



## Specification

| BOULDER CLEARANCE       | SCAR 1   | SCAR 2&3  |
|-------------------------|--|---|
| Max. Operating Depth    | 3000m + (practical limitations apply)                | 3000m + (practical limitations apply)           |
| Clearance Width         | 10m  | 13 or 15m                                       |
| Speed Range             | Up to 1000m/hr                                       | Up to 1000m/hr                                  |
| Tow Force (Design Load) | 75Te   | 75Te  |
| Steering                | Duplicates vessel route: self-correcting bridle      | Duplicates vessel route: self-correcting bridle |
| Minimum Turning Radius  | < 50m  | < 50m   |
| Weight                  | 45Te   | 85Te  |
| Length (assembled)      | 14m  | 16m   |
| Width (assembled)       | 10m  | 13.8m or 15.8m                                  |
| Height (assembled)      | 2.9m   | 3.6m  |
| Transportation          | All Route Preparation Systems are road transportable |   |

## SCAR Seabed System Route Preparation / Boulder Clearance

The SCAR Seabed System family currently includes 3 system models - SCAR 1, SCAR 2&3 and SCAR MAX. SCAR 1 is the original SCAR system design, and is capable of clearing a 10m swathe in route preparation mode and trenching to 1.4m in pre-cut trenching mode, each in a single pass. With all SCAR systems, far greater clearance widths/trench depths are possible using multipass techniques. SCAR2 & 3 are the next generation of the SCAR 1 tool, and these include a removable share option as well as compatibility with the 13m and 15m pass Route Preparation and Backfill systems. Most recently, the SCAR MAX system has been developed as the strongest and most powerful pre-cut trenching plough in the world (able to withstand through chassis loads of up to 1000Te). SCAR MAX can deliver pre-cut trenches of up to 3m in a single pass. All three models encompass the ESS design philosophy of safe, simple and robust, and are tailored to deliver the most risk averse and cost effective trenching solution available on the market.

### Clients Include:



**ECOSSE**  
Subsea Systems

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Established in 1996, Ecosse Subsea Systems is known as an innovative provider of both products and services for all offshore installation requirements and has earned a global reputation for outstanding service delivery. Ecosse is an industry frontrunner in the delivery of trenching, subsea lifting and technology development services and expertise and are providers of onshore and offshore Personnel to the Oil & Gas, Renewables and Interconnector markets.

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## SCAR Seabed System Route Preparation/ Boulder Clearance



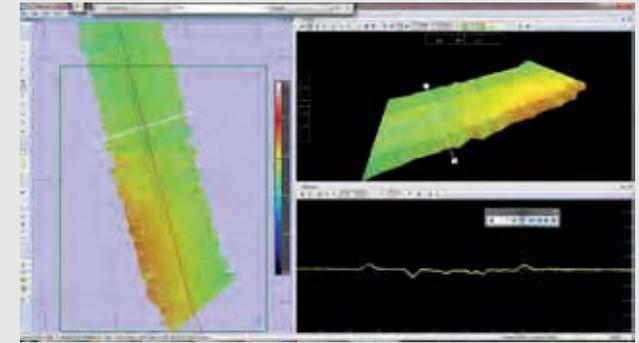
## SCAR Route Preparation/ Boulder Clearance Capabilities

The modular SCAR Seabed System has been developed to deliver an all-in-one or one-part solution for the trenching and burial of subsea cables, pipelines and umbilicals.

SCAR in Route Preparation/Boulder Clearance mode can remove boulders and other mobile surface obstacles from a pre-determined route corridor. Towed along the planned centreline, SCAR will displace obstacles to a distance of 5-7.5m either side of the route (depending on the configuration), with wider corridors possible by adopting the multipass technique.

The tool has been proven in harsh working environments (e.g. Laggan-Tormore field, Humber Estuary) and in challenging weather conditions - the tool has been successfully launched in 3m significant waves, strong currents and deep water (>600m msw). To date SCAR has removed gravel, cobbles and boulders up to 2m.

Accurate positioning allows for safe deployment and avoidance of subsea structures if required.



## SCAR Route Preparation/Boulder Clearance Key Features:

- ⚙️ Highly effective and efficient methodology for route corridor preparation
- ⚙️ Proven capacity to handle boulders > 2m dia, rough terrain, mega-ripples and sandwaves
- ⚙️ Variable Soils Capacity (clays, sands, gravel and silt)
- ⚙️ Extendable clearance width with multipass
- ⚙️ Can be launched and recovered from a range of vessels in high sea states – no crane or A-frame required if stern roller available Low bollard pull hence low fuel consumption, more efficient and reduced CO<sub>2</sub> emissions
- ⚙️ Rapid mobilisation and deployment
- ⚙️ Steerability – proven ability to follow vessel route accurately

## SCAR Seabed System

- ⚙️ Available Configurations:
  - Route Preparation/Boulder Clearance
  - Trenching - pre-cut/post-lay/multipass
  - Backfill
  - SUST (SCAR Uninterrupted Soils Testing)
- ⚙️ Available Models:
  - SCAR 1: 10m clearance width (wider corridors with multipass)
  - SCAR 2 & 3: 13m and 15m clearance width (wider corridors with multipass)
- ⚙️ Economic cost per metre
- ⚙️ Low mobilisation costs
- ⚙️ 5 to 75 tonne pull capacity - smaller tow forces allow smaller support vessels hence lower fuel consumption, increased efficiency and reduced CO<sub>2</sub> emissions
- ⚙️ Very high power to weight ratio
- ⚙️ <50m turning circle
- ⚙️ Road/container transportable
- ⚙️ Can operate in deep or shallow water and at shore ends
- ⚙️ Robust design with single moving part and no hydraulic or electrical connections - significantly reduced tool downtime and offshore spread and personnel costs
- ⚙️ Suitable for the Oil & Gas, Renewables & Interconnector sectors

With rough terrain a speciality, SCAR is robust and reliable in conditions too difficult for conventional ploughs to handle.

**SCAR is safe, simple & robust.**