

VIBRATION REDUCTION ON HAND-HELD GRINDERS BY AUTOMATIC BALANCING

H. Lindell

IVF, The Swedish Institute of Production Engineering Research, Gothenburg, Sweden

SUMMARY

By automatically balanced hand held grinders, vibrations are reduced to at least half and thereby reducing the estimated risk for vibration injuries by a factor of four. Simultaneously less grinding disc consumption and better grinding results are obtained.

Vibration from grinders originates mainly from unbalance in the grinding wheel. Grinding wheels are low-price products, with uneven distribution of mass and coarse tolerances. This gives rise to out-of-balance, which changes as the wheel wears.

By fitting an automatic balancer, that consists of steel balls contained in a cylindrical ball race on the shaft of the grinder, unbalances will be compensate for in the machine during grinding.

The time it takes for an automatic balancer to stabilize is only a few tenths of a second. When grinding, the balancer is stable, even during substantial changes in speed.

The technique is applicable to almost all grinding machines on the market and the first grinders using the technique have just been put on the market.

Key words: automatic balancing of grinders, vibration reduction

Address for correspondence: H. Lindell, IVF, Argongatan 30, S-43153 Molndal, Sweden