AQC-BC quick connector: API 16A drilling adaptor

Product applications:

- BOP quick connector
- Surface riser quick connector
- Wellheads
- Handling and running tool

Key features:

- Fast make-up – 15 minutes for the AQC 18 ¾” 15m box compared to 5 hours for a corresponding API flange
- Compatible with proprietary wellhead profiles and drilling adaptors
- Utilises a licensed Grayloc seal ring profile (same seal ring as GE Vetco NT-2™ drilling adaptors)
- OEM designed and tested (API 16A PR2 qualified)
- At least as strong in combined bending/tension/pressure as the corresponding size and pressure classification API flange
- Box outside diameter matches corresponding size and pressure classification of an API flange facilitating running clearances
- Manual or hydraulic running tools available

Our AQC-BC connectors have all been designed, developed and qualified by our in-house team of expert riser system engineers to reduce lead-times, capital and operational costs. This technology offers unrivalled efficiency gains and enhanced safety during operations.

As an OEM for oilfield equipment, we can provide our AQC-BCs as part of a complete installation package, or as standalone items. It’s a unique offering that gives customers significant technical advantages, as well as both opex and capex savings.

Our AQC-BC connector has been intelligently engineered and manufactured in strict accordance with API 16A, with a qualification process involving combined loading and pressure and temperature cyclic testing.

The AQC-BC is used to provide a connection between the rig BOP and the riser’s joints below. It can also be utilised as a riser joint connector in its own right, to eliminate the make-up of flanged connections online.

Our AQC-BC will significantly cut installation times to under 15 minutes for the manual 18 ¾ 15m box and less than five minutes for the hydraulic option.

A typical rig BOP connection package includes:

- 1 x AQC-BC box
- 1 x AQC-BC pin
- 1 x AQC-BC bop test stump and BOP annular test tool
- 1 x AQC-BC running tool

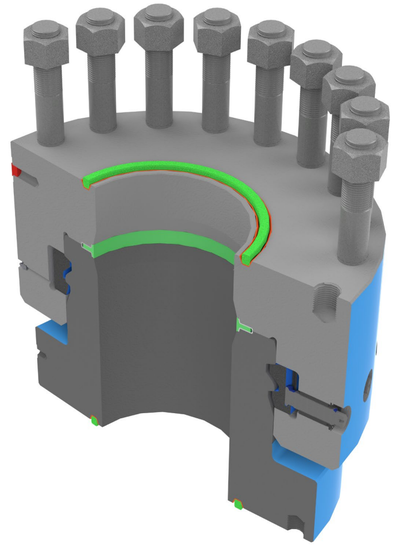
Utilises licensed Grayloc seal ring profile (same seal ring as GE Vetco NT-2™ drilling adaptors)

Gas tight metal-to-metal seal

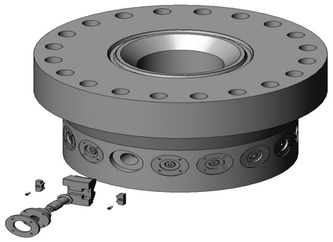
Outside diameter matches corresponding class of API flange

Fast make-up low torque radial dogs

Compatible with Vetco NT-2™ proprietary wellhead profiles and drilling adaptors

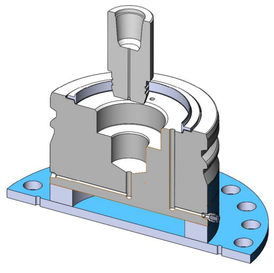


Drilling BOP test stumps complete with annular test receptacle



Differing bore ID’s & non standard connector configurations available

Various temperature, sizes and pressure classes



Aquaterra ENERGY | INTELLIGENTLY ENGINEERED

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Safe, cost-efficient and reliable system

Our Aquaterra quick connector (AQC-BC) GE Vetco NT-2™ compatible drilling adaptors have benefited many customers over the years, from drilling contractors through to major E&P companies.

The AQC-BC replaces time consuming flanged connections that carry the risk of dropped objects, leaking gaskets under loading and hand injuries during torque make-up. We have a large stock of AQC-BC equipment in various size and pressure designations ready for rental applications, or it can be supplied as a sale item on fast lead-times even to non-standard configurations. The table across compares the AQC-BC to a standard API flange of the same size and pressure class detailing the time saving benefits.

Connector	Operation	Approx. Duration
API flange 18-¾" 15M	Make-up or break-out	5 Hours
API flange 13-⅝" 10M	Make-up or break-out	3 Hours
AQC-BC 18-¾" 15M	Make-up or break-out	**15 Mins**
AQC-BC 13-⅝" 10M	Make-up or break-out	**10 Mins**
AQC-BC Hydraulic RT	Make-up or break-out	**5 Mins**

A cost-saving drilling campaign example using the AQC-BC quick connector:

Drilling scenario

- 10 wells planned
- Two wellheads/ tree elevations
- 2 risers installed and retrieved on two occasions for each well

Considerations

A typical DSA between the riser system and rig BOP equals approximately 5 hours per make-up and break-out. 5 hours x by 40 make-ups and break-outs equates to 200 hours of online rig time.

Potential cost saving

- 15 minutes x 40 make-ups and break-outs = 10 hours of online rig time.
- Assuming a spread rate cost of $300K/day, this means that the saving of 30 hours over the project will result in:

Saving $2.4m over the campaign

Frontline gains with every use:

Using an API flange:

$63k per use

Using an AQC-BC connector

$3k per use

Cost savings

For every make-up or break-out

$60k

Designed for efficiency gains:

- Cost-effective, technically sound solution
- > 50% reduction in delivery lead-time, when compared to other proprietary wellhead profiles and drilling adaptor suppliers
- Vastly improved make-up timings when compared to alternative API flanges and hub connections
- Compatibility between the AQC-BC and the GE Vetco NT-2™ proprietary wellhead profiles and drilling adaptors
- Pins, boxes, running tools and test stumps available in standard/non standard configurations - weld necks, differing end outlet requirements and differing bore/pressure ratings

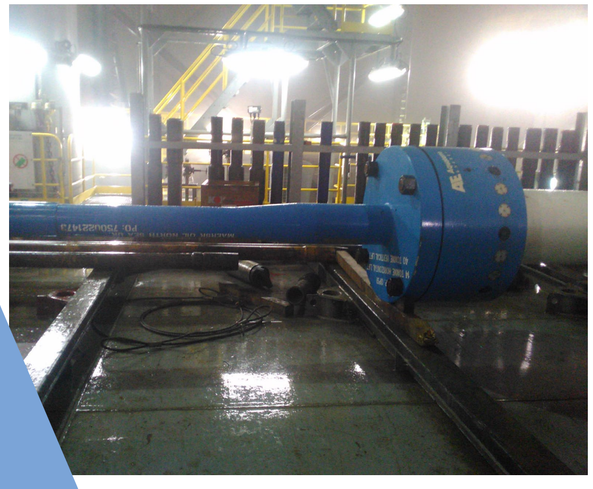
The AQC-BC hydraulic running & pressure test tool:

Dual qualified to API 16A and API 8C to cover both lifting and hoisting operations and online pressure testing, the AQC-BC hydraulic running tool provides a means to run, pressure test and release a riser remotely below the drill floor without the manual need for intervention.

Whilst the speed that the running tool can be made up or broken out (in under 5 minutes), offers a time saving, the real benefit operationally is the ability to be functioned remotely, which removes the need to build scaffolding access platforms in order to manually make-up or break-out the running tool.

On some jack-ups, platforms and BOP configurations, where stack access is an issue, the AQC-BC hydraulic running tool can add significant value to a campaign.

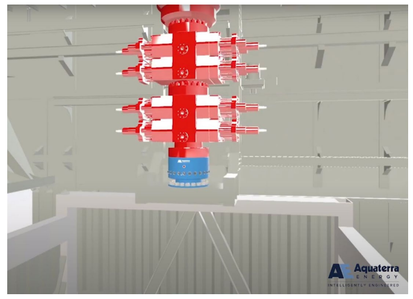
The running tool is rated to 400 Te and can be used to perform an offshore pressure test up to 10,000 PSI. It is supplied with a zone rated control panel and umbilical, with built-in safety functions and redundancy. The tool can be provided with a drill pipe mandrel designed for both vertical to horizontal and vertical lifting, or a simple pad eye interface for running on slings.



AQC-BC quick connector technical specifications:

Specification	Value
Design standards	DNVGL OS E101 drilling plant API 16A - Specification for drill through equipment NACE MR-0175 sour service DNVGL design verification report DNVGL product certification (upon request)
Bore ID	13 ⅝”, 18 ¾”, 20 ¾” and 21 ¼”
Safe working pressure	5,000 PSI, 10,000 PSI & 15,000 PSI
Proof test pressure	1.5 x working pressure
Design temperature	-29°C to +121°C
Coating	Phosphate on exposed steel work and cosmetic paint system to the outer dimension
Outside diameter & inside diameter	Matches the corresponding API flange pressure class and dimensions

For more information, visit our YouTube channel



Watch a detailed view of our AQC-BC make-up and operation.

Watch now

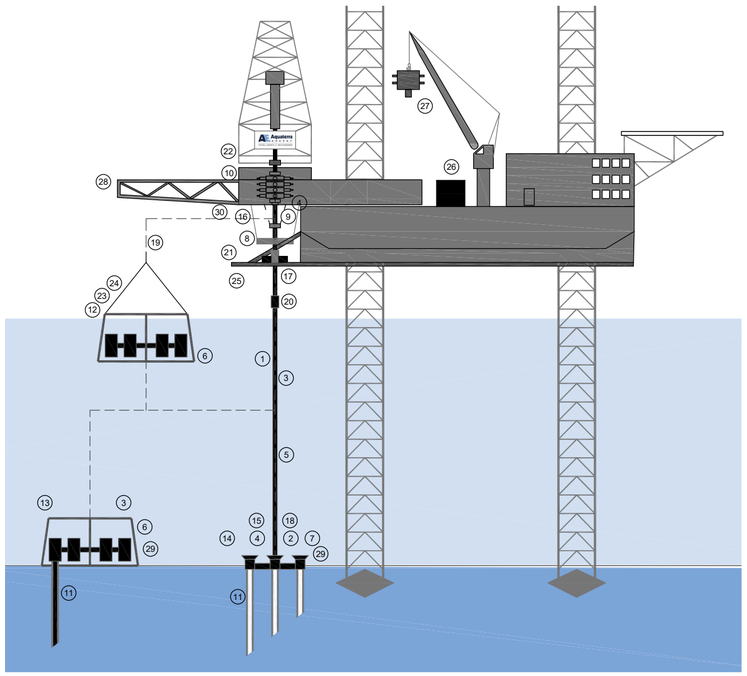
Watch our team make-up our AQC-BC in just 15 minutes.

Watch now

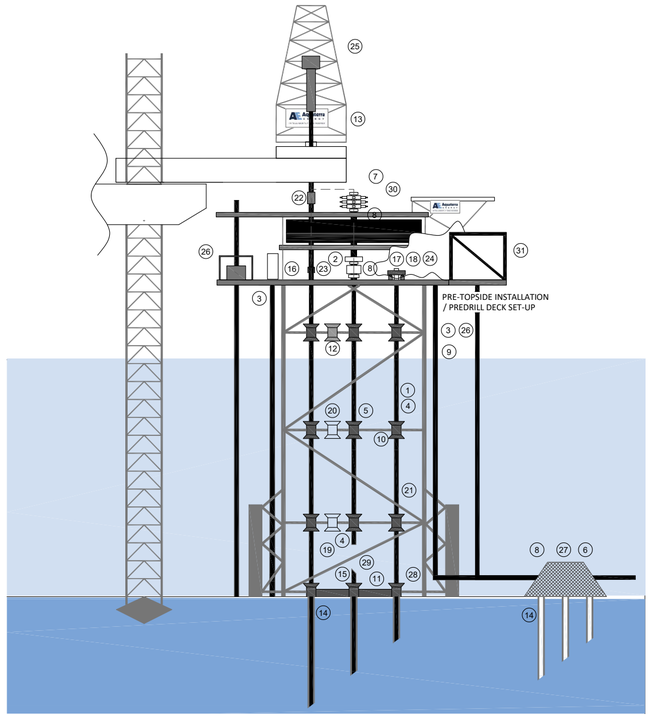
Watch our team make-up our Hydraulic AQC-BC running tool in less than 5 minutes.

Watch now

Related products and services



Jack-Up Exploration/ Appraisal Well & Shallow Water Subsea	
Item No	Description
1	Riser & Conductor Analysis
2	Tieback Engineering & Tooling
3	Subsea HP Drilling Riser Systems
4	Subsea & Surface Connectors - NT2 , H4 & AQC
5	VIV Suppression Systems
6	Subsea Drill Centre templates
7	Subsea pre-drilling templates
8	Tension decks
9	Suregrip Tension ring
10	Rig floor Tension system
11	Cement top-up systems
12	Disposable camera systems
13	Conductor Whipstocks
14	Trash caps
15	Gyroscopes
16	Proten Riser tension system -Pull
17	Proten Riser tension system -Push
18	Aquascope Subsea Camera system
19	Heavy Lift equipment
20	Rig & Riser monitoring systems
21	Low pressure overshot systems
22	Piling analysis
23	Structural Engineering
24	Bespoke offshore structures
25	Conductor Tension Decks
26	3rd party interfaces/deck layout/grillages & sea fastening
27	Tree handling & Heavy lift assessment
28	Flareboom handling, installation & load testing
29	Mudline centraliser & drill bushing
30	BOP & topside quick connectors & Test stumps



Platform Well	
Item No	Description
1	Riser & Conductor Analysis
2	Surface Riser Systems (LP/HP)
3	Platform Import/Export riser systems
4	Tieback Engineering & Tooling
5	Tieback Analysis
6	Subsea HP Drilling Riser Systems
7	Completion & Workover Risers
8	Subsea & Surface Connectors - NT2 , H4 & AQC
9	VIV Suppression Systems
10	Platform Guide Centraliers
11	Subsea pre-drilling templates
12	Conductor Slot addition
13	Rig floor Tension system
14	Cement top-up systems
15	Conductor Whipstocks
16	Surecut Conductor/Casing cold cutter
17	Proten Riser tension system -Pull
18	Proten Riser tension system -Push
19	Aquascope Subsea Camera system
20	Conductor Recovery
21	Conductor systems
22	Rig & Riser monitoring systems
23	Low pressure overshot systems
24	Proten Hang off tool
25	Piling analysis
26	Subsea Heavy lift equipment
27	Bespoke offshore structures
28	Mudline Centralisers & Drill Bushings
28	Tieback Clean-up & Inspection Tooling
30	BOP & Topside Quick Connectors & Test Stumps
31	Wellbay Extension Modules
32	Rig-less Conductor Recovery System

Supporting the full offshore energy ecosystem