SUMITOMO
CARBIDE - CBN - DIAMOND

SumiForce

Tooling Support Plus

Sensing Tool **SUMIFORCE**

P M K N S H

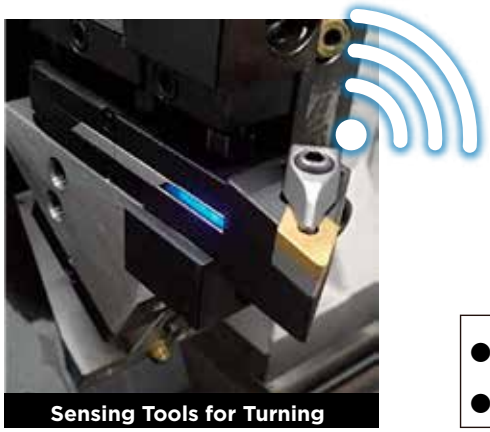
SUMITOMO
ELECTRIC
GROUP

KKDX Machining Support

Setting conditions based on quantitative values, helping identify error causes through visualization

SumiForce

Equipped with sensor, battery, and wireless device



Sensing Tools for Turning

Measures cutting edge status with sensor

Transmits wirelessly and analyses data

- Conditions set upon production line startup based on quantitative values
- Error cause identification through visualization if problems occur

KKDX machining support process

1 Advance investigation, checking whether measurement is possible

- Measurement content investigation, checking tool used, checking measurement location
- Checking interference, checking installation location
- Estimate (subsequently)

2 Sensing tool installation (approx. 10 minutes)

- Tool installation, receiver installation, PC installation
- Checking interference, checking radio wave status, checking operation

3 Measurement work

- Measurement by our staff
- Additional measurement upon request

4 Analysis results report (approx. 1 week)

- Measurement/analysis results provided as a report

5 Cutting conditions optimization and suitable tools recommended

- Support for customer cutting conditions selection provided
- Suitable tools recommended

Have you ever had this problem?

[Machining method selection]

1. Startup, early mass production

It takes too long to decide on cutting conditions and cutting paths based on noise and machine vibration during cutting.

2. Mass production

Machining efficiency suffers from cutting errors with unknown causes.

Our staff offer support solving customer problems through measurement and analysis.

Sensing Tools for Turning

Directly mounted on the turret, wireless communication renders in-machine wiring unnecessary

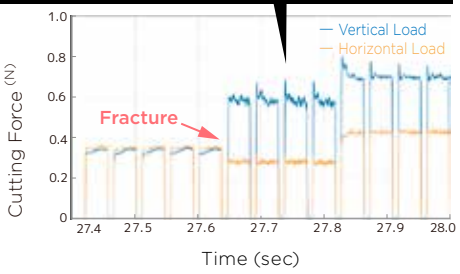
Vertical Load ≈ Principal Force
Horizontal Load ≈ Resultant force of the feed force and the back force

1. High-sensitivity measurement of minute changes
2. Measurement of vertical load and horizontal load
3. Same size as 25mm square holder
4. 99% the rigidity of normal holders

Size	25mm square (25 x 25 x 150)
Sensor method	Semiconductor Strain Sensor
Measurement range	Approx. ±4,000N
Measurement direction	Vertical/Horizontal
Sampling rate	1,944Hz (changeable under specific conditions)
Communication standard	Bluetooth® LE
Communication distance	Approx. 5m (depending on surrounding environment)
Power supply	Battery type, 225 continuous hours
Usable temperature	Approx. 70℃ (sensor part temperature)
Others	32mm square can be manufactured; consult our company concerning 20mm square and smaller

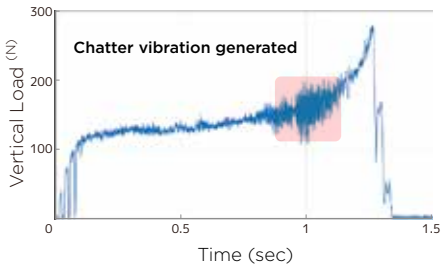
■ Tool Fracture

Low vibration and clear waveforms even in interrupted machining



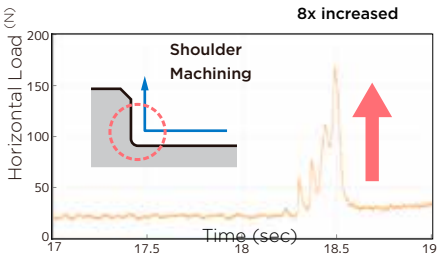
■ Chatter Vibration

Small **chatter vibration** hard to pick up on site can be grasped



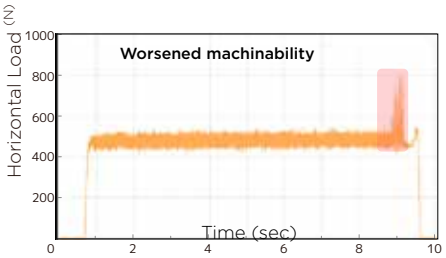
■ Bottleneck Processes

Bottleneck processes likely to lead to fracture or shape defects can be grasped



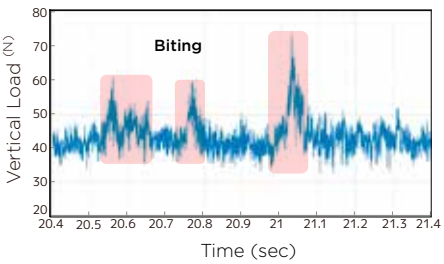
■ Machinability

Machinability, the cause of notch adhesion, can be grasped



■ Chip Biting

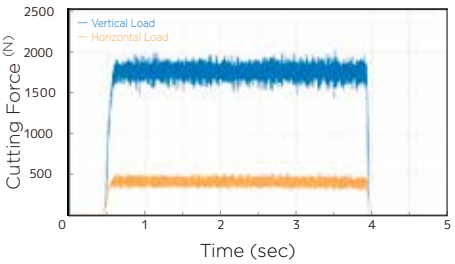
Chip biting, the cause of fracture and worsened surface roughness, can be grasped



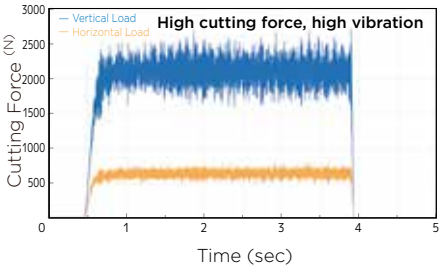
■ Suitable Tools

Machining quality fluctuations caused by different tools can be grasped

Suitable tool



Unsuitable tool



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