

**PHT**

*Link To The World*

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## 3-Axis Cleaning Robot

PHT-R-3



### Product Features

This product is a horizontally articulated robot designed for use in clean rooms. It is capable of performing movements such as forward/backward (X-axis), rotation ( $\theta$ -axis), up/down (Z-axis), and hand rotation (0–180°), making it suitable for wafer transportation in atmospheric environments. The drive motors are AC servo motors, with all axes equipped with absolute encoder specifications.

### Product Overview

<b>Model</b>	PHT-R-3
<b>Installation Environment</b>	Inside a clean room, in atmospheric conditions, temperature 10°C to 35°C, humidity 70% RH or less.
<b>Arm</b>	Single Arm Material: Aluminum, CFRP (Carbon Fiber Reinforced Polymer), Ceramic
<b>Range of Motion</b>	X-axis: 500mm, $\theta$ -axis: 340 degrees, Z-axis: 300mm, Hand rotation: 0–180°
<b>Motion Speed (Maximum)</b>	X-axis: 500 mm/sec, $\theta$ -axis: 200 deg/sec Z-axis: 250 mm/sec, Hand rotation: 180 deg/sec
<b>Payload Capacity</b>	3kg (Total weight of hand base, hand, and workpiece)

### Robot Standard Specifications

<b>Robot Model</b>	PHT-R-3-2024
<b>Transported Object</b>	Up to 300mm wafer (Flexible customization is available for other special workpieces, shapes, and materials as well.)
<b>Wafer Holding Method</b>	Vacuum Suction, Edge Clamp, Edge Hold
<b>Mechanical Structure Type</b>	Horizontal Multi-Joint Type, Cylindrical Coordinate System
<b>Control Axes</b>	4 axes
<b>Motor Type</b>	AC servo motor, absolute encoder specification
<b>Weight</b>	Main unit weight: approximately 47kg;
<b>Control Cable</b>	3m (standard), 5m, 10m
<b>Control Specifications (1)</b>	Parallel interface - 32 input points, 32 output points
<b>Control Specifications (2)</b>	Serial Interface: RS-232C × 1 line
<b>Repeatability</b>	±0.1mm or less
<b>Drive Source</b>	Extension, Rotation, Up/Down – 3-axis AC Servo Drive
<b>Cleanliness</b>	ISO Class 2 (0.1μm or larger, 10 particles/m <sup>3</sup> or less)
<b>Transport Hand</b>	CFRP (Carbon Fiber Reinforced Plastic) + PEEK (Polyetheretherketone), Wafer Drop-in Method
<b>Utility</b>	Rated Voltage: Single-phase AC 200–230V ±10% Rated Current: 5A Vacuum: -80kPa or less, 10 NL/min or more