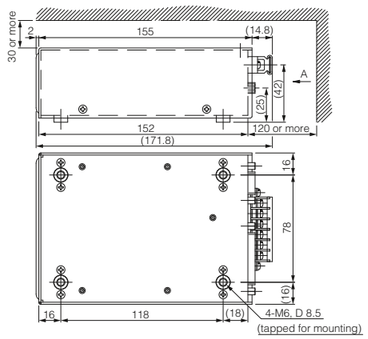
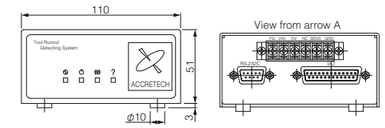
■ Basic Specification

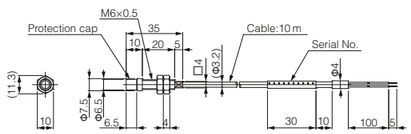
Type	Controller	AT50361
	Φ 5 sensor	E-DT-ED10 (Cable10 m)
Sensor installation areas		1.0±0.1 mm from tool holder flange surface
Measuring range		1.0±0.2 mm from tool holder flange surface
Tool registration		32 max
Acceptable tools		BT30, BT40, BT50, HSK63A, etc
Performance	Display unit (μm)	0.5
	Repeatability (μm)	3 (2σ=1.5) *Using our master tool holder BT40
	Tool rotation Speed (RPM)	120, 600, 1200
	Cycle time (Seconds)	0.3 (Rotation speed 600 rot/min, without retries)
Using environment	Temperature (Celsius)	0 to 40
	Vibration resistance	3.66 G max. (x, y, z-axis directions)
	Shock resistance	Sensor head: 50 G max. (x, y, z-axis directions, 10 times)
		Controller: 20 G max. (x, y, z-axis directions, 10 times)
	Waterproof standard	IP67 (Sensor Head) *Do not expose controller to water, oil or other liquids.
Power requirements	Rated voltage	DC24V±10%
	Rated power	14 W
Windows application operating environment and conditions	Compatible machine	PC with Windows 7
	RAM	64 MB or more
	Disk space	At least 100 MB of free disk space is required.
	OS	Windows 7 *Windows 7 is a trademark of Microsoft Corporation of the United States.
	Interface	One of RS-232C port COM1to COM16 is used.

■ Model dimensions

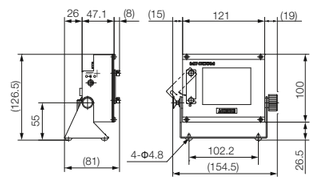




●E-DT-ED10 (With protection cap)



●E-DF-ED10



Contact details

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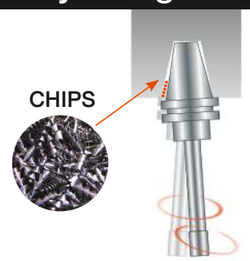
B-25-626-B-E-1704

Built-In type / Non-Contact Sensor

ATC Run-Out Detection System

Aluminum High-Speed Cutting Process Monitoring Device

Sudden Machining Defects ——
Are they being caused by chips in the tool chuck?



- Measurement in 0.3 Seconds
- High Accurate Detection 5 μm
- Simple Installation

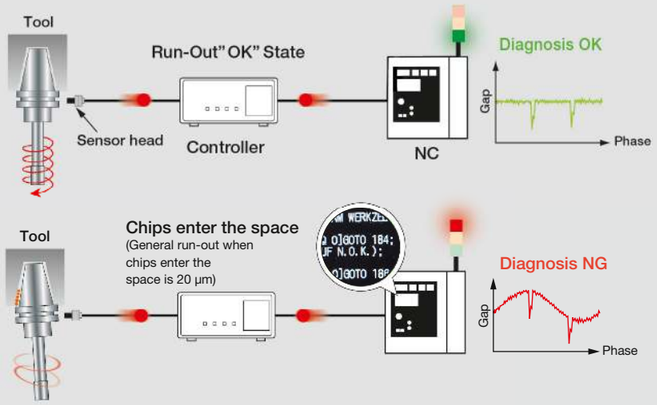
Measurement in 0.3 second !
Accurately Detects Run-Out Of 5 µm.*1

ATC run-out detection system is used to detect abnormal run-out of the tool caused by entering the tool taper and to prevent machining defects.

■ Accurate Detection

● Tool Registration

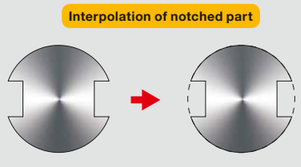
"True run-out quantity" is calculated by storing the shape of the tool flange in the controller without run-out state and comparing it with the shape of the run-out which is measured just before machining.
More highly accurate run-out measurement is achieved in comparison with the simple run-out measurement (repeatability: 30 µm*2) by using general eddy-current sensors.



Measurement results	
Tool Holder :	BT30, HSK40A
Example of Acceptable Workpiece:	Cylinder block, cylinder head, transmission case, compressor case, ABS parts, rocker arm, hybrid case, medical components, fine mechanic components, etc.
Types of Tool :	Reamer, boring tool, milling cutter, etc.

● Interpolation of Notched Part

By using proprietary algorithm, reliability of the run-out measurement is improved by interpolating the notched part of the tool holder, which is the decreasing factor of the measurement accuracy.

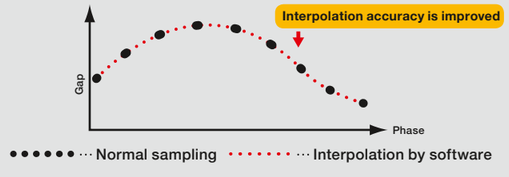


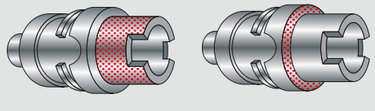
● Most Suitable for Dual-Faced Tools

The sensor is able to detect chips that enter the taper face and the end face gaps on dual-faced tools.

● Oversampling Method

Sampling number is automatically increased by proprietary software operation process and interpolation accuracy of the tool holder notched part is improved.





Taper portion　　End face portion

■ 0.3 Second Measuring Time

● High Speed Measurement

Although it is very difficult to achieve run-out measurement at 1,200 rpm by using contact type, it is achieved by using non-contact method. In addition, by using proprietary algorithm, all the measuring processes are completed in merely 0.3 seconds (at 600 rot/min).

■ Easy Operation

● Simple Setup

Automatic run-out measurement can be performed by just calling a NC subprogram.

Program image

● Tool Holder Presence Detection

The sensor can detect detachment of the tool holder and no tool attached which is likely to occur in dual-faced tools.

■ Superior Serviceability / High Reliability

● Sensor Head Automatic Tuning Function

Replacing only the sensor is possible if damage occurs to the sensor for any reason. After replacing the sensor, combination adjustment of controller and sensor head is completed by removing the tool holder from the spindle and clicking "sensor adjustment" button once.

● Most Suitable for Machining Environment

This run-out detection measuring system is coolant-resistant. *5

● Protection Mechanism

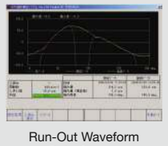
Improvement of reliability is achieved by protecting sensor head with protection block.

● Windows Application

Is used at the time of initial setup and data confirmation.
(During normal operation,
PC connection is not necessary.)

Main Screen
(Measurement result display screen)

Run-Out Judgment
Threshold Screen



Run-Out Waveform
Data Screen

Parameter Setup Screen

● Sensor cable 10 m

This is a 10 m sensor cable.
It can be installation for large M/C, many axes M/C and multitasking.
Further, it is easy installation and maintenance, because I can instal this controller in M/C control panel.

● Display Unit

This is a display unit of the permanent construction type for ATC run-out detection system. It is a function same as Windows application.
It is not necessary to establish a PC permanently in a factory, when you want to always perform result of a measurement indication and data preservation.

*1…Test condition: When run-out of our master tool is measured at rotation speed of 600 rot/min. *2…When run-out is measured by a combination of our EDYCOM, PULCOM V10, and roundness measuring function of PULCOM V10.
*3…Design of macrocode is necessary for every model individually. *4…The installation adjustment of sensor and setup of various parameters must be performed individually. *5…Six common coolants were tested.
*6…Save a measurement data into USB memory sick.