Force monitor

mida

MARPOSS

CONTINUOUS IN-PROCESS TOOL FORCE MONITORING SYSTEM

The CS2 - DF/SF, Tool Monitor for checking of cutting force, is designed to monitor the following in real time:

- Collision
- Tool breakage
- Tool presence
- Detect the start of the cut
- Tool wear and tear

Tool Monitoring benefits can be seen with a quick return on investment by increasing machine productivity and by lowering production cost. Specially when applied in high volume production machining.

Quality

The continuous monitoring of the tool state and the precision of the measurements obtained from the Marposs Tool Monitor make it possible to improve production processes and, as a consequence, the geometry of the piece.

Versatility

The availability of various interface solutions ensures that the Marposs Tool Monitor may be integrated on all types of machine tool. Given its small size and the limited number of components to install, the device can be mounted close to the spindle or tool that is being controlled.
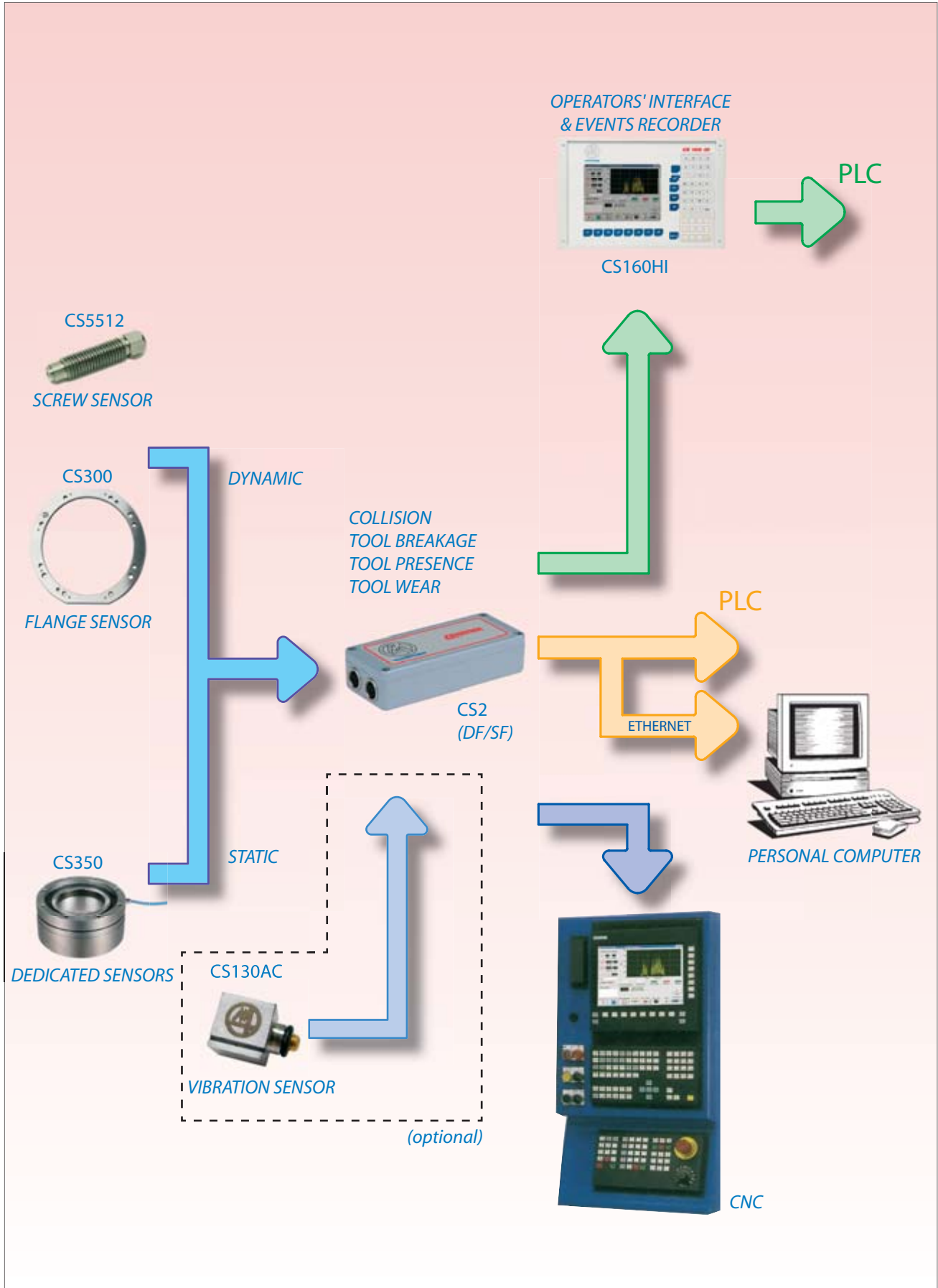
Benefits	Typical applications	
• Reduction of dead times in the manufacturing process	• Drilling	• Bending
• Maximum use of the tool	• Milling	• Turning
• Better quality of the manufactured item	• Tapping	• Broaching
	• Grinding	• Toothing
	• Perforation	• Adaptive Control

Touch Probes
Transmission Systems
Laser
Software
Toolsetting Arms
Tool & Process Monitoring
Accessories

The system

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OPERATORS' INTERFACE & EVENTS RECORDER

CS160HI

PLC

CS5512

SCREW SENSOR

CS300

DYNAMIC

COLLISION
TOOL BREAKAGE
TOOL PRESENCE
TOOL WEAR

FLANGE SENSOR

PLC

CS2
(DF/SF)

ETHERNET

PERSONAL COMPUTER

CS350

STATIC

DEDICATED SENSORS

CS130AC

VIBRATION SENSOR

(optional)

CNC

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Dynamic force sensors

Marposs dynamic force sensor picks up variations in force exerted on the tool during machining.
Due to its piezo-electric characteristics, the sensor is not affected by the force used to screw it on (preload).

This type of sensor is particularly suitable for controlling:

• Collision
• Tool breakage
• Detect the start of the cut
• Monitoring of milling procedures
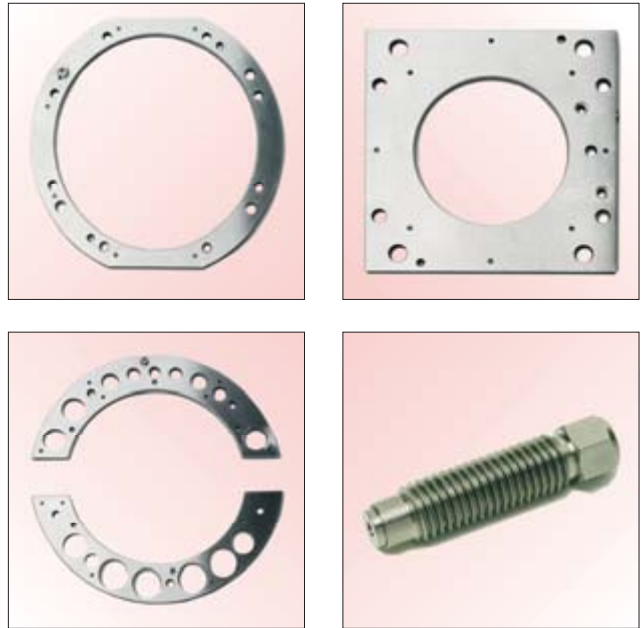
Static force sensors

Marposs static force sensors are used whenever there is a need to control the absolute value of force exerted, specifically to:

• Monitor the cutting force in turning during lengthy production processes.
• Monitor tool wear and tear.
• Detect tool presence.
• Optimise cutting parameters used in the process.
• Monitor the force on a part between centres.
• Adaptive process control.

All Marposs force sensors can be quickly and easily installed on any type of machine tool given their small size and variety of mounting solutions.

CS130AC

The CS130AC is a compact, high precision accelerometer. Its small size makes it very easy to install without altering the vibrating mass to be controlled. It can also be mounted inside high speed spindles, motors, pumps etc.
The Marposs accelerometer is particularly suitable for monitoring vibration caused by rotating and spindle parts.

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Programming and management of the CS2 - DF/SF device

The Tool Monitor is easy to program using the software provided. It may be installed directly in the Numerically Controlled System or on an external PC.

Black box function available with memorisation and storage of events.

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www.marposs.com
www.midaprobing.com