



**HIGHQUALITY**  
**PRODUCTION PROGRAMME**

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**PRODUCTIONPROGRAMME**

# Legenda - Caption

## Légende - Legende



**Numero di taglienti** - Anzahl der Schneiden  
Flute number - Nombre de coupants



**Tipo di lavorazione** - Bearbeitungsart  
Machine work type - Type de usinage



**Lunghezza fresa** - Fräserlänge  
End mill length - Longueur de la fraise



**Tipologia di taglio** - Schneidtyp  
Cutting type - Typologie de coupe



**Articolo presente anche con attacco filettato fino ad esaurimento scorte**

Auch Schaftgewinde solange der Vorrat reicht  
Tool available with threaded shank until sold out  
Outil disponible même avec queue filetée jusqu'à épuisement du stock



**Attacco Weldon** - Weldonschaft  
Weldon shank - Queue avec méplant



**Attacco filettato** - Schaft mit Gewinde  
Threaded shank - Queue filetée



**Attacco cilindrico** - Zylinderschaft  
Straight shank - Queue cylindrique



**Attacco conico** - Kegelschaft  
Morse taper shank - Queue conique



**Attacco ISO DIN 2080** - ISO DIN 2080 Schaft  
ISO DIN 2080 shank - Queue ISO DIN 2080



**Attacco ISO DIN 6987/1** - ISO DIN 6987/1 Schaft  
ISO DIN 6987/1 shank - Queue ISO DIN 6987/1



**Serie extra corta**



**Serie lunga**



**Serie corta**



**Serie extra lunga**



**HSS/HSS-Co5/HSS-Co8**



HSS/HSS-Co5/HSS-Co8  
**Con rivestimento TiN** - Mit TiN Beschichtung  
TiN coated - Avec revêtement TiN



HSS/HSS-Co5/HSS-Co8  
**Con rivestimento TiCN** - Mit TiCN Beschichtung  
TiCN coated - Avec revêtement TiCN



HSS/HSS-Co5/HSS-Co8  
**Con rivestimento TiALN FUTURA®** - Mit TiALN FUTURA® Beschichtung  
TiALN FUTURA® coated - Avec revêtement TiALN FUTURA®



**ASP-30/ASP-60**



ASP-30/ASP-60  
**Con rivestimento TiN** - Mit TiN Beschichtung  
TiN coated - Avec revêtement TiN



ASP-30/ASP-60  
**Con rivestimento TiCN** - Mit TiCN Beschichtung  
TiCN coated - Avec revêtement TiCN



ASP-30/ASP-60  
**Con rivestimento TiALN FUTURA®** - Mit TiALN FUTURA® Beschichtung  
TiALN FUTURA® coated - Avec revêtement TiALN FUTURA®



**Utensile disponibile a magazzino** - Werkzeug vorrätig ab lager  
Tool in stock - Outil disponible à stock



**Fino ad esaurimento scorte** - Solange der Vorrat reicht  
Discontinued available until sold out - Jusqu'à épuisement de stock



**Tolleranza h 10** - Toleranz h 10  
Tolerance h 10 - Tolérance h 10



**ILICO NORM**



**Misura disponibile solo con attacco a chiavetta standard**  
Diese Abmessung wird nur mit Längsnut geliefert  
This dimensions is available only with standard keyway  
Ce diamètre est disponible avec attache à clavette standard.

	Tipo - Typ Type - Type	Profilo - Profil Profile - Profil	
	<b>W</b>		<b>Lavorazione di leghe leggere</b> Bearbeitung von Leichtmetall Light alloys workings Usinages de alliages légers
	<b>WF</b>		
	<b>NS-BNS-BN-N-NJC</b>		<b>Lavorazioni generiche</b> Allgemeine bearbeitung General workings Usinages généraux
	<b>NF</b>		
	<b>NR-RS-BRS-BNR</b>		
	<b>HS</b>		<b>Lavorazioni di materiali difficili</b> Schwere Bearbeitungen von harten Materialien Difficult machine work of hard materials Usinage difficile de matières dures
	<b>HFS</b>		
	<b>HRS-HW</b>		
	<b>Aero AH</b>		<b>Lavorazioni di materiali aeronautici</b> Bearbeitung von aeronautischen Materialien Aeronautical materials machine work Usinage de matières aéronautiques
	<b>Aero AHR</b>		
	<b>Inox VA</b>		<b>Lavorazione di materiali inossidabili</b> Bearbeitung von rostfreien Materialien Stainless materials machine work Usinage de matières inoxydables

# Programma di Produzione Herstellungsprogramm

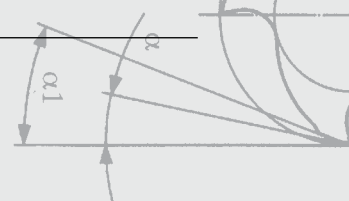
## Production Programme Programme de Production

### Frese a 2 taglienti per cave

Langlochfräser mit 2 Schneiden

Slot drills with 2 flutes

Fraises à rainurer avec 2 dents



### Frese frontali a 3 taglienti

Schaftfräser mit 3 Schneiden

End mills with 3 flutes

Fraises deux tailles avec 3 dents

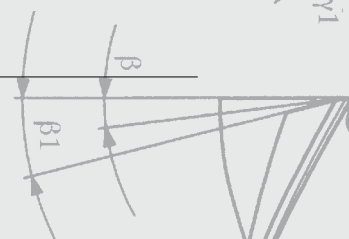


### Frese frontali a 4 e più taglienti

Schaftfräser mit 4 und mehr Schneiden

End mills with 4 and more flutes

Fraises deux tailles avec 4 ou plus de dents



### Frese frontali con attacco conico DIN 2080 e DIN-ISO 69871/1

Schaftfräser mit Steilkegelschaft nach DIN 2080 und DIN ISO 69871/1

End mills with taper shank DIN 2080 and DIN-ISO 69871/1

Fraises deux tailles avec queue conique DIN 2080 et DIN ISO 69871/1

### Frese a manicotto DIN 1880

Walzenstirnfräser nach DIN 1880

Shell end mills DIN 1880

Fraises en bout DIN 1880

### Frese coniche per stampi

Gesenkkegelfräser

Die sinking taper cutters

Fraises coniques pour matrices

### Frese a testa semisferica

Radiusschaftfräser

Ball nose cutters

Fraises à bout hémisphérique

### Frese per scanalature prismatiche e a disco

T-Nuten-, Prismen- und Scheibenfräser

T-slot, double angle and side cutters

Fraises pour rainures à T, isocèles et à 3 tailles

### Informazioni Tecniche

Technische Hinweise

Technical Instruction

Instructions techniques



# Identificazione codice frese

## Identifikation der Artikelnummer



End mills code identification  
 Identification du code des fraises

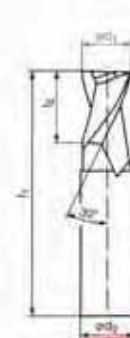


**Tipo N, ≈ 30° elica,  
 10° angolo di spoglia,  
 con codolo cilindrico  
 secondo DIN 1835/1**

**Slot drills 2-fluted,  
 extra short series**  
 Type N, helix angle ≈ 30° rake angle 10°,  
 with straight shank acc. DIN 1835/1

**Typ N, ≈ 30° Drallwinkel,  
 10° Spanwinkel,  
 mit Zylinderschaft nach  
 DIN 1835/1**

**Fraises à rainurer 2 dents,  
 série extra courte**  
 Type N, angle d'hélice ≈ 30°, angle de  
 coupe 10°, avec queue cylindrique selon  
 DIN 1835/1



**DIN 327  
 ASP-60**

- ASP-60
- ASP 60 TiN
- ASP 60 TiCN
- ASP 60 TiAlN FUTURA

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					3220	3220T	3220C	3220F

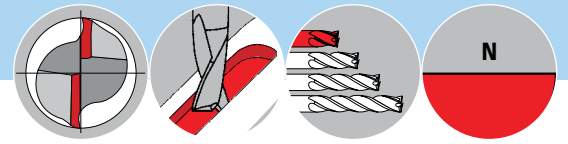


<p><b>3 = Per cave</b>                  Langlochfräser                  Slot drills                  Fraises à rainurer</p> <p><b>4 = Per finitura</b>                  Schlichtfräser                  Finishing mills                  Fraises de finition</p> <p><b>5 = Per semifinitura</b>                  Schrupp-Schlichtfräser                  Semifinishing mill                  Fraises de semifinition</p> <p><b>7 = Per sgrassatura</b>                  Schruppfräser                  Roughing mills                  Fraises d'ébauche</p> <p><b>8 = Per stampi coniche</b>                  Gesenkkegelfräser                  Die sinking taper cutters                  Fraises coniques pour matrices</p> <p><b>9 = Miscellanea</b>                  Verschiedenes                  Miscellany                  Melange</p>	<p><b>2 = 2 Taglienti</b>                  2 Schneiden                  2 Flutes                  2 Dents</p> <p><b>3 = 3 Taglienti</b>                  3 Schneiden                  3 Flutes                  3 Dents</p> <p><b>4 = 4 Taglienti</b>                  4 Schneiden                  4 Flutes                  4 Dents</p> <p><b>5 = Miscellanea</b>                  Verschiedenes                  Miscellany                  Melange</p>	<p><b>Numero progressivo</b>                  Fortlaufend Nummer                  Progressive number                  Nombre progressif</p>	<p><b>T = TiN</b>  <b>C = TiCN</b>  <b>F = TiAlN FUTURA®</b></p>
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# Frese a 2 taglienti per cave, serie extra corta

## Langlochfräser 2-Schneiden extra kurz



**Tipo N,  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

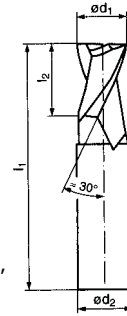
**Slot drills 2-fluted,  
extra short series**

Type N, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ ,  
with straight shank acc. DIN 1835/1

**Typ N,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises à rainurer 2 dents,  
série extra courte**

Type N, angle d'hélice  $\approx 30^\circ$ , angle de coupe  $10^\circ$ ,  
avec queue cylindrique selon DIN 1835/1



**DIN 327  
HSS-Co8**

- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN
- HSS-Co8  
TiAlN FUTURA®

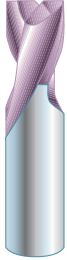
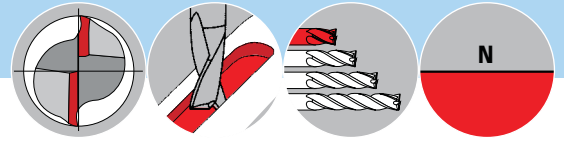
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						3200	3201	3200T	3201C	3200C	3200F
$\phi d_1$ $e_8$	$l_2$	$l_1$	$\phi d_2$	Z							
1▲*	2,5	36	6	2	●	●	●	●	●	●	
1,5▲*	3	36	6	2	●	●	●	●	●	●	
1,8*	4	48	6	2	●	●	●	●	●	●	
2	4	48	6	2	●	●	●	●	●	●	
2,5	5	49	6	2	●	●	●	●	●	●	
2,8*	5	49	6	2	●	●	●	●	●	●	
3	5	49	6	2	●	●	●	●	●	●	
3,5*	6	50	6	2	●	●	●	●	●	●	
3,8*	7	51	6	2	●	●	●	●	●	●	
4	7	51	6	2	●	●	●	●	●	●	
4,5*	7	51	6	2	●	●	●	●	●	●	
4,8*	8	52	6	2	●	●	●	●	●	●	
5	8	52	6	2	●	●	●	●	●	●	
5,5*	8	52	6	2	●	●	●	●	●	●	
5,75*	8	52	6	2	●	●	●	●	●	●	
6	8	52	6	2	●	●	●	●	●	●	
6,5*	10	60	10	2	●	●	●	●	●	●	
6,75*	10	60	10	2	●	●	●	●	●	●	
7	10	60	10	2	●	●	●	●	●	●	
7,5*	10	60	10	2	●	●	●	●	●	●	
7,75*	11	61	10	2	●	●	●	●	●	●	
8	11	61	10	2	●	●	●	●	●	●	
8,5*	11	61	10	2	●	●	●	●	●	●	
8,7*	11	61	10	2	●	●	●	●	●	●	
9*	11	61	10	2	●	●	●	●	●	●	
9,5*	11	61	10	2	●	●	●	●	●	●	
9,7*	13	63	10	2	●	●	●	●	●	●	
10	13	63	10	2	●	●	●	●	●	●	
10,5*	13	70	12	2	●	●	●	●	●	●	
10,7*	13	70	12	2	●	●	●	●	●	●	
11*	13	70	12	2	●	●	●	●	●	●	
11,5*	13	70	12	2	●	●	●	●	●	●	
11,7*	16	73	12	2	●	●	●	●	●	●	
12	16	73	12	2	●	●	●	●	●	●	
12,7*	16	73	12	2	●	●	●	●	●	●	
13*	16	73	12	2	●	●	●	●	●	●	
13,7*	16	73	12	2	●	●	●	●	●	●	
14	16	73	12	2	●	●	●	●	●	●	
14,7*	16	73	12	2	●	●	●	●	●	●	

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10  
 ▲ ILLICO NORM



# Frese a 2 taglienti per cave, serie extra corta

## Langlochfräser 2-Schneiden extra kurz



**Tipo N,  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

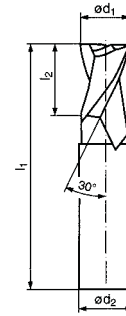
**Slot drills 2-fluted,  
extra short series**

Type N, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ ,  
with straight shank acc. DIN 1835/1

**Typ N,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**









**Fraises à rainurer 2 dents,  
série extra courte**

Type N, angle d'hélice  $\approx 30^\circ$ , angle de  
coupe  $10^\circ$ , avec queue cylindrique selon  
DIN 1835/1



**DIN 327  
ASP-30**

-  ASP-30
-  ASP-30  
TiN
-  ASP-30  
TiCN
-  ASP-30  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					3220	3220T	3220C	3220F
$\phi d_1$ $\phi_8$	$l_2$	$l_1$	$\phi d_2$	Z				
								
2	4	48	6	2	●	●	●	●
2,5	5	49	6	2	●	●	●	●
3	5	49	6	2	●	●	●	●
3,5*	6	50	6	2	●	●	●	●
4	7	51	6	2	●	●	●	●
4,5*	7	51	6	2	●	●	●	●
5	8	52	6	2	●	●	●	●
5,5*	8	52	6	2	●	●	●	●
6	8	52	6	2	●	●	●	●
6,5*	10	60	10	2	●	●	●	●
7	10	60	10	2	●	●	●	●
7,5*	10	60	10	2	●	●	●	●
8	11	61	10	2	●	●	●	●
8,5*	11	61	10	2	●	●	●	●
9	11	61	10	2	●	●	●	●
9,5*	11	61	10	2	●	●	●	●
10	13	63	10	2	●	●	●	●
10,5*	13	70	12	2	●	●	●	●
11	13	70	12	2	●	●	●	●
11,5*	13	70	12	2	●	●	●	●
12	16	73	12	2	●	●	●	●
13*	16	73	12	2	●	●	●	●
14	16	73	12	2	●	●	●	●
15	16	73	12	2	●	●	●	●
16	19	79	16	2	●	●	●	●
17	19	79	16	2	●	●	●	●
18	19	79	16	2	●	●	●	●
19	19	79	16	2	●	●	●	●
20	22	88	20	2	●	●	●	●

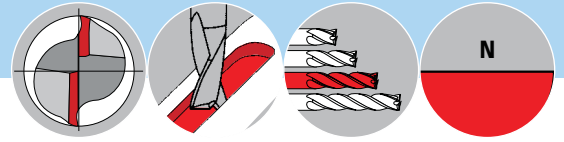
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
\* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10





# Frese a 2 taglienti per cave, serie lunga

## Langlochfräser 2-Schneiden lang

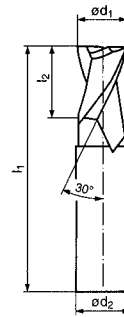


**Tipo N,  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**Slot drills 2-fluted, long series**  
Type N, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ ,  
with straight shank acc. DIN 1835/1

Typ N,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1

**Fraises à rainurer 2 dents, série longue**  
Type N, angle d'hélice  $\approx 30^\circ$ , angle de  
coupe  $10^\circ$ , avec queue cylindrique  
selon DIN 1835/1



**ILICO NORM  
HSS-Co8**

- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN
- HSS-Co8  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					3204	3206	3204T	3204C	3204F
$\phi d_1$ $e_8$	$l_2$	$l_1$	$\phi d_2$	Z					
3	8	56	6	2	●	■	●	●	●
3,5*	10	59	6	2	●	■	●	●	●
4	11	63	6	2	●		●	●	●
4,5*	11	63	6	2	●	■	●	●	●
5	13	68	6	2	●	■	●	●	●
5,5*	13	68	6	2	●	■	●	●	●
6	13	68	6	2	●	■	●	●	●
6,5*	16	80	10	2	●		●	●	●
7	16	80	10	2	●	■	●	●	●
7,5*	16	80	10	2	●	■	●	●	●
8	19	88	10	2	●	■	●	●	●
8,5*	19	88	10	2	●	■	●	●	●
9*	19	88	10	2	●		●	●	●
9,5*	19	88	10	2	●	■	●	●	●
10	22	95	10	2	●	■	●	●	●
10,5*	22	102	12	2	■		●	●	●
11	22	102	12	2	●		●	●	●
11,5*	22	102	12	2		■			●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10







ILLI•CO HIGH QUALITY

## Un impegno di Qualità

Il programma di frese ILLI-CO High Quality è nato per offrire ai nostri clienti utensili di elevata precisione. L'affidabilità in fase di lavorazione delle frese ILLI-CO è frutto della sua esperienza pluri-decennale nel settore della meccanica: ILLI-CO è distribuito in Italia attraverso una presenza capillare sul territorio e dopo un'attività nazionale crescente sin dagli anni novanta. ILLI-CO ha realizzato il nuovo catalogo di frese High Quality in risposta alle ultime esigenze produttive del mercato. ILLI-CO opera un costante investimento in controlli qualità per garantire sempre un'attenta selezione dei prodotti. Solo i migliori utensili High Quality escono dagli stabilimenti ILLI-CO e sono offerti agli utilizzatori. I nuovi rivestimenti tuttora in fase di studio, uniti alla costante ricerca ILLI-CO nel campo dei materiali di costruzione, permettono di raggiungere con i macchinari di ultima generazione elevate prestazioni unite alla riduzione dei tempi di lavorazione.





## L'azienda



**Angelo Ghezzi & C SpA**

Migliorare la qualità, in un'ottica di sfida costante e di innovazione. Questa è la scelta della Angelo Ghezzi Spa che dal 1939 è riconosciuta in Europa come sinonimo di competenza e affidabilità. Da oltre sessant'anni l'azienda offre utensili di comprovata qualità e precisione provenienti dalle migliori case internazionali, come in questo caso i prestigiosi stabilimenti ILLI-CO.

L'attenzione al cliente è presente in tutte le direttrici seguite dall'azienda al fine di proporre, sempre, un servizio completo a 360°, dal momento dell'acquisto, alla messa in macchina dell'utensile, al postvendita.






































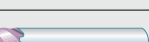





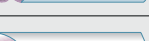











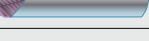




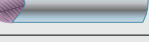




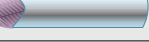



























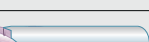


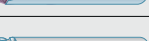





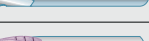



Con la sua rete di tecnici e il suo personale qualificato, l'Angelo Ghezzi Spa mette a disposizione degli utilizzatori gli strumenti giusti per offrire le migliori soluzioni aumentando la produzione e l'efficienza delle lavorazioni.

# Frese frontali a 3 taglienti

## Schaftfräser mit 3 Schneiden

End mills with 3 flutes

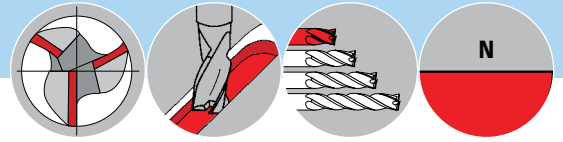
Fraises deux tailles avec 3 dents

DIN	Tipo			Materiale	Rivestimento							Pag.
					TiN	TiCN	TiAlN FUTURA®					
327	N			HSS-Co8								14
844K	N			HSS-Co8								16
844K	N			ASP-30								18
IN	N			HSS-Co8								20
IN	N			ASP-30								22
844K	N			ASP-30								24
844K	W			HSS-Co8								25
844K	W			ASP-30								26
844L	W			HSS-Co8								27
844L	W			ASP-30								28
844L <sup>Aero</sup>	AH			ASP-60								29
845K	W			HSS-Co5								30
844K	WF			HSS-Co5								31
844K	WF			ASP-30								32
844L	WF			HSS-Co5								33
844L	WF			ASP-30								34
844L <sup>Aero</sup>	AHR			ASP-60								35
844K	NR			ASP-60								36
844K	NR			ASP-60								37

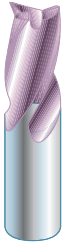
IN = Illico Norm

# Frese a 3 taglienti per cave, serie extra corta

## Langlochfräser 3-Schneiden extra kurz



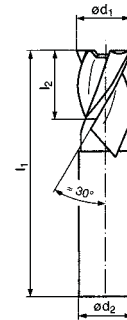
**Tipo N, ≈ 30° elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**



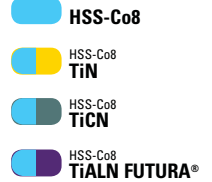
**Slot drills 3-fluted, extra short series**  
Type N, helix angle ≈ 30° rake angle 12°,  
with straight shank acc. DIN 1835/1

**Typ N, ≈ 30° Drillwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises à rainurer 3 dents, série extra courte**  
Type N, angle d'hélice ≈ 30°, angle de  
coupe 12°, avec queue cylindrique  
selon DIN 1835/1



**DIN 327  
HSS-Co8**



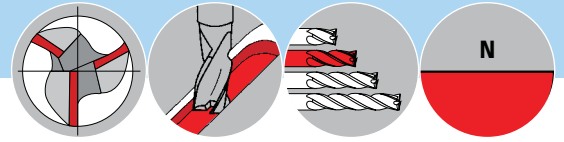
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					3308	3310	3308T	3308C	3308F
$\phi d_1$ $e_8$	$l_2$	$l_1$	$\phi d_2$	Z					
1,8*	4	48	6	3	●		●	●	●
2	4	48	6	3	●		●	●	●
2,5	5	49	6	3	●		●	●	●
2,8*	5	49	6	3	●		●	●	●
3	5	49	6	3	●		●	●	●
3,5*	6	50	6	3	●	■	●	●	●
3,8*	7	51	6	3	●		●	●	●
4	7	51	6	3	●		●	●	●
4,5*	7	51	6	3	●		●	●	●
4,8*	8	52	6	3	●		●	●	●
5	8	52	6	3	●	■	●	●	●
5,5*	8	52	6	3	●		●	●	●
5,75*	8	52	6	3	●		●	●	●
6	8	52	6	3	●	■	●	●	●
6,5*	10	60	10	3	●	■	●	●	●
6,75*	10	60	10	3	●		●	●	●
7	10	60	10	3	●	■	●	●	●
7,5*	10	60	10	3	●		●	●	●
7,75*	11	61	10	3	●		●	●	●
8	11	61	10	3	●	■	●	●	●
8,5*	11	61	10	3	●		●	●	●
8,7*	11	61	10	3	●		●	●	●
9*	11	61	10	3	●		●	●	●
9,5*	11	61	10	3	●		●	●	●
9,7*	13	63	10	3	●		●	●	●
10*	13	63	10	3	●	■	●	●	●
10,5*	13	70	12	3	●		●	●	●
10,7*	13	70	12	3	●		●	●	●
11*	13	70	12	3	●		●	●	●
11,5*	13	70	12	3	●		●	●	●
11,7*	16	73	12	3	●		●	●	●
12	16	73	12	3	●		●	●	●
12,7*	16	73	12	3	●		●	●	●
13*	16	73	12	3	●	■	●	●	●
13,7*	16	73	12	3	●		●	●	●
14	16	73	12	3	●		●	●	●
14,7*	16	73	12	3	●		●	●	●
15*	16	73	12	3	●	■	●	●	●
15,7*	19	79	16	3	●		●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10



# Frese a 3 taglienti per cave, serie corta

## Langlochfräser 3-Schneiden kurz

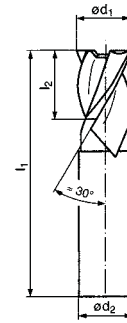


**Tipo N,  $\approx 30^\circ$  elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

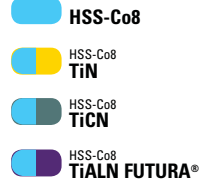
**Slot drills 3-fluted, short series**  
Type N, helix angle  $\approx 30^\circ$  rake angle  $12^\circ$ ,  
with straight shank acc. DIN 1835/1

**Typ N,  $\approx 30^\circ$  Drallwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises à rainurer 3 dents, série courte**  
Type N, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe  $12^\circ$ , avec queue cylindrique  
selon DIN 1835/1



**DIN 844K  
HSS-Co8**



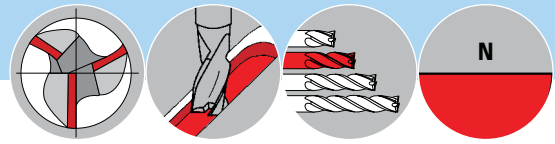
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					3300	3302	3300T	3300C	3300F
$\phi d_1$ $e_8$	$l_2$	$l_1$	$\phi d_2$	Z					
1,8*	7	51	6	3	●	■	●	●	●
2	7	51	6	3	●	■	●	●	●
2,5	8	52	6	3	●	■	●	●	●
2,8*	8	52	6	3	●	■	●	●	●
3	8	52	6	3	●	■	●	●	●
3,5*	10	54	6	3	●	■	●	●	●
3,8*	11	55	6	3	●	■	●	●	●
4	11	55	6	3	●	■	●	●	●
4,5*	11	55	6	3	●	■	●	●	●
4,8*	13	57	6	3	●	■	●	●	●
5	13	57	6	3	●	■	●	●	●
5,5*	13	57	6	3	●	■	●	●	●
5,75*	13	57	6	3	●	■	●	●	●
6	13	57	6	3	●	■	●	●	●
6,5*	16	66	10	3	●	■	●	●	●
6,75*	16	66	10	3	●	■	●	●	●
7	16	66	10	3	●	■	●	●	●
7,5*	16	66	10	3	●	■	●	●	●
7,75*	19	69	10	3	●	■	●	●	●
8	19	69	10	3	●	■	●	●	●
8,5*	19	69	10	3	●	■	●	●	●
8,7*	19	69	10	3	●	■	●	●	●
9*	19	69	10	3	●	■	●	●	●
9,5*	19	69	10	3	●	■	●	●	●
9,7*	22	72	10	3	●	■	●	●	●
10*	22	72	10	3	●	■	●	●	●
10,5*	22	79	12	3	●	■	●	●	●
10,7*	22	79	12	3	●	■	●	●	●
11*	22	79	12	3	●	■	●	●	●
11,5*	22	79	12	3	●	■	●	●	●
11,7*	26	83	12	3	●	■	●	●	●
12	26	83	12	3	●	■	●	●	●
12,7*	26	83	12	3	●	■	●	●	●
13*	26	83	12	3	●	■	●	●	●
13,7*	26	83	12	3	●	■	●	●	●
14	26	83	12	3	●	■	●	●	●
14,7*	26	83	12	3	●	■	●	●	●
15*	26	83	12	3	●	■	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10



# Frese a 3 taglienti per cave, serie corta

## Langlochfräser 3-Schneiden kurz

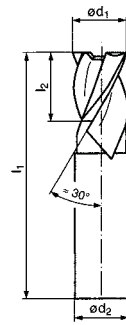


**Tipo N, ≈ 30° elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**





**Slot drills 3-fluted, short series**  
Type N, helix angle ≈ 30° rake angle 12°,  
with straight shank acc. DIN 1835/1











**Typ N, ≈ 30° Drallwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises à rainurer 3 dents, série courte**  
Type N, angle d'hélice ≈ 30°, angle  
de coupe 12°, avec queue cylindrique  
selon DIN 1835/1



**DIN 844K  
HSS-Co8**

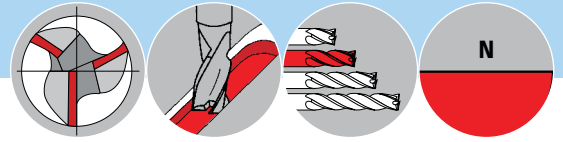
-  HSS-Co8
-  HSS-Co8  
TiN
-  HSS-Co8  
TiCN
-  HSS-Co8  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					3300	3302	3300T	3300C	3300F
$\varnothing d_1$ $e_8$	$l_2$	$l_1$	$\varnothing d_2$	Z					
					●	■	●	●	●
15,7*	32	92	16	3	●	■	●	●	●
16	32	92	16	3	●	■	●	●	●
16,7*	32	92	16	3	●	■	●	●	●
17*	32	92	16	3	●	■	●	●	●
17,7*	32	92	16	3	●	■	●	●	●
18	32	92	16	3	●	■	●	●	●
18,7	32	92	16	3	●	■	●	●	●
19*	32	92	16	3	●	■	●	●	●
19,7^	38	104	20	3	●	■	●	●	●
20	38	104	20	3	●	■	●	●	●
21,7*	38	104	20	3	●	■	●	●	●
22	38	104	20	3	●	■	●	●	●
23,7	45	121	25	3	●	■	●	●	●
24	45	121	25	3	●	■	●	●	●
24,7*	45	121	25	3	●	■	●	●	●
25	45	121	25	3	●	■	●	●	●
25,7	45	121	25	3	●	■	●	●	●
26*	45	121	25	3	●	■	●	●	●
27,7*	45	121	25	3	●	■	●	●	●
28	45	121	25	3	●	■	●	●	●
29,7*	45	121	25	3	■	■	●	●	●
30*	45	133	32	3	●	■	●	●	●
32	53	133	32	3	●	■	●	●	●
34*	53	133	32	3	●	■	●	●	●
35*	53	133	32	3	●	■	●	●	●
36	53	133	32	3	●	■	●	●	●
38*^	63	155	32	3	●	■	●	●	●

- Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock
- Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock
- \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10
- ▲ ILLICO NORM

# Frese a 3 taglienti per cave, serie corta

## Langlochfräser 3-Schneiden kurz

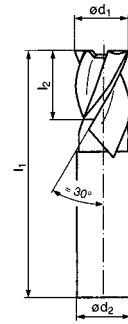


**Tipo N,  $\approx 30^\circ$  elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**Slot drills 3-fluted, short series**  
Type N, helix angle  $\approx 30^\circ$  rake angle  $12^\circ$ ,  
with straight shank acc. DIN 1835/1









**Type N,  $\approx 30^\circ$  Drallwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises à rainurer 3 dents, série courte**  
Type N, angle d'hélice  $\approx 30^\circ$ , angle de  
coupe  $12^\circ$ , avec queue cylindrique selon  
DIN 1835/1



**DIN 844K  
ASP-30**

-  ASP-30
-  ASP-30  
TiN
-  ASP-30  
TiCN
-  ASP-30  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					3320	3320T	3320C	3320F
$\phi d_1$ $e_8$	$l_2$	$l_1$	$\phi d_2$	Z				
								
2	7	51	6	3	●	●	●	●
2,5	8	52	6	3	●	●	●	●
3	8	52	6	3	●	●	●	●
3,5*	10	54	6	3	●	●	●	●
4	11	55	6	3	●	●	●	●
4,5*	11	55	6	3	●	●	●	●
5	13	57	6	3	●	●	●	●
5,5*	13	57	6	3	●	●	●	●
6	13	57	6	3	●	●	●	●
6,5*	16	66	10	3	●	●	●	●
7	16	66	10	3	●	●	●	●
7,5*	16	66	10	3	●	●	●	●
8	19	69	10	3	●	●	●	●
8,5*	19	69	10	3	●	●	●	●
9	19	69	10	3	●	●	●	●
9,5*	19	69	10	3	●	●	●	●
10	22	72	10	3	●	●	●	●
10,5*	22	72	12	3	●	●	●	●
11	22	79	12	3	●	●	●	●
11,5*	26	79	12	3	●	●	●	●
12	26	83	12	3	●	●	●	●
13*	26	83	12	3	●	●	●	●
14	26	83	12	3	●	●	●	●
15	26	83	12	3	●	●	●	●
16	32	92	16	3	●	●	●	●
17	32	92	16	3	●	●	●	●
18	32	92	16	3	●	●	●	●
19	32	92	16	3	●	●	●	●
20	38	104	20	3	●	●	●	●
22	38	104	20	3	●	●	●	●
24	45	121	25	3	●	●	●	●
25	45	121	25	3	●	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
\* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10



# Uno sguardo al futuro

In un mercato dove si succedono sempre più assestamenti a livello internazionale, l'unico modo per migliorare la qualità del proprio servizio è avere grande attenzione agli utilizzatori e alle loro problematiche. Angelo Ghezzi Spa, attraverso la partnership con gli stabilimenti ILLI-CO, ha come obiettivo un dialogo ancora più aperto con il cliente. Riuscire a soddisfare le richieste dei consumatori significa distribuire prodotti di qualità con tempistiche adeguate. L'incremento della sua presenza sul territorio nazionale, l'aumento della rete di tecnici e la tempestività d'intervento sono solo alcuni dei canali che l'Angelo Ghezzi Spa migliora costantemente.

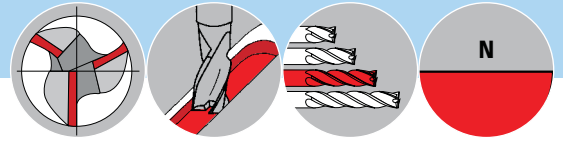






# Frese a 3 taglienti per cave, serie lunga

## Langlochfräser 3-Schneiden lang

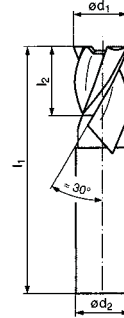


**Tipo N,  $\approx 30^\circ$  elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**Slot drills 3-fluted, long series**  
Type N, helix angle  $\approx 30^\circ$  rake angle  $12^\circ$ ,  
with straight shank acc. DIN 1835/1







Typ N,  $\approx 30^\circ$  Drallwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1

**Fraises à rainurer 3 dents, série longue**  
Type N, angle d'hélice  $\approx 30^\circ$ , angle de  
coupe  $12^\circ$ , avec queue cylindrique  
selon DIN 1835/1



### ILICO NORM ASP-30

-  ASP-30
-  ASP-30  
TiN
-  ASP-30  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					3324	3324T	3324C
							
							
$\phi d_1$ $e_8$	$l_2$	$l_1$	$\phi d_2$	Z			
3	8	56	6	3		■	■
3,5*	10	59	6	3		■	■
4,5*	11	63	6	3	■	■	■
5,5*	13	68	6	3		■	■
7	16	80	10	3	■	■	■
8	19	88	10	3	■	■	■
9	19	88	12	3	■	■	■
11	22	95	12	3		■	■
12	26	110	12	3	■	■	■
15	26	110	16	3	■	■	■
17	32	123	16	3	■	■	■
18	32	123	16	3		■	■
19	32	123	16	3	■	■	■
20	38	141	20	3	■	■	■
24	45	166	25	3	■	■	■
25	45	166	25	3		■	■

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
\* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10



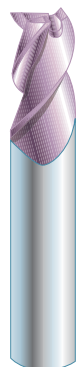
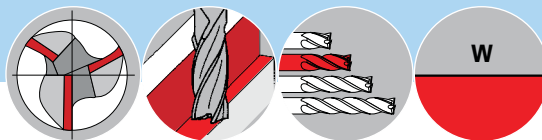
# Numero Verde

Durante le delicate fasi del montaggio in macchina di un utensile può essere talvolta necessaria una consultazione per una visione più chiara delle caratteristiche del prodotto. Al Numero Verde **800-018130** è collegato un servizio di consulenza in linea per risolvere in tempo reale i problemi legati a parametri di lavorazione, tolleranze o quant'altro fosse necessario.



# Frese frontali per leghe leggere serie corta

## Schafffräser kurz, 3-Schneiden

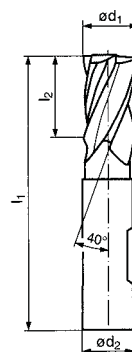


**Tipo W,  $\approx 40^\circ$  elica,  
24° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**End mills, 3-fluted, short series**  
Type W, helix angle  $\approx 40^\circ$  rake angle  
24°, with straight shank acc. DIN 1835/1

**Typ W,  $\approx 40^\circ$  Drallwinkel,  
24° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises deux tailles, 3 dents, série courte**  
Type W, angle d'hélice  $\approx 40^\circ$ , angle de  
coupe 24°, avec queue cylindrique  
selon DIN 1835/1



**DIN 844K  
HSS-Co8**

- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN
- HSS-Co8  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4300	4302	4300T	4300C	4300F
$\phi d_1$ K <sub>10</sub>	$l_2$	$l_1$	$\phi d_2$	Z					
2	7	51	6	3	●	■	●	●	●
2,5	8	52	6	3		■			
3	8	52	6	3	●	■	●	●	●
3,5	10	54	6	3	■	■			■
4	11	55	6	3	●	■	●	●	●
4,5	11	55	6	3	■	■			
5	13	57	6	3	●	■	●	●	●
6	13	57	6	3	●	■	●	●	●
7	16	66	10	3	●	■	●	●	●
8	19	69	10	3	●	■	●	●	●
9	19	69	10	3	●	■	●	●	●
10	22	72	10	3	●	■	●	●	●
11	22	79	12	3		■		■	■
12	26	83	12	3	●	■	●	●	●
14	26	83	12	3	●	■	●	●	●
16	32	92	16	3	●	■	●	●	●
17	32	92	16	3	■	■			
18	32	92	16	3	●	■	●	●	●
19	32	92	16	3		■			
20	38	104	20	3	●	■	●	●	●
22	38	104	20	3	●	■	●	●	●
24	45	121	25	3	■	■		■	■
25	45	121	25	4	●	■	●	●	●
26	45	121	25	4		■	■	■	■
28	45	121	25	4	■	■	■	■	■
30	45	121	25	4	■	■	■	■	■
32	53	133	32	4		■	■	■	■
34	53	133	32	4		■			
36	53	133	32	4	●	■	●	●	●
40	63	155	40	4	■				■

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock





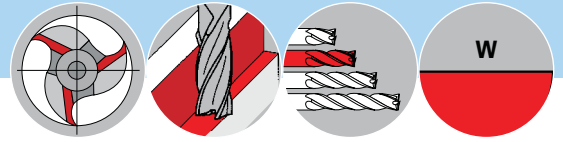






# Frese frontali per leghe leggere, serie corta

## Schafffräser kurz, 3-Schneiden

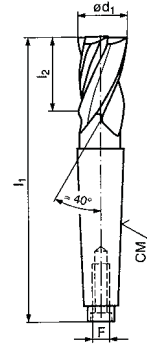


**Tipo W,  $\approx 40^\circ$  elica,  
24° angolo di spoglia,  
con codolo conico  
secondo DIN 228/1**

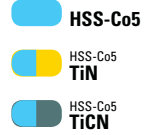
**End mills, 3-fluted, short series**  
Type W, helix angle  $\approx 40^\circ$  rake angle  $24^\circ$ ,  
with morse taper shank acc. DIN 228/1

**Typ W,  $\approx 40^\circ$  Drallwinkel,  
24° Spanwinkel,  
mit morsekegelhaft nach  
DIN 228/1**

**Fraises deux tailles, 3 dents, série courte**  
Type W, angle d'hélice  $\approx 40^\circ$ , angle de  
coupe  $24^\circ$ , avec queue cône morse DIN 228/1



**DIN 845K  
HSS-Co5**

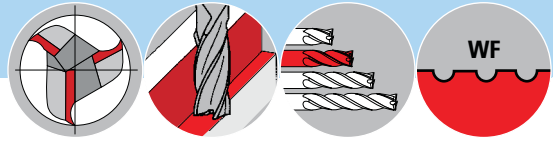


Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4308	4308T	4308C
$\phi d_1$	$l_2$	$l_1$	CM	F	Z			
$K_{10}$								
10	22	92	1	M 6	3	●	●	●
11	22	92	1	M 6	3	●	●	●
12	26	96	1	M 6	3	●	●	●
13	26	96	1	M 6	3	●	●	●
14	26	111	2	M 10	3	●	●	●
15	26	111	2	M 10	3	●	●	●
16	32	117	2	M 10	3	●	●	●
17	32	117	2	M 10	3	●	●	●
18	32	117	2	M 10	3	●	●	●
19	32	117	2	M 10	3	●	●	●
20	38	123	2	M 10	3	●	●	●
21	38	123	2	M 10	3	●	●	●
22	38	123	2	M 10	3	●	●	●
23	38	123	2	M 10	3	●	●	●
24	45	147	3	M 12	3	●	●	●
25	45	147	3	M 12	4	●	●	●
26	45	147	3	M 12	4	●	●	●
27	45	147	3	M 12	4	●	●	●
28	45	147	3	M 12	4	●	●	●
29	45	147	3	M 12	4	●	●	●
30	45	147	3	M 12	4	●	●	●
32*	53	201	4	M 16	4	●	●	●
34*	53	201	4	M 16	4	●	●	●
35*	53	201	4	M 16	4	●	●	●
36*	53	201	4	M 16	4	●	●	●
38*	63	211	4	M 16	4	●	●	●
40*	63	211	4	M 16	4	●	●	●
46*	63	211	4	M 16	5	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese frontali per leghe leggere, serie corta

## Schafffräser kurz, 3-Schneiden

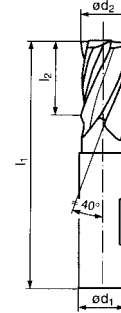


**Tipo WF,  $\approx 40^\circ$  elica,  $24^\circ$  angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**




**End mills, 3-fluted, short series**  
Type WF, helix angle  $\approx 40^\circ$  rake angle  $24^\circ$ , with straight shank acc. DIN 1835/1







**Typ WF,  $\approx 40^\circ$  Drallwinkel,  $24^\circ$  Spanwinkel, mit Zylinderschaft nach DIN 1835/1**

**Fraises deux tailles, 3 dents, série courte**  
Type WF, angle d'hélice  $\approx 40^\circ$ , angle de coupe  $24^\circ$ , avec queue cylindrique selon DIN 1835/1



**DIN 844K  
HSS-Co5**

-  HSS-Co5
-  HSS-Co5  
TiN
-  HSS-Co5  
TiCN

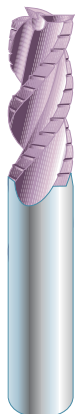
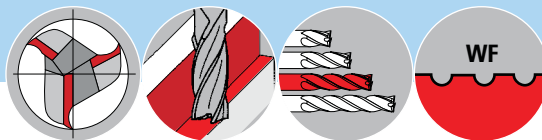
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					5300	5300T	5300C
$\varnothing d_1$ K <sub>10</sub>	$l_2$	$l_1$	$\varnothing d_2$	Z	 	 	 
6	13	57	6	3	●	●	●
8	19	69	10	3	●	●	●
10	22	72	10	3	●	●	●
12	26	83	12	3	●	●	●
14	26	83	12	3	●	●	●
16	32	92	16	3	●	●	●
18	32	92	16	3	●	●	●
20	38	104	20	3	●	●	●
25	45	121	25	3	●	●	●
28	45	121	25	3	■	■	■
32	53	133	32	3		■	■
36	53	133	32	3			■

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese frontali per leghe leggere, serie lunga

## Schafffräser lang, 3-Schneiden



**Tipo WF,  $\approx 40^\circ$  elica,  $24^\circ$  angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

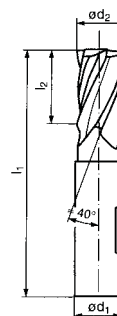
**End mills, 3-fluted, long series**

Type WF, helix angle  $\approx 40^\circ$  rake angle  $24^\circ$ , with straight shank acc. DIN 1835/1




Typ WF,  $\approx 40^\circ$  Drallwinkel,  $24^\circ$  Spanwinkel, mit Zylinderschaft nach DIN 1835/1







**Fraises deux tailles, 3 dents, série longue**

Type WF, angle d'hélice  $\approx 40^\circ$ , angle de coupe  $24^\circ$ , avec queue cylindrique selon DIN 1835/1



**DIN 844L  
HSS-Co5**

-  HSS-Co5
-  HSS-Co5  
TiN
-  HSS-Co5  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					5304	5304T	5304C
$\phi d_1$ K <sub>10</sub>	$l_2$	$l_1$	$\phi d_2$	Z			
							
8	38	88	10	3	●	●	●
10	45	95	10	3	●	●	●
12	53	110	12	3	●	●	●
14	53	110	12	3	●	●	●
16	63	123	16	3	●	●	●
18	63	123	16	3	●	●	●
20	75	141	20	3	●	●	●
25	90	166	25	4	●	●	●
28	90	166	25	4	■	■	■
30	90	166	25	4		■	
36	106	186	32	4	■	■	■

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock













# Call Center

È possibile ordinare i prodotti ILLI-CO direttamente dal posto di lavoro via fax o telefono.

▲ **Telefono**

Chiamando al numero **02.9189314** l'operatore inserirà in tempo reale la richiesta del cliente nella lista degli ordini in uscita.

▲ **Fax**









































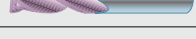






































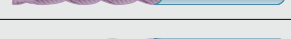





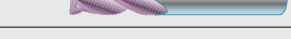






















Per attivare la stessa procedura basta inviare un fax in carta intestata contenente la descrizione della merce al numero **02.99041403**. L'ordine sarà inserito nella lista nel più breve tempo possibile.

# Frese frontali a 4 e più taglienti, per finitura

## Schaftfräser mit 4 und mehr Schneiden

Finishing end mills with 4 and more flutes

Fraises 2 tailles de finition avec 4 ou plus de dents

DIN	Tipo			Materiale	Rivestimento							Pag.
					TiN	TiCN	TiAlN FUTURA®					
IN	N			HSS-Co8								42
844K	N			HSS-Co8								43
844K	HS			HSS-Co8								45
844K	HS			ASP-30								46
844K	NJC			HSS-Co8								47
844K	N			HSS-Co8								48
844K	N			ASP-30								49
844L	N			HSS-Co8								50
844K	W			HSS-Co8								51
844K	VA			HSS-Co8								52
844K	W			ASP-60								53
844L	VA			HSS-Co8								54
844K	VA			ASP-60								55
844L	VA			ASP-60								56
844L	HS			HSS-Co8								58
844L	HS			ASP-30								59
IN	N			HSS-Co8								60
845K	N			HSS-Co5								62
845K	HS			HSS-Co8								63
845L	N			HSS-Co5								64

IN = Illico Norm













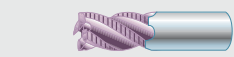




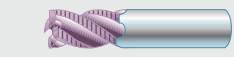






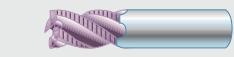





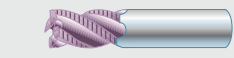




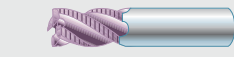




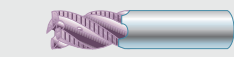




















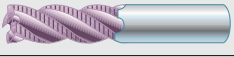




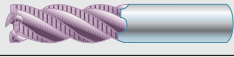













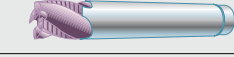








## Frese frontali a 4 e più taglienti, per sgrossatura

### Schrupp-Schaftfräser mit 4 und mehr Schneiden

Roughing end mills with 4 and more flutes

Fraises 2 tailles d'ébauche avec 4 et plus de dents

DIN	Tipo			Materiale	Rivestimento							Pag.
					TiN	TiCN	TiAlN FUTURA®					
IN	HRS			HSS-Co8								76
IN	HRS			ASP-30								77
844K	NR			HSS-Co8								78
844K	NR			ASP-30								79
844K	HRS			HSS-Co8								80
844K	HRS			ASP-30								81
844K	HJC			HSS-Co8								82
844K	HJC			HSS-Co8								83
844L	NR			HSS-Co8								84
844L	NR			ASP-30								85
844L	HRS			HSS-Co8								86
844L	HRS			ASP-30								87
844L	HRS			ASP-60								88
845K	NR			HSS-Co5								89
845K	HRS			HSS-Co8								90
845L	NR			HSS-Co5								91

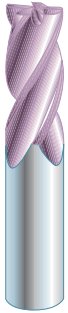
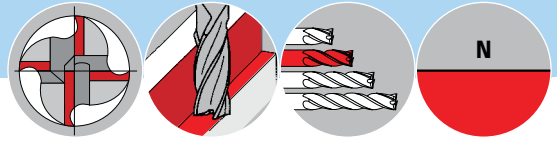
IN = Illico Norm





# Frese frontali serie corta

## Schafffräser kurze Ausführung

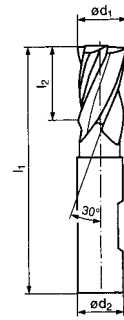


**Tipo N,  $\approx 30^\circ$  elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**End mills, short series**  
Type N, helix angle  $\approx 30^\circ$  rake angle  $12^\circ$ ,  
with straight shank acc. DIN 1835/1

**Typ N,  $\approx 30^\circ$  Drallwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises deux tailles, série courte**  
Type N, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe  $12^\circ$ , avec queue cylindrique  
selon DIN 1835/1



**DIN 844K  
HSS-Co8**

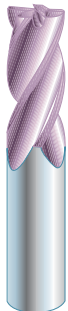
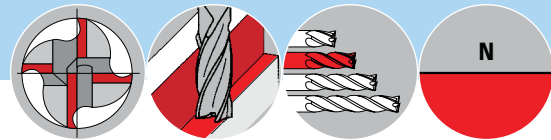
- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN
- HSSCo8  
TiALN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4404	4406	4404T	4404C	4404F
$\phi d_1$ K <sub>10</sub>	$l_2$	$l_1$	$\phi d_2$	Z					
2	7	51	6	4	●	■	●	●	●
2,5	8	52	6	4	●	■	●	●	●
3	8	52	6	4	●	■	●	●	●
3,5	10	54	6	4	●	■	●	●	●
4	11	55	6	4	●	■	●	●	●
4,5	11	55	6	4	●	■	●	●	●
5	13	57	6	4	●	■	●	●	●
5,5	13	57	6	4	●	■	●	●	●
6	13	57	6	4	●	■	●	●	●
6,5	16	66	10	4	●	■	●	●	●
7	16	66	10	4	●	■	●	●	●
7,5	16	66	10	4	●	■	●	●	●
8	19	69	10	4	●	■	●	●	●
8,5	19	69	10	4	●	■	●	●	●
9	19	69	10	4	●	■	●	●	●
9,5	19	69	10	4	●	■	●	●	●
10	22	72	10	4	●	■	●	●	●
10,5	22	79	12	4	●	■	●	●	●
11	22	79	12	4	●	■	●	●	●
11,5	22	79	12	4	●	■	●	●	●
12	26	83	12	4	●	■	●	●	●
13	26	83	12	4	●	■	●	●	●
14	26	83	12	4	●	■	●	●	●
15	26	83	12	4	●	■	●	●	●
16	32	92	16	4	●	■	●	●	●
17	32	92	16	4	●	■	●	●	●
18	32	92	16	4	●	■	●	●	●
19	32	92	16	4	●	■	●	●	●
20	38	104	20	4	●	■	●	●	●
21*	38	104	20	5	●	■	●	●	●
22*	38	104	20	5	●	■	●	●	●
23*	38	104	20	5	●	■	●	●	●
24*	45	121	25	5	●	■	●	●	●
25*	45	121	25	5	●	■	●	●	●
26*	45	121	25	5	●	■	●	●	●
28	45	121	25	5	●	■	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Tolerance h 10 - Toleranz h 10 - Tolérance h 10

# Frese frontali serie corta

## Schaftfräser kurze Ausführung



**Tipo N,  $\approx 30^\circ$  elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

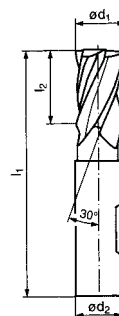
**End mills, short series**

Type N, helix angle  $\approx 30^\circ$  rake angle  $12^\circ$ ,  
with straight shank acc. DIN 1835/1

Typ N,  $\approx 30^\circ$  Drallwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1

**Fraises deux tailles, série courte**

Type N, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe  $12^\circ$ , avec queue cylindrique  
selon DIN 1835/1



**DIN 844K  
HSS-Co8**

- HSS-Co8
- HSS-Co8 TiN
- HSS-Co8 TiCN
- HSSCo8 TIALN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

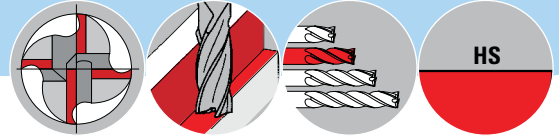
					4404	4406	4404T	4404C	4404F
$\varnothing d_1$ K <sub>10</sub>	$l_2$	$l_1$	$\varnothing d_2$	Z					
30*	45	121	25	5	●		●	●	●
32*	53	133	32	6	●	■	●	●	●
34*	53	133	32	6		■	●	●	●
36*	53	133	32	6	●	■	●	●	●
40*	63	143	32	6			●	●	●
40*	63	155	40	6	●		●	●	●
45*	63	155	40	8	●		●	●	●
50*	75	177	50	8	●		●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10  
 ▲ ILLICO NORM

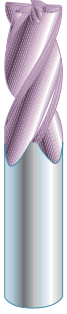


# Frese frontali, serie corta

## Schafffräser kurze Ausführung



HS

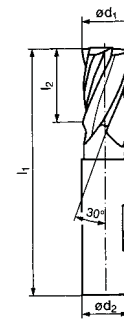


**Tipo HS ≈ 30° elica, 6° angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

**End mills, short series**  
Type HS, helix angle ≈ 30° rake angle 6°, with straight shank acc. DIN 1835/1







**Type HS, ≈ 30° Drallwinkel, 6° Spanwinkel, mit Zylinderschaft nach DIN 1835/1**

**Fraises deux tailles, série courte**  
Type HS, angle d'hélice ≈ 30°, angle de coupe 6°, avec queue cylindrique selon DIN 1835/1



### DIN 844K HSS-Co8

- HSS-Co8
- HSS-Co8 TiCN
- HSS-Co8 TIALN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4408	4408C	4408F
Ød1 k <sub>10</sub>	l <sub>2</sub>	l <sub>1</sub>	Ød <sub>2</sub>	Z	 	 	 
2	7	51	6	4	●	●	●
2,5	8	52	6	4	●	●	●
3	8	52	6	4	●	●	●
3,5	10	54	6	4	●	●	●
4	11	55	6	4	●	●	●
4,5	11	55	6	4	●	●	●
5	13	57	6	4	●	●	●
6	13	57	6	4	●	●	●
7	16	66	10	4	●	●	●
8	19	69	10	4	●	●	●
9	19	69	10	4	●	●	●
10	22	72	10	4	●	●	●
11	22	79	12	4	●	●	●
12	26	83	12	4	●	●	●
13	26	83	12	4	●	●	●
14	26	83	12	4	●	●	●
15	26	83	12	4	●	●	●
16	32	92	16	4	●	●	●
17	32	92	16	4	●	●	●
18	32	92	16	4	●	●	●
19	32	92	16	4	●	●	●
20	38	104	20	4	●	●	●
22	38	104	20	4	●	●	●
24	45	121	25	5	●	●	●
25	45	121	25	5	●	●	●
28	45	121	25	5	●	●	●

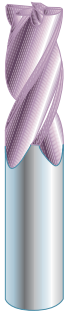
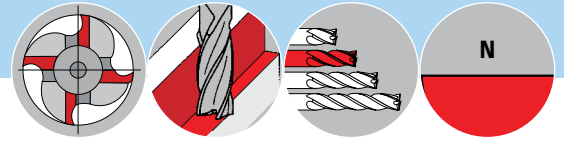
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





# Frese frontali serie corta

## Schafffräser kurze Ausführung

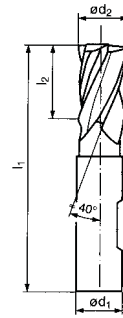


**Tipo N,  $\approx 40^\circ$  elica,  
16° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**End mills, with oil holes, short series**  
Type N, helix angle  $\approx 40^\circ$  rake angle  $16^\circ$ ,  
with straight shank acc. DIN 1835/1









**Typ N  $\approx 40^\circ$  Drallwinkel,  
16° Spanwinkel  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises deux tailles série courte,**  
Type N, angle d'hélice  $\approx 40^\circ$ , angle  
de coupe  $16^\circ$  avec queue cylindrique  
selon DIN 1835/1



### DIN 844K HSS-Co8

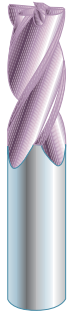
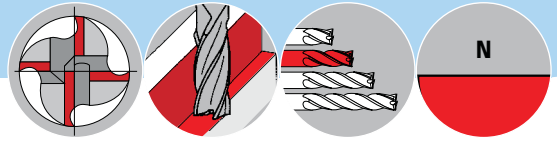
- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN
- HSS-Co8  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4416	4416T	4416C	4416F
<b>ød1</b> k <sub>10</sub>	<b>l<sub>2</sub></b>	<b>l<sub>1</sub></b>	<b>ød<sub>2</sub></b>	<b>Z</b>				
								
<b>3</b>	8	52	6	4	■			
<b>4</b>	11	55	6	4	■			
<b>5</b>	13	57	6	4	■			
<b>6</b>	13	57	6	4		■	■	■
<b>7</b>	16	66	10	4	■			
<b>8</b>	19	69	10	4		■	■	■
<b>9</b>	19	69	10	4	■			
<b>12</b>	26	83	12	4			■	
<b>14</b>	26	83	12	4	■			
<b>15</b>	26	83	12	4	■			
<b>18</b>	32	92	16	4	■			
<b>22</b>	38	104	20	4	■			

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

# Frese frontali a serie corta

## Schafffräser kurze Ausführung

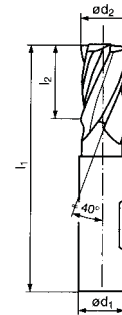


**Tipo N, ≈ 40° elica, 16° angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

**End mills, short series**  
Type N, helix angle ≈ 40° rake angle 16°, with straight shank acc. DIN 1835/1

**Typ N ≈ 40° Drallwinkel, 16° Spanwinkel mit Zylinderschaft nach DIN 1835/1**

**Fraises deux tailles, série courte**  
Type N, angle d'hélice ≈ 40°, angle de coupe 16° avec queue cylindrique selon DIN 1835/1



**DIN 844K ASP-30**

ASP-30

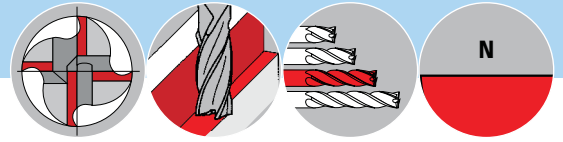
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4466
$\emptyset d1$ k <sub>10</sub>	l <sub>2</sub>	l <sub>1</sub>	$\emptyset d2$	Z	
3	8	52	6	4	
5	13	57	6	4	
7	16	66	10	4	
8	19	69	10	4	
9	19	69	10	4	
10	22	72	10	4	
15	26	83	12	4	
18	32	92	16	4	
25	45	121	25	5	

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese frontali, serie lunga

## Schafffräser lange Ausführung



**Tipo N, ≈ 30° elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

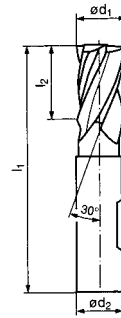
**End mills, long series**

Type N, helix angle ≈ 30° rake angle 12°,  
with straight shank acc. DIN 1835/1





Typ N, ≈ 30° Drallwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1









**Fraises deux tailles, série longue**

Type N, angle d'hélice ≈ 30°, angle  
de coupe 12°, avec queue cylindrique  
selon DIN 1835/1



**DIN 844L  
HSS-Co8**

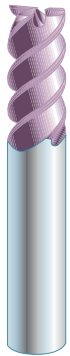
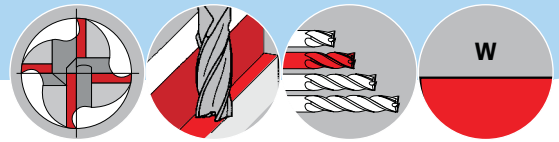
-  HSS-Co8
-  HSS-Co8  
TiN
-  HSS-Co8  
TiCN
-  HSS-Co8  
TiALN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4420	4420T	4420C	4420F
								
								
$\phi d_1$ $k_{10}$	$l_2$	$l_1$	$\phi d_2$	Z				
3	12	56	6	4	●	●	●	●
3,5	15	59	6	4	●	●	●	●
4	19	63	6	4	●	●	●	●
4,5	19	63	6	4	●	●	●	●
5	24	68	6	4	●	●	●	●
6	24	68	6	4	●	●	●	●
7	30	80	10	4	●	●	●	●
8	38	88	10	4	●	●	●	●
9	38	88	10	4	●	●	●	●
10	45	95	10	4	●	●	●	●
11	45	102	12	4	●	●	●	●
12	53	110	12	4	●	●	●	●
13*	53	110	12	4	●	●	●	●
14*	53	110	12	4	●	●	●	●
15*	53	110	12	4	●	●	●	●
16*	63	123	16	4	●	●	●	●
17*	63	123	16	4	●	●	●	●
18*	63	123	16	4	●	●	●	●
20*	75	141	20	4	●	●	●	●
22*	75	141	20	5	●	●	●	●
24*	90	166	25	5	●	●	●	●
25*	90	166	25	5	●	●	●	●
26*	90	166	25	5	●	●	●	●
28*	90	166	25	5	●	●	●	●
30*	90	166	25	5	●	●	●	●
32*	106	186	32	6	●	●	●	●
34*	106	186	32	6	■	●	●	●
36*	106	186	32	6	●	●	●	●
40*	125	217	40	6	●	●	●	●
45*	125	217	40	8	●	●	●	●
50*	150	252	50	8	●	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10

# Frese frontali, serie corta

## Schafffräser kurz

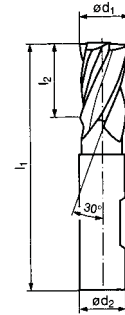


**Tipo W, ≈ 50° elica, 16° angolo di spoglia, con codolo cilindrico secondo DIN 1835A/B**

**End mills, short series**  
Type W, helix angle ≈ 50° rake angle 16°, with straight shank acc. DIN 1835A/B

**Typ W, ≈ 50° Drillwinkel, 16° Spanwinkel, mit Zylinderschaft nach DIN 1835A/B**

**Fraises deux tailles, série courte**  
Type W, angle d'hélice ≈ 50°, angle de coupe 16°, avec queue cylindrique selon DIN 1835A/B



**DIN 844K**  
**HSS-Co8**

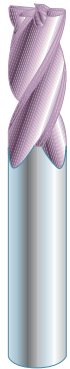
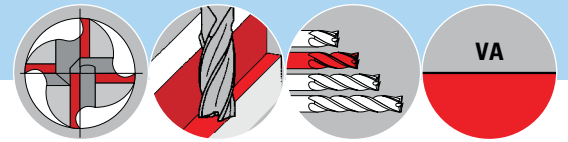
- HSS-Co8
- HSS-Co8 TiCN
- HSS-Co8 TiALN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4333	4333C	4333F	4334	4334C	4334F
<div style="border: 1px solid black; padding: 2px; display: inline-block; color: white; font-weight: bold; background-color: yellow;">HIGH ALLOYS</div>										
Ød1 k <sub>10</sub>	l <sub>2</sub>	l <sub>1</sub>	Ød <sub>2</sub>	Z						
6	13	57	6	3	●	●	●	●	●	●
8	19	69	10	3	●	●	●	●	●	●
10	22	72	10	3	●	●	●	●	●	●
12	26	83	12	4	●	●	●	●	●	●
16	32	92	16	4	●	●	●	●	●	●
20	38	104	20	4	●	●	●	●	●	●
25	45	121	25	4	●	●	●	●	●	●
32	53	133	32	6	●	●	●	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese frontali, serie corta

## Schafffräser kurz

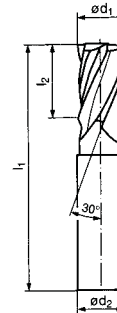


**Tipo VA,  $\approx 40^\circ$  elica,  $16^\circ$  angolo di spoglia, con codolo cilindrico secondo DIN 1835A/B**




**End mills, short series**  
 Type VA, helix angle  $\approx 40^\circ$  rake angle  $16^\circ$ , with straight shank acc. DIN 1835A/B

Typ VA,  $\approx 40^\circ$  Drallwinkel,  $16^\circ$  Spanwinkel, mit Zylinderschaft nach DIN 1835A/B

**Fraises deux tailles, série courte**  
 Type VA, angle d'hélice  $\approx 40^\circ$ , angle de coupe  $16^\circ$ , avec queue cylindrique selon DIN 1835A/B















**DIN 844K  
HSS-Co8**

-  HSS-Co8
-  HSS-Co8  
TiCN
-  HSS-Co8  
TiALN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

**INOX**

					4401	4401C	4401F	4403	4403C	4403F
										
										
$\phi d_1$ $k_{10}$	$l_2$	$l_1$	$\phi d_2$	Z						
2	7	51	6	4	●	●	●	●	●	●
3	8	52	6	4	●	●	●	●	●	●
4	11	55	6	4	●	●	●	●	●	●
5	13	57	6	4	●	●	●	●	●	●
6	13	57	6	4	●	●	●	●	●	●
7	16	66	10	4	●	●	●	●	●	●
8	19	69	10	4	●	●	●	●	●	●
10	22	72	10	4	●	●	●	●	●	●
12	26	83	12	4	●	●	●	●	●	●
14	26	83	12	4	●	●	●	●	●	●
16	32	92	16	4	●	●	●	●	●	●
18	32	92	16	4	●	●	●	●	●	●
20	38	104	20	4	●	●	●	●	●	●
22	38	104	20	6	●	●	●	●	●	●
24	45	121	25	6	●	●	●	●	●	●
25	45	121	25	6	●	●	●	●	●	●
28	45	121	25	6	●	●	●	●	●	●
30	45	121	25	6	●	●	●	●	●	●
32	53	133	32	6	●	●	●	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock



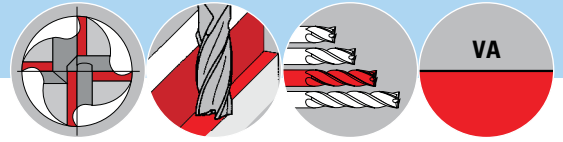






# Frese frontali, serie lunga

## Schaftfräser lang

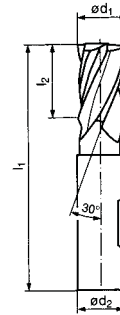


**Tipo VA,  $\approx 40^\circ$  elica,  
16° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835A/B**

**End mills with oil holes, short series**  
Type VA, helix angle  $\approx 40^\circ$  rake angle  
16°, with straight shank acc. DIN  
1835A/B

**Type VA,  $\approx 40^\circ$  Drallwinkel,  
16° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835A/B**

**Fraises deux tailles série longue**  
Type VA, angle d'hélice  $\approx 40^\circ$ , angle  
de coupe 16°, avec queue cylindrique  
selon DIN 1835A/B









**DIN 844L  
ASP-60**

-  ASP-60
-  ASP-60 TiCN
-  ASP-60 TiALN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

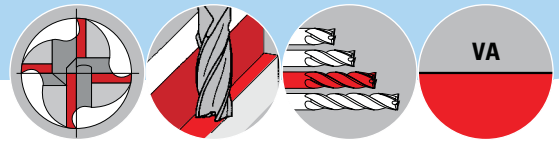
**INOX**

$\phi d_1$ $k_{10}$	$l_2$	$l_1$	$\phi d_2$	Z				4425	4425C	4425F
										
4	19	63	6	4						
5	24	68	6	4			●	●	●	
6	24	68	6	4			●	●	●	
7	30	80	10	4			●	●	●	
8	38	88	10	4			●	●	●	
10	45	95	10	4			●	●	●	
12	53	110	12	4			●	●	●	
14	53	110	12	4			●	●	●	
16	63	123	16	4			●	●	●	
18	63	123	16	4			●	●	●	
20	75	141	20	4			●	●	●	
22	75	141	20	4			●	●	●	
25	90	166	25	6			●	●	●	
28	90	166	25	6			●	●	●	
30	90	166	25	6			●	●	●	
32	106	186	32	6			●	●	●	

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese frontali, serie lunga

## Schafffräser lang

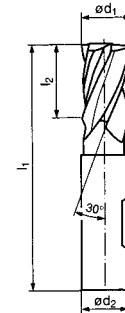


**Tipo VA,  $\approx 40^\circ$  elica,  
16° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835A/B**

**End mills with oil holes, short series**  
Type VA, helix angle  $\approx 40^\circ$  rake angle  
16°, with straight shank acc. DIN  
1835A/B

**Type VA,  $\approx 40^\circ$  Drallwinkel,  
16° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835A/B**

**Fraises deux tailles série longue**  
Type VA, angle d'hélice  $\approx 40^\circ$ , angle  
de coupe 16°, avec queue cylindrique  
selon DIN 1835A/B



**DIN 844L  
ASP-60**

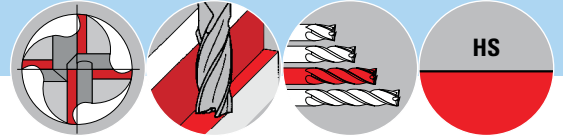
- ASP-60
- ASP-60  
TiCN
- ASP-60  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4427	4427C	4427F
<b>INOX</b>							
$\phi d_1$ k <sub>10</sub>	l <sub>2</sub>	l <sub>1</sub>	$\phi d_2$	Z			
4	19	63	6	4	●	●	●
5	24	68	6	4	●	●	●
6	24	68	6	4	●	●	●
7	30	80	10	4	●	●	●
8	38	88	10	4	●	●	●
10	45	95	10	4	●	●	●
12	53	110	12	4	●	●	●
14	53	110	12	4	●	●	●
16	63	123	16	4	●	●	●
18	63	123	16	4	●	●	●
20	75	141	20	4	●	●	●
22	75	141	20	4	●	●	●
25	90	166	25	6	●	●	●
28	90	166	25	6	●	●	●
30	90	166	25	6	●	●	●
32	106	186	32	6	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock



# Frese frontali, serie lunga Schafffräser lange Ausführung

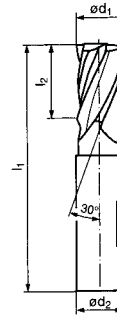


**Tipo HS,  $\approx 30^\circ$  elica,  
6° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**End mills long series**  
Type HS, helix angle  $\approx 30^\circ$  rake angle  $6^\circ$ ,  
with straight shank acc. DIN 1835/1

**Typ HS,  $\approx 30^\circ$  Drallwinkel,  
6° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises deux tailles série longue**  
Type HS, angle d'hélice  $\approx 30^\circ$ , angle de  
coupe  $6^\circ$ , avec queue cylindrique selon  
DIN 1835/1



**DIN 844L  
HSS-Co8**

HSS-Co8

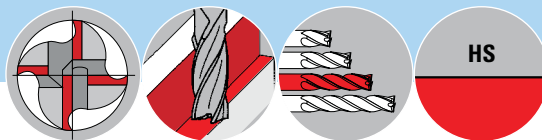
HSS-Co8  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.									4424	4424C
<b>Ød1 k<sub>10</sub></b>	<b>l<sub>2</sub></b>	<b>l<sub>1</sub></b>	<b>Ød<sub>2</sub></b>	<b>Z</b>						
4	19	63	6	4				●	●	
5	24	68	6	4				●	●	
6	24	68	6	4				●	●	
8	38	88	10	4				●	●	
10	45	95	10	4				●	●	
12	53	110	12	4				●	●	
14	53	110	12	4				●	●	
16	63	123	16	4				●	●	
18	63	123	16	4				●	●	
20	75	141	20	4				●	●	
22	75	141	20	5				●	●	
25	90	166	25	5				●	●	
28	90	166	25	5				●	●	

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese frontali, serie lunga

## Schaftfräser lange Ausführung



**Tipo HS,  $\approx 30^\circ$  elica,  $6^\circ$  angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

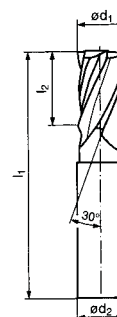
### End mills, short series

Type HS, helix angle  $\approx 30^\circ$  rake angle  $6^\circ$ , with straight shank acc. DIN 1835/1

Type HS,  $\approx 30^\circ$  Drallwinkel,  $6^\circ$  Spanwinkel, mit Zylinderschaft nach DIN 1835/1

### Fraises deux tailles, série courte






Type HS, angle d'hélice  $\approx 30^\circ$ , angle de coupe  $6^\circ$ , avec queue cylindrique selon DIN 1835/1



## DIN 844L ASP-30

ASP-30

ASP-30 TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					4474	4474C
$\phi d_1$ $k_{10}$	$l_2$	$l_1$	$\phi d_2$	Z		
						
4	19	63	6	4	●	●
5	24	68	6	4	●	●
6	24	68	6	4	●	●
8	38	88	10	4	●	●
10	45	95	10	4	●	●
12	53	110	12	4	●	●
14	53	110	12	4	●	●
16	63	123	16	4	●	●
18	63	123	16	4	●	●
20	75	141	20	4	●	●
22	75	141	20	5	●	●
25	90	166	25	5	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





## Ordini & Consegna

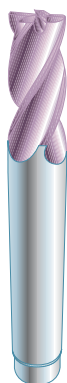
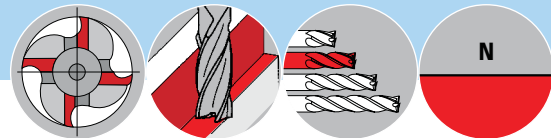
La merce viene evasa quotidianamente e consegnata al cliente in qualunque punto d'Italia attraverso il mezzo di spedizione richiesto.

Al massimo entro le 24 ore successive gli utensili sono recapitati e pronti per l'uso.

La consegna avviene sia di mattina che di pomeriggio. Al momento dell'ordine il cliente può in alternativa segnalare un corriere di sua fiducia oppure utilizzare un proprio vettore per il trasporto.

# Frese frontali, serie corta

## Schafffräser kurze Ausführung



**Tipo N, ≈ 30° elica,  
12° angolo di spoglia,  
con codolo conico Morse  
DIN 228/1**

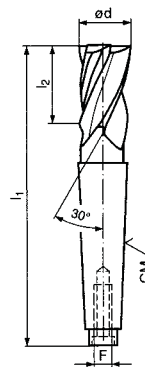
**End mills, short series**

Type N, helix angle ≈ 30° rake angle 12°, with Morse taper shank acc. DIN 228/1

**Typ N, ≈ 30° Drallwinkel,  
12° Spanwinkel,  
mit Morsekegelshaft nach  
DIN 228/1**

**Fraises deux tailles, série courte**

Type N, angle d'hélice ≈ 30°, angle de coupe 12°, avec queue cône Morse selon DIN 228/1



**DIN 845K  
HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

4432

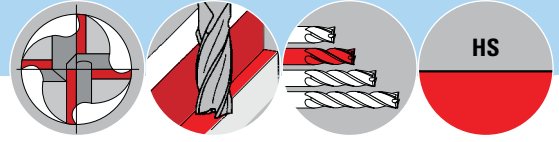
Ød1 K10	l <sub>2</sub>	l <sub>1</sub>	CM	F	Z				
6 <sup>▲</sup>	13	80	1	M 6	4				●
8 <sup>▲</sup>	19	89	1	M 6	4				●
10	22	92	1	M 6	4				●
11	22	92	1	M 6	4				●
12	26	96	1	M 6	4				●
13	26	96	1	M 6	4				●
14	26	111	2	M 10	4				●
15	26	111	2	M 10	4				●
16	32	117	2	M 10	4				●
17	32	117	2	M 10	4				●
18	32	117	2	M 10	4				●
19	32	117	2	M 10	4				●
20	38	123	2	M 10	4				●
21	38	123	2	M 10	5				●
22	38	123	2	M 10	5				●
23	38	123	2	M 10	5				●
24	45	147	3	M 12	5				●
25	45	147	3	M 12	5				●
26	45	147	3	M 12	5				●
27	45	147	3	M 12	5				●
28	45	147	3	M 12	5				●
29	45	147	3	M 12	5				●
30	45	147	3	M 12	5				●
32*	53	201	4	M 16	6				●
34*	53	201	4	M 16	6				●
35*	53	201	4	M 16	6				●
36*	53	201	4	M 16	6				●
38*	63	211	4	M 16	6				●
40*	63	211	4	M 16	6				●
45*	63	211	4	M 16	8				●
50*	75	261	5	M 20	8				●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10  
 ▲ ILLICO NORM



# Frese frontali, serie corta

## Schafffräser kurze Ausführung

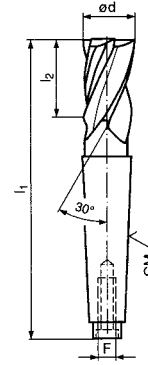


**Tipo HS,  $\approx 30^\circ$  elica,  
12° angolo di spoglia,  
con codolo conico Morse  
secondo DIN 228/1**

**End mills, short series**  
Type HS, helix angle  $\approx 30^\circ$  rake angle  $12^\circ$ ,  
with Morse taper shank acc. DIN 228/1


















Typ HS,  $\approx 30^\circ$  Drallwinkel,  
12° Spanwinkel,  
mit Morsekegelshaft nach  
DIN 228/1

**Fraises deux tailles, série courte**  
Type HS, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe  $12^\circ$ , avec queue  
cône Morse selon DIN 228/1



**DIN 845K  
HSS-Co8**

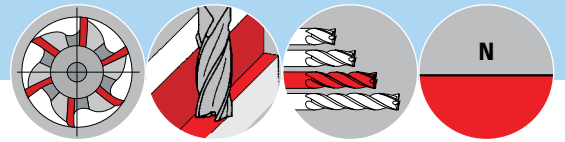
- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4434	4434T	4434C
$\varnothing d_1$ $k_{10}$	$l_2$	$l_1$	CM	F	Z	 	 	 
12	26	96	1	M 6	4			
16	32	117	2	M 10	4			
25	45	147	3	M 12	5			
28	45	147	3	M 12	5			
32*	53	201	4	M 16	6			

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
\* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10

# Frese frontali, serie lunga

## Schafffräser lange Ausführung

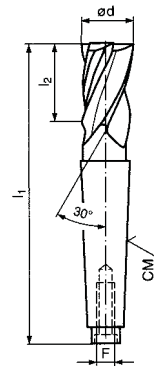


**Tipo N, ≈ 30° elica,  
12° angolo di spoglia,  
con codolo conico Morse  
secondo DIN 228/1**

**End mills, long series**  
Type N, helix angle ≈ 30° rake angle 12°,  
with Morse taper shank acc. DIN 228/1
















**Typ N, ≈ 30° Drallwinkel,  
12° Spanwinkel,  
mit Morsekegelshaft nach  
DIN 228/1**

**Fraises deux tailles, série longue**  
Type N, angle ≈ 30°, angle de coupe 12°,  
avec queue cône Morse selon DIN 228/1



**DIN 845L  
HSS-Co5**

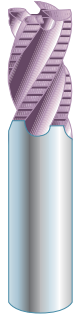
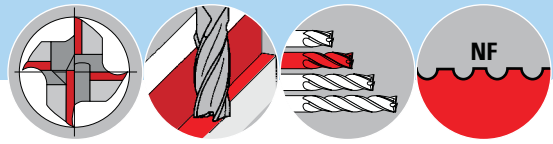
 HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.												4436
$\phi d_1$ K <sub>10</sub>	$l_2$	$l_1$	CM	F	Z							
10	45	115	1	M 6	4							
12	53	123	1	M 10	4							
14	53	138	2	M 10	4							
15	53	138	2	M 10	4							
18	63	148	2	M 10	4							
20	75	160	2	M 10	4							
25	90	192	3	M 12	5							
30	90	192	3	M 12	5							
32*	106	254	4	M 16	6							
36*	106	254	4	M 16	6							
40*	125	273	4	M 16	6							
45*	125	273	4	M 16	8							
50*	150	336	5	M 20	8							
56	150	336	5	M 20	8							

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10

# Frese frontali, serie corta

## Schafffräser kurze Ausführung

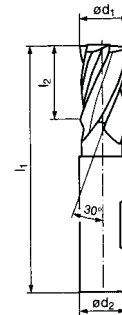


**Tipo NF,  $\approx 30^\circ$  elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**End mills, short series**  
Type NF, helix angle  $\approx 30^\circ$  rake angle  
12°, with straight shank acc. DIN 1835/1

**Typ NF,  $\approx 30^\circ$  Drallwinkel,  
12° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises deux tailles, série courte**  
Type NF, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe 12°, avec queue cylindrique  
selon DIN 1835/1



**DIN 844K  
HSS-Co8**

- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN
- HSS-Co8  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					5400	5400T	5400C	5400F
$\phi d_1$ K <sub>10</sub>	$l_2$	$l_1$	$\phi d_2$	Z				
6	13	57	6	4	●	●	●	●
7	16	66	10	4	●	●	●	●
8	19	69	10	4	●	●	●	●
9	19	69	10	4	●	●	●	●
10	22	72	10	4	●	●	●	●
11	22	79	12	4	●	●	●	●
12	26	83	12	4	●	●	●	●
13	26	83	12	4	●	●	●	●
14	26	83	12	4	●	●	●	●
15	26	83	12	4	●	●	●	●
16	32	92	16	4	●	●	●	●
18	32	92	16	4	●	●	●	●
20	38	104	20	4	●	●	●	●
22*	38	104	20	4	●	●	●	●
24*	45	121	25	4	●	●	●	●
25*	45	121	25	4	●	●	●	●
26*	45	121	25	5	●	●	●	●
28*	45	121	25	5	●	●	●	●
30*	45	121	25	5	●	●	●	●
32*	53	133	32	6	●	●	●	●
34*	53	133	32	6	■	●	●	●
36*	53	133	32	6	●	■	■	■
40*	63	155	40	6	■	●	●	●

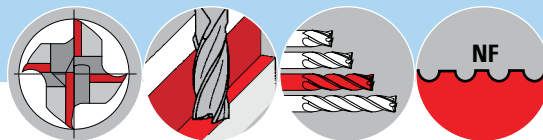
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10





# Frese frontali, serie lunga

## Schaftfräser lange Ausführung



**Tipo NF,  $\approx 30^\circ$  elica,  
12° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

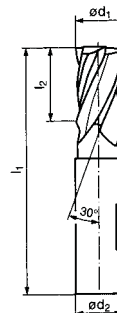
### End mills, long series

Type NF, helix angle  $\approx 30^\circ$  rake angle  $12^\circ$ ,  
with straight shank acc. DIN 1835/1




Typ NF,  $\approx 30^\circ$  Drallwinkel,  
12° Spanwinkel,  
mit zylindershaft nach  
DIN 1835/1







### Fraises deux tailles, série longue

Type NF, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe  $12^\circ$ , avec queue cylindrique  
Morse selon DIN 1835/1



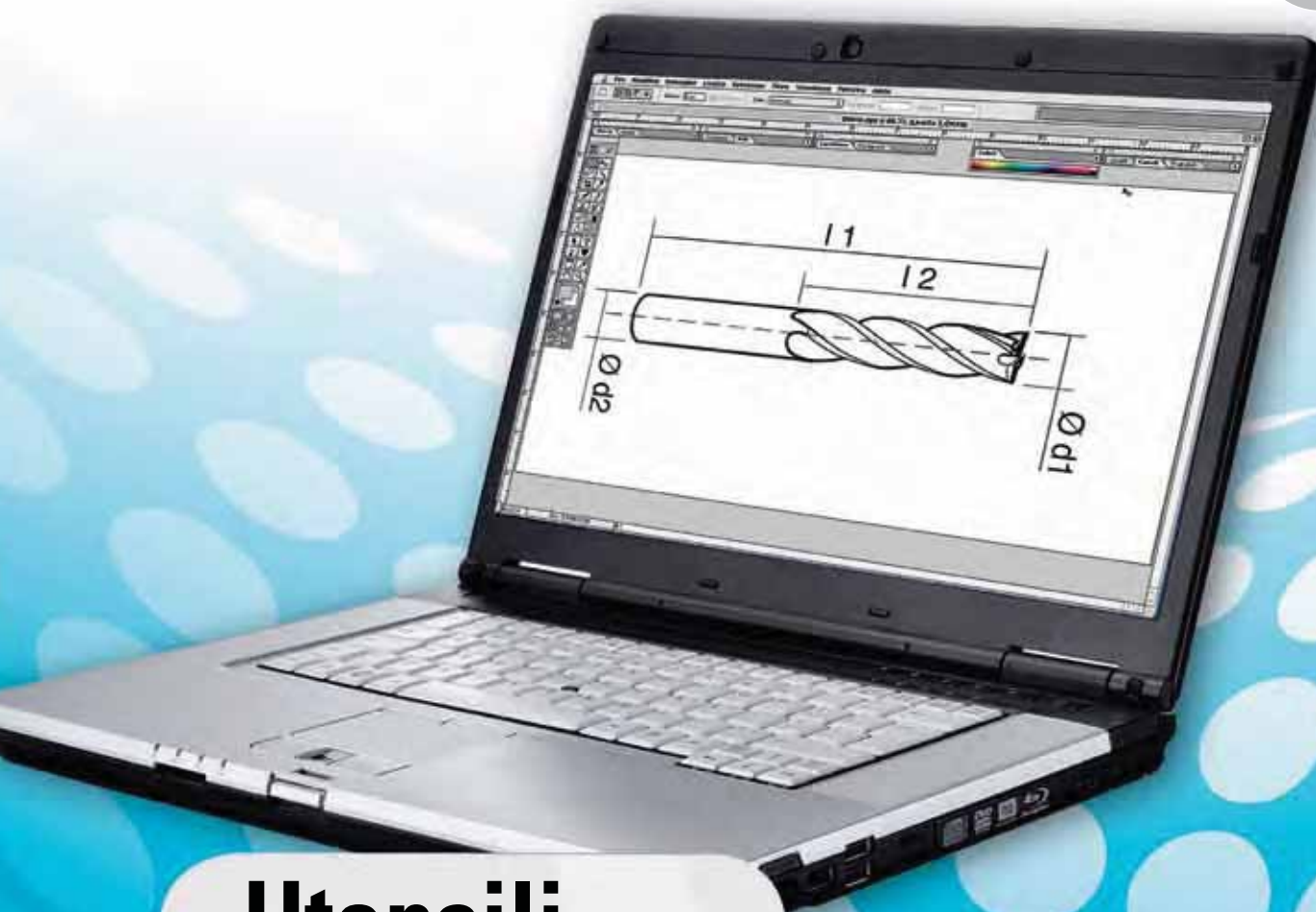
**DIN 844L  
HSS-Co8**

-  HSS-Co8
-  HSS-Co8  
TiN
-  HSS-Co8  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					5408	5408T	5408C
$\phi d_1$ K <sub>12</sub>	$l_2$	$l_1$	$\phi d_2$	Z	 	 	 
6	24	68	6	4	●	●	●
8	38	88	10	4	●	●	●
10	45	95	10	4	●	●	●
11	45	102	12	4	●	●	●
12	53	110	12	4	●	●	●
13*	53	110	12	4	●	●	●
14*	53	110	12	4	●	●	●
15*	53	110	12	4	●	●	●
16*	63	123	16	4	●	●	●
18*	63	123	16	4	●	●	●
20*	75	141	20	4	●	●	●
22*	75	141	20	4	●	●	●
24*	90	166	25	4	●	●	●
25*	90	166	25	4	●	●	●
26*	90	166	25	5	●	●	●
28*	90	166	25	5	●	●	●
30*	90	166	25	5	●	●	●
32*	106	186	32	6	●	●	●
34*	106	186	32	6	■	●	●
35*	106	186	32	6	●	■	■
36*	106	186	32	6	●	■	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10





# Utensili speciali

Presso la sede dell'Angelo Ghezzi Spa è stato creato l'Ufficio Richieste Utensili Speciali che offre un servizio di realizzazione di frese speciali non a catalogo.

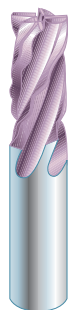
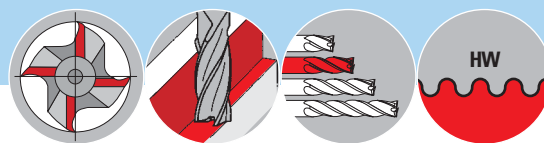
Una volta vagliato il progetto, l'ufficio invia immediatamente l'ordine ai tecnici ILLI-CO per la sua realizzazione.

L'utensile speciale è prodotto e controllato dagli stabilimenti ILLI-CO utilizzando i migliori materiali di produzione.



# Frese frontali, HARD-WAVE, serie corta

## Schaftfräser kurz HARD-WAVE

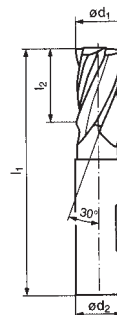


≈ 30° elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1

End mills **HARD-WAVE**, short series  
helix angle ≈ 30° rake angle 10°,  
with straight shank acc. DIN 1835/1

≈ 30° Drallwinkel,  
10° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1

Fraises deux tailles **HARD-WAVE**, série courte  
angle d'hélice ≈ 30°, angle de coupe 10°,  
avec queue cylindrique selon DIN 1835/1



**DIN 844K  
ASP-30**

ASP-30

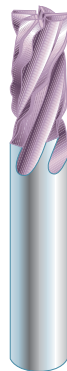
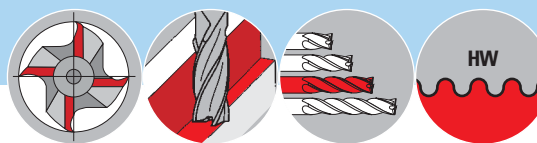
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.										5450
Ød1 K <sub>10</sub>	l <sub>2</sub>	l <sub>1</sub>	Ød <sub>2</sub>	Z						
12	26	83	12	4						●
14	26	83	12	4						●
16	32	92	16	4						●
18	32	92	16	4						●
20	38	104	20	4						●
22	38	104	20	4						●
25	45	121	25	4						●
30	45	121	25	4						●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock



# Frese frontali, HARD-WAVE, serie lunga

## Schaftfräser lang HARD-WAVE

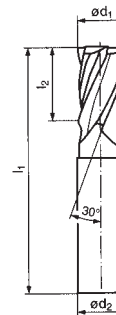


≈ 30° elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1

≈ 30° Drallwinkel,  
10° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1



**End mills, long series**  
helix angle ≈ 30° rake angle 10°,  
with straight shank acc. DIN 1835/1

**Fraises deux tailles, série longue**  
angle d'hélice ≈ 30°, angle de coupe 10°,  
avec queue cylindrique selon DIN 1835/1



**DIN 844L  
ASP-30**

ASP-30

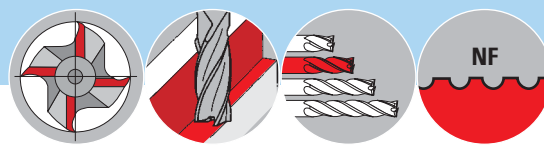
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					5460
					
					
Ød1 K <sub>10</sub>	l <sub>2</sub>	l <sub>1</sub>	Ød <sub>2</sub>	Z	
12	53	110	12	4	●
14	53	110	12	4	●
16	63	123	16	4	●
18	63	123	16	4	●
20	75	141	20	4	●
22	75	141	20	4	●
25	90	166	25	4	●
28	90	166	25	4	●
30	90	166	25	4	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock



# Frese frontali, serie corta

## Schaftfräser kurze Ausführung

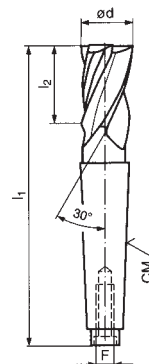


**Tipo NF, ≈ 30° elica, 12° angolo di spoglia, con codolo conico Morse secondo DIN 228/1**

**End mills, short series**  
Type NF, helix angle ≈ 30° rake angle 12°, with Morse tapel shank acc. DIN 228/1

Typ NF, ≈ 30° Drallwinkel, 12° Spanwinkel, mit Morsekegelschaft nach DIN 228/1

**Fraises deux tailles, série courte**  
Type NF, angle d'hélice ≈ 30°, angle de coupe 12°, avec queue cône Morse selon DIN 228/1



**DIN 845K**  
**HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

5416

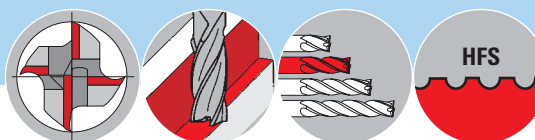
Ød1 K <sub>12</sub>	l <sub>2</sub>	l <sub>1</sub>	CM	F	Z				
11	22	92	1	M 6	4				■
12	26	96	1	M 6	4				■
13	26	96	1	M 6	4				■
14	26	111	2	M 10	4				■
16	32	117	2	M 10	4				■
18	32	117	2	M 10	4				■
19	32	117	2	M 10	4				■
20	38	123	2	M 10	4				■
22	38	123	2	M 10	4				■
24	45	147	3	M 12	4				■
26	45	147	3	M 12	5				■
28	45	147	3	M 12	5				■
32*	53	201	4	M 16	6				■
34*	53	201	4	M 16	6				■
35*	53	201	4	M 16	6				■
36*	53	201	4	M 16	6				■
38*	63	211	4	M 16	6				■
40*	63	211	4	M 16	6				■
45*	63	211	4	M 16	6				■
50*	75	261	5	M 20	8				■

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
\* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10



# Frese frontali, serie corta

## Schaftfräser kurze Ausführung

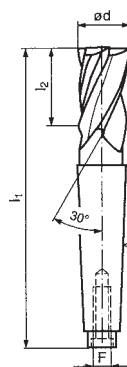


**Tipo HFS, ≈ 30° elica,  
10° angolo di spoglia,  
con codolo conico Morse  
secondo DIN 228/1**

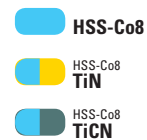
**End mills, short series**  
Type HFS, helix angle ≈ 30° rake angle 10°,  
with Morse taper shank acc. DIN 228/1

**Typ HFS, ≈ 30° Drallwinkel,  
10° Spanwinkel,  
mit Morsekegelschaft nach  
DIN 228/1**

**Fraises deux tailles, série courte**  
Type HFS, angle d'hélice ≈ 30°, angle  
de coupe 10°, avec queue cône Morse  
selon DIN 228/1



**DIN 845K  
HSS-Co8**



Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						5418	5418T	5418C
<b>Ød1</b> K <sub>12</sub>	l <sub>2</sub>	l <sub>1</sub>	CM	F	Z			
12	26	96	1	M 6	4			
16	32	117	2	M 10	4			
32*	53	201	4	M 16	6			

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
\* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10









# Acquisti on line

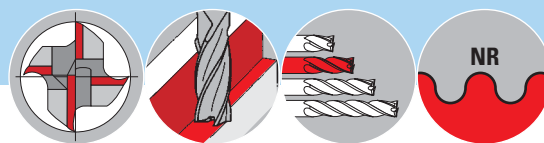
E' in elaborazione il nuovo sito Internet della Angelo Ghezzi Spa.  
Collegandovi all'indirizzo [www.angeloghezzi.it](http://www.angeloghezzi.it) potrete eseguire direttamente numerose operazioni, tra cui, per esempio, verificare direttamente la giacenza dei prodotti in magazzino e prenotare l'ordine della merce in qualunque momento della giornata. Questa funzione sarà accompagnata dal rafforzamento della struttura di dialogo con l'Ufficio Tecnico. E' previsto anche uno spazio informativo sulle ultime soluzioni proposte dal mercato attraverso le offerte delle case produttrici che collaborano con l'Angelo Ghezzi Spa.





# Frese frontali, serie corta

## Schaftfräser kurze Ausführung

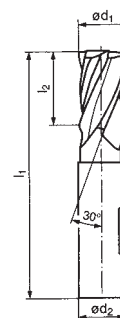


**Tipo NR ≈ 30° elica,  
14° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**Type NR End mills, short series**  
helix angle ≈ 30° rake angle 14°,  
with straight shank acc. DIN 1835/1

**Typ NR ≈ 30° Drallwinkel,  
14° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Type NR Fraises deux tailles, série  
courte**  
angle d'hélice ≈ 30°, angle de coupe 14°,  
avec queue cylindrique selon DIN 1835/1



**DIN 844K  
HSS-Co8**

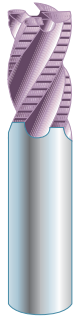
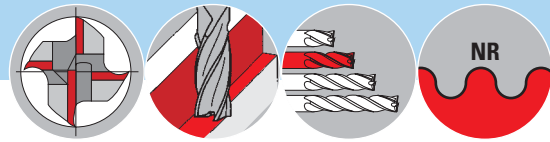
- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN
- HSS-Co8  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7404	7406	7404T	7404C	7404F
$\phi d_1$	$l_2$	$l_1$	$\phi d_2$	Z					
$K_{12}$									
6	13	57	6	4	●	■	●	●	●
7	16	66	10	4	●	■	●	●	●
8	19	69	10	4	●	■	●	●	●
9	19	69	10	4	●	■	●	●	●
10	22	72	10	4	●	■	●	●	●
11	22	79	12	4	●	■	●	●	●
12	26	83	12	4	●	■	●	●	●
13	26	83	12	4	●	■	●	●	●
14	26	83	12	4	●	■	●	●	●
15	26	83	12	4	●	■	●	●	●
16	32	92	16	4	●	■	●	●	●
17	32	92	16	4	●	■	●	●	●
18	32	92	16	4	●	■	●	●	●
19	32	92	16	4	●	■	●	●	●
20	38	104	20	4	●	■	●	●	●
22*	38	104	20	4	●	■	●	●	●
24*	45	121	25	4	●	■	●	●	●
25*	45	121	25	4	●	■	●	●	●
26*	45	121	25	5	●	■	●	●	●
28*	45	121	25	5	●	■	●	●	●
30*	45	121	25	5	●	■	●	●	●
32*	53	133	32	6	●	■	●	●	●
35*	53	133	32	6	●	■	■	■	●
36*	53	133	32	6	●	■	●	●	●
40*	63	155	40	6	●	■	●	●	●
45 <sup>▲</sup> *	63	143	32	6	●	■	●	●	●
50*	75	177	50	8	■	■	■	■	●

- Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock
- Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock
- \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10
- ▲ ILLICO NORM

# Frese frontali, serie corta

## Schaftfräser kurze Ausführung

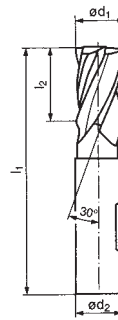


**Tipo NR  $\approx 30^\circ$  elica,  
14° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**End mills, short series**  
Type NR, helix angle  $\approx 30^\circ$  rake angle  $14^\circ$ ,  
with straight shank acc. DIN 1835/1

**Typ NR  $\approx 30^\circ$  Drallwinkel,  
14° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises deux tailles, série courte**  
Type NR, angle d'hélice  $\approx 30^\circ$ ,  
angle de coupe  $14^\circ$ , avec queue  
cylindrique selon DIN 1835/1



**DIN 844K  
ASP-30**

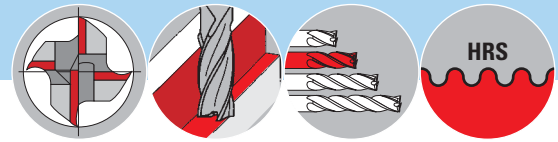
- ASP-30
- ASP-30 TiN
- ASP-30 TiCN
- ASP-30 TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7454	7454T	7454C	7454F
$\phi d_1$ K <sub>12</sub>	$l_2$	$l_1$	$\phi d_2$	Z				
6	13	57	6	4	●	●	●	●
8	19	69	10	4	●	●	●	●
10	22	72	10	4	●	●	●	●
12	26	83	12	4	●	●	●	●
14	26	83	12	4	●	●	●	●
15	26	83	12	4	●	●	●	●
16	32	92	16	4	●	●	●	●
18	32	92	16	4	●	●	●	●
19	32	92	16	4	■	■	●	●
20	38	104	20	4	●	●	●	●
22	38	104	20	4	●	■	●	●
24	45	121	25	4	■	■	■	■
25	45	121	25	4	●	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

# Frese frontali, serie corta

## Schaftfräser kurze Ausführung

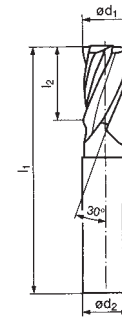


**Tipo HRS, ≈ 30° elica, 10° angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

**End mills, short series**  
Type HRS, helix angle ≈ 30° rake angle 10°, with straight shank acc. DIN 1835/1

**Typ HRS, ≈ 30° Drallwinkel, 10° Spanwinkel, mit Zylinderschaft nach DIN 1835/1**

**Fraises deux tailles, série courte**  
Type HRS, angle d'hélice ≈ 30°, angle de coupe 10°, avec queue cylindrique selon DIN 1835/1



**DIN 844K  
HSS-Co8**

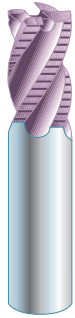
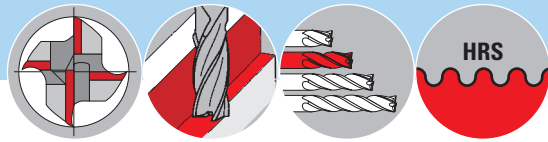
- HSS-Co8
- HSS-Co8 TiCN
- HSS-Co8 TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7408	7408C	7408F
$\phi d_1$	$l_2$	$l_1$	$\phi d_2$	Z			
$k_{12}$							
4	11	55	6	3	●	●	●
5	13	57	6	3	●	●	●
6	13	57	6	4	●	●	●
8	19	69	10	4	●	●	●
10	22	72	10	4	●	●	●
12	26	83	12	4	●	●	●
14	26	83	12	4	●	●	●
16	32	92	16	4	●	●	●
18	32	92	16	4	●	●	●
20	38	104	20	4	●	●	●
22	38	104	20	4	●	●	●
24	45	121	25	4	●	●	●
25	45	121	25	4	●	●	●
28	45	121	25	5	●	●	●
30	45	121	25	5	●	●	●
32	53	133	32	6	●	●	●
36	53	133	32	6	●	●	●
40 <sup>▲</sup>	63	143	40	6	●	●	●
45 <sup>▲</sup>	63	143	32	6	●	●	●
50 <sup>▲</sup>	63	143	32	8	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
▲ ILLICO NORM

# Frese frontali, serie corta

## Schaftfräser kurze Ausführung



**Tipo HRS, ≈ 30° elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

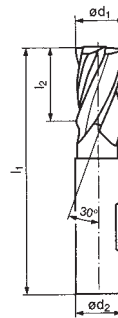
**End mills, short series**

Type HRS, helix angle ≈ 30° rake angle 10°,  
with straight shank acc. DIN 1835/1

**Typ HRS, ≈ 30° Drallwinkel,  
10° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises deux tailles, série courte**

Type HRS, angle d'hélice ≈ 30°, angle  
de coupe 10°, avec queue cylindrique  
selon DIN 1835/1



### DIN 844K ASP-30

- ASP-30
- ASP-30  
TiCN
- ASP-30  
TiAlN FUTURA®

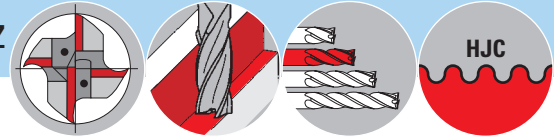
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7458	7458C	7458F
					<span style="color: pink;">●</span> 	<span style="color: green;">●</span> 	<span style="color: purple;">●</span> 
<b>ød1</b> k <sub>12</sub>	l <sub>2</sub>	l <sub>1</sub>	ød <sub>2</sub>	Z			
<b>6</b>	13	57	6	4	●	●	●
<b>8</b>	19	69	10	4	●	●	●
<b>10</b>	22	72	10	4	●	●	●
<b>12</b>	26	83	12	4	●	●	●
<b>14</b>	26	83	12	4	●	●	●
<b>16</b>	32	92	16	4	●	●	●
<b>18</b>	32	92	16	4	●	●	●
<b>20</b>	38	104	20	4	●	●	●
<b>22</b>	38	104	20	4	●	●	●
<b>24</b>	45	121	25	4	●	●	●
<b>25</b>	45	121	25	4	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





**Frese frontali, jet-cut, serie corta con fori di lubrificazione**  
**Schafffräser mit innerer Kühlmittelzufuhr kurz**

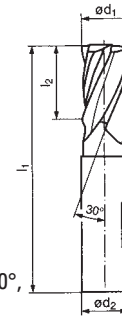


**Tipo HJC,  $\approx 30^\circ$  elica,  $10^\circ$  angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

**End mills, with oil holes, short series**  
 Type HJC, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ , with straight shank acc. DIN 1835/1

Typ HJC,  $\approx 30^\circ$  Drallwinkel,  $10^\circ$  Spanwinkel, mit Zylinderschaft nach DIN 1835/1

**Fraises deux tailles avec trous d'huile, série courte**  
 Type HJC, angle d'hélice  $\approx 30^\circ$ , angle de coupe  $10^\circ$ , avec queue cylindrique selon DIN 1835/1



**DIN 844K**  
**HSS-Co8**

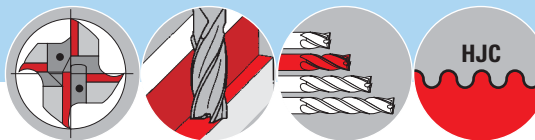
- HSS-Co8
- HSS-Co8 TiCN
- HSS-Co8 TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7484	7484C	7484F
<b><math>\phi d_1</math></b>	$l_2$	$l_1$	$\phi d_2$	Z			
$k_{10}$							
<b>16</b>	32	92	16	4	●	●	●
<b>20</b>	38	104	20	4	●	●	●
<b>25</b>	45	121	25	5	●	●	●
<b>32</b>	53	133	32	6	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese frontali, jet-cut serie corta con fori di lubrificazione

## Schafffräser mit innerer Kühlmittelzufuhr kurz

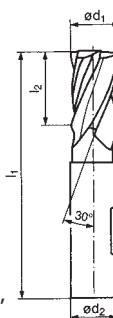


**Tipo HJC,  $\approx 30^\circ$  elica,  
 $10^\circ$  angolo di spoglia,  
 con codolo cilindrico  
 secondo DIN 1835/1**

**End mills, with oil holes short series**  
 Type HJC, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ ,  
 with straight shank acc. DIN 1835/1

**Typ HJC,  $\approx 30^\circ$  Drallwinkel,  
 $10^\circ$  Spanwinkel,  
 mit Zylinderschaft nach  
 DIN 1835/1**

**Fraises deux tailles, avec trous l'huile,  
 série courte**  
 Type HJC, angle d'hélice  $\approx 30^\circ$ , angle de coupe  $10^\circ$ ,  
 avec queue cylindrique selon DIN 1835/1



**DIN 844K  
 HSS-Co8**

- HSS-Co8
- HSS-Co8  
TiCN

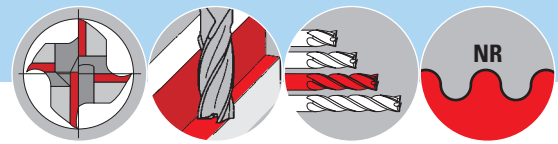
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.									7486	7486C
$\frac{\phi d_1}{k_{10}}$	$l_2$	$l_1$	$\phi d_2$	Z						
<b>16</b>	32	92	16	4						
<b>20</b>	38	104	20	4						
<b>25</b>	45	121	25	5						
<b>32</b>	53	133	32	6						

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock



# Frese frontali, serie lunga

## Schaftfräser lange Ausführung

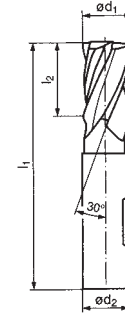


**Tipo NR, ≈ 30° elica,  
14° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**End mills, long series**  
Type NR, helix angle ≈ 30° rake angle 14°,  
with straight shank acc. DIN 1835/1

Typ NR, ≈ 30° Drallwinkel,  
14° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1

**Fraises deux tailles, série longue**  
Type NR, angle d'hélice ≈ 30°, angle  
de coupe 14°, avec queue cylindrique  
selon DIN 1835/1



**DIN 844L  
HSS-Co8**

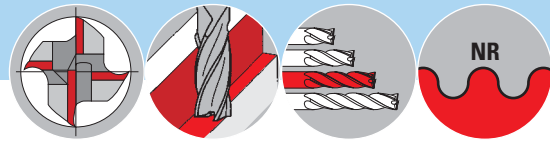
- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN
- HSS-Co8  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7412	7414	7412T	7412C	7412F
<b>Ød1</b> k <sub>12</sub>	<b>l<sub>2</sub></b>	<b>l<sub>1</sub></b>	<b>Ød<sub>2</sub></b>	<b>Z</b>					
6	24	68	6	4	●	■	●	●	●
8	38	88	10	4	●	■	●	●	●
9	38	88	10	4	●	■	●	●	●
10	45	95	10	4	●	■	●	●	●
11	45	102	12	4	●	■	●	●	●
12	53	110	12	4	●	■	●	●	●
13*	53	110	12	4	●	■	●	●	●
14	53	110	12	4	●	■	●	●	●
15	53	110	12	4	●	■	●	●	●
16	63	123	16	4	●	■	●	●	●
18	63	123	16	4	●	■	●	●	●
20	75	141	20	4	●	■	●	●	●
22	75	141	20	4	●	■	●	●	●
24	90	166	25	4	●	■	●	●	●
25	90	166	25	4	●	■	●	●	●
26	90	166	25	5	●	■	●	●	●
28	90	166	25	5	●	■	●	●	●
30	90	166	25	5	●	■	●	●	●
32	106	186	32	6	●	■	●	●	●
34	106	186	32	6	■	■	■	■	●
35	106	186	32	6	■	■	■	■	●
36	106	186	32	6	●	■	●	●	●
40	125	217	40	6	●	■	●	●	●
45	125	217	40	6	■	■	■	■	●

- Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock
- Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock
- \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10

# Frese frontali, serie lunga

## Schaftfräser lange Ausführung

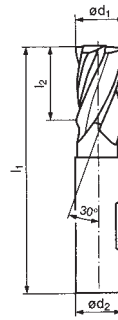


**Tipo NR, ≈ 30° elica,  
14° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**End mills, long series**  
Type NR, helix angle ≈ 30° rake angle 14°,  
with straight shank acc. DIN 1835/1







**Typ NR, ≈ 30° Drallwinkel,  
14° Spanwinkel,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises deux tailles, série longue**  
Type NR, angle d'hélice ≈ 30°, angle  
de coupe 14°, avec queue cylindrique  
selon DIN 1835/1



**DIN 844L  
ASP-30**

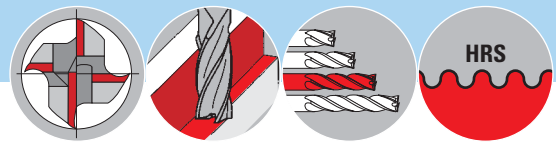
-  ASP-30
-  ASP-30  
TiN
-  ASP-30  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7462	7462T	7462C
							
							
$\phi d_1$ $k_{12}$	$l_2$	$l_1$	$\phi d_2$	Z			
6	24	68	6	4	●	●	●
8	38	88	10	4	●	●	●
10	45	95	10	4	●	●	●
12	53	110	12	4	●	●	●
14	53	110	12	4	●	●	●
15	53	110	12	4	■	●	●
16	63	123	16	4	●	●	●
18	63	123	16	4	●	●	●
20	75	141	20	4	●	●	●
22	75	141	20	4	●	●	●
25	90	166	25	4	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

# Frese frontali, serie lunga

## Schaftfräser lange Ausführung

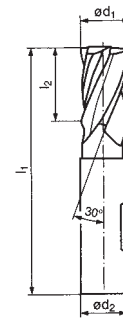


**Tipo HRS, ≈ 30° elica, 10° angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

**End mills, long series**  
Type HRS, helix angle ≈ 30° rake angle 10°, with straight shank acc. DIN 1835/1

Typ HRS, ≈ 30° Drallwinkel, 10° Spanwinkel, mit Zylinderschaft nach DIN 1835/1

**Fraises deux tailles, série longue**  
Type HRS, angle d'hélice ≈ 30°, angle de coupe 10°, avec queue cylindrique selon DIN 1835/1



**DIN 844L  
HSS-Co8**

- HSS-Co8
- HSS-Co8 TiCN
- HSS-Co8 TIALN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7416	7416C	7416F
<b>Ød1</b> k <sub>12</sub>	<b>l<sub>2</sub></b>	<b>l<sub>1</sub></b>	<b>Ød<sub>2</sub></b>	<b>Z</b>			
6	24	68	6	4	●	●	●
8	38	88	10	4	●	●	●
10	45	95	10	4	●	●	●
12	53	110	12	4	●	●	●
14	53	110	12	4	●	●	●
16	63	123	16	4	●	●	●
18	63	123	16	4	●	●	●
20	75	141	20	4	●	●	●
22	75	141	20	4	●	●	●
25	90	166	25	4	●	●	●
26	90	166	25	5	●	●	●
28	90	166	25	5	●	●	●
30	90	166	25	5	●	●	●
32	106	186	32	6	●	●	●

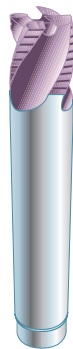
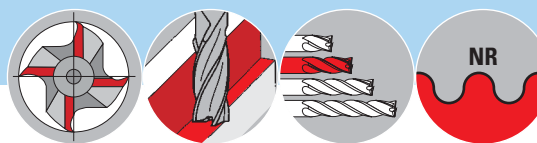
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





# Frese frontali, serie corta

## Schaftfräser kurze Ausführung



**Tipo NR, ≈ 30° elica,  
14° angolo di spoglia,  
con codolo conico Morse  
secondo DIN 228/1**

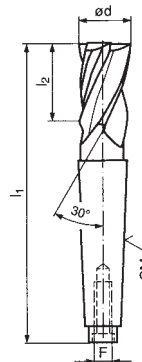
**End mills, short series**

Type NR, helix angle ≈ 30° rake angle 14°,  
with straight shank acc. DIN 228/1

**Typ NR, ≈ 30° Drallwinkel,  
14° Spanwinkel,  
mit Morsekegelschaft nach  
DIN 228/1**

**Fraises deux tailles série courte**

Type NR, angle d'hélice ≈ 30°, angle  
de coupe 14°, avec queue cône Morse  
selon DIN 228/1



**DIN 845K  
HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.											7420	
Ød1 K <sub>12</sub>	l <sub>2</sub>	l <sub>1</sub>	CM	F	Z							
6 <sup>▲</sup>	13	80	1	M 6	4							
8 <sup>▲</sup>	19	89	1	M 6	4							
10	22	92	1	M 6	4							
11	22	92	1	M 6	4							
12	26	96	1	M 6	4							
14	26	111	2	M 10	4							
15	26	111	2	M 10	4							
16	32	117	2	M 10	4							
17	32	117	2	M 10	4							
18	32	117	2	M 10	4							
19	32	117	2	M 10	4							
20	38	123	2	M 10	4							
22	38	123	2	M 10	4							
24	45	147	3	M 12	4							
25	45	147	3	M 12	4							
26	45	147	3	M 12	5							
28	45	147	3	M 12	5							
30	45	147	3	M 12	5							
32*	53	201	4	M 16	6							
34*	53	201	4	M 16	6							
36*	53	201	4	M 16	6							
40*	63	211	4	M 16	6							
45*	63	211	4	M 16	6							
48*	75	261	5	M 20	8							
50*	75	261	5	M 20	8							
56*	75	261	5	M 20	8							
60*	75	261	5	M 20	8							
63*	90	276	5	M 20	8							

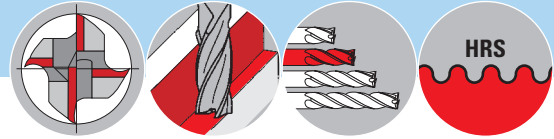
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10





# Frese frontali, serie corta

## Schafffräser kurze Ausführung

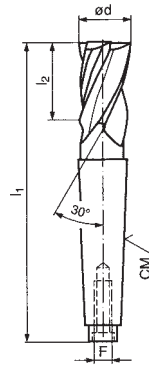


**Tipo HRS,  $\approx 30^\circ$  elica,  $10^\circ$  angolo di spoglia, con codolo conico Morse secondo DIN 228/1**

**End mills, short series**  
Type HRS, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ , with Morse taper shank acc. DIN 228/1

Typ HRS,  $\approx 30^\circ$  Drallwinkel,  $10^\circ$  Spanwinkel, mit Morsekegelschaft nach DIN 228/1

**Fraises deux tailles, série courte**  
Type NR, angle  $\approx 30^\circ$ , angle de coupe  $10^\circ$ , avec queue cône Morse selon DIN 228/1



**DIN 845K  
HSS-Co8**

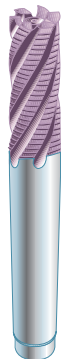
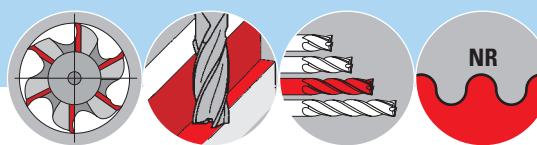
- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							7422	7422T	7422C
$\emptyset d_1$ $K_{12}$	$l_2$	$l_1$	CM	F	Z				
<b>12</b>	26	96	1	M 6	4		■	■	■
<b>16</b>	32	117	2	M 10	4		■	■	■
<b>20</b>	38	123	2	M 10	4		■	■	■
<b>25</b>	45	147	3	M 12	4		■	■	■
<b>28</b>	45	147	3	M 12	5		■	■	■
<b>32*</b>	53	201	4	M 16	6		■	■	■

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

## Frese frontali, serie lunga

### Schaftfräser lange Ausführung



**Tipo NR,  $\approx 30^\circ$  elica,  
 $14^\circ$  angolo di spoglia,  
 con codolo conico Morse  
 secondo DIN 228/1**

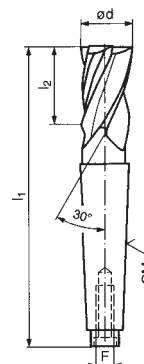
**End mills, long series**

Type NR, helix angle  $\approx 30^\circ$  rake angle  $14^\circ$ , with Morse taper shank acc. DIN 228/1

**Typ NR,  $\approx 30^\circ$  Drallwinkel,  
 $14^\circ$  Spanwinkel,  
 mit Morsekegelschaft nach  
 DIN 228/1**

**Fraises deux tailles, série longue**

Type NR, angle d'hélice  $\approx 30^\circ$ , angle de coupe  $14^\circ$ , avec queue cône Morse selon DIN 228/1



**DIN 845L  
 HSS-Co5**

HSS-Co5

**Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.**

**7424**



Ød1 K12	l <sub>2</sub>	l <sub>1</sub>	CM	F	Z				
10	45	115	1	M 6	4				•
12	53	123	1	M 10	4				•
14	53	138	2	M 10	4				•
15	53	138	2	M 10	4				•
16	63	148	2	M 10	4				•
18	63	148	2	M 10	4				•
20	75	160	2	M 10	4				•
22	75	160	2	M 10	4				•
25	90	192	3	M 12	4				•
28	90	192	3	M 12	5				•
30	90	192	3	M 12	5				•
32*	106	254	4	M 16	6				•
36*	106	254	4	M 16	6				•
40*	125	273	4	M 16	6				•
45*	125	273	4	M 16	6				•
50*	150	336	5	M 20	8				•

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 \* Tolleranza h 10 - Toleranz h 10 - Tolerance h 10 - Tolérance h 10





## Un magazzino da record

Nella sua sede di Paderno Dugnano, Angelo Ghezzi Spa mette a disposizione della sua clientela un magazzino con oltre sessantamila articoli. Questo permette di evadere le richieste tempestivamente e anche quelle dell'ultimo minuto con la medesima efficienza. Gli ordini provenienti dal Call Center e dagli agenti vengono registrati a video dall'operatore e quindi smistati in tempo reale. In poche ore i prodotti sono pronti per l'uscita. L'intera organizzazione del magazzino viene supervisionata giornalmente da uno staff specializzato per offrire **un livello di servizio del 97%**, un primato che mette a disposizione della clientela un affidabile servizio di consegna durante tutto l'arco dell'anno.




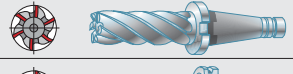
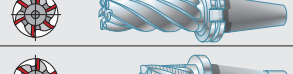





## Frese con attacco conico, DIN 2080 e DIN-ISO 69871/1

### Schaftfräser mit Zylinderschaft nach DIN 2080 und DIN-ISO 69871/1

End mills with taper shank DIN 2080 and DIN-ISO 69871/1

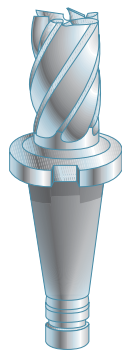
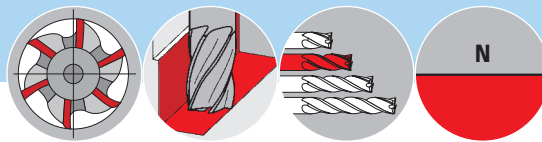
Fraises deux tailles avec queue conique DIN 2080 et DIN-ISO 69871/1

DIN	Tipo		Materiale	Rivestimento					Pag.
				TiN	TiCN	TiAlN FUTURA®			
2328K	N		HSS-Co5				●		94
2328L	N		HSS-Co5				●		95
IN	N		HSS-Co5					●	96
IN	N		HSS-Co5					●	97
2328K	NF		HSS-Co5				●		98
2328L	NF		HSS-Co5				●		99
2328K	NR		HSS-Co5				●		100
2328L	NR		HSS-Co5				●		101
IN	NR		HSS-Co5					●	102
IN	NR		HSS-Co5					●	103

IN = Illico Norm

# Frese frontali, serie corta

## Schaftfräser kurze Ausführung

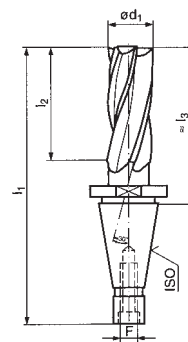


**Tipo N,  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo conico ISO  
secondo DIN 2080**

**End mills, short series**  
Type N, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ ,  
with step ISO taper shank acc. DIN 2080











Typ N,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel,  
mit Steikegelschaft nach  
DIN 2080

**Fraises deux tailles, série longue**  
Type N, angle d'hélice  $\approx 30^\circ$ , angle de  
coupe  $10^\circ$ , avec queue cône SA DIN 2080



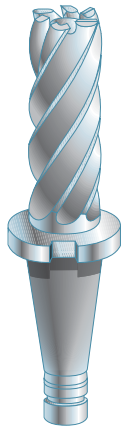
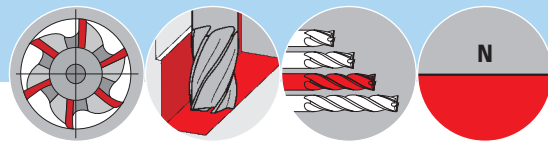
### DIN 2328K HSS-Co5

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9501
$\odot d_1$	$l_2$	$l_1$	ISO	F	$l_3$	Z	
$K_{10}$							
32	53	188	40	M 16	95	6	
40	63	198	40	M 16	105	6	
40	63	240	50	M 24	113	6	
45	63	198	40	M 16	105	8	
45	63	240	50	M 24	113	8	
50	75	252	50	M 24	125	8	
56	75	252	50	M 24	125	8	
63	90	267	50	M 24	140	8	

 Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

# Frese frontali, serie lunga Schafftfräser lange Ausführung

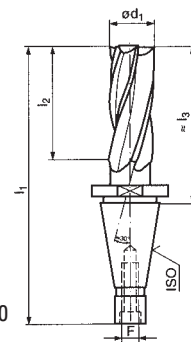


**Tipo N,  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo conico ISO  
secondo DIN 2080**

**End mills, long series**  
Type HRS, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ ,  
with step ISO taper shank acc. DIN 2080

Typ N,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel,  
mit Steikegelschaft nach  
DIN 2080

**Fraises deux tailles, série longue**  
Type N, angle d'hélice  $\approx 30^\circ$ , angle de  
coupe  $10^\circ$ , avec queue cône SA DIN 2080



**DIN 2328L  
HSS-Co5**

HSS-Co5

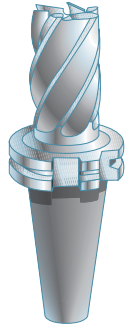
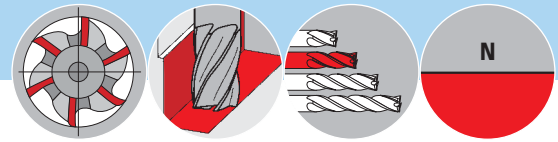
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9502
$\phi d_1$ K <sub>10</sub>	$l_2$	$l_1$	ISO	F	$l_3$	Z	
32	106	241	40	M 16	148	6	■
40	125	260	40	M 16	167	6	■
40	125	302	50	M 24	175	6	■
40 <sup>▲</sup>	160	337	50	M 24	210	6	■
45 <sup>▲</sup>	100	277	50	M 24	150	8	■
45	125	260	40	M 16	167	8	■
45	125	302	50	M 24	175	8	■
50 <sup>▲</sup>	112	289	50	M 24	162	8	■
50 <sup>▲</sup>	200	377	50	M 24	250	8	■
56 <sup>▲</sup>	112	289	50	M 24	162	8	■
75 <sup>▲</sup>	110	287	50	M 24	160	10	■
75 <sup>▲</sup>	150	327	50	M 24	200	10	■
80 <sup>▲</sup>	160	337	50	M 24	210	10	■
80	212	389	50	M 24	262	10	■
80 <sup>▲</sup>	300	477	50	M 24	350	10	■

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese frontali, serie corta

## Schaftfräser kurz Ausführung



**Tipo N, ≈ 30° elica,  
10° angolo di spoglia,  
con codolo conico ISO  
secondo DIN 69871/1**

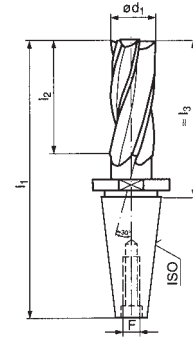
**End mills, short series**

Type N, helix angle ≈ 30° rake angle 10°, with step ISO taper shank acc. DIN 69871/1

Typ N, ≈ 30° Drallwinkel,  
10° Spanwinkel,  
mit Steikegelschaft nach  
DIN 69871/1



**Fraises deux tailles, série courte**

Type N, angle d'hélice ≈ 30°, angle de coupe 10°, avec queue cône SA DIN 69871/1



**ILICO NORM  
HSS-Co5**

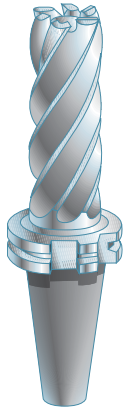
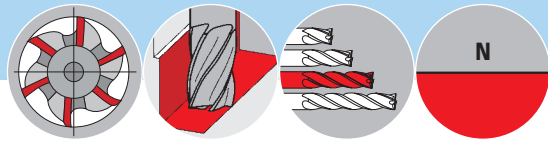
HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9503
Ød1 K <sub>10</sub>	l <sub>2</sub>	l <sub>1</sub>	ISO	F	l <sub>3</sub>	Z	
							
32	53	171	40	M 16	103	6	●
36	53	171	40	M 16	103	6	●
40	63	181	40	M 16	113	6	●
40	63	219	50	M 24	117	6	●
40	100	256	50	M 24	154	6	●
45	63	181	40	M 16	113	8	●
45	63	219	50	M 24	117	8	●
45	100	256	50	M 24	154	8	●
50	75	193	40	M 16	125	8	●
50	75	231	50	M 24	129	8	●
56	150	306	50	M 24	204	8	●
63	90	246	50	M 24	144	8	●
80	106	262	50	M 24	160	10	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese frontali, serie lunga

## Schaftfräser lange Ausführung

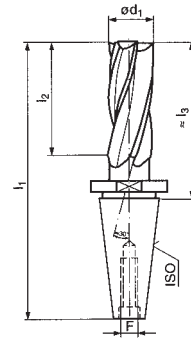


**Tipo N,  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo conico ISO  
secondo DIN 69871/1**

**End mills, long series**  
Type N, helix angle  $\approx 30^\circ$  rake angle  $10^\circ$ ,  
with step ISO taper shank acc. DIN 69871/1

**Typ N,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel,  
mit Steikegelschaft nach  
DIN 69871/1**

**Fraises deux tailles, série longue**  
Type N, angle d'hélice  $\approx 30^\circ$ , angle de  
coupe  $10^\circ$ , avec queue cône SA DIN  
69871/1



**ILICO NORM  
HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

9504

$\frac{\text{Ød1}}{\text{K}_{10}}$	$l_2$	$l_1$	ISO	F	$l_3$	Z				
<b>32</b>	106	224	40	M 16	156	6				
<b>40</b>	125	243	40	M 16	175	6				
<b>40</b>	125	281	50	M 24	179	6				
<b>40</b>	160	316	50	M 24	214	6				
<b>45</b>	125	281	50	M 24	179	8				
<b>45</b>	160	316	50	M 24	214	8				

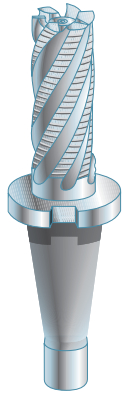
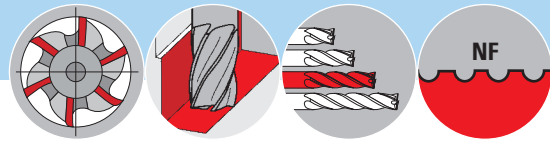
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock





# Frese frontali, serie lunga

## Schaftfräser lange Ausführung

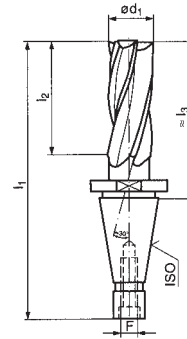


**Tipo NF, ≈ 30° elica,  
12° angolo di spoglia,  
con codolo conico ISO  
secondo DIN 2080**

**End mills, long series**  
Type NF, helix angle ≈ 30° rake angle 12°,  
with step ISO taper shank acc. DIN 2080



















**Typ HF, ≈ 30° Drallwinkel,  
12° Spanwinkel, mit  
Steilkegelschaft nach  
DIN 2080**

**Fraises deux tailles, série longue**  
Type NF, angle d'hélice ≈ 30°,  
angle de coupe 12°, avec queue cône  
SA DIN 2080



**DIN 2328L  
HSS-Co5**

 HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9506	
$\varnothing d_1$ K <sub>12</sub>	$l_2$	$l_1$	ISO	F	$l_3$	Z		
40 <sup>▲</sup>	100	277	50	M 24	150	6		
40	125	302	50	M 24	175	6		
40 <sup>▲</sup>	160	337	50	M 24	210	6		
45 <sup>▲</sup>	100	277	50	M 16	150	8		
45 <sup>▲</sup>	160	337	50	M 24	210	8		
50 <sup>▲</sup>	112	289	50	M 24	162	8		
56 <sup>▲</sup>	112	289	50	M 24	162	8		
56	150	327	50	M 24	200	8		
56 <sup>▲</sup>	200	377	50	M 24	250	8		
63 <sup>▲</sup>	140	317	50	M 24	190	8		
63 <sup>▲</sup>	250	427	50	M 24	300	8		
75 <sup>▲</sup>	110	287	50	M 24	160	10		
75 <sup>▲</sup>	150	327	50	M 24	200	10		
75 <sup>▲</sup>	200	377	50	M 24	250	10		
75 <sup>▲</sup>	250	427	50	M 24	300	10		
75 <sup>▲</sup>	300	477	50	M 24	350	10		
80 <sup>▲</sup>	160	337	50	M 24	210	10		

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
▲ ILLICO NORM























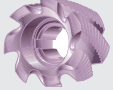
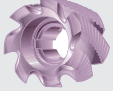


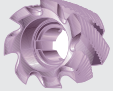



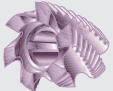





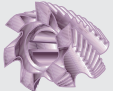


# Assistenza Commerciale

Angelo Ghezzi Spa offre un supporto commerciale per aiutare la propria clientela durante l'acquisto. Dietro richiesta del cliente, gli operatori Angelo Ghezzi sono pronti a dare tutte le informazioni necessarie sui servizi post vendita e le particolari caratteristiche dei prodotti ordinati. Se un cliente ha bisogno di ulteriori nozioni specialistiche riguardo al corretto utilizzo dell'utensile in macchina, viene messo direttamente in comunicazione con l'Ufficio Tecnico interno all'azienda per i dettagli.

## Frese a manicotto DIN 1880

### Walzenstirnfräser nach DIN 1880

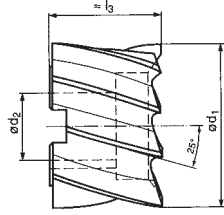
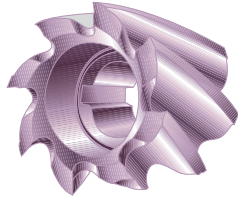
Shell end mills DIN 1880  
Fraises en bout DIN 1880

DIN	Tipo		Materiale	Rivestimento							Pag.
				TiN	TiCN	TiAlN FUTURA®					
1880	N		HSS-Co5								106
841	N		HSS-Co5								107
1880	HS		HSS-Co8								108
1880	HS		ASP-60								109
1880	W		HSS-Co5								110
1880	NF		HSS-Co5								111
1880	HFS		HSS-Co8								112
1880	NR		HSS-Co5								113
1880	VA		ASP-60								114
1880	NR		ASP-60								115
841	NR		HSS-Co8								116
1880	HRS		ASP-60								117

IN = Illico Norm



# Frese cilindriche Walzenstirnfräser



**Tipo N, taglio destro  $\approx 25^\circ$  elica  
destra,  $10^\circ$  angolo di spoglia,  
con taglio di chiavetta  
longitudinale e trasversale  
secondo DIN 138**

**Shell end mills**  
Type N, right-hand cutting,  
 $\approx 25^\circ$  right-hand spiral, rake angle  $10^\circ$ ,  
with driving slot and standard  
keyway acc. DIN 138

Typ N,  $\approx$  rechtsschneidend,  
 $\approx 25^\circ$  Rechtsspirale,  
 $10^\circ$  Spanwinkel, mit längs-  
und Quernut nach DIN 138

**Fraises 2 tailles cylindriques**  
Type N, coupe à droite, hélixe à droite  $\approx 25^\circ$ ,  
angle de coupe  $10^\circ$ , avec entraînement par  
tenon et par clavette selon DIN 138

**DIN 1880  
HSS-Co5**

HSS-Co5

HSS-Co5  
TiCN

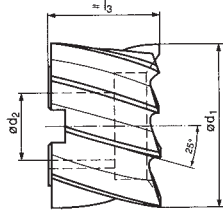
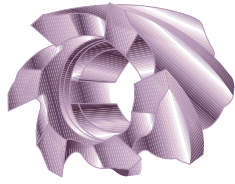
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					9561	9561C
$\varnothing d_1$ $K_{10}$	$l_3$	$\varnothing d_2$	Z			
<b>40</b>	32	16	8		●	●
<b>50</b>	36	22	8		●	●
<b>63</b>	40	27	8		●	●
<b>80</b>	45	27	10		●	●
<b>100</b>	50	32	12		●	●
<b>125</b>	56	40	14		●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock



# Frese cilindriche frontali, serie lunga

## Walzenstirnfäser lang






**Tipo N, taglio destro  $\approx 25^\circ$  elica destra,  $10^\circ$  angolo di spoglia, con taglio di chiavetta longitudinale e trasversale secondo DIN 138**




**Shell end mills**  
Type N, right-hand cutting,  $\approx 25^\circ$  right-hand spiral, rake angle  $10^\circ$ , with driving slot and standard keyway acc. DIN 138

Typ N,  $\approx$  rechtsschneidend,  $\approx 25^\circ$  Rechtsspirale,  $10^\circ$  Spanwinkel, mit längs-und Quernut nach DIN 138

**Fraises 2 tailles cylindriques**  
Type N, coupe à droite, hèlece à droite  $\approx 25^\circ$ , angle de coupe  $10^\circ$ , avec entraînement par tenon et par clavette selon DIN 138

**DIN 841**  
**HSS-Co5**

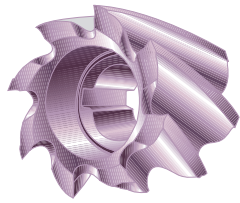
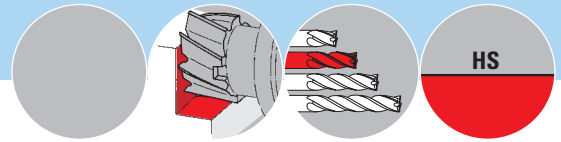
-  HSS-Co5
-  HSS-Co5 TiCN
-  HSS-Co5 TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.				9568	9568C	9568F
$\varnothing d_1$ K <sub>12</sub>	$l_3$	$\varnothing d_2$	Z			
30 <sup>s</sup>	30	13	6	●	●	●
35 <sup>s</sup>	35	16	6	●	●	●
40	40	16	8	●	●	●
50	50	22	8	●	●	●
60	60	27	8	●	●	●
75	35	27	10	●	●	●
75	75	27	10	●	●	●
90	35	27	10	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 § Questa misura è disponibile solo con attacco a chiavetta standard - Diese Abmessung wird nur mit Längsnut geliefert  
 This dimensions is available only with standard keyway - Ce diamètre est disponible avec attache à clavette standard.



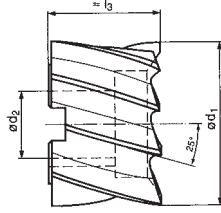
# Frese cilindriche frontali Schafffräser kurz



**Tipo HS, taglio destro ≈ 25° elica destra, 10° angolo di spoglia, con taglio di chiave longitudinalinale e trasversale secondo DIN 138**

Typ HS, rechtsschneidend, ≈ 25° Rechtsspirale, 10° Spanwinkel mit längs- und Quernut nach DIN 138

**DIN 1880  
HSS-Co8**



**Shell end mills**  
Type HS, right-hand cutting, ≈ 25° right-hand spiral, rake angle 10°, with driving slot and standard keyway acc. DIN 138

**Fraises 2 tailles**  
Type HS, coupe à droite, hèlece à droite ≈ 25°, angle de coupe 10°, avec entraînement par tenon et par clavette selon DIN 138

- HSS-Co8
- HSS-Co8 TiN
- HSS-Co8 TiCN

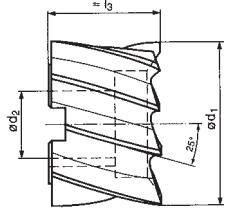
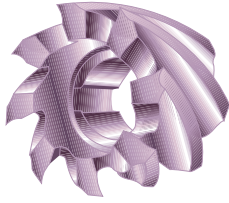
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.				9564	9564T	9564C
Ød1 K <sub>10</sub>	l <sub>3</sub>	Ød <sub>2</sub>	Z			
40	32	16	8	●	●	●
50	36	22	8	●	●	●
63	40	27	8	●	●	●
80	45	27	10	●	●	●
100	50	32	12	●	●	●
125	56	40	14	■	■	■
160	63	50	16	■	■	■

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese cilindriche frontali

## Walzenstirfräser



**Tipo HS, taglio destro,  
 ≈ 25° elica destra, 10° angolo  
 di spoglia, con taglio  
 di chiavetta longitudinale e  
 trasversale secondo DIN 138**

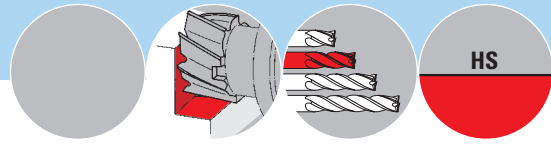
**Shell end mills**  
 Type HS, right-hand cutting,  
 ≈ 25° right-hand spiral, rake angle 10°,  
 with driving slot and standard keyway  
 acc. DIN 138

**Walzenstirfräser,  
 Typ HS, rechtsschneidend,  
 ≈ 25° Rechtsspirale, 10°  
 Spanwinkel, mit längs- und  
 Quernut nach DIN 138**

**Fraises 2 tailles cylindriques**  
 Type HS, coupe à droite,  
 hèlece à droite ≈ 25°, angle de coupe 10°  
 avec entraînement par tenon et par  
 clavette selon DIN 138

**DIN 1880**  
**ASP-60**

- ASP-60
- ASP-60 TiCN
- ASP-60 TiAlN FUTURA®



Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.				9569	9569C	9569F
<b>Ød1</b> K <sub>12</sub>	<b>l<sub>3</sub></b>	<b>Ød<sub>2</sub></b>	<b>Z</b>			
<b>40</b>	32	16	8	●	●	●
<b>50</b>	36	22	8	●	●	●
<b>63</b>	40	27	8	●	●	●
<b>80</b>	45	27	10	●	●	●
<b>100</b>	50	32	10	●	●	●

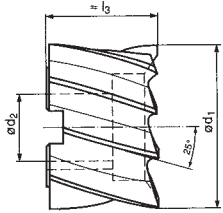
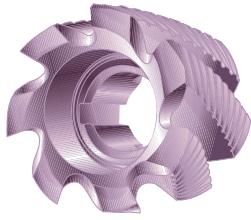
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock





# Frese cilindriche frontali

## Walzenstirfräser



**Tipo NF, taglio destro,**  
 ≈ 25° elica destra,  
 12° angolo di spoglia,  
 con taglio di chiavetta  
 longitudinale e trasversale  
 secondo DIN 138

**Shell end mills**  
 Type NF, right-hand cutting,  
 ≈ 25° right-hand spiral,  
 rake angle 12°, with driving slot  
 and standard keyway acc. DIN 138

Typ NF, rechtsschneidend,  
 ≈ 25° Rechtsspirale,  
 12° Spanwinkel,  
 mit längs- und Quernut  
 nach DIN 138

**Fraises 2 tailles cylindriques**  
 Type NF, coupe à droite,  
 dëlîce à droite ≈ 25°, angle de coupe 12°,  
 avec entraînemenent par tenon et par  
 clavette selon DIN 138

**DIN 1880**  
**HSS-Co5**

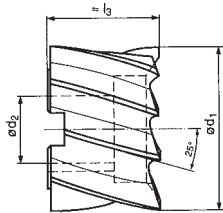
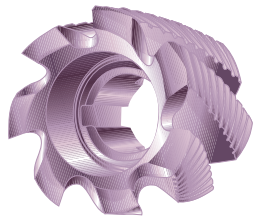
HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					9565				
<b>Ød1</b> JS14	$l_3$	$\phi d_2$	Z						
40	32	16	7						●
50	36	22	8						●
63	40	27	8						●
80	45	27	10						●
100	50	32	12						●
125	56	40	12						■
160	63	50	14						■

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese cilindriche frontali Walzenstirnfräser



**Tipo NR, taglio destro,**  
≈ 25° elica destra, 14° angolo di  
spoglia con taglio di chiave  
longitudinale e trasversale  
secondo DIN 138

**Shell end mills**  
Type NR, right-hand cutting,  
≈ 25° right-hand spiral, rake angle 14°,  
with driving slot and standard  
keyway acc. DIN 138

Typ NR, rechtsschneidend,  
≈ 25° Rechtsspirale, 14°  
Spanwinkel, mit längs-und  
Quernut nach DIN 138

**Fraises 2 tailles cylindriques**  
Type NR, coupe à droite,  
hèlice à droite ≈ 25°, angle de coupe 14°,  
avec entraînement par tenon  
et par clavette selon DIN 138

**DIN 1880  
HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

9571

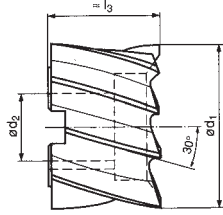
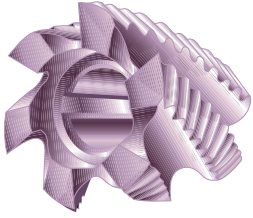
Ød1 JS14	l <sub>3</sub>	Ød <sub>2</sub>	Z						
40	32	16	7						●
50	36	22	8						●
63	40	27	8						●
80	45	27	10						●
100	50	32	12						●
125	56	40	12						●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





# Frese cilindriche frontali Walzenstirnfräser



**Tipo NR, taglio destro,  
≈ 25° elica destra, 10° angolo  
di spoglia, con taglio di  
chiavetta longitudinale e  
trasversale secondo DIN 138**

**Shell end mills**  
Type NR, right-hand cutting,  
≈ 25° right-hand spiral, rake angle 10°,  
with driving slot and standard keyway  
acc. DIN 138

Type NR, rechtsschneidend,  
≈ 25° Rechtsspirale,  
10° Spanwinkel, mit längs-  
und Quernut nach DIN 138

**Fraises 2 tailles cylindriques**  
Type NR, coupe à droite, hélixe à  
droite ≈ 25°, angle de coupe 10°,  
avec entraînement par tenon et  
par clavette selon DIN 138

**DIN 1880  
ASP-60**

- ASP-60
- ASP-60  
TiCN
- ASP-60  
TiAlN FUTURA®

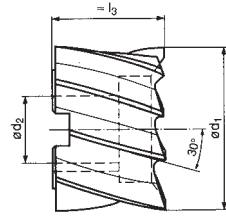
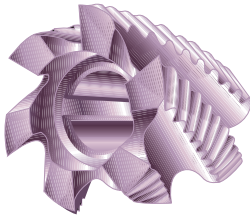
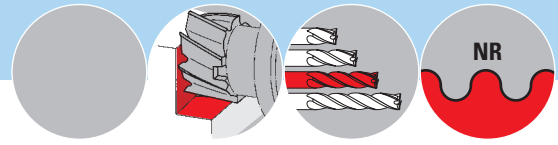
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.				9585	9585C	9585F
				<span style="display: inline-block; width: 10px; height: 10px; background-color: #f08080; border: 1px solid #000;"></span>	<span style="display: inline-block; width: 10px; height: 10px; background-color: #4682b4; border: 1px solid #000;"></span>	<span style="display: inline-block; width: 10px; height: 10px; background-color: #483d8b; border: 1px solid #000;"></span>
Ød1 K <sub>12</sub>	l <sub>3</sub>	Ød <sub>2</sub>	Z			
40	32	16	6	●	●	●
50	36	22	8	●	●	●
63	40	27	8	●	●	●
80	45	27	10	●	●	●
100	50	32	10	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





## Frese cilindriche frontali Walzenstirnfräser



**Tipo NR, ≈ 25° elica, 14° angolo di spoglia, con taglio di chiavetta longitudinale e trasversale secondo DIN 138**

**Shell end mills**  
Type NR, right-hand cutting, ≈ 25° right-hand spiral, with driving slot and standard keyway acc. DIN 138

Typ NR, rechtsschneidend, ≈ 25° Rechtsspirale, 14° Spanwinkel, mit längs- und Quernut nach DIN 138

**Fraises 2 tailles cylindriques**  
Type NR, coupe à droite, héliçe à droite ≈ 25°, angle de coupe 14°, avec entraînement par tenon et par clavette selon DIN 138

### DIN 841 HSS-Co8

- HSS-Co8
- HSS-Co8 TiCN
- HSS-Co8 TiAlN FUTURA®

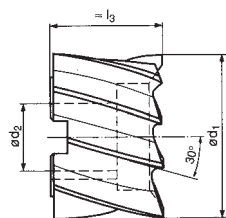
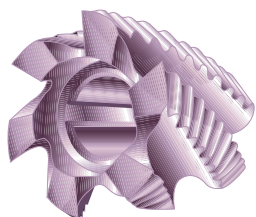
**Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.**

				9574	9574C	9574F
Ød1 K <sub>12</sub>	l <sub>3</sub>	Ød <sub>2</sub>	Z			
<b>40</b>	40	16	6	●	●	●
<b>50</b>	50	22	6	●	●	●
<b>60</b>	60	27	8	●	●	●
<b>75</b>	35	27	8	●	●	●
<b>75</b>	75	27	8	●	●	●
<b>90</b>	35	27	8	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock

# Frese cilindriche frontali

## Walzenstirnfräser



**Tipo HRS, taglio destro, ≈ 25° elica destra, 10° angolo di spoglia, con taglio di chiavetta longitudinale e trasversale secondo DIN 138**

**Shell end mills**  
Type HRS, right-hand cutting, ≈ 25° right-hand spiral, rake angle 10°, with driving slot and standard keyway acc. DIN 138

**Typ HRS, rechtsschneidend, ≈ 25° Rechtsspirale, 10° Spanwinkel, mit längs- und Quernut nach DIN 138**

**Fraises 2 tailles cylindriques**  
Type HRS, coupe à droite, hèlece à droite ≈ 25°, angle de coupe 10°, avec entraînement par tenon et par clavette selon DIN 138

**DIN 1880**  
**ASP-60**

- ASP-60
- ASP-60 TiCN
- ASP-60 TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.				9586	9586C	9586F
Ød1 K <sub>12</sub>	l <sub>3</sub>	Ød <sub>2</sub>	Z			
<b>40</b>	32	16	6	●	●	●
<b>50</b>	36	22	8	●	●	●
<b>63</b>	40	27	10	●	●	●
<b>80</b>	45	27	10	●	●	●
<b>100</b>	50	32	12	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





# Call Center

È possibile ordinare i prodotti ILLI-CO direttamente dal posto di lavoro via fax o telefono.

▲ **Telefono**

Chiamando al numero **02.9189314** l'operatore inserirà in tempo reale la richiesta del cliente nella lista degli ordini in uscita.

▲ **Fax**

Per attivare la stessa procedura basta inviare un fax in carta intestata contenente la descrizione della merce al numero **02.99041403**.

L'ordine sarà inserito nella lista nel più breve tempo possibile.

# Frese coniche per stampi

## Gesenkkegelfräser

Die- sinking taper cutters

Fraises coniques pour matrices

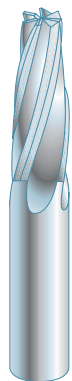
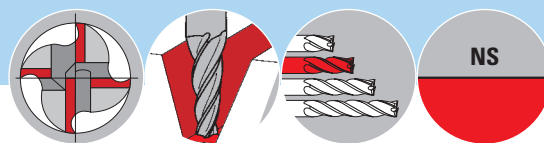
DIN	Tipo			Materiale	Conicità			Pag.
IN	NS			HSS-Co8	0.5°	●		120
IN	NS			HSS-Co8	1°	●		121
IN	NS			HSS-Co8	1,5°	●		122
IN	NS			HSS-Co8	2°	●		123
IN	NS			HSS-Co8	3°	●		124
IN	NS			HSS-Co8	4°	●		125
IN	NS			HSS-Co8	5°	●		126
IN	NS			HSS-Co8	6°	●		127
1889	NS			HSS-Co8	1:10 (5°43')	●		129
1889	NS			HSS-Co8	1:20 (2°52')	●		130
1889	BNS			HSS-Co8	1:10 (5°43')	●		131
1889	BNS			HSS-Co8	1:20 (2°52')	●		132
1889	RS			HSS-Co8	1:6 (9°28')	●		133
1889	RS			HSS-Co8	1:10 (5°43')	●		134
1889	RS			HSS-Co8	1:20 (2°52')	●		135
1889	BRS			HSS-Co8	1:6 (9°28')	●		136
1889	BRS			HSS-Co8	1:10 (5°43')	●		137
1889	BRS			HSS-Co8	1:20 (2°52')	●		138

IN = Illico Norm



# Frese coniche per stampi

## Gesenkfräser kegelig

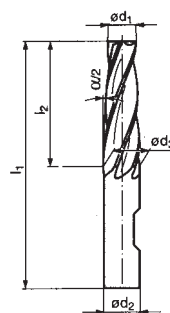


**Tipo NS, con testa piatta, con conicità  $\alpha/2 = 0,5^\circ$ , con codolo cilindrico secondo DIN 1835/1**

**Die-Sinking cutters tapered**  
Type NS with plane face, with inclination  $0,5^\circ$  with straight shank acc. DIN 1835/1

Typ NS, mit flacher Stirn, mit Neigung  $0,5^\circ$ , mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, coniques**  
Type NS, à bout plan avec inclinaison  $0,5^\circ$ , avec queue cylindrique selon DIN 1835/1



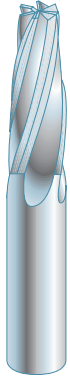
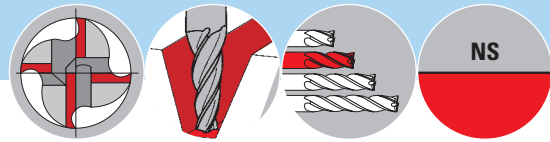
**ILICO NORM**  
**HSS-Co8**

HSS-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						8501					
$\phi d_1$	$\phi d_3$	$l_2$	$l_1$	$\phi d_2$	Z						
4	4,52	30	75	6	4						●
6	6,70	40	100	8	4						●
8	8,79	45	100	10	4						●
10	10,79	45	100	12	4						●
12	12,79	45	100	12	4						●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese coniche per stampi Gesenkfräser kegelig

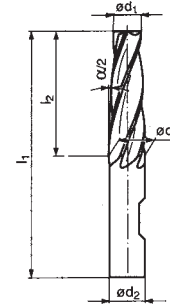


**Tipo NS, con testa piatta, con conicità  $\alpha/2 = 1^\circ$ , con codolo cilindrico secondo DIN 1835/1**

**Die-Sinking cutters tapered**  
Type NS with plane face, with inclination  $1^\circ$  with straight shank acc. DIN 1835/1

**Typ NS, mit flacher Stirn, mit Neigung  $1^\circ$ , mit Zylinderschaft nach DIN 1835/1**

**Fraises pour matrices, coniques**  
Type NS, à bout plan avec inclinaison  $1^\circ$ , avec queue cylindrique selon DIN 1835/1



**ILICO NORM  
HSS-Co8**

HSS-Co8

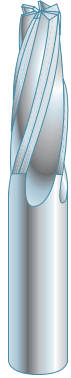
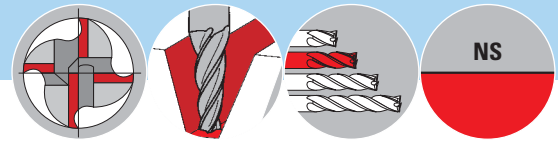
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							8500	
Ød1	Ød3	l <sub>2</sub>	l <sub>1</sub>	Ød <sub>2</sub>	Z			
6	7,4	40	90	8	4			■
6	8,1	60	110	8	4			■
8	9,4	40	95	10	4			■
8	10,5	70	125	10	4			■
10	11,4	40	100	12	4			■
10	12,1	60	120	12	4			■
10	12,6	80	140	12	4			■
12	14,1	60	120	12	4			■
12	14,8	80	140	12	4			■
16	18,1	60	125	16	4			■
16	19,5	100	165	20	4			■

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock





# Frese coniche per stampi Gesenkfräser kegelig

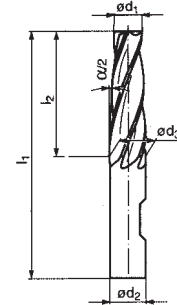


**Tipo NS, con testa piatta,  
con conicità  $\alpha/2 = 1,5^\circ$ ,  
con codolo cilindrico  
secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type NS, with plane face,  
with inclination  $1,5^\circ$ , with straight  
shank acc. DIN 1835/1

Typ NS, mit flacher Stirn,  
mit Neigung  $1,5^\circ$ ,  
mit Zylinderschaft nach  
DIN 1835/1

**Fraises pour matrices, coniques**  
Type NS, à bout plat,  
avec inclinaison  $1,5^\circ$ , avec queue  
cylindrique selon DIN 1835/1



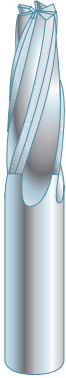
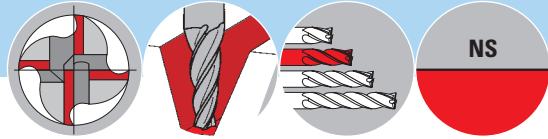
**ILICO NORM  
HSS-Co8**

**HSS-Co8**

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						8503
$\varnothing d1$	$\varnothing d3$	$l_2$	$l_1$	$\varnothing d2$	Z	
6	7,98	35	100	8	4	●
8	10,36	45	100	12	4	●
10	12,88	55	120	12	4	●
12	15,14	60	120	16	4	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese coniche per stampi Gesenkfräser kegelig

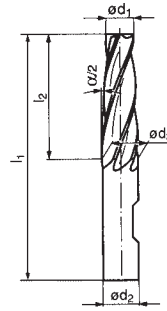


**Tipo NS, con testa piatta,  
con conicità  $\alpha/2 = 2^\circ$ ,  
con codolo cilindrico  
secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type NS, with plane face,  
with inclination  $2^\circ$ , with straight  
shank acc. DIN 1835/1

**Typ NS, mit flacher Stirn,  
mit Neigung  $2^\circ$ ,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises pour matrices, coniques**  
Type NS, à bout plat,  
avec inclinaison  $2^\circ$ , avec queue  
cylindrique selon DIN 1835/1



**ILICO NORM  
HSS-Co8**

HSS-Co8

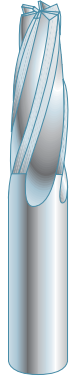
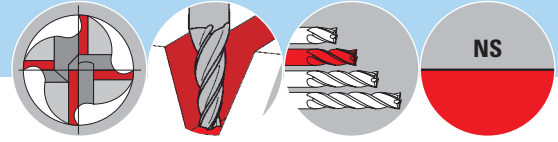
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						8504
$\varnothing d_1$	$\varnothing d_3$	$l_2$	$l_1$	$\varnothing d_2$	Z	
6	9,5	50	100	8	4	■
6	10,2	60	115	10	4	■
8	10,8	40	95	10	4	■
10	12,8	40	100	12	4	■
10	15,7	80	145	16	4	■
12	16,2	60	125	16	4	■
16	20,2	60	125	20	4	■

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese coniche per stampi

## Gesenkfräser kegelig

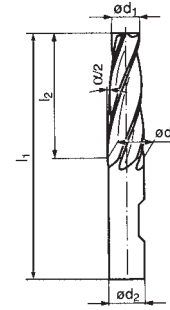


**Tipo NS, con testa piatta, con conicità  $\alpha/2 = 3^\circ$ , con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type NS, with plane face, with inclination  $3^\circ$ , with straight shank acc. DIN 1835/1

**Typ NS, mit flacher Stirn, mit Neigung  $3^\circ$ , mit Zylinderschaft nach DIN 1835/1**

**Fraises pour matrices, coniques**  
Type NS, à bout plat, avec inclinaison  $3^\circ$ , avec queue cylindrique selon DIN 1835/1



**ILICO NORM HSS-Co8**

**HSS-Co8**

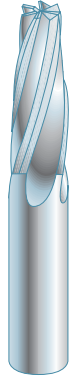
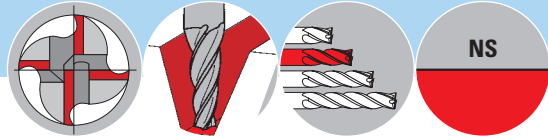
**Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat. 8508**

Ød1	Ød3	l2	l1	Ød2	Z							
6	10,2	40	95	10	4							■
6	12,3	60	120	12	4							■
8	15,3	70	135	16	4							■
10	18,4	80	145	16	4							■
12	18,3	60	125	16	4							■
12	20,4	80	145	20	4							■
16	22,3	60	125	20	4							■

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese coniche per stampi Gesenkfräser kegelig

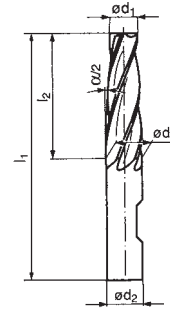


**Tipo NS, con testa piatta, con conicità  $\alpha/2 = 4^\circ$ , con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type NS, with plane face, with inclination  $4^\circ$ , with straight shank acc. DIN 1835/1

Typ NS, mit flacher Stirn, mit Neigung  $4^\circ$ , mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, coniques**  
Type NS, à bout plat, avec inclinaison  $4^\circ$ , avec queue cylindrique selon DIN 1835/1



## ILICO NORM HSS-Co8

**HSS-Co8**

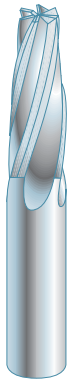
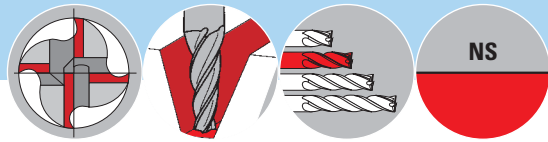
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.											8512
$\phi d_1$	$\phi d_3$	$l_2$	$l_1$	$\phi d_2$	Z						
6	14,4	60	120	12	4						
8	13,6	40	100	12	4						
8	15,0	50	115	16	4						
8	17,8	70	135	16	4						
10	15,6	40	105	16	4						
10	18,4	60	125	16	4						
10	21,2	80	145	20	4						
12	20,4	60	125	20	4						
12	23,2	80	145	20	4						
16	24,4	60	130	25	6						
16	30,0	100	170	25	6						

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock





# Frese coniche per stampi Gesenkfräser kegelig

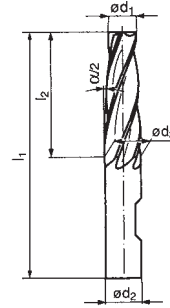


**Tipo NS, con testa piatta, con conicità  $\alpha/2 = 6^\circ$ , con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type NS, with plane face, with inclination  $6^\circ$ , with straight shank acc. DIN 1835/1

Typ NS, mit flacher Stirn, mit Neigung  $6^\circ$ , mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, coniques**  
Type NS, à bout plat, avec inclinaison  $6^\circ$ , avec queue cylindrique selon DIN 1835/1



**ILLICO NORM  
HSS-Co8**

HSS-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						8520	
$\varnothing d_1$	$\varnothing d_3$	$l_2$	$l_1$	$\varnothing d_2$	Z		
6	16,5	50	115	16	4	●	
8	18,5	50	115	16	4	●	
8	22,7	70	135	20	4	■	
10	18,4	40	105	16	4	●	
10	22,6	60	125	20	4	●	
10	26,8	80	150	25	4	●	
12	24,6	60	130	25	4	●	
12	28,8	80	150	25	4	●	
16	37,0	100	175	32	6	●	

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Numero Verde

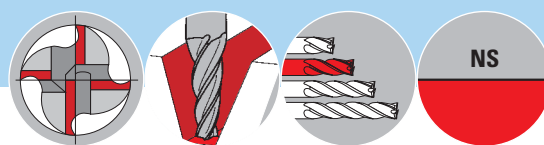
Durante le delicate fasi del montaggio in macchina di un utensile può essere talvolta necessaria una consultazione per una visione più chiara delle caratteristiche del prodotto. Al Numero Verde **800-018130** è collegato un servizio di consulenza in linea per risolvere in tempo reale i problemi legati a parametri di lavorazione, tolleranze o quant'altro fosse necessario.







# Frese coniche per stampi Gesenkfräser kegelig

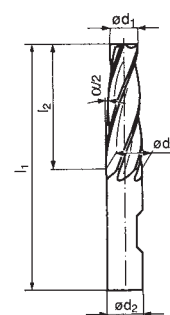


**Tipo NS, con testa piatta,  
con conicità  $\alpha/2 = 1:20$  ( $2^\circ52'$ ),  
con codolo cilindrico  
secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type NS, with plane face,  
with inclination 1:20,  
with straight shank acc. DIN 1835/1

Typ NS, mit flacher Stirn,  
mit Neigung 1:20,  
mit Zylinderschaft nach  
DIN 1835/1

**Fraises pour matrices, coniques**  
Type NS, à bout plat,  
avec inclination 1:20, avec queue  
cylindrique selon DIN 1835/1



**DIN 1889  
HSS-Co8**

HSS-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

8532

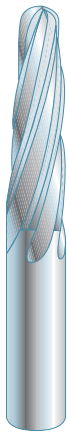
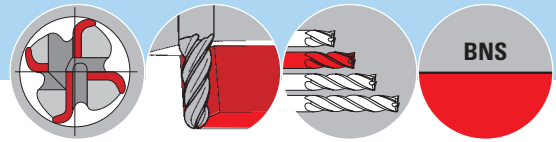
$\varnothing d_1$	$\varnothing d_3$	$l_2$	$l_1$	$\varnothing d_2$	Z					
4	8	40	90	8	3					
6	10	40	95	10	4					
8	12,5	45	105	12	4					
12	17	50	109	16	4					
12	20	80	140	20	4					
16	25	90	160	25	6					

Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock





# Frese coniche per stampi Gesenkfräser kegelig

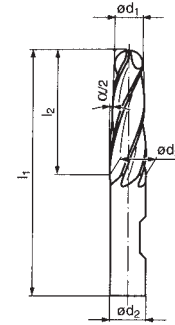


**Tipo BNS, con testa raggiata, con conicità  $\alpha/2 = 1:20$  ( $2^\circ52'$ ), con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type BNS, with ball nose, with inclination 1:20, with straight shank acc. DIN 1835/1

Typ BNS, mit runder Stirn, mit Neigung 1:20, mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, coniques**  
Type BNS, à bout hémisphérique, avec inclinaison 1:20, avec queue cylindrique selon DIN 1835/1



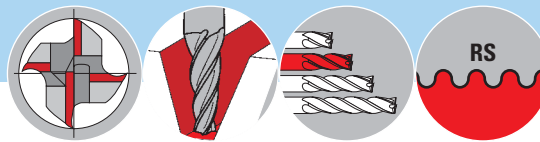
**DIN 1889  
HSS-Co8**

■ HSS-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						8544				
									<span style="color: #00aaff;">■</span>	
$\varnothing d_1$	$\varnothing d_3$	$l_2$	$l_1$	$\varnothing d_2$	Z					
12	20	80	140	20	4				<span style="color: #ff0000;">■</span>	
16	21,6	56	120	20	4				<span style="color: #ff0000;">■</span>	
16	25	90	160	25	6				<span style="color: #ff0000;">■</span>	
20	26,3	63	135	25	6				<span style="color: #ff0000;">■</span>	
20	30	100	170	25	6				<span style="color: #ff0000;">■</span>	

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

# Frese coniche per stampi Gesenkfräser kegelig

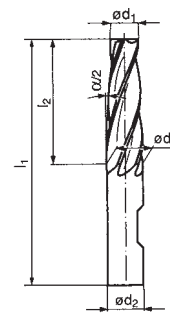


**Tipo RS, con testa piatta, con conicità  $\alpha/2 = 1:6$  ( $9^\circ28'$ ), con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type RS, with plane face, with inclination 1:6, with straight shank acc. DIN 1835/1

Typ RS, mit flacher Stirn, mit Neigung 1:6, mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, coniques**  
Type RS, à bout plat, avec inclinaison 1:6, avec queue cylindrique selon DIN 1835/1



**DIN 1889  
HSS-Co8**

HSS-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

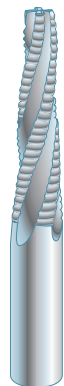
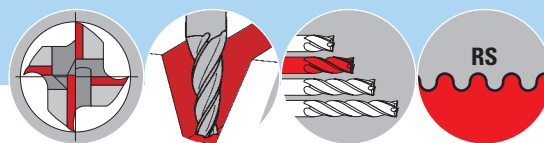
8548

$\emptyset d_1$	$\emptyset d_3$	$l_2$	$l_1$	$\emptyset d_2$	Z		
8	25	50	120	25	4		●
12	33	63	135	32	4		●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock



# Frese coniche per stampi Gesenkfräser kegelig

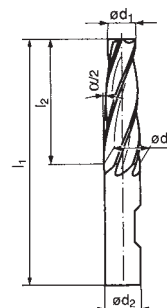


**Tipo RS, con testa piatta,  
con conicità  $\alpha/2 = 1:10$  ( $5^\circ 43'$ ),  
con codolo cilindrico  
secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type RS, with plane face,  
with inclination 1:10, with straight  
shank acc. DIN 1835/1

Typ RS, mit flacher Stirn,  
mit Neigung 1:10,  
mit Zylinderschaft nach  
DIN 1835/1

**Fraises pour matrices, coniques**  
Type RS, à bout plat,  
avec inclinaison 1:10, avec queue  
cylindrique selon DIN 1835/1



**DIN 1889  
HSS-Co8**

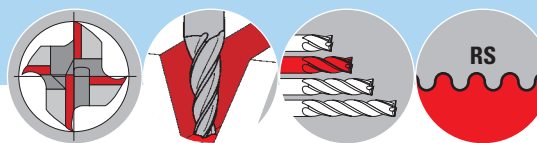
   HSS-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						8552
<b>ød1</b>	<b>ød3</b>	<b>l<sub>2</sub></b>	<b>l<sub>1</sub></b>	<b>ød<sub>2</sub></b>	<b>Z</b>	 
<b>8</b>	17	45	103	16	4	<span style="color: red;">■</span>
<b>8</b>	22,2	71	135	20	4	<span style="color: red;">■</span>
<b>12</b>	21	45	106	20	4	<span style="color: red;">■</span>
<b>12</b>	26,2	71	140	25	4	<span style="color: red;">■</span>
<b>16</b>	26	50	120	25	6	<span style="color: red;">■</span>

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

# Frese coniche per stampi

## Gesenkfräser kegelig

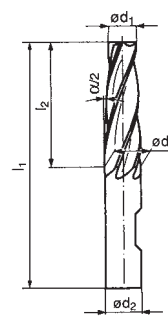


**Tipo RS, con testa piatta, con conicità  $\alpha/2 = 1:20$  ( $2^{\circ}52'$ ), con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type RS, with plane face, with inclination 1:20, with straight shank acc. DIN 1835/1

**Typ RS, mit flacher Stirn, mit Neigung 1:20, mit Zylinderschaft nach DIN 1835/1**

**Fraises pour matrices, coniques**  
Type RS, à bout plat, avec inclinaison 1:20, avec queue cylindrique selon DIN 1835/1



**DIN 1889  
HSS-Co8**

**HSS-Co8**

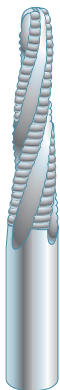
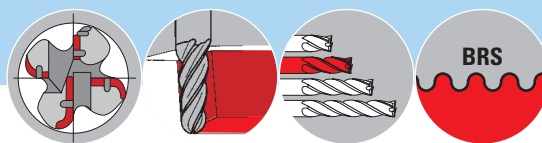
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						8556					
$\phi d_1$	$\phi d_3$	$l_2$	$l_1$	$\phi d_2$	Z						
<b>8</b>	12,5	45	105	12	4						■
<b>8</b>	16	80	138	16	4						■
<b>12</b>	17	50	109	16	4						■
<b>12</b>	20	80	140	20	4						■
<b>16</b>	21,6	56	120	20	4						■
<b>16</b>	25	90	160	25	4						■
<b>20</b>	26,3	63	135	25	5						■
<b>20</b>	30	100	170	25	5						■

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese coniche per stampi

## Gesenkfräser kegelig

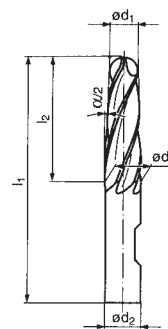


**Tipo BRS, con testa raggata, con conicità  $\alpha/2 = 1:6$  ( $9^\circ28'$ ), con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type BRS, with ball nose, with inclination 1:6, with straight shank acc. DIN 1835/1





Typ BRS, mit flacher Stirn, mit Neigung 1:6, mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, coniques**  
Type BRS, à bout hémisphérique, avec inclinaison 1:6, avec queue cylindrique selon DIN 1835/1



**DIN 1889**  
**HSS-Co8**

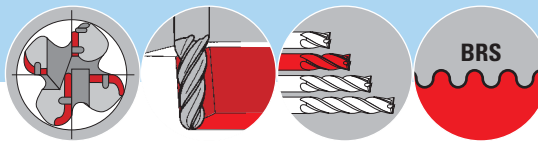
 Hss-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							8560		
Ød1	Ød3	l2	l1	Ød2	Z				
8	25	50	120	25	4				
12	33	63	135	32	4				

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock



# Frese coniche per stampi Gesenkfräser kegelig

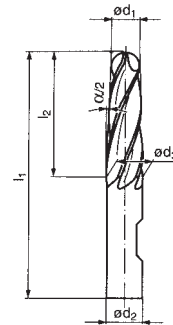


**Tipo BRS, con testa raggiata,  
con conicità  $\alpha/2 = 1:10$  ( $5^\circ 43'$ ),  
con codolo cilindrico  
secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type BRS, with ball nose,  
with inclination 1:10, with straight  
shank acc. DIN 1835/1

**Typ BRS, mit runder Stirn,  
mit Neigung 1:10,  
mit Zylinderschaft nach  
DIN 1835/1**

**Fraises pour matrices, coniques**  
Type BRS, à bout hémisphérique,  
avec inclinaison 1:10, avec queue  
cylindrique selon DIN 1835/1



**DIN 1889  
HSS-Co8**

**HSS-Co8**

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

8564



Ød1	Ød3	l <sub>2</sub>	l <sub>1</sub>	Ød <sub>2</sub>	Z							
8	17	45	103	16	4							●
8	22,2	71	135	20	4							●
12	21	45	106	20	4							●
12	26,2	71	140	25	4							●
16	26	50	120	25	4							●

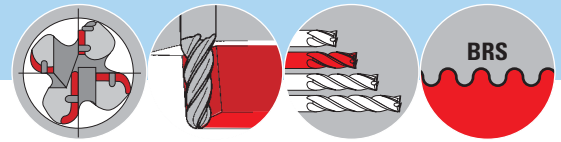
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





# Frese coniche per stampi

## Gesenkfräser kegelig

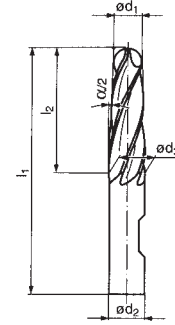


**Tipo BRS, con testa raggiata, con conicità  $\alpha/2 = 1:20$  ( $2^\circ 52'$ ), con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, tapered**  
Type BRS, with ball nose, with inclination 1:20, with straight shank acc. DIN 1835/1

Typ BRS, mit runder Stirn, mit Neigung 1:20, mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, coniques**  
Type BRS, à bout hémisphérique, avec inclinaison 1:20, avec queue cylindrique selon DIN 1835/1




**DIN 1889**  
**HSS-Co8**

HSS-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

8568

Ød1	Ød3	l2	l1	Ød2	Z				
8	12,5	45	105	12	4				●
8	16	80	138	16	4				●
12	17	50	109	16	4				●
12	20	80	140	20	4				●
16	21,6	56	120	20	4				●
16	25	90	160	25	5				●
20	26,3	63	135	25	5				●
20	30	100	170	25	5				●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock
















































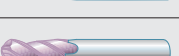



















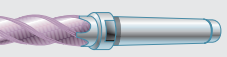




















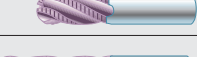




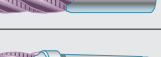










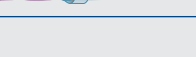




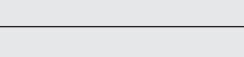





# Frese a testa semisferica

## Radiusschaftfräser

Ball nose cutters

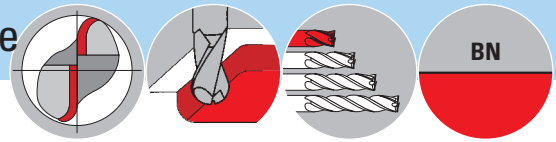
Fraises à bout hémisphérique

DIN	Tipo			Materiale	Rivestimento							Pag.
					TiN	TiCN	TiAlN FUTURA®					
IN	BN			HSS-Co8								140
IN	BN			ASP-30								141
IN	BN			HSS-Co8								142
IN	BN			ASP-30								143
IN	BN			ASP-60								144
IN	BN			ASP-60								145
1889	BN			HSS-Co8								146
1889	BN			ASP-30								147
1889	BN			HSS-Co8								148
1889	BN			ASP-60								149
1889	BN			ASP-30								150
1889D	BN			HSS-Co8								151
1889D	BN			HSS-Co8								152
1889	BNR			HSS-Co8								153
1889	BNR			ASP-30								154
1889	BNR			HSS-Co8								155
1889	BNR			ASP-60								156
1889	BNR			ASP-30								157
1889D	BNR			HSS-Co8								158
1889D	BNR			HSS-Co8								159

IN = Illico Norm

# Frese semisferiche a 2 taglienti, serie extra corta

## Radiusschaftfräser 2 - Schneiden extra kurze



4202

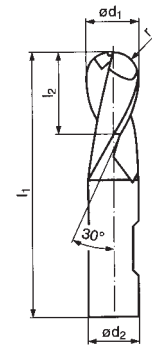
**Tipo BN,  $\approx 30^\circ$  elica,  
10° angolo di spoglia, con  
codolo cilindrico secondo  
DIN 1835/1**



**Ball nose cutters, 2-fluted,  
extra short series**  
Type BN, helix angle  $\approx 30^\circ$ ,  
rake angle  $10^\circ$ , witht straight  
shank acc. DIN 1835/1





**Typ BN,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel, mit  
Zylinderschaft nach DIN 1835/1**













**Fraises à bout hémisphérique 2 dents,  
série extra courte**  
Type BN, angle d'hélice  $30^\circ$ , angle  
de coupe  $10^\circ$ , avec queue cylindrique  
selon DIN 1835/1



**ILICO NORM**  
(similare a DIN 327)

**HSS-Co8**

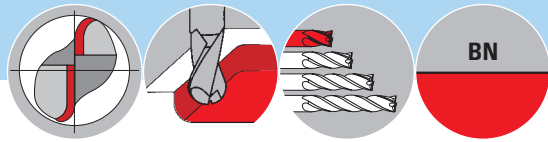
-  HSS-Co8
-  HSS-Co8  
TiN
-  HSS-Co8  
TiCN
-  HSS-Co8  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4200	4200T	4200C	4200F	4201	4201C
$\phi d_1$	r	$l_2$	$l_1$	$\phi d_2$	Z						
$h_{10}$											
2	1	4	48	6	2	●	●	●	●	●	●
3	1,5	5	49	6	2	●	●	●	●	●	●
4	2	7	51	6	2	●	●	●	●	●	●
5	2,5	8	52	6	2	●	●	●	●	●	●
6	3	8	52	6	2	●	●	●	●	●	●
7	3,5	10	60	10	2	●	●	●	●	●	●
8	4	11	61	10	2	●	●	●	●	●	●
9	4,5	11	61	10	2	●	●	●	●	●	●
10	5	13	63	10	2	●	●	●	●	●	●
11	5,5	13	70	12	2	●	●	●	●	●	●
12	6	16	73	12	2	●	●	●	●	●	●
13	6,5	16	73	12	2	●	●	●	●	●	●
14	7	16	73	12	2	●	●	●	●	●	●
15	7,5	16	73	12	2	●	●	●	●	●	●
16	8	19	79	16	2	●	●	●	●	●	●
18	9	19	79	16	2	●	●	●	●	●	●
20	10	22	88	20	2	●	●	●	●	●	●
22	11	22	88	20	2	●	●	●	●	●	●
24	12	26	102	25	2	●	●	●	●	●	●
25	12,5	26	102	25	2	●	●	●	●	●	●
26	13	26	102	25	2	●	●	●	●	●	●
28	14	26	102	25	2	●	●	●	●	●	●
30	15	26	102	25	2	●	●	●	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese semisferiche a 2 taglienti, serie extra corta

## Radiusschafffräser 2 - Schneiden extra kurz

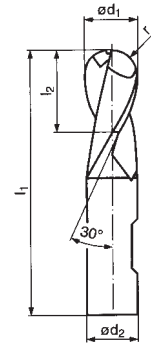


**Tipo BN,  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

**Ball nose cutters, 2 fluted,  
extra short series**  
Type BN, helix angle  $\approx 30^\circ$ ,  
rake angle  $10^\circ$ , with straight  
shank acc. DIN 1835/1

**Typ BN,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel, mit  
Zylinderschaft nach DIN 1835/1**

**Fraises à bout hémisphérique 2 dents,  
série extra courte**  
Type BN, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe  $10^\circ$ , avec queue cylindrique  
selon DIN 1835/1



**ILlico NORM**  
(similare a DIN 327)

**ASP-30**

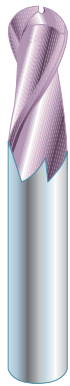
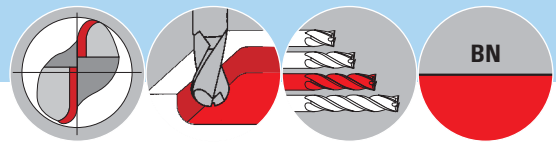
- ASP-30
- ASP-30  
TiN
- ASP-30  
TiCN
- ASP-30  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.								4220	4220T	4220C	4220F
$\phi d_1$	r	$l_2$	$l_1$	$\phi d_2$	Z						
$\phi d_1$ h <sub>10</sub>											
2	1	4	48	6	2		•	•	•	•	
3	1,5	5	49	6	2		•	•	•	•	
4	2	7	51	6	2		•	•	•	•	
5	2,5	8	52	6	2		•	•	•	•	
6	3	8	52	6	2		•	•	•	•	
7	3,5	10	60	10	2		•	•	•	•	
8	4	11	61	10	2		•	•	•	•	
9	4,5	11	61	10	2		•	•	•	•	
10	5	13	63	12	2		•	•	•	•	
11	5,5	13	70	12	2		•	•	•	•	
12	6	16	73	12	2		•	•	•	•	
13	6,5	16	73	12	2		•	•	•	•	
14	7	16	73	12	2		•	•	•	•	
15	7,5	16	73	12	2		•	•	•	•	
16	8	19	79	16	2		•	•	•	•	
18	9	19	79	16	2		•	•	•	•	
20	10	22	88	20	2		•	•	•	•	
22	11	22	88	20	2		•	•	•	•	
24	12	26	102	25	2		•	•	•	•	
25	12,5	26	102	25	2		•	•	•	•	

• Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock

# Frese semisferiche a 2 taglienti, serie lunga

## Radiusschaftfräser 2 - Schneiden lang



**Tipo BN,  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**

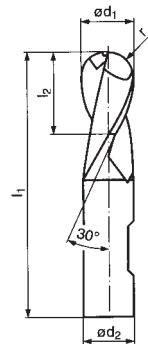
**Ball nose cutters, 2-fluted,  
long series**

Type BN, helix angle  $\approx 30^\circ$ , rake angle  
10°, with straight shank acc. DIN 1835/1




**Typ BN,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel, mit  
Zylinderschaft nach DIN 1835/1**









**Fraises à bout hémisphérique 2 dents,  
série longue**

Type BN, angle d'hélice  $\approx 30^\circ$ ,  
angle de coupe 10°, avec queue  
cylindrique selon DIN 1835/1



**ILICO NORM  
HSS-Co8**

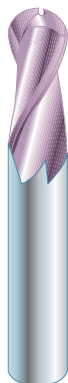
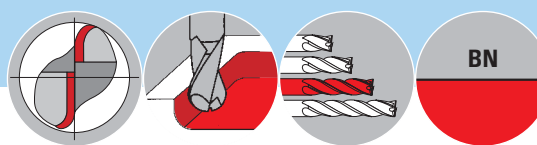
-  HSS-Co8
-  HSS-Co8  
TiN
-  HSS-Co8  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4204	4204T	4204C	4206
$\phi d_1$	r	$l_2$	$l_1$	$\phi d_2$	Z				
$h_{10}$									
3	1,5	8	56	6	2	●	●	●	■
4	2	11	63	6	2	●	●	●	■
5	2,5	13	68	6	2	●	●	●	■
6	3	13	68	6	2	●	●	●	■
7	3,5	16	80	10	2	●	●	●	■
8	4	19	88	10	2	●	●	●	■
9	4,5	22	88	10	2	●	●	●	■
10	5	22	95	10	2	●	●	●	■
11	5,5	26	102	12	2	●	●	●	■
12	6	26	110	12	2	●	●	●	■
13	6,5	26	110	12	2	●	●	●	■
14	7	26	110	12	2	●	●	●	■
15	7,5	26	110	12	2	●	●	●	■
16	8	32	123	16	2	●	●	●	■
18	9	32	123	16	2	●	●	●	■
20	10	38	141	20	2	●	●	●	■
22	11	38	141	20	2	●	●	●	■
24	12	45	166	25	2	●	●	●	■
25	12,5	45	166	25	2	●	●	●	■
30	15	45	166	25	2	●	●	●	■

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

# Frese semisferiche a 2 taglienti, serie lunga

## Radiusschafffräser 2-Schneiden lang

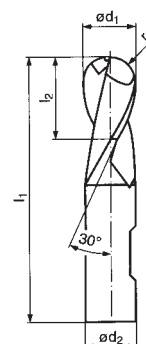


**Tipo BN,  $\approx 30^\circ$  elica, con codolo cilindrico secondo DIN 1835/1**

**Ball nose cutter 2-fluted, long series**  
Type BN, helix angle  $\approx 30^\circ$ , with straight shank acc. DIN 1835/1







Typ BN,  $\approx 30^\circ$  Drallwinkel, mit Zylindererschaft nach DIN 1835/1

**Fraises à bout hémisphérique, 2 dents, série longue**  
Type BN, angle d'hélice  $\approx 30^\circ$ , avec queue cylindrique selon DIN 1835/1



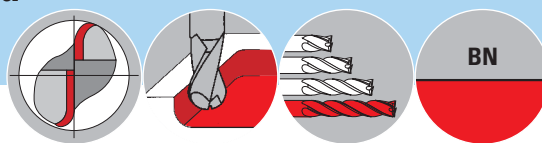
### ILICO NORM ASP-30

-  ASP-30
-  ASP-30 TiN
-  ASP-30 TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4224	4224T	4224C
								
								
$\phi d_1$ $h_{10}$	r	$l_2$	$l_1$	$\phi d_2$	Z			
3	1,5	8	56	6	2	●	●	●
4	2	11	63	6	2	●	●	●
5	2,5	13	68	6	2	●	●	●
6	3	13	68	6	2	●	●	●
7	3,5	16	80	10	2	●	●	●
8	4	19	88	10	2	●	●	●
9	4,5	19	88	10	2	●	●	●
10	5	22	95	10	2	●	●	●
11	5,5	22	102	12	2	●	●	●
12	6	26	110	12	2	●	●	●
13	6,5	26	110	12	2	●	●	●
14	7	26	110	12	2	●	●	●
15	7,5	26	110	12	2	●	●	●
16	8	32	123	16	2	●	●	●
18	9	32	123	16	2	●	●	●
20	10	38	141	20	2	●	●	●
22	11	38	141	20	2	●	●	●
24	12	45	166	25	2	●	●	●
25	12,5	45	166	25	2	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

## Frese semisferiche a 2 taglienti, serie extra lunga Radiusschafffräser 2-Schneiden extra lang



**Tipo BN, ≈ 30° elica,  
con codolo cilindrico  
secondo DIN 1835A**

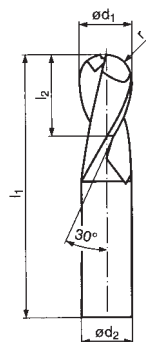
**Ball nose end mills 2-fluted,  
long top series**

Type BN, helix angle ≈ 30°,  
with straight shank acc. DIN 1835A



**Typ BN, ≈ 30° Drallwinkel,  
mit Zylinderschaft nach  
DIN 1835A**







**Fraises à bout hémisphérique, 2 dents,  
série longue top**

Type BN, angle d'hélice ≈ 30°,  
avec queue cylindrique selon DIN 1835A



**ILICO NORM  
ASP-60**

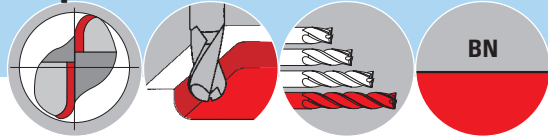
-  ASP-60
-  ASP-60  
TiCN
-  ASP-60  
TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4439	4439C	4439F
<b>Ød1</b>	<b>r</b>	<b>l<sub>2</sub></b>	<b>l<sub>1</sub></b>	<b>Ød<sub>2</sub> h6</b>	<b>Z</b>	 	 	 
4	2	30	80	8	2	●	●	●
5	2,5	30	80	8	2	●	●	●
6	3	50	100	8	2	●	●	●
8	4	50	100	8	2	●	●	●
10	5	50	100	10	2	●	●	●
16	8	50	100	16	2	●	●	●
20	10	50	100	20	2	●	●	●
30	15	50	100	20	2	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock



# Frese semisferiche a 2 taglienti, serie extra lunga top Radiusschafffräser 2-Schneiden top extra lang



**Tipo BN,  $\approx 30^\circ$  elica, con codolo cilindrico secondo DIN 1835A**

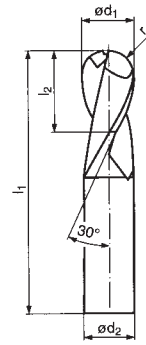
**Ball nose end mills 2-fluted, extra long series**

Type BN, helix angle  $\approx 30^\circ$ , with straight shank acc. DIN 1835A

**Typ BN,  $\approx 30^\circ$  Drallwinkel, mit Zylinderschaft nach DIN 1835A**

**Fraises à bout hémisphérique, 2 dents, série extra longue**

Type BN, angle d'hélice  $\approx 30^\circ$ , avec queue cylindrique selon DIN 1835A



## ILICO NORM ASP-60

- ASP-60
- ASP-60 TiCN
- ASP-60 TiAlN FUTURA®

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4493	4493C	4493F
$\varnothing d1$	r	$l_2$	$l_1$	$\varnothing d_2$ h6	Z			
4	2	30	130	8	2	●	●	●
5	2,5	30	130	8	2	●	●	●
6	3	50	150	8	2	●	●	●
8	4	50	150	8	2	●	●	●
10	5	50	150	10	2	●	●	●
16	8	100	200	16	2	●	●	●
20	10	100	200	20	2	●	●	●
30	15	100	200	20	2	●	●	●

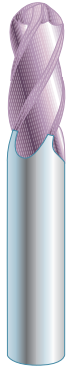
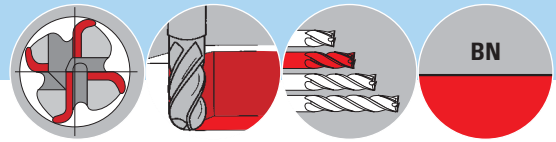
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





# Frese per stampi a più taglienti, serie corta

## Gesenkfräser kurz zylindrisch



**Tipo BN,  $\approx 30^\circ$  elica,  $6^\circ$  angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

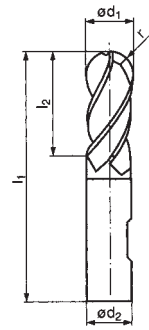
**Die-sinking cutters, short series, cylindrical**

Type BN, helix angle  $\approx 30^\circ$ , rake angle  $6^\circ$ , with straight shank acc. DIN 1835/1

Typ BN,  $\approx 30^\circ$  Drallwinkel,  $6^\circ$  Spanwinkel, mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, série courte**

Type BN, angle d'hélice  $\approx 30^\circ$ , angle de coupe  $6^\circ$ , avec queue cylindrique selon DIN 1835/1



**DIN 1889  
HSS-Co8**

- HSS-Co8
- HSS-Co8  
TiN
- HSS-Co8  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4438	4438T	4438C
$\phi d_1$	r	$l_2$	$l_1$	$\phi d_2$	Z			
6	3	13	57	6	4	●	●	●
8	4	19	69	10	4	●	●	●
10	5	22	72	10	4	●	●	●
12	6	26	83	12	4	●	●	●
16	8	32	92	16	4	●	●	●
20	10	38	104	20	4	●	●	●
25	12,5	45	121	25	5	●	●	●
32	16	53	133	32	6	●	●	●
40	20	63	155	40	6	●	●	●

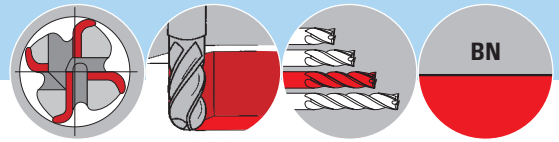
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock







# Frese per stampi a più taglienti, serie lunga Gesenkfräser lang zylindrisch

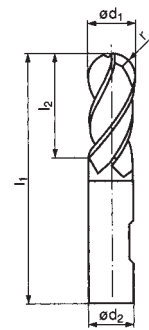


**Tipo BN  $\approx 30^\circ$  elica,  $6^\circ$  angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, long series, cylindrical**  
Type BN, helix angle  $30^\circ$ , rake angle  $6^\circ$ , with straight shank acc. DIN 1835/1

Typ BN,  $\approx 30^\circ$  Drillwinkel,  $6^\circ$  Spanwinkel, mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, série longue**  
Type BN, angle d'hélice  $\approx 30^\circ$ , angle de coupe  $6^\circ$ , avec queue cylindrique selon DIN 1835/1



**DIN 1889  
ASP-30**

ASP-30  
ASP-30  
TiN  
ASP-30  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						4492	4492T	4492C
$\varnothing d_1$	r	$l_2$	$l_1$	$\varnothing d_2$	Z			
6 <sup>▲</sup>	3	24	68	6	4	●	●	●
8 <sup>▲</sup>	4	38	88	10	4	●	●	●
10	5	45	95	10	4	●	●	●
12	6	53	110	12	4	●	●	●
16	8	63	123	16	4	●	●	●
20	10	75	141	20	4	●	●	●
25	12,5	90	166	25	5	●	●	●
32	16	106	186	32	6	●	●	●
40	20	125	217	40	6	●	●	●

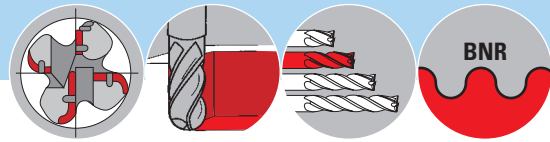
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
▲ ILLICO NORM





# Frese per stampi a più taglienti, serie corta

## Gesenkfräser kurz zylindrisch

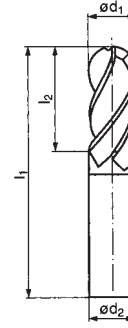


**Tipo BNR  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**





**Die-sinking cutters, short series,  
cylindrical,**  
Type BNR, helix angle  $\approx 30^\circ$ , rake  
angle  $10^\circ$ , with straight shank acc.  
DIN 1835/1









**Typ BNR,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel, mit Zylinderschaft  
nach DIN 1835/1**

**Fraises pour matrices, série courte,  
cylindriques,**  
Type BNR, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe  $10^\circ$ , avec queue cylindrique  
selon DIN 1835/1



**DIN 1889  
HSS-Co8**

-  HSS-Co8
-  HSS-Co8  
TiN
-  HSS-Co8  
TiCN
-  HSS-Co8  
TiAlN FUTURA®

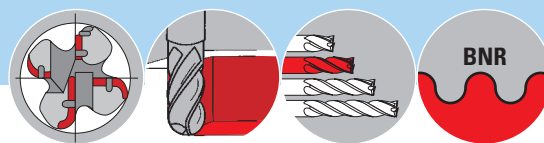
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7426	7426T	7426C	7426F
$\phi d_1$	$l_2$	$l_1$	$\phi d_2$	Z				
								
6	13	57	6	4	●	●	●	●
8	19	69	10	4	●	●	●	●
10	22	72	10	4	●	●	●	●
12	26	83	12	4	●	●	●	●
16	32	92	16	4	●	●	●	●
20	38	104	20	4	●	●	●	●
25	45	121	25	4	●	●	●	●
32	53	133	32	6	●	●	●	●
40	63	155	40	6	●	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock



# Frese per stampi a più taglienti, serie corta

## Gesenkfräser kurz zylindrisch

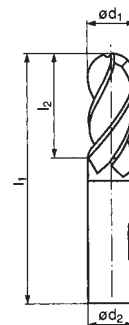


**Tipo BNR  $\approx 30^\circ$  elica,  $10^\circ$  angolo di spoglia, con codolo cilindrico secondo DIN 1835/1**

**Die-sinking cutters, short series, cylindrical,**  
Type BNR, helix angle  $\approx 30^\circ$ , rake angle  $10^\circ$ , with straight shank acc. DIN 1835/1

Typ BNR,  $\approx 30^\circ$  Drallwinkel,  $10^\circ$  Spanwinkel, mit Zylinderschaft nach DIN 1835/1

**Fraises pour matrices, série courte, cylindriques,**  
Type BNR, angle d'hélice  $\approx 30^\circ$ , angle de coupe  $10^\circ$ , avec queue cylindrique selon DIN 1835/1



**DIN 1889  
ASP-30**

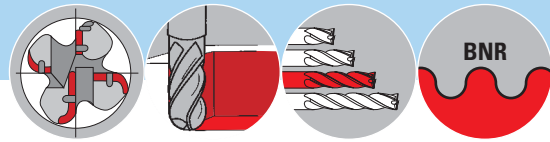
ASP-30  
ASP-30 TiN  
ASP-30 TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7476	7476T	7476C
<b><math>\varnothing d_1</math></b>	$L_2$	$L_1$	$\varnothing d_2$	Z			
6	13	57	6	4	●	●	●
8	19	69	10	4	●	●	●
10	22	72	10	4	●	●	●
12	26	83	12	4	●	●	●
16	32	92	16	4	●	●	●
20	38	104	20	4	●	●	●
25	45	121	25	4	●	●	●
32	53	133	32	6	●	●	●
40	63	155	40	6	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese per stampi a più taglienti, serie lunga

## Gesenkfräser lang zylindrisch

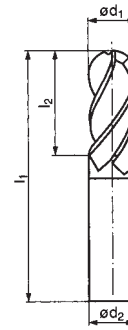


**Tipo BNR  $\approx 30^\circ$  elica,  
10° angolo di spoglia,  
con codolo cilindrico  
secondo DIN 1835/1**




**Die-sinking cutters, long series,  
cylindrical,  
Type BNR, helix angle  $\approx 30^\circ$ , rake  
angle  $10^\circ$ , with straight shank acc.  
DIN 1835/1**







**Typ BNR,  $\approx 30^\circ$  Drallwinkel,  
10° Spanwinkel, mit Zylinderschaft  
nach DIN 1835/1**

**Fraises pour matrices, série longue,  
cylindriques,  
Type BNR, angle d'hélice  $\approx 30^\circ$ , angle  
de coupe  $10^\circ$ , avec queue cylindrique  
selon DIN 1835/1**



**DIN 1889  
HSS-Co8**

-  HSS-Co8
-  HSS-Co8  
TiN
-  HSS-Co8  
TiCN

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					7430	7430T	7430C
$\phi d_1$	$L_2$	$L_1$	$\phi d_2$	Z			
							
6 <sup>▲</sup>	24	68	6	4	●	●	●
8 <sup>▲</sup>	38	88	10	4	●	●	●
10	45	95	10	4	●	●	●
12	53	110	12	4	●	●	●
16	63	123	16	4	●	●	●
20	75	141	20	4	●	●	●
25	90	166	25	4	●	●	●
32	106	186	32	6	●	●	●
40	125	217	40	6	●	●	●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
▲ ILLICO NORM































# Frese per scanalature, Prismatiche e a Disco

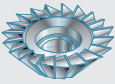
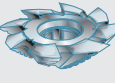








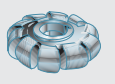


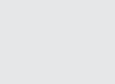
## T-Nuten-, Prismen - und Scheibenfräser

T-slot, double angle and side cutters  
Fraises pour rainures à T, isocèles et à 3 tailles

DIN	Tipo		Materiale	Uncoated					Pag.
851	N	 	HSS-Co5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			162
851	N	 	HSS-Co5	<input type="checkbox"/>			<input checked="" type="checkbox"/>		163
851	NF	 	HSS-Co5	<input type="checkbox"/>	<input checked="" type="checkbox"/>				164
851	NF	 	HSS-Co5	<input type="checkbox"/>			<input checked="" type="checkbox"/>		165
851	NR	 	HSS-Co5	<input type="checkbox"/>			<input checked="" type="checkbox"/>		166
850	N	 	HSS-Co5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			167
1833	N	 	HSS-Co5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			168
1833	N	 	HSS-Co5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			169
6518	N	 	HSS-Co5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			170

IN = Illico Norm



DIN	Tipo		Materiale	Uncoated					Pag.
842	N		HSS	<input type="checkbox"/>					171
842	NF		HSS-Co5	<input type="checkbox"/>					172
847	N		HSS	<input type="checkbox"/>					173
885	N		HSS-Co5	<input type="checkbox"/>					174
885	HS		HSS-Co5	<input type="checkbox"/>					176
885	H		HSS-Co5	<input type="checkbox"/>					178
885	W		HSS	<input type="checkbox"/>					179
1834	N		HSS-Co5	<input type="checkbox"/>					181
1834	N		HSS-Co5	<input type="checkbox"/>					182
IN	N		HSS-Co5	<input type="checkbox"/>					183
IN	N		HSS-Co5	<input type="checkbox"/>					185
856	N		HSS	<input type="checkbox"/>					186
855A	N		HSS	<input type="checkbox"/>					187
6513R	N		HSS	<input type="checkbox"/>					188

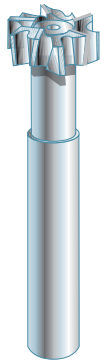
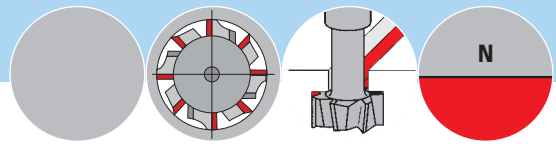
IN = Illico Norm





# Frese per scanalature, a T, dentatura incrociata

## T-Nutenfräser kreuzverzahnt

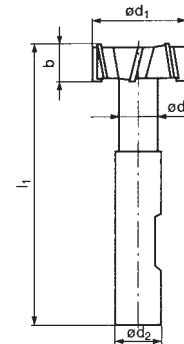


**Tipo N, per scanalature secondo DIN 650, con codolo cilindrico secondo DIN 1835/1**

**T-Slot cutters, staggered teeth**  
Type N, for keyways acc. DIN 650, with straight shank acc. DIN 1835/1

Typ N, für Nuten nach DIN 650, mit Zylinderschaft nach DIN 1835/1

**Fraises pour rainures à T, denture double dèche**  
Type N, pour rainures selon DIN 650, avec queue cylindrique selon DIN 1835/1



**DIN 851  
HSS-Co5**

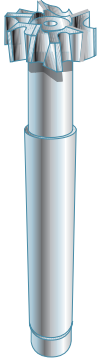
HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						9520	9522
<b>Ød1</b> d11	b	Ød3 h12	l <sub>1</sub>	Ød <sub>2</sub>	Z		
<b>11</b>	4	4	53,5	10	6	●	■
<b>12,5</b>	6	5	57	10	6	●	
<b>16</b>	8	7	62	10	6	●	
<b>18</b>	8	8	70	12	6	●	■
<b>19<sup>▲</sup></b>	9	8	71	12	6	●	■
<b>21</b>	9	10	74	12	6	●	
<b>22<sup>▲</sup></b>	10	10	75	12	6	●	■
<b>25</b>	11	12	82	16	8	●	■
<b>28<sup>▲</sup></b>	12	13	85	16	8	●	■
<b>32</b>	14	15	90	16	8	●	
<b>36<sup>▲</sup></b>	16	17	103	25	8	●	■
<b>40</b>	18	19	108	25	10	●	
<b>45<sup>▲</sup></b>	20	21	113	25	10	●	■
<b>50</b>	22	25	124	32	10	●	■
<b>60</b>	28	30	139	32	10	●	

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 ▲ ILLICO NORM

# Frese per scanalature a T, dentatura incrociata

## T-Nutenfräser kreuzverzahnt

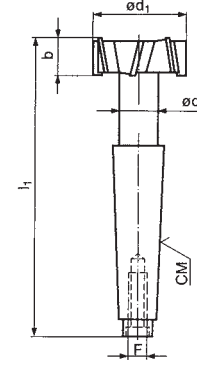


**Tipo N, per scanalature secondo DIN 650, con codolo conico morse secondo DIN 228/1**

**T-Slot cutters, staggered teeth**  
 Type N, for keyways acc. DIN 650, with morse taper shank acc. DIN 228/1

**Typ N, für Nuten nach DIN 650, mit Morsekegelschaft nach DIN 228/1**

**Fraises pour rainures à T, denture double dèche**  
 Type N, pour rainures selon DIN 650, avec queue cône morse selon DIN 228/1



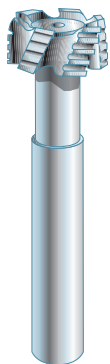
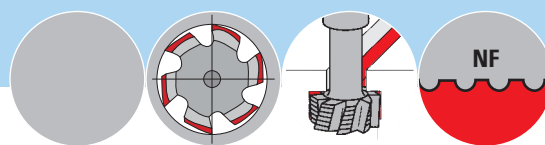
**DIN 851  
HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9524
$\phi d_1$ $d_{11}$	$b$	$\phi d_3$ $d_{12}$	$l_1$	CM	F	Z	
<b>18</b>	8	8	82	1	M 6	6	
<b>21</b>	9	10	102	2	M10	6	
<b>25</b>	11	12	104	2	M10	8	
<b>28<sup>▲</sup></b>	12	13	106	2	M10	8	
<b>32</b>	14	15	111	2	M10	8	
<b>36<sup>▲</sup></b>	16	17	133	3	M12	8	
<b>40</b>	18	19	140	3	M12	10	
<b>45<sup>▲</sup></b>	20	21	143	3	M12	10	
<b>50</b>	22	25	187	4	M16	10	
<b>60</b>	28	30	201	4	M16	10	

Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 ILLICO NORM

# Frese per scanalature a T, dentatura incrociata T-Nutenfräser

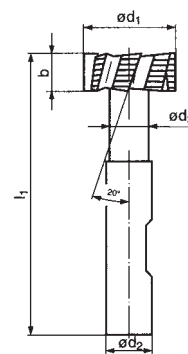


**Tipo NF,  $\approx 20^\circ$  elica per scanalature secondo DIN 650, con codolo cilindrico secondo DIN 1835/1**

**T-slot cutters,**  
Type NF, helix angle  $\approx 20^\circ$  for keyways acc. DIN 650, with straight shank acc. DIN 1835/1

Typ NF,  $\approx 20^\circ$  Drallwinkel für Nuten nach DIN 650, mit Zylinderschaft nach DIN 1835/1

**Fraises pour rainures à T,**  
Type NF angle d'hélice  $\approx 20^\circ$ , pour rainures selon DIN 650, avec queue cylindrique selon DIN 1835/1



**DIN 851  
HSS-Co5**



Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

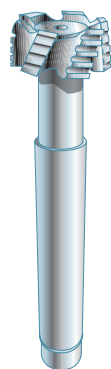
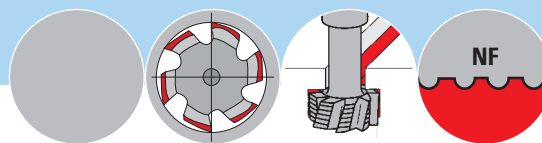
9526

$\emptyset d_1$ $d_{11}$	b	$\emptyset d_3$ $h_{12}$	$l_1$	$\emptyset d_2$	Z					
21	9	10	74	12	6					●
22 <sup>▲</sup>	10	10	75	12	6					●
25	11	12	82	16	6					●
28 <sup>▲</sup>	12	13	85	16	6					●
32	14	15	90	16	6					●
36 <sup>▲</sup>	16	17	103	25	6					●
40	18	19	108	25	8					●
45 <sup>▲</sup>	20	21	113	25	8					●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
▲ ILLICO NORM



## Frese per scanalature a T T-Nutenfräser

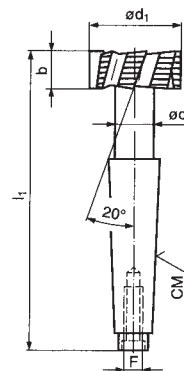


**Tipo NF, ≈ 20° elica,**  
**per scanalature secondo**  
**DIN 650, con codolo conico**  
**Morse secondo DIN 228/1**

**T-slot cutters**  
Type NF, helix angle ≈ 20°,  
for keyways acc. DIN 650,  
with morse taper shank acc. DIN 228/1










Typ NF, ≈ 20° Drallwinkel,  
für Nuten nach DIN 650,  
mit Morsekegelschaft nach  
DIN 228/1

**Fraises pour rainures à T**  
Type NF, angle d'déllice ≈ 20°,  
pour rainures selon DIN 650,  
avec queue cylindrique selon DIN 228/1



**DIN 851**  
**HSS-Co5**

 HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9530	
$\varnothing d_1$ $d_{11}$	b	$\varnothing d_3$ $d_{12}$	$l_1$	CM	F	Z		
40	18	19	140	3	M12	8		
45▲	20	21	143	3	M12	8		
50	22	25	187	4	M16	10		
56▲	24	28	192	4	M16	10		
60	28	30	201	4	M16	10		
72	35	36	248	5	M20	10		
85	40	42	255	5	M20	10		
95	44	44	264	5	M20	10		

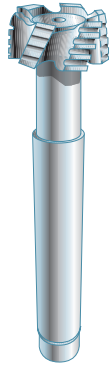
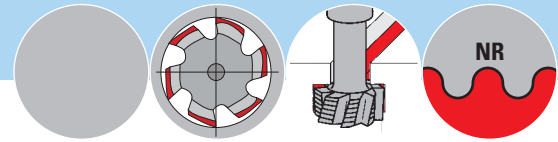
■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
▲ ILLICO NORM





# Frese per scanalature a T

## T-Nutenfräser

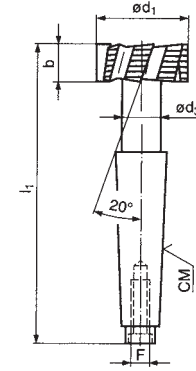


**Tipo NR,  $\approx 20^\circ$  elica, per scanalature secondo DIN 650, con codolo conico Morse secondo DIN 228/1**

**T-slot cutters**  
 Type NR, helix angle  $\approx 20^\circ$ , for keyways acc. DIN 650, with Morse taper shank acc. DIN 228/1

Typ NR,  $\approx 20^\circ$  Drallwinkel, für Nuten nach DIN 650, mit Morsekegelschaft nach DIN 228/1

**Fraises pour rainures à T**  
 Type NR, angle d'hélice  $\approx 20^\circ$ , pour rainures selon DIN 650, avec queue cône Morse selon DIN 228/1



**DIN 851  
HSS-Co5**

HSS-Co5

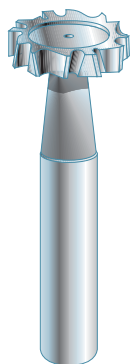
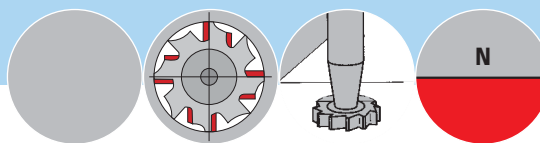
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9536
$\text{Ød1}$ $d_{11}$	b	$\text{Ød}_3$ $d_{12}$	$l_1$	CM	F	Z	
<b>56<sup>▲</sup></b>	24	28	192	4	M16	10	
<b>60</b>	28	30	201	4	M16	10	
<b>95</b>	44	44	264	5	M20	10	

■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 ▲ ILLICO NORM



# Frese per scanalature a T

## T-Nutenfräser

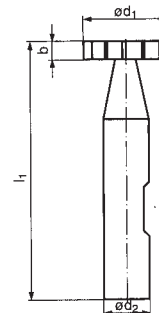


**(Woodruff) dentatura incrociata, per scanalature secondo DIN 6888, con codolo cilindrico secondo DIN 1835/1**

**Woodruff cutters, staggered teeth for keyways acc. DIN 6888, with straight shank acc. DIN 1835/1**



**(Woodruff) für Nuten nach DIN 6888, mit Zylinderschaft nach DIN 1835/1**

**Fraises pour logement de clavettes-disques (Woodruff), denture double hélixe pour rainures selon DIN 6888, avec queue cylindrique selon DIN 1835/1**



**DIN 850  
HSS-Co5**

 HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					9542	9544
$\varnothing d_1$ $h_{10}$	$b$ $e_8$	$l_1$	$\varnothing d_2$	Z		
10,5	2	50	6	6	●	■
10,5	2,5	50	6	6	●	
10,5	3	50	6	6	●	
13,5 <sup>▲</sup>	2	56	10	6	●	
13,5	3	56	10	6	●	■
13,5	4	56	10	6	●	
16,5	3	56	10	6	●	■
16,5	4	56	10	6	●	
16,5	5	56	10	6	●	■
19,5 <sup>▲</sup>	3	63	10	8	●	
19,5	4	63	10	8	●	
19,5	5	63	10	8	●	■
19,5	6	63	10	8	●	
22,5 <sup>▲</sup>	4	63	10	8	●	■
22,5	5	63	10	8	●	■
22,5	6	63	10	8	●	
25,5 <sup>▲</sup>	5	63	10	10	●	■
25,5	6	63	10	10	●	■
28,5	6	63	10	10	●	■
28,5	8	63	10	10	●	
28,5	10	71	12	10	●	■
32,5 <sup>▲</sup>	6	71	12	10	●	
32,5	8	71	12	10	●	
32,5	10	71	12	10	●	
38,5 <sup>▲</sup>	8	71	12	10	●	■
45,5 <sup>▲</sup>	8	71	12	12	●	■
45,5	10	71	12	12	●	

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 ▲ ILLICO NORM



# Frese ad angolo

## Winkelfräser

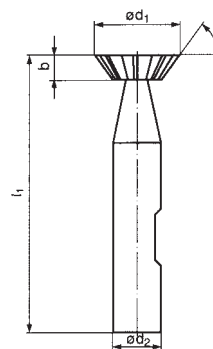


Con codolo cilindrico  
secondo DIN 1835/1

Dovetail cutters  
with straight shank acc. DIN 1835/1

Mit Zylinderschaft  
nach DIN 1835/1

Fraises conique cône reversé,  
avec queue selon DIN 1835/1



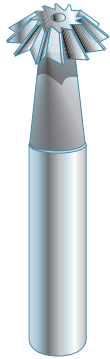
**DIN 1833**  
**HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						9546	9548
$\sigma d_1$	$\sigma$	b	$l_1$	$\sigma d_2$	Z		
16	45°	4	60	12	8		
20	45°	5	63	12	10		
25	45°	6,3	67	12	10		
16	50°	5	60	12	8		
20	50°	6,3	63	12	10		
25	50°	8	67	12	10		
16	55°	5,6	60	12	8		
20	55°	7,1	63	12	10		
25	55°	9	67	12	10		
16	60°	6,3	60	12	8		
20	60°	8	63	12	10		
25	60°	10	67	12	10		
16 <sup>▲</sup>	70°	7	60	12	8		
20 <sup>▲</sup>	70°	9	63	12	10		
25 <sup>▲</sup>	70°	11	67	12	10		

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 ▲ ILLICO NORM

# Frese ad angolo Winkelfräser

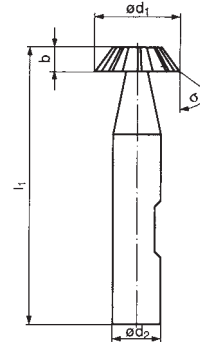


Con codolo cilindrico  
secondo DIN 1835/1

Dovetail cutters  
with straight shank acc. DIN 1835/1

Mit Zylinderschaft  
nach DIN 1835/1

Fraises conique cône direct  
avec queue cylindrique selon  
DIN 1835/1



**DIN 1833  
HSS-Co5**

HSS-Co8

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

Ød1	α	b	l <sub>1</sub>	Ød <sub>2</sub>	Z	9550		9552	
16	45°	4	60	12	8	●		■	
20	45°	5	63	12	10	●		■	
25	45°	6,3	67	12	10	●			
16	60°	5	60	12	8	●			
20	60°	6,3	63	12	10	●		■	
25	60°	8	67	12	10	●		■	
16 <sup>▲</sup>	70°	5,6	60	12	8	●			
20 <sup>▲</sup>	70°	7,1	63	12	10	●		■	
25 <sup>▲</sup>	70°	9	67	12	10	●		■	

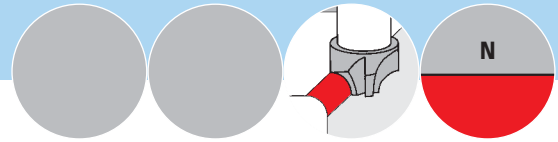
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorratig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 ▲ ILLICO NORM





# Frese a profilo, concave

## Viertelrund - Profilfräser konkav

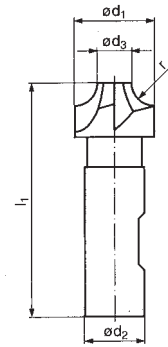


**1/4 circolare con codolo cilindrico secondo DIN 1835/1**

**Corner-rounding cutters**  
Concave, with straight shank acc.  
DIN 1835/1

mit Zylinderschaft  
nach DIN 1835/1

**Fraises 1/4 de cercle**  
Concave, avec queue cylindrique  
selon DIN 1835/1



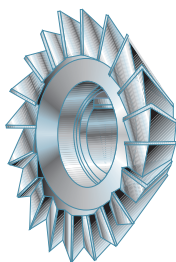
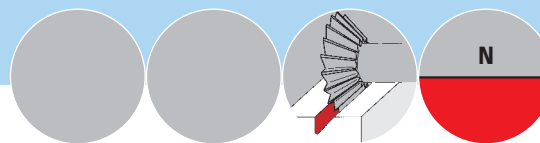
**DIN 6518**  
**HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						9554	9556
$r$	$\text{Ød1}$	$\text{Ød3}$	$l_1$	$\text{Ød2}$	$Z$		
$H_{11}$							
<b>1</b>	8	6	60	10	4	●	■
<b>1,25</b>	8,5	6	60	10	4	●	■
<b>1,5</b>	9	6	60	10	4	●	
<b>1,6</b>	9,2	6	60	10	4		■
<b>2</b>	10	6	60	10	4	●	■
<b>2,5</b>	11	6	60	10	4	●	■
<b>3</b>	12	6	60	12	4	●	■
<b>3,15</b>	12,3	6	60	12	4	■	
<b>3,5</b>	13	6	60	12	4	●	■
<b>4</b>	14	6	60	12	4	●	■
<b>4,5</b>	15	6	60	12	4	●	■
<b>5</b>	16	6	60	12	4	●	
<b>5,5</b>	19	8	67	16	4	●	■
<b>6</b>	20	8	67	16	4	●	■
<b>6,3</b>	20,6	8	71	16	4	■	■
<b>6,5</b>	21	8	71	16	4	●	■
<b>7</b>	22	8	71	16	4	●	■
<b>7,5</b>	23	8	71	16	4	●	■
<b>8</b>	24	8	71	16	4	●	■
<b>8,5</b>	25	8	85	25	4	●	■
<b>9</b>	26	8	85	25	4	●	■
<b>9,5</b>	27	8	85	25	4	●	■
<b>10</b>	28	8	85	25	4	●	
<b>11</b>	32	10	90	25	4	●	■
<b>12</b>	34	10	90	25	4	●	
<b>12,5</b>	41	16	100	25	6	●	
<b>13</b>	42	16	100	25	6	●	
<b>14</b>	44	16	100	25	6	●	■
<b>15</b>	46	16	100	25	6	●	■
<b>16</b>	48	16	100	25	6	●	■
<b>18</b>	52	16	112	32	6	●	■
<b>20</b>	56	16	112	32	6	●	■

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock

# Frese frontali ad angolo a manicotto Aufsteckwinkelstirnfräser

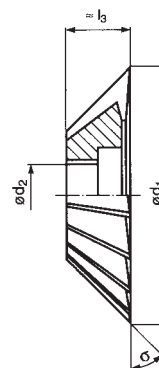


**Tipo N, con taglio di chiavetta longitudinale secondo DIN 138**

**Single angle shell end mills**  
with standard keyway DIN 138

**Typ N, mit Längsnut nach DIN 138**

**Fraises à queue d'aronde**  
à trou lisse selon DIN 138



**DIN 842  
HSS**

HSS

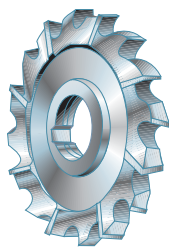
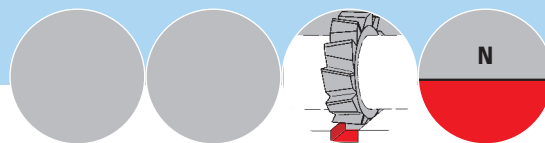
Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.						9575				
Ød1	σ	l <sub>3</sub>	Ød <sub>2</sub>	Z						
40	45°	10	10	16						●
50	45°	13	13	18						●
63	45°	18	16	20						●
80	45°	22	22	22						●
100	45°	28	27	26						●
40	50°	13	10	16						●
50	50°	16	13	18						●
63	50°	20	16	20						●
80	50°	25	22	22						●
100	50°	32	27	26						●
125	50°	40	32	28						●
40	55°	13	10	14						●
50	55°	16	13	16						●
63	55°	20	16	18						●
80	55°	25	22	20						●
100	55°	32	27	22						●
125	55°	40	32	24						●
40	60°	13	10	14						●
50	60°	16	13	16						●
63	60°	20	16	18						●
80	60°	25	22	20						●
100	60°	32	27	22						●
125	60°	40	32	24						●
160	60°	50	40	28						●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock





# Frese a disco Scheibenfräser kreuzverzahnt

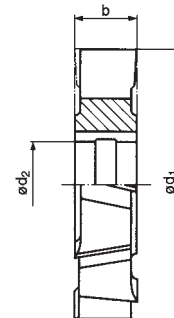


**Tipo N, denti rinforzati elicoidali alternati con taglio di chiave longitudinale secondo DIN 138**

**Side and face milling cutters**  
Type N, staggered teeth, with standard keyway acc. DIN 138

Typ N, mit Längsnut nach DIN 138

**Fraises 3 tailles**  
Type N, denture double hélixe alternée, avec entraînement par clavette selon DIN 138



**DIN 885  
HSS-Co5**

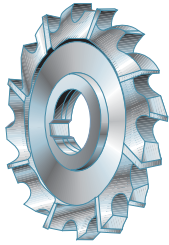
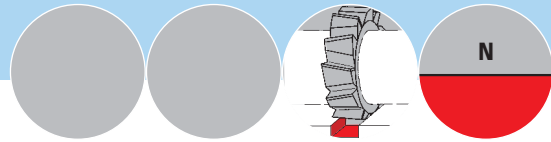
HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.									9577
Ød1	b	Ød2	Z						
50	4	16	12					●	
50	5	16	12					●	
50	6	16	12					●	
50	8	16	12					●	
50	10	16	12					●	
63	4	22	12					●	
63	5	22	12					●	
63	6	22	12					●	
63	8	22	12					●	
63	10	22	12					●	
63	12	22	12					●	
63	14	22	12					●	
63	16	22	12					●	
63 <sup>▲</sup>	18	22	12					●	
80 <sup>▲</sup>	4	27	14					■	
80	5	27	14					●	
80	6	27	14					●	
80	8	27	14					●	
80	10	27	14					●	
80	12	27	14					●	
80	14	27	14					●	
80	16	27	14					●	
80	18	27	14					●	
80	20	27	14					●	
100 <sup>▲</sup>	5	32	14					■	
100	6	32	14					●	
100	8	32	14					●	
100	10	32	14					●	
100	12	32	14					●	
100	14	32	14					●	
100	16	32	14					●	
100	18	32	14					●	
100	20	32	14					●	
100	22	32	14					●	
100	25	32	14					●	
125 <sup>▲</sup>	5	32	14					■	

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 ▲ ILLICO NORM

# Frese a disco

## Scheibenfräser kreuzverzahnt

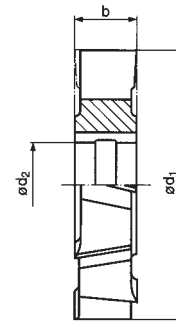


**Tipo N, denti rinforzati elicoidali alternati con taglio di chiave longitudinaline secondo DIN 138**

**Side and face milling cutters**  
Type N, staggered teeth, with standard keyway acc. DIN 138

Typ N, mit Längsnut nach DIN 138

**Fraises 3 tailles**  
Type N, denture double hèlece alternée, avec entraînement par clavette selon DIN 138



**DIN 885**  
**HSS-Co5**

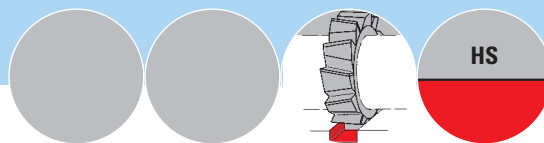
 HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.								9577
Ød1	b	Ød2	Z					
125	8	32	16					●
125	10	32	16					●
125	12	32	16					●
125	14	32	16					●
125	16	32	16					●
125	18	32	16					●
125	20	32	16					●
125	22	32	16					●
125	25	32	16					●
125	28	32	16					●
160 <sup>▲</sup>	6	40	18					●
160 <sup>▲</sup>	8	40	18					●
160	10	40	18					●
160	12	40	18					●
160	14	40	18					●
160	16	40	18					●
160	18	40	18					●
160	20	40	18					●
160	22	40	18					●
160	25	40	18					●
160	28	40	18					●
160	32	40	18					●
200 <sup>▲</sup>	8	40	24					■
200	12	40	24					●
200	14	40	24					●
200	16	40	24					●
200	18	40	24					●
200	20	40	24					●
200	22	40	24					●
200	25	40	24					●
200	28	40	24					●
200	32	40	24					●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
 ■ Fino ad esaurimento scorte - Solange der Vorrat reicht - Discontinued available until sold out - Jusqu'à épuisement de stock  
 ▲ ILLICO NORM

# Frese a disco

## Scheibenfräser kreuzverzahnt

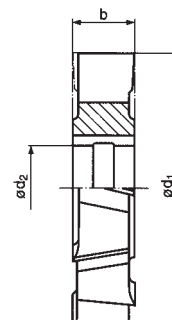


**Tipo HS, denti rinforzati elicoidali alternati con taglio di chiave longitudinaline secondo DIN 138**

**Side and face milling cutters**  
Type HS, staggered teeth, with standard keyway acc. DIN 138

Typ HS, mit Längsnut nach DIN 138

**Fraises 3 tailles**  
Type HS, denture double hélice alternée, avec entraînement par clavette selon DIN 138



**DIN 885**  
**HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.					9578				
Ød1	b	Ød2	Z						
50	4	16	16						●
50	5	16	16						●
50	6	16	16						●
50	8	16	16						●
50	10	16	16						●
63	4	22	18						●
63	5	22	18						●
63	6	22	18						●
63	8	22	18						●
63	10	22	18						●
63	12	22	18						●
63	14	22	18						●
63	16	22	18						●
63 <sup>▲</sup>	18	22	18						●
80	5	27	20						●
80	6	27	20						●
80	8	27	20						●
80	10	27	18						●
80	12	27	18						●
80	14	27	18						●
80	16	27	18						●
80	18	27	18						●
80	20	27	18						●
100	6	32	22						●
100	8	32	22						●
100	10	32	20						●
100	12	32	20						●
100	14	32	20						●
100	16	32	20						●
100	18	32	20						●
100	20	32	20						●
100	25	32	20						●
125 <sup>▲</sup>	5	32	20						●
125	8	32	24						●
125	10	32	22						●
125	12	32	22						●
125	14	32	22						●

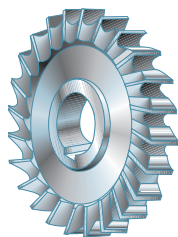
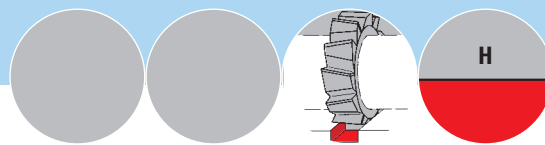
● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
▲ ILLICO NORM





# Frese a disco

## Scheibenfräser geradeverzahnt

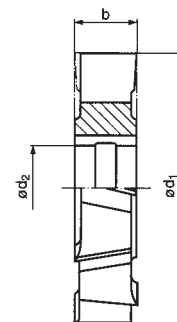


**Tipo H, denti rinforzati dritti, con taglio di chiave longitudinali secondo DIN 138**

**Side and face milling cutters**  
Type H, straight teeth, with standard keyway acc. DIN 138

Typ H, mit Längsnut nach DIN 138

**Fraises 3 tailles**  
Type H, denture droite, avec entraînement par clavette selon DIN 138



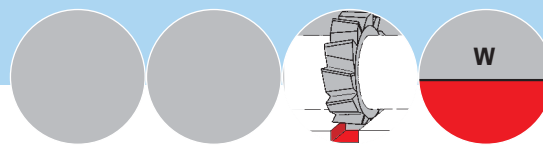
**DIN 885**  
**HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9579
Ød1	b	Ød2	Z				
50	4	16	16				●
50	5	16	16				●
50	6	16	16				●
50	8	16	16				●
50	10	16	16				●
63	4	22	18				●
63	5	22	18				●
63	6	22	18				●
63	8	22	18				●
63	10	22	18				●
63	12	22	18				●
63	14	22	18				●
63	16	22	18				●
80	5	27	20				●
80	6	27	20				●
80	8	27	20				●
80	10	27	20				●
80	12	27	20				●
80	14	27	20				●
80	16	27	20				●
80	18	27	20				●
80	20	27	20				●
100	6	32	24				●
100	8	32	24				●
100	10	32	24				●
100	12	32	24				●
100	14	32	24				●
100	16	32	24				●
100	18	32	24				●
100	20	32	24				●
100	25	32	24				●
125	8	32	24				●
125	10	32	24				●
125	12	32	24				●
125	14	32	24				●
125	16	32	24				●
125	18	32	24				●
125	20	32	24				●
125	25	32	24				●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock

# Frese a disco, per leghe leggere Scheibenfräser kreuzverzahnt

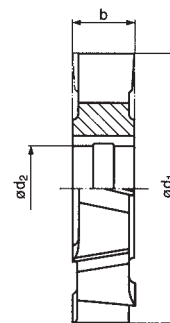


**Tipo W, denti rinforzati elicoidali alternati con taglio di chiave longitudinale secondo DIN 138**

**Side and face milling cutters**  
Type W, staggered teeth, with standard keyway acc. DIN 138

Typ W, mit Längsnut nach DIN 138

**Fraises 3 tailles**  
Type W, denture double hélixe alternée, avec entraînement par clavette selon DIN 138



**DIN 885  
HSS**

HSS

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.							9580
Ød1	b	Ød2	Z				
50	4	16	6				●
50	5	16	6				●
50	6	16	6				●
50	8	16	6				●
50	10	16	6				●
63	4	22	6				●
63	5	22	6				●
63	6	22	6				●
63	8	22	6				●
63	10	22	6				●
63	12	22	6				●
63	16	22	6				●
63 <sup>▲</sup>	18	22	6				●
80 <sup>▲</sup>	4	27	6				●
80	5	27	6				●
80	6	27	6				●
80	8	27	6				●
80	10	27	6				●
80	12	27	6				●
80	14	27	6				●
80	16	27	6				●
80	18	32	6				●
100 <sup>▲</sup>	4	32	8				●
100 <sup>▲</sup>	5	32	8				●
100	6	32	8				●
100	8	32	8				●
100	10	32	8				●
100	16	32	8				●
100	18	32	8				●
125 <sup>▲</sup>	5	32	8				●
125	8	32	8				●
125	10	32	8				●
125	12	32	8				●
125	14	32	8				●
125	18	32	8				●
125	20	32	8				●
160	6	40	10				●
160 <sup>▲</sup>	8	40	10				●
160	10	40	10				●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
▲ ILLICO NORM



# Frese a disco a tagli sottili Schmale Scheibenfräser



**Con taglio di chiavetta longitudinale secondo DIN 138**

Denti rinforzati elicoidali alternati

**Narrow side and face milling cutters, with standard keyway acc. DIN 138**

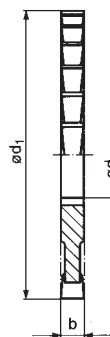
Staggered teeth

Schmale Scheibenfräser mit Längsnut nach DIN 138

Kreuzverzahnt

**Fraises 3 tailles fines avec entraînement par clavette selon DIN 138**

Denture double hélice alternée



**DIN 1834  
HSS-Co5**

HSS-Co5

Cat. Nr. - Kat. Nr. - Cat. no. - No. de cat.

9581

Ød1	b	Ød2	Z						
63	1,6	22	28						●
63	2	22	28						●
63	2,5	22	28						●
63	3	22	28						●
63 <sup>▲</sup>	4	22	28						●
63 <sup>▲</sup>	5	22	28						●
80	1,6	27	32						●
80	2	27	32						●
80	2,5	27	32						●
80	3	27	32						●
80	4	27	32						●
80 <sup>▲</sup>	5	27	32						●
80 <sup>▲</sup>	6	27	32						●
100	1,6	32	36						●
100	2	32	36						●
100	2,5	32	36						●
100	3	32	36						●
100	4	32	36						●
100	5	32	36						●
100 <sup>▲</sup>	6	32	36						●
100 <sup>▲</sup>	8	32	36						●
125	1,6	32	40						●
125	2	32	40						●
125	2,5	32	40						●
125	3	32	40						●
125	4	32	40						●
125	5	32	40						●
125	6	32	40						●
125 <sup>▲</sup>	8	32	40						●
125 <sup>▲</sup>	10	32	40						●
160	2	40	48						●
160	2,5	40	48						●
160	3	40	48						●
160	4	40	48						●
160	5	40	48						●
160	6	40	48						●
160	8	40	36						●

● Utensile disponibile a magazzino - Tool in stock - Werkzeug vorrätig ab lager - Outil disponible à stock  
▲ ILLICO NORM



















**Informazioni Tecniche**  
**Technische Hinweise**  
Technical Instruction  
Instructions Techniques





# Calcolo dei parametri di taglio

## Ermittlung der verschiedenen Schnittdaten



Cutting parameters calculation  
Evaluation des paramètres de coupe

### ► Velocità di taglio (Vt) e numero di giri (n)

Schnittgeschwindigkeit ( Vt) und Umdrehungen ( n)  
Cutting speed (Vt) and number of turns (n)  
Vitesse de coupe et numéro de tours

$$V_t = \frac{d_1 \times 3,14 \times n}{1000} = \text{m/min}$$

$$n = \frac{V_t \times 1000}{d_1 \times 3,14} = \text{giri/min}$$

### ► Alimentazione (Vf) e avanzamento per dente (fz)

Vorschub (pro Minute) (Vf) und Vorschub pro Schneide (fz)  
Feed per min (Vf) and feed per tooth (fz)  
Alimentation et avancement par dent

$$V_f = \frac{f_z \times z \times n}{1000} = \text{mm/min}$$

$$F_z = \frac{V_f}{z \times n} = \text{mm/z}$$

### ► Legenda • Legende • Caption • Légende

**V<sub>t</sub>** **Velocità di taglio (m/min)**  
Schnittgeschwindigkeit (m/min)  
Cutting length (m/min)  
Vitesse de coupe (m/min)

**n** **Numero di giri (giri/min)**  
Umdrehungen (U/min)  
Number of turns (U/min)  
Numéro de tours (T/min)

**d<sub>1</sub>** **Diametro nominale (mm)**  
Nenndurchmesser (mm)  
Nominal diameter (mm)  
Diamètre nominal (mm)

**V<sub>f</sub>** **Alimentazione (mm/min)**  
Vorschub pro Minute (mm/min)  
Feed per min. (mm/min)  
Alimentation (mm/min)

**f<sub>z</sub>** **Avanzamento per dente (mm/z)**  
Vorschub pro Schneide (mm/Z)  
Feed per tooth (m/Z)  
Avancement par dent (m/Z)

**z** **Numero dei denti**  
Zähnezahl  
Number of teeth  
Numéro de dents

**P** **Potenza richiesta (Kw)**  
Gefragte Leistung (Kw)  
Required power (Kw)  
Puissance demandée (Kw)

**a<sub>p</sub>** **Profondità di taglio (mm)**  
Schnitttiefe (mm)  
Cutting depth (mm)  
Profondeur de coupe (mm)

**a<sub>t</sub>** **Larghezza di taglio (mm)**  
Schnittbreite (mm)  
Cutting width (mm)  
Largeur de coupe (mm)

**h<sub>m</sub>** **Spessore medio del truciolo (mm)**  
Durchschnittliche Spanungsdicke (m/m)  
Medium chip thickness (mm)  
Epaisseur moyen du copeau (mm)

**Q** **Materiale asportato (cm<sup>3</sup>/min/kw)**  
Spanmenge (cm<sup>3</sup>/min/kw)  
Removed material (cm<sup>3</sup>/min/kw)  
Matière emportée (cm<sup>3</sup>/min/kw)

### ► Potenza richiesta (P) e spessore medio del truciolo (hm)

Mittenspanndicke (hm) und benötigte Leistung (P)  
Required power (P) and medium chip thickness (hm)  
Puissance demandée et épaisseur moyen du copeau

$$P_z = \frac{a_t \times a_p \times V_f}{1000 \times Q} = \text{Kw}$$

$$h_m = f_z \times \sqrt{\frac{a_t}{d_1}} = \text{mm}$$

### ► Valori di Q • Q-Werte • Q-Values • Valeur de Q

Materiale Werkstoff Materials Matière	Q
<b>Acciaio &lt; 700 N/mm<sup>2</sup></b> Steel < 700 N/mm <sup>2</sup>	Stahl < 700 N/mm <sup>2</sup> Acier < 700 N/mm <sup>2</sup> 20-25
<b>Acciaio &lt; 1000 N/mm<sup>2</sup></b> Steel < 1000 N/mm <sup>2</sup>	Stahl < 1000 N/mm <sup>2</sup> Acier < 1000 N/mm <sup>2</sup> 16-24
<b>Acciaio &gt; 1000 N/mm<sup>2</sup></b> Steel > 1000 N/mm <sup>2</sup>	Stahl > 1000 N/mm <sup>2</sup> Acier > 1000 N/mm <sup>2</sup> 15-22
<b>Acciaio inossidabile</b> Stainless steel	Rostfreier Stahl Acier inoxydable 14-20
<b>Ghisa grigia</b> Gray pig iron	Grauguß Fonte grise 30-45
<b>Ghisa sferoidale</b> Spheroidal graphite cast iron	Sphäroguß Fonte sphéroïdale 25-35
<b>Alluminio e sue leghe</b> Aluminium and alloys	Aluminium und Legierungen Alluminium et ses alliages 60-80
<b>Titanio</b> Titanium	Titan Titane 10-14
<b>Rame-ottone</b> Copper-brass	Kupfer-Messing Cuivre-laiton 38-45

# Campo di applicazione per operazioni di semifinitura e sgrossatura

## Anwendungsbereich für Schruppfräser und Schlicht-Schruppfräser

Application field for semifinishing and roughing workings  
Champs d'application pour usinage semi-finition et ébauche

Materiali Werkstoffe Materials Matières	Tipologia • Typ • Type • Type					
	NF		HFS		WF	
	HSS-Co8		HSS-Co8	ASP-60	HSS-Co5	ASP-60
<b>Acciaio R ~ 600 N/mm<sup>2</sup></b> Stahl R ~ 600 N/mm <sup>2</sup> Steel R ~ 600 N/mm <sup>2</sup> Acier R ~ 600 N/mm <sup>2</sup>						
<b>Acciaio R ~ 900 N/mm<sup>2</sup></b> Stahl R ~ 900 N/mm <sup>2</sup> Steel R ~ 900 N/mm <sup>2</sup> Acier R ~ 900 N/mm <sup>2</sup>						
<b>Acciaio R ~ 1100 N/mm<sup>2</sup></b> Stahl R ~ 1100 N/mm <sup>2</sup> Steel R ~ 1100 N/mm <sup>2</sup> Acier R ~ 1100 N/mm <sup>2</sup>						
<b>Acciaio R - 1100 N/mm<sup>2</sup></b> Stahl R - 1100 N/mm <sup>2</sup> Steel R - 1100 N/mm <sup>2</sup> Acier R - 1100 N/mm <sup>2</sup>						
<b>Acc. inossidabile, res. al calore</b> Warmfester rostfreier Stahl Stainless steel, heat resisting Acier inoxydable						
<b>Ghisa HB ~ 250</b> Gußeisen HB ~ 250 Cast iron HB ~ 250 Fonte HB ~ 250						
<b>Ghisa HB &gt; 250</b> Gußeisen HB > 250 Cast iron HB > 250 Fonte HB > 250						
<b>Titanio e sue leghe R ~ 900 N/mm<sup>2</sup></b> Titan und Legierungen R ~ 900 N/mm <sup>2</sup> Titanium and alloys R ~ 900 N/mm <sup>2</sup> Titane et alliage de titane R ~ 900 N/mm <sup>2</sup>						
<b>Titanio e sue leghe R &gt; 900 N/mm<sup>2</sup></b> Titan und Legierungen R > 900 N/mm <sup>2</sup> Titanium and alloys R > 900 N/mm <sup>2</sup> Titane et alliage de titane R > 900 N/mm <sup>2</sup>						
<b>Leghe Ni-Cr R ~ 900 N/mm<sup>2</sup></b> Ni-Cr Legierungen ~ 900 N/mm <sup>2</sup> Ni-Cr Alloys Alliages spéciaux à base Ni-Cr ~ 900 N/mm <sup>2</sup>						
<b>Leghe Ni-Cr R &gt; 900 N/mm<sup>2</sup></b> Ni-Cr Legierungen > 900 N/mm <sup>2</sup> Ni-Cr Alloys Alliages spéciaux à base Ni-Cr > 900 N/mm <sup>2</sup>						
<b>Rame</b> Kupfer Copper Cuivre						
<b>Leghe Rame - Nichel - Zinco</b> Kupfer-, Nickel-, und Zinklegierungen Copper, Nickel and Zinc alloys Alliage Cuivre/Nichel/Zinc						
<b>Alluminio dolce</b> Weiches Aluminium Soft aluminium Aluminium doux						
<b>Leghe Al - Si con Si ~ 10%</b> Al-, Si-Legierungen mit Si ~ 10% Al and Si alloys with Si ~ 10% Aluminium et alliage d'aluminium ~ 10%						
<b>Leghe Al - Si con Si &gt; A 10%</b> Al-, Si-Legierungen mit Si > A 10% Al and Si alloys with Si > A 10% Aluminium et alliage d'aluminium > 10% Si						
































































 **Neutro**  
 Unbeschichtet  
 Uncoated  
 Non Revêtu

 **TiN**

 **TiCN**

 **TiALN FUTURA®**

**Tipologia • Typ • Type • Type**

HARD-WAVE		NR		HRS		JET-CUT		AHR	
ASP 60	HSS-Co8	ASP-60	HSS-Co8	ASP-60		ASP-60		ASP-60	
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									









# Velocità di taglio per operazioni di sgrossatura con frese in HSS-Co8

## Empfohlene Schnittgeschwindigkeiten für Schruppfräser HSS-Co8

Cutting speed for roughing workings with HSS-Co8 mills-end mills

Vitesse de coupe pour fraise ebauche avec HSS-Co8

Materiali Werkstoffe Materials Matières	Esempi Beispiele Examples Exemple	Velocità di taglio • Schnittgeschwindigkeit Cutting speed • Vitesse de coupe $V_t = \text{m/min}$			
					
<b>Acciaio R ~ 600 N/mm<sup>2</sup></b> <b>Acc. alta velocità, da costruzione</b> Stahl R ~ 600 N/mm <sup>2</sup> Freischnittstahl Steel R ~ 600 N/mm <sup>2</sup> High speed structural steel Acier R ~ 600 N/mm <sup>2</sup> Acier de décolletage et de construction	Fe 37 1.0315 C 10 1.0301 C35 1.0501 9 S Mn Pb 28 1.0718	<b>25-35</b>	<b>40-56</b>	<b>48-65</b>	<b>48-65</b>
<b>Acciaio R ~ 900 N/mm<sup>2</sup></b> <b>Acc. da costruzione in fusione poco legati, da cementazione, da bonifica, da nitrurazione per lav. a freddo</b> Stahl R ~ 900 N/mm <sup>2</sup> Bau-, niedriglegierter Guß-, Einsatz-, Vergütungs-, Nitrier-, Kaltarbeitsstahl Steel R ~ 900 N/mm <sup>2</sup> Structural weakly alloyed cast casehardening, heat-treated, nitrided cold-working steel Acier R ~ 900 N/mm <sup>2</sup> De construction, coulé, au carbure, haute résistance, nitruré et laminé à froid	60 S 20 1.0728 C45 1.0503 31 Ni Cr 14V 1.5755 90 Mn Cr V8 1.2842 34 Cr 4V 1.7033 38 Mn Si 4V 1.5120 GS-70 26 Cr Mo 4 1.7219	<b>16-27</b>	<b>26-43</b>	<b>30-51</b>	<b>30-51</b>
<b>Acciaio R ~ 1100 N/mm<sup>2</sup></b> <b>Acc. da nitrurazione, da bonifica resistente al calore in fusione legati, per lav. a caldo, rapido</b> Stahl R ~ 1100 N/mm <sup>2</sup> Nitrier-, Vergütungs-, legierter Guß-, Warmfester-, Warmarbeits-, Schnellarbeitsstahl Steel R ~ 1100 N/mm <sup>2</sup> Nitrided, heat-treated, heat resisting, heat-working, high speed steel Acier R ~ 1100 N/mm <sup>2</sup> Nitruré, haute résistance, résistent à la chaleur et acier rapide	28 Ni Cr Mo 4 1.6513 50 Cr Mo 4 1.7228 56 - 5 - 2 - 5 1.3243 46 Mn Si 4 1.5121 36 Cr Ni Mo 4V 1.6511 40 Cr MoV 47 1.7711	<b>14-21</b>	<b>22-33</b>	<b>26-40</b>	<b>26-40</b>
<b>Acciaio R &gt; 1100 N/mm<sup>2</sup></b> <b>Acc. da nitrurazione, da bonifica, per lav. a caldo, per molle</b> Stahl R > 1100 N/mm <sup>2</sup> Nitrier-, Vergütungs-, Warmarbeits-, Federstahl Steel R > 1100 N/mm <sup>2</sup> Nitrided, heat-treated, heat-working, spring steel Acier R > 1100 N/mm <sup>2</sup> Nitruré, pour traitement thermique, laminé à chaud	X 40 Cr Mo V51 1.2344 55 Ni Cr MoV6V 1.2713 36 Ni Cr 10 1.5736 60 Si Mn 5 1.0908	<b>10-16</b>	<b>16-26</b>	<b>19-30</b>	<b>19-30</b>
<b>Acciaio inossidabile, resistente al calore e resistente alla corrosione</b> Rostfreier, wärmebeständiger und korrosionsbeständiger Stahl Stainless, heat-resisting, corrosion-resisting steel Acier inoxydable résistent à la chaleur et à la corrosion	X 10 Cr 13 1.4006 X 20 Cr Ni 172 1.4057 Aisi 303 1.4305 304 1.4301 316 1.4401 321 1.4541	<b>10-15</b>		<b>19-28</b>	<b>19-28</b>
<b>Ghisa ~ 250 HB</b> <b>fusioni di ghisa grigia, ghisa lamellare</b> Gußeisen ~ 250 HB Ausschmelzungen von Grauguß, Lamellengraphit Cast iron ~ 250 HB Gray pig iron Fonte ~ 250 HB Fonte grise	GG 15 0.6015 GG 20 0.6020 GG 25 0.6025 GTS 55	<b>18-25</b>	<b>29-40</b>	<b>34-47</b>	<b>34-47</b>
<b>Ghisa dura &gt; 250 HB</b> <b>ghisa sferoidale, ghisa speciale</b> Gußeisen > 250 HB Sphäroguß, Sondergrauguß Cast iron > 250 HB Spheroidal cast iron, Special cast iron Fonte > 250 HB Fonte sphéroidale	GG 40 0.6040 GGG 50 0.7050 GGG 60 0.7060 GTW 40 GTW 55	<b>14-20</b>	<b>22-32</b>	<b>26-38</b>	<b>26-38</b>

Neutro  
Unbeschichtet  
Uncoated  
Non Revêtu

TiN

TiCN

TiALN FUTURA®

I valori massimi sono consigliabili per le tipologie -H-  
Die Höchstwerte sind bei der Anwendung der Typen H zu empfehlen  
Maximum values are advisable for type H  
Valeurs maximales sont conseillées pour les H type







Materiali Werkstoffe Materials Matières	Esempi Beispiele Exemples Exemple	Velocità di taglio • Schnittgeschwindigkeit Cutting speed • Vitesse de coupe V <sub>t</sub> = m/min			
		Neutro	TiN	TiCN	TiALN FUTURA®
<b>Titanio ricotto R ~ 900 N/mm<sup>2</sup></b> <b>leghe di titanio ricotte</b> Ausgeglühtes Titan R ~ 900 N/mm <sup>2</sup> ausgeglühte Titanlegierungen Annealed titanium ~ 900 N/mm <sup>2</sup> Annealed titanium alloys Titane recuit R ~ 900 N/mm <sup>2</sup> Alliages de titane recuites	Ti 99.7                    3.7034 Ti Al 6V4                3.7164 Ti Al 5 Sn2              3.7154	10-16		18-25	18-25
<b>Leghe di titanio ricotto R ~ 1200 N/mm<sup>2</sup></b> <b>leghe di titanio indurite</b> Ausgeglühte und schleiffeste Titanlegierungen R ~ 1200 N/mm <sup>2</sup> Annealed titanium alloys R ~ 1200 N/mm <sup>2</sup> and hardened Titanium alloys Alliages de titane durcies R ~ 1200 N/mm <sup>2</sup>	Ti Cu 2                    3.7124 Ti Al 5 Sn2              3.711S Ti Al 6 Zr5              3.7154LN	6-10		9-16	9-16
<b>Leghe Ni - Cr resistenti al calore</b> <b>R ~ 900 N/mm<sup>2</sup></b> Wärmebeständige Ni-Cr Legierungen/R ~ 900 N/mm <sup>2</sup> Heat-resisting Ni-Cr alloys R ~ 900 N/mm <sup>2</sup> Acier résistant à la chaleur base Ni-Cr ~ 900 N/mm <sup>2</sup>	Incoloy 800              1.4876 Inconel 600             2.4816 Inconel 601             2.4851 Monel 400              2.4360 Hastelloy B            2.4800	6-10		11-16	11-16
<b>Leghe Ni - Cr altamente resistenti al calore</b> <b>R ~ 1300 N/mm<sup>2</sup></b> Hochwärmebeständige Ni-Cr- Legierungen/ R ~ 1300 N/mm <sup>2</sup> Heat-resisting Ni-Cr alloys R ~ 1300 N/mm <sup>2</sup> Acier résistant à la chaleur base Ni-Cr R ~ 1300 N/mm <sup>2</sup>	Waspaloy                2.6554 Inconel 718             2.4668 Nimonic 80A            2.4881 Udimet 630             2.4668	5-7		8-11	8-11
<b>Rame</b> Kupfer Copper Cuivre	E - Cu                    2.0060 F - Cu                    2.0080	40-90	64-145	75-170	75-170
<b>Leghe rame-nichel-zinco</b> Kupfer-, Nickel-, und Zinklegierungen Copper, Nickel and Zinc alloys Alliage cuivre, Nickel et Zinc	Cu Ni 10 Zn 42 Pb    2.0770 Cu Ni 18 Zn 19 Pb    2.0790	35-70	60-110	70-130	70-130
<b>Alluminio dolce</b> Weiches Aluminium Soft aluminium Aluminium doux	Al 99.5                    3.0255 Al Mg Si Pb            3.0615 Al Zu Mg Cu 1,5      3.4365	140-200	190-280	220-320	220-320
<b>Leghe Al-Si ~ 10%</b> Al-Si ~ 10% Legierungen Al-Si ~ 10% alloys Alliage Aluminium ~ 10% Si	G - Al Si 5 Mg        3.2341 G - Al Si 6 Cn 4      3.2151 G - Al Mg 3            3.3541.01 Al - Mg 5              3.3555	60-120	90-180	110-210	110-210
<b>Leghe Al-Si &gt; 10%</b> <b>Leghe di magnesio</b> Al-Si > 10% Legierungen Magnesiumlegierungen Al-Si > 10% alloys Magnesium alloys Alliage aluminium > 10% Si Alliages magnésium	G - Al Si 10 Mg      3.2381 G - Al Si 12            3.2581 Mg Al 6 Zu            3.5612 G - Mg Al 9 Zu 2	30-70	48-110	55-130	55-130

# Velocità di taglio per operazioni di sgrossatura con frese in ASP-60

## Empfohlene Schnittgeschwindigkeiten für Schruppfräser ASP-60

Cutting speed for roughing workings with ASP-60 mills - end mills  
Vitesse de coupe pour fraise ebauche ASP-60

Materiali Werkstoffe Materials Matières	Esempi Beispiele Exemples Exemple	Velocità di taglio • Schnittgeschwindigkeit Cutting speed • Vitesse de coupe V <sub>c</sub> = m/min			
					
<b>Acciaio R ~ 600 N/mm<sup>2</sup></b> <b>Acc. alta velocità, da costruzione</b> Stahl R ~ 600 N/mm <sup>2</sup> Freischnittstahl Steel R ~ 600 N/mm <sup>2</sup> High speed structural steel Acier R ~ 600 N/mm <sup>2</sup> Acier de décolletage et de construction	Fe 37 1.0315 C 10 1.0301 C35 1.0501 9 S Mn Pb 28 1.0718	<b>29-40</b>	<b>45-65</b>	<b>55-75</b>	<b>55-75</b>
<b>Acciaio R ~ 900 N/mm<sup>2</sup></b> <b>Acc. da costruzione, in fusione poco legati, da cementazione, da bonifica, da nitrurazione per lav. a freddo</b> Stahl R ~ 900 N/mm <sup>2</sup> Bau-, niedriglegierter Guß-, Einsatz-, Vergütungs-, Nitrier-, Kaltarbeitsstahl Steel R ~ 900 N/mm <sup>2</sup> Structural weakly alloyed cast casehardening, heat-treated, nitrided cold-working steel Acier R ~ 900 N/mm <sup>2</sup> De construction, coulé, au carbure, haute résistance, nitruré et laminé à froid	60 S 20 1.0728 C45 1.0503 31 Ni Cr 14V 1.5755 90 Mn Cr V8 1.2842 34 Cr 4V 1.7033 38 Mn Si 4V 1.5120 GS-70 26 Cr Mo 4 1.7219	<b>20-32</b>	<b>30-50</b>	<b>35-60</b>	<b>35-60</b>
<b>Acciaio R ~ 1100 N/mm<sup>2</sup></b> <b>Acc. da nitrurazione, da bonifica resistente al calore in fusione legati, per lav. a caldo, rapido</b> Stahl R ~ 1100 N/mm <sup>2</sup> Nitrier-, Vergütungs-, legierter Guß-, Warmfester-, Warmarbeits-, Schnellarbeitsstahl Steel R ~ 1100 N/mm <sup>2</sup> Nitrided, heat-treated, heat resisting, heat-working, high speed steel Acier R ~ 1100 N/mm <sup>2</sup> Nitruré, haute résistance, résistent à la chaleur et acier rapide	28 Ni Cr Mo 4 1.6513 50 Cr Mo 4 1.7228 56 - 5 - 2 - 5 1.3243 46 Mn Si 4 1.5121 36 Cr Ni Mo 4V 1.6511 40 Cr MoV 47 1.7711	<b>17-25</b>	<b>25-40</b>	<b>30-45</b>	<b>30-45</b>
<b>Acciaio R &gt; 1100 N/mm<sup>2</sup></b> <b>Acc. da nitrurazione, da bonifica, per lav. a caldo, per molle</b> Stahl R > 1100 N/mm <sup>2</sup> Nitrier-, Vergütungs-, Warmarbeits-, Federstahl Steel R > 1100 N/mm <sup>2</sup> Nitrided, heat-treated, heat-working, spring steel Acier R > 1100 N/mm <sup>2</sup> Nitruré, pour traitement thermique, laminé à chaud	X 40 Cr Mo V51 1.2344 55 Ni Cr MoV6V 1.2713 36 Ni Cr 10 1.5736 60 Si Mn 5 1.0908	<b>14-22</b>	<b>20-35</b>	<b>25-42</b>	<b>25-42</b>
<b>Acciaio inossidabile, resistente al calore e resistente alla corrosione</b> Rostfreier, wärmebeständiger und korrosionsbeständiger Stahl Stainless, heat-resisting, corrosion-resisting steel Acier inoxydable résistent à la chaleur et à la corrosion	X 10 Cr 13 1.4006 X 20 Cr Ni 172 1.4057 Aisi 303 1.4305 304 1.4301 316 1.4401 321 1.4541	<b>14-20</b>		<b>25-38</b>	<b>25-38</b>
<b>Ghisa ~ 250 HB</b> <b>fusioni di ghisa grigia, ghisa lamellare</b> Gußeisen ~ 250 HB Ausschmelzungen von Grauguß, Lamellengraphit Cast iron ~ 250 HB Gray pig iron Fonte ~ 250 HB Fonte grise	GG 15 0.6015 GG 20 0.6020 GG 25 0.6025 GTS 55	<b>20-32</b>	<b>32-50</b>	<b>38-60</b>	<b>38-60</b>
<b>Ghisa dura &gt; 250 HB</b> <b>ghisa sferoidale, ghisa speciale</b> Gußeisen > 250 HB Sphäroguß, Sondergrauguß Cast iron > 250 HB Spheroidal cast iron, Special cast iron Fonte > 250 HB Fonte sphéroidale	GG 40 0.6040 GGG 50 0.7050 GGG 60 0.7060 GTW 40 GTW 55	<b>18-25</b>	<b>28-40</b>	<b>34-45</b>	<b>34-45</b>

Neutro  
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TiN

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I valori massimi sono consigliabili per le tipologie -H-  
Die Höchstwerte sind bei der Anwendung der Typen H zu empfehlen  
Maximum values are advisable for type H  
Valeurs maximales sont conseillées pour les H type



Materiali Werkstoffe Materials Matières	Esempi Beispiele Exemples Exemple	Velocità di taglio • Schnittgeschwindigkeit Cutting speed • Vitesse de coupe V <sub>t</sub> = m/min			
		Neutro	TiN	TiCN	TiALN FUTURA®
<b>Titanio ricotto R ~ 900 N/mm<sup>2</sup></b> <b>leghe di titanio ricotte</b> Ausgeglühtes Titan R ~ 900 N/mm <sup>2</sup> ausgeglühte Titanlegierungen Annealed titanium alloys ~ 900 N/mm <sup>2</sup> Annealed titanium alloys Titane recuit R ~ 900 N/mm <sup>2</sup> Alliages de titane recuites	Ti 99.7 3.7034 Ti Al 6V4 3.7164 Ti Al 5 Sn2 3.7154	14-21		25-40	25-40
<b>Leghe di titanio ricotto R ~ 1200 N/mm<sup>2</sup></b> <b>leghe di titanio indurite</b> Ausgeglühte und schleifste Titanlegierungen R ~ 1200 N/mm <sup>2</sup> Annealed titanium alloys R ~ 1200 N/mm <sup>2</sup> and hardened Titanium alloys Alliages de titane durcies R ~ 1200 N/mm <sup>2</sup>	Ti Cu 2 3.7124 Ti Al 5 Sn2 3.711S Ti Al 6 Zr5 3.7154LN	8-14		15-26	15-26
<b>Leghe Ni - Cr resistenti al calore</b> <b>R ~ 900 N/mm<sup>2</sup></b> Wärmebeständige Ni-Cr Legierungen/R ~ 900 N/mm <sup>2</sup> Heat-resisting Ni-Cr alloys R ~ 900 N/mm <sup>2</sup> Acier résistent à la chaleur base Ni-Cr ~ 900 N/mm <sup>2</sup>	Incoloy 800 1.4876 Inconel 600 2.4816 Inconel 601 2.4851 Monel 400 2.4360 Hastelloy B 2.4800	8-12		15-22	15-22
<b>Leghe Ni - Cr altamente resistenti al calore</b> <b>R ~ 1300 N/mm<sup>2</sup></b> Hochwärmebeständige Ni-Cr- Legierungen/ R ~ 1300 N/mm <sup>2</sup> Heat-resisting Ni-Cr alloys R ~ 1300 N/mm <sup>2</sup> Acier résistent à la chaleur base Ni-Cr R ~ 1300 N/mm <sup>2</sup>	Waspaloy 2.6554 Inconel 718 2.4668 Nimonic 80A 2.4881 Udimet 630 2.4668	6-10		10-19	10-19
<b>Rame</b> Kupfer Copper Cuivre	E - Cu 2.0060 F - Cu 2.0080	48-110	76-170	90-200	90-200
<b>Leghe rame-nichel-zinco</b> Kupfer-, Nickel-, und Zinklegierungen Copper, Nickel and Zinc alloys Alliage cuivre, Nickel et Zinc	Cu Ni 10 Zn 42 Pb 2.0770 Cu Ni 18 Zn 19 Pb 2.0790	42-85	65-130	80-160	80-160
<b>Alluminio dolce</b> Weiches Aluminium Soft aluminium Aluminium doux	Al 99.5 3.0255 Al Mg Si Pb 3.0615 Al Zu Mg Cu 1,5 3.4365	165-215	230-300	260-340	260-340
<b>Leghe Al-Si ~ 10%</b> Al-Si ~ 10% Legierungen Al-Si ~ 10% alloys Alliage Aluminium ~ 10% Si	G - Al Si 5 Mg 3.2341 G - Al Si 6 Cn 4 3.2151 G - Al Mg 3 3.3541.01 Al - Mg 5 3.3555	70-145	110-230	13-270	13-270
<b>Leghe Al-Si &gt; 10%</b> <b>Leghe di magnesio</b> Al-Si > 10% Legierungen Magnesiumlegierungen Al-Si > 10% alloys Magnesium alloys Alliage aluminium > 10% Si Alliages magnésium	G - Al Si 10 Mg 3.2381 G - Al Si 12 3.2581 Mg Al 6 Zu 3.5612 G - Mg Al 9 Zu 2	35-85	55-130	65-160	65-160

# Campo di applicazione per operazioni di finitura, esecuzioni sedi di chiavetta e scanalature Anwendungsbereich für Schlicht-Keilnuten-, und Bohrnutenfräser ASP-60

Application field for finishing working, keyseat and slot execution  
Champs d'application pour fraises de finition, de clavette et de rainurage

Materiali Werkstoffe Materials Matières	Tipologia • Typ • Type • Type					
	N		HS		W	
	HSS-Co8		HSS-Co8	ASP-60	HSS-Co8	ASP-60
<b>Acciaio R ~ 600 N/mm<sup>2</sup></b> Stahl R ~ 600 N/mm <sup>2</sup> Steel R ~ 600 N/mm <sup>2</sup> Acier R ~ 600 N/mm <sup>2</sup>						
<b>Acciaio R ~ 900 N/mm<sup>2</sup></b> Stahl R ~ 900 N/mm <sup>2</sup> Steel R ~ 900 N/mm <sup>2</sup> Acier R ~ 900 N/mm <sup>2</sup>						
<b>Acciaio R ~ 1100 N/mm<sup>2</sup></b> Stahl R ~ 1100 N/mm <sup>2</sup> Steel R ~ 1100 N/mm <sup>2</sup> Acier R ~ 1100 N/mm <sup>2</sup>						
<b>Acciaio R - 1100 N/mm<sup>2</sup></b> Stahl R - 1100 N/mm <sup>2</sup> Steel R - 1100 N/mm <sup>2</sup> Acier R - 1100 N/mm <sup>2</sup>						
<b>Acc. inossidabile, res. al calore</b> Warmfester rostfreier Stahl Stainless steel, heat resisting Acier inoxydable						
<b>Ghisa HB ~ 250</b> Gußeisen HB ~ 250 Cast iron HB ~ 250 Fonte HB ~ 250						
<b>Ghisa HB &gt; 250</b> Gußeisen HB > 250 Cast iron HB > 250 Fonte HB > 250						
<b>Titanio e sue leghe R ~ 900 N/mm<sup>2</sup></b> Titan und Legierungen R ~ 900 N/mm <sup>2</sup> Titanium and alloys R ~ 900 N/mm <sup>2</sup> Titane et alliage de titane R ~ 900 N/mm <sup>2</sup>						
<b>Titanio e sue leghe R &gt; 900 N/mm<sup>2</sup></b> Titan und Legierungen R > 900 N/mm <sup>2</sup> Titanium and alloys R > 900 N/mm <sup>2</sup> Titane et alliage de titane R > 900 N/mm <sup>2</sup>						
<b>Leghe Ni-Cr R ~ 900 N/mm<sup>2</sup></b> Ni-Cr Legierungen ~ 900 N/mm <sup>2</sup> Alloys Ni-Cr Alliages spéciaux à base Ni-Cr ~ 900 N/mm <sup>2</sup>						
<b>Leghe Ni-Cr R &gt; 900 N/mm<sup>2</sup></b> Ni-Cr Legierungen > 900 N/mm <sup>2</sup> Alloys Ni-Cr Alliages spéciaux à base Ni-Cr > 900 N/mm <sup>2</sup>						
<b>Rame</b> Kupfer Copper Cuivre						
<b>Leghe Rame - Nichel - Zinco</b> Kupfer-, Nickel-, und Zinklegierungen Copper, Nickel and Zinc alloys Alliage Cuivre/Nichel/Zinc						
<b>Alluminio dolce</b> Weiches Aluminium Soft aluminium Aluminium doux						
<b>Leghe Al - Si con Si ~ 10%</b> Al-, Si-Legierungen mit Si ~ 10% Al and Si alloys with Si ~ 10% Aluminium et alliage d'aluminium ~ 10%						
<b>Leghe Al - Si con Si &gt; A 10%</b> Al-, Si-Legierungen mit Si > A 10% Al and Si alloys with > A 10% Aluminium et alliage d'aluminium > 10% Si						

















































































 **Neutro**  
 Unbeschichtet  
 Uncoated  
 Non Revêtu

 **TiN**

 **TiCN**

 **TiALN FUTURA®**





**Tipologia • Typ • Type • Type**

<b>JET-CUT</b>		<b>N-2 tagli • 2 Schneiden • 2 Flutes • 2 Tailles</b>		<b>N-3 tagli • 3 Schneiden • 3 Flutes • 3 Tailles</b>		<b>VA</b>		<b>AH</b>	
HSS-Co8		HSS-Co8	ASP-60	HSS-Co8	ASP-60	HSS-Co8	ASP-60		ASP-60
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									

# Velocità di taglio per operazioni di finitura con frese in HSS-Co8

## Empfohlene Schnittgeschwindigkeiten für Schlichtfräser HSS-Co8

Cutting speed for finishing workings with HSS-Co8 mills - end mills  
Vitesse de coupe pour fraise de finition avec HSS-Co8

Materiali Werkstoffe Materials Matières	Esempi Beispiele Examples Exemple	Velocità di taglio • Schnittgeschwindigkeit Cutting speed • Vitesse de coupe V <sub>t</sub> = m/min			
					
<b>Acciaio R ~ 600 N/mm<sup>2</sup></b> <b>Acc. alta velocità da costruzione</b> Stahl R ~ 600 N/mm <sup>2</sup> Freischnittstahl Steel R ~ 600 N/mm <sup>2</sup> High speed structural steel Acier R ~ 600 N/mm <sup>2</sup> Acier de décolletage et de construction	Fe 37 1.0315 C 10 1.0301 C35 1.0501 9 S Mn Pb 28 1.0718	<b>30-40</b>	<b>48-65</b>	<b>55-80</b>	<b>55-80</b>
<b>Acciaio R ~ 900 N/mm<sup>2</sup></b> <b>Acc. da costruzione, in fusione poco legati, da cementazione, da bonifica, da nitrurazione, per lav. a freddo</b> Stahl R ~ 900 N/mm <sup>2</sup> Bau-, niedriglegierter Guß-, Einsatz-, Vergütungs-, Nitrier-, Kaltarbeitsstahl Steel R ~ 900 N/mm <sup>2</sup> Structural weakly alloyed cast casehardening, heat-treated, nitrided cold-working steel Acier R ~ 900 N/mm <sup>2</sup> De construction, coulé, au carbure, haute résistance, nituré et laminé à froid	60 S 20 1.0728 C45 1.0503 31 Ni Cr 14V 1.5755 90 Mn Cr V8 1.2842 34 Cr 4V 1.7033 38 Mn Si 4V 1.5120 GS-70 26 Cr Mo 4 1.7219	<b>20-34</b>	<b>32-55</b>	<b>38-64</b>	<b>38-64</b>
<b>Acciaio R ~ 1100 N/mm<sup>2</sup></b> <b>Acc. da nitrurazione, da bonifica resistente al calore, in fusione legati, per lav. a caldo, rapido</b> Stahl R ~ 1100 N/mm <sup>2</sup> Nitrier-, Vergütungs-, legierter Guß-, Warmfester-, Warmarbeits-, Schnellarbeitsstahl Steel R ~ 1100 N/mm <sup>2</sup> Nitrided, heat-treated, heat resisting, heat-working, high speed steel Acier R ~ 1100 N/mm <sup>2</sup> Nituré, haute résistance, résistent à la chaleur et acier rapide	28 Ni Cr Mo 4 1.6513 50 Cr Mo 4 1.7228 56 - 5 - 2 - 5 1.3243 46 Mn Si 4 1.5121 36 Cr Ni Mo 4V 1.6511 40 Cr MoV 47 1.7711	<b>17-27</b>	<b>27-43</b>	<b>32-51</b>	<b>32-51</b>
<b>Acciaio R &gt; 1100 N/mm<sup>2</sup></b> <b>Acc. da nitrurazione, da bonifica, per lav. a caldo, per molle</b> Stahl R > 1100 N/mm <sup>2</sup> Nitrier-, Vergütungs-, Warmarbeits-, Federstahl Steel R > 1100 N/mm <sup>2</sup> Nitrided, heat-treated, heat-working, spring steel Acier R > 1100 N/mm <sup>2</sup> Nituré, pour traitement thermique, laminé à chaud	X 40 Cr Mo V51 1.2344 55 Ni Cr MoV6V 1.2713 36 Ni Cr 10 1.5736 60 Si Mn 5 1.0908	<b>12-20</b>	<b>20-32</b>	<b>22-38</b>	<b>22-38</b>
<b>Acciaio inossidabile, resistente al calore e resistente alla corrosione</b> Rostfreier, wärmebeständiger und korrosionsbeständiger Stahl Stainless, heat-resisting, corrosion-resisting steel Acier inoxydable résistent à la chaleur et à la corrosion	X 10 Cr 13 1.4006 X 20 Cr Ni 172 1.4057 Aisi 303 1.4305 304 1.4301 316 1.4401 321 1.4541	<b>13-20</b>		<b>25-85</b>	<b>25-85</b>
<b>Ghisa ~ 250 HB</b> <b>fusioni di ghisa grigia, ghisa lamellare</b> Gußeisen ~ 250 HB Ausschmelzungen von Grauguß, Lamellengraphit Cast iron ~ 250 HB Gray pig iron Fonte ~ 250 HB Fonte grise	GG 15 0.6015 GG 20 0.6020 GG 25 0.6025 GTS 55	<b>20-30</b>	<b>32-50</b>	<b>40-60</b>	<b>40-60</b>
<b>Ghisa dura &gt; 250 HB</b> <b>ghisa sferoidale, ghisa speciale</b> Gußeisen > 250 HB Ghisa Sphäroguß, Sondergrauguß Cast iron > 250 HB Spheroidal cast iron, Special cast iron Fonte > 250 HB Fonte sphéroidale	GG 40 0.6040 GGG 50 0.7050 GGG 60 0.7060 GTW 40 GTW 55	<b>17-23</b>	<b>28-38</b>	<b>32-45</b>	<b>32-45</b>

Neutro  
Unbeschichtet  
Uncoated  
Non Revêtu

TiN

TiCN

TiALN FUTURA®

I valori massimi sono consigliabili per le tipologie -H-  
Die Höchstwerte sind bei der Anwendung der Typen H zu empfehlen  
Maximum values are advisable for type H  
Valeurs maximales sont conseillées pour les H type







Materiali Werkstoffe Materials Matières	Esempi Beispiele Examples Exemple	Velocità di taglio • Schnittgeschwindigkeit Cutting speed • Vitesse de coupe V <sub>t</sub> = m/min			
		Neutro	TiN	TiCN	TiALN FUTURA®
<b>Titanio ricotto R ~ 900 N/mm<sup>2</sup></b> <b>leghe di titanio ricotte</b> Ausgeglühtes Titan R ~ 900 N/mm <sup>2</sup> ausgeglühte Titanlegierungen Annealed titanium alloys ~ 900 N/mm <sup>2</sup> Annealed titanium alloys Titane recuit R ~ 900 N/mm <sup>2</sup> Alliages de titane recuites	Ti 99.7 3.7034 Ti Al 6V4 3.7164 Ti Al 5 Sn2 3.7154	<b>13-19</b>		<b>20-30</b>	<b>20-30</b>
<b>Leghe di titanio ricotto R ~ 1200 N/mm<sup>2</sup></b> <b>leghe di titanio indurite</b> Ausgeglühte und schleifste Titanlegierungen R ~ 1200 N/mm <sup>2</sup> Annealed titanium alloys R ~ 1200 N/mm <sup>2</sup> and hardened Titanium alloys Alliages de titane durcies R ~ 1200 N/mm <sup>2</sup>	Ti Cu 2 3.7124 Ti Al 5 Sn2 3.711S Ti Al 6 Zr5 3.7154LN	<b>8-14</b>		<b>12-22</b>	<b>12-22</b>
<b>Leghe Ni - Cr resistenti al calore</b> <b>R ~ 900 N/mm<sup>2</sup></b> Wärmebeständige Ni-Cr Legierungen/R ~ 900 N/mm <sup>2</sup> Heat-resisting Ni-Cr alloys R ~ 900 N/mm <sup>2</sup> Acier résistant à la chaleur base Ni-Cr ~ 900 N/mm <sup>2</sup>	Incoloy 800 1.4876 Inconel 600 2.4816 Inconel 601 2.4851 Monel 400 2.4360 Hastelloy B 2.4800	<b>8-12</b>		<b>15-22</b>	<b>15-22</b>
<b>Leghe Ni - Cr altamente resistenti al calore</b> <b>R ~ 1300 N/mm<sup>2</sup></b> Hochwärmebeständige Ni-Cr- Legierungen/ R ~ 1300 N/mm <sup>2</sup> Heat-resisting Ni-Cr alloys R ~ 1300 N/mm <sup>2</sup> Acier résistant à la chaleur base Ni-Cr R ~ 1300 N/mm <sup>2</sup>	Waspaloy 2.6554 Inconel 718 2.4668 Nimonic 80A 2.4881 Udimet 630 2.4668	<b>5-9</b>		<b>8-15</b>	<b>8-15</b>
<b>Rame</b> Kupfer Copper Cuivre	E - Cu 2.0060 F - Cu 2.0080	<b>60-120</b>	<b>90-170</b>	<b>110-200</b>	<b>110-200</b>
<b>Leghe rame-nichel-zinco</b> Kupfer-, Nickel-, und Zinklegierungen Copper, Nickel and Zinc alloys Alliage cuivre, Nickel et Zinc	Cu Ni 10 Zn 42 Pb 2.0770 Cu Ni 18 Zn 19 Pb 2.0790	<b>50-90</b>	<b>80-140</b>	<b>90-160</b>	<b>90-160</b>
<b>Alluminio dolce</b> Weiches Aluminium Soft aluminium Aluminium doux	Al 99.5 3.0255 Al Mg Si Pb 3.0615 Al Zu Mg Cu 1,5 3.4365	<b>160-240</b>	<b>220-330</b>	<b>250-380</b>	<b>250-380</b>
<b>Leghe Al-Si ~ 10%</b> Al-Si ~ 10% Legierungen Al-Si ~ 10% alloys Alliage Aluminium ~ 10% Si	G - Al Si 5 Mg 3.2341 G - Al Si 6 Cn 4 3.2151 G - Al Mg 3 3.3541.01 Al - Mg 5 3.3555	<b>80-140</b>	<b>120-210</b>	<b>140-250</b>	<b>140-250</b>
<b>Leghe Al-Si &gt; 10%</b> <b>Leghe di magnesio</b> Al-Si > 10% Legierungen Magnesiumlegierungen Al-Si > 10% alloys Magnesium alloys Alliage aluminium > 10% Si Alliages magnésium	G - Al Si 10 Mg 3.2381 G - Al Si 12 3.2581 Mg Al 6 Zu 3.5612 G - Mg Al 9 Zu 2	<b>50-90</b>	<b>80-150</b>	<b>100-170</b>	<b>100-170</b>



# Velocità di taglio per operazioni di finitura con frese in ASP-60

## Empfohlene Schnittgeschwindigkeiten Keilnuten-, und Bohrmutenfräser ASP-60

Cutting speed for finishing workings with ASP-60 mills - end mills  
Vitesse de coupe pour fraise de finition ASP-60

Materiali Werkstoffe Materials Matières	Esempi Beispiele Examples Exemple	Velocità di taglio • Schnittgeschwindigkeit Cutting speed • Vitesse de coupe V <sub>t</sub> = m/min			
					
<b>Acciaio R ~ 600 N/mm<sup>2</sup></b> <b>Acc. alta velocità da costruzione</b> Stahl R ~ 600 N/mm <sup>2</sup> Freischnittstahl Steel R ~ 600 N/mm <sup>2</sup> High speed structural steel Acier R ~ 600 N/mm <sup>2</sup> Acier de décolletage et de construction	Fe 37 1.0315 C 10 1.0301 C35 1.0501 9 S Mn Pb 28 1.0718	<b>35-46</b>	<b>55-74</b>	<b>65-85</b>	<b>65-85</b>
<b>Acciaio R ~ 900 N/mm<sup>2</sup></b> <b>Acc. da costruzione, in fusione poco legati, da cementazione, da bonifica, da nitrurazione, per lav. a freddo</b> Stahl R ~ 900 N/mm <sup>2</sup> Bau-, niedriglegierter Guß-, Einsatz-, Vergütungs-, Nitrier-, Kaltarbeitsstahl Steel R ~ 900 N/mm <sup>2</sup> Structural weakly alloyed cast casehardening, heat-treated, nitrided cold-working steel Acier R ~ 900 N/mm <sup>2</sup> De construction, coulé, au carbure, haute résistance, nituré et laminé à froid	60 S 20 1.0728 C45 1.0503 31 Ni Cr 14V 1.5755 90 Mn Cr V8 1.2842 34 Cr 4V 1.7033 38 Mn Si 4V 1.5120 GS-70 26 Cr Mo 4 1.7219	<b>24-40</b>	<b>35-65</b>	<b>45-75</b>	<b>45-75</b>
<b>Acciaio R ~ 1100 N/mm<sup>2</sup></b> <b>Acc. da nitrurazione, da bonifica, resistente al calore in fusione legati, per lav. a caldo, rapido</b> Stahl R ~ 1100 N/mm <sup>2</sup> Nitrier-, Vergütungs-, legierter Guß-, Warmfester-, Warmarbeits-, Schnellarbeitsstahl Steel R ~ 1100 N/mm <sup>2</sup> Nitrided, heat-treated, heat resisting, heat-working, high speed steel Acier R ~ 1100 N/mm <sup>2</sup> Nituré, haute résistance, résistent à la chaleur et acier rapide	28 Ni Cr Mo 4 1.6513 50 Cr Mo 4 1.7228 56 - 5 - 2 - 5 1.3243 46 Mn Si 4 1.5121 36 Cr Ni Mo 4V 1.6511 40 Cr MoV 47 1.7711	<b>20-32</b>	<b>32-50</b>	<b>35-60</b>	<b>35-60</b>
<b>Acciaio R &gt; 1100 N/mm<sup>2</sup></b> <b>Acc. da nitrurazione, da bonifica, per lav. a caldo, per molle</b> Stahl R > 1100 N/mm <sup>2</sup> Nitrier-, Vergütungs-, Warmarbeits-, Federstahl Steel R > 1100 N/mm <sup>2</sup> Nitrided, heat-treated, heat-working, spring steel Acier R > 1100 N/mm <sup>2</sup> Nituré, pour traitement thermique, laminé à chaud	X 40 Cr Mo V51 1.2344 55 Ni Cr MoV6V 1.2713 36 Ni Cr 10 1.5736 60 Si Mn 5 1.0908	<b>18-27</b>	<b>28-43</b>	<b>35-50</b>	<b>35-50</b>
<b>Acciaio inossidabile, resistente al calore e resistente alla corrosione</b> Rostfreier, wärmebeständiger und korrosionsbeständiger Stahl Stainless, heat-resisting, corrosion-resisting steel Acier inoxydable résistent à la chaleur et à la corrosion	X 10 Cr 13 1.4006 X 20 Cr Ni 172 1.4057 Aisi 303 1.4305 304 1.4301 316 1.4401 321 1.4541	<b>16-26</b>		<b>30-50</b>	<b>30-50</b>
<b>Ghisa ~ 250 HB</b> <b>fusioni di ghisa grigia, ghisa lamellare</b> Gußeisen ~ 250 HB Ausschmelzungen von Grauguß mit Lamellengraphit Cast iron ~ 250 HB Gray pig iron Fonte ~ 250 HB Fonte grise	GG 15 0.6015 GG 20 0.6020 GG 25 0.6025 GTS 55	<b>25-40</b>	<b>40-65</b>	<b>45-75</b>	<b>45-75</b>
<b>Ghisa dura &gt; 250 HB</b> <b>ghisa sferoidale, ghisa speciale</b> Gußeisen > 250 HB Ghisa Sphäroguß, Sondergrauguß Cast iron > 250 HB Spheroidal cast iron, Special cast iron Fonte > 250 HB Fonte sphéroidale	GG 40 0.6040 GGG 50 0.7050 GGG 60 0.7060 GTW 40 GTW 55	<b>22-32</b>	<b>35-50</b>	<b>40-60</b>	<b>40-60</b>

Neutro  
Unbeschichtet  
Uncoated  
Non Revêtu

TiN

TiCN

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I valori massimi sono consigliabili per le tipologie -H-  
Die Höchstwerte sind bei der Anwendung der Typen H zu empfehlen  
Maximum values are advisable for type H  
Valeurs maximales sont conseillées pour les H type

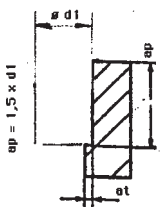
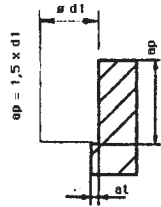
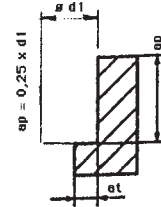
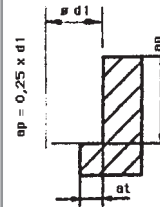
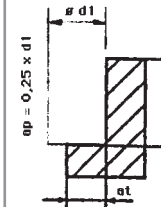
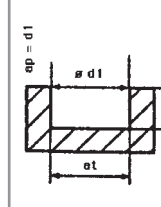
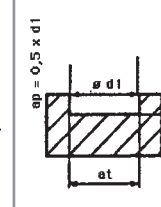


Materiali Werkstoffe Materials Matières	Esempi Beispiele Exemples Exemple	Velocità di taglio • Schnittgeschwindigkeit Cutting speed • Vitesse de coupe V <sub>t</sub> = m/min			
		Neutro	TiN	TiCN	TiALN FUTURA®
<b>Titanio ricotto R ~ 900 N/mm<sup>2</sup></b> <b>leghe di titanio ricotte</b> Ausgeglühtes Titan R ~ 900 N/mm <sup>2</sup> ausgeglühte Titanlegierungen Annealed titanium alloys ~ 900 N/mm <sup>2</sup> Annealed titanium alloys Titane recuit R ~ 900 N/mm <sup>2</sup> Alliages de titane recuites	Ti 99.7 3.7034 Ti Al 6V4 3.7164 Ti Al 5 Sn2 3.7154	16-25		30-48	30-48
<b>Leghe di titanio ricotto R ~ 1200 N/mm<sup>2</sup></b> <b>leghe di titanio indurite</b> Ausgeglühte und schleifste Titanlegierungen R ~ 1200 N/mm <sup>2</sup> Annealed titanium alloys R ~ 1200 N/mm <sup>2</sup> and hardened Titanium alloys Alliages de titane durcies R ~ 1200 N/mm <sup>2</sup>	Ti Cu 2 3.7124 Ti Al 5 Sn2 3.711S Ti Al 6 Zr5 3.7154LN	12-20		22-38	22-38
<b>Leghe Ni - Cr resistenti al calore</b> <b>R ~ 900 N/mm<sup>2</sup></b> Wärmebeständige Ni-Cr Legierungen/R ~ 900 N/mm <sup>2</sup> Heat-resisting Ni-Cr alloys R ~ 900 N/mm <sup>2</sup> Acier résistent à la chaleur base Ni-Cr ~ 900 N/mm <sup>2</sup>	Incoloy 800 1.4876 Inconel 600 2.4816 Inconel 601 2.4851 Monel 400 2.4360 Hastelloy B 2.4800	10-16		19-30	19-30
<b>Leghe Ni - Cr altamente resistenti al calore</b> <b>R ~ 1300 N/mm<sup>2</sup></b> Hochwärmebeständige Ni-Cr- Legierungen/ R ~ 1300 N/mm <sup>2</sup> Heat-resisting Ni-Cr alloys R ~ 1300 N/mm <sup>2</sup> Acier résistent à la chaleur base Ni-Cr R ~ 1300 N/mm <sup>2</sup>	Waspaloy 2.6554 Inconel 718 2.4668 Nimonic 80A 2.4881 Udimet 630 2.4668	6-12		10-22	10-22
<b>Rame</b> Kupfer Copper Cuivre	E - Cu 2.0060 F - Cu 2.0080	70-145	110-230	130-270	130-270
<b>Leghe rame-nichel-zinco</b> Kupfer-, Nickel-, und Zinklegierungen Copper, Nickel and Zinc alloys Alliage cuivre, Nickel et Zinc	Cu Ni 10 Zn 42 Pb 2.0770 Cu Ni 18 Zn 19 Pb 2.0790	60-105	95-170	110-190	110-190
<b>Alluminio dolce</b> Weiches Aluminium Soft aluminium Aluminium doux	Al 99.5 3.0255 Al Mg Si Pb 3.0615 Al Zu Mg Cu 1,5 3.4365	190-280	260-390	300-440	300-440
<b>Leghe Al-Si ~ 10%</b> Al-Si ~ 10% Legierungen Al-Si ~ 10% alloys Alliage Aluminium ~ 10% Si	G - Al Si 5 Mg 3.2341 G - Al Si 6 Cn 4 3.2151 G - Al Mg 3 3.3541.01 Al - Mg 5 3.3555	95-160	150-250	180-300	180-300
<b>Leghe Al-Si &gt; 10%</b> <b>Leghe di magnesio</b> Al-Si >10% Legierungen Magnesiumlegierungen Al-Si > 10% alloys Magnesium alloys Alliage aluminium > 10% Si Alliages magnésium	G - Al Si 10 Mg 3.2381 G - Al Si 12 3.2581 Mg Al 6 Zu 3.5612 G - Mg Al 9 Zu 2	60-105	95-160	110-190	110-190

# Avanzamento per tagliente $f_z$ per frese frontali, per cave, a manicotto e a disco

## Vorschub pro Zahn " $f_z$ " für Schaft-, Nuten-, Walzenstirn-, und Scheibenfräser

Feed per tooth " $f_z$ " for end mills, slot mills, shell end mills and side cutters  
 Avance par dent " $f_z$ " pour fraises deux tailles, fraises a' rainurer et 3 tailles

$\emptyset$ mm	Tipo • Typ • Type • Type N/HS Finitura • Fertigbearbeitung Finishing • Finition			Tipo • Typ • Type • Type NR/HRS Sgrossatura • Schruppen Roughing • Ebauche			2T-3T per cave Fräser mit 2-3 Schneiden Slot mills with 2-3 flutes Fraise à rainurer 2 ou 3 dents
	 $a_t = 0.2 \div 0.3 \text{ mm}$	 $a_t = 0.1 \times d_1$	 $a_t = 0.25 \times d_1$	 $a_t = 0.25 \times d_1$	 $a_t = 0.5 \times d_1$	 $a_t = d_1$ $a_t = 0.3 \text{ mm}$	 $a_t = d_1$
2	0,009	0,009	0,006				0,008
3	0,012	0,012	0,009				0,011
4	0,040	0,018	0,011				0,015
5	0,045	0,023	0,014				0,018
6	0,050	0,027	0,017	0,027	0,025	0,022	0,022
8	0,060	0,036	0,023	0,036	0,033	0,029	0,029
10	0,070	0,045	0,029	0,045	0,041	0,036	0,036
12	0,090	0,055	0,034	0,055	0,050	0,044	0,044
14	0,120	0,064	0,040	0,064	0,059	0,051	0,051
16	0,150	0,073	0,046	0,073	0,068	0,058	0,058
18	0,180	0,082	0,051	0,082	0,075	0,065	0,065
20	0,200	0,091	0,057	0,091	0,082	0,073	0,073
22	0,210	0,100	0,063	0,100	0,091	0,080	0,080
25	0,220	0,114	0,071	0,114	0,100	0,091	0,091
28	0,230	0,127	0,080	0,127	0,115	0,102	0,102
32	0,240	0,145	0,091	0,145	0,130	0,116	0,116
36	0,250	0,160	0,100	0,160	0,145	0,130	0,130
40	0,250	0,160	0,100	0,160	0,145	0,130	0,130
45	0,250	0,160	0,100	0,160	0,160	0,150	0,130
50	0,250	0,160	0,100	0,160	0,160	0,150	0,130
56	0,250	0,160	0,100	0,160	0,160	0,150	0,130
63	0,250	0,160	0,100	0,160	0,160	0,150	0,130

### Fattore di correzione "F": (da moltiplicare per $f_z$ )

- acciaio R > 1100 M/min<sup>2</sup>, titanio, leghe speciali F=0,7
- alluminio, leghe leggere F=1,3
- foratura F=10,4

### "F" correction factor (to be multiplied by $f_z$ )

- Steel R > 1100 N/mm<sup>2</sup>, titanium, special alloys F=0,7
- Aluminium, light alloys F=1,3
- Drilling F=0,4

### Korrekturfaktor "F" ( zum Multiplizieren mit $f_z$ )

- Stahl R > 1100 N/mm<sup>2</sup>, Titan, Sonderlegierungen F=0,7
- Aluminium, weiche Legierungen F=1,3
- Bohren F=0,4

### "F" facteur de correction (à multiplier par $f_z$ )

- Acier R > 1100 N/mm<sup>2</sup>, titane, alliages spécial F=0,7
- Aluminium, alliages léger F=1,3
- Perçage F=0,4



# Tolleranze ISO - Albero base

## ISO Toleranz - Einheitswelle



ISO Tolerance - Shaft  
ISO Tolerance - Arbre articulé

Gruppo di diametri (mm) • Durchmessergruppen (mm) • Range of diameters (mm) • Gamme de diamètre (mm)

	>1 ~ 3		>3 ~ 6		>6 ~ 10		>10 ~ 18		>18 ~ 30		>30 ~ 50		>50 ~ 80		>80 ~ 120		>120 ~ 180	
g5	-3	-8	-4	-9	-5	-11	-6	-14	-7	-16	-9	-20	-10	-23	-12	-27	-14	-32
h5	0	-5	0	-5	0	-6	0	-8	0	-	0	-11	0	-13	0	-15	0	-18
j5	+4	-1	+4	-1	+4	-2	+5	-3	+5	-4	+6	-5	+6	-7	+6	-9	+7	-11
k5	-	-	-	-	+7	+1	+9	+1	+11	+2	+13	+2	+15	+2	+18	+3	+21	+3
m5	+7	+2	+9	+4	+12	+6	+15	+7	+17	+8	+20	+9	+24	+11	+28	+13	+33	+15
n5	+11	+6	+13	+8	+16	+10	+20	+12	+24	+15	+28	+17	+33	+20	+38	+23	+45	+27
g6	-3	-10	-4	-12	-5	-14	-6	-17	-7	-20	-9	-25	-10	-29	-12	-34	-14	-39
h6	0	-7	0	-8	0	-9	0	-11	-13	0	-16	0	-19	0	-22	0	-25	
j6	+6	-1	+7	-1	+7	-2	+8	-3	+9	-4	+11	-5	+12	-7	+13	-9	+14	-11
k6	-	-	-	-	+10	+1	+12	+1	+15	+2	+18	+2	+21	+2	+25	+3	+28	+3
m6	+9	+2	+12	+4	+15	+6	+18	+7	+21	+8	+25	+9	+30	+11	+35	+13	+40	+15
n6	+13	+6	+16	+8	+19	+10	+23	+12	+28	+15	+33	+17	+39	+20	+45	+23	+52	+27
p6	+16	+9	+20	+12	+24	+15	+29	+18	+35	+22	+42	+26	+51	+32	+59	+37	+68	+43
e7	-14	-23	-20	-32	-25	-40	-32	-50	-40	-61	-50	-75	-60	-90	-72	-107	-85	-125
f7	-7	-16	-10	-22	-13	-28	-16	-34	-20	-41	-25	-50	-30	-60	-36	-71	-43	-83
h7	0	-9	0	-12	0	-15	0	-18	0	-21	0	-25	0	-30	0	-35	0	-40
j7	+7	-2	+9	-3	+10	-5	+12	-6	+13	-8	+15	-10	+18	-12	+20	-15	+22	-18
k7	-	-	-	-	+16	+1	+19	+1	+23	+2	+27	+2	+32	+2	+38	+3	+43	+3
m7	-	-	-	-	+21	+6	+25	+7	+29	+8	+34	+9	+41	+11	+48	+13	+55	+15
n7	+15	+6	+20	+8	+25	+10	+30	+12	+36	+15	+42	+17	+50	+20	+58	+23	+67	+27
d8	-20	-34	-30	-48	-40	-62	-50	-77	-65	-93	-80	-119	-100	-146	-120	-174	-145	-208
e8	-14	-28	-20	-38	-47	-32	-59	-40	-73	-50	-89	-60	-106	-72	-126	-85	-148	
f8	-7	-21	-10	-28	-13	-35	-16	-43	-20	-53	-25	-64	-30	-76	-36	-90	-43	-106
h8	0	-14	0	-18	0	-22	0	-27	0	-33	0	-46	0	-54	0	-63		
j8	+7	-7	+9	-9	+11	-11	+14	-13	+17	-16	+20	-19	+23	-23	+27	-27	+32	-31
k8	+14	0	+18	0	+22	0	+27	0	+33	0	+39	0	+46	0	+54	0	+63	0
d9	-20	-45	-30	-60	-40	-76	-50	-93	-65	-117	-80	-142	-100	-174	-120	-207	-145	-245
e9	-14	-39	-20	-50	-25	-61	-32	-75	-40	-92	-50	-112	-60	-134	-72	-159	-85	-185
h9	0	-25	0	-30	0	-36	0	-43	0	-52	0	-62	0	-74	0	-87	0	-100
j9	+13	-12	+15	+18	-18	+22	-21	+26	-26	+31	-31	+37	-37	+44	-43	+50	-50	
k9	+25	0	+30	0	+36	0	+43	0	+52	0	+62	0	+74	0	+87	0	+100	0
d10	-20	-60	-30	-78	-40	-98	-50	-120	-65	-149	-80	-180	-100	-220	-120	-260	-145	-305
h10	0	-40	0	-48	0	-58	0	-70	0	-84	0	-100	0	-120	0	-140	0	-160
j10	+20	-20	+24	-24	+29	-29	+35	-35	+42	-42	+50	-50	+60	-60	+70	-70	+80	-80
k10	+40	0	+48	0	+58	0	+70	0	+84	0	+100	0	+120	0	+140	0	+160	0
d11	-20	-80	+30	-105	-40	-130	+50	-160	-65	-195	-80	-240	-100	+290	-120	-340	-145	-395
h11	0	-60	0	-75	0	-90	0	-110	-130	0	-160	0	-190	0	-220	0	-250	
j11	+30	-30	+38	-37	+45	-45	+55	-55	+65	-65	+80	-80	+95	-95	+110	-110	+125	-125
k11	+60	0	+75	0	+90	0	+110	0	+130	0	+160	0	+190	0	+220	0	+250	0
h12	0	-100	0	-120	0	-150	0	-180	0	-210	0	-250	0	-300	0	-350	0	-400
k12	+100	0	+120	0	+150	0	+180	0	+210	0	+250	0	+300	0	+350	0	+400	0

Valori espressi in  $\mu$   
Werte in  $\mu$   
Values in  $\mu$   
Valeur en  $\mu$



# Formazione

Il settore meccanico è in costante evoluzione. I metodi di realizzo degli utensili e i loro impieghi necessitano di costante informazione da parte delle aziende produttrici.

Per ottenere sempre elevate prestazioni dagli utensili di ultima generazione Angelo Ghezzi Spa, in collaborazione con prestigiosi produttori del settore, organizza dei corsi gratuiti rivolti ai clienti e utilizzatori.

I seminari riguardano sia nozioni base che argomenti specifici sugli utensili evoluti e sono tenuti principalmente dai tecnici responsabili di settore.

Chiama direttamente la sede al numero **02.9189314** per prenotare il tuo corso.





# Numeri di codice in progressione

## Fortlaufende Artikelnummer

Progressive item numbers  
Chiffres des références en progression

Cod.	Pag.	Cod.	Pag.	Cod.	Pag.	Cod.	Pag.
3200	4	4220	141	4404	43	4438T	146
3200C	4	4220T	141	4404T	43	4438C	146
3200F	4	4220C	141	4404C	43	4439	144
3200T	4	4220F	141	4404F	43	4439C	144
3201	4	4224	143	4405	55	4439F	144
3201C	4	4224T	143	4405C	55	4442	148
3202	4	4224C	143	4405F	55	4442T	148
3204	8	4300	25	4406	43	4442C	148
3204T	8	4300T	25	4407	55	4446	151
3204C	8	4300C	25	4407C	55	4446T	151
3204F	8	4300F	25	4407F	55	4446C	151
3206	8	4302	25	4408	45	4448	152
3220	6	4304	27	4408C	45	4448T	152
3220T	6	4304T	27	4408F	45	4448C	152
3220C	6	4304C	27	4412	47	4458	46
3220F	6	4308	30	4412C	47	4458C	46
3224	10	4308T	30	4412F	47	4458F	46
3224T	10	4308C	30	4414	47	4466	49
3224C	10	4320	26	4414C	47	4474	59
3300	16	4320T	26	4416	48	4474C	59
3300T	16	4320C	26	4416T	48	4488	147
3300C	16	4324	28	4416C	48	4488T	147
3300F	16	4324T	28	4416F	48	4488C	147
3302	16	4324C	28	4420	50	4492	150
3304	20	4330	24	4420T	50	4492T	150
3304T	20	4330T	24	4420C	50	4492C	150
3304C	20	4330C	24	4420F	50	4493	145
3308	14	4330F	24	4421	54	4493C	145
3308T	14	4333	51	4421C	54	4493F	145
3308C	14	4333C	51	4421F	54	4495	149
3308F	14	4333F	51	4423	54	4495C	149
3310	14	4334	51	4423C	54	4495F	149
3320	18	4334C	51	4423F	54	5300	31
3320T	18	4334F	51	4424	58	5300T	31
3320C	18	4335	53	4424C	58	5300C	31
3320F	18	4335C	53	4425	56	5304	33
3324	22	4335F	53	4425C	56	5304T	33
3324T	22	4336	53	4425F	56	5304C	33
3324C	22	4336C	53	4427	57	5320	32
4200	140	4336F	53	4427C	57	5320T	32
4200T	140	4337	29	4427F	57	5320C	32
4200C	140	4400	42	4428	60	5324	34
4200F	140	4400T	42	4428T	60	5324T	34
4201	140	4400C	42	4428C	60	5324C	34
4201C	140	4401	52	4432	62	5400	65
4202	140	4401C	52	4434	63	5400T	65
4204	142	4401F	52	4434T	63	5400C	65
4204T	142	4403	52	4434C	63	5400F	65
4204C	142	4403C	52	4436	64	5404	66
4206	142	4403F	52	4438	146	5404C	66



Cod.	Pag.	Cod.	Pag.	Cod.	Pag.	Cod.	Pag.
5408	67	7429	156	8512	125	9569	109
5408T	67	7429C	156	8516	126	9569C	109
5408C	67	7429F	156	8520	127	9569F	109
5412	68	7430	155	8528	129	9570	114
5412C	68	7430T	155	8532	130	9570C	114
5416	72	7430C	155	8540	131	9570F	114
5418	73	7434	158	8544	132	9571	113
5418T	73	7434T	158	8548	133	9574	116
5418C	73	7434C	158	8552	134	9574C	116
5420	74	7436	159	8556	135	9574F	116
5450	70	7436T	159	8560	136	9575	171
5460	71	7436C	159	8564	137	9576	173
7300	36	7450	77	8568	138	9577	174
7300C	36	7450C	77	9501	94	9578	176
7300F	36	7450F	77	9502	95	9579	178
7301	37	7454	79	9503	96	9580	179
7301C	37	7454T	79	9504	97	9581	181
7301F	37	7454C	79	9505	98	9582	182
7302	35	7454F	79	9506	99	9583	183
7400	76	7458	81	9507	100	9584	185
7400C	76	7458C	81	9508	101	9585	115
7400F	76	7458F	81	9509	102	9585C	115
7404	78	7462	85	9510	103	9585F	115
7404T	78	7462T	85	9520	162	9586	117
7404C	78	7462C	85	9522	162	9586C	117
7404F	78	7466	87	9524	163	9586F	117
7406	78	7466C	87	9526	164	9591	186
7408	80	7466F	87	9530	165	9592	187
7408C	80	7467	88	9536	166	9593	188
7408F	80	7467C	88	9542	167	9595	172
7412	84	7467F	88	9544	167		
7412T	84	7469	88	9546	168		
7412C	84	7469C	88	9548	168		
7412F	84	7469F	88	9550	169		
7414	84	7476	154	9552	169		
7416	86	7476T	154	9554	170		
7416C	86	7476C	154	9556	170		
7416F	86	7480	157	9561	106		
7420	89	7480T	157	9561C	106		
7422	90	7480C	157	9563	110		
7422T	90	7484	82	9564	108		
7422C	90	7484C	82	9564T	108		
7424	91	7484F	82	9564C	108		
7426	153	7486	83	9565	111		
7426T	153	7486C	83	9567	112		
7426C	153	8500	121	9567T	112		
7426F	153	8501	120	9567C	112		
7427	156	8503	122	9568	107		
7427C	156	8504	123	9568C	107		
7427F	156	8508	124	9568F	107		









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