

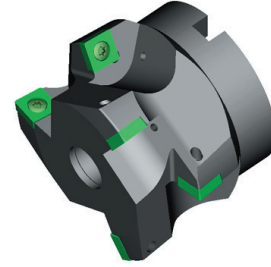
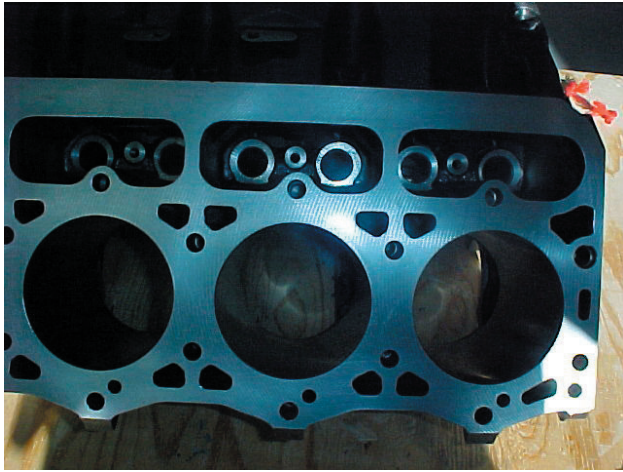
TURNING - BORING	1
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BEST PRACTICES - MODCO

<u>Cylinder Block Tooling</u>	<u>2-31</u>
<u>Differential Carrier Tooling</u>	<u>32-44</u>
<u>Cylinder Head Tooling</u>	<u>45-54</u>
<u>Knuckle Tooling</u>	<u>55-73</u>

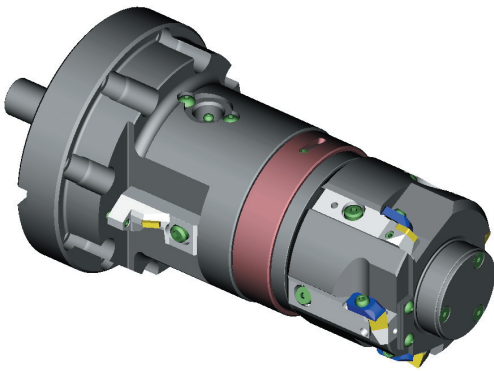
Rough & Finish Cylinder Bore and Undercut Tools

Cast Iron Engine Block

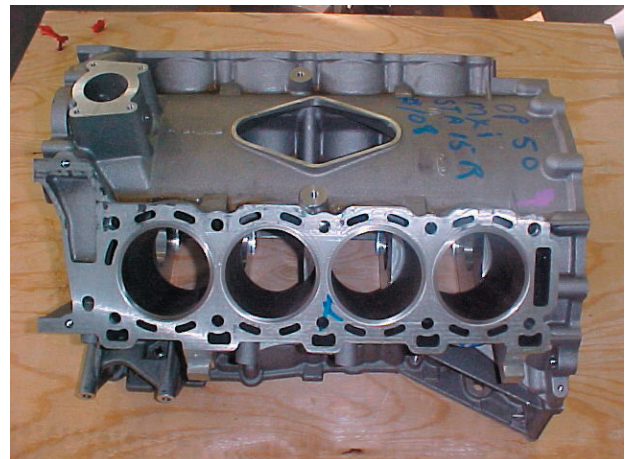


Rough Cylinder Bore Tool

Kam-Set® Finish Cylinder Bore Tool



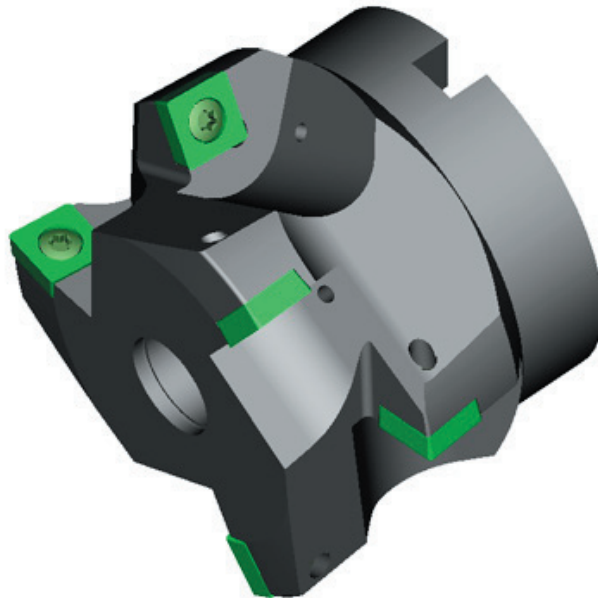
Undercut Tool



Aluminum Engine Block

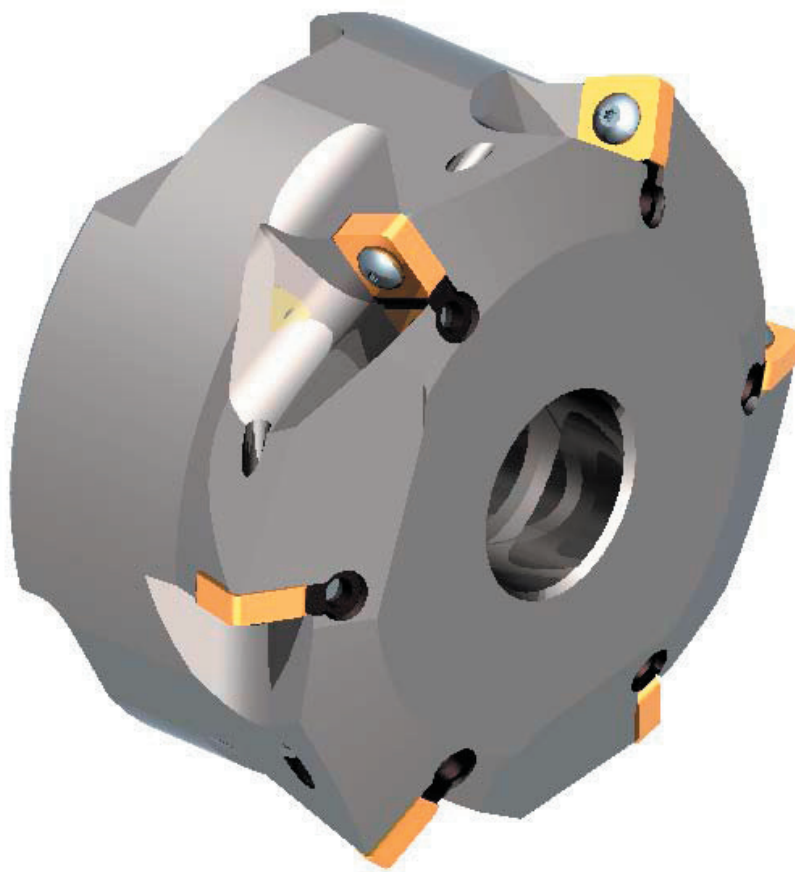
Rough cylinder bore tool

- Stepped cut & positive rakes for low cutting forces using CBN inserts
- Extremely close tracking of milled pockets for increased tool life
- Cuts both aluminum & Cast Iron in same pass
- Minimum number of parts to inventory
- Balanced for high speed operation
- Internal coolant to all cutting tips



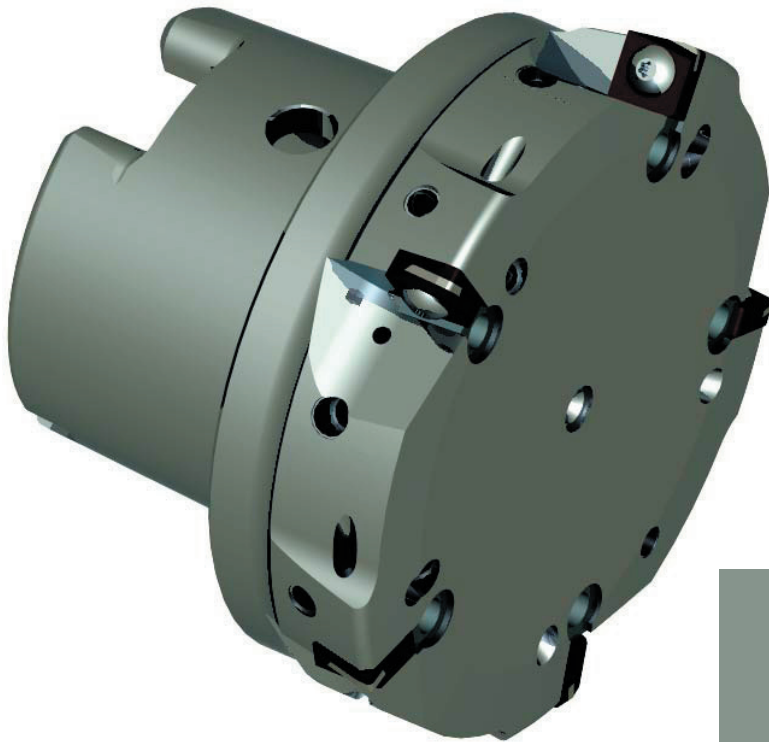
Rough Cast Iron Cylinder Bore

- Milled pocket design with
- Wedge adjustment for diameter size & tracking
- Stepped design to break up stock removal
- Baker style drive with a single bolt to mount nose to adapter

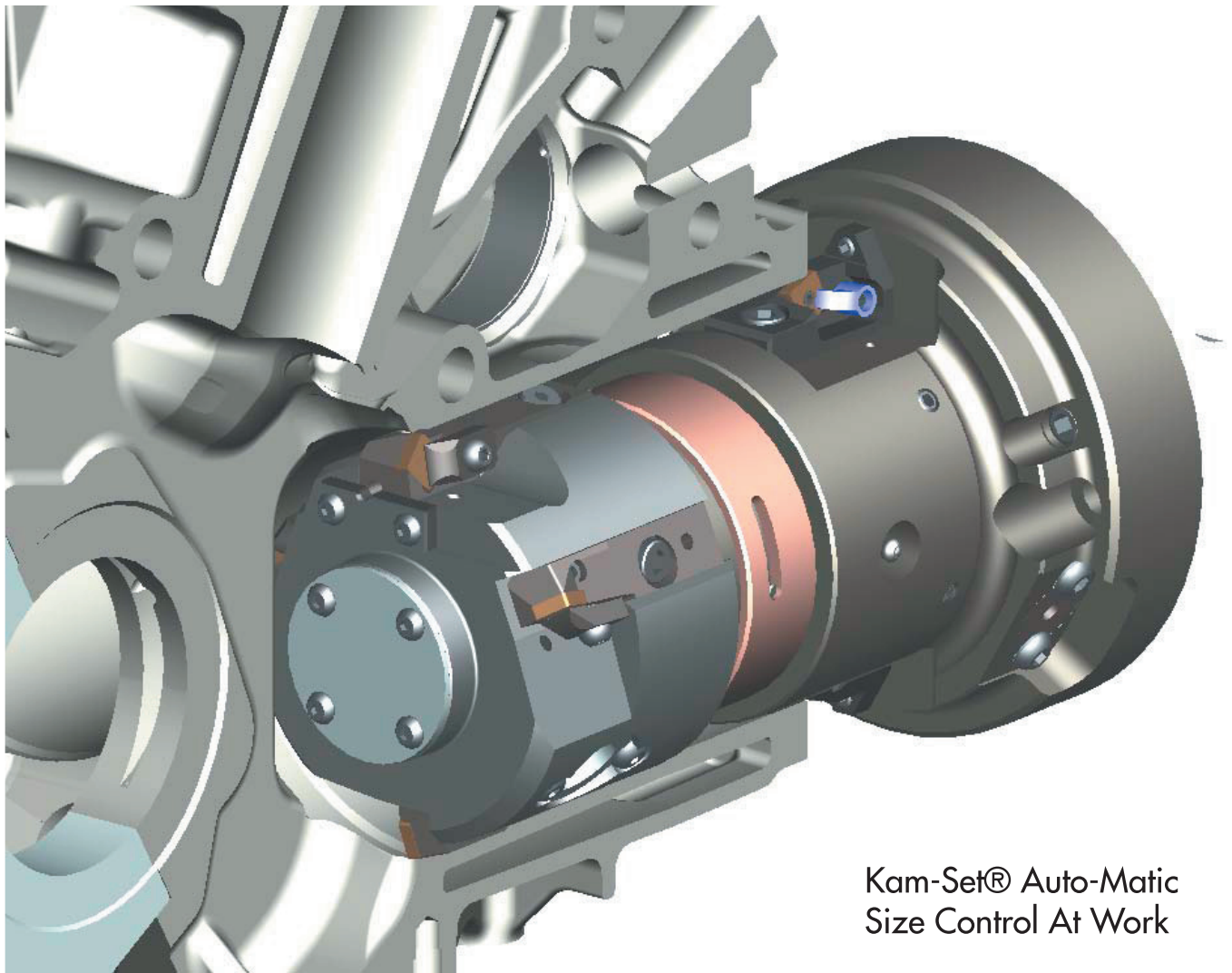


Finish Bore Aluminum Cylinder Block

- Inserts are independently adjustable
- Negative insert with positive mounted PCD tip & mechanical chip breaker
- Internal coolant to each insert cutting point
- Manual "HSK" shank for quick change & repeatability



Kam-Set® Automatic Setting The Standard Of The Industry

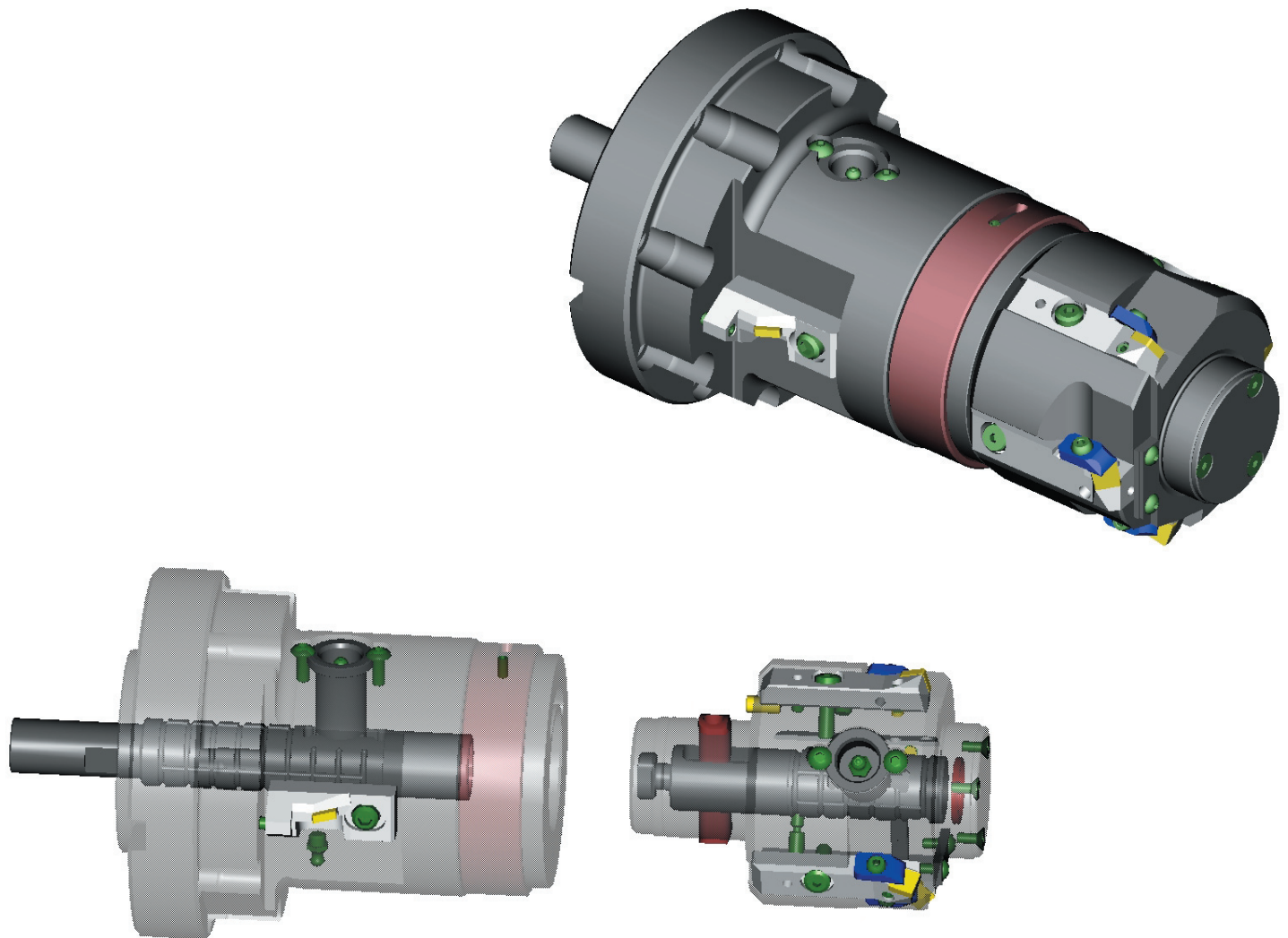


Kam-Set® Auto-Matic
Size Control At Work

- 1 TURNING - BORING
- 2 MILLING
- 3 GROOVING - THREADING - ROTARY - CONNECTION
- 4 DRILLING
- 5 ADVANCED MATERIALS
- 6 MODCO
- 7 GAGING SYSTEMS
- 8 VALCOOL
- 9 MISCELLANEOUS
- 10

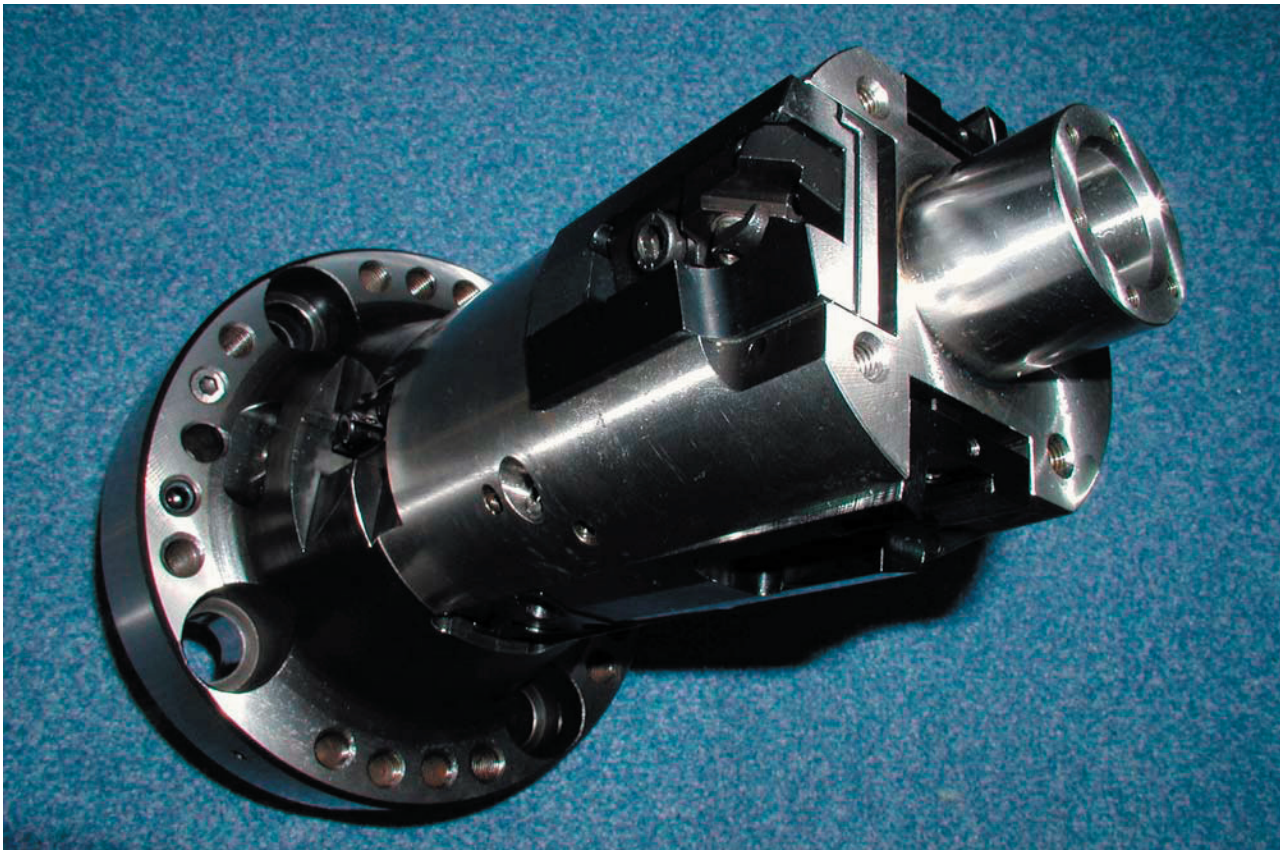
Kam-Set® Semi-fin, finish & chamfer cylinder bore

- Automatic size control
- Programmed insert indexing
- Quick change pre-settable nose piece
- High speed operation
- First part good part guaranteed
- Tool life 5,000 to 20,000 bores per corner



Valenite Multi-Bore Kam-Set®

- Operations semi-finish (2), finish bore (1) & chamfer
- Up to three different diameters can be controlled
- Range of bore difference up to 7.5 mm
- Auto size of finish bore for tool wear



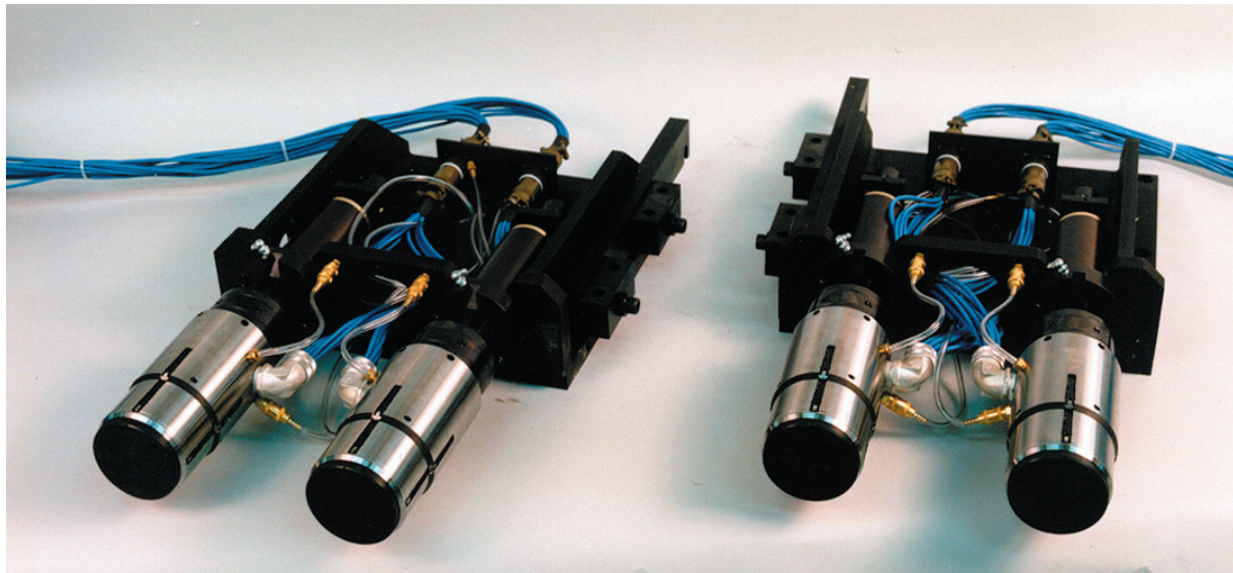
CNC Auto-Size Kam-Set® Cylinder bore

- Operation semi-finish bore down three cartridges & chamfer
- Finish bore out one cartridge
- Recommend shank HSK100 others on request
- Operated by shop air through spindle
- Complete system provided by Valenite, boring bar, control, & gage for a closed loop system



Cylinder Bore Gages

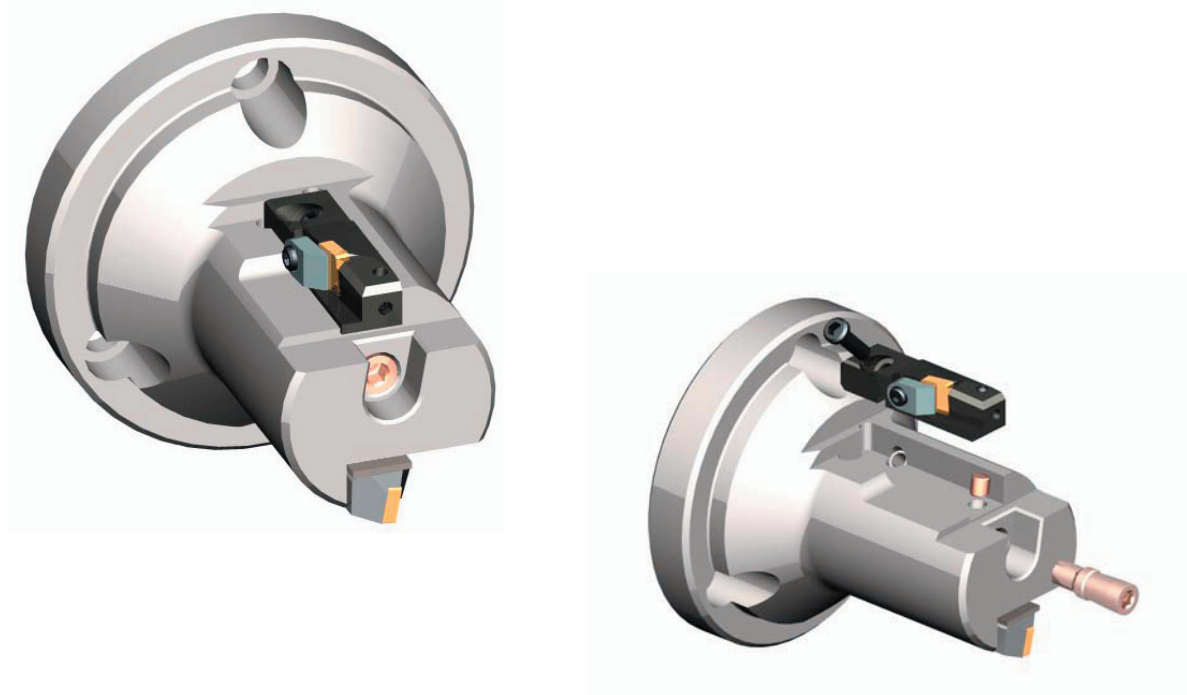
- Air to Electric or all electric gage heads
- One diameter 90 degree reading step through style
- Complete system ready to mount to wing base
- Choice of processing electronics & statistical software
- Custom software to suit your application



TURNING - BORING 1
 MILLING 2
 GROOVING - THREADING 3
 ROTARY - CONNECTION 4
 DRILLING 5
 ADVANCED MATERIALS 6
 MODCO 7
 GAGING SYSTEMS 8
 VALCOOL 9
 MISCELLANEOUS 10

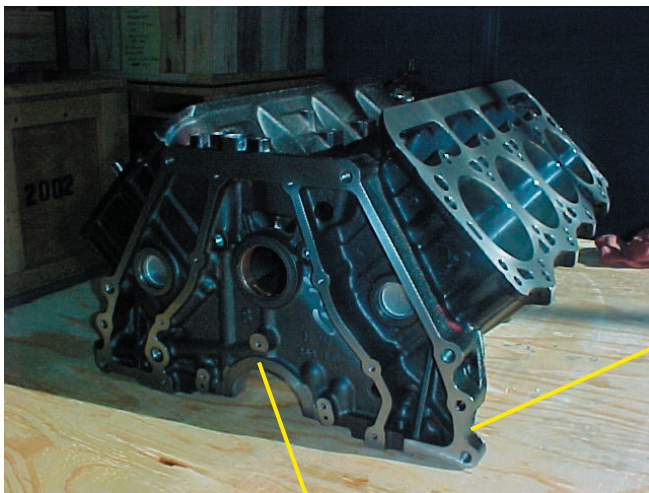
Manual Kam-Set® Boring Bar

- Adjustable Kam-Set Cartridge for precise diameter adjustment
- Coarse adjustment cartridge for rough or semi-finish bore
- Minim parts maximum performance
- Flange mount to fit special machine spindle
- Coolant available through tool if machine is so equipped
- Bar O.D. ground for gage surface during set-up

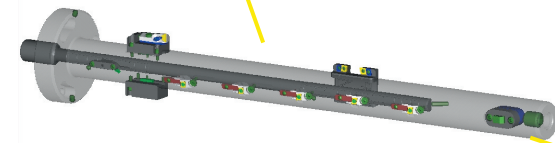


- TURNING - BORING 1
- MILLING 2
- GROOVING - THREADING 3
- ROTARY - CONNECTION 4
- DRILLING 5
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- MODCO 7
- GAGING SYSTEMS 8
- VALCOOL 9
- MISCELLANEOUS 10

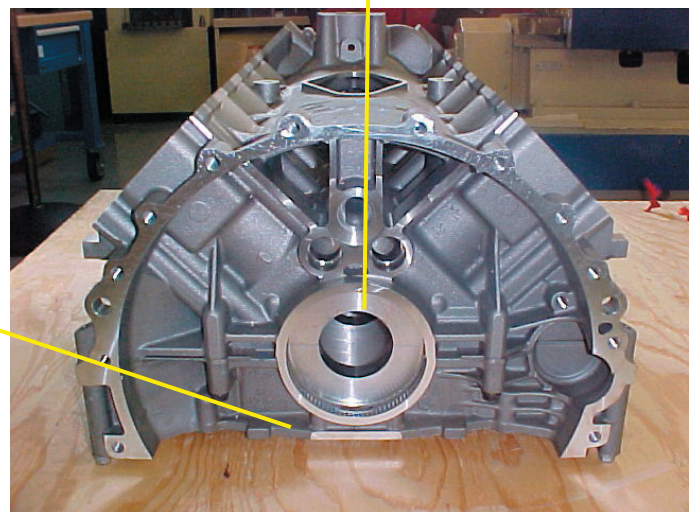
Cast Iron Engine Block



Kam-Set®Pivot Head Boring Tool



Line Boring Bar



Aluminum Engine Block

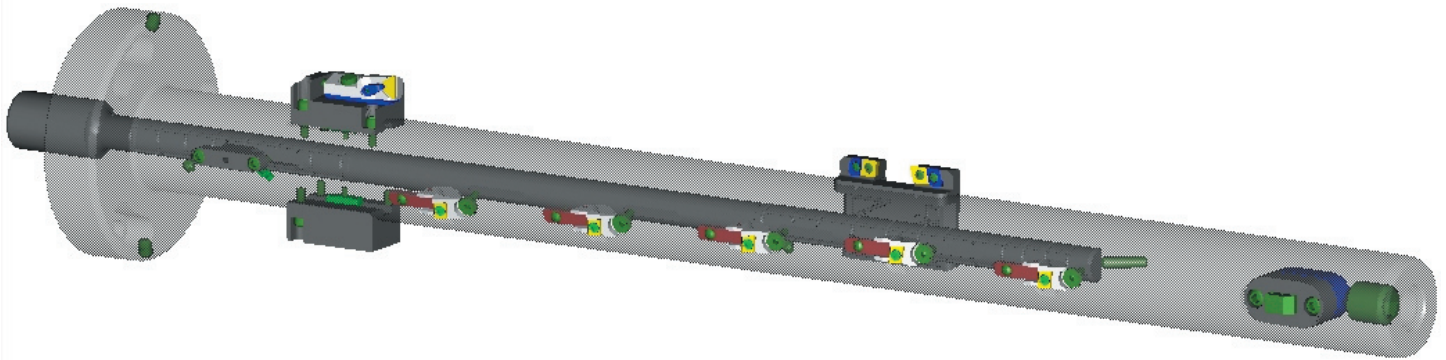
Engine Block manufacturing holes

- Flange mount precision adjustable boring head
- Torsion style KAM-SET® pivot mechanism
- Adjusted from the front with a large hex wrench
- Balanced for its finish bore size
- Bars can be supplied with milled pockets or cartridges depending on the bore size
- Bores as small as .250 diameters are possible



Finish bore oil seal, crank bores, & generate finish thrust face walls

- Roc-A-Dex® adjustable boring cartridges for max bar strength
- Drawbar operated generating slides with adjustable cartridges for control, of location & width of thrust face walls
- Bar held to less than .0005 for diameter tolerance & straightness
- Made from the best materials & heat treat then coated for rust prevention



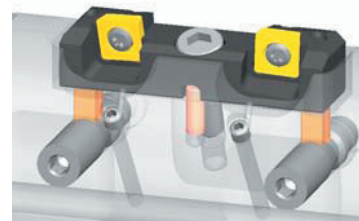
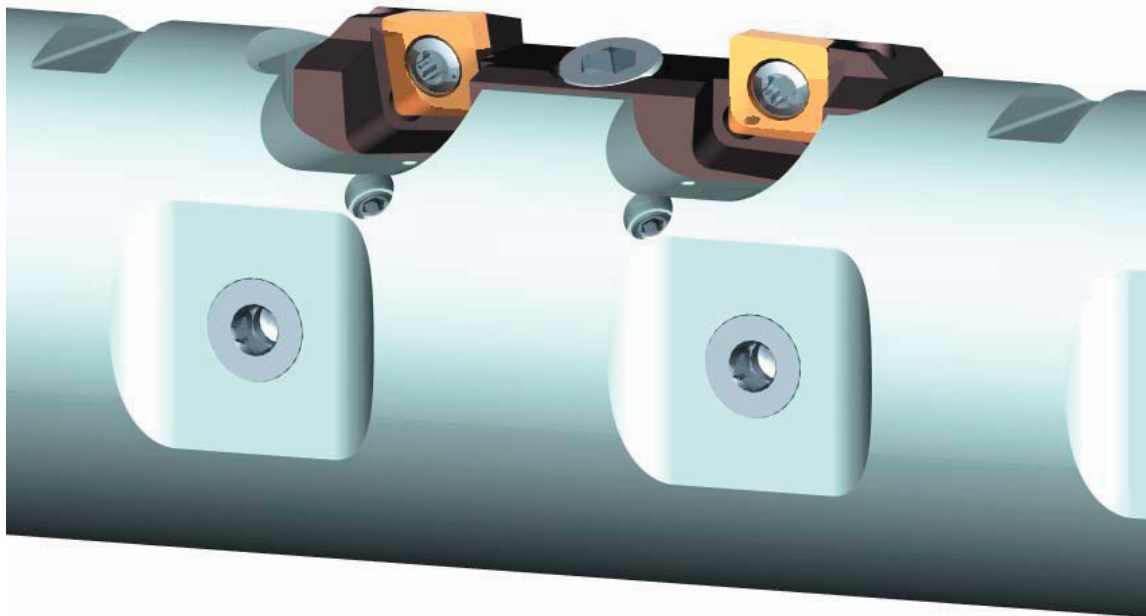
Crank Bore Finishing Bar

- Piloted out board support
- Valenite E-Z Set® precision adjustable cartridges
- C'bore & chamfer cartridge for timing gear bore
- Pre-loaded drive key for front bushing
- Internal coolant to each tool

1
TURNING - BORING2
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ROTARY - CONNECTION5
DRILLING6
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VALCOOL10
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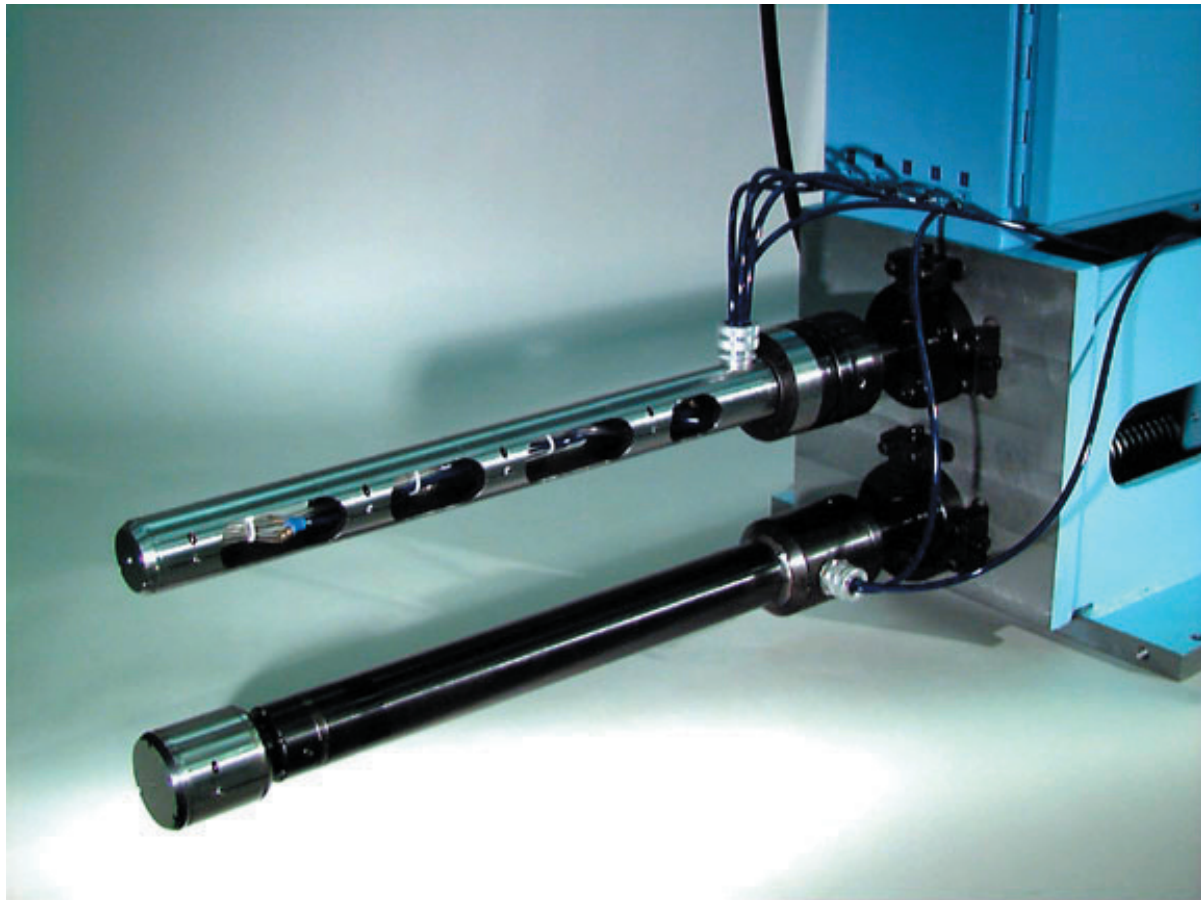
Kam-Set® Adjustable Cartridge System For Semi & Finish Cam Or Crank Bore

- Two inserts mounted in one cartridge
- Kam-Set® adjustment of both inserts for semi-finish and finish operation
- Pull Push cutting action
- Internal coolant to each cutting edge



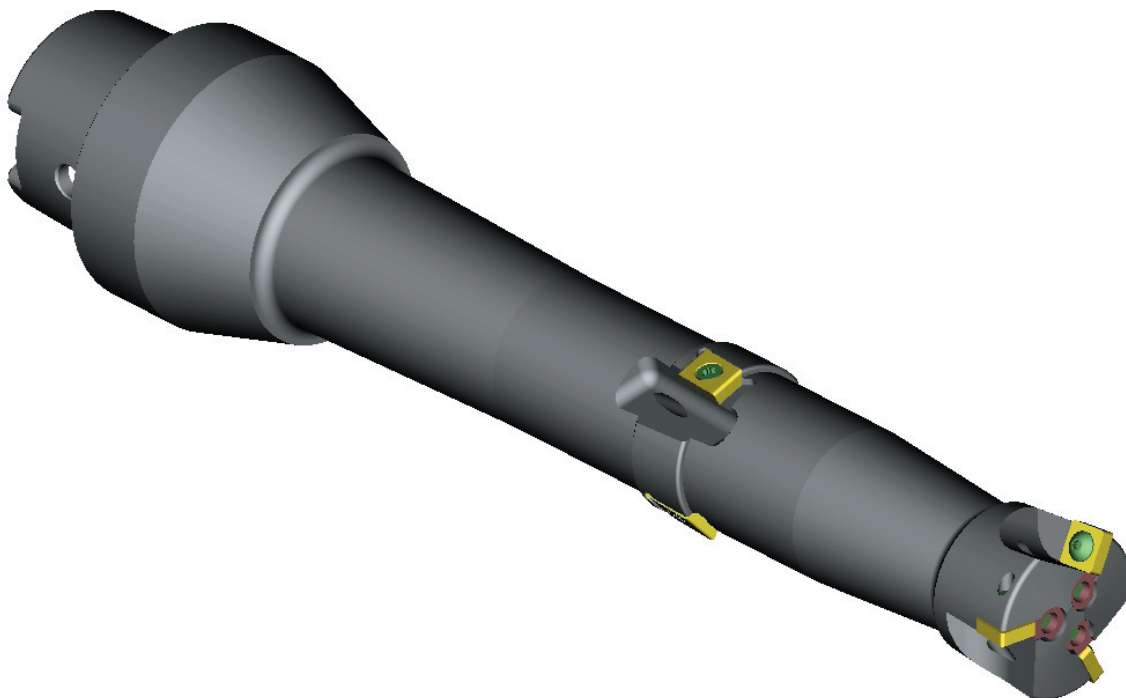
Cam & Crank Bore Gages

- Air to Electric or all electric gage heads
- One diameter step through style or multi diameter one step style
- Complete system ready to mount to wing base
- Choice of processing electronics & statistical software
- Custom software to suit your application



Balance shaft bore aluminum

- PCD tipped inserts
- Quick changeable & pre-settable front nose piece
- Inserts in nose independently adjustable
- 7 to 1 length to diameter ratio
- Minimum number of parts to inventory
- "HSK" shank for rigidity & repeatability



TURNING - BORING 1

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GROOVING - THREADING 3

ROTARY - CONNECTION 4

DRILLING 5

ADVANCED MATERIALS 6

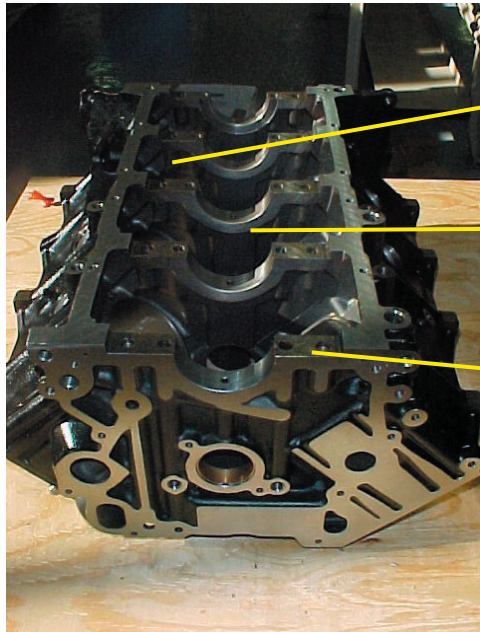
MODCO 7

GAGING SYSTEMS 8

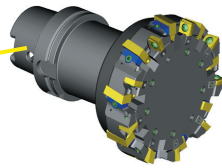
VALCOOL 9

MISCELLANEOUS 10

Face Milling Pan Rail, Channel Width, Half Rounds



Cast Iron Engine Block



Channel Width Cutter

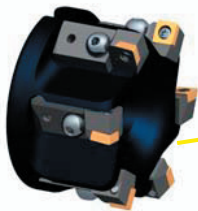
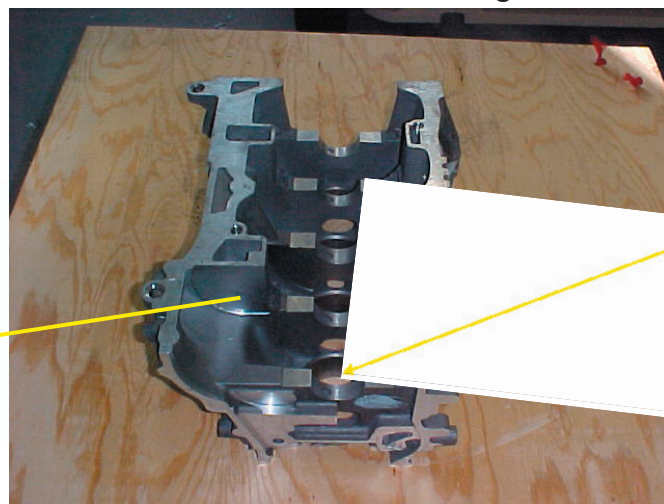


Ball Nose End Mill

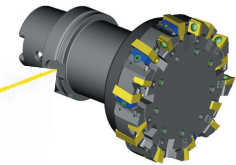


M750 Mill

Aluminum Engine Block



HVA Mill

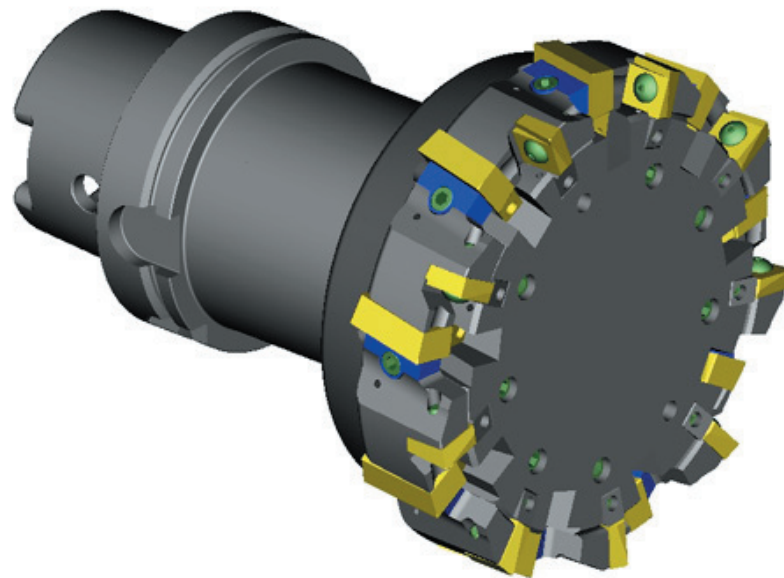


annel Width Cutter

- 1 TURNING - BORING
- 2 MILLING
- 3 ROTARY - CONNECTION | GROOVING - THREADING
- 4 ROTARY - CONNECTION | GROOVING - THREADING
- 5 DRILLING
- 6 ADVANCED MATERIALS
- 7 MODCO
- 8 GAGING SYSTEMS
- 9 VALCOOL
- 10 MISCELLANEOUS

Bearing cap seat & cross bolt wall cutter for aluminum block

- Nine effective teeth
- Each insert adjustable for diameter & tracking
- Diamond tipped inserts corrected to mill sq.. shoulder
- Light weight for ease of loading
- One piece "HSK" shank for greater strength



TURNING - BORING 1

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GROOVING - THREADING 3

ROTARY - CONNECTION 4

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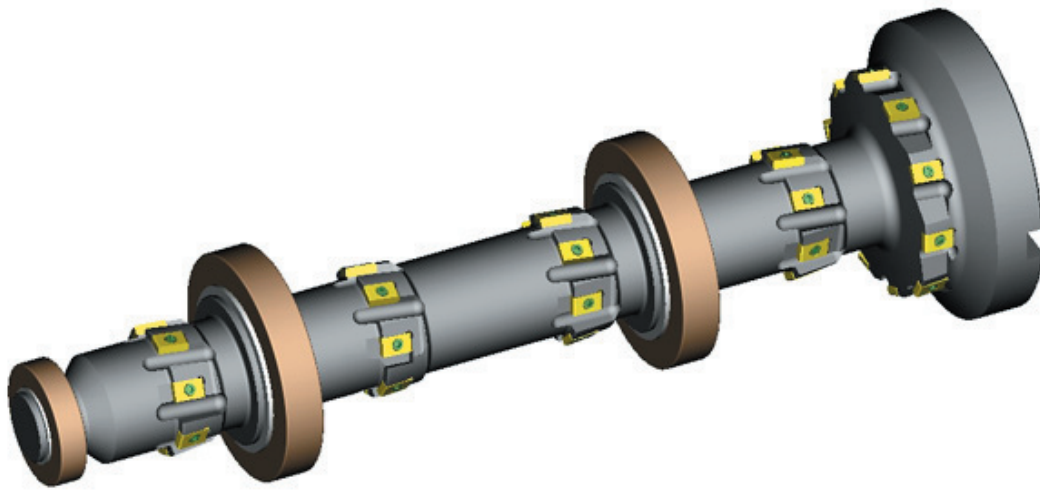
Ball Nose Mill Crank Half Rounds In Aluminum Block

- Replaceable positive rake polished carbide inserts
- Generous polished chip flutes
- Internally supplied coolant to each insert
- Choice of shanks or Quick change mounting

1
TURNING - BORING2
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VALCOOL10
MISCELLANEOUS

Rough Bore Half Rounds & Seal Bore

- Rough bore bed plate, half rounds, & seal bore
- Laydown inserts for maximum density & chip room
- Built-in bearing supports for rigidity
- Can also be supplied with quick change feature



TURNING - BORING 1

MILLING 2

GROOVING - THREADING 3

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DRILLING 5

ADVANCED MATERIALS 6

MODCO 7

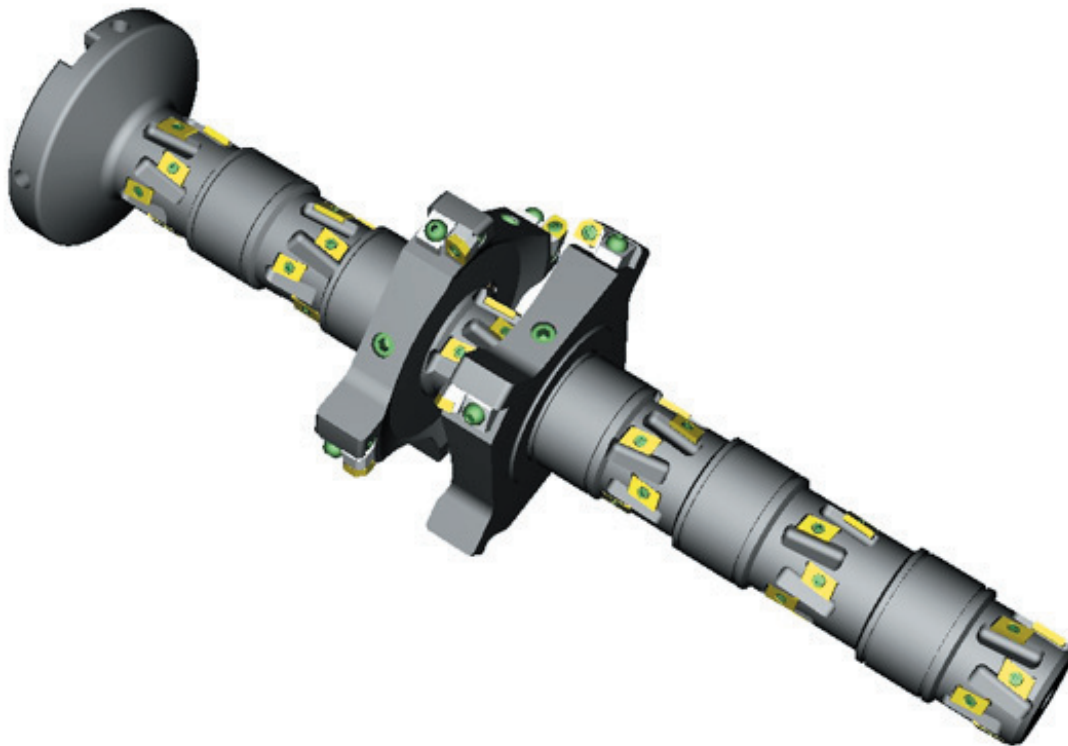
GAGING SYSTEMS 8

VALCOOL 9

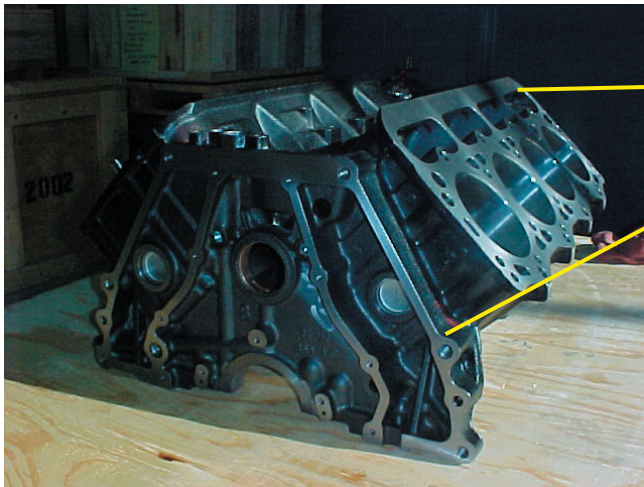
MISCELLANEOUS 10

Rough Mill Half Rounds & Thrust Wall In Aluminum

- Adjustable cartridges for location & width of thrust wall faces
- One screw locates & locks thrust face cutters
- PCD tipped inserts
- Generous chip room



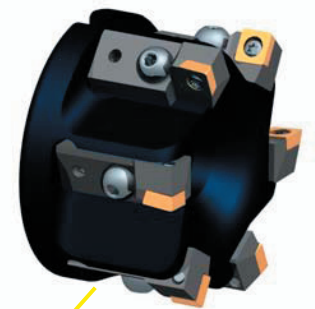
- TURNING - BORING
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- MILLING
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- GROOVING - THREADING - ROTARY - CONNECTION
- 3
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- 5
- 6
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- 10



Cast Iron Engine Block



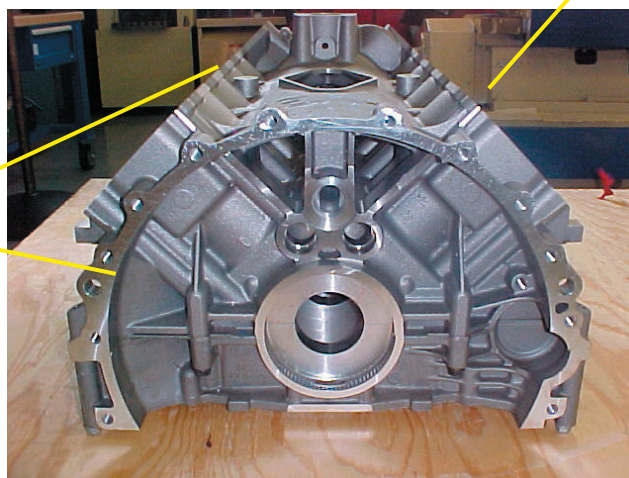
M750 Mill



HVA® Mill



HVA® Mill



Aluminum A Engine Block

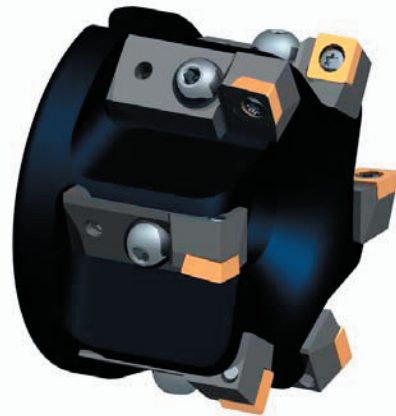
M750 HexaCut Face Mill



- Cutter designed for face milling of cast iron
- 4 roughing inserts to 1 finishing wiper insert
- Hex insert with 12 cutting edges
- Wiper provides excellent surface finish and flatness

"HVA"® Face Mill

- "HVA"® style aluminum body milling cutter coated
- Interchangeable cartridges with brazed or PCD tips or T.A. tipped inserts
- Cam style axial adjustment for control of runout



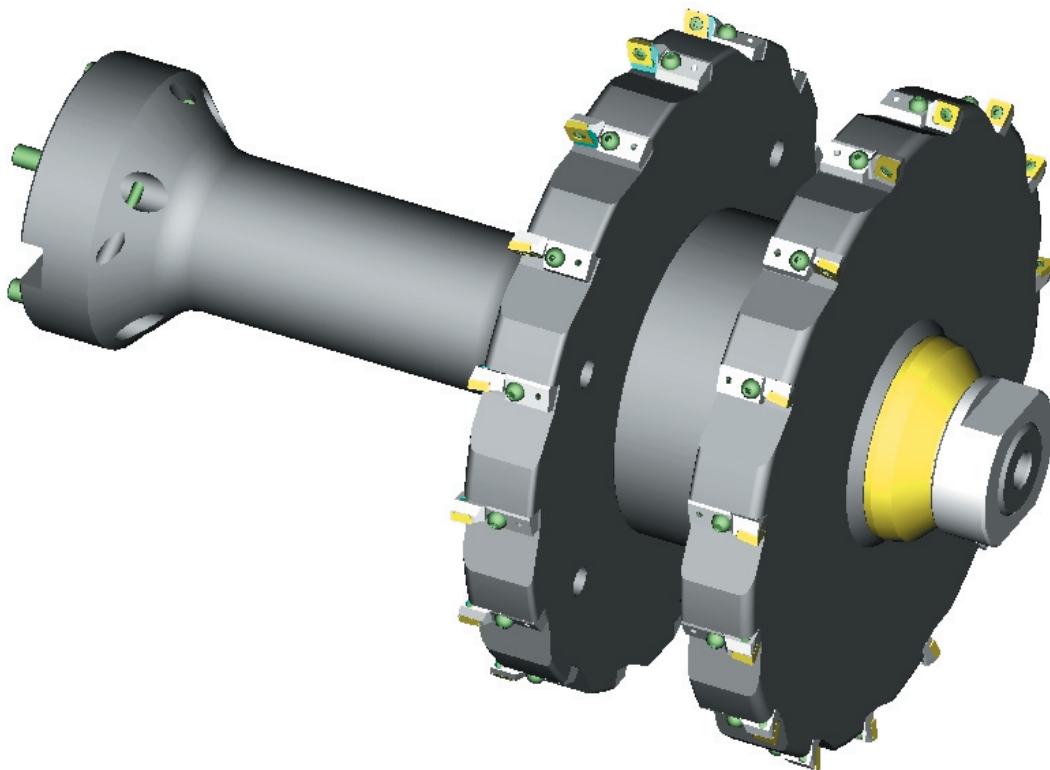
Mill U'Cut At Bottom Of Cylinder Bore

- "HSK" integral shank side mill
- Milled pocket lay down style construction
- Indexable inserts in positive or negative geometry
- Internal coolant supplied to each insert



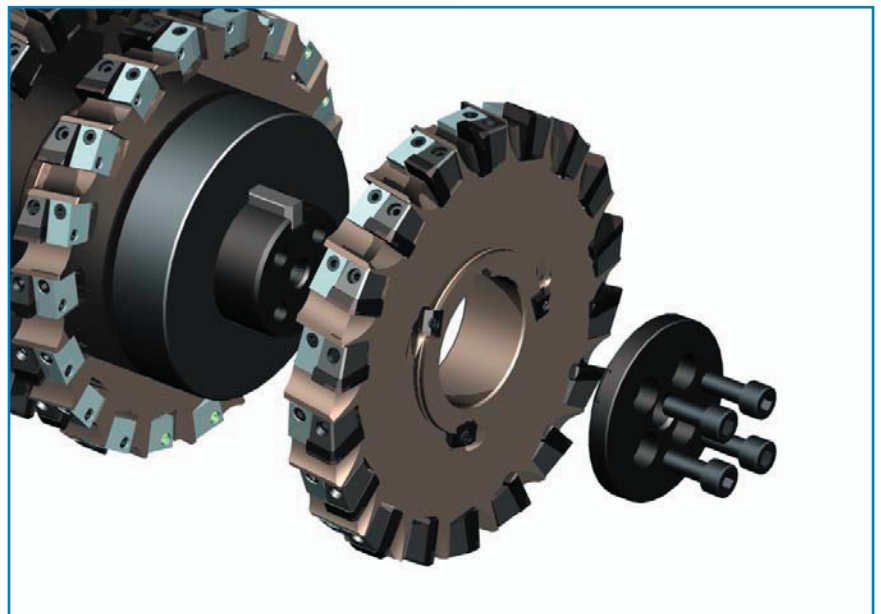
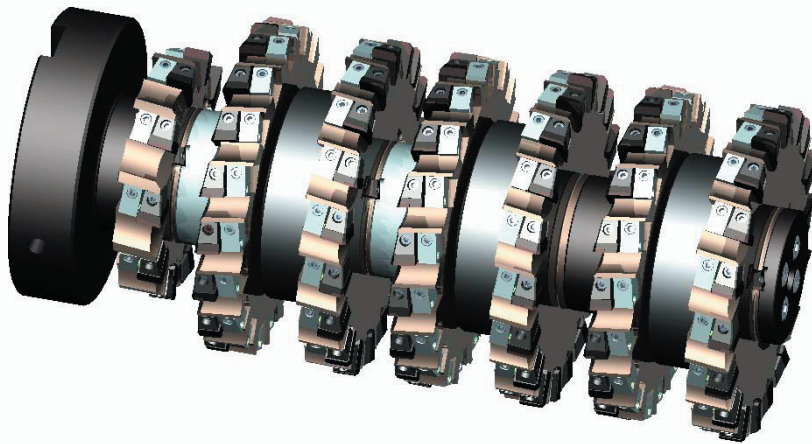
CNC Style Bulk Head Arbor Mill

- Cam adjustable cartridges for face run out control
- PCD tipped inserts for cutting aluminum
- Arbor mounted bearing for support
- Aluminum bodies for reduced cutter weight
- Flange mount with trapped mounting screws



Bulk Head Milling Arbor

- Wedge behind design for cutter body protection
- Bearing supports for smooth chatter free operation
- Adjusting blocks behind inserts for easy setup of insert tracking
- Cutter can be made for machining aluminum, or cast iron material, & can be supplied using carbide or PCD tipped inserts

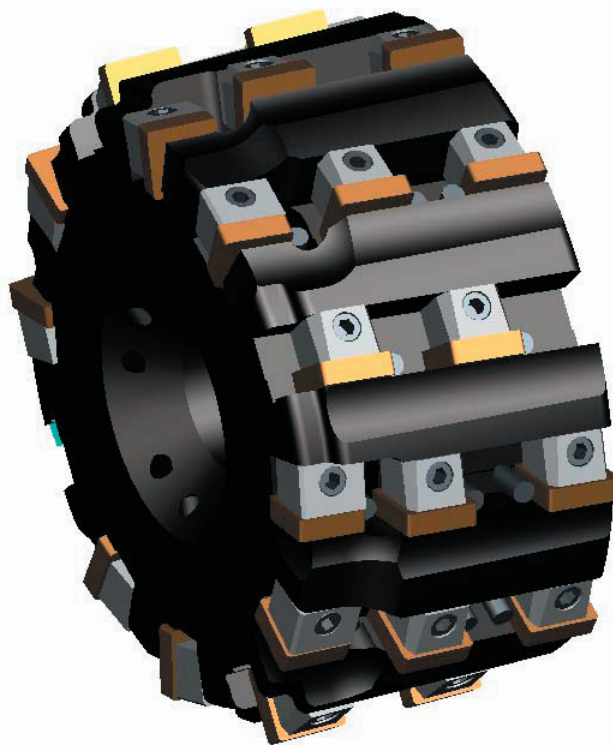


Customer Service (USA) : 800.544.3336 (Canada) : 800.265.9504 Technical Support : 800.488.9073

TURNING - BORING
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DRILLING
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ADVANCED MATERIALS
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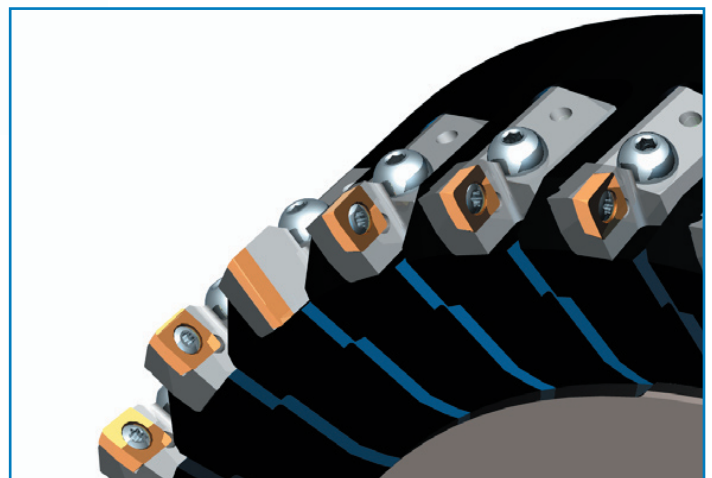
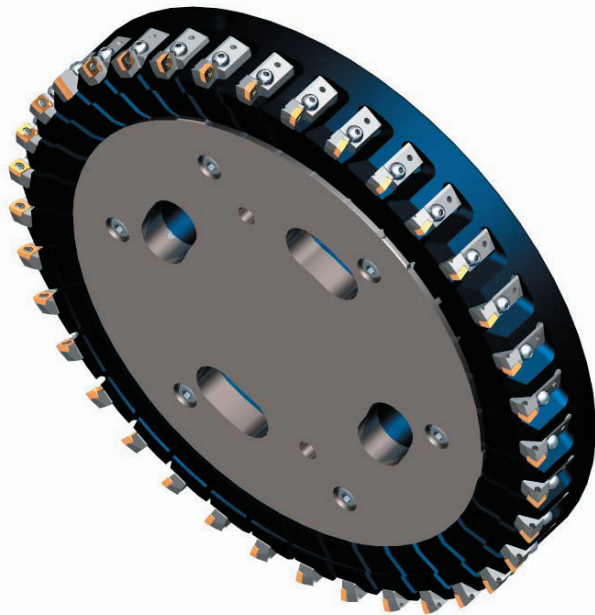
Mill Engine Block Locating Pads

- Stepped diameters to machine (2) surfaces
- Wedge behind design protects cutter body
- Staggered inserts to cover large surface

1
TURNING - BORING2
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Deck Milling Cutter

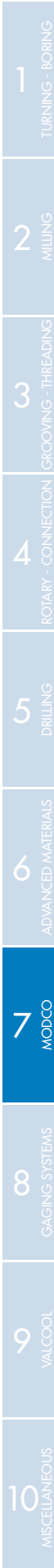
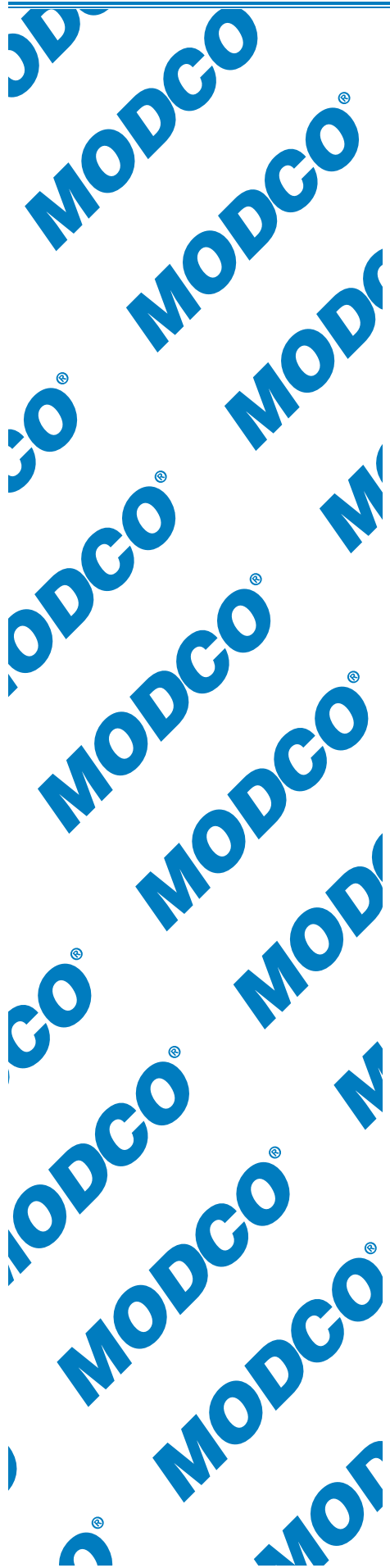
- "HVA"® cartridge style cutter
- Aluminum body with hard coating for light wt. & high speed operation
- A verity of cartridges are standard including brazed construction
- Cutter shown using Indexable inserts with a brazed wiper for finish
- Cover plate directs coolant flow for effective chip removal
- Cutter can be set to smear mill if required
- Axial adjustment of cartridges to control face run out



TURNING - BORING 1
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BEST PRACTICES - MODCO

Differential Carrier Tooling	32-44
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Spot-face for Drilled Holes	34
Shrinker Tooling	35
Finish Bore, Face and Chamfer	36
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Rough Back Bore and Chamfer Pinion Bore	42
Finish Bore adn Back Bore Pinion Bore	43
Ream and Chamfer Tool	44



Combination Drill, Chamfer, Face and Bore Tool

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite ISO cartridges .
- Saves a station and speeds cycle time.
- CAD balanced prior to manufacturing



TURNING - BORING 1

MILLING 2

GROOVING - THREADING 3

ROTARY - CONNECTION 4

DRILLING 5

ADVANCED MATERIALS 6

MODCO 7

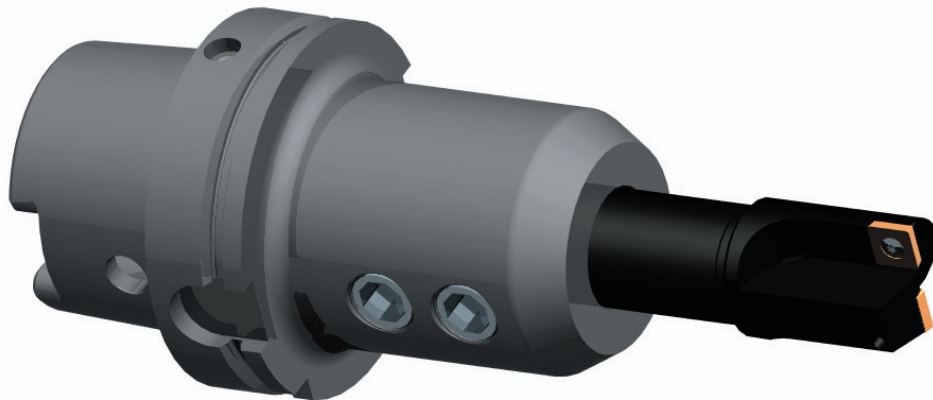
GAGING SYSTEMS 8

VALCOOL 9

MISCELLANEOUS 10

Spot-face for Drilled Holes

- Center cutting end mill used to spot-face part with square shoulder
- Industry standard indexable inserts in coated or uncoated grades
- Standard HSK end mill holder

1
TURNING - BORING2
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ROTARY - CONNECTION5
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VALCOOL10
MISCELLANEOUS

Shrinker Tooling

- Standard "HSK" Shrinker tool holder for lowest possible run-out, & repeatability
- Balanced for use in normal as well as high speed operations
- Back up screw for tool setting
- Special taper reamer as shown but options to style of tool used is limitless



TURNING - BORING 1

MILLING 2

GROOVING - THREADING 3

ROTARY - CONNECTION 4

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Finish Bore, Face and Chamfer

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite ISO cartridges .
- Saves a station and speeds cycle time.
- CAD balanced prior to manufacturing



Rough Mill

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite CDEW style inserts.



Rough Bore, Face and Chamfer with Pad Plunge Tool

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite ISO cartridges .
- Saves a station and speeds cycle time.
- CAD balanced prior to manufacturing
- Removable nose piece



RH/LH Rough Bore and Chamfer Seal and Bearing Bores

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite ISO cartridges .
- Saves a station and speeds cycle time.
- CAD balanced prior to manufacturing



1 TURNING - BORING
2 MILLING
3 GROOVING - THREADING
4 ROTARY - CONNECTION
5 DRILLING
6 ADVANCED MATERIALS
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9 VALCOOL
10 MISCELLANEOUS

RH/LH Finish Bore - Main, Seal and Bearing Bores

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite EZ Set cartridges.
- Saves a station and speeds cycle time.
- CAD balanced prior to manufacturing
- Finishes 5 diameters at one time.

1
TURNING - BORING2
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MISCELLANEOUS

Rough Bore, Finish Bore, Face and Chamfer Pinion Bore

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite ISO cartridges .
- Saves a station and speeds cycle time.
- CAD balanced prior to manufacturing



TURNING - BORING 1

MILLING 2

GROOVING - THREADING 3

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MISCELLANEOUS 10

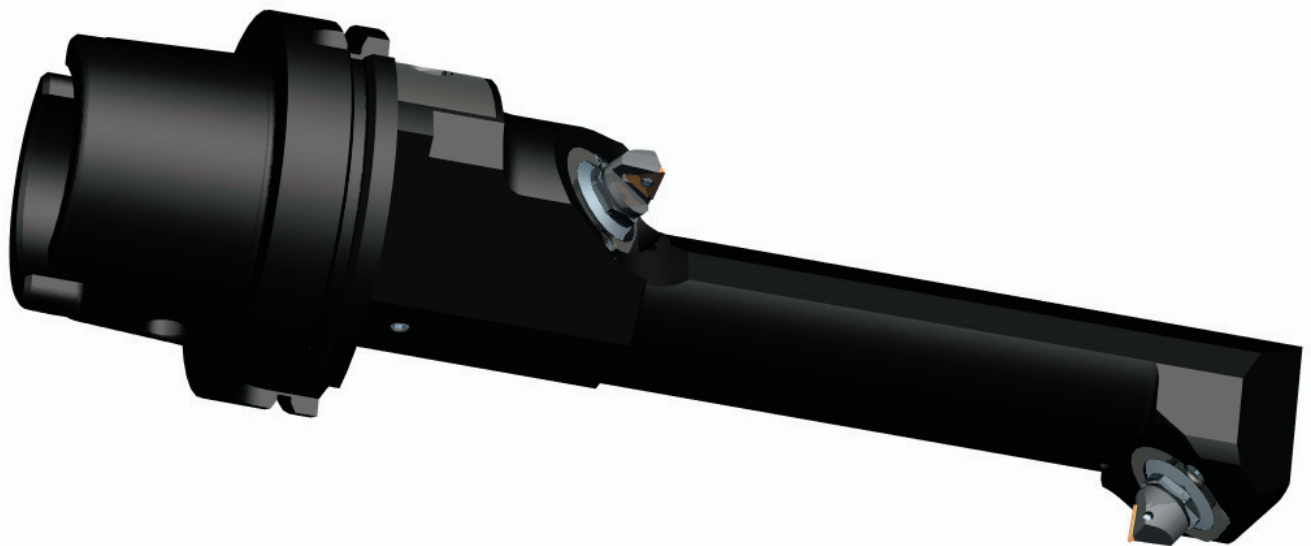
Rough Back Bore and Chamfer Pinion Bore

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite ISO cartridges .
- Saves a station and speeds cycle time.
- CAD balanced prior to manufacturing



Finish Bore and Back Bore Pinion Bore

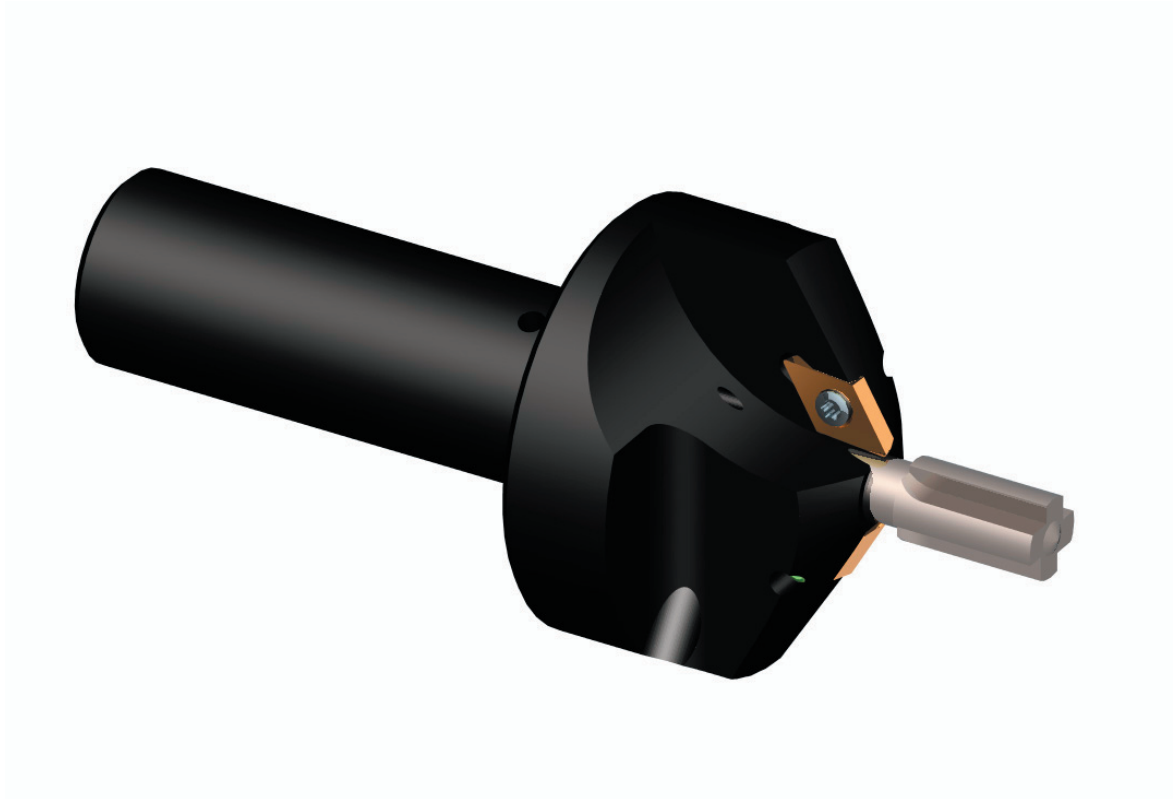
- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite EZ Set cartridges.
- Saves a station and speeds cycle time.
- CAD balanced prior to manufacturing



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Ream and Chamfer Tool

- Straight shank tool for reaming and chamfering
- Four flute reamer
- Two Valenite standard screw down inserts to chamfer
- Coolant through the tool
- Hardened steel body
- Balanced for smooth operation and tool life



- TURNING - BORING
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BEST PRACTICES - MODCO

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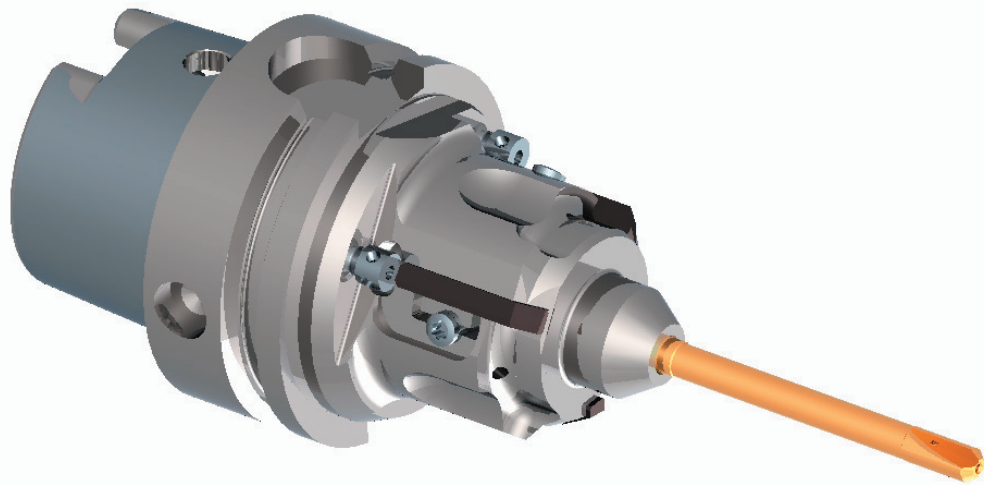
CNC Plunge Style Rough Valve Seat & Pre-Bore Guide Hole

- Shrink fit of pre-bore tool for minimum runout & maximum rigidity
- Blade design for small form, easy set-up, minimum parts
- Blade offered in tipped & full top design, full top has no braze & offers up to 20 regrinds
- Internal coolant for better chip flow & cooling of cutting edges
- "HSK" shank for best runout & repeatability
- Steel & Heat Treatment allows for maximum strength & material memory



CNC Plunge Style Finish Ream Guide Hole & Valve Seat

- Shrink fit of reamer for minimum runout
- Blade design for small form, easy set-up, minimum number of parts
- Blade offered in tipped & full top design, full top has no braze & offers up to 20 regrinds
- Internal coolant for better chip flow & cooling of cutting edge
- "HSK" shank for best runout & repeatability
- Steel & Heat Treatment allows for maximum strength & material memory



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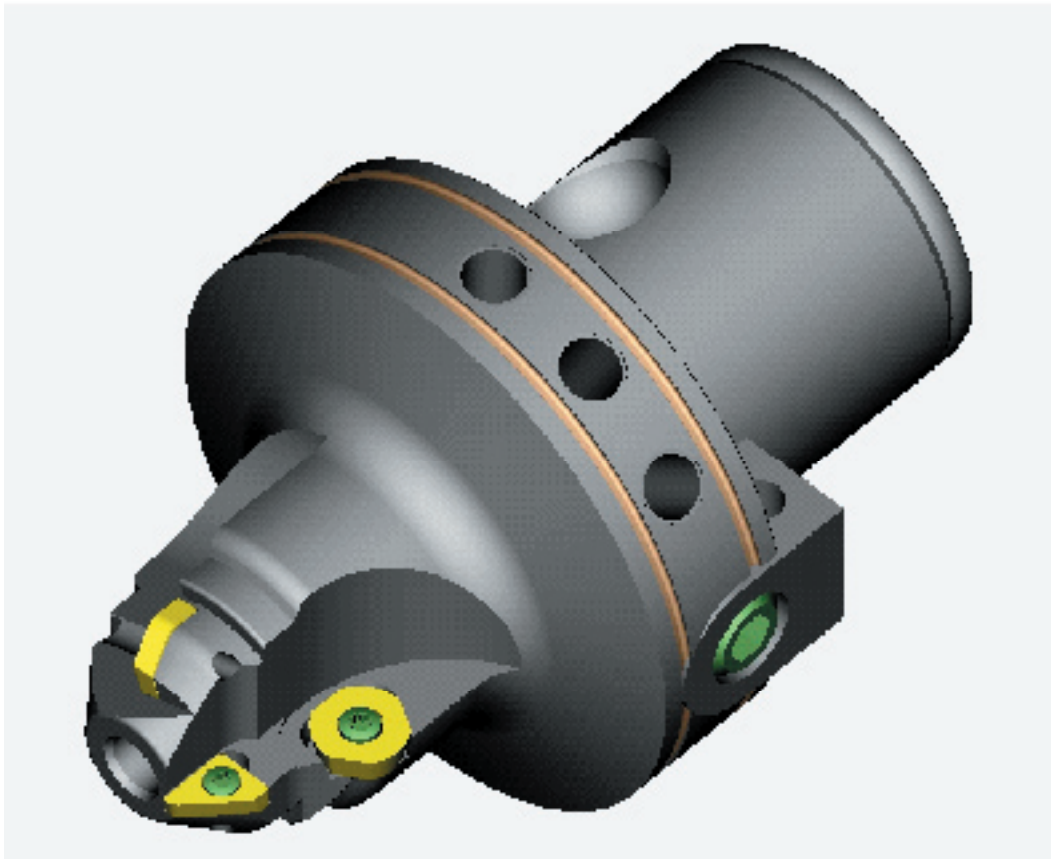
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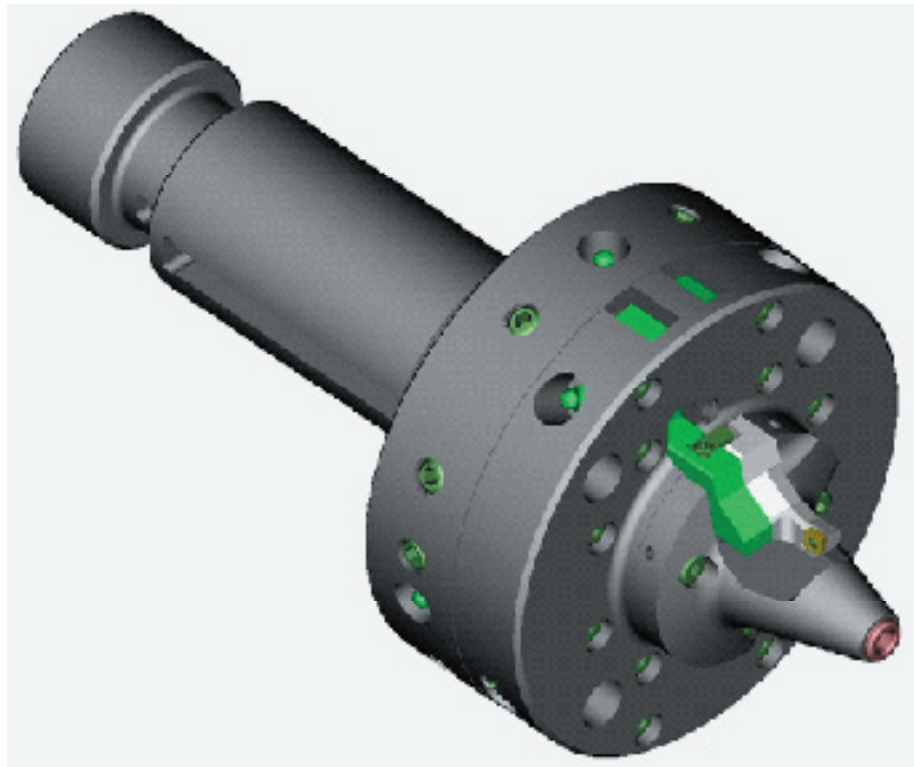
Throating Tool

- Replaceable or Indexable style inserts
- Choice of reamer or boring tool
- Available with a large versatility of spindle mounting
- Hardened cutter body for longer life
- Choice of cutting materials carbide, coated carbide, or diamond tipped
- Tools can be supplied with internal coolant for better chip flow



Generate Valve seat contour

- Finish complete valve seat contour
- One insert does all angles
- Allows for any angle or radius to be machined
- Balanced design & low mass for higher speeds
- Squirt out reamer with internal coolant through reamer



Spring Boss Tool

- Milled pocket hollow-mill & facing tool
- Choice of mountings
- Close tolerance pocket locations no adjustments required
- Hardened steel body for longer life
- Tools can be supplied with internal coolant for better chip flow



Valve seat parent metal Throating tool

- Milled pocket design for roughing seat pocket and throat area
- Indexable inserts choice of cutting materials Carbide, coated or uncoated, & diamond tipped
- Hardened body for longer life
- Choice of shank mounting
- Available with internal coolant for better tool life, finish and chip flow



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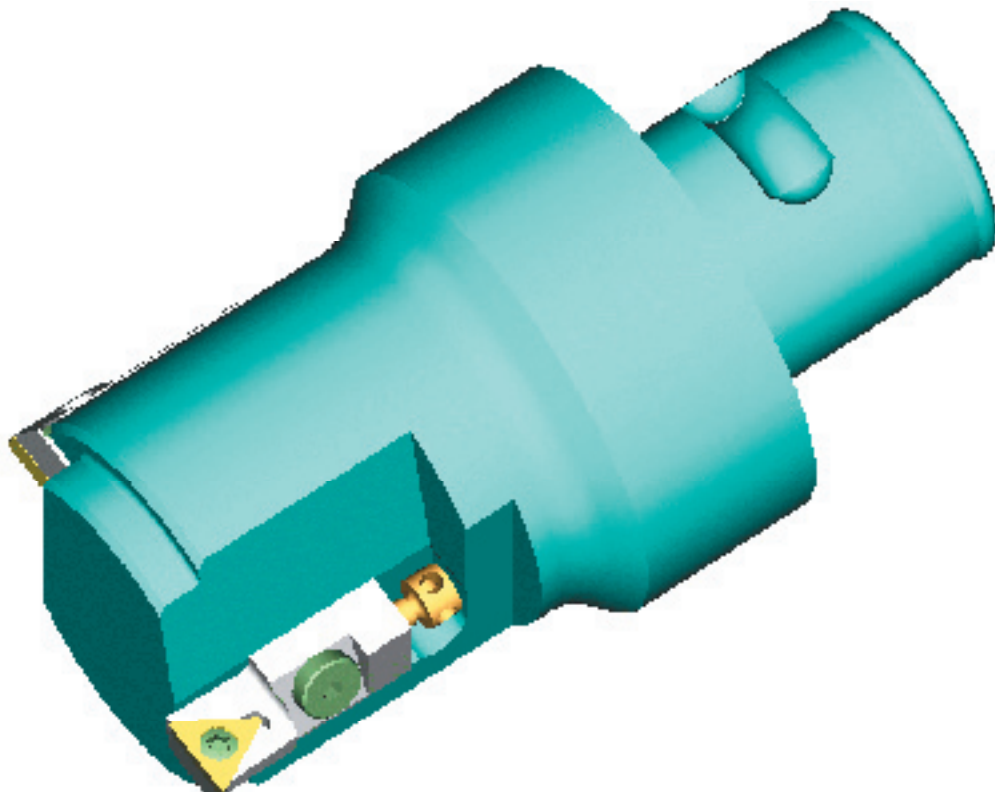
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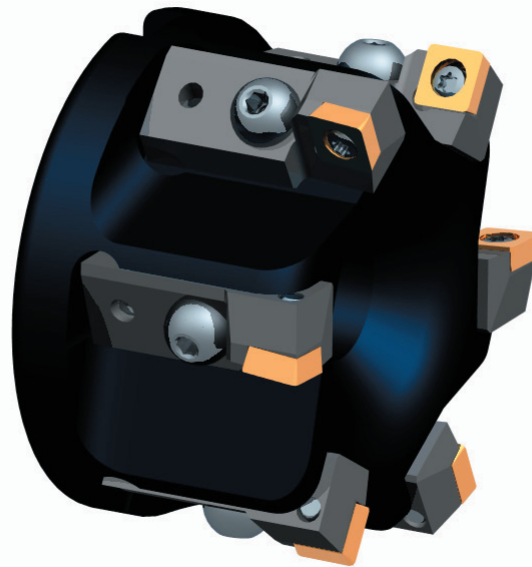
Valve seat parent metal tool

- Standard "ISO" cartridge style bar
- Choice of carbide or diamond tipped Inserts
- Radial & axial adjustment
- Choice of spindle mounts
- Hardened cutter body for longer life
- Available with internal coolant for improved tool life, finish, & chip flow



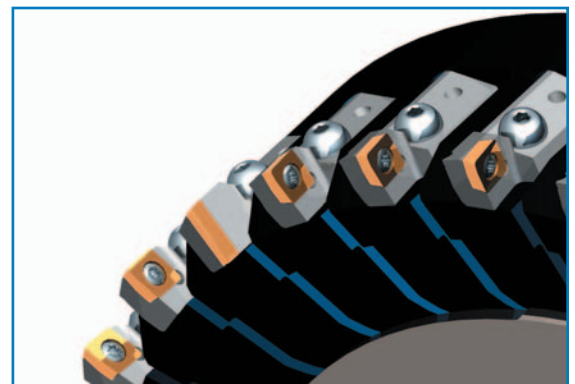
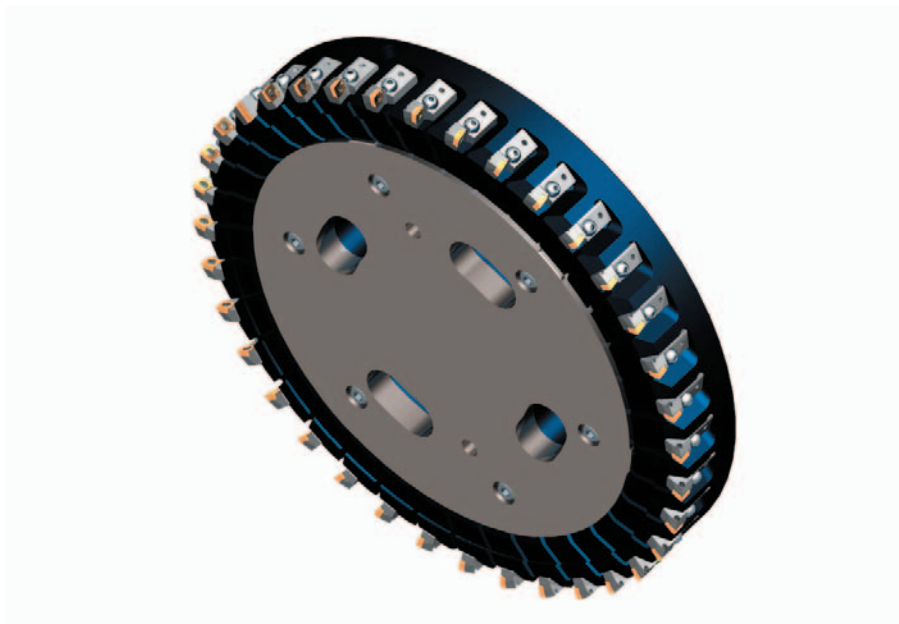
Small cutter for milling Aluminum

- "HSK"® Cartridge system allows one cutter body to be set-up for different tasks
- Cam style axial adjustment to set tracking
- Coolant through the cutter for improved finish and tool life
- Larger cutters made from aircraft quality Aluminum to reduce wt. & coated to resist chip wash
- Cartridges are available in both Indexable style and brazed construction to suit your application



Face Mills For Cutting Aluminum

- Cartridge system allows one cutter body to be set-up for different tasks
- Cam style axial adjustment to set tracking
- Coolant is applied through a manifold on the face of the cutter for improved finish and tool life as chips are flushed away from the inside out
- Larger cutters made from aircraft quality Aluminum to reduce wt. & coated to resist chip wash
- Cartridges are available in both Indexable style and brazed construction to suit your application



BEST PRACTICES - MODCO

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Rough & Finish Bore, Chamfer Spindle Bore and Plunge Mill

- Two piece construction with quick change feature
- Multitable inserts per diameter for shorter cycle time and longer tool life
- Internal coolant to all tools
- Harden body for stronger more wear resistant pockets
- Balanced by design and then final balanced for maximum strength and performance



Hi-Positive Drill – Mill & Bore Lower Control Arm Hole

- Combination Mill Drill to rough machine bore by circular interpolation
- Finish bore using Valenite E-Z Set precision boring cartridge
- Chamfer using ISO standard cartridge
- Shank ground to AT1 tolerance bar balanced and polished for aluminum
- Internal coolant to all tools



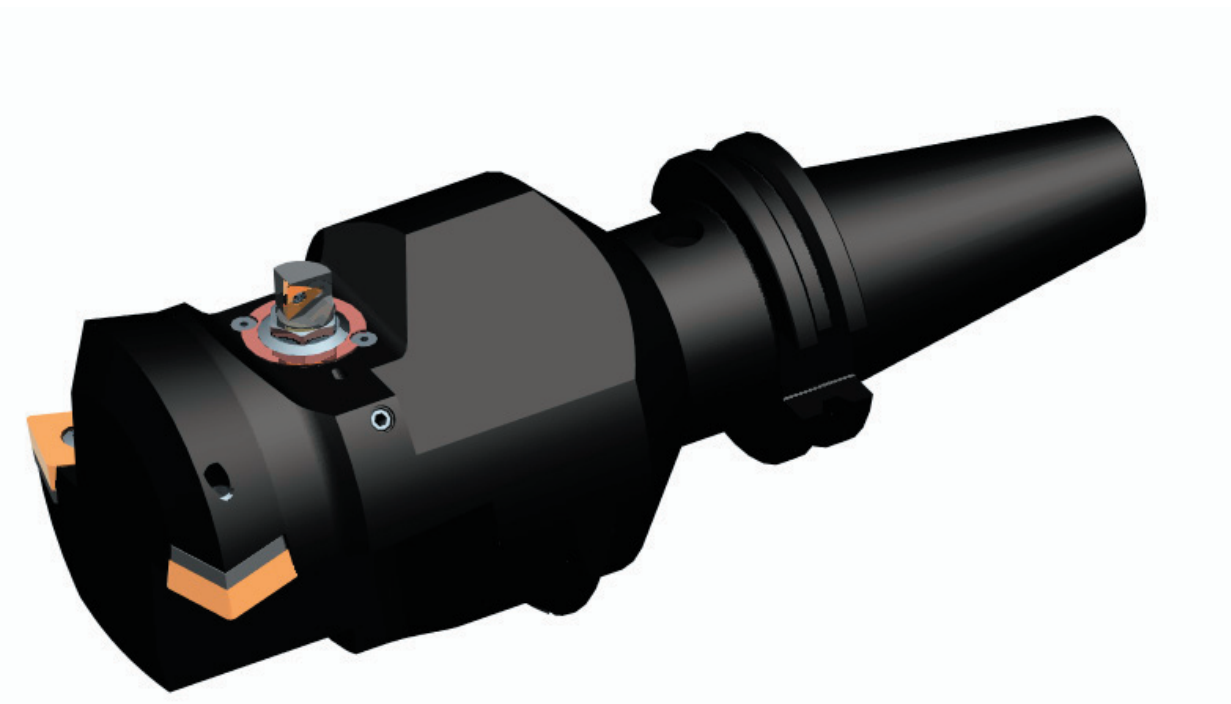
Special Drill, Bore, & Spotface Bearing Bore & Bearing Bolt Holes

- Combination drill, rough bore, finish bore, & chamfer tool saves tool changer time & space.
- Valenite's E-Z Set cartridge system allows for simple adjustment for tighter control
- Combined with shanks ground to AT1 tolerance means better quality parts with less down time
- Polished for cutting aluminum and balanced to G2.5 (ISO1940)



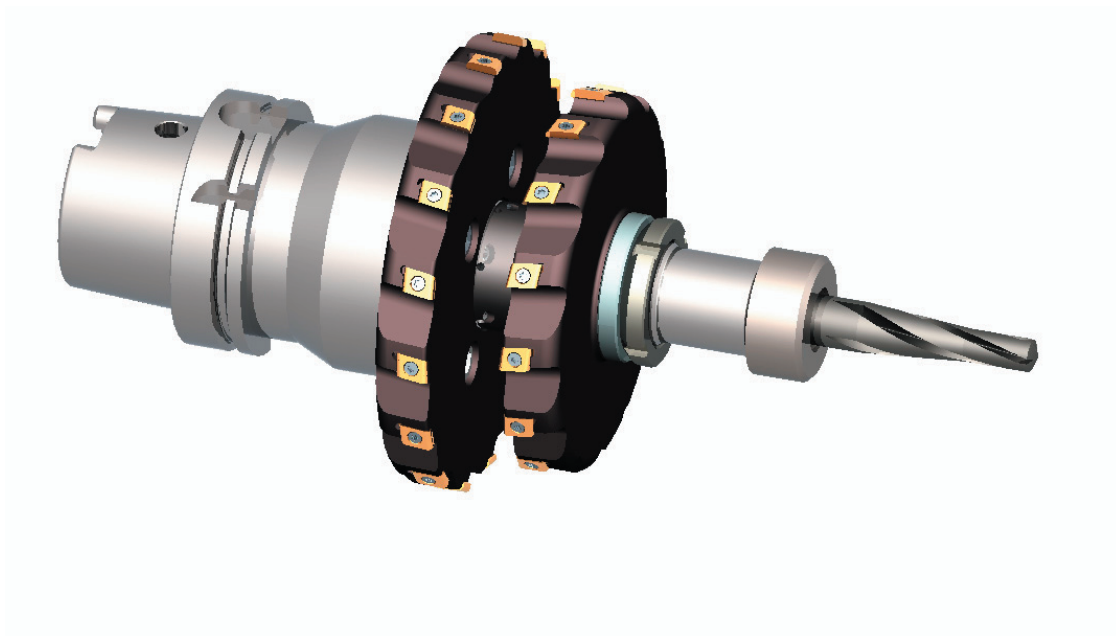
Left Hand Rough, Finish, & Chamfer Bore

- Rough bore with two milled pockets & chamfer with one milled pocket insert with shim protection for the main body
- Finish bore with Valenite's E-Z Set precision adjustable cartridge
- This combination offers the economy and precision required for this operation.
- Shank held to AT1 tolerance
- Polished and balanced for aluminum



Straddle Mill Mounting Surfaces and Rough Taper Hole

- Half side mills feature adjustable cartridges for optimal insert tracking.
- The easy to access cartridge adjustment allows for easy of adjustment in any type of optical presetter.
- Weight and moment meets tool change requirements.
- Multiple operations performed. Eliminates need for additional tools.



Generating Head for Taper Holes

- Generating head to machine taper bore.
- Draw bar actuated this tool can be supplied for use in CNC machines without a draw bar.
- Tool can be programmed to semi-finish on the way in and finish on the way out if required.



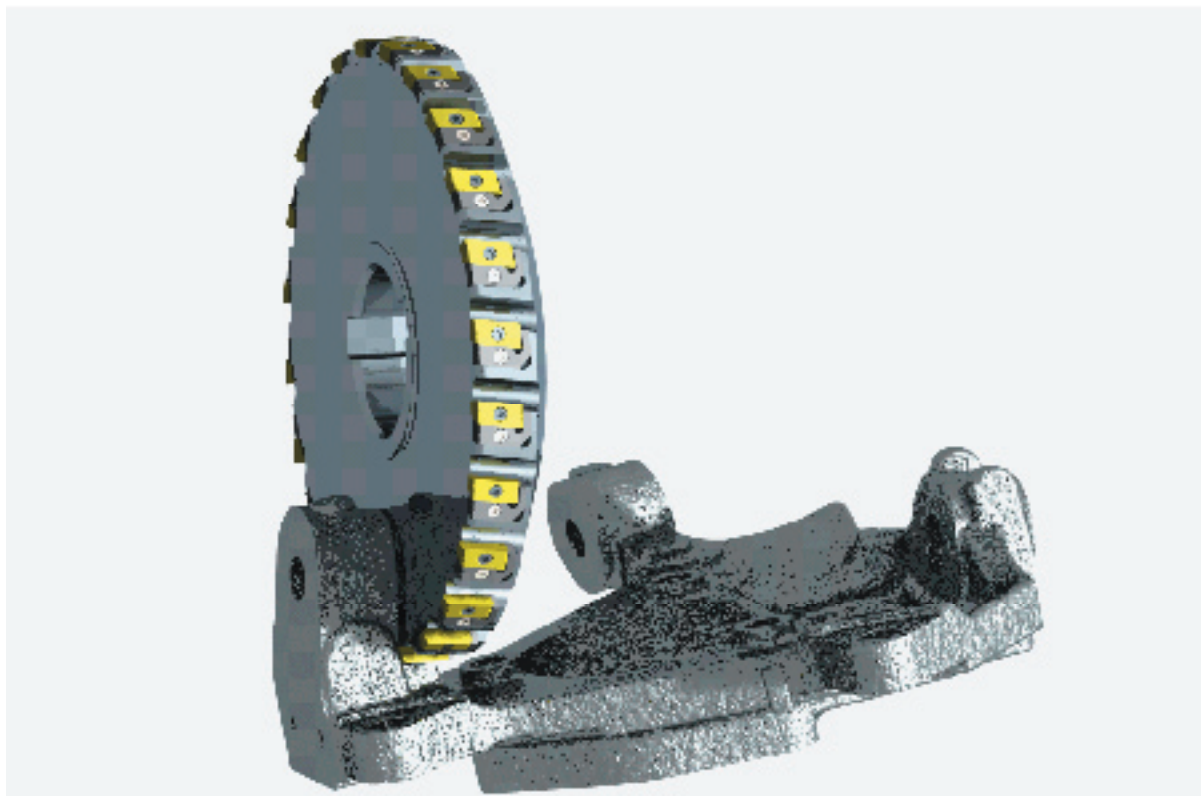
Special Drill & Spotface Upper & Lower Lateral Link Holes

- Combination tool to save tool stations and tool change time
- Internal coolant to drill and facing tools
- Generous chip room for chip evacuation
- Balanced and polished for aluminum
- Taper ground to AT1 tolerance

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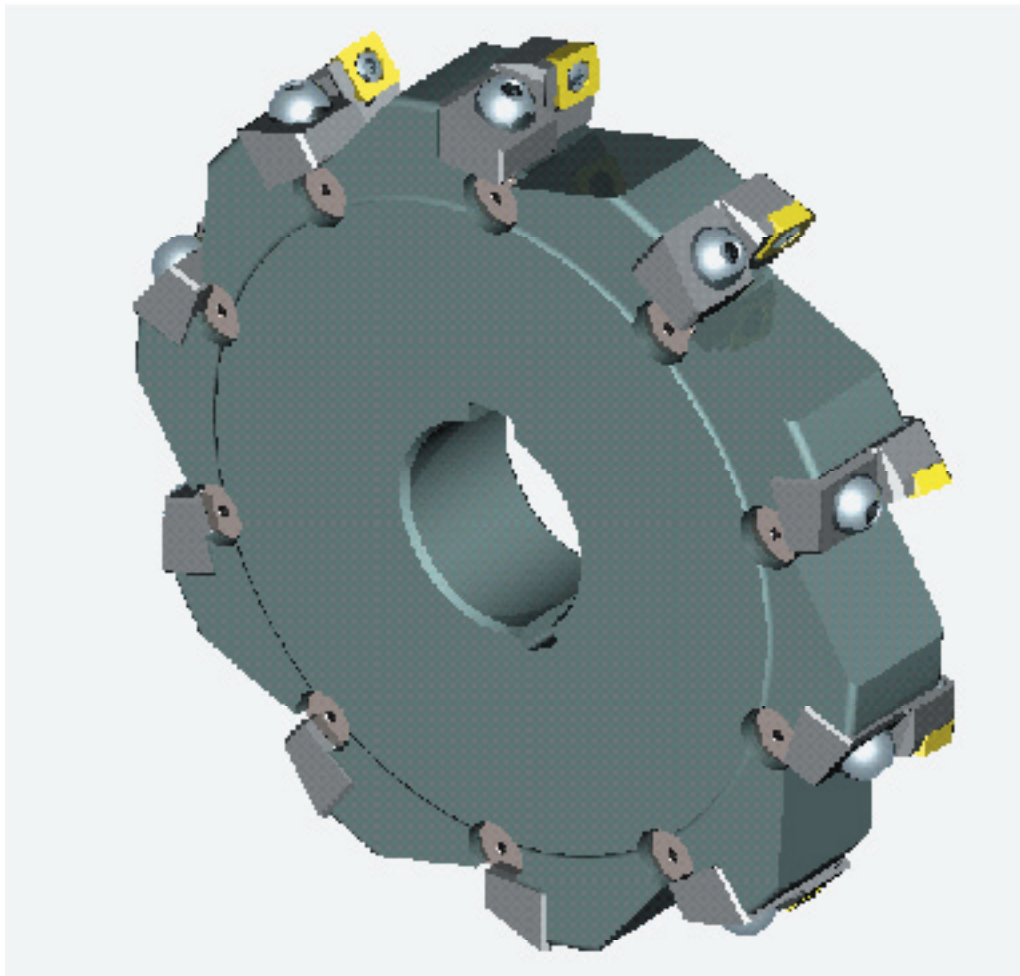
Back Face Mill

- Half side mill using replaceable pocket anvils.
- High-density construction.
- Pocket run-out held to very close tolerances.
- Can be used as a semi-finish or finish cutter



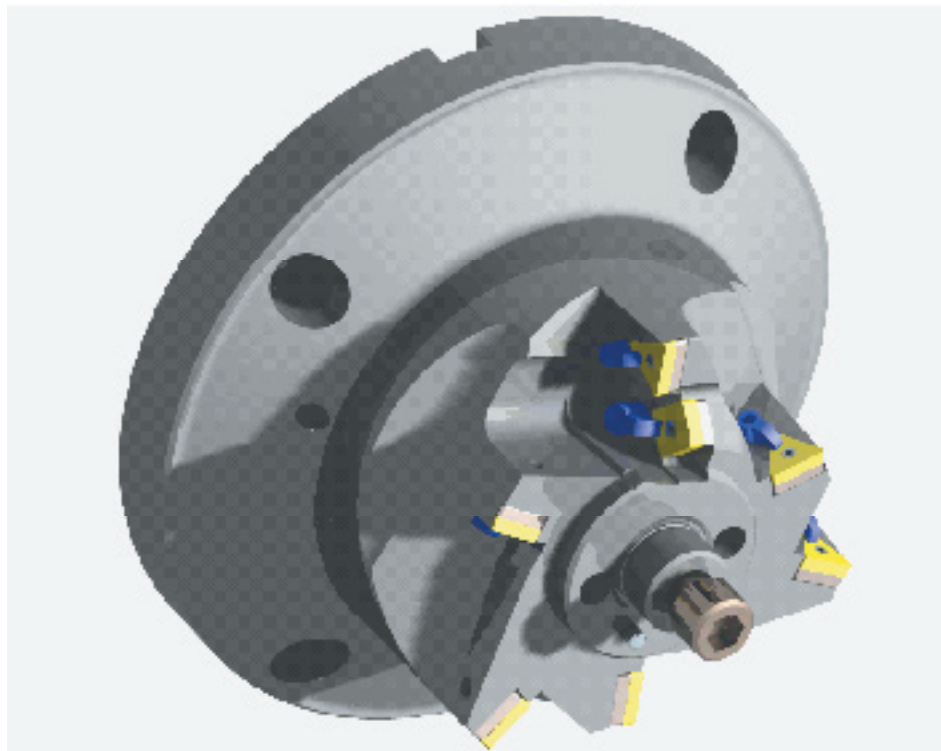
Finish Mill in Tight Quarters

- Half side mills feature adjustable cartridges for optimal insert tracking.
- The easy to access cartridge adjustment allows for easy of adjustment in any type of optical presetter.
- Weight and moment meets tool change requirements.



Two Piece Bore, Chamfer, Face & C'Bore Combination Bar for Spindle Hole

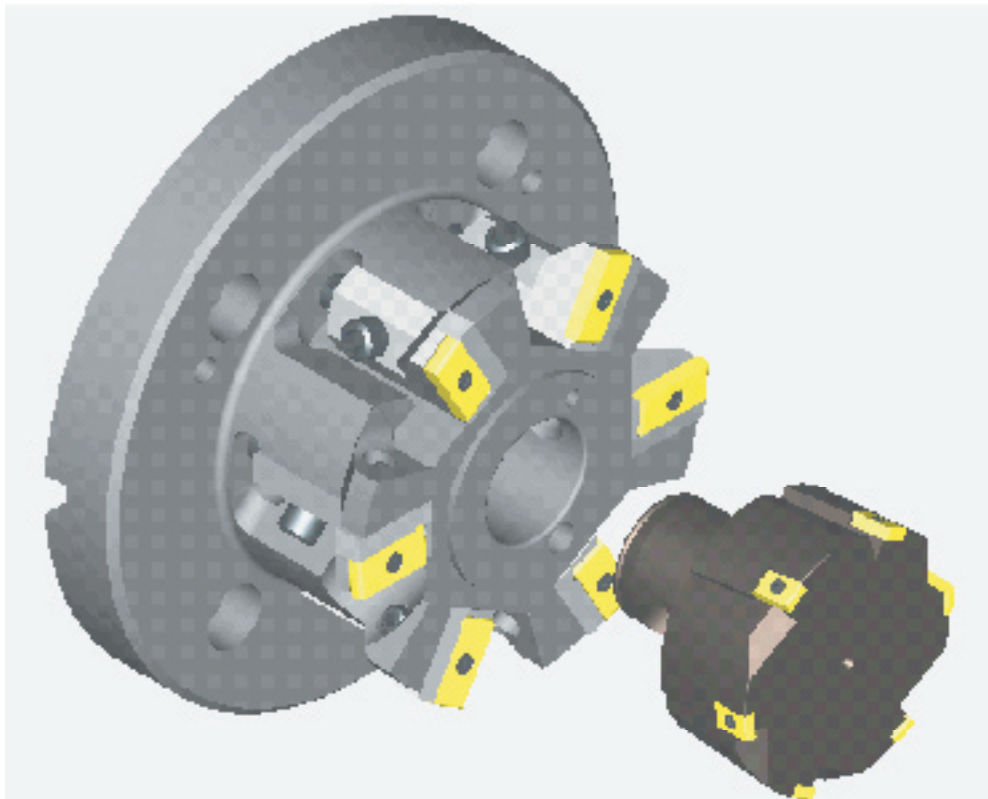
- High-density two piece boring head.
- Precision pockets, machine two diameters, one face and chamfer.
- Inserts are held in place by both a lock pin and top clamp to help with the heavy stock removal
- Head is protected by shim seats under each insert.



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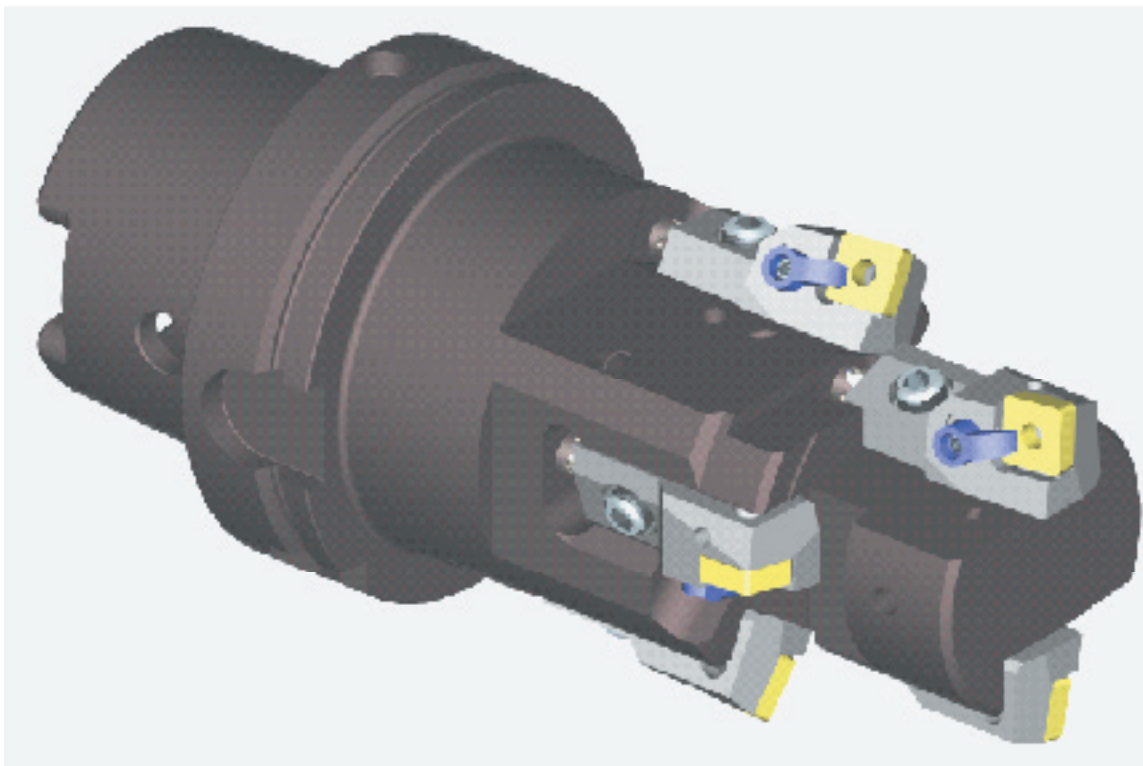
Finish Face and Semi-Finish Bore Tool

- High-density two piece boring head.
- Precision pockets machine two diameters, one face and chamfer.
- Inserts are held in place by both a lock pin and top clamp to help with the heavy stock removal.
- Head is protected by shim seats under each insert.



Semi-Finish Spindle Bore and 2 C'Bores

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite "ISO" cartridges with interchangeable parts for metric or inch. wrenches.
- Radial and axial adjustment of all cartridges.
- Common insert between boring and chamfering.



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6 ADVANCED MATERIALS

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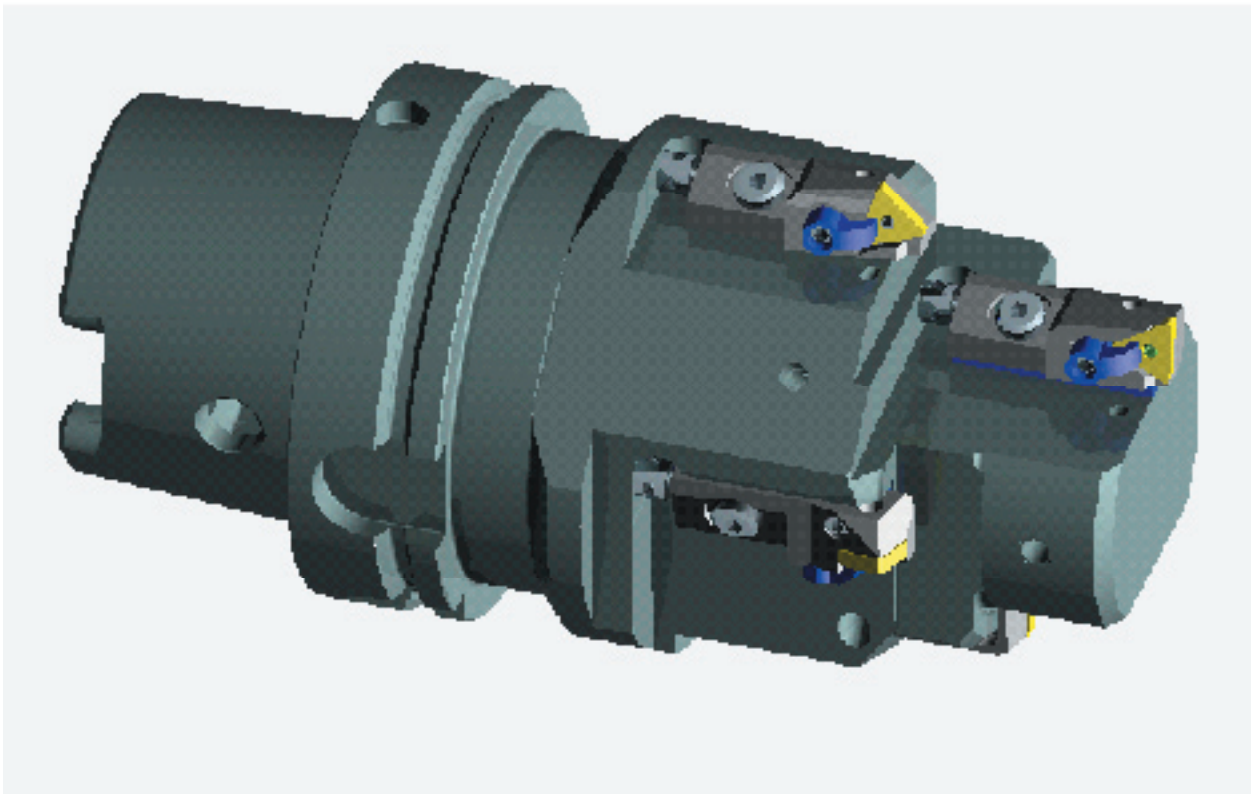
8 GAGING SYSTEMS

9 VALCOOL

10 MISCELLANEOUS

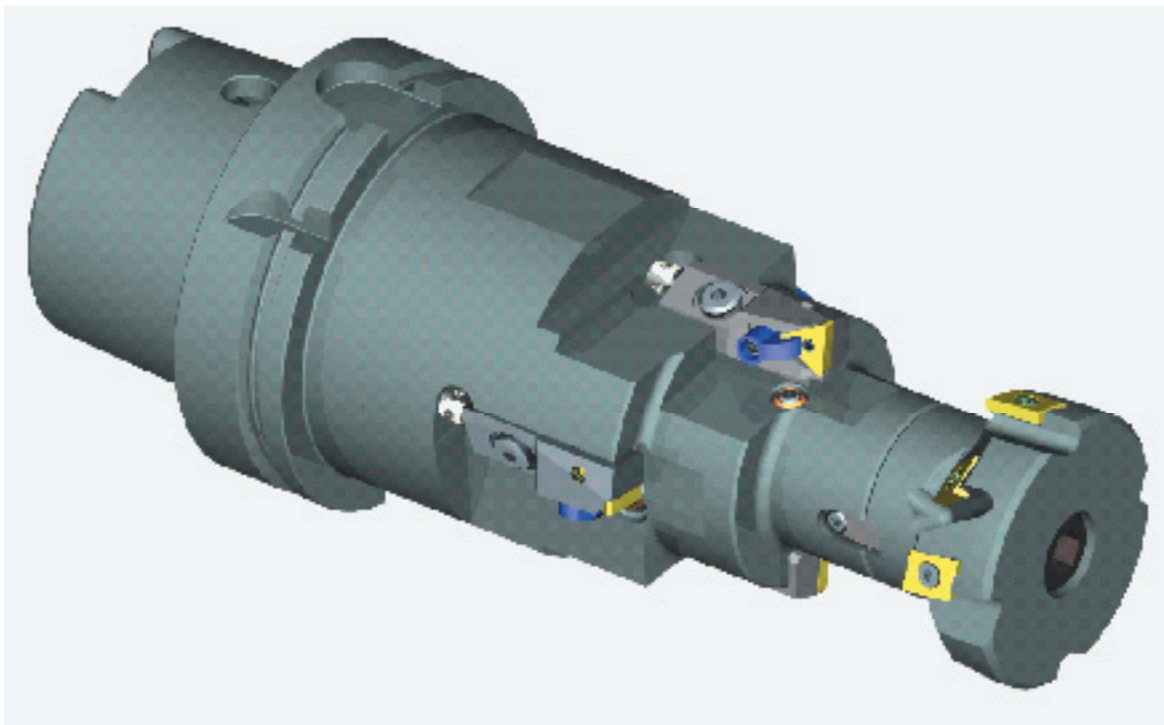
Chamfer, Face, & Semi-Finish Spindle Bore

- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite "ISO" cartridges with interchangeable parts for metric or inch. wrenches.
- Radial and axial adjustment of all cartridges.
- Common insert between boring and chamfering.



Combination Tool to Back Circular Interpolate Face and Finish Bore 2 Diameters

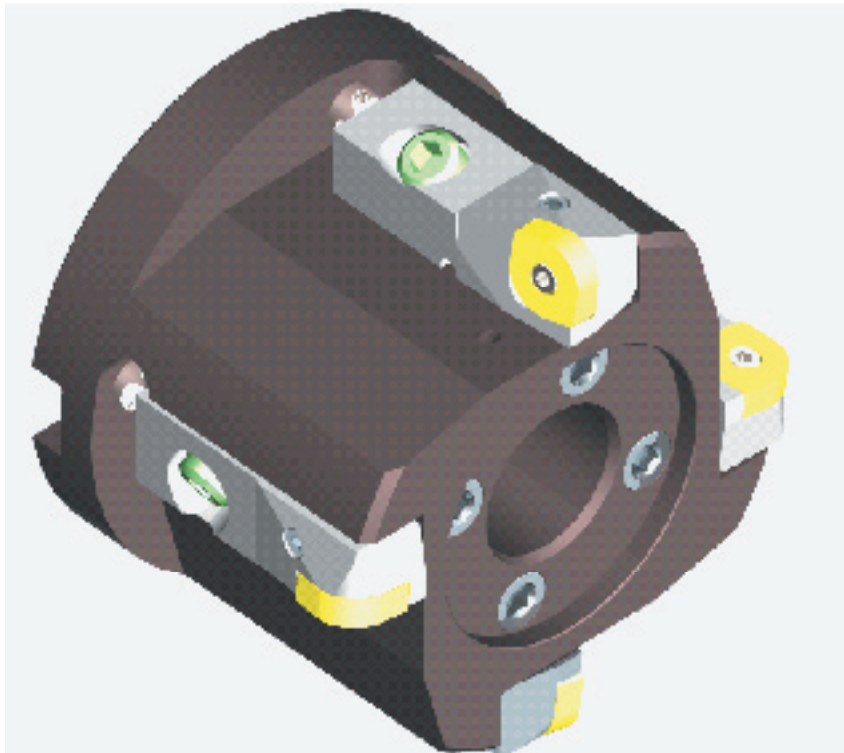
- HSK shank for improved repeatability and rigidity.
- Premium steel & heat-treat for longer wear on both the shank & the cartridge area against chip wash.
- Standard Valenite "ISO" cartridges with interchangeable parts for metric or inch. wrenches.
- Radial and axial adjustment of all cartridges.
- Common insert between boring and chamfering.
- Removable nose with lay-down inserts to back mill a face & chamfer.
- Saves a station and speeds cycle time.



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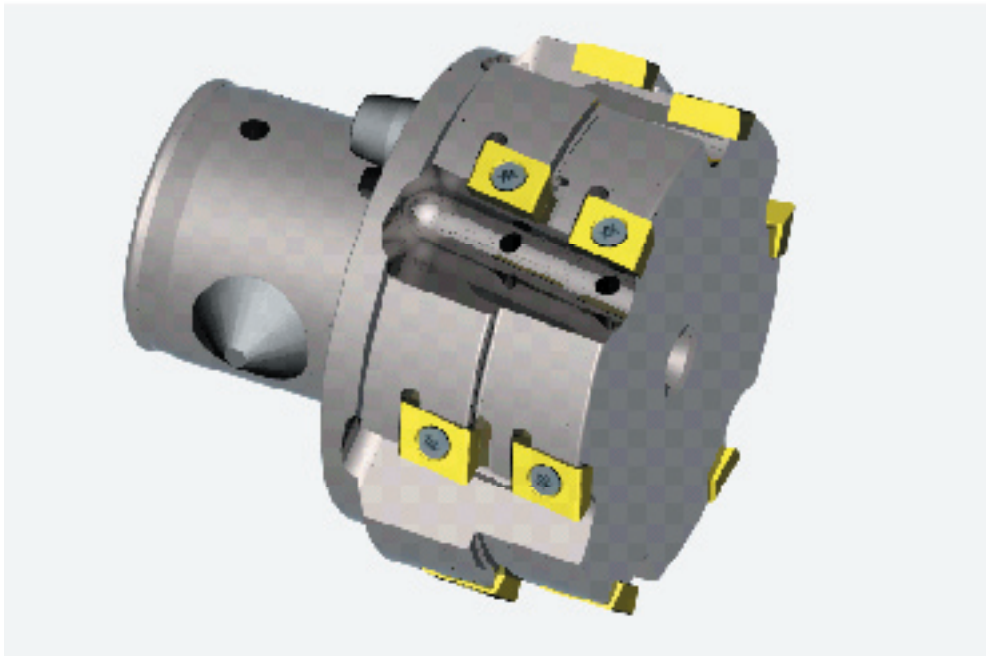
Kam-Set Finish Boring Bar for Spindle Hole

- Kam-Set cartridges give independent adjustment to all four cartridges.
- Accuracy of adjustment is in the micron's.
- No need to lock cartridge after adjustment, which could upset the setting.
- Square insert has two large corner radii required by the part resulting in four indexes' per insert.



Rough Bore and C'Bore Nose for Spindle Hole

- "ABS" connection.
- Lay-down inserts in stepped configuration.
- Six inserts per diameter.
- Internal coolant to all inserts.
- Spin Grind for Accuracy



Long Overhang Spot Face & Form Tool

- Long overhang spot face tool is possible due to bar material and heat treat and the quality of the shank grind.
- Through coolant.

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Carbide Shank Long Overhang Finish Boring Bar

- Cat 50 Finish Bore Tool
- Carbide Shank for Rigidity
- Can use Carbide or Diamond Inserts
- Coolant Through

