

Schilling Robotics ORION 7P and 7R Manipulator



ORION manipulator systems are a compact, light-weight series. When you are outfitting light- and medium-class ROVs, the ORION series offers a considerable range of motion and large linear motions.

The ORION is the system of choice for compact size, light weight, and excellent payload capacity. The arm's structural segments are fabricated from hard-anodized extruded aluminum for strength and corrosion resistance. Deepwater tasks are no problem for the ORION. Both the position-controlled and rate-controlled models have a standard depth rating of 6,500msw, allowing them to be mounted on a wide range of ROVs.

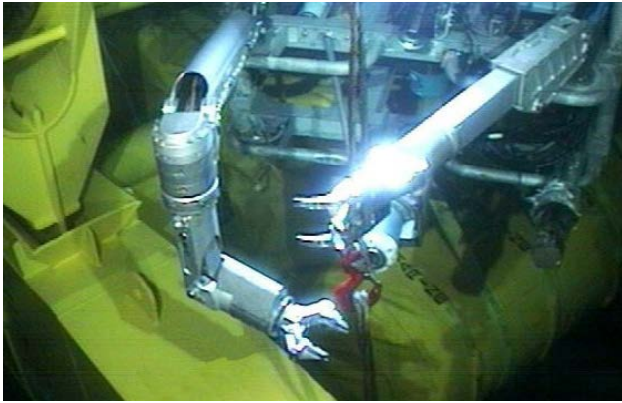
ORION 7P and 7R

- Seven-Function, Dexterous Systems
- Available in Rate-Controlled or Position-Controlled
- Both are Also Available in Extended Reach Configurations, adding 318mm (12.5in)
- Kinematic Configuration and Rotary Forearm Joint
- Allow Large Linear Motions that Facilitate "Hot Stab" Connections.

Durable and reliable

To ensure accurate and reliable operation of the ORION 7P and 7PE, position sensors are magnetically coupled and sealed inside laser-welded titanium housings for protection.

The ORION is designed to be serviced on-site, in less-than-ideal working conditions. All of its servo valves and subsea electronics are in one enclosure, allowing easy testing and replacement. The series was engineered to share common components within each arm, so that the spares requirements are minimal.



ORION and RigMaster arms work together during a salvage operation.

Multiple configurations

ORION 7 is available in both a position-controlled model and rate-controlled model. Both models can also be configured for extended reach, adding 318mm to the arm's length.

Position-controlled

The ORION 7P and 7PE are ideally suited for applications requiring the accuracy and sophisticated control of a closed-loop, position-controlled manipulator system. The turnkey systems include a manipulator arm with a 97mm parallel-acting titanium gripper, a compact master controller, a subsea controller/servo valve manifold, and a hydraulic compensator.

Operation with the miniature replica master arm and portable master controller is simple, comfortable, and intuitive. It also contains function keys for selecting menu options and a display for viewing diagnostic and status information.

Many advanced operational features are standard with the system, including individual joint freeze, position scaling, password security, programmable stow/deploy routines, individual joint movement limits, incremental gripper movement, individual joint diagnostics, and automatic error checking.

Rate-controlled 7R and 7RE

These offer lower-cost alternatives for tasks that do not require closed-loop control. The arms come with a 198mm, four-finger intermeshing gripper, and require no electrical connections and are designed for use on ROVs with onboard hydraulic power interfaces. Each joint or function is supplied by two hydraulic hoses that can be controlled with simple, customer-supplied valves and a switch box.

7 P/R Specifications

Reach	1,532mm
Type	Position or rate controlled
Functions	4
Materials	Anodized aluminum, stainless steel, titanium

Arm specifications

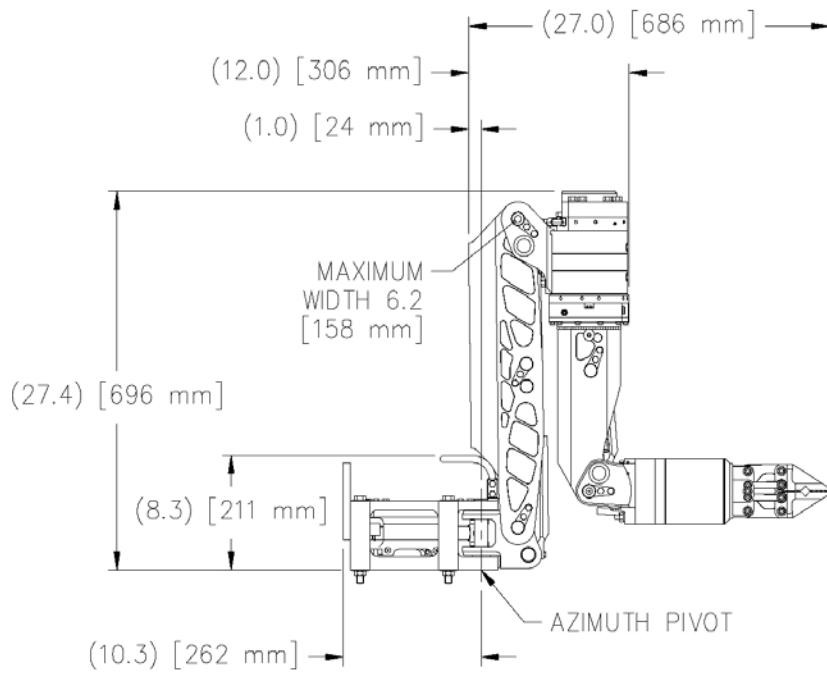
• Standard depth:	6,500 msw
• Weight in air:	54kg
• Weight in water:	38kg
• Maximum lift, nominal:	136kg
• Lift at full extension:	68kg
• Maximum lift, nominal:	250kg
• Standard Gripper Opening:	97mm
• Grip Force, nominal:	4,448N
• Wrist torque, nominal:	205Nm
• Wrist rotate, continuous:	6-35rpm

Actuator function

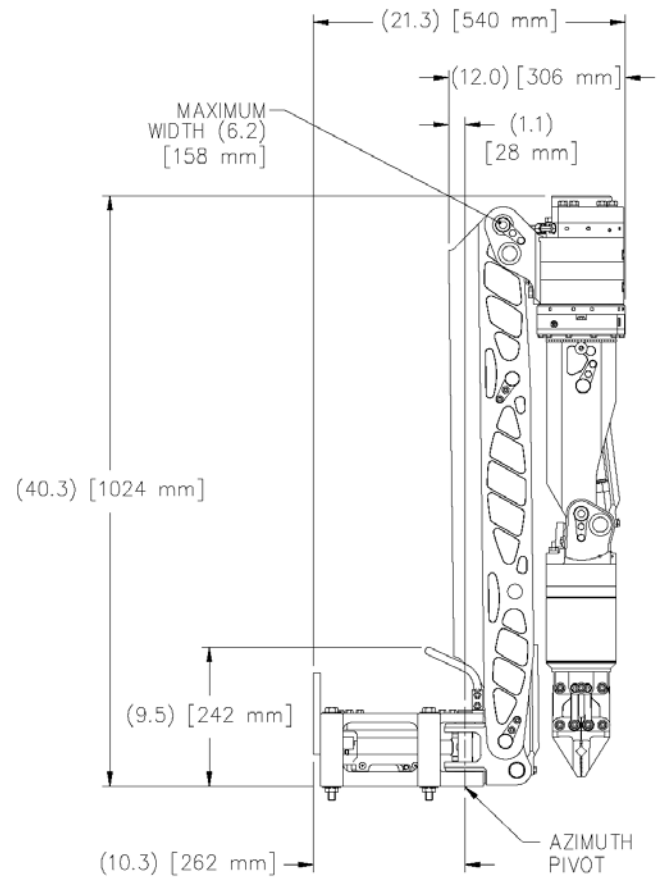
• Base yaw:	Linear, 120°
• Shoulder pitch:	Linear, 120°
• Elbow pitch:	Linear, 120°
• Forearm roll::	Rotary, 270°
• Wrist Roll:	Gerotor, 360°
• 7 P Grip:	Linear, 97mm
• 7 R Grip:	Linear, 198mm

Hydraulic Requirements

• Fluid:	Mineral, Glycol, or Synthetic
• Viscosity:	10-200 cSt
• Available flow:	5.7 - 19 lpm
• Max. pressure:	3,000 psi
• Max fluid temperature:	54°
• Fluid cleanliness:	ISO 4406 14/11
• Actuator Max return pressure	350psi
• 7 P filtration:	3 microns
• 7 R filtration:	10 microns

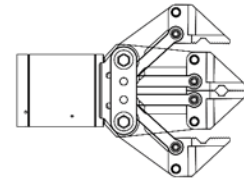
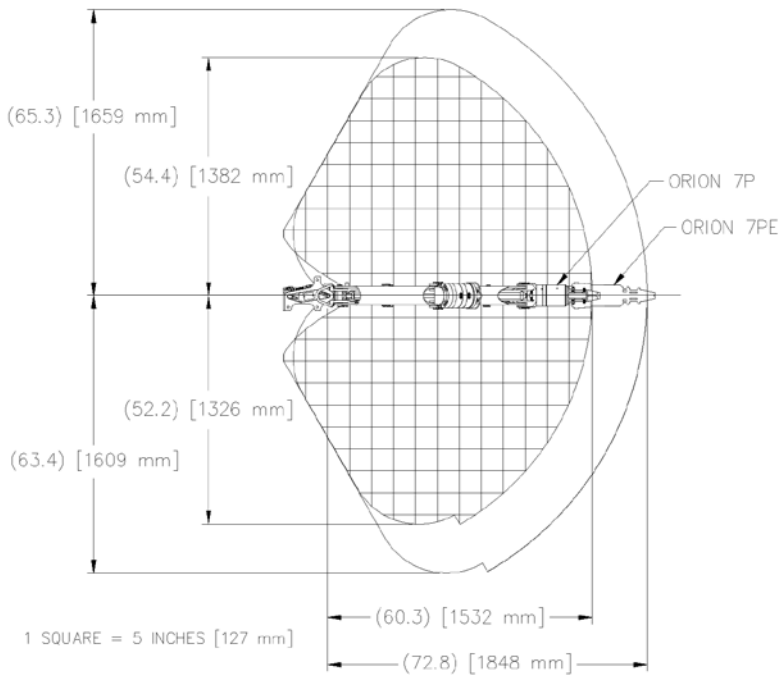


ORION 7P stow dimensions

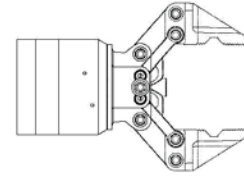


ORION 7PE stow dimensions

Schilling Robotics Manipulator Gripper Options

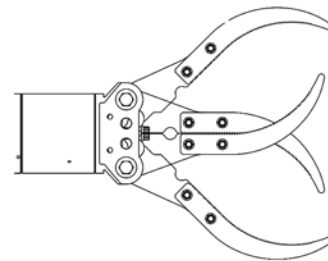
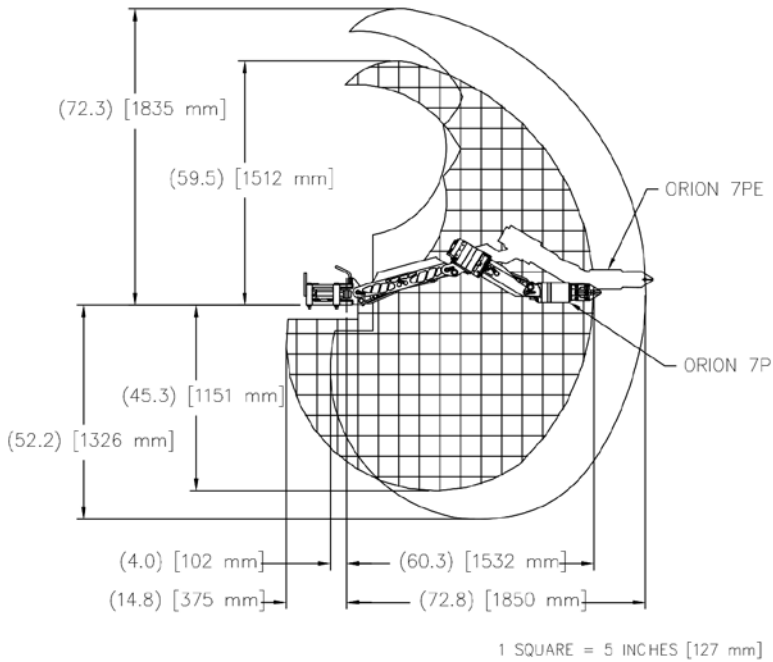


6" Parallel

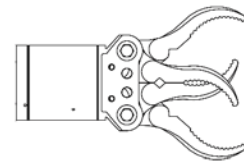


4" Parallel

Range of motion, plan view

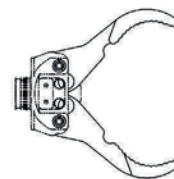


7.8" Four Finger Intermeshing



7.8" Four Finger Intermeshing

Range of motion, elevation view



7.5" Three Finger Intermeshing

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