

NexBot Robotics HRM121-007

Harmonic Gearbox 120:1 Ratio

NexBot Robotics

SKU: NXB-GBX-HRM121-007 | Category: Drive Systems > Gearboxes > Harmonic Gearboxes

Overview

The NexBot Robotics HRM121-007 is a compact, high-performance harmonic gearbox engineered for applications demanding zero-backlash and high torsional stiffness. This component utilizes strain wave gearing principles to achieve a high gear reduction ratio in a small volume, making it an ideal solution for the wrist axes of articulated and collaborative robots where space and weight are critical constraints. The core benefit of its design is the elimination of mechanical backlash, which directly translates to superior positioning accuracy and repeatability for the robot arm, a crucial factor in tasks like intricate assembly, welding, and inspection. Key features of the HRM121-007 include a robust 120:1 gear ratio and a continuous rated torque of 85 Nm, providing the necessary power for precise payload manipulation and tool orientation. Its high torsional stiffness ensures that the output position remains stable even under fluctuating loads, minimizing settling time and increasing operational throughput. The gearbox is housed in a lightweight, durable aluminum alloy casing that aids in heat dissipation during continuous operation. With a component weight of only 1.8 kg, it helps reduce the overall inertia of the robot arm, enabling faster acceleration and deceleration cycles. The unit is designed as a sealed component, pre-lubricated for its operational lifetime, simplifying maintenance and integration. This gearbox is frequently specified for J4, J5, and J6 axes in applications that require smooth, precise motion control.

Technical Specifications

Parameter	Value	Unit
Weight	1.8	kg
Material	Anodized Aluminum Alloy	
IP Rating	IP65	
Country of Origin	US	
Dimensions	121 x 121 x 75 mm	
Torque	85 Nm	

Safety Notice: This product must be installed and operated by qualified personnel in accordance with applicable safety standards (ISO 10218, IEC 61508).

