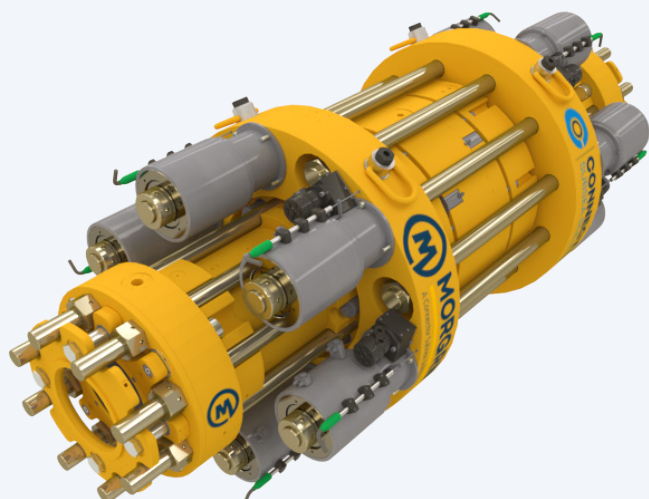


REMOTE CONNECTORS

PRODUCT GROUP

MORGRIP CLAMPS & CONNECTORS



PRODUCT DESCRIPTION

MORGRIP Subsea Remote Connectors enable subsea pipelines to be joined or terminated in a hub/flange or end cap, in locations that are difficult or impossible to reach by divers.

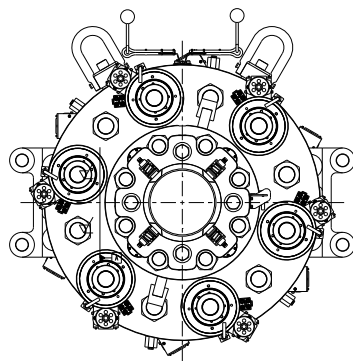
Developed to be installed remotely, our connectors are field proven throughout the world and we are the only supplier with relevant track record having supplied 95% of all in-service units.

A DNV-GL Type Approved Product, the MORGRIP enables a certified permanent repair for a wide range of pipe materials, pressures, diameters and temperatures.

The unique gripping and sealing technology ensures a connection that is at least as strong as the pipe itself, outperforming quality welds in fatigue loading.

With over 90 remote units supplied since the 1980's providing a 100% success during infield operation, MORGRIP holds the industry records for highest pressure, deepest water location, largest pipe diameter and is the only unit deployed in a vertical riser application at 1350mwd.

CAPACITIES

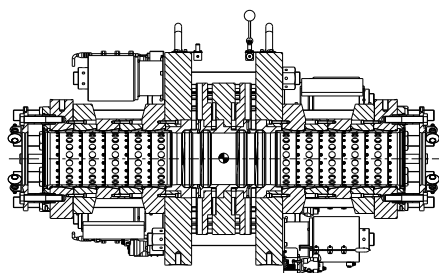


| | |
|-------------------------|--|
| Pipeline size | 1/2in to 42in |
| Material | Carbon steels, stainless steels, duplex steels |
| Temperature | -40degC to 250degC |
| Working Pressure | Up to and including ANSI 2500 rating (638bar test pressure) |

For applications outside of this scope, bespoke engineered solutions are available.

INTERFACES

| | |
|--------------------------------|---|
| Activation | Single activation with remote bolt tensioners |
| Gripping Technology | Collet or ball & taper |
| Seal Material | Dual graphite |
| Back Seal Pressure Test | Yes |
| Installation | Remote installation & activation frames |



CONNECTOR SUBSEA SOLUTIONS

Head office:

Kokstadflaten 17, 5257 Kokstad, Norway

Locations in:

Brazil, UK, Croatia & Bosnia

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REMOTE CONNECTORS

MORGRIP CLAMPS & CONNECTORS



ADDITIONAL INFO

| | |
|--------------------|---|
| Design code | DNVGL-ST-F101/ F113 Pipeline Repair ASME BPVC VIII Div.1 ASME B31.3 API 5L Linepipe specification ASME BPVC VIII Div.2 on request |
| Coating | Jotamastic 87, Interzone 954 or NORSOK M-501 System 7C & 7B Compliant |
| Maintenance | Not required post installation |
| Packing | Steel assembly & shipping frames |
| Design Life | 40 years |

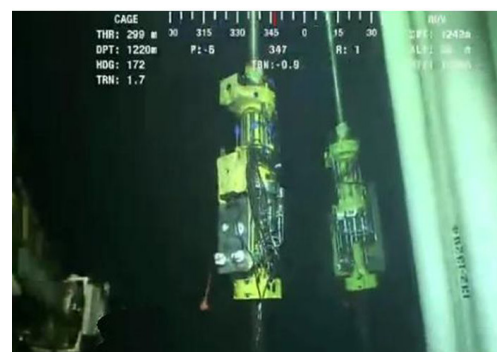
TRACK RECORD

Our remote installation history as of 2019.

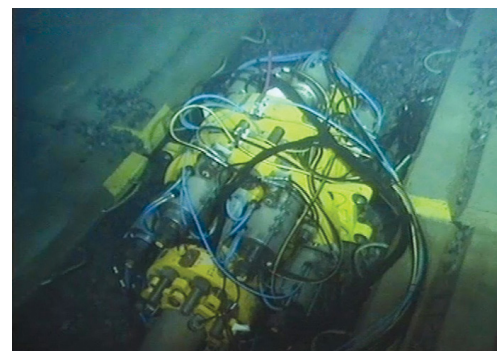
| | | |
|-------------|-------------------------------|---|
| 1996 | Halten Pipe | 2off 16" MORGRIP 190Barg Remote Couplings |
| 1996 | YME Pipe | 1off 4" MORGRIP 170Barg Remote Coupling |
| 2002 | Snorre Vigdis Riser | 1off 12" MORGRIP 285Barg Remote Coupling |
| 2009 | Kvitebjorn Pipeline | 2off 28" MORGRIP 178Barg Remote Couplings |
| 2010 | Troll C Manifold | 1off 6" MORGRIP 340Barg End Cap (Duplex) |
| 2015 | Gulfaks Pipeline | 1off 12" MORGRIP 389Barg Remote Coupling (Duplex) |
| 2017 | Greater Plutonia Hybrid Riser | 2off 4" MORGRIP 334Barg Remote Flange Adaptors |
| 2017 | Snorre Vigdis | 2off 16" MORGRIP 120Barg Remote Couplings |
| 2017 | Snorre Vigdis | 1off 12" MORGRIP 251Barg Remote Coupling |
| 2018 | Asgard | 1off 10" MORGRIP 440Barg Remote Coupling (Duplex) |
| 2018 | Snorre A | 2off 8" MORGRIP 200Barg Remote Couplings |



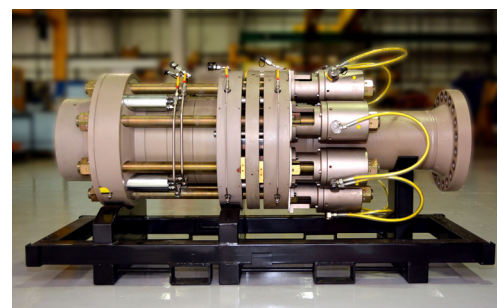
01 // Factory Acceptance Testing



02 // World first remote riser repair



03 // Installed Subsea



04 // Example of 12" Remote Flange Adaptor available for conferences and customer visits



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