



SMALL DETAILS   
**GRAND PRECISION**



 **CONCEPTTOOLS**<sup>®</sup>  
Special diamond cutting tools

 **INNOTOOLS**<sup>®</sup>  
Special carbide cutting tools

**INNOOTOOLS**  
Innovateur d'outils coupants





1

**Outils en Diamant Monocristallin (MCD)**  
Monocrystalline Diamond tools  
Diamant-Werkzeuge in Monokristalliner Diamant



2

**Outils de fraisage en Diamant Polycristallin (PCD)**  
PCD Milling Tools (Polycrystalline Diamond)  
PKD Fräswerkzeuge (Polykristalliner Diamant)



3

**Outils de tournage en Diamant Polycristallin (PCD)**  
PCD Turning Tools (Polycrystalline Diamond)  
PKD Drehwerkzeuge (Polykristalliner Diamant)



4

**Exécution sur mesure en Métal Dur (MD)**  
Custom-made design in solid carbide (SC)  
Ausführungen nach Kundenwunsch - Auf Mass



5

**Micro-Fraises en Métal Dur (MD)**  
Micro end mills in solid carbide (SC)  
Mikrofräser in Vollhartmetall (VHM)



6

**Centreurs et forets en Métal Dur (MD)**  
Center drills and twist drills in solid carbide (SC)  
Zentrierbohrer und Spiralbohrer in VHM



7

**Fraises circulaires en Métal Dur (MD)**  
Slitting saws in solid carbide (SC)  
Zirkularfräser / Scheibenfräser (VHM)



**INNOOTOOLS**  
Innovateur d'outils coupants





# 1

## Outils en Diamant Monocristallin (MCD) Monocrystalline Diamond tools Diamant-Werkzeuge in Monokristalliner Diamant



**Plaquettes de tronçonnage (MCD)**  
**Parting inserts (MCD)**  
**Abstech-Drehmeißel (MKD)**



6-7

**Angleurs (MCD)**  
**Chamfering drills (MCD)**  
**Fasenfräser (MKD)**



8

**Fraises 1 dent (MCD)**  
**1 tooth end mills (MCD)**  
**Einzahnfräser (MKD)**



9

**Fraises hémisphériques (MCD)**  
**End mills with ball end (MCD)**  
**Halbkugelfräser (sphärisch) (MKD)**



10

**Fraises à graver (MCD)**  
**Engraving mills (MCD)**  
**Gravierfräser (MKD)**



11

**Fraises à surfacer (MCD)**  
**Facemills (MCD)**  
**Planfräser (MKD)**

12

**Burins de tournage (MCD)**  
**Turning tools (MCD)**  
**Drehmeißel (MKD)**



13-19

*Droit*  
*Straight*  
*Gerade*

*Pointu*  
*Pointed*  
*Spitzig*

*Central*  
*Centered*  
*Zentriert*

*A angler*  
*Angle*  
*Winkeln*

*Intérieur*  
*Internal*  
*Innenausdreh*

*Trapèze*  
*Trapeze*  
*Trapez*

*Tourneur avant*  
*Front turner*  
*Vorderer Dreher*

**Burins Posalux**  
**Posalux Turning tools**  
**Posalux Drehmeißel**

20-22

*Plat 3 coupes*  
*Flat 3 cuts*  
*Platte 3 Schneiden*

*Forme biconique*  
*Biconical*  
*Bikonische Form*

*Incliné droite-gauche*  
*Inclined (left or right)*  
*Schrägungswinkel links/rechts*

*Concave*  
*Concave*  
*Konkav Form*

*Convexe*  
*Convex*  
*Konvexe Form*

**Plaquettes de tronçonnage**  
Parting inserts  
Abstech-Drehmeissel

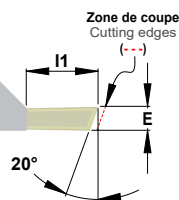
à gauche  
on the left  
links

**7310**



E	l1	Ref.
0.50	1.50	7310-0.5
0.80	2.00	7310-0.8
1.00	2.50	7310-1.0
1.20	4.50	7310-1.2
1.50	4.50	7310-1.5
1.70	4.50	7310-1.7
2.00	4.50	7310-2.0

**Diamant MCD**  
Monocrystalline  
Diamond  
Monokristalliner  
Diamant

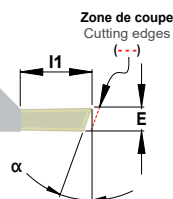


MCD 	HSC	
	0° λ	

**Plaquettes de tronçonnage**  
Parting inserts  
Abstech-Drehmeissel

à gauche  
on the left  
links

**7310 SP**



**Diamant MCD**  
Monocrystalline  
Diamond  
Monokristalliner  
Diamant



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

E \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_ °

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

MCD 	HSC	
	0° λ	

**730** Porte Outil / Tool Holder / Werkzeug-Halter

<input type="checkbox"/>	L	Ref.
7×7	115	730-7
8×8	115	730-8
10×10	115	730-10
12×12	130	730-12
16×16	130	730-16



**Plaquettes de tronçonnage**  
**Parting inserts**  
**Abstech-Drehmeissel**

**à droite**  
**on the right**  
**rechts**

**7410**



E	l1	Ref.
0.50	1.50	7410-0.5
0.80	2.00	7410-0.8
1.00	2.50	7410-1.0
1.20	4.50	7410-1.2
1.50	4.50	7410-1.5
1.70	4.50	7410-1.7
2.00	4.50	7410-2.0

**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



MCD 	HSC	
	0° λ	

Zone de coupe  
 Cutting edges



**Plaquettes de tronçonnage**  
**Parting inserts**  
**Abstech-Drehmeissel**

**à droite**  
**on the right**  
**rechts**

**7410 SP**

Zone de coupe  
 Cutting edges



**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



MCD 	HSC	
	0° λ	

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

E \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_ °

**Matière à usiner**  
 Material to be machined \_\_\_\_\_  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity \_\_\_\_\_  
 Quantität \_\_\_\_\_

**740** **Porte Outil / Tool Holder / Werkzeug-Halter**

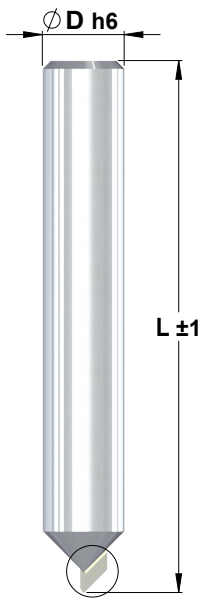
<input type="checkbox"/>	L	Ref.
7x7	115	740-7
8x8	115	740-8
10x10	115	740-10
12x12	130	740-12
16x16	130	740-16





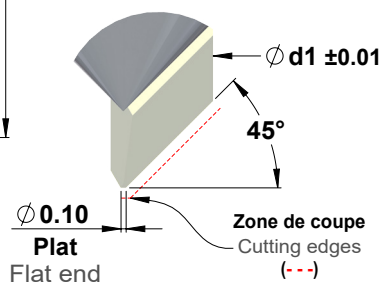
**Angleurs à 45°**  
**Chamfering drills at 45°**  
**Fasenfräser bei 45°**

**4090**

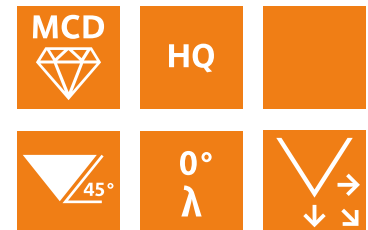


$\phi d1$	Z	$\phi Dh6$	L
1.00	1	3	39
1.50	1	3	39
2.00	1	3	39
3.00	1	3	39

$\phi d1$	Z	$\phi Dh6$	L
2.00	1	6	39
3.00	1	6	39
4.00	1	6	39



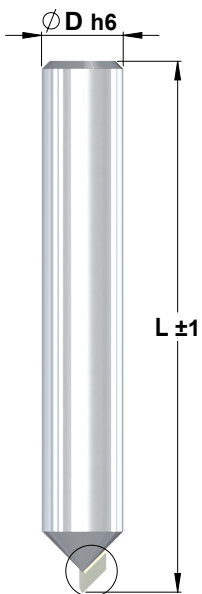
**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**Angleurs**  
**Chamfering drills**  
**Fasenfräser**

**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

**4000 SP**



**Demande de prix**  
 Price request  
 Preisanfrage

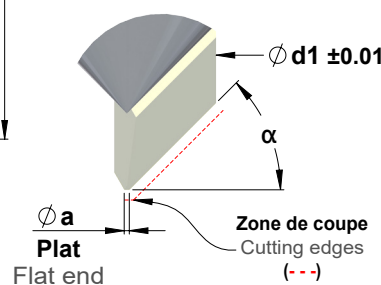
**Commande**  
 Order  
 Bestellung

$\alpha$  \_\_\_\_\_ °       $\phi d1$  \_\_\_\_\_       $\phi a$  \_\_\_\_\_

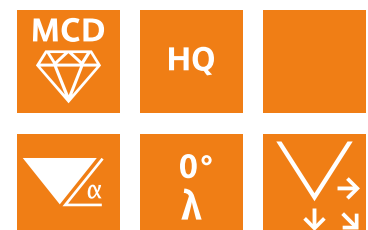
$\phi Dh6$  \_\_\_\_\_      L \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_

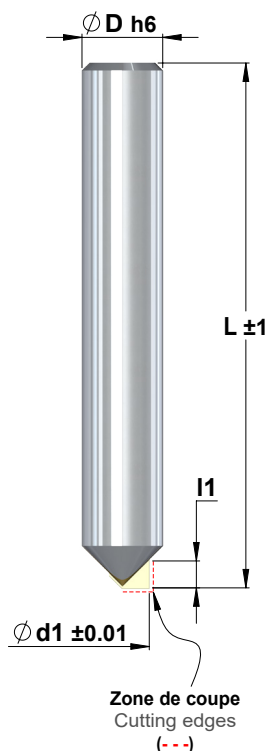


**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



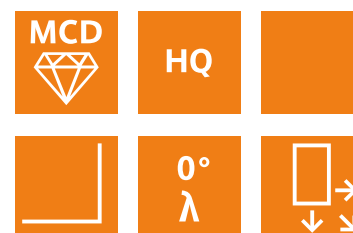
**Fraises 1 dent**  
**1 tooth end mills**  
**Einzahnfräser**

**4200**



$\varnothing d1$	$l1$	$\varnothing Dh6$	L
0.30	0.30	4	30
0.40	0.40	4	30
0.50	0.50	6	30
0.60	0.60	4	30
0.70	0.70	6	30
0.80	0.80	6	39
0.90	1.00	6	39
1.00	1.20	6	39
1.10	1.20	6	39
1.20	1.20	6	39
1.30	1.20	6	39
1.40	1.30	6	39
1.50	1.30	6	39
1.60	1.40	6	39
1.70	1.40	6	39
1.80	1.40	6	39
1.90	1.40	6	39
2.00	1.50	6	39
2.20	2.00	6	39
2.50	2.00	6	39
3.00	2.00	6	39
3.50	2.00	6	39
4.00	2.00	6	39
5.00	2.00	6	39
6.00	2.00	6	39

**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**Fraises 1 dent**  
**1 tooth end mills**  
**Einzahnfräser**

**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

**4200 SP**

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung



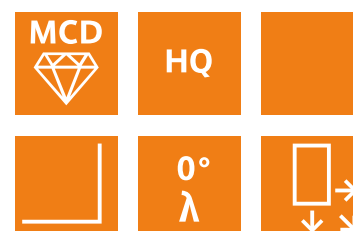
**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant

$\varnothing d1$  \_\_\_\_\_  $l1$  \_\_\_\_\_

$\varnothing Dh6$  \_\_\_\_\_  $L$  \_\_\_\_\_

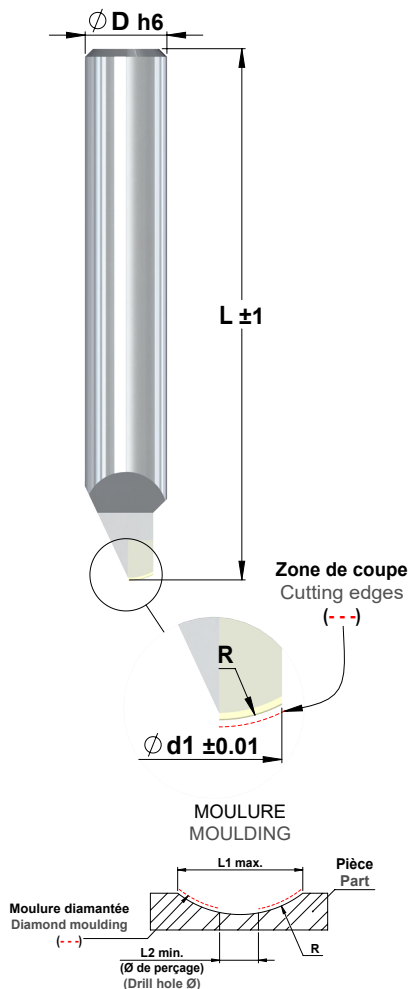
**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



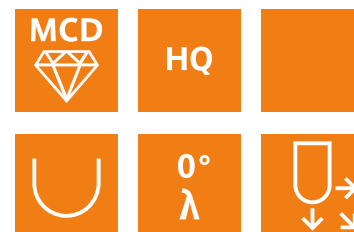
**Fraises hémisphériques**  
**End mills with ball end**  
**Halbkugelfräser (sphärisch)**

**4900**



$\phi d1$	R	L1 max	L2 min	L	$\phi Dh6$
1.00	0.50	1	0.15	39	6
1.00	0.60	1	0.20	39	6
1.00	0.70	1	0.20	39	6
1.50	0.80	1.5	0.20	39	6
1.50	0.90	1.5	0.30	39	6
2.00	1.00	2	0.30	39	6
2.00	1.10	2	0.30	39	6
2.00	1.20	2	0.30	39	6
2.00	1.30	2	0.30	39	6
2.00	1.40	2	0.30	39	6
2.00	1.50	2	0.30	39	6
2.00	1.60	2	0.30	39	6
2.00	1.70	2	0.30	39	6
2.50	3.00	2.5	0.30	39	6
3.00	1.80	3	0.30	39	6
3.00	1.90	3	0.30	39	6
3.00	2.00	3	0.30	39	6
3.00	2.50	3	0.30	39	6
3.00	3.00	3	0.30	39	6
3.00	3.50	3	0.30	39	6
4.00	4.00	4	0.30	39	6
4.00	5.00	4	0.30	39	6

**Diamant MCD**  
**Pour moulure**  
 Monocristalline  
 Diamond  
 For moulding  
 Monokristalliner  
 Diamant  
 Für Formen



**Fraises hémisphériques**  
**End mills with ball end**  
**Halbkugelfräser (sphärisch)**

**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

**4900 SP**

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

$\phi d1$  \_\_\_\_\_ R \_\_\_\_\_ L1 max \_\_\_\_\_

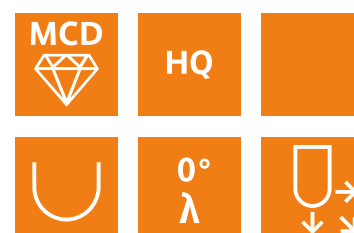
L2 min \_\_\_\_\_ L \_\_\_\_\_  $\phi Dh6$  \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



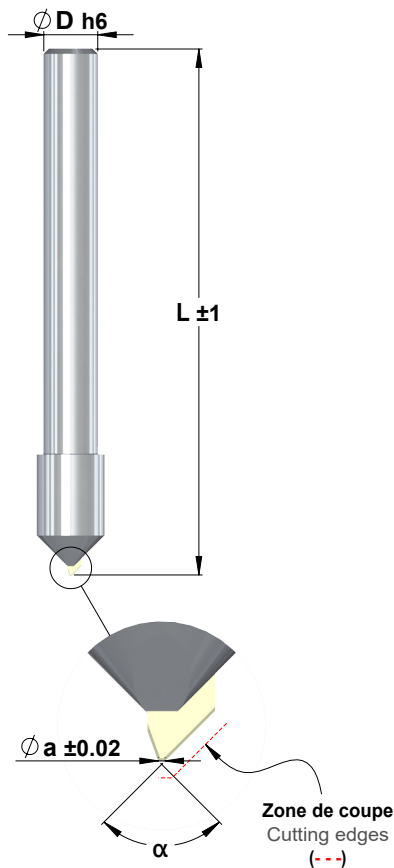
**Diamant MCD**  
**Pour moulure**  
 Monocristalline  
 Diamond  
 For moulding  
 Monokristalliner  
 Diamant  
 Für Formen





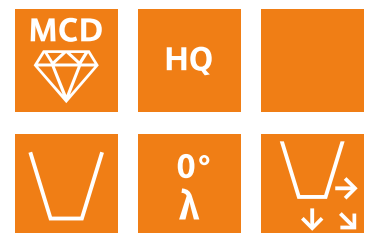
**Fraises à graver**  
**Engraving mills**  
**Gravierfräser**

**FGD**



$\alpha$	$\varnothing a$	$\varnothing D h6$	L
40°	0.05	4	30
40°	0.10	4	30
40°	0.15	4	30
50°	0.05	4	30
50°	0.10	4	30
50°	0.15	4	30
60°	0.03	4	30
60°	0.05	4	30
60°	0.10	4	30
60°	0.15	4	30
90°	0.03	4	30
90°	0.05	4	30
90°	0.10	4	30
90°	0.15	4	30
120°	0.03	4	30
120°	0.05	4	30
120°	0.10	4	30
120°	0.15	4	30

**Diamant MCD**  
 Monocristalliner  
 Diamond  
 Monokristalliner  
 Diamant



**Fraises à graver**  
**Engraving mills**  
**Gravierfräser**

**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

**FGD SP**

Demande de prix  
 Price request  
 Preis Anfrage

Commande  
 Order  
 Bestellung

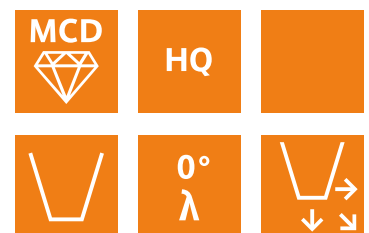


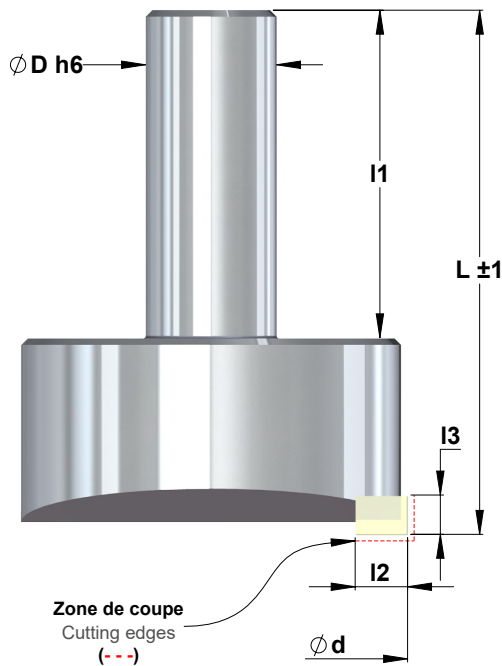
**Diamant MCD**  
 Monocristalline  
 Diamond  
 Monokristalliner  
 Diamant

$\alpha$  \_\_\_\_\_ °       $\varnothing a \pm 0.02$  \_\_\_\_\_  
 $\varnothing D h6$  \_\_\_\_\_      L \_\_\_\_\_

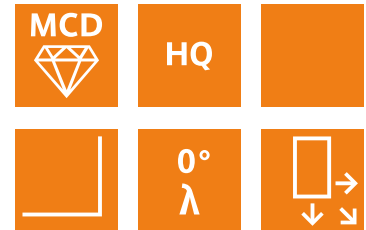
**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_





**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



<sup>†</sup> Tol: Ød ± 0.01

Demande de prix  
 Price request  
 Preisanfrage

Commande  
 Order  
 Bestellung

Par plongée\*  
 Plunge milling\*  
 Für Stechoperation

Par déplacement  
 Side milling  
 Kantenfräsen

Ød<sup>†</sup> \_\_\_\_\_ l1 \_\_\_\_\_ l3 \_\_\_\_\_

ØDh6 \_\_\_\_\_ l2 \_\_\_\_\_ L \_\_\_\_\_

Quantité  
 Quantity  
 Quantität \_\_\_\_\_

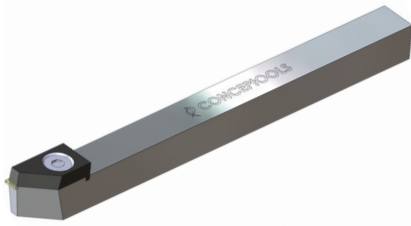
Matière à usiner  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

\* Pour les travaux en plongée nécessitant une coupe au centre  
 \* For plunge milling requiring centre cut  
 \* Zum Stechoperation mit Mittelschnitt

**Burins droit**  
Straight turning tools  
Gerade Drehmeissel

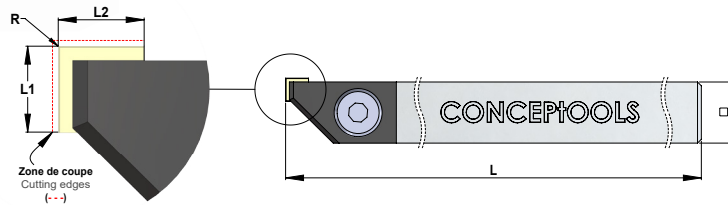
**à gauche**  
on the left  
links

**1700-G**



L1	L2	L	R	□
3	3	100	0	8x8

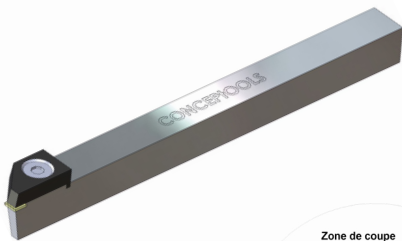
**Diamant MCD**  
Monocrystalline  
Diamond  
Monokristalliner  
Diamant



**Burins droit**  
Straight turning tools  
Gerade Drehmeissel

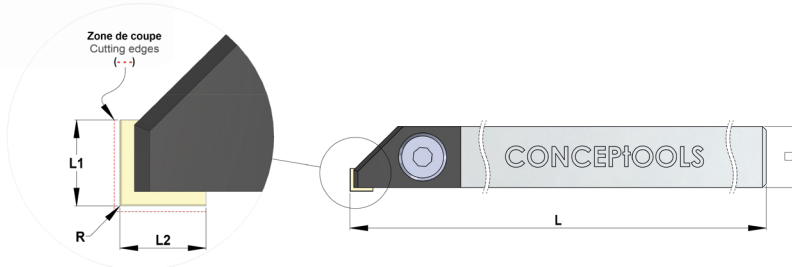
**à droite**  
on the right  
rechts

**1700-D**



L1	L2	L	R	□
3	3	100	0	8x8

**Diamant MCD**  
Monocrystalline  
Diamond  
Monokristalliner  
Diamant



**Exécution sur mesure**  
Custom-made design  
Ausführung auf Mass

*Tous nos outils ref 1700 sont livrés avec un témoin d'usinage.*  
*All our ref 1700 tools are supplied with a test piece.*  
*Alle unsere Werkzeuge mit ref 1700 beinhalten ein Herstell-Zeugnis.*

**1700 SP**

**Demande de prix**  
Price request  
Preis-anfrage

**Commande**  
Order  
Bestellung

L1 \_\_\_\_\_ L \_\_\_\_\_ R \_\_\_\_\_

L2 \_\_\_\_\_  \_\_\_\_\_

**Gauche**  
Left  
Links

**Droite**  
Right  
Rechts

**Matière à usiner**  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
Quantity  
Quantität \_\_\_\_\_

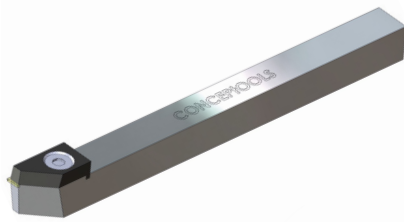




**Tourneurs avant**  
**Front turning inserts**  
**Drehwendeplatte für frontal**

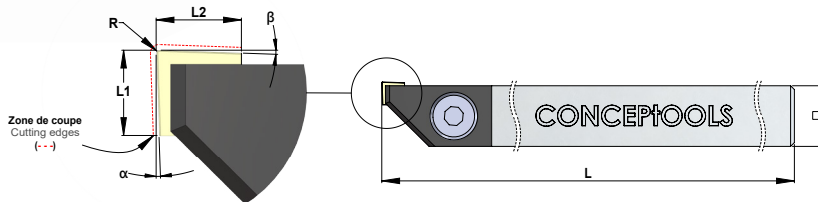
**à gauche**  
**on the left**  
**links**

**1710-G**



L1	L2	R	$\alpha$	$\beta$	L	$\square$
3	3	0.10	2°	2°	100	8x8

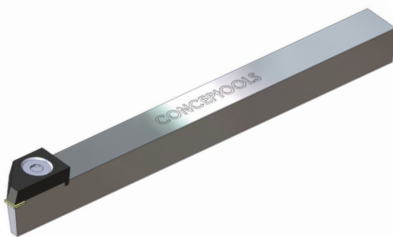
**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**Tourneurs avant**  
**Front turning inserts**  
**Drehwendeplatte für frontal**

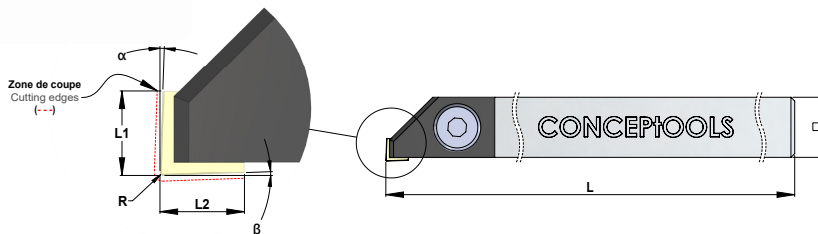
**à droite**  
**on the right**  
**rechts**

**1710-D**



L1	L2	R	$\alpha$	$\beta$	L	$\square$
3	3	0.10	2°	2°	100	8x8

**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

*Tous nos outils ref 1700 sont livrés avec un témoin d'usinage.*  
*All our ref 1700 tools are supplied with a test piece.*  
*Alle unsere Werkzeuge mit ref 1700 beinhalten ein Herstell-Zeugnis.*

**1710 SP**

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_ R \_\_\_\_\_  
 $\alpha$  \_\_\_\_\_°  $\beta$  \_\_\_\_\_° L \_\_\_\_\_  \_\_\_\_\_

**Gauche**  
 Left  
 Links  **Droite**  
 Right  
 Rechts

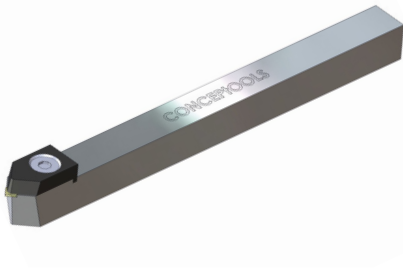
**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



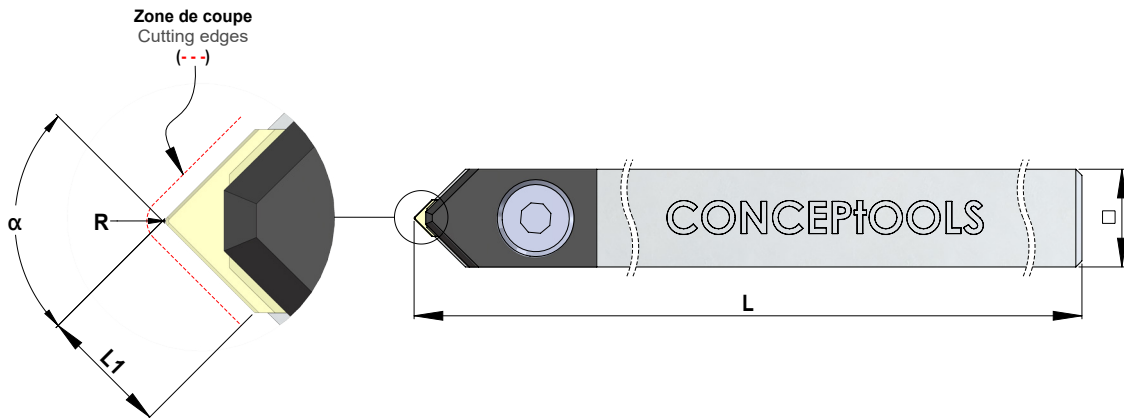
**Burins pointu**  
**Pointed turning tools**  
**Drehwendeplatte spitzig**

**1720**



L1	R	$\alpha$	L	□
2	0.10	90°	100	8x8

**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

*Tous nos outils ref 1700 sont livrés avec un témoin d'usinage.*  
*All our ref 1700 tools are supplied with a test piece.*  
*Alle unsere Werkzeuge mit ref 1700 beinhalten ein Herstell-Zeugnis.*

**1720 SP**

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_ R \_\_\_\_\_  $\alpha$  \_\_\_\_\_ ° L \_\_\_\_\_ □ \_\_\_\_\_

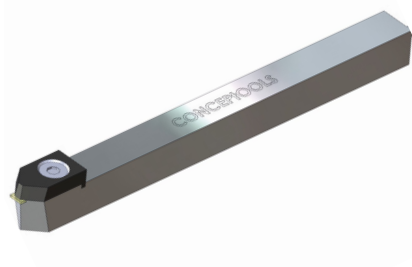
**Matière à usiner**  
 Material to be machined \_\_\_\_\_  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity \_\_\_\_\_  
 Quantität \_\_\_\_\_



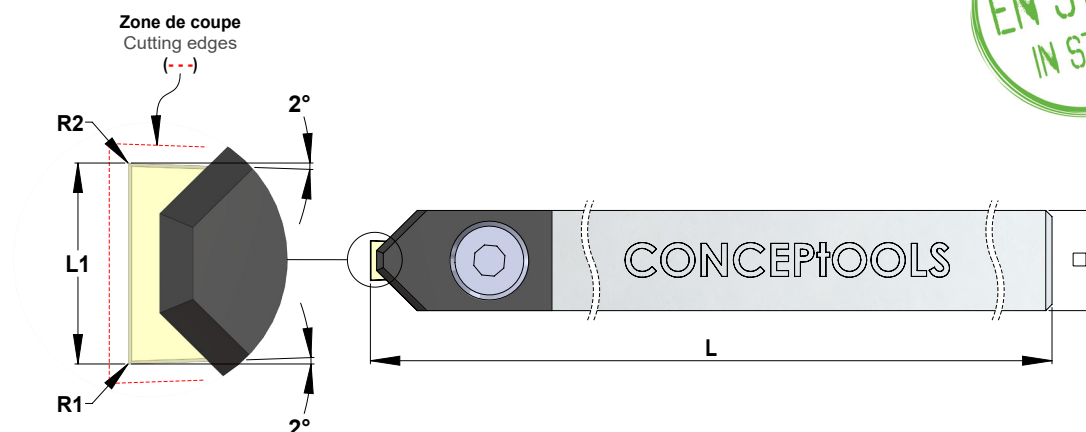
**Burins droit central**  
**Straight centered turning tools**  
**Gerade Drehmeissel**

**1730**



L1	R1	R2	L	□
3	0	0	100	8x8

**Diamant MCD**  
**Pour fonçage**  
 Monocristalline  
 Diamond  
 For sinking  
 Monokristalliner  
 Diamant  
 Zum stechen



**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

*Tous nos outils ref 1700 sont livrés avec un témoin d'usinage.*  
*All our ref 1700 tools are supplied with a test piece.*  
*Alle unsere Werkzeuge mit ref 1700 beinhalten ein Herstell-Zeugnis.*

**1730 SP**

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_ R1 \_\_\_\_\_ R2 \_\_\_\_\_ L \_\_\_\_\_ □ \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

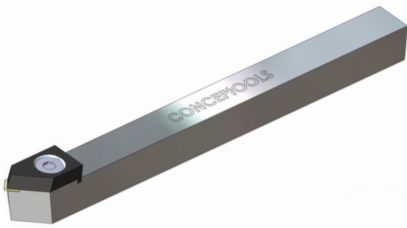
**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



**Burins à angler**  
**Angle turning tools**  
**Drehmeissel abgewinkelt**

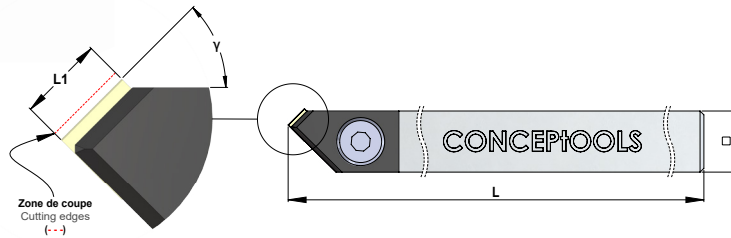
**à gauche**  
**on the left**  
**links**

**1740-G**



L1	γ	L	□
3	45	100	8x8

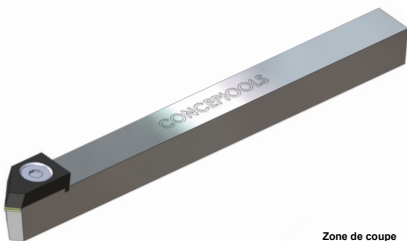
**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**Burins à angler**  
**Angle turning tools**  
**Drehmeissel abgewinkelt**

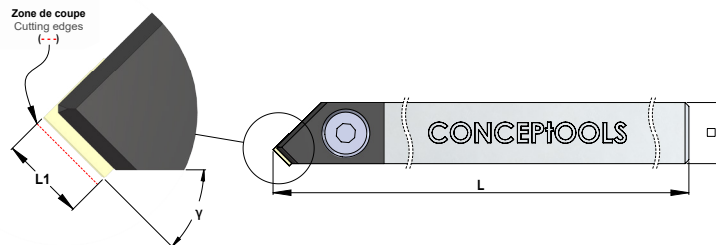
**à droite**  
**on the right**  
**rechts**

**1740-D**



L1	γ	L	□
3	45	100	8x8

**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

*Tous nos outils ref 1700 sont livrés avec un témoin d'usinage.*  
*All our ref 1700 tools are supplied with a test piece.*  
*Alle unsere Werkzeuge mit ref 1700 beinhalten ein Herstell-Zeugnis.*

**1740 SP**

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_ γ \_\_\_\_\_°

L \_\_\_\_\_ □ \_\_\_\_\_

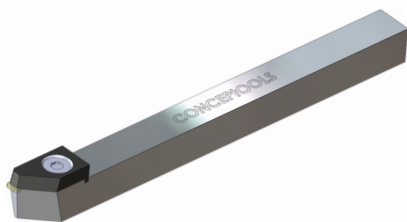
**Gauche**  
 Left  
 Links

**Droite**  
 Right  
 Rechts

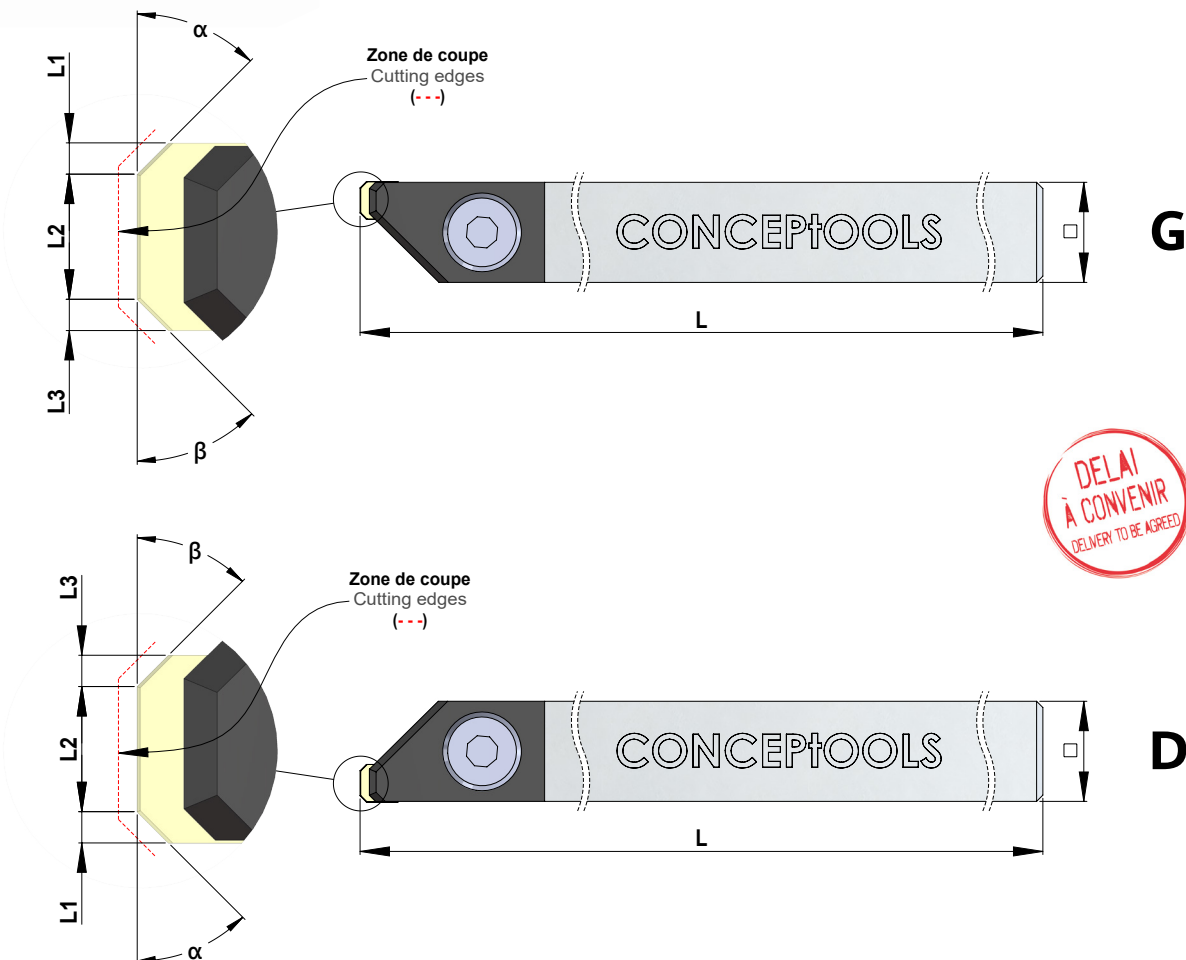
**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_





**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

*Tous nos outils ref 1700 sont livrés avec un témoin d'usinage.*  
*All our ref 1700 tools are supplied with a test piece.*  
*Alle unsere Werkzeuge mit ref 1700 beinhalten ein Herstell-Zeugnis.*

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_

L2 \_\_\_\_\_

L3 \_\_\_\_\_

$\alpha$  \_\_\_\_\_°

$\beta$  \_\_\_\_\_°

L \_\_\_\_\_

\_\_\_\_\_

**Gauche**  
 Left  
 Links

**Droite**  
 Right  
 Rechts

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

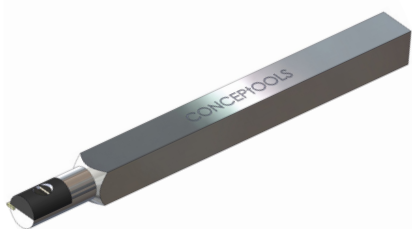
**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



**Burins intérieur**  
Internal turning tools  
Innenausdreh Meissel

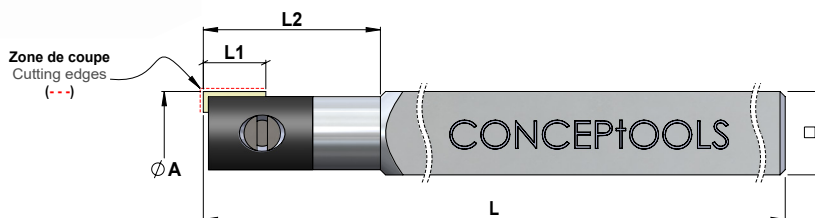
**Intérieur gauche**  
Internal left  
Innen links

**1760-G**



ØA	L1	L2	Ø d'alésage	□	L
8	3	17	>10	8x8	100
8	6	17	>10	8x8	100

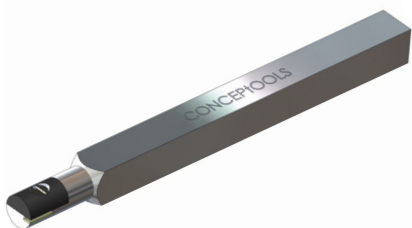
**Diamant MCD**  
Monocrystalline  
Diamond  
Monokristalliner  
Diamant



**Burins intérieur**  
Internal turning tools  
Innenausdreh Meissel

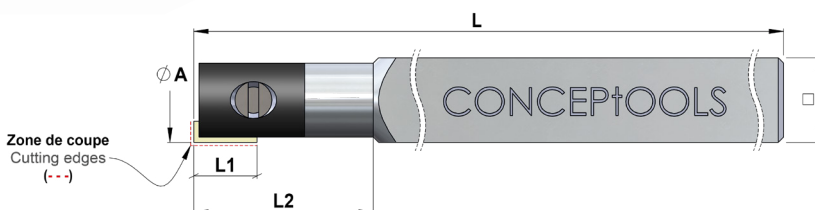
**Intérieur droit**  
Internal right  
Innen rechts

**1760-D**



ØA	L1	L2	Ø d'alésage	□	L
8	3	17	>10	8x8	100
8	6	17	>10	8x8	100

**Diamant MCD**  
Monocrystalline  
Diamond  
Monokristalliner  
Diamant



**Exécution sur mesure**  
Custom-made design  
Ausführung auf Mass

Tous nos outils ref 1700 sont livrés avec un témoin d'usinage.  
All our ref 1700 tools are supplied with a test piece.  
Alle unsere Werkzeuge mit ref 1700 beinhalten ein Herstell-Zeugnis.

**1760 SP**

Demande de prix  
Price request  
Preisanfrage

Commande  
Order  
Bestellung



Ø d'alésage à usiner / bore diameter / Bohrungsdurchmesser \_\_\_\_\_

ØA \_\_\_\_\_ L1 \_\_\_\_\_ L2 \_\_\_\_\_

L \_\_\_\_\_ □ \_\_\_\_\_

Gauche  
Left  
Links

Droite  
Right  
Rechts

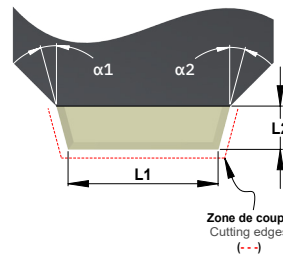
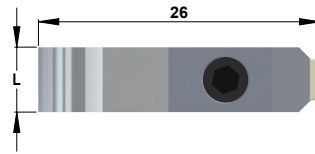
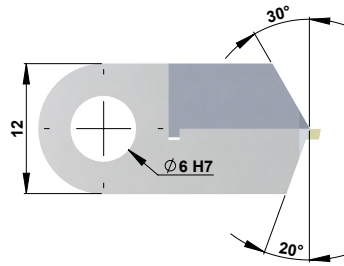
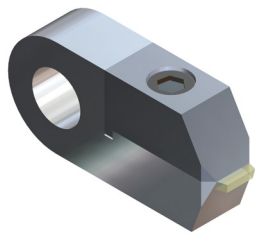
Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

**Burins POSALUX**  
 POSALUX turning tools  
 POSALUX Drehmeissel

**Exécution sur mesure**  
 Custom-made design  
 Ausführung auf Mass

**1810 SP**



**Diamant MCD**  
**Forme plate 3 coupes**  
 Monocristalline  
 Diamond  
 Flat 3 cuts  
 Monokristalliner  
 Diamant  
 Flachform Platte  
 3 Schneiden

Demande de prix  
 Price request  
 Preisanfrage

Commande  
 Order  
 Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_

$\alpha 1$  \_\_\_\_\_°  $\alpha 2$  \_\_\_\_\_° L \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

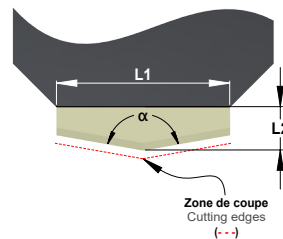
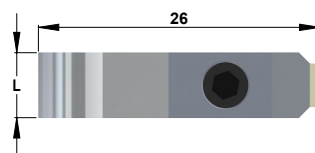
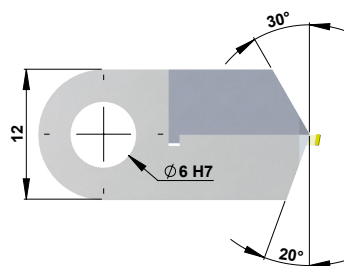
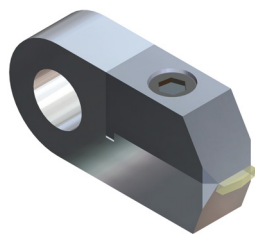
**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



**Burins POSALUX**  
 POSALUX turning tools  
 POSALUX Drehmeissel

**Exécution sur mesure**  
 Custom-made design  
 Ausführung auf Mass

**1815 SP**



**Diamant MCD**  
**Forme biconique**  
 Monocristalline  
 Diamond  
 Biconical  
 Monokristalliner  
 Diamant  
 Bikonische Form

Demande de prix  
 Price request  
 Preisanfrage

Commande  
 Order  
 Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_

$\alpha$  \_\_\_\_\_° L \_\_\_\_\_

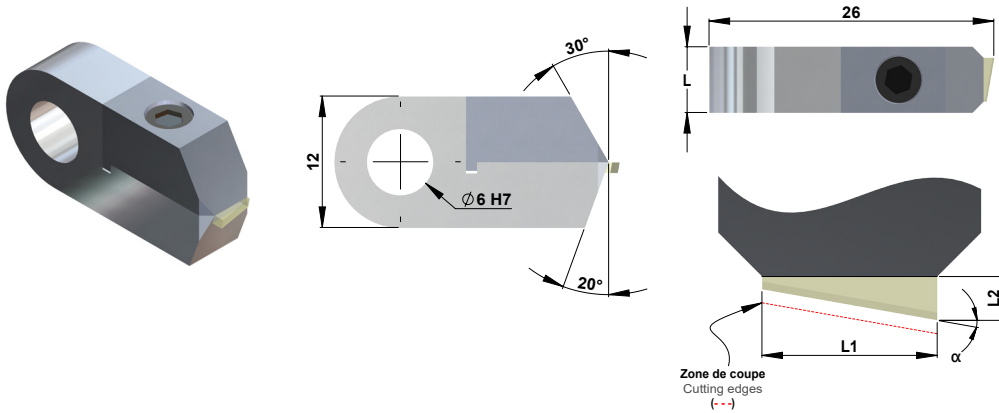
**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_

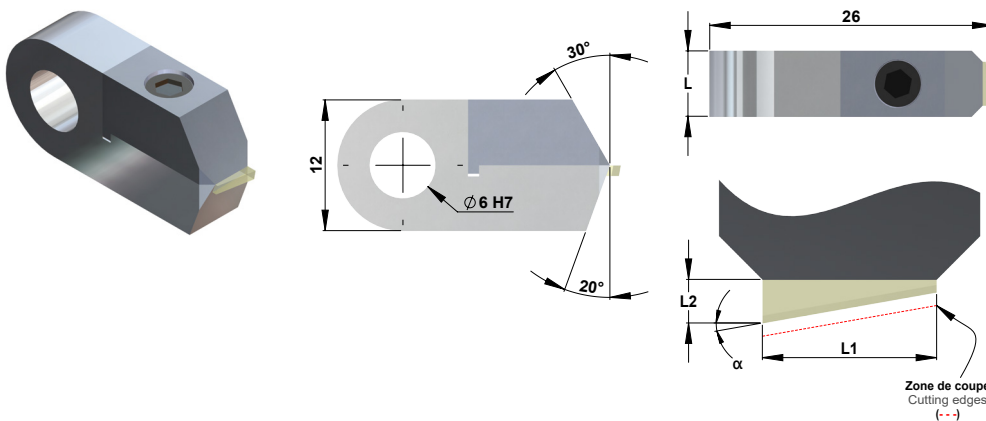


**1820 G** à gauche / on the left / links

**Diamant MCD**  
 Monocrystalline  
 Diamond  
 Monokristalliner  
 Diamant



**1820 D** à droite / on the right / rechts



**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_

α \_\_\_\_\_ ° L \_\_\_\_\_

**Gauche**  
 Left  
 Links

**Droite**  
 Right  
 Rechts

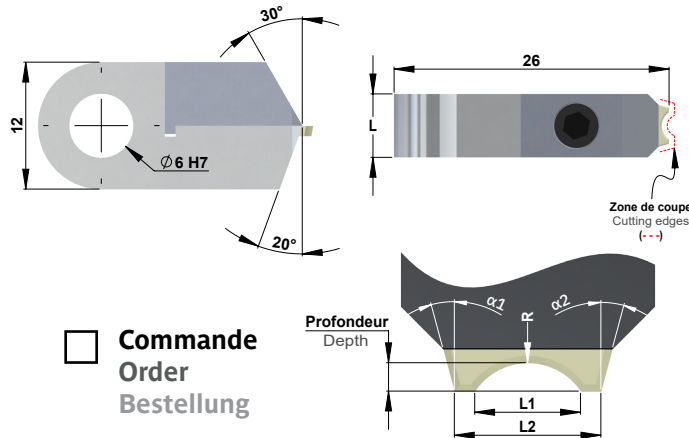
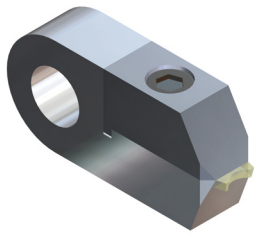
**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_

**Burins POSALUX**  
 POSALUX turning tools  
 POSALUX Drehmeissel

**Exécution sur mesure**  
 Custom-made design  
 Ausführung auf Mass

**1830 SP**



**Diamant MCD**  
**Forme concave**  
 Monocrystalline  
 Diamond  
 Concave  
 Monokristalliner  
 Diamant  
 Konkav Form

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_ **Profondeur** \_\_\_\_\_

$\alpha 1$  \_\_\_\_\_°  $\alpha 2$  \_\_\_\_\_° L \_\_\_\_\_ R \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

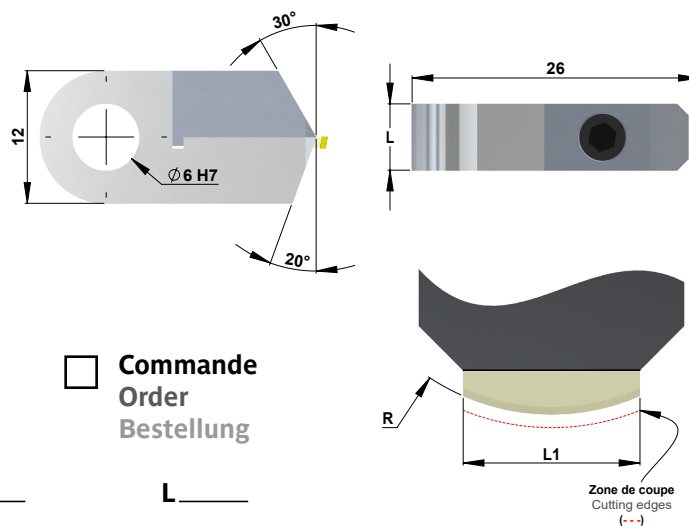
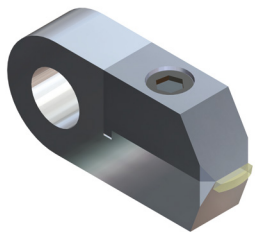
**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



**Burins POSALUX**  
 POSALUX turning tools  
 POSALUX Drehmeissel

**Exécution sur mesure**  
 Custom-made design  
 Ausführung auf Mass

**1840 SP**



**Diamant MCD**  
**Forme convexe**  
 Monocrystalline  
 Diamond  
 Convex  
 Monokristalliner  
 Diamant  
 Konvexe Form

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_ R \_\_\_\_\_ L \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



# 2

## Outils de fraisage en Diamant Polycristallin (PCD) PCD Milling Tools (Polycrystalline Diamond) PKD Fräswerkzeuge (Polykristalliner Diamant)



**Fraises en «T» (PCD)**  
T-slot cutters (PCD)  
T-Nutenfräser (PKD)

24

**Fraises en bout (PCD)**  
End mills (PCD)  
Schaftfräser (PKD)



25-30

*Economique*  
Low cost  
Kostengünstig

*Taille droite*  
Straight cut  
Gerade geschliffen

*Semi- hélicoïdale*  
Semi-helical  
Halb schrägverzahnt

*Hémisphérique*  
Whith ball end  
Halbkugelförmig

**Fraises à graver (PCD)**  
Engraving mills (PCD)  
Gravierfräser (PKD)



31

**Forets (PCD)**  
Twist drills (PCD)  
Spiralbohrer (PKD)

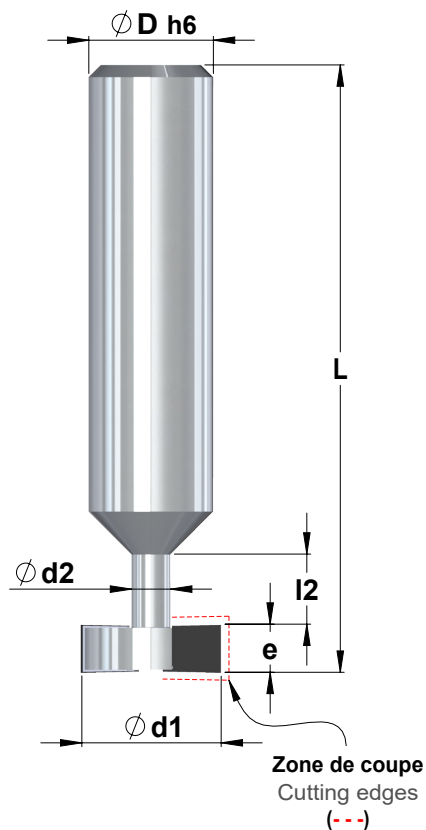
32

**Fraises circulaires avec insert (PCD)**  
Slitting saws with inserts (PCD)  
Zirkularfräser mit Ausführung (PKD)

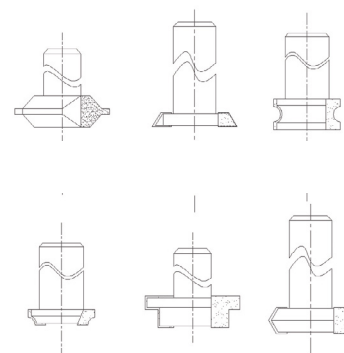


33





Autres variantes  
Other variants  
Andere Varianten



<sup>T</sup>Tol: Ød1 ± 0.01

Exécution sur mesure  
Custom-made design  
Ausführung auf Mass

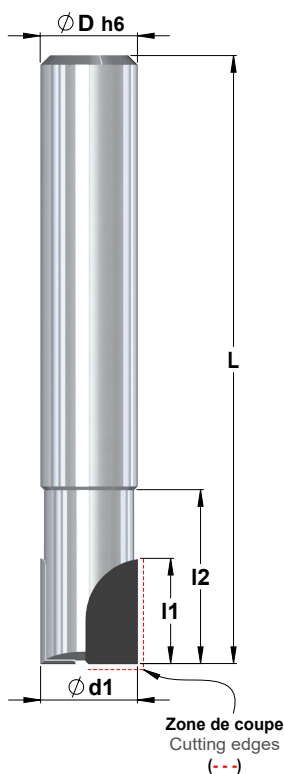
Demande de prix  
Price request  
Preis-anfrage

Commande  
Order  
Bestellung

Ød1<sup>T</sup> \_\_\_\_\_ Ød2 \_\_\_\_\_ e \_\_\_\_\_ l2 \_\_\_\_\_ ØDh6 \_\_\_\_\_ L \_\_\_\_\_ Z \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

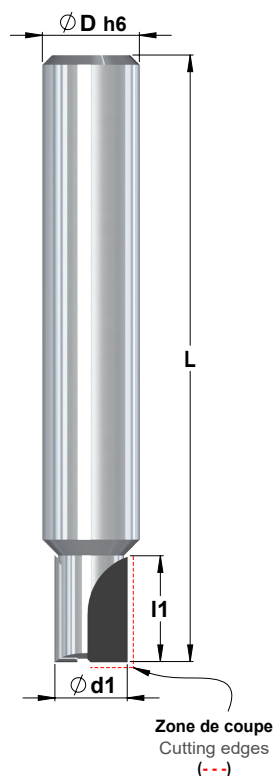


**Economique**  
Low cost  
Kostengünstig



<sup>T</sup>Tol: Ød1 ± 0.01

Ød1 <sup>T</sup>	l1	l2	Z	ØDh6	L
2	3	6	1	6	39
3	4	6	1	6	39
4	4	8	1	6	39
5	5	10	2	6	39
6	6	12	2	6	50
8	8	14	2	8	50
10	8	15	2	10	50



Ød1 <sup>T</sup>	I1	Z	ØDh6	L
1.00	2.00	1	6	39
1.10	2.00	1	6	39
1.20	2.50	1	6	39
1.30	2.50	1	6	39
1.40	2.50	1	6	39
1.50	2.00	1	6	39
1.60	2.00	1	6	39
1.70	3.00	1	6	39
1.80	3.00	1	6	39
1.90	4.00	1	6	39
2.00	4.00	1	6	39
2.50	5.00	1	6	39

Ød1 <sup>T</sup>	I1	Z	ØDh6	L
3.00	4.50	1	6	39
3.00	6.00	1	6	39

Ød1 <sup>T</sup>	I1	Z	ØDh6	L
4.00	6.00	1	6	39
4.00	6.00	2	6	39
4.00	8.00	1	6	39
4.00	8.00	2	6	39

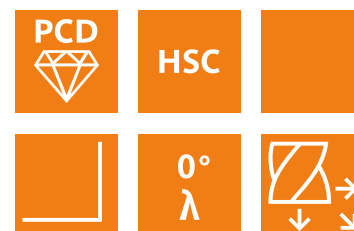
Ød1 <sup>T</sup>	I1	Z	ØDh6	L
5.00	8.00	2	6	50
5.00	10.0	2	6	50

Ød1 <sup>T</sup>	I1	Z	ØDh6	L
6.00	9.00	2	6	50
6.00	12.0	2	6	50

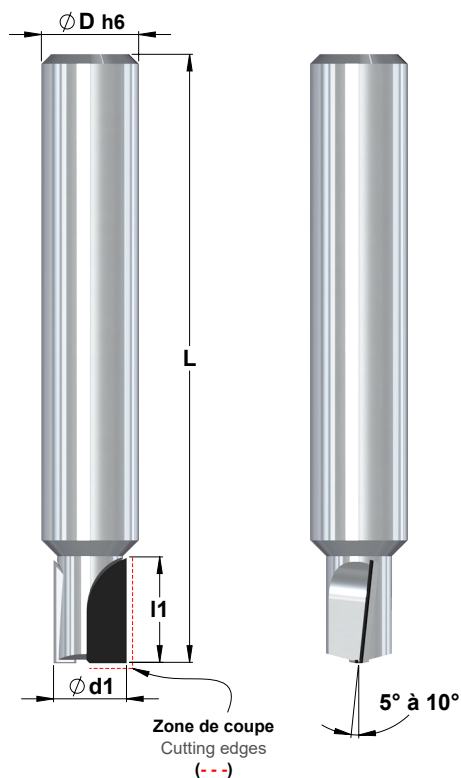
Ød1 <sup>T</sup>	I1	Z	ØDh6	L
8.00	8.00	2	8	50
8.00	12.0	2	8	50
8.00	16.0	2	8	50

Ød1 <sup>T</sup>	I1	Z	ØDh6	L
10.0	10.0	2	10	65
10.0	15.0	2	10	50

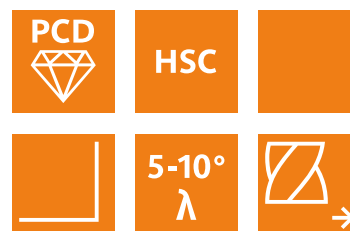
Taille droite  
Straight cut  
Gerade geschliffen



<sup>T</sup> Tol: Ød1 ± 0.01



Taille semi-hélicoïdale  
Semi-helical  
Halb schrägverzahnt



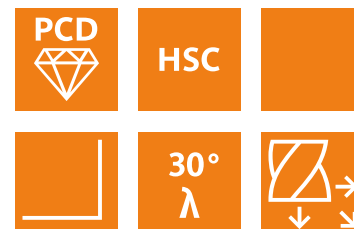
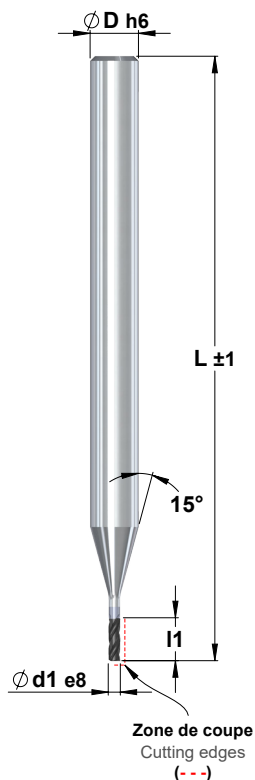
<sup>†</sup>Tol:  $\varnothing d1 \pm 0.01$

$\varnothing d1^{\dagger}$	$l1$	Z	$\varnothing D h6$	L
3	6	1	6	39
4	6	2	6	39
5	8	2	6	50
6	9	2	6	50
8	12	2	8	50
10	10	2	10	50
10	15	2	10	50

Taille hélicoïdale

Helical cut

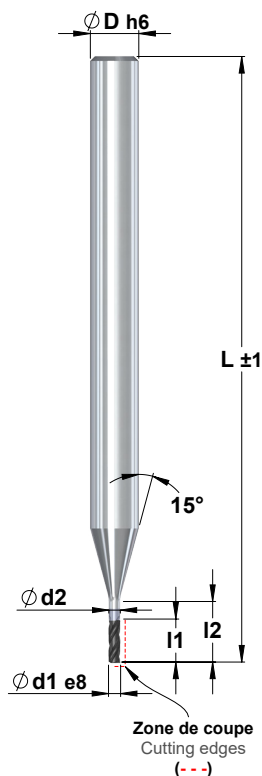
Schrägverzahnt



Ød1e8	l1	ØDh6	Z	L
0.50	1.00	4	2	50
0.60	1.00	4	2	50
0.70	1.00	4	2	50
0.80	1.00	4	2	50
0.90	1.00	4	2	50
1.00	2.00	4	3	50
1.10	2.00	4	3	50
1.20	2.00	4	3	50
1.30	2.00	4	3	50
1.40	2.00	4	3	50
1.50	2.00	4	3	50
1.60	2.00	4	3	50
1.70	2.00	4	3	50
1.80	2.00	4	3	50
1.90	2.00	4	3	50
2.00	4.00	4	3	50
2.50	4.00	4	3	50
3.00	4.00	4	3	50
4.00	4.00	4	3	50
5.00	4.00	6	3	50
6.00	4.00	6	3	50
8.00	4.00	8	3	50



Taille hélicoïdale  
 Helical cut  
 Schrägverzahnt



PCD 	HSC	
	30° λ	

Demande de prix  
 Price request  
 Preisanfrage

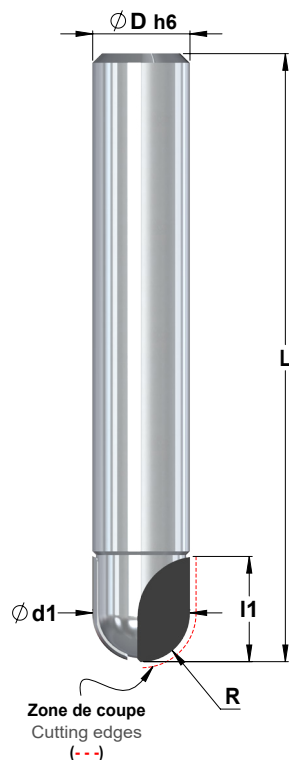
Commande  
 Order  
 Bestellung

Ød1e8 \_\_\_\_\_ L \_\_\_\_\_ l1 \_\_\_\_\_ Z \_\_\_\_\_

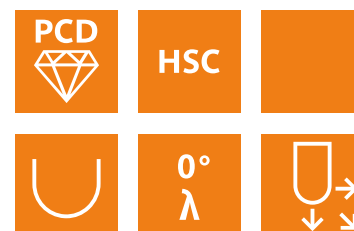
ØDh6 \_\_\_\_\_ d2 \_\_\_\_\_ l2 \_\_\_\_\_

Quantité  
 Quantity  
 Quantität \_\_\_\_\_

Matière à usiner  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

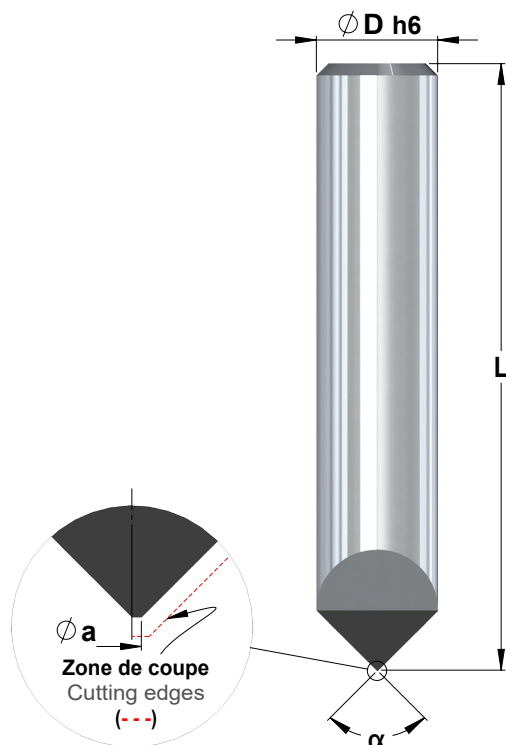


**Hémisphérique**  
With ball end  
Halbkugelförmig

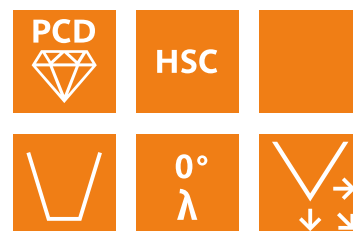


<sup>†</sup> Tol:  $\varnothing d1 \pm 0.01$

$\varnothing d1^T$	$l1$	R	Z	$\varnothing Dh6$	L
1.40	2.00	1.00	1	6	39
1.50	2.50	1.00	1	6	39
2.00	4.00	1.00	1	6	39
2.50	4.00	1.00	1	6	39
3.00	4.50	1.00	1	6	39
3.00	6.00	1.50	1	6	39
4.00	6.00	2.00	2	6	39
5.00	7.50	2.50	2	6	39
6.00	9.00	3.00	2	6	39
8.00	8.00	4.00	2	8	65
10.0	10.0	5.00	2	10	65
12.0	12.0	6.00	2	12	65



**Demi-lune**  
V-shape cutting  
Halbkugel-Schliff



$\alpha$	$\varnothing a$	$\varnothing D h6$	L
30°	0.15	3	40
30°	0.20	3	40

$\alpha$	$\varnothing a$	$\varnothing D h6$	L
30°	0.15	6	40
30°	0.20	6	40

$\alpha$	$\varnothing a$	$\varnothing D h6$	L
40°	0.10	3	40
40°	0.15	3	40

$\alpha$	$\varnothing a$	$\varnothing D h6$	L
40°	0.10	6	40
40°	0.15	6	40

$\alpha$	$\varnothing a$	$\varnothing D h6$	L
50°	0.05	3	40
50°	0.10	3	40
50°	0.15	3	40

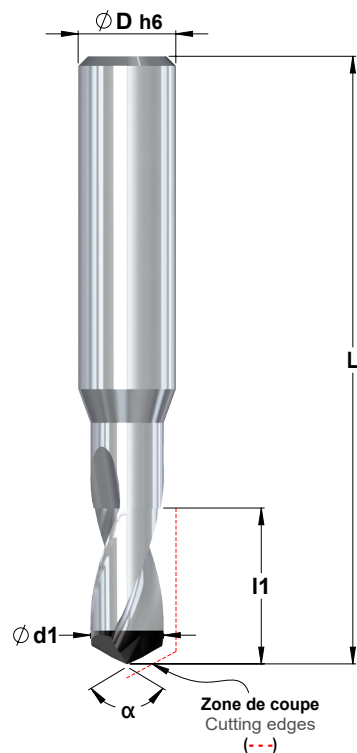
$\alpha$	$\varnothing a$	$\varnothing D h6$	L
50°	0.05	6	40
50°	0.10	6	40
50°	0.15	6	40

$\alpha$	$\varnothing a$	$\varnothing D h6$	L
60°	0.05	3	40
60°	0.10	3	40
60°	0.15	3	40

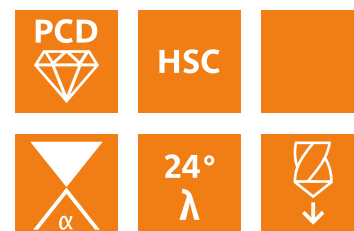
$\alpha$	$\varnothing a$	$\varnothing D h6$	L
60°	0.04	6	40
60°	0.05	6	40
60°	0.10	6	40
60°	0.15	6	40

$\alpha$	$\varnothing a$	$\varnothing D h6$	L
90°	0.10	3	40
90°	0.15	3	40

$\alpha$	$\varnothing a$	$\varnothing D h6$	L
90°	0.05	6	40
90°	0.10	6	40
90°	0.15	6	40



**Taille helicoïdale**  
 Helical cut  
 Spiralisiert mit 24°



<sup>†</sup> Tol: Ød1 ± 0.01

**Exécution sur mesure**  
 Custom-made design  
 Ausführung auf Mass

**Demande de prix**  
 Price request  
 Preisanfrage

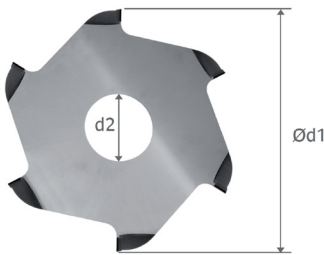
**Commande**  
 Order  
 Bestellung

Ød1<sup>†</sup> \_\_\_\_\_ l1 \_\_\_\_\_ ØDh6 \_\_\_\_\_ L \_\_\_\_\_ α \_\_\_\_\_ °

**Matière à usiner** \_\_\_\_\_ **Quantité** \_\_\_\_\_  
 Material to be machined \_\_\_\_\_ Quantity \_\_\_\_\_  
 Werkstoff zum Bearbeiten \_\_\_\_\_ Quantität \_\_\_\_\_

**Fraises circulaires avec inserts**  
**Slitting saws with inserts**  
**Zirkularfräser mit Ausführung**

**7820**



Ød1 <sup>T</sup>	Ød2	e	α	Z
30	8	0.80	20°	6
30	8	1.00	20°	6
50	13	0.80	20°	6
50	13	1.00	20°	6
63	16	0.80	20°	6
63	16	1.00	20°	6
80*	22	0.80	20°	6
80	22	1.00	20°	6
100*	22	1.00	20°	6

**Conique à 20°**  
 Conical 20°  
 Konisch 20°



<b>PCD</b> 	<b>Z6</b>	
	<b>α</b>	

<sup>T</sup>Tol: Ød1 ± 0.01

\* Exécution sur mesure

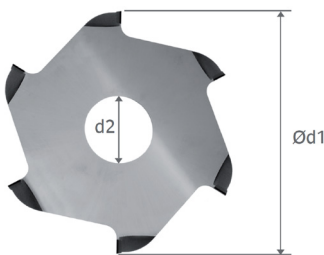
\*Custom-made design

\*Ausführung auf Mass

**Fraises circulaires avec inserts**  
**Slitting saws with inserts**  
**Zirkularfräser mit Ausführung**

**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

**7800 SP**



**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

Ød1<sup>T</sup> \_\_\_\_\_ d2 \_\_\_\_\_ **Z** *nombre de dents*  
**Z** *Number of teeth*  
 e \_\_\_\_\_ α \_\_\_\_\_ ° **Z** *Zähnezahl* \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



<b>PCD</b> 		
	<b>α</b>	



**INNOOTOOLS**  
Innovateur d'outils coupants



# 3

## Outils de tournage en Diamant Polycristallin (PCD) PCD Turning Tools (Polycrystalline Diamond) PKD Drehwerkzeuge (Polykristalliner Diamant)

**Plaquettes insert – Pour tronçonnage (PCD)**  
Inserts – For parting (PCD)  
Wendepplatten – Zum Abstechen (PKD)



36-39

**Plaquettes insert – Pour tournage (PCD)**  
Inserts – For turning (PCD)  
Wendepplatten – Zum Drehen (PKD)



40-43

**Plaquettes insert – Pour fonçage et tournage (PCD)**  
Inserts – For sinking and turning (PCD)  
Wendepplatten – Für Einstechen und Drehen (PKD)



44-45

**Plaquettes ISO à insert (PCD)**  
ISO inserts (PCD)  
ISO wendepplatten (PKD)



46-47

**Burins (PCD)**  
Turning tools (PCD)  
Wendepplatten (PKD)

48-52

*Tourneur arrière*  
Back turning insert  
Hinterdreh Bearbeitung

*Intérieur*  
Internal  
Innenbearbeitung

*Anglage*  
Chamfering  
Fasen

*Fonçage*  
Sinking  
Einstechen

*Piquage*  
Pricking  
Bikonische

*Alésage*  
Reaming  
Ausbohren

**Burins Posalux**  
Posalux Turning tools  
Posalux Drehmeissel

53-55

*Plat 3 coupes*  
Flat 3 cuts  
Platte 3 Schneiden

*Forme biconique*  
Biconical  
Bikonische Form

*Incliné droite-gauche*  
Inclined (left or right)  
Schrägungswinkel links/rechts

*Concave*  
Concave  
Konkav Form

*Convexe*  
Convex  
Konvexe Form

## Plaquettes insert

Inserts

Wendeplatten

à gauche  
on the left  
links

731

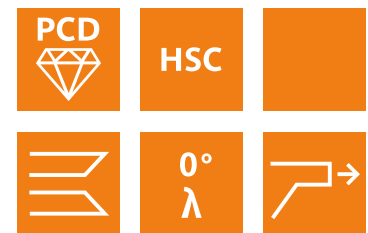


E	l1	Ref.
0.50	4	731-0.5
0.60	4	731-0.6
0.70	4	731-0.7
0.80	4	731-0.8
0.90	4	731-0.9
1.00	5	731-1.0
1.10	5	731-1.1
1.20	5	731-1.2
1.30	5	731-1.3
1.40	6	731-1.4
1.50	6	731-1.5
1.60	6	731-1.6
1.70	6	731-1.7
1.80	6	731-1.8
1.90	7	731-1.9

Pour tronçonnage

For parting

Zum Abstechen



## Plaquettes insert

Inserts

Wendeplatten

à gauche  
on the left  
links

731 SP



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

E \_\_\_\_\_ l1 \_\_\_\_\_  $\alpha$  \_\_\_\_\_°

Matière à usiner

Material to be machined

Werkstoff zum Bearbeiten \_\_\_\_\_

Quantité

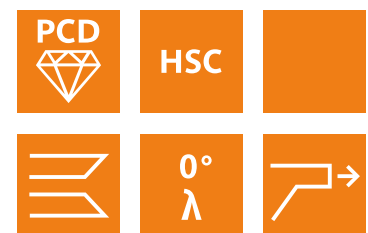
Quantity

Quantität \_\_\_\_\_

Pour tronçonnage

For parting

Zum Abstechen



## 730 Porte Outil / Tool Holder / Werkzeug-Halter

<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7×7 115	730-7
<input type="checkbox"/>	8×8 115	730-8
<input type="checkbox"/>	10×10 115	730-10
<input type="checkbox"/>	12×12 130	730-12
<input type="checkbox"/>	16×16 130	730-16



**Plaquettes insert**  
**Inserts**  
**Wendeplatten**

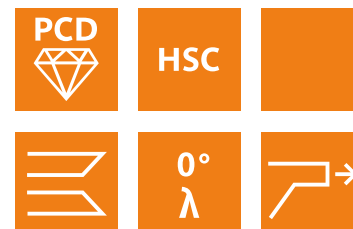
**à droite**  
**on the right**  
**rechts**

**741**



E	l1	Ref.
0.50	4	741-0.5
0.60	4	741-0.6
0.70	4	741-0.7
0.80	4	741-0.8
0.90	4	741-0.9
1.00	5	741-1.0
1.10	5	741-1.1
1.20	5	741-1.2
1.30	5	741-1.3
1.40	6	741-1.4
1.50	6	741-1.5
1.60	6	741-1.6
1.70	6	741-1.7
1.80	6	741-1.8
1.90	7	741-1.9

**Pour tronçonnage**  
**For parting**  
**Zum Abstechen**



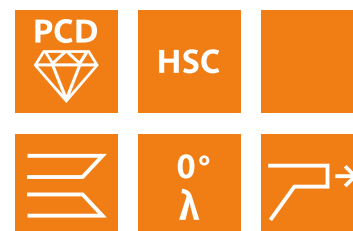
**Plaquettes insert**  
**Inserts**  
**Wendeplatten**

**à droite**  
**on the right**  
**rechts**

**741 SP**



**Pour tronçonnage**  
**For parting**  
**Zum Abstechen**



**Demande de prix**  
**Price request**  
**Preisanfrage**

**Commande**  
**Order**  
**Bestellung**

E \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_ °

**Matière à usiner** \_\_\_\_\_ **Quantité** \_\_\_\_\_  
**Material to be machined** \_\_\_\_\_ **Quantity** \_\_\_\_\_  
**Werkstoff zum Bearbeiten** \_\_\_\_\_ **Quantität** \_\_\_\_\_

**740** **Porte Outil / Tool Holder / Werkzeug-Halter**

<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7x7 115	740-7
<input type="checkbox"/>	8x8 115	740-8
<input type="checkbox"/>	10x10 115	740-10
<input type="checkbox"/>	12x12 130	740-12
<input type="checkbox"/>	16x16 130	740-16



## Plaquettes insert Coupe déportée 20°

Inserts Disposed cut 20°

Wendeplatten Versetzter Schnitt 20°

à gauche  
on the left  
links

# 731-R

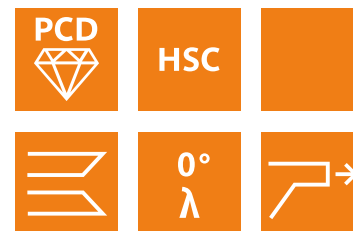


E	l1	Ref.
0.50	4	731R-0.5
0.60*	4	731R-0.6
0.70	4	731R-0.7
0.80*	4	731R-0.8
0.90*	4	731R-0.9
1.00	5	731R-1.0
1.10*	5	731R-1.1
1.20	5	731R-1.2
1.30*	5	731R-1.3
1.40*	5	731R-1.4
1.50	6	731R-1.5
1.60*	6	731R-1.6
1.70*	6	731R-1.7
1.80*	6	731R-1.8
1.90	7	731R-1.9

### Pour tronçonnage

For parting

Zum Abstechen



\*Fabrication spéciale  
Special build  
Spezial Herstellung

## Plaquettes insert

Inserts

Wendeplatten

à gauche  
on the left  
links

# 731-R SP



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

E \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_ °

Matière à usiner

Material to be machined

Werkstoff zum Bearbeiten \_\_\_\_\_

Quantité

Quantity

Quantität \_\_\_\_\_



### Pour tronçonnage

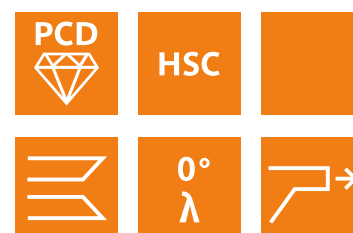
*Coupe déportée*

For parting

*Disposed cut*

Zum Abstechen

*Versetzter Schnitt*



## 730 Porte Outil / Tool Holder / Werkzeug-Halter

<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7x7 115	730-7
<input type="checkbox"/>	8x8 115	730-8
<input type="checkbox"/>	10x10 115	730-10
<input type="checkbox"/>	12x12 130	730-12
<input type="checkbox"/>	16x16 130	730-16



## Plaquettes insert Coupe déportée 20°

Inserts *Disposed cut 20°*

Wendeplatten *Versetzter Schnitt 20°*

à droite  
on the right  
rechts

741-L



E	I1	Ref.
0.50	4	741L-0.5
0.60*	4	741L-0.6
0.70	4	741L-0.7
0.80*	4	741L-0.8
0.90*	4	741L-0.9
1.00	5	741L-1.0
1.10*	5	741L-1.1
1.20	5	741L-1.2
1.30*	5	741L-1.3
1.40*	5	741L-1.4
1.50	6	741L-1.5
1.60*	6	741L-1.6
1.70*	6	741L-1.7
1.80*	6	741L-1.8
1.90	7	741L-1.9

Pour tronçonnage

For parting

Zum Abstechen



\*Fabrication spéciale  
Special build  
Spezial Herstellung

## Plaquettes insert

Inserts

Wendeplatten

à droite  
on the right  
rechts

741-L SP



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung



Pour tronçonnage

*Coupe déportée*

For parting

*Disposed cut*

Zum Abstechen

*Versetzter Schnitt*



E \_\_\_\_\_ I1 \_\_\_\_\_ α \_\_\_\_\_ °

Matière à usiner

Material to be machined

Werkstoff zum Bearbeiten \_\_\_\_\_

Quantité

Quantity

Quantität \_\_\_\_\_

740

Porte Outil / Tool Holder / Werkzeug-Halter

<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7x7 115	740-7
<input type="checkbox"/>	8x8 115	740-8
<input type="checkbox"/>	10x10 115	740-10
<input type="checkbox"/>	12x12 130	740-12
<input type="checkbox"/>	16x16 130	740-16





## Plaquettes insert

Inserts

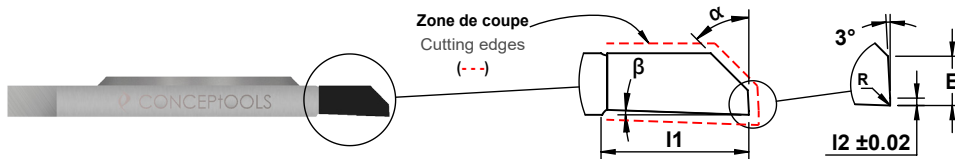
Wendeplatten

à gauche

on the left

links

732



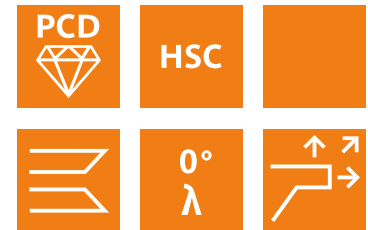
**Tourneur avant**

Front turning insert

Frontal Drehen



E	I1	I2	R	$\alpha$	$\beta$	Ref.
1	6	0.15	0	45°	2°	732-1-2°
1	6	0.15	0	45°	0°	732-1-0°



## Plaquettes insert

Inserts

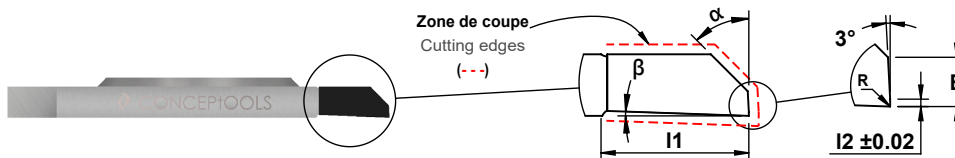
Wendeplatten

à gauche

on the left

links

732 SP



**Tourneur avant**

Front turning insert

Frontal Drehen



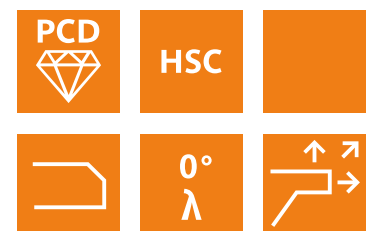
**Demande de prix**  
Price request  
Preis Anfrage

**Commande**  
Order  
Bestellung

E \_\_\_\_\_ I1 \_\_\_\_\_ I2 \_\_\_\_\_

R \_\_\_\_\_  $\alpha$  \_\_\_\_\_°  $\beta$  \_\_\_\_\_°

**Matière à usiner**  
Material to be machined \_\_\_\_\_  
**Quantité**  
Quantity \_\_\_\_\_  
Werkstoff zum Bearbeiten \_\_\_\_\_  
Quantität \_\_\_\_\_



### 730 Porte Outil / Tool Holder / Werkzeug-Halter

<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7x7 115	730-7
<input type="checkbox"/>	8x8 115	730-8
<input type="checkbox"/>	10x10 115	730-10
<input type="checkbox"/>	12x12 130	730-12
<input type="checkbox"/>	16x16 130	730-16

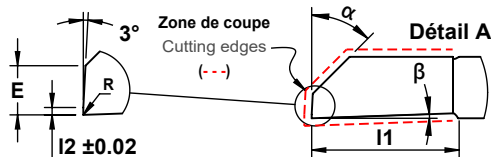




**Plaquettes insert**  
**Inserts**  
**Wendeplatten**

**à droite**  
**on the right**  
**rechts**

**742**



**Tourneur avant**  
**Front turning insert**  
**Frontal Drehen**



E	I1	I2	R	α	β	Ref.
1	6	0.15	0	45°	2°	742-1-2°
1	6	0.15	0	45°	0°	742-1-0°

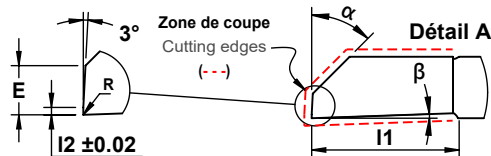
PCD HSC

0° λ

**Plaquettes insert**  
**Inserts**  
**Wendeplatten**

**à droite**  
**on the right**  
**rechts**

**742 SP**



**Tourneur avant**  
**Front turning insert**  
**Frontal Drehen**



**Demande de prix**  
**Price request**  
**Preisanfrage**

**Commande**  
**Order**  
**Bestellung**

E \_\_\_\_\_ I1 \_\_\_\_\_ I2 \_\_\_\_\_

R \_\_\_\_\_ α \_\_\_\_\_ ° β \_\_\_\_\_ °

**Matière à usiner** \_\_\_\_\_ **Quantité** \_\_\_\_\_  
**Material to be machined** \_\_\_\_\_ **Quantity** \_\_\_\_\_  
**Werkstoff zum Bearbeiten** \_\_\_\_\_ **Quantität** \_\_\_\_\_

PCD HSC

0° λ

**740** **Porte Outil / Tool Holder / Werkzeug-Halter**

<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7×7 115	740-7
<input type="checkbox"/>	8×8 115	740-8
<input type="checkbox"/>	10×10 115	740-10
<input type="checkbox"/>	12×12 130	740-12
<input type="checkbox"/>	16×16 130	740-16



## Plaquettes insert

Inserts

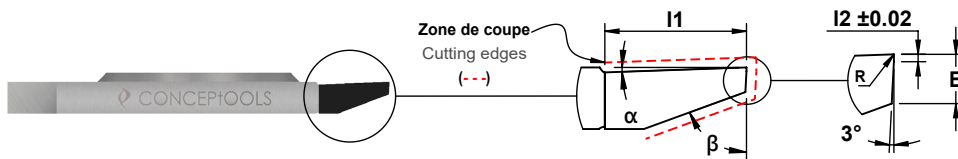
Wendepplatten

à gauche

on the left

links

733

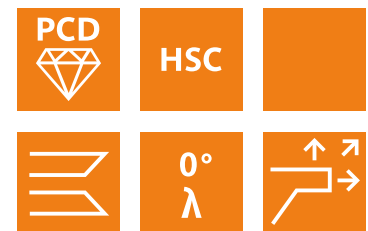


**Tourneur arrière**

Back turning insert

Hinterdreh Bearbeitung

E	I1	I2	R	α	β	Ref.
0.50	3	0.15	0	0.5°	70°	733-05
0.80	4	0.15	0	0.5°	70°	733-08
1.00	4	0.15	0	0.5°	70°	733-10
1.20	5	0.15	0	0.5°	70°	733-12
1.50	6	0.15	0	0.5°	70°	733-15



## Plaquettes insert

Inserts

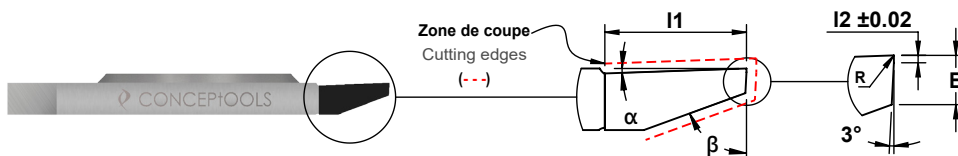
Wendepplatten

à gauche

on the left

links

733 SP



**Tourneur arrière**

Back turning insert

Hinterdreh Bearbeitung

Demande de prix  
Price request  
Preis Anfrage

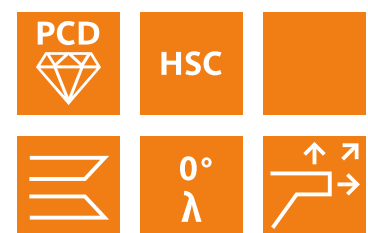
Commande  
Order  
Bestellung

E \_\_\_\_\_ I1 \_\_\_\_\_ I2 \_\_\_\_\_

R \_\_\_\_\_ α \_\_\_\_\_ ° β \_\_\_\_\_ °

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_



## 730 Porte Outil / Tool Holder / Werkzeug-Halter

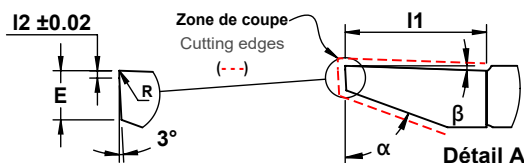
□	L	Ref.
7×7	115	730-7
8×8	115	730-8
10×10	115	730-10
12×12	130	730-12
16×16	130	730-16



**Plaquettes insert**  
**Inserts**  
**Wendeplatten**

**à droite**  
**on the right**  
**rechts**

**743**



**Tourneur arrière**  
**Back turning insert**  
**Hinterdreh Bearbeitung**



E	I1	I2	R	α	β	Ref.
0.50	3	0.15	0	70°	0.5°	743-0.5
0.80	4	0.15	0	70°	0.5°	743-0.8
1.00	4	0.15	0	70°	0.5°	743-1.0
1.20	5	0.15	0	70°	0.5°	743-1.2
1.50	6	0.15	0	70°	0.5°	743-1.5

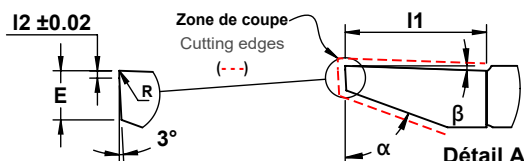
PCD HSC

0°

**Plaquettes insert**  
**Inserts**  
**Wendeplatten**

**à droite**  
**on the right**  
**rechts**

**743 SP**



**Tourneur arrière**  
**Back turning insert**  
**Hinterdreh Bearbeitung**



**Demande de prix**  
**Price request**  
**Preis Anfrage**

**Commande**  
**Order**  
**Bestellung**

E \_\_\_\_\_ I1 \_\_\_\_\_ I2 \_\_\_\_\_

R \_\_\_\_\_ α \_\_\_\_\_ ° β \_\_\_\_\_ °

**Matière à usiner**  
**Material to be machined**  
**Werkstoff zum Bearbeiten** \_\_\_\_\_

**Quantité**  
**Quantity**  
**Quantität** \_\_\_\_\_

PCD HSC

0°

**740** **Porte Outil / Tool Holder / Werkzeug-Halter**

<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7×7 115	740-7
<input type="checkbox"/>	8×8 115	740-8
<input type="checkbox"/>	10×10 115	740-10
<input type="checkbox"/>	12×12 130	740-12
<input type="checkbox"/>	16×16 130	740-16



## Plaquettes insert

Inserts

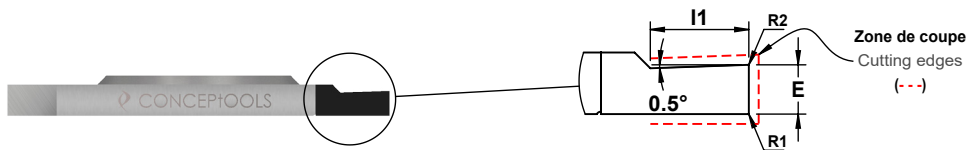
Wendeplatten

à gauche

on the left

links

734



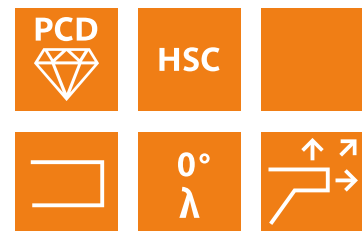
## Insert de fonçage

Sinking insert

Sinkensinsert



E	I1	R1	R2	Ref.
0.50	1.50	0	0	734-0.5
0.60	1.70	0	0	734-0.6
0.80	2.00	0	0	734-0.8
1.00	2.50	0	0	734-1.0
1.20	2.70	0	0	734-1.2
1.50	3.00	0	0	734-1.5
2.00	4.00	0	0	734-2.0
2.50	5.00	0	0	734-2.5



## Plaquettes insert

Inserts

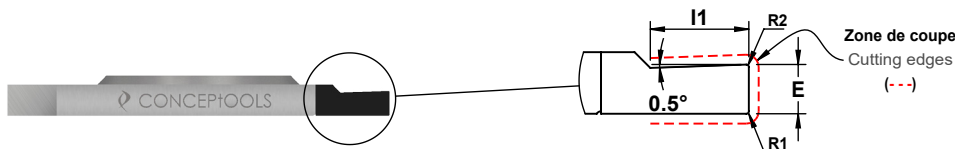
Wendeplatten

à gauche

on the left

links

734 SP



## Insert de fonçage

Sinking insert

Sinkensinsert



Demande de prix  
Price request  
Preis Anfrage

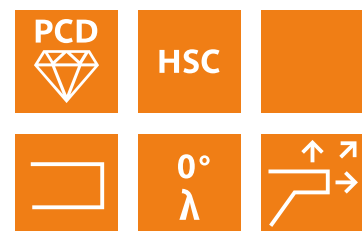
Commande  
Order  
Bestellung

E \_\_\_\_\_ I1 \_\_\_\_\_

R1 \_\_\_\_\_ R2 \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_



## 730 Porte Outil / Tool Holder / Werkzeug-Halter

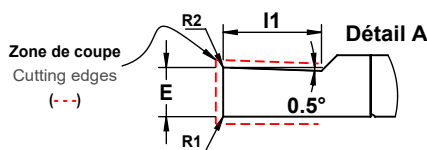
<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7×7 115	730-7
<input type="checkbox"/>	8×8 115	730-8
<input type="checkbox"/>	10×10 115	730-10
<input type="checkbox"/>	12×12 130	730-12
<input type="checkbox"/>	16×16 130	730-16



**Plaquettes insert**  
**Inserts**  
**Wendeplatten**

**à droite**  
**on the right**  
**rechts**

**744**



**Insert de fonçage**  
**Sinking insert**  
**Sinkensinsert**



E	I1	R1	R2	Ref.
0.50	1.50	0	0	744-0.5
0.60	1.70	0	0	744-0.6
0.80	2.00	0	0	744-0.8
1.00	2.50	0	0	744-1.0
1.20	2.70	0	0	744-1.2
1.50	3.00	0	0	744-1.5
2.00	4.00	0	0	744-2.0
2.50	5.00	0	0	744-2.5

PCD HSC

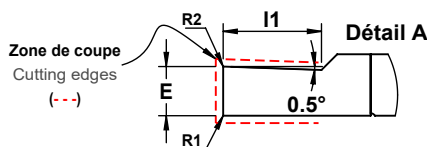
0°

Tol:  $\varnothing d1 \pm 0.01$

**Plaquettes insert**  
**Inserts**  
**Wendeplatten**

**à droite**  
**on the right**  
**rechts**

**744 SP**



**Insert de fonçage**  
**Sinking insert**  
**Sinkensinsert**



**Demande de prix**  
**Price request**  
**Preis Anfrage**

**Commande**  
**Order**  
**Bestellung**

E \_\_\_\_\_ I1 \_\_\_\_\_

R1 \_\_\_\_\_ R2 \_\_\_\_\_

**Matière à usiner**  
**Material to be machined**  
**Werkstoff zum Bearbeiten** \_\_\_\_\_

**Quantité**  
**Quantity**  
**Quantität** \_\_\_\_\_

PCD HSC

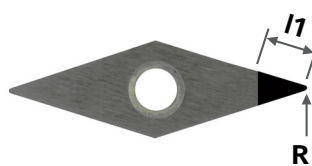
0°

**740** **Porte Outil / Tool Holder / Werkzeug-Halter**

<input type="checkbox"/>	L	Ref.
<input type="checkbox"/>	7x7 115	740-7
<input type="checkbox"/>	8x8 115	740-8
<input type="checkbox"/>	10x10 115	740-10
<input type="checkbox"/>	12x12 130	740-12
<input type="checkbox"/>	16x16 130	740-16

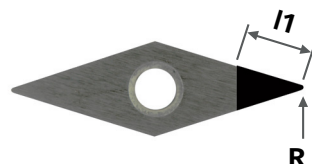


5610	Type	Design	R	$\alpha$	L1
	VCMT	11 03 010	0.10	10°	2.50
	VCMT	11 03 020	0.20	10°	2.50



**Gamme économique**  
Low cost range  
Kostengünstig Reihe

5620	Type	Design	R	$\alpha$	L1
	VCMW	11 03 005	0.05	0°	2.50
	VCMW	11 03 010	0.10	0°	2.50
	VCMW	11 03 015	0.15	0°	2.50
	VCMW	11 03 020	0.20	0°	2.50

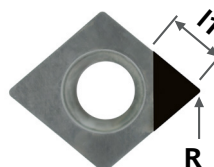


PCD 	HSC	ISO
	0-10° $\lambda$	

5630	Type	Design	R	$\alpha$	L1
	CCMW	06 02 005	0.05	0°	2.00
	CCMW	06 02 010	0.10	0°	2.00
	CCMW	06 02 020	0.20	0°	2.00

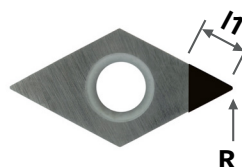


Type	Design	R	$\alpha$	L1
CCMW	09 T3 010	0.10	0°	2.50
CCMW	09 T3 020	0.20	0°	2.50

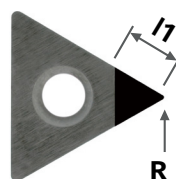


5640	Type	Design	R	$\alpha$	L1
	DCMW	07 02 005	0.05	0°	2.00
	DCMW	07 02 010	0.10	0°	2.00
	DCMW	07 02 015	0.15	0°	2.00
	DCMW	07 02 020	0.20	0°	2.00

Type	Design	R	$\alpha$	L1
DCMW	11 T3 005	0.05	0°	2.50
DCMW	11 T3 010	0.10	0°	2.50
DCMW	11 T3 015	0.15	0°	2.50
DCMW	11 T3 020	0.20	0°	2.50

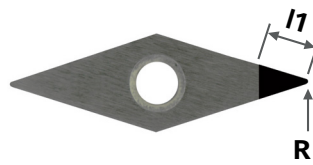


5650	Type	Design	R	$\alpha$	L1
	TCMW	11 02 010	0.10	0°	2.00
	TCMW	11 02 020	0.20	0°	2.00

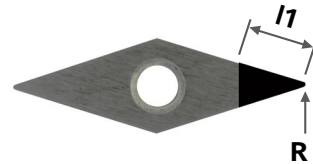


**Gamme haut rendement**  
High Yield Range  
Hocheffizienz Reihe

6610	Type	Design	R	$\alpha$	L1
	VCMT	11 03 010	0.10	10°	4.60
	VCMT	11 03 020	0.20	10°	4.60

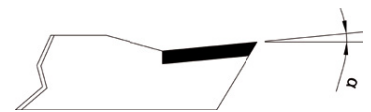


6620	Type	Design	R	$\alpha$	L1
	VCMW	11 03 005	0.05	0°	4.70
	VCMW	11 03 010	0.10	0°	4.70
	VCMW	11 03 015	0.15	0°	4.70
	VCMW	11 03 020	0.20	0°	4.70



PCD 	HSC	ISO
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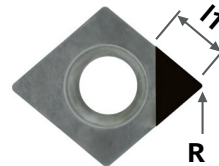
	0-10° $\lambda$	
--	--------------------	--



6630	Type	Design	R	$\alpha$	L1
	CCMW	06 02 005	0.05	0°	3.60
	CCMW	06 02 010	0.10	0°	3.60
	CCMW	06 02 020	0.20	0°	3.60

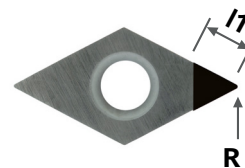
Type	Design	R	$\alpha$	L1
CCMW	09 T3 010	0.10	0°	4.70
CCMW	09 T3 020	0.20	0°	4.70



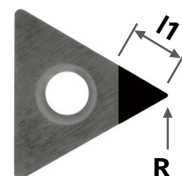
6640	Type	Design	R	$\alpha$	L1
	DCMW	07 02 005	0.05	0°	3.30
	DCMW	07 02 010	0.10	0°	3.30
	DCMW	07 02 015	0.15	0°	3.20
	DCMW	07 02 020	0.20	0°	3.20

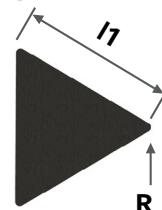
Type	Design	R	$\alpha$	L1
DCMW	11 T3 005	0.05	0°	4.20
DCMW	11 T3 010	0.10	0°	4.20
DCMW	11 T3 015	0.15	0°	4.20
DCMW	11 T3 020	0.20	0°	4.20



6650	Type	Design	R	$\alpha$	L1
	TCMW	11 02 010	0.10	0°	3.40
	TCMW	11 02 020	0.20	0°	3.40



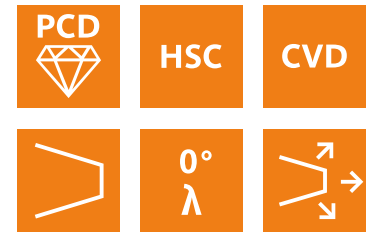
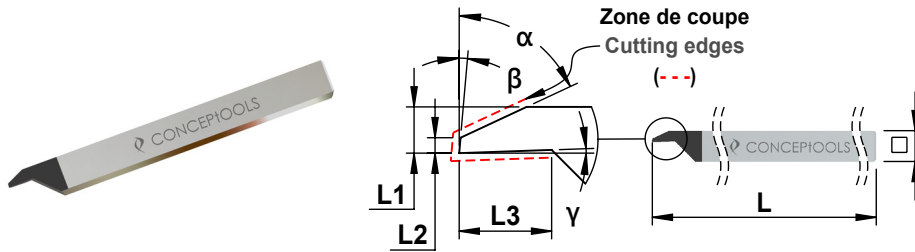
6660	Type	Design	R	$\alpha$	L1
	TPUN	06 01 010	0.10	0°	pleine face
	TPUN	06 01 020	0.20	0°	pleine face



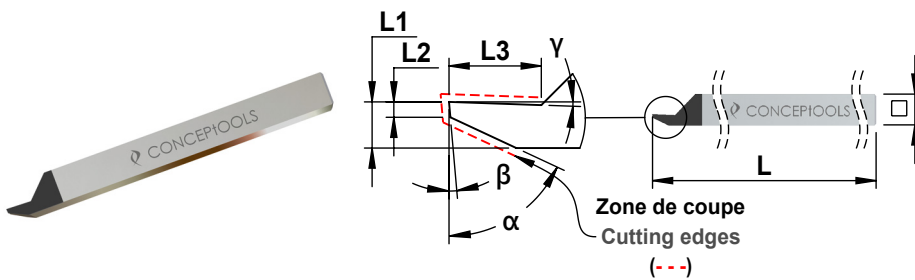


**700 G** à gauche / on the left / links

**Tourneur arrière**  
Back turning insert  
Hinterdreh Bearbeitung



**700 D** à droite / on the right / rechts



**Exécution sur mesure**  
Custom-made design  
Ausführung auf Mass

**Demande de prix**  
Price request  
Preis Anfrage

**Commande**  
Order  
Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_ L3 \_\_\_\_\_ L \_\_\_\_\_  
α \_\_\_\_\_° β \_\_\_\_\_° γ \_\_\_\_\_°  \_\_\_\_\_

**Gauche**  **Droite**  
Left Right  
Links Rechts

**Ref. Porte-outil**  
Tool Holder

Werkzeug-Halter \_\_\_\_\_

**PCD**  **CVD**

**Matière à usiner**

Material to be machined

Werkstoff zum Bearbeiten \_\_\_\_\_

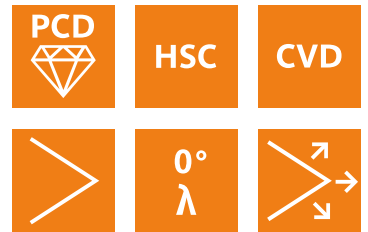
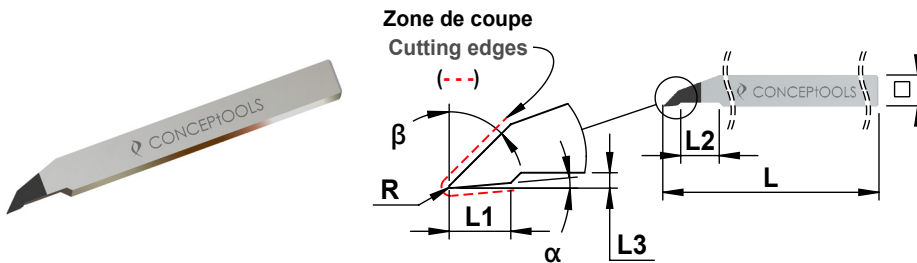
**Quantité**

Quantity

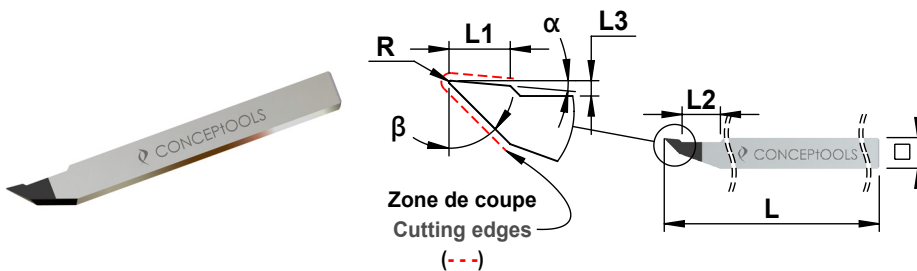
Quantität \_\_\_\_\_

**710 G** à gauche / on the left / links

**Intérieur**  
Internal  
Innenbearbeitung



**710 D** à droite / on the right / rechts



**Exécution sur mesure**  
Custom-made design  
Ausführung auf Mass

Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

L1 \_\_\_\_\_

L2 \_\_\_\_\_

L3 \_\_\_\_\_

R \_\_\_\_\_

Gauche  
Left  
Links

Droite  
Right  
Rechts

$\alpha$  \_\_\_\_\_°

$\beta$  \_\_\_\_\_°

L \_\_\_\_\_

\_\_\_\_\_

**Ref. Porte-outil**  
Tool Holder

Werkzeug-Halter \_\_\_\_\_

PCD

CVD

**Matière à usiner**

Material to be machined

Werkstoff zum Bearbeiten \_\_\_\_\_

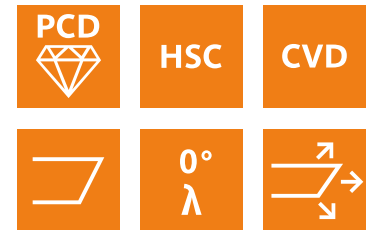
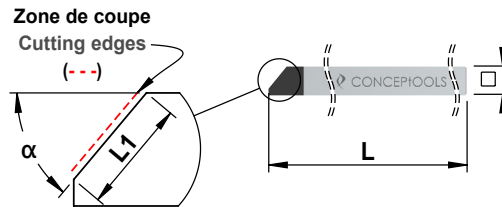
**Quantité**

Quantity

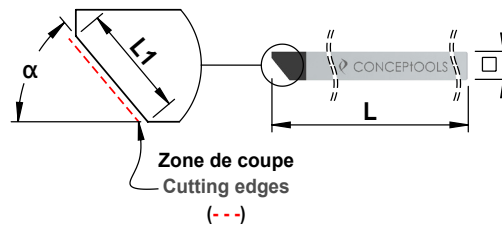
Quantität \_\_\_\_\_

**720 G** à gauche / on the left / links

**Pour anglage**  
For chamfering  
Für Fasen



**720 D** à droite / on the right / rechts



**Exécution sur mesure**  
Custom-made design  
Ausführung auf Mass

**Demande de prix**  
Price request  
Preis Anfrage

**Commande**  
Order  
Bestellung

L1 \_\_\_\_\_  $\alpha$  \_\_\_\_\_°

L \_\_\_\_\_  \_\_\_\_\_

**Gauche**  
Left  
Links

**Droite**  
Right  
Rechts

**Ref. Porte-outil**  
Tool Holder

Werkzeug-Halter \_\_\_\_\_

PCD

CVD

**Matière à usiner**

Material to be machined

Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**

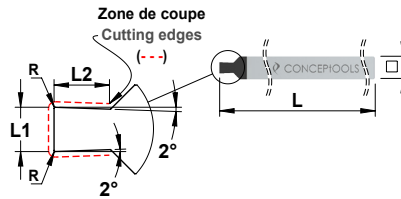
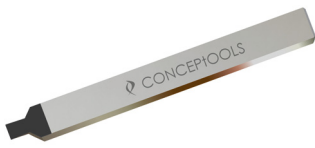
Quantity

Quantität \_\_\_\_\_

**Burins**  
Turning tools  
Drehmeissel

**Exécution sur mesure**  
Custom-made design  
Ausführung auf Mass

**730**



**Pour fonçage**  
For sinking  
Für Einstechen



**Demande de prix**  
Price request  
Preisanfrage

**Commande**  
Order  
Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_

L \_\_\_\_\_ R \_\_\_\_\_  \_\_\_\_\_

**Ref. Porte-outil**  
Tool Holder  
Werkzeug-Halter \_\_\_\_\_

PCD  CVD

**Matière à usiner**  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

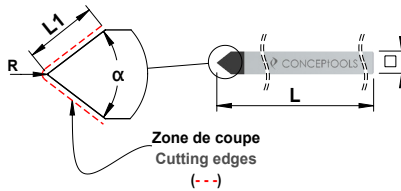
**Quantité**  
Quantity  
Quantität \_\_\_\_\_

PCD 	HSC	CVD
	0° λ	

**Burins**  
Turning tools  
Drehmeissel

**Exécution sur mesure**  
Custom-made design  
Ausführung auf Mass

**740**



**Biconique**  
Biconical  
Bikonische



**Demande de prix**  
Price request  
Preisanfrage

**Commande**  
Order  
Bestellung

L1 \_\_\_\_\_ R \_\_\_\_\_

L \_\_\_\_\_ α \_\_\_\_\_ °  \_\_\_\_\_

**Ref. Porte-outil**  
Tool Holder  
Werkzeug-Halter \_\_\_\_\_

PCD  CVD

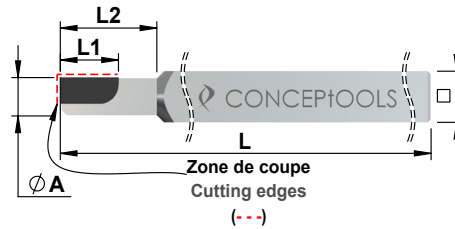
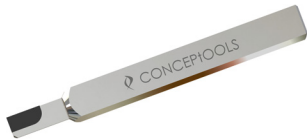
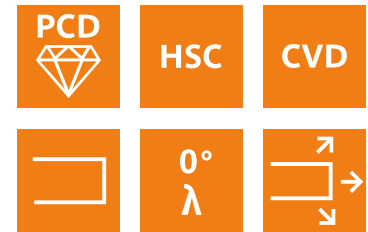
**Matière à usiner**  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**  
Quantity  
Quantität \_\_\_\_\_

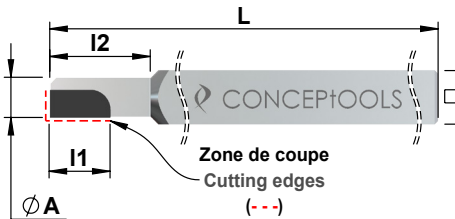
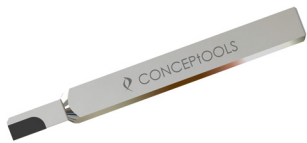
PCD 	HSC	CVD
	0° λ	

**750 G** à gauche / on the left / links

**Pour alésage intérieur**  
For milling internal parts  
Für Innenbohrung



**750 D** à droite / on the right / rechts



**Exécution sur mesure**  
Custom-made design  
Ausführung auf Mass

**Demande de prix**  
Price request  
Preis Anfrage

**Commande**  
Order  
Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_

**Gauche**  
Left  
Links

**Droite**  
Right  
Rechts

ØA \_\_\_\_\_ L \_\_\_\_\_  \_\_\_\_\_

**Ref. Porte-outil**

Tool Holder

Werkzeug-Halter \_\_\_\_\_

PCD

CVD

**Matière à usiner**

Material to be machined

Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**

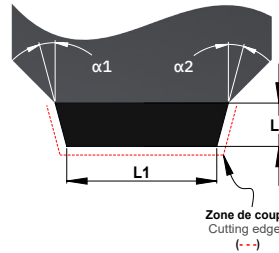
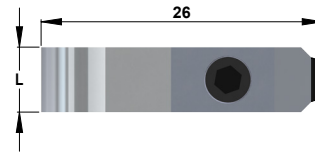
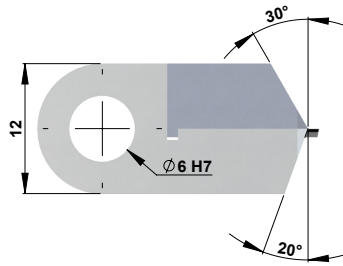
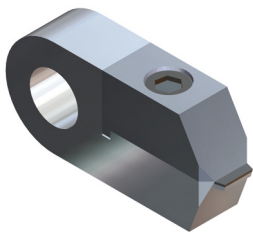
Quantity

Quantität \_\_\_\_\_

**Burins POSALUX**  
**POSALUX turning tools**  
**POSALUX Drehmeissel**

**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

**810 SP**



**Forme plate 3 coupes**  
**Flat 3 cuts**  
**Flachform Platte**  
**3 Schneiden**



**Demande de prix**  
**Price request**  
**Preis Anfrage**

**Commande**  
**Order**  
**Bestellung**

L1 \_\_\_\_\_ L2 \_\_\_\_\_

$\alpha 1$  \_\_\_\_\_°  $\alpha 2$  \_\_\_\_\_° L \_\_\_\_\_

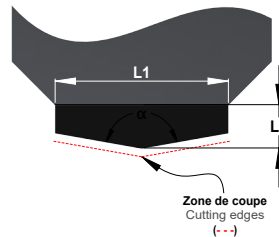
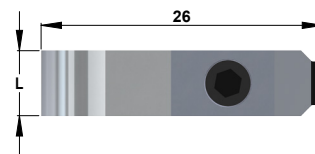
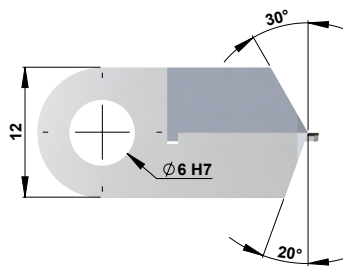
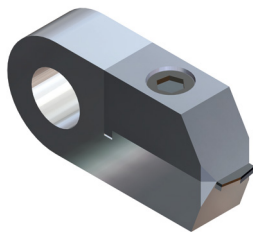
**PCD**  **CVD**

**Matière à usiner** \_\_\_\_\_ **Quantité** \_\_\_\_\_  
**Material to be machined** \_\_\_\_\_ **Quantity** \_\_\_\_\_  
**Werkstoff zum Bearbeiten** \_\_\_\_\_ **Quantität** \_\_\_\_\_

**Burins POSALUX**  
**POSALUX turning tools**  
**POSALUX Drehmeissel**

**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

**815 SP**



**Forme biconique**  
**Biconical**  
**Bikonische Form**



**Demande de prix**  
**Price request**  
**Preis Anfrage**

**Commande**  
**Order**  
**Bestellung**

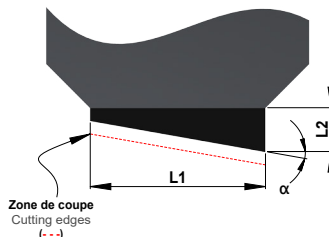
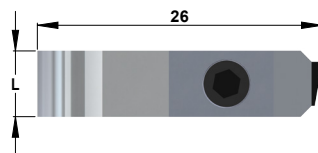
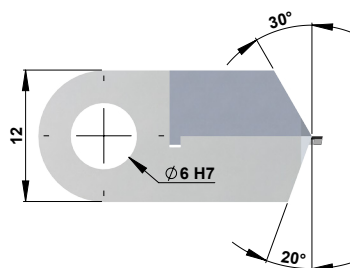
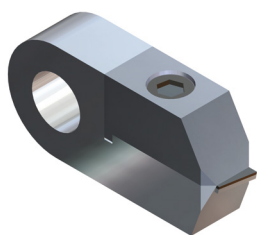
L1 \_\_\_\_\_ L2 \_\_\_\_\_

$\alpha 1$  \_\_\_\_\_°  $\alpha 2$  \_\_\_\_\_° L \_\_\_\_\_

**PCD**  **CVD**

**Matière à usiner** \_\_\_\_\_ **Quantité** \_\_\_\_\_  
**Material to be machined** \_\_\_\_\_ **Quantity** \_\_\_\_\_  
**Werkstoff zum Bearbeiten** \_\_\_\_\_ **Quantität** \_\_\_\_\_

**820 G** à gauche / on the left / links



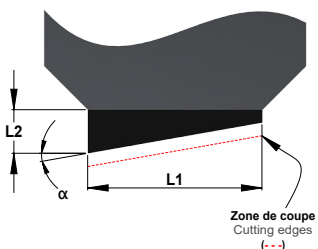
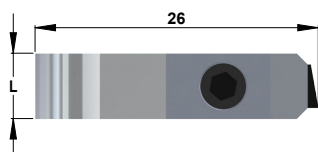
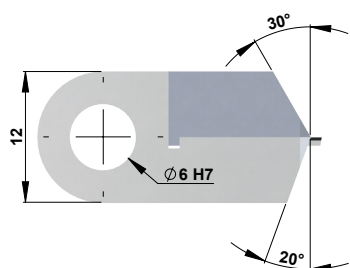
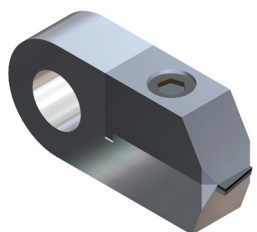
**Forme inclinée à gauche**

inclined left

Versionen schräg links



**820 D** à droite / on the right / rechts



**Forme inclinée à droite**

inclined right

Versionen schräg rechts



**Exécution sur mesure**  
 Custom-made design  
 Ausführung auf Mass

**Demande de prix**  
 Price request  
 Preis Anfrage

**Commande**  
 Order  
 Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_

$\alpha$  \_\_\_\_\_° L \_\_\_\_\_

PCD  CVD

**Gauche**  
 Left  
 Links

**Droite**  
 Right  
 Rechts

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

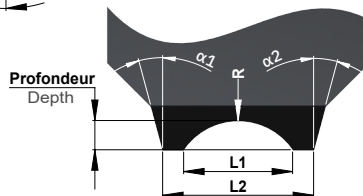
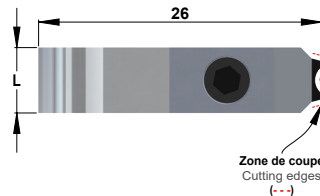
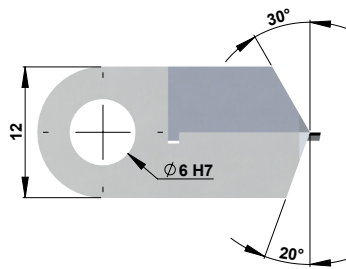
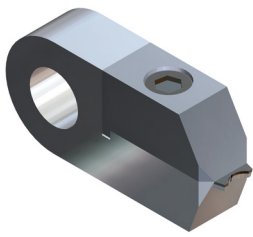
**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_



**Burins POSALUX**  
 POSALUX turning tools  
 POSALUX Drehmeissel

**Exécution sur mesure**  
 Custom-made design  
 Ausführung auf Mass

**830 SP**



**Forme concave**  
 Concave  
 Konkav Form



Demande de prix  
 Price request  
 Preisanfrage

Commande  
 Order  
 Bestellung

L1 \_\_\_\_\_ L2 \_\_\_\_\_ Prof. \_\_\_\_\_  
 $\alpha 1$  \_\_\_\_\_°  $\alpha 2$  \_\_\_\_\_° L \_\_\_\_\_ R \_\_\_\_\_

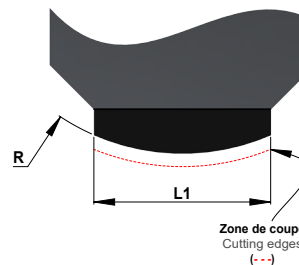
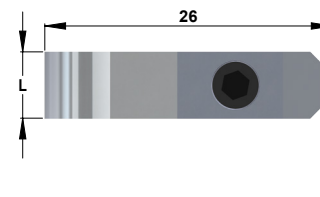
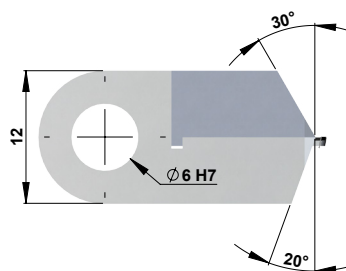
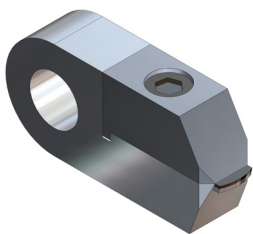
PCD  CVD

Matière à usiner \_\_\_\_\_ Quantité \_\_\_\_\_  
 Material to be machined \_\_\_\_\_ Quantity \_\_\_\_\_  
 Werkstoff zum Bearbeiten \_\_\_\_\_ Quantität \_\_\_\_\_

**Burins POSALUX**  
 POSALUX turning tools  
 POSALUX Drehmeissel

**Exécution sur mesure**  
 Custom-made design  
 Ausführung auf Mass

**840 SP**



**Forme convexe**  
 Convex  
 Konvexe Form



Demande de prix  
 Price request  
 Preisanfrage

Commande  
 Order  
 Bestellung

L1 \_\_\_\_\_ R \_\_\_\_\_ L \_\_\_\_\_

PCD  CVD

Matière à usiner \_\_\_\_\_ Quantité \_\_\_\_\_  
 Material to be machined \_\_\_\_\_ Quantity \_\_\_\_\_  
 Werkstoff zum Bearbeiten \_\_\_\_\_ Quantität \_\_\_\_\_

**INNOOTOOLS**  
Innovateur d'outils coupants



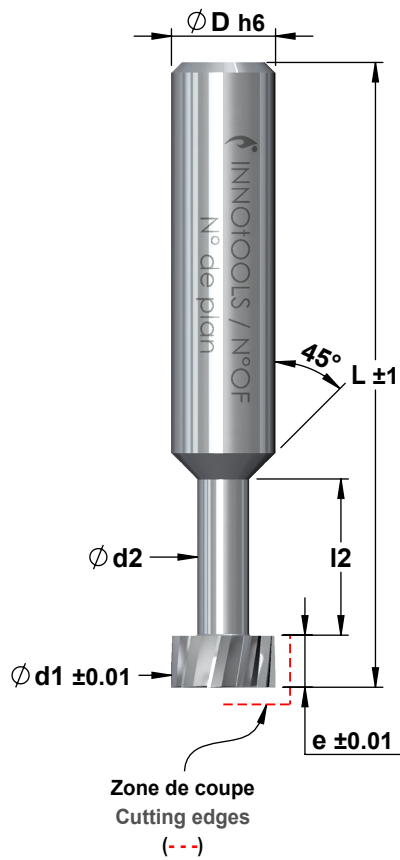
5

# 4

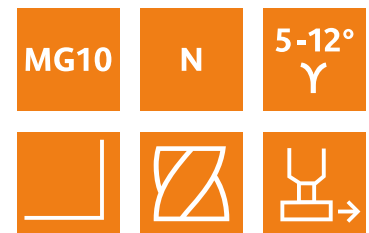
## Exécution sur mesure en Métal Dur (MD) Custom-made design in solid carbide (SC) Ausführungen nach Kundenwunsch - Auf Mass



<b>Fraises en «T» (MD)</b> T-slot cutters (SC) T-Nutenfräser (VHM)	<b>58-66</b>
<b>Fraises 1 dent pour pivot (MD)</b> End mills for pivot – 1 tooth (SC) Einzahnfräser für Schwenken (VHM)	<b>67</b>
<b>Forets étagés (MD)</b> Step drills (SC) Stufenbohrer (VHM)	<b>68-71</b>
<b>Forets 2 lèvres (MD)</b> Twist drills 2 flutes (SC) Spiralbohrer 2 Schneiden (VHM)	<b>72</b>
<b>Alésoirs (MD)</b> Reamers (SC) Reibahlen (VHM)	<b>73</b>
<b>Outils pour Willemin Macodel 701S</b> Tools for Willemin Macodel 701S Werkzeuge für Willemin Macodel 701S	<b>74-75</b>



2 tailles Hélicoïdales  
2 helical cuts  
2 spiralisiert Schneiden



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

Ød1 \_\_\_\_\_ e \_\_\_\_\_ l2 \_\_\_\_\_ Z \_\_\_\_\_

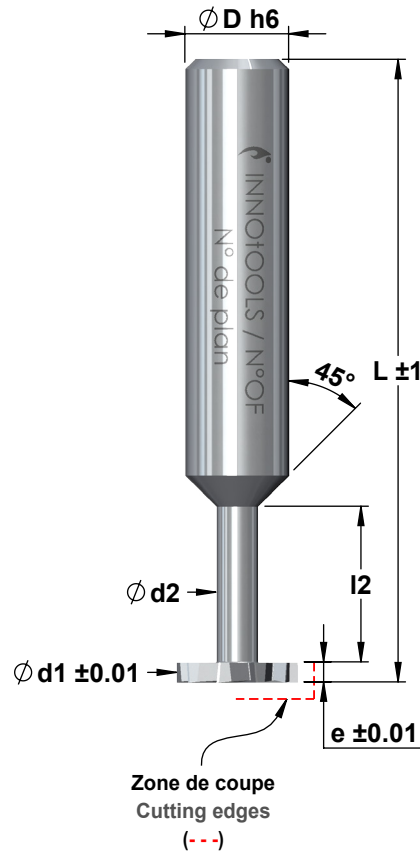
Ød2 \_\_\_\_\_ ØDh6 \_\_\_\_\_ L \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

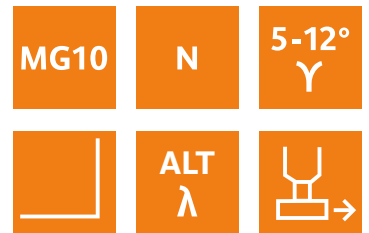
Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_



2 tailles Alternées  
2 alternating cuts  
2 abwechselnd  
Schneiden



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

Ød1 \_\_\_\_\_ e \_\_\_\_\_ l2 \_\_\_\_\_ Z \_\_\_\_\_

Ød2 \_\_\_\_\_ ØDh6 \_\_\_\_\_ L \_\_\_\_\_

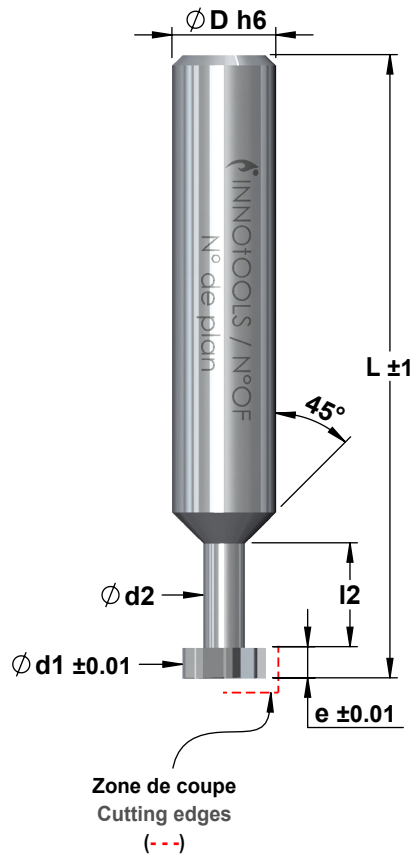
Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

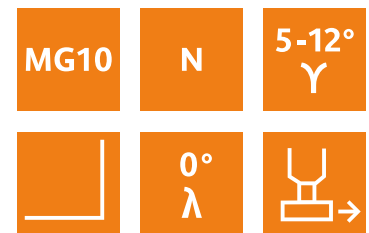
Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)

Autre  
Other  
Andere \_\_\_\_\_



2 tailles droite  
2 straight cuts  
2 gerade Schneiden



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

Ød1 \_\_\_\_\_ e \_\_\_\_\_ l2 \_\_\_\_\_ Z \_\_\_\_\_

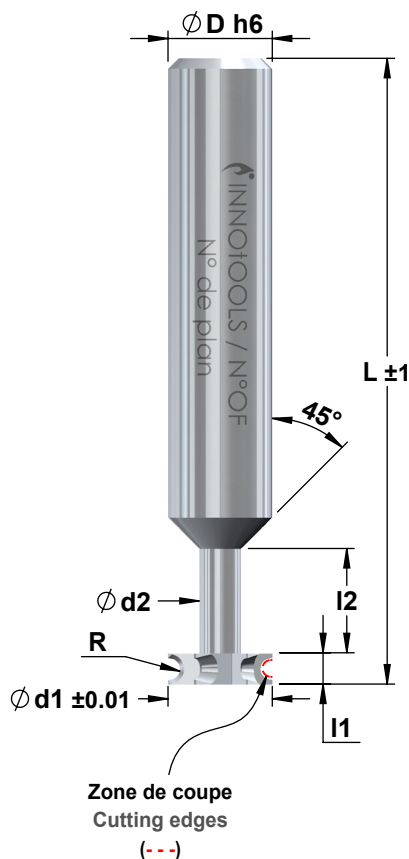
Ød2 \_\_\_\_\_ ØDh6 \_\_\_\_\_ L \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

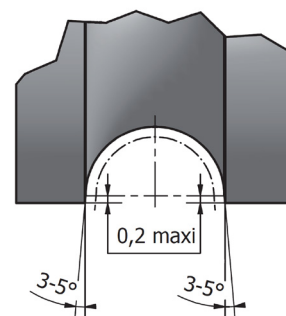
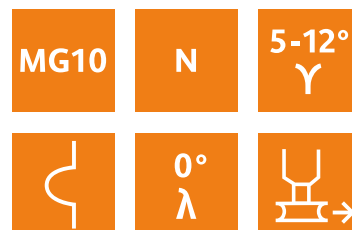
Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_



à rayon concave  
½ cercle  
Concave radius  
½ circle  
Mit radius Konkav  
½ Kreis



Demande de prix  
Price request  
Preisanfrage

Commande  
Order  
Bestellung

Droite  
Right  
Recht

Gauche  
Left  
links

Ød1 \_\_\_\_\_ l1 \_\_\_\_\_ R \_\_\_\_\_

Ød2 \_\_\_\_\_ l2 \_\_\_\_\_ Z \_\_\_\_\_

ØDh6 \_\_\_\_\_ L \_\_\_\_\_

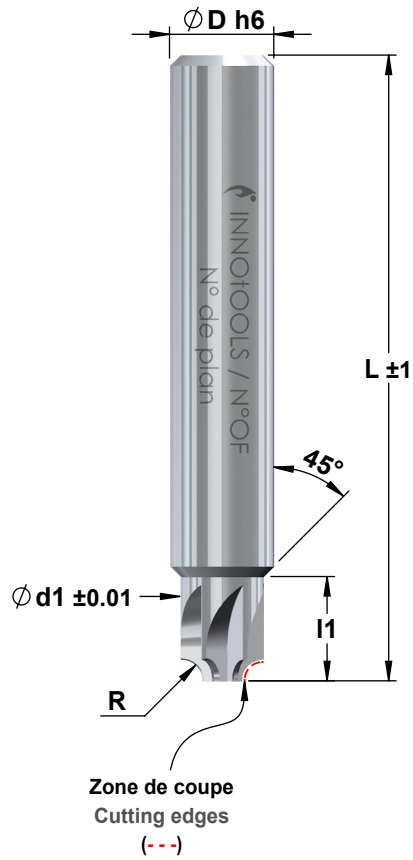
Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

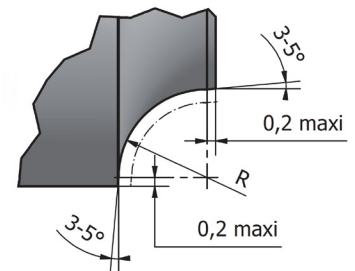
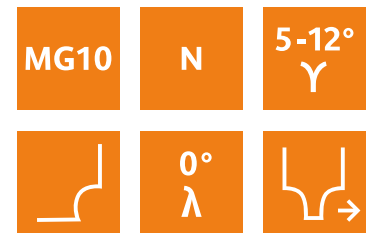
Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_





**à rayon concave**  
**¼ cercle**  
 Concave radius  
 ¼ circle  
 Mit radius Konkav  
 ¼ Kreis



**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

Ød1 \_\_\_\_\_ l1 \_\_\_\_\_ Z \_\_\_\_\_

ØDh6 \_\_\_\_\_ L \_\_\_\_\_ R \_\_\_\_\_

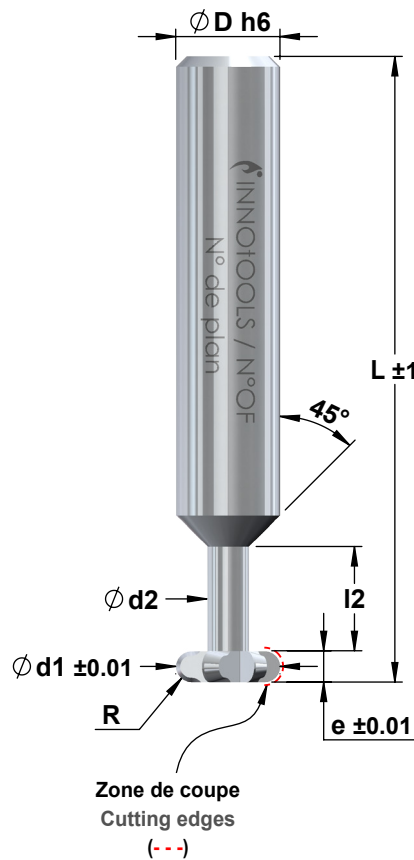
**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Revêtement / Coating / Beschichtungen**

- TiALN** (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 **AlTiN** (Aciers difficiles / Tough steel / Heikle Stähle)  
 **AlTiCrN** (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 **Autre**  
 Other  
 Andere \_\_\_\_\_

à rayon convexe  
Convex radius  
Mit Radius Konvex



MD MG10	N	6-14° Y
U	0° λ	↳

Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

Ød1 \_\_\_\_\_ e \_\_\_\_\_ R \_\_\_\_\_

Ød2 \_\_\_\_\_ l2 \_\_\_\_\_ Z \_\_\_\_\_

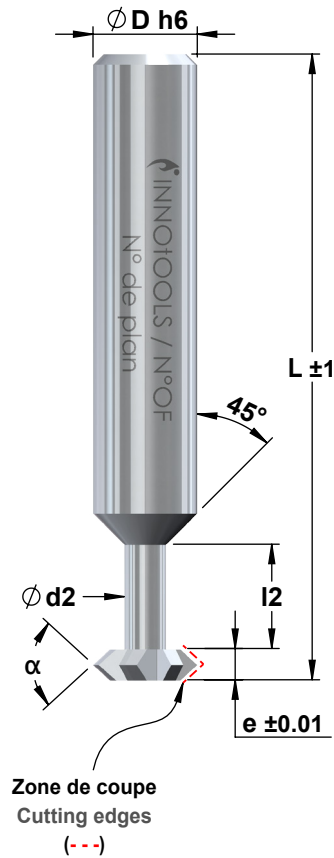
ØDh6 \_\_\_\_\_ L \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiAlN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_



Biconique  
Biconical  
Prismenfräser



MD MG10	N	6-14° Y
	0° $\lambda$	

Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

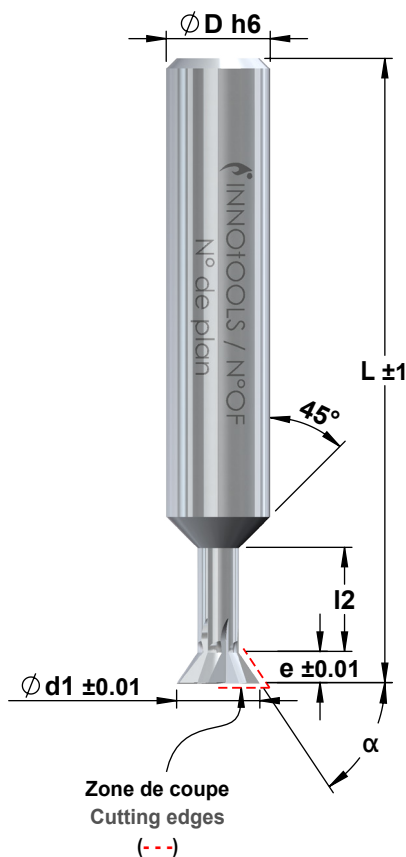
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 $\varnothing Dh6$  \_\_\_\_\_  $L$  \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_



Forme queue d'aigle  
Dovetail-type shape  
Schwalbenschwanz  
Form



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

$\varnothing d1$  \_\_\_\_\_  $e$  \_\_\_\_\_  $\alpha$  \_\_\_\_\_ °

Z \_\_\_\_\_ l2 \_\_\_\_\_

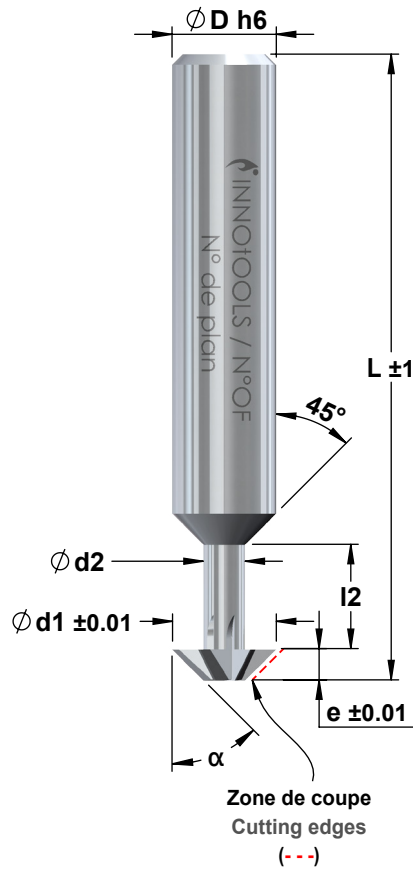
$\varnothing D h6$  \_\_\_\_\_ L \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_



Conique  
Conical  
Konische Version



MD MG10	N	6-14° Y
	0° $\lambda$	

Demande de prix  
Price request  
Preisanfrage

Commande  
Order  
Bestellung

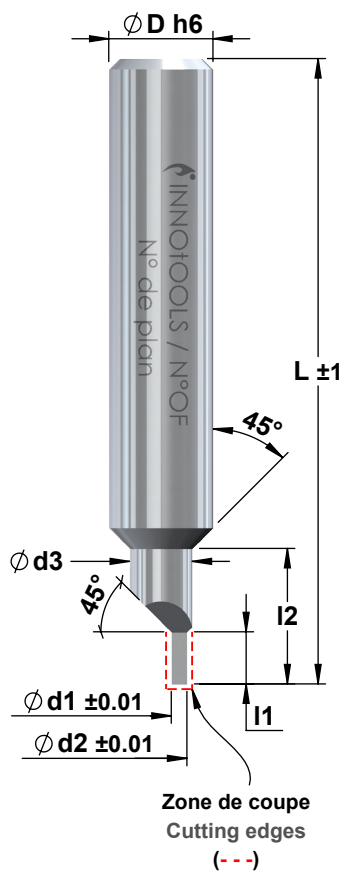
$\varnothing d1$  \_\_\_\_\_  $e$  \_\_\_\_\_  $\alpha$  \_\_\_\_\_ °  
 $\varnothing d2$  \_\_\_\_\_  $l2$  \_\_\_\_\_  $Z$  \_\_\_\_\_  
 $\varnothing Dh6$  \_\_\_\_\_  $L$  \_\_\_\_\_

Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_



**Pour pivot**  
**For pivot**  
**Für Schwenken**



La finition «MIROIR»:

- augmente la durée de vie d'outil.
- augmente la qualité d'état de surface de vos usinages.
- diminue le collage, appelé aussi «laitonnage».
- facilite l'usinage à sec.

The «MIRROR» finishing:

- increases the shelf-life of the tools
- increases the surface quality of your tools
- reduces sticking, also called «brass plating»
- facilitates dry machining

Feinstbearbeiten – Spiegelglanz

- erhöht die Standzeit
- erhöht die Oberflächen Qualität der Bearbeitung
- reduziert das Verkleben am Werkstück.
- vereinfacht die Trockenbearbeitung.

**Demande de prix**  
**Price request**  
**Preisanfrage**

**Commande**  
**Order**  
**Bestellung**

Ød1 \_\_\_\_\_ l1 \_\_\_\_\_ ØDh6 \_\_\_\_\_

Ød2 \_\_\_\_\_ l2 \_\_\_\_\_

Ød3 \_\_\_\_\_ L \_\_\_\_\_

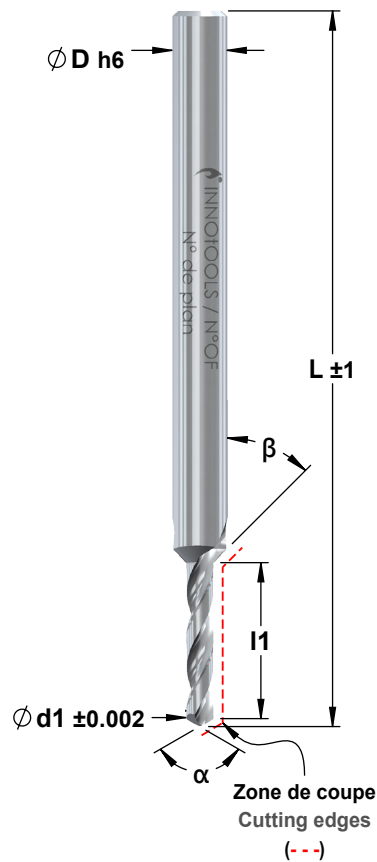
**Quantité**  
**Quantity**  
**Quantität** \_\_\_\_\_

**Matière à usiner**  
**Material to be machined**  
**Werkstoff zum Bearbeiten** \_\_\_\_\_

**Revêtement / Coating / Beschichtungen**

- TiALN** (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 **AlTiN** (Aciers difficiles / Tough steel / Heikle Stähle)  
 **AlTiCrN** (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 **Autre**  
**Other**  
**Andere** \_\_\_\_\_

1 étage  
1 step  
1 Stufe



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

Droite  
Right  
Recht

Gauche  
Left  
links

$\varnothing d1$  \_\_\_\_\_  $l1$  \_\_\_\_\_  $\alpha$  \_\_\_\_\_ °  
 $\varnothing D h6$  \_\_\_\_\_  $L$  \_\_\_\_\_  $\beta$  \_\_\_\_\_ °

Métal dur  
Solid Carbide  
VHM

Quantité  
Quantity  
Quantität \_\_\_\_\_

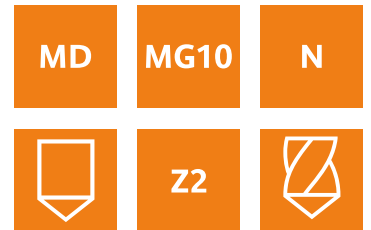
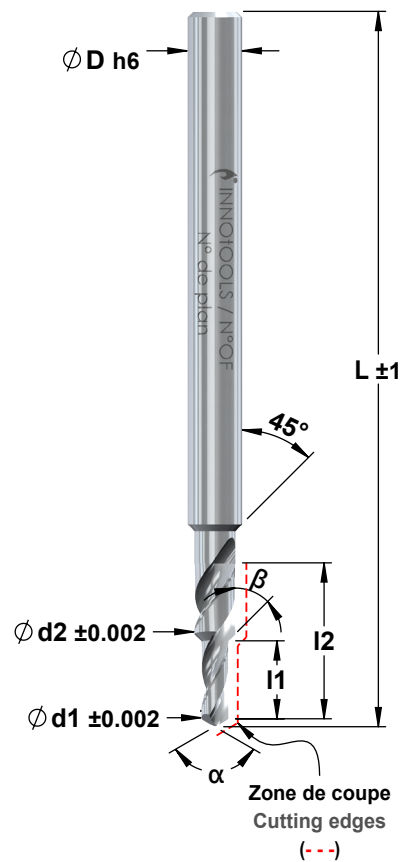
Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_



2 étages  
2 steps  
2 Stufen



Demande de prix  
Price request  
Preisanfrage

Commande  
Order  
Bestellung

Droite  
Right  
Recht

Gauche  
Left  
links

$\phi d1$  \_\_\_\_\_  $l1$  \_\_\_\_\_  $\alpha$  \_\_\_\_\_ °

$\phi d2$  \_\_\_\_\_  $l2$  \_\_\_\_\_  $\beta$  \_\_\_\_\_ °

$\phi Dh6$  \_\_\_\_\_  $L$  \_\_\_\_\_

Métal dur  
Solid Carbide  
VHM

Quantité  
Quantity  
Quantität \_\_\_\_\_

Revêtement / Coating / Beschichtungen

TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)

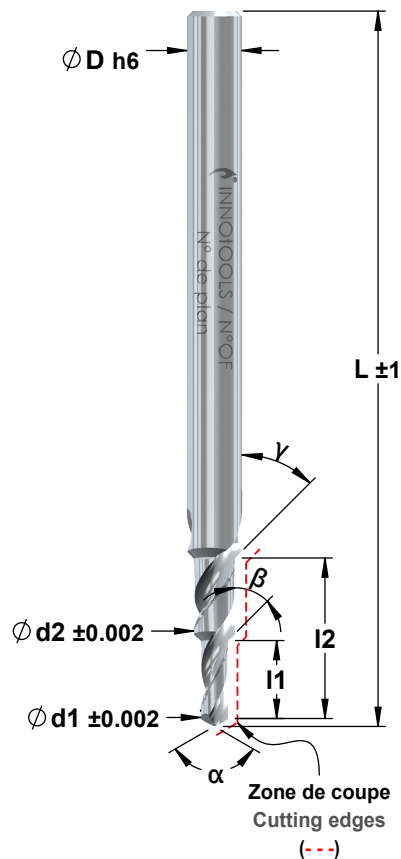
AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)

AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)

Autre  
Other  
Andere \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

3 étages  
3 steps  
3 Stufen



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

Droite  
Right  
Recht

Gauche  
Left  
links

Ød1 \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_ °

Ød2 \_\_\_\_\_ l2 \_\_\_\_\_ β \_\_\_\_\_ °

ØDh6 \_\_\_\_\_ L \_\_\_\_\_ γ \_\_\_\_\_ °

Métal dur  
Solid Carbide  
VHM

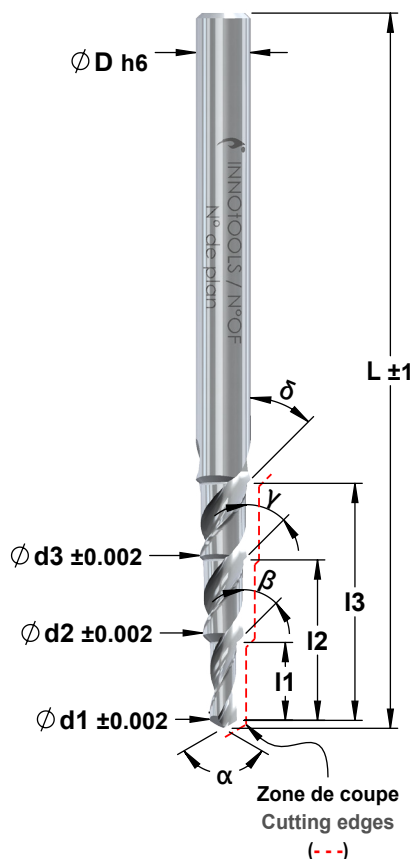
Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre  
Other  
Andere \_\_\_\_\_

4 étages  
4 steps  
4 Stufen



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

Droite  
Right  
Recht

Gauche  
Left  
links

$\phi d1$  \_\_\_\_\_  $l1$  \_\_\_\_\_  $\alpha$  \_\_\_\_\_ °

$\phi d2$  \_\_\_\_\_  $l2$  \_\_\_\_\_  $\beta$  \_\_\_\_\_ °

$\phi d3$  \_\_\_\_\_  $l3$  \_\_\_\_\_  $\gamma$  \_\_\_\_\_ °

$\phi Dh6$  \_\_\_\_\_  $L$  \_\_\_\_\_  $\delta$  \_\_\_\_\_ °

Métal dur  
Solid Carbide  
VHM

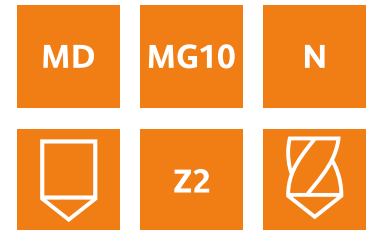
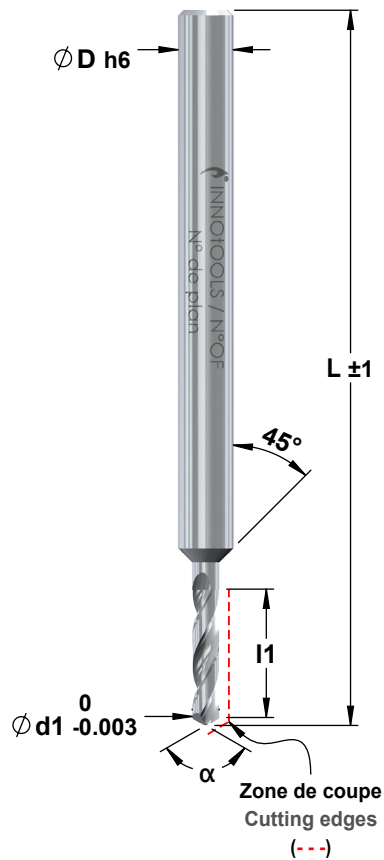
Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre  
Other  
Andere \_\_\_\_\_

**Corps renforcé Ø 3**  
**Reinforced shank Ø 3**  
**Verstärkter Schaft Ø 3**



**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

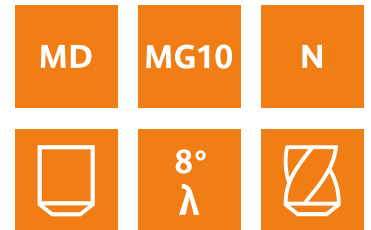
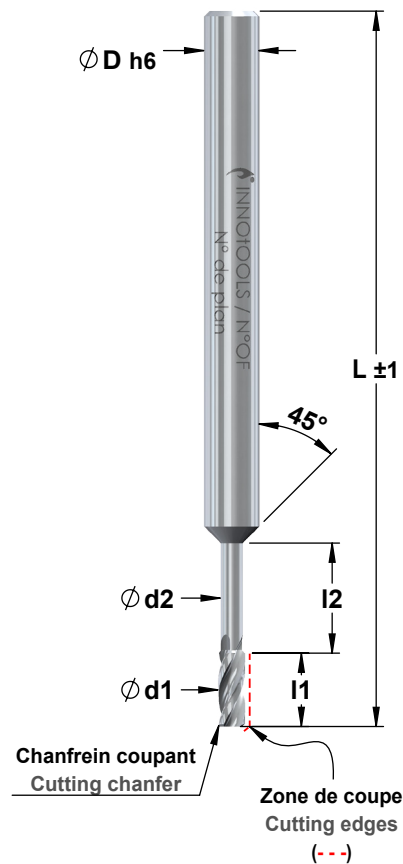
$\varnothing d1$  \_\_\_\_\_  $l1$  \_\_\_\_\_  $\alpha$  \_\_\_\_\_ °  
 $\varnothing Dh6$  \_\_\_\_\_  $L$  \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Revêtement / Coating / Beschichtungen**

- TiALN** (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN** (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN** (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre**  
 Other  
 Andere \_\_\_\_\_



<sup>T</sup>Tol: Ød1 ± 0.01

Demande de prix  
Price request  
Preisanfrage

Commande  
Order  
Bestellung

Hélice à droite  
Right helix  
Rechts Spiral

Hélice à gauche  
Left helix  
Links Spiral

Ød1<sup>T</sup> \_\_\_\_\_ l1 \_\_\_\_\_

Ød2 \_\_\_\_\_ l2 \_\_\_\_\_

ØDh6 \_\_\_\_\_ L \_\_\_\_\_

Coupe à droite  
Right cut  
Recht Schneiden

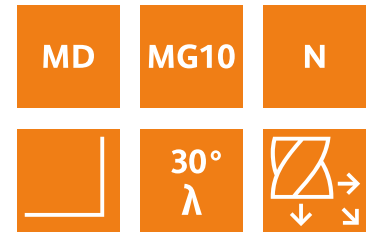
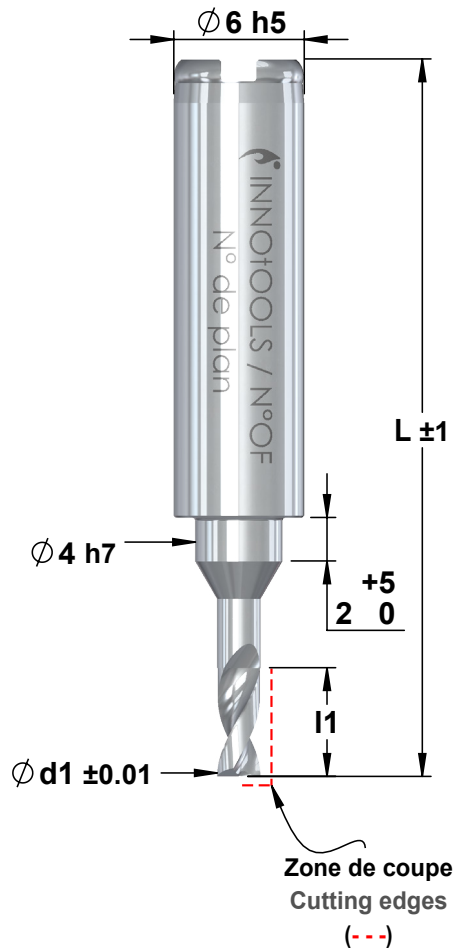
Coupe à gauche  
Left cut  
Links Schneiden

Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiAlN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre  
Other  
Andere \_\_\_\_\_



Demande de prix  
 Price request  
 Preisanfrage

Commande  
 Order  
 Bestellung

Droite  
 Right  
 Recht

Gauche  
 Left  
 links

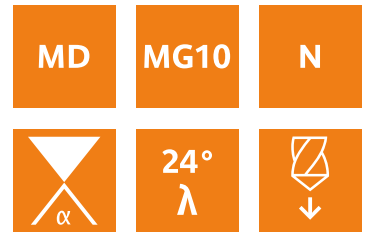
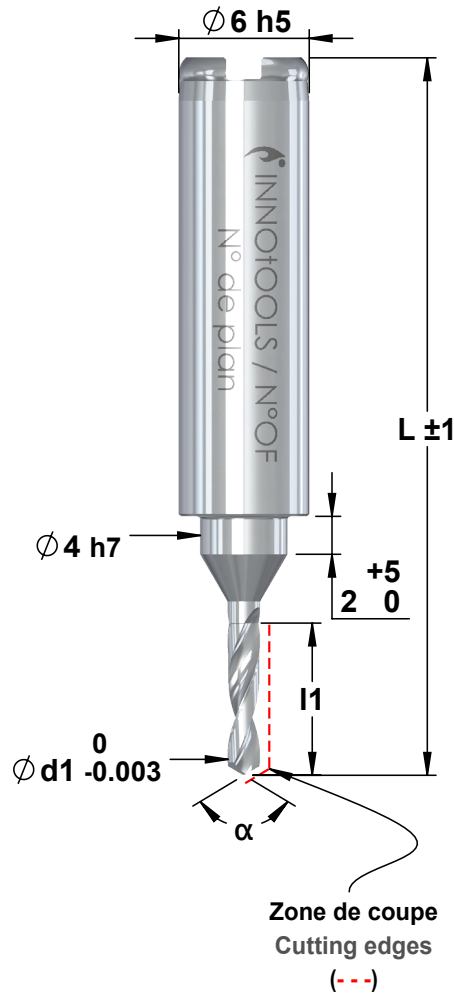
Ød1 \_\_\_\_\_ l1 \_\_\_\_\_  
 L \_\_\_\_\_

Quantité  
 Quantity  
 Quantität \_\_\_\_\_

Matière à usiner  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre  
 Other  
 Andere \_\_\_\_\_



Demande de prix  
 Price request  
 Preisanfrage

Commande  
 Order  
 Bestellung

Droite  
 Right  
 Recht

Gauche  
 Left  
 links

Ød1 \_\_\_\_\_ l1 \_\_\_\_\_

α \_\_\_\_\_ L \_\_\_\_\_

Quantité  
 Quantity  
 Quantität \_\_\_\_\_

Matière à usiner  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre  
 Other  
 Andere \_\_\_\_\_



**INNOOTOOLS**  
Innovateur d'outils coupants

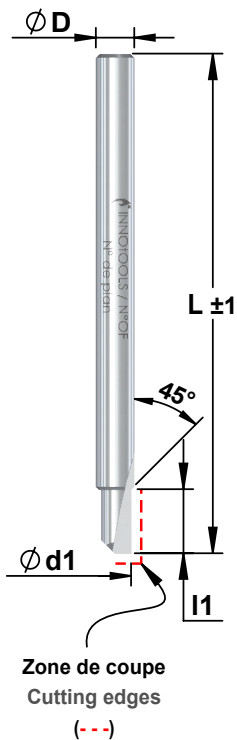


# 5

## Micro-Fraises en Métal Dur (MD) Micro end mills in solid carbide (SC) Mikrofräser in Vollhartmetall (VHM)



<b>Micro-Fraises 1 dent renforcée (MD)</b> <b>Micro end mills 1 reinforced tooth (SC)</b> <b>Mikrofräser 1 Zahn verstärkt (VHM)</b>		<b>78-79</b>
<b>Micro-Fraises Taillage 1/2 lune – 1 dent (MD)</b> <b>Micro end mills V-shape cutting – 1 tooth (SC)</b> <b>Mikrofräser Halbmond – 1 Zahn (VHM)</b>		<b>80-81</b>
<b>Micro-Fraises 2 dents (MD)</b> <b>Micro end mills 2 teeth (SC)</b> <b>Mikrofräser 2 Zähne (VHM)</b>		<b>82-86</b>
<b>Micro-Fraises hémisphérique – 2 dents (MD)</b> <b>Micro end mills with ball end – 2 teeth (SC)</b> <b>Mikrofräser Halbkugel Form – 2 Zähne (VHM)</b>		<b>87</b>
<b>Micro-Fraises 3 dents (MD)</b> <b>Micro end mills 3 teeth (SC)</b> <b>Mikrofräser 3 Zähne (VHM)</b>		<b>88-94</b>
<b>Micro-Fraises 4 dents (MD)</b> <b>Micro end mills 4 teeth (SC)</b> <b>Mikrofräser 4 Zähne (VHM)</b>		<b>95-97</b>
<b>Fraises dentaires spéciales (MD)</b> <b>Special dentistry end mills (SC)</b> <b>Zahnarztfräser spezial (VHM)</b>		<b>99-108</b>
<b>Fraises à angler (MD)</b> <b>Chamfering drills (SC)</b> <b>Fasenfräser (VHM)</b>		<b>109-111</b>
<b>Fraises à graver (MD)</b> <b>Engraving drills (SC)</b> <b>Gravierfräser (VHM)</b>		<b>112-116</b>
<b>Outils pour Willemin Macodel 701S</b> <b>Tools for Willemin Macodel 701S</b> <b>Werkzeuge für Willemin Macodel 701S</b>		<b>117-122</b>



Ød1e8	l1	ØDh6	L
0.20	0.40	3	39
0.30	0.60	3	39
0.40	0.80	3	39
0.50	1.00	3	39
0.60	1.20	3	39
0.70	1.40	3	39
0.80	1.60	3	39
0.90	1.80	3	39
1.00	2.00	3	39
1.10	2.20	3	39
1.20	2.40	3	39
1.30	2.60	3	39
1.40	2.80	3	39
1.50	3.00	3	39
1.60	3.20	3	39
1.70	3.40	3	39
1.80	3.60	3	39
1.90	3.80	3	39
2.00	4.00	3	39
2.10	4.20	3	39
2.20	4.40	3	39
2.30	4.60	3	39
2.40	4.80	3	39
2.50	5.00	3	39
2.60	5.20	3	39
2.70	5.40	3	39
2.80	5.60	3	39
2.90	5.80	3	39
3.00	6.00	4	39
4.00	6.00	6	40
5.00	7.00	6	40
6.00	8.00	6	40
8.00	10.0	8	50

**1 dent renforcée**  
**1 reinforced tooth**  
**1 Zahn verstärkt**

**l1 = 2 x Ø**



**La finition «MIROIR»:**

- augmente la durée de vie d'outil.
- augmente la qualité d'état de surface de vos usinages.
- diminue le collage, appelé aussi «laitonnage».
- facilite l'usinage à sec.

**Cette fraise est absolument idéale pour:**

- l'usinage en plongée
- le contourage
- le surfacage ou le travail en poche

**The «MIRROR» finishing:**

- increases the shelf-life of the tools
- increases the surface quality of your tools
- reduces sticking, also called «brass plating»
- facilitates dry machining

**This end mill is absolutely ideal for:**

- plunge milling
- contour milling
- face milling

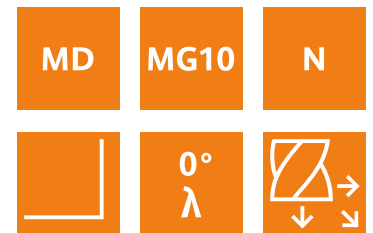
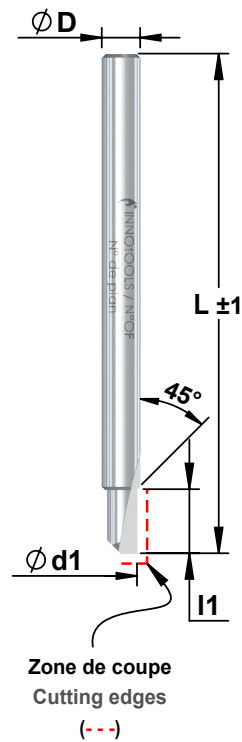
**FeinstBearbeiten – Spiegelglanz**

- erhöht die Standzeit
- erhöht die Oberflächenqualität der Bearbeitung
- reduziert das Verkleben am Werkstück.
- vereinfacht die Trockenbearbeitung.

**Diese Fräser sind ideal für:**

- Tauchfräsen
- Umfangsfräsen
- Top-Oberflächen
- Bearbeiten von Kammern

**1 dent renforcée**  
**1 reinforced tooth**  
**1 Zahn verstärkt**



**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

$\phi d1e8$  \_\_\_\_\_  $l1$  \_\_\_\_\_

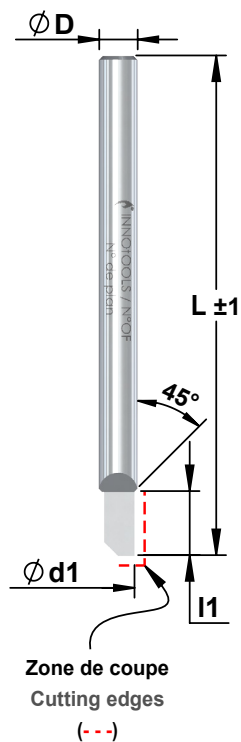
$\phi Dh6$  \_\_\_\_\_  $L$  \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Revêtement / Coating / Beschichtungen**

- TiALN** (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN** (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN** (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre**  
 Other  
 Andere \_\_\_\_\_



Ød1e8	I1	ØDh6	L
0.20	0.40	3	39
0.30	0.60	3	39
0.40	0.80	3	39
0.50	1.00	3	39
0.60	1.20	3	39
0.70	1.40	3	39
0.80	1.60	3	39
0.90	1.80	3	39
1.00	2.00	3	39
1.10	2.20	3	39
1.20	2.40	3	39
1.30	2.60	3	39
1.40	2.80	3	39
1.50	3.00	3	39
1.60	3.20	3	39
1.70	3.40	3	39
1.80	3.60	3	39
1.90	3.80	3	39
2.00	4.00	3	39
2.50	5.00	3	39
3.00	6.00	4	39

**1 dent – Taillage ½ lune**  
**1 tooth – V-shape cutting**  
**1 Zahn – Halbmond**



**La finition « MIROIR »:**

- augmente la durée de vie d'outil.
- augmente la qualité d'état de surface de vos usinages.
- diminue le collage, appelé aussi « laitonnage ».
- facilite l'usinage à sec.

**Cette fraise est absolument idéale pour:**

- l'usinage en plongée
- le contournage
- le surfacage ou le travail en poche

**The « MIRROR » finishing:**

- increases the shelf-life of the tools
- increases the surface quality of your tools
- reduces sticking, also called « brass plating »
- facilitates dry machining

**This end mill is absolutely ideal for:**

- plunge milling
- contour milling
- face milling

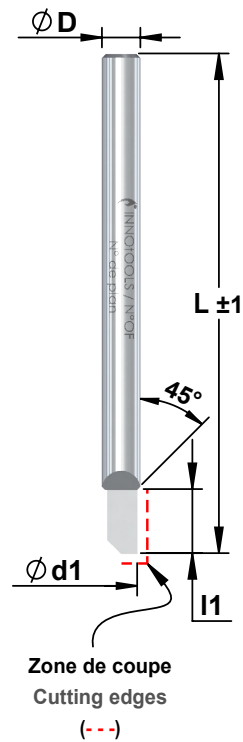
**FeinstBearbeiten – Spiegelglanz**

- erhöht die Standzeit
- erhöht die Oberflächenqualität der Bearbeitung
- reduziert das Verkleben am Werkstück.
- vereinfacht die Trockenbearbeitung.

**Diese Fräser sind ideal für:**

- Tauchfräsen
- Umfangsfräsen
- Top-Oberflächen
- Bearbeiten von Kammern

**1 dent – Taillage ½ lune**  
**1 tooth – V-shape cutting**  
**1 Zahn – Halbmond**



MD	MG10	N
	$0^\circ$ $\lambda$	

**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

$\phi d1e8$  \_\_\_\_\_  $l1$  \_\_\_\_\_

$\phi Dh6$  \_\_\_\_\_  $L$  \_\_\_\_\_

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

**Revêtement / Coating / Beschichtungen**

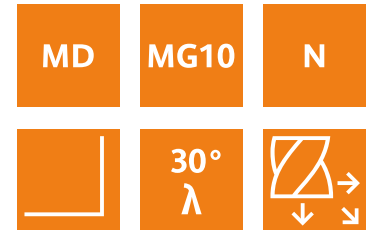
- TiALN** (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN** (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN** (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre**  
 Other  
 Andere \_\_\_\_\_



$\phi d1e8$	$l1$	$\phi Dh6$	L	Rev. TiALN
0.30	0.30	3	39	☑
0.40	0.40	3	39	☑
0.50	0.50	3	39	☑
0.60	0.60	3	39	☑
0.70	0.70	3	39	☑
0.80	0.80	3	39	☑
0.90	0.90	3	39	☑
1.00	1.00	3	39	☑
1.10	1.10	3	39	☑
1.20	1.20	3	39	☑
1.30	1.30	3	39	☑
1.40	1.40	3	39	☑
1.50	1.50	3	39	☑
1.60	1.60	3	39	☑
1.70	1.70	3	39	☑
1.80	1.80	3	39	☑
1.90	1.90	3	39	☑
2.00	2.00	3	39	☑
2.50	2.50	3	39	☑
3.00	3.00	6	39	☑
4.00	4.00	6	50	☑
5.00	5.00	6	50	☑
6.00	6.00	6	50	☑

**2 dents**  
 2 teeth  
 2 Zähne

**$l1 = 1 \times \phi$**



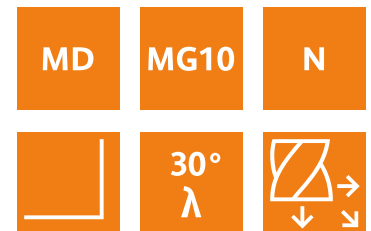




Ød1e8	l1	ØDh6	L	Rev. TiALN
0.10	0.15	3	39	
0.20	0.30	3	39	
0.25	0.35	3	39	
0.30	0.45	3	39	
0.40	0.60	3	39	
0.50	0.75	3	39	☑
0.60	0.90	3	39	☑
0.70	1.05	3	39	☑
0.80	1.20	3	39	☑
0.90	1.35	3	39	☑
1.00	1.50	3	39	☑
1.10	1.65	3	39	☑
1.20	1.80	3	39	☑
1.30	1.95	3	39	☑
1.40	2.10	3	39	☑
1.50	2.25	3	39	☑
1.60	2.40	3	39	☑
1.70	2.55	3	39	☑
1.80	2.70	3	39	☑
1.90	2.85	3	39	☑
2.00	3.00	3	39	☑
3.00	4.50	6	39	☑
3.50	5.00	6	50	☑
4.00	6.00	6	50	☑
4.50	7.00	6	50	☑
5.00	8.00	6	50	☑
6.00	9.00	6	50	☑
8.00	12.0	8	60	☑
9.00	13.0	10	60	☑
10.00	15.0	10	60	☑
12.00	18.0	12	70	☑

**2 dents**  
 2 teeth  
 2 Zähne

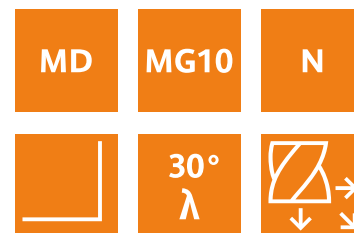
**l1 = 1.5 x Ø**





**2 dents**  
 2 teeth  
 2 Zähne

**l1 = 2 x Ø**

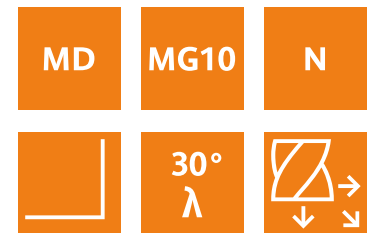


Ød1e8	l1	ØDh6	L	Rev. TiALN
0.20	0.40	3	39	
0.25	0.50	3	39	
0.30	0.60	3	39	
0.40	0.80	3	39	
0.50	1.00	3	39	☑
0.60	1.20	3	39	☑
0.70	1.40	3	39	☑
0.80	1.60	3	39	☑
0.90	1.80	3	39	☑
1.00	2.00	3	39	☑
1.10	2.20	3	39	☑
1.20	2.40	3	39	☑
1.30	2.60	3	39	☑
1.40	2.80	3	39	☑
1.50	3.00	3	39	☑
1.60	3.20	3	39	☑
1.70	3.40	3	39	☑
1.80	3.60	3	39	☑
1.90	3.80	3	39	☑
2.00	4.00	3	39	☑



**2 dents**  
 2 teeth  
 2 Zähne

**l1 = 3 x Ø**



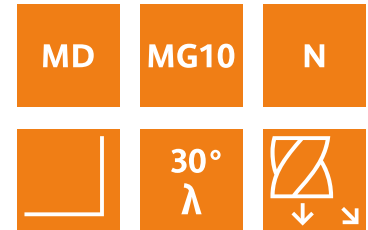
Ød1e8	l1	ØDh6	L	Rev. TiALN
0.10	0.25	3	39	
0.15	0.45	3	39	
0.20	0.50	3	39	
0.25	0.75	3	39	
0.30	1.00	3	39	
0.40	1.20	3	39	
0.50	1.50	3	39	☑
0.60	2.00	3	39	☑
0.70	2.00	3	39	☑
0.75	2.00	3	39	☑
0.80	2.50	3	39	☑
0.90	2.50	3	39	☑
1.00	3.00	3	39	☑
1.10	3.00	3	39	☑
1.20	4.00	3	39	☑
1.30	4.00	3	39	☑
1.40	4.00	3	39	☑
1.50	4.50	3	39	☑
1.60	4.50	3	39	☑
1.70	5.00	3	39	☑

Ød1e8	l1	ØDh6	L	Rev. TiALN
1.80	6.00	3	39	
1.90	6.00	3	39	
2.00	6.00	3	39	
2.10	6.00	3	39	
2.20	6.50	3	39	
2.30	7.00	3	39	☑
2.40	7.00	3	39	☑
2.50	7.50	3	39	☑
2.60	7.50	3	39	☑
2.70	8.00	3	39	☑
2.80	8.00	3	39	☑
2.90	8.00	3	39	☑
3.00	9.00	6	50	☑
3.50	10.0	6	50	☑
4.00	12.0	6	50	☑
4.50	13.0	6	50	☑
5.00	15.0	6	50	☑
6.00	18.0	6	50	☑
8.00	24.0	8	60	☑
9.00	27.0	10	60	☑
10.00	30.0	10	75	☑
12.00	36.0	12	83	☑



**2 dents**  
 2 teeth  
 2 Zähne

**l1 = 5 x Ø**



Ød1e8	l1	ØDh6	L	Rev. TiALN
0.30	1.50	3	39	
0.40	2.00	3	39	☑
0.50	2.50	3	39	☑
0.60	3.00	3	39	☑
0.70	3.50	3	39	☑
0.80	4.00	3	39	☑
0.90	4.50	3	39	☑
1.00	5.00	3	39	☑
1.10	5.50	3	39	☑
1.20	6.00	3	39	☑
1.50	7.50	3	39	☑
2.00	10.0	3	39	☑

**Micro-Fraises**  
**Micro end mills**  
**Mikrofräser**

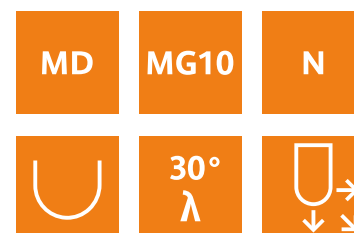
**215-R**



Ød1e8	l1	R	ØDh6	L	Rev. TiALN
0.20	0.30	0.10	3	39	☑
0.25	0.35	0.125	3	39	☑
0.30	0.45	0.15	3	39	☑
0.40	0.60	0.20	3	39	☑
0.50	0.75	0.25	3	39	☑
0.60	0.90	0.30	3	39	☑
0.70	1.05	0.35	3	39	☑
0.80	1.20	0.40	3	39	☑
0.90	1.35	0.45	3	39	☑
1.00	1.50	0.50	3	39	☑
1.10	1.65	0.55	3	39	☑
1.20	1.80	0.60	3	39	☑
1.30	1.95	0.65	3	39	☑
1.40	2.10	0.70	3	39	☑
1.50	2.25	0.75	3	39	☑
1.60	2.40	0.80	3	39	☑
1.80	2.70	0.90	3	39	☑
2.00	3.00	1.00	3	39	☑

**2 dents – Hémisphérique**  
 2 teeth – With ball end  
 2 Zähne – Halbkugel Form

**l1 = 1.5 x Ø**



**Micro-Fraises**  
**Micro end mills**  
**Mikrofräser**

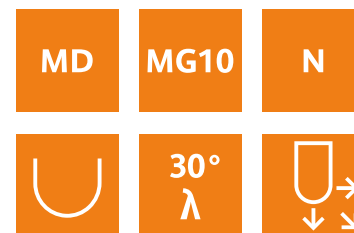
**230-R**

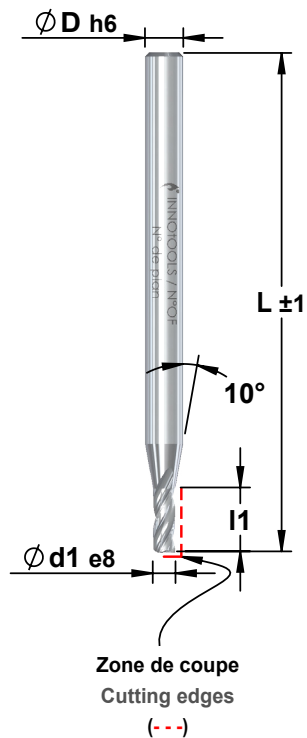


Ød1e8	l1	R	ØDh6	L	Rev. TiALN
0.30	1.00	0.15	3	39	☑
0.40	1.00	0.20	3	39	☑
0.50	1.50	0.25	3	39	☑
0.60	1.50	0.30	3	39	☑
0.70	2.00	0.35	3	39	☑
0.80	2.00	0.40	3	39	☑
0.90	2.50	0.45	3	39	☑
1.00	3.00	0.50	3	39	☑
1.20	4.00	0.60	3	39	☑
1.40	4.00	0.70	3	39	☑
1.50	4.00	0.75	3	39	☑
1.60	4.00	0.80	3	39	☑
1.80	5.00	0.90	3	39	☑
2.00	6.00	1.00	3	39	☑
2.10	6.00	1.05	3	39	☑
2.20	6.00	1.10	3	39	☑
2.50	7.00	1.25	3	39	☑
2.80	7.00	1.40	3	39	☑

**2 dents – Hémisphérique**  
 2 teeth – With ball end  
 2 Zähne – Halbkugel Form

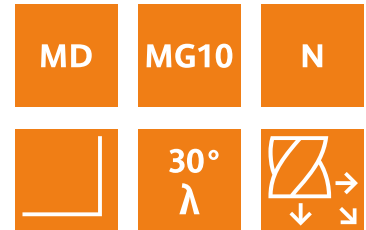
**l1 = 3 x Ø**





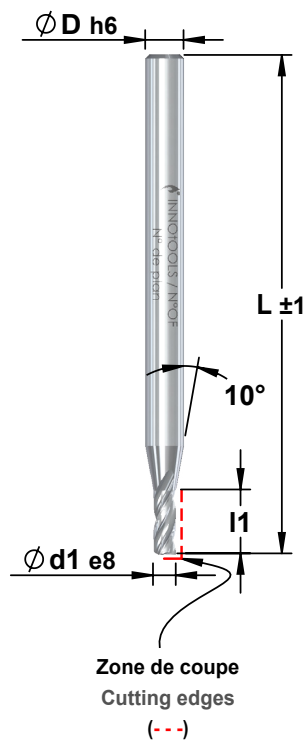
**3 dents**  
 3 teeth  
 3 Zähne

**l1 = 1 x Ø**



Ød1e8	l1	ØDh6	L	Rev. TiALN
0.40	0.40	3	39	
0.45	0.45	3	39	
0.50	0.50	3	39	☑
0.60	0.60	3	39	☑
0.70	0.70	3	39	☑
0.80	0.80	3	39	☑
0.90	0.90	3	39	☑
1.00	1.00	3	39	☑
1.10	1.10	3	39	☑
1.20	1.20	3	39	☑
1.30	1.30	3	39	☑
1.40	1.40	3	39	☑
1.50	1.50	3	39	☑
1.60	1.60	3	39	☑
1.70	1.70	3	39	☑
1.80	1.80	3	39	☑
1.90	1.90	3	39	☑

Ød1e8	l1	ØDh6	L	Rev. TiALN
2.00	2.60	3	39	☑
2.20	3.00	3	39	☑
2.50	3.30	3	39	☑
2.80	3.50	3	39	☑
2.90	3.50	3	39	☑
3.00	3.00	6	50	☑
3.50	3.50	6	50	☑
4.00	4.00	6	50	☑
4.50	4.50	6	50	☑
5.00	5.00	6	50	☑
6.00	6.00	6	50	☑
8.00	8.00	8	60	☑
9.00	9.00	10	60	☑
10.0	10.0	10	60	☑
11.0	11.0	12	70	☑
12.0	12.0	12	70	☑



**3 dents**  
 3 teeth  
 3 Zähne

**l1 = 2 x Ø**

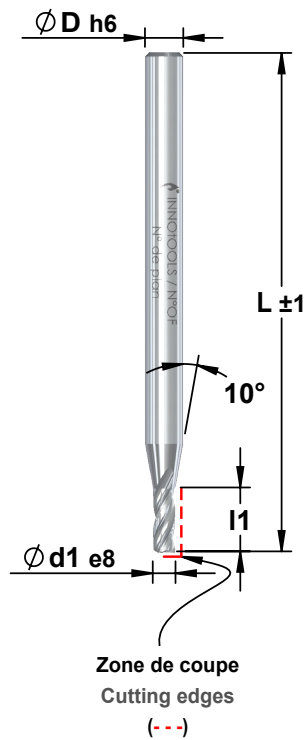


MD	MG10	N
	30°	

Ød1e8	l1	ØDh6	L	Rev. TiALN
0.40	0.80	3	39	☑
0.50	1.00	3	39	☑
0.60	1.20	3	39	☑
0.70	1.40	3	39	☑
0.80	1.60	3	39	☑
0.90	1.80	3	39	☑
1.00	2.00	3	39	☑
1.10	2.20	3	39	☑
1.20	2.40	3	39	☑
1.30	2.60	3	39	☑
1.40	2.80	3	39	☑
1.50	3.00	3	39	☑
1.60	3.20	3	39	☑
1.70	3.40	3	39	☑
1.80	3.60	3	39	☑
1.90	3.80	3	39	☑
2.00	4.00	3	39	☑
2.10	4.20	3	39	☑
2.20	4.40	3	39	☑

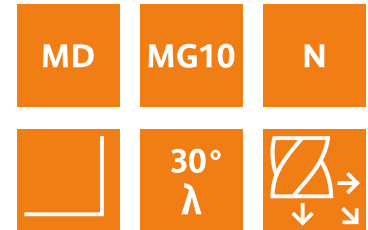
Ød1e8	l1	ØDh6	L	Rev. TiALN
2.30	4.60	3	39	☑
2.40	4.80	3	39	☑
2.50	5.00	3	39	☑
2.60	5.20	3	39	☑
2.70	5.40	3	39	☑
2.80	5.60	3	39	☑
2.90	5.80	3	39	☑
3.00	6.00	6	50	☑
3.50	7.00	6	50	☑
4.00	8.00	6	50	☑
4.50	9.00	6	50	☑
5.00	10.00	6	50	☑
6.00	12.00	6	50	☑
8.00	16.00	8	60	☑
9.00	18.00	10	60	☑
10.00	20.00	10	60	☑
11.00	22.00	12	70	☑
12.00	24.00	12	70	☑





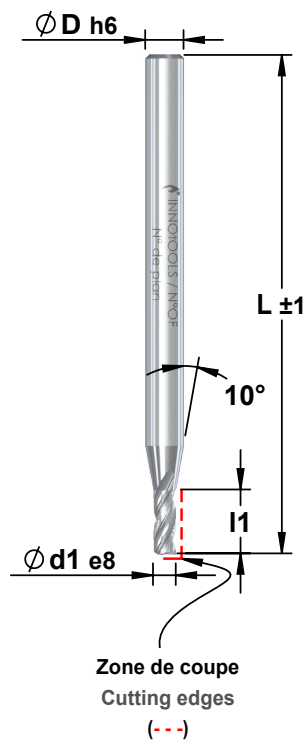
**3 dents**  
 3 teeth  
 3 Zähne

**l1 = 3 x Ø**



Ød1e8	l1	ØDh6	L	Rev. TiALN
0.30	0.90	3	39	
0.40	1.20	3	39	
0.50	1.50	3	39	☑
0.60	2.00	3	39	☑
0.70	2.00	3	39	☑
0.75	2.00	3	39	☑
0.80	2.50	3	39	☑
0.90	2.50	3	39	☑
1.00	3.00	3	39	☑
1.10	3.30	3	39	☑
1.20	4.00	3	39	☑
1.30	4.00	3	39	☑
1.40	4.00	3	39	☑
1.50	4.50	3	39	☑
1.60	4.50	3	39	☑
1.70	5.00	3	39	☑
1.80	6.00	3	39	☑
1.90	6.00	3	39	☑

Ød1e8	l1	ØDh6	L	Rev. TiALN
2.00	6.00	3	39	☑
2.10	6.00	3	39	☑
2.20	6.50	3	39	☑
2.30	7.00	3	39	☑
2.40	7.00	3	39	☑
2.50	7.50	3	39	☑
2.60	7.50	3	39	☑
2.70	8.00	3	39	☑
2.80	8.00	3	39	☑
2.90	8.50	3	39	☑
3.00	9.00	6	50	☑
3.50	10.0	6	50	☑
4.00	12.0	6	50	☑
4.50	13.0	6	50	☑
5.00	15.0	6	50	☑
6.00	18.0	6	50	☑
8.00	24.0	8	60	☑

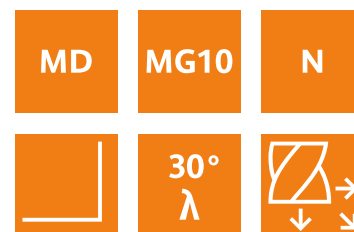
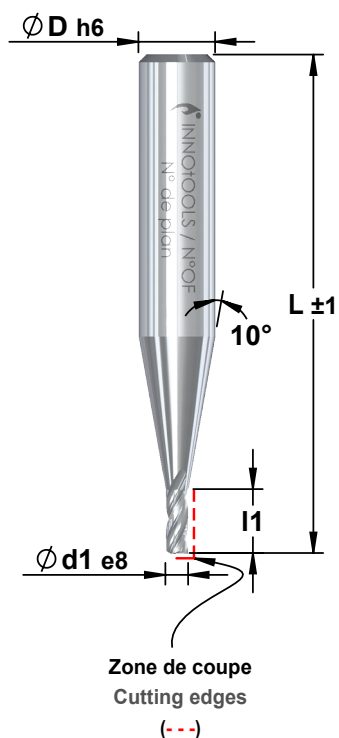


3 dents  
3 teeth  
3 Zähne

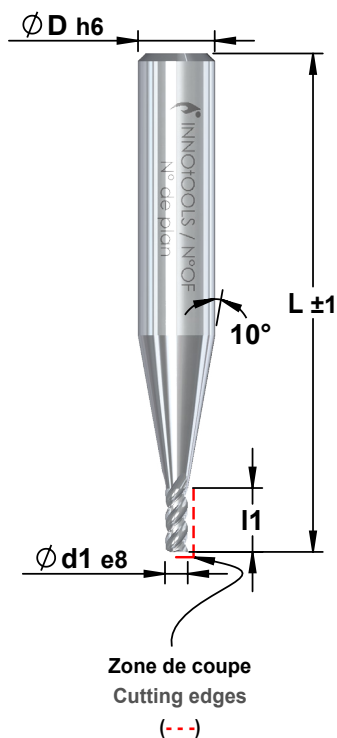
$l1 = 4 \times \varnothing$



Ød1e8	l1	ØDh6	L	Rev. TiALN
0.40	1.60	3	39	☑
0.50	2.00	3	39	☑
0.60	2.50	3	39	☑
0.70	2.80	3	39	☑
0.80	3.00	3	39	☑
0.90	3.50	3	39	☑
1.00	4.00	3	39	☑
1.10	4.50	3	39	☑
1.20	4.80	3	39	☑
1.30	5.00	3	39	☑
1.40	5.50	3	39	☑
1.50	6.00	3	39	☑
1.60	6.50	3	39	☑
1.70	6.80	3	39	☑
1.80	7.00	3	39	☑
1.90	7.50	3	39	☑
2.00	8.00	3	39	☑
2.50	10.0	3	39	☑
3.00	12.0	6	50	☑
4.00	16.0	6	50	☑
5.00	20.0	6	50	☑
6.00	24.0	6	50	☑



Ød1e8	l1	ØDh6	L	Rev. TiALN
1.00	3.00	6	39	☑
1.50	3.00	6	39	☑
2.00	3.00	6	39	☑
2.50	3.00	6	39	☑
3.00	4.00	6	39	☑
3.50	4.00	6	39	☑
4.00	5.00	6	39	☑
5.00	6.00	6	39	☑
6.00	7.00	6	39	☑
8.00	12.0	8	50	☑
10.0	12.0	10	50	☑
12.0	15.0	12	80	☑



**Corps Ø 6**

Shank Ø 6

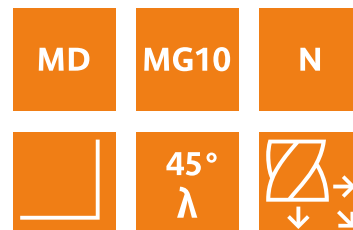
Schaft Ø 6

**Hélice à 45°**

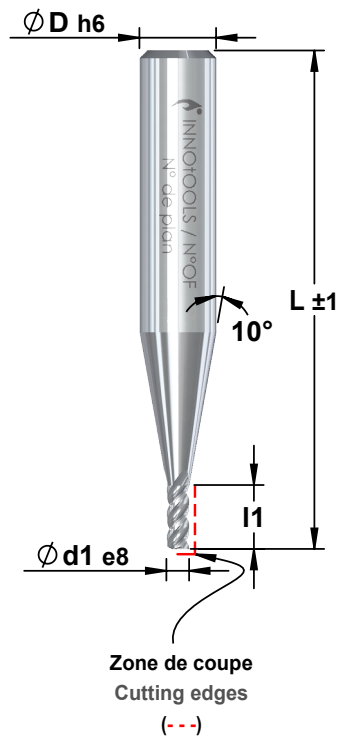
Helix angle 45°

Spiralwinkel 45°

**$l1 = 2 \times \varnothing$**



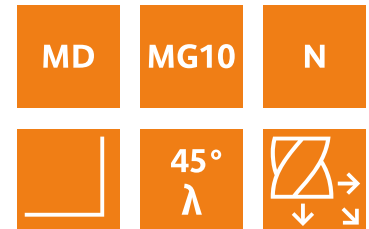
$\varnothing d1e8$	$l1$	$\varnothing Dh6$	L	Rev.	TiALN	$\varnothing d1e8$	$l1$	$\varnothing Dh6$	L	Rev.	TiALN
0.50	1.00	6	39	✓		2.10	4.20	6	39	✓	
0.60	1.20	6	39	✓		2.20	4.40	6	39	✓	
0.70	1.40	6	39	✓		2.30	4.60	6	39	✓	
0.80	1.60	6	39	✓		2.40	4.80	6	39	✓	
0.90	1.80	6	39	✓		2.50	5.00	6	39	✓	
1.00	2.00	6	39	✓		2.60	5.20	6	39	✓	
1.10	2.20	6	39	✓		2.70	5.40	6	39	✓	
1.20	2.40	6	39	✓		2.80	5.60	6	39	✓	
1.30	2.60	6	39	✓		2.90	5.80	6	39	✓	
1.40	2.80	6	39	✓		3.00	6.00	6	39	✓	
1.50	3.00	6	39	✓		3.50	7.00	6	39	✓	
1.60	3.20	6	39	✓		4.00	8.00	6	39	✓	
1.70	3.40	6	39	✓		4.50	9.00	6	39	✓	
1.80	3.60	6	39	✓		5.00	10.00	6	39	✓	
1.90	3.80	6	39	✓		6.00	12.00	6	39	✓	
2.00	4.00	6	39	✓							



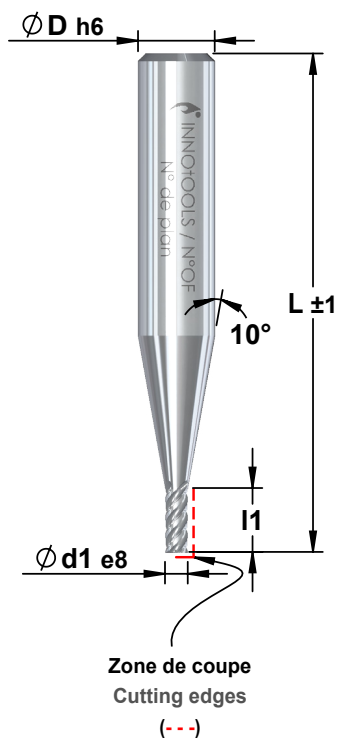
**Corps Ø 6**  
 Shank Ø 6  
 Schaft Ø 6

**Hélice à 45°**  
 Helix angle 45°  
 Spiralwinkel 45°

**l1 = 3 x Ø**



Ød1e8	l1	ØDh6	L	Rev. TiALN	Ød1e8	l1	ØDh6	L	Rev. TiALN
0.50	1.50	6	39	☑	2.10	6.30	6	39	☑
0.60	1.80	6	39	☑	2.20	6.60	6	39	☑
0.70	2.10	6	39	☑	2.30	6.90	6	39	☑
0.80	2.40	6	39	☑	2.40	7.20	6	39	☑
0.90	2.70	6	39	☑	2.50	7.50	6	39	☑
1.00	3.00	6	39	☑	2.60	7.80	6	39	☑
1.10	3.30	6	39	☑	2.70	8.10	6	39	☑
1.20	3.60	6	39	☑	2.80	8.40	6	39	☑
1.30	3.90	6	39	☑	2.90	8.70	6	39	☑
1.40	4.20	6	39	☑	3.00	9.00	6	39	☑
1.50	4.50	6	39	☑	3.50	10.5	6	39	☑
1.60	4.80	6	39	☑	4.00	12.0	6	39	☑
1.70	5.10	6	39	☑	4.50	13.5	6	39	☑
1.80	5.40	6	39	☑	5.00	15.0	6	39	☑
1.90	5.70	6	39	☑	6.00	18.0	6	39	☑
2.00	6.00	6	39	☑					



**Corps Ø 6**

Shank Ø 6

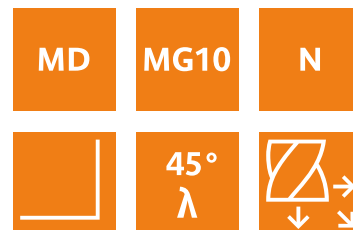
Schaft Ø 6

**Hélice à 45°**

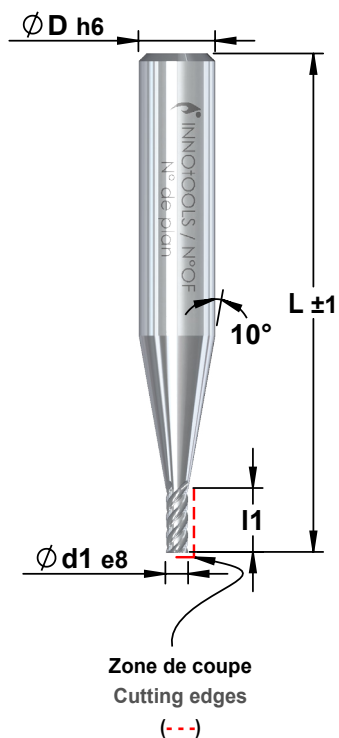
Helix angle 45°

Spiralwinkel 45°

**l1 = 2 x Ø**



Ød1e8	l1	ØDh6	L	Rev. TiALN	Ød1e8	l1	ØDh6	L	Rev. TiALN
0.50	1.00	6	39	☑	2.10	4.20	6	39	☑
0.60	1.20	6	39	☑	2.20	4.40	6	39	☑
0.70	1.40	6	39	☑	2.30	4.60	6	39	☑
0.80	1.60	6	39	☑	2.40	4.80	6	39	☑
0.90	1.80	6	39	☑	2.50	5.00	6	39	☑
1.00	2.00	6	39	☑	2.60	5.20	6	39	☑
1.10	2.20	6	39	☑	2.70	5.40	6	39	☑
1.20	2.40	6	39	☑	2.80	5.60	6	39	☑
1.30	2.60	6	39	☑	2.90	5.80	6	39	☑
1.40	2.80	6	39	☑	3.00	6.00	6	39	☑
1.50	3.00	6	39	☑	3.50	7.00	6	39	☑
1.60	3.20	6	39	☑	4.00	8.00	6	39	☑
1.70	3.40	6	39	☑	4.50	9.00	6	39	☑
1.80	3.60	6	39	☑	5.00	10.00	6	39	☑
1.90	3.80	6	39	☑	6.00	12.00	6	39	☑
2.00	4.00	6	39	☑					



**Corps Ø 6**

Shank Ø 6

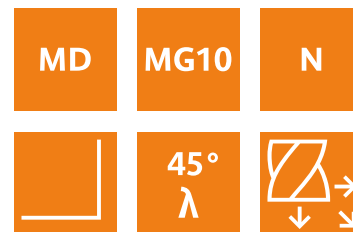
Schaft Ø 6

**Hélice à 45°**

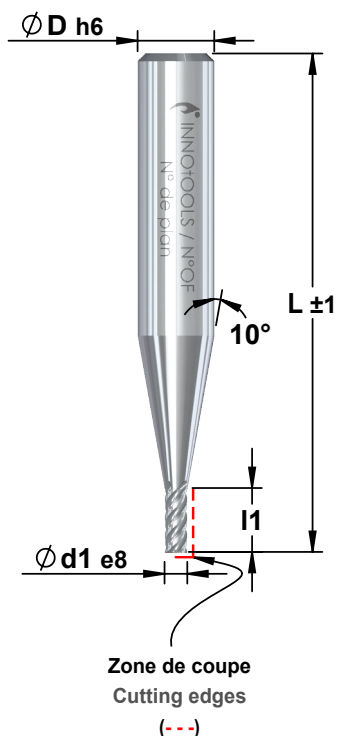
Helix angle 45°

Spiralwinkel 45°

**l1 = 3 x Ø**



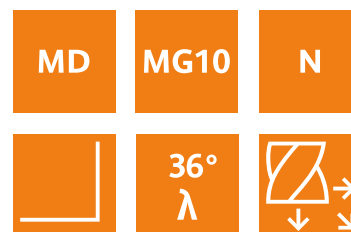
Ød1e8	l1	ØDh6	L	Rev. TiALN	Ød1e8	l1	ØDh6	L	Rev. TiALN
0.50	1.50	6	39	☑	2.10	6.30	6	39	☑
0.60	1.80	6	39	☑	2.20	6.60	6	39	☑
0.70	2.10	6	39	☑	2.30	6.90	6	39	☑
0.80	2.40	6	39	☑	2.40	7.20	6	39	☑
0.90	2.70	6	39	☑	2.50	7.50	6	39	☑
1.00	3.00	6	39	☑	2.60	7.80	6	39	☑
1.10	3.30	6	39	☑	2.70	8.10	6	39	☑
1.20	3.60	6	39	☑	2.80	8.40	6	39	☑
1.30	3.90	6	39	☑	2.90	8.70	6	39	☑
1.40	4.20	6	39	☑	3.00	9.00	6	51	☑
1.50	4.50	6	39	☑	3.50	10.5	6	51	☑
1.60	4.80	6	39	☑	4.00	12.0	6	51	☑
1.70	5.10	6	39	☑	4.50	13.5	6	51	☑
1.80	5.40	6	39	☑	5.00	15.0	6	51	☑
1.90	5.70	6	39	☑	6.00	18.0	6	51	☑
2.00	6.00	6	39	☑	8.00	24.0	8	60	☑



**Corps Ø 6**  
 Shank Ø 6  
 Schaft Ø 6

**Renforcée**  
 Reinforced  
 Verstärkt

**l1 = 3 x Ø**



\*Exécution sur mesure

\*Custom-made design

\*Ausführung auf Mass

Ød1e8	l1	ØDh6	L	Rev. TiALN	Ød1e8	l1	ØDh6	L	Rev. TiALN
0.50	1.50	6	39	☑	2.10*	6.30	6	39	☑
0.60	1.80	6	39	☑	2.20*	6.60	6	39	☑
0.70*	2.10	6	39	☑	2.30*	6.90	6	39	☑
0.80	2.40	6	39	☑	2.40*	7.20	6	39	☑
0.90*	2.70	6	39	☑	2.50	7.50	6	39	☑
1.00	3.00	6	39	☑	2.60*	7.80	6	39	☑
1.10*	3.30	6	39	☑	2.70*	8.10	6	39	☑
1.20*	3.60	6	39	☑	2.80*	8.40	6	39	☑
1.30*	3.90	6	39	☑	2.90*	8.70	6	39	☑
1.40	4.20	6	39	☑	3.00	9.00	6	39	☑
1.50	4.50	6	39	☑	3.50*	10.5	6	39	☑
1.60*	4.80	6	39	☑	4.00	12.0	6	39	☑
1.70*	5.10	6	39	☑	4.50*	13.5	6	39	☑
1.80*	5.40	6	39	☑	5.00	15.0	6	39	☑
1.90*	5.70	6	39	☑	6.00	18.0	6	39	☑
2.00	6.00	6	39	☑	8.00	24.0	6	39	☑

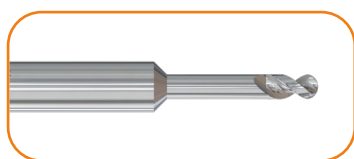


# INNOOTOOLS

Innovateur d'outils coupants



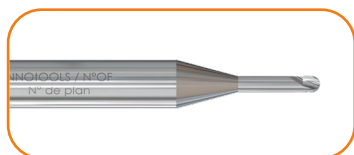
# Notre gamme d'outils dentaires spéciaux



**Fraises boule Z2  
2209**



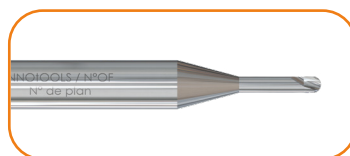
**Fraises boule Z2  
2224**



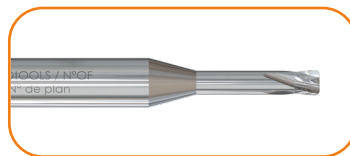
**Fraises boule Z2  
2450**



**Fraises boule Z2  
2216**



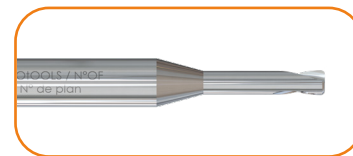
**Fraises boule Z2  
2350**



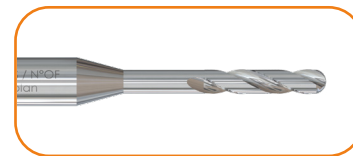
**Fraises toriques Z4  
2460**



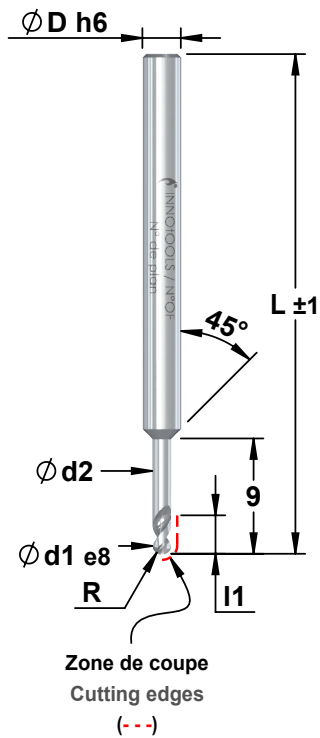
**Fraises boule Z3  
2316**



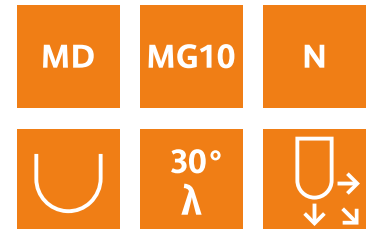
**Fraises toriques Z2  
2360**



**Fraises boule Z2  
2550**

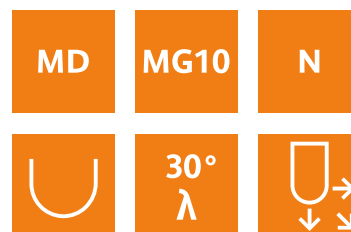
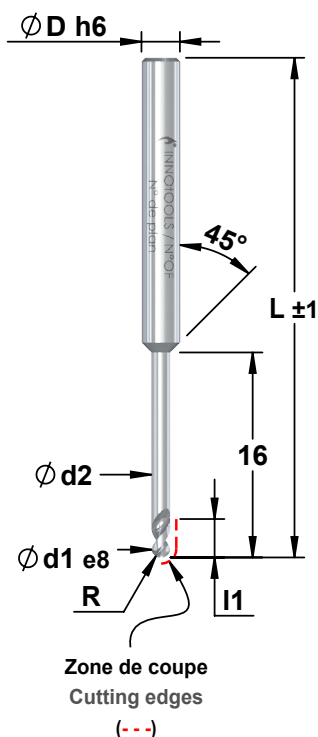


**Dégagement 9mm**  
 Release 9mm  
 Spielraum 9mm



$\varnothing d1e8$	R	l1	Z	$\varnothing d2$	$\varnothing Dh6$	L	Rev. TiALN
0.50	0.25	1.00	2	0.45	3	39	<input checked="" type="checkbox"/>
0.60	0.30	1.50	2	0.55	3	39	<input checked="" type="checkbox"/>
0.80	0.40	2.00	2	0.75	3	39	<input checked="" type="checkbox"/>
1.00	0.50	2.00	2	0.95	3	39	<input checked="" type="checkbox"/>
1.50	0.75	3.00	2	1.45	3	39	<input checked="" type="checkbox"/>

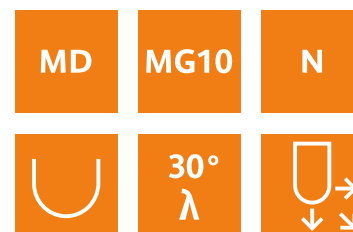
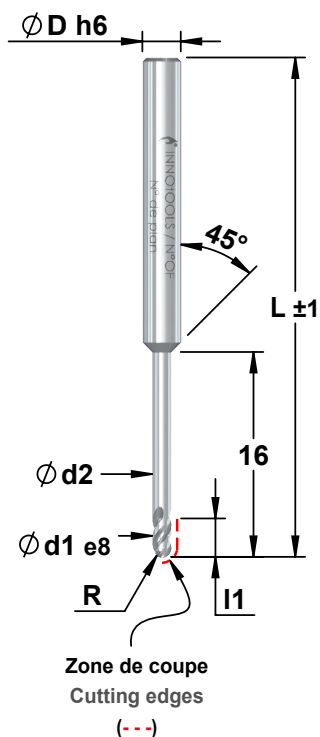
**Dégagement 16mm**  
 Release 16mm  
 Spielraum 16mm



Ød1e8	R	l1	Z	Ød2	ØDh6	L	Rev. TiALN
0.50	0.25	1.00	2	0.45	3	39	☑
0.60	0.30	1.00	2	0.55	3	39	☑
0.80	0.40	1.50	2	0.75	3	39	☑
1.00	0.50	2.00	2	0.95	3	39	☑
1.50	0.75	3.00	2	1.45	3	39	☑
2.00	1.00	4.00	2	1.95	3	39	☑
2.80	1.40	5.00	2	2.70	3	39	☑
3.00	1.50	5.00	2	2.90	3	39	☑



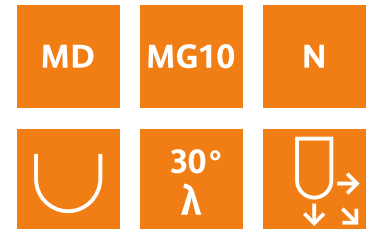
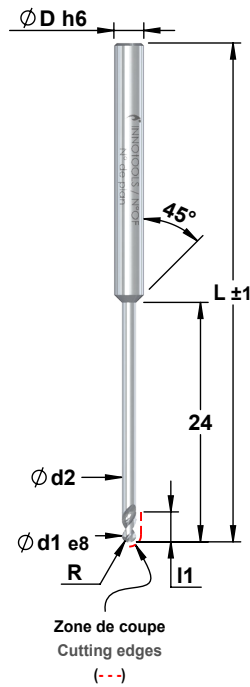
**Dégagement 16mm**  
 Release 16mm  
 Spielraum 16mm



$\varnothing d1e8$	R	l1	Z	$\varnothing d2$	$\varnothing Dh6$	L	Rev. TiALN
1.00	0.50	2.00	3	0.95	3	39	<input checked="" type="checkbox"/>
1.50	0.75	3.00	3	1.45	3	39	<input checked="" type="checkbox"/>
2.00	1.00	4.00	3	1.95	3	39	<input checked="" type="checkbox"/>
2.80	1.40	5.00	3	2.70	3	39	<input checked="" type="checkbox"/>
3.00	1.50	5.00	3	2.90	3	39	<input checked="" type="checkbox"/>



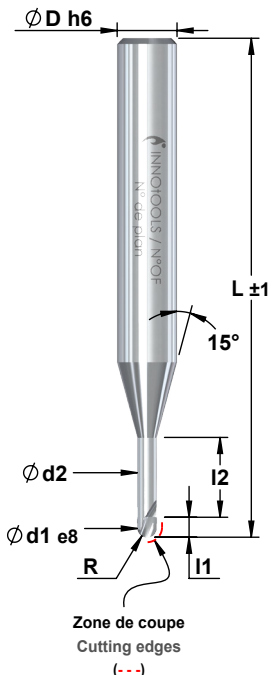
**Dégagement 24mm**  
 Release 24mm  
 Spielraum 24mm



$\varnothing d1 e8$	R	l1	Z	$\varnothing d2$	$\varnothing Dh6$	L	Rev. TiALN
0.80	0.40	1.50	2	0.75	3	50	<input checked="" type="checkbox"/>
1.00	0.50	2.00	2	0.95	3	50	<input checked="" type="checkbox"/>
1.50	0.75	3.00	2	1.45	3	50	<input checked="" type="checkbox"/>
2.00	1.00	4.00	2	1.95	3	50	<input checked="" type="checkbox"/>
2.80	1.40	5.00	2	2.70	3	50	<input checked="" type="checkbox"/>
3.00	1.50	5.00	2	2.90	3	50	<input checked="" type="checkbox"/>



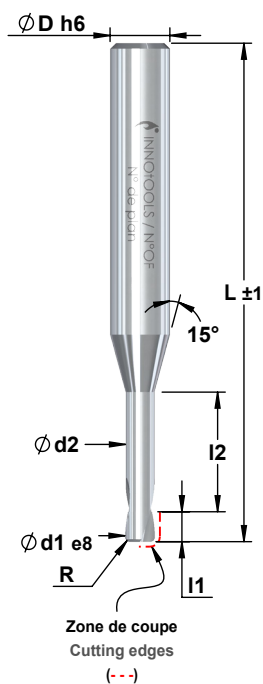
**TITANE**  
 TITANE  
 TITANE



MD	MG9	N
U	20° λ	U ↓ →

Ød1e8	R	I1	Z	Ød2	I2	ØDh6	L
0.60	0.30	0.80	2	0.55	6	6	50
0.80	0.40	1.00	2	0.75	6	6	50
1.00	0.50	1.00	2	0.95	6	6	50
2.00	1.00	2.00	2	1.95	8	6	50

**TITANE**  
 TITANE  
 TITANE

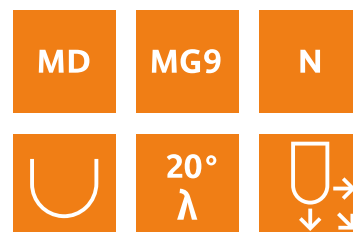
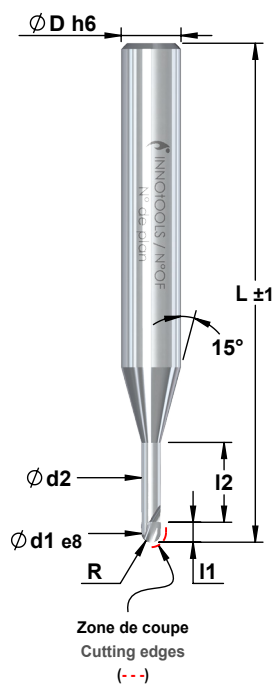


Ød1e8	R	I1	Z	Ød2	I2	ØDh6	L
3.00	0.50	3.00	2	2.90	12	6	50
4.00	1.00	4.00	2	3.90	8	6	50



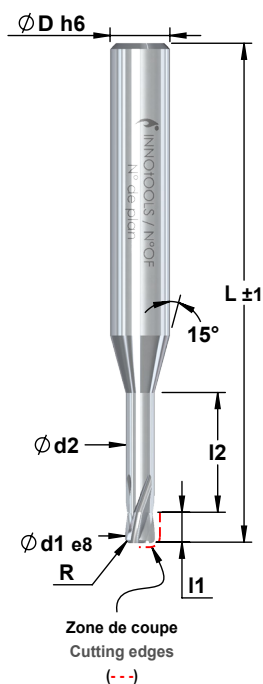


**CHROME-COBALT**  
 CHROME-COBALT  
 CHROME-COBALT



Ød1e8	R	I1	Z	Ød2	I2	ØDh6	L
0.60	0.30	0.80	2	0.55	6	6	50
0.80	0.40	1.00	2	0.75	6	6	50
1.00	0.50	1.00	2	0.95	6	6	50
2.00	1.00	2.00	2	1.95	8	6	50

**CHROME-COBALT**  
 CHROME -COBALT  
 CHROME-COBALT



MD	MG8	N
	20° λ	

Ød1e8	R	I1	Z	Ød2	I2	ØDh6	L
3.00	0.75	3.00	4	2.90	12	6	50
4.00	1.00	4.00	4	3.90	8	6	50

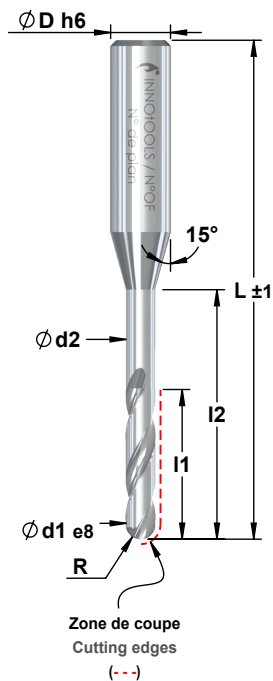


## Fraises boule 2 dents

End mills with ball end 2 teeth

Schaftfräser Halbkugel 2 Zähne

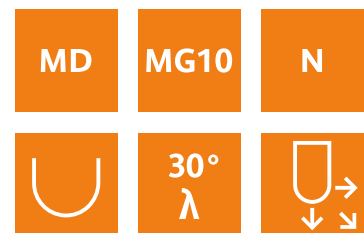
2550



PMMA

PMMA

PMMA



### La finition «MIROIR»:

- augmente la durée de vie d'outil.
- augmente la qualité d'état de surface de vos usinages.
- diminue le collage, appelé aussi «laitonnage».
- facilite l'usinage à sec.

### Cette fraise est absolument idéale pour:

- l'usinage en plongée
- le contournage
- le surfacage ou le travail en poche

### The «MIRROR» finishing:

- increases the shelf-life of the tools
- increases the surface quality of your tools
- reduces sticking, also called «brass plating»
- facilitates dry machining

### This end mill is absolutely ideal for:

- plunge milling
- contour milling
- face milling

### Feinstbearbeiten – Spiegelglanz

- erhöht die Standzeit
- erhöht die Oberflächenqualität der Bearbeitung
- reduziert das Verkleben am Werkstück.
- vereinfacht die Trockenbearbeitung.

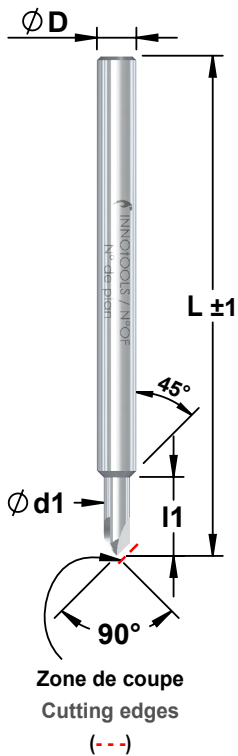
### Diese Fräser sind ideal für:

- Tauchfräsen
- Umfangsfräsen
- Top-Oberflächen
- Bearbeiten von Kammern

Ød1e8	R	I1	Z	Ød2	I2	ØDh6	L
3.00	1.50	15	2	2.90	25	6	50

**Fraises à angler**  
**Chamfering drills**  
**Fasenfräser**

1290



Ød1 <sup>T</sup>	l1	Z	ØDh6	L	Rev. TiALN
0.50	3.00	3	3	39	
0.60	3.00	3	3	39	☑
0.70	3.00	3	3	39	☑
0.80	3.00	3	3	39	☑
0.90	3.00	3	3	39	☑
1.00	3.00	3	3	39	☑
1.10	3.00	3	3	39	☑
1.20	3.00	3	3	39	☑
1.30	3.00	3	3	39	☑
1.40	3.00	3	3	39	☑
1.50	4.5	3	3	39	☑
2.00	6.00	3	3	39	☑
2.50	7.5	3	3	39	☑
3.00	-	4	3	39	☑
6.00	-	5	6	49	☑

**3 à 4 dents renforcées à 90°**  
 3 to 4 reinforced teeth 90°  
 3-4 Zähne verstärkt 90°

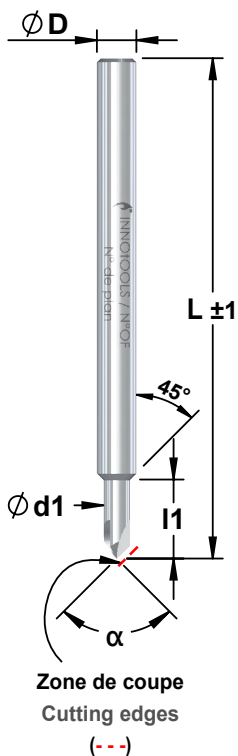


<sup>T</sup>Tol: Ød1 +0.005/ -0.01

**Fraises à angler**  
**Chamfering drills**  
**Fasenfräser**

**Exécution sur mesure**  
**Custom-made design**  
**Ausführung auf Mass**

1290 SP



Demande de prix / Price request / Preisanfrage  
 Commande / Order / Bestellung

Ød1<sup>T</sup> \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_ °  
 ØDh6 \_\_\_\_\_ L \_\_\_\_\_

**Matière à usiner**  
**Material to be machined**  
**Werkstoff zum Bearbeiten** \_\_\_\_\_

**Quantité**  
**Quantity**  
**Quantität** \_\_\_\_\_

**Revêtement / Coating / Beschichtungen**

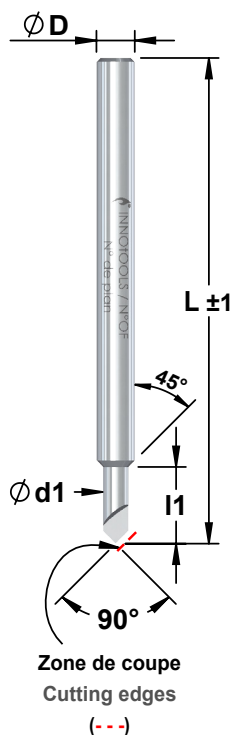
**TiALN** (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 **AlTiN** (Aciers difficiles / Tough steel / Heikle Stähle)  
 **AlTiCrN** (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 **Autre**  
**Other**  
**Andere** \_\_\_\_\_



<sup>T</sup>Tol: Ød1 +0.005/ -0.01

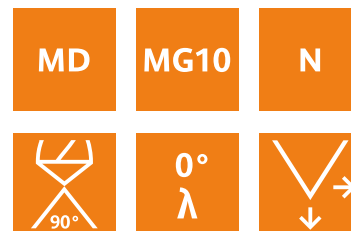
**Fraises à angler**  
**Chamfering drills**  
**Fasenfräser**

**1390**



Ød1 <sup>T</sup>	l1	Z	ØDh6	L
0.50	3.00	1	3	39
0.60	3.00	1	3	39
0.70	3.00	1	3	39
0.80	3.00	1	3	39
0.90	3.00	1	3	39
1.00	3.00	1	3	39
1.10	3.00	1	3	39
1.20	3.00	1	3	39
1.30	3.00	1	3	39
1.40	3.00	1	3	39
1.50	4.50	1	3	39
2.00	6.00	1	3	39
2.50	7.00	1	3	39
3.00	-	1	3	39

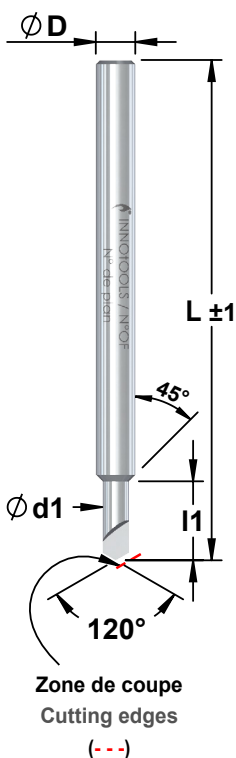
**1 dent renforcée à 90°**  
 1 reinforced tooth 90°  
 1 Zahn verstärkt 90°



<sup>T</sup>Tol: Ød1 +0.005/ -0.01

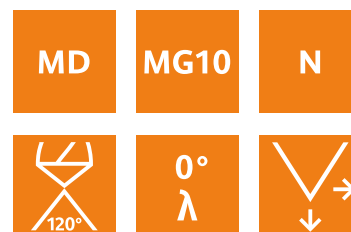
**Fraises à angler**  
**Chamfering drills**  
**Fasenfräser**

**13120**

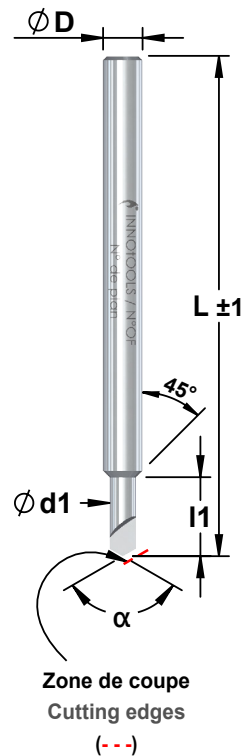


Ød1 <sup>T</sup>	l1	Z	ØDh6	L
0.50	3.00	1	3	39
0.60	3.00	1	3	39
0.70	3.00	1	3	39
0.80	3.00	1	3	39
0.90	3.00	1	3	39
1.00	3.00	1	3	39
1.10	3.00	1	3	39
1.20	3.00	1	3	39
1.30	3.00	1	3	39
1.40	3.00	1	3	39
1.50	5.00	1	3	39
2.00	6.00	1	3	39
2.50	7.00	1	3	39
3.00	-	1	3	39

**1 dent renforcée à 120°**  
 1 reinforced tooth 120°  
 1 Zahn verstärkt 120°



<sup>T</sup>Tol: Ød1 +0.005/ -0.01



1 dent renforcée  
1 reinforced tooth  
1 Zahn verstärkt



<sup>T</sup>To: Ød1 +0.005/ -0.01

**La finition «MIROIR»:**

- augmente la durée de vie d'outil.
- augmente la qualité d'état de surface de vos usinages.
- diminue le collage, appelé aussi «laitonnage».
- facilite l'usinage à sec.

**Cette fraise est absolument idéale pour:**

- l'usinage en plongée
- le contournage
- le surfaçage ou le travail en poche

**The «MIRROR» finishing:**

- increases the shelf-life of the tools
- increases the surface quality of your tools
- reduces sticking, also called «brass plating»
- facilitates dry machining

**This end mill is absolutely ideal for:**

- plunge milling
- contour milling
- face milling

**Feinstbearbeiten – Spiegelglanz**

- erhöht die Standzeit
- erhöht die Oberflächenqualität der Bearbeitung
- reduziert das Verkleben am Werkstück.
- vereinfacht die Trockenbearbeitung.

**Diese Fräser sind ideal für:**

- Tauchfräsen
- Umfangsfräsen
- Top-Oberflächen
- Bearbeiten von Kammern

Demande de prix  
Price request  
Preisanfrage

Commande  
Order  
Bestellung

Ød1<sup>T</sup> \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_ °

ØDh6 \_\_\_\_\_ L \_\_\_\_\_

**Matière à usiner**

Material to be machined

Werkstoff zum Bearbeiten \_\_\_\_\_

**Quantité**

Quantity

Quantität \_\_\_\_\_

**Revêtement / Coating / Beschichtungen**

TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)

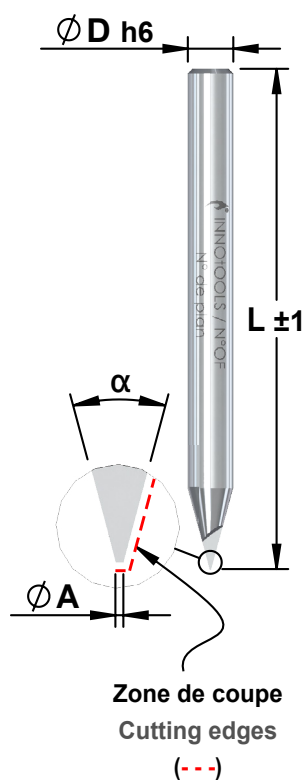
AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)

AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)

Autre

Other

Andere \_\_\_\_\_



Taillage ½ lune  
V-shape cutting  
Halbmond



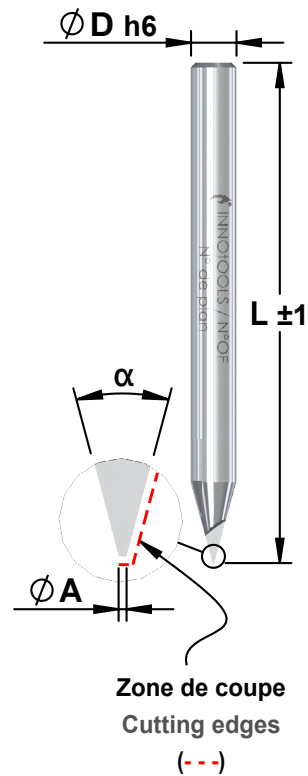
$\alpha$	$\varnothing A$	$\varnothing D h6$	L
30°	0.04	3	33
30°	0.05	3	33
30°	0.08	3	33
30°	0.10	3	33
30°	0.15	3	33
30°	0.20	3	33
30°	0.25	3	33
30°	0.30	3	33

$\alpha$	$\varnothing A$	$\varnothing D h6$	L
40°	0.04	3	33
40°	0.05	3	33
40°	0.08	3	33
40°	0.10	3	33
40°	0.15	3	33
40°	0.20	3	33
40°	0.25	3	33
40°	0.30	3	33

$\alpha$	$\varnothing A$	$\varnothing D h6$	L
90°	0.02	3	33
90°	0.04	3	33
90°	0.05	3	33
90°	0.10	3	33

$\alpha$	$\varnothing A$	$\varnothing D h6$	L
50°	0.04	3	33
50°	0.05	3	33
50°	0.08	3	33
50°	0.10	3	33
50°	0.15	3	33
50°	0.20	3	33
50°	0.25	3	33
50°	0.30	3	33

$\alpha$	$\varnothing A$	$\varnothing D h6$	L
60°	0.04	3	33
60°	0.05	3	33
60°	0.08	3	33
60°	0.10	3	33
60°	0.15	3	33
60°	0.20	3	33
60°	0.25	3	33
60°	0.30	3	33



Taillage 1/2 lune  
V-shape cutting  
Halbmond



Demande de prix  
Price request  
Preisanfrage

Commande  
Order  
Bestellung

ØA \_\_\_\_\_ α \_\_\_\_\_ °

ØDh6 \_\_\_\_\_ L \_\_\_\_\_

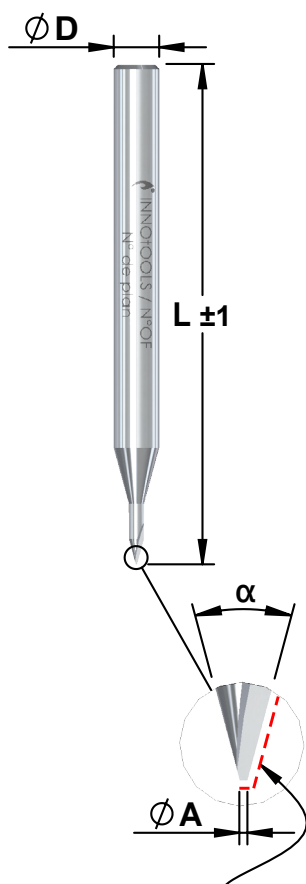
Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_





Zone de coupe  
Cutting edges  
(---)

$\alpha$	$\varnothing A$	$\varnothing Dh6$	L	Rev. TiALN
35°	0.04	3	33	☑
35°	0.05	3	33	☑
35°	0.08	3	33	☑
35°	0.10	3	33	☑
35°	0.15	3	33	☑
35°	0.20	3	33	☑
35°	0.25	3	33	☑
35°	0.30	3	33	☑

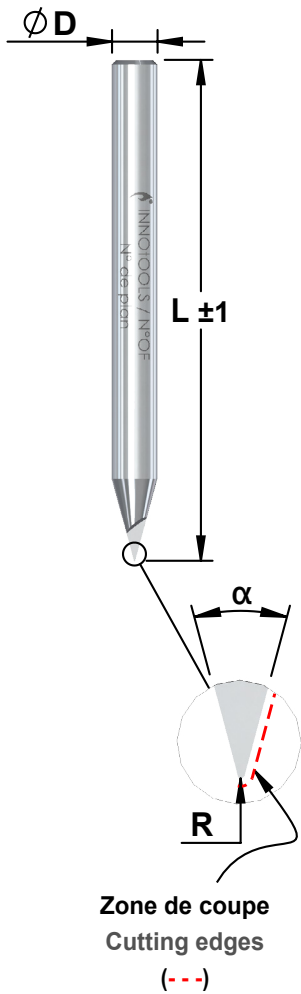
$\alpha$	$\varnothing A$	$\varnothing Dh6$	L	Rev. TiALN
40°	0.04	3	33	☑
40°	0.05	3	33	☑
40°	0.08	3	33	☑
40°	0.10	3	33	☑
40°	0.15	3	33	☑
40°	0.20	3	33	☑
40°	0.25	3	33	☑
40°	0.30	3	33	☑

$\alpha$	$\varnothing A$	$\varnothing Dh6$	L	Rev. TiALN
50°	0.04	3	33	☑
50°	0.05	3	33	☑
50°	0.08	3	33	☑
50°	0.10	3	33	☑
50°	0.15	3	33	☑
50°	0.20	3	33	☑
50°	0.25	3	33	☑
50°	0.30	3	33	☑

$\alpha$	$\varnothing A$	$\varnothing Dh6$	L	Rev. TiALN
60°	0.04	3	33	☑
60°	0.05	3	33	☑
60°	0.08	3	33	☑
60°	0.10	3	33	☑
60°	0.15	3	33	☑
60°	0.20	3	33	☑
60°	0.25	3	33	☑
60°	0.30	3	33	☑

1 dent renforcée  
1 reinforced tooth  
1 Zahn verstärkt





$\alpha$	R	ØDh6	L
30°	0.04	3	33
30°	0.05	3	33
30°	0.08	3	33
30°	0.10	3	33
30°	0.15	3	33
30°	0.20	3	33

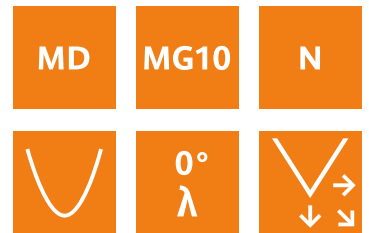
$\alpha$	R	ØDh6	L
40°	0.04	3	33
40°	0.05	3	33
40°	0.08	3	33
40°	0.10	3	33
40°	0.15	3	33
40°	0.20	3	33

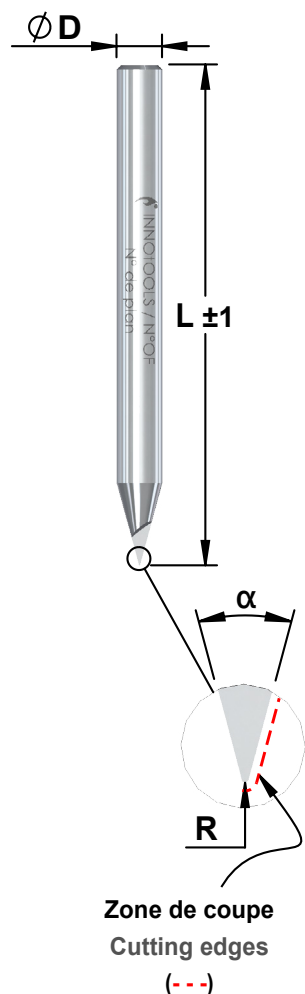
$\alpha$	R	ØDh6	L
50°	0.04	3	33
50°	0.05	3	33
50°	0.08	3	33
50°	0.10	3	33
50°	0.15	3	33
50°	0.20	3	33

$\alpha$	R	ØDh6	L
60°	0.04	3	33
60°	0.05	3	33
60°	0.08	3	33
60°	0.10	3	33
60°	0.15	3	33
60°	0.20	3	33

$\alpha$	R	ØDh6	L
90°	0.04	3	33
90°	0.05	3	33

Taillage ½ lune  
 V-shape cutting  
 Halbmond





Taillage ½ lune  
avec rayon  
V-shape cutting  
with radius on tip  
Schneiden Halbmond  
mit Radius



Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

R \_\_\_\_\_ α \_\_\_\_\_°

∅Dh6 \_\_\_\_\_ L \_\_\_\_\_

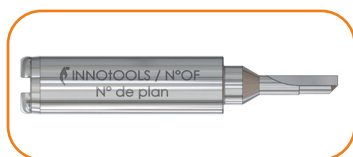
Quantité  
Quantity  
Quantität \_\_\_\_\_

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiAlN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_

# Notre gamme d'outils



**Fraises droite Z1**  
7120



**Fraises hélicoïdale Z2**  
7220



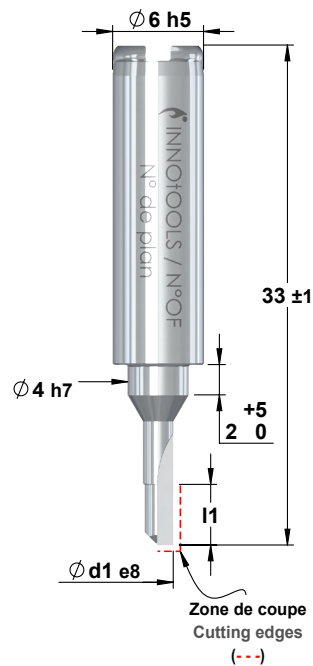
**Fraises hélicoïdale Z3**  
7330



**Forets hélice 24°**

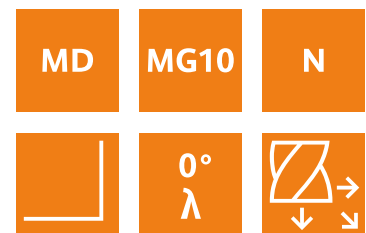


**Outils sur mesure**  
701 SP

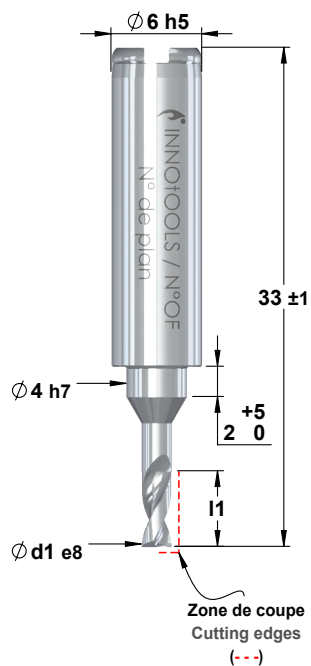


**1 dent**  
**1 tooth**  
**1 Zahn**

**$l1 = 2 \times \varnothing$**

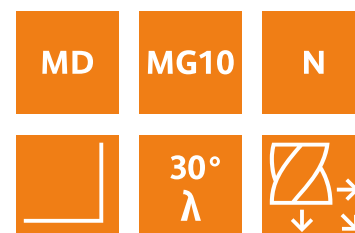


$\varnothing d1e8$	$l1$	$\varnothing Dh5$	$L$
0.30	0.60	6	33
0.50	1.00	6	33
0.80	1.60	6	33
1.00	2.00	6	33
1.20	2.40	6	33
1.50	3.00	6	33
1.80	4.00	6	33
2.00	4.00	6	33
2.50	5.00	6	33
3.00	6.00	6	33



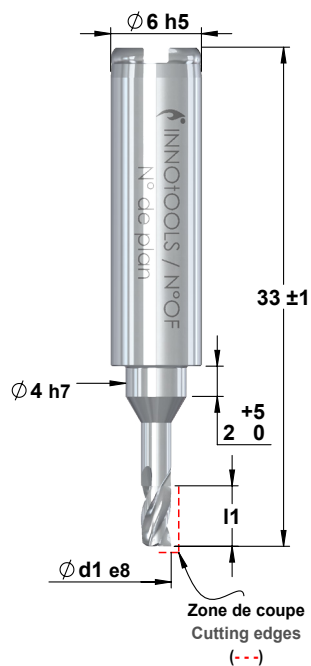
**2 dents**  
 2 teeth  
 2 Zähne

**l1 = 2 x Ø**



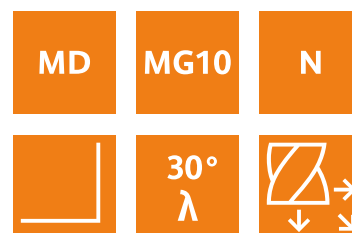
$\varnothing d1 e8$	l1	$\varnothing Dh5$	L
0.30	0.60	6	33
0.50	1.00	6	33
0.80	1.60	6	33
1.00	2.00	6	33
1.20	2.40	6	33
1.50	3.00	6	33
1.80	4.00	6	33
2.00	4.00	6	33
2.50	5.00	6	33
3.00	6.00	6	33



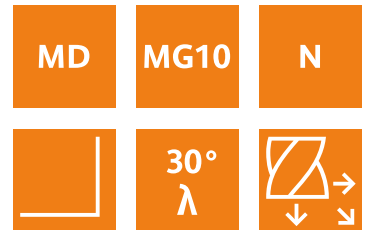
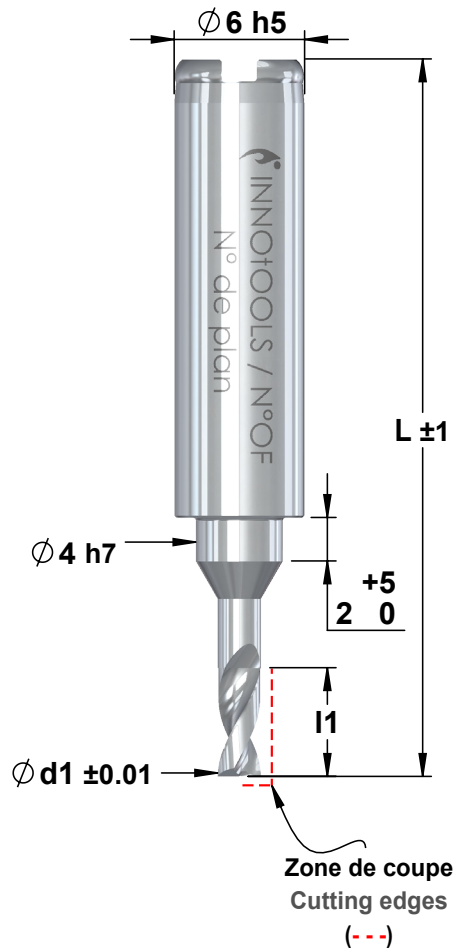


**3 dents**  
**3 teeth**  
**3 Zähne**

**l1 = 3 x Ø**



Ød1e8	l1	ØDh5	L
0.40	1.20	6	33
0.50	1.50	6	33
0.80	2.50	6	33
1.00	3.00	6	33
1.20	3.60	6	33
1.50	4.00	6	33
1.80	4.00	6	33
2.00	4.00	6	33
2.50	5.00	6	33
3.00	6.00	6	33



Demande de prix  
 Price request  
 Preisanfrage

Commande  
 Order  
 Bestellung

Droite  
 Right  
 Recht

Gauche  
 Left  
 links

Ød1 \_\_\_\_\_ l1 \_\_\_\_\_  
 L \_\_\_\_\_

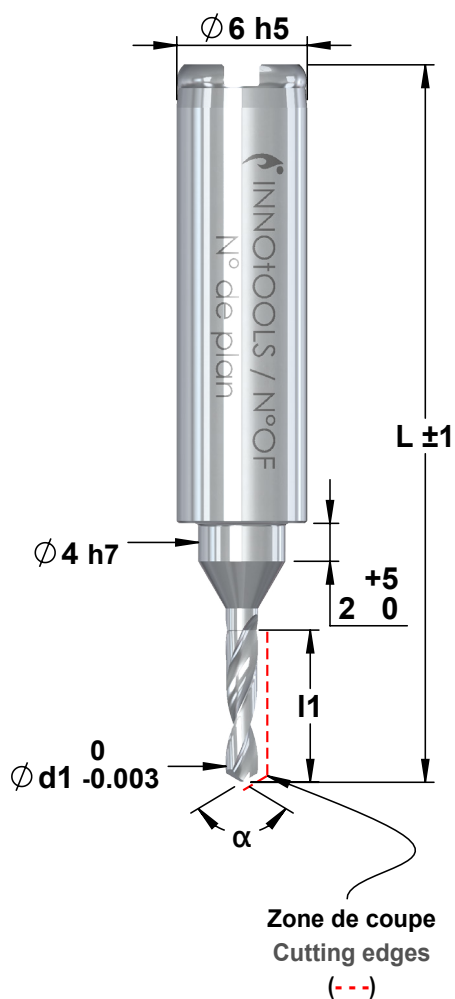
Quantité  
 Quantity  
 Quantität \_\_\_\_\_

Matière à usiner  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiAlN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre  
 Other  
 Andere \_\_\_\_\_





Demande de prix  
 Price request  
 Preis Anfrage

Commande  
 Order  
 Bestellung

Droite  
 Right  
 Recht

Gauche  
 Left  
 links

$\phi d1$  \_\_\_\_\_  $l1$  \_\_\_\_\_

$\alpha$  \_\_\_\_\_  $L$  \_\_\_\_\_

Quantité  
 Quantity  
 Quantität \_\_\_\_\_

Matière à usiner  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)  
 AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 Autre  
 Other  
 Andere \_\_\_\_\_

# 6

## Centreurs et forets en Métal Dur (MD) Center drills and twist drills in solid carbide (SC) Zentrierbohrer und Spiralbohrer in VHM



**Forets pointeurs à 90° (MD)**  
Pointing drills 90° (SC)  
NC – Anbohrer 90° (VHM)



124-125

**Centreurs (MD)**  
Center drills (SC)  
Zentrierbohrer (VHM)



126-127

**Forets 2 lèvres (MD)**  
Twist drills 2 flutes (SC)  
Spiralbohrer 2 Schneiden (VHM)



128-131

**Forets spéciaux BARRETTE (MD)**  
BARRETTE special twist drills (SC)  
Spiralbohrer spezial BARRETTE (VHM)

132

**Forets 3 lèvres (MD)**  
Twist drills 3 flutes (SC)  
Spiralbohrer 3 Schneiden (VHM)

133-135

**Mèches canon (MD)**  
Gun drills (SC)  
Kanonenbohrer (VHM)



136-140

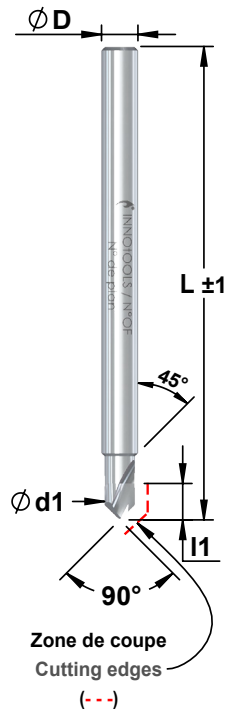


# Forets pointeur à 90°

## Pointing drills 90°

### NC – Anbohrer 90°

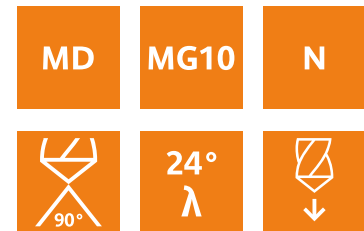
7390



### Corps renforcé Ø 3

Reinforced shank Ø 3

Verstärkter Schaft Ø 3



† Tol: Ød1 +0/ -0.003

Ød1 <sup>†</sup>	l1	L	ØDh6	Rev. TiAlN
0.30	1.50	39	3	☑
0.35	1.50	39	3	☑
0.40	1.50	39	3	☑
0.45	1.50	39	3	☑
0.47	2.00	39	3	☑
0.50	2.00	39	3	☑
0.52	2.00	39	3	☑
0.55	2.00	39	3	☑
0.57	2.00	39	3	☑
0.60	2.00	39	3	☑
0.62	2.00	39	3	☑
0.65	2.00	39	3	☑
0.67	2.00	39	3	☑
0.70	2.00	39	3	☑
0.72	2.00	39	3	☑
0.75	2.00	39	3	☑
0.77	2.00	39	3	☑
0.80	2.00	39	3	☑
0.82	2.00	39	3	☑
0.85	2.00	39	3	☑
0.87	2.00	39	3	☑
0.90	2.00	39	3	☑

Ød1 <sup>†</sup>	l1	L	ØDh6	Rev. TiAlN
0.92	3.00	39	3	☑
0.93	3.00	39	3	☑
0.95	3.00	39	3	☑
0.97	3.00	39	3	☑
1.00	3.00	39	3	☑
1.02	3.00	39	3	☑
1.05	3.00	39	3	☑
1.07	3.00	39	3	☑
1.10	3.00	39	3	☑
1.12	3.00	39	3	☑
1.15	3.00	39	3	☑
1.17	3.00	39	3	☑
1.20	3.00	39	3	☑
1.22	3.00	39	3	☑
1.25	3.00	39	3	☑
1.27	3.00	39	3	☑
1.30	3.00	39	3	☑
1.32	3.00	39	3	☑
1.35	3.00	39	3	☑
1.37	3.00	39	3	☑
1.40	3.00	39	3	☑
1.42	3.00	39	3	☑
1.45	3.00	39	3	☑
1.47	3.00	39	3	☑
1.50	3.00	39	3	☑

**Forets pointeur à 90°**  
**Pointing drills 90°**  
**NC – Anbohrer 90°**



**Suite**  
**Following**  
**Folgende**

**7390**

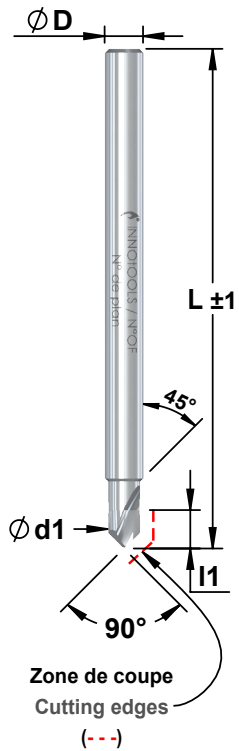
Ød1 <sup>T</sup>	l1	L	ØDh6	Rev. TiALN
1.52	3.00	39	3	☑
1.54	3.00	39	3	☑
1.55	3.00	39	3	☑
1.57	3.00	39	3	☑
1.60	3.00	39	3	☑
1.62	3.00	39	3	☑
1.65	3.00	39	3	☑
1.67	3.00	39	3	☑
1.69	3.00	39	3	☑
1.70	3.00	39	3	☑
1.72	3.00	39	3	☑
1.73	3.00	39	3	☑
1.75	3.00	39	3	☑
1.77	3.00	39	3	☑
1.78	3.00	39	3	☑
1.80	3.00	39	3	☑
1.82	3.00	39	3	☑
1.85	3.00	39	3	☑
1.87	3.00	39	3	☑
1.90	3.00	39	3	☑
1.92	3.00	39	3	☑
1.95	3.00	39	3	☑
1.96	3.00	39	3	☑
1.97	3.00	39	3	☑
2.00	3.00	39	3	☑
2.02	3.00	39	3	☑
2.05	3.00	39	3	☑
2.07	3.00	39	3	☑

Ød1 <sup>T</sup>	l1	L	ØDh6	Rev. TiALN
2.10	3.00	39	3	☑
2.12	3.00	39	3	☑
2.15	3.00	39	3	☑
2.17	3.00	39	3	☑
2.20	3.00	39	3	☑
2.22	3.00	39	3	☑
2.25	3.00	39	3	☑
2.27	3.00	39	3	☑
2.30	3.00	39	3	☑
2.32	3.00	39	3	☑
2.35	3.00	39	3	☑
2.37	3.00	39	3	☑
2.40	3.00	39	3	☑
2.42	3.00	39	3	☑
2.45	3.00	39	3	☑
2.47	3.00	39	3	☑
2.50	3.00	39	3	☑
2.60	4.00	39	3	☑
2.70	4.00	39	3	☑
2.80	4.00	39	3	☑
2.90	4.00	39	3	☑
3.00	4.00	39	3	☑

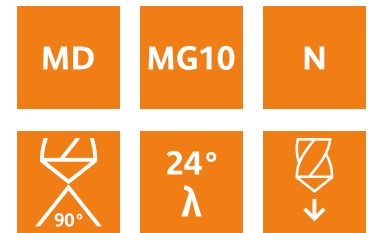


**Centreurs 90°**  
**Center drills 90°**  
**Zentrierbohrer 90°**

**1090**



$\varnothing d1^T$	l1	$\varnothing Dh6$	L	Rev. TiALN
0.50	1.50	2	39	☑
0.60	1.50	2	39	
1.00	3.00	2	39	☑
1.10	3.00	2	39	☑
1.20	3.00	2	39	☑
1.30	3.00	2	39	☑
1.40	3.00	2	39	☑
1.50	3.00	2	39	☑
1.60	3.00	2	39	☑
1.70	3.00	2	39	☑
1.80	3.00	2	39	☑
1.90	3.00	2	39	☑
2.00	8.00	2	39	☑
2.10	8.00	2.5	39	☑
2.20	8.00	2.5	39	☑
2.30	8.00	2.5	39	☑
2.40	8.00	2.5	39	☑
2.50	8.00	2.5	39	☑
3.00	10.0	3	39	☑
4.00	12.0	4	50	☑
5.00	15.0	5	50	☑
6.00	16.0	6	60	☑



<sup>T</sup> Tol:  $\varnothing d1 +0.005/ -0.01$

**Centreurs 120°**  
**Center drills 120°**  
**Zentrierbohrer 120°**

1120

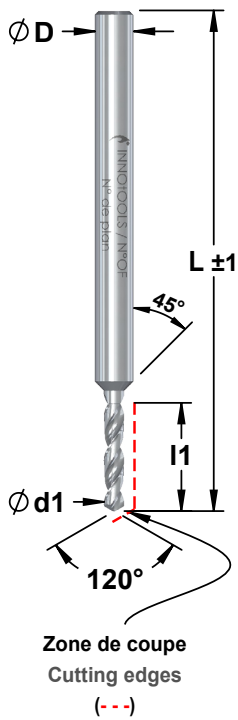


$\phi d1^T$	l1	$\phi Dh6$	L	Rev. TiALN
0.50	2.00	2	39	
1.00	3.00	2	39	☑
1.10	3.00	2	39	☑
1.20	3.00	2	39	☑
1.30	3.00	2	39	☑
1.40	3.00	2	39	☑
1.50	3.00	2	39	☑
1.60	3.00	2	39	☑
1.70	3.00	2	39	☑
1.80	3.00	2	39	☑
1.90	3.00	2	39	☑
2.00	8.00	2	39	☑
2.10	8.00	2.5	39	☑
2.20	8.00	2.5	39	☑
2.30	8.00	2.5	39	☑
2.40	8.00	2.5	39	☑
2.50	8.00	2.5	39	☑
3.00	10.0	3	39	☑
4.00	12.0	4	50	☑
5.00	15.0	5	50	☑
6.00	16.0	6	60	☑



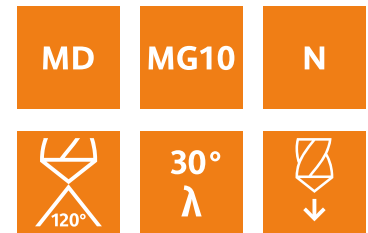
<sup>T</sup>Tol:  $\phi d1 +0.005/ -0.01$





Ød1 <sup>T</sup>	l1	L	ØDh6
0.20	1.00	39	3
0.21	1.00	39	3
0.22	1.00	39	3
0.23	1.00	39	3
0.24	1.00	39	3
0.25	1.50	39	3
0.26	1.50	39	3
0.27	1.50	39	3
0.28	1.50	39	3
0.29	1.50	39	3
0.30	2.00	39	3
0.31	2.00	39	3
0.32	2.00	39	3
0.33	2.00	39	3
0.34	2.00	39	3
0.35	2.00	39	3
0.36	2.00	39	3
0.37	2.00	39	3
0.38	2.00	39	3
0.39	2.00	39	3
0.40	2.50	39	3
0.41	2.50	39	3
0.42	2.50	39	3
0.43	2.50	39	3
0.44	2.50	39	3
0.45	2.50	39	3
0.46	2.50	39	3
0.47	2.50	39	3
0.48	2.50	39	3
0.49	2.50	39	3
0.50	3.00	39	3
0.51	3.00	39	3
0.52	3.00	39	3
0.53	3.00	39	3
0.54	3.00	39	3
0.55	3.00	39	3
0.56	3.00	39	3
0.57	3.00	39	3
0.58	3.00	39	3
0.59	3.00	39	3

**Corps renforcé Ø 3**  
 Reinforced shank Ø 3  
 Verstärkter Schaft Ø 3



<sup>T</sup> Tol: Ød1 +0/ -0.003

\*Aussi disponible revêtu à partir de Ø0.30

Also available with coating from Ø0.30 onwards

Auch mit Beschichtung ab Ø0.30 erhältlich



Ød1 <sup>T</sup>	l1	L	ØDh6	Ød1 <sup>T</sup>	l1	L	ØDh6	Ød1 <sup>T</sup>	l1	L	ØDh6
0.60	4.00	39	3	1.00	7.00	39	3	1.40	9.00	39	3
0.61	4.00	39	3	1.01	7.00	39	3	1.41	9.00	39	3
0.62	4.00	39	3	1.02	7.00	39	3	1.42	9.00	39	3
0.63	4.00	39	3	1.03	7.00	39	3	1.43	9.00	39	3
0.64	4.00	39	3	1.04	7.00	39	3	1.44	9.00	39	3
0.65	4.00	39	3	1.05	7.00	39	3	1.45	9.00	39	3
0.66	4.00	39	3	1.06	7.00	39	3	1.46	9.00	39	3
0.67	4.00	39	3	1.07	7.00	39	3	1.47	9.00	39	3
0.68	4.00	39	3	1.08	7.00	39	3	1.48	9.00	39	3
0.69	4.00	39	3	1.09	7.00	39	3	1.49	9.00	39	3
0.70	4.50	39	3	1.10	7.50	39	3	1.50	10.0	39	3
0.71	4.50	39	3	1.11	7.50	39	3	1.50	10.0	39	3
0.72	4.50	39	3	1.12	7.50	39	3	1.52	10.0	39	3
0.73	4.50	39	3	1.13	7.50	39	3	1.53	10.0	39	3
0.74	4.50	39	3	1.14	7.50	39	3	1.54	10.0	39	3
0.75	4.50	39	3	1.15	7.50	39	3	1.55	10.0	39	3
0.76	4.50	39	3	1.16	7.50	39	3	1.56	10.0	39	3
0.77	4.50	39	3	1.17	7.50	39	3	1.57	10.0	39	3
0.78	4.50	39	3	1.18	7.50	39	3	1.58	10.0	39	3
0.79	4.50	39	3	1.19	7.50	39	3	1.59	10.0	39	3
0.80	5.50	39	3	1.20	8.00	39	3	1.60	10.0	39	3
0.81	5.50	39	3	1.21	8.00	39	3	1.61	10.0	39	3
0.82	5.50	39	3	1.22	8.00	39	3	1.62	10.0	39	3
0.83	5.50	39	3	1.23	8.00	39	3	1.63	10.0	39	3
0.84	5.50	39	3	1.24	8.00	39	3	1.64	10.0	39	3
0.85	5.50	39	3	1.25	8.00	39	3	1.65	10.0	39	3
0.86	5.50	39	3	1.26	8.00	39	3	1.66	10.0	39	3
0.87	5.50	39	3	1.27	8.00	39	3	1.67	10.0	39	3
0.88	5.50	39	3	1.28	8.00	39	3	1.68	10.0	39	3
0.89	5.50	39	3	1.29	8.00	39	3	1.69	10.0	39	3
0.90	6.50	39	3	1.30	9.00	39	3	1.70	10.0	39	3
0.91	6.50	39	3	1.31	9.00	39	3	1.71	10.0	39	3
0.92	6.50	39	3	1.32	9.00	39	3	1.72	10.0	39	3
0.93	6.50	39	3	1.33	9.00	39	3	1.73	10.0	39	3
0.94	6.50	39	3	1.34	9.00	39	3	1.74	10.0	39	3
0.95	6.50	39	3	1.35	9.00	39	3	1.75	10.0	39	3
0.96	6.50	39	3	1.36	9.00	39	3	1.76	10.0	39	3
0.97	6.50	39	3	1.37	9.00	39	3	1.77	10.0	39	3
0.98	6.50	39	3	1.38	9.00	39	3	1.78	10.0	39	3
0.99	6.50	39	3	1.39	9.00	39	3	1.79	10.0	39	3

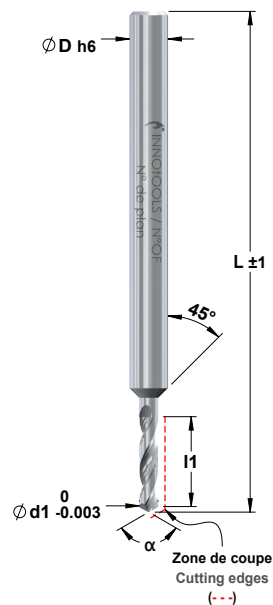






Ød1 <sup>T</sup>	I1	L	ØDh6	Ød1 <sup>T</sup>	I1	L	ØDh6	Ød1 <sup>T</sup>	I1	L	ØDh6
1.80	10.0	39	3	2.20	13.0	39	3	2.60	14.0	39	3
1.81	10.0	39	3	2.21	13.0	39	3	2.61	14.0	39	3
1.82	10.0	39	3	2.22	13.0	39	3	2.62	14.0	39	3
1.83	10.0	39	3	2.23	13.0	39	3	2.63	14.0	39	3
1.84	10.0	39	3	2.24	13.0	39	3	2.64	14.0	39	3
1.85	10.0	39	3	2.25	13.0	39	3	2.65	14.0	39	3
1.86	10.0	39	3	2.26	13.0	39	3	2.66	14.0	39	3
1.87	10.0	39	3	2.27	13.0	39	3	2.67	14.0	39	3
1.88	10.0	39	3	2.28	13.0	39	3	2.68	14.0	39	3
1.89	10.0	39	3	2.29	13.0	39	3	2.69	14.0	39	3
1.90	11.0	39	3	2.30	13.0	39	3	2.70	14.0	39	3
1.91	11.0	39	3	2.31	13.0	39	3	2.71	14.0	39	3
1.92	11.0	39	3	2.32	13.0	39	3	2.72	14.0	39	3
1.93	11.0	39	3	2.33	13.0	39	3	2.73	14.0	39	3
1.94	11.0	39	3	2.34	13.0	39	3	2.74	14.0	39	3
1.95	11.0	39	3	2.35	13.0	39	3	2.75	14.0	39	3
1.96	11.0	39	3	2.36	13.0	39	3	2.76	14.0	39	3
1.97	11.0	39	3	2.37	13.0	39	3	2.77	14.0	39	3
1.98	11.0	39	3	2.39	13.0	39	3	2.78	14.0	39	3
1.99	11.0	39	3	2.39	13.0	39	3	2.79	14.0	39	3
2.00	11.0	39	3	2.40	13.0	39	3	2.80	14.0	39	3
2.01	13.0	39	3	2.41	13.0	39	3	2.81	14.0	39	3
2.02	13.0	39	3	2.42	13.0	39	3	2.82	14.0	39	3
2.03	13.0	39	3	2.43	13.0	39	3	2.83	14.0	39	3
2.04	13.0	39	3	2.44	13.0	39	3	2.84	14.0	39	3
2.05	13.0	39	3	2.45	13.0	39	3	2.85	14.0	39	3
2.06	13.0	39	3	2.46	13.0	39	3	2.86	14.0	39	3
2.07	13.0	39	3	2.47	13.0	39	3	2.87	14.0	39	3
2.08	13.0	39	3	2.48	13.0	39	3	2.88	14.0	39	3
2.09	13.0	39	3	2.49	13.0	39	3	2.89	14.0	39	3
2.10	13.0	39	3	2.50	14.0	39	3	2.90	14.0	39	3
2.11	13.0	39	3	2.50	14.0	39	3	2.91	14.0	39	3
2.12	13.0	39	3	2.52	14.0	39	3	2.92	14.0	39	3
2.13	13.0	39	3	2.53	14.0	39	3	2.93	14.0	39	3
2.14	13.0	39	3	2.54	14.0	39	3	2.94	14.0	39	3
2.15	13.0	39	3	2.55	14.0	39	3	2.95	14.0	39	3
2.16	13.0	39	3	2.56	14.0	39	3	2.96	14.0	39	3
2.17	13.0	39	3	2.57	14.0	39	3	2.97	14.0	39	3
2.18	13.0	39	3	2.58	14.0	39	3	2.98	14.0	39	3
2.19	13.0	39	3	2.59	14.0	39	3	2.99	14.0	39	3

**Corps renforcé Ø 3**  
**Reinforced shank Ø 3**  
**Verstärkter Schaft Ø 3**



**Demande de prix**  
**Price request**  
**Preis Anfrage**

**Commande**  
**Order**  
**Bestellung**

$\varnothing d1$  \_\_\_\_\_

$\alpha$  \_\_\_\_\_ °

$l1$  \_\_\_\_\_

$\varnothing Dh6$  \_\_\_\_\_

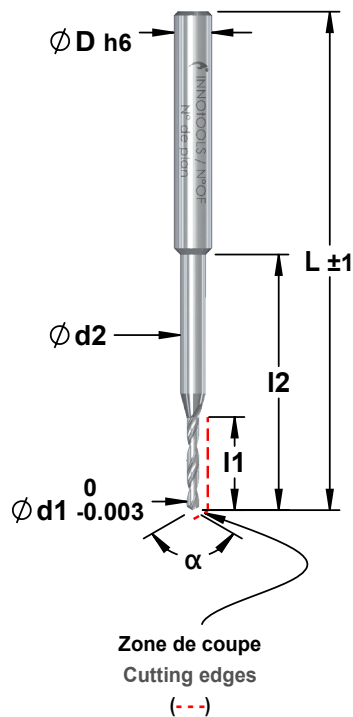
$L$  \_\_\_\_\_

**Quantité**  
**Quantity**  
**Quantität** \_\_\_\_\_

**Matière à usiner**  
**Material to be machined**  
**Werkstoff zum Bearbeiten** \_\_\_\_\_

**Revêtement / Coating / Beschichtungen**

- TiALN** (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)  
 **AlTiN** (Aciers difficiles / Tough steel / Heikle Stähle)  
 **AlTiCrN** (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)  
 **Autre**  
**Other**  
**Andere** \_\_\_\_\_



**Demande de prix**  
 Price request  
 Preisanfrage

**Commande**  
 Order  
 Bestellung

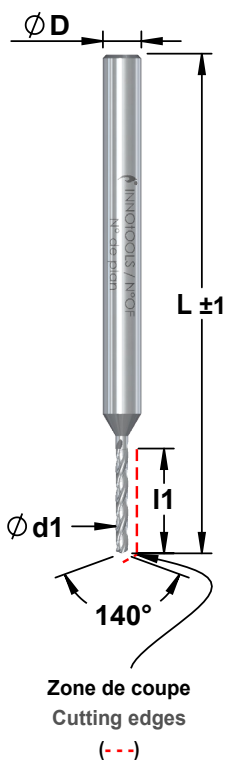
Ød1 \_\_\_\_\_ l1 \_\_\_\_\_ ØDh6 \_\_\_\_\_  
 Ød2 \_\_\_\_\_ l2 \_\_\_\_\_ L \_\_\_\_\_ α \_\_\_\_\_°

**Quantité**  
 Quantity  
 Quantität \_\_\_\_\_

**Matière à usiner**  
 Material to be machined  
 Werkstoff zum Bearbeiten \_\_\_\_\_

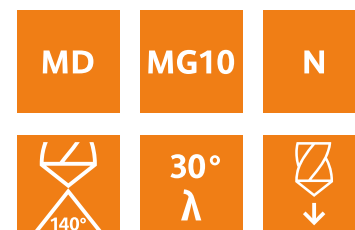
**Revêtement / Coating / Beschichtungen**

- TiAlN** (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN** (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN** (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre**  
 Other  
 Andere \_\_\_\_\_



Ød1 <sup>†</sup>	l1	L	ØDh6
0.50	4.00	39	3
0.50	4.00	39	3
0.52	4.00	39	3
0.53	4.00	39	3
0.54	4.00	39	3
0.55	4.00	39	3
0.56	4.00	39	3
0.57	4.00	39	3
0.58	4.00	39	3
0.59	4.00	39	3
0.60	4.50	39	3
0.61	4.50	39	3
0.6	4.50	39	3
0.63	4.50	39	3
0.64	4.50	39	3
0.65	4.50	39	3
0.66	4.50	39	3
0.67	4.50	39	3
0.68	4.50	39	3
0.69	4.50	39	3
0.70	5.00	39	3
0.71	5.00	39	3
0.72	5.00	39	3
0.73	5.00	39	3
0.74	5.00	39	3
0.75	5.00	39	3
0.76	5.00	39	3
0.77	5.00	39	3
0.78	5.00	39	3
0.79	5.00	39	3
0.80	6.50	39	3
0.81	6.50	39	3
0.82	6.50	39	3
0.83	6.50	39	3
0.84	6.50	39	3
0.85	6.50	39	3
0.86	6.50	39	3
0.87	6.50	39	3
0.88	6.50	39	3
0.89	6.50	39	3

**Corps renforcé Ø 3**  
 Reinforced shank Ø 3  
 Verstärkter Schaft Ø 3



<sup>†</sup>Tol: Ød1 +0.005/ -0.01

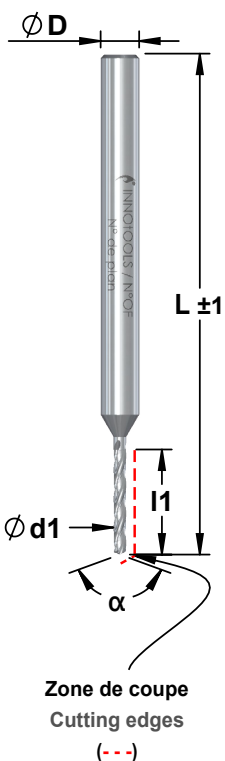




Ød1 <sup>T</sup>	I1	L	ØDh6	Ød1 <sup>T</sup>	I1.0	L	ØDh6	Ød1 <sup>T</sup>	I1	L	ØDh6
0.90	6.50	39	3	1.30	11.0	39	3	1.70	12.0	39	3
0.91	6.50	39	3	1.31	11.0	39	3	1.71	12.0	39	3
0.92	6.50	39	3	1.32	11.0	39	3	1.72	12.0	39	3
0.93	6.50	39	3	1.33	11.0	39	3	1.73	12.0	39	3
0.94	6.50	39	3	1.34	11.0	39	3	1.74	12.0	39	3
0.95	6.50	39	3	1.35	11.0	39	3	1.75	12.0	39	3
0.96	6.50	39	3	1.36	11.0	39	3	1.76	12.0	39	3
0.97	6.50	39	3	1.37	11.0	39	3	1.77	12.0	39	3
0.98	6.50	39	3	1.39	11.0	39	3	1.78	12.0	39	3
0.99	6.50	39	3	1.39	11.0	39	3	1.79	12.0	39	3
1.00	8.00	39	3	1.40	11.0	39	3	1.80	12.0	39	3
1.01	8.00	39	3	1.41	11.0	39	3	1.81	12.0	39	3
1.02	8.00	39	3	1.42	11.0	39	3	1.82	12.0	39	3
1.03	8.00	39	3	1.43	11.0	39	3	1.83	12.0	39	3
1.04	8.00	39	3	1.44	11.0	39	3	1.84	12.0	39	3
1.05	8.00	39	3	1.45	11.0	39	3	1.85	12.0	39	3
1.06	8.00	39	3	1.46	11.0	39	3	1.86	12.0	39	3
1.07	8.00	39	3	1.47	11.0	39	3	1.87	12.0	39	3
1.08	8.00	39	3	1.48	11.0	39	3	1.88	12.0	39	3
1.09	8.00	39	3	1.49	11.0	39	3	1.89	12.0	39	3
1.10	9.00	39	3	1.50	11.0	39	3	1.90	12.0	39	3
1.11	9.00	39	3	1.50	11.0	39	3	1.91	12.0	39	3
1.12	9.00	39	3	1.52	11.0	39	3	1.92	12.0	39	3
1.13	9.00	39	3	1.53	11.0	39	3	1.93	12.0	39	3
1.14	9.00	39	3	1.54	11.0	39	3	1.94	12.0	39	3
1.15	9.00	39	3	1.55	11.0	39	3	1.95	12.0	39	3
1.16	9.00	39	3	1.56	11.0	39	3	1.96	12.0	39	3
1.17	9.00	39	3	1.57	11.0	39	3	1.97	12.0	39	3
1.18	9.00	39	3	1.58	11.0	39	3	1.98	12.0	39	3
1.19	9.00	39	3	1.59	11.0	39	3	1.99	12.0	39	3
1.20	10.0	39	3	1.60	12.0	39	3	2.00	12.0	39	3
1.21	10.0	39	3	1.61	12.0	39	3	2.01	13.0	39	3
1.22	10.0	39	3	1.62	12.0	39	3	2.02	13.0	39	3
1.23	10.0	39	3	1.63	12.0	39	3	2.03	13.0	39	3
1.24	10.0	39	3	1.64	12.0	39	3	2.04	13.0	39	3
1.25	10.0	39	3	1.65	12.0	39	3	2.05	13.0	39	3
1.26	10.0	39	3	1.66	12.0	39	3	2.1	13.0	39	3
1.27	10.0	39	3	1.67	12.0	39	3	2.15	13.0	39	3
1.28	10.0	39	3	1.68	12.0	39	3	2.2	13.0	39	3
1.29	10.0	39	3	1.69	12.0	39	3	2.25	13.0	39	3



Ød1 <sup>T</sup>	l1	L	ØDh6
2.30	13.0	39	3
2.35	13.0	39	3
2.40	13.0	39	3
2.45	13.0	39	3
2.50	13.0	39	3
2.55	13.0	39	3
2.60	13.0	39	3
2.65	13.0	39	3
2.70	13.0	39	3
2.75	13.0	39	3
2.80	13.0	39	3
2.85	13.0	39	3
2.90	13.0	39	3
2.95	13.0	39	3



Demande de prix  
Price request  
Preisanfrage

Commande  
Order  
Bestellung



Ød1<sup>T</sup> \_\_\_\_\_

ØDh6 \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_°

Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

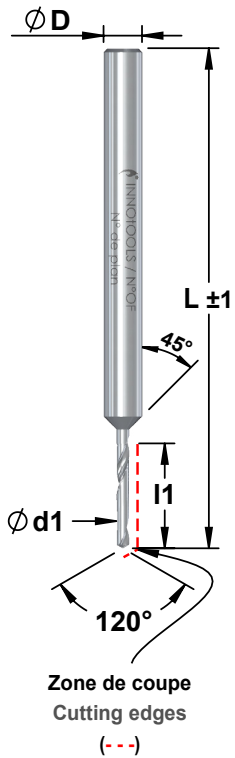
Quantité  
Quantity  
Quantität \_\_\_\_\_

Revêtement / Coating / Beschichtungen

- TiALN (Acier doux, inox / Mild steel, Stainless steel / Stahl, Inox)
- AlTiN (Aciers difficiles / Tough steel / Heikle Stähle)
- AlTiCrN (Alu, cuivre, titane / Alu, copper, Titan / Alu, Kupfer, Titan)
- Autre  
Other  
Andere \_\_\_\_\_

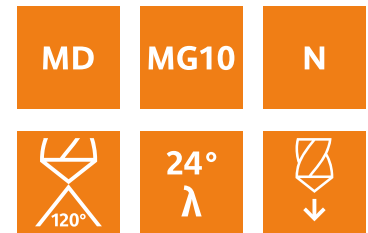
MD	MG10	N
	30° λ	

<sup>T</sup>Tol: Ød1 +0.005/ -0.01



Ød1 <sup>†</sup>	l1	L	ØDh6
0.200	0.80	30	2
0.205	0.80	30	2
0.210	0.80	30	2
0.215	0.80	30	2
0.220	0.80	30	2
0.225	0.80	30	2
0.230	0.80	30	2
0.235	0.80	30	2
0.240	0.80	30	2
0.245	0.80	30	2
0.250	0.80	30	2
0.255	0.80	30	2
0.260	0.80	30	2
0.265	0.80	30	2
0.270	0.80	30	2
0.275	0.80	30	2
0.280	0.80	30	2
0.285	0.80	30	2
0.290	0.80	30	2
0.295	0.80	30	2
0.300	1.50	30	2
0.305	1.50	30	2
0.310	1.50	30	2
0.315	1.50	30	2
0.320	1.50	30	2
0.325	1.50	30	2
0.330	1.50	30	2
0.335	1.50	30	2
0.340	1.50	30	2
0.345	1.50	30	2
0.350	1.50	30	2
0.355	1.50	30	2
0.360	1.50	30	2
0.365	1.50	30	2
0.370	1.50	30	2
0.375	1.50	30	2
0.390	1.50	30	2
0.395	1.50	30	2
0.390	1.50	30	2
0.395	1.50	30	2

1 lèvre hélicoïdale  
1 helical flute  
1 spiralisiert Zahn

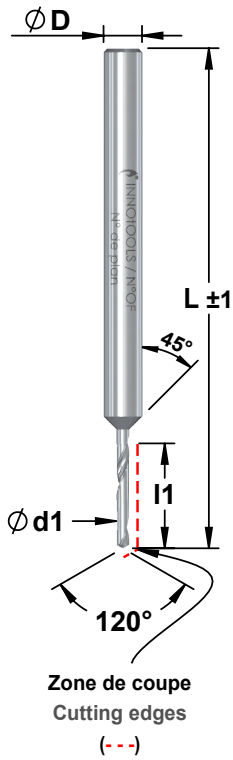


<sup>†</sup> Tol: Ød1 +0/ -0.002



Ød1 <sup>T</sup>	l1	L	ØDh6	Ød1 <sup>T</sup>	l1	L	ØDh6	Ød1 <sup>T</sup>	l1	L	ØDh6
0.400	2.00	30	2	0.600	3.00	30	2	0.800	4.00	30	2
0.405	2.00	30	2	0.605	3.00	30	2	0.805	4.00	30	2
0.410	2.00	30	2	0.610	3.00	30	2	0.810	4.00	30	2
0.415	2.00	30	2	0.615	3.00	30	2	0.815	4.00	30	2
0.420	2.00	30	2	0.620	3.00	30	2	0.820	4.00	30	2
0.425	2.00	30	2	0.625	3.00	30	2	0.825	4.00	30	2
0.430	2.00	30	2	0.630	3.00	30	2	0.830	4.00	30	2
0.435	2.00	30	2	0.635	3.00	30	2	0.835	4.00	30	2
0.440	2.00	30	2	0.640	3.00	30	2	0.840	4.00	30	2
0.445	2.00	30	2	0.645	3.00	30	2	0.845	4.00	30	2
0.450	2.00	30	2	0.650	3.00	30	2	0.850	4.00	30	2
0.455	2.00	30	2	0.655	3.00	30	2	0.855	4.00	30	2
0.460	2.00	30	2	0.660	3.00	30	2	0.860	4.00	30	2
0.465	2.00	30	2	0.665	3.00	30	2	0.865	4.00	30	2
0.470	2.00	30	2	0.670	3.00	30	2	0.870	4.00	30	2
0.475	2.00	30	2	0.675	3.00	30	2	0.875	4.00	30	2
0.480	2.00	30	2	0.680	3.00	30	2	0.880	4.00	30	2
0.485	2.00	30	2	0.685	3.00	30	2	0.885	4.00	30	2
0.490	2.00	30	2	0.690	3.00	30	2	0.890	4.00	30	2
0.495	2.00	30	2	0.695	3.00	30	2	0.895	4.00	30	2
0.500	2.50	30	2	0.700	3.50	30	2	0.900	5.00	30	2
0.505	2.50	30	2	0.705	3.50	30	2	0.905	5.00	30	2
0.510	2.50	30	2	0.710	3.50	30	2	0.910	5.00	30	2
0.515	2.50	30	2	0.715	3.50	30	2	0.915	5.00	30	2
0.520	2.50	30	2	0.720	3.50	30	2	0.920	5.00	30	2
0.525	2.50	30	2	0.725	3.50	30	2	0.925	5.00	30	2
0.530	2.50	30	2	0.730	3.50	30	2	0.930	5.00	30	2
0.535	2.50	30	2	0.735	3.50	30	2	0.935	5.00	30	2
0.540	2.50	30	2	0.740	3.50	30	2	0.940	5.00	30	2
0.545	2.50	30	2	0.745	3.50	30	2	0.945	5.00	30	2
0.550	2.50	30	2	0.750	3.50	30	2	0.950	5.00	30	2
0.555	2.50	30	2	0.755	3.50	30	2	0.955	5.00	30	2
0.560	2.50	30	2	0.760	3.50	30	2	0.960	5.00	30	2
0.565	2.50	30	2	0.765	3.50	30	2	0.965	5.00	30	2
0.570	2.50	30	2	0.770	3.50	30	2	0.970	5.00	30	2
0.575	2.50	30	2	0.775	3.50	30	2	0.975	5.00	30	2
0.580	2.50	30	2	0.780	3.50	30	2	0.980	5.00	30	2
0.585	2.50	30	2	0.785	3.50	30	2	0.985	5.00	30	2
0.590	2.50	30	2	0.790	3.50	30	2	0.990	5.00	30	2
0.595	2.50	30	2	0.795	3.50	30	2	0.995	5.00	30	2





<sup>†</sup> Tol: Ød1 +0/ -0.002

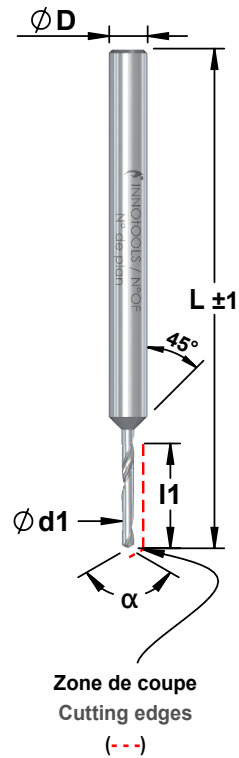
Ød1 <sup>†</sup>	l1	L	ØDh6	Ød1 <sup>†</sup>	l1	L	ØDh6
1.000	5.50	30	2	1.200	6.00	30	2
1.005	5.50	30	2	1.205	6.00	30	2
1.010	5.50	30	2	1.210	6.00	30	2
1.015	5.50	30	2	1.215	6.00	30	2
1.020	5.50	30	2	1.220	6.00	30	2
1.025	5.50	30	2	1.225	6.00	30	2
1.030	5.50	30	2	1.230	6.00	30	2
1.035	5.50	30	2	1.235	6.00	30	2
1.040	5.50	30	2	1.240	6.00	30	2
1.045	5.50	30	2	1.245	6.00	30	2
1.050	5.50	30	2	1.250	6.00	30	2
1.055	5.50	30	2	1.255	6.00	30	2
1.060	5.50	30	2	1.260	6.00	30	2
1.065	5.50	30	2	1.265	6.00	30	2
1.070	5.50	30	2	1.270	6.00	30	2
1.075	5.50	30	2	1.275	6.00	30	2
1.080	5.50	30	2	1.280	6.00	30	2
1.085	5.50	30	2	1.285	6.00	30	2
1.090	5.50	30	2	1.290	6.00	30	2
1.095	5.50	30	2	1.295	6.00	30	2
1.100	5.50	30	2	1.300	6.50	30	2
1.105	5.50	30	2	1.305	6.50	30	2
1.110	5.50	30	2	1.310	6.50	30	2
1.115	5.50	30	2	1.315	6.50	30	2
1.120	5.50	30	2	1.320	6.50	30	2
1.125	5.50	30	2	1.325	6.50	30	2
1.130	5.50	30	2	1.330	6.50	30	2
1.135	5.50	30	2	1.335	6.50	30	2
1.140	5.50	30	2	1.340	6.50	30	2
1.145	5.50	30	2	1.345	6.50	30	2
1.150	5.50	30	2	1.350	6.50	30	2
1.155	5.50	30	2	1.355	6.50	30	2
1.160	5.50	30	2	1.360	6.50	30	2
1.165	5.50	30	2	1.365	6.50	30	2
1.170	5.50	30	2	1.370	6.50	30	2
1.175	5.50	30	2	1.375	6.50	30	2
1.180	5.50	30	2	1.390	6.50	30	2
1.185	5.50	30	2	1.395	6.50	30	2
1.190	5.50	30	2	1.390	6.50	30	2
1.195	5.50	30	2	1.395	6.50	30	2



Ød1 <sup>T</sup>	I1	L	ØDh6	Ød1 <sup>T</sup>	I1	L	ØDh6	Ød1 <sup>T</sup>	I1	L	ØDh6
1.400	6.50	30	2	1.600	7.50	30	2	1.800	8.00	30	2
1.405	6.50	30	2	1.605	7.50	30	2	1.805	8.00	30	2
1.410	6.50	30	2	1.610	7.50	30	2	1.810	8.00	30	2
1.415	6.50	30	2	1.615	7.50	30	2	1.815	8.00	30	2
1.420	6.50	30	2	1.620	7.50	30	2	1.820	8.00	30	2
1.425	6.50	30	2	1.625	7.50	30	2	1.825	8.00	30	2
1.430	6.50	30	2	1.630	7.50	30	2	1.830	8.00	30	2
1.435	6.50	30	2	1.635	7.50	30	2	1.835	8.00	30	2
1.440	6.50	30	2	1.640	7.50	30	2	1.840	8.00	30	2
1.445	6.50	30	2	1.645	7.50	30	2	1.845	8.00	30	2
1.450	6.50	30	2	1.650	7.50	30	2	1.850	8.00	30	2
1.455	6.50	30	2	1.655	7.50	30	2	1.855	8.00	30	2
1.460	6.50	30	2	1.660	7.50	30	2	1.860	8.00	30	2
1.465	6.50	30	2	1.665	7.50	30	2	1.865	8.00	30	2
1.470	6.50	30	2	1.670	7.50	30	2	1.870	8.00	30	2
1.475	6.50	30	2	1.675	7.50	30	2	1.875	8.00	30	2
1.480	6.50	30	2	1.680	7.50	30	2	1.880	8.00	30	2
1.485	6.50	30	2	1.685	7.50	30	2	1.885	8.00	30	2
1.490	6.50	30	2	1.690	7.50	30	2	1.890	8.00	30	2
1.495	6.50	30	2	1.695	7.50	30	2	1.895	8.00	30	2
1.500	7.00	30	2	1.700	7.50	30	2	1.900	8.00	30	2
1.505	7.00	30	2	1.705	7.50	30	2	1.905	8.00	30	2
1.510	7.00	30	2	1.710	7.50	30	2	1.910	8.00	30	2
1.515	7.00	30	2	1.715	7.50	30	2	1.915	8.00	30	2
1.520	7.00	30	2	1.720	7.50	30	2	1.920	8.00	30	2
1.525	7.00	30	2	1.725	7.50	30	2	1.925	8.00	30	2
1.530	7.00	30	2	1.730	7.50	30	2	1.930	8.00	30	2
1.535	7.00	30	2	1.735	7.50	30	2	1.935	8.00	30	2
1.540	7.00	30	2	1.740	7.50	30	2	1.940	8.00	30	2
1.545	7.00	30	2	1.745	7.50	30	2	1.945	8.00	30	2
1.550	7.00	30	2	1.750	8.00	30	2	1.950	8.00	30	2
1.555	7.00	30	2	1.755	8.00	30	2	1.955	8.00	30	2
1.560	7.00	30	2	1.760	8.00	30	2	1.960	8.00	30	2
1.565	7.00	30	2	1.765	8.00	30	2	1.965	8.00	30	2
1.570	7.00	30	2	1.770	8.00	30	2	1.970	8.00	30	2
1.575	7.00	30	2	1.775	8.00	30	2	1.975	8.00	30	2
1.580	7.00	30	2	1.780	8.00	30	2	1.980	8.00	30	2
1.585	7.00	30	2	1.785	8.00	30	2	1.985	8.00	30	2
1.590	7.00	30	2	1.790	8.00	30	2	1.990	8.00	30	2
1.595	7.00	30	2	1.795	8.00	30	2	1.995	8.00	30	2



1 lèvre hélicoïdale  
1 helical flute  
1 spiralisiert Zahn



<sup>†</sup> Tol: Ød1 +0/ -0.002

Demande de prix  
Price request  
Preis Anfrage

Commande  
Order  
Bestellung

Ød1<sup>†</sup> \_\_\_\_\_ Tolérance \_\_\_\_\_

ØDh6 \_\_\_\_\_ l1 \_\_\_\_\_ α \_\_\_\_\_ °

Quantité  
Quantity  
Quantität \_\_\_\_\_

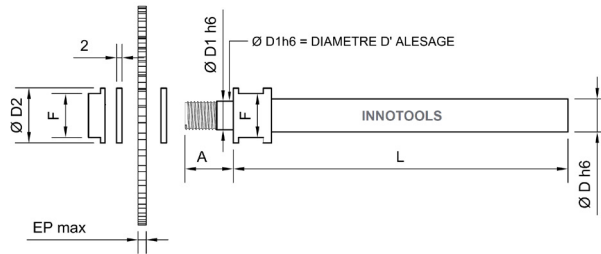
Matière à usiner  
Material to be machined  
Werkstoff zum Bearbeiten \_\_\_\_\_

# 7

## Fraises circulaires en Métal Dur (MD) Slitting saws in solid carbide (SC) Zirkularfräser / Scheibenfräser in VHM



<b>Tasseaux droit à serrage avant (MD)</b> Straight cleats with front clamping (SC) Aufspanndorn mit Frontal Klemmung (VHM)	<b>142</b>
<b>Tasseaux droit à serrage arrière (MD)</b> Straight cleats with back clamping (SC) Aufspanndorn mit ruckseitige Klemmung (VHM)	<b>143</b>
<b>Fraises circulaires – Denture extra-fine (MD)</b> Slitting saws – Extra fine pitch (SC) Zirkularfräser – Extra-feine Verzahnung (VHM)	<b>144-147</b>
<b>Fraises circulaires – Denture fine (MD)</b> Slitting saws – Fine pitch (SC) Zirkularfräser – Feine Verzahnung (VHM)	<b>148-151</b>
<b>Fraises circulaires – Denture grosse (MD)</b> Slitting saws – Coarse pitch (SC) Zirkularfräser – Grobe Verzahnung (VHM)	<b>152-154</b>

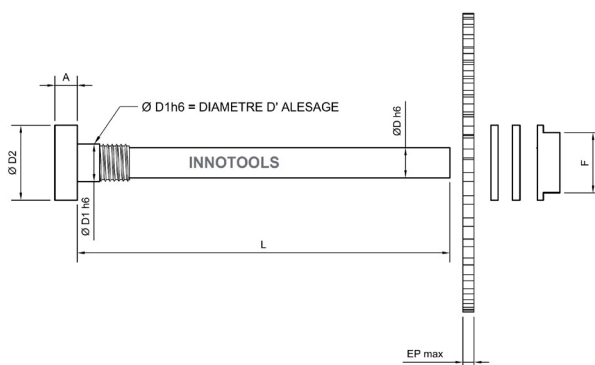


**En acier rapide**  
**Jusqu'à 6 mm**  
**d'épaisseur**  
**Rotation à droite**  
 High-speed steel  
 Up to 6 mm  
 Right-hand rotation  
 In HSS  
 Dicke bis 6 mm  
 Rotation rechtsdrehend

Ref.	ØD1	ØD2	ØD	L	A	F	ep max
690-3-5-5	3	5	5	60	7	4	3
690-5-6-10	5	10	6	70	9	8	6
690-5-6-7.5	5	7.5	6	70	7	6	3
690-5-10-10	5	10	10	80	9	8	6
690-6-10-12	6	12	10	80	9.5	10	6
690-8-10-15	8	15	10	80	10	13	6
690-8-12-15	8	15	12	90	10	13	6
6 90-10-6-18	10	18	6	80	10.5	15	6
690-10-10-18	10	18	10	80	10.5	15	6
690-10-16-18	10	18	16	100	10.5	15	6
690-13-16-22	13	22	16	110	11	19	6
690-16-10-22	16	22	10	80	8	19	6
690-16-20-26	16	26	20	120	12	22	6
690-22-16-32	22	32	16	132	13	27	6

**Tasseaux droit à serrage arrière**  
**Straight cleats with back clamping**  
**Aufspanndorne mit ruckseitige Klemmung**

**695**



**En acier rapide**  
**Jusqu'à 6 mm**  
**d'épaisseur**  
**High-speed steel**  
**Up to 6 mm**  
**In HSS**  
**Dicke bis 6 mm**

**Gauche**  
**left**  
**Links**

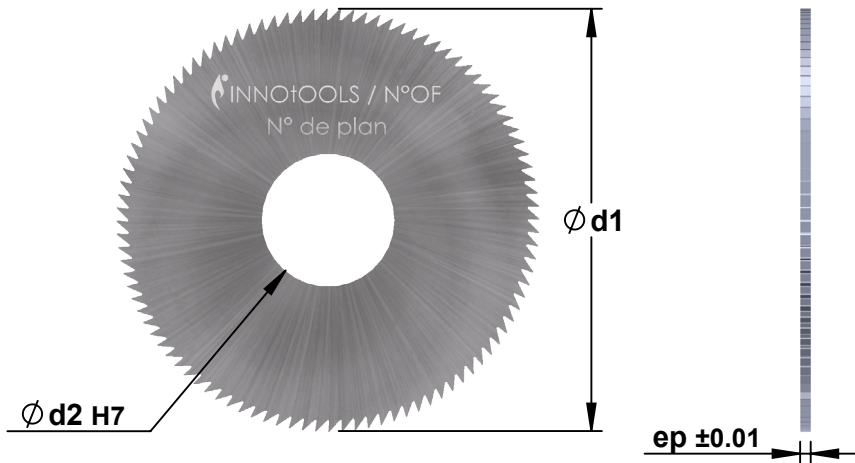
**695**

REF	ØD1	ØD2	ØD	L	A	F	ep max
695-G-5-4	5	10	4	50	3	8	6
695-G-6-5	6	12	5	60	3	10	6
695-G-8-6	8	15	6	70	3	13	6
695-G-10-6	10	18	6	70	3.5	15	6

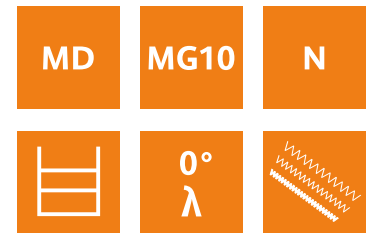
**Droite**  
**right**  
**recht**

**695**

REF	ØD1	ØD2	ØD	L	A	F	ep max
695-D-5-4	5	10	4	50	3	8	6
695-D-6-5	6	12	5	60	3	10	6
695-D-8-6	8	15	6	70	3	13	6
695-D-8-7	8	15	7	80	3	13	6
695-D-10-6	10	18	6	70	3.5	15	6
695-D-10-8	10	18	8	90	3.5	15	6
695-D-13-10	13	22	10	110	3.5	19	6
695-D-16-12	16	26	12	120	3.5	22	6



**Denture extra-fine**  
Extra fine pitch  
Extra-feine Verzahnung



Ød1	Ød2 H7	ep ± 0.01	Z
8	3	0.10	48
8	3	0.15	48
8	3	0.20	48
8	3	0.25	48
8	3	0.30	48
8	3	0.35	48
8	3	0.40	48
8	3	0.50	48
8	3	0.60	48
8	3	0.70	48
8	3	0.80	48
8	3	0.90	48
8	3	1.00	48

Ød1	Ød2 H7	ep ± 0.01	Z
10	3	0.10	64
10	3	0.15	64
10	3	0.20	64
10	3	0.25	64
10	3	0.30	64
10	3	0.35	64
10	3	0.40	64
10	3	0.50	64
10	3	0.60	64
10	3	0.70	64
10	3	0.80	64
10	3	0.90	64
10	3	1.00	64



Ød1	Ød2 H7	ep ± 0.01	Z
12	5	0.10	64
12	5	0.15	64
12	5	0.20	64
12	5	0.25	64
12	5	0.30	64
12	5	0.35	64
12	5	0.40	64
12	5	0.50	64
12	5	0.60	64
12	5	0.70	64
12	5	0.80	64
12	5	0.90	64
12	5	1.00	64

Ød1	Ød2 H7	ep ± 0.01	Z
15	5	0.10	80
15	5	0.15	80
15	5	0.20	80
15	5	0.25	80
15	5	0.30	80
15	5	0.35	80
15	5	0.40	80
15	5	0.50	80
15	5	0.60	80
15	5	0.70	80
15	5	0.80	80
15	5	0.90	80
15	5	1.00	80
15	5	1.20	80
15	5	1.50	80
15	5	2.00	80
15	5	2.50	80
15	5	3.00	80

Ød1	Ød2 H7	ep ± 0.01	Z
20	5	0.10	100
20	5	0.15	100
20	5	0.20	100
20	5	0.25	100
20	5	0.25	80
20	5	0.30	100
20	5	0.35	100
20	5	0.35	80
20	5	0.40	100
20	5	0.40	80
20	5	0.50	100
20	5	0.50	80
20	5	0.60	80
20	5	0.70	80
20	5	0.80	80
20	5	0.90	80
20	5	1.00	80
20	5	1.20	80
20	5	1.50	80
20	5	2.00	80
20	5	2.50	80
20	5	3.00	80

Ød1	Ød2 H7	ep ± 0.01	Z
25	5	0.10	80
25	5	0.15	80
25	5	0.20	80
25	5	0.25	80
25	5	0.30	80
25	5	0.35	80
25	5	0.40	80
25	5	0.50	80
25	5	0.60	80
25	5	0.70	80
25	5	0.80	80
25	5	0.90	80
25	5	1.00	80
25	5	1.20	80
25	5	1.50	80
25	5	2.00	80
25	5	2.50	80
25	5	3.00	80

Ød1	Ød2 H7	ep ± 0.01	Z
25	6	0.15	100
25	6	0.20	100
25	6	0.25	100
25	6	0.30	100
25	6	0.35	100
25	6	0.40	100
25	6	0.50	100
25	6	0.60	100
25	6	0.70	100
25	6	0.80	100
25	6	0.90	100
25	6	1.00	100
25	6	1.20	100
25	6	1.50	100
25	6	2.00	100
25	6	2.50	100
25	6	3.00	100

Ød1	Ød2 H7	ep ± 0.01	Z
25	8	0.15	100
25	8	0.20	100
25	8	0.25	100
25	8	0.30	100
25	8	0.35	100
25	8	0.40	100
25	8	0.50	100
25	8	0.60	100
25	8	0.70	100
25	8	0.80	100
25	8	0.90	100
25	8	1.00	100
25	8	1.20	100
25	8	1.50	100
25	8	2.00	100
25	8	2.50	100
25	8	3.00	100



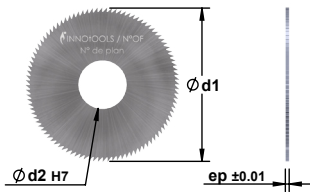


Ød1	Ød2 H7	ep ± 0.01	Z
30	8	0.30	100
30	8	0.35	100
30	8	0.40	100
30	8	0.50	100
30	8	0.60	100
30	8	0.70	100
30	8	0.80	100
30	8	0.90	100
30	8	1.00	100
30	8	1.20	100
30	8	1.50	100
30	8	2.00	100
30	8	2.50	100
30	8	3.00	100

Ød1	Ød2 H7	ep ± 0.01	Z
32	8	0.15	96
32	8	0.20	96
32	8	0.25	96
32	8	0.30	96
32	8	0.35	96
32	8	0.40	96
32	8	0.50	96
32	8	0.60	96
32	8	0.70	96
32	8	0.80	96
32	8	0.90	96
32	8	1.00	96
32	8	1.20	96
32	8	1.50	96
32	8	2.00	96
32	8	2.50	96
32	8	3.00	96

Ød1	Ød2 H7	ep ± 0.01	Z
40	8	0.15	100
40	8	0.15	160
40	8	0.20	100
40	8	0.20	160
40	8	0.25	100
40	8	0.25	160
40	8	0.30	100
40	8	0.30	160
40	8	0.35	100
40	8	0.35	160
40	8	0.40	100
40	8	0.40	160
40	8	0.50	100
40	8	0.50	160
40	8	0.60	100
40	8	0.60	160
40	8	0.70	100
40	8	0.70	160
40	8	0.80	100
40	8	0.80	160
40	8	0.90	100
40	8	0.90	160
40	8	1.00	100
40	8	1.00	160
40	8	1.20	100
40	8	1.20	160
40	8	1.50	100
40	8	1.50	160
40	8	2.00	100
40	8	2.00	160
40	8	2.50	100
40	8	2.50	160
40	8	3.00	100
40	8	3.00	160

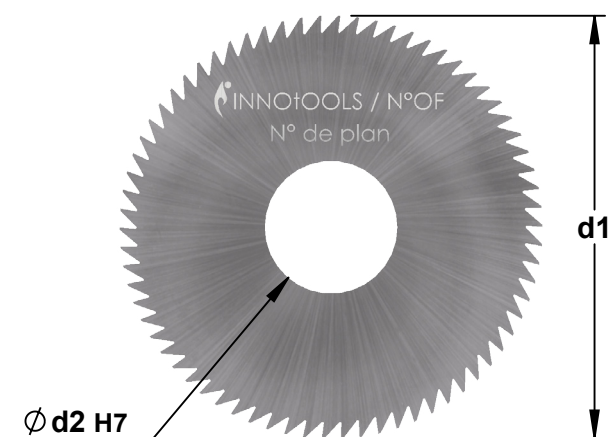
Ød1	Ød2 H7	ep ± 0.01	Z
40	10	0.15	100
40	10	0.15	160
40	10	0.20	100
40	10	0.20	160
40	10	0.25	160
40	10	0.30	160
40	10	0.35	160
40	10	0.40	100
40	10	0.40	160
40	10	0.50	160
40	10	0.60	100
40	10	0.60	160
40	10	0.70	100
40	10	0.70	160
40	10	0.80	100
40	10	0.80	160
40	10	0.90	100
40	10	0.90	160
40	10	1.00	100
40	10	1.00	160
40	10	1.20	100
40	10	1.20	160
40	10	1.50	100
40	10	1.50	160
40	10	2.00	100
40	10	2.00	160
40	10	2.50	100
40	10	2.50	160
40	10	3.00	100
40	10	3.00	160



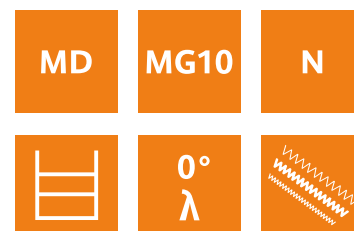
Ød1	Ød2 H7	ep ± 0.01	Z
45	8	0.15	100
45	8	0.15	160
45	8	0.20	100
45	8	0.20	160
45	8	0.25	100
45	8	0.25	160
45	8	0.30	100
45	8	0.30	160
45	8	0.35	100
45	8	0.35	160
45	8	0.40	100
45	8	0.40	160
45	8	0.50	100
45	8	0.50	160
45	8	0.60	100
45	8	0.60	160
45	8	0.70	100
45	8	0.70	160
45	8	0.80	100
45	8	0.80	160
45	8	0.90	100
45	8	0.90	160
45	8	1.00	100
45	8	1.00	160
45	8	1.20	100
45	8	1.20	160
45	8	1.50	100
45	8	1.50	160
45	8	2.00	100
45	8	2.00	160
45	8	2.50	100
45	8	2.50	160
45	8	3.00	100
45	8	3.00	160

Ød1	Ød2 H7	ep ± 0.01	Z
50	10	0.20	100
50	10	0.25	100
50	10	0.30	100
50	10	0.35	100
50	10	0.40	100
50	10	0.50	100
50	10	0.60	100
50	10	0.70	100
50	10	0.80	100
50	10	0.90	100
50	10	1.00	100
50	10	1.20	100
50	10	1.50	100
50	10	2.00	100
50	10	2.50	100
50	10	3.00	100
50	13	0.25	120
50	13	0.30	120
50	13	0.35	120
50	13	0.40	120
50	13	0.50	120
50	13	0.60	120
50	13	0.70	120
50	13	0.80	120
50	13	0.90	120
50	13	1.00	120
50	13	1.20	120
50	13	1.50	120
50	13	2.00	120
50	13	2.50	120
50	13	3.00	120

Ød1	Ød2 H7	ep ± 0.01	Z
63	16	0.25	120
63	16	0.30	120
63	16	0.35	120
63	16	0.40	120
63	16	0.50	120
63	16	0.60	120
63	16	0.70	120
63	16	0.80	120
63	16	0.90	120
63	16	1.00	120
63	16	1.20	120
63	16	1.50	120
63	16	2.00	120
63	16	2.50	120
63	16	3.00	120
Ød1	Ød2 H7	ep ± 0.01	Z
80	16	0.50	128
80	16	0.60	128
80	16	0.70	128
80	16	0.80	128
80	16	0.90	128
80	16	1.00	128
80	16	1.20	128
80	16	1.50	128
80	16	2.00	128
80	16	2.50	128
80	16	3.00	128



**Denture fine**  
 Fine pitch  
 Feine Verzahnung



Ød1	Ød2 H7	ep ± 0.01	Z
15	5	0.10	64
15	5	0.15	64
15	5	0.20	64
15	5	0.25	64
15	5	0.30	64
15	5	0.35	64
15	5	0.40	64
15	5	0.45	64
15	5	0.50	48
15	5	0.60	48
15	5	0.70	48
15	5	0.80	40
15	5	0.90	40
15	5	1.00	40
15	5	1.10	40
15	5	1.20	40
15	5	1.30	40
15	5	1.40	40
15	5	1.50	40
15	5	1.60	40
15	5	1.70	40
15	5	1.80	40
15	5	1.90	40
15	5	2.00	40
15	5	2.50	40
15	5	3.00	40
15	5	3.50	24
15	5	4.00	24
15	5	5.00	24
15	5	6.00	24



Ød1	Ød2 H7	ep ± 0.01	Z	Ød1	Ød2 H7	ep ± 0.01	Z	Ød1	Ød2 H7	ep ± 0.01	Z
20	5	0.10	80	25	8	0.10	80	30	8	0.10	100
20	5	0.15	80	25	8	0.15	80	30	8	0.15	100
20	5	0.20	80	25	8	0.20	80	30	8	0.20	100
20	5	0.25	64	25	8	0.25	80	30	8	0.25	100
20	5	0.30	64	25	8	0.30	80	30	8	0.30	80
20	5	0.35	64	25	8	0.35	64	30	8	0.35	80
20	5	0.40	64	25	8	0.40	64	30	8	0.40	80
20	5	0.45	48	25	8	0.45	64	30	8	0.45	80
20	5	0.50	48	25	8	0.50	64	30	8	0.50	80
20	5	0.60	48	25	8	0.60	64	30	8	0.60	64
20	5	0.70	48	25	8	0.70	48	30	8	0.70	64
20	5	0.80	40	25	8	0.80	48	30	8	0.80	64
20	5	0.90	40	25	8	0.90	48	30	8	0.90	64
20	5	1.00	40	25	8	1.00	48	30	8	1.00	64
20	5	1.10	40	25	8	1.10	48	30	8	1.10	48
20	5	1.20	40	25	8	1.20	48	30	8	1.20	48
20	5	1.30	40	25	8	1.30	40	30	8	1.30	48
20	5	1.40	40	25	8	1.40	40	30	8	1.40	48
20	5	1.50	40	25	8	1.50	40	30	8	1.50	48
20	5	1.60	40	25	8	1.60	40	30	8	1.60	48
20	5	1.70	32	25	8	1.70	40	30	8	1.70	48
20	5	1.80	32	25	8	1.80	40	30	8	1.80	48
20	5	1.90	32	25	8	1.90	40	30	8	1.90	48
20	5	2.00	32	25	8	2.00	40	30	8	2.00	48
20	5	2.50	32	25	8	2.50	40	30	8	2.50	40
20	5	3.00	32	25	8	3.00	32	30	8	3.00	40
20	5	3.50	24	25	8	3.50	32	30	8	3.50	40
20	5	4.00	24	25	8	4.00	32	30	8	4.00	40
20	5	5.00	24	25	8	5.00	32	30	8	5.00	32
20	5	6.00	24	25	8	6.00	24	30	8	6.00	32



Ød1	Ød2 H7	ep ± 0.01	Z	Ød1	Ød2 H7	ep ± 0.01	Z	Ød1	Ød2 H7	ep ± 0.01	Z
40	10	0.10	128	50	13	0.20	128	63	16	0.20	160
40	10	0.15	128	50	13	0.25	128	63	16	0.25	128
40	10	0.20	128	50	13	0.30	128	63	16	0.30	128
40	10	0.25	100	50	13	0.35	100	63	16	0.35	128
40	10	0.30	100	50	13	0.40	100	63	16	0.40	128
40	10	0.35	100	50	13	0.45	100	63	16	0.45	128
40	10	0.40	100	50	13	0.50	100	63	16	0.50	128
40	10	0.45	80	50	13	0.60	100	63	16	0.60	100
40	10	0.50	80	50	13	0.70	80	63	16	0.70	100
40	10	0.60	80	50	13	0.80	80	63	16	0.80	100
40	10	0.70	80	50	13	0.90	80	63	16	0.90	100
40	10	0.80	80	50	13	1.00	80	63	16	1.00	100
40	10	0.90	64	50	13	1.10	80	63	16	1.10	80
40	10	1.00	64	50	13	1.20	80	63	16	1.20	80
40	10	1.10	64	50	13	1.30	64	63	16	1.30	80
40	10	1.20	64	50	13	1.40	64	63	16	1.40	80
40	10	1.30	64	50	13	1.50	64	63	16	1.50	80
40	10	1.40	64	50	13	1.60	64	63	16	1.60	80
40	10	1.50	64	50	13	1.70	64	63	16	1.70	80
40	10	1.60	64	50	13	1.80	64	63	16	1.80	80
40	10	1.70	48	50	13	1.90	64	63	16	1.90	80
40	10	1.80	48	50	13	2.00	64	63	16	2.00	80
40	10	1.90	48	50	13	2.50	64	63	16	2.50	64
40	10	2.00	48	50	13	3.00	48	63	16	3.00	64
40	10	2.50	48	50	13	3.50	48	63	16	3.50	64
40	10	3.00	48	50	13	4.00	48	63	16	4.00	64
40	10	3.50	40	50	13	5.00	48	63	16	5.00	48
40	10	4.00	40	50	13	6.00	40	63	16	6.00	48
40	10	5.00	40								
40	10	6.00	40								

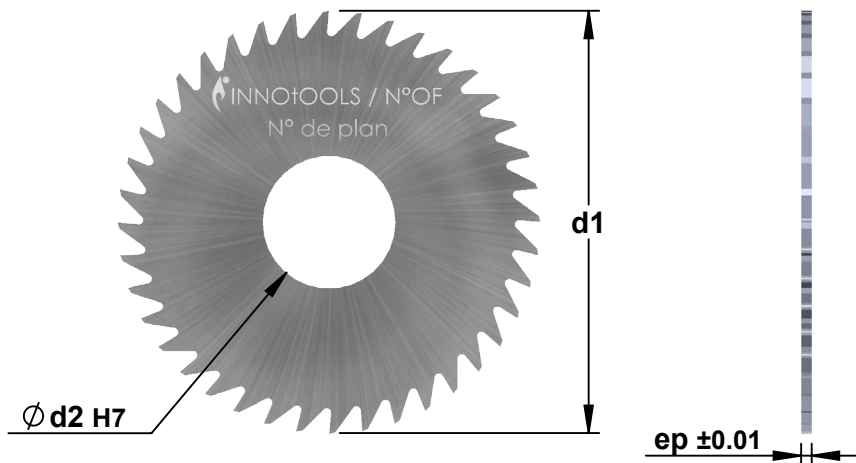


Ød1	Ød2 H7	ep ± 0.01	Z
63	22	0.30	160
63	22	0.35	160
63	22	0.40	160
63	22	0.45	128
63	22	0.50	128
63	22	0.60	128
63	22	0.70	128
63	22	0.80	128
63	22	0.90	100
63	22	1.00	100
63	22	1.10	100
63	22	1.20	100
63	22	1.30	100
63	22	1.40	100
63	22	1.50	100
63	22	1.60	100
63	22	1.70	80
63	22	1.80	80
63	22	1.90	80
63	22	2.00	80
63	22	2.50	80
63	22	3.00	80
63	22	3.50	64
63	22	4.00	64
63	22	5.00	64
63	22	6.00	64

Ød1	Ød2 H7	ep ± 0.01	Z
100	22	0.50	160
100	22	0.60	160
100	22	0.70	128
100	22	0.80	128
100	22	0.90	128
100	22	1.00	128
100	22	1.10	128
100	22	1.20	128
100	22	1.30	100
100	22	1.40	100
100	22	1.50	100
100	22	1.60	100
100	22	1.70	100
100	22	1.80	100
100	22	1.90	100
100	22	2.00	100
100	22	2.50	100
100	22	3.00	80
100	22	3.50	80
100	22	4.00	80
100	22	5.00	80
100	22	6.00	64

Ød1	Ød2 H7	ep ± 0.01	Z
125	22	0.60	160
125	22	0.70	160
125	22	0.80	160
125	22	0.90	160
125	22	1.00	160
125	22	1.10	128
125	22	1.20	128
125	22	1.40	128
125	22	1.50	128
125	22	1.60	128
125	22	1.80	128
125	22	2.00	128
125	22	2.50	100
125	22	3.00	100
125	22	3.50	100
125	22	4.00	100
125	22	5.00	100
125	22	6.00	100

Ød1	Ød2 H7	ep ± 0.01	Z
160	32	1.00	160
160	32	1.20	160
160	32	1.50	160
160	32	1.60	160
160	32	1.80	128
160	32	2.00	128
160	32	2.50	128
160	32	3.00	128



**Denture grosse**  
Coarse pitch  
Grobe Verzahnung



Ød1	Ød2 H7	ep ± 0.01	Z
15	5	0.20	20
15	5	0.25	20
15	5	0.30	20
15	5	0.40	20
15	5	0.50	20
15	5	0.60	20
15	5	0.70	20
15	5	0.80	20
15	5	0.90	20
15	5	1.00	20
15	5	1.20	20
15	5	1.50	20
15	5	1.60	20
15	5	1.80	20
15	5	2.00	20
15	5	2.50	20
15	5	3.00	20
15	5	4.00	20
15	5	5.00	20
15	5	6.00	20



Ød1	Ød2 H7	ep ± 0.01	Z
20	5	0.20	20
20	5	0.25	20
20	5	0.30	20
20	5	0.40	20
20	5	0.50	20
20	5	0.60	20
20	5	0.70	20
20	5	0.80	20
20	5	0.90	20
20	5	1.00	20
20	5	1.20	20
20	5	1.50	20
20	5	1.60	20
20	5	1.80	20
20	5	2.00	20
20	5	2.50	20
20	5	3.00	20
20	5	4.00	20
20	5	5.00	20
20	5	6.00	20

Ød1	Ød2 H7	ep ± 0.01	Z
25	8	0.20	20
25	8	0.25	20
25	8	0.30	20
25	8	0.40	20
25	8	0.50	20
25	8	0.60	20
25	8	0.70	20
25	8	0.80	20
25	8	0.90	20
25	8	1.00	20
25	8	1.20	20
25	8	1.50	20
25	8	1.60	20
25	8	1.80	20
25	8	2.00	20
25	8	2.50	20
25	8	3.00	20
25	8	4.00	20
25	8	5.00	20
25	8	6.00	20

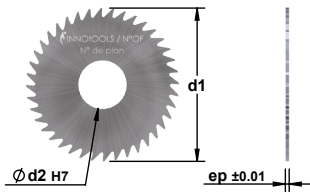
Ød1	Ød2 H7	ep ± 0.01	Z
30	8	0.20	20
30	8	0.25	20
30	8	0.30	20
30	8	0.40	20
30	8	0.50	20
30	8	0.60	20
30	8	0.70	20
30	8	0.80	20
30	8	0.90	20
30	8	1.00	20
30	8	1.20	20
30	8	1.50	20
30	8	1.60	20
30	8	1.80	20
30	8	2.00	20
30	8	2.50	20
30	8	3.00	20
30	8	4.00	20
30	8	5.00	20
30	8	6.00	20

Ød1	Ød2 H7	ep ± 0.01	Z
40	10	0.20	40
40	10	0.25	40
40	10	0.30	40
40	10	0.40	40
40	10	0.50	40
40	10	0.60	40
40	10	0.70	40
40	10	0.80	32
40	10	0.90	32
40	10	1.00	32
40	10	1.20	32
40	10	1.50	32
40	10	1.60	32
40	10	1.80	24
40	10	2.00	24
40	10	2.50	24
40	10	3.00	24
40	10	4.00	20
40	10	5.00	20
40	10	6.00	20

Ød1	Ød2 H7	ep ± 0.01	Z
63	16	0.40	64
63	16	0.50	64
63	16	0.60	48
63	16	0.70	48
63	16	0.80	48
63	16	0.90	48
63	16	1.00	48
63	16	1.20	40
63	16	1.50	40
63	16	1.60	40
63	16	1.80	40
63	16	2.00	40
63	16	2.50	32
63	16	3.00	32
63	16	4.00	32
63	16	5.00	24
63	16	6.00	24

Ød1	Ød2 H7	ep ± 0.01	Z
50	13	0.40	48
50	13	0.50	48
50	13	0.60	48
50	13	0.70	40
50	13	0.80	40
50	13	0.90	40
50	13	1.00	40
50	13	1.20	40
50	13	1.50	32
50	13	1.60	32
50	13	1.80	32
50	13	2.00	32
50	13	2.50	32
50	13	3.00	24
50	13	4.00	24
50	13	5.00	24
50	13	6.00	20





Ød1	Ød2 H7	ep ± 0.01	Z
80	22	0.60	64
80	22	0.70	64
80	22	0.80	64
80	22	0.90	48
80	22	1.00	48
80	22	1.20	48
80	22	1.50	48
80	22	1.60	48
80	22	1.80	40
80	22	2.00	40
80	22	2.50	40
80	22	3.00	40
80	22	4.00	32
80	22	5.00	32
80	22	6.00	32

Ød1	Ød2 H7	ep ± 0.01	Z
100	22	0.60	80
100	22	0.70	64
100	22	0.80	64
100	22	0.90	64
100	22	1.00	64
100	22	1.20	64
100	22	1.50	48
100	22	1.60	48
100	22	1.80	48
100	22	2.00	48
100	22	2.50	48
100	22	3.00	40
100	22	4.00	40
100	22	5.00	40
100	22	6.00	32

Ød1	Ød2 H7	ep ± 0.01	Z
125	22	0.80	80
125	22	0.90	80
125	22	1.00	80
125	22	1.20	64
125	22	1.50	64
125	22	1.60	64
125	22	1.80	64
125	22	2.00	64
125	22	2.50	48
125	22	3.00	48
125	22	4.00	48
125	22	5.00	40
125	22	6.00	40

Ød1	Ød2 H7	ep ± 0.01	Z
160	32	1.00	80
160	32	1.20	64
160	32	1.50	64
160	32	2.00	64
160	32	2.50	48
160	32	3.00	48



**INNOTOOLS**

Innovateur d'outils coupants



Désignation Designation Bezeichnung	Utilisation Use case Verwendung	Dureté (HV) Hardness Härte	Coeff.frottement ( $\mu$ ) Friction coefficient Reibungskoeffizient	Température max (°C) Maximum temperature Maximale Temperatur
<i>TiCN</i>	<i>Acier doux, inox Mild steel, Stainless steel Stahl, Inox</i>	<i>3500</i>	<i>0.2</i>	<i>400</i>
<i>TiALN</i>	<i>Acier doux, inox Mild steel, Stainless steel Stahl, Inox</i>	<i>3300</i>	<i>0.7</i>	<i>800</i>
<i>SISTRAL</i>	<i>Aciers difficiles Tough steel Heikle Stähle</i>	<i>3500</i>	<i>0.7</i>	<i>900</i>
<i>AlTiCrN</i>	<i>Alu, cuivre, titane Alu, copper, Titan Alu, Kupfer, Titan</i>	<i>3000</i>	<i>0.4</i>	<i>800</i>
<i>Inocut</i>	<i>Aciers difficiles (58-60 HRC) Tough steel (58-60 HRC) Heikle Stähle (58-60 HRC)</i>	<i>3900</i>	<i>0.5</i>	<i>1100</i>
<i>Platidiam</i>	<i>Non ferreux, or, platine Non ferrous, gold, plati- num Nichteisen, Gold, Platin</i>	<i>7000</i>	<i>0.1</i>	<i>500</i>
<i>Diamant</i>	<i>Platine, or, tungstène Platinum, gold, tungsten Platin, Gold, Wolfram</i>	<i>10000</i>	<i>-</i>	<i>650</i>

Les valeurs proposées dans les tableaux suivants sont indicatives et concernent les outils en métal dur. D'autres conditions de coupe (matière, machine, etc...) peuvent exiger des paramètres différents.

The values shown in the following tables are indicative and for solid carbide tools, Other machining conditions (material, machine, etc...) may demand different parameters.

Die in den folgenden Tabellen vorgeschlagenen Werte sind Richtwerte und beziehen sich auf Werkzeuge aus Vollhartmetall. Andere Schnittbedingungen (Material, Maschine usw.) können andere Parameter erfordern.

**Vitesse de rotation (n):**  
**Rotation speed (n):**  
**Drehgeschwindigkeit (n):**

$$\frac{318 \times Vc}{D} = n$$

**Avance (mm/min):**  
**Feed (mm/min):**  
**Vorschub (mm/min):**

$$n \times Z \times 0.003 \text{ to } 0.007 = Vf$$

## Aciers doux Mild steel Stahl

Opération Operation Operation	Dureté matière (N/mm²) Material hardness Materialhärte	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	<450	100 - 150	0.002 - 0.01	0.01 - 0.07	0.07 - 0.08
	450 - 700	70 - 120	0.002 - 0.006	0.009 - 0.07	0.07 - 0.07
	700 - 900	70 - 110	0.002 - 0.006	0.009 - 0.07	0.07 - 0.07
	>900	65 - 100	0.002 - 0.008	0.009 - 0.05	0.06 - 0.07
Perçage Drilling Bohren	<450	70 - 90	0.001 - 0.01	0.01 - 0.07	0.07 - 0.08
	450 - 700	65 - 85	0.001 - 0.01	0.01 - 0.07	0.07 - 0.08
	700 - 900	55 - 70	0.003 - 0.009	0.009 - 0.06	0.07 - 0.07
	>900	40 - 55	0.003 - 0.008	0.009 - 0.05	0.06 - 0.07

## Aciers inox Stainless steel Inox

Opération Operation Operation	Dureté matière (N/mm²) Material hardness Materialhärte	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) Ø10-Ø20
Fraisage Milling Fräsen	<650	50 - 110	0.002 - 0.004	0.004 - 0.04	0.04-0.1
	650 - 950	40 - 100	0.002 - 0.003	0.003 - 0.035	0.035-0.08
	>950	35 - 70	0.002 - 0.003	0.003 - 0.03	0.03-0.07
Perçage Drilling Bohren	<650	40 - 50	0.001 - 0.005	0.009 - 0.05	0.06 - 0.07
	650 - 950	35 - 45	0.001 - 0.007	0.008 - 0.05	0.05 - 0.06
	>950	30 - 40	0.001 - 0.007	0.008 - 0.05	0.05 - 0.06

## Métaux précieux Precious metals Edelmetalle

Opération Operation Operation	Matières Materials Materialien	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	Or/Argent	100 - 150	0.002 - 0.009	0.01 - 0.07	0.07 - 0.08
	Platine	60 - 80	0.001 - 0.006	0.006 - 0.06	0.06 - 0.12
Perçage Drilling Bohren	Or/Argent	50 - 95	0.001 - 0.009	0.01 - 0.07	0.07 - 0.08
	Platine	70	-	-	-

## Aluminium Aluminium Aluminium

Opération Operation Operation	Dureté matière (% Si) Material hardness Materialhärte	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	<0.5	100 - 150	0.003 - 0.013	0.014 - 0.09	0.1 - 0.11
	0.5 - 8	100 - 120	0.003 - 0.013	0.014 - 0.09	0.1 - 0.11
	>8	80 - 100	0.003 - 0.012	0.013 - 0.08	0.09 - 0.1
Perçage Drilling Bohren	<0.5	175 - 190	0.002 - 0.013	0.014 - 0.09	0.1 - 0.11
	0.5 - 8	150 - 170	0.002 - 0.013	0.014 - 0.09	0.1 - 0.11
	>8	100 - 120	0.002 - 0.012	0.013 - 0.08	0.09 - 0.1

## Cuivre, laiton, bronze Copper, brass, bronze Kupfer, Messing, Bronze

Opération Operation Operation	Dureté matière (N/mm <sup>2</sup> ) Material hardness Materialhärte	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	<850	150 - 300	0.003 - 0.013	0.015 - 0.09	0.1 - 0.11
	>850	120	0.003 - 0.011	0.012 - 0.07	0.08 - 0.09
Perçage Drilling Bohren	<850	80 - 100	0.002 - 0.013	0.015 - 0.09	0.1 - 0.11
	>850	55 - 60	0.002 - 0.011	0.012 - 0.07	0.08 - 0.09

## Titane Titanium Titan

Opération Operation Operation	Dureté matière (N/mm <sup>2</sup> ) Material hardness Materialhärte	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	<800	30 - 70	0.002 - 0.009	0.01 - 0.07	0.07 - 0.08
	>800	20 - 60	0.002 - 0.009	0.01 - 0.07	0.07 - 0.08
Perçage Drilling Bohren	<800	30	0.001 - 0.009	0.01 - 0.07	0.07 - 0.08
	>800	25	0.001 - 0.009	0.01 - 0.07	0.07 - 0.08

## Aciers trempés Hardened steel Gehärteter Stahl

Opération Operation Operation	Dureté matière (N/mm <sup>2</sup> ) Material hardness Materialhärte	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	44 - 56 HRC	90 - 110	0.003 - 0.011	0.012 - 0.07	0.08 - 0.09
	57 - 67 HRC	50 - 60	0.002 - 0.009	0.01 - 0.07	0.07 - 0.08
Perçage Drilling Bohren	44 - 56 HRC	90 - 110	0.002 - 0.011	0.012 - 0.07	0.08 - 0.09
	57 - 67 HRC	50 - 60	0.001 - 0.009	0.01 - 0.07	0.07 - 0.08

Les valeurs proposées dans les tableaux suivants sont indicatives et concernent les outils en Diamant Monocristallin. D'autres conditions de coupe (matière, machine, etc...) peuvent exiger des paramètres différents.

The values shown in the following tables are indicative and for Monocrystalline Diamond tools, Other machining conditions (material, machine, etc...) may demand different parameters.

Die in den folgenden Tabellen vorgeschlagenen Werte sind Richtwerte und beziehen sich auf Werkzeuge aus Monokristalliner Diamant. Andere Schnittbedingungen (Material, Maschine usw.) können andere Parameter erfordern.

**Vitesse de rotation (n) :**  
**Rotation speed (n):**  
**Drehgeschwindigkeit (n):**

$$\frac{318 \times Vc}{D} = n$$

**Avance (mm/min) :**  
**Feed (mm/min) :**  
**Vorschub (mm/min) :**

$$n \times Z \times 0.003 \text{ to } 0.007 = Vf$$

## Laiton, aluminium Brass, aluminum Messing, Aluminium

Opération Operation Operation	Matières Materials Materialien	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø2	F (mm) > Ø2
Fraisage Milling Fräsen	Laiton	110 - 200	0.003 - 0.007	0.005 - 0.01
	Aluminium	110 - 200	0.003 - 0.007	0.005 - 0.01

## Maillechort, cuivre Nickel silver, copper Neusilber, Kupfer

Opération Operation Operation	Matières Materials Materialien	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø2	F (mm) > Ø2
Fraisage Milling Fräsen	Maillechort	70 - 110	0.003 - 0.007	0.005 - 0.01
	Cuivre	70 - 110	0.003 - 0.007	0.005 - 0.01

## Polymères/Carbone Polymers/Carbon Polymere/Kohlenstoff

Opération Operation Operation	Matières Materials Materialien	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	Polymère	200 - 300	0.002 - 0.009	0.01 - 0.07	0.05 - 0.2
	Carbone/PEEK	150 - 280	0.001 - 0.006	0.006 - 0.02	0.01 - 0.1



Les valeurs proposées dans les tableaux suivants sont indicatives et concernent les outils en Diamant Polycristallin. D'autres conditions de coupe (matière, machine, etc...) peuvent exiger des paramètres différents.

The values shown in the following tables are indicative and for Polycrystalline Diamond tools, Other machining conditions (material, machine, etc...) may demand different parameters.

Die in den folgenden Tabellen vorgeschlagenen Werte sind Richtwerte und beziehen sich auf Werkzeuge aus Polykristalliner Diamant. Andere Schnittbedingungen (Material, Maschine usw.) können andere Parameter erfordern.

**Vitesse de rotation (n):**  
**Rotation speed (n):**  
**Drehgeschwindigkeit (n):**

$$\frac{318 \times Vc}{D} = n$$

**Avance (mm/min):**  
**Feed (mm/min):**  
**Vorschub (mm/min):**

$$n \times Z \times 0.003 \text{ to } 0.007 = Vf$$

## Cuivre, laiton, bronze Copper, brass, bronze Kupfer, Messing, Bronze

Opération Operation Operation	Dureté matière (N/mm <sup>2</sup> ) Material hardness Materialhärte	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	<850	200 - 300	0.003 - 0.007	0.005 - 0.02	0.02 - 0.1
	>850	150	0.002 - 0.005	0.004 - 0.01	0.01 - 0.08


## Métaux précieux Precious metals Edelmetalle


Opération Operation Operation	Matières Materials Materialien	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	Or/Argent	170 - 250	0.002 - 0.005	0.005 - 0.009	0.009 - 0.02
	Platine	100 - 200	0.001 - 0.004	0.006 - 0.007	0.005 - 0.01

## Polymères/Carbone Polymers/Carbon Polymere/Kohlenstoff

Opération Operation Operation	Matières Materials Materialien	Vitesse de coupe (m/min) Cutting speed Schnittgeschwindigkeit	F (mm) <Ø1	F (mm) Ø1-Ø10	F (mm) >Ø10
Fraisage Milling Fräsen	Polymère	200 - 300	0.002 - 0.009	0.01 - 0.07	0.05 - 0.2
	Carbone/PEEK	150 - 280	0.001 - 0.006	0.006 - 0.02	0.01 - 0.1





**24°**  
  
**Angle d'hélice**  
**Angle de l'hélice de l'outil par rapport au plan de coupe**  
**Helix angle**  
**Tool helix angle in relation to the part surface**  
 Spiralwinkel  
 Spiralwinkel des Werkzeugs zur Schnittebene

**6-14°**  
  
**Angle de coupe**  
**Angle entre la surface de contact et l'outil**  
**Cutting angle**  
**Angle between the contact surface and the tool**  
 Schnittwinkel  
 Winkel zwischen der Kontaktfläche und dem Werkzeug

**N**  
**Usinage normal**  
**Vitesse d'usinage jusqu'à 10'000 rpm**  
**Normal machining**  
**Cutting speed up to 10'000 rpm**  
 Normale Bearbeitung  
 Bearbeitungsgeschwindigkeit bis 10'000 rpm

**HSC**  
**Usinage à grande vitesse**  
**Vitesse d'usinage à partir de 10'000 rpm**  
**High speed cutting**  
**Cutting speed starting from 10'000 rpm**  
 Bearbeitung mit hoher Geschwindigkeit  
 Bearbeitungsgeschwindigkeit ab 10'000 rpm


**MCD**  
  
**Diamant Monocristallin**  
**Partie utile en diamant monocristallin sur corps en carbure de tungsten**  
**Monocrystalline Diamond**  
**Monocrystalline Diamond working surface on a tungsten carbide tool body**  
 Monokristalliner Diamant  
 Monokristalliner Diamant-Arbeitsfläche auf einem Wolframkarbid-Werkzeugkörper


**PCD**  
  
**Diamant Polycristallin**  
**Partie utile en diamant polycristallin sur corps en carbure de tungsten**  
**Polycrystalline Diamond**  
**Polycrystalline Diamond working surface on a tungsten carbide tool body**  
 Polykristalliner Diamant  
 Polykristalliner Diamant-Arbeitsfläche auf einem Wolframkarbid-Werkzeugkörper


**MD**  
**Métal dur**  
**Outil à partie utile en carbure de tungsten**  
**Solid carbide**  
**Tool with a tungsten carbide working surface**  
 Vollhartmetall  
 Werkzeug mit Nutzteile aus Wolframkarbid

**MG10**  
**Métal dur micro-grain Co 10%**  
**Composition structurelle de la partie utile de l'outil**  
**Solid carbide Co 10% micro-grain**  
**Structural composition of the tool's working surface**  
 Mikrokörniges 10% Co Hartmetall  
 Strukturelle Zusammensetzung des Nutzteils des Werkzeugs

**CVD**  
**Dépôt chimique en phase vapeur**  
**Le substrat de surface est déposé sous forme de vapeur pour une couverture optimale de l'outil**  
**Chemical vapor deposition**  
**The surface substrate is vaporized for optimal tool coverage**  
 Chemische Gasphasenabscheidung  
 Das Oberflächensubstrat wird für eine optimale Werkzeugabdeckung verdampft

  
**Usinage axial**  
**Les flèches indiquent les axes de coupe possibles**  
**Axial machining**  
**Arrows indicate cutting axis**  
 Axiale Bearbeitung  
 Die Pfeile zeigen die möglichen Schnittachsen an

  
**Usinage radial**  
**Les flèches indiquent les axes de coupe possibles**  
**Radial machining**  
**Arrows indicate cutting axis**  
 Radiale Bearbeitung  
 Die Pfeile zeigen die möglichen Schnittachsen an

  
**Usinage radial, axial et diagonal**  
**Les flèches indiquent les axes de coupe possibles**  
**Radial, axial, diagonal machining**  
**Arrows indicate cutting axis**  
 Radiale, axiale und diagonale Bearbeitung.  
 Die Pfeile zeigen die möglichen Schnittachsen an



**Angle de pointe**  
Angle formé par la pointe de l'outil

Tip angle  
angle formed by the tool's tip

Winkel der Spitze  
Winkel, der von der Spitze des Werkzeugs gebildet wird



**Style de denture**  
Indique si il s'agit de dentures grosses, fines ou extra-fines

Teeth style  
Indicates if teeth are coarse, fine, or extra fine

Art der Verzahnung  
Gibt an, ob die Zähne grob, fein oder extra fein sind



**Fraises hémisphériques**  
Anatomie de la pointe de l'outil, change l'aspect laissé par le passage de l'outil

Ball end mills  
anatomy of the tool tip, changes the appearance of the tool path

Hemisphärische Fräser  
Anatomie der Werkzeugspitze, verändert das Aussehen, das der Werkzeugdurchgang hinterlässt



**Plat en bout**  
La pointe de l'outil se termine par un plat

Flat end  
Tool tip terminates in a flat tip

Abflachung an der Spitze  
Die Spitze des Werkzeugs endet in einer Abflachung



**Denture anglée**  
La denture de l'outil forme un angle avec la surface de la pièce

Angled teeth  
Tool teeth form an angle between the workpiece surface and the tool

Abgewinkelte Verzahnung  
Die Verzahnung des Werkzeugs bildet einen Winkel mit der Oberfläche des Werkstücks.



**Plaquette de tronçonnage**  
Ce type de plaquette permet de tronçonner une pièce

Parting insert  
This type of insert allows the parting of workpieces

Wendeschneidplatte zum Abstechen  
Mit dieser Art von Wendeschneidplatte kann man ein Werkstück abstechen.



**Nombre de dents**  
Quantité de dents présente sur l'outil

Teeth amount  
Amount of teeth on the tool

Anzahl der Zähne  
Anzahl der Zähne, die auf dem Werkzeug vorhanden sind



**Coins vifs**  
Le passage de l'outil laisse des coins sans chamfrein ou rayon

Sharp corners  
The tool path leaves corners without chamfer or radius

Scharfe Ecken  
Die Werkzeugbahn hinterlässt Ecken ohne Fase oder Radius



**Outils toriques**  
Anatomie de la pointe de l'outil, change l'aspect laissé par le passage de l'outil

Radius end mills  
anatomy of the tool tip, changes the appearance of the tool path

Radius Fräser  
Anatomie der Werkzeugspitze, verändert das Aussehen, das der Werkzeugdurchgang hinterlässt



**Rayon en bout**  
La pointe de l'outil se termine par un rayon

Rounded end  
Tool tip terminates in a rounded tip

Radius am Ende  
Die Spitze des Werkzeugs endet mit einem Radius



**Denture droite**  
La denture de l'outil est parallèle à la surface de la pièce

Straight teeth  
Tool teeth are parallel with the workpiece surface

Gerade Verzahnung  
Die Verzahnung des Werkzeugs ist parallel zur Oberfläche des Werkstücks.



**Géométrie de pointe**  
Symbolise la géométrie de la pointe de la plaquette

Tip geometry  
Symbolizes insert tip geometry

Spitzengeometrie  
Symbolisiert die Geometrie der Spitze des Schneideinsatzes.



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Special carbide cutting tools

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**CONCEPTTOOLS SA**  
RUE DU LAC 5  
2416 LES BRENETS

TÉL. +41 (0)32 933 97 33  
[WWW.CONCEPTTOOLS.CH](http://WWW.CONCEPTTOOLS.CH)

