

NexBot Robotics PLN122-005 Planetary Gearbox 5:1 Ratio

NexBot
Robotics

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Systems > Gearboxes > Planetary Gearboxes

Overview

The NexBot Robotics PLN122-005 is a high-precision planetary gearbox designed to provide exceptional torque transmission and positional accuracy for demanding industrial automation and robotics applications. This component is engineered to integrate seamlessly into robot joint assemblies, converting high-speed, low-torque input from a motor into low-speed, high-torque output with high precision. Its primary function is to enable the exact, repeatable movements required for complex tasks in modern manufacturing environments. The key to the PLN122-005's performance is its advanced gear geometry and manufacturing tolerances. It features a backlash of less than 3 arcminutes (<3 arcmin), which is critical for applications requiring fine control and minimal positioning error, such as intricate assembly or laser cutting. This low backlash ensures that the robot arm's end-of-arm tooling responds immediately and accurately to commands, eliminating wasted motion and improving cycle times. The gearbox's high torsional stiffness resists deflection under load, maintaining positional integrity even during rapid acceleration or when handling heavy payloads. This rigidity is essential for tasks like robotic welding and machining, where any deviation can compromise quality. Constructed with case-hardened steel gears and a robust, sealed housing, the PLN122-005 is built for longevity in harsh industrial settings. The internal components are designed for high efficiency, typically exceeding 95%, which minimizes power loss as heat and contributes to lower operational energy costs. The compact, coaxial design of the planetary system allows for a high torque output from a relatively small physical volume, making it an ideal solution for the wrist joints of articulated robots where space is limited but high torque is necessary for tool manipulation. With a versatile 5:1 gear ratio, this gearbox provides a balanced combination of speed reduction and torque multiplication suitable for a wide range of motion profiles. Installation is streamlined with a standardized mounting flange designed for direct attachment to compatible servo motors, reducing integration complexity and time. The unit is lubricated for life, requiring no periodic maintenance under normal operating conditions.

Technical Specifications

Parameter	Value	Unit
Weight	2.1	kg
Material	Anodized Aluminum with Steel Flange	
IP Rating	IP65	
Country of Origin	IT	

Parameter	Value	Unit
Dimensions	122 x 80 x 80 mm	
Torque	80 Nm	

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