

# Subsea Pipeline Technology



## Collet-Grip Flange End Connector

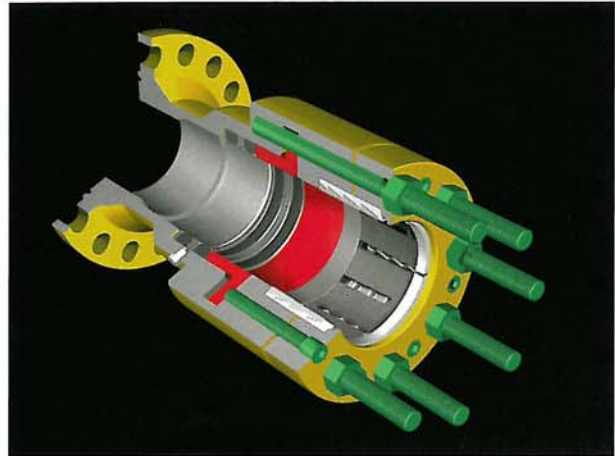
*Add a connection to bare pipe, without welding*

The HydroTech Collet-Grip Flange (CGF) is a flanged end connector that can be attached to a subsea pipeline in-situ without the need for hyperbaric welding. CGF End Connectors are installed on a cut pipe end that has had concrete weight coating and any other coating, such as somastic and coal tar enamel, removed. When actuated, CGF End Connectors structurally attach to and seal against the pipe for a permanent connection. Oil States HydroTech has installed thousands of mechanical end connectors for pipeline repairs, reroutes and modifications, in sizes from 2-inch through 48-inch.

CGF End Connectors are available in sizes and pressure ratings ranging from 3 inch/API 10,000 psi to 48-inch/ANSI 600 Class. Almost any variation of pressure rating is available, and the connectors are available in configurations with other connectors and fittings.

### Features

- CGF End Connectors can be released, recovered to the surface, and reinstalled without having to cut the pipeline. This permits the use of a single connector for multiple installations on pipeline hydrotesting projects.
- High-quality Viton seals are standard. The dual seals are encapsulated by anti-extrusion rings and are separated by an annular ring the permits a seal-verification test prior to pipeline pressurization.
- The seals are located inboard of the gripping collets, isolating the hardened steel collets from potentially harmful exposure to hydrocarbons. This makes the CGF End Connector suitable for sour gas applications.
- To facilitate installation, each CGF End Connector provides end-gap adjustment of 0.5 pipe diameter (minimum of 6 inches); a two-connector spoolpiece provides one full pipe diameter of end-gap adjustment.
- Installation is directed by Oil States HydroTech technicians using detailed installation procedures and specialized installation and test equipment.
- Each CGF End Connector is fully assembled and tested to full ANSI test pressure for a duration of 4 hours. The Connector is then removed by releasing the collet grips. Unlike competitive connectors that must be disassembled for removal after testing,



Collet Grip Flange End Connector

a CGF End Connector needs no additional preparation prior to delivery offshore.

- For fast response to emergencies, we stock CGF Connectors in 4-inch through 24-inch sizes with ANSI 900 rating

### Diver-Friendly Installation

For sizes smaller than 12-inch, the diver locks the CGF End Connector on the pipeline by torquing a series of collet bolts at the rear of the Connector. He then sets the seals independently by torquing a separate series of packer bolts. For larger sizes, the gripping and sealing operations are combined using stud tensioners to simultaneously perform both functions.

### Design Specifications

HydroTech Collet-Grip Flange End Connectors meet the requirements of *API 6H* and are designed in accordance with *ASME Pressure Vessel Code, Section VIII, Division 2*, unless otherwise specified. Anodes for cathodic protection are designed for a 20-year service life in accordance with *DNV Rules for Submarine Pipeline Systems*. Collet-Grip End Connectors can also be supplied to meet the requirements of other recognized design codes.



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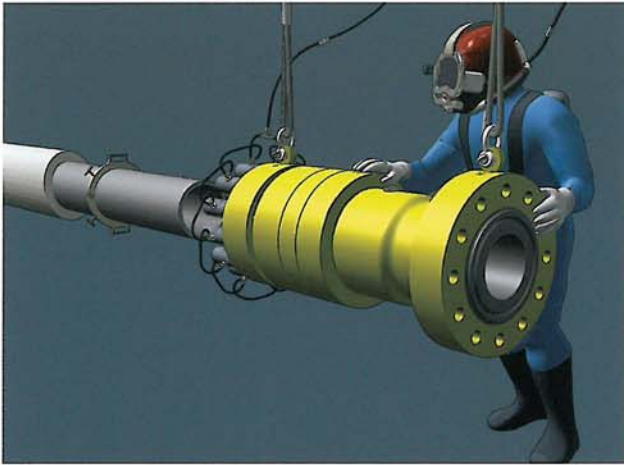
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## Ordering Information

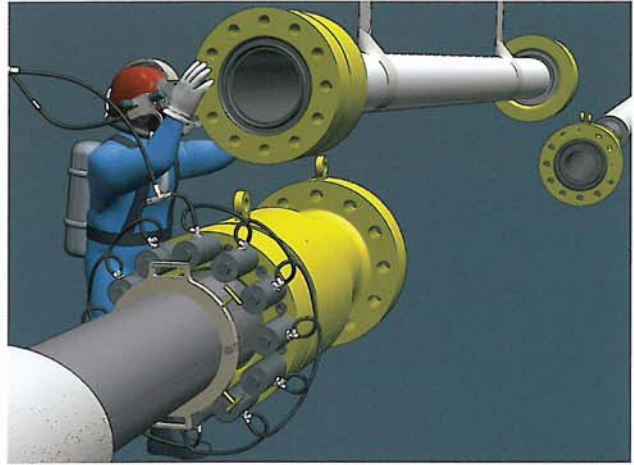
Please provide the following information on any purchase order or request for quotation:

- Nominal pipe size
- Pipe wall thickness or bore
- Pipe grade
- Design rating
- Pipeline product

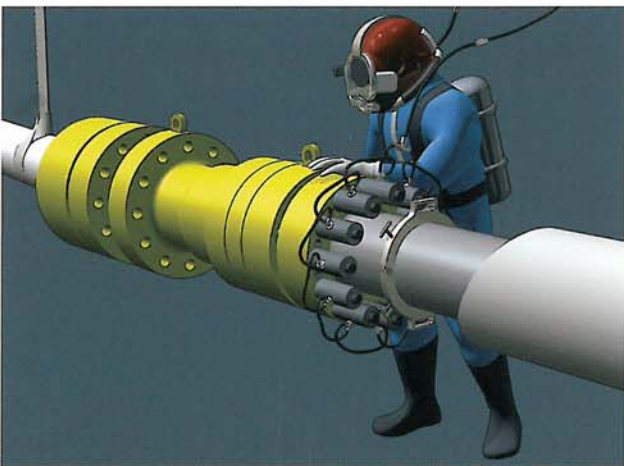
## Spoolpiece Repair using Diver-Assist CGF End Connectors



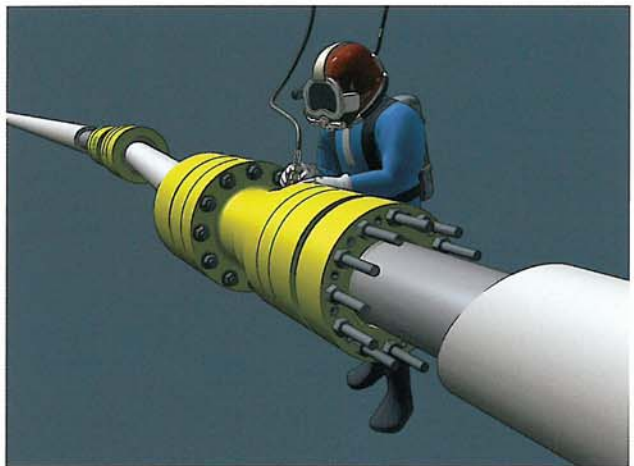
CGF End Connectors are installed over both pipe ends.



The repair spoolpiece, incorporating HydroTech Ball Flange Connectors, is lowered into position.



The spoolpiece is aligned with and bolted to the CGF End Connectors.



Stud tensioners are actuated to set the CGF End Connector collet grips and set the seals. The diver tests the seals, and the spoolpiece installation is complete.