



SUCTION PUMP SPREAD **SAPS-003**



The SAPS-003 suction pump skid is one of our high-performance deep-water suction pump & suction pile handling systems, which combine suction and lifting services.

The main characteristics are:

- flow capacity up to 300m³/hour,
- pressure difference up to 5 bar
- 90mT SWL for handling suction piles,
- integrated vent valves and installation sensors.

The SAPS-003 is suited for suction pile installation up to water depths of 3,000m. The SAPS-003 is powered by ROV through its hot stab. The ROV operates the SAPS-003 with its manipulators and reads the pump sensors with its camera.

Pump performance

For establishing pressure difference and subsequent suction pile penetration, water needs to be pumped out from the suction pile. Our SAPS-003 suction pump skid consists of two parallel configured pumps, allowing for flow rate maximization up to 300m³/hour or pressure optimization up to 5bar. The result is a flexible and redundant system for suction pile installation with limited hydraulic power requirements and up to 60% reduction in suction durations compared to standard ROV based systems.

Integrated systems

Vent valves are required to release air and water from the suction pile when lowering the suction pile through the splash zone up to self-weight penetration in the seabed. We integrated 2no 20" vent valves in the pump skid. Other pump systems require each individual suction pile to be equipped with costly vent valves, sensor brackets and survey equipment, which remain on the suction pile after installation.

Lifting and Upending

The SAPS-003 is outfitted with a lifting beam. The connection and subsea disconnection of the SAPS-003 is done swiftly with remotely operated hydraulic pins. Once connected, the suction pile can be lifted from its position. The lifting functionality makes relocation in the event of early refusal possible without delays.

Our low-cost pump skid interface consists of a standard 30" pipe and weld neck flange attached to the suction pile. For the eventual closing of the suction interface we use ROV installable closing hatches.

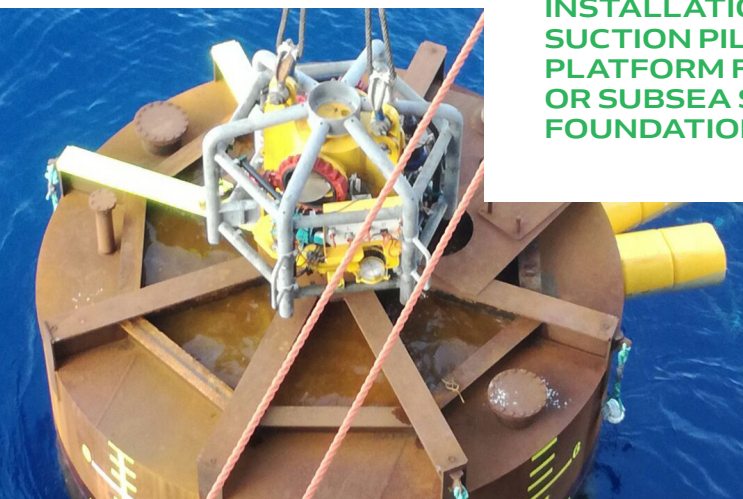
Other integrated systems are:

- bull's eye for verticality control
- differential water pressure sensors
- internal echosounder to measure the soil plug distance.
- gyro transponder bracket
- ROV holding bars to control the pile orientation and ROV position keeping.

The SAPS-003 pump skid and support frame are transported in a 20ft standard offshore container equipped with a workshop and spare parts. The system can be equipped with a manifold to install up to 4 suction piles simultaneously.



SPT OFFSHORE OWNS AND OPERATES REMOTELY CONTROLLED SUCTION PUMPS FOR WATER DEPTHS FROM 10M UP TO 3,000M. THESE PUMPS ARE PURPOSELY BUILT FOR THE INSTALLATION OF SINGLE PILES, SUCTION PILE CLUSTERS (SPCS), PLATFORM FOUNDATIONS OR SUBSEA STRUCTURE FOUNDATIONS.



SPECIFICATIONS SUCTION PUMP SPREAD SAPS-003

● Pump Skid

- Weight: 5mT
- Dimensions: 2.5 x 2.2 x 2.0m
- max. water depth: 3000m
- max. water flow
 - Centrifugal pump 300m3/h
 - Lobe pump 43m3/h
- max. diff. pressure: 5.0 bar

- vent valves: 2 no's x 20"
- Pile interface
 - Flange 30"
 - Minimum height 250mm

- Lift capacity SWL 90mT

Sensors

- Internal soil plug Altimeter 0 - 10m
- Inclination Subsea bullseye +/- 5 deg

● Power requirements

- Power consumption
 - Single centrifugal pump 15kW @ 300m3/h
 - Single lobe pump 15kW @ 5.0 bar
- Required hydraulic input ROV
 - Bi-directional hydr. flow 40l/min
 - Pressure 200 bar