

NexBot Robotics PLN122-010 Planetary Gearbox 10:1 Ratio

NexBot
Robotics

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Systems > Gearboxes > Planetary Gearboxes

Overview

The NexBot Robotics PLN122-010 is a high-performance planetary gearbox engineered to deliver exceptional torque density and precision for demanding robotic applications. This component is designed for seamless integration into NexBot robotic systems, providing reliable and accurate motion control where it is needed most. Its primary function is to reduce the speed of the input from a servo motor while multiplying the torque, enabling smaller motors to drive heavy loads with high accuracy. The core of the PLN122-010 is its robust planetary gear train, which utilizes multiple planet gears revolving around a central sun gear. This design distributes the load evenly, resulting in higher torque capacity and greater torsional stiffness compared to conventional gearboxes of a similar size. A key performance characteristic is its extremely low backlash, rated at less than 3 arc-minutes, which is critical for applications requiring precise positioning and minimal settling time, such as automated assembly or inspection tasks. The 10:1 gear ratio offers a balanced blend of speed reduction and torque amplification suitable for a wide range of robotic joints. Constructed with hardened steel gears and a sealed, anodized aluminum housing, this gearbox is built for longevity in harsh industrial environments. Its IP65 rating ensures protection against dust ingress and low-pressure water jets, making it suitable for facilities with airborne particulates or washdown procedures. The high-efficiency design (>96%) minimizes energy loss as heat, contributing to a more efficient and reliable robotic system. The nominal output torque of 120 Nm provides substantial power for moving robot arms and end-effectors with precision. Installation is streamlined thanks to a standardized mounting flange and shaft configuration, ensuring direct compatibility with specified NexBot servo motors. This gearbox is an ideal component for driving the wrist and elbow joints of articulated robots, where accuracy and rigidity are paramount for tool-path fidelity in applications like welding, dispensing, and material handling.

Technical Specifications

Parameter	Value	Unit
Weight	3.5	kg
Material	Anodized Aluminum Housing, Steel Gears	
IP Rating	IP65	
Country of Origin	US	
Dimensions	122 x 122 x 155 mm	
Torque	120 Nm	

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