azbil

Machining ▪ Metalworking

Proximity Switches

Direct detection of equipment movement

Detection of slight stroke changes (about 1 mm) in NC rotary tables and brake mechanisms, with easy setup

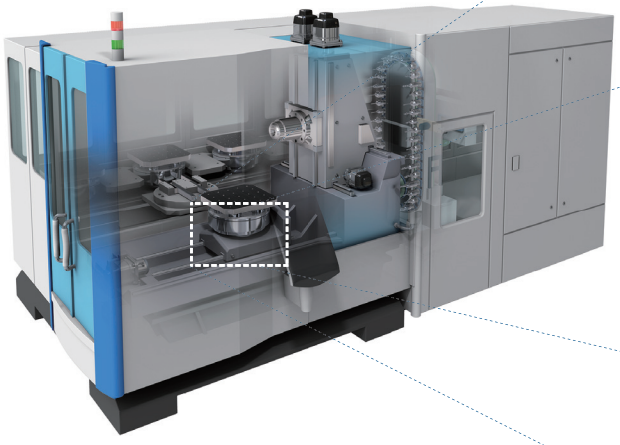
Product	Discrete sensor Adjustable Proximity Sensor
Model	H3C
Process/ Equipment	Machining center, NC rotary table (rotary & DD motor)

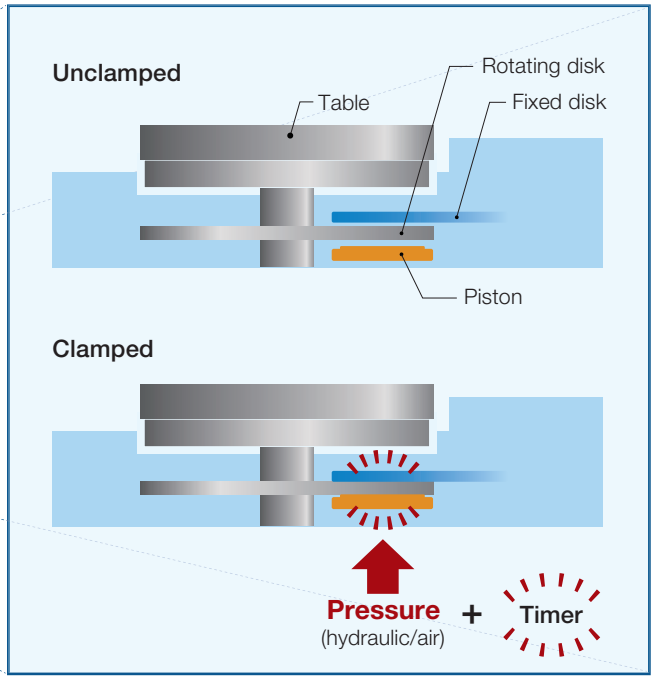
Current Situation

- The rotary table is rotated to change the workpiece's orientation. The brake is used to stop and hold (clamp) the table and the next machining process begins.
- It is difficult for conventional proximity switches to identify the Clamped and Unclamped states, so hydraulic or air pressure signals are used as triggers to operate the piston, combined with a timer to take the travel time of the piston into consideration, in order to identify the Clamped state.

Current Problems

- To identify the Clamped state of the brake, pressure signal detection is combined with a timer for estimated detection, which lengthens the cycle time and decreases productivity.
- The piston stroke is very short, so direct detection is difficult for conventional proximity switches.





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Solutions

Solution 1 Productivity improvement

Direct detection of the brake piston's position identifies the state of the clamp without waiting for a timer, which reduces cycle time and increases productivity.

Solution 2 Easy adjustment and man-hour reduction

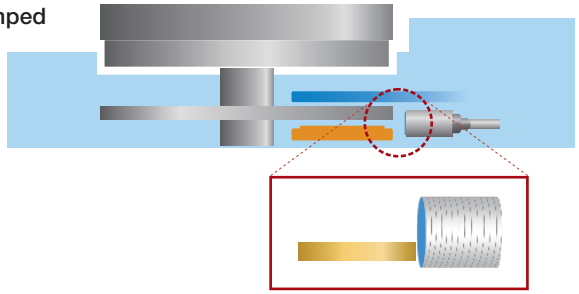
Teaching in the Clamped and Unclamped states sets thresholds at the midpoints of the detection levels.

Solution 3 Special Configuration Tool software visualizes detection levels

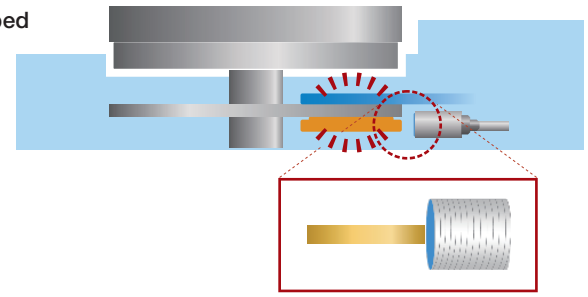
This software tool makes it possible to monitor the safety margins for sensing, allowing you to always check for the optimum threshold and make adjustments.

Solution 1 Sample proximity switch installation

Unclamped



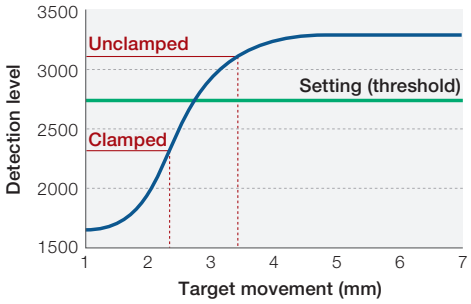
Clamped



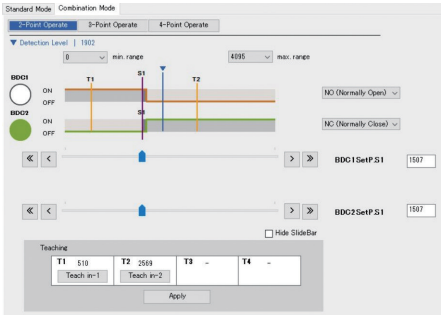
	Clamped	Unclamped
Output 1	ON	OFF
Output 2	OFF	ON

Note: There is no guarantee that this detection method can be used. The feasibility and accuracy of detection depend on the actual service conditions and environment. Conduct an operation check and evaluate the results before actual use.

Solution 2 Set by auto-tuning



Solution 3 Configuration Tool



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