

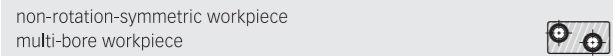
UniBore 800

Micro Bore Sizing Machine
for bores with \varnothing **0.4 – 4 mm**



UniBore 800

Typical workpieces



Bore diameter: \varnothing 0.4 – 4 mm
 Material: sapphire, ceramic, tungsten carbide, steel etc.

System description

- The modular machine concept enables an easy and customised configuration
- Retrofit with further modules
- MicroHead: single sided fixed conical tool
- Rotation and oscillation on tool
- Force controlled machining process

System advantages

- Geometric corrections: roundness, cylindricity, straightness
- Sizing of the bore dimension and the dimensional accuracy
- Surface finishing achievement
- No changes in the bore positioning alignment (MicroHead), therefore:
- Flexible workpiece fixture
- Only a minimum of oversize is necessary
- Quality control by process analyses
- Stock removal of approx. 2 – 100 micron, depending on bore diameter, bore length and material
- MicroHead can be used for tools with bonded grits or loose grits (honing or lapping process)
- Processing with loose grit (lapping process):
 - hard materials can be efficiently processed
 - best surface roughness can be achieved
- Processing with bonded grit (honing process):
 - suitable for softer materials (steel etc.)

Workpiece handling, loading and unloading

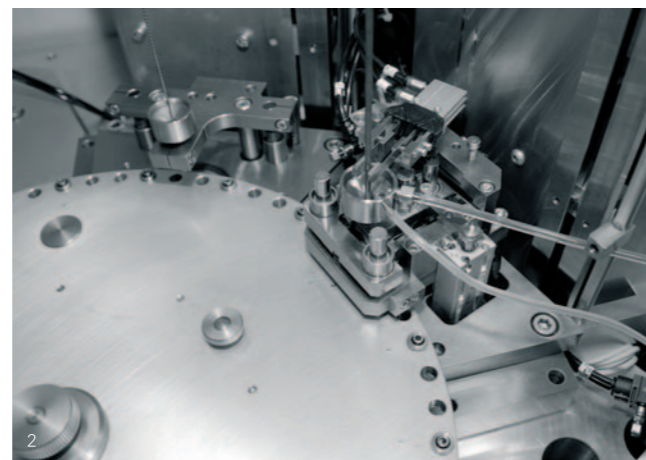
- Several options of loading and unloading (see graphic)
- Serial or parallel machining
- Designed according to workpiece and customer requirements

Technical data

- Workpiece spindle with up to 4'000 min⁻¹
- Up to 7 computer-controlled servo axis
- Up to 3 Machining-Heads simultaneously applicable
- Different access levels
- Software controlled process parameters
- PC control system, Windows CE
- Optical fibre bus
- Remote diagnostics via Internet (optional)
- Library of parameter-profiles for several types of workpieces

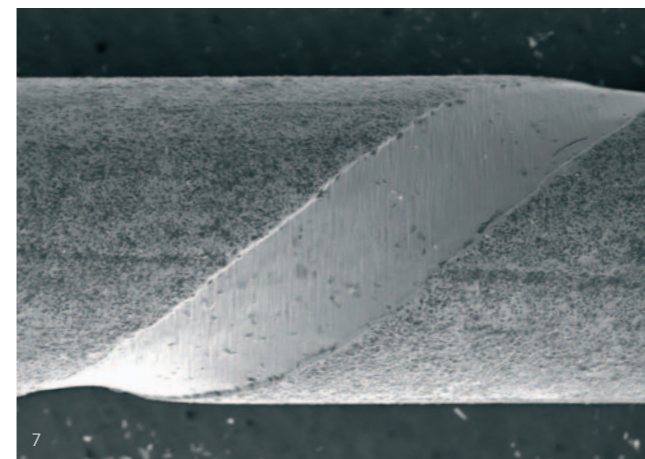
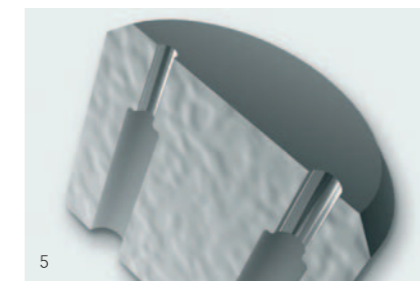
Electrical requirements: 3 x 400 V, 50/60 Hz
 Power consumption: 2,5 kVA
 Air requirements: 5,5 bar (dry, clean filtered air)
 Dimensions (L x W x H): 930 x 1100 x 2000 mm
 Weight: max. 650 kg

Subject to modifications



UniBore 800 Configuration options

Machining-Head Modular system	<p>MicroHead «Light» Bore diameter: 0.4 - 2.5 mm</p> <ul style="list-style-type: none"> • floating conical tool • rotation and oscillation on tool • force controlled machining process 	<p>MicroHead «High Torque» Bore diameter: 1.5 - 4.0 mm</p>			
Basic Machines	<p>Platform P 1-3 Machining-Heads</p> <p>serial or parallel machining</p>	<p>Platform T • Table top base • 1 Machining-Head</p> <p>serial machining</p>			
Workpiece Handling (Options)	<p>Robot</p>	<p>Continuous automation</p>	<p>Turret</p>	<p>Cartesian positioning</p>	<p>Manual loading</p>
Workpiece Fixation	<p>Manual hold</p>	<p>Universal: radial, axial, centring via bore</p>	<p>Floating</p>	<p>Customised solution</p>	
Process	<p>With loose grit (Lapping process)</p>	<p>With bonded grit (Honing process)</p>			
Tooling	<p>Carrier rod</p>	<p>Carrier liquid with abrasive</p>	<p>Abrasive</p>	<p>Honing oil</p>	



1. - 3.) Insight into the UniBore 800
 4.) Tungsten carbide glass-scriber: bore diameter 1.51 mm
 5.) Typical workpiece- and bore-geometry
 6.) Watch gear wheel: bore diameter 1.00 mm
 7.) Tool with bonded grit