

5. PCD/CVD/CBN tools



Index - PCD/CVD/CBN cutting tools

	Page
5. PCD/CVD/CBN tools	71
4010 PCD end mill $l_1=1x d_1$	75
4015 PCD end mill $l_1=1.5x d_1$	76
4020 PCD end mill $l_1=2x d_1$	77
4100 T-slot cutter in PCD	78
4119-3 Engraving mill in PCD - $\frac{3}{4}$ - flat tip	79
4120 Countersink in PCD 90°	80
4200 PCD end mill with ball end	81
4500 PCD twist drill - 2 teeth	82
45200 PCD thread mill	84

PCD/CVD/CBN cutting tools

Table of Contents

PCD End mills (CVD & CBN upon request)

REF. 4010				Z1-2	λ 0°	Page 75
REF. 4015				Z1-2	λ 0°	Page 76
REF. 4020				Z1-2	λ 0°	Page 77

PCD T-slot cutters (CVD & CBN upon request)

REF. 4100				Z1-2	λ 0°	Page 78
------------------	--	--	--	------	-----------------	-------------------

Engraving mills / Countersink in PCD (CVD & CBN upon request)

REF. 4119-3				Z1	λ 0°	Page 79
REF. 4120				Z1	λ 0°	Page 80

PCD End mills with ball end (CVD & CBN upon request)

REF. 4200				Z1-2	λ 0°	Page 81
------------------	--	--	--	------	-----------------	-------------------

PCD twist drills (CVD & CBN upon request)

REF. 4500				Z2	λ 30°	Page 82
------------------	--	--	--	----	------------------	-------------------

PCD thread mill (CVD & CBN upon request)

REF. 45200				Z1-2	λ 0°	Page 84
-------------------	--	--	--	------	-----------------	-------------------

► Special tools in PCD/CBN/CVD upon request.
See examples page 28.

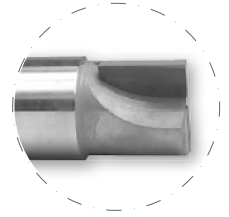
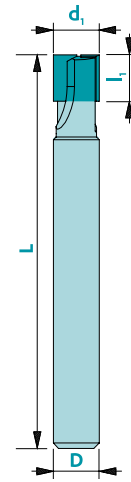
PCD end mill $l_1=1 \times d_1$

4010

Material	Vc	Uncoated
Steel < 700 N/mm ²	-	-
Steel > 700 N/mm ²	-	-
Stainless steel	-	-
Cast iron	-	-
Copper	350	■
Brass - Bronze	500	■
Aluminium	1000	■
Gold - Silver	300	■
Platinum - Palladium	130	■
Superalloys	-	-
Titanium	120	■

not adapted - adapted highly adapted

Tolerances $d_1 < 1\text{mm}$ ▶ +0/-0.01 l_1 : +0.2/-0
 $d_1 > 1\text{mm}$ ▶ +0/-0.02 D:h5



Art. n°	d_1	l_1	D	L	Z
4010d0.50L38Z1	0.5	0.5	6	38	1
4010d1.00L38Z1	1.0	1.0	6	38	1
4010d1.50L38Z1	1.5	1.5	6	38	1
4010d2.00L38Z1	2.0	2.0	6	38	1
4010d2.50L38Z1	2.5	2.5	6	38	1
4010d3.00L38Z1	3.0	3.0	6	38	1
4010d3.50L38Z1	3.5	3.5	6	38	1
4010d4.00L51Z1	4.0	4.0	6	51	1
4010d4.00L51Z2	4.0	4.0	6	51	2
4010d5.00L51Z2	5.0	5.0	6	51	2
4010d6.00L51Z2	6.0	6.0	6	51	2
4010d7.00L61Z2	7.0	7.0	8	61	2
4010d8.00L61Z2	8.0	8.0	8	61	2
4010d8.00L120Z2	8.0	8.0	8	120	2
4010d10.00L72Z2	10.0	10.0	10	72	2
4010d10.00L120Z2	10.0	10.0	10	120	2
4010d12.00L83Z2	12.0	12.0	12	83	2
4010d12.00L150Z2	12.0	12.0	12	150	2
4010d14.00L83Z2	14.0	14.0	14	83	2
4010d14.00L150Z2	14.0	14.0	14	150	2
4010d16.00L92Z2	16.0	16.0	16	92	2
4010d16.00L180Z2	16.0	16.0	16	180	2
4010d20.00L104Z2	20.0	20.0	20	104	2
4010d20.00L180Z2	20.0	20.0	20	180	2



Z1-2



λ
0°

γ
0°

PCD

HSC

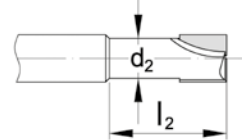


$ap=0.15 \times d_1$



$ae=0.03 \times d_1$
 $ap=1 \times d_1$

Upon request

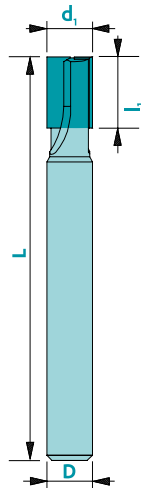
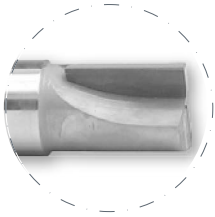


45°
0.03-0.20

r
0.05-2.00

Other dimensions, CVD/CBN available upon request.

PCD end mill $l_1=1.5x d_1$



Material

	Vc	Uncoated
Steel < 700 N/mm ²	-	-
Steel > 700 N/mm ²	-	-
Stainless steel	-	-
Cast iron	-	-
Copper	350	■
Brass - Bronze	500	■
Aluminium	1000	■
Gold - Silver	300	■
Platinum - Palladium	130	■
Superalloys	-	-
Titanium	120	■

not adapted - adapted highly adapted

Tolerances

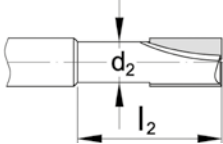
$d_1 < 1\text{mm}$ ▶ +0/-0.01 D: h5
 $d_1 > 1\text{mm}$ ▶ +0/-0.02

	Z1-2
λ 0°	γ 0°
PCD	HSC

$ap=0.1x d_1$

$ae=0.03x d_1$
 $ap=1.5x d_1$

Upon request



45° 0.03-0.20	 0.05-2.00
-------------------------	---------------

Art. n°	d_1	l_1	D	L	Z
4015d1.00L38Z1	1.0	1.5	6	38	1
4015d1.50L38Z1	1.5	2.5	6	38	1
4015d2.00L38Z1	2.0	3.0	6	38	1
4015d2.50L38Z1	2.5	3.5	6	38	1
4015d3.00L38Z1	3.0	4.5	6	38	1
4015d3.50L38Z1	3.5	5.0	6	38	1
4015d4.00L51Z1	4.0	6.0	6	51	1
4015d4.00L51Z2	4.0	6.0	6	51	2
4015d5.00L51Z2	5.0	7.5	6	51	2
4015d6.00L51Z2	6.0	9.0	6	51	2
4015d7.00L61Z2	7.0	10.5	8	61	2
4015d8.00L61Z2	8.0	12.0	8	61	2
4015d8.00L120Z2	8.0	12.0	8	120	2
4015d10.00L72Z2	10.0	15.0	10	72	2
4015d10.00L120Z2	10.0	15.0	10	120	2
4015d12.00L83Z2	12.0	18.0	12	83	2
4015d12.00L150Z2	12.0	18.0	12	150	2

Other dimensions, CVD/CBN available upon request.

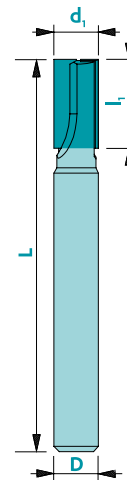
PCD end mill $l_1=2xd_1$

4020

Material	Vc	Uncoated
Steel < 700 N/mm ²	-	-
Steel > 700 N/mm ²	-	-
Stainless steel	-	-
Cast iron	-	-
Copper	350	■
Brass - Bronze	500	■
Aluminium	1000	■
Gold - Silver	300	■
Platinum - Palladium	130	■
Superalloys	-	-
Titanium	120	■

not adapted - adapted ■ highly adapted ■

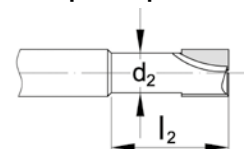
Tolerances $d_1 < 1\text{mm}$ ▶ +0/-0.01 D: h5
 $d_1 > 1\text{mm}$ ▶ +0/-0.02



Art. n°	d_1	l_1	D	L	Z
4020d2.00L38Z1	2.0	4.0	6	38	1
4020d2.50L38Z1	2.5	5.0	6	38	1
4020d3.00L38Z1	3.0	6.0	6	38	1
4020d3.50L38Z1	3.5	7.0	6	38	1
4020d4.00L38Z1	4.0	8.0	6	38	1
4020d5.00L51Z2	5.0	10.0	6	51	2
4020d6.00L51Z2	6.0	12.0	6	51	2
4020d8.00L61Z2	8.0	16.0	8	61	2
4020d8.00L120Z2	8.0	16.0	8	120	2

	Z1-2
λ 0°	γ 0°
PCD	HSC
$ap=0.15xd_1$	$ae=0.03xd_1$ $ap=1xd_1$

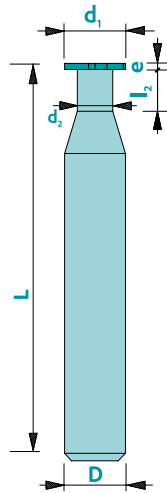
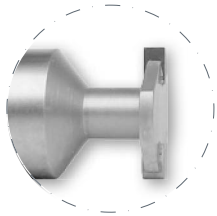
Upon request



45° 0.03-0.20	 0.05-2.00
------------------	---------------

Other dimensions, CVD/CBN available upon request.

T-slot cutter in PCD



Material

	Vc	Uncoated
Steel < 700 N/mm ²	-	-
Steel > 700 N/mm ²	-	-
Stainless steel	-	-
Cast iron	-	-
Copper	350	■
Brass - Bronze	500	■
Aluminium	1000	■
Gold - Silver	300	■
Platinum - Palladium	130	■
Superalloys	-	-
Titanium	120	■

not adapted - adapted highly adapted

Tolerances

$d_1 < 1\text{mm}$ ▶ +0/-0.01 e : +0.01/-0.01 l_2 : +0.2/-0
 $d_1 > 1\text{mm}$ ▶ +0/-0.02 d_2 : +0/-0.5 D : h5

	Z1-2
	Z1
λ 0°	γ 0°
PCD	HSC

Art. n°	d_1	e	d_2	l_2	D	L	Z
4100d3.00e#.#Z1	3	0.6 - 1.5	1.5	2	4	38	1
4100d4.00e#.#Z1	4	0.6 - 1.5	2.5	3	4	38	1
4100d4.00e#.#Z2	4	0.6 - 1.5	2.5	3	4	38	2
4100d5.00e#.#Z1	5	0.6 - 1.5	3.0	3	5	38	1
4100d5.00e#.#Z2	5	0.6 - 1.5	3.0	3	5	38	2
4100d6.00e#.#Z2	6	0.6 - 2.0	3.5	4	6	38	2
4100d8.00e#.#Z2	8	0.6 - 3.0	4.0	5	8	51	2
4100d10.00e#.#Z2	10	0.6 - 3.0	5.0	5	10	51	2
4100d12.00e#.#Z2	12	0.6 - 4.0	6.0	6	10	51	2
4100d15.00e#.#Z2	15	0.6 - 5.0	8.0	8	10	61	2
4100d16.00e#.#Z2	16	0.6 - 2.9	8.0	8	10	61	2
4100d16.00e#.#Z2	16	3.0 - 6.0	8.0	8	10	61	2

Order Quotation request

Dimensions : d_1 : _____ e : _____ d_2 : _____ D : _____ L : _____ l_2 : _____		Machined material : _____ Contact person : _____
Quantity : _____	Order No : _____	
Company's stamp & date : _____		

Standard dimensions of the bars : $\emptyset 3 \times L 38$, $\emptyset 4 \times L 38$, $\emptyset 6 \times L 38$, $\emptyset 6 \times L 51$, $\emptyset 8 \times L 61$, $\emptyset 10 \times L 72$, $\emptyset 12 \times L 83$, $\emptyset 16 \times L 92$, $\emptyset 20 \times L 104$

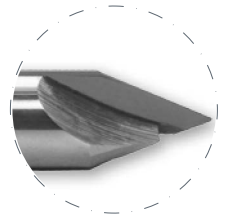
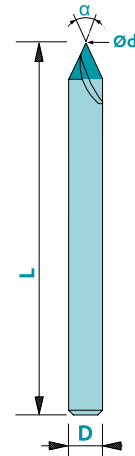
Other dimensions, CVD/CBN available upon request.

Engraving mill in PCD - 3/4 - flat tip

4119-3

Material	n [rpm]	Ap	Uncoated
Steel < 700 N/mm ²	-	-	-
Steel > 700 N/mm ²	-	-	-
Stainless steel	-	-	-
Cast iron	-	-	-
Copper	20 - 40'000	0.05 - 0.40	■
Brass - Bronze	25 - 40'000	0.05 - 0.40	■
Aluminium	25 - 40'000	0.05 - 0.50	■
Gold - Silver	20 - 40'000	0.05 - 0.40	■
Platinum - Palladium	25 - 40'000	0.05 - 0.40	■
Superalloys	-	-	-
Titanium	25 - 40'000	0.05 - 0.40	□

not adapted - adapted □ highly adapted ■



Tolerances d_1 : +/- 0.01
D: h5

Art. n°	α	d_1	D	L	Art. n°	α	d_1	D	L
4119-3a40d0.05	40°	0.05	3	33	4119-3a60d0.10	60°	0.10	3	33
4119-3a40d0.08	40°	0.08	3	33	4119-3a70d0.05	70°	0.05	3	33
4119-3a40d0.10	40°	0.10	3	33	4119-3a70d0.08	70°	0.08	3	33
4119-3a50d0.05	50°	0.05	3	33	4119-3a70d0.10	70°	0.10	3	33
4119-3a50d0.08	50°	0.08	3	33	4119-3a90d0.05	90°	0.05	3	33
4119-3a50d0.10	50°	0.10	3	33	4119-3a90d0.08	90°	0.08	3	33
4119-3a60d0.05	60°	0.05	3	33	4119-3a90d0.10	90°	0.10	3	33
4119-3a60d0.08	60°	0.08	3	33					



Z1



λ
0°

PCD

HSC

Order Quotation request

Angle (α): <input type="checkbox"/> By default : 60° <input type="checkbox"/> 30° <input type="checkbox"/> 35° <input type="checkbox"/> 45° <input type="checkbox"/> Other : _____ <input type="checkbox"/> 50° <input type="checkbox"/> 55° <input type="checkbox"/> 90°		Shank \emptyset : <input type="checkbox"/> By default : D=3 <input type="checkbox"/> Other : D= _____		Order No : _____	
Machined material : _____		Quantity : _____		d_1 (from 0.02 mm) : _____	
Contact person : _____			Company's stamp & date : _____		

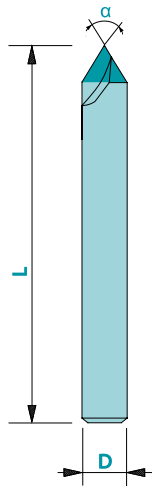
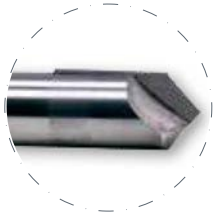
Standard dimensions of the bars :

\emptyset 3x L 38, \emptyset 4x L 38, \emptyset 6x L 38, \emptyset 6x L 51, \emptyset 8x L 61, \emptyset 10x L 72, \emptyset 12x L 83, \emptyset 16x L 92, \emptyset 20x L 104

Other dimensions, CVD/CBN available upon request.

4120

Countersink in PCD 90°



Material

Steel < 700 N/mm²

Steel > 700 N/mm²

Stainless steel

Cast iron

Copper

Brass - Bronze

Aluminium

Gold - Silver

Platinum - Palladium

Superalloys

Titanium

Vc

Uncoated

not adapted - adapted highly adapted

Tolerances $d_1: \pm 0.01$
D: h5



Z1-2



λ
0°

PCD

HSC

Art. n°	α	D	L	Z
4120D3.00	90°	3	38	1
4120D4.00	90°	4	50	1
4120D6.00	90°	6	50	2

Other dimensions, CVD/CBN available upon request.

80

LOUIS BELET

swiss made

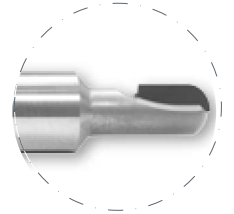
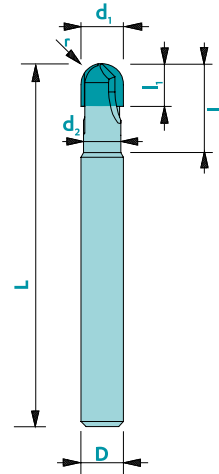
PCD end mill with ball end

4200

Material	Vc	Uncoated
Steel < 700 N/mm ²	-	-
Steel > 700 N/mm ²	-	-
Stainless steel	-	-
Cast iron	-	-
Copper	300	■
Brass - Bronze	400	■
Aluminium	800	■
Gold - Silver	220	■
Platinum - Palladium	110	■
Superalloys	-	-
Titanium	100	■

not adapted - adapted ■ highly adapted ■

Tolerances $d_1 < 1\text{mm}$ ▶ +0/-0.01
 $d_1 > 1\text{mm}$ ▶ +0/-0.02 r +0/-0.01
 D : h5



Art. n°	d_1	l_1	r	d_2	l_2	D	L	Z
4200d1.0L38Z1	1.00	1.00	0.50	-	-	6	38	1
4200d1.5L38Z1	1.50	1.50	0.75	-	-	6	38	1
4200d2.0L38Z1	2.00	2.00	1.00	1.75	6.50	6	38	1
4200d2.5L38Z1	2.50	2.50	1.25	2.20	7.50	6	38	1
4200d2.5L38Z2	2.50	2.50	1.25	2.20	7.50	6	38	2
4200d3.0L38Z1	3.00	3.00	1.50	2.60	8.00	6	38	1
4200d3.0L38Z2	3.00	3.00	1.50	2.60	8.00	6	38	2
4200d3.5L38Z1	3.50	3.50	1.75	3.00	9.00	6	38	1
4200d3.5L38Z2	3.50	3.50	1.75	3.00	9.00	6	38	2
4200d4.0L51Z1	4.00	4.00	2.00	3.50	10.00	6	51	1
4200d4.0L51Z2	4.00	4.00	2.00	3.50	10.00	6	51	2
4200d5.0L51Z2	5.00	5.00	2.50	4.40	11.00	6	51	2
4200d6.0L51Z2	6.00	6.00	3.00	5.25	12.50	6	51	2
4200d8.0L61Z2	8.00	8.00	4.00	7.00	15.00	8	61	2
4200d8.0L120Z2	8.00	8.00	4.00	7.00	15.00	8	120	2
4200d10.0L72Z2	10.00	10.00	5.00	8.75	17.00	10	72	2
4200d10.0L120Z2	10.00	10.00	5.00	8.75	17.00	10	120	2
4200d12.0L83Z2	12.00	12.00	6.00	10.50	20.00	12	83	2
4200d12.0L150Z2	12.00	12.00	6.00	10.50	20.00	12	150	2



Z1-2



λ
0°

γ
0°

PCD

HSC

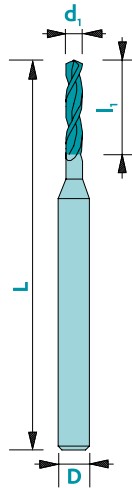


ae=0.1xd₁
ap=0.1xd₁

Other dimensions, CVD/CBN available upon request.

4500

PCD twist drill - 2 teeth



Material

Steel < 700 N/mm²Steel > 700 N/mm²

Stainless steel

Cast iron

Copper

Brass - Bronze

Aluminium

Gold - Silver

Platinum - Palladium

Superalloys

Titanium

Vc

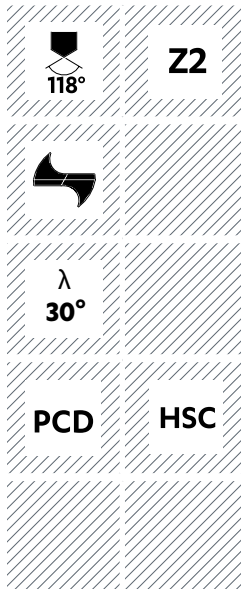
Uncoated

not adapted - adapted highly adapted

Tolerances

 $d_1 = +0/-0.13$

D: h6



Art. n°	d ₁	l ₁	D	L
4500d0.48	0.48	4.0	3	38
4500d0.49	0.49	4.0	3	38
4500d0.50	0.50	4.0	3	38
4500d0.51	0.51	4.0	3	38
4500d0.52	0.52	4.0	3	38
4500d0.53	0.53	4.0	3	38
4500d0.54	0.54	4.0	3	38
4500d0.55	0.55	4.0	3	38
4500d0.56	0.56	4.0	3	38
4500d0.57	0.57	4.0	3	38
4500d0.58	0.58	4.0	3	38
4500d0.59	0.59	4.0	3	38
4500d0.60	0.60	5.0	3	38
4500d0.61	0.61	5.0	3	38
4500d0.62	0.62	5.0	3	38
4500d0.63	0.63	5.0	3	38
4500d0.64	0.64	5.0	3	38
4500d0.65	0.65	5.0	3	38
4500d0.66	0.66	5.0	3	38
4500d0.67	0.67	5.0	3	38
4500d0.68	0.68	5.0	3	38
4500d0.69	0.69	5.0	3	38
4500d0.70	0.70	5.0	3	38
4500d0.71	0.71	5.0	3	38
4500d0.72	0.72	5.0	3	38
4500d0.73	0.73	5.0	3	38
4500d0.74	0.74	5.0	3	38
4500d0.75	0.75	5.0	3	38
4500d0.76	0.76	5.0	3	38

Art. n°	d ₁	l ₁	D	L
4500d0.77	0.77	5.0	3	38
4500d0.78	0.78	5.0	3	38
4500d0.79	0.79	5.0	3	38
4500d0.80	0.80	6.0	3	38
4500d0.81	0.81	6.0	3	38
4500d0.82	0.82	6.0	3	38
4500d0.83	0.83	6.0	3	38
4500d0.84	0.84	6.0	3	38
4500d0.85	0.85	6.0	3	38
4500d0.86	0.86	6.0	3	38
4500d0.87	0.87	6.0	3	38
4500d0.88	0.88	6.0	3	38
4500d0.89	0.89	6.0	3	38
4500d0.90	0.90	7.0	3	38
4500d0.91	0.91	7.0	3	38
4500d0.92	0.92	7.0	3	38
4500d0.93	0.93	7.0	3	38
4500d0.94	0.94	7.0	3	38
4500d0.95	0.95	7.0	3	38
4500d0.96	0.96	7.0	3	38
4500d0.97	0.97	7.0	3	38
4500d0.98	0.98	7.0	3	38
4500d0.99	0.99	7.0	3	38
4500d1.00	1.00	8.0	3	38
4500d1.01	1.01	8.0	3	38
4500d1.02	1.02	8.0	3	38
4500d1.03	1.03	8.0	3	38
4500d1.04	1.04	8.0	3	38
4500d1.05	1.05	8.0	3	38

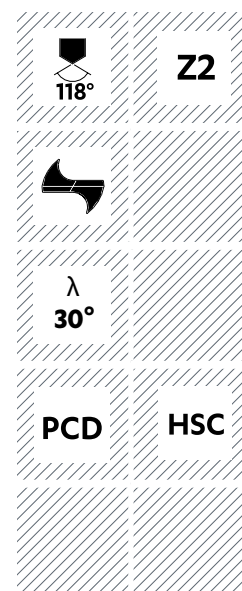


PCD twist drill - 2 teeth

4500

Continuation

Art. n°	d ₁	l ₁	D	L	Art. n°	d ₁	l ₁	D	L
4500d1.06	1.06	8.0	3	38	4500d1.55	1.55	9.0	3	38
4500d1.07	1.07	8.0	3	38	4500d1.60	1.60	9.0	3	38
4500d1.08	1.08	8.0	3	38	4500d1.65	1.65	9.0	3	38
4500d1.09	1.09	8.0	3	38	4500d1.70	1.70	9.0	3	38
4500d1.10	1.10	9.0	3	38	4500d1.75	1.75	9.0	3	38
4500d1.11	1.11	9.0	3	38	4500d1.80	1.80	9.0	3	38
4500d1.12	1.12	9.0	3	38	4500d1.85	1.85	9.0	3	38
4500d1.13	1.13	9.0	3	38	4500d1.90	1.90	9.0	3	38
4500d1.14	1.14	9.0	3	38	4500d1.95	1.95	9.0	3	38
4500d1.15	1.15	9.0	3	38	4500d2.00	2.00	9.0	3	38
4500d1.16	1.16	9.0	3	38	4500d2.05	2.05	9.0	3	38
4500d1.17	1.17	9.0	3	38	4500d2.10	2.10	9.0	3	38
4500d1.18	1.18	9.0	3	38	4500d2.15	2.15	9.0	3	38
4500d1.19	1.19	9.0	3	38	4500d2.20	2.20	9.0	3	38
4500d1.20	1.20	9.0	3	38	4500d2.25	2.25	9.0	3	38
4500d1.21	1.21	9.0	3	38	4500d2.29	2.29	9.0	3	38
4500d1.22	1.22	9.0	3	38	4500d2.30	2.30	9.0	3	38
4500d1.23	1.23	9.0	3	38	4500d2.40	2.40	9.0	3	38
4500d1.24	1.24	9.0	3	38	4500d2.50	2.50	9.0	3	38
4500d1.25	1.25	9.0	3	38					
4500d1.26	1.26	9.0	3	38					
4500d1.27	1.27	9.0	3	38					
4500d1.28	1.28	9.0	3	38					
4500d1.29	1.29	9.0	3	38					
4500d1.30	1.30	9.0	3	38					
4500d1.31	1.31	9.0	3	38					
4500d1.32	1.32	9.0	3	38					
4500d1.33	1.33	9.0	3	38					
4500d1.34	1.34	9.0	3	38					
4500d1.35	1.35	9.0	3	38					
4500d1.36	1.36	9.0	3	38					
4500d1.37	1.37	9.0	3	38					
4500d1.38	1.38	9.0	3	38					
4500d1.39	1.39	9.0	3	38					
4500d1.40	1.40	9.0	3	38					
4500d1.41	1.41	9.0	3	38					
4500d1.42	1.42	9.0	3	38					
4500d1.43	1.43	9.0	3	38					
4500d1.44	1.44	9.0	3	38					
4500d1.45	1.45	9.0	3	38					
4500d1.46	1.46	9.0	3	38					
4500d1.47	1.47	9.0	3	38					
4500d1.48	1.48	9.0	3	38					
4500d1.49	1.49	9.0	3	38					
4500d1.50	1.50	9.0	3	38					

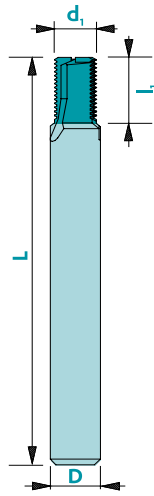
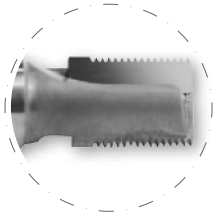


Other dimensions, CVD/CBN available upon request.

45200

PCD thread mill

Internal and external threading



Material

Steel < 700 N/mm ²
Steel > 700 N/mm ²
Stainless steel
Cast iron
Copper
Brass - Bronze
Aluminium
Gold - Silver
Platinum - Palladium
Superalloys
Titanium

Vc

Uncoated

not adapted - adapted highly adapted

Tolerances

$d_1 = +0/-0.1$
D: h5

Z1-2



λ

0°

γ

0°

PCD

HSC

Art. n°	Ø nominal	Pitch	d_1	l_1	D	L	Z
45200M2.00	M2.00	0.40	1.40	4.0	3	38	1
45200M2.50	M2.50	0.45	1.80	5.0	6	57	1
45200M3.00	M3.00	0.50	2.30	6.0	6	57	1
45200M4.00	M4.00	0.70	3.00	8.0	6	57	2
45200M5.00	M5.00	0.80	3.80	10.0	6	57	2
45200M6.00	M6.00	1.00	4.50	12.0	6	57	2
45200M8.00	M8.00	1.25	5.00	16.0	6	57	2

Other dimensions, CVD/CBN available upon request.