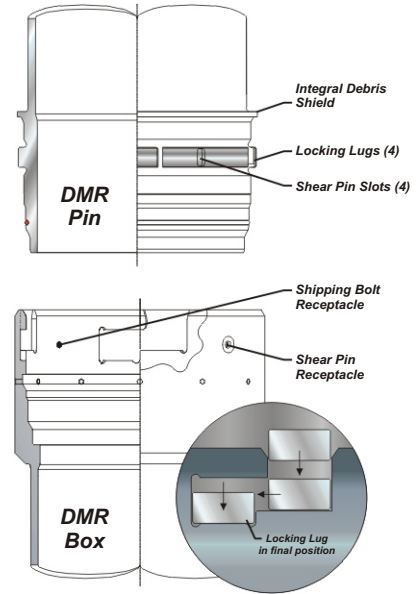
## DMR Remote Release Connector

The DMR is a driveable, mudline, releasable connector specifically designed for Jackup drilling applications where diverless release of the large diameter conductor is required. When the DMR is remotely released, a box connection is left on the well. At a later date, the well can be tied back using the DMR-T pin to re-establish the connection.

Standard Specifications for pin and box sets, see page 20  
Pipe Grade Capacities, see pages 23-27



DMR Connector



## Features & Benefits

- ❖ Simple, reliable, low torque release
- ❖ Pre-determined disconnect point
- ❖ Positive locking of connection during joint handling and driving
- ❖ Does not tighten during driving
- ❖ No separate mechanisms or cables required to release
- ❖ Deep stab - ample driving rebound allowance prevents damage to connector during driving
- ❖ Available in 26" - 30" diameters
- ❖ Easy tieback using DMR-T pin
- ❖ Pin reusable on a continued well to well program





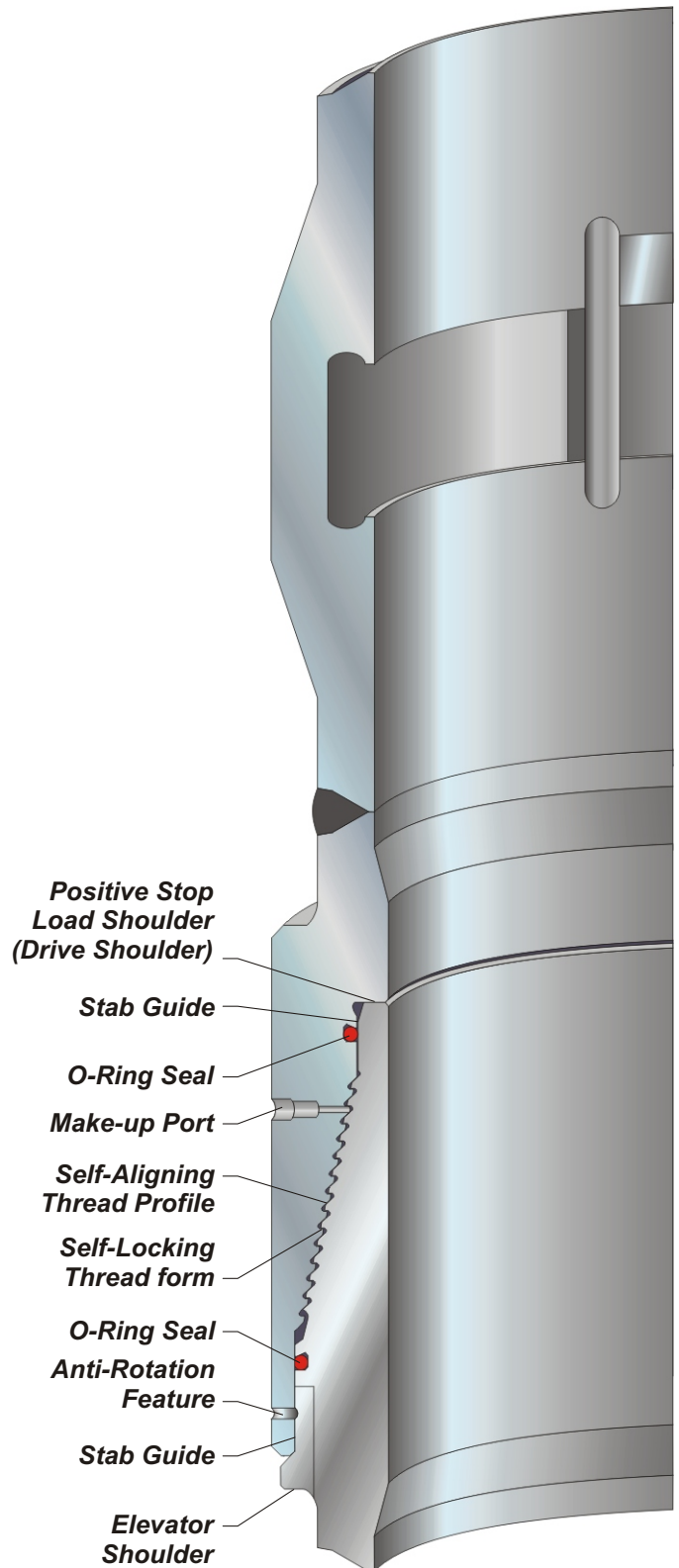
## TTR Remote Release Connector

The pre-loaded, remote release TTR connector is recommended to save valuable running time for non-driven casing strings in Land, Platform, and Jackup applications. This light, compact, and economical connector is compatible with the strength and capacity of the pipe. The TTR features the same four-start threads as the RL-4, which provide make-up with only 1/4 to 1/2 turn of the suspended pipe.

Standard Specifications for pin and box sets, see page 18  
 Pipe Grade Capacities, see pages 23-27

### Features & Benefits

- ❖ Simplifies recovery operations
- ❖ Eliminates the need for pipe cutting
- ❖ Equivalent in strength to an RL-4
- ❖ Available in 30" diameters
- ❖ Left-hand thread for right-hand release
- ❖ Pre-loaded for higher fatigue life
- ❖ Dual O-rings protect threads from corrosion
- ❖ Integral secondary locking device available for driving applications



TTR Connector

# Specialty Connector & Tubular Products

Vetco Gray Inc.

## RL-4™, TTR Connector Standard Specifications for Pin and Box Sets

Nominal O.D.		Wall Thickness		Material Yield Strength	Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1) (2)		Bending Yield Capacity (1) (2)		Internal Yield Pressure (1) (2)	Ultimate Tensile Capacity (2)		Ultimate Bending Capacity (2)		
in	mm	in	mm		in	mm	in	mm	in	mm	lb	N	kip	MN	kip-ft	kN.m		psi	MPa	kip	MN	kip-ft
22	558.8	0.625	15.9	110	23.88	606.6	19.00	482.6	18.00	457.2	670	2980	4617	20.54	2000	2712	5470	37.7	-	-	-	-
22	558.8	0.812	20.6	110	23.88	606.6	19.00	482.6	18.00	457.2	685	3047	5625	25.02	2531	3432	7100	49.0	-	-	-	-
22	558.8	1.000	25.4	110	23.88	606.6	18.50	469.9	18.00	457.2	702	3122	5625	25.02	2578	3495	8700	60.0	-	-	-	-
30	762.0	0.625	15.9	70	31.63	803.4	27.88	708.2	13.36	339.3	565	2513	4040	17.97	2420	3281	2915	20.1	6150	27.36	2835	3844
30	762.0	0.750	19.1	70	31.63	803.4	27.88	708.2	13.36	339.3	565	2513	4600	20.46	2800	3796	3500	24.1	6150	27.36	3360	4555
30	762.0	1.000	25.4	70	31.63	803.4	27.50	698.5	13.36	339.3	625	2780	4600	20.46	2800	3796	4670	32.2	8100	36.03	4600	6237
30	762.0	1.000	25.4	95	31.63	803.4	27.50	698.5	13.36	339.3	625	2780	6240	27.76	3800	5152	5000	34.5	10900	48.48	6450	8745
30	762.0	1.250	31.8	95	31.63	803.4	26.97	685.0	13.36	339.3	705	3136	6240	27.76	3800	5152	5000	34.5	10900	48.48	6450	8745
30	762.0	1.500	38.1	95	31.63	803.4	26.97	685.0	13.36	339.3	725	3225	6240	27.76	3800	5152	5000	34.5	10900	48.48	6450	8745

## RL-4RB Connector Standard Specifications for Pin and Box Sets

Nominal O.D.		Wall Thickness		Material Yield Strength	Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1) (2)		Bending Yield Capacity (1) (2)		Internal Yield Pressure (1) (2)	Ultimate Tensile Capacity (2)		Ultimate Bending Capacity (2)		
in	mm	in	mm		in	mm	in	mm	in	mm	lb	N	kip	MN	kip-ft	kN.m		psi	MPa	kip	MN	kip-ft
30	762.0	1.000	25.4	70	30.80	782.3	26.50	673.1	12.88	327.2	623	2771	4600	20.46	2800	3796	4670	32.2	8100	36.03	5190	7037
30	762.0	1.000	25.4	95	30.80	782.3	26.50	673.1	12.88	327.2	623	2771	6240	27.76	3800	5152	5000	34.5	10900	48.48	7280	9870
30	762.0	1.500	38.1	95	30.80	782.3	26.00	660.4	12.88	327.2	643	2860	6240	27.76	3800	5152	5000	34.5	10900	48.48	7280	9870
36	914.4	1.000	25.4	95	36.81	935.0	31.75	806.5	17.00	431.8	1048	4662	10000	44.48	5250	7118	3900	26.9	13500	60.05	14070	19076
36	914.4	1.500	38.1	95	36.81	935.0	31.75	806.5	17.00	431.8	1099	4888	10000	44.48	5250	7118	3900	26.9	13500	60.05	14070	19076

## RL-4C Connector Standard Specifications for Pin and Box Sets

Nominal O.D.		Wall Thickness		Material Yield Strength	Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1) (2)		Bending Yield Capacity (1) (2)		Internal Yield Pressure (1) (2)	Ultimate Tensile Capacity (2)		Ultimate Bending Capacity (2)		
in	mm	in	mm		in	mm	in	mm	in	mm	lb	N	kip	MN	kip-ft	kN.m		psi	MPa	kip	MN	kip-ft
16	406.4	0.438	11.1	60	17.12	434.8	14.84	376.9	7.64	194.1	106	471	1066	4.74	405	549	3500	24.1	1650	7.34	770	1044
16	406.4	0.500	12.7	60	17.12	434.8	14.87	377.7	7.64	194.1	107	476	1066	4.74	413	560	4000	27.6	1800	8.01	770	1044
18-5/8	473.1	0.438	11.1	60	19.75	501.7	17.65	448.3	7.64	194.1	117	520	1004	4.47	555	752	3000	20.7	1925	8.56	900	1220
18-5/8	473.1	0.500	12.7	60	19.75	501.7	17.59	446.8	7.64	194.1	120	534	1188	5.28	628	851	3400	23.4	2120	9.43	900	1220
20	508.0	0.438	11.1	60	21.00	533.4	18.75	476.3	7.64	194.1	125	556	1340	5.96	644	873	2750	19.0	2070	9.21	1005	1363
20	508.0	0.500	12.7	60	21.00	533.4	18.75	476.3	7.64	194.1	130	578	1340	5.96	728	987	3150	21.7	2250	10.01	1005	1363
20	508.0	0.625	15.9	60	21.00	533.4	18.63	473.2	7.64	194.1	134	596	1464	6.51	802	1087	3600	24.8	2250	10.01	1005	1363

## RL-4S Connector Standard Specifications for Pin and Box Sets

Nominal O.D.		Wall Thickness		Material Yield Strength	Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1) (2)		Bending Yield Capacity (1) (2)		Internal Yield Pressure (1) (2)	Ultimate Tensile Capacity (2)		Ultimate Bending Capacity (2)		
in	mm	in	mm		in	mm	in	mm	in	mm	lb	N	kip	MN	kip-ft	kN.m		psi	MPa	kip	MN	kip-ft
16	406.4	0.438	11.1	70	17.50	444.5	14.97	380.2	8.71	221.2	177	787	1210	5.38	420	569	4000	27.6	1750	7.78	1240	1681
16	406.4	0.500	12.7	70	17.50	444.5	14.82	376.4	8.71	221.2	188	836	1210	5.38	530	719	4700	32.4	2000	8.90	1500	2034
16	406.4	0.625	15.9	70	17.50	444.5	14.63	371.6	8.71	221.2	198	881	1210	5.38	650	881	5900	40.7	2000	8.90	1600	2169
18-5/8	473.1	0.438	11.1	70	20.38	517.7	17.65	448.3	8.71	221.2	234	1041	1350	6.00	650	881	3400	23.4	2050	9.12	1440	1952
18-5/8	473.1	0.500	12.7	70	20.38	517.7	17.59	446.8	8.71	221.2	236	1050	1350	6.00	780	1058	4000	27.6	2350	10.45	1600	2169
20	508.0	0.438	11.1	70	21.50	546.1	18.63	473.2	8.71	221.2	290	1290	1800	8.01	750	1017	3200	22.1	2200	9.79	1650	2237
20	508.0	0.500	12.7	70	21.50	546.1	18.63	473.2	8.71	221.2	290	1290	1800	8.01	850	1152	3650	25.2	2500	11.12	1700	2305
20	508.0	0.625	15.9	70	21.50	546.1	18.63	473.2	8.71	221.2	294	1308	1800	8.01	850	1152	4100	28.3	2500	11.12	1700	2305
20	508.0	0.750	19.1	70	21.50	546.1	18.38	466.9	8.95	227.3	312	1388	1800	8.01	1149	1558	5230	36.1	2500	11.12	1700	2305
20	508.0	0.750	19.1	95	21.50	546.1	18.38	466.9	8.95	227.3	312	1388	2440	10.85	1560	2115	7100	49.0	3500	15.57	2440	3308
20	508.0	0.812	20.6	70	21.50	546.1	18.25	463.6	8.95	227.3	325	1446	1800	8.01	1149	1558	5520	38.1	2500	11.12	1700	2305
20	508.0	0.812	20.6	95	21.50	546.1	18.25	463.6	8.95	227.3	325	1446	2440	10.85	1560	2115	7500	51.7	3500	15.57	2440	3308
22	558.8	0.625	15.9	70	23.25	590.6	20.25	514.4	10.03	254.8	240	1068	1931	8.59	1105	1498	3980	27.4	2900	12.90	2300	3118
22	558.8	0.625	15.9	95	23.25	590.6	20.25	514.4	10.03	254.8	240	1068	2620	11.65	1500	2034	5400	37.2	4000	17.79	3200	4339
24	609.6	0.500	12.7	70	25.25	641.4	22.25	565.2	9.33	237.1	315	1401	2060	9.16	1239	1680	3850	26.5	3400	15.12	3000	4067
24	609.6	0.625	15.9	70	25.25	641.4	22.25	565.2	9.33	237.1	320	1423	2060	9.16	1360	1844	3850	26.5	3400	15.12	3000	4067
24	609.6	0.688	17.5	70	25.25	641.4	22.25	565.2	9.33	237.1	322	1432	2060	9.16	1360	1844	3900	26.9	3400	15.12	3000	4067
24	609.6	0.688	17.5	95	25.25	641.4	22.25	565.2	9.33	237.1	322	1432	2800	12.45	1845	2501	5290	36.5	4770	21.22	4210	5708
24	609.6	0.750	19.1	95	25.25	641.4	22.25	565.2	9.33	237.1	340	1512	2800	12.45	1845	2501	5290	36.5	4770	21.22	4210	5708
26	660.4	0.625	15.9	70	27.25	692.2	24.25	616.0	9.92	252.0	365	1624	2300	10.23	1900	2576	3000	20.7	3630	16.15	3500	4745
26	660.4	0.750	19.1	70	27.25	692.2	24.25	616.0	9.92	252.0	368	1637	2300	10.23	1900	2576	3000	20.7	3630	16.15	3500	4745
26	660.4	0.750	19.1	95	27.25	692.2	24.25	616.0	9.92	252.0	368	1637	3120	13.88	2570	3484	4050	27.9	4920	21.88	4750	6440
26	660.4	1.000	25.4	95	27.25	692.2	23.88	606.6	9.92	252.0	405	1801	3150	14.01	2980	4040	6000	41.4	4920	21.88		

# Specialty Connector & Tubular Products

Vetco Gray Inc.

## RL-4F Connector Standard Specifications for Pin and Box Sets

Nominal O.D.		Wall Thickness		Material Yield Strength ksi	Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1) (2)		Bending Yield Capacity (1) (2)		Internal Yield Pressure (1) (2)	
in	mm	in	mm		in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa
24	609.6	0.750	19.1	70	24.015	610.0	20.125	511.2	16.38	416.1	535	2380	2857	12.71	1593	2160	5360	37.0
24	609.6	1.000	25.4	70	24.02	610.0	20.13	511.2	16.38	416.1	555	2469	2857	12.71	1593	2160	5360	37.0
24	609.6	1.000	25.4	95	24.02	610.0	20.13	511.2	16.38	416.1	555	2469	3877	17.24	2162	2931	7270	50.1
24	609.6	1.250	31.8	95	24.02	610.0	20.13	511.2	16.38	416.1	580	2580	3877	17.24	2162	2931	7270	50.1
26	660.4	0.750	19.1	70	26.02	660.8	22.13	562.0	16.38	416.1	585	2602	3128	13.91	1881	2550	4870	33.6
26	660.4	1.000	25.4	70	26.02	660.8	22.13	562.0	16.38	416.1	605	2691	3128	13.91	1881	2550	4870	33.6
26	660.4	1.000	25.4	95	26.02	660.8	22.13	562.0	16.38	416.1	605	2691	4245	18.88	2552	3460	6600	45.5
30	762.0	1.000	25.4	70	30.02	762.4	26.13	663.6	16.38	416.1	730	3247	3670	16.32	2530	3430	4130	28.5
30	762.0	1.000	25.4	95	30.02	762.4	26.13	663.6	16.38	416.1	730	3247	4980	22.15	3433	4654	5600	38.6
30	762.0	1.500	38.1	95	30.02	762.5	26.13	663.7	16.38	416.1	765	3403	4980	22.15	3433	4654	5600	38.6
36	914.4	1.000	25.4	95	36.03	915.2	31.35	796.3	19.50	495.3	1190	5293	6623	29.46	6297	8537	4600	31.7
36	914.4	1.500	38.1	95	36.03	915.2	31.35	796.3	19.50	495.3	1250	5560	10954	48.72	6297	8537	5000	34.5

## RL-4H Connector Standard Specifications for Pin and Box Sets

Nominal O.D.		Wall Thickness		Material Yield Strength ksi	Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1) (2)		Bending Yield Capacity (1) (2)		Internal Yield Pressure (1) (2)	
in	mm	in	mm		in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa
28	711.2	1.000	25.4	60	31.00	787.4	24.00	609.6	23.00	584.2	1580	7028	5164	22.97	2606	3533	3750	25.9
38	965.2	2.000	50.8	95	39.50	1003.3	32.10	815.3	23.00	584.2	2300	10230	13500	60.05	12000	16270	4000	27.6

## RL-4HC Connector Standard Specifications for Pin and Box Sets

Nominal O.D.		Wall Thickness		Material Yield Strength ksi	Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1) (2)		Bending Yield Capacity (1) (2)		Internal Yield Pressure (1) (2)	
in	mm	in	mm		in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa
30	762.0	1.500	38.1	95	31.63	803.4	26.25	666.8	22.58	573.5	1364	6067	8250	36.70	4900	6643	4220	29.1
36	914.4	1.500	38.1	110	36.81	935.0	31.32	795.5	25.08	637.0	1850	8229	11500	51.15	8330	11294	6120	42.2
36	914.4	2.000	50.8	110	36.81	935.0	31.32	795.5	25.08	637.0	1900	8451	11500	51.15	8330	11294	6120	42.2

(1) Yield and ultimate capacities are calculated based on minimum material properties, under single load conditions, and are based on test and/or analysis.

(2) All ratings include weld preps.

NOTE: Other wall size and application connectors available.



# Specialty Connector & Tubular Products

Vetco Gray Inc.

## DMR Connector Standard Specifications for Pin and Box Sets

Nominal O.D.	Wall Thickness		Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1)		Bending Yield Capacity (1)		Internal Yield Pressure (1)		
	in	mm	in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa	
26	660.4	0.750	19.1	30.38	771.7	23.00	584.2	24.09	611.9	1620	7206	905	4.03	1240	1681	1590	11.0
26	660.4	0.812	20.6	30.38	771.7	23.00	584.2	24.09	611.9	1630	7250	905	4.03	1240	1681	1590	11.0
26	660.4	1.000	25.4	30.38	771.7	23.00	584.2	24.09	611.9	1640	7295	905	4.03	1240	1681	1590	11.0
30	762.0	1.000	25.4	34.38	873.3	27.50	698.5	25.69	652.5	1945	8651	900	4.00	1800	2440	1200	8.3
30	762.0	1.250	31.8	34.38	873.3	26.97	685.0	25.69	652.5	2110	9385	900	4.00	1800	2440	1200	8.3
30	762.0	1.500	38.1	34.38	873.3	26.97	685.0	25.69	652.5	2125	9452	900	4.00	1800	2440	1200	8.3

## DMR-T Connector Standard Specifications for Pin and Box Sets

Nominal O.D.	Wall Thickness		Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1)		Bending Yield Capacity (1)		Internal Yield Pressure (1)		
	in	mm	in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa	
30	762.0	1.000	25.4	34.38	873.3	27.50	698.5	25.69	652.5	1945	8651	5720	25.44	4000	5423	2500	17.2
30	762.0	1.250	31.8	34.38	873.3	26.97	685.0	25.69	652.5	2110	9385	6200	27.58	4200	5694	3000	20.7
30	762.0	1.500	38.1	34.38	873.3	26.97	685.0	25.69	652.5	2125	9452	6200	27.58	4200	5694	3000	20.7

## ALT-2 Connector Standard Specifications for Pin and Box Sets

Nominal O.D.	Wall Thickness		Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1)		Bending Yield Capacity (1)		Internal Yield Pressure (1)		
	in	mm	in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa	
20	508.0	0.500	12.7	23.50	596.9	18.50	469.9	15.32	389.1	629	2798	2430	10.81	1120	1518	4000	27.6
20	508.0	0.625	15.9	23.50	596.9	18.50	469.9	15.32	389.1	663	2949	2430	10.81	1120	1518	5000	34.5
24	609.6	0.500	12.7	27.75	704.9	21.97	558.0	17.15	435.6	776	3452	3510	15.61	1680	2278	3200	22.1
24	609.6	0.750	19.1	27.75	704.9	21.97	558.0	17.15	435.6	792	3523	4540	20.19	2130	2888	3200	22.1
24	609.6	1.000	25.4	27.75	704.9	21.50	546.1	17.15	435.6	869	3865	4540	20.19	2500	3390	4200	29.0
26	660.4	0.625	15.9	29.65	753.1	23.78	604.0	18.05	458.5	870	3870	3600	16.01	2440	3308	4500	31.0
26	660.4	0.750	19.1	29.65	753.1	23.00	584.2	18.05	458.5	985	4381	3600	16.01	2810	3810	4500	31.0
26	660.4	1.000	25.4	29.65	753.1	23.00	584.2	18.05	458.5	1000	4448	3600	16.01	3660	4962	4500	31.0
30	762.0	1.000	25.4	33.75	857.3	27.40	696.0	19.87	504.7	1360	6049	5720	25.44	4000	5423	2500	17.2
30	762.0	1.500	38.1	34.38	873.3	26.65	676.9	19.87	504.7	1509	6712	6200	27.58	4200	5694	3000	20.7
36	914.4	1.000	25.4	40.00	1016.0	31.00	787.4	21.25	539.8	2194	9759	7320	32.56	5050	6847	2500	17.2
36	914.4	1.500	38.1	40.00	1016.0	31.00	787.4	21.25	539.8	2271	10101	7320	32.56	5050	6847	2500	17.2
42	1066.8	2.000	50.8	45.00	1143.0	36.50	927.1	21.25	539.8	2865	12744	12490	55.56	11220	15212	3510	24.2

(1) Yield and ultimate capacities are calculated based on minimum material properties, under single load conditions, and are based on test and/or analysis.

(2) All ratings include weld preps.

NOTE: Other wall size and application connectors available.

# Specialty Connector & Tubular Products

Vetco Gray Inc.

## ST-2 Connector Standard Specifications for Pin and Box Sets

Nominal O.D.		Wall Thickness		Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Tensile Yield Capacity (1)		Bending Yield Capacity (1)		Internal Yield Pressure (1)	
in	mm	in	mm	in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa
30	762.0	0.500	12.7	33.00	838.2	28.00	711.2	15.17	385.3	729	3243	2130	9.47	1680	2278	1500	10.3
30	762.0	0.625	15.9	33.00	838.2	28.00	711.2	15.17	385.3	746	3318	2130	9.47	1900	2576	1500	10.3
30	762.0	0.750	19.1	33.00	838.2	28.00	711.2	15.17	385.3	753	3349	2130	9.47	1900	2576	1500	10.3
30	762.0	0.875	22.2	33.00	838.2	28.00	711.2	15.17	385.3	761	3385	2130	9.47	1900	2576	1500	10.3
30	762.0	1.000	25.4	33.00	838.2	28.00	711.2	15.17	385.3	768	3416	2130	9.47	1900	2576	1500	10.3

## ST-2RB Connector Standard Specifications for Pin and Box Sets

in	mm	in	mm	in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa
30	762.0	0.500	12.7	32.00	812.8	27.00	685.8	15.12	384.0	743	3305	2430	10.81	1810	2454	1500	10.3
30	762.0	0.625	15.9	32.00	812.8	27.00	685.8	15.12	384.0	758	3372	2430	10.81	1810	2454	1500	10.3
30	762.0	0.750	19.1	32.00	812.8	27.00	685.8	15.12	384.0	772	3434	2430	10.81	1810	2454	1500	10.3
30	762.0	0.875	22.2	32.00	812.8	27.00	685.8	15.12	384.0	783	3483	2430	10.81	1810	2454	1500	10.3
30	762.0	1.000	25.4	32.00	812.8	27.00	685.8	15.12	384.0	787	3501	2430	10.81	1810	2454	1500	10.3

## ST-2HP Connector Standard Specifications for Pin and Box Sets

in	mm	in	mm	in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa
30	762.0	0.500	12.7	33.00	838.2	28.00	711.2	15.17	385.3	729	3243	3370	14.99	2660	3606	2375	16.4
30	762.0	0.625	15.9	33.00	838.2	28.00	711.2	15.17	385.3	743	3305	3370	14.99	3010	4081	2375	16.4
30	762.0	0.750	19.1	33.00	838.2	28.00	711.2	15.17	385.3	753	3349	3370	14.99	3010	4081	2375	16.4
30	762.0	0.875	22.2	33.00	838.2	28.00	711.2	15.17	385.3	760	3380	3370	14.99	3010	4081	2375	16.4
30	762.0	1.000	25.4	33.00	838.2	28.00	711.2	15.17	385.3	768	3416	3370	14.99	3010	4081	2375	16.4

## ST-2HP RB Connector Standard Specifications for Pin and Box Sets

in	mm	in	mm	in	mm	in	mm	in	mm	lb	N	kips	MN	kip-ft	kN.m	psi	MPa
30	762.0	0.500	12.7	32.00	812.8	27.00	685.8	15.12	384.0	743	3305	3300	14.68	2460	3335	2375	16.4
30	762.0	0.625	15.9	32.00	812.8	27.00	685.8	15.12	384.0	758	3372	3300	14.68	2460	3335	2375	16.4
30	762.0	0.750	19.1	32.00	812.8	27.00	685.8	15.12	384.0	772	3434	3300	14.68	2460	3335	2375	16.4
30	762.0	0.875	22.2	32.00	812.8	27.00	685.8	15.12	384.0	783	3483	3300	14.68	2460	3335	2375	16.4
30	762.0	1.000	25.4	32.00	812.8	27.00	685.8	15.12	384.0	797	3545	3300	14.68	2460	3335	2375	16.4

(1) Yield and ultimate capacities are calculated based on minimum material properties, under single load conditions, and are based on test and/or analysis.

(2) All ratings include weld preps.

NOTE: Other wall size and application connectors available.

# Specialty Connector & Tubular Products

Vetco Gray Inc.

## SR-20 Connector Standard Specifications for Pin and Box Sets

Nominal O.D.	Wall Thickness		Connector O.D.		Connector I.D.		Length Made Up		Connector Weight		Internal Rated Pressure		Tensile Yield Capacity (1) (2)		Bending Yield Capacity (1) (2)		Compressive Yield Capacity (2) (3)		
	in	mm	in	mm	in	mm	in	mm	lb	N	psi	MPa	kips	MN	kip-ft	kN.m	psi	MPa	
20	508.0	1.000	25.4	21.00	533.4	18.00	457.2	14.94	379.5	314	1397	2700	18.6	2246	9.99	1140	1546	3383	23.3
20	508.0	0.500	12.7	21.63	549.4	18.63	473.2	14.94	379.5	366	1628	2700	18.6	2320	10.32	1200	1627	3473	23.9
20	508.0	0.625	15.9	21.63	549.4	18.63	473.2	14.94	379.5	366	1628	2700	18.6	2320	10.32	1200	1627	3473	23.9
21	533.4	0.500	12.7	22.63	574.8	19.63	498.6	14.94	379.5	392	1744	2700	18.6	2542	11.31	1302	1765	3652	25.2
21	533.4	0.625	15.9	22.63	574.8	19.63	498.6	14.94	379.5	392	1744	2700	18.6	2542	11.31	1302	1765	3652	25.2
21	533.4	0.750	19.1	22.63	574.8	19.50	495.3	14.94	379.5	392	1744	2700	18.6	2542	11.31	1302	1765	3652	25.2
24	609.6	1.000	25.4	24.00	609.6	20.80	528.3	17.77	451.4	460	2046	2000	13.8	3506	15.59	1787	2423	3877	26.7
24	609.6	1.250	31.8	24.00	609.6	20.80	528.3	17.77	451.4	460	2046	2000	13.8	3506	15.59	1787	2423	3877	26.7
24	609.6	1.500	38.1	24.00	609.6	20.80	528.3	17.77	451.4	460	2046	2000	13.8	3506	15.59	1787	2423	3877	26.7
26	660.4	0.500	12.7	26.25	666.8	23.25	590.6	16.37	415.8	522	2322	2000	13.8	3063	13.62	1746	2367	4248	29.3
26	660.4	0.625	15.9	26.25	666.8	23.25	590.6	16.37	415.8	532	2366	2000	13.8	3063	13.62	1746	2367	4248	29.3
26	660.4	0.750	19.1	26.25	666.8	23.25	590.6	16.37	415.8	538	2393	2000	13.8	3063	13.62	1746	2367	4248	29.3
26	660.4	1.000	25.4	26.25	666.8	23.25	590.6	16.37	415.8	551	2451	2000	13.8	3063	13.62	1746	2367	4248	29.3
26	660.4	1.125	28.6	26.25	666.8	23.25	590.6	16.37	415.8	559	2486	2000	13.8	3063	13.62	1746	2367	4248	29.3
26	660.4	1.250	31.8	26.25	666.8	23.25	590.6	16.37	415.8	568	2526	2000	13.8	3063	13.62	1746	2367	4248	29.3
27	685.8	0.500	12.7	27.53	699.3	24.50	622.3	17.37	441.2	493	2193	2000	13.8	3700	16.46	2200	2983	4800	33.1
27	685.8	0.625	15.9	27.53	699.3	24.50	622.3	17.37	441.2	508	2260	2000	13.8	3700	16.46	2200	2983	4800	33.1
27	685.8	0.750	19.1	27.53	699.3	24.50	622.3	17.37	441.2	522	2322	2000	13.8	3700	16.46	2200	2983	4800	33.1
27	685.8	1.000	25.4	27.53	699.3	24.50	622.3	17.37	441.2	514	2286	2000	13.8	3700	16.46	2200	2983	4800	33.1
27	685.8	1.125	28.6	27.53	699.3	24.50	622.3	17.37	441.2	564	2509	2000	13.8	3700	16.46	2200	2983	4800	33.1
27	685.8	1.250	31.8	27.53	699.3	24.50	622.3	17.37	441.2	575	2558	2000	13.8	3700	16.46	2200	2983	4800	33.1
28	711.2	1.000	25.4	28.03	712.0	24.58	624.3	20.34	516.6	737	3278	2000	13.8	5878	26.15	3230	4379	5760	39.7
28	711.2	1.125	28.6	28.03	712.0	24.58	624.3	20.34	516.6	737	3278	2000	13.8	5878	26.15	3230	4379	5760	39.7
30	762.0	0.500	12.7	30.00	762.0	27.00	685.8	17.37	441.2	538	2393	2000	13.8	4000	17.79	2560	3471	5000	34.5
30	762.0	0.625	15.9	30.00	762.0	27.00	685.8	17.37	441.2	548	2438	2000	13.8	4000	17.79	2560	3471	5000	34.5
30	762.0	0.750	19.1	30.00	762.0	27.00	685.8	17.37	441.2	554	2464	2000	13.8	4000	17.79	2560	3471	5000	34.5
30	762.0	1.000	25.4	30.00	762.0	27.00	685.8	17.37	441.2	567	2522	2000	13.8	4000	17.79	2560	3471	5000	34.5
30	762.0	1.125	28.6	30.00	762.0	27.00	685.8	17.37	441.2	575	2558	2000	13.8	4000	17.79	2560	3471	5000	34.5
30	762.0	1.250	31.8	30.00	762.0	27.00	685.8	17.37	441.2	584	2598	2000	13.8	4000	17.79	2560	3471	5000	34.5
30	762.0	1.500	38.1	30.00	762.0	27.00	685.8	17.37	441.2	600	2669	2000	13.8	4000	17.79	2560	3471	5000	34.5
32	812.8	0.500	12.7	32.53	826.3	29.50	749.3	17.37	441.2	583	2593	2000	13.8	4000	17.79	2800	3796	5400	37.2
32	812.8	0.625	15.9	32.53	826.3	29.50	749.3	17.37	441.2	596	2651	2000	13.8	4000	17.79	2800	3796	5400	37.2
32	812.8	0.750	19.1	32.53	826.3	29.50	749.3	17.37	441.2	611	2718	2000	13.8	4000	17.79	2800	3796	5400	37.2
32	812.8	1.000	25.4	32.53	826.3	29.50	749.3	17.37	441.2	639	2842	2000	13.8	4000	17.79	2800	3796	5400	37.2
32	812.8	1.125	28.6	32.53	826.3	29.50	749.3	17.37	441.2	656	2918	2000	13.8	4000	17.79	2800	3796	5400	37.2
32	812.8	1.250	31.8	32.53	826.3	29.50	749.3	17.37	441.2	667	2967	2000	13.8	4000	17.79	2800	3796	5400	37.2

(1) Yield and ultimate capacities are calculated based on minimum material properties, under single load conditions, and are based on test and/or analysis.

(2) All ratings include weld preps.

NOTE: Other wall size and application connectors available.



# Specialty Connector & Tubular Products

Vetco Gray Inc.

## Grade B (35 ksi yield) Pipe Body Capacities

Nominal O.D.		P.E. Weight		Wall Thickness		Inside Diameter		Tensile Yield Capacity		Bending Yield Capacity		Internal Yield Pressure		Collapse Pressure	
20	508.0	91.51	1335	0.438	11.1	19.12	485.6	942	4.19	376	510	1340	9.2	520	3.6
20	508.0	104.13	1520	0.500	12.7	19.00	482.6	1072	4.77	425	576	1530	10.5	730	5.0
20	508.0	129.33	1887	0.625	15.9	18.75	476.3	1331	5.92	521	706	1910	13.2	1190	8.2
24	609.6	125.36	1829	0.500	12.7	23.00	584.2	1292	5.75	620	841	1280	8.8	440	3.0
24	609.6	156.03	2277	0.625	15.9	22.75	577.9	1606	7.14	762	1033	1600	11.0	810	5.6
24	609.6	186.23	2718	0.750	19.1	22.50	571.5	1917	8.53	901	1222	1910	13.2	1190	8.2
26	660.4	169.38	2472	0.625	15.9	24.75	628.7	1744	7.76	900	1220	1470	10.1	660	4.6
26	660.4	202.04	2948	0.750	19.1	24.50	622.3	2082	9.26	1065	1444	1770	12.2	1010	7.0
26	660.4	202.25	2951	0.750	19.1	24.50	622.3	2499	11.12	1278	1733	2120	14.6	1100	7.6
26	660.4	267.00	3896	1.000	25.4	24.00	609.6	2749	12.23	1379	1870	2360	16.3	1810	12.5
28	711.2	182.73	2666	0.625	15.9	26.75	679.5	2258	10.04	1259	1707	1640	11.3	550	3.8
28	711.2	218.27	3185	0.750	19.1	26.50	673.1	2697	12.00	1491	2021	1970	13.6	950	6.6
30	762.0	157.53	2299	0.500	12.7	29.00	736.6	1622	7.21	980	1329	1020	7.0	230	1.6
30	762.0	196.08	2861	0.625	15.9	28.75	730.3	2019	8.98	1210	1641	1280	8.8	440	3.0
30	762.0	234.29	3419	0.750	19.1	28.50	723.9	2412	10.73	1434	1944	1530	10.5	730	5.0
30	762.0	272.17	3972	0.875	22.2	28.25	717.6	2802	12.46	1652	2240	1790	12.3	1040	7.2
30	762.0	309.72	4520	1.000	25.4	28.00	711.2	3189	14.18	1865	2529	2040	14.1	1340	9.2
30	762.0	383.81	5601	1.250	31.8	27.50	698.5	3952	17.58	2272	3080	2550	17.6	2140	14.8
30	762.0	456.57	6662	1.500	38.1	27.00	685.8	4701	20.91	2659	3605	3060	21.1	3000	20.7
36	914.4	373.80	5455	1.000	25.4	34.00	863.6	3848	17.12	2730	3701	1700	11.7	940	6.5
36	914.4	552.69	8065	1.500	38.1	33.00	838.2	5690	25.31	3927	5324	2550	17.6	2140	14.8
42	1066.8	437.88	6390	1.000	25.4	40.00	1016.0	4508	20.05	3761	5099	1460	10.1	640	4.4
42	1066.8	854.40	12468	2.000	50.8	38.00	965.2	5796	25.78	6999	9489	2920	20.1	2750	19.0

## X-42 Pipe Body Capacities

Nominal O.D.		P.E. Weight		Wall Thickness		Inside Diameter		Tensile Yield Capacity		Bending Yield Capacity		Internal Yield Pressure		Collapse Pressure	
18-5/8	473.1	84.51	1233	0.435	11.0	17.76	451.1	1044	4.64	387	525	1720	11.9	630	4.3
18-5/8	473.1	96.79	1412	0.500	12.7	17.63	447.8	1196	5.32	440	597	1970	13.6	930	6.4
18-5/8	473.1	120.15	1753	0.625	15.9	17.38	441.5	1484	6.60	539	731	2470	17.0	1500	10.3
20	508.0	78.60	1147	0.375	9.5	19.25	489.0	971	4.32	390	529	1420	9.8	320	2.2
20	508.0	91.51	1335	0.438	11.1	19.12	485.6	1131	5.03	451	611	1660	11.4	350	2.4
20	508.0	104.13	1520	0.500	12.7	19.00	482.6	1286	5.72	510	691	1890	13.0	770	5.3
20	508.0	129.33	1887	0.625	15.9	18.75	476.3	1598	7.11	625	847	2360	16.3	1300	9.0
24	609.6	156.03	2277	0.625	15.9	22.75	577.9	1928	8.58	905	1227	1970	13.6	860	5.9
24	609.6	171.29	2500	0.688	17.5	22.62	574.5	2116	9.41	999	1354	2170	15.0	1080	7.4
26	660.4	169.38	2472	0.625	15.9	24.75	628.7	2093	9.31	1080	1464	1820	12.5	680	4.7
26	660.4	202.25	2951	0.750	19.1	24.50	622.3	2499	11.12	1278	1733	2120	14.6	1100	7.6
28	711.2	182.73	2666	0.625	15.9	26.75	679.5	2258	10.04	1259	1707	1640	11.3	550	3.8
28	711.2	218.27	3185	0.750	19.1	26.50	673.1	2697	12.00	1491	2021	1970	13.6	950	6.6

The tension, internal pressure and collapse ratings are calculated per API Bulletin 5C3, using minimum yield strengths, nominal OD, and nominal wall thickness for tension, and minimal wall thickness for internal pressure. The bending capacities are based on material minimum yield strength, nominal OD, and nominal wall thickness.

# Specialty Connector & Tubular Products

Vetco Gray Inc.

## X-52 Pipe Body Capacities

Nominal O.D.		P.E. Weight		Wall Thickness		Inside Diameter		Tensile Yield Capacity		Bending Yield Capacity		Internal Yield Pressure		Collapse Pressure	
18-5/8	473.1	84.51	1233	0.435	11.0	17.76	451.1	1293	5.75	479	649	2130	14.7	630	4.3
18-5/8	473.1	96.79	1412	0.500	12.7	17.63	447.8	1480	6.58	544	738	2440	16.8	960	6.6
18-5/8	473.1	120.15	1753	0.625	15.9	17.38	441.5	1838	8.18	667	904	3050	21.0	1650	11.4
20	508.0	91.51	1335	0.438	11.1	19.12	485.6	1400	6.23	558	757	1990	13.7	520	3.6
20	508.0	104.13	1520	0.500	12.7	19.00	482.6	1593	7.09	631	856	2280	15.7	770	5.3
20	508.0	129.33	1887	0.625	15.9	18.75	476.3	1978	8.80	774	1049	2840	19.6	1420	9.8
21	533.4	109.47	1597	0.500	12.7	20.00	508.0	1674	7.45	698	946	2170	15.0	670	4.6
21	533.4	136.00	1985	0.625	15.9	19.25	489.0	2080	9.25	858	1163	2710	18.7	1260	8.7
21	533.4	162.20	2367	0.750	19.1	19.50	495.3	2481	11.04	1011	1371	3250	22.4	1880	13.0
22	558.8	142.68	2082	0.625	15.9	20.75	527.1	2182	9.71	945	1281	2590	17.9	1120	7.7
22	558.8	170.21	2484	0.750	19.1	20.50	520.7	2604	11.58	1115	1512	3100	21.4	1710	11.8
22	558.8	224.28	3273	1.000	25.4	20.00	508.0	3431	15.26	1436	1947	4140	28.5	3200	22.1
24	609.6	125.36	1829	0.500	12.7	23.00	584.2	1920	8.54	921	1249	1900	13.1	440	3.0
24	609.6	156.03	2277	0.625	15.9	22.75	577.9	2387	10.62	1133	1536	2370	16.3	870	6.0
24	609.6	186.23	2718	0.750	19.1	22.50	571.5	2849	12.67	1338	1814	2840	19.6	1420	9.8
26	660.4	136.17	1987	0.500	12.7	25.00	635.0	2083	9.27	1086	1472	1750	12.1	350	2.4
26	660.4	169.38	2472	0.625	15.9	24.75	628.7	2591	11.52	1338	1814	2190	15.1	690	4.8
26	660.4	202.04	2948	0.750	19.1	24.50	622.3	3094	13.76	1582	2145	2630	18.1	1170	8.1
26	660.4	267.00	3896	1.000	25.4	24.00	609.6	4084	18.17	2049	2778	3500	24.1	2160	14.9
26	660.4	298.87	4361	1.125	28.6	23.75	603.3	4572	20.34	2271	3079	3940	27.2	2850	19.7
26	660.4	330.41	4822	1.250	31.8	23.50	596.9	5054	22.48	2487	3372	4380	30.2	3600	24.8
27	685.8	141.51	2065	0.500	12.7	26.00	660.4	2164	9.63	1173	1590	1690	11.7	310	2.1
27	685.8	176.05	2569	0.625	15.9	25.75	654.1	2693	11.98	1446	1960	2110	14.5	610	4.2
27	685.8	210.26	3068	0.750	19.1	25.50	647.7	3216	14.30	1711	2320	2530	17.4	1050	7.2
27	685.8	277.68	4052	1.000	25.4	25.00	635.0	4247	18.89	2218	3007	3370	23.2	2020	13.9
27	685.8	310.89	4537	1.125	28.6	27.75	704.9	4755	21.15	2461	3337	3790	26.1	2600	17.9
27	685.8	343.76	5016	1.250	31.8	24.50	622.3	5258	23.39	2696	3655	4210	29.0	3320	22.9
28	711.2	182.73	2666	0.625	15.9	26.75	679.5	2795	12.43	1559	2114	2030	14.0	550	3.8
28	711.2	218.27	3185	0.750	19.1	26.50	673.1	3339	14.85	1846	2503	2440	16.8	950	6.6
28	711.2	288.36	4208	1.000	25.4	26.00	660.4	4410	19.62	2395	3247	3250	22.4	1880	13.0
28	711.2	322.90	4712	1.125	28.6	25.75	654.1	4939	21.97	2659	3605	3660	25.2	2370	16.3
28	711.2	367.11	5357	1.250	31.8	25.50	647.7	5462	24.29	2914	3951	4060	28.0	3060	21.1
28	711.2	424.53	6195	1.500	38.1	25.00	635.0	6494	28.89	3404	4615	4880	33.6	4450	30.7
30	762.0	157.53	2299	0.500	12.7	29.00	736.6	2410	10.72	1457	1975	1520	10.5	230	1.6
30	762.0	196.08	2861	0.625	15.9	28.75	730.3	2999	13.34	1796	2435	1900	13.1	440	3.0
30	762.0	234.29	3419	0.750	19.1	28.50	723.9	3584	15.94	2131	2889	2280	15.7	770	5.3
30	762.0	272.17	3972	0.875	22.2	28.25	717.6	4163	18.52	2455	3328	2650	18.3	1200	8.3
30	762.0	309.72	4520	1.000	25.4	28.00	711.2	4738	21.07	2770	3756	3030	20.9	1630	11.2
30	762.0	346.93	5063	1.125	28.6	27.75	704.9	5307	23.61	3077	4172	3410	23.5	2060	14.2
30	762.0	383.81	5601	1.250	31.8	27.50	698.5	5871	26.11	3376	4577	3790	26.1	2600	17.9
30	762.0	456.57	6662	1.500	38.1	27.00	685.8	6984	31.06	3950	5355	4550	31.4	2890	19.9
32	812.8	168.21	2455	0.500	12.7	31.00	787.4	2573	11.44	1662	2253	1420	9.8	190	1.3
32	812.8	209.43	3056	0.625	15.9	30.75	781.1	3203	14.25	2053	2783	1780	12.3	360	2.5
32	812.8	250.31	3653	0.750	19.1	30.50	774.7	3828	17.03	2435	3301	2130	14.7	630	4.3
32	812.8	331.08	4831	1.000	25.4	30.00	762.0	5064	22.52	3171	4299	2840	19.6	1420	9.8
32	812.8	370.96	5413	1.125	28.6	29.75	755.7	5674	25.24	3526	4781	3200	22.1	1820	12.5
32	812.8	410.51	5990	1.250	31.8	29.50	749.3	6279	27.93	3871	5248	3560	24.5	2230	15.4
36	914.4	373.80	5455	1.000	25.4	34.00	863.6	5718	25.43	4057	5500	2530	17.4	1050	7.2
36	914.4	552.69	8065	1.500	38.1	33.00	838.2	8454	37.60	5834	7910	3790	26.1	2600	17.9

The tension, internal pressure and collapse ratings are calculated per API Bulletin 5C3, using minimum yield strengths, nominal OD, and nominal wall thickness for tension, and minimal wall thickness for internal pressure. The bending capacities are based on material minimum yield strength, nominal OD, and nominal wall thickness.

# Specialty Connector & Tubular Products

Vetco Gray Inc.

## X-56 Pipe Body Capacities

Nominal O.D.		P.E. Weight		Wall Thickness		Inside Diameter		Tensile Yield Capacity		Bending Yield Capacity		Internal Yield Pressure		Collapse Pressure	
								kips	MN	kip-ft	kN.m	psi	MPa	psi	MPa
in	mm	lb/ft	N/m	in	mm	in	mm								
16	406.4	72.80	1062	0.438	11.1	15.12	384.0	1199	5.33	378	512	2680	18.5	1020	7.0
16	406.4	82.77	1208	0.500	12.7	15.00	381.0	1363	6.06	427	579	3060	21.1	1450	10.0
16	406.4	102.63	1498	0.625	15.9	14.75	374.7	1691	7.52	521	706	3830	26.4	2320	16.0
18-5/8	473.1	84.51	1233	0.435	11.0	17.76	451.1	1392	6.19	516	700	2290	15.8	630	4.3
18-5/8	473.1	96.79	1412	0.500	12.7	17.63	447.8	1594	7.09	586	794	2630	18.1	960	6.6
18-5/8	473.1	120.15	1753	0.625	15.9	17.38	441.5	1979	8.80	718	973	3290	22.7	1700	11.7
20	508.0	91.51	1335	0.438	11.1	19.12	485.6	1507	6.70	601	815	2150	14.8	520	3.6
20	508.0	104.13	1520	0.500	12.7	19.00	482.6	1715	7.63	680	922	2450	16.9	770	5.3
20	508.0	129.33	1887	0.625	15.9	18.75	476.3	2130	9.47	834	1131	3060	21.1	1450	10.0
20	508.0	154.19	2250	0.750	19.1	18.50	469.9	2540	11.30	982	1331	3680	25.4	2140	14.8
20	508.0	166.40	2428	0.812	20.6	18.38	466.9	2741	12.19	1053	1428	3980	27.4	2500	17.2
20	508.0	178.72	2608	0.875	22.2	18.25	463.6	2944	13.09	1124	1524	4280	29.5	3020	20.8
20	508.0	202.92	2961	1.000	25.4	18.00	457.2	3342	14.87	1260	1708	4900	33.8	4070	28.1
22	558.8	142.68	2082	0.625	15.9	20.75	527.1	2350	10.45	1018	1380	2780	19.2	1130	7.8
22	558.8	170.21	2484	0.750	19.1	20.50	520.7	2804	12.47	1200	1627	3340	23.0	1770	12.2
22	558.8	224.28	3273	1.000	25.4	20.00	508.0	3695	16.44	1546	2096	4450	30.7	3330	23.0
24	609.6	125.49	1831	0.500	12.7	23.00	584.2	2067	9.19	991	1344	2040	14.1	440	3.0
24	609.6	156.03	2277	0.625	15.9	22.75	577.9	2570	11.43	1220	1654	2550	17.6	870	6.0
24	609.6	186.23	2718	0.750	19.1	22.50	571.5	3068	13.65	1441	1954	3060	21.1	1450	10.0
24	609.6	201.09	2934	0.812	20.6	22.38	568.5	3312	14.73	1548	2099	3310	22.8	1730	11.9
24	609.6	216.10	3153	0.875	22.2	22.25	565.2	3560	15.83	1655	2244	3570	24.6	2020	13.9
24	609.6	245.64	3585	1.000	25.4	22.00	558.8	4045	17.99	1861	2523	4080	28.1	2670	18.4
26	660.4	136.17	1987	0.500	12.7	25.00	635.0	2243	9.98	1169	1585	1890	13.0	350	2.4
26	660.4	169.38	2472	0.625	15.9	24.75	628.7	2790	12.41	1440	1952	2360	16.3	690	4.8
26	660.4	202.25	2951	0.750	19.1	24.50	622.3	3331	14.82	1703	2309	2820	19.4	1170	8.1
26	660.4	267.00	3896	1.000	25.4	24.00	609.6	4398	19.56	2206	2991	3770	26.0	2250	15.5
26	660.4	298.87	4361	1.125	28.6	23.75	603.3	4923	21.90	2446	3316	4240	29.2	2950	20.3
26	660.4	330.41	4822	1.250	31.8	23.50	596.9	5443	24.21	2679	3632	4710	32.5	3750	25.9
27	685.8	141.51	2065	0.500	12.7	26.00	660.4	2331	10.37	1264	1714	1820	12.5	310	2.1
27	685.8	176.05	2569	0.625	15.9	25.75	654.1	2900	12.90	1557	2111	2270	15.7	610	4.2
27	685.8	210.26	3068	0.750	19.1	25.50	647.7	3464	15.41	1843	2499	2720	18.8	1060	7.3
27	685.8	277.68	4052	1.000	25.4	25.00	635.0	4574	20.35	2389	3239	3630	25.0	2090	14.4
27	685.8	310.89	4537	1.125	28.6	24.75	628.7	5121	22.78	2651	3594	4080	28.1	2680	18.5
27	685.8	343.76	5016	1.250	31.8	24.50	622.3	5663	25.19	2904	3937	4540	31.3	3460	23.9
28	711.2	182.73	2666	0.625	15.9	26.75	679.5	3010	13.39	1679	2276	2190	15.1	550	3.8
28	711.2	218.27	3185	0.750	19.1	26.50	673.1	3596	16.00	1988	2695	2630	18.1	950	6.6
28	711.2	288.36	4208	1.000	25.4	26.00	660.4	4750	21.13	2580	3498	3500	24.1	1940	13.4
28	711.2	322.90	4712	1.125	28.6	25.75	654.1	5319	23.66	2863	3882	3940	27.2	2440	16.8
28	711.2	357.11	5211	1.250	31.8	25.50	647.7	5883	26.17	3139	4256	4380	30.2	3180	21.9
28	711.2	424.53	6195	1.500	38.1	25.00	635.0	6993	31.10	3666	4970	5250	36.2	4670	32.2
30	762.0	157.53	2299	0.500	12.7	29.00	736.6	2595	11.54	1569	2127	1630	11.2	230	1.6
30	762.0	196.08	2861	0.625	15.9	28.75	730.3	3230	14.37	1936	2625	2040	14.1	440	3.0
30	762.0	234.29	3419	0.750	19.1	28.50	723.9	3859	17.16	2295	3112	2450	16.9	770	5.3
30	762.0	309.72	4520	1.000	25.4	28.00	711.2	5102	22.69	2983	4044	3270	22.5	1680	11.6
30	762.0	346.93	5063	1.125	28.6	27.75	704.9	5715	25.42	3314	4493	3680	25.4	2140	14.8
30	762.0	383.81	5601	1.250	31.8	27.50	698.5	6322	28.12	3636	4930	4080	28.1	2680	18.5
30	762.0	456.57	6662	1.500	38.1	27.00	685.8	7521	33.45	4254	5768	4900	33.8	4060	28.0
36	914.4	373.80	5455	1.000	25.4	34.00	863.6	6158	27.39	4369	5923	2720	18.8	1060	7.3
36	914.4	373.80	5455	1.000	25.4	34.00	863.6	6158	27.39	4369	5923	2720	18.8	1060	7.3
36	914.4	552.69	8065	1.500	38.1	33.00	838.2	9104	40.49	6283	8518	4080	28.1	2690	18.5
36	914.4	640.13	9341	1.750	44.5	32.50	825.5	10545	46.90	7177	9731	4760	32.8	3860	26.6
36	914.4	726.24	10598	2.000	50.8	32.00	812.8	11963	53.21	8031	10888	5440	37.5	5020	34.6

The tension, internal pressure and collapse ratings are calculated per API Bulletin 5C3, using minimum yield strengths, nominal OD, and nominal wall thickness for tension, and minimal wall thickness for internal pressure. The bending capacities are based on material minimum yield strength, nominal OD, and nominal wall thickness.



# Specialty Connector & Tubular Products

Vetco Gray Inc.

## X-60 Pipe Body Capacities

Nominal O.D.		P.E. Weight		Wall Thickness		Inside Diameter		Tensile Yield Capacity		Bending Yield Capacity		Internal Yield Pressure		Collapse Pressure	
in	mm	lb/ft	N/m	in	mm	in	mm	kips	MN	kip-ft	kN.m	psi	MPa	psi	MPa
30	762.0	309.72	4520	1.000	25.4	28.00	711.2	5466	24.31	3196	4333	3500	24.1	1720	11.9
30	762.0	346.93	5063	1.125	28.6	27.75	704.9	6123	27.24	3551	4814	3940	27.2	2220	15.3
30	762.0	383.81	5601	1.250	31.8	27.50	698.5	6774	30.13	3896	5282	4370	30.1	2760	19.0
30	762.0	456.57	6662	1.500	38.1	27.00	685.8	8058	35.84	4558	6180	5250	36.2	4260	29.4
30	762.0	527.99	7705	1.750	44.5	26.50	673.1	9319	41.45	5184	7028	6120	42.2	5770	39.8
30	762.0	598.08	8727	2.000	50.8	26.00	660.4	10556	46.95	5776	7831	7000	48.3	7270	50.1
36	914.4	373.80	5455	1.000	25.4	34.00	863.6	6597	29.34	4681	6346	2920	20.1	1060	7.3
36	914.4	463.91	6770	1.250	31.8	33.50	850.9	8188	36.42	5729	7767	3650	25.2	1890	13.0
36	914.4	552.69	8065	1.500	38.1	33.00	838.2	9755	43.39	6732	9127	4370	30.1	2760	19.0
36	914.4	690.13	10071	1.750	44.5	32.50	825.5	11298	50.25	7690	10426	5100	35.2	4010	27.6
36	914.4	726.42	10600	2.000	50.8	32.00	812.8	12818	57.01	8604	11665	5830	40.2	5270	36.3
38	965.2	395.16	5766	1.000	25.4	36.00	914.4	6974	31.02	5238	7102	2760	19.0	900	6.2
38	965.2	490.61	7159	1.250	31.8	35.50	901.7	8659	38.52	6419	8703	3450	23.8	1670	11.5
38	965.2	584.73	8533	1.500	38.1	35.00	889.0	10320	45.90	7551	10238	4140	28.5	2460	17.0
38	965.2	677.51	9887	1.750	44.5	34.50	876.3	11958	53.19	8635	11707	4840	33.4	3550	24.5
38	965.2	768.96	11221	2.000	50.8	34.00	863.6	13572	60.37	9673	13115	5530	38.1	4740	32.7
38	965.2	859.07	12536	2.250	57.2	33.50	850.9	15162	67.44	10666	14461	6220	42.9	5920	40.8

## X-65 Pipe Body Capacities

Nominal O.D.		P.E. Weight		Wall Thickness		Inside Diameter		Tensile Yield Capacity		Bending Yield Capacity		Internal Yield Pressure		Collapse Pressure	
in	mm	lb/ft	N/m	in	mm	in	mm	kips	MN	kip-ft	kN.m	psi	MPa	psi	MPa
30	762.0	309.72	4520	1.000	25.4	28.00	711.2	5922	26	3463	4695	3790	26	1770	12.2
30	762.0	346.93	5063	1.125	28.6	27.75	704.9	6633	30	3847	5216	4270	29	2310	15.9
30	762.0	383.81	5601	1.250	31.8	27.50	698.5	7339	33	4220	5721	4740	33	2850	19.7
30	762.0	456.57	6662	1.500	38.1	27.00	685.8	9730	43	4938	6695	5690	39	4470	30.8
30	762.0	527.99	7705	1.750	44.5	26.50	673.1	10095	45	5616	7614	6635	46	6100	42.1
30	762.0	598.08	8727	2.000	50.8	26.00	660.4	11435	51	6258	8485	7583	52	7740	53.4
36	914.4	373.80	5455	1.000	25.4	34.00	863.6	7147	32	5071	6875	3160	22	1060	7.3
36	914.4	463.91	6770	1.250	31.8	33.50	850.9	8870	39	6207	8415	3950	27	1950	13.4
36	914.4	552.69	8065	1.500	38.1	33.00	838.2	10568	47	7293	9888	4740	33	2850	19.7
36	914.4	690.13	10071	1.750	44.5	32.50	825.5	12239	54	8331	11295	5530	38	4200	29.0
36	914.4	726.42	10600	2.000	50.8	32.00	812.8	13886	62	9322	12639	6320	44	5560	38.3
38	965.2	395.16	5766	1.000	25.4	36.00	914.4	7556	34	5675	7694	2990	21	900	6.2
38	965.2	490.61	7159	1.250	31.8	35.50	901.7	9381	42	6954	9428	3740	26	1720	11.9
38	965.2	584.73	8533	1.500	38.1	35.00	889.0	11180	50	8180	11090	4490	31	2560	17.7
38	965.2	677.51	9887	1.750	44.5	34.50	876.3	12954	58	9354	12682	5240	36	3700	25.5
38	965.2	768.96	11221	2.000	50.8	34.00	863.6	14703	65	10479	14207	5990	41	4990	34.4
38	965.2	859.07	12536	2.250	57.2	33.50	850.9	16426	73	11555	15666	6735	46	6280	43.3

The tension, internal pressure and collapse ratings are calculated per API Bulletin 5C3, using minimum yield strengths, nominal OD, and nominal wall thickness for tension, and minimal wall thickness for internal pressure. The bending capacities are based on material minimum yield strength, nominal OD, and nominal wall thickness.

# Specialty Connector & Tubular Products

Vetco Gray Inc.

## X-80 Pipe Body Capacities

Nominal O.D.		P.E. Weight		Wall Thickness		Inside Diameter		Tensile Yield Capacity		Bending Yield Capacity		Internal Yield Pressure		Collapse Pressure	
in	mm	lb/ft	N/m	in	mm	in	mm	kips	MN	kip-ft	kN.m	psi	MPa	psi	MPa
20	508.0	129.33	1887	1.000	25.4	28.00	711.2	5922	26	3463	4695	3790	26	1770	12.2
20	508.0	154.19	2250	1.125	28.6	27.75	704.9	6633	30	3847	5216	4270	29	2310	15.9
20	508.0	166.40	2428	1.250	31.8	27.50	698.5	7339	33	4220	5721	4740	33	2850	19.7
20	508.0	178.72	2608	1.500	38.1	27.00	685.8	9730	43	4938	6695	5690	39	4470	30.8
20	508.0	202.92	2961	1.750	44.5	26.50	673.1	10095	45	5616	7614	6635	46	6100	42.1
22	558.8	142.68	2082	2.000	50.8	26.00	660.4	11435	51	6258	8485	7583	52	7740	53.4
22	558.8	170.21	2484	1.000	25.4	34.00	863.6	7147	32	5071	6875	3160	22	1060	7.3
22	558.8	183.75	2681	1.250	31.8	33.50	850.9	8870	39	6207	8415	3950	27	1950	13.4
22	558.8	25.00	365	1.500	38.1	33.00	838.2	10568	47	7293	9888	4740	33	2850	19.7
22	558.8	690.13	10071	1.750	44.5	32.50	825.5	12239	54	8331	11295	5530	38	4200	29.0
30	762.0	726.42	10600	2.000	50.8	32.00	812.8	13886	62	9322	12639	6320	44	5560	38.3
30	762.0	395.16	5766	1.000	25.4	36.00	914.4	7556	34	5675	7694	2990	21	900	6.2
30	762.0	490.61	7159	1.250	31.8	35.50	901.7	9381	42	6954	9428	3740	26	1720	11.9
30	762.0	584.73	8533	1.500	38.1	35.00	889.0	11180	50	8180	11090	4490	31	2560	17.7
30	762.0	677.51	9887	1.750	44.5	34.50	876.3	12954	58	9354	12682	5240	36	3700	25.5
30	762.0	768.96	11221	2.000	50.8	34.00	863.6	14703	65	10479	14207	5990	41	4990	34.4
36	914.4	859.07	12536	2.250	57.2	33.50	850.9	16426	73	11555	15666	6735	46	6280	43.3
36	914.4	859.07	12536	2.250	57.2	33.50	850.9	16426	73	11555	15666	6735	46	6280	43.3
36	914.4	859.07	12536	2.250	57.2	33.50	850.9	16426	73	11555	15666	6735	46	6280	43.3
36	914.4	859.07	12536	2.250	57.2	33.50	850.9	16426	73	11555	15666	6735	46	6280	43.3
36	914.4	859.07	12536	2.250	57.2	33.50	850.9	16426	73	11555	15666	6735	46	6280	43.3

The tension, internal pressure and collapse ratings are calculated per API Bulletin 5C3, using minimum yield strengths, nominal OD, and nominal wall thickness for tension, and minimal wall thickness for internal pressure. The bending capacities are based on material minimum yield strength, nominal OD, and nominal wall thickness.



For more information, please contact your local Vetco Gray Representative.

Table listing Vetco Gray representatives across various countries including Algeria, Angola, Argentina, Australia, Azerbaijan, Brazil, Canada, Congo, Denmark, Ecuador, Egypt, Equatorial Guinea, France, Indonesia, Malaysia, Mexico, Nigeria, Norway, Oman, Pakistan, Philippines, Poland, Portugal, Romania, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Ukraine, USA, and Vietnam. Each entry includes the representative's name, company, address, and contact information.