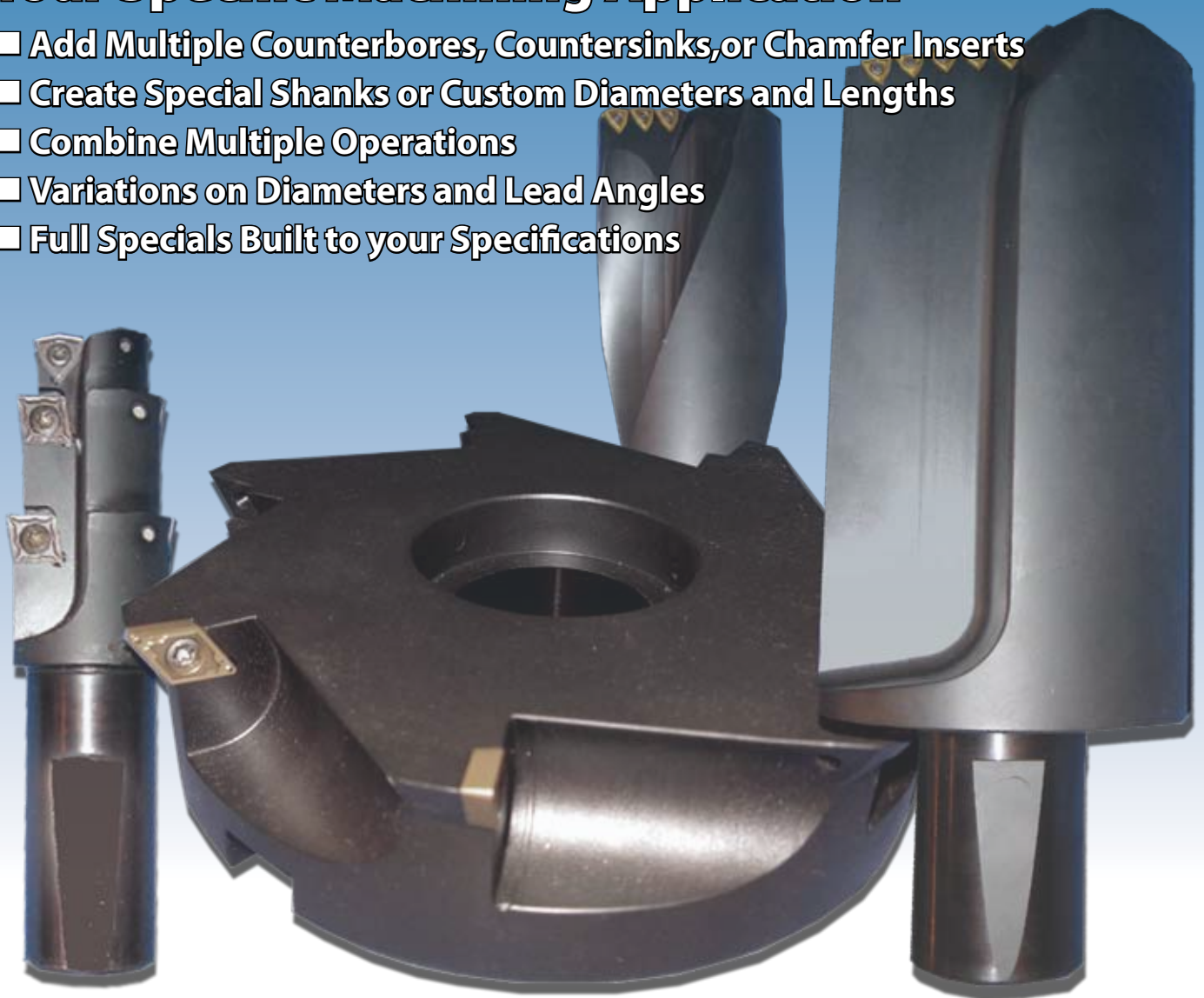


Custom-Made Toolholder Capabilities

Reduce Cycle Time and Increase your Productivity

Toolholder Customization Options for Your Specific Machining Application

- Add Multiple Counterbores, Countersinks, or Chamfer Inserts
- Create Special Shanks or Custom Diameters and Lengths
- Combine Multiple Operations
- Variations on Diameters and Lead Angles
- Full Specials Built to your Specifications

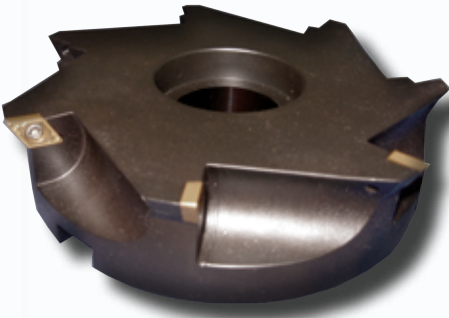


ADVANCING PRODUCTIVITY

Kyocera Cutting Tools Custom-Made Toolholders

0.010 X 45°

0.020 X 45°



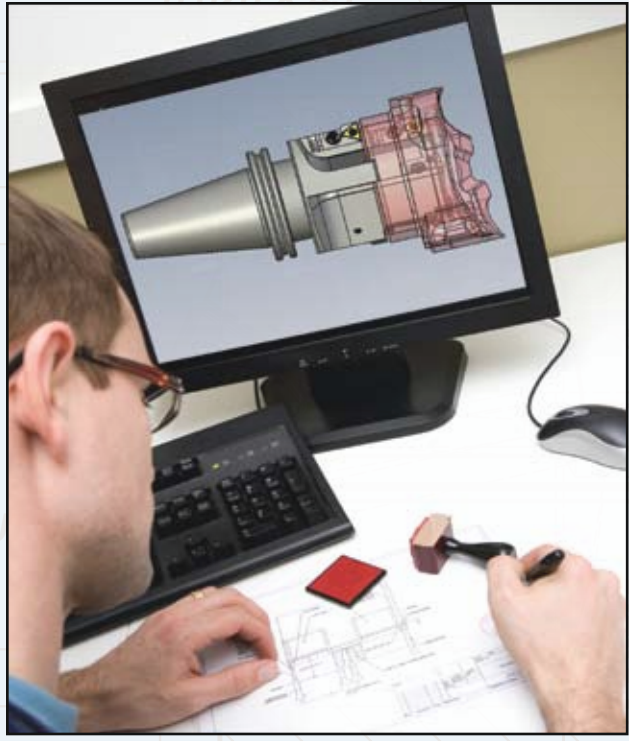
Custom Dovetail Cutter

Watch your *productivity and profits soar* with custom made tooling from Kyocera.



Combination Drill, Counterbore and Countersink

Our design engineers utilize the latest in 3-D solid modeling, CAM, CNC lathes, grinders and 3, 4 and 5 axis CNC machining centers to produce the highest quality special and custom-made tools.



Variations of Diameters and Lead Angles

Our custom drilling and milling tools will *reduce your cycle time* and increase your through put by eliminating tool changes, reducing tool inventory, and combining processes.

Contact a Kyocera Design Engineer to determine if a custom-made tool is right for your application!



Create Tools with a Custom Shank:

- CAT
- ABS*
- BT
- HSK
- Metric
- Special Diameters & Lengths

Kyocera Industrial Ceramics Corp

Cutting Tool Division - Custom Tools

ph 419-738-6652 x268 ■ fax 419-738-5969

www.kyocera.com/cuttingtools ■ customtools@kyocera.com



Combination Milling Cutter that Creates a Profile

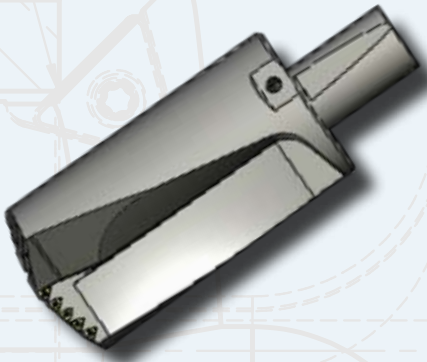


Custom Back Facing Cutter

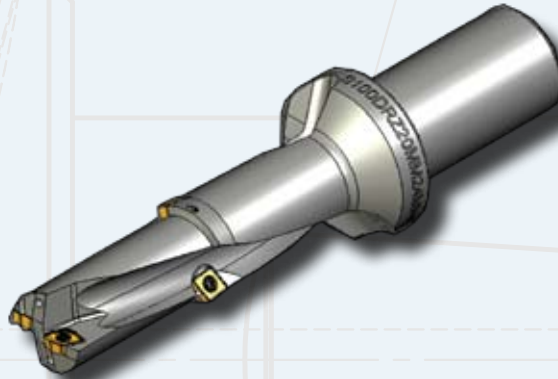
*ABS is a registered trademark of Komet Präzisionswerkzeuge Robert Breunung GmbH, which is not affiliated in any way with Kyocera or any other Federal Signal Companies.

Kyocera custom-made tools,
designed and built for your specific application,
are as simple as modifications to standard product ...

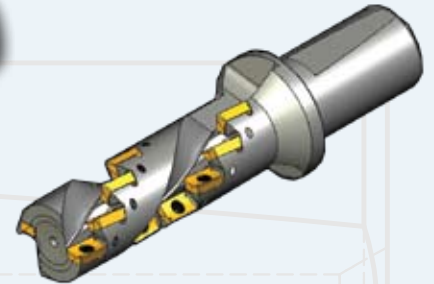
Variations of Standard Toolholders



A 6.0" diameter Holeshot style drill with an 8" drilling depth and through coolant on a 2-1/2" shank.



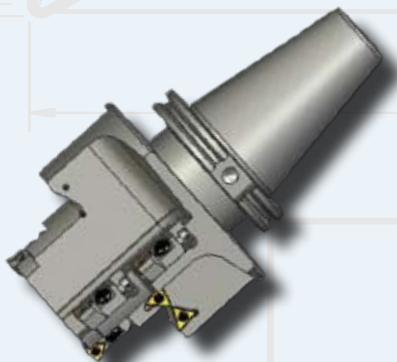
A 20mm diameter Magic drill with a countersink.



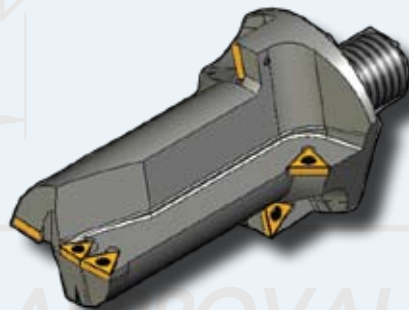
A 1.50" diameter long edge mill with 4-1/2" LOC on a 1-1/2" shank using the polished APET inserts. This tool is 2 flute, 2 flute effective.

to the most complex combination tools...

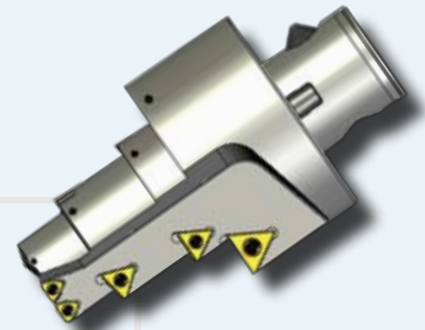
Custom-Made Combination Toolholders



A 3.553" diameter combination tool with standard and special cartridges on a CAT50 shank. This tool is coredrilling, counterboring, facing and chamfering.



A 34.44mm diameter combination tool on a special threaded shank with facing and chamfer. This tool also utilizes a center insert to break up a thin cast web.



A 1.625 dia. drill on an ABS80* shank with a countersink, counterbore and facing using through coolant.

Customized Tool Ordering Procedure

To request a quote for a custom tool, please follow the steps below:

1. Photocopy and fill out the Special Tool Design Form on page 4 of this brochure.
2. Email a scanned version or fax a hard copy of this form, along with any necessary prints and drawings to the Kyocera Custom Tools Department. Email: customtools@kyocera.com - Fax: 419-738-5969.
3. Call the Kyocera Custom Tools Department at 419-738-6652 x268 with any questions regarding the custom tool quotation procedure.



SPECIAL TOOL DESIGN WORKSHEET

DATE: _____

Page _____ of _____

CUSTOMER INFORMATION

Company Name: _____

Phone: _____

Contact: _____

Fax: _____

Address: _____

Email: _____

City, State, Zip: _____

Kyocera Distributor Name: _____

PART INFORMATION

Part Number or Description: _____

Material: _____

Hardness (Rc): _____

Current problem or objective: _____

MACHINE INFORMATION

Machine being tooled: _____

Machine condition, age: _____

Spindle Hp: _____

Max RPM: _____

Max IPM: _____

Circle one of each: Horizontal or vertical spindle? Stationary or rotating tooling?

TOOL INFORMATION

Describe the tool (drill, mill, combo tool?) _____

Quantity to quote: _____

Shank size/description: _____

Right or left hand cutting: _____

Thru coolant? (and inlet type/location): _____

Size or weight restrictions (if applicable): _____

Prints and Drawings

- Finished part
- Raw stock or casting
- Fixturing
- Special inserts, hardware, etc.
- Process sheet
- Existing tooling

Supplied information should include:

- Tolerance requirements, raw stock tolerances
- Surface finish requirements (witness lines ok?)
- Depth(s) of cut
- Fillets, inside corner radii (insert nose radii)
- Allowable overtravel on thru cuts
- Amount of finish stock to leave