

AM26



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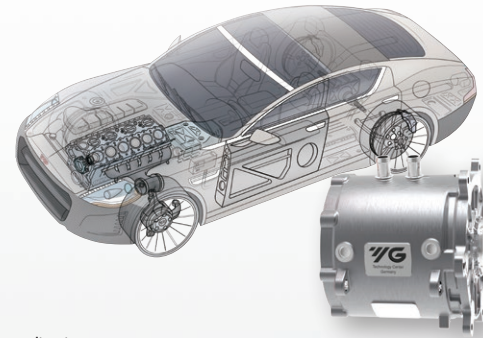
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Incheon 21984, South Korea

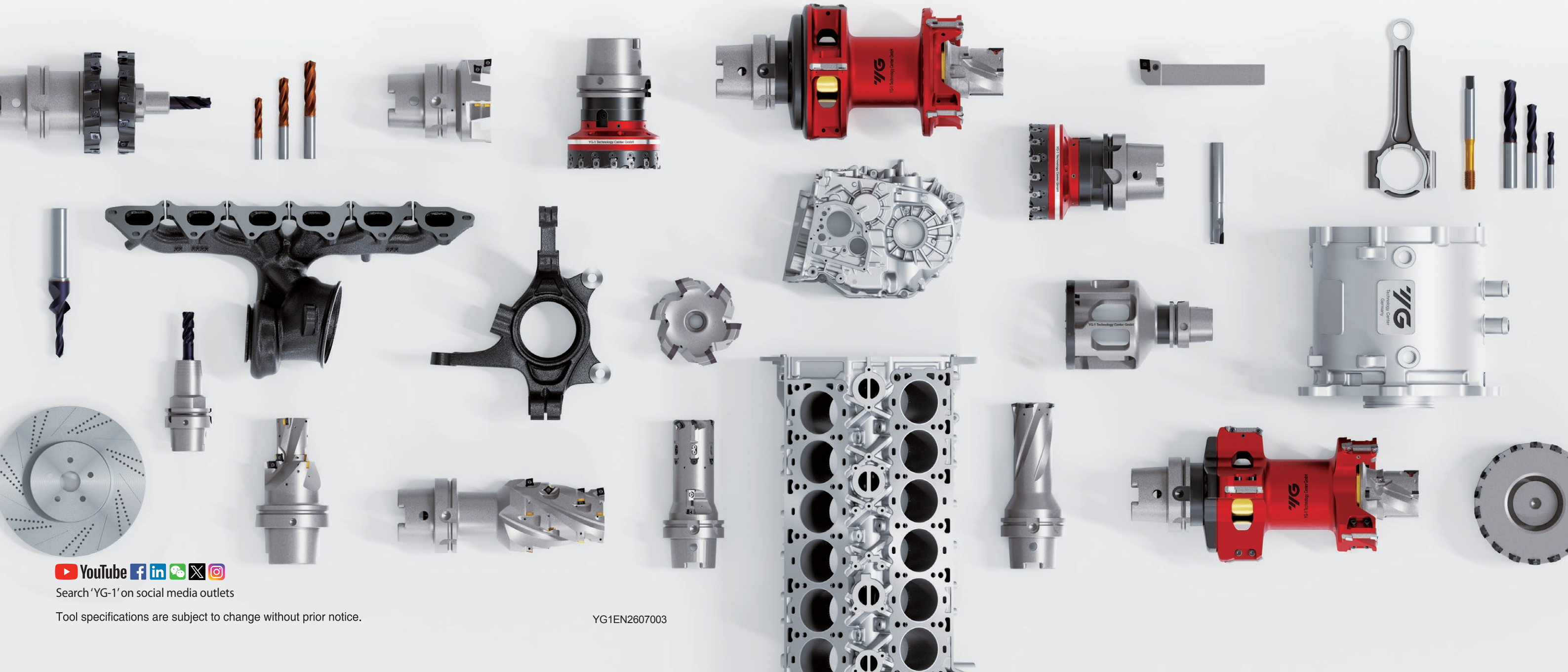
Phone: +82-32-526-0909

<https://www.yg1.solutions> E-mail: [yg1@yg1.solutions](mailto:yg1@yg1.solutions)

**Note** The information is provided for reference only. Tool specifications are subject to change without prior notice.  
Although we endeavor to supply accurate and timely information, there can be no guarantee to cover every particular application.  
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**AUTOMOTIVE**  
TOOL SOLUTIONS FOR INDUSTRIES



Search 'YG-1' on social media outlets

Tool specifications are subject to change without prior notice.

YG1EN2607003

# YG-1 AND THE AUTOMOTIVE INDUSTRY



The automotive industry is always presenting new challenges for the tool manufacturing industry. For example, advanced materials, such as carbon fiber reinforced composites, are machined in the production of today's electric automobiles and difficult to machine, heat-resistant cast steel turbochargers are produced and assembled to smaller engines for greater power and reduced emissions. Both applications place increased demands for advanced cutting tool material, geometries, and coatings.

*YG-1, as a global leader in the manufacturing and application of cutting tools, brings you these innovations worldwide in the form of superior tooling, expert support and world class delivery.*

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**YG-1** has been operating in Germany for over 20 years with a distribution center in Frankfurt Eschborn and a production facility in Remscheid - all to service the European market.

Today, YG-1 is increasing its presence in Europe with the German Technology Center in addition to Technology Centers located in South Korea, the USA, and India.

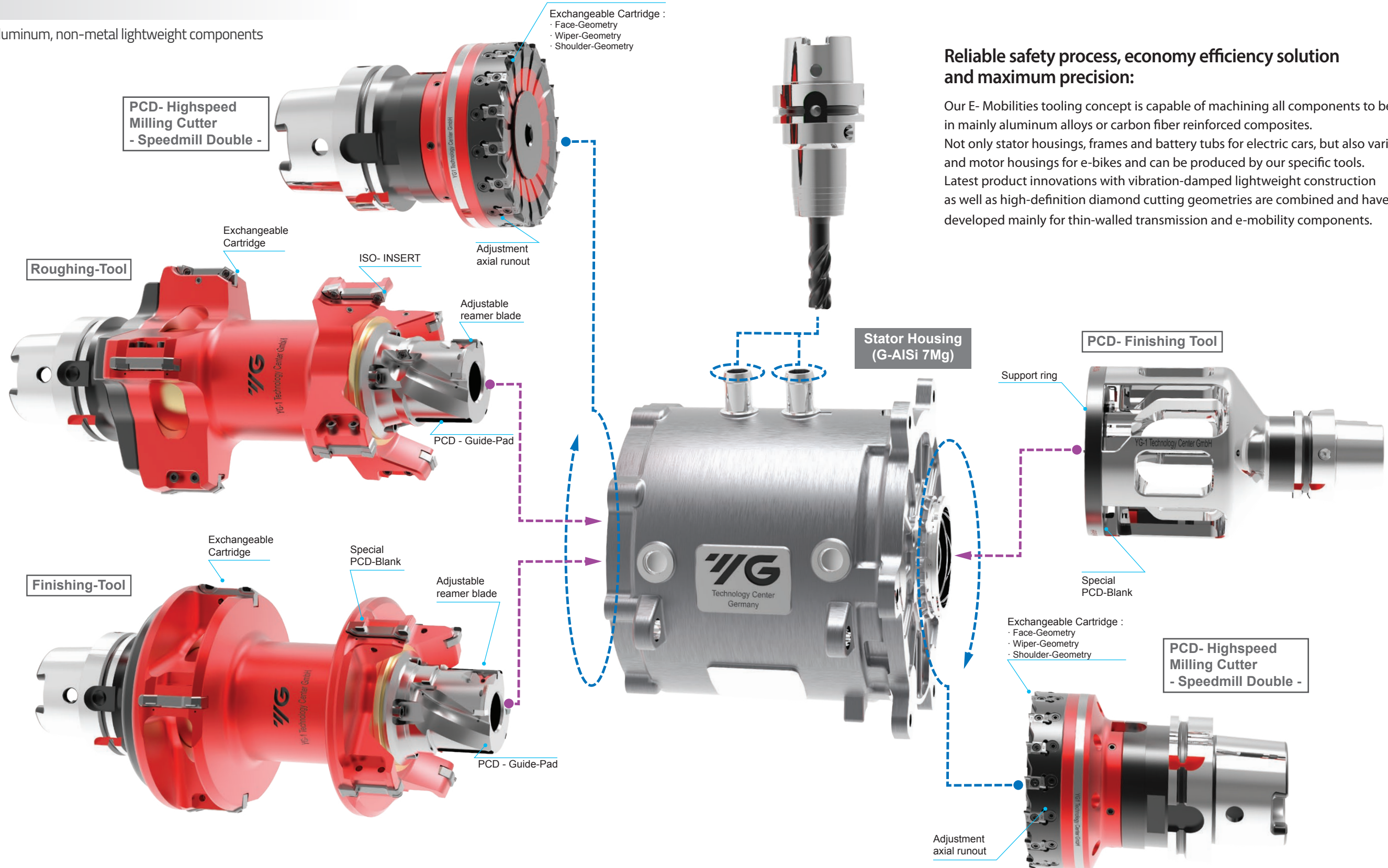
YG-1 Technology Center GmbH is playing a significant role in using the latest technologies to innovate and manufacture cutting tools for the aerospace, energy, and automotive industries.





## Engineering Solution for STATOR-HOUSING

Material: Aluminum, non-metal lightweight components



### Reliable safety process, economy efficiency solution and maximum precision:

Our E- Mobilities tooling concept is capable of machining all components to be machined in mainly aluminum alloys or carbon fiber reinforced composites. Not only stator housings, frames and battery tubs for electric cars, but also various electric drives and motor housings for e-bikes and can be produced by our specific tools. Latest product innovations with vibration-damped lightweight construction as well as high-definition diamond cutting geometries are combined and have been developed mainly for thin-walled transmission and e-mobility components.



Engineering Solution for  
**STATOR-HOUSING  
TOOL CONCEPT**

Roughing/Finishing

**Special Boring tool**

Material: Aluminum, lightweight component materials

Concept: Fine adjustable and guide pad supported

Cutting material: PCD / indexable inserts.



This modular designed tool has been integrated for highest stiffness, but also for extreme light weight and vibration damped component, which meets the highest demands, for roundness and precision in thin-walled materials.



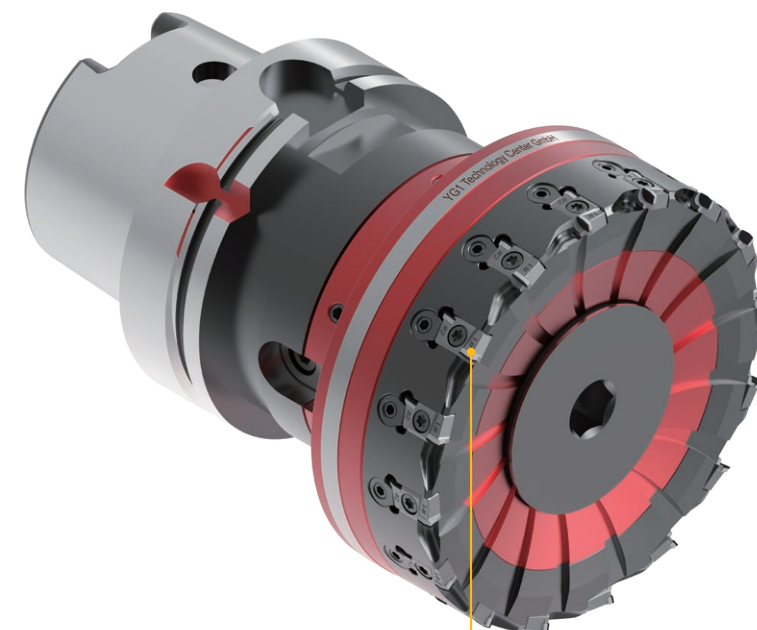
**Monomill - R**

Category: Face milling with heavy stock removal

Material : Aluminum, lightweight component materials

Concept: brazed, lasered

Cutting material: PCD



**Speedmill Double**

Category: Face milling

very efficient economic double-edged cutting system

Material : Aluminum, lightweight non-metal component materials

Concept : exchangeable, fine adjustable, different variants of geometries

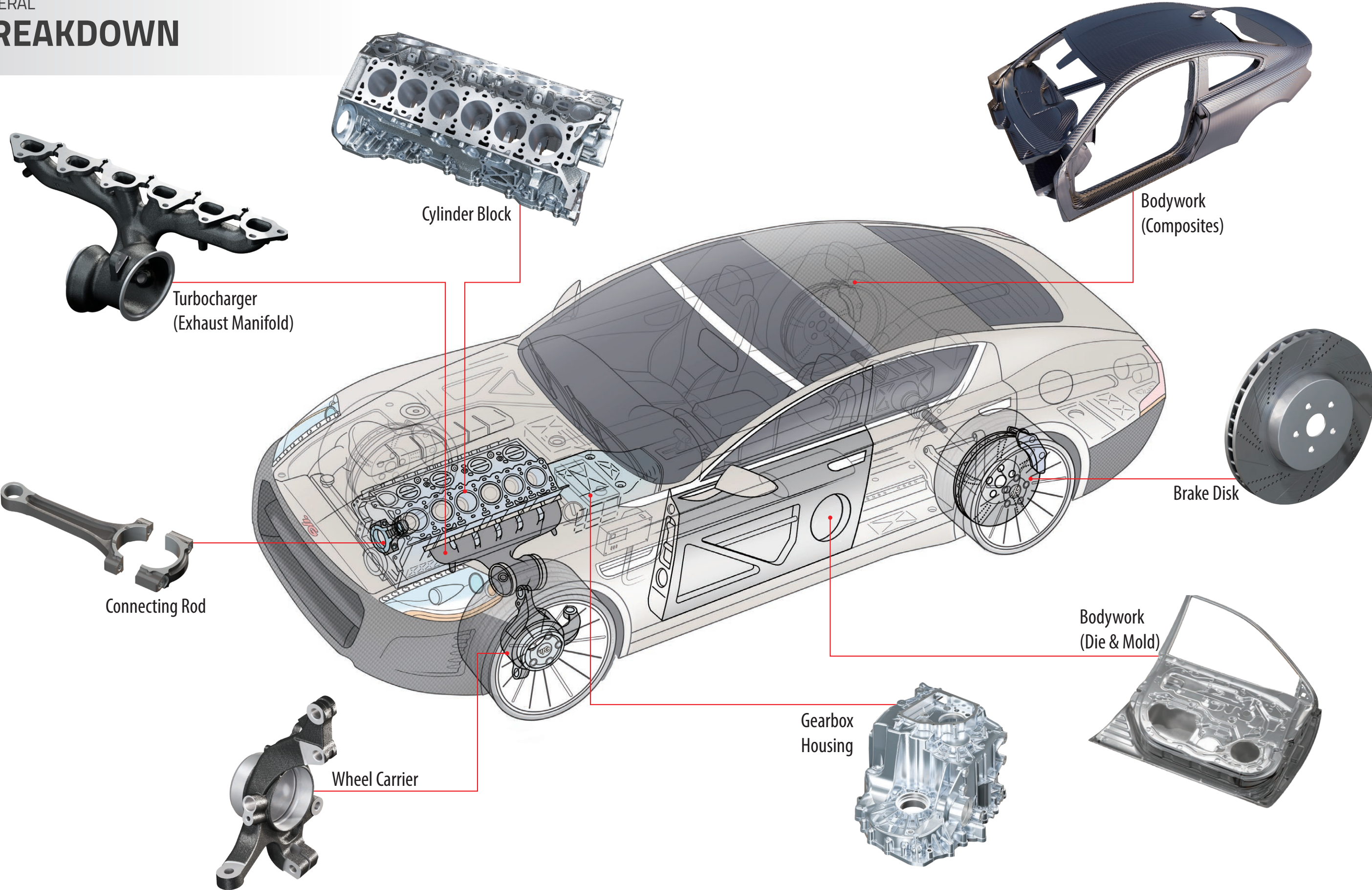
for all surface requirements

Cutting material: PCD





GENERAL  
**BREAKDOWN**





## Engineering Solution for CYLINDER BLOCK

■ Milling ■ Drilling ■ Threading

### ① Face Milling

Experience the productivity advantages that YG-1's custom designed PCD Cartridge Milling Cutter provides. It's an ideal solution for milling large surfaces to precise requirements - such as the cylinder block to cylinder head interface.

①

②

③

④

⑤

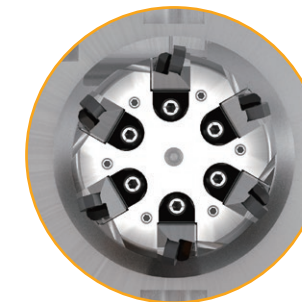
④

### ④ Machining Cylinder Bores

YG-1 provides a wide range of Indexable Tools for precise boring of cylinder bores - including carbide inserts for roughing and CBN (for higher cutting speed) or carbide inserts for finishing. YG-1 finishing tools feature an advanced cartridge adjustment clamping system that allows for axial adjustment along with lateral (boring diameter) positioning of the CBN insert to meet exact tolerance requirements.

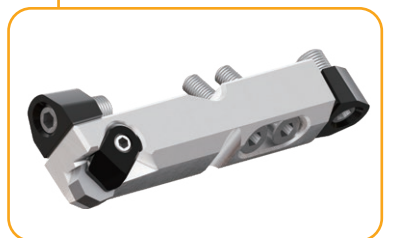
### ⑤ Cylinder bore

Finishing tool for cylinder bore in cylinderblock. Motion tool with drawbar connection to adjust the tool and wear compensation by machine control. This solution includes Semi-Finish and Finishing cut.



Finely Adjustable Boring Diameter

Adjustable Cartridge Type B



Please refer to page 29 for explanation about the special cartridge system

### ② Drilling / Countersinking

YG-1 manufactures multi-functional tools, such as carbide chamfering drills, designed to save valuable time and money combining two very common operations into one advanced tool.

### ③ Tapping

YG-1 offers a wide range of threading tools, recognized among the most innovative in the industry. Features such as special thread geometries designed to prevent overfeeding and advanced threading solutions engineered for optimal performance make YG-1 products ideal for engine manufacturing applications.

### ⑥ Line boring bar

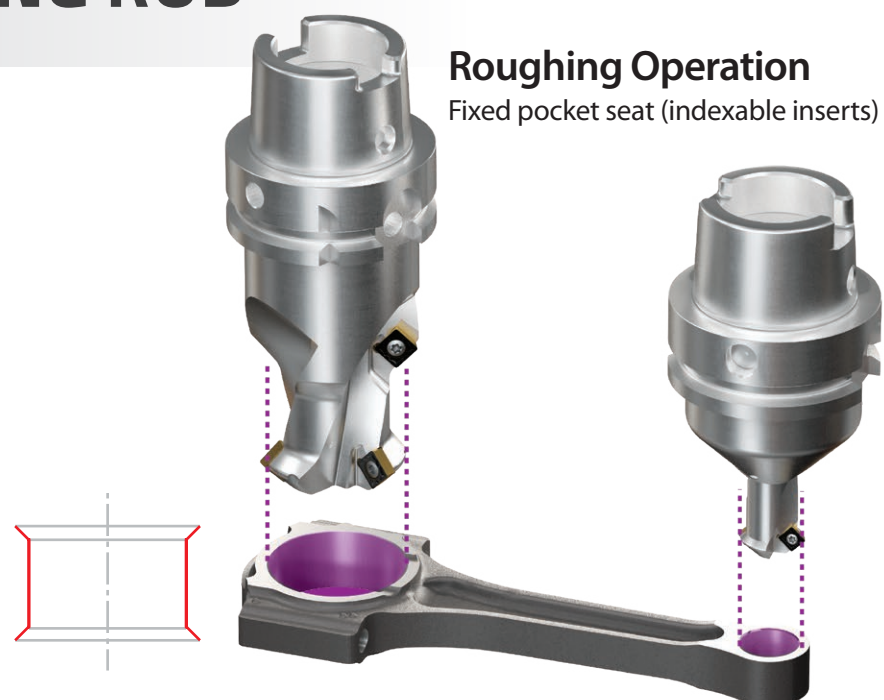
Fine boring tool to finish Crank-hole in a cylinder block. Semi-Finish and Finish cut with Micro Boring unit for fine adjustment. YG-1 delivers the process solution including guide bushed, fixture and line boring tool.

\* This workpiece machined using custom tools, that are tailor-made to the needs of a specific customer. Please contact YG-1 dealer for more information



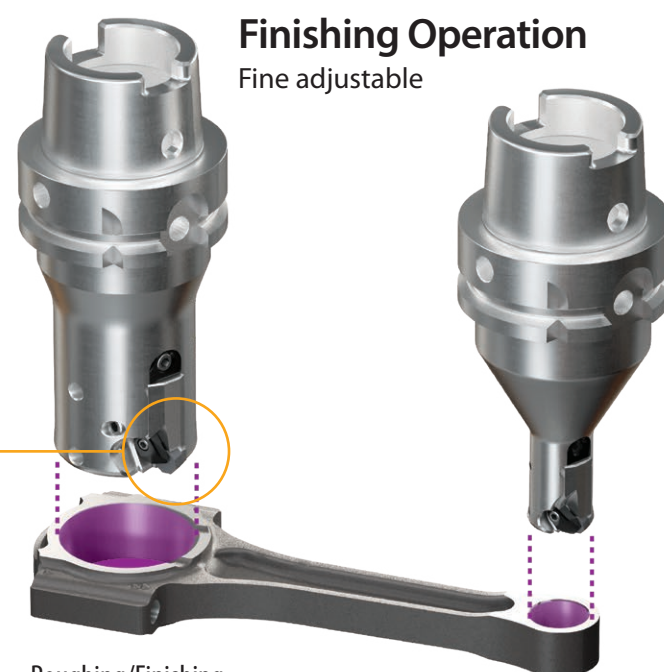
Engineering Solution for

# CONNECTING ROD



## Roughing Operation

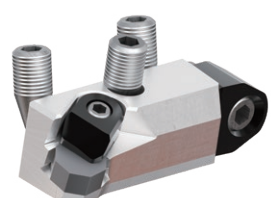
Fixed pocket seat (indexable inserts)



## Finishing Operation

Fine adjustable

### Adjustable Cartridge Type A



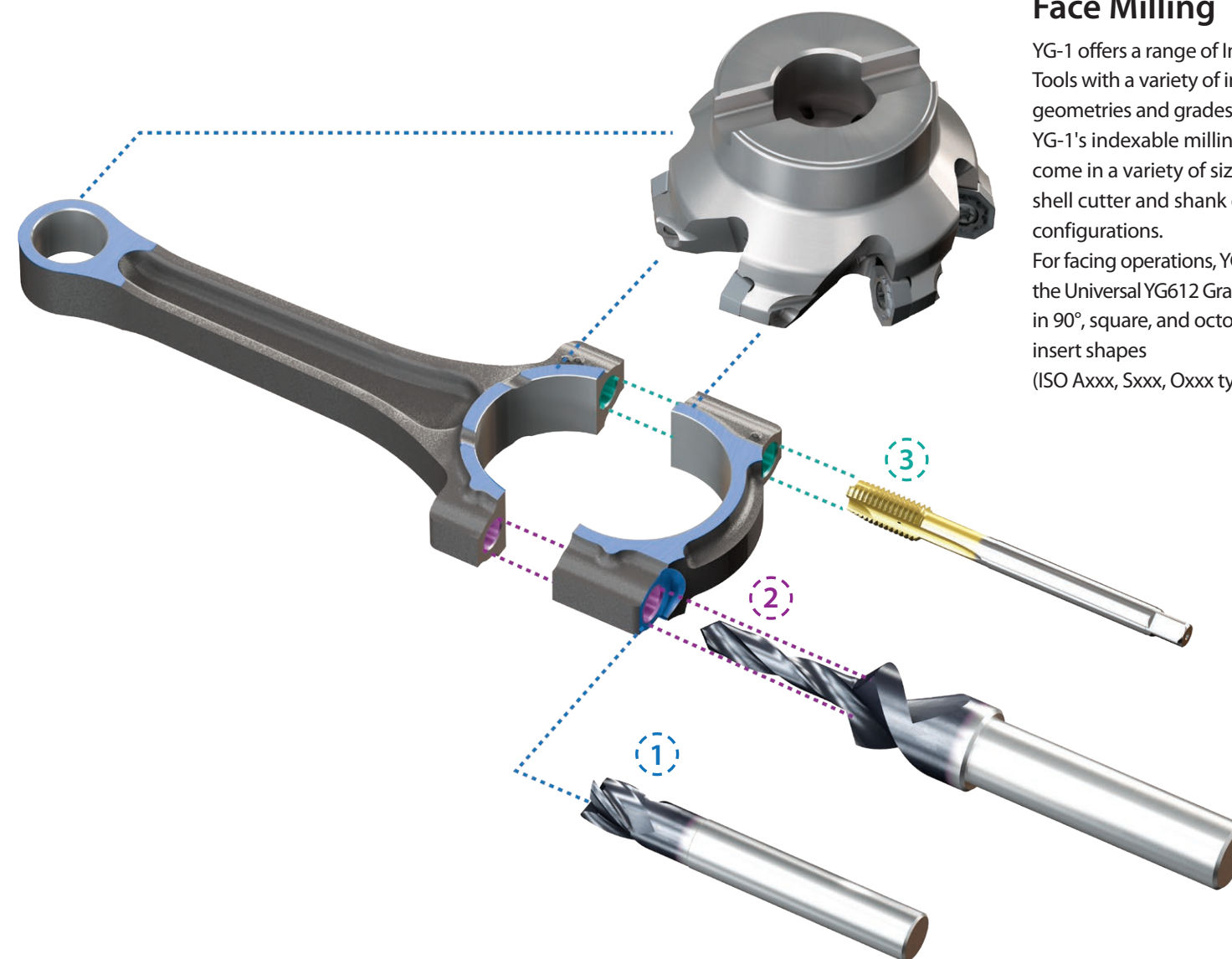
Please refer to page 28 for explanation about the special cartridge system

Roughing/Finishing

## Boring Tools

YG-1 provides a wide range of Indexable Tools for precise boring of connecting rod openings - including carbide inserts for roughing and CBN inserts for finishing.

YG-1 finishing tools feature an advanced cartridge adjustment clamping system that allows for axial and lateral adjustment for precise size control.



## Face Milling

YG-1 offers a range of Indexable Tools with a variety of insert geometries and grades.

YG-1's indexable milling cutters come in a variety of sizes for shell cutter and shank cutter configurations.

For facing operations, YG-1 offers the Universal YG612 Grade inserts in 90°, square, and octagonal insert shapes (ISO Axxx, Sxxx, Oxxx types)

### ① Solid Milling

YG-1s' End mills are recognized worldwide as the best. 4G Mill and V7 Plus End mills offer a variety of flutes and geometries that address the demands of a wide range of applications.

### ② Drilling / Countersinking

YG-1 manufactures multi-functional tools, such as carbide chamfering drills, designed to save valuable time and money combining two very common operations into one advanced tool.

### ③ Tapping

YG-1 offers a wide range of threading tools, recognized among the most innovative in the industry. Features such as special thread geometries designed to prevent overfeeding and advanced threading solutions engineered for optimal performance make YG-1 products ideal for engine manufacturing applications.

\* This workpiece machined using custom tools, that are tailor-made to the needs of a specific customer. Please contact YG-1 dealer for more information



Engineering Solution for  
**TURBO CHARGER**  
EXHAUST MANIFOLD

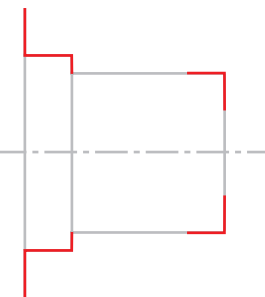
■ Milling ■ Drilling ■ Threading

### Slot / Cavity Milling

YG-1's solid end mills maintain world-class performance. It comes in numerous configurations and geometries as standard products Even to handle the most heavy-duty applications with ease.

### Face Milling

YG-1 offers a range of indexable cutters for facing large areas. YG612 Grade inserts allow for optimal cutting speeds while maintaining accuracy and excellent surface finish.



### Multi-Step Boring

Experience the time saving benefits of specially designed tools for machining exhaust manifold and exhaust ports using YG-1's YG1010/YG3115 Grade inserts for highly heat-resisting material, delivering exceptional results every time.



### Inner/Outer Flange Machining

Experience the time saving benefits of specially designed tools for machining exhaust manifold and exhaust ports using YG-1's YG1010/YG3115 Grade inserts for highly heat-resisting material, delivering exceptional results every time.

### Face Milling

### Chamfer Drilling

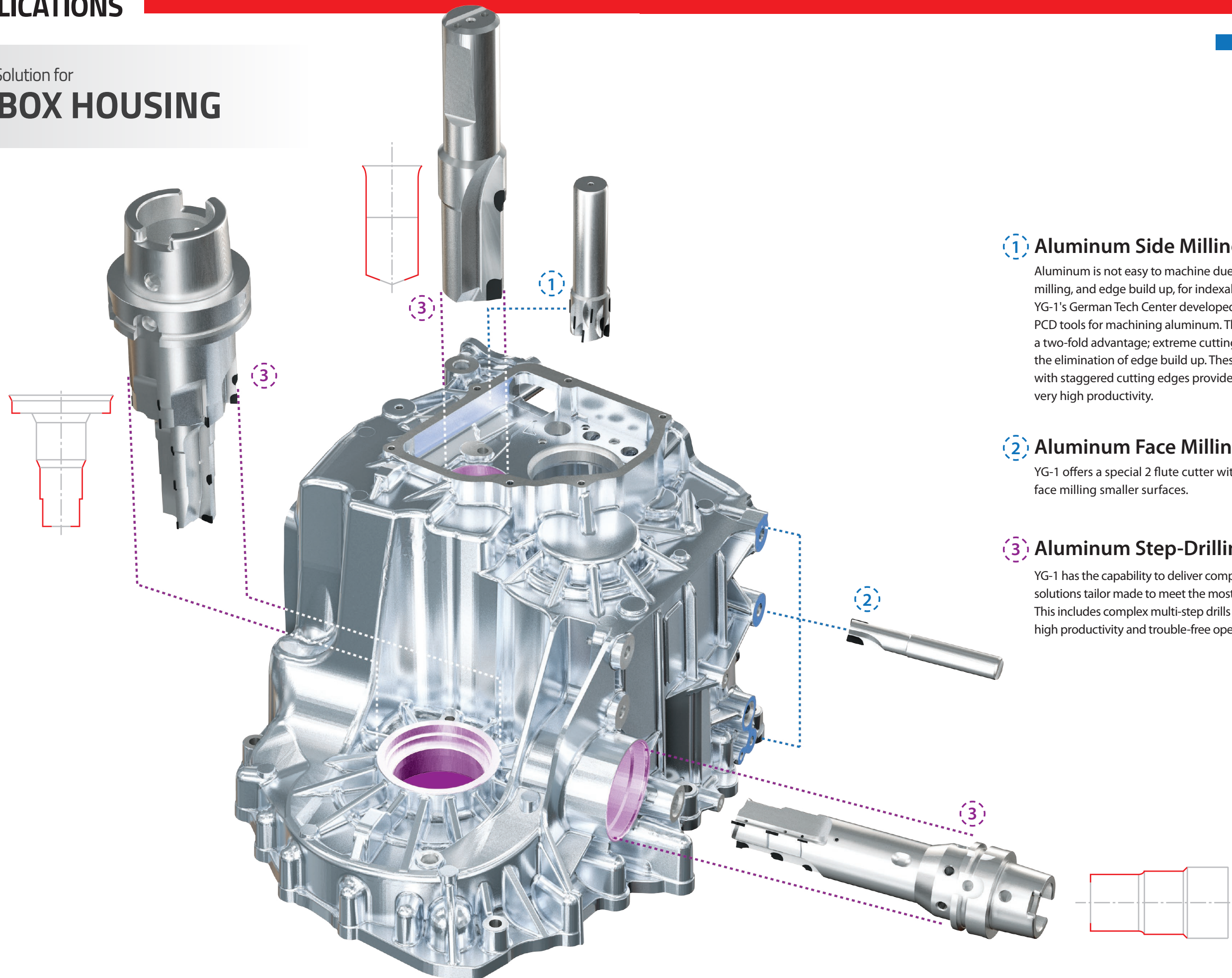
### Threading

\* This workpiece machined using custom tools, that are tailor-made to the needs of a specific customer. Please contact YG-1 dealer for more information



# Engineering Solution for GEARBOX HOUSING

■ Milling ■ Drilling



## ① Aluminum Side Milling

Aluminum is not easy to machine due to long chips, for solid milling, and edge build up, for indexable milling. YG-1's German Tech Center developed a range of custom PCD tools for machining aluminum. These PCD tools provide a two-fold advantage; extreme cutting speed and the elimination of edge build up. These side milling cutters with staggered cutting edges provide a smooth finish and very high productivity.

## ② Aluminum Face Milling

YG-1 offers a special 2 flute cutter with PCD inlays for fast face milling smaller surfaces.

## ③ Aluminum Step-Drilling

YG-1 has the capability to deliver complete machining solutions tailor made to meet the most challenging demands. This includes complex multi-step drills with PCD inlays for high productivity and trouble-free operation.

\* This workpiece machined using custom tools, that are tailor-made to the needs of a specific customer. Please contact YG-1 dealer for more information



# Engineering Solution for STEERING KNUCKLE

## Drilling

YG-1 is known world wide as a premier round tool manufacturer and offers multiple series of carbide drills for use in a variety of materials including cast iron.

### SOLID CARBIDE DRILLING DREAM DRILLS HIGH FEED

H- Coated 3 Flute Solid Carbide Drills with Coolant Holes for Faster Drilling on Steels and Cast Iron



Scan this QR code to see our Dream Drills High Feed at work.

## Chamfer Drilling

YG-1 manufactures multi-functional tools, such as carbide chamfering drills, designed to save valuable time and money combining two very common operations into one advanced tool.

## T03 - Tandem Face Milling and Chamfer Drilling

YG-1 offers customized tools to meet the challenges of automotive manufacturing. This includes custom tooling such as ganged indexable milling cutters with tangential carbide inserts coupled with a chamfer drill for a single solution to reduce cycle time.

## T01 - One-Shot Inner Boring/Profiling

Experience the time saving benefits of YG-1's specially designed tools for machining steering knuckles. Use YG1010/YG3115 Grade inserts for cast iron to deliver exceptional results every time.

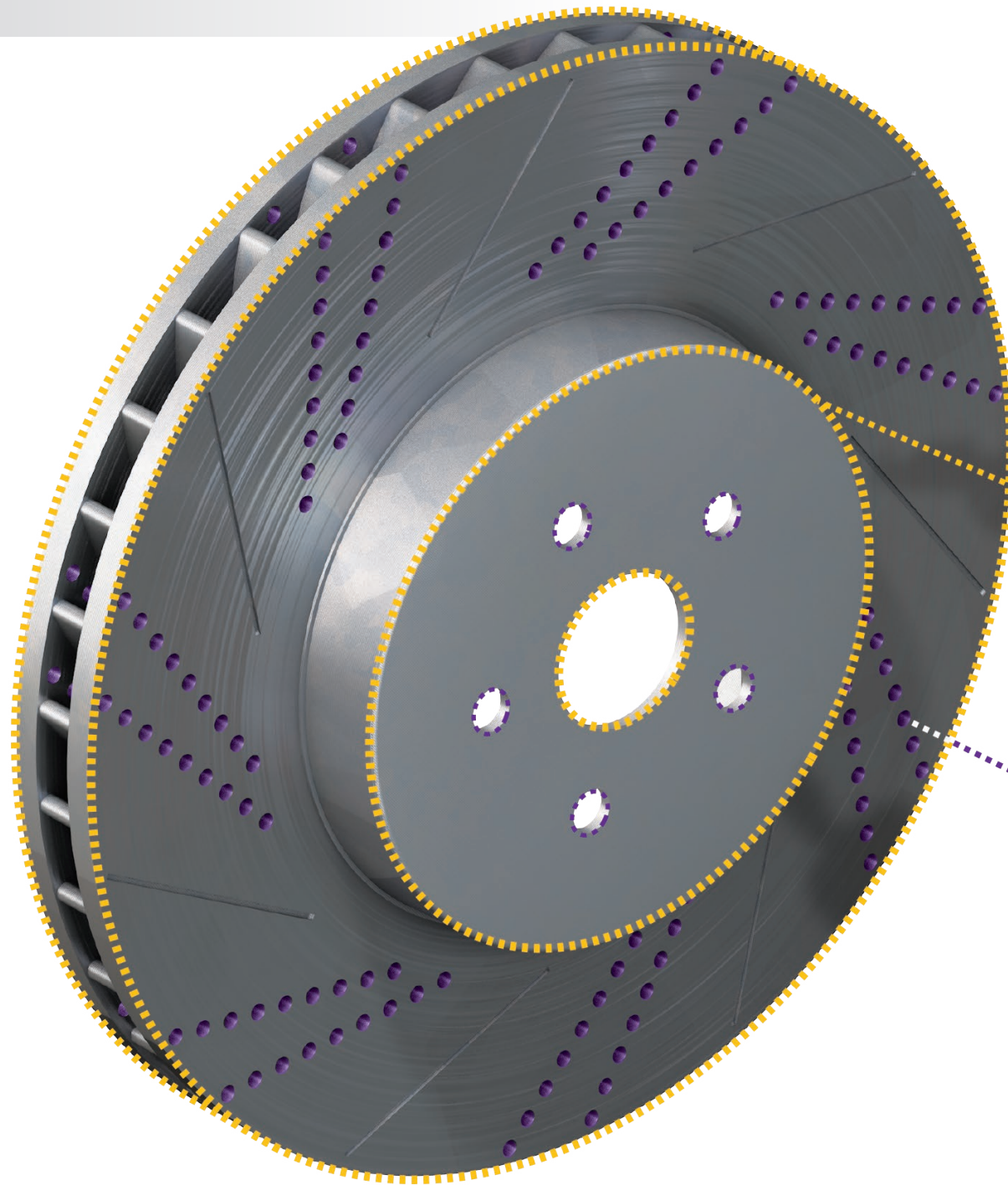
## T02 - Bore Finishing

For finishing the inner bore of a wheel carrier to a precise surface finish that meets the rigorous standards of the automotive industry, YG-1 engineers developed a bore finishing tool with PCD inlays customized to meet the end user's specifications.

\* This workpiece machined using custom tools, that are tailor-made to the needs of a specific customer. Please contact YG-1 dealer for more information



## Engineering Solution for **BRAKE DISK**

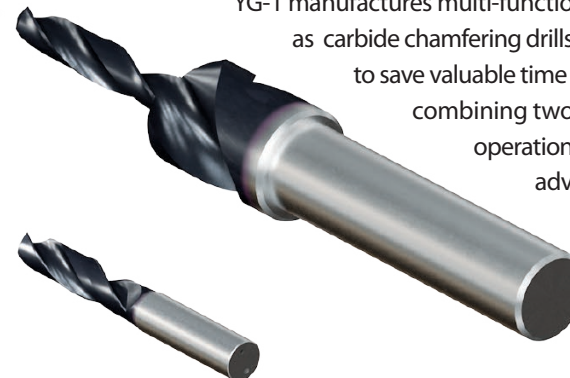


### Turning

YG-1 offers a large variety of indexable turning tools and carbide inserts with multiple grades including YG3125 Grade specifically engineered for steel applications. Visit YG-1 website and download the Indexable Cutting Tools catalog, or contact one of many local sales representative to learn more about other options YG-1 can provide.

### Chamfer Drilling

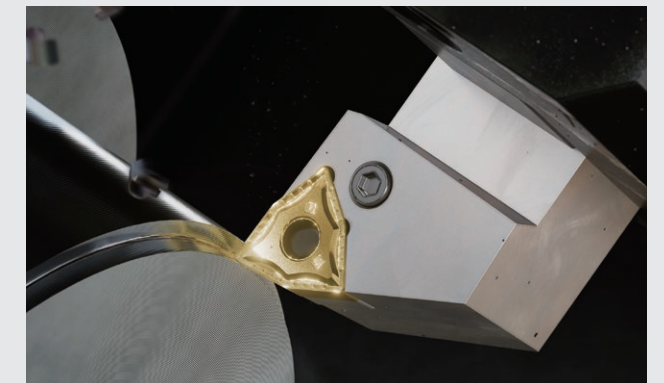
YG-1 manufactures multi-functional tools, such as carbide chamfering drills, designed to save valuable time and money combining two very common operations into one advanced tool.



### Drilling

YG-1 is known world wide as a premier round tool manufacturer and offers multiple series of carbide drills for use in a variety of materials including cast iron.

### YGTURN



#### YG1010 **K05 - K15**

##### First Choice for Cast Iron

- Effective coating structure enables high speed machining
- Special post treatment for improved chipping resistance

#### YG3125 **P15 - P30**

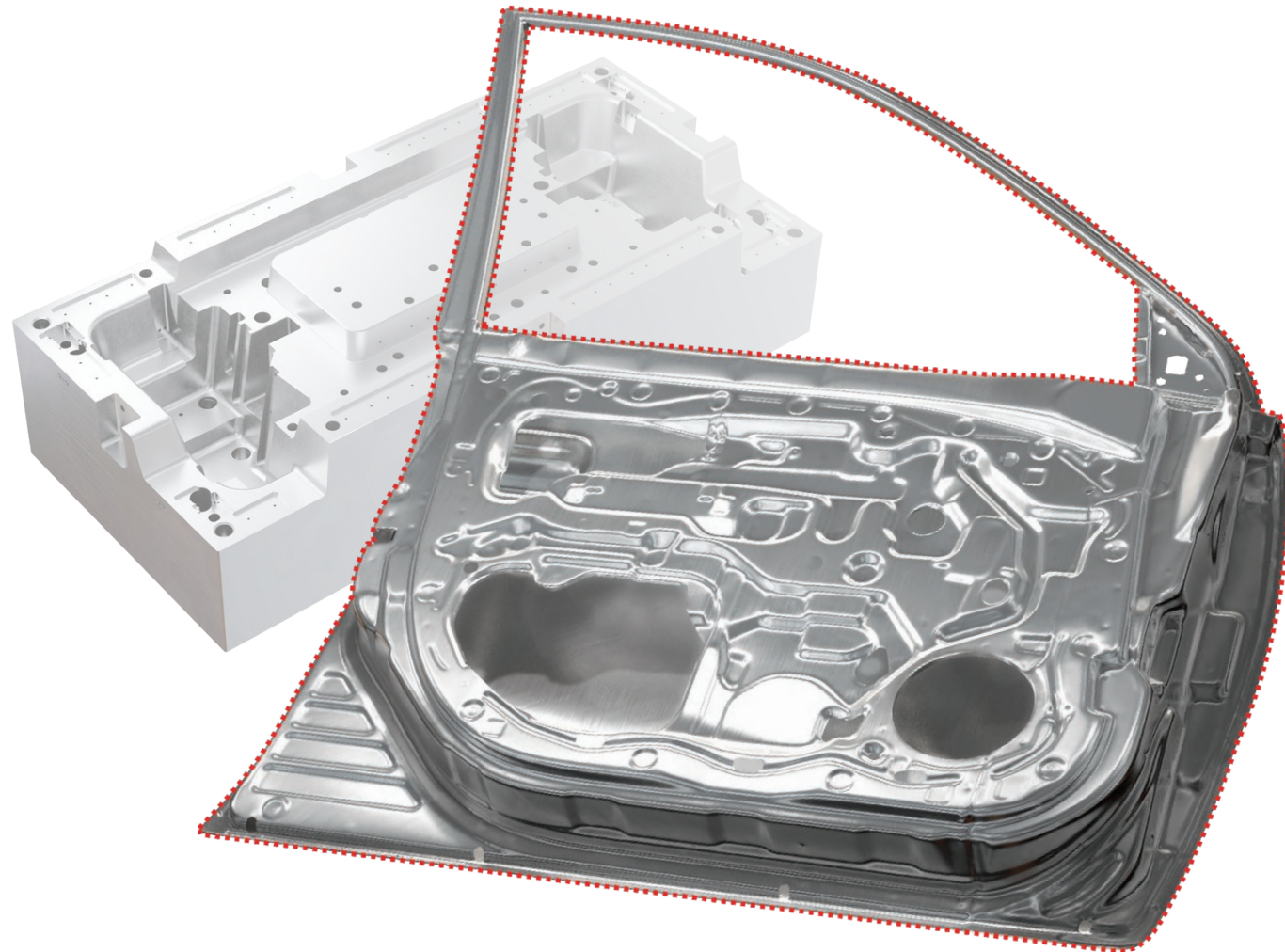
##### Recommended first grade for steel

- New substrates with a unique combination of good toughness and plastic deformation resistance
- General Machining on steel

\* This workpiece machined using custom tools, that are tailor-made to the needs of a specific customer. Please contact YG-1 dealer for more information



Engineering Solution for  
**BODYWORK - DIE & MOLD**

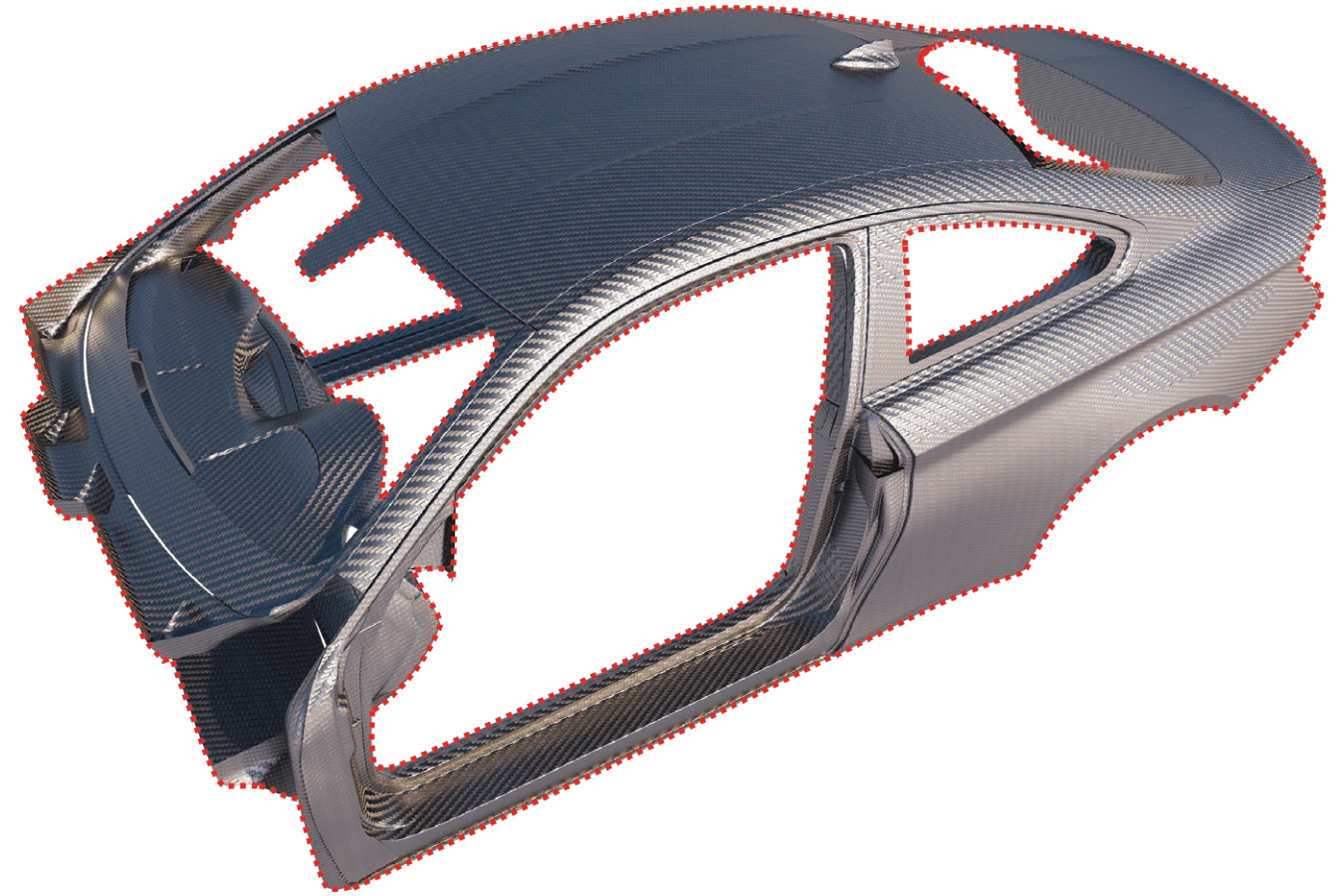


## Die & Mold

Modern vehicle body parts such as doors, hoods, and fenders are manufactured with sophisticated dies and molds.

YG-1 offers comprehensive solutions for machining Die & Mold sets used for the production of automotive body parts and many other applications. Scan the provided QR code to access our Die & Mold Solutions brochure.

Engineering Solution for  
**BODYWORK - COMPOSITES**



## Composites

More and more, composite materials are becoming increasingly prevalent across the entire manufacturing sector. There is an ever growing trend in the automotive industry to make use of the advanced properties of CFRP (Carbon Fiber Reinforced Plastics), GFRP (Glass Fiber Reinforced Plastics) and other such materials once only the domain of advanced aerospace projects. Prime example of composite materials used outside of aerospace are the various body components for the automotive industry.

In keeping pace with the most cutting-edge technologies and trends, YG-1 has developed a wide range of diamond-coated and PCD cutting tools for a wide variety of composite materials. Scan the provided QR code to access our Composites Materials - Tools Solutions for Industries brochure.

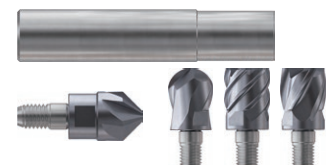


## K Cast Iron

INDEXABLE FACE MILLING AND ROUGHING  
**YG MILL** [General & -TR Chipbreaker]



EXCHANGEABLE HEAD SOLID CARBIDE MILLING  
**i-SMART**



REAMING  
**CARBIDE REAMERS**



SOLID CARBIDE MILLING  
**4G MILL**



EXCHANGEABLE HEAD MILLING  
**i-Xmill**



DRILLING  
**i-ONE DRILLS**



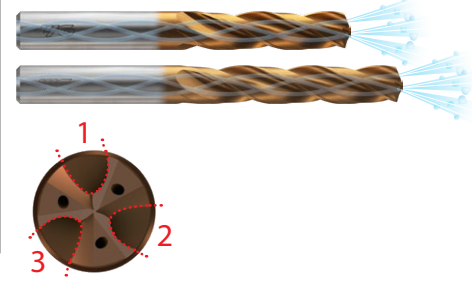
THREADING  
**PRIME TAPS | THREAD MILLS |  
COMBO TAPS | YGTAP CAST IRON**



DRILLING  
**X-DRILL**



SOLID CARBIDE DRILLING  
**DREAM DRILLS HIGH FEED**

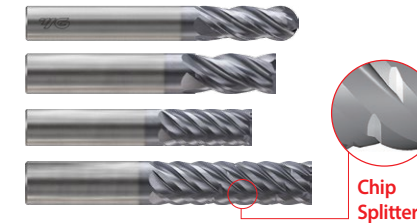


## P Steel

INDEXABLE FACE MILLING AND ROUGHING  
**YG MILL** [General & -TR Chipbreaker]



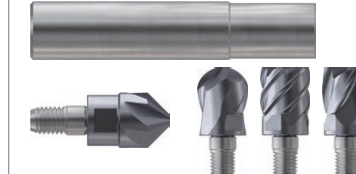
SOLID CARBIDE HEAVY-CUT MILLING  
**V7 PLUS**



REAMING  
**CARBIDE REAMERS**



EXCHANGEABLE HEAD SOLID CARBIDE MILLING  
**i-SMART**



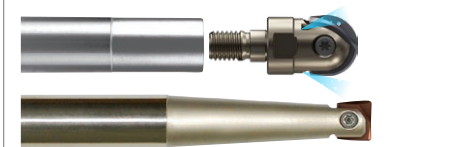
SOLID CARBIDE MILLING  
**4G MILL**



DRILLING  
**X-DRILL**



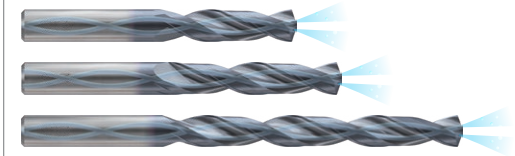
EXCHANGEABLE HEAD MILLING  
**i-Xmill**



MILLING / FINISHING / PROFILING  
**X1-EH**



SOLID CARBIDE DRILLING  
**DREAM DRILLS X**



## N Non Ferrous Metals (Aluminum)

SOLID CARBIDE ALUMINUM MILLING  
**ALU-POWER**

SOLID CARBIDE ALUMINUM HIGH PRODUCTIVITY MILLING  
**ALU-POWER HPC**



SOLID CARBIDE ALUMINUM DRILLING  
**DREAM DRILLS ALU**



THREADING  
**THREAD MILLS  
SYNCHRO TAPS  
YG TAP ALU**



REAMING  
**CARBIDE REAMERS**



INDEXABLE FACE AND PROFILE MILLING  
**YG MILL** [-AL Chipbreaker]



SOLID CARBIDE MILLING  
**EV MILLS**



THREADING  
**PRIME TAPS | THREAD MILLS | COMBO TAPS | SYNCHRO TAPS**



EXCHANGEABLE HEAD DRILLING  
**i-ONE DRILLS**



SOLID CARBIDE DRILLING  
**DREAM DRILLS FLAT BOTTOM**

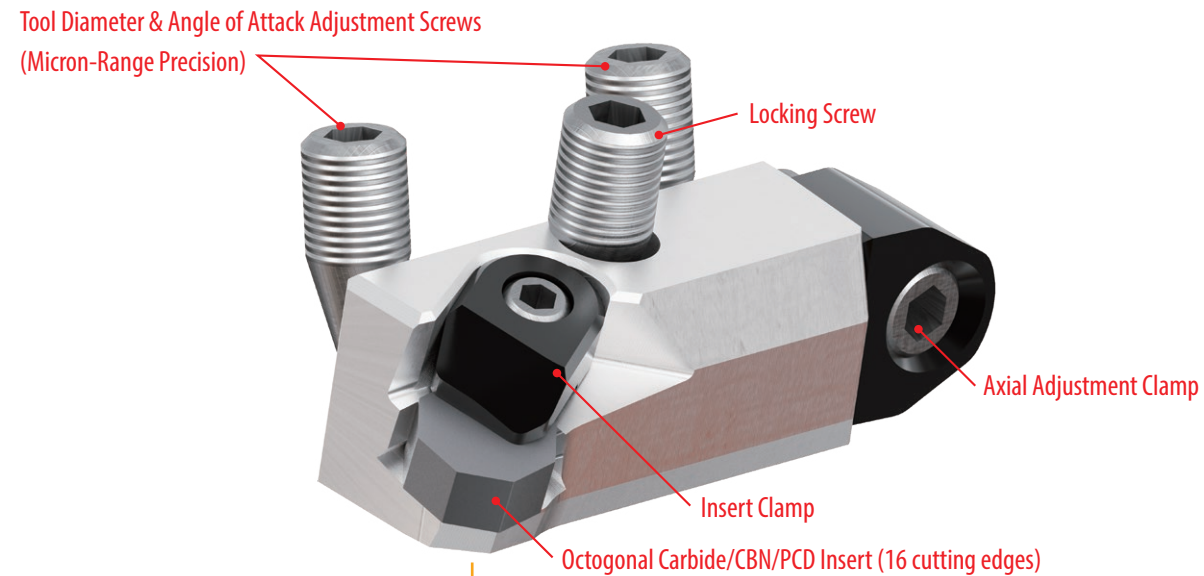


SOLID CARBIDE DEEP DRILLING  
**DREAM DRILLS MQL**





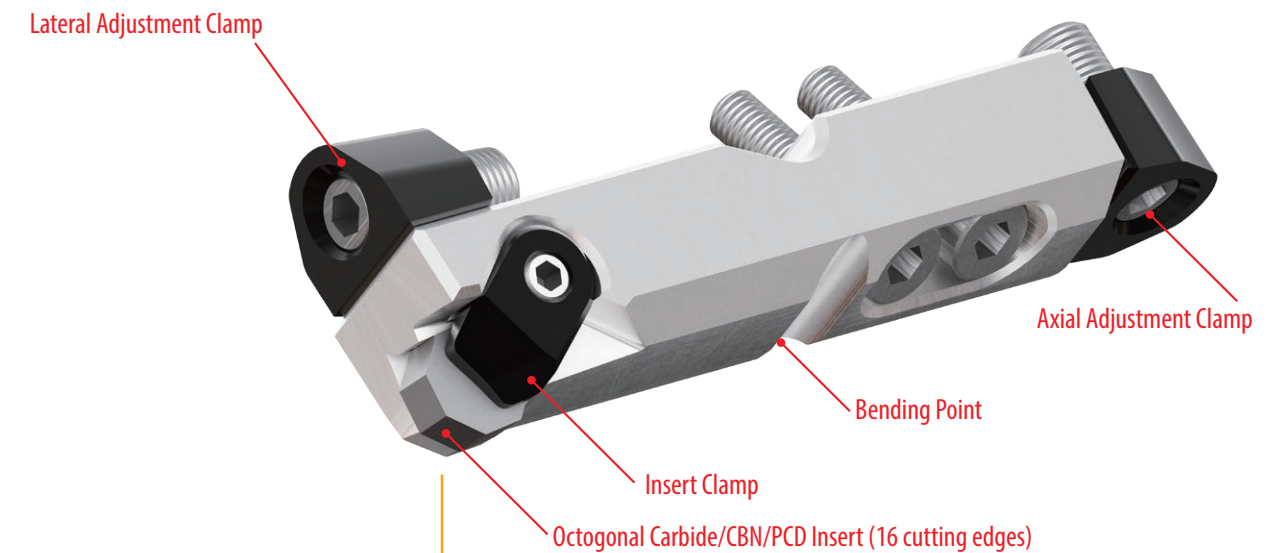
# CARTRIDGES



## Adjustable CBN Insert Cartridge Type A

Pivoting Type

Specially developed for YG-1 precision bore finishing tools. The cartridge carries a replaceable Carbide/CBN/PCD insert and it can be precisely adjusted axially as well as laterally by loosening the locking screw and adjusting the Tool Diameter & Angle of Attack adjustment screws and axial clamp. This system allows for fine-tuned adjustments to satisfy the most demanding requirements for tight tolerances and exact bore dimensions.



## Adjustable CBN Insert Cartridge Type B

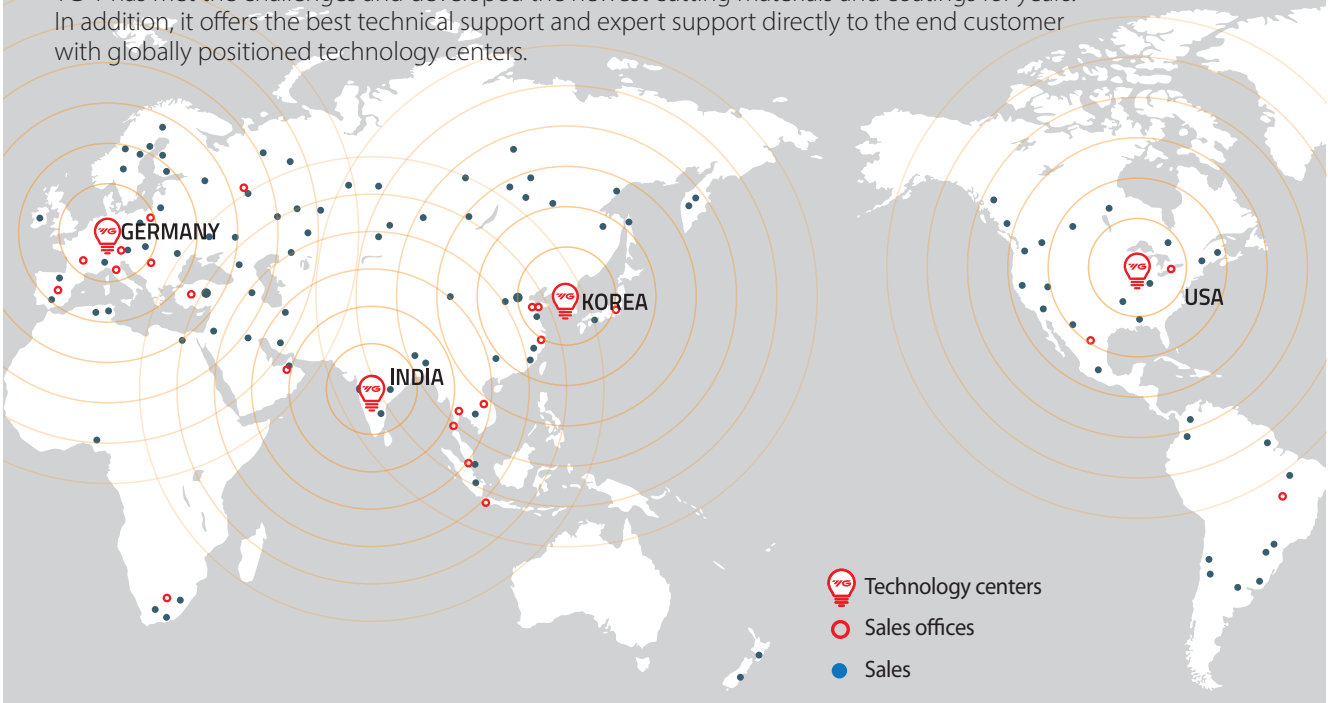
Bending Type

YG-1's new cartridge with indexable carbide, CBN, or PCD inserts mounted and secured by a robust clamping system, offers greater lateral adjustment due to the incorporated bending point. This cartridge features double locking screws to insure precision while also allowing for additional axial movement. As with previous versions, this cartridge can be axially and laterally adjusted with the corresponding clamps.



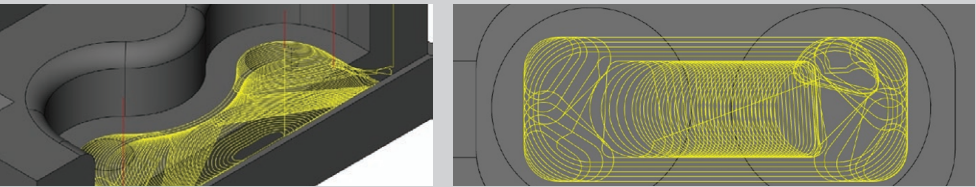
# **GLOBALLY POSITIONED TECHNOLOGY CENTERS**

YG-1 has met the challenges and developed the newest cutting materials and coatings for years. In addition, it offers the best technical support and expert support directly to the end customer with globally positioned technology centers.



# **DESIGN, SIMULATE, PRODUCE AND TEST IN THE INDUSTRY’S MOST ADVANCED FACILITIES**

## **INTRODUCING THE ULTIMATE SOLUTION IN TOOL-MAKING TECHNOLOGY**



### **DESIGN**

- Advanced CAD/CAM assisted application simulation to assure precise design integrity.
- On-site R & D specialists for advanced high-production solutions.
- Expertise & problem solving for the Automotive industry as well as other industries.
- Designing our products to meet the needs of the client each time.

### **SIMULATE**

- Computer aided simulation to assure cost-effective manufacturing.
- Machining solutions for steel, stainless steel, hard metals and non-ferrous materials.
- We can help you optimize paths for your YG-1 tools, with the help of our experts, insuring that you can get the best productivity.

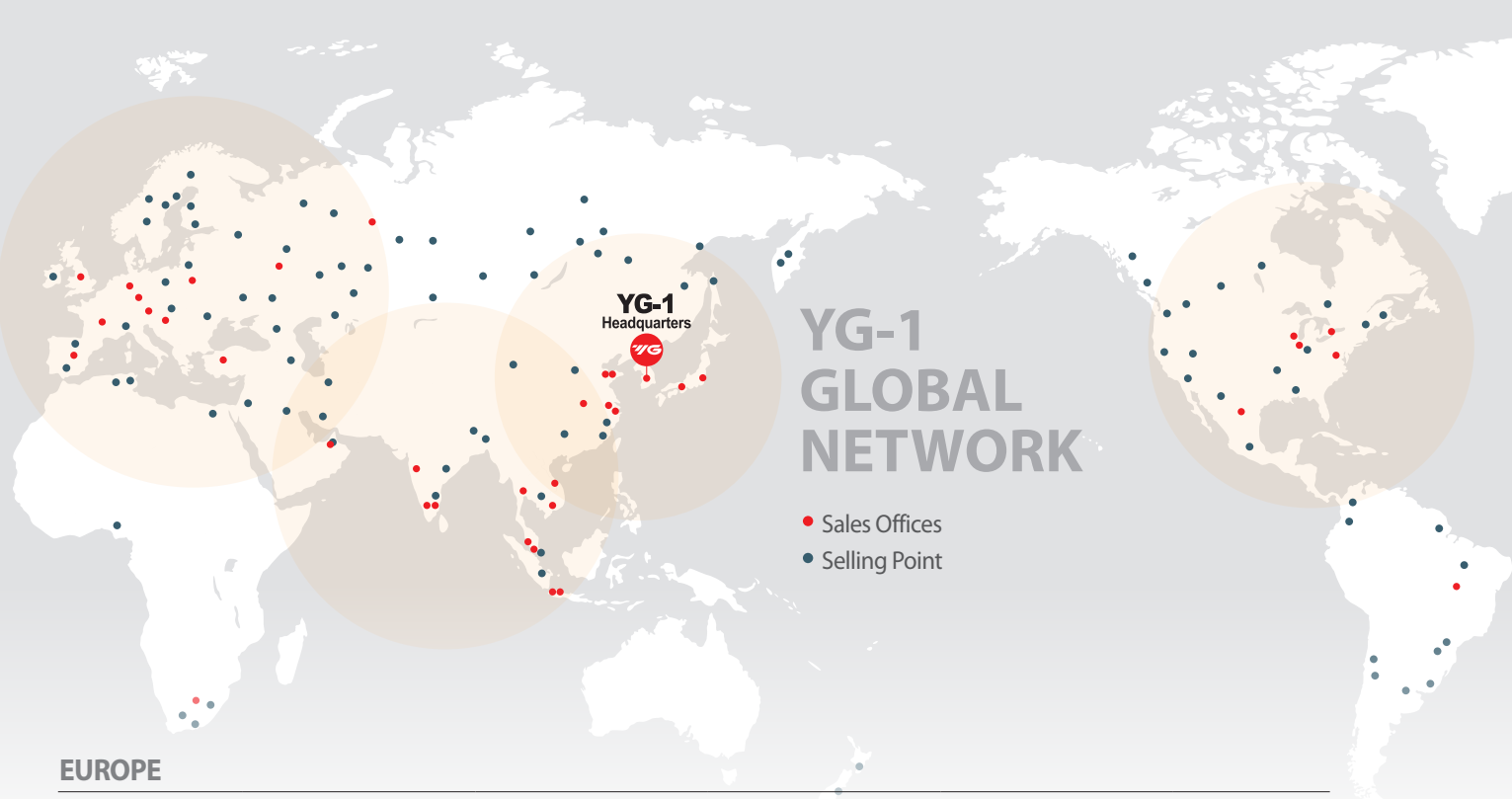
### **PRODUCE**

- 5-axis CNC grinding machines for rapid production.
- World-class sub micron carbide blanks to assure increased tool life.
- Latest generation in PVD and CVD coatings for enhanced wear resistance and edge protection.



# **HIGH QUALITY PRODUCTS and ON TIME DELIVERY for WORLD WIDE CUSTOMERS**

Since 1981, YG-1 has been committed to quality, innovation and the unique customer experience. Our performance and experience have granted YG-1 the global impression of one of the leading manufacturers of high quality cutting tool solutions. This global footprint expands over 75 countries, with international logistic centers, pledging to our customers to give the best service available today - and tomorrow.



## **EUROPE**

|         |                |                 |                        |                |
|---------|----------------|-----------------|------------------------|----------------|
| Albania | Austria        | Belgium         | Bosnia and Herzegovina | Bulgaria       |
| Croatia | Czech Republic | Denmark         | Estonia                | Finland        |
| Germany | Greece         | Hungary         | Italy                  | Lithuania      |
| Poland  | Portugal       | Romania         | Serbia                 | Slovenia       |
| Sweden  | Switzerland    | The Netherlands | Türkiye                | Ukraine        |
|         |                |                 |                        | United Kingdom |

## **ASIA PACIFIC**

|                |                 |          |                      |              |            |
|----------------|-----------------|----------|----------------------|--------------|------------|
| Australia      | Hong Kong S.A.R | India    | Indonesia            | Israel       | Japan      |
| Mainland China | Malaysia        | Pakistan | Philippines          | Saudi Arabia | Singapore  |
| South Korea    | Taiwan Region   | Thailand | United Arab Emirates |              | Uzbekistan |
| Vietnam        |                 |          |                      |              |            |

## **AMERICAS**

|        |        |          |        |               |
|--------|--------|----------|--------|---------------|
| Brazil | Canada | Colombia | Mexico | United States |
|--------|--------|----------|--------|---------------|

## **AFRICA**

|       |              |
|-------|--------------|
| Egypt | South Africa |
|-------|--------------|

**YG-1 CO., LTD.**

\* For the more information on sales network, please contact the head office as below;

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