Tool Holder Balancing

Tool holder balancing overview

High-speed cutting has continued to gain importance with both HSK and steep tapers. Not only are tolerances and concentricity important with increasing speeds, but also the state of balance of a tool combination (tool holder, adapter, cutting tool, etc.). Tool holders which are predominantly used at higher speeds should be balanced before use.

The chart shows the upper limit of eper for various quality grades relative to the max. operational speed.

Permissible related residual imbalance e_{per} (µm) or gmm/kg (mass-eccentricity) 500 400 315 250 200 160 125 100 80 63 50 40 31.5 25 20 16 12.5 10 G 16 8 6.3 5 4 3.15 2.5 2 G 6.3 1.6 1.25 1 G 2.5 0.8 0.63 0.5 0.4 **G** 1 0.315 0.25 0.2 0.16 0.125 0.1 0.08 2000 3000 6000 10000 15000 20000 30000 50000 Maximum speed (RPM)

Quality levels according to ISO 1940 and permitted residual imbalance or speed

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