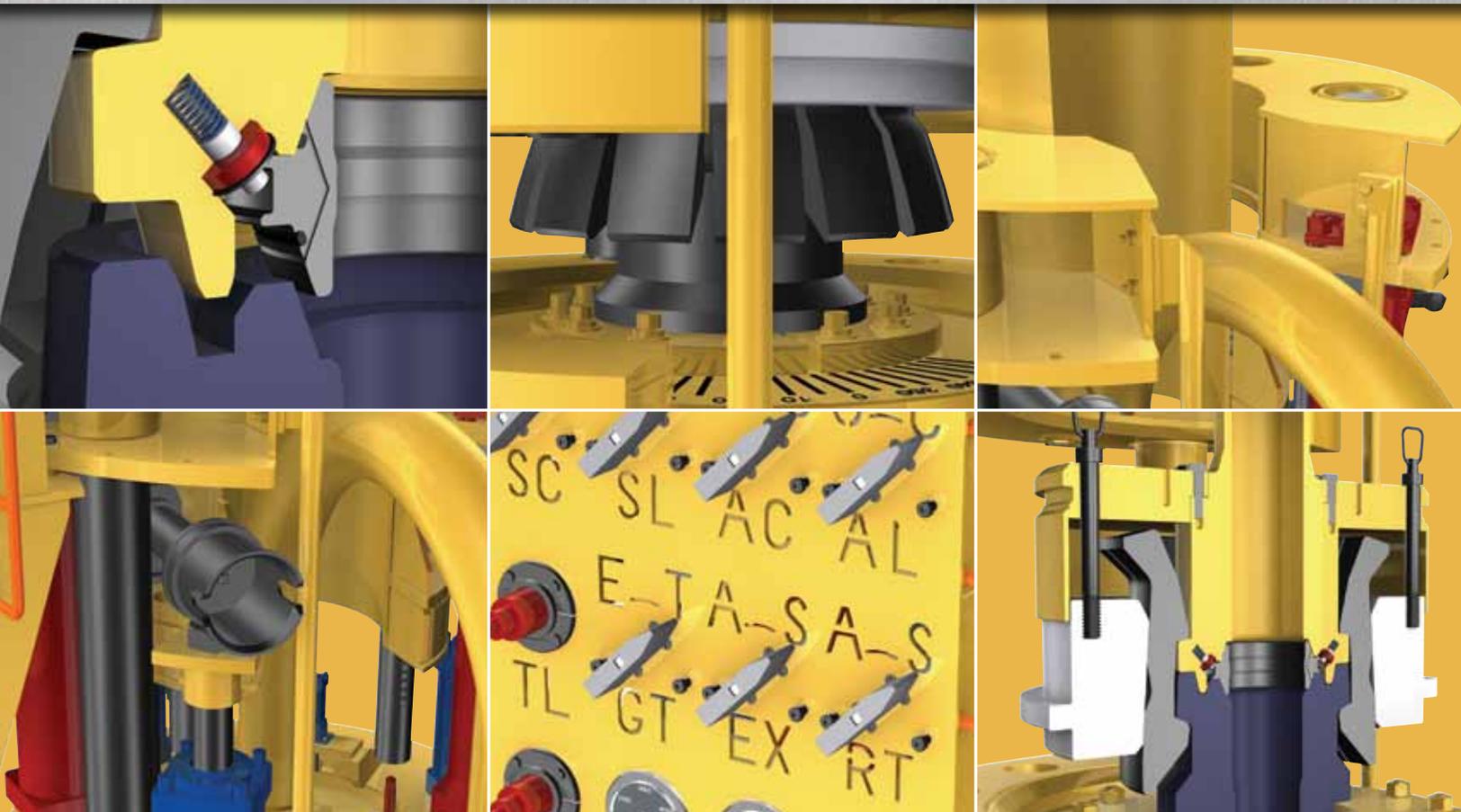
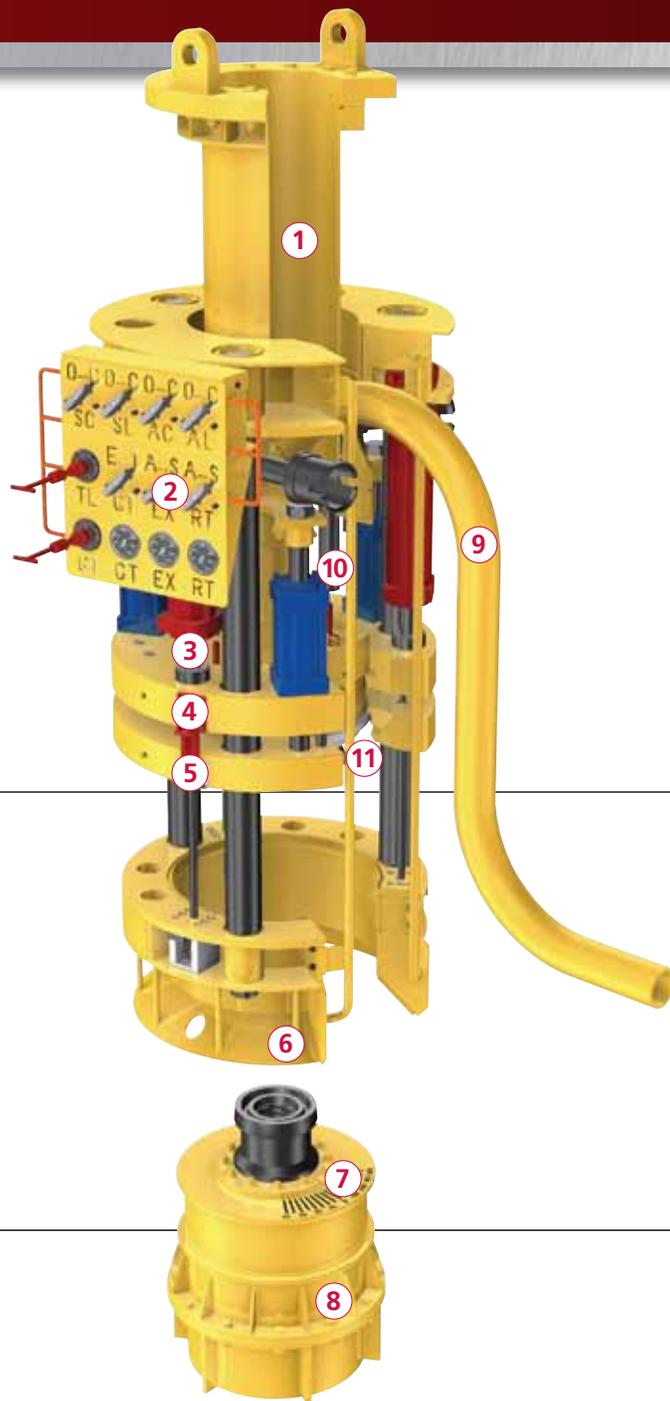


# The Cameron Vertical Connection (CVC) System

Your connection to precision engineering and reliability.

TECHNOLOGY





- ① Running Tool
- ② ROV Panel
- ③ Soft-land Cylinders
- ④ Top Plate Ring
- ⑤ Actuator Ring
- ⑥ Alignment Funnel
- ⑦ Hub
- ⑧ Alignment Structure
- ⑨ Jumper Pipe
- ⑩ Connector Makeup Cylinders
- ⑪ Collet Connector

**RUNNING TOOL** Available in two size ranges (4"–12" and 14"–20"), CVC running tools can be used for multiple applications.

**SEAL REPLACEMENT TOOL** If necessary, the CVC tool can be used to remove and replace the gasket without retrieving the jumper to surface.

**STANDARD CVC HUBS** The receiver structure and hub support are compact, reducing weight and allowing other components to be positioned more closely to save space.

**DOGHOUSE** Thermal qualification testing is performed on the insulation doghouse used on flowline connectors.

**CONNECTOR** To lock and preload the connector, the actuator ring moves downward over the finger set's four-degree taper, and the segmented fingers pivot to grasp the mating hub.

**PRESSURE CAP** CVC pressure caps are easily installed, tested and retrieved.

*With CVC, you get the total package only Cameron can deliver. Experienced leadership in quality, reliability and innovation. The first subsea completion. SpoolTree™, the first horizontal tree. CameronDC™, the first all-electric DC subsea production system. Time after time, Cameron technology gives you the competitive edge you seek.*

*A solid track record of field-proven performance. From the first, to the world's largest, to the world's deepest installation. Since 1998, more than 1000 CVC connections have been installed and trusted in more than 50 projects worldwide.*

*Expertise in engineering and R&D. True to Cameron quality, CVC is designed to perform to your satisfaction. You get strong, reliable connections that are designed to be cost-effective.*

*Excellence in HSE. In tandem with our customers, contractors and suppliers, we are committed to a working environment where no one gets hurt and nothing gets harmed.*

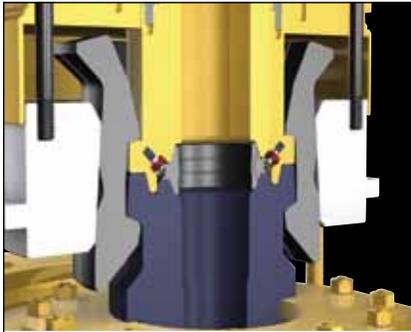
*Worldwide support with 65 CAMSERV™ aftermarket centers as well as a full complement of sales and manufacturing facilities. Wherever you go, there we are.*

**Cameron advances state-of-the-art subsea technology for our customers once again with the Cameron Vertical Connection (CVC™) system – the highly successful field-proven system for connecting flowlines and export lines. CVC's components include a hub support mounted on the subsea structure; a collet connector mounted on the flowline or jumper to be connected;**

## Reliable. Clean. Simple.

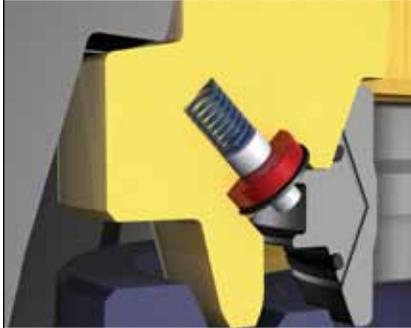
**and a retrievable, reusable running tool independently operated by ROV – with no hydraulics on the connections themselves. Designed to satisfy your subsea production requirements while saving money in the process, CVC is simple, versatile and reliable.**





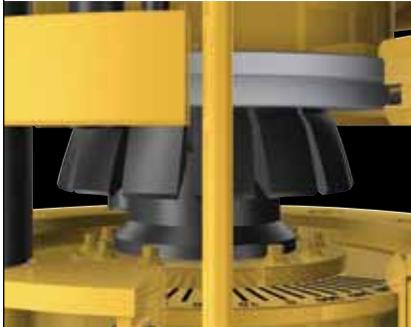
#### **RELIABLE MECHANICAL CONNECTION**

The running tool incorporates a hydraulically operated actuator ring that locks pivoting collet segments under the tapered profile of the hub to form a strong connection capable of handling high bending loads.



#### **MISALIGNMENTS ACCOMMODATED**

The system can accommodate two degrees of misalignment. Cameron has installed CVC jumpers subsea onto hubs with up to six degrees of vertical inclination and conducted testing on the surface with hubs at 14 degrees of inclination.



#### **SIMPLE MAKEUP**

Collet connectors are lowered directly onto the hubs. No pipe deflection is needed to make up the connection.



#### **COST-EFFECTIVE**

Because the running tool is completely independent and is retrieved to the surface after the connection is made, no hydraulic components are left subsea.

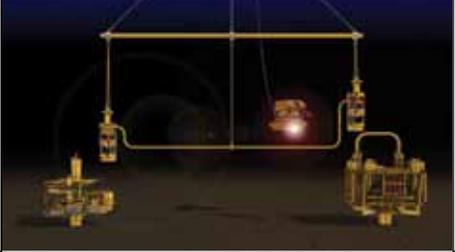
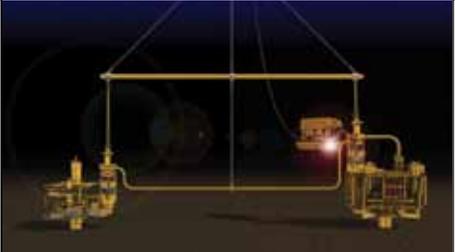


#### **FLEXIBLE TOOLING**

With CVC, two running tools do the job of many. One accommodates a 4"–12" size range, the other, a 14"–20", so both can be used for multiple applications.

## Connect with a leader in quality and reliability while cutting installation time.

CVC installation is simple, reliable and cost-effective. With its retrievable and reusable running tool, multiple connections can be made without additional tool investment.

①		<p>The jumper is installed into the CVC running tools. This assembly is attached to a spreader beam and then lowered, with the ROV assisting in final positioning over the receiver hubs.</p>
②		<p>The ROV hydraulically actuates the CVC running tools to soft land the connector, then make up and verify the connection.</p>
③		<p>The ROV releases the CVC running tools. Once the locking of both connectors is complete, the tools and spreader beam are retrieved to the surface.</p>
④		<p>The flowline is complete, securely connecting the subsea tree to the manifold. The result is a strong, mechanical connection, leaving no hydraulics subsea.</p>
		

**SUBSEA SYSTEMS**

PO Box 1212  
Houston, Texas 77251-1212  
USA  
Tel 1.713.939.2211

5 Mondial Way  
Harlington  
Hayes, UB3 5AR  
England, UK  
Tel 44.208.990.1800

Level 11, 12-14  
The Esplanade  
Perth, Western Australia  
6000  
Tel 61.8.9483.4444

Learn more about CVC at:  
[www.c-a-m.com](http://www.c-a-m.com)

Learn more about subsea  
production control systems at:  
[www.c-a-m.com](http://www.c-a-m.com)

or email:  
[subseaconnector@c-a-m.com](mailto:subseaconnector@c-a-m.com)

**HSE Policy Statement**

At Cameron, we are committed ethically, financially and personally  
to a working environment where no one gets hurt, nothing gets harmed.