

# DOBOT ATOM-W

## Wheeled humanoid dual-arm robot

Mobile platform for autonomous indoor navigation, precision manipulation and embodied AI applications.

20 DoF  
without hands

3.5 kg  
per arm

±0.05 mm  
repeatability



### Product overview

The DOBOT ATOM-W combines a compact wheeled mobile platform with two precise 7-axis arms. LiDAR navigation, RGB-D and stereo vision, and high-performance onboard computing support autonomous motion, environmental perception and custom AI applications. The platform is designed for mobile handling, machine tending, laboratory automation, research and teleoperation in controlled indoor environments.

### Key data

|                        |                              |
|------------------------|------------------------------|
| Dimensions (H x W x D) | approx. 1,785 x 500 x 500 mm |
| Degrees of freedom     | 20 without hands             |
| Arms                   | 2 x 7 DoF                    |
| Arm reach              | 600 mm per arm               |
| Rated payload          | 3.5 kg per arm               |
| Travel speed           | up to 1.5 m/s                |

|                     |                        |
|---------------------|------------------------|
| Arm repeatability   | ±0.05 mm               |
| Navigation accuracy | ±10 mm                 |
| Minimum aisle width | 500 mm                 |
| Battery capacity    | 45 Ah                  |
| Processor           | Intel Core i9, 24C/32T |
| GPU performance     | 41.15 TFLOPS FP32      |

### Typical applications

#### MATERIAL HANDLING

Picking, sorting, supplying and transferring small parts.

#### MACHINE TENDING

Workpiece transport between machines, trays and inspection stations.

#### LAB & INSPECTION

Operating spatially separated equipment and performing mobile visual checks.

#### RESEARCH & AI

Robot learning, VLA development, teleoperation and data acquisition.

# Technical data & system

## Basic configuration

MOBILE DUAL-ARM PLATFORM

Wheeled indoor platform with 20 DoF without hands: 2 DoF head, two arms with 7 DoF each and a 4 DoF waist.

AI & DEVELOPMENT

Onboard computer with Intel Core i9 and discrete GPU. SDK, ROS 2 and W-specific URDF resources support custom applications.

## Mechanics, sensing and communication

|                        |                              |
|------------------------|------------------------------|
| Dimensions (H x W x D) | approx. 1,785 x 500 x 500 mm |
| Head / arms / waist    | 2 / 2 x 7 / 4 DoF            |
| Optional hands         | 2 x 6 DoF                    |
| Arm reach              | 600 mm, without hand         |
| Arm end speed          | max. 1.5 m/s                 |
| Payload per arm        | 3.5 kg                       |

|                      |                                |
|----------------------|--------------------------------|
| Navigation           | LiDAR-based                    |
| Head sensors         | RGB-D + HD stereo camera       |
| Audio                | 360° microphone, 2 speakers    |
| Developer interfaces | SDK, ROS 2, URDF               |
| Companion app        | Data management, visualization |
| Optional sensing     | Cameras, 6-axis force/torque   |

## Functions, integration and operation

- MOBILITY

Travel speed up to 1.5 m/s; designed for level indoor floors and passages from 500 mm.
- MANIPULATION

Two 7-axis arms with 600 mm reach and ±0.05 mm repeatability.
- PERCEPTION

LiDAR for navigation plus RGB-D and stereo cameras for environment and object sensing.
- COMPUTING

Intel Core i9 with 24 cores/32 threads and 41.15 TFLOPS FP32 GPU performance.
- DEVELOPMENT

Manufacturer SDK plus public ROS 2 and URDF resources for custom integration.
- ENERGY

45 Ah battery capacity; voltage, energy content and typical runtime are not published.

## Deployment and integration

The ATOM-W is classified as a mobile manipulation and development platform for controlled indoor environments. Precise transfers should be locally referenced using vision, markers or mechanical stops because the stated arm repeatability is not the absolute accuracy of the complete mobile system. Native PLC, fieldbus and functional-safety interfaces are not publicly confirmed. Before industrial deployment, the risk assessment, operating limits, charging infrastructure and manufacturer approvals must be clarified.

Note

Technical data according to manufacturer information and supplied product documentation. Subject to change. Information on CE conformity, protection rating, operating environment, electrical supply and functional safety is not fully documented publicly.