



Completion & workover riser & connector system

Product application:

- Landing strings inside and outside marine riser
- Light well intervention vessel, semi-submersible, jack-ups and drillships
- Shallow water: surface HP & LP drilling riser systems & surface systems
- Open water subsea riser systems

Key features:

- Designed, qualified and manufactured in accordance with ISO 13628-7
- Eliminates the need for tubular running services and equipment
- 5,000, 10,000 and 15,000 PSI rated
- 4.52" through to 14" Nom Bore
- Designed for multiple make and breaks - reducing spare and replacement costs versus a threaded and coupled connector, as well as eliminating back-off risk
- Cost-effective and expertly engineered
- Suitable for intervention work
- Single or dual bore
- TRT (Tree Running Tool) crossovers to OEM and API connections
- Wellhead and subsea tree stinger systems

Technical brochure: completion & workover riser & connector system

Our completion and workover riser systems are lightweight, high-strength and high-fatigue resistant. All systems are designed to be efficient, with no wasted materials and use our proprietary AQC-CW connectors to reduce operational time, whilst still ensuring complete system integrity.

Our completion and workover riser systems can be deployed from a jack-up, semi-sub, drillship or light-well intervention vessel. It can be used as an open water subsea riser system, surface riser, or inside a riser system, as a landing string. Also offered as a standard forged and welded solution or ultra light weight hybrid pipe design for deeper water applications.

Our AQC-CW connector has been specifically designed for high-fatigue, multiple make-up and break-out riser applications while maintaining a gas tight, metal-to-metal seal. The AQC-CW connector reduces cost and back off risk versus a traditional threaded and coupled connector while ensuring safety and reliability. Our technology

facilitates simple installation to minimise cost and rig time and crucially a means of reliable and repeatable make/break gas tight connection with back-up sealing.

The system is available on a stand-alone or packaged basis. Packages include fully automatic riser spider, umbilical handling and connector make-up equipment.

Aquaterra Energy brings to bear the industry's best engineering, project and offshore teams to make your project a success, maximising safety and efficiency while minimising cost and rig-time.

Our AQC-CW has been intelligently engineered and manufactured in strict accordance with ISO 13628-7 2006 with a qualification process involving fatigue resonance testing, drive-bolt back-off, combined loading to destruction and vibration resistance testing.



Completions and workover riser system

Our completion and workover riser expands the scope that can be completed:

- From a light-well intervention vessel, removing a need for mobile offshore drilling unit
- From a semi-sub without a need to deploy marine riser and BOP (reduces cost)



AQC-CW Connector

Heavyweight

- Fully forged heavy weight single piece joints
- Can be machined onto 3rd party specialist joints under licence
- Pin and box can be welded onto pipe, useful where weight is not a concern



Lightweight

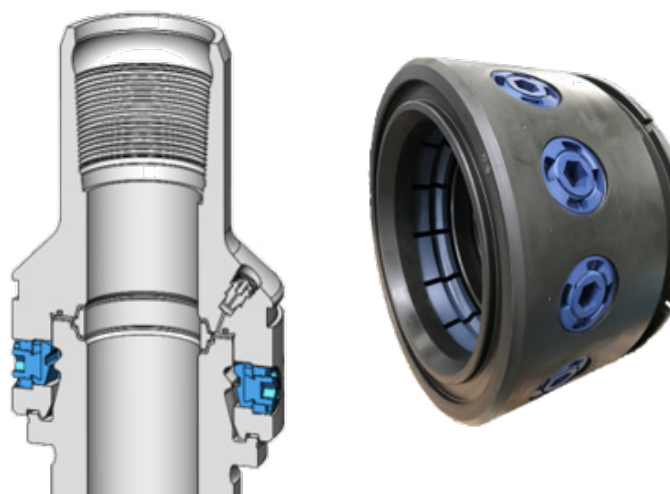
- Permanently threaded and coupled (forum lock) joints. These utilise 100PSI + pipe to ensure that the assembled joints are lightweight and comply to NACE
- Factory make-up, with forum lock to provide around 6 x torque resistance against back off
- Useful for deep water applications as it lowers weight requirements, thereby reducing requirements for buoyancy



For an expanded scope of operations

Especially where our 7 3/8" ID 10,000 PSI rated system is deployed:

- Completions
- Tubing running / pulling
- Pressure testing
- Electric line slickline
- Bull heading
- Workover
- Extended well test
- Early production
- Suspension
- Coil tubing



Make-up index grooves to support robotic make up

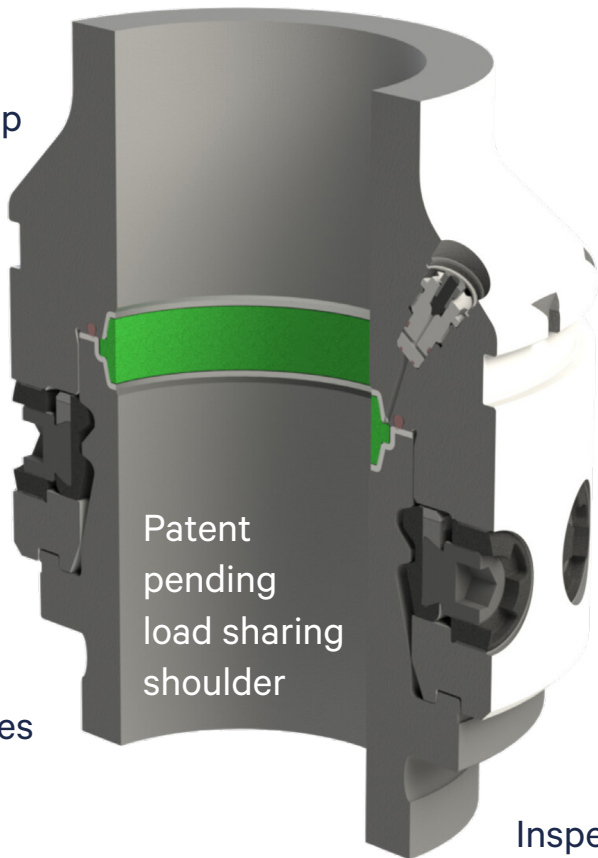
Upper shoulder: side-door elevator running
Lower shoulder: riser spider land-out, removes the need for bowl and slips

Gas tight metal-to-metal seal with qualified back-up elastomeric seal

Anti-vibration dog drive screw lock

Fatigue enhanced features

Preloaded static connection designed and qualified for dynamic combined loading



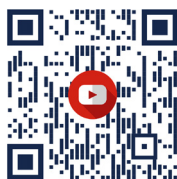
Patented back seat pressure test port to confirm makeup

Marinised seals and coating

Inspectable, measurable, repairable and replaceable components for long life and repeat makeup reliability

Technical specifications

AE Part Number:	02517
Primary Design Code:	BS EN ISO 13628-7 2006 DNVGL-OS-E101 Latest Edition Offshore Standard For Drilling Plant
Qualification:	BS EN ISO 13628-7 2006 CTOD testing in accordance with BSI BS 7448 PART 1 Combined loading, Fatigue tested and multiple make/break cycle Hydro and gas qualified Vibration back-off qualification
Pressure Rating:	5,000, 10,000 and 15,000 PSI rated
Temperature Rating:	-18°C to +121°C
Connector Type:	AQC-CW Completion & Workover Riser Connector
CWOR Connector To Pipe Manufacture:	Permanent factory installed to Tenaris Pipe via Tenaris Blue Riser Connector (no welding). Forumlok™ in place providing min 6x make-up torque to break-out
Outside Diameter:	8-5/8" (pipe) 13.78" (box) for the 7 3/8" bore system
Intermediate Joint Length	12m Effective Length (can be made-up as doubles, with Tenaris Coupler in centre) Various Pup Joint Lengths
Inside Diameter:	7-3/8" Drift (other sizes available)
Pounds Per Foot:	Approx. 50 PPF for the 7 3/8" bore system
Service:	NACE MR0175/ISO 15156 region 3
Number and type of seals:	Metal-to-metal gas tight seal areas within gasket and 1 off elastomeric seal (mainly for make-up test)
Est. No. of Makes & Breaks:	>500
Repair Method:	Cold weld repair seal face, replaceable dogs, regional service centres available
Coating:	Thermally Sprayed Aluminium (TSA) OD Corrosion resistant seal face (CRA) TK34-P Coating to AQC-CW Internals and pipe ID to improve service life



INTELLIGENTLY ENGINEERED

Visit our Youtube channel for more information on our riser and connector systems, and more.

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Related Products and Services

Riser Systems

Our work across riser systems, riser analysis and efficient well initiation is underpinned by our deep engineering expertise ensuring that whatever solution we design, develop and install meets the needs of each client and each application.

At Aquaterra Energy – as an oil and gas OEM – we offer a range of integrated system packages to enhance operations, save rig time and accelerate time to first oil.

We offer:

- Surface riser systems
- Subsea high-pressure riser systems
- Completion and workover riser systems

Offshore Platforms

Our unrivalled life of field and brownfield modification experience means we're perfectly placed to support in upgrading existing infrastructure to store CO₂ in depleted reserves.

From compressor considerations to wellheads and pipe engineering, our team can support with all platform simplification and modification requirements and can support all project stages through to design, fabrication, project management and offshore installation.

Offshore Analysis

Our highly qualified and experienced team provides in-depth analysis, highlighting specific project needs and building bespoke models to replicate situations in offshore environments.

We specialise in a range of riser and conductor analysis services, including but not limited to, jack-up high-pressure riser analysis, platform well conductor analysis, tieback analysis as well as fixed and floating offshore wind analysis.

Tensioning Equipment

Our riser and conductor tensioning systems are specifically designed to effectively mitigate stress, enhance fatigue performance, and reduce costs through operational efficiencies.

From tension rings and tension tables to complete tensioning systems and decks, we have a comprehensive selection of products to suit your specific needs.

Rental Tools and Equipment

We combine our years of engineering experience to deliver a range of offshore rental equipment and services. Our life-of-field solutions are backed by our maintenance and service experts so our customers get all the quality they expect from Aquaterra Energy, with a flexible business model.

Tools and equipment included in our Aquaterra Express services are vast. From subsea camera systems, connectors and cleaning tools, through to heavy lifting equipment, tension systems, and riser monitoring systems.



Supporting the full offshore energy ecosystem