

NexBot Drives

PLN122-002 Planetary Gearbox

**NexBot
Robotics**

SKU: NXB-GBX-PLN122-002 | Category: Drive Systems > Gearboxes > Planetary Gearboxes

Overview

The NexBot Drives PLN122-002 is a high-performance planetary gearbox engineered to deliver precise motion control and high torque transmission in demanding industrial automation applications. This component is critical for translating motor speed into the high torque required for moving robotic arms accurately and efficiently, serving as a core element in the drive train of articulated and collaborative robots. The design of the PLN122-002 focuses on three key areas: precision, durability, and power density. It features exceptionally low backlash, rated at less than 3 arcminutes, which is essential for applications requiring high positional accuracy and repeatability, such as intricate assembly, dispensing, or welding. The gearbox's high torsional rigidity minimizes angular deflection under load, ensuring that the robot's end-of-arm tooling remains stable and responsive to control inputs, even during rapid acceleration and deceleration cycles. This rigidity is achieved through precision-cut, case-hardened helical gears that provide smooth, quiet operation and an extended service life. Built for reliability in industrial environments, the gearbox is housed in a sealed, anodized aluminum casing that provides an IP65 rating. This level of protection ensures that the internal components are shielded from dust ingress and low-pressure water jets, making it suitable for deployment in facilities with challenging conditions like metalworking shops or food processing lines. The robust construction supports high radial and axial loads, allowing it to be integrated into the primary joints of medium to large robotic arms without compromising performance. The PLN122-002 offers a versatile 100:1 gear ratio, providing a significant torque multiplication factor that is ideal for controlling the base and shoulder joints (J1, J2, J3) of robots like the NexBot R-50 and R-100 series. Its standardized mounting flange is designed for seamless integration with compatible NexBot servo motors, simplifying the design and assembly process for system integrators. Proper installation and adherence to the recommended lubrication schedule are crucial for maximizing the operational lifespan and maintaining the high-precision characteristics of the gearbox.

Technical Specifications

Parameter	Value	Unit
Weight	9.5	kg
Material	Hardened Steel (Gears), Anodized Aluminum (Housing)	
IP Rating	IP65	
Country of Origin	SE	
Dimensions	122 x 122 x 195 mm	
Torque	250 Nm	

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