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YG-1 PRODUCTS!!
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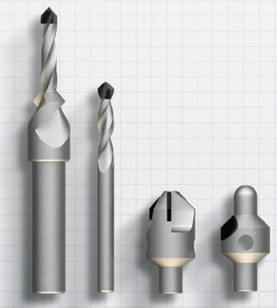
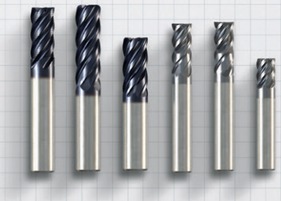
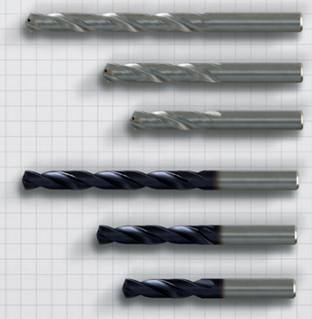
YG

AEROSPACE

SOLUTIONS



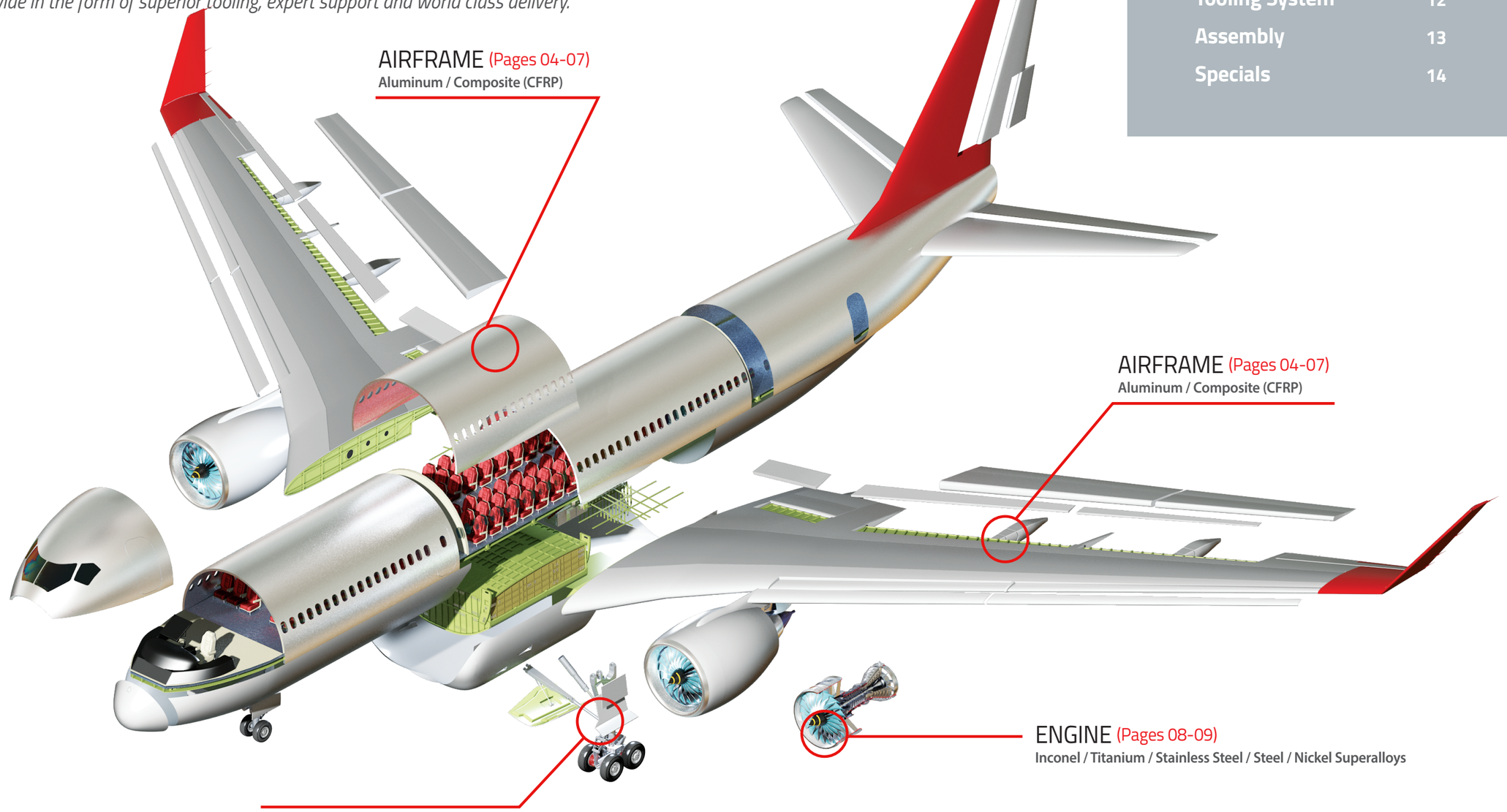




YG-1 AND THE AEROSPACE INDUSTRY – AN INNOVATION STORY

Each industry in manufacturing presents multiple challenges, and today aerospace manufacturing industry is no stranger to challenges, working with materials (carbon, glass, kevlar, … fibers reinforced plastics) in multiple applications, including primary structures such as airframes and engine and non-structural parts, titanium in structural frame and working components, Inconel in engine parts located in 'hot' zones of the engine, and aluminum in airframe and other critical and non-critical components. Yg-1, working with aerospace oem's, machine tool builders, tier one, two and three for composite (CFRP) parts have developed 'best in class' products, processes and relationships that drive success.
These relationships built over time, are designed to bring you the most cost effective and secure solutions available today.

YG-1, as a global leader in the manufacture 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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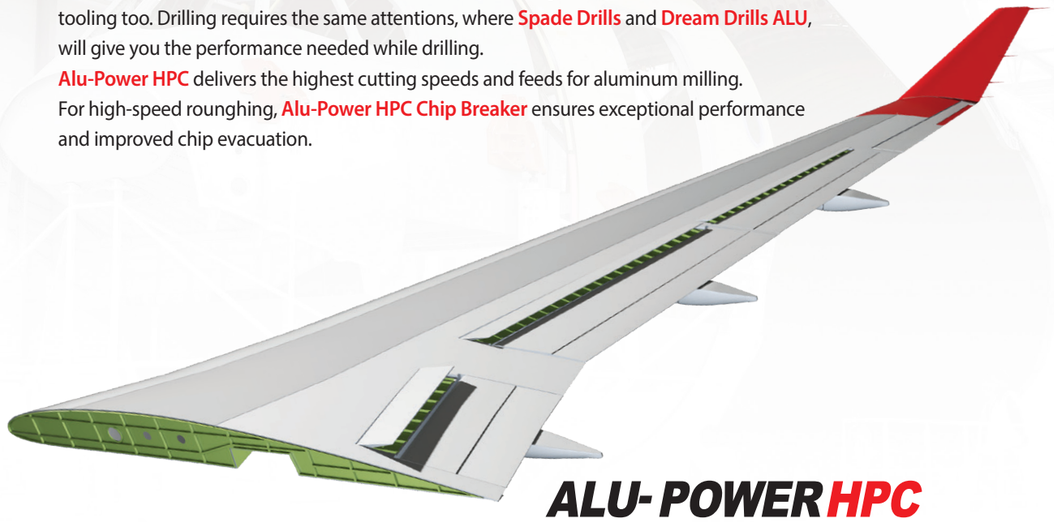
Aluminum

For generations, aircraft manufacturers have produced airplanes using the lightest possible materials available. Many of these airframe, structural and non-structural components are made from Aluminum Alloys. YG-1 addresses the challenges facing the machining of aluminum head on with **Alu-Power HPC, Spade Drills** and **Dream Drills ALU.** These products address milling / drilling challenges such as smearing, heat build-up and poor finishes with an all new geometry, specifically made to reduce tool pressure, provide an escape path for chips, thus creating excellent chip evacuation, and coatings like DLC and micro grain substrates for extended tool life. Providing the needed geometries with polished flutes, extended length tools for better reach, corner radius selections, neck tools, and coolant through options, YG-1 covers your needs for aluminum, and also needs for larger diameter tools with even **HSS** and **HSSCo** tooling too. Drilling requires the same attentions, where **Spade Drills** and **Dream Drills ALU**, will give you the performance needed while drilling.
Alu-Power HPC delivers the highest cutting speeds and feeds for aluminum milling.
For high-speed rounghing, **Alu-Power HPC Chip Breaker** ensures exceptional performance and improved chip evacuation.



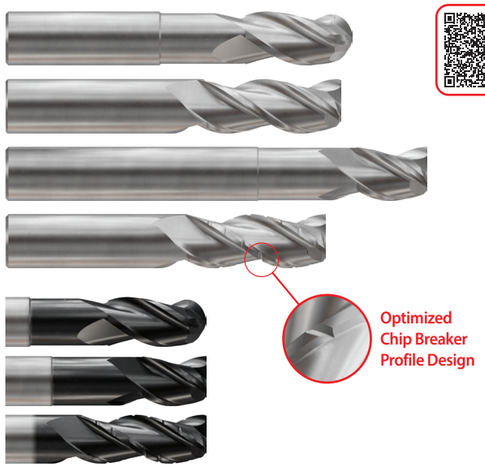
SPADE DRILLS

Very Large Holes Exchangeable Spade Drills for Cast Irons, Stainless Steels, Aluminum, Pre-Hardened Steels, and High Alloyed Steels

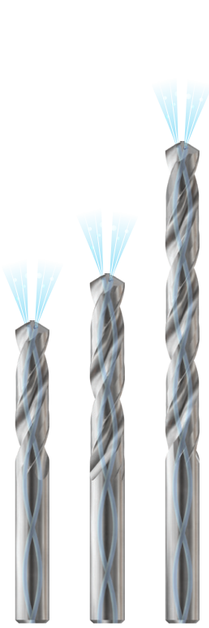
Spade Drills – low cost performer in the manufacture of small to very large holes. Optimized special point and geometry will guide you in hole making, in the most stable and effective manner.

ALU-POWER HPC

Alu-Power HPC's highly polished 3-flute design provides more balanced cutting performance – without excessive heat buildup. In fact, while other end mills can gum up at surface speeds of 3,000 or less, Alu-Power HPC keeps its cool by dissipating heat and providing outstanding chip evacuation.



* Available in non-coated & DLC coated items



DREAM DRILLS ALU

Drilling requires special attention to detail. Whether you are drilling blind or fine finishing, you will want the features that Dream Drills ALU offers.
Built to fit the needs of the aerospace market, Dream Drills ALU utilizes special point geometry, margin relief and polishing to make chips flow, thus making hole accuracy and penetration rates well above standard.
Dream Drills ALU cover your 3xD, 5xD and 8xD needs.

QR Scan QR code to see Catalogs

· Phone : +82-32-526-0909, www.yg1.solutions, E-mail : yg1@yg1.solutions

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Composites

DRILLING CFRP AND CFRP / METAL STACKS

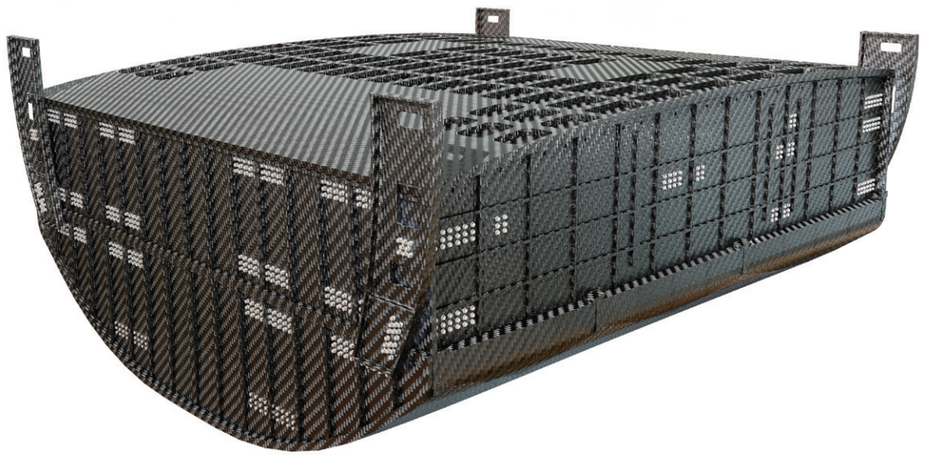
Unique challenges are faced when drilling CFRP and CFRP / METAL STACKS. Delamination, fiber pull out, and tool life issues plague these processes. In new generation aircraft, CFRP, CFRP / ALUMINUM, CFRP / TITANIUM, are most common and YG-1 has developed a series of drills including straight drills, combo drill-countersinks and countersinks. YG-1 covers the drilling processes, most used including, gantries with 3, 4, or 5 axis, robot end effectors, power feed machines and hand held. YG-1 drilling products are performing with high production rate and providing the lowest cost per hole – while maintaining the highest standard in quality.

MILLING, TRIMMING, AND CUTTING CFRP PARTS

Most CFRP parts need trimming and cutout prior to assembly in the aircraft. These processes are prone to leave you with more delamination and fiber pullout. Dust evacuation and tool life are key components to successful CFRP manufacturing. Understanding this, YG-1 developed a wide range of CFRP end mills starting from the chip breaker, to the compression, to the helical flute to the one shot roughing and finishing end mills series. With this investment in tooling for trimming and cutout, YG-1 is serving customers in all platforms, with all types of machines, with high degree of technical support.

CFRP CUTTING TOOLS INNOVATION

CFRP materials are known for their inhomogeneous nature, anisotropic and abrasive properties, therefore YG-1 has developed a process to study tool material type and geometry to prevent any part defects due to the drilling or trimming process, and optimize the tool life. By developing the best carbide, matched with innovative processes in CVD coating done in-house, YG-1 can maintain its leading position in CFRP machining.



COMPOSITE MATERIALS

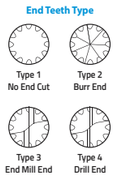
High Performance Machining Tool for Composite Material

Specially designed & optimized for high efficiency milling & drilling.

COMPOSITE MILLING

Diamond Coated Chip Breaker Routers

- The unique flute structure provides good surface finish longer tool life and requires less cutting force
- High performance machining of CFRP, can be used as rougher or finisher
- Diamond coating with excellent abrasion resistance



Diamond Coated Compression Routers

- Compression-style (Upcut & Downcut Geometry) makes stable cutting condition and prevent delamination extremely well
- Diamond coating with excellent abrasion resistance

PCD End mills

YG-1 PCD Endmills for CFRP offer cutters designed for superior milling operation.

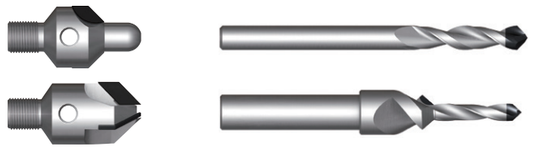
COMPOSITE DRILLING

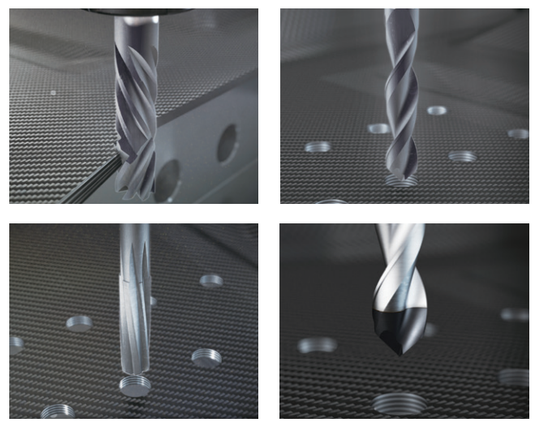
Diamond Coated Drills

- A combination of perfect carbide choice with innovative design and adapted CVD coating make YG-1 CFRP drills a good choice for composite drilling
- Diamond coating with excellent abrasion resistance

PCD Drills & Countersinks

YG-1 PCD Drills & Countersinks make sure excellent holemaking & countersinking operation.





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Inconel • Titanium • Stainless Steel • Steel • Nickel Superalloy

High Temperature Alloys, Structural and Stainless Steel are the backbone of aircraft engines.
Where heat has nowhere to go, these materials pose specific challenges in thermal transfer of heat in the cutting process. While most materials carry heat away in the chip, heat resistant alloys do not. Sharp cutting edges, superior coatings and finishes help deflect the heat. Processes developed to minimize the arc of engagement and added flutes also help in heat dissipation. Slotting, roughing and finishing are faced by YG-1's double core technology - **TitaNox-Power** and provides the strongest tool available with the latest coatings and superior carbide grade.
The 5-flute TitaNox-Power HPC features a unique core design for unmatched strength, making it capable of handling even the most demanding heavy cutting tasks **V7 Plus** is the choice in variable helix, pitch corner radius options and length options when double core is not needed.
For stable high speed machining and trochoidal milling, **V7 Plus Chip Splitter** is the best chatter free tool.
Engineered for efficient machining of large titanium parts, **Sine-Power** makes reducing tooling costs easier than ever.
Dream Drills INOX – Specifically made to tackle those difficulties to machine materials available in 3, 5 and 8xD.
YG5X End mills are technically designed for 5-axis CNC machines. Optimized to gain a larger cutting surface to machine an extensive width compared to conventional ball end mills.
The drilling process of Inconel 718, a nickel-based superalloy, and Titanium Alloy are very challenging due to the material properties, the operating conditions and the high quality requirements. Carbides within the material matrix cause an excessive amount of abrasive tool wear. **Dream Drills SUPERALLOY** and **Dream Drills TITANIUM** are recommended for a good solution.

V7 Plus SOLID CARBIDE END MILLS

Y-Coated Solid Carbide End Mills for Steels, Cast Iron, Stainless Steels
The workhorse of the end mill line with the most options, in variable flute, variable helix, corner radius, neck tools, flute options and geometries of all kinds for your steel, stainless, iron needs

TitaNox Power

Y-Coated Solid Carbide End Mills for Titanium, Stainless Steels
True double core technology plows through your roughing and semi-finish to finish needs in difficulty to machine Titanium and stainless applications. Multiple flute options and radii.

TitaNox-Power HPC (AlTiN Coating)

New 5 flute design for heavy cutting

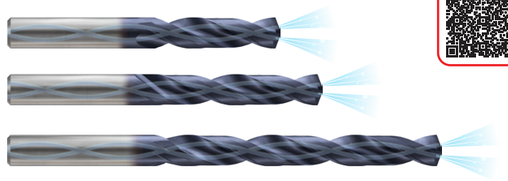
YG-1's High Performance Core Design

SINE-POWER

HSSCo8 End Mills for Titanium and Titanium Alloys
High performane HSS rongher for titanium and titanium alloys.
Next generation of powdered metal end mills higher edge strength & feed rates

DREAM DRILLS INOX

YG-1 Tailored TiAlN-Coated Solid Carbide Drills (with Coolant Holes) for Tough Materials like Stainless Steels, Nickel Alloys and Titanium
The staple of YG-1. Drilling made simple and cost effective.
Drill point geometry, advanced flute design, coolant through and coating will give you both security and simplicity in hole making.
Dream Drills INOX cover your 3xD, 5xD and 8xD needs.



THREAD MILLS

Solid Carbide Thread Mill with and without Coolant Hole
A Thread mill can produce various thread diameters with the same pitch and it is multi usable for blind-holes and through-holes and for left-hand threads. The biggest benefits are decreased costs and eliminating the possibility of threading rework due to broken taps.

DREAM DRILLS SUPERALLOY

YG-1 Tailored TiAlN-Coated Solid Carbide Drills (with Coolant Holes) for Nickel Base Alloys
Special surface treatment after coating and convex cutting edge achieve the better surface finish of materials to be cut and the longer tool life.
Optimized special flutes are ideal for outstanding chip removability and productive drilling.
Dream Drills SUPERALLOY cover your 3xD, 5xD and 8xD needs.
* Available as made to order

YG5X END MILLS

High Efficiency High Performance End Mills For 5-Axis Machining
FLAT FORM (Taper Shape) avoids risk of collision for structural parts with flat long surfaces
FREE FORM(Radius Shape) for blade finishing process
* Available as made to order

FLAT FORM

FREE FORM

DREAM DRILLS TITANIUM

Z-Coated Solid Carbide Drills (with Coolant Holes) for Titanium
Relief of 4 facet shape than Dream Drill General's Relief shape is relatively good in workability due to the sharp cutting edge. In addition, the cutting edge is treated with honing to prevent chipping easily on difficult materials such as titanium. Optimized wide flute design and negative land on the cutting edge will give you both longer tool life and lower cutting force in holemaking.
Dream Drills TITANIUM cover your 3xD, 5xD and 8xD needs.
* Available as made to order

YG HF4 MILL & YG MILL

YG HF4 MILL & YG MILL are products suitable for general rough milling.
YG Mill's various chipbreaker can offer exceptional durabiliy and precision, ensuring stable performance even at high speed machining.

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Titanium Alloy • Stainless Steel • Pre-Hardened Steel

Titanium, stainless steel and pre-hardened steel wrap up the aircraft experience.
Smearing and sticking, part distortion while roughing, poor surface finishes and chip evacuation along with tool life are very mentionable challenges in these materials. Components of pre-hard material can reach up to 60HRc and require a process and tool all by themselves. **X5070** was developed with this material in mind, capable of machining materials up to 70HRc. In addition, **X1-EH** stands out with its high accuracy and a wide range of size options, offering adaptable and precise solutions for diverse applications
Uniquely qualified, these products was designed to hold up to your hard component needs. 4, 5 and 6 flute versions of both **V7 Plus** and **TitaNox-Power** will cover your solid carbide end mill needs. **TitaNox Power** – double core technology allows for slotting and finishing with a strong, reliable performance in Titanium and stainless steel. **TitaNox-Power HPC**, with its distinctive core design, provides exceptional strength, making it ideal choice under the most demanding conditions **V7 Plus** can handle the stainless steel, steel (up to 45HRc). For machining large parts of titanium, **Sine-Power** is the optimal choice for efficiency and stability. Holemaking, suffering the same challenges can be met with **Dream Drills INOX** and 2 variations of insert drills, **Spade Drills** and **i-One Drills**, developed with these applications in mind.
The drilling process of titanium alloy is very challenging due to the material properties, the operating conditions and the high quality requirements. Carbides within the material matrix cause an excessive amount of abrasive tool wear. **Dream Drills TITANIUM** are recommended for a good solution.

SINE-POWER

HSSCo8 End Mills for Titanium and Titanium Alloys

High performane hss rongher for titanium and titanium alloys.
Next generation of powdered metal end mills higher edge strength & feed rates

X1-EH is a new C-coated Nano Grain Solid Carbide End Mill

Achieving next level performance in high hard materials over 50 HRc.
This exceptionally high accuracy product makes it the ideal choice for precision milling.

X5070

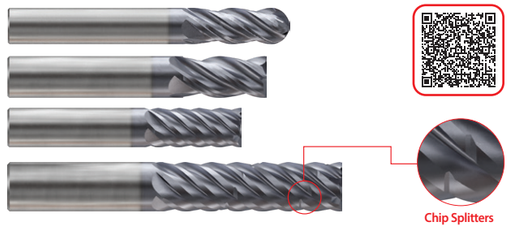
Blue Coated Solid Carbide End Mills for High Hardened Steels

It's in the name – designed to cut materials between 50HRc and 70HRc the newly designed workhorse cuts through those heat-treated materials where others tools fail. X5070 is superbly engineered to cut finer finishes, rough hardened steels and stainless steels, and finish processes previously left to grinding.

V7 Plus SOLID CARBIDE END MILLS

Y-Coated Solid Carbide End Mills for Steels, Cast Iron, Stainless Steels

The workhorse of the end mill line with the most options, in variable flute, variable helix, corner radius, neck tools, flute options and geometries of all kinds for your steel, stainless, iron needs



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TitaNox-Power HPC (AlTiN Coating)

New 5 flute design for heavy cutting

YG-1's High Performance Core Design

i-ONE DRILLS

For drilling various hole sizes, i-ONE drills provide excellent performance with cost-effective exchangeable inserts. Thanks to new H-coated inserts and premium tool steel holders, a good quality of holes and increased productivity can be achieved.

SPADE DRILLS

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DREAM DRILLS INOX

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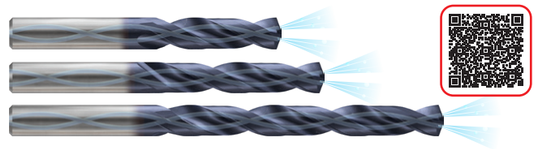

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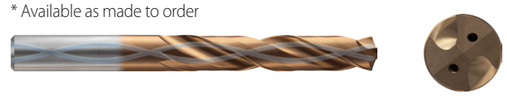


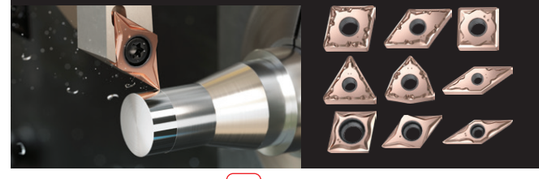
PRIME TAP · Synchro TAP · Combo TAP

Prime, Synchro, Combo – Tapping in today's materials and applications takes an enormous amount of engineering.
Today, at YG-1 engineering is in the forefront of tap manufacturing.
With world class design and support – combined with expedited specials production YG-1 understands that tapping is one of the most important features supported today. YG-1 can produce the tapped hole you require, promptly, accurately, and cost effectively.

YG TURN

YG401 for Aerospace Industry

YG401 grade has exceptional performance at high cutting speed on HRSA(Heat Resistant Super Alloy) material.
YG401 grade with three type chip breakers as SF, SM and SR can be performed well from finishing to roughing operation on HRSA material



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High Performance Tool Holders

YG-1 Tool Holders enable users to meet their applications with reliablility.
Tapers are qualified in international standards such as DIN, ASME, JIS, ISO
Basic balancing grade is G6.3 15,000
And we provide even higher G2.5 25,000

YG-1 Tool holders fulfill the last piece of total solution provider

AIRCRAFT drills

- HSS & Cobalt Drills
- Manufactured to NAS(National Aerospace Specification) STD.
- To use with Hand-Held Equipment for drilling of Aircraft Materials

TAPERS

- Meet International Taper Standards
  HSK (DIN 69893), SK (ISO7388-1), CAT (ASME B5.50), Face Contact (Dual Contact), BT (ISO7388-2), DIN 228(MTA, MTB), GOST, ISO, STRAIGHT

HSK | SK | CAT | CAT Dual Contact | BT | BT Dual Contact

POWER E-HYDRO

- Rigid body design
- Roughing & Finishing by stronger clamping power ex) Torque up to 900 Nm with I.D. 32mm
- Runout accuracy ≤0.003mm(0.00012") at 3D

HYDRAULIC CHUCK

- Versatile clamping range with reduction sleeves
- Easy tool changing reduces tool set-up time
- Runout accuracy ≤0.003mm(0.00012") at 3D
- Vesatile applications and reliable cutting results

SHRINK FIT HOLDER

- High precision, rigidity and strong chucking
- Slim shape eligable to avoid interference
- Suitable for high speed precision deep hole machining
- Milling(Rough & Finish), Drilling, Reaming, Countersinking
- Available in various forms
  (Coolant Channel / Thicker Wall / Curved / Extra Slim)
- Runout accuracy ≤0.003mm(0.00012") at 3D

SK SLIM CHUCK

- Vesatile applications and reliable cutting results
- High System Accuracy
  SK Holder + SK Collet + Test bar + SK Nut
  ≤0.007mm at 3D
- SK Collet Chuck : 8° Taper
- Twice more gripping power than ER Collet Chuck

SYNCHRO TAPPING CHUCK

- Pitch error compensation with Machine Rigid Tapping function leads to better thread quality & longer tool life
- Up to 3 times higher feed rate
  (up to 30-45m /min with Synchro TAP)
- Higher speed tapping operation possible.

POWER MILLING CHUCK

- Extremely high clamping torque C32 up to 3,430Nm
- Milling(Rough & Finish), Drilling, Threading
- Versatile clamping range with Milling Collets
- High speed version allows upto 20,000rpm

FINE & ROUGH BORING SYSTEM (Ø20 ~ Ø154)

- Easy assembly and wide expandability.
  Precise boring range adjustment by adjustment Dial 1/100 unit (Fine boring system)
- Easy to adjust length by employing modular system and use extension bars with various sizes

ER COLLETCHUCK
END MILL HOLDER
SHELL MILL(COMBI) ARBOR
All kinds of tool holders

SCREW MACHINE, JOBBER & 6" & 12" EXTENSION LENGTH

6"& 12" Extension Length – For drilling in difficult to reach area

THREADED SHANK

For use in right-angle drilling motor in confined spaces

QUICK-CHANGE SHANK DRILLS

For saving time from easier drill change

DOUBLE MARGIN STEP DRILLS

Available in suitable for machining close tolerance holes within maintaining concentricity and accuracy.
Available for Straight Shank, Threaded Shank, Quick-Change Shank

SPECIALS

Custom Solutions to Your Needs

With up to 40% of all tooling used to manufacture aircraft today requiring specials, YG-1 is committed to an engineering, technical and production staff that can design and apply this unique tooling.

Through experience and know-how, situated in the heart of densely populated manufacturing areas, YG-1 has built specials facilities that are staffed with these professionals. With decades of experience and the most talented workforce, YG-1 produces the specials that meet your demands.

INDUSTRY SOLUTIONS BROCHURES

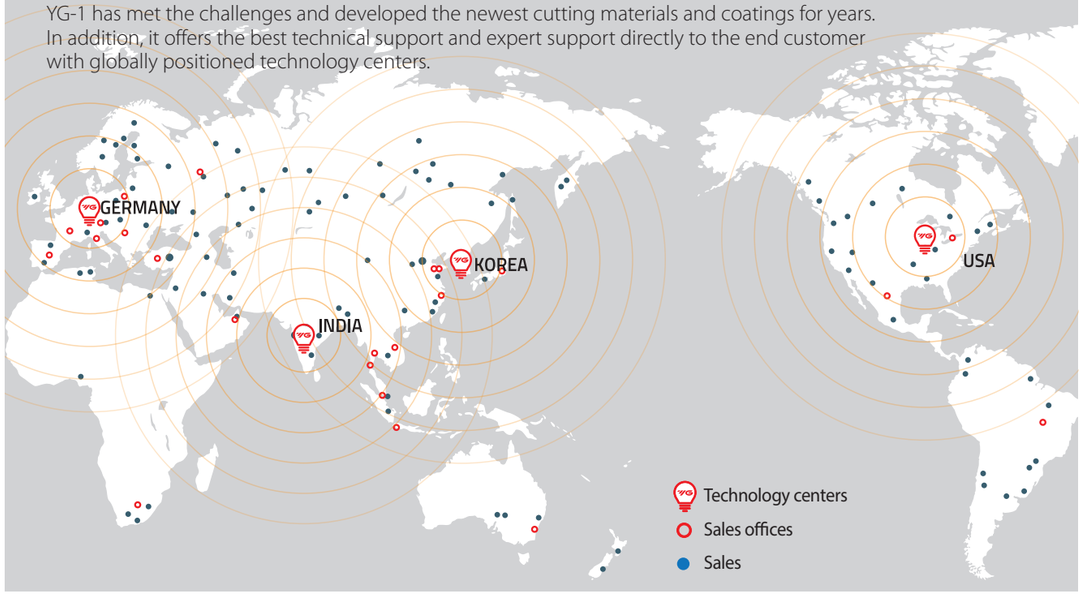
YG-1 has many more industry solutions for you!
Automotive, Aerospace, Composite Materials, Die & Mold, Medical and many more to come.
Whichever industry area you're coming from, YG-1 has the solution for you
Check what we have for you at the following web link:

MEMO

MEMO

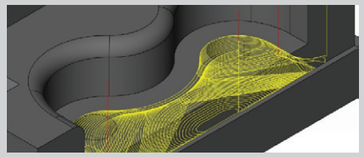
GLOBALLY POSITIONED TECHNOLOGY CENTERS

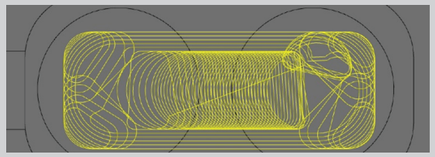
YG-1 has met the challenges and developed the newest cutting materials and coatings for years.
In addition, it offers the best technical support and expert support directly to the end customer
with globally positioned technology centers.



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 1982, 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

BELGIUM	FINLAND	ITALY	PORTUGAL	SLOVENIA	THE NETHERLANDS
CROATIA	FRANCE	LITHUANIA	ROMANIA	SPAIN	TÜRKIYE
CZECH REPUBLIC	GERMANY	NORWAY	SWEDEN	UNITED KINGDOM	DENMARK
HUNGARY	POLAND	SERBIA	SWITZERLAND	AUSTRIA	GREECE
ALBANIA	BOSNIA AND HERZEGOVINA		UKRAINE	UZBEKISTAN	BULGARIA
ESTONIA					

ASIA PACIFIC

AUSTRALIA	INDONESIA	MALAYSIA	SOUTH KOREA	VIETNAM
CHINA	ISRAEL	PAKISTAN	TAIWAN	
HONG KONG	JAPAN	PHILIPPINES	THAILAND	
INDIA	SAUDI ARABIA	SINGAPORE	UNITED ARAB EMIRATES	

AMERICAS

BRAZIL	CANADA	COLOMBIA	MEXICO	UNITED STATES

AFRICA

EGYPT	SOUTH AFRICA

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