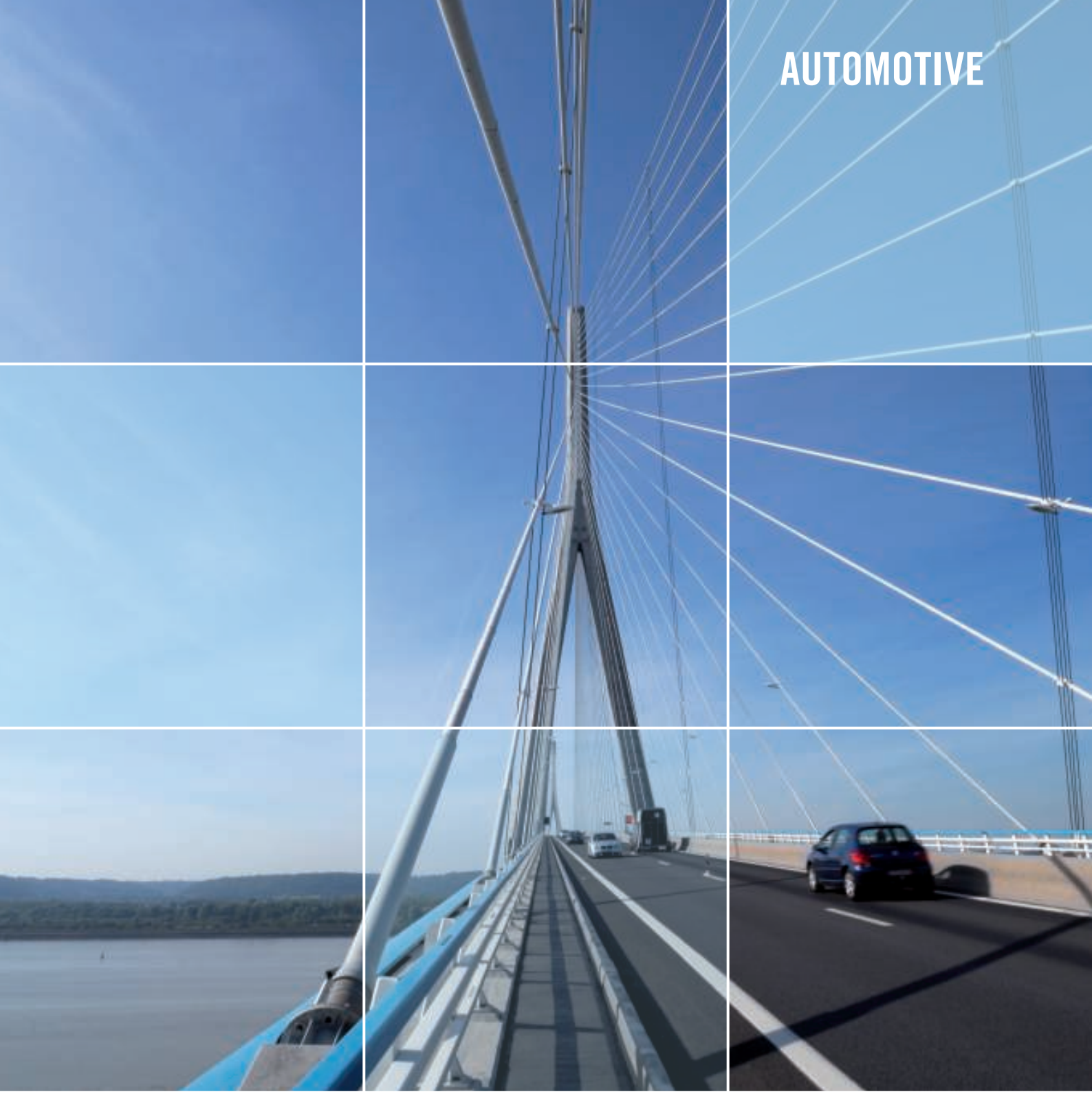
AUTOMOTIVE



INNOVATIVE TOOLING SOLUTIONS FOR FRONT SUSPENSION & REAR DIFFERENTIAL COMPONENTS

SECO

ENHANCING YOUR COMPETITIVENESS

DELIVERING EXCELLENCE AND INNOVATION FOR AUTOMOTIVE MANUFACTURERS

Seco works closely with automotive manufacturers to create and provide solutions that increase productivity and bolster profitability. With 5,000 team members in over 45 countries, we offer a globally networked resource dedicated to solving your challenges and supporting your operations. Through cooperative partnerships with automotive manufacturers and entities around the world, we monitor trends, identify challenges and develop solutions that overcome the industry's most demanding applications.

When you work with Seco, you experience a true partnership based on trust, respect and communication. Our solutions exceed milling, holemaking, turning and tool holding products, as we work closely with your team to address and improve every aspect of production. For over 80 years, Seco has developed the tools, processes and services that leading manufacturers turn to for maximum performance. Whatever challenges you encounter, our team is always nearby to help you overcome them through extensive expertise and high quality products.

Seco customers can also access the latest information regarding new products, machining data, manufacturing techniques and other developments by visiting our automotive web site at **www.secotools.com/automotive**.

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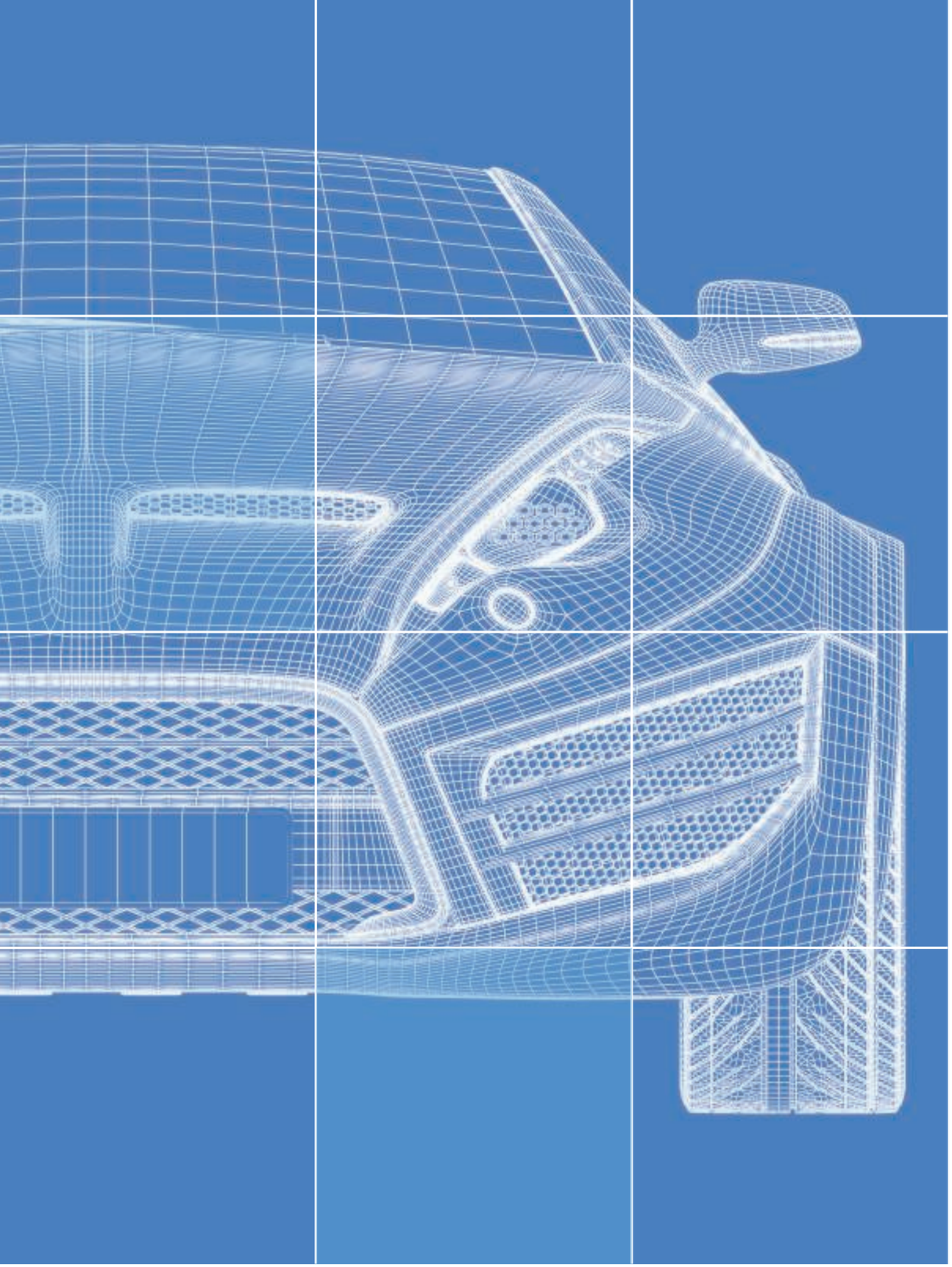


SUPPLYING AUTOMOTIVE

TRENDS IN AUTOMOTIVE

With high oil prices, concerns over a lack of future energy supplies and a desire for a cleaner environment, consumers view fuel efficiency a top priority when buying a new vehicle. Therefore, the automotive industry is looking to further accelerate its engineering efforts to better accommodate a “green” agenda.

While current hybrids and electric cars demonstrate the industry’s commitment to fuel efficiency improvements, alternative fuel technologies and environmental issues, the high cost of purchasing such vehicles will most likely keep petroleum and diesel-based automobiles dominating the market until at least 2020.

It appears that hybrids and electric cars have the biggest growth potential of any vehicle category over the next five years; however, many industry experts believe government subsidies are necessary for a successful roll-out of more economical hybrid and electric cars. Without subsidies, and compared to traditional fuel vehicles, it’s unlikely that we will see ’affordable’ electric powered cars until after 2015.

Continuing to develop technologies that will produce efficient, reliable and affordable hybrid and electric vehicles is a common thread among automotive manufacturers worldwide. Those companies that take a forward-thinking approach will gain a competitive advantage and secure a leadership position in a realigned automotive value chain.

At Seco, we partner with OEMs and other vehicle-based organisations around the globe to help automotive manufacturers overcome their challenges through world-class cutting tool solutions. Whether we’re assisting in reducing costs on a cylinder head application, developing new ways to cut challenging engine materials or improving productivity on a brake caliper component, our advanced technologies, tools, strategies and component solutions can help drive the automotive industry’s success.

As the automotive industry continues to innovate towards more efficient and environmentally friendly vehicle performance, Seco will be there to help you meet and overcome any metal cutting challenges within your operations.

FRONT SUSPENSION COMPONENTS

1 **CV JOINT**

Constant velocity (CV) joints allow drive shafts to transmit power at variable angles and constant rotational speeds. The joints are often made from medium carbon steel, posing chip control issues when machined in fully automated operations. Hard machining operations are also necessary after components have been heat treated.

2 **STEERING KNUCKLE**

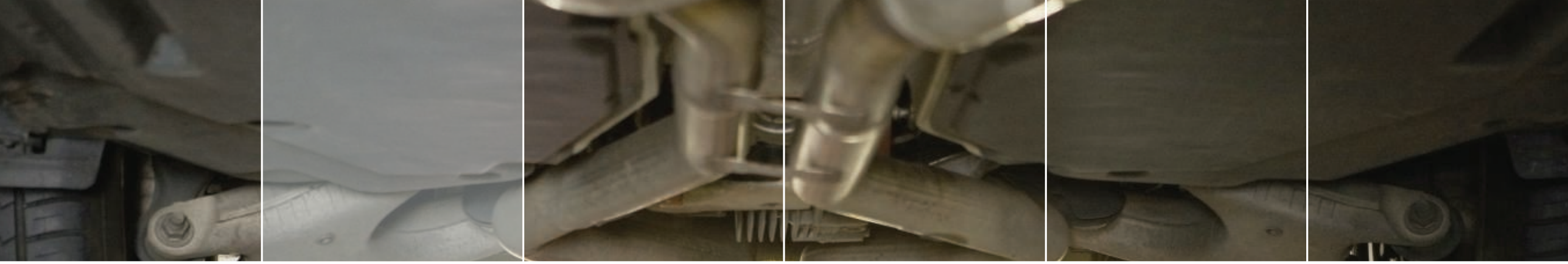
Steering knuckles contain wheel hubs or spindles, and attach to the suspension components of a vehicle. Made from nodular cast iron, the components are critical to front suspension safety, so quality surface finishes, precision radii and perfect machined flatness are required. Processing involves custom tools such as disc mills, drills and reamers.

3 **BRAKE CALIPER**

Brake calipers are the assemblies housing vehicle brake pads and brake pistons. As a critical safety component, brake calipers are made from nodular cast iron, and require custom tooling for generating radii and flat surfaces while maintaining critical surface finishes.

4 **BRAKE DISC**

For stopping wheel rotation, brake discs or rotors are usually made of grey cast iron, but in some instances are produced from composites such as reinforced carbon or ceramic matrix composites. As a safety component, brake discs require specific surface finishes, radii, flatness and parallelism. Most often, custom tooling such as combination turning heads and drills are used in machining processes. The casting, ferrite content and ageing can all affect brake disc machinability.



REAR DIFFERENTIAL COMPONENTS

5

DIFFERENTIAL HOUSING
Machined from nodular cast iron and housing the vehicle differential gear assemblies, differential housings present difficulties in terms of interrupted cuts during roughing passes. Surface finishes and tolerances must be held to customer standards, and machining operations involve custom combination tooling such as turning heads, drills and reamers.

6

GEAR
Many gear sizes and types are used in vehicle production. Most gears are carbon steel, and chip control can be an issue when machining non-heat treated gears in fully automated production lines. Hard machining tooling is required when gears are machined after heat treating to eliminate grinding operations and reduce production costs.

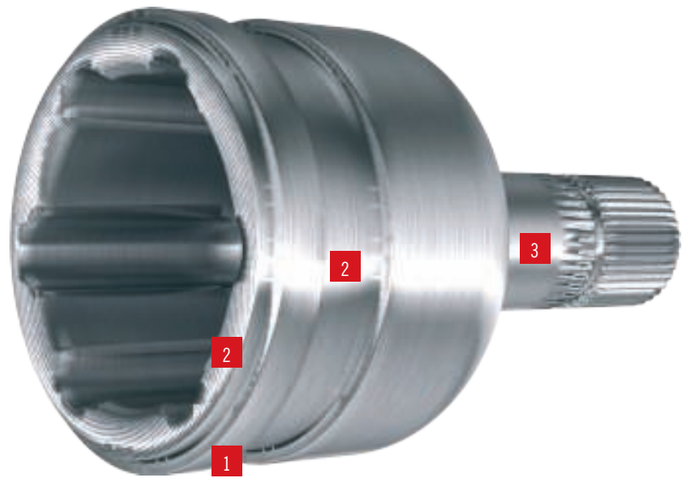
7

AXLE SHAFT
Typically made from carbon steel, axle shafts involve multiple turning and grooving operations. Chip control must be maintained during machining operations within fully automated production lines.

YOUR MANUFACTURING CHALLENGES:

- Maintaining efficiency through effective chip-breaking when roughing the outer diameter
- Copying the outer diameter groove with high productivity and excellent chip control
- Copying the shank diameter with maximum productivity and reliability

FRONT SUSPENSION COMPONENTS: CV JOINT



1

SECO-CAPTO™ JETSTREAM TOOLING® TURNING TOOL

YOUR CHALLENGE:
Maintaining efficiency through effective chipbreaking when roughing the outer diameter.

OUR SOLUTION:
Jetstream Tooling delivers a high-pressure jet of coolant to the optimum position close to the cutting edge. In addition to eliminating heat build up, this lifts the chip away from the rake face to increase chip control and maximise tool life. Cutting parameters can also be further increased by using ISO/ANSI Duratomic® inserts. Your benefits include increased process reliability and productivity.

2

SECO-CAPTO™ JETSTREAM TOOLING® MDT GROOVING TOOL

YOUR CHALLENGE:
Copying the outer diameter groove with high productivity and excellent chip control.

OUR SOLUTION:
MDT Jetstream Tooling delivers a high-pressure jet of coolant through the top clamp. The MDT system's serrated contact surfaces between the insert and toolholder provide the cutting process with very good stability. This combination of advantages ensures safety and high performance during turning and grooving operations. Your benefits include increased process reliability and productivity.

3

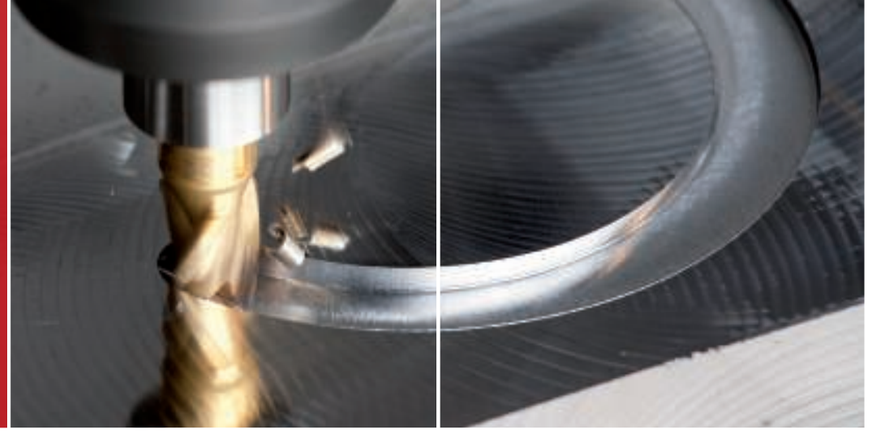
SECO-CAPTO™ TURNING TOOL

YOUR CHALLENGE:
Copying the shank diameter with maximum productivity and reliability.

OUR SOLUTION:
The flexible Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, using ISO/ANSI Duratomic® inserts maximises chip removal rate for this application. A wide variety of geometries guarantees efficient chipbreaking. Your benefits include reliable accuracy and increased efficiency.

YOUR MANUFACTURING CHALLENGES:

- Maintaining a reliable process for roughing ball ramps with maximum productivity
- Finishing ball ramps as productively and reliably as possible
- Minimising cycle times while reliably grooving in an interrupted cut
- Improving productivity and reliability for copying the shank diameter after heat treatment



FRONT SUSPENSION COMPONENTS: CV JOINT

4

CUSTOM BALL NOSE MILLING CUTTER

YOUR CHALLENGE:
Maintaining a reliable process for roughing ball ramps with maximum productivity.

OUR SOLUTION:
Designed for newer machine tools that can handle high metal removal rates, this custom tool uses a positive rake angle to increase tool life and minimise impact on the spindle. The thick and strong insert offers high reliability and features an edge design that allows for the use of high feed rates. Your benefits include reducing costs by getting the most out of your machine tool.

4

MINIMASTER® PLUS

YOUR CHALLENGE:
Finishing ball ramps as productively and reliably as possible.

OUR SOLUTION:
With edges and a helix that provide a light cutting action, Minimaster Plus offers an ideal means of finishing ball ramps. Additionally, incorporation of a unique head clamping system ensures high accuracy and performance while minimising cost and tool change times. Internal through coolant channels increase productivity and facilitate chip evacuation. Your benefits include cost and time savings while getting the level of precision your application demands.

5

SECO-CAPTO™ MDT GROOVING TOOL

YOUR CHALLENGE:
Minimising cycle times while reliably grooving in an interrupted cut.

OUR SOLUTION:
With a top clamp and serrated contact surfaces between the insert and toolholder, Secoloc insert clamping provides the MDT system with superb stability, which is then further enhanced through the use of long inserts. The Seco-Capto interface adds tremendous flexibility, and the ability to move to full automation by adding electronic data chips to the toolholders. CBN200 grade incorporates a unique metal binder with fine grain size to provide exceptional performance in hard turning. Your benefits include robust performance, high process security and shorter cycle times.

6

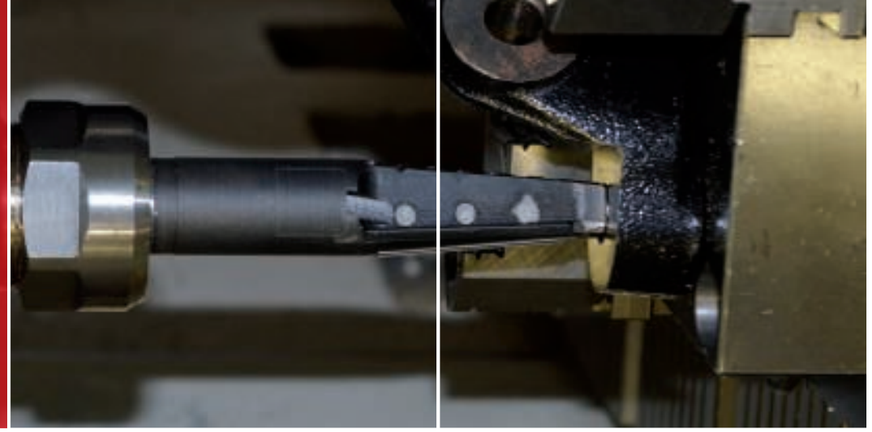
SECO-CAPTO™ TOOL WITH PCBN INSERT

YOUR CHALLENGE:
Improving productivity and reliability for copying the shank diameter after heat treatment.

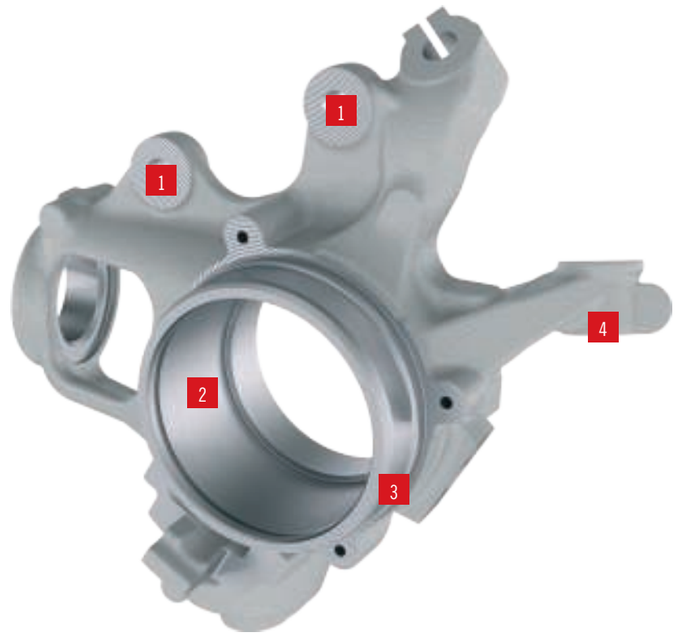
OUR SOLUTION:
The Seco-Capto quick change turning head reduces tool change times and can be error-proof modified for mass production applications. The system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, fine grain CBN160C inserts provide exceptional toughness in interrupted finish machining of hard steels rated 55 HRC – 64 HRC. Your benefits include reliable accuracy and increased efficiency.

YOUR MANUFACTURING CHALLENGES:

- Drilling numerous holes with low cycle times, high quality and reliability
- Creating a productive and reliable process for roughing the bearing bore and chamfer
- Reducing cycle times for roughing the outer diameter and chamfer
- Meeting productivity and quality requirements when finishing the tapered bore



FRONT SUSPENSION COMPONENTS: STEERING KNUCKLE



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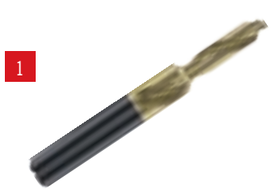


SECO FEEDMAX™ CHAMFER DRILL

YOUR CHALLENGE:
Drilling numerous holes with low cycle times, high quality and reliability.

OUR SOLUTION:
Providing high performance when dealing with angled exits or intersecting holes, the Seco Feedmax Chamfer Drill utilises the light-cutting geometry and a special edge preparation to increase process security and tool life. The tool also incorporates a low-friction coating, and uses four land margins to increase stability. Your benefits include maintaining productivity in challenging, high-tolerance holes.

2

CUSTOM STEP BORING BAR

YOUR CHALLENGE:
Creating a productive and reliable process for roughing the bearing bore and chamfer.

OUR SOLUTION:
Combining rough boring and chamfering operations, this custom tool enables high table feeds when using double-sided turning inserts with positive geometries. Through coolant holes optimise tool life and chip evacuation, while carbide anvils protect the seat pockets and ensure reliable operation. ISO/ANSI Duratomic® TK2001 inserts offer the highest metal removal rates. Your benefits include increasing the efficiency of your production with a highly stable process.

3

CUSTOM OD MACHINING TOOL

YOUR CHALLENGE:
Reducing cycle times for roughing the outer diameter and chamfer.

OUR SOLUTION:
This custom tool features an integrated HSK-A attachment to reduce weight and overhang, enabling it to be used with a high feed table. Positive geometry minimises cutting forces and demands on the machine, and use of ISO/ANSI Duratomic® TK2001 inserts will maximise metal removal rates. Your benefits include boosting productivity and attaining optimal performance from your equipment.

4

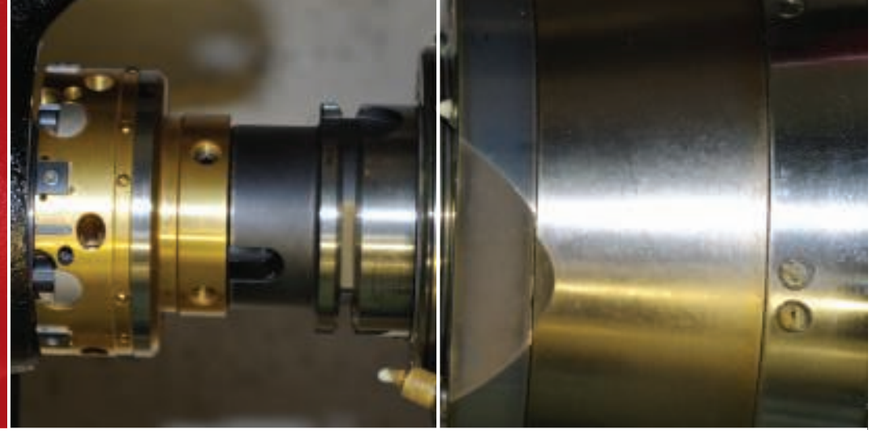
CUSTOM BIFIX® TAPERED REAMER

YOUR CHALLENGE:
Meeting productivity and quality requirements when finishing the tapered bore.

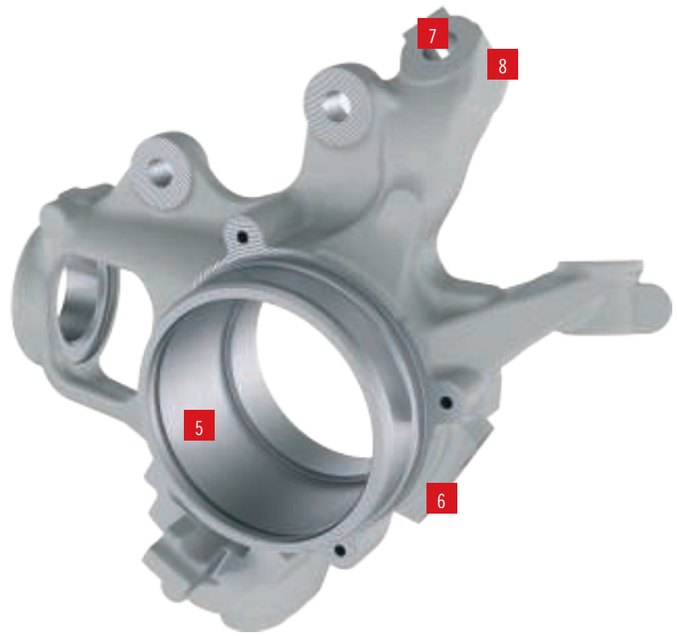
OUR SOLUTION:
To allow for high table feed while maintaining accuracy, the Bifix reamer uses a coated blade and multiple guide pads to maintain stability. The coated blade provides long tool life and excellent surface finishes. Your benefits include highly productive precision machining with lower production costs.

YOUR MANUFACTURING CHALLENGES:

- Establishing an efficient and secure process for the finishing cut on the bearing location
- Reducing cycle times for milling faces while maintaining quality and reliability
- Maximising productivity when sawing locking nuts on the tie rod arm
- Milling part faces with minimal setting and adjusting time



FRONT SUSPENSION COMPONENTS: STEERING KNUCKLE



5

CUSTOM XFIX™ MULTI-TOOTH REAMER

YOUR CHALLENGE:
Establishing an efficient and secure process for the finishing cut on the bearing location.

OUR SOLUTION:
Maintaining high precision output while minimising cycle times, Xfix uses up to nine teeth to provide high feed rates, while holding tolerances as tight as IT6. Strong and stable insert cartridges ensure process security, while preloaded guide pads prevent vibration and increase stability. Your benefits include achieving tight tolerances without sacrificing the productivity of your production line.

6

SUPER TURBO SQUARE SHOULDER MILLING CUTTER

YOUR CHALLENGE:
Reducing cycle times for milling faces while maintaining quality and reliability.

OUR SOLUTION:
Turbo square shoulder mills use hardened steel cutter bodies and strong, thick inserts to achieve incredibly reliable performance and high material removal rates. These tools provide soft, easy cutting and minimise power consumption through their super positive cutting rake. Your benefits include increased confidence in your applications and substantial time savings.

7

R335.19 DISC MILLING CUTTER

YOUR CHALLENGE:
Maximising productivity when sawing locking nuts on the tie rod arm.

OUR SOLUTION:
Seco's family of R335 disc milling cutters feature robust bodies for high tool life and incorporate a variety of features designed to optimise machining of cast iron. Positive rake angles reduce cutting forces and vibration to optimise accuracy and energy consumption, and the use of a constant rake angle over the radius maximises chip evacuation. Your benefits include highly productive performance with extended tool life.

8

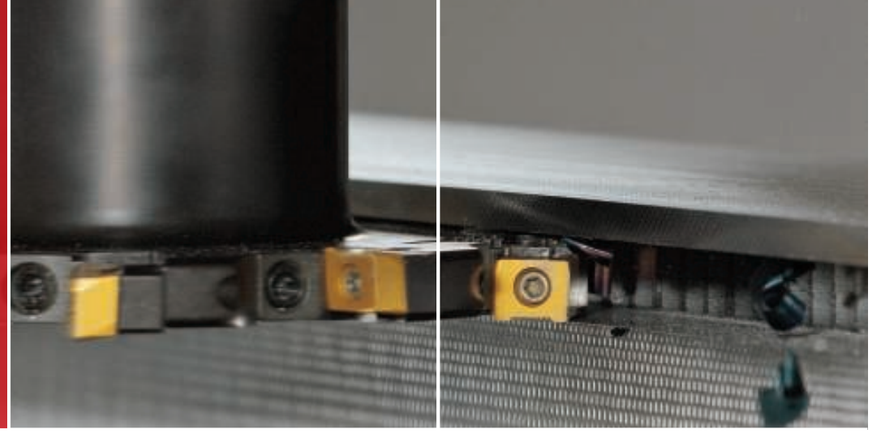
R335.18 DISC MILLING CUTTER

YOUR CHALLENGE:
Milling part faces with minimal setting and adjusting time.

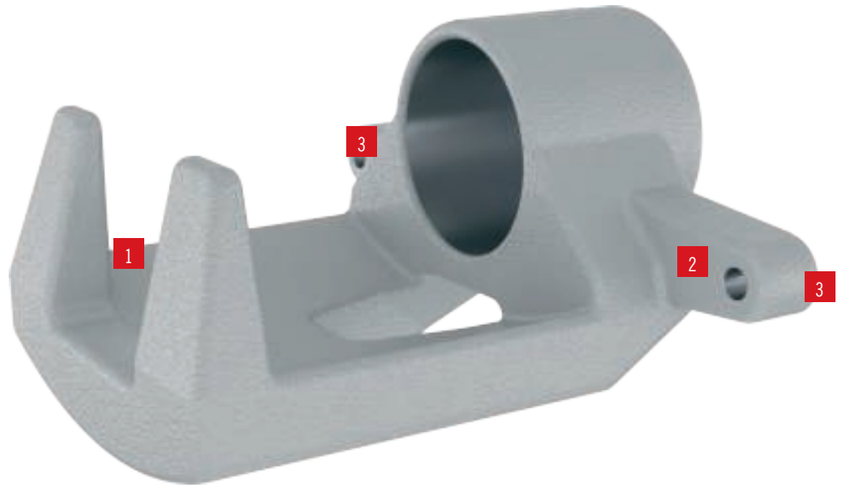
OUR SOLUTION:
Seco's family of R335 disc milling cutters feature robust bodies for increased tool life and incorporate a variety of features designed to optimise machining of cast iron. Positive rake angles reduce cutting forces and vibration to optimise accuracy and energy consumption, and the use of a constant rake angle over the radius maximises chip evacuation. Your benefits include highly productive performance with extended tool life.

YOUR MANUFACTURING CHALLENGES:

- Milling brake pad locations with minimal setting and adjusting time
- Reducing cycle times for milling faces while maintaining quality and reliability
- Producing spot faces with maximum productivity and reliability
- Drilling numerous holes with low cycle times, high quality and reliability



FRONT SUSPENSION COMPONENTS: BRAKE CALIPER



1

R335.25 DISC MILLING CUTTER

YOUR CHALLENGE:
Milling brake pad locations with minimal setting and adjusting time.

OUR SOLUTION:
Seco's family of R335 disc milling cutters feature robust bodies for high tool life and incorporate a variety of features designed to optimise machining of cast iron. Positive rake angles reduce cutting forces and vibration to optimise accuracy and energy consumption, and the use of a constant rake angle over the radius maximises chip evacuation. Your benefits include highly productive performance with extended tool life.

2

SUPER TURBO SQUARE SHOULDER MILLING CUTTER

YOUR CHALLENGE:
Reducing cycle times for milling faces while maintaining quality and reliability.

OUR SOLUTION:
Turbo square shoulder mills use hardened steel cutter bodies and strong, thick inserts to achieve incredibly reliable performance and high material removal rates. These tools provide soft, easy cutting and minimise power consumption through their super positive cutting rake. Your benefits include increased confidence in your applications and substantial time savings.

3

R417.19 CUSTOM SPOT FACE AND CHAMFERING CUTTER

YOUR CHALLENGE:
Producing spot faces with maximum productivity and reliability.

OUR SOLUTION:
The R417.19 custom tool uses a square positive insert and adjustable cartridge with a chamfering insert to combine spot facing and chamfering operations. The balanced cutter offers smooth cutting action and produces a constant chamfer value on a multi-spindle machine. Your benefits include cost reduction through process optimisation.

3

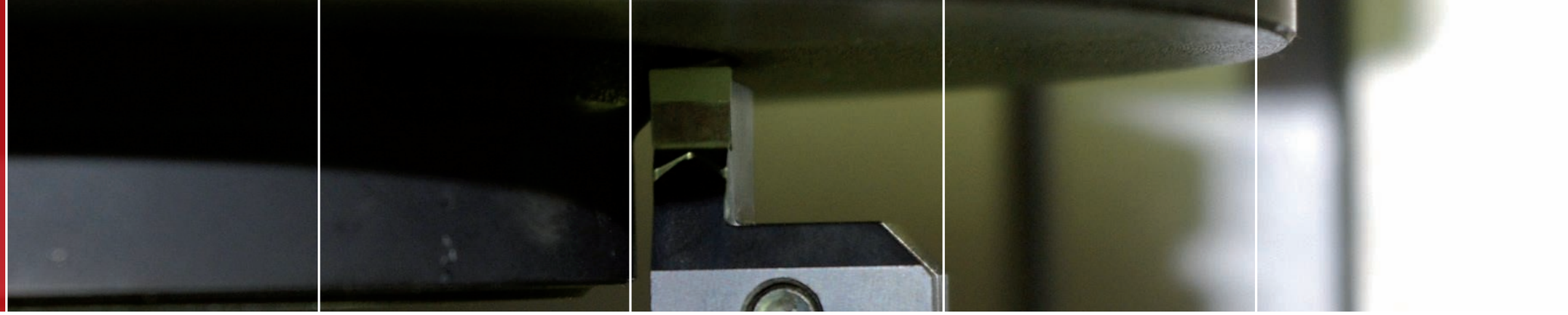
SECO FEEDMAX™ CHAMFER DRILL

YOUR CHALLENGE:
Drilling numerous holes with low cycle times, high quality and reliability.

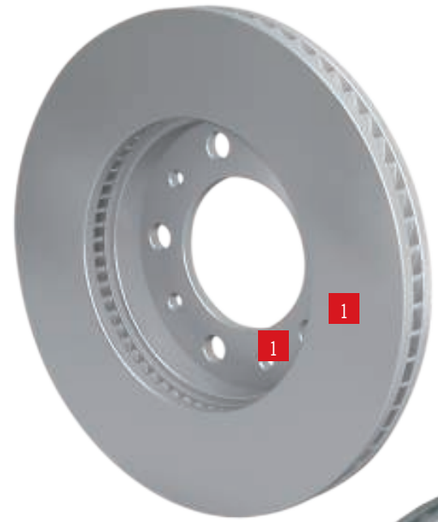
OUR SOLUTION:
Providing high performance when dealing with angled exits or intersecting holes, the Seco Feedmax Chamfer Drill utilises the light-cutting geometry and a special edge preparation to increase process security and tool life. The tool also incorporates a low-friction coating, and uses four land margins to increase stability. Your benefits include maintaining productivity in challenging, high-tolerance holes.

YOUR MANUFACTURING CHALLENGES:

- Increasing productivity by roughing many surfaces with the same tool
- Optimising productivity and reliability when roughing the cast skin on the outer diameter
- Finishing the bore and setting surfaces with minimal tool changes



FRONT SUSPENSION COMPONENTS: BRAKE DISC



1

SECO-CAPTO™ CUSTOM TOOL WITH PCBN INSERT

YOUR CHALLENGE:
Increasing productivity by roughing many surfaces with the same tool.

OUR SOLUTION:
The Seco-Capto custom turning head system will reduce the number of turret revolutions and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, CBN300 provides outstanding toughness and heat evacuation, achieving excellent roughing with high cutting parameters. Your benefits include reliable accuracy and increased efficiency.

2 3

SECO-CAPTO™ PCBN TURNING TOOL

YOUR CHALLENGE:
Optimising productivity and reliability when roughing the cast skin on the outer diameter.

OUR SOLUTION:
The flexible Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, CBN300 provides outstanding toughness and heat evacuation, achieving excellent roughing with high cutting parameters. Your benefits include reliable accuracy and increased efficiency.

4

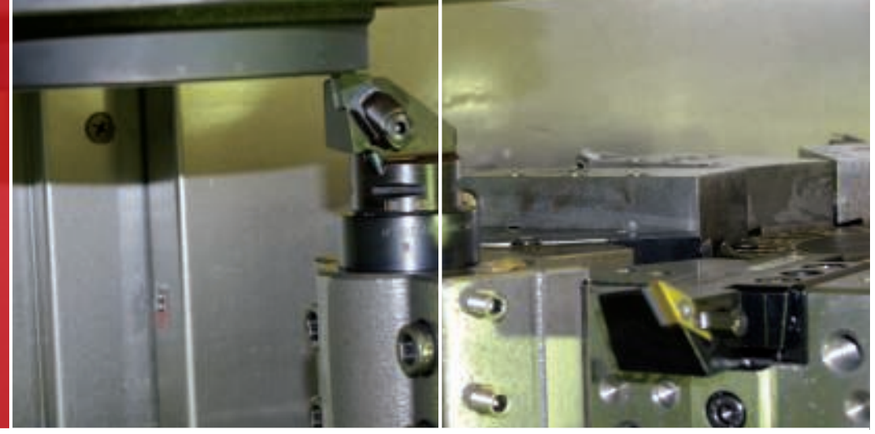
SECO-CAPTO™ CUSTOM TOOL WITH PCBN INSERT

YOUR CHALLENGE:
Finishing the bore and setting surfaces with minimal tool changes.

OUR SOLUTION:
The Seco-Capto combined turning head system will reduce the number of turret revolutions and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, CBN400C achieves toughness and machining accuracy, making it ideal for finishing with high cutting parameters. Your benefits include reliable accuracy and increased efficiency.

YOUR MANUFACTURING CHALLENGES:

- Maintaining efficiency and reliability when finishing the braking surfaces
- Maximising productivity when balancing the ventilated brake disc
- Drilling numerous holes with minimal cost and time
- Drilling numerous holes with low cycle times, high quality and reliability



FRONT SUSPENSION COMPONENTS: BRAKE DISC

5

SECO-CAPTO™ PCBN TURNING TOOL

YOUR CHALLENGE:
Maintaining efficiency and reliability when finishing the braking surfaces.

OUR SOLUTION:
The flexible Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, CBN400C achieves toughness and machining accuracy, making it ideal for finishing with high cutting parameters. Your benefits include reliable accuracy and increased efficiency.

6

R335.19 DISC MILLING CUTTER

YOUR CHALLENGE:
Maximising productivity when balancing the ventilated brake disc.

OUR SOLUTION:
Seco's family of R335 disc milling cutters feature robust bodies for high tool life and incorporate a variety of features designed to optimise machining of cast iron. Positive rake angles reduce cutting forces and vibration to optimise accuracy and energy consumption, and the use of a constant rake angle over the radius maximises chip evacuation. Your benefits include highly productive performance with extended tool life.

7

PERFOMAX® CUSTOM CHAMFER DRILL

YOUR CHALLENGE:
Drilling numerous holes with minimal cost and time.

OUR SOLUTION:
By offering the ability to chamfer a hole by plunging after drilling, the custom Perfomax Chamfer Drill combines operations to increase productivity. A unique flute design optimises chip removal, and the use of Perfomax drilling inserts allows for a very cost-effective process. Your benefits include reducing costs while maintaining high process stability.

8

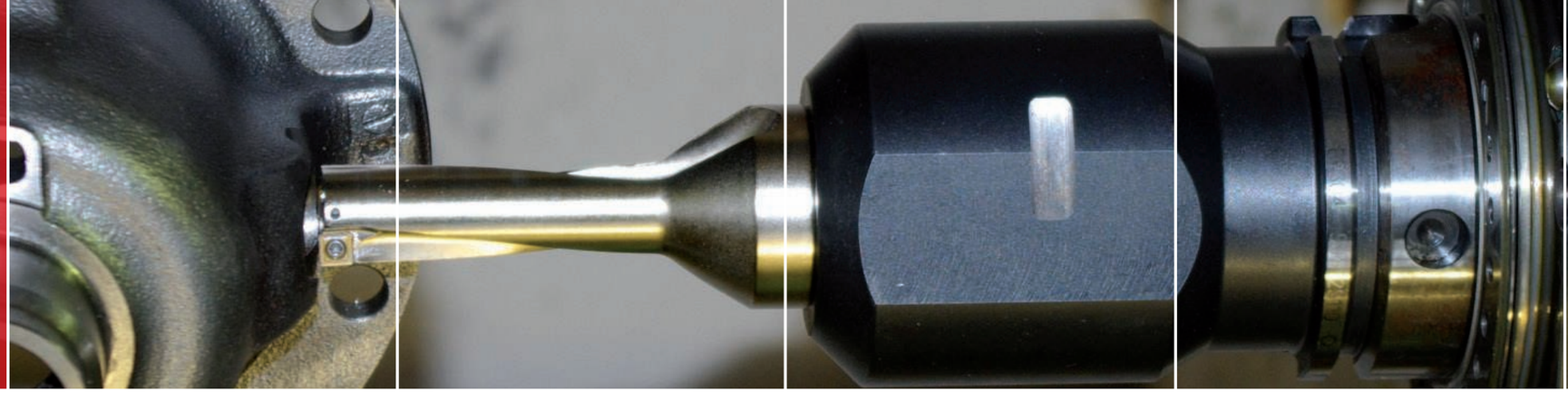
SECO FEEDMAX™ CHAMFER DRILL

YOUR CHALLENGE:
Drilling numerous holes with low cycle times, high quality and reliability.

OUR SOLUTION:
Providing high performance the Seco Feedmax Chamfer Drill utilises the light-cutting geometry and a special edge preparation to increase process security and tool life. The tool also incorporates a low-friction coating. Your benefits include maintaining productivity in challenging, high-tolerance holes.

YOUR MANUFACTURING CHALLENGES:

- Drilling numerous holes with minimal cost and time
- Efficiently and securely turning the internal diameter and face
- Ensuring high productivity during turning of the outer diameter and face



REAR DIFFERENTIAL COMPONENTS: DIFFERENTIAL HOUSING

1

PERFOMAX® CUSTOM CHAMFER DRILL

YOUR CHALLENGE:
Drilling numerous holes with minimal cost and time.

OUR SOLUTION:
By offering the ability to chamfer a hole by plunging after drilling, the custom Perfomax Chamfer Drill combines operations to increase productivity. A unique flute design optimises chip removal, and the use of Perfomax drilling inserts allows for a very cost-effective process. Your benefits include reducing expenses while maintaining high process stability.

2

SECO-CAPTO™ BORING TOOL

YOUR CHALLENGE:
Efficiently and securely turning the internal diameter and face.

OUR SOLUTION:
The flexible Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally the chip removal rate for this application can be maximised by using ISO/ANSI Duratomic® inserts, specifically the TK grades. Your benefits include reliable accuracy and increased efficiency.

3

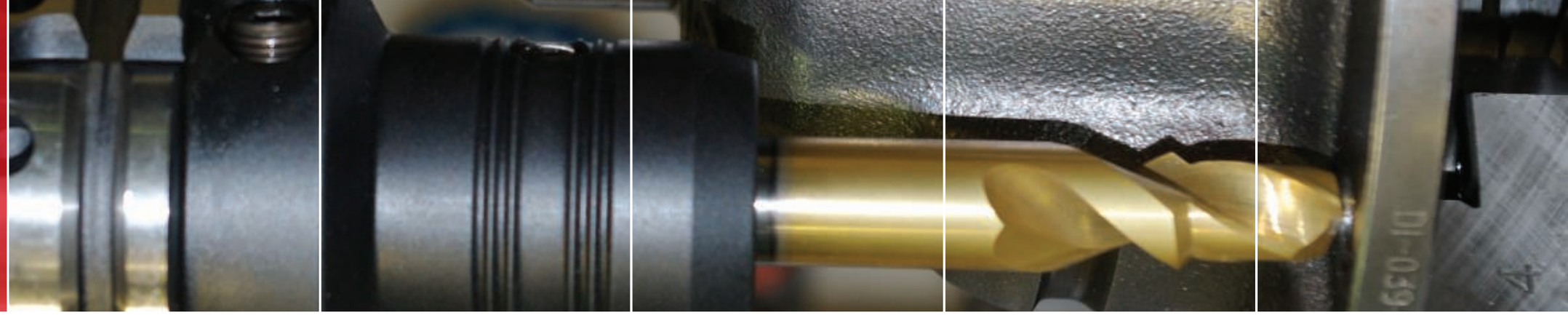
SECO-CAPTO™ TURNING TOOL

YOUR CHALLENGE:
Ensuring high productivity during turning of the outer diameter and face.

OUR SOLUTION:
The flexible Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, using ISO/ANSI Duratomic® inserts maximises chip removal rate for this application. Your benefits include reliable accuracy and increased efficiency.

YOUR MANUFACTURING CHALLENGES:

- Drilling numerous holes with low cycle times, high quality and reliability
- Reaming precise holes with perfect surface finishes
- Productively turning the internal diameter and back facing



REAR DIFFERENTIAL COMPONENTS: DIFFERENTIAL HOUSING

4

SECO-FEEDMAX™ CHAMFER DRILL

YOUR CHALLENGE:
Drilling numerous holes with low cycle times, high quality and reliability.

OUR SOLUTION:
Providing high performance when dealing with angled exits or intersecting holes, the Seco Feedmax Chamfer Drill utilises the light-cutting geometry and a special edge preparation to increase process security and tool life. The tool also incorporates a low-friction coating, and uses four land margins to increase stability. Your benefits include maintaining productivity in challenging, high-tolerance holes.

5

SECO REAMING SOLUTIONS

YOUR CHALLENGE:
Reaming precise holes with perfect surface finishes.

OUR SOLUTION:
An interchangeable head reamer, Precimaster™ minimises cost per hole while providing excellent results. Additionally, our Nanofix™, Precifix™ and Xfix™ lines fill out our range of reaming products, guaranteeing a productive and high quality solution for holes ranging from 2.97 mm to 155 mm in diameter. Your benefits include reducing costs while maintaining exacting tolerances and surface finish requirements.

6

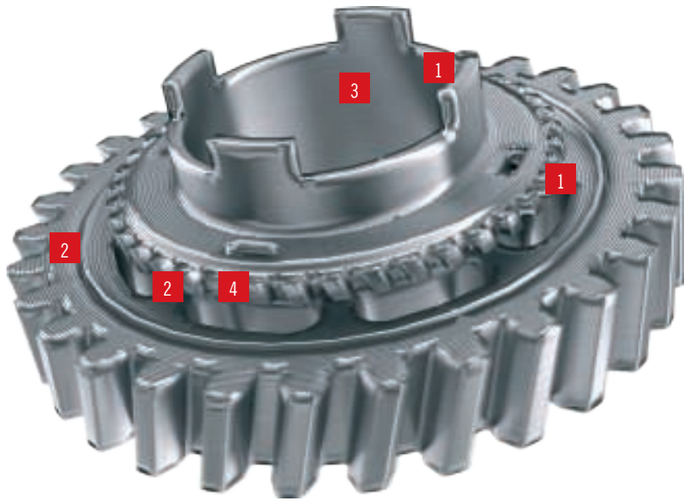
SECO-CAPTO™ CUSTOM TURNING TOOL

YOUR CHALLENGE:
Productively turning the internal diameter and back facing.

OUR SOLUTION:
The custom Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. The system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, using Duratomic® TK insert grades that were specially developed for cast iron machining will maximise metal removal rates for this application. Your benefits include reliable accuracy and increased efficiency.

YOUR MANUFACTURING CHALLENGES:

- Maintaining efficiency through effective chipbreaking when roughing the outer diameter
- Productively turning the internal diameter and undercut groove
- Productively turning the internal diameter and back facing
- Maximising productivity when milling teeth entries



REAR DIFFERENTIAL COMPONENTS: GEAR

1

SECO-CAPTO™ CUSTOM JETSTREAM TOOLING® TURNING TOOL

YOUR CHALLENGE:
Maintaining efficiency through effective chipbreaking when roughing the outer diameter.

OUR SOLUTION:
Jetstream Tooling delivers a high-pressure jet of coolant to the optimum position close to the cutting edge. In addition to eliminating heat build up, this lifts the chip away from the rake face to increase chip control and maximise tool life. Seco-Capto systems can be error-proof modified for mass production applications, and allow for full automation by adding electronic data chips to the tool holders. Your benefits include increased process reliability and productivity.

2

SECO-CAPTO™ CUSTOM TURNING TOOL

YOUR CHALLENGE:
Productively turning the internal diameter and undercut groove.

OUR SOLUTION:
The custom Seco-Capto quick change turning head system combines boring and grooving operations and can be error-proof modified for mass production applications. The system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, using ISO/ANSI WNMG 06 inserts in a Duratomic® grade provides the most economical solution for this application. Your benefits include reliable accuracy and increased efficiency.

3

SECO-CAPTO™ CUSTOM TURNING TOOL

YOUR CHALLENGE:
Productively turning the internal diameter and back facing.

OUR SOLUTION:
The flexible Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, using ISO/ANSI Duratomic® inserts with new positive chipbreaking geometries maximises chip removal rates for this application. Your benefits include reliable accuracy and increased efficiency.

4

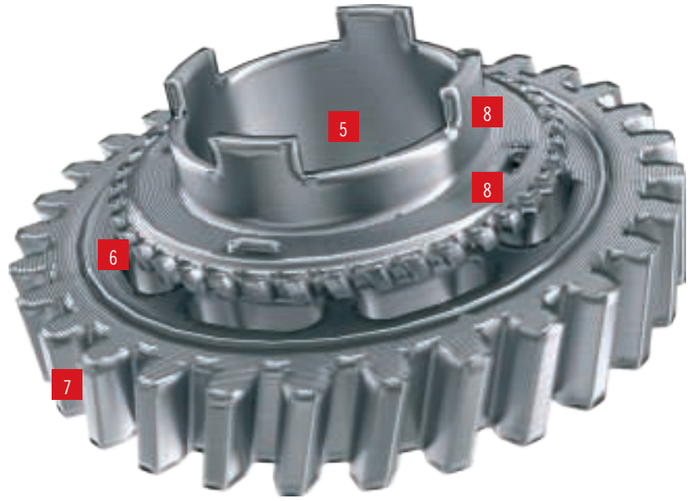
CUSTOM CHAMFERING TOOL

YOUR CHALLENGE:
Maximising productivity when milling teeth entries.

OUR SOLUTION:
Right-handed and left-handed versions of this custom tool are applied simultaneously to chamfer opposite sides of the tooth entry and eliminate potential burrs. With a centre-lock clamping system and precision ground inserts, the cutter achieves impeccable angular positioning accuracy and surface finish. Your benefits include an easy-to-apply solution for achieving high quality requirements.

YOUR MANUFACTURING CHALLENGES:

- Maintaining hard-turning productivity when plunging the back face and finishing the bore diameter
- Minimising cycle times while reliably grooving in an interrupted cut
- Reliably hard turning the finishing interrupted cut on the outer diameter
- Ensuring hard-turning efficiency when finishing the face and synchromesh taper with interruption



REAR DIFFERENTIAL COMPONENTS: GEAR

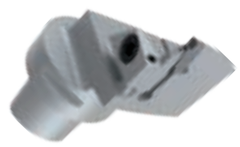
5

SECO-CAPTO™ CUSTOM TOOL WITH PCBN INSERT

YOUR CHALLENGE:
Maintaining hard-turning productivity when plunging the back face and finishing the bore diameter.

OUR SOLUTION:
The custom Seco-Capto quick change turning head system reduces turret revolutions and cycle times, and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, CBN060K provides outstanding toughness in hard steels rated 55 HRC – 64 HRC, and wiper inserts allow for more aggressive cutting data. Your benefits include reliable accuracy and increased efficiency.

6



SECO-CAPTO™ MDT GROOVING TOOL

YOUR CHALLENGE:
Minimising cycle times while reliably grooving in an interrupted cut.

OUR SOLUTION:
With a top clamp and serrated contact surfaces between the insert and toolholder, Secoloc insert clamping provides the MDT system with superb stability, which is then further enhanced through the use of long inserts. The Seco-Capto interface adds tremendous flexibility, and the ability to move to full automation by adding electronic data chips to the toolholders. CBN200 grade incorporates a unique metal binder with fine grain size to provide exceptional performance in hard turning. Your benefits include robust performance, high process security and shorter cycle times.

7

SECO-CAPTO™ CUSTOM TOOL WITH PCBN INSERT

YOUR CHALLENGE:
Reliably hard turning the finishing interrupted cut on the outer diameter.

OUR SOLUTION:
The flexible Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, fine grain CBN160C inserts provide exceptional toughness in interrupted finish machining of hard steels rated 55 HRC – 64 HRC. Your benefits include reliable accuracy and increased efficiency.

8

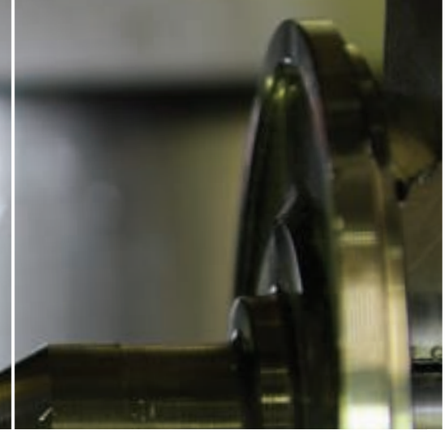
SECO-CAPTO™ CUSTOM TOOL WITH PCBN INSERT

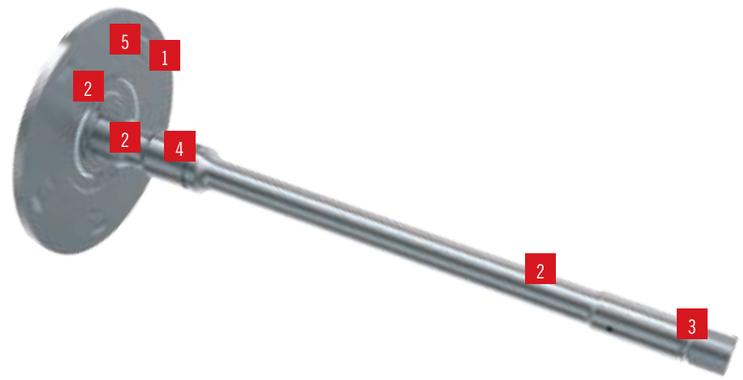
YOUR CHALLENGE:
Ensuring hard-turning efficiency when finishing the face and synchromesh taper with interruption.

OUR SOLUTION:
The Seco-Capto with two seat pockets reduces turret revolutions and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Fine grain CBN160C inserts provide exceptional toughness in interrupted finish machining of hard steels rated 55 – 64 HRC. CBN060K plunging inserts offer short cycle times and surface finishes below Ra 0.4. Your benefits include reliable accuracy and increased efficiency.

YOUR MANUFACTURING CHALLENGES:

- Maintaining effective chipbreaking while copy turning the flange diameter, chamfers and back face
- Ensuring high productivity during turning of the outer diameter and face
- Optimising productivity while turning the undercut groove
- Minimising cycle times while reliably turning the circlip grooves
- Drilling numerous holes with low cycle times, high quality and reliability





REAR DIFFERENTIAL COMPONENTS: AXLE SHAFT

1

SECO-CAPTO™ MDT GROOVING TOOL

YOUR CHALLENGE:
Maintaining effective chip-breaking while copy turning the flange diameter, chamfers and back face.

OUR SOLUTION:
With a top clamp and serrated contact surfaces between the insert and toolholder, Secoloc insert clamping provides the MDT system with superb stability, which is then further enhanced through the use of long inserts. The Seco-Capto interface adds tremendous flexibility, and the ability to move to full automation by adding electronic data chips to the toolholders. MDT coated carbide inserts optimise chip removal rates in this application. Your benefits include robust performance, high process security and shorter cycle times.

2

SECO-CAPTO™ TURNING TOOL

YOUR CHALLENGE:
Ensuring high productivity during turning of the outer diameter and face.

OUR SOLUTION:
The flexible Seco-Capto quick change turning head system reduces tool change times and can be error-proof modified for mass production applications. Offering highly rigid and accurate performance, the system also enables full automation of presetting by adding electronic data chips to the toolholders. Additionally, using ISO/ANSI Duratomic® inserts maximises chip removal rate for this application. The wide variety of available geometries guarantees optimal chipbreaking efficiency. Your benefits include reliable accuracy and increased efficiency.

3

SECO-CAPTO™ SNAP-TAP® GROOVING TOOL

YOUR CHALLENGE:
Optimising productivity while turning the undercut groove.

OUR SOLUTION:
Dedicated to machining shallow grooves, Snap-Tap tools use a strong clamping system and rigid body to ensure stable, reliable and productive performance. Seco-Capto systems can be error-proof modified for mass production applications, and allow for full automation by adding electronic data chips to the toolholders. Your benefits include increasing throughput with a secure process.

4

SECO-CAPTO™ TURNING TOOL

YOUR CHALLENGE:
Minimising cycle times while reliably turning the circlip grooves.

OUR SOLUTION:
With a top clamp and serrated contact surfaces between the insert and toolholder, Seco-loc insert clamping provides the MDT system with superb stability, which is then further enhanced through the use of long inserts. The Seco-Capto interface adds tremendous flexibility, and the ability to move to full automation by adding electronic data chips to the toolholders. MDT coated carbide inserts optimise chip removal rates in this application. Your benefits include robust performance, high process security and shorter cycle times.

5

SECO FEEDMAX™ CHAMPER DRILL

YOUR CHALLENGE:
Drilling numerous holes with low cycle times, high quality and reliability.

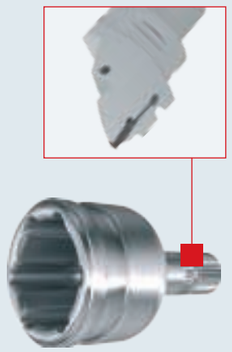
OUR SOLUTION:
Providing high performance the Seco Feedmax Chamfer Drill utilises the light-cutting geometry and a special edge preparation to increase process security and tool life. The tool also incorporates a low-friction coating. Your benefits include maintaining productivity in challenging, high-tolerance holes.

CASE STUDIES

The true test of a potential solution is its real world application. The following examples provide a sample of the documented results Seco products and processes have achieved.

CV-JOINT – SECO-CAPTO™ MDT GROOVING TOOL

Material:	Carbon steel (SMG 4) heat treated to 60 HRC			
Coolant:	Dry machining			
Operation:	Hard turning on circlip grooves			
Criterion:	Interrupted cut			
Fixturing:	Hydraulic clamping chuck			
Tool:	C5-CFIL-35060-04			
Insert 1:	LCGN160404-0400S-LF, CBN200			
Cutting Data		v_c	f	a_p
	Metric	200 m/min	0.05 mm/rev	4 mm
	Inch	655 sf/min	0.002"/rev	0.157"
Results	**Tool life = 600 pcs. 33% increase in cutting speed via competitor insert grade.**			

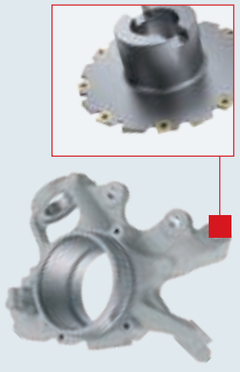


CV-JOINT – SECO-CAPTO™ JETSTREAM TOOLING® TURNING TOOL

Material:	Carbon steel (SMG 4)			
Coolant:	Water soluble oil (coolant pressure = 80 bar)			
Operation:	O.D. turning			
Criterion:	Chipbreaking control			
Fixturing:	Hydraulic clamping chuck			
Tool:	C5-PGLNL-35060-12JET (Seco-Capto™ Jetstream Tooling®)			
Insert 1:	CNMG120412-MR7, TP2500			
Cutting Data		v_c	f	a_p
	Metric	220 m/min	0.50 mm/rev	3 mm
	Inch	720 sf/min	0.020"/rev	0.118"
Results	**Tool life = 40 min. 25% increase to tool life with higher chipbreaking efficiency.**			

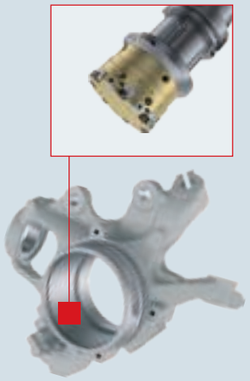
STEERING KNUCKLE – R335.19 DISC MILLING CUTTER

Material:	Nodular cast iron (GGG) (SMG 13)			
Coolant:	Water soluble oil			
Operation:	Control arm connection slotting			
Criterion:	Tool life			
Fixturing:	Hydraulic clamping fixture			
Tool:	Disc milling cutter R335.19 160.04 40-9			
Insert 1:	SNHQ110204TR4-M07, F30M			
Cutting Data		v_c	f_z	a_p
	Metric	150 m/min	0.14 mm/tooth	4 mm
	Inch	490 sf/min	0.0055"/tooth	0.157"
Cutting Data		a_e	z	k
	Metric	16 mm	18	9
	Inch	0.630"	18	9
Results	**Tool life = 5000 pcs. I Reduced slot shrinking effect due to low cutting forces.**			



STEERING KNUCKLE – CUSTOM XFIX™ MULTI-TOOTH REAMER

Material:	Nodular cast iron (GGG) (SMG 13)				
Coolant:	Water soluble oil				
Operation:	Ball bearing bore finishing				
Criterion:	Tolerance H6, cylindricity = 5µ, surface finish Ra = 1				
Fixturing:	Hydraulic clamping fixture				
Tool:	Multi-tooth XFIX reamer Ø 78 mm and chamfer				
Insert 1/2:	LNEG1003-EB45-06, RX1500 / SCGX060204-P2, T2000D				
Cutting Data		v_c	f		
	Metric	120 m/min	0.15 mm/tooth		
	Inch	395 sf/min	0.006"/tooth		
Cutting Data		a_p	a_e	z	k
	Metric	0.2 mm (0.4 mm to Ø)	stroke = 35 mm	5	5
	Inch	0.008" (0.016" to Ø)	stroke = 1.378"	5	5
Results	**Tool life = 3000 pcs. per edge 25% increase to tool life.**				

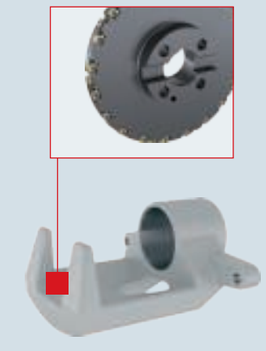


BRAKE CALIPER – SECO FEEDMAX™ CHAMFER DRILL

Material:	Nodular cast iron (SMG 13)				
Coolant:	Water soluble oil				
Operation:	Drilling and chamfering fastening holes				
Criterion:	Tool life				
Fixturing:	Hydraulic clamping fixture				
Tool:	SD245A-C45-9.5-40-14R1				
Insert 1:	None				
Cutting Data		v_c	f	a_p	z
	Metric	120 m/min	0.35 mm/rev	18 mm	2
	Inch	395 sf/min	0.014"/rev	0.709"	2
Results	**Tool life = 6000 holes Increase to tool life in holes featuring an irregular exit.**				

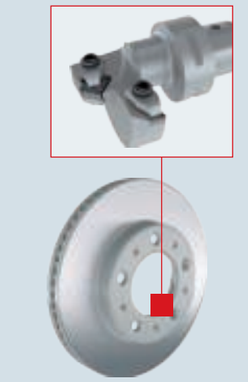
BRAKE CALIPER – R335.25 DISC MILLING CUTTER

Material:	Nodular cast iron (SMG 13)			
Coolant:	Water soluble oil			
Operation:	Milling brake pad location (direct plunging with radius R = 5 mm)			
Criterion:	Flatness, squareness and surface finish			
Fixturing:	Hydraulic clamping fixture			
Tool:	R335.25-282-18-60			
Insert 1:	LNHQ140750 TN4-M11, MP2500			
Cutting Data		v_c	f_z	
	Metric	120 m/min	0.08 mm/tooth	
	Inch	395 sf/min	0.003"/tooth	
Cutting Data		a_p	z	k
	Metric	3 to 18 mm	20	10
	Inch	0.118 to 0.709"	20	10
Results	**Tool life = 18000 pcs. 35% increase to tool life.**			



BRAKE DISC – SECO-CAPTO™ CUSTOM TOOL WITH PCBN INSERT

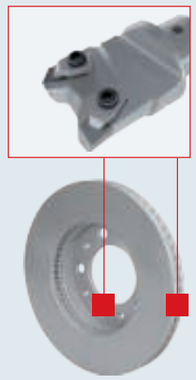
Material:	Grey cast iron (SMG 13) Coolant: Dry machining			
Operation 1:	Centre bore finishing, chamfering & wheel face finishing			
Operation 2:	Wheel hub face finishing (back facing)			
Criterion:	Flatness, surface finish and run out			
Tool:	Custom Seco-Capto C5 with 2 inserts			
Insert (Tool 1):	SNMN090308S, CBN300P			
Insert (Tool 2):	TNMX110308S-WZ, CBN300P			
Cutting Data (Tool 1)		v_c	f	a_p
	Metric	700 to 1000 m/min	0.20 mm/rev	0.30 to 0.50 mm
	Inch	2295 to 3280 sf/min	0.008"/rev	0.012 to 0.020"
Cutting Data (Tool 2)		v_c	f	a_p
	Metric	700 to 1000 m/min	0.28 mm/rev	0.30 to 0.50 mm
	Inch	2295 to 3280 sf/min	0.011"/rev	0.012 to 0.020"
Results	**Tool 1 tool life = 3500 pcs. I Tool 2 tool life = 3500 pcs. I 50% reduction to cycle time via implementation of wiper insert.**			



CASE STUDIES

BRAKE DISC – SECO-CAPTO™ CUSTOM TOOL WITH PCBN INSERT

Material:	Grey cast iron (SMG 13)					
Coolant:	Dry machining					
Operation 1:	O.D. chamfering and breaking surface roughing					
Operation 2:	Disc hub I.D. roughing					
Criterion:	Tool life					
Fixturing:	Hydraulic clamping chuck					
Tool:	Custom Seco-Capto C5 with 2 inserts					
Insert 1:	CNMN120412S, CBN300					
Insert 2:	CNMN120412S, CBN300					
Cutting Data		v_c	f	a_p	z	
	Metric	1000 m/min	0.45 mm/rev	2.5 to 3 mm	1	
	Inch	3280 sf/min	0.018"/rev	0.098 to 0.118"	1	
Results	**Tool life = 3000 pcs. 40% reduction to cycle time via Seco-Capto twin pockets toolholder with insert grade CBN300.**					

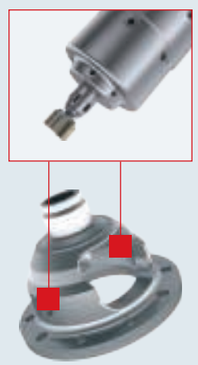


DIFFERENTIAL HOUSING – SECO-CAPTO™ TURNING TOOL

Material:	Nodular cast iron (GGG) (SMG 13)			
Coolant:	Water soluble oil			
Operation:	O.D. rough turning			
Criterion:	Turning with interruptions			
Fixturing:	Hydraulic clamping chuck			
Tool:	Seco-Capto C5-PWLNL-35060-08			
Insert 1:	WNMG080416-M5, TK2001			
Cutting Data		v_c	f	a_p
	Metric	300 m/min	0.40 mm/rev	3 mm
	Inch	985 sf/min	0.016"/rev	0.118"
Results	**Tool life = 30 min. 25% increase to tool life in interrupted cut via TK2001.**			

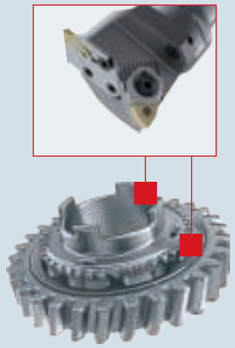
DIFFERENTIAL HOUSING – SECO REAMING SOLUTIONS

Material:	Nodular cast iron (GGG) (SMG 13)				
Coolant:	Water soluble oil				
Operation:	Reaming the satellite axis holes				
Criterion:	Ø H7, straightness, surface finish				
Fixturing:	Hydraulic clamping chuck				
Tool:	Custom Precimaster reamer Ø 19 mm				
Insert 1:	PM5019H7EB45, RX2000				
Cutting Data		v_c	f	a_p	z
	Metric	120 m/min	0.65 mm/rev	0.2 mm (0.04 mm to Ø)	6
	Inch	395 sf/min	0.026"/rev	0.008" (0.016" to Ø)	6
Results	**Tool life = 5400 holes (2700 pcs) Reduction to cycle time via multi-tooth reaming head.**				



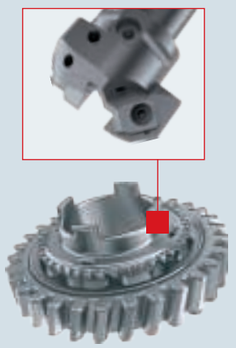
GEAR – SECO-CAPTO™ CUSTOM TURNING TOOL

Material:	Carbon steel (SMG 4) Coolant: Water soluble oil			
Operation:	I.D. turning and O.D. grooving			
Criterion:	Tool life			
Tool:	Custom Seco Capto C5 twin seat pocket			
Insert (Tool 1):	WNMG060408-M3, TP2500, turning tool			
Insert (Tool 2):	LCMF160304-0300 FT, TGP25, grooving tool			
Cutting Data		v_c	f	a_p
(Tool 1)	Metric	325 m/min	0.30 mm/rev	2.5 mm
	Inch	1065 sf/min	0.012"/rev	0.098"
Cutting Data		v_c	f	a_p
(Tool 2)	Metric	250 m/min	0.15 mm/rev	3 mm
	Inch	820 sf/min	0.006"/rev	0.118"
Results	**Tool 1 tool life = 30 minutes Tool 2 tool life = 35 minutes Reduction of tool change time by combining ID and OD operations on Seco-Capto turning head.**			



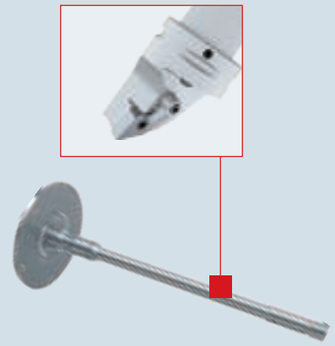
GEAR – SECO-CAPTO™ CUSTOM TURNING TOOL FOR HARD TURNING

Material:	Carbon steel (SMG 4) heat treated to 60 HRC Coolant: Dry				
Operation 1:	Fine turning on synchromesh taper with interruptions				
Operation 2:	Facing by plunging method				
Criterion:	Surface finish Ra = 0,4 and squareness				
Tool:	Custom combine SECO Capto boring head C5				
Insert/Tool 1:	TNGN110312S-01525-LF, CBN160C				
Insert/Tool 2:	TNGN110312S-01525, CBN060K				
Cutting Data		v_c	f	a_p	a_e
(Tool 1)	Metric	160 m/min	0.22 mm/rev	0.10 mm	stroke= 10 mm
	Inch	525 sf/min	0.009"/rev	0.004"	stroke= 0.394"
Cutting Data		v_c	f	a_p	a_e
(Tool 2)	Metric	200 m/min	0.04 mm/rev	7 mm	0.10 mm
	Inch	655 sf/min	0.0016"/rev	0.276"	0.004"
Results	**Tool 1 tool life = 200 pcs. (+25%) I Tool 2 tool life = 350 pcs. I Reduction to cycle time via plunging process, while improving surface finish and overall part quality.**				



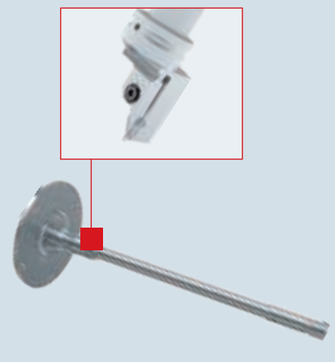
AXLE SHAFT – SECO-CAPTO™ TURNING TOOL

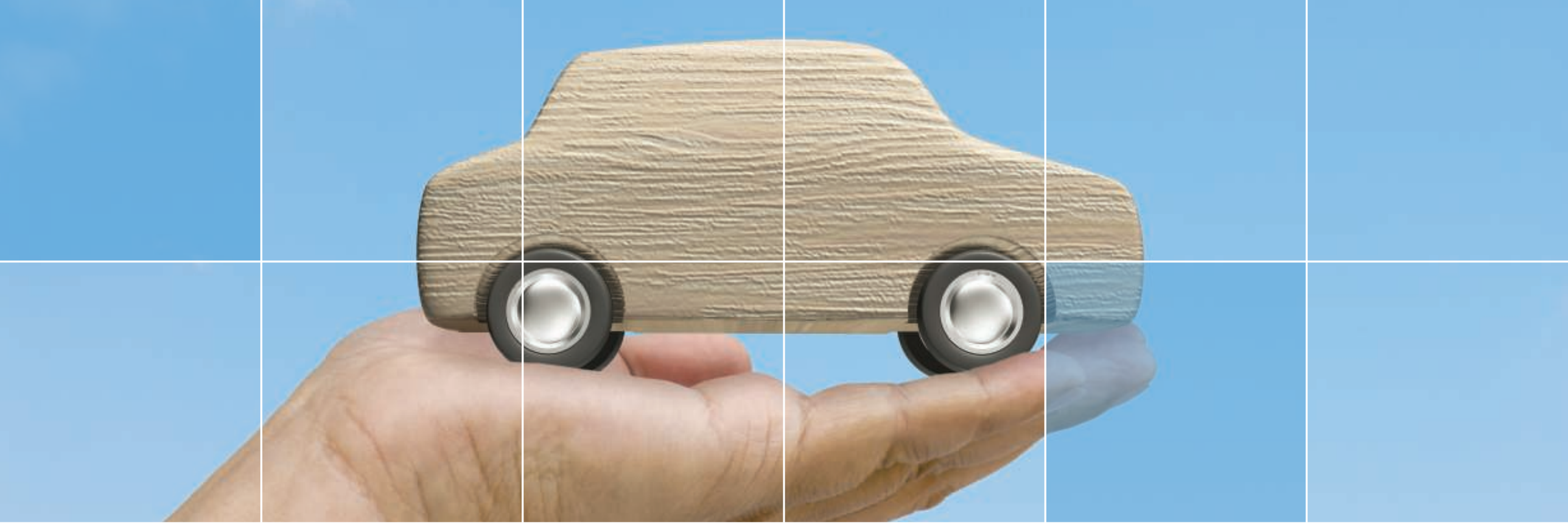
Material:	Carbon steel (SMG 4)			
Coolant:	Water soluble oil			
Operation:	Rough O.D. copying on the shaft			
Criterion:	Tool life and no vibrations			
Fixturing:	Hydraulic clamping chuck			
Tool:	Custom Seco-Capto, C4-MDXNL-15050-15			
Insert 1:	DNMG15068-M3, TP2500			
Cutting Data		v_c	f	a_p
	Metric	320 m/min	0.30 mm/rev	0.5 to 3 mm
	Inch	1050 sf/min	0.012"/rev	0.020 to 0.118"
Results	**Tool life = 30 min. 25% reduction to cycle time via Duratomic insert grade TP2500.**			



AXLE SHAFT – SECO-CAPTO™ MDT GROOVING TOOL

Material:	Carbon steel (SMG 4)			
Coolant:	Water soluble oil			
Operation:	Radial grooving with MDT, width = 3 mm			
Criterion:	Tool life			
Fixturing:	Hydraulic clamping chuck			
Tool:	Seco-Capto C4-CFIR-27055-03			
Insert 1:	LCMF160304-0300-FT, CP500			
Cutting Data		v_c	f	a_p
	Metric	150 m/min	0.15 mm/rev	3 mm
	Inch	490 sf/min	0.006"/rev	0.118"
Results	**Tool life = 45 min. 45% increase to tool life via increased stability and insert grade CP500 in FT geometry.**			





SOLUTIONS MADE FOR YOU

SECO'S ENGINEERING SERVICES

When striving to perfect a manufacturing process, having the right tooling partner is critical. Seco provides an extensive unique engineering service, providing full applications support and the necessary expertise to understand your productivity requirement and deliver a winning solution.

NETWORK OF APPLICATION EXPERTS

Seco offers through their **Strategic Engineering Group** a global support network, consisting of international component specialists having an in-depth knowledge and understanding of the relevant industry segment. Together with locally based Seco application experts, this team ensures that you get the very best support to the component you are machining.

INTEGRATED ENGINEERING SUPPORT

Seco's **Component Engineered Tooling (CET)** offers a comprehensive approach to process design and optimisation that ensures you achieve the highest levels of productivity, efficiency and cost effectiveness. Specialising in project management from conception to completion, the globally networked CET teams work together with our customers, and can integrate relevant representatives from providers of complementary equipment, such as machine tools, workholding and automation systems.

DOCUMENTED PROCESS OPTIMISATION

We can assist you with current process evaluation and optimisation using the Seco **Productivity and Cost Analysis software (PCA)**. This tool allows us to benchmark existing processes, documenting them against our proposal for potential improvements. PCA can be fully scaled to meet your unique needs, from assessing a single machining application to evaluating workflows throughout your facility.

TAILOR-MADE SOLUTIONS

Seco will ensure that you always get the ultimate tooling solution best suited to your individual requirement, whether it is for standard tooling products or tailor-made solutions. Seco **Custom Tooling** offers complete support to you in these situations, analysing your application and developing a unique solution around it. With 19 state-of-the-art production facilities worldwide, Seco Custom Tooling is always available to make your challenge our priority.

DELIVERING PERSONAL COMMITMENT

SECO'S BUSINESS SERVICES

100% RELIANCE

Seco is fully committed to constantly improving to set new standards in **Quality Assurance** as is evident in our global ISO 9001 certification. We rigorously evaluate our processes to ensure that every product we produce is capable of meeting and exceeding our customers' expectations.
Our total commitment to quality is evident in the level of documentation we provide which meets the vigorous requirements of traceability set by our customers. When you partner with Seco, quality becomes a constant you can count on.

LONG-TERM SUSTAINABILITY

Seco has established and maintains a used carbide **Recycling Programme**; with a commitment to minimising our environmental footprint and conserving non-renewable materials. All aspects of this programme operate within the principles of our ISO 14001 certification, and we make it easy for you to participate. When you recycle used carbide, you not only positively impact the environment, you also recoup a portion of your original expense and help us minimise the cost of tools in the future.

KEEPING THE CUTTING EDGE

Tool Reconditioning is critical to maintain the quality standards required on your workpiece but often, when a tool is removed from use as they show signs of wear, this means discarding an entire cutter when only a small portion of it has been worn. Seco's tool reconditioning service eliminates this potential waste by applying advanced regrinding and recoating processes to bring a tool's geometry, edge preparation and coating back to its original specifications.

INVENTORY MANAGEMENT

Using **Seco Point - Inventory Management** is made simple and efficient. This can be achieved through our user-friendly, point-of-use tool dispensers, tool consumption and inventory levels are tracked and monitored. Inventory replenishment can be automated and you receive reports that make it easy to identify where consumption can be reduced.

BUILDING EXPERTISE IN OUR

GLOBAL COMPETENCE CENTRES

SECO GLOBAL TECHNICAL CENTRES

Seco's Technical Centres are used to engage with our existing and potential customers to facilitate the transfer of expertise and knowledge, for product introduction, industry specific events and engineer customer specific solutions. In addition, Seco representatives from diverse nations gather to share information and discuss winning solutions developed in their home markets, working together to ensure that we understand and are prepared for the trends and challenges you face.

SECO TECHNICAL EDUCATION PROGRAMME (STEP)

Available at our global technical centres or on-site at your own facility, Seco STEP provides training courses on every aspect of metal cutting, at every level of expertise. Whether instructing your apprentices on the basics of cutting processes or helping your experts stay abreast of the latest technological innovations, Seco STEP is an invaluable resource in maximising workforce knowledge.

SECO AUTOMOTIVE WEBSITE

As part of our commitment to automotive manufacturers, Seco developed a comprehensive web resource dedicated to the industry. Featuring a wide variety of video and written content, the website provides informationon current trends, process innovations, tool data and documented application successes. The user-friendly site incorporates an interactive automotive model to easily obtain data relevant to machining specific components. To learn more, visit www.secotools.com/automotive.

Scan this code to see more.
www.secotools.com/automotive

SECO CUSTOMER ZONE & ONLINE STORE

To achieve an even greater level of personal interaction with automotive manufacturers, we provide you with access to the Seco Customer Zone - www.secotools.com/customerzone. This unique web tool provides a wealth of content tailored to your specific needs. From technical applications and product information to interactive training and online ordering.
At Seco, we believe that you should always be able to place and monitor the status of orders, regardless of your location or the date or time. The Seco Online Store allows you to research technical information, check product availability, purchase tooling and follow the status of your orders.

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