

CONAN 7P

The CONAN's combination of high strength and low cost make it the manipulator of choice for medium and heavy-work class ROVs. The CONAN 7P is a great choice for a seven-function, position-controlled, and high-capacity remote manipulator system.

- High Lift-to-Weight Ratio
- Seven Functions Provide Effective Operating Envelope
- Engineered with Component Commonality to Minimize Part Requirements
- Standard Depth Rating of 3,000msw
- Fully Self-Contained Arm for Easy Mounting



The CONAN 7P is designed to perform demanding tasks and yet be economical to install, operate, and maintain. It's power, reach, and rugged construction make it the perfect choice for subsea manipulator applications that require a combination of heavy lifting and dexterity. With a maximum lift capacity of 273kg (600lb) and a depth rating of 3,000msw, it can be used for a wide range of subsea tasks.

To ensure accurate and reliable operation of the CONAN, position sensors are magnetically coupled and sealed inside laser-welded titanium housings for protection. It is designed to be serviced on site and in less-than-ideal working conditions. It is also fitted with oversized joint pivot bearings increase resistance to structural overload.



Strong, rugged CONAN arms are particularly suited for use with heavy work-class ROVs.
Photo courtesy of Oceaneering International

Trouble-Free Maintenance

The CONAN was engineered specifically to be easily maintainable in the field. This is true for both installation and maintenance. Through-base bolting makes it particularly easy to install. All electronic components and valves are located in enclosures on the manipulator arm, eliminating the need to install and interconnect an external subsea controller or valve package.

Position-Controlled

The CONAN 7P is ideally suited for applications requiring the accuracy and sophisticated control of a closed-loop, position-controlled manipulator system. The turn-key system includes a manipulator arm with a 152mm (6in) parallel-acting titanium gripper, a compact master controller with miniature replica master arm, control electronics, and a hydraulic compensator. Operation with the miniature replica master arm and



CONAN manipulators combine strength and dexterity.

CONAN 7P Specifications

General Description

Control method:..... Closed-loop position control (except wrist and gripper)
Input device: Replica master arm
Number of functions Six plus grip
Materials of construction 6061 Aluminium, Stainless Steel

Manipulator Arm Specifications

All specifications are based on the standard system configuration using Shell Tellus® Oil 32 hydraulic fluid, input pressure of 207bar (3,000psi), and available flow of 19lpm (5gpm).

Depth rating:..... 3,000msw (9,843fsw)
Maximum reach (from azimuth pivot to standard gripper T-bar slot):..... 1,805mm (71.1in.)
Weight in air:..... 107kg (235lb)
Weight in seawater: 73kg (161lb)
Lift at full extension, nominal 159kg (350lb)
Maximum lift, nominal..... 273kg (600lb)
Maximum gripper opening (standard gripper), nominal..... 152mm (6.0in.)
Grip force, nominal 4,448N (1,000lb)
Wrist torque, nominal..... 205Nm (150ft-lb)
Wrist rotate, continuous 360 degrees, 6-35rpm

Manipulator Arm Functions

Actuator Function	Type	Nominal Mechanical Range
Azimuth	Linear	120 degrees
Shoulder pitch	Linear	120 degrees
Elbow pitch	Linear	120 degrees
Wrist pitch	Linear	120 degrees
Wrist yaw	Linear	120 degrees
Wrist rotate	Gerotor	360 degrees
Gripper, CONAN 7P	Linear	152 mm (6.0 in.)

Master Controller Specifications

Length 470mm (18.5in.)
Width 177mm (7in.)
Height 67mm (2.6in.)
Weight..... 3.7kg (8.2lb)

Approved Hydraulic Fluids

Hydraulic oil..... All common mineral, Glycol, and environmentally friendly fluids

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portable master controller is simple, comfortable, and intuitive. The Master Controller 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 (altering the ratio of master arm movement to manipulator arm movement), password security, programmable stow/deploy routines, individual joint movement limits, incremental gripper movement, individual joint diagnostics, and automatic error checking.

Manipulator Compatibility

To create the best manipulators on the market, Schilling took the best field-proven manipulator technologies and used them repetitively throughout the system. The result is a simple, reliable system with high component commonality that minimizes spare part requirements. Many parts are interchangeable throughout the entire Schilling manipulator line: TITAN 4, ATLAS, RIGMASTER, CONAN, and ORION.



The replica master arm ensures comfortable, intuitive operation.

Hydraulic Requirements

Viscosity 10-200cSt
 Available flow 5.7-19lpm (1.5-5gpm)
 Pressure 103bar (1,500psi) minimum to 207bar (3,000psi) maximum
 Slave arm performance is reduced at less than 3,000psi.
 Hydraulic fluid temperature, maximum..... 54 degrees C (130 degrees F)
 Filtration..... 3 microns (10 microns absolute)
 Customer supplied mating fittings required, hose fittings,
 Supply hose fitting..... -4 JIC female, 1/4in
 Return hose fitting..... -6 JIC female, 3/8in
 Contact the factory about operation at other pressures and flow rates.

Electrical and Telemetry Requirements

System supply 90-260VAC, 50/60Hz
 Slave Arm..... 24VDC
 Power consumption:
 Master controller 6W start, 3W run
 Base module + solenoid 120W start, 30W run
 Telemetry User selectable between RS-422/485 half-duplex and RS-232

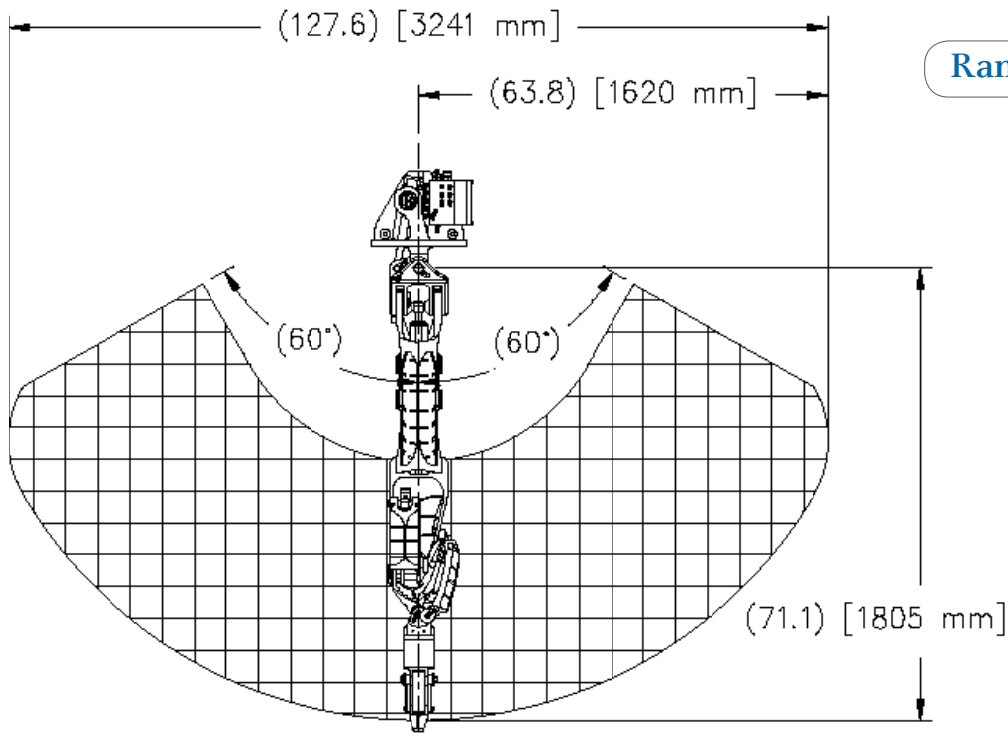
Environmental Specifications

Operating temperature -2 to +54 degrees C (+28 to +130 degrees F)
 Storage temperature -15 to +71 degrees C (+5 to +160 degrees F)
 Humidity 0% to 100% condensing

Options and Accessories

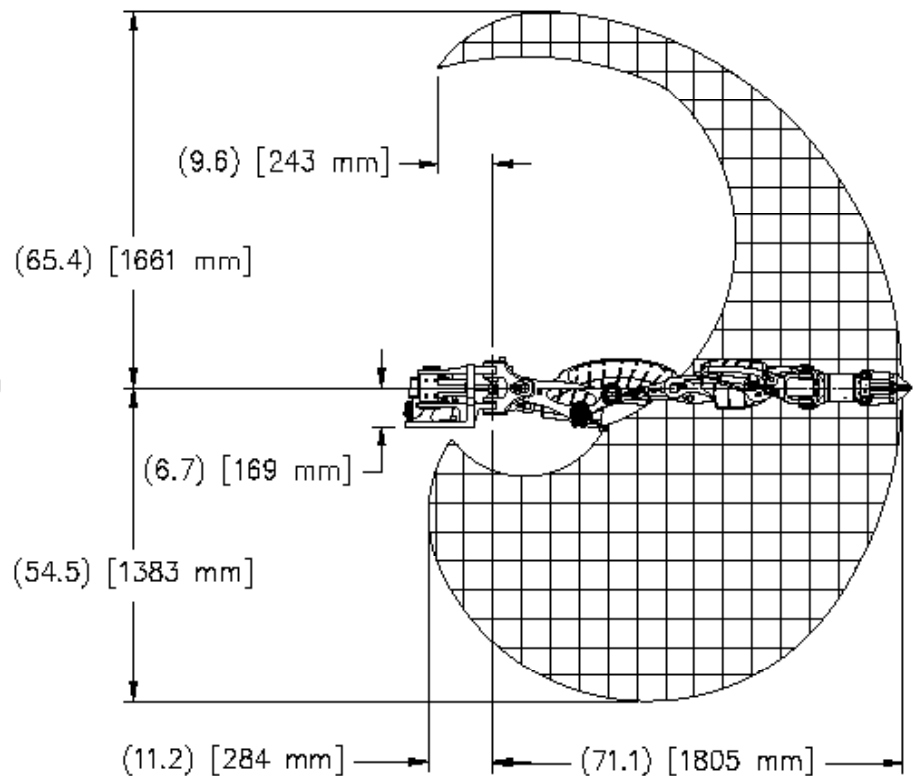
- 198mm (7.8in) 4-finger Intermeshing Gripper
- Spares Kit
- Technician's Tool Kit
- Dual Manipulator Configuration (two manipulator arms and a single master controller with two replica master arms)
- 30 degree Offset of Wrist Yaw Range of Motion

Range of Motion, Top View



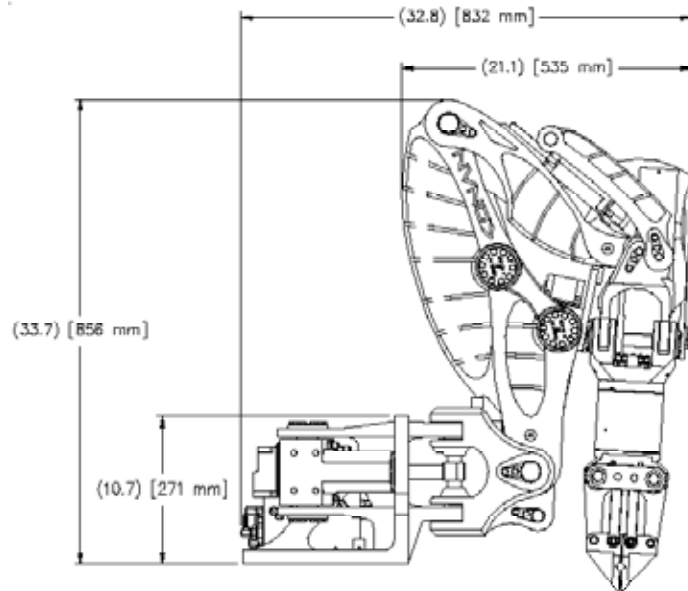
1 SQUARE = 5 INCHES [127 mm]

Range of Motion, Side View

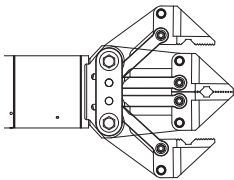


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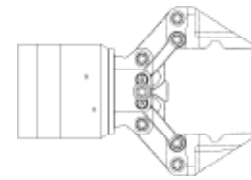
Stow Dimensions



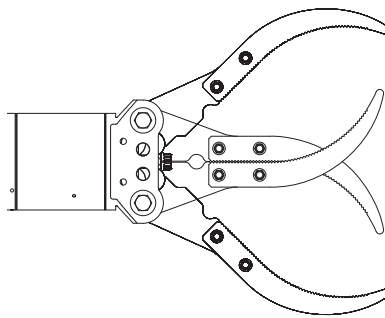
Gripper Options



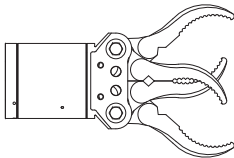
6" Parallel



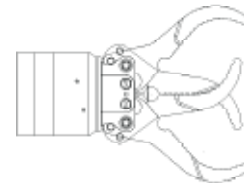
4" Parallel



11.5" Four Finger Intermeshing



7.8" Four Finger Intermeshing



7.5" Three Finger Intermeshing

Manipulator Comparison Chart

						
Model	TITAN 4	ATLAS 7R	RigMaster	CONAN 7P	ORION 7P/7R**	ORION 4R
Category	Heavy Work	Heavy Work	Heavy Work	Heavy Work	Medium Work	Medium Work
Power Source	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Rate/Position Control	Position	Rate	Rate	Position	Position or Rate	Rate
Number of Functions	7	7	5	7	7	4
Materials	Primarily Titanium	Anodized Aluminum & Stainless Steel	Anodized Aluminum, Stainless Steel & Titanium	Anodized Aluminum & Stainless Steel	Anodized Aluminum & Stainless Steel	Anodized Aluminum & Stainless Steel
Maximum Reach	1,922mm/75.7in.	1,664mm/65.5 in.	1,067mm/42.0in. (retracted); 1,372mm/54.0in. (extended)	1,806mm/71.1in.	1,532mm/60.3in. (7P/R). 1,850mm/72.8in. (7PE/RE)	682mm/26.9in.
Input Device	Replica Master Arm	Rate Hand Controller	Rate Hand Controller	Replica Master Arm	Replica Master Arm or Rate Hand Controller	Rate Hand Controller
Depth Rating, Standard	4,000msw/ 13,124 fsw	6,500msw/ 21,000 fsw	6,500msw/ 21,000 fsw	3,000msw/ 9,800 fsw	6,500msw/ 21,000 fsw	6,500msw/ 21,000 fsw
Depth Rating, Optional	7,000msw/23,000 fsw	N/A	N/A	N/A	N/A	N/A
Lift at Full Reach	122kg/270lb	250kg/550lb	270kg/595lb (retracted); 181kg/400lb (extended)	159kg/350lb	68kg/150lb	136kg/300lb
Weight in Air	100kg/221lb	73kg/160lb	64kg/142lb	107kg/235lb	54kg/120lb	30kg/67lb
Weight in Seawater	78kg/174lb	50kg/109lb	48kg/105lb	73kg/161lb	38kg/83lb	21kg/46lb

**Specifications shown are for the standard-reach ORION 7P.

Customer Support, Technical Support, and Training

- Worldwide Customer Support Network with Factory-Trained Technicians
- 24-Hour Telephone Access to Qualified Technical Staff
- On-Site and Offshore Installation/Mobilization Support
- Strategically Located Spares and Factory Service Facilities Worldwide
- Operation and Maintenance Training Courses Available at Our Factory, at Customer Facilities, or at Our Service Centers Worldwide



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