Auronix

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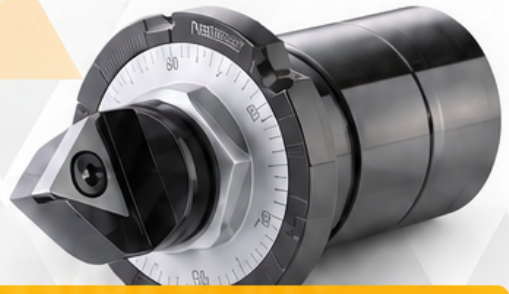
TROUBLESHOOTING GUIDE
MICRO BORING UNIT



1 POOR SURFACE FINISH

PROBABLE CAUSES

- Cutting edge wear / chipped insert
- Incorrect nose radius for application
- Insufficient rigidity of boring bar
- Incorrect speed or feed
- Tool overhang too long
- Loose clamping of micro boring head components

CORRECTIVE ACTIONS

- Replace insert and check seating
- Increase nose radius if application allows
- Reduce overhang to minimum
- Reduce feed per revolution
- Increase speed within safe limits
- Re-tighten boring head clamping screws
- Ensure damping mechanism (if applicable) is functional

2 OVERSIZE BORE / OUT-OF-TOLERANCE

PROBABLE CAUSES

- Boring head setting is incorrect
- Slide movement is loose
- Insert edge radius larger than programmed
- Thermal expansion during long cycles
- Machine spindle runout

CORRECTIVE ACTIONS

- Reset boring head using test indicator
- Tighten radial adjustment screw
- Use correct insert geometry
- Allow thermal stabilization before final cuts
- Check spindle runout with a dial gauge (should be < 0.005 mm typically)

3 UNDERSIZE BORE

PROBABLE CAUSES

- Inadequate offset adjustment
- Insert edge or nose radius worn
- Chip packing or built-up edge making tool cut smaller
- Incorrect tool path
- Cutting parameters too low

CORRECTIVE ACTIONS

- Adjust boring head outward in small increments (1 division = xx µm depending on head type)
- Replace worn insert
- Increase cutting speed to reduce built-up edge
- Improve chip evacuation

4 CHATTER / VIBRATION MARKS

PROBABLE CAUSES

- Excessive tool overhang
- Poor damping in boring head
- Feed too low
- Spindle speed at natural frequency
- Loose clamping in insert pocket or boring head slides

CORRECTIVE ACTIONS

- Reduce overhang as much as possible
- Increase feed slightly to stabilize cut
- Move spindle speed away from chatter zone (±20% change)
- Tighten all screws (insert, clamp, head slide)
- Use coolant to reduce heat and stabilize cut

5 EXCESSIVE INSERT WEAR

PROBABLE CAUSES

- Cutting speed too high
- No coolant / poor coolant direction
- Wrong insert grade or chip breaker
- Hard spots in material

CORRECTIVE ACTIONS

- Reduce speed 15–20%
- Ensure coolant jet hits cutting edge
- Change to a harder insert grade
- Use coated inserts for abrasive materials

6 CHIP JAMMING / POOR CHIP EVACUATION

PROBABLE CAUSES

- Insufficient coolant pressure
- Incorrect chip breaker
- Too low feed
- Long, stringy chips from ductile materials

CORRECTIVE ACTIONS

- Increase coolant pressure
- Use an insert with positive geometry
- Increase feed to break chips
- Use air blast if applicable

7 TOOL BREAKAGE

PROBABLE CAUSES

- Sudden impact due to interrupted cut
- Excessive feed
- Weak clamping of insert
- Incorrect entry angle
- Hitting bottom of hole

CORRECTIVE ACTIONS

- Reduce feed on interrupted surfaces
- Ensure proper insert clamping
- Use appropriate approach strategy
- Verify tool length vs hole depth

8 BORING HEAD SLIDE NOT MOVING SMOOTHLY

PROBABLE CAUSES

- Contamination (chips, coolant, dirt)
- Tight adjustment screw

CORRECTIVE ACTIONS

- Clean slide with solvent
- Lubricate the slide mechanism
- Adjust screw moderately
- Replace slide components if wear is excessive

9 INCONSISTENT BORE SIZE OVER LENGTH

PROBABLE CAUSES

- Bar bending due to low rigidity
- Poor alignment of tool in spindle
- Temperature rise during cut
- Step-tool interference
- Incorrect tool assembly

CORRECTIVE ACTIONS

- Increase bar stiffness (reduce overhang)
- Check tool alignment and shim if required
- Add coolant to stabilize temperature
- Reduce feed to minimize cutting pressure

10 SPINDLE LOAD TOO HIGH

PROBABLE CAUSES

- Feed too high
- Wrong insert geometry
- Dull cutting edge
- Boring head misaligned or too tight
- Poor chip evacuation

CORRECTIVE ACTIONS

- Reduce feed
- Select a sharper, positive-geometry insert
- Replace insert
- Re-adjust boring head slide friction
- Improve coolant flow and chip removal

PRECISION ENGINEERED
For higher accuracy and better results.

RIGID & RELIABLE
Robust design for consistent performance.

EASY TO ADJUST
Simple adjustments for maximum efficiency.

OPTIMIZED COOLING
Designed for effective chip evacuation.

BUILT TO LAST
Durable construction for long tool life.

BUILT FOR PERFORMANCE