

Backfilling

SCAR Seabed System



The SCAR Seabed System has been developed to deliver an all-in-one solution for route preparation prior to burial of subsea cables, pipelines, and umbilicals.

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SCAR route preparation system capabilities

In its backfilling configuration, the SCAR system provides burial for products laid within an open trench by returning the spoil excavated during the trenching phase. Two tool widths are available: 44.3-ft (13.5-m) and 50.8-ft (15.5-m) widths to suit project requirements.

This SCAR system is configurable to operate successfully over a wide range of seabed materials. Its robust design allows operations involving extremely arduous types of seabeds (such as gravel, cobble, and boulder seabeds). Additionally, this system can operate with very low bearing pressure on weaker seabed materials.

The SCAR backfill plough encompasses a number of unique design features that set it apart from similar tools on the market. Crucially, the plough design ensures that no part of the tool rides inside the trench, thus vastly reducing the risk to the cables, umbilicals, and pipelines as compared to similar tools.

SCAR Backfill System key features and benefits

- » Low-risk backfilling option—no part of the tool rides within the trench
- » Hinged spreader leveler beam limits the height of residual berms remaining after the burial process—“fishing friendly” system designed to exert minimal seabed impact and eliminate negative impact on subsequent fishing activities
- » Variable soils capacity—clays, sands, gravel, and silt
- » Can be launched and recovered from a range of readily available anchor handling tug supply (AHTS) vessels (no crane or A-frame required)
- » Low bollard pull (typically, 60–80 t); hence, low fuel consumption, and more efficient and reduced carbon dioxide emissions
- » Rapid mobilization, deployment/recovery, and demobilization
- » Proven ability to follow vessel route accurately, even on complex route tracks



System Specifications

System	44.3 ft / 13.5 m	50.8ft / 15.5 m
Operating depth	10,000 ft+ / 3000 m+	
Typical speed range	1,312.3–1,968.5 ft/hr / 400–600 m/hr	
Design tow force	150 Te	
Mass (in air – unballasted)	70 Te	75 Te
Dimensions (WxLxH)	45.3 x 51.8 x 12.1 ft / 13.8 x 15.8 x 3.7 m	51.8 x 51.8 x 12.1 ft / 15.8 x 15.8 x 3.7 m

Positioning and Monitoring

Standard Equipment

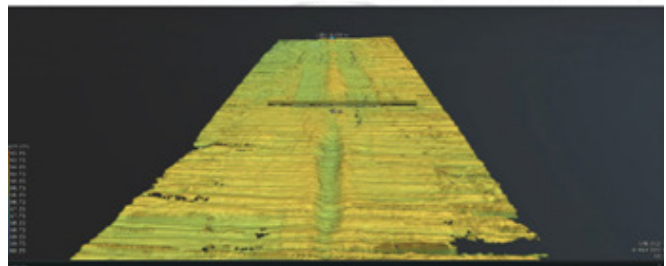
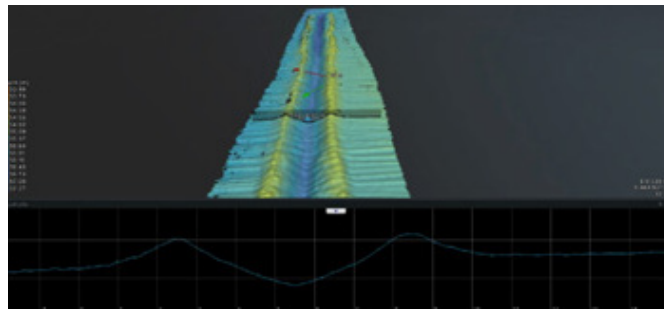
Vessel positioning equipment	Full independent DGPS positioning system with optional redundancy Onboard navigation suite, with option to display full seabed profile/infrastructure where available
Tool mounted positioning equipment	2 x MT-832 beacons (for shallow water) Mini-tilt motion sensor 5 x c-node beacons

Optional Equipment

SCAR Instrumentation Module (SIM)	The SIM unit can be fitted to any SCAR system. The sensors within the SIM unit are interfaced to a multiplexer unit (MUX) with power and data telemetry to/from the topside module by an umbilical cable on a constant tension winch, therefore allowing sensor selection to suit specific project requirements. A standard system setup is shown below:
iXBLUE RovINS	All-in-one, high-accuracy 3D positioning system, including heading, roll, and pitch measurements
Impact Subsea ISM3D	Highly accurate attitude and heading reference system
Valeport MiniIPS	Precision pressure sensor providing accurate real-time depth measurements
C-Node USBL Responder	Operating the Cymbal acoustic protocol for more accurate positioning
High-Resolution Scanning Sonar	BlueView or Gemini systems

Optional Equipment

Taut Wire	For shallow-water applications, a SCAR-specific taut wire system can be utilized to provide highly accurate positioning without the requirement for USBL positioning, or as a secondary position reference system
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To complement route preparation, the SCARGrab System can be used to move isolated objects, if required.



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