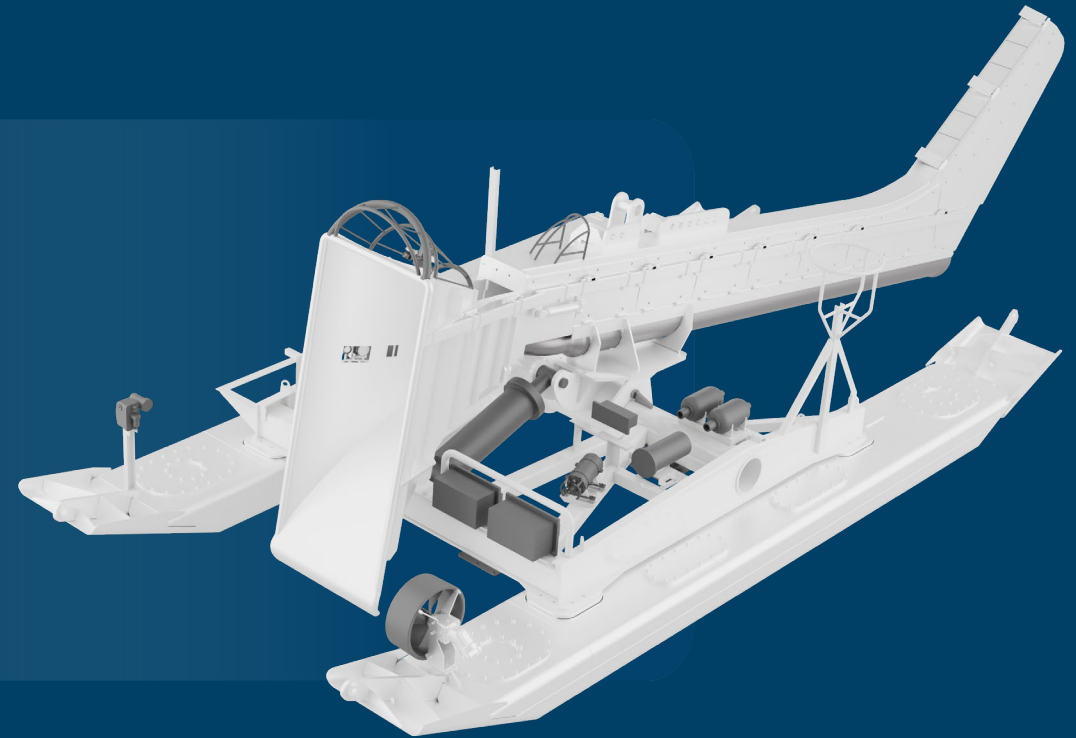


# HydroPlow

Soft Soil Jetting Sled



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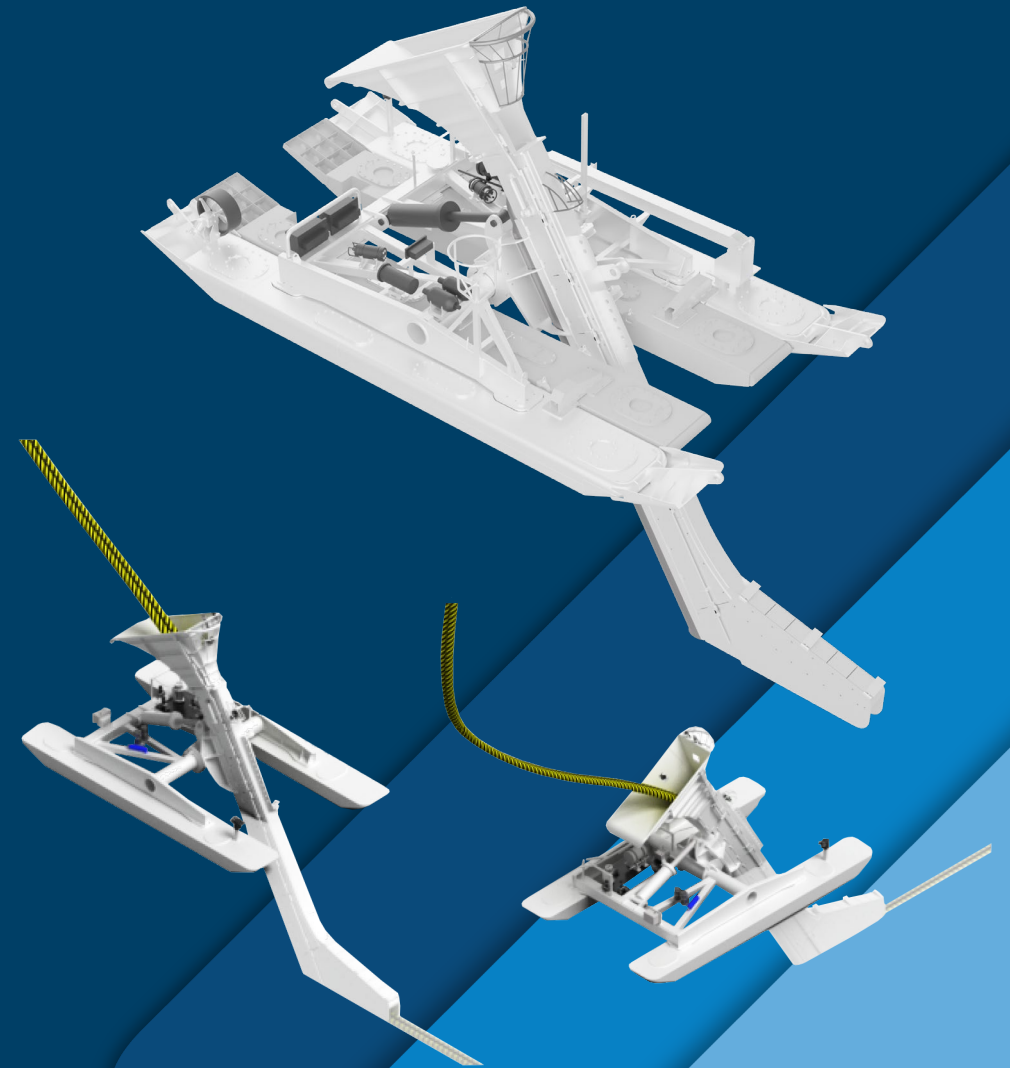
## Soft Soil Jetting Sled

Asso.subsea Hydroplow is a lightweight jetting sled that is intended for use in tandem with a CLV (Cable Lay Vessel) for SLB (Simultaneous Laying and Burial). Its heave compensated tow system is designed in such a way so as to operate safely and thriftily in cohesive soil constitution with high shear strength and in severe weather conditions.

This vehicle is designed to bury almost all kinds of flexible products including umbilicals, power & telecommunication cables, flowlines and various flexible pipelines. The benefit of this system is that loading and unloading is independent, up to a certain limit, of weather conditions and can be established at high water depths.

The Hydroplow is supplied with a powerful water jetting system, which supplies high pressurized water to the cutting nozzles of the stinger from a water pump positioned on the tow support vessel/CLV. The benefit of this system is erosion and fluidization of the soil layers which results low tow forces and increased burial performance.

Fitted with the latest comprehensive instrumentation and surveillance electronic systems the Hydroplow vehicle provides real time data and image information continuously during burial operation.



## Specifications 2m stinger

Length	7.4m
Length (O.A) (with stinger retracted)	9.4m
Width	4.4m
Height (with stinger retracted)	3.3m
Weight in air	approx. 18Te
Weight in water (Air filled pontoons)	approx. 11Te
Depth rating	150 m

### With Additional Pontoons (Optional)

Weight in Air	Approx. 20Te
Weight in water (Air filled Pontoons)	Approx 9Te

## Specifications 3m stinger

Length	10.2m
Length (O.A) (with stinger retracted)	11.2m
Width	4.4m
Height (with stinger retracted)	3.3m
Weight in air	approx. 19Te
Weight in water (Air filled Pontoons)	approx. 12Te
Depth rating	150m

### With Additional Pontoons (Optional)

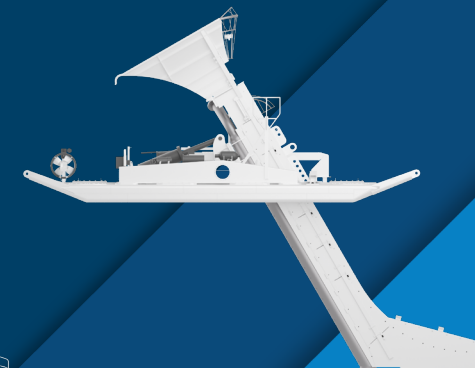
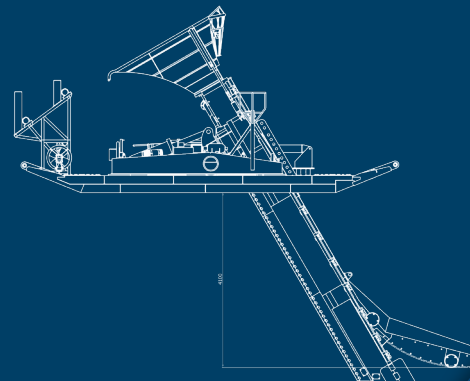
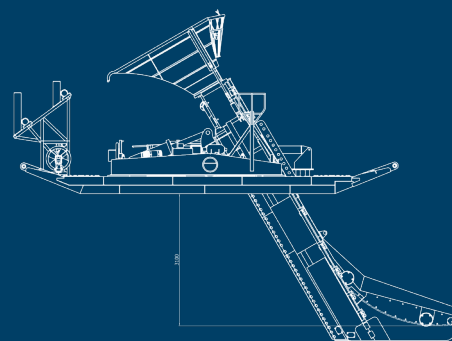
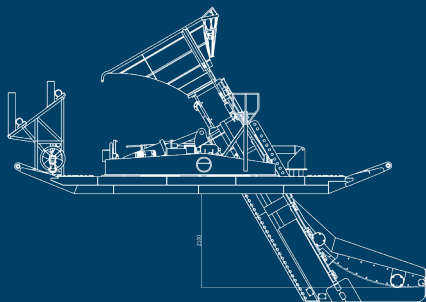
Weight in Air	Approx. 21Te
Weight in water (Air filled Pontoons)	Approx 10Te

## Specifications 4m stinger

Length	10.8m
Length (O.A) (with stinger retracted)	12.3m
Width	4.4m
Height (with stinger retracted)	3.3m
Weight in air	approx. 20Te
Weight in water (Air filled Pontoons)	approx. 13Te
Depth rating	150m

### With Additional Pontoons (Optional)

Weight in Air	Approx. 22Te
Weight in water (Air filled Pontoons)	Approx 11Te



## Burial

Burial speed	0.1-1 km/h (depending on soil stiffness)
Burial depth	Up to 4.0 m
Keel depth	Up to 4.5 m
Trench width	0.4 m
Seabed type	Up to 120kPa shear strength

## Towing

Max. Bollard Pull	25 Te
Bollard Pull Range	5-12 Te (depending on soil stiffness)

## Performance

ASSO has been utilizing the HydroPlow jetting sled with surface-fed water pumps since 2012.

A modification in 2015 allowed for the option of high power onboard water pumps generated by respective High Voltage electric motors, improving its previous performance. This has eliminated the need of a hydroelectric umbilical with lengthy water hoses and complicated rigging, while instead a single, steel-reinforced High Voltage Umbilical is utilized, operated by a dedicated winch.

## Burial Capabilities

A notable feature of the HydroPlow is the option for utilizing 3x stinger length options, offering the capability of lowering the submarine asset at a burial depth of up to two (2), up to three (3) or up to four (4) meters under the seabed.

As such, the HydroPlow offers a reliable solution to areas where increased protection is required.

The current design is capable of burying almost all kinds of flexible products including umbilical, power & telecommunication cables, flowlines and various flexible pipelines.



## Electronic Equipment

6 x ASSO color camera

6 x Bowtech LED lights

2 x Sub-atlantic pan/tilt

1 x CDL INSENSE motion sensor

1 x Kongsberg imaging sonar

1 x Kongsberg profiler sonar

1 x Kongsberg altimeter

2 x Teledyne BlueView Sonar

## Control Room

Ergonomic control console

9 x 24" screens

DVR Surveillance System

Client information broadcasting

Continuous monitoring & alarming of all crucial & pertinent information

Integration with vessel information database for global data publication

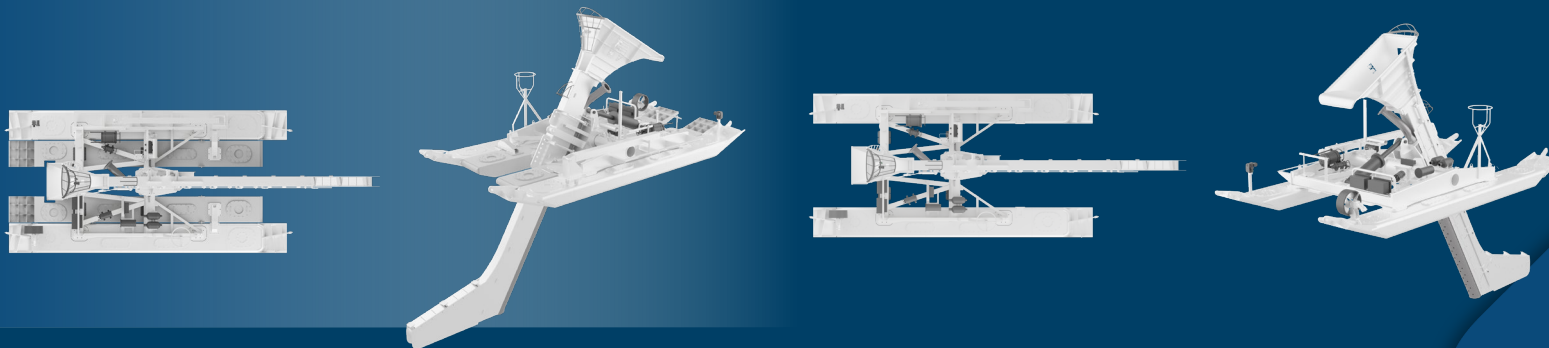
## Jet Sled's Operation

The HydroPlow is operated using the ASSO's proven custom-made and dedicated LARS, which ensures safe vehicle deployment and recovery even in challenging weather conditions.

HydroPlow design maintains ASSO's tested innovative diver-less cable loading capabilities, constantly performed in various ASSO projects involving the HydroPlow since 2012. Loading and unloading operation of the cable is always monitored from the tools instrumentation and/or surveillance ROV to ensure that the cable is positioned safely and secured in the stinger.

Top-side, HydroPlow is planned to be operated from an ASSO's modular Control Cabin certified under the DNV Classification or other equivalent. It is planned to incorporate all controls, graphic displays and telemetry between vessel and the HydroPlow.

Subsea, the vehicle is fitted with complete instrumentation and surveillance electronics, including Profile & Image sonars, dual BlueView sonars and a range of sensors in addition to multiple cameras and lights. All information is provided in real time through reinforced fiber umbilical.



## Membership - Accreditations



## Disclaimer

The specification details are illustrative for marketing purposes only. Actual equipment may be different as a result of product improvement or other reasons. Specific interface and performance information should be reconfirmed at time of order placement. Specifications are subject to change without any prior notification.

## Contact Information

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