

NexBot Robotics CYC123-017 Cycloidal Gearbox

NexBot
Robotics

SKU: NXB-GBX-CYC123-017 | Category: Drive
Systems > Gearboxes > Cycloidal Gearboxes

Overview

The NexBot Robotics CYC123-017 is a high-precision cycloidal gearbox engineered for the rigorous demands of modern industrial automation. This component is specifically designed to provide high torque output and exceptional positional accuracy in a compact form factor, making it an ideal solution for the primary axes of articulated robots. Its core function is to translate the high-speed, low-torque rotation from a servo motor into low-speed, high-torque motion with superior control. The key to the CYC123-017's performance lies in its sophisticated cycloidal disc and eccentric roller mechanism. This design ensures that multiple teeth share the load simultaneously, resulting in high shock load capacity and exceptional durability compared to traditional planetary or harmonic gear systems. It achieves a high reduction ratio of 121:1, enabling fine motion control and stability under heavy loads. With a peak torque rating of 1200 Nm, this gearbox provides the power necessary for rapid acceleration and deceleration cycles common in material handling, welding, and machine tending applications. Precision is paramount in robotics, and the CYC123-017 excels with a guaranteed backlash of less than 1 arcminute. This minimal lost motion is critical for applications requiring high repeatability, such as intricate assembly, dispensing, or inspection tasks. The unit's high torsional stiffness further minimizes deflection under load, contributing to the overall dynamic performance and accuracy of the robot arm. The housing is constructed from a lightweight, high-strength aluminum alloy and is sealed to an IP65 rating, protecting the internal components from dust and low-pressure water jets. This ensures reliable operation in typical industrial environments. As a direct-fit replacement part, the gearbox is designed for straightforward installation, though professional alignment and adherence to lubrication schedules are essential for maximizing its operational lifespan.

Technical Specifications

Parameter	Value	Unit
Weight	17.5	kg
Material	Anodized Aluminum Alloy Housing, 42CrMo4 Steel Internals	
IP Rating	IP65	
Country of Origin	IT	
Dimensions	210 x 210 x 135 mm	

Parameter	Value	Unit
Torque	1200 Nm Peak	

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