

### Arm Technical Specification

Model	MR-1
Axis	6
Reach	900mm
Payload(kg)	5
Cycle time(sec)	0.35
Repeatability(mm)	±0.03
Weight	44.5kg
Protection Rating	IP40

### Speed Performance

Maximum Composite Speed	10,600mm/s
Maximum Composite Acceleration	39,700 mm/s <sup>2</sup>
Collaborative speed (Close to object) <sup>1</sup>	300 mm/s for hand
Collaborative speed (in air) <sup>1</sup>	800 mm/s for chest

<sup>1</sup> According to maximum allowable bumping/clamping force for human body regions in ISO/TS 15066:2016. Function is according to 3D object model.

### Mantis Studio Features

Configurable Speed and Separation Monitoring

Web-based Real Time DigitalTwin

Auto Program Generation

Collision-free Path Planning

3D Virtual Configuration with CAD File Generation

Human-Robot Collaboration Simulation

Return-on-Investment (ROI) Analysis

Application Templates (Kitting, Arrayed Tray Handling, 3D Bin Picking, etc.)

Team (Multi-user) Collaboration

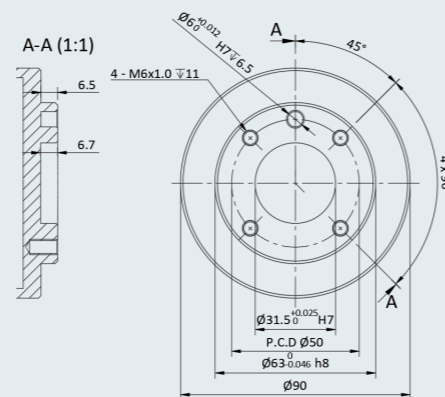
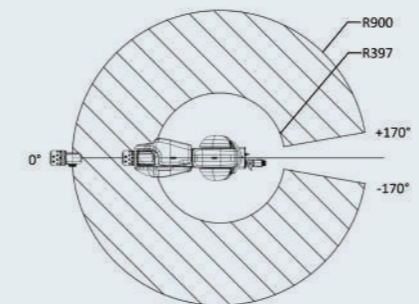
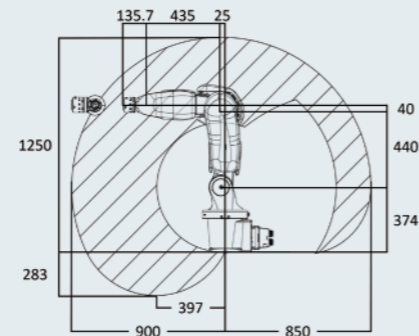
### Control Box

Size (W/L/H) <sup>2</sup>	473mm x590mm x291mm
Weight	38 kg
IO	16 DIN, 16 DOUT, 24V 2A
Safety IO	EStop, Full Speed Input Collaborative Mode IN/Output Configurable Safety IO 8 In 8 Out
Interface	6xUSB,1xHDMI,1xCOM,2xLAN Solenoid x3
Protection Rating	IP20
Power Supply	Single phase 200~230AC, 50~60Hz
Communication Protocol	Modbus TCP/RTU Master/Slave

<sup>2</sup> Dimension of the main body box, excluding connectors and including foot pads

### Movement

	Motion Range	Maximum Joint Speed
J1	±170°	370°/s
J2	+175°~-30°	260°/s
J3	+165°~-45°	410°/s
J4	±190°	550°/s
J5	±110°	550°/s
J6	±360°	820°/s



Physical Intelligence



World's 1st  
**Fenceless**  
**High-Speed**  
**Safety Certified**  
**Industrial**  
Robot

## Contact

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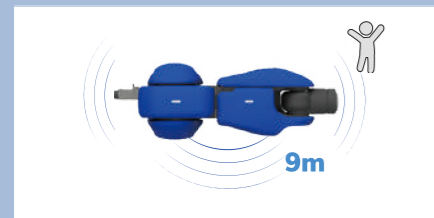
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# MR-1 Robot



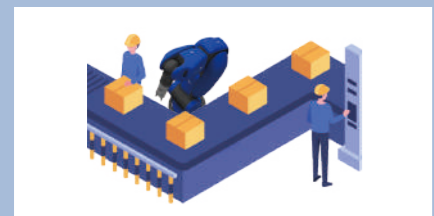
## Fenceless & Ultra High Speed

The MR-1 enables fenceless human-robot collaboration without sacrificing productivity, reaching speeds up to 10 m/s.



## 3D Spatial Intelligence

Our proprietary embedded sensor suite gives the robot full 3D awareness, allowing it to adjust motion in real time and actively avoid collisions.



## Highest Productivity per m<sup>2</sup>

Safety Certified to ISO 10218 & ISO 13849, the MR-1 deploys beside human operators for high-productivity automation without facility changes.

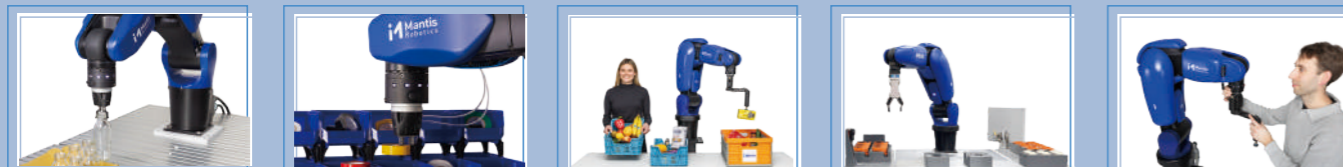
**75%**  
Cheaper  
Deployment

**6x**  
Faster than  
Cobots

**80%**  
Less Footprint

**Safe**  
Out-of-the-box

## Focus Verticals: Manufacturing & Logistics



# Models for Every Application

Mantis offers three models of the MR-1 robot, suitable for a variety of industries and applications. While all MR-1 versions are 6-axis with 5kg payload and 900 mm reach, they offer varying levels of integrated safety functionality.

	Mantis SafetyCore	Mantis STAR	Mantis SafeSkin	Ideal for
<b>MR-1 Model</b>	An integrated safety, perception, and control platform for real-time awareness and certified, high-speed robot operation.	Proprietary sensors for long-range presence tracking and close-range proximity detection.	A distributed tactile safety layer integrated on the robot's exterior.	Three MR-1 models fit nearly any application in industrial manufacturing or logistics operations.
<b>Pro</b>	●	●	●	Environments with frequent close human presences and stringent safety expectations
<b>Flex</b>	●	●	◐	Operator-accessible cells that benefit from added tactile redundancy
<b>Lite</b>	●	●	○	Standard automation cells where embedded sensing and motion safety are required without tactile coverage

## Deploy Code-Free with Human-Friendly Logic

**Mantis Studio** is an intuitive automation environment to build production-grade robotics solutions with a real-time 3D Digital Twin. Transform your ideas into robotic solutions—no robotics or programming experience needed.

### Create Robotic Workstations without CAD



Design complete robotics applications using our catalog of objects —no CAD needed. Every design-element can be defined intuitively in 3D, without the need for complex engineering.

### Real World Modeling & Auto Code Generation



Mantis Studio automatically generates robot code, defining processes for both human workers and robots with the same intuitive, human-friendly logic.

### Real-time Digital Twin for Simulation



Simulate and validate your solution with a real-time digital twin—in the Cloud or on the robot.