NEUHÄUSER

CATALOG en
CATALOGO es

2026

Honeycomb Tools
Herramientas para mecanizado de panal de abeja



Ultrasonic Tools
Herramientas ultrasónicas



Panel Tools
Herramientas para mecanizado de paneles





Customized Precision since 1906

Precision in fourth generation
Precisión en cuarta generación



SPECIALIZATION FOR MORE THAN 120 YEARS

Gustav Neuhäuser founded the company in 1906 with the vision of crafting high-precision cutting tools for metalworking. For more than a century, we have been developing competent solutions FOR and WITH our customers for their machining requirements.

Highly specialized unique and standard tools, perfectly adapted to their respective machining task, form the center of our innovations and services.

Our team of qualified specialists continuously develops the technical specifications of our tools to optimize performance.

ESPECIALIZACIÓN DURANTE MÁS DE 120 AÑOS

Gustav Neuhäuser fundó la empresa en 1906 con el objetivo de fabricar herramientas de corte de alta precisión para el trabajo en metal. Durante más de un siglo, hemos desarrollado soluciones competentes PARA y CON nuestros clientes para satisfacer sus requisitos de mecanizado.

El centro de nuestras innovaciones y servicios lo constituyen herramientas altamente especializadas y estándar, adaptadas perfectamente a su respectiva tarea de mecanizado.

Nuestro equipo de especialistas cualificados desarrolla continuamente las especificaciones técnicas de nuestras herramientas con el fin de optimizar el rendimiento.



Cutting tools from specialists
Herramientas de corte de especialistas



HIGH-END SOLUTIONS FOR YOUR REQUIREMENTS

Customer-specific tools are our specialty: Are you looking for a tool in dimensions which are not listed in a catalog? Or do you need support to optimize the performance of your process in terms of surface, tool life and machining time? NEUHÄUSER is at your disposal with its extensive knowledge of cutting materials, coatings and cutting geometries. All with the aim of finding the most economical solution for your cutting, slot milling or profile milling process.

Our application engineers will support and advise you during the planning phase of your process. This is how we develop your precision cutting tool together with you – perfectly matched to your process.

SOLUCIONES DE ALTA GAMA PARA SATISFACER SUS REQUISITOS

Nuestra especialidad son herramientas específicas para el cliente: ¿Está buscando una herramienta en unas dimensiones que no se indican en el catálogo? ¿O bien necesita ayuda para optimizar el rendimiento de su proceso en cuanto a superficie, vida útil de la herramienta y tiempo de mecanizado? NEUHÄUSER está a su disposición con sus amplios conocimientos en materiales de corte, recubrimientos y geometrías de corte. Todo ello con la finalidad de encontrar la solución más rentable para su proceso de corte, de fresado de ranuras o de fresado de perfiles.

Nuestros ingenieros de aplicaciones le ayudarán y asesorarán durante la fase de planificación de su proceso. Así es cómo desarrollamos su herramienta de corte de precisión junto con usted, perfectamente adaptada a su proceso.

OUR HIGH-END-TOOLS:

- made of selected carbides, high speed and cobalt steels
- toothed with innovative cutting edge geometries
- coated with PVD or CVD coatings
- manufactured on high-precision CNC grinding centers
- in combination with an optimal heat treatment

Our sales representatives and technicians are at your service for your individual specialist advice.

NUESTRAS HERRAMIENTAS DE ALTA GAMA:

- *fabricadas con carburos seleccionados, aceros de alta velocidad y aceros aleados con cobalto*
- *dentados con geometrías innovadoras*
- *con recubrimientos de PVD o CVD*
- *fabricadas en centros de mecanizado CNC de alta precisión*
- *en combinación con un tratamiento térmico óptimo*

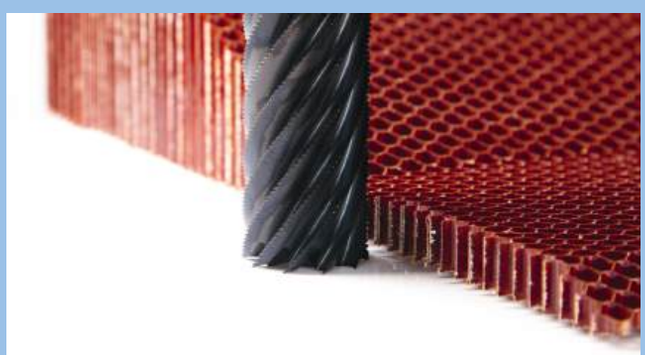
Nuestros representantes de ventas y técnicos están a su entera disposición para ofrecerle asesoramiento experto personalizado.

PRODUCTION WITH COMPETENCE

With many years of experience, our own mechanical engineering and continuous development of our employees form the basis for a precise implementation of your requirements via tools with the highest precision. Based on our extensive stock of raw materials and semi-finished products, we can guarantee you short and reliable delivery times.

FABRICACIÓN COMPETENTE

Con muchos años de experiencia, nuestra propia ingeniería mecánica y el desarrollo continuo de nuestros empleados constituyen la base de una implementación precisa de sus requisitos mediante herramientas con la máxima precisión. Sobre la base de nuestro gran stock de materias primas y productos semiacabados, podemos garantizarle tiempos de suministro breves y fiables.





PRECISION IN TOOLS

PRECISIÓN EN HERRAMIENTAS DE CORTE



PRECISION THROUGH INNOVATION

State-of-the-art and extremely flexible machines for the manufacture of precision tool series of any batch size produced in our production center in Prüm.

Our design department creates the best production conditions through individualized and automated machines that deliver the highest level of efficiency. Optimal conditions for tomorrow's cutting edge geometry.

PRECISIÓN A TRAVÉS DE LA INNOVACIÓN

Máquinas de altas prestaciones y muy fiables para la fabricación de herramientas de precisión en serie en cualquier tamaño manufacturadas en nuestro centro de producción en Prüm.

Nuestro departamento de diseño crea las mejores condiciones de producción mediante máquinas personalizadas y automatizadas que proporcionan el máximo nivel de eficiencia. Condiciones óptimas para la fabricación de herramientas de corte en geometrías innovadoras.

OPTIMUM HARDNESS – IN-HOUSE VACUUM HARDENING SYSTEMS

Precisely controlled vacuum hardening guarantees a reliable setting of the tool hardness and toughness and thus lays the foundation for the wear resistance of our high-speed and cobalt steel tools.

DUREZA ÓPTIMA – SISTEMAS DE TEMPLE EN VACÍO PROPIOS EN LA EMPRESA

El temple en vacío controlado con precisión garantiza un ajuste fiable de la dureza y la resistencia de la herramienta, lo que sienta la base para la resistencia al desgaste de nuestras herramientas de corte de alta velocidad y de aceros aleados al cobalto.





COATINGS: AGAINST WEAR AND ADHESION

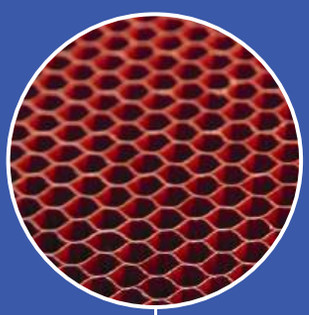
Modern PVD and CVD coatings can significantly increase the efficiency of cutting tools. But which coating is the right one? Depending on the workpiece material to be machined and other process conditions, we can provide a large portfolio of different coatings to minimalize wear and friction.
We'll gladly advise you.

RECUBRIMIENTOS: CONTRA EL DESGASTE Y LA ADHESIÓN

Los modernos recubrimientos de PVD (deposición física de vapor) o CVD (deposición química de vapor) pueden aumentar considerablemente la eficacia de las herramientas de corte. ¿Pero qué recubrimiento es el adecuado? En función del material de la pieza de trabajo que debe mecanizarse y otras condiciones del proceso, podemos ofrecer una amplia gama de distintos recubrimientos para minimizar el desgaste y la fricción.
Estaremos encantados de asesorarle.

Our precision cutting tools
Nuestras herramientas de corte de precisión

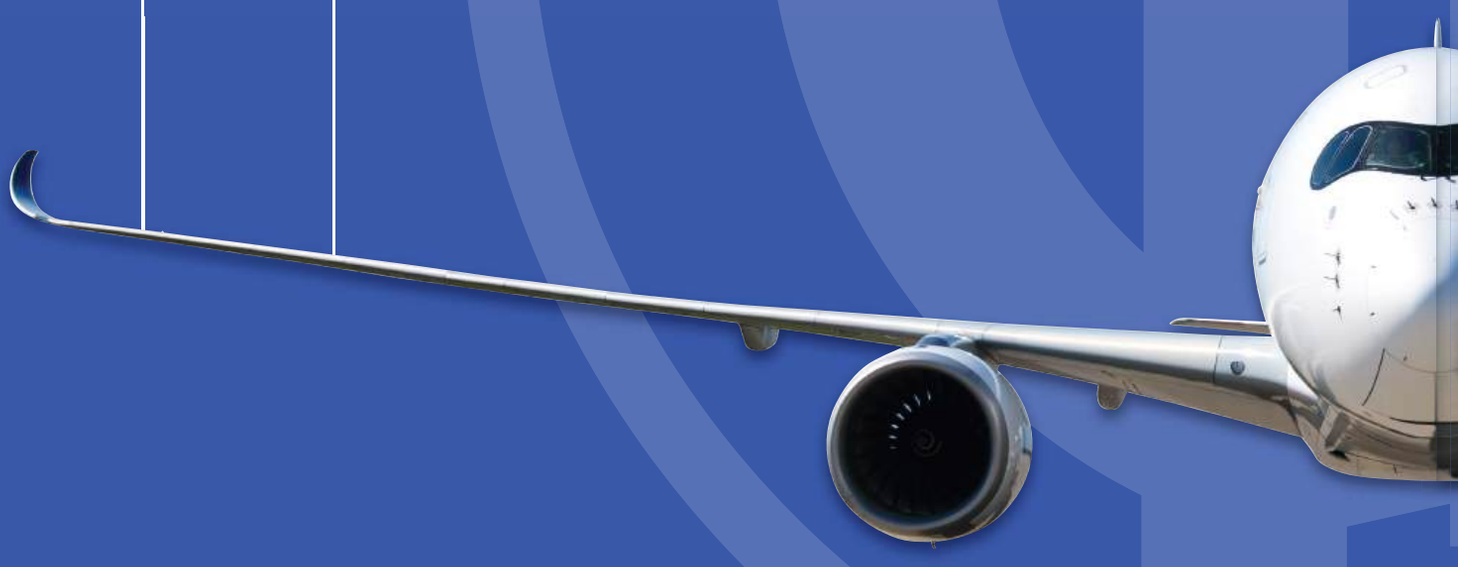
Honeycomb Tools
Herramientas para mecanizado de panal de abeja



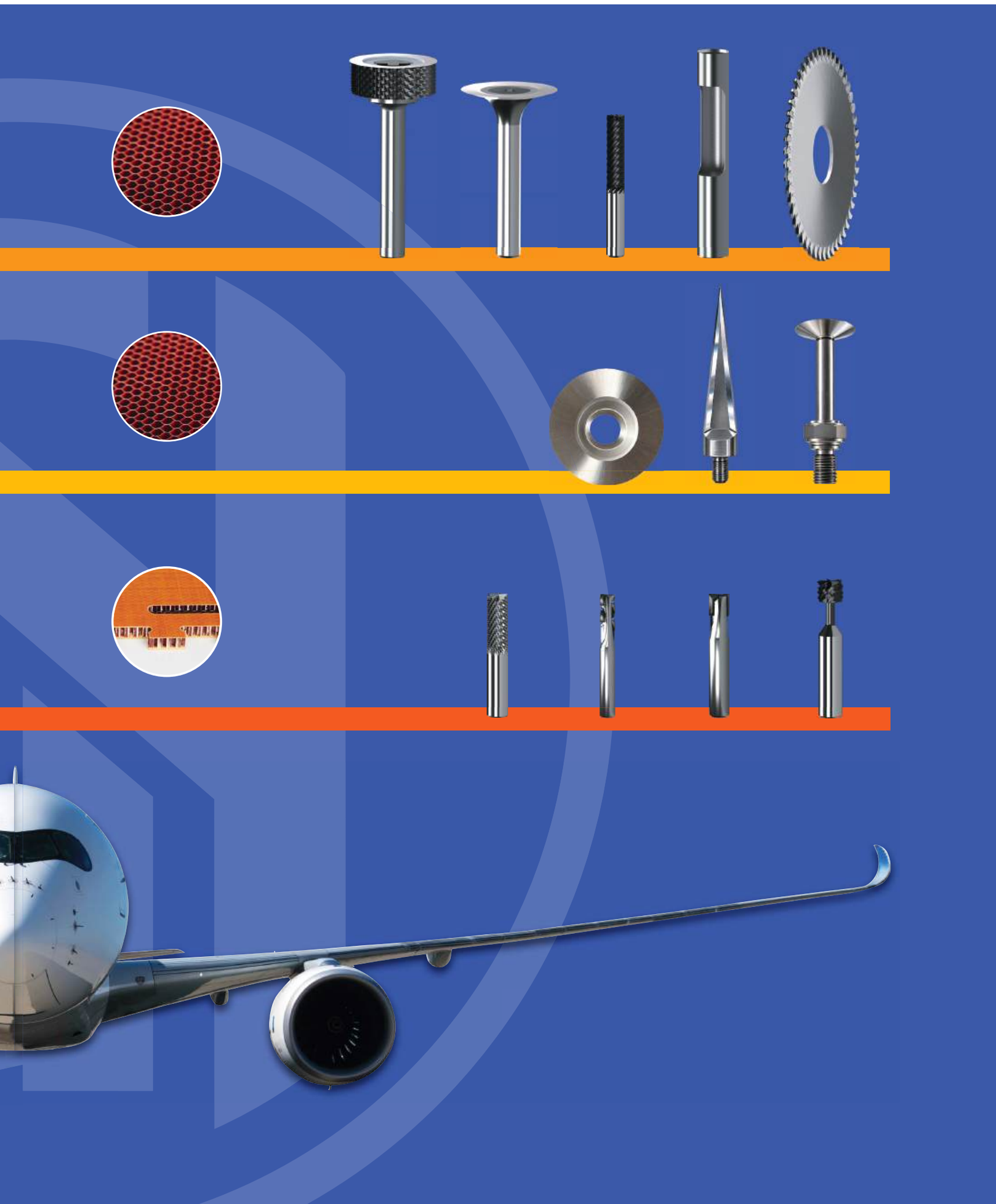
Ultrasonic Tools
Herramientas ultra sónicas



Panel Tools
Herramientas para mecanizado de paneles



NEUHÄUSER



Applications around the world
Aplicaciones en todo el mundo





NEUHÄUSER Präzisionswerkzeuge GmbH is a sales, development and production center that serves all markets in Europe, Asia, Africa and South America. NEUHAEUSER USA Inc. in Springfield, Ohio, is a 100% subsidiary of NEUHÄUSER Präzisionswerkzeuge GmbH and serves the American market. This ensures optimal support for all customers.

Together with our sales partners, we offer you direct and competent contact partners for your individual requirements on site.

NEUHÄUSER Präzisionswerkzeuge GmbH es un centro de ventas, desarrollo y producción que suministra a todos los mercados de Europa, Asia, África y América del Sur. NEUHAEUSER USA Inc. en Springfield, Ohio, es una filial al 100 % de NEUHÄUSER Präzisionswerkzeuge GmbH y opera en el mercado estadounidense. De este modo, se garantiza un soporte óptimo para todos los clientes.

Junto con nuestros socios de ventas, le ofrecemos socios de contacto directos y competentes para sus requisitos individuales in situ.

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2 Ultrasonic Tools *Herramientas ultrasónicas*

Panel Tools
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3 Panel Tools *Herramientas para mecanizado de paneles*

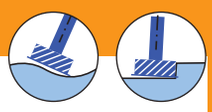
Technical Data & Explanations
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4 Appendix *Anexo*

Recommendations for tool selection

Recomendaciones para la selección de la herramienta

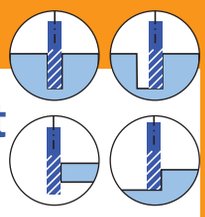
Core Cut



3D-Milling (Roughing · Finishing) · Face Milling

Fresado 3D (Desbaste · Acabado) · Fresado de superficies

Profile Cut



Trimming · Roughing · Pocketing · Drilling

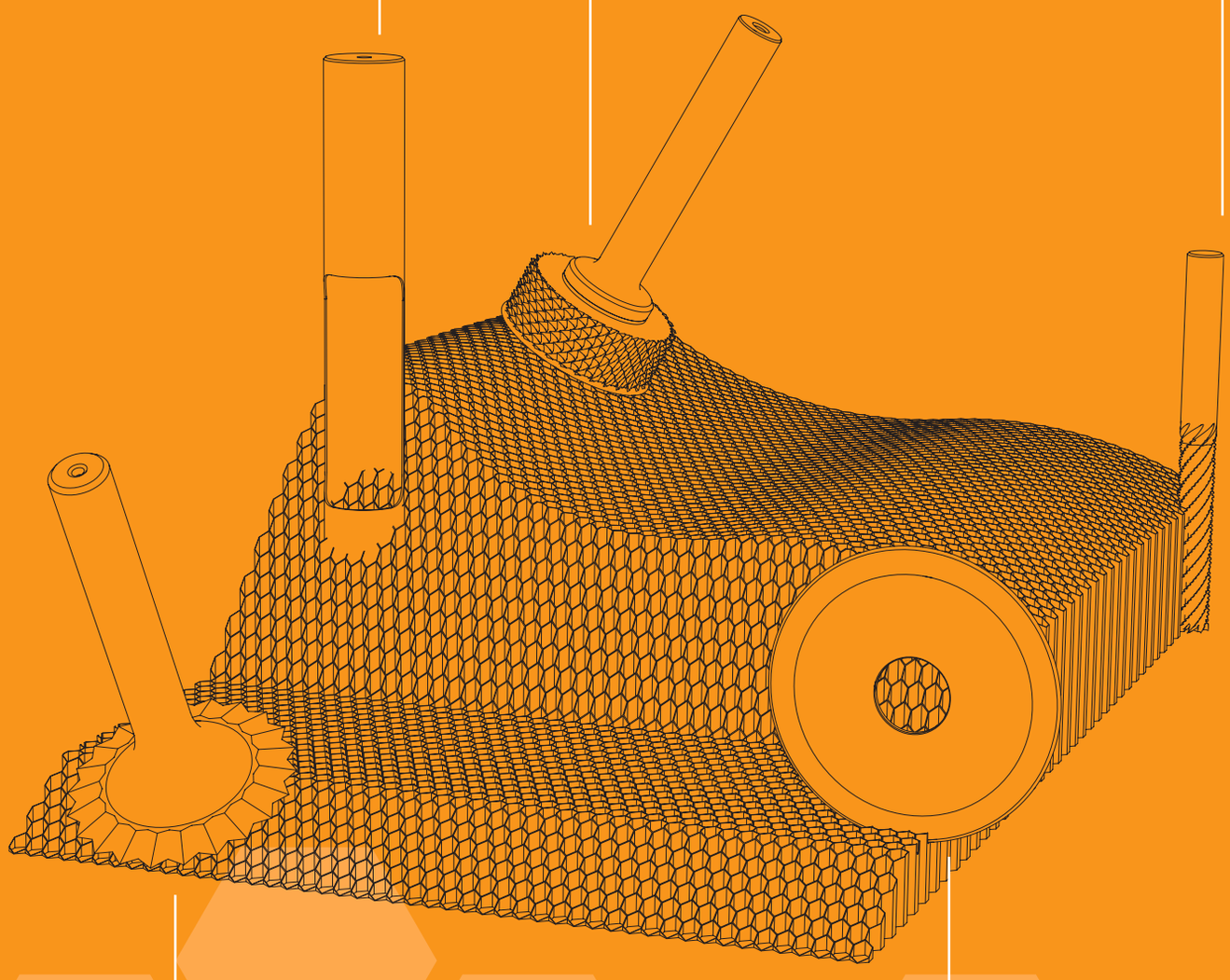
Recanteado · Desbaste · Cajeras · Taladrado

Hollow Drill



Drilling · Nibbling

Broca hueca para taladrar



Valve Type Cut



Chamfering · Trimming · Finishing

Chaflán · Recanteado · Acabado

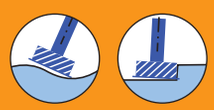
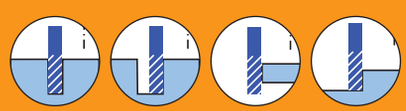
Drain Cut



Slotting of Aramid- and Aluminum Core

Ranurado de núcleo de aramida y aluminio

Honeycomb Tools
Herramientas para mecanizado de panal de abeja

product-type *tipo de producto*		Application *aplicación*	page página
Core Cut			**12–33**
Valve Type Cut	new *nuevo*		**34–47**
Profile Cut			**48–49**
Drain Cut			**50–53**
Hollow Drill	new *nuevo*		**54–55**



SPECIAL DIMENSIONS OR SPECIAL APPLICATIONS?

Talk to us. We are happy to manufacture **custom-made products for you in regard to tool dimensions, tooth geometries, interfaces, cutting materials and coatings.**

DIMENSIONES ESPECIALES O APLICACIONES ESPECIALES?

Póngase en contacto con nosotros. Estaremos encantados de fabricar ***productos personalizados para usted en cuanto a las dimensiones de la herramienta, las geometrías del dentado, las interfaces, los materiales de corte y los recubrimientos.***

Core Cut Overview

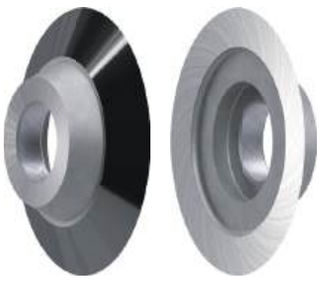
Visión general del Core Cut

- **Modular Tooling-System for 5-axis-machining of Honeycomb material**
- **flexible Combination of material-specific designed Front-End-Tools and Shredders**
- **For Roughing and Finishing of 3D-surfaces**

- *Sistema modular de herramientas de corte para mecanizado de panal de abeja con 5 ejes*
- *Combinación flexible de cuchillas de disco y trituradoras diseñadas específicamente*
- *para desbaste y acabado de superficies 3D*



Front-End-Tools / *Cuchillas de disco*



Solid Carbide Knife **S smooth**
*Cuchillas de metal duro **S liso***

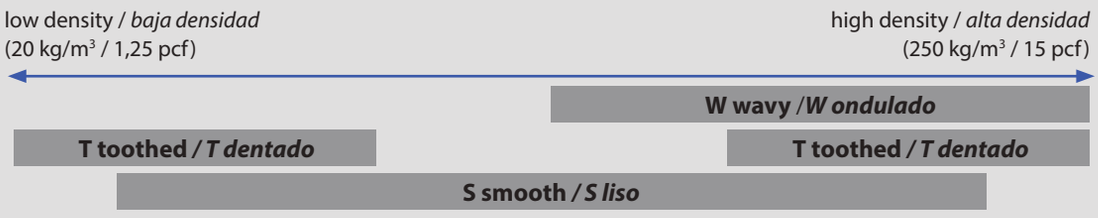


Solid Carbide Knife **T toothed**
*Cuchillas de metal duro **T dentado***



Solid Carbide Knife **W wavy**
*Cuchillas de metal duro **W ondulado***

Usage of Front-End-Tools / *Uso de cuchilla de disco*



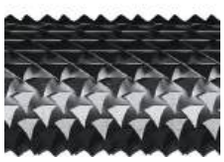
Shredders / *Fresas trituradoras*



Standard toothing
dentado estándar

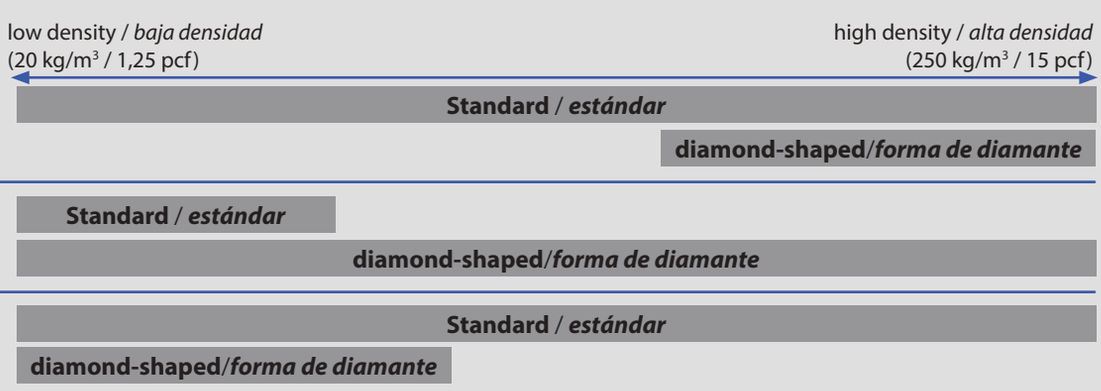


fine diamond-shaped toothing
dentado fino en forma de diamante



coarse diamond-shaped toothing
dentado grueso en forma de diamante

Usage of Shredder Types / *Uso de tipos de fresas trituradoras*



Core Cut Overview

Visión general del Core Cut

Ø in mm ***Ø in inch***			**10** *0.394*	12,7 ***½***	19,05 ***¾***	25,4 ***1***	38,1 ***1½***	**45** *1.772*	50,8 ***2***	**63** *2.480*	76,2 ***3***
Front-End-Tools Solid Carbide Knives / ***Herramientas front-end*** *cuchilla de metal duro*											
S		**Alcodur**	●	●	●	●	●	●	●	●	●
T		**Alcodur**				●	●	●	●	●	●
W		**Alcodur**				●	●	●	●	●	●
S		**–**	●	●	●	●	●	●	●	●	●
T		**–**				●	●	●	●	●	●
W		**–**				●	●	●	●	●	●
Core Cut Shredders / *Trituradoras*											
Standard ***estándar***	**short** ***corto***	**Alcodur**	●	●			●	●	●	●	
diam.-shaped ***forma de diamante***	**short** ***corto***	**Alcodur**					●	●	●	●	
Standard ***estándar***	**long** ***largo***	**Alcodur**			●	●		●		●	●
coarse diam.-shaped ***grueso forma de diamante***	**long** ***largo***	**Alcodur**			●	●		●		●	
fine diam.-shaped ***fino forma de diamante***	**long** ***largo***	**Alcodur**			●	●					
Core Cut Shank-Sets incl. screw and wrench * / *Sets de mangos incl. tornillo y llave* *											
Ø ½ "	**short** ***corto***						●	●	●	●	
Ø ⅝ "	**short** ***corto***						●	●	●	●	
Ø 16 mm	**short** ***corto***				Ø 10 to 25,4 mm (½"):		●	●	●	●	
Ø 20 mm	**short** ***corto***				Shank is included in Shredder		●	●	●	●	
Ø ½ "	**long** ***largo***				*Ø 10 a 25,4 mm (½"):*			●		●	●
Ø ⅝ "	**long** ***largo***				*El mango está incluido en el triturador*			●		●	●
Ø 16 mm	**long** ***largo***							●		●	●
Ø 20 mm	**long** ***largo***							●		●	●

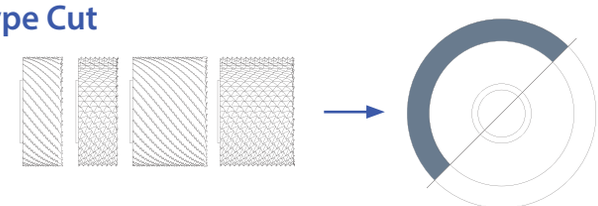
* instead of the wrench it is possible to use a torque wrench. The needed adapters are listed under "Accessories" in each case.
** En lugar de la llave inglesa es posible utilizar una llave de torsión dinamométrica. Los adaptadores necesarios se enumeran en "Accesorios" en cada caso.*

Note: Shank-Sets short version Core Cut 38,1 / 45 identical; Shank-Sets short version Core Cut-50,8 / 63 identical; Shank-Sets long version Core Cut 63 / 76,2 identical
Nota: Sets de mangos versión corta Core Cut 38,1 / 45 idéntico; Sets de mangos versión corta Core Cut-50,8 / 63 idéntico; Sets de mangos versión larga Core Cut 63 / 76,2 idéntico

Adapter-Set Core Cut + Valve Type Cut

for Combination of **Core Cut-Shredders**
with **Valve Type Cut-Front-End-Knives**
for increased undercut, options:

para combinación de trituradoras de corte de núcleo con cuchillas de corte de tipo válvula-frontal para un mayor corte, opciones:

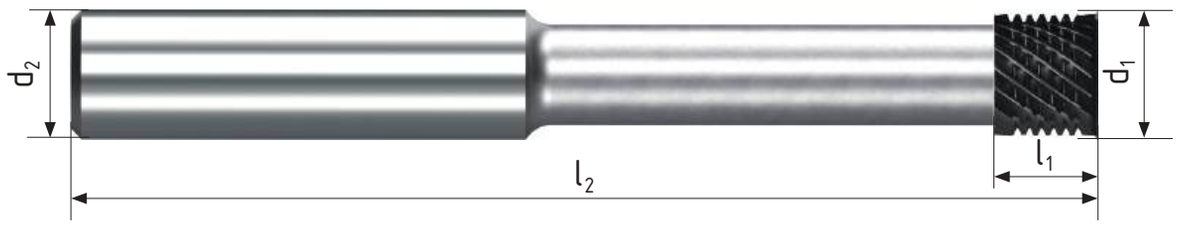


Core Cut-Shredder/Trituradoras	**Valve Type Cut-Front-End-Knife/Herr. front-end**
45 mm →	**50,8 mm · *2* "**
63 mm →	**76,2 mm · *3* "**

Core Cut Overview
Visión general del Core Cut

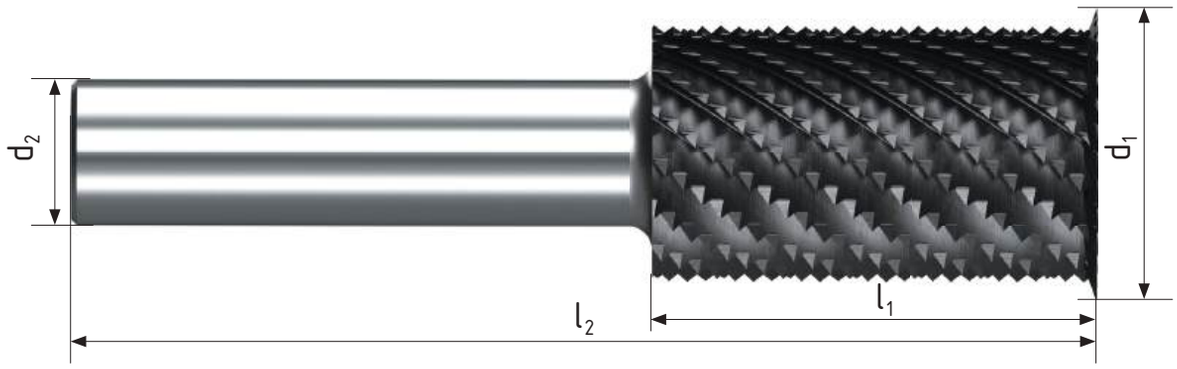
- **2 parts from 10 to 19,05 mm**
  Shank-Shredder and knife screw

- ***2 partes desde 10 hasta 19,05 mm***
  Fresas trituradoras y tornillos para cuchillas



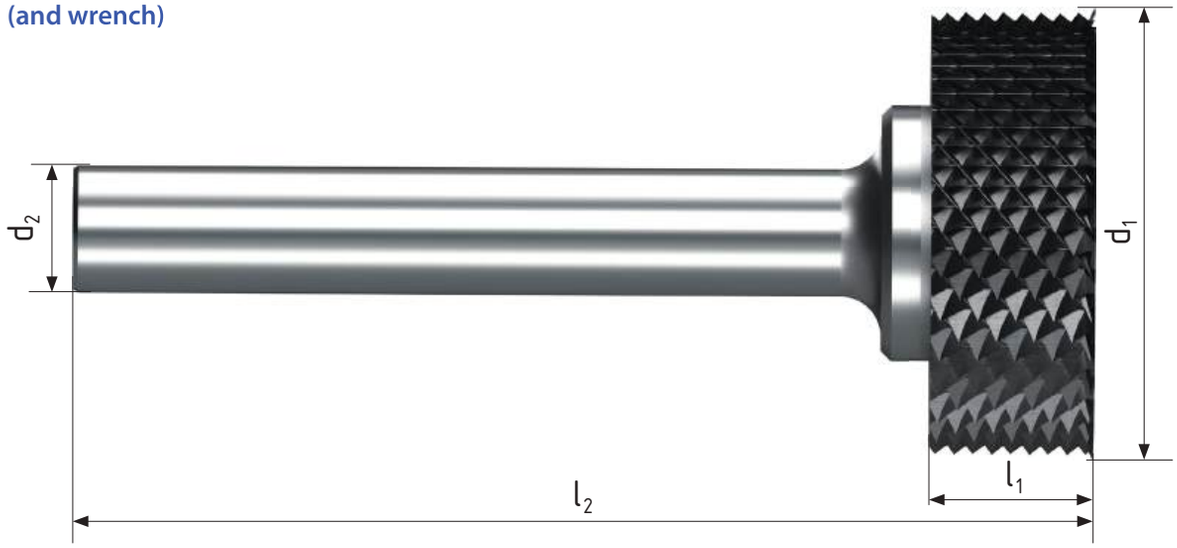
- **3 parts at 25,4 mm**
  Shank-Shredder, knife, screw (and wrench)

- ***3 partes de 25,4 mm***
  Fresas trituradoras, cuchilla y tornillo (y llave)



- **4 parts at 38,1 mm**
  long and short version
  Shank, shredder, front-end tool, screw (and wrench)

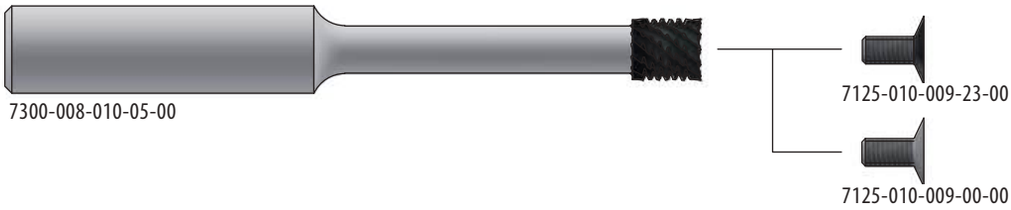
- ***4 partes de 38,1 mm***
  versión larga y corta
  mango, trituradoras, cuchilla, tornillo (y llave)



d_1 Cutting-Ø / *Ø de corte*
d_2 Shank-Ø / *Ø de mango*

l_1 Length of Cut / *Longitud de corte*
l_2 Over-all-Length / *Longitud total*

Core Cut · 10 mm · *0.394 "*



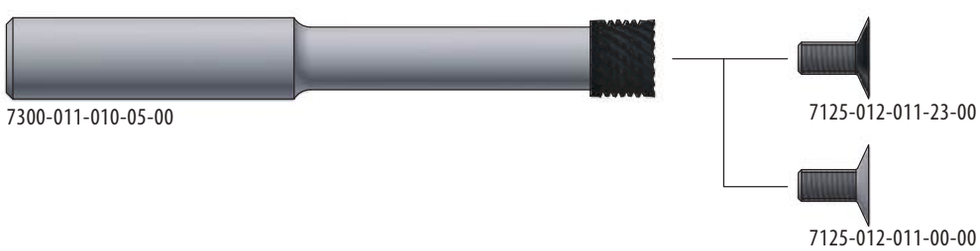
Front-End-Knives with thread / *Cuchilla de disco con rosca*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*	mat.	Item-No. *num. de art.*
10 mm *0.394 "*	S		Alcodur	SC *MD*	7125-010-009-23-00
10 mm *0.394 "*	S		–	SC *MD*	7125-010-009-00-00

Shank-Shredder / *Fresas trituradoras*

toothing *dentado*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	ℓ_2* OAL *Longitud total*	d_2 Shank-Ø *Ø mango*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm	8,9	10	101,6	12,7	HSS-Co	7300-008-010-05-00
			inch	*0.35*	*0.394*	*4*	*½*		

Core Cut · 12,7 mm · *½ "*



Front-End-Knives with thread / *Cuchilla de disco con rosca*

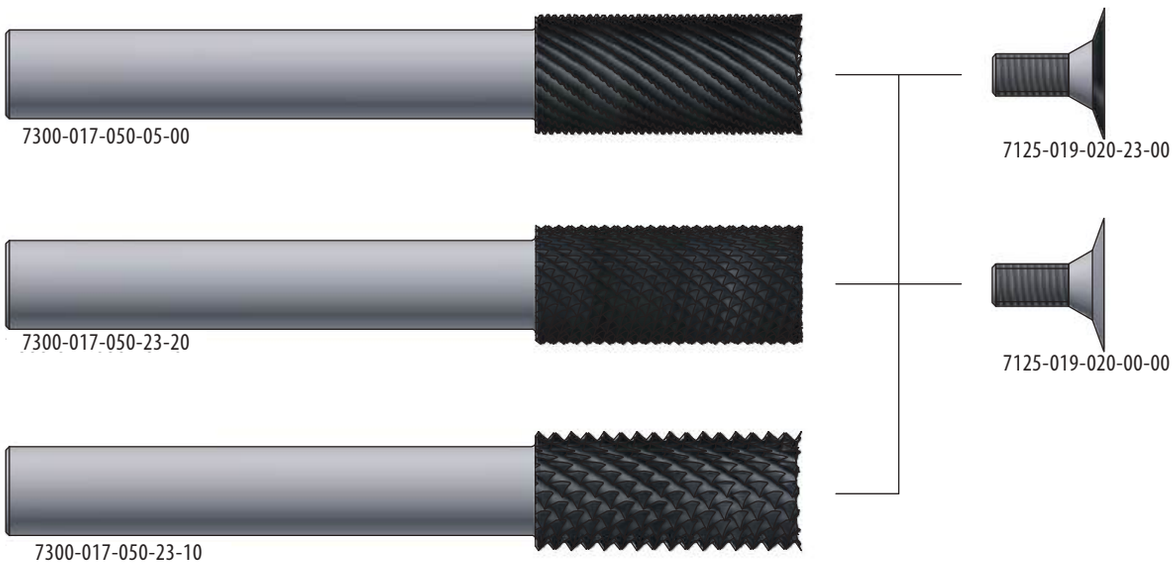
d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*	mat.	Item-No. *num. de art.*
12,7 mm *1/2 "*	S		Alcodur	SC *MD*	7125-012-011-23-00
12,7 mm *1/2 "*	S		–	SC *MD*	7125-012-011-00-00

Shank-Shredders / *Fresas trituradoras*

toothing *dentado*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	ℓ_2* OAL *Longitud total*	d_2 Shank-Ø *Ø mango*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm	11,9	10	101,6	12,7	HSS-Co	7300-011-010-05-00
			inch	*0.469*	*0.394*	*4*	*½*		

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*

Core Cut · 19,05 mm · ¾ "



Front-End-Knives with thread / *Cuchilla de disco con rosca*

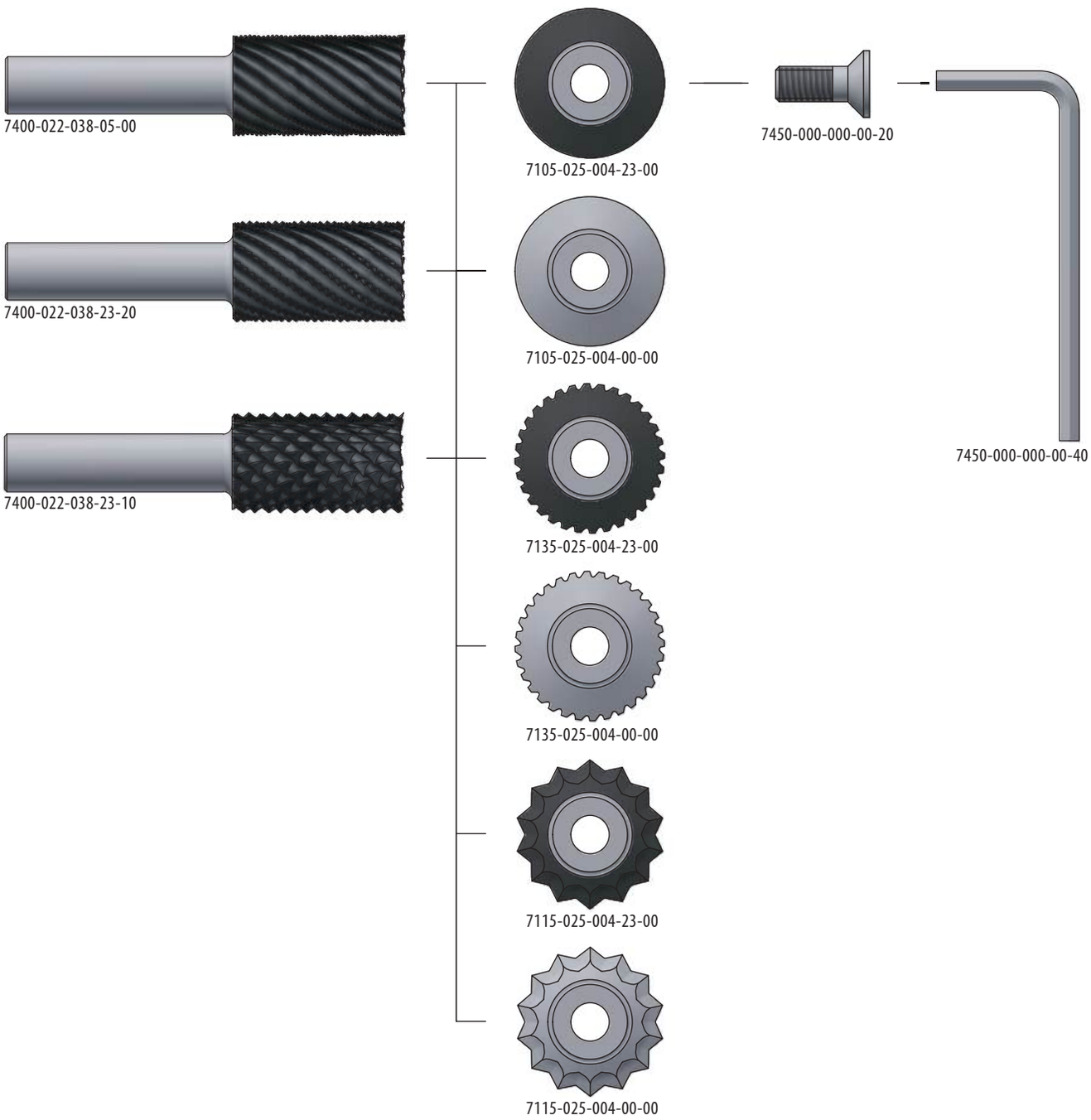
d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*	mat.	Item-No. *num. de art.*
19,05 mm *3/4 "*	S		Alcodur	SC *MD*	7125-019-020-23-00
19,05 mm *3/4 "*	S		–	SC *MD*	7125-019-020-00-00

Shank-Shredders / *Fresas trituradoras*

toothing *dentado*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	ℓ_2* OAL *Longitud total*	d_2 Shank-Ø *Ø mango*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	17 *0.669*	38,1 1 ½	114,3 *4 ½*	12,7 ½	HSS-Co	7300-017-050-05-00
fine diamond-shaped teeth *dentado fino forma diam.*		Alcodur	mm *inch*	17 *0.669*	38,1 1 ½	114,3 *4 ½*	12,7 ½	HSS-Co	7300-017-050-23-20
coarse diamond-shaped teeth *dentado grueso forma diam.*		Alcodur	mm *inch*	17 *0.669*	38,1 1 ½	114,3 *4 ½*	12,7 ½	HSS-Co	7300-017-050-23-10

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*

Core Cut · 25,4 mm · *1 "*



Front-End-Knives / *Cuchilla de disco*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*	mat.	Item-No. *num. de art.*
25,4 mm *1 "*	S		Alcodur	SC *MD*	7105-025-004-23-00
25,4 mm *1 "*	S		–	SC *MD*	7105-025-004-00-00
25,4 mm *1 "*	T		Alcodur	SC *MD*	7135-025-004-23-00
25,4 mm *1 "*	T		–	SC *MD*	7135-025-004-00-00
25,4 mm *1 "*	W		Alcodur	SC *MD*	7115-025-004-23-00
25,4 mm *1 "*	W		–	SC *MD*	7115-025-004-00-00

Shank-Shredder-Sets incl. screw & wrench / *Sets de fresas trituradoras con tornillo y llave*

toothing *dentado*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	ℓ_2* OAL *Longitud total*	d_2 Shank-Ø *Ø mango*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	22,225 *⅞*	38,1 *1 ½*	88,9 *3 ½*	12,7 *½*	HSS-Co	7400-022-038-05-00
fine diamond-shaped teeth *dentado fino forma diam.*		Alcodur	mm *inch*	22,225 *⅞*	38,1 *1 ½*	88,9 *3 ½*	12,7 *½*	HSS-Co	7400-022-038-23-20
coarse diamond-shaped teeth *dentado grueso forma diam.*		Alcodur	mm *inch*	22,225 *⅞*	38,1 *1 ½*	88,9 *3 ½*	12,7 *½*	HSS-Co	7400-022-038-23-10

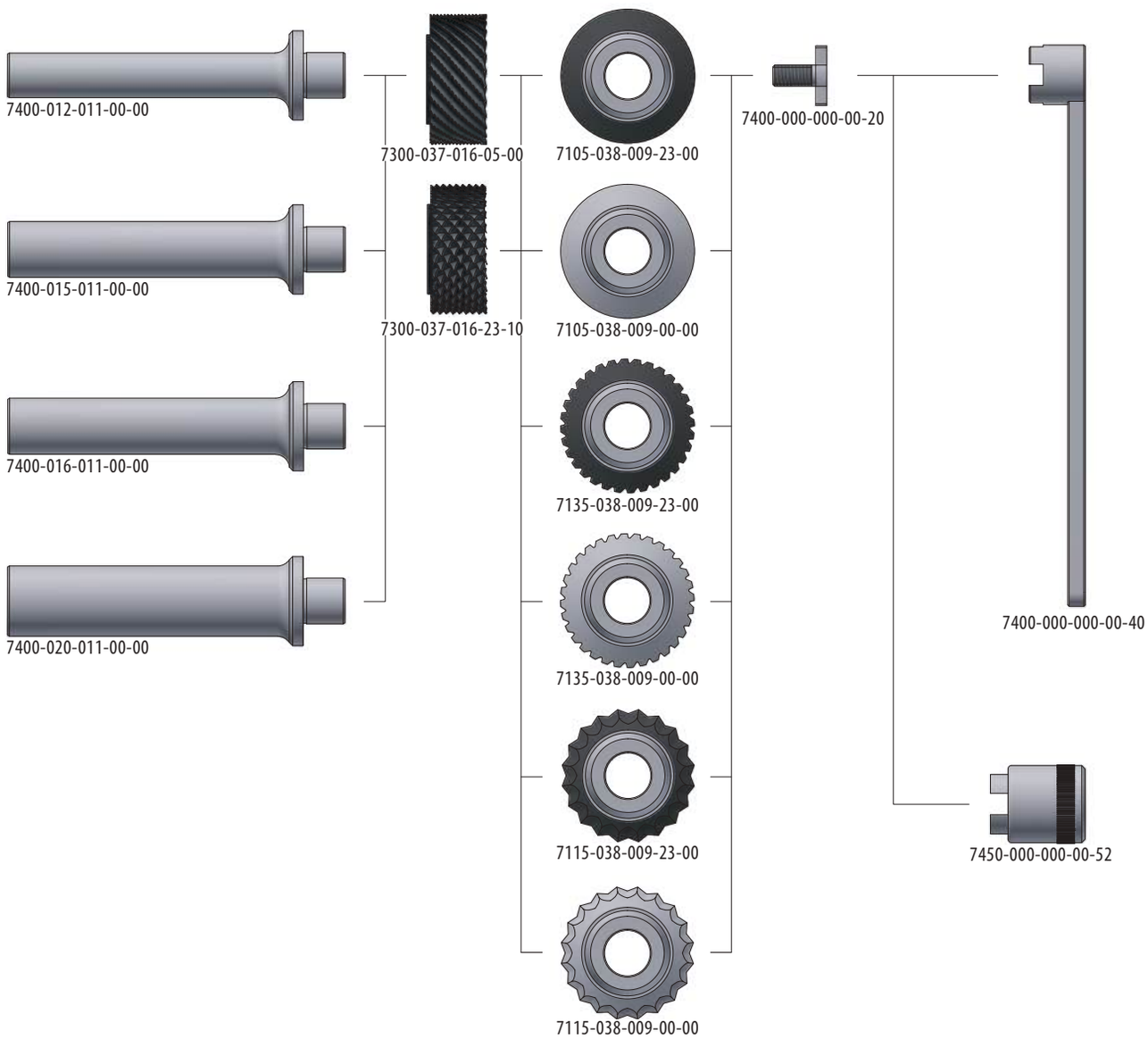
Single components / *Componentes individuales*

Shank-Shredder *Fresas trituradoras*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	ℓ_2* OAL *Longitud total*	d_2 Shank-Ø *Ø mango*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	22,225 *⅞*	38,1 *1 ½*	88,9 *3 ½*	12,7 *½*	HSS-Co	7300-022-038-05-00
fine diamond-shaped teeth *dentado fino forma diam.*		Alcodur	mm *inch*	22,225 *⅞*	38,1 *1 ½*	88,9 *3 ½*	12,7 *½*	HSS-Co	7300-022-038-23-20
coarse diamond-shaped teeth *dentado grueso forma diam.*		Alcodur	mm *inch*	22,225 *⅞*	38,1 *1 ½*	88,9 *3 ½*	12,7 *½*	HSS-Co	7300-022-038-23-10

Accessories *Accesorios*	Item-No. *num. de art.*
Screw *Tornillo*	7450-000-000-00-20
Allen wrench (SW 4) *Llave allen (SW 4)*	7450-000-000-00-40

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*

Core Cut · 38,1 mm · *1 ½ "*



Front-End-Knives / *Cuchilla de disco*

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*	**mat.**	**Item-No.** *num. de art.*
38,1 mm *1 ½ "*	S		Alcodur	SC *MD*	7105-038-009-23-00
38,1 mm *1 ½ "*	S		–	SC *MD*	7105-038-009-00-00
38,1 mm *1 ½ "*	T		Alcodur	SC *MD*	7135-038-009-23-00
38,1 mm *1 ½ "*	T		–	SC *MD*	7135-038-009-00-00
38,1 mm *1 ½ "*	W		Alcodur	SC *MD*	7115-038-009-23-00
38,1 mm *1 ½ "*	W		–	SC *MD*	7115-038-009-00-00

Shredders / *Fresas trituradoras*

toothing *dentado*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	37 *1.457*	16 *0.63*	HSS-Co	7300-037-016-05-00
diamond-shaped teeth *dentado forma diam.*		Alcodur	mm *inch*	37 *1.457*	16 *0.63*	HSS-Co	7300-037-016-23-10

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

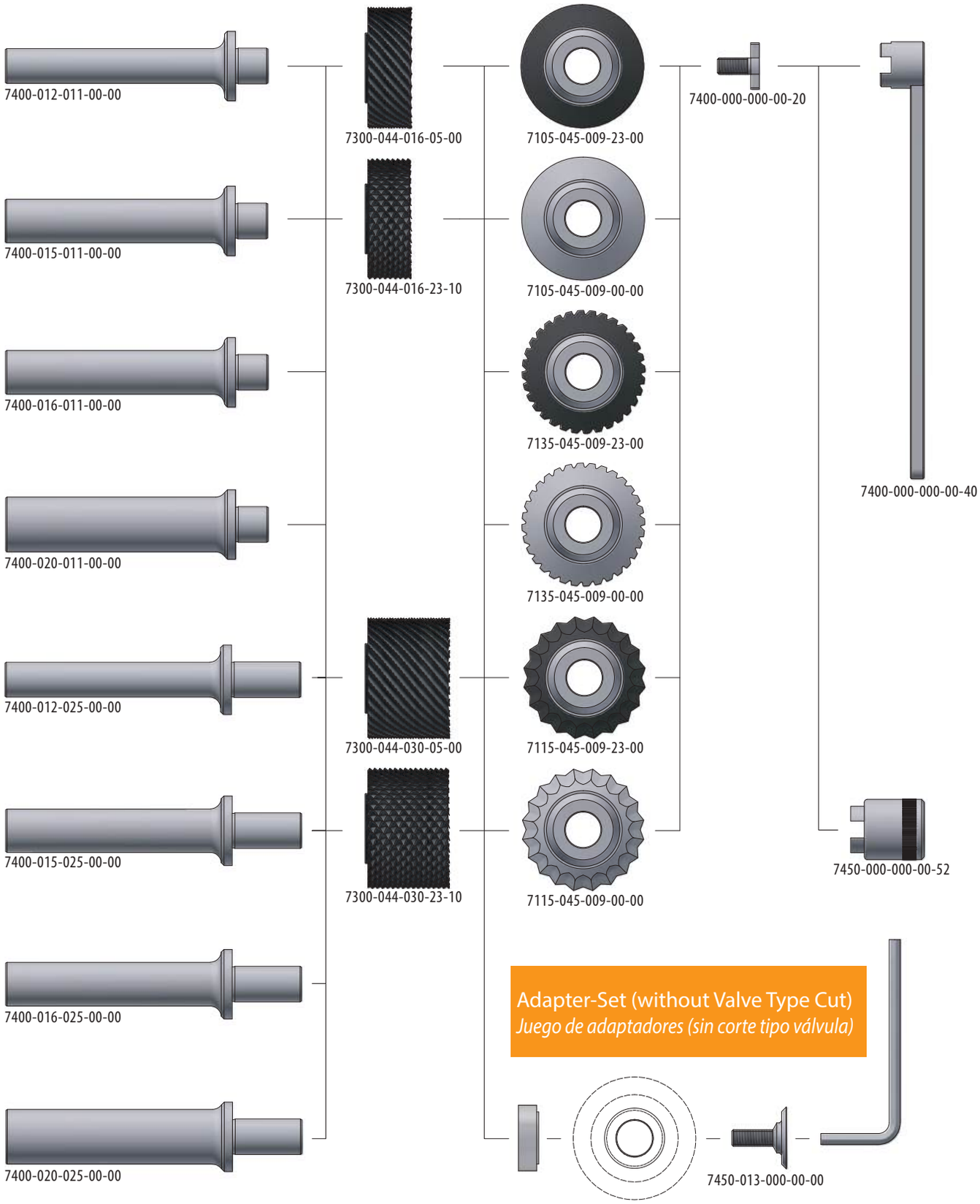
d_2 Shank-Ø *Ø mango*		ℓ_2* OAL *Longitud total*	Item-No. *num. de art.*
12,7 mm *½"*	mm *inch*	101,6 *4*	7400-012-011-00-00
15,875 mm *⅝ "*	mm *inch*	101,6 *4*	7400-015-011-00-00
16 mm *0.63 "*	mm *inch*	101,6 *4*	7400-016-011-00-00
20 mm *0.7874 "*	mm *inch*	101,6 *4*	7400-020-011-00-00

Single components / *Componentes individuales*

Accessories *Accesorios*	Item-No. *num. de art.*
Screw *Tornillo*	7400-000-000-00-20
Wrench *Llave*	7400-000-000-00-40
½"-Torque wrench adapter for screw *Llave para tornillo de ½"*	7450-000-000-00-52
Reduction for torque wrench adapter from ½" to ⅜" *Llave reductora de ½" a ⅜"*	7450-000-000-00-54

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*

Core Cut · 45 mm · *1.772 "*



Front-End-Knives / *Cuchilla de disco*

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*	**mat.**	**Item-No.** *num. de art.*
45 mm *1.772 "*	S		Alcodur	SC *MD*	7105-045-009-23-00
45 mm *1.772 "*	S		–	SC *MD*	7105-045-009-00-00
45 mm *1.772 "*	T		Alcodur	SC *MD*	7135-045-009-23-00
45 mm *1.772 "*	T		–	SC *MD*	7135-045-009-00-00
45 mm *1.772 "*	W		Alcodur	SC *MD*	7115-045-009-23-00
45 mm *1.772 "*	W		–	SC *MD*	7115-045-009-00-00

Shredders short / *Fresas trituradoras cortas*

toothing *dentado*		**coating** *recubrimiento*		**d_1** Cutting-Ø *Ø de corte*	**ℓ_1** Length of Cut *Longitud de corte*	**mat.**	**Item-No.** *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	44 *1.732*	16 *0.63*	HSS-Co	7300-044-016-05-00
diamond-shaped teeth *dentado forma diam.*		Alcodur	mm *inch*	44 *1.732*	16 *0.63*	HSS-Co	7300-044-016-23-10

Shank-Sets short incl. accessories / *Sets de mangos cortos incl. accesorios*

d_2 short version / *versión corta* Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
12,7 mm *½"*	mm *inch*	101,6 *4*	7400-012-011-00-00
15,875 mm *⅝ "*	mm *inch*	101,6 *4*	7400-015-011-00-00
16 mm *0.63 "*	mm *inch*	101,6 *4*	7400-016-011-00-00
20 mm *0.7874 "*	mm *inch*	101,6 *4*	7400-020-011-00-00

Adapter-Set / *Juego de adaptadores*

for combination of Core Cut-Shredders and Valve Type Cut-Front-End-Tools *para la combinación de trituradoras de corte de núcleo y herramientas de corte de tipo válvula-frontal*	**Item-No.** *num. de art.*
Set for Core Cut 45 mm and Valve Type Cut 50,8 mm (consisting of washer, screw and wrench) *Set de corte de núcleo 45 mm y válvula de 50,8 mm (que consta de arandela, tornillo y llave inglesa)*	7450-013-000-00-00

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*

Shredders long / *Fresas trituradoras largas*

toothing *dentado*		**coating** *recubrimiento*		**d_1** Cutting-Ø *Ø de corte*	**ℓ_1** Length of Cut *Longitud de corte*	**mat.**	**Item-No.** *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	44 *1.732*	30 *1.181*	HSS-Co	7300-044-030-05-00
diamond-shaped teeth *dentado forma diam.*		Alcodur	mm *inch*	44 *1.732*	30 *1.181*	HSS-Co	7300-044-030-23-10

Shank-Sets long incl. accessories / *Sets de mangos largos incl. accesorios*

d_2 long version / *versión larga* Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
12,7 mm *½ "*	mm *inch*	114,3 *4 ½*	7400-012-025-00-00
15,875 mm *⅝ "*	mm *inch*	114,3 *4 ½*	7400-015-025-00-00
16 mm *0.63 "*	mm *inch*	114,3 *4 ½*	7400-016-025-00-00
20 mm *0.7874 "*	mm *inch*	114,3 *4 ½*	7400-020-025-00-00

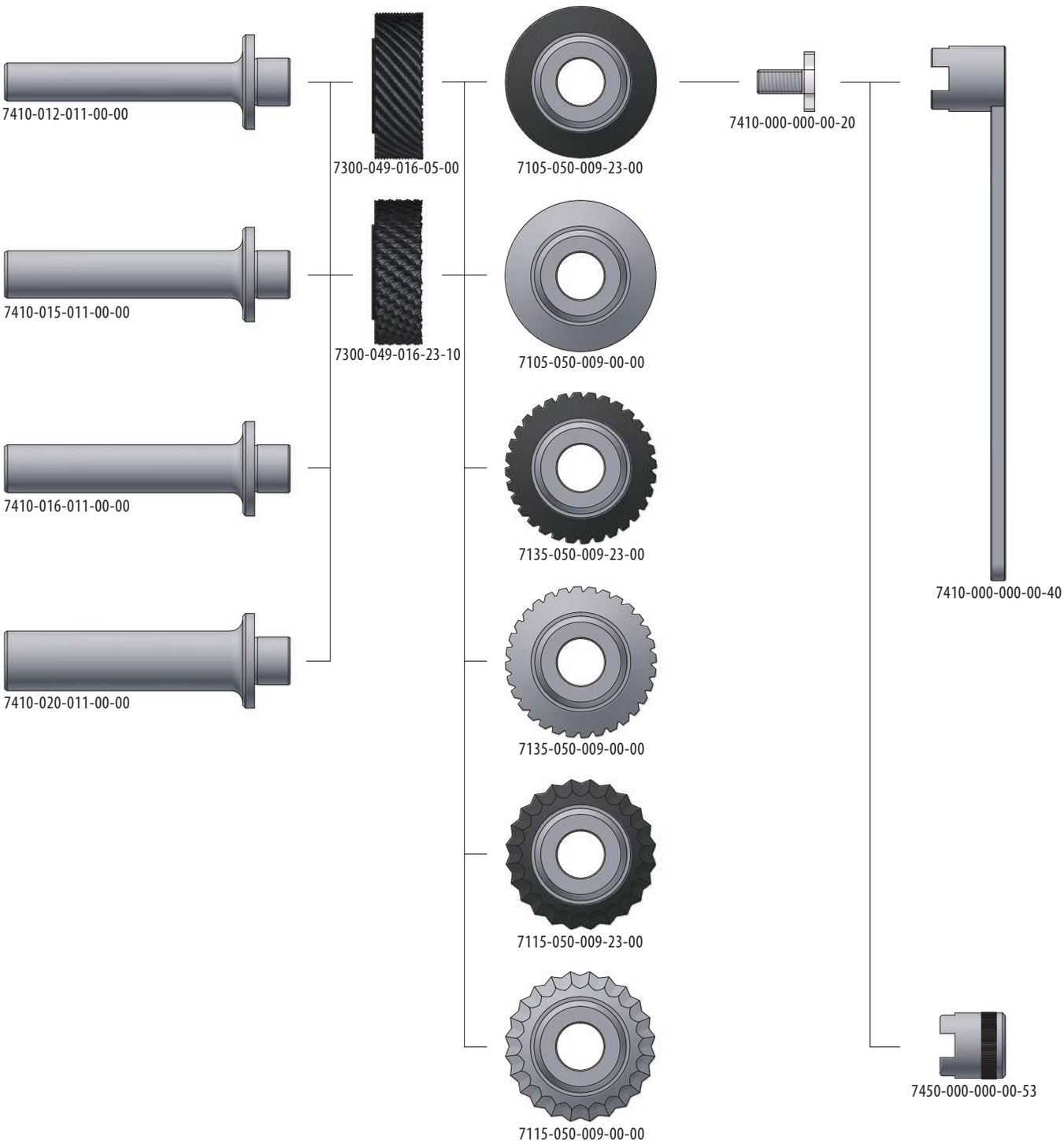
Single components / *Componentes individuales*

Accessories *Accesorios*	**Item-No.** *num. de art.*
Screw *Tornillo*	7400-000-000-00-20
Wrench *Llave*	7400-000-000-00-40
½"-Torque wrench adapter for screw *Llave para tornillo de ½"*	7450-000-000-00-52
Reduction for torque wrench adapter from ½" to ⅜" *Llave reductora de ½" a ⅜"*	7450-000-000-00-54

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*



Core Cut · 50,8 mm · *2 "*



Front-End-Knife / *Cuchilla de disco*

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*	**mat.**	**Item-No.** *num. de art.*
50,8 mm *2 "*	S		Alcodur	SC *MD*	7105-050-009-23-00
50,8 mm *2 "*	S		–	SC *MD*	7105-050-009-00-00
50,8 mm *2 "*	T		Alcodur	SC *MD*	7135-050-009-23-00
50,8 mm *2 "*	T		–	SC *MD*	7135-050-009-00-00
50,8 mm *2 "*	W		Alcodur	SC *MD*	7115-050-009-23-00
50,8 mm *2 "*	W		–	SC *MD*	7115-050-009-00-00

Shredders / *Fresas trituradoras*

toothing *dentado*		**coating** *recubrimiento*		**d_1** Cutting-Ø *Ø de corte*	**ℓ_1** Length of Cut *Longitud de corte*	**mat.**	**Item-No.** *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	49 *1.929*	16 *0.63*	HSS-Co	7300-049-016-05-00
diamond-shaped teeth *dentado forma diam.*		Alcodur	mm *inch*	49 *1.929*	16 *0.63*	HSS-Co	7300-049-016-23-10

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

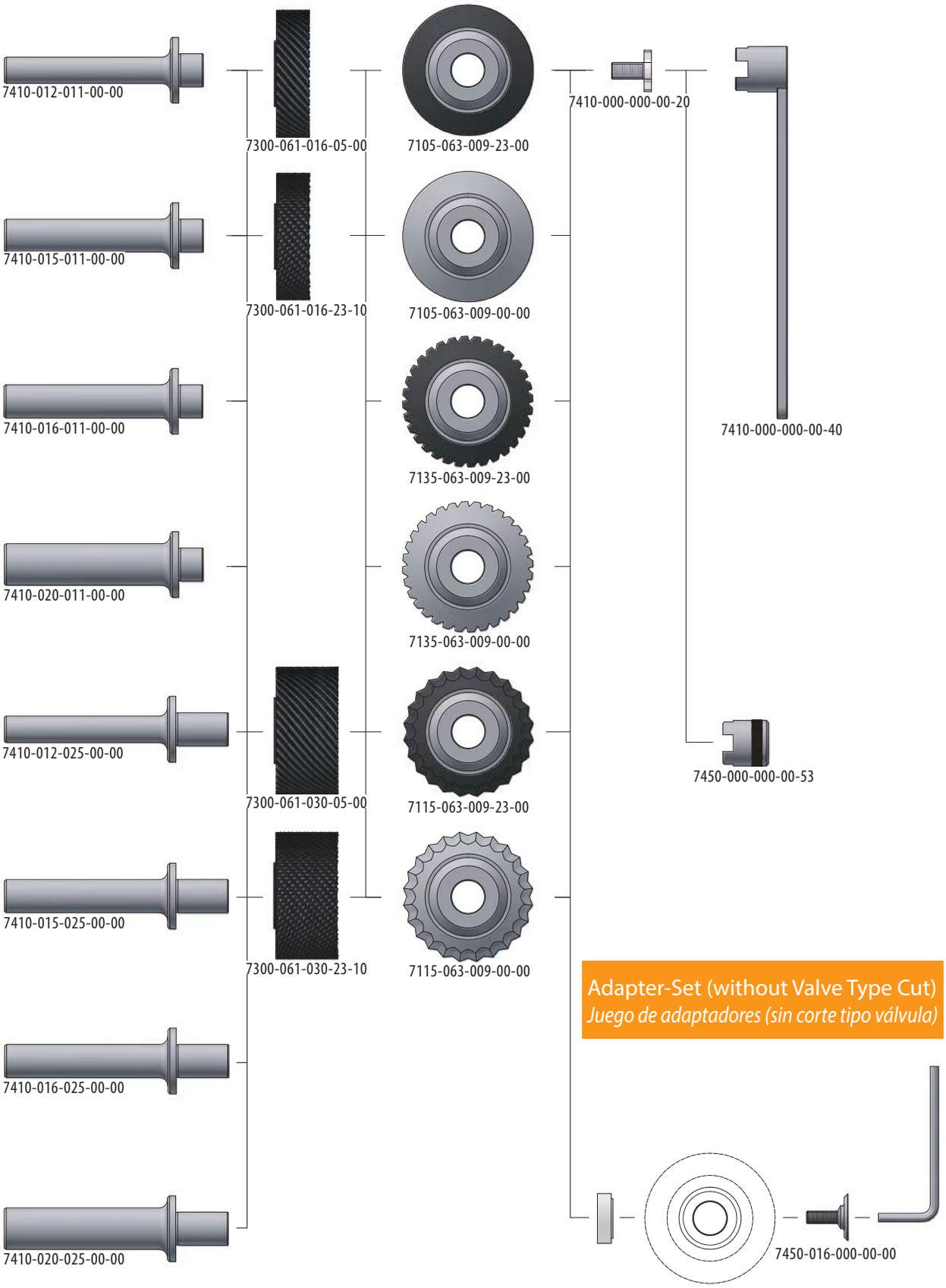
d_2 Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
12,7 mm *½"*	mm *inch*	101,6 *4*	7410-012-011-00-00
15,875 mm *⅝ "*	mm *inch*	101,6 *4*	7410-015-011-00-00
16 mm *0.63 "*	mm *inch*	101,6 *4*	7410-016-011-00-00
20 mm *0.7874 "*	mm *inch*	101,6 *4*	7410-020-011-00-00

Single components / *Componentes individuales*

Accessories *Accesorios*	**Item-No.** *num. de art.*
Screw *Tornillo*	7410-000-000-00-20
Wrench *Llave*	7410-000-000-00-40
½"-Torque wrench adapter for screw *Llave para tornillo de ½"*	7450-000-000-00-53
Reduction for torque wrench adapter from ½" to ⅜" *Llave reductora de ½" a ⅜"*	7450-000-000-00-54

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*

Core Cut · 63 mm · *2.480 "*



Adapter-Set (without Valve Type Cut)
Juego de adaptadores (sin corte tipo válvula)

Front-End-Knives / *Cuchilla de disco*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*	mat.	Item-No. *num. de art.*
63 mm *2.480 "*	S		Alcodur	SC *MD*	7105-063-009-23-00
63 mm *2.480 "*	S		–	SC *MD*	7105-063-009-00-00
63 mm *2.480 "*	T		Alcodur	SC *MD*	7135-063-009-23-00
63 mm *2.480 "*	T		–	SC *MD*	7135-063-009-00-00
63 mm *2.480 "*	W		Alcodur	SC *MD*	7115-063-009-23-00
63 mm *2.480 "*	W		–	SC *MD*	7115-063-009-00-00

Shredders short / *Fresas trituradoras cortas*

toothing *dentado*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	61,5 *2.421*	16 *0.63*	HSS-Co	7300-061-016-05-00
diamond-shaped teeth *dentado forma diam.*		Alcodur	mm inch	61,5 *2.421*	16 *0.63*	HSS-Co	7300-061-016-23-10

Shank-Sets short incl. accessories / *Sets de mangos cortos incl. accesorios*

d_2 short version / *versión corta* Shank-Ø *Ø mango*		ℓ_2* OAL *Longitud total*	Item-No. *num. de art.*
12,7 mm *½ "*	mm *inch*	101,6 *4*	7410-012-011-00-00
15,875 mm *⅝ "*	mm *inch*	101,6 *4*	7410-015-011-00-00
16 mm *0.63 "*	mm *inch*	101,6 *4*	7410-016-011-00-00
20 mm *0.7874 "*	mm *inch*	101,6 *4*	7410-020-011-00-00

Adapter-Set / *Juego de adaptadores*

for combination of Core Cut-Shredders and Valve Type Cut-Front-End-Tools *para la combinación de trituradoras de corte de núcleo y herramientas de corte de tipo válvula-frontal*	Item-No. *num. de art.*
Set for Core Cut 63 mm and Valve Type Cut 76,2 mm / 3 " (consisting of washer, screw and wrench) *Set de corte de núcleo 63 mm y válvula de 76,2 mm (que consta de arandela, tornillo y llave inglesa)*	7450-016-000-00-00

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*

Shredders long / *Fresas trituradoras largas*

toothing *dentado*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	61,5 *2.421*	30 *1.181*	HSS-Co	7300-061-030-05-00
diamond-shaped teeth *dentado forma diam.*		Alcodur	mm *inch*	61,5 *2.421*	30 *1.181*	HSS-Co	7300-061-030-23-10

Shank-Sets long incl. accessories / *Sets de mangos largos incl. accesorios*

d_2 long version / *versión larga* Shank-Ø *Ø mango*		ℓ_2* OAL *Longitud total*	Item-No. *num. de art.*
12,7 mm *½ "*	mm *inch*	114,3 *4 ½*	7410-012-025-00-00
15,875 mm *⅝ "*	mm *inch*	114,3 *4 ½*	7410-015-025-00-00
16 mm *0.63 "*	mm *inch*	114,3 *4 ½*	7410-016-025-00-00
20 mm *0.7874 "*	mm *inch*	114,3 *4 ½*	7410-020-025-00-00

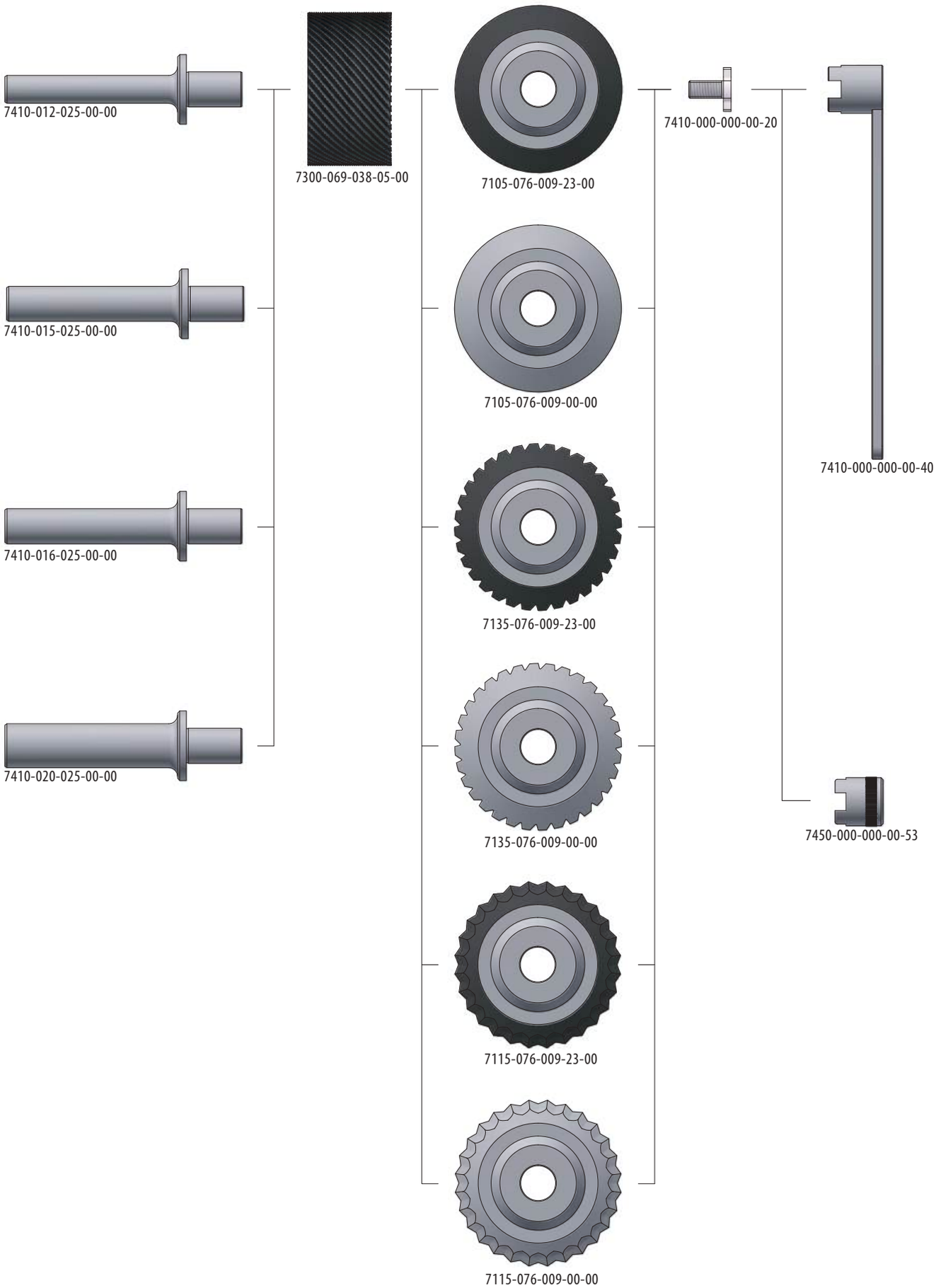
Single components / *Componentes individuales*

Accessories *Accesorios*	Item-No. *num. de art.*
Screw *Tornillo*	7410-000-000-00-20
Wrench *Llave*	7410-000-000-00-40
½"-Torque wrench adapter for screw *Llave para tornillo de ½"*	7450-000-000-00-53
Reduction for torque wrench adapter from ½" to ⅜" *Llave reductora de ½" a ⅜"*	7450-000-000-00-54

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*



Core Cut · 76,2 mm · *3 "*



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*	mat.	Item-No. *num. de art.*
76,2 mm *3 "*	S		Alcodur	SC *MD*	7105-076-009-23-00
76,2 mm *3 "*	S		–	SC *MD*	7105-076-009-00-00
76,2 mm *3 "*	T		Alcodur	SC *MD*	7135-076-009-23-00
76,2 mm *3 "*	T		–	SC *MD*	7135-076-009-00-00
76,2 mm *3 "*	W		Alcodur	SC *MD*	7115-076-009-23-00
76,2 mm *3 "*	W		–	SC *MD*	7115-076-009-00-00

Shredders / *Fresas trituradoras*

toothing *dentado*		coating *recubrimiento*		d_1 Cutting-Ø *Ø de corte*	ℓ_1 Length of Cut *Longitud de corte*	mat.	Item-No. *num. de art.*
Standard toothing *dentado estándar*		Alcodur	mm *inch*	69,58 *2.739*	38,1 *1 ½*	HSS-Co	7300-069-038-05-00

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

d_2 Shank-Ø *Ø mango*		ℓ_2* OAL *Longitud total*	Item-No. *num. de art.*
12,7 mm *1/2 "*	mm *inch*	113,681 *4.476*	7410-012-025-00-00
15,875 mm *5/8 "*	mm *inch*	113,681 *4.476*	7410-015-025-00-00
16 mm *0.63 "*	mm *inch*	113,681 *4.476*	7410-016-025-00-00
20 mm *0.7874 "*	mm *inch*	113,681 *4.476*	7410-020-025-00-00

Single components / *Componentes individuales*

Accessories *Accesorios*	Item-No. *num. de art.*
Screw *Tornillo*	7410-000-000-00-20
Wrench *Llave*	7410-000-000-00-40
½"-Torque wrench adapter for screw *Llave para tornillo de ½"*	7450-000-000-00-53
Reduction for torque wrench adapter from ½" to ⅜" *Llave reductora de ½" a ⅜"*	7450-000-000-00-54

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel • LOC = Length of Cut / *LDC = Longitud de corte*
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut Overview

Visión general del Valve Type Cut

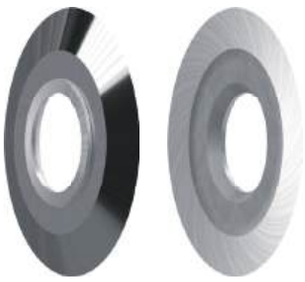
- **for Finishing, Chamfering and Trimming of Honeycomb-material**
- **Combination of Front-End-Knife and Valve-shaped Shank**

- ***Set para acabado, biselado-chaflán y recorte de material de panal***
- ***Combinación de cuchilla de corte y vástago en forma de válvula***



Valve Type Cut Overview
Visión general del Valve Type Cut

Front-End-Tools / Cuchillas de disco



Solid Carbide Knife **S smooth**
*Cuchillas de metal duro **S liso***

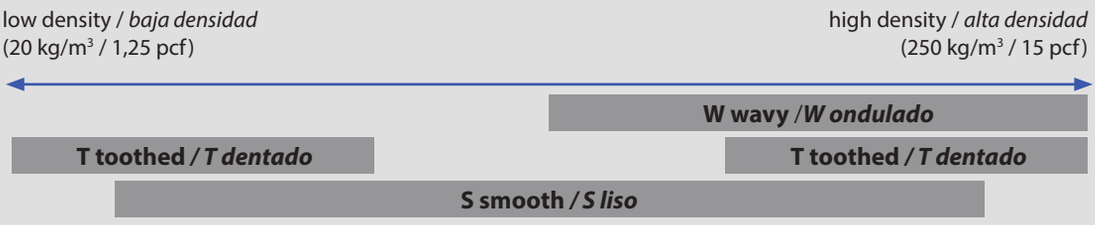


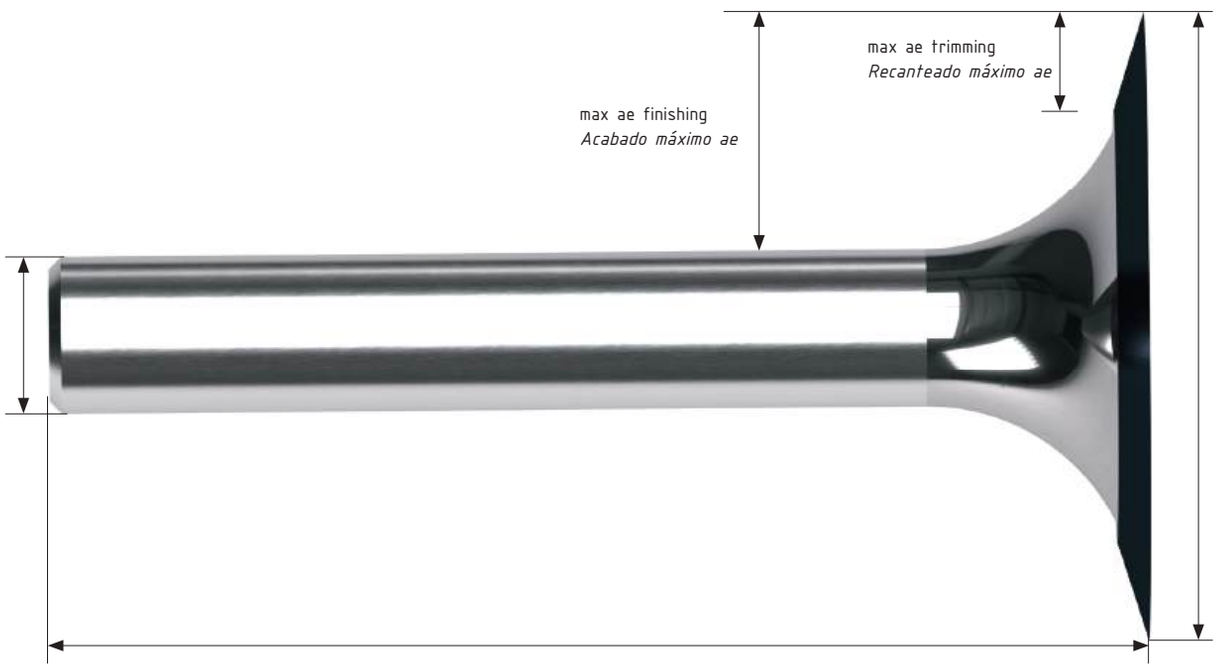
Solid Carbide Knife **T toothed**
*Cuchillas de metal duro **T dentado***



Solid Carbide Knife **W wavy**
*Cuchillas de metal duro **W ondulado***

Usage of Front-End-Tools / *Uso de cuchillas de disco*



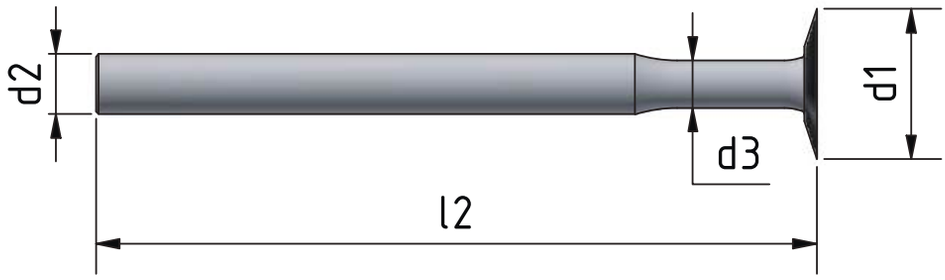


d_1 Cutting-Ø / *Ø de corte*
d_2 Shank-Ø / *Ø de mango*

l_1 Length of Cut / *Longitud de corte*
l_2 Over-all-Length / *Longitud total*

Valve Type Cut · 5 mm · *0.1969 "*

new
nuevo



Front-End-Knife with shank / *Cuchilla de disco con mango*

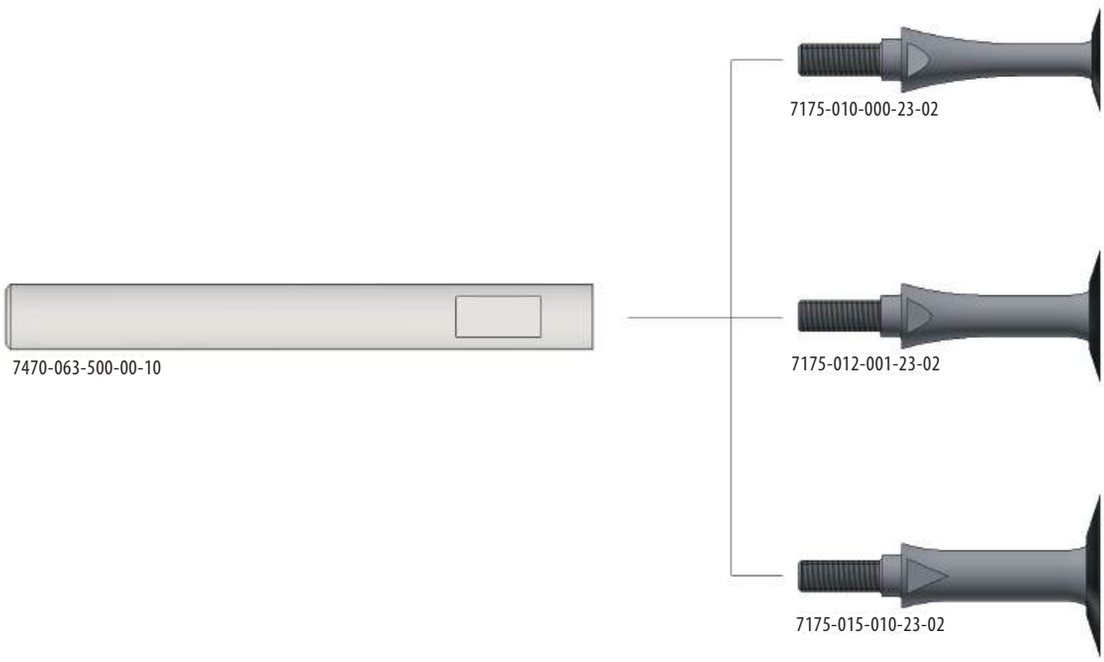
d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*		**max ae**	**d_2** Shank-Ø *Ø mango*	**ℓ_2** OAL *Long. total*	**d_3** Neck-Ø *Ø cuello*	**mat.**	**Item-No.** *num. de art.*
5 mm *0.1969 "*	S		Alcodur	mm *inch*	1,50 *0.059*	3,175 *⅛*	76,2 *3*	2 *0.0787*	SC *MD*	7175-005-000-23-00



Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro*
Over-all-Length / *Longitud total*

Valve Type Cut
· 10 mm – 15,875 mm · *0.3937 " – 5/8 "*

new
nuevo



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*		max ae	mat.	Item-No. *num. de art.*
10 mm *0.3937 "*	S		Alcodur	mm *inch*	2,5 *0.098*	SC *MD*	7175-010-000-23-02
12,7 mm *½ "*	S		Alcodur	mm *inch*	3,85 *0.152*	SC *MD*	7175-012-001-23-02
15,875 mm *⅝ "*	S		Alcodur	mm *inch*	5,44 *0.2141*	SC *MD*	7175-015-010-23-02

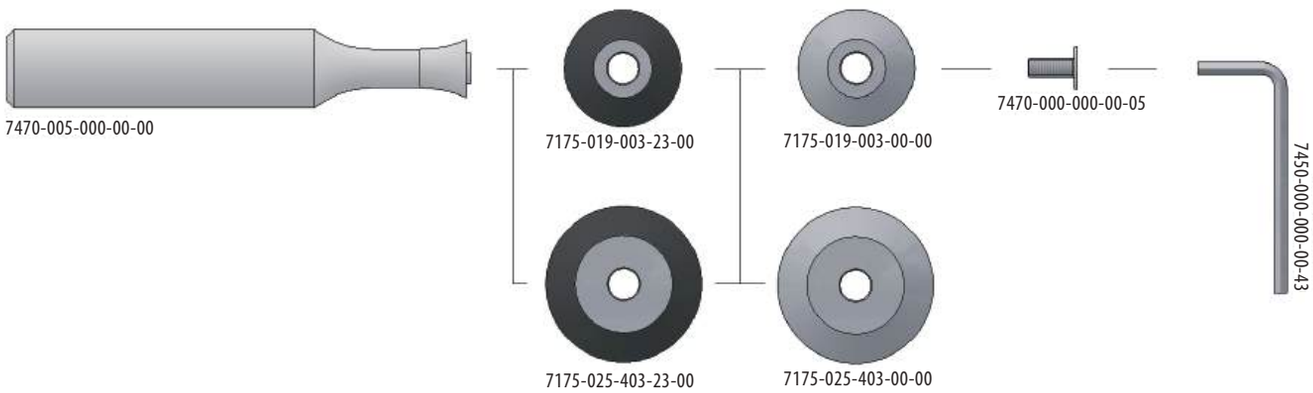
Shank / *Mango*

d_2 Shank-Ø *Ø mango*		ℓ_2* OAL *Longitud total*	Item-No. *num. de art.*
6,35 mm *¼ "*	mm *inch*	76,2 *3*	7470-063-500-00-10

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro*
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut
· 19,05 mm – 25,4 mm · *3/4 " – 1 "*

new
nuevo



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*		**max ae**	**mat.**	**Item-No.** *num. de art.*
19,05 mm *¾ "*	S		Alcodur	mm *inch*	6,35 *¼*	SC *MD*	7175-019-003-23-00
19,05 mm *¾ "*	S		–	mm *inch*	6,35 *¼*	SC *MD*	7175-019-003-00-00
25,4 mm *1 "*	S		Alcodur	mm *inch*	9,53 *0.375*	SC *MD*	7175-025-403-23-00
25,4 mm *1 "*	S		–	mm *inch*	9,53 *0.375*	SC *MD*	7175-025-403-00-00

Shank Set incl. screw & wrench / *Set de mango con tornillo y llave*

d_2 Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
12,7 mm *½ "*	mm *inch*	77 *3.031*	7470-005-000-00-00

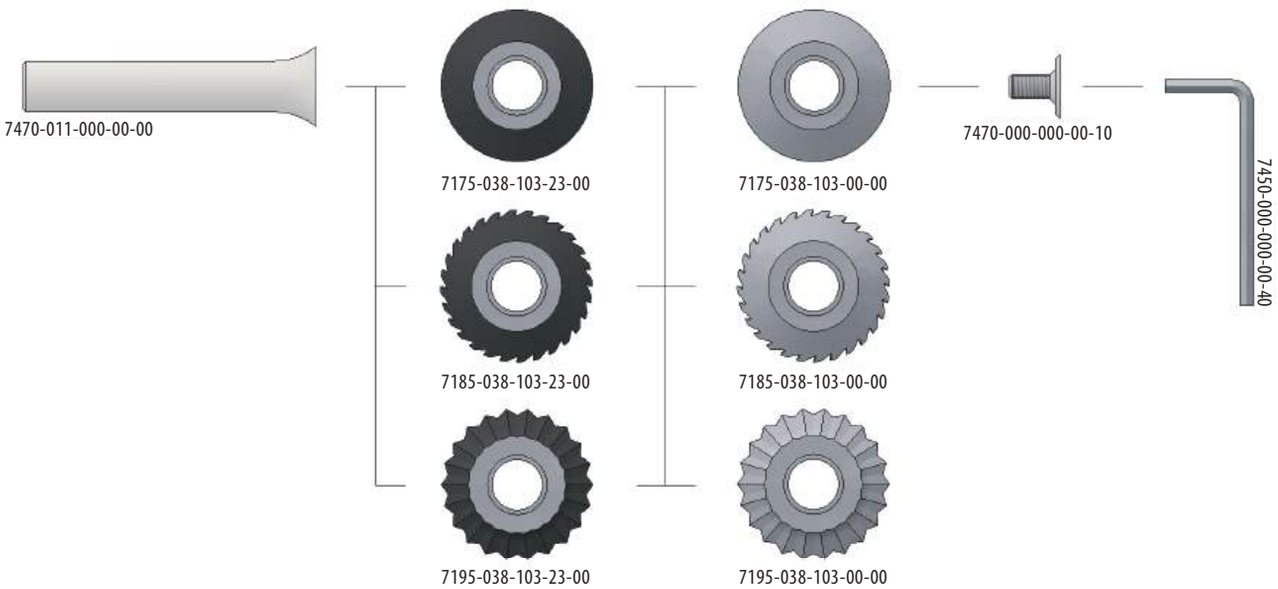
Single components / *Componentes individuales*

Accessories *Accesorios*	**Item-No.** *num. de art.*
Mounting Screw tornillo de montaje	7470-000-000-00-05
Allen wrench (SW 2) Llave allen (SW 2)	7450-000-000-00-43

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro*
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut · 38,1 mm · *1 ½ "*

new
nuevo



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*		**max ae** Trimming *Recanteado*	**max ae** Finishing *Acabado*	**mat.**	**Item-No.** *num. de art.*
38,1 mm *1 ½ "*	S		Alcodur	mm *inch*	9,05 *0.356*	12,7 *½*	SC *MD*	7175-038-103-23-00
38,1 mm *1 ½ "*	S		–	mm *inch*	9,05 *0.356*	12,7 *½*	SC *MD*	7175-038-103-00-00
38,1 mm *1 ½ "*	T		Alcodur	mm *inch*	9,05 *0.356*	12,7 *½*	SC *MD*	7185-038-103-23-00
38,1 mm *1 ½ "*	T		–	mm *inch*	9,05 *0.356*	12,7 *½*	SC *MD*	7185-038-103-00-00
38,1 mm *1 ½ "*	W		Alcodur	mm *inch*	9,05 *0.356*	12,7 *½*	SC *MD*	7195-038-103-23-00
38,1 mm *1 ½ "*	W		–	mm *inch*	9,05 *0.356*	12,7 *½*	SC *MD*	7195-038-103-00-00

Shank Set incl. screw & wrench / *Set de mango con tornillo y llave*

d_2 Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
12,7 mm *½ "*	mm *inch*	76,2 *3*	7470-011-000-00-00

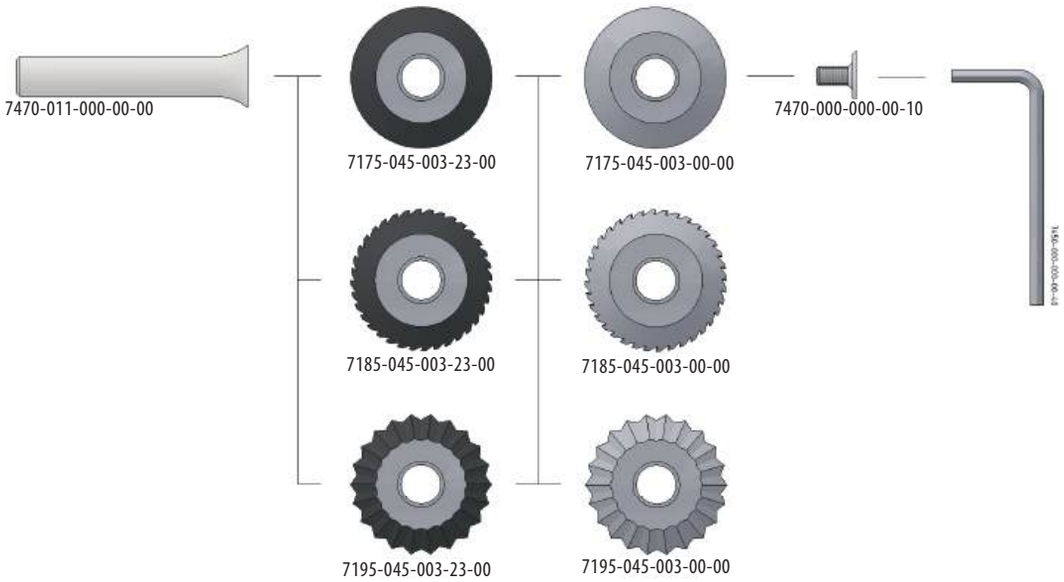
Single components / *Componentes individuales*

Accessories *Accesorios*	**Item-No.** *num. de art.*
Mounting Screw *tornillo de montaje*	7470-000-000-00-10
Allen wrench (SW 4) *Llave allen (SW 4)*	7450-000-000-00-40

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro*
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut · 45 mm · *1.772 "*

new
nuevo



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*		max ae Trimming *Recanteado*	max ae Finishing *Acabado*	mat.	Item-No. *num. de art.*
45 mm *1.772"*	S		Alcodur	mm *inch*	12,5 *0.492*	16,15 *0.636*	SC *MD*	7175-045-003-23-00
45 mm *1.772 "*	S		–	mm *inch*	12,5 *0.492*	16,15 *0.636*	SC *MD*	7175-045-003-00-00
45 mm *1.772 "*	T		Alcodur	mm *inch*	12,5 *0.492*	16,15 *0.636*	SC *MD*	7185-045-003-23-00
45 mm *1.772 "*	T		–	mm *inch*	12,5 *0.492*	16,15 *0.636*	SC *MD*	7185-045-003-00-00
45 mm *1.772 "*	W		Alcodur	mm *inch*	12,5 *0.492*	16,15 *0.636*	SC *MD*	7195-045-003-23-00
45 mm *1.772 "*	W		–	mm *inch*	12,5 *0.492*	16,15 *0.636*	SC *MD*	7195-045-003-00-00

Shank Set incl. screw & wrench / *Set de mango con tornillo y llave*

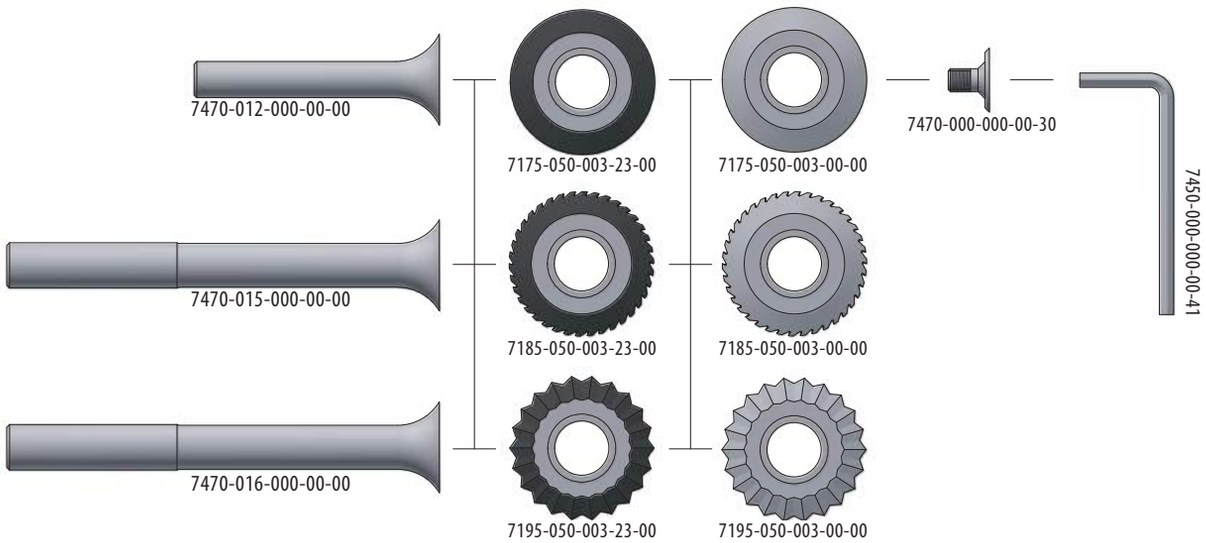
d_2 Shank-Ø *Ø mango*		ℓ_2* OAL *Longitud total*	Item-No. *num. de art.*
12,7 mm *½ "*	mm *inch*	75,8 *2.984*	7470-011-000-00-00

Single components / *Componentes individuales*

Accessories *Accesorios*	Item-No. *num. de art.*
Mounting Screw *tornillo de montaje*	7470-000-000-00-10
Allen wrench (SW 4) *Llave allen (SW 4)*	7450-000-000-00-40

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro*
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut · 50,8 mm · *2 "*



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*		max ae Trimming *Recanteado*	max ae Finishing *Acabado*	mat.	Item-No. *num. de art.*
50,8 mm *2 "*	S		Alcodur	mm *inch*	9,4 *0.37*	19,05 *¾*	SC *MD*	7175-050-003-23-00
50,8 mm *2 "*	S		–	mm *inch*	9,4 *0.37*	19,05 *¾*	SC *MD*	7175-050-003-00-00
50,8 mm *2 "*	T		Alcodur	mm *inch*	9,4 *0.37*	19,05 *¾*	SC *MD*	7185-050-003-23-00
50,8 mm *2 "*	T		–	mm *inch*	9,4 *0.37*	19,05 *¾*	SC *MD*	7185-050-003-00-00
50,8 mm *2 "*	W		Alcodur	mm *inch*	9,4 *0.37*	19,05 *¾*	SC *MD*	7195-050-003-23-00
50,8 mm *2 "*	W		–	mm *inch*	9,4 *0.37*	19,05 *¾*	SC *MD*	7195-050-003-00-00

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

d_2 Shank-Ø *Ø mango*		ℓ_2* OAL *Longitud total*	Item-No. *num. de art.*
12,7 mm *½ "*	mm *inch*	88,9 *3 ½*	7470-012-000-00-00
15,875 mm *⅝ "*	mm *inch*	154,9 *6.1*	7470-015-000-00-00
16 mm *0.63 "*	mm *inch*	154,9 *6.1*	7470-016-000-00-00

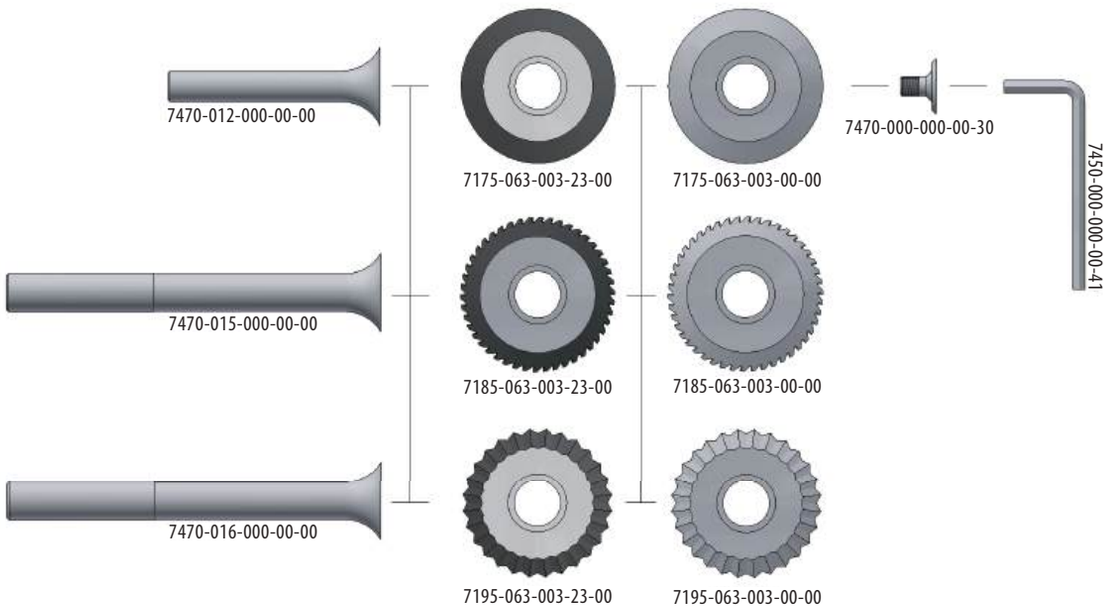
Single components / *Componentes individuales*

Accessories *Accesorios*	Item-No. *num. de art.*
Mounting Screw *tornillo de montaje*	7470-000-000-00-30
Allen wrench (SW 5) *Llave allen (SW 5)*	7450-000-000-00-41

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro*
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut · 63mm · *2.480 "*

new
nuevo



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*		max ae Trimming *Recanteado*	max ae Finishing *Acabado*	mat.	Item-No. *num. de art.*
63 mm *2.480 "*	S		Alcodur	mm *inch*	15,5 *0.610*	23,56 *0.928*	SC *MD*	7175-063-003-23-00
63 mm *2.480 "*	S		–	mm *inch*	15,5 *0.610*	23,56 *0.928*	SC *MD*	7175-063-003-00-00
63 mm *2.480 "*	T		Alcodur	mm *inch*	15,5 *0.610*	23,56 *0.928*	SC *MD*	7185-063-003-23-00
63 mm *2.480 "*	T		–	mm *inch*	15,5 *0.610*	23,56 *0.928*	SC *MD*	7185-063-003-00-00
63 mm *2.480 "*	W		Alcodur	mm *inch*	15,5 *0.610*	23,56 *0.928*	SC *MD*	7195-063-003-23-00
63 mm *2.480 "*	W		–	mm *inch*	15,5 *0.610*	23,56 *0.928*	SC *MD*	7195-063-003-00-00

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

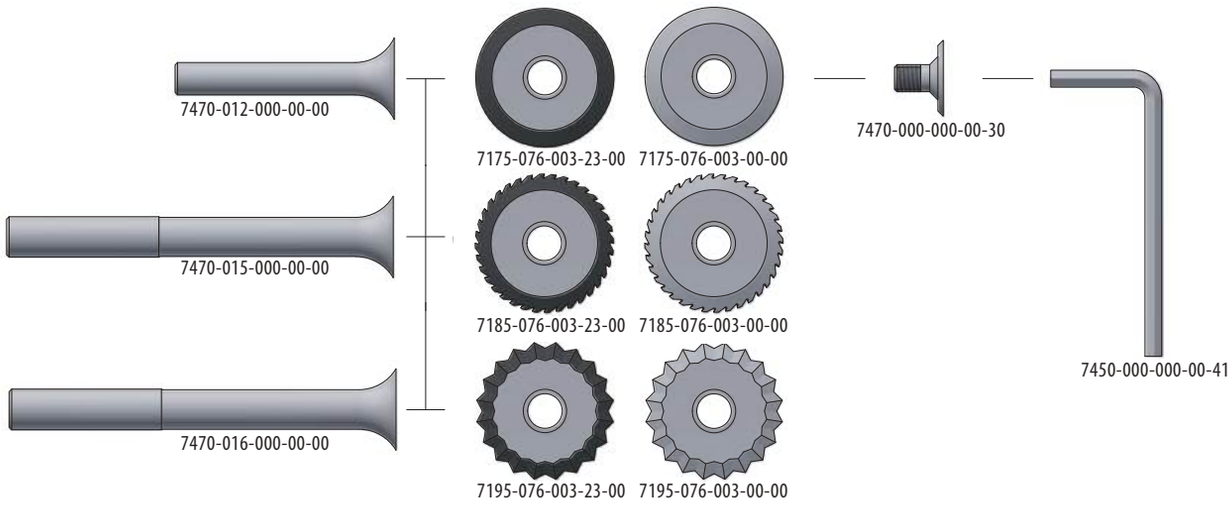
d_2 Shank-Ø *Ø mango*		l_2* OAL *Longitud total*	Item-No. *num. de art.*
12,7 mm *½ "*	mm *inch*	89,2 *3.512*	7470-012-000-00-00
15,875 mm *⅝ "*	mm *inch*	155,2 *6.11*	7470-015-000-00-00
16 mm *0.63 "*	mm *inch*	155,2 *6.11*	7470-016-000-00-00

Single components / *Componentes individuales*

Accessories *Accesorios*	Item-No. *num. de art.*
Mounting Screw *tornillo de montaje*	7470-000-000-00-30
Allen wrench (SW 5) *Llave allen (SW 5)*	7450-000-000-00-41

Alcodur = Diamond-Like-Coating / SC = Solid Carbide / *MD = Metal Duro*
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut · 76,2 mm · *3 "*



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*		**max ae** Trimming *Recanteado*	**max ae** Finishing *Acabado*	**mat.**	**Item-No.** *num. de art.*
76,2 mm *3 "*	S		Alcodur	mm *inch*	22,1 *0.87*	31,75 *1 ¼*	SC *MD*	7175-076-003-23-00
76,2 mm *3 "*	S		–	mm *inch*	22,1 *0.87*	31,75 *1 ¼*	SC *MD*	7175-076-003-00-00
76,2 mm *3 "*	T		Alcodur	mm *inch*	22,1 *0.87*	31,75 *1 ¼*	SC *MD*	7185-076-003-23-00
76,2 mm *3 "*	T		–	mm *inch*	22,1 *0.87*	31,75 *1 ¼*	SC *MD*	7185-076-003-00-00
76,2 mm *3 "*	W		Alcodur	mm *inch*	22,1 *0.87*	31,75 *1 ¼*	SC *MD*	7195-076-003-23-00
76,2 mm *3 "*	W		–	mm *inch*	22,1 *0.87*	31,75 *1 ¼*	SC *MD*	7195-076-003-00-00

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

d_2 Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
12,7 mm *½ "*	mm *inch*	89,2 *3.512*	7470-012-000-00-00
15,875 mm *⅝ "*	mm *inch*	155,2 *6.1*	7470-015-000-00-00
16 mm *0.63 "*	mm *inch*	155,2 *6.1*	7470-016-000-00-00

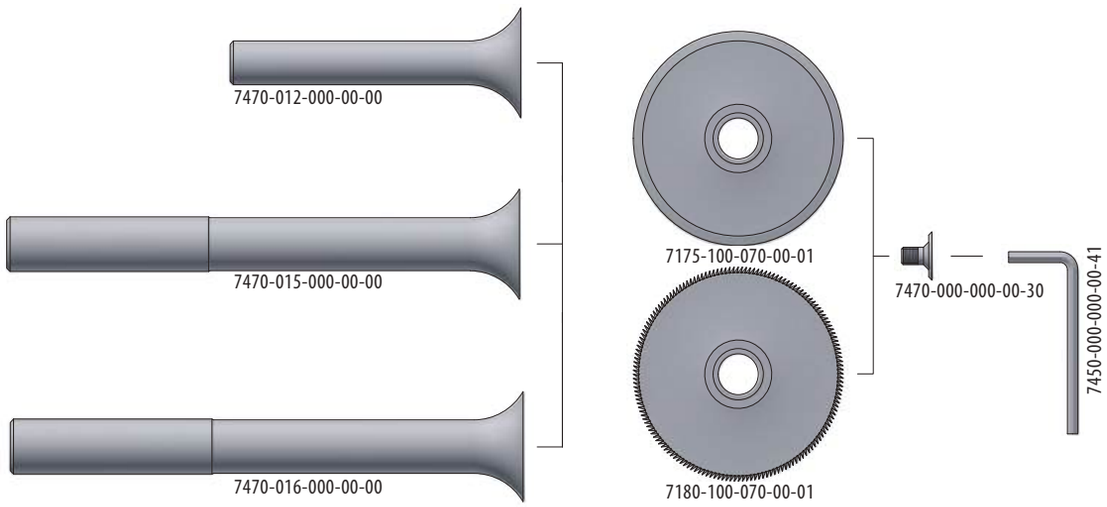
Single components / *Componentes individuales*

Accessories *Accesorios*	**Item-No.** *num. de art.*
Mounting Screw *tornillo de montaje*	7470-000-000-00-30
Allen wrench (SW 5) *Llave allen (SW 5)*	7450-000-000-00-41

Alcodur = Diamond-Like-Coating / SC = Solid Carbide / *MD = Metal Duro*
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut · 100 mm · *3.937 "*

new
nuevo



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*		**max ae** Trimming *Recanteado*	**max ae** Finishing *Acabado*	**mat.**	**Item-No.** *num. de art.*
100 mm *3.937 "*	S		–	mm *inch*	34 *1.3386*	43,65 *1.7185*	*HSS*	7175-100-070-00-01
100 mm *3.937 "*	T		–	mm *inch*	34 *1.3386*	43,65 *1.7185*	HSS	7180-100-070-00-01

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

d_2 Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
12,7 mm *½ "*	mm *inch*	88,9 *3 ½*	7470-012-000-00-00
15,875 mm *⅝ "*	mm *inch*	154,9 *6.1*	7470-015-000-00-00
16 mm *0.63 "*	mm *inch*	154,9 *6.1*	7470-016-000-00-00

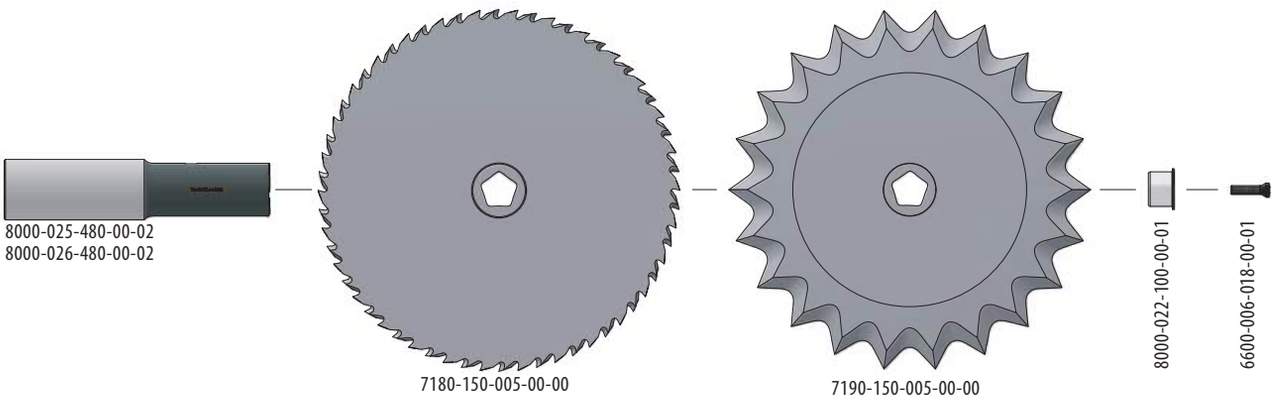
Single components / *Componentes individuales*

Accessories *Accesorios*	**Item-No.** *num. de art.*
Mounting Screw *tornillo de montaje*	7470-000-000-00-30
Allen wrench (SW 5) *Llave allen (SW 5)*	7450-000-000-00-41

HSS = High Speed Steel
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut · 150 mm · *5.9055 "*

new
nuevo



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*		**coating** *recubrimiento*		**ℓ_1** Length of Cut *Longitud de corte*	**max ae** Trimming *Recanteado*	**max ae** Finishing *Acabado*	**mat.**	**Item-No.** *num. de art.*
150 mm *5.9055 "*	T		–	mm *inch*	1,5 *0.059*	42,5 *1.6732*	42,5 *1.6732*	HSS	7180-150-005-00-00
150 mm *5.9055 "*	W		–	mm *inch*	– –	42,5 *1.6732*	42,5 *1.6732*	HSS	7190-150-005-00-00

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

d_2 Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
25 mm *0.984 "*	mm *inch*	110 *4.33*	8000-025-480-00-02
25,4 mm *1 "*	mm *inch*	110 *4.33*	8000-026-480-00-02

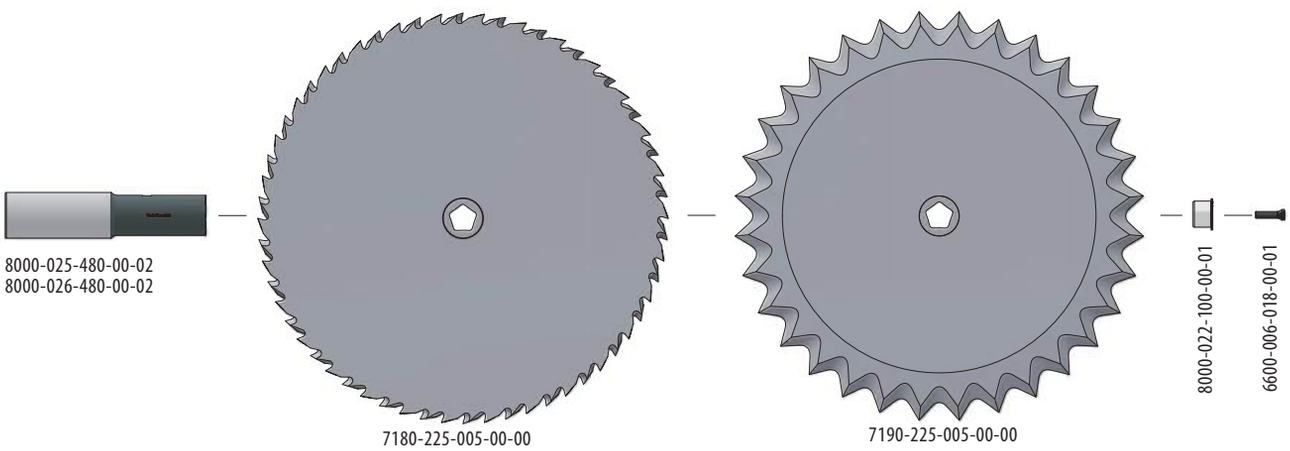
Single components / *Componentes individuales*

Accessories *Accesorios*	**Item-No.** *num. de art.*
2x IPC-Pin *2x Perno*	8000-022-100-00-01
Screw *Tornillo*	6600-006-018-00-01
Torque Screwdriver *Destornillador dinamométrico*	6600-057-000-00-01
PrecisionBit for Torx *PrecisionBit para Torx*	6600-0T2-500-00-01

HSS = High Speed Steel
* Over-all-Length assembled / *Longitud total ensamblado*

Valve Type Cut · 225 mm · *8.858 "*

new
nuevo



Front-End-Knives / *Cuchillas de disco*

d_1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*		ℓ_1 Length of Cut *Longitud de corte*	max ae Trimming *Recanteado*	max ae Finishing *Acabado*	mat.	Item-No. *num. de art.*
225 mm *8.858 "*	T		–	mm *inch*	2,5 *0.098*	80 *3.150*	80 *3.150*	HSS	7180-225-005-00-00
225 mm *8.858 "*	W		–	mm *inch*	–	80 *3.150*	80 *3.150*	HSS	7190-225-005-00-00

Shank Sets incl. screw & wrench / *Sets de mangos con tornillo y llave*

d_2 Shank-Ø *Ø mango*		ℓ_2* OAL *Longitud total*	Item-No. *num. de art.*
25 mm *0.984 "*	mm *inch*	*110* *4.33*	8000-025-480-00-02
25,4 mm *1 "*	mm *inch*	110 *4.33*	8000-026-480-00-02

Single components / *Componentes individuales*

Accessories *Accesorios*	Item-No. *num. de art.*
2x IPC-Pin *2x Perno*	8000-022-100-00-01
Screw *Tornillo*	6600-006-018-00-01
Torque Screwdriver *Destornillador dinamométrico*	6600-057-000-00-01
PrecisionBit for Torx *PrecisionBit para Torx*	6600-0T2-500-00-01

HSS = High Speed Steel
* Over-all-Length assembled / *Longitud total ensamblado*



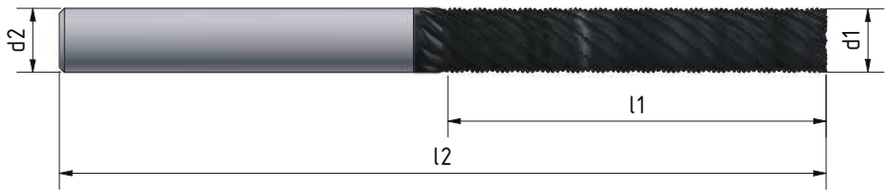
Profile Cut

Profile Cut

- **End Mills for Trimming, Pocketing and Roughing of aramid- and aluminum-honeycombs**
- ***Fresas de perfilar para recanteado, cajeras y desbaste de panales de aramida y aluminio***

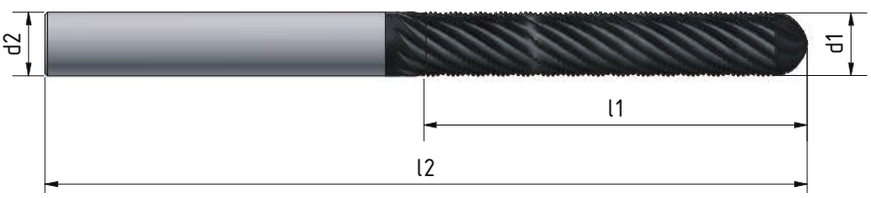


Profile Cut



Profile Cut center cutting end teeth / *Profile Cut con punta tangencial*

d1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*		ℓ1 Length of Cut *Longitud de corte*	ℓ2 OAL *Longitud total*	d2 Shank-Ø *Ø mango*	mat.	Item-No. *num. de art.*
6,35 mm *¼ "*	CC		Alcodur	mm *inch*	19,05 *¾*	76,2 *3*	6,35 *¼*	SC *MD*	7365-006-019-23-30
6,35 mm *¼ "*	CC		Alcodur	mm *inch*	25,4 *1*	76,2 *3*	6,35 *¼*	SC *MD*	7365-006-025-23-30
9,525 mm *⅜ "*	CC		Alcodur	mm *inch*	25,4 *1*	76,2 *3*	9,525 *⅜*	SC *MD*	7365-009-025-23-30
9,525 mm *⅜ "*	CC		Alcodur	mm *inch*	50,8 *2*	101,6 *4*	9,525 *⅜*	SC *MD*	7365-009-050-23-30
12,7 mm *½ "*	CC		Alcodur	mm *inch*	50,8 *2*	101,6 *4*	12,7 *½*	SC *MD*	7365-012-050-23-30
12,7 mm *½ "*	CC		Alcodur	mm *inch*	76,2 *3*	152,4 *6*	12,7 *½*	SC *MD*	7365-012-076-23-30
19,05 mm *¾ "*	CC		Alcodur	mm *inch*	76,2 *3*	152,4 *6*	19,05 *¾*	SC *MD*	7365-019-076-23-30
25,4 mm *1 "*	CC		Alcodur	mm *inch*	50,8 *2*	101,6 *4*	25,4 *1*	SC *MD*	7365-025-050-23-30
25,4 mm *1 "*	CC		Alcodur	mm *inch*	76,2 *3*	152,4 *6*	25,4 *1*	SC *MD*	7365-025-076-23-30



Profile Cut Ball Nose / *Profile Cut con punta redonda*

d1 Cutting-Ø *Ø de corte*	type *tipo*		coating *recubrimiento*		ℓ1 Length of Cut *Longitud de corte*	ℓ2 OAL *Longitud total*	d2 Shank-Ø *Ø mango*	mat.	Item-No. *num. de art.*
6,35 mm *¼ "*	BN		Alcodur	mm *inch*	50,8 *2*	152,4 *6*	6,35 *¼*	SC *MD*	7365-006-050-23-31
12,7 mm *½ "*	BN		Alcodur	mm *inch*	76,2 *3*	152,4 *6*	12,7 *½*	SC *MD*	7365-012-076-23-31

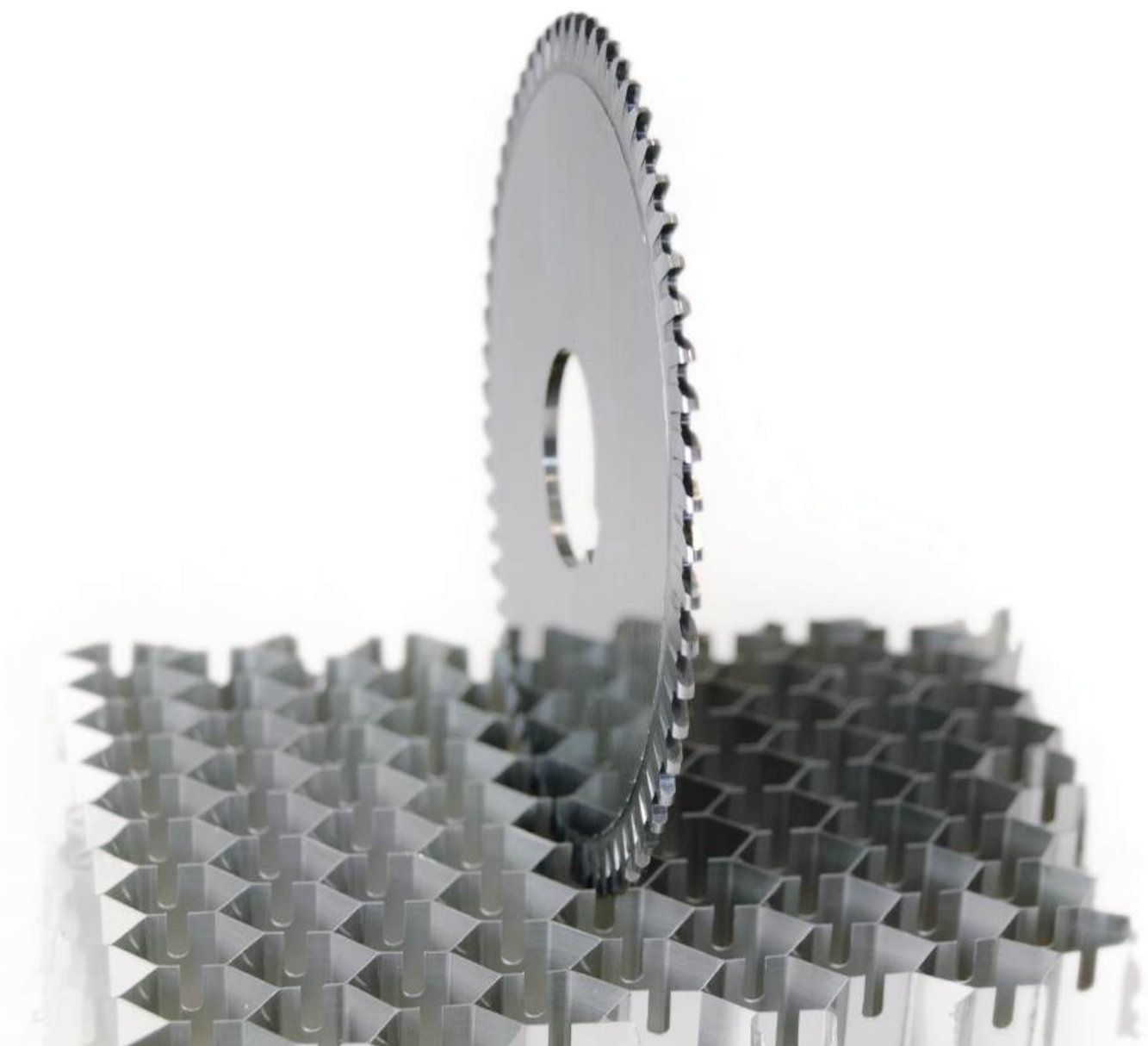
Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro*
LOC = Length of Cut / *LDC = Longitud de corte* • OAL = Over-all-Length / *Longitud total* • *BN = Ball Nose*

Drain Cut Overview

Visión general del Drain Cut

- **Circular Tools for slotting honeycombs**
- **type AR for aramid-honeycombs**
- **type AL for aluminum-honeycombs**

- *Fresas circulares para ranurar panales:*
- *tipo AR para panales de aramida*
- *tipo AL para panales de aluminio*



Drain Cut · AR

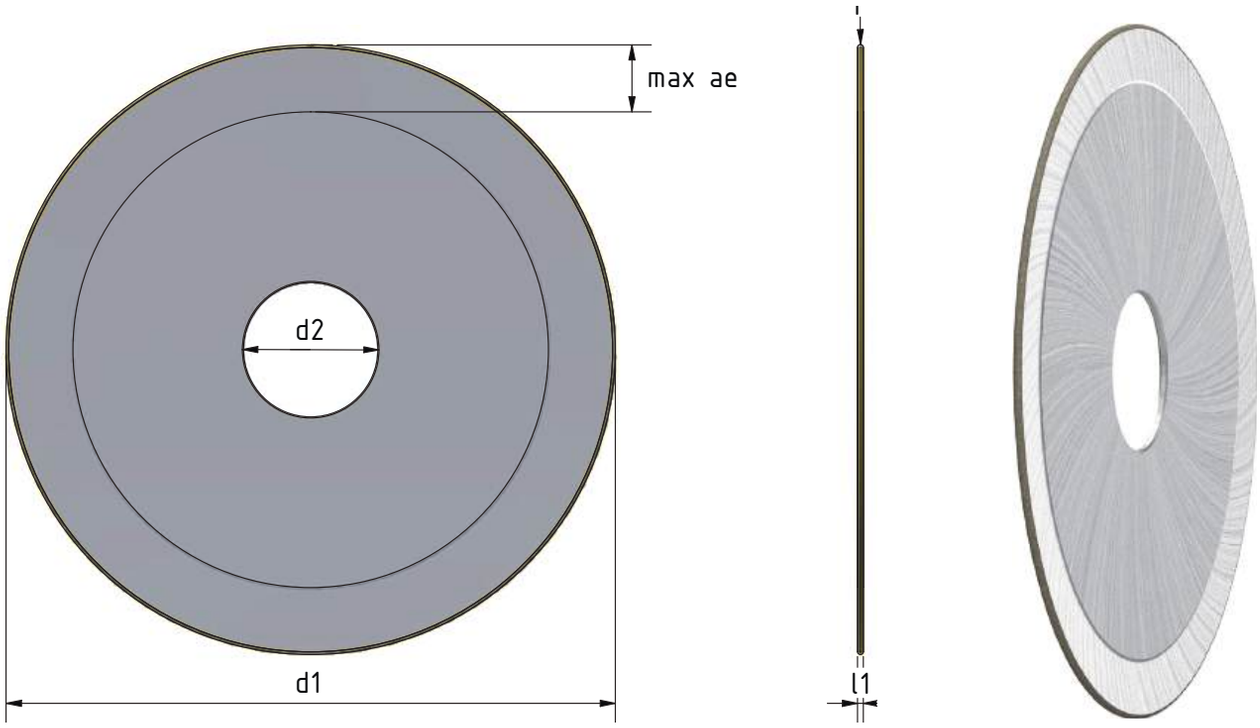
- **Diamond-plated tools for slotting aramid-honeycombs in expanded condition**
- ***Discos de corte de diamante electrodepositado para ranurar panales de aramida en condiciones de expansión***

Drain Cut · AR

d_1 Outer-Ø *Ø exterior*	d_2 Arbor hole-Ø *Ø de la rosca*		ℓ_1 Cutting width *Ancho de corte*	max ae	r Radius *Radio*	mat.	Group-Item-No. *num. de art.*
63 mm *2.480 "*	16 *0.630*	mm *inch*	customized *personalizado*	customized *personalizado*	customized *personalizado*	DIA	7140-063-000-00-00
80 mm *3.150 "*	16 *0.630*	mm *inch*	customized *personalizado*	customized *personalizado*	customized *personalizado*	DIA	7140-080-000-00-00
100 mm *3.937 "*	22 *0.866*	mm *inch*	customized *personalizado*	customized *personalizado*	customized *personalizado*	DIA	7140-100-000-00-00
101,6 mm *4 "*	25,4 *1*	mm *inch*	customized *personalizado*	customized *personalizado*	customized *personalizado*	DIA	7140-101-000-00-00

Due to different demands the tools are produced to your individual sizes.
Please inform us about the required cutting width, depth of cut, radius and group-item-no.

Debido a las diferentes demandas de los clientes, las herramientas se pueden construir a medida. Por favor, infórmenos sobre el ancho de corte requerido, la profundidad de corte, el radio y el número de referencia del grupo.



DIA = galvanic diamond-plated / *corte diamantadas*

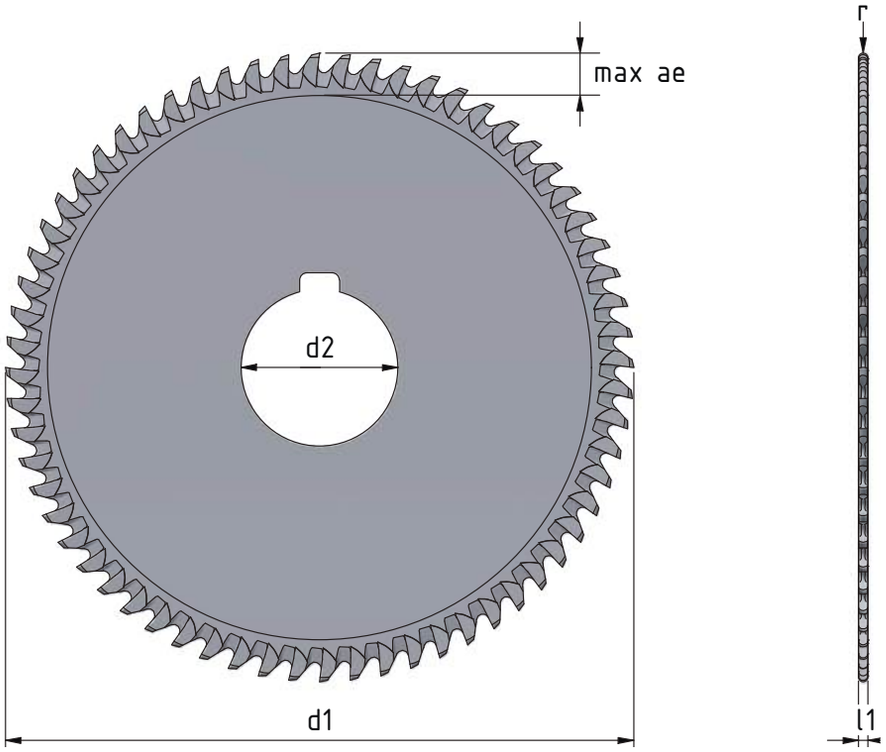
Drain Cut · AL

- **Solid Carbide Radius Cutter for Slotting of unexpanded aluminum-honeycombs**

- ***Disco de corte de metal duro para ranurado de panales de aluminio sin extensión***



Drain Cut · AL



Drain Cut · AL

d_1 Outer-Ø *Ø exterior*	d_2 Arbor hole-Ø *Ø de la rosca*		ℓ_1 Cutting width *Ancho de corte*	max ae	r Radius *Radio*	mat.	Group-Item-No. *num. de art.*
63 mm *2.480 "*	16 *0.630*	mm *inch*	customized *personalizado*	customized *personalizado*	customized *personalizado*	SC *MD*	7145-063-000-00-00
80 mm *3.150 "*	16 *0.630*	mm *inch*	customized *personalizado*	customized *personalizado*	customized *personalizado*	SC *MD*	7145-080-000-00-00
100 mm *3.937 "*	22 *0.866*	mm *inch*	customized *personalizado*	customized *personalizado*	customized *personalizado*	SC *MD*	7145-100-000-00-00
101,6 mm *4 "*	25,4 *1*	mm *inch*	customized *personalizado*	customized *personalizado*	customized *personalizado*	SC *MD*	7145-101-000-00-00

Due to different demands the tools are produced to your individual sizes.
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Debido a las diferentes demandas de los clientes, las herramientas se pueden construir a medida. Por favor, infórmenos sobre el ancho de corte requerido, la profundidad de corte, el radio y el número de referencia del grupo.

SC = Solid Carbide / *MD = Metal Duro*

Hollow Drill

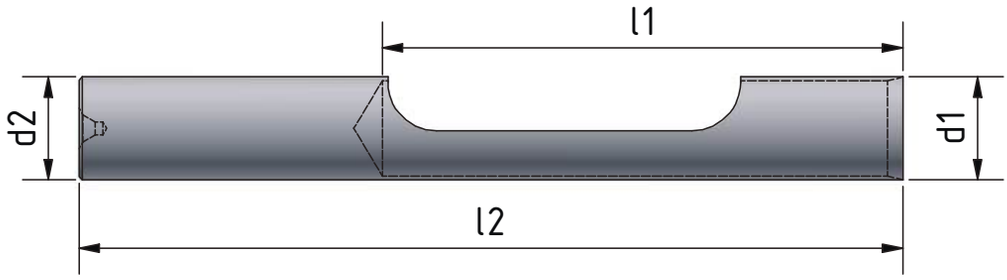
- **Special tool for clean and dust-free cuts**
- **For Drilling and Nibbling of Honeycombs**
- **Custom sizes on request**
- **For drilling holes in panels with a cover skin thickness of up to 0.6 mm**

- *Herramienta especial para cortes limpios y sin polvo (Brocas huecas)*
- *Para taladrar panales*
- *Tamaños personalizados bajo petición*
- *Para taladrar agujeros en paneles con un grosor de la capa superior de hasta 0,6 mm*



Hollow Drill

new
nuevo



Hollow Drill

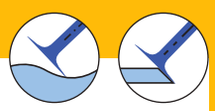
d_1 Cutting-Ø *Ø de corte*	coating *recubrimiento*		ℓ_1 Length of Cut *Longitud de corte*	ℓ_2 OAL *Longitud total*	d_2 Shank-Ø *Ø mango*	mat.	Item-No. *num. de art.*
6,35 mm *¼ "*	–	mm *inch*	63,5 *2 ½*	101,6 *4*	6,35 *¼*	HSS	7160-006-063-00-00
9,525 mm *⅜ "*	–	mm *inch*	63,5 *2 ½*	101,6 *4*	9,525 *⅜*	HSS	7160-009-063-00-00
12,7 mm *½ "*	–	mm *inch*	50,8 *2*	101,6 *4*	12,7 *½*	HSS	7160-012-050-00-00
12,7 mm *½ "*	–	mm *inch*	63,5 *2 ½*	101,6 *4*	12,7 *½*	HSS	7160-012-063-00-00
19,05 mm *¾ "*	–	mm *inch*	76,2 *3*	127 *5*	19,05 *¾*	HSS	7160-019-076-00-00
25,4 mm *1 "*	–	mm *inch*	76,2 *3*	127 *5*	25,4 *1*	HSS	7160-025-076-00-00
50,8 mm *2 "*	–	mm *inch*	76,2 *3*	127 *5*	25,4 *1*	HSS	7160-050-076-00-00
76,2 mm *3 "*	–	mm *inch*	76,2 *3*	127 *5*	25,4 *1*	HSS	7160-076-076-00-00



HSS = High Speed Steel
LOC = Length of Cut / *LDC = Longitud de corte* • OAL = Over-all-Length / Longitud total

Recommendations for tool selection
Recomendaciones para la selección de la herramienta

Ultrasonic-Circularknife-screw

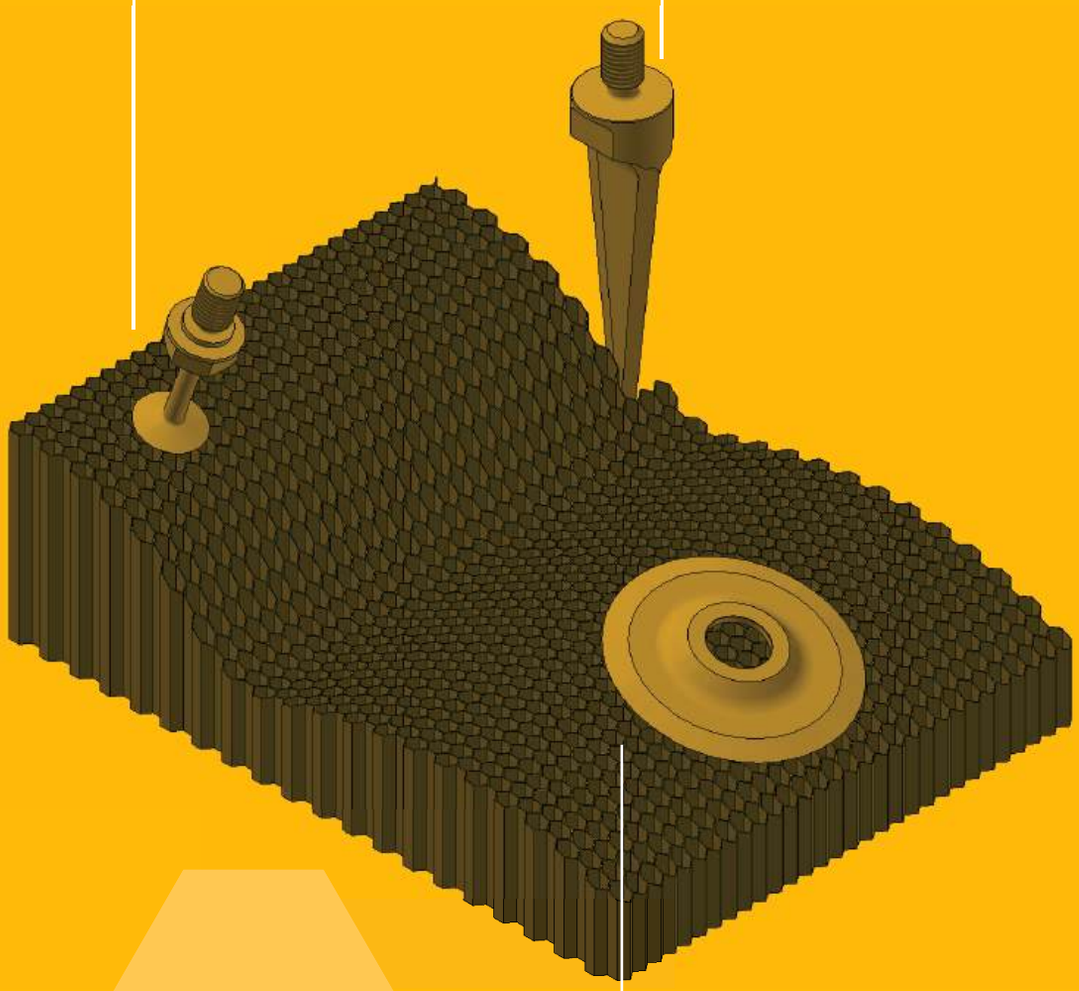


3D-Machining · Finishing · Chamfering
Mecanizado 3D · Acabado · Chaflanado

Ultrasonic-Knife



Trimming · Pocketing · Chamfering · Cut-off Operations
Recanteado · Mecanizado de bolsillos · Chaflanado · Corte

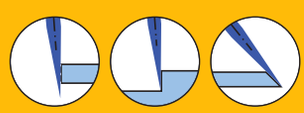
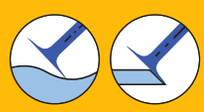
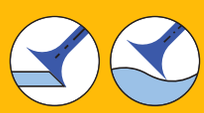


Ultrasonic-Circularknife



3D-Machining · Finishing · Face Milling · Chamfering
Mecanizado 3D · Acabado · Planeado · Chaflanado

Ultrasonic Tools
Herramientas ultrasónicas

product-type *tipo de producto*		Application *aplicación*	page página
Ultrasonic-Knife	new *nuevo*		59
Ultrasonic-Circularknife-screw	new *nuevo*		60
Ultrasonic-Circularknife	new *nuevo*		61



SPECIAL DIMENSIONS OR SPECIAL APPLICATIONS?

Talk to us. We are happy to manufacture **custom-made products for you in regard to tool dimensions, tooth geometries, interfaces, cutting materials and coatings.**

DIMENSIONES ESPECIALES O APLICACIONES ESPECIALES?

*Póngase en contacto con nosotros. Estaremos encantados de fabricar **productos personalizados para usted en cuanto a las dimensiones de la herramienta, las geometrías del dentado, las interfaces, los materiales de corte y los recubrimientos.***

Ultrasonic Tools for Honeycomb Machining
Herramientas ultrasónicas para mecanizado de panal de abeja

Machining honeycomb structures places the highest demands on precision, material protection, and process reliability. With ultrasonic cutters, we offer a high-end, high-performance solution for sensitive lightweight materials such as Nomex®, aluminum, or Kevlar honeycomb.
The different tool systems were developed in close cooperation with leading machine manufacturers and stand for maximum performance and process reliability.

La mecanización de estructuras tipo panal de abeja plantea las máximas exigencias en cuanto a precisión, protección del material y fiabilidad del proceso. Con el mecanizado por ultrasonidos ofrecemos una solución de alta gama y alto rendimiento para materiales ligeros sensibles como los honeycombs de Nomex®, aluminio o Kevlar. Los sistemas de herramientas especialmente desarrollados se crean en estrecha colaboración con fabricantes líderes de maquinaria y representan el máximo rendimiento y la máxima seguridad del proceso.

WHAT IS ULTRASONIC MACHINING?

In ultrasonic machining, the tool operates at high-frequency vibrations (typically 20–40 kHz). These vibrations enable an almost force-free cutting process, making the technology ideal for thin-walled, unstable, or fiber-reinforced materials.

¿QUÉ ES EL MECANIZADO ULTRASÓNICO?

En el mecanizado por ultrasonidos, la herramienta se excita mediante vibraciones de alta frecuencia (normalmente entre 20 y 40 kHz). Estas vibraciones permiten un mecanizado prácticamente sin esfuerzo de corte, lo que hace que el proceso sea ideal para materiales de pared delgada, estructuras inestables o materiales reforzados con fibra.

ADVANTAGES COMPARED TO CONVENTIONAL MACHINING

- **Tear-free cutting edges**
  Extremely low cutting forces minimize delamination as well as fiber and cell structure breakouts.
- **Highest precision**
  Even complex geometries and demanding machining operations can be realized with excellent repeatability and accuracy.
- **Low-dust machining**
  The process-related reduction in particle generation significantly lowers the effort required for extraction and cleaning.
- **Monolithic tool design**
  Our tools are of monolithic construction and completely free of brazed or joined cutting elements. This eliminates potentially damping or unstable brazed joints, ensuring direct force transmission, low-vibration machining behavior, and consistently high cutting quality throughout the entire tool life.

VENTAJAS FRENTE A LOS MÉTODOS CONVENCIONALES

- ***Bordes de corte sin desgarros***
  Las fuerzas de corte extremadamente reducidas minimizan la delaminación, así como los desprendimientos de fibras y de la estructura celular.
- ***Máxima precisión***
  Incluso las geometrías complejas, los contornos delicados y los mecanizados más exigentes pueden realizarse de forma reproducible y con una precisión dimensional constante.
- ***Mecanizado con baja generación de polvo***
  La reducción de partículas inherente al proceso disminuye las necesidades de extracción y limpieza.
- ***Diseño monolítico de la herramienta***
  Nuestras herramientas presentan una construcción monolítica y prescinden por completo de elementos de corte soldados o ensamblados. De este modo se eliminan posibles uniones soldadas que podrían provocar amortiguación o inestabilidad, garantizando una transmisión directa de la fuerza, un mecanizado con bajas vibraciones y una calidad de corte constantemente elevada durante toda la vida útil de la herramienta.

REQUIREMENTS

To fully exploit the potential of ultrasonic machining, the following requirements must be met:

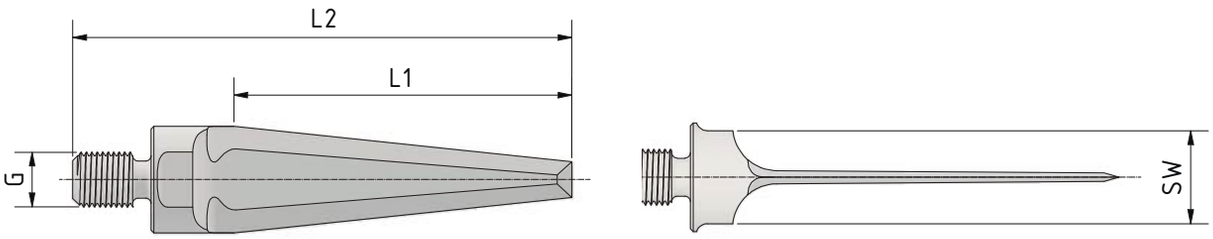
- **Ultrasonic-capable spindle or module:** Can be integrated into existing CNC systems.
- **Specialized tools:** Optimized for frequency, material, and specific machining tasks.

REQUISITOS PARA SU UTILIZACIÓN

- *Para que el mecanizado por ultrasonidos pueda desarrollar todo su potencial, es necesario cumplir los siguientes requisitos:*
- ***Husillo o módulo compatible con ultrasonidos:** integrable en sistemas CNC existentes.*
- ***Herramientas especiales:** adaptadas a la frecuencia, al material y a la aplicación de mecanizado.*

Ultrasonic-Knife /
Cuchillo ultrasónico

new
nuevo



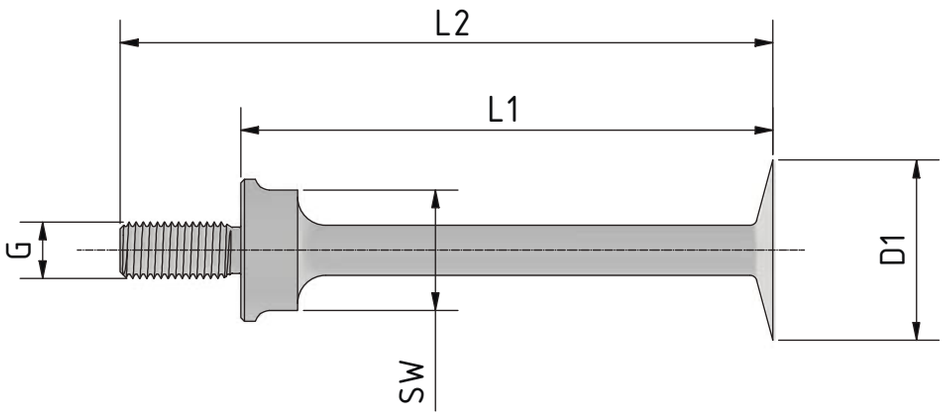
ℓ_1 Length of Cut *Longitud de corte*	type *tipo*		ℓ_2 OAL *Longitud total*	SW	G	mat.	Item-No. *num. de art.*
25 mm *0.984 "*	SCS	mm inch	*45* *1.772*	*13* *0.512*	*M10x1*	*SC* *MD*	5905-014-034-00-01
50 mm *1.969 "*	SCS	mm inch	*78* *3.071*	*16* *0.63*	*M10x1*	*SC* *MD*	5905-019-064-00-01
77 mm *3.031 "*	SCS	mm inch	*105* *4.134*	*16* *0.63*	*M10x1*	*SC* *MD*	5905-019-090-00-01
25 mm *0.984 "*	FM & SM	mm inch	*45* *1.772*	*13* *0.512*	*5/16 " - 24*	*SC* *MD*	5905-014-034-00-02
78 mm 3.071 "	FM & SM	mm inch	*106* *4.173*	*16* *0.63*	*5/16 " - 24*	*SC* *MD*	5905-012-079-00-01



SC = Solid Carbide / *MD = Metal Duro*
SCS = Sonicut System / FM & SM = GFM and Sonimat System / SW = across flats (AF) / G = thread

Ultrasonic-Circularknife-screw /
Tornillo de cuchilla circular ultrasónica

new
nuevo



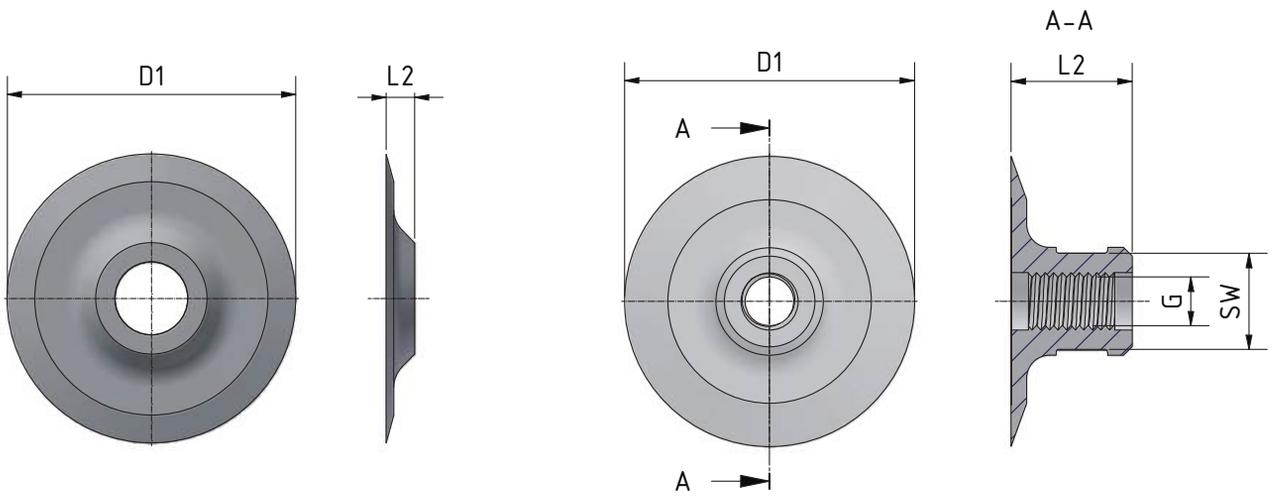
ℓ_1 Length of Cut *Longitud de corte*	type *tipo*		d_1 *Cutting-Ø Ø de corte*	ℓ_2 OAL *Longitud total*	SW	G	mat.	Item-No. *num. de art.*
28 mm *1.102 "*	SCS	mm *inch*	15 *0.591*	42 *1.654*	13 *0.512*	M10x1	SC *MD*	5905-015-002-00-03
28 mm *1.102 "*	FM & SM	mm *inch*	15 *0.591*	42 *1.654*	12,7 *½*	*5/16 " - 24*	SC *MD*	5905-015-002-00-02
36 mm *1.417 "*	FM & SM	mm *inch*	25,4 *1*	50 *1.969*	12,7 *½*	*5/16 " - 24*	SC *MD*	5905-025-402-00-01



SC = Solid Carbide / *MD = Metal Duro*
SCS = Sonicut System / FM & SM = GFM and Sonimat System / SW = across flats (AF) / G = thread

Ultrasonic-Circularknife /
Cuchilla circular ultrasónica

new
nuevo



d_1 *Cutting-Ø Ø de corte*	**type** ***tipo***		**ℓ_2** OAL *Longitud total*	**SW**	**G**	**mat.**	**Item-No.** ***num. de art.***
50,8 mm *2 "*	SCS	mm *inch*	21 *0.827*	17 *0.669*	M10x1,5	*HSS*	1900-050-210-00-22
50,8 mm *2 "*	FM & SM	mm *inch*	5 *0.197*	-	-	*HSS*	1900-051-500-05-01
50,8 mm *2 "*	SM	mm *inch*	5 *0.197*	-	-	*HSS*	1900-050-500-00-05



HSS = High Speed Steel
SCS = Sonicut System / FM & SM = GFM and Sonimat System / SM = Sonimat System / SW = across flats (AF) / G = thread

Recommendations for tool selection

Recomendaciones para la selección de la herramienta



Panel Cut

Trimming · Drilling · Pocketing

Recanteado · Taladrado · Cajeras

Skin Cut

Cutting skins

Corte de pieles

Decoring Cut

Undercutting skins

Corte de pieles por la parte inferior

Under Cut

Lateral Undercutting skins

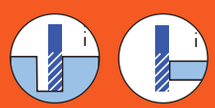
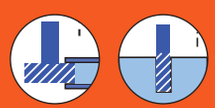
Pieles con corte lateral

Pot Cut

Trimming · Pocketing · Drilling of potted sections

Recanteado · Cajeras · Taladrado de secciones potting

Panel Tools
Herramientas para mecanizado de paneles

product-type *tipo de producto*	Application *aplicación*	page *página*
Panel Cut		**64–66**
Skin Cut		**67**
Pot Cut		**68**
Decoring Cut		**69/70**
Under Cut new *nuevo*		**71**

SPECIAL DIMENSIONS OR SPECIAL APPLICATIONS?
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DIMENSIONES ESPECIALES O APLICACIONES ESPECIALES?
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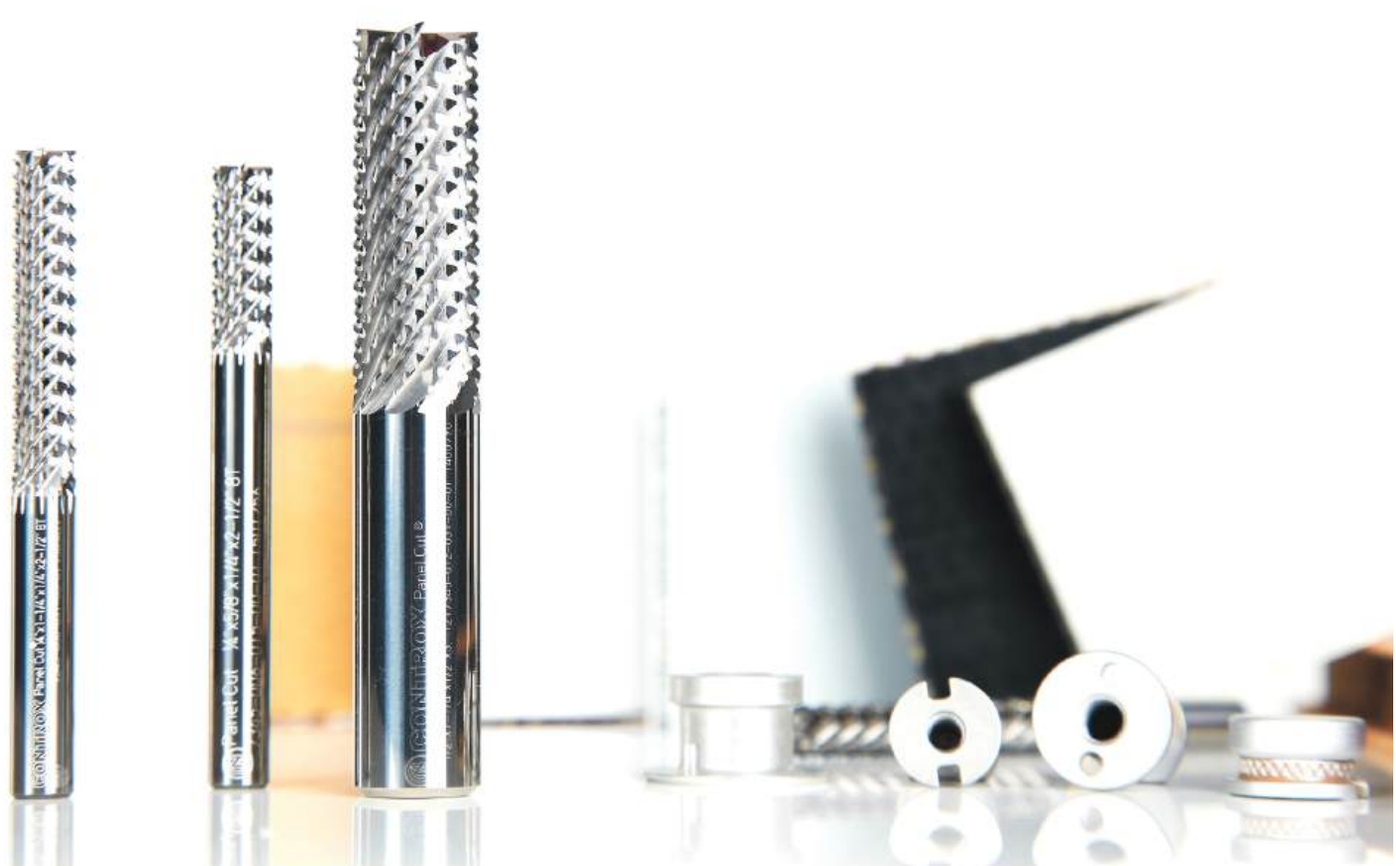
Panel Cut

- **Shank Tools with end teeth for Trimming, Drilling and Pocket Milling of Sandwich Panels with Composite Skins**

- ***Fresas para recantear, recortar, taladrar y fresar cajeras en paneles sándwich con pieles de composite***

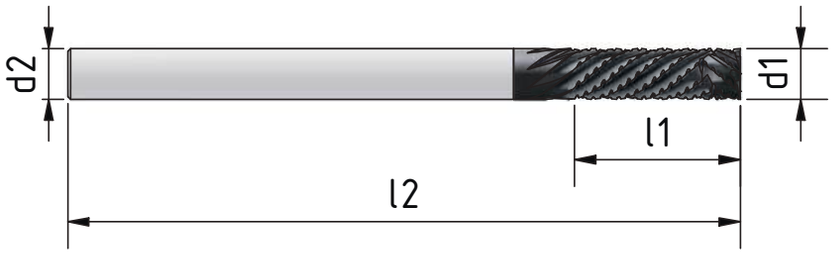
- **Note: For the machining of Sandwich-Panels with aluminum-skin the *Profile Cut* is suggested (see page 48/49).**

- ***Nota: Para el mecanizado de paneles sándwich con piel de aluminio se sugiere el Profile Cut (ver página 48/49).***



Panel Cut CS

- **Specially developed to create a particularly clean surface on the deck skins**
- ***Especialmente desarrollado para crear una superficie especialmente limpia en las cubiertas.***

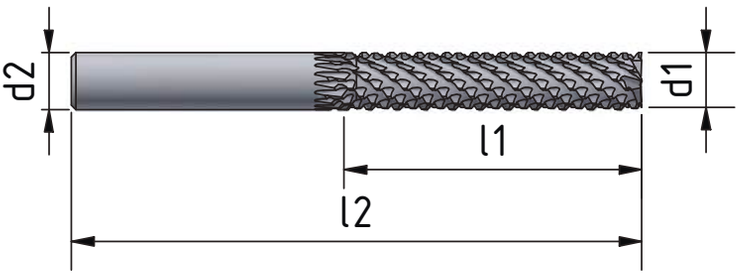


Panel Cut CS

d_1 Cutting-Ø *Ø de corte*	**type** *tipo*	**coating** *recubrimiento*		**ℓ_1** Length of Cut *Longitud de corte*	**ℓ_2** OAL *Longitud total*	**d_2** Shank-Ø *Ø mango*	**mat.**	**Item-No.** *num. de art.*
6 mm *0.236 "*	CS	Alcodur	mm *inch*	20 *0.787*	80 *3.15*	6 *0.236*	SC MD	7340-006-020-00-01
6,35 mm *¼ "*	CS	Alcodur	mm *inch*	15,875 *0.625*	76,2 *3*	6,35 *¼*	SC MD	7340-006-015-00-01
6,35 mm *¼ "*	CS	Alcodur	mm *inch*	38,1 *1 ½*	101,6 *4*	6,35 *¼*	SC MD	7340-006-031-00-01
12,7 mm *½ "*	CS	Alcodur	mm *inch*	36,9 *1.453*	101,6 *4*	12,7 *½*	SC MD	7340-012-031-00-01



CS = Compression Style • SC = Solid Carbide / *MD = Metal Duro*
LOC = Length of Cut / *LDC = Longitud de corte* • OAL = Over-all-Length / *Longitud total*



Panel Cut DT

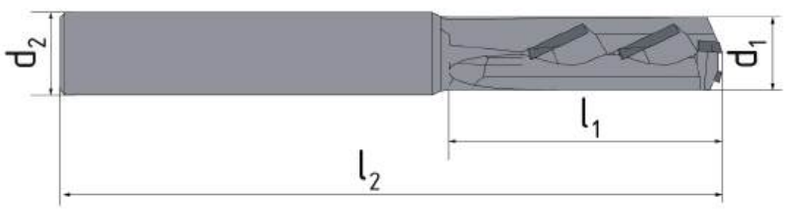
d_1 Cutting-Ø *Ø de corte*	**type** ***tipo***	**coating** ***recubrimiento***		**ℓ_1** Length of Cut *Longitud de corte*	**ℓ_2** OAL *Longitud total*	**d_2** Shank-Ø *Ø mango*	**mat.**	**Item-No.** ***num. de art.***
6 mm *0.236 "*	DT	-	mm *inch*	20 *0.787*	64 *2.52*	6 *0.236*	SC MD	7345-006-020-00-01
6,35 mm *¼ "*	DT	-	mm *inch*	15,875 *⅝*	63,5 *2 ½*	6,35 *¼*	SC MD	7345-006-015-00-01
6,35 mm *¼ "*	DT	-	mm *inch*	31,75 *1 ¼*	63,5 *2 ½*	6,35 *¼*	*SC* *MD*	7345-006-031-00-01
12,7 mm *½ "*	DT	-	mm *inch*	31,75 *1 ¼*	76,2 *3*	12,7 *½*	*SC* *MD*	7345-012-031-00-01



DT = Diamond Toothed • SC = Solid Carbide / *MD = Metal Duro*
LOC = Length of Cut / *LDC = Longitud de corte* • OAL = Over-all-Length / *Longitud total*

Skin Cut

- **PCD-End Mill for cutting composite skins**
- ***Fresas con plaquitas de diamante PCD para fresar pieles de composite***



Skin Cut

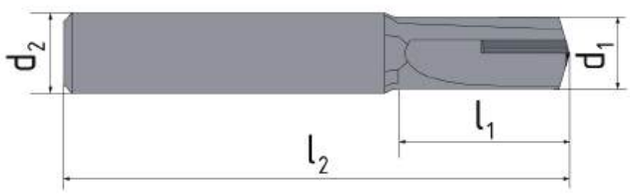
d_1 Cutting-Ø *Ø de corte*		**ℓ_1** Length of Cut *Longitud de corte*	**ℓ_2** OAL *Longitud total*	**d_2** Shank-Ø *Ø mango*	**mat.**	**Item-No.** ***num. de art.***
8 mm *0.315 "*	mm *inch*	18 *0.708*	64 *2.519*	8 *0.315*	PCD *PCD*	7385-008-018-00-01
9,525 mm *⅜ "*	mm *inch*	18 *0.708*	68 *2.677*	9,525 *⅜*	PCD *PCD*	7385-009-018-00-01
10 mm *0.394 "*	mm *inch*	18 *0.708*	68 *2.677*	10 *0.394*	PCD *PCD*	7385-010-018-00-01
12 mm *0.472 "*	mm *inch*	18 *0.708*	73 *2.874*	12 *0.472*	PCD *PCD*	7385-012-018-00-01



SC = Solid Carbide / *MD = Metal Duro • PCD = Polycrystalline Diamond*
LOC = Length of Cut / *LDC = Longitud de corte • OAL = Over-all-Length*

Pot Cut

- **PCD-End Mill for the machining of Panels with Potting**
- ***Fresas con plaquitas de diamante para mecanizado de paneles con potting***



Pot Cut

d_1 Cutting-Ø *Ø de corte*		**ℓ_1** Length of Cut *Longitud de corte*	**ℓ_2** OAL *Longitud total*	**d_2** Shank-Ø *Ø mango*	**mat.**	**Item-No.** ***num. de art.***
6 mm *0.236 "*	mm *inch*	10 *0.394*	52 *2.047*	6 *0.236*	PCD *PCD*	7395-006-010-00-01
6,35 mm *¼ "*	mm *inch*	10 *0.394*	52 *2.047*	6,35 *¼*	PCD *PCD*	7395-006-010-00-02
8 mm *0.315 "*	mm *inch*	10 *0.394*	61 *2.402*	8 *0.315*	PCD *PCD*	7395-008-010-00-01
8 mm *0.315 "*	mm *inch*	20 *0.787*	69 *2.717*	8 *0.315*	PCD *PCD*	7395-008-020-00-01
9,525 mm *⅜ "*	mm *inch*	10 *0.394*	61 *2.402*	9,525 *⅜*	PCD *PCD*	7395-009-010-00-01
9,525 mm *⅜ "*	mm *inch*	20 *0.787*	72 *2.835*	9,525 *⅜*	PCD *PCD*	7395-009-020-00-01
10 mm *0.394 "*	mm *inch*	10 *0.394*	63 *2.480*	10 *0.394*	PCD *PCD*	7395-010-010-00-01
10 mm *0.394 "*	mm *inch*	20 *0.787*	72 *2.835*	10 *0.394*	PCD *PCD*	7395-010-020-00-01

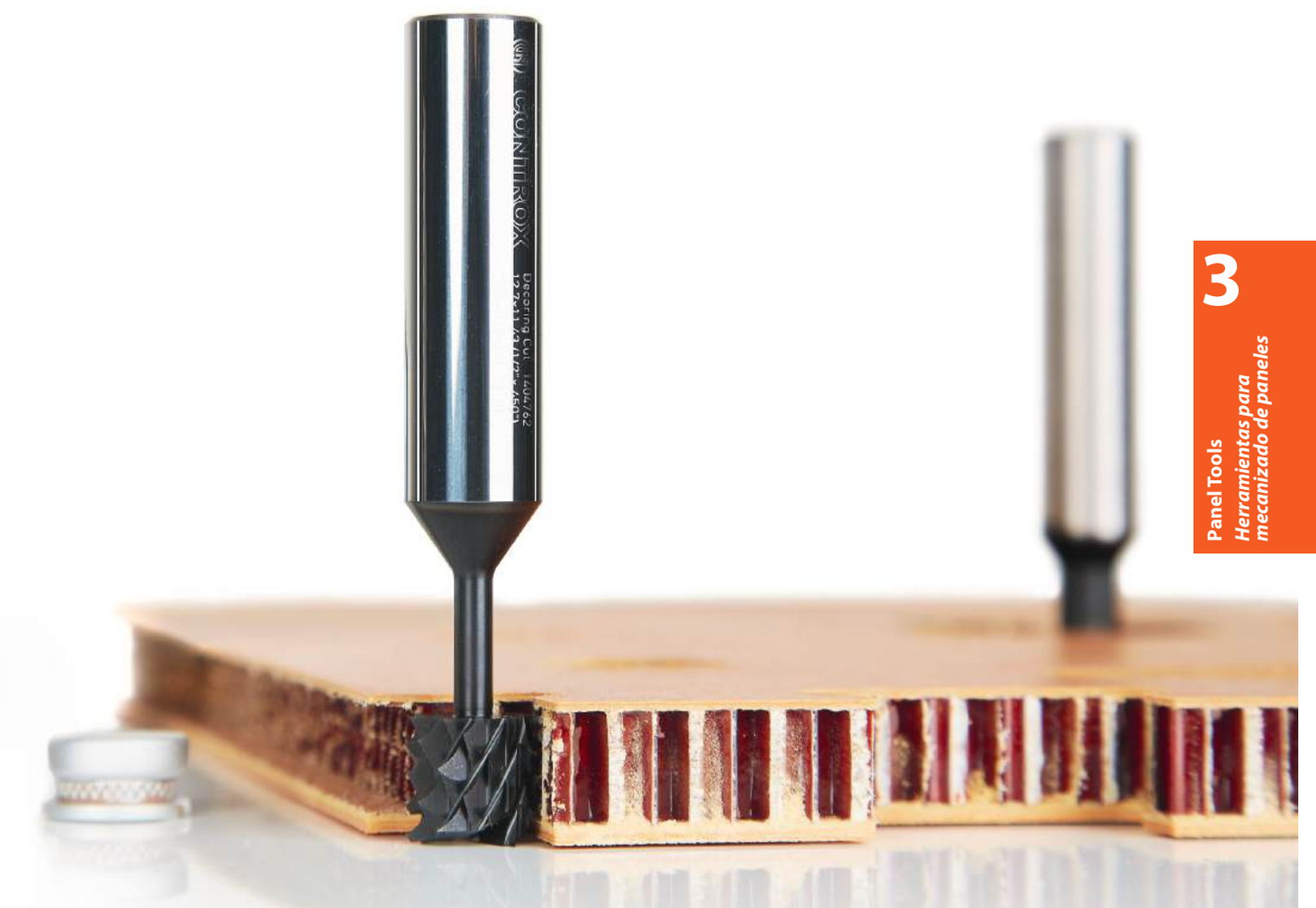


SC = Solid Carbide / *MD = Metal Duro*
LOC = Length of Cut / *LDC = Longitud de corte* • *OAL = Over-all-Length*

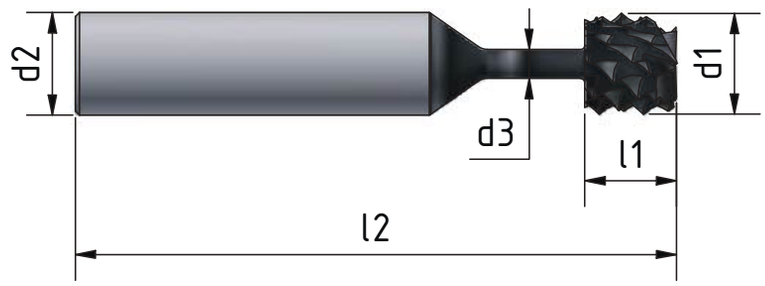
Decoring Cut

- **Cutting Tool for undercutting of Composite-Sandwich-Panels**
- **Tool-Diameters suitable to Standard-Insert-Diameters**

- *Herramienta de corte para socavar paneles sandwich con pieles de composite*
- *Diámetros de herramienta adecuados para diámetros de inserción estándar*



Decoring Cut



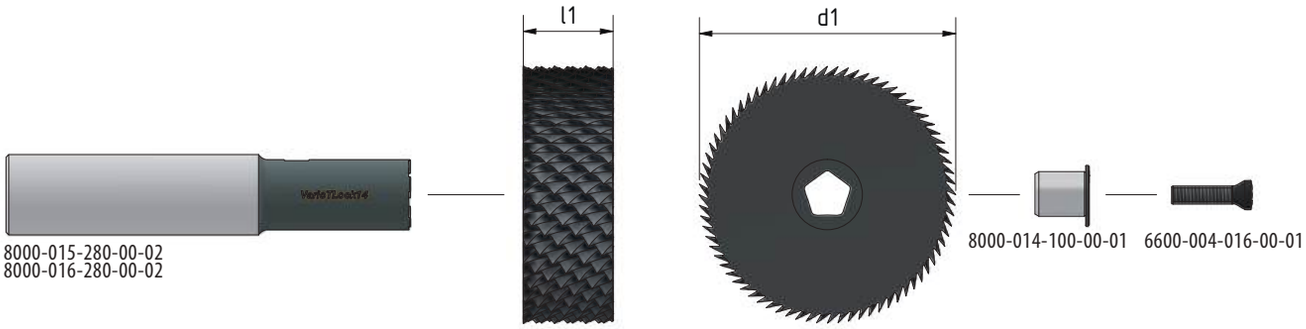
Decoring Cut

d_1 Cutting-Ø *Ø de corte*	**Panel width** *Gros. de panel*	**coating** *recubrimiento*		**ℓ_1** Length of Cut *Longitud de corte*	**ℓ_2** OAL *Longitud total*	**d_2** Shank-Ø *Ø mango*	**d_3** Neck-Ø *Ø cuello*	**mat.**	**Item-No.** *num. de art.*
11,113 mm *7⁄16 "*	6,35 *¼*	Alcodur	mm *inch*	5,08 *0.2*	68,5 *2.7*	12,7 *½*	3,556 *0.14*	SC *MD*	7335-011-005-23-01
11,113 mm *7⁄16 "*	12,7 *½*	Alcodur	mm *inch*	11,43 *0.45*	74,5 *2.93*	12,7 *½*	3,556 *0.14*	SC *MD*	7335-011-011-23-01
11,51 mm *0.453 "*	6,35 *¼*	Alcodur	mm *inch*	5,08 *0.2*	68,5 *2.7*	12,7 *½*	3,556 *0.14*	SC *MD*	7335-011-005-23-02
11,51 mm *0.453 "*	12,7 *½*	Alcodur	mm *inch*	11,43 *0.45*	74,5 *2.93*	12,7 *½*	3,556 *0.14*	SC *MD*	7335-011-011-23-02
12,7 mm *½ "*	6,35 *¼*	Alcodur	mm *inch*	5,08 *0.2*	68,5 *2.7*	12,7 *½*	3,556 *0.14*	SC *MD*	7335-012-005-23-01
12,7 mm *½ "*	12,7 *½*	Alcodur	mm *inch*	11,43 *0.45*	74,5 *2.93*	12,7 *½*	3,556 *0.14*	SC *MD*	7335-012-011-23-01
14,224 mm *0.56 "*	6,35 *¼*	Alcodur	mm *inch*	5,08 *0.2*	68,5 *2.7*	12,7 *½*	4,572 *0.18*	SC *MD*	7335-014-005-23-01
14,224 mm *0.56 "*	12,7 *½*	Alcodur	mm *inch*	11,43 *0.45*	74,5 *2.93*	12,7 *½*	4,572 *0.18*	SC *MD*	7335-014-011-23-01
14,99 mm *0.59 "*	6,35 *¼*	Alcodur	mm *inch*	5,08 *0.2*	68,5 *2.7*	12,7 *½*	4,572 *0.18*	SC *MD*	7335-014-005-23-02
14,99 mm *0.59 "*	12,7 *½*	Alcodur	mm *inch*	11,43 *0.45*	74,5 *2.93*	12,7 *½*	4,572 *0.18*	SC *MD*	7335-014-011-23-02
20,638 mm *13⁄16 "*	6,35 *¼*	Alcodur	mm *inch*	5,08 *0.2*	68,5 *2.7*	12,7 *½*	7,938 *5⁄16*	HSS-Co	7330-020-005-23-01
20,638 mm *13⁄16 "*	12,7 *½*	Alcodur	mm *inch*	11,43 *0.45*	74,5 *2.93*	12,7 *½*	7,938 *5⁄16*	HSS-Co	7330-020-011-23-01
20,638 mm *13⁄16 "*	19,05 *¾*	Alcodur	mm *inch*	17,78 *0.7*	81 *3.19*	12,7 *½*	7,938 *5⁄16*	HSS-Co	7330-020-017-23-01

Alcodur = Diamond-Like-Coating • SC = Solid Carbide / *MD = Metal Duro* • HSS-Co = High Speed Steel
LOC = Length of Cut / *LDC = Longitud de corte* • OAL = Over-all-Length / *Longitud total*

Under Cut

new
nuevo



Under Cut

d_1 Cutting-Ø *Ø de corte*	**Panel width** *Gros. de panel*	**Coating** *Recubrimiento*		**ℓ_1** Length of Cut *Longitud de corte*	**max ae**	**mat.**	**Item-No.** *num. de art.*
50,8 mm *2 "*	6,35 *¼*	Alcodur	mm *inch*	5,08 *0.2*	18 *0.709*	*HSS-Co*	7355-050-005-23-01
50,8 mm *2 "*	12,7 *½*	Alcodur	mm *inch*	11,43 *0.45*	18 *0.709*	*HSS-Co*	7355-050-011-23-01
50,8 mm *2 "*	19,05 *¾*	Alcodur	mm *inch*	17,78 *0.7*	18 *0.709*	*HSS-Co*	7355-050-017-23-01
100 mm *3,937"*	6,35 *¼*	Alcodur	mm *inch*	5,08 *0.2*	42,6 *1.676*	*HSS-Co*	7355-100-005-23-01
100 mm *3,937"*	12,7 *½*	Alcodur	mm *inch*	11,43 *0.45*	42,6 *1.676*	*HSS-Co*	7355-100-011-23-01
100 mm *3,937 "*	19,05 *¾*	Alcodur	mm *inch*	17,78 *0.7*	42,6 *1.676*	*HSS-Co*	7355-100-017-23-01

Shank-Sets incl. accessories / *Sets de mangos con accesorios*

d_2 Shank-Ø *Ø mango*		**ℓ_2*** OAL *Longitud total*	**Item-No.** *num. de art.*
15,875 mm *⅝ "*	mm *inch*	80 *3.15*	8000-015-280-00-02
16 mm *0.63 "*	mm *inch*	80 *3.15*	8000-016-280-00-02

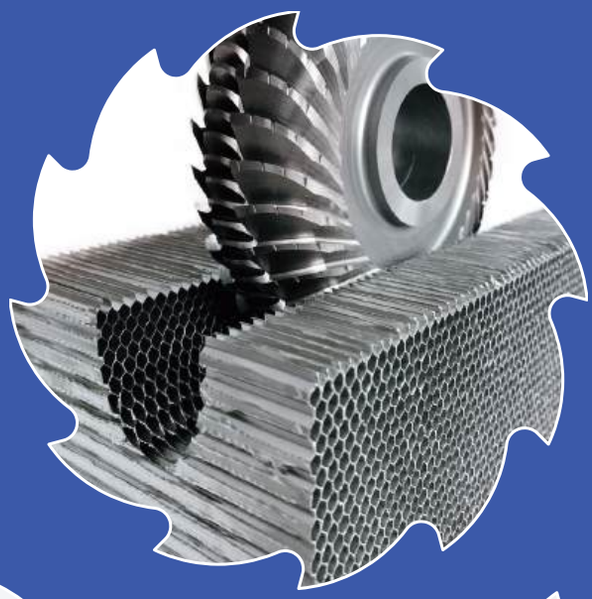
Single components / *Componentes individuales*

Accessories *Accesorios*	**Item-No.** *num. de art.*
2x IPC-Pin *2x Perno*	8000-014-100-00-01
Screw *Tornillo*	6600-004-016-00-01
Torque Screwdriver *Destornillador dinamométrico*	6600-042-000-00-01
PrecisionBit for Torx *PrecisionBit para Torx*	6600-0T1-500-00-01

HSS-Co = High Speed Steel
LOC = Length of Cut / *LDC = Longitud de corte* • OAL = Over-all-Length / *Longitud total*

Special applications
Aplicaciones especiales

Optimized tools for serial productions
Herramientas optimizadas para producciones en serie



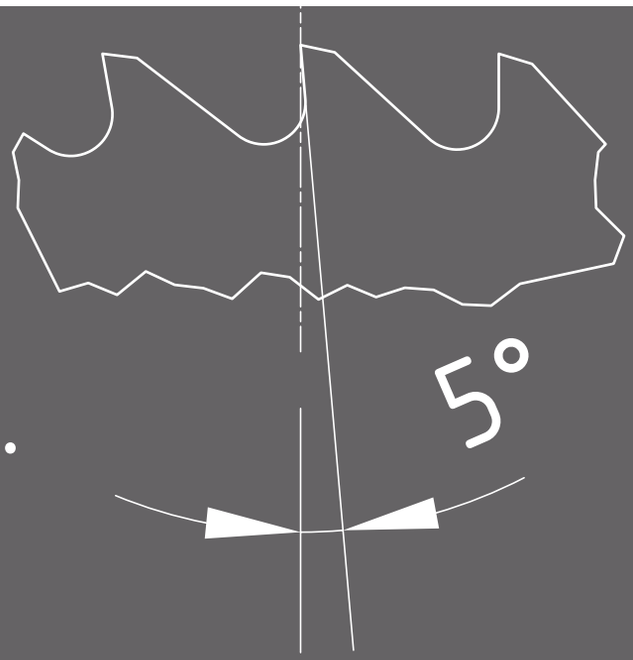


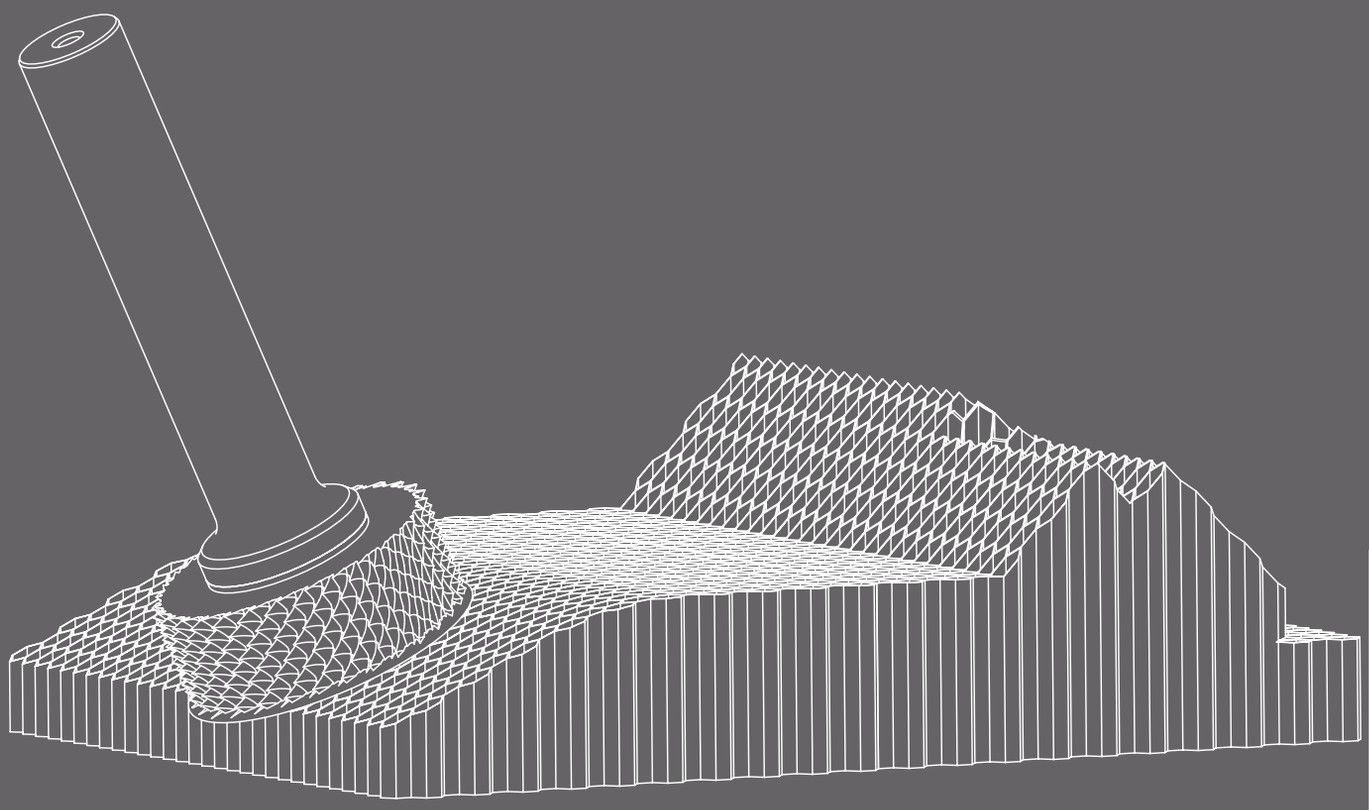


SPECIAL DIMENSIONS OR SPECIAL APPLICATIONS?
Talk to us. We are happy to manufacture **custom-made products for you in regard to tool dimensions, tooth geometries, interfaces, cutting materials and coatings.**

DIMENSIONES ESPECIALES O APLICACIONES ESPECIALES?
Póngase en contacto con nosotros. Estaremos encantados de fabricar ***productos personalizados para usted en cuanto a las dimensiones de la herramienta, las geometrías del dentado, las interfaces, los materiales de corte y los recubrimientos.***

$$V_c = \frac{d \times \pi \times n}{1000} \text{ m/min.}$$





Cutting strategy Core Cut

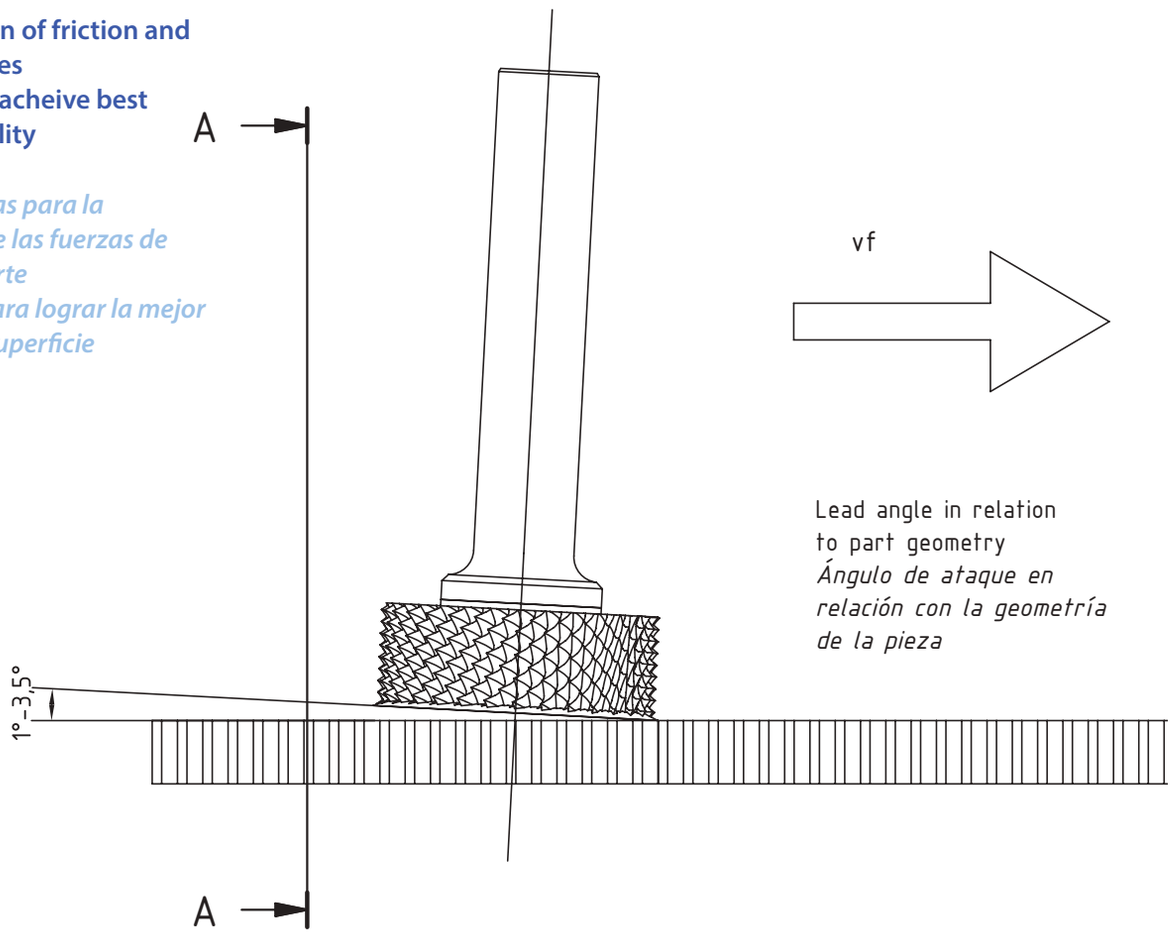
Estrategia de corte Core Cut

Lead angle in feed direction 1 to 3.5°

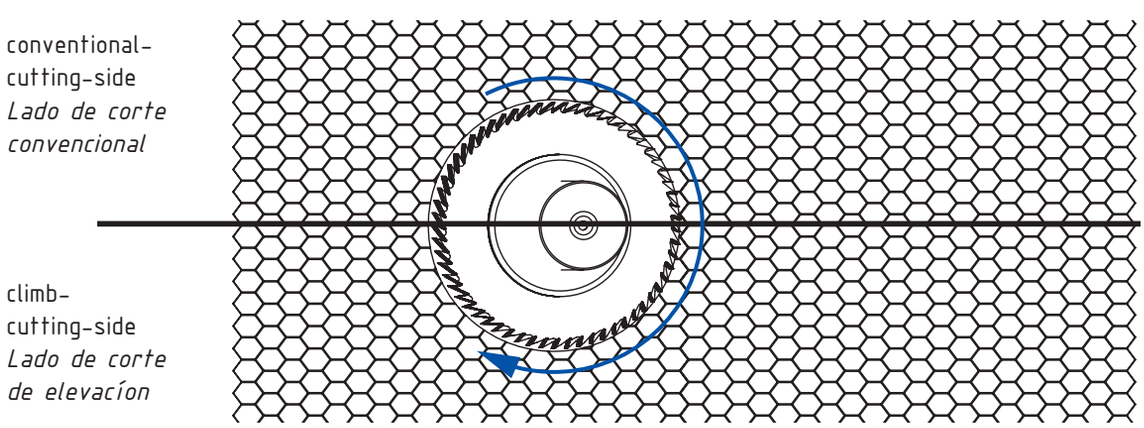
Ángulo de avance en dirección de alimentación de 1 a 3,5°

- **for reduction of friction and cutting forces**
- **required to acheive best surface quality**

- *Herramientas para la reducción de las fuerzas de fricción y corte*
- *necesario para lograr la mejor calidad de superficie*

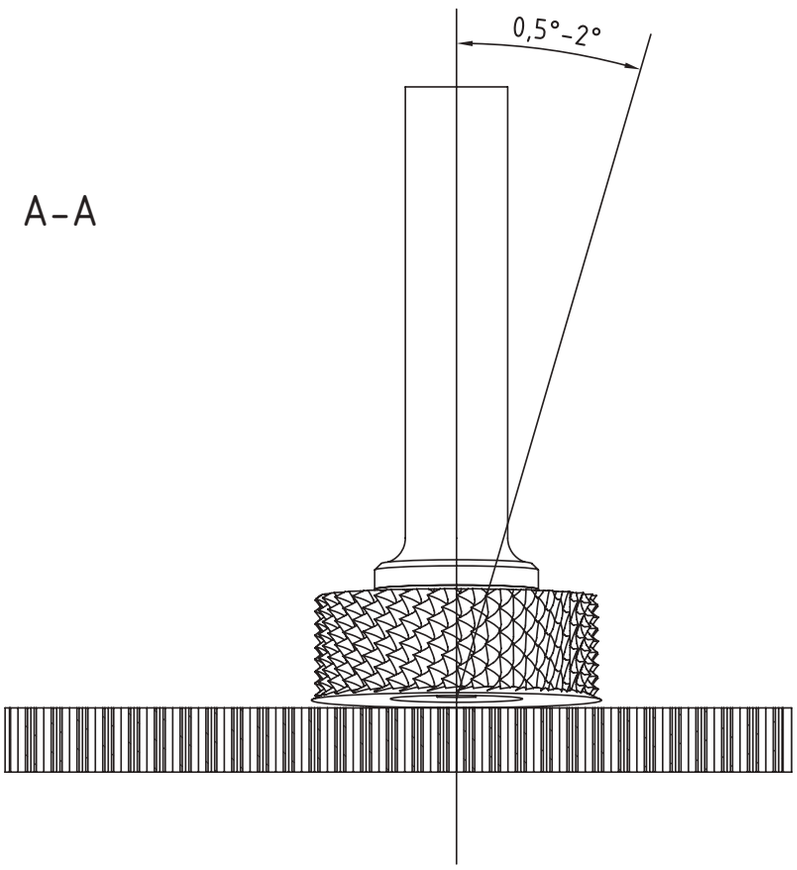


Lead angle in relation to part geometry
Ángulo de ataque en relación con la geometría de la pieza



Tilt angles in climb milling direction 0.5 to 2°

Ángulos de inclinación en dirección de fresado de elevacíon 0,5 a 2°

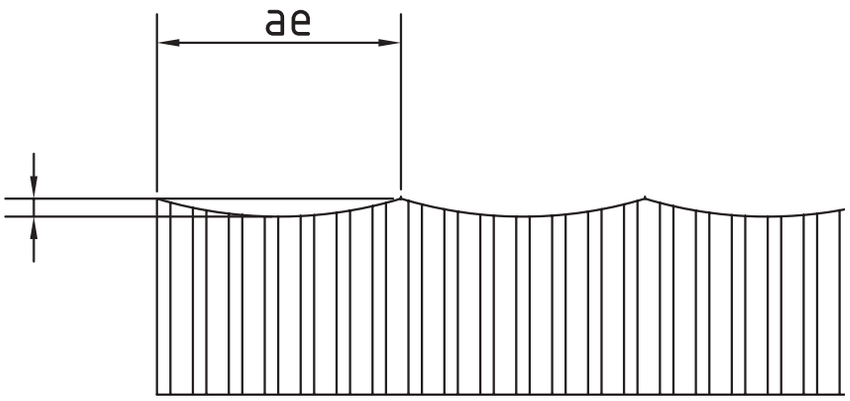


- **to direct the cutting forces downwards**
- **for light honeycomb or in case of fragile connection to the machine table**

- *Herramientas para dirigir las fuerzas de corte hacia abajo*
- *para panal de abeja ligero o en caso de conexión frágil a la mesa de la máquina*

Influences of tilt angles to the surface-shape t

Influencias de los ángulos de inclinación a la herramienta en función de la superficie

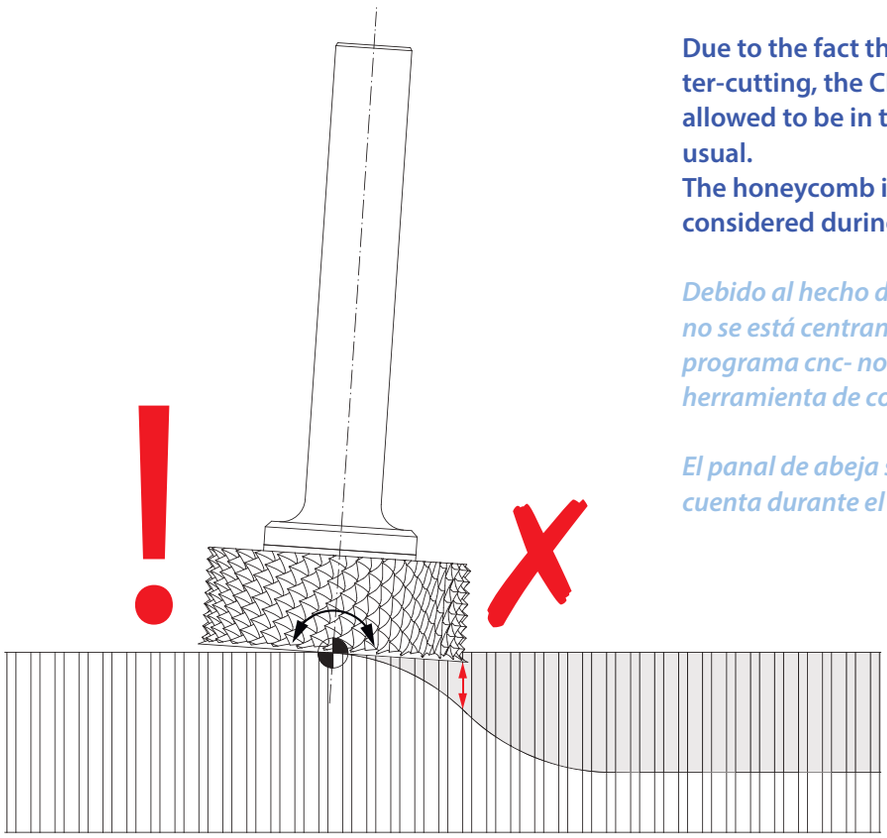


- **Minimization of the influence by reduced stepover (ae) and usage of large diameters**

- *Minimización de la influencia por reducción de la escala (ae) y uso de grandes diámetros*

Cutting strategy Core Cut
Estrategia de corte Core Cut

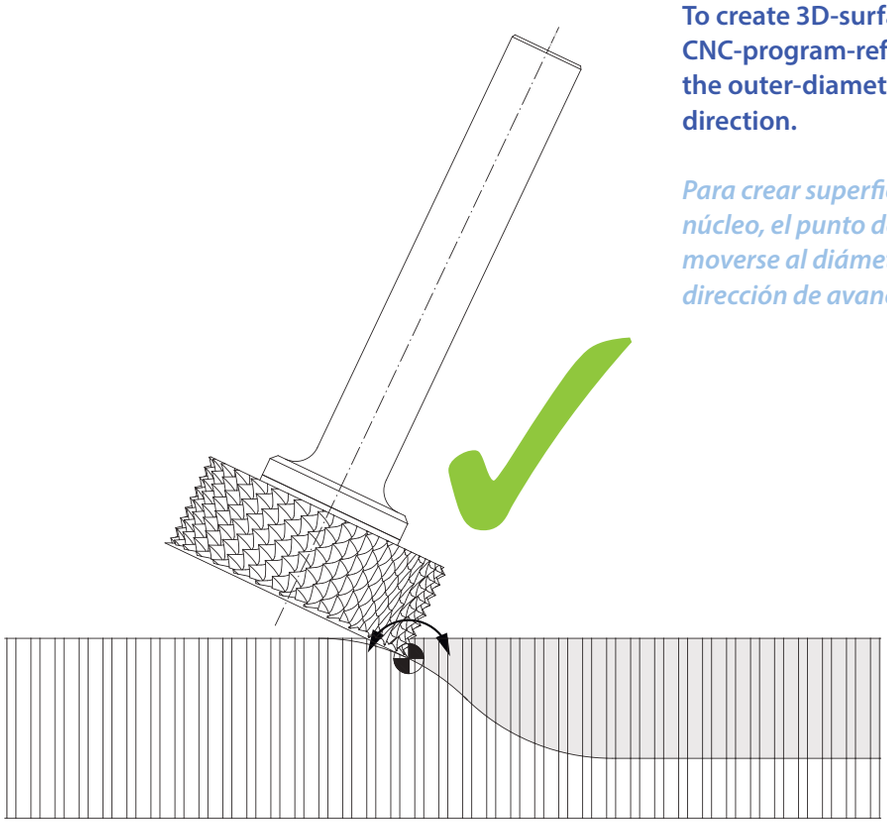
Reference-Point for CNC-Programming
Punto de referencia para la programación CNC



Due to the fact that the Core Cut-System is not center-cutting, the CNC-program-reference-point is not allowed to be in the center of the cutting tool – as usual.
The honeycomb is getting compressed, if this is not considered during the machining of 3D-surfaces.

Debido al hecho de que el sistema de corte de núcleo no se está centrando, el punto de referencia del programa cnc- no permite estar en el centro de la herramienta de corte – como de costumbre.

El panal de abeja se comprimirá, si esto no se tiene en cuenta durante el mecanizado de superficies 3D.



To create 3D-surfaces with the Core Cut-System the CNC-program-reference-point has to be moved to the outer-diameter of the front-end-knife in feed direction.

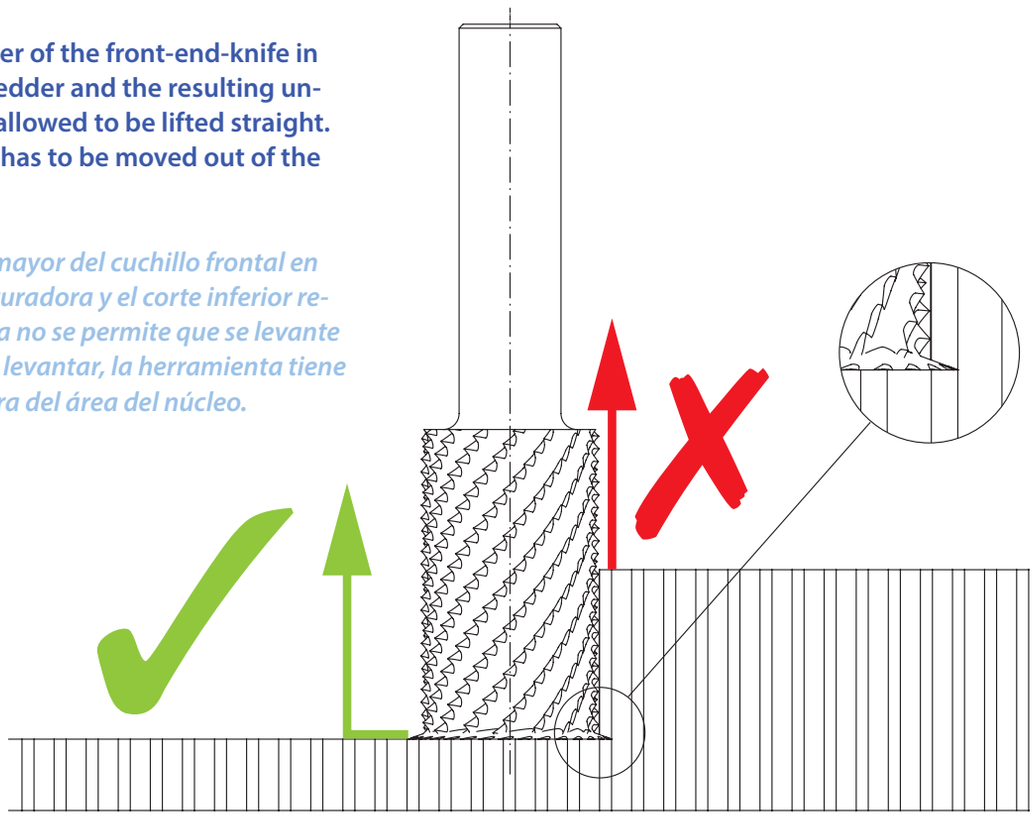
Para crear superficies 3D con el sistema de corte de núcleo, el punto de referencia del programa CNC debe moverse al diámetro exterior del cuchillo frontal en dirección de avance.

Lifting the tool from the workpiece

Elevación de la herramienta de la pieza a mecanizar

Due to a larger diameter of the front-end-knife in comparison to the shredder and the resulting undercut, the tool is not allowed to be lifted straight. Before lifting, the tool has to be moved out of the core.

Debido a un diámetro mayor del cuchillo frontal en comparación con la trituradora y el corte inferior resultante, la herramienta no se permite que se levante directamente. Antes de levantar, la herramienta tiene que ser desplazada fuera del área del núcleo.



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By the publication of this catalogue, all former editions become invalid.

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Considering the continual technical improvements of our tools, we reserve the right to modify the selection in our catalogue. If a required tool is not available for this reason, we will quote you a substitute of equal or better technological standard. If you have any questions, please contact our sales department.

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Al publicar este catálogo, todas las ediciones anteriores dejan de tener validez.

La reimpresión de este catálogo, incluso solo en un extracto, solo se permite con nuestro permiso explícito.

Teniendo en cuenta las mejoras técnicas continuas de nuestras herramientas, nos reservamos el derecho de modificar la selección en nuestro catálogo. Si por este motivo una herramienta necesaria no está disponible, le ofertaremos un reemplazo con un estándar tecnológico igual o mejor. Si tiene cualquier pregunta, póngase en contacto con nuestro departamento de ventas.

Terms of Delivery

I. General Information

1. Any and all deliveries made and services provided are subject to the Terms of Delivery at hand as well as to separate contractual agreements possibly concluded. Any deviating terms of purchase of the Buyer shall not become a constituent element of the contract even in case of order acceptance.
   A contract shall be established – for lack of specific agreement – with the written order confirmation of the Seller.
2. The Seller reserves property and copyrights for samples, cost estimates, drawings and similar information of physical and non-physical nature – also in electronic form; these may not be disclosed to third parties. The Seller undertakes not to disclose information and documents identified as confidential by the Buyer to third parties without his written consent.
3. Samples shall be supplied only against charges.
4. Verbal supplementary agreements do not exist. Modifications require written form in order to be effective.

II. Price and Payment

1. The prices – for lack of specific agreement – shall be ex works and do not include packaging. The quoted price of products does not include duty, tariffs, taxes or similar charges, which shall be borne by the Buyer, unless otherwise agreed upon in writing.
2. For lack of specific agreement, payment shall be effected immediately following delivery to the account of the Seller and without any deduction. The respective quantity delivered shall be charged.
3. The Buyer shall have the right to retain payments or to offset these against counterpayments only to the extent that his counterclaims are undisputed and determined
   legally binding.

III. Period of Delivery, Default in Delivery

1. The Period of Delivery results from the agreements entered into between the contracting parties. The prerequisite for compliance by the Seller is that any and all commercial and technical questions have been clarified between the contracting parties and that the Buyer has complied with any and all obligations under his responsibility, such as e.g. the procurement of the certificates or authorizations required by the authorities or performance of a down payment. Should this not be the case, the Period of Delivery will be extended appropriately. This shall not apply to the extent that the Seller is responsible for the delay.
2. Adherence to the Period of Delivery shall be subject to correct and on-time delivery to us on the part of our suppliers. The Seller shall inform the Buyer about emerging delays as soon as possible.
3. The Period of Delivery shall be deemed to have been complied with if the delivery item has left the factory of the Seller or if readiness for shipment has been announced.
4. In case that the shipment is delayed upon request of the Buyer, the Seller shall be entitled to otherwise dispose of the delivery item after fixing a reasonable deadline and its fruitless expiry and to supply the Buyer subject to a reasonably extended period. In case that the shipment is delayed on account of reasons for which the Buyer is responsible, the costs incurred as a result of such delay shall be charged to the Buyer, beginning one month after announcement of the readiness for shipment of the delivery item.
5. In case that non-compliance with the Period of Delivery is to be attributed to force majeure, labor disputes or other events beyond the sphere of influence of the Seller, the Period of Delivery shall reasonably be extended. The Seller shall inform the Buyer of the beginning and end of such circumstances as soon as possible.
6. In case that delivery is rendered entirely impossible or economically unreasonable for the Seller as a result of force majeure, labor disputes or other events beyond the sphere of influence of the Seller, the Seller shall have the right to either wholly or partially resign from the contract.
   Claims for damages of the Buyer on account of such resignation are excluded. If the Seller intends to make use of his right of resignation, he shall inform the Buyer immediately upon identification of the implications of such event. This shall also apply if an extension of the Period of Delivery has initially been agreed upon with the Buyer.
7. The Buyer may resign from the contract without fixing a time limit if complete performance is ultimately rendered impossible for the Seller prior to the transfer of risk. The Buyer may furthermore resign from the contract if execution of part of the delivery is rendered impossible for an order and if the Buyer has a legitimate interest to reject a part delivery. If this is not the case, the Buyer shall have to pay the contract price for the respective part delivery. The same shall apply in case of an inability of the Seller. In all other cases, Paragraph VII.2. "Liability" shall apply.
   In case that the impossibility or inability occurs during the default in acceptance
   or if the Buyer is alone or predominantly responsible for the circumstances, he shall be obliged to the performance of quid pro quo.
8. In case that the Buyer fixes a reasonable deadline for performance after the due date – taking into consideration the statutory exceptions – and if this deadline is not complied with, the Buyer shall be entitled to resignation within the scope of statutory provisions.
   Upon request of the Seller he undertakes to declare within a reasonable time whether he intends to make use of his right of resignation.
   Further claims from Default in Delivery are exclusively governed by Paragraph VII.2. hereunder.

IV. Transfer of Risk, Acceptance

1. The risk shall be transferred to the Buyer whenever the delivery item has left the factory, namely also if part deliveries are performed or if the Seller has undertaken other services, such as e.g. the forwarding expenses or shipment.
2. In case that delivery is delayed or not undertaken as a result of circumstances not to be attributed to the Seller, the risk shall be transferred to the Buyer at the day the readiness for shipment is announced. The Seller undertakes to effect insurance as requested by the Buyer at the expense of the Buyer.
3. Part deliveries shall be permissible to the extent reasonable for the Buyer.

V. Reservation of Proprietary Rights

1. The Seller reserves the proprietary right for the delivery item until any and all claims of the Seller versus the Buyer arising from the business relations have been settled, including future claims, also arising from contracts concluded simultaneously or subsequently. This shall also apply if individual or all claims of the Seller were entered into a current account and the balance has been determined and acknowledged.
   In case of behavior of the Buyer contrary to the terms of contract, particularly in case of default in payment, the Seller shall be entitled to withdrawal of the delivery item after overdue notification and the Buyer shall have the obligation to surrender the delivery item. The Buyer is obliged to immediately notify the Seller in case of seizure or other interventions of third parties.
2. The Buyer is entitled to resell the delivery item in ordinary course of business. He, however, already today cedes to the Seller any and all claims arising from the resale versus purchaser or third parties. The Buyer is entitled to collection of said claims also after cession. The authorization of the Seller for collection of the claims on his own is not affected by this.
   The Seller, however, undertakes not to collect the claims as long as the Buyer properly complies with his payment obligations or the authorization to collect has not been revoked or no application for the opening of insolvency procedures has been filed.
   The Seller may otherwise request for the Buyer to disclose the claims ceded and their debtor, providing all information required for collection, handing over all documents pertaining to this, and informing the debtors of the cession, unless already performed by the Seller.
   In case that the delivery item is resold together with merchandise that is not the property of the Seller, the claim of the Seller versus the purchaser shall be deemed to be ceded in the amount of the contract price agreed between Seller and Buyer.
3. The Buyer shall not be entitled to pledge or transfer as security the delivery item.
4. The Buyer hereby grants to the Seller a security interest in the products sold hereunder to secure payment of the price of such products and agrees, and appoints the Seller, its agent, to take all such action and to execute all such documents and instruments as may be necessary or reasonably requested by the Seller to perfect and continue perfected the Seller's security interest hereunder.
5. The Seller shall be entitled to insure the delivery item at the expense of the Buyer against theft, breakage, fire, water, and other damages, unless the Buyer has demonstrably obtained such insurance coverage on his own.
6. If, in connection with the payment of the contract price, a liability of the Seller is established for a bill-of-exchange the reservation of proprietary rights including its special forms agreed upon or other securities agreed upon to secure payment shall not expire before the bill-of-exchange has been honored by the Buyer as debtor.
7. The application for the opening of insolvency procedures shall entitle the Seller to resign from the contract and demand immediate return of the delivery item.

VI. Claims from Defects

The Seller shall warrant material defects and deficiencies in title of the delivery under exclusion of further claims – subject to Paragraph VII "Liability" – as follows:

Material Defects

1. All those parts are to be reworked or replaced by parts free of defects – which is at the discretion of the Seller – free of charge, which turn out to be defective on account of circumstances that have occurred prior to the transfer of risk. The Seller is to be informed in writing immediately whenever such defects are determined. Parts replaced shall become the property of the Seller.
2. Upon agreement with the Seller, the Buyer shall grant the Seller the time and opportunity required in order to perform any and all rework and substitute deliveries, which the Seller deems necessary, with the Seller otherwise exempted from liability for the resulting consequences. It is only in urgent cases where the operational safety is jeopardized and/or as defense against disproportionate damages – in which cases immediate notification of the Seller is mandatory – that the Buyer has the right to eliminate the defect himself or have the defect eliminated by third parties and demand compensation for expenditures incurred.
3. Regarding the direct costs resulting from rework and/or substitute delivery, the Seller shall bear the costs for the replacement part including shipment – to the extent that the complaint proves justified.
   In all other cases the Buyer shall bear the costs.
4. Within the scope of statutory provisions, the Buyer has the right to resign from the contract if the Seller – taking into account the statutory exceptions

– has allowed a reasonable time fixed for rework or substitute delivery on account of material defect to expire fruitlessly.
In case of only insubstantial defects, the Buyer only has the right for a reduction of the contract price. The right for a reduction of the contract price is otherwise excluded.
Further claims are determined by Paragraph VII.2. hereunder.

5. No liability is assumed particularly in the following cases:
   - Unsuitable or improper use, incorrect installation and/or commissioning by Buyer or third parties, natural wear, erroneous and negligent handling, improper maintenance, unsuitable operating materials, chemical, electro-chemical or electrical impact – to the extent that they are not the responsibility of the Seller.
   - The Seller shall assume liability for defects of the material supplied by the Buyer only if the defects could have been identified, had professional diligence been applied.
   - In case of manufacturing based on drawings of the Buyer, the Seller shall assume liability only for execution in accordance with the drawings.

5a. If special tools are ordered, the actual delivery quantity is allowed to either exceed or undershoot the order quantity by approx. 10 % or a minimum of 2 units, as required.

6. In case that the Buyer or third parties perform improper rework, the Seller shall not assume any liability for the consequences that result. The same shall apply for modifications of the delivery item made without prior consent of the Seller.

Deficiencies in Title

7. The Buyer shall assume the sole responsibility for documents such as drawings, gauges, samples or the like to be submitted by the Buyer. It is the Buyer's responsibility to ensure that the workshop drawings submitted by the Buyer do not violate the copyrights of third parties. The Seller has no obligation vis-à-vis the Buyer to investigate if the submission of quotes on the basis of workshop drawings submitted to the Seller constitutes any violation of copyrights of third parties. Should a liability of the Seller nevertheless result from constitutive facts, the Buyer shall indemnify and hold harmless the Seller.

VII. Seller's Liability, Disclaimer of Liability

1. In case that the delivery item cannot be used by the Buyer in accordance with its contractual purpose by fault of the Seller as a result of negligent or incorrect execution of proposals submitted and consultations performed prior to or following the conclusion of the contract or by violation of other secondary contractual obligations – particularly instructions for operation and maintenance of the delivery item – the stipulations contained in Paragraphs VI and VII.2. shall apply under the exclusion of further claims of the Buyer.
2. The Seller shall assume liability for damages not established on the delivery item as such – on whatever legal grounds – only

a) in case of intent,
b) in case of gross negligence of the proprietor / institutions or senior executives,
c) in case of intentional or negligent violation of life, body and/or health,
d) in case of maliciously concealed defects,
e) in case of defects of the delivery item, to the extent that liability is assumed for personal injury or damage to property for privately used items in accordance with the German Product Liability Act (Produkthaftungs¬gesetz). In case of culpable breach of material contractual obligations, the Seller shall also assume liability in case of gross negligence of non-executive employees and minor negligence, in the latter case limited to reasonable, foreseeable typical contract damage.
Further claims are excluded.

3. The Seller shall not be subject to any other obligations or liabilities, whether arising out of breach of contract, warranty, tort (including negligence and strict liability) or other theories of law, with respect to products sold or services rendered by the Seller or undertakings, acts or omissions relating thereto. Under no circumstances will the Seller be liable for any incidental or consequential damages, or for any other loss, damage or expense of any kind, including loss of profits, arising in connection with the contract or with the use or liability to use the Seller's products furnished under this contract.

VIII. Statute of Limitations

Any and all claims of the Buyer – on whatever legal grounds – come under the statutes of limitation in 12 months. The statutory time limits shall apply for claims for damages in accordance with Paragraph VII.2. a – e.

IX. Special Conditions for Machining Contracts (completion, reprocessing, modification or restoration of tools)

The following shall apply for machining contracts as a supplement to/deviating from the Terms of Delivery:

1. The subcontractor shall not assume any liability for the behavior of material submitted. His claim for remuneration remains unaffected.
2. Should the material become unusable during the machining by fault of the subcontractor, his claim for remuneration for the service rendered shall lapse. The claim for damages of the Buyer shall be governed by Paragraph VII.2. hereunder.

X. Return Policy

1. A Return Goods Authorization (RGA) number must be obtained before returning items.
2. Call 1-800-558-8966 to request a Return Goods Authorization (RGA) number. Be sure to write your RGA number on the shipping label. Returns will not be accepted unless accompanied by this number
3. Please include a copy of your invoice or packing slip.
4. Claims for discrepancies in shipment must be made within 7 days of receipt of merchandise or they will not be accepted.
5. Only items in unused condition and in undamaged, sealed original container may be returned within 30 days of the invoice date
   - 15% Restock fee, an order of equal/greater value will reduce the restock fee to 5%
   After 30 days / less than 6 month from the invoice date
   - 30% Restock fee, an order of equal/greater value will reduce the restock to 20%
6. Freight must be prepaid
7. Special orders, modified items, used items and obsolete items cannot be returned.
8. A maximum of two stock returns per year is allowed.
9. The stock return cannot exceed 10% of the past 12 month sales.
10. All stock returns must be approved by the National Sales Management.
    Any deviation from the above Policy must be authorized in writing by the National Sales Management
    This policy supersedes all previous policies and is effective March 13.2017

XI. Applicable Law, Place of Jurisdiction, Place of Performance

1. German Substantive Law under the exclusion of UN Purchasing Law shall apply for any and all legal relations between Seller and Buyer.
2. Should disputes arise from or in connection with the contract at hand, the parties shall first attempt to reach an out-of-court settlement. Should this not be possible, disputes shall be ultimately decided by a Court of Arbitration in accordance with the Arbitrary Court Regulation of the German Institution for Arbitration (DIS), excluding the regular legal process. The decision shall be taken by three arbitrators, with each of the two parties appointing one arbitrator and the third arbitrator selected by the two arbitrators appointed. Arbitration procedures shall be in German language and performed at the corporate seat of the exporter.
3. Place of Performance shall be 54595 Prüm, Germany.

Any and all deliveries performed shall exclusively be based on our Terms of Delivery. We hereby object to any and all contrary terms of purchase.

TERMS OF DELIVERY FOR REPAIR OF TOOLS AND OTHER CONTRACT JOBS

- The costs for tool repair and contract grinding are charged on basis of real time consumption.
- The price for tool repair and contract grinding depends mainly on quantities. If quantities mentioned in our quotation or order confirmation are not achieved we may charge a higher price for lower quantities.
- All costs and risks for transports are chargeable to the buyer.
- Contract jobs are to be payed on delivery without deduction.
- Risk for scrap on tool repairs or other contract jobs must be taken by the buyer.
- If scrap is caused by ourselves costs for contract work will not be charged. Under no circumstance we will refund scrapped parts.
- Apart from that our terms and conditions will apply.

NEUHÄUSER



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