# DOBOT

Dobot Atom Humanoid Robot

Dobot's First Humanoid Robot

Discover the Universal, Full-Size Embodied AI Humanoid Robots - Dobot Atom

Dexterous Manipulation

Features the **Neuro-Driven Dexterity System (NDS)**, enabling precise control of 28 upper-body degrees of freedom (DoF) through a Transformer-based architecture and binocular RGB vision. With servo-level vibration suppression and 200Hz high-frequency control, NDS ensures smooth, human-like fine motor skills for tasks such as tool use, assembly, and multi-specification handling, inspired by human brain-hand co-evolution.
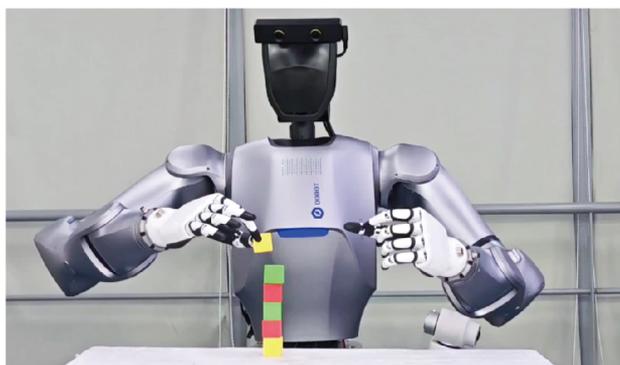
Straight-Knee Walking

The **Anthropomorphic Walking System (AWS)** mimics human biomechanics, leveraging imitation and reinforcement learning to generate highly human-like motion strategies. AWS reduces energy consumption by 42% compared to traditional bent-knee walking, enhancing stability and endurance for continuous operation in industrial environments, including navigating narrow spaces and adapting to varying workstation heights (700-1000mm).


Cross-Scenario Master

Dobot Atom excels in cross-scenario adaptability, powered by the **Robot Operator Model-1 (ROM-1)**. ROM-1 combines base and vertical industry models, trained via imitation and reinforcement learning, to autonomously decompose complex tasks and make decisions. With 100M parameters and 24Hz end-to-end control, it ensures robust performance in unstructured environments, from automotive assembly to beverage preparation and pharmacy operations.

Multi-Robot Collaboration

Dobot Atom supports multi-robot collaboration, facilitated by its advanced edge computing system, which delivers **7.7x industry-standard computational power**. Integrated human-robot interaction and safety technologies enable seamless coordination with other robots or human workers, optimizing efficiency in tasks requiring high synchronization, such as production lines or multi-device service scenarios.
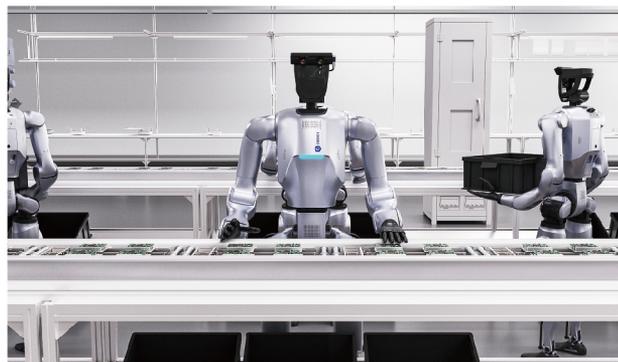
Food & Beverages   Education   New Retail   Warehousing

Dobot Atom D - Data Collection

The Dobot Atom D - Data Collection is optimized for large-scale data tasks, featuring 7-DoF dual arms and a 2-DoF head with customizable end-effectors (dexterous hands/grippers and wrist cameras). It integrates an Intel RealSense D455 depth camera (6m range) and a 60fps Full HD binocular camera that minimizes VR/MR motion sickness while ensuring high-quality imaging. The system supports Ethernet connectivity for efficient external data collection and processing.

Binocular Camera

Full HD mixed reality teleoperation

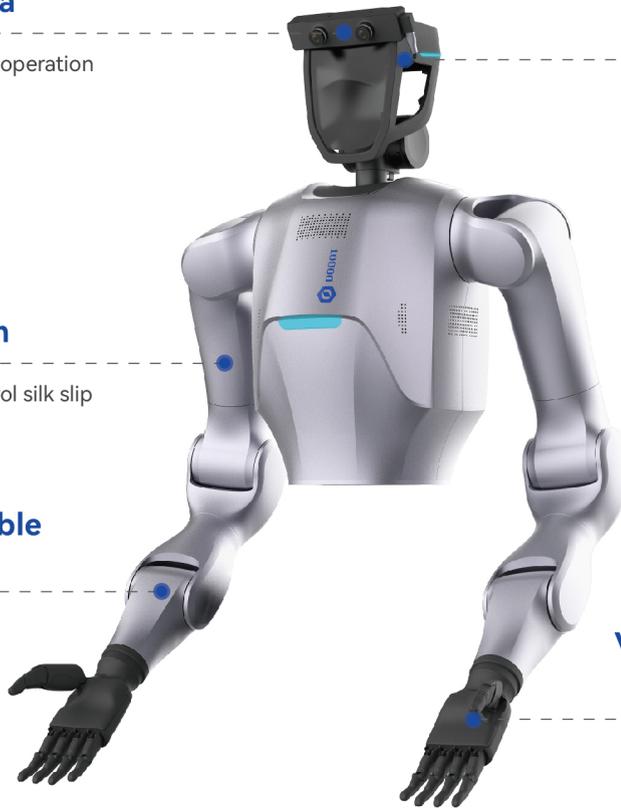## RGB-D Camera

Realsense D455

7 DoF Bionic Arm

Shake suppression, control silk slip

Fully Internal Cable Routing

Unrestricted movement

Vision + 5-Finger Dexterous Operation Closed Loop

Redirection Technology,accurately reproducing human operations

Included in the Box		Optional Accessories	
Dobot Atom D - Data Collection (without battery)	1	Battery Pack	1
Charger	1	Battery Charger	1
User Manual	1	6 - DoF Dexterous Hands	2
-	-	2 - Finger Adaptive Grippers	2
-	-	Wrist - Mounted RGB-D Cameras	2
-	-	Mobile Base	1

Dobot Atom - Trainer

The Dobot Atom Trainer is a 29-DoF robotics platform for embodied AI training, featuring optional 12-DoF dexterous hands or grippers. Its human-eye baseline Full HD binocular cameras ensure accurate vision with minimal motion sickness, while the Intel RealSense D455 (6m range) and 360° LiDAR provide comprehensive environmental awareness. The system's 1500 TOPS edge computing enables real-time AI processing, supported by dual wrist cameras for precision tasks and waist cameras for obstacle detection. With dual-mode teleoperation control (full-body/segmented), it's ideal for desktop-level AI training and task expansion in research and industrial applications. At the same time, it also has a powerful end-to-end operation model built-in, allowing users to quickly feed new datasets and deploy their own AI operation models.

Binocular Camera
Full HD mixed reality teleoperation

3D LiDAR
LVIOX-MID360

Stereo Speakers
5W

7 DoF Bionic Arm
Shake suppression, control silk slip

Fully Internal Cable Routing
Unrestricted movement

Straight-Knee Walking
End-to-End Neural Network for Human-like Gait

RGB-D Camera
Realsense D455

360° Microphone
50 m² high fidelity sound pickup

Quick Replaceable Battery
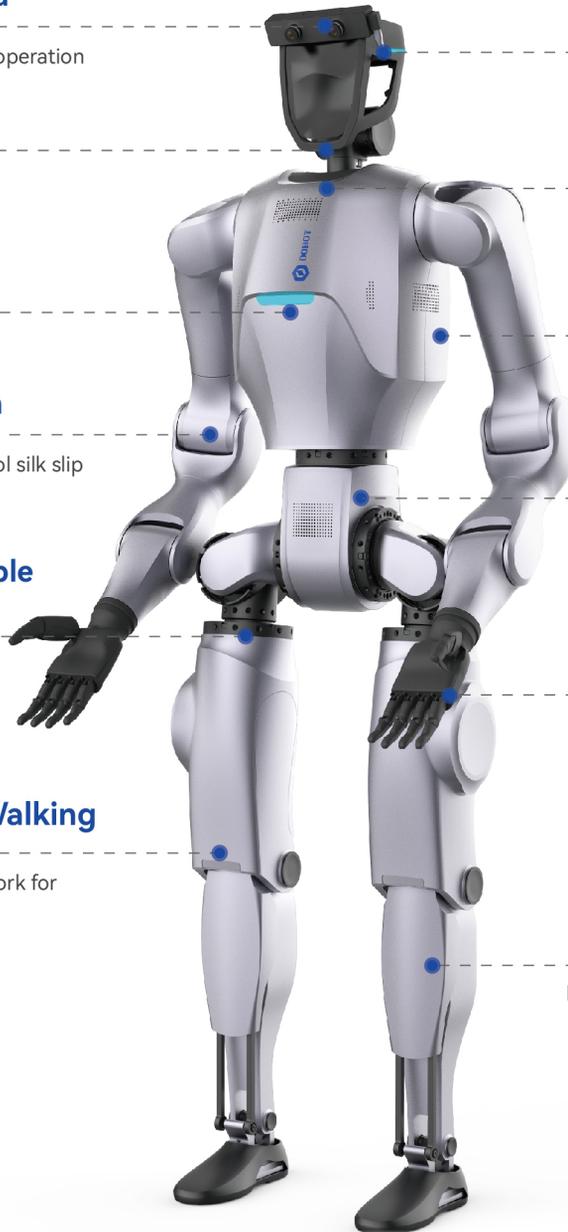15AH

1500 TOPS AI Super Computing Module
Intel i9 + Graphics card with 16GB 256bit GDDR6

Vision + 5-Finger Dexterous Operation Closed Loop
Redirection Technology,accurately reproducing human operations

Single-Leg DoF
Hip joint x 3 + knee joint x 1 + ankle joint x 2

Included in the Box		Optional Accessories	
Dobot Atom - Trainer (with battery)	1	Battery Pack	1
Battery Charger	1	Battery Charger	1
User Manual	1	Lifter	1
Embodied AI Operation Model (Lite Version)	1	Teleoperation Kit	1
Embodied AI Data Toolchain (Lite Verison)	1	6 - DoF Dexterous Hands	2
Remote Controller	1	2 - Finger Adaptive Grippers	2
Development Document Set	1	–	–

Dobot Atom - Max

The Dobot Atom Max is a cutting-edge 41-DoF humanoid robot designed for advanced robotics research and industrial applications, featuring dexterous 12-DoF hands, a 60FPS Full HD vision system, and Intel RealSense D455 depth sensing. Its optional Embodied AI Set provides high-precision URDF models, an open-source training framework, and multi-modal data tools to accelerate development. The Atom Max adds VR/MR teleoperation with markerless tracking and dual control modes (full-body/segmented), all powered by a 1500 TOPS AI module for real-time edge computing. With sub-millimeter precision and 360° environmental awareness, it significantly lowers the barrier for AI robotics innovation while supporting complex tasks from precision assembly to dynamic locomotion research.

Binocular Camera
Full HD mixed reality teleoperation

3D LiDAR
LVIOX-MID360

Stereo Speakers
5W

7 DoF Bionic Arm
Shake suppression, control silk slip

Fully Internal Cable Routing
Unrestricted movement

Straight-Knee Walking
End-to-End Neural Network for Human-like Gait

RGB-D Camera
Realsense D455

360° Microphone
50 m² high fidelity sound pickup

Quick Replaceable Battery
15AH

1500 TOPS AI Super Computing Module
Intel i9 + Graphics card with 16GB
256bit GDDR6

Vision + 5-Finger Dexterous Operation Closed Loop
Redirection Technology,accurately reproducing human operations

Single-Leg DoF
Hip joint x 3 + knee joint x 1 + ankle joint x 2

Included in the Box		Optional Accessories	
Dobot Atom - Max (with battery)	1	Battery Pack	1
Battery Charger	1	Battery Charger	1
User Manual	1	Lifter	1
Development Documentation Set	1	Base Operation Model + Training Props Kit + Tutorial	1
Remote Controller	1	Teleoperation Kit	1
–	–	Embodied AI Data Toolchain	1

Product Specifications

Configuation	Atom D	Trainer	Max
Height	≈650mm	≈1650mm	≈1650mm
Weight (without dexterous hands/jaws)	≈20kg	≈62kg	≈62kg
Full-body Degrees of Freedom (without dexterous hands/jaws)	16	29	29
Head Degree of Freedom	2	2	2
Single Arm Degrees of Freedom (without dexterous hand/gripper)	7	7	7
Waist Degree of Freedom	0	1	1
Single Leg Degree of Freedom	0	6	6
Single Arm Span (without dexterous hand/gripper)	600mm	600mm	600mm
Single Arm Weight (without dexterous hand/gripper)	≈6.5kg	≈6.5kg	≈6.5kg
Single Arm Load (without dexterous hand/gripper)	3.5kg	3.5kg	3.5kg
Single Arm Repetitive Positioning Accuracy	± 0.05mm	± 0.05mm	± 0.05mm
Maximum End Speed of Arm	1.5m/s	1.5m/s	1.5m/s
Audio Devices	-	360°microphone x1 + neodymium strong magnetic speaker x 2	360°microphone x1 + neodymium strong magnetic speaker x 2
Maximum Walking Speed	-	1.5m/s	1.5m/s
Joint Assembly Actuators Hollow Alignment	Yes	Yes	Yes
Basic Computing Module	intel i5	intel i5	intel i5
1500 TOPS AI Computing Module	0	Intel i9 (24 cores 32 threads)+ Graphics card with 16GB256bit GDDR6 (FP32 GPUcomputing power: 41.15 TFLOPS)	Intel i9 (24 cores 32 threads)+ Graphics card with 16GB256bit GDDR6 (FP32 GPUcomputing power: 41.15 TFLOPS)
Battery Life	0	≈2h	≈2h
Battery Charge	Power Supply	≈1h	≈1h
End Actuator	0	0	6 DoF dexterous hand x 2
Head Sensor	RGB-D Camera x 1 + Full HD Binocular Camera x 1	RGB-D Camera x 1 + Full HD Binocular Camera x 1	RGB-D Camera x 1 + Full HD Binocular Camera x 1
Wrist Sensor	0	RGB-D Camera x 2	RGB-D Camera x 2
Waist Sensor	0	RGB-D Camera x 2	RGB-D Camera x 2
Head LiDAR	0	3D LiDAR x 1	3D LiDAR x 1
SDK Support	Supported	Supported	Supported
Warranty	1 Year	1 Year	1 Year
Technical Support	Premium: Full documentation + ecosystem support	Standard: Complete documentation	Premium+: Full documentation + exclusive training
Onsite Training	Not available	Not available	Available
Remote Service	3 sessions/year	3 sessions/year	3 sessions/year

D20250326