



tungsten carbide burrs

Hartmetallfrässtifte / fraises carbure / fresas rotativas de metal duro





solid carbide tooling



burrs



abrasives

the complete range

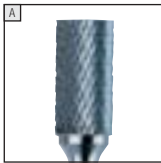
das komplette Sortiment / la gamme complète / la gama completa



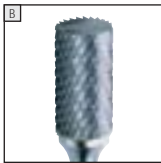
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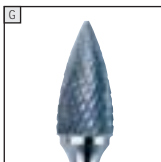
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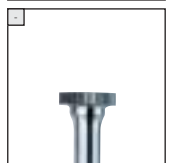
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introduction

Einleitung

introduction

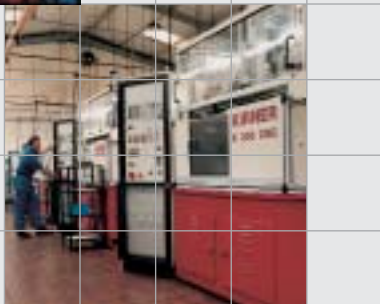
introducción



Garryson is committed to being the leading manufacturer and supplier of tungsten carbide rotary burrs in the world. Through a combination of state-of-the-art technology, rigorous quality procedures and highly skilled people, we strive to provide cost effective solutions and support to increase your competitive advantage.



Garryson gehört zu den auf dem Weltmarkt führenden Herstellern und Lieferanten von rotierenden Hartmetall-Schneidwerkzeugen und ist bestrebt, diese Spitzenposition zu halten. Auf der Grundlage modernster Technologien, strengster Qualitätssicherungsverfahren und hochqualifizierter Mitarbeiter sind wir stets bemüht, Ihnen kostengünstige Lösungen und die Dienstleistungen anzubieten, die zum Ausbau Ihres Wettbewerbsvorteils beitragen.



technology

Major investment in the latest CNC grinding equipment has enabled Garryson to become the largest manufacturer of tungsten carbide burrs in the UK.

Technologie

Durch umfassende Investitionen in neueste CNC-Schleiftechnik gelang es Garryson als Hersteller von Hartmetall-Fräsern, die Spitzenposition in Großbritannien einzunehmen.

la technologie

Garryson a fait un investissement majeur dans un équipement de pointe à commande numérique – ce qui nous vaut d'être aujourd'hui le plus grand fabricant de fraises-limes en carbure de tungstène du Royaume-Uni.

tecnología

Importantes inversiones en los últimos equipos de rectificación CNC le han permitido a Garryson convertirse en el mayor fabricante de fresas rotativas de metal duro del Reino Unido.

support

A professional friendly sales team is backed up by effective supply chain management to ensure a consistent and efficient service.

Dienstleistung

Ein professionelles und freundliches Verkaufsteam, das auf ein effektives Management in der Lieferkette zurückgreifen kann, bietet zuverlässigen und effizienten Service.

le soutien

Les professionnels de notre équipe de vente se feront un plaisir de vous aider, en s'appuyant sur une gestion efficace de la chaîne d'approvisionnement pour vous garantir un service cohérent et des résultats de première classe.

apoyo

Nuestro equipo de profesionales de ventas está respaldado por una gestión efectiva de la cadena de suministro para asegurar un servicio consistente y eficiente.

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introduction

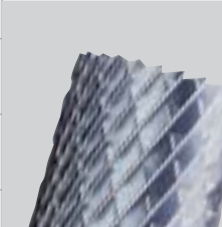
Einleitung

introduction

introducción



La société Garryson s'est engagée à occuper le premier rang mondial en tant que fabricant/fournisseur de fraises-limes rotatives en carbure de tungstène. Dans notre société, la technologie de pointe va de pair avec des procédures rigoureuses de contrôle de qualité, et nous employons un personnel hautement qualifié ; cela nous permet de vous fournir des solutions rentables et de vous offrir le soutien dont vous avez besoin pour augmenter votre avance concurrentielle.



Garryson se ha comprometido a ser el principal fabricante y proveedor de fresas rotativas de metal duro de todo el mundo. Mediante una combinación de tecnología de vanguardia, procedimientos de calidad rigurosos y un personal altamente especializado, nos esforzamos para proporcionar soluciones rentables y ayudar a aumentar sus ventajas competitivas.



technical

An experienced team of sales engineers together with a dedicated in-house department is able to offer technical support including the design and manufacture of any carbide burr outside our catalogue range.

Technik

Ein erfahrenes Team von Verkaufsingenieuren sowie eine engagierte firmeninterne Technikabteilung sind in der Lage, technischen Kundendienst und Konstruktionslösungen sowie Hartmetallfräser anzubieten, die über das Katalogangebot hinaus gehen.

aspects techniques

Notre équipe de technico-commerciaux expérimentée travaille en collaboration avec un service interne spécialisé, afin de vous aider pour les questions techniques; cette équipe peut aussi organiser la conception et la fabrication de fraises-limes spécifiques à vos demandes.

aspectos técnicos

Contamos con un equipo experimentado de personal técnico que junto con un departamento interno especializado, son capaces de ofrecer asistencia y diseño técnicos y fabricar cualquier fresa rotativa de metal duro que no esté en nuestro catálogo.

markets

Garryson is an approved supplier to companies in aerospace, automotive, shipbuilding, foundries and offshore industries with burrs used in over 40 countries worldwide.

Märkte

Garryson ist ein anerkannter Fräserlieferant für Unternehmen in der Luft- und Raumfahrt, im Fahrzeug- und Schiffbau sowie für Gießereien und die Offshore-Industrie in über 40 Länder weltweit.

nos marchés

Garryson est un fournisseur agréé de sociétés des secteurs de l'aérospatiale, de l'automobile, de la construction navale, de la fonderie et des industries offshore.

Nos fraises-limes sont utilisées dans plus de 40 pays à travers le monde.

mercados

Garryson es un proveedor autorizado para empresas de la industria aeroespacial, automoción, construcción naval, fundición y prospección submarina, y nuestras fresas se utilizan en más de 40 países de todo el mundo.



application data

Anwendungsdaten

données relatives aux applications

datos de aplicaciones

	application by cut style					
	Anwendung nach Schnittauführung / applications en fonction du style de coupe / aplicación por estilo de dentado					
	s	d	d-max new	c	k new	alu
steel Stahl acier acero	●	●	●	●	○	
hardened steel gehärteter Stahl acier trempé acero cementado	○	○			●	
stainless steel Edelstahl acier inoxydable acero inoxidable	●	●	○	●	●	
cast iron Gußeisen fonte hierro fundido	●	●	●	○	○	
titanium Titan titane titanio	●	●	○		○	
nickel nickel nickel níquel	●	●	○		○	
copper / copper alloys Kupfer / Kupferlegierungen cuivre / alliages de cuivre cobre / aleaciones de cobre	●	●	●	●	○	
aluminium Aluminium aluminium aluminio						●
plastics Kunststoff plastiques plásticos						●
cermet Cermet cermet cermet	○				●	

- = **highly recommended** ○ = **recommended**
 sehr empfohlen empfohlen
 hautement recommandé recommandé
 muy recomendado recomendado

All burrs are 100% braze tested for strength and safety.

Die Hartlötverbindungen aller Fräser werden zu 100% auf Festigkeit und Sicherheit geprüft.

Toutes nos fraises-limes sont testées pour garantir leur solidité et leur sécurité d'utilisation.

Inspeccionamos la totalidad de las fresas fabricadas, y de esta forma, aseguramos su calidad, potencia y seguridad.



skip flute

Garryson end cut burrs are produced with "skip flute", giving improved cutting action on the burr end.

Die Stirnfräser von Garryson werden mit "skip flute" hergestellt, womit eine verbesserte Schneidwirkung an der Fräserstirnseite erzielt wird.

























Les fraises-limes de coupe en bout de Garryson comportent un design "skip flute", pour améliorer l'attaque de l'outil côté bavure.

Las fresas con dentado frontal de Garryson se producen con "skip flute", lo que permite una mejor acción de corte en el extremo de la fresa.

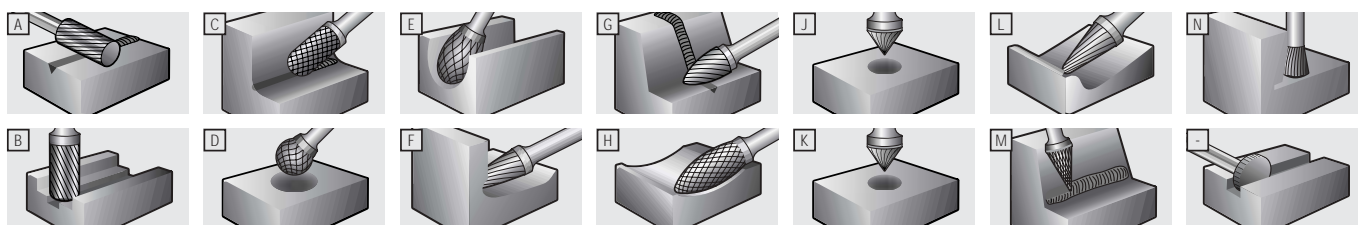
application data

Anwendungsdaten
données relatives aux applications
datos de aplicaciones

application by cut style / Anwendung nach Schnittauführung / applications en fonction du style de coupe / aplicación por estilo de dentado

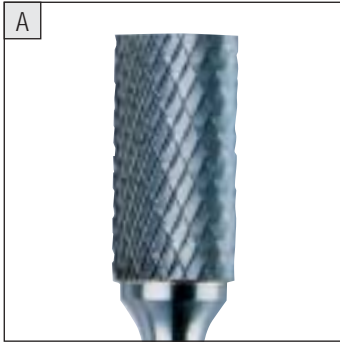
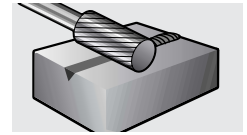
english		français	
	<p>s</p> <ul style="list-style-type: none"> • general purpose deburring • produces scratch free surface • for use on most ferrous metals 		<p>s</p> <ul style="list-style-type: none"> • Ébavurage général • Produit une surface sans rayures • Pour une utilisation sur la plupart des métaux ferreux
	<p>d</p> <ul style="list-style-type: none"> • universal cutting style • high cutting action and smooth operation • for use on most ferrous metals 		<p>d</p> <ul style="list-style-type: none"> • Style de coupe universel • Attaque puissante de l'outil et fonctionnement sans à-coups • Pour une utilisation sur la plupart des métaux ferreux
	<p>d-max</p> <ul style="list-style-type: none"> • for fast metal removal • extra strong tooth formation • for use on most ferrous metals 		<p>d-max</p> <ul style="list-style-type: none"> • Pour un enlèvement de matière rapide • Une taille de dents ultra solide • Pour une utilisation sur la plupart des métaux ferreux
	<p>c</p> <ul style="list-style-type: none"> • general purpose deburring • for use on high tensile steels 		<p>c</p> <ul style="list-style-type: none"> • Ébavurage général • Pour une utilisation sur les aciers à haute résistance à la traction
	<p>k</p> <ul style="list-style-type: none"> • for fine finishing applications • provides excellent surface finish • for use on hard materials 		<p>k</p> <ul style="list-style-type: none"> • Pour les applications de finition • Produit une excellente finition • Pour une utilisation sur des métaux durs
	<p>alu</p> <ul style="list-style-type: none"> • for deburring of aluminium alloys and plastics • produces easy chip flow and smooth operation 		<p>alu</p> <ul style="list-style-type: none"> • Pour l'ébavurage d'alliages d'aluminium et de plastiques • Écoulement facile des copeaux, fonctionnement sans à-coups
Deutsch		español	
	<p>s</p> <ul style="list-style-type: none"> • Allgemeines Entgraten • Kratzerfreie Oberfläche wird erzielt • Zur Anwendung an den meisten Eisenmetallen 		<p>s</p> <ul style="list-style-type: none"> • Desbarbado para aplicaciones generales • Produce una superficie libre de rayaduras • Para utilizar en la mayoría de los metales férricos
	<p>d</p> <ul style="list-style-type: none"> • Universelle Schnittauführung • Hohe Schneidwirkung und ruhige Arbeitsweise • Zur Anwendung an den meisten Eisenmetallen 		<p>d</p> <ul style="list-style-type: none"> • Estilo de corte universal • Gran acción de corte y funcionamiento suave • Para utilizar en la mayoría de los metales férricos
	<p>d-max</p> <ul style="list-style-type: none"> • Für schnellen Metallabtrag • Extrastarke Zahnausführung • Zur Anwendung an den meisten Eisenmetallen 		<p>d-max</p> <ul style="list-style-type: none"> • Para eliminar metal con rapidez • Formación de diente extrafuerte • Para utilizar en la mayoría de los metales férricos
	<p>c</p> <ul style="list-style-type: none"> • Allgemeines Entgraten • Zur Anwendung an hochfesten Stählen 		<p>c</p> <ul style="list-style-type: none"> • Desbarbado para aplicaciones generales • Para utilizar en los aceros de alta resistencia a la tracción
	<p>k</p> <ul style="list-style-type: none"> • Für Feinoberflächenanwendungen • Bietet ausgezeichnete Oberflächengüte • Zur Anwendung an harten Materialien 		<p>k</p> <ul style="list-style-type: none"> • Para aplicaciones de acabado fino • Proporciona superficies excelentes • Para utilizar en materiales duros
	<p>alu</p> <ul style="list-style-type: none"> • Zum Entgraten von Aluminiumlegierungen und Kunststoffen • Einfacher Spanfluss and ruhige Arbeitsweise 		<p>alu</p> <ul style="list-style-type: none"> • Para el desbarbado de aleaciones de aluminio y plásticos • Produce un arranque fácil de la viruta y el funcionamiento suave

application by shape / Anwendung nach Form / applications en fonction de la forme / aplicación por forma



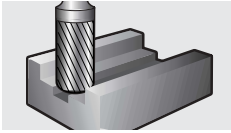
cylinder

Zylinderform
cylindrique
cilindro



	new							new				new	
d1 mm	1.5	2.4	2.4	3	3	4	4	4	6	6	6	6	8
l1 mm	6	13	13	13	13	13	13	16	13	19	19	25	19
d2 mm	3	2.4	2.4	3	3	4	4	6	3	6	6	6	6
l2 mm	38	38	63	38	63	50	63	50	45	50	75	50	65
s	T1050	T1100	-	T1200	-	T1300	-	T1300-6	T1240	T1400	T1400L	-	T1500
d	T1050D	T1100D	T1100DL	T1200D	T1200DL	T1300D	T1300DL	T1300D-6	T1240D	T1400D	T1400DL	T1400D-1	T1500D
d-max	-	-	-	-	-	-	-	-	-	-	-	-	-
c	-	-	-	-	-	-	-	-	-	T1400C	-	-	-
k	-	-	-	T1200K	-	-	-	-	-	T1400K	-	-	T1500K
alu	-	-	-	-	-	-	-	-	-	new TTA240	-	-	-
I.S.O. Ref.	-	-	-	A031303	A031303	A041304	A041304	A041304	A061303	A061906	A061906	A062506	A081906
SCTI Nr.	SA-41M	SA-63M	-	SA-43M	-	-	-	SA-13M	SA-51M	SA-1M	SA-1ML3	SA-1ML	SA-2M

		new	new					
d1 mm	10	10	11	12	12	12	16	16
l1 mm	19	25	25	19	25	25	25	25
d2 mm	6	6	6	6	6	8	6	8
l2 mm	65	70	70	65	70	70	70	70
s	T1600	-	-	T1700	T1700-1	T1700-1-8	T1800-6	T1800
d	T1600D	T1600D-1	T1650D	T1700D	T1700D-1	T1700D-1-8	T1800D-6	T1800D
d-max	TDX160	-	-	-	TDX170-1	-	-	-
c	T1600C	-	-	T1700C	-	-	-	-
k	T1600K	-	-	T1700K	T1700K-1	-	-	-
alu	TTA260	-	-	-	TTA270	-	-	TTA280
I.S.O. Ref.	A101906	A102506	A112506	A121906	A122506	A122508	A162506	A162508
SCTI Nr.	SA-3M	SA-3ML	SA-4M	-	SA-5M	SA-5M8	SA-6M	SA-6M8



cylinder - with end cut

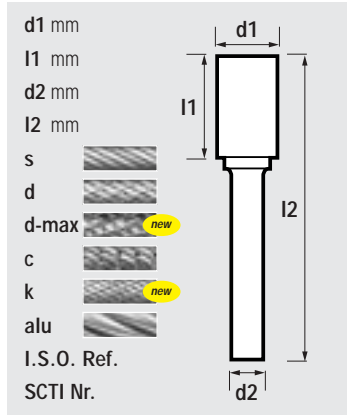
Zylinderform - Mit Stirnverzahnung

cylindre - coupe en bout

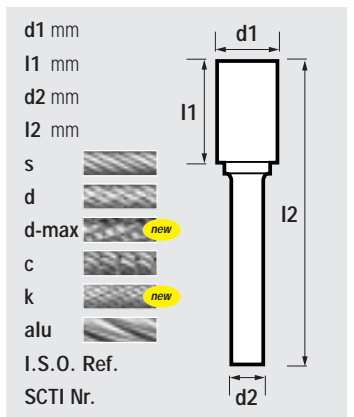
cilindro - con dentado frontal



new							new				new	
1.5	2.4	2.4	3	3	4	4	4	6	6	6	6	8
6	13	13	13	13	13	13	16	13	19	19	25	19
3	2.4	2.4	3	3	4	4	6	3	6	6	6	6
38	38	63	38	63	50	63	50	45	50	75	50	65
T1052	T1102	-	T1202	-	T1302	-	T1302-6	T1242	T1402	T1402L	-	T1502
T1052D	T1102D	T1102DL	T1202D	T1202DL	T1302D	T1302DL	T1302D-6	T1242D	T1402D	T1402DL	T1402D-1	T1502D
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	T1202K	-	-	-	-	-	T1402K	-	-	T1502K
-	-	-	-	-	-	-	-	-	new TTA140	-	-	-
-	-	-	B031303	B031303	B041304	B041304	B041606	B061303	B061906	B061906	B062506	B081906
SB-41M	SB-63M	-	SB-43M	-	-	-	SB-13M	SB-51M	SB-1M	SB-1ML3	SB-1ML	SB-2M



	new	new					
10	10	11	12	12	12	16	16
19	25	25	19	25	25	25	25
6	6	6	6	6	8	6	8
65	70	70	65	70	70	70	70
T1602	-	-	T1702	T1702-1	T1702-1-8	T1802-6	T1802
T1602D	T1602D-1	T1652D	T1702D	T1702D-1	T1702D-1-8	T1802D-6	T1802D
TDX162	-	-	-	TDX172-1	-	-	-
-	-	-	-	-	-	-	-
T1602K	-	-	T1702K	T1702K-1	-	-	-
TTA160	-	-	-	TTA170	-	-	TTA180
B101906	B102506	B112506	B121906	B122506	B122508	B162506	B162508
SB-3M	SB-3ML	SB-4M	-	SB-5M	SB-5M8	SB-6M	SB-6M8

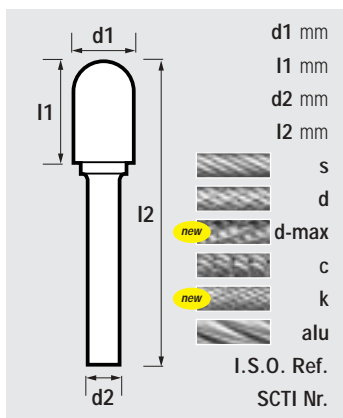
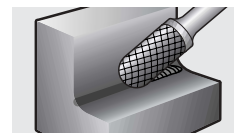


ball nosed cylinder

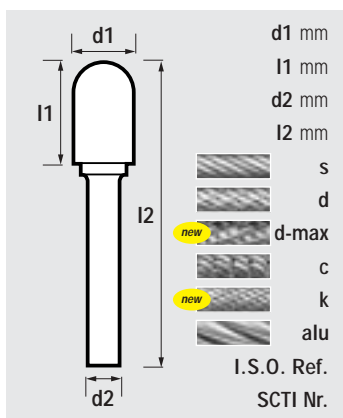
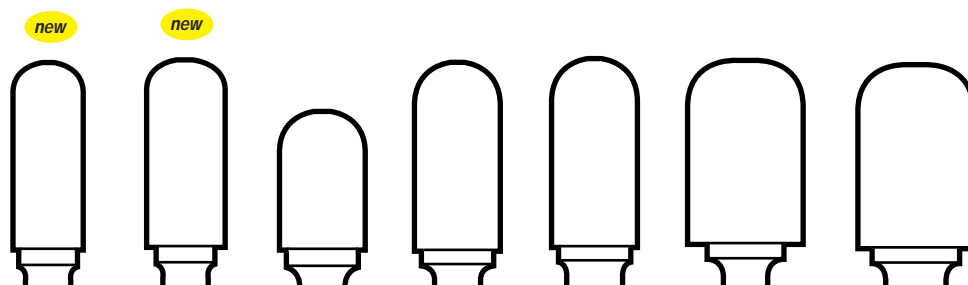
Walzenrundform

cylindrique bout rond

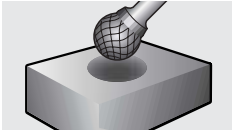
cilindro esférico



	new		new	new	new	new			new		
d1 mm	2.5	3	3	3	4	5	6	6	6	8	10
I1 mm	11	13	13	13	16	16	13	19	25	19	19
d2 mm	3	3	3	3	6	6	3	6	6	6	6
I2 mm	38	38	50	75	50	50	45	50	50	65	65
s	T3100	T3200	-	-	T3300-6	-	T3240	T3400	-	T3500	T3600
d	T3100D	T3200D	T3200DL	T3200DXL	T3300D-6	T3350D-6	T3240D	T3400D	T3400D-1	T3500D	T3600D
new d-max	-	-	-	-	-	-	-	-	-	TDX350	TDX360
c	-	T3200C	-	-	-	-	-	T3400C	-	-	T3600C
new k	-	T3200K	-	-	T3300K-6	-	-	T3400K	-	T3500K	T3600K
alu	-	-	-	-	-	-	-	new TTA340	-	-	TTA360
I.S.O. Ref.	-	C031303	C031303	C031303	C041606	C051606	C061303	C061906	C062506	C081906	C101906
SCTI Nr.	SC-41M	SC-42M	SC-42ML2	SC-42ML3	SC-13M	SC-14M	SC-51M	SC-1M	SC-1ML	SC-2M	SC-3M



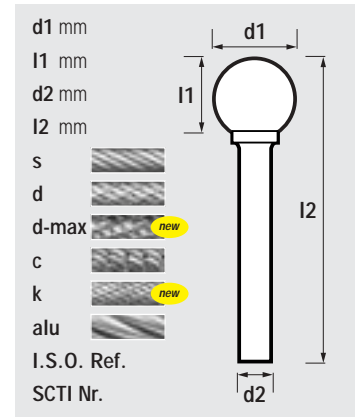
	new	new					
d1 mm	10	11	12	12	12	16	16
I1 mm	25	25	19	25	25	25	25
d2 mm	6	6	6	6	8	6	8
I2 mm	70	70	65	70	70	70	70
s	-	-	T3700	T3700-1	T3700-1-8	T3800-6	T3800
d	T3600D-1	T3650D	T3700D	T3700D-1	T3700D-1-8	T3800D-6	T3800D
new d-max	-	-	TDX370	TDX370-1	TDX370-1-8	TDX380-6	TDX380
c	-	-	T3700C	T3700C-1	-	-	-
new k	-	-	T3700K	T3700K-1	-	-	-
alu	-	-	-	TTA370	-	-	TTA380
I.S.O. Ref.	C102506	C112506	C121906	C122506	C122508	C162506	C162508
SCTI Nr.	SC-3ML	SC-4M	-	SC-5M	SC-5M8	SC-6M	SC-6M8



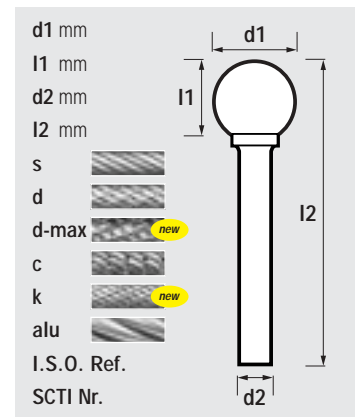
ball
Kugelform
sphérique
esférica



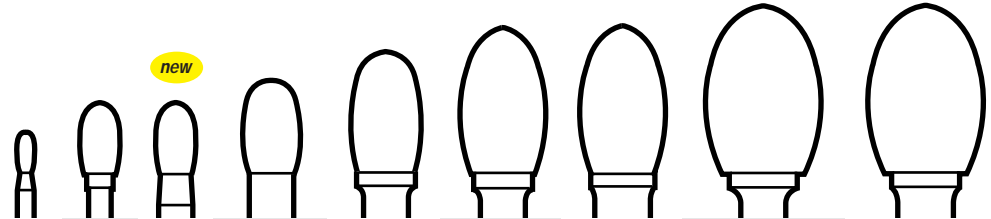
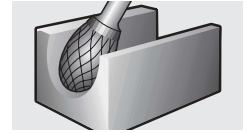
new		new		new	new					
2.5	3	3	4	5	5	6	6	8	10	
2.3	2.7	2.5	3.6	4.7	4.7	5.4	5.4	7.2	9	
3	3	6	3	3	6	3	6	6	6	
38	38	50	45	38	50	38	50	52	53	
T7100	T7200	T7200-6	T7300	T7350	T7350-6	T7240	T7400	T7500	T7600	
T7100D	T7200D	T7200D-6	T7300D	T7350D	T7350D-6	T7240D	T7400D	T7500D	T7600D	
-	-	-	-	-	-	-	-	-	TDX760	
-	T7200C	-	-	-	-	T7240C	-	T7500C	T7600C	
-	T7200K	-	-	-	-	T7240K	T7400K	T7500K	T7600K	
-	-	-	-	-	-	-	new TTA740	-	TTA760	
-	D030303	D030306	D040403	D050503	D050506	D060603	D060606	D080806	D101006	
SD-41M	SD-42M	SD-11M	SD-52M	SD-53M	SD-14M	SD-51M	SD-1M	SD-2M	SD-3M	



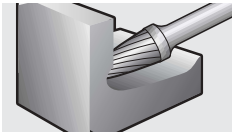
new						
11	12	12	16	16	19	19
9.9	10.8	10.8	14.4	14.4	17.1	17.1
6	6	8	6	8	6	8
54	55	55	60	60	63	63
-	T7700	T7700-8	T7800	T7800-8	T7900-6	T7900
T7650D	T7700D	T7700D-8	T7800D	T7800D-8	T7900D-6	T7900D
-	TDX770	-	-	-	-	-
-	T7700C	-	-	-	-	-
-	T7700K	-	-	-	-	-
-	TTA770	TTA780-8	TTA780-6	TTA780	TTA780	-
D111106	D121206	D121208	D161606	D161608	D191906	D191908
SD-4M	SD-5M	SD-5M8	SD-6M	SD-6M8	SD-7M	SD-7M8



oval
Tropfenform
ovale
gota



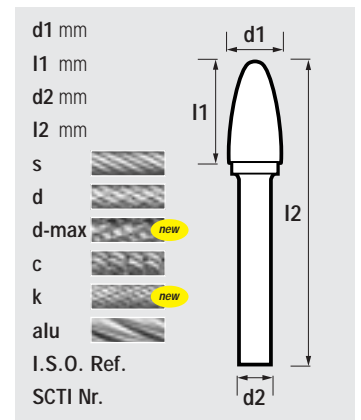
	3	6	6	8	10	12	12	16	16
d1 mm	3	6	6	8	10	12	12	16	16
l1 mm	6	10	10	13	16	22	22	25	25
d2 mm	3	3	6	6	6	6	8	6	8
l2 mm	38	42	50	58	60	67	67	70	70
s	T5220	T5240	-	T5300	T5500	T5700	T5700-8	T5800	T5800-8
d	T5220D	T5240D	T5260D	T5300D	T5500D	T5700D	T5700D-8	T5800D	T5800D-8
d-max	-	-	-	-	TDX550	TDX570	-	-	-
c	-	-	-	-	T5500C	T5700C	-	-	-
k	-	-	-	T5300K	T5500K	T5700K	-	-	-
alu	-	-	-	-	-	-	-	-	-
I.S.O. Ref.	E030603	E061003	E061006	E081306	E101606	E122206	E122208	E162506	E162508
SCTI Nr.	SE-41M	SE-51M	SE-1M	SE-2M	SE-3M	SE-5M	SE-5M8	SE-6M	SE-6M8



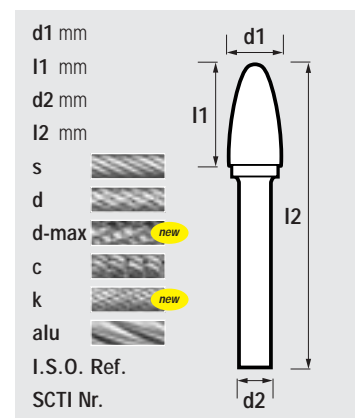
ball nosed tree

Rundbogenform
ogive bout rond
ojival esférica

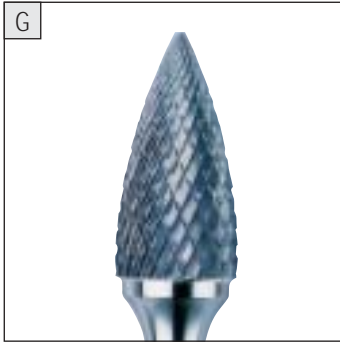
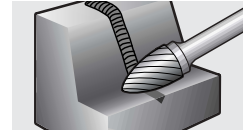
new					new	new
3	3	6	6	10	11	12
6	13	13	19	19	25	19
3	3	3	6	6	6	6
38	38	45	50	65	70	65
T9220	T9200	T9240	T9400	T9600	-	-
T9220D	T9200D	T9240D	T9400D	T9600D	T9650D	T9730D
-	-	-	-	TDX960	-	-
-	-	-	T9400C	T9600C	-	-
-	T9200K	-	T9400K	T9600K	-	-
-	-	-	new TTA940	TTA960	-	-
F030603	F031303	F061303	F061606	F101906	F112506	F121906
SF-41M	SF-42M	SF-51M	SF-1M	SF-3M	SF-4M	-



12	12	16	16
25	25	25	25
6	8	6	8
70	70	70	70
T9700	T9700-8	T9800-6	T9800
T9700D	T9700D-8	T9800D-6	T9800D
TDX970	TDX970-8	TDX980-6	TDX980
T9700C	-	-	-
T9700K	-	-	-
TTA970	-	-	TTA980
F122506	F122508	F162506	F162508
SF-5M	SF-5M8	SF-6M	SF-6M8

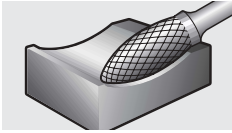


tree
Spitzbogenform
ogive
ojival



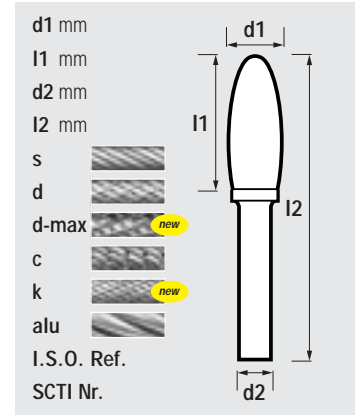
	new	new				new		
d1 mm	3	3	3	6	6	8	10	12
l1 mm	6	10	13	13	16	19	19	19
d2 mm	3	3	3	3	6	6	6	6
l2 mm	38	38	38	45	50	65	65	65
s	T6220	T6230	T6200	T6240	T6400	-	T6500	T6700
d	T6220D	T6230D	T6200D	T6240D	T6400D	T6450D	T6500D	T6700D
new d-max	-	-	-	-	-	-	-	-
c	-	-	-	-	T6400C	-	T6500C	-
new k	-	-	T6200K	-	T6400K	T6450K	T6500K	-
alu	-	-	-	-	-	-	-	-
I.S.O. Ref.	G030603	G031003	G031303	G061303	G061606	G081006	G101906	G121906
SCTI Nr.	SG-41M	SG-43M	SG-44M	SG-51M	SG-1M	SG-2M	SG-3M	SG-13M

d1 mm	12	12	16	16
l1 mm	25	25	25	25
d2 mm	6	8	6	8
l2 mm	70	70	70	70
s	T6800	T6800-8	T6900-6	T6900
d	T6800D	T6800D-8	T6900D-6	T6900D
new d-max	TDX680	-	-	-
c	T6800C	-	-	-
new k	T6800K	-	-	-
alu	-	-	-	-
I.S.O. Ref.	G122506	G122508	G162506	G162508
SCTI Nr.	SG-5M	SG-5M8	SG-6M	SG-6M8



flame
Flammenform
flamme
llama

					new	new
3	6	8	12	12	16	16
8	14	19	32	32	36	36
3	6	6	6	8	6	8
38	50	65	77	77	80	80
T5200	T5400	T5550	T5600	T5600-8	-	-
T5200D	T5400D	T5550D	T5600D	T5600D-8	T5850D-6	T5850D
-	-	-	TDX560	-	-	-
-	-	T5550C	T5600C	-	-	-
-	-	T5550K	T5600K	-	-	-
-	-	-	-	-	-	-
H030803	H061406	H081906	H123206	H123208	H162606	H163608
SH-41M	SH-1M	SH-2M	SH-5M	SH-5M8	SH-6M	SH-6M8

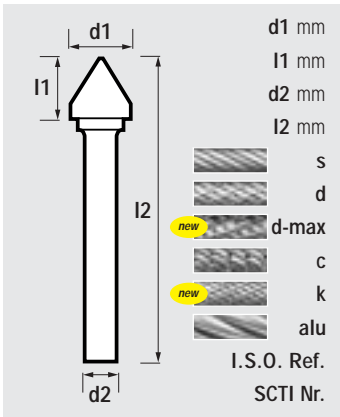
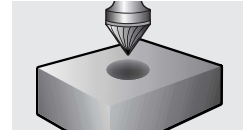


countersink 60°

Kegelsenkform 60°

cône 60°

cono – en grados 60°



new



6

4

6

50

T2920

T2920D

-

-

-

J060406

SJ-1M

new



10

8

6

55

T2940

T2940D

-

-

-

J100806

SJ-3M



12

11

6

60

T2900

T2900D

-

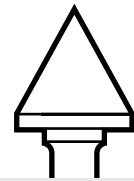
-

-

J121106

SJ-5M

new



16

14.5

6

60

T2960

T2960D

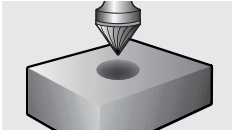
-

-

-

J161406

SJ-6M



countersink 90°

Kegelsenkform 90°
cône 90°
cono – en grados 90°



new



3
1.5
3
38
T2810
T2810D
-
-
-
-
-
SK-42M

new



6
3
6
50
T2820
T2820D
-
-
-
-
K060306
SK-1M



10
5
6
55
T2000
T2000D
-
-
-
-
K100506
SK-3M

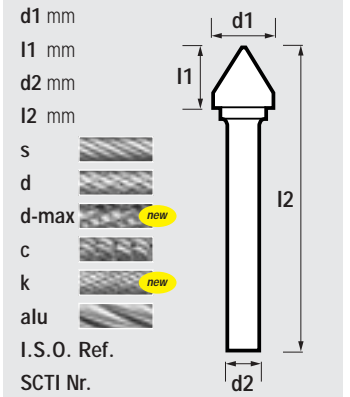
new



12
6
6
54
T2840
T2840D
-
-
-
-
K120606
SK-5M



16
8
6
60
T2800
T2800D
-
-
-
-
K160806
SK-6M

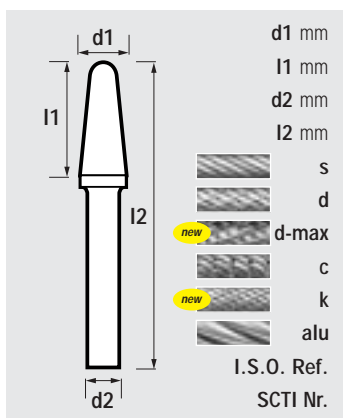
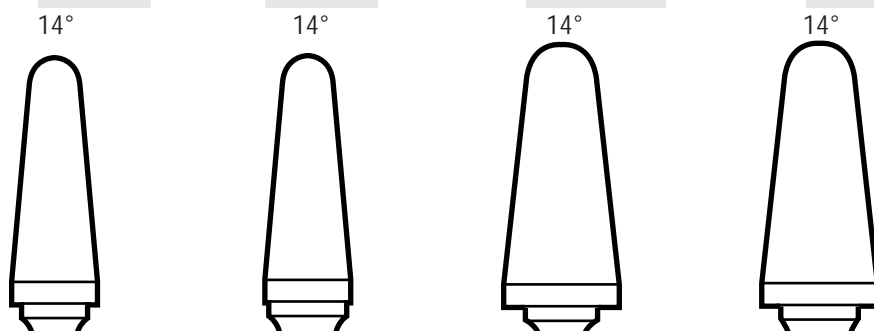
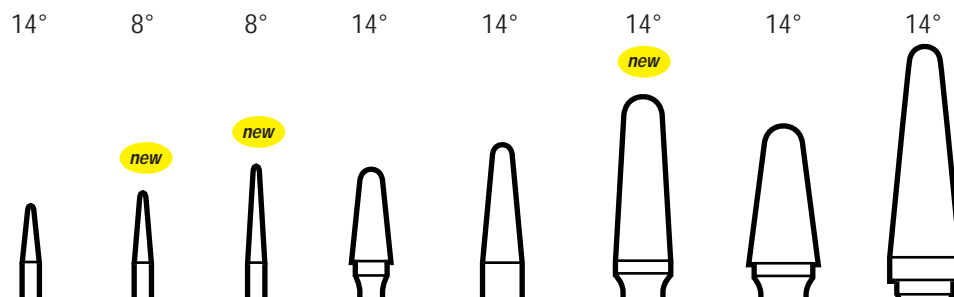
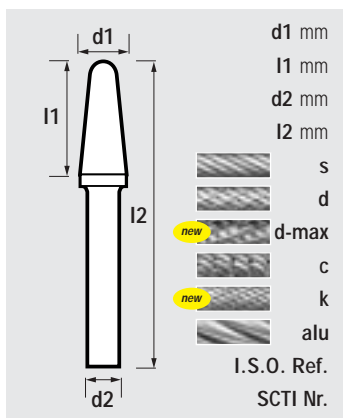
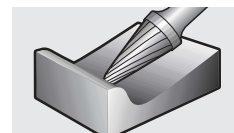


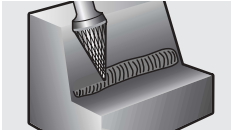
ball nosed cone

Rundkegelform

conique bout rond

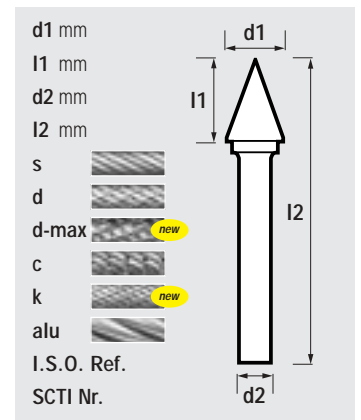
cilindro cono esférico



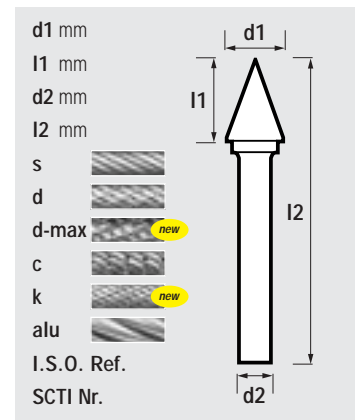


cone
Spitzkegelform
conique
cono

3	3	6	6	6	6	10
11	16	13	13	19	25	16
3	3	3	6	6	6	6
38	38	45	50	50	50	65
T2200	T2220	T2240	-	T2400	-	T2600
T2200D	T2220D	T2240D	T2300D	T2400D	T2400D-1	T2600D
-	-	-	-	-	-	-
-	-	-	-	-	-	T2600C
T2200K	-	-	-	T2400K	-	T2600K
-	-	-	-	-	-	-
M031103	M031603	M061303	M061306	M061906	M062506	M101606
SM-42M	SM-43M	SM-51M	SM-1M	SM-2M	SM-3M	SM-4M



12	12	12	16	16
19	22	22	22	22
6	6	8	6	8
65	70	70	73	73
T2700	T2700-1	T2700-1-8	-	-
T2700D	T2700D-1	T2700D-1-8	T2750D-1-6	T2750D-1
-	-	-	-	-
-	T2700C-1	-	-	-
-	T2700K-1	-	-	-
-	-	-	-	-
M121906	M122206	M122208	M162206	M162208
SM-13M	SM-5M	SM-5M8	SM-6M	SM-6M8

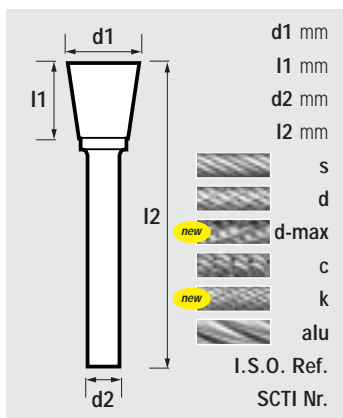


inverted cone

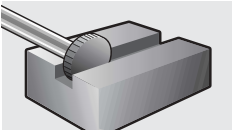
Winkelfrässtifte

cône inversé

cono invertido sin dentado frontal



	10°	10°	13° <i>new</i>	20°	20°	18° <i>new</i>	18° <i>new</i>
$d1$ mm	3	6	9.5	12	12	16	16
$l1$ mm	7	7	9.5	13	13	19	19
$d2$ mm	3	6	6	6	8	6	8
$l2$ mm	38	50	53	58	58	63	63
s	T8200	T8400	-	T8500	T8500-8	-	-
d	T8200D	T8400D	T8450D	T8500D	T8500D-8	T8800D-6	T8800D
$d-max$	-	-	-	-	-	-	-
c	-	-	-	-	-	-	-
k	-	T8400K	-	T8500K	-	-	-
alu	-	-	-	-	-	-	-
I.S.O. Ref.	N030703	N060706	-	N121306	N121308	N161906	N161908
SCTI Nr.	SN-42M	SN-1M	SN-2M	SN-4M	SN-4M8	SN-6M	SN-6M8



rim
Scheibenform
fraise disque
disco









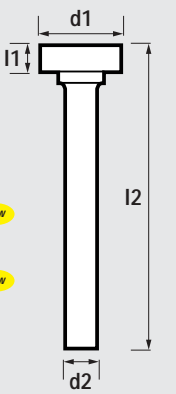
10
1.6
3
34
T8240
-
-
-
-
-
-
-
-

12
2.6
6
48
T8700
-
-
-
-
-
-
-
-

25
5.2
8
50
T8100
-
-
-
-
-
-
-
-

25
6.3
8
51
T9100
-
-
-
-
-
-
-
-

d1 mm	
l1 mm	
d2 mm	
l2 mm	
s	
d	
d-max	 <i>new</i>
c	
k	 <i>new</i>
alu	
I.S.O. Ref.	
SCTI Nr.	



miniature burrs

Hartmetall Kleinfrässtifte

mini fraises carbure

fresas rotativas de metal duro - miniatura



	new						new					
d1 mm	1.5	2.4	2.4	3	3	6	1.5	2.4	2.4	3	3	6
l1 mm	6	13	13	13	13	13	6	13	13	13	13	13
d2 mm	3	2.4	2.4	3	3	3	3	2.4	2.4	3	3	3
l2 mm	38	38	63	38	63	45	38	38	63	38	63	45
s	T1050	T1100	-	T1200	-	T1240	T1052	T1102	-	T1202	-	T1242
d	T1050D	T1100D	T1100DL	T1200D	T1200DL	T1240D	T1052D	T1102D	T1102DL	T1202D	T1202DL	T1242D
new d-max	-	-	-	-	-	-	-	-	-	-	-	-
c	-	-	-	-	-	-	-	-	-	-	-	-
new k	-	-	-	T1200K	-	-	-	-	-	T1202K	-	-
alu	-	-	-	-	-	-	-	-	-	-	-	-
I.S.O. Ref.	-	-	-	A031303	A031303	A061303	-	-	-	B031303	B031303	B061303
SCTI Nr.	SA-41M	SA-63M	-	SA-43M	-	SA-51M	SB-41M	SB-63M	-	SB-43M	-	SB-51M

	new		new	new		new			new	
d1 mm	2.5	3	3	3	6	2.5	3	4	5	6
l1 mm	11	13	13	13	13	2.3	2.7	3.6	4.7	5.4
d2 mm	3	3	3	3	3	3	3	3	3	3
l2 mm	38	38	50	75	45	38	38	45	38	38
s	T3100	T3200	-	-	T3240	T7100	T7200	T7300	T7350	T7240
d	T3100D	T3200D	T3200DL	T3200DXL	T3240D	T7100D	T7200D	T7300D	T7350D	T7240D
new d-max	-	-	-	-	-	-	-	-	-	-
c	-	T3200C	-	-	-	-	T7200C	-	-	T7240C
new k	-	T3200K	-	-	-	-	T7200K	-	-	T7240K
alu	-	-	-	-	-	-	-	-	-	-
I.S.O. Ref.	-	C031303	C031303	C031303	C061303	-	D030303	D040403	D050503	D060603
SCTI Nr.	SC-41M	SC-42M	SC-42ML2	SC-42ML3	SC-51M	SD-41M	SD-42M	SD-52M	SD-53M	SD-51M



miniature burrs

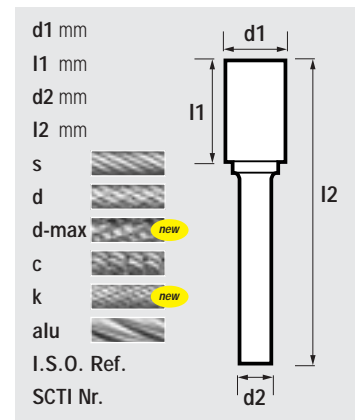
Hartmetall Kleinfrässtifte

mini fraises carbure

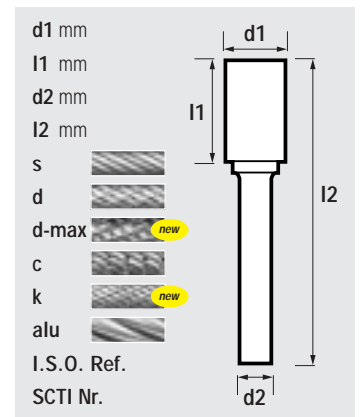
fresas rotativas de metal duro - miniatura



3	6	3	3	6	3	3	3	6	3	3
6	10	6	13	13	6	10	13	13	8	1.5
3	3	3	3	3	3	3	3	3	3	3
38	42	38	38	45	38	38	38	45	38	38
T5220	T5240	T9220	T9200	T9240	T6220	T6230	T6200	T6240	T5200	T2810
T5220D	T5240D	T9220D	T9200D	T9240D	T6220D	T6230D	T6200D	T6240D	T5200D	T2810D
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	T9200K	-	-	-	T6200K	-	-	-
-	-	-	-	-	-	-	-	-	-	-
E030603	E061003	F030603	F031303	F061303	G030603	G031003	G031303	G061303	H030803	-
SE-41M	SE-51M	SF-41M	SF-42M	SF-51M	SG-41M	SG-43M	SG-44M	SG-51M	SH-41M	SK-42M



3	3	3	6	3	3	6	3	10
8	9.5	13	13	11	16	13	7	1.6
3	3	3	3	3	3	3	3	3
38	38	38	45	38	38	45	38	34
T4200	T4210	T4220	T4240	T2200	T2220	T2240	T8200	T8240
T4200D	T4210D	T4220D	T4240D	T2200D	T2220D	T2240D	T8200D	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	T2200K	-	-	-	-
-	-	-	-	-	-	-	-	-
L030803	-	L031303	L061303	M031103	M031603	M061303	N030703	-
-	SL-41M	SL-42M	SL-51M	SM-42M	SM-43M	SM-51M	SN-42M	-



extra long

extra lang

extra longue

serie extra larga



d1 mm	10	12	10	12	10	12			
I1 mm	19	25	19	25	9	10.8			
d2 mm	6	6	6	6	6	6			
I2 mm	169	175	169	175	159	160.8			
s	T1600XL	T1700-1XL	T3600XL	T3700-1XL	T7600XL	T7700XL			
d	T1600DXL	T1700D-1XL	T3600DXL	T3700D-1XL	T7600DXL	T7700DXL			
new d-max	-	-	-	-	-	-			
c	-	-	-	-	-	-			
new k	-	-	-	-	-	-			
alu	-	-	-	-	-	-			
I.S.O. Ref.	-	-	-	-	-	-			
SCTI Nr.	SA-3ML6	SA-5ML6	SC-3ML6	SC-5ML6	SD-3ML6	SD-5ML6			

d1 mm	10	12	10	12	10	12			
I1 mm	19	25	19	25	27	30			
d2 mm	6	6	6	6	6	6			
I2 mm	169	175	169	175	177	180			
s	T9600XL	T9700XL	T6500XL	T6800XL	T4600-1XL	T4700XL			
d	T9600DXL	T9700DXL	T6500DXL	T6800DXL	T4600D-1XL	T4700DXL			
new d-max	-	-	-	-	-	-			
c	-	-	-	-	-	-			
new k	-	-	-	-	-	-			
alu	-	-	-	-	-	-			
I.S.O. Ref.	-	-	-	-	-	-			
SCTI Nr.	SF-3ML6	SF-5ML6	SF-3ML6	SF-5ML6	SL-3ML6	SL-4ML6			



burr kits

Hartmetall Frässtifte Sortiment
fraises limes en coffret
conjunto de fresas

Part Nr	contents Inhalt / contenu / contenido	shape form / forme / forma	d1	l1	d2	l2
	T1600D	A	10	19	6	65
	T1700D-1	A	12	25	6	70
	T3600D	C	10	19	6	65
	T3700D-1	C	12	25	6	70
GBKIT1	T4700D	L	12	30	6	75
	T5500D	E	10	16	6	60
	T6500D	G	10	19	6	65
	T6800D	G	12	25	6	70
	T7700D	D	12	10.8	6	55
	T9700D	F	12	25	6	70



Part Nr	contents Inhalt / contenu / contenido	shape form / forme / forma	d1	l1	d2	l2
	T1700D-1	A	12	25	6	70
GBKIT2	T3700D-1	C	12	25	6	70
	T4700D	L	12	30	6	75
	T6800D	G	12	25	6	70



Part Nr	contents Inhalt / contenu / contenido	shape form / forme / forma	d1	l1	d2	l2
	T1702D-1	B	12	25	6	70
	T2700D-1	M	12	22	6	70
GBKIT3	T3700D-1	C	12	25	6	70
	T7700D	D	12	10.8	6	55
	T9700D	F	12	25	6	70



Part Nr	contents Inhalt / contenu / contenido	shape form / forme / forma	d1	l1	d2	l2
	T1200D	A	3	13	3	38
	T1202D	B	3	13	3	38
	T2200D	M	3	11	3	38
	T3200D	C	3	13	3	38
GBKIT4	T4200D	L	3	8	3	38
	T5200D	H	3	8	3	38
	T5220D	E	3	6	3	38
	T6200D	G	3	13	3	38
	T7200D	D	3	2.7	3	39
	T9200D	F	3	13	3	38



technical data

technische Daten
données techniques
datos técnicos

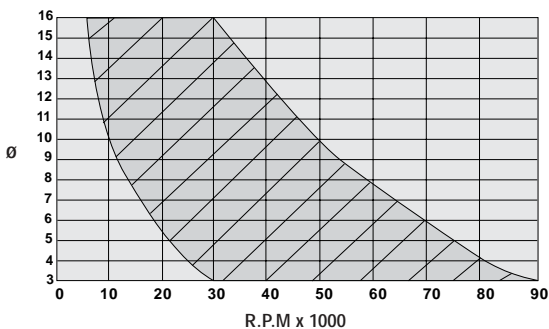


	materials	Materialien	matières	materiales
1a	Steel	Stahl	Acier	Acero
1b	Hardened steel	gehärteter Stahl	Acier trempé	Acero cementado
2	Stainless steel	Edelstahl	Acier inoxydable	Acero inoxidable
3	Cast iron	Gußeisen	Fonte	Hierro fundido
4	Titanium	Titan	Titane	Titanio
5	Nickel	Nickel	Nickel	Niquel
6	Copper / Copper alloys	Kupfer / Kupferlegierungen	Cuivre / Alliages de cuivre	Cobre / Aleaciones de cobre
7	Aluminium	Aluminium	Aluminium	Aluminio
8	Plastics	Kunststoff	Plastiques	Plásticos
9	Cermet	Cermet	Cermet	Cermet

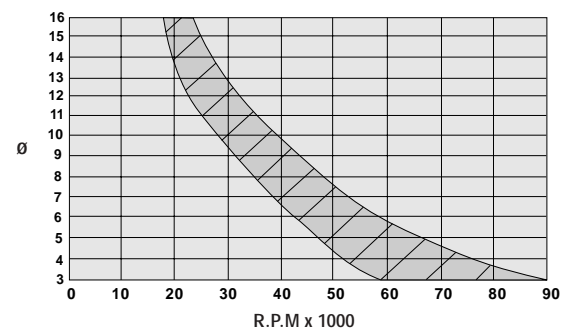
guide to running speeds / Richtlinie für die Laufdrehzahlen / guide des vitesses de fonctionnement / guía para las velocidades de funcionamiento

mat nr.	Ø	Ø	Ø	Ø	Ø
	3mm	6mm	10mm	12mm	16mm
1a	60,000 - 90,000	45,000 - 60,000	30,000 - 40,000	22,500 - 30,000	18,000 - 24,000
1b	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
2	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
3	45,000 - 90,000	22,500 - 60,000	15,000 - 40,000	11,000 - 30,000	9,000 - 24,000
4	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
5	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
6	45,000 - 90,000	22,500 - 60,000	15,000 - 40,000	11,000 - 30,000	9,000 - 24,000
7	30,000 - 90,000	15,000 - 70,000	10,000 - 50,000	7,000 - 38,000	6,000 - 30,000
8	30,000 - 90,000	15,000 - 70,000	10,000 - 50,000	7,000 - 38,000	6,000 - 30,000
9	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000

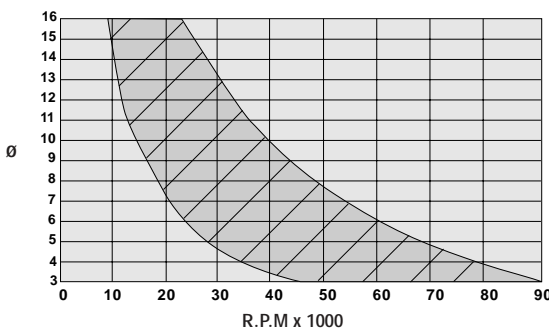
7 8



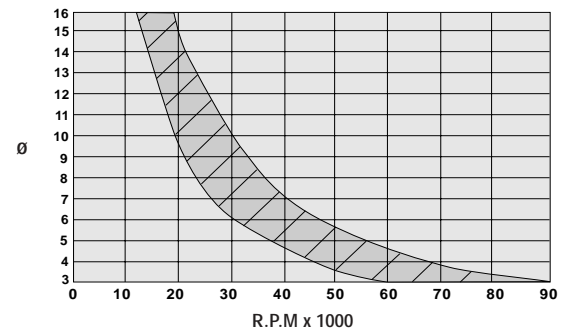
1a



3 6



1b 2 4 5 9



28





technical data

technische Daten
données techniques
datos técnicos

notes

- It may be necessary to adjust the rates shown to achieve optimum performance.
- Harder materials require slower speeds.
- Smaller burrs require faster speeds.
- Extra long burrs (>150mm long) require slower speeds.
- Apply constant movement and light pressure when in use.
- Running below the optimum speed will encourage chipping.
- Running above optimum speed will cause tooth wear.
- Allowing the tool to become too hot may cause the braze to melt and detach the head from the shank.
- Using tools and collets that have become worn will encourage chipping.
- Do not sink the burr for more than one third of its periphery.

Hinweise

- Um eine optimale Leistung zu erreichen, kann es erforderlich sein, dass die angegebenen Drehzahlwerte geringfügig geregelt werden müssen.
- Härtere Materialien erfordern geringere Drehzahlen.
- Kleinere Fräser erfordern höhere Drehzahlen.
- Extralange Fräser (Länge > 150 mm) erfordern geringere Drehzahlen.
- Beim Arbeiten die Bewegung konstant halten und leichten Druck aufbringen.
- Arbeiten unter der optimalen Drehzahl begünstigt das Aussplittern.
- Arbeiten über der optimalen Drehzahl führt zum verstärkten Zähneverschleiß.
- Wenn man das Werkzeug zu heiß werden lässt, kann die Hartlötverbindung schmelzen und der Kopf lösen sich vom Schaft.
- Durch die Benutzung verschlissener Werkzeuge und Klemmhülsen wird das Aussplittern begünstigt.
- Den Fräser nicht mehr als ein Drittel seines Umfangs in das Material senken.

notes

- Il faudra peut-être modifier les vitesses indiquées pour optimiser les performances de fonctionnement.
- Pour les matériaux plus durs, utiliser des vitesses plus lentes.
- Pour les bavures plus petites, utiliser des vitesses plus rapides.
- Pour les bavures particulièrement longues (>150 mm de long), utiliser des vitesses plus lentes.
- Durant l'utilisation, déplacer constamment l'outil en appliquant une légère pression.
- Une utilisation en dessous de la vitesse optimale favorisera la formation d'éclats.
- Une utilisation au-dessus de la vitesse optimale entraînera une usure des dents.
- En cas de surchauffe de l'outil, le brasage risque de fondre provoquant le détachement de la tête.
- L'emploi d'outils et de douilles de serrage usés risque de provoquer la formation d'éclats.
- Ne pas enfoncer la fraise-lime de plus d'un tiers de sa périphérie.

notas

- Puede que sea necesario ajustar las velocidades indicadas para obtener un óptimo rendimiento.
- Los materiales más duros necesitan velocidades más lentas.
- Las fresas más pequeñas necesitan velocidades más rápidas.
- Las fresas de serie extra largas (>150mm serie larga) necesitan velocidades más lentas.
- Aplique un movimiento constante y una ligera presión al utilizarla.
- El funcionamiento por debajo de la velocidad óptima provocará astillas.
- El funcionamiento por encima de la velocidad óptima provocará el desgaste del diente.
- El permitir que la herramienta se caliente demasiado puede hacer que la unión se derrita y se separe el cabezal del eje.
- Al utilizar herramientas y pinzas portapiezas desgastadas se provocarán astillas.
- No hunda la fresa más de un tercio de su periferia.

safety recommendations / Sicherheitsempfehlungen / consignes de sécurité / recomendaciones de seguridad



wear ear defenders

Gehörschutz tragen
casque anti-bruit obligatoire
use protección para los oídos



wear protective gloves

Schutzhandschuhe tragen
veuillez porter des gants de protection
use guantes protectores



wear protective mask

Gesichtsschutzmaske tragen
veuillez porter un masque de protection
use máscara protectora



read instructions

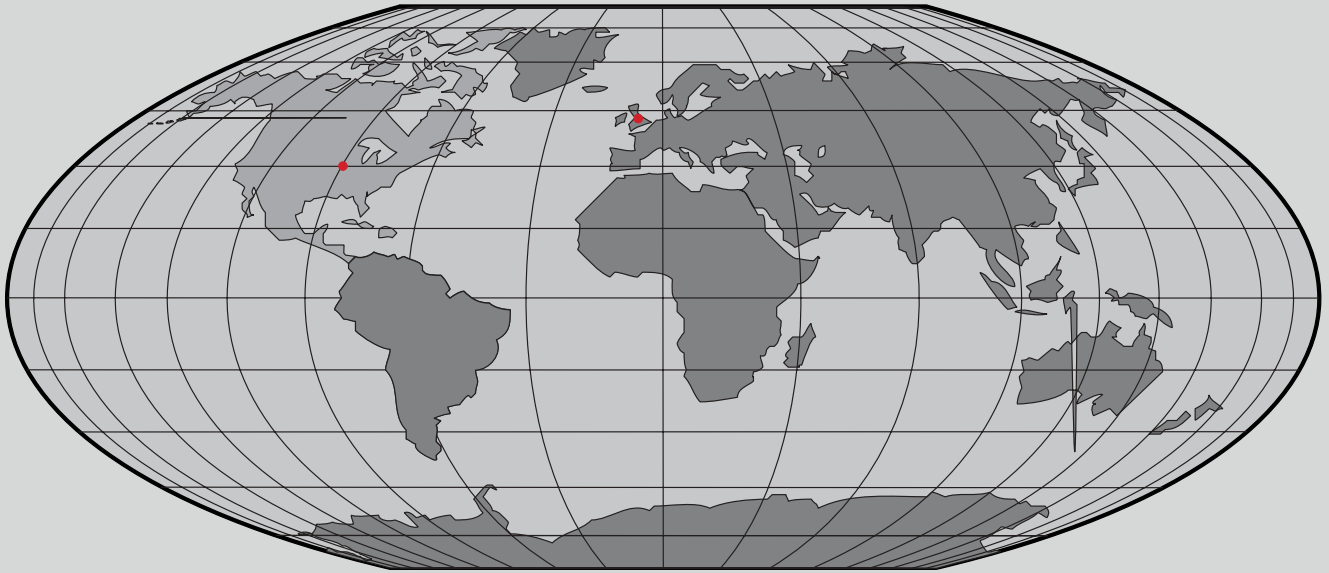
Anleitung lesen
veuillez lire les instructions
lea las instrucciones



wear safety glasses

Schutzbrille tragen
veuillez porter des lunettes de protection
use gafas de seguridad





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