SILMAX®

PFERD TOOLS

ACCIAIO SUPER RAPIDO

High speed steel
HSS-Stahl
Acier super rapide

200 YEARS SILMAX -1819/2019-

SILMAX.IT
MADE IN ITALY

2025 EDITION

SILMAX®

PFERD TOOLS

Frese e punte in acciaio super rapido
High speed steel mills and drills
Fräser und Bohrer aus HSS-Stahl
Fraises et forets en acier super rapide

silmax.it

TRADIZIONE, INNOVAZIONE E SINERGIE INTERNAZIONALI

Tradition, Innovation, and International Synergies
Tradition, Innovation und internationale Synergien
Tradition, Innovation et Synergies Internationales

Dal 1819 SILMAX PFERD TOOLS è sinonimo di eccellenza italiana nella produzione di utensili da taglio.

Con oltre due secoli di esperienza, l'azienda si è affermata come punto di riferimento internazionale per qualità, precisione e innovazione, grazie a una costante attività di ricerca e sviluppo e a una presenza globale con sedi produttive e commerciali in Italia, Germania, India e Cina.

Nel 2024 SILMAX ha siglato un'importante partnership strategica con il Gruppo PFERD TOOLS, player internazionale di primaria importanza nel settore degli abrasivi e utensili manuali. Questa sinergia rafforza ulteriormente la solidità industriale e commerciale dell'azienda, ampliando le competenze, l'offerta e la capacità di innovare, con una prospettiva sempre più internazionale.

La filiera produttiva interamente italiana, unita all'impegno ESG per la riduzione delle emissioni di CO_2 e la certificazione del carbon footprint di prodotto, testimonia la volontà di coniugare crescita, sostenibilità e responsabilità verso l'industria manifatturiera.

Since 1819, SILMAX PFERD TOOLS has been synonymous with Italian excellence in the production of cutting tools.

With over two centuries of experience, the company has established itself as an international benchmark for quality, precision, and innovation, thanks to continuous research and development and a global presence with production and commercial sites in Italy, Germany, India, and China.

In 2024, SILMAX signed a major strategic partnership with the PFERD TOOLS Group, a leading international player in the abrasives and hand tools sector. This synergy further strengthens the company's industrial and commercial solidity, expanding its expertise, offerings, and capacity for innovation, with an increasingly international outlook.

The entirely Italian production chain, combined with ESG commitment to reducing CO_2 emissions and product carbon footprint certification, reflects the company's desire to combine growth, sustainability, and responsibility toward the manufacturing industry.

Seit 1819 steht Silmax für italienische Spitzenqualität in der Herstellung von Schneidwerkzeugen.

Mit über zwei Jahrhunderten Erfahrung hat sich das Unternehmen als internationaler Maßstab für Qualität, Präzision und Innovation etabliert – dank kontinuierlicher Forschung und Entwicklung sowie einer globalen Präsenz mit Produktions- und Vertriebsstandorten in Italien, Deutschland, Indien und China.

Im Jahr 2024 hat Silmax eine bedeutende strategische Partnerschaft mit der PFERD TOOLS Gruppe geschlossen, einem international führenden Unternehmen im Bereich Schleifmittel und Handwerkzeuge. Diese Synergie stärkt die industrielle und kommerzielle Solidität des Unternehmens weiter, erweitert die Kompetenzen, das Angebot und die Innovationsfähigkeit – mit einer zunehmend internationalen Perspektive.

Die vollständig italienische Produktionskette, verbunden mit dem ESG-Engagement zur Reduzierung von CO_2-Emissionen und der Zertifizierung des CO_2-Fußabdrucks der Produkte, zeigt den Willen, Wachstum, Nachhaltigkeit und Verantwortung gegenüber der Fertigungsindustrie zu vereinen.

Depuis 1819, Silmax est synonyme d'excellence italienne dans la production d'outils de coupe.

Avec plus de deux siècles d'expérience, l'entreprise s'est imposée comme une référence internationale en matière de qualité, de précision et d'innovation, grâce à une activité constante de recherche et développement et une présence mondiale avec des sites de production et commerciaux en Italie, en Allemagne, en Inde et en Chine.

En 2024, Silmax a conclu un partenariat stratégique majeur avec le Groupe PFERD TOOLS, acteur international de premier plan dans le secteur des abrasifs et outils manuels. Cette synergie renforce encore la solidité industrielle et commerciale de l'entreprise, élargissant ses compétences, son offre et sa capacité d'innovation, avec une vision résolument internationale.

La chaîne de production entièrement italienne, associée à l'engagement ESG pour la réduction des émissions de CO_2 et à la certification de l'empreinte carbone des produits, témoigne de la volonté de concilier croissance, durabilité et responsabilité envers l'industrie manufacturière."

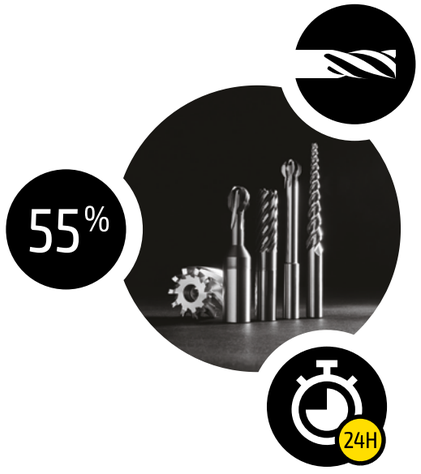
LA NOSTRA STORIA

Our History / Unsere Geschichte / Notre historie

1819	Paul Alessio inizia a forgiare i suoi primi utensili. La piccola officina si chiama **"L'Usine"**.	Paul Alessio begins to forge his first tools. The small workshop is called **"L'Usine"**.	Paul Alessio beginnt seine ersten Werkzeuge zu schmieden. Die kleine Werkstatt heißt **"L'Usine"**.	Paul Alessio commence à forger ses premiers outils. Le petit atelier s'appelle **« L'Usine »**.
1955	Sotto la guida di Enrico M. Fumagalli l'**"Usine"** riprende l'attività produttiva.	Under the controlof Enrico M. Fumagalli, the **"Usine"** resumed its tool production.	Unter der Leitung von Enrico M. Fumagalli nimmt die **"Usine"** die Produktionstätigkeit wieder auf.	Sous la direction de Monsieur Enrico M. Fumagalli, **« L'Usine »** reprend son activité de production.
1975	"L'Usine" diventa **Silmax, una moderna SPA**.	"L'Usine" becomes the **modern Silmax, SPA**.	Aus "L'Usine" wird **Silmax, modernes SPA**.	« L'Usine » devient **Silmax, une SPA moderne**.
1984	Joint-venture Silmax Spa **Balzers AG**.	Joint-venture Silmax Spa **Balzers AG.**	Joint-venture Silmax Spa **Balzers AG**.	Joint-venture Silmax Spa **Balzers AG**.
2005	Silmax celebra i suoi **50 anni**.	Silmax celebrates its **50th birthday**.	Silmax feiert seine **50 Jahre**.	Silmax fête son **50e anniversaire**.
2012	Vengono inaugurate le sedi commerciali in **India**, **Cina** e **Germania**.	New commercial branches open in **India**, **China** and **Germany**.	Verkaufsbüros in **Indien**, **China** und **Deutschland** werden eröffnet.	Des bureaux de vente sont inaugurés en **Inde**, en **Chine**, en **Allemagne**.
2013	Silmax inaugura il **nuovo centro di rivestimento**.	Silmax **new plant for PVD coating**.	Silmax eröffnet das **neue Zentrum der Beschichtung**.	Silmax inaugure un **nouveau centre de revêtement**.
2019	**Silmax compie 200 anni!**	**Silmax celebrates its 200th anniversary!**	**Silmax feiert sein 200-jähriges Jubiläum!!**	**Silmax fête ses 200 ans !**
2021	**5 nuove rettifiche** e **1 nuovo impianto PVD**.	**5 new grinding machines** and **1 new PVD unit**.	**Fünf neue Schleifmaschinen** und **ein neues PVD-System.**	**5 nouvelles rectifieuses** et **1 nouveau système PVD**.
2022	Silmax continua la sua storia e il suo **sviluppo** sempre attenta a mantenere alta la qualità dei suoi prodotti e la soddisfazione dei suoi clienti.	Silmax continues its history and its **development**, always careful to maintain the high quality of its products and the satisfaction of its customers.	Silmax setzt seine Geschichte und **Entwicklung** mit dem Ziel fort, die hohe Qualität seiner Produkte und die Zufriedenheit seiner Kunden zu halten.	Aujourd'hui, Silmax poursuit son histoire et son **développement** en veillant toujours à maintenir en haute la qualité de ses produits et la satisfaction de ses clients.
2023	**Silmax Precision Tools (Wuxi) Co., Ltd - Cina** Apertura del sito produttivo a Wuxi City e per la produzione degli utensili standard e speciali per il crescente mercato locale.	**Silmax Precision Tools (Wuxi) Co., Ltd - China** Opening of the production site in Wuxi City for the manufacturing of standard and special tools for the growing local market.	**Silmax Precision Tools (Wuxi) Co., Ltd - China** Eröffnung des Produktionsstandorts in Wuxi City für die Herstellung von Standard- und Spezialwerkzeugen für den wachsenden lokalen Markt	**Silmax Precision Tools (Wuxi) Co., Ltd - Chine** Ouverture d'un site de production en Wuxi City pour la production d'outils standards et spéciaux destinés au marché local en expansion.
2024	**Maggio – Accordo con il gruppo August Rüggeberg GmbH & Co.** KG. La multinazionale tedesca entra nel capitale del Gruppo Silmax con l'obiettivo di diventare u n player globale nel settore degli utensili da taglio di alta precisione.	**May - Agreement with the August Rüggeberg GmbH & Co. KG Group.** The German multinational company entered the capital of the Silmax Group, with the aim of becoming a global player in the sector of high precision cutting tools.	**Mai - Vereinbarung mit der August Rüggeberg GmbH & Co. KG.** Das international ausgerichtete Unternehmen mit Stammsitz in Deutschland steigt in das Kapital der Silmax-Gruppe mit dem Ziel ein, gemeinsam zu wachsen, Synergien zu nutzen und sich zu einem Global Player im Bereich hochwertiger Zerspanungswerkzeuge zu entwickeln.	**Mai - Accord avec le Groupe August Rüggeberg GmbH & Co. KG.** La multinationale allemande est entrée dans le capital du groupe Silmax avec l'objectif de devenir un acteur mondial dans le domaine des outils de coupe de haute précision.
2025	**Silmax Tools India Pvt Ltd** Apertura del sito produttivo a Bangalore per la produzione degli utensili standard e speciali per il crescente mercato locale.	**Silmax Tools India Pvt Ltd** Opening of a manufacturing site in Bangalore for the production of standard and special tools for the growing local market.	**Silmax Tools India Pvt Ltd** Eröffnung einer Produktionsstätte in Bangalore für die Herstellung von Standard- und Spezialwerkzeugen für den wachsenden lokalen Markt.	**2025 Silmax Tools India Pvt Ltd** Ouverture d'un site de production à Bangalore pour la production d'outils standards et spéciaux destinés au marché local en expansion.

PRODOTTI SPECIALI

Special Tools / Sonderwerkzeuge / Produits spéciaux



Studio e realizzazione di progetti complessi

Stong propensity to **study and implement** complex projects

Komplexe Projekte **analysieren und umsetzen**

Étude et mise en œuvre de projets complexes

Consegne rapide 3/4 settimane utensili speciali. **24/48H** semi standard

Fast delivery 3/4 Weeks for special tools. **24/48H** semi standard

Schnelle Lieferungen 3/4 Wochen für spezielle Sonderwerkzeuge. **24/48H** Halb-Standard-Produkte

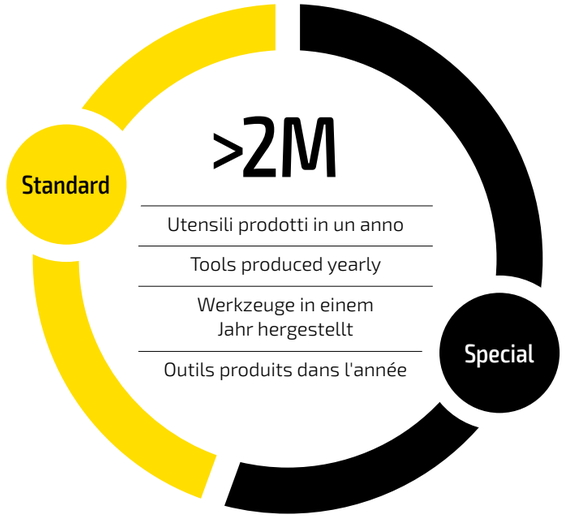
Livraison rapide 3/4 Semaines pour outils spéciaux. **24/48H** semi standard

55% produzione utensili speciali

55% Special tools

55% der Jahresproduktion

55% Outils spéciaux



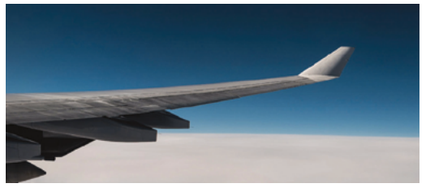
I NUMERI DI SILMAX

Silmax Figures
Silmax in Zahlen
Chiffres Silmax

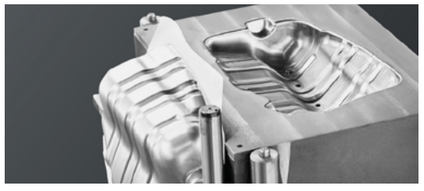
I NOSTRI MERCATI

Our Markets / Unsere Industriesegmente / Les principaux secteurs

1 **Aeronautica**
Aerospace
Luftfahrtbereich
Aéronautique



2 **Stampi**
Mold
Formenbau
Moules



3 **Automobilistico**
Automotive
Automobil
Automobile

4 **Energia**
Energy
Energie
Énergie

5 **Meccanica generale**
General Mechanics
Allgemeiner Maschinenbau
Mécanique générale

6 **Medicale**
Medical
Medizintechnik
Médical

CATALOGHI SILMAX

Silmax Catalogues / Silmax-Kataloge / Catalogues Silmax

NEW **HM Metallo duro**
HM Carbide

NEW **Foratura**
Drilling

Silsaving
Silsaving

HSS Acciaio super rapido
HSS High Speed Steel

Micro frese e micro punte in metallo duro
HM Micro end mills and micro drills

Punte a cannone
Gun Drills

Maschi
Taps

Aerospace
Aerospace

Soluzioni per impeller
Impeller solutions

UN APPROCCIO ESG

An ESG approach / Ein ESG-Ansatz / Une approche ESG

Il Gruppo Silmax fonda la propria strategia sui principi **ESG (Environmental, Social, and Governance)**, ponendo al centro la **sostenibilità ambientale e il benessere di dipendenti e clienti**. Per tradurre questo impegno in risultati concreti, l'azienda ha implementato un sistema di iniziative basato su criteri di misurazione oggettivi e condivisi, volti a monitorare e migliorare costantemente le proprie performance.

Da un punto di vista operativo le attività svolte riguardano **impatti diretti** con adozione e miglioramento continuo di climate actions in termini di **riduzione dell'emissione di CO_2**. Significativi sono anche gli **impatti indiretti** ottenuti con lo sviluppo di strumenti informatici che riducono al minimo gli spostamenti dei dipendenti.

La circolarità dei prodotti Silmax è certificata attraverso l'adozione di un **carbon footprint report** e la predisposizione di una classificazione della **Product Carbon Footprint** che può essere integrata nella scheda prodotto.

The Silmax Group has always adopted an **ESG (Environmental, Social, and Corporate Governance) approach**, which considers **environmental sustainability** and **well-being of employees and customers** as a priority. The company has started a virtuous path by adopting initiatives that allow to base its activities on objective and shared measurement criteria.

From an operational point of view, the activities carried out regard **direct impacts**, with the adoption and continuous improvement of climate actions in terms of **CO_2 emission reduction**. Significant **indirect impacts** are also obtained through the development of IT tools that can minimise employees' travels.

The circularity of Silmax products is certified through the adoption of a **carbon footprint report** and the creation of a **Product Carbon Footprint** classification, which can be integrated into the product technical data sheet.

Die Silmax-Gruppe **hat immer einen ESG-Ansatz (Umwelt, Soziales und Corporate Governance)** verfolgt, der ökologische **Nachhaltigkeit und das Wohlergehen von Mitarbeitern und Kunden als Priorität betrachtet**. Das Unternehmen hat einen guten Weg eingeschlagen, indem es Initiativen ergriffen hat, die es ermöglichen, seine Aktivitäten auf objektive und gemeinsame Messkriterien zu stützen.

Aus operativer Sicht haben die durchgeführten Aktivitäten **direkte Auswirkungen** mit der Einführung und kontinuierlichen Verbesserung von Klimaschutzmaßnahmen im Hinblick auf die Verringerung der CO2-Emissionen. Erhebliche **indirekte Auswirkungen** werden auch durch den Einsatz von IT-Tools erzielt, die die Reisetätigkeit der Mitarbeiter auf ein Minimum reduzieren können.

Die Kreislauffähigkeit von Silmax-Produkten wird durch einen Bericht über den CO_2-Fußabdruck und die Klassifizierung des Carbon Footprints von Produkten zertifiziert, die in das technische Produktdatenblatt integriert werden kann.

Le groupe Silmax a toujours adopté une **approche ESG (Environnementale, Sociale et de Gouvernance)** qui considère la **soutenabilité environnementale** et **le bien-être des employés et des clients** comme une priorité. L'entreprise s'est engagée dans une voie vertueuse, en adoptant des initiatives qui permettent de fonder ses activités sur des critères de mesure objectifs et communs.

D'un point de vue opérationnel, les activités réalisées regardent les **impacts directs**, avec l'adoption et l'amélioration continue d'actions climatiques en termes de **réduction des émissions de CO_2**. Des **impacts indirects** significatifs sont également obtenus par le développement d'outils informatiques qui peuvent minimiser les déplacements des employés.

La circularité des produits Silmax est certifiée par l'adoption d'un **rapport sur l'empreinte carbone** et la création d'une classification de l'empreinte carbone des produits, qui peut être intégrée dans la **Fiche Technique du Produit**.

UTENSILI SPECIALI

Special tools
Sonderwerkzeuge
Outils spéciaux

Vai al modulo di ordine degli utensili speciali.
Go to the special tools order form.
Gehen Sie zum Bestellformular für Sonderwerkzeuge.
Accédez au formulaire de commande d'outils spéciaux

Silmax, grazie ad un'esperienza pluridecennale, ha maturato una forte propensione alla **risoluzione di progetti complessi**, realizzando, un'ampia gamma di utensili speciali, sia in metallo duro che in acciaio super rapido.

Lo sviluppo di un utensile speciale, utilizzando le conoscenze acquisite con le attività di Ricerca e Sviluppo, permette di realizzare un **prodotto ottimizzato** in termini di materiale di base, geometria dell'utensile, trattamento delle superfici e ricopertura PVD.

L'attività di consulenza svolta si concretizza nella preparazione di un'offerta inclusiva di disegni tecnici, indicazione dei parametri di taglio per un efficacie utilizzo dell'utensile e dei **tempi di consegna** che generalmente **non superano le 3-4 settimane**.

Le nostre applicazioni sono utilizzate con grande soddisfazione in numerosi **settori industriali**: dall'energia all'aeronautico, alla meccanica di precisione, oleodinamica, e in generale in tutte le lavorazioni con asportazione di truciolo.

Thanks to its long-standing experience, Silmax developed a strong propensity to find **solutions for complex projects**, creating a wide range of special tools, both in carbide and in high-speed steel, studying the technical drawing and proceeding with the analysis of the specific application.

The development of a special tool by using the know-how acquired through the R&D activities allows the manufacture of a **product that is optimised** with regard to raw material, tool geometry, surface treatment and PVD coating.

Our consulting activity focuses on the preparation of an exclusive offer including technical drawings, indication of cutting parameters for an effective use of tools. **Lead-time usually does not exceed 3-4 weeks**.

Our tool applications are successfully used in many **industrial sectors**: energy, aerospace, precision mechanics, oil-hydraulics and, in general, for all types of machining requiring chip removal.

Aufgrund seiner jahrzehntelangen Erfahrung in der Produktion eines breiten Sortiments an Sonderwerkzeugen aus Hartmetall und Schnellarbeitsstahl – ausgehend sowohl von der technischen Zeichnung als auch von der Analyse eines speziellen Anwendungsbereiches - ist Silmax in der Lage Lösungen für komplexe Projekte zu finden.

Dank der durch Forschung und Entwicklung erworbenen Kenntnisse können kundenspezifische Werkzeuge - d.h. **optimierte Produkte** mit Bezug auf Ausgangsmaterial, Werkzeuggeometrie, Oberflächenbehandlung und PVD-Beschichtung - realisiert werden.

Die Beratungstätigkeit kommt konkret zum Ausdruck mit der Ausarbeitung eines Angebotes, einschließlich technischer Zeichnungen, der Angabe der Schnittwertempfehlungen für eine effiziente Nutzung des Werkzeuges und der **Lieferzeiten, die selten 3-4 Wochen überschreiten**.

Unsere Produkte finden mit großer Zufriedenheit in zahlreichen **Industriebranchen Anwendung**: vom Energiebereich zum Luftfahrtsektor, in der Feinmechanik, Hydraulik und global gesehen überall dort, wo spanabhebende Bearbeitung gefragt ist.

Grâce à des décennies d'expérience, Silmax a développé une forte proposition à **résoudre des projets complexes**, en produisant une large gamme d'outils spéciaux, tant en carbure qu'en acier rapide, à partir du dessin technique ainsi que de l'analyse d'une application spécifique.

Le développement d'un outil spécial, utilisant les connaissances acquises par la recherche et le développement, permet de créer un **produit optimisé** en termes de matériau de base, géométrie de l'outil, traitement des surfaces et revêtement PVD.

L'activité de conseil se concrétise dans la préparation d'une offre comprenant les dessins techniques, l'indication des paramètres de coupe pour une utilisation efficace de l'outil, et les **délais de livraison, qui ne dépassent généralement pas les 3-4 semaines**.

Nos applications sont utilisées avec grande satisfaction dans de nombreux **secteurs industriels** : de l'énergie à l'aéronautique, de la mécanique de précision à tous autres domaines d'application, et en général dans toutes les opérations d'usinage prévoyant l'enlèvement de copeaux.

ASSISTENZA TECNICA

Technical assistance
Technische Unterstützung
Assistance technique

Tel. +39.0123.940349
assistenza@silmax.it / tech@silmax.it
silmax.it/assistance

Il reparto di Assistenza Tecnica, uno dei punti di forza di Silmax, è costantemente al servizio del cliente. Ingegneri altamente qualificati sono in grado di offrire una consulenza personalizzata, dopo aver analizzato le esigenze e le problematiche di lavorazione del cliente, fornendo le migliori strategie di utilizzo degli utensili Silmax. **Per rispondere meglio alle vostre richieste** potete inviare una mail a **assistenza@silmax.it**. I nostri Ingegneri altamente qualificati saranno in grado di offrire una consulenza personalizzata, dopo aver analizzato le esigenze.

The Department of Technical Assistance is one of the strong points at Silmax and it is always at the customer's disposal. Highly qualified engineers are able to offer customized consulting, after analysing the customer's needs and machining problems, providing the best strategies of use for Silmax tools. **To better reply to your requests**, please send us an e-mail to **assistenza@silmax.it**. Our Highly qualified engineers can offer personalized advice, after analysing the customer's machining needs

Die Abteilung Technische Unterstützung, eine der Stärken von Silmax, ist stets auf den Kunden ausgerichtet. Hoch qualifizierte Ingenieure bieten eine maßgeschneiderte Beratung nach eingehender Analyse der Erfordernisse und der Probleme bei der Bearbeitung an und unterbreiten die besten Nutzungsstrategien der Silmax-Werkzeuge. **Um Ihre Anfragen besser beantworten zu können**, senden Sie bitte eine E-Mail an **assistenza@silmax.it**. Unsere hochqualifizierten Ingenieure bieten Ihnen nach einer gründlichen Untersuchung Ihrer Bedürfnisse eine persönliche Beratung an.

Le service après-vente, l'un des points forts de Silmax, est constamment au service du client. Des ingénieurs hautement qualifiés sont en mesure d'offrir des conseils personnalisés, après avoir analysé les besoins et les problèmes d'usinage du client, en fournissant les meilleures stratégies d'emploi pour les outils Silmax. **Afin de mieux répondre à vos demandes**, veuillez envoyer un e-mail à **assistenza@silmax.it**. Nos ingénieurs hautement qualifiés vous offriront des conseils personnalisés après une étude approfondie de vos besoins.

OPZIONI A RICHIESTA

Options upon request
Optionen auf Anfrage
Options sur demande

Silmax studia, sviluppa e produce un'ampia gamma di utensili speciali sia in metallo duro sia in acciaio super rapido sia su richiesta del cliente sia su specifico design.

Risulta inoltre possibile ottimizzare gli utensili standard a catalogo secondo le esigenze del cliente, assicurando una soluzione qualitativamente superiore. Le diverse opzioni disponibili a richiesta sono:

Silmax erforscht, entwickelt und produziert ein breites Sortiment an Sonderwerkzeugen aus Hartmetall und Schnellarbeitsstahl sowohl auf Anfrage des Kunden als auch nach spezifischem Design.

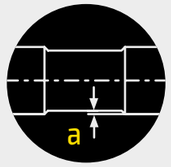
Es ist außerdem möglich, die im Katalog enthaltenen Standardwerkzeuge den Anforderungen des Kunden anzupassen und somit eine qualitativ bessere Lösung zu gewährleisten. Die zur Verfügung stehenden Optionen sind:

Silmax studies, develops and produces a wide range of special tools, both in carbide and high-speed steel, upon customer's request or made to customer's design.

In addition, it is possible to adapt standard tools available in our catalogue according to the customer's requirements, thus ensuring a higher-quality solution. The different options available upon request are:

Silmax étudie, développe et produit une large gamme d'outils spéciaux en carbure et en acier rapide, aussi bien sur demande que sur plan spécifique donné par le client.

Il est également possible d'adapter les outils standards du catalogue en fonction des besoins du client, assurant ainsi une solution de qualité supérieure. Les différentes options disponibles sur demande sont :

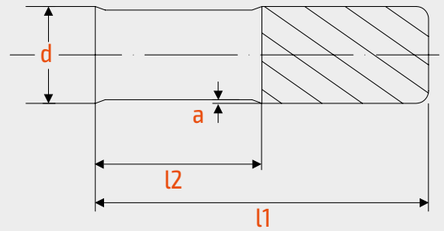


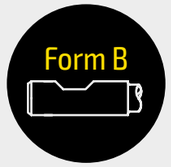
Ribassamento dopo il tagliente
Realizziamo ribassamenti tra la parte tagliente e il codolo.

Neck relief
It is possible to have a diameter reduction between the cutting edge and the shank.

Hinterschliff nach der Schneidkante
Durchmesserreduzierung zwischen dem Schneidteil und dem Werkzeugschaft sind ebenfalls möglich.

Détalonnage derrière l'arête de coupe
Nous réalisons des détalonnages entre l'arête et la queue.



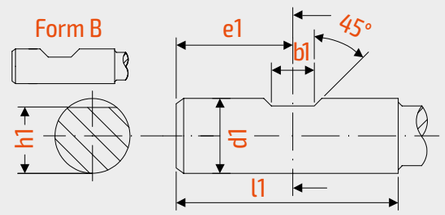


Attacco Weldon
A richiesta è possibile eseguire attacco Weldon.

Weldon Shank (DIN)
Weldon shank upon request.

Weldonschaft
Weldonschaft auf Anfrage.

Méplat Weldon sur demande
Il est possible de demander la réalisation du plat Weldon.

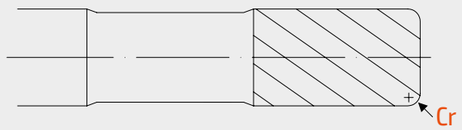


Raggi di raccordo
Si eseguono su richiesta anche raggi diversi dallo standard presentati a catalogo.

Corner radiuses
It is possible to have corner radiuses different from the standard ones shown in the catalogue.

Eckenradius
Auf Anfrage werden auch andere Radien als die des Katalogprogramms angefertigt.

Rayons de raccordement
Sur demande, peuvent être réalisés d'autres rayons que ceux indiqués dans le catalogue.



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Guide pour la sélection de l'outil

PM

Frese in acciaio sinterizzato
Powder metal end mills
Pulvermetallurgische Fräswerkzeuge
Fraises en acier fritté

Codice / Code	Ø (D mm)	Z	Cava / Slotting	Contornatura / Side and face milling	Copiatura 3D / 3D Copy	Trocoidale / Trochoidal	Assiale / Plunging	Acciaio / Steel / Stahl / Acier (P)	Acciaio Inox / Stainless steel / Nichtrostend / Acier inoxydable (M)	Ghisa / Cast Iron / Gusseisen / Fonte (K)	Leghe di Alluminio / Aluminium alloys / Aluminiumlegierungen / Alliages d'aluminium (N)	HRSA - Titanio / HRSA - Titanium / HRSA - Titan / HRSA - Titane (S)	Acciai Temprati / Hardened steels / Gehärtete Stähle / Aciers trempés (H)	Non ISO / Not ISO / Nicht ISO / Non ISO (O)	
038A	6,0 ÷ 25,0	4	●	●	-	-	-	●	●	●	-	●	-	-	26
013S	5,0 ÷ 32,0	4/6	●	●	-	-	-	●	●	●	-	●	-	-	26
013A	5,0 ÷ 40,0	4/6	●	●	-	-	-	●	●	●	-	●	-	-	27
041A	4,0 ÷ 36,0	3/4	●	●	-	-	●	●	●	●	-	●	-	-	28
093A	6,0 ÷ 25,0	4	●	●	-	-	-	●	●	●	-	●	-	-	29
023A	6,0 ÷ 32,0	4/6	●	●	-	-	-	●	●	●	-	●	-	-	29
113A	6,0 ÷ 32,0	4/6	-	●	-	-	-	●	●	●	●	●	-	-	30
118A	4,0 ÷ 32,0	4/6	-	●	-	-	-	●	●	●	●	●	-	-	30
193A	6,0 ÷ 25,0	4	-	●	-	-	-	●	●	●	●	●	-	-	31
123A	6,0 ÷ 25,0	4	-	●	-	-	-	●	●	●	●	●	-	-	31

SGR

Frese a sgrossare in HSSCo8
Roughing end mills in HSSCo8
Schruppfräser aus HSSCo8
Fraises ébauche en HSSCo8

Codice / Code	Ø (D mm)	Z						P	M	K	N	S	H	O	
038F	5,0 ÷ 32,0	4-6	●	●	-	-	-	●	-	●	-	-	-	-	36
011F	6,0 ÷ 40,0	3	●	●	-	-	●	●	-	●	-	-	-	-	37
015	6,0 ÷ 32,0	3	●	●	-	-	●	-	-	-	●	-	-	-	37
013F	4,5 ÷ 50,0	4/6	●	●	-	-	-	●	-	●	-	-	-	-	38
013R	16,0 ÷ 50,0	4/6	●	●	-	-	-	●	-	●	-	-	-	-	39
031F	6,0 ÷ 32,0	3/4/6	●	●	●	-	-	●	-	●	-	-	-	-	39
093F	6,0 ÷ 32,0	4/6	●	●	-	-	-	●	-	●	-	-	-	-	40
023F	6,0 ÷ 40,0	4/6	●	●	-	-	-	●	-	●	-	-	-	-	40
052F	16,0 ÷ 40,0	4/6	●	●	-	-	-	●	-	●	-	-	-	-	41
060B	16,0 ÷ 50,0	4/5/6	●	●	-	-	-	●	-	●	-	-	-	-	41

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FIN

Frese a finire in HSSCo8
Finishing end mills in HSSCo8
Schlichtfräser aus HSSCo8
Fraises de finition en HSSCo8

	Codice Code	Ø (D mm)	Z	Cava Slotting	Contornatura Side and face milling	Copiatura 3D 3D Copy	Trocoidale Trochoidal	Assiale Plunging	Acciaio Steel Stahl Acier P	Acciaio Inox Stainless steel Nichtrostend Acier inoxydable M	Ghisa Cast Iron Gusseisen Fonte K	Leghe di Alluminio Aluminium alloys Aluminiumlegierungen Alliages d'aluminium N	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane S	Acciai Temprati Hardened steels Gehärtete Stähle Aciers trempés H	Non ISO Not ISO Nicht ISO Non ISO O	
	731	1,5 ÷ 40,0	2	●	●	-	●	●	●	-	●	●	-	-	-	46
	735	1,5 ÷ 20,0	2	●	●	-	●	●	●	-	●	●	-	-	-	47
	730	0,5 ÷ 5,5	2	●	●	-	●	●	●	-	●	●	-	-	-	48
	108	1,0 ÷ 20,0	3	●	●	-	●	●	●	-	●	●	-	-	-	49
	138	5,0 ÷ 32,0	4/6	-	●	-	-	-	●	-	●	●	-	-	-	50
	171	1,5 ÷ 40,0	2	●	●	-	●	●	●	-	●	●	-	-	-	51
	173	4,0 ÷ 25,0	2	●	●	-	●	●	●	-	●	●	-	-	-	52
	111	1,5 ÷ 32	3	●	●	-	●	●	●	-	●	●	-	-	-	53
	115	6,0 ÷ 50,0	3	-	●	-	●	●	-	-	-	●	-	-	-	54
	113	1,5 ÷ 50,0	4/6	-	●	-	-	-	●	-	●	●	-	-	-	55
	113R	16,0 ÷ 25,0	4	-	●	-	-	-	●	-	●	●	-	-	-	56
	118	4,0 ÷ 32,0	4/6	-	●	-	-	-	●	-	●	●	-	-	-	56
	738	2,0 ÷ 20,0	2	-	●	●	-	-	●	-	●	●	-	-	-	57
	737	0,5 ÷ 20,0	2	-	●	●	-	-	●	-	●	●	-	-	-	58
	131	6 ÷ 32,0	4/6	-	●	●	-	-	●	-	●	●	-	-	-	58
	121	6,0 ÷ 25,0	4/6	-	●	-	-	-	●	-	●	●	-	-	-	59
	193	6,0 ÷ 32,0	4/6	-	●	-	-	-	●	-	●	●	-	-	-	59
	1712	6,0 ÷ 40,0	2	-	●	-	●	●	●	-	●	●	-	-	-	60
	174	6,0 ÷ 25,0	2	-	●	-	●	●	●	-	●	●	-	-	-	60
	128	3,0 ÷ 20,0	3	-	●	-	●	●	●	-	●	●	-	-	-	61
	125	6,0 ÷ 40,0	3	-	●	-	●	●	-	-	-	●	-	-	-	61
	123	6,0 ÷ 50,0	4/6	-	●	-	-	-	●	-	●	●	-	-	-	62
	145	6,0 ÷ 25,0	4	-	●	-	-	-	●	-	●	●	-	-	-	63

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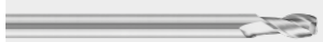
FIN

Frese a finire in HSSCo8
Finishing end mills in HSSCo8
Schlichtfräser aus HSSCo8
Fraises de finition en HSSCo8

	Codice Code	Ø (D mm)	Z	Cava Slotting	Contornatura Side and face milling	Copiatura 3D 3D Copy	Trocoidale Trochoidal	Assiale Plunging	Acciaio Steel Stahl Acier	Acciaio Inox Stainless steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non ISO	
									P	M	K	N	S	H	O	
	146	6,0 ÷ 20,0	2	-	●	-	-	●	●	-	●	●	-	-	-	63
	148	6,0 ÷ 20,0	2	-	●	●	-	-	●	-	●	●	-	-	-	64
	750	10,0 ÷ 40,0	2	●	●	-	-	●	●	-	●	●	-	-	-	64
	152	16,0 ÷ 45,0	4/6	-	●	-	-	-	●	-	●	●	-	-	-	65
	160	16,0 ÷ 50,0	4/5 6/8	-	●	-	-	-	●	-	●	●	-	-	-	65

FRF

Frese a frontali e a disco
Shell end mills and side milling cutters
Scheiben- und Walzenstirnfräser
Fraises frontales et fraises disques

	Codice Code	Ø (D mm)	Z						P	M	K	N	S	H	O	
	080F	40,0 ÷ 125,0	6 ÷ 12	●	●	-	-	-	●	●	●	●	●	-	-	70
	180	40,0 ÷ 160,0	6 ÷ 14	-	●	-	-	-	●	●	●	●	●	-	-	70
	101	50,0 ÷ 160,0	14 ÷ 26	●	-	-	-	-	●	●	●	●	●	-	-	71
	102	63,0 ÷ 125,0	20 ÷ 30	●	-	-	-	-	●	●	●	●	●	-	-	73
	10E	50,0 ÷ 100,0	12 14	●	-	-	-	-	●	●	●	●	●	-	-	74
	10F	50,0 ÷ 100,0	12 14	-	●	-	-	-	●	●	●	●	●	-	-	75
	10A	50,0 ÷ 100,0	16 18 20	●	-	-	-	-	●	●	●	●	●	-	-	75
	10B	40,0 ÷ 100,0	14 ÷ 20	-	●	-	-	-	●	●	●	●	●	-	-	76

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Tool selection guide
Anleitung zur Werkzeugauswahl
Guide pour la sélection de l'outil

ALT

Altre frese
Other mills
Andere Fräser
Autres fraises

	Codice / Code	Ø (D mm)	Z	Cava / Slotting	Contornatura / Side and face milling	Copiatura 3D / 3D Copy	Trocoidale / Trocholdal	Assiale / Plunging	Acciaio / Steel / Stahl / Acier (P)	Acciaio Inox / Stainless steel / Nichtrostend / Acier inoxydable (M)	Ghisa / Cast Iron / Gusseisen / Fonte (K)	Leghe di Alluminio / Aluminium alloys / Aluminiumlegierungen / Alliages d'aluminium (N)	HRSA - Titanio / HRSA - Titanium / HRSA - Titan / HRSA - Titane (S)	Acciai Temprati / Hardened steels / Gehärtete Stähle / Aciers trempés (H)	Non ISO / Not ISO / Nicht ISO / Non ISO (O)	
	005F	12,5 ÷ 40,0	4 ÷ 8	●	●	-	-	-	●	●	●	●	●	-	-	80
	105T	12,5 ÷ 32,0	6/8	-	●	-	-	-	●	●	●	●	●	-	-	80
	1W5	10,5 ÷ 25,5	6/8	-	●	-	-	-	●	●	●	●	●	-	-	81
	10C	16,0 ÷ 25,0	8/10	-	●	-	-	-	●	●	●	●	●	-	-	81
	10D	16,0 ÷ 25,0	8/10	-	●	-	-	-	●	●	●	●	●	-	-	82
	10G	8,0 ÷ 58,0	4/6	-	●	-	-	-	●	●	●	●	●	-	-	82

SIL SERVICE

L'esperienza Silmax dimostra che un utensile correttamente affilato ha un rendimento uguale a quello nuovo.

Silmax experience shows that a properly sharpened tool grants the same performances of a new tool.

Die Erfahrung von Silmax zeigt, dass ein guter Nachschliff die gleiche Leistungsfähigkeit wie bei neuen Werkzeugen ermöglicht.

Les outils Silmax re-affûtés offrent rendement et une longévité atteignant à 100% des outils neufs.

Riaffilatura e rigenerazione: da usato a nuovo

Silmax è in grado di riaffilare e/o rigenerare **come nuove** frese, punte e alesatori, nelle versioni normali e speciali, utilizzando **gli stessi impianti a 5 assi usati per la loro produzione**.

Re-sharpening and re-conditioning: from used to new

Silmax can re-sharpen and/or re-condition **like new** standard and special end mills, drills and reamers **using the same 5-axis machines used for their production.**

Nachschliff und Regeneration: von gebraucht bis neu

Silmax ist in der Lage, Fräser, Bohrer und Reibahlen in Standard- und Sonderversionen unter Verwendung derselben 5-Achsen-Produktionssysteme erneut zu schärfen und/oder zu regenerieren.

Réaffûtage et régénération

Réaffûtage et régénération de fraises, de forets et d'alésoirs standard et spéciaux en utilisant les mêmes installations à 5 axes utilisées pour leur fabrication.

Esecuzione perfetta

Esecuzione perfetta con la garanzia del produttore e collaudo effettuato su strumenti di controllo di alta precisione Zoller Genius e Walter Helicheck con emissione di certificato su richiesta.

Perfect execution

A perfect execution with the manufacturer's warranty and testing carried out with high-precision measurement instruments of Zoller Genius and Walter Helicheck, with issuing of certificate on request.

Perfekte Ausführung

Perfekte Ausführung mit der Garantie des Herstellers und Kontrolle mittels der Messmaschinen „Genius" der Firma Zoller und „Helicheck" der Firma Walter Maschinenbau mit Ausstellung des Zertifikates auf Anfrage.

Exécution parfaite

Exécution parfaite avec garantie du fabricant et essais sur des instruments de contrôle de haute précision Zoller Genius, Walter Helicheck et Alicona avec certificat délivré sur demande.

Rivestimento PVD

Rivestimento PVD eseguito nel nostro centro di rivestimento interno in Lanzo Torinese con la tecnologia Balzers sia per HSS che HM come Alcrona, Futura, Alnova, Latuma, TiN e Tisaflex.

PVD Coating

PVD coating in our in-house coating centre in Lanzo Torinese is carried out using Balzers technology, such as Alcrona, Futura, Alnova, Latuma, TiN and Tisaflex, both for HSS and HM tools.

PVD-Beschichtung

Durchgeführt in unserem internen Beschichtungszentrum in Lanzo Torinese, mit der Oerlikon Balzers Technologie sowohl für HSS als auch für HM wie Alcrona, Futura, Alnova, Latuma , TiN und Tisaflex.

Revêtement PVD

Revêtement PVD effectué dans notre centre à Lanzo Torinese avec la technologie Balzers pour HSS et HM comme Alcrona, Futura, Alnova, Latuma, TiN et Tisaflex.

Trattamento 4S

Trattamento 4S di super finitura superficiale del filo tagliente pre e post rivestimento, eseguito con impianto OTEC e verificato con strumento di misura Alicona.

4S Treatment

4S super-finishing surface treatment of cutting edge before and after the coating process, is carried out using an OTEC system and checked with an Alicona measuring instrument.

4S-Behandlung

4S-Behandlung mit dem Superfinish-Verfahren für die Feinbearbeitung der Schneidkantenoberfläche der Werkzeuge vor und nach der Beschichtung mittels Anlage der Firma OTEC Präzisionsfinish GmbH sowie Prüfung mit Messinstrumenten der Firma Alicona.

Traitement 4S

Traitement 4S de super finition de la surface de l'arête coupe avant et après le revêtement, effectué avec l'équipement OTEC et vérifié avec l'instrument de mesure Alicona.

Consegna rapida

Consegna rapida entro 10 giorni lavorativi dal ricevimento degli utensili per riaffilatura e rivestimento.

Fast delivery

Fast delivery within 10 working days from receipt of tools for resharpening and coating.

Schnelle Lieferung

Schnelle Lieferung innerhalb von 10 Werktagen ab Empfang der Werkzeuge.

Livraison rapide

Livraison rapide dans les 10 jours ouvrables suivant la réception des outils.

PM

Frese in acciaio sinterizzato

Powder metal end mills

Pulvermetallurgische Fräswerkzeuge

Fraises en acier fritté

SIL SERVICE

L'esperienza Silmax dimostra che un utensile correttamente affilato ha un rendimento uguale a quello nuovo.

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Les outils Silmax re-affûtés offrent rendement et une longévité atteignant à 100% des outils neufs.

Riaffilatura e rigenerazione
Resharpening and Reconditioning
Nachschliff und Regeneration
Réaffûtage et régénération

Pick up settimanale
Weekly pick up
Wöchentliche Abholung
Ramassage hebdomadaire

Attenzione al dettaglio
Attention to detail
Liebe zum Detail
Attention aux détails

Controllo qualità
Quality control
Qualitäts-kontrolle
Contrôle qualité

Rivestimento PVD
PVD Coating
PVD-Beschichtung
Revêtement PVD

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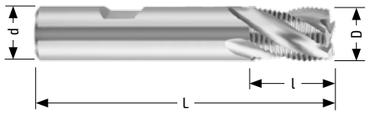
038A

Fresa a sgrossare serie corta
Roughing end mill, short version
Schruppfräser, kurze Ausführung
Fraise ébauche série courte

HSS PmCo | HR X Fine | ISO 1641/I DIN 327 | λ 30° | 014F DIN 183SD

P M K S



013A
093A
023A

45°

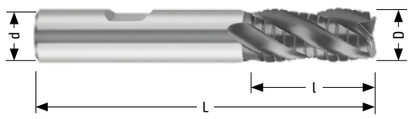
D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
6,0	6	52	8	4	SIL038A06	NIG038A06
8,0	10	61	11	4	SIL038A08	NIG038A08
10,0	10	63	13	4	SIL038A10	NIG038A10
12,0	12	73	16	4	SIL038A12	NIG038A12
14,0	12	73	16	4	SIL038A14	NIG038A14
16,0	16	79	19	4	SIL038A16	NIG038A16
18,0	16	79	19	4	SIL038A18	NIG038A18
20,0	20	88	22	4	SIL038A20	NIG038A20
25,0	25	102	26	4	SIL038A25	NIG038A25

013S

Fresa a sgrossare serie normale
Roughing end mill, regular version
Schruppfräser, normale Ausführung
Fraise ébauche série normale

HSS PmCo | HPC SIL FZ000 | ISO 1641/I DIN 844K | λ 30°

P M K S



45°

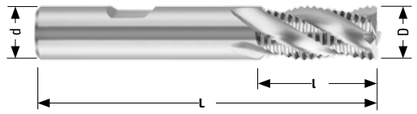
D k12	d h6	L	l	Z	Balinit® Alcrona
5,0	6	57	13	4	NIG013S05
6,0	6	57	13	4	NIG013S06
7,0	10	66	16	4	NIG013S07
8,0	10	69	19	4	NIG013S08
9,0	10	69	19	4	NIG013S09
10,0	10	72	22	4	NIG013S10
11,0	12	79	22	4	NIG013S11
12,0	12	83	26	4	NIG013S12
13,0	12	83	26	4	NIG013S13
14,0	12	83	26	4	NIG013S14
15,0	12	83	26	4	NIG013S15
16,0	16	92	32	4	NIG013S16
17,0	16	92	32	4	NIG013S17
18,0	16	92	32	4	NIG013S18
19,0	16	92	32	4	NIG013S19
20,0	20	104	38	4	NIG013S20
22,0	20	104	38	4	NIG013S22
25,0	25	121	45	4	NIG013S25
28,0	25	121	45	4	NIG013S28
30,0	25	121	45	6	NIG013S30
32,0	32	133	53	6	NIG013S32

013A

Fresa a sgrossare serie normale
Roughing end mill, regular version
Schruppfräser, normale Ausführung
Fraise ébauche série normale

HSS PmCo | HR X Fine | ISO 1641/I DIN 844K | λ 30°

P M K S



038A
093A
023A

45°

D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
5,0	6	57	13	4	SIL013A05	NIG013A05
6,0	6	57	13	4	SIL013A06	NIG013A06
7,0	10	66	16	4	SIL013A07	NIG013A07
8,0	10	69	19	4	SIL013A08	NIG013A08
9,0	10	69	19	4	SIL013A09	NIG013A09
10,0	10	72	22	4	SIL013A10	NIG013A10
11,0	12	79	22	4	SIL013A11	NIG013A11
12,0	12	83	26	4	SIL013A12	NIG013A12
13,0	12	83	26	4	SIL013A13	NIG013A13
14,0	12	83	26	4	SIL013A14	NIG013A14
15,0	12	83	26	4	SIL013A15	NIG013A15
16,0	16	92	32	4	SIL013A16	NIG013A16
17,0	16	92	32	4	SIL013A17	NIG013A17
18,0	16	92	32	4	SIL013A18	NIG013A18
19,0	16	92	32	4	SIL013A19	NIG013A19
20,0	20	104	38	4	SIL013A20	NIG013A20
22,0	20	104	38	4	SIL013A22	NIG013A22
25,0	25	121	45	4	SIL013A25	NIG013A25
28,0	25	121	45	6	SIL013A28	NIG013A28
30,0	25	121	45	6	SIL013A30	NIG013A30
32,0	32	133	53	6	SIL013A32	NIG013A32
36,0	32	133	53	6	SIL013A36	NIG013A36
40,0	40	155	63	6	SIL013A40	NIG013A40

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

038A 013S 013A

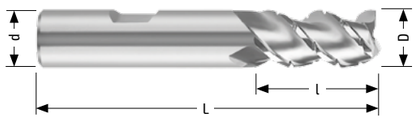
PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

041A

Fresa a sgrossare e semifinire serie normale
Roughing and semi-finishing end mill, regular version
Schrupp- und Vorschlichtfräser, normale Ausführung
Fraise ébauche et semi-finition série normale

HSS PmCo | HN40 | ISO 1641/I DIN 844K | λ 40°

P M K S



45°

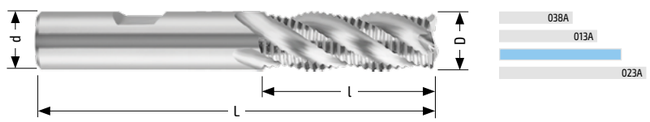
D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
4,0	6	55	11	3	SIL041A04	NIG041A04
5,0	6	57	13	3	SIL041A05	NIG041A05
6,0	6	57	13	3	SIL041A06	NIG041A06
7,0	10	66	16	3	SIL041A07	NIG041A07
8,0	10	69	19	3	SIL041A08	NIG041A08
9,0	10	69	19	3	SIL041A09	NIG041A09
10,0	10	72	22	3	SIL041A10	NIG041A10
11,0	12	79	22	3	SIL041A11	NIG041A11
12,0	12	83	26	3	SIL041A12	NIG041A12
14,0	12	83	26	3	SIL041A14	NIG041A14
16,0	16	92	32	3	SIL041A16	NIG041A16
18,0	16	92	32	3	SIL041A18	NIG041A18
20,0	20	104	38	4	SIL041A20	NIG041A20
22,0	20	104	38	4	SIL041A22	NIG041A22
24,0	25	121	45	4	SIL041A24	NIG041A24
25,0	25	121	45	4	SIL041A25	NIG041A25
26,0	25	121	45	4	SIL041A26	NIG041A26
28,0	25	121	45	4	SIL041A28	NIG041A28
30,0	25	121	45	4	SIL041A30	NIG041A30
32,0	32	133	53	4	SIL041A32	NIG041A32
36,0	32	133	53	4	SIL041A36	NIG041A36

093A

Fresa a sgrossare serie media
Roughing end mill medium version
Schruppfräser, mittlere Ausführung
Fraise ébauche série moyenne

HSS PmCo | HR X Fine | Silmax NORM | λ 30°

P M K S



45°

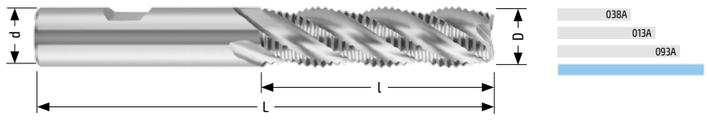
D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
6,0	6	62	18	4	SIL093A06	NIG093A06
8,0	10	75	25	4	SIL093A08	NIG093A08
10,0	10	83	33	4	SIL093A10	NIG093A10
12,0	12	96	39	4	SIL093A12	NIG093A12
14,0	12	96	39	4	SIL093A14	NIG093A14
16,0	16	105	45	4	SIL093A16	NIG093A16
18,0	16	105	45	4	SIL093A18	NIG093A18
20,0	20	121	55	4	SIL093A20	NIG093A20
22,0	20	121	55	4	SIL093A22	NIG093A22
25,0	25	141	65	4	SIL093A25	NIG093A25

023A

Fresa a sgrossare serie lunga
Roughing end mill long version
Schruppfräser, lange Ausführung
Fraise ébauche série longue

HSS PmCo | HR X Fine | ISO 1641/I DIN 844L | λ 30°

P M K S



45°

D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
6,0	6	68	24	4	SIL023A06	NIG023A06
8,0	10	88	38	4	SIL023A08	NIG023A08
10,0	10	95	45	4	SIL023A10	NIG023A10
12,0	12	110	53	4	SIL023A12	NIG023A12
14,0	12	110	53	4	SIL023A14	NIG023A14
16,0	16	123	63	4	SIL023A16	NIG023A16
18,0	16	123	63	4	SIL023A18	NIG023A18
20,0	20	141	75	4	SIL023A20	NIG023A20
22,0	20	141	75	4	SIL023A22	NIG023A22
25,0	25	166	90	4	SIL023A25	NIG023A25
30,0	25	166	90	6	SIL023A30	NIG023A30
32,0	32	186	106	6	SIL023A32	NIG023A32

P	M	K	N	S	H	O	Raccomandato	Adatto
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO	Recommended Empfohlen Recommandé	Suitable Geeignet Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

041A 093A 023A

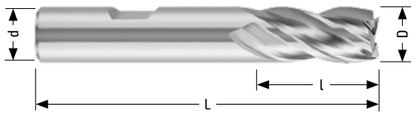
PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

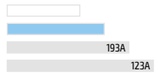
113A

Fresa a finire serie normale
Finishing end mill regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS PmCo | HS | ISO 1641/1 DIN 844K | λ 30°

P M K N S





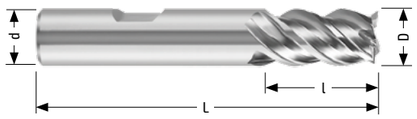
	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	6,0	6	57	13	4	SIL113A06	NIG113A06
	7,0	10	66	16	4	SIL113A07	NIG113A07
	8,0	10	69	19	4	SIL113A08	NIG113A08
	9,0	10	69	19	4	SIL113A09	NIG113A09
	10,0	10	72	22	4	SIL113A10	NIG113A10
	11,0	12	79	22	4	SIL113A11	NIG113A11
	12,0	12	83	26	4	SIL113A12	NIG113A12
	13,0	12	83	26	4	SIL113A13	NIG113A13
	14,0	12	83	26	4	SIL113A14	NIG113A14
	15,0	12	83	26	4	SIL113A15	NIG113A15
	16,0	16	92	32	4	SIL113A16	NIG113A16
	17,0	16	92	32	4	SIL113A17	NIG113A17
	18,0	16	92	32	4	SIL113A18	NIG113A18
	19,0	16	92	32	4	SIL113A19	NIG113A19
	20,0	20	104	38	4	SIL113A20	NIG113A20
	22,0	20	104	38	4	SIL113A22	NIG113A22
	25,0	25	121	45	4	SIL113A25	NIG113A25
	28,0	25	121	45	6	SIL113A28	NIG113A28
	30,0	25	121	45	6	SIL113A30	NIG113A30
	32,0	32	133	53	6	SIL113A32	NIG113A32

118A

Fresa a finire serie normale
Finishing end mill regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS PmCo | HS | ISO 1641/1 DIN 844K | λ 40°

P M K N S



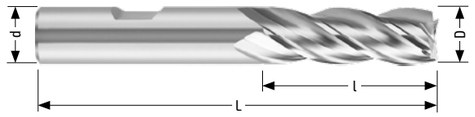
	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	4,0	6	55	11	4	SIL118A04	NIG118A04
	5,0	6	57	13	4	SIL118A05	NIG118A05
	6,0	6	57	13	4	SIL118A06	NIG118A06
	7,0	10	66	16	4	SIL118A07	NIG118A07
	8,0	10	69	19	4	SIL118A08	NIG118A08
	9,0	10	69	19	4	SIL118A09	NIG118A09
	10,0	10	72	22	4	SIL118A10	NIG118A10
	12,0	12	83	26	4	SIL118A12	NIG118A12
	14,0	12	83	26	4	SIL118A14	NIG118A14
	16,0	16	92	32	4	SIL118A16	NIG118A16
	18,0	16	92	32	4	SIL118A18	NIG118A18
	20,0	20	104	38	6	SIL118A20	NIG118A20
	22,0	20	104	38	6	SIL118A22	NIG118A22
	25,0	25	121	45	6	SIL118A25	NIG118A25
	28,0	25	121	45	6	SIL118A28	NIG118A28
	30,0	25	121	45	6	SIL118A30	NIG118A30
	32,0	32	133	53	6	SIL118A32	NIG118A32

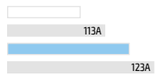
193A

Fresa a finire serie media
Finishing end mill medium version
Schlichtfräser, mittlere Ausführung
Fraise de finition série moyenne

HSS PmCo | HS | Silmax NORM | λ 30°

P M K N S





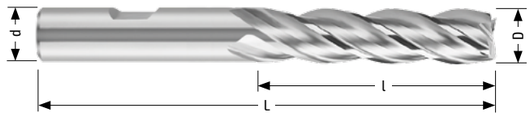
	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	6,0	6	62	18	4	SIL193A06	NIG193A06
	8,0	10	75	25	4	SIL193A08	NIG193A08
	10,0	10	83	33	4	SIL193A10	NIG193A10
	12,0	12	96	39	4	SIL193A12	NIG193A12
	14,0	12	96	39	4	SIL193A14	NIG193A14
	16,0	16	105	45	4	SIL193A16	NIG193A16
	18,0	16	105	45	4	SIL193A18	NIG193A18
	20,0	20	121	55	4	SIL193A20	NIG193A20
	22,0	20	121	55	4	SIL193A22	NIG193A22
	25,0	25	141	65	4	SIL193A25	NIG193A25

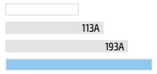
123A

Fresa a finire serie lunga
Finishing end mill long version
Schlichtfräser, lange Ausführung
Fraise de finition série longue

HSS PmCo | HS | ISO 1641/1 DIN 844K | λ 30°

P M K N S





	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	6,0	6	68	24	4	SIL123A06	NIG123A06
	8,0	10	88	38	4	SIL123A08	NIG123A08
	10,0	10	95	45	4	SIL123A10	NIG123A10
	12,0	12	110	53	4	SIL123A12	NIG123A12
	14,0	12	110	53	4	SIL123A14	NIG123A14
	16,0	16	123	63	4	SIL123A16	NIG123A16
	18,0	16	123	63	4	SIL123A18	NIG123A18
	20,0	20	141	75	4	SIL123A20	NIG123A20
	22,0	20	141	75	4	SIL123A22	NIG123A22
	25,0	25	166	90	4	SIL123A25	NIG123A25

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

113A 118A 193A 123A

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

SGR

Frese a sgrossare in HSSCo8

Roughing end mills in HSSCo8

Schruppfräser aus HSSCo8

Fraises ébauche en HSSCo8

SIL SERVICE

L'esperienza Silmax dimostra che un utensile correttamente affilato ha un rendimento uguale a quello nuovo.

Silmax experience shows that a properly sharpened tool grants the same performances of a new tool.

Die Erfahrung von Silmax zeigt, dass ein guter Nachschliff die gleiche Leistungsfähigkeit wie bei neuen Werkzeugen ermöglicht.

Les outils Silmax re-affûtés offrent rendement et une longévité atteignant à 100% des outils neufs.

Riaffilatura e rigenerazione
Resharpening and Reconditioning
Nachschliff und Regeneration
Réaffûtage et régénération

Pick up settimanale
Weekly pick up
Wöchentliche Abholung
Ramassage hebdomadaire

Attenzione al dettaglio
Attention to detail
Liebe zum Detail
Attention aux détails

Controllo qualità
Quality control
Qualitäts-kontrolle
Contrôle qualité

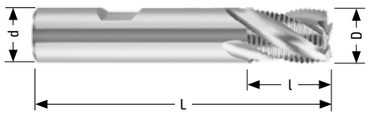
Rivestimento PVD
PVD Coating
PVD-Beschichtung
Revêtement PVD

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

038F

Fresa a sgrossare serie corta
Roughing end mill, regular version
Schruppfräser, kurze Ausführung
Fraise ébauche série courte

HSS CoB | NRF F Form | ISO 1641/I DIN 327 | λ 30° γ 12° | 014F DIN 1835D



013F
093F
023F

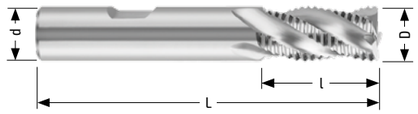
P K

	D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
45°	5,0	6	52	8	4	SIL038F05	NIG038F05
	6,0	6	52	8	4	SIL038F06	NIG038F06
	7,0	10	60	10	4	SIL038F07	NIG038F07
	8,0	10	61	11	4	SIL038F08	NIG038F08
	9,0	10	61	11	4	SIL038F09	NIG038F09
	10,0	10	63	13	4	SIL038F10	NIG038F10
	11,0	12	70	13	4	SIL038F11	NIG038F11
	12,0	12	73	16	4	SIL038F12	NIG038F12
	13,0	12	73	16	4	SIL038F13	NIG038F13
	14,0	12	73	16	4	SIL038F14	NIG038F14
	15,0	12	73	16	4	SIL038F15	NIG038F15
	16,0	16	79	19	4	SIL038F16	NIG038F16
	17,0	16	79	19	4	SIL038F17	NIG038F17
	18,0	16	79	19	4	SIL038F18	NIG038F18
	19,0	16	79	19	4	SIL038F19	NIG038F19
	20,0	20	88	22	4	SIL038F20	NIG038F20
	22,0	20	88	22	4	SIL038F22	NIG038F22
	25,0	25	102	26	4	SIL038F25	NIG038F25
	30,0	25	102	26	6	SIL038F30	NIG038F30
	32,0	32	112	32	6	SIL038F32	NIG038F32

011F

Fresa a sgrossare serie normale
Roughing end mill, regular version
Schruppfräser, normale Ausführung
Fraise ébauche série normale

HSS CoB | NRF F Form | ISO 1641/I DIN 844K | λ 30° γ 12°



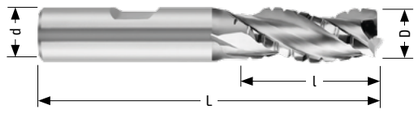
P K

	D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
45°	6,0	6	57	13	3	SIL011F06	NIG011F06
	8,0	10	69	19	3	SIL011F08	NIG011F08
	9,0	10	69	19	3	SIL011F09	NIG011F09
	10,0	10	72	22	3	SIL011F10	NIG011F10
	11,0	12	79	22	3	SIL011F11	NIG011F11
	12,0	12	83	26	3	SIL011F12	NIG011F12
	13,0	12	83	26	3	SIL011F13	NIG011F13
	14,0	12	83	26	3	SIL011F14	NIG011F14
	16,0	16	92	32	3	SIL011F16	NIG011F16
	18,0	16	92	32	3	SIL011F18	NIG011F18
	20,0	20	104	38	3	SIL011F20	NIG011F20
	22,0	20	104	38	3	SIL011F22	NIG011F22
	25,0	25	121	45	3	SIL011F25	NIG011F25
	30,0	25	121	45	3	SIL011F30	NIG011F30
	32,0	32	133	53	3	SIL011F32	NIG011F32
	40,0	40	155	63	3	SIL011F40	NIG011F40

015

Fresa a sgrossare serie normale
Roughing end mill, regular version
Schruppfräser, kurze Ausführung
Fraise ébauche série normale

HSS CoB | WF Alu Form | ISO 1641/I DIN 844K | 017F DIN 1835D | λ 35° γ 17°



025

N

	D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
45°	6,0	6	57	13	3	SIL015006	NIG015006
	8,0	10	69	19	3	SIL015008	NIG015008
	10,0	10	72	22	3	SIL015010	NIG015010
	12,0	12	83	26	3	SIL015012	NIG015012
	16,0	16	92	32	3	SIL015016	NIG015016
	20,0	20	104	38	3	SIL015020	NIG015020
	25,0	25	121	45	3	SIL015025	NIG015025
	30,0	25	121	45	3	SIL015030	NIG015030
	32,0	32	133	53	3	SIL015032	NIG015032

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé
Adatto / Suitable / Geeignet / Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

038F 011F 015

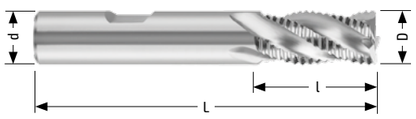
PM → 24
SGR → 34
FIN → 44
FRF → 68
→ 77
ALT
PCC → 86
UTP → 90
FSB → 94
PSV → 96

013F

Fresa a sgrossare serie normale
Roughing end mill, regular version
Schruppfräser, normale Ausführung
Fraise ébauche série normale

HSS Co8 | NRF F Form | ISO 1641/I DIN 844K | 016F DIN 1835D | λ 30° γ 12°

P K



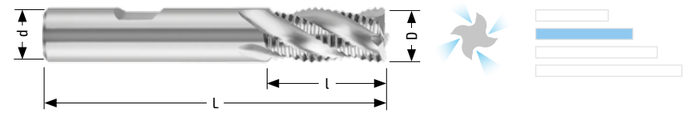
	D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
45°	4,5	6	55	11	4	SIL013F045	NIG013F045
	5,0	6	57	13	4	SIL013F05	NIG013F05
	5,5	6	57	13	4	SIL013F055	NIG013F055
	6,0	6	57	13	4	SIL013F06	NIG013F06
	6,5	10	66	16	4	SIL013F065	NIG013F065
	7,0	10	66	16	4	SIL013F07	NIG013F07
	7,5	10	69	19	4	SIL013F075	NIG013F075
	8,0	10	69	19	4	SIL013F08	NIG013F08
	8,5	10	69	19	4	SIL013F085	NIG013F085
	9,0	10	69	19	4	SIL013F09	NIG013F09
	9,5	10	72	22	4	SIL013F095	NIG013F095
	10,0	10	72	22	4	SIL013F10	NIG013F10
	10,5	12	79	22	4	SIL013F105	NIG013F105
	11,0	12	79	22	4	SIL013F11	NIG013F11
	12,0	12	83	26	4	SIL013F12	NIG013F12
	13,0	12	83	26	4	SIL013F13	NIG013F13
	14,0	12	83	26	4	SIL013F14	NIG013F14
	15,0	12	83	26	4	SIL013F15	NIG013F15
	16,0	16	92	32	4	SIL013F16	NIG013F16
	17,0	16	92	32	4	SIL013F17	NIG013F17
	18,0	16	92	32	4	SIL013F18	NIG013F18
	19,0	16	92	32	4	SIL013F19	NIG013F19
	20,0	20	104	38	4	SIL013F20	NIG013F20
	22,0	20	104	38	4	SIL013F22	NIG013F22
	24,0	25	121	45	4	SIL013F24	NIG013F24
	25,0	25	121	45	4	SIL013F25	NIG013F25
	26,0	25	121	45	4	SIL013F26	NIG013F26
	28,0	25	121	45	6	SIL013F28	NIG013F28
	30,0	25	121	45	6	SIL013F30	NIG013F30
	32,0	32	133	53	6	SIL013F32	NIG013F32
	36,0	32	133	53	6	SIL013F36	NIG013F36
	40,0	40	155	63	6	SIL013F40	NIG013F40
	45,0	40	155	63	6	SIL013F45	NIG013F45
	50,0	50	177	75	6	SIL013F50	NIG013F50

013R

Fresa a sgrossare serie normale
Roughing end mill, medium version
Schruppfräser, mittlere Ausführung
Fraise ébauche série moyenne

HSS Co8 | NRF F Form | ISO 1641/I DIN 844K | λ 30° γ 12°

P K



Con fori di lubrificazione / With internal coolant

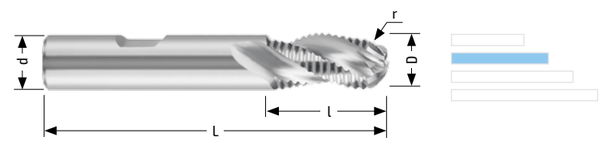
	D k12	d h6	L	l	Z	Balinit® Alcrona
45°	16,0	16	92	32	4	RMG013F16
	18,0	16	92	32	4	RMG013F18
	20,0	20	104	38	4	RMG013F20
	22,0	20	104	38	4	RMG013F22
	25,0	25	121	45	4	RMG013F25
	28,0	25	121	45	6	RMG013F28
	30,0	25	121	45	6	RMG013F30
	32,0	32	133	53	6	RMG013F32
	36,0	32	133	53	6	RMG013F36
	40,0	40	155	63	6	RMG013F40
	50,0	50	177	75	6	RMG013F50

031F

Fresa a sgrossare serie normale
Roughing end mill, regular version
Schruppfräser, normale Ausführung
Fraise ébauche série normale

HSS Co8 | NRF F Form | ISO 1641/I DIN 1889/1 | 033F DIN 1835D | λ 30° γ 12°

P K



	D k12	d h6	L	l	r	Z	Non rivestito Uncoated	Balinit® Alcrona
	6,0	6	57	13	3,00	3	SIL031F06	NIG031F06
	8,0	10	69	19	4,00	3	SIL031F08	NIG031F08
	10,0	10	72	22	5,00	3	SIL031F10	NIG031F10
	12,0	12	83	26	6,00	3	SIL031F12	NIG031F12
	14,0	12	83	26	7,00	4	SIL031F14	NIG031F14
	16,0	16	92	32	8,00	4	SIL031F16	NIG031F16
	18,0	16	92	32	9,00	4	SIL031F18	NIG031F18
	20,0	20	104	38	10,00	4	SIL031F20	NIG031F20
	22,0	20	104	38	11,00	4	SIL031F22	NIG031F22
	25,0	25	121	45	12,50	6	SIL031F25	NIG031F25
	30,0	25	121	45	15,00	6	SIL031F30	NIG031F30
	32,0	32	133	53	16,00	6	SIL031F32	NIG031F32

P	M	K	N	S	H	O		
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO	Raccomandato Recommended Empfohlen Recommandé	Adatto Suitable Geeignet Adapté

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Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

013F 013R 031F

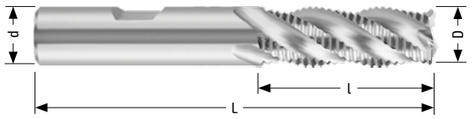
PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

093F

Fresa a sgrossare serie media
Roughing end mill, medium version
Schruppfräser, mittlere Ausführung
Fraise ébauche série moyenne

HSS CoB | NRF F Form | Silmax NORM | λ 30° γ 12°

P K



038F
013F
023F

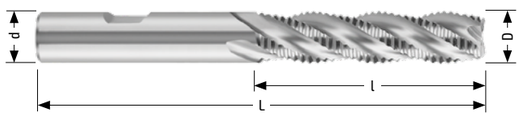
45°	D k12	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
	6,0	6	62	18	4	SIL093F06	NIG093F06
	8,0	10	75	25	4	SIL093F08	NIG093F08
	10,0	10	83	33	4	SIL093F10	NIG093F10
	12,0	12	96	39	4	SIL093F12	NIG093F12
	14,0	12	96	39	4	SIL093F14	NIG093F14
	16,0	16	105	45	4	SIL093F16	NIG093F16
	18,0	16	105	45	4	SIL093F18	NIG093F18
	20,0	20	121	55	4	SIL093F20	NIG093F20
	22,0	20	121	55	4	SIL093F22	NIG093F22
	25,0	25	141	65	4	SIL093F25	NIG093F25
	28,0	25	141	65	6	SIL093F28	NIG093F28
	30,0	25	141	65	6	SIL093F30	NIG093F30
	32,0	32	158	78	6	SIL093F32	NIG093F32

023F

Fresa a sgrossare serie lunga
Roughing end mill, long version
Schruppfräser, lange Ausführung
Fraise ébauche série longue

HSS CoB | NRF F Form | Silmax NORM | 026F DIN 1835D | λ 30° γ 12°

P K



038F
013F
093F

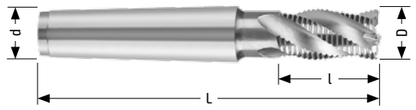
45°	D k12	d h6	L	l	Z	Non rivestito Uncoated	NIG
	6,0	6	68	24	4	SIL023F06	NIG023F06
	8,0	10	88	38	4	SIL023F08	NIG023F08
	10,0	10	95	45	4	SIL023F10	NIG023F10
	12,0	12	110	53	4	SIL023F12	NIG023F12
	14,0	12	110	53	4	SIL023F14	NIG023F14
	16,0	16	123	63	4	SIL023F16	NIG023F16
	18,0	16	123	63	4	SIL023F18	NIG023F18
	20,0	20	141	75	4	SIL023F20	NIG023F20
	22,0	20	141	75	4	SIL023F22	NIG023F22
	25,0	25	166	90	4	SIL023F25	NIG023F25
	30,0	25	166	90	6	SIL023F30	NIG023F30
	32,0	32	186	106	6	SIL023F32	NIG023F32
	36,0	32	186	106	6	SIL023F36	NIG023F36
	40,0	40	217	125	6	SIL023F40	NIG023F40

052F

Fresa a sgrossare serie normale
Roughing end mill, regular version
Schruppfräser, normale Ausführung
Fraise ébauche série normale

HSS CoB | NRF F Form | ISO 1641/I DIN 845K | λ 30° γ 12°

P K



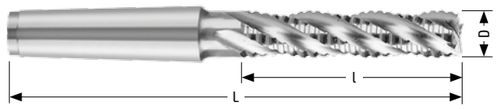
45°	D k12	L	l	Mk	Z	Non rivestito Uncoated	Balinit® Alcrona
	16,0	117	32	2	4	SIL052F16	NIG052F16
	18,0	117	32	2	4	SIL052F18	NIG052F18
	20,0	123	38	2	4	SIL052F20	NIG052F20
	22,0	140	38	3	4	SIL052F22	NIG052F22
	25,0	147	45	3	4	SIL052F25	NIG052F25
	28,0	147	45	3	6	SIL052F28	NIG052F28
	30,0	147	45	3	6	SIL052F30	NIG052F30
	32,0	155	53	3	6	SIL052F32	NIG052F32
	36,0	178	53	4	6	SIL052F36	NIG052F36
	40,0	188	63	4	6	SIL052F40	NIG052F40

060B

Fresa a sgrossare serie lunga
Roughing end mill, long version
Schruppfräser, lange Ausführung
Fraise ébauche série longue

HSS CoB | NRB B Form | ISO 1641/I DIN 845L | λ 30° γ 12°

P K



45°	D k12	L	l	Mk	Z	Non rivestito Uncoated	Balinit® Alcrona
	16,0	148	63	2	4	SIL060B16	NIG060B16
	18,0	148	63	2	4	SIL060B18	NIG060B18
	20,0	177	75	3	4	SIL060B20	NIG060B20
	22,0	177	75	3	4	SIL060B22	NIG060B22
	25,0	192	90	3	5	SIL060B25	NIG060B25
	28,0	192	90	3	5	SIL060B28	NIG060B28
	30,0	192	90	3	5	SIL060B30	NIG060B30
	32,0	231	106	4	5	SIL060B32	NIG060B32
	36,0	231	106	4	5	SIL060B36	NIG060B36
	40,0	250	125	4	6	SIL060B40	NIG060B40
	50,0	308	150	5	6	SIL060B50	NIG060B50

Scansiona il Qr-code per consultare i parametri di lavoro.
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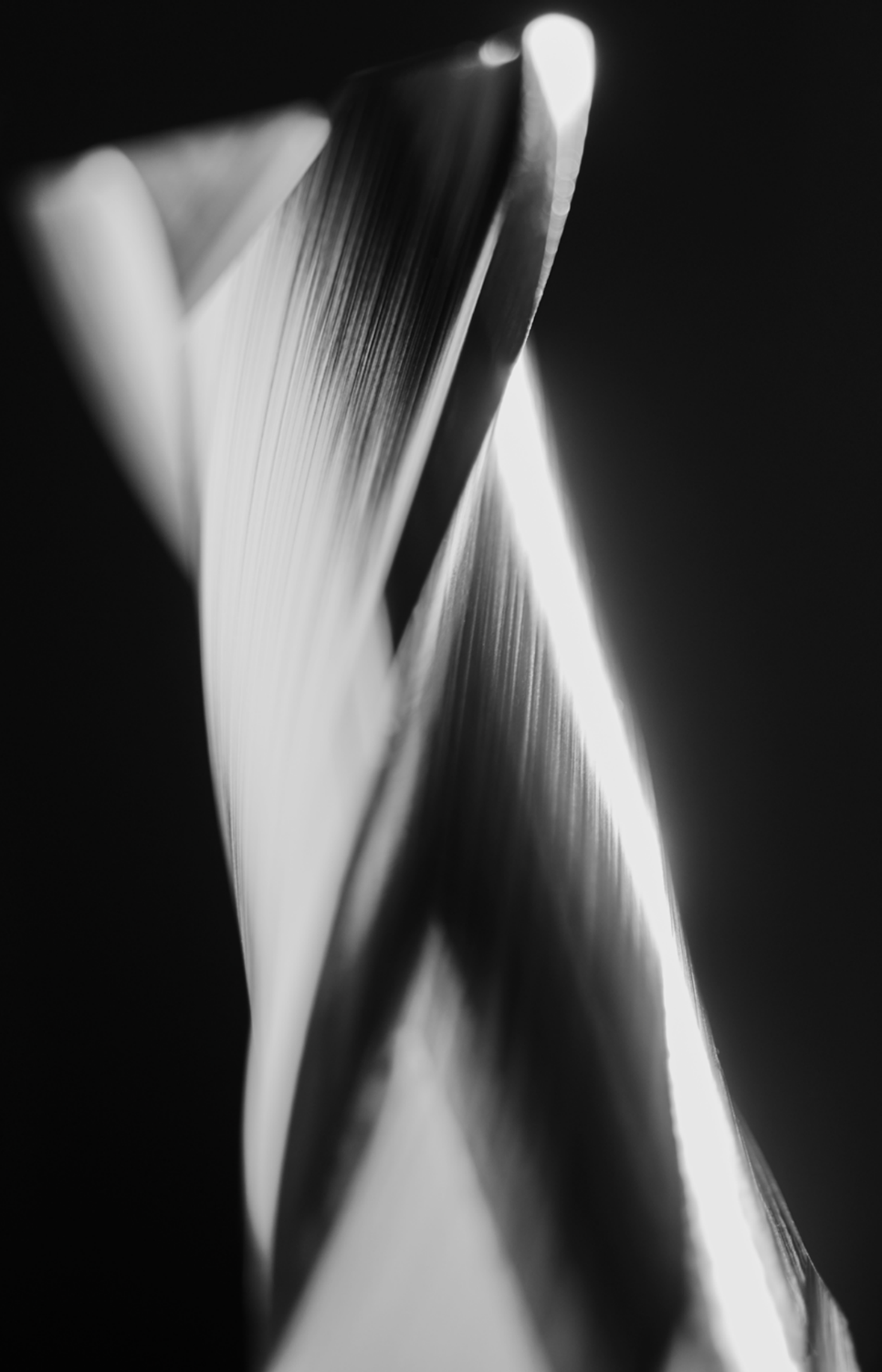
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

093F 023F 052F 060B

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96



FIN

Frese a finire in HSSCo8

Finishing end mills in HSSCo8
Schlichtfräser aus HSSCo8
Fraises de finition en HSSCo8

SIL SERVICE

L'esperienza Silmax dimostra che un utensile correttamente affilato ha un rendimento uguale a quello nuovo.

Silmax experience shows that a properly sharpened tool grants the same performances of a new tool.

Die Erfahrung von Silmax zeigt, dass ein guter Nachschliff die gleiche Leistungsfähigkeit wie bei neuen Werkzeugen ermöglicht.

Les outils Silmax re-affûtés offrent rendement et une longévité atteignant à 100% des outils neufs.

Riaffilatura e rigenerazione
Resharpening and Reconditioning
Nachschliff und Regeneration
Réaffûtage et régénération

Pick up settimanale
Weekly pick up
Wöchentliche Abholung
Ramassage hebdomadaire

Attenzione al dettaglio
Attention to detail
Liebe zum Detail
Attention aux détails

Controllo qualità
Quality control
Qualitäts-kontrolle
Contrôle qualité

Rivestimento PVD
PVD Coating
PVD-Beschichtung
Revêtement PVD

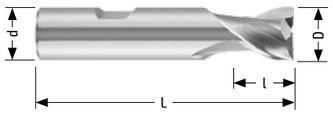
PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

731

Fresa a finire serie corta
Finishing end mill, short version
Schlichtfräser, kurze Ausführung
Fraise de finition série courte

HSS CoB | NK | ISO 1641/I DIN 327 | λ 30° γ 12° | Per P9 | 732 DIN 1835D

P K N



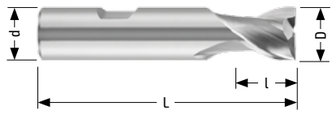
D e8	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
1,5	6	49	4,0	2	VAN731015	NIG731015
2,0	6	49	4,0	2	VAN731020	NIG731020
2,5	6	49	5,0	2	VAN731025	NIG731025
3,0	6	49	5,0	2	VAN731030	NIG731030
3,5	6	51	7,0	2	VAN731035	NIG731035
4,0	6	51	7,0	2	VAN731040	NIG731040
4,5	6	51	7,0	2	VAN731045	NIG731045
5,0	6	52	8,0	2	VAN731050	NIG731050
5,5	6	52	8,0	2	VAN731055	NIG731055
6,0	6	52	8,0	2	VAN731060	NIG731060
6,5	10	60	10,0	2	VAN731065	NIG731065
7,0	10	60	10,0	2	VAN731070	NIG731070
7,5	10	61	11,0	2	VAN731075	NIG731075
8,0	10	61	11,0	2	VAN731080	NIG731080
8,5	10	61	11,0	2	VAN731085	NIG731085
9,0	10	61	11,0	2	VAN731090	NIG731090
9,5	10	63	13,0	2	VAN731095	NIG731095
10,0	10	63	13,0	2	VAN731100	NIG731100
10,5	12	70	13,0	2	VAN731105	NIG731105
11,0	12	70	13,0	2	VAN731110	NIG731110
11,5	12	73	16,0	2	VAN731115	NIG731115
12,0	12	73	16,0	2	VAN731120	NIG731120
12,5	12	73	16,0	2	VAN731125	NIG731125
13,0	12	73	16,0	2	VAN731130	NIG731130
13,5	12	73	16,0	2	VAN731135	NIG731135
14,0	12	73	16,0	2	VAN731140	NIG731140
14,5	12	73	16,0	2	VAN731145	NIG731145
15,0	12	73	16,0	2	VAN731150	NIG731150
16,0	16	79	19,0	2	VAN731160	NIG731160
17,0	16	79	19,0	2	VAN731170	NIG731170
18,0	16	79	19,0	2	VAN731180	NIG731180
19,0	16	79	19,0	2	VAN731190	NIG731190
20,0	20	88	22,0	2	VAN731200	NIG731200
22,0	20	88	22,0	2	VAN731220	NIG731220
25,0	25	102	26,0	2	VAN731250	NIG731250
28,0	25	102	26,0	2	VAN731280	NIG731280
30,0	25	102	26,0	2	VAN731300	NIG731300
32,0	32	112	32,0	2	VAN731320	NIG731320
36,0	32	112	32,0	2	VAN731360	NIG731360
40,0	40	130	38,0	2	VAN731400	NIG731400

735

Fresa a finire serie corta
Finishing end mill, short version
Schlichtfräser, kurze Ausführung
Fraise de finition série courte

HSS CoB | NK | ISO 1641/I DIN 327 | λ 30° γ 12° | Per h7 - h9 | 736 DIN 1835D

P K N



D	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
1,5	6	49	4,0	2	VAN735015	NIG735015
2,0	6	49	4,0	2	VAN735020	NIG735020
2,5	6	49	5,0	2	VAN735025	NIG735025
3,0	6	49	5,0	2	VAN735030	NIG735030
3,5	6	51	7,0	2	VAN735035	NIG735035
4,0	6	51	7,0	2	VAN735040	NIG735040
4,5	6	51	7,0	2	VAN735045	NIG735045
5,0	6	52	8,0	2	VAN735050	NIG735050
5,5	6	52	8,0	2	VAN735055	NIG735055
6,0	6	52	8,0	2	VAN735060	NIG735060
6,5	10	60	10,0	2	VAN735065	NIG735065
7,0	10	60	10,0	2	VAN735070	NIG735070
7,5	10	61	11,0	2	VAN735075	NIG735075
8,0	10	61	11,0	2	VAN735080	NIG735080
8,5	10	61	11,0	2	VAN735085	NIG735085
9,0	10	61	11,0	2	VAN735090	NIG735090
9,5	10	63	13,0	2	VAN735095	NIG735095
10,0	10	63	13,0	2	VAN735100	NIG735100
11,0	12	70	13,0	2	VAN735110	NIG735110
12,0	12	73	16,0	2	VAN735120	NIG735120
13,0	12	73	16,0	2	VAN735130	NIG735130
14,0	12	73	16,0	2	VAN735140	NIG735140
15,0	12	73	16,0	2	VAN735150	NIG735150
16,0	16	79	19,0	2	VAN735160	NIG735160
17,0	16	79	19,0	2	VAN735170	NIG735170
18,0	16	79	19,0	2	VAN735180	NIG735180
19,0	16	79	19,0	2	VAN735190	NIG735190
20,0	20	88	22,0	2	VAN735200	NIG735200

P Acciaio / Steel / Stahl / Acier
M Acciaio Inox / Stainless Steel / Nichtrostend / Acier inoxydable
K Ghisa / Cast Iron / Gusseisen / Fonte
N Leghe di Alluminio / Aluminium Alloys / Aluminiumlegierungen / Alliages d'aluminium
S HRSA - Titanio / HRSA - Titanium / HRSA - Titan / HRSA - Titane
H Acciai Temprati / Hardened Steels / Gehärtete Stähle / Aciers trempés
O Non ISO / Not ISO / Nicht ISO / Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé
Adatto / Suitable / Geeignet / Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
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Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

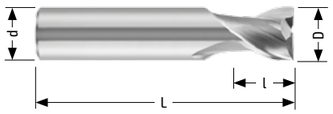
731 735

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 7
PCC → 86
UTP → 90
FSB → 94
PSV → 96

730

Fresa a finire serie corta
Finishing end mill, short version
Schlichtfräser, kurze Ausführung
Fraise de finition série courte

HSS CoB | NK | Silmax NORM | λ 30° γ 12° | Tol.D. ± 0,01



P K N

D ±0.01	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
0,5	3	37	1,5	2	VAN730005	NIG730005
0,6	3	37	1,5	2	VAN730006	NIG730006
0,7	4	37	2,0	2	VAN730007	NIG730007
0,8	4	37	2,0	2	VAN730008	NIG730008
0,9	4	37	2,5	2	VAN730009	NIG730009
1,0	4	37	3,0	2	VAN730010	NIG730010
1,2	4	37	4,0	2	VAN730012	NIG730012
1,4	4	37	4,0	2	VAN730014	NIG730014
1,5	4	37	4,0	2	VAN730015	NIG730015
1,6	4	37	4,0	2	VAN730016	NIG730016
1,7	4	37	5,0	2	VAN730017	NIG730017
1,8	4	37	5,0	2	VAN730018	NIG730018
2,0	4	37	5,0	2	VAN730020	NIG730020
2,5	4	40	7,0	2	VAN730025	NIG730025
3,0	5	44	8,0	2	VAN730030	NIG730030
3.5	5	44	10,0	2	VAN730035	NIG730035
4,0	6	51	12,0	2	VAN730040	NIG730040
4,5	6	51	12,0	2	VAN730045	NIG730045
5,0	6	52	14,0	2	VAN730050	NIG730050
5,5	6	52	14,0	2	VAN730055	NIG730055

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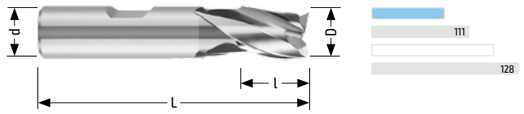
Fresa a finire serie corta
Finishing end mill, short version
Schlichtfräser, kurze Ausführung
Fraise de finition série courte

HSS CoB | NK | ISO 1641/1 DIN 327 | λ 30° γ 12° | Per P9



P K N

D e8	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
1,0	6	49	4,0	3	SIL108010	NIG108010
1,5	6	49	4,0	3	SIL108015	NIG108015
2,0	6	49	4,0	3	SIL108020	NIG108020
2,5	6	49	5,0	3	SIL108025	NIG108025
3,0	6	49	5,0	3	SIL108030	NIG108030
3,5	6	51	7,0	3	SIL108035	NIG108035
3,8	6	51	7,0	3	SIL108038	NIG108038
4,0	6	51	7,0	3	SIL108040	NIG108040
4,5	6	51	7,0	3	SIL108045	NIG108045
4,8	6	52	8,0	3	SIL108048	NIG108048
5,0	6	52	8,0	3	SIL108050	NIG108050
5,5	6	52	8,0	3	SIL108055	NIG108055
6,0	6	52	8,0	3	SIL108060	NIG108060
6,5	10	60	10,0	3	SIL108065	NIG108065
7,0	10	60	10,0	3	SIL108070	NIG108070
7,5	10	61	11,0	3	SIL108075	NIG108075
8,0	10	61	11,0	3	SIL108080	NIG108080
8,5	10	61	11,0	3	SIL108085	NIG108085
9,0	10	61	11,0	3	SIL108090	NIG108090
9,5	10	63	13,0	3	SIL108095	NIG108095
10,0	10	63	13,0	3	SIL108100	NIG108100
11,0	12	70	13,0	3	SIL108110	NIG108110
12,0	12	73	16,0	3	SIL108120	NIG108120
13,0	12	73	16,0	3	SIL108130	NIG108130
14,0	12	73	16,0	3	SIL108140	NIG108140
15,0	12	73	16,0	3	SIL108150	NIG108150
16,0	16	79	19,0	3	SIL108160	NIG108160
17,0	16	79	19,0	3	SIL108170	NIG108170
18,0	16	79	19,0	3	SIL108180	NIG108180
19,0	16	79	19,0	3	SIL108190	NIG108190
20,0	20	88	22,0	3	SIL108200	NIG108200

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato
Recommended
Empfohlen
Recommandé

Adatto
Suitable
Geeignet
Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
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Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

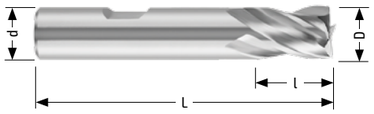
730 108

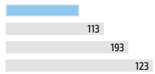
138

Fresa a finire serie corta
Finishing end mill, short version
Schlichtfräser, kurze Ausführung
Fraise de finition série courte

HSS CoB | NS | ISO 1641/I DIN 327 | λ 30° γ 12°

P K N





	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	5,0	6	52	8,0	4	SIL138005	NIG138005
	6,0	6	52	8,0	4	SIL138006	NIG138006
	7,0	10	60	10,0	4	SIL138007	NIG138007
	8,0	10	61	11,0	4	SIL138008	NIG138008
	9,0	10	61	11,0	4	SIL138009	NIG138009
	10,0	10	63	13,0	4	SIL138010	NIG138010
	11,0	12	70	13,0	4	SIL138011	NIG138011
	12,0	12	73	16,0	4	SIL138012	NIG138012
	13,0	12	73	16,0	4	SIL138013	NIG138013
	14,0	12	73	16,0	4	SIL138014	NIG138014
	15,0	12	73	16,0	4	SIL138015	NIG138015
	16,0	16	79	19,0	4	SIL138016	NIG138016
	17,0	16	79	19,0	4	SIL138017	NIG138017
	18,0	16	79	19,0	4	SIL138018	NIG138018
	19,0	16	79	19,0	4	SIL138019	NIG138019
	20,0	20	88	22,0	4	SIL138020	NIG138020
	22,0	20	88	22,0	4	SIL138022	NIG138022
	25,0	25	102	26,0	4	SIL138025	NIG138025
	28,0	25	102	26,0	6	SIL138028	NIG138028
	30,0	25	102	26,0	6	SIL138030	NIG138030
	32,0	32	113	32,0	6	SIL138032	NIG138032

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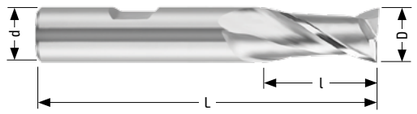
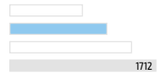
Fresa a finire serie normale
Finishing end mill, regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS CoB | NS | ISO 1641/I DIN 844K | λ 30° γ 12° | 172 DIN 1835D

P K N





	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	1,5	6	52	7,0	2	SIL1710015	NIG1710015
	2,0	6	52	7,0	2	SIL1710020	NIG1710020
	2,5	6	52	8,0	2	SIL1710025	NIG1710025
	3,0	6	52	8,0	2	SIL171003	NIG171003
	3,5	6	54	10,0	2	SIL1710035	NIG1710035
	4,0	6	55	11,0	2	SIL171004	NIG171004
	4,5	6	55	11,0	2	SIL1710045	NIG1710045
	5,0	6	57	13,0	2	SIL171005	NIG171005
	5,5	6	57	13,0	2	SIL1710055	NIG1710055
	6,0	6	57	13,0	2	SIL171006	NIG171006
	7,0	10	66	16,0	2	SIL171007	NIG171007
	8,0	10	69	19,0	2	SIL171008	NIG171008
	9,0	10	69	19,0	2	SIL171009	NIG171009
	10,0	10	72	22,0	2	SIL171010	NIG171010
	11,0	12	79	22,0	2	SIL171011	NIG171011
	12,0	12	83	26,0	2	SIL171012	NIG171012
	13,0	12	83	26,0	2	SIL171013	NIG171013
	14,0	12	83	26,0	2	SIL171014	NIG171014
	15,0	12	83	26,0	2	SIL171015	NIG171015
	16,0	16	92	32,0	2	SIL171016	NIG171016
	17,0	16	92	32,0	2	SIL171017	NIG171017
	18,0	16	92	32,0	2	SIL171018	NIG171018
	19,0	16	92	32,0	2	SIL171019	NIG171019
	20,0	20	104	38,0	2	SIL171020	NIG171020
	22,0	20	104	38,0	2	SIL171022	NIG171022
	25,0	25	121	45,0	2	SIL171025	NIG171025
	28,0	25	121	45,0	2	SIL171028	NIG171028
	30,0	25	121	45,0	2	SIL171030	NIG171030
	32,0	32	133	53,0	2	SIL171032	NIG171032
	36,0	32	133	53,0	2	SIL171036	NIG171036
	40,0	40	155	63,0	2	SIL171040	NIG171040

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato
Recommended
Empfohlen
Recommandé

Adatto
Suitable
Geeignet
Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
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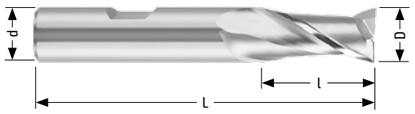
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

138 171

173

Fresa a finire serie normale
Finishing end mill, regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS CoB | W | ISO 1641/1 DIN 844K
λ 35° γ 13°



174

P K N

	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	4,0	6	55	11,0	2	SIL173004	NIG173004
	5,0	6	57	13,0	2	SIL173005	NIG173005
	6,0	6	57	13,0	2	SIL173006	NIG173006
	7,0	10	66	16,0	2	SIL173007	NIG173007
	8,0	10	69	19,0	2	SIL173008	NIG173008
	9,0	10	69	19,0	2	SIL173009	NIG173009
	10,0	10	72	22,0	2	SIL173010	NIG173010
	11,0	12	79	22,0	2	SIL173011	NIG173011
	12,0	12	83	26,0	2	SIL173012	NIG173012
	13,0	12	83	26,0	2	SIL173013	NIG173013
	14,0	12	83	26,0	2	SIL173014	NIG173014
	15,0	12	83	26,0	2	SIL173015	NIG173015
	16,0	16	92	32,0	2	SIL173016	NIG173016
	17,0	16	92	32,0	2	SIL173017	NIG173017
	18,0	16	92	32,0	2	SIL173018	NIG173018
	19,0	16	92	32,0	2	SIL173019	NIG173019
	20,0	20	104	38,0	2	SIL173020	NIG173020
	25,0	25	121	45,0	2	SIL173025	NIG173025

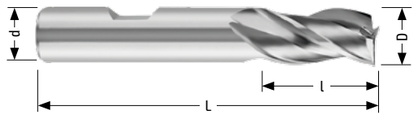
Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

173 111

111

Fresa a finire serie normale
Finishing end mill, regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS CoB | NS | ISO 1641/1 DIN 844K
λ 30° γ 12° | 114 DIN 1835D



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128

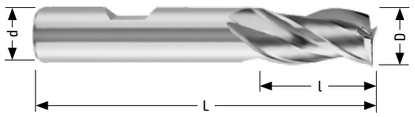
P K N

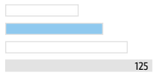
	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	1,5	6	52	7,0	3	SIL111015	NIG111015
	2,0	6	52	7,0	3	SIL111020	NIG111020
	2,5	6	52	8,0	3	SIL111025	NIG111025
	3,0	6	52	8,0	3	SIL111030	NIG111030
	3,5	6	54	10,0	3	SIL111035	NIG111035
	3,8	6	55	11,0	3	SIL111038	NIG111038
	4,0	6	55	11,0	3	SIL111040	NIG111040
	4,5	6	55	11,0	3	SIL111045	NIG111045
	4,8	6	57	13,0	3	SIL111048	NIG111048
	5,0	6	57	13,0	3	SIL111050	NIG111050
	5,5	6	57	13,0	3	SIL111055	NIG111055
	5,8	6	57	13,0	3	SIL111057	NIG111057
	6,0	6	57	13,0	3	SIL111060	NIG111060
	6,5	10	66	16,0	3	SIL111065	NIG111065
	6,8	10	66	16,0	3	SIL111067	NIG111067
	7,0	10	66	16,0	3	SIL111070	NIG111070
	7,5	10	69	19,0	3	SIL111075	NIG111075
	7,8	10	69	19,0	3	SIL111077	NIG111077
	8,0	10	69	19,0	3	SIL111080	NIG111080
	8,5	10	69	19,0	3	SIL111085	NIG111085
	8,7	10	69	19,0	3	SIL111087	NIG111087
	9,0	10	69	19,0	3	SIL111090	NIG111090
	9,5	10	72	22,0	3	SIL111095	NIG111095
	9,7	10	72	22,0	3	SIL111097	NIG111097
	10,0	10	72	22,0	3	SIL111100	NIG111100
	10,7	12	79	22,0	3	SIL111107	NIG111107
	11,0	12	79	22,0	3	SIL111110	NIG111110
	11,7	12	83	26,0	3	SIL111117	NIG111117
	12,0	12	83	26,0	3	SIL111120	NIG111120
	12,7	12	83	26,0	3	SIL111127	NIG111127
	13,0	12	83	26,0	3	SIL111130	NIG111130
	13,7	12	83	26,0	3	SIL111137	NIG111137
	14,0	12	83	26,0	3	SIL111140	NIG111140
	14,7	12	83	26,0	3	SIL111147	NIG111147
	15,0	12	83	26,0	3	SIL111150	NIG111150
	15,7	16	92	32,0	3	SIL111157	NIG111157
	16,0	16	92	32,0	3	SIL111160	NIG111160
	17,0	16	92	32,0	3	SIL111170	NIG111170
	17,7	16	92	32,0	3	SIL111177	NIG111177
	18,0	16	92	32,0	3	SIL111180	NIG111180
	19,0	16	92	32,0	3	SIL111190	NIG111190
	19,7	20	104	38,0	3	SIL111197	NIG111197
	20,0	20	104	38,0	3	SIL111200	NIG111200
	22,0	20	104	38,0	3	SIL111220	NIG111220
	25,0	25	121	45,0	3	SIL111250	NIG111250
	28,0	25	121	45,0	3	SIL111280	NIG111280
	30,0	25	121	45,0	3	SIL111300	NIG111300
	32,0	32	133	53,0	3	SIL111320	NIG111320

115

Fresa a finire serie normale
Finishing end mill, regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS CoB | W | ISO 1641/I DIN 844K
λ 35° γ 17° | 117 DIN 1835D





N

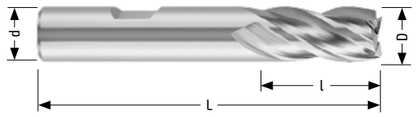
	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	6,0	6	57	13,0	3	SIL115006	NIG115006
	8,0	10	69	19,0	3	SIL115008	NIG115008
	10,0	10	72	22,0	3	SIL115010	NIG115010
	12,0	12	83	26,0	3	SIL115012	NIG115012
	14,0	12	83	26,0	3	SIL115014	NIG115014
	16,0	16	92	32,0	3	SIL115016	NIG115016
	18,0	16	92	32,0	3	SIL115018	NIG115018
	20,0	20	104	38,0	3	SIL115020	NIG115020
	25,0	25	121	45,0	3	SIL115025	NIG115025
	30,0	25	121	45,0	3	SIL115030	NIG115030
	32,0	32	133	53,0	3	SIL115032	NIG115032
	40,0	32	155	63,0	3	SIL115040	NIG115040
	50,0	32	177	75,0	3	SIL115050	NIG115050

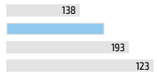
113

Fresa a finire serie normale
Finishing end mill, regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS CoB | NS | ISO 1641/I DIN 844K
λ 30° γ 12° | 116 DIN 1835D

P K N





	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	1,5	6	52	7,0	4	SIL1130015	NIG1130015
	2,0	6	52	7,0	4	SIL1130020	NIG1130020
	2,5	6	52	8,0	4	SIL1130025	NIG1130025
	3,0	6	52	8,0	4	SIL1130030	NIG1130030
	3,5	6	54	10,0	4	SIL1130035	NIG1130035
	4,0	6	55	11,0	4	SIL1130040	NIG1130040
	4,5	6	55	11,0	4	SIL1130045	NIG1130045
	5,0	6	57	13,0	4	SIL1130050	NIG1130050
	5,5	6	57	13,0	4	SIL1130055	NIG1130055
	6,0	6	57	13,0	4	SIL113006	NIG113006
	7,0	10	66	16,0	4	SIL113007	NIG113007
	8,0	10	69	19,0	4	SIL113008	NIG113008
	9,0	10	69	19,0	4	SIL113009	NIG113009
	10,0	10	72	22,0	4	SIL113010	NIG113010
	11,0	12	79	22,0	4	SIL113011	NIG113011
	12,0	12	83	26,0	4	SIL113012	NIG113012
	13,0	12	83	26,0	4	SIL113013	NIG113013
	14,0	12	83	26,0	4	SIL113014	NIG113014
	15,0	12	83	26,0	4	SIL113015	NIG113015
	16,0	16	92	32,0	4	SIL113016	NIG113016
	17,0	16	92	32,0	4	SIL113017	NIG113017
	18,0	16	92	32,0	4	SIL113018	NIG113018
	19,0	16	92	32,0	4	SIL113019	NIG113019
	20,0	20	104	38,0	4	SIL113020	NIG113020
	22,0	20	104	38,0	4	SIL113022	NIG113022
	24,0	25	121	45,0	4	SIL113024	NIG113024
	25,0	25	121	45,0	4	SIL113025	NIG113025
	26,0	25	121	45,0	4	SIL113026	NIG113026
	28,0	25	121	45,0	6	SIL113028	NIG113028
	30,0	25	121	45,0	6	SIL113030	NIG113030
	32,0	32	133	53,0	6	SIL113032	NIG113032
	36,0	32	133	53,0	6	SIL113036	NIG113036
	40,0	40	155	63,0	6	SIL113040	NIG113040
	50,0	50	177	75,0	6	SIL113050	NIG113050

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 7
PCC → 86
UTP → 90
FSB → 94
PSV → 96

P **Acciaio** Steel Stahl Acier
M **Acciaio Inox** Stainless Steel Nichtrostend Acier inoxydable
K **Ghisa** Cast Iron Gusseisen Fonte
N **Leghe di Alluminio** Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium
S **HRSA - Titanio** HRSA - Titanium HRSA - Titan HRSA - Titane
H **Acciai Temprati** Hardened Steels Gehärtete Stähle Aciers trempés
O **Non ISO** Not ISO Nicht ISO Non - ISO

Raccomandato Recommended Empfohlen Recommandé
Adatto Suitable Geeignet Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

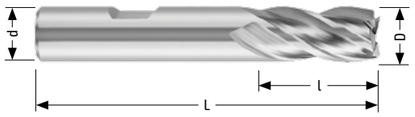
115 113

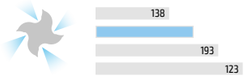
113R

Fresa a finire serie normale
Finishing end mill, regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS CoB | NS | ISO 1641/1 DIN 844K | λ 30° γ 12° | 116 DIN 1835D

P K N





90°

D k10	d h6	L	l	Z	Balinit® Alcrona
16,0	16	92	32,0	4	RMG113016
18,0	16	92	32,0	4	RMG113018
20,0	20	104	38,0	4	RMG113020
22,0	20	104	38,0	4	RMG113022
25,0	25	121	45,0	4	RMG113025

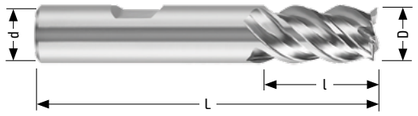
Con fori di lubrificazione / With internal coolant / Fräser mit innerer Kühlung / Avec trous de lubrification

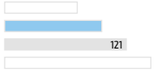
118

Fresa a finire serie normale
Finishing end mill, regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS CoB | NS | ISO 1641/1 DIN 844K | λ 40° γ 14° | 119 DIN 1835D

P K N





90°

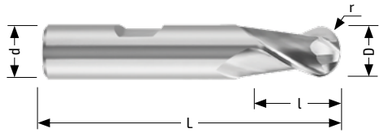
D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
4,0	6	55	11,0	4	SIL118004	NIG118004
5,0	6	57	13,0	4	SIL118005	NIG118005
6,0	6	57	13,0	4	SIL118006	NIG118006
7,0	10	66	16,0	4	SIL118007	NIG118007
8,0	10	69	19,0	4	SIL118008	NIG118008
9,0	10	69	19,0	4	SIL118009	NIG118009
10,0	10	72	22,0	4	SIL118010	NIG118010
11,0	12	79	22,0	4	SIL118011	NIG118011
12,0	12	83	26,0	4	SIL118012	NIG118012
13,0	12	83	26,0	4	SIL118013	NIG118013
14,0	12	83	26,0	4	SIL118014	NIG118014
15,0	12	83	26,0	4	SIL118015	NIG118015
16,0	16	92	32,0	4	SIL118016	NIG118016
17,0	16	92	32,0	4	SIL118017	NIG118017
18,0	16	92	32,0	4	SIL118018	NIG118018
19,0	16	92	32,0	4	SIL118019	NIG118019
20,0	20	104	38,0	6	SIL118020	NIG118020
22,0	20	104	38,0	6	SIL118022	NIG118022
25,0	25	121	45,0	6	SIL118025	NIG118025
28,0	25	121	45,0	6	SIL118028	NIG118028
30,0	25	121	45,0	6	SIL118030	NIG118030
32,0	32	133	53,0	6	SIL118032	NIG118032

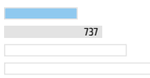
738

Fresa semisferica a finire serie corta
Ball nose finishing end mill, short version
Kugelfräser, kurze Ausführung
Fraise de finition à bout hémisphérique série courte

HSS CoB | NS | ISO 1641/1 DIN 327 | λ 30° γ 12° | 116 DIN 1835D

P K N





D k10	d h6	L	l	r	Z	Non rivestito Uncoated	Balinit® Alcrona
2,0	6	49	4,0	1,00	2	VAN738020	NIG738020
2,5	6	49	5,0	1,25	2	VAN738025	NIG738025
3,0	6	49	5,0	1,50	2	VAN738030	NIG738030
4,0	6	51	7,0	2,00	2	VAN738040	NIG738040
5,0	6	52	8,0	2,50	2	VAN738050	NIG738050
5,5	6	52	8,0	2,75	2	VAN738055	NIG738055
6,0	6	52	8,0	3,00	2	VAN738060	NIG738060
7,0	10	60	10,0	3,50	2	VAN738070	NIG738070
8,0	10	61	11,0	4,00	2	VAN738080	NIG738080
10,0	10	63	13,0	5,00	2	VAN738100	NIG738100
12,0	12	73	16,0	6,00	2	VAN738120	NIG738120
14,0	12	73	16,0	7,00	2	VAN738140	NIG738140
15,0	12	73	16,0	7,50	2	VAN738150	NIG738150
16,0	16	79	19,0	8,00	2	VAN738160	NIG738160
18,0	16	79	19,0	9,00	2	VAN738180	NIG738180
20,0	20	88	22,0	10,00	2	VAN738200	NIG738200

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé
Adatto / Suitable / Geeignet / Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
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Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

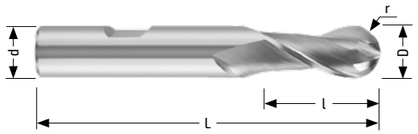
113R 118 738

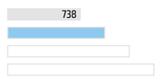
PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

737

Fresa semisferica a finire serie normale
Ball nose finishing end mill, regular version
Kugelfräser, normale Ausführung
Fraise de finition à bout hémisphérique série normale

HSS Co8 | NS | ISO 1641/1 DIN 1889/1
λ 30° γ 12°
P K N



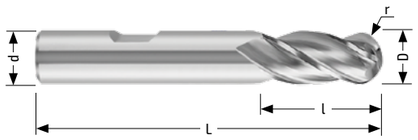


D k10	d h6	L	l	r	Z	Non rivestito Uncoated	Balinit® Alcrona
0,5	3	37	1.5	0,25	2	VAN737005	NIG737005
0,8	4	37	2,0	0,40	2	VAN737008	NIG737008
1,0	4	37	3,0	0,50	2	VAN737010	NIG737010
1,2	4	37	4,0	0,60	2	VAN737012	NIG737012
1,5	4	37	4,0	0,75	2	VAN737015	NIG737015
1,8	4	37	5,0	0,90	2	VAN737018	NIG737018
2,0	6	52	7,0	1,00	2	VAN737020	NIG737020
2,5	6	52	8,0	1,25	2	VAN737025	NIG737025
3,0	6	52	8,0	1,50	2	VAN737030	NIG737030
4,0	6	55	11,0	2,00	2	VAN737040	NIG737040
5,0	6	57	13,0	2,50	2	VAN737050	NIG737050
6,0	6	57	13,0	3,00	2	VAN737060	NIG737060
7,0	10	66	16,0	3,50	2	VAN737070	NIG737070
8,0	10	69	19,0	4,00	2	VAN737080	NIG737080
10,0	10	72	22,0	5,00	2	VAN737100	NIG737100
12,0	12	83	26,0	6,00	2	VAN737120	NIG737120
14,0	12	83	26,0	7,00	2	VAN737140	NIG737140
16,0	16	92	32,0	8,00	2	VAN737160	NIG737160
18,0	16	92	32,0	9,00	2	VAN737180	NIG737180
20,0	20	104	38,0	10,00	2	VAN737200	NIG737200

131

Fresa semisferica a finire serie normale
Ball nose finishing end mill, regular version
Kugelfräser, normale Ausführung
Fraise de finition à bout hémisphérique série normale

HSS Co8 | NS | ISO 1641/1 DIN 1889/1
λ 30° γ 12° | 133 DIN 1835D
P K N

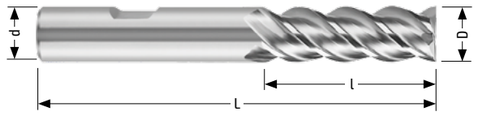


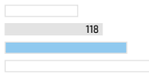
D k10	d h6	L	l	r	Z	Non rivestito Uncoated	Balinit® Alcrona
6,00	6	57	13,0	3,00	4	SIL131006	NIG131006
8,00	10	69	19,0	4,00	4	SIL131008	NIG131008
10,00	10	72	22,0	5,00	4	SIL131010	NIG131010
12,00	12	83	26,0	6,00	4	SIL131012	NIG131012
14,00	12	83	26,0	7,00	4	SIL131014	NIG131014
16,00	16	92	32,0	8,00	4	SIL131016	NIG131016
18,00	16	92	32,0	9,00	4	SIL131018	NIG131018
20,00	20	104	38,0	10,00	6	SIL131020	NIG131020
22,00	20	104	38,0	11,00	6	SIL131022	NIG131022
25,00	25	121	45,0	12,50	6	SIL131025	NIG131025
30,00	25	121	45,0	15,00	6	SIL131030	NIG131030
32,00	32	133	53,0	16,00	6	SIL131032	NIG131032

121

Fresa a finire serie media
Finishing end mill, medium version
Schlichtfräser, mittlere Ausführung
Fraise de finition série moyenne

HSS Co8 | NS | Silmax NORM
λ 40° γ 14°
P K N



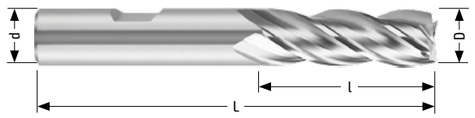


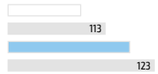
D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
6	6	62	18	4	SIL121006	NIG121006
8	10	75	25	4	SIL121008	NIG121008
10	10	83	33	4	SIL121010	NIG121010
12	12	96	39	4	SIL121012	NIG121012
14	12	96	39	4	SIL121014	NIG121014
16	16	105	45	4	SIL121016	NIG121016
18	16	105	45	4	SIL121018	NIG121018
20	20	121	55	6	SIL121020	NIG121020
25	25	141	65	6	SIL121025	NIG121025

193

Fresa a finire serie media
Finishing end mill, medium version
Schlichtfräser, mittlere Ausführung
Fraise de finition série moyenne

HSS Co8 | NS | Silmax NORM
λ 30° γ 12°
P K N





D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
6,0	6	62	18,0	4	SIL193006	NIG193006
8,0	10	75	25,0	4	SIL193008	NIG193008
10,0	10	83	33,0	4	SIL193010	NIG193010
12,0	12	96	39,0	4	SIL193012	NIG193012
14,0	12	96	39,0	4	SIL193014	NIG193014
16,0	16	105	45,0	4	SIL193016	NIG193016
18,0	16	105	45,0	4	SIL193018	NIG193018
20,0	20	121	55,0	4	SIL193020	NIG193020
22,0	20	121	55,0	4	SIL193022	NIG193022
25,0	25	141	65,0	4	SIL193025	NIG193025
28,0	25	141	65,0	6	SIL193028	NIG193028
30,0	25	141	65,0	6	SIL193030	NIG193030
32,0	32	158	78,0	6	SIL193032	NIG193032

Scansiona il Qr-code per consultare i parametri di lavoro.
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Scannez le code Qr pour visualiser les paramètres de fonctionnement.

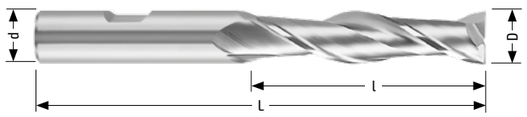
737 131 121 193

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

1712

Fresa a finire serie lunga
Finishing end mill, long version
Schlichtfräser, lange Ausführung
Fraise de finition série longue

HSS Co8 | NS | ISO 1641/I DIN 844L | λ 35° γ 13° | 1722 DIN 1835D



171

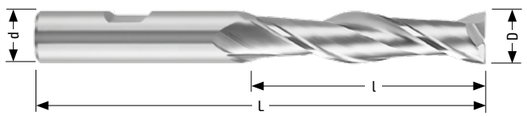
P K N

	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	6,0	6	68	24,0	2	SIL171206	NIG171206
	8,0	10	88	38,0	2	SIL171208	NIG171208
	10,0	10	95	45,0	2	SIL171210	NIG171210
	12,0	12	110	53,0	2	SIL171212	NIG171212
	14,0	12	110	53,0	2	SIL171214	NIG171214
	16,0	16	123	63,0	2	SIL171216	NIG171216
	18,0	16	123	63,0	2	SIL171218	NIG171218
	20,0	20	141	75,0	2	SIL171220	NIG171220
	22,0	20	141	75,0	2	SIL171222	NIG171222
	25,0	25	166	90,0	2	SIL171225	NIG171225
	28,0	25	166	90,0	2	SIL171228	NIG171228
	30,0	25	166	90,0	2	SIL171230	NIG171230
	32,0	32	186	106,0	2	SIL171232	NIG171232
	36,0	32	186	106,0	2	SIL171236	NIG171236
	40,0	40	217	125,0	2	SIL171240	NIG171240

174

Fresa a finire serie lunga
Finishing end mill, long version
Schlichtfräser, lange Ausführung
Fraise de finition série longue

HSS Co8 | W | ISO 1641/I DIN 844L | λ 35° γ 13° | 1722 DIN 1835D



173

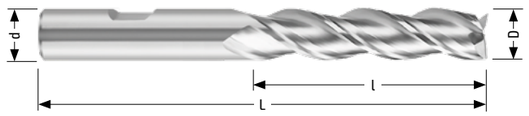
P K N

	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	6,0	6	68	24,0	2	SIL174006	NIG174006
	8,0	10	88	38,0	2	SIL174008	NIG174008
	10,0	10	95	45,0	2	SIL174010	NIG174010
	12,0	12	110	53,0	2	SIL174012	NIG174012
	14,0	12	110	53,0	2	SIL174014	NIG174014
	16,0	16	123	63,0	2	SIL174016	NIG174016
	18,0	16	123	63,0	2	SIL174018	NIG174018
	20,0	20	141	75,0	2	SIL174020	NIG174020
	25,0	25	166	90,0	2	SIL174025	NIG174025

128

Fresa a finire serie lunga
Finishing end mill, long version
Schlichtfräser, lange Ausführung
Fraise de finition série longue

HSS Co8 | NS | ISO 1641/I DIN 844L | λ 30° γ 12°



108
111

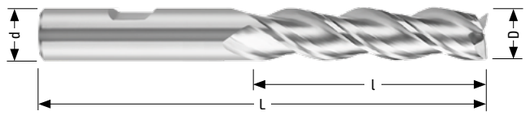
P K N

	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	3,0	6	56	12,0	3	SIL128003	NIG128003
	4,0	6	63	19,0	3	SIL128004	NIG128004
	5,0	6	68	24,0	3	SIL128005	NIG128005
	6,0	6	68	24,0	3	SIL128006	NIG128006
	7,0	10	80	30,0	3	SIL128007	NIG128007
	8,0	10	88	38,0	3	SIL128008	NIG128008
	9,0	10	88	38,0	3	SIL128009	NIG128009
	10,0	10	95	45,0	3	SIL128010	NIG128010
	12,0	12	110	53,0	3	SIL128012	NIG128012
	14,0	12	110	53,0	3	SIL128014	NIG128014
	15,0	12	110	53,0	3	SIL128015	NIG128015
	16,0	16	123	63,0	3	SIL128016	NIG128016
	18,0	16	123	63,0	3	SIL128018	NIG128018
	20,0	20	141	75,0	3	SIL128020	NIG128020

125

Fresa a finire serie lunga
Finishing end mill, long version
Schlichtfräser, lange Ausführung
Fraise de finition série longue

HSS Co8 | W | ISO 1641/I DIN 844L | λ 35° γ 17° | 127 DIN 1835D



115

ALU

N

	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	6,0	6	68	24,0	3	SIL125006	NIG125006
	8,0	10	88	38,0	3	SIL125008	NIG125008
	10,0	10	95	45,0	3	SIL125010	NIG125010
	12,0	12	110	53,0	3	SIL125012	NIG125012
	14,0	12	110	53,0	3	SIL125014	NIG125014
	16,0	16	123	63,0	3	SIL125016	NIG125016
	18,0	16	123	63,0	3	SIL125018	NIG125018
	20,0	20	141	75,0	3	SIL125020	NIG125020
	25,0	25	166	90,0	3	SIL125025	NIG125025
	30,0	25	166	90,0	3	SIL125030	NIG125030
	32,0	32	186	106,0	3	SIL125032	NIG125032
	40,0	32	217	125,0	3	SIL125040	NIG125040

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé

Adatto / Suitable / Geeignet / Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

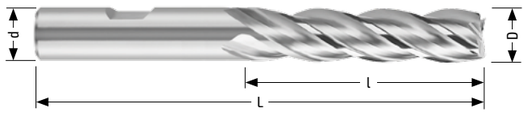
1712 174 128 125

123

Fresa a finire serie lunga
Finishing end mill, long version
Schlichtfräser, lange Ausführung
Fraise de finition série longue

HSS CoB | NS | ISO 1641/1 DIN 844L | λ 30° γ 12° | 126 DIN 1835D

P K N



138
113
193

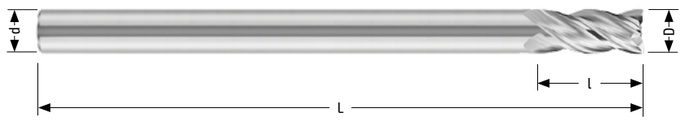
	D k10	d h6	L	l	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	6,0	6	68	24,0	4	SIL123006	NIG123006
	8,0	10	88	38,0	4	SIL123008	NIG123008
	10,0	10	95	45,0	4	SIL123010	NIG123010
	12,0	12	110	53,0	4	SIL123012	NIG123012
	14,0	12	110	53,0	4	SIL123014	NIG123014
	16,0	16	123	63,0	4	SIL123016	NIG123016
	18,0	16	123	63,0	4	SIL123018	NIG123018
	20,0	20	141	75,0	4	SIL123020	NIG123020
	22,0	20	141	75,0	4	SIL123022	NIG123022
	25,0	25	166	90,0	4	SIL123025	NIG123025
	28,0	25	166	90,0	6	SIL123028	NIG123028
	30,0	25	166	90,0	6	SIL123030	NIG123030
	32,0	32	186	106,0	6	SIL123032	NIG123032
	36,0	32	186	106,0	6	SIL123036	NIG123036
	40,0	40	217	125,0	6	SIL123040	NIG123040
	50,0	50	252	150,0	6	SIL123050	NIG123050

145

Fresa a finire serie extra lunga
Finishing end mill, extra long version
Schlichtfräser, extra-lange Ausführung
Fraise de finition série extra longue

HSS CoB | NS | Silmax NORM | λ 30° γ 10°

P K N



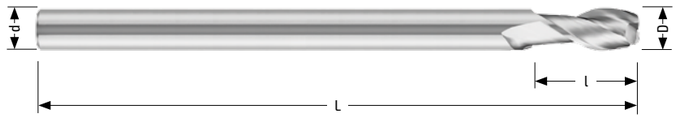
D k10	d h6	L	l	Z	Non rivestito Uncoated
6,0	6	180	25,0	4	SIL145006
8,0	8	180	25,0	4	SIL145008
10,0	10	200	30,0	4	SIL145010
12,0	12	200	30,0	4	SIL145012
14,0	14	200	35,0	4	SIL145014
16,0	16	200	35,0	4	SIL145016
20,0	20	200	35,0	4	SIL145020
25,0	25	200	40,0	4	SIL145025

146

Fresa a finire serie extra lunga
Finishing end mill, extra long version
Schlichtfräser, extra-lange Ausführung
Fraise de finition série extra longue

HSS CoB | NS | Silmax NORM | λ 30° γ 10°

P K N



D k10	d h6	L	l	Z	Non rivestito Uncoated
6,0	6	180	25,0	2	SIL146006
8,0	8	180	25,0	2	SIL146008
10,0	10	200	30,0	2	SIL146010
12,0	12	200	30,0	2	SIL146012
14,0	14	200	35,0	2	SIL146014
16,0	16	200	35,0	2	SIL146016
20,0	20	200	35,0	2	SIL146020

P **Acciaio** Steel Stahl Acier
M **Acciaio Inox** Stainless Steel Nichtrostend Acier inoxydable
K **Ghisa** Cast Iron Gusseisen Fonte
N **Leghe di Alluminio** Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium
S **HRSA - Titanio** HRSA - Titanium HRSA - Titan HRSA - Titane
H **Acciai Temprati** Hardened Steels Gehärtete Stähle Aciers trempés
O **Non ISO** Not ISO Nicht ISO Non - ISO

Raccomandato Recommended Empfohlen Recommandé
Adatto Suitable Geeignet Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

123 145 146

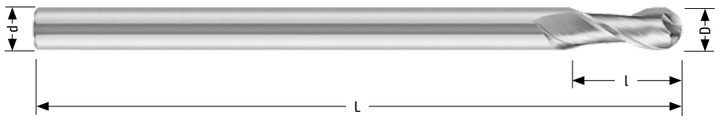
PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

148

Fresa a finire serie extra lunga
Finishing end mill, extra long version
Schlichtfräser, extra-lange Ausführung
Fraise de finition série extra longue

HSS Co8 | NS | Silmax NORM | λ 30° γ 10°

P K N



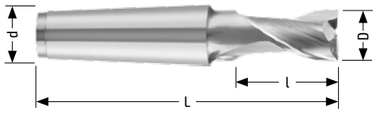
D k10	d h6	L	l	r	Z	Non rivestito Uncoated
6,0	6	180	25,0	3,00	2	SIL148006
8,0	8	180	25,0	4,00	2	SIL148008
10,0	10	200	30,0	5,00	2	SIL148010
12,0	12	200	30,0	6,00	2	SIL148012
14,0	14	200	35,0	7,00	2	SIL148014
16,0	16	200	35,0	8,00	2	SIL148016
20,0	20	200	35,0	10,00	2	SIL148020

750

Fresa a finire serie corta
Finishing end mill, short version
Schlichtfräser, kurze Ausführung
Fraise de finition série courte

HSS Co8 | NK | ISO 1641/II DIN 326 | λ 30° γ 12° | Tol.D. e8

P K N



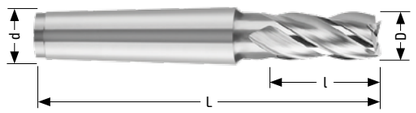
D e8	L	l	Mk	Z	Non rivestito Uncoated	Balinit® Alcrona
10,0	83	13,0	1	2	VAN750010	NIG750010
12,0	86	16,0	1	2	VAN750012	NIG750012
14,0	86	16,0	1	2	VAN750014	NIG750014
16,0	104	19,0	2	2	VAN750016	NIG750016
18,0	104	19,0	2	2	VAN750018	NIG750018
20,0	107	22,0	2	2	VAN750020	NIG750020
22,0	107	22,0	2	2	VAN750022	NIG750022
24,0	128	26,0	3	2	VAN750024	NIG750024
25,0	128	26,0	3	2	VAN750025	NIG750025
26,0	128	26,0	3	2	VAN750026	NIG750026
28,0	128	26,0	3	2	VAN750028	NIG750028
30,0	128	26,0	3	2	VAN750030	NIG750030
32,0	134	32,0	3	2	VAN750032	NIG750032
35,0	157	32,0	4	2	VAN750035	NIG750035
36,0	157	32,0	4	2	VAN750036	NIG750036
38,0	163	38,0	4	2	VAN750038	NIG750038
40,0	163	38,0	4	2	VAN750040	NIG750040

152

Fresa a finire serie normale
Finishing end mill, regular version
Schlichtfräser, normale Ausführung
Fraise de finition série normale

HSS Co8 | NS | ISO 1641/II DIN 845K | λ 30° γ 12°

P K N



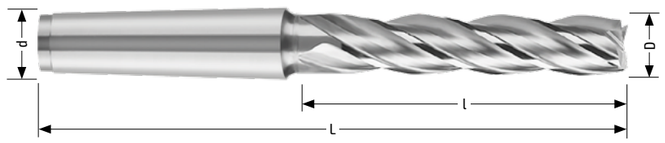
	D k10	L	l	Mk	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	16,0	117	32,0	2	4	SIL152016	NIG152016
	18,0	117	32,0	2	4	SIL152018	NIG152018
	20,0	123	38,0	2	4	SIL152020	NIG152020
	22,0	140	38,0	3	4	SIL152022	NIG152022
	25,0	147	45,0	3	4	SIL152025	NIG152025
	28,0	147	45,0	3	6	SIL152028	NIG152028
	30,0	147	45,0	3	6	SIL152030	NIG152030
	32,0	155	53,0	3	6	SIL152032	NIG152032
	36,0	178	53,0	4	6	SIL152036	NIG152036
	40,0	188	63,0	4	6	SIL152040	NIG152040
	45,0	188	63,0	4	6	SIL152045	NIG152045

160

Fresa a finire serie lunga
Finishing end mill, long version
Schlichtfräser, lange Ausführung
Fraise de finition série longue

HSS Co8 | NS | ISO 1641/II DIN 845L | λ 30° γ 12°

P K N



	D k10	L	l	Mk	Z	Non rivestito Uncoated	Balinit® Alcrona
90°	16,0	148	63,0	2	4	SIL160016	NIG160016
	18,0	148	63,0	2	5	SIL160018	NIG160018
	20,0	177	75,0	3	5	SIL160020	NIG160020
	22,0	177	75,0	3	5	SIL160022	NIG160022
	25,0	192	90,0	3	6	SIL160025	NIG160025
	28,0	192	90,0	3	6	SIL160028	NIG160028
	30,0	192	90,0	3	6	SIL160030	NIG160030
	32,0	231	106,0	4	6	SIL160032	NIG160032
	36,0	231	106,0	4	6	SIL160036	NIG160036
	40,0	250	125,0	4	6	SIL160040	NIG160040
	50,0	308	150,0	5	8	SIL160050	NIG160050
Mk - DIN2207							
	40,0	273	125,0	4	6	SIL160140	NIG160140
	50,0	336	150,0	5	8	SIL160150	NIG160150

P	M	K	N	S	H	O		
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO	Raccomandato Recommended Empfohlen Recommandé	Adatto Suitable Geeignet Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
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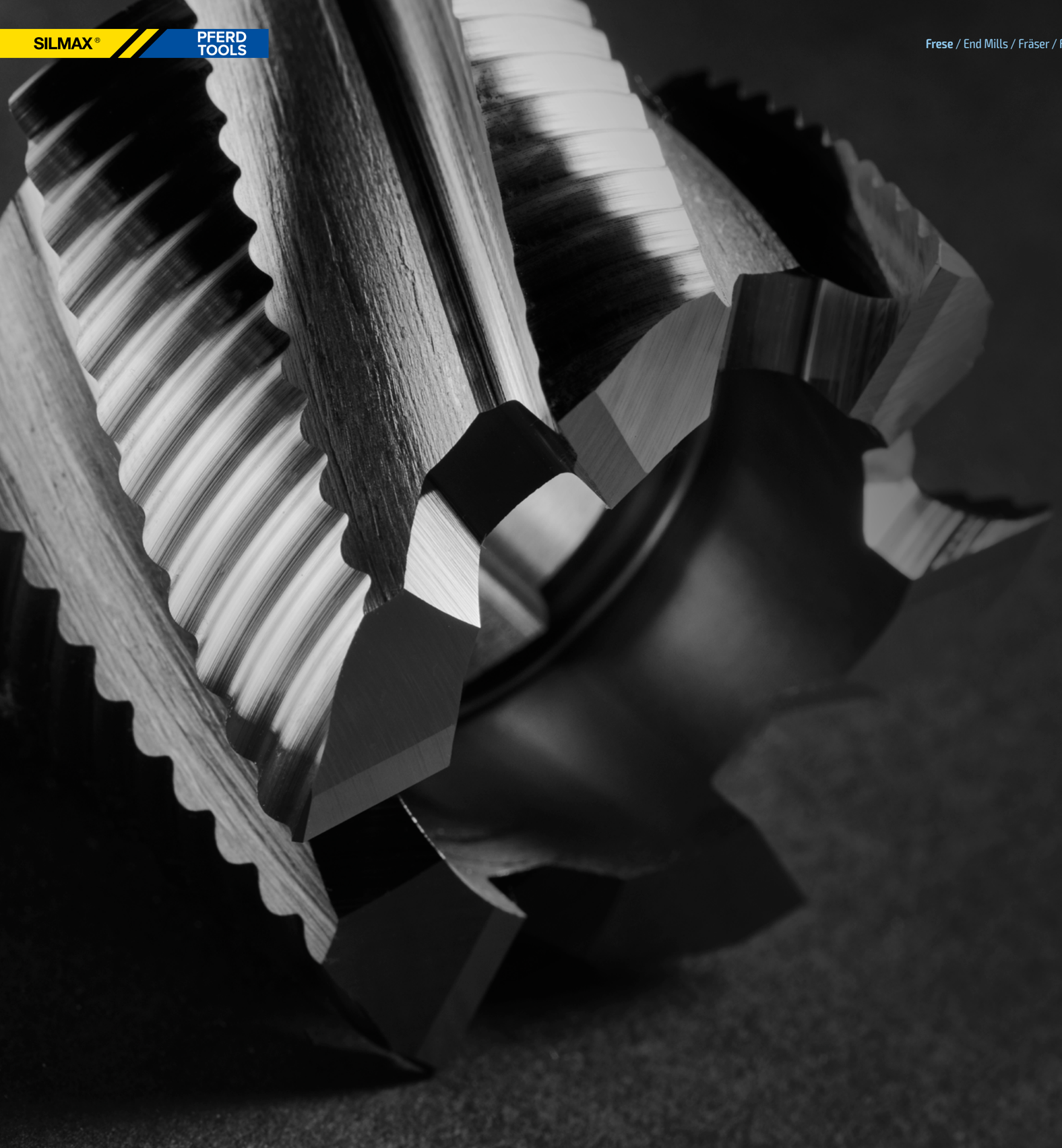
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

148 750 152 160

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96



FRF

Frese frontali e a disco

Shell end mills and side milling cutters

Scheiben- und Walzenstirnfräser

Fraises frontales et fraises disques

SIL SERVICE

L'esperienza Silmax dimostra che un utensile correttamente affilato ha un rendimento uguale a quello nuovo.

Silmax experience shows that a properly sharpened tool grants the same performances of a new tool.

Die Erfahrung von Silmax zeigt, dass ein guter Nachschliff die gleiche Leistungsfähigkeit wie bei neuen Werkzeugen ermöglicht.

Les outils Silmax re-affûtés offrent rendement et une longévité atteignant à 100% des outils neufs.

Riaffilatura e rigenerazione
Resharpening and Reconditioning
Nachschliff und Regeneration
Réaffûtage et régénération

Pick up settimanale
Weekly pick up
Wöchentliche Abholung
Ramassage hebdomadaire

Attenzione al dettaglio
Attention to detail
Liebe zum Detail
Attention aux détails

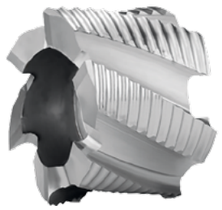
Controllo qualità
Quality control
Qualitäts-kontrolle
Contrôle qualité

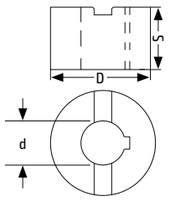
Rivestimento PVD
PVD Coating
PVD-Beschichtung
Revêtement PVD

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

080F

Fresa frontale a sgrossare
Shell end mill for roughing
Scheibenfräser zum Schruppen
Fraise frontale d'ébauche



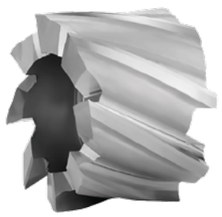


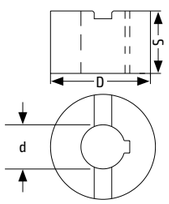
HSS Co8 | NRF F Form | ISO 2586 | DIN 1880 | DIN 841
λ 30° γ 12°
P M K N S

D k12	S k12	d H7	Din	Z	Non rivestito Uncoated	Balinit® Alcrona
40,0	32,0	16	1880	6	SIL08F040	NIG08F040
40,0	40,0	16	841	6	SIL08F404	NIG08F404
50,0	36,0	22	1880	6	SIL08F050	NIG08F050
50,0	50,0	22	841	6	SIL08F505	NIG08F505
60,0	60,0	27	841	8	SIL08F606	NIG08F606
63,0	40,0	27	1880	8	SIL08F063	NIG08F063
75,0	75,0	27	841	10	SIL08F757	NIG08F757
80,0	45,0	27	1880	10	SIL08F080	NIG08F080
100,0	50,0	32	1880	10	SIL08F100	NIG08F100
125,0	56,0	40	1880	12	SIL08F125	NIG08F125

180

Fresa frontale a finire
Shell end mill for finishing
Scheibenfräser zum Schlichten
Fraise frontale de finition



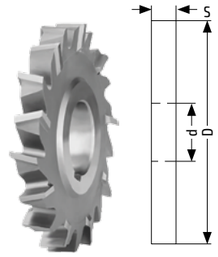


HSS Co8 | NS | ISO 2586 | DIN 1880 | DIN 841
λ 30° γ 12°
P M K N S

D k10	S k12	d H7	Din	Z	Non rivestito Uncoated	Balinit® Alcrona
40,0	32,0	16	1880	6	SIL180040	NIG180040
40,0	40,0	16	841	6	SIL180404	NIG180404
50,0	36,0	22	1880	8	SIL180050	NIG180050
50,0	50,0	22	841	8	SIL180505	NIG180505
60,0	60,0	27	841	8	SIL180606	NIG180606
63,0	40,0	27	1880	8	SIL180063	NIG180063
75,0	75,0	27	841	8	SIL180757	NIG180757
80,0	45,0	27	1880	10	SIL180080	NIG180080
100,0	50,0	32	1880	10	SIL180100	NIG180100
125,0	56,0	40	1880	12	SIL180125	NIG180125
160,0	63,0	50	1880	14	SIL180160	NIG180160

101

Fresa a disco a denti alternati
Side milling cutter
with staggered teeth
Scheibenfräser kreuzverzahnt
Fraise disque à denture alternée



HSS Co | ISO 2587 | DIN 885A | λ 12° γ 10°
P M K N S

D js16	S k11	d H7	Z	Non rivestito Uncoated
50,0	3,0	16	14	SIL101103
50,0	4,0	16	14	SIL101104
50,0	5,0	16	14	SIL101105
50,0	6,0	16	14	SIL101106
50,0	7,0	16	14	SIL101107
50,0	8,0	16	14	SIL101108
50,0	9,0	16	14	SIL101109
50,0	10,0	16	14	SIL101110
63,0	3,0	22	16	SIL101203
63,0	4,0	22	16	SIL101204
63,0	5,0	22	16	SIL101205
63,0	6,0	22	16	SIL101206
63,0	7,0	22	14	SIL101207
63,0	8,0	22	14	SIL101208
63,0	9,0	22	14	SIL101209
63,0	10,0	22	14	SIL101210
63,0	12,0	22	14	SIL101212
63,0	14,0	22	16	SIL101214
80,0	3,0	27	18	SIL101303
80,0	4,0	27	18	SIL101304
80,0	5,0	27	18	SIL101305
80,0	6,0	27	18	SIL101306
80,0	7,0	27	16	SIL101307
80,0	8,0	27	16	SIL101308
80,0	9,0	27	16	SIL101309
80,0	10,0	27	16	SIL101310
80,0	12,0	27	16	SIL101312
80,0	14,0	27	16	SIL101314
80,0	16,0	27	16	SIL101316
100,0	3,0	32	22	SIL101403
100,0	4,0	32	22	SIL101404
100,0	5,0	32	22	SIL101405
100,0	6,0	32	22	SIL101406
100,0	7,0	32	18	SIL101407
100,0	8,0	32	18	SIL101408
100,0	9,0	32	18	SIL101409
100,0	10,0	32	18	SIL101410
100,0	12,0	32	18	SIL101412

P Acciaio / Steel / Stahl / Acier
M Acciaio Inox / Stainless Steel / Nichtrostend / Acier inoxydable
K Ghisa / Cast Iron / Gusseisen / Fonte
N Leghe di Alluminio / Aluminium Alloys / Aluminiumlegierungen / Alliages d'aluminium
S HRSA - Titanio / HRSA - Titanium / HRSA - Titan / HRSA - Titane
H Acciai Temprati / Hardened Steels / Gehärtete Stähle / Aciers trempés
O Non ISO / Not ISO / Nicht ISO / Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé
Adatto / Suitable / Geeignet / Adapté

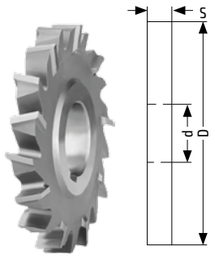
Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

080F 180 101

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

101

Fresa a disco a denti alternati
Side milling cutter
with staggered teeth
Scheibenfräser kreuzverzahnt
Fraise disque à denture alternée



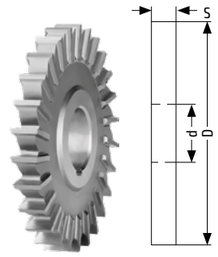
HSS Co | ISO 2587 | DIN 885A | λ 12° γ 10°

P M K N S

D js16	S k11	d H7	Z	Non rivestito Uncoated
100,0	14,0	32	18	SIL101414
100,0	16,0	32	18	SIL101416
125,0	4,0	32	24	SIL101504
125,0	5,0	32	24	SIL101505
125,0	6,0	32	24	SIL101506
125,0	7,0	32	20	SIL101507
125,0	8,0	32	20	SIL101508
125,0	10,0	32	20	SIL101510
125,0	12,0	32	20	SIL101512
125,0	14,0	32	20	SIL101514
125,0	16,0	32	20	SIL101516
125,0	18,0	32	20	SIL101518
125,0	20,0	32	20	SIL101520
160,0	5,0	40	26	SIL101605
160,0	6,0	40	26	SIL101606
160,0	7,0	40	26	SIL101607
160,0	8,0	40	26	SIL101608
160,0	10,0	40	22	SIL101610
160,0	12,0	40	22	SIL101612
160,0	14,0	40	22	SIL101614
160,0	16,0	40	24	SIL101616
160,0	18,0	40	24	SIL101618
160,0	20,0	40	22	SIL101620

102

Fresa a disco a denti diritti
Side milling cutter
with straight teeth
Scheibenfräser, gerade Zähne
Fraise disque à denture droite



HSS Co | ISO 2587 | DIN 885B | λ 0° γ 10°

P M K N S

D js16	S k11	d H7	Z	Non rivestito Uncoated
63,0	4,0	22	22	SIL102204
63,0	5,0	22	22	SIL102205
63,0	6,0	22	22	SIL102206
63,0	8,0	22	22	SIL102208
63,0	10,0	22	22	SIL102210
63,0	12,0	22	20	SIL102212
63,0	14,0	22	20	SIL102214
80,0	6,0	27	24	SIL102306
80,0	8,0	27	24	SIL102308
80,0	10,0	27	24	SIL102310
80,0	12,0	27	24	SIL102312
80,0	14,0	27	20	SIL102314
80,0	16,0	27	20	SIL102316
100,0	6,0	27	26	SIL102406
100,0	8,0	27	26	SIL102408
100,0	10,0	27	26	SIL102410
100,0	12,0	27	26	SIL102412
100,0	14,0	27	22	SIL102414
100,0	16,0	27	22	SIL102416
125,0	10,0	32	30	SIL102510
125,0	12,0	32	24	SIL102512
125,0	14,0	32	24	SIL102514
125,0	16,0	32	24	SIL102516
125,0	18,0	32	24	SIL102518
125,0	20,0	32	24	SIL102520

P **Acciaio** Steel Stahl Acier
M **Acciaio Inox** Stainless Steel Nichtrostend Acier inoxydable
K **Ghisa** Cast Iron Gusseisen Fonte
N **Leghe di Alluminio** Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium
S **HRSA - Titanio** HRSA - Titanium HRSA - Titan HRSA - Titane
H **Acciai Temprati** Hardened Steels Gehärtete Stähle Aciers trempés
O **Non ISO** Not ISO Nicht ISO Non - ISO

Raccomandato Recommended Empfohlen Recommandé
Adatto Suitable Geeignet Adapté

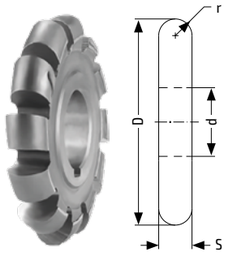
Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

101 102

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 7
PCC → 86
UTP → 90
FSB → 94
PSV → 96

10E

Fresa semicircolare
Half circle cutter
Halbkreisfräser
Fraise convexe profil rond



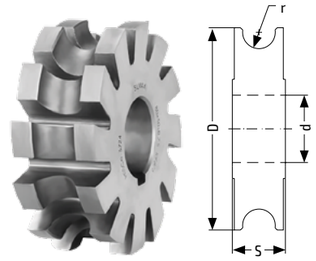
HSS Co8 | ISO 3860 | DIN 856 | λ 0° γ 8°

P M K N S

r h11	D js16	S	d H7	Z	Non rivestito Uncoated
2,0	50,0	4,0	16	14	SIL10E502
2,5	63,0	5,0	22	12	SIL10E625
3,0	63,0	6,0	22	12	SIL10E603
3,5	63,0	7,0	22	12	SIL10E635
4,0	63,0	8,0	22	12	SIL10E604
4,5	63,0	9,0	22	12	SIL10E645
5,0	63,0	10,0	22	12	SIL10E605
5,5	80,0	11,0	27	12	SIL10E855
6,0	80,0	12,0	27	12	SIL10E806
6,5	80,0	13,0	27	12	SIL10E865
7,0	80,0	14,0	27	12	SIL10E807
7,5	80,0	15,0	27	12	SIL10E875
8,0	80,0	16,0	27	12	SIL10E808
8,5	100,0	17,0	32	12	SIL10E185
9,0	100,0	18,0	32	12	SIL10E109
9,5	100,0	19,0	32	12	SIL10E195
10,0	100,0	20,0	32	12	SIL10E110

10F

Fresa frontale a sgrossare
Half circle cutter
Halbkreisfräser
Fraise concaves profil rond



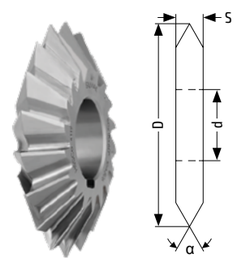
HSS Co8 | ISO 3860 | DIN 885A | λ 0° γ 8°

P M K N S

r h11	D js16	S	d H7	Z	Non rivestito Uncoated
2,0	50,0	9,0	16	14	SIL10F502
2,5	63,0	10,0	22	12	SIL10F625
3,0	63,0	12,0	22	12	SIL10F603
3,5	63,0	14,0	22	12	SIL10F635
4,0	63,0	16,0	22	12	SIL10F604
4,5	63,0	18,0	22	12	SIL10F645
5,0	63,0	20,0	22	12	SIL10F605
5,5	80,0	22,0	27	12	SIL10F855
6,0	80,0	24,0	27	12	SIL10F806
6,5	80,0	26,0	27	12	SIL10F865
7,0	80,0	28,0	27	12	SIL10F807
7,5	80,0	30,0	27	12	SIL10F875
8,0	80,0	32,0	27	12	SIL10F808
8,5	100,0	34,0	32	12	SIL10F185
9,0	100,0	34,0	32	12	SIL10F109
9,5	100,0	36,0	32	12	SIL10F195
10,0	100,0	36,0	32	12	SIL10F110

10A

Fresa ad angolo
Double angle cutter
Prismenfräser
Fraise isoscèle



HSS Co8 | ISO 6108 | DIN 847 | λ 0° γ 0°

P M K N S

α ± 30'	D js16	S js16	d H7	Z	Non rivestito Uncoated
45°	50,0	8,0	16	16	SIL10A504
45°	63,0	10,0	22	18	SIL10A634
45°	80,0	12,0	27	18	SIL10A804
45°	100,0	18,0	32	20	SIL10A104
60°	50,0	10,0	16	16	SIL10A506
60°	63,0	14,0	22	18	SIL10A636
60°	80,0	18,0	27	18	SIL10A806
60°	100,0	25,0	32	20	SIL10A106
90°	50,0	14,0	16	16	SIL10A509
90°	63,0	20,0	22	18	SIL10A639
90°	80,0	22,0	27	18	SIL10A809
90°	100,0	32,0	32	20	SIL10A109

P	M	K	N	S	H	O		
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO	Raccomandato Recommended Empfohlen Recommandé	Adatto Suitable Geeignet Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
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Scannez le code Qr pour visualiser les paramètres de fonctionnement.

10E 10F 10A

ALT

Altre frese

Other mills

Andere Fräser

Autres fraises

SIL SERVICE

L'esperienza Silmax dimostra che un utensile correttamente affilato ha un rendimento uguale a quello nuovo.

Silmax experience shows that a properly sharpened tool grants the same performances of a new tool.

Die Erfahrung von Silmax zeigt, dass ein guter Nachschliff die gleiche Leistungsfähigkeit wie bei neuen Werkzeugen ermöglicht.

Les outils Silmax re-affûtés offrent rendement et une longévité atteignant à 100% des outils neufs.

Riaffilatura e rigenerazione
Resharpening and Reconditioning
Nachschliff und Regeneration
Réaffûtage et régénération

Pick up settimanale
Weekly pick up
Wöchentliche Abholung
Ramassage hebdomadaire

Attenzione al dettaglio
Attention to detail
Liebe zum Detail
Attention aux détails

Controllo qualità
Quality control
Qualitäts-kontrolle
Contrôle qualité

Rivestimento PVD
PVD Coating
PVD-Beschichtung
Revêtement PVD

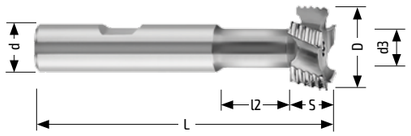
PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

005F

Fresa a "T" a sgrossare
Roughing T-slot mill
T-Nutenfräser zum Schruppen
Fraise ébauche pour rainures en T

HSS Co8 | NRF F Form | ISO 3337 | DIN 851AB | λ 25° γ 10°

P M K N S



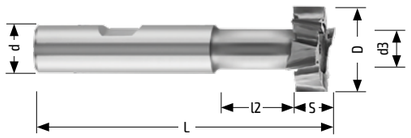
D k12	S d11	L h6	d	d3	l2	Z	Non rivestito Uncoated	Balinit® Alcrona
12,5	6,0	57	10	5	7	4	SIL005F12	NIG005F12
16,0	8,0	62	10	7	10	5	SIL005F16	NIG005F16
18,0	8,0	70	12	8	13	5	SIL005F18	NIG005F18
21,0	9,0	74	12	10	16	5	SIL005F21	NIG005F21
22,0	10,0	82	16	10	16	5	SIL005F22	NIG005F22
25,0	11,0	82	16	12	17	5	SIL005F25	NIG005F25
30,0	12,0	90	16	14	22	6	SIL005F30	NIG005F30
32,0	14,0	90	16	15	22	6	SIL005F32	NIG005F32
36,0	16,0	108	25	17	27	6	SIL005F36	NIG005F36
40,0	18,0	108	25	19	27	8	SIL005F40	NIG005F40

105T

Fresa a "T" a finire
Finishing T-slot mill
T-Nutenfräser zum Schlichten
Fraise de finition pour rainures en T

HSSE | ISO 3337 | DIN 851AB | N | λ 15° γ 12°

P M K N S



D +0,05/+0	S +0/-0,05	L	d h8	d3	l2	Z	Non rivestito Uncoated	Balinit® Alcrona
12,5	6,0	57	10	5	11	6	SIL105T12	NIG105T12
16,0	8,0	62	10	7	14	6	SIL105T16	NIG105T16
18,0	8,0	70	12	8	17	6	SIL105T18	NIG105T18
19,0	9,0	70	12	8	17	6	SIL105T19	NIG105T19
21,0	9,0	74	12	10	20	6	SIL105T21	NIG105T21
22,0	10,0	74	12	10	20	6	SIL105T22	NIG105T22
25,0	11,0	82	16	12	23	6	SIL105T25	NIG105T25
28,0	12,0	85	16	13	25	6	SIL105T28	NIG105T28
32,0	14,0	90	16	15	28	8	SIL105T32	NIG105T32

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Scannez le code Qr pour visualiser les paramètres de fonctionnement.

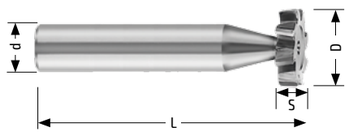
005F 105T 1W5 10C

1W5

Fresa Woodruff
Woodruff mill
Schlitzfräser
Fraise Woodruff

HSSE | DIN 850B | λ 0° γ 0°

P M K N S



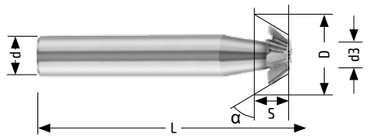
D +0,05/+0	S d9	L h8	d	Z	Non rivestito Uncoated
10,5	2,0	50	6	6	SIL1W5102
10,5	2,5	50	6	6	SIL1W5125
10,5	3,0	50	6	6	SIL1W5103
13,5	2,0	56	10	8	SIL1W5132
13,5	3,0	56	10	8	SIL1W5133
13,5	4,0	56	10	8	SIL1W5134
16,5	3,0	56	10	8	SIL1W5163
16,5	4,0	56	10	8	SIL1W5164
16,5	5,0	56	10	8	SIL1W5165
16,5	6,0	56	10	8	SIL1W5166
19,5	3,0	56	10	8	SIL1W5193
19,5	4,0	56	10	8	SIL1W5194
19,5	5,0	56	10	8	SIL1W5195
19,5	6,0	56	10	8	SIL1W5196
22,5	4,0	56	10	8	SIL1W5224
22,5	5,0	56	10	8	SIL1W5225
22,5	6,0	56	10	8	SIL1W5226
22,5	8,0	56	10	8	SIL1W5228
25,5	5,0	56	10	8	SIL1W5255
25,5	6,0	56	10	8	SIL1W5256
25,5	7,0	56	10	8	SIL1W5257
25,5	8,0	56	10	8	SIL1W5258

10C

Fresa ad angolo convergente
Dovetail mill with convergent taper angle
Winkelfräser (konvergent)
Fraise conique, cône direct

HSSE | DIN 1833B | λ 0° γ 0°

P M K N S



α +/-30'	D js16	d3	L	d h8	Z	Non rivestito Uncoated
45°	16,0	7,5	60	12	8	SIL10C164
45°	20,0	10,0	63	12	8	SIL10C204
45°	25,0	11,0	67	16	10	SIL10C254
60°	16,0	7,5	60	12	8	SIL10C166
60°	20,0	10,0	63	12	8	SIL10C206
60°	25,0	11,0	67	16	10	SIL10C256
70°	16,0	7,5	60	12	8	SIL10C167
70°	20,0	10,0	63	12	8	SIL10C207
70°	25,0	11,0	67	16	10	SIL10C257

Foratura

Drilling / Bohren / Perçage

PCC

Punte a centrare
Center drills
Zentrierbohrer
Forets à centrer

	Codice Code	Ø (D mm)	
	351	1,0 ÷ 6,3	86
	355	1,6 ÷ 6,3	86
	350	1,0 ÷ 4,0	87
	352	1,0 ÷ 6,3	87
	356	1,6 ÷ 6,3	88
	353	1,5 ÷ 6,0	88
	357	3,0 ÷ 20,0	89
	358	3,0 ÷ 20,0	89

UTP

Punte a eliche indipendenti
Subland drills
Stufenbohrer
Forets étagés à double hélice

	Codice Code	Ø (D mm)	
	301	M3 ÷ M10	90
	311	M3 ÷ M8	91
	321	M3 ÷ M12	91

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

PCC | Punte a centrare

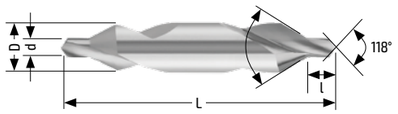
Center drills / Zentrierbohrer / Forets à centrer

351

Punta a centrare
Center drill
Zentrierbohrer
Foret à centrer

HSSE | Form A | DIN 333A

P M K N S



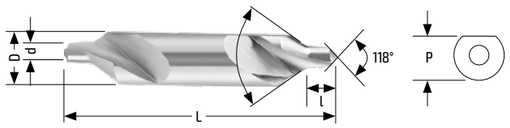
	D h7	d k12	L	l	Non rivestito Uncoated	Balinit® Alcrona
60°	3,15	1,00	31	1,3-1,6	PCC351100	NIG351100
	3,15	1,25	31	1,6-1,9	PCC351125	NIG351125
	4,00	1,60	35	2,0-2,4	PCC351160	NIG351160
	5,00	2,00	40	2,5-2,9	PCC351200	NIG351200
	6,30	2,50	45	3,1-3,6	PCC351250	NIG351250
	8,00	3,15	50	3,9-4,4	PCC351315	NIG351315
	10,00	4,00	55	5,0-5,6	PCC351400	NIG351400
	12,50	5,00	63	6,3-6,9	PCC351500	NIG351500
	16,00	6,30	71	8,0-8,6	PCC351630	NIG351630

355

Punta a centrare con piatto sul gambo
Center drill with flatted shank
Zentrierbohrer mit abgeflachtem Schaft
Foret à centrer avec meplat

HSSE | Form A | DIN 333A

P M K N S



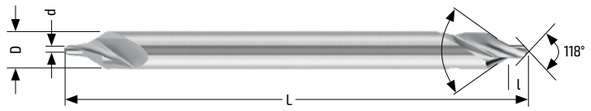
	D h7	d k12	L	l	P	Non rivestito Uncoated	Balinit® Alcrona
60°	4,00	1,60	35	2,0-2,4	3,25	PCC355160	NIG355160
	5,00	2,00	40	2,5-2,9	4,20	PCC355200	NIG355200
	6,30	2,50	45	3,1-3,6	5,35	PCC355250	NIG355250
	8,00	3,15	50	3,9-4,4	6,95	PCC355315	NIG355315
	10,00	4,00	55	5,0-5,6	8,40	PCC355400	NIG355400
	12,50	5,00	63	6,3-6,9	10,95	PCC355500	NIG355500
	16,00	6,30	71	8,0-8,6	14,00	PCC355630	NIG355630

350

Punta a centrare serie lunga
Center drill long version
Zentrierbohrer lange Ausführung
Forets à centrer série longue

HSSE | Form A | λ 20°

P M K N S



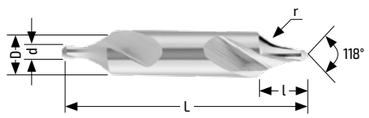
	D h7	d k12	L	l	Non rivestito Uncoated	Balinit® Alcrona
60°	4,00	1,00	100	1,3-1,6	PCC350100	NIG350100
	5,00	1,50	100	2,0-2,4	PCC350150	NIG350150
	6,00	2,00	100	2,5-2,9	PCC350200	NIG350200
	8,00	2,50	100	3,1-3,6	PCC350250	NIG350250
	8,00	3,00	100	3,9-4,4	PCC350300	NIG350300
	10,00	4,00	100	5,0-5,6	PCC350400	NIG350400

352

Punta a centrare
Center drill
Zentrierbohrer
Foret à centrer

HSSE | Form R | DIN 333R

P M K N S



	D h7	d k12	L	l	r	Non rivestito Uncoated	Balinit® Alcrona
r	3,15	1,00	31	3,0-3,3	2,90	PCC352100	NIG352100
	3,15	1,25	31	3,3-3,6	3,15	PCC352125	NIG352125
	4,00	1,60	35	4,2-4,7	4,00	PCC352160	NIG352160
	5,00	2,00	40	5,0-5,4	5,00	PCC352200	NIG352200
	6,30	2,50	45	6,3-6,8	6,30	PCC352250	NIG352250
	8,00	3,15	50	8,0-8,5	8,00	PCC352315	NIG352315
	10,00	4,00	55	10,0-10,6	10,00	PCC352400	NIG352400
	12,50	5,00	63	12,5-13,1	12,50	PCC352500	NIG352500
	16,00	6,30	71	16,0-16,6	16,00	PCC352630	NIG352630

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé

Adatto / Suitable / Geeignet / Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

351 355 350 352

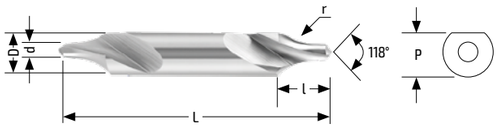
PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

356

Punta a centrare con piatto sul gambo
Center drill with flatted shank
Zentrierbohrer mit abgeflachtem Schaft
Foret à centrer avec plat

HSSE | Form R | DIN 333R

P M K N S



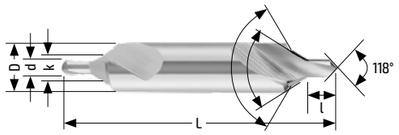
	D h7	d k12	L	l	r	P	Non rivestito Uncoated	Balinit® Alcrona
r	4,00	1,60	35	4,2-4,7	4,0	3,25	PCC356160	NIG356160
	5,00	2,00	40	5,0-5,4	5,0	4,20	PCC356200	NIG356200
	6,30	2,50	45	6,3-6,8	6,3	5,35	PCC356250	NIG356250
	8,00	3,15	50	8,0-8,5	8,0	6,95	PCC356315	NIG356315
	10,00	4,00	55	10,0-10,6	10,0	8,40	PCC356400	NIG356400
	12,50	5,00	63	12,5-13,1	12,5	10,95	PCC356500	NIG356500
	16,00	6,30	71	16,0-16,6	16,0	14,00	PCC356630	NIG356630

353

Punta a centrare con paracentro
Center drill with saved angle
Zentrierbohrer mit Schutzsenkungswinkel
Foret à centrer avec chanfrein de protection

HSSE | Form B | DIN 333B

P M K N S



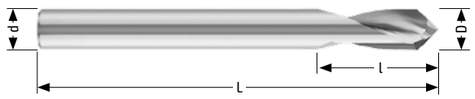
	D h7	d k12	L	l	k	Non rivestito Uncoated	Balinit® Alcrona
120° 60°	5,00	1,50	40	2,0-2,4	3,00	PCC353150	NIG353150
	6,00	2,00	45	2,5-2,9	4,00	PCC353200	NIG353200
	8,00	2,50	50	3,1-3,6	5,50	PCC353250	NIG353250
	10,00	3,00	55	3,9-4,4	7,00	PCC353300	NIG353300
	10,00	4,00	55	5,0-5,6	8,00	PCC353400	NIG353400
	12,00	5,00	63	6,3-6,9	9,00	PCC353500	NIG353500
	18,00	6,00	77	8,0-8,6	12,00	PCC353600	NIG353600

357

Punta a centrare
Center drill
Zentrierbohrer
Foret à centrer

HSSE | NC | ISO 10898 | λ 20°

P M K N S



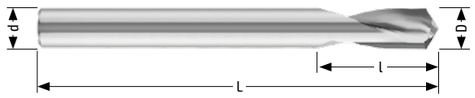
	D h7	L	l	Non rivestito Uncoated	Balinit® Alcrona
90°	3,00	50	10	PCC357003	NIG357003
	4,00	52	12	PCC357004	NIG357004
	5,00	60	15	PCC357005	NIG357005
	6,00	66	20	PCC357006	NIG357006
	8,00	79	25	PCC357008	NIG357008
	10,00	89	25	PCC357010	NIG357010
	12,00	102	30	PCC357012	NIG357012
	14,00	115	35	PCC357014	NIG357014
	16,00	115	35	PCC357016	NIG357016
	20,00	131	40	PCC357020	NIG357020

358

Punta a centrare
Center drill
Zentrierbohrer
Foret à centrer

HSSE | NC | ISO 10898 | λ 20°

P M K N S



	D h7	L	l	Non rivestito Uncoated	Balinit® Alcrona
120°	3,00	50	10	PCC358003	NIG358003
	4,00	52	12	PCC358004	NIG358004
	5,00	60	15	PCC358005	NIG358005
	6,00	66	20	PCC358006	NIG358006
	8,00	79	25	PCC358008	NIG358008
	10,00	89	25	PCC358010	NIG358010
	12,00	102	30	PCC358012	NIG358012
	16,00	114	35	PCC358016	NIG358016
	20,00	130	40	PCC358020	NIG358020

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé

Adatto / Suitable / Geeignet / Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

356 353 357 358

UTP | Punte a eliche indipendenti

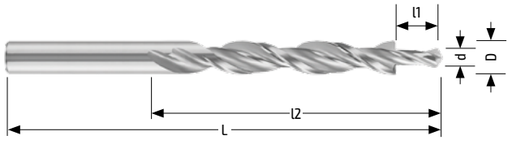
Subland drills / Stufenbohrer / Forets étagés à double hélice

301

Punta a eliche indipendenti
Subland drill
Stufenbohrer
Foret étagés à double hélice

HSS | DIN 8376

P M K N S



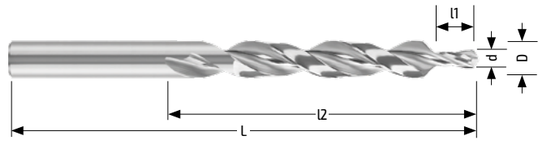
180°

Fil	d h9	D h8	l1	l2	L	Non rivestito Uncoated
M3	3,4	6,0	8,0	57	93	UTP301003
M3	3,2	5,9	5,0	52	88	UTP301031
M3	3,2	5,9	10,0	57	93	UTP301032
M4	4,5	8,0	9,6	75	117	UTP301004
M4	4,3	7,4	4,7	56	98	UTP301041
M4	4,3	7,4	11,7	63	105	UTP301042
M5	5,5	10,0	11,3	87	133	UTP301005
M5	5,3	9,4	4,4	65	110	UTP301051
M5	5,3	9,4	14,4	75	120	UTP301052
M6	6,6	11,0	13,0	94	142	UTP301006
M6	6,4	10,4	8,1	83	133	UTP301061
M6	6,4	10,4	18,1	83	133	UTP301062
*M8	9,0	15,0	16,3	114	169	UTP301008
M8	8,4	13,5	10,5	100	160	UTP301081
M8	8,4	13,5	20,5	100	160	UTP301082
*M10	11,0	18,0	19,7	130	191	UTP301010
*M10	10,5	16,5	11,8	105	176	UTP301101
*M10	10,5	16,5	21,8	115	186	UTP301102

* Gambo D. 13,5 / * Shank D. 13,5 / * Schaft D. 13,5 / * Queue D. 13,5

311

Punta a eliche indipendenti
Subland drill
Stufenbohrer
Foret étagés à double hélice



HSS | DIN 8374

P M K N S

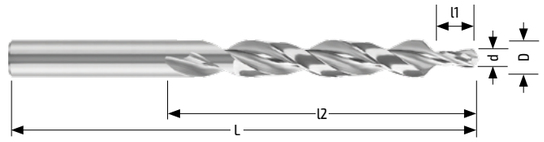
90°

Fil	d h9	D h8	l1	l2	L	Non rivestito Uncoated
M3	3,4	6,6	8,0	63	101	UTP311003
M3	3,2	6,3	10,0	52	90	UTP311032
M4	4,5	9,0	9,6	81	125	UTP311004
M4	4,3	8,3	11,7	63	105	UTP311042
M5	5,5	11,0	11,3	94	142	UTP311005
M5	5,3	10,4	14,4	83	133	UTP311052
M6	6,6	13,0	13,0	101	151	UTP311006
M6	6,4	12,4	18,1	90	142	UTP311062
*M8	9,0	17,2	16,3	130	191	UTP311008
*M8	8,4	16,5	20,5	115	186	UTP311082

* Gambo D. 13,5 / * Shank D. 13,5 / * Schaft D. 13,5 / * Queue D. 13,5

321

Punta a eliche indipendenti per fori da filettare
Subland drill for tapped holes
Stufenbohrer für Gewindebohrungen
Foret étagés à double hélice pour perçage avant taraudage



HSS | DIN 8378

P M K N S

90°

Fil	d h9	D h8	l1	l2	L	Non rivestito Uncoated
M3	2,5	3,4	8,8	39	70	UTP321003
M4	3,3	4,5	11,4	47	80	UTP321004
M5	4,2	5,5	13,6	57	93	UTP321005
M6	5,0	6,6	16,5	63	101	UTP321006
M8	6,8	9,0	21,0	81	125	UTP321008
M10	8,5	11,0	25,5	94	142	UTP321010
*M12	10,2	14,0	30,0	108	160	UTP321012

* Gambo D. 13,5 / * Shank D. 13,5 / * Schaft D. 13,5 / * Queue D. 13,5

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

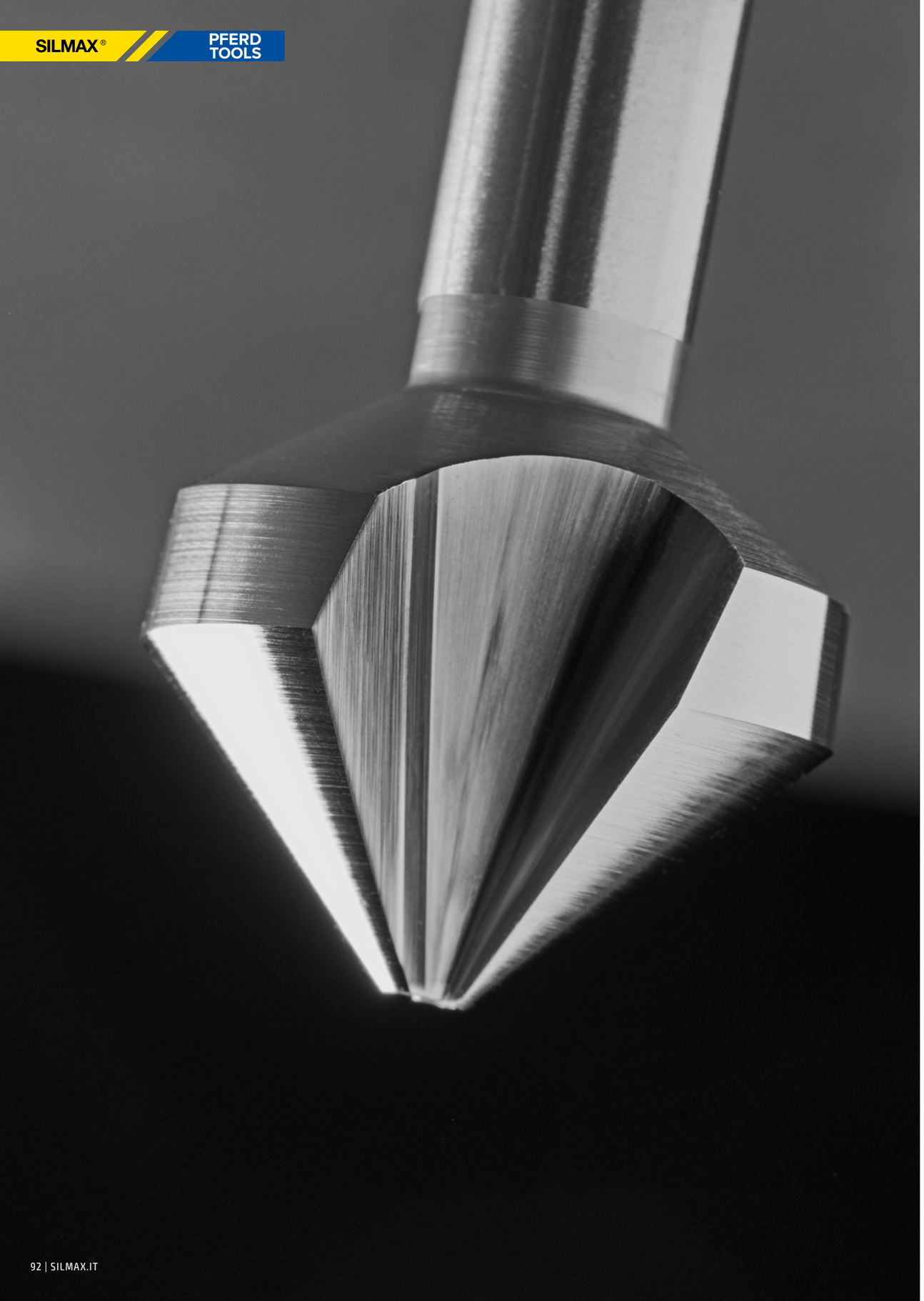
Raccomandato / Recommended / Empfohlen / Recommandé

Adatto / Suitable / Geeignet / Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

301 311 321

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96



Sedi viti e svasatori

Counterbore cutters and countersinks
Senkbohrer und Kegelsenker
Fraises à lamer et fraises à chanfreins

FSB
Frese per sedi viti
Counterbore cutters
Senkbohrer
Fraises à lamer

	Codice Code	Ø (D mm)	
	401	M3 ÷ M12	94
	402	M10 ÷ M20	94
	403	M3 ÷ M10	95

PSV
Svasatori
Countersinks
Kegelsenker
Fraises à chanfreins

	Codice Code	Ø (D mm)	
	361	6,3 ÷ 25,0	96
	362	4,3 ÷ 31,0	96
	367	12,4 ÷ 31,0	97
	363	8,0 ÷ 25,0	97

PM → 24
SGR → 34
FIN → 44
FRF → 68
ALT → 77
PCC → 86
UTP → 90
FSB → 94
PSV → 96

FSB | Frese per sedi viti

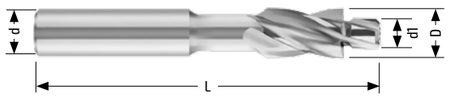
Counterbore cutters / Senkbohrer / Fraises à lamer

401

Sedi viti / Counterborers / Senkbohrer /Fraise à lamer

HSSE | ISO 4205 | DIN 373

P M K N S



180°

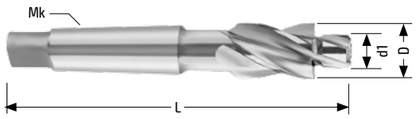
dv	d1 e8	D z9	L	d h8	Z	Non rivestito Uncoated
M3	3,2	6,0	71	6	4	FSB401003
M4	4,3	7,4	71	8	4	FSB401004
M5	5,3	9,4	80	10	4	FSB401005
M6	6,4	10,4	80	10	4	FSB401006
M8	8,4	13,5	100	12	4	FSB401008
M10	10,5	16,5	100	12	4	FSB401010
M12	13,0	20,0	100	12	4	FSB401012

402

Sedi viti / Counterborers / Senkbohrer /Fraise à lamer

HSSE | ISO 4205 | DIN 373

P M K N S



180°

dv	d1 e8	D z9	L	Mk	Z	Non rivestito Uncoated
M10	10,5	16,5	145	2	4	FSB402010
M12	13,0	20,0	150	2	4	FSB402012
M14	15,0	23,0	160	2	4	FSB402014
M16	17,0	25,0	165	2	4	FSB402016
M18	19,0	28,0	175	2	4	FSB402018
M20	21,0	31,0	200	3	4	FSB402020

403

Sedi viti / Counterborers / Senkbohrer /Fraise à lamer

HSSE | ISO 4206 | DIN 1866

P M K N S

90°

dv	d1 e8	D z9	L	d h8	Z	Non rivestito Uncoated
M3	3,2	6,5	71	6	4	FSB403003
M4	4,3	8,6	71	8	4	FSB403004
M5	5,3	10,6	80	10	4	FSB403005
M6	6,4	12,6	80	10	4	FSB403006
M8	8,4	16,7	100	12	4	FSB403008
M10	10,5	20,7	100	12	4	FSB403010

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé

Adatto / Suitable / Geeignet / Adapté

Scansiona il Qr-code per consultare i parametri di lavoro.
Scan the Qr-code to view the working parameters.
Scannen Sie den QR-Code, um die Schnittwerte anzuzeigen.
Scannez le code Qr pour visualiser les paramètres de fonctionnement.

401 402 403

PM → 24
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PSV | Svasatori
Countersinks / Kegelsenker / Fraises à chanfreins

361

Svasatore / Countersink / Kegelsenker / Fraise à chanfreins

HSSE | Z3 | DIN 334C

P M K N S

	D z9	d1	d h9	L	Non rivestito Uncoated	Balinit® Alcrona
60°	6,3	1,5	5	47	PSV361063	NIG361063
	8,3	2,0	6	52	PSV361083	NIG361083
	10,4	2,5	6	53	PSV361104	NIG361104
	12,4	3,0	8	60	PSV361124	NIG361124
	16,5	4,0	10	65	PSV361165	NIG361165
	20,5	4,0	10	69	PSV361205	NIG361205
	25,0	5,0	10	75	PSV361250	NIG361250

362

Svasatore / Countersink / Kegelsenker / Fraise à chanfreins

HSSE | Z3 | DIN 335C

P M K N S

	D z9	d1	d h9	L	Non rivestito Uncoated	Balinit® Alcrona
90°	4,3	1,3	4	40	PSV362043	NIG362043
	5,3	1,5	4	40	PSV362053	NIG362053
	6,3	2,0	5	45	PSV362063	NIG362063
	7,3	2,0	6	50	PSV362073	NIG362073
	8,3	2,5	6	50	PSV362083	NIG362083
	9,4	3,0	6	50	PSV362094	NIG362094
	10,4	3,0	6	50	PSV362104	NIG362104
	12,4	3,0	8	56	PSV362124	NIG362124
	16,5	4,0	10	60	PSV362165	NIG362165
	20,5	4,0	10	63	PSV362205	NIG362205
	25,0	4,0	10	67	PSV362250	NIG362250
	31,0	4,0	12	71	PSV362310	NIG362310

P	M	K	N	S	H	O
Acciaio Steel Stahl Acier	Acciaio Inox Stainless Steel Nichtrostend Acier inoxydable	Ghisa Cast Iron Gusseisen Fonte	Leghe di Alluminio Aluminium Alloys Aluminiumlegierungen Alliages d'aluminium	HRSA - Titanio HRSA - Titanium HRSA - Titan HRSA - Titane	Acciai Temprati Hardened Steels Gehärtete Stähle Aciers trempés	Non ISO Not ISO Nicht ISO Non - ISO

Raccomandato / Recommended / Empfohlen / Recommandé

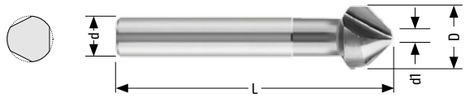
Adatto / Suitable / Geeignet / Adapté

367

Svasatore per l'impiego a mano / Countersinking with flatted shanks
Kegelsenker für Handbearbeitung / Fraise à main à chanfreins

HSSE | Z3 | DIN 335C

P M K N S



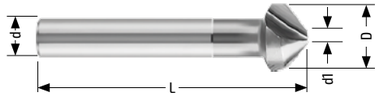
	D z9	d1	d h9	L	Non rivestito Uncoated	Balinit® Alcrona
90°	12,4	3,0	8	56	PSV367124	NIG367124
	16,5	4,0	10	60	PSV367165	NIG367165
	20,5	4,0	10	63	PSV367205	NIG367205
	25,0	4,0	10	67	PSV367250	NIG367250
	31,0	4,0	12	71	PSV367310	NIG367310

363

Svasatore / Countersinking cutter
Kegelsenker / Fraise à chanfreins

HSSE | Z3 | DIN 335C

P M K N S



	D z9	d1	d h9	L	Non rivestito Uncoated	Balinit® Alcrona
120°	8,0	2,0	6	49	PSV363080	NIG363080
	12,5	2,8	8	54	PSV363125	NIG363125
	16,0	3,2	10	57	PSV363160	NIG363160
	20,0	3,5	10	59	PSV363200	NIG363200
	25,0	3,8	10	63	PSV363250	NIG363250

Scansiona il Qr-code per consultare i parametri di lavoro.
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INFORMAZIONI TECNICHE

TECHNICAL INFO
TECHNISCHE INFORMATIONEN
INFORMATIONS TECHNIQUES

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Glossary / Glossar / Glossaire 100

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DIN-Standard / DIN-Norm / Norme DIN 101

Formule
Formulas / Formel / Formules 102

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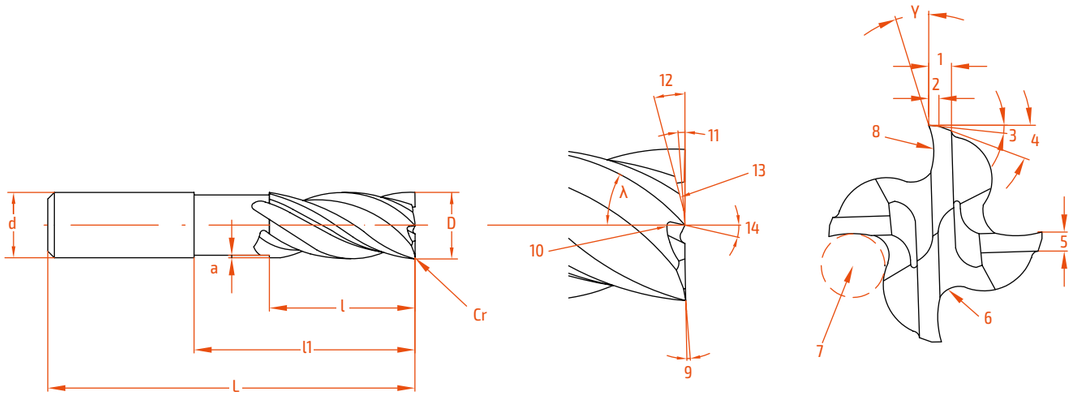
GLOSSARIO

Glossary / Glossar / Glossaire



D Diametro della fresa
Mill diameter / Fräserdurchmesser
Diamètre de la fraise

d Diametro del gambo
Shank diameter / Schaftdurchmesser
Diamètre de la queue

L Lunghezza totale
Overall lenght / Gesamtlänge /
Longueur totale

l Lunghezza di taglio
Lenght of cut / Schnittlänge / Longueur utile

l1 Lunghezza ribassata
Neck length / Abgesetzte Länge
Longueur degagé

a Ribassamento del codolo
Neck relief / Abgesetzter Schaft
Dégagement

Cr Raggio di raccordo
Corner radius / Übergangsradius
Rayon torique

r Raggio
Radius / Radius / Rayon

z Numero dei denti
Number of teeth / Zähnezahl
Nombre des dents

λ Angolo d'elica
Helix angle / Drallwinkel / Angle d'hélice

γ Angolo di spoglia radiale superiore (mordente)
Radial rake angle / Radialer Spanwinkel /
Angle de coupe radiale

1 Larghezza spoglia radiale primaria
Radial primary relief width/ Breite der Hauptschneidenfase / Dépouille radiale

2 Larghezza del dente
Land width / Fasenbreite / Contre-dépouille

3 Angolo prima spoglia radiale
Radial primary relief angle / Radialer Freiwinkel der Hauptschneide / Angle de dépouille radiale

4 Seconda spoglia radiale
Radial secondary clearance angle / Radialer zusätzlicher Freiwinkel der Hauptschneide / Angle de contre-dépouille radiale

5 Larghezza spoglia assiale primaria
Axial primary relief width / Breite der Axialfase / Largeur de dépouille axiale

6 Gola
Flute / Spannut / Goujure

7 Vano truciolo
Chip room / Großer Spanraum / Poche à copeaux

8 Piano di mordente
Cutting face / Spanfläche / Face de coupe

9 Angolo di rastremazione frontale
End cutting edge concavity angle / Nebenschneidenwinkel / Concavité en bout de fraise

10 Gola frontale
End gash / Vordere Spannut / Dégagement axial copeaux

11 Prima spoglia frontale
Axial primary relief angle / Axialer Hauptschneidenwinkel / Angle de dépouille axiale

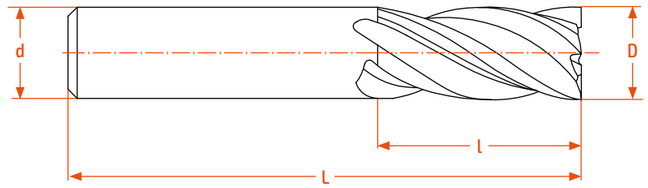
12 Angolo seconda spoglia frontale
Axial secondary clearance angle / Axialer zusätzlicher Freiwinkel / Contre-dépouille axiale

13 Denti frontali
End teeth / Stirnschneiden / Fond de dent

14 Angolo di spoglia frontale superiore (mordente)
Axial rake angle / Axialer Spanwinkel / Angle de coupe axiale

NORMA DIN

DIN-Standard
DIN-Norm
Norme DIN



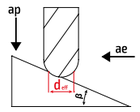
Serie Series / Serie / Série	Corta Short / Kurz / Courte			Normale Regular / Normale / Normale			Media Medium / Mittlere / Moyenne			Lunga Long / Lang / Longue		
DIN	**327**			**844K**			**Silmax Norm**			**844L**		
D.	**d**	**L**	**l**	**d**	**L**	**l**	**d**	**L**	**l**	**d**	**L**	**l**
2,0	6	48	4	6	51	7	-	-	-	6	54	10
2,5	6	49	5	6	52	8	-	-	-	6	56	12
3,0	6	49	5	6	52	8	-	-	-	6	56	12
4,0	6	51	7	6	55	11	-	-	-	6	63	19
5,0	6	52	8	6	57	13	-	-	-	6	68	24
6,0	6	52	8	6	57	13	6	62	18	6	68	24
7,0	10	60	10	10	66	16	-	-	-	10	80	30
8,0	10	61	11	10	69	19	10	75	25	10	88	38
9,0	10	61	11	10	69	19	-	-	-	10	88	38
10,0	10	63	13	10	72	22	10	83	33	10	95	45
11,0	12	70	13	12	79	22	-	-	-	12	102	45
12,0	12	73	16	12	83	26	12	96	39	12	110	53
13,0	12	73	16	12	83	26	-	-	-	12	110	53
14,0	12	73	16	12	83	26	12	96	39	12	110	53
15,0	12	73	16	12	83	26	-	-	-	12	110	53
16,0	16	79	19	16	92	32	16	105	45	16	123	63
17,0	16	79	19	16	92	32	-	-	-	16	123	63
18,0	16	79	19	16	92	32	16	105	45	16	123	63
19,0	16	79	19	16	92	32	-	-	-	16	123	63
20,0	20	88	22	20	104	38	20	121	55	20	141	75
22,0	20	88	22	20	104	38	20	121	55	20	141	75
24,0	25	102	26	25	121	45	-	-	-	25	166	90
25,0	25	102	26	25	121	45	25	141	65	25	166	90
26,0	25	102	26	25	121	45	-	-	-	25	166	90
28,0	25	102	26	25	121	45	25	141	65	25	166	90
30,0	25	102	26	25	121	45	25	141	65	25	166	90
32,0	32	112	32	32	133	53	32	158	78	32	186	106
40,0	40	130	38	40	155	63	-	-	-	40	217	125
45,0	40	130	38	-	-	-	-	-	-	40	217	125
50,0	50	147	45	50	177	75	-	-	-	50	252	150

FORMULE

Formulas / Formel / Formules

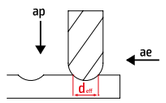
Parametro Parameter Parameter Paramètre	**Unità di misura** Units of measurement Einheit Unité de mesure	**Formula** Formula Formel Formule
Velocità di rotazione Revolutions per minute / Umdrehung pro Minute/ Vitesse de rotation	[Rpm]	$n = \frac{Vc \times 1000}{D \times \pi}$
Avanzamento Feed speed / Vorschubsgeschwindigkeit / Avance	[mm/min]	$F = Fz \times z \times n$
Velocità di taglio Cutting speed / Schnittgeschwindigkeit / Débit copeaux	[m/min]	$Vc = \frac{D \times \pi \times n}{1000}$
Avanzamento per giro Feed per revolution / Umdrehungsvorschub / Tour/minute	[mm]	$f = fz \times z$
Avanzamento per dente Feed per tooth / Vorschub pro Zahn/ Avance par dent	[mm]	$fz = \frac{F}{z \times n}$
Volume di truciolo Chip removal rate / Spanabfuhr/ Volume de copeaux	[cm^3/min]	$Q = \frac{ae \times ap \times F}{1000}$

Diametro effettivo per frese semisferiche con angolo di penetrazione 0°<β<90° / Effective diameter for ball nose end mills at a set angle 0°<β<90° / Effektiver Durchmesser für Nutenfräser mit Eintauchwinkel 0°<β<90° / Diamètre effectif pour fraises à bout hémisphérique pour un angle du taillant de 0°<β<90°



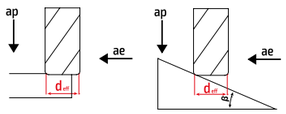
$$D_{eff} = D \times \sin\left[\beta + \cos^{-1}\left(\frac{D - 2 \times ap}{D}\right)\right] \text{ [mm]}$$

Diametro effettivo per frese semisferiche con angolo di penetrazione β=0° / Effective diameter for ball nose end mills at a set angle β=0° / Effektiver Durchmesser für Nutenfräser mit Eintauchwinkel β=0° / Diamètre effectif pour fraises à bout hémisphérique pour un angle du taillant de β=0°



$$D_{eff} = 2 \times \sqrt{D \times ap - ap^2} \text{ [mm]}$$

Diametro effettivo per frese toriche con angolo di penetrazione 0°<β<90° / Effective diameter for corner radius end mills at a set angle 0°<β<90° / Effektiver Durchmesser für Nutenfräser mit Eintauchwinkel 0°<β<90° Diamètre effectif pour fraise à rayon avec un angle d´attaque de 0°<β<90°



$$D_{eff} = D - 2 \times Cr + 2 \times Cr \times \sin\left[\beta + \cos^{-1}\left(1 - \frac{ap}{Cr}\right)\right] \text{ [mm]}$$

Parametro Parameter Parameter Paramètre	**Unità di misura** Units of measurement Einheit Unité de mesure	**Descrizione** Description Beschreibung Description
D	[mm]	Diametro della fresa / End mill diameter / Durchmesser der Fräser / Diamètre de la fraise
z	[Nr]	Numero dei denti / Number of teeth / Anzahl der Zähne / Nombre de dents
Cr	[mm]	Raggio di raccordo / Corner radius / Eckenradius / Rayon torique
ae	[mm]	Profondità radiale di passata / Cutting width / Schnittbreite / Profondeur de coupe radiale
ap	[mm]	Profondità assiale di passata / Cutting depth / Schnitttiefe / Profondeur de coupe axiale
D_{eff}	[mm]	Diametro in impegno effettivo / Effective engagement diameter Effektiver Eingriffsdurchmesser / Diamètre usiné
β	[gradi] / [degrees] [Grad] / [degrés]	Angolo di penetrazione / Setting angle / Einstellwinkel / Angle de pointe

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CONDIZIONI GENERALI DI VENDITA

1 **Catalogo prodotti e offerte.** Le nostre offerte sono vincolanti per entrambi le parti se seguite da accettazione scritta o da comportamento concludente. Silmax si riserva di modificare i prodotti e i dati tecnici inseriti nel proprio catalogo senza nessun obbligo di preavviso. Non saranno accettati ordini di valore inferiore ai 100,00 €, al netto dell'I.V.A. Le ordinazioni che ci pervengono si considerano accettate solo se seguite da una conferma per iscritto.

2 **Prezzi.** Le forniture di utensili normalizzati saranno fatturate ai prezzi indicati nel Listino Silmax in vigore e si intendono al netto dell'I.V.A. Silmax si riserva di modificare il listino senza obbligo di preavviso. Per i prodotti realizzati su richiesta del cliente, i prezzi indicati nelle nostre offerte sono applicati per il periodo di validità delle offerte medesime non potranno essere modificati. Per la merce, offerta o venduta, destinata all'estero i prezzi potranno essere soggetti a revisione qualora si verificassero variazioni di cambio di prezzo all'origine prima della spedizione o del pagamento del materiale, oppure variazioni delle tariffe e tasse doganali e d'importazione nel periodo intercorrente tra la data della nostra offerta e quella della consegna effettiva della merce al cliente.

3 **Trasporti.** Le spese di trasporto a destino e qualunque altra spesa o tassa che dovesse gravare sulle merci si intende ad esclusivo carico dell'acquirente, salvo diverso accordo, da pattuirsi per iscritto al momento dell'ordine. In nessun caso, poi, potremo essere chiamati a rispondere per mancata, ritardata o irregolare consegna da parte dei ferrovie, mezzi di trasporto aereo, di navigazione o su terra, restando inteso che la merce – anche se, per speciali accordi, venduta in porto franco – viaggia sempre a rischio e pericolo dell'acquirente ai sensi dell'art.1510 c.c. La mancata, ritardata o irregolare consegna dovuta alle suddette cause, quindi da noi indipendenti, non potrà costituire motivo di annullamento dell'ordine, né di mancato o ritardato pagamento, né, infine, di reclamo da parte dell'acquirente.

4 **Consegne**. I termini di consegna indicati ed accettati sono orientativi e valevoli solamente in condizioni normali di lavoro. Eventuali cause di forza maggiore, quali, a titolo esemplificativo, guerre, scioperi, epidemie, incidenti, il ritardo o l'interruzione dei qualsivoglia tipi di trasporto, la penuria di materiali ed ogni altro fatto che comporti il ritardo, la sospensione o l'interruzione totale o parziale del lavoro e/o del contratto, ci autorizzano a sospendere ovvero ad annullare la fornitura e/o il contratto, senza alcuna responsabilità o penalità da parte nostra.

5 **Pagamenti.** Il prezzo d'acquisto della merce, comprese le spese per l'eventuale imballaggio e qualsiasi altro onere gravante sulla merce, deve essere corrisposto in contanti al momento della fornitura, salvo espressa diversa indicazione concordata al momento dell'ordine. Ci riserviamo la facoltà di richiedere il pagamento [parzialmente] anticipato per ordinazioni importanti o per forniture speciali. In caso di ritardato pagamento, l'acquirente si obbliga a corrispondere gli interessi di mora nella misura superiore del 2% al tasso prime-rate ABI.

6 **Tolleranza.** Le tolleranze costruttive degli utensili normalizzati sono indicate nel catalogo prodotti in vigore. Per i prodotti non normalizzati ed eseguiti su richiesta del Cliente, saranno ritenute valide le tolleranze standard, salvo diversa richiesta espressa al momento dell'ordine. Per gli stessi prodotti inoltre non è possibile garantire un'assoluta esattezza nella quantità dei pezzi forniti, sarà quindi sempre ammessa la tolleranza d'uso (+/-10% della quantità ordinata) sia sui prodotti finiti, sia sui singoli elementi che li costituiscono, salvo espresse indicazioni contrarie concordate in fase di ordinazione.

7 **Garanzia.** Silmax garantisce che i prodotti siano esenti da difetti e vizi di fabbricazione, ed un buon funzionamento per un periodo di sei mesi. In ogni caso, la garanzia non si estende all'obbligo di risarcire danni diretti o indiretti, a cose o a persone, che possano derivare dall'impiego dei prodotti Silmax, anche in caso di rottura.

8 **Resi, reclami e contestazioni.** Eventuali resi di materiali saranno accettati da Silmax solo se preventivamente autorizzati, e qualora fossero da imputare ad una causa a noi estranea ci riserviamo di richiedere un risarcimento dei costi sostenuti. Eventuali reclami riguardanti vizi, difetti, mancanza di qualità della merce fornita dovranno essere effettuati entro otto giorni dalla scoperta e fatti pervenire entro il termine perentorio di sei mesi dal ricevimento delle merci stesse, termine decorso il quale non verranno più accettati.

In tal caso, il nostro obbligo resta limitato al rimborso del prezzo di vendita od alla sostituzione pura e semplice, a nostra scelta, di quella parte di merce che, a giudizio esclusivo dei nostri tecnici, sarà ritenuta difettosa di materiale o di costruzione, ovvero, sempre a nostra scelta, potremo accettare la restituzione delle merci oggetto del reclamo, che dovranno essere rispedite in porto franco, a rischio del mittente in difetto di che ci riserviamo di rifiutarne il diritto. Resta inteso che eventuali contestazioni o reclami riguardanti una singola fornitura di merce non avranno alcun effetto sul pagamento di forniture pregresse o ancora da eseguirsi, di cui al resto dell'ordine. In nessun caso, poi, e per nessun motivo potremo essere tenuti a corrispondere qualsiasi indennizzo per eventuali danni diretti o indiretti, a cose o a persone, che possano derivare dall'impiego dei prodotti contestati. I prodotti sostituiti o rimborsati restano di nostra proprietà.

9 **Clausola risolutiva espressa.** Fermo restando l'obbligo di rispettare le clausole del presente contratto, in caso di mancato pagamento del prezzo nei termini di cui all'art.5, il contratto si intenderà immediatamente e automaticamente risolto, senza bisogno di preavviso, ai sensi di cui all'art.1456 del Codice Civile, ed il compratore si obbliga a restituire il prodotto a richiesta della venditrice.

10 **Foro competente.** Nella inauspicabile ipotesi in cui dovessero insorgere dispute e/o controversie in merito alla interpretazione e/o esecuzione delle singole vendite, sono esclusivamente competenti le Autorità Giudiziari del Foro di Torino.

GENERAL SALES CONDITIONS

1 **Product catalog and offers.** Our offers are binding for both parties if followed by written acceptance or by implication. Silmax reserves the right to change products and technical data included in its catalog without notice. We will not accept orders with a value of less than € 100.00, excluding VAT. The orders we receive are considered accepted only if followed by written confirmation.

2 **Prices.** The supply of standard tools will be invoiced at the prices indicated in the list Silmax in force and shall exclude VAT. Silmax reserves the right to change the pricelist without notice. For products made on customer demand, the prices quoted in our offers are applied to the same period of validity of tenders and can not be changed. For goods offered or sold, for foreign countries, prices may be subject to revision if changes occur in exchange for money or source of payment before shipment of material, or changes in tariffs and taxes in import and customs period between the date of our offer and the actual delivery of goods to the customer.

3 **Shipment.** The shipping costs to the destination and any other expenses and taxes that were imposed on goods are the responsibility of the buyer, unless otherwise agreed in written form with the order. In no case then, can we be held accountable for failure, irregular or delayed delivery by rail, air transport, shipping or on land, it being understood that the goods - even if, for special arrangements, sold carriage free - always at risk of the purchaser under Article 1510 cc The failure, irregular or delayed delivery due to these causes, then we have independent, will not constitute grounds for cancellation of the order, nor any failure or delay in payment, or further claims of the buyer.

4 **Delivery.** The delivery times indicated and accepted are only guidelines and are calculated under normal working conditions. Any force majeure, including but not limited to war, strike, epidemic, accident, delay or interruption of any kind of transportation, shortage of materials and any other events that causes the delay, interruption or discontinuation total or part of the work and / or contract, to entitle us to suspend or cancel the supply and / or contract without any penalty or liability on our part.

5 **Payment.** the purchase price of the commodity, including the costs of any packaging and any other charges levied on the goods, must be paid in cash upon delivery, unless expressly stated otherwise agreed at time of order. We reserve the right to require payment [partially] in advance for large orders or special deliveries. In case of delayed payment, the buyer agrees to pay interest on late payments in excess of 2% above the first-rate of the ABI (Italian Banking Association).

6 **Allowance.** The allowances of the tools are given in the current product catalog. For products not standardized that are produced after customer request, the valid standard allowances will be valid, unless others were requested and confirmed at time of ordering. For the products we can not guarantee an absolute accuracy in the quantity of parts supplied, you should always use permitted allowance (+ / -10% of the quantity ordered) and finished products, both on the individual elements that constitute them unless expressly provided otherwise agreed in the order.

7 **Warranty.** Silmax ensures that products are free from defects and bad workmanship, and good for a period of six months. In any case the guarantee does not cover further damages and liabilities, direct or indirect, to property or persons, which may result from the use of products Silmax, even in case of breakage.

8 **Returns, Claims and Disputes.** Returns of materials will only be accepted if approved in advance by Silmax, and should they be attributed to a cause unrelated to us we reserve the right to claim compensation for those costs. Any complaints about defects, problems, lack of quality of the goods supplied must be made within eight days of discovery and submitted within a deadline of six months of receipt of the goods, after which term will no longer be accepted.

In this case, our obligation is limited to a refund of the purchase price or replacement pure and simple, at our option, that part of goods which, at the sole discretion of our technicians, will be considered defective in materials or construction, or , always at our discretion, we accept the return of the goods subject of the claim, which must be returned postage paid, at the risk of the sender. Otherwise we reserve the right to refuse. It is understood that any dispute or claim concerning an individual supply of goods will have no effect on the payment of supplies pre-existing or yet to be performed, of for the rest of the order. In no case, then, for any reason we will be obliged to pay any compensation for any direct or indirect damage, to property or persons, which may result from the use of the disputed products. Replacement products or refunds shall remain our property.

9 **Termination clause.** subject to the requirement to comply with the provisions of this contract, in case of failure to pay the price as provided for in Article 5, the contract will be immediately and automatically terminated, without notice, in accordance with under Article art.1456 of the Civil Code, and the buyer is obligated to return the product at the request of the seller.

10 **Jurisdiction:** In cases where disputes arise and/or disputes regarding the interpretation and/or execution of individual transactions, are solely competent: Judicial Authority of the Court of Turin.

ALLGEMEINE VERKAUFSBEDINGUNGEN

1 **Katalog Produkte und Angebote.** Unsere Angebote sind für beide Parteien verbindlich, wenn die Annahme schriftlich oder stillschweigend erfolgt. Silmax behält sich das Recht vor, Produkte und technische Daten aus seinem Katalog ohne vorherige Ankündigung zu ändern. Wir akzeptieren keine Bestellungen unter dem Mindestbestellwert von € 100,00 netto. Erteilte Aufträge sind nur durch schriftliche Bestätigung bindend.

2 **Preise.** Die Standard-Werkzeuge werden zu den in der gültigen Preisliste genannten Nettopreisen zzgl. geltender MwSt. in Rechnung gestellt. Silmax behält sich das Recht vor jederzeit Änderungen der gültigen Preisliste vorzunehmen. Für Produkte, die nach Kundenwunsch angefertigt werden, sind die Angebotspreise nur für die angegebene Angebotsdauer gültig und können nicht geändert werden. Für Waren die für den Export bestimmt sind, gelten abweichende Bestimmungen. Die Preise können vor dem Versand des Materials eventuell angepasst werden, unter Berücksichtigung eventueller Änderungen im Geld- und Zahlungsverkehr bzw. Änderungen der Tarife, Einfuhrsteuern und Zollvorschriften im Zeitraum zwischen dem Datum unseres Angebotes und der tatsächlichen Lieferung von Waren an den Kunden.

3 **Versand.** Versandkosten zum Empfänger sowie sonstige Kosten und Steuern, die auf Waren erhoben werden, fallen in die alleinige Verantwortung des Käufers, sofern nichts anderes schriftlich bei der Bestellung vereinbart wurde. In keinem Fall können wir für folgenden Situationen zur Rechenschaft gezogen werden: Versagen, unregelmäßige oder verzögerte Anlieferung per Bahn, Luftverkehr, Schifffahrt oder an Land, wobei davon ausgegangen wird, dass die Ware - auch wenn für spezielle Arrangements frachtfrei verkauft wurde - immer auf Gefahr des Käufers nach Artikel 1510 c.c. Das Scheitern, unregelmäßige oder verzögerte Belieferung aufgrund dieser Ursachen, rechtfertigt keine Stornierung der Bestellung, Versäumnisse oder Verzögerungen in der Zahlung, oder weitere Schadensansprüche des Käufers.

4 **Lieferung.** Die angegebenen und akzeptierten Lieferzeiten gelten nur als Richtlinie und sind unter normalen Betriebsbedingungen kalkuliert. Jede höhere Gewalt, einschließlich -aber nicht beschränkt auf-, Krieg, Streik, Epidemien, Unfälle, Verspätungen oder Unterbrechungen jeder Art von Transport, Mangel an Materialien sowie alle anderen Ereignisse die zu der Verzögerung, Unterbrechung oder einem Abbruch eines Teiles oder der gesamten Arbeit führen, berechtigen uns, die Lieferung auszusetzen oder zu streichen bzw. den Vertrag ohne Strafe oder Haftung unsererseits zu stornieren.

5 **Zahlungen.** Der Kaufpreis der Ware, einschließlich der Kosten für Verpackung und sonstige Abgaben welche auf die Waren erhoben werden, muss bei der Lieferung bar bezahlt werden, sofern nicht ausdrücklich etwas anderes bei der Bestellung vereinbart wurde. Wir behalten uns das Recht vor, bei Großaufträgen oder Sonderanfertigungen, Teilzahlungen (Abschlagszahlungen) im Voraus zu verlangen. Im Falle des Zahlungsverzuges verpflichtet sich der Käufer Verzugszinsen in Höhe von 2% über dem gültigen ABI - (Italian Banking Association) Zinssatz zu zahlen.

6 **Toleranz.** Die Toleranzen der Werkzeuge sind im aktuellen Produktkatalog angegeben. Für Produkte, die nicht standardisiert, sondern auf Wunsch des Kunden gefertigt werden, gelten die gültigen Standard Toleranzen, sofern nichts anderes ausdrücklich bei der Bestellung vereinbart wurde. Für die Produkte kann keine absolute Genauigkeit in den Liefermengen garantiert werden. Sie sollten immer eine zulässige Toleranz (+ / -10% der bestellten Menge) bei den Produkten und Fertigprodukten einkalkulieren, sofern bei der Bestellung nicht ausdrücklich etwas anderes vereinbart wurde.

7 **Garantie.** Silmax gewährleistet, dass die Produkte frei von Mängeln und schlechter Verarbeitung sind und für eine Einsatzdauer von sechs Monaten geeignet sind. In jedem Fall gilt die Garantie nicht für weitere Schäden und Verpflichtung an Gegenständen oder Personen, direkter oder indirekter Art, die aus der Nutzung der Silmax Produkte entstehen können , selbst im Falle eines Bruchs.

8 **Retouren, Reklamationen und Streitigkeiten.** Rücksendungen der Materialien werden nur akzeptiert, wenn diese im Voraus von Silmax genehmigt wurden. Sollten die Ursachen der Rücksendung nicht durch uns verschuldet sein, behalten wir uns das Recht auf Entschädigung vor. Jegliche Beschwerden über Mängel, Probleme oder mangelnde Qualität der gelieferten Ware müssen innerhalb von acht Tagen nach Entdeckung erfolgen und binnen einer Frist von sechs Monaten nach Erhalt der Ware. Reklamationen nach dieser Frist werden nicht mehr akzeptiert .

In diesem Fall ist unsere Pflicht auf eine Rückerstattung des Kaufpreises oder Ersatzlieferung (nach unserer Wahl) begrenzt. Nach alleinigem Ermessen wird nach Prüfung durch unseren Techniker ein Material- oder Baufehler festgestellt oder, immer in unserem Ermessen, akzeptieren wir die Rücksendung der Ware, muss die Rücksendung, frankiert und auf die Gefahr des Absenders erfolgen. Andernfalls behalten wir uns das Recht vor die Annahme zu verweigern. Es wird davon ausgegangen, dass alle Streitigkeiten oder Ansprüche in Bezug auf eine individuelle Versorgung mit Gütern keine Auswirkungen auf die Zahlung bereits ausgeführter Lieferungen bzw. anstehender Lieferungen sowie Restlieferungen, haben. In keinem Fall, sind, wir aus irgendeinem Grund verpflichtet, eine Entschädigung für direkte oder indirekte Schäden an Gegenständen oder Personen, die aus der Nutzung der umstrittenen Produkte entstanden sind zu zahlen. Ersatzprodukte oder Erstattungen bleiben unser Eigentum.

9 **Kündigungsklausel.** In Bezug zu den o.g. Vertragsbedingungen wird im Falle des Scheiterns der Zahlung gem. Artikel 5, der Vertrag sofort und automatisch hinfällig, ohne vorherige Ankündigung. Im Einklang mit Artikel 1456 des Bürgerlichen Gesetzbuches ist der Käufer verpflichtet, die Ware auf Verlangen des Verkäufers zurückzugeben.

10 **Gerichtsstand.** In Fällen von Streitigkeiten und/oder Streitigkeiten bezüglich der Auslegung und/oder Ausführung der einzelnen Transaktionen ist ausschließlich zuständig: Justizbehörde des Gerichts in Turin.

CONDITIONS GÉNÉRALES DE VENTE

1 **Catalogue : produits et offres.** Les présentes conditions générales sont applicables à toutes les fournitures effectuées et à tous les services prestés par Silmax SpA. Nos offres s'étendent contraignant pour les deux partie, si suivit par acceptation écrite où comportements concluants. Silmax Spa se réserve le droit de modifier sans préavis les produits et les spécifications des produits dans le catalogue. Toutes les commandes d'un montant inférieur à € 100,00 net (hors de TVA) seront rejetée. Les commandes ne peuvent pas être considérées comme acceptées et définitives qu'après confirmation écrite.

2 **Prix.** Les prix de vente des produits sont indiqués hors taxes et sont ceux en vigueur sur la liste de prix Silmax. La société Silmax SpA se réserve le droit de modifier ses prix sans préavis et, à tout moment. Les prix des produits fabriqués sur demande, sont indiqués dans l'offre et, sont valable pour la période de validité de l'offre. Pour la marchandise destinées à l'étranger les prix peuvent être sujets à révision lorsqu'il y a un changement dans l'échange après la livraison ou changement de la tarif douanier et droits d'importation, jusqu'à la date de livraison effective.

3 **Transport.** Sauf stipulation contraire , les opérations de transport sont à la charge aux frais, risques et péril de l'Acheteur auquel il appartient de vérifier à réception de la livraison le nombre et l'état des fournitures. Nous ne pourrons pas être tenu responsable pour les retards de livraison éventuels (retard du : chemin de fer, transport aérien, de navigation et de terre). La marchandise, même si vendue Franco Destination voyage toujours aux risques et périls de l'acquéreur , conformément à l'article 1510 c.c. Tout retard de livraison au fait de circonstances indépendantes de la volonté du prestataire ne pourra entraîner l'annulation de la commande. La responsabilité du prestataire ne pourra être engagée pour tout préjudice résultat de ce retard.

4 **Livraison.** Les produits sont livrés à l'adresse de livraison que vous avez indiqué au cours du processus de commande au plus tard à la date indiquée sur la page de paiement avant la validation de la commande. Le prestataire est dégagé de plein droit de toute responsabilité en cas de force majeure où d'événement tels que : lock-out, grève, épidémie, guerre, réquisition, incendie, inondation, accident d'outillage où retard dans les transports où toute autre cause amenant un chômage partiel où total pour le prestataire où ses fournisseur.

5 **Paiement.** Le prix d'achat y compris le coût des frais d'emballage et tous autre frais perçues sur la marchandise doit être payé au moment de la livraison (en argent comptant) sauf demande contraire formulée par le client au moment de la confirmation de la commande. Nous nous réservons le droit d'exiger le paiement anticipé en partie à l'avance pour des grosses commandes ou pour fournitures spéciales. En cas de retard dans le paiement, l'acheteur s'engage à payer un taux d'intérêt sur les arriérés supérieur à 2% au taux préférentiel.

6 **Tolérances.** Les tolérances de fabrication des outils standard, sont présents dans le catalogue actuel. Pour ce qui concerne les produits sur demande sera considérée valable la tolérance standard, sauf demande contraire formulée par le client au moment de la confirmation de commande. Toutefois, nous ne pouvons pas garantir l'absolue précision de livraison donc, il sera toujours permis une tolérance de ±10% sur la quantité commandée, sauf demande contraire formulée par le client au moment de la commande.

7 **Garantie.** Nous garantissons les produits livrés contre tous les vices qui apparaissent dans les conditions d'utilisation conformes dans le 6 mois suivant leur livraison. Cette garantie ne couvre pas les défauts et leur conséquences liés à toute cause extérieure et, en tout cas, cette garantie ne couvre pas tous dommages directs et indirects liés à l'utilisation des produits Silmax, même en cas de bris.

8 **Gestion des réclamations.** Aucun retour de marchandise ne sera accepté sans autorisation préalable de Silmax SpA. Ces retours ne seront pas acceptés définitivement qu'à la condition expresse que les marchandises soient rendues en parfait état. Si la responsabilité du dommage n'est pas à nous imputable, nous nous réservons le droit d'être remboursé de nos frais encours. Vous disposez d'un délai de 8 jours à compter de la réception de vos produits pour exercer votre droit de rétraction. En aucun cas, une marchandise ne sera reprise après un délai de 6 mois couvrant, depuis la date de livraison.

En cas, de livraison défectueuse notre responsabilité est limité à l'obligation de remplacer la marchandise où d'en rembourser son prix, tel que facturé au client. Toutes les demandes de garantie et de retour marchandise sont traités par notre service technique lequel après avoir testé le produit défectueuse seront autorisés à notre seule discrétion, à remplacer avec un produit identique où avec des spécifications équivalentes où rembourser complètement / partiellement la valeur de produit. Si le produit est retourné dans des conditions insatisfaisantes, il sera sujet à des frais de gestion et, l'application de la garantie pourra être refusée. Les frais de renvoi seront à Votre charge. Il est sous-entendu que la récusation d'une fourniture n'affecte toutefois pas la validité des factures passées où en cours. En aucun cas, nous ne serons jamais obligés de compenser un dommage résultant de l'utilisation de nos produits.

9 **Clause résolutoire express.** Le contact peut être résilié immédiatement sans préavis, conformément à l'article 1456 du Code Civil en cas de non-paiement (conformément à l'article 5) et, l'acheteur s'oblige personnellement à retourner les produits (dans la même état) au vendeur, en tenant dûment compte l'obligation à respecter les clauses de ce contrat.

10 **Juridiction.** Toutes nos transactions sont régies par le droit italien. Le tribunal de Turin seul compétent pour recevoir tous litiges où contestations pouvant naître des transactions et de l'application des présentes conditions génerales.

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