



HORN – Grooving Specialist

- SUPER MINI and MINI tools for holes machining from \varnothing 0,2 mm
- inner, outer and face grooving, parting and profile turning
- groove and thread milling tools by using the circular interpolation
- customized profiles of inserts and tool holders
- tools for making longitudinal slots on CNC lathes and machining centres
- DM multi-milling system for corner, slot milling, chamfering, centring and profile milling
- DS solid carbide end mills for moulding
- tools for Swiss type machines



KLENK – Solid Carbide Tools for Drilling and Milling

- solid carbide drills \varnothing 1,0 - 20 mm for drilling depths $3 \times D$, $5 \times D$, internal coolant supply from \varnothing 1,5 mm
- POLLUX micrograin solid carbide four-phase drill with internal coolant supply for drilling depths up to $8 \times D$, MINOR deep-hole drill for drilling depths up to $12 \times D$
- various tool geometry and coatings depending on the drilled material
- solid carbide end mills \varnothing 2 - 20 mm, high-speed end mills
- machining of difficult-to machine, heat-resistant and high-strength materials
- customized solid carbide drilling tools \varnothing 0,3 - 25 mm



BECK – Holes Machining from Drilling up to Reaming

- more than 12 000 different HSS / solid carbide counterbores and reamers: \varnothing 1,0 - 100 mm
- drills with exchangeable inserts, counterbores with adjustable inserts
- high-speed reamers working with cutting speed up to 200 m/min and feed rate up to 2,5 mm/rev
- using the most progressive cutting materials (solid carbide, cermet, PCD, CBN) and coatings
- complete solutions of reaming technology and complete hole machining



URMA – Modular Boring and Toolsystem

- roughing boring heads \varnothing 19,5 - 2 400 mm
- fine boring heads \varnothing 0,3 - 2 400 mm
- boring heads with integrated direct balancing
- boring heads for face grooving
- tooling system Urma CircoTec for finishing of holes



SAACKE, PWS – Gear Cutting Tools, Formcutters, Milling Cutters

- spur gears module 0,5 - 40 made of HSS or solid carbide
- wheeled tools of HSS or ASP: involute spline shafts, spline shafts, timing belt pulleys, sprockets, serrated shafts, worm gears, roughing hobs etc.
- form cutters - customized solutions
- shaper cutter for gear manufacture, deburring tools for gear milling



TBT TIEFBOHRTECHNIK – Deep Hole Drilling Tools

- high performance drilling tools: \varnothing 0,6 - 50 mm, length up to 6 000 mm
- solid carbide and PCD drilling tools with coatings depending on the drilled material
- possibility to be mounted also on machining centres, that are equipped with high-pressure cooling systems
- TBT-tool grinding machine enables you to reach the same quality of a drill also after its regrinding



SPEZIALWERKZEUGE ZELLA-MEHLIS – Broaching Tools

- customized tools for inner and outer broaching of rotary and non-rotary workpieces
- max. broaching diameter: 380 mm, max. length: 3 000 mm
- broaching of hardened workpieces
- one-piece design or modular design



JBO – Machining and Control of Threads

- solid carbide thread milling cutters, bell form type thread milling cutters with exchangeable inserts for metric threads, pipe threads and threads measured in inches
- high performance thread cutting dies, thread rollers, precise thread gauges
- combined tools for face milling, chamfering, drilling and thread milling in just one step
- customized tools, thread gauges and customized control gauges



NEOBOSS – Manufacturing of Special Tools

- HSSE hand screw taps
- machine cutting and forming screw taps from HSSE, PM and solid carbide
- machine nut tap, customized taps

... IN SUPERFINISHING TECHNOLOGY



SUPFINA – Surface Finishing Systems

- superfinishing machines for manufacturing of bearings, gearboxes and motor parts
- superfinishing heads as additional equipment
- grinding machines for double-disc flat finishing
- NC control ensures to reach the required quality of cross-cut
- attained surface quality Ra = 0,02
- customized solutions

... IN BROACHING TECHNOLOGY



ARTHUR KLINK – Broaching Technology

- inner and outer broaching tools up to Ø 500 mm
- special broaching tools – outer profiles, turbine mountings, etc.
- vertical and horizontal broaching machines from 63 to 1 200 kN
- customized broaching machines
- CNC tool grinding machines for resharpening of all types of broaching tools

... IN CLAMPING AND BALANCING OF TOOLS



Qualität gewinnt.

HAIMER – Shrink Fit Machines and Balancing Machines of Tools

- Tool Dynamic machines for balancing of tool holders and grinding wheels
- modular Power Clamp machines for the shrink fit of tools

... IN PRESETTING AND MEASURING OF TOOLS



SPERONI – Tool Presetting and Measuring Systems

- manual, semi- or full-automatic devices (3 to 5 CNC driven axes)
- measuring of tools with both diameter and length up to 1 200 mm
- equipped with 2 CCD cameras for measuring of the full-scale tool geometry
- device designed for its direct use in manufacturing process
- user friendly, clean and trouble free single screen user interface
- body made of the heat-stabilized cast iron guarantees reliable and precise outputs
- equipped with trade mark products (Heidenhain glass scales, Schneeberger linear guides, Festo pneumatic elements, Sony camera, Dell computer)
- special device for measuring and presetting of milling tools for machining crankshafts up to Ø 800 mm



SAACKE – Manufacturing and Regrinding of Rotary Tools

- tool and cutter grinding machines with 2 or 5 CNC-driven axes
- rigid and solid machine structure for permanent quality of tool grinding
- possibility to be equipped with automatic Pick-Up tool loader with pallets or alternatively with chain loader and grinding wheel changer with shuttle
- accurate positioning of tools and measuring of grinding wheels via 3D-Renishaw measuring probe
- HMI-interface for simple running of the control system under Windows
- Numroto programme with special upgrades for particular tool grinding
- possibility to build up external programming workplace
- 2D workpiece simulation for precise grinding modification and for calculation of machining time
- 3D workpiece simulation and 3D collision inspection



TTB – Manufacture and Regrinding of Small-Diameter Tools

- precise tool grinding machines with 5 or 6 CNC-driven axes
- manufacture of tools: Ø 0,02 - 16 mm, regrinding of tools: Ø 3 - 25 mm
- 4 grinding spindles integrated in a turret
- repositioning accuracy: 0,001 mm and 0,001°
- special linear axes design - no 'back-movement-clearance'
- machine-integrated automatic measuring system



GSE TECHNOLOGY – Solid Carbide Rods, Profile Grinding, Laser Marking Systems

- solid carbide rods grinded in h5-accuracy
- high performance profile round grinding on the Tru Tech Revolution universal profile grinder
- professional laser marking system



CLEVELAND – Dressing and Profiling Machines for Diamond- and CBN Grinding Wheels

- dressing machines in various level of automation
- dressing of single wheels or multi-wheel-packages in one step
- productivity growth of CNC tool grinding machine
- permanent monitoring of grinding wheel shape during the dressing process
- designed with projector or camera
- dressing of CBN and DIA grinding wheels
- dry dressing or dressing with coolant supplies
- highly efficient swarf-exhaust



DR. MÜLLER DIAMANTMETALL – Grinding Wheel Specialist

- diamond and CBN grinding wheels (up to Ø 600 mm) for tool grinding machines
- diamond wheels for dressing of form grinding wheels for serial productions
- diamond and CBN internal grinding wheels
- diamond and CBN tools - files, cutting-off wheels, etc.
- diamond and CBN dressing tools and diamond pastes and suspensions for lapping



SMW AUTOBLOK – Chucks and Steady Rests

- standard power chucks up to Ø 2 000 mm
- self-centered steady rests with pivoting arms, manually or automatically lubricated
- compact design, sealed body with integrated coolant / air flush
- patented monitoring of the entire cylinder stroke / safe control of any clamping position
- double piston rotating hydraulic cylinders up to 80 bar
- manual or power operated expanding mandrels, collet chucks
- manual, hydraulic or pneumatic chucks
- quick jaw change power chucks with pull-down effect
- diaphragm high-precision chucks
- automatic indexing chucks
- gripping force meter
- customized clamping solutions



HAIMER – Tool Holders, 3D Analog and Digital Sensors

- power clamp tool holders and tool shrink fits for steep tapers according to DIN 69871, MAS BT, HSK
- high precise HG collet chuck clamping (substitute for Hydro - chucks)
- 3D analog and digital sensors for focusing the reference points of workpieces



BENZ WERKZEUGSYSTEME – Workholding Systems

- clamping systems Hydro, Weldon and Whistle Notch in standard or extended version
- accelerating heads with speed ratio up to 1:8 and 40 000 rev/min
- angle heads for drilling and milling, multi-spindle heads
- tool holders for CNC-lathe turrets
- axial and radial powered tools designed directly for your machine
- customized tool holders
- exchangeable X-line units with Solidfix® modular system
- customized multi-spindle powered tools
- ABS, CAPTO, UTS licence



FIBRO – Rotary Tables

- designed as rotary indexing tables or continuously controlled rotary tables
- the largest selection of rotary indexing tables available from a single source
- clamping tables up to Ø 2 150 mm, which can be used as swivel axis, axis for positioning or a workpiece carrier in machine tools as well as in assembly applications
- construction part for single-purpose machines: mounting, positioning or control one
- various designs: horizontal or vertical clamping table
- customized solution based on your requirements - rotary indexing tables with planetary units designed specially for multiple side machining in rotary cycle machines, two swivel axes



TRIAG – Efficient Workholding Systems

- vacuum clamping
- mechanical modular workholding systems replacing vices
- multiple workholding systems for towers and rotary tables
- ToolKlick - additional axis for your machine
- Zero-Point-Palleting system
- clamping by freezing systems
- multiple workholding mineral towers
- customized workholding systems made in Switzerland