

01-03

PREPARE

PRECISION IN EVERY STEP

01 PRE-SETUP INSPECTION



- ✓ **Check tool body**
 - Ensure no cracks, wear, or dents on the micro boring bar body.
 - Confirm shank and connection surfaces are clean.
- ✓ **Check Micro Boring Unit / adjustment mechanism**
 - Verify smooth movement of the adjustment screw / dial.
 - Ensure locking screws are functional.
- ✓ **Check insert pocket**
 - Pocket should be clean and burr-free.
 - Examine seating surface for damage.
- ✓ **Verify insert type**
 - Ensure correct insert geometry: ground-edge micro inserts (e.g., CCGT/TCGT/VCGT).
 - Ensure correct grade for material.

02 MOUNTING THE INSERT



- ✓ Clean the insert seat with air or brush.
- ✓ Position the insert properly, aligning indexing notch.
- ✓ Tighten the insert screw using a torque-controlled driver / Torx key.
- ✓ Recheck insert seating by lightly tapping with a wooden/plastic stick.

03 INSTALLING THE MICRO BORING UNIT



- ✓ Clean spindle or turret tool pocket.
- ✓ Mount the micro boring unit in the toolholder (ER collet, BT holder, ISO shank holder).
- ✓ Ensure minimum overhang possible to improve rigidity.
- ✓ Tighten all clamping screws properly.

04-06

SET UP & VALIDATE

ACCURACY BUILDS CONFIDENCE

04 SETTING UP ON THE MACHINE



- ✓ **Tool Length Measurement**
 - Use height gauge, presetter, or machine probe.
 - Enter length offset (H value).
- ✓ **Center Height Adjustment (if required)**
 - Micro boring tools must be exactly on center line.
 - Negative height causes taper & chatter; positive height affects dimensional accuracy.
- ✓ **Radial Adjustment (Boring Diameter Setting)**
 - Use dial on micro boring head.
 - Typical: 1 division = 0.01 mm on diameter.
- ✓ **Set geometry offset (Wear Offset)**
 - Apply initial wear offset W (X-axis value) equal to pre-set diameter.

05 CUTTING PARAMETER SELECTION



GENERAL GUIDELINES

Spindle Speed (RPM)	3,000 - 12,000 High RPM, depending on diameter.
Feed	0.01 - 0.1 mm/rev for micro tools.
Depth of Cut	0.05 - 0.2 mm Very low, per pass.
Coolant	• For aluminium: flood or air-blast. • For steel/stainless: high-pressure coolant recommended.

06 TEST CUTTING



- ✓ Run spindle at low RPM and perform a dry trial run to check runout.
- ✓ Start cutting with reduced feed for the first pass.
- ✓ Bore slightly undersize (0.05 - 0.1 mm) intentionally.
- ✓ Measure bore diameter with:
 - 2-point bore gauge
 - 3-point digital gauge
 - Air gauge (for high precision)

07-09

FINISH & CARE

LASTING PERFORMANCE

07 FINE ADJUSTMENT



- ✓ Determine deviation from target bore size.
- ✓ Use the micro boring head's fine adjustment screw.
 - Example: 1 division = 0.01 mm radius (0.02 mm on diameter).
- ✓ Move in very small increments; re-measure after each cut.
- ✓ Repeat until bore size is within tolerance.

08 FINAL MACHINING



- ✓ Apply final cut using constant feed.
- ✓ Maintain steady coolant to avoid thermal expansion.
- ✓ Avoid sudden machine stops during finishing pass.
- ✓ Measure final size to confirm tolerance.

09 POST-OPERATION



- ✓ Remove the tool and clean the boring head & insert pocket.
- ✓ Inspect insert for wear (chipping, flank wear).
- ✓ Apply rust preventive oil on the head and holder.
- ✓ Store in dedicated protective case.



PRECISION
BY DESIGN



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THAT LASTS



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