Titan 4 Manipulator

The TITAN 4 is widely regarded as the world's premier servo-hydraulic remote manipulator system. Since 1987, these systems have been the industry standard for dexterous manipulator systems used in subsea applications, and are extensively used on ultra-heavy work class ROVs. This arm has the dexterity and accuracy necessary to perform the fine movements needed for complex tasks. When this ability is combined with the manipulator's reach (1,922mm), payload capacity (122kg at full extension), and large operating envelope, the TITAN 4 offers unequalled performance in a wide range of subsea applications.

Key Features

Acute Precision Control
Durable Through the Harshest Conditions
Reliability Through the Harshest Conditions
Large Operating Envelope
High Lift-to-Weight Ratio
Depth Rating up to 7,000msw
Titanium Construction

Robust Power / Signal Connection

A SeaNet cable connects the arm to electrical power and telemetry, providing a robust, reliable attachment. The small diameter cable (8.9mm) is actively pressure balanced and oil filled. The connector head has spring-loaded contacts, and a positive locking feature eliminates accidental cable disconnection.

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Reliable In-Arm Electronics

All downside arm electronics are located inside the manipulator forearm. This configuration greatly reduces the number of electrical connections, simplifying service operations and increasing the system's ability to withstand shock.

Quick, Easy Diagnostics

The SeaNet cable connector head contains bright LED status indicator lights that allow first-level diagnostics to be performed solely by visual inspection. The lights show that electrical power is being delivered to the arm, that the controller is transmitting to the arm, and that the arm is responding. This information lets the operator quickly determine where to begin troubleshooting, without removing connectors, applying a voltmeter, or opening sealed enclosures. The system also detects missing or reduced arm position sensor signals, and diagnostic lights on the in-arm electronics module indicate system health.

Operating Envelope

It is engineered to give its operators the largest range of motion in its class. This significant flexibility only enhances the arm's precision dexterity for exploration and recovery missions.

Construction

The arm is constructed primarily of titanium for structural strength, light weight, corrosion resistance, and extraordinary resistance to damage from collisions. TITAN manipulators have a proven track record of reliability in the world's most demanding subsea environments.

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Specifications

Reach	1,922mm
Type	Position Controlled
Functions	7
Materials	Primarily Titanium
Standard depth	4,000 msw
Extended depth	7,000 msw
Weight in air/ water	100 kg / 78 kg
Lift at full extension	122 kg
Maximum lift, nominal	454 kg
Standard Gripper Opening	99 mm
Grip Force, nominal	4,092 N
Wrist torque, nominal	170 Nm
Wrist rotate, cont.	6-35 rpm
Dimensions master controller	470 mm x 177 mm x 67 mm
Weight master controller	3.7 kg
Input power, controller	90-260VAC
Input power, arm	24 VDC
Power, controller	6W start, 3W run
Power, arm	6W start, 45W run
Telementery	RS232 or RS422/485
Fluid	Mineral, Glycol or Synthetic
Viscosity	10-200cSt
Available flow	5.7 – 19 lpm
Max pressure	3,000 psi
Max fluid temperature	54°C
Fluid cleanliness	ISO 4406 14/11

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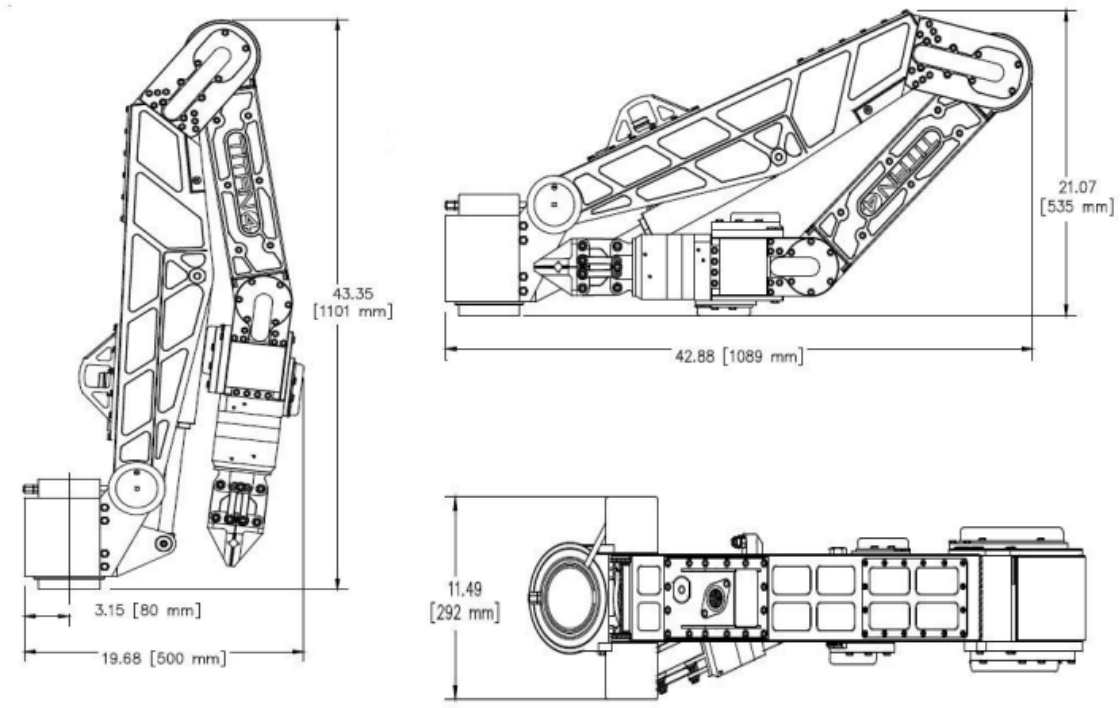
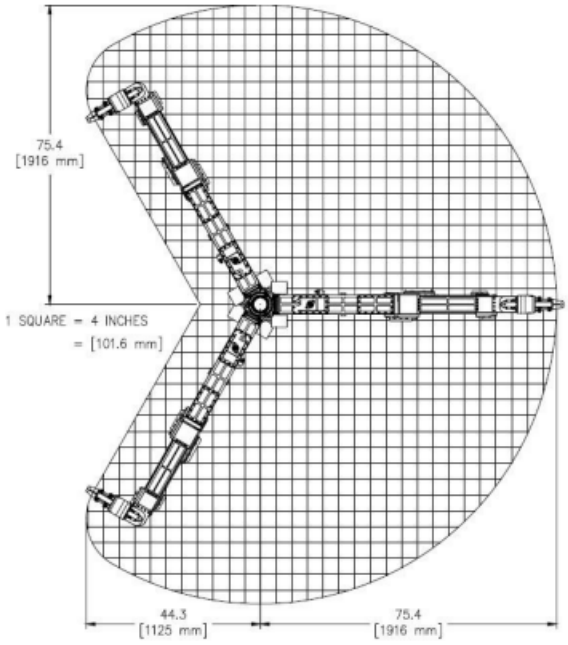
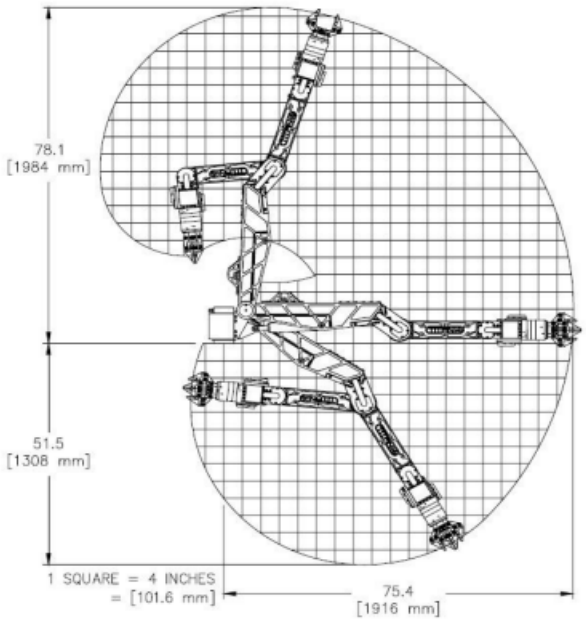




Motion Range, Top view



Motion Range, Side view

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