



VCM Vibration Control Monitor

The only system that successfully monitors machine vibration and avoids tool breakage and catastrophic collision-related damage

The VCM achieves vibration control through constant monitoring of machine tools and spindles.



Always-On Condition Monitoring

Machine tool and spindle are monitored continuously for vibration

How VCM condition monitoring works

With sensors placed in critical locations, real-time conditions are continuously monitored by the measurement of vibration acceleration, velocity, and displacement. Under high-risk vibration conditions, VCM stops the machine in order to prevent damage to the spindle and other machine parts.

Automatic readings and comparisons to the machine's *baseline vibration signature* are routinely made. Significant deviations from the machine's *baseline vibration signature* trigger maintenance alerts.

The VCM detects collisions and prevents or minimizes damage.



Process Control

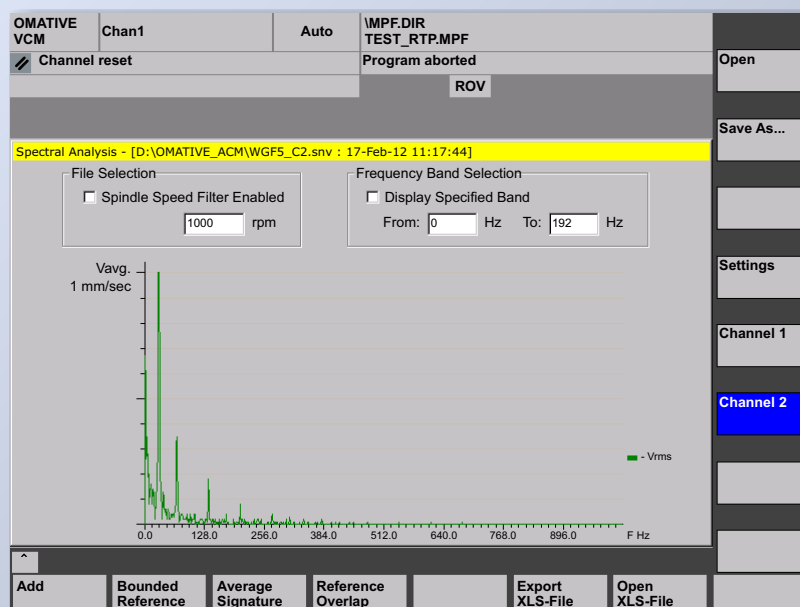
Tools are individually monitored for vibration

How VCM process-control works

Strategically-placed sensors enable accurate monitoring of *each individual tool's* vibrations in real time. When excessive vibration is detected, VCM stops the machine in order to prevent damage to the tool and machined part.

Prevents collision-related damage

With VCM installed, impending collisions involving the spindle, tool, or machine table are detected. In *less than one millisecond*, VCM detects the collision, and sends a signal to the machine to perform an emergency stop. Damage to the machine, spindle, and workpiece are kept to a minimum.



Machine Tool Vibration Signature

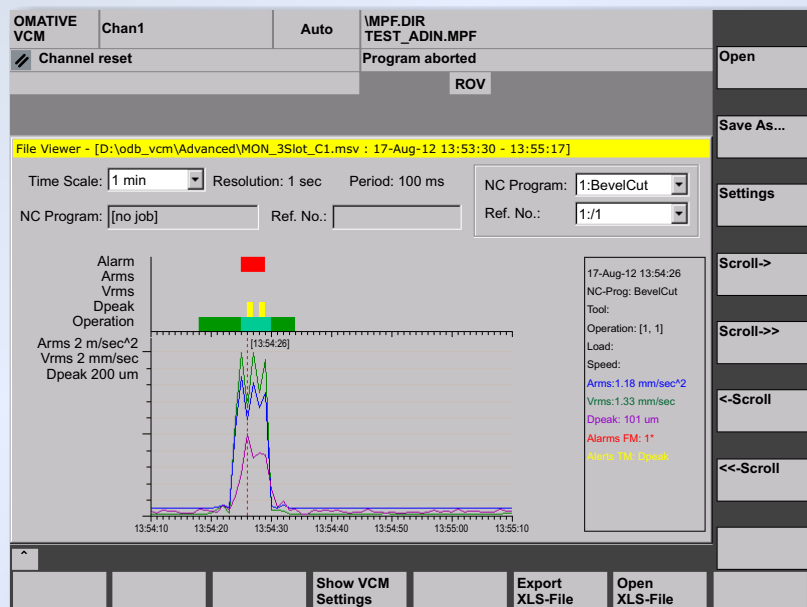
VCM Benefits for Condition Monitoring and Process Control

- ☑ Prevents breakage
- ☑ Enables pre-emptive maintenance and repair work
- ☑ Avoids extended disruptions to productivity
- ☑ Avoids costly replacements of machine parts and tools due to breakage

VCM Data

Shopfloor managers easily keep track of the condition of machines, spindles, and tools, with VCM statistics and graphs easily accessible via the machine's HMI.

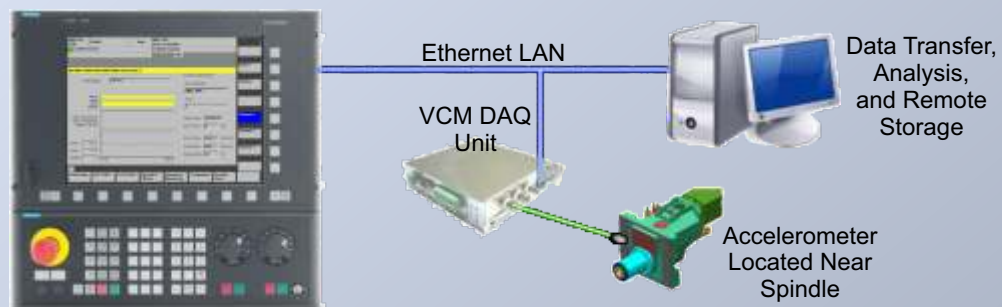
The system records all vibration patterns and events, including breakage, crashes, failures, improper technical practices, and fixture problems. This information is used to help improve machining processes and to understand the machine's condition. In addition, technical or equipment problems can be immediately discovered and resolved.



Example of excessive vibration triggering an alarm

VCM Installation

All machines can be equipped with the VCM in a smooth and speedy installation process. The VCM consists of a Data Acquisition (DAQ) unit, vibration sensor(s), and Windows-based software that is integrated into the CNC. Each unit can support up to three channels.



About OMAVIVE:

OMATIVE Systems products are used worldwide throughout the metal cutting-industry, and have been increasing productivity, saving time and money, and protecting tools since 1993.