

# SILMAX

QUALITY AS A STANDARD

## TITANIO, SUPERLEGHE E ACCIAIO INOX

Titanium, Super Alloys and Stainless Steel  
Titan, Superlegierungen und Edelstahl  
Titane, Superalliages et Acier Inoxydable



**SILMAX.IT**  
A LIMITLESS COMPANY



## QUALITY AS A STANDARD

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Silmax è un'azienda italiana leader nella produzione di utensili da taglio, con una lunga storia e una forte propensione all'innovazione grazie a moderni impianti e tecnologie di ultime generazioni.

**Da oltre 50 anni** Silmax si distingue per **precisione, passione e professionalità.**

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Silmax is an Italian leading cutting tools manufacturer, with a long history and strong attitude to innovation thanks to modern machines and last generation technology.

**Since 50 years** Silmax is known for **precision, passion and professionalism.**

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Silmax ist ein führendes italienisches Unternehmen in der Herstellung von Schneidwerkzeugen mit einer langen Geschichte und einer starken Neigung zur Innovation dank moderner Systeme und Technologien der neuesten Generation.

**Seit über 50 Jahren** zeichnet sich Silmax durch **Präzision, Leidenschaft und Professionalität aus.**

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Silmax est une entreprise italienne leader dans la production d'outils de coupe, avec une longue histoire et une forte propension à l'innovation grâce à des installations modernes et des technologies de dernière génération.

**Depuis plus de 50 ans,** Silmax se distingue par sa **précision, sa passion et son professionnalisme.**

# LA NOSTRA STORIA

## OUR HISTORY / UNSERE GESCHICHTE / NOTRE HISTOIRE

### 1819



Paul Alessio inizia a forgiare i suoi primi utensili. La piccola officina si chiama "L'Usine".

Paul Alessio begins to forge his first tools. The small workshop is called "L'Usine".

Paul Alessio beginnt seine ersten Werkzeuge zu schmieden. Die kleine Werkstatt heißt "L'Usine".

Paul Alessio commence à forger ses premiers outils. Le petit atelier s'appelle « L'Usine ».

### 1955



Sotto la guida di Enrico M. Fumagalli l' "Usine" riprende l'attività produttiva.

Under the control of Enrico M. Fumagalli, the "Usine" resumed its tool production.

Unter der Leitung von Enrico M. Fumagalli nimmt die "Usine" die Produktionstätigkeit wieder auf.

Sous la direction de Monsieur Enrico M. Fumagalli, « L'Usine » reprend son activité de production.

### 1975



"L'Usine" diventa **Silmax, una moderna SPA.**

"L'Usine" becomes **the modern Silmax, SPA.**

Aus "L'Usine" wird **Silmax modernes SPA.**

« L'Usine » devient **Silmax, une SPA moderne.**

### 1984



Joint-venture Silmax Spa **Balzers AG.**

Joint-venture Silmax Spa **Balzers AG.**

Joint-venture Silmax Spa **Balzers AG.**

Joint-venture Silmax Spa **Balzers AG.**

### 2005



Silmax celebra i suoi **50 anni.**

Silmax celebrates its **50th birthday.**

Silmax feiert seine **50 Jahre.**

Silmax fête son **50e anniversaire.**

### 2012



Vengono inaugurate le sedi commerciali in **India, Cina e Germania.**

New commercial branches open in **India, China and Germany.**

Verkaufsbüros in **Indien, China und Deutschland** werden eröffnet.

Des bureaux de vente sont inaugurés en **Inde, en Chine, en Allemagne.**

### 2013



Silmax inaugura il **nuovo centro di rivestimento.**

Silmax **new plant for PVD coating.**

Silmax eröffnet das **neue Zentrum der Beschichtung.**

Silmax inaugure un **nouveau centre de revêtement.**

### 2019



**Silmax 200 anni!**

**Silmax 200 years!**

**Silmax 200 Jahre!**

**Silmax fête son 200 anniversaire!**

### 2021



**5 nuove rettifiche e 1 nuovo impianto PVD.**

**5 new grinding machines and 1 new PVD unit.**

**5 neue Schleifmaschinen 1 neues PVD-System.**

**5 nouvelles rectifieuses et 1 nouveau système PVD.**

### 2022



Silmax continua la sua storia e il suo **sviluppo** sempre attenta a mantenere alta la qualità dei suoi prodotti e la soddisfazione dei suoi clienti.

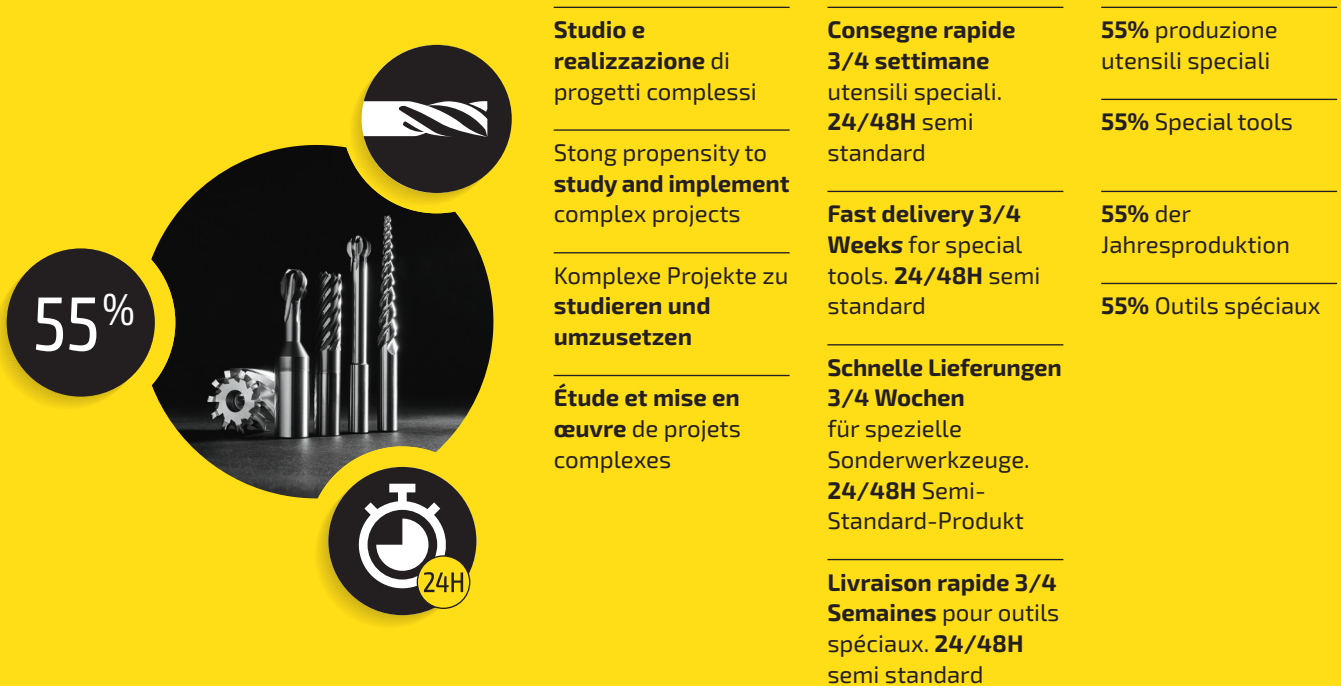
Silmax continues its history and its **development**, always careful to maintain the high quality of its products and the satisfaction of its customers.

Silmax fährt seine Geschichte fort und seine **Entwicklung** immer sorgfältig aufrecht zu halten hohe Qualität seiner Produkte und Zufriedenheit seiner Kunden.

Aujourd'hui, Silmax poursuit son histoire et son **développement** en veillant toujours à maintenir en haute la qualité de ses produits et la satisfaction de ses clients.

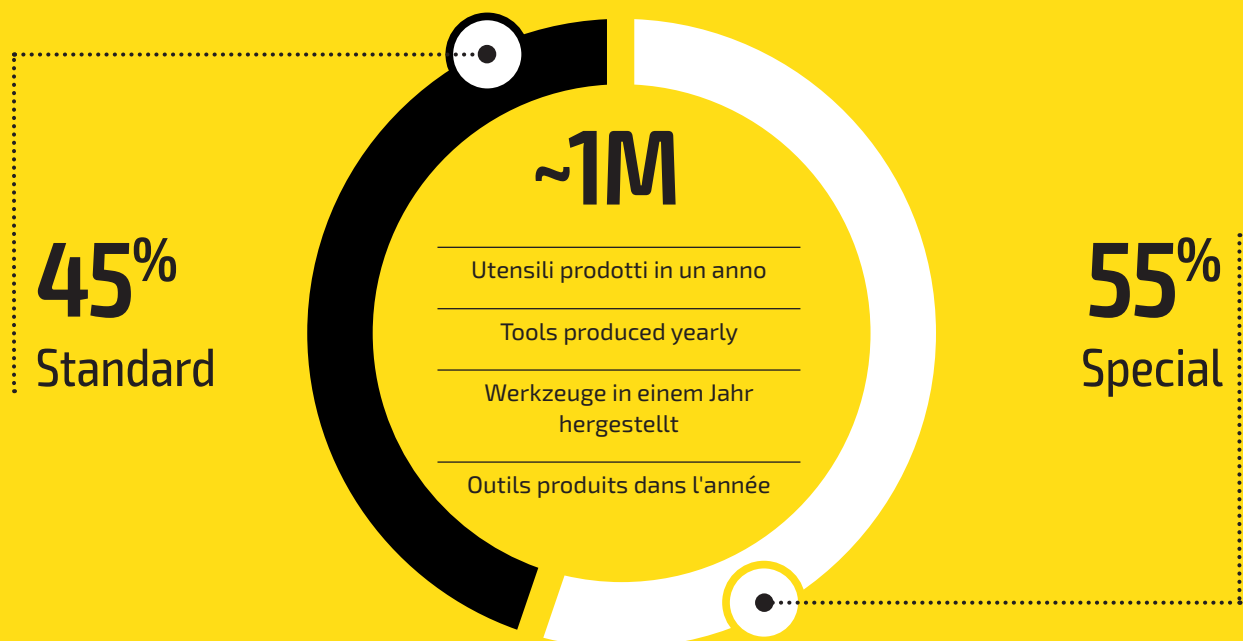
## PRODOTTI SPECIALI

SPECIAL TOOLS / SPEZIELLE PRODUKTE / PRODUITS SPÉCIAUX



## I NUMERI DI SILMAX

SILMAX FIGURES / SILMAX ZAHLEN / CHIFFRES SILMAX



# I NOSTRI MERCATI

OUR MARKETS / UNSERE MÄRKTE / LES PRINCIPAUX SECTEURS

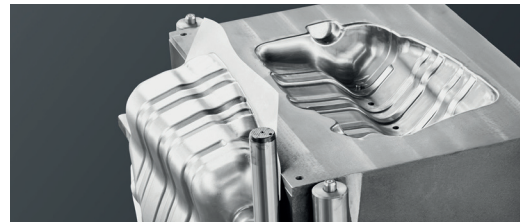
1

Aereonautica  
Aerospace  
Luftfahrtbereich  
Aéronautique



2

Stampi  
Mold  
Formenbau  
Moules



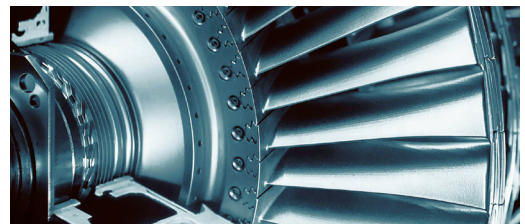
3

Automobilistico  
Automotive  
Automobil  
Automobile



4

Energia  
Energy  
Energie  
Énergie



5

Meccanica generale  
General Mechanics  
Allgemeine Mechanik  
Mécanique générale



6

Medicale  
Medical  
Medizinischer Bereich  
Médical



# NUOVA PROPOSTA PER SUPERLEGHE, TITANIO E INOX

## NEW PROPOSAL FOR SUPERALLOYS, TITANIUM AND STAINLESS STEEL

### NEUER VORSCHLAG FÜR SUPERLEGIERUNGEN, TITAN UND EDELSTAHL

#### NOUVELLE PROPOSITION POUR LES SUPERALLIAGES, TITANE ET ACIER INOXYDABLE

**Il nuovo programma di frese** per la lavorazione di **titanio, superleghe e acciaio inox** prevede 3 nuovi utensili: due frese a 4 taglienti ripensate nella geometria, **184EV** e **284EV**

con fori di lubrificazione; **la 185**, fresa a 5 taglienti in 3 versioni, con diverse lunghezze e taglio interrotto.

Tutti gli utensili sono **rivestiti in Balinit® Tisaflex**, rivestimento particolarmente performante perché riduce **l'usura adesiva**, sopporta **alte temperature** sul tagliente ed **elevati**

**shock termici**. Il trattamento proprietario **4S** **riduce gli attriti e la formazione di tagliente di riporto**.

**The new program for titanium, super alloys and stainless steel** materials includes 3 new tools: 2 four-flutes end mills, **184EV** with a new geometry and **284EV** with internal

coolant; five-flute end mills **185** in 3 versions with different lengths and with chip breakers.

All tools are **Balinit® Tisaflex coated**, high performance coating optimized to reduce **adhesive wear** to sustain **high temperature at the cutting edge and thermal shocks**.

**The 4S** proprietary treatment **reduces friction and built-up edge**.

**Das neue Fräserprogramm für die Bearbeitung von Titan, Superlegierungen und Edelstahl** umfasst 3 neue Werkzeuge: zwei 4-schneidige Fräser **184EV**, in der Geometrie neu gedacht und der **284EV** mit IK; der

**185** Fräser mit 5 Schneiden in 3 Versionen, mit unterschiedlichen Längen und unterbrochenem Schnitt.

Alle Werkzeuge sind mit **Balinit®Tisalfex beschichtet**, einer besonders leistungsfähigen Beschichtung, da sie Eigenspannungen und die **Temperatur an der Schneide reduziert und**

**Temperaturschocks vermeidet**. Die proprietäre **4S-Behandlung reduziert Reibung und Aufbauschneidenbildung**.

**Le nouveau programme de fraises pour usinage titane, superalliages et acier inoxydable** comprend 3 nouveaux outils: 2 fraises avec 4 dents **184EV**, révisées en géométrie, et la **284EV** avec trou de

lubrification; la **185**, fraise à 5 dents en trois versions, avec différentes longueurs et brise-copeaux.

Tous les outils sont revêtus **Balinit® Tisaflex**, revêtement particulièrement performant car il réduit **les tensions résiduelles**, la température sur la partie coupante et **évite les chocs thermiques**.

Le traitement exclusif Silmax **4S** **réduit la friction et les problèmes d'arête de coupe rapportée**.

# LA NUOVA 184EV

THE NEW 184EV / DER NEUE 184EV / LE NOUVELLE 184EV

**Fresa a 4 taglienti caratterizzata da una maggior rigidità**, con una geometria che permette un'efficace evacuazione in cava, ed ottimizzata per lavorazioni in dynamic milling.

**4 flute end mill characterized by higher rigidity**, with a geometry that allows an effective evacuation in slotting, and optimized for dynamic milling.

**4-Schneiden-Fräser hat eine höhere Steifigkeit**, eine Geometrie, die eine effektive Evakuierung in der Nut ermöglicht, ist für die dynamische Fräsbearbeitung optimiert.

**Fraise à 4 dents, avec grande rigidité d'outil**, une géométrie qui permet une bonne évacuation en rainurage, optimisée aussi pour usinage dynamique.

Rivestimento  
Balinit®Tisaflex + 4S  
Superficie scorrevole per alte velocità

Balinit®Tisaflex  
Beschichtung + 4S  
Gleitfläche für hohe Geschwindigkeiten

Vano frontale più spazioso con doppia lavorazione.  
• Non indebolisce il dente.  
• Miglior evacuazione ed efficacia del refrigerante

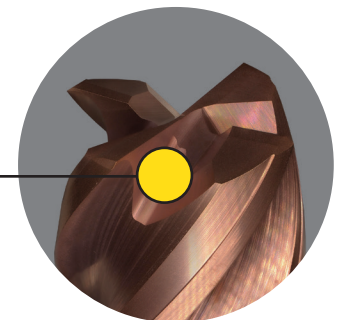
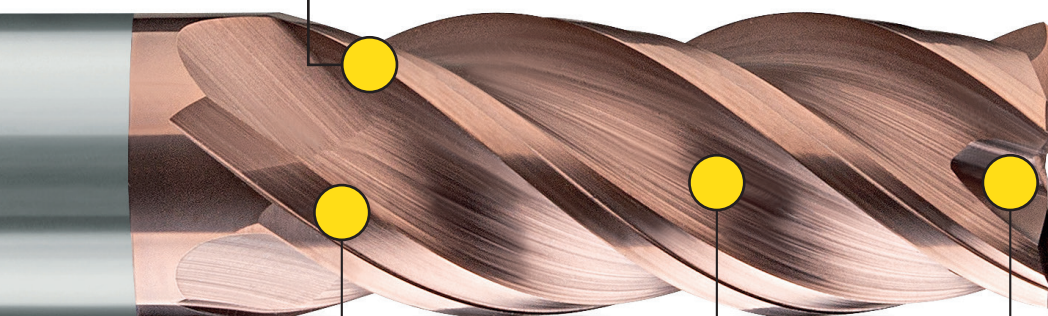
Breite Front mit doppelter Verarbeitung.- Schwächt den Zahn nicht.- Bessere Evakuierung und Wirksamkeit des Kältemittels

Balinit®Tisaflex  
Coating + 4S  
Smooth surface for high speed cutting

Revêtement  
Balinit®Tisaflex + 4S  
Surface lisse pour des vitesses élevées

More front space with double gashing.  
• Does not weaken the tooth.  
• Better chip evacuation and better coolant effectiveness

Un espace avant plus vaste avec un entaille.  
• N'affaiblit pas la dent.  
• Meilleure évacuation des copeaux et meilleure efficacité de la lubrification



Spoglia radiale di stabilizzazione  
Stabilized radial sharpening  
Radiale Stabilisierungsentlastung  
Affûtage radial stabilisé

Gola sagomata  
Shaped flute  
Geformter Hals  
Goujoure profilée

Divisione irregolare/elica differenziata  
Unequal flute spacing/variable helix.  
Ungleicher Teilung/ungleichem Drallwinkel  
Pas décalé/hélice variable



**TIS** Titanio, Superleghe e Acciaio Inox  
 Titanium, Superalloys and Stainless Steel  
 Titan, Superlegierungen und Edelstahl  
 Titane, Superalliages et Acier Inoxydable

	Codice Code	Ø (Dmm)	Z	Cava Slotting	Contornitura Side and face milling	Copiatra 3D 3D Copy	Trocoidele Trochoidal	Assiale Plunging	Rampa Diagonal plunging
	183	2,0 ± 20,0	3	●	●	-	●	●	●
	184EV	1,0 ± 25,0	4	●	●	-	●	-	●
	284EV	6,0 ± 25,0	4	●	●	-	●	-	●
	119	4,0 ± 20,0	4	●	●	-	-	-	●
	118	4,0 ± 20,0	4	●	●	-	-	-	●
	185	6,0 ± 20,0	5	●	●	-	●	-	●
	185M	4,0 ± 20,0	5	-	●	-	●	-	●
	185T	6,0 ± 20,0	5	-	●	-	●	-	●
	185L	6,0 ± 20,0	5	-	●	-	●	-	●
	185R	6,0 ± 20,0	5	-	●	-	●	-	●
	157	12,0 ± 16,0	7	-	●	-	●	-	●
	737	3,0 ± 16,0	2	-	-	●	-	-	-
	737R	1,0 ± 3,0	2	-	-	●	-	-	-
	133	3,0 ± 12,0	4	-	-	●	-	-	-



Acciaio Inox  
Stainless steel

4

PH Duplex

5

Titanio  
Titanium

6

Superteghe  
Superalloys

8

Pagina  
Page

Acciaio Inox Stainless steel	PH Duplex	Titanio Titanium	Superteghe Superalloys	Pagina Page
•	•	•	-	11
•	•	•	-	13
•	•	•	-	15
•	•	-	-	17
-	-	-	•	19
•	•	•	-	21
•	•	•	-	23
•	•	•	-	25
•	•	•	-	27
•	•	•	-	27
-	•	•	-	29
•	•	•	•	31
•	•	•	•	31
•	•	•	•	33

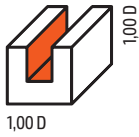
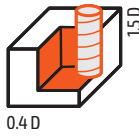
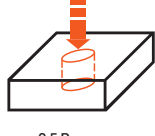


Scansiona il codice QR per  
scaricare la versione digitale  
Scan QR code to download  
the digital version



183

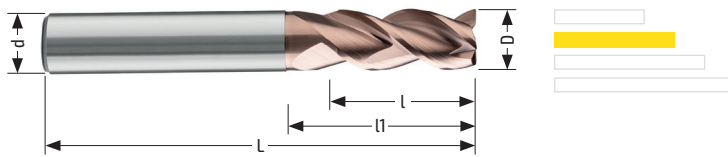
Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

Materiale Material	Diametro Diameter									
		1,00 D			0,4 D			ap = 0,5 D		
Inox ferritico Ferritic stainless steel	m/min	Vc=130			Vc=130			Vc=130		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2	0,009	559	20690	0,011	683	20690	0,005	310	20690
	4	0,019	590	10345	0,021	652	10345	0,009	279	10345
	6	0,027	559	6897	0,031	641	6897	0,014	290	6897
	8	0,035	543	5173	0,040	621	5173	0,017	264	5173
	10	0,042	521	4138	0,048	596	4138	0,021	261	4138
	12	0,048	497	3448	0,055	569	3448	0,024	248	3448
	16	0,059	458	2586	0,067	520	2586	0,030	233	2586
20	0,069	428	2069	0,079	490	2069	0,034	211	2069	
Inox austenitico Austenitic stainless steel	m/min	Vc=110			Vc=110			Vc=110		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2	0,009	473	17507	0,011	578	17507	0,005	263	17507
	4	0,019	499	8754	0,021	551	8754	0,009	236	8754
	6	0,027	473	5836	0,031	543	5836	0,014	245	5836
	8	0,035	460	4377	0,040	525	4377	0,017	223	4377
	10	0,042	441	3501	0,048	504	3501	0,021	221	3501
	12	0,048	420	2918	0,055	481	2918	0,024	210	2918
	16	0,059	387	2188	0,067	440	2188	0,030	197	2188
20	0,069	362	1751	0,079	415	1751	0,034	179	1751	
Ph Duplex	m/min	Vc=90			Vc=80			Vc=90		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2	0,007	301	14324	0,007	267	12732	0,003	129	14324
	4	0,013	279	7162	0,015	286	6366	0,007	150	7162
	6	0,019	272	4775	0,021	267	4244	0,010	143	4775
	8	0,025	269	3581	0,027	258	3183	0,012	129	3581
	10	0,030	258	2865	0,033	252	2546	0,015	129	2865
	12	0,034	244	2387	0,038	242	2122	0,017	122	2387
	16	0,042	226	1790	0,046	220	1592	0,021	113	1790
20	0,049	211	1432	0,054	206	1273	0,025	107	1432	
Titanio Titan	m/min	Vc=90			Vc=80			Vc=90		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2	0,007	301	14324	0,007	267	12732	0,003	129	14324
	4	0,013	279	7162	0,015	286	6366	0,007	150	7162
	6	0,019	272	4775	0,021	267	4244	0,010	143	4775
	8	0,025	269	3581	0,027	258	3183	0,012	129	3581
	10	0,030	258	2865	0,033	252	2546	0,015	129	2865
	12	0,034	244	2387	0,038	242	2122	0,017	122	2387
	16	0,042	226	1790	0,046	220	1592	0,021	113	1790
20	0,049	211	1432	0,054	206	1273	0,025	107	1432	

Notes

183

Fresa 3 taglienti per lavorazioni ad elevate asportazioni  
 3 flute end mill for high chip removal  
 Dreischneidige Fräser mit hohem Spanabfuhr  
 Fraise à 3 dents, pour débit copeaux élevés



λ 42°

6527 L



6535 HA

6535 HB





4

5

6

45°

D h10	d h6	L	l ap	l1	a	45°	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
2,0	6	57	5,0	8,0	0,10	0,05	3	HMH183020	HMH183020W
2,5	6	57	6,0	9,0	0,10	0,05	3	HMH183025	HMH183025W
3,0	6	57	8,0	11,0	0,10	0,10	3	HMH183030	HMH183030W
3,5	6	57	8,0	13,0	0,10	0,10	3	HMH183035	HMH183035W
4,0	6	57	9,0	16,0	0,10	0,10	3	HMH183040	HMH183040W
4,5	6	57	10,0	16,0	0,10	0,10	3	HMH183045	HMH183045W
5,0	6	57	13,0	18,0	0,10	0,10	3	HMH183050	HMH183050W
6,0	6	57	13,0	20,0	0,15	0,10	3	HMH183060	HMH183060W
8,0	8	63	19,0	25,0	0,15	0,15	3	HMH183080	HMH183080W
10,0	10	72	22,0	30,0	0,15	0,15	3	HMH183100	HMH183100W
12,0	12	83	26,0	36,0	0,20	0,15	3	HMH183120	HMH183120W
16,0	16	92	32,0	42,0	0,20	0,20	3	HMH183160	HMH183160W
20,0	20	104	38,0	52,0	0,20	0,20	3	HMH183200	HMH183200W

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6

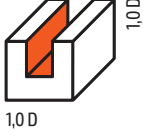
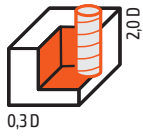
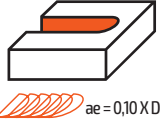
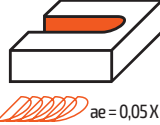
Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Titan Superlegierungen  
Superalliages

184EV

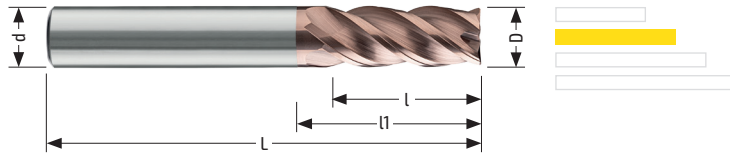
Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

Materiale Material	Diametro Diameter												
		1,0D			0,3D			ae = 0,10 X D			ae = 0,05 X D		
Inox ferritico Ferritic stainless steel	m/min	Vc=140			Vc=140			Vc=160			Vc=220		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	1	0,003	535	44563	0,005	891	44563	-	-	-	-	-	-
	2	0,008	713	22282	0,011	980	22282	-	-	-	-	-	-
	3	0,011	654	14854	0,017	1010	14854	-	-	-	-	-	-
	4	0,015	668	11141	0,023	1025	11141	0,070	3565	12732	0,085	7937	23343
	6	0,022	654	7427	0,033	980	7427	0,102	3463	8488	0,124	8683	17507
	8	0,028	624	5570	0,042	936	5570	0,131	3336	6366	0,159	7423	11671
	10	0,034	606	4456	0,050	891	4456	0,157	3198	5093	0,191	6688	8754
	12	0,039	579	3714	0,058	862	3714	0,181	3073	4244	0,220	6162	7003
	16	0,048	535	2785	0,072	802	2785	0,223	2839	3183	0,271	5422	5002
	20	0,056	499	2228	0,084	749	2228	0,261	2659	2546	0,316	5532	4377
	25	0,066	471	1783	0,098	699	1783	0,305	2485	2037	0,370	5182	3501
Inox austenitico Austenitic stainless steel	m/min	Vc=120			Vc=120			Vc=140			Vc=220		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	1	0,003	458	38197	0,005	764	38197	-	-	-	-	-	-
	2	0,008	611	19099	0,011	840	19099	-	-	-	-	-	-
	3	0,011	560	12732	0,017	866	12732	-	-	-	-	-	-
	4	0,015	573	9549	0,023	879	9549	0,070	3119	11141	0,085	5952	17507
	6	0,022	560	6366	0,033	840	6366	0,102	3030	7427	0,124	5789	11671
	8	0,028	535	4775	0,042	802	4775	0,131	2919	5570	0,159	5567	8754
	10	0,034	519	3820	0,050	764	3820	0,157	2799	4456	0,191	5350	7003
	12	0,039	497	3183	0,058	738	3183	0,181	2689	3714	0,220	5135	5836
	16	0,048	458	2387	0,072	688	2387	0,223	2484	2785	0,271	4744	4377
	20	0,056	428	1910	0,084	642	1910	0,261	2326	2228	0,316	4426	3501
	25	0,066	403	1528	0,098	599	1528	0,305	2175	1783	0,370	4146	2801
PH-Duplex	m/min	Vc=90			Vc=90			Vc=120			Vc=160		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	1	0,003	344	28648	0,005	573	28648	-	-	-	-	-	-
	2	0,008	458	14324	0,011	630	14324	-	-	-	-	-	-
	3	0,011	420	9549	0,017	649	9549	-	-	-	-	-	-
	4	0,015	430	7162	0,023	659	7162	0,070	2674	9549	0,085	4329	12732
	6	0,022	420	4775	0,033	630	4775	0,102	2597	6366	0,124	4210	8488
	8	0,028	401	3581	0,042	602	3581	0,131	2502	4775	0,159	4049	6366
	10	0,034	390	2865	0,050	573	2865	0,157	2399	3820	0,191	3891	5093
	12	0,039	372	2387	0,058	554	2387	0,181	2305	3183	0,220	3735	4244
	16	0,048	344	1790	0,072	516	1790	0,223	2129	2387	0,271	3450	3183
	20	0,056	321	1432	0,084	481	1432	0,261	1994	1910	0,316	3219	2546
	25	0,066	303	1146	0,098	449	1146	0,305	1864	1528	0,370	3015	2037
Titanio Titanium	m/min	Vc=80			Vc=80			Vc=80			Vc=100		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	1	0,003	306	25465	0,005	509	25465	-	-	-	-	-	-
	2	0,008	407	12732	0,011	560	12732	-	-	-	-	-	-
	3	0,011	373	8488	0,017	577	8488	-	-	-	-	-	-
	4	0,015	382	6366	0,023	586	6366	0,070	1783	6366	0,085	2706	7958
	6	0,022	373	4244	0,033	560	4244	0,102	1732	4244	0,124	2631	5305
	8	0,028	357	3183	0,042	535	3183	0,131	1668	3183	0,159	2531	3979
	10	0,034	346	2546	0,050	509	2546	0,157	1599	2546	0,191	2432	3183
	12	0,039	331	2122	0,058	492	2122	0,181	1536	2122	0,220	2334	2653
	16	0,048	306	1592	0,072	458	1592	0,223	1420	1592	0,271	2157	1989
	20	0,056	285	1273	0,084	428	1273	0,261	1329	1273	0,316	2012	1592
	25	0,066	269	1019	0,098	399	1019	0,305	1243	1019	0,370	1884	1273

NEW

## 184EV

Fresa 4 taglienti per lavorazioni ad elevate asportazioni  
 4 flute end mill for high chip removal  
 Vierschneidige Fräser mit hohem Spanabfuhr  
 Fraise à 4 dents, pour débit coupeaux élevés



6527 L

 $\lambda$  38°  
 $\lambda$  40°


45°

D h10	d h6	L	l ap	l1	a	45°	Z	Balinit® Tisaflex	Balinit® Tisaflex
1,0	6	50	2,0	-	-	0,05	4	HMH184010EV	HMH184010EVW
2,0	6	50	4,0	-	-	0,05	4	HMH184020EV	HMH184020EVW
3,0	6	57	6,0	-	-	0,10	4	HMH184030EV	HMH184030EVW
4,0	6	57	9,0	-	-	0,10	4	HMH184040EV	HMH184040EVW
5,0	6	57	13,0	-	-	0,10	4	HMH184050EV	HMH184050EVW
6,0	6	57	13,0	20,0	0,15	0,15	4	HMH184060EV	HMH184060EVW
8,0	8	63	19,0	25,0	0,15	0,20	4	HMH184080EV	HMH184080EVW
10,0	10	72	22,0	30,0	0,15	0,20	4	HMH184100EV	HMH184100EVW
12,0	12	83	26,0	36,0	0,20	0,25	4	HMH184120EV	HMH184120EVW
16,0	16	92	32,0	42,0	0,20	0,30	4	HMH184160EV	HMH184160EVW
20,0	20	104	38,0	52,0	0,20	0,30	4	HMH184200EV	HMH184200EVW
25,0	25	124	45,0	65,0	0,25	0,30	4	HMH184250EV	HMH184250EVW

Cr

D h10	d h6	L	l ap	l1	a	Cr	Z	Balinit® Tisaflex	Balinit® Tisaflex
6,0	6	57	13,0	20,0	0,15	0,50	4	HMH184060EV05	HMH184060EV05W
6,0	6	57	13,0	20,0	0,15	1,00	4	HMH184060EV10	HMH184060EV10W
8,0	8	63	19,0	25,0	0,15	0,50	4	HMH184080EV05	HMH184080EV05W
8,0	8	63	19,0	25,0	0,15	1,00	4	HMH184080EV10	HMH184080EV10W
8,0	8	63	19,0	25,0	0,15	2,00	4	HMH184080EV20	HMH184080EV20W
10,0	10	72	22,0	30,0	0,15	0,50	4	HMH184100EV05	HMH184100EV05W
10,0	10	72	22,0	30,0	0,15	1,00	4	HMH184100EV10	HMH184100EV10W
10,0	10	72	22,0	30,0	0,15	2,00	4	HMH184100EV20	HMH184100EV20W
12,0	12	83	26,0	36,0	0,20	0,50	4	HMH184120EV05	HMH184120EV05W
12,0	12	83	26,0	36,0	0,20	1,00	4	HMH184120EV10	HMH184120EV10W
12,0	12	83	26,0	36,0	0,20	2,00	4	HMH184120EV20	HMH184120EV20W
12,0	12	83	26,0	36,0	0,20	3,00	4	HMH184120EV30	HMH184120EV30W
16,0	16	92	32,0	42,0	0,20	1,00	4	HMH184160EV10	HMH184160EV10W
16,0	16	92	32,0	42,0	0,20	2,00	4	HMH184160EV20	HMH184160EV20W
16,0	16	92	32,0	42,0	0,20	3,00	4	HMH184160EV30	HMH184160EV30W
16,0	16	92	32,0	42,0	0,20	4,00	4	HMH184160EV40	HMH184160EV40W
20,0	20	104	38,0	52,0	0,20	1,00	4	HMH184200EV10	HMH184200EV10W
20,0	20	104	38,0	52,0	0,20	2,00	4	HMH184200EV20	HMH184200EV20W
20,0	20	104	38,0	52,0	0,20	3,00	4	HMH184200EV30	HMH184200EV30W
20,0	20	104	38,0	52,0	0,20	4,00	4	HMH184200EV40	HMH184200EV40W
25,0	25	124	45,0	65,0	0,25	2,00	4	HMH184250EV20	HMH184250EV20W
25,0	25	124	45,0	65,0	0,25	3,00	4	HMH184250EV30	HMH184250EV30W
25,0	25	124	45,0	65,0	0,25	4,00	4	HMH184250EV40	HMH184250EV40W

4

Acciaio Inox  
 Stainless Steel  
 Edelstahl  
 Acier Inoxydable

5

PH-Duplex

6

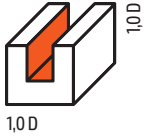
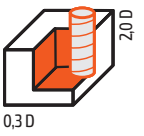
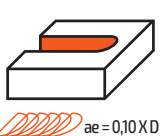
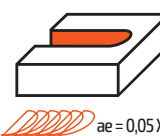
Titanio  
 Titanium  
 Titan  
 Titane

8

Superleghe  
 Superalloys  
 Superlegierungen  
 Superalliages

284EV

Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

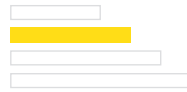
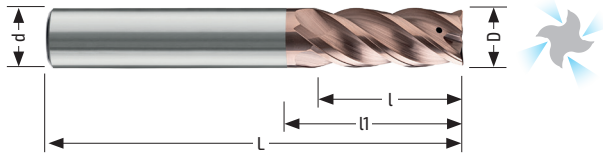
Materiale Material	Diametro Diameter																
		1,0D				0,3D				ae=0,10XD				ae=0,05XD			
Inox ferritico Ferritic stainless steel	m/min	Vc=140				Vc=140				Vc=160				Vc=220			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm				
	6	0,022	654	7427	0,033	980	7427	0,102	3463	8488	0,124	8683	17507				
	8	0,028	624	5570	0,042	936	5570	0,131	3336	6366	0,159	7423	11671				
	10	0,034	606	4456	0,050	891	4456	0,157	3198	5093	0,191	6688	8754				
	12	0,039	579	3714	0,058	862	3714	0,181	3073	4244	0,220	6162	7003				
	16	0,048	535	2785	0,072	802	2785	0,223	2839	3183	0,271	5422	5002				
20	0,056	499	2228	0,084	749	2228	0,261	2659	2546	0,316	5532	4377					
25	0,066	471	1783	0,098	699	1783	0,305	2485	2037	0,370	5182	3501					
Inox austenitico Austenitic stainless steel	m/min	Vc=120				Vc=120				Vc=140				Vc=220			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm				
	6	0,022	560	6366	0,033	840	6366	0,102	3030	7427	0,124	5789	11671				
	8	0,028	535	4775	0,042	802	4775	0,131	2919	5570	0,159	5567	8754				
	10	0,034	519	3820	0,050	764	3820	0,157	2799	4456	0,191	5350	7003				
	12	0,039	497	3183	0,058	738	3183	0,181	2689	3714	0,220	5135	5836				
	16	0,048	458	2387	0,072	688	2387	0,223	2484	2785	0,271	4744	4377				
20	0,056	428	1910	0,084	642	1910	0,261	2326	2228	0,316	4426	3501					
25	0,066	403	1528	0,098	599	1528	0,305	2175	1783	0,370	4146	2801					
PH-Duplex	m/min	Vc=90				Vc=90				Vc=120				Vc=160			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm				
	6	0,022	420	4775	0,033	630	4775	0,102	2597	6366	0,124	4210	8488				
	8	0,028	401	3581	0,042	602	3581	0,131	2502	4775	0,159	4049	6366				
	10	0,034	390	2865	0,050	573	2865	0,157	2399	3820	0,191	3891	5093				
	12	0,039	372	2387	0,058	554	2387	0,181	2305	3183	0,220	3735	4244				
	16	0,048	344	1790	0,072	516	1790	0,223	2129	2387	0,271	3450	3183				
20	0,056	321	1432	0,084	481	1432	0,261	1994	1910	0,316	3219	2546					
25	0,066	303	1146	0,098	449	1146	0,305	1864	1528	0,370	3015	2037					
Titanio Titanium	m/min	Vc=80				Vc=80				Vc=80				Vc=100			
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm				
	6	0,022	373	4244	0,033	560	4244	0,102	1732	4244	0,124	2631	5305				
	8	0,028	357	3183	0,042	535	3183	0,131	1668	3183	0,159	2531	3979				
	10	0,034	346	2546	0,050	509	2546	0,157	1599	2546	0,191	2432	3183				
	12	0,039	331	2122	0,058	492	2122	0,181	1536	2122	0,220	2334	2653				
	16	0,048	306	1592	0,072	458	1592	0,223	1420	1592	0,271	2157	1989				
20	0,056	285	1273	0,084	428	1273	0,261	1329	1273	0,316	2012	1592					
25	0,066	269	1019	0,098	399	1019	0,305	1243	1019	0,370	1884	1273					

Notes

NEW

**284EV**

Fresa 4 taglienti con fori di lubrificazione per lavorazioni ad elevate asportazioni  
 4 flute end mill with internal coolant for high chip removal  
 Vierschneidige Fräser mit innerer Kühlung und hohem Spanabfuhr  
 Fraise à 4 dents avec trous de lubrification pour débit coupeaux élevés



6527 L

 $\lambda$  38°  
 $\lambda$  40°


45°

D h10	d h6	L	l ap	l1	a	45°	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	57	13,0	20,0	0,15	0,15	4	HMH284060EV	HMH284060EVW
8,0	8	63	19,0	25,0	0,15	0,20	4	HMH284080EV	HMH284080EVW
10,0	10	72	22,0	30,0	0,15	0,20	4	HMH284100EV	HMH284100EVW
12,0	12	83	26,0	36,0	0,20	0,25	4	HMH284120EV	HMH284120EVW
16,0	16	92	32,0	42,0	0,20	0,30	4	HMH284160EV	HMH284160EVW
20,0	20	104	38,0	52,0	0,20	0,30	4	HMH284200EV	HMH284200EVW
25,0	25	124	45,0	65,0	0,25	0,30	4	HMH284250EV	HMH284250EVW

Cr

D h10	d h6	L	l ap	l1	a	Cr	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	57	13,0	20,0	0,15	0,50	4	HMH284060EV05	HMH284060EV05W
6,0	6	57	13,0	20,0	0,15	1,00	4	HMH284060EV10	HMH284060EV10W
8,0	8	63	19,0	25,0	0,15	0,50	4	HMH284080EV05	HMH284080EV05W
8,0	8	63	19,0	25,0	0,15	1,00	4	HMH284080EV10	HMH284080EV10W
8,0	8	63	19,0	25,0	0,15	2,00	4	HMH284080EV20	HMH284080EV20W
10,0	10	72	22,0	30,0	0,15	0,50	4	HMH284100EV05	HMH284100EV05W
10,0	10	72	22,0	30,0	0,15	1,00	4	HMH284100EV10	HMH284100EV10W
10,0	10	72	22,0	30,0	0,15	2,00	4	HMH284100EV20	HMH284100EV20W
12,0	12	83	26,0	36,0	0,20	0,50	4	HMH284120EV05	HMH284120EV05W
12,0	12	83	26,0	36,0	0,20	1,00	4	HMH284120EV10	HMH284120EV10W
12,0	12	83	26,0	36,0	0,20	2,00	4	HMH284120EV20	HMH284120EV20W
12,0	12	83	26,0	36,0	0,20	3,00	4	HMH284120EV30	HMH284120EV30W
16,0	16	92	32,0	42,0	0,20	1,00	4	HMH284160EV10	HMH284160EV10W
16,0	16	92	32,0	42,0	0,20	2,00	4	HMH284160EV20	HMH284160EV20W
16,0	16	92	32,0	42,0	0,20	3,00	4	HMH284160EV30	HMH284160EV30W
16,0	16	92	32,0	42,0	0,20	4,00	4	HMH284160EV40	HMH284160EV40W
20,0	20	104	38,0	52,0	0,20	1,00	4	HMH284200EV10	HMH284200EV10W
20,0	20	104	38,0	52,0	0,20	2,00	4	HMH284200EV20	HMH284200EV20W
20,0	20	104	38,0	52,0	0,20	3,00	4	HMH284200EV30	HMH284200EV30W
20,0	20	104	38,0	52,0	0,20	4,00	4	HMH284200EV40	HMH284200EV40W
25,0	25	124	45,0	65,0	0,25	2,00	4	HMH284250EV20	HMH284250EV20W
25,0	25	124	45,0	65,0	0,25	3,00	4	HMH284250EV30	HMH284250EV30W
25,0	25	124	45,0	65,0	0,25	4,00	4	HMH284250EV40	HMH284250EV40W

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6




Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Superlegierungen  
Superalliages

119

Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

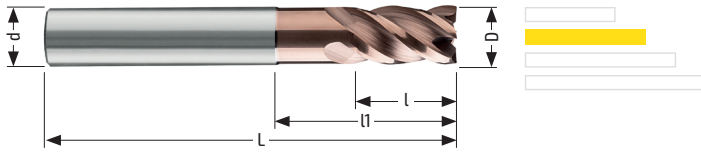
Materiale Material	Diametro Diameter	 1,0 D			 0,25 D			 0,10 D		
		Vc=130			Vc=130			Vc=130		
Inox ferritico Ferritic stainless steel	m/min	Vc=130			Vc=130			Vc=130		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	4	0,012	497	10345	0,018	745	10345	0,023	952	10345
	6	0,017	469	6897	0,026	717	6897	0,033	910	6897
	8	0,022	455	5173	0,034	703	5173	0,042	869	5173
	10	0,027	447	4138	0,040	662	4138	0,050	828	4138
	12	0,031	428	3448	0,047	648	3448	0,058	800	3448
16	0,038	393	2586	0,057	590	2586	0,072	745	2586	
20	0,044	364	2069	0,067	554	2069	0,084	695	2069	
Inox austenitico Austenitic stainless steel	m/min	Vc=110			Vc=110			Vc=110		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	4	0,012	420	8754	0,018	630	8754	0,023	805	8754
	6	0,017	397	5836	0,026	607	5836	0,033	770	5836
	8	0,022	385	4377	0,034	595	4377	0,042	735	4377
	10	0,027	378	3501	0,040	560	3501	0,050	700	3501
	12	0,031	362	2918	0,047	549	2918	0,058	677	2918
16	0,038	333	2188	0,057	499	2188	0,072	630	2188	
20	0,044	308	1751	0,067	469	1751	0,084	588	1751	
PH-Duplex	m/min	Vc=60			Vc=60			Vc=60		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	4	0,013	248	4775	0,012	229	4775	0,017	325	4775
	6	0,019	242	3183	0,018	229	3183	0,024	306	3183
	8	0,025	239	2387	0,023	220	2387	0,031	296	2387
	10	0,030	229	1910	0,028	214	1910	0,037	283	1910
	12	0,034	216	1592	0,032	204	1592	0,043	274	1592
16	0,042	201	1194	0,040	191	1194	0,053	253	1194	
20	0,049	187	955	0,046	176	955	0,062	237	955	

Notes



## 119

Fresa 4 taglienti per lavorazioni di duplex  
4 flute end mill for duplex machining  
Vierschneidige Fräser für die Bearbeitung von Duplex  
Fraise à 4 dents pour l'usinage de duplex

Silmax  
NORMλ 38°  
λ 41°

4

5

45°

D e8	d h6	L	l ap	l1	a	45°	Z	Balinit® Tisaflex	Balinit® Tisaflex
4,0	6	57	6,0	-	-	0,05	4	HMH119040	HMH119040W
5,0	6	57	7,5	-	-	0,05	4	HMH119050	HMH119050W
6,0	6	57	9,0	18,0	0,15	0,05	4	HMH119060	HMH119060W
8,0	8	63	12,0	24,0	0,15	0,05	4	HMH119080	HMH119080W
10,0	10	72	15,0	30,0	0,15	0,05	4	HMH119100	HMH119100W
12,0	12	83	18,0	36,0	0,20	0,05	4	HMH119120	HMH119120W
16,0	16	92	24,0	42,0	0,20	0,05	4	HMH119160	HMH119160W
20,0	20	104	30,0	52,0	0,20	0,05	4	HMH119200	HMH119200W

Cr

D e8	d h6	L	l ap	l1	a	Cr	Z	Balinit® Tisaflex	Balinit® Tisaflex
6,0	6	57	9,0	18,0	0,15	0,50	4	HMH119060CR05	HMH119060CR05W
8,0	8	63	12,0	24,0	0,15	0,50	4	HMH119080CR05	HMH119080CR05W
10,0	10	72	15,0	30,0	0,15	1,00	4	HMH119100CR10	HMH119100CR10W
12,0	12	83	18,0	36,0	0,20	1,00	4	HMH119120CR10	HMH119120CR10W
16,0	16	92	24,0	42,0	0,20	1,00	4	HMH119160CR10	HMH119160CR10W
20,0	20	104	30,0	52,0	0,20	1,00	4	HMH119200CR10	HMH119200CR10W

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6




Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Superlegierungen  
Superalliages

118

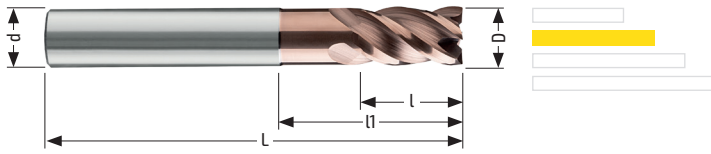
Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usage

Materiale Material	Diametro Diameter	 1,0 D			 0,25 D			 0,10 D		
		Vc=24			Vc=28			Vc=30		
Superleghe difficili Hard/Machinable Superalloys	m/min	Vc=24			Vc=28			Vc=30		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	4	0,011	84	1910	0,012	107	2228	0,014	134	2387
	6	0,016	81	1273	0,018	107	1485	0,020	127	1592
	8	0,021	80	955	0,023	102	1114	0,026	124	1194
	10	0,025	76	764	0,027	96	891	0,031	118	955
	12	0,029	74	637	0,031	92	743	0,036	115	796
	16	0,035	67	477	0,038	85	557	0,044	105	597
20	0,041	63	382	0,045	80	446	0,051	97	477	
Superleghe molto difficili Very Hard/Machinable Superalloys	m/min	Vc=20			Vc=22			Vc=22		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	4	0,011	70	1592	0,012	84	1751	0,014	98	1751
	6	0,016	68	1061	0,018	84	1167	0,020	93	1167
	8	0,021	67	796	0,023	81	875	0,026	91	875
	10	0,025	64	637	0,027	76	700	0,031	87	700
	12	0,029	62	531	0,031	72	584	0,036	84	584
	16	0,035	56	398	0,038	67	438	0,044	77	438
20	0,041	52	318	0,045	63	350	0,051	71	350	

Notes

## 118

Fresa 4 taglienti per lavorazioni di superleghe  
4 flute end mill for superalloys machining  
Vierschneidige Fräser für die Bearbeitung von Superlegierungen  
Fraise à 4 dents pour l'usinage des superalliages

Silmax  
NORMλ 38°  
λ 41°6535 HA  
6535 HB

8

45°

D e8	d h6	L	l ap	l1	a	45°	Z	Balinit® Tisaflex	Balinit® Tisaflex
4,0	6	57	6,0	-	-	0,05	4	HMH118040	HMH118040W
5,0	6	57	7,5	-	-	0,05	4	HMH118050	HMH118050W
6,0	6	57	9,0	18,0	0,15	0,05	4	HMH118060	HMH118060W
8,0	8	63	12,0	24,0	0,15	0,05	4	HMH118080	HMH118080W
10,0	10	72	15,0	30,0	0,15	0,05	4	HMH118100	HMH118100W
12,0	12	83	18,0	36,0	0,20	0,05	4	HMH118120	HMH118120W
16,0	16	92	24,0	42,0	0,20	0,05	4	HMH118160	HMH118160W
20,0	20	104	30,0	52,0	0,20	0,05	4	HMH118200	HMH118200W

Cr

D e8	d h6	L	l ap	l1	a	Cr	Z	Balinit® Tisaflex	Balinit® Tisaflex
6,0	6	57	9,0	18,0	0,15	0,50	4	HMH118060CR05	HMH118060CR05W
8,0	8	63	12,0	24,0	0,15	0,50	4	HMH118080CR05	HMH118080CR05W
10,0	10	72	15,0	30,0	0,15	1,00	4	HMH118100CR10	HMH118100CR10W
12,0	12	83	18,0	36,0	0,20	1,00	4	HMH118120CR10	HMH118120CR10W
16,0	16	92	24,0	42,0	0,20	1,00	4	HMH118160CR10	HMH118160CR10W
20,0	20	104	30,0	52,0	0,20	1,00	4	HMH118200CR10	HMH118200CR10W

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6



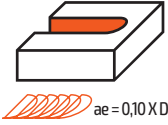
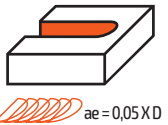
Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Superlegierungen  
Superalliages

185

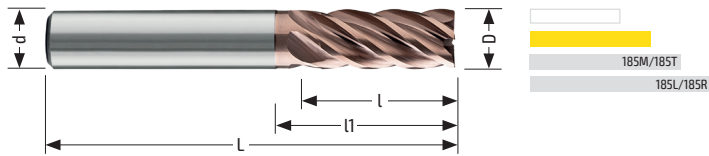
Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

Materiale Material	Diametro Diameter												
		1,0 D			0,3 D			ae = 0,10 X D			ae = 0,05 X D		
Inox ferritico Ferritic stainless steel	m/min	Vc=130			Vc=130			Vc=160			Vc=160		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	6	0,017	586	6897	0,033	1138	6897	0,102	4329	8488	0,102	4870	9549
	8	0,022	569	5173	0,042	1086	5173	0,131	4170	6366	0,131	4691	7162
	10	0,027	559	4138	0,050	1035	4138	0,157	3998	5093	0,157	4498	5730
	12	0,031	534	3448	0,058	1000	3448	0,181	3841	4244	0,181	4321	4775
16	0,038	491	2586	0,072	931	2586	0,223	3549	3183	0,223	3993	3581	
20	0,044	455	2069	0,084	869	2069	0,261	3323	2546	0,261	3739	2865	
Inox austenitico Austenitic stainless steel	m/min	Vc=110			Vc=110			Vc=120			Vc=180		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	6	0,017	496	5836	0,033	963	5836	0,102	3247	6366	0,102	4870	9549
	8	0,022	481	4377	0,042	919	4377	0,131	3127	4775	0,131	4691	7162
	10	0,027	473	3501	0,050	875	3501	0,157	2998	3820	0,157	4498	5730
	12	0,031	452	2918	0,058	846	2918	0,181	2881	3183	0,181	4321	4775
16	0,038	416	2188	0,072	788	2188	0,223	2662	2387	0,223	3993	3581	
20	0,044	385	1751	0,084	735	1751	0,261	2492	1910	0,261	3739	2865	
PH-Duplex	m/min	Vc=90			Vc=90			Vc=120			Vc=160		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	6	0,017	496	5836	0,033	963	5836	0,102	3247	6366	0,102	4870	9549
	8	0,022	481	4377	0,042	919	4377	0,131	3127	4775	0,131	4691	7162
	10	0,027	473	3501	0,050	875	3501	0,157	2998	3820	0,157	4498	5730
	12	0,031	452	2918	0,058	846	2918	0,181	2881	3183	0,181	4321	4775
16	0,038	416	2188	0,072	788	2188	0,223	2662	2387	0,223	3993	3581	
20	0,044	385	1751	0,084	735	1751	0,261	2492	1910	0,261	3739	2865	
Titanio Titanium	m/min	Vc=80			Vc=80			Vc=80			Vc=100		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	6	0,010	239	4775	0,026	621	4775	0,082	2610	6366	0,082	3480	8488
	8	0,012	215	3581	0,034	609	3581	0,105	2507	4775	0,105	3342	6366
	10	0,015	215	2865	0,040	573	2865	0,126	2406	3820	0,126	3209	5093
	12	0,017	203	2387	0,047	561	2387	0,145	2308	3183	0,145	3077	4244
16	0,021	188	1790	0,057	510	1790	0,179	2137	2387	0,179	2849	3183	
20	0,025	179	1432	0,067	480	1432	0,209	1996	1910	0,209	2661	2546	

Notes

185

Fresa 5 taglienti per lavorazioni ad elevate asportazioni  
 5 flute end mill for high chip removal  
 Fünfschneidige Fräser mit hohem Spanabfuhr  
 Fraise à 5 dents, pour débit coupeaux élevés



6527 L

λ 38°

4S



4 5 6

45°

D h10	d h6	L	l ap	l1	a	45°	Z	Balinit® Tisaflex	Balinit® Tisaflex
6,0	6	57	13,0	20,0	0,15	0,10	5	HMH185060	HMH185060W
8,0	8	63	19,0	25,0	0,15	0,15	5	HMH185080	HMH185080W
10,0	10	72	22,0	30,0	0,15	0,15	5	HMH185100	HMH185100W
12,0	12	83	26,0	36,0	0,20	0,15	5	HMH185120	HMH185120W
16,0	16	92	32,0	42,0	0,20	0,20	5	HMH185160	HMH185160W
20,0	20	104	38,0	52,0	0,20	0,20	5	HMH185200	HMH185200W

Cr

D h10	d h6	L	l ap	l1	a	Cr	Z	Balinit® Tisaflex	Balinit® Tisaflex
6,0	6	57	13,0	20,0	0,15	0,50	5	HMH185060CR05	HMH185060CR05W
6,0	6	57	13,0	20,0	0,15	1,00	5	HMH185060CR10	HMH185060CR10W
8,0	8	63	19,0	25,0	0,15	0,50	5	HMH185080CR05	HMH185080CR05W
8,0	8	63	19,0	25,0	0,15	1,00	5	HMH185080CR10	HMH185080CR10W
8,0	8	63	19,0	25,0	0,15	2,00	5	HMH185080CR20	HMH185080CR20W
10,0	10	72	22,0	30,0	0,15	0,50	5	HMH185100CR05	HMH185100CR05W
10,0	10	72	22,0	30,0	0,15	1,00	5	HMH185100CR10	HMH185100CR10W
10,0	10	72	22,0	30,0	0,15	2,00	5	HMH185100CR20	HMH185100CR20W
12,0	12	83	26,0	36,0	0,20	0,50	5	HMH185120CR05	HMH185120CR05W
12,0	12	83	26,0	36,0	0,20	1,00	5	HMH185120CR10	HMH185120CR10W
12,0	12	83	26,0	36,0	0,20	2,00	5	HMH185120CR20	HMH185120CR20W
12,0	12	83	26,0	36,0	0,20	3,00	5	HMH185120CR30	HMH185120CR30W
16,0	16	92	32,0	42,0	0,20	1,00	5	HMH185160CR10	HMH185160CR10W
16,0	16	92	32,0	42,0	0,20	2,00	5	HMH185160CR20	HMH185160CR20W
16,0	16	92	32,0	42,0	0,20	3,00	5	HMH185160CR30	HMH185160CR30W
16,0	16	92	32,0	42,0	0,20	4,00	5	HMH185160CR40	HMH185160CR40W
20,0	20	104	38,0	52,0	0,20	2,00	5	HMH185200CR20	HMH185200CR20W
20,0	20	104	38,0	52,0	0,20	3,00	5	HMH185200CR30	HMH185200CR30W
20,0	20	104	38,0	52,0	0,20	4,00	5	HMH185200CR40	HMH185200CR40W

4

Acciaio Inox  
 Stainless Steel  
 Edelstahl  
 Acier Inoxydable

5

PH-Duplex

6

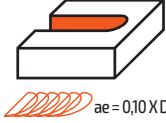
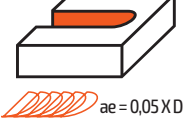
Titanio  
 Titanium  
 Titan  
 Titane

8

Superleghe  
 Superalloys  
 Superlegierungen  
 Superalliages

## 185M

## Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

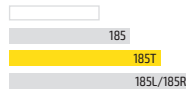
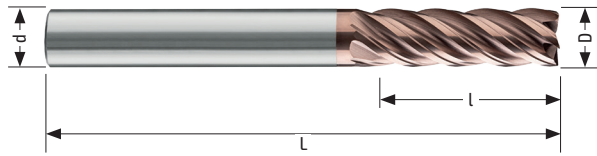
Materiale Material	Diametro Diameter								
		Vc=160				Vc=180			
Inox ferritico Ferritic stainless steel	m/min	Vc=160				Vc=180			
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm		
	4	0,046	2928	12732	0,060	4297	14324		
	5	0,057	2903	10186	0,074	4240	11459		
	6	0,067	2844	8488	0,087	4154	9549		
	8	0,086	2737	6366	0,112	4011	7162		
	10	0,103	2623	5093	0,134	3839	5730		
	12	0,119	2525	4244	0,155	3700	4775		
	16	0,147	2340	3183	0,190	3402	3581		
20	0,171	2177	2546	0,222	3180	2865			
Inox austenitico Austenitic stainless steel	m/min	Vc=120				Vc=180			
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm		
	4	0,046	2196	9549	0,060	4297	14324		
	5	0,057	2177	7639	0,074	4240	11459		
	6	0,067	2133	6366	0,087	4154	9549		
	8	0,086	2053	4775	0,112	4011	7162		
	10	0,103	1967	3820	0,134	3839	5730		
	12	0,119	1894	3183	0,155	3700	4775		
	16	0,147	1755	2387	0,190	3402	3581		
20	0,171	1633	1910	0,222	3180	2865			
PH-Duplex	m/min	Vc=120				Vc=180			
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm		
	4	0,046	2196	9549	0,060	4297	14324		
	5	0,057	2177	7639	0,074	4240	11459		
	6	0,067	2133	6366	0,087	4154	9549		
	8	0,086	2053	4775	0,112	4011	7162		
	10	0,103	1967	3820	0,134	3839	5730		
	12	0,119	1894	3183	0,155	3700	4775		
	16	0,147	1755	2387	0,190	3402	3581		
20	0,171	1633	1910	0,222	3180	2865			
Titanio Titanium	m/min	Vc=80				Vc=100			
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm		
	4	0,041	1305	6366	0,057	2268	7958		
	5	0,050	1273	5093	0,070	2228	6366		
	6	0,059	1252	4244	0,083	2202	5305		
	8	0,076	1210	3183	0,106	2109	3979		
	10	0,091	1159	2546	0,127	2021	3183		
	12	0,105	1114	2122	0,147	1950	2653		
	16	0,129	1027	1592	0,181	1800	1989		
20	0,151	961	1273	0,211	1679	1592			

Notes

NEW

185M

Fresa 5 taglienti con tagliente lungo 3xD  
 5 flute end mill with long helix 3xD  
 5-Schneiden-Schaftfräser mit langer Schneide 3xD  
 Fraise 5 dents avec partie coupante longue 3xD

Silmax  
NORM

λ 38°



S35 HA

S35 HB





4



5

6

45°

D h10	d h6	L	l ap	45°	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
4,0	6	57	13,0	0,10	5	HMH185M040	HMH185M040W
5,0	6	57	16,0	0,10	5	HMH185M050	HMH185M050W
6,0	6	64	19,0	0,15	5	HMH185M060	HMH185M060W
8,0	8	70	25,0	0,20	5	HMH185M080	HMH185M080W
10,0	10	78	31,0	0,20	5	HMH185M100	HMH185M100W
12,0	12	92	38,0	0,25	5	HMH185M120	HMH185M120W
16,0	16	110	50,0	0,30	5	HMH185M160	HMH185M160W
20,0	20	125	62,0	0,30	5	HMH185M200	HMH185M200W

Cr

D h10	d h6	L	l ap	Cr	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	64	19,0	0,50	5	HMH185M060CR05	HMH185M060CR05W
6,0	6	64	19,0	1,00	5	HMH185M060CR10	HMH185M060CR10W
8,0	8	70	25,0	0,50	5	HMH185M080CR05	HMH185M080CR05W
8,0	8	70	25,0	1,00	5	HMH185M080CR10	HMH185M080CR10W
8,0	8	70	25,0	2,00	5	HMH185M080CR20	HMH185M080CR20W
10,0	10	78	31,0	0,50	5	HMH185M100CR05	HMH185M100CR05W
10,0	10	78	31,0	1,00	5	HMH185M100CR10	HMH185M100CR10W
10,0	10	78	31,0	2,00	5	HMH185M100CR20	HMH185M100CR20W
12,0	12	92	38,0	0,50	5	HMH185M120CR05	HMH185M120CR05W
12,0	12	92	38,0	1,00	5	HMH185M120CR10	HMH185M120CR10W
12,0	12	92	38,0	2,00	5	HMH185M120CR20	HMH185M120CR20W
12,0	12	92	38,0	3,00	5	HMH185M120CR30	HMH185M120CR30W
16,0	16	110	50,0	1,00	5	HMH185M160CR10	HMH185M160CR10W
16,0	16	110	50,0	2,00	5	HMH185M160CR20	HMH185M160CR20W
16,0	16	110	50,0	3,00	5	HMH185M160CR30	HMH185M160CR30W
16,0	16	110	50,0	4,00	5	HMH185M160CR40	HMH185M160CR40W
20,0	20	125	62,0	2,00	5	HMH185M200CR20	HMH185M200CR20W
20,0	20	125	62,0	3,00	5	HMH185M200CR30	HMH185M200CR30W
20,0	20	125	62,0	4,00	5	HMH185M200CR40	HMH185M200CR40W

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6

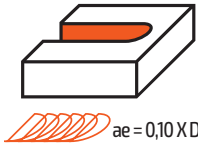
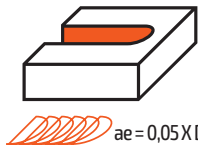
Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Superlegierungen  
Superalliges

## 185T

## Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

Materiale Material	Diametro Diameter	 ae = 0,10XD			 ae = 0,05XD		
		Vc=160			Vc=180		
Inox ferritico Ferritic stainless steel	m/min	Vc=160			Vc=180		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	6	0,067	2844	8488	0,087	4154	9549
	8	0,086	2737	6366	0,112	4011	7162
	10	0,103	2623	5093	0,134	3839	5730
	12	0,119	2525	4244	0,155	3700	4775
16	0,147	2340	3183	0,190	3402	3581	
20	0,171	2177	2546	0,222	3180	2865	
Inox austenitico Austenitic stainless steel	m/min	Vc=120			Vc=180		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	6	0,067	2133	6366	0,087	4154	9549
	8	0,086	2053	4775	0,112	4011	7162
	10	0,103	1967	3820	0,134	3839	5730
	12	0,119	1894	3183	0,155	3700	4775
16	0,147	1755	2387	0,190	3402	3581	
20	0,171	1633	1910	0,222	3180	2865	
PH-Duplex	m/min	Vc=120			Vc=180		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	6	0,067	2133	6366	0,087	4154	9549
	8	0,086	2053	4775	0,112	4011	7162
	10	0,103	1967	3820	0,134	3839	5730
	12	0,119	1894	3183	0,155	3700	4775
16	0,147	1755	2387	0,190	3402	3581	
20	0,171	1633	1910	0,222	3180	2865	
Titanio Titanium	m/min	Vc=80			Vc=100		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	6	0,059	1252	4244	0,083	2202	5305
	8	0,076	1210	3183	0,106	2109	3979
	10	0,091	1159	2546	0,127	2021	3183
	12	0,105	1114	2122	0,147	1950	2653
16	0,129	1027	1592	0,181	1800	1989	
20	0,151	961	1273	0,211	1679	1592	

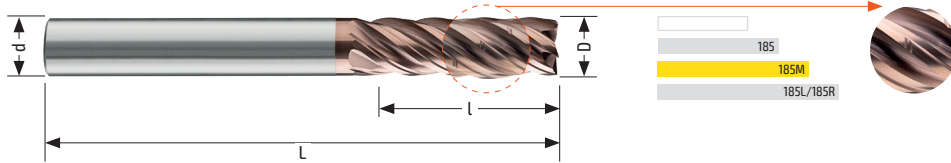
Notes



NEW

185T

Fresa 5 taglienti con tagliente lungo 3xD e taglio interrotto  
 5 flute end mill with long helix 3xD and with chip braker  
 5-Schneiden-Schaftfraser mit langer schneide 3xD und unterbrochener Schnitt  
 Fraise 5 dents avec partie coupante longue 3xD et brise coupeau

Silmax  
NORM

λ 38°

6335 HA  
6335 HB

45°

D h10	d h6	L	l ap	45°	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	64	19,0	0,15	5	HMH185T060	HMH185T060W
8,0	8	70	25,0	0,20	5	HMH185T080	HMH185T080W
10,0	10	78	31,0	0,20	5	HMH185T100	HMH185T100W
12,0	12	92	38,0	0,25	5	HMH185T120	HMH185T120W
16,0	16	110	50,0	0,30	5	HMH185T160	HMH185T160W
20,0	20	125	62,0	0,30	5	HMH185T200	HMH185T200W

Cr

D h10	d h6	L	l ap	Cr	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	64	19,0	0,50	5	HMH185T060CR05	HMH185T060CR05W
6,0	6	64	19,0	1,00	5	HMH185T060CR10	HMH185T060CR10W
8,0	8	70	25,0	0,50	5	HMH185T080CR05	HMH185T080CR05W
8,0	8	70	25,0	1,00	5	HMH185T080CR10	HMH185T080CR10W
8,0	8	70	25,0	2,00	5	HMH185T080CR20	HMH185T080CR20W
10,0	10	78	31,0	0,50	5	HMH185T100CR05	HMH185T100CR05W
10,0	10	78	31,0	1,00	5	HMH185T100CR10	HMH185T100CR10W
10,0	10	78	31,0	2,00	5	HMH185T100CR20	HMH185T100CR20W
12,0	12	92	38,0	0,50	5	HMH185T120CR05	HMH185T120CR05W
12,0	12	92	38,0	1,00	5	HMH185T120CR10	HMH185T120CR10W
12,0	12	92	38,0	2,00	5	HMH185T120CR20	HMH185T120CR20W
12,0	12	92	38,0	3,00	5	HMH185T120CR30	HMH185T120CR30W
16,0	16	110	50,0	1,00	5	HMH185T160CR10	HMH185T160CR10W
16,0	16	110	50,0	2,00	5	HMH185T160CR20	HMH185T160CR20W
16,0	16	110	50,0	3,00	5	HMH185T160CR30	HMH185T160CR30W
16,0	16	110	50,0	4,00	5	HMH185T160CR40	HMH185T160CR40W
20,0	20	125	62,0	2,00	5	HMH185T200CR20	HMH185T200CR20W
20,0	20	125	62,0	3,00	5	HMH185T200CR30	HMH185T200CR30W
20,0	20	125	62,0	4,00	5	HMH185T200CR40	HMH185T200CR40W

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6

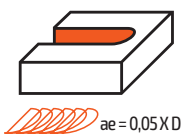
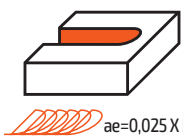
Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Superlegierungen  
Superalliages

## 185L/185R

## Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

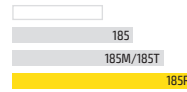
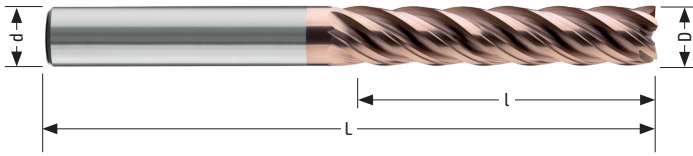
Materiale Material	Diametro Diameter								
		Vc=160				Vc=180			
Inox ferritico Ferritic stainless steel	m/min	Vc=160				Vc=180			
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm		
	6	0,058	2769	9549	0,097	5403	11141		
	8	0,075	2686	7162	0,124	5180	8356		
	10	0,090	2578	5730	0,149	4980	6685		
	12	0,103	2459	4775	0,171	4763	5570		
	16	0,127	2274	3581	0,211	4408	4178		
20	0,149	2134	2865	0,246	4111	3342			
Inox austenitico Austenitic stainless steel	m/min	Vc=120				Vc=180			
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm		
	6	0,058	2154	7427	0,097	4374	9019		
	8	0,075	2089	5570	0,124	4194	6764		
	10	0,090	2005	4456	0,149	4031	5411		
	12	0,103	1913	3714	0,171	3856	4509		
	16	0,127	1769	2785	0,211	3568	3382		
20	0,149	1660	2228	0,246	3328	2706			
PH-Duplex	m/min	Vc=120				Vc=180			
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm		
	6	0,058	1846	6366	0,097	3860	7958		
	8	0,075	1790	4775	0,124	3700	5968		
	10	0,090	1719	3820	0,149	3557	4775		
	12	0,103	1639	3183	0,171	3402	3979		
	16	0,127	1516	2387	0,211	3148	2984		
20	0,149	1423	1910	0,246	2936	2387			
Titanio Titanium	m/min	Vc=80				Vc=100			
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm		
	6	0,058	1846	6366	0,097	3860	7958		
	8	0,075	1790	4775	0,124	3700	5968		
	10	0,090	1719	3820	0,149	3557	4775		
	12	0,103	1639	3183	0,171	3402	3979		
	16	0,127	1516	2387	0,211	3148	2984		
20	0,149	1423	1910	0,246	2936	2387			

Notes

NEW

185L

Fresa 5 taglienti extra lunga 5xD  
5 flutes end mill with extra long helix 5xD  
5-schneidiger Schaftfräser mit extra langer Schneid 5xD  
Fraise 5 dents avec partie coupante extra longue 5xD

Silmax  
NORM

λ 38°

ES35 HA  
ES35 HB

45°

D h10	d h6	L	l ap	45°	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	74	30,0	0,15	5	HMH185L060	HMH185L060W
8,0	8	84	40,0	0,20	5	HMH185L080	HMH185L080W
10,0	10	100	50,0	0,20	5	HMH185L100	HMH185L100W
12,0	12	115	60,0	0,25	5	HMH185L120	HMH185L120W
16,0	16	142	80,0	0,30	5	HMH185L160	HMH185L160W
20,0	20	165	100,0	0,30	5	HMH185L200	HMH185L200W

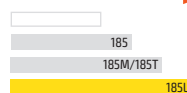
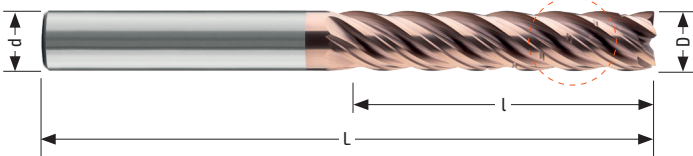
Cr

D h10	d h6	L	l ap	Cr	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	74	30,0	0,50	5	HMH185L060CR05	HMH185L060CR05W
8,0	8	84	40,0	0,50	5	HMH185L080CR05	HMH185L080CR05W
10,0	10	100	50,0	0,50	5	HMH185L100CR05	HMH185L100CR05W
12,0	12	115	60,0	0,50	5	HMH185L120CR05	HMH185L120CR05W
16,0	16	142	80,0	0,50	5	HMH185L160CR05	HMH185L160CR05W
20,0	20	165	100,0	0,50	5	HMH185L200CR05	HMH185L200CR05W

NEW

185R

Fresa 5 taglienti con tagliente extra lungo 5xD e taglio interrotto  
5 flute end mill with extra long helix 5xD and with chip breaker  
5-Schneiden-Schaftfräser mit extra langer Schneide 5xD und unterbrochener Schnitt  
Fraise 5 dents avec partie coupante extra longue 5xD et brise coupeau

Silmax  
NORM

λ 38°

ES35 HA  
ES35 HB

45°

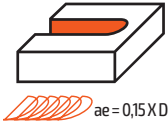
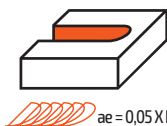
D h10	d h6	L	l ap	45°	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	74	30,0	0,15	5	HMH185R060	HMH185R060W
8,0	8	84	40,0	0,20	5	HMH185R080	HMH185R080W
10,0	10	100	50,0	0,20	5	HMH185R100	HMH185R100W
12,0	12	115	60,0	0,25	5	HMH185R120	HMH185R120W
16,0	16	142	80,0	0,30	5	HMH185R160	HMH185R160W
20,0	20	165	100,0	0,30	5	HMH185R200	HMH185R200W

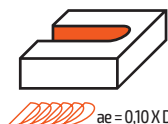
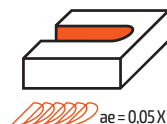
Cr

D h10	d h6	L	l ap	Cr	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
6,0	6	74	30,0	0,50	5	HMH185R060CR05	HMH185R060CR05W
8,0	8	84	40,0	0,50	5	HMH185R080CR05	HMH185R080CR05W
10,0	10	100	50,0	0,50	5	HMH185R100CR05	HMH185R100CR05W
12,0	12	115	60,0	0,50	5	HMH185R120CR05	HMH185R120CR05W
16,0	16	142	80,0	0,50	5	HMH185R160CR05	HMH185R160CR05W
20,0	20	165	100,0	0,50	5	HMH185R200CR05	HMH185R200CR05W

157

Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

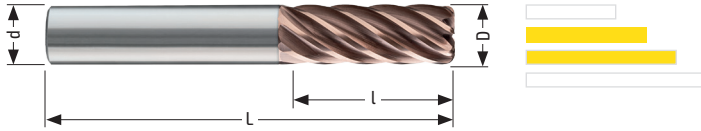
Materiale Material	Diametro Diameter								
		Vc=80				Vc=80			
Titanio Titanium	m/min								
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm		
	12	0,056	832	2122	0,066	980	2122		
16	0,069	769	1592	0,081	902	1592			

Materiale Material	Diametro Diameter								
		Vc=120				Vc=120			
PH-Duplex	m/min								
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm		
	12	0,059	1310	3183	0,066	1471	3183		
16	0,072	1211	2387	0,081	1354	2387			

Notes

157

Fresa a 7 taglienti serie lunga per lavorazioni di titanio  
 7 flute end mill long version for Titanium machining  
 7-schneidiger Fräser, lange Ausführung für die Bearbeitung von Titan  
 Fraise à 7 dents, série longue, pour l'usinage de Titane

Silmax  
NORM



λ 35°

ES35 HA  
ES35 HB



5

6

45°

D h10	d h6	L	l ap	45°	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
12,0	12	83	32,0	0,25	7	HMH157120M	HMH157120MW
16,0	16	92	40,0	0,30	7	HMH157160S	HMH157160SW
16,0	16	104	50,0	0,30	7	HMH157160M	HMH157160MW
16,0	16	120	60,0	0,30	7	HMH157160L	HMH157160LW

Cr

D h10	d h6	L	l ap	Cr	Z	Balinit® Tisaflex 	Balinit® Tisaflex 
12,0	12	83	32,0	1,00	7	HMH157120MCR10	HMH157120MCR10W
12,0	12	83	32,0	2,00	7	HMH157120MCR20	HMH157120MCR20W
12,0	12	83	32,0	3,00	7	HMH157120MCR30	HMH157120MCR30W
12,0	12	83	32,0	4,00	7	HMH157120MCR40	HMH157120MCR40W
16,0	16	92	40,0	1,00	7	HMH157160SCR10	HMH157160SCR10W
16,0	16	92	40,0	2,00	7	HMH157160SCR20	HMH157160SCR20W
16,0	16	92	40,0	3,00	7	HMH157160SCR30	HMH157160SCR30W
16,0	16	92	40,0	4,00	7	HMH157160SCR40	HMH157160SCR40W
16,0	16	92	40,0	5,00	7	HMH157160SCR50	HMH157160SCR50W
16,0	16	104	50,0	1,00	7	HMH157160MCR10	HMH157160MCR10W
16,0	16	104	50,0	2,00	7	HMH157160MCR20	HMH157160MCR20W
16,0	16	104	50,0	3,00	7	HMH157160MCR30	HMH157160MCR30W
16,0	16	104	50,0	4,00	7	HMH157160MCR40	HMH157160MCR40W
16,0	16	104	50,0	5,00	7	HMH157160MCR50	HMH157160MCR50W
16,0	16	120	60,0	1,00	7	HMH157160LCR10	HMH157160LCR10W
16,0	16	120	60,0	2,00	7	HMH157160LCR20	HMH157160LCR20W
16,0	16	120	60,0	3,00	7	HMH157160LCR30	HMH157160LCR30W
16,0	16	120	60,0	4,00	7	HMH157160LCR40	HMH157160LCR40W
16,0	16	120	60,0	5,00	7	HMH157160LCR50	HMH157160LCR50W

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6

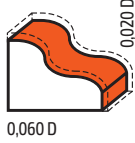
Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Superlegierungen  
Superalliages

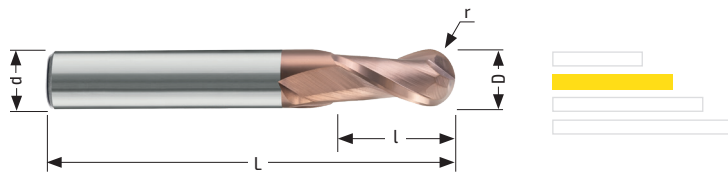
## 737/737R

## Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

Material Materiale	Diametro Diameter			
Inox ferritico Ferritic stainless steel	m/min	Vc=120		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	1	0,036	2750	38197
	2	0,079	3018	19099
	3	0,120	3056	12732
	4	0,160	3056	9549
	6	0,232	2954	6366
	8	0,297	2836	4775
	10	0,356	2720	3820
12	0,410	2610	3183	
16	0,506	2416	2387	
Inox austenitico Austenitic stainless steel	m/min	Vc=90		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	1	0,031	1776	28648
	2	0,067	1919	14324
	3	0,102	1948	9549
	4	0,136	1948	7162
	6	0,197	1881	4775
	8	0,253	1812	3581
	10	0,303	1736	2865
12	0,349	1666	2387	
16	0,430	1540	1790	
PH-Duplex	m/min	V=60		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	1	0,025	955	19099
	2	0,056	1070	9549
	3	0,084	1070	6366
	4	0,112	1070	4775
	6	0,162	1031	3183
	8	0,208	993	2387
	10	0,249	951	1910
12	0,287	914	1592	
16	0,354	845	1194	
Titanio Titanium	m/min	Vc=55		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	1	0,025	875	17507
	2	0,056	980	8754
	3	0,084	980	5836
	4	0,112	980	4377
	6	0,162	945	2918
	8	0,208	910	2188
	10	0,249	872	1751
12	0,287	837	1459	
16	0,354	775	1094	
Superleghe difficili Hard Machinable Superalloys	m/min	Vc=35		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	1	0,020	700	17507
	2	0,044	770	8754
	3	0,067	782	5836
	4	0,089	779	4377
	6	0,130	759	2918
	8	0,166	727	2188
	10	0,200	700	1751
12	0,230	671	1459	
16	0,283	619	1094	

## 737

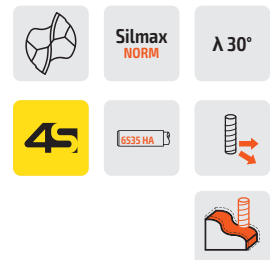
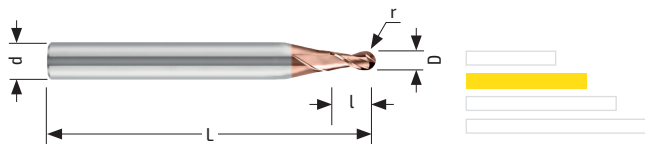
Fresa 2 taglienti semisferica serie normale  
2 flute ball nose end mill, regular version  
Zweischneidige Kugelfräser, normale Ausführung  
Fraise hémisphérique à 2 dents, série normale



D h10	d h6	L	l ap	r +/-0,005	Z	Balinit® Tisaflex 
3,0	3	38	7,0	1,50	2	HMH737030
4,0	4	50	8,0	2,00	2	HMH737040
5,0	5	50	10,0	2,50	2	HMH737050
6,0	6	57	10,0	3,00	2	HMH737060
8,0	8	63	16,0	4,00	2	HMH737080
10,0	10	72	19,0	5,00	2	HMH737100
12,0	12	83	22,0	6,00	2	HMH737120
16,0	16	92	26,0	8,00	2	HMH737160

## 737R

Fresa 2 taglienti serie normale semisferica con gambo rinforzato  
2 flute ball nose end mill regular version with reinforced shank  
Zweischneidige Kugelfräser mit verstärktem Schaft  
Fraise hémisphérique à 2 dents avec queue renforcée série normale



D h10	d h6	L	l ap	r	Z	Balinit® Tisaflex 
1,0	6	53	3,0	0,50	2	HMH737010R
1,5	6	53	4,0	0,75	2	HMH737015R
2,0	6	53	5,0	1,00	2	HMH737020R
2,5	6	53	7,0	1,25	2	HMH737025R
3,0	6	53	7,0	1,50	2	HMH737030R

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6

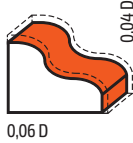
Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Superlegierungen  
Superalliages

133

Parametri di lavoro/Working Parameters/Bearbeitungsparameter/Paramètres d'usinage

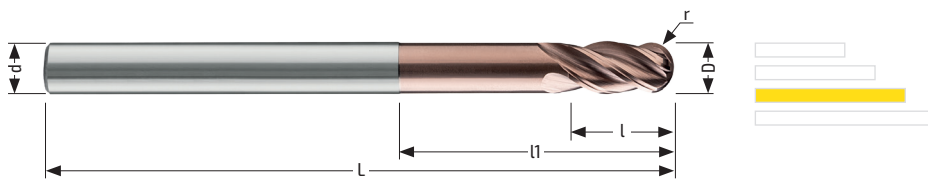
Materiale Material	Diametro Diameter			
Inox ferritico Ferritic stainless steel	m/min	Vc=120		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	3	0,080	4074	12732
	4	0,106	4049	9549
	6	0,155	3947	6366
	8	0,198	3782	4775
	10	0,238	3636	3820
Inox austenitico Austenitic stainless steel	m/min	Vc=90		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	3	0,072	2750	9549
	4	0,096	2750	7162
	6	0,139	2655	4775
	8	0,178	2550	3581
	10	0,214	2452	2865
PH-Duplex	m/min	V=60		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	3	0,060	1167	6366
	4	0,080	1155	4775
	6	0,116	1132	3183
	8	0,149	1085	2387
	10	0,178	1043	1910
Titanio Titanium	m/min	Vc=55		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	3	0,060	1401	5836
	4	0,080	1401	4377
	6	0,116	1354	2918
	8	0,149	1304	2188
	10	0,178	1247	1751
Superleghe difficili Hard/Machinable Superalloys	m/min	Vc=35		
	<b>D</b> mm	<b>fz</b> mm/z	<b>F</b> mm/min	<b>n</b> rpm
	3	0,050	1167	5836
	4	0,066	1155	4377
	6	0,097	1132	2918
	8	0,124	1085	2188
	10	0,149	1043	1751
12	0,171	998	1459	

Notes



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Fresa 4 taglienti semisferica serie lunga  
4 flute ball nose end mill, long version  
Vierschneidige Kugelfräser, lange Ausführung  
Fraise hémisphérique à 4 dents, série longue



Silmax

NORM

λ 35°

λ 38°



6535 HA



4

5

6

8



D	d	L	l <sub>ap</sub>	l1	a	r	Z	Balinit® Tisaflex
+0/-0,03	h6							
3,0	6	78	7,0	16,0	0,10	1,50	4	HMH133030
4,0	6	78	8,0	21,0	0,10	2,00	4	HMH133040
5,0	6	105	10,0	26,0	0,10	2,50	4	HMH133050
6,0	6	105	10,0	31,0	0,15	3,00	4	HMH133060
8,0	8	105	16,0	41,0	0,15	4,00	4	HMH133080
10,0	10	120	19,0	52,0	0,15	5,00	4	HMH133100
12,0	12	125	22,0	62,0	0,20	6,00	4	HMH133120

4

Acciaio Inox  
Stainless Steel  
Edelstahl  
Acier Inoxydable

5

PH-Duplex

6

Titanio  
Titanium  
Titan  
Titane

8

Superleghe  
Superalloys  
Superlegierungen  
Superalliages



**Riaffilatura e rigenerazione: da usato a nuovo**

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

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

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

**Nachschliff und Regeneration: von gebraucht bis neu**

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

**Réaffûtage et régénération**

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

**Esecuzione perfetta**

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

**Perfect execution**

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

**Perfekte Ausführung**

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

**Exécution parfaite**

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

**Rivestimento PVD**

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

**PVD Coating**

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

**PVD-Beschichtung**

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

**Revêtement PVD**

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

**Trattamento 4S**

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

**4S Treatment**

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

**4S-Behandlung**

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

**Traitement 4S**

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

**Consegna rapida**

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

**Fast delivery**

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

**Schnelle Lieferung**

Schnelle Lieferung innerhalb von 10 Werktagen ab Empfang der Werkzeuge.

**Livraison rapide**

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



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