

**SOLUTIONS AROUND THE GLOBE**  
KYOCERA SGS Precision Tools is an ISO 9001:2015 Certified leader of round solid carbide cutting tool technology for the aerospace, metalworking, and automotive industries with manufacturing sites in the United States and United Kingdom. Our global network of Sales Representatives, Industrial Distributors, and Agents blanket the world selling into more than 60 countries.

**LEADERS IN SOLID CARBIDE TOOL TECHNOLOGY**  
Brand names such as Z-Carb, S-Carb®, V-Carb, Hi-PerCarb®, Multi-Carb have become synonymous with high performance tooling in the machining and metalworking industry.

We're proud to have pioneered some of the world's most advanced cutting technology right here on our Northeast Ohio manufacturing campus. KSPT high performance end mills, drills and routers are increasing productivity and reducing cost around the world.

**EXCEEDING CUSTOMER EXPECTATIONS**  
As the world's manufacturing needs change, so does KSPT. It's all about the science, starting with our lab inspected substrate materials to our tool designs and coatings. Our exceptional team of researchers, engineers, and machinists are dedicated to developing the absolute best and delivering the ultimate Value at the spindle®.

- Incredible batch-to-batch consistency
- Metallurgical lab dedicated to testing and rigorous quality control
- ISO 9001:2015 Certified quality procedures
- Patented geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality—even at extreme parameters
- Specialists in extreme and demanding product applications
- Comprehensive tooling services
- Experienced Field Sales Engineers who work to optimize a tool for your particular application
- Dedicated multi-lingual customer service representatives

SGS PRODUCTS ARE DISTRIBUTED BY:



[www.kyocera-sgstool.com](http://www.kyocera-sgstool.com)



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**VALUE AT THE SPINDLE®**

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KYOCERA SGS Precision Tools



2021 Global Product Catalog



**VALUE AT THE SPINDLE®**

**2021 Global Product Catalog**



[www.kyocera-sgstool.com](http://www.kyocera-sgstool.com)

ISO 9001:2015 Certified



VALUE AT THE SPINDLE®

KYOCERA SGS Precision Tools (KSPT) is an ISO 9001:2015 Certified manufacturer of industry leading round solid carbide cutting tools. State of the art manufacturing and warehouse facilities have the capacity and processes to meet the quality and delivery demands of customers in all markets around the world. Complete inspections performed within its metallurgical lab and manufacturing quality departments ensure the use of high quality carbide and reliable manufacturing consistency regardless of when a cutting tool is produced.

KSPT is proud to have pioneered some of the world’s most advanced cutting technologies due to rigorous testing of tools, coatings, and materials within its Global Innovation Center. It is this commitment to innovation that has launched patented products and technologies like the Z-Carb with its variable geometry and cutting edge preparation, Series 43 APR® and APF® ultra high performance aluminum cutting tools, and the JetStream coolant technology.

SGS has become an important part of the KYOCERA Precision Tools family, and while the name has changed, one thing has not. Its dedicated people and their relentless commitment to the customer. KSPT Technical Sales Engineers, Application Specialists, and Distribution Partners blanket the globe, delivering reliable service and support to all market segments. It is these people and products that drive innovative application strategies and cutting tool technologies into the end user, continually exceeding expectations and providing the most Value at the Spindle®.



Hardness Conversion Chart

ROCKWELL HARDNESS (HRb)	ROCKWELL HARDNESS (HRC)	BRINELL HARDNESS (HB)	VICKERS HARDNESS (HV)	TENSILE STRENGTH (N/mm2)	PSI (1000lb/in2)
67	—	121	122	401	58
70	—	126	127	432	63
73	—	132	132	448	65
75	—	136	137	455	66
77	—	140	143	463	67
80	—	147	150	479	69
82	—	153	156	494	72
84	—	159	163	525	76
86	—	165	171	540	78
89	—	177	178	556	81
91	—	186	188	602	88
93	—	197	196	632	92
96	—	216	212	664	97
97	—	223	218	695	101
98	21	230	234	756	110
—	22	236	241	772	112
—	23	242	247	787	114
—	24	248	255	818	118
—	25	254	261	849	123
—	27	266	269	865	125
—	28	272	275	895	130
—	29	278	284	911	132
—	30	284	292	942	136
—	31	293	300	973	141
—	32	302	308	988	143
—	33	310	318	1019	147
—	34	319	327	1050	152
—	35	328	337	1096	159
—	37	345	349	1127	163
—	38	353	359	1158	168
—	39	362	370	1189	172
—	40	370	381	1235	179
—	41	381	395	1266	183
—	42	391	408	1312	190
—	44	411	422	1359	197
—	45	422	437	1420	206
—	46	433	452	1467	212
—	48	455	470	1513	219
—	50	479	497	1559	226
—	51	485	517	1621	235
—	52	497	532	1668	241
—	54	—	573	1729	250
—	56	—	609	1807	262
—	57	—	630	1884	273
—	59	—	670	1961	284
—	60	—	698	2039	295
—	61	—	725	—	—
—	62	—	740	—	—
—	63	—	780	—	—
—	64	—	812	—	—
—	65	—	847	—	—
—	66	—	885	—	—
—	67	—	926	—	—
—	68	—	971	—	—

Conversions from each scale are approximate

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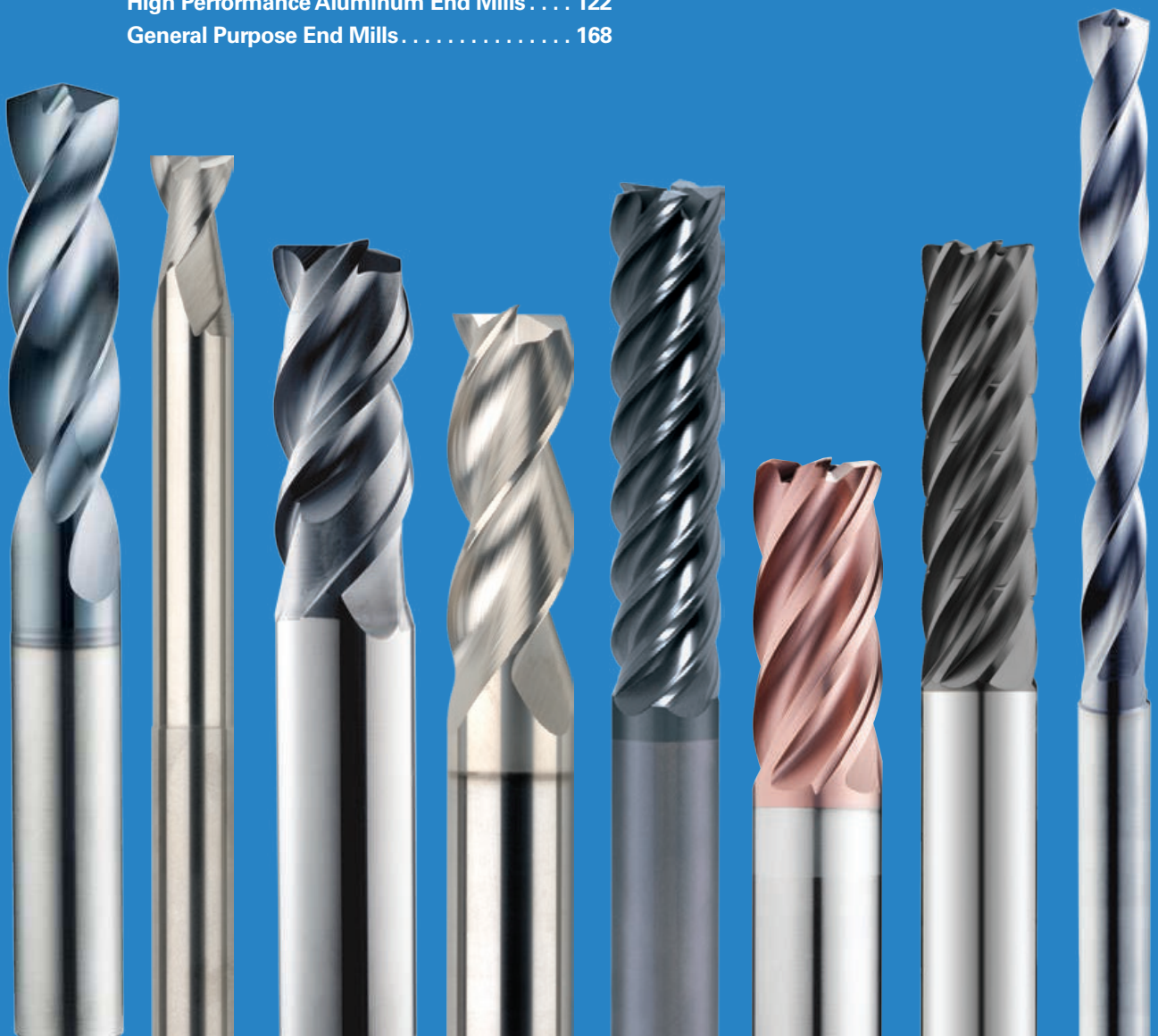
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**VALUE AT THE SPINDLE®**



## MORE THAN JUST ANOTHER CUTTING TOOL SUPPLIER

### **KYOCERA SGS PRECISION TOOLS EUROPE, LTD.**

The state of the art KYOCERA SGS Precision Tools Europe facility is located in Wokingham, England and is focused on the manufacture of special cutting tools, high accuracy form tools, tool modifications and regrinds. A highly skilled team of professionals specialize in the supply and support of high performance tools for the Aerospace, Medical, Power Generation and Motorsport markets.

### **KYOCERA SGS Precision Tools Europe also offers a full range of end mill and drill products as follows:**

- Multi-Million Euro Warehouse Stocking Full Range of Catalog Products
- Same Day Shipment on Stock Items
- Multi-Lingual Sales and Technical Support
- Online Portal for Stock Availability, Pricing, Discount Information and 24-Hour Order Placement
- High Performance Product and Application Training, Including the New KYOCERA SGSTool Clinic

### **Additional services provided at this facility include:**

- A Fast Track for Special Tools Via Our Rapid Response Centre
- Product Research and Development
- Product Engineering and Tool Application Support
- CAD/CAM Software Support





# GLOBAL INNOVATION CENTER

## INNOVATIVE CUTTING TOOL TECHNOLOGIES

The Global Innovation Center is an environment conducive to innovation. Through testing and development, the dedicated KYOCERA SGS Precision Tools Team focuses on the latest technical competence and machining techniques to bring a continuous stream of new products and advancements to market.

- Cutting Edge Equipment
- Highly Engineered Technology
- Incorporation of innovative machine tool technology for Research and Development

## TECHNICAL TRAINING & EDUCATION

Our knowledge-based selling programs are specifically designed to challenge and educate by facilitating programs that mix classroom presentation with hands-on experience. Our own KSPT team members go through the same core training we provide to our valued distribution partners.

- KSPT Campus Tool Clinics
- On-Site Customer Training
- Basic, Advanced and Expert Level Material
- Market-Driven Knowledge

## APPLICATION ENGINEERING

The KSPT expertise and global market knowledge allows us to translate customer needs into a commercial sales strategy. The portfolio of KSPT products and services offer an unparalleled track record in performance, cost savings, quality and value at the spindle.

- Market-Driven Productivity Improvements, including the Z-Carb HPR and S-Carb APR/APF®
- Tooling Solutions which include development of new tool geometries, extreme lab testing parameters and extensive field testing
- Technical Support and Troubleshooting
- Research and Development



# TOOLING SERVICES

KSPT is committed to providing superior tooling services in the areas of Reconditioning, Recoating, Regrinding, Specials and Alterations. These services are offered to provide unique solutions and enhanced tool life with involvement from the KSPT Technical Support Team.

KSPT proudly offers Tooling Services in North America and Europe.



## KSPT TOOLING SERVICES FACILITIES

### UNITED STATES OF AMERICA KSPT

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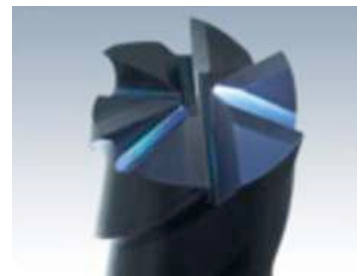
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**BEFORE**



**AFTER**

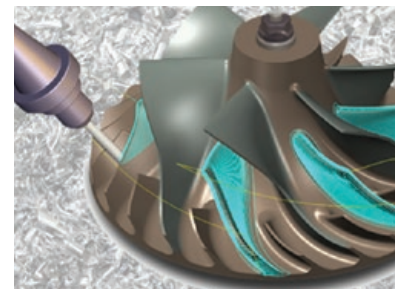
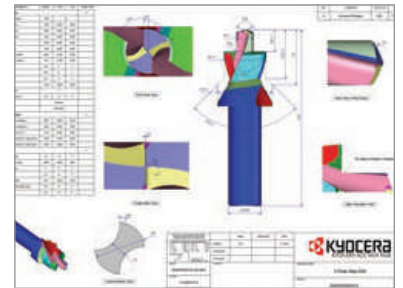
# KYOCERA SGS Tech Hub LLC

The KYOCERA SGS Tech Hub (KSTH) is an independent subsidiary of KYOCERA SGS Precision Tools Inc. created to focus on custom high-performance cutting tool solutions, while exploring emerging technologies. The state-of-the-art custom facility is designed with the purpose and resources to provide MORE than a cutting tool. KSTH provides a complete scope of services and works with customers to tailor solutions from conception to application and beyond.

## SPECIAL CUTTING TOOL SOLUTIONS

KSTH considers each opportunity as a priority project and understands the challenges special tailored tooling present to our end users. Our sole focus is supporting a culture required for applying custom solutions yielding a return on investment with our technical expertise, close collaboration and effective communication. Besides KSTH providing quotation requests within a 24-hour period, we also offer:

- Aggressive Deliveries
- Improved Value Proposition
- Global Resources and Technology
- Full Project Proposal and Management
- Detailed Drawings
- Solid Models
- Process Plans
- Cutting Strategies and Simulations
- Quality Assurance Documentation (ISO 9001:2015 Certified)
- Testing and Validation
- Onsite Application and Optimization Support
- Cradle to Grave Product Support
- Constant Access to KSTH Staff



### KYOCERA SGS Tech Hub LLC

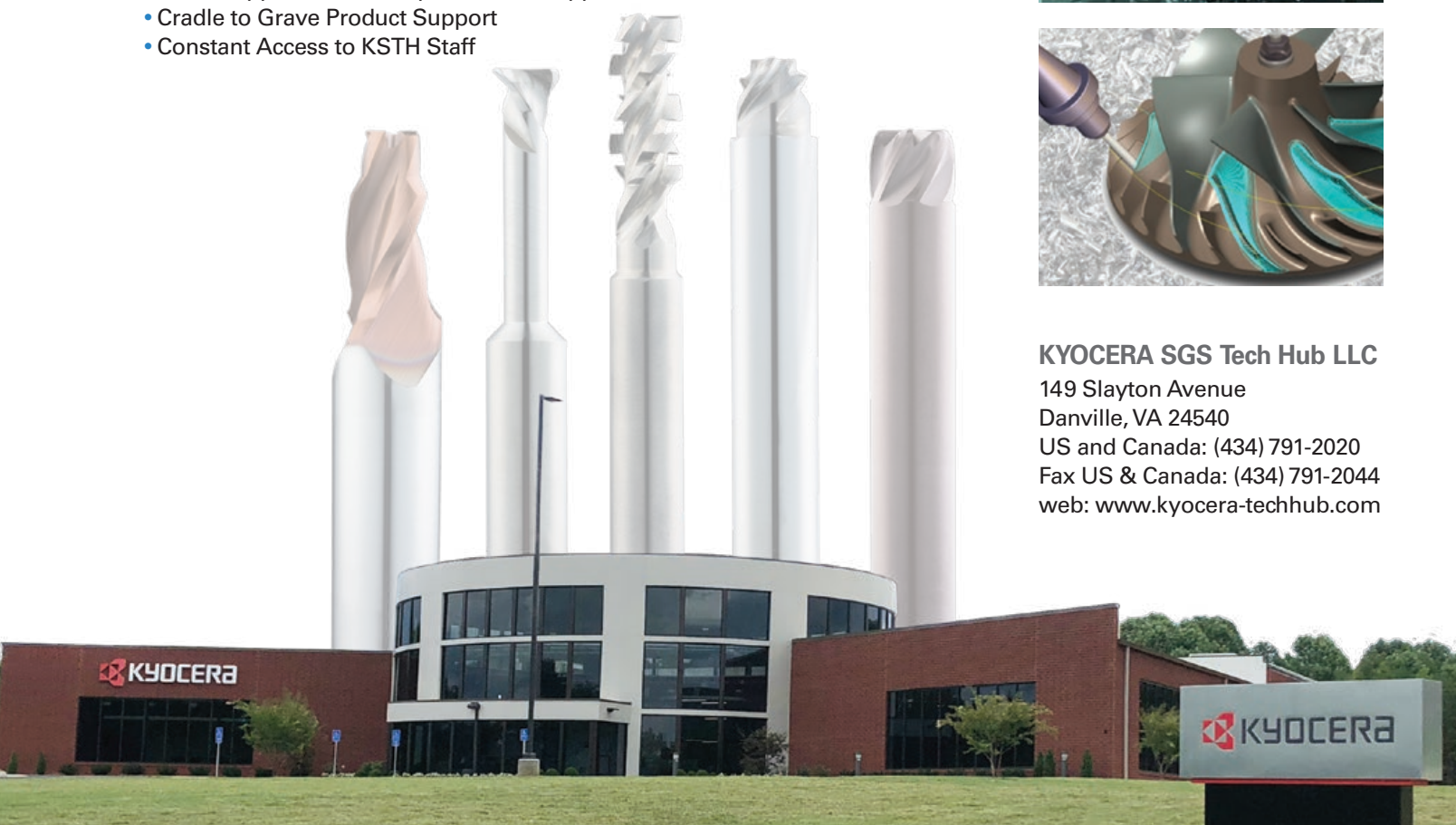
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Fax US & Canada: (434) 791-2044

web: [www.kyocera-techhub.com](http://www.kyocera-techhub.com)





## KYOCERA **SGS** Precision Tools Medical Division

### WHO WE ARE

With over 20 years of industry experience, KSPT Medical produces unique, customer designed orthopedic devices using highly trained engineers dedicated to new technology. KSPT Medical is a division of KYOCERA SGS Precision Tools, who proudly pioneered some of the world's most advanced metal cutting technology and sells to more than 60 countries. With over 20 years of industry experience, KSPT Medical Division is ISO 13485:2016 Certified and is FDA Registered in the production of medical devices in the orthopedic marketplace.

### ENGINEERING

We approach each opportunity as a project and manage it as such. We pride ourselves on engineering each project to the specific needs of our customers. Providing quotes often within 24 hours and following through with detailed drawings, solid models, process plans, and program simulations if needed. Our goal is to work hand in hand with the end user and maintain constant communication to customize our support to their needs.

### MACHINING CAPABILITIES

- GRINDING
- MILLING
- TURNING
- PROFILING
- BENDING
- Services Offered; Welding, Various Coatings, Anodizing, Passivation, Electropolishing, Laser Etching and HeatTreating

#### KYOCERA SGS Precision Tools Medical Division

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REGISTERED **ISO 13485:2016 Certified**



**VALUE AT THE SPINDLE®**

An interactive and dynamic platform to help select the correct SGS tool for the operation and provide optimal machining parameters.

- A quick and reliable 3 step process:
  1. Choose the material
  2. Enter the application
  3. From the list of recommended results, choose the tool that best fits your machining needs
- Speed & Feed rates will be generated based on application parameters combined with the selected tool's capabilities in the desired material.

## **TO SIGN UP FOR THE TOOLWIZARD®:**

1. Visit [Toolwizard.kyocera-sgstool.com](http://Toolwizard.kyocera-sgstool.com)
2. Register for an account
3. Start calculating
4. Start saving!



# **Common Legend** **Leyenda habitual** **Légende commune** **Gemeinsame Legende**

**TO ORDER:** Please specify quantity and EDP number.

**PARA SU PEDIDO:** Por favor especifique cantidad y número de EDP.

**POUR COMMANDER:** Veuillez préciser la quantité et le code article EDP.

**BESTELLEN:** Bitte Menge und EDV-Nummer angeben.

**RETURN POLICY:** An RMA number must accompany all product returns.  
Contact your Customer Service Representative for an RMA number.

**DEVOLUCIONES:** Todo material devuelto debe ir acompañado de un número de RMA correspondiente.  
Para solicitarlo, póngase en contacto con su Representante de Atención al Cliente.

**POLITIQUE DE RETOUR:** Tous les produits retournés doivent être accompagnés d'un numéro RMA.  
Contacter votre interlocuteur commercial pour obtenir un numéro RMA.

**RÜCKNAHMEGARANTIE:** Eine RMA-Nummer (Rücksendegenehmigung) muss bei allen Produktrücksendungen beiliegen.  
Wenden Sie sich bitte an Ihren Kundendienstmitarbeiter für RMA-Nummer.

**REGULATION SAFETY GLASSES SHOULD ALWAYS BE WORN WHEN USING HIGH-SPEED CUTTING EQUIPMENT**

**DEBEN USARSE GAFAS PROTECTORAS CUANDO SE UTILICEN EQUIPOS DE ALTA VELOCIDAD**

**DES LUNETTES DE SÉCURITÉ DOIVENT ÊTRE IMPÉRATIVEMENT PORTÉES LORS D'UTILISATION D'OUTILS À GRANDE VITESSE**

**BEI SCHNELL LAUFENDEN SPANABHEBENDEN MASCHINEN MÜSSEN IMMER DIE VORGESCHRIEBENEN SICHERHEITSBRILLEN GETRAGEN WERDEN**



**WARNING:** This product can expose you to chemicals including Cobalt, which is known to the State of California to cause cancer. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)



**ADVERTENCIA:** Este producto puede exponerlo a químicos como el Cobalto, reconocido como cancerígeno en el estado de California. Para más información visite esta página web: [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)



**ATTENTION:** Ce produit vous expose aux produits chimiques incluant le Cobalt, qui est reconnu par l'Etat de Californie à être une cause de cancer. Pour plus d'information veuillez regarder sur: [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)



**WARNUNG:** Dieses Produkt kann Sie mit Chemikalien wie Kobalt aussetzen, das dem Staat Kalifornien als krebserregend bekannt ist. Für weitere Informationen, besuchen Sie: [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

**INTELLECTUAL PROPERTY**  
**PROPIEDAD INTELECTUAL**  
**PROPRIÉTÉ INTELLECTUELLE**  
**GEISTIGES EIGENTUM**

KYOCERA SGS Precision Tools holds more than 20 patents globally. Please visit our website at [www.kyocera-sgstool.com](http://www.kyocera-sgstool.com) to learn more.

KYOCERA SGS Precision Tools posee más de 20 patentes a nivel mundial. Para más información, visite nuestra página web [www.kyocera-sgstool.com](http://www.kyocera-sgstool.com).

KYOCERA SGS Precision Tools possède plus de 20 brevets mondialement reconnus. Pour plus d'information, veuillez consulter notre site web [www.kyocera-sgstool.com](http://www.kyocera-sgstool.com).

KYOCERA SGS Precision Tools besitzt mehr als 20 Patente weltweit. Bitte besuchen Sie unsere Webseite [www.kyocera-sgstool.com](http://www.kyocera-sgstool.com) für weitere Informationen.

# Common Legend

## Leyenda habitual

## Légende commune

## Gemeinsame Legende

### MATERIALS MATERIALES MATÉRIAUX WERKSTOFFE



Steels  
Aceros  
Aciers  
Stähle



Stainless Steels  
Aceros Inoxidables  
Aciers inoxydables  
Nichtrostende Stähle



Cast Iron  
Acero de Fundición  
Fonte  
Grauguss



High Temp Alloys  
Aleaciones Termorresistentes  
Alliages hautes températures  
Warmfeste Legierungen



Titanium  
Titanio  
Titane  
Titan



Non-Ferrous  
No Férricos  
Non Ferreux  
Nichteisenmetalle



Plastics/Composites  
Plásticos/Resinas  
Plastiques/Composites  
Kunststoffe/Verbundkunststoffe



Hardened Steels  
Aceros Endurecidos  
Aciers Trempés  
Gehärteter Stahl

### TOOL LENGTH LONGITUDES DE HERRAMIENTAS LONGUEUR DE L'OUTIL WERKZEUGLÄNGE



Stub  
Corta  
Court  
Kurze Bauform



Regular  
Media  
Moyen  
Standard



Long  
Larga  
Long  
Lang



Long Reach Neck  
Larga con cuello  
Détalonnage longue  
portée  
Freischliff



Extra Long  
Extra-larga  
Extra-long  
Extra-Lang

### FLUTES FILOS DENTS SCHNEIDEN



2 Flutes  
2 Filos  
2 Dents  
2 Schneiden



3 Flutes  
3 Filos  
3 Dents  
3 Schneiden



4 Flutes  
4 Filos  
4 Dents  
4 Schneiden



5 Flutes  
5 Filos  
5 Dents  
5 Schneiden



6 Flutes  
6 Filos  
6 Dents  
6 Schneiden



7 Flutes  
7 Filos  
7 Dents  
7 Schneiden



8 Flutes  
8 Filos  
8 Dents  
8 Schneiden



9 Flutes  
9 Filos  
9 Dents  
9 Schneiden



10 Flutes  
10 Filos  
10 Dents  
10 Schneiden



11 Flutes  
11 Filos  
11 Dents  
11 Schneiden



12 Flutes  
12 Filos  
12 Dents  
12 Schneiden

# **End Mill Legend** **Leyenda fresas** **Légende fraise** **Fräser-Legende**

## **END CONFIGURATIONS** **CONFIGURACIONES DE LA PUNTA** **FORME DE L'OUTIL EN BOUT** **ENDENAUSFÜHRUNG**



Ball  
Esférica  
Boule  
Kugelkopf



Corner  
Plana con  
borde romo  
Rayon  
mit Eckenradius



Square  
Plana  
Non rayonné  
Scharfkantig

## **SHANK TYPE** **TIPO DE VÁSTAGO** **TYPE DE TIGE** **SCHAFTART**



Common  
Normal  
Dégagée  
Standard



Straight  
Recto  
Cylindrique  
Gerade



Weldon Flat  
Weldon plano  
Méplat Weldon  
Spannfläche

## **HELIX ANGLES** **ANGULOS DE LAS HELICES** **SPANWINKEL** **ANGLES DE L'HÉLICE**



Right Spiral  
Hélice con corte  
a la derecha  
Hélice droite  
Rechtsspirale



Left Spiral  
Hélice con corte  
a la izquierda  
Hélice gauche  
Linksspirale



Variable Right Spiral  
Hélice con corte a  
la derecha y ángulo  
variable  
Hélice droite variable  
Rechtsspirale, variabel

## **COOLANT OPTIONS** **OPCIONES DE REFRIGERACIÓN** **OPTIONS DE REFROIDISSEMENT** **KÜHLSCHMIERMITTEL-OPTIONEN**



Internal Coolant  
Refrigeración interna  
Refroidissement interne  
Innenkühlung



JetStream Coolant Slots  
Ranuras de refrigeración  
JetStream  
Fentes de  
refroidissement  
JetStream  
JetStream-  
Kühlmittelschlitze

## **RAKE ANGLE** **ANGULO DE DESPRENDIMIENTO** **ANGLE DE COUPE** **SPANWINKEL**



Positive  
Positivo  
Positif  
Positiv



Neutral  
Neutro  
Neutre  
Neutral



Negative  
Negativo  
Négatif  
Negativ



Variable  
Variable  
Variable  
Variabel

## **ADDITIONAL GEOMETRY** **GEOMETRÍAS ADICIONALES** **GÉOMÉTRIE SUPPLÉMENTAIRE** **WEITERE BAUFORMEN**



Flute Spacing Unequal  
Espaciado desigual de  
los filos  
Denture décalée  
Nutenabstand Ungleich



Chip Breaker  
Rompevirutas  
Brise-copeaux  
Spanteiler

All tools are in Right Cut Direction unless noted

Todas las herramientas son con corte a la derecha a menos que se indique lo contrario

Tous les outils ont une coupe à droite, sauf indications contraires

Alle Werkzeuge sind rechtsschneidend, soweit nicht anders angegeben

# Drill Legend

## Leyenda brocas

## Légende perçage

## Bohrer-Legende

### SHANK TYPE TIPO DE VÁSTAGO TYPE DE TIGE SCHAFTART



Common  
Normal  
Dégagée  
Standard



Straight  
Recto  
Cylindrique  
Gerade

### REACH ALCANCE LONGUEUR NUTZLÄNGE

3xD

>3xD Reach  
Alcance >3xD  
>Longueur 3xD  
>3xD Nutzlänge

5xD

5xD Reach  
Alcance 5xD  
Longueur 5xD  
5xD Nutzlänge

8xD

8xD Reach  
Alcance 8xD  
Longueur 8xD  
8xD Nutzlänge

### HELIX ANGLES ANGULOS DE LAS HELICES ANGLES DE L'HÉLICE SPANWINKEL



Right Spiral  
Hélice con corte  
a la derecha  
Hélice à droite  
Rechtsspirale



None  
Ninguno  
Aucun  
gerade genutet



Internal Coolant  
Refrigeración interna  
Refroidissement interne  
Innenkühlung



External Coolant  
Refrigeración externa  
Refroidissement  
externe  
Auskühlung

### POINT ANGLE ÁNGULO DE PUNTA POINT D'ANGLE SPITZENWINKEL



Drill Point  
Angulo de la Punta  
Point de perçage  
Bohrspitze



Chamfer Angle  
Ángulo de chaflán  
Angle de chanfrein  
Fasenwinkel

# Router Legend Leyenda ranuradores Légende détourage Konturenfräser-Legende

## SHANK TYPE TIPO DE VÁSTAGO TYPE DE TIGE SCHAFTART



Straight  
 Recto  
 Cylindrique  
 Gerade

## RAKE ANGLE ANGULO DE DESPRENDIMIENTO ANGLE DE PENTE SPANWINKEL



Positive  
 Positivo  
 Positif  
 Positiv



Neutral  
 Neutro  
 Neutre  
 Neutral



Negative  
 Negativo  
 Négatif  
 Negativ



Variable  
 Variable  
 Variable  
 Variabel

## HELIX ANGLES ANGULOS DE LAS HELICES ANGLES DE L'HÉLICE SPANWINKEL



Right Spiral  
 Hélice con corte  
 a la derecha  
 Hélice à droite  
 Rechtsspirale



Left Spiral  
 Hélice con corte  
 a la izquierda  
 Hélice à gauche  
 Linksspirale

## ADDITIONAL GEOMETRY GEOMETRÍAS ADICIONALES GÉOMÉTRIE SUPPLÉMENTAIRE WEITERE BAUFORMEN



Left Hand Cut  
 Direction  
 Fresado sentido  
 izquierda  
 Coupe vers la  
 gauche  
 Rechtsschneidend



Right Hand Cut  
 Direction  
 Fresado sentido  
 derecha  
 Coupe vers la droite  
 Linksschneidend



Chip Breaker  
 Rompevirutas  
 Brise-copeaux  
 Spanbrecher



Drill Point  
 Angulo de la Punta  
 Point de perçage  
 Bohrspitze