



TOROCON Tie-In System

By SubseaDesign
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Introduction

The objective of this presentation is to present the Tordis ROV Connection System «TOROCON».

The Torocon system consists of a set of tools, all designed to be flown and operated by ROV. This presentation gives an overview of the tool set and how it operates.



Contents

This presentation includes the following topics:

- General
- Tool overview
- Tool Operation
- Additional equipment
- Why Torocon
- Lesson Learnt



General

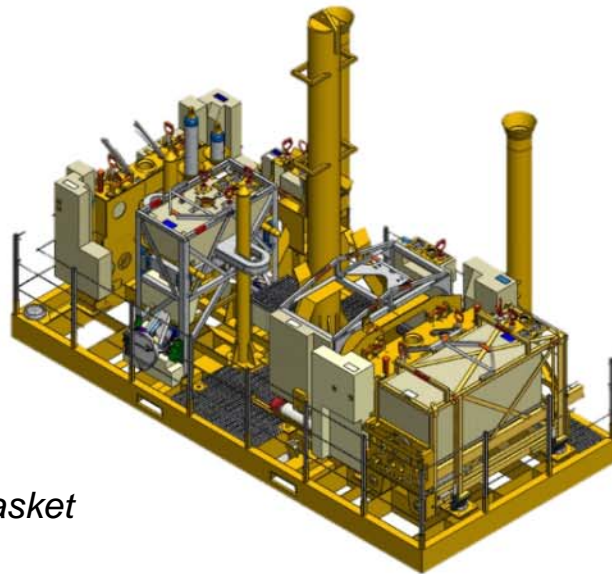
- The TOROCON tool spread consists of a set of ROV operated tools
- The tools will be used at the TORDIS field and interface with existing equipment
- The tool set will replace the existing pull-in and connection tool
- Made for connection and disconnection of umbilicals and flowlines
- Installed through the moonpool of the vessel in two off baskets
- Operated by ROV through the ROV hot stab
- Flown by ROV from basket to operating location



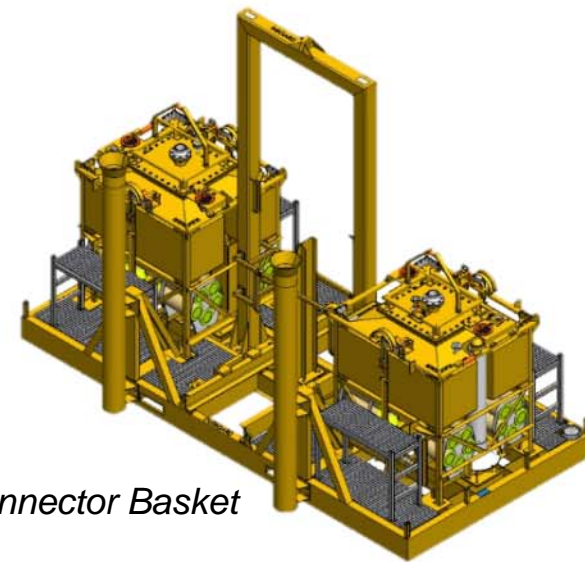
The Main Tool Spread

The main parts of the TOROCON tool spread are stored, transported and installed by the help of two baskets:

- The Tool Basket
- The Connector Basket



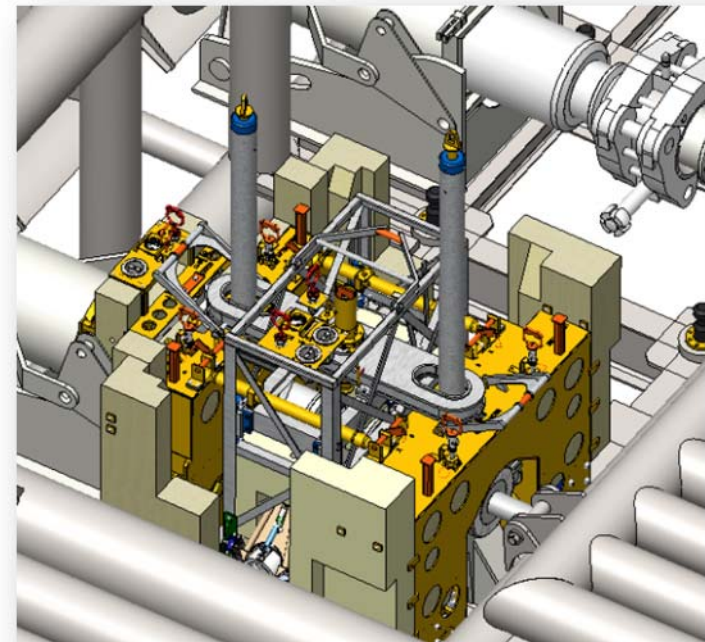
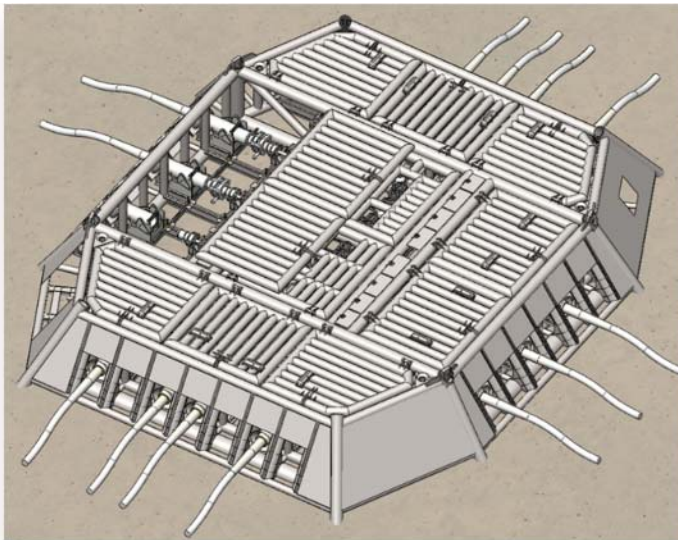
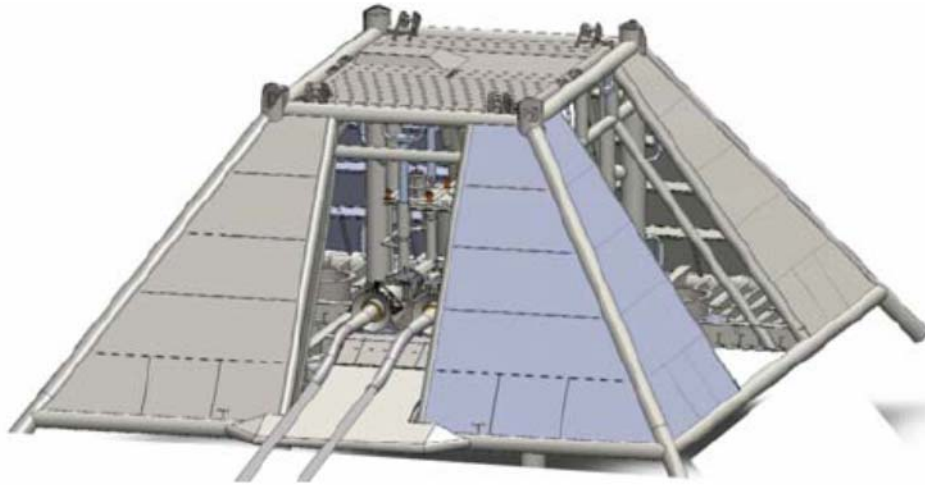
Tool Basket



Connector Basket



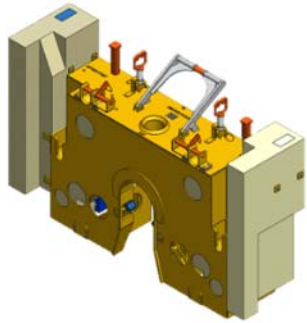
Overview of the Site



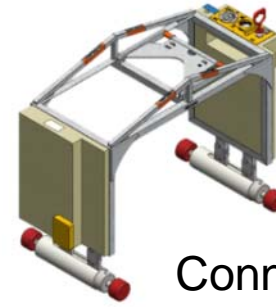
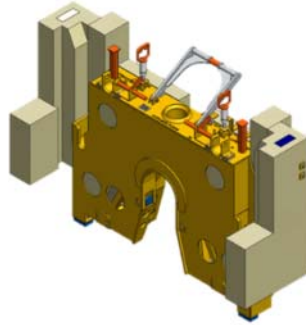
TOROCON Tie-In System



Overview of the Tools



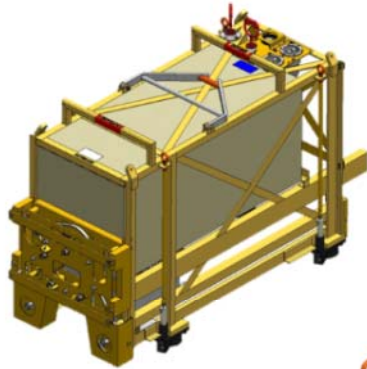
Porches



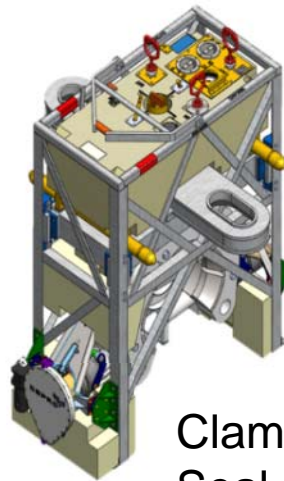
Connection Tool



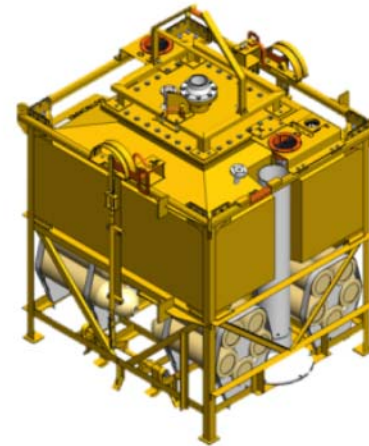
Flowline lifting Tool



Stroking Tool



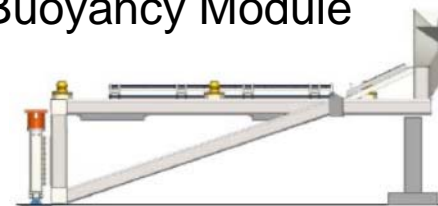
Clamp and Seal Operation Tool



Buoyancy Module



Locking Tool



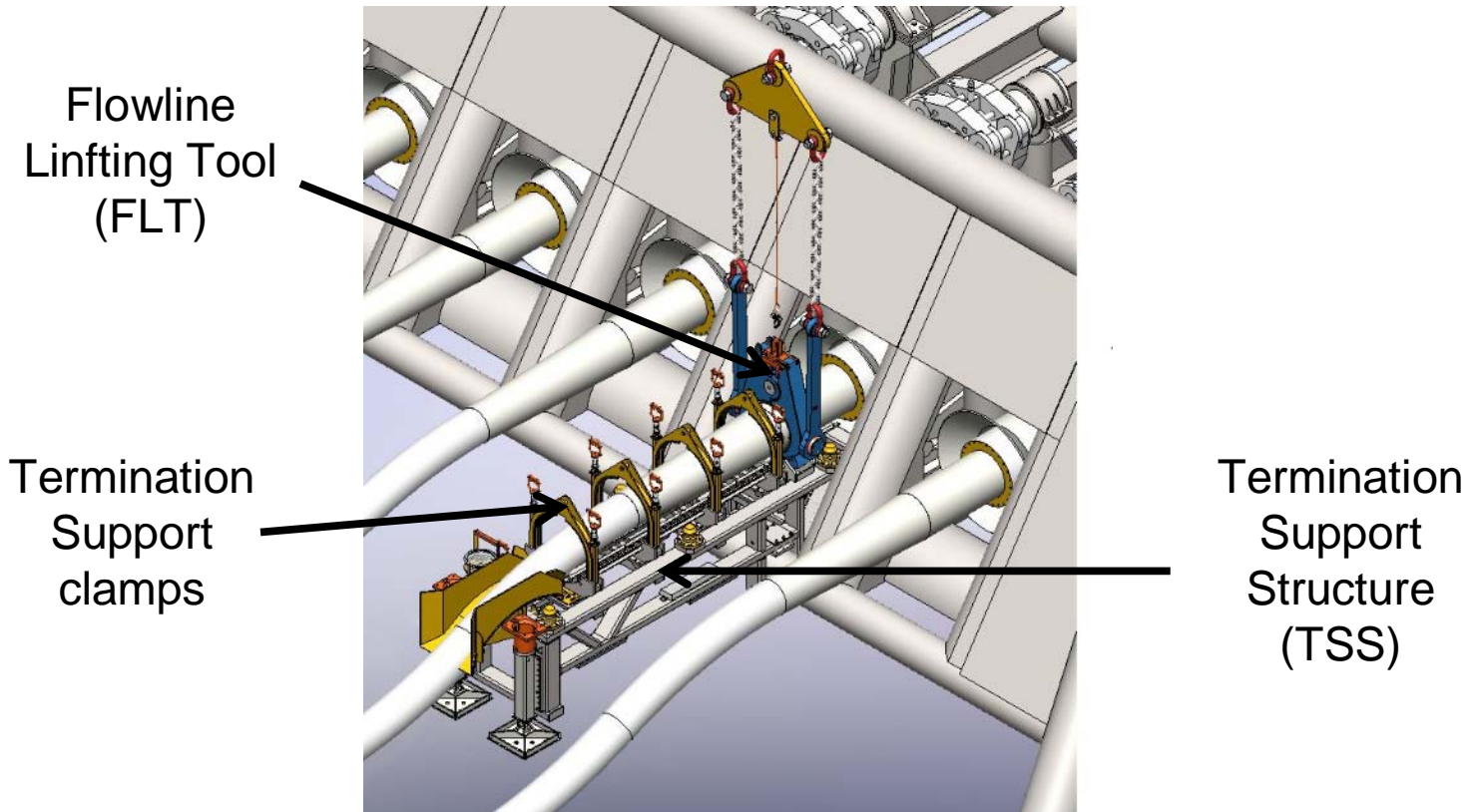
Support Structure

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Installation of Umbilical

Support tools for installation of umbilical:

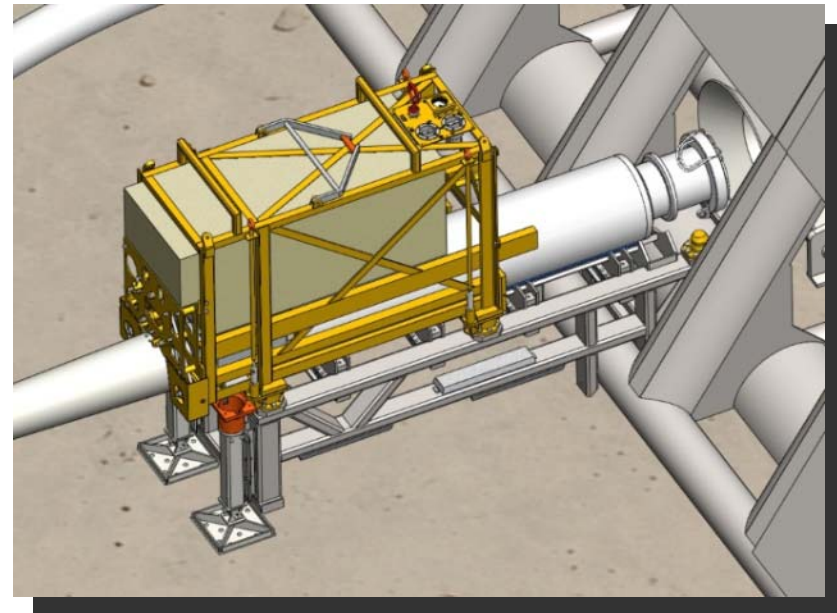
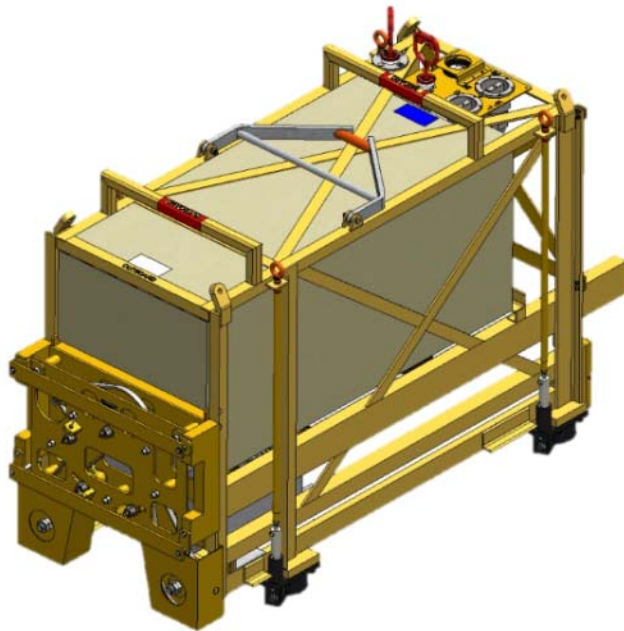


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Installation of Umbilical

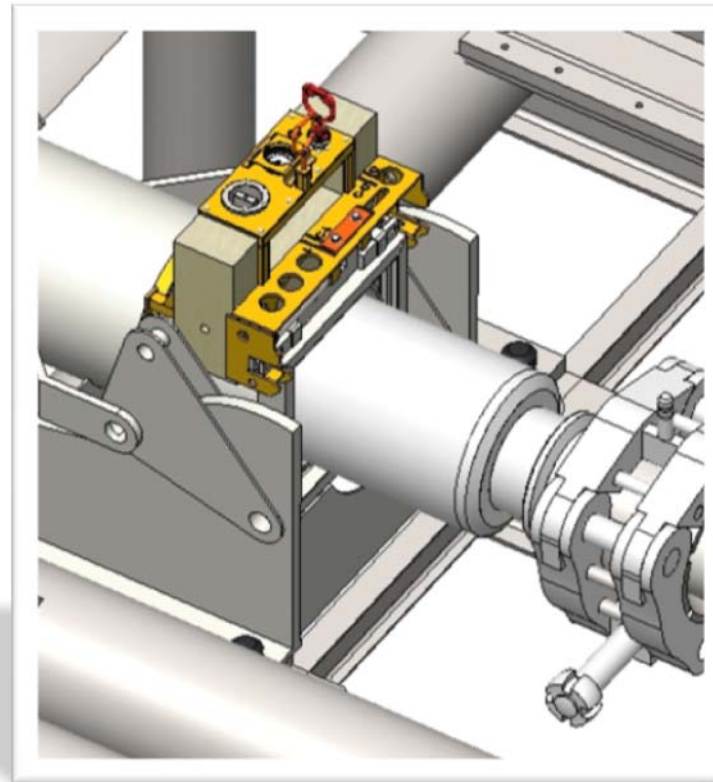
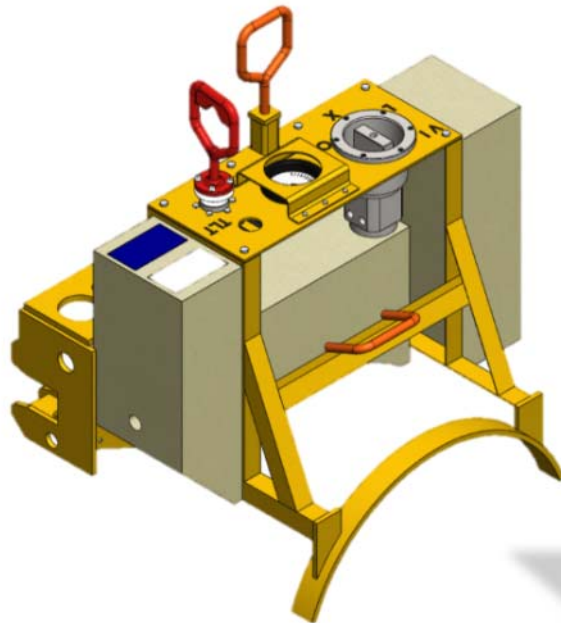
The Termination Stroking Tool





Main Tool Operation

The Termination Locking Tool

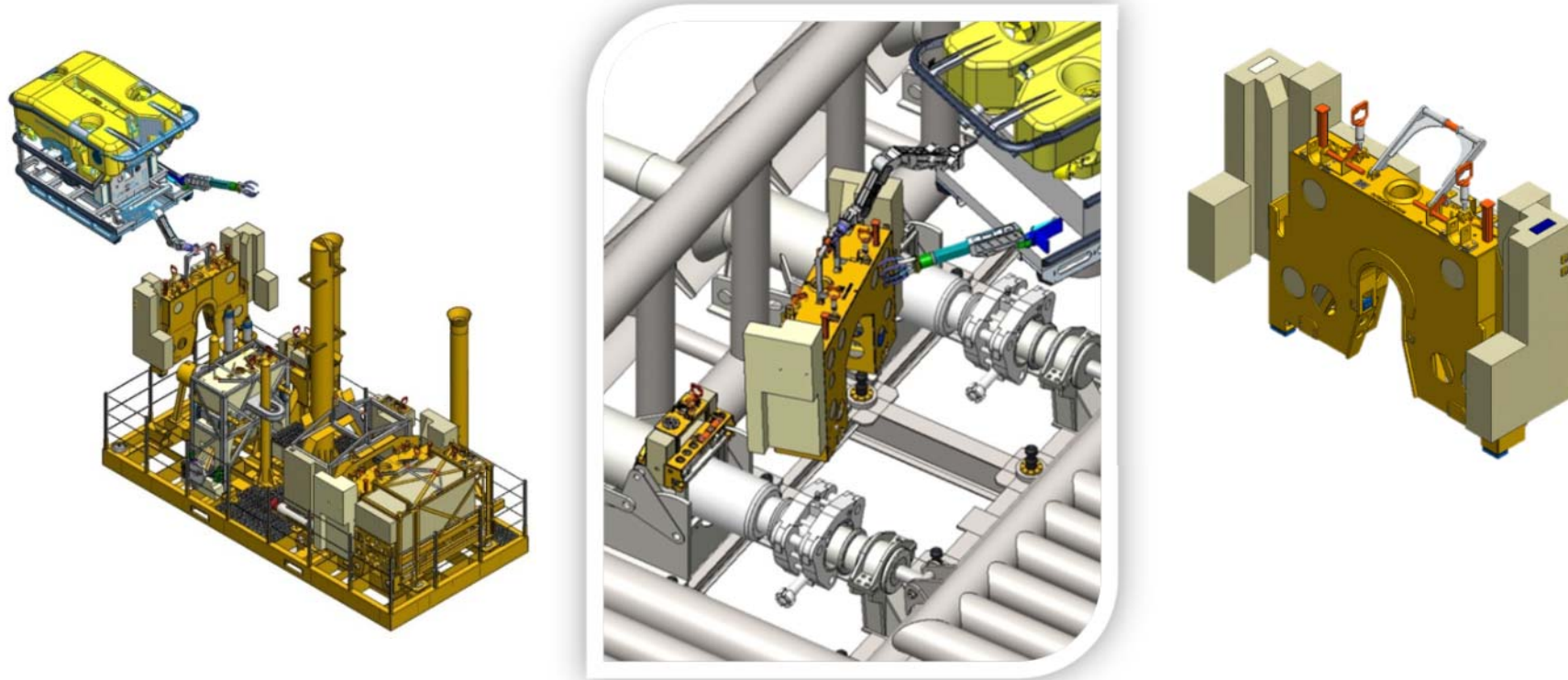


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Main Tool Operation

The Outboard Porch

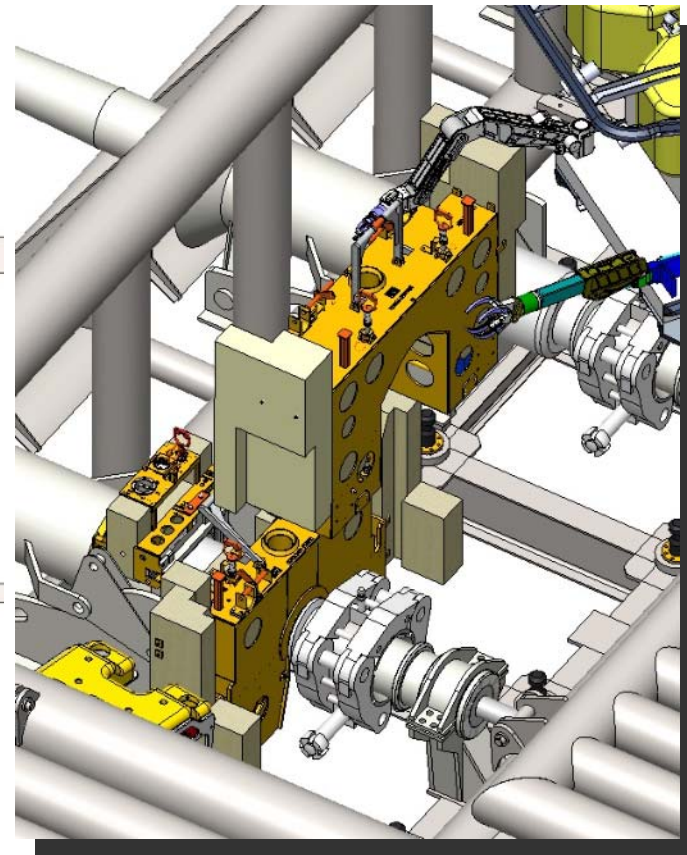
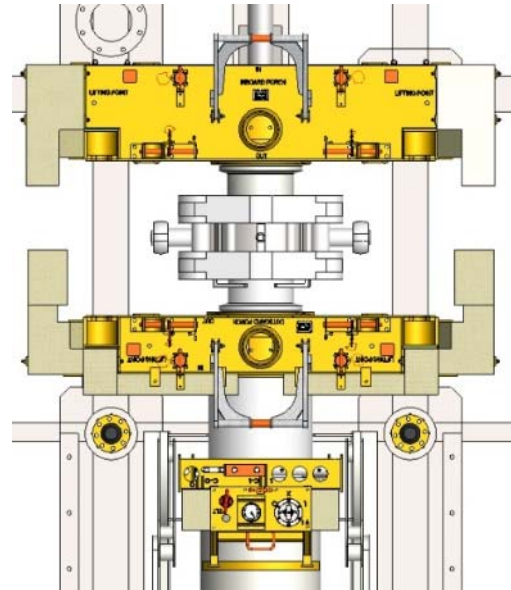
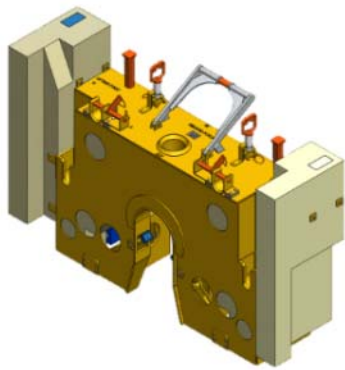


TOROCON Tie-In System



The Main Tool Operation

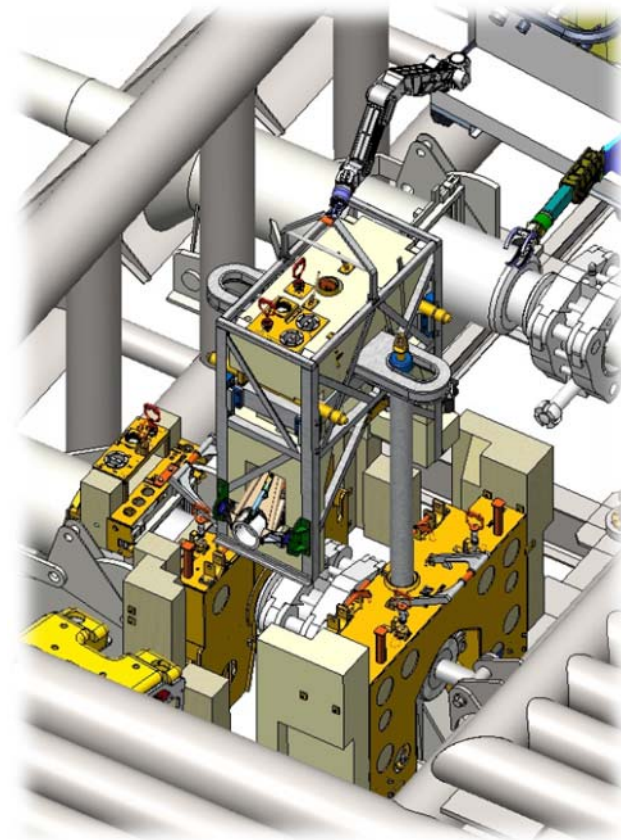
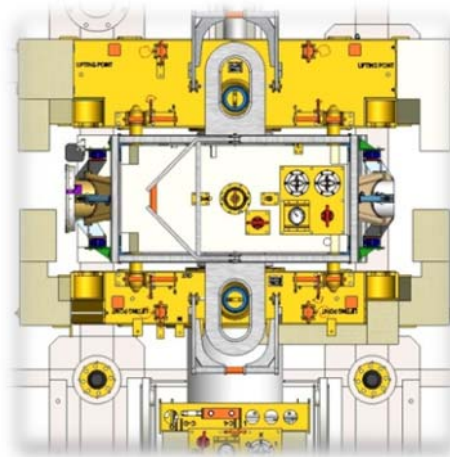
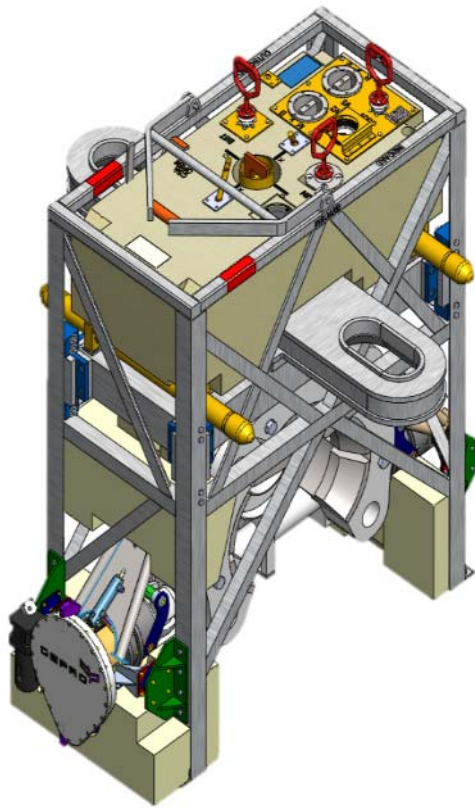
The Inboard Porch





Main Tool Operation

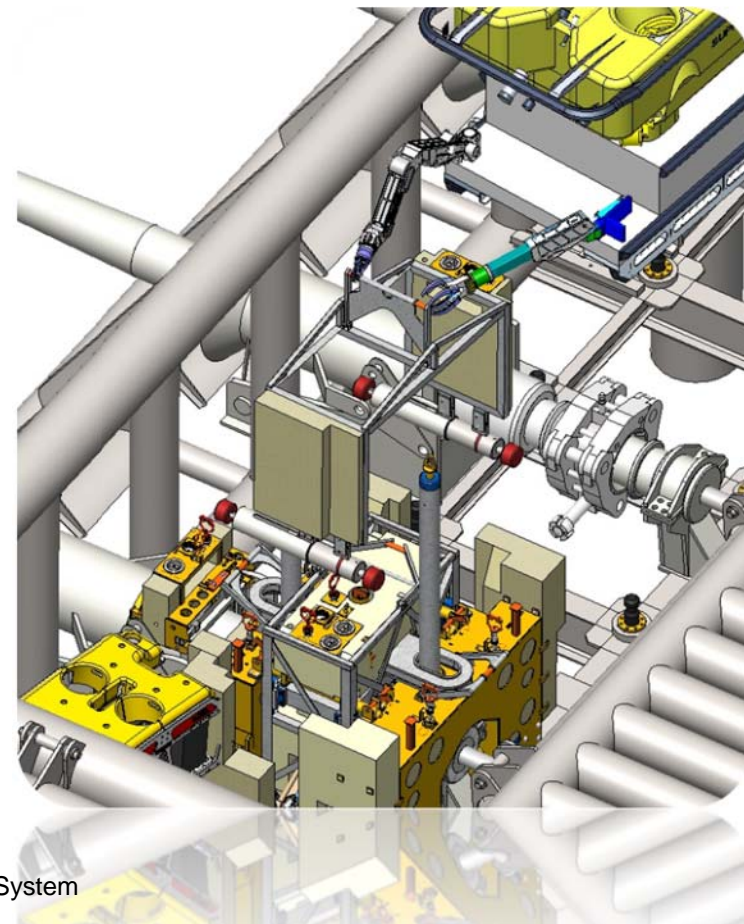
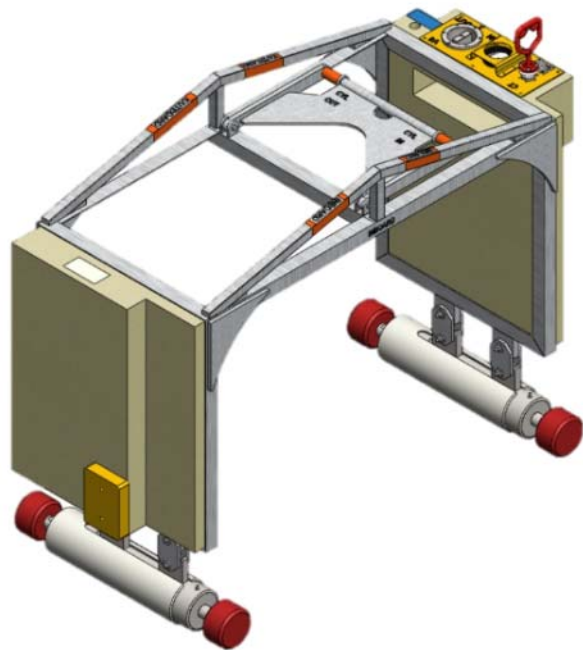
The Clamp Seal Operation Tool





Main Tool Operation

The Connection Tool

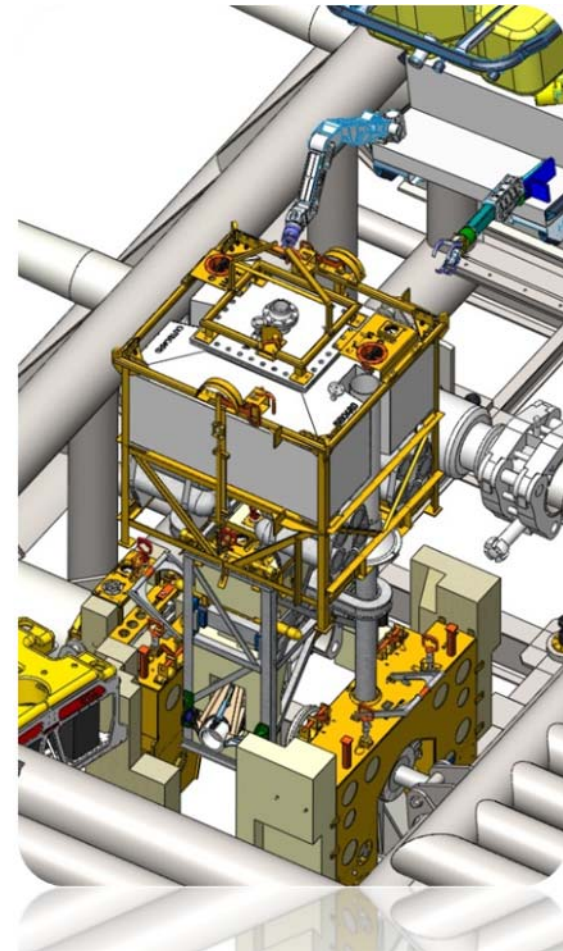
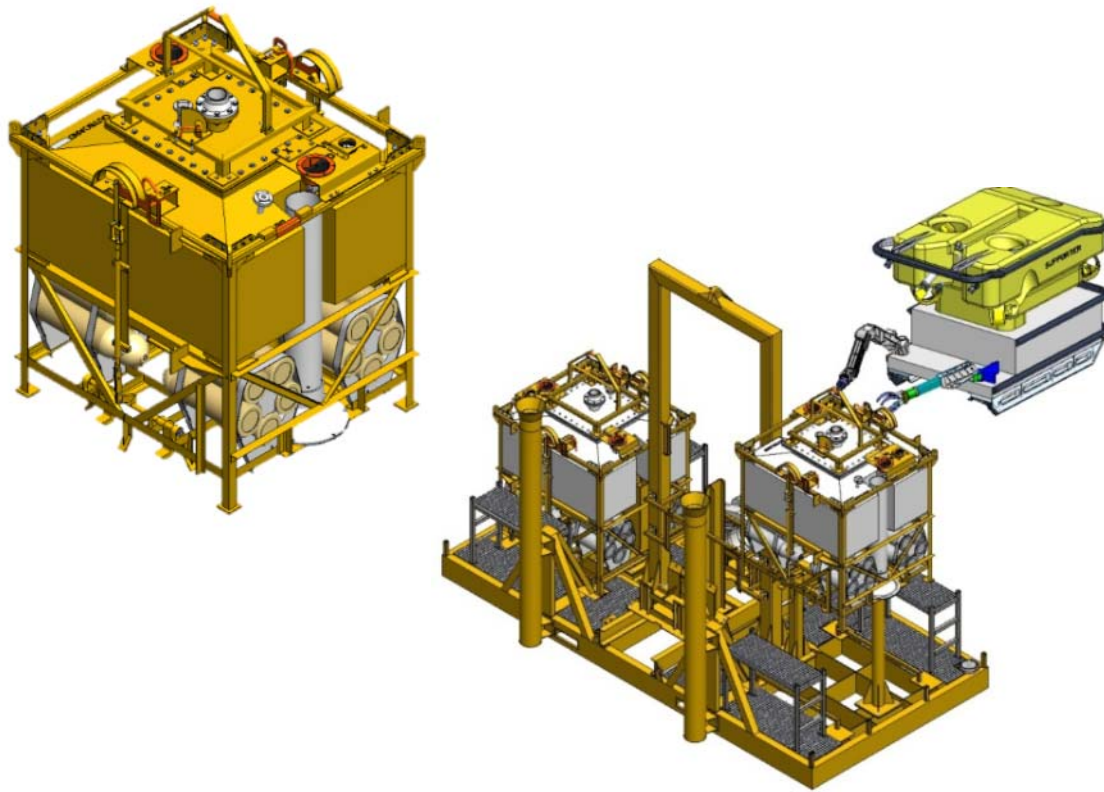


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Main Tool Operation

The Adjustable Buoyancy Module

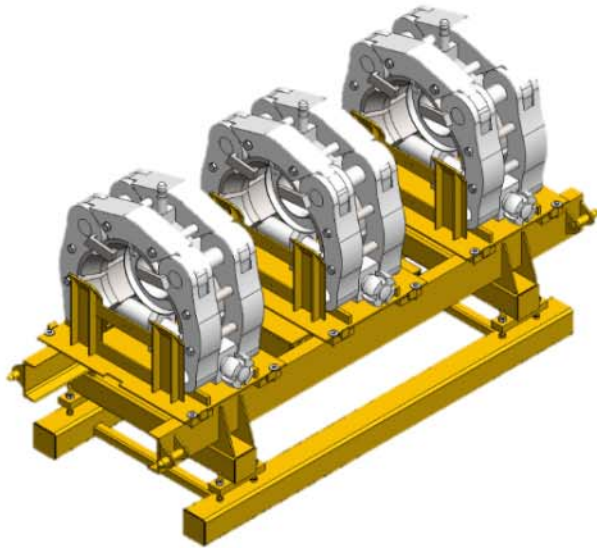


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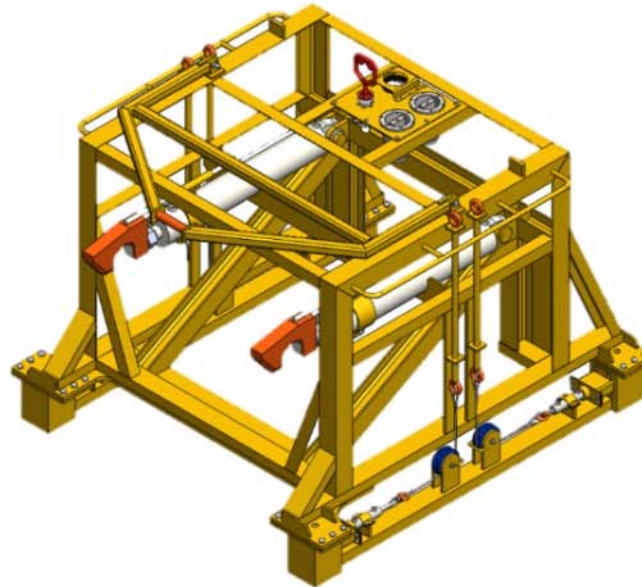


Additional equipment

In addition, the TOROCON tool spread has these support tools:



Connector skid



Funnel Operation Tool



Why Torocon

- Simple hydraulic functions, no electronics => Robust system
- Simple maintenance and storage
- All operation by ROV, no need for surface support during operation
- Can be operated on seabed in harsh weather
- Utilize standard ROV and ROV tools
- All equipment can be transported on road by trucks



Lesson Learnt



TOROCON Tie-In System



Questions?