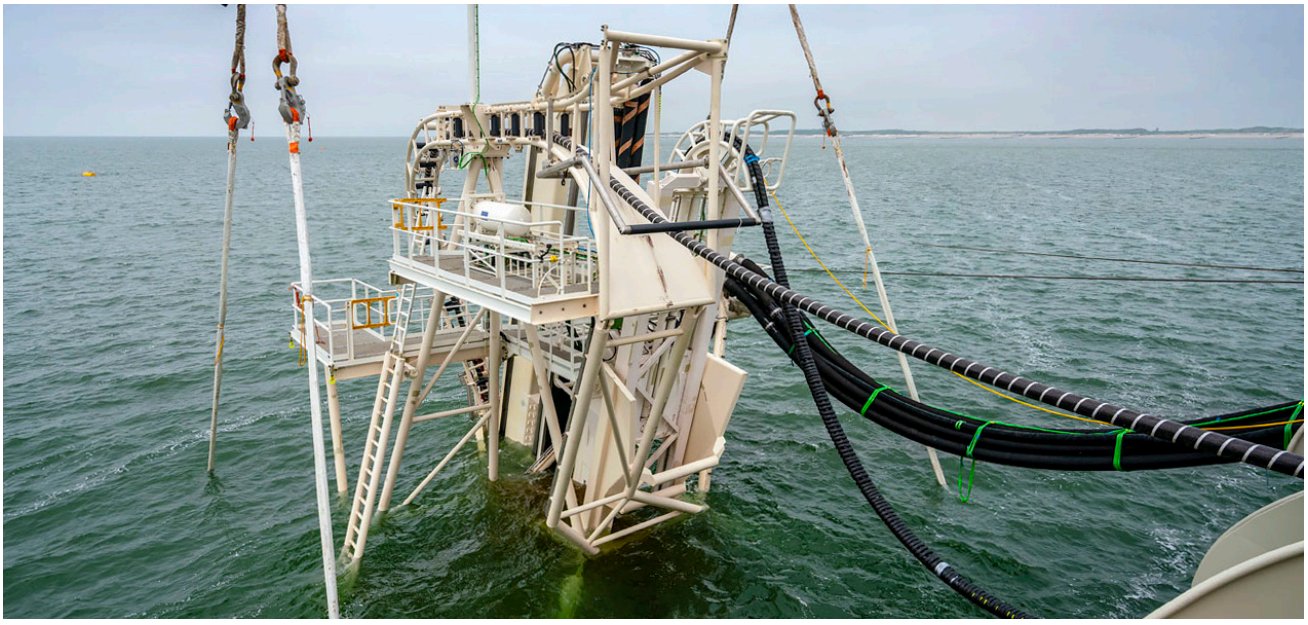
Boskalis

EQUIPMENT SHEET

BSSIII
BURIAL SLEDGE SYSTEM



GENERAL

Boskalis has developed the burial tool BSSIII, whose design combines years of knowledge and experience with vertical injectors and burial sledge systems (BSSI and BSSII). The BSSIII consists of a towed sledge vehicle with a telescopic adjustable jetting lance and an optional chain cutter. The tool is designed for simultaneous laying and burial operations and can install flexible products (e.g. cables, umbilicals, flexible pipe lines) ranging from 0 to 8 meters to top of cable.

The BSSIII is based on the principle of fluidizing the soil in front of the jetting lance in combination with a depressor. For harder soils a chain cutter can be installed, ensuring the correct installation depth of the product. Weather and wave conditions have minimal influence on the actual installation process, as the tool is firmly positioned on the seabed, independently of movements of the lay vessel. The system can be launched by the onboard crane of a heavy lift barge. The BSSIII has been designed to DNV standards and has a CE mark.

SPECIFICATIONS

Total installed jetting power	1,800 kW
Traction	Towed sledge
Depth rating	min. 0 m max. 30 m
Dimensions	Length: 20.04 m Width: 17.13 m Height: ±22 m
Weight in air	±131 t (without chain cutter) ±163 t (with chain cutter)
Submerged weight (Fully submerged)	±68 t (without chain cutter) ±94 t (with chain cutter)
Max. tow load	80 t (jetting) 60 t (jetting & cutting)
Min. turn radius	500 m (jetting) 1,000 m (jetting & cutting)
Operations	Simultaneous lay & burial

PERFORMANCE

Trench depth (Hydraulically adjustable)	0-8.5 m (jetting) 6.5 m (jetting & cutting)
Max. product diameter	245 mm
Min. soil bearing capacity (Fully submerged)	16 kPa (without chain cutter) 21 kPa (with chain cutter)
Min. soil bearing capacity (In-air)	30 kPa (without chain cutter) 37 kPa (with chain cutter)

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Max. roll	10°
Max. pitch	8°
Max. current	0.5 kn (launch & recovery) 4 kn (trenching)
Steering	8°
Trenching speed (dependent on soil condition)	Typical at full burial depth: 300 m/hr (jetting) 100 m/hr (jetting & cutting)

MECHANICAL

Construction	S355 stainless steel frame with 4 lifting points

CUTTING SYSTEM

Power	2 x 411 kW
Soil strength	200 kPa clay (without boulders)

JETTING SYSTEM

Power	3 x 600 kW
Soil strength	Jet-able soils such as sand
Sword configuration	Hydraulically adjustable jetting lance with depressor and depth of burial indication
Jetting performance	13 bar @ 2,300 m^3/hr

HYDRAULIC SYSTEM

Power	2 x 565 kW HPU

SUBSEA ELECTRONICS

Electronic pod	1 atmosphere pressure vessel
Depth rating	50 m
Test pressure	1.30 x working pressure
Data transmission	Redundant ethernet over VDSL

SUBSEA SURVEILLANCE

Camera's	3 x Seatec CCD 1 x Kongsberg Low Light OE15-100A
Lights	3 x MacArtney Luxus LED
Pan & tilt	1 x Kongsberg OE14-122/123
Sonars	1 x Kongsberg Obstacle Avoidance Sonar MS1000
1x Tritech Multibeam Imaging Sonar Gemini 720i	

SUBSEA INSTRUMENTATION

Heading, roll & pitch	iXBlue Octans ROVINS
Sledge positioning	DGNSS antenna Tachometry survey 2 x USBL beacons iXBlue Taut wire system
Altitude	2 x Altimeter and bathy sensor Valeport VA500P
Trench & product sensing	Feelers in bellmouth
Sledge geometry	2 x N-Seatec angle sensors 9 x Balluf in-cylinder transducers

OTHER EQUIPMENT

Container spread	20 ft Control Container 20 ft Workshop 20 ft Stores container
Supporting	4 x 20 ft water pumps 5 x 3,000 L fuel tanks +180 t main crane Second crane for handle water hose bundle Lifting arrangement
Umbilical system	Umbilical winch with 100 m umbilical

Boskalis
PO Box 43
3350 AA Papendrecht
The Netherlands
T +31 78 69 69 000
offshore.energy@boskalis.com

www.boskalis.com/offshore