





ALLUMINIO
ALUMINIUM
ALUMINIUM



FRESATURA LEGNO
MILLING CUTTERS FOR WOOD
FRÄSWERKZEUGE FÜR HOLZ



TORNERIA LEGNO
WOOD TURNING TOOLS
WERKZEUGE FÜR DREH-MASCHINEN



MATERIE PLASTICHE
PLASTIC MATERIALS
KUNSTSTOFFE



MATERIALI COMPOSITI
COMPOSITE MATERIALS
KOMPOSITMATERIALEN



ATTREZZATURE
EQUIPMENTS
AUSRÜSTUNGEN



SPECIALI
SPECIAL
SPEZIELL



RINALDI
UTENSILI DA TAGLIO - CUTTING TOOLS



**Rinaldi, qualità e innovazione
da oltre 40 anni.**

**Rinaldi, quality and innovation
for over 40 years.**

**Rinaldi, Qualität und Innovation
seit über 40 Jahren.**



Storia dell'azienda

La Rinaldi Srl nasce nel 1971 grazie al fondatore Enzo, che inizia l'attività producendo utensili per il legno. Gli ottimi risultati ottenuti permettono d'inserire nella produzione attrezzature per la lavorazione di altri materiali. Negli anni '90 si uniscono i figli, che guidati dall'intraprendenza del padre portano la Rinaldi Srl a essere un produttore mondiale nel campo dell'utensileria da taglio quali frese, punte, utensili sagomati, sgorbie. L'azienda ha una storia di oltre 40 anni grazie ai continui investimenti nella ricerca e all'uso di materiali di qualità.

History of the company

Rinaldi srl was established in 1971 by the founder Enzo Rinaldi, first starting with the production of woodworking tools. After obtaining excellent initial results, we were able to invest further in new equipment, allowing us to manufacture in new materials. In the 1990s Enzo's sons joined the company and continued with their father's enterprising spirit bringing Rinaldi srl to the fore as a worldwide producer in the field of cutting tools i.e. spiral milling cutters, drills, profile tools, lathe tools, gouges.

Geschichte des Unternehmens

Die Firma Rinaldi Srl wurde im Jahr 1971 von Enzo Rinaldi gegründet, der mit der Herstellung von Holzbearbeitungswerkzeugen begann. Die hervorragenden Bearbeitungsergebnisse, die hier erzielt werden konnten, erlaubten auch die Herstellung von Werkzeugen für die Bearbeitung von anderen Materialien. In den 90er Jahren vereinigen sich die Söhne, die, getrieben von dem großen Unternehmungsgeist des Vaters, die Firma Rinaldi unter die Weltmarktführer in der Herstellung von Schneidwerkzeugen, wie Fräser, Bohrer, profilierten Drehstäben und Hohlbohrer brachten. Die Firma blickt nun auf eine über 40jährige Geschichte zurück, dank der ständigen Investitionen in die Forschung und die Verwendung von qualitativ besten Materialien.



Dasa-Rägister

EN ISO 9001:2008

IQ-1003-10



Cosa facciamo

La Rinaldi Srl fornisce in Italia e nel mondo utensili per la lavorazione di legno, metallo, plastiche, materiali compositi e attrezzature per lavorazioni speciali. La continua ricerca tecnologica e l'utilizzo di metalli duri ed acciaio delle nuove generazioni produttive, realizzati secondo le norme DIN/ISO 9000, permettono l'applicazione di nuove geometrie di taglio, ottima qualità del prodotto, affidabilità e costanza nel tempo. La Rinaldi Srl offre un accurato supporto tecnico, grazie all'esperienza provata del team di tecnici e al parco macchine di ultima generazione.

What we do

Rinaldi srl originally supplying with in Italy now expedite tools throughout the world. We manufacture tools for wood, metal, plastic, composite materials and equipment for special processes. Constant technological research and utilization of hard metal and steel for the new production generation, allow the application of new cutting geometries together with an excellent quality product, reliability and consistency over time. Manufactured according to DIN/ISO 9000 standards. Thanks to our valued team of highly experienced technicians and machines of the latest generation Rinaldi srl are able to provide technical support.

Was machen wir

Die Firma Rinaldi srl liefert in Italien und auf der ganzen Welt Werkzeuge für die Bearbeitung von Holz, Plastik, Kompositmaterialien, sowie Ausrüstungen für spezielle Bearbeitungen. Die ständige technologische Forschung und die Verwendung von Hartmetall und Stahl der jeweils neuesten Sorten, ausgeführt nach den Normen DIN/ISO 9000, erlauben die Anwendung von neuen Schneidgeometrien, verbunden mit bester Qualität, Zuverlässigkeit und Standzeit. Rinaldi srl bietet technischen Support dank der großen Erfahrung eines kompetenten Teams von Technikern und einen Maschinenpark der neuesten Generation.

Flow produttivo

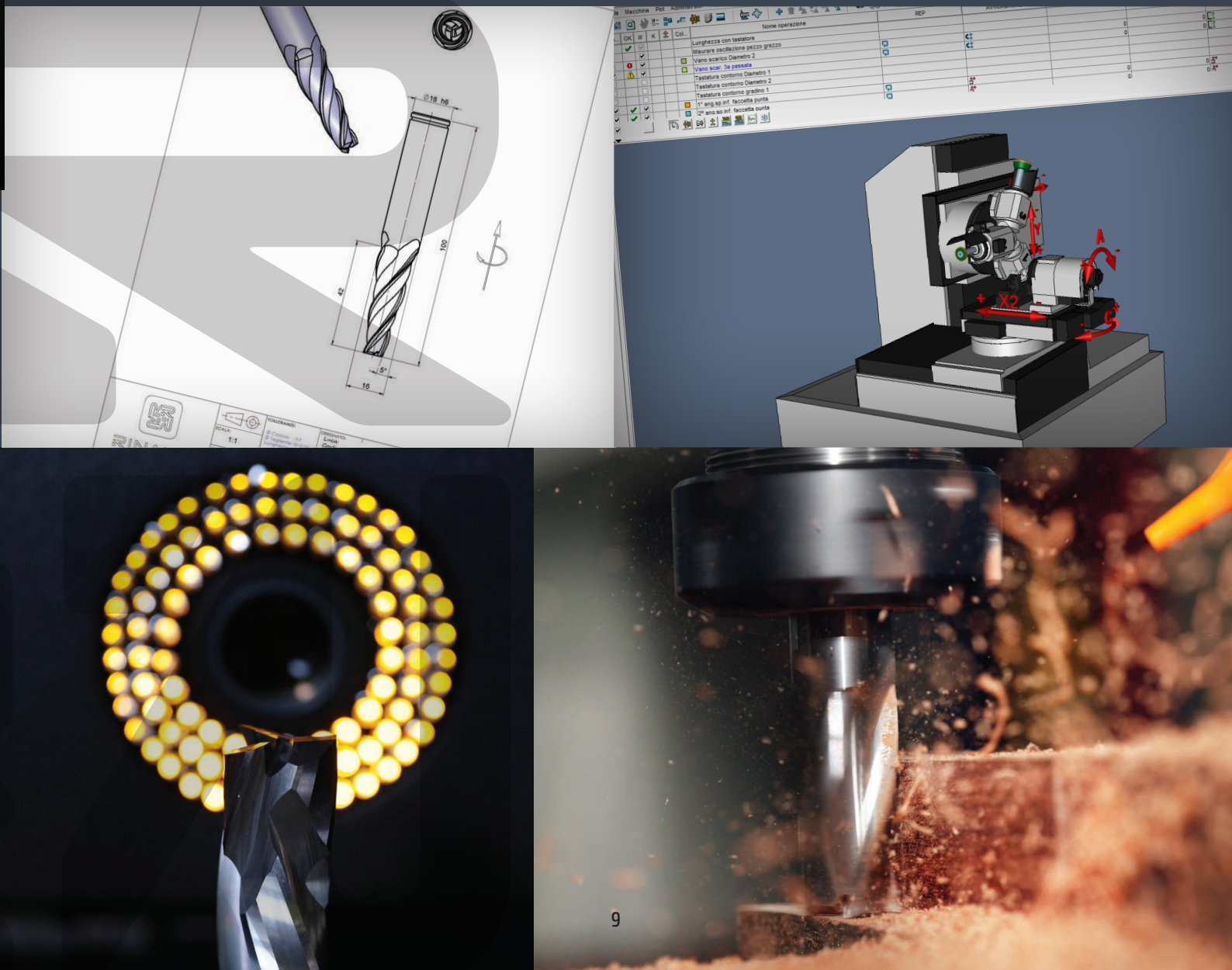
Rinaldi è in grado di produrre grandi quantità di pezzi o anche un singolo utensile speciale. Grazie al costante rinnovamento dei macchinari di produzione e di controllo, è in grado di soddisfare al meglio le richieste del cliente dalla progettazione dell'utensile tramite sistema CAD alla realizzazione dello stesso su affilatrici Walter di ultima generazione. Accurati controlli in fase di lavorazione, anch'essi effettuati tramite macchinari Walter, permettono di ottenere ottime geometrie di taglio e precisione nei profili garantendo per ogni utensile il massimo rendimento. Tutte le fasi di progettazione, costruzione e controllo dell'utensile vengono eseguite in conformità alle norme UNI EN ISO 9001:2008.

Production flow

Rinaldi is able to produce large volume or single special tools. Thanks to the constant renewal of production and inspection machines, we are able to satisfy our customer's requests, from drawing of the tool through CAD system to its production with the latest specification CNC Walter grinding machines. Careful checks during production are finalised using Walter machines, allowing us to achieve excellent cutting geometries and very precise profiles ensuring for each tool the best possible performance. All steps starting from the project through to manufacture and inspection, completed in accordance with UNI EN ISO 9001:2008.

Produktionsfluss

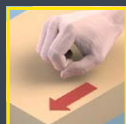
Die Firma Rinaldi ist in der Lage große Mengen oder auch nur ein einzelnes Werkzeug zu produzieren. Aufgrund der ständigen Erneuerung der Produktions- und Prüfmaschinen kann jeder Kundenwunsch erfüllt werden, von der Planung des Werkzeuges im CAD-System, bis zur Herstellung durch die neuesten CNC Walter Schleifmaschinen. Sorgfältige Kontrollen während des Produktionsprozesses, auch durch Walter Messmaschinen permanent durchgeführt, erlauben perfekte Schneidgeometrien und präzise Profile und garantieren für jeden Werkzeug die höchste Leistung. Alle Planungs-, Herstellungs- und Kontrollphasen werden gemäß UNI EN ISO 9001:2008 ausgeführt.



LEGENDA



ALTRE MISURE SU RICHIESTA
OTHER DIMENSIONS ON REQUEST
ANDERE ABMESSUNGEN AUF ANFRAGE



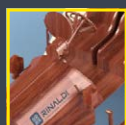
AVANZAMENTO MANUALE
MANUAL FEED
HAND-VORSCHUB



FRESE PER ACCIAIO
MILLING CUTTERS FOR STEEL
FRÄSER FÜR STAHL



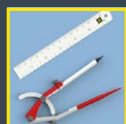
INSERTI REVERSIBILI
REVERSIBLE KNIVES
WENDEPLATTEN



MODELLERIA E PROTOTIPI
MODELS AND PROTOTYPES
MODELLE UND PROTOTYPE



FRESE SALDOBRSATE
BRAZED MILLING CUTTERS
FRÄSER HW-BESTÜCKT



PROFILO A DISEGNO
PROFILE AS DRAWING
PROFIL NACH ZEICHNUNG



METALLO DURO HW-K20
HW-K20 HARD METAL
HW-K20 HARTMETALL



ROTAZIONE DESTRA
RIGHT-HAND ROTATION
RECHTSLAUF



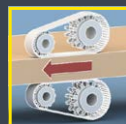
FRESE PER SPIANATURA
FACE MILLING CUTTERS
PLANFRÄSER



ROTAZIONE DESTRA POSITIVA
RIGHT-HAND ROTATION POSITIVE SPIRAL
RECHTSLAUF MIT POSITIVER SPIRALE



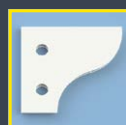
FRESE PER CORTORNATURA
MILLING CUTTERS FOR CONTOURING
FRÄSER FÜR KONTUREN



AVANZAMENTO MECCANICO
MECHANIC FEED
MECHANISCHER VORSCHUB



FRESE SPECIALI PER CARPENTERIA
SPECIAL MILLING CUTTERS FOR CARPENTRY
SPEZIALFRÄSER FÜR ZIMMEREIUNTERNEHMEN



INSERTI IN HW INTERCAMBIABILI SAGOMATI
SHAPED INTERCHANGEABLE KNIVES IN HW
PROFILIERTEN HW-WENDEPLATTEN



VELOCITA' DI ROTAZIONE (TABELLA PAG. 32)
RPM (PAGE 32)
DREZAH (SEITE 32)



FRESE PER POLISTIROLO
MILLING CUTTERS FOR POLYSTYRENE
FRÄSER FÜR POLYSTYROL



ACCIAIO HSS
HSS STEEL
HSS STAHL



RESTAURI
RESTORATION
RESTAURIERUNG



ROTAZIONE SINISTRA
LEFT-HAND ROTATION
LINKSLAUF



Z1



Z2



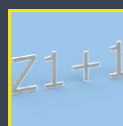
Z3



Z4



Z5



Z1+1

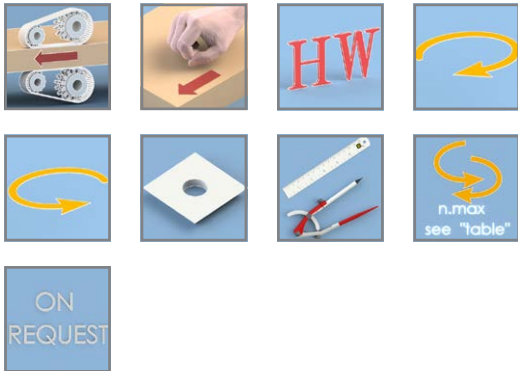


SPECIALI
SPECIAL
SPEZIELL

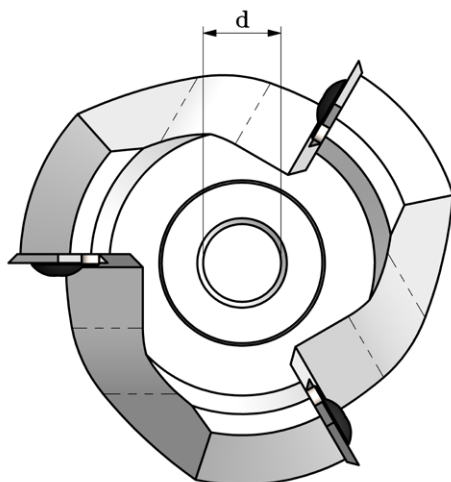
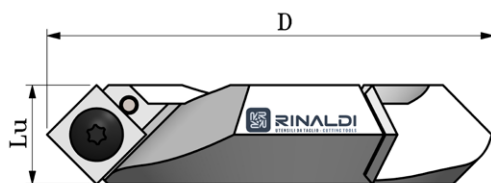
SFR

Frese ad inserti in HW intercambiabili

Milling Cutters with interchangeable Knives in HW
Fräser Mit HW-Wendeplatten



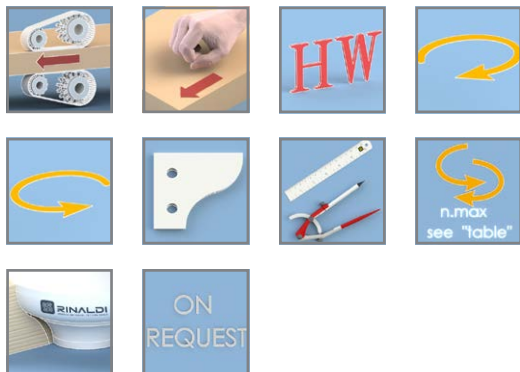
CODICE	D	Lu	d
SFR	-	-	-



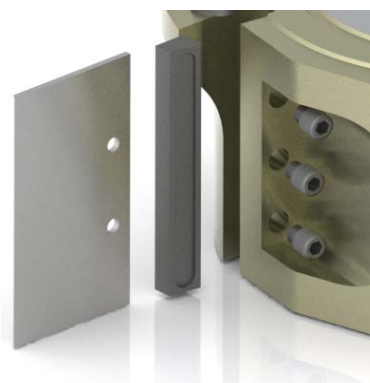
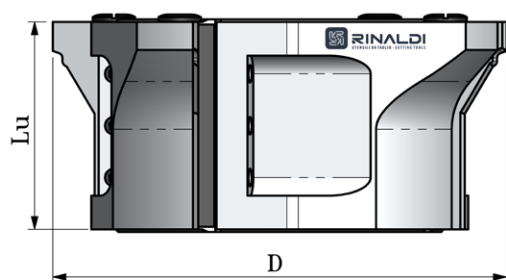
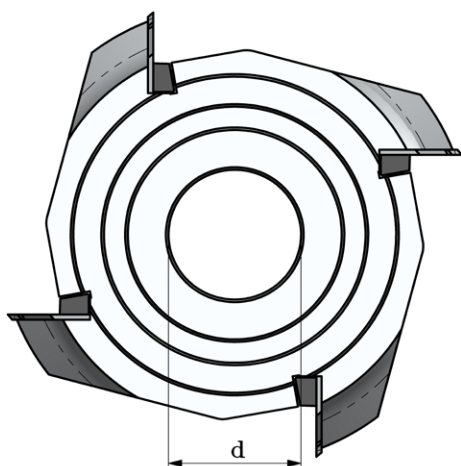
SFS

Frese ad inserti in HW intercambiabili sagomati

Milling Cutters with shaped Interchangeable knives In HW
Fräser Mit Profilierten HW-Wendeplatten



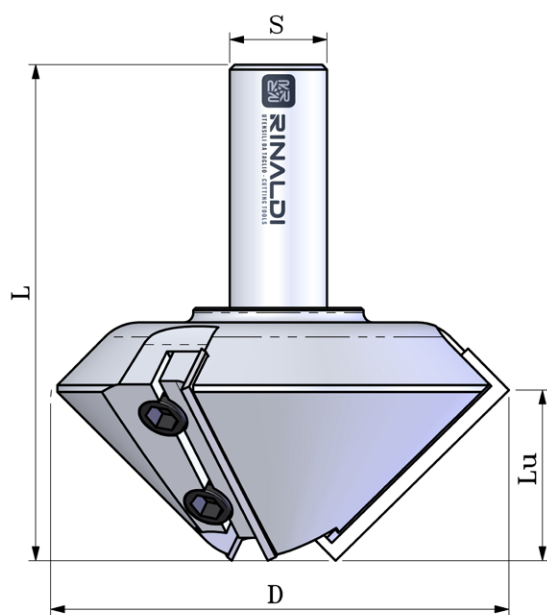
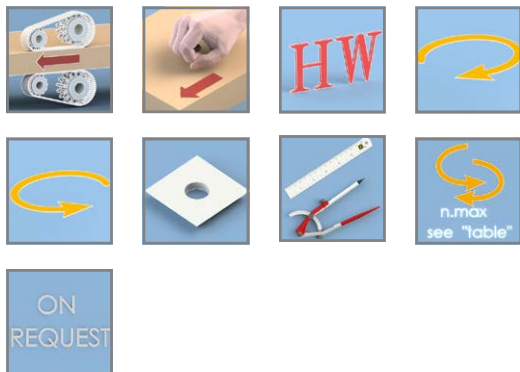
CODICE	D	Lu	d
SFS	-	-	-



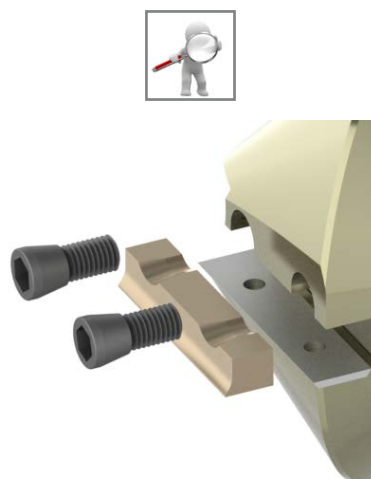
SGR

Frese ad inserti in HW intercambiabili

Milling Cutters with interchangeable Knives in HW
Fräser Mit HW-Wendeplatten



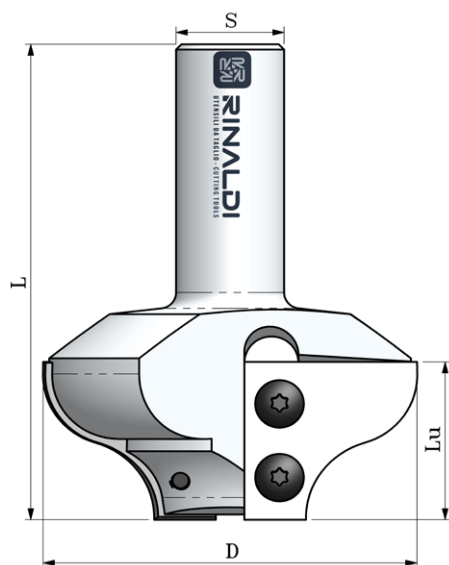
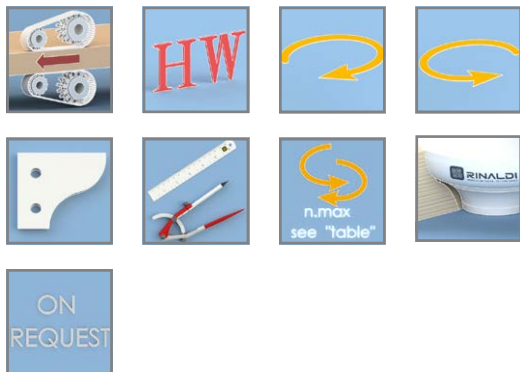
CODICE	D	Lu	S	L
SGR	-	-	-	-



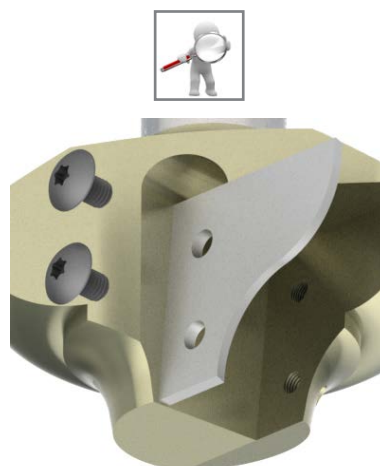
SGS

Frese ad inserti in HW intercambiabili sagomati

Milling Cutters with shaped Interchangeable knives In HW
Fräser Mit Profilierten HW-Wendeplatten



CODICE	D	Lu	S	L
SGS	-	-	-	-

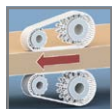


SGT

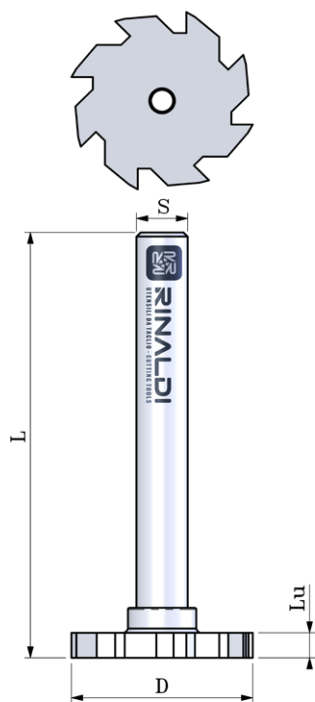
Frese in HW forma "T"

"T" HW milling cutters

VHW "T" fräser



CODICE	D	Lu	S	L	Z
SGT-06-1403	14	3	6	56	6
SGT-06-1603	16	3	6	56	8
SGT-06-1803	18	3	6	56	8
SGT-06-2203	22	3	6	56	8

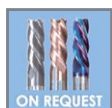
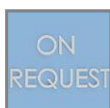
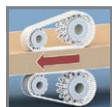


SHW

Frese vari profili in HW integrale

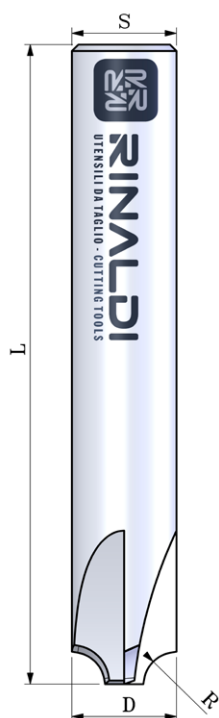
HW milling cutters with different profiles

VHW fräser mit verschiedenen profilen

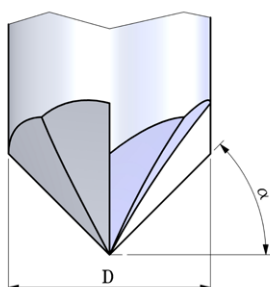


CODICE	D	Lu	S	L
SHW	-	-	-	-

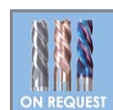
SHW-08-..45



SHW-08-..45



CODICE	D	R	S	L	α	Z
SHW-08-1045	8	1	8	45	-	4
SHW-08-1545	8	1.5	8	45	-	4
SHW-08-2045	8	2	8	45	-	4
SHW-08-2545	8	2.5	8	45	-	4
SHW-08-3045	8	3	8	45	-	4
SHW-08-4545	8	-	8	45	45	4
SHW-08-6045	8	-	8	45	60	4



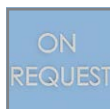
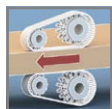
Rivestimenti a richiesta
Coatings on request

SHL

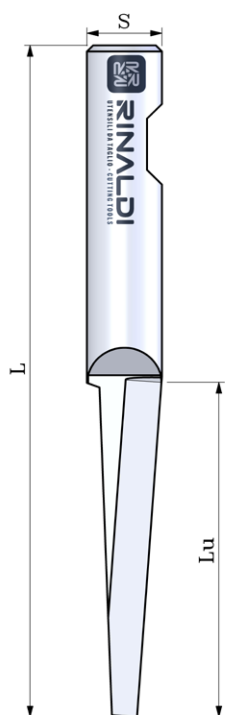
Lamette in HW integrale

Solid carbide lances

WHW lanzen



CODICE	S	Lu	L
SHL-06-2545	6	25	45
SHL-06-3050	6	30	50
SHL-06-3560	6	35	60
SHL-06-1225	6	11.8	25
SHL-08-1140	8	11.5	40

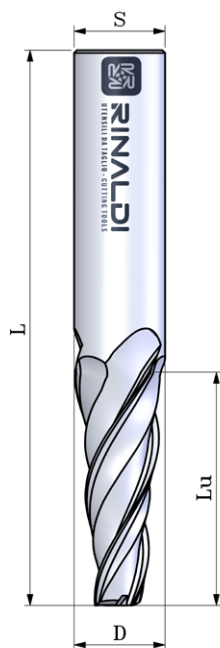
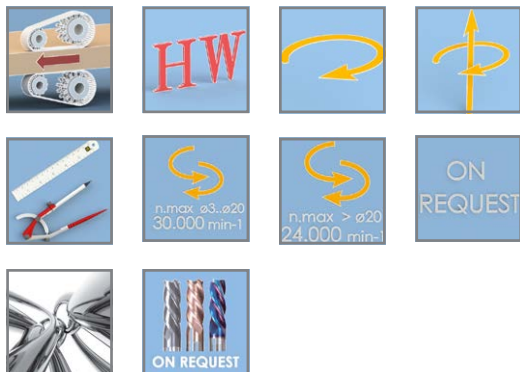


SHA

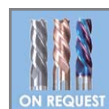
Frese in HW integrale per lavorazione "Acciaio"

HW milling cutter for working steel

VHW fräser für stahlbearbeitung



CODICE	D	Lu	S	L
SHA	-	-	-	-



Rivestimenti a richiesta
Coatings on request

SHM

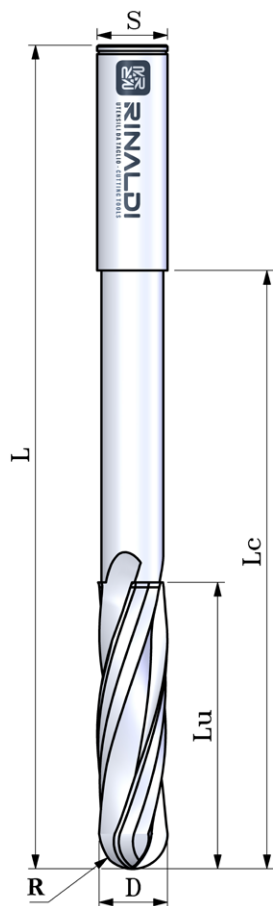
Frese elicoidali in HW integrale per "Modelleria"

HW milling cutter for models and prototypes

VHW fräser für modelle und prototype



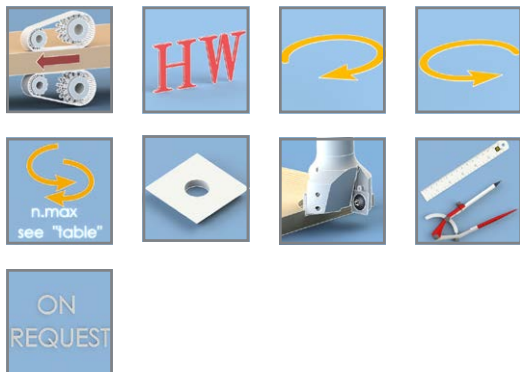
CODICE	D	Lu	S	L	R	Lc	Z
SHM	-	-	-	-	-	-	-



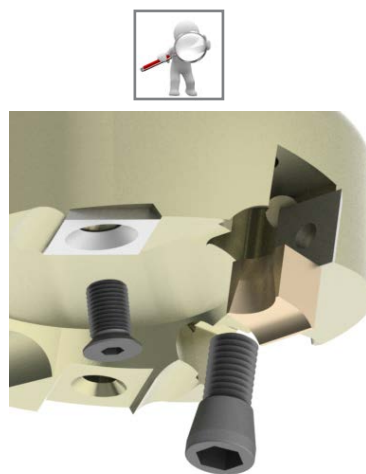
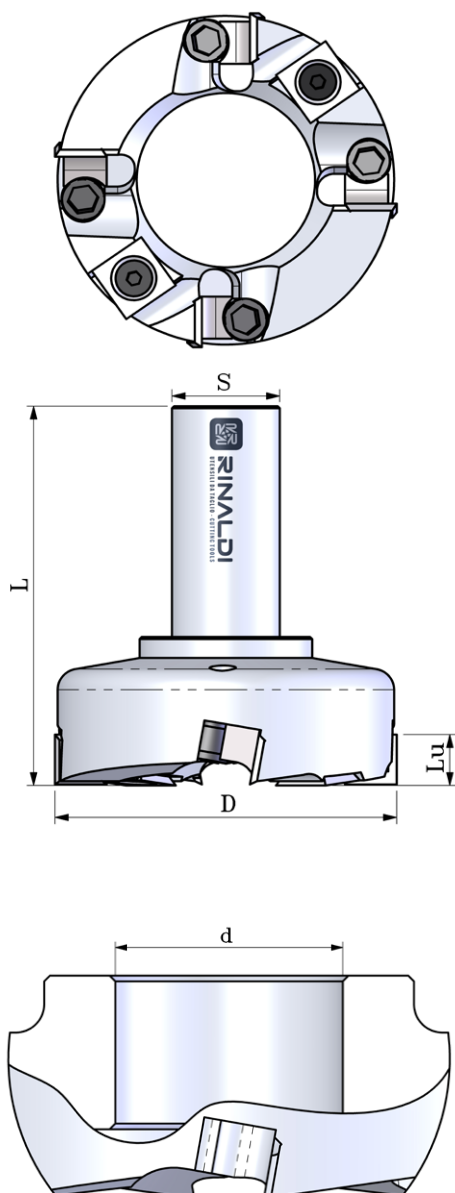
SRS

Frese ad inserti in HW intercambiabili per Spianatura

Face milling cutters with interchangeable knives in HW
Planfräser mit HW-wendepplatten



CODICE	D	Lu	S	L	Z	d
SRS-130012	130	12	-	40	8	40
SRS-080012	80	12	25	90	4+V2	-
SRS-040012	40	12	20	110	3	-

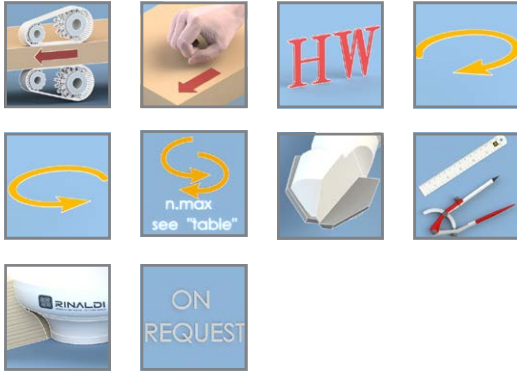


SGB

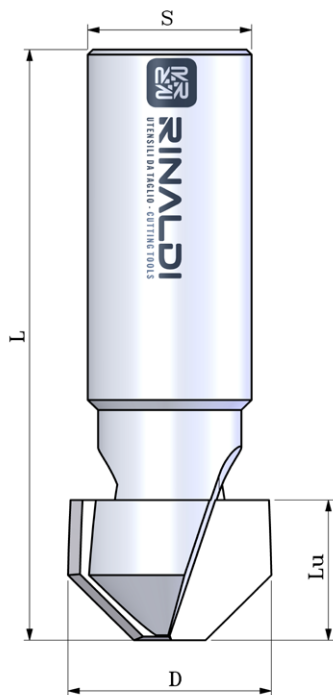
Frese saldobrasate in HW riportato

Brazed milling cutters

Fräser HW-bestückt



CODICE	D	Lu	S	L
SGB	-	-	-	-

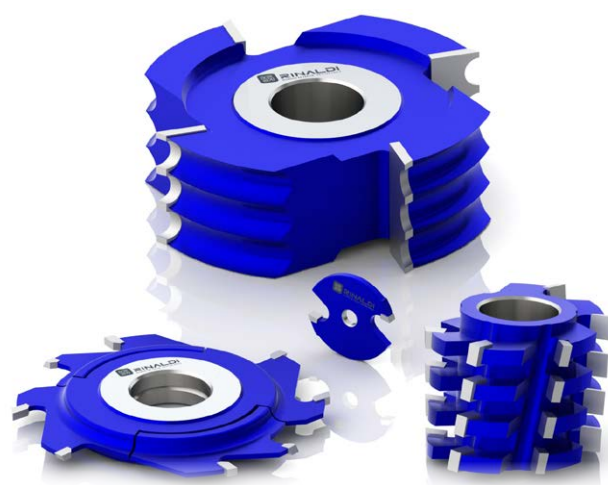


SFB

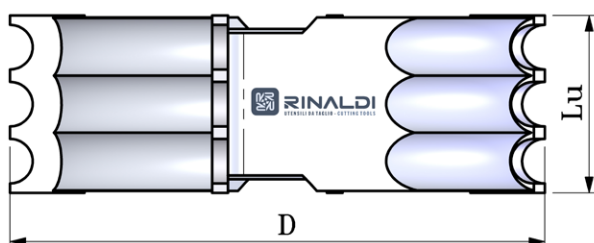
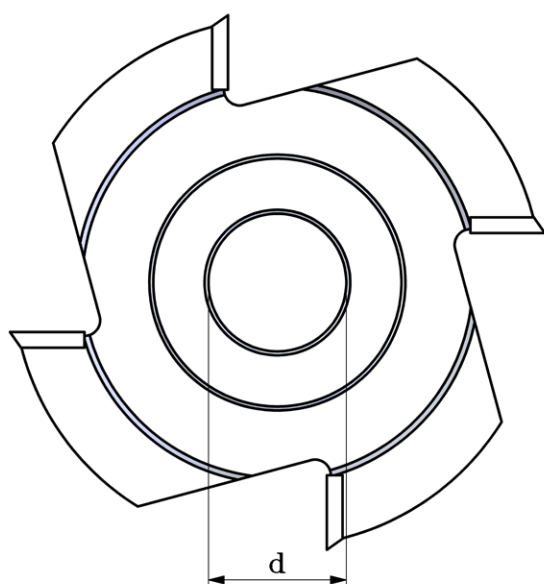
Frese saldobrasate in HW riportato

Brazed milling cutters

Fräser HW-bestückt



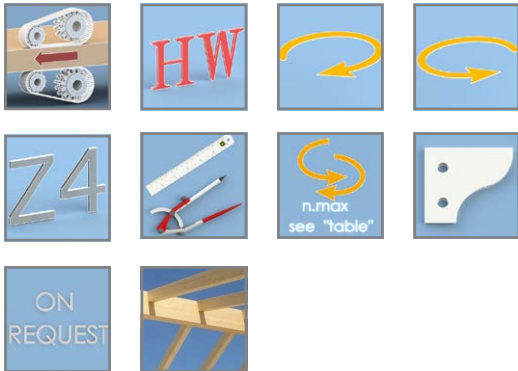
CODICE	D	Lu	d
SFB	-	-	-



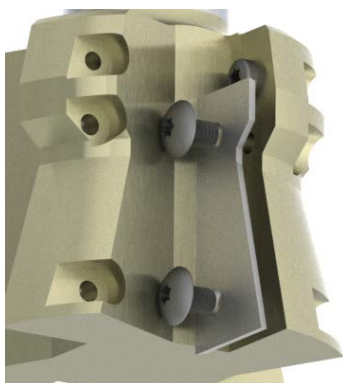
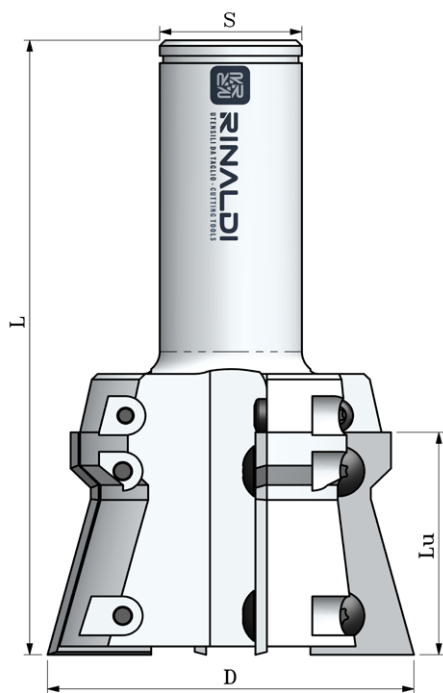
SSC

Frese ad inserti in HW intercambiabili per giunzione

Dovetail milling cutters with interchangeable knives in HW
Zinkenfräser mit HW-wendepplatten



CODICE	D	Lu	S	L
SSC-065040	65	40	25	110

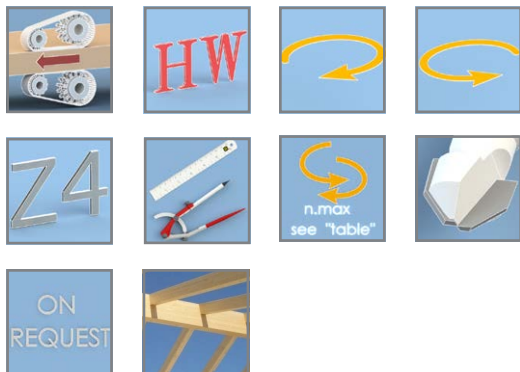


SBC

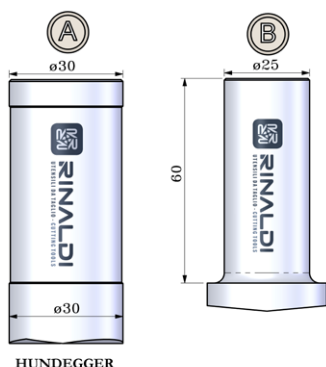
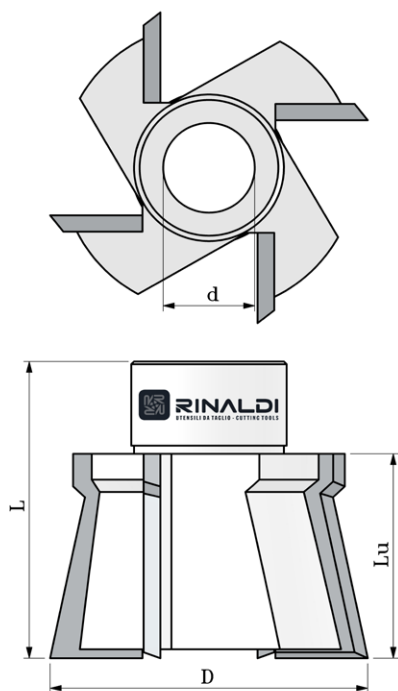
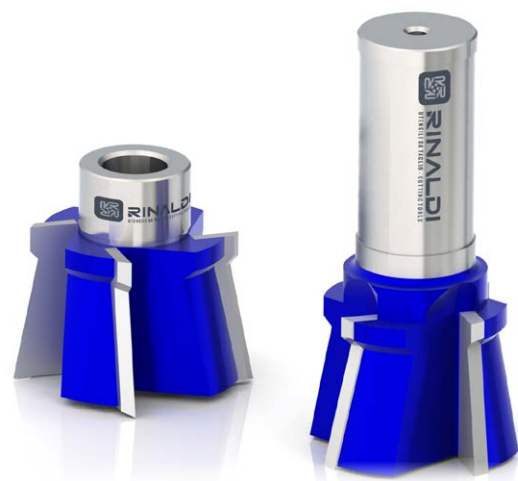
Frese saldobrasate in HW riportato per giunzioni

Brazed dovetail milling cutters

Zinkenfräser mit aufgelöteten schneiden



CODICE	D	Lu	S	L	d
SBC-060040	60	40	-	55	16



ON
REQUEST

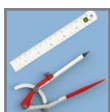
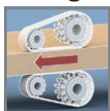


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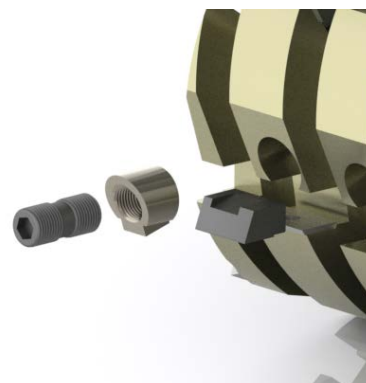
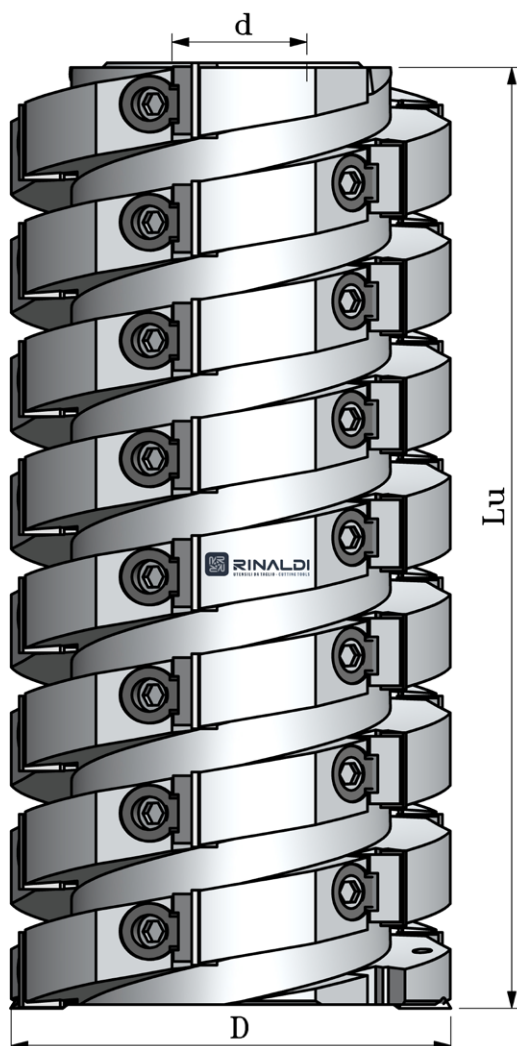
Frese ad inserti in HW intercambiabili per grosse asportazioni

Milling cutters with HW interchangeable knives for great removal of material

Fräser mit HW-wendeplatten für grösseren material abtrag



CODICE	D	Lu	d
SRC	-	-	-

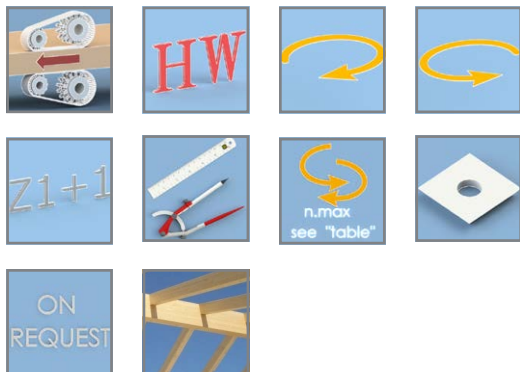


SVC

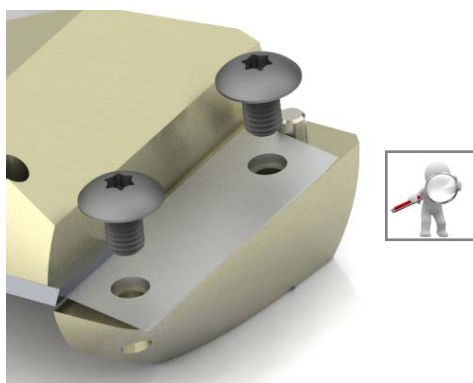
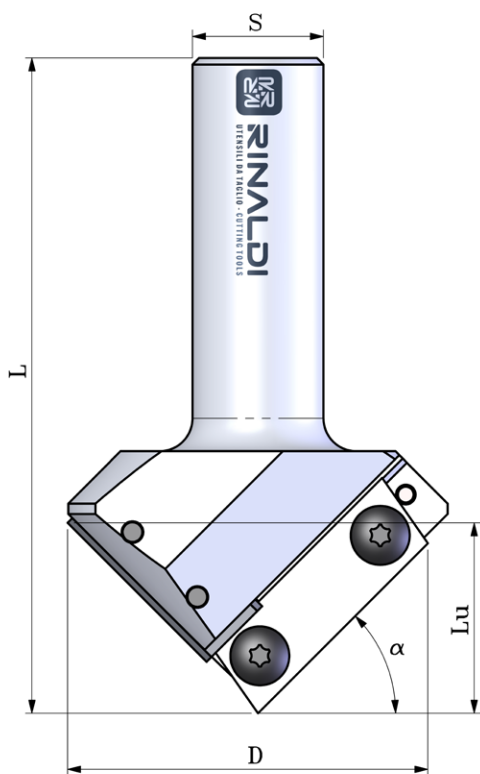
Frese ad inserti in HW intercambiabili per tagli a "V"

"V" milling cutters with interchangeable knives in HW

"V" nutfräser mit HW-wendeplatten



CODICE	D	Lu	S	L	α
SVC-058028	58	28	20	100	45

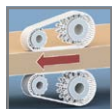


SEG

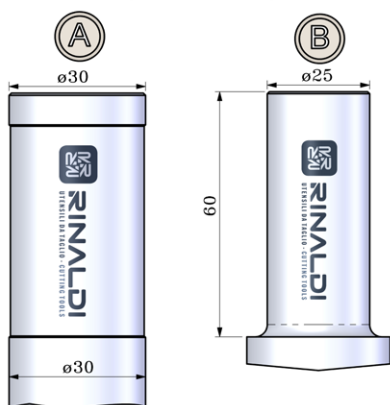
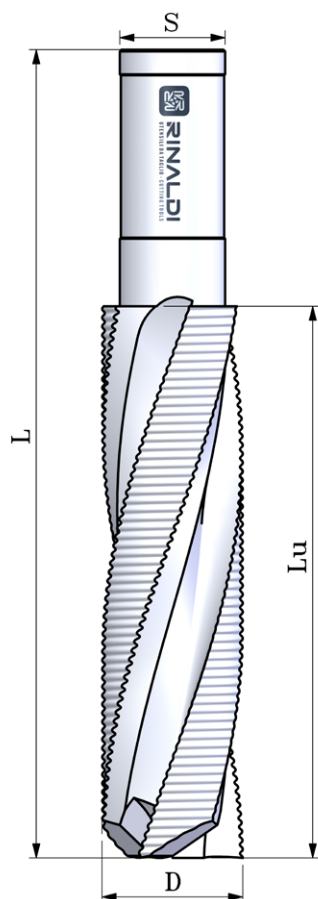
Frese elicoidali in HSS integrale per sgrossatura

Roughing milling cutters in solid HSS

HSS schruppfräser



CODICE	D	Lu	S	L
SEG-040160	40	160	30	235
SEG-050160	50	210	30	285



HUNDEGGER

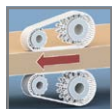


SEF

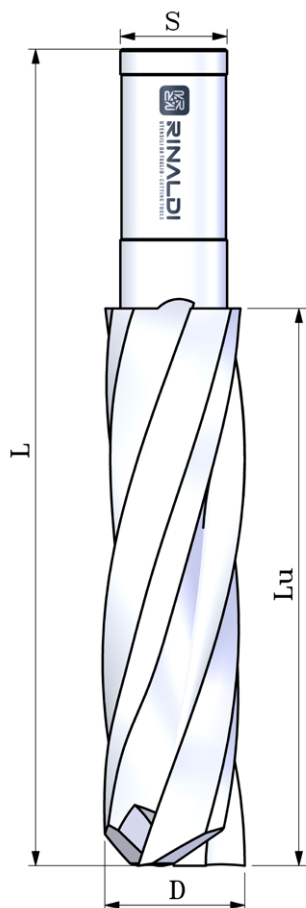
Frese elicoidali in HSS integrale per finitura

HSS milling cutters for finishing

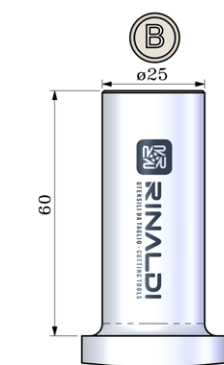
HSS-Schlichtfräser



CODICE	D	Lu	S	L
SEF-040160	40	160	30	235
SEF-050160	50	210	30	285



HUNDEGGER

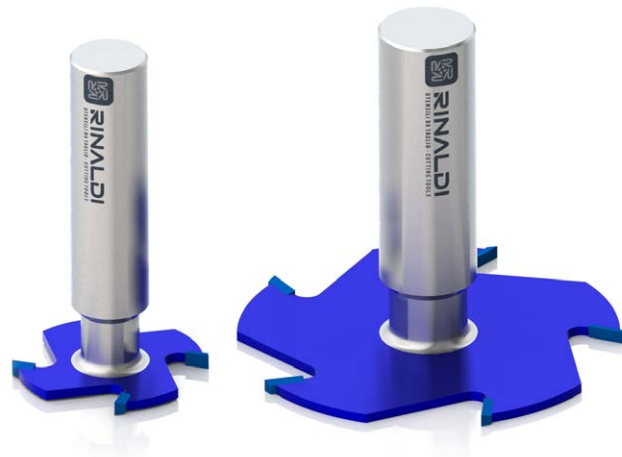
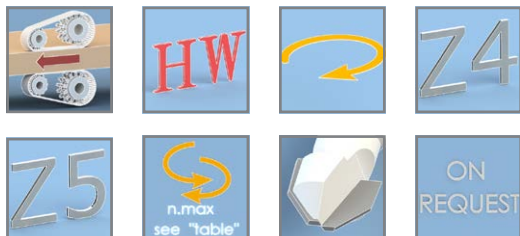


SBL

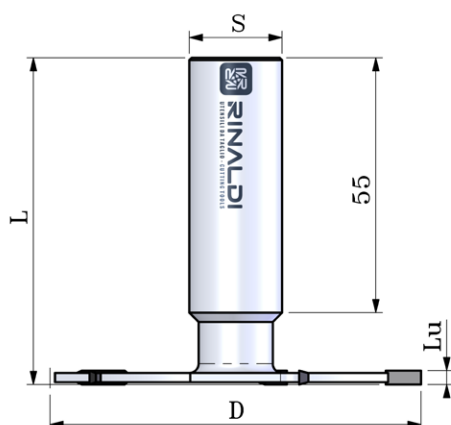
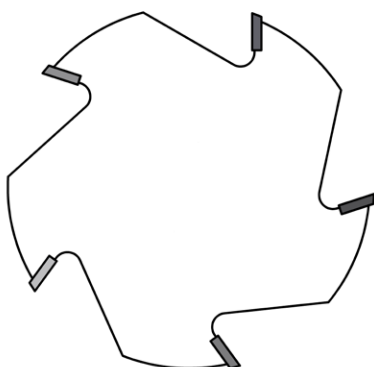
Lame circolari in HW riportato

Brazed milling cutters

Fräser HW-bestückt



CODICE	D	Lu	S	L	Z
SBL-16-4018	40	1.8	16	70	4
SBL-16-5018	50	1.8	16	70	4
SBL-20-6020	60	2	20	70	5
SBL-20-8020	80	2	20	70	5



Velocita' di Rotazione indicative (Rpm) UNI EN 847

Indicative RPM UNI EN 847

Angaben von Drehzahl nach UNI EN 847

Lavorazioni con avanzamento meccanico MAN (g/min)

Machining with mechanic feed MEC (g/min)

Bearbeitungen mit mechanischer Vorschub MEC (g/min)

Ø	Frese ad inserti in hw intercambiabili Milling cutters with interchangeable knives in hw Fräser mit hw-wendeplatten	Frese ad inserti in hw intercambiabili sagomati Milling cutters with shaped interchangeable knives in hw Fräser mit profilierten hw-wendeplatten	Frese saldobrasate Brazed milling cutters Fräser hw-bestückt	Lame Ciroclari Brazed milling cutters
25	24.000	/	24.000	/
40	18.000	/	18.000	18.000
60	14.000	/	18.000	18.000
80	12.000	/	15.000	18.000
100	10.000	7.000	12.000	15.000
120	9.000	6.000	10.000	12.000
140	8.000	5.000	8.000	12.000
160	7.000	4.500	7.000	11.000
180	6.000	4.000	6.000	10.000
200	5.500	3.500	5.500	10.000
225	4.500	3.000	5.000	9.000
250	4.000	2.500	4.500	8.000
280	3.500	/	4.000	7.000
300	3.000	/	3.500	6.000
350	/	/	/	6.000
MEC Sporgenza inserti : Libera		MEC Overhang of inserts: Free	MEC Ausladung von Schneidplatten : Frei	

Lavorazioni con avanzamento manuale MAN (g/min)

Machining with manual feed MAN (g/min)

Bearbeitungen mit Hand-Vorschub MAN (g/min)

Ø Utensile Ø Milling cutter Ø Fräser	N° Giri albero Portautensile RPM Drehzahl	
40	20.000-24.000	
60	14.000-22.000	
80	10.000-16.000	
100	8.000-14.000	
120	6.500-10.000	
140	5.500-10.000	
160	5.000-8.000	
180	4.500-7.500	
200	4.000-7.000	
220	3.500-6.000	
250	3.500-5.500	
280	2.800-5.000	
300	2.800-4.500	
320	2.500-4.000	
350	2.500-4.000	
MAN Sporgenza taglienti dal corpo: 1,1 MAX Forma Frese : chiusa	MAN Overhang of inserts: 1,1 MAX Shape of milling cutter : closed	MAN Ausladen von Schneidplatten : 1,1 MAX Form des Fräsers: geschlossen



Utensili in pinza

S	Lp
≤ 10	≥ 20
10 < S < 25	S x 2
≥ 25	S x 1.8

Bilanciatura

Balancing
Auswuchtung

La bilanciatura viene eseguita per ridurre gli stress meccanici, il rumore e migliorare la funzionalità dell'utensile.

Sbilanciamento U (g*mm/Kg)
Specifica lo sbilanciamento residuo ammissibile per gli utensili integrali

Massima velocità ammissibile $n_{max}(\min - 1)$
Specifica la velocità di rotazione massima dell'utensile che non deve mai essere superata

Tipo di utensile	grado $G=e_{per}$ ISO 1940-1	Formula	Spiegazione Formula
Utensili integrali	16	$U=1,5279 * 10^5 * 1/n_{max}$	Il valore di 1,5279 e' dato da : $e_{per} * n * 10^3 * 60/2 * \pi$
Utensili complessi e tutti gli utensili con massa <1Kg	40	$U=3,8197 * 10^5 * 1/n_{max}$	Il valore di 3,8197 e' dato da : $e_{per} * n * 10^3 * 60/2 * \pi$

Balancing is performed to reduce mechanical stress, noise and to improve the functionality of the tools.

Unbalance U (g*mm/Kg)
Permissible residual specific unbalance for solid tools

Maximum Rpm $n_{max}(\min - 1)$
Specifies the maximum RPM of the tool which must never be exceeded

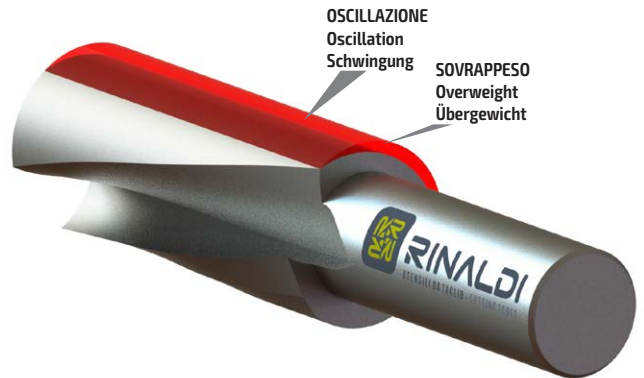
Type Of Tool	grade $G=e_{per}$ ISO 1940-1	Formula	Explanation Of The Formula
Solid tools	16	$U=1,5279 * 10^5 * 1/n_{max}$	the value of 1,5279 it is given by : $e_{per} * n * 10^3 * 60/2 * \pi$
Complex tools and all tools with mass <1 kilo	40	$U=3,8197 * 10^5 * 1/n_{max}$	the value of 3,8197 it is given by : $e_{per} * n * 10^3 * 60/2 * \pi$

Auswuchtung wird durchgeführt, um mechanische Spannungen zu verringern, Lärm zu reduzieren und die Funktionalität des Werkzeuges zu verbessern

Unwucht U (g*mm/Kg)
Zulässige spezifische Restunwucht für massive Werkzeuge

Maximale Drehzahl $n_{max}(\min - 1)$
Gibt die maximale Drehzahl des Werkzeuges, die niemals überschritten werden darf

Werkzeugtyp	grad $G=e_{per}$ ISO 1940-1	Formel	Erklärung Der Formel
Massive Werkzeuge	16	$U=1,5279 * 10^5 * 1/n_{max}$	Der Wert 1,5279 wird wie folgt berechnet : $e_{per} * n * 10^3 * 60/2 * \pi$
Komplexe Werkzeuge und alle Werkzeuge mit Massen <1 Kilo	40	$U=3,8197 * 10^5 * 1/n_{max}$	Der Wert 3,8197 wie folgt berechnet: $e_{per} * n * 10^3 * 60/2 * \pi$



Effetti della sbilanciatura

- La sbilanciatura produce oscillazioni / vibrazioni
- Peggiora qualità di superficie
- Limitazione del massimo numero di giri
- Danni all'albero o al motore
- Usura dei taglienti più elevata
- Formazione di ruggine nelle posizioni di taglio

Effects of unbalance

- Unbalance causes oscillations and vibrations
- Worse surface quality
- Limitation of the maximum RPM
- Damages to the spindle or motor
- Increased wear of cutting edges
- Formation of rust on the cutting edges

Auswirkungen der unwucht

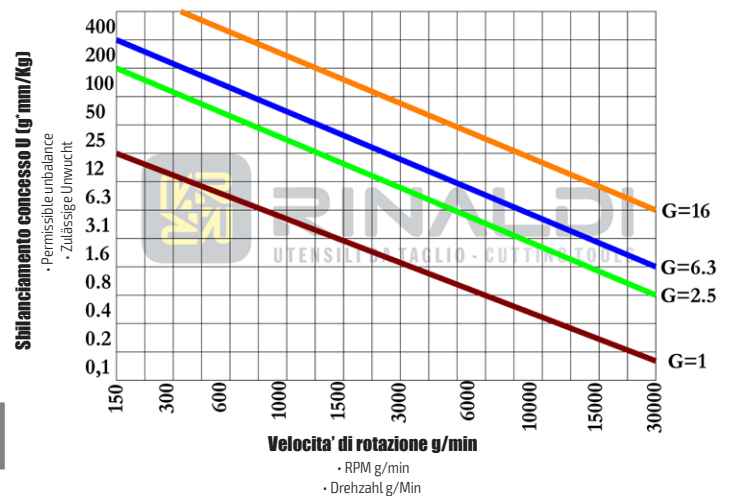
- Unwucht bewirkt Schwingungen und Vibrationen
- Schlechtere Oberflächenqualität
- Verringerung der maximalen Drehzahl
- Schaden an der Spindel oder Motor
- Erhöhter Schneidenverschleiß
- Rostbildung an den Schneiden

Diagramma della tolleranza di bilanciatura

Balancing tolerance diagram
Diagramm von Auswuchttoleranz

Grado di bilanciatura "G" mm/secondo

- Grade of balancing "G" mm/ second
- Grad von Auswuchtung "G" mm/Sekunde



Notes



www.rinaldi.it



info@rinaldi.it



Zogno (BG) Italy - Via A. Locatelli, 133 | Tel. +39 0345 94333 - Fax +39 0345 94277

