



LOUIS BELET SA

Outils de coupe

Cutting tools

Schneidwerkzeuge



1. Outils spéciaux en carbure

Special tools in solid carbide

Sonderwerkzeuge aus VHM

Utensili speciali in metallo duro

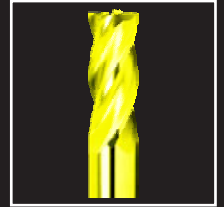


2. Fraises en bout en carbure

End mills in solid carbide

Schaftfräser aus VHM

Frese frontali in metallo duro

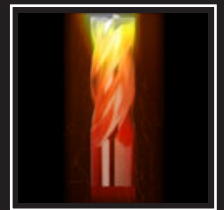


3. Fraises en bout UGV

End mills for high speed cutting

Hochgeschwindigkeitsfräser aus VHM

Frese frontali alta frequenza



4. Outils avec insert PCD

PCD cutting tools

PKD Werkzeuge

Utensili in PCD

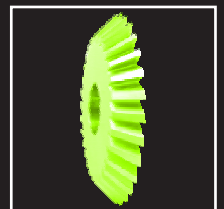


5. Fraises circulaires en carbure

Slitting saws and circular cutters in solid carbide

Kreissägeblätter und Fräser mit Bohrung aus VHM

Seghe e frese circolari in metallo duro

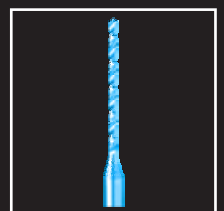


6. Forets et mèches en carbure

Drills in solid carbide

Bohrer aus VHM

Punte in metallo duro



7. Données techniques

Technical data

Technische Daten

Dati tecnici

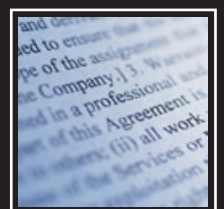


8. Conditions générales

General terms & conditions

Allgemeine Bedingungen

Condizioni di vendita





Outils spéciaux en carbure

Special tools in solid carbide

Sonderwerkzeuge aus VHM

Utensili speciali in metallo duro

Fraises circulaires de forme

- Fraise en métal dur MG monobloc
- Exécution selon plan de la fraise ou de la pièce à usiner
- Profil constant
- Possibilité de réaffûtage
- Diamètre extérieur et nombre de dents à la demande du client
- Denture droite, hélicoïdale ou alternée

Profilkreisfräser

- VHM-Fräser MG
- Ausführung nach Werkzeug- oder Werkstückzeichnung
- Konstantprofil
- Nachschärfen möglich
- Aussendurchmesser und Zähnezahl nach Kundenanfrage
- Gerade-, spiralförmig oder kreuzverzahnt

Circular milling cutters with special profile

- Circular milling cutters in solid carbide
- Manufactured according to specific tool drawing or finished product drawing
- Constant profile
- Regrinding possible
- Choice of external diameter and teeth number
- Straight, spiral or staggered teeth

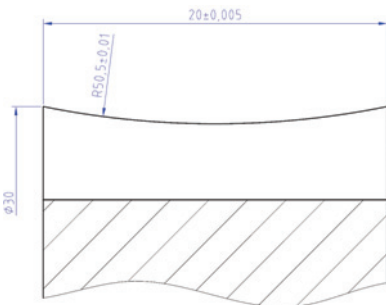
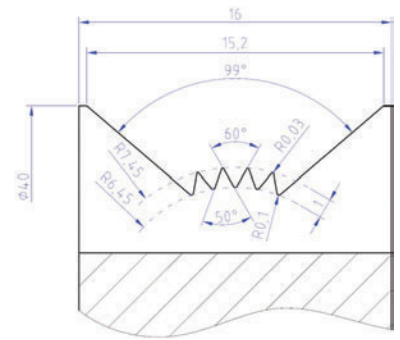
Exemples de réalisations

Ausführungsbeispiele

Achievement examples

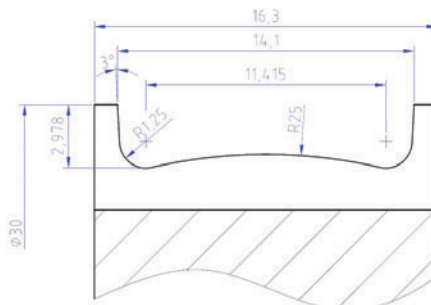


Fraise de forme pour l'usinage d'implants médicaux en titane
Circular milling cutter with special profile for titanium medical implants



Fraise hélicoïdale pour taillage d'entre-cornes
Circular milling cutter, helicoidal, for watchmakers

Fraise pour taillage de maillons de bracelet
Circular milling cutter, for bracelet links of wristwatches.



Fraises T et fraises sur tige, de forme

- Fraise en métal dur MG monobloc
- Exécution selon plan de la fraise ou de la pièce à usiner
- Profil constant
- Possibilité de réaffûtage
- Diamètres et nombre de dents à la demande du client
- Denture droite, hélicoïdale ou alternée

Stirnfräser und Formschaftfräser

- VHM-Fräser MG Monobloc
- Ausführung nach Werkzeug- oder Werkstückzeichnung
- Konstantprofil
- Nachschärfen möglich
- Aussendurchmesser und Zähnezahl nach Kundenanfrage
- Gerade-, spiralförmig oder kreuzverzahnt

Special T-slot cutters and end mills

- Profiled end mills in solid carbide
- Manufactured according to specific tool drawing or finished product drawing
- Constant profile
- Regrinding possible
- Choice of external diameter and teeth number
- Straight, spiral or staggered teeth.

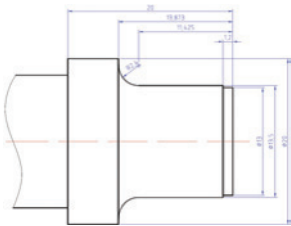
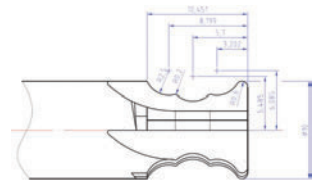
Exemples de réalisations

Ausführungsbeispiele

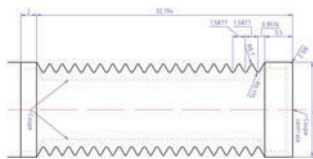
Achievement examples



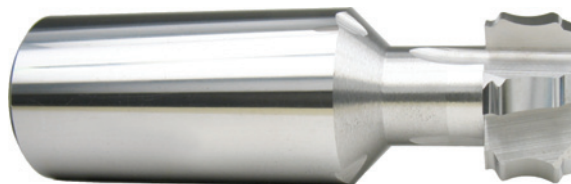
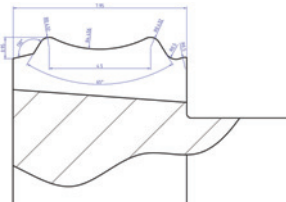
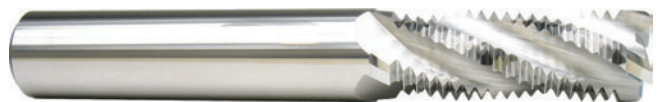
Fraise taille droite pour pièces de bijouterie
Straight cut end mill for jewellery parts



Fraise hélicoïdale multi-fonction
Helicoid multi-function end mill



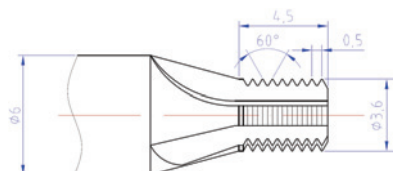
Fraise de finition avec « profil hérisson »
Finishing end mill with « hedgehog profile »



Fraise en T alternée de forme
Profiled T-slot end mill staggered teeth



Fraise à fileter
Thread mill



**Burins de forme
ABC system**

- Burins avec plaquette MD réversible
- Changement de plaquette sans réglage
- positionnement ultra-précis de la plaquette sur son support
- Temps d'usinage réduit: 1 seul réglage
- Exécution selon plan du burin ou de la pièce à usiner
- Grande durée de vie grâce au revêtement de surface

Formstähle

- Drehstähle mit umkehrbarer Wendeplatten aus VHM
- Wechseln der Wendeplatte ohne Regelung
- Präzision auf dem Träger von der Wendeplatte
- Reduzierte Einrichtzeiten: nur eine Regelung
- Ausführung nach Werkzeug- oder Werkstückzeichnung
- Grössere Standzeit mit Beschichtung

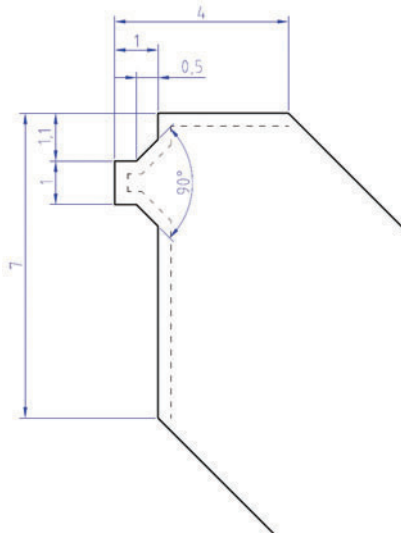
**Turning tools with
profiled inserts**

- Turning tool with reversible solid carbide insert
- Change of insert without adjustment
- High precision of the insert's position
- Reduction of the machining time: only one adjustment
- Manufactured according to specific tool drawing or finished product drawing
- Long lifetime due to the coating

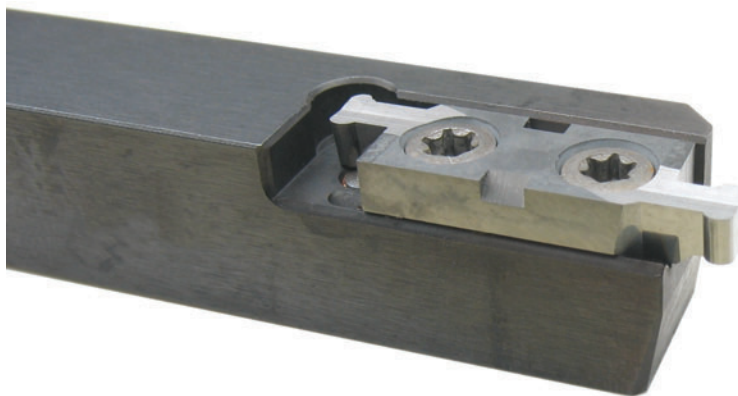
Exemples de réalisations

Ausführungsbeispiele

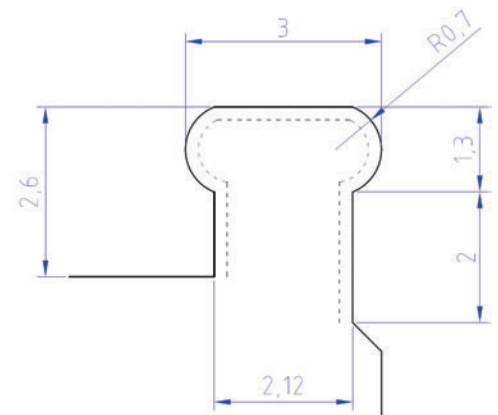
Achievement examples



Plaquette de forme
Turning tool with profiled insert



Plaquette de forme multi-fonction
Multi function turning tool with profiled insert





Fraises en bout en carbure

End mills in solid carbide

Schaftfräser aus VHM

Frese frontali in metallo duro

Fraises 3 dents $l_1 = 1 \times d_1$

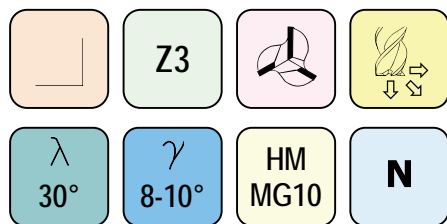
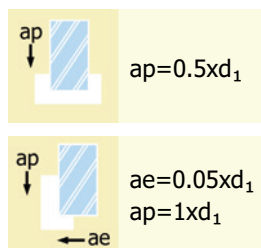
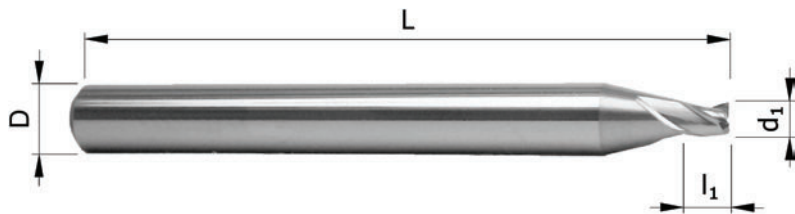
 End mills 3 teeth $l_1 = 1 \times d_1$

 Schafffräser 3 Zähne $l_1 = 1 \times d_1$

 Frese 3 denti $l_1 = 1 \times d_1$
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

				Prix (CHF) / Price (CHF)			
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/lor	TiCN TiAlN	Autre Other
0.30	0.30	3	38	-	-	-	-
0.35	0.35	3	38	-	-	-	-
0.40	0.40	3	38	-	-	-	-
0.45	0.45	3	38	-	-	-	-
0.50	0.50	3	38	-	-	-	-
0.55	0.55	3	38	-	-	-	-
0.60	0.60	3	38	-	-	-	-
0.65	0.65	3	38	-	-	-	-
0.70	0.70	3	38	-	-	-	-
0.75	0.75	3	38	-	-	-	-
0.80	0.80	3	38	-	-	-	-
0.85	0.85	3	38	-	-	-	-
0.90	0.90	3	38	-	-	-	-
0.95	0.95	3	38	-	-	-	-
1.00	1.00	3	38	-	-	-	-
1.05	1.05	3	38	-	-	-	-
1.10	1.10	3	38	-	-	-	-
1.15	1.15	3	38	-	-	-	-
1.20	1.20	3	38	-	-	-	-
1.25	1.25	3	38	-	-	-	-
1.30	1.30	3	38	-	-	-	-
1.35	1.35	3	38	-	-	-	-
1.40	1.40	3	38	-	-	-	-

				Prix (CHF) / Price (CHF)			
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/lor	TiCN TiAlN	Autre Other
1.45	1.45	3	38	-	-	-	-
1.50	1.50	3	38	-	-	-	-
1.55	1.55	3	38	-	-	-	-
1.60	1.60	3	38	-	-	-	-
1.65	1.65	3	38	-	-	-	-
1.70	1.70	3	38	-	-	-	-
1.75	1.75	3	38	-	-	-	-
1.80	1.80	3	38	-	-	-	-
1.85	1.85	3	38	-	-	-	-
1.90	1.90	3	38	-	-	-	-
1.95	1.95	3	38	-	-	-	-
2.00	2.00	3	38	-	-	-	-
2.05	2.05	3	38	-	-	-	-
2.10	2.10	3	38	-	-	-	-
2.15	2.15	3	38	-	-	-	-
2.20	2.20	3	38	-	-	-	-
2.25	2.25	3	38	-	-	-	-
2.30	2.30	3	38	-	-	-	-
2.35	2.35	3	38	-	-	-	-
2.40	2.40	3	38	-	-	-	-
2.45	2.45	3	38	-	-	-	-
2.50	2.50	3	38	-	-	-	-
2.55	2.55	3	38	-	-	-	-

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Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.60	2.60	3	38	-	-	-
2.65	2.65	3	38	-	-	-
2.70	2.70	3	38	-	-	-
2.75	2.75	3	38	-	-	-
2.80	2.80	3	38	-	-	-
2.85	2.85	3	38	-	-	-
2.90	2.90	3	38	-	-	-
2.95	2.95	3	38	-	-	-
3.00	3.00	6	51	-	-	-
3.10	3.10	6	51	-	-	-
3.20	3.20	6	51	-	-	-
3.30	3.30	6	51	-	-	-
3.40	3.40	6	51	-	-	-
3.50	3.50	6	51	-	-	-
3.60	3.60	6	51	-	-	-
3.70	3.70	6	51	-	-	-
3.80	3.80	6	51	-	-	-
3.90	3.90	6	51	-	-	-
4.00	4.00	6	51	-	-	-
4.10	4.10	6	51	-	-	-
4.20	4.20	6	51	-	-	-
4.30	4.30	6	51	-	-	-
4.40	4.40	6	51	-	-	-
4.50	4.50	6	51	-	-	-
4.60	4.60	6	51	-	-	-
4.70	4.70	6	51	-	-	-
4.80	4.80	6	51	-	-	-
4.90	4.90	6	51	-	-	-
5.00	5.00	6	51	-	-	-
5.10	5.10	6	51	-	-	-
5.20	5.20	6	51	-	-	-
5.30	5.30	6	51	-	-	-
5.40	5.40	6	51	-	-	-
5.50	5.50	6	51	-	-	-
5.60	5.60	6	51	-	-	-
5.70	5.70	6	51	-	-	-
5.80	5.80	6	51	-	-	-
5.90	5.90	6	51	-	-	-
6.00	6.00	6	51	-	-	-
6.50	6.50	8	61	-	-	-
7.00	7.00	8	61	-	-	-
7.50	7.50	8	61	-	-	-
8.00	8.00	8	61	-	-	-
8.50	8.50	10	72	-	-	-
9.00	9.00	10	72	-	-	-
9.50	9.50	10	72	-	-	-

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
10.00	10.00	10	72	-	-	-
11.00	11.00	11	83	-	-	-
12.00	12.00	12	83	-	-	-
13.00	13.00	13	83	-	-	-
14.00	14.00	14	83	-	-	-
15.00	15.00	15	83	-	-	-
16.00	16.00	16	92	-	-	-
17.00	17.00	17	92	-	-	-
18.00	18.00	18	92	-	-	-
19.00	19.00	19	92	-	-	-
20.00	20.00	20	104	-	-	-



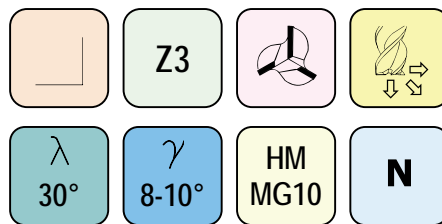
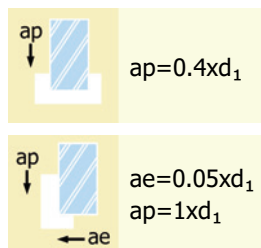
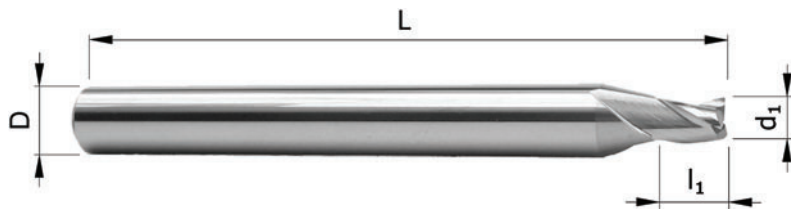
Fraises 3 dents $l_1 = 1.5 \times d_1$

End mills 3 teeth $l_1 = 1.5 \times d_1$ Schafffräser 3 Zähne $l_1=1.5d_1$ Frese 3 denti $l_1 = 1.5 \times d_1$

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Or/Gold & Argent/Silver	120 - 170	++	-
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d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
0.30	0.45	3	38	-	-	-
0.35	0.55	3	38	-	-	-
0.40	0.60	3	38	-	-	-
0.45	0.70	3	38	-	-	-
0.50	0.75	3	38	-	-	-
0.55	0.85	3	38	-	-	-
0.60	0.90	3	38	-	-	-
0.65	1.00	3	38	-	-	-
0.70	1.05	3	38	-	-	-
0.75	1.15	3	38	-	-	-
0.80	1.20	3	38	-	-	-
0.85	1.30	3	38	-	-	-
0.90	1.35	3	38	-	-	-
0.95	1.45	3	38	-	-	-
1.00	1.50	3	38	-	-	-
1.05	1.60	3	38	-	-	-
1.10	1.65	3	38	-	-	-
1.15	1.70	3	38	-	-	-
1.20	1.80	3	38	-	-	-
1.25	1.90	3	38	-	-	-
1.30	1.95	3	38	-	-	-
1.35	2.05	3	38	-	-	-
1.40	2.10	3	38	-	-	-

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
1.45	2.15	3	38	-	-	-
1.50	2.25	3	38	-	-	-
1.55	2.35	3	38	-	-	-
1.60	2.40	3	38	-	-	-
1.65	2.45	3	38	-	-	-
1.70	2.55	3	38	-	-	-
1.75	2.65	3	38	-	-	-
1.80	2.70	3	38	-	-	-
1.85	2.80	3	38	-	-	-
1.90	2.85	3	38	-	-	-
1.95	2.90	3	38	-	-	-
2.00	3.00	3	38	-	-	-
2.05	3.05	3	38	-	-	-
2.10	3.15	3	38	-	-	-
2.15	3.20	3	38	-	-	-
2.20	3.30	3	38	-	-	-
2.25	3.40	3	38	-	-	-
2.30	3.45	3	38	-	-	-
2.35	3.55	3	38	-	-	-
2.40	3.60	3	38	-	-	-
2.45	3.70	3	38	-	-	-
2.50	3.75	3	38	-	-	-
2.55	3.80	3	38	-	-	-

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Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

				Prix (CHF) / Price (CHF)			
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
2.60	3.90	3	38	-	-	-	
2.65	3.95	3	38	-	-	-	
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2.75	4.15	3	38	-	-	-	
2.80	4.20	3	38	-	-	-	
2.85	4.30	3	38	-	-	-	
2.90	4.35	3	38	-	-	-	
2.95	4.45	3	38	-	-	-	
3.00	4.50	6	51	-	-	-	
3.10	4.65	6	51	-	-	-	
3.20	4.80	6	51	-	-	-	
3.30	4.95	6	51	-	-	-	
3.40	5.10	6	51	-	-	-	
3.50	5.25	6	51	-	-	-	
3.60	5.40	6	51	-	-	-	
3.70	5.55	6	51	-	-	-	
3.80	5.70	6	51	-	-	-	
3.90	5.85	6	51	-	-	-	
4.00	6.00	6	51	-	-	-	
4.10	6.15	6	51	-	-	-	
4.20	6.30	6	51	-	-	-	
4.30	6.45	6	51	-	-	-	
4.40	6.60	6	51	-	-	-	
4.50	6.75	6	51	-	-	-	
4.60	6.90	6	51	-	-	-	
4.70	7.05	6	51	-	-	-	
4.80	7.20	6	51	-	-	-	
4.90	7.35	6	51	-	-	-	
5.00	7.50	6	51	-	-	-	
5.10	7.65	6	51	-	-	-	
5.20	7.80	6	51	-	-	-	
5.30	7.95	6	51	-	-	-	
5.40	8.10	6	51	-	-	-	
5.50	8.25	6	51	-	-	-	
5.60	8.40	6	51	-	-	-	
5.70	8.55	6	51	-	-	-	
5.80	8.70	6	51	-	-	-	
5.90	8.85	6	51	-	-	-	
6.00	9.00	6	51	-	-	-	
6.50	9.75	8	61	-	-	-	
7.00	10.50	8	61	-	-	-	
7.50	11.25	8	61	-	-	-	
8.00	12.00	8	61	-	-	-	
8.50	12.75	10	72	-	-	-	
9.00	13.50	10	72	-	-	-	
9.50	14.25	10	72	-	-	-	

				Prix (CHF) / Price (CHF)			
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
10.00	15.00	10	72	-	-	-	
11.00	16.50	11	83	-	-	-	
12.00	18.00	12	83	-	-	-	
13.00	19.50	13	83	-	-	-	
14.00	21.00	14	83	-	-	-	
15.00	22.50	15	83	-	-	-	
16.00	24.00	16	92	-	-	-	
17.00	25.50	17	92	-	-	-	
18.00	27.00	18	92	-	-	-	
19.00	28.50	19	92	-	-	-	
20.00	30.00	20	104	-	-	-	



Fraises 3 dents $l_1 = 2 \times d_1$

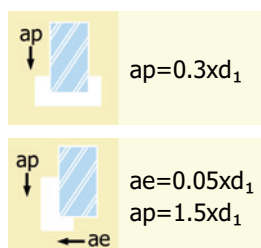
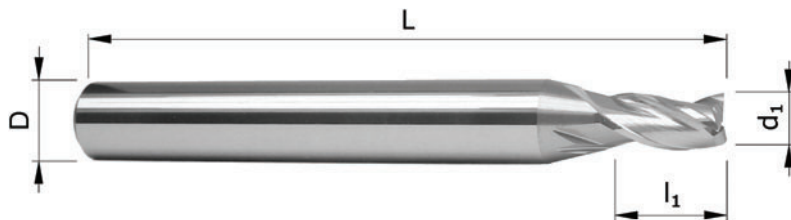
 End mills 3 teeth $l_1 = 2 \times d_1$

 Schafffräser 3 Zähne $l_1 = 2 \times d_1$

 Frese 3 denti $l_1 = 2 \times d_1$
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Z3

λ
30°

γ
8-10°

**HM
MG10**

N

Tolérances:
 $d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu / Uncoated	ou/ or / TiCN / TiAIN	Autre / Other
0.30	0.60	3	38	-	-	-
0.35	0.70	3	38	-	-	-
0.40	0.80	3	38	-	-	-
0.45	0.90	3	38	-	-	-
0.50	1.00	3	38	-	-	-
0.55	1.10	3	38	-	-	-
0.60	1.20	3	38	-	-	-
0.65	1.30	3	38	-	-	-
0.70	1.40	3	38	-	-	-
0.75	1.50	3	38	-	-	-
0.80	1.60	3	38	-	-	-
0.85	1.70	3	38	-	-	-
0.90	1.80	3	38	-	-	-
0.95	1.90	3	38	-	-	-
1.00	2.00	3	38	-	-	-
1.05	2.10	3	38	-	-	-
1.10	2.20	3	38	-	-	-
1.15	2.30	3	38	-	-	-
1.20	2.40	3	38	-	-	-
1.25	2.50	3	38	-	-	-
1.30	2.60	3	38	-	-	-
1.35	2.70	3	38	-	-	-
1.40	2.80	3	38	-	-	-

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu / Uncoated	ou/ or / TiCN / TiAIN	Autre / Other
1.45	2.90	3	38	-	-	-
1.50	3.00	3	38	-	-	-
1.55	3.10	3	38	-	-	-
1.60	3.20	3	38	-	-	-
1.65	3.30	3	38	-	-	-
1.70	3.40	3	38	-	-	-
1.75	3.50	3	38	-	-	-
1.80	3.60	3	38	-	-	-
1.85	3.70	3	38	-	-	-
1.90	3.80	3	38	-	-	-
1.95	3.90	3	38	-	-	-
2.00	4.00	3	38	-	-	-
2.05	4.10	3	38	-	-	-
2.10	4.20	3	38	-	-	-
2.15	4.30	3	38	-	-	-
2.20	4.40	3	38	-	-	-
2.25	4.50	3	38	-	-	-
2.30	4.60	3	38	-	-	-
2.35	4.70	3	38	-	-	-
2.40	4.80	3	38	-	-	-
2.45	4.90	3	38	-	-	-
2.50	5.00	3	38	-	-	-
2.55	5.10	3	38	-	-	-

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Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

				Prix (CHF) / Price (CHF)			
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
2.60	5.20	3	38	-	-	-	
2.65	5.30	3	38	-	-	-	
2.70	5.40	3	38	-	-	-	
2.75	5.50	3	38	-	-	-	
2.80	5.60	3	38	-	-	-	
2.85	5.70	3	38	-	-	-	
2.90	5.80	3	38	-	-	-	
2.95	5.90	3	38	-	-	-	
3.00	6.00	6	51	-	-	-	
3.10	6.20	6	51	-	-	-	
3.20	6.40	6	51	-	-	-	
3.30	6.60	6	51	-	-	-	
3.40	6.80	6	51	-	-	-	
3.50	7.00	6	51	-	-	-	
3.60	7.20	6	51	-	-	-	
3.70	7.40	6	51	-	-	-	
3.80	7.60	6	51	-	-	-	
3.90	7.80	6	51	-	-	-	
4.00	8.00	6	51	-	-	-	
4.10	8.20	6	51	-	-	-	
4.20	8.40	6	51	-	-	-	
4.30	8.60	6	51	-	-	-	
4.40	8.80	6	51	-	-	-	
4.50	9.00	6	51	-	-	-	
4.60	9.20	6	51	-	-	-	
4.70	9.40	6	51	-	-	-	
4.80	9.60	6	51	-	-	-	
4.90	9.80	6	51	-	-	-	
5.00	10.00	6	51	-	-	-	
5.10	10.20	6	51	-	-	-	
5.20	10.40	6	51	-	-	-	
5.30	10.60	6	51	-	-	-	
5.40	10.80	6	51	-	-	-	
5.50	11.00	6	51	-	-	-	
5.60	11.20	6	51	-	-	-	
5.70	11.40	6	51	-	-	-	
5.80	11.60	6	51	-	-	-	
5.90	11.80	6	51	-	-	-	
6.00	12.00	6	51	-	-	-	
6.50	13.00	8	51	-	-	-	
7.00	14.00	8	61	-	-	-	
7.50	15.00	8	61	-	-	-	
8.00	16.00	8	61	-	-	-	
8.50	17.00	10	72	-	-	-	
9.00	18.00	10	72	-	-	-	
9.50	19.00	10	72	-	-	-	

				Prix (CHF) / Price (CHF)			
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
10.00	20.00	10	72	-	-	-	
11.00	22.00	11	83	-	-	-	
12.00	24.00	12	83	-	-	-	
13.00	26.00	13	83	-	-	-	
14.00	28.00	14	83	-	-	-	
15.00	30.00	15	83	-	-	-	
16.00	32.00	16	92	-	-	-	
17.00	34.00	17	92	-	-	-	
18.00	36.00	18	92	-	-	-	
19.00	38.00	19	92	-	-	-	
20.00	40.00	20	104	-	-	-	

Fraises 3 dents $l_1 = 3 \times d_1$

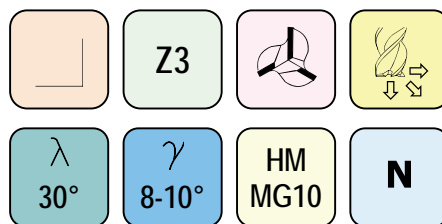
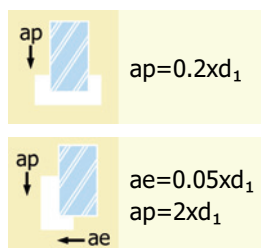
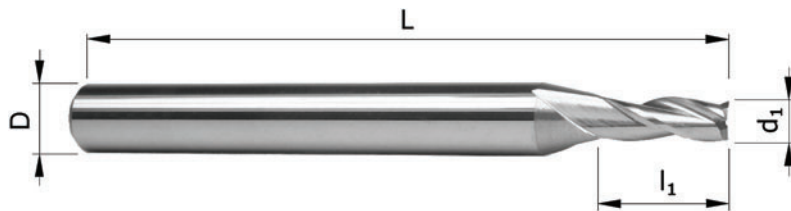
 End mills 3 teeth $l_1 = 3 \times d_1$

 Schafffräser 3 Zähne $l_1 = 3 \times d_1$

 Frese 3 denti $l_1 = 3 \times d_1$
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
0.50	1.50	3	38	-	-	-
0.55	1.65	3	38	-	-	-
0.60	1.80	3	38	-	-	-
0.65	1.95	3	38	-	-	-
0.70	2.10	3	38	-	-	-
0.75	2.25	3	38	-	-	-
0.80	2.40	3	38	-	-	-
0.85	2.55	3	38	-	-	-
0.90	2.70	3	38	-	-	-
0.95	2.85	3	38	-	-	-
1.00	3.00	3	38	-	-	-
1.05	3.15	3	38	-	-	-
1.10	3.30	3	38	-	-	-
1.15	3.45	3	38	-	-	-
1.20	3.60	3	38	-	-	-
1.25	3.75	3	38	-	-	-
1.30	3.90	3	38	-	-	-
1.35	4.05	3	38	-	-	-
1.40	4.20	3	38	-	-	-
1.45	4.35	3	38	-	-	-
1.50	4.50	3	38	-	-	-
1.55	4.65	3	38	-	-	-
1.60	4.80	3	38	-	-	-

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
1.65	4.95	3	38	-	-	-
1.70	5.10	3	38	-	-	-
1.75	5.25	3	38	-	-	-
1.80	5.40	3	38	-	-	-
1.85	5.55	3	38	-	-	-
1.90	5.70	3	38	-	-	-
1.95	5.85	3	38	-	-	-
2.00	6.00	3	38	-	-	-
2.05	6.15	3	38	-	-	-
2.10	6.30	3	38	-	-	-
2.15	6.45	3	38	-	-	-
2.20	6.60	3	38	-	-	-
2.25	6.75	3	38	-	-	-
2.30	6.90	3	38	-	-	-
2.35	7.05	3	38	-	-	-
2.40	7.20	3	38	-	-	-
2.45	7.35	3	38	-	-	-
2.50	7.50	3	38	-	-	-
2.55	7.65	3	38	-	-	-
2.60	7.80	3	38	-	-	-
2.65	7.95	3	38	-	-	-
2.70	8.10	3	38	-	-	-
2.75	8.25	3	38	-	-	-

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Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.80	8.40	3	38	-	-	-
2.85	8.55	3	38	-	-	-
2.90	8.70	3	38	-	-	-
2.95	8.85	3	38	-	-	-
3.00	9.00	6	51	-	-	-
3.10	9.30	6	51	-	-	-
3.20	9.60	6	51	-	-	-
3.30	9.90	6	51	-	-	-
3.40	10.20	6	51	-	-	-
3.50	10.50	6	51	-	-	-
3.60	10.80	6	51	-	-	-
3.70	11.10	6	51	-	-	-
3.80	11.40	6	51	-	-	-
3.90	11.70	6	51	-	-	-
4.00	12.00	6	51	-	-	-
4.10	12.30	6	51	-	-	-
4.20	12.60	6	51	-	-	-
4.30	12.90	6	51	-	-	-
4.40	13.20	6	51	-	-	-
4.50	13.50	6	51	-	-	-
4.60	13.80	6	51	-	-	-
4.70	14.10	6	51	-	-	-
4.80	14.40	6	51	-	-	-
4.90	14.70	6	51	-	-	-
5.00	15.00	6	51	-	-	-
5.10	15.30	6	51	-	-	-
5.20	15.60	6	51	-	-	-
5.30	15.90	6	51	-	-	-
5.40	16.20	6	51	-	-	-
5.50	16.50	6	51	-	-	-
5.60	16.80	6	51	-	-	-
5.70	17.10	6	51	-	-	-
5.80	17.40	6	51	-	-	-
5.90	17.70	6	51	-	-	-
6.00	18.00	6	51	-	-	-
6.50	19.50	8	51	-	-	-
7.00	21.00	8	61	-	-	-
7.50	22.50	8	61	-	-	-
8.00	24.00	8	61	-	-	-
8.50	25.50	10	72	-	-	-
9.00	27.00	10	72	-	-	-
9.50	28.50	10	72	-	-	-
10.00	30.00	10	72	-	-	-
11.00	33.00	11	83	-	-	-
12.00	36.00	12	83	-	-	-
13.00	39.00	13	83	-	-	-

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
14.00	42.00	14	92	-	-	-
15.00	45.00	15	92	-	-	-
16.00	48.00	16	104	-	-	-
17.00	51.00	17	104	-	-	-
18.00	54.00	18	104	-	-	-
19.00	57.00	19	120	-	-	-
20.00	60.00	20	120	-	-	-



Fraises 3 dents $l_1 = 4 \times d_1$

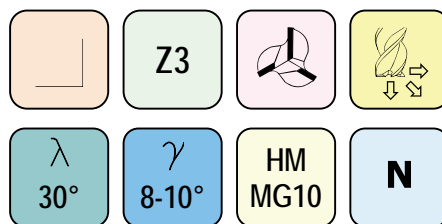
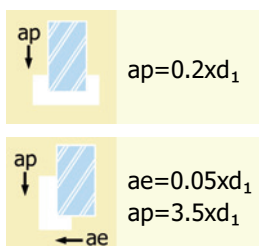
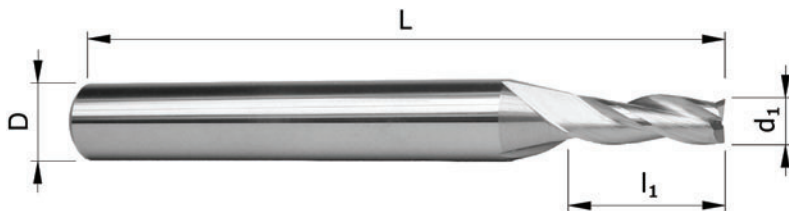
 End mills 3 teeth $l_1 = 4 \times d_1$

 Schafffräser 3 Zähne $l_1 = 4 \times d_1$

 Frese 3 denti $l_1 = 4 \times d_1$
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
0.50	2.0	3	51	-	-	-
0.55	2.2	3	51	-	-	-
0.60	2.4	3	51	-	-	-
0.65	2.6	3	51	-	-	-
0.70	2.8	3	51	-	-	-
0.75	3.0	3	51	-	-	-
0.80	3.2	3	51	-	-	-
0.85	3.4	3	51	-	-	-
0.90	3.6	3	51	-	-	-
0.95	3.8	3	51	-	-	-
1.00	4.0	3	51	-	-	-
1.05	4.2	3	51	-	-	-
1.10	4.4	3	51	-	-	-
1.15	4.6	3	51	-	-	-
1.20	4.8	3	51	-	-	-
1.25	5.0	3	51	-	-	-
1.30	5.2	3	51	-	-	-
1.35	5.4	3	51	-	-	-
1.40	5.6	3	51	-	-	-
1.45	5.8	3	51	-	-	-
1.50	6.0	3	51	-	-	-
1.55	6.2	3	51	-	-	-
1.60	6.4	3	51	-	-	-

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
1.65	6.6	3	51	-	-	-
1.70	6.8	3	51	-	-	-
1.75	7.0	3	51	-	-	-
1.80	7.2	3	51	-	-	-
1.85	7.4	3	51	-	-	-
1.90	7.6	3	51	-	-	-
1.95	7.8	3	51	-	-	-
2.00	8.0	3	51	-	-	-
2.05	8.2	3	51	-	-	-
2.10	8.4	3	51	-	-	-
2.15	8.6	3	51	-	-	-
2.20	8.8	3	51	-	-	-
2.25	9.0	3	51	-	-	-
2.30	9.2	3	51	-	-	-
2.35	9.4	3	51	-	-	-
2.40	9.6	3	51	-	-	-
2.45	9.8	3	51	-	-	-
2.50	10.0	3	51	-	-	-
2.55	10.2	3	51	-	-	-
2.60	10.4	3	51	-	-	-
2.65	10.6	3	51	-	-	-
2.70	10.8	3	51	-	-	-
2.75	11.0	3	51	-	-	-

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Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.80	11.2	3	51	-	-	-
2.85	11.4	3	51	-	-	-
2.90	11.6	3	51	-	-	-
2.95	11.8	3	51	-	-	-
3.00	12.0	6	51	-	-	-
3.10	12.4	6	51	-	-	-
3.20	12.8	6	51	-	-	-
3.30	13.2	6	51	-	-	-
3.40	13.6	6	51	-	-	-
3.50	14.0	6	51	-	-	-
3.60	14.4	6	51	-	-	-
3.70	14.8	6	51	-	-	-
3.80	15.2	6	51	-	-	-
3.90	15.6	6	51	-	-	-
4.00	16.0	6	51	-	-	-
4.10	16.4	6	51	-	-	-
4.20	16.8	6	51	-	-	-
4.30	17.2	6	51	-	-	-
4.40	17.6	6	51	-	-	-
4.50	18.0	6	51	-	-	-
4.60	18.4	6	51	-	-	-
4.70	18.8	6	51	-	-	-
4.80	19.2	6	51	-	-	-
4.90	19.6	6	51	-	-	-
5.00	20.0	6	57	-	-	-
5.10	20.4	6	57	-	-	-
5.20	20.8	6	57	-	-	-
5.30	21.2	6	57	-	-	-
5.40	21.6	6	57	-	-	-
5.50	22.0	6	57	-	-	-
5.60	22.4	6	57	-	-	-
5.70	22.8	6	57	-	-	-
5.80	23.2	6	57	-	-	-
5.90	23.6	6	57	-	-	-
6.00	24.0	6	57	-	-	-
6.50	26.0	8	72	-	-	-
7.00	28.0	8	72	-	-	-
7.50	30.0	8	72	-	-	-
8.00	32.0	8	72	-	-	-
8.50	34.0	10	92	-	-	-
9.00	36.0	10	92	-	-	-
9.50	38.0	10	92	-	-	-
10.00	40.0	10	92	-	-	-
11.00	44.0	11	92	-	-	-
12.00	48.0	12	104	-	-	-
13.00	52.0	13	104	-	-	-

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
14.00	56.0	14	120	-	-	-
15.00	60.0	15	130	-	-	-
16.00	64.0	16	130	-	-	-
17.00	68.0	17	130	-	-	-
18.00	72.0	18	158	-	-	-
19.00	76.0	19	158	-	-	-
20.00	80.0	20	158	-	-	-

Fraise 3 dts "Mach-1" avec cassé d'angle

End mills "Mach-1"
3 teeth - corner angle 45°

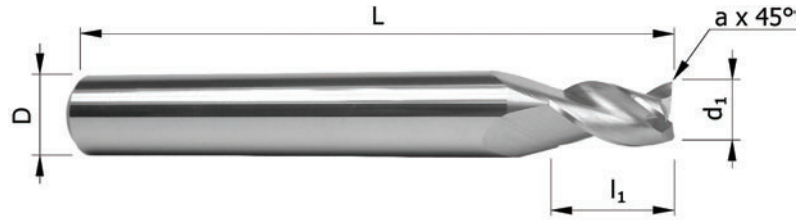
Schafffräser "Mach-1"
3 Zähne - Eckwinkel 45°

Frese "Mach-1"
3 denti - angolo in fine 45°

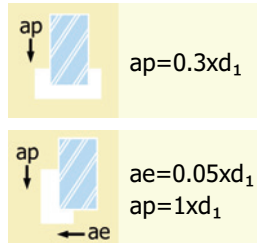
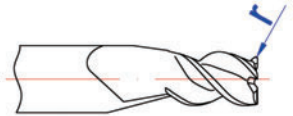
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Sur demande, rayon de 0.10 à 2 mm:
Radius from 0.10 to 2 mm upon request:
Radius von 0.10 bis 2 mm auf Anfrage:



45° 0.03-0.20	Z3		
λ 37°	γ 12-14°	HM MG10	N

Tolérances:

$$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Leftrightarrow d_1: e8$$

d ₁	l ₁	D	L	a	Prix (CHF) / Price (CHF)		
					Non revêtu / Uncoated	ou/ or / TiCN / TiAlN	Autre / Other
0.5	0.7	6	51	0.03	-	-	-
0.6	0.9	6	51	0.03	-	-	-
0.7	1.0	6	51	0.03	-	-	-
0.8	1.2	6	51	0.03	-	-	-
0.9	1.3	6	51	0.03	-	-	-
1.0	1.5	6	51	0.03	-	-	-
1.5	2.5	6	51	0.04	-	-	-
2.0	3.0	6	51	0.04	-	-	-
2.5	4.0	6	51	0.04	-	-	-
3.0	5.0	6	51	0.04	-	-	-
3.5	5.0	6	51	0.05	-	-	-
4.0	6.0	6	51	0.05	-	-	-
4.5	7.0	6	51	0.05	-	-	-
5.0	7.0	6	51	0.05	-	-	-
5.5	8.0	6	51	0.07	-	-	-
6.0	9.0	6	51	0.07	-	-	-
6.5	10.0	8	51	0.07	-	-	-
7.0	11.0	8	61	0.07	-	-	-
7.5	11.0	8	61	0.07	-	-	-
8.0	12.0	8	61	0.07	-	-	-

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Tolérances:

$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$ $d_1 = D \Leftrightarrow d_1: e8$
--

d₁	l₁	D	L	a	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	<i>ou/</i> TiCN TiAlN	Autre Other
8.5	13.0	10	61	0.07	-	-	-
9.0	14.0	10	61	0.10	-	-	-
9.5	14.0	10	61	0.10	-	-	-
10.0	15.0	10	72	0.10	-	-	-
10.5	16.0	12	83	0.10	-	-	-
11.0	16.0	12	83	0.15	-	-	-
11.5	17.0	12	83	0.15	-	-	-
12.0	18.0	12	83	0.15	-	-	-
13.0	20.0	13	83	0.15	-	-	-
14.0	21.0	14	83	0.15	-	-	-
15.0	23.0	15	83	0.15	-	-	-
16.0	24.0	16	92	0.20	-	-	-
17.0	25.0	17	92	0.20	-	-	-
18.0	27.0	18	92	0.20	-	-	-
19.0	29.0	19	92	0.20	-	-	-
20.0	30.0	20	104	0.20	-	-	-

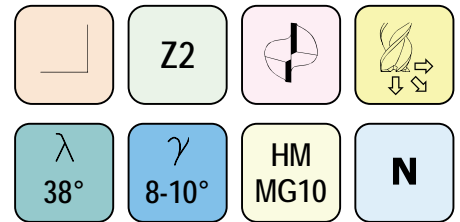
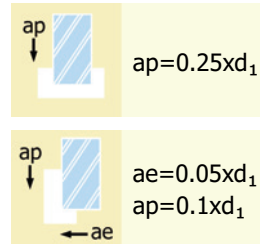
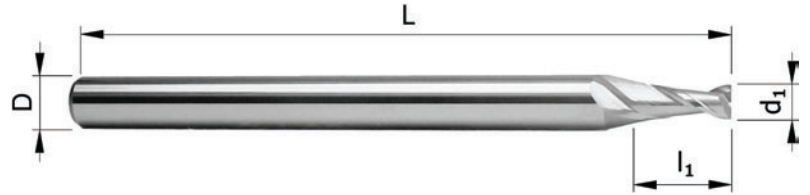


Microfraises 2 dents

Micro end mills 2 teeth
Micro Schafffräser 2 Zähne
Micro frese 2 denti
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:
d₁: ± 0.01 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.10	0.2	3	38	-	-	-
0.15	0.3	3	38	-	-	-
0.20	0.4	3	38	-	-	-
0.25	0.6	3	38	-	-	-
0.30	0.6	3	38	-	-	-
0.35	0.8	3	38	-	-	-
0.40	0.8	3	38	-	-	-
0.45	1.0	3	38	-	-	-
0.50	1.0	3	38	-	-	-
0.55	1.2	3	38	-	-	-
0.60	1.2	3	38	-	-	-
0.65	1.4	3	38	-	-	-
0.70	1.4	3	38	-	-	-
0.75	1.6	3	38	-	-	-
0.80	1.6	3	38	-	-	-
0.85	1.8	3	38	-	-	-
0.90	1.8	3	38	-	-	-
0.95	2.0	3	38	-	-	-
1.00	2.0	3	38	-	-	-
1.05	2.2	3	38	-	-	-
1.10	2.2	3	38	-	-	-
1.15	2.4	3	38	-	-	-
1.20	2.4	3	38	-	-	-
1.25	2.6	3	38	-	-	-

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Tolérances:

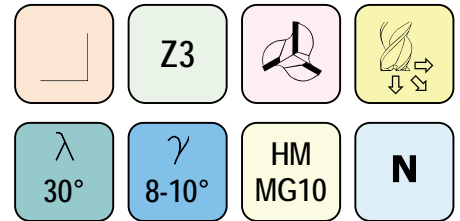
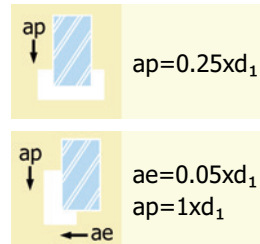
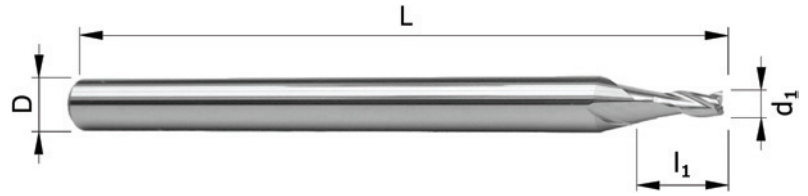
$d_1: \pm 0.01$ $D: h6$				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu <i>Uncoated</i>	<i>ou/lor</i> TiCN TiAIN	Autre <i>Other</i>
1.30	2.6	3	38	-	-	-
1.35	2.8	3	38	-	-	-
1.40	2.8	3	38	-	-	-
1.45	3.0	3	38	-	-	-
1.50	3.0	3	38	-	-	-
1.55	3.2	3	38	-	-	-
1.60	3.2	3	38	-	-	-
1.65	3.4	3	38	-	-	-
1.70	3.4	3	38	-	-	-
1.75	3.6	3	38	-	-	-
1.80	3.6	3	38	-	-	-
1.85	4.0	3	38	-	-	-
1.90	4.0	3	38	-	-	-
1.95	6.0	3	38	-	-	-
2.00	6.0	3	38	-	-	-
2.05	7.0	3	38	-	-	-
2.10	7.0	3	38	-	-	-
2.15	7.0	3	38	-	-	-
2.20	7.0	3	38	-	-	-
2.25	7.0	3	38	-	-	-
2.30	7.0	3	38	-	-	-
2.35	7.0	3	38	-	-	-
2.40	7.0	3	38	-	-	-
2.45	7.0	3	38	-	-	-
2.50	7.0	3	38	-	-	-
2.60	7.0	3	38	-	-	-
2.70	7.0	3	38	-	-	-
2.80	7.0	3	38	-	-	-
2.90	7.0	3	38	-	-	-

Microfraises 3 dents

Micro end mills 3 teeth
Micro Schafffräser 3 Zähne
Micro frese 3 denti
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
0.3	0.8	3	38	-	-	-
0.4	1.0	3	38	-	-	-
0.5	1.5	3	38	-	-	-
0.6	2.5	3	38	-	-	-
0.7	2.5	3	38	-	-	-
0.8	2.5	3	38	-	-	-
0.9	4.0	3	38	-	-	-
1.0	4.0	3	38	-	-	-
1.1	4.0	3	38	-	-	-
1.2	4.0	3	38	-	-	-
1.3	4.0	3	38	-	-	-
1.4	4.0	3	38	-	-	-
1.5	6.0	3	38	-	-	-
1.6	6.0	3	38	-	-	-
1.7	6.0	3	38	-	-	-
1.8	6.0	3	38	-	-	-
1.9	6.0	3	38	-	-	-
2.0	6.0	3	38	-	-	-
2.1	6.0	3	38	-	-	-
2.2	6.0	3	38	-	-	-
2.3	6.0	3	38	-	-	-
2.4	6.0	3	38	-	-	-
2.5	6.0	3	38	-	-	-
2.6	6.0	3	38	-	-	-

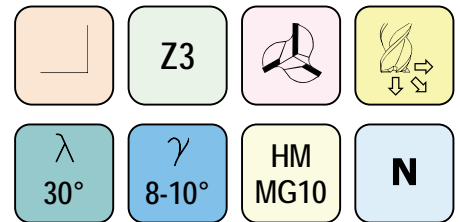
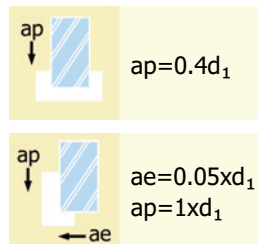
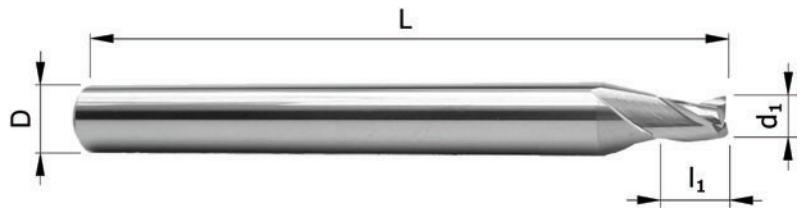
				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
2.7	6.0	3	38	-	-	-
2.8	6.0	3	38	-	-	-
2.9	6.0	3	38	-	-	-
3.0	6.0	3	38	-	-	-

Fraises courtes 3 dents

Short end mills 3 teeth
Kurze Schafffräser 3 Zähne
Frese corte 3 denti
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
1.00	2.0	4	38	-	-	-
1.05	2.0	4	38	-	-	-
1.10	2.0	4	38	-	-	-
1.15	3.0	4	38	-	-	-
1.20	3.0	4	38	-	-	-
1.25	3.0	4	38	-	-	-
1.30	3.0	4	38	-	-	-
1.35	3.0	4	38	-	-	-
1.40	3.0	4	38	-	-	-
1.45	3.0	4	38	-	-	-
1.50	3.0	4	38	-	-	-
1.55	3.0	4	38	-	-	-
1.60	3.0	4	38	-	-	-
1.65	3.0	4	38	-	-	-
1.70	3.0	4	38	-	-	-
1.75	3.0	4	38	-	-	-
1.80	3.0	4	38	-	-	-
1.85	3.0	4	38	-	-	-
1.90	3.0	4	38	-	-	-
1.95	3.0	4	38	-	-	-
2.00	3.0	4	38	-	-	-
2.05	3.0	4	38	-	-	-
2.10	3.0	4	38	-	-	-
2.15	3.0	4	38	-	-	-

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Tolérances:

$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$ $d_1 = D \Leftrightarrow d_1: e8$
--

d₁	l₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	<i>ou/</i> TiCN TiAlN	Autre Other
2.20	3.0	4	38	-	-	-
2.25	3.0	4	38	-	-	-
2.30	3.0	4	38	-	-	-
2.35	3.0	4	38	-	-	-
2.40	3.0	4	38	-	-	-
2.45	3.0	4	38	-	-	-
2.50	3.0	4	38	-	-	-
2.55	4.0	4	38	-	-	-
2.60	4.0	4	38	-	-	-
2.65	4.0	4	38	-	-	-
2.70	4.0	4	38	-	-	-
2.75	4.0	4	38	-	-	-
2.80	4.0	4	38	-	-	-
2.85	4.0	4	38	-	-	-
2.90	4.0	4	38	-	-	-
2.95	4.0	4	38	-	-	-
3.00	4.0	4	38	-	-	-
3.50	4.0	4	38	-	-	-
4.00	4.0	6	51	-	-	-
4.50	4.0	6	51	-	-	-
5.00	6.0	6	51	-	-	-
5.50	6.0	6	51	-	-	-
6.00	8.0	6	51	-	-	-
6.50	8.0	6.5	51	-	-	-
7.00	8.0	7	61	-	-	-
7.50	10.0	7.5	61	-	-	-
8.00	10.0	8	61	-	-	-
8.50	12.0	8.5	61	-	-	-
9.00	12.0	9	61	-	-	-
9.50	15.0	9.5	61	-	-	-
10.00	15.0	10	72	-	-	-

Fraises de finition 2 dents

Finishing end mills 2 teeth

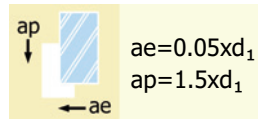
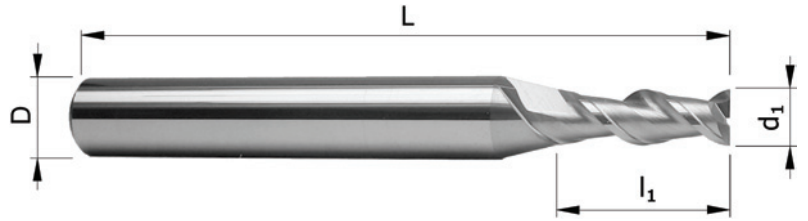
Schlichtfräser 2 Zähne

Frese a finire 2 denti

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Z2

λ
45°

γ
8-10°

HM
MG10

N

Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
0.3	1.0	3	38	-	-	-
0.4	1.5	3	38	-	-	-
0.5	2.0	3	38	-	-	-
0.6	2.0	3	38	-	-	-
0.7	3.0	3	38	-	-	-
0.8	3.0	3	38	-	-	-
0.9	3.0	3	38	-	-	-
1.0	3.0	3	38	-	-	-
1.1	4.0	3	38	-	-	-
1.2	4.0	3	38	-	-	-
1.3	4.0	3	38	-	-	-
1.4	5.0	3	38	-	-	-
1.5	5.0	3	38	-	-	-
1.6	5.0	3	38	-	-	-
1.7	6.0	3	38	-	-	-
1.8	6.0	3	38	-	-	-
1.9	6.0	3	38	-	-	-
2.0	6.0	3	38	-	-	-
2.5	8.0	3	38	-	-	-
3.0	8.0	3	38	-	-	-
3.5	8.0	6	51	-	-	-
4.0	12.0	6	51	-	-	-
4.5	12.0	6	51	-	-	-
5.0	15.0	6	51	-	-	-

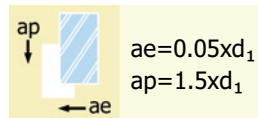
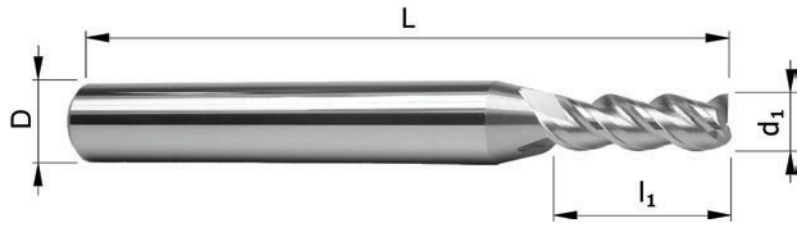
d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
5.5	15.0	6	51	-	-	-
6.0	18.0	6	51	-	-	-
7.0	20.0	8	61	-	-	-
8.0	20.0	8	61	-	-	-
9.0	20.0	10	72	-	-	-
10.0	22.0	10	72	-	-	-
11.0	22.0	12	83	-	-	-
12.0	22.0	12	83	-	-	-
13.0	25.0	13	83	-	-	-
14.0	25.0	14	83	-	-	-
15.0	25.0	15	83	-	-	-
16.0	25.0	16	92	-	-	-
18.0	32.0	18	92	-	-	-
20.0	32.0	20	104	-	-	-

Fraises de finition 3 dents

Finishing end mills 3 teeth
Schlichtfräser 3 Zähne
Frese a finire 3 denti
Recommandé pour / Usage recommendations:

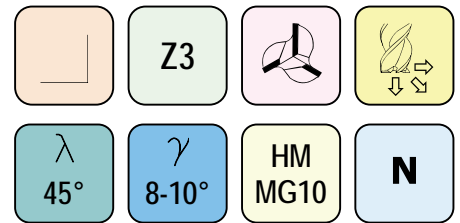
Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



$$ae = 0.05 \times d_1$$

$$ap = 1.5 \times d_1$$


Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
0.4	2	3	38	-	-	-
0.5	2	3	38	-	-	-
0.6	2	3	38	-	-	-
0.7	2	3	38	-	-	-
0.8	3	3	38	-	-	-
0.9	3	3	38	-	-	-
1.0	3	3	38	-	-	-
1.1	4	3	38	-	-	-
1.2	5	3	38	-	-	-
1.3	5	3	38	-	-	-
1.4	5	3	38	-	-	-
1.5	5	3	38	-	-	-
1.6	5	3	38	-	-	-
1.7	5	3	38	-	-	-
1.8	6	3	38	-	-	-
1.9	6	3	38	-	-	-
2.0	6	3	38	-	-	-
2.5	6	3	38	-	-	-
3.0	9	3	38	-	-	-
3.5	9	6	51	-	-	-
4.0	12	6	51	-	-	-
4.5	12	6	51	-	-	-
5.0	15	6	51	-	-	-
5.5	15	6	51	-	-	-

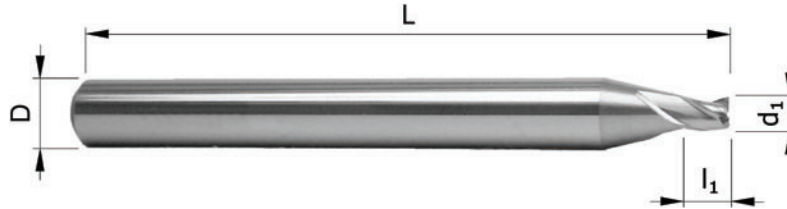
d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
6.0	18	6	51	-	-	-
7.0	20	8	61	-	-	-
8.0	20	8	61	-	-	-
9.0	20	10	72	-	-	-
10.0	22	10	72	-	-	-
11.0	22	12	83	-	-	-
12.0	22	12	83	-	-	-
13.0	25	13	83	-	-	-
14.0	25	14	83	-	-	-
15.0	25	15	83	-	-	-
16.0	25	16	92	-	-	-
18.0	32	18	92	-	-	-
20.0	32	20	104	-	-	-

Fraises extra-courtes 3 dents

**Extra-short endmills
3 teeth**

**Extrakurze Schafffräser
3 Zähne**

**Extra-corte frese
3 denti**



Le numéro de référence 105-0 n'existe plus

**Il est remplacé par un nouveau n° de référence: 1510
(Voir page 1)**

Merci d'utiliser ce nouveau numéro de référence pour vos commandes

The reference number 105-0 doesn't exist any more

It is replaced by a new reference number: 1510 (see page 1)

Thank you for using this new reference number for your orders

Die Referenz Nummer 105-0 existiert nicht mehr

Sie ist ersetzt durch eine neue Referenz Nummer: 1510 (Seite 1)

Bitte nutzen Sie diese neue Referenz Nummer für Ihre Bestellungen. Danke.

Il numero di referenza 105-0 non esiste più

Questo è sostituito con il nuovo n° di referenza: 1510 (Pagina 1)

Grazie di utilizzare questo nuovo numero di referenza per i vostri ordine

Fraises 3 dents corps Ø 6.0

End mills, 3 teeth
shank Ø 6.0

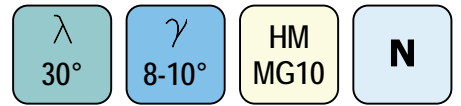
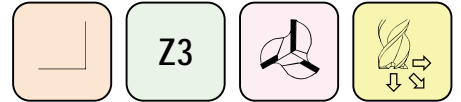
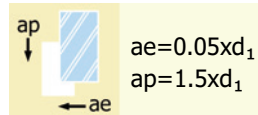
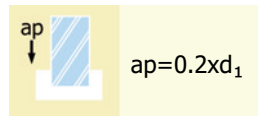
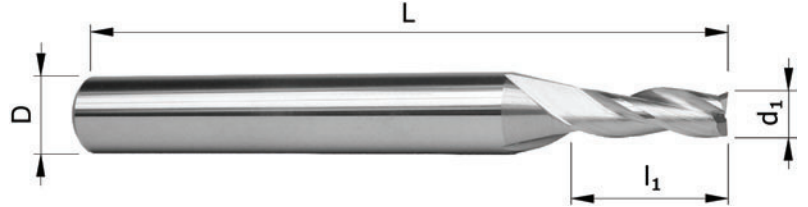
Schaftfräser, 3 Zähne
Schaft Ø 6.0

Frese 3 denti
codolo Ø 6.0

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.0	3	6	51	-	-	-
1.1	3	6	51	-	-	-
1.2	3	6	51	-	-	-
1.3	4	6	51	-	-	-
1.4	4	6	51	-	-	-
1.5	6	6	51	-	-	-
1.6	6	6	51	-	-	-
1.7	6	6	51	-	-	-
1.8	6	6	51	-	-	-
1.9	6	6	51	-	-	-
2.0	8	6	51	-	-	-
2.1	8	6	51	-	-	-
2.2	8	6	51	-	-	-
2.3	8	6	51	-	-	-
2.4	8	6	51	-	-	-
2.5	10	6	51	-	-	-
2.6	10	6	51	-	-	-
2.7	10	6	51	-	-	-
2.8	10	6	51	-	-	-
2.9	10	6	51	-	-	-
3.0	10	6	51	-	-	-
3.1	10	6	51	-	-	-
3.2	10	6	51	-	-	-

Suite page suivante / Continued next page

Tolérances:

$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$
$d_1 = D \Leftrightarrow d_1: e8$

d₁	l₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	<i>ou/</i> or TiCN TiAlN	Autre Other
3.3	10	6	51	-	-	-
3.4	10	6	51	-	-	-
3.5	10	6	51	-	-	-
3.6	10	6	51	-	-	-
3.7	10	6	51	-	-	-
3.8	10	6	51	-	-	-
3.9	10	6	51	-	-	-
4.0	10	6	51	-	-	-
4.1	10	6	51	-	-	-
4.2	10	6	51	-	-	-
4.3	10	6	51	-	-	-
4.4	10	6	51	-	-	-
4.5	10	6	51	-	-	-
4.6	10	6	51	-	-	-
4.7	10	6	51	-	-	-
4.8	10	6	51	-	-	-
4.9	10	6	51	-	-	-
5.0	10	6	51	-	-	-
5.1	10	6	51	-	-	-
5.2	10	6	51	-	-	-
5.3	10	6	51	-	-	-
5.4	10	6	51	-	-	-
5.5	10	6	51	-	-	-
5.6	10	6	51	-	-	-
5.7	10	6	51	-	-	-
5.8	10	6	51	-	-	-
5.9	10	6	51	-	-	-
6.0	10	6	51	-	-	-

Fraises 3 dents - hélice & coupe à gauche

End mills - 3 teeth
Left hand spiral - left cut

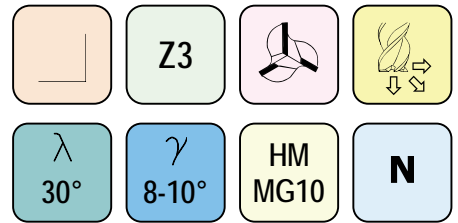
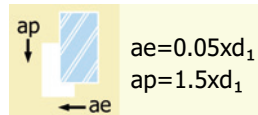
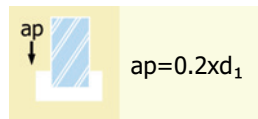
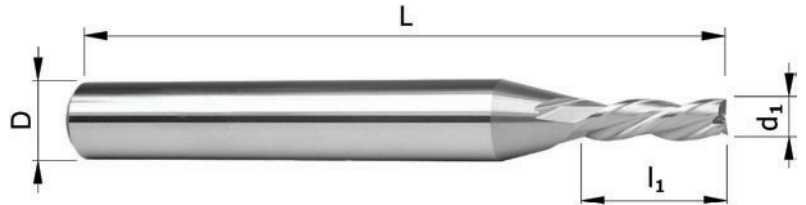
Schafffräser - 3 Zähne
linksspiralig, linksschneidend

Fresa 3 denti
elica e taglio sinistro

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.5	5	6	51	-	-	-
1.6	5	6	51	-	-	-
1.7	5	6	51	-	-	-
1.8	5	6	51	-	-	-
1.9	5	6	51	-	-	-
2.0	8	6	51	-	-	-
2.1	8	6	51	-	-	-
2.2	8	6	51	-	-	-
2.3	8	6	51	-	-	-
2.4	8	6	51	-	-	-
2.5	10	6	51	-	-	-
2.6	10	6	51	-	-	-
2.7	10	6	51	-	-	-
2.8	10	6	51	-	-	-
2.9	10	6	51	-	-	-
3.0	10	6	51	-	-	-
3.1	10	6	51	-	-	-
3.2	10	6	51	-	-	-
3.3	10	6	51	-	-	-
3.4	10	6	51	-	-	-
3.5	10	6	51	-	-	-
3.6	10	6	51	-	-	-
3.7	10	6	51	-	-	-

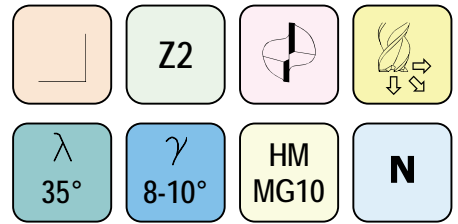
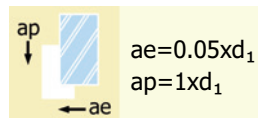
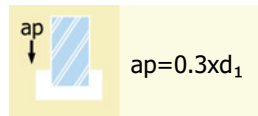
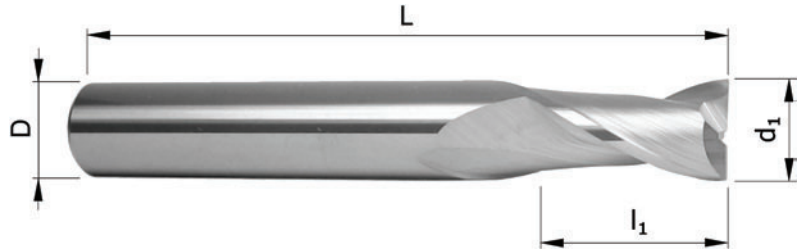
d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
3.8	10	6	51	-	-	-
3.9	10	6	51	-	-	-
4.0	10	6	51	-	-	-
4.1	10	6	51	-	-	-
4.2	10	6	51	-	-	-
4.3	10	6	51	-	-	-
4.5	10	6	51	-	-	-
5.0	10	6	51	-	-	-
5.5	10	6	51	-	-	-
6.0	10	6	51	-	-	-
7.0	15	7	61	-	-	-
8.0	16	8	61	-	-	-
9.0	18	10	72	-	-	-
10.0	20	10	72	-	-	-
11.0	25	12	83	-	-	-
12.0	25	12	83	-	-	-

Fraises universelles 2 dents

Universal end mills - 2 teeth
Universalfräser - 2 Zähne
Frese universale - 2 denti
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
2.0	10	2.0	38	-	-	-
2.5	10	2.5	38	-	-	-
3.0	15	3.0	38	-	-	-
3.5	15	3.5	38	-	-	-
4.0	18	4.0	51	-	-	-
4.5	18	4.5	51	-	-	-
5.0	18	5.0	51	-	-	-
5.5	18	5.5	51	-	-	-
6.0	18	6.0	51	-	-	-
6.5	22	6.5	51	-	-	-
7.0	22	7.0	61	-	-	-
7.5	22	7.5	61	-	-	-
8.0	22	8.0	61	-	-	-
8.5	22	8.5	61	-	-	-
9.0	25	9.0	61	-	-	-
9.5	25	9.5	61	-	-	-
10.0	25	10.0	72	-	-	-
10.5	25	10.5	72	-	-	-
11.0	30	11.0	72	-	-	-
11.5	30	11.5	72	-	-	-
12.0	30	12.0	83	-	-	-
12.5	30	12.5	83	-	-	-
13.0	35	13.0	83	-	-	-
13.5	35	13.5	83	-	-	-

				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
14.0	35	14.0	83	-	-	-
14.5	35	14.5	83	-	-	-
15.0	35	15.0	83	-	-	-
15.5	35	15.5	83	-	-	-
16.0	35	16.0	92	-	-	-
16.5	35	16.5	92	-	-	-
17.0	35	17.0	92	-	-	-
17.5	35	17.5	92	-	-	-
18.0	45	18.0	92	-	-	-
18.5	45	18.5	92	-	-	-
19.0	45	19.0	92	-	-	-
19.5	45	19.5	92	-	-	-
20.0	45	20.0	104	-	-	-

Fraises universelles 3 dents

Universal end mills - 3 teeth

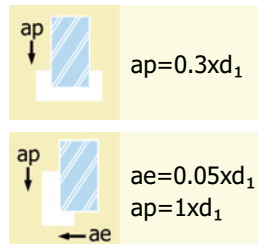
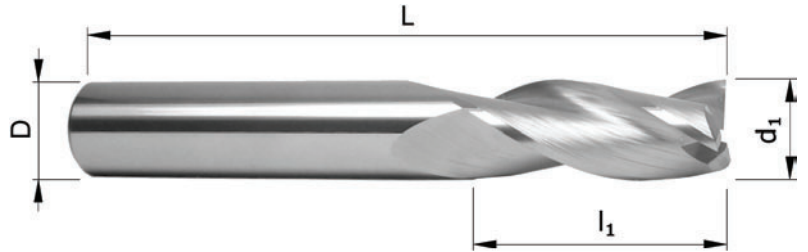
Universalfräser - 3 Zähne

Frese universale - 3 denti

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Z3

λ
30°

γ
8-10°

**HM
MG10**

N

Tolérances:

$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Leftrightarrow d_1: e8$

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu / Uncoated	ou/ or / TiCN TiAlN	Autre / Other
2.0	10	2.0	38	-	-	-
2.5	10	2.5	38	-	-	-
3.0	15	3.0	38	-	-	-
3.5	15	3.5	38	-	-	-
4.0	18	4.0	51	-	-	-
4.5	18	4.5	51	-	-	-
5.0	18	5.0	51	-	-	-
5.5	18	5.5	51	-	-	-
6.0	18	6.0	51	-	-	-
6.5	22	6.5	51	-	-	-
7.0	22	7.0	61	-	-	-
7.5	22	7.5	61	-	-	-
8.0	22	8.0	61	-	-	-
8.5	22	8.5	61	-	-	-
9.0	25	9.0	61	-	-	-
9.5	25	9.5	61	-	-	-
10.0	25	10.0	72	-	-	-
10.5	25	10.5	72	-	-	-
11.0	30	11.0	72	-	-	-
11.5	30	11.5	72	-	-	-
12.0	30	12.0	83	-	-	-
12.5	30	12.5	83	-	-	-
13.0	35	13.0	83	-	-	-
13.5	35	13.5	83	-	-	-

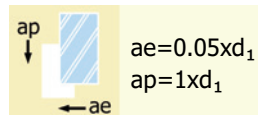
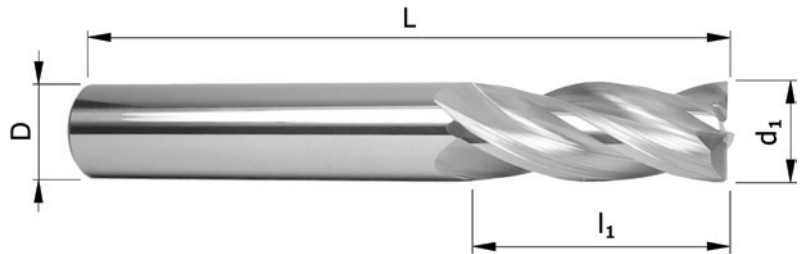
				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu / Uncoated	ou/ or / TiCN TiAlN	Autre / Other
14.0	35	14.0	83	-	-	-
14.5	35	14.5	83	-	-	-
15.0	35	15.0	83	-	-	-
15.5	35	15.5	83	-	-	-
16.0	35	16.0	92	-	-	-
16.5	35	16.5	92	-	-	-
17.0	35	17.0	92	-	-	-
17.5	35	17.5	92	-	-	-
18.0	45	18.0	92	-	-	-
18.5	45	18.5	92	-	-	-
19.0	45	19.0	92	-	-	-
19.5	45	19.5	92	-	-	-
20.0	45	20.0	104	-	-	-

Fraises universelles 4 dents

Universal end mills - 4 teeth
Universalfräser - 4 Zähne
Frese universale - 4 denti
Recommandé pour / Usage recommendations:

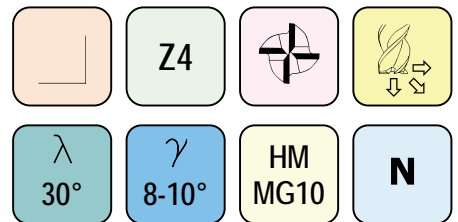
Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



$$ae = 0.05 \times d_1$$

$$ap = 1 \times d_1$$


Tolérances:

$$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Leftrightarrow d_1: e8$$

				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.0	10	2.0	38	-	-	-
2.5	10	2.5	38	-	-	-
3.0	15	3.0	38	-	-	-
3.5	15	3.5	38	-	-	-
4.0	18	4.0	51	-	-	-
4.5	18	4.5	51	-	-	-
5.0	18	5.0	51	-	-	-
5.5	18	5.5	51	-	-	-
6.0	18	6.0	51	-	-	-
6.5	22	6.5	51	-	-	-
7.0	22	7.0	61	-	-	-
7.5	22	7.5	61	-	-	-
8.0	22	8.0	61	-	-	-
8.5	22	8.5	61	-	-	-
9.0	25	9.0	61	-	-	-
9.5	25	9.5	61	-	-	-
10.0	25	10.0	72	-	-	-
10.5	25	10.5	72	-	-	-
11.0	30	11.0	72	-	-	-
11.5	30	11.5	72	-	-	-
12.0	30	12.0	83	-	-	-
12.5	30	12.5	83	-	-	-
13.0	35	13.0	83	-	-	-
13.5	35	13.5	83	-	-	-

				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
14.0	35	14.0	83	-	-	-
14.5	35	14.5	83	-	-	-
15.0	35	15.0	83	-	-	-
15.5	35	15.5	83	-	-	-
16.0	35	16.0	92	-	-	-
16.5	35	16.5	92	-	-	-
17.0	35	17.0	92	-	-	-
17.5	35	17.5	92	-	-	-
18.0	45	18.0	92	-	-	-
18.5	45	18.5	92	-	-	-
19.0	45	19.0	92	-	-	-
19.5	45	19.5	92	-	-	-
20.0	45	20.0	104	-	-	-

Fraises courtes - 2 dents - corps Ø 6.0

Short end mills - 2 teeth
Shank Ø 6.0

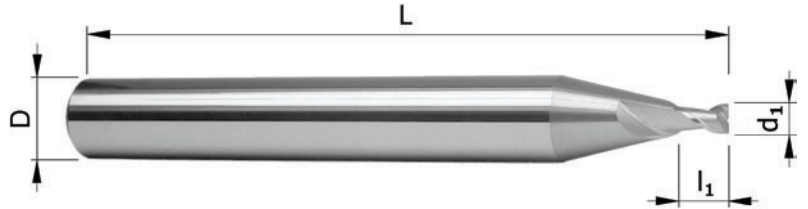
Kurze Fräser - 2 Zähne
Schaft Ø 6.0

Frese corte - 2 denti
Codolo Ø 6.0

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



$ap=0.3xd_1$

$ae=0.05xd_1$
 $ap=1xd_1$

λ
35°

γ
8-10°

Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu / Uncoated	ou/ou TiCN / TiAlN	Autre / Other
1.0	2	6	51	-	-	-
1.5	2	6	51	-	-	-
2.0	2	6	51	-	-	-
2.5	2	6	51	-	-	-
3.0	4	6	51	-	-	-
3.5	4	6	51	-	-	-
4.0	5	6	51	-	-	-
4.5	5	6	51	-	-	-
5.0	6	6	51	-	-	-
5.5	7	6	51	-	-	-
6.0	7	6	51	-	-	-

Fraises courtes - 3 dents

Short end mills - 3 teeth

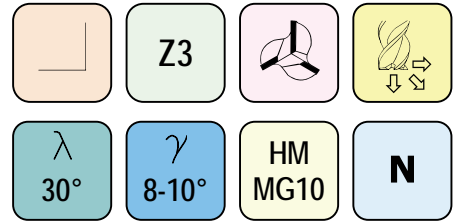
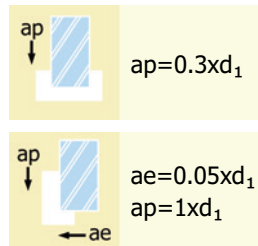
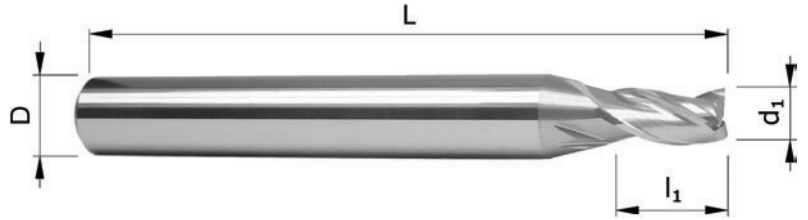
Kurze Fräser - 3 Zähne

Frese corte - 3 denti

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: e8$$

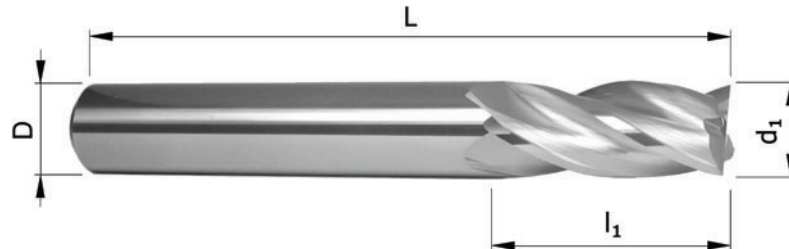
d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
1.5	3	6	51	-	-	-
2.0	3	6	51	-	-	-
2.5	3	6	51	-	-	-
3.0	4	6	51	-	-	-
3.5	4	6	51	-	-	-
4.0	5	6	51	-	-	-
4.5	5	6	51	-	-	-
5.0	6	6	51	-	-	-
5.5	7	6	51	-	-	-
6.0	7	6	51	-	-	-
7.0	8	8	61	-	-	-
8.0	9	8	61	-	-	-
9.0	10	10	72	-	-	-
10.0	11	10	72	-	-	-
12.0	12	12	83	-	-	-

Fraises 4 dents

End mills 4 teeth

Schafffräser 4 Zähne

Frese 4 denti



La référence 110 a été supprimée

Découvrez notre nouvelle fraise 4 dents: Réf. 110-1 !
(Voir page 30)

The reference 110 has been cancelled

Check out our new 4 teeth end mill: Ref. 110-1 ! (see page 30)

Die Referenz Nummer 110 existiert nicht mehr

Entdecken Sie unseren neuen 4 Zähne Fräser: Ref. 110-1 !
(Seite 30)

La referencia 110 non esiste più

Scoprirsi la nostra nuova frese 4 denti: Ref. 110-1 ! (Pagina 30)

Fraises courtes - 4 dents

Short end mills - 4 teeth

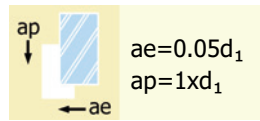
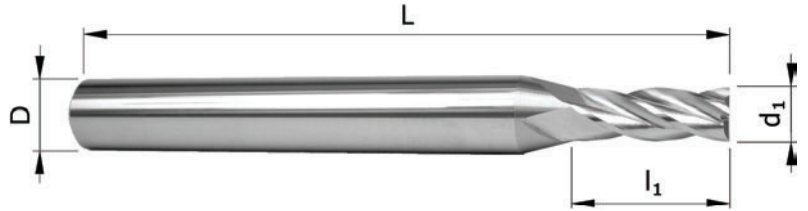
Kurze Fräser - 4 Zähne

Frese corte - 4 denti

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	+	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Z4

λ
30°

γ
8-10°

HM
MG10

N

Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
2.0	3	6	51	-	-	-
2.5	3	6	51	-	-	-
3.0	4	6	51	-	-	-
3.5	4	6	51	-	-	-
4.0	5	6	51	-	-	-
4.5	5	6	51	-	-	-
5.0	6	6	51	-	-	-
5.5	7	6	51	-	-	-
6.0	7	6	51	-	-	-
7.0	8	8	61	-	-	-
8.0	9	8	61	-	-	-
9.0	10	10	72	-	-	-
10.0	11	10	72	-	-	-
12.0	12	12	83	-	-	-
14.0	14	14	83	-	-	-
16.0	16	16	92	-	-	-
18.0	18	18	92	-	-	-
20.0	20	20	104	-	-	-

Fraises taille droite - renforcées - 1 dent

Straight cut end mills
1 tooth - reinforced

Gerade genutete Fräser
1 Zahn - verstärkter Schaft

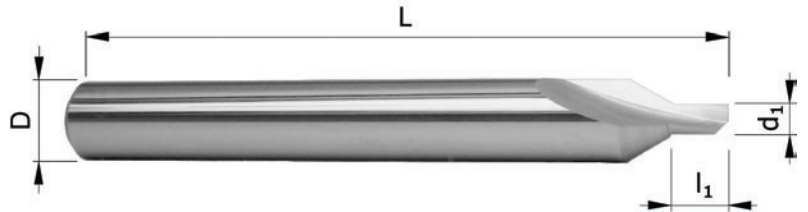
Frese taglio dritto
1 dente - rinforzato

Recommandé pour / Usage recommendations:

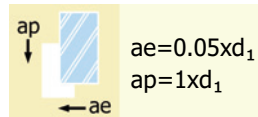
Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+++	-
Or/Gold & Argent/Silver	120 - 170	+++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$

Coupe spéciale laiton
Special for brass - "Mirror finishing"



	Z1		
λ 0°		HM MG10	N



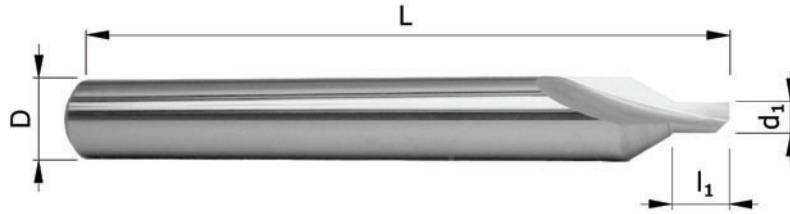
Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu / Uncoated	ou/ou TiCN TiAIN	Autre / Other
0.3	1.5	3	38	-	-	-
0.4	1.5	3	38	-	-	-
0.5	1.5	3	38	-	-	-
0.6	1.5	3	38	-	-	-
0.7	1.5	3	38	-	-	-
0.8	1.5	3	38	-	-	-
0.9	1.5	3	38	-	-	-
1.0	2.0	3	38	-	-	-
1.1	2.0	3	38	-	-	-
1.2	2.0	3	38	-	-	-
1.3	2.0	3	38	-	-	-
1.4	2.0	3	38	-	-	-
1.5	2.0	3	38	-	-	-
1.6	2.5	3	38	-	-	-
1.7	2.5	3	38	-	-	-
1.8	2.5	3	38	-	-	-
1.9	2.5	3	38	-	-	-
2.0	2.5	3	38	-	-	-
2.1	3.0	3	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu / Uncoated	ou/ou TiCN TiAIN	Autre / Other
2.2	3.0	3	38	-	-	-
2.3	3.0	3	38	-	-	-
2.4	3.0	3	38	-	-	-
2.5	3.5	3	38	-	-	-
2.6	3.5	3	38	-	-	-
2.7	3.5	3	38	-	-	-
2.8	3.5	3	38	-	-	-
2.9	3.5	3	38	-	-	-
3.0	4.0	3	38	-	-	-
3.5	4.0	4	38	-	-	-
4.0	5.0	4	38	-	-	-
4.5	5.0	6	51	-	-	-
5.0	6.0	6	51	-	-	-
5.5	6.0	6	51	-	-	-
6.0	7.0	6	51	-	-	-
6.5	7.0	6.5	51	-	-	-
7.0	8.0	7	51	-	-	-
7.5	8.0	7.5	51	-	-	-
8.0	9.0	8	51	-	-	-

Commandes spéciales / *Special orders*



Commande / Order

Demande d'offre / Quotation request

<p>Dimensions:</p> <p>d_1 : _____ Tolérances sur d_1: _____</p> <p>l_1 : _____</p> <p>D : _____</p> <p>L : _____</p>	<p>Revêtement / Coating:</p> <p><input type="checkbox"/> Aucun / none</p> <p><input type="checkbox"/> TiCN</p> <p><input type="checkbox"/> TiAlN</p> <p><input type="checkbox"/> Autre / other: _____</p>
<p>Quantité / Quantity:</p>	<p>N° commande / order No:</p>
<p>Timbre de la société / Company's stamp:</p>	<p>Personne de contact: Contact person:</p>

Fraises taille droite - renforcées - 2 dents

Straight cut end mills
2 teeth - reinforced

Gerade genutete Fräser
2 Zähne - verstärkter Schaft

Frese taglio dritto
2 denti - rinforzato

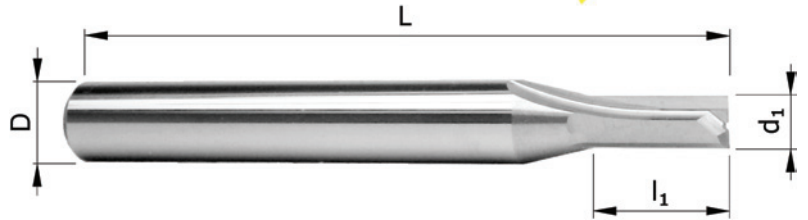
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+++	-
Or/Gold & Argent/Silver	120 - 170	+++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$

Coupe spéciale laiton

Special for brass - "Mirror finishing"



	Z2		
λ 0°	γ	HM MG10	N

$ae = 0.05 \times d_1$
 $ap = 1 \times d_1$

Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu / Uncoated	ou/ou TiCN TiAlN	Autre / Other
1.0	3	3	38	-	-	-
1.1	3	3	38	-	-	-
1.2	3	3	38	-	-	-
1.3	3	3	38	-	-	-
1.4	3	3	38	-	-	-
1.5	4	3	38	-	-	-
1.6	4	3	38	-	-	-
1.7	4	3	38	-	-	-
1.8	4	3	38	-	-	-
1.9	4	3	38	-	-	-
2.0	5	3	38	-	-	-
2.1	5	3	38	-	-	-
2.2	5	3	38	-	-	-
2.3	5	3	38	-	-	-
2.4	5	3	38	-	-	-
2.5	6	3	38	-	-	-
2.6	6	3	38	-	-	-
2.7	6	3	38	-	-	-
2.8	6	3	38	-	-	-

Suite page suivante / Continued next page

Tolérances:

$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$ $d_1 = D \Leftrightarrow d_1: e8$
--

d₁	l₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	<i>ou/</i> TiCN TiAlN	Autre Other
2.9	6	3	38	-	-	-
3.0	6	3	38	-	-	-
3.1	6	4	38	-	-	-
3.2	6	4	38	-	-	-
3.3	6	4	38	-	-	-
3.4	6	4	38	-	-	-
3.5	6	4	38	-	-	-
3.6	6	4	38	-	-	-
3.7	6	4	38	-	-	-
3.8	6	4	38	-	-	-
3.9	6	4	38	-	-	-
4.0	6	4	38	-	-	-
4.1	6	6	51	-	-	-
4.2	6	6	51	-	-	-
4.3	6	6	51	-	-	-
4.4	6	6	51	-	-	-
4.5	8	6	51	-	-	-
5.0	8	6	51	-	-	-
5.5	8	6	51	-	-	-
6.0	8	6	51	-	-	-
6.5	9	6.5	51	-	-	-
7.0	9	7	51	-	-	-
7.5	9	7.5	51	-	-	-
8.0	9	8	51	-	-	-
8.5	12	10	51	-	-	-
9.0	12	10	51	-	-	-
9.5	12	10	51	-	-	-
10.0	12	10	51	-	-	-

Fraises taille droite - renforcées - 3 dents

Straight cut end mills
3 teeth - reinforced

Gerade genutete Fräser
3 Zähne - verstärkter Schaft

Frese taglio dritto
3 denti - rinforzato

Recommandé pour / Usage recommendations:

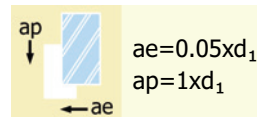
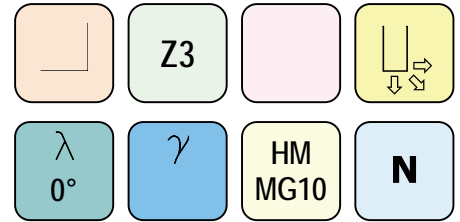
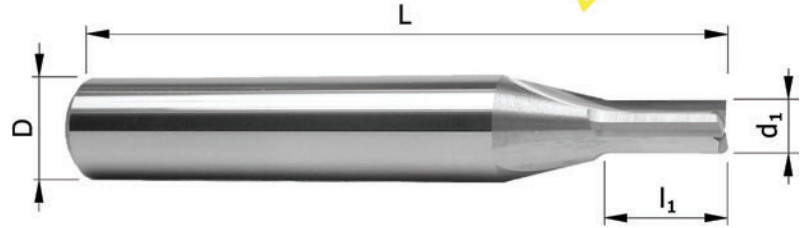
Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+++	-
Or/Gold & Argent/Silver	120 - 170	+++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$

Coupe spéciale laiton

Special for brass - "Mirror finishing"

Finition poli glace



Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1: e8$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu / Uncoated	ou/ or TiCN / TiAlN	Autre / Other
1.0	3	3	38	-	-	-
1.1	3	3	38	-	-	-
1.2	3	3	38	-	-	-
1.3	3	3	38	-	-	-
1.4	3	3	38	-	-	-
1.5	4	3	38	-	-	-
1.6	4	3	38	-	-	-
1.7	4	3	38	-	-	-
1.8	4	3	38	-	-	-
1.9	4	3	38	-	-	-
2.0	5	3	38	-	-	-
2.1	5	3	38	-	-	-
2.2	5	3	38	-	-	-
2.3	5	3	38	-	-	-
2.4	5	3	38	-	-	-
2.5	6	3	38	-	-	-
2.6	6	3	38	-	-	-
2.7	6	3	38	-	-	-
2.8	6	3	38	-	-	-

Suite page suivante / Continued next page

Tolérances:

$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$ $d_1 = D \Leftrightarrow d_1: e8$
--

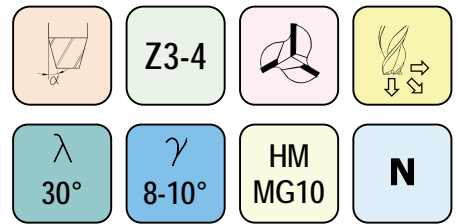
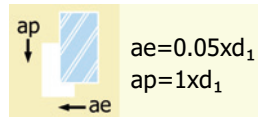
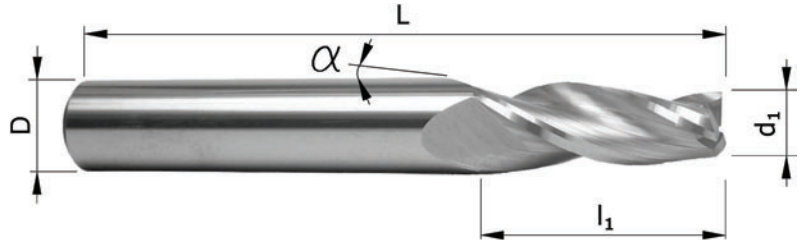
d₁	l₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	<i>ou/</i> TiCN TiAlN	Autre Other
2.9	6	3	38	-	-	-
3.0	6	4	38	-	-	-
3.1	6	4	38	-	-	-
3.2	6	4	38	-	-	-
3.3	6	4	38	-	-	-
3.4	6	4	38	-	-	-
3.5	6	4	38	-	-	-
3.6	6	4	38	-	-	-
3.7	6	4	38	-	-	-
3.8	6	4	38	-	-	-
3.9	6	4	38	-	-	-
4.0	6	4	38	-	-	-
4.1	6	6	51	-	-	-
4.2	6	6	51	-	-	-
4.3	6	6	51	-	-	-
4.4	6	6	51	-	-	-
4.5	8	6	51	-	-	-
5.0	8	6	51	-	-	-
5.5	8	6	51	-	-	-
6.0	8	6	51	-	-	-
6.5	9	6.5	51	-	-	-
7.0	9	7	51	-	-	-
7.5	9	7.5	51	-	-	-
8.0	9	8	51	-	-	-
8.5	12	10	51	-	-	-
9.0	12	10	51	-	-	-
9.5	12	10	51	-	-	-
10.0	12	10	51	-	-	-

Fraises coniques

Conical end mills
Konische Fräser
Frese coniche
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	+	++
Titane/Titan	40 - 80	+	-
Aluminium	150 - 300	++	-
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	+
Polymères/Polymers	220 - 350	++	+

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:
d₁: ± 0.01 D: h6

d ₁ min	l ₁ max	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
5.0	18.0	6	51	-	-	-
6.0	22.0	8	61	-	-	-
8.0	25.0	10	72	-	-	-
10.0	30.0	12	83	-	-	-
11.0	30.0	14	83	-	-	-
13.0	35.0	16	92	-	-	-

Formulaire de commande / Order form:

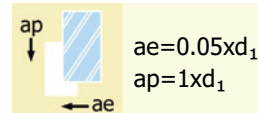
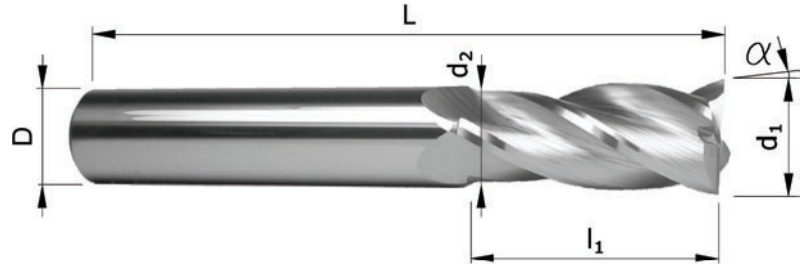
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Matière à usiner / Machined material:				Quantité / Quantity:		N° commande / order No:	
Timbre de la société: Company's stamp:				Personne de contact: Contact person:			

Fraises coniques

Conical end mills
Konische Fräser
Frese coniche
Recommandé pour / Usage recommendations:

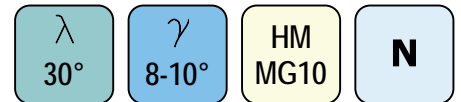
Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	+	++
Titane/Titan	40 - 80	+	-
Aluminium	150 - 300	++	-
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	+
Polymères/Polymers	220 - 350	++	+

$$V_f = 0.004 \rightarrow 0.010 \times X \times Z \times d_1 \times n$$



$$ae = 0.05 \times d_1$$

$$ap = 1 \times d_1$$


Tolérances:
d₁: -0.05 / -0.10 D: h6

d ₁	l ₁ max	d ₂ min	D	L	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
6.0	18.0	5.0	6	51	-	-	-
8.0	22.0	6.0	8	61	-	-	-
10.0	25.0	8.0	10	72	-	-	-
12.0	30.0	10.0	12	83	-	-	-
14.0	30.0	11.0	14	83	-	-	-
16.0	35.0	13.0	16	92	-	-	-

Formulaire de commande / Order form:

Dimensions: d ₁ : _____ D : _____ l ₁ : _____ L : _____	Angles disponibles (α): Available angles (α): <input type="checkbox"/> 1/2° <input type="checkbox"/> 1° <input type="checkbox"/> 2° <input type="checkbox"/> 5° <input type="checkbox"/> Autre / other: _____	Coupe / Cut: <input type="checkbox"/> à droite / right cut <input type="checkbox"/> à gauche / left cut	Revêtement / Coating: <input type="checkbox"/> Aucun / none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre / other: _____
Matière à usiner / Machined material:		Quantité / Quantity:	N° commande / order No:
Timbre de la société: Company's stamp:		Personne de contact: Contact person:	

Fraises de finition multidentés - hélice 30°

Finishing end mills
multiflutes - helix angle 30°

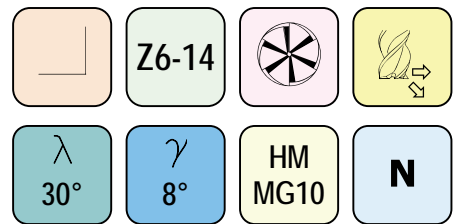
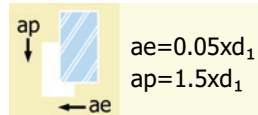
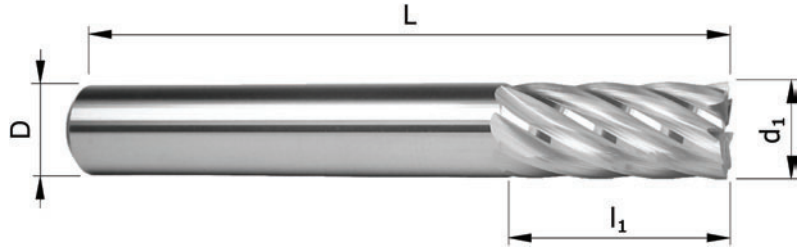
Mehrzahn Schlichtfräser
Spiralwinkel 30°

Frese a finire - multidentati
angolo d'elica 30°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	+	-
Graphite	200 - 400	-	+
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

$$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Leftrightarrow d_1: e8$$

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.0	8	6	51	6	-	-	-
2.5	8	6	51	6	-	-	-
3.0	12	6	51	6	-	-	-
3.5	12	6	51	6	-	-	-
4.0	12	6	51	6	-	-	-
4.5	14	6	51	6	-	-	-
5.0	14	6	51	6	-	-	-
5.5	16	6	51	6	-	-	-
6.0	16	6	51	8	-	-	-
6.5	16	6.5	51	8	-	-	-
7.0	20	7	61	8	-	-	-
7.5	20	7.5	61	8	-	-	-
8.0	20	8	61	8	-	-	-
8.5	20	8.5	61	8	-	-	-
9.0	20	9	61	8	-	-	-
9.5	22	9.5	61	8	-	-	-
10.0	22	10	72	8	-	-	-
11.0	22	11	72	10	-	-	-
12.0	22	12	83	10	-	-	-
14.0	25	14	83	10	-	-	-
15.0	25	15	83	12	-	-	-
16.0	25	16	92	12	-	-	-
18.0	32	18	92	14	-	-	-
20.0	32	20	104	14	-	-	-

Fraises de finition multidentes - hélice 60°

Finishing end mills
multiflutes - helix angle 60°

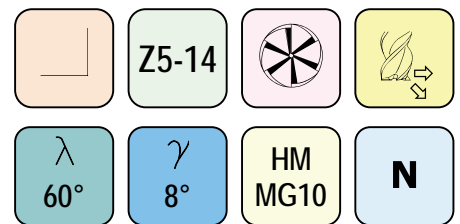
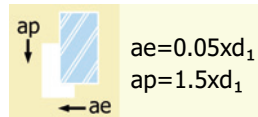
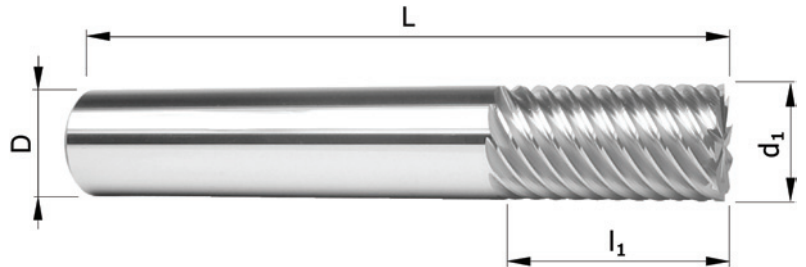
Mehrzahn Schlichtfräser
Spiralwinkel 60°

Frese a finire - multidententi
angolo d'elica 60°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	+	-
Graphite	200 - 400	-	+
Polymères/Polymers	220 - 350	+	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

$$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Leftrightarrow d_1: e8$$

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu / Uncoated	ou/ or TiCN / TiAlN	Autre / Other
2.0	8	6	51	5	-	-	-
2.5	8	6	51	5	-	-	-
3.0	12	6	51	5	-	-	-
3.5	12	6	51	5	-	-	-
4.0	12	6	51	6	-	-	-
4.5	14	6	51	6	-	-	-
5.0	14	6	51	6	-	-	-
5.5	16	6	51	6	-	-	-
6.0	16	6	51	8	-	-	-
6.5	16	6.5	51	8	-	-	-
7.0	20	7	61	8	-	-	-
7.5	20	7.5	61	8	-	-	-
8.0	20	8	61	8	-	-	-
8.5	20	8.5	61	8	-	-	-
9.0	20	9	61	8	-	-	-
9.5	22	9.5	61	8	-	-	-
10.0	22	10	72	8	-	-	-
11.0	22	11	72	10	-	-	-
12.0	22	12	83	10	-	-	-
14.0	25	14	83	10	-	-	-
15.0	25	15	83	12	-	-	-
16.0	25	16	92	12	-	-	-

Suite page suivante / Continued next page

Tolérances:

$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$
$d_1 = D \Leftrightarrow d_1: e8$

d_1	l_1	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu <i>Uncoated</i>	ou/ou TiCN TiAlN	Autre <i>Other</i>
18.0	32	18	92	14	-	-	-
20.0	32	20	104	14	-	-	-



Sur demande, un protocole de contrôle peut être obtenu pour tous nos outils

Upon request, a control protocol can be obtained for all our tools

Fraises à surfacer - 2 tailles

Facemills
2 cuts

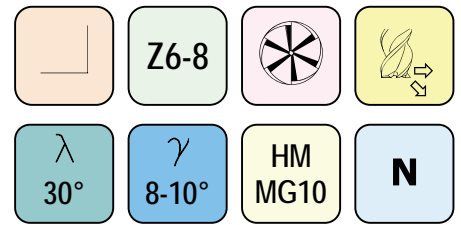
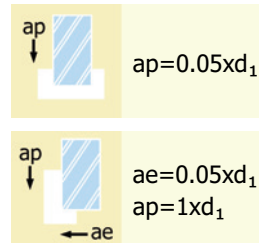
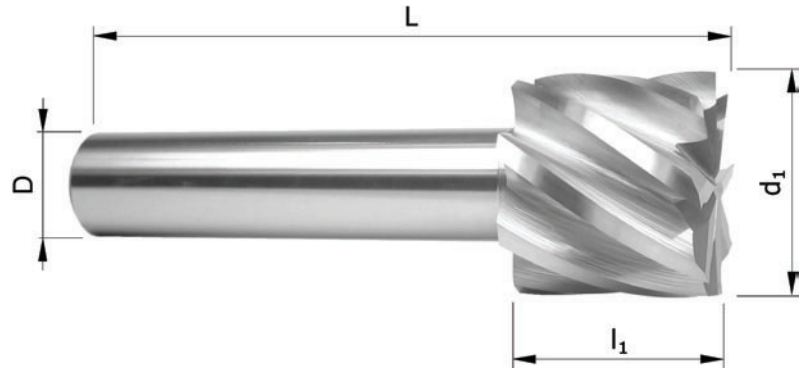
Planfräser
2 Schneiden

Frese per spianare
2 taglienti

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	+	++
Titane/Titan	40 - 80	++	-
Aluminium	150 - 300	++	-
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

$$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad D: h6$$

$$d_1 = D \Leftrightarrow d_1: e8$$

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu / Uncoated	ou/or / TiCN / TiAlN	Autre / Other
15	15	10	61	6	-	-	-
16	15	10	61	6	-	-	-
18	15	10	61	6	-	-	-
20	20	10	61	6	-	-	-
25	25	10	61	8	-	-	-
28	25	10	61	8	-	-	-
30	30	10	61	8	-	-	-

Fraises hémisphériques 2 dents

End mills with ball end
2 teeth

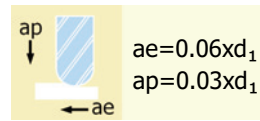
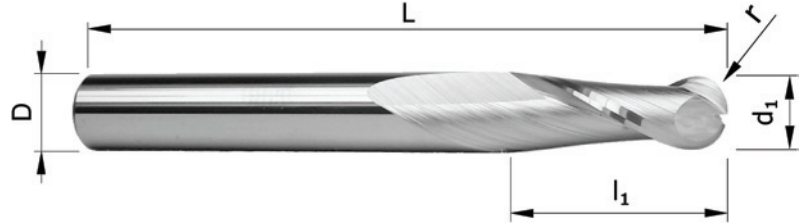
Kugelkopffräser
2 Zähne

Frese raggiate
2 denti

Recommandé pour / Usage recommendations:

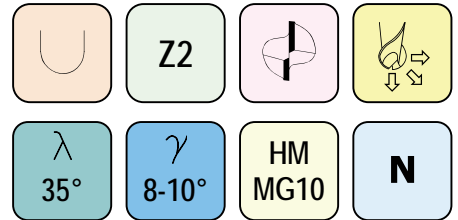
Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



$$ae = 0.06 \times d_1$$

$$ap = 0.03 \times d_1$$



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	D: h6
$d_1 = D \Rightarrow d_1 e8$	r: ± 0.01

d ₁	l ₁	D	L	r	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.20	0.5	3	38	0.10	-	-	-
0.25	0.5	3	38	0.12	-	-	-
0.30	0.9	3	38	0.15	-	-	-
0.40	1.0	3	38	0.20	-	-	-
0.50	1.5	3	38	0.25	-	-	-
0.60	1.5	3	38	0.30	-	-	-
0.70	1.7	3	38	0.35	-	-	-
0.80	2.0	3	38	0.40	-	-	-
0.90	2.0	3	38	0.45	-	-	-
1.00	2.0	3	38	0.50	-	-	-
1.10	2.1	3	38	0.55	-	-	-
1.20	2.2	3	38	0.60	-	-	-
1.30	2.3	3	38	0.65	-	-	-
1.40	2.4	3	38	0.70	-	-	-
1.50	2.5	3	38	0.75	-	-	-
1.60	2.5	3	38	0.80	-	-	-
1.70	2.6	3	38	0.85	-	-	-
1.80	2.6	3	38	0.90	-	-	-
1.90	3.0	3	38	0.95	-	-	-
2.00	3.0	3	38	1.00	-	-	-
2.50	4.0	3	38	1.25	-	-	-
3.00	4.5	3	38	1.50	-	-	-
3.50	5.0	6	51	1.75	-	-	-

Suite page suivante / Continued next page

Tolérances:

Suite / cont.

$d_1 < D \Rightarrow d_1 \pm 0.01$	D: h6
$d_1 = D \Rightarrow d_1 e8$	r: ± 0.01

d ₁	l ₁	D	L	r	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
4.00	6.0	6	51	2.00	-	-	-
4.50	7.0	6	51	2.25	-	-	-
5.00	8.0	6	51	2.50	-	-	-
5.50	8.0	6	51	2.75	-	-	-
6.00	9.0	6	51	3.00	-	-	-
6.50	10.0	8	61	3.25	-	-	-
7.00	10.0	8	61	3.50	-	-	-
7.50	12.0	8	61	3.75	-	-	-
8.00	12.0	8	61	4.00	-	-	-
8.50	13.0	10	72	4.25	-	-	-
9.00	13.0	10	72	4.50	-	-	-
10.00	15.0	10	72	5.00	-	-	-
11.00	16.0	12	83	5.50	-	-	-
12.00	18.0	12	83	6.00	-	-	-
13.00	20.0	13	83	6.50	-	-	-
14.00	21.0	14	83	7.00	-	-	-
15.00	24.0	15	83	7.50	-	-	-
16.00	24.0	16	92	8.00	-	-	-
18.00	27.0	18	92	9.00	-	-	-
20.00	30.0	20	104	10.00	-	-	-

Fraises hémisphériques 3 dents

End mills with ball end
3 teeth

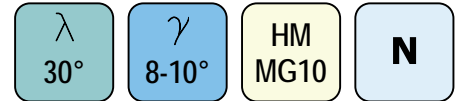
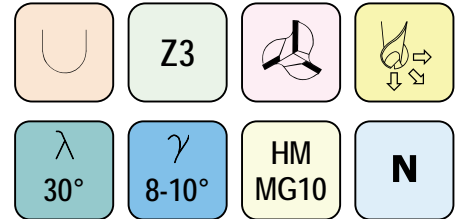
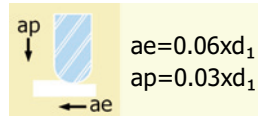
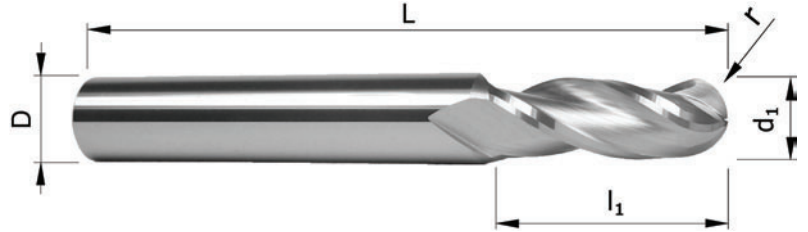
Kugelpkopfräser
3 Zähne

Frese raggiate
3 denti

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	D: h6
$d_1 = D \Rightarrow d_1 e8$	r: ± 0.01

d ₁	l ₁	D	L	r	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.0	2.0	3	38	0.50	-	-	-
1.5	2.5	3	38	0.75	-	-	-
2.0	3.0	3	38	1.00	-	-	-
2.5	4.0	3	38	1.25	-	-	-
3.0	4.5	3	38	1.50	-	-	-
3.5	5.0	6	51	1.75	-	-	-
4.0	6.0	6	51	2.00	-	-	-
4.5	7.0	6	51	2.25	-	-	-
5.0	8.0	6	51	2.50	-	-	-
5.5	8.0	6	51	2.75	-	-	-
6.0	9.0	6	51	3.00	-	-	-
6.5	10.0	8	61	3.25	-	-	-
7.0	10.0	8	61	3.50	-	-	-
7.5	12.0	8	61	3.75	-	-	-
8.0	12.0	8	61	4.00	-	-	-
8.5	13.0	10	72	4.25	-	-	-
9.0	13.0	10	72	4.50	-	-	-
10.0	15.0	10	72	5.00	-	-	-
11.0	16.0	12	83	5.50	-	-	-
12.0	18.0	12	83	6.00	-	-	-
13.0	20.0	13	83	6.50	-	-	-
14.0	21.0	14	83	7.00	-	-	-
16.0	24.0	16	92	8.00	-	-	-

Suite page suivante / Continued next page

Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	D: h6
$d_1 = D \Rightarrow d_1 e8$	r: ± 0.01

Suite / cont.

d ₁	l ₁	D	L	r	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
18.0	27.0	18	92	9.00	-	-	-
20.0	30.0	20	104	10.00	-	-	-



Fraises hémisphériques $l_2 = 3 \times d_1$

End mills with ball end
 $l_2 = 3 \times d_1$

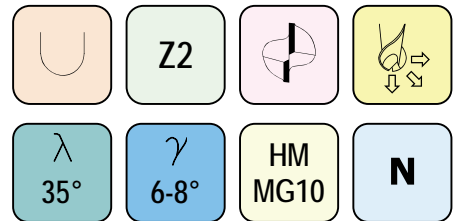
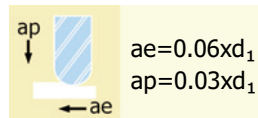
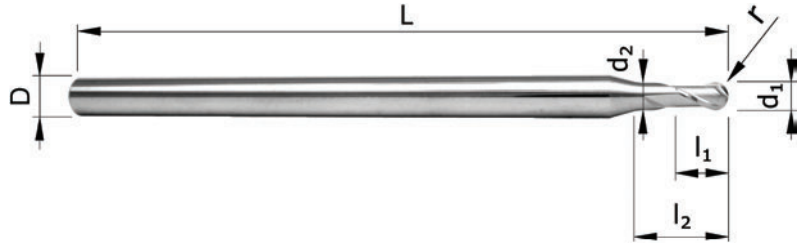
Kugelkopffräser
 $l_2 = 3 \times d_1$

Frese raggiate
 $l_2 = 3 \times d_1$

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.2$	$D: h6$
$d_1 = D \Rightarrow d_1 e8$	$l_2: \pm 0.2$	$r: \pm 0.01$

d_1	l_1	d_2	l_2	D	L	r	Prix (CHF) / Price (CHF)		
							Non revêtu / Uncoated	ou/ or TiCN TiAIN	Autre / Other
0.2	0.2	0.18	0.6	3	38	0.10	-	-	-
0.3	0.3	0.25	0.9	3	38	0.15	-	-	-
0.4	0.5	0.35	1.2	3	38	0.20	-	-	-
0.5	0.6	0.45	1.5	3	38	0.25	-	-	-
0.6	0.7	0.55	1.8	3	38	0.30	-	-	-
0.8	0.9	0.75	2.4	3	38	0.40	-	-	-
1.0	1.2	0.95	3.0	3	51	0.50	-	-	-
1.2	1.4	1.15	3.6	3	51	0.60	-	-	-
1.5	1.8	1.45	4.5	3	51	0.75	-	-	-
2.0	2.4	1.95	6.0	3	51	1.00	-	-	-
2.5	3.0	2.45	7.5	3	51	1.25	-	-	-
3.0	3.6	2.95	9.0	3	51	1.50	-	-	-
3.5	4.2	3.45	10.5	6	61	1.75	-	-	-
4.0	4.8	3.95	12.0	6	61	2.00	-	-	-
4.5	5.4	4.45	13.5	6	61	2.25	-	-	-
5.0	6.0	4.95	15.0	6	61	2.50	-	-	-

Fraises hémisphériques $l_2 = 5 \times d_1$

End mills with ball end
 $l_2 = 5 \times d_1$

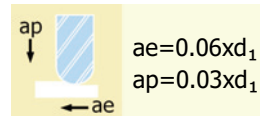
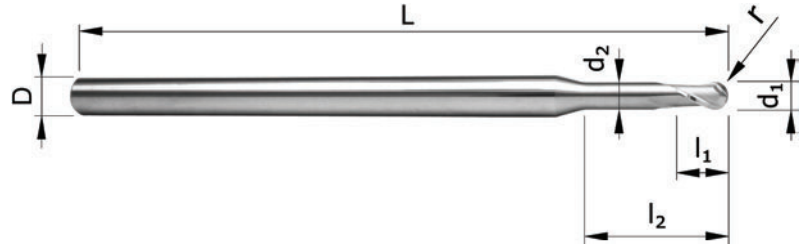
Kugelpkopfräser
 $l_2 = 5 \times d_1$

Frese raggiate
 $l_2 = 5 \times d_1$

Recommandé pour / Usage recommendations:

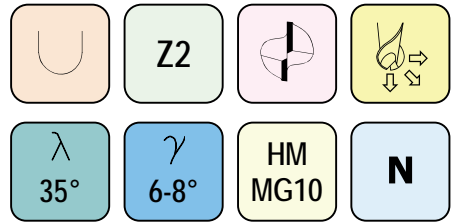
Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



$$ae = 0.06 \times d_1$$

$$ap = 0.03 \times d_1$$



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.2$	$D: h6$
$d_1 = D \Rightarrow d_1 e8$	$l_2: \pm 0.2$	$r: \pm 0.01$

d_1	l_1	d_2	l_2	D	L	r	Prix (CHF) / Price (CHF)		
							Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.5	0.6	0.45	2.5	3	38	0.25	-	-	-
0.6	0.7	0.55	3.0	3	38	0.30	-	-	-
0.7	0.8	0.65	3.5	3	38	0.35	-	-	-
0.8	1.0	0.75	4.0	3	38	0.40	-	-	-
0.9	1.1	0.85	4.5	3	38	0.45	-	-	-
1.0	1.2	0.95	5.0	3	51	0.50	-	-	-
1.2	1.4	1.15	6.0	3	51	0.60	-	-	-
1.5	1.8	1.45	7.5	3	51	0.75	-	-	-
1.8	2.2	1.75	9.0	3	51	0.90	-	-	-
2.0	2.4	1.95	10.0	3	51	1.00	-	-	-
2.3	2.8	2.25	11.5	3	51	1.15	-	-	-
2.5	3.0	2.45	12.5	3	51	1.25	-	-	-
2.8	3.4	2.75	14.0	3	51	1.40	-	-	-
3.0	3.6	2.95	15.0	3	51	1.50	-	-	-
3.5	4.2	3.45	17.5	6	72	1.75	-	-	-
4.0	4.8	3.95	20.0	6	72	2.00	-	-	-
4.5	5.4	4.45	22.5	6	72	2.25	-	-	-
5.0	6.0	4.95	25.0	6	72	2.50	-	-	-

Fraises hémisphériques $l_2 = 10 \times d_1$

End mills with ball end
 $l_2 = 10 \times d_1$

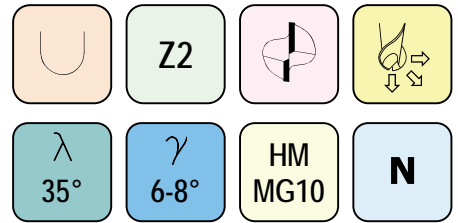
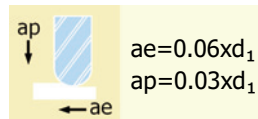
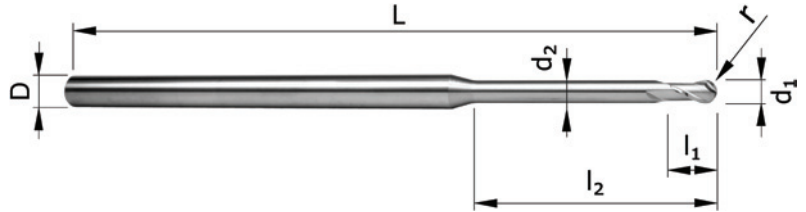
Kugelkopffräser
 $l_2 = 10 \times d_1$

Frese raggriate
 $l_2 = 10 \times d_1$

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.2$	$D: h6$
$d_1 = D \Rightarrow d_1 e8$	$l_2: \pm 0.2$	$r: \pm 0.01$

d_1	l_1	d_2	l_2	D	L	r	Prix (CHF) / Price (CHF)		
							Non revêtu / Uncoated	ou/ or TiCN TiAlN	Autre / Other
0.5	0.6	0.45	5.0	3	38	0.25	-	-	-
0.6	0.7	0.55	6.0	3	38	0.30	-	-	-
0.8	1.0	0.75	8.0	3	38	0.40	-	-	-
1.0	1.2	0.95	10.0	3	51	0.50	-	-	-
1.2	1.4	1.15	12.0	3	51	0.60	-	-	-
1.5	1.8	1.45	15.0	3	61	0.75	-	-	-
2.0	2.4	1.95	20.0	3	61	1.00	-	-	-
2.5	3.0	2.45	25.0	3	61	1.25	-	-	-
3.0	3.6	2.95	30.0	3	61	1.50	-	-	-

Fraises ébauche - pas moyen

Roughing end mills
medium-pitch

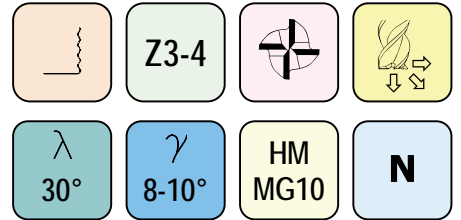
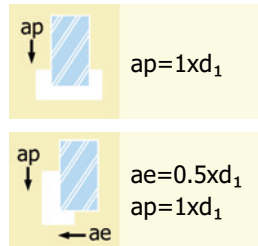
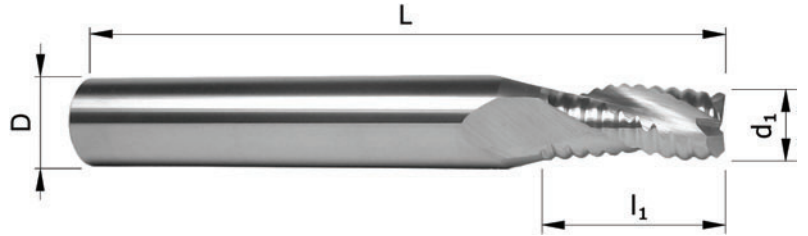
Schruppfräser
Mittlere Steigung

Frese a sgrossare
passo medio

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	+
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

$d_1 < D \Rightarrow d_1: \pm 0.05 \quad D: h6$
 $d_1 = D \Rightarrow d_1: 0/-0.1$

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu / Uncoated	ou/ or TiCN / TiAlN	Autre / Other
4.0	10	6	51	3	-	-	-
5.0	13	6	51	3	-	-	-
6.0	13	6	51	3	-	-	-
7.0	16	8	61	3	-	-	-
8.0	16	10	72	4	-	-	-
9.0	18	10	72	4	-	-	-
10.0	22	10	72	4	-	-	-
11.0	22	12	83	4	-	-	-
12.0	25	12	83	4	-	-	-
14.0	28	14	83	4	-	-	-
16.0	36	16	92	4	-	-	-
20.0	40	20	104	4	-	-	-

Fraises ébauche - pas fin

Roughing end mills
fine-pitch

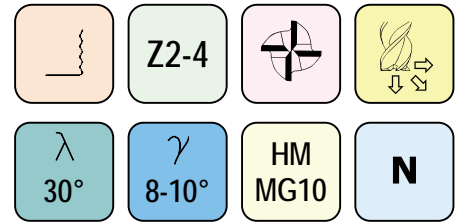
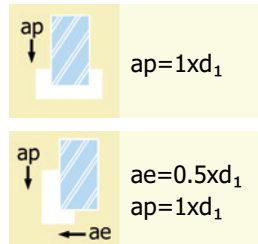
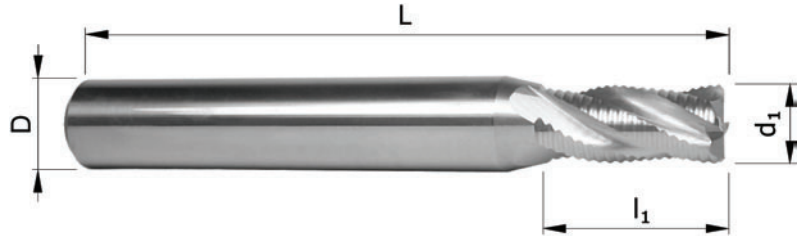
Schruppfräser
feingewinde

Frese a sgrossare
passo fino

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	+	++
Graphite	200 - 400	-	+
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

$$d_1 < D \Rightarrow d_1: \pm 0.05 \quad D: h6$$

$$d_1 = D \Rightarrow d_1: 0/-0.1$$

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu / Uncoated	ou/ or TiCN TiAlN	Autre / Other
1.5	3	6	51	2	-	-	-
2.0	4	6	51	2	-	-	-
2.5	5	6	51	2	-	-	-
3.0	6	6	51	3	-	-	-
3.5	7	6	51	3	-	-	-
4.0	8	6	51	3	-	-	-
4.5	9	6	51	3	-	-	-
5.0	10	6	51	3	-	-	-
5.5	11	6	51	3	-	-	-
6.0	12	6	51	3	-	-	-
7.0	14	8	61	3	-	-	-
8.0	16	10	72	4	-	-	-
9.0	18	10	72	4	-	-	-
10.0	20	10	72	4	-	-	-
11.0	22	12	83	4	-	-	-
12.0	24	12	83	4	-	-	-
14.0	28	14	83	4	-	-	-
16.0	32	16	92	4	-	-	-
20.0	40	20	104	4	-	-	-

Fraises en T - denture droite - 2 tailles

T-slot cutters, 2 cuts
straight toothing

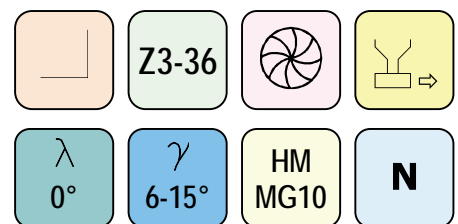
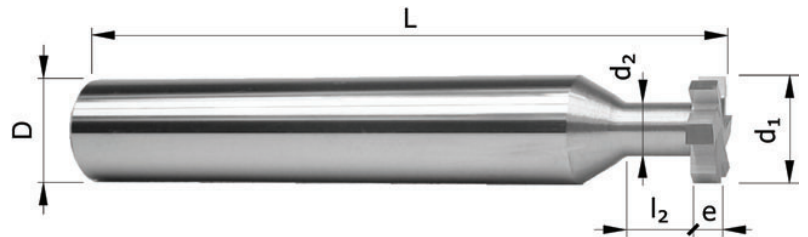
T-Nutenfräser, 2 Schnitte
gerade Verzahnung

Frese a T, 2 taglienti
dentatura diritta

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times e \times n$$



Tolérances:

$$d_1 < D \Rightarrow d_1 \pm 0.01 \quad d_2: +0/-0.5 \quad D: h6$$

$$d_1 = D \Rightarrow d_1 -0.05/-0.10 \quad l_2: \pm 0.2$$

d ₁	e	d ₂	l ₂	D	L	Z _{or gold}	Z _{inox stainless}	Z _{laiton brass}	Prix (CHF) / Price (CHF)		
									Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.0	0.2 - 1.0	1.0	2	4	38	3	5	6	-	-	-
3.0	0.2 - 1.5	1.5	2	4	38	3	5	6	-	-	-
4.0	0.2 - 1.5	2.5	3	4	38	3	5	6	-	-	-
5.0	0.5 - 1.5	3.0	3	5	38	3	5	6	-	-	-
6.0	0.5 - 2.5	3.5	4	6	38	4	6	8	-	-	-
8.0	0.5 - 3.0	4.0	5	8	51	4 - 5	8	10	-	-	-
10.0	0.5 - 4.0	5.0	5	10	51	4 - 5	10	12	-	-	-
12.0	0.5 - 4.0	6.0	6	10	51	5 - 6	12 - 14	16	-	-	-
15.0	0.5 - 5.0	8.0	8	10	61	5 - 8	14 - 16	18	-	-	-
16.0	0.5 - 2.9	8.0	8	10	61	5 - 8	16 - 18	20	-	-	-
16.0	3.0 - 6.0	8.0	8	10	61	5 - 8	16 - 18	20	-	-	-
18.0	0.5 - 2.9	8.0	8	10	61	6 - 10	18 - 20	24	-	-	-
18.0	3.0 - 6.0	8.0	8	10	61	6 - 10	18 - 20	24	-	-	-
20.0	0.5 - 2.9	8.0	8	10	61	6 - 12	20 - 22	24	-	-	-
20.0	3.0 - 6.0	8.0	8	10	61	6 - 12	20 - 22	24	-	-	-
25.0	0.5 - 3.9	8.0	8	10	61	8 - 16	24 - 28	32	-	-	-
25.0	4.0 - 8.0	8.0	8	10	61	8 - 16	24 - 28	32	-	-	-
30.0	0.5 - 3.9	8.0	8	10	61	10 - 20	30 - 34	36	-	-	-
30.0	4.0 - 8.0	8.0	8	10	61	10 - 20	30 - 34	36	-	-	-

Formulaire de commande à la page suivante / See order form next page



Commande / Order

Demande d'offre / Quotation request

<p>Dimensions:</p> <p>d₁ : _____ e : _____</p> <p>d₂ : _____ l₂ : _____</p> <p>D : _____ L : _____</p> <p>Z : _____</p>	<p>Coupe / Cut:</p> <p><input type="checkbox"/> à droite <i>right cut</i></p> <p><input type="checkbox"/> à gauche <i>left cut</i></p>	<p>Revêtement / Coating:</p> <p><input type="checkbox"/> Aucun / <i>none</i></p> <p><input type="checkbox"/> TiCN</p> <p><input type="checkbox"/> TiAlN</p> <p><input type="checkbox"/> Autre / <i>other:</i> _____</p>
<p>Matière à usiner : <i>Machined material:</i></p>	<p>Quantité: <i>Quantity:</i></p>	<p>N° commande / order No:</p>
<p>Timbre de la société / Company's stamp:</p>		<p>Personne de contact: <i>Contact person:</i></p>

Fraises en T - 2 tailles - denture alternée

T-slot cutters, 2 cuts
staggered teeth

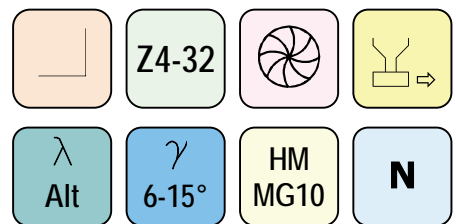
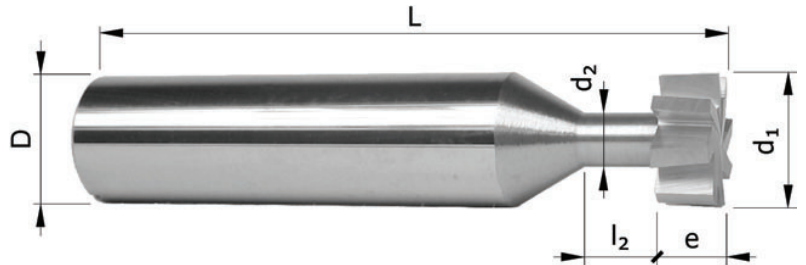
T-Nutenfräser, 2 Schnitte
kreuzverzahnt

Frese a T, 2 tagli
denti alternati

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times e \times n$$

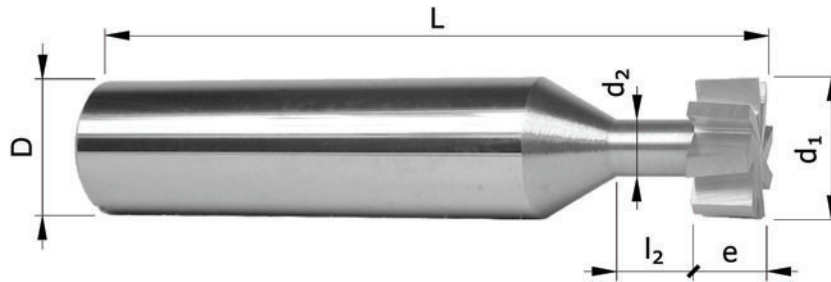


Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.5$	$D: h6$
$d_1 = D \Rightarrow d_1 -0.05/-0.10$	$l_2: \pm 0.2$	

d ₁	e	d ₂	l ₂	D	L	Z _{or gold}	Z _{inox stainless}	Z _{laiton brass}	Prix (CHF) / Price (CHF)		
									Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
4.0	0.5 - 3.0	2.5	3.0	4	38	4	6	6	-	-	-
5.0	0.5 - 3.0	3.0	3.0	5	38	4	6	6	-	-	-
6.0	0.5 - 3.0	3.5	4.0	6	38	4	6	6	-	-	-
8.0	1.0 - 4.0	4.0	5.0	8	51	4	6 - 8	8 - 10	-	-	-
10.0	1.0 - 4.0	5.0	5.0	10	51	4 - 6	8 - 10	10 - 12	-	-	-
12.0	1.0 - 5.0	6.0	6.0	10	51	4 - 6	8 - 10	12	-	-	-
15.0	1.5 - 6.0	8.0	8.0	10	61	6 - 8	12 - 14	16	-	-	-
16.0	1.5 - 3.9	8.0	8.0	10	61	6 - 8	12 - 14	16	-	-	-
16.0	4.0 - 6.0	8.0	8.0	10	61	6 - 8	12 - 14	16	-	-	-
18.0	1.5 - 3.9	8.0	8.0	10	61	6 - 10	14 - 16	18	-	-	-
18.0	4.0 - 6.0	8.0	8.0	10	61	6 - 10	14 - 16	18	-	-	-
20.0	1.5 - 3.9	8.0	8.0	10	61	6 - 12	16 - 20	22	-	-	-
20.0	4.0 - 6.0	8.0	8.0	10	61	6 - 12	16 - 20	22	-	-	-
25.0	1.5 - 4.9	8.0	8.0	10	61	8 - 14	20 - 24	28	-	-	-
25.0	5.0 - 10	8.0	8.0	10	61	8 - 14	20 - 24	28	-	-	-
30.0	1.5 - 4.9	8.0	8.0	10	61	10 - 18	24 - 28	32	-	-	-
30.0	5.0 - 12	8.0	8.0	10	61	10 - 18	24 - 28	32	-	-	-

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Commande / Order

Demande d'offre / Quotation request

<p>Dimensions:</p> <p>d₁ : _____ e : _____</p> <p>d₂ : _____ l₂ : _____</p> <p>D : _____ L : _____</p> <p>Z : _____</p>	<p>Coupe / Cut:</p> <p><input type="checkbox"/> à droite <i>right cut</i></p> <p><input type="checkbox"/> à gauche <i>left cut</i></p>	<p>Revêtement / Coating:</p> <p><input type="checkbox"/> Aucun / <i>none</i></p> <p><input type="checkbox"/> TiCN</p> <p><input type="checkbox"/> TiAlN</p> <p><input type="checkbox"/> Autre / <i>other:</i> _____</p>
<p>Matière à usiner : <i>Machined material:</i></p>	<p>Quantité : <i>Quantity:</i></p>	<p>N° commande / order No:</p>
<p>Timbre de la société / Company's stamp:</p>		<p>Personne de contact : <i>Contact person:</i></p>

Fraises en T - 1/2 rondes - convexes

T-slot cutters
with convex radius

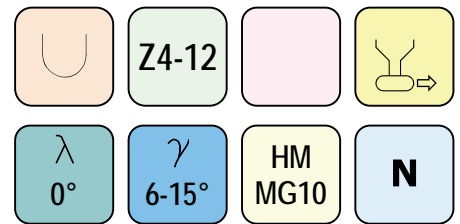
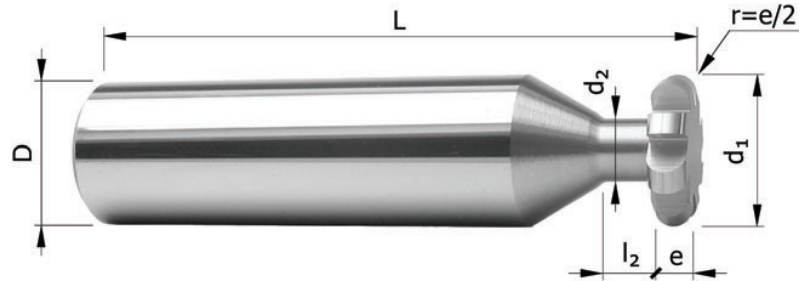
T-Nutenfräser
mit Konvexradius

Frese a T
con raggio convesso

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times e \times n$$



Tolérances:

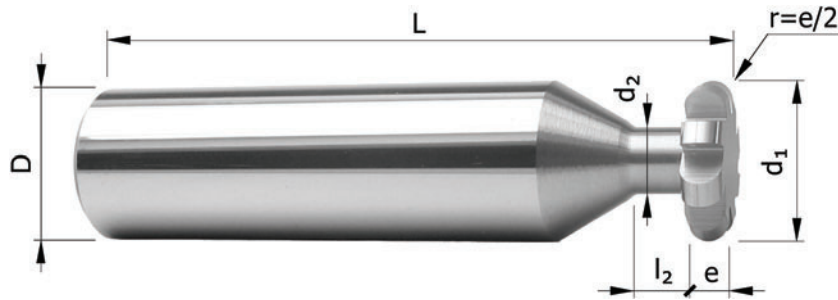
$$d_1 < D \Leftrightarrow d_1 \pm 0.03 \quad d_2: +0/-0.5 \quad D: h6$$

$$d_1 = D \Leftrightarrow d_1 -0.05/-0.10 \quad l_2: \pm 0.2 \quad r: \pm 0.01$$

d ₁	e	d ₂	l ₂	D	L	Z	Prix (CHF) / Price (CHF)		
							Non revêtu / Uncoated	ou/ or TiCN TiAlN	Autre / Other
4.0	0.4 - 1.5	1.5	3.0	4	38	4	-	-	-
6.0	0.5 - 2.0	3.0	3.5	6	38	6	-	-	-
8.0	1.0 - 3.0	4.0	4.0	8	51	6	-	-	-
10.0	1.0 - 4.0	5.0	5.0	10	51	8	-	-	-
12.0	1.0 - 5.0	6.0	5.0	10	51	10	-	-	-
16.0	1.0 - 6.0	8.0	6.0	10	61	12	-	-	-

Formulaire de commande à la page suivante

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Commande / Order

Demande d'offre / Quotation request

<p>Dimensions:</p> <p>d₁ : _____ e : _____</p> <p>d₂ : _____ l₂ : _____</p> <p>D : _____ L : _____</p> <p>Z : _____</p>	<p>Coupe / Cut:</p> <p><input type="checkbox"/> à droite <i>right cut</i></p> <p><input type="checkbox"/> à gauche <i>left cut</i></p>	<p>Revêtement / Coating:</p> <p><input type="checkbox"/> Aucun / <i>none</i></p> <p><input type="checkbox"/> TiCN</p> <p><input type="checkbox"/> TiAlN</p> <p><input type="checkbox"/> Autre / <i>other:</i> _____</p>
<p>Matière à usiner : Machined material:</p>	<p>Quantité: Quantity:</p>	<p>N° commande / order No:</p>
<p>Timbre de la société / Company's stamp:</p>		<p>Personne de contact: Contact person:</p>

Fraises en T isocèles - 90°

Double angle cutters 90°
with shank

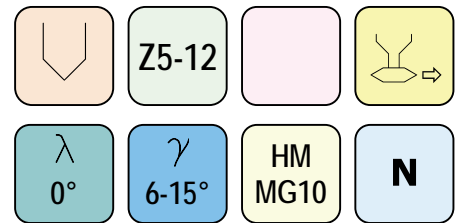
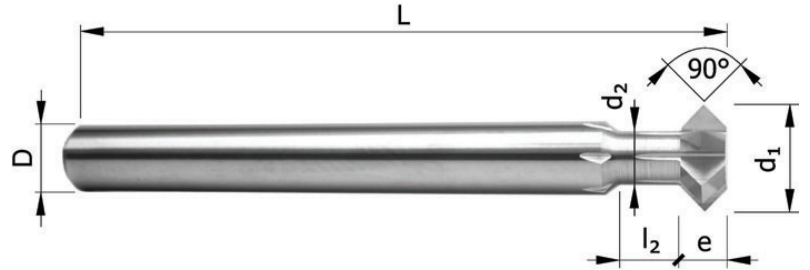
Prismenfräser 90°
mit Schaft

Frese a T isocèle
90°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	++	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times e \times n$

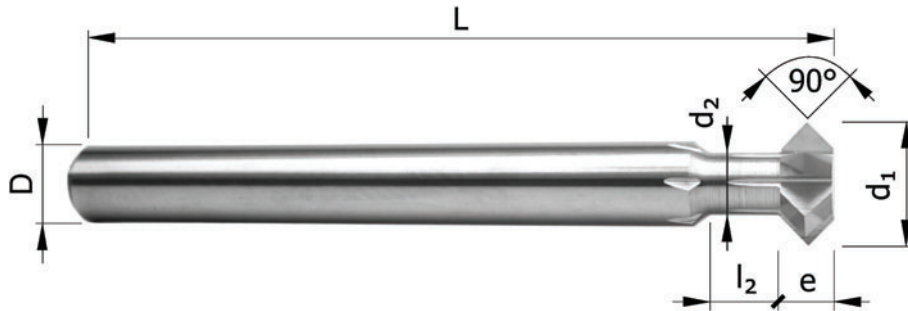


Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01 \quad d_2: +0/-0.5 \quad D: h6$
 $d_1 = D \Rightarrow d_1 -0.05/-0.10 \quad l_2: \pm 0.2$

d ₁	e	d ₂	l ₂	D	L	Z	Prix (CHF) / Price (CHF)		
							Non revêtu / Uncoated	ou/ou TiCN / TiAlN	Autre / Other
5.0	0.5 - 1.5	3.5	3	5	38	5	-	-	-
6.0	1.0 - 2.0	4.0	3	6	38	6	-	-	-
8.0	1.5 - 2.5	5.5	4	8	51	6	-	-	-
10.0	2.0 - 3.5	6.5	4	10	51	8	-	-	-
12.0	2.5 - 4.0	8.0	4	10	51	10	-	-	-
16.0	3.0 - 5.0	11.0	4	10	61	12	-	-	-

Formulaire de commande à la page suivante
See order form next page



Commande / Order

Demande d'offre / Quotation request

Dimensions: d ₁ : e : d ₂ : l ₂ : D : L : Z :		Angle:	Coupe / Cut: <input type="checkbox"/> à droite / right cut <input type="checkbox"/> à gauche / left cut	Revêtement / Coating: <input type="checkbox"/> Aucun / none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre/other:
Matière à usiner / Machined material:		Quantité: / Quantity:	N° commande: / Order No:	
Timbre de la société / Company's stamp:		Personne de contact: / Contact person:		

Fraises en T isocèles - 60°

Double angle cutters 60°
with shank

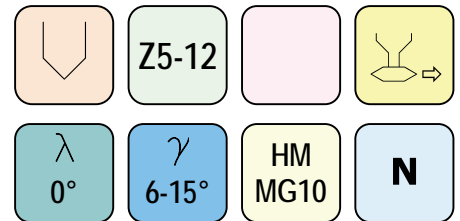
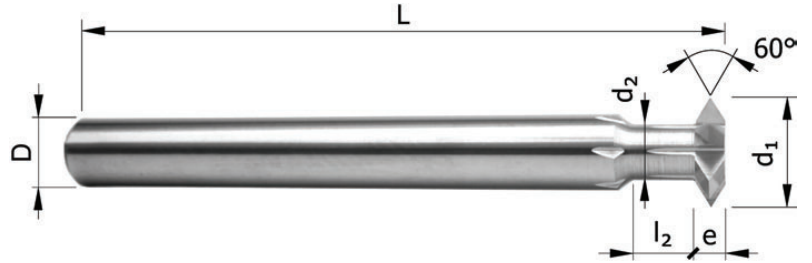
Prismenfräser 60°
mit Schaft

Frese a T isocele
60°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	+
Titane/Titan	40 - 80	++	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times e \times n$



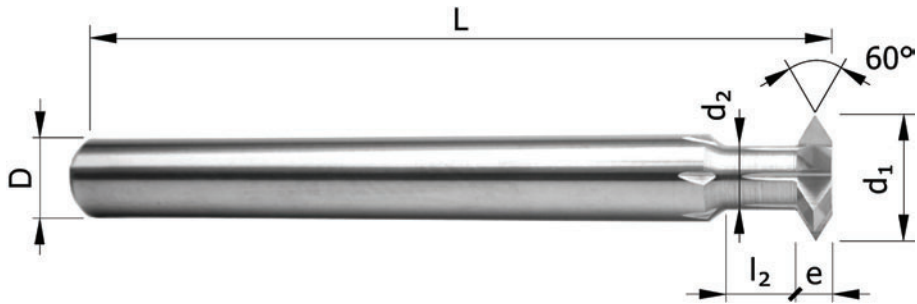
Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01 \quad d_2: +0/-0.5 \quad D: h6$
 $d_1 = D \Rightarrow d_1 -0.05/-0.10 \quad l_2: \pm 0.2$

d ₁	e	d ₂	l ₂	D	L	Z	Prix (CHF) / Price (CHF)		
							Non revêtu / Uncoated	ou/ou TiCN / TiAlN	Autre / Other
5.0	0.5 - 1.5	2.4	3	5	38	5	-	-	-
6.0	1.0 - 2.0	2.5	3	6	38	6	-	-	-
8.0	1.5 - 2.5	3.6	4	8	51	6	-	-	-
10.0	2.0 - 3.5	4.0	4	10	51	8	-	-	-
12.0	2.5 - 4.0	5.0	4	10	51	10	-	-	-
16.0	3.0 - 5.0	7.3	4	10	61	12	-	-	-

Formulaire de commande à la page suivante

See order form next page



Commande / Order

Demande d'offre / Quotation request

Dimensions: d ₁ : e : d ₂ : l ₂ : D : L : Z :	Angle:	Coupe / Cut: <input type="checkbox"/> à droite / <i>right cut</i> <input type="checkbox"/> à gauche / <i>left cut</i>	Revêtement / Coating: <input type="checkbox"/> Aucun / <i>none</i> <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre/other:
Matière à usiner / Machined material:	Quantité: <i>Quantity:</i>	N° commande: <i>Order No:</i>	
Timbre de la société / Company's stamp:	Personne de contact: <i>Contact person:</i>		

Fraises 1/4 de cercle à rayon concave

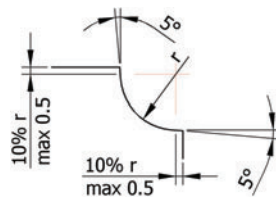
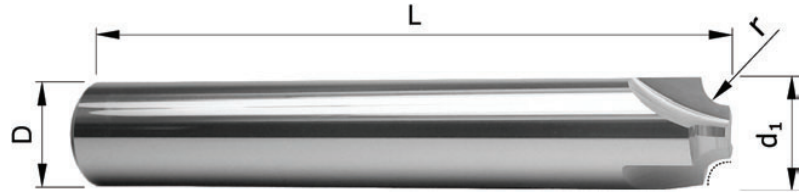
Quarter circle cutters
concave radius

Viertelkreisfräser
konkaver Radius

Frese a quarto di cerchio
raggio concavo

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	250 - 400	-	+
Polymères/Polymers	230 - 350	++	-



	Z3-5		
λ 0°		HM MG10	N

$V_f = 0.005 \rightarrow 0.015 \times Z \times d_1 \times n$

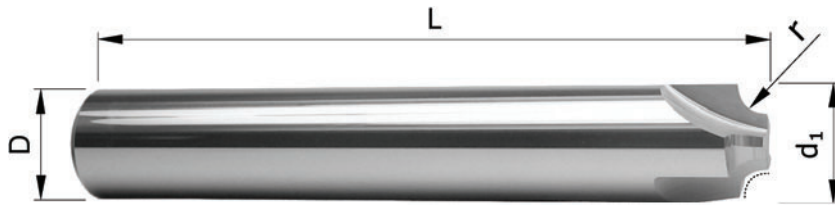
Tolérances:

D: h6 r: ± 0.01

d ₁	D	L	r	Prix (CHF) / Price (CHF)		
				Non revêtu / Uncoated	ou/ou TiCN / TiAlN	Autre / Other
2.0	2	33	0.10-0.30	-	-	-
3.0	3	38	0.10-0.50	-	-	-
4.0	4	38	0.20-1.00	-	-	-
5.0	5	38	0.50-1.50	-	-	-
6.0	6	38	0.75-2.00	-	-	-
8.0	8	51	1.00-2.50	-	-	-
10.0	10	51	1.50-3.50	-	-	-
12.0	10	51	2.00-4.50	-	-	-
14.0	10	61	3.00-5.50	-	-	-
16.0	10	61	4.00-6.00	-	-	-
18.0	10	61	4.00-7.00	-	-	-
20.0	10	61	5.00-8.00	-	-	-

Formulaire de commande à la page suivante

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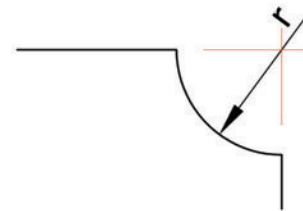
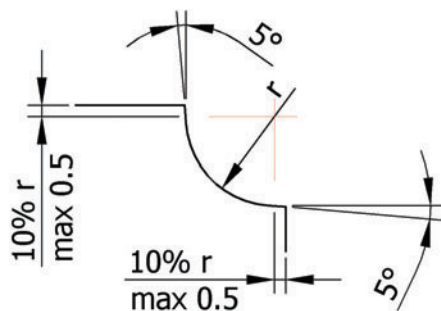
Commande / Order:

Demande d'offre / Quotation request:

<p>Dimensions:</p> <p>d₁ : _____</p> <p>r : _____</p> <p>D : _____</p> <p>L : _____</p>	<p>Coupe / Cut:</p> <p><input type="checkbox"/> à droite <i>right cut</i></p> <p><input type="checkbox"/> à gauche <i>left cut</i></p>	<p>Revêtement / Coating:</p> <p><input type="checkbox"/> Aucun / <i>none</i></p> <p><input type="checkbox"/> TiCN</p> <p><input type="checkbox"/> TiAlN</p> <p><input type="checkbox"/> Autre / <i>other:</i></p>
<p>Matière à usiner: <i>Machined material:</i></p>	<p>Quantité : <i>Quantity:</i></p>	<p>N° commande: <i>Order No:</i></p>
<p>Timbre de la société / Company's stamp:</p>		<p>Personne de contact: <i>Contact person:</i></p>

Avec angle de sortie (standard)

Sans angle de sortie



Fraises de forme à rayon concave

Form cutters
concave radius

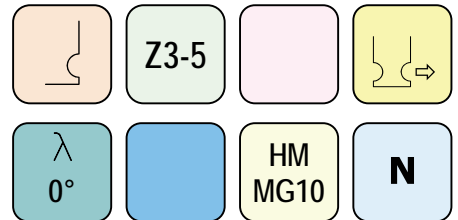
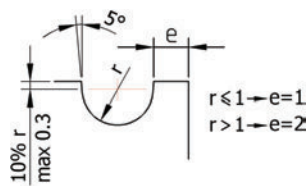
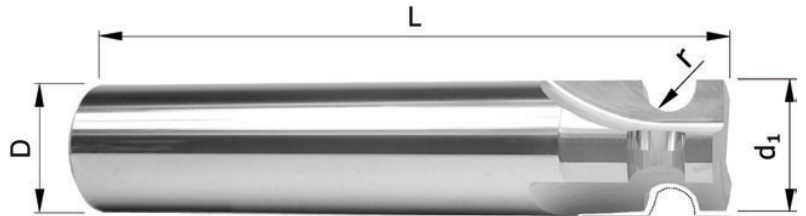
Formfräser
konkaver Radius

Frese di forma
raggio concavo

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	+	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	250 - 400	-	+
Polymères/Polymers	230 - 350	++	-

$V_f = 0.005 \rightarrow 0.015 \times Z \times d_1 \times n$



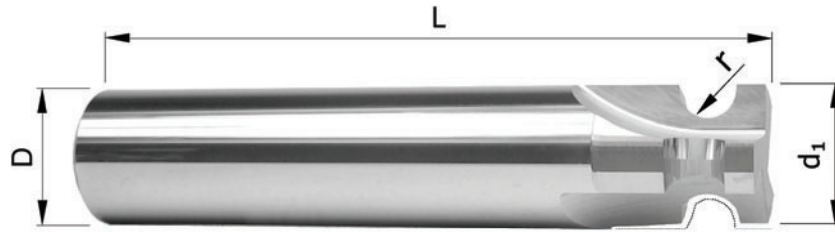
Tolérances:

D: h6 r: ± 0.01

D	L	r	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
4	38	0.50-0.75	-	-	-
6	38	0.75-1.25	-	-	-
8	51	1.00-2.00	-	-	-
10	51	2.00-3.00	-	-	-
12	51	2.50-4.00	-	-	-

Formulaire de commande à la page suivante

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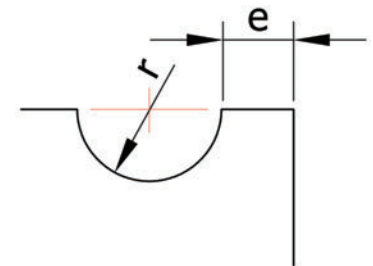
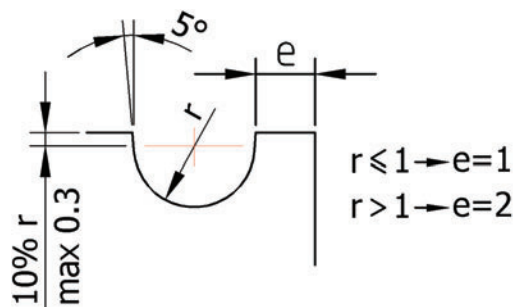
Commande / Order:

Demande d'offre / Quotation request:

Dimensions: d ₁ : _____ r : _____ D : _____ L : _____	Coupe / Cut: <input type="checkbox"/> à droite <i>right cut</i> <input type="checkbox"/> à gauche <i>left cut</i>	Revêtement / Coating: <input type="checkbox"/> Aucun / <i>none</i> <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre / <i>other:</i>
Matière à usiner: <i>Machined material:</i>	Quantité : <i>Quantity:</i>	N° commande: <i>Order No:</i>
Timbre de la société / Company's stamp:		Personne de contact: <i>Contact person:</i>

Avec angle de sortie (standard)

Sans angle de sortie



Fraises queue d'aigle 45°

Dovetail cutters
45°

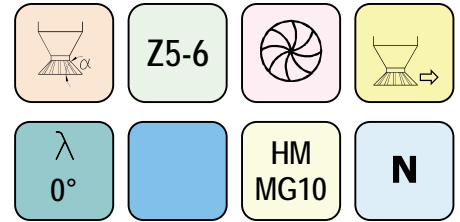
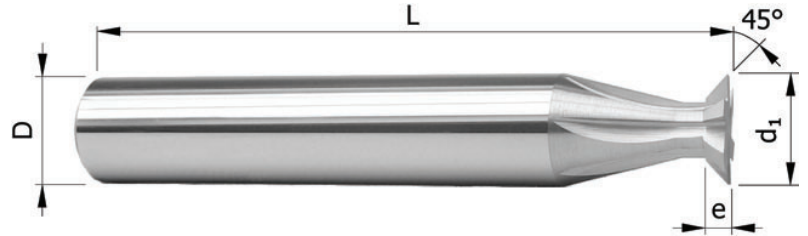
Schwalbenschwanzfräser
45°

Frese a coda di rondine
45°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	+	++
Titane/Titan	40 - 80	++	++
Aluminium	150 - 300	++	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	250 - 400	+	++
Polymères/Polymers	230 - 350	++	-

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



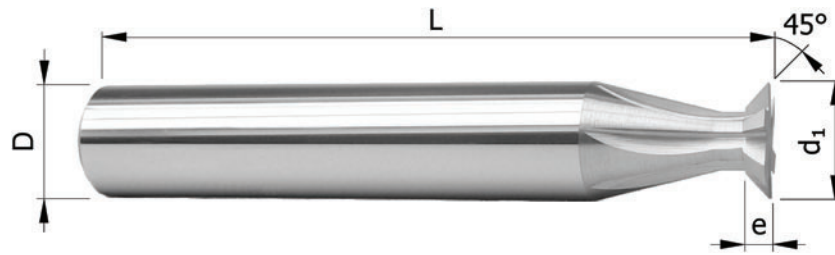
Tolérances:

$d_1=D \Rightarrow d_1: -0.05 / -0.10 \quad D: h6$
 $d_1 \neq D \Rightarrow d_1: \pm 0.03$

d ₁	e	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu / Uncoated	ou/ or TiCN / TiAlN	Autre / Other
3	0.50-0.75	3	38	5	-	-	-
4	0.75-1.25	4	38	5	-	-	-
5	1.00-1.50	5	38	5	-	-	-
6	1.00-2.00	6	38	5	-	-	-
8	1.50-2.50	8	51	5	-	-	-
10	2.00-3.50	10	51	5	-	-	-
12	2.50-4.00	12	51	5	-	-	-
15	3.00-5.00	10	61	5	-	-	-
20	4.00-7.00	10	61	6	-	-	-
25	5.00-8.00	12	61	6	-	-	-

Formulaire de commande à la page suivante

See order form next page



Commande / Order:

Demande d'offre / Quotation request:

Dimensions: d ₁ : _____ e : _____ D : _____ L : _____	Angle: <input type="checkbox"/> 40° <input type="checkbox"/> Autre/Other: _____	Coupe / Cut: <input type="checkbox"/> à droite <i>right cut</i> <input type="checkbox"/> à gauche <i>left cut</i>	Revêtement / Coating: <input type="checkbox"/> Aucun / none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre / other: _____
Matière à usiner: <i>Machined material:</i>		Quantité: <i>Quantity:</i>	N° commande / order No:
Timbre de la société / Company's stamp:			Personne de contact: <i>Contact person:</i>

Fraises queue d'aigle 60°

Dovetail cutters
60°

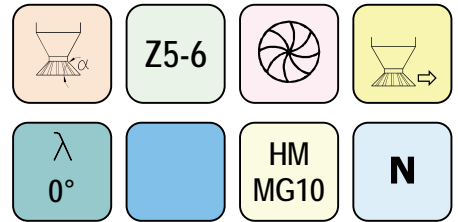
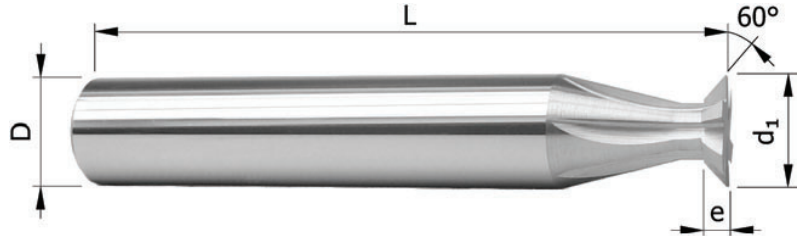
Schwalbenschwanzfräser
60°

Frese a coda di rondine
60°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	+	++
Titane/Titan	40 - 80	++	++
Aluminium	150 - 300	++	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	++	-
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	250 - 400	+	++
Polymères/Polymers	230 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

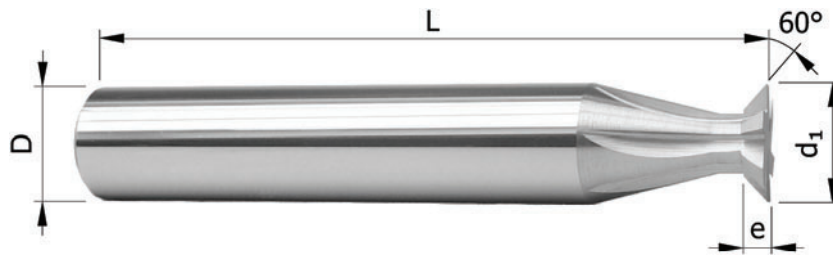
$$d_1=D \Rightarrow d_1: -0.05 / -0.10 \quad D: h6$$

$$d_1 \neq D \Rightarrow d_1: \pm 0.03$$

d ₁	e	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
3	0.50-1.00	3	38	5	-	-	-
4	0.75-2.00	4	38	5	-	-	-
5	1.00-2.50	5	38	5	-	-	-
6	1.00-3.00	6	38	5	-	-	-
8	1.50-4.00	8	51	5	-	-	-
10	2.00-5.00	10	51	5	-	-	-
12	2.50-6.00	12	51	5	-	-	-
15	3.00-7.00	10	61	5	-	-	-
20	4.00-8.00	10	61	6	-	-	-
25	5.00-10.00	12	61	6	-	-	-

Formulaire de commande à la page suivante

See order form next page



Commande / Order:

Demande d'offre / Quotation request:

Dimensions: d ₁ : _____ e : _____ D : _____ L : _____	Angle: <input type="checkbox"/> 60° <input type="checkbox"/> Autre/Other: _____	Coupe / Cut: <input type="checkbox"/> à droite <i>right cut</i> <input type="checkbox"/> à gauche <i>left cut</i>	Revêtement / Coating: <input type="checkbox"/> Aucun / none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre / other: _____
Matière à usiner: <i>Machined material:</i>		Quantité: <i>Quantity:</i>	N° commande / order No:
Timbre de la société / Company's stamp:			Personne de contact: <i>Contact person:</i>

Fraises à graver 1/2 lune - plat à la pointe

plat à la pointe dès Ø 0.03 mm

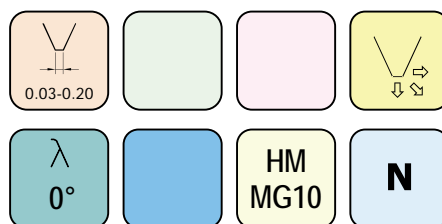
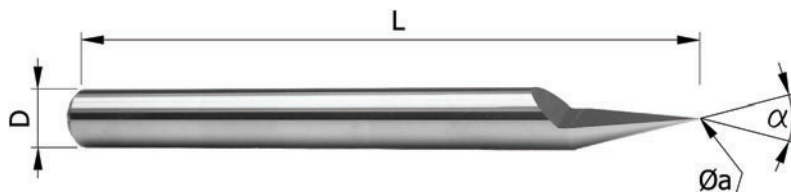
Engraving mills
V-shape - flat tip

Gravierfräser einseitig halbiert
V-Spitze - mit Spitzenfläche

Frese/Bulini a incidere
Testa in V - piatto a la punte

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	250 - 400	-	++
Polymères/Polymers	220 - 350	++	-



$$V_f = 0.005 \rightarrow 0.015 \times n$$

Tolérances:

D: h6
a: ± 0.01

D	L	Prix (CHF) / Price (CHF)		
		Non revêtu / Uncoated	ou/ or TiCN / TiAlN	Autre / Other
3	33	-	-	-
4	38	-	-	-

Formulaire de commande / Order form:

Angles disponibles (α): Available angles (α): <input type="checkbox"/> 30° <input type="checkbox"/> 35° <input type="checkbox"/> 40° <input type="checkbox"/> 45° <input type="checkbox"/> 50° <input type="checkbox"/> 55° <input type="checkbox"/> 60° <input type="checkbox"/> 90° <input type="checkbox"/> Autre/other:	Plat à la pointe Ø 0.03 à 0.20 mm: Flat tip Ø 0.03 to 0.20 mm: Précisez s.v.p. / Please precise: Ø a :	Revêtement / Coating: <input type="checkbox"/> Aucun/none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre/other:	
Matière à usiner / Machined material:	Ø Tige / Shank Ø: D:	Quantité/ Quantity:	N° commande / order No:
Timbre de la société / Company's stamp:		Personne de contact: Contact person:	

Fraises à graver 1/2 Lune - avec rayon

rayon à la pointe dès r = 0.03 mm

Engraving mills
V-shape, radius on tip

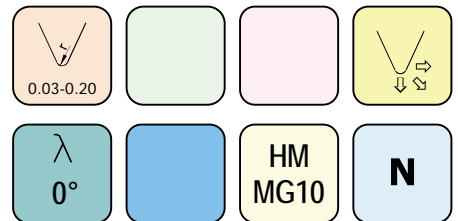
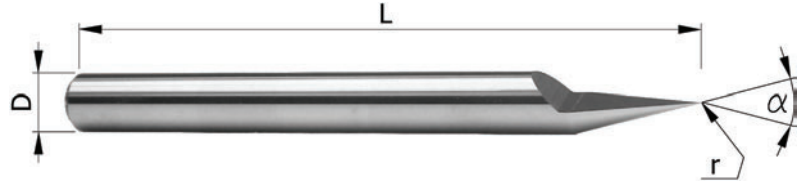
Gravierfräser einseitig halbiert
V-Spitze, Radius an der Spitze

Frese/Bulini a incidere
Testa in V, raggio a la punte

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.005 \rightarrow 0.015 \times n$$



Tolérances:

D: h6
r: ± 0.01

D	L	Prix (CHF) / Price (CHF)		
		Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
3	33	-	-	-
4	38	-	-	-

Formulaire de commande / Order form:

Angles disponibles (α): Available angles (α): <input type="checkbox"/> 30° <input type="checkbox"/> 35° <input type="checkbox"/> 40° <input type="checkbox"/> 45° <input type="checkbox"/> 50° <input type="checkbox"/> 55° <input type="checkbox"/> 60° <input type="checkbox"/> 90° <input type="checkbox"/> Autre/other:	Rayon à la pointe: 0.03 à 0.20 mm Radius at tip: 0.03 to 0.20 mm Précisez s.v.p. / Please precise: r :	Revêtement / Coating: <input type="checkbox"/> Aucun/none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre/other:	
Matière à usiner / Machined material:	Ø Tige / Shank Ø: D:	Quantité / Quantity:	N° commande / order No:
Timbre de la société / Company's stamp:		Personne de contact: Contact person:	

Fraises à graver hélicoïdales

plat à la pointe dès Ø 0.03 mm

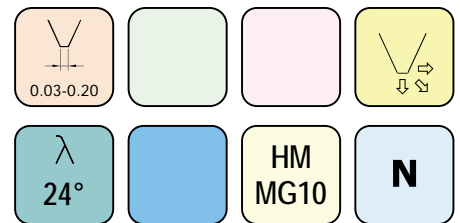
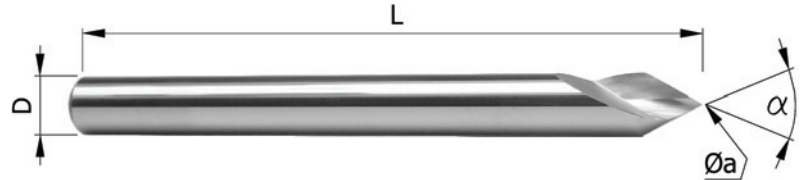
Helical engraving mills
with flat tip

Spiralig Gravierfräser
mit Spitzenfläche

Frese/bulini a incidere
elicoidali - piatto a la punte

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	+
Polymères/Polymers	220 - 350	++	-



$V_f = 0.005 \rightarrow 0.015 \times n$

Tolérances:

D: h6
a: ± 0.01

D	L	Prix (CHF) / Price (CHF)		
		Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
3	33	-	-	-
4	38	-	-	-

Formulaire de commande / Order form:

Angles disponibles (α): Available angles (α): <input type="checkbox"/> 30° <input type="checkbox"/> 35° <input type="checkbox"/> 40° <input type="checkbox"/> 45° <input type="checkbox"/> 50° <input type="checkbox"/> 55° <input type="checkbox"/> 60° <input type="checkbox"/> 90° <input type="checkbox"/> Autre/other:	Plat à la pointe Ø 0.03 à 0.20 mm: Flat tip Ø 0.03 to 0.20 mm: Précisez s.v.p. / Please precise: Ø a :	Revêtement / Coating: <input type="checkbox"/> Aucun/none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre/other:	
Matière à usiner / Machined material:	Ø Tige / Shank Ø: D:	Quantité / Quantity:	N° commande / order No:
Timbre de la société / Company's stamp:		Personne de contact: Contact person:	

Fraises à graver $\frac{3}{4}$ - plat à la pointe

plat à la pointe dès $\varnothing 0.03$ mm

Engraving mills $\frac{3}{4}$
with flat tip

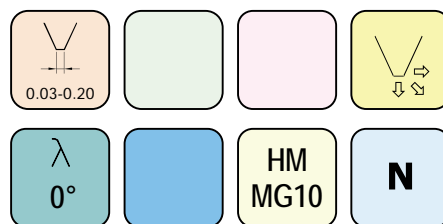
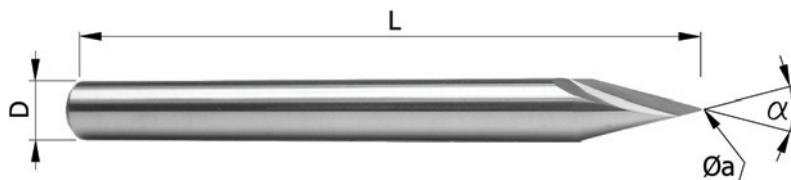
Gravierfräser $\frac{3}{4}$
mit Spitzenfläche

Frese/bulini a incidere $\frac{3}{4}$
con piatto a la punta

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.005 \rightarrow 0.015 \times n$$



Tolérances:

D: h6
a: ± 0.01

		Prix (CHF) / Price (CHF)		
D	L	Non revêtu Uncoated	ou/ou TiCN TiAIN	Autre Other
3	33	-	-	-

Formulaire de commande / Order form:

Angles disponibles (α): Available angles (α): <input type="checkbox"/> 30° <input type="checkbox"/> 35° <input type="checkbox"/> 40° <input type="checkbox"/> 45° <input type="checkbox"/> 50° <input type="checkbox"/> 55° <input type="checkbox"/> 60° <input type="checkbox"/> 90° <input type="checkbox"/> Autre/other: _____		Plat à la pointe $\varnothing 0.03$ à 0.20 mm: Flat tip $\varnothing 0.03$ to 0.20 mm: Précisez s.v.p. / Please precise: $\varnothing a$: _____		Revêtement / Coating: <input type="checkbox"/> Aucun/none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAIN <input type="checkbox"/> Autre/other: _____	
Matière à usiner / Machined material:		\varnothing Tige / Shank \varnothing: D: _____	Quantité / Quantity:	N° commande / order No:	
Timbre de la société / Company's stamp:			Personne de contact: Contact person:		

Fraises à graver $\frac{3}{4}$ - rayon à la pointe

rayon à la pointe dès $r = 0.03$ mm

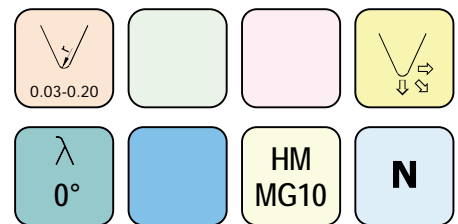
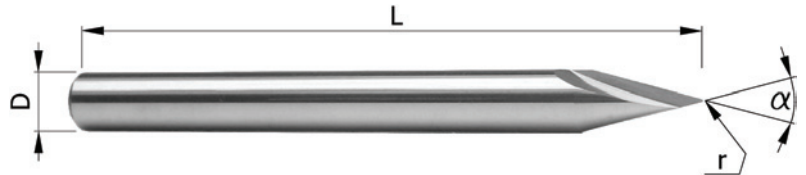
Engraving mills $\frac{3}{4}$
with radius on tip

Gravierfräser $\frac{3}{4}$
mit Radius an der Spitze

Frese/bulini a incidere $\frac{3}{4}$
con raggio a la punta

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-



$$V_f = 0.005 \rightarrow 0.015 \times n$$

Tolérances:

D: h6
r: ± 0.01

Prix (CHF) / Price (CHF)

D	L	Non revêtu / Uncoated	ou/ or TiCN / TiAIN	Autre / Other
		3	33	-

Formulaire de commande / Order form:

Angles disponibles (α): Available angles (α): <input type="checkbox"/> 30° <input type="checkbox"/> 35° <input type="checkbox"/> 40° <input type="checkbox"/> 45° <input type="checkbox"/> 50° <input type="checkbox"/> 55° <input type="checkbox"/> 60° <input type="checkbox"/> 90° <input type="checkbox"/> Autre/other: _____	Rayon à la pointe: 0.03 à 0.20 mm Radius at tip: 0.03 to 0.20 mm Précisez s.v.p. / Please precise: r : _____	Revêtement / Coating: <input type="checkbox"/> Aucun/none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAIN <input type="checkbox"/> Autre/other: _____	
Matière à usiner / Machined material:	Ø Tige / Shank Ø: D: _____	Quantité / Quantity:	N° commande / order No:
Timbre de la société / Company's stamp:		Personne de contact: Contact person:	

Fraises à graver ½ lune - renforcées

plat à la pointe dès Ø 0.03 mm

Engraving mills - reinforced
V-shape, flat tip

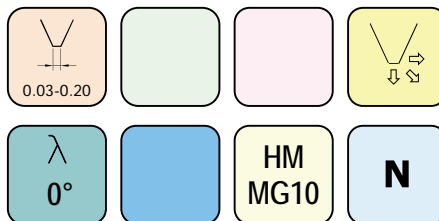
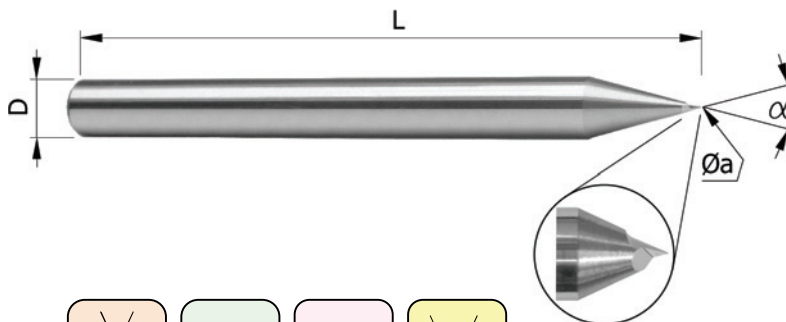
Verstärkte Gravierfräser
V-Spitze - mit Spitzenfläche

Frese a incidere rinforzato
Testa in V - piatto a la punta

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$V_f = 0.005 \rightarrow 0.015 \times n$



Tolérances:

D: h6
a: ± 0.01

D	L	Prix (CHF) / Price (CHF)		
		Non revêtu / Uncoated	ou/ or TiCN / TiAlN	Autre / Other
3	33	-	-	-
4	38	-	-	-

Formulaire de commande / Order form:

Angles disponibles (α): Available angles (α): <input type="checkbox"/> 30° <input type="checkbox"/> 35° <input type="checkbox"/> 40° <input type="checkbox"/> 45° <input type="checkbox"/> 50° <input type="checkbox"/> 55° <input type="checkbox"/> 60° <input type="checkbox"/> 90° <input type="checkbox"/> Autre/other: _____		Plat à la pointe Ø 0.03 à 0.20 mm: Flat tip Ø 0.03 to 0.20 mm: Précisez s.v.p. / Please precise: Ø a : _____		Revêtement / Coating: <input type="checkbox"/> Aucun/none <input type="checkbox"/> TiCN <input type="checkbox"/> TiAlN <input type="checkbox"/> Autre/other: _____	
Matière à usiner / Machined material:		Ø Tige / Shank Ø: D: _____	Quantité / Quantity:		N° commande / order No:
Timbre de la société / Company's stamp:			Personne de contact: Contact person:		

Fraises à angler 90°

Countersinke 90°

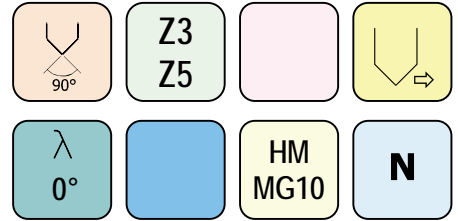
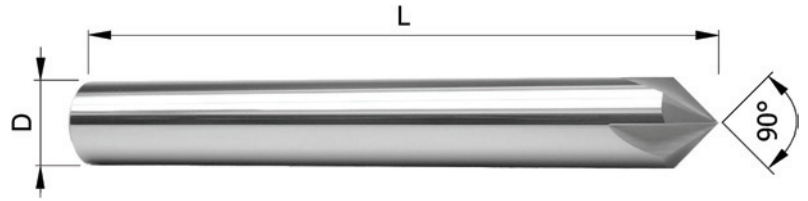
Kegelsenker 90°

Frese a incidere 90°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Tolérances:

D: h6			Prix (CHF) / Price (CHF)			
D	L	Z	Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other	
1.5	38	3	-	-	-	-
1.5	38	5	-	-	-	-
2.0	38	3	-	-	-	-
2.0	38	5	-	-	-	-
3.0	38	3	-	-	-	-
3.0	38	5	-	-	-	-
4.0	51	3	-	-	-	-
4.0	51	5	-	-	-	-
5.0	51	3	-	-	-	-
5.0	51	5	-	-	-	-
6.0	51	3	-	-	-	-
6.0	51	5	-	-	-	-
8.0	61	3	-	-	-	-
8.0	61	5	-	-	-	-
10.0	72	3	-	-	-	-
10.0	72	5	-	-	-	-
12.0	83	3	-	-	-	-
12.0	83	5	-	-	-	-
14.0	83	3	-	-	-	-
14.0	83	5	-	-	-	-
15.0	83	3	-	-	-	-
15.0	83	5	-	-	-	-
16.0	92	3	-	-	-	-
16.0	92	5	-	-	-	-

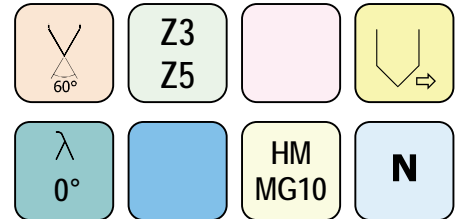
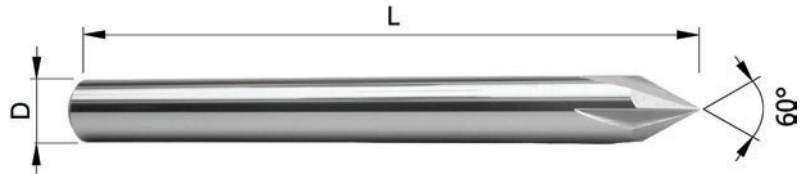
			Prix (CHF) / Price (CHF)			
D	L	Z	Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other	
18.0	92	3	-	-	-	-
18.0	92	5	-	-	-	-
20.0	104	3	-	-	-	-
20.0	104	5	-	-	-	-

Fraises à angler 60°

Countersinke 60°
Kegelsenker 60°
Frese a incidere 60°
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

D: h6			Prix (CHF) / Price (CHF)		
D	L	Z	Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
1.5	38	3	-	-	-
1.5	38	5	-	-	-
2.0	38	3	-	-	-
2.0	38	5	-	-	-
3.0	38	3	-	-	-
3.0	38	5	-	-	-
4.0	51	3	-	-	-
4.0	51	5	-	-	-
5.0	51	3	-	-	-
5.0	51	5	-	-	-
6.0	51	3	-	-	-
6.0	51	5	-	-	-
8.0	61	3	-	-	-
8.0	61	5	-	-	-
10.0	72	3	-	-	-
10.0	72	5	-	-	-
12.0	83	3	-	-	-
12.0	83	5	-	-	-
14.0	83	3	-	-	-
14.0	83	5	-	-	-
15.0	83	3	-	-	-
15.0	83	5	-	-	-
16.0	92	3	-	-	-
16.0	92	5	-	-	-

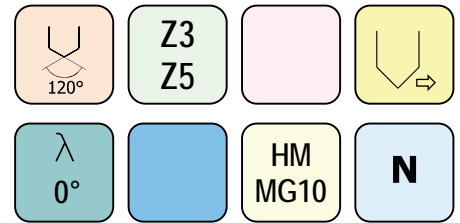
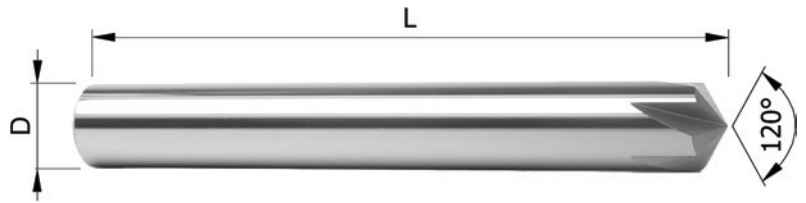
			Prix (CHF) / Price (CHF)		
D	L	Z	Non revêtu Uncoated	ou/lor TiCN TiAlN	Autre Other
18.0	92	3	-	-	-
18.0	92	5	-	-	-
20.0	104	3	-	-	-
20.0	104	5	-	-	-

Fraises à angler 120°

Countersinke 120°
Kegelsenker 120°
Frese a incidere 120°
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 90	-	+
Acier/Steel <700 N/mm ²	70 - 100	+	++
Acier/Steel >700 N/mm ²	35 - 80	-	++
Titane/Titan	40 - 80	+	++
Aluminium	150 - 300	+	++
Cuivre/Copper	150 - 300	+	++
Laiton/Brass	90 - 180	+	++
Or/Gold & Argent/Silver	120 - 170	++	-
Graphite	200 - 400	-	++
Polymères/Polymers	220 - 350	++	-

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$


Tolérances:

D: h6			Prix (CHF) / Price (CHF)			
D	L	Z	Non revêtu Uncoated	ou/lor	TiCN TiAlN	Autre Other
1.5	38	3	-	-	-	-
1.5	38	5	-	-	-	-
2.0	38	3	-	-	-	-
2.0	38	5	-	-	-	-
3.0	38	3	-	-	-	-
3.0	38	5	-	-	-	-
4.0	51	3	-	-	-	-
4.0	51	5	-	-	-	-
5.0	51	3	-	-	-	-
5.0	51	5	-	-	-	-
6.0	51	3	-	-	-	-
6.0	51	5	-	-	-	-
8.0	61	3	-	-	-	-
8.0	61	5	-	-	-	-
10.0	72	3	-	-	-	-
10.0	72	5	-	-	-	-
12.0	83	3	-	-	-	-
12.0	83	5	-	-	-	-
14.0	83	3	-	-	-	-
14.0	83	5	-	-	-	-
15.0	83	3	-	-	-	-
15.0	83	5	-	-	-	-
16.0	92	3	-	-	-	-
16.0	92	5	-	-	-	-

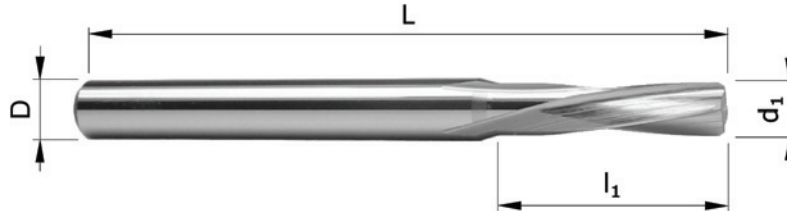
			Prix (CHF) / Price (CHF)			
D	L	Z	Non revêtu Uncoated	ou/lor	TiCN TiAlN	Autre Other
18.0	92	3	-	-	-	-
18.0	92	5	-	-	-	-
20.0	104	3	-	-	-	-
20.0	104	5	-	-	-	-

Alésoirs taille hélicoïdale - 3 et 4 dents

Reamers - spiral fluted
3 and 4 teeth

Reibahlen - spiral genutet
3 und 4 Zähne

Alesori - taglio elicoidale
3 e 4 denti



Le numéro de référence 121 n'existe plus

Il est remplacé par un nouveau n° de référence: 361
(Voir page 190)

Merci d'utiliser ce nouveau numéro de référence pour vos commandes

The reference number 121 doesn't exist any more

It is replaced by a new reference number: 361 (see page 190)

Thank you for using this new reference number for your orders

Die Referenz Nummer 121 existiert nicht mehr

Sie ist ersetzt durch eine neue Referenz Nummer: 361 (Seite 190)

Bitte nutzen Sie diese neue Referenz Nummer für Ihre Bestellungen. Danke.

Il numero di referenza 121 non esiste più

Questo è sostituito con il nuovo n° di referenza: 361 (Pagina 190)

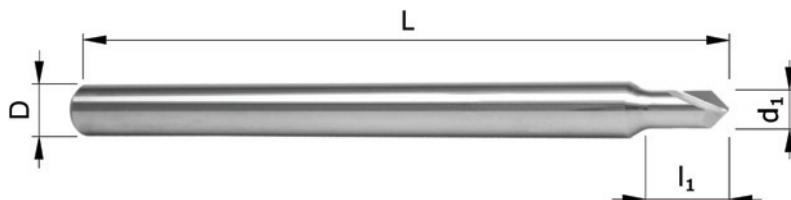
Grazie di utilizzare questo nuovo numero di referenza per i vostri ordine

Pointeur-angleurs 90°

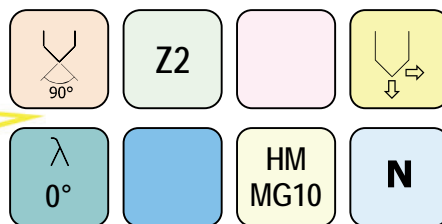
Centering & chamfering drills
90°
Zentrier & Senkbohrer
90°
Punte a centrare & smussare
90°
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/Stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

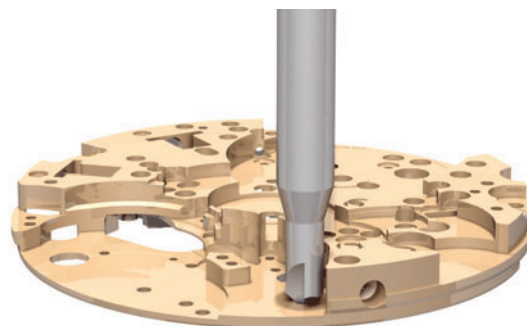
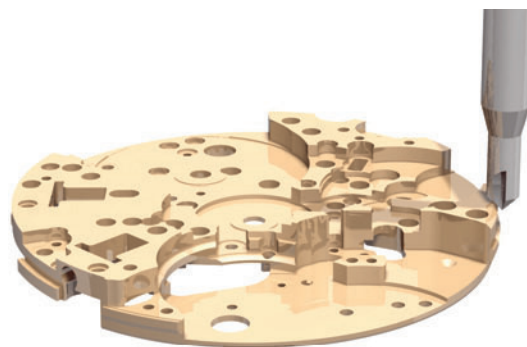
$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Finition poli glace
Mirror finishing


Tolérances:

D : h6				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
0.60	2.0	3.0	38	-	-	-
0.70	2.0	3.0	38	-	-	-
0.80	2.0	3.0	38	-	-	-
0.90	2.0	3.0	38	-	-	-
1.00	2.0	3.0	38	-	-	-
1.10	2.0	3.0	38	-	-	-
1.20	2.0	3.0	38	-	-	-
1.30	2.5	3.0	38	-	-	-
1.40	2.5	3.0	38	-	-	-
1.50	3.0	3.0	38	-	-	-
1.60	3.0	3.0	38	-	-	-
1.70	3.0	3.0	38	-	-	-
1.80	3.0	3.0	38	-	-	-
1.90	3.0	3.0	38	-	-	-
2.00	4.0	3.0	38	-	-	-
2.50	4.5	3.0	38	-	-	-
3.00	-	3.0	38	-	-	-


Pointage / Centering

Anglage / Chamfering



Pointeur-angleurs 120°

Centering & chamfering drills
120°

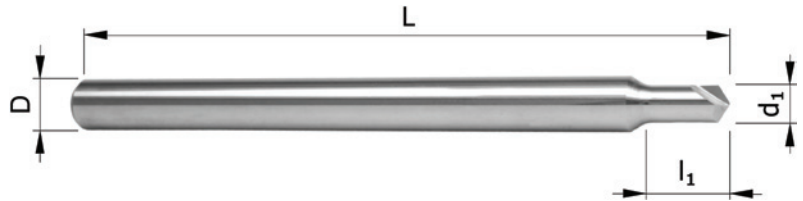
Zentrier & Senkbohrer
120°

Punte a centrare & smussare
120°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/Stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$

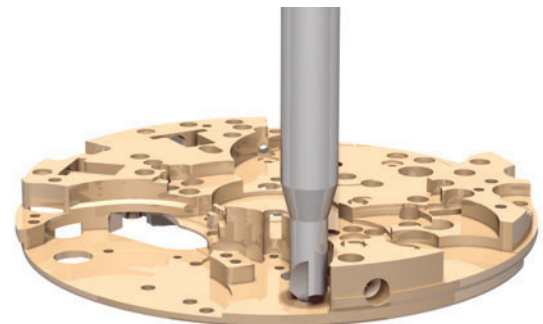


Mirror finishing

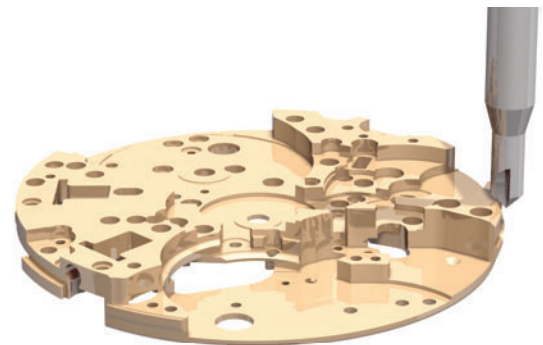
	Z2		
λ 0°		HM MG10	N

Tolérances:

D : h6				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu / Uncoated	ou/ or TiCN / TiAlN	Autre / Other
0.60	2.0	3.0	38	-	-	-
0.70	2.0	3.0	38	-	-	-
0.80	2.0	3.0	38	-	-	-
0.90	2.0	3.0	38	-	-	-
1.00	2.0	3.0	38	-	-	-
1.10	2.0	3.0	38	-	-	-
1.20	2.0	3.0	38	-	-	-
1.30	2.5	3.0	38	-	-	-
1.40	2.5	3.0	38	-	-	-
1.50	3.0	3.0	38	-	-	-
1.60	3.0	3.0	38	-	-	-
1.70	3.0	3.0	38	-	-	-
1.80	3.0	3.0	38	-	-	-
1.90	3.0	3.0	38	-	-	-
2.00	4.0	3.0	38	-	-	-
2.50	4.5	3.0	38	-	-	-
3.00	-	3.0	38	-	-	-



Pointage / Centering



Anglage / Chamfering



Fraises en bout UGV

End mills for high speed cutting

Hochgeschwindigkeitsfräser aus VHM

frese alta frequenza

Fraises UGV - angle vif - revêtues TiAlN

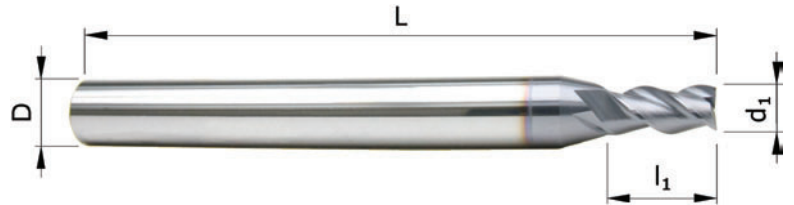
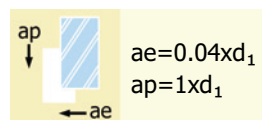
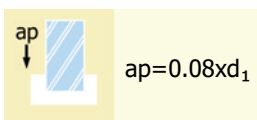
High Frequency end mills
 for Stainless steel - sharp edge
 TiAlN coated

Hochgeschwindigkeitsfräser
 für Inox - scharfkantig
 TiAlN beschichtet

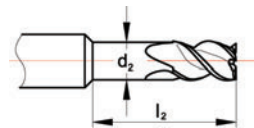
Frese alta frequenza
 per Inox - spigoli vivi
 Rivestite TiAlN

Vitesses de coupe / Cutting speed	
N	UGV/HSC
Usinage normal General machining	Usinage à grande vitesse High speed cutting
30 - 80 m/min	150 - 300 m/min

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Variante et prix sur demande:
 Auf Anfrage / Upon request:



	Z2-5		
λ 42°	γ 14°	Sub-carfine	N HSC

Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.5$	D: h6
$d_1 = D \Rightarrow d_1 -0.05/-0.10$	$l_2: \pm 0.2$	

d_1	l_1	D	L	Z	Prix (CHF) Price (CHF)
0.3	0.6	6	57	2	-
0.4	0.8	6	57	2	-
0.5	1.0	6	57	2	-
0.6	1.2	6	57	2	-
0.7	1.4	6	57	2	-
0.8	1.6	6	57	2	-
0.9	1.8	6	57	2	-
1.0	2.0	6	57	2	-
1.1	2.2	6	57	2	-
1.2	2.4	6	57	2	-
1.3	2.6	6	57	2	-
1.4	2.8	6	57	2	-
1.5	3.0	6	57	2	-
1.6	3.2	6	57	2	-
1.7	3.4	6	57	2	-
1.8	3.6	6	57	2	-
1.9	3.8	6	57	2	-
2.0	4.0	6	57	3	-
2.1	4.2	6	57	3	-
2.2	4.4	6	57	3	-

d_1	l_1	D	L	Z	Prix (CHF) Price (CHF)
2.3	4.6	6	57	3	-
2.4	4.8	6	57	3	-
2.5	5.0	6	57	3	-
2.6	5.2	6	57	3	-
2.7	5.4	6	57	3	-
2.8	5.6	6	57	3	-
2.9	5.8	6	57	3	-
3.0	6.0	6	57	3	-
3.5	7.0	6	57	3	-
4.0	8.0	6	57	3	-
4.5	9.0	6	57	3	-
5.0	10.0	6	57	3	-
6.0	12.0	8	63	3	-
8.0	16.0	10	72	3	-
10.0	20.0	10	72	3	-
12.0	24.0	12	83	4	-
16.0	32.0	16	92	5	-

Fraises UGV - cassé d'angle - revêt. TiAlN

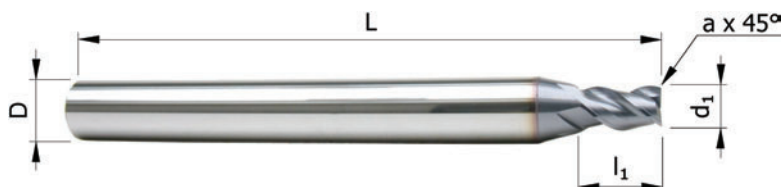
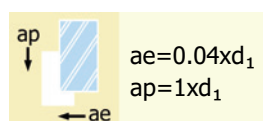
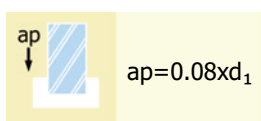
High frequency end mills
for Inox - corner angle 45°
TiAlN coated

Hochgeschwindigkeitsfräser
für Inox - Eckwinkel 45°
TiAlN beschichtet

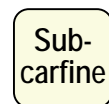
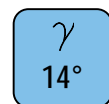
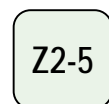
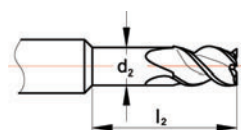
Fresa alta frequenza per Inox
angolo in fine 45°
rivestite TiAlN

Vitesses de coupe / Cutting speed	
N	UGV/HSC
Usinage normal General machining	Usinage à grande vitesse High speed cutting
30 - 80 m/min	150 - 300 m/min

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Variante et prix sur demande:
Auf Anfrage / Upon request:



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.5$	D: h6
$d_1 = D \Rightarrow d_1 -0.05/-0.10$	$l_2: \pm 0.2$	

d ₁	l ₁	D	L	a	Z	Prix (CHF) Price (CHF)
1.0	1.5	6	57	0.03	2	-
1.1	1.7	6	57	0.03	2	-
1.2	1.8	6	57	0.03	2	-
1.3	2.0	6	57	0.03	2	-
1.4	2.1	6	57	0.03	2	-
1.5	2.3	6	57	0.03	2	-
1.6	2.4	6	57	0.03	2	-
1.7	2.6	6	57	0.03	2	-
1.8	2.7	6	57	0.03	2	-
1.9	3.0	6	57	0.03	2	-
2.0	3.0	6	57	0.03	3	-
2.1	3.2	6	57	0.05	3	-
2.2	3.3	6	57	0.05	3	-
2.3	3.5	6	57	0.05	3	-
2.4	3.6	6	57	0.05	3	-
2.5	3.8	6	57	0.05	3	-
2.6	3.9	6	57	0.05	3	-
2.7	4.1	6	57	0.05	3	-
2.8	4.2	6	57	0.05	3	-
2.9	4.4	6	57	0.05	3	-
3.0	4.5	6	57	0.06	3	-

d ₁	l ₁	D	L	a	Z	Prix (CHF) Price (CHF)
3.5	5.3	6	57	0.06	3	-
4.0	6.0	6	57	0.06	3	-
4.5	7.0	6	57	0.08	3	-
5.0	8.0	6	57	0.08	3	-
6.0	9.0	8	63	0.08	3	-
8.0	12.0	10	72	0.10	3	-
10.0	15.0	10	72	0.10	4	-
12.0	18.0	12	83	0.15	4	-
16.0	24.0	16	92	0.15	5	-

Fraises UGV toriques - revêtues TiAlN

High Frequency end mills
for stainless steel - toric
TiAlN coated

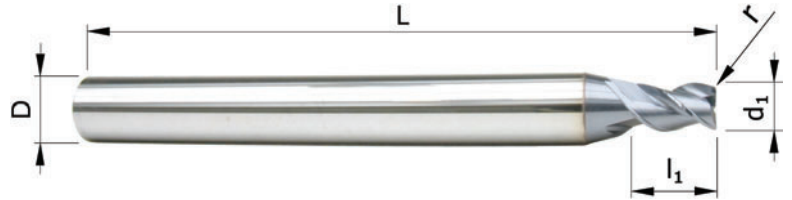
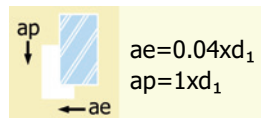
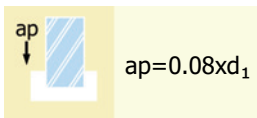
Hochgeschwindigkeitsfräser
für Inox - torisch
TiAlN beschichtet

Frese alta frequenza
per Inox - torique
rivestite TiAlN

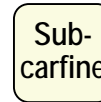
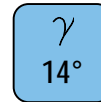
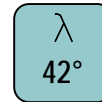
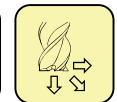
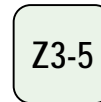
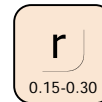
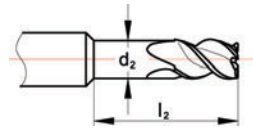
Vitesses de coupe / Cutting speed

N Usinage normal General machining	UGV/HSC Usinage à grande vitesse High speed cutting
30 - 80 m/min	150 - 300 m/min

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Variante et prix sur demande:
Auf Anfrage / Upon request:



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.2$	$D: h6$
$d_1 = D \Rightarrow d_1 e8$	$l_2: \pm 0.2$	$r: +0.02/-0$

d_1	l_1	r	D	L	Z	Prix (CHF) Price (CHF)
2.0	3.0	0.15	6	57	3	-
2.1	3.2	0.15	6	57	3	-
2.2	3.3	0.15	6	57	3	-
2.3	3.5	0.15	6	57	3	-
2.4	3.6	0.15	6	57	3	-
2.5	3.8	0.15	6	57	3	-
2.6	3.9	0.15	6	57	3	-
2.7	4.1	0.15	6	57	3	-
2.8	4.2	0.15	6	57	3	-
2.9	4.4	0.15	6	57	3	-
3.0	4.5	0.15	6	57	3	-
3.5	5.3	0.20	6	57	3	-
4.0	6.0	0.20	6	57	3	-
4.5	7.0	0.20	6	57	3	-
5.0	8.0	0.20	6	57	3	-
6.0	9.0	0.20	8	63	3	-
8.0	12.0	0.30	10	72	3	-
10.0	15.0	0.30	10	72	4	-
12.0	18.0	0.30	12	83	4	-
16.0	24.0	0.30	16	92	5	-

Fraises UGV - angle vif

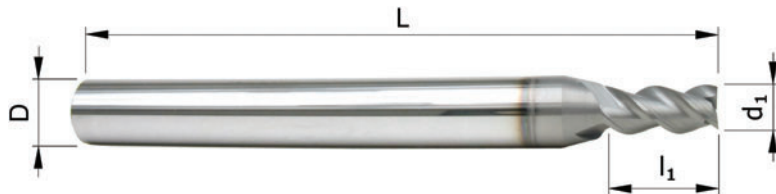
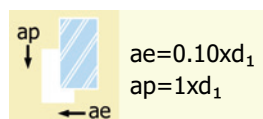
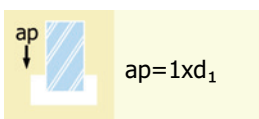
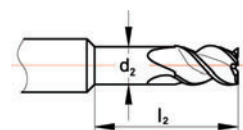
 High Frequency end mills for
 Titanium - sharp edge

 Hochgeschwindigkeitsfräser
 für Titan - scharfkantig

 Frese alta frequenza
 per titanio - spigoli vivi

Vitesses de coupe / Cutting speed	
N	UGV/HSC
Usinage normal General machining	Usinage à grande vitesse High speed cutting
40 - 80 m/min	120 - 200 m/min

$$V_f = 0.003 \rightarrow 0.006 \times Z \times d_1 \times n$$


 Variante et prix sur demande:
 Auf Anfrage / Upon request:


	Z3-4		
λ 45°	γ 8°	Sub-carfine	N HSC

Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	D: h6
$d_1 = D \Rightarrow d_1 e8$	

d ₁	l ₁	D	L	Z	Prix / Price (CHF)	
					Non revêtu Uncoated	Revêtu coated
0.5	1.0	6	57	3	-	-
0.6	1.2	6	57	3	-	-
0.7	1.4	6	57	3	-	-
0.8	1.6	6	57	3	-	-
0.9	1.8	6	57	3	-	-
1.0	2.0	6	57	3	-	-
1.1	2.2	6	57	3	-	-
1.2	2.4	6	57	3	-	-
1.3	2.6	6	57	3	-	-
1.4	2.8	6	57	3	-	-
1.5	3.0	6	57	3	-	-
1.6	3.2	6	57	3	-	-
1.7	3.4	6	57	3	-	-
1.8	3.6	6	57	3	-	-
1.9	3.8	6	57	3	-	-
2.0	4.0	6	57	3	-	-
2.1	4.2	6	57	3	-	-
2.2	4.4	6	57	3	-	-
2.3	4.6	6	57	3	-	-
2.4	4.8	6	57	3	-	-
2.5	5.0	6	57	3	-	-

d ₁	l ₁	D	L	Z	Prix / Price (CHF)	
					Non revêtu Uncoated	Revêtu coated
2.6	5.2	6	57	3	-	-
2.7	5.4	6	57	3	-	-
2.8	5.6	6	57	3	-	-
2.9	5.8	6	57	3	-	-
3.0	6.0	6	57	3	-	-
3.5	7.0	6	57	3	-	-
4.0	8.0	6	57	3	-	-
4.5	9.0	6	57	3	-	-
5.0	10.0	6	57	3	-	-
6.0	12.0	8	63	3	-	-
8.0	16.0	8	63	3	-	-
10.0	20.0	10	72	4	-	-
12.0	24.0	12	83	4	-	-
14.0	28.0	14	83	4	-	-
16.0	32.0	16	92	4	-	-
20.0	40.0	20	104	4	-	-

Fraises UGV avec cassé d'angle

High Frequency end mills
for Copper, Alum., Gold, Polymers
with corner angle 45°

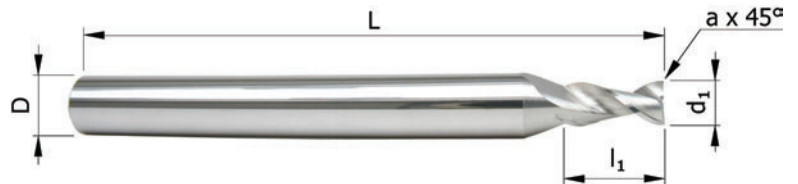
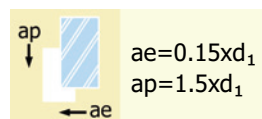
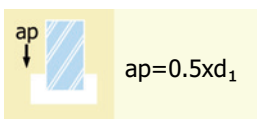
Hochgeschwindigkeitsfräser
für Kupfer, Alu, Gold, Polymer
mit Eckwinkel 45°

Frese alta frequenza per
polimeri, rame, alluminio, oro
con angolo in fine 45°

Vitesses de coupe / Cutting speed

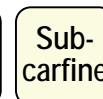
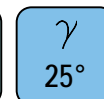
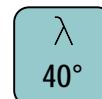
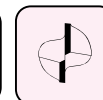
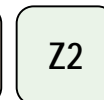
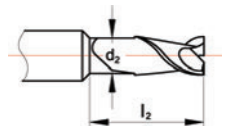
N Usinage normal General machining	UGV/HSC Usinage à grande vitesse High speed cutting
120 - 300 m/min	350 - 1300 m/min

$$V_f = 0.007 \rightarrow 0.015 \times Z \times d_1 \times n$$



Variante et prix sur demande:

Auf Anfrage / Upon request:


Tolérances:

$$d_1 < D \Leftrightarrow d_1 \pm 0.01 \quad D: h6$$

$$d_1 = D \Leftrightarrow d_1 e8$$

d ₁	l ₁	D	L	Z	a	Prix (CHF) / Price (CHF)	
						Non revêtu Uncoated	Revêt. DLC DLC coated
0.5	1.0	6	57	2	0.03	-	-
1.0	2.0	6	57	2	0.03	-	-
1.5	3.0	6	57	2	0.04	-	-
2.0	4.0	6	57	2	0.04	-	-
2.5	5.0	6	57	2	0.04	-	-
3.0	6.0	6	57	2	0.04	-	-
3.5	7.0	6	57	2	0.05	-	-
4.0	8.0	6	57	2	0.05	-	-
4.5	9.0	6	57	2	0.05	-	-
5.0	10.0	6	57	2	0.05	-	-
6.0	12.0	6	57	2	0.07	-	-
8.0	16.0	8	63	2	0.07	-	-
10.0	20.0	10	72	2	0.10	-	-
12.0	24.0	12	83	2	0.15	-	-
14.0	28.0	14	83	2	0.15	-	-
16.0	32.0	16	92	2	0.20	-	-
20.0	40.0	20	104	2	0.20	-	-
25.0	50.0	25	121	2	0.25	-	-

Fraises UGV toriques

High Frequency end mills
for Copper, Alum., Gold, Polymers
toric

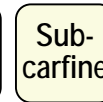
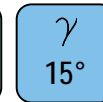
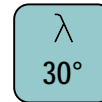
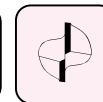
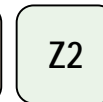
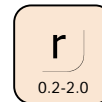
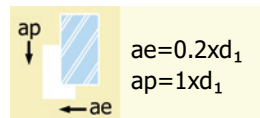
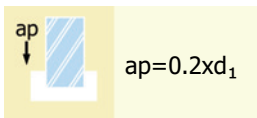
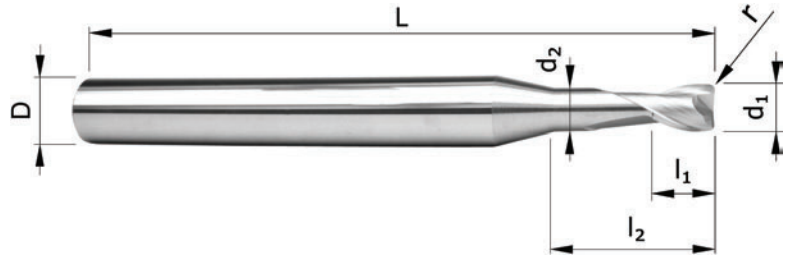
Hochgeschwindigkeitsfräser
für Kupfer, Alu, Gold, Polymer
torisch

Frese alta frequenza per
polimeri, rame, alluminio, oro
torique

Vitesses de coupe / Cutting speed

N Usinage normal General machining	UGV/HSC Usinage à grande vitesse High speed cutting
120 - 300 m/min	350 - 1300 m/min

$$V_f = 0.010 \rightarrow 0.020 \times Z \times d_1 \times n$$



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.2$	$D: h6$
$d_1 = D \Rightarrow d_1 e8$	$l_2: \pm 0.2$	$r: +0.02/-0$

d ₁	l ₁	r	d ₂	l ₂	D	L	Z	Prix (CHF) / Price (CHF)	
								Non revêtu Uncoated	Revêt. DLC DLC coated
1.0	1.0	0.20	0.95	3.0	6	57	2	-	-
1.5	1.5	0.25	1.45	5.0	6	57	2	-	-
2.0	3.0	0.30	1.95	6.0	6	57	2	-	-
2.5	3.0	0.30	2.45	7.0	6	57	2	-	-
3.0	4.0	0.50	2.80	9.0	6	57	2	-	-
3.5	4.0	0.50	3.30	12.0	6	57	2	-	-
4.0	5.0	0.50	3.70	13.5	6	57	2	-	-
4.5	5.0	0.50	4.20	13.5	6	57	2	-	-
5.0	6.0	0.50	4.60	15.0	6	57	2	-	-
6.0	7.0	1.00	5.50	20.0	6	57	2	-	-
8.0	9.0	1.00	7.40	26.0	8	63	2	-	-
10.0	11.0	1.50	9.20	31.0	10	72	2	-	-
12.0	13.0	1.50	11.00	37.0	12	83	2	-	-
14.0	15.0	2.00	13.00	40.0	14	83	2	-	-
16.0	17.0	2.00	15.00	43.0	16	92	2	-	-
20.0	21.0	2.00	19.00	53.0	20	104	2	-	-

Fraises UGV hémisphériques

High Frequency end mills
for Copper, Alum., Gold, Polymers
with ball end

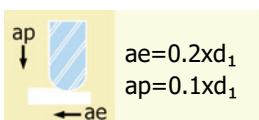
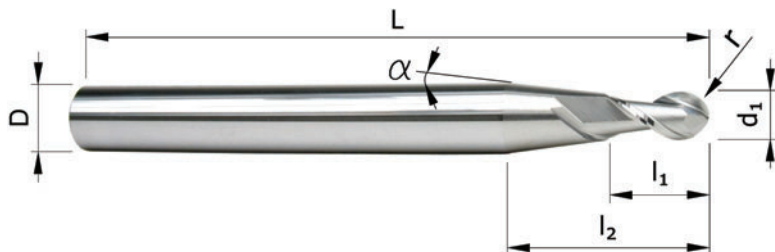
Hochgeschwindigkeitsfräser
für Kupfer, Alu, Gold, Polymer
Kugelpopf

Frese alta frequenza per
polimeri, rame, alluminio, oro
emisferica

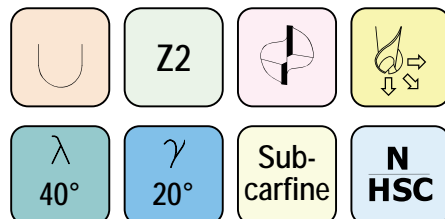
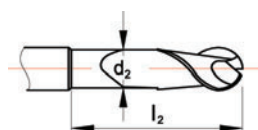
Vitesses de coupe / Cutting speed

N Usinage normal General machining	UGV/HSC Usinage à grande vitesse High speed cutting
120 - 300 m/min	350 - 1300 m/min

$$V_f = 0.010 \rightarrow 0.025 \times Z \times d_1 \times n$$



Variante et prix sur demande:
Auf Anfrage / Upon request:



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$ $\Rightarrow r \pm 0.01$	$d_1 = D \Rightarrow d_1 e8$ $\Rightarrow r h9$	$d_2: 0/-0.2$ $l_2: \pm 0.2$	$D: h6$
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d ₁	l ₁	r	α	l ₂	D	L	Z	Prix (CHF) / Price (CHF)	
								Non revêtu Uncoated	Revêt. DLC DLC coated
0.5	1.0	0.25	13.0°	13	6	57	2	-	-
1.0	2.0	0.50	13.0°	13	6	57	2	-	-
1.5	3.0	0.75	11.5°	14	6	57	2	-	-
2.0	4.0	1.00	11.5°	14	6	57	2	-	-
2.5	5.0	1.25	10.0°	15	6	57	2	-	-
3.0	6.0	1.50	9.5°	15	6	57	2	-	-
3.5	7.0	1.75	9.0°	15	6	57	2	-	-
4.0	8.0	2.00	7.0°	16	6	57	2	-	-
4.5	9.0	2.25	5.0°	18	6	57	2	-	-
5.0	10.0	2.50	3.5°	18	6	57	2	-	-
d ₁	l ₁	r	d ₂	l ₂	D	L	Z	Non revêtu Uncoated	Revêt. DLC DLC coated
6.0	12.0	3.0	5.5	20	6	57	2	-	-
8.0	16.0	4.0	7.4	26	8	63	2	-	-
10.0	20.0	5.0	9.2	31	10	72	2	-	-
12.0	24.0	6.0	11.0	37	12	83	2	-	-
14.0	28.0	7.0	13.0	40	14	83	2	-	-
16.0	32.0	8.0	15.0	43	16	92	2	-	-
20.0	40.0	10.0	19.0	53	20	104	2	-	-

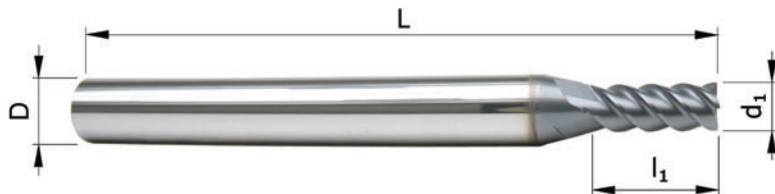
Fraises UGV - angle vif - revêtues

High Frequency end mills
for steel ≤ 65 HRC
sharp edge - coated

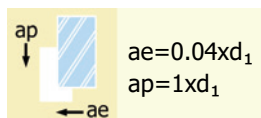
Hochgeschwindigkeitsfräser
für Stahl ≤ 65 HRC
scharfkantig - beschichtet

Frese alta frequenza
per acciaio ≤ 65 HRC
spigoli vivi - rivestite

Vitesses de coupe / Cutting speed	
N	UGV/HSC
Usinage normal General machining	Usinage à grande vitesse High speed cutting
38-52 HRC: 30-80 m/min	38-52 HRC: 170-280 m/min
52-65 HRC: 20-60 m/min	52-65 HRC: 90-150 m/min



$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



Z4-8

λ
50°

γ
-10°

Sub-carfine

N HSC

Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.5$	$D: h6$
$d_1 = D \Rightarrow d_1 -0.05/-0.10$	$l_2: \pm 0.2$	

d_1	l_1	D	L	Z	Prix (CHF) Price (CHF)
1.0	3.0	6	57	4	-
1.1	3.0	6	57	4	-
1.2	3.0	6	57	4	-
1.3	4.0	6	57	4	-
1.4	4.0	6	57	4	-
1.5	4.0	6	57	4	-
1.6	4.0	6	57	4	-
1.7	4.0	6	57	4	-
1.8	5.0	6	57	4	-
1.9	5.0	6	57	4	-
2.0	5.0	6	57	4	-
2.1	5.0	6	57	4	-
2.2	5.0	6	57	4	-
2.3	6.0	6	57	4	-
2.4	6.0	6	57	4	-
2.5	6.0	6	57	4	-
2.6	6.0	6	57	4	-
2.7	7.0	6	57	4	-
2.8	7.0	6	57	4	-
2.9	8.0	6	57	4	-
3.0	8.0	6	57	4	-
3.5	9.0	6	57	4	-
4.0	11.0	6	57	4	-
4.5	12.0	6	57	4	-

d_1	l_1	D	L	Z	Prix (CHF) Price (CHF)
5.0	13.0	6	57	4	-
6.0	16.0	6	57	6	-
8.0	20.0	8	63	6	-
10.0	23.0	10	72	6	-
12.0	26.0	12	83	6	-
14.0	28.0	14	83	8	-
16.0	32.0	16	92	8	-
20.0	40.0	20	104	8	-

Fraises UGV toriques - revêtues

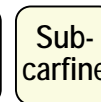
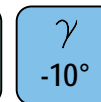
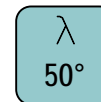
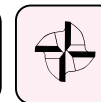
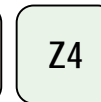
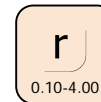
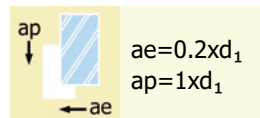
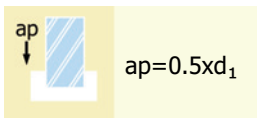
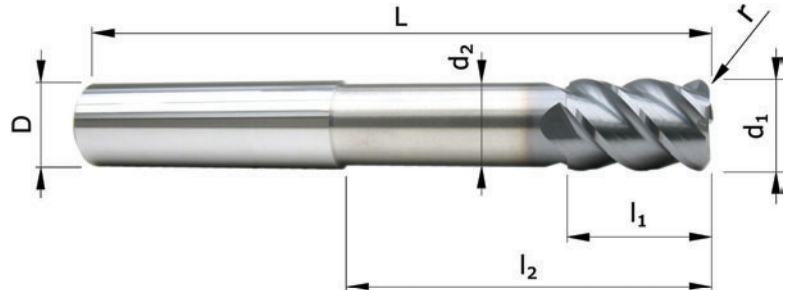
High Frequency end mills
for steel ≤ 65 HRC - toric
coated

Hochgeschwindigkeitsfräser
für Stahl ≤ 65 HRC- torisch
beschichtet

Frese alta frequenza
per acciaio ≤ 65 HRC - torique
rivestite

Vitesses de coupe / Cutting speed	
N Usinage normal General machining	UGV/HSC Usinage à grande vitesse High speed cutting
38-52 HRC: 30-80 m/min	38-52 HRC: 170-280 m/min
52-65 HRC: 20-60 m/min	52-65 HRC: 90-150 m/min

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.2$	$D: h6$
$d_1 = D \Rightarrow d_1 e8$	$l_2: \pm 0.2$	$r: +0.02/-0$

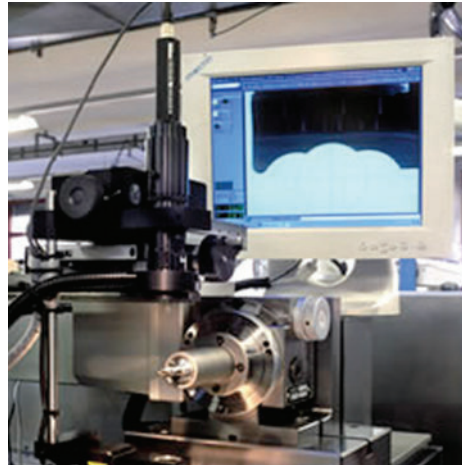
d_1	l_1	r	d_2	l_2	D	L	Z	Prix (CHF) Price (CHF)
1.0	1.5	0.10	0.95	6.0	6	57	4	-
1.5	2.2	0.10	1.45	8.0	6	57	4	-
2.0	3.0	0.10	1.95	10.0	6	57	4	-
3.0	4.5	0.15	2.90	16.0	6	57	4	-
3.5	5.2	0.15	3.30	18.0	6	57	4	-
4.0	6.0	0.25	3.70	20.0	6	57	4	-
4.5	6.7	0.25	4.20	20.0	6	57	4	-
5.0	7.5	0.25	4.60	26.0	6	57	4	-
6.0	9.0	0.50	5.50	32.0	8	63	4	-
6.0	9.0	0.80	5.50	32.0	8	63	4	-
6.0	9.0	1.00	5.50	32.0	8	63	4	-
6.0	9.0	1.50	5.50	32.0	8	63	4	-
8.0	12.0	0.50	7.40	32.0	8	63	4	-
8.0	12.0	1.00	7.40	32.0	8	63	4	-
8.0	12.0	1.50	7.40	32.0	8	63	4	-
8.0	12.0	2.00	7.40	32.0	8	63	4	-
10.0	15.0	1.00	9.20	40.0	10	72	4	-
10.0	15.0	1.50	9.20	40.0	10	72	4	-
10.0	15.0	2.00	9.20	40.0	10	72	4	-
10.0	15.0	2.50	9.20	40.0	10	72	4	-
12.0	18.0	1.00	11.00	40.0	12	83	4	-

Suite page suivante / Continued next page

Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$	$d_2: +0/-0.2$	$D: h6$
$d_1 = D \Rightarrow d_1 e8$	$l_2: \pm 0.2$	$r: +0.02/-0$

d_1	l_1	r	d_2	l_2	D	L	Z	Prix (CHF) Price (CHF)
12.0	18.0	1.50	11.00	40.0	12	83	4	-
12.0	18.0	2.00	11.00	40.0	12	83	4	-
12.0	18.0	3.00	11.00	40.0	12	83	4	-
14.0	21.0	1.00	13.00	45.0	14	83	4	-
14.0	21.0	1.50	13.00	45.0	14	83	4	-
14.0	21.0	2.00	13.00	45.0	14	83	4	-
14.0	21.0	3.50	13.00	45.0	14	83	4	-
16.0	24.0	1.00	15.00	50.0	16	92	4	-
16.0	24.0	1.50	15.00	50.0	16	92	4	-
16.0	24.0	2.00	15.00	50.0	16	92	4	-
16.0	24.0	4.00	15.00	50.0	16	92	4	-



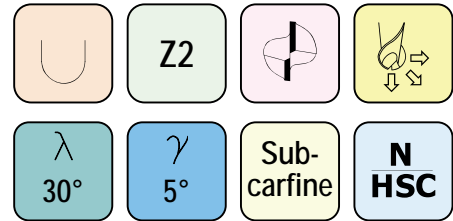
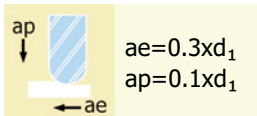
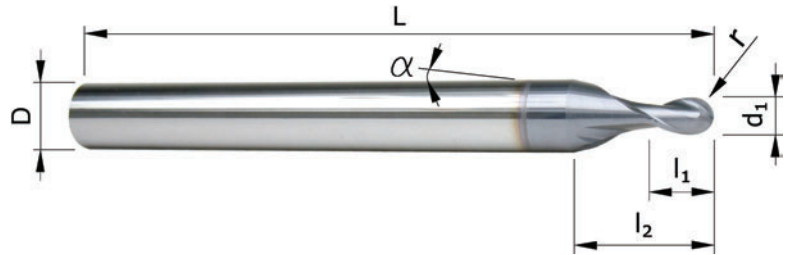
Fraises UGV hémisphériques revêtues TiAlN

High Frequency end mills
with ball end - for structural steel
TiAlN coated

Hochgeschwindigkeitsfräser
mit Kugelkopf - für Baustahl
TiAlN beschichtet

Frese alta frequenza emisferica
per acciaio da costruzione
TiAlN coated

Vitesses de coupe / Cutting speed	
N	UGV/HSC
Usinage normal General machining	Usinage à grande vitesse High speed cutting
48-65 HRC: 20-70 m/min	48-65 HRC: 350-3000 m/min
$V_f = 0.010 \rightarrow 0.025 \times Z \times d_1 \times n$	



Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01 \quad D: h6$
 $d_1 = D \Rightarrow d_1 e8$

d_1	l_1	r	l_2	D	L	a	Z	Prix (CHF) Price (CHF)
1.0	1.5	0.50	6.0	6	57	13°	2	-
1.5	2.2	0.75	6.0	6	57	13°	2	-
2.0	3.0	1.00	6.5	6	57	13°	2	-
2.5	3.7	1.25	6.5	6	57	13°	2	-
3.0	4.5	1.50	7.0	6	57	13°	2	-
3.5	5.2	1.75	10.5	6	57	13°	2	-
4.0	6.0	2.00	10.5	6	57	13°	2	-
4.5	6.7	2.25	14.0	6	57	13°	2	-
5.0	7.5	2.50	14.0	6	57	13°	2	-
6.0	9.0	3.00	20.0	8	63	5°	2	-
8.0	12.0	4.0	-	8	63	-	2	-
10.0	15.0	5.0	-	10	72	-	2	-
12.0	18.0	6.0	-	12	83	-	2	-
16.0	24.0	8.0	-	16	92	-	2	-
20.0	40.0	10.0	-	20	104	-	2	-

Fraises UGV hémisphériques

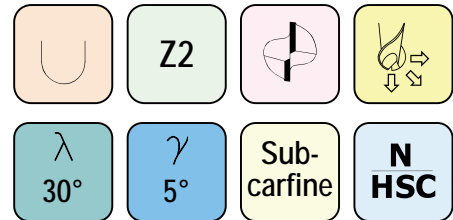
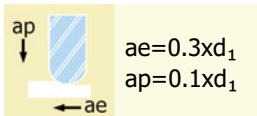
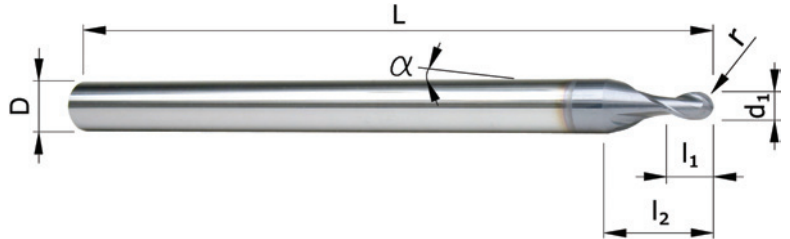
série longue - revêtues TiAlN

High Frequency end mills
with ball end - for structural steel
TiAlN coated - Long serie

Hochgeschwindigkeitsfräser
mit Kugelkopf - für Baustahl
TiAlN beschichtet - Lange Serie

Fresa alta frequenza emisferica
per acciaio da costruzione
TiAlN coated - Seria lunga

Vitesses de coupe / Cutting speed	
N	UGV/HSC
Usinage normal General machining	Usinage à grande vitesse High speed cutting
48-65 HRC: 15-50 m/min	48-65 HRC: 150-420 m/min
$V_f = 0.010 \rightarrow 0.015 \times Z \times d_1 \times n$	


Tolérances:

$d_1 < D \Rightarrow d_1 \pm 0.01$ D: h6

d_1	l_1	r	l_2	D	L	a	Z	Prix (CHF) Price (CHF)
1.0	1.5	0.50	22	6	75	7.0°	2	-
1.5	2.2	0.75	26	6	75	5.5°	2	-
2.0	3.0	1.00	31	6	75	4.0°	2	-
2.5	3.7	1.25	32	6	75	3.5°	2	-
3.0	4.5	1.50	39	6	75	2.5°	2	-
3.5	5.2	1.75	39	6	75	2.0°	2	-
4.0	6.0	2.00	44	6	75	1.5°	2	-
4.5	6.7	2.25	46	8	100	2.5°	2	-
5.0	7.5	2.50	65	8	100	1.5°	2	-
6.0	9.0	3.00	65	8	110	1.0°	2	-
8.0	12.0	4.00	69	10	120	1.0°	2	-
10.0	15.0	5.00	75	12	130	1.0°	2	-
12.0	18.0	6.00	90	16	150	1.6°	2	-

Fraises UGV toriques - série longue

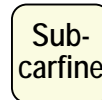
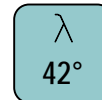
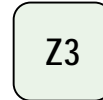
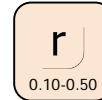
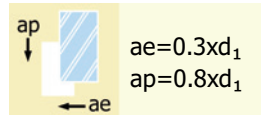
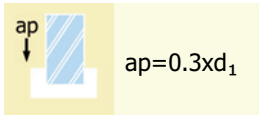
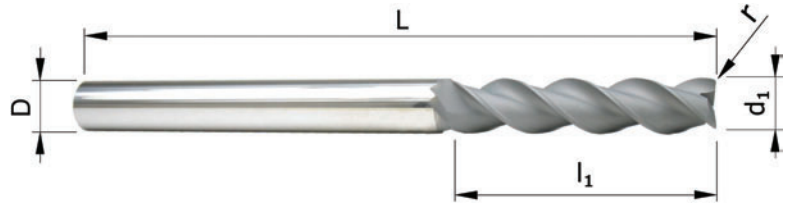
revêtues diamant

High Frequency end mills
torix - for Graphite
Diamond coated - long serie

Hochgeschwindigkeitsfräser
für Graphit - torisch
Diamant beschichtet - lange Serie

Frese alta frequenza
per Graphite - torique
Rivestite diamante - seria lunga

Vitesses de coupe / Cutting speed	
N	UGV/HSC
Usinage normal General machining	Usinage à grande vitesse High speed cutting
180 - 400 m/min	600 - 900 m/min
$V_f = 0.007 \rightarrow 0.015 \times Z \times d_1 \times n$	



Tolérances:

$d_1 < D \Rightarrow d_1 +0.02/-0$	D: h6
$d_1 = D \Rightarrow d_1 e8$	r: +0.03/-0

d_1	l_1	r	D	L	Z	Prix (CHF) Price (CHF)
2.0	10.0	0.10	3	60	3	-
2.5	12.0	0.10	3	60	3	-
3.0	25.0	0.10	3	60	3	-
3.5	25.0	0.15	4	75	3	-
4.0	30.0	0.15	4	75	3	-
4.5	30.0	0.15	5	75	3	-
5.0	35.0	0.20	5	75	3	-
6.0	40.0	0.30	6	86	3	-
8.0	40.0	0.50	8	100	3	-
10.0	45.0	0.50	10	120	3	-
12.0	50.0	0.50	12	130	3	-

Fraises UGV toriques - revêtues diamant

High frequency end mills
for Graphite - toric
diamond coated

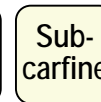
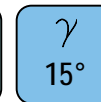
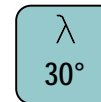
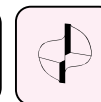
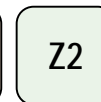
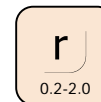
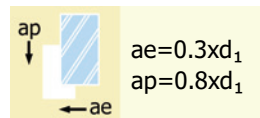
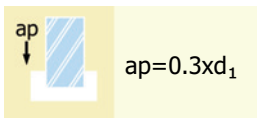
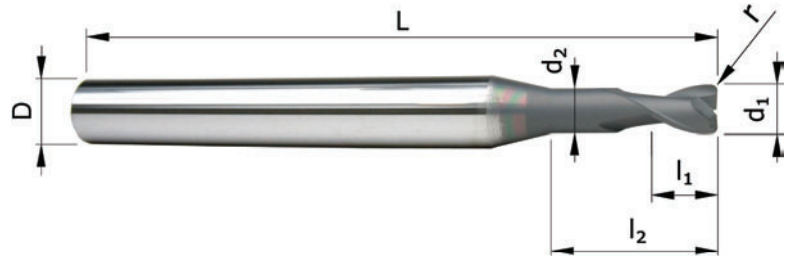
Hochgeschwindigkeitsfräser
für Graphit - torisch
Diamant beschichtet

Frese alta frequenza
per grafite - torique
rivestite diamante

Vitesses de coupe / Cutting speed

N Usinage normal General machining	UGV/HSC Usinage à grande vitesse High speed cutting
180 - 400 m/min	600 - 900 m/min

$$V_f = 0.007 \rightarrow 0.015 \times Z \times d_1 \times n$$



Tolérances:

$d_1 < D \Rightarrow d_1 +0.02/-0$	$d_2: \pm 0.1$	$D: h6$
$d_1 = D \Rightarrow d_1 e8$	$l_2: \pm 0.2$	$r: +0.03/-0$

d_1	l_1	r	d_2	l_2	D	L	Z	Prix (CHF) Price (CHF)
1.0	1.0	0.20	0.95	3.0	6	57	2	-
1.5	1.5	0.25	1.45	5.0	6	57	2	-
2.0	3.0	0.30	1.95	6.0	6	57	2	-
2.5	3.0	0.30	2.45	7.0	6	57	2	-
3.0	4.0	0.50	2.80	9.0	6	57	2	-
3.5	4.0	0.50	3.30	12.0	6	57	2	-
4.0	5.0	0.50	3.70	13.5	6	57	2	-
4.5	5.0	0.50	4.20	13.5	6	57	2	-
5.0	6.0	0.50	4.60	15.0	6	57	2	-
6.0	7.0	1.00	5.50	20.0	6	57	2	-
8.0	9.0	1.00	7.40	26.0	8	63	2	-
10.0	11.0	1.50	9.20	31.0	10	72	2	-
12.0	13.0	1.50	11.00	37.0	12	83	2	-
14.0	15.0	2.00	13.00	40.0	14	83	2	-
16.0	17.0	2.00	15.00	43.0	16	92	2	-
20.0	21.0	2.00	19.00	53.0	20	104	2	-

Fraises UGV hémisphériques - série longue

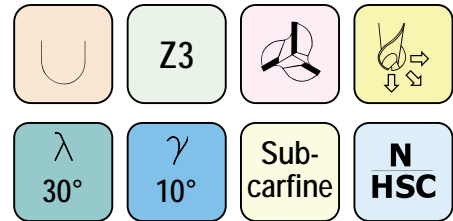
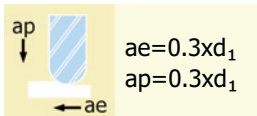
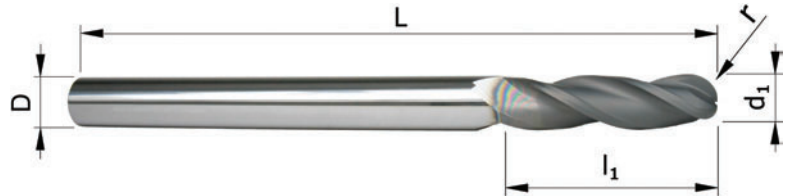
revêtues diamant

High Frequency end mills
for Graphite - with ball end
long serie - Diamond coated

Hochgeschwindigkeitsfräser
für Graphit - mit Kugelkopf
lange Serie - Diamant beschichtet

Frese alta frequenza per Grafite
emisferica - seria lunga
rivestite diamante

Vitesses de coupe / Cutting speed	
N	UGV/HSC
Usinage normal General machining	Usinage à grande vitesse High speed cutting
180 - 400 m/min	600 - 900 m/min
$V_f = 0.007 \rightarrow 0.015 \times Z \times d_1 \times n$	



Tolérances:

$d_1 < D \Rightarrow d_1 +0.02/-0$	D: h6
$d_1 = D \Rightarrow d_1 e8$	r: h9

d_1	l_1	r	D	L	Z	Prix (CHF) Price (CHF)
3.0	15.0	1.5	6	75	3	-
4.0	20.0	2.0	6	86	3	-
5.0	25.0	2.5	6	86	3	-
6.0	30.0	3.0	6	86	3	-
8.0	30.0	4.0	8	100	3	-
10.0	35.0	5.0	10	120	3	-
12.0	35.0	6.0	12	130	3	-



Outils avec insert PCD

PCD cutting tools

PKD Werkzeuge

Utensili in PCD

Fraise PCD 1 à 2 dents $l_1 = 1 \times d_1$

Corps en carbure de tungstène

PCD End mills 1 to 2 teeth
 $l_1=1 \times d_1$ - Shank in solid carbide

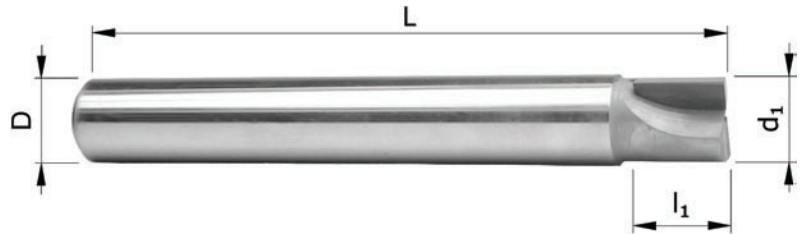
PKD Schafffräser 1-2 Zähne
 $l_1=1 \times d_1$ - Schaft aus VHM

Frese PCD 1-2 denti $l_1=1 \times d_1$
codolo in metallo duro

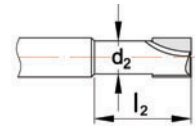
Recommandé pour / Usage recommendations:

Matière / Material		Vc [m/min]
Aluminium < 12% Si	++	1000 - 3000
Aluminium > 12% Si	++	300 - 800
Cuivre	++	600 - 1200
Laiton/Brass	++	600 - 1200
Or/Gold & Argent/Silver	++	600 - 1200
Platine & Palladium	++	200 - 900
Bronze	++	600 - 1200
Graphite	++	200 - 1500
Caoutchouc	++	200 - 1500
Résine+Fibre/Resin+Fiber	++	200 - 1500

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Variante et prix sur demande:
Auf Anfrage / Upon request:



	$ap=0.15 \times d_1$		Z1-2		
	$ae=0.03 \times d_1$ $ap=1 \times d_1$	λ 0°	γ 8-10°		HSC

Tolérances:

$d_1: \pm 0.01$ D: h6

d_1	l_1	D	L	Z	Prix (CHF) Price (CHF)	Réaffût. (CHF) Regrind. (CHF)
3.0	3.0	6	38	1	-	-
3.5	3.5	6	38	1	-	-
4.0	4.0	6	51	1	-	-
4.0	4.0	6	51	2	-	-
5.0	5.0	6	51	2	-	-
6.0	6.0	6	51	2	-	-
7.0	7.0	8	61	2	-	-
8.0	8.0	8	61	2	-	-
8.0	8.0	8	120	2	-	-
10.0	10.0	10	72	2	-	-
10.0	10.0	10	120	2	-	-
12.0	12.0	12	83	2	-	-
12.0	12.0	12	150	2	-	-
14.0	14.0	14	83	2	-	-
14.0	14.0	14	150	2	-	-
16.0	16.0	16	92	2	-	-
16.0	16.0	16	180	2	-	-

d_1	l_1	D	L	Z	Prix (CHF) Price (CHF)	Réaffût. (CHF) Regrind. (CHF)
20.0	20.0	20	104	2	-	-
20.0	20.0	20	180	2	-	-

Autres dimensions sur demande
Other dimensions available upon request

Fraise PCD 1 à 2 dents $l_1 = 1.5 \times d_1$ Corps en carbure de tungstène

PCD End mills 1 to 2 teeth
 $l_1 = 1.5 \times d_1$ - Shank in solid carbide

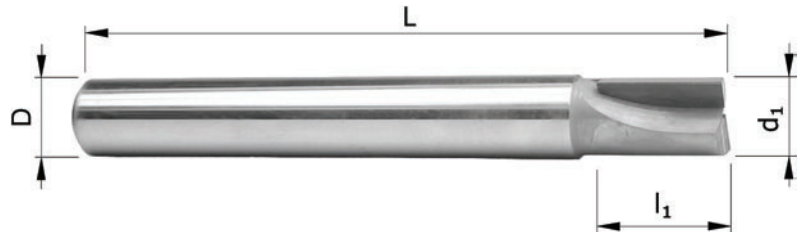
PKD Schafffräser 1-2 Zähne
 $l_1 = 1.5 \times d_1$ - Schaft aus VHM

Frese PCD 1-2 denti $l_1 = 1.5 \times d_1$
codolo in metallo duro

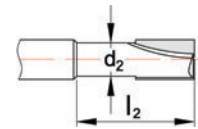
Recommandé pour / Usage recommendations:

Matière / Material		Vc [m/min]
Aluminium < 12% Si	++	1000 - 3000
Aluminium > 12% Si	++	300 - 800
Cuivre	++	600 - 1200
Laiton/Brass	++	600 - 1200
Or/Gold & Argent/Silver	++	600 - 1200
Platine & Palladium	++	200 - 900
Bronze	++	600 - 1200
Graphite	++	200 - 1500
Caoutchouc	++	200 - 1500
Résine+Fibre/Resin+Fiber	++	200 - 1500

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Variante et prix sur demande:
Auf Anfrage / Upon request:



	ap=0.1xd ₁		Z1-2		
	ae=0.03xd ₁ ap=1.5xd ₁	λ 0°	γ 8-10°	PCD	HSC

Tolérances:

$d_1: \pm 0.01$ D: h6

d_1	l_1	D	L	Z	Prix (CHF) Price (CHF)	Réaffûtage (CHF) Regrinding (CHF)
2.0	3.0	6	38	1	-	-
2.5	3.5	6	38	1	-	-
3.0	4.5	6	38	1	-	-
3.5	5.0	6	38	1	-	-
4.0	6.0	6	51	1	-	-
4.0	6.0	6	51	2	-	-
5.0	7.5	6	51	2	-	-
6.0	9.0	6	51	2	-	-
7.0	10.5	8	61	2	-	-
8.0	12.0	8	61	2	-	-
8.0	12.0	8	120	2	-	-
10.0	15.0	10	72	2	-	-
10.0	15.0	10	120	2	-	-
12.0	18.0	12	83	2	-	-
12.0	18.0	12	150	2	-	-

Autres dimensions sur demande
Other dimensions available upon request

Fraise PCD 1 à 2 dents $l_1 = 2 \times d_1$

Corps en carbure de tungstène

PCD End mills 1 to 2 teeth
 $l_1=2xd_1$ - Shank in solid carbide

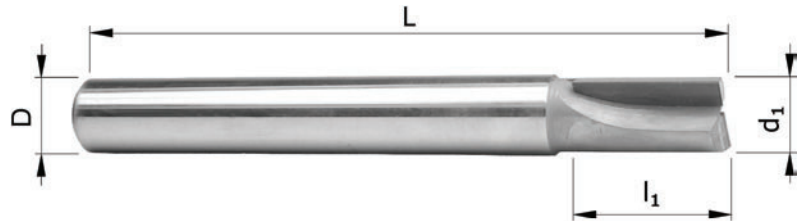
PKD Schafffräser 1-2 Zähne
 $l_1=2xd_1$ - Schaft aus VHM

Frese PCD 1-2 denti $l_1=2xd_1$
codolo in metallo duro

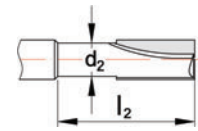
Recommandé pour / Usage recommendations:

Matière / Material		Vc [m/min]
Aluminium < 12% Si	++	1000 - 3000
Aluminium > 12% Si	++	300 - 800
Cuivre	++	600 - 1200
Laiton/Brass	++	600 - 1200
Or/Gold & Argent/Silver	++	600 - 1200
Platine & Palladium	++	200 - 900
Bronze	++	600 - 1200
Graphite	++	200 - 1500
Caoutchouc	++	200 - 1500
Résine+Fibre/Resin+Fiber	++	200 - 1500

$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$



Variante et prix sur demande:
Auf Anfrage / Upon request:



	$ap=0.05xd_1$		Z1-2		
	$ae=0.03xd_1$ $ap=2xd_1$	λ 0°	γ 8-10°		HSC

Tolérances:

$d_1: \pm 0.01$ $D: h6$

d_1	l_1	D	L	Z	Prix (CHF) Price (CHF)	Réaffûtage (CHF) Regrinding (CHF)
2.0	4.0	6	38	1	-	-
2.5	5.0	6	38	1	-	-
3.0	6.0	6	38	1	-	-
3.5	7.0	6	38	1	-	-
4.0	8.0	6	38	1	-	-
5.0	10.0	6	51	2	-	-
6.0	12.0	6	51	2	-	-
8.0	16.0	8	61	2	-	-
8.0	16.0	8	120	2	-	-

Autres dimensions sur demande
Other dimensions available upon request

Fraises PCD en T

Corps en carbure de tungstène

T-slot cutters in PCD
Shank in solid carbide

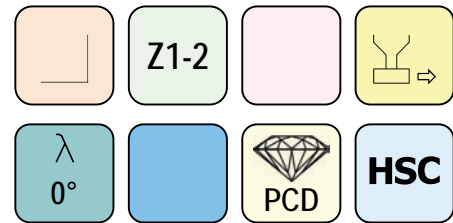
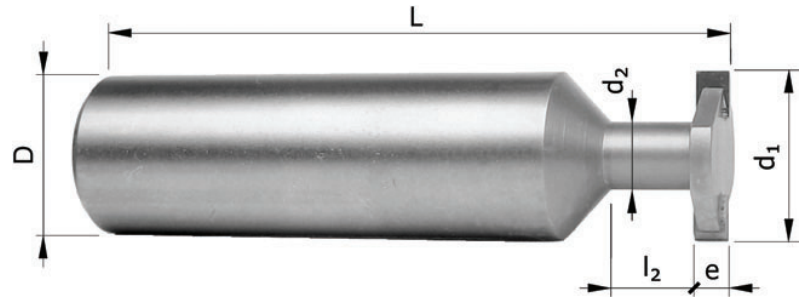
T-Nutenfräser aus PKD
Schaft aus VHM

Frese a T in PCD
Codolo in metallo duro

Recommandé pour / Usage recommendations:

Matière / Material		Vc [m/min]
Aluminium < 12% Si	++	1000 - 3000
Aluminium > 12% Si	++	300 - 800
Cuivre	++	600 - 1200
Laiton/Brass	++	600 - 1200
Or/Gold & Argent/Silver	++	600 - 1200
Platine & Palladium	++	200 - 900
Bronze	++	600 - 1200
Graphite	++	200 - 1500
Caoutchouc	++	200 - 1500
Résine+Fibre/Resin+Fiber	++	200 - 1500

$$V_f = 0.004 \rightarrow 0.010 \times Z \times e \times n$$

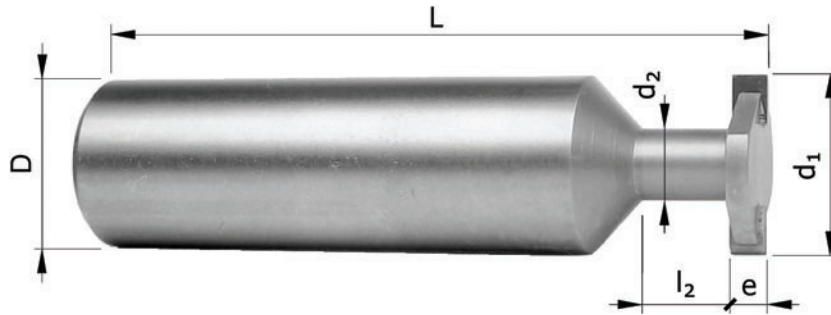


Tolérances:

$d_1: \pm 0.01$ D: h6

d_1	e	d_2	l_2	D	L	Z	Prix (CHF) Price (Swiss Fr.)
3	0.6 - 1.5	1.5	2	4	38	1	-
4	0.6 - 1.5	2.5	3	4	38	1	-
5	0.6 - 1.5	3.0	3	5	38	1	-
6	0.6 - 2.0	3.5	4	6	38	2	-
8	0.6 - 3.0	4.0	5	8	51	2	-
10	0.6 - 3.0	5.0	5	10	51	2	-
12	0.6 - 4.0	6.0	6	10	51	2	-
15	0.6 - 5.0	8.0	8	10	61	2	-
16	0.6 - 2.9	8.0	8	10	61	2	-
16	3.0 - 6.0	8.0	8	10	61	2	-

Formulaire de commande à la page suivante / See order form next page



Commande / Order

Demande d'offre / Quotation request

Dimensions: d ₁ : _____ d ₂ : _____ D : _____ e : _____ l ₂ : _____ L : _____		Coupe / Cut: <input type="checkbox"/> à droite / right cut <input type="checkbox"/> à gauche / left cut	Quantité / Quantity:
Matière à usiner / Machined material:		N° commande / order No:	
Timbre de la société / Company's stamp:		Personne de contact: Contact person:	

Fraises PCD hémisphériques

Corps en carbure de tungstène

PCD End mills with ball end
Shank in solid carbide

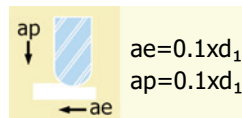
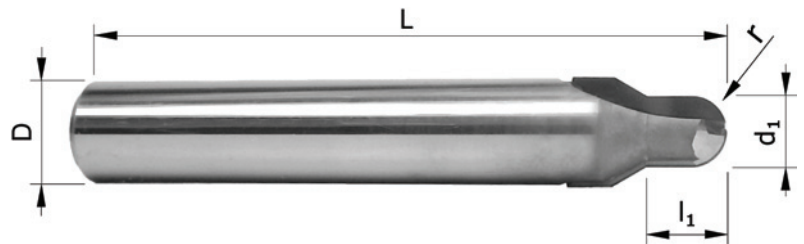
PKD Kugelkopfräser
Schaft aus VHM

Frese raggate PCD
Codolo in metallo duro

Recommandé pour / Usage recommendations:

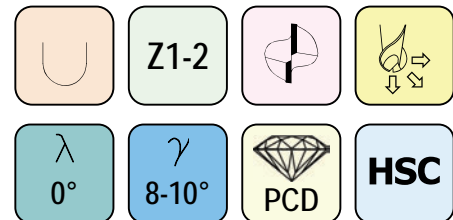
Matière / Material		Vc [m/min]
Aluminium < 12% Si	++	1000 - 3000
Aluminium > 12% Si	++	300 - 800
Cuivre	++	600 - 1200
Laiton/Brass	++	600 - 1200
Or/Gold & Argent/Silver	++	600 - 1200
Platine & Palladium	++	200 - 900
Bronze	++	600 - 1200
Graphite	++	200 - 1500
Caoutchouc	++	200 - 1500
Résine+Fibre/Resin+Fiber	++	200 - 1500

$$V_f = 0.004 \rightarrow 0.010 \times Z \times d_1 \times n$$



$$ae = 0.1 \times d_1$$

$$ap = 0.1 \times d_1$$



Tolérances:

$d_1: \pm 0.01$ $D: h6$

d_1	l_1	r	D	L	Z	Prix (CHF) Price (CHF)	Réaffûtage (CHF) Regrinding (CHF)
2.0	2.0	1.00	6	38	1	-	-
2.5	2.5	1.25	6	38	1	-	-
3.0	3.0	1.50	6	38	1	-	-
3.5	3.5	1.75	6	38	1	-	-
4.0	4.0	2.00	6	51	1	-	-
4.0	4.0	2.00	6	51	2	-	-
5.0	5.0	2.50	6	51	2	-	-
6.0	6.0	3.00	6	51	2	-	-
8.0	8.0	4.00	8	61	2	-	-
8.0	8.0	4.00	8	120	2	-	-
10.0	10.0	5.00	10	72	2	-	-
10.0	10.0	5.00	10	120	2	-	-
12.0	12.0	6.00	12	83	2	-	-
12.0	12.0	6.00	12	150	2	-	-

Autres dimensions sur demande
Other dimensions available upon request

Forets PCD 2 lèvres hélicoïdales

Corps en carbure de tungstène

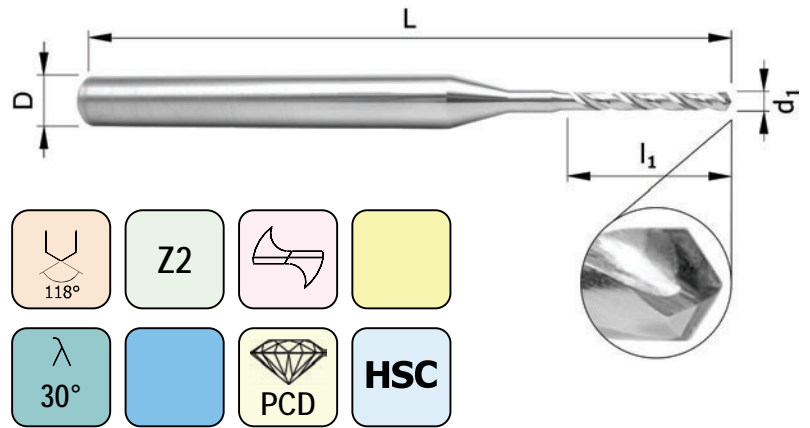
PCD twist drills - 2 teeth
Shank in solid carbide

PKD Spiralbohrer 2 Zähne
Schaft aus VHM

Punte elicoidali in PCD
Codolo in metallo duro

Recommandé pour / Usage recommendations:

Matière / Material		Vc [m/min]
Aluminium	++	200 - 2000
Cuivre/Copper	++	200 - 1000
Laiton/Brass	++	200 - 2000
Or/Gold & Argent/Silver	++	300 - 900
Platine & Palladium	++	200 - 700
Bronze	++	200 - 1000
Graphite	++	100 - 500
Résine+Fibre/Resin+Fiber	++	110 - 300



Tolérances:

d₁: +0 / -0.013 D: h6

d ₁	l ₁	D	L	Prix (CHF) Price (CHF)
0.48	4.0	3	38	-
0.49	4.0	3	38	-
0.50	4.0	3	38	-
0.51	4.0	3	38	-
0.52	4.0	3	38	-
0.53	4.0	3	38	-
0.54	4.0	3	38	-
0.55	4.0	3	38	-
0.56	4.0	3	38	-
0.57	4.0	3	38	-
0.58	4.0	3	38	-
0.59	4.0	3	38	-
0.60	5.0	3	38	-
0.61	5.0	3	38	-
0.62	5.0	3	38	-
0.63	5.0	3	38	-
0.64	5.0	3	38	-
0.65	5.0	3	38	-
0.66	5.0	3	38	-
0.67	5.0	3	38	-
0.68	5.0	3	38	-
0.69	5.0	3	38	-
0.70	5.0	3	38	-

d ₁	l ₁	D	L	Prix (CHF) Price (CHF)
0.71	5.0	3	38	-
0.72	5.0	3	38	-
0.73	5.0	3	38	-
0.74	5.0	3	38	-
0.75	5.0	3	38	-
0.76	5.0	3	38	-
0.77	5.0	3	38	-
0.78	5.0	3	38	-
0.79	5.0	3	38	-
0.80	6.0	3	38	-
0.81	6.0	3	38	-
0.82	6.0	3	38	-
0.83	6.0	3	38	-
0.84	6.0	3	38	-
0.85	6.0	3	38	-
0.86	6.0	3	38	-
0.87	6.0	3	38	-
0.88	6.0	3	38	-
0.89	6.0	3	38	-
0.90	7.0	3	38	-
0.91	7.0	3	38	-
0.92	7.0	3	38	-
0.93	7.0	3	38	-

Suite page suivante / Continued next page

Tolérances:
d₁: +0 / -0.013 D: h6

d₁	l₁	D	L	Prix (CHF) Price (CHF)
0.94	7.0	3	38	-
0.95	7.0	3	38	-
0.96	7.0	3	38	-
0.97	7.0	3	38	-
0.98	7.0	3	38	-
0.99	7.0	3	38	-
1.00	8.0	3	38	-
1.01	8.0	3	38	-
1.02	8.0	3	38	-
1.03	8.0	3	38	-
1.04	8.0	3	38	-
1.05	8.0	3	38	-
1.06	8.0	3	38	-
1.07	8.0	3	38	-
1.08	8.0	3	38	-
1.09	8.0	3	38	-
1.10	9.0	3	38	-
1.11	9.0	3	38	-
1.12	9.0	3	38	-
1.13	9.0	3	38	-
1.14	9.0	3	38	-
1.15	9.0	3	38	-
1.16	9.0	3	38	-
1.17	9.0	3	38	-
1.18	9.0	3	38	-
1.19	9.0	3	38	-
1.20	9.0	3	38	-
1.21	9.0	3	38	-
1.22	9.0	3	38	-
1.23	9.0	3	38	-
1.24	9.0	3	38	-
1.25	9.0	3	38	-
1.26	9.0	3	38	-
1.27	9.0	3	38	-
1.28	9.0	3	38	-
1.29	9.0	3	38	-
1.30	9.0	3	38	-
1.31	9.0	3	38	-
1.32	9.0	3	38	-
1.33	9.0	3	38	-
1.34	9.0	3	38	-
1.35	9.0	3	38	-
1.36	9.0	3	38	-
1.37	9.0	3	38	-
1.38	9.0	3	38	-
1.39	9.0	3	38	-
1.40	9.0	3	38	-

d₁	l₁	D	L	Prix (CHF) Price (CHF)
1.41	9.0	3	38	-
1.42	9.0	3	38	-
1.43	9.0	3	38	-
1.44	9.0	3	38	-
1.45	9.0	3	38	-
1.46	9.0	3	38	-
1.47	9.0	3	38	-
1.48	9.0	3	38	-
1.49	9.0	3	38	-
1.50	9.0	3	38	-
1.55	9.0	3	38	-
1.60	9.0	3	38	-
1.65	9.0	3	38	-
1.70	9.0	3	38	-
1.75	9.0	3	38	-
1.80	9.0	3	38	-
1.85	9.0	3	38	-
1.90	9.0	3	38	-
1.95	9.0	3	38	-
2.00	9.0	3	38	-
2.05	9.0	3	38	-
2.10	9.0	3	38	-
2.15	9.0	3	38	-
2.20	9.0	3	38	-
2.25	9.0	3	38	-
2.29	9.0	3	38	-

*Autres dimensions sur demande
Other dimensions available upon request*



Fraises circulaires en carbure

Slitting saws and circular cutters in solid carbide
Kreissägeblätter und Fräser mit Bohrung aus VHM
Seghe e frese circolari in metallo duro

Fraises circulaires DIN 1838

Denture grossière

Slitting saws DIN 1838
coarse pitch

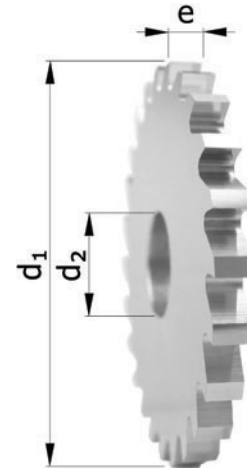
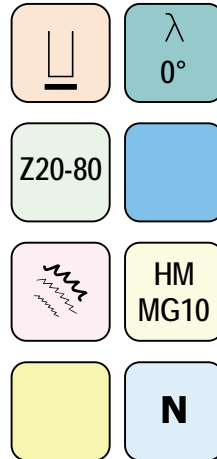
Kreissägeblätter DIN 1838
grobe Verzahnung

Seghe circolari DIN 1838
Dentatura grossa

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	50 - 100	+	++
Acier/Steel <700 N/mm ²	80 - 160	+	++
Acier/Steel >700 N/mm ²	50 - 110	+	++
Titane/Titan	30 - 60	+	++
Aluminium	150 - 600	++	+++
Cuivre/Copper	80 - 300	+	++
Laiton/Brass	80 - 300	+	++
Or/Gold & Argent/Silver	80 - 300	++	-
Graphite	200 - 800	-	+++
Polymères/Polymers	150 - 600	+++	-

$V_f = 0.005 \rightarrow 0.070 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
15	0.20	5	20	-	-
15	0.25	5	20	-	-
15	0.30	5	20	-	-
15	0.35	5	20	-	-
15	0.40	5	20	-	-
15	0.45	5	20	-	-
15	0.50	5	20	-	-
15	0.60	5	20	-	-
15	0.70	5	20	-	-
15	0.80	5	20	-	-
15	0.90	5	20	-	-
15	1.00	5	20	-	-
15	1.10	5	20	-	-
15	1.20	5	20	-	-
15	1.30	5	20	-	-
15	1.40	5	20	-	-
15	1.50	5	20	-	-
15	1.60	5	20	-	-
15	1.70	5	20	-	-
15	1.80	5	20	-	-
15	1.90	5	20	-	-
15	2.00	5	20	-	-
15	2.10	5	20	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
15	2.20	5	20	-	-
15	2.30	5	20	-	-
15	2.40	5	20	-	-
15	2.50	5	20	-	-
15	2.60	5	20	-	-
15	2.70	5	20	-	-
15	2.80	5	20	-	-
15	2.90	5	20	-	-
15	3.00	5	20	-	-
15	3.10	5	20	-	-
15	3.20	5	20	-	-
15	3.30	5	20	-	-
15	3.40	5	20	-	-
15	3.50	5	20	-	-
15	3.60	5	20	-	-
15	3.70	5	20	-	-
15	3.80	5	20	-	-
15	3.90	5	20	-	-
15	4.00	5	20	-	-
15	4.50	5	20	-	-
15	5.00	5	20	-	-
15	5.50	5	20	-	-
15	6.00	5	20	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
20	0.20	5	20	-	-
20	0.25	5	20	-	-
20	0.30	5	20	-	-
20	0.35	5	20	-	-
20	0.40	5	20	-	-
20	0.45	5	20	-	-
20	0.50	5	20	-	-
20	0.60	5	20	-	-
20	0.70	5	20	-	-
20	0.80	5	20	-	-
20	0.90	5	20	-	-
20	1.00	5	20	-	-
20	1.10	5	20	-	-
20	1.20	5	20	-	-
20	1.30	5	20	-	-
20	1.40	5	20	-	-
20	1.50	5	20	-	-
20	1.60	5	20	-	-
20	1.70	5	20	-	-
20	1.80	5	20	-	-
20	1.90	5	20	-	-
20	2.00	5	20	-	-
20	2.10	5	20	-	-
20	2.20	5	20	-	-
20	2.30	5	20	-	-
20	2.40	5	20	-	-
20	2.50	5	20	-	-
20	2.60	5	20	-	-
20	2.70	5	20	-	-
20	2.80	5	20	-	-
20	2.90	5	20	-	-
20	3.00	5	20	-	-
20	3.10	5	20	-	-
20	3.20	5	20	-	-
20	3.30	5	20	-	-
20	3.40	5	20	-	-
20	3.50	5	20	-	-
20	3.60	5	20	-	-
20	3.70	5	20	-	-
20	3.80	5	20	-	-
20	3.90	5	20	-	-
20	4.00	5	20	-	-
20	4.50	5	20	-	-
20	5.00	5	20	-	-
20	5.50	5	20	-	-
20	6.00	5	20	-	-
25	0.20	8	20	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
25	0.25	8	20	-	-
25	0.30	8	20	-	-
25	0.35	8	20	-	-
25	0.40	8	20	-	-
25	0.45	8	20	-	-
25	0.50	8	20	-	-
25	0.60	8	20	-	-
25	0.70	8	20	-	-
25	0.80	8	20	-	-
25	0.90	8	20	-	-
25	1.00	8	20	-	-
25	1.10	8	20	-	-
25	1.20	8	20	-	-
25	1.30	8	20	-	-
25	1.40	8	20	-	-
25	1.50	8	20	-	-
25	1.60	8	20	-	-
25	1.70	8	20	-	-
25	1.80	8	20	-	-
25	1.90	8	20	-	-
25	2.00	8	20	-	-
25	2.10	8	20	-	-
25	2.20	8	20	-	-
25	2.30	8	20	-	-
25	2.40	8	20	-	-
25	2.50	8	20	-	-
25	2.60	8	20	-	-
25	2.70	8	20	-	-
25	2.80	8	20	-	-
25	2.90	8	20	-	-
25	3.00	8	20	-	-
25	3.10	8	20	-	-
25	3.20	8	20	-	-
25	3.30	8	20	-	-
25	3.40	8	20	-	-
25	3.50	8	20	-	-
25	3.60	8	20	-	-
25	3.70	8	20	-	-
25	3.80	8	20	-	-
25	3.90	8	20	-	-
25	4.00	8	20	-	-
25	4.50	8	20	-	-
25	5.00	8	20	-	-
25	5.50	8	20	-	-
25	6.00	8	20	-	-
30	0.20	8	30	-	-
30	0.25	8	30	-	-

Suite page suivante / Continued next page





Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
30	0.30	8	30	-	-
30	0.35	8	30	-	-
30	0.40	8	30	-	-
30	0.45	8	30	-	-
30	0.50	8	30	-	-
30	0.60	8	30	-	-
30	0.70	8	30	-	-
30	0.80	8	24	-	-
30	0.90	8	24	-	-
30	1.00	8	24	-	-
30	1.10	8	24	-	-
30	1.20	8	24	-	-
30	1.30	8	24	-	-
30	1.40	8	24	-	-
30	1.50	8	24	-	-
30	1.60	8	24	-	-
30	1.70	8	24	-	-
30	1.80	8	24	-	-
30	1.90	8	24	-	-
30	2.00	8	24	-	-
30	2.10	8	24	-	-
30	2.20	8	24	-	-
30	2.30	8	24	-	-
30	2.40	8	24	-	-
30	2.50	8	24	-	-
30	2.60	8	24	-	-
30	2.70	8	24	-	-
30	2.80	8	24	-	-
30	2.90	8	24	-	-
30	3.00	8	24	-	-
30	3.10	8	24	-	-
30	3.20	8	24	-	-
30	3.30	8	24	-	-
30	3.40	8	24	-	-
30	3.50	8	24	-	-
30	3.60	8	24	-	-
30	3.70	8	24	-	-
30	3.80	8	24	-	-
30	3.90	8	24	-	-
30	4.00	8	24	-	-
30	4.50	8	24	-	-
30	5.00	8	24	-	-
30	5.50	8	24	-	-
30	6.00	8	24	-	-
40	0.20	10	40	-	-
40	0.25	10	40	-	-
40	0.30	10	40	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
40	0.35	10	40	-	-
40	0.40	10	40	-	-
40	0.45	10	40	-	-
40	0.50	10	40	-	-
40	0.60	10	40	-	-
40	0.70	10	40	-	-
40	0.80	10	32	-	-
40	0.90	10	32	-	-
40	1.00	10	32	-	-
40	1.10	10	32	-	-
40	1.20	10	32	-	-
40	1.30	10	32	-	-
40	1.40	10	32	-	-
40	1.50	10	32	-	-
40	1.60	10	32	-	-
40	1.70	10	24	-	-
40	1.80	10	24	-	-
40	1.90	10	24	-	-
40	2.00	10	24	-	-
40	2.10	10	24	-	-
40	2.20	10	24	-	-
40	2.30	10	24	-	-
40	2.40	10	24	-	-
40	2.50	10	24	-	-
40	2.60	10	24	-	-
40	2.70	10	24	-	-
40	2.80	10	24	-	-
40	2.90	10	24	-	-
40	3.00	10	24	-	-
40	3.10	10	20	-	-
40	3.20	10	20	-	-
40	3.30	10	20	-	-
40	3.40	10	20	-	-
40	3.50	10	20	-	-
40	3.60	10	20	-	-
40	3.70	10	20	-	-
40	3.80	10	20	-	-
40	3.90	10	20	-	-
40	4.00	10	20	-	-
40	4.50	10	20	-	-
40	5.00	10	20	-	-
40	5.50	10	20	-	-
40	6.00	10	20	-	-
50	0.40	13	48	-	-
50	0.45	13	48	-	-
50	0.50	13	48	-	-
50	0.60	13	40	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
50	0.70	13	40	-	-
50	0.80	13	40	-	-
50	0.90	13	40	-	-
50	1.00	13	40	-	-
50	1.10	13	40	-	-
50	1.20	13	40	-	-
50	1.30	13	32	-	-
50	1.40	13	32	-	-
50	1.50	13	32	-	-
50	1.60	13	32	-	-
50	1.70	13	32	-	-
50	1.80	13	32	-	-
50	1.90	13	32	-	-
50	2.00	13	32	-	-
50	2.10	13	32	-	-
50	2.20	13	32	-	-
50	2.30	13	32	-	-
50	2.40	13	32	-	-
50	2.50	13	32	-	-
50	2.60	13	24	-	-
50	2.70	13	24	-	-
50	2.80	13	24	-	-
50	2.90	13	24	-	-
50	3.00	13	24	-	-
50	3.10	13	24	-	-
50	3.20	13	24	-	-
50	3.30	13	24	-	-
50	3.40	13	24	-	-
50	3.50	13	24	-	-
50	3.60	13	24	-	-
50	3.70	13	24	-	-
50	3.80	13	24	-	-
50	3.90	13	24	-	-
50	4.00	13	24	-	-
50	4.50	13	24	-	-
50	5.00	13	24	-	-
50	5.50	13	20	-	-
50	6.00	13	20	-	-
63	0.40	16	64	-	-
63	0.45	16	64	-	-
63	0.50	16	64	-	-
63	0.60	16	48	-	-
63	0.70	16	48	-	-
63	0.80	16	48	-	-
63	0.90	16	48	-	-
63	1.00	16	40	-	-
63	1.10	16	40	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
63	1.20	16	40	-	-
63	1.30	16	40	-	-
63	1.40	16	40	-	-
63	1.50	16	40	-	-
63	1.60	16	40	-	-
63	1.70	16	40	-	-
63	1.80	16	40	-	-
63	1.90	16	40	-	-
63	2.00	16	40	-	-
63	2.10	16	32	-	-
63	2.20	16	32	-	-
63	2.30	16	32	-	-
63	2.40	16	32	-	-
63	2.50	16	32	-	-
63	2.60	16	32	-	-
63	2.70	16	32	-	-
63	2.80	16	32	-	-
63	2.90	16	32	-	-
63	3.00	16	32	-	-
63	3.10	16	32	-	-
63	3.20	16	32	-	-
63	3.30	16	32	-	-
63	3.40	16	32	-	-
63	3.50	16	32	-	-
63	3.60	16	32	-	-
63	3.70	16	32	-	-
63	3.80	16	32	-	-
63	3.90	16	32	-	-
63	4.00	16	32	-	-
63	4.50	16	24	-	-
63	5.00	16	24	-	-
63	5.50	16	24	-	-
63	6.00	16	24	-	-
80	0.60	22	64	-	-
80	0.70	22	64	-	-
80	0.80	22	64	-	-
80	0.90	22	48	-	-
80	1.00	22	48	-	-
80	1.10	22	48	-	-
80	1.20	22	48	-	-
80	1.30	22	48	-	-
80	1.40	22	48	-	-
80	1.50	22	48	-	-
80	1.60	22	48	-	-
80	1.70	22	40	-	-
80	1.80	22	40	-	-
80	1.90	22	40	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
80	2.00	22	40	-	-
80	2.10	22	40	-	-
80	2.20	22	40	-	-
80	2.30	22	40	-	-
80	2.40	22	40	-	-
80	2.50	22	40	-	-
80	2.60	22	40	-	-
80	2.70	22	40	-	-
80	2.80	22	40	-	-
80	2.90	22	40	-	-
80	3.00	22	40	-	-
80	3.10	22	32	-	-
80	3.20	22	32	-	-
80	3.30	22	32	-	-
80	3.40	22	32	-	-
80	3.50	22	32	-	-
80	3.60	22	32	-	-
80	3.70	22	32	-	-
80	3.80	22	32	-	-
80	3.90	22	32	-	-
80	4.00	22	32	-	-
80	4.50	22	32	-	-
80	5.00	22	32	-	-
80	5.50	22	32	-	-
80	6.00	22	32	-	-
100	0.60	22	80	-	-
100	0.70	22	64	-	-
100	0.80	22	64	-	-
100	0.90	22	64	-	-
100	1.00	22	64	-	-
100	1.10	22	64	-	-
100	1.20	22	64	-	-
100	1.30	22	48	-	-
100	1.40	22	48	-	-
100	1.50	22	48	-	-
100	1.60	22	48	-	-
100	1.70	22	48	-	-
100	1.80	22	48	-	-
100	1.90	22	48	-	-
100	2.00	22	48	-	-
100	2.10	22	48	-	-
100	2.20	22	48	-	-
100	2.30	22	48	-	-
100	2.40	22	48	-	-
100	2.50	22	48	-	-
100	2.60	22	40	-	-
100	2.70	22	40	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
100	2.80	22	40	-	-
100	2.90	22	40	-	-
100	3.00	22	40	-	-
100	3.10	22	40	-	-
100	3.20	22	40	-	-
100	3.30	22	40	-	-
100	3.40	22	40	-	-
100	3.50	22	40	-	-
100	3.60	22	40	-	-
100	3.70	22	40	-	-
100	3.80	22	40	-	-
100	3.90	22	40	-	-
100	4.00	22	40	-	-
100	4.50	22	40	-	-
100	5.00	22	40	-	-
100	5.50	22	32	-	-
100	6.00	22	32	-	-
125	0.80	22	80	-	-
125	0.90	22	80	-	-
125	1.00	22	80	-	-
125	1.10	22	64	-	-
125	1.20	22	64	-	-
125	1.30	22	64	-	-
125	1.40	22	64	-	-
125	1.50	22	64	-	-
125	1.60	22	64	-	-
125	1.70	22	64	-	-
125	1.80	22	64	-	-
125	1.90	22	64	-	-
125	2.00	22	64	-	-
125	2.10	22	48	-	-
125	2.20	22	48	-	-
125	2.30	22	48	-	-
125	2.40	22	48	-	-
125	2.50	22	48	-	-
125	2.60	22	48	-	-
125	2.70	22	48	-	-
125	2.80	22	48	-	-
125	2.90	22	48	-	-
125	3.00	22	48	-	-
125	3.10	22	48	-	-
125	3.20	22	48	-	-
125	3.30	22	48	-	-
125	3.40	22	48	-	-
125	3.50	22	48	-	-
125	3.60	22	48	-	-
125	3.70	22	48	-	-

Suite page suivante / Continued next page

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
125	3.80	22	48	-	-
125	3.90	22	48	-	-
125	4.00	22	48	-	-
125	4.50	22	40	-	-
125	5.00	22	40	-	-
125	5.50	22	40	-	-
125	6.00	22	40	-	-



Fraises circulaires DIN 1837

Denture fine

Slitting saws DIN 1837
fine pitch

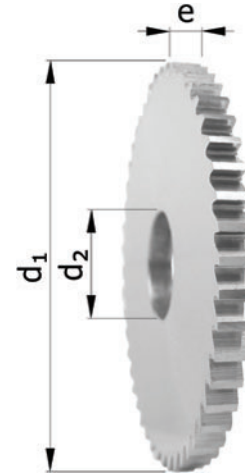
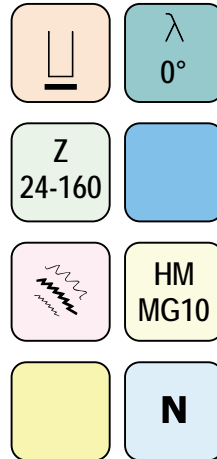
Kreissägeblätter DIN 1837
feine Verzahnung

Seghe circolari DIN 1837
Dentatura fine

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	50 - 100	+	++
Acier/Steel <700 N/mm ²	80 - 160	+	++
Acier/Steel >700 N/mm ²	50 - 110	+	++
Titane/Titan	30 - 60	+	++
Aluminium	150 - 600	+	++
Cuivre/Copper	80 - 300	+	++
Laiton/Brass	80 - 300	++	+++
Or/Gold & Argent/Silver	80 - 300	+	-
Graphite	200 - 800	-	+++
Polymères/Polymers	150 - 600	+++	-

$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
15	0.10	5	64	-	-
15	0.15	5	64	-	-
15	0.20	5	64	-	-
15	0.25	5	64	-	-
15	0.30	5	64	-	-
15	0.35	5	64	-	-
15	0.40	5	64	-	-
15	0.45	5	48	-	-
15	0.50	5	48	-	-
15	0.60	5	48	-	-
15	0.70	5	48	-	-
15	0.80	5	40	-	-
15	0.90	5	40	-	-
15	1.00	5	40	-	-
15	1.10	5	40	-	-
15	1.20	5	40	-	-
15	1.30	5	40	-	-
15	1.40	5	40	-	-
15	1.50	5	40	-	-
15	1.60	5	40	-	-
15	1.70	5	40	-	-
15	1.80	5	40	-	-
15	1.90	5	40	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
15	2.00	5	40	-	-
15	2.10	5	40	-	-
15	2.20	5	40	-	-
15	2.30	5	40	-	-
15	2.40	5	40	-	-
15	2.50	5	40	-	-
15	2.60	5	40	-	-
15	2.70	5	40	-	-
15	2.80	5	40	-	-
15	2.90	5	40	-	-
15	3.00	5	40	-	-
15	3.10	5	24	-	-
15	3.20	5	24	-	-
15	3.30	5	24	-	-
15	3.40	5	24	-	-
15	3.50	5	24	-	-
15	3.60	5	24	-	-
15	3.70	5	24	-	-
15	3.80	5	24	-	-
15	3.90	5	24	-	-
15	4.00	5	24	-	-
15	4.50	5	24	-	-
15	5.00	5	24	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
15	5.50	5	24	-	-
15	6.00	5	24	-	-
20	0.10	5	80	-	-
20	0.15	5	80	-	-
20	0.20	5	80	-	-
20	0.25	5	64	-	-
20	0.30	5	64	-	-
20	0.35	5	64	-	-
20	0.40	5	64	-	-
20	0.45	5	48	-	-
20	0.50	5	48	-	-
20	0.60	5	48	-	-
20	0.70	5	48	-	-
20	0.80	5	40	-	-
20	0.90	5	40	-	-
20	1.00	5	40	-	-
20	1.10	5	40	-	-
20	1.20	5	40	-	-
20	1.30	5	40	-	-
20	1.40	5	40	-	-
20	1.50	5	40	-	-
20	1.60	5	40	-	-
20	1.70	5	32	-	-
20	1.80	5	32	-	-
20	1.90	5	32	-	-
20	2.00	5	32	-	-
20	2.10	5	32	-	-
20	2.20	5	32	-	-
20	2.30	5	32	-	-
20	2.40	5	32	-	-
20	2.50	5	32	-	-
20	2.60	5	32	-	-
20	2.70	5	32	-	-
20	2.80	5	32	-	-
20	2.90	5	32	-	-
20	3.00	5	32	-	-
20	3.10	5	24	-	-
20	3.20	5	24	-	-
20	3.30	5	24	-	-
20	3.40	5	24	-	-
20	3.50	5	24	-	-
20	3.60	5	24	-	-
20	3.70	5	24	-	-
20	3.80	5	24	-	-
20	3.90	5	24	-	-
20	4.00	5	24	-	-
20	4.50	5	24	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
20	5.00	5	24	-	-
20	5.50	5	24	-	-
20	6.00	5	24	-	-
25	0.10	8	80	-	-
25	0.15	8	80	-	-
25	0.20	8	80	-	-
25	0.25	8	80	-	-
25	0.30	8	80	-	-
25	0.35	8	64	-	-
25	0.40	8	64	-	-
25	0.45	8	64	-	-
25	0.50	8	64	-	-
25	0.60	8	64	-	-
25	0.70	8	48	-	-
25	0.80	8	48	-	-
25	0.90	8	48	-	-
25	1.00	8	48	-	-
25	1.10	8	48	-	-
25	1.20	8	48	-	-
25	1.30	8	40	-	-
25	1.40	8	40	-	-
25	1.50	8	40	-	-
25	1.60	8	40	-	-
25	1.70	8	40	-	-
25	1.80	8	40	-	-
25	1.90	8	40	-	-
25	2.00	8	40	-	-
25	2.10	8	40	-	-
25	2.20	8	40	-	-
25	2.30	8	40	-	-
25	2.40	8	40	-	-
25	2.50	8	40	-	-
25	2.60	8	32	-	-
25	2.70	8	32	-	-
25	2.80	8	32	-	-
25	2.90	8	32	-	-
25	3.00	8	32	-	-
25	3.10	8	32	-	-
25	3.20	8	32	-	-
25	3.30	8	32	-	-
25	3.40	8	32	-	-
25	3.50	8	32	-	-
25	3.60	8	32	-	-
25	3.70	8	32	-	-
25	3.80	8	32	-	-
25	3.90	8	32	-	-
25	4.00	8	32	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
25	4.50	8	32	-	-
25	5.00	8	32	-	-
25	5.50	8	24	-	-
25	6.00	8	24	-	-
30	0.10	8	100	-	-
30	0.15	8	100	-	-
30	0.20	8	100	-	-
30	0.25	8	100	-	-
30	0.30	8	80	-	-
30	0.35	8	80	-	-
30	0.40	8	80	-	-
30	0.45	8	80	-	-
30	0.50	8	80	-	-
30	0.60	8	64	-	-
30	0.70	8	64	-	-
30	0.80	8	64	-	-
30	0.90	8	64	-	-
30	1.00	8	64	-	-
30	1.10	8	48	-	-
30	1.20	8	48	-	-
30	1.30	8	48	-	-
30	1.40	8	48	-	-
30	1.50	8	48	-	-
30	1.60	8	48	-	-
30	1.70	8	48	-	-
30	1.80	8	48	-	-
30	1.90	8	48	-	-
30	2.00	8	48	-	-
30	2.10	8	40	-	-
30	2.20	8	40	-	-
30	2.30	8	40	-	-
30	2.40	8	40	-	-
30	2.50	8	40	-	-
30	2.60	8	40	-	-
30	2.70	8	40	-	-
30	2.80	8	40	-	-
30	2.90	8	40	-	-
30	3.00	8	40	-	-
30	3.10	8	40	-	-
30	3.20	8	40	-	-
30	3.30	8	40	-	-
30	3.40	8	40	-	-
30	3.50	8	40	-	-
30	3.60	8	40	-	-
30	3.70	8	40	-	-
30	3.80	8	40	-	-
30	3.90	8	40	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
30	4.00	8	40	-	-
30	4.50	8	32	-	-
30	5.00	8	32	-	-
30	5.50	8	32	-	-
30	6.00	8	32	-	-
40	0.10	10	128	-	-
40	0.15	10	128	-	-
40	0.20	10	128	-	-
40	0.25	10	100	-	-
40	0.30	10	100	-	-
40	0.35	10	100	-	-
40	0.40	10	100	-	-
40	0.45	10	80	-	-
40	0.50	10	80	-	-
40	0.60	10	80	-	-
40	0.70	10	80	-	-
40	0.80	10	80	-	-
40	0.90	10	64	-	-
40	1.00	10	64	-	-
40	1.10	10	64	-	-
40	1.20	10	64	-	-
40	1.30	10	64	-	-
40	1.40	10	64	-	-
40	1.50	10	64	-	-
40	1.60	10	64	-	-
40	1.70	10	48	-	-
40	1.80	10	48	-	-
40	1.90	10	48	-	-
40	2.00	10	48	-	-
40	2.10	10	48	-	-
40	2.20	10	48	-	-
40	2.30	10	48	-	-
40	2.40	10	48	-	-
40	2.50	10	48	-	-
40	2.60	10	48	-	-
40	2.70	10	48	-	-
40	2.80	10	48	-	-
40	2.90	10	48	-	-
40	3.00	10	48	-	-
40	3.10	10	40	-	-
40	3.20	10	40	-	-
40	3.30	10	40	-	-
40	3.40	10	40	-	-
40	3.50	10	40	-	-
40	3.60	10	40	-	-
40	3.70	10	40	-	-
40	3.80	10	40	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
40	3.90	10	40	-	-
40	4.00	10	40	-	-
40	4.50	10	40	-	-
40	5.00	10	40	-	-
40	5.50	10	40	-	-
40	6.00	10	40	-	-
50	0.20	13	128	-	-
50	0.25	13	128	-	-
50	0.30	13	128	-	-
50	0.35	13	100	-	-
50	0.40	13	100	-	-
50	0.45	13	100	-	-
50	0.50	13	100	-	-
50	0.60	13	100	-	-
50	0.70	13	80	-	-
50	0.80	13	80	-	-
50	0.90	13	80	-	-
50	1.00	13	80	-	-
50	1.10	13	80	-	-
50	1.20	13	80	-	-
50	1.30	13	64	-	-
50	1.40	13	64	-	-
50	1.50	13	64	-	-
50	1.60	13	64	-	-
50	1.70	13	64	-	-
50	1.80	13	64	-	-
50	1.90	13	64	-	-
50	2.00	13	64	-	-
50	2.10	13	64	-	-
50	2.20	13	64	-	-
50	2.30	13	64	-	-
50	2.40	13	64	-	-
50	2.50	13	64	-	-
50	2.60	13	48	-	-
50	2.70	13	48	-	-
50	2.80	13	48	-	-
50	2.90	13	48	-	-
50	3.00	13	48	-	-
50	3.10	13	48	-	-
50	3.20	13	48	-	-
50	3.30	13	48	-	-
50	3.40	13	48	-	-
50	3.50	13	48	-	-
50	3.60	13	48	-	-
50	3.70	13	48	-	-
50	3.80	13	48	-	-
50	3.90	13	48	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
50	4.00	13	48	-	-
50	4.50	13	48	-	-
50	5.00	13	48	-	-
50	5.50	13	40	-	-
50	6.00	13	40	-	-
63	0.20	16	160	-	-
63	0.25	16	128	-	-
63	0.30	16	128	-	-
63	0.35	16	128	-	-
63	0.40	16	128	-	-
63	0.45	16	128	-	-
63	0.50	16	128	-	-
63	0.60	16	100	-	-
63	0.70	16	100	-	-
63	0.80	16	100	-	-
63	0.90	16	100	-	-
63	1.00	16	100	-	-
63	1.10	16	80	-	-
63	1.20	16	80	-	-
63	1.30	16	80	-	-
63	1.40	16	80	-	-
63	1.50	16	80	-	-
63	1.60	16	80	-	-
63	1.70	16	80	-	-
63	1.80	16	80	-	-
63	1.90	16	80	-	-
63	2.00	16	80	-	-
63	2.10	16	64	-	-
63	2.20	16	64	-	-
63	2.30	16	64	-	-
63	2.40	16	64	-	-
63	2.50	16	64	-	-
63	2.60	16	64	-	-
63	2.70	16	64	-	-
63	2.80	16	64	-	-
63	2.90	16	64	-	-
63	3.00	16	64	-	-
63	3.10	16	64	-	-
63	3.20	16	64	-	-
63	3.30	16	64	-	-
63	3.40	16	64	-	-
63	3.50	16	64	-	-
63	3.60	16	64	-	-
63	3.70	16	64	-	-
63	3.80	16	64	-	-
63	3.90	16	64	-	-
63	4.00	16	64	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
63	4.50	16	48	-	-
63	5.00	16	48	-	-
63	5.50	16	48	-	-
63	6.00	16	48	-	-
80	0.25	22	160	-	-
80	0.30	22	160	-	-
80	0.35	22	160	-	-
80	0.40	22	160	-	-
80	0.45	22	128	-	-
80	0.50	22	128	-	-
80	0.60	22	128	-	-
80	0.70	22	128	-	-
80	0.80	22	128	-	-
80	0.90	22	100	-	-
80	1.00	22	100	-	-
80	1.10	22	100	-	-
80	1.20	22	100	-	-
80	1.30	22	100	-	-
80	1.40	22	100	-	-
80	1.50	22	100	-	-
80	1.60	22	100	-	-
80	1.70	22	80	-	-
80	1.80	22	80	-	-
80	1.90	22	80	-	-
80	2.00	22	80	-	-
80	2.10	22	80	-	-
80	2.20	22	80	-	-
80	2.30	22	80	-	-
80	2.40	22	80	-	-
80	2.50	22	80	-	-
80	2.60	22	80	-	-
80	2.70	22	80	-	-
80	2.80	22	80	-	-
80	2.90	22	80	-	-
80	3.00	22	80	-	-
80	3.10	22	64	-	-
80	3.20	22	64	-	-
80	3.30	22	64	-	-
80	3.40	22	64	-	-
80	3.50	22	64	-	-
80	3.60	22	64	-	-
80	3.70	22	64	-	-
80	3.80	22	64	-	-
80	3.90	22	64	-	-
80	4.00	22	64	-	-
80	4.50	22	64	-	-
80	5.00	22	64	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
80	5.50	22	64	-	-
80	6.00	22	64	-	-
100	0.50	22	160	-	-
100	0.60	22	160	-	-
100	0.70	22	128	-	-
100	0.80	22	128	-	-
100	0.90	22	128	-	-
100	1.00	22	128	-	-
100	1.10	22	128	-	-
100	1.20	22	128	-	-
100	1.30	22	100	-	-
100	1.40	22	100	-	-
100	1.50	22	100	-	-
100	1.60	22	100	-	-
100	1.70	22	100	-	-
100	1.80	22	100	-	-
100	1.90	22	100	-	-
100	2.00	22	100	-	-
100	2.10	22	100	-	-
100	2.20	22	100	-	-
100	2.30	22	100	-	-
100	2.40	22	100	-	-
100	2.50	22	100	-	-
100	2.60	22	80	-	-
100	2.70	22	80	-	-
100	2.80	22	80	-	-
100	2.90	22	80	-	-
100	3.00	22	80	-	-
100	3.10	22	80	-	-
100	3.20	22	80	-	-
100	3.30	22	80	-	-
100	3.40	22	80	-	-
100	3.50	22	80	-	-
100	3.60	22	80	-	-
100	3.70	22	80	-	-
100	3.80	22	80	-	-
100	3.90	22	80	-	-
100	4.00	22	80	-	-
100	4.50	22	80	-	-
100	5.00	22	80	-	-
100	5.50	22	64	-	-
100	6.00	22	64	-	-
125	0.60	22	160	-	-
125	0.70	22	160	-	-
125	0.80	22	160	-	-
125	0.90	22	160	-	-
125	1.00	22	160	-	-

Suite page suivante / Continued next page

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
125	1.10	22	128	-	-
125	1.20	22	128	-	-
125	1.30	22	128	-	-
125	1.40	22	128	-	-
125	1.50	22	128	-	-
125	1.60	22	128	-	-
125	1.70	22	128	-	-
125	1.80	22	128	-	-
125	1.90	22	128	-	-
125	2.00	22	128	-	-
125	2.10	22	100	-	-
125	2.20	22	100	-	-
125	2.30	22	100	-	-
125	2.40	22	100	-	-
125	2.50	22	100	-	-
125	2.60	22	100	-	-
125	2.70	22	100	-	-
125	2.80	22	100	-	-
125	2.90	22	100	-	-
125	3.00	22	100	-	-
125	3.10	22	100	-	-
125	3.20	22	100	-	-
125	3.30	22	100	-	-
125	3.40	22	100	-	-
125	3.50	22	100	-	-
125	3.60	22	100	-	-
125	3.70	22	100	-	-
125	3.80	22	100	-	-
125	3.90	22	100	-	-
125	4.00	22	100	-	-
125	4.50	22	100	-	-
125	5.00	22	100	-	-
125	5.50	22	100	-	-
125	6.00	22	100	-	-

Fraises circulaires à denture extra-fine

pour usinage de pièces fines ou fragiles

Slitting saws
extra fine pitch

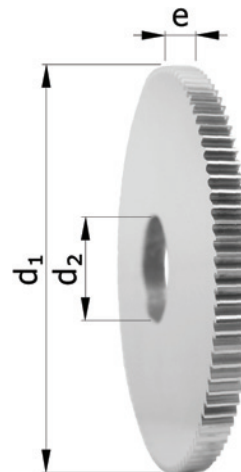
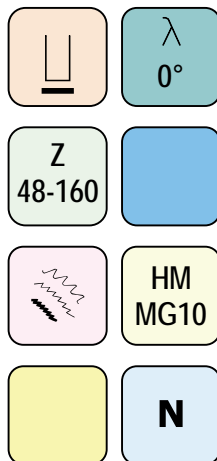
Kreissägeblätter
extra feine Verzahnung

Seghe circolari
dentatura extra fine

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	50 - 100	+	++
Acier/Steel <700 N/mm ²	80 - 160	+	++
Acier/Steel >700 N/mm ²	50 - 110	+	++
Titane/Titan	30 - 60	+	++
Aluminium	150 - 600	-	-
Cuivre/Copper	80 - 300	+	+
Laiton/Brass	80 - 300	++	+
Or/Gold & Argent/Silver	80 - 300	-	-
Graphite	200 - 800	-	-
Polymères/Polymers	150 - 600	-	-

$$V_f = 0.001 \rightarrow 0.010 \times d_1 \times n$$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
8	0.10	3	48	-	-
8	0.15	3	48	-	-
8	0.20	3	48	-	-
8	0.25	3	48	-	-
8	0.30	3	48	-	-
8	0.35	3	48	-	-
8	0.40	3	48	-	-
8	0.50	3	48	-	-
8	0.60	3	48	-	-
8	0.70	3	48	-	-
8	0.80	3	48	-	-
8	0.90	3	48	-	-
8	1.00	3	48	-	-
10	0.10	3	64	-	-
10	0.15	3	64	-	-
10	0.20	3	64	-	-
10	0.25	3	64	-	-
10	0.30	3	64	-	-
10	0.35	3	64	-	-
10	0.40	3	64	-	-
10	0.50	3	64	-	-
10	0.60	3	64	-	-
10	0.70	3	64	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
10	0.80	3	64	-	-
10	0.90	3	64	-	-
10	1.00	3	64	-	-
12	0.10	5	64	-	-
12	0.15	5	64	-	-
12	0.20	5	64	-	-
12	0.25	5	64	-	-
12	0.30	5	64	-	-
12	0.35	5	64	-	-
12	0.40	5	64	-	-
12	0.50	5	64	-	-
12	0.60	5	64	-	-
12	0.70	5	64	-	-
12	0.80	5	64	-	-
12	0.90	5	64	-	-
12	1.00	5	64	-	-
15	0.10	5	80	-	-
15	0.15	5	80	-	-
15	0.20	5	80	-	-
15	0.25	5	80	-	-
15	0.30	5	80	-	-
15	0.35	5	80	-	-
15	0.40	5	80	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
15	0.50	5	80	-	-
15	0.60	5	80	-	-
15	0.70	5	80	-	-
15	0.80	5	80	-	-
15	0.90	5	80	-	-
15	1.00	5	80	-	-
15	1.10	5	80	-	-
15	1.20	5	80	-	-
15	1.30	5	80	-	-
15	1.40	5	80	-	-
15	1.50	5	80	-	-
15	2.00	5	80	-	-
15	2.50	5	80	-	-
15	3.00	5	80	-	-
20	0.10	5	100	-	-
20	0.10	6	80	-	-
20	0.15	5	100	-	-
20	0.15	6	80	-	-
20	0.20	5	100	-	-
20	0.20	6	80	-	-
20	0.25	5	80	-	-
20	0.25	5	100	-	-
20	0.25	6	80	-	-
20	0.30	5	80	-	-
20	0.30	5	100	-	-
20	0.30	6	80	-	-
20	0.35	5	80	-	-
20	0.35	5	100	-	-
20	0.35	6	80	-	-
20	0.40	5	80	-	-
20	0.40	5	100	-	-
20	0.40	6	80	-	-
20	0.50	5	80	-	-
20	0.50	5	100	-	-
20	0.50	6	80	-	-
20	0.60	5	80	-	-
20	0.60	6	80	-	-
20	0.70	5	80	-	-
20	0.70	6	80	-	-
20	0.80	5	80	-	-
20	0.80	6	80	-	-
20	0.90	5	80	-	-
20	0.90	6	80	-	-
20	1.00	5	80	-	-
20	1.00	6	80	-	-
20	1.10	5	80	-	-
20	1.10	6	80	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
20	1.20	5	80	-	-
20	1.20	6	80	-	-
20	1.30	5	80	-	-
20	1.30	6	80	-	-
20	1.40	5	80	-	-
20	1.40	6	80	-	-
20	1.50	5	80	-	-
20	1.50	6	80	-	-
20	2.00	5	80	-	-
20	2.00	6	80	-	-
20	2.50	5	80	-	-
20	2.50	6	80	-	-
20	3.00	5	80	-	-
20	3.00	6	80	-	-
25	0.10	5	80	-	-
25	0.15	5	80	-	-
25	0.15	6	100	-	-
25	0.15	8	100	-	-
25	0.20	5	80	-	-
25	0.20	6	100	-	-
25	0.20	8	100	-	-
25	0.25	5	80	-	-
25	0.25	6	100	-	-
25	0.25	8	100	-	-
25	0.30	5	80	-	-
25	0.30	6	100	-	-
25	0.30	8	100	-	-
25	0.35	5	80	-	-
25	0.35	6	100	-	-
25	0.35	8	100	-	-
25	0.40	5	80	-	-
25	0.40	6	100	-	-
25	0.40	8	100	-	-
25	0.50	5	80	-	-
25	0.50	6	100	-	-
25	0.50	8	100	-	-
25	0.60	5	80	-	-
25	0.60	6	100	-	-
25	0.60	8	100	-	-
25	0.70	5	80	-	-
25	0.70	6	100	-	-
25	0.70	8	100	-	-
25	0.80	5	80	-	-
25	0.80	6	100	-	-
25	0.80	8	100	-	-
25	0.90	5	80	-	-
25	0.90	6	100	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
25	0.90	8	100	-	-
25	1.00	5	80	-	-
25	1.00	6	100	-	-
25	1.00	8	100	-	-
25	1.10	5	80	-	-
25	1.10	6	100	-	-
25	1.10	8	100	-	-
25	1.20	5	80	-	-
25	1.20	6	100	-	-
25	1.20	8	100	-	-
25	1.30	5	80	-	-
25	1.30	6	100	-	-
25	1.30	8	100	-	-
25	1.40	5	80	-	-
25	1.40	6	100	-	-
25	1.40	8	100	-	-
25	1.50	5	80	-	-
25	1.50	6	100	-	-
25	1.50	8	100	-	-
25	2.00	5	80	-	-
25	2.00	6	100	-	-
25	2.00	8	100	-	-
25	2.50	5	80	-	-
25	2.50	6	100	-	-
25	2.50	8	100	-	-
25	3.00	5	80	-	-
25	3.00	6	100	-	-
25	3.00	8	100	-	-
30	0.15	8	100	-	-
30	0.20	8	100	-	-
30	0.25	8	100	-	-
30	0.30	8	100	-	-
30	0.35	8	100	-	-
30	0.40	8	100	-	-
30	0.50	8	100	-	-
30	0.60	8	100	-	-
30	0.70	8	100	-	-
30	0.80	8	100	-	-
30	0.90	8	100	-	-
30	1.00	8	100	-	-
30	1.10	8	100	-	-
30	1.20	8	100	-	-
30	1.30	8	100	-	-
30	1.40	8	100	-	-
30	1.50	8	100	-	-
30	2.00	8	100	-	-
30	2.50	8	100	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
30	3.00	8	100	-	-
32	0.15	8	80	-	-
32	0.20	8	80	-	-
32	0.25	8	80	-	-
32	0.30	8	80	-	-
32	0.35	8	80	-	-
32	0.40	8	80	-	-
32	0.50	8	80	-	-
32	0.60	8	80	-	-
32	0.70	8	80	-	-
32	0.80	8	80	-	-
32	0.90	8	80	-	-
32	1.00	8	80	-	-
32	1.10	8	80	-	-
32	1.20	8	80	-	-
32	1.30	8	80	-	-
32	1.40	8	80	-	-
32	1.50	8	80	-	-
32	2.00	8	80	-	-
32	2.50	8	80	-	-
32	3.00	8	80	-	-
35	0.15	8	96	-	-
35	0.20	8	96	-	-
35	0.25	8	96	-	-
35	0.30	8	96	-	-
35	0.35	8	96	-	-
35	0.40	8	96	-	-
35	0.50	8	96	-	-
35	0.60	8	96	-	-
35	0.70	8	96	-	-
35	0.80	8	96	-	-
35	0.90	8	96	-	-
35	1.00	8	96	-	-
35	1.10	8	96	-	-
35	1.20	8	96	-	-
35	1.30	8	96	-	-
35	1.40	8	96	-	-
35	1.50	8	96	-	-
35	2.00	8	96	-	-
35	2.50	8	96	-	-
35	3.00	8	96	-	-
40	0.15	8	100	-	-
40	0.15	8	160	-	-
40	0.15	10	100	-	-
40	0.15	10	160	-	-
40	0.20	8	100	-	-
40	0.20	8	160	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
40	0.20	10	100	-	-
40	0.20	10	160	-	-
40	0.25	8	100	-	-
40	0.25	8	160	-	-
40	0.25	10	100	-	-
40	0.25	10	160	-	-
40	0.30	8	100	-	-
40	0.30	8	160	-	-
40	0.30	10	100	-	-
40	0.30	10	160	-	-
40	0.35	8	100	-	-
40	0.35	8	160	-	-
40	0.35	10	100	-	-
40	0.35	10	160	-	-
40	0.40	8	100	-	-
40	0.40	8	160	-	-
40	0.40	10	100	-	-
40	0.40	10	160	-	-
40	0.50	8	100	-	-
40	0.50	8	160	-	-
40	0.50	10	100	-	-
40	0.50	10	160	-	-
40	0.60	8	100	-	-
40	0.60	8	160	-	-
40	0.60	10	100	-	-
40	0.60	10	160	-	-
40	0.70	8	100	-	-
40	0.70	8	160	-	-
40	0.70	10	100	-	-
40	0.70	10	160	-	-
40	0.80	8	100	-	-
40	0.80	8	160	-	-
40	0.80	10	100	-	-
40	0.80	10	160	-	-
40	0.90	8	100	-	-
40	0.90	8	160	-	-
40	0.90	10	100	-	-
40	0.90	10	160	-	-
40	1.00	8	100	-	-
40	1.00	8	160	-	-
40	1.00	10	100	-	-
40	1.00	10	160	-	-
40	1.10	8	100	-	-
40	1.10	8	160	-	-
40	1.10	10	100	-	-
40	1.10	10	160	-	-
40	1.20	8	100	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
40	1.20	8	160	-	-
40	1.20	10	100	-	-
40	1.20	10	160	-	-
40	1.30	8	100	-	-
40	1.30	8	160	-	-
40	1.30	10	100	-	-
40	1.30	10	160	-	-
40	1.40	8	100	-	-
40	1.40	8	160	-	-
40	1.40	10	100	-	-
40	1.40	10	160	-	-
40	1.50	8	100	-	-
40	1.50	8	160	-	-
40	1.50	10	100	-	-
40	1.50	10	160	-	-
40	2.00	8	100	-	-
40	2.00	8	160	-	-
40	2.00	10	100	-	-
40	2.00	10	160	-	-
40	2.50	8	100	-	-
40	2.50	8	160	-	-
40	2.50	10	100	-	-
40	2.50	10	160	-	-
40	3.00	8	100	-	-
40	3.00	8	160	-	-
40	3.00	10	100	-	-
40	3.00	10	160	-	-
45	0.15	8	100	-	-
45	0.15	8	160	-	-
45	0.20	8	100	-	-
45	0.20	8	160	-	-
45	0.25	8	100	-	-
45	0.25	8	160	-	-
45	0.30	8	100	-	-
45	0.30	8	160	-	-
45	0.35	8	100	-	-
45	0.35	8	160	-	-
45	0.40	8	100	-	-
45	0.40	8	160	-	-
45	0.50	8	100	-	-
45	0.50	8	160	-	-
45	0.60	8	100	-	-
45	0.60	8	160	-	-
45	0.70	8	100	-	-
45	0.70	8	160	-	-
45	0.80	8	100	-	-
45	0.80	8	160	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
45	0.90	8	100	-	-
45	0.90	8	160	-	-
45	1.00	8	100	-	-
45	1.00	8	160	-	-
45	1.10	8	100	-	-
45	1.10	8	160	-	-
45	1.20	8	100	-	-
45	1.20	8	160	-	-
45	1.30	8	100	-	-
45	1.30	8	160	-	-
45	1.40	8	100	-	-
45	1.40	8	160	-	-
45	1.50	8	100	-	-
45	1.50	8	160	-	-
45	2.00	8	100	-	-
45	2.00	8	160	-	-
45	2.50	8	100	-	-
45	2.50	8	160	-	-
45	3.00	8	100	-	-
45	3.00	8	160	-	-
50	0.20	10	100	-	-
50	0.25	10	100	-	-
50	0.25	13	120	-	-
50	0.30	10	100	-	-
50	0.30	13	120	-	-
50	0.35	10	100	-	-
50	0.35	13	120	-	-
50	0.40	10	100	-	-
50	0.40	13	120	-	-
50	0.50	10	100	-	-
50	0.50	13	120	-	-
50	0.60	10	100	-	-
50	0.60	13	120	-	-
50	0.70	10	100	-	-
50	0.70	13	120	-	-
50	0.80	10	100	-	-
50	0.80	13	120	-	-
50	0.90	10	100	-	-
50	0.90	13	120	-	-
50	1.00	10	100	-	-
50	1.00	13	120	-	-
50	1.10	10	100	-	-
50	1.10	13	120	-	-
50	1.20	10	100	-	-
50	1.20	13	120	-	-
50	1.30	10	100	-	-
50	1.30	13	120	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
50	1.40	10	100	-	-
50	1.40	13	120	-	-
50	1.50	10	100	-	-
50	1.50	13	120	-	-
50	2.00	10	100	-	-
50	2.00	13	120	-	-
50	2.50	10	100	-	-
50	2.50	13	120	-	-
50	3.00	10	100	-	-
50	3.00	13	120	-	-
63	0.25	16	120	-	-
63	0.30	16	120	-	-
63	0.35	16	120	-	-
63	0.40	16	120	-	-
63	0.50	16	120	-	-
63	0.60	16	120	-	-
63	0.70	16	120	-	-
63	0.80	16	120	-	-
63	0.90	16	120	-	-
63	1.00	16	120	-	-
63	1.10	16	120	-	-
63	1.20	16	120	-	-
63	1.30	16	120	-	-
63	1.40	16	120	-	-
63	1.50	16	120	-	-
63	2.00	16	120	-	-
63	2.50	16	120	-	-
63	3.00	16	120	-	-
80	0.50	16	128	-	-
80	0.60	16	128	-	-
80	0.70	16	128	-	-
80	0.80	16	128	-	-
80	0.90	16	128	-	-
80	1.00	16	128	-	-
80	1.10	16	128	-	-
80	1.20	16	128	-	-
80	1.30	16	128	-	-
80	1.40	16	128	-	-
80	1.50	16	128	-	-
80	2.00	16	128	-	-
80	2.50	16	128	-	-
80	3.00	16	128	-	-



Fraises circulaires à denture hélicoïdale

Slitting saws
spiral toothing

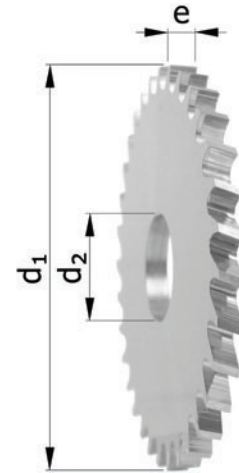
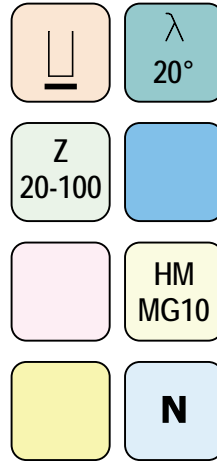
Kreissägeblätter
spiralverzahnt

Seghe circolari
denti elicoidali

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu Coated
Inox/stainless steel	50 - 100	+	++
Acier/Steel <700 N/mm ²	80 - 160	+	++
Acier/Steel >700 N/mm ²	50 - 110	+	++
Titane/Titan	30 - 60	+	++
Aluminium	150 - 600	++	+++
Cuivre/Copper	80 - 300	+	++
Laiton/Brass	80 - 300	+	++
Or/Gold & Argent/Silver	80 - 300	++	-
Graphite	200 - 800	-	+++
Polymères/Polymers	150 - 600	+++	-

$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
15	1.0	5	20 - 24	-	-
15	1.5	5	20 - 24	-	-
15	2.0	5	20 - 24	-	-
15	2.5	5	20 - 24	-	-
15	3.0	5	20 - 24	-	-
15	3.5	5	20 - 24	-	-
15	4.0	5	20 - 24	-	-
15	4.5	5	20 - 24	-	-
15	5.0	5	20 - 24	-	-
15	5.5	5	20 - 24	-	-
15	6.0	5	20 - 24	-	-
20	1.0	5	24 - 32	-	-
20	1.5	5	24 - 32	-	-
20	2.0	5	24 - 32	-	-
20	2.5	5	24 - 32	-	-
20	3.0	5	24 - 32	-	-
20	3.5	5	24 - 32	-	-
20	4.0	5	24 - 32	-	-
20	4.5	5	24 - 32	-	-
20	5.0	5	24 - 32	-	-
20	5.5	5	24 - 32	-	-
20	6.0	5	24 - 32	-	-
25	1.0	8	24 - 32	-	-
25	1.5	8	32 - 48	-	-
25	2.0	8	32 - 48	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
25	2.5	8	32 - 48	-	-
25	3.0	8	32 - 48	-	-
25	3.5	8	32 - 48	-	-
25	4.0	8	32 - 48	-	-
25	4.5	8	32 - 48	-	-
25	5.0	8	32 - 48	-	-
25	5.5	8	32 - 48	-	-
25	6.0	8	32 - 48	-	-
25	7.0	8	32 - 48	-	-
25	8.0	8	32 - 48	-	-
25	9.0	8	32 - 48	-	-
25	10.0	8	32 - 48	-	-
30	1.0	8	32 - 48	-	-
30	1.5	8	32 - 48	-	-
30	2.0	8	32 - 48	-	-
30	2.5	8	32 - 48	-	-
30	3.0	8	32 - 48	-	-
30	3.5	8	32 - 48	-	-
30	4.0	8	32 - 48	-	-
30	4.5	8	32 - 48	-	-
30	5.0	8	32 - 48	-	-
30	5.5	8	32 - 48	-	-
30	6.0	8	32 - 48	-	-
30	7.0	8	32 - 48	-	-
30	8.0	8	32 - 48	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
30	9.0	8	32 - 48	-	-
30	10.0	8	32 - 48	-	-
30	11.0	8	32 - 48	-	-
30	12.0	8	32 - 48	-	-
30	13.0	8	32 - 48	-	-
30	14.0	8	32 - 48	-	-
30	15.0	8	32 - 48	-	-
30	16.0	8	32 - 48	-	-
40	1.0	10	48 - 60	-	-
40	1.5	10	48 - 60	-	-
40	2.0	10	48 - 60	-	-
40	2.5	10	48 - 60	-	-
40	3.0	10	48 - 60	-	-
40	3.5	10	48 - 60	-	-
40	4.0	10	48 - 60	-	-
40	4.5	10	48 - 60	-	-
40	5.0	10	48 - 60	-	-
40	5.5	10	48 - 60	-	-
40	6.0	10	48 - 60	-	-
40	7.0	10	48 - 60	-	-
40	8.0	10	48 - 60	-	-
40	9.0	10	48 - 60	-	-
40	10.0	10	48 - 60	-	-
40	11.0	10	48 - 60	-	-
40	12.0	10	48 - 60	-	-
40	13.0	10	48 - 60	-	-
40	14.0	10	48 - 60	-	-
40	15.0	10	48 - 60	-	-
40	16.0	10	48 - 60	-	-
40	17.0	10	48 - 60	-	-
40	18.0	10	48 - 60	-	-
50	1.0	13	48 - 60	-	-
50	1.5	13	48 - 60	-	-
50	2.0	13	48 - 60	-	-
50	2.5	13	48 - 60	-	-
50	3.0	13	48 - 60	-	-
50	3.5	13	48 - 60	-	-
50	4.0	13	48 - 60	-	-
50	4.5	13	48 - 60	-	-
50	5.0	13	48 - 60	-	-
50	5.5	13	48 - 60	-	-
50	6.0	13	48 - 60	-	-
50	7.0	13	48 - 60	-	-
50	8.0	13	48 - 60	-	-
50	9.0	13	48 - 60	-	-
50	10.0	13	48 - 60	-	-
50	11.0	13	48 - 60	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
50	12.0	13	48 - 60	-	-
50	13.0	13	48 - 60	-	-
50	14.0	13	48 - 60	-	-
50	15.0	13	48 - 60	-	-
50	16.0	13	48 - 60	-	-
50	17.0	13	48 - 60	-	-
50	18.0	13	48 - 60	-	-
63	1.0	16	60 - 80	-	-
63	1.5	16	60 - 80	-	-
63	2.0	16	60 - 80	-	-
63	2.5	16	60 - 80	-	-
63	3.0	16	60 - 80	-	-
63	3.5	16	60 - 80	-	-
63	4.0	16	60 - 80	-	-
63	4.5	16	60 - 80	-	-
63	5.0	16	60 - 80	-	-
63	5.5	16	60 - 80	-	-
63	6.0	16	60 - 80	-	-
63	7.0	16	60 - 80	-	-
63	8.0	16	60 - 80	-	-
63	9.0	16	60 - 80	-	-
63	10.0	16	60 - 80	-	-
63	11.0	16	60 - 80	-	-
63	12.0	16	60 - 80	-	-
63	13.0	16	60 - 80	-	-
63	14.0	16	60 - 80	-	-
63	15.0	16	60 - 80	-	-
63	16.0	16	60 - 80	-	-
63	17.0	16	60 - 80	-	-
63	18.0	16	60 - 80	-	-
80	1.0	22	80 - 100	-	-
80	1.5	22	80 - 100	-	-
80	2.0	22	80 - 100	-	-
80	2.5	22	80 - 100	-	-
80	3.0	22	80 - 100	-	-
80	3.5	22	80 - 100	-	-
80	4.0	22	80 - 100	-	-
80	4.5	22	80 - 100	-	-
80	5.0	22	80 - 100	-	-
80	5.5	22	80 - 100	-	-
80	6.0	22	80 - 100	-	-
80	7.0	22	80 - 100	-	-
80	8.0	22	80 - 100	-	-
80	9.0	22	80 - 100	-	-
80	10.0	22	80 - 100	-	-
80	11.0	22	80 - 100	-	-
80	12.0	22	80 - 100	-	-

Suite page suivante / Continued next page

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
80	13.0	22	80 - 100	-	-
80	14.0	22	80 - 100	-	-
80	15.0	22	80 - 100	-	-
80	16.0	22	80 - 100	-	-
80	17.0	22	80 - 100	-	-
80	18.0	22	80 - 100	-	-



Fraises circulaires à denture alternée

Coupe spéciale pour acier inox et or

**Slitting saws
staggered teeth
for stainless steel and gold**

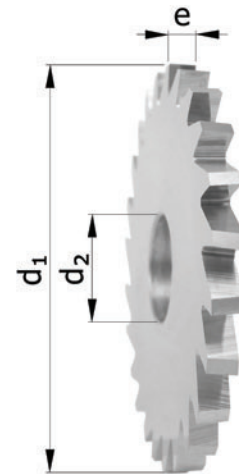
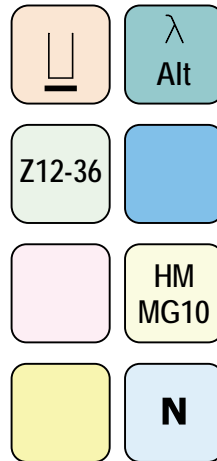
**Kreissägeblätter kreuzverzahnt
für Inox und Gold**

**Seghe circolari
denti alternati
per acciaio inox e oro**

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu Coated
Inox/stainless steel	50 - 100	+	++
Acier/Steel <700 N/mm ²	80 - 160	+	++
Acier/Steel >700 N/mm ²	50 - 110	+	++
Titane/Titan	30 - 60	+	++
Aluminium	150 - 600	++	+++
Cuivre/Copper	80 - 300	+	++
Laiton/Brass	80 - 300	+	++
Or/Gold & Argent/Silver	80 - 300	++	-
Graphite	200 - 800	-	+++
Polymères/Polymers	150 - 600	+++	-

$$V_f = 0.005 \rightarrow 0.070 \times d_1 \times n$$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
15	1.5	5	12 - 18	-	-
15	2.0	5	12 - 18	-	-
15	2.5	5	12 - 18	-	-
15	3.0	5	12 - 18	-	-
15	3.5	5	12 - 18	-	-
15	4.0	5	12 - 18	-	-
15	4.5	5	12 - 18	-	-
15	5.0	5	12 - 18	-	-
15	5.5	5	12 - 18	-	-
15	6.0	5	12 - 18	-	-
20	1.5	5	20 - 24	-	-
20	2.0	5	20 - 24	-	-
20	2.5	5	20 - 24	-	-
20	3.0	5	20 - 24	-	-
20	3.5	5	20 - 24	-	-
20	4.0	5	20 - 24	-	-
20	4.5	5	20 - 24	-	-
20	5.0	5	20 - 24	-	-
20	5.5	5	20 - 24	-	-
20	6.0	5	20 - 24	-	-
25	1.5	8	24 - 28	-	-
25	2.0	8	24 - 28	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
25	2.5	8	24 - 28	-	-
25	3.0	8	24 - 28	-	-
25	3.5	8	24 - 28	-	-
25	4.0	8	24 - 28	-	-
25	4.5	8	24 - 28	-	-
25	5.0	8	24 - 28	-	-
25	5.5	8	24 - 28	-	-
25	6.0	8	24 - 28	-	-
25	6.5	8	24 - 28	-	-
25	7.0	8	24 - 28	-	-
25	7.5	8	24 - 28	-	-
25	8.0	8	24 - 28	-	-
30	1.5	8	24 - 28	-	-
30	2.0	8	24 - 28	-	-
30	2.5	8	24 - 28	-	-
30	3.0	8	24 - 28	-	-
30	3.5	8	24 - 28	-	-
30	4.0	8	24 - 28	-	-
30	4.5	8	24 - 28	-	-
30	5.0	8	24 - 28	-	-
30	5.5	8	24 - 28	-	-
30	6.0	8	24 - 28	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
30	6.5	8	24 - 28	-	-
30	7.0	8	24 - 28	-	-
30	7.5	8	24 - 28	-	-
30	8.0	8	24 - 28	-	-
30	8.5	8	24 - 28	-	-
30	9.0	8	24 - 28	-	-
30	9.5	8	24 - 28	-	-
30	10.0	8	24 - 28	-	-
40	2.0	10	28 - 32	-	-
40	2.5	10	28 - 32	-	-
40	3.0	10	28 - 32	-	-
40	3.5	10	28 - 32	-	-
40	4.0	10	28 - 32	-	-
40	4.5	10	28 - 32	-	-
40	5.0	10	28 - 32	-	-
40	5.5	10	28 - 32	-	-
40	6.0	10	28 - 32	-	-
40	6.5	10	28 - 32	-	-
40	7.0	10	28 - 32	-	-
40	7.5	10	28 - 32	-	-
40	8.0	10	28 - 32	-	-
40	8.5	10	28 - 32	-	-
40	9.0	10	28 - 32	-	-
40	9.5	10	28 - 32	-	-
40	10.0	10	28 - 32	-	-
40	11.0	10	28 - 32	-	-
40	11.5	10	28 - 32	-	-
50	2.0	13	28 - 32	-	-
50	2.5	13	28 - 32	-	-
50	3.0	13	28 - 32	-	-
50	3.5	13	28 - 32	-	-
50	4.0	13	28 - 32	-	-
50	4.5	13	28 - 32	-	-
50	5.0	13	28 - 32	-	-
50	5.5	13	28 - 32	-	-
50	6.0	13	28 - 32	-	-
50	6.5	13	28 - 32	-	-
50	7.0	13	28 - 32	-	-
50	7.5	13	28 - 32	-	-
50	8.0	13	28 - 32	-	-
50	8.5	13	28 - 32	-	-
50	9.0	13	28 - 32	-	-
50	9.5	13	28 - 32	-	-
50	10.0	13	28 - 32	-	-
50	11.0	13	28 - 32	-	-
50	11.5	13	28 - 32	-	-
63	2.0	16	28 - 36	-	-
63	2.5	16	28 - 36	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
63	3.0	16	28 - 36	-	-
63	3.5	16	28 - 36	-	-
63	4.0	16	28 - 36	-	-
63	4.5	16	28 - 36	-	-
63	5.0	16	28 - 36	-	-
63	5.5	16	28 - 36	-	-
63	6.0	16	28 - 36	-	-
63	6.5	16	28 - 36	-	-
63	7.0	16	28 - 36	-	-
63	7.5	16	28 - 36	-	-
63	8.0	16	28 - 36	-	-
63	8.5	16	28 - 36	-	-
63	9.0	16	28 - 36	-	-
63	10.0	16	28 - 36	-	-
80	2.0	22	28 - 36	-	-
80	2.5	22	28 - 36	-	-
80	3.0	22	28 - 36	-	-
80	3.5	22	28 - 36	-	-
80	4.0	22	28 - 36	-	-
80	4.5	22	28 - 36	-	-
80	5.0	22	28 - 36	-	-
80	5.5	22	28 - 36	-	-
80	6.0	22	28 - 36	-	-
80	6.5	22	28 - 36	-	-
80	7.0	22	28 - 36	-	-
80	7.5	22	28 - 36	-	-
80	8.0	22	28 - 36	-	-
80	8.5	22	28 - 36	-	-
80	9.0	22	28 - 36	-	-
80	9.5	22	28 - 36	-	-
80	10.0	22	28 - 36	-	-
80	11.0	22	28 - 36	-	-
80	12.0	22	28 - 36	-	-



Fraises circulaires 3 tailles alternées

Creusures et dépouilles - coupe spéciale acier inox et or

**Slitting saws 3 cuts
staggered teeth
for stainless steel and gold**

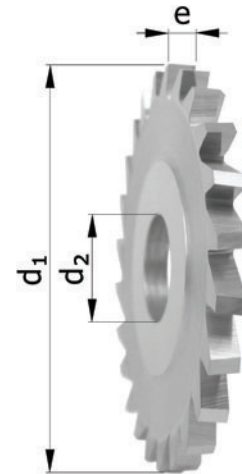
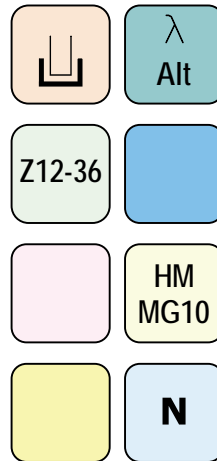
**Kreissägeblätter 3 Schnitte
kreuzverzahnt
für Inox und Gold**

**Seghe circolari 3 tagli
denti alternati
per acciaio inox e oro**

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	50 - 100	++	+++
Acier/Steel <700 N/mm ²	80 - 160	+	++
Acier/Steel >700 N/mm ²	50 - 110	+	++
Titane/Titan	30 - 60	+	++
Aluminium	150 - 600	++	+++
Cuivre/Copper	80 - 300	+	++
Laiton/Brass	80 - 300	+	++
Or/Gold & Argent/Silver	80 - 300	++	-
Graphite	200 - 800	-	+++
Polymères/Polymers	150 - 600	+++	-

$V_f = 0.005 \rightarrow 0.070 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
15	1.0	5	12 - 18	-	-
15	1.5	5	12 - 18	-	-
15	2.0	5	12 - 18	-	-
15	2.5	5	12 - 18	-	-
15	3.0	5	12 - 18	-	-
15	3.5	5	12 - 18	-	-
15	4.0	5	12 - 18	-	-
15	4.5	5	12 - 18	-	-
15	5.0	5	12 - 18	-	-
15	5.5	5	12 - 18	-	-
15	6.0	5	12 - 18	-	-
20	1.0	5	20 - 24	-	-
20	1.5	5	20 - 24	-	-
20	2.0	5	20 - 24	-	-
20	2.5	5	20 - 24	-	-
20	3.0	5	20 - 24	-	-
20	3.5	5	20 - 24	-	-
20	4.0	5	20 - 24	-	-
20	4.5	5	20 - 24	-	-
20	5.0	5	20 - 24	-	-
20	5.5	5	20 - 24	-	-
20	6.0	5	20 - 24	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
25	1.0	8	24 - 28	-	-
25	1.5	8	24 - 28	-	-
25	2.0	8	24 - 28	-	-
25	2.5	8	24 - 28	-	-
25	3.0	8	24 - 28	-	-
25	3.5	8	24 - 28	-	-
25	4.0	8	24 - 28	-	-
25	4.5	8	24 - 28	-	-
25	5.0	8	24 - 28	-	-
25	5.5	8	24 - 28	-	-
25	6.0	8	24 - 28	-	-
25	6.5	8	24 - 28	-	-
25	7.0	8	24 - 28	-	-
25	7.5	8	24 - 28	-	-
25	8.0	8	24 - 28	-	-
30	1.0	8	24 - 28	-	-
30	1.5	8	24 - 28	-	-
30	2.0	8	24 - 28	-	-
30	2.5	8	24 - 28	-	-
30	3.0	8	24 - 28	-	-
30	3.5	8	24 - 28	-	-
30	4.0	8	24 - 28	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
30	4.5	8	24 - 28	-	-
30	5.0	8	24 - 28	-	-
30	5.5	8	24 - 28	-	-
30	6.0	8	24 - 28	-	-
30	6.5	8	24 - 28	-	-
30	7.0	8	24 - 28	-	-
30	7.5	8	24 - 28	-	-
30	8.0	8	24 - 28	-	-
30	8.5	8	24 - 28	-	-
30	9.0	8	24 - 28	-	-
30	9.5	8	24 - 28	-	-
30	10.0	8	24 - 28	-	-
30	12.0	8	24 - 28	-	-
40	1.0	10	28 - 32	-	-
40	1.5	10	28 - 32	-	-
40	2.0	10	28 - 32	-	-
40	2.5	10	28 - 32	-	-
40	3.0	10	28 - 32	-	-
40	3.5	10	28 - 32	-	-
40	4.0	10	28 - 32	-	-
40	4.5	10	28 - 32	-	-
40	5.0	10	28 - 32	-	-
40	5.5	10	28 - 32	-	-
40	6.0	10	28 - 32	-	-
40	6.5	10	28 - 32	-	-
40	7.0	10	28 - 32	-	-
40	7.5	10	28 - 32	-	-
40	8.0	10	28 - 32	-	-
40	8.5	10	28 - 32	-	-
40	9.0	10	28 - 32	-	-
40	9.5	10	28 - 32	-	-
40	10.0	10	28 - 32	-	-
40	12.0	10	28 - 32	-	-
50	1.5	13	28 - 32	-	-
50	2.0	13	28 - 32	-	-
50	2.5	13	28 - 32	-	-
50	3.0	13	28 - 32	-	-
50	3.5	13	28 - 32	-	-
50	4.0	13	28 - 32	-	-
50	4.5	13	28 - 32	-	-
50	5.0	13	28 - 32	-	-
50	5.5	13	28 - 32	-	-
50	6.0	13	28 - 32	-	-
50	6.5	13	28 - 32	-	-
50	7.0	13	28 - 32	-	-
50	7.5	13	28 - 32	-	-
50	8.0	13	28 - 32	-	-
50	8.5	13	28 - 32	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
50	9.0	13	28 - 32	-	-
50	9.5	13	28 - 32	-	-
50	10.0	13	28 - 32	-	-
50	12.0	13	28 - 32	-	-
63	1.5	16	28 - 36	-	-
63	2.0	16	28 - 36	-	-
63	2.5	16	28 - 36	-	-
63	3.0	16	28 - 36	-	-
63	3.5	16	28 - 36	-	-
63	4.0	16	28 - 36	-	-
63	4.5	16	28 - 36	-	-
63	5.0	16	28 - 36	-	-
63	5.5	16	28 - 36	-	-
63	6.0	16	28 - 36	-	-
63	6.5	16	28 - 36	-	-
63	7.0	16	28 - 36	-	-
63	7.5	16	28 - 36	-	-
63	8.0	16	28 - 36	-	-
63	8.5	16	28 - 36	-	-
63	9.0	16	28 - 36	-	-
63	9.5	16	28 - 36	-	-
63	10.0	16	28 - 36	-	-
63	12.0	16	28 - 36	-	-
80	4.0	22	28 - 36	-	-
80	4.5	22	28 - 36	-	-
80	5.0	22	28 - 36	-	-
80	5.5	22	28 - 36	-	-
80	6.0	22	28 - 36	-	-
80	6.5	22	28 - 36	-	-



Fraises circulaires coniques - 2 tailles - 60°

Coupe à droite: réf 228 D / à gauche: 228 G

ANGLE CUTTERS 2 CUTS 60° - Right cut: ref. 228 D - Left cut: ref. 228 G

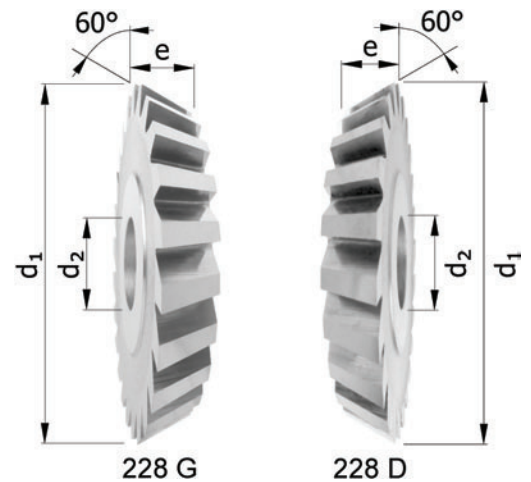
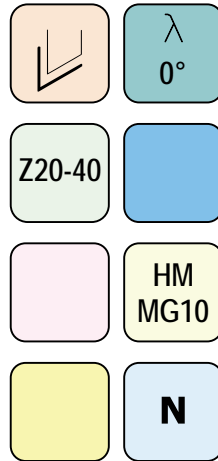
WINKELSTIRNFRASER 2 SCHNITTE 60° - Rechtsschneidend: Ref. 228 D - Linksschneidend: Ref. 228 G

FRESE CIRCOLARI CONICHE 2 TAGLI 60° - Taglio destro: Ref. 228 D - Taglio sinistro: Ref. 228 G

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF) / Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
20	1.0	5	20	-	-
20	1.2	5	20	-	-
20	1.5	5	20	-	-
20	2.0	5	20	-	-
25	1.0	8	20	-	-
25	1.5	8	20	-	-
25	2.0	8	20	-	-
30	1.0	8	30	-	-
30	2.0	8	24	-	-
30	2.5	8	24	-	-
30	3.0	8	24	-	-
30	4.0	8	24	-	-
30	5.0	8	24	-	-
40	2.0	10	32	-	-
40	3.0	10	32	-	-
40	4.0	10	32	-	-
40	6.0	10	32	-	-
50	3.0	13	32	-	-
50	4.0	13	32	-	-
63	4.0	16	40	-	-
63	5.0	16	40	-	-

Fraises circulaires coniques - 2 tailles - 45°

Coupe à droite: réf 228-1 D / à gauche: 228-1 G

ANGLE CUTTERS 2 CUTS 45° - Right cut: ref. 228-1 D - Left cut: ref. 228-1 G

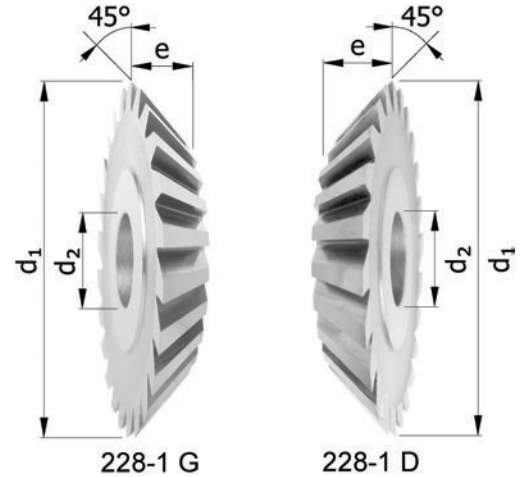
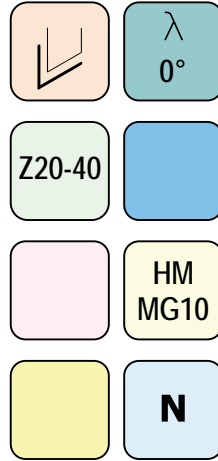
WINKELSTIRNFRASER 2 SCHNITTE 45° - Rechtsschneidend: Ref. 228-1 D - Linksschneidend: Ref. 228-1 G

FRESE CIRCOLARI CONICHE 2 TAGLI 45° - Taglio destro: Ref. 228-1 D - Taglio sinistro: Ref. 228-1 G

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF) / Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
20	1.0	5	20	-	-
20	1.2	5	20	-	-
20	1.5	5	20	-	-
20	2.0	5	20	-	-
25	1.0	8	20	-	-
25	1.5	8	20	-	-
25	2.0	8	20	-	-
30	1.0	8	30	-	-
30	2.0	8	24	-	-
30	2.5	8	24	-	-
30	3.0	8	24	-	-
30	4.0	8	24	-	-
30	5.0	8	24	-	-
40	2.0	10	32	-	-
40	3.0	10	32	-	-
40	4.0	10	32	-	-
40	6.0	10	32	-	-
50	3.0	13	32	-	-
50	4.0	13	32	-	-
63	4.0	16	40	-	-
63	5.0	16	40	-	-

Fraises circulaires à tronçonner - coniques

Angle: 12° à 20°. Coupe à droite: réf 228-2 D / à gauche: 228-2 G

ANGLE CUTTERS 12° to 20° - Right cut: ref. 228-2 D - Left cut: ref. 228-2 G

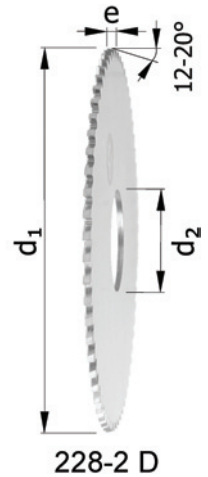
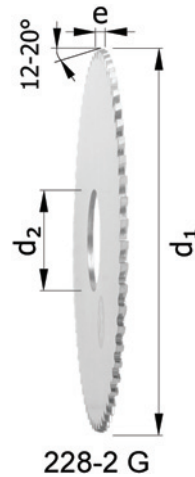
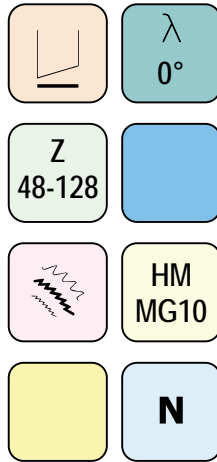
WINKELSTIRNFRASE 12° bis 20° - Rechtsschneidend: Ref. 228-2 D - Linksschneidend: Ref. 228-2 G

FRESE CIRCOLARI CONICHE 12° a 20° - Taglio destro: Ref. 228-2 D - Taglio sinistro: Ref. 228-2 G

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$V_f = 0.001 \rightarrow 0.030 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF) / Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
30	0.5	8	64	-	-
30	0.7	8	64	-	-
30	0.8	8	64	-	-
30	1.0	8	64	-	-
30	1.5	8	48	-	-
40	0.5	10	80	-	-
40	0.8	10	64	-	-
40	1.0	10	64	-	-
50	0.5	13	100	-	-
50	0.8	13	100	-	-
50	1.0	13	100	-	-
63	0.5	16	100	-	-
63	0.7	16	100	-	-
63	0.8	16	100	-	-
63	1.0	16	100	-	-
80	0.5	22	128	-	-
80	0.8	22	128	-	-
80	1.0	22	100	-	-
100	0.6	22	128	-	-
100	0.7	22	128	-	-
100	0.8	22	128	-	-
100	1.0	22	128	-	-

Fraises circulaires coniques - 1 taille - 30°

Coupe à droite: réf 228-3 D / à gauche: 228-3 G

ANGLE CUTTERS 1 CUT 30° - Right cut: ref. 228-3 D - Left cut: ref. 228-3 G

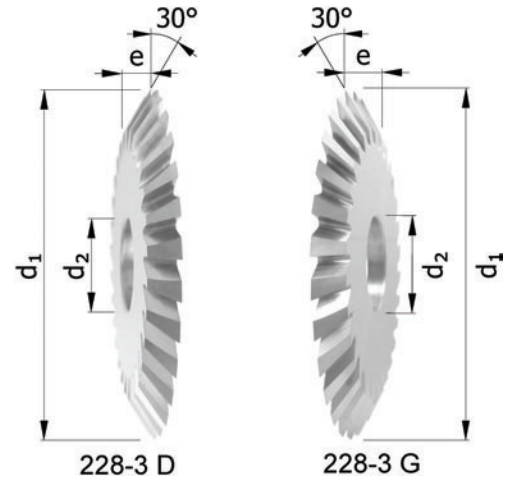
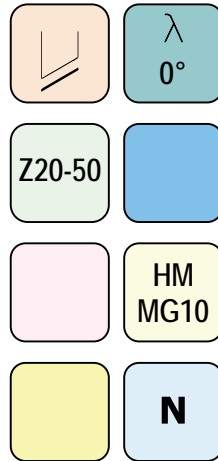
WINKELSTIRNFRASER 1 SCHNITT 30° - Rechtsschneidend: Ref. 228-3 D - Linksschneidend: Ref. 228-3 G

FRESE CIRCOLARI CONICHE 1 TAGLIO 30° - Taglio destro: Ref. 228-3 D - Taglio sinistro: Ref. 228-3 G

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF) / Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
20	2.0	5	20	-	-
20	2.5	5	20	-	-
20	3.0	5	20	-	-
30	2.0	8	30	-	-
30	2.5	8	30	-	-
30	3.0	8	30	-	-
40	2.0	10	40	-	-
40	2.5	10	40	-	-
40	3.0	10	40	-	-
50	2.0	13	50	-	-
50	2.5	13	50	-	-
50	3.0	13	50	-	-

Fraises circulaires coniques - 1 taille - 45°

Coupe à droite: réf 228-4 D / à gauche: 228-4 G

ANGLE CUTTERS 1 CUT 45° - Right cut: ref. 228-4 D - Left cut: ref. 228-4 G

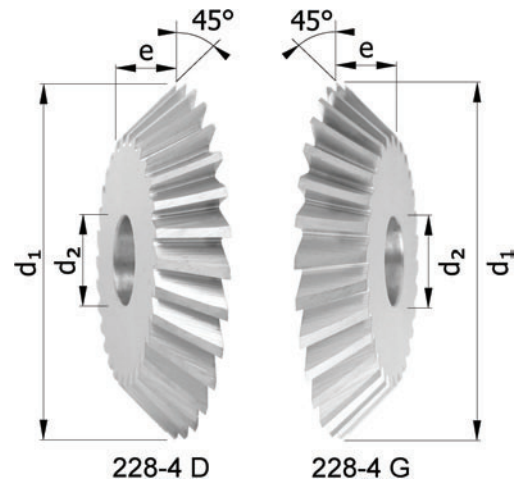
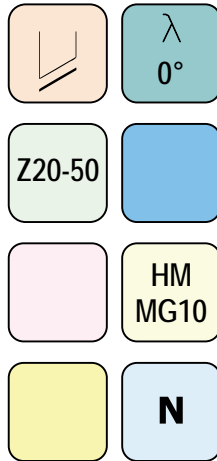
WINKELSTIRNFRASER 1 SCHNITT 45° - Rechtsschneidend: Ref. 228-5 D - Linksschneidend: Ref. 228-5 G

FRESE CIRCOLARI CONICHE 1 TAGLIO 45° - Taglio destro: Ref. 228-5 D - Taglio sinistro: Ref. 228-5 G

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF) / Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
20	2.0	5	20-30	-	-
20	2.5	5	20-30	-	-
20	3.0	5	20-30	-	-
30	2.0	8	30-40	-	-
30	2.5	8	30-40	-	-
30	3.0	8	30-40	-	-
30	4.0	8	30-40	-	-
30	5.0	8	30-40	-	-
30	6.0	8	30-40	-	-
40	2.0	10	40-50	-	-
40	3.0	10	40-50	-	-
40	4.0	10	40-50	-	-
40	5.0	10	40-50	-	-
40	6.0	10	30-40	-	-

Fraises circulaires coniques - 1 taille - 60°

Coupe à droite: réf 228-5 D / à gauche: 228-5 G

ANGLE CUTTERS 1 CUT 60° - Right cut: ref. 228-5 D - Left cut: ref. 228-5 G

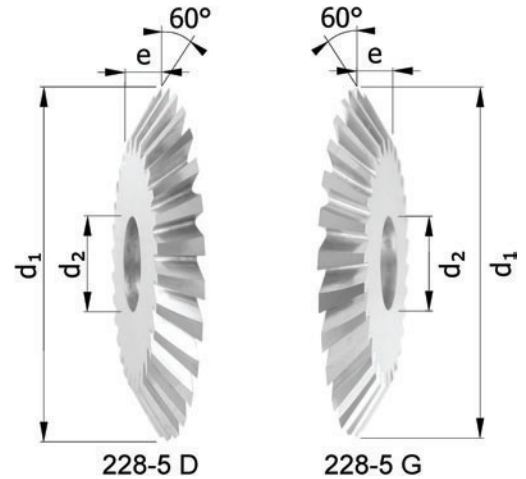
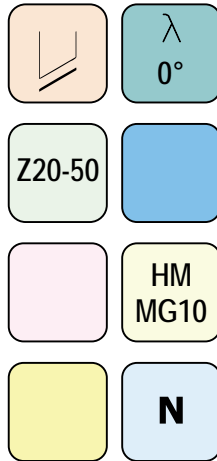
WINKELSTIRNFRASER 1 SCHNITT 60° - Rechtsschneidend: Ref. 228-5 D - Linksschneidend: Ref. 228-5 G

FRESE CIRCOLARI CONICHE 1 TAGLIO 60° - Taglio destro: Ref. 228-5 D - Taglio sinistro: Ref. 228-5 G

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$



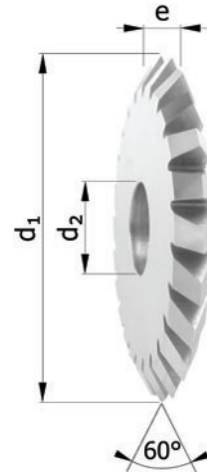
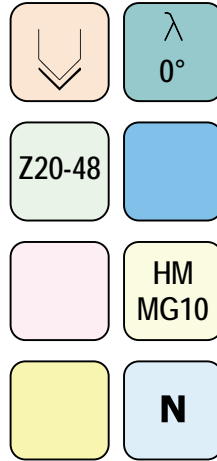
d ₁	e	d ₂	Z	Prix (CHF) / Price (CHF)	
				Non revêtu / Uncoated	Revêtu / Coated
20	2.0	5	20-30	-	-
20	2.5	5	20-30	-	-
20	3.0	5	20-30	-	-
30	2.0	8	30-40	-	-
30	2.5	8	30-40	-	-
30	3.0	8	30-40	-	-
30	4.0	8	30-40	-	-
30	5.0	8	30-40	-	-
30	6.0	8	30-40	-	-
40	2.0	10	40-50	-	-
40	3.0	10	40-50	-	-
40	4.0	10	40-50	-	-
40	5.0	10	40-50	-	-
40	6.0	10	30-40	-	-

Fraises circulaires isocèles 60°

Biconical cutters 60°
Prismenfräser 60°
Frese isocèle 60°
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
20	0.5	5	20	-	-
20	1.0	5	20	-	-
20	1.5	5	20	-	-
20	2.0	5	20	-	-
25	1.0	8	20	-	-
25	1.5	8	20	-	-
25	2.0	8	20	-	-
30	2.0	8	20	-	-
30	2.5	8	24	-	-
30	3.0	8	24	-	-
30	4.0	8	24	-	-
30	5.0	8	24	-	-
40	2.0	10	32	-	-
40	3.0	10	32	-	-
40	4.0	10	32	-	-
40	5.0	10	32	-	-
50	2.0	13	32	-	-
50	3.0	13	32	-	-
50	4.0	13	40	-	-
50	5.0	13	40	-	-
50	6.0	13	40	-	-
63	2.0	16	40	-	-
63	3.0	16	40	-	-
63	4.0	16	40	-	-
63	5.0	16	40	-	-
63	6.0	16	40	-	-

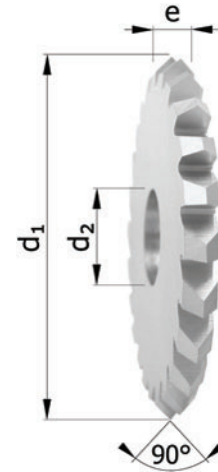
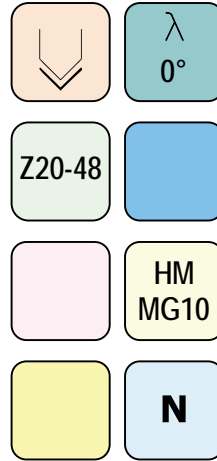
d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
80	2.0	22	48	-	-
80	3.0	22	48	-	-
80	4.0	22	48	-	-
80	5.0	22	48	-	-
80	6.0	22	48	-	-

Fraises circulaires isocèles 90°

Biconical cutters 90°
Prismenfräser 90°
Frese isocèle 90°
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
20	0.5	5	20	-	-
20	1.0	5	20	-	-
20	1.5	5	20	-	-
20	2.0	5	20	-	-
25	1.0	8	20	-	-
25	1.5	8	20	-	-
25	2.0	8	20	-	-
30	2.0	8	24	-	-
30	2.5	8	24	-	-
30	3.0	8	24	-	-
30	4.0	8	24	-	-
30	5.0	8	24	-	-
40	2.0	10	32	-	-
40	3.0	10	32	-	-
40	4.0	10	32	-	-
40	5.0	10	32	-	-
50	2.0	13	32	-	-
50	3.0	13	32	-	-
50	4.0	13	32	-	-
50	5.0	13	32	-	-
50	6.0	13	32	-	-
63	2.0	16	40	-	-
63	3.0	16	40	-	-
63	4.0	16	40	-	-
63	5.0	16	40	-	-
63	6.0	16	40	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
80	2.0	22	48	-	-
80	3.0	22	48	-	-
80	4.0	22	48	-	-
80	5.0	22	48	-	-
80	6.0	22	48	-	-

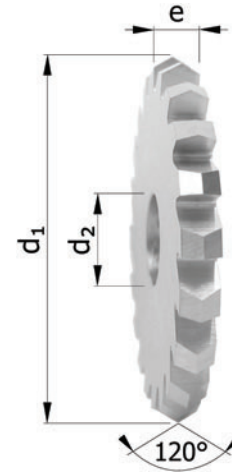
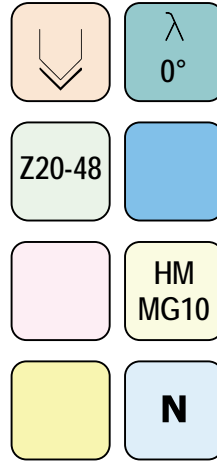
Fraises circulaires isocèles 120°

Biconical cutters 120°
Prismenfräser 120°
Frese isocèle 120°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$



d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
20	0.5	5	20	-	-
20	1.0	5	20	-	-
20	1.5	5	20	-	-
20	2.0	5	20	-	-
25	1.0	8	20	-	-
25	1.5	8	20	-	-
25	2.0	8	20	-	-
30	2.0	8	24	-	-
30	2.5	8	24	-	-
30	3.0	8	24	-	-
30	4.0	8	24	-	-
30	5.0	8	24	-	-
40	2.0	10	32	-	-
40	3.0	10	32	-	-
40	4.0	10	32	-	-
40	5.0	10	32	-	-
50	2.0	13	32	-	-
50	3.0	13	32	-	-
50	4.0	13	32	-	-
50	5.0	13	32	-	-
50	6.0	13	32	-	-
63	2.0	16	40	-	-
63	3.0	16	40	-	-
63	4.0	16	40	-	-
63	5.0	16	40	-	-
63	6.0	16	40	-	-

d ₁	e	d ₂	Z	Prix (CHF)/Price (CHF)	
				Non revêtu Uncoated	Revêtu Coated
80	2.0	22	48	-	-
80	3.0	22	48	-	-
80	4.0	22	48	-	-
80	5.0	22	48	-	-
80	6.0	22	48	-	-

Fraises circulaires 1/2 rondes convexes

Radius cutters
convex

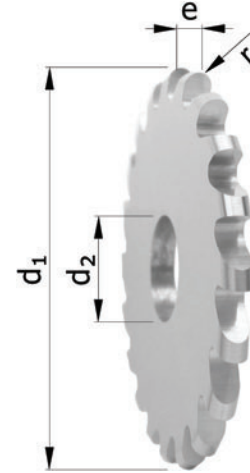
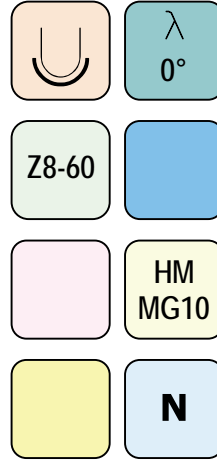
Radiusfräser - konvex

Frese circolari con raggio
convesso

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	+	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$$V_f = 0.003 \rightarrow 0.030 \times d_1 \times n$$



d ₁	e	r	d ₂	Z	Prix (CHF)/Price (CHF)	
					Non revêtu Uncoated	Revêtu Coated
10	0.2	0.10	3	15	-	-
10	0.5	0.25	3	15	-	-
10	1.0	0.50	3	15	-	-
10	1.5	0.75	3	15	-	-
10	2.0	1.00	3	8	-	-
10	3.0	1.50	3	8	-	-
10	4.0	2.00	3	8	-	-
15	0.2	0.10	5	20	-	-
15	0.5	0.25	5	20	-	-
15	1.0	0.50	5	20	-	-
15	1.5	0.75	5	12	-	-
15	2.0	1.00	5	12 - 16	-	-
15	3.0	1.50	5	10	-	-
15	3.5	1.75	5	10	-	-
15	4.0	2.00	5	10	-	-
15	5.0	2.50	5	10	-	-
20	0.2	0.10	5	20 - 24	-	-
20	0.5	0.25	5	18 - 20	-	-
20	0.6	0.30	5	18 - 20	-	-
20	0.7	0.35	5	18 - 20	-	-
20	0.8	0.40	5	18 - 20	-	-
20	0.9	0.45	5	18 - 20	-	-
20	1.0	0.50	5	20 - 24	-	-
20	1.1	0.55	5	20 - 24	-	-
20	1.2	0.60	5	16 - 20	-	-

d ₁	e	r	d ₂	Z	Prix (CHF)/Price (CHF)	
					Non revêtu Uncoated	Revêtu Coated
20	1.3	0.65	5	16 - 20	-	-
20	1.4	0.70	5	16 - 20	-	-
20	1.5	0.75	5	16 - 20	-	-
20	1.6	0.80	5	16 - 20	-	-
20	1.7	0.85	5	16 - 20	-	-
20	1.8	0.90	5	16 - 20	-	-
20	1.9	0.95	5	16 - 20	-	-
20	2.0	1.00	5	16 - 20	-	-
20	2.1	1.05	5	16	-	-
20	2.2	1.10	5	16	-	-
20	2.3	1.15	5	16	-	-
20	2.4	1.20	5	16	-	-
20	2.5	1.25	5	16	-	-
20	2.6	1.30	5	16	-	-
20	2.7	1.35	5	16	-	-
20	2.8	1.40	5	16	-	-
20	2.9	1.45	5	16	-	-
20	3.0	1.50	5	16	-	-
20	3.5	1.75	5	16	-	-
20	4.0	2.00	5	16	-	-
20	4.5	2.25	5	16	-	-
20	5.0	2.50	5	12 - 16	-	-
20	6.0	3.00	5	12 - 16	-	-
25	0.2	0.10	8	30	-	-
25	0.5	0.25	8	20 - 30	-	-

Suite page suivante / Continued next page



Suite / cont.

d ₁	e	r	d ₂	Z	Prix (CHF)/Price (CHF)	
					Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
25	0.6	0.30	8	20 - 30	-	-
25	0.7	0.35	8	20 - 30	-	-
25	0.8	0.40	8	20 - 30	-	-
25	0.9	0.45	8	20 - 30	-	-
25	1.0	0.50	8	20 - 30	-	-
25	1.1	0.55	8	20 - 30	-	-
25	1.2	0.60	8	20 - 30	-	-
25	1.3	0.65	8	20 - 30	-	-
25	1.4	0.70	8	20 - 30	-	-
25	1.5	0.75	8	16 - 20	-	-
25	1.6	0.80	8	16 - 20	-	-
25	1.7	0.85	8	16 - 20	-	-
25	1.8	0.90	8	16 - 20	-	-
25	1.9	0.95	8	16 - 20	-	-
25	2.0	1.00	8	20 - 24	-	-
25	2.1	1.05	8	20 - 24	-	-
25	2.2	1.10	8	20 - 24	-	-
25	2.3	1.15	8	20 - 24	-	-
25	2.4	1.20	8	20 - 24	-	-
25	2.5	1.25	8	20 - 24	-	-
25	2.6	1.30	8	20 - 24	-	-
25	2.7	1.35	8	20 - 24	-	-
25	2.8	1.40	8	20 - 24	-	-
25	2.9	1.45	8	20 - 24	-	-
25	3.0	1.50	8	16	-	-
25	3.5	1.75	8	16	-	-
25	4.0	2.00	8	16	-	-
25	4.5	2.25	8	16	-	-
25	5.0	2.50	8	16	-	-
25	6.0	3.00	8	16	-	-
30	0.2	0.10	8	30	-	-
30	0.5	0.25	8	24 - 30	-	-
30	1.0	0.50	8	24 - 30	-	-
30	1.1	0.55	8	20 - 24	-	-
30	1.2	0.60	8	20 - 24	-	-
30	1.3	0.65	8	20 - 24	-	-
30	1.4	0.70	8	20 - 24	-	-
30	1.5	0.75	8	20 - 24	-	-
30	1.6	0.80	8	20 - 24	-	-
30	1.7	0.85	8	20 - 24	-	-
30	1.8	0.90	8	20 - 24	-	-
30	1.9	0.95	8	20 - 24	-	-
30	2.0	1.00	8	20 - 24	-	-
30	2.1	1.05	8	20 - 24	-	-
30	2.2	1.10	8	20 - 24	-	-
30	2.3	1.15	8	20 - 24	-	-
30	2.4	1.20	8	20 - 24	-	-

d ₁	e	r	d ₂	Z	Prix (CHF)/Price (CHF)	
					Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
30	2.5	1.25	8	20 - 24	-	-
30	2.6	1.30	8	20 - 24	-	-
30	2.7	1.35	8	20 - 24	-	-
30	2.8	1.40	8	20 - 24	-	-
30	2.9	1.45	8	20 - 24	-	-
30	3.0	1.50	8	15 - 20	-	-
30	3.5	1.75	8	15 - 20	-	-
30	4.0	2.00	8	15 - 20	-	-
30	4.5	2.25	8	15 - 20	-	-
30	5.0	2.50	8	15 - 20	-	-
30	6.0	3.00	8	15 - 20	-	-
30	6.1	3.05	8	15 - 20	-	-
40	0.2	0.10	10	40	-	-
40	0.5	0.25	10	40	-	-
40	0.6	0.30	10	40	-	-
40	0.7	0.35	10	40	-	-
40	0.8	0.40	10	40	-	-
40	0.9	0.45	10	40	-	-
40	1.0	0.50	10	28 - 40	-	-
40	1.1	0.55	10	24 - 30	-	-
40	1.2	0.60	10	24 - 30	-	-
40	1.3	0.65	10	24 - 30	-	-
40	1.4	0.70	10	24 - 30	-	-
40	1.5	0.75	10	24 - 30	-	-
40	1.6	0.80	10	24 - 30	-	-
40	1.7	0.85	10	24 - 30	-	-
40	1.8	0.90	10	24 - 30	-	-
40	1.9	0.95	10	24 - 30	-	-
40	2.0	1.00	10	24 - 30	-	-
40	2.1	1.05	10	24 - 30	-	-
40	2.2	1.10	10	24 - 30	-	-
40	2.3	1.15	10	24 - 30	-	-
40	2.4	1.20	10	24 - 30	-	-
40	2.5	1.25	10	24 - 30	-	-
40	2.6	1.30	10	24 - 30	-	-
40	2.7	1.35	10	24 - 30	-	-
40	2.8	1.40	10	24 - 30	-	-
40	2.9	1.45	10	24 - 30	-	-
40	3.0	1.50	10	24	-	-
40	3.5	1.75	10	24	-	-
40	4.0	2.00	10	24	-	-
40	4.5	2.25	10	24	-	-
40	5.0	2.50	10	24	-	-
40	6.0	3.00	10	24	-	-
50	0.2	0.10	13	50	-	-
50	0.5	0.25	13	50	-	-
50	0.6	0.30	13	50	-	-

Suite page suivante / Continued next page

Suite / cont.

d ₁	e	r	d ₂	Z	Prix (CHF)/Price (CHF)	
					Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
50	0.7	0.35	13	50	-	-
50	0.8	0.40	13	50	-	-
50	0.9	0.45	13	50	-	-
50	1.0	0.50	13	50	-	-
50	1.1	0.55	13	40	-	-
50	1.2	0.60	13	40	-	-
50	3.3	1.65	13	40	-	-
50	1.4	0.70	13	40	-	-
50	1.5	0.75	13	40	-	-
50	1.6	0.80	13	40	-	-
50	1.7	0.85	13	40	-	-
50	1.8	0.90	13	40	-	-
50	1.9	0.95	13	40	-	-
50	2.0	1.00	13	40	-	-
50	2.1	1.05	13	40	-	-
50	2.2	1.10	13	40	-	-
50	2.3	1.15	13	40	-	-
50	2.4	1.20	13	40	-	-
50	2.5	1.25	13	40	-	-
50	2.6	1.30	13	40	-	-
50	2.7	1.35	13	40	-	-
50	2.8	1.40	13	40	-	-
50	2.9	1.45	13	40	-	-
50	3.0	1.50	13	30	-	-
50	3.5	1.75	13	30	-	-
50	4.0	2.00	13	30	-	-
50	4.5	2.25	13	30	-	-
50	5.0	2.50	13	30	-	-
50	6.0	3.00	13	30	-	-
63	0.5	0.25	16	60	-	-
63	1.0	0.50	16	60	-	-
63	1.5	0.75	16	40	-	-
63	2.0	1.00	16	40	-	-
63	2.5	1.25	16	40	-	-
63	3.0	1.50	16	40	-	-
63	3.5	1.75	16	40	-	-
63	4.0	2.00	16	30	-	-
63	4.5	2.25	16	30	-	-
63	5.0	2.50	16	30	-	-
63	6.0	3.00	16	30	-	-
80	0.5	0.25	22	80	-	-
80	1.0	0.50	22	80	-	-
80	1.5	0.75	22	60	-	-
80	2.0	1.00	22	60	-	-
80	2.5	1.25	22	60	-	-
80	3.0	1.50	22	40	-	-
80	3.5	1.75	22	40	-	-

d ₁	e	r	d ₂	Z	Prix (CHF)/Price (CHF)	
					Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
80	4.0	2.00	22	40	-	-
80	4.5	2.25	22	40	-	-
80	5.0	2.50	22	40	-	-
80	6.0	3.00	22	40	-	-
100	0.5	0.25	22	80	-	-
100	1.0	0.50	22	80	-	-
100	1.5	0.75	22	80	-	-
100	2.0	1.00	22	60	-	-
100	3.0	1.50	22	60	-	-
100	3.5	1.75	22	60	-	-
100	4.0	2.00	22	50	-	-
100	4.5	2.25	22	50	-	-
100	5.0	2.50	22	50	-	-
100	6.0	3.00	22	50	-	-

Fraises circulaires 1/2 rondes concaves

Radius cutters
concave

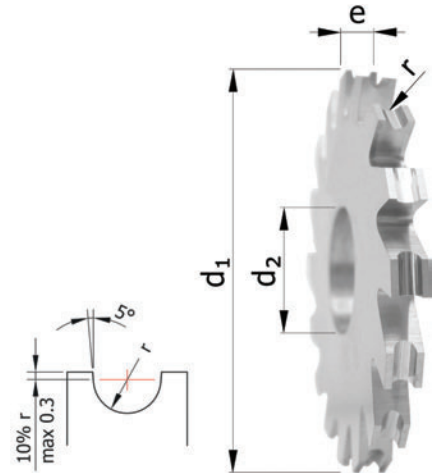
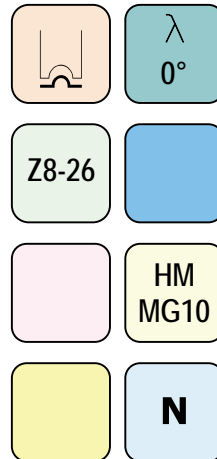
Radiusfräser - konkav

Frese circolari con raggio
concavi

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	45 - 90	+	++
Acier/Steel <700 N/mm ²	70 - 140	+	++
Acier/Steel >700 N/mm ²	45 - 100	+	++
Titane/Titan	30 - 55	+	++
Aluminium	140 - 540	++	++
Cuivre/Copper	70 - 270	+	++
Laiton/Brass	70 - 270	+	++
Or/Gold & Argent/Silver	70 - 270	++	-
Graphite	180 - 720	-	++
Polymères/Polymers	140 - 540	++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



d ₁	e	r	d ₂	Z	Prix (CHF) / Price (CHF)	
					Non revêtu / Uncoated	Revêtu / Coated
20	1.0	0.1 - 0.2	5	12 - 14	-	-
20	1.5	0.3 - 0.4	5	12 - 14	-	-
20	2.0	0.5 - 0.6	5	12 - 14	-	-
20	3.0	0.7 - 1.0	5	10 - 12	-	-
20	4.0	1.1 - 1.5	5	10 - 12	-	-
20	5.0	1.6 - 1.8	5	10 - 12	-	-
20	6.0	1.9 - 2.3	5	8 - 10	-	-
25	1.0	0.1 - 0.2	8	15 - 16	-	-
25	1.5	0.3 - 0.4	8	15 - 16	-	-
25	2.0	0.5 - 0.6	8	14 - 16	-	-
25	3.0	0.7 - 1.0	8	14 - 16	-	-
25	4.0	1.1 - 1.5	8	12 - 14	-	-
25	5.0	1.6 - 1.8	8	12 - 14	-	-
25	6.0	1.9 - 2.3	8	12 - 14	-	-
25	7.0	2.4 - 2.8	8	12 - 14	-	-
25	8.0	2.9 - 3.3	8	10 - 12	-	-
25	9.0	3.4 - 3.5	8	10 - 12	-	-
30	1.0	0.1 - 0.3	8	16 - 18	-	-
30	1.5	0.3 - 0.4	8	16 - 18	-	-
30	2.0	0.5 - 0.6	8	16 - 18	-	-
30	3.0	0.7 - 1.0	8	16 - 18	-	-
30	4.0	1.1 - 1.5	8	15 - 16	-	-
30	5.0	1.6 - 1.8	8	15 - 16	-	-
30	6.0	1.9 - 2.3	8	14 - 16	-	-
30	7.0	2.4 - 2.8	8	12 - 14	-	-

Suite page suivante / Continued next page

d ₁	e	r	d ₂	Z	Prix (CHF) / Price (CHF)	
					Non revêtu <i>Uncoated</i>	Revêtu <i>Coated</i>
30	8.0	2.9 - 3.3	8	12 - 14	-	-
30	9.0	3.4 - 3.5	8	12 - 14	-	-
30	10.0	3.6 - 4.0	8	12 - 14	-	-
40	1.0	0.1 - 0.2	10	18 - 20	-	-
40	1.5	0.3 - 0.4	10	18 - 20	-	-
40	2.0	0.5 - 0.6	10	18 - 20	-	-
40	3.0	0.7 - 1.0	10	18 - 20	-	-
40	4.0	1.1 - 1.5	10	16 - 18	-	-
40	5.0	1.6 - 1.8	10	16 - 18	-	-
40	6.0	1.9 - 2.3	10	16 - 18	-	-
40	7.0	2.4 - 2.8	10	16 - 18	-	-
40	8.0	2.9 - 3.3	10	16 - 18	-	-
40	9.0	3.4 - 3.5	10	15 - 16	-	-
40	10.0	3.6 - 4.0	10	15 - 16	-	-
40	11.0	4.1 - 4.5	10	14 - 16	-	-
40	12.0	4.6 - 5.0	10	14 - 16	-	-
50	1.5	0.3 - 0.4	13	22	-	-
50	2.0	0.5 - 0.6	13	22	-	-
50	3.0	0.7 - 1.0	13	22	-	-
50	4.0	1.1 - 1.5	13	22	-	-
50	5.0	1.6 - 1.8	13	22	-	-
50	6.0	1.9 - 2.3	13	20	-	-
50	8.0	2.4 - 3.3	13	20	-	-
50	10.0	3.4 - 4.0	13	20	-	-
50	12.0	4.1 - 5.0	13	18	-	-
63	1.5	0.3 - 0.4	16	26	-	-
63	2.0	0.5 - 0.6	16	24	-	-
63	3.0	0.7 - 1.0	16	24	-	-
63	4.0	1.1 - 1.5	16	24	-	-
63	5.0	1.6 - 1.8	16	24	-	-
63	6.0	1.9 - 2.3	16	24	-	-
63	8.0	2.4 - 3.3	16	22	-	-
63	10.0	3.4 - 4.0	16	22	-	-
63	12.0	4.1 - 5.0	16	22	-	-



Forets et mèches en carbure

Drills in solid carbide

Bohrer aus VHM

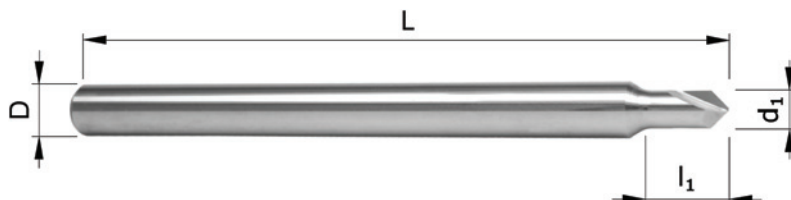
Punte in metallo duro

Pointeur-angleurs 90°

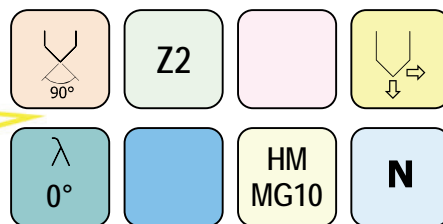
Centering & chamfering drills
90°
Zentrier & Senkbohrer
90°
Punte a centrare & smussare
90°
Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/Stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

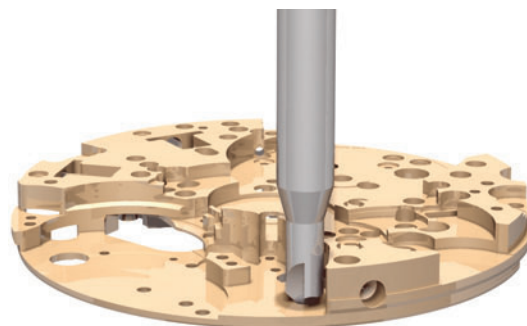
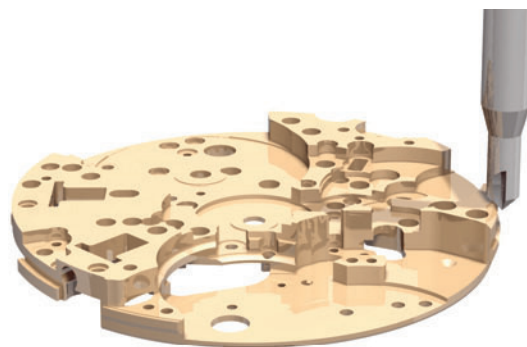
$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Finition poli glace
Mirror finishing


Tolérances:

D : h6				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
0.60	2.0	3.0	38	-	-	-
0.70	2.0	3.0	38	-	-	-
0.80	2.0	3.0	38	-	-	-
0.90	2.0	3.0	38	-	-	-
1.00	2.0	3.0	38	-	-	-
1.10	2.0	3.0	38	-	-	-
1.20	2.0	3.0	38	-	-	-
1.30	2.5	3.0	38	-	-	-
1.40	2.5	3.0	38	-	-	-
1.50	3.0	3.0	38	-	-	-
1.60	3.0	3.0	38	-	-	-
1.70	3.0	3.0	38	-	-	-
1.80	3.0	3.0	38	-	-	-
1.90	3.0	3.0	38	-	-	-
2.00	4.0	3.0	38	-	-	-
2.50	4.5	3.0	38	-	-	-
3.00	-	3.0	38	-	-	-


Pointage / Centering

Anglage / Chamfering

Pointeur-angleurs 120°

Centering & chamfering drills
120°

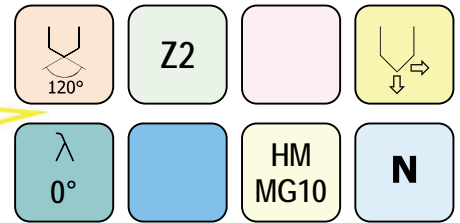
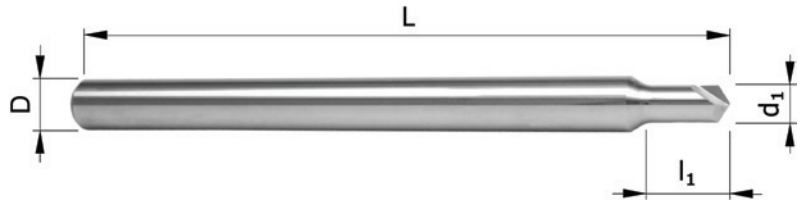
Zentrier & Senkbohrer
120°

Punte a centrare & smussare
120°

Recommandé pour / Usage recommendations:

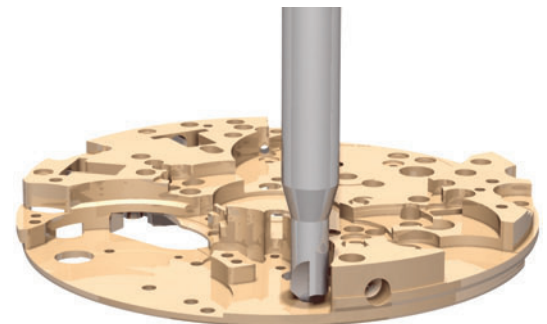
Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/Stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$

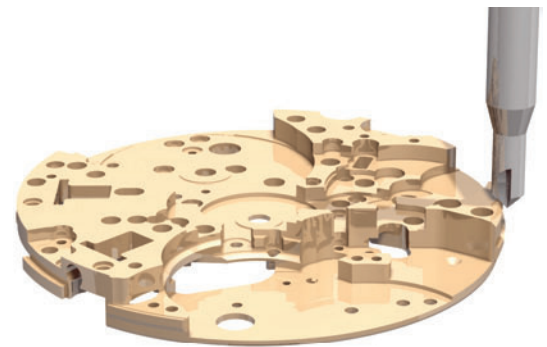


Tolérances:

D : h6				Prix (CHF) / Price (CHF)		
d ₁	l ₁	D	L	Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
0.60	2.0	3.0	38	-	-	-
0.70	2.0	3.0	38	-	-	-
0.80	2.0	3.0	38	-	-	-
0.90	2.0	3.0	38	-	-	-
1.00	2.0	3.0	38	-	-	-
1.10	2.0	3.0	38	-	-	-
1.20	2.0	3.0	38	-	-	-
1.30	2.5	3.0	38	-	-	-
1.40	2.5	3.0	38	-	-	-
1.50	3.0	3.0	38	-	-	-
1.60	3.0	3.0	38	-	-	-
1.70	3.0	3.0	38	-	-	-
1.80	3.0	3.0	38	-	-	-
1.90	3.0	3.0	38	-	-	-
2.00	4.0	3.0	38	-	-	-
2.50	4.5	3.0	38	-	-	-
3.00	-	3.0	38	-	-	-



Pointage / Centering



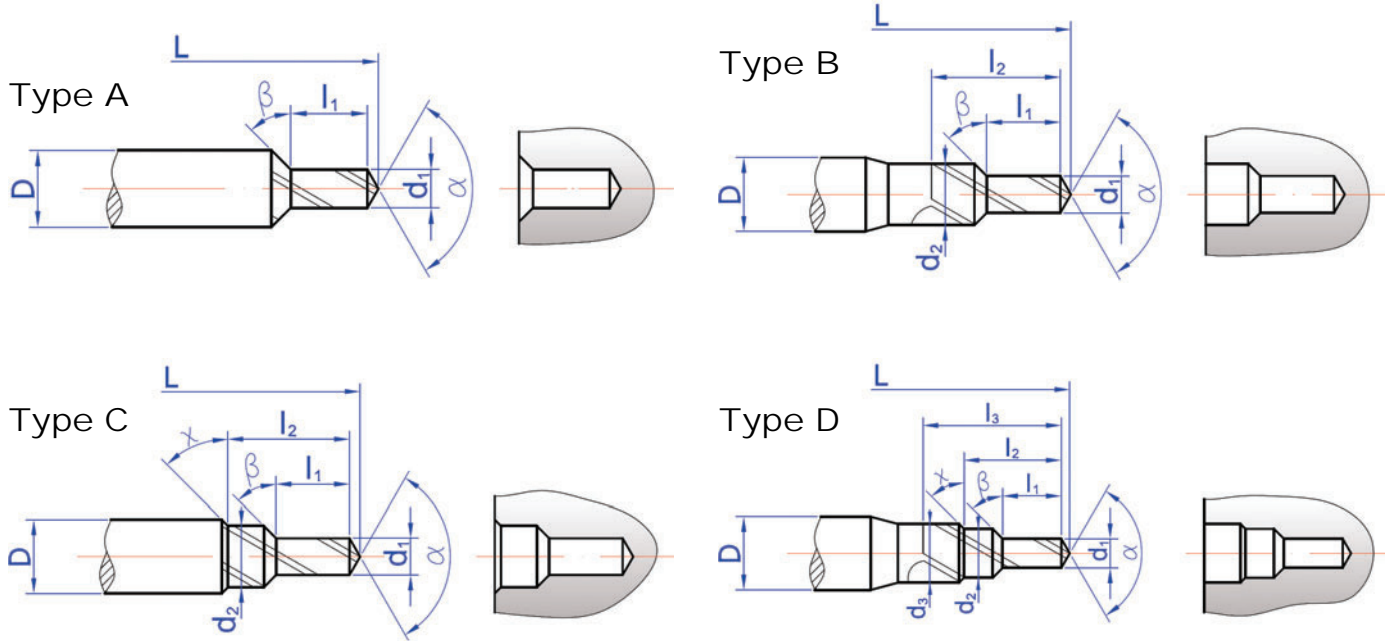
Anglage / Chamfering

Forets étagés

Step drills in solid carbide

Stufenbohrer aus VHM

Punte a gradini in metallo duro



Matière: carbure de tungstène

Commande / Order:

Demande d'offre / Quotation request:

<input type="checkbox"/> Type A	<input type="checkbox"/> Type B	<input type="checkbox"/> Type C	<input type="checkbox"/> Type D
Dimensions:		Angle d'hélice / Helix angle:	
D :	L :	alpha :	<input type="checkbox"/> 24° Coupe or/ for gold
d1 :	l1 :	beta :	<input type="checkbox"/> 34° Coupe inox/ for stainless steel
d2 :	l2 :	chi :	<input type="checkbox"/> 30° Coupe or/ for gold
d3 :	l3 :		<input type="checkbox"/> 24° Coupe laiton/ for brass
<input type="checkbox"/> Coupe à droite / right cut <input type="checkbox"/> Coupe à gauche / left cut		Revêtement / Coating:	
		<input type="checkbox"/> TiCN <input type="checkbox"/> Aucun/none	
		<input type="checkbox"/> TiAlN <input type="checkbox"/> Autre/other:	
Matière à usiner / Machined material:		Quantité / Quantity:	N° commande / Order No:
Timbre de la société / Company's stamp:		Personne de contact: Contact person:	

Mèches à centrer 60° - DIN 333

Center drills 60° - DIN 333

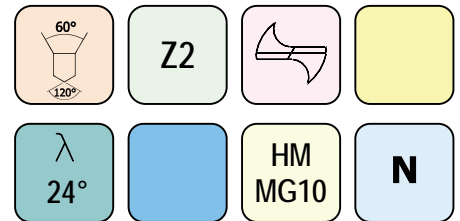
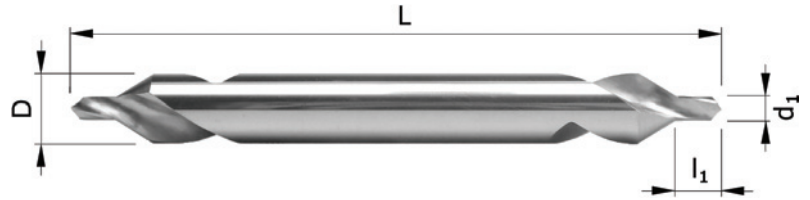
Zentrierbohrer 60° - DIN 333

Punte da centro 60° - DIN 333

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	49 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$


Tolérances:

 d₁: ± 0.01 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.80	1.3	3.15	31.5	-	-	-
1.00	1.6	3.15	31.5	-	-	-
1.25	1.9	3.15	31.5	-	-	-
1.60	2.4	4.00	35.5	-	-	-
2.00	2.9	5.00	40.0	-	-	-
2.50	3.6	6.30	45.0	-	-	-
3.15	4.4	8.00	50.0	-	-	-
4.00	5.6	10.00	56.0	-	-	-

Centreurs NC Pointe 90°

hélice et coupe à droite

NC-Center drills
Point angle 90°
right-hand cut

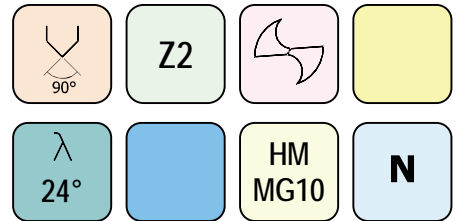
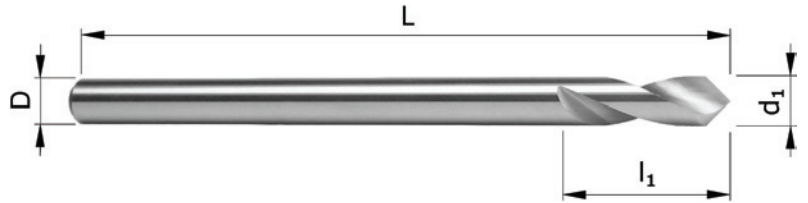
NC Anbohrer
Spitzenwinkel 90°
rechtschneidend

Punte da centro NC
Angolo di punta 90°
taglio destro

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$



Tolérances:

$d_1 < D \Leftrightarrow d_1: \pm 0.01$ $d_1 = D \Leftrightarrow d_1: h6$ $D: h6$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.50	2.0	2.0	38	-	-	-
0.55	2.0	2.0	38	-	-	-
0.60	2.0	2.0	38	-	-	-
0.65	2.0	2.0	38	-	-	-
0.70	2.0	2.0	38	-	-	-
0.75	2.0	2.0	38	-	-	-
0.80	3.0	2.0	38	-	-	-
0.85	3.0	2.0	38	-	-	-
0.90	3.0	2.0	38	-	-	-
0.95	3.0	2.0	38	-	-	-
1.00	3.0	2.0	38	-	-	-
1.05	3.0	2.0	38	-	-	-
1.10	3.0	2.0	38	-	-	-
1.15	3.0	2.0	38	-	-	-
1.20	3.0	2.0	38	-	-	-
1.25	3.0	2.0	38	-	-	-
1.30	3.0	2.0	38	-	-	-
1.35	3.0	2.0	38	-	-	-
1.40	3.0	2.0	38	-	-	-
1.45	3.0	2.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.50	5.0	2.0	38	-	-	-
1.60	5.0	2.0	38	-	-	-
1.70	5.0	2.0	38	-	-	-
1.80	5.0	2.0	38	-	-	-
1.90	5.0	2.0	38	-	-	-
2.00	8.0	2.0	38	-	-	-
2.50	8.0	2.5	38	-	-	-
3.00	10.0	3.0	44	-	-	-
4.00	12.0	4.0	51	-	-	-
5.00	12.0	5.0	51	-	-	-
6.00	15.0	6.0	61	-	-	-
8.00	20.0	8.0	72	-	-	-
10.00	20.0	10.0	72	-	-	-
12.00	25.0	12.0	83	-	-	-
16.00	25.0	16.0	83	-	-	-
20.00	35.0	20.0	104	-	-	-

Centreurs NC - Pointe 90°

hélice et coupe à gauche

NC Center drills
Point angle 90°
left-hand cut

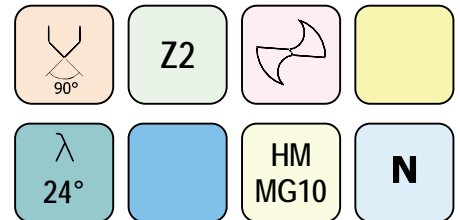
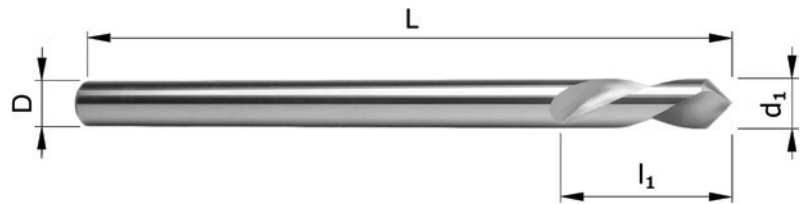
NC Anbohrer
Spitzenwinkel 90°
linksschneidend

Punte da centro NC
Angolo di punta 90°
taglio sinistro

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

$$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad d_1 = D \Leftrightarrow d_1: h6 \quad D: h6$$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.80	3.0	2.0	38	-	-	-
0.90	3.0	2.0	38	-	-	-
1.00	3.0	2.0	38	-	-	-
1.10	3.0	2.0	38	-	-	-
1.20	3.0	2.0	38	-	-	-
1.30	3.0	2.0	38	-	-	-
1.40	3.0	2.0	38	-	-	-
1.50	5.0	2.0	38	-	-	-
1.60	5.0	2.0	38	-	-	-
1.70	5.0	2.0	38	-	-	-
1.80	5.0	2.0	38	-	-	-
1.90	5.0	2.0	38	-	-	-
2.00	8.0	2.0	38	-	-	-
2.50	8.0	2.5	38	-	-	-
3.00	10.0	3.0	44	-	-	-
4.00	12.0	4.0	51	-	-	-
5.00	12.0	5.0	51	-	-	-
6.00	15.0	6.0	61	-	-	-
8.00	20.0	8.0	72	-	-	-
10.00	20.0	10.0	72	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
12.00	25.0	12.0	83	-	-	-
16.00	25.0	16.0	83	-	-	-
20.00	35.0	20.0	104	-	-	-

Centreurs NC - Pointe 120°

NC-Center drills
Point angle 120°

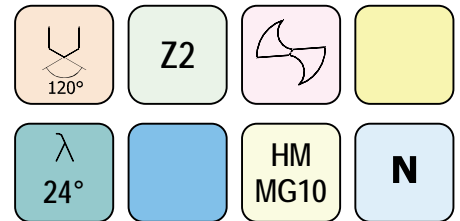
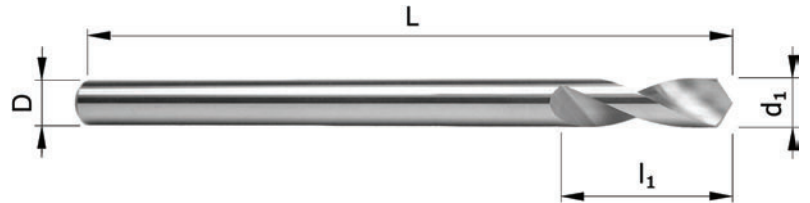
NC Anbohrer
Spitzenwinkel 120°

Punte da centro NC
Angolo di punta 120°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

$$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad d_1 = D \Leftrightarrow d_1: h6 \quad D: h6$$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
0.50	2.0	2.0	38	-	-	-
0.55	2.0	2.0	38	-	-	-
0.60	2.0	2.0	38	-	-	-
0.65	2.0	2.0	38	-	-	-
0.70	2.0	2.0	38	-	-	-
0.75	2.0	2.0	38	-	-	-
0.80	3.0	2.0	38	-	-	-
0.85	3.0	2.0	38	-	-	-
0.90	3.0	2.0	38	-	-	-
0.95	3.0	2.0	38	-	-	-
1.00	3.0	2.0	38	-	-	-
1.05	3.0	2.0	38	-	-	-
1.10	3.0	2.0	38	-	-	-
1.15	3.0	2.0	38	-	-	-
1.20	3.0	2.0	38	-	-	-
1.25	3.0	2.0	38	-	-	-
1.30	3.0	2.0	38	-	-	-
1.35	3.0	2.0	38	-	-	-
1.40	3.0	2.0	38	-	-	-
1.45	3.0	2.0	38	-	-	-
1.50	5.0	2.0	38	-	-	-
1.60	5.0	2.0	38	-	-	-
1.70	5.0	2.0	38	-	-	-
1.80	5.0	2.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
1.90	5.0	2.0	38	-	-	-
2.00	8.0	2.0	38	-	-	-
2.50	8.0	2.5	38	-	-	-
3.00	10.0	3.0	44	-	-	-
4.00	12.0	4.0	51	-	-	-
5.00	12.0	5.0	51	-	-	-
6.00	15.0	6.0	61	-	-	-
8.00	20.0	8.0	72	-	-	-
10.00	20.0	10.0	72	-	-	-
12.00	25.0	12.0	83	-	-	-
16.00	25.0	16.0	83	-	-	-
20.00	35.0	20.0	104	-	-	-

Centreurs NC Pointe 60°

NC-Center drills
Point angle 60°

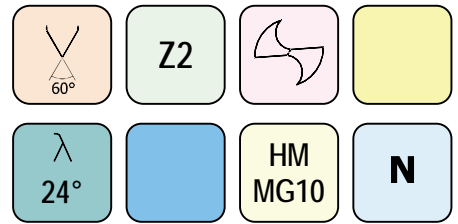
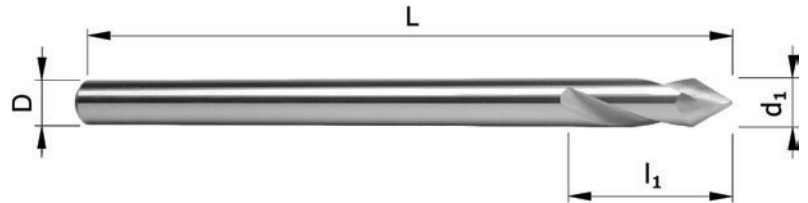
NC Anbohrer
Spitzenwinkel 60°

Punte da centro NC
Angolo di punta 60°

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

$$d_1 < D \Leftrightarrow d_1: \pm 0.01 \quad d_1 = D \Leftrightarrow d_1: h6 \quad D: h6$$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.50	3.0	2.0	38	-	-	-
0.60	3.0	2.0	38	-	-	-
0.70	3.0	2.0	38	-	-	-
0.80	3.0	2.0	38	-	-	-
0.90	3.0	2.0	38	-	-	-
1.00	3.0	2.0	38	-	-	-
1.10	3.0	2.0	38	-	-	-
1.20	3.0	2.0	38	-	-	-
1.30	3.0	2.0	38	-	-	-
1.40	3.0	2.0	38	-	-	-
1.50	5.0	2.0	38	-	-	-
1.60	5.0	2.0	38	-	-	-
1.70	5.0	2.0	38	-	-	-
1.80	5.0	2.0	38	-	-	-
1.90	5.0	2.0	38	-	-	-
2.00	8.0	2.0	38	-	-	-
2.50	8.0	2.5	38	-	-	-
3.00	10.0	3.0	44	-	-	-
4.00	12.0	4.0	51	-	-	-
5.00	12.0	5.0	51	-	-	-
6.00	15.0	6.0	61	-	-	-
8.00	20.0	8.0	72	-	-	-
10.00	20.0	10.0	72	-	-	-
12.00	25.0	12.0	83	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
16.00	25.0	16.0	83	-	-	-
20.00	35.0	20.0	104	-	-	-

Forets avec pointeur

Twist drills
with centering tip

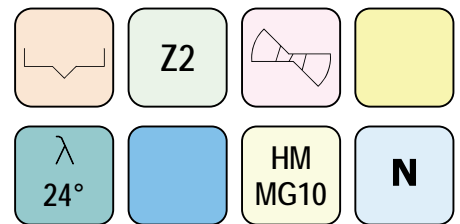
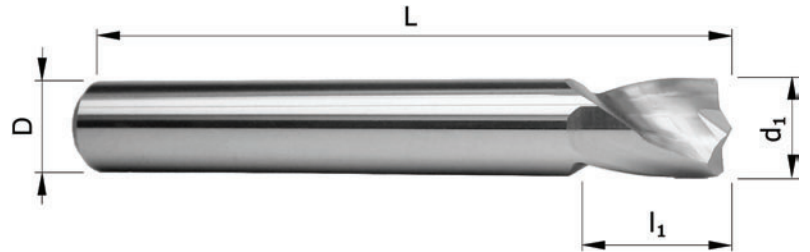
Spiralbohrer
mit Zentrierspitze

Punte elicoidali
con punte da centro

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

$$d_1 < D \Leftrightarrow d_1: -0.002/-0.004 \quad d_1 = D \Leftrightarrow d_1: h6 \quad D: h6$$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.00	8.0	3.0	33	-	-	-
2.10	8.0	3.0	33	-	-	-
2.20	8.0	3.0	33	-	-	-
2.30	8.0	3.0	33	-	-	-
2.40	8.0	3.0	33	-	-	-
2.50	8.0	3.0	33	-	-	-
2.60	8.0	3.0	33	-	-	-
2.70	8.0	3.0	33	-	-	-
2.80	8.0	3.0	33	-	-	-
2.90	8.0	3.0	33	-	-	-
3.00	8.0	3.0	33	-	-	-
3.10	8.0	3.5	33	-	-	-
3.20	8.0	3.5	33	-	-	-
3.30	8.0	3.5	33	-	-	-
3.40	8.0	3.5	33	-	-	-
3.50	8.0	3.5	33	-	-	-
3.60	8.0	4.0	33	-	-	-
3.70	8.0	4.0	33	-	-	-
3.80	8.0	4.0	33	-	-	-
3.90	8.0	4.0	33	-	-	-
4.00	8.0	4.0	33	-	-	-
4.10	8.0	4.5	33	-	-	-
4.20	8.0	4.5	33	-	-	-
4.30	8.0	4.5	33	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
4.40	8.0	4.5	33	-	-	-
4.50	8.0	4.5	33	-	-	-
4.60	8.0	5.0	33	-	-	-
4.70	8.0	5.0	33	-	-	-
4.80	8.0	5.0	33	-	-	-
4.90	8.0	5.0	33	-	-	-
5.00	8.0	5.0	33	-	-	-
5.10	8.0	5.5	33	-	-	-
5.20	8.0	5.5	33	-	-	-
5.30	8.0	5.5	33	-	-	-
5.40	8.0	5.5	33	-	-	-
5.50	8.0	5.5	33	-	-	-
5.60	8.0	6.0	33	-	-	-
5.70	8.0	6.0	33	-	-	-
5.80	8.0	6.0	33	-	-	-
5.90	8.0	6.0	33	-	-	-
6.00	8.0	6.0	33	-	-	-
6.50	8.0	6.5	33	-	-	-
7.00	8.0	7.0	33	-	-	-
7.50	8.0	7.5	33	-	-	-
8.00	8.0	8.0	33	-	-	-

Forets hélicoïdaux 2 lèvres

Twist drills - 2 flutes

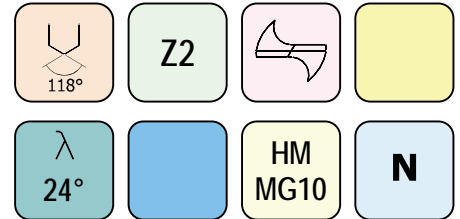
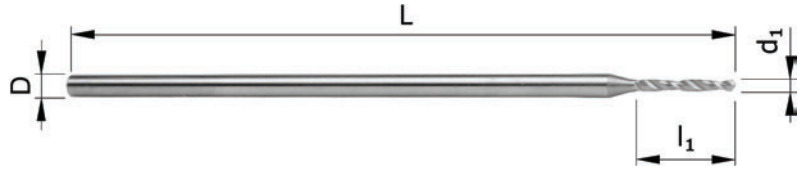
Spiralbohrer - 2 Schneiden

Punta elicoidali - 2 taglienti

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	+
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	+
Titane/Titan	30 - 70	+	++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	+++
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$


Tolérances:

 d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.10	0.7	1.0	30	-	-	-
0.11	0.7	1.0	30	-	-	-
0.12	0.7	1.0	30	-	-	-
0.13	0.7	1.0	30	-	-	-
0.14	0.7	1.0	30	-	-	-
0.15	1.0	1.0	30	-	-	-
0.16	1.0	1.0	30	-	-	-
0.17	1.0	1.0	30	-	-	-
0.18	1.0	1.0	30	-	-	-
0.19	1.0	1.0	30	-	-	-
0.20	1.0	1.0	30	-	-	-
0.21	1.0	1.0	30	-	-	-
0.22	1.0	1.0	30	-	-	-
0.23	1.0	1.0	30	-	-	-
0.24	1.0	1.0	30	-	-	-
0.25	1.0	1.0	30	-	-	-
0.26	1.0	1.0	30	-	-	-
0.27	1.0	1.0	30	-	-	-
0.28	1.0	1.0	30	-	-	-
0.29	1.0	1.0	30	-	-	-
0.30	1.5	1.0	30	-	-	-
0.31	1.5	1.0	30	-	-	-
0.32	1.5	1.0	30	-	-	-
0.33	1.5	1.0	30	-	-	-
0.34	1.5	1.0	30	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.35	1.5	1.0	30	-	-	-
0.36	1.5	1.0	30	-	-	-
0.37	1.5	1.0	30	-	-	-
0.38	1.5	1.0	30	-	-	-
0.39	1.5	1.0	30	-	-	-
0.40	2.0	1.0	30	-	-	-
0.41	2.0	1.0	30	-	-	-
0.42	2.0	1.0	30	-	-	-
0.43	2.0	1.0	30	-	-	-
0.44	2.0	1.0	30	-	-	-
0.45	3.5	1.0	30	-	-	-
0.46	3.5	1.0	30	-	-	-
0.47	3.5	1.0	30	-	-	-
0.48	3.5	1.0	30	-	-	-
0.49	4.0	1.0	30	-	-	-
0.50	4.0	1.0	30	-	-	-

Forets hélicoïdaux coupe inox

Twist drills
for stainless steel

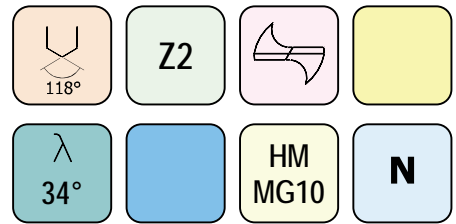
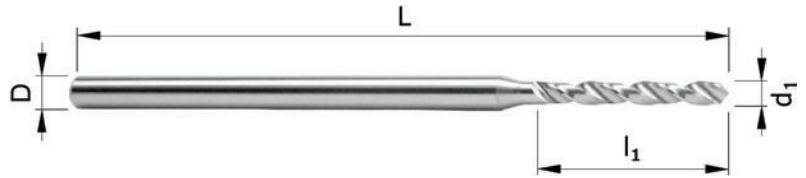
Spiralbohrer
für Inox

Punte elicoidali
per acciaio inox

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	+	+++
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	+	++
Or/Gold & Argent/Silver	40 - 90	++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.50	4.0	1.5	30	-	-	-
0.51	4.0	1.5	30	-	-	-
0.52	4.0	1.5	30	-	-	-
0.53	4.0	1.5	30	-	-	-
0.54	4.0	1.5	30	-	-	-
0.55	4.0	1.5	30	-	-	-
0.56	4.0	1.5	30	-	-	-
0.57	4.0	1.5	30	-	-	-
0.58	4.0	1.5	30	-	-	-
0.59	4.0	1.5	30	-	-	-
0.60	5.0	1.5	30	-	-	-
0.61	5.0	1.5	30	-	-	-
0.62	5.0	1.5	30	-	-	-
0.63	5.0	1.5	30	-	-	-
0.64	5.0	1.5	30	-	-	-
0.65	5.0	1.5	30	-	-	-
0.66	5.0	1.5	30	-	-	-
0.67	5.0	1.5	30	-	-	-
0.68	5.0	1.5	30	-	-	-
0.69	5.0	1.5	30	-	-	-
0.70	5.0	1.5	30	-	-	-
0.71	5.0	1.5	30	-	-	-
0.72	5.0	1.5	30	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.73	5.0	1.5	30	-	-	-
0.74	5.0	1.5	30	-	-	-
0.75	5.0	1.5	30	-	-	-
0.76	5.0	1.5	30	-	-	-
0.77	5.0	1.5	30	-	-	-
0.78	5.0	1.5	30	-	-	-
0.79	5.0	1.5	30	-	-	-
0.80	6.0	1.5	30	-	-	-
0.81	6.0	1.5	30	-	-	-
0.82	6.0	1.5	30	-	-	-
0.83	6.0	1.5	30	-	-	-
0.84	6.0	1.5	30	-	-	-
0.85	6.0	1.5	30	-	-	-
0.86	6.0	1.5	30	-	-	-
0.87	6.0	1.5	30	-	-	-
0.88	6.0	1.5	30	-	-	-
0.89	6.0	1.5	30	-	-	-
0.90	7.0	1.5	30	-	-	-
0.91	7.0	1.5	30	-	-	-
0.92	7.0	1.5	30	-	-	-
0.93	7.0	1.5	30	-	-	-
0.94	7.0	1.5	30	-	-	-
0.95	7.0	1.5	30	-	-	-

Suite page suivante / Continued next page



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.96	7.0	1.5	30	-	-	-
0.97	7.0	1.5	30	-	-	-
0.98	7.0	1.5	30	-	-	-
0.99	7.0	1.5	30	-	-	-
1.00	8.0	1.5	30	-	-	-
1.01	8.0	1.5	30	-	-	-
1.02	8.0	1.5	30	-	-	-
1.03	8.0	1.5	30	-	-	-
1.04	8.0	1.5	30	-	-	-
1.05	8.0	1.5	30	-	-	-
1.06	8.0	1.5	30	-	-	-
1.07	8.0	1.5	30	-	-	-
1.08	8.0	1.5	30	-	-	-
1.09	8.0	1.5	30	-	-	-
1.10	9.0	1.5	30	-	-	-
1.11	9.0	1.5	30	-	-	-
1.12	9.0	1.5	30	-	-	-
1.13	9.0	1.5	30	-	-	-
1.14	9.0	1.5	30	-	-	-
1.15	9.0	1.5	30	-	-	-
1.16	9.0	1.5	30	-	-	-
1.17	9.0	1.5	30	-	-	-
1.18	9.0	1.5	30	-	-	-
1.19	9.0	1.5	30	-	-	-
1.20	10.0	1.5	30	-	-	-
1.21	10.0	1.5	30	-	-	-
1.22	10.0	1.5	30	-	-	-
1.23	10.0	1.5	30	-	-	-
1.24	10.0	1.5	30	-	-	-
1.25	10.0	1.5	30	-	-	-
1.26	10.0	1.5	30	-	-	-
1.27	10.0	1.5	30	-	-	-
1.28	10.0	1.5	30	-	-	-
1.29	10.0	1.5	30	-	-	-
1.30	10.0	1.5	30	-	-	-
1.31	10.0	1.5	30	-	-	-
1.32	10.0	1.5	30	-	-	-
1.33	10.0	1.5	30	-	-	-
1.34	10.0	1.5	30	-	-	-
1.35	11.0	1.5	30	-	-	-
1.36	11.0	1.5	30	-	-	-
1.37	11.0	1.5	30	-	-	-
1.38	11.0	1.5	30	-	-	-
1.39	11.0	1.5	30	-	-	-
1.40	11.0	1.5	30	-	-	-
1.41	11.0	1.5	30	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.42	11.0	1.5	30	-	-	-
1.43	11.0	1.5	30	-	-	-
1.44	11.0	1.5	30	-	-	-
1.45	11.0	1.5	30	-	-	-
1.46	11.0	1.5	30	-	-	-
1.47	11.0	1.5	30	-	-	-
1.48	11.0	1.5	30	-	-	-
1.49	11.0	1.5	30	-	-	-



Forets hélicoïdaux coupe laiton

hélice et coupe à droite

Twist drills for brass
right-hand cut

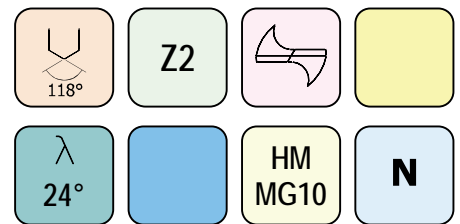
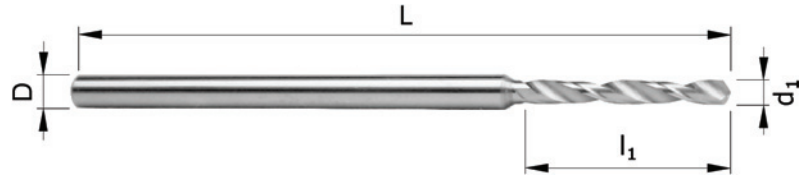
Spiralbohrer für Messing
rechtschneidend

Punte elicoidali per ottone
taglio destro

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	+
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	+
Titane/Titan	30 - 70	+	++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	+++
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.40	3.0	1.5	30	-	-	-
0.41	3.0	1.5	30	-	-	-
0.42	3.0	1.5	30	-	-	-
0.43	3.0	1.5	30	-	-	-
0.44	3.0	1.5	30	-	-	-
0.45	3.0	1.5	30	-	-	-
0.46	3.0	1.5	30	-	-	-
0.47	3.0	1.5	30	-	-	-
0.48	3.0	1.5	30	-	-	-
0.49	3.0	1.5	30	-	-	-
0.50	4.0	1.5	30	-	-	-
0.51	4.0	1.5	30	-	-	-
0.52	4.0	1.5	30	-	-	-
0.53	4.0	1.5	30	-	-	-
0.54	4.0	1.5	30	-	-	-
0.55	4.0	1.5	30	-	-	-
0.56	4.0	1.5	30	-	-	-
0.57	4.0	1.5	30	-	-	-
0.58	4.0	1.5	30	-	-	-
0.59	4.0	1.5	30	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.60	5.0	1.5	30	-	-	-
0.61	5.0	1.5	30	-	-	-
0.62	5.0	1.5	30	-	-	-
0.63	5.0	1.5	30	-	-	-
0.64	5.0	1.5	30	-	-	-
0.65	5.0	1.5	30	-	-	-
0.66	5.0	1.5	30	-	-	-
0.67	5.0	1.5	30	-	-	-
0.68	5.0	1.5	30	-	-	-
0.69	5.0	1.5	30	-	-	-
0.70	5.0	1.5	30	-	-	-
0.71	5.0	1.5	30	-	-	-
0.72	5.0	1.5	30	-	-	-
0.73	5.0	1.5	30	-	-	-
0.74	5.0	1.5	30	-	-	-
0.75	5.0	1.5	30	-	-	-
0.76	5.0	1.5	30	-	-	-
0.77	5.0	1.5	30	-	-	-
0.78	5.0	1.5	30	-	-	-
0.79	5.0	1.5	30	-	-	-

Suite page suivante / Continued next page



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.80	6.0	1.5	30	-	-	-
0.81	6.0	1.5	30	-	-	-
0.82	6.0	1.5	30	-	-	-
0.83	6.0	1.5	30	-	-	-
0.84	6.0	1.5	30	-	-	-
0.85	6.0	1.5	30	-	-	-
0.86	6.0	1.5	30	-	-	-
0.87	6.0	1.5	30	-	-	-
0.88	6.0	1.5	30	-	-	-
0.89	6.0	1.5	30	-	-	-
0.90	7.0	1.5	30	-	-	-
0.91	7.0	1.5	30	-	-	-
0.92	7.0	1.5	30	-	-	-
0.93	7.0	1.5	30	-	-	-
0.94	7.0	1.5	30	-	-	-
0.95	7.0	1.5	30	-	-	-
0.96	7.0	1.5	30	-	-	-
0.97	7.0	1.5	30	-	-	-
0.98	7.0	1.5	30	-	-	-
0.99	7.0	1.5	30	-	-	-
1.00	8.0	1.5	30	-	-	-
1.01	8.0	1.5	30	-	-	-
1.02	8.0	1.5	30	-	-	-
1.03	8.0	1.5	30	-	-	-
1.04	8.0	1.5	30	-	-	-
1.05	8.0	1.5	30	-	-	-
1.06	8.0	1.5	30	-	-	-
1.07	8.0	1.5	30	-	-	-
1.08	8.0	1.5	30	-	-	-
1.09	8.0	1.5	30	-	-	-
1.10	9.0	1.5	30	-	-	-
1.11	9.0	1.5	30	-	-	-
1.12	9.0	1.5	30	-	-	-
1.13	9.0	1.5	30	-	-	-
1.14	9.0	1.5	30	-	-	-
1.15	9.0	1.5	30	-	-	-
1.16	9.0	1.5	30	-	-	-
1.17	9.0	1.5	30	-	-	-
1.18	9.0	1.5	30	-	-	-
1.19	9.0	1.5	30	-	-	-
1.20	10.0	1.5	30	-	-	-
1.21	10.0	1.5	30	-	-	-
1.22	10.0	1.5	30	-	-	-
1.23	10.0	1.5	30	-	-	-
1.24	10.0	1.5	30	-	-	-
1.25	10.0	1.5	30	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.26	10.0	1.5	30	-	-	-
1.27	10.0	1.5	30	-	-	-
1.28	10.0	1.5	30	-	-	-
1.29	10.0	1.5	30	-	-	-
1.30	10.0	1.5	30	-	-	-
1.31	10.0	1.5	30	-	-	-
1.32	10.0	1.5	30	-	-	-
1.33	10.0	1.5	30	-	-	-
1.34	10.0	1.5	30	-	-	-
1.35	11.0	1.5	30	-	-	-
1.36	11.0	1.5	30	-	-	-
1.37	11.0	1.5	30	-	-	-
1.38	11.0	1.5	30	-	-	-
1.39	11.0	1.5	30	-	-	-
1.40	11.0	1.5	30	-	-	-
1.41	11.0	1.5	30	-	-	-
1.42	11.0	1.5	30	-	-	-
1.43	11.0	1.5	30	-	-	-
1.44	11.0	1.5	30	-	-	-
1.45	11.0	1.5	30	-	-	-
1.46	11.0	1.5	30	-	-	-
1.47	11.0	1.5	30	-	-	-
1.48	11.0	1.5	30	-	-	-
1.49	11.0	1.5	30	-	-	-



Forets hélicoïdaux coupe laiton

hélice et coupe à gauche

Twist drills for brass
left-hand cut

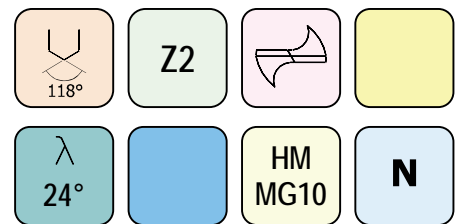
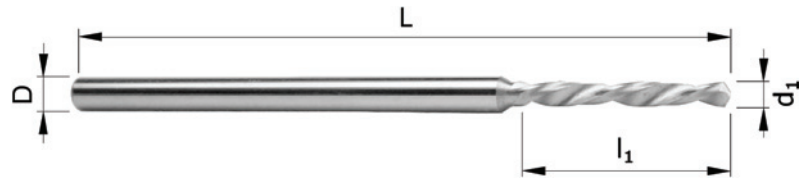
Spiralbohrer für Messing
linksschneidend

Punte elicoidali per ottone
taglio sinistro

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	+
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	+
Titane/Titan	30 - 70	+	++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	+++
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.10	0.7	1.0	30	-	-	-
0.11	0.7	1.0	30	-	-	-
0.12	0.7	1.0	30	-	-	-
0.13	0.7	1.0	30	-	-	-
0.14	0.7	1.0	30	-	-	-
0.15	1.0	1.0	30	-	-	-
0.16	1.0	1.0	30	-	-	-
0.17	1.0	1.0	30	-	-	-
0.18	1.0	1.0	30	-	-	-
0.19	1.0	1.0	30	-	-	-
0.20	1.0	1.0	30	-	-	-
0.21	1.0	1.0	30	-	-	-
0.22	1.0	1.0	30	-	-	-
0.23	1.0	1.0	30	-	-	-
0.24	1.0	1.0	30	-	-	-
0.25	1.0	1.0	30	-	-	-
0.26	1.0	1.0	30	-	-	-
0.27	1.0	1.0	30	-	-	-
0.28	1.0	1.0	30	-	-	-
0.29	1.0	1.0	30	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.30	1.5	1.0	30	-	-	-
0.31	1.5	1.0	30	-	-	-
0.32	1.5	1.0	30	-	-	-
0.33	1.5	1.0	30	-	-	-
0.34	1.5	1.0	30	-	-	-
0.35	1.5	1.0	30	-	-	-
0.36	1.5	1.0	30	-	-	-
0.37	1.5	1.0	30	-	-	-
0.38	1.5	1.0	30	-	-	-
0.39	1.5	1.0	30	-	-	-
0.40	2.0	1.0	30	-	-	-
0.41	2.0	1.0	30	-	-	-
0.42	2.0	1.0	30	-	-	-
0.43	2.0	1.0	30	-	-	-
0.44	2.0	1.0	30	-	-	-
0.45	3.6	1.0	30	-	-	-
0.46	3.6	1.0	30	-	-	-
0.47	3.6	1.0	30	-	-	-
0.48	3.6	1.0	30	-	-	-
0.49	4.0	1.0	30	-	-	-

Suite page suivante / Continued next page



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.50	4.0	1.0	30	-	-	-
0.51	4.0	1.0	30	-	-	-
0.52	4.0	1.0	30	-	-	-
0.53	4.0	1.0	30	-	-	-
0.54	4.5	1.0	30	-	-	-
0.55	4.5	1.0	30	-	-	-
0.56	4.5	1.0	30	-	-	-
0.57	4.5	1.0	30	-	-	-
0.58	4.5	1.0	30	-	-	-
0.59	4.5	1.0	30	-	-	-
0.60	4.5	1.0	30	-	-	-
0.61	5.0	1.0	30	-	-	-
0.62	5.0	1.0	30	-	-	-
0.63	5.0	1.0	30	-	-	-
0.64	5.0	1.0	30	-	-	-
0.65	5.0	1.0	30	-	-	-
0.66	5.0	1.0	30	-	-	-
0.67	5.0	1.0	30	-	-	-
0.68	5.6	1.0	30	-	-	-
0.69	5.6	1.0	30	-	-	-
0.70	5.6	1.0	30	-	-	-
0.71	5.6	1.0	30	-	-	-
0.72	5.6	1.0	30	-	-	-
0.73	5.6	1.0	30	-	-	-
0.74	5.6	1.0	30	-	-	-
0.75	5.6	1.0	30	-	-	-
0.76	6.3	1.0	30	-	-	-
0.77	6.3	1.0	30	-	-	-
0.78	6.3	1.0	30	-	-	-
0.79	6.3	1.0	30	-	-	-
0.80	6.3	1.5	30	-	-	-
0.81	6.3	1.5	30	-	-	-
0.82	6.3	1.5	30	-	-	-
0.83	6.3	1.5	30	-	-	-
0.84	6.3	1.5	30	-	-	-
0.85	6.3	1.5	30	-	-	-
0.86	7.1	1.5	30	-	-	-
0.87	7.1	1.5	30	-	-	-
0.88	7.1	1.5	30	-	-	-
0.89	7.1	1.5	30	-	-	-
0.90	7.1	1.5	30	-	-	-
0.91	7.1	1.5	30	-	-	-
0.92	7.1	1.5	30	-	-	-
0.93	7.1	1.5	30	-	-	-
0.94	7.1	1.5	30	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.95	7.1	1.5	30	-	-	-
0.96	8.0	1.5	30	-	-	-
0.97	8.0	1.5	30	-	-	-
0.98	8.0	1.5	30	-	-	-
0.99	8.0	1.5	30	-	-	-
1.00	9.0	1.5	30	-	-	-
1.01	9.0	1.5	30	-	-	-
1.02	9.0	1.5	30	-	-	-
1.03	9.0	1.5	30	-	-	-
1.04	9.0	1.5	30	-	-	-
1.05	9.0	1.5	30	-	-	-
1.06	9.0	1.5	30	-	-	-
1.07	9.0	1.5	30	-	-	-
1.08	9.0	1.5	30	-	-	-
1.09	9.0	1.5	30	-	-	-
1.10	9.0	1.5	30	-	-	-
1.11	9.0	1.5	30	-	-	-
1.12	9.0	1.5	30	-	-	-
1.13	9.0	1.5	30	-	-	-
1.14	9.0	1.5	30	-	-	-
1.15	9.0	1.5	30	-	-	-
1.16	9.0	1.5	30	-	-	-
1.17	9.0	1.5	30	-	-	-
1.18	9.0	1.5	30	-	-	-
1.19	10.0	1.5	30	-	-	-
1.20	10.0	1.5	30	-	-	-
1.21	10.0	1.5	30	-	-	-
1.22	10.0	1.5	30	-	-	-
1.23	10.0	1.5	30	-	-	-
1.24	10.0	1.5	30	-	-	-
1.25	10.0	1.5	30	-	-	-
1.26	10.0	1.5	30	-	-	-
1.27	10.0	1.5	30	-	-	-
1.28	10.0	1.5	30	-	-	-
1.29	10.0	1.5	30	-	-	-
1.30	10.0	1.5	30	-	-	-
1.31	10.0	1.5	30	-	-	-
1.32	10.0	1.5	30	-	-	-
1.33	11.2	1.5	30	-	-	-
1.34	11.2	1.5	30	-	-	-
1.35	11.2	1.5	30	-	-	-
1.36	11.2	1.5	30	-	-	-
1.37	11.2	1.5	30	-	-	-
1.38	11.2	1.5	30	-	-	-
1.39	11.2	1.5	30	-	-	-

Suite page suivante / Continued next page

Tolérances:
d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.40	11.2	1.5	30	-	-	-
1.41	11.2	1.5	30	-	-	-
1.42	11.2	1.5	30	-	-	-
1.43	11.2	1.5	30	-	-	-
1.44	11.2	1.5	30	-	-	-
1.45	11.2	1.5	30	-	-	-
1.46	11.2	1.5	30	-	-	-
1.47	11.2	1.5	30	-	-	-
1.48	11.2	1.5	30	-	-	-
1.49	11.2	1.5	30	-	-	-
1.50	11.2	2.0	38	-	-	-
1.51	12.0	2.0	38	-	-	-
1.52	12.0	2.0	38	-	-	-
1.53	12.0	2.0	38	-	-	-
1.54	12.0	2.0	38	-	-	-
1.55	12.0	2.0	38	-	-	-
1.56	12.0	2.0	38	-	-	-
1.57	12.0	2.0	38	-	-	-
1.58	12.0	2.0	38	-	-	-
1.59	12.0	2.0	38	-	-	-
1.60	12.0	2.0	38	-	-	-
1.61	12.0	2.0	38	-	-	-
1.62	12.0	2.0	38	-	-	-
1.63	12.0	2.0	38	-	-	-
1.64	12.0	2.0	38	-	-	-
1.65	12.0	2.0	38	-	-	-
1.66	12.0	2.0	38	-	-	-
1.67	12.0	2.0	38	-	-	-
1.68	12.0	2.0	38	-	-	-
1.69	12.0	2.0	38	-	-	-
1.70	12.0	2.0	38	-	-	-
1.71	12.0	2.0	38	-	-	-
1.72	12.0	2.0	38	-	-	-
1.73	12.0	2.0	38	-	-	-
1.74	12.0	2.0	38	-	-	-
1.75	12.0	2.0	38	-	-	-
1.76	12.0	2.0	38	-	-	-
1.77	12.0	2.0	38	-	-	-
1.78	12.0	2.0	38	-	-	-
1.79	12.0	2.0	38	-	-	-
1.80	12.0	2.0	38	-	-	-
1.81	12.0	2.0	38	-	-	-
1.82	12.0	2.0	38	-	-	-
1.83	12.0	2.0	38	-	-	-
1.84	12.0	2.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.85	12.0	2.0	38	-	-	-
1.86	12.0	2.0	38	-	-	-
1.87	12.0	2.0	38	-	-	-
1.88	12.0	2.0	38	-	-	-
1.89	12.0	2.0	38	-	-	-
1.90	12.0	2.0	38	-	-	-
1.91	12.0	2.0	38	-	-	-
1.92	12.0	2.0	38	-	-	-
1.93	12.0	2.0	38	-	-	-
1.94	12.0	2.0	38	-	-	-
1.95	12.0	2.0	38	-	-	-
1.96	12.0	2.0	38	-	-	-
1.97	12.0	2.0	38	-	-	-
1.98	12.0	2.0	38	-	-	-
1.99	12.0	2.0	38	-	-	-
2.00	12.0	2.5	38	-	-	-
2.01	12.0	2.5	43	-	-	-
2.02	12.0	2.5	43	-	-	-
2.03	12.0	2.5	43	-	-	-
2.04	12.0	2.5	43	-	-	-
2.05	12.0	2.5	43	-	-	-
2.10	12.0	2.5	43	-	-	-
2.12	12.0	2.5	43	-	-	-
2.15	12.0	2.5	43	-	-	-
2.45	12.0	2.5	43	-	-	-

Forets hélicoïdaux coupe inox

longueur de coupe 6 mm

Twist drills for Stainless steel
cutting length 6 mm

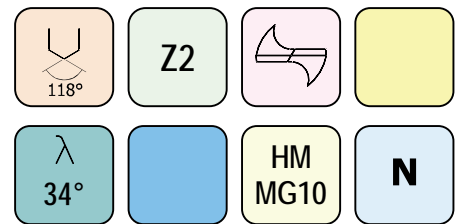
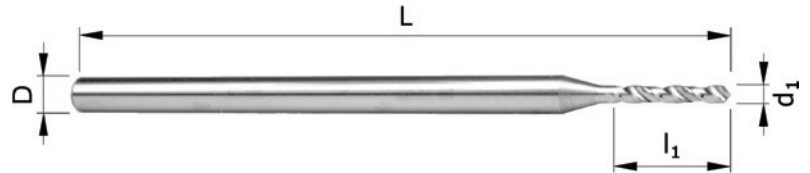
Spiralbohrer für Inox
Schnittlänge 6 mm

Punte elicoidali per acciaio
inox - Lung. di taglio 6 mm

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	+	+++
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	+	++
Or/Gold & Argent/Silver	40 - 90	++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$



Tolérances:

$d_1 < D \Leftrightarrow d_1: -0.002/-0.004$ $d_1 = D \Leftrightarrow d_1: h6$ $D: h6$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.80	6.0	2.0	38	-	-	-
0.81	6.0	2.0	38	-	-	-
0.82	6.0	2.0	38	-	-	-
0.83	6.0	2.0	38	-	-	-
0.84	6.0	2.0	38	-	-	-
0.85	6.0	2.0	38	-	-	-
0.86	6.0	2.0	38	-	-	-
0.87	6.0	2.0	38	-	-	-
0.88	6.0	2.0	38	-	-	-
0.89	6.0	2.0	38	-	-	-
0.90	6.0	2.0	38	-	-	-
0.91	6.0	2.0	38	-	-	-
0.92	6.0	2.0	38	-	-	-
0.93	6.0	2.0	38	-	-	-
0.94	6.0	2.0	38	-	-	-
0.95	6.0	2.0	38	-	-	-
0.96	6.0	2.0	38	-	-	-
0.97	6.0	2.0	38	-	-	-
0.98	6.0	2.0	38	-	-	-
0.99	6.0	2.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.00	6.0	2.0	38	-	-	-
1.01	6.0	2.0	38	-	-	-
1.02	6.0	2.0	38	-	-	-
1.03	6.0	2.0	38	-	-	-
1.04	6.0	2.0	38	-	-	-
1.05	6.0	2.0	38	-	-	-
1.06	6.0	2.0	38	-	-	-
1.07	6.0	2.0	38	-	-	-
1.08	6.0	2.0	38	-	-	-
1.09	6.0	2.0	38	-	-	-
1.10	6.0	2.0	38	-	-	-
1.11	6.0	2.0	38	-	-	-
1.12	6.0	2.0	38	-	-	-
1.13	6.0	2.0	38	-	-	-
1.14	6.0	2.0	38	-	-	-
1.15	6.0	2.0	38	-	-	-
1.16	6.0	2.0	38	-	-	-
1.17	6.0	2.0	38	-	-	-
1.18	6.0	2.0	38	-	-	-
1.19	6.0	2.0	38	-	-	-

Suite page suivante / Continued next page



Tolérances:

$d_1 < D \Leftrightarrow d_1: -0.002/-0.004$ $d_1 = D \Leftrightarrow d_1: h6$ $D: h6$

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.20	6.0	2.0	38	-	-	-
1.21	6.0	2.0	38	-	-	-
1.22	6.0	2.0	38	-	-	-
1.23	6.0	2.0	38	-	-	-
1.24	6.0	2.0	38	-	-	-
1.25	6.0	2.0	38	-	-	-
1.26	6.0	2.0	38	-	-	-
1.27	6.0	2.0	38	-	-	-
1.28	6.0	2.0	38	-	-	-
1.29	6.0	2.0	38	-	-	-
1.30	6.0	2.0	38	-	-	-
1.31	6.0	2.0	38	-	-	-
1.32	6.0	2.0	38	-	-	-
1.33	6.0	2.0	38	-	-	-
1.34	6.0	2.0	38	-	-	-
1.35	6.0	2.0	38	-	-	-
1.36	6.0	2.0	38	-	-	-
1.37	6.0	2.0	38	-	-	-
1.38	6.0	2.0	38	-	-	-
1.39	6.0	2.0	38	-	-	-
1.40	6.0	2.0	38	-	-	-
1.41	6.0	2.0	38	-	-	-
1.42	6.0	2.0	38	-	-	-
1.43	6.0	2.0	38	-	-	-
1.44	6.0	2.0	38	-	-	-
1.45	6.0	2.0	38	-	-	-
1.46	6.0	2.0	38	-	-	-
1.47	6.0	2.0	38	-	-	-
1.48	6.0	2.0	38	-	-	-
1.49	6.0	2.0	38	-	-	-
1.50	6.0	2.0	38	-	-	-
1.51	6.0	2.0	38	-	-	-
1.52	6.0	2.0	38	-	-	-
1.53	6.0	2.0	38	-	-	-
1.54	6.0	2.0	38	-	-	-
1.55	6.0	2.0	38	-	-	-
1.56	6.0	2.0	38	-	-	-
1.57	6.0	2.0	38	-	-	-
1.58	6.0	2.0	38	-	-	-
1.59	6.0	2.0	38	-	-	-
1.60	6.0	2.0	38	-	-	-
1.61	6.0	2.0	38	-	-	-
1.62	6.0	2.0	38	-	-	-
1.63	6.0	2.0	38	-	-	-
1.64	6.0	2.0	38	-	-	-
1.65	6.0	2.0	38	-	-	-

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.66	6.0	2.0	38	-	-	-
1.67	6.0	2.0	38	-	-	-
1.68	6.0	2.0	38	-	-	-
1.69	6.0	2.0	38	-	-	-
1.70	6.0	2.0	38	-	-	-
1.71	6.0	2.0	38	-	-	-
1.72	6.0	2.0	38	-	-	-
1.73	6.0	2.0	38	-	-	-
1.74	6.0	2.0	38	-	-	-
1.75	6.0	2.0	38	-	-	-
1.76	6.0	2.0	38	-	-	-
1.77	6.0	2.0	38	-	-	-
1.78	6.0	2.0	38	-	-	-
1.79	6.0	2.0	38	-	-	-
1.80	6.0	2.0	38	-	-	-
1.81	6.0	2.0	38	-	-	-
1.82	6.0	2.0	38	-	-	-
1.83	6.0	2.0	38	-	-	-
1.84	6.0	2.0	38	-	-	-
1.85	6.0	2.0	38	-	-	-
1.86	6.0	2.0	38	-	-	-
1.87	6.0	2.0	38	-	-	-
1.88	6.0	2.0	38	-	-	-
1.89	6.0	2.0	38	-	-	-
1.90	6.0	2.0	38	-	-	-
1.91	6.0	2.0	38	-	-	-
1.92	6.0	2.0	38	-	-	-
1.93	6.0	2.0	38	-	-	-
1.94	6.0	2.0	38	-	-	-
1.95	6.0	2.0	38	-	-	-
1.96	6.0	2.0	38	-	-	-
1.97	6.0	2.0	38	-	-	-
1.98	6.0	2.0	38	-	-	-
1.99	6.0	2.0	38	-	-	-
2.00	6.0	2.0	38	-	-	-

Forets hélicoïdaux coupe inox

longueur de coupe 8 mm

Twist drills for Stainless steel
cutting length 8 mm

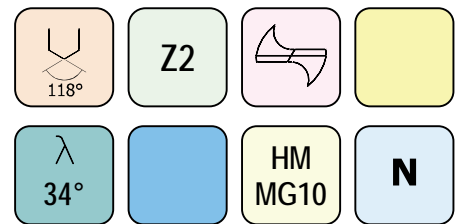
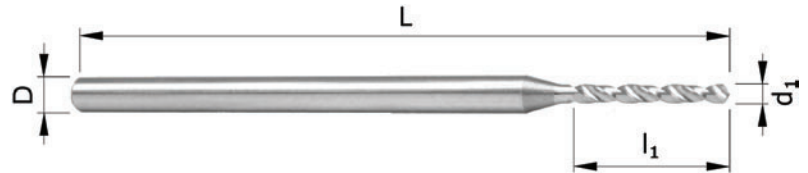
Spiralbohrer für Inox
Schnittlänge 8 mm

Punte elicoidali per acciaio
inox - Lung. di taglio 8 mm

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	+	+++
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	+	++
Or/Gold & Argent/Silver	40 - 90	++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$



Tolérances:

$d_1 < D \Leftrightarrow d_1: -0.002/-0.004$ $d_1 = D \Leftrightarrow d_1: h6$ $D: h6$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.80	8.0	2.0	38	-	-	-
0.81	8.0	2.0	38	-	-	-
0.82	8.0	2.0	38	-	-	-
0.83	8.0	2.0	38	-	-	-
0.84	8.0	2.0	38	-	-	-
0.85	8.0	2.0	38	-	-	-
0.86	8.0	2.0	38	-	-	-
0.87	8.0	2.0	38	-	-	-
0.88	8.0	2.0	38	-	-	-
0.89	8.0	2.0	38	-	-	-
0.90	8.0	2.0	38	-	-	-
0.91	8.0	2.0	38	-	-	-
0.92	8.0	2.0	38	-	-	-
0.93	8.0	2.0	38	-	-	-
0.94	8.0	2.0	38	-	-	-
0.95	8.0	2.0	38	-	-	-
0.96	8.0	2.0	38	-	-	-
0.97	8.0	2.0	38	-	-	-
0.98	8.0	2.0	38	-	-	-
0.99	8.0	2.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.00	8.0	2.0	38	-	-	-
1.01	8.0	2.0	38	-	-	-
1.02	8.0	2.0	38	-	-	-
1.03	8.0	2.0	38	-	-	-
1.04	8.0	2.0	38	-	-	-
1.05	8.0	2.0	38	-	-	-
1.06	8.0	2.0	38	-	-	-
1.07	8.0	2.0	38	-	-	-
1.08	8.0	2.0	38	-	-	-
1.09	8.0	2.0	38	-	-	-
1.10	8.0	2.0	38	-	-	-
1.11	8.0	2.0	38	-	-	-
1.12	8.0	2.0	38	-	-	-
1.13	8.0	2.0	38	-	-	-
1.14	8.0	2.0	38	-	-	-
1.15	8.0	2.0	38	-	-	-
1.16	8.0	2.0	38	-	-	-
1.17	8.0	2.0	38	-	-	-
1.18	8.0	2.0	38	-	-	-
1.19	8.0	2.0	38	-	-	-

Suite page suivante / Continued next page



Tolérances:

$d_1 < D \Leftrightarrow d_1: -0.002/-0.004$ $d_1 = D \Leftrightarrow d_1: h6$ $D: h6$

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.20	8.0	2.0	38	-	-	-
1.21	8.0	2.0	38	-	-	-
1.22	8.0	2.0	38	-	-	-
1.23	8.0	2.0	38	-	-	-
1.24	8.0	2.0	38	-	-	-
1.25	8.0	2.0	38	-	-	-
1.26	8.0	2.0	38	-	-	-
1.27	8.0	2.0	38	-	-	-
1.28	8.0	2.0	38	-	-	-
1.29	8.0	2.0	38	-	-	-
1.30	8.0	2.0	38	-	-	-
1.31	8.0	2.0	38	-	-	-
1.32	8.0	2.0	38	-	-	-
1.33	8.0	2.0	38	-	-	-
1.34	8.0	2.0	38	-	-	-
1.35	8.0	2.0	38	-	-	-
1.36	8.0	2.0	38	-	-	-
1.37	8.0	2.0	38	-	-	-
1.38	8.0	2.0	38	-	-	-
1.39	8.0	2.0	38	-	-	-
1.40	8.0	2.0	38	-	-	-
1.41	8.0	2.0	38	-	-	-
1.42	8.0	2.0	38	-	-	-
1.43	8.0	2.0	38	-	-	-
1.44	8.0	2.0	38	-	-	-
1.45	8.0	2.0	38	-	-	-
1.46	8.0	2.0	38	-	-	-
1.47	8.0	2.0	38	-	-	-
1.48	8.0	2.0	38	-	-	-
1.49	8.0	2.0	38	-	-	-
1.50	8.0	2.0	38	-	-	-
1.51	8.0	2.0	38	-	-	-
1.52	8.0	2.0	38	-	-	-
1.53	8.0	2.0	38	-	-	-
1.54	8.0	2.0	38	-	-	-
1.55	8.0	2.0	38	-	-	-
1.56	8.0	2.0	38	-	-	-
1.57	8.0	2.0	38	-	-	-
1.58	8.0	2.0	38	-	-	-
1.59	8.0	2.0	38	-	-	-
1.60	8.0	2.0	38	-	-	-
1.61	8.0	2.0	38	-	-	-
1.62	8.0	2.0	38	-	-	-
1.63	8.0	2.0	38	-	-	-
1.64	8.0	2.0	38	-	-	-

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.65	8.0	2.0	38	-	-	-
1.66	8.0	2.0	38	-	-	-
1.67	8.0	2.0	38	-	-	-
1.68	8.0	2.0	38	-	-	-
1.69	8.0	2.0	38	-	-	-
1.70	8.0	2.0	38	-	-	-
1.71	8.0	2.0	38	-	-	-
1.72	8.0	2.0	38	-	-	-
1.73	8.0	2.0	38	-	-	-
1.74	8.0	2.0	38	-	-	-
1.75	8.0	2.0	38	-	-	-
1.76	8.0	2.0	38	-	-	-
1.77	8.0	2.0	38	-	-	-
1.78	8.0	2.0	38	-	-	-
1.79	8.0	2.0	38	-	-	-
1.80	8.0	2.0	38	-	-	-
1.81	8.0	2.0	38	-	-	-
1.82	8.0	2.0	38	-	-	-
1.83	8.0	2.0	38	-	-	-
1.84	8.0	2.0	38	-	-	-
1.85	8.0	2.0	38	-	-	-
1.86	8.0	2.0	38	-	-	-
1.87	8.0	2.0	38	-	-	-
1.88	8.0	2.0	38	-	-	-
1.89	8.0	2.0	38	-	-	-
1.90	8.0	2.0	38	-	-	-
1.91	8.0	2.0	38	-	-	-
1.92	8.0	2.0	38	-	-	-
1.93	8.0	2.0	38	-	-	-
1.94	8.0	2.0	38	-	-	-
1.95	8.0	2.0	38	-	-	-
1.96	8.0	2.0	38	-	-	-
1.97	8.0	2.0	38	-	-	-
1.98	8.0	2.0	38	-	-	-
1.99	8.0	2.0	38	-	-	-
2.00	8.0	2.0	38	-	-	-
2.05	8.0	3.0	38	-	-	-
2.10	8.0	3.0	38	-	-	-
2.15	8.0	3.0	38	-	-	-
2.17	8.0	3.0	38	-	-	-
2.18	8.0	3.0	38	-	-	-
2.20	8.0	3.0	38	-	-	-
2.25	8.0	3.0	38	-	-	-
2.27	8.0	3.0	38	-	-	-
2.28	8.0	3.0	38	-	-	-

Suite page suivante / Continued next page

Tolérances:
 $d_1 < D \Leftrightarrow d_1: -0.002/-0.004 \quad d_1 = D \Leftrightarrow d_1: h6 \quad D: h6$

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu <i>Uncoated</i>	<i>ou/ou</i> TiCN TiAlN	Autre <i>Other</i>
2.30	8.0	3.0	38	-	-	-
2.35	8.0	3.0	38	-	-	-
2.37	8.0	3.0	38	-	-	-
2.38	8.0	3.0	38	-	-	-
2.40	8.0	3.0	38	-	-	-
2.45	8.0	3.0	38	-	-	-
2.50	8.0	3.0	38	-	-	-
2.55	8.0	3.0	38	-	-	-
2.60	8.0	3.0	38	-	-	-
2.65	8.0	3.0	38	-	-	-
2.70	8.0	3.0	38	-	-	-
2.80	8.0	3.0	38	-	-	-
2.90	8.0	3.0	38	-	-	-
2.95	8.0	3.0	38	-	-	-
3.00	8.0	3.0	38	-	-	-
3.10	8.0	4.0	38	-	-	-
3.20	8.0	4.0	38	-	-	-
3.30	8.0	4.0	38	-	-	-
3.40	8.0	4.0	38	-	-	-
3.50	8.0	4.0	38	-	-	-
3.60	8.0	4.0	38	-	-	-
3.70	8.0	4.0	38	-	-	-
3.80	8.0	4.0	38	-	-	-
3.90	8.0	4.0	38	-	-	-
4.00	8.0	4.0	38	-	-	-
4.10	8.0	4.5	38	-	-	-
4.20	8.0	4.5	38	-	-	-
4.30	8.0	4.5	38	-	-	-
4.40	8.0	4.5	38	-	-	-
4.50	8.0	4.5	38	-	-	-
5.00	8.0	5.0	38	-	-	-
5.50	8.0	5.5	38	-	-	-
6.00	8.0	6.0	38	-	-	-

Forets hélicoïdaux coupe inox

longueur de coupe 12 mm

Twist drills for Stainless steel
cutting length 12 mm

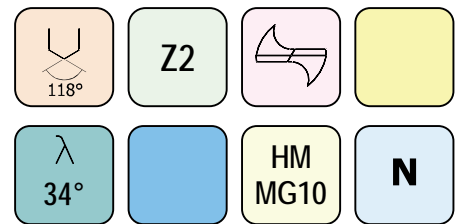
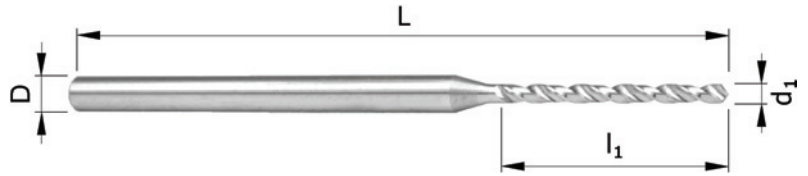
Spiralbohrer für Inox
Schnittlänge 12 mm

Punte elicoidali per acciaio
inox - Lung. di taglio 12 mm

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	+	+++
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	+	++
Or/Gold & Argent/Silver	40 - 90	++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$



Tolérances:

$d_1 < D \Leftrightarrow d_1: -0.002/-0.004$ $d_1 = D \Leftrightarrow d_1: h6$ $D: h6$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.80	12.0	2.0	38	-	-	-
0.81	12.0	2.0	38	-	-	-
0.82	12.0	2.0	38	-	-	-
0.83	12.0	2.0	38	-	-	-
0.84	12.0	2.0	38	-	-	-
0.85	12.0	2.0	38	-	-	-
0.86	12.0	2.0	38	-	-	-
0.87	12.0	2.0	38	-	-	-
0.88	12.0	2.0	38	-	-	-
0.89	12.0	2.0	38	-	-	-
0.90	12.0	2.0	38	-	-	-
0.91	12.0	2.0	38	-	-	-
0.92	12.0	2.0	38	-	-	-
0.93	12.0	2.0	38	-	-	-
0.94	12.0	2.0	38	-	-	-
0.95	12.0	2.0	38	-	-	-
0.96	12.0	2.0	38	-	-	-
0.97	12.0	2.0	38	-	-	-
0.98	12.0	2.0	38	-	-	-
0.99	12.0	2.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.00	12.0	2.0	38	-	-	-
1.01	12.0	2.0	38	-	-	-
1.02	12.0	2.0	38	-	-	-
1.03	12.0	2.0	38	-	-	-
1.04	12.0	2.0	38	-	-	-
1.05	12.0	2.0	38	-	-	-
1.06	12.0	2.0	38	-	-	-
1.07	12.0	2.0	38	-	-	-
1.08	12.0	2.0	38	-	-	-
1.09	12.0	2.0	38	-	-	-
1.10	12.0	2.0	38	-	-	-
1.11	12.0	2.0	38	-	-	-
1.12	12.0	2.0	38	-	-	-
1.13	12.0	2.0	38	-	-	-
1.14	12.0	2.0	38	-	-	-
1.15	12.0	2.0	38	-	-	-
1.16	12.0	2.0	38	-	-	-
1.17	12.0	2.0	38	-	-	-
1.18	12.0	2.0	38	-	-	-
1.19	12.0	2.0	38	-	-	-

Suite page suivante / Continued next page



Tolérances:

$d_1 < D \Leftrightarrow d_1: -0.002/-0.004$ $d_1 = D \Leftrightarrow d_1: h6$ $D: h6$

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.20	12.0	2.0	38	-	-	-
1.21	12.0	2.0	38	-	-	-
1.22	12.0	2.0	38	-	-	-
1.23	12.0	2.0	38	-	-	-
1.24	12.0	2.0	38	-	-	-
1.25	12.0	2.0	38	-	-	-
1.26	12.0	2.0	38	-	-	-
1.27	12.0	2.0	38	-	-	-
1.28	12.0	2.0	38	-	-	-
1.29	12.0	2.0	38	-	-	-
1.30	12.0	2.0	38	-	-	-
1.31	12.0	2.0	38	-	-	-
1.32	12.0	2.0	38	-	-	-
1.33	12.0	2.0	38	-	-	-
1.34	12.0	2.0	38	-	-	-
1.35	12.0	2.0	38	-	-	-
1.36	12.0	2.0	38	-	-	-
1.37	12.0	2.0	38	-	-	-
1.38	12.0	2.0	38	-	-	-
1.39	12.0	2.0	38	-	-	-
1.40	12.0	2.0	38	-	-	-
1.41	12.0	2.0	38	-	-	-
1.42	12.0	2.0	38	-	-	-
1.43	12.0	2.0	38	-	-	-
1.44	12.0	2.0	38	-	-	-
1.45	12.0	2.0	38	-	-	-
1.46	12.0	2.0	38	-	-	-
1.47	12.0	2.0	38	-	-	-
1.48	12.0	2.0	38	-	-	-
1.49	12.0	2.0	38	-	-	-
1.50	12.0	2.0	38	-	-	-
1.51	12.0	2.0	38	-	-	-
1.52	12.0	2.0	38	-	-	-
1.53	12.0	2.0	38	-	-	-
1.54	12.0	2.0	38	-	-	-
1.55	12.0	2.0	38	-	-	-
1.56	12.0	2.0	38	-	-	-
1.57	12.0	2.0	38	-	-	-
1.58	12.0	2.0	38	-	-	-
1.59	12.0	2.0	38	-	-	-
1.60	12.0	2.0	38	-	-	-
1.61	12.0	2.0	38	-	-	-
1.62	12.0	2.0	38	-	-	-
1.63	12.0	2.0	38	-	-	-
1.64	12.0	2.0	38	-	-	-

				Prix (CHF) / Price (CHF)		
d_1	l_1	D	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.65	12.0	2.0	38	-	-	-
1.66	12.0	2.0	38	-	-	-
1.67	12.0	2.0	38	-	-	-
1.68	12.0	2.0	38	-	-	-
1.69	12.0	2.0	38	-	-	-
1.70	12.0	2.0	38	-	-	-
1.71	12.0	2.0	38	-	-	-
1.72	12.0	2.0	38	-	-	-
1.73	12.0	2.0	38	-	-	-
1.74	12.0	2.0	38	-	-	-
1.75	12.0	2.0	38	-	-	-
1.76	12.0	2.0	38	-	-	-
1.77	12.0	2.0	38	-	-	-
1.78	12.0	2.0	38	-	-	-
1.79	12.0	2.0	38	-	-	-
1.80	12.0	2.0	38	-	-	-
1.81	12.0	2.0	38	-	-	-
1.82	12.0	2.0	38	-	-	-
1.83	12.0	2.0	38	-	-	-
1.84	12.0	2.0	38	-	-	-
1.85	12.0	2.0	38	-	-	-
1.86	12.0	2.0	38	-	-	-
1.87	12.0	2.0	38	-	-	-
1.88	12.0	2.0	38	-	-	-
1.89	12.0	2.0	38	-	-	-
1.90	12.0	2.0	38	-	-	-
1.91	12.0	2.0	38	-	-	-
1.92	12.0	2.0	38	-	-	-
1.93	12.0	2.0	38	-	-	-
1.94	12.0	2.0	38	-	-	-
1.95	12.0	2.0	38	-	-	-
1.96	12.0	2.0	38	-	-	-
1.97	12.0	2.0	38	-	-	-
1.98	12.0	2.0	38	-	-	-
1.99	12.0	2.0	38	-	-	-
2.00	12.0	2.0	38	-	-	-
2.05	12.0	3.0	38	-	-	-
2.10	12.0	3.0	38	-	-	-
2.15	12.0	3.0	38	-	-	-
2.17	12.0	3.0	38	-	-	-
2.18	12.0	3.0	38	-	-	-
2.20	12.0	3.0	38	-	-	-
2.25	12.0	3.0	38	-	-	-
2.27	12.0	3.0	38	-	-	-
2.28	12.0	3.0	38	-	-	-

Suite page suivante / Continued next page

Tolérances:
 $d_1 < D \Leftrightarrow d_1: -0.002/-0.004 \quad d_1 = D \Leftrightarrow d_1: h6 \quad D: h6$

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu <i>Uncoated</i>	<i>ou/lor</i> TiCN TiAlN	Autre <i>Other</i>
2.30	12.0	3.0	38	-	-	-
2.35	12.0	3.0	38	-	-	-
2.37	12.0	3.0	38	-	-	-
2.38	12.0	3.0	38	-	-	-
2.40	12.0	3.0	38	-	-	-
2.45	12.0	3.0	38	-	-	-
2.50	12.0	3.0	38	-	-	-
2.55	12.0	3.0	38	-	-	-
2.60	12.0	3.0	38	-	-	-
2.65	12.0	3.0	38	-	-	-
2.70	12.0	3.0	38	-	-	-
2.80	12.0	3.0	38	-	-	-
2.90	12.0	3.0	38	-	-	-
2.95	12.0	3.0	38	-	-	-
3.00	12.0	3.0	38	-	-	-
3.10	12.0	4.0	38	-	-	-
3.20	12.0	4.0	38	-	-	-
3.30	12.0	4.0	38	-	-	-
3.40	12.0	4.0	38	-	-	-
3.50	12.0	4.0	38	-	-	-
3.60	12.0	4.0	38	-	-	-
3.70	12.0	4.0	38	-	-	-
3.80	12.0	4.0	38	-	-	-
3.90	12.0	4.0	38	-	-	-
4.00	12.0	4.0	38	-	-	-
4.10	12.0	4.5	38	-	-	-
4.20	12.0	4.5	38	-	-	-
4.30	12.0	4.5	38	-	-	-
4.40	12.0	4.5	38	-	-	-
4.50	12.0	4.5	38	-	-	-
5.00	12.0	5.0	38	-	-	-
5.50	12.0	5.5	38	-	-	-
6.00	12.0	6.0	38	-	-	-

Mèches hélicoïdales courtes

hélice et coupe à droite

Short Twist drills
right-hand cut

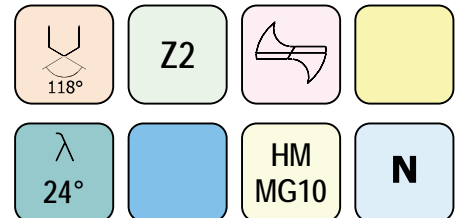
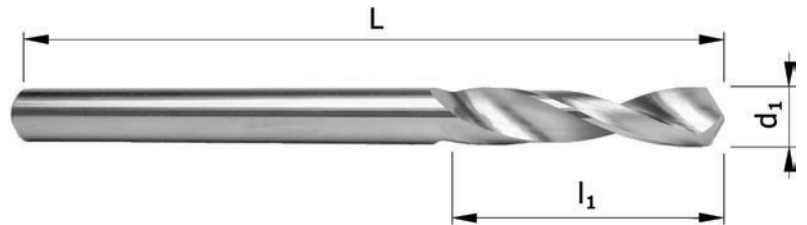
Kurze Spiralbohrer
rechtsschneidend

Punte elicoidali corte
taglio destro

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	+
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	+
Titane/Titan	30 - 70	+	++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	+++
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

d_1 : h6

d_1	l_1	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.30	5.0	30	-	-	-
0.35	5.0	30	-	-	-
0.40	6.0	30	-	-	-
0.45	6.0	30	-	-	-
0.50	6.0	30	-	-	-
0.55	6.0	30	-	-	-
0.60	6.0	30	-	-	-
0.65	6.0	30	-	-	-
0.70	6.0	30	-	-	-
0.75	6.0	30	-	-	-
0.80	7.0	30	-	-	-
0.85	7.0	30	-	-	-
0.90	7.0	30	-	-	-
0.95	7.0	30	-	-	-
1.00	7.0	30	-	-	-
1.05	8.0	30	-	-	-
1.10	8.0	30	-	-	-
1.15	8.0	30	-	-	-
1.20	8.0	30	-	-	-
1.25	8.0	30	-	-	-

d_1	l_1	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.30	8.0	30	-	-	-
1.35	8.0	30	-	-	-
1.40	8.0	30	-	-	-
1.45	8.0	30	-	-	-
1.50	8.0	30	-	-	-
1.55	9.0	38	-	-	-
1.60	9.0	38	-	-	-
1.65	9.0	38	-	-	-
1.70	9.0	38	-	-	-
1.75	9.0	38	-	-	-
1.80	9.0	38	-	-	-
1.85	9.0	38	-	-	-
1.90	9.0	38	-	-	-
1.95	9.0	38	-	-	-
2.00	9.0	38	-	-	-
2.05	9.0	38	-	-	-
2.10	9.0	38	-	-	-
2.15	10.0	40	-	-	-
2.20	10.0	40	-	-	-
2.25	10.0	40	-	-	-

Suite page suivante / Continued next page



Tolérances:

d₁: h6

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.30	10.0	40	-	-	-
2.35	10.0	40	-	-	-
2.40	11.0	43	-	-	-
2.45	11.0	43	-	-	-
2.50	11.0	43	-	-	-
2.55	11.0	43	-	-	-
2.60	11.0	43	-	-	-
2.65	11.0	43	-	-	-
2.70	12.0	46	-	-	-
2.75	12.0	46	-	-	-
2.80	12.0	46	-	-	-
2.85	12.0	46	-	-	-
2.90	12.0	46	-	-	-
2.95	12.0	46	-	-	-
3.00	12.0	46	-	-	-
3.05	14.0	49	-	-	-
3.10	14.0	49	-	-	-
3.15	14.0	49	-	-	-
3.20	14.0	49	-	-	-
3.25	14.0	49	-	-	-
3.30	14.0	49	-	-	-
3.35	14.0	49	-	-	-
3.40	15.0	52	-	-	-
3.45	15.0	52	-	-	-
3.50	15.0	52	-	-	-
3.55	15.0	52	-	-	-
3.60	15.0	52	-	-	-
3.65	15.0	52	-	-	-
3.70	15.0	52	-	-	-
3.75	15.0	52	-	-	-
3.80	17.0	52	-	-	-
3.85	17.0	50	-	-	-
3.90	17.0	55	-	-	-
3.95	17.0	55	-	-	-
4.00	17.0	55	-	-	-
4.05	17.0	55	-	-	-
4.10	17.0	55	-	-	-
4.15	17.0	55	-	-	-
4.20	17.0	55	-	-	-
4.25	17.0	55	-	-	-
4.30	18.0	58	-	-	-
4.35	18.0	58	-	-	-
4.40	18.0	58	-	-	-
4.45	18.0	58	-	-	-
4.50	18.0	58	-	-	-

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
4.55	18.0	58	-	-	-
4.60	18.0	58	-	-	-
4.65	18.0	58	-	-	-
4.70	18.0	58	-	-	-
4.75	18.0	58	-	-	-
4.80	20.0	62	-	-	-
4.85	20.0	62	-	-	-
4.90	20.0	62	-	-	-
4.95	20.0	62	-	-	-
5.00	20.0	62	-	-	-
5.10	20.0	62	-	-	-
5.20	20.0	62	-	-	-
5.30	20.0	62	-	-	-
5.40	21.0	66	-	-	-
5.50	21.0	66	-	-	-
5.60	21.0	66	-	-	-
5.70	21.0	66	-	-	-
5.80	21.0	66	-	-	-
5.90	21.0	66	-	-	-
6.00	21.0	66	-	-	-
6.10	23.0	70	-	-	-
6.20	23.0	70	-	-	-
6.30	23.0	70	-	-	-
6.40	23.0	70	-	-	-
6.50	23.0	70	-	-	-
6.60	23.0	70	-	-	-
6.70	23.0	70	-	-	-
6.80	25.0	74	-	-	-
6.90	25.0	74	-	-	-
7.00	25.0	74	-	-	-
7.10	25.0	74	-	-	-
7.20	25.0	74	-	-	-
7.30	25.0	74	-	-	-
7.40	25.0	74	-	-	-
7.50	25.0	74	-	-	-
7.60	27.0	79	-	-	-
7.70	27.0	79	-	-	-
7.80	27.0	79	-	-	-
7.90	27.0	79	-	-	-
8.00	27.0	79	-	-	-
8.10	27.0	79	-	-	-
8.20	27.0	79	-	-	-
8.30	27.0	79	-	-	-
8.40	27.0	79	-	-	-
8.50	27.0	79	-	-	-

Suite page suivante / Continued next page

Tolérances:

d ₁ : h6			Prix (CHF) / Price (CHF)		
d ₁	l ₁	L	Non revêtu <i>Uncoated</i>	ou/ou <i>TiCN TiAlN</i>	Autre <i>Other</i>
8.80	29.0	84	-	-	-
9.00	29.0	84	-	-	-
9.20	29.0	84	-	-	-
9.50	29.0	84	-	-	-
9.80	31.00	89	-	-	-
10.00	31.0	89	-	-	-
10.20	31.0	89	-	-	-
10.50	31.0	89	-	-	-
11.00	33.0	95	-	-	-
11.50	33.0	95	-	-	-
12.00	35.0	102	-	-	-
12.50	35.0	102	-	-	-
13.00	35.0	102	-	-	-
13.50	37.0	107	-	-	-
14.00	37.0	107	-	-	-
16.00	38.0	115	-	-	-



Mèches hélicoïdales courtes

hélice et coupe à gauche

Short Twist drills
left-hand cut

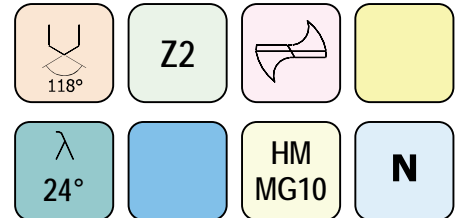
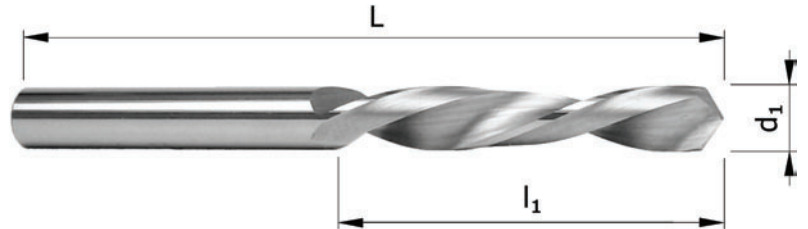
Kurze Spiralbohrer
linksschneidend

Punte elicoidali corte
taglio sinistro

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	+
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	+
Titane/Titan	30 - 70	+	++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	+++
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	+++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$



Tolérances:

d₁: h6

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
0.30	5.00	30	-	-	-
0.35	5.00	30	-	-	-
0.40	6.00	30	-	-	-
0.45	6.00	30	-	-	-
0.50	6.0	30	-	-	-
0.55	6.0	30	-	-	-
0.60	6.0	30	-	-	-
0.65	6.0	30	-	-	-
0.70	6.0	30	-	-	-
0.75	6.0	30	-	-	-
0.80	8.0	30	-	-	-
0.85	8.0	30	-	-	-
0.90	8.0	30	-	-	-
0.95	8.0	30	-	-	-
1.00	8.0	30	-	-	-
1.05	10.0	30	-	-	-
1.10	10.0	30	-	-	-
1.15	10.0	30	-	-	-
1.20	10.0	30	-	-	-
1.25	10.0	30	-	-	-

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
1.30	10.0	30	-	-	-
1.35	10.0	30	-	-	-
1.40	10.0	30	-	-	-
1.45	10.0	30	-	-	-
1.50	10.0	30	-	-	-
1.55	16.0	38	-	-	-
1.60	16.0	38	-	-	-
1.65	16.0	38	-	-	-
1.70	16.0	38	-	-	-
1.75	16.0	38	-	-	-
1.80	16.0	38	-	-	-
1.85	16.0	38	-	-	-
1.90	16.0	38	-	-	-
1.95	16.0	38	-	-	-
2.00	16.0	38	-	-	-
2.05	16.0	38	-	-	-
2.10	16.0	38	-	-	-
2.15	16.0	40	-	-	-
2.20	16.0	40	-	-	-
2.25	16.0	40	-	-	-

Suite page suivante / Continued next page



Tolérances:

d ₁ : h6			Prix (CHF) / Price (CHF)			
d ₁	l ₁	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
2.30	16.0	40	-	-	-	
2.35	16.0	40	-	-	-	
2.40	16.0	43	-	-	-	
2.45	16.0	43	-	-	-	
2.50	16.0	43	-	-	-	
2.55	16.0	43	-	-	-	
2.60	16.0	43	-	-	-	
2.65	16.0	43	-	-	-	
2.70	16.0	46	-	-	-	
2.75	16.0	46	-	-	-	
2.80	16.0	46	-	-	-	
2.85	16.0	46	-	-	-	
2.90	16.0	46	-	-	-	
2.95	16.0	46	-	-	-	
3.00	16.0	46	-	-	-	
3.05	18.0	49	-	-	-	
3.10	18.0	49	-	-	-	
3.15	18.0	49	-	-	-	
3.20	18.0	49	-	-	-	
3.25	18.0	49	-	-	-	
3.30	18.0	49	-	-	-	
3.35	18.0	50	-	-	-	
3.40	20.0	50	-	-	-	
3.45	20.0	50	-	-	-	
3.50	20.0	50	-	-	-	
3.55	20.0	50	-	-	-	
3.60	20.0	50	-	-	-	
3.65	20.0	50	-	-	-	
3.70	20.0	50	-	-	-	
3.75	20.0	50	-	-	-	
3.80	22.0	50	-	-	-	
3.85	22.0	50	-	-	-	
3.90	22.0	50	-	-	-	
3.95	22.0	50	-	-	-	
4.00	22.0	50	-	-	-	
4.05	22.0	50	-	-	-	
4.10	22.0	50	-	-	-	
4.15	22.0	50	-	-	-	
4.20	22.0	50	-	-	-	
4.25	22.0	50	-	-	-	
4.30	24.0	50	-	-	-	
4.35	24.0	50	-	-	-	
4.40	24.0	50	-	-	-	
4.45	24.0	50	-	-	-	
4.50	24.0	50	-	-	-	
4.55	24.0	50	-	-	-	

			Prix (CHF) / Price (CHF)			
d ₁	l ₁	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
4.60	24.0	50	-	-	-	
4.65	24.0	50	-	-	-	
4.70	24.0	50	-	-	-	
4.75	24.0	50	-	-	-	
4.80	25.0	50	-	-	-	
4.85	25.0	50	-	-	-	
4.90	25.0	50	-	-	-	
4.95	25.0	50	-	-	-	
5.00	25.0	50	-	-	-	
5.10	25.0	50	-	-	-	
5.20	25.0	50	-	-	-	
5.30	25.0	50	-	-	-	
5.40	25.0	50	-	-	-	
5.50	25.0	50	-	-	-	
5.60	25.0	50	-	-	-	
5.70	25.0	50	-	-	-	
5.80	25.0	50	-	-	-	
5.90	25.0	50	-	-	-	
6.00	28.0	66	-	-	-	
6.10	31.0	70	-	-	-	
6.20	31.0	70	-	-	-	
6.30	31.0	70	-	-	-	
6.40	31.0	70	-	-	-	
6.50	31.0	70	-	-	-	
6.60	31.0	70	-	-	-	
6.70	31.0	70	-	-	-	
6.80	34.0	74	-	-	-	
6.90	34.0	74	-	-	-	
7.00	34.0	74	-	-	-	
7.50	34.0	74	-	-	-	
8.00	37.0	79	-	-	-	

Mèches hélicoïdales longues

coupe inox

Long Twist drills
for stainless steel

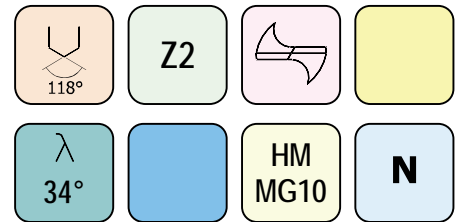
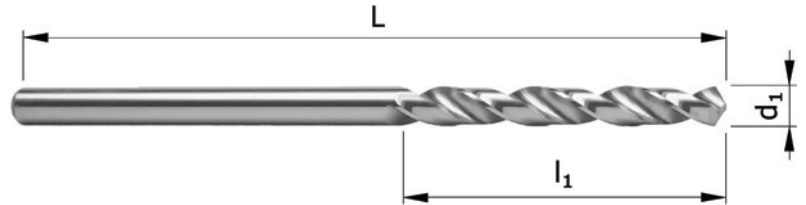
Lange Spiralbohrer
für Inox

Punte elicoidali lunge
per acciaio inox

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	40 - 60	+	+++
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	+	++
Or/Gold & Argent/Silver	40 - 90	++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$$



Tolérances:

d₁: h6

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu / Uncoated	ou/or / TiCN / TiAlN	Autre / Other
0.30	3.7	38	-	-	-
0.35	3.7	38	-	-	-
0.40	4.7	38	-	-	-
0.45	4.7	38	-	-	-
0.50	5.7	38	-	-	-
0.55	5.7	38	-	-	-
0.60	7.7	38	-	-	-
0.65	7.7	38	-	-	-
0.70	9.7	38	-	-	-
0.75	9.7	38	-	-	-
0.80	11.7	38	-	-	-
0.85	11.7	38	-	-	-
0.90	14.7	38	-	-	-
0.95	14.7	38	-	-	-
1.00	14.7	38	-	-	-
1.05	14.7	38	-	-	-
1.10	14.7	38	-	-	-
1.15	14.7	38	-	-	-
1.20	14.7	38	-	-	-
1.25	14.7	38	-	-	-

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu / Uncoated	ou/or / TiCN / TiAlN	Autre / Other
1.30	14.7	38	-	-	-
1.35	14.7	38	-	-	-
1.40	14.7	38	-	-	-
1.45	14.7	38	-	-	-
1.50	14.7	38	-	-	-
1.55	14.7	38	-	-	-
1.60	14.7	38	-	-	-
1.65	14.7	38	-	-	-
1.70	14.7	38	-	-	-
1.75	14.7	38	-	-	-
1.80	14.7	38	-	-	-
1.85	14.7	38	-	-	-
1.90	14.7	38	-	-	-
1.95	14.7	38	-	-	-
2.00	14.7	38	-	-	-
2.05	14.7	38	-	-	-
2.10	14.7	38	-	-	-
2.15	14.7	38	-	-	-
2.20	14.7	38	-	-	-
2.25	14.7	38	-	-	-

Suite page suivante / Continued next page



Tolérances:

d ₁ : h6			Prix (CHF) / Price (CHF)		
d ₁	l ₁	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.30	14.7	38	-	-	-
2.35	14.7	38	-	-	-
2.40	14.7	38	-	-	-
2.45	14.7	38	-	-	-
2.50	14.7	38	-	-	-
2.55	14.7	38	-	-	-
2.60	14.7	38	-	-	-
2.65	14.7	38	-	-	-
2.70	14.7	38	-	-	-
2.75	14.7	38	-	-	-
2.80	14.7	38	-	-	-
2.85	14.7	38	-	-	-
2.90	14.7	38	-	-	-
2.95	14.7	38	-	-	-
3.00	14.7	38	-	-	-
3.05	14.7	38	-	-	-
3.10	14.7	38	-	-	-
3.15	14.7	38	-	-	-
3.20	19.7	50	-	-	-
3.30	19.7	50	-	-	-
3.40	19.7	50	-	-	-
3.50	19.7	50	-	-	-
3.60	19.7	50	-	-	-
3.70	19.7	50	-	-	-
3.80	19.7	50	-	-	-
3.90	19.7	50	-	-	-
4.00	19.7	50	-	-	-
4.10	24.7	50	-	-	-
4.20	24.7	50	-	-	-
4.30	24.7	50	-	-	-
4.40	24.7	50	-	-	-
4.50	24.7	50	-	-	-
4.60	24.7	50	-	-	-
4.70	24.7	50	-	-	-
4.80	24.7	50	-	-	-
4.90	24.7	50	-	-	-
5.00	24.7	50	-	-	-
5.10	24.7	50	-	-	-
5.20	24.7	50	-	-	-
5.30	24.7	50	-	-	-
5.40	24.7	50	-	-	-
5.50	24.7	50	-	-	-
5.60	24.7	50	-	-	-
5.70	24.7	50	-	-	-
5.80	24.7	50	-	-	-

			Prix (CHF) / Price (CHF)		
d ₁	l ₁	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
5.90	24.7	50	-	-	-
6.00	24.7	50	-	-	-

Mèches hélicoïdales courtes

coupe inox

Short Twist drills
for stainless steel

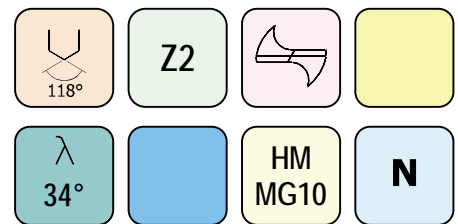
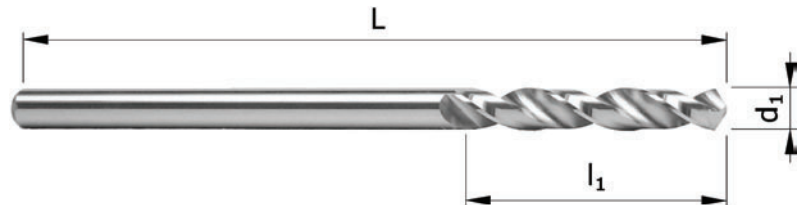
Kurze Spiralbohrer
für Inox

Punte elicoidali corte
per acciaio inox

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	+	+++
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	+	++
Or/Gold & Argent/Silver	40 - 90	++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$



Tolérances:

d₁: h6

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
0.30	1.5	30	-	-	-
0.40	2.3	30	-	-	-
0.50	2.8	30	-	-	-
0.60	3.3	30	-	-	-
0.70	4.3	30	-	-	-
0.80	4.8	30	-	-	-
0.90	5.3	30	-	-	-
1.00	5.7	30	-	-	-
1.10	6.7	30	-	-	-
1.20	7.7	30	-	-	-
1.30	7.7	30	-	-	-
1.40	8.8	32	-	-	-
1.50	8.8	32	-	-	-
1.60	9.7	34	-	-	-
1.70	9.7	34	-	-	-
1.80	10.7	36	-	-	-
1.90	10.7	36	-	-	-
2.00	11.5	38	-	-	-
2.10	11.5	38	-	-	-
2.20	12.5	40	-	-	-

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/or TiCN TiAlN	Autre Other
2.30	12.5	40	-	-	-
2.40	13.5	43	-	-	-
2.50	13.5	43	-	-	-
2.60	13.5	43	-	-	-
2.70	15.5	46	-	-	-
2.80	15.5	46	-	-	-
2.90	15.5	46	-	-	-
3.00	15.5	46	-	-	-
3.10	17.5	49	-	-	-
3.20	17.5	49	-	-	-
3.30	17.5	49	-	-	-
3.40	19.5	52	-	-	-
3.50	19.5	52	-	-	-
3.60	19.5	52	-	-	-
3.70	19.5	52	-	-	-
3.80	21.5	55	-	-	-
3.90	21.5	55	-	-	-
4.00	21.5	55	-	-	-
4.10	21.5	55	-	-	-
4.20	21.5	55	-	-	-

Suite page suivante / Continued next page



Tolérances:

d ₁ : h6			Prix (CHF) / Price (CHF)			
d ₁	l ₁	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
4.30	23.0	58	-	-	-	-
4.40	23.0	58	-	-	-	-
4.50	23.0	58	-	-	-	-
4.60	23.0	58	-	-	-	-
4.70	23.0	58	-	-	-	-
4.80	25.0	62	-	-	-	-
4.90	25.0	62	-	-	-	-
5.00	25.0	62	-	-	-	-
5.10	25.0	62	-	-	-	-
5.20	25.0	62	-	-	-	-
5.30	25.0	62	-	-	-	-
5.40	27.0	66	-	-	-	-
5.50	27.0	66	-	-	-	-
5.60	27.0	66	-	-	-	-
5.70	27.0	66	-	-	-	-
5.80	27.0	66	-	-	-	-
5.90	27.0	66	-	-	-	-
6.00	27.0	66	-	-	-	-
6.10	30.0	70	-	-	-	-
6.20	30.0	70	-	-	-	-
6.30	30.0	70	-	-	-	-
6.40	30.0	70	-	-	-	-
6.50	30.0	70	-	-	-	-
6.60	30.0	70	-	-	-	-
6.70	30.0	70	-	-	-	-
6.80	33.0	74	-	-	-	-
6.90	33.0	74	-	-	-	-
7.00	33.0	74	-	-	-	-
7.10	33.0	74	-	-	-	-
7.20	33.0	74	-	-	-	-
7.30	33.0	74	-	-	-	-
7.40	33.0	74	-	-	-	-
7.50	33.0	74	-	-	-	-
7.60	36.0	79	-	-	-	-
7.70	36.0	79	-	-	-	-
7.80	36.0	79	-	-	-	-
7.90	36.0	79	-	-	-	-
8.00	36.0	79	-	-	-	-
8.10	36.0	79	-	-	-	-
8.20	36.0	79	-	-	-	-
8.30	36.0	79	-	-	-	-
8.40	36.0	79	-	-	-	-
8.50	36.0	79	-	-	-	-
8.60	39.0	84	-	-	-	-
8.70	39.0	84	-	-	-	-
8.80	39.0	84	-	-	-	-

			Prix (CHF) / Price (CHF)			
d ₁	l ₁	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
8.90	39.0	84	-	-	-	-
9.00	39.0	84	-	-	-	-
9.10	39.0	84	-	-	-	-
9.20	39.0	84	-	-	-	-
9.30	39.0	84	-	-	-	-
9.40	39.0	84	-	-	-	-
9.50	39.0	84	-	-	-	-
9.60	41.0	89	-	-	-	-
9.70	41.0	89	-	-	-	-
9.80	41.0	89	-	-	-	-
9.90	41.0	89	-	-	-	-
10.00	41.0	89	-	-	-	-
10.20	41.0	89	-	-	-	-
10.50	41.0	89	-	-	-	-
11.00	45.0	95	-	-	-	-
11.50	45.0	95	-	-	-	-
12.00	49.0	102	-	-	-	-
12.50	49.0	102	-	-	-	-
13.00	49.0	102	-	-	-	-
13.50	52.0	107	-	-	-	-
14.00	52.0	107	-	-	-	-
15.00	54.0	111	-	-	-	-
16.00	56.0	115	-	-	-	-
17.00	58.0	119	-	-	-	-
18.00	60.0	123	-	-	-	-
19.00	62.0	127	-	-	-	-
20.00	64.0	131	-	-	-	-

Forets hélicoïdaux 3 lèvres

Twist drills
3 flutes

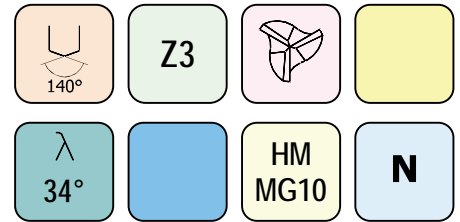
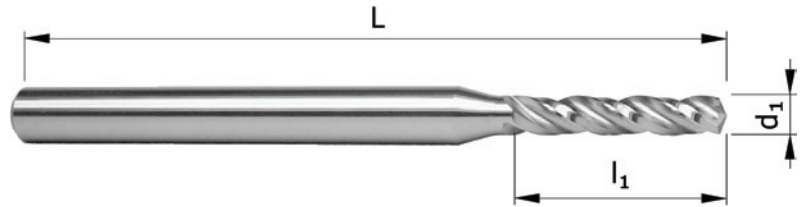
Spiralbohrer
3 Schneiden

Punte elicoidali
3 taglienti

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	+
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	+
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	++	+++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$$V_f = 0.015 \rightarrow 0.040 \times d_1 \times n$$



Tolérances:

$$d_1 < D \Leftrightarrow d_1: -0.002/-0.004 \quad d_1 = D \Leftrightarrow d_1: h6 \quad D: h6$$

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.15	2.0	3.0	38	-	-	-
0.20	3.0	3.0	38	-	-	-
0.25	3.5	3.0	38	-	-	-
0.30	5.0	3.0	38	-	-	-
0.35	5.0	3.0	38	-	-	-
0.40	6.0	3.0	38	-	-	-
0.45	6.0	3.0	38	-	-	-
0.50	6.0	3.0	38	-	-	-
0.55	7.0	3.0	38	-	-	-
0.60	7.0	3.0	38	-	-	-
0.65	7.0	3.0	38	-	-	-
0.70	9.5	3.0	38	-	-	-
0.75	9.5	3.0	38	-	-	-
0.80	9.5	3.0	38	-	-	-
0.85	9.5	3.0	38	-	-	-
0.90	9.5	3.0	38	-	-	-
0.95	9.5	3.0	38	-	-	-
1.00	9.5	3.0	38	-	-	-
1.05	10.5	3.0	38	-	-	-
1.10	10.5	3.0	38	-	-	-
1.15	10.5	3.0	38	-	-	-
1.20	10.5	3.0	38	-	-	-
1.25	10.5	3.0	38	-	-	-
1.30	10.5	3.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.35	10.5	3.0	38	-	-	-
1.40	10.5	3.0	38	-	-	-
1.45	10.5	3.0	38	-	-	-
1.50	10.5	3.0	38	-	-	-
1.60	10.5	3.0	38	-	-	-
1.70	10.5	3.0	38	-	-	-
1.80	10.5	3.0	38	-	-	-
1.90	10.5	3.0	38	-	-	-
2.00	10.5	3.0	38	-	-	-
2.10	10.5	3.0	38	-	-	-
2.20	10.5	3.0	38	-	-	-
2.30	10.5	3.0	38	-	-	-
2.40	10.5	3.0	38	-	-	-
2.50	10.5	3.0	38	-	-	-
2.60	10.5	3.0	38	-	-	-
2.70	10.5	3.0	38	-	-	-
2.80	10.5	3.0	38	-	-	-
2.90	10.5	3.0	38	-	-	-
3.00	10.5	3.0	38	-	-	-

Forets hélicoïdaux 3 lèvres - série courte

Twist drills - 3 flutes
short serie

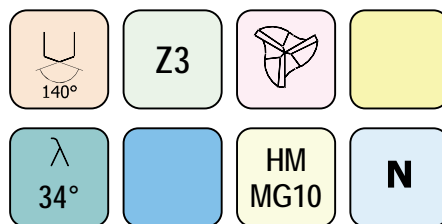
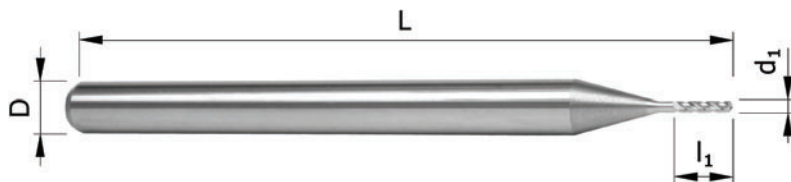
Spiralbohrer - 3 Schneiden
kurze Serie

Punte elicoidali - 3 taglienti
seria corta

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/Stainless steel	40 - 60	-	++
Acier/Steel <700 N/mm ²	35 - 70	+	+++
Acier/Steel >700 N/mm ²	20 - 50	-	++
Titane/Titan	30 - 70	+	+++
Aluminium	80 - 140	+	++
Cuivre/Copper	60 - 90	+	++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	+++
Polymères/Polymers	40 - 80	+++	-

$$V_f = 0.015 \rightarrow 0.040 \times d_1 \times n$$



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.15	1.5	3.0	38	-	-	-
0.20	2.0	3.0	38	-	-	-
0.25	2.0	3.0	38	-	-	-
0.30	2.0	3.0	38	-	-	-
0.31	2.0	3.0	38	-	-	-
0.32	2.0	3.0	38	-	-	-
0.33	2.0	3.0	38	-	-	-
0.34	2.0	3.0	38	-	-	-
0.35	2.0	3.0	38	-	-	-
0.36	2.0	3.0	38	-	-	-
0.37	2.0	3.0	38	-	-	-
0.38	2.0	3.0	38	-	-	-
0.39	2.0	3.0	38	-	-	-
0.40	2.0	3.0	38	-	-	-
0.41	2.0	3.0	38	-	-	-
0.42	2.0	3.0	38	-	-	-
0.43	2.0	3.0	38	-	-	-
0.44	2.0	3.0	38	-	-	-
0.45	2.0	3.0	38	-	-	-
0.46	2.0	3.0	38	-	-	-
0.47	2.0	3.0	38	-	-	-
0.48	2.0	3.0	38	-	-	-
0.49	2.0	3.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.50	3.0	3.0	38	-	-	-
0.51	3.0	3.0	38	-	-	-
0.52	3.0	3.0	38	-	-	-
0.53	3.0	3.0	38	-	-	-
0.54	3.0	3.0	38	-	-	-
0.55	3.0	3.0	38	-	-	-
0.56	3.0	3.0	38	-	-	-
0.57	3.0	3.0	38	-	-	-
0.58	3.0	3.0	38	-	-	-
0.59	3.0	3.0	38	-	-	-
0.60	3.0	3.0	38	-	-	-
0.61	3.0	3.0	38	-	-	-
0.62	3.0	3.0	38	-	-	-
0.63	3.0	3.0	38	-	-	-
0.64	3.0	3.0	38	-	-	-
0.65	3.0	3.0	38	-	-	-
0.66	3.0	3.0	38	-	-	-
0.67	3.0	3.0	38	-	-	-
0.68	3.0	3.0	38	-	-	-
0.69	3.0	3.0	38	-	-	-
0.70	3.0	3.0	38	-	-	-
0.71	3.0	3.0	38	-	-	-
0.72	3.0	3.0	38	-	-	-

Suite page suivante / Continued next page



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.73	3.0	3.0	38	-	-	-
0.74	3.0	3.0	38	-	-	-
0.75	3.0	3.0	38	-	-	-
0.76	3.0	3.0	38	-	-	-
0.77	3.0	3.0	38	-	-	-
0.78	3.0	3.0	38	-	-	-
0.79	3.0	3.0	38	-	-	-
0.80	3.0	3.0	38	-	-	-
0.81	3.0	3.0	38	-	-	-
0.82	3.0	3.0	38	-	-	-
0.83	3.0	3.0	38	-	-	-
0.84	3.0	3.0	38	-	-	-
0.85	3.0	3.0	38	-	-	-
0.86	3.0	3.0	38	-	-	-
0.87	3.0	3.0	38	-	-	-
0.88	3.0	3.0	38	-	-	-
0.89	3.0	3.0	38	-	-	-
0.90	3.0	3.0	38	-	-	-
0.91	3.0	3.0	38	-	-	-
0.92	3.0	3.0	38	-	-	-
0.93	3.0	3.0	38	-	-	-
0.94	3.0	3.0	38	-	-	-
0.95	3.0	3.0	38	-	-	-
0.96	3.0	3.0	38	-	-	-
0.97	3.0	3.0	38	-	-	-
0.98	3.0	3.0	38	-	-	-
0.99	3.0	3.0	38	-	-	-
1.00	3.5	3.0	38	-	-	-
1.01	3.5	3.0	38	-	-	-
1.02	3.5	3.0	38	-	-	-
1.03	3.5	3.0	38	-	-	-
1.04	3.5	3.0	38	-	-	-
1.05	3.5	3.0	38	-	-	-
1.06	3.5	3.0	38	-	-	-
1.07	3.5	3.0	38	-	-	-
1.08	3.5	3.0	38	-	-	-
1.09	3.5	3.0	38	-	-	-
1.10	3.5	3.0	38	-	-	-
1.11	3.5	3.0	38	-	-	-
1.12	3.5	3.0	38	-	-	-
1.13	3.5	3.0	38	-	-	-
1.14	3.5	3.0	38	-	-	-
1.15	3.5	3.0	38	-	-	-
1.16	3.5	3.0	38	-	-	-
1.17	3.5	3.0	38	-	-	-
1.18	3.5	3.0	38	-	-	-

d ₁	l ₁	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.19	3.5	3.0	38	-	-	-
1.20	3.5	3.0	38	-	-	-
1.21	3.5	3.0	38	-	-	-
1.22	3.5	3.0	38	-	-	-
1.23	3.5	3.0	38	-	-	-
1.24	3.5	3.0	38	-	-	-
1.25	3.5	3.0	38	-	-	-
1.26	3.5	3.0	38	-	-	-
1.27	3.5	3.0	38	-	-	-
1.28	3.5	3.0	38	-	-	-
1.29	3.5	3.0	38	-	-	-
1.30	3.5	3.0	38	-	-	-
1.31	3.5	3.0	38	-	-	-
1.32	3.5	3.0	38	-	-	-
1.33	3.5	3.0	38	-	-	-
1.34	3.5	3.0	38	-	-	-
1.35	3.5	3.0	38	-	-	-
1.36	3.5	3.0	38	-	-	-
1.37	3.5	3.0	38	-	-	-
1.38	3.5	3.0	38	-	-	-
1.39	3.5	3.0	38	-	-	-
1.40	3.5	3.0	38	-	-	-
1.41	3.5	3.0	38	-	-	-
1.42	3.5	3.0	38	-	-	-
1.43	3.5	3.0	38	-	-	-
1.44	3.5	3.0	38	-	-	-
1.45	3.5	3.0	38	-	-	-
1.46	3.5	3.0	38	-	-	-
1.47	3.5	3.0	38	-	-	-
1.48	3.5	3.0	38	-	-	-
1.49	3.5	3.0	38	-	-	-
1.50	3.5	3.0	38	-	-	-

Mèches 3 lèvres

**Twist drills
3 flutes**

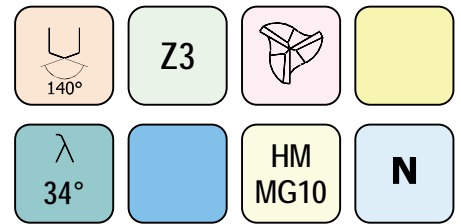
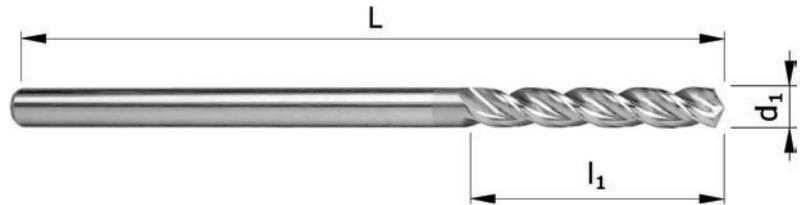
**Spiralbohrer
3 Schneiden**

**Punte elicoidali
3 taglienti**

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	+
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	+
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	++	+++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$$V_f = 0.015 \rightarrow 0.040 \times d_1 \times n$$



Tolérances:

d₁: h6

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.00	6.0	26	-	-	-
1.10	6.5	28	-	-	-
1.20	7.5	30	-	-	-
1.30	7.5	30	-	-	-
1.40	8.5	32	-	-	-
1.50	8.5	32	-	-	-
1.60	9.5	34	-	-	-
1.70	9.5	34	-	-	-
1.80	10.5	36	-	-	-
1.90	10.5	36	-	-	-
2.00	11.5	38	-	-	-
2.10	11.5	38	-	-	-
2.20	12.5	40	-	-	-
2.30	12.5	40	-	-	-
2.40	13.5	43	-	-	-
2.50	13.5	43	-	-	-
2.60	13.5	43	-	-	-
2.70	15.5	46	-	-	-
2.80	15.5	46	-	-	-
2.90	15.5	46	-	-	-
3.00	15.5	46	-	-	-
3.10	17.0	49	-	-	-
3.20	17.0	49	-	-	-

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
3.30	17.0	49	-	-	-
3.40	19.0	52	-	-	-
3.50	19.0	52	-	-	-
3.60	19.0	52	-	-	-
3.70	19.0	52	-	-	-
3.80	21.0	55	-	-	-
3.90	21.0	55	-	-	-
4.00	21.0	55	-	-	-
4.10	21.0	55	-	-	-
4.20	21.0	55	-	-	-
4.30	22.5	58	-	-	-
4.40	22.5	58	-	-	-
4.50	22.5	58	-	-	-
4.60	22.5	58	-	-	-
4.70	22.5	58	-	-	-
4.80	24.5	62	-	-	-
4.90	24.5	62	-	-	-
5.00	24.5	62	-	-	-
5.10	24.5	62	-	-	-
5.20	24.5	62	-	-	-
5.30	24.5	62	-	-	-
5.40	26.0	66	-	-	-
5.50	26.0	66	-	-	-

Suite page suivante / Continued next page



Tolérances:

d ₁ : h6			Prix (CHF) / Price (CHF)			
d ₁	l ₁	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
5.60	26.0	66	-	-	-	
5.70	26.0	66	-	-	-	
5.80	26.0	66	-	-	-	
5.90	26.0	66	-	-	-	
6.00	26.0	66	-	-	-	
6.10	28.5	70	-	-	-	
6.20	28.5	70	-	-	-	
6.30	28.5	70	-	-	-	
6.40	28.5	70	-	-	-	
6.50	28.5	70	-	-	-	
6.60	28.5	70	-	-	-	
6.70	28.5	70	-	-	-	
6.80	31.0	74	-	-	-	
6.90	31.0	74	-	-	-	
7.00	31.0	74	-	-	-	
7.10	31.0	74	-	-	-	
7.20	31.0	74	-	-	-	
7.30	31.0	74	-	-	-	
7.40	31.0	74	-	-	-	
7.50	31.0	74	-	-	-	
7.60	34.0	79	-	-	-	
7.70	34.0	79	-	-	-	
7.80	34.0	79	-	-	-	
7.90	34.0	79	-	-	-	
8.00	34.0	79	-	-	-	
8.10	34.0	79	-	-	-	
8.20	34.0	79	-	-	-	
8.30	34.0	79	-	-	-	
8.40	34.0	79	-	-	-	
8.50	34.0	79	-	-	-	
8.60	36.5	84	-	-	-	
8.70	36.5	84	-	-	-	
8.80	36.5	84	-	-	-	
8.90	36.5	84	-	-	-	
9.00	36.5	84	-	-	-	
9.10	36.5	84	-	-	-	
9.20	36.5	84	-	-	-	
9.30	36.5	84	-	-	-	
9.40	36.5	84	-	-	-	
9.50	36.5	84	-	-	-	
9.60	39.0	89	-	-	-	
9.70	39.0	89	-	-	-	
9.80	39.0	89	-	-	-	
9.90	39.0	89	-	-	-	
10.00	39.0	89	-	-	-	
10.20	39.0	89	-	-	-	

			Prix (CHF) / Price (CHF)			
d ₁	l ₁	L	Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other	
10.50	39.0	89	-	-	-	
11.00	43.0	95	-	-	-	
11.50	43.0	95	-	-	-	
12.00	47.0	102	-	-	-	
12.50	47.0	102	-	-	-	
13.00	47.0	102	-	-	-	
13.50	50.0	107	-	-	-	
14.00	50.0	107	-	-	-	

Mèches 3 lèvres - série longue

Twist drills - 3 flutes
long serie

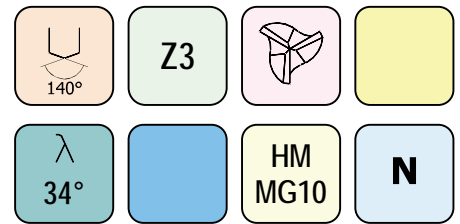
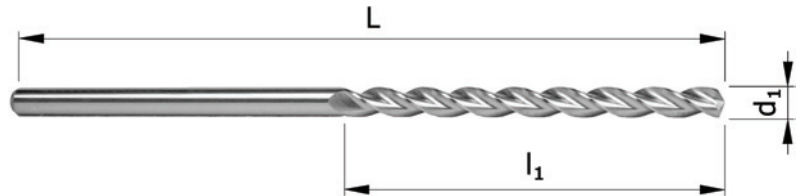
Spiralbohrer - 3 Schneiden
Lange Serie

Punte elicoidali
seria lunga

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	40 - 60	-	+
Acier/Steel <700 N/mm ²	35 - 70	+	++
Acier/Steel >700 N/mm ²	20 - 50	-	+
Titane/Titan	30 - 70	++	+++
Aluminium	80 - 140	++	+++
Cuivre/Copper	60 - 90	++	+++
Laiton/Brass	60 - 100	++	-
Or/Gold & Argent/Silver	40 - 90	+++	-
Graphite	90 - 150	-	++
Polymères/Polymers	40 - 80	++	-

$$V_f = 0.015 \rightarrow 0.040 \times d_1 \times n$$



Tolérances:

d₁: h6

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.00	11.5	34	-	-	-
1.10	13.0	36	-	-	-
1.20	15.0	38	-	-	-
1.30	15.0	38	-	-	-
1.40	17.0	40	-	-	-
1.50	17.0	40	-	-	-
1.60	19.0	43	-	-	-
1.70	19.0	43	-	-	-
1.80	21.0	46	-	-	-
1.90	21.0	46	-	-	-
2.00	22.0	49	-	-	-
2.10	22.0	49	-	-	-
2.20	25.0	53	-	-	-
2.30	25.0	53	-	-	-
2.40	28.0	57	-	-	-
2.50	28.0	57	-	-	-
2.60	28.0	57	-	-	-
2.70	31.0	61	-	-	-
2.80	31.0	61	-	-	-
2.90	31.0	61	-	-	-
3.00	31.0	61	-	-	-
3.10	34.0	65	-	-	-
3.20	34.0	65	-	-	-

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
3.30	34.0	65	-	-	-
3.40	37.0	70	-	-	-
3.50	37.0	70	-	-	-
3.60	37.0	70	-	-	-
3.70	37.0	70	-	-	-
3.80	41.0	75	-	-	-
3.90	41.0	75	-	-	-
4.00	41.0	75	-	-	-
4.10	41.0	75	-	-	-
4.20	41.0	75	-	-	-
4.30	45.0	80	-	-	-
4.40	45.0	80	-	-	-
4.50	45.0	80	-	-	-
4.60	45.0	80	-	-	-
4.70	45.0	80	-	-	-
4.80	50.0	86	-	-	-
4.90	50.0	86	-	-	-
5.00	50.0	86	-	-	-
5.10	50.0	86	-	-	-
5.20	50.0	86	-	-	-
5.30	50.0	86	-	-	-
5.40	55.0	93	-	-	-
5.50	55.0	93	-	-	-

Suite page suivante / Continued next page



Tolérances:

d₁: h6

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
5.60	55.0	93	-	-	-
5.70	55.0	93	-	-	-
5.80	55.0	93	-	-	-
5.90	55.0	93	-	-	-
6.00	55.0	93	-	-	-
6.10	60.0	101	-	-	-
6.20	60.0	101	-	-	-
6.30	60.0	101	-	-	-
6.40	60.0	101	-	-	-
6.50	60.0	101	-	-	-
6.60	60.0	101	-	-	-
6.70	60.0	101	-	-	-
6.80	66.0	109	-	-	-
6.90	66.0	109	-	-	-
7.00	66.0	109	-	-	-
7.10	66.0	109	-	-	-
7.20	66.0	109	-	-	-
7.30	66.0	109	-	-	-
7.40	66.0	109	-	-	-
7.50	66.0	109	-	-	-
7.60	72.0	117	-	-	-
7.70	72.0	117	-	-	-
7.80	72.0	117	-	-	-
7.90	72.0	117	-	-	-
8.00	72.0	117	-	-	-
8.10	72.0	117	-	-	-
8.20	72.0	117	-	-	-
8.30	72.0	117	-	-	-
8.40	72.0	117	-	-	-
8.50	72.0	117	-	-	-
8.60	78.0	125	-	-	-
8.70	78.0	125	-	-	-
8.80	78.0	125	-	-	-
8.90	78.0	125	-	-	-
9.00	78.0	125	-	-	-
9.10	78.0	125	-	-	-
9.20	78.0	125	-	-	-
9.30	78.0	125	-	-	-
9.40	78.0	125	-	-	-
9.50	78.0	125	-	-	-
9.60	84.0	133	-	-	-
9.70	84.0	133	-	-	-
9.80	84.0	133	-	-	-
9.90	84.0	133	-	-	-
10.00	84.0	133	-	-	-
10.20	84.0	133	-	-	-

d ₁	l ₁	L	Prix (CHF) / Price (CHF)		
			Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
10.50	84.0	133	-	-	-
11.00	91.0	142	-	-	-
11.50	91.0	142	-	-	-
12.00	98.0	151	-	-	-
12.50	98.0	151	-	-	-
13.00	98.0	151	-	-	-
13.50	105.0	160	-	-	-
14.00	105.0	160	-	-	-

Forets PCD 2 lèvres hélicoïdales

Corps en carbure de tungstène

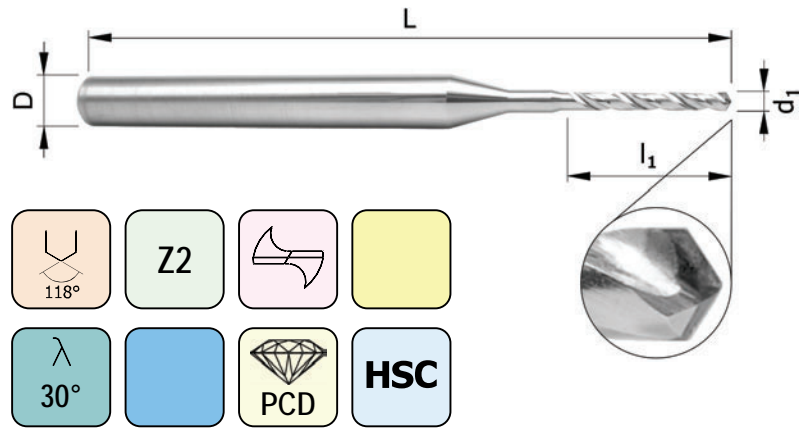
PCD twist drills - 2 teeth
Shank in solid carbide

PKD Spiralbohrer 2 Zähne
Schaft aus VHM

Punte elicoidali in PCD
Codolo in metallo duro

Recommandé pour / Usage recommendations:

Matière / Material		Vc [m/min]
Aluminium	++	200 - 2000
Cuivre/Copper	++	200 - 1000
Laiton/Brass	++	200 - 2000
Or/Gold & Argent/Silver	++	300 - 900
Platine & Palladium	++	200 - 700
Bronze	++	200 - 1000
Graphite	++	100 - 500
Résine+Fibre/Resin+Fiber	++	110 - 300



Tolérances:

d₁: +0 / -0.013 D: h6

d ₁	l ₁	D	L	Prix (CHF) Price (CHF)
0.48	4.0	3	38	-
0.49	4.0	3	38	-
0.50	4.0	3	38	-
0.51	4.0	3	38	-
0.52	4.0	3	38	-
0.53	4.0	3	38	-
0.54	4.0	3	38	-
0.55	4.0	3	38	-
0.56	4.0	3	38	-
0.57	4.0	3	38	-
0.58	4.0	3	38	-
0.59	4.0	3	38	-
0.60	5.0	3	38	-
0.61	5.0	3	38	-
0.62	5.0	3	38	-
0.63	5.0	3	38	-
0.64	5.0	3	38	-
0.65	5.0	3	38	-
0.66	5.0	3	38	-
0.67	5.0	3	38	-
0.68	5.0	3	38	-
0.69	5.0	3	38	-
0.70	5.0	3	38	-

d ₁	l ₁	D	L	Prix (CHF) Price (CHF)
0.71	5.0	3	38	-
0.72	5.0	3	38	-
0.73	5.0	3	38	-
0.74	5.0	3	38	-
0.75	5.0	3	38	-
0.76	5.0	3	38	-
0.77	5.0	3	38	-
0.78	5.0	3	38	-
0.79	5.0	3	38	-
0.80	6.0	3	38	-
0.81	6.0	3	38	-
0.82	6.0	3	38	-
0.83	6.0	3	38	-
0.84	6.0	3	38	-
0.85	6.0	3	38	-
0.86	6.0	3	38	-
0.87	6.0	3	38	-
0.88	6.0	3	38	-
0.89	6.0	3	38	-
0.90	7.0	3	38	-
0.91	7.0	3	38	-
0.92	7.0	3	38	-
0.93	7.0	3	38	-

Suite page suivante / Continued next page



Tolérances:

d₁: +0 / -0.013 D: h6

d ₁	l ₁	D	L	Prix (CHF) Price (CHF)
0.94	7.0	3	38	-
0.95	7.0	3	38	-
0.96	7.0	3	38	-
0.97	7.0	3	38	-
0.98	7.0	3	38	-
0.99	7.0	3	38	-
1.00	8.0	3	38	-
1.01	8.0	3	38	-
1.02	8.0	3	38	-
1.03	8.0	3	38	-
1.04	8.0	3	38	-
1.05	8.0	3	38	-
1.06	8.0	3	38	-
1.07	8.0	3	38	-
1.08	8.0	3	38	-
1.09	8.0	3	38	-
1.10	9.0	3	38	-
1.11	9.0	3	38	-
1.12	9.0	3	38	-
1.13	9.0	3	38	-
1.14	9.0	3	38	-
1.15	9.0	3	38	-
1.16	9.0	3	38	-
1.17	9.0	3	38	-
1.18	9.0	3	38	-
1.19	9.0	3	38	-
1.20	9.0	3	38	-
1.21	9.0	3	38	-
1.22	9.0	3	38	-
1.23	9.0	3	38	-
1.24	9.0	3	38	-
1.25	9.0	3	38	-
1.26	9.0	3	38	-
1.27	9.0	3	38	-
1.28	9.0	3	38	-
1.29	9.0	3	38	-
1.30	9.0	3	38	-
1.31	9.0	3	38	-
1.32	9.0	3	38	-
1.33	9.0	3	38	-
1.34	9.0	3	38	-
1.35	9.0	3	38	-
1.36	9.0	3	38	-
1.37	9.0	3	38	-
1.38	9.0	3	38	-
1.39	9.0	3	38	-
1.40	9.0	3	38	-

d ₁	l ₁	D	L	Prix (CHF) Price (CHF)
1.41	9.0	3	38	-
1.42	9.0	3	38	-
1.43	9.0	3	38	-
1.44	9.0	3	38	-
1.45	9.0	3	38	-
1.46	9.0	3	38	-
1.47	9.0	3	38	-
1.48	9.0	3	38	-
1.49	9.0	3	38	-
1.50	9.0	3	38	-
1.55	9.0	3	38	-
1.60	9.0	3	38	-
1.65	9.0	3	38	-
1.70	9.0	3	38	-
1.75	9.0	3	38	-
1.80	9.0	3	38	-
1.85	9.0	3	38	-
1.90	9.0	3	38	-
1.95	9.0	3	38	-
2.00	9.0	3	38	-
2.05	9.0	3	38	-
2.10	9.0	3	38	-
2.15	9.0	3	38	-
2.20	9.0	3	38	-
2.25	9.0	3	38	-
2.29	9.0	3	38	-

Autres dimensions sur demande
Other dimensions available upon request



Alésoirs étagés

Step reamers

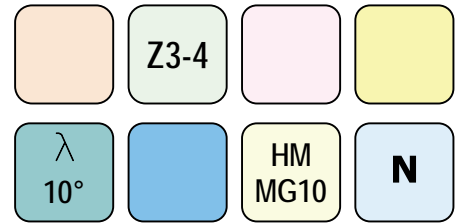
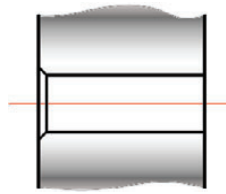
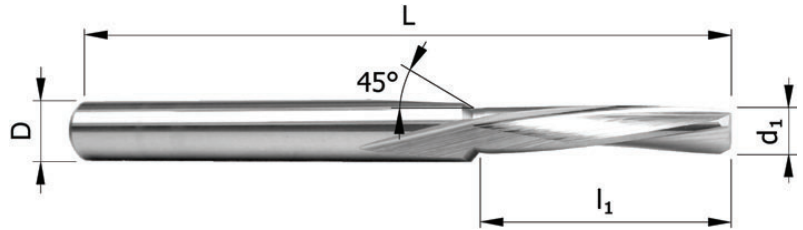
Stufenreibahlen

Alesori a gradini

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu / Uncoated	Revêtu / Coated
Inox/stainless steel	10 - 15	++	+++
Acier/Steel <700 N/mm ²	15 - 20	++	+++
Acier/Steel >700 N/mm ²	10 - 15	++	+++
Titane/Titan	5 - 10	++	+++
Aluminium	10 - 35	++	+++
Cuivre/Copper	15 - 40	++	+++
Laiton/Brass	20 - 40	+++	-
Or/Gold & Argent/Silver	20 - 40	+++	-
Graphite	15 - 25	-	++
Polymères/Polymers	15 - 40	+++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$



Tolérances:

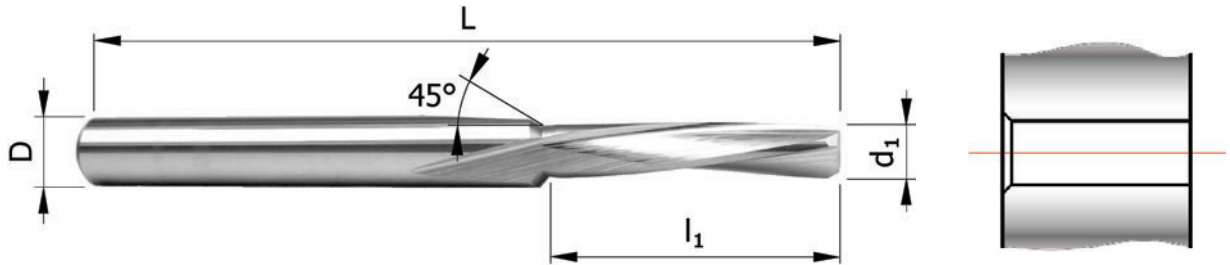
d_1 : -0.002 / -0.004 D: h6

d_1	l_1	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu / Uncoated	ou/ou TiCN / TiAlN	Autre / Other
0.50	5.0	3.0	33	3	-	-	-
0.60	5.0	3.0	33	3	-	-	-
0.70	6.0	3.0	33	3	-	-	-
0.80	6.0	3.0	33	3	-	-	-
0.90	6.0	3.0	33	3	-	-	-
1.00	8.0	3.0	33	3	-	-	-
1.10	8.0	3.0	33	3	-	-	-
1.20	8.0	3.0	33	3	-	-	-
1.30	8.0	3.0	33	3	-	-	-
1.40	8.0	3.0	33	3	-	-	-
1.50	10.0	3.0	33	3 - 4	-	-	-
1.60	10.0	3.0	33	3 - 4	-	-	-
1.70	10.0	3.0	33	3 - 4	-	-	-
1.80	10.0	3.0	33	3 - 4	-	-	-
1.90	10.0	3.0	33	3 - 4	-	-	-
2.00	10.0	3.0	33	3 - 4	-	-	-
2.10	10.0	3.0	33	3 - 4	-	-	-
2.20	10.0	3.0	33	3 - 4	-	-	-
2.30	10.0	3.0	33	3 - 4	-	-	-
2.40	10.0	3.0	33	3 - 4	-	-	-
2.50	10.0	3.0	33	3 - 4	-	-	-
2.60	10.0	3.0	33	3 - 4	-	-	-
2.70	10.0	3.0	33	3 - 4	-	-	-
2.80	10.0	3.0	33	3 - 4	-	-	-

d_1	l_1	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu / Uncoated	ou/ou TiCN / TiAlN	Autre / Other
2.90	10.0	3.0	33	3 - 4	-	-	-
3.00	10.0	3.0	33	3 - 4	-	-	-

Formulaire de commande à la page suivante
See order form next page

Commandes spéciales / *Special orders*



Commande / Order:

Demande d'offre / Quotation request:

<p>Dimensions:</p> <p>d₁ : _____</p> <p>l₁ : _____</p> <p>D : _____</p> <p>L : _____</p>	<p>Coupe / Cut:</p> <p><input type="checkbox"/> à droite <i>right cut</i></p> <p><input type="checkbox"/> à gauche <i>left cut</i></p>	<p>Revêtement / Coating:</p> <p><input type="checkbox"/> Aucun / <i>none</i></p> <p><input type="checkbox"/> TiCN</p> <p><input type="checkbox"/> TiAlN</p> <p><input type="checkbox"/> Autre / <i>other:</i></p>
<p>Matière à usiner: <i>Machined material:</i></p>	<p>Quantité : <i>Quantity:</i></p>	<p>N° commande: <i>Order No:</i></p>
<p>Timbre de la société / Company's stamp:</p>		<p>Personne de contact: <i>Contact person:</i></p>

Alésoirs d'horlogerie

**Reamers
for watchmakers**

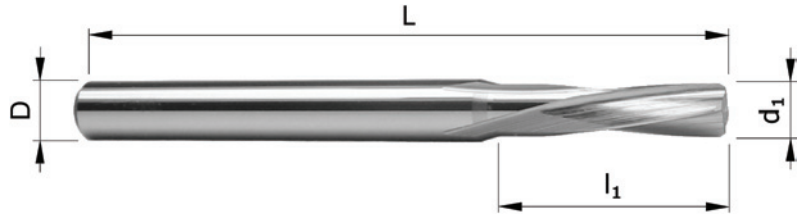
**Reibahlen
für die Uhrenindustrie**

**Alesori
per l'orologeria**

Recommandé pour / Usage recommendations:

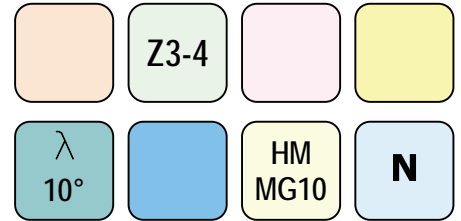
Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	10 - 15	++	+++
Acier/Steel <700 N/mm ²	15 - 20	++	+++
Acier/Steel >700 N/mm ²	10 - 15	++	+++
Titane/Titan	5 - 10	++	+++
Aluminium	10 - 35	++	+++
Cuivre/Copper	15 - 40	++	+++
Laiton/Brass	20 - 40	+++	-
Or/Gold & Argent/Silver	20 - 40	+++	-
Graphite	15 - 25	-	++
Polymères/Polymers	15 - 40	+++	-

$V_f = 0.1 \rightarrow 0.3 \times d_1 \times n$



Hélice à gauche
Coupe à droite

Left helix
Right cut



Tolérances:

d_1 : -0.002 / -0.004 D: h6

d_1	l_1	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	TiCN ou/ou TiAlN	Autre Other
0.50	5.0	3.0	33	3	-	-	-
0.51	5.0	3.0	33	3	-	-	-
0.52	5.0	3.0	33	3	-	-	-
0.53	5.0	3.0	33	3	-	-	-
0.54	5.0	3.0	33	3	-	-	-
0.55	5.0	3.0	33	3	-	-	-
0.56	5.0	3.0	33	3	-	-	-
0.57	5.0	3.0	33	3	-	-	-
0.58	5.0	3.0	33	3	-	-	-
0.59	5.0	3.0	33	3	-	-	-
0.60	5.0	3.0	33	3	-	-	-
0.61	5.0	3.0	33	3	-	-	-
0.62	5.0	3.0	33	3	-	-	-
0.63	5.0	3.0	33	3	-	-	-
0.64	5.0	3.0	33	3	-	-	-
0.65	5.0	3.0	33	3	-	-	-
0.66	5.0	3.0	33	3	-	-	-
0.67	5.0	3.0	33	3	-	-	-
0.68	5.0	3.0	33	3	-	-	-
0.69	5.0	3.0	33	3	-	-	-
0.70	6.0	3.0	33	3	-	-	-
0.71	6.0	3.0	33	3	-	-	-

d_1	l_1	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	TiCN ou/ou TiAlN	Autre Other
0.72	6.0	3.0	33	3	-	-	-
0.73	6.0	3.0	33	3	-	-	-
0.74	6.0	3.0	33	3	-	-	-
0.75	6.0	3.0	33	3	-	-	-
0.76	6.0	3.0	33	3	-	-	-
0.77	6.0	3.0	33	3	-	-	-
0.78	6.0	3.0	33	3	-	-	-
0.79	6.0	3.0	33	3	-	-	-
0.80	6.0	3.0	33	3	-	-	-
0.81	6.0	3.0	33	3	-	-	-
0.82	6.0	3.0	33	3	-	-	-
0.83	6.0	3.0	33	3	-	-	-
0.84	6.0	3.0	33	3	-	-	-
0.85	6.0	3.0	33	3	-	-	-
0.86	6.0	3.0	33	3	-	-	-
0.87	6.0	3.0	33	3	-	-	-
0.88	6.0	3.0	33	3	-	-	-
0.89	6.0	3.0	33	3	-	-	-
0.90	6.0	3.0	33	3	-	-	-
0.91	6.0	3.0	33	3	-	-	-
0.92	6.0	3.0	33	3	-	-	-
0.93	6.0	3.0	33	3	-	-	-

Suite page suivante / Continued next page



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.94	6.0	3.0	33	3	-	-	-
0.95	6.0	3.0	33	3	-	-	-
0.96	6.0	3.0	33	3	-	-	-
0.97	6.0	3.0	33	3	-	-	-
0.98	6.0	3.0	33	3	-	-	-
0.99	6.0	3.0	33	3	-	-	-
1.00	8.0	3.0	33	3	-	-	-
1.01	8.0	3.0	33	3	-	-	-
1.02	8.0	3.0	33	3	-	-	-
1.03	8.0	3.0	33	3	-	-	-
1.04	8.0	3.0	33	3	-	-	-
1.05	8.0	3.0	33	3	-	-	-
1.06	8.0	3.0	33	3	-	-	-
1.07	8.0	3.0	33	3	-	-	-
1.08	8.0	3.0	33	3	-	-	-
1.09	8.0	3.0	33	3	-	-	-
1.10	8.0	3.0	33	3	-	-	-
1.11	8.0	3.0	33	3	-	-	-
1.12	8.0	3.0	33	3	-	-	-
1.13	8.0	3.0	33	3	-	-	-
1.14	8.0	3.0	33	3	-	-	-
1.15	8.0	3.0	33	3	-	-	-
1.16	8.0	3.0	33	3	-	-	-
1.17	8.0	3.0	33	3	-	-	-
1.18	8.0	3.0	33	3	-	-	-
1.19	8.0	3.0	33	3	-	-	-
1.20	8.0	3.0	33	3	-	-	-
1.21	8.0	3.0	33	3	-	-	-
1.22	8.0	3.0	33	3	-	-	-
1.23	8.0	3.0	33	3	-	-	-
1.24	8.0	3.0	33	3	-	-	-
1.25	8.0	3.0	33	3	-	-	-
1.26	8.0	3.0	33	3	-	-	-
1.27	8.0	3.0	33	3	-	-	-
1.28	8.0	3.0	33	3	-	-	-
1.29	8.0	3.0	33	3	-	-	-
1.30	8.0	3.0	33	3	-	-	-
1.31	8.0	3.0	33	3	-	-	-
1.32	8.0	3.0	33	3	-	-	-
1.33	8.0	3.0	33	3	-	-	-
1.34	8.0	3.0	33	3	-	-	-
1.35	8.0	3.0	33	3	-	-	-
1.36	8.0	3.0	33	3	-	-	-
1.37	8.0	3.0	33	3	-	-	-
1.38	8.0	3.0	33	3	-	-	-

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.39	8.0	3.0	33	3	-	-	-
1.40	8.0	3.0	33	3	-	-	-
1.41	8.0	3.0	33	3	-	-	-
1.42	8.0	3.0	33	3	-	-	-
1.43	8.0	3.0	33	3	-	-	-
1.44	8.0	3.0	33	3	-	-	-
1.45	8.0	3.0	33	3	-	-	-
1.46	8.0	3.0	33	3	-	-	-
1.47	8.0	3.0	33	3	-	-	-
1.48	8.0	3.0	33	3	-	-	-
1.49	8.0	3.0	33	3	-	-	-
1.50	10.0	3.0	33	3-4	-	-	-
1.51	10.0	3.0	33	3-4	-	-	-
1.52	10.0	3.0	33	3-4	-	-	-
1.53	10.0	3.0	33	3-4	-	-	-
1.54	10.0	3.0	33	3-4	-	-	-
1.55	10.0	3.0	33	3-4	-	-	-
1.56	10.0	3.0	33	3-4	-	-	-
1.57	10.0	3.0	33	3-4	-	-	-
1.58	10.0	3.0	33	3-4	-	-	-
1.59	10.0	3.0	33	3-4	-	-	-
1.60	10.0	3.0	33	3-4	-	-	-
1.61	10.0	3.0	33	3-4	-	-	-
1.62	10.0	3.0	33	3-4	-	-	-
1.63	10.0	3.0	33	3-4	-	-	-
1.64	10.0	3.0	33	3-4	-	-	-
1.65	10.0	3.0	33	3-4	-	-	-
1.66	10.0	3.0	33	3-4	-	-	-
1.67	10.0	3.0	33	3-4	-	-	-
1.68	10.0	3.0	33	3-4	-	-	-
1.69	10.0	3.0	33	3-4	-	-	-
1.70	10.0	3.0	33	3-4	-	-	-
1.71	10.0	3.0	33	3-4	-	-	-
1.72	10.0	3.0	33	3-4	-	-	-
1.73	10.0	3.0	33	3-4	-	-	-
1.74	10.0	3.0	33	3-4	-	-	-
1.75	10.0	3.0	33	3-4	-	-	-
1.76	10.0	3.0	33	3-4	-	-	-
1.77	10.0	3.0	33	3-4	-	-	-
1.78	10.0	3.0	33	3-4	-	-	-
1.79	10.0	3.0	33	3-4	-	-	-
1.80	10.0	3.0	33	3-4	-	-	-
1.81	10.0	3.0	33	3-4	-	-	-
1.82	10.0	3.0	33	3-4	-	-	-
1.83	10.0	3.0	33	3-4	-	-	-

Suite page suivante / Continued next page



Tolérances:

d₁: -0.002 / -0.004 D: h6

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
1.84	10.0	3.0	33	3 - 4	-	-	-
1.85	10.0	3.0	33	3 - 4	-	-	-
1.86	10.0	3.0	33	3 - 4	-	-	-
1.87	10.0	3.0	33	3 - 4	-	-	-
1.88	10.0	3.0	33	3 - 4	-	-	-
1.89	10.0	3.0	33	3 - 4	-	-	-
1.90	10.0	3.0	33	3 - 4	-	-	-
1.91	10.0	3.0	33	3 - 4	-	-	-
1.92	10.0	3.0	33	3 - 4	-	-	-
1.93	10.0	3.0	33	3 - 4	-	-	-
1.94	10.0	3.0	33	3 - 4	-	-	-
1.95	10.0	3.0	33	3 - 4	-	-	-
1.96	10.0	3.0	33	3 - 4	-	-	-
1.97	10.0	3.0	33	3 - 4	-	-	-
1.98	10.0	3.0	33	3 - 4	-	-	-
1.99	10.0	3.0	33	3 - 4	-	-	-
2.00	10.0	3.0	33	3 - 4	-	-	-
2.01	10.0	3.0	33	3 - 4	-	-	-
2.02	10.0	3.0	33	3 - 4	-	-	-
2.03	10.0	3.0	33	3 - 4	-	-	-
2.04	10.0	3.0	33	3 - 4	-	-	-
2.05	10.0	3.0	33	3 - 4	-	-	-
2.06	10.0	3.0	33	3 - 4	-	-	-
2.07	10.0	3.0	33	3 - 4	-	-	-
2.08	10.0	3.0	33	3 - 4	-	-	-
2.09	10.0	3.0	33	3 - 4	-	-	-
2.10	10.0	3.0	33	3 - 4	-	-	-
2.11	10.0	3.0	33	3 - 4	-	-	-
2.12	10.0	3.0	33	3 - 4	-	-	-
2.13	10.0	3.0	33	3 - 4	-	-	-
2.14	10.0	3.0	33	3 - 4	-	-	-
2.15	10.0	3.0	33	3 - 4	-	-	-
2.16	10.0	3.0	33	3 - 4	-	-	-
2.17	10.0	3.0	33	3 - 4	-	-	-
2.18	10.0	3.0	33	3 - 4	-	-	-
2.19	10.0	3.0	33	3 - 4	-	-	-
2.20	10.0	3.0	33	3 - 4	-	-	-
2.21	10.0	3.0	33	3 - 4	-	-	-
2.22	10.0	3.0	33	3 - 4	-	-	-
2.23	10.0	3.0	33	3 - 4	-	-	-
2.24	10.0	3.0	33	3 - 4	-	-	-
2.25	10.0	3.0	33	3 - 4	-	-	-
2.26	10.0	3.0	33	3 - 4	-	-	-
2.27	10.0	3.0	33	3 - 4	-	-	-
2.28	10.0	3.0	33	3 - 4	-	-	-

d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.29	10.0	3.0	33	3 - 4	-	-	-
2.30	10.0	3.0	33	3 - 4	-	-	-
2.31	10.0	3.0	33	3 - 4	-	-	-
2.32	10.0	3.0	33	3 - 4	-	-	-
2.33	10.0	3.0	33	3 - 4	-	-	-
2.34	10.0	3.0	33	3 - 4	-	-	-
2.35	10.0	3.0	33	3 - 4	-	-	-
2.36	10.0	3.0	33	3 - 4	-	-	-
2.37	10.0	3.0	33	3 - 4	-	-	-
2.38	10.0	3.0	33	3 - 4	-	-	-
2.39	10.0	3.0	33	3 - 4	-	-	-
2.40	10.0	3.0	33	3 - 4	-	-	-
2.41	10.0	3.0	33	3 - 4	-	-	-
2.42	10.0	3.0	33	3 - 4	-	-	-
2.43	10.0	3.0	33	3 - 4	-	-	-
2.44	10.0	3.0	33	3 - 4	-	-	-
2.45	10.0	3.0	33	3 - 4	-	-	-
2.46	10.0	3.0	33	3 - 4	-	-	-
2.47	10.0	3.0	33	3 - 4	-	-	-
2.48	10.0	3.0	33	3 - 4	-	-	-
2.49	10.0	3.0	33	3 - 4	-	-	-
2.50	10.0	3.0	33	3 - 4	-	-	-
2.51	10.0	3.0	33	3 - 4	-	-	-
2.52	10.0	3.0	33	3 - 4	-	-	-
2.53	10.0	3.0	33	3 - 4	-	-	-
2.54	10.0	3.0	33	3 - 4	-	-	-
2.55	10.0	3.0	33	3 - 4	-	-	-
2.56	10.0	3.0	33	3 - 4	-	-	-
2.57	10.0	3.0	33	3 - 4	-	-	-
2.58	10.0	3.0	33	3 - 4	-	-	-
2.59	10.0	3.0	33	3 - 4	-	-	-
2.60	10.0	3.0	33	3 - 4	-	-	-
2.61	10.0	3.0	33	3 - 4	-	-	-
2.62	10.0	3.0	33	3 - 4	-	-	-
2.63	10.0	3.0	33	3 - 4	-	-	-
2.64	10.0	3.0	33	3 - 4	-	-	-
2.65	10.0	3.0	33	3 - 4	-	-	-
2.66	10.0	3.0	33	3 - 4	-	-	-
2.67	10.0	3.0	33	3 - 4	-	-	-
2.68	10.0	3.0	33	3 - 4	-	-	-
2.69	10.0	3.0	33	3 - 4	-	-	-
2.70	10.0	3.0	33	3 - 4	-	-	-
2.71	10.0	3.0	33	3 - 4	-	-	-
2.72	10.0	3.0	33	3 - 4	-	-	-
2.73	10.0	3.0	33	3 - 4	-	-	-

Suite page suivante / Continued next page

Tolérances:

d ₁ : -0.002 / -0.004	D: h6
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d ₁	l ₁	D	L	Z	Prix (CHF) / Price (CHF)		
					Non revêtu <i>Uncoated</i>	^{ou/} or TiCN TiAlN	Autre <i>Other</i>
2.74	10.0	3.0	33	3 - 4	-	-	-
2.75	10.0	3.0	33	3 - 4	-	-	-
2.76	10.0	3.0	33	3 - 4	-	-	-
2.77	10.0	3.0	33	3 - 4	-	-	-
2.78	10.0	3.0	33	3 - 4	-	-	-
2.79	10.0	3.0	33	3 - 4	-	-	-
2.80	10.0	3.0	33	3 - 4	-	-	-
2.81	10.0	3.0	33	3 - 4	-	-	-
2.82	10.0	3.0	33	3 - 4	-	-	-
2.83	10.0	3.0	33	3 - 4	-	-	-
2.84	10.0	3.0	33	3 - 4	-	-	-
2.85	10.0	3.0	33	3 - 4	-	-	-
2.86	10.0	3.0	33	3 - 4	-	-	-
2.87	10.0	3.0	33	3 - 4	-	-	-
2.88	10.0	3.0	33	3 - 4	-	-	-
2.89	10.0	3.0	33	3 - 4	-	-	-
2.90	10.0	3.0	33	3 - 4	-	-	-
2.91	10.0	3.0	33	3 - 4	-	-	-
2.92	10.0	3.0	33	3 - 4	-	-	-
2.93	10.0	3.0	33	3 - 4	-	-	-
2.94	10.0	3.0	33	3 - 4	-	-	-
2.95	10.0	3.0	33	3 - 4	-	-	-
2.96	10.0	3.0	33	3 - 4	-	-	-
2.97	10.0	3.0	33	3 - 4	-	-	-
2.98	10.0	3.0	33	3 - 4	-	-	-
2.99	10.0	3.0	33	3 - 4	-	-	-
3.00	10.0	3.0	33	3 - 4	-	-	-

Alésoirs taille hélicoïdale

Spiral fluted reamers

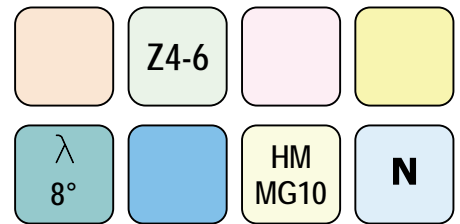
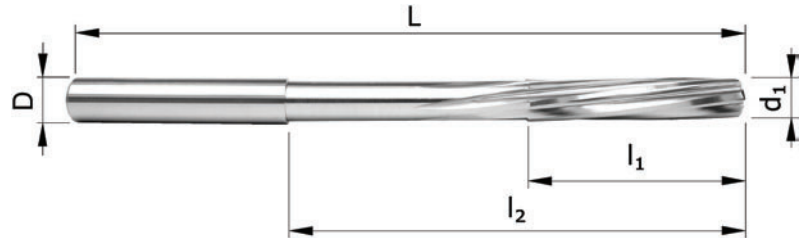
Spiral genutete Reibahlen

Alesori a taglio elicoidale

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	10 - 15	++	+++
Acier/Steel <700 N/mm ²	15 - 20	++	+++
Acier/Steel >700 N/mm ²	10 - 15	++	+++
Titane/Titan	5 - 10	++	+++
Aluminium	10 - 35	++	+++
Cuivre/Copper	15 - 40	++	+++
Laiton/Brass	20 - 40	+++	-
Or/Gold & Argent/Silver	20 - 40	+++	-
Graphite	15 - 25	-	++
Polymères/Polymers	15 - 40	+++	-

$V_f = 0.1 \rightarrow 0.3 \times n$



Tolérances:

$0.97 \leq d_1 \leq 3.03 \Rightarrow d_1: 0 / +0.003$	$D: h6$
$3.10 \leq d_1 \leq 10.03 \Rightarrow d_1: 0 / +0.004$	

d ₁	l ₁	l ₂	D	L	Z	Prix (CHF) / Price (CHF)		
						Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.97	15.0	30	1.5	50	4	-	-	-
0.98	15.0	30	1.5	50	4	-	-	-
0.99	15.0	30	1.5	50	4	-	-	-
1.00	15.0	30	1.5	50	4	-	-	-
1.01	15.0	30	1.5	50	4	-	-	-
1.02	15.0	30	1.5	50	4	-	-	-
1.03	15.0	30	1.5	50	4	-	-	-
1.10	15.0	30	1.5	50	4	-	-	-
1.20	15.0	30	1.5	50	4	-	-	-
1.30	15.0	30	1.5	50	4	-	-	-
1.40	15.0	30	1.5	50	4	-	-	-
1.50	15.0	30	1.5	50	4	-	-	-
1.60	15.0	30	2.0	50	4	-	-	-
1.70	15.0	30	2.0	50	4	-	-	-
1.80	15.0	30	2.0	50	4	-	-	-
1.90	15.0	30	2.0	50	4	-	-	-
1.97	15.0	30	2.0	50	4	-	-	-
1.98	15.0	30	2.0	50	4	-	-	-
1.99	15.0	30	2.0	50	4	-	-	-
2.00	15.0	30	2.0	50	4	-	-	-
2.01	15.0	30	2.0	50	4	-	-	-
2.02	15.0	30	2.0	50	4	-	-	-
2.03	15.0	30	2.0	50	4	-	-	-
2.10	15.0	30	2.5	50	4	-	-	-

Suite page suivante / Continued next page

Tolérances:

$0.97 \leq d_1 \leq 3.03 \Rightarrow d_1: 0 / +0.003$	D: h6
$3.10 \leq d_1 \leq 10.03 \Rightarrow d_1: 0 / +0.004$	

d₁	l₁	l₂	D	L	Z	Prix (CHF) / Price (CHF)		
						Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
2.20	15.0	30	2.5	50	4	-	-	-
2.30	15.0	30	2.5	50	4	-	-	-
2.40	15.0	30	2.5	50	4	-	-	-
2.47	15.0	30	2.5	50	4	-	-	-
2.48	15.0	30	2.5	50	4	-	-	-
2.49	15.0	30	2.5	50	4	-	-	-
2.50	15.0	30	2.5	50	4	-	-	-
2.51	15.0	30	2.5	50	4	-	-	-
2.52	15.0	30	2.5	50	4	-	-	-
2.53	15.0	30	2.5	50	4	-	-	-
2.60	20.0	40	3.0	60	4	-	-	-
2.70	20.0	40	3.0	60	4	-	-	-
2.80	20.0	40	3.0	60	4	-	-	-
2.90	20.0	40	3.0	60	4	-	-	-
2.97	20.0	40	3.0	60	4	-	-	-
2.98	20.0	40	3.0	60	4	-	-	-
2.99	20.0	40	3.0	60	4	-	-	-
3.00	20.0	40	3.0	60	4	-	-	-
3.01	20.0	40	3.0	60	4	-	-	-
3.02	20.0	40	3.0	60	4	-	-	-
3.03	20.0	40	3.0	60	4	-	-	-
3.10	20.0	40	3.5	60	4	-	-	-
3.20	20.0	40	3.5	60	4	-	-	-
3.30	20.0	40	3.5	60	4	-	-	-
3.40	20.0	40	3.5	60	4	-	-	-
3.50	20.0	40	3.5	60	4	-	-	-
3.60	20.0	40	4.0	60	4	-	-	-
3.70	20.0	40	4.0	60	4	-	-	-
3.80	20.0	40	4.0	60	4	-	-	-
3.90	20.0	40	4.0	60	4	-	-	-
3.97	20.0	40	4.0	60	4	-	-	-
3.98	20.0	40	4.0	60	4	-	-	-
3.99	20.0	40	4.0	60	4	-	-	-
4.00	20.0	40	4.0	60	4	-	-	-
4.01	20.0	40	4.0	60	4	-	-	-
4.02	20.0	40	4.0	60	4	-	-	-
4.03	20.0	40	4.0	60	4	-	-	-
4.10	20.0	40	4.5	60	4	-	-	-
4.20	20.0	40	4.5	60	4	-	-	-
4.30	20.0	40	4.5	60	4	-	-	-
4.40	20.0	40	4.5	60	4	-	-	-
4.50	20.0	40	4.5	60	4	-	-	-
4.60	25.0	50	5.0	75	6	-	-	-
4.70	25.0	50	5.0	75	6	-	-	-
4.80	25.0	50	5.0	75	6	-	-	-

Suite page suivante / Continued next page

Tolérances:

$0.97 \leq d_1 \leq 3.03 \Rightarrow d_1: 0 / +0.003$	D: h6
$3.10 \leq d_1 \leq 10.03 \Rightarrow d_1: 0 / +0.004$	

d₁	l₁	l₂	D	L	Z	Prix (CHF) / Price (CHF)		
						Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
4.90	25.0	50	5.0	75	6	-	-	-
4.97	25.0	50	5.0	75	6	-	-	-
4.98	25.0	50	5.0	75	6	-	-	-
4.99	25.0	50	5.0	75	6	-	-	-
5.00	25.0	50	5.0	75	6	-	-	-
5.01	25.0	50	5.0	75	6	-	-	-
5.02	25.0	50	5.0	75	6	-	-	-
5.03	25.0	50	5.0	75	6	-	-	-
5.10	25.0	50	6.0	75	6	-	-	-
5.20	25.0	50	6.0	75	6	-	-	-
5.30	25.0	50	6.0	75	6	-	-	-
5.40	25.0	50	6.0	75	6	-	-	-
5.50	25.0	50	6.0	75	6	-	-	-
5.60	25.0	50	6.0	75	6	-	-	-
5.70	25.0	50	6.0	75	6	-	-	-
5.80	25.0	50	6.0	75	6	-	-	-
5.90	25.0	50	6.0	75	6	-	-	-
5.97	25.0	50	6.0	75	6	-	-	-
5.98	25.0	50	6.0	75	6	-	-	-
5.99	25.0	50	6.0	75	6	-	-	-
6.00	25.0	50	6.0	75	6	-	-	-
6.01	25.0	50	6.0	75	6	-	-	-
6.02	25.0	50	6.0	75	6	-	-	-
6.03	25.0	50	6.0	75	6	-	-	-
6.50	25.0	50	7.0	75	6	-	-	-
6.97	30.0	65	7.0	100	6	-	-	-
6.98	30.0	65	7.0	100	6	-	-	-
6.99	30.0	65	7.0	100	6	-	-	-
7.00	30.0	65	7.0	100	6	-	-	-
7.01	30.0	65	7.0	100	6	-	-	-
7.02	30.0	65	7.0	100	6	-	-	-
7.03	30.0	65	7.0	100	6	-	-	-
7.97	30.0	65	8.0	100	6	-	-	-
7.98	30.0	65	8.0	100	6	-	-	-
7.99	30.0	65	8.0	100	6	-	-	-
8.00	30.0	65	8.0	100	6	-	-	-
8.01	30.0	65	8.0	100	6	-	-	-
8.02	30.0	65	8.0	100	6	-	-	-
8.03	30.0	65	8.0	100	6	-	-	-
8.97	30.0	65	9.0	100	6	-	-	-
8.98	30.0	65	9.0	100	6	-	-	-
8.99	30.0	65	9.0	100	6	-	-	-
9.00	30.0	65	9.0	100	6	-	-	-
9.01	30.0	65	9.0	100	6	-	-	-
9.02	30.0	65	9.0	100	6	-	-	-

Suite page suivante / Continued next page

Tolérances:

$0.97 \leq d_1 \leq 3.03 \Rightarrow d_1: 0 / +0.003$	D: h6
$3.10 \leq d_1 \leq 10.03 \Rightarrow d_1: 0 / +0.004$	

d_1	l_1	l_2	D	L	Z	Prix (CHF) / Price (CHF)		
						Non revêtu <i>Uncoated</i>	<i>ou/</i> or TiCN TiAlN	Autre <i>Other</i>
9.03	30.0	65	9.0	100	6	-	-	-
9.97	30.0	65	10.0	100	6	-	-	-
9.98	30.0	65	10.0	100	6	-	-	-
9.99	30.0	65	10.0	100	6	-	-	-
10.00	30.0	65	10.0	100	6	-	-	-
10.01	30.0	65	10.0	100	6	-	-	-
10.02	30.0	65	10.0	100	6	-	-	-
10.03	30.0	65	10.0	100	6	-	-	-

Tolérances H7:

$1.0 \leq d_1 \leq 3.0 \Rightarrow d_1: +0.004 / +0.008$	$6.5 \leq d_1 \leq 10.0 \Rightarrow d_1: +0.006 / +0.012$	D: h6
$3.5 \leq d_1 \leq 6.0 \Rightarrow d_1: +0.005 / +0.010$	$11.0 \leq d_1 \leq 12.0 \Rightarrow d_1: +0.008 / +0.015$	

d_1	l_1	l_2	D	L	Z	Prix (CHF) / Price (CHF)		
						Non revêtu <i>Uncoated</i>	<i>ou/</i> or TiCN TiAlN	Autre <i>Other</i>
1.00	15.0	30	1.5	50	4	-	-	-
1.50	15.0	30	1.5	50	4	-	-	-
2.00	15.0	30	2.0	50	4	-	-	-
2.50	15.0	30	2.5	50	4	-	-	-
3.00	20.0	40	3.0	60	4	-	-	-
3.50	20.0	40	3.5	60	4	-	-	-
4.00	20.0	40	4.0	60	4	-	-	-
4.50	20.0	40	4.5	60	4	-	-	-
5.00	25.0	50	5.0	75	6	-	-	-
5.50	25.0	50	5.5	75	6	-	-	-
6.00	25.0	50	6.0	75	6	-	-	-
6.50	25.0	50	6.5	75	6	-	-	-
7.00	30.0	65	7.0	100	6	-	-	-
8.30	30.0	65	8.0	100	6	-	-	-
9.00	30.0	65	9.0	100	6	-	-	-
10.00	30.0	65	10.0	100	6	-	-	-
11.00	30.0	65	11.0	100	6	-	-	-
12.00	30.0	65	12.0	100	6	-	-	-

Mèches à canon 1/2 lune

Gundrills

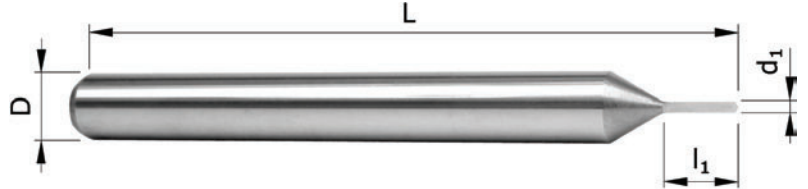
Kanonenbohrer

Punte a cannone
mezza luna

Recommandé pour / Usage recommendations:

Matière / Material	Vc [m/min]	Non revêtu Uncoated	Revêtu coated
Inox/stainless steel	10 - 15	++	+++
Acier/Steel <700 N/mm ²	15 - 20	++	+++
Acier/Steel >700 N/mm ²	10 - 15	++	+++
Titane/Titan	5 - 10	++	+++
Aluminium	10 - 35	++	+++
Cuivre/Copper	15 - 40	++	+++
Laiton/Brass	20 - 40	+++	-
Or/Gold & Argent/Silver	20 - 40	+++	-
Graphite	15 - 25	-	++
Polymères/Polymers	15 - 40	+++	-

$V_f = 0.01 \rightarrow 0.03 \times d_1 \times n$



	Z1		
λ 0°		HM MG10	N

Tolérances:

$l_1: \pm 0.1$ D: h6

d_1	l_1	D	L	Prix (CHF) / Price (CHF)		
				Non revêtu Uncoated	ou/ou TiCN TiAlN	Autre Other
0.20 → 0.49	sur demande / upon request	3.0	38	-	-	-
0.50 → 0.99	sur demande / upon request	3.0	38	-	-	-
1.00 → 1.49	sur demande / upon request	3.0	38	-	-	-
1.50 → 3.00	sur demande / upon request	3.0	38	-	-	-

Commande / Order:

Demande d'offre / Quotation request:

Dimensions: d_1 : _____ Tolérances sur d_1 : _____ l_1 : _____ D : _____ L: _____		Revêtement / Coating: <input type="checkbox"/> Aucun / none <input type="checkbox"/> TiAlN <input type="checkbox"/> TiCN <input type="checkbox"/> Autre / other: _____	
Matière à usiner / Machined material:		Quantité / Quantity:	N° commande / order No:
Timbre de la société / Company's stamp:		Personne de contact: Contact person:	



Données techniques

Technical data

Technische Daten

Dati tecnici



Angle d'hélice
Helix angle
Spiralwinkel
Angolo d'elica



Angle de coupe
Rake angle
Spanwinkel
Angolo di spolia



Usinage normal
General machining
Normale Bearbeitung
Lavorazione normale



Usinage radial
Radial machining
Radiale Bearbeitung
Lavorazione radiale



Métal dur micro-grain Co 10%
Micro-grain carbide Co 10%
Feinstkornsorte Hartmetall Co 10%
Metallo duro Micro-Grano Co 10%



2 dents avec coupe centrale
2 teeth center cutting
2 Zähne Zentrumschnitt
2 denti sezione centrale



Dents multiples
Multiflutes
Mehrzahn
Multidenti



Denture grossière
Coarse pitch
Grobe Verzahnung
Dentatura grossa



2 lèvres, affûtage à facettes
2 flutes, sharpening with facets
2 Schneiden, Facettenschärfen
2 taglienti, affilati con faccetta



3 lèvres affûtage à facettes
3 flutes, sharpening with facets
3 Schneiden, Facettenschärfen
3 taglienti, affilati con faccetta



Coins vifs
Sharp corners
Scharfkantige Ecken
Angoli vivi



Fraises hémisphériques
End mills with ball end
Kugelkopffräser
Frese raggate



Conique, petit Ø devant
Conical, small Ø in front
Konische, kleiner Ø vorne
Conice, piccolo Ø avanti



Fraises circulaires 1 taille
Slitting saws 1 cut
Kreissägeblätter 1 Schnitt
Seghe circolari 1 taglio



Fraises circulaires coniques 1 taille
Angular cutters 1 cut
Winkelstirnfräser 1 Schnitt
Frese circolari coniche 1 taglio



Plat à la pointe des fraises à graver
Flat tip for engraving mills
Spitzenfläche der Gravierfräser
Piatto a la punta per frese ad incidere



Taille alternée
Staggered teeth
Kreuzverzahn
Denti alternati



Nombre de dents
Number of teeth
Anzahl der Zähne
Numero di denti



Usinage normal et à grande vitesse
General machining and High Speed Cutting
Normale Bearbeitung und Hochgeschwindigkeit
Lavorazione normale e alta frequenza



Usinage radial et diagonal
Radial and diagonal machining
Radiale und diagonale Bearbeitung
Lavorazione radiale e diagonale



Métal dur SubMicro-grain
Ultra-micro-grain carbide
Ultrafeinstkornsorte Hartmetall
Metallo duro Submicro-grano



3 dents avec coupe centrale
3 teeth center cutting
3 Zähne Zentrumschnitt
3 denti sezione centrale



Bout affûté
Tips sharpened
Geschärftes Ende
Punta affilata



Denture fine
Fine pitch
Feine Zahnung
Dentatura fina



2 lèvres, détalonnage progressif
2 flutes progressive relief
2 Schneiden, progressiv Hinterschliff
2 taglienti, spoglia progressiva



Pointeur
Centering tip
Zentrierspitze
Punte da centro



Cassé d'angle
Bevelled edge
Schutzeckenfase
"angolo rotto"



Profil d'ébauche
Roughing profile
Schruppprofile
Profilo a sgrassare



Conique, grand Ø devant
Conical, large Ø in front
Konische, grosser Ø vorne
Conice, grande Ø avanti



Fraises circulaires 3 tailles
Slitting saws 3 cuts
Kreissägeblätter 3 Schnitte
Seghe circolari 3 tagli



Fraises circulaires coniques 2 tailles
Angular cutters 2 cuts
Winkelstirnfräser 2 Schnitte
Frese circolari coniche 2 tagli



Rayon à la pointe des fraises à graver
Radius for engraving mills
Radius an der Spitze der Gravierfräser
Raggio a la punta per frese ad incidere



Fraisage par contournage
Contour milling
Umfangfräsen
Fresaggio per contorno



Fraisage dans le plein
Slot milling
Nutenfräsen
Fresaggio della scanalatura



Usinage à grande vitesse
High speed cutting
Hochgeschwindigkeit Bearbeitung
Lavorazione a alta frequenza



Usinage radial, diagonal et axial
Radial, diagonal and axial machining
Radiale, diagonale und axiale Bearbeitung
Lavorazione radiale, diagonale e assiale



Diamant polycristallin
Polycrystalline diamond
Polykristalliner Diamant
Diamante polycristallino



4 dents avec coupe centrale
4 teeth center cutting
4 Zähne Zentrumschnitt
4 denti sezione centrale



Denture extra-fine
Extra-fine pitch
Extrafeine Verzahnung
Dentatura extra-fina



2 lèvres, détalonnage progressif à gauche
2 flutes, progressive relief, left hand
2 Linksschneiden, progressiv Hinterschliff
2 taglienti, spoglia progressiva, a sinistra



Taillage demi-lune
Gundrills tip
Kanonenbohrer Spitze
Punte a cannone "mezza luna"



Outils toriques
Corner radius (toric)
Eckenradius (torisch)
Utensile torice



Pointe 60°
Point angle 60°
Spitzenwinkel 60
Angolo di punta 60°

Formules	Formulas	Formeln	Formule
V_c [m/min] Vitesse de coupe <i>Cutting speed</i> <i>Schnittgeschwindigkeit</i> <i>Velocità di taglio</i>	n Nombre de tours par minute <i>Spindle speed</i> <i>Drehzahl</i> <i>Numero giri per minuto</i>	ap [mm] Profondeur de passe axiale <i>Axial depth of cut</i> <i>Axiale Zustellung</i> <i>Profondità di passaggio assiale</i>	
V_f [mm/min] Vitesse d'avance <i>Feed speed</i> <i>Vorschubgeschwindigkeit</i> <i>Velocità in anticipo</i>	Z Nombre de dents <i>Number of teeth</i> <i>Anzahl Zähne</i> <i>Numero di denti</i>	ae [mm] Profondeur de passe radiale <i>Radial depth of cut</i> <i>Radiale Zustellung</i> <i>Profondità di passaggio radiale</i>	
f_z [mm] Avance par dent <i>Feed per tooth</i> <i>Vorschub pro Zahn</i> <i>Avanzamento per dente</i>	d_1 [mm] Diamètre de l'outil <i>Diameter of tool</i> <i>Werkzeugdurchmesser</i> <i>Diametro del utensile</i>	f [mm] Avance par tour <i>Feed per rotation</i> <i>Vorschub pro Umdrehung</i> <i>Avanzamento per dente</i>	

$$n = \frac{V_c \cdot 1000}{\pi \cdot d_1}$$

$$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$$

$$f_z = \frac{V_f}{Z \cdot n}$$

$$f = f_z \cdot Z$$

$$V_f = f_z \cdot Z \cdot n$$

Tabelle des tolérances
Tolerances table
Toleranzen Tabelle
Tabelle di tolleranze

Ø [mm]	[µm]			
	h6	e8	f8	k8
0 - 3	0	-14	-6	+14
	-6	-28	-20	0
3 - 6	0	-20	-10	+18
	-8	-38	-28	0
6 - 10	0	-25	-13	+22
	-9	-47	-35	0
10 - 18	0	-32	-16	+27
	-11	-59	-43	0
18 - 30	0	-40	-20	+33
	-13	-73	-53	0
30 - 40	0	-50	-25	+39
	-16	-89	-64	0

Revêtements recommandés pour applications standards
Recommended coatings for standard applications
Empfohlene Beschichtungen für standard Anwendungen

Matière <i>Material</i>	1°	2°
Inox / <i>Stainless steel</i>	TiAlN	TiAlN + WC/C
Acier / <i>Steel < 700 N/mm²</i>	TiCN	TiAlN
Acier / <i>Steel > 700 N/mm²</i>	TiAlN	AlCrN
Acier / <i>Steel ≤ 65 HRC</i>	TiAlN	AlTiN
Titane / <i>Titan</i>	TiAlN + WC/C	AlTiN
Aluminium	TiAlN + WC/C	DLC
Cuivre / <i>Copper</i>	DLC	TiAlN + WC/C
Laiton / <i>Brass</i>	Aucun / <i>None</i>	TiCN
Or / <i>Gold & Argent / Silver</i>	Aucun / <i>None</i>	DLC
Graphite	Diamant / <i>Diamond</i>	-
Polymères / <i>Polymers</i>	Aucun / <i>None</i>	Diamant

Ces propositions de revêtements s'appliquent à la plupart des utilisations courantes. Il se peut qu'ils ne conviennent pas à des matières, alliages ou conditions d'usinage particuliers. N'hésitez pas à nous consulter pour des conseils plus spécifiques !

These propositions of coatings apply to the majority of standard usages. They may not be adequate for particular materials, alloys or machining techniques. Don't hesitate to ask us for more specific advices !

Diese Beschichtungs-Empfehlungen gelten für die Mehrzahl der Standard-Anwendungen. Möglicherweise sind Sonderlösungen für gewisse Materialien und/oder Legierungen notwendig. Unsere Techniker beraten Sie gerne. Fragen Sie uns!



Conditions générales

General terms & conditions

Allgemeine Bedingungen

Condizioni di vendita

English version: see next page

Prix

Les prix en francs suisses indiqués dans ce catalogue s'entendent par pièce et pour livraison départ usine Vendlincourt sans emballage, port, taxe (TVA) ni assurance.

Les modifications de prix sont réservées. Montant minimum par commande : CHF 50.-- (€uros: 32.--)

Prix des outils revêtus

Les prix indiqués pour les traitements TiCN et TiAlN s'entendent pour la plupart les revêtements courants de ce type. Des suppléments de prix peuvent s'appliquer pour des revêtements particuliers. Les prix indiqués sous les colonnes « Autre » s'entendent pour les revêtements contenant d'autres matériaux que seulement TiCN ou TiAlN.

Dans le chapitre des fraises circulaires, les prix indiqués dans la colonne « revêtu » s'appliquent à la majorité des revêtements standards actuellement disponibles sur le marché.

Pour tous les outils, des suppléments de prix peuvent s'appliquer pour certains types de dépôts, notamment pour les traitements diamant.

Exécutions spéciales

Les exécutions spéciales sont facturées sur la base de l'offre ou, à moins d'une indication contraire dans la confirmation de commande, sur la base du résultat.

Nous nous réservons le droit de livrer jusqu'à $\pm 10\%$ du nombre de pièces commandées, mais au minimum une pièce.

Livraisons

Départ usine Vendlincourt, aux risques et périls du client.

Les frais de ports et d'emballages sont facturés.

Délais de livraison

Les délais de livraison sont sans engagement. Ils sont donnés au plus juste et respectés au mieux.

Pour les outils standards du catalogue, les livraisons des pièces en stock sont, dans la mesure du possible, effectuées le jour même de la commande.

Les délais de livraison pour les outils spéciaux et de forme sont communiqués sur demande.

Des retards imprévisibles n'autorisent pas le client à annuler la commande. Des dommages et intérêts ne pourront être exigés.

Protocoles de contrôle

Les protocoles de contrôles et les attestations de qualité peuvent être fournis sur demande et seront facturés.

Paiements

Nos factures sont payables à 30 jours net, à compter de la date de la facture, en francs suisses sauf autre convention.

Les conditions de paiement et de livraison stipulées sur les commandes de nos clients et ne correspondant pas aux nôtres ne sont reconnues par nous que si elles font l'objet d'une confirmation écrite de notre part.

Paramètres d'usinage

Les paramètres de coupe (vitesses de coupe, avances, profondeurs de passe) fournis dans le présent catalogue sont indicatifs et ne nous engagent pas. Ces paramètres sont à adapter en fonction du travail à effectuer, de la pièce à fabriquer, de la machine, des attachements, des posages et du lubrifiant.

Réclamations

Elles doivent nous parvenir par écrit dans les 8 jours après réception de la marchandise. Nous garantissons une exécution précise de nos outils. Toute pièce présentant un défaut de matière, de fabrication, ou de trempe sera remplacée, ou créditée, dans les meilleurs délais. Cette garantie ne couvre toutefois que le remplacement de l'outil. Aucun autre dédommagement ne pourra être exigé. Les outils défectueux à la suite d'une usure normale ou d'une utilisation excessive ne seront pas remplacés gratuitement.

Dispositions particulières

Les outils standards sont fabriqués d'après nos plans validés. Les illustrations ainsi que les données techniques figurant dans le catalogue ne nous engagent pas. Nous nous réservons le droit de faire en tout temps des modifications dans les géométries de coupe, dans la qualité des matières ainsi que dans les autres données techniques.

Pour les exécutions spéciales, la fabrication s'effectue d'après un plan fourni par le client ou créé par Louis Bélet SA mais validé par le client. La production des outils est lancée selon les derniers dessins en notre possession. Toute modification ultérieure des plans est susceptible d'entraîner des frais pour le client.

Droit applicable

Le droit suisse est applicable. **For judiciaire : CH – 2900 Porrentruy (Jura)**

Le texte en français sert de référence.

Version française: voir page précédente

Prices

The prices in Swiss francs (CHF) indicated in this catalogue are per piece and for delivery ex works Vendlincourt, Switzerland, without packing, postage, tax (VAT) nor insurance. Price modifications are reserved.

Minimum amount by order: CHF 50.-- (€uros: 32.--)

Price of coated tools

The prices indicated for the TiCN and TiAIN coated tools apply to the majority the standard coatings of this type. Additional charges may apply for particular coatings. The prices indicated under the column "Other" are meant for coatings composed of other materials than only TiCN or TiAIN.

In the chapter "circular saws", the prices listed under the column "coated" are meant for the majority of standard coatings currently available on the market.

For all the tools listed in this catalogue, additional charges may apply for certain types of deposits, in particular for diamond treatments.

Special tools

The tools manufactured according to special requests are invoiced on the basis of the offer or, unless otherwise stated in the order confirmation, on the basis of the result.

Louis Bélet SA reserves the right to deliver up to $\pm 10\%$ the number of ordered parts, but at least one part.

Deliveries

Ex-works Vendlincourt, Switzerland, with all the risks being passed to the ordering party upon dispatch of the relevant goods. The postage and packing costs are invoiced.

Delivery periods

The delivery periods are given without engagement. They are evaluated as accurately as possible and are respected as well as possible. For the standard tools of the catalogue, the deliveries of pieces in stock are carried out the day of order, as far as possible. The delivery periods for special and form tools are communicated upon request. Unforeseeable delays do not authorize the customer to cancel the order. Damages could not be required.

Control protocols

The control protocols and certificates of quality can be provided on request and will be invoiced.

Payments

The invoices are payable as a net amount within 30 days, as from the date of the invoice, in Swiss francs, except another convention. The terms of payment and delivery stipulated on the orders of our customers and not corresponding to ours are recognized by us only through a specific written confirmation.

Machining parameters

The cutting parameters (cutting speeds, feed speed, depths of cut) provided in this catalogue are indicative and do not engage us. These parameters are to be adapted according to the type of work, to the part to be manufactured, to the machine, the attachments, the layings and the lubricant.

Complaints

The complaints must reach us in writing within 8 days after reception of the goods. We guarantee a precise execution of our tools. Any part presenting a defect in raw material, manufacture or hardening will be replaced or credited as soon as possible. This guarantee covers only the replacement of the tool. No other compensation could be required. The tools defective following a normal or an excessive usage will not be replaced for free.

Special terms

The standard tools are manufactured according to drawings validated by Louis Bélet SA. The illustrations as well as the technical data appearing in the present catalogue do not engage us. Modifications in the geometries of the cutting zones, in the quality of the raw material like in any other technical data may happen without prior notice.

For special tools, we manufacture according to a customer's drawing or to a drawing designed by Louis Bélet SA but validated by the customer. The tool production is launched based on the latest drawing in our possession. Any subsequent modification of the drawing is subject to be charged to the customer.

Jurisdiction

The Swiss law shall apply. Place of jurisdiction: CH - 2900 Porrentruy (Jura).

The French text (see previous page) of the above general terms and conditions is used as reference.