FRESATURA LEGNO MILLING CUTTERS FOR WOOD FRÄSWERKZEUGE FÜR HOLZ

RINALDI

ALLUMINIO
ALUMINIUM
ALUMINIUM

FRESATURA LEGNO
MILLING CUTTERS FOR WOOD
FRÄSWERKZEUGE FÜR HOLZ

TORNERIA LEGNO
WOOD TURNING TOOLS
WERKZEUGE FÜR DREHMASCHINEN

MATERIE PLASTICHE
PLASTIC MATERIALS
KUNSTSTOFFE

MATERIALI COMPOSITI
COMPOSITE MATERIALS
VERBUNDWERKSTOFFE

ATTREZZATURE
EQUIPMENTS
ZUBEHÖR

SPECIALI
SPECIAL
SPEZIALWERKZEUGE

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 ad 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 Drehstählen und Hohleisen 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
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 9001, 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 9001 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 9001, 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

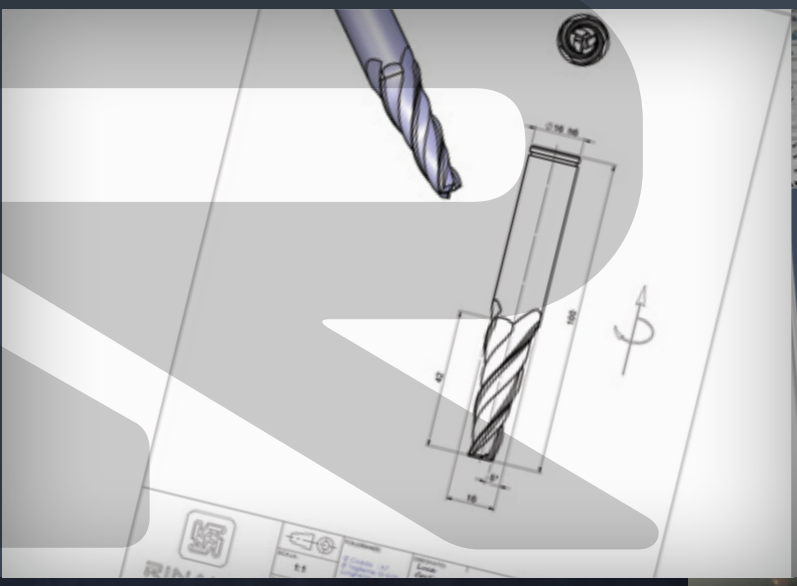
Rinaldi è in grado di produrre grandi quantità di pezzi o anche un singolo utensile speciale. Grazie al costante rinnovamento dei macchinari di produzione e di controllo, è in grado di soddisfare al meglio le richieste del cliente dalla progettazione dell'utensile tramite sistema CAD alla realizzazione 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.

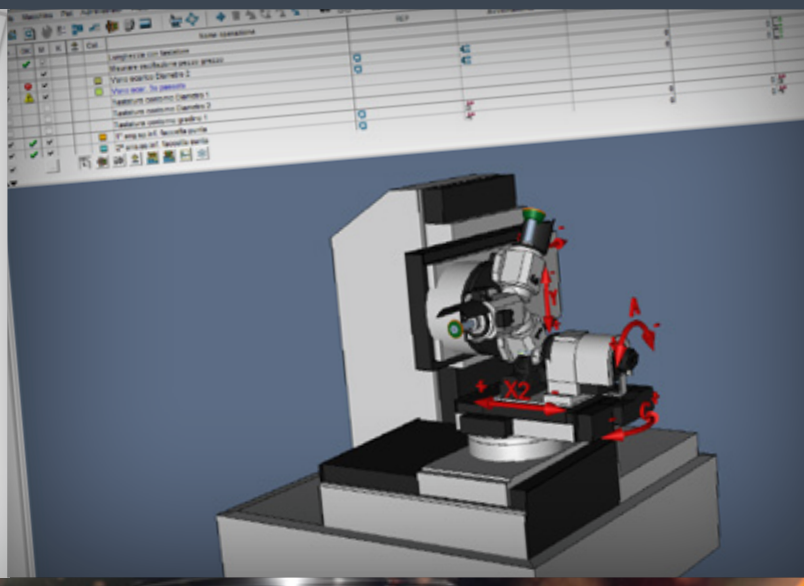
Production flow

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.

Produktionsfluss

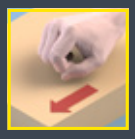
Die Firma Rinaldi ist in der Lage große Mengen oder auch nur eine einzelnes Werkzeug zu produzieren. Aufgrund der ständigen Erneuerung der Produktions-und Prüfmaschinen kann jeder Kundenwunsch erfüllt werden, von der Planung des Werkzeuges im CAD-System, bis zur Herstellung durch die neuesten CNC Walter Schleifmaschinen. Sorgfältige Kontrollen während des Produktionprozesses, 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 ausgeführt.





LEGENDA

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



AVANZAMENTO MANUALE
MANUAL FEED
HAND-VORSCHUB

PANNELLI BILAMINATI
BILAMINATED PANELS
BESCHICHTETE SPANNPLATTEN

EVAQUAZIONE ELEVATA DEL TRUCIOLO VERSO L'ALTO
INCREASED UPWARD CHIP EJECTION
GROßE SPÄNEABFÜHRUNG NACH OBEN

BUONA FINITURA
GOOD FINISH
GUTE FERTIGBEARBEITUNG

FORATURA E FRESATURA
COMBINATION DRILLING-MILLING
BOHR-FRÄSEN

ACCIAIO HL
HL STEEL
HL STAHL

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

INCISORE NEGATIVO
NEGATIVE SPURS
NEGATIV VORSCHNEIDER

VELOCITA' DI ROTAZIONE
RPM
DREHZAHL

VELOCITA' DI ROTAZIONE
RPM
DREHZAHL

ELEVATA VELOCITA' DI TAGLIO
HIGH CUTTING SPEED
HOHE VORSCHUBGESCHWINDIGKEIT

AVANZAMENTO MECCANICO
MECHANIC FEED
MECHANISCHER VORSCHUB

EVAQUAZIONE DEL TRUCIOLO AL CENTRO
EJECTION OF THE CHIPS IN THE CENTRE
SPÄNEABFÜHRUNG IM ZENTRUM

EVAQUAZIONE ELEVATA DEL TRUCIOLO VERSO IL BASSO
INCREASED DOWNWARD CHIP EJECTION
GROßE SPÄNEABFÜHRUNG NACH UNTEN

AFFILATURA DI TESTA AL CENTRO PER FORARE
ULTRA FAST DRILLING END
STIRNSEITIGER ANSCHLIFF ZUM EINBOHREN

GIUNTURE A 90°
JOINTS AT 90°
90°-VERBINDUNGEN

ACCIAO HSS
HSS STEEL
HSS STAHL

METALLO DURO HW-K10
HW-K10 HARD METAL
HW-K10 HARTMETALL

INCISORE TONDO RINFORZATO
ROUNDED STRENGTHENED SPURS
VERSTÄRKTE GERUNDETE VORSCHNEIDER

VELOCITA' DI ROTAZIONE
RPM
DREHZAHL

VELOCITA' DI ROTAZIONE
RPM
DREHZAHL

VELOCITA' DI ROTAZIONE
RPM
DREHZAHL

ATTACCO SALDATO CON PIANETTO
WELDED SHANK WITH FIXING FLAT
GELÖTETER SCHAFT MIT SPANNFLÄCHE

ATTACCO CON PIANETTO
SHANK WITH FIXING FLAT
SCHAFT MIT SPANNFLÄCHE

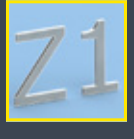
PUNTA CON DOPPIA INCLINAZIONE
DOUBLE V POINT DRILL
DACHFORMSPITZE MIT DOPPELFASE

ROTAZIONE DESTRA NEGATIVA
RIGHT-HAND ROTATION NEGATIVE SPIRAL
RECHTSLAUF MIT NEGATIVER SPIRALE

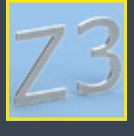
RIVESTIMENTi A PAG. 63
COATINGS ON PAGE 63
BESCHICHTUNGEN AUF SEITE 63

ROTAZIONE SINISTRA NEGATIVA
LEFT-HAND ROTATION NEGATIVE SPIRAL
LINKSLAUF MIT NEGATIVER SPIRALE

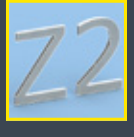
ESECUZIONE DI FRESATURE PROFONDE
FOR VERY DEEP MILLING OPERATIONS
FÜR TIEFE FRÄSUNGEN



Z1



Z3



Z2

ROTAZIONE SINISTRA P+N
LEFT-HAND ROTATION P+N
LINKSLAUF P+N

ROTAZIONE DESTRA P+N
RIGHT-HAND ROTATION P+N
RECHTSLAUF P+N

PUNTA 60°
DRILL POINT 60°
DACHSPITZE 60°

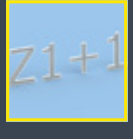
ROTAZIONE DESTRA
RIGHT-HAND ROTATION
RECHTSLAUF

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

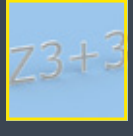
ROTAZIONE SINISTRA
LEFT-HAND ROTATION
LINKSLAUF

ROTAZIONE SINISTRA POSITIVA
LEFT-HAND ROTATION POSITIVE SPIRAL
LINKSLAUF MIT POSITIVER SPIRALE

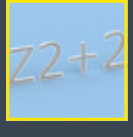
LAVORI DI SGROSSATURA
ROUGHING OPERATIONS
SCHRUPPBEARBEITUNGEN



Z1+1

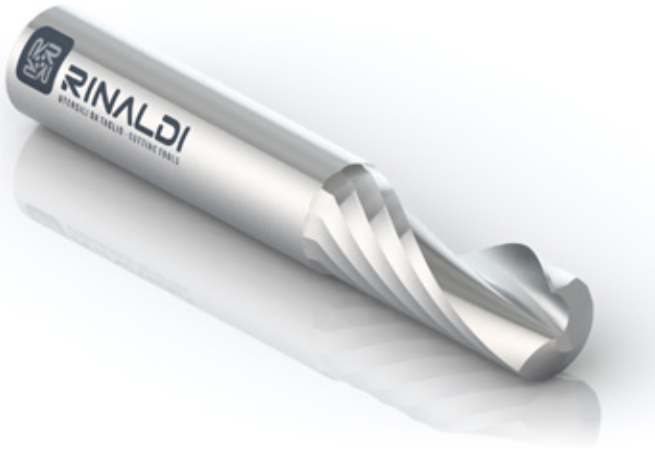


Z3+3



Z2+2

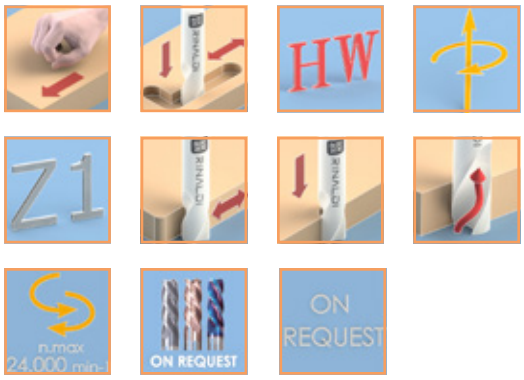
L1A

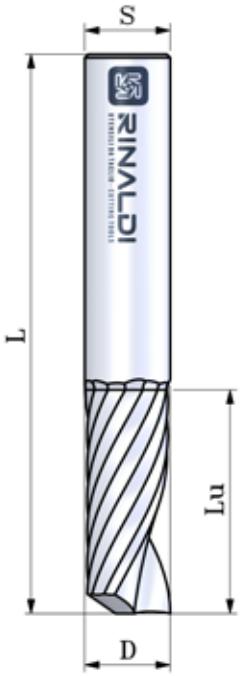


Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser





CODICE	D	L	Lu	S
L1A-03-012	3	50	12	3
L1A-04-015	4	50	15	4
L1A-05-017	5	50	17	5
L1A-06-017	6	60	17	6
L1A-06-022	6	60	22	6
L1A-08-022	8	70	22	8
L1A-08-032	8	70	32	8
L1A-10-032	10	70	32	10
L1A-10-042	10	100	42	10
L1A-10-052	10	100	52	10
L1A-12-032	12	80	32	12
L1A-12-042	12	100	42	12
L1A-12-052	12	100	52	12
L1A-14-042	14	100	42	14
L1A-14-052	14	100	52	14
L1A-16-042	16	100	42	16
L1A-16-052	16	100	52	16
L1A-16-062	16	130	62	16
L1A-16-072	16	130	72	16
L1A-18-052	18	100	52	18
L1A-18-072	18	130	72	18
L1A-20-052	20	100	52	20
L1A-20-072	20	130	72	20
L1A-20-085	20	150	85	20
L1A-20-102	20	160	102	20

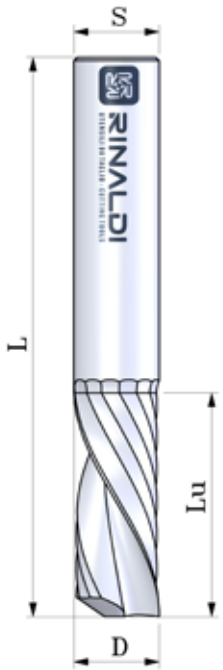
Buona finitura sulla superficie inferiore del pezzo
Good finish on the lower surface
Gute Fertigbearbeitung der unterer Oberfläche

L1B

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser



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L1B-05-017	5	50	17	5
L1B-06-017	6	60	17	6
L1B-06-022	6	60	22	6
L1B-08-022	8	70	22	8
L1B-08-032	8	70	32	8
L1B-10-032	10	70	32	10
L1B-10-042	10	100	42	10
L1B-10-052	10	100	52	10
L1B-12-032	12	80	32	12
L1B-12-042	12	100	42	12
L1B-12-052	12	100	52	12
L1B-14-042	14	100	42	14
L1B-14-052	14	100	52	14
L1B-16-042	16	100	42	16
L1B-16-052	16	100	52	16
L1B-16-062	16	130	62	16
L1B-16-072	16	130	72	16
L1B-18-052	18	100	52	18
L1B-18-072	18	130	72	18
L1B-20-052	20	100	52	20
L1B-20-072	20	130	72	20

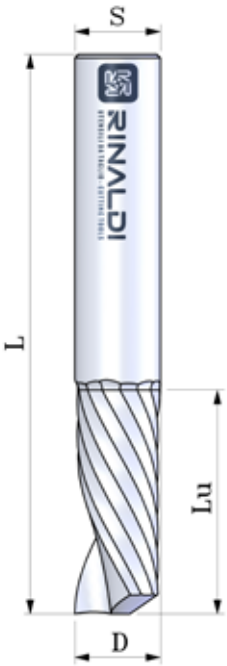
Buona finitura sulla superficie superiore del pezzo
Good finish on the upper surface
Gute Fertigbearbeitung der oberer Oberfläche

L1C

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser



CODICE	D	L	Lu	S
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L1C-04-015	4	50	15	4
L1C-05-017	5	50	17	5
L1C-06-017	6	60	17	6
L1C-06-022	6	60	22	6
L1C-08-022	8	70	22	8
L1C-08-032	8	70	32	8
L1C-10-032	10	70	32	10
L1C-10-042	10	100	42	10
L1C-10-052	10	100	52	10
L1C-12-032	12	80	32	12
L1C-12-042	12	100	42	12
L1C-12-052	12	100	52	12
L1C-14-042	14	100	42	14
L1C-14-052	14	100	52	14
L1C-16-042	16	100	42	16
L1C-16-052	16	100	52	16
L1C-16-062	16	130	62	16
L1C-16-072	16	130	72	16
L1C-18-052	18	100	52	18
L1C-18-072	18	130	72	18
L1C-20-052	20	100	52	20
L1C-20-072	20	130	72	20
L1C-20-085	20	150	85	20
L1C-20-102	20	160	102	20

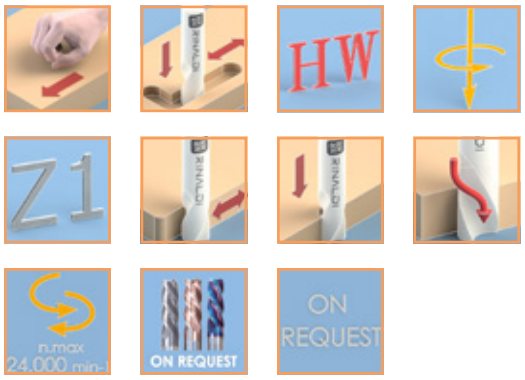
Buona finitura sulla superficie inferiore del pezzo
Good finish on the lower surface
Gute Fertigbearbeitung der unterer Oberfläche

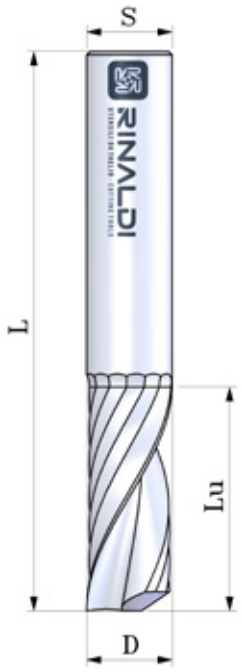
L1D

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser





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L1D-05-017	5	50	17	5
L1D-06-017	6	60	17	6
L1D-06-022	6	60	22	6
L1D-08-022	8	70	22	8
L1D-08-032	8	70	32	8
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L1D-10-052	10	100	52	10
L1D-12-032	12	80	32	12
L1D-12-042	12	100	42	12
L1D-12-052	12	100	52	12
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L1D-16-042	16	100	42	16
L1D-16-052	16	100	52	16
L1D-16-062	16	130	62	16
L1D-16-072	16	130	72	16
L1D-18-052	18	100	52	18
L1D-18-072	18	130	72	18
L1D-20-052	20	100	52	20
L1D-20-072	20	130	72	20

Buona finitura sulla superficie superiore del pezzo
Good finish on the upper surface
Gute Fertigbearbeitung der oberer Oberfläche

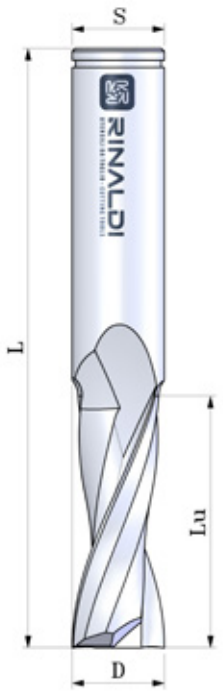
L2A

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser

CODICE	D	L	Lu	S
L2A-03-012	3	50	12	3
L2A-04-015	4	50	15	4
L2A-05-017	5	50	17	5
L2A-06-017	6	60	17	6
L2A-06-022	6	60	22	6
L2A-08-022	8	70	22	8
L2A-08-032	8	70	32	8
L2A-10-032	10	70	32	10
L2A-10-042	10	100	42	10
L2A-10-052	10	100	52	10
L2A-12-032	12	80	32	12
L2A-12-042	12	100	42	12
L2A-12-052	12	100	52	12
L2A-14-042	14	100	42	14
L2A-14-052	14	100	52	14
L2A-16-042	16	100	42	16
L2A-16-052	16	100	52	16
L2A-16-062	16	130	62	16
L2A-16-072	16	130	72	16
L2A-18-052	18	100	52	18
L2A-18-072	18	130	72	18
L2A-20-052	20	100	52	20
L2A-20-072	20	130	72	20
L2A-20-085	20	150	85	20
L2A-20-102	20	160	102	20



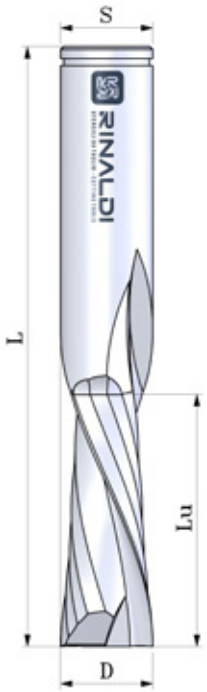
Buona finitura sulla superficie inferiore del pezzo
Good finish on the lower surface
Gute Fertigbearbeitung der unterer Oberfläche

L2B

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing
VHW-Schlichtfräser

CODICE	D	L	Lu	S
L2B-03-012	3	50	12	3
L2B-04-015	4	50	15	4
L2B-05-017	5	50	17	5
L2B-06-017	6	60	17	6
L2B-06-022	6	60	22	6
L2B-08-022	8	70	22	8
L2B-08-032	8	70	32	8
L2B-10-032	10	70	32	10
L2B-10-042	10	100	42	10
L2B-10-052	10	100	52	10
L2B-12-032	12	80	32	12
L2B-12-042	12	100	42	12
L2B-12-052	12	100	52	12
L2B-14-042	14	100	42	14
L2B-14-052	14	100	52	14
L2B-16-042	16	100	42	16
L2B-16-052	16	100	52	16
L2B-16-062	16	130	62	16
L2B-16-072	16	130	72	16
L2B-18-052	18	100	52	18
L2B-18-072	18	130	72	18
L2B-20-052	20	100	52	20
L2B-20-072	20	130	72	20



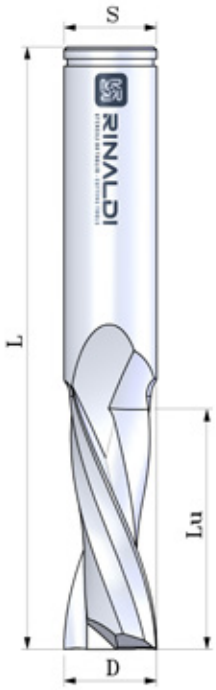
Buona finitura sulla superficie superiore del pezzo
Good finish on the upper surface
Gute Fertigbearbeitung der oberer Oberfläche

L2C

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser



CODICE	D	L	Lu	S
L2C-03-012	3	50	12	3
L2C-04-015	4	50	15	4
L2C-05-017	5	50	17	5
L2C-06-017	6	60	17	6
L2C-06-022	6	60	22	6
L2C-08-022	8	70	22	8
L2C-08-032	8	70	32	8
L2C-10-032	10	70	32	10
L2C-10-042	10	100	42	10
L2C-10-052	10	100	52	10
L2C-12-032	12	80	32	12
L2C-12-042	12	100	42	12
L2C-12-052	12	100	52	12
L2C-14-042	14	100	42	14
L2C-14-052	14	100	52	14
L2C-16-042	16	100	42	16
L2C-16-052	16	100	52	16
L2C-16-062	16	130	62	16
L2C-16-072	16	130	72	16
L2C-18-052	18	100	52	18
L2C-18-072	18	130	72	18
L2C-20-052	20	100	52	20
L2C-20-072	20	130	72	20
L2C-20-085	20	150	85	20
L2C-20-102	20	160	102	20

Buona finitura sulla superficie inferiore del pezzo
Good finish on the lower surface
Gute Fertigbearbeitung der unterer Oberfläche

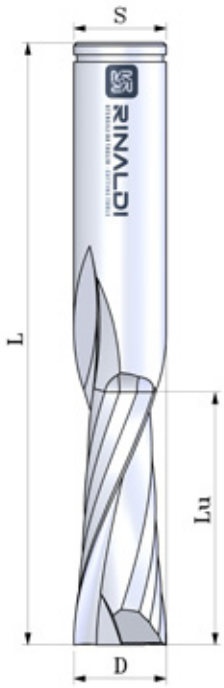
L2D

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser

CODICE	D	L	Lu	S
L2D-03-012	3	50	12	3
L2D-04-015	4	50	15	4
L2D-05-017	5	50	17	5
L2D-06-017	6	60	17	6
L2D-06-022	6	60	22	6
L2D-08-022	8	70	22	8
L2D-08-032	8	70	32	8
L2D-10-032	10	70	32	10
L2D-10-042	10	100	42	10
L2D-10-052	10	100	52	10
L2D-12-032	12	80	32	12
L2D-12-042	12	100	42	12
L2D-12-052	12	100	52	12
L2D-14-042	14	100	42	14
L2D-14-052	14	100	52	14
L2D-16-042	16	100	42	16
L2D-16-052	16	100	52	16
L2D-16-062	16	130	62	16
L2D-16-072	16	130	72	16
L2D-18-052	18	100	52	18
L2D-18-072	18	130	72	18
L2D-20-052	20	100	52	20
L2D-20-072	20	130	72	20



Buona finitura sulla superficie superiore del pezzo
Good finish on the upper surface
Gute Fertigbearbeitung der oberer Oberfläche

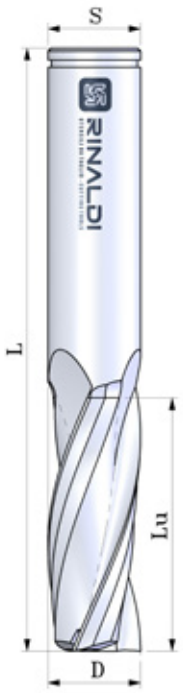
L3A

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser

CODICE	D	L	Lu	S
L3A-08-022	8	70	22	8
L3A-08-032	8	70	32	8
L3A-10-032	10	70	32	10
L3A-10-042	10	100	42	10
L3A-10-052	10	100	52	10
L3A-12-032	12	80	32	12
L3A-12-042	12	100	42	12
L3A-12-052	12	100	52	12
L3A-14-042	14	100	42	14
L3A-14-052	14	100	52	14
L3A-16-042	16	100	42	16
L3A-16-052	16	100	52	16
L3A-16-062	16	130	62	16
L3A-16-072	16	130	72	16
L3A-18-052	18	100	52	18
L3A-18-072	18	130	72	18
L3A-20-052	20	100	52	20
L3A-20-072	20	130	72	20
L3A-20-085	20	150	85	20
L3A-20-102	20	160	102	20
L3A-25-052	25	100	52	25
L3A-25-072	25	130	72	25
L3A-25-085	25	150	85	25
L3A-25-102	25	160	102	25



Buona finitura sulla superficie inferiore del pezzo
Good finish on the lower surface
Gute Fertigbearbeitung der unterer Oberfläche

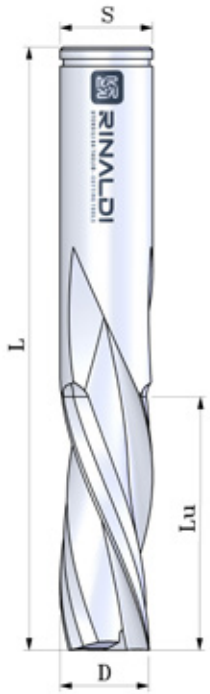
L3B

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser

CODICE	D	L	Lu	S
L3B-08-022	8	70	22	8
L3B-08-032	8	70	32	8
L3B-10-032	10	70	32	10
L3B-10-042	10	100	42	10
L3B-10-052	10	100	52	10
L3B-12-032	12	80	32	12
L3B-12-042	12	100	42	12
L3B-12-052	12	100	52	12
L3B-14-042	14	100	42	14
L3B-14-052	14	100	52	14
L3B-16-042	16	100	42	16
L3B-16-052	16	100	52	16
L3B-16-062	16	130	62	16
L3B-16-072	16	130	72	16
L3B-18-052	18	100	52	18
L3B-18-072	18	130	72	18
L3B-20-052	20	100	52	20
L3B-20-072	20	130	72	20
L3B-20-085	20	150	85	20
L3B-20-102	20	160	102	20



Buona finitura sulla superficie superiore del pezzo
Good finish on the upper surface
Gute Fertigbearbeitung der oberer Oberfläche

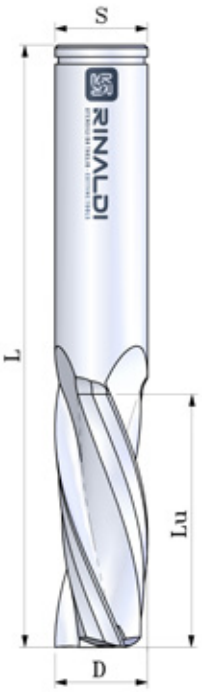
L3C

Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser

CODICE	D	L	Lu	S
L3C-08-022	8	70	22	8
L3C-08-032	8	70	32	8
L3C-10-032	10	70	32	10
L3C-10-042	10	100	42	10
L3C-10-052	10	100	52	10
L3C-12-032	12	80	32	12
L3C-12-042	12	100	42	12
L3C-12-052	12	100	52	12
L3C-14-042	14	100	42	14
L3C-14-052	14	100	52	14
L3C-16-042	16	100	42	16
L3C-16-052	16	100	52	16
L3C-16-062	16	130	62	16
L3C-16-072	16	130	72	16
L3C-18-052	18	100	52	18
L3C-18-072	18	130	72	18
L3C-20-052	20	100	52	20
L3C-20-072	20	130	72	20
L3C-20-085	20	150	85	20
L3C-20-102	20	160	102	20
L3C-25-052	25	100	52	25
L3C-25-072	25	130	72	25
L3C-25-085	25	150	85	25
L3C-25-102	25	160	102	25



Buona finitura sulla superficie inferiore del pezzo
Good finish on the lower surface
Gute Fertigbearbeitung der unterer Oberfläche

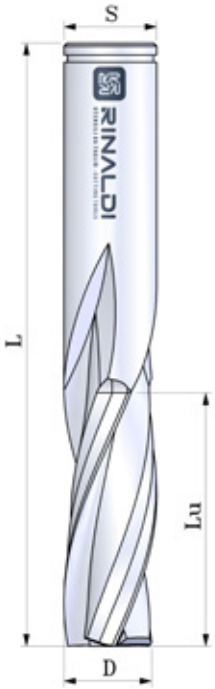
L3D

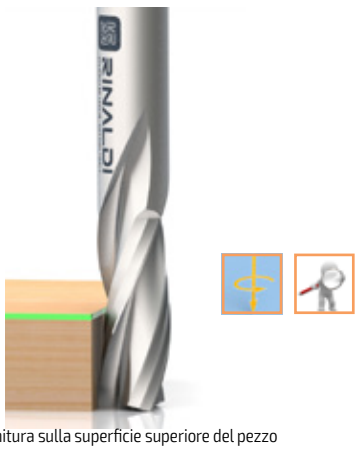
Frese elicoidali in HW integrale per finitura

HW milling cutters for finishing

VHW-Schlichtfräser

CODICE	D	L	Lu	S
L3D-08-022	8	70	22	8
L3D-08-032	8	70	32	8
L3D-10-032	10	70	32	10
L3D-10-042	10	100	42	10
L3D-10-052	10	100	52	10
L3D-12-032	12	80	32	12
L3D-12-042	12	100	42	12
L3D-12-052	12	100	52	12
L3D-14-042	14	100	42	14
L3D-14-052	14	100	52	14
L3D-16-042	16	100	42	16
L3D-16-052	16	100	52	16
L3D-16-062	16	130	62	16
L3D-16-072	16	130	72	16
L3D-18-052	18	100	52	18
L3D-18-072	18	130	72	18
L3D-20-052	20	100	52	20
L3D-20-072	20	130	72	20
L3D-20-085	20	150	85	20
L3D-20-102	20	160	102	20





Buona finitura sulla superficie superiore del pezzo

Good finish on the upper surface

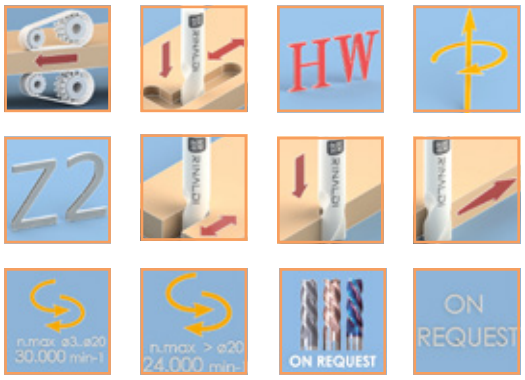
Gute Fertigbearbeitung der oberer Oberfläche

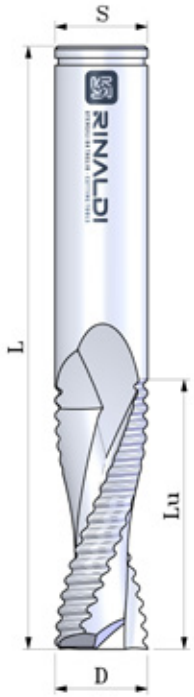
L2E

Frese elicoidali in HW integrale per sgrossatura

HW milling cutters for roughing

VHW-Schruppfräser





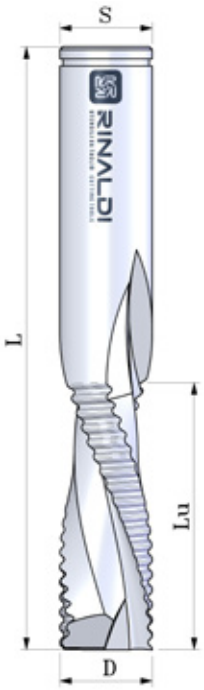
CODICE	D	L	Lu	S
L2E-08-022	8	70	22	8
L2E-08-032	8	70	32	8
L2E-10-032	10	70	32	10
L2E-10-042	10	100	42	10
L2E-10-052	10	100	52	10
L2E-12-032	12	80	32	12
L2E-12-042	12	100	42	12
L2E-12-052	12	100	52	12
L2E-14-042	14	100	42	14
L2E-14-052	14	100	52	14
L2E-16-042	16	100	42	16
L2E-16-052	16	100	52	16
L2E-16-062	16	130	62	16
L2E-16-072	16	130	72	16
L2E-18-052	18	100	52	18
L2E-18-072	18	130	72	18
L2E-20-052	20	100	52	20
L2E-20-072	20	130	72	20
L2E-20-085	20	150	85	20
L2E-20-102	20	160	102	20
L2E-25-052	25	100	52	25
L2E-25-072	25	130	72	25
L2E-25-085	25	150	85	25
L2E-25-102	25	160	102	25

L2F

Frese elicoidali in HW integrale per sgrossatura

HW milling cutters for roughing

VHW-Schruppfräser



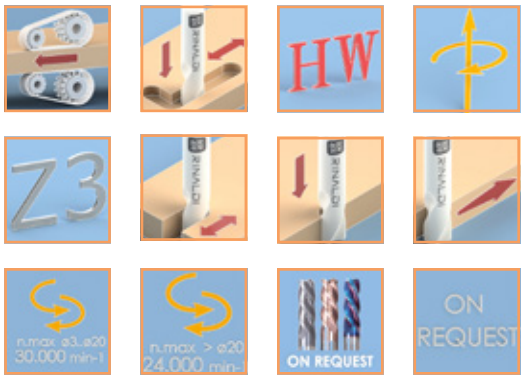
CODICE	D	L	Lu	S
L2F-08-022	8	70	22	8
L2F-08-032	8	70	32	8
L2F-10-032	10	70	32	10
L2F-10-042	10	100	42	10
L2F-10-052	10	100	52	10
L2F-12-032	12	80	32	12
L2F-12-042	12	100	42	12
L2F-12-052	12	100	52	12
L2F-14-042	14	100	42	14
L2F-14-052	14	100	52	14
L2F-16-042	16	100	42	16
L2F-16-052	16	100	52	16
L2F-16-062	16	130	62	16
L2F-16-072	16	130	72	16
L2F-18-052	18	100	52	18
L2F-18-072	18	130	72	18
L2F-20-052	20	100	52	20
L2F-20-072	20	130	72	20
L2F-20-085	20	150	85	20
L2F-20-102	20	160	102	20

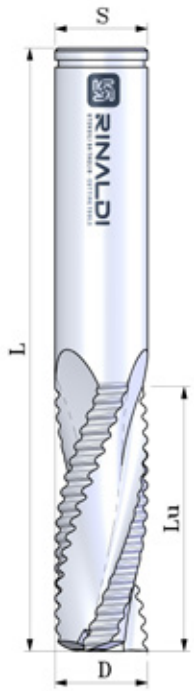
L3E

Frese elicoidali in HW integrale per sgrossatura

HW milling cutters for roughing

VHW-Schruppfräser





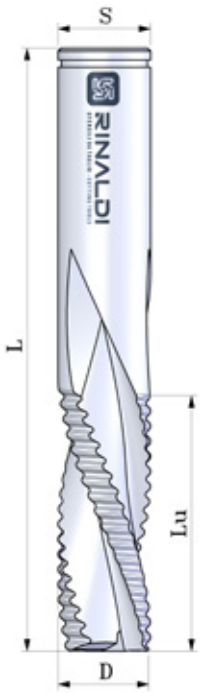
CODICE	D	L	Lu	S
L3E-08-022	8	70	22	8
L3E-08-032	8	70	32	8
L3E-10-032	10	70	32	10
L3E-10-042	10	100	42	10
L3E-10-052	10	100	52	10
L3E-12-032	12	80	32	12
L3E-12-042	12	100	42	12
L3E-12-052	12	100	52	12
L3E-14-042	14	100	42	14
L3E-14-052	14	100	52	14
L3E-16-042	16	100	42	16
L3E-16-052	16	100	52	16
L3E-16-062	16	130	62	16
L3E-16-072	16	130	72	16
L3E-18-052	18	100	52	18
L3E-18-072	18	130	72	18
L3E-20-042	20	100	42	20
L3E-20-052	20	100	52	20
L3E-20-072	20	130	72	20
L3E-20-085	20	150	85	20
L3E-20-102	20	160	102	20
L3E-25-052	25	100	52	25
L3E-25-072	25	130	72	25
L3E-25-085	25	150	85	25
L3E-25-102	25	160	102	25

L3F

Frese elicoidali in HW integrale per sgrossatura

HW milling cutters for roughing

VHW-Schruppfräser



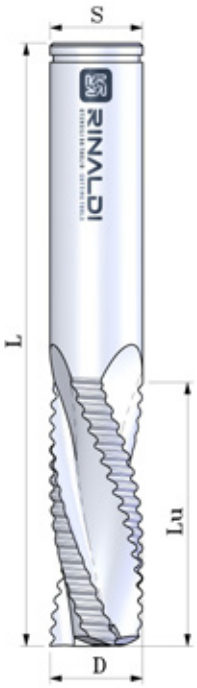
CODICE	D	L	Lu	S
L3F-08-022	8	70	22	8
L3F-08-032	8	70	32	8
L3F-10-032	10	70	32	10
L3F-10-042	10	100	42	10
L3F-10-052	10	100	52	10
L3F-12-032	12	80	32	12
L3F-12-042	12	100	42	12
L3F-12-052	12	100	52	12
L3F-14-042	14	100	42	14
L3F-14-052	14	100	52	14
L3F-16-042	16	100	42	16
L3F-16-052	16	100	52	16
L3F-16-062	16	130	62	16
L3F-16-072	16	130	72	16
L3F-18-052	18	100	52	18
L3F-18-072	18	130	72	18
L3F-20-052	20	100	52	20
L3F-20-072	20	130	72	20
L3F-20-085	20	150	85	20
L3F-20-102	20	160	102	20

L3G

Frese elicoidali in HW integrale per sgrossatura

HW milling cutters for roughing

VHW-Schruppfräser



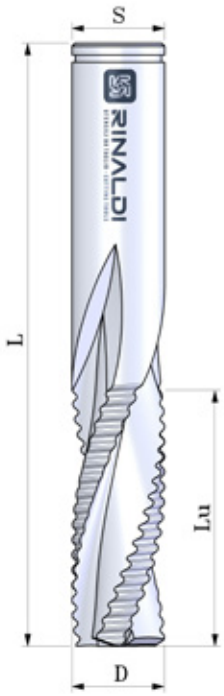
CODICE	D	L	Lu	S
L3G-08-022	8	70	22	8
L3G-08-032	8	70	32	8
L3G-10-032	10	70	32	10
L3G-10-042	10	100	42	10
L3G-10-052	10	100	52	10
L3G-12-032	12	80	32	12
L3G-12-042	12	100	42	12
L3G-12-052	12	100	52	12
L3G-14-042	14	100	42	14
L3G-14-052	14	100	52	14
L3G-16-042	16	100	42	16
L3G-16-052	16	100	52	16
L3G-16-062	16	130	62	16
L3G-16-072	16	130	72	16
L3G-18-052	18	100	52	18
L3G-18-072	18	130	72	18
L3G-20-052	20	100	52	20
L3G-20-072	20	130	72	20
L3G-20-085	20	150	85	20
L3G-20-102	20	160	102	20

L3H

Frese elicoidali in HW integrale per sgrossatura

HW milling cutters for roughing

VHW-Schruppfräser



CODICE	D	L	Lu	S
L3H-08-022	8	70	22	8
L3H-08-032	8	70	32	8
L3H-10-032	10	70	32	10
L3H-10-042	10	100	42	10
L3H-10-052	10	100	52	10
L3H-12-032	12	80	32	12
L3H-12-042	12	100	42	12
L3H-12-052	12	100	52	12
L3H-14-042	14	100	42	14
L3H-14-052	14	100	52	14
L3H-16-042	16	100	42	16
L3H-16-052	16	100	52	16
L3H-16-062	16	130	62	16
L3H-16-072	16	130	72	16
L3H-18-052	18	100	52	18
L3H-18-072	18	130	72	18
L3H-20-052	20	100	52	20
L3H-20-072	20	130	72	20
L3H-20-085	20	150	85	20
L3H-20-102	20	160	102	20

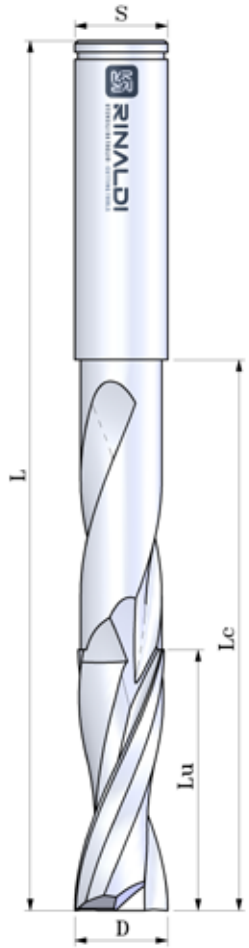
LS2A

Frese elicoidali in HW integrale per sedi serrature

HW milling cutters for machining door locks

VHW-Schloßkastenfräser

CODICE	D	L	Lu	S	Lc
LS2A-14-095	14	150	45	14	95
LS2A-16-095	16	150	45	16	95



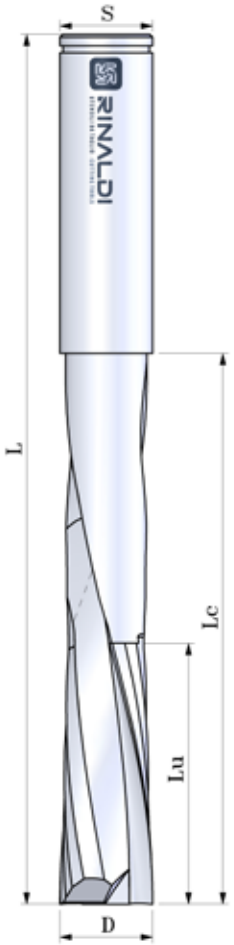
LS2B

Frese elicoidali in HW integrale per sedi serrature

HW milling cutters for machining door locks

VHW-Schloßkastenfräser

CODICE	D	L	Lu	S	Lc
LS2B-14-075	14	116	45	14	75
LS2B-14-095	14	136,5	45	14	95
LS2B-16-095	16	150	45	16	95



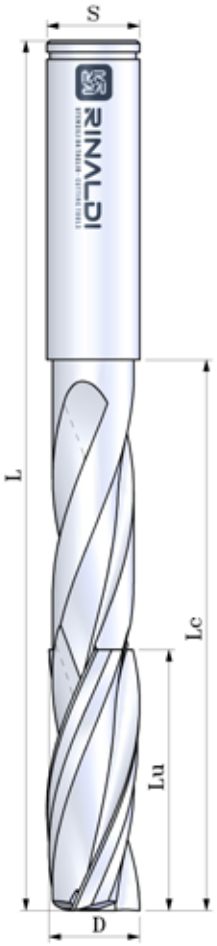
LS3A

Frese elicoidali in HW integrale per sedi serrature

HW milling cutters for machining door locks

VHW-Schloßkastenfräser

CODICE	D	L	Lu	S	Lc
LS3A-14-095	14	150	45	14	95
LS3A-16-095	16	150	45	16	95
LS3A-18-095	18	150	45	18	95
LS3A-20-095	20	150	45	20	95

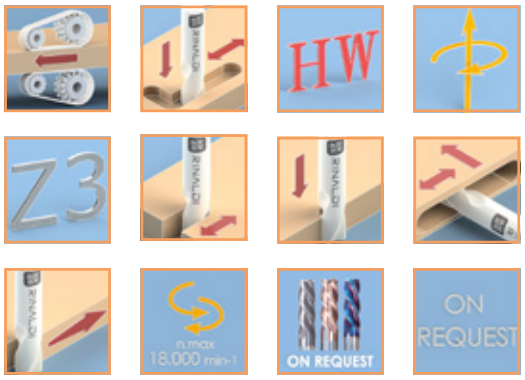


LS3E

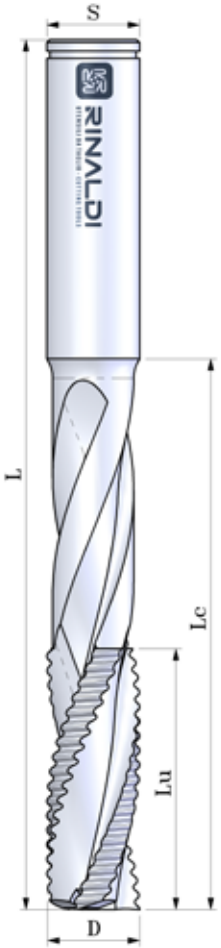
Frese elicoidali in HW integrale per sedi serrature

HW milling cutters for machining door locks

VHW-Schloßkastenfräser



CODICE	D	L	Lu	S	Lc
LS3E-14-095	14	150	45	14	95
LS3E-16-095	16	150	45	16	95
LS3E-18-095	18	150	45	18	95
LS3E-20-095	20	150	45	20	95



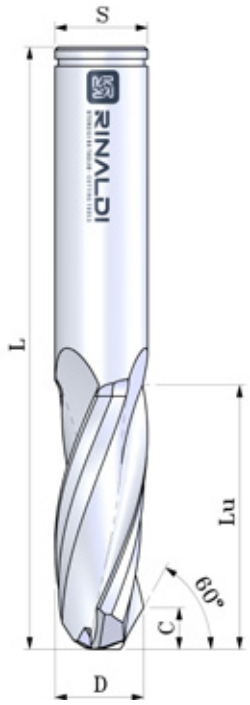
LC3A

Frese elicoidali in HW integrale con smusso di testa

HW milling cutters with bevel on the top

VHW Fräser mit Anfasung

CODICE	D	L	Lu	S	C
LC3A-14-062	14	130	62	14	7
LC3A-16-062	16	130	62	16	8



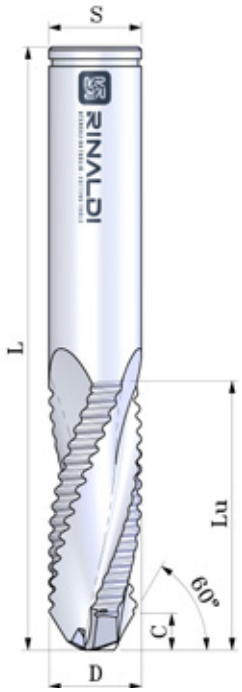
LC3E

Frese elicoidali in HW integrale con smusso di testa

HW milling cutters with bevel on the top

VHW Fräser mit Anfasung

CODICE	D	L	Lu	S	C
LC3E-14-062	14	130	62	14	7
LC3E-16-062	16	130	62	16	8



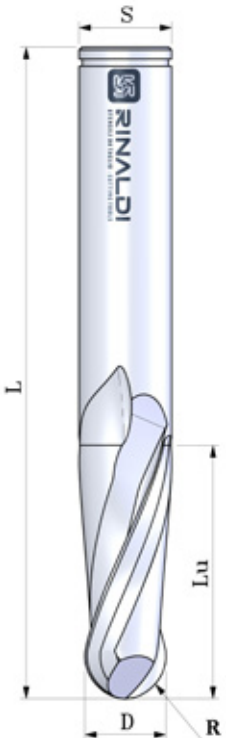
LRT2A

Frese elicoidali in HW integrale con raggio al vertice

HW milling cutters for finishing with top radius

VHW-Fräser mit Kopfradius

CODICE	D	L	Lu	R
LRT2A-03-012	3	50	12	1,5
LRT2A-04-015	4	50	15	2
LRT2A-05-017	5	50	17	2,5
LRT2A-06-022	6	60	22	3
LRT2A-08-022	8	70	22	4
LRT2A-10-032	10	70	32	5
LRT2A-10-042	10	100	42	5
LRT2A-12-032	12	80	32	6
LRT2A-12-042	12	100	42	6
LRT2A-14-042	14	100	42	7
LRT2A-16-042	16	100	42	8
LRT2A-16-052	16	100	52	8
LRT2A-18-052	18	100	52	9
LRT2A-20-052	20	100	52	10
LRT2A-20-072	20	130	72	10



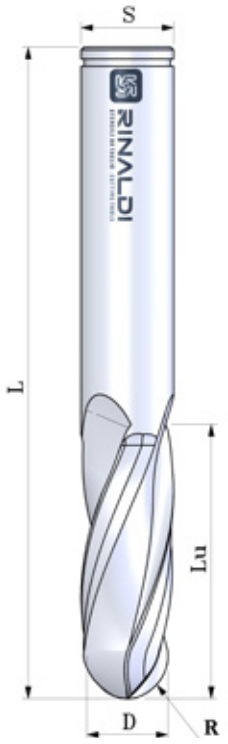
LRT3A

Frese elicoidali in HW integrale con raggio al vertice

HW milling cutters for finishing with top radius

VHW-Fräser mit Kopfradius

CODICE	D	L	Lu	R
LRT3A-08-022	8	70	22	4
LRT3A-10-032	10	70	32	5
LRT3A-10-042	10	100	42	5
LRT3A-12-032	12	80	32	6
LRT3A-12-042	12	100	42	6
LRT3A-14-042	14	100	42	7
LRT3A-16-042	16	100	42	8
LRT3A-16-052	16	100	52	8
LRT3A-18-052	18	100	52	9
LRT3A-20-052	20	100	52	10
LRT3A-20-072	20	130	72	10

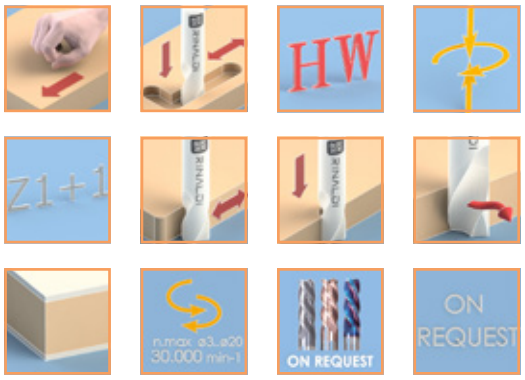


LDP1

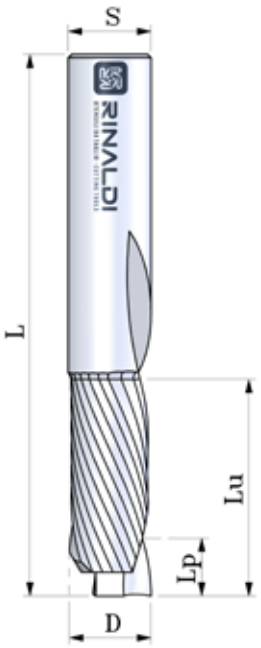
Frese elicoidali in HW integrale per finitura con tagliente alternato

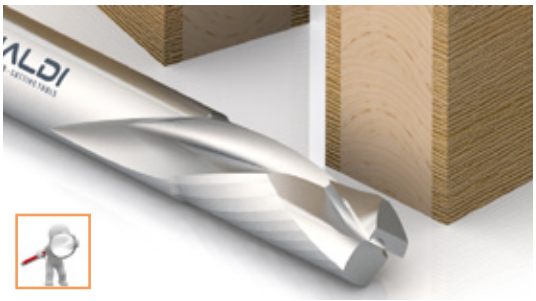
HW double action milling cutters

VHW-Fräser mit wechselseitigem Achswinkel



CODICE	D	L	Lu	S	Lp
LDP1-03-012	3	50	12	3	4
LDP1-04-015	4	50	15	4	5
LDP1-05-017	5	50	17	5	6
LDP1-06-017	6	60	17	6	7
LDP1-06-022	6	60	22	6	7
LDP1-08-022	8	70	22	8	9.5
LDP1-08-032	8	70	32	8	9.5
LDP1-10-032	10	70	32	10	12
LDP1-10-042	10	100	42	10	12
LDP1-10-052	10	100	52	10	12
LDP1-12-032	12	80	32	12	14
LDP1-12-042	12	100	42	12	14
LDP1-12-052	12	100	52	12	14



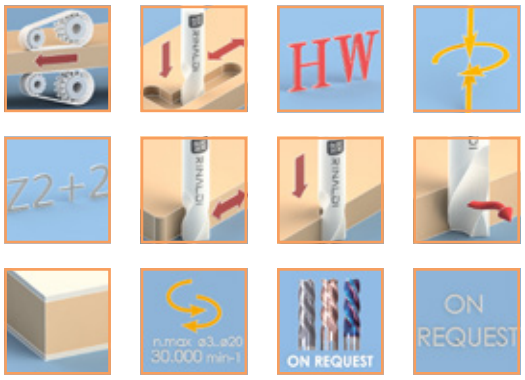


LDP2

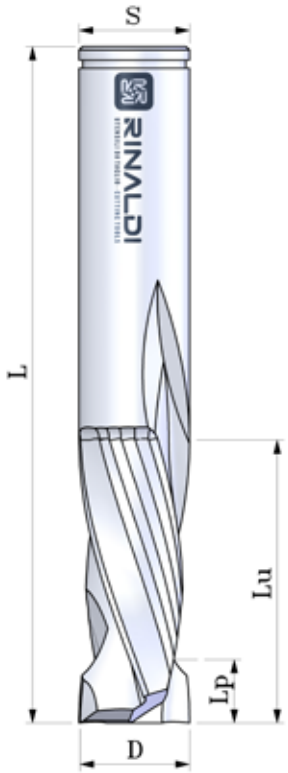
Frese elicoidali in HW integrale per finitura con tagliente alternato

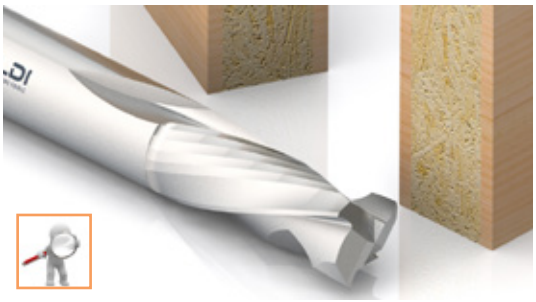
HW double action milling cutters

VHW-Fräser mit wechselseitigem Achswinkel



CODICE	D	L	Lu	S	Lp
LDP2-08-032	8	70	32	8	6
LDP2-10-032	10	70	32	10	7.5
LDP2-12-032	12	80	32	12	9
LDP2-12-042	12	100	42	12	9
LDP2-12-052	12	100	52	12	9
LDP2-14-052	14	100	52	14	10.5
LDP2-16-052	16	100	52	16	12
LDP2-18-052	18	100	52	18	13.5
LDP2-20-052	20	100	52	20	15
LDP2-20-072	20	130	72	20	15
LDP2-38-022	3/8"(9.5)	75	22	3/8"(9.5)	7.5
LDP2-05-032	1/2"(12.7)	80	32	1/2"(12.7)	9
LDP2-05-040	1/2"(12.7)	100	40	1/2"(12.7)	9





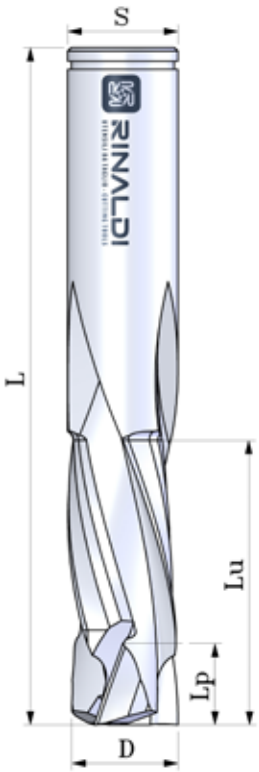
LDP3

Frese elicoidali in HW integrale per finitura con tagliente alternato

HW double action milling cutters

VHW-Fräser mit wechselseitigem Achswinkel

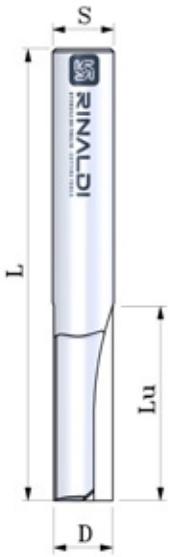
CODICE	D	L	Lu	S	Lp
LDP3-08-022	8	70	22	8	6
LDP3-10-022	10	70	22	10	7.5
LDP3-10-032	10	70	32	10	7.5
LDP3-10-042	10	100	42	10	7.5
LDP3-12-032	12	80	32	12	9
LDP3-12-042	12	100	42	12	9
LDP3-16-042	16	100	42	16	12
LDP3-16-052	16	100	52	16	12
LDP3-20-042	20	100	42	20	15
LDP3-38-022	3/8"(9.5)	75	22.2	3/8"(9.5)	7.5
LDP3-05-032	1/2"(12.7)	80	31.7	1/2"(12.7)	9
LDP3-05-040	1/2"(12.7)	100	41.3	1/2"(12.7)	9



LD2R

Frese in HW integrale a taglienti diritti

Straight milling cutters in solid carbide (HW)
VHW-Nutfräser mit gerade Schneiden

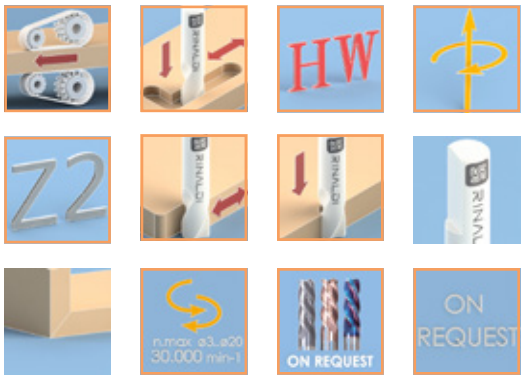


CODICE	D	L	Lu	S
LD2R-03-03-010	3	50	10	3
LD2R-03-06-010	3	50	10	6
LD2R-04-04-010	4	50	10	4
LD2R-04-06-010	4	50	10	6
LD2R-05-05-012	5	50	12	5
LD2R-05-06-012	5	50	12	6
LD2R-06-06-015	6	60	15	6
LD2R-06-06-020	6	60	20	6
LD2R-06-06-025	6	60	25	6
LD2R-08-08-020	8	70	20	8
LD2R-08-08-025	8	70	25	8
LD2R-08-08-032	8	70	32	8
LD2R-10-10-020	10	70	20	10
LD2R-10-10-025	10	70	25	10
LD2R-10-10-032	10	70	32	10
LD2R-12-12-025	12	80	25	12
LD2R-12-12-040	12	100	40	12

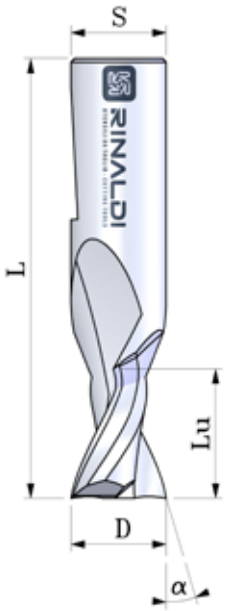
LCR2A

Frese elicoidali in HW integrale a coda di rondine

Dovetail milling cutters in solid carbide (HW)
VHW-Zinkenfräser



CODICE	D	L	Lu	S	α°
LCR2A-12	12	60	12	14	20
LCR2A-14	14	60	15	14	20



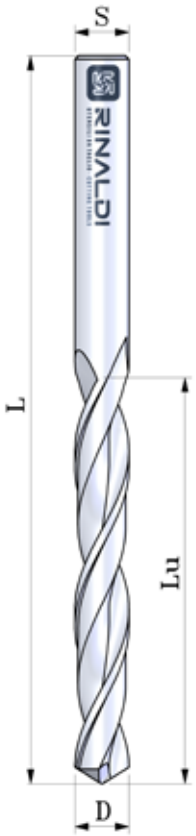
PFP

Punte a forare in HW integrale

Solid HW drills

VHW-Bohrer

CODICE	D	L	Lu	S	Rot.
PFPD-0200	2	49	25	2	RH
PFPD-0250	2.5	57	27	2.5	RH
PFPD-0300	3	55	27	3	RH
PFPD-0320	3.2	52	27	3.2	RH
PFPD-0350	3.5	52	27	3.5	RH
PFPD-0400	4	55	27	4	RH
PFPD-0450	4.5	58	28	4.5	RH
PFPD-0500	5	62	28	5	RH
PFPD-0600	6	62	28	6	RH
PFPS-0200	2	49	25	2	LH
PFPS-0250	2.5	57	27	2.5	LH
PFPS-0300	3	55	27	3	LH
PFPS-0320	3.2	52	27	3.2	LH
PFPS-0350	3.5	52	27	3.5	LH
PFPS-0400	4	55	27	4	LH
PFPS-0450	4.5	58	28	4.5	LH
PFPS-0500	5	62	28	5	LH
PFPS-0600	6	62	28	6	LH



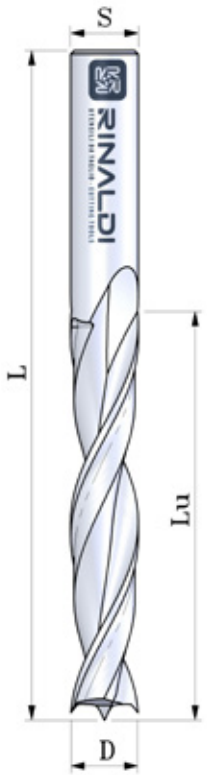
PFC

Punte a forare in HW integrale

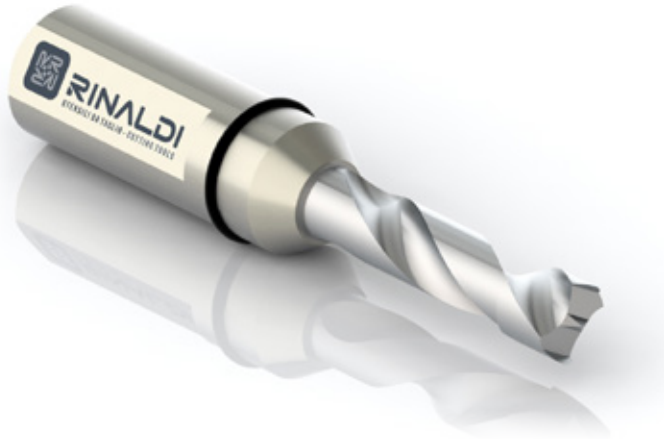
Solid HW drills

VHW-Bohrer

CODICE	D	L	Lu	S	Rot.
PFCD-0200	2	49	25	2	RH
PFCD-0250	2.5	57	27	2.5	RH
PFCD-0300	3	55	27	3	RH
PFCD-0320	3.2	52	27	3.2	RH
PFCD-0350	3.5	52	27	3.5	RH
PFCD-0400	4	55	27	4	RH
PFCD-0450	4.5	58	28	4.5	RH
PFCD-0500	5	62	28	5	RH
PFCD-0600	6	62	28	6	RH
PFCS-0200	2	49	25	2	LH
PFCS-0250	2.5	57	27	2.5	LH
PFCS-0300	3	55	27	3	LH
PFCS-0320	3.2	52	27	3.2	LH
PFCS-0350	3.5	52	27	3.5	LH
PFCS-0400	4	55	27	4	LH
PFCS-0450	4.5	58	28	4.5	LH
PFCS-0500	5	62	28	5	LH
PFCS-0600	6	62	28	6	LH



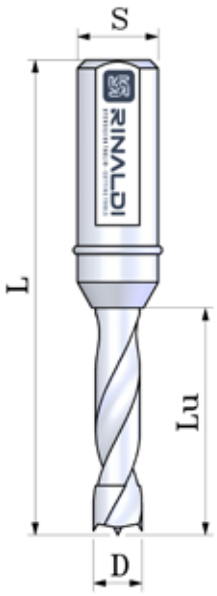
P116-117



Punte per fori ciechi in HW integrale

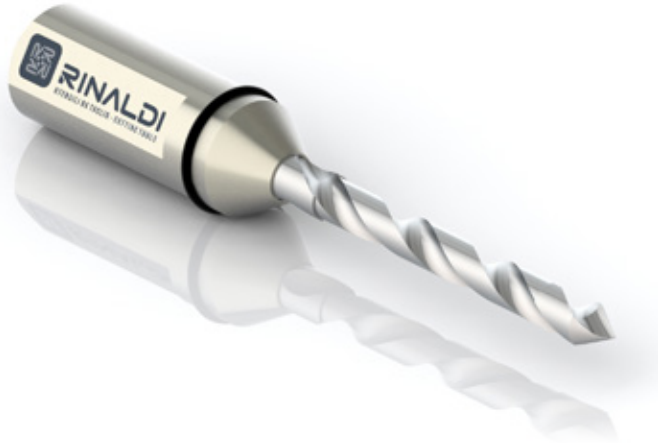
Solid HW drills for blind holes

VHW-Bohrer für Sacklöcher



CODICE	D	L	Lu	S	Rot.
P116-03D	3	57.5	20	10x32	RH
P116-04D	4	57.5	23	10x27	RH
P116-05D	5	57.5	23	10x27	RH
P116-06D	6	57.5	23	10x27	RH
P116-64D	6.4	57.5	23	10x27	RH
P116-07D	7	57.5	23	10x27	RH
P116-08D	8	57.5	23	10x27	RH
P116-03S	3	57.5	20	10x32	LH
P116-04S	4	57.5	23	10x27	LH
P116-05S	5	57.5	23	10x27	LH
P116-06S	6	57.5	23	10x27	LH
P116-64S	6.4	57.5	23	10x27	LH
P116-07S	7	57.5	23	10x27	LH
P116-08S	8	57.5	23	10x27	LH
P117-03D	3	70	20	10x38	RH
P117-04D	4	70	30	10x30	RH
P117-05D	5	70	30	10x30	RH
P117-06D	6	70	30	10x30	RH
P117-64D	6.4	70	30	10x30	RH
P117-07D	7	70	30	10x30	RH
P117-08D	8	70	30	10x30	RH
P117-03S	3	70	20	10x38	LH
P117-04S	4	70	30	10x30	LH
P117-05S	5	70	30	10x30	LH
P117-06S	6	70	30	10x30	LH
P117-64S	6.4	70	30	10x30	LH
P117-07S	7	70	30	10x30	LH
P117-08S	8	70	30	10x30	LH

P129

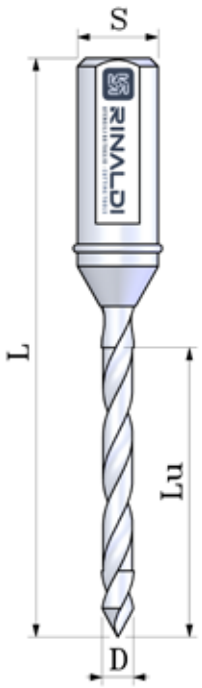


Punte per fori passanti in HW integrale

Solid HW drills for through holes

VHW-Bohrer für Durchgangslöcher

CODICE	D	L	Lu	S	Rot.
P129-05D	5	70	30	10x30	RH
P129-06D	6	70	30	10x30	RH
P129-08D	8	70	30	10x30	RH
P129-05S	5	70	30	10x30	LH
P129-06S	6	70	30	10x30	LH
P129-08S	8	70	30	10x30	LH

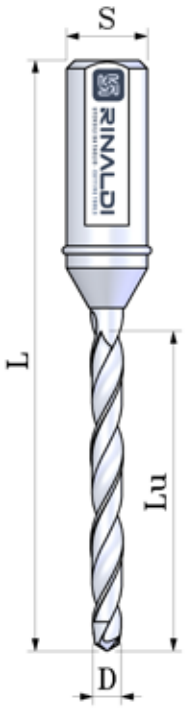


P134-135

Punte per fori passanti in HW integrale

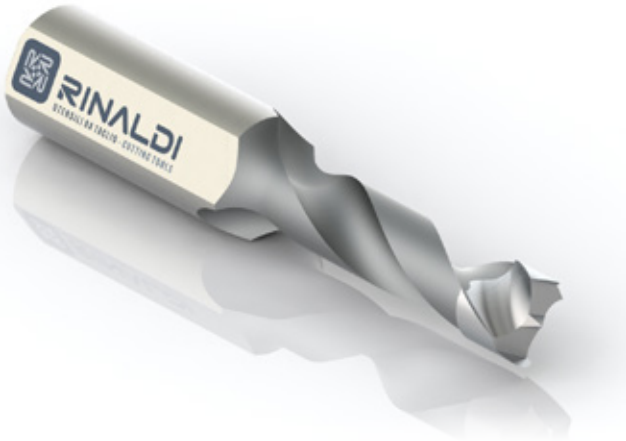
Solid HW drills for through holes

VHW-Bohrer für Durchgangslöcher



CODICE	D	L	Lu	S	Rot.
P134-05D	5	58	28	10x20	RH
P134-06D	6	58	28	10x20	RH
P134-08D	8	58	28	10x20	RH
P134-05S	5	58	28	10x20	LH
P134-06S	6	58	28	10x20	LH
P134-08S	8	58	28	10x20	LH
P135-04D	4	70	40	10x20	RH
P135-05D	5	70	40	10x20	RH
P135-06D	6	70	40	10x20	RH
P135-64D	6.4	70	40	10x20	RH
P135-07D	7	70	40	10x20	RH
P135-08D	8	70	40	10x20	RH
P135-04S	4	70	40	10x20	LH
P135-05S	5	70	40	10x20	LH
P135-06S	6	70	40	10x20	LH
P135-64S	6.4	70	40	10x20	LH
P135-07S	7	70	40	10x20	LH
P135-08S	8	70	40	10x20	LH

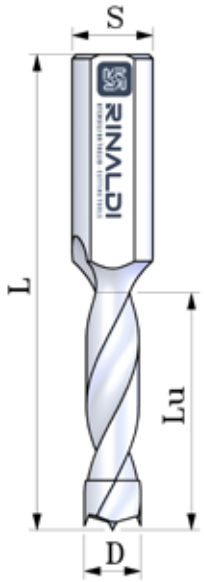
P114-115



Punte per fori ciechi con cuspide in HW integrale

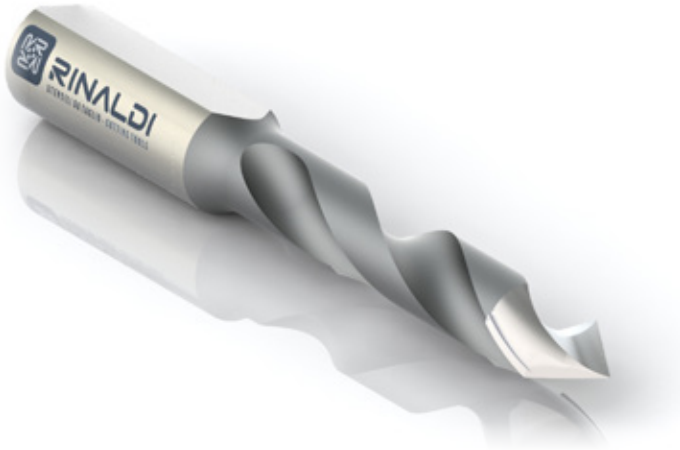
Drills for blind holes with HW-tip

Bohrer für Sacklöcher mit HW-Spitze



CODICE	D	L	Lu	S	Rot.
P114-05D	5	57.5	27	10x27	RH
P114-06D	6	57.5	27	10x27	RH
P114-64D	6.4	57.5	27	10x27	RH
P114-07D	7	57.5	27	10x27	RH
P114-08D	8	57.5	27	10x27	RH
P114-10D	10	57.5	27	10x27	RH
P114-12D	12	57.5	27	10x27	RH
P114-05S	5	57.5	27	10x27	LH
P114-06S	6	57.5	27	10x27	LH
P114-64S	6.4	57.5	27	10x27	LH
P114-07S	7	57.5	27	10x27	LH
P114-08S	8	57.5	27	10x27	LH
P114-10S	10	57.5	27	10x27	LH
P114-12S	12	57.5	27	10x27	LH
P115-05D	5	70	35	10x30	RH
P115-06D	6	70	35	10x30	RH
P115-64D	6.4	70	35	10x30	RH
P115-07D	7	70	35	10x30	RH
P115-08D	8	70	35	10x30	RH
P115-10D	10	70	35	10x30	RH
P115-12D	12	70	35	10x30	RH
P115-05S	5	70	35	10x30	LH
P115-06S	6	70	35	10x30	LH
P115-64S	6.4	70	35	10x30	LH
P115-07S	7	70	35	10x30	LH
P115-08S	8	70	35	10x30	LH
P115-10S	10	70	35	10x30	LH
P115-12S	12	70	35	10x30	LH

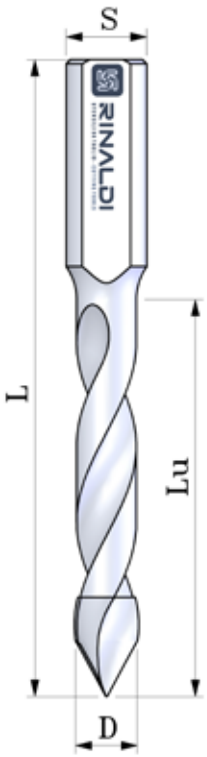
P123-124-125



Punte per fori passanti con cuspide in HW integrale

Drills for through holes with HW-tip

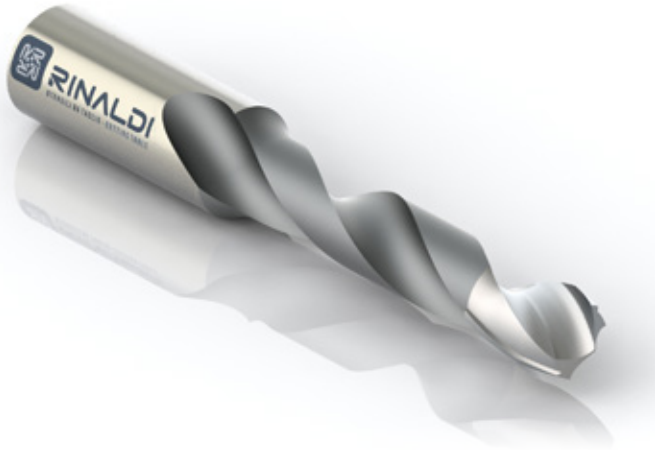
Bohrer für Durchgangslöcher mit HW-Spitze



Esecuzione con n.2 Eliche

CODICE	D	L	Lu	S	Rot.
P123-04D	4	57.5	27	10x24	RH
P123-05D	5	57.5	27	10x24	RH
P123-06D	6	57.5	27	10x24	RH
P123-07D	7	57.5	27	10x24	RH
P123-08D	8	57.5	27	10x24	RH
P123-09D	9	57.5	27	10x24	RH
P123-10D	10	57.5	27	10x24	RH
P123-04S	4	57.5	27	10x24	LH
P123-05S	5	57.5	27	10x24	LH
P123-06S	6	57.5	27	10x24	LH
P123-07S	7	57.5	27	10x24	LH
P123-08S	8	57.5	27	10x24	LH
P123-09S	9	57.5	27	10x24	LH
P123-10S	10	57.5	27	10x24	LH
P124-04D	4	70	37	10x24	RH
P124-05D	5	70	37	10x24	RH
P124-06D	6	70	37	10x24	RH
P124-64D	6.4	70	37	10x24	RH
P124-07D	7	70	37	10x24	RH
P124-08D	8	70	37	10x24	RH
P124-95D	9.5	70	37	10x24	RH
P124-10D	10	70	37	10x24	RH
P124-12D	12	70	37	10x24	RH
P124-04S	4	70	37	10x24	LH
P124-05S	5	70	37	10x24	LH
P124-06S	6	70	37	10x24	LH
P124-64S	6.4	70	37	10x24	LH
P124-07S	7	70	37	10x24	LH
P124-08S	8	70	37	10x24	LH
P124-95S	9.5	70	37	10x24	LH
P124-10S	10	70	37	10x24	LH
P124-12S	12	70	37	10x24	LH
P125-05D	5	77	45	10x24	RH
P125-06D	6	77	45	10x24	RH
P125-07D	7	77	45	10x24	RH
P125-08D	8	77	45	10x24	RH
P125-10D	10	77	45	10x24	RH
P125-05S	5	77	45	10x24	LH
P125-06S	6	77	45	10x24	LH
P125-07S	7	77	45	10x24	LH
P125-08S	8	77	45	10x24	LH
P125-10S	10	77	45	10x24	LH

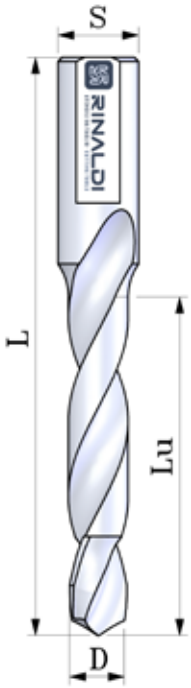
P132-133



Punte per fori passanti con cuspide in HW integrale

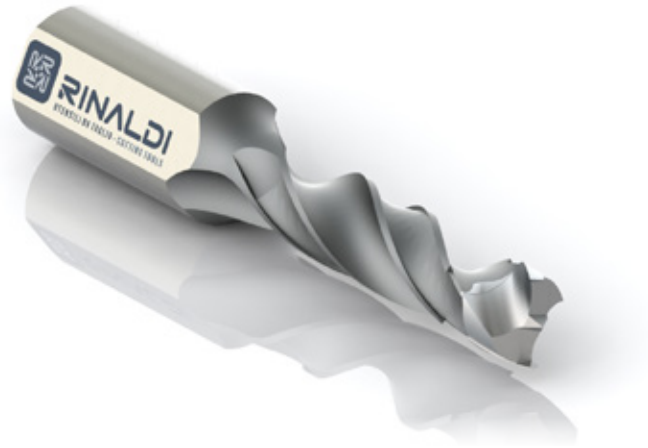
Drills for through holes with HW-tip

Bohrer für Durchgangslöcher mit HW-Spitze



CODICE	D	L	Lu	S	Rot.
P132-05D	5	58	30	10x24	RH
P132-06D	6	58	30	10x24	RH
P132-08D	8	58	30	10x24	RH
P132-05S	5	58	30	10x24	LH
P132-06S	6	58	30	10x24	LH
P132-08S	8	58	30	10x24	LH
P133-04D	4	70	36	10x24	RH
P133-05D	5	70	36	10x24	RH
P133-06D	6	70	36	10x24	RH
P133-64D	6.4	70	36	10x24	RH
P133-07D	7	70	36	10x24	RH
P133-08D	8	70	36	10x24	RH
P133-10D	10	70	36	10x24	RH
P133-12D	12	70	36	10x24	RH
P133-04S	4	70	36	10x24	LH
P133-05S	5	70	36	10x24	LH
P133-06S	6	70	36	10x24	LH
P133-64S	6.4	70	36	10x24	LH
P133-07S	7	70	36	10x24	LH
P133-08S	8	70	36	10x24	LH
P133-10S	10	70	36	10x24	LH
P133-12S	12	70	36	10x24	LH

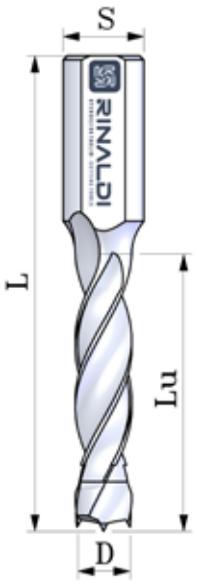
P101-102



Punte per fori ciechi con cuspide in HW integrale

Drills for blind holes with HW-tip

Bohrer für Sacklöcher mit HW-Spitze



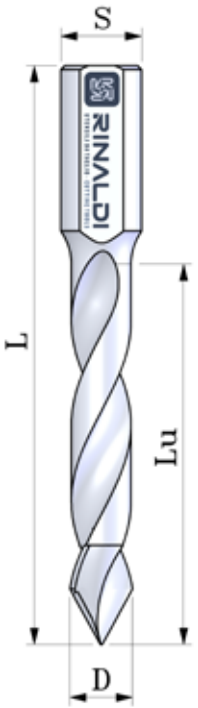
CODICE	D	L	Lu	S	Rot.
P101-05D	5	55.5	30	8x20	RH
P101-06D	6	55.5	30	8x20	RH
P101-07D	7	55.5	30	8x20	RH
P101-08D	8	55.5	30	8x20	RH
P101-09D	9	55.5	30	8x20	RH
P101-10D	10	55.5	30	8x20	RH
P101-12D	12	55.5	30	8x20	RH
P101-05S	5	55.5	30	8x20	LH
P101-06S	6	55.5	30	8x20	LH
P101-07S	7	55.5	30	8x20	LH
P101-08S	8	55.5	30	8x20	LH
P101-09S	9	55.5	30	8x20	LH
P101-10S	10	55.5	30	8x20	LH
P101-12S	12	55.5	30	8x20	LH
P102-05LD	5	67	40	8x20	RH
P102-06LD	6	67	40	8x20	RH
P102-07LD	7	67	40	8x20	RH
P102-08LD	8	67	40	8x20	RH
P102-09LD	9	67	40	8x20	RH
P102-10LD	10	67	40	8x20	RH
P102-12LD	12	67	40	8x20	RH
P102-05LS	5	67	40	8x20	LH
P102-06LS	6	67	40	8x20	LH
P102-07LS	7	67	40	8x20	LH
P102-08LS	8	67	40	8x20	LH
P102-09LS	9	67	40	8x20	LH
P102-10LS	10	67	40	8x20	LH
P102-12LS	12	67	40	8x20	LH

P126-127

Punte per fori passanti con cuspide in HW integrale

Drills for through holes with HW-tip

Bohrer für Durchgangslöcher mit HW-Spitze



Esecuzione con n.4 Eliche

CODICE	D	L	Lu	S	Rot.
P126-05D	5	57.5	27	10x20	RH
P126-06D	6	57.5	27	10x20	RH
P126-08D	8	57.5	27	10x20	RH
P127-45D	4.5	70	40	10x20	RH
P127-05D	5	70	40	10x20	RH
P127-55D	5.5	70	40	10x20	RH
P127-06D	6	70	40	10x20	RH
P127-07D	7	70	40	10x20	RH
P127-08D	8	70	40	10x20	RH
P127-09D	9	70	40	10x20	RH
P127-10D	10	70	40	10x20	RH
P127-12D	12	70	40	10x20	RH
P126-05S	5	57.5	27	10x20	LH
P126-06S	6	57.5	27	10x20	LH
P126-08S	8	57.5	27	10x20	LH
P127-45S	4.5	70	40	10x20	LH
P127-05S	5	70	40	10x20	LH
P127-55S	5.5	70	40	10x20	LH
P127-06S	6	70	40	10x20	LH
P127-07S	7	70	40	10x20	LH
P127-08S	8	70	40	10x20	LH
P127-09S	9	70	40	10x20	LH
P127-10S	10	70	40	10x20	LH
P127-12S	12	70	40	10x20	LH

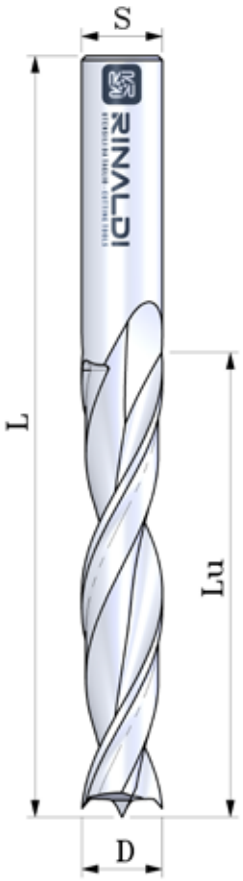
PFSC

Punte a forare in HSS-Co serie corta

Standard short drills in HSS-Co

HSS-Co kurze Bohrer

CODICE	D	L	Lu	S	Rot.
PFSC-002	2	49	24	2	RH
PFSC-025	2.5	57	30	2.5	RH
PFSC-003	3	61	33	3	RH
PFSC-035	3.5	70	39	3.5	RH
PFSC-004	4	75	43	4	RH
PFSC-045	4.5	80	47	4.5	RH
PFSC-005	5	86	52	5	RH
PFSC-055	5.5	93	57	5.5	RH
PFSC-006	6	93	57	6	RH
PFSC-065	6.5	101	63	6.5	RH
PFSC-007	7	109	69	7	RH
PFSC-075	7.5	109	69	7.5	RH
PFSC-008	8	117	75	8	RH
PFSC-085	8.5	117	75	8.5	RH
PFSC-009	9	125	81	9	RH
PFSC-095	9.5	125	81	9.5	RH
PFSC-100	10	133	87	10	RH
PFSC-105	10.5	133	87	10.5	RH
PFSC-110	11	142	94	11	RH
PFSC-115	11.5	142	94	11.5	RH
PFSC-120	12	151	101	12	RH
PFSC-125	12.5	151	101	12.5	RH
PFSC-130	13	151	101	13	RH

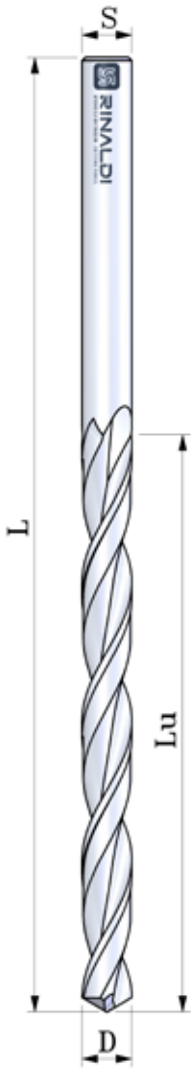


PFSL

Punte a forare in HSS-Co serie lunga

Standard long drills in HSS-Co
HSS-Co lange Bohrer

CODICE	D	L	Lu	S	Rot.
PFSL-002	2	85	56	2	RH
PFSL-025	2.5	95	62	2.5	RH
PFSL-003	3	100	66	3	RH
PFSL-035	3.5	112	73	3.5	RH
PFSL-004	4	119	78	4	RH
PFSL-045	4.5	126	82	4.5	RH
PFSL-005	5	132	87	5	RH
PFSL-055	5.5	139	91	5.5	RH
PFSL-006	6	139	91	6	RH
PFSL-065	6.5	148	97	6.5	RH
PFSL-007	7	156	102	7	RH
PFSL-075	7.5	156	102	7.5	RH
PFSL-008	8	165	109	8	RH
PFSL-085	8.5	165	109	8.5	RH
PFSL-009	9	175	115	9	RH
PFSL-095	9.5	175	115	9.5	RH
PFSL-100	10	184	121	10	RH
PFSL-105	10.5	184	121	10.5	RH
PFSL-110	11	195	128	11	RH
PFSL-115	11.5	195	128	11.5	RH
PFSL-120	12	205	134	12	RH
PFSL-125	12.5	205	134	12.5	RH
PFSL-130	13	205	134	13	RH



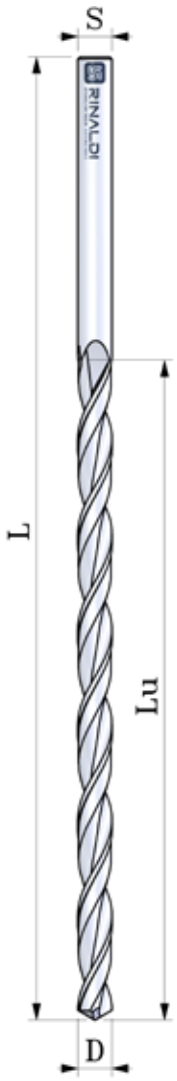
PFEL

Punte a forare in HSS-Co serie extra lunga

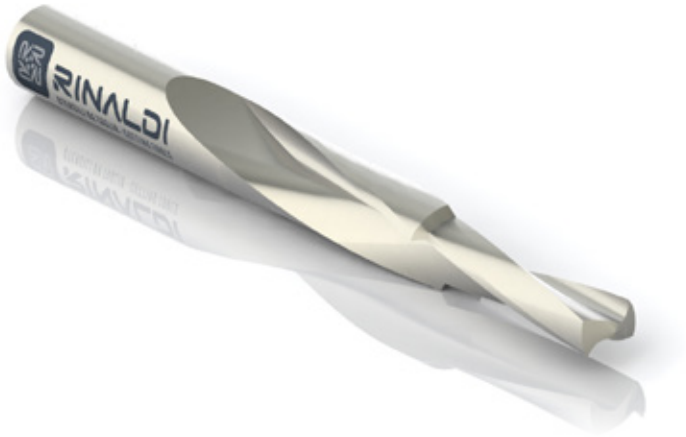
Standard extra-long drills in HSS-Co

HSS-Co extra-lange Bohrer

CODICE	D	L	Lu	S	Rot.
PFEL-002	2	125	85	2	RH
PFEL-025	2.5	140	95	2.5	RH
PFEL-003	3	150	100	3	RH
PFEL-035	3.5	165	115	3.5	RH
PFEL-004	4	175	120	4	RH
PFEL-045	4.5	185	125	4.5	RH
PFEL-005	5	195	135	5	RH
PFEL-055	5.5	205	140	5.5	RH
PFEL-006	6	205	140	6	RH
PFEL-065	6.5	215	150	6.5	RH
PFEL-007	7	225	155	7	RH
PFEL-075	7.5	225	155	7.5	RH
PFEL-008	8	240	165	8	RH
PFEL-085	8.5	240	165	8.5	RH
PFEL-009	9	250	175	9	RH
PFEL-095	9.5	250	175	9.5	RH
PFEL-100	10	265	185	10	RH
PFEL-105	10.5	265	185	10.5	RH
PFEL-110	11	280	195	11	RH
PFEL-115	11.5	280	195	11.5	RH
PFEL-120	12	295	205	12	RH
PFEL-125	12.5	295	205	12.5	RH
PFEL-130	13	295	205	13	RH



PPA

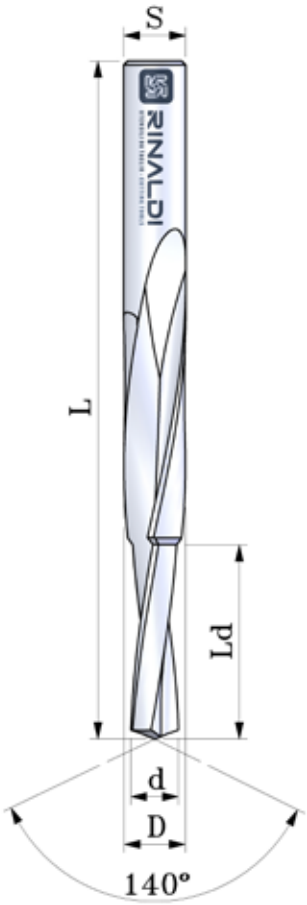


Punte per anuba in HSS

Drills in HSS

HSS - Bohrer

CODICE	d	D	L	Ld	S
PPA-009	3.7	5.2	82	23.5	5.2
PPA-011	4.2	5.7	82	23.5	5.7
PPA-013	5.3	6.7	82	23.5	6.7
PPA-014	5.7	7.2	82	23.5	7.2
PPA-016	6	7.7	82	23.5	7.7
PPA-020	6.5	8.2	82	23.5	8.2

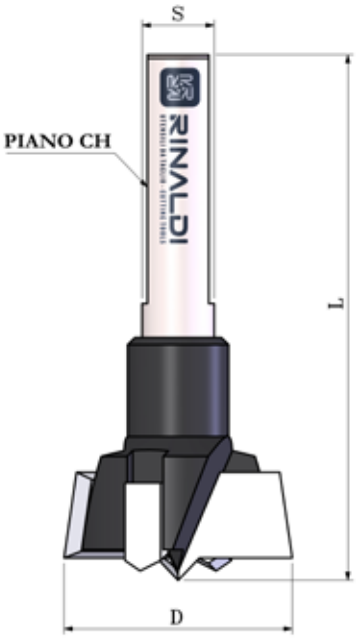


PCE

Punta levanodi fori ciechi Hw riportato

Cylinder Head Drill Bits HW

Zylinderkopf-Bohrer HW



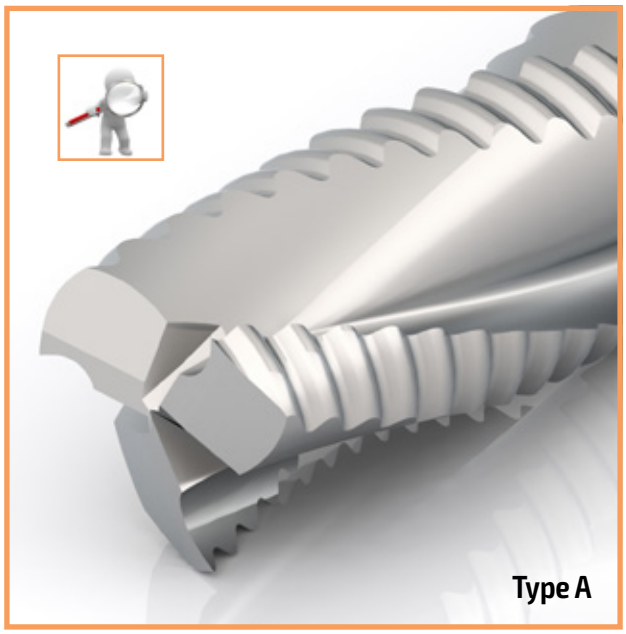
CODICE	D	L	S	Rot.
PCE-10-1557-RD	15	57	10x26	RH
PCE-10-1657-RD	16	57	10x26	RH
PCE-10-1757-RD	17	57	10x26	RH
PCE-10-1857-RD	18	57	10x26	RH
PCE-10-2057-RD	20	57	10x26	RH
PCE-10-2557-RD	25	57	10x26	RH
PCE-10-2657-RD	26	57	10x26	RH
PCE-10-3057-RD	30	57	10x26	RH
PCE-10-3557-RD	35	57	10x26	RH
PCE-10-4057-RD	40	57	10x26	RH
PCE-10-1570-RD	15	70	10x26	RH
PCE-10-2070-RD	20	70	10x26	RH
PCE-10-2570-RD	25	70	10x26	RH
PCE-10-2670-RD	26	70	10x26	RH
PCE-10-3070-RD	30	70	10x26	RH
PCE-10-3570-RD	35	70	10x26	RH
PCE-10-4070-RD	40	70	10x26	RH
PCE-10-1557-RS	15	57	10x26	LH
PCE-10-1657-RS	16	57	10x26	LH
PCE-10-1757-RS	17	57	10x26	LH
PCE-10-1857-RS	18	57	10x26	LH
PCE-10-2057-RS	20	57	10x26	LH
PCE-10-2557-RS	25	57	10x26	LH
PCE-10-2657-RS	26	57	10x26	LH
PCE-10-3057-RS	30	57	10x26	LH
PCE-10-3557-RS	35	57	10x26	LH
PCE-10-4057-RS	40	57	10x26	LH
PCE-10-1570-RS	15	70	10x26	LH
PCE-10-2070-RS	20	70	10x26	LH
PCE-10-2570-RS	25	70	10x26	LH
PCE-10-2670-RS	26	70	10x26	LH
PCE-10-3070-RS	30	70	10x26	LH
PCE-10-3570-RS	35	70	10x26	LH
PCE-10-4070-RS	40	70	10x26	LH

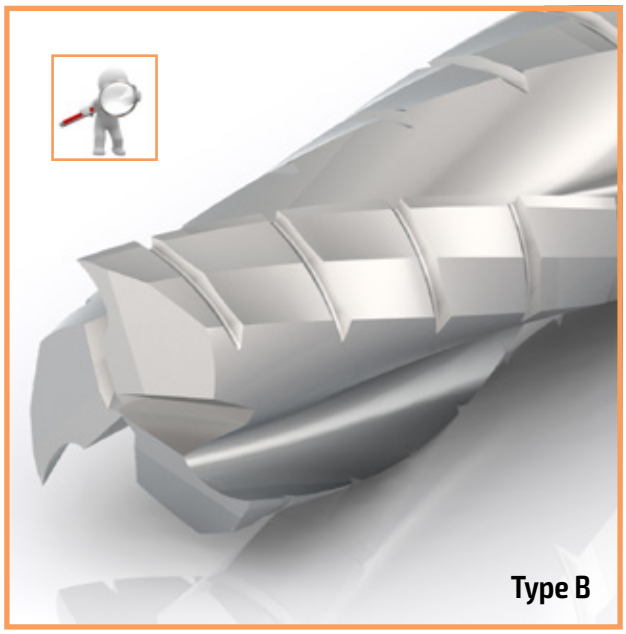
Rompitruciolo

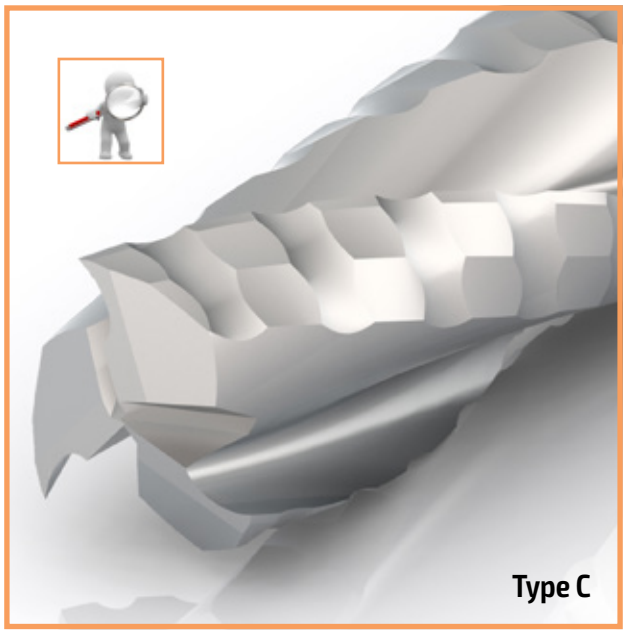
Chip-breaker
Spanbrecher

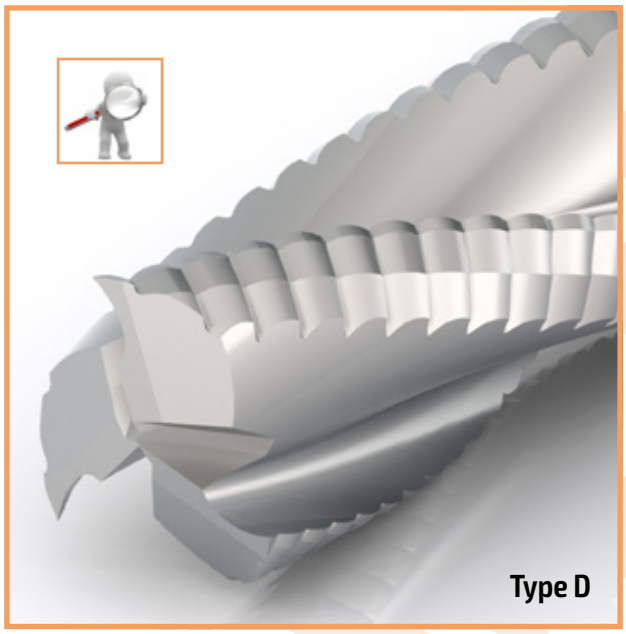
ON REQUEST

CODICE	D	L	Lu	S
TYPE-A	-	-	-	-
TYPE-B	-	-	-	-
TYPE-C	-	-	-	-
TYPE-D	-	-	-	-









Rivestimenti

Rivestimenti per elicoidali in HW integrale per lavorazione Legno

Coatings for HW milling cutters for woodworking
Beschichtungen für VHW-Fräser für Holzbearbeitung

ON REQUEST

Rivestimento “DLC” (Diamond Like Carbon)

Coating “DLC”
Beschichtung “DLC”

- Elevata resistenza all’usura e abrasione
- Basso coefficiente d’attrito
- Elevata scorrevolezza del truciolo
- Indicato per legno massello ,compensati e multistrati in genere

- High abrasive wear resistance
- Low coefficient of friction
- Better chips evacuation
- Suitable for solid wood, chipboard and plywood in general

- Hervorragenden Schutz gegen Abrasivverschleiß
- Niedrigen Reibungskoeffizienten
- Spanfluss erleichtert
- Geeignet für Massivholz, Spanplatten und Sperrholz

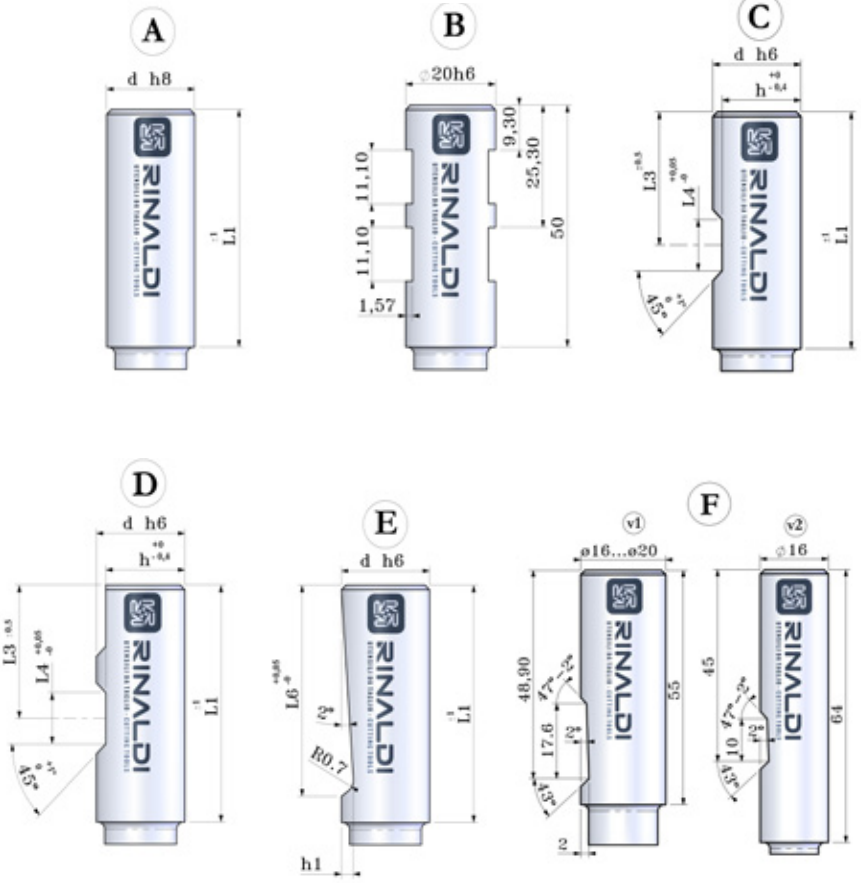
Attacchi uni 7738 e Din 1835

Shanks
Schäfte

ON REQUEST

d	L1	L2	L3	L4	L5	L6	h1	h
4	28	-	-	-				
5	28	-	-	-				
6	36	13	18	4.2	-	28	1.2	4.8
8	36	13	18	5.5	-	-	-	6.6
10	40	13	20	7	-	28	1.2	8.4
12	45	13	22.5	9	-	35	1.5	10.4
16	48	13	24	10	-	35	1.5	14.2
20	50	16	25	11	-	43	1.75	18.2
25	56	16	32	12	17	43	1.75	23
32	60	16	36	14	19	43	1.75	30

SEEGER øS ≥14



UTENSILI IN PINZA

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

CODOLO	
A	CODOLO CILINDRICO LISCIO (ø ≥ 14 Seeger)
B	CODOLO CILINDRICO ATTACCO "MAKA"
C	CODOLO CILINDRICO CON UNICO PIANO DI TRASCINAMENTO (WELDON)
D	CODOLO CILINDRICO CON DOPPIO PIANO DI TRASCINAMENTO (WELDON)
E	CODOLO CILINDRICO CON PIANO INCLINATO
F	CODOLO CILINDRICO ATTACCO "HOMAG-WEEKE"

Nozioni tecniche

Technical information
Technische Informationen

VELOCITÀ DI TAGLIO

La velocità di taglio (VT) e' la distanza percorsa da un tagliente in un secondo (m/s) e si calcola con questa formula:

$$VT = \frac{D \times \pi \times n}{1000 \times 60} \quad (m/s)$$

D = diametro dell'utensile [mm]
n = numero di giri [min-1]
π = 3,14

CUTTING SPEED

The cutting speed (VT) is the distance the cutting edge covers per second (m/s) and it is calculated with the following formula:

$$VT = \frac{D \times \pi \times n}{1000 \times 60} \quad (m/s)$$

D=diameter of the tool (mm)
n= RPM (min -1)
π = 3,14

DIE SCHNITTGESCHWINDIGKEIT

Die Schnittgeschwindigkeit (VT) ist die zurückgelegte Dinstanz einer Schneide in einer Sekunde und wird durch die folgende Formel berechnet :

$$VT = \frac{D \times \pi \times n}{1000 \times 60} \quad (m/s)$$

D=Werkzeugdurchmesser (mm)
n= Drehzahl (min -1)
π = 3,14

Valori indicativi per le Velocita' di Taglio (VT m/s)

Materiale/Material	frese HSS (VT m/s)	frese HW (VT m/s)
Legni teneri Soft wood Weichholz	50-80	60-90
Pannelli truciolari Chipboards Spannplatten	-	60-90
Legni duri Hard wood Hartholz	40-70	50-90
Pannelli Core boards Tischlerplatten	-	60-90
Pannelli vena dura Hard boards Hartfaserplatten	-	40-70
Pannelli laminati Laminated boards Beschichtete Platten	-	40-70

Velocita' di Rotazione indicative (n=min-1)

Tipologia utensili/ Type of tools / Typologie der Werkzeuge	Nmax (min-1)
Frese HW ø3..ø20 HW milling cutters ø3..ø20 VHW Fräser ø3..ø20	30.000
Frese HW > ø20 HW milling cutters > ø20 VHW Fräser HW > ø20	24.000
Frese HW monotaglienti 1 flute HW milling cutters Fräser Z=1	24.000
Frese per scasso serratura Door locks milling cutters Schloßkastenfräser	18.000
Punte Drills Bohrer	3.000-6.000

VELOCITÀ DI AVANZAMENTO

La velocità di avanzamento (Va) dipende dal numero di giri dell'utensile, dal numero dei taglienti e dall'avanzamento dei taglienti. Di regola per ridurre i tempi di lavorazione si imposta un valore e poi si aumenta la VA fino a che si è soddisfatti della finitura superficiale.
I valori si possono calcolare con la formula:

$$Va = \frac{At \times Z \times n}{1000} \quad [m/min]$$

At = avanzamento del tagliente [mm]
Z = numero dei taglienti
n = numero di giri [min-1]

FEEDING SPEED

The feeding speed (Va) depends on RPM, the number of cutting edges and the chip load. To reduce the machining time an estimated Va is usually set and then increased up to the achievement of a good finish. This value can be calculated with the following formula:

$$Va = \frac{At \times Z \times n}{1000} \quad [m/min]$$

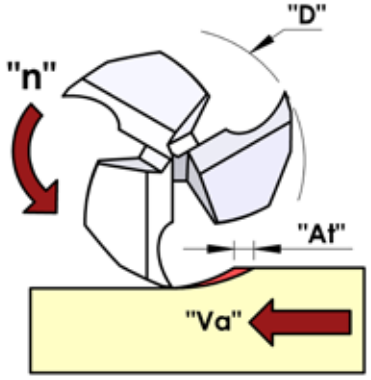
At = chip load (feed per cutting edge) [mm]
Z=number of cutting edges
N= RPM [min-1]

VORSCHUBGESCHWIENDIGKEIT

Die Vorschubgeschwiendigkeit (Va) hängt von der Drehzahl, von der Zähnezahl und vom Zahnvorschub. Um die Bearbeitungszeit zu verkürzen, wird Normalerweise einen Wert eingestellt und dann erhöht bis zum Erreichen eine gute Oberfläche. Man kann diese Werte durch die folgende Formel berechnen :

$$Va = \frac{At \times Z \times n}{1000} \quad [m/min]$$

At = Zahnvorschub [mm]
Z= Zähnezahl
N= Drehzahl [min-1]



0,3 – 0,8 mm = truciolo semplice
0,8 – 2,5 mm = truciolo semplice
2,5 – 5,0 mm = truciolo sgrossato

0,3 – 0,8 mm = Fine chip
0,8 – 2,5 mm = Fine chip
2,5 – 5,0 mm = Rough chip

0,3 – 0,8 mm = Feinschlichtspan
0,8 – 2,5 mm = Schlichtspan
2,5 – 5,0 mm = Schruppspan

Bilanciatura

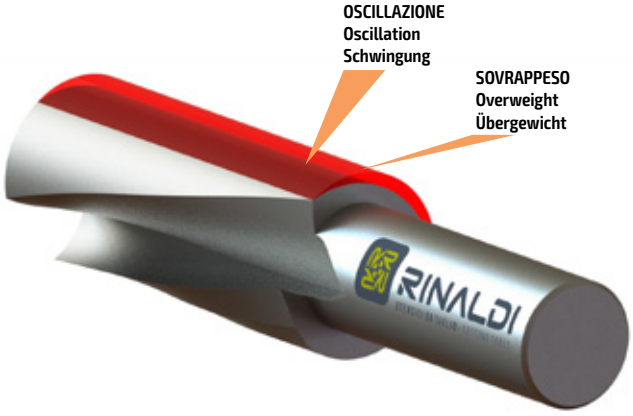
Balancing
Auswuchtung

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

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

MASSIMA VELOCITA' AMMISSIBILE nmax(min−1)
Specifica la velocita' 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/nmax	Il valore di 1,5279 e' dato da : e_{per} * n * 10_3 * 60/2*π
Utensili complessi e tutti gli utensili con massa <1Kg	40	U=3,8197 * 10_5 * 1/nmax	Il valore di 3,8197 e' dato da : e_{per} * n * 10_3 * 60/2*π



Effetti della sbilanciatura
- La sbilanciatura produce oscillazioni / vibrazioni
- Peggiore 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 Drezahl
- Schaden an der Spindel oder Motor
- Erhöhter Schneidenverschleiß
- Rostbildung an den Schneiden

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 nmax(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/nmax	the value of 1,5279 it is given by : e_{per} * n * 10_3 * 60/2*π
Complex tools and all tools with mass <1 kilo	40	U=3,8197 * 10_5 * 1/nmax	the value of 3,8197 it is given by : e_{per} * n * 10_3 * 60/2*π

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

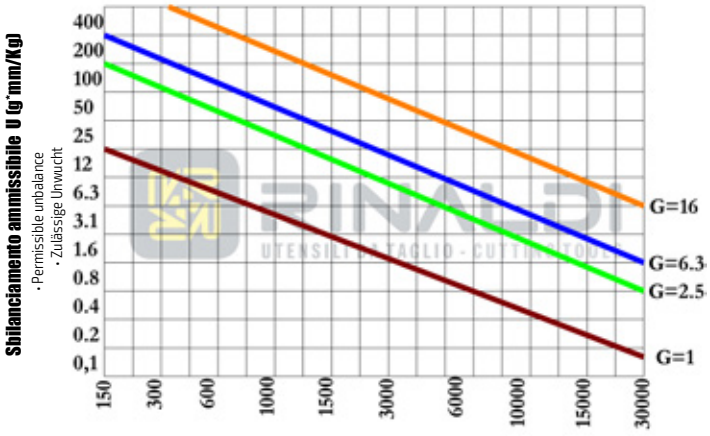
UNWUCHT U (g*mm/Kg)
Zulässige spezifische Restunwucht für massive Werkzeuge

MAXIMALE DREHZAHL nmax(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/nmax	Der Wert 1,5279 wird wie folgt berechnet: e_{per} * n * 10_3 * 60/2*π
Komplexe Werkzeuge und alle Werkzeuge mit Massen <1 Kilo	40	U=3,8197 * 10_5 * 1/nmax	Der Wert 3,8197 wird wie folgt berechnet : e_{per} * n * 10_3 * 60/2*π

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/Sekunede



RINALDI

UTENSILI DA TAGLIO - CUTTING TOOLS

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