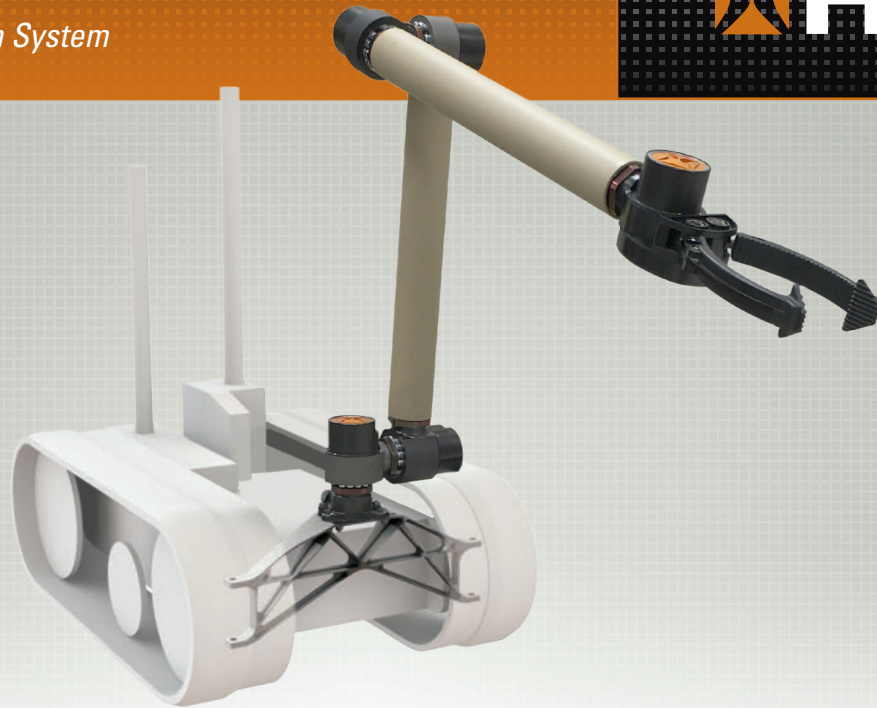


# ADROIT® MK4

Modular Drive Robotic Arm System



The Adroit MK4 arm system uses HDT's next generation of high power density, modular actuators and accessories for human-scale robots.

Completely scaleable, Adroit MK4 arm systems can be configured from single arms with three degrees of freedom (DOF) to 25 DOF dual arm systems. Link lengths and arm configurations are modular and can be customized to each application. Arm systems are water-tight and can include mounting rails for accessories.

MK4 actuators have a power density several times greater than competing drives. Three levels of drive torque from 180 Nm to 500 Nm allow for lightweight efficient assemblies. All variants have integral control electronics, position sensing, torque sensing and continuous rotations. Swapping out drives or links requires only a single open-end wrench.

Several end effectors are available, including force-sensing single DOF pincers.

Mounting kits for many robot chassis are available now. Please talk to your HDT representative about kit availability for your particular application.



*MK4 dual arm system, capable of lifting over 180 pounds (80 kg).*

## KEY FEATURES

- Superior control and near-human dexterity
- High load-to-mass ratio
- Camera or sensor payload can be mounted anywhere along arm and make use of auxiliary conductors within arm.
- 3 to 25 actuated degrees of freedom
- Modular construction with through-joint wiring
- 50 to 220 lb (23 to 100 kg) load capacity
- Rated to IP67 environmental requirements (ask about 100 m submersible option)
- Rated to MIL-STD-461 EMC
- Operates -40°C to 72°C (-40°F to 162°F)
- Optional fail-safe brakes





*The MK4 arm system is completely modular, and when assembled, is sealed to IP67 environmental and MIL-STD-461 EMC requirements. The arm can be disassembled and reassembled in minutes.*

Actuator Specifications	A180	A500
<b>Torque</b>	180 Nm 133 ft-lbs	500 Nm 367 ft-lbs
<b>Maximum Range</b>	Continuous	Continuous
<b>Sensors</b>	Position, Temperature, Amperage, Torque	Position, Temperature, Amperage, Torque
<b>Maximum Speed*</b>	45°/sec	30°/sec
<b>Operating Voltage</b>	24 – 56 VDC	24 – 56 VDC
<b>Aux Power Conductors†</b>	2 lines rated for power	2 lines rated for power
<b>Aux Data Conductors‡</b>	Up to gigabit Ethernet, or analog video, etc.	Up to gigabit Ethernet, analog video, etc.
<b>Through-Actuator Wiring</b>	Yes, slip ring	Yes, slip ring
<b>Dimensions (D x L)</b>	3.31" x 4.49" 84 x 114 mm	3.31" x 4.88" 84 x 124 mm
<b>Weight</b>	3.2 lbs 1442 g	5.3 lbs 2421 g

\* At 48 VDC†  
 † Up to 30 V at 5 A continuous  
 ‡ 8 customer assigned lines



Sample Arm Configurations		Arms Mass*	Max. Reach**	Lift at Max. Reach	Lift at 1/3 Max. Reach
 <b>4 DOF Arm and Pincer</b>	<b>Standard Duty</b>	24 lbs 11 kg	52" 1.3 m	21 lbs 10 kg	61 lbs 28 kg
	<b>Heavy Duty</b>	33 lbs 15 kg	52" 1.3 m	74 lbs 34 kg	177 lbs 80 kg
 <b>8 DOF Arm and Pincer</b>	<b>Standard Duty</b>	43 lbs 20 kg	52" 1.3 m	28 lbs 13 kg	80 lbs 36 kg
	<b>Heavy Duty</b>	49 lbs 22 kg	82" 2.1 m	34 lbs 15 kg	139 lbs 63 kg

\* Includes pincer, control electronics and harnessing, camera/sensor affordances, brakes at shoulder and elbow  
 \*\* To midpoint of pincer blades

Products, product specifications and data are subject to change without notice to improve reliability, function, and/or design. Please contact Customer Service at 800.969.8527 for the most up-to-date product information.



The pincer weighs 2600 g (5.7 lbs), and can provide a pinch force of 800 N (180 lbf).

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