

ROLL GRINDER VIBRATION MONITOR INSTRUMENT VERSION



DESCRIPTION

- An **easy-to-use** instrument for the use of machine operators as a tool to help them avoid vibrations that might produce marks in the surface of finish-ground rolls. The device provides a simple indication of vibration levels while grinding and requires **minimal operator intervention**.
- Vibration is monitored using transducers normally mounted on both the wheel and the roll sides of the structure of a machine. Accelerometers are normally located on the wheelhead and on one of the steadies.
- The vibration signals are **bandpass-filtered** to extract their low-frequency components, usually associated with chatter involving major structural components of the machine, and their high-frequency components - normally associated with more localised chatter involving, for example, deflection of the grinding spindle. The filtered signals are then rectified and summed. The resulting levels are displayed on the front panel bar-graph displays. As the vibration levels increase, the number of illuminated LEDs increases, the colours changing from green to red, providing the operator with an **early warning of the onset of chatter vibration**.
- The instrument incorporates a microprocessor and analogue-to-digital converters with which the bandpass-filtered vibration levels are sampled on a regular basis. A keypad and alphanumeric display is incorporated into the front panel to allow operators to input their own identifier, and the roll number. The vibration levels and roll/operator numbers are then passed to a serial interface. These features allow the instrument to be used as the front end of a data-acquisition and analysis system such as an UNIVIB **AVAS system**, if desired.
- The raw vibration signals, and the rectified, bandpass-filtered vibration levels are available at rear-panel sockets to facilitate the connection of alternative monitoring and analysis equipment.

Wheel-balance display

- This feature assists the operator to **minimise vibration generated by wheel-imbalance**. A special, very-low-frequency bandpass-filter circuit is available to monitor the vibration levels generated by wheel imbalance. The vibration level in this frequency range is displayed on an analogue meter on the front panel. A measurement would normally only be made once, after having changed the grinding wheel, and while running the wheel at a prescribed speed. The circuit is not used during normal grinding.

Level-alarm

- A **level alarm circuit** is also included. This circuit detects when the vibration level in one of the frequency bands has exceeded a certain pre-set level, closing a set of relay contacts until the vibration level has returned to normal. The relay contacts (in 0V configuration) can be used to provide a digital input to an external system or can be used to route an internal low-voltage power source to activate a **remote alarm**, such as a beacon mounted on top of the machine, to **alert the attention of the operator** in situations when the machine is not permanently manned.

PRICE

The list price of the UNIVIB Roll Grinder Vibration Monitor is **£7,500**. This figure includes two transducers, all signal cables and mounting brackets, and an installation guide. Installation and commissioning are not included.

UNIVIB will be pleased to offer fully-inclusive prices, which cover the cost of installation and commissioning, based on type of grinder, location etc.