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FASTENING THE PROCESS TO SUCCESS



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Thanks to our continuously improving technological infrastructure, in-house production capability and passion for innovation, **Norm Fasteners** is growing to meet the needs of the industry.



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Hios Innovates Fastening Automation with Screw Heads

Hios, based in Sumida Ward, Tokyo, offers an innovative "Fastening System" that automates screw tightening by changing the screw head.

The company's "Fastening System" combines the BLG-BC2 series of drivers for skilled workers who learn proper tightening themselves and a range of robot-specific screw tightening drivers with special recessed screws suitable for automation, called "INTRTORQUE®."

Skilled worker drivers count the motor's rotation pulses to detect tightening errors with high precision in real time. With the Direct Teaching function, by tightening several screws on the workpiece, the driver can automatically recognize proper tightening. Administrators can change driver settings in bulk from the system side, allowing for flexible adaptation to small-lot, multi-variety lines. The system's ability to transmit tightening data from the driver to the system also ensures high traceability.

INTRTORQUE screws are fasteners with a recessed hexalobular recess to prevent cam-out. They feature a guide with a protrusion called a "Super Point" on the bit side, which securely guides the bit tip to the center of the screw and prevents wobbling (guide & lock function). They can only be tightened in the direction of rotation, and their design doesn't require vertical thrust, making them suitable for small collaborative robots. Additionally, the screws can maintain their position even when the bit is turned sideways, allowing for tightening from various angles with robots.

One of the barriers to automating screw tightening has been the risk of tightening defects and unexpected bit



breakage. The "Fastening System," combined with INTRTORQUE designed for automation, significantly reduces the risk of tightening defects. Moreover, because the bits experience minimal wear, their replacement time can be digitally managed based on a consistent count, rather than relying on human intuition.

President Totsu emphasizes, "For automation, you need head shapes suitable for automation. Have we not forgotten about the heads of screws for automation?" Overseas, there is increasing interest in automation with INTRTORQUE. In China, where the shift to electric vehicles is advancing, there is a growing demand for shifting from Phillips screws to INTRTORQUE in manufacturing lines for automotive electronic components, citing major manufacturers. Production of INTRTORQUE is also growing in the company's Chinese factory.

President Totsu envisions the next feature of the "Fastening System" to be high disassembly capability. In a sustainable society, effective use of limited resources will require the ability to loosen screws and disassemble products in the near future. From tightening to loosening performance—development at the company continues.

