DM

PCD

Contents

CBN

T N G N 16 04 08 E

SHAPE

A – Parall. 85°
B – Parall. 82°
C – Rhomb. 80°
D – Rhomb. 55°
E – Rhomb. 75°
H – Hexagonal
K – Parall. 55°
L – Rectangular
M – Rhomb. 86°
O – Octagonal
R – Round
S – Square
T – Triangular
V – Rhomb. 35°
W – Trigon
X – Non-ISO

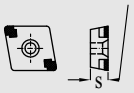
Clearance angle

N – 0°
A – 3°
B – 5°
C – 7°
P – 11°
D – 15°
E – 20°
F – 25°
G – 30°
O – Other specifications

Cutting edge

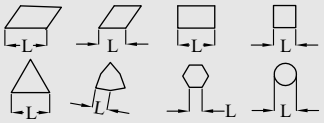
N
R
F
A
M
G
W
T
H 70°/90°
X Special

Thickness

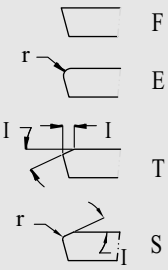


01 s = 1,58
T1 s = 1,98
02 s = 2,38
03 s = 3,18
T3 s = 3,97
04 s = 4,76
05 s = 5,55
06 s = 6,35

Edge length



Cutting edge shape



F
E
T
S

As for "T" but without honing

GA = Finishing chipbreaker
GB = Semi-finishing chipbreaker
GC = Roughing chipbreaker

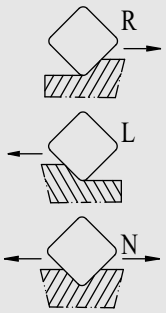
Tolerances

Toler. class	Tolerances ± mm			"I.C." range Inscribed circles									
	Dim. "m"	Thickness	C.I.	2,7	3,17	3,96	4,76	5,55	6,35	7,93	9,52	12,7	15,88	19,05
A	± 0,05	± 0,025	± 0,025	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
C	± 0,013	± 0,025	± 0,025	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
E	± 0,025	± 0,025	± 0,025	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
F	± 0,005	± 0,025	± 0,013	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
G	± 0,025	± 0,013	± 0,025	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
H	± 0,013	± 0,025	± 0,013	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
			± 0,05	◇	◇	◇	◇	◇	◇	◇	◇			
J	± 0,005	± 0,025	± 0,08									◇		
			± 0,01										◇	◇
			± 0,05	◇	◇	◇	◇	◇	◇	◇	◇			
K	± 0,013	± 0,025	± 0,08									◇		
			± 0,1										◇	◇
	± 0,08		± 0,05	◇	◇	◇	◇	◇	◇	◇	◇			
M	± 0,13	± 0,13	± 0,08									◇		
	± 0,15		± 0,1										◇	◇
	± 0,08		± 0,05	◇	◇	◇	◇	◇	◇	◇	◇			
N	± 0,13	± 0,025	± 0,08									◇		
	± 0,15		± 0,1										◇	◇
	± 0,13		± 0,08	◇	◇	◇	◇	◇	◇	◇	◇			
U	± 0,20	± 0,13	± 0,13									◇		
	± 0,27		± 0,18										◇	◇

products

N 6 F B 1 0 0 2 Y

Cutting direction



W = WIPER

Total number of cutting edges

No. = Cutting edge No.
K = Full face
W = Solid
X = Special

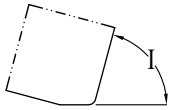
(3-5 etc.) Wiper angle

Approach angle or radius

Turning "Radius"

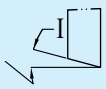
MO = Round inserts (metric, e.g., CI 12)
00 = Sharp corner (inches, e.g., CI 12,7)
01 r = 00,1
02 r = 0,2
04 r = 0,4
08 r = 0,8
12 r = 1,2
16 r = 1,6
in increments of 0,4

Milling



1st letter (approach angle)

A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = Special



2nd letter (chamfer relief)

A = 3°
B = 5°
C = 7°
D = 15°
E = 20°
F = 25°
G = 30°
N = 0°
P = 11°
Z = Special

Type

Polycrystalline
305
55

Cubic Boron Nitride
880
884
882

Solid 731

Coating

A = TiAlN
B = AlCrN
N = TiAlN + TiN
Y = TiN + TiAlN
T = TiN
Z = ZrN
❇ = evolution

Cutting material

Cutting material

Cubic Boron Nitride (CBN) is produced by treating the main component of the mixture, Hexagonal Boron Nitride crystals, at high temperature and pressure.
Hexagonal Boron Nitride is converted directly into Cubic Boron Nitride at pressures of approximately 18 GPa and temperatures between 1730° and 2000°.
Adding boron oxide to the original mixture can lower the required temperature and pressure.
This process makes it possible to produce a material, **CBN**,
with Vickers Hv hardnesses around 40/50 GPa,
in forms and dimensions that are sufficiently precise to be cut and shaped for use as the cutting edges on hard metal inserts.
The different "concentrations", in terms of percentage content of cubic nitrides, and the size of the grains making up the powder, contribute to determining the relationship between cutting edge wear resistance and toughness.

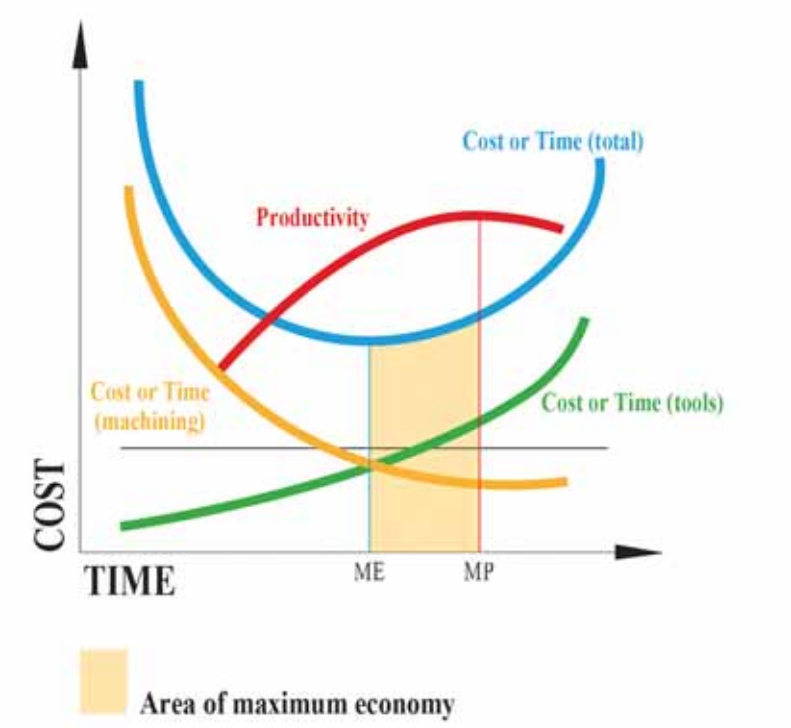
Benefits

Continual advances in technologies for material removal processes involving plastic deformation, and specifically in turning operations, have made it possible to develop machine tools with mechanical structures and management programs that call for the use of cutting materials whose chemical and physical properties ensure performance, productivity indexes and cost-benefit ratios that are significantly higher than those of conventional cutting materials such as sintered high speed steel and hard metal.
Cubic Boron Nitride (**CBN**) is a superabrasive cutting material second only to natural diamond in hardness. Compared to natural diamond, however, it has better chemical stability in applications involving high operating temperatures as a result of the pressures and friction exerted by workpiece material on the cutting edge's surface.

Costs and benefits in actual production settings

For an objective analysis of the cost/benefits ratio that the cutting material contributes to achieving in production, a good starting point is the Taylor diagram, in which the illustrious technologist represented the correlation between fixed costs, machine operating costs and tool cost.

Cutting parameters



As can be readily seen from the diagram, the curves for machine and tool costs per piece produced can generate two results: one expressing maximum economy of production, or ME, and one expressing maximum productivity, or MP. Essentially, longer cutting edge life as a function of cutting speed and lower machining time often justify spending more for cutting tools in order to achieve a lower cost per piece produced, while if higher productivity is achieved, higher costs can be tolerated provided that resources are correctly managed.

CBN

CBN

Cutting data and cutting edge geometry

Position of CBN grade in the Hardness/War resistance-Toughness /Impact resistance diagram

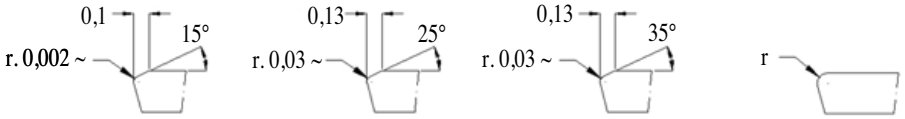
880 The very small size of the boron nitride grains in the mixture, with a concentration of approximately 95%, make this grade particularly resistant to wear, and thus suitable for finishing operations on gray iron.
Use at high cutting speeds and feed rates appropriate for the cutting edge profile makes it possible to achieve an excellent surface finish.

884 The excellent tradeoff between boron nitride grain size, a boron nitride concentration of approximately 75% and the properties of the binder results in a CBN grade with good wear resistance and toughness.
Grade G2 is recommended for machining gray or GS400 nodular cast iron.

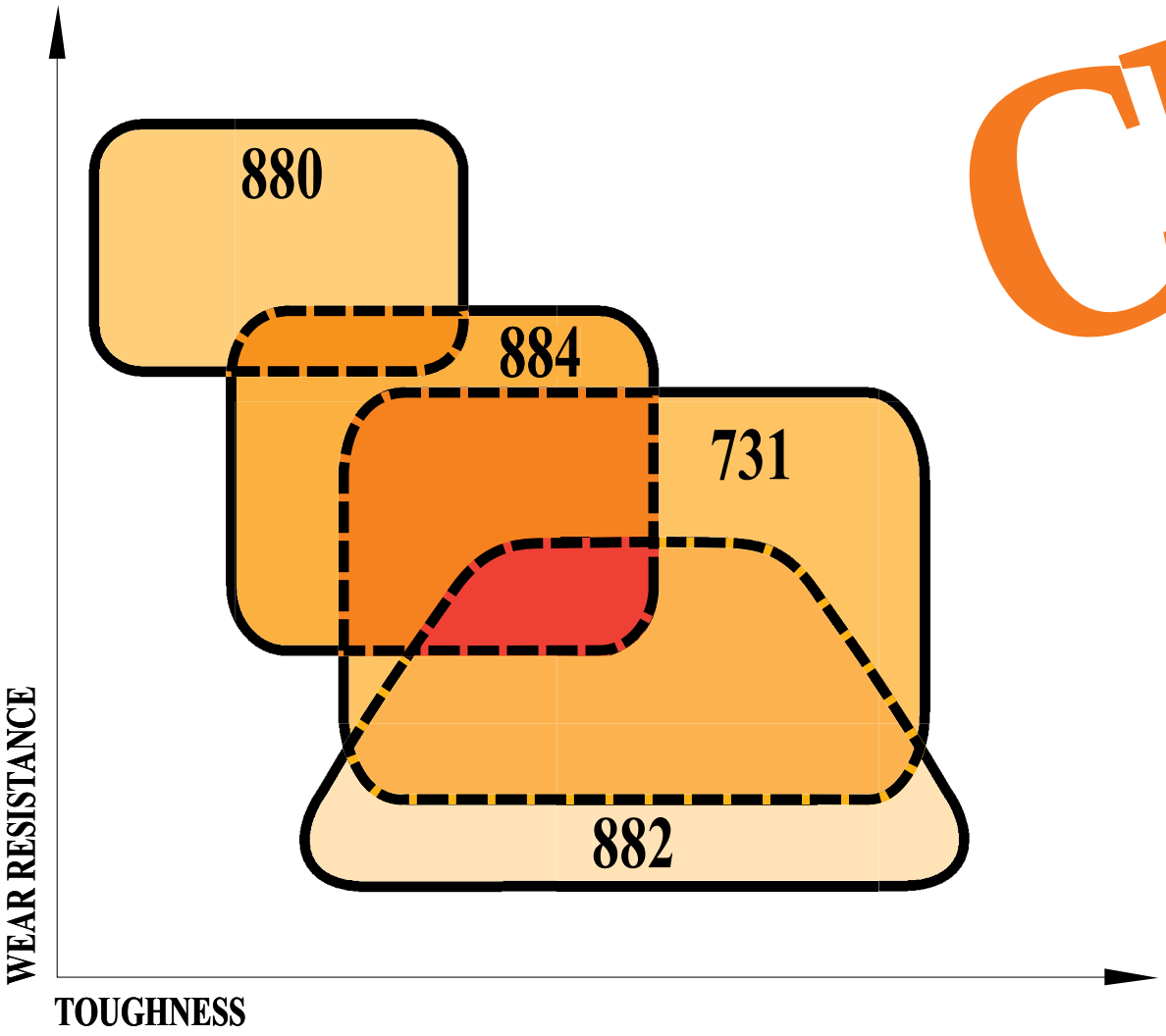
882 The size of the boron nitride grains and the powder concentration, or in other words the density of boron nitride in the mix, make this grade suitable for finish machining hardened steels.
Boron nitride grain size and the ratio of boron concentration and binder percentage ensure an excellent tradeoff between wear resistance and toughness, making it possible to machine hardened steels under interrupted cutting conditions.

731 Solid CBN for machining hardened cast irons.

Cutting edge microgeometry



Cutting edge preparation, or rather, the microgeometry of the main cutting edge, is a determining factor in establishing the range of cutting material applications.
FIUDI turning inserts are available in four different profiles, “E/L/M/H”, all with standard dimensions.
Customization is a must when CBN is used as a cutting material.



Machining parameters

Workpiece material	HRc	fn mm/rev	Cutting speed Vc m/min
			50 100 200 300 400 500 600 700 800 900 1000 1100 1200
Gray iron		0,05 - 0,25	
GS400 nodular iron		0,05 - 0,10	
Hardened cast iron	58 - 65	0,05 - 0,20	
Hardened steel	58 - 65	0,08 - 0,20	
Stellite	60 - 70	0,05 - 0,15	

PCD

Cutting material

Technical characteristics

The increasing use of aluminum-silicon light alloys in the automotive, motorcycle and aeronautical industries, and of exotic or composite materials consisting of carbon, glass and Kevlar fibers, chiefly in the aerospace industry, has given a major boost to cutting material research and development, leading to the ever more frequent adoption of Polycrystalline Diamond (**PCD**) cutting tools.
This cutting material is produced by sintering mixtures of synthetic diamond powders and appropriately treated powders that act as a binder.

Benefits

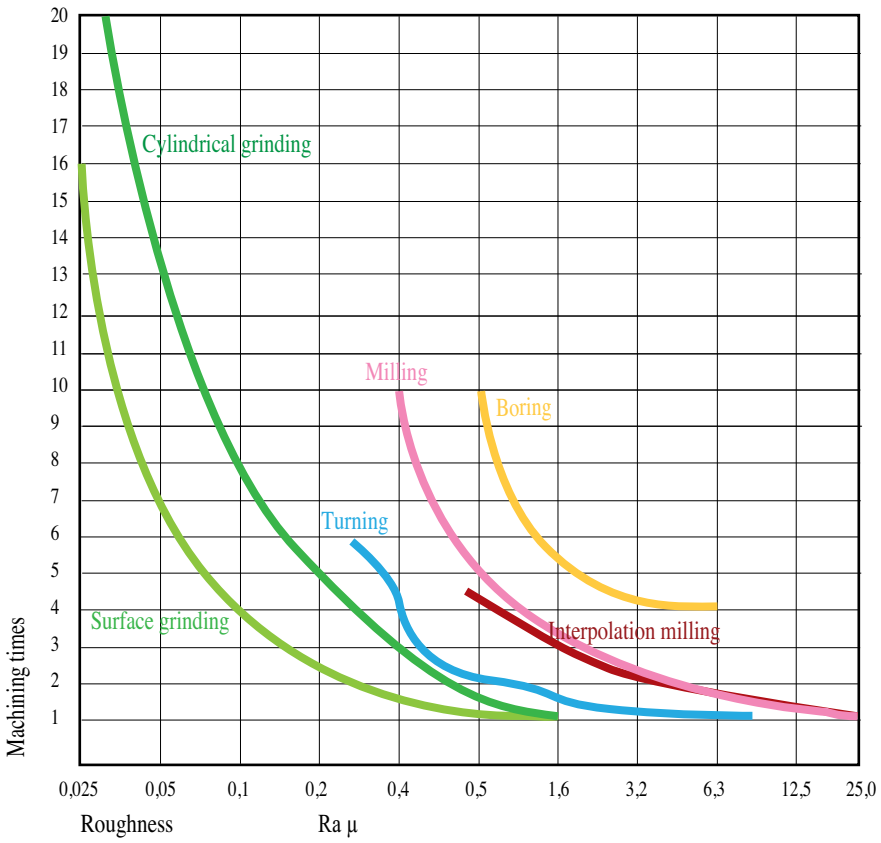
Using **PCD** Polycrystalline Diamond cutting edges makes possible to achieve long tool service lives, as tools retain their integrity at operating temperatures of up to approximately 800°C. Long tool life is a good reason to opt for **PCD** in light alloy and composite material machining applications.

Costs and benefits in actual production settings

To effectively assess the cost/benefits ratio that can be achieved by using **PCD** cutting tools, it is advisable to take a close look at the machining costs involved in producing surface finishes better than Ra 0.5.
Low roughness values are essential in order to obtain tolerances that make it possible to produce the highly accurate part dimensions demanded in applications that put a premium on reliability, or in order to improve lubrication by reducing friction between parts subject to wear.

As can be seen from the graph, which gives a purely indicative but sufficiently realistic view of the costs involved in achieving better surface roughness grades, machines are required that call for significant capital investments and thus result in relatively high operating costs.
Alternatively, processing can be carried out with machines that are less sophisticated but which require longer machining times and thus increase the cost per unit produced.
Using **PCD** cutting tools permits a significant increase in cutting speed, thus lowering machining costs while at the same time achieving extremely good surface finish.

Costs versus surface finish



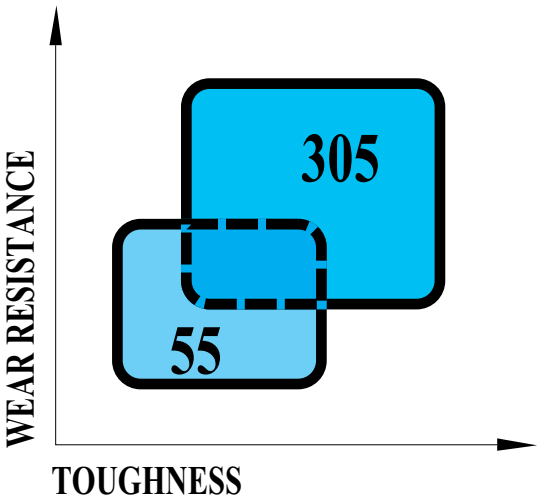
PCD

PCD

Cutting data and cutting edge geometry

Position of the PCD grade in the wear resistance diagram

The position of the **PCD** grade in the diagram makes it possible to determine the application range on the basis of cutting speed (CS) and the percentage of silicon (Si) in aluminum alloys, the combination of natural chemical elements that have the greatest influence on cutting parameters. The diagram shows two areas for the position of two different **PCD** grades as a function of their wear resistance and toughness.



55 The size of the synthetic diamond grains and the powder concentration, or in other words the density of diamond grains in the mix, make this grade particularly resistant to wear.
As the cutting material is extremely hard, grade **PCD55** is suitable for continuous cutting applications in finishing operations.
Use at high cutting speeds and feed rates appropriate for the cutting edge profile makes it possible to achieve an excellent surface finish.

305 The excellent tradeoff between synthetic diamond grain size and the properties of the binder results in a **PCD** grade with good wear resistance and toughness.

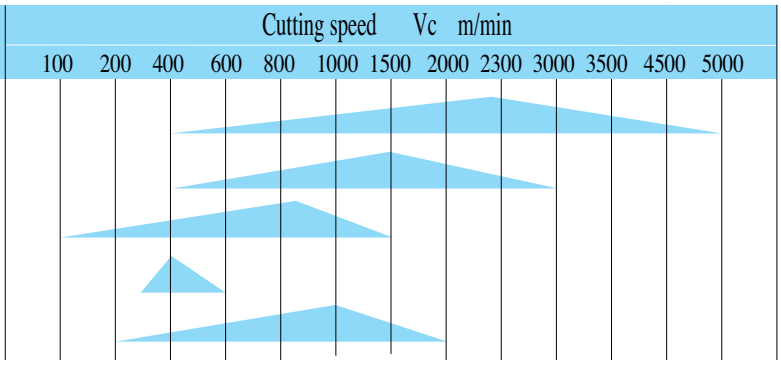
Applications

55 Suitable for use in turning operations for aluminum workpieces with a maximum silicon content of 12%. High wear resistance makes it possible to use high machining speeds under continuous cutting conditions. Also suitable for machining brass, bronze and copper.

305 The characteristics of this grade make this **PCD** particularly suitable for machining aluminum alloys with percentages of silicon ranging from 10 to 18%.
It can be used for interrupted cutting applications. This **PCD** grade is also suitable for machining composite materials such as Kevlar, glass fiber, carbon fiber and carbon.

PCD machining parameters

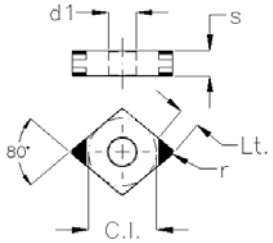
Workpiece material	Feed per revolution
Aluminum Si 1 - 8%	0,12 - 0,30
Aluminum Si 6 - 12%	0,12 - 0,30
Aluminum Si > 12%	0,12 - 0,20
Composite (Kevlar - carbon)	0,05 - 0,15
Brass - bronze - copper	0,10 - 0,25



PCD

CBN

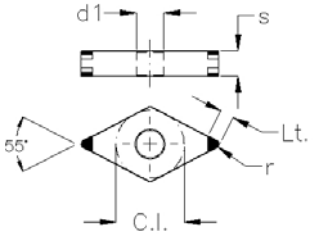
Negative inserts for turning operations

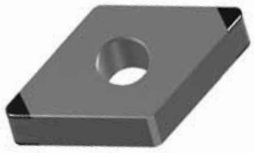


Insert with four cutting edges pictured.

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
CNMA120404EN1	203-027665- ☐ EB							✓	✓	✓	✓
CNMA120404SN1	203-027665- ☐ LB				0,4	2,7		✓	✓	✓	✓
CNMA120404SN1	203-027665- ☐ MB							✓	✓	✓	✓
CNMA120404SN1	203-027665- ☐ HB							✓	✓	✓	✓
CNMA120408EN1	203-027666- ☐ EB							✓	✓	✓	✓
CNMA120408SN1	203-027666- ☐ LB	1	12,7	4,76	0,8	2,6	5,16	✓	✓	✓	✓
CNMA120408SN1	203-027666- ☐ MB							✓	✓	✓	✓
CNMA120408SN1	203-027666- ☐ HB							✓	✓	✓	✓
CNMA120412EN1	203-026363- ☐ EB							✓	✓	✓	✓
CNMA120412SN1	203-026363- ☐ LB				1,2	2,5		✓	✓	✓	✓
CNMA120412SN1	203-026363- ☐ MB							✓	✓	✓	✓
CNMA120412SN1	203-026363- ☐ HB							✓	✓	✓	✓
CNGA120404EN2	223-027051- ☐ EB							✓	✓	✓	✓
CNGA120404SN2	223-027051- ☐ LB				0,4	2,7		✓	✓	✓	✓
CNGA120404SN2	223-027051- ☐ MB							✓	✓	✓	✓
CNGA120404SN2	223-027051- ☐ HB							✓	✓	✓	✓
CNGA120408EN2	223-027034- ☐ EB							✓	✓	✓	✓
CNGA120408SN2	223-027034- ☐ LB	2	12,7	4,76	0,8	2,6	5,16	✓	✓	✓	✓
CNGA120408SN2	223-027034- ☐ MB							✓	✓	✓	✓
CNGA120408SN2	223-027034- ☐ HB							✓	✓	✓	✓
CNGA120412EN2	223-026483- ☐ EB							✓	✓	✓	✓
CNGA120412SN2	223-026483- ☐ LB				1,2	2,5		✓	✓	✓	✓
CNGA120412SN2	223-026483- ☐ MB							✓	✓	✓	✓
CNGA120412SN2	223-026483- ☐ HB							✓	✓	✓	✓
CNGG120404EN4	243-020020- ☐ EB							✓	✓	✓	✓
CNGG120404SN4	243-020020- ☐ LB				0,4	2,7		✓	✓	✓	✓
CNGG120404SN4	243-020020- ☐ MB							✓	✓	✓	✓
CNGG120404SN4	243-020020- ☐ HB							✓	✓	✓	✓
CNGG120408EN4	243-020022- ☐ EB							✓	✓	✓	✓
CNGG120408SN4	243-020022- ☐ LB	4	12,7	4,76	0,8	2,6	5,16	✓	✓	✓	✓
CNGG120408SN4	243-020022- ☐ MB							✓	✓	✓	✓
CNGG120408SN4	243-020022- ☐ HB							✓	✓	✓	✓
CNGG120412EN4	243-020024- ☐ EB							✓	✓	✓	✓
CNGG120412SN4	243-020024- ☐ LB				1,2	2,5		✓	✓	✓	✓
CNGG120412SN4	243-020024- ☐ MB							✓	✓	✓	✓
CNGG120412SN4	243-020024- ☐ HB							✓	✓	✓	✓

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	881	880	884
DNMA150608EN1	204-027674- ☐ EB	1	12,7	6,35	0,8	2,5	5,16	✓	✓	✓	✓
DNMA150608SN1	204-027674- ☐ LB							✓	✓	✓	✓
DNMA150608SN1	204-027674- ☐ MB							✓	✓	✓	✓
DNMA150608SN1	204-027674- ☐ HB							✓	✓	✓	✓
DNMA150612EN1	204-027675- ☐ EB				1,2	2,1		✓	✓	✓	✓
DNMA150612SN1	204-027675- ☐ LB							✓	✓	✓	✓
DNMA150612SN1	204-027675- ☐ MB							✓	✓	✓	✓
DNMA150612SN1	204-027675- ☐ HB							✓	✓	✓	✓
DNGA150608EN2	224-026359- ☐ EB	2	12,7	6,35	0,8	2,5	5,16	✓	✓	✓	✓
DNGA150608SN2	224-026359- ☐ LB							✓	✓	✓	✓
DNGA150608SN2	224-026359- ☐ MB							✓	✓	✓	✓
DNGA150608SN2	224-026359- ☐ HB							✓	✓	✓	✓
DNGA150612EN2	224-027400- ☐ EB				1,2	2,1		✓	✓	✓	✓
DNGA150612SN2	224-027400- ☐ LB							✓	✓	✓	✓
DNGA150612SN2	224-027400- ☐ MB							✓	✓	✓	✓
DNGA150612SN2	224-027400- ☐ HB							✓	✓	✓	✓
DNGG150408EN4	244-020028- ☐ EB	4	12,7	4,76	0,8	2,5	5,16	✓	✓	✓	✓
DNGG150408SN4	244-020028- ☐ LB							✓	✓	✓	✓
DNGG150408SN4	244-020028- ☐ MB							✓	✓	✓	✓
DNGG150408SN4	244-020028- ☐ HB							✓	✓	✓	✓
DNGG150412EN4	244-020030- ☐ EB				1,2	2,1		✓	✓	✓	✓
DNGG150412SN4	244-020030- ☐ LB							✓	✓	✓	✓
DNGG150412SN4	244-020030- ☐ MB							✓	✓	✓	✓
DNGG150412SN4	244-020030- ☐ HB							✓	✓	✓	✓





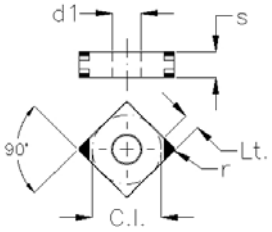
Insert with four cutting edges pictured.

CBN

Example of order code: DNGA150612EN2 224-027400-**881**EB

CBN

Negative inserts for turning operations

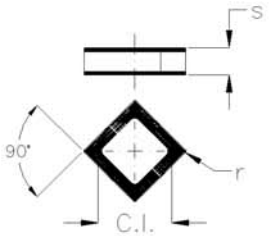


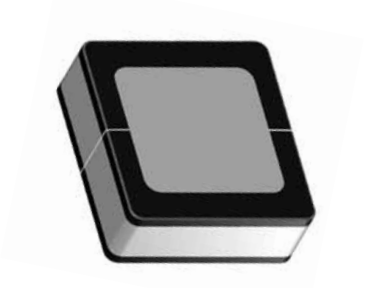
Insert with four cutting edges pictured.

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
SNGA120404EN2	232-027681- ☐ EB	2	12,7	4,76	0,4	2,7	5,16	✓	✓	✓	✓
SNGA120404SN2	232-027681- ☐ LB							✓	✓	✓	✓
SNGA120404SN2	232-027681- ☐ MB							✓	✓	✓	✓
SNGA120404SN2	232-027681- ☐ HB							✓	✓	✓	✓
SNGA120408EN2	232-027682- ☐ EB				0,8	2,6		✓	✓	✓	✓
SNGA120408SN2	232-027682- ☐ LB							✓	✓	✓	✓
SNGA120408SN2	232-027682- ☐ MB							✓	✓	✓	✓
SNGA120408SN2	232-027682- ☐ HB							✓	✓	✓	✓
SNGA120412EN2	232-027683- ☐ EB				1,2	2,5		✓	✓	✓	✓
SNGA120412SN2	232-027683- ☐ LB							✓	✓	✓	✓
SNGA120412SN2	232-027683- ☐ MB							✓	✓	✓	✓
SNGA120412SN2	232-027683- ☐ HB							✓	✓	✓	✓
SNGA120404EN4	252-020032- ☐ EB	4	12,7	4,76	0,4	2,7	5,16	✓	✓	✓	✓
SNGA120404SN4	252-020032- ☐ LB							✓	✓	✓	✓
SNGA120404SN4	252-020032- ☐ MB							✓	✓	✓	✓
SNGA120404SN4	252-020032- ☐ HB							✓	✓	✓	✓
SNGA120408EN4	252-020034- ☐ EB				0,8	2,6		✓	✓	✓	✓
SNGA120408SN4	252-020034- ☐ LB							✓	✓	✓	✓
SNGA120408SN4	252-020034- ☐ MB							✓	✓	✓	✓
SNGA120408SN4	252-020034- ☐ HB							✓	✓	✓	✓
SNGA120412EN4	252-020036- ☐ EB				1,2	2,5		✓	✓	✓	✓
SNGA120412SN4	252-020036- ☐ LB							✓	✓	✓	✓
SNGA120412SN4	252-020036- ☐ MB							✓	✓	✓	✓
SNGA120412SN4	252-020036- ☐ HB							✓	✓	✓	✓

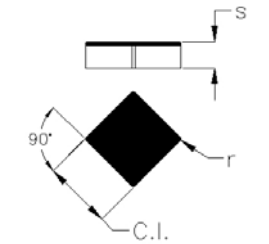
CBN

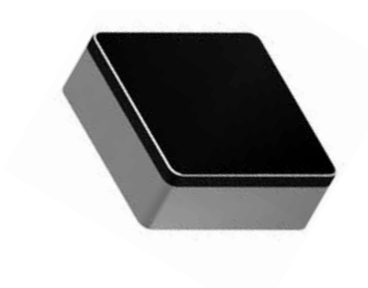
ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	880	882	884
SNGN120408EN8	252-023910- ☐ EB						-	✓	✓	✓
SNGN120408SN8	252-023910- ☐ LB				0,8		-	✓	✓	✓
SNGN120408SN8	252-023910- ☐ MB						-	✓	✓	✓
SNGN120408SN8	252-023910- ☐ HB						-	✓	✓	✓
SNGN120412EN8	252-019751- ☐ EB						-	✓	✓	✓
SNGN120412SN8	252-019751- ☐ LB	8	12,7	4,76	1,2	12,7	-	✓	✓	✓
SNGN120412SN8	252-019751- ☐ MB						-	✓	✓	✓
SNGN120412SN8	252-019751- ☐ HB						-	✓	✓	✓
SNGN120416EN8	252-019747- ☐ EB						-	✓	✓	✓
SNGN120416SN8	252-019747- ☐ LB				1,6		-	✓	✓	✓
SNGN120416SN8	252-019747- ☐ MB						-	✓	✓	✓
SNGN120416SN8	252-019747- ☐ HB						-	✓	✓	✓



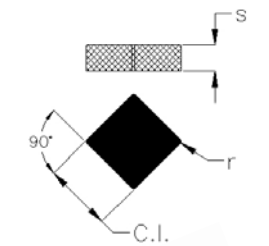


ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
SNGN120404ENK	232-022653- ☐ EB						-	✓	✓	✓	✓
SNGN120404SNK	232-022653- ☐ LB				0,4		-	✓	✓	✓	✓
SNGN120404SNK	232-022653- ☐ MB						-	✓	✓	✓	✓
SNGN120404SNK	232-022653- ☐ HB						-	✓	✓	✓	✓
SNGN120408ENK	232-022676- ☐ EB						-	✓	✓	✓	✓
SNGN120408SNK	232-022676- ☐ LB	4	12,7	4,76	0,8	12,7	-	✓	✓	✓	✓
SNGN120408SNK	232-022676- ☐ MB						-	✓	✓	✓	✓
SNGN120408SNK	232-022676- ☐ HB						-	✓	✓	✓	✓
SNGN120412ENK	232-022452- ☐ EB						-	✓	✓	✓	✓
SNGN120412SNK	232-022452- ☐ LB				1,2		-	✓	✓	✓	✓
SNGN120412SNK	232-022452- ☐ MB						-	✓	✓	✓	✓
SNGN120412SNK	232-022452- ☐ HB						-	✓	✓	✓	✓





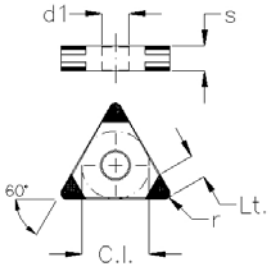
ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731
SNGN090304ENW	232-023126- ☐ EB				0,4		-	✓
SNGN090308ENW	232-027693- ☐ EB		9,52	3,18	0,8	9,5	-	✓
SNGN090312ENW	232-025035- ☐ EB	8			1,2		-	✓
SNGN120404ENW	232-027765- ☐ EB				0,4		-	✓
SNGN120408ENW	232-025822- ☐ EB		12,7	4,76	0,8	12,7	-	✓
SNGN120412ENW	232-022573- ☐ EB				1,2		-	✓



Example of order code: SNGN120412ENW 232-022573-**731**EB

CBN

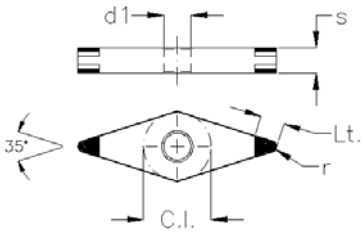
Negative inserts for turning operations

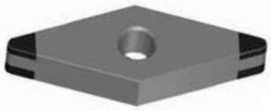


Insert with six cutting edges pictured.

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
TNGA160404EN3	233-027694- ☐ EB	3	9,52	4,76	0,4	3,7	3,81	✓	✓	✓	✓
TNGA160404SN3	233-027694- ☐ LB							✓	✓	✓	✓
TNGA160404SN3	233-027694- ☐ MB							✓	✓	✓	✓
TNGA160404SN3	233-027694- ☐ HB							✓	✓	✓	✓
TNGA160408EN3	233-027695- ☐ EB				0,8	3,5		✓	✓	✓	✓
TNGA160408SN3	233-027695- ☐ LB							✓	✓	✓	✓
TNGA160408SN3	233-027695- ☐ MB							✓	✓	✓	✓
TNGA160408SN3	233-027695- ☐ HB							✓	✓	✓	✓
TNGA160412EN3	233-027696- ☐ EB				1,2	3,2		✓	✓	✓	✓
TNGA160412SN3	233-027696- ☐ LB							✓	✓	✓	✓
TNGA160412SN3	233-027696- ☐ MB							✓	✓	✓	✓
TNGA160412SN3	233-027696- ☐ HB							✓	✓	✓	✓
TNGG160404EN6	253-019990- ☐ EB	6	9,52	4,76	0,4	3,7	3,81	✓	✓	✓	✓
TNGG160404SN6	253-019990- ☐ LB							✓	✓	✓	✓
TNGG160404SN6	253-019990- ☐ MB							✓	✓	✓	✓
TNGG160404SN6	253-019990- ☐ HB							✓	✓	✓	✓
TNGG160408EN6	253-019992- ☐ EB				0,8	3,5		✓	✓	✓	✓
TNGG160408SN6	253-019992- ☐ LB							✓	✓	✓	✓
TNGG160408SN6	253-019992- ☐ MB							✓	✓	✓	✓
TNGG160408SN6	253-019992- ☐ HB							✓	✓	✓	✓
TNGG160412EN6	253-019994- ☐ EB				1,2	3,2		✓	✓	✓	✓
TNGG160412SN6	253-019994- ☐ LB							✓	✓	✓	✓
TNGG160412SN6	253-019994- ☐ MB							✓	✓	✓	✓
TNGG160412SN6	253-019994- ☐ HB							✓	✓	✓	✓

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
VNGA160404EN2	236-027347- ☐ EB							✓	✓	✓	✓
VNGA160404SN2	236-027347- ☐ LB				0,4	4,1		✓	✓	✓	✓
VNGA160404SN2	236-027347- ☐ MB							✓	✓	✓	✓
VNGA160404SN2	236-027347- ☐ HB							✓	✓	✓	✓
VNGA160408EN2	236-026172- ☐ EB							✓	✓	✓	✓
VNGA160408SN2	236-026172- ☐ LB	2	9,52	4,76	0,8	3,3	3,81	✓	✓	✓	✓
VNGA160408SN2	236-026172- ☐ MB							✓	✓	✓	✓
VNGA160408SN2	236-026172- ☐ HB							✓	✓	✓	✓
VNGA160412EN2	236-027697- ☐ EB							✓	✓	✓	✓
VNGA160412SN2	236-027697- ☐ LB				1,2	2,4		✓	✓	✓	✓
VNGA160412SN2	236-027697- ☐ MB							✓	✓	✓	✓
VNGA160412SN2	236-027697- ☐ HB							✓	✓	✓	✓
VNGG160404EN4	256-020046- ☐ EB							✓	✓	✓	✓
VNGG160404SN4	256-020046- ☐ LB				0,4	4,1		✓	✓	✓	✓
VNGG160404SN4	256-020046- ☐ MB							✓	✓	✓	✓
VNGG160404SN4	256-020046- ☐ HB							✓	✓	✓	✓
VNGG160408EN4	256-020048- ☐ EB							✓	✓	✓	✓
VNGG160408SN4	256-020048- ☐ LB	4	9,52	4,76	0,8	3,3	3,81	✓	✓	✓	✓
VNGG160408SN4	256-020048- ☐ MB							✓	✓	✓	✓
VNGG160408SN4	256-020048- ☐ HB							✓	✓	✓	✓
VNGG160412EN4	256-020050- ☐ EB							✓	✓	✓	✓
VNGG160412SN4	256-020050- ☐ LB				1,2	2,4		✓	✓	✓	✓
VNGG160412SN4	256-020050- ☐ MB							✓	✓	✓	✓
VNGG160412SN4	256-020050- ☐ HB							✓	✓	✓	✓





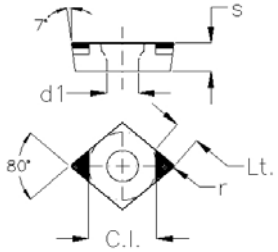
Insert with four cutting edges pictured.

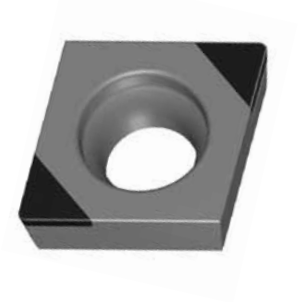
CBN

Example of order code: VNGG160412SN4 256-020050-**882**HB

CBN

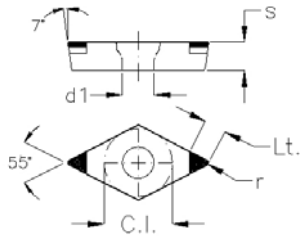
Positive inserts for turning operations

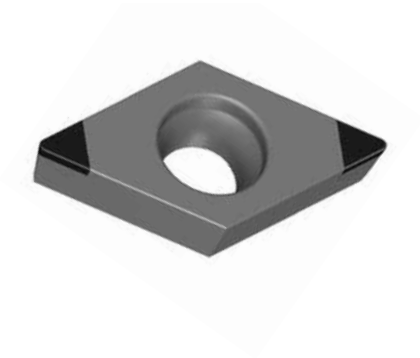




ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
CCGW060202EN2	223-027698- ☐ EB							✓	✓	✓	✓
CCGW060202SN2	223-027698- ☐ LB				0,2	2,8		✓	✓	✓	✓
CCGW060202SN2	223-027698- ☐ MB							✓	✓	✓	✓
CCGW060202SN2	223-027698- ☐ HB							✓	✓	✓	✓
CCGW060204EN2	223-027035- ☐ EB							✓	✓	✓	✓
CCGW060204SN2	223-027035- ☐ LB	2	6,35	2,38	0,4	2,7	2,8	✓	✓	✓	✓
CCGW060204SN2	223-027035- ☐ MB							✓	✓	✓	✓
CCGW060204SN2	223-027035- ☐ HB							✓	✓	✓	✓
CCGW060208EN2	223-027699- ☐ EB							✓	✓	✓	✓
CCGW060208SN2	223-027699- ☐ LB				0,8	2,6		✓	✓	✓	✓
CCGW060208SN2	223-027699- ☐ MB							✓	✓	✓	✓
CCGW060208SN2	223-027699- ☐ HB							✓	✓	✓	✓
CCGW09T304EN2	223-027700- ☐ EB							✓	✓	✓	✓
CCGW09T304SN2	223-027700- ☐ LB				0,4	2,7		✓	✓	✓	✓
CCGW09T304SN2	223-027700- ☐ MB							✓	✓	✓	✓
CCGW09T304SN2	223-027700- ☐ HB							✓	✓	✓	✓
CCGW09T308EN2	223-027701- ☐ EB							✓	✓	✓	✓
CCGW09T308SN2	223-027701- ☐ LB	2	9,52	3,97	0,8	2,6	4,4	✓	✓	✓	✓
CCGW09T308SN2	223-017701- ☐ MB							✓	✓	✓	✓
CCGW09T308SN2	223-017701- ☐ HB							✓	✓	✓	✓
CCGW09T312EN2	223-027702- ☐ EB							✓	✓	✓	✓
CCGW09T312SN2	223-027702- ☐ LB				1,2	2,5		✓	✓	✓	✓
CCGW09T312SN2	223-027702- ☐ MB							✓	✓	✓	✓
CCGW09T312SN2	223-027702- ☐ HB							✓	✓	✓	✓
CCGW120404EN2	223-027703- ☐ EB							✓	✓	✓	✓
CCGW120404SN2	223-027703- ☐ LB				0,4	2,7		✓	✓	✓	✓
CCGW120404SN2	223-027703- ☐ MB							✓	✓	✓	✓
CCGW120404SN2	223-027703- ☐ HB							✓	✓	✓	✓
CCGW120408EN2	223-027704- ☐ EB							✓	✓	✓	✓
CCGW120408SN2	223-027704- ☐ LB	2	12,7	4,76	0,8	2,6	5,5	✓	✓	✓	✓
CCGW120408SN2	223-027704- ☐ MB							✓	✓	✓	✓
CCGW120408SN2	223-027704- ☐ HB							✓	✓	✓	✓
CCGW120412EN2	223-027705- ☐ EB							✓	✓	✓	✓
CCGW120412SN2	223-027705- ☐ LB				1,2	2,5		✓	✓	✓	✓
CCGW120412SN2	223-027705- ☐ MB							✓	✓	✓	✓
CCGW120412SN2	223-027705- ☐ HB							✓	✓	✓	✓

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
DCGW070202EN2	224-020055- ☐ EB							✓	✓	✓	✓
DCGW070202SN2	224-020055- ☐ LB				0,2	2,4		✓	✓	✓	✓
DCGW070202SN2	224-020055- ☐ MB							✓	✓	✓	✓
DCGW070202SN2	224-020055- ☐ HB							✓	✓	✓	✓
DCGW070204EN2	224-020056- ☐ EB							✓	✓	✓	✓
DCGW070204SN2	224-020056- ☐ LB	2	6,35	2,38	0,4	2,2	2,8	✓	✓	✓	✓
DCGW070204SN2	224-020056- ☐ MB							✓	✓	✓	✓
DCGW070204SN2	224-020056- ☐ HB							✓	✓	✓	✓
DCGW070208EN2	224-020057- ☐ EB							✓	✓	✓	✓
DCGW070208SN2	224-020057- ☐ LB				0,8	1,9		✓	✓	✓	✓
DCGW070208SN2	224-020057- ☐ MB							✓	✓	✓	✓
DCGW070208SN2	224-020057- ☐ HB							✓	✓	✓	✓
DCGW11T302EN2	224-020058- ☐ EB							✓	✓	✓	✓
DCGW11T302SN2	224-020058- ☐ LB				0,2	3,1		✓	✓	✓	✓
DCGW11T302SN2	224-020058- ☐ MB							✓	✓	✓	✓
DCGW11T302SN2	224-020058- ☐ HB							✓	✓	✓	✓
DCGW11T304EN2	224-020059- ☐ EB							✓	✓	✓	✓
DCGW11T304SN2	224-020059- ☐ LB	2	9,52	3,97	0,4	2,8	4,4	✓	✓	✓	✓
DCGW11T304SN2	224-020059- ☐ MB							✓	✓	✓	✓
DCGW11T304SN2	224-020059- ☐ HB							✓	✓	✓	✓
DCGW11T308EN2	224-020060- ☐ EB							✓	✓	✓	✓
DCGW11T308SN2	224-020060- ☐ LB				0,8	2,5		✓	✓	✓	✓
DCGW11T308SN2	224-020060- ☐ MB							✓	✓	✓	✓
DCGW11T308SN2	224-020060- ☐ HB							✓	✓	✓	✓



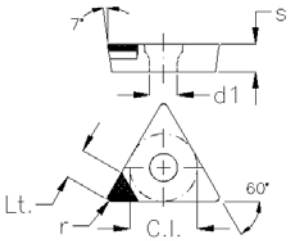


CBN

Example of order code: DCGW11T308SN2 224-020060-**882**HB

CBN

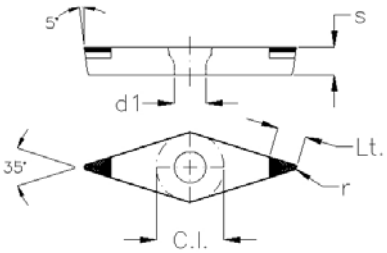
Positive inserts for turning operations

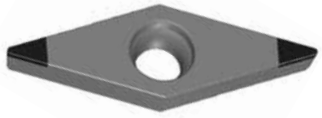


Insert with four cutting edges pictured.

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
TCMW110204EN1	213-021172- ☐ EB	1	6,35	2,38	0,4	3	2,8	✓	✓	✓	✓
TCMW110204SN1	213-021172- ☐ LB							✓	✓	✓	✓
TCMW110204SN1	213-021172- ☐ MB							✓	✓	✓	✓
TCMW110204SN1	213-021172- ☐ HB							✓	✓	✓	✓
TCMW110208EN1	213-021173- ☐ EB				0,8	2,8		✓	✓	✓	✓
TCMW110208SN1	213-021173- ☐ LB							✓	✓	✓	✓
TCMW110208SN1	213-021173- ☐ MB							✓	✓	✓	✓
TCMW110208SN1	213-021173- ☐ HB							✓	✓	✓	✓
TCMW16T304EN1	213-027706- ☐ EB	1	9,52	3,97	0,4	3	4,4	✓	✓	✓	✓
TCMW16T304SN1	213-027706- ☐ LB							✓	✓	✓	✓
TCMW16T304SN1	213-027706- ☐ MB							✓	✓	✓	✓
TCMW16T304SN1	213-027706- ☐ HB							✓	✓	✓	✓
TCMW16T308EN1	213-027707- ☐ EB				0,8	2,8		✓	✓	✓	✓
TCMW16T308SN1	213-027707- ☐ LB							✓	✓	✓	✓
TCMW16T308SN1	213-027707- ☐ MB							✓	✓	✓	✓
TCMW16T308SN1	213-027707- ☐ HB							✓	✓	✓	✓
TCMW16T312EN1	213-027708- ☐ EB				1,2	2,6		✓	✓	✓	✓
TCMW16T312SN1	213-027708- ☐ LB							✓	✓	✓	✓
TCMW16T312SN1	213-027708- ☐ MB							✓	✓	✓	✓
TCMW16T312SN1	213-027708- ☐ HB							✓	✓	✓	✓

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
VBMW110204EN1	216-024710- ☐ EB							✓	✓	✓	✓
VBMW110204SN1	216-024710- ☐ LB				0,4	4,1		✓	✓	✓	✓
VBMW110204SN1	216-024710- ☐ MB							✓	✓	✓	✓
VBMW110204SN1	216-024710- ☐ HB	1	6,35	2,38			2,8	✓	✓	✓	✓
VBMW110208EN1	216-024709- ☐ EB							✓	✓	✓	✓
VBMW110208SN1	216-024709- ☐ LB				0,8	3,3		✓	✓	✓	✓
VBMW110208SN1	216-024709- ☐ MB							✓	✓	✓	✓
VBMW110208SN1	216-024709- ☐ HB							✓	✓	✓	✓
VBGW110204EN2	236-027710- ☐ EB							✓	✓	✓	✓
VBGW110204SN2	236-027710- ☐ LB				0,4	4,1		✓	✓	✓	✓
VBGW110204SN2	236-027710- ☐ MB							✓	✓	✓	✓
VBGW110204SN2	236-027710- ☐ HB	2	6,35	2,38			2,8	✓	✓	✓	✓
VBGW110208EN2	236-027711- ☐ EB							✓	✓	✓	✓
VBGW110208SN2	236-027711- ☐ LB				0,8	3,3		✓	✓	✓	✓
VBGW110208SN2	236-027711- ☐ MB							✓	✓	✓	✓
VBGW110208SN2	236-027711- ☐ HB							✓	✓	✓	✓
VBMW160404EN1	216-023396- ☐ EB							✓	✓	✓	✓
VBMW160404SN1	216-023396- ☐ LB				0,4	4,1		✓	✓	✓	✓
VBMW160404SN1	216-023396- ☐ MB							✓	✓	✓	✓
VBMW160404SN1	216-023396- ☐ HB							✓	✓	✓	✓
VBMW160408EN1	216-027712- ☐ EB							✓	✓	✓	✓
VBMW160408SN1	216-027712- ☐ LB							✓	✓	✓	✓
VBMW160408SN1	216-027712- ☐ MB	1	9,52	4,76	0,8	3,3	4,4	✓	✓	✓	✓
VBMW160408SN1	216-027712- ☐ HB							✓	✓	✓	✓
VBMW160412EN1	216-027713- ☐ EB							✓	✓	✓	✓
VBMW160412SN1	216-027713- ☐ LB				1,2	2,4		✓	✓	✓	✓
VBMW160412SN1	216-027713- ☐ MB							✓	✓	✓	✓
VBMW160412SN1	216-027713- ☐ HB							✓	✓	✓	✓





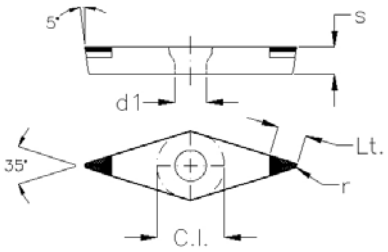
Insert with two cutting edges pictured.

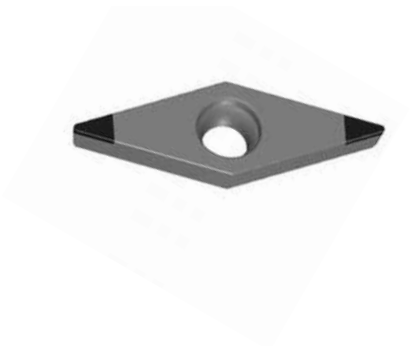
CBN

Example of order code: VBMW160412SN1 216-027713-**882**HB

CBN

Positive inserts for turning operations

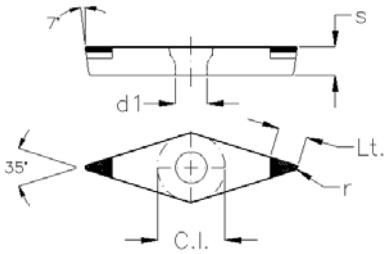


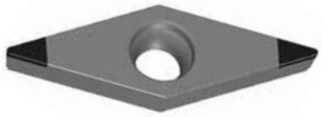


ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
VBGW160404EN2	236-027714- ☐ EB	2	9,52	4,76	0,4	4,1	4,4	✓	✓	✓	✓
VBGW160404SN2	236-027714- ☐ LB							✓	✓	✓	✓
VBGW160404SN2	236-027714- ☐ MB							✓	✓	✓	✓
VBGW160404SN2	236-027714- ☐ HB							✓	✓	✓	✓
VBGW160408EN2	236-027715- ☐ EB				0,8	3,3		✓	✓	✓	✓
VBGW160408SN2	236-027715- ☐ LB							✓	✓	✓	✓
VBGW160408SN2	236-027715- ☐ MB							✓	✓	✓	✓
VBGW160408SN2	236-027715- ☐ HB							✓	✓	✓	✓
VBGW160412EN2	236-027716- ☐ EB				1,2	2,4		✓	✓	✓	✓
VBGW160412SN2	236-027716- ☐ LB							✓	✓	✓	✓
VBGW160412SN2	236-027716- ☐ MB							✓	✓	✓	✓
VBGW160412SN2	236-027716- ☐ HB							✓	✓	✓	✓

CBN Positive inserts for turning operations

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
VCMW110204EN1	216-027717- ☐ EB	1	6,35	2,38	0,4	4,1	2,8	✓	✓	✓	✓
VCMW110204SN1	216-027717- ☐ LB							✓	✓	✓	✓
VCMW110204SN1	216-027717- ☐ MB							✓	✓	✓	✓
VCMW110204SN1	216-027717- ☐ HB							✓	✓	✓	✓
VCMW110208EN1	216-027718- ☐ EB				0,8	3,3		✓	✓	✓	✓
VCMW110208SN1	216-027718- ☐ LB							✓	✓	✓	✓
VCMW110208SN1	216-027718- ☐ MB							✓	✓	✓	✓
VCMW110208SN1	216-027718- ☐ HB							✓	✓	✓	✓
VCGW110204EN2	236-027719- ☐ EB	2	6,35	2,38	0,4	2,7	2,8	✓	✓	✓	✓
VCGW110204SN2	236-027719- ☐ LB							✓	✓	✓	✓
VCGW110204SN2	236-027719- ☐ MB							✓	✓	✓	✓
VCGW110204SN2	236-027719- ☐ HB							✓	✓	✓	✓
VCGW110208EN2	236-027720- ☐ EB				0,8	2,6		✓	✓	✓	✓
VCGW110208SN2	236-027720- ☐ LB							✓	✓	✓	✓
VCGW110208SN2	236-027720- ☐ MB							✓	✓	✓	✓
VCGW110208SN2	236-027720- ☐ HB							✓	✓	✓	✓
VCMW160404EN1	216-027721- ☐ EB	1	9,52	4,76	0,4	4,1	4,4	✓	✓	✓	✓
VCMW160404SN1	216-027721- ☐ LB							✓	✓	✓	✓
VCMW160404SN1	216-027721- ☐ MB							✓	✓	✓	✓
VCMW160404SN1	216-027721- ☐ HB							✓	✓	✓	✓
VCMW160408EN1	216-026803- ☐ EB				0,8	3,3		✓	✓	✓	✓
VCMW160408SN1	216-026803- ☐ LB							✓	✓	✓	✓
VCMW160408SN1	216-026803- ☐ MB							✓	✓	✓	✓
VCMW160408SN1	216-026803- ☐ HB							✓	✓	✓	✓
VCMW160412EN1	216-027722- ☐ EB				1,2	2,4		✓	✓	✓	✓
VCMW160412SN1	216-027722- ☐ LB							✓	✓	✓	✓
VCMW160412SN1	216-027722- ☐ MB							✓	✓	✓	✓
VCMW160412SN1	216-027722- ☐ HB							✓	✓	✓	✓



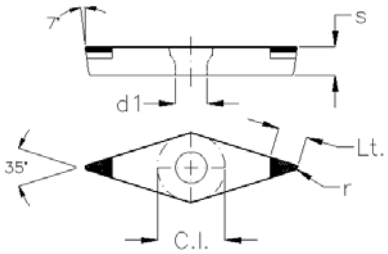


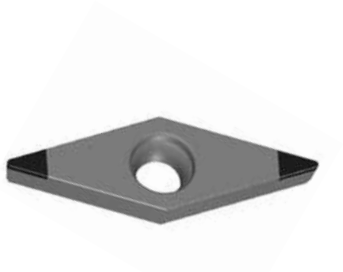
Insert with two cutting edges pictured.

CBN

Example of order code: VCMW160408EN1 216-026803-**882**HB

CBN Positive inserts for turning operations





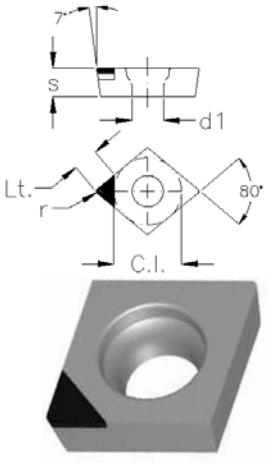
Insert with two cutting edges pictured.

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	731	880	882	884
VCGW160404EN2	236-027723- ☐ EB	2	9,52	4,76	0,4	4,1	4,4	✓	✓	✓	✓
VCGW160404SN2	236-027723- ☐ LB							✓	✓	✓	✓
VCGW160404SN2	236-027723- ☐ MB							✓	✓	✓	✓
VCGW160404SN2	236-027723- ☐ HB							✓	✓	✓	✓
VCGW160408EN2	236-027724- ☐ EB				0,8	3,3		✓	✓	✓	✓
VCGW160408SN2	236-027724- ☐ LB							✓	✓	✓	✓
VCGW160408SN2	236-027724- ☐ MB							✓	✓	✓	✓
VCGW160408SN2	236-027724- ☐ HB							✓	✓	✓	✓
VCGW160412EN2	236-027725- ☐ EB				1,2	2,4		✓	✓	✓	✓
VCGW160412SN2	236-027725- ☐ LB							✓	✓	✓	✓
VCGW160412SN2	236-027725- ☐ MB							✓	✓	✓	✓
VCGW160412SN2	236-027725- ☐ HB							✓	✓	✓	✓

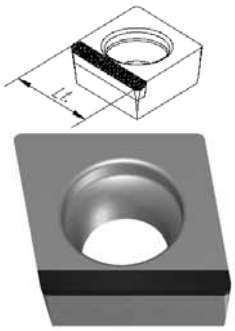
CBN

PCD Positive inserts for turning operations

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	55	305
CCMW060202FN1	203-020101- ☐	1	6,35	2,38	0,2	3,3	2,8	◇	◇
CCMW060204FN1	203-020102- ☐				0,4	3,2		◇	◇
CCMW060208FN1	203-020103- ☐				0,8	3,1		◇	◇
CCMW060202FLX	203-020674- ☐				0,2	6,2		◇	◇
CCMW060204FLX	203-020125- ☐				0,4	6,0		◇	◇
CCMW060208FLX	203-027726- ☐				0,8	5,8		◇	◇
CCMW09T304FN1	203-020105- ☐	1	9,52	3,97	0,4	4,1	4,4	◇	◇
CCMW09T308FN1	203-020106- ☐				0,8	4,0		◇	◇
CCMW09T312FN1	203-027727- ☐				1,2	3,9		◇	◇
CCMW09T304FLX	203-020126- ☐				0,4	9,2		◇	◇
CCMW09T308FLX	203-027728- ☐				0,8	8,8		◇	◇
CCMW09T312FLX	203-027729- ☐				1,2	8,4		◇	◇
CCMW120404FN1	203-022496- ☐	1	12,7	4,76	0,4	6,0	5,5	◇	◇
CCMW120408FN1	203-020107- ☐				0,8	5,9		◇	◇
CCMW120412FN1	203-027730- ☐				1,2	5,8		◇	◇
CCMW120404FLX	203-027731- ☐				0,4	12,4		◇	◇
CCMW120408FLX	203-027732- ☐				0,8	12,0		◇	◇
CCMW120412FLX	203-027733- ☐				1,2	11,6		◇	◇

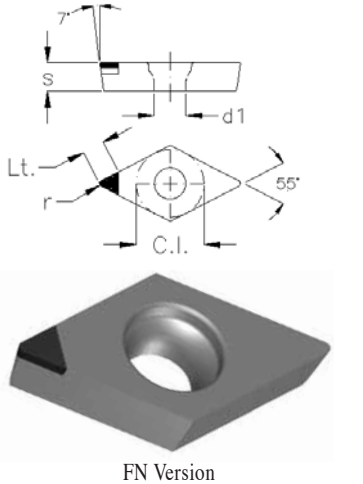


FN Version

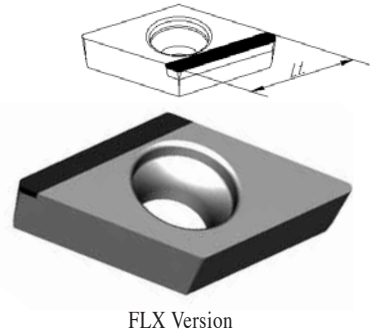


FLX Version

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	55	305
DCMW070202FN1	204-020094- ☐	1	6,35	2,38	0,2	3,9	2,8	◇	◇
DCMW070204FN1	204-020095- ☐				0,4	3,7		◇	◇
DCMW070208FN1	204-020096- ☐				0,8	3,4		◇	◇
DCMW070202FLX	204-027734- ☐				0,2	7,4		◇	◇
DCMW070204FLX	204-027735- ☐				0,4	7,1		◇	◇
DCMW070208FLX	204-027736- ☐				0,8	6,5		◇	◇
DCMW11T302FN1	204-020097- ☐	1	9,52	3,97	0,2	4,4	4,4	◇	◇
DCMW11T304FN1	204-020098- ☐				0,4	4,2		◇	◇
DCMW11T308FN1	204-020099- ☐				0,8	3,9		◇	◇
DCMW11T302FLX	204-027738- ☐				0,2	11,3		◇	◇
DCMW11T304FLX	204-027739- ☐				0,4	11,0		◇	◇
DCMW11T308FLX	204-027740- ☐				0,8	10,4		◇	◇



FN Version

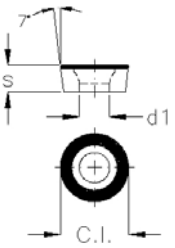


FLX Version

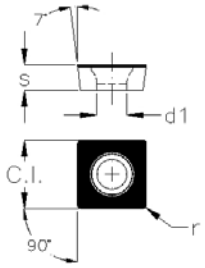
Example of order code: DCMW11T308FLX 204-027740-**55**

PCD

Positive inserts for turning operations



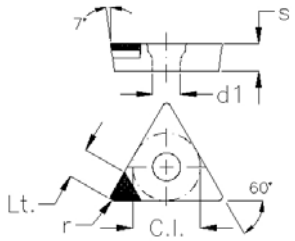
ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	55	305
RCGW10T300FNK	231-026943- ☐		10	3,97	5	-	4,4	◇	◇

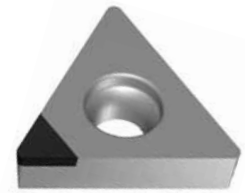


ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	55	305
SCMW120404FNK	232-027090- ☐	4	12,7	4,76	0,4	12,7	5,5	◇	◇
SCMW120408FNK	232-016485- ☐	4	12,7	4,76	0,8	12,7	5,5	◇	◇

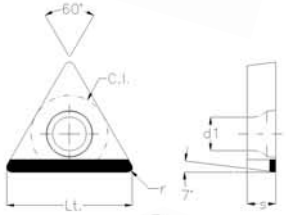
PCD

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	55	305
TCMW090204FN1	213-020088- ☐	1	5,56	2,38	0,4	3,0	2,5	◇	◇
TCMW090208FN1	213-020089- ☐				0,8	2,7		◇	◇
TCMW090204FNX	213-020123- ☐				0,4	8,5		◇	◇
TCMW090208FNX	213-027741- ☐				0,8	7,5		◇	◇
TCMW110204FN1	213-020090- ☐	1	6,35	2,38	0,4	3,7	2,8	◇	◇
TCMW110208FN1	213-020091- ☐				0,8	3,4		◇	◇
TCMW110204FNX	213-020124- ☐				0,4	10,0		◇	◇
TCMW110208FNX	213-023317- ☐				0,8	9,0		◇	◇
TCMW16T304FN1	213-020092- ☐	1	9,52	3,97	0,4	5,7	4,4	◇	◇
TCMW16T308FN1	213-020093- ☐				0,8	5,4		◇	◇
TCMW16T312FN1	213-027742- ☐				1,2	5,1		◇	◇
TCMW16T304FNX	213-027743- ☐				0,4	15,5		◇	◇
TCMW16T308FNX	213-027744- ☐				0,8	14,5		◇	◇
TCMW16T312FNX	213-027745- ☐				1,2	13,5		◇	◇



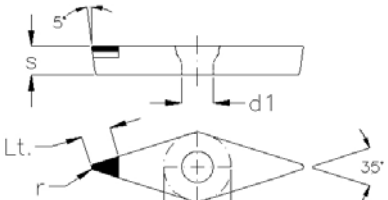


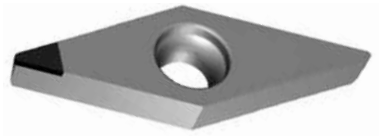
FN Version



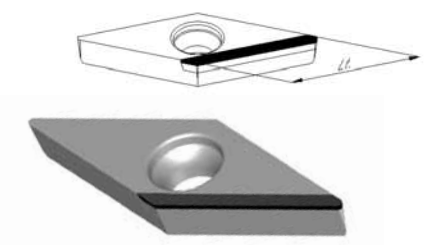
FN Version

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	55	305
VBMW110204FN1	216-020109- ☐	1	6,35	2,38	0,4	4,0	2,8	◇	◇
VBMW110208FN1	216-027746- ☐				0,8	3,1		◇	◇
VBMW110212FN1	216-027747- ☐				1,2	2,2		◇	◇
VBMW110204FLX	216-027748- ☐				0,4	10,0		◇	◇
VBMW110208FLX	216-027749- ☐				0,8	9,0		◇	◇
VBMW110212FLX	216-027750- ☐				1,2	8,0		◇	◇
VBMW160404FN1	216-020110- ☐	1	9,52	4,76	0,4	5,7	4,4	◇	◇
VBMW160408FN1	216-020111- ☐				0,8	4,9		◇	◇
VBMW160412FN1	216-027751- ☐				1,2	4,1		◇	◇
VBMW160404FLX	216-027752- ☐				0,4	15,6		◇	◇
VBMW160408FLX	216-027753- ☐				0,8	14,6		◇	◇
VBMW160412FLX	216-027754- ☐				1,2	13,6		◇	◇





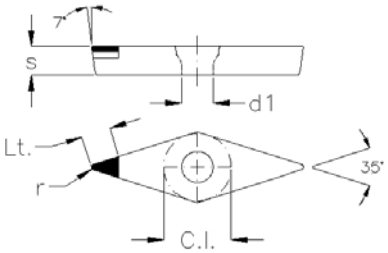
FN Version

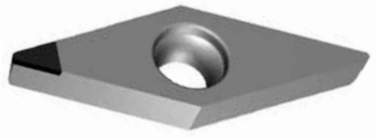


FLX Version

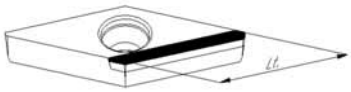
Example of order code: VBMW160412FLX 216-027754-**55**

PCD Positive inserts for turning operations





FN Version



FLX Version

ISO CODE	FIUDI CODE	Tgl.	C.I.	s	r	Lt	d1	55	305
VCMW110204FN1	216-027755- ☐	1	6,35	2,38	0,4	4,0	2,8	☑	☑
VCMW110208FN1	216-027756- ☐				0,8	3,1		☑	☑
VCMW110212FN1	216-027757- ☐				1,2	2,2		☑	☑
VCMW110204FLX	216-027758- ☐				0,4	10,0		☑	☑
VCMW110208FLX	216-027759- ☐				0,8	9,0		☑	☑
VCMW110212FLX	216-027760- ☐				1,2	8,0		☑	☑
VCMW160404FN1	216-020112- ☐	1	9,52	4,76	0,4	5,7	4,4	☑	☑
VCMW160408FN1	216-020113- ☐				0,8	4,9		☑	☑
VCMW160412FN1	216-027761- ☐				1,2	4,1		☑	☑
VCMW160404FLX	216-027762- ☐				0,4	15,6		☑	☑
VCMW160408FLX	216-027763- ☐				0,8	14,6		☑	☑
VCMW160412FLX	216-027764- ☐				1,2	13,6		☑	☑

PCD

Example of order code: VCMW160412FLX 216-027764-**55**

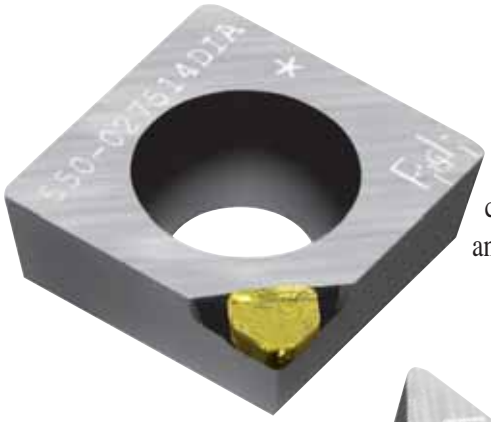
Natural diamond applications

DM

Using natural diamond cutting tools is essential in a number of specific turning applications, including:

METALWORK MANUFACTURING machining light alloys, copper, bronze, brass, antifriction material, filled resins and sintered alloys.
AEROSPACE machining glass fiber, carbon fiber, graphite fiber and filled resins.
ELECTRONICS machining memory disks, silver alloy, laser mirrors and pure copper parts.
PLUMBING/GAS machining precision brass balls, faucet valves, decorative plumbing fixtures and PVC balls.
BIOENGINEERING processing heart valves, contact lenses and ophthalmic prostheses.
JEWELLERY machining watch cases, straps, chains and relief patterns.
METROLOGY HRC hardness test indentors, in-process inspection probes, on-bench inspection probes and styluses.

Insert with monocrystalline diamond cutting edge for machining light alloy wheels requiring a high-quality mirror finish.



Insert with monocrystalline diamond cutting edge for machining light alloy piston skirts and surfaces of brass balls requiring an ultra-high quality surface finish.

Insert with monocrystalline diamond cutting edge for machining contact lenses. The delicacy of this operation calls for an extremely reliable cutting material: the kind of reliability that only a monocrystalline diamond cutting tool can normally guarantee.

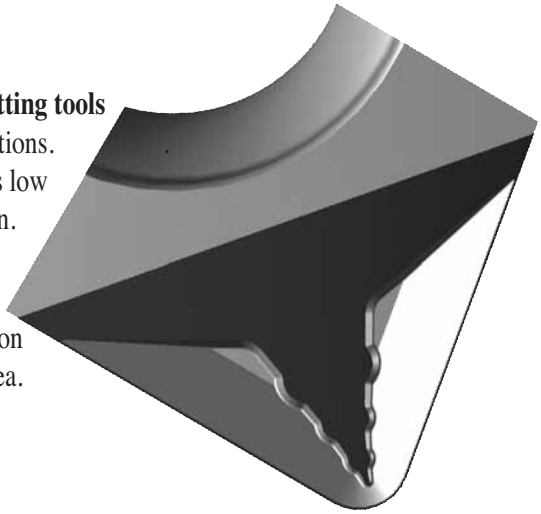
Insert tool holders can be supplied only upon specific request. To ensure that the correct tool holder shank is specified, be sure to provide FIUDI with all information needed to identify shape, dimensions and applicable tolerances.

PCD Cutting tools with chipbreaker

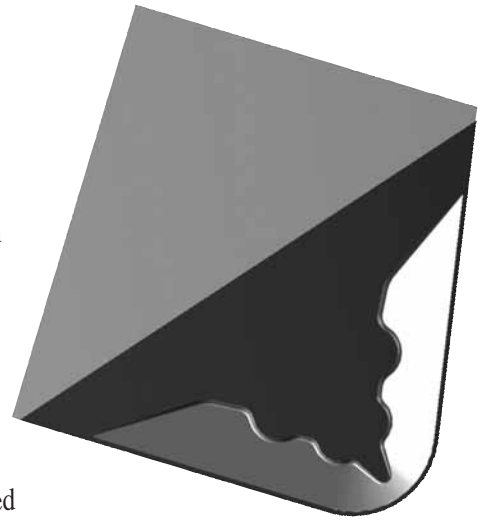
PCD

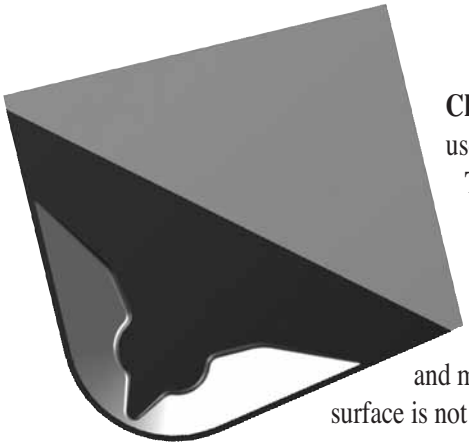
FIUDI manufacturing techniques make it possible to produce recessed chipbreakers in PCD and CBN cutting materials using laser technologies.
Though standard chipbreaker geometries such as those described below exist for most applications, FIUDI can customize any standard design with geometries tailored to the customer's specific needs on the basis of toolpath (outside turning, copying, facing), adapting its profile to radius dimensions.

Chipbreaker for PCD cutting tools
used to machine aluminum alloys in roughing operations.
This geometry can control chip formation with depths of cut as low as 0.50 mm and feed rates down to 0.30 mm/revolution.
The special profile helps weaken the alloy fibers, preventing removed material from building up and interfering with chip ejection from the cutting area.



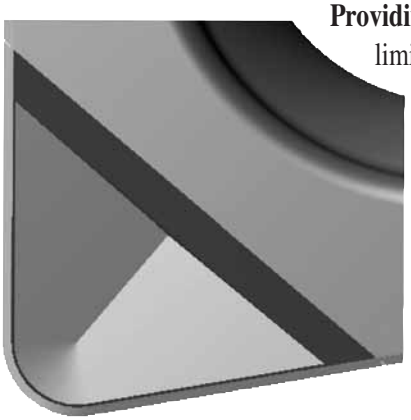
Chipbreaker for PCD cutting tools
used to machine aluminum alloys in semifinishing operations.
This geometry can control chip formation with depths of cut as low as 0.30 mm and feed rates down to 0.20 mm/revolution.
The chipbreaker profile is designed with small chip cross sections in mind.
Consequently, chip flow can be controlled so that material does not build up and interfere with chip ejection from the cutting area.





Chipbreaker for PCD cutting tools
used to machine aluminum alloys in **finishing** operations.
This geometry can control chip formation with depths of cut as low as 0.10 mm and feed rates down to 0.10 mm/revolution.
Chipbreaker profile is designed to deform chips with extremely small cross sections so that they curl into the curve radius required to break them into acceptable lengths and move them away from the cutting area so that the workpiece surface is not damaged.

CBN Cutting tools with chipbreaker



Providing CBN cutting materials with recessed chipbreakers
limits the amount of heat developed in the cutting area.
Above all, it reduces stresses and strains on the workpiece, ensuring that the process is more stable.
The benefits of chip control are less apparent when machining certain nodular cast irons and when machining hardened steels, whose structures tend to form long chips.
In any case, providing a chipbreaker does not affect the cutting tool's geometry in any way.

CBN

Notes