Helix
ENERGY SOLUTIONS

T-1200 Trencher

Subsea Jet Trenching System

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The T-1200 Subsea Jet Trencher is a purpose-built 1,200hp jet trencher for burying cables, umbilical, and flexible products in difficult seabed conditions up to 3,000m water depth.

The T-1200 Jet Trencher was built upon the extensive experience of the Helix T-750, incorporating the latest technologies to meet today's subsea burial challenges. Its high-powered trenching capability is optimal for burying flexible and rigid products and power cables up to 3,000 meters below the seabed in its current configuration and soil conditions of up to 120 kPa.

The T-1200 can operate in water depths ranging from 10 to 3,000 meters and has project-verified experience from 10 meters in the North Sea to 1,850 meters in waters offshore Brazil.

While the current jet leg configuration allows trenching of products up to 915 mm in diameter, the system's versatility enables modifications to increase this capacity if needed.

Trenching speeds vary depending on the mode of operation (tracked or skid), soil conditions, product diameter, and required trench depth. Speeds exceeding 400 meters per hour can be achieved in sand, while 80–150 meters per hour is attainable in harder-to-penetrate soils. The directly coupled water pumps and variable speed drives ensure the 1,200 hp system performs equivalently to a conventional electro-hydraulic 1,500 hp system, which uses power less efficiently for water pumps.

The CFD-modeled plenum delivers water from the pumps to the jet legs with minimal losses. The water system is designed to maximize pressure and flow at the adjustable jetting nozzles, distributed on the jetting swords to fluidize soil in front of and between the swords and, if required, taper the trench wall. These design enhancements, combined with unmatched burial experience, make the T-1200 and T-1500 jet trenching systems the most effective in their class.

Experience

Helix Robotics Solutions operate a fleet of ROVs worldwide, seabed jet trenchers and several multi-purpose ROV and construction support vessels via strategic offices in key areas of the world.

Innovation

Helix Robotics Solutions works closely with our clients and vendors to seek and resolve complex technical developments to engineer practical solutions and implement in the most efficient, safe and economical ways possible.

Value

Helix Robotics Solutions is one of the most innovative and reliable specialty marine contractors in the world. Focusing on providing leading edge underwater, unmanned services in extreme environments, Helix strives to deliver the highest value to its customers.

TECHNICAL SPECIFICATIONS

Main characteristics

Depth Capacity	3,000 msw
Maximum Speed (Free Flying)	Forward = 2.8 knots Lateral = 2.0 knots
Maximum Speed (Tracked)	Forward = 2,500 m/hr

Vehicle dimensions (maximum)

Width Over Buoyancy	6,095 mm
Width Over Tracks	5,600 mm
Length	9,150 mm
Height	5,164 mm

Vehicle weight

In Air (200 Kg Payload)	
Tracked Mode Configuration	30,500 Kg
Skid Configuration	27,500 Kg
In Water (200 Kg Payload)	
Tracked Mode Configuration	1,000 to 1,500 Kg
Skid Configuration	300 to 1,000 Kg

Track drive system

2 x Underwater Tracks, Hydraulic Driven

Able To Track In > Minimum Soil Strength – 3.5 kpa Shear Strength

Hydraulic manifolds

2 x ROV, Thruster Control Manifolds (Proportional Valves for Pilot Control of Thruster Motor)

3 x ROV, 12 Station Manifolds (12 Function Solenoid / Proportional Valve Manifold)

Electrical power system

2 x 281 kW/375 hp electric motor, controlled by variable speed drive (VSD) surface transformers, directly coupled to 2 hp water pumps

1 x 281 kW/375 hp electric motor, coupled to a hydraulic pump providing power for LP water pumps, motive power and auxiliary functions

Rear stinger assembly

Rear mounted, hydraulically deployed with variable control and feedback product monitoring stinger to provide calibrated real-time (continuous) burial depth indication (OPTIONAL)

Propulsion system

Proportionally Controlled Thrusters

4 x 500 mm Horizontal Thrusters

4 x 500 mm Vertical Thrusters

Depth sensor

High accuracy sensor, 0.1% over full scale for depth

Heading sensor

Octans Gyro

Auto functions

Heading

Depth

Altitude

Product Tracking

Camera & lighting system

1 x Low Light Camera

3 x Color Cameras With Focus and Zoom

3 x Mono Inspection Cameras

16 x Led Lights

2 Per Dimming Circuit Standard

Control system

Utilizes the Evolutionary Icetm

Integrated Control Engine

Fully Redundant Windows Based on HMI Computers

Dedicated Real-Time Controllers

Intuitive Graphical Interactive Diagnostics

User Configurable GUI

Ergonomic Pilot / Co-Pilot Control Consoles

Using Touch Screen Control Interfaces for Diagnostics and Other Secondary Functions

4 x 40 in HD Plasma Video Wall

Data transmission

Single Mode Fibrotic Video and Data Multiplexer

8 x Real-Time Video Channels Available

4 x Full Duplex Rs232 @ 115 Kpbs Data Channels

4 x Full / Half Duplex Rs485 / 422 / 232 Channels

Product burial capabilities

Product Size Range	Up to 915 mm diameter (depending on soil conditions and burial depth)
Cohesive Soil	Up to 120 kPa (product specification and burial depth dependent)
Non-Cohesive Soil	Sand, silt and gravel to 30 mm
Burial Depth	Up to 3.0 m (soil and product dependent)
Burial Speed	25 to 780 m / hr (soil / burial depth / product dependent)

Sensors

Multi-Beam Imaging Sensors

Product Location / Tracking System (Tss 440/350) (Or Other Tracking Device)

Launch & recovery system

Capability	Sea state 5
Capacity	3,300 m
Outreach	10 m (tbc)
Lifting Speed	30 m / min on bottom layer

Educator & backfill

Standard rear tooling of an eductor complete with integral backwash jets to allow selection of eduction or backwash switchable remotely.

A back fill tool can also fitted to collapse the trench wall during a dedicated backfill pass after an open trench has been created

Jetting system

1m, 2m & 3m Length Burial Swords

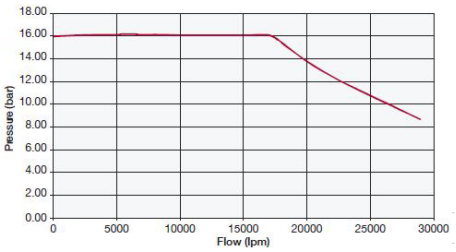
HP water pumps

HP water pressure flow and jetting sword nozzle configuration will be engineered per execution of each project and dependent of soil conditions, project specification and burial requirements

To optimize vehicle performance, detailed setup of the trencher will form part of the project procedure package

Total HP Output	Up to 17,500 LPM at 16 bar maximum pressure & up to 300,00 LPM at 8 bar dependent on nozzle configuration and sword length. Typical operating pressure 11 bar

HP water pump curve



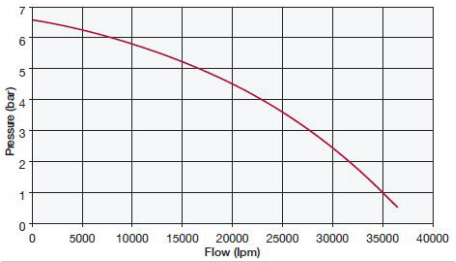
LP water pumps

LP water pressure flow and jetting sword nozzle configuration will be engineered per execution of each project and dependent of soil conditions, project specification and burial requirements

To optimize vehicle performance, detailed set up of the trencher will form part of the project procedure package

Total HP Output	Up to 8,000 LPM at 6 bar maximum pressure & up to 35,000 LPM at 1 bar maximum flow dependent on nozzle configuration and sword length. Typical operating pressure 3 bar

LP water pump curve



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