

Your Global Partner in Engineering Excellence for Offshore Energy Solutions







Explore Our Capabilities, Discover Your Possibilities



Subsea Innovation Ltd is part of Unique Group LLC



Global Subsea Technology + Engineering Innovator

- > Founded in 1993 in the Sharjah, UAE
- > Over 650 plus people worldwide, including 200+ engineering specialists
- > Located in 18 locations worldwide, serving customers across the Middle East, Asia Pacific, Africa, Americas and Europe
- Features R&D Development Centers in Middle East & Europe aiming to enhance safety, efficiency, and sustainability in the subsea and energy sector
- Vast stock and product portfolio available for both sale & rental

Our Product & Service Portfolio features:

- > Unmanned Survey Vessels
- Survey Equipment
- Diving + Life Support
- > Lifting + Mooring
- Buoyancy + Water Weights
- > Subsea Engineering
- > Mission Equipment



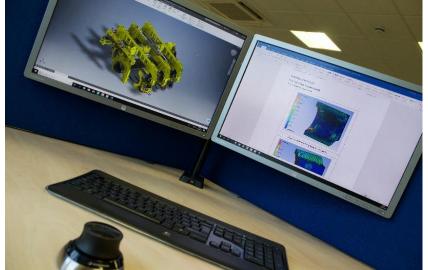
Introduction



Overview

- Providing Engineering support on a Consultancy bases or as a Solutions Provider.
- We offer a turnkey solution in the Oil and Gas and Energy Sectors.
- Specialist in the design & build of bespoke equipment.
- In-house team of skilled Engineers and Technicians.
 - Design
 - Analysis
 - Project management and execution
 - Offshore support team
- Comprehensive track record in the offshore Oil and Gas and Energy Sectors
- Established over 40 Years ago.
- In Excess of 500 Design & Build Projects Delivered
- 150+ Launch & Recovery Systems (LARS) Supplied
- Global Client Base





Facility



Overview

- Purpose built Office / Workshop opened in November 2014 (on 5 acre site in Darlington NE UK)
- Total of 42,000 sq ft floor space
- 60Te Crane capacity (2 x 25Te twin hoists in high bay)
- 12m x 8m door opening
- 5m x 5m x 5m floodable test pit (120te pad eyes)
- Onsite testing and commissioning (mechanical, hydraulic and electric)
- Machining center @ small fabrications.
- PU Moulding in house
- HNBR compression molding
- 40,000 sq ft external storage yard
- Internal & External storage







Introduction



Client Base































































































































Engineering Solutions



Engineering Consultancy

- Pre feed
- Feed
- Dynamic analysis
- Local Analysis
- CFD
- Installation analysis

Subsea Products / Projects

- J tube seals
- Sealing Hang off clamps
- Water-stop seals
- Environmental plugs
- Tie back clamps
- Recovery clamps
- Special Projects

Mission Equipment

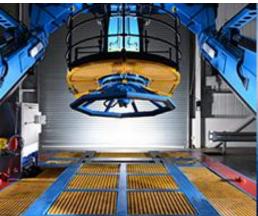
- Handling equipment
- LARS systems
- Winches
- Skidding systems
- PLET handling systems
- Moon Pool Towers
- Special Projects

EPRS solutions

- Sealing clamps
- Structural clamps
- Connectors
- Sleeve connectors
- Hot Taps Ts

Renewables

- CPS bandage system
- Retro fit Dynamics
- As built analysis
- Special Projects











Consultancy and Engineering support

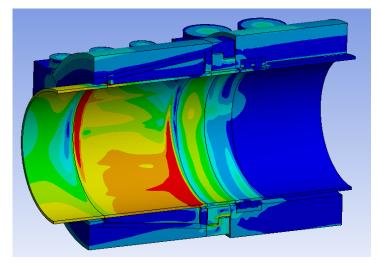


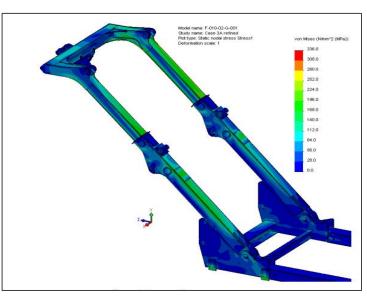
Range of Services

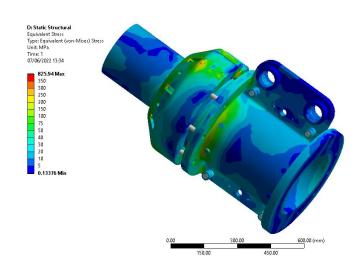
- 3rd Party review
- Conceptual Engineering Design
- Project Engineering / Management support
- Inspection
- Testing

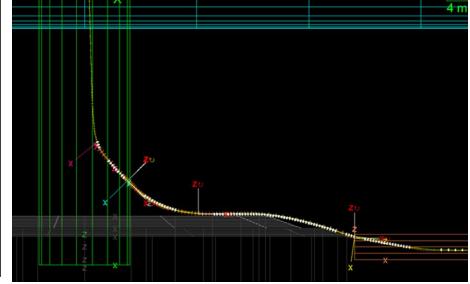


- Design Engineers
- Analysts
- CAD Technicians
- Project Managers
- Project Engineers
- Service Technicians





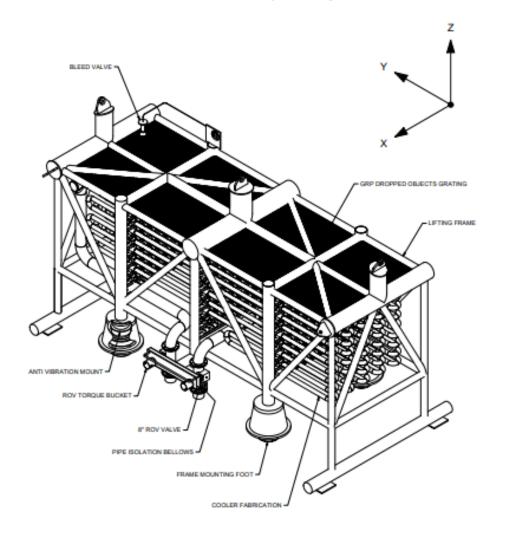


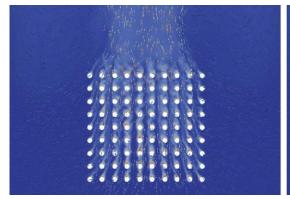


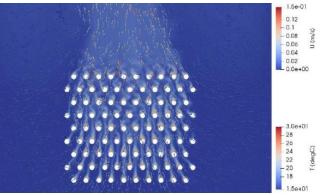
Consultancy Example



Removable subsea cooler concept design







- ROV Isolation and decouple of fluid connections
- ROV operated structural connection
- Vibration damping pads
- CFD and classic calculations re cooling capacity
- Removal and recovery sequence development



Figure 37 - Copper Pipework Stress (Load Case 3, With AV Mounts)

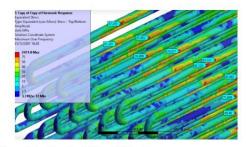
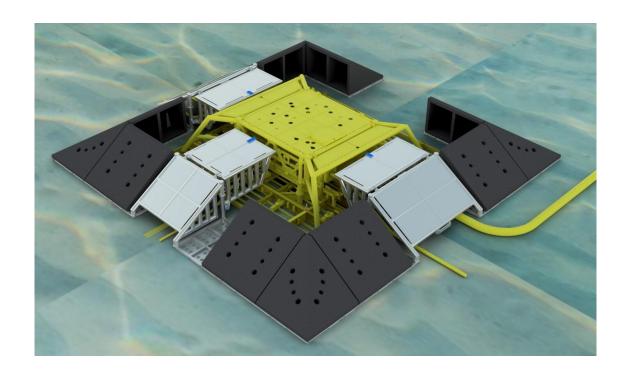


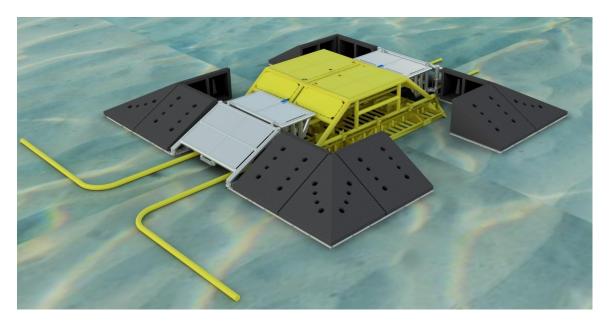
Figure 38 - Copper Pipework Stress (Load Case 3, Without AV Mounts)

Consultancy Example



Subsea Protection Frames





- Design of structure
- Lifting analysis and rigging design for installation
- Impact analysis

Subsea - Hang off clamps



Range of systems

- Structural and sealing systems
- Steel Catenary Risers
- Flexible flow lines
- Umbilical's
- Power Cables





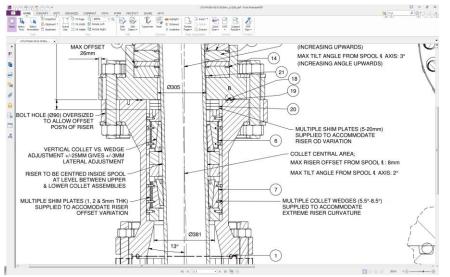
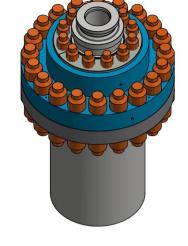
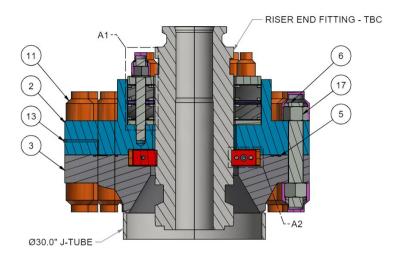




Figure 5-2 - Exploded HOC View



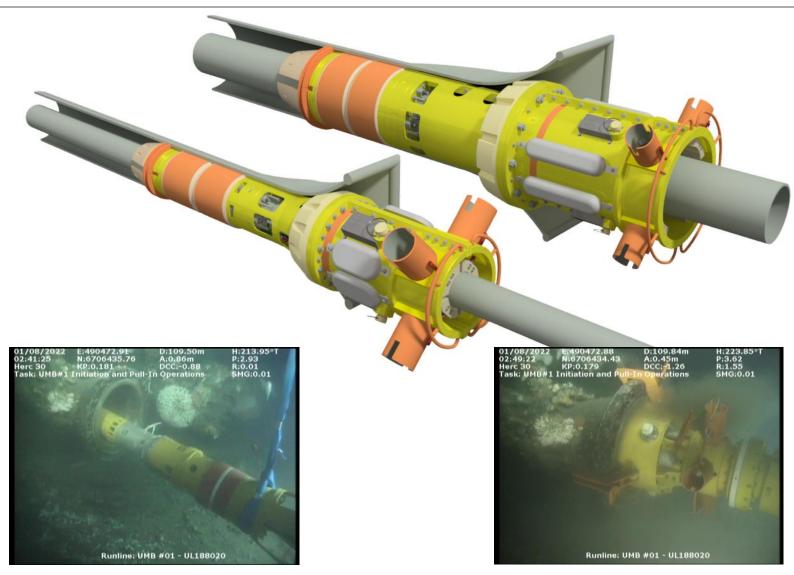




Subsea – Active J Tube Seals



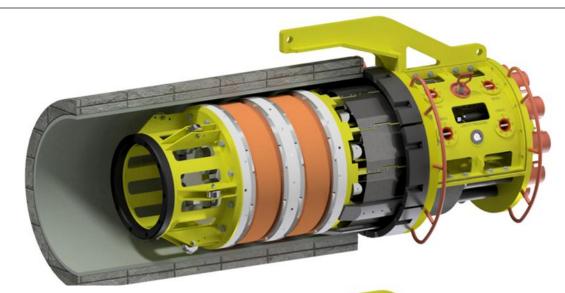
- Used on flexible's, steel catenary risers, umbilicals and cables.
- Hydraulically activated
- Enhanced Sealing Integrity: Actively engaged seals improve protection against water ingress and pressure changes.
- Extended Equipment Life: Helps prevent corrosion and damage to cables and risers inside J Tubes.
- Operational Flexibility: Can accommodate dynamic movements of cables and umbilical's due to environmental conditions.

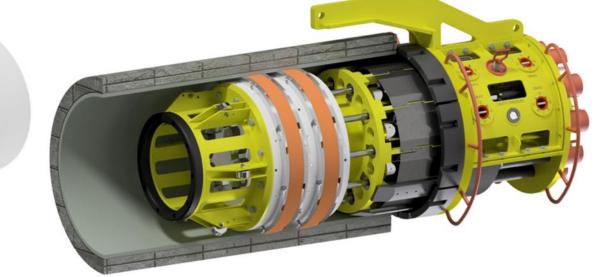


Subsea – Plugs and Seals

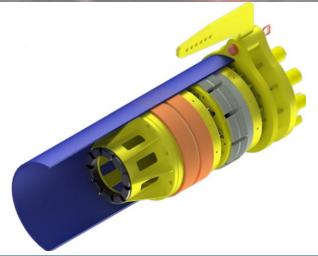


- Environmental plug
- Pressure holding plug
- Suction pile plug
- Torque activate
- Hydraulically activated
- Access ports optional









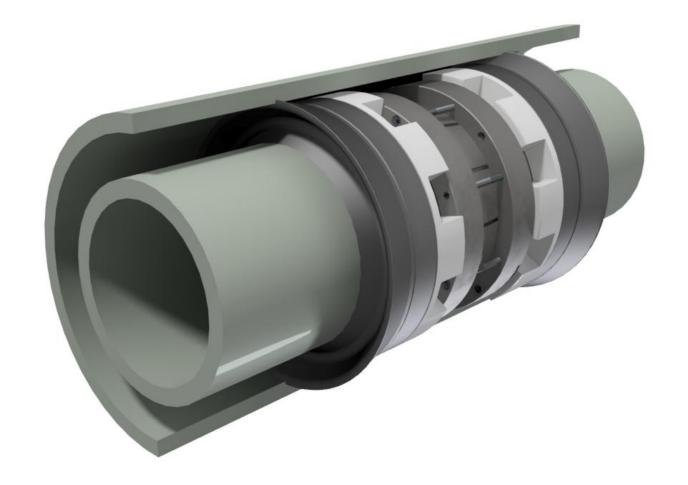


Subsea – Water Stops



- Having delivered more than 1900 Pipe-In-Pipe Waterstops Subsea Innovation has an extensive track record in their design and supply to clients worldwide.
- Shallow or deep water
- Dual Hardness seals
- Materials and grip force to match the pipeline
- Investment in HNBR manufacturing equipment



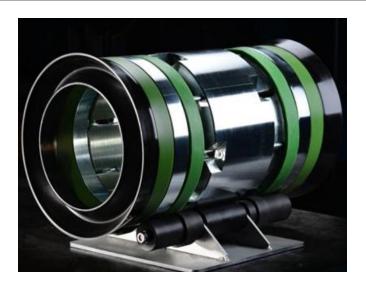


Subsea – Water Stops



Project			Specification			
351		Shell Nile	06" x 10" seal @ 182 bar.g			
401		Shell Nakika	08" x 12" seal @ 322 bar.g			
558	0	BP Kingwest	06" x 10" seal @ 250 bar.g			
560	Technip	Technip R&D	08" x 15" seal @ 247 bar.g			
612	3	Total Dalia	12" x 17" seal @ 141 bar.g			
641	Enl	Eni K2	07" x 12" seal @ 197 bar.g			
650	ner	Nobel Energy Swordfish	06" x 10" seal @ 145 bar.g			
655	Dominion kal perchant	Triton Goldfinger	06" x 10" seal @ 258 bar.g			
660	ner	Nobel Energy Ticonderoga	06" x 10" seal @ 150 bar.g			
701		BP Atlantis	11" x 16" seal @ 217 bar.g			
762	0	BP R&D	08" x 12" seal @ 177 deg.c			
767	BR	Petrobras Plangas Canapu	08" x 13" seal @ 267 bar.g			
772	0	BP Dorado	08" x 12" seal @ 147 bar.g			
772a	0	BP King South	06" x 10" seal @ 215 bar.g			
831	*	Helix Danny	08" x 12" seal @ 138 bar.g			
777	3	Total Pazflor	12" x 16" seal @ 110 bar.g			
890	Anadario	Caesar Tonga	08" x 12" seal @ 200 bar.g			
916	M	Marathon Ozona	06" x 10" seal @ 125 bar.g			
975	0	BP Galapagos	08" x 12" seal @ 258 bar.g			
975	0	BP Galapagos	08" x 12" seal @ 258 bar.g			
934	Technip	Oselvar	10" x 14" seal @ 7.5 bar.g			
995	0	BP Devenick	10" x 16" seal @ 13 bar.g			
1022	Technip	Marulk	11.75" x 15.5" seal @ 39 bar.g			

:t		Specification			
subsea 7	Wintershall - Nova	8" x 10" @ 37 bar g			
subsea 7	Fieldwood - Katmai	8" x 12" @ 70.4 bar g			
TechnipFMC	Edvard Grieg	10" x 14" @ 10.9 bar g			
subsea7	Talos – Bulleit Project	6" x 10" @ 44 bar g			
subsea7	Murphy – Calliope Project	6" x 10" @ 229 bar g			
M	ONGC – NELP Block KG- DWN 98/2 Project	10" x 16" @ 41 bar.g			
subsea 7	LLOG Exploration Offshore Praline	6" x 10" @ 83 bar g			
TechnipFMC	Ceaser Tonga Subsea System Expansion	9.016" x 13.150" @ 157 bar g			
TechnipFMC	Murphy Dalmation	6" x 10" @ 260 bar g			
	subsea 7 Subsea 7 TechnipFMC subsea 7 Subsea 7 Subsea 7	Subsea 7 Fieldwood - Katmai TechnipFMC Edvard Grieg Subsea 7 Talos - Bulleit Project Subsea 7 Murphy - Calliope Project ONGC - NELP Block KG-DWN 98/2 Project LLOG Exploration Offshore Praline TechnipFMC Ceaser Tonga Subsea System Expansion			



Subsea - Remedial / Repair Projects



Range of Projects & Equipment

- Cable Protection System repair
- Retro-Fit Cable Protection System Repair Solutions
- Cable Repair Solutions
- Installation & Handing Equipment
- Product Recover Clamps
- Bellmouth Clamps
- Hang-off & Tie Back Clamps



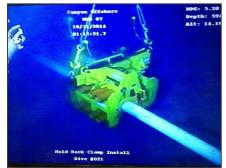














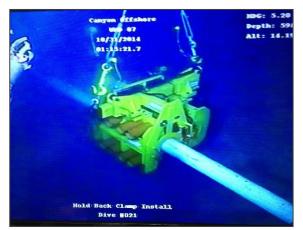








14" & 18" 150t



Item	Model	Client	Serial No.	
1	15Te Recovery clamp	Subsea 7	SN-236-01	
2	8" Recovery clamp	Technip	SN-249-01	
3	10" Recovery clamp	Technip	SN-249-02	
4	15Te Recovery clamp	Technip	SN-275-01	
5	ROV Holdback clamp	Subsea 7	SN-412-01	
6	70Te ROV Recovery clamp	Technip	SN-744-01	
7	ROV Recovery clamp	Technip	SN-750-01	
8	8-1/2" Mech clamp	Petrobras	SN-825-01	
9	8-1/2" Mech clamp	Petrobras	SN-825-02	
10	8-1/2" Mech clamp	Petrobras	SN-825-03	
11	8-1/2" Mech clamp	Petrobras	SN-825-04	
12	8-1/2" Mech clamp	Petrobras	SN-825-05	
13	8-1/2" Mech clamp	Petrobras	SN-825-06	
14	2-1/2" Recovery clamp	Flexlife	SN-871-01	
15	2-1/2" Recovery clamp	Flexlife	SN-871-02	
16	2-1/2" Recovery clamp	Flexlife	SN-871-03	
17	6" Recovery clamp	Flexlife	SN-871-04	
18	6" Recovery clamp	Flexlife	SN-871-05	
19	6" Recovery clamp	Flexlife	SN-871-06	
20	150Te Recovery Clamp	Bourbon Subsea	SN-2322-9664	



Work Class ROV LARS systems

- Over 35 years experience in supplying LARS
- In excess of 150 launch and recovery systems (LARS) successfully delivered
- LARS have been supplied for a range of ROVs, Trenchers & Subsea Vehicles.
- Designed, built & tested in-house
- All LARS designed, built & tested in accordance with the relevant codes (DNVGL / Lloyds Reg. / BV / ISR)
- Bespoke LARS & SIL Standard LARS supplied
- Onsite commissioning available
- Experience with LARS in a range of sectors
 - Oil & Gas
 - Navy
 - Tidal
 - Renewables
 - Subsea Mining
- Supplied other deployment & handing systems

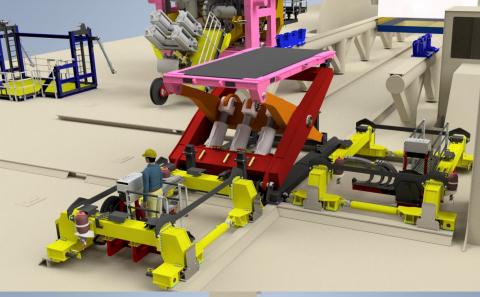


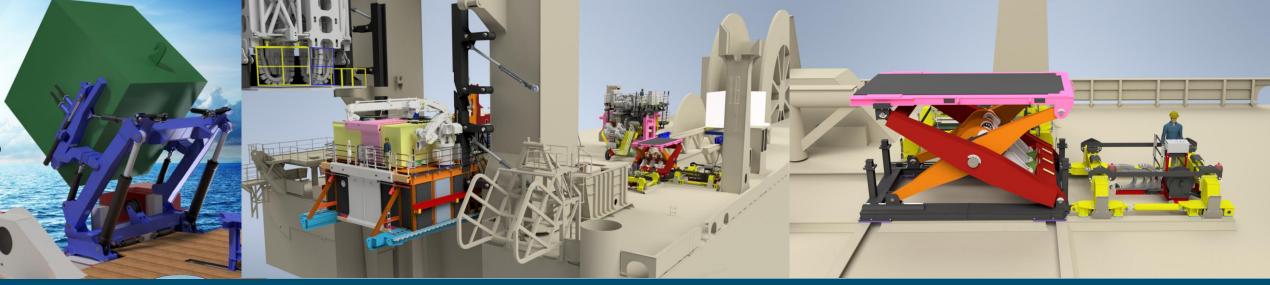




Range of Projects & Equipment

- Deck Equipment
- Mattress Handling Systems
- Bespoke Engineered Solutions & Equipment
- Skidding Systems
- Lay Equipment
- Trencher Launch and Recovery Systems
- ROV Launch and Recovery Systems

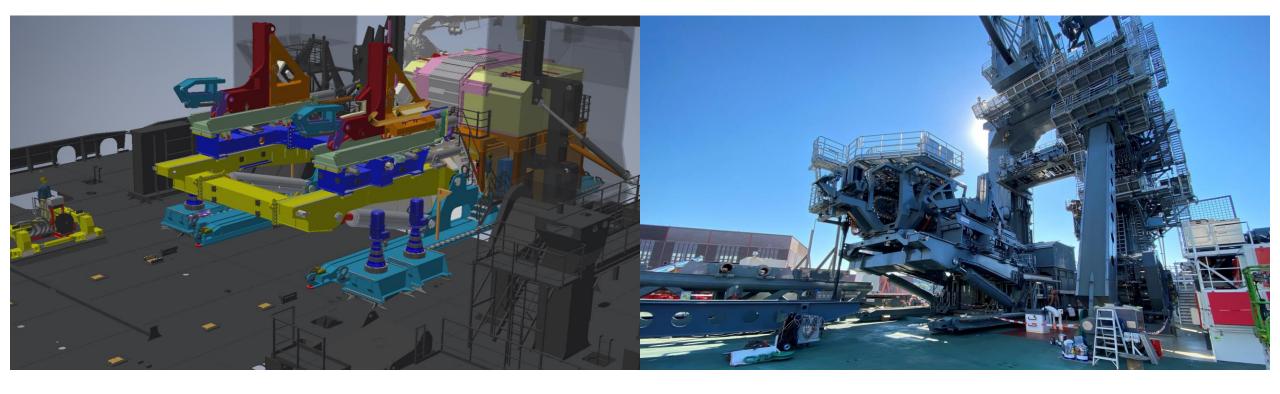






General Track Record & Experience – Past Bespoke Project

- PLET Handing Spread & Service Habitat (450 Te of Deck Equipment)
 - Inc. Skidding System

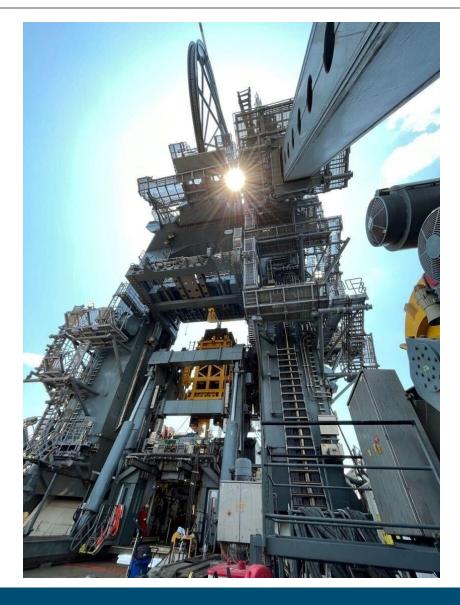




Track Record & Experience – Past Bespoke Projects

- PLET Handing Spread & Service Habitat (450 Te of Deck Equipment)







Track Record & Experience – Past Bespoke Projects

- PLET Handing Spread & Service Habitat (450 Te of Deck Equipment)
 - Skidding System





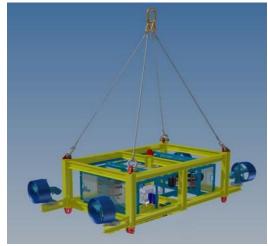




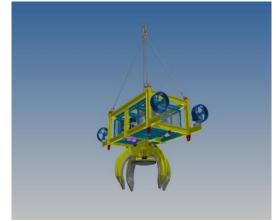
Multi Purpose Handling & Deployment System – Conceptual Design Development & FEED

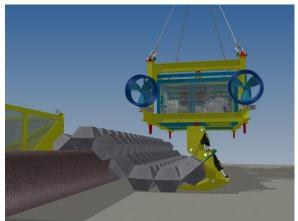
- Multi Purpose Modular Frame
- Central Control System
- Verified Lifting Frame
- Remote Operated
- Modular Application Tooling
 - Mattress Deployment
 - Rock Dump & Boulder Positioning
 - Mattress Removal









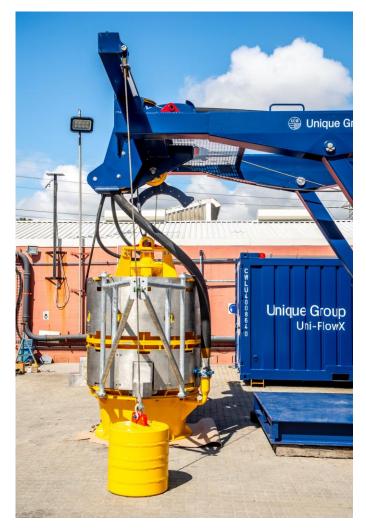


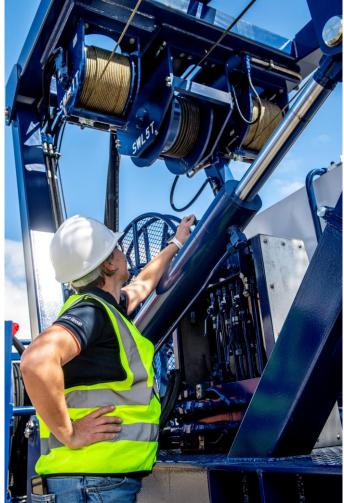
Controlled Mass Flow Excavation



Advantages of CMFE over other trenching methods

- Non-Contact
- Avoids damage to assets or seabed.
- Precision
- Real-time control for accurate operations.
- Versatility
- Works in diverse seabed conditions.
- Eco-Friendly
- Targets specific areas, minimal disturbance.
- Cost-Effective
- Reduces reliance on heavy equipment.





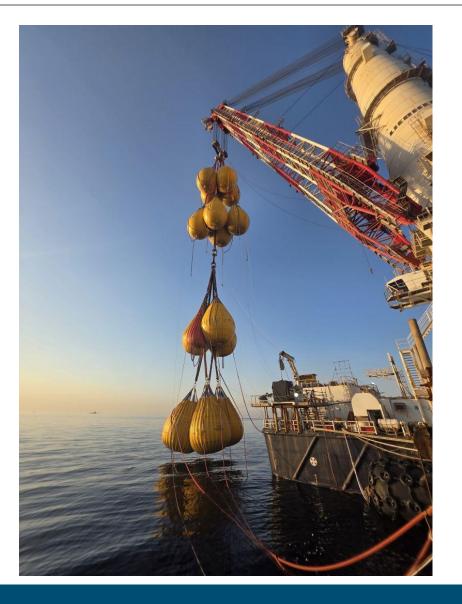
Water Weights



MARKET SECTORS SERVED - Oil + Gas CUSTOMERS SERVED - Offshore E+P

- Renewable Energy
- Marine + Shipping
- Defense + Government Bodies
- Construction Industry
- Metals
- Water
- Testing
- Utilities

- EPC Offshore Installation
- Diving + Salvage
- Commercial Marine
- Shipyards
- Ship Owners
- Navy + Coast Guard
- Power Plant
- Testing Service



EPRS - Example



- The collets and seals are jointly activated (*A*)
- A spool piece is added post activation and testing (*B*)
- Pipeline range 2" NS to 48" NS
- Pressure range 0 to 600 bar.g
- Temperatures 0° C to +150° C
- Diver or ROV installed shallow or deep water

- Inter-changeable structural collet packs
- 25 40-year design life
- Designed to accept API 5L or DNV diameter tolerances with a single seal set
- Additional change parts can be supplied to increase diameter tolerances or cater for multiple wall thickness of pipes
- Special designs undertaken for specific temperature and pressures, also specific geometry i.e. sealing over a flange joint



Deep water EPRS - Example



ROV Automated Structural Pipeline Repair clamps

Size: 20", 30", 34", 42", 44"

Pressure: Ranging from 175 Bar g to 344 Bar g

Activation: Fully ROV Automated

Installation: ROV Installed c/w Installation Tool



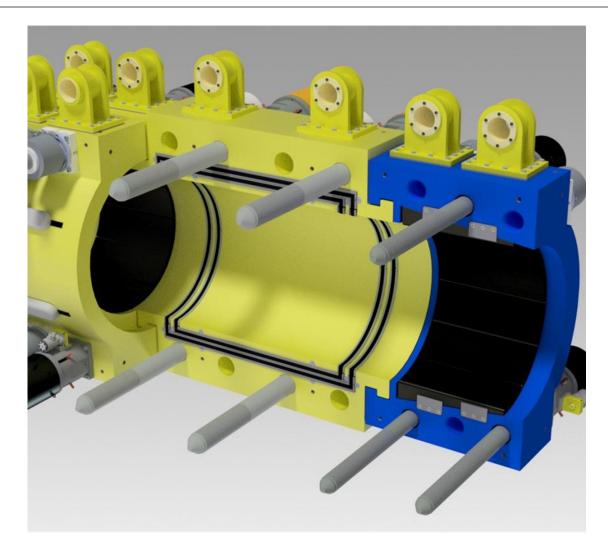




Modular Clamp and Connector System



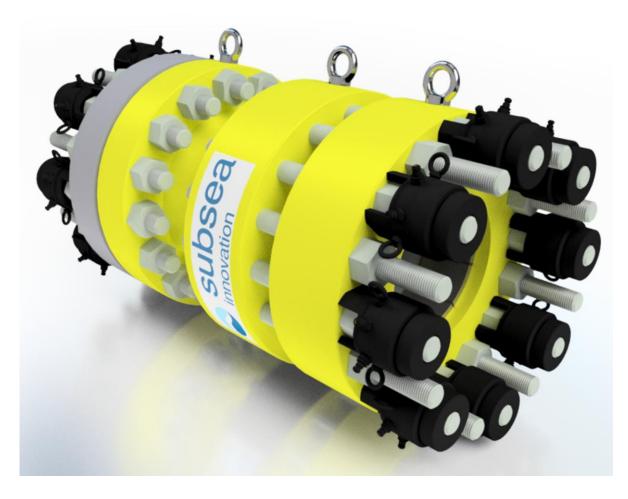
- System is modular by adding machined lip profile on each end of the clamp body.
- The addition of a pair of SI-Grip collet systems restores the pipelines original bending moment and tensile load carrying capacity
- Collet packs are interchangeable between clamps, connectors.
- Change parts for seal and collets to cover a large diameter range.
- Diver installable or ROV.
- Shallow or deep water.

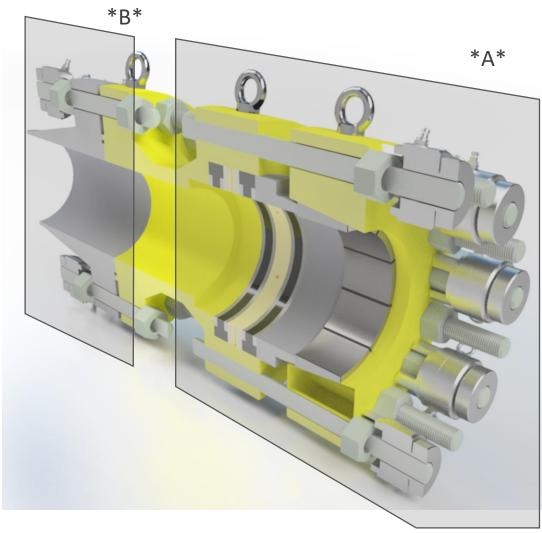


Basic Diver Installed Connector



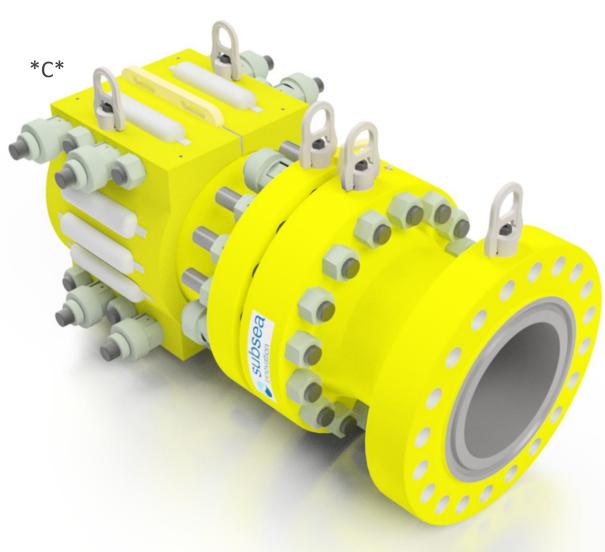
- The collets and seals are jointly activated (*A*)
- A spool piece is added post activation and testing (*B*).





Connector with interchangeable collets



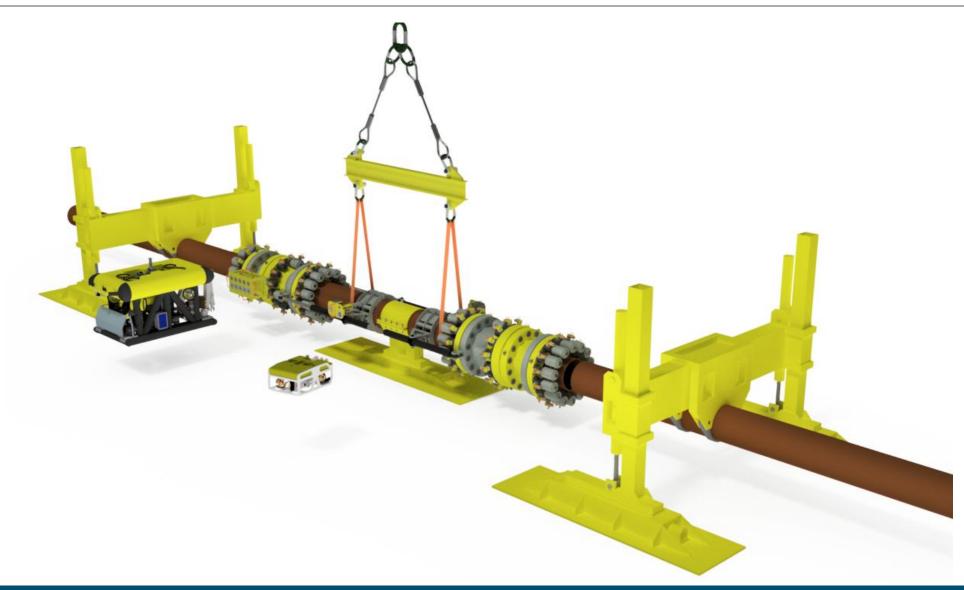


- Collets, Seals and Flange connection bolts are all independently activated.
- Split collet housing (*C*) used to increase pipeline clearance.
- Dual Sealing
- F22 Forged bodies
- Interchangeable seals and collets accommodate a range of pipe wall thicknesses.



Sleeve Connector Installation example

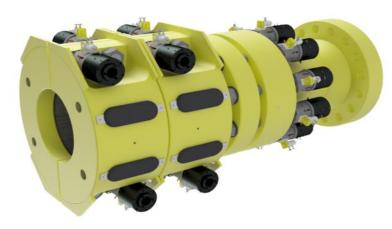




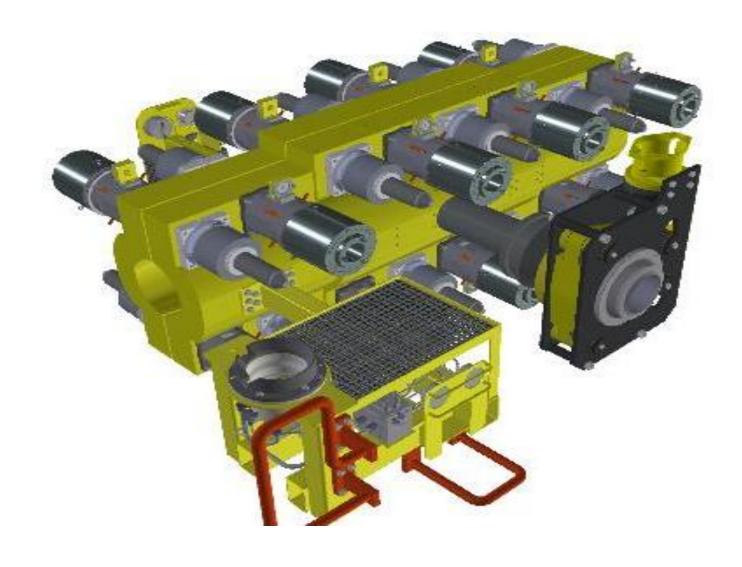
EPRS - Example



Connectors and Hot Tap T







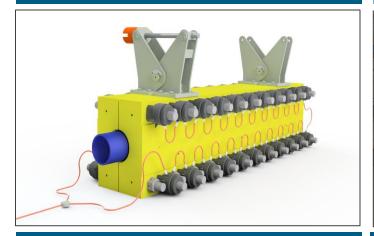
EPRS - Example



Rapid turn around clamp

- Water injection line repair
- UT X Ray
- Using plate material
- Chemical and mechanically tested
- Turned around in 10 weeks

Engineering Design



Testing & Inspection



Build & Assembly



Supply







Project	Size	Client	Туре	Installation Method	Qty	Service	Depth	Year of Build	Design Pressure
1156	12"	wintershall	Flange Connector	Diver	1	Sour	-	2011	217.5 Bar g
1189	12"	20	Repair Clamp	Diver	10	Non-Sour	92m	2012	127.5 Bar g
1199	8"	wintershall	Connector	Diver	1	Non-Sour	35m	2012	75 Bar g
1362	24"	GDF ZVCZ	Repair Clamp	Diver	2	Sour	50m	2014	131 Bar g
1362	24"	GDF ZVCZ	Flange Connector	Diver	2	Sour	50m	2014	131 Bar g
	16"				1	Sour	65m	2015	431.25 Bar g
1436	28"	26	Structural	Diver	1	Sour	65m	2015	218.75 Bar g
1436	32"	RasGas	Repair Clamp	Diver	1	Sour	65m	2015	186.3 Bar g
	38"				1	Sour	65m	2015	206.2 Bar g
1437	16"	RasGas	Flange Connector	Diver	1	Sour	65m	2015	431.25 Bar g
	20"				1	Sour	20m	2016	202 Bar g
1408	30"	subsea 7	Structural Repair Clamp	ROV	1	Sour	1350m	2016	306 Bar
	34"				1	Sour	130m	2016	344 Bar g
	42"	Chevron			1	Sour	250m	2016	229 Bar g
	44"				1	Sour	122m	2016	176 Bar g
1955	10"	subsea 7	Repair Clamp	Diver	3	Non-Sour	125m	2019	330 Bar g
		MCDERMOTT	Repair Clamp	Diver	1	Sour	-	2021	340 Bar g
2067	28"	QATARGAS	Connector	Diver	2	Sour	-	2021	340 Bar g

Project	Size	Client	Туре	Installation Method	Qty	Service	Depth	Year of Build	Design Pressure
10	10"			ROV	2	Non Sour	600m	2001	250 Bar g
	12"				1	Sour	1000m	2001	250 Bar g
	16" 259 18"		equinor		1	Non Sour	1000m	2001	350 Bar g
259		equi			1	Non Sour	600m	2001	312.5 Bar g
	20"				1	Sour	1000m	2001	250 Bar g
	22"				1	Sour	1000m	2001	250 Bar g
	24"				1	Sour	1000m	2001	232.5 Bar g
598	8"	EIR PETROBRAS	Repair Clamp	ROV	1	Non Sour			
627	24"	ConocoPhillips	Repair Clamp	ROV	1	Non Sour	150m	2004	43.1 Bar g
654	10"	Eli PETROBRAS	Repair Clamp	ROV	1	Non Sour	3000m	2005	155 Bar g
	6"				2	Non-Sour	3000m	2006	155 Bar g
662	662 12"	PETROBRAS Rep.	Repair Clamp	ROV	2	Non-Sour	3000m	2006	155 Bar g
	16"				2	Non-Sour	3000m	2006	155 Bar g
825	8.5"	EIR PETROBRAS	Repair Clamp	Diver	6	Sour	-	2008	224 Bar g
836	12"	Mellitah Oli & Gas B.V	Melitah Oli & Gas B.V Repair Clamp	ROV	1	Non-Sour	190m	2010	264 Bar g
030	22"	Silger Brach	Repair Clamp	ROV	2	Non-Sour	190m	2010	264 Bar g
847	16"	w woodside	Repair Clamp	ROV	1	Sour	130m	2008	256 Bar g
849	22"	Melitiah Oli & Gas B.V Lityee thanch	Repair Clamp	Diver	1	Non-Sour	70m	2008	150 Bar g
903	6"	قطر للبترول Qatar Petrokum	Structural Repair Clamp	Diver	2	Sour	-	2009	286.25 Bar g
917	18"		Repair Clamp	ROV	1	Sour	70m	2009	150 Bar g
950	36"	✓ woodside	Flange Connector	Diver	2	Non-Sour	80m	2010	169.9 Bar g
950	6"	∜ woodside	Repair Clamp	Diver -	1	Non-Sour	85m	2010	450.6 Bar g
930	36" Woodside	woodside Repair Clamp	Diver	1	Non-Sour	85m	2010	169.9 Bar g	

Renewables – Example (special product)



Dynamic Bend Stiffener – CPS Repair Solution

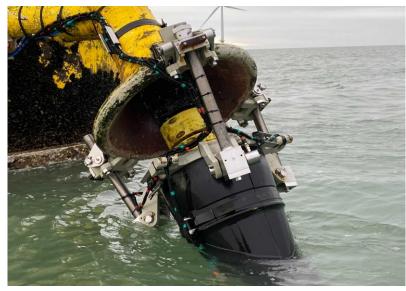
Conceptual Engineering Solutions



Construction & Test



Offshore Installation



Service Works, Maintenance & Refurbishments

LARS Refurbishments













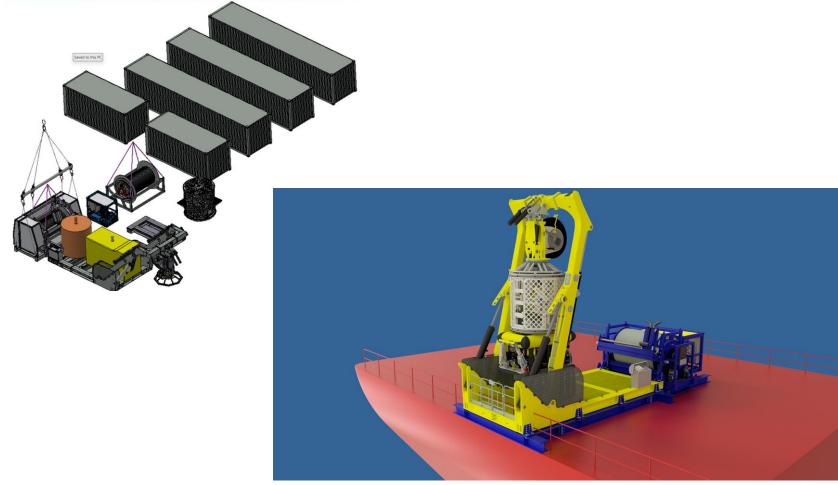




Current project examples



Containerized LARs system For the Italian Navy





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