

# Troubleshooting

## General notes

All the cutting rate recommendations specified in this catalog are standard values valid exclusively for new tools or tools re-ground to Guhring specifications. Pre-requisites are stable machines, optimal cooling, optimal tool clamping and maximum concentricity of the tool and the machine

spindle. Our recommended cutting rates must be reduced if the conditions deviate. The values may also be adjusted to influence Surface finish quality, machining rate or tool life.

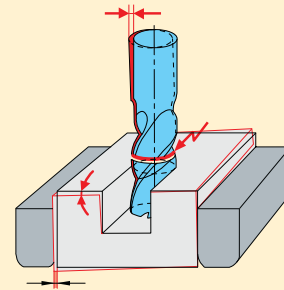
### 1. Workpiece clamping

Loss of tool life or tool breakage through unstable clamping

- improve workpiece clamping

#### Alternative:

- reduce feed
- reduce cutting width or depth



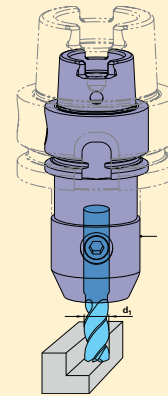
### 2. Tool clamping

Loss of tool life or tool breakage through unstable, worn or too small/long/thin tool holder

- apply new or larger tool holder or holder with increased clamping force and increased concentricity

#### Alternative:

- reduce cutting rates
- reduce clamping length
- apply tool with smaller diameter
- check clamping screws for wear



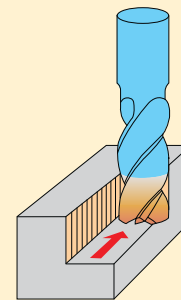
### 3. Surface finish quality

Excessive peak-to-valley height  $R_a/R_z$  at the tool Surface finish through excessive feed rates or vibrations

- improve workpiece clamping and tool clamping (see points 1 and 2)

#### Alternative:

- reduce feed and feed rate
- increase cutting speed



### 4. Vibrations

High tool wear, insufficient workpiece Surface finish quality and insufficient dimensional accuracy through vibration

- improve workpiece and tool clamping (see points 1 and 2)
- increase tooth feed, because the chip centre thickness is too small
- modify speed
- modify milling strategy, i.e. select alternative cutting distribution
- change tool selection, i.e. reduce no. of teeth or spiral

