

CVD – PCD

Fräsen – Drehen – Bohren

Perfekte Bearbeitung von:

Vollhartmetall gesintert

Titan, Keramik

Kupfer, Alu, Messing

CFK/GFK, Graphit

Magnesium, Wolfram

Faserverbundstoffe

Kunststoffe mit Glasfaser

Non-ferrous

Ø-Bereich von 0,2 bis 63mm

2 bis 10 fache Standzeit

Bearbeitungs-Zeiteinsparung 20 bis 70%



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TiroTool Werkzeugsysteme GmbH

in Zusammenarbeit mit
streuli technologies ag CH-8903 Birmensdorf
als offizieller Handelspartner

Wir stellen hiermit das komplette Programm unserer lagerhaltigen Diamant Werkzeuge vor. Durch unsere Konzentration auf die Diamantschneidstoffe PKD und CVD-D zeigen wir unsere gebündelte Kompetenz in der Verwendung modernster Schneidstoffe und der Ausbildung perfekter Schneidkanten in Verbindung mit gelaserten Spanbrechern.

Den großen Herausforderungen der Zerspanungstechnik in allen Branchen kann nur mit den verschiedensten zur Verfügung stehenden ultraharten Schneidstoffen begegnet werden. Deren überragende Härte, Verschleißfestigkeit und somit Standfestigkeit der Werkzeuge ermöglichen erst den wirtschaftlichen Ablauf heutiger und künftiger Zerspanungs Prozesse.

Die Entwicklung und Herstellung von Diamant Werkzeugen mittels innovativer Fertigungsmethoden wie der Lasertechnologie ist unsere Kernkompetenz, die wir stetig mit großem Einsatz und Freude vertiefen und deren Ergebnisse wir unseren Kunden zur Verfügung stellen.

Als Werkzeug Hersteller leisten wir einen kraftvollen Beitrag zur Entwicklung der geforderten hochproduktiven Schneidstoffe und Werkzeugsysteme, damit Sie Ihre zukünftigen Herausforderungen heute schon souverän meistern können.

Für Fragen zur Zerspanung mit Diamantschneidstoffen stehen wir, sowie unser Partner, streuli technologies ag gerne kompetent zu Ihrer Verfügung.

Ihre
TiroTool Werkzeugsysteme GmbH
und
streuli technologies ag

Technik

Philosophie / Ziele / Strategie

Technik

ISO Bezeichnungssystem Schneidplatten

Anwendung ultraharter Schneidstoffe

WIPER Geometrien

TiroWave© [Wir lüften das Geheimnis TiroWave \(Seite 61\)](#)

Schnittdatenempfehlung für TiroWave©

Wendeplattenfräser

TiroMill WSP-Fräsen

Wendeplatten-Fräskörper

1D Messerkopf mit Kassetten

Wendeschneidplatten für TiroMill

Schnittdatenempfehlung für TiroMill

Schaftfräser

SpiceMill Schaftfräser

CVD-D Vollradius-/Kugel Schaftfräser

CVD-D Eckphasen Schaftfräser

CVD-D Eckradius Schaftfräser

CVD-D Vielzahn Schaftfräser

CVD-D Spiralisierte Igel-Schaftfräser

Schnittdaten Empfehlung

Drehen

Diamond ISO Cut Drehen

PCD + CVD-D ISO Platten

Bohren

SpiceDrill Bohren

Zentrumsbestückte CVD-D Bohrer

Wir lüften das Geheimnis um TiroWave

Datenerfassungsblatt Zerspanung

Preisliste CHF

Unsere Philosophie:

Wir fühlen uns dem technischen Fortschritt, konstanter überlegener Produktqualität, kompetenter Beratung und verlässlichem Service verpflichtet.

Unsere Zusammenarbeit ist durch offene Kommunikation und zielgerichtete Argumentation geprägt.

Wir arbeiten mit unseren Kunden, unseren Vertriebspartnern, ebenso wie mit Zulieferfirmen in einem offenen, vertrauensvollen Verhältnis, als beste Voraussetzung für eine stetige Steigerung des gegenseitigen Nutzens.

Unsere Ziele:

Kernkompetenz in der Zerspaltung mit Präzisionswerkzeugen mit ultraharten Schneidstoffen bevorzugter Ansprechpartner definierter Branchen u. Industrien für wirtschaftlichen Verschleißschutz bei der High Tech Zerspaltung

Technologieführer im Einsatz modernster Schneidstoffe bei der wirtschaftlichen Zerspaltung von High Tech Materialien

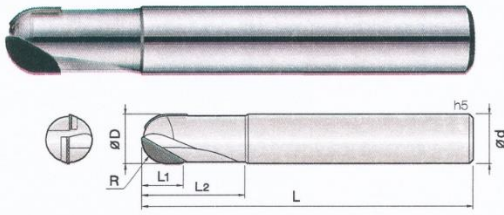
Unsere Strategie:

Bearbeitungslösungen ausgerichtet nach den Möglichkeiten, Erfordernissen und der Zielstellung unserer Kunden; Synergien branchenweit umsetzen

Mit dem wirtschaftlichsten Werkzeugkonzept die Bearbeitungsaufgaben unserer Kunden lösen und dabei deren Gesamtprozesskosten senken.

PRÄZISION und PRODUKTIVITÄT





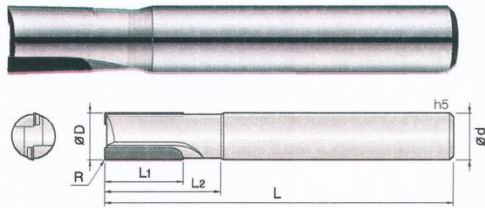
- **PCD endmills for aluminum alloys and non-ferrous metals.**
- Laser processing enables the blade to be less than 5µm, providing excellent cutting performance and surface finish of the workpiece.
- Designed with excellent concentricity for precision machining.
- An additional polishing process on the edge of flutes to facilitates the cutting chip emission.



D Size	D Tolerance
∅3 ~ 6	+0 ~ -0.012mm
∅8 ~ 10	+0 ~ -0.015mm
∅12	+0 ~ -0.018mm
∅16	+0 ~ -0.022mm

Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
1BPCD 030 080 S06	1.5R X 3	2.3	8	50	6						
1BPCD 030 120 S06	1.5R X 3	2.3	12	50	6						
1BPCD 030 180 S06	1.5R X 3	2.3	18	60	6						
2BPCD 040 100 S06	2R X 4	3.3	10	50	6						
2BPCD 040 120 S06	2R X 4	3.3	12	50	6						
2BPCD 040 180 S06	2R X 4	3.3	18	60	6						
2BPCD 060 120 S06	3R X 6	5.1	12	60	6						
2BPCD 060 150 S06	3R X 6	5.1	15	65	6						
2BPCD 060 200 S06	3R X 6	5.1	20	70	6						
2BPCD 060 250 100	3R X 6	5.1	25	100	6						
2BPCD 080 150 S08	4R X 8	7	15	60	8						
2BPCD 080 300 110	4R X 8	7	30	110	8						
2BPCD 100 200 S10	5R X 10	8	20	70	10						
2BPCD 100 300 110	5R X 10	8	30	110	10						
2BPCD 100 350 150	5R X 10	8	35	150	10						
2BPCD 120 250 S12	6R X 12	9	25	80	12						
2BPCD 120 350 110	6R X 12	9	35	110	12						
2BPCD 120 400 150	6R X 12	9	40	150	12						
2BPCD 160 350 S16	8R X 16	12	35	90	16						
2BPCD 160 450 110	8R X 16	12	45	110	16						
2BPCD 160 500 150	8R X 16	12	50	150	16						

PKD 1 - 4-Lp. Schafffräser, Aluminium, non ferrous



- **PCD endmills for aluminum alloys and non-ferrous metals.**
- Laser processing enables the blade to be less than 5µm, providing excellent cutting performance and surface finish of the workpiece.
- Designed with excellent concentricity for precision machining.
- An additional polishing process on the edge of flutes to facilitates the cutting chip emission.



D Size	D Tolerance
ø3 ~ 6	+0 ~ -0.012mm
ø8 ~ 10	+0 ~ -0.015mm
ø12	+0 ~ -0.018mm
ø16 ~ 20	+0 ~ -0.022mm

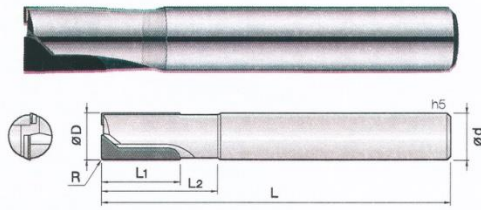
Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
1PCD 030 080 S04	3 X R0.1	4	8	50	4	3PCD 120 300 090	12 X R0.1	20	30	90	12
2PCD 040 100 S06	4 X R0.1	5	10	50	6	3PCD 160 250 S16	16 X R0.1	15	25	90	16
2PCD 060 200 S06	6 X R0.1	10	20	60	6	3PCD 160 350 S16	16 X R0.1	20	35	130	16
2PCD 060 250 S06	6 X R0.1	15	25	60	6	3PCD 160 400 S16	16 X R0.1	25	40	160	16
2PCD 060 250 080	6 X R0.1	15	25	80	6	3PCD 200 250 S20	20 X R0.1	15	25	90	20
2PCD 080 200 S08	8 X R0.1	10	20	60	8	3PCD 200 350 S20	20 X R0.1	20	35	130	20
2PCD 080 250 S08	8 X R0.1	15	25	60	8	3PCD 200 400 S20	20 X R0.1	25	40	160	20
2PCD 080 300 S08	8 X R0.1	20	30	70	8	4PCD 160 250 S16	16 X R0.1	15	25	90	16
2PCD 080 300 100	8 X R0.1	20	30	100	8	4PCD 160 350 S16	16 X R0.1	20	35	130	16
2PCD 100 250 S10	10 X R0.1	10	25	70	10	4PCD 160 400 S16	16 X R0.1	25	40	160	16
2PCD 100 300 S10	10 X R0.1	15	30	70	10	4PCD 200 250 S20	20 X R0.1	15	25	90	20
2PCD 100 300 080	10 X R0.1	20	30	80	10	4PCD 200 350 S20	20 X R0.1	20	35	130	20
2PCD 100 300 110	10 X R0.1	20	30	110	10	4PCD 200 400 S20	20 X R0.1	25	40	160	20
2PCD 120 250 S12	12 X R0.1	10	25	80	12						
2PCD 120 300 S12	12 X R0.1	15	30	80	12						
2PCD 120 300 090	12 X R0.1	20	30	90	12						
2PCD 120 300 130	12 X R0.1	20	30	130	12						
2PCD 160 250 S16	16 X R0.1	10	25	90	16						
2PCD 160 300 S16	16 X R0.1	15	30	90	16						
2PCD 160 350 S16	16 X R0.1	20	35	100	16						
2PCD 200 250 S20	20 X R0.1	10	25	90	20						
2PCD 200 300 S20	20 X R0.1	15	30	90	20						
2PCD 200 300 100	20 X R0.1	20	30	100	20						

2-4CPCD

2~4 Flutes PCD Endmills by Laser Processing (Center Over)

New

PKD 2 - 4-Lp. Eckradiusfräser, Aluminium, non ferrous



- PCD endmills for aluminum alloys and non-ferrous metals.
- Laser processing enables the blade to be less than 5µm, providing excellent cutting performance and surface finish of the workpiece.
- Designed with excellent concentricity for precision machining.
- An additional polishing process on the edge of flutes to facilitates the cutting chip emission.

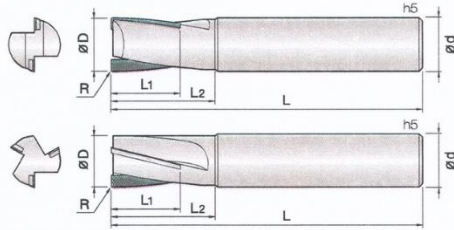
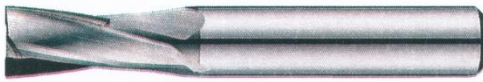


D Size	D Tolerance
ø6	+0 - -0.012mm
ø8 ~ 10	+0 - -0.015mm
ø12	+0 - -0.018mm
ø16 ~ 20	+0 - -0.022mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2CPCD 060 200 S06	6 X R0.1	10	20	60	6
2CPCD 060 250 S06	6 X R0.1	15	25	60	6
2CPCD 080 200 S08	8 X R0.1	10	20	60	8
2CPCD 080 250 S08	8 X R0.1	15	25	60	8
2CPCD 080 250 070	8 X R0.1	20	25	70	8
2CPCD 100 250 S10	10 X R0.1	10	25	70	10
2CPCD 100 300 S10	10 X R0.1	15	30	70	10
2CPCD 100 300 080	10 X R0.1	20	30	80	10
2CPCD 120 250 S12	12 X R0.1	10	25	80	12
2CPCD 120 300 S12	12 X R0.1	15	30	80	12
2CPCD 120 300 090	12 X R0.1	20	30	90	12
2CPCD 160 250 S16	16 X R0.1	10	25	90	16
2CPCD 160 300 S16	16 X R0.1	15	30	90	16
2CPCD 160 300 100	16 X R0.1	20	30	100	16
2CPCD 200 250 S20	20 X R0.1	10	25	90	20
2CPCD 200 300 S20	20 X R0.1	15	30	90	20
2CPCD 200 300 100	20 X R0.1	20	30	100	20

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
3CPCD 160 250 S16	16 X R0.1	15	25	90	16
3CPCD 160 300 S16	16 X R0.1	20	30	100	16
4CPCD 200 300 S20	20 X R0.1	15	30	90	20
4CPCD 200 350 S20	20 X R0.1	20	35	100	20

PCD Series



- **PCD endmills for aluminum alloys and non-ferrous metals.**
- Laser processing enables the blade to be less than 5 μm , providing excellent cutting performance and surface finish of the workpiece.
- Designed with excellent concentricity for precision machining.
- Helix design on the side of the edge reduces cutting resistance and improves wear resistance.
- An additional polishing process on the edge of flutes to facilitates the cutting chip emission.

1

2

3

WC
마합자

PCD

D
+0 -0.012

D
+0 -0.015

D
+0 -0.018

D
+0 -0.022

20°
Helix Angle

12°
Helix Angle

CUTTING
DATA

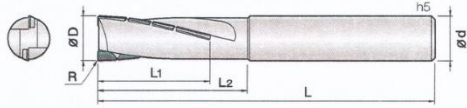
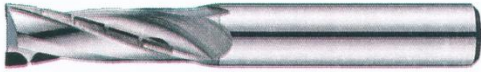
ø4 - 6 ø8 - 10 ø12 ø16 - 20 A Type B Type 379P

D Size	D Tolerance
ø4 - 6	+0 - -0.012mm
ø8 - 10	+0 - -0.015mm
ø12	+0 - -0.018mm
ø16 - 20	+0 - -0.022mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Type	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Type	Overall Length L	Shank Dia d
1HPCD 040 180 S06	4 X R0.1	10	18	A	60	6	3HPCD 120 250 S12	12 X R0.1	15	25	A	80	12
2HPCD 060 180 S06	6 X R0.1	10	18	A	60	6	3HPCD 120 450 S12	12 X R0.1	30	45	B	100	12
2HPCD 060 250 S06	6 X R0.1	15	25	B	80	6	3HPCD 160 300 S16	16 X R0.1	20	30	A	90	16
2HPCD 080 200 S08	8 X R0.1	10	20	A	70	8	3HPCD 160 450 S16	16 X R0.1	30	45	B	110	16
2HPCD 080 250 S08	8 X R0.1	20	25	B	90	8	3HPCD 200 400 S20	20 X R0.1	25	40	A	100	20
2HPCD 100 220 S10	10 X R0.1	12	22	A	70	10	3HPCD 200 550 S20	20 X R0.1	40	55	B	110	20
2HPCD 100 400 S10	10 X R0.1	25	40	B	100	10							
2HPCD 120 250 S12	12 X R0.1	15	25	A	80	12							
2HPCD 120 450 S12	12 X R0.1	30	45	B	100	12							
2HPCD 160 300 S16	16 X R0.1	20	30	A	90	16							
2HPCD 160 450 S16	16 X R0.1	30	45	B	110	16							
2HPCD 200 400 S20	20 X R0.1	25	40	A	100	20							
2HPCD 200 550 S20	20 X R0.1	40	55	B	110	20							

PCD Series

PKD 2 & 3-Lp. Eckradius-Schruppfräser, Alu, non ferrous



- **PCD endmills for aluminum alloys and non-ferrous metals.**
- Laser processing enables the blade to be less than 5µm, providing excellent cutting performance and surface finish of the workpiece.
- Designed with excellent concentricity for precision machining.
- Helix design on the side of the edge reduces cutting resistance and improves wear resistance.
- An additional polishing process on the edge of flutes to facilitates the cutting chip emission.

2 3 WC PCD D D D 20° CUTTING DATA
 +0 -0.015 +0 -0.018 +0 -0.022 Helix Angle 379P
 Ø10 Ø12 Ø16 - 20

D Size	D Tolerance
Ø10	+0 ~ -0.015mm
Ø12	+0 ~ -0.018mm
Ø16 - 20	+0 ~ -0.022mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2RPCD 100 300 S10	10 X R0.1	20	30	80	10	3RPCD 100 300 S10	10 X R0.1	20	30	80	10
2RPCD 100 400 S10	10 X R0.1	30	40	90	10	3RPCD 100 400 S10	10 X R0.1	30	40	90	10
2RPCD 120 300 S12	12 X R0.1	20	30	80	12	3RPCD 120 300 S12	12 X R0.1	20	30	80	12
2RPCD 120 400 S12	12 X R0.1	30	40	90	12	3RPCD 120 400 S12	12 X R0.1	30	40	90	12
2RPCD 160 400 S16	16 X R0.1	30	40	100	16	3RPCD 160 400 S16	16 X R0.1	30	40	100	16
2RPCD 160 650 S16	16 X R0.1	50	65	130	16	3RPCD 160 650 S16	16 X R0.1	50	65	130	16
2RPCD 200 400 S20	20 X R0.1	30	40	100	20	3RPCD 200 400 S20	20 X R0.1	30	40	100	20
2RPCD 200 650 S20	20 X R0.1	50	65	130	20	3RPCD 200 650 S20	20 X R0.1	50	65	130	20

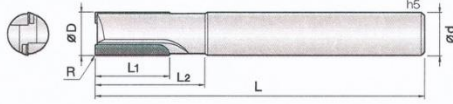
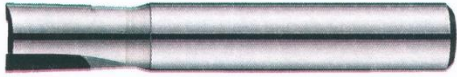
PCD Series

1&2PCDC

1&2 Flutes PCD Corner Radius Endmills by Laser Processing

New

PKD 1 & 2-Lp. Eckradiusfräser, Alu, non ferrous



- **PCD endmills for aluminum alloys and non-ferrous metals.**
- Laser processing enables the blade to be less than $5\mu m$, providing excellent cutting performance and surface finish of the workpiece.
- Designed with excellent concentricity for precision machining.
- An additional polishing process on the edge of flutes to facilitates the cutting chip emission.

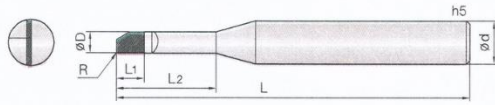
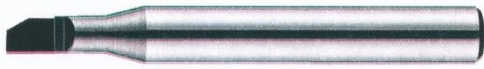
1 2 WC R ±0.005 0° CUTTING DATA R0.2 ~ 1 379P

D Size	D Tolerance
$\phi 4 \sim 6$	+0 ~ -0.012mm
$\phi 8 \sim 10$	+0 ~ -0.015mm
$\phi 12$	+0 ~ -0.018mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
1PCDC 040 002 100	4 X R0.2	5	10	50	6						
1PCDC 040 003 100	4 X R0.3	5	10	50	6						
2PCDC 060 003 200	6 X R0.3	6	20	60	6						
2PCDC 060 003 250	6 X R0.3	15	25	60	6						
2PCDC 060 005 200	6 X R0.5	6	20	60	6						
2PCDC 060 005 250	6 X R0.5	15	25	60	6						
2PCDC 060 010 200	6 X R1	6	20	60	6						
2PCDC 060 010 250	6 X R1	15	25	60	6						
2PCDC 080 003 200	8 X R0.3	8	20	60	8						
2PCDC 080 003 250	8 X R0.3	15	25	60	8						
2PCDC 080 005 200	8 X R0.5	8	20	60	8						
2PCDC 080 005 250	8 X R0.5	15	25	60	8						
2PCDC 080 010 200	8 X R1	8	20	60	8						
2PCDC 080 010 250	8 X R1	15	25	60	8						
2PCDC 100 005 250	10 X R0.5	10	25	70	10						
2PCDC 100 005 300	10 X R0.5	15	30	70	10						
2PCDC 100 010 250	10 X R1	10	25	70	10						
2PCDC 100 010 300	10 X R1	15	30	70	10						
2PCDC 120 005 250	12 X R0.5	10	25	80	12						
2PCDC 120 005 300	12 X R0.5	15	30	80	12						
2PCDC 120 010 250	12 X R1	10	25	80	12						
2PCDC 120 010 300	12 X R1	15	30	80	12						

PCD Series

PKD 1 & 2-Lp. Schaftfräser, Graphit, Alu, non ferrous



- PCD endmills for graphite, aluminum alloys and non-ferrous metals.
- The edge of the PCD flute enables excellent surface finish and wear resistance during graphite machining.
- An additional polishing process on the edge of flutes to facilitates the cutting chip emission.

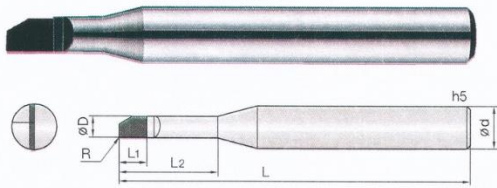


D Size	D Tolerance
ø3 - 6	+0 - -0.012mm
ø8 - 10	+0 - -0.015mm
ø12	+0 - -0.018mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
1PCDW 030 060 S04	3 X R0.1	4	6	60	4
1PCDW 030 100 S04	3 X R0.1	4	10	80	4
1PCDW 030 200 S04	3 X R0.1	4	20	80	4
1PCDW 030 300 S04	3 X R0.1	4	30	80	4
1PCDW 040 060 S06	4 X R0.1	5	6	60	6
1PCDW 040 100 S06	4 X R0.1	5	10	80	6
1PCDW 040 200 S06	4 X R0.1	5	20	80	6
1PCDW 040 300 S06	4 X R0.1	5	30	80	6
2PCDW 060 100 S06	6 X R0.1	10	-	60	6
2PCDW 060 200 S06	6 X R0.1	10	20	90	6
2PCDW 060 300 S06	6 X R0.1	10	30	90	6
2PCDW 060 400 S06	6 X R0.1	10	40	100	6
2PCDW 080 300 S08	8 X R0.1	10	30	80	8
2PCDW 080 500 S08	8 X R0.1	10	50	150	8
2PCDW 100 300 S10	10 X R0.1	12	30	80	10
2PCDW 100 500 S10	10 X R0.1	12	50	150	10
2PCDW 120 300 S12	12 X R0.1	12	30	80	12
2PCDW 120 500 S12	12 X R0.1	12	50	150	12

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d

PCD Series



- PCD endmills for graphite, aluminum alloys and non-ferrous metals.
- The edge of the PCD flute enables excellent surface finish and wear resistance during graphite machining.
- An additional polishing process on the edge of flutes to facilitates the cutting chip emission.



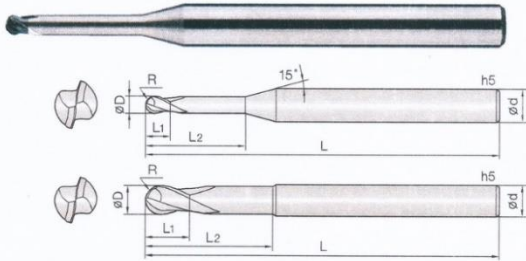
D Size	D Tolerance
ø4 ~ 6	+0 ~ -0.012mm
ø8 ~ 10	+0 ~ -0.015mm
ø12	+0 ~ -0.018mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
1CPCDW 040 002 100	4 X R0.2	5	10	50	6
1CPCDW 040 003 100	4 X R0.3	5	10	50	6
2CPCDW 060 003 200	6 X R0.3	6	20	60	6
2CPCDW 060 003 250	6 X R0.3	15	25	60	6
2CPCDW 060 005 200	6 X R0.5	6	20	60	6
2CPCDW 060 005 250	6 X R0.5	15	25	60	6
2CPCDW 060 010 200	6 X R1	6	20	60	6
2CPCDW 060 010 250	6 X R1	15	25	60	6
2CPCDW 080 003 200	8 X R0.3	8	20	60	8
2CPCDW 080 003 250	8 X R0.3	15	25	60	8
2CPCDW 080 005 200	8 X R0.5	8	20	60	8
2CPCDW 080 005 250	8 X R0.5	15	25	60	8
2CPCDW 080 010 200	8 X R1	8	20	60	8
2CPCDW 080 010 250	8 X R1	15	25	60	8
2CPCDW 100 005 250	10 X R0.5	10	25	70	10
2CPCDW 100 005 300	10 X R0.5	15	30	70	10
2CPCDW 100 010 250	10 X R1	10	25	70	10
2CPCDW 100 010 300	10 X R1	15	30	70	10
2CPCDW 120 005 250	12 X R0.5	10	25	80	12
2CPCDW 120 005 300	12 X R0.5	15	30	80	12
2CPCDW 120 010 250	12 X R1	10	25	80	12
2CPCDW 120 010 300	12 X R1	15	30	80	12

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
1CPCDW 040 002 100	4 X R0.2	5	10	50	6
1CPCDW 040 003 100	4 X R0.3	5	10	50	6
2CPCDW 060 003 200	6 X R0.3	6	20	60	6
2CPCDW 060 003 250	6 X R0.3	15	25	60	6
2CPCDW 060 005 200	6 X R0.5	6	20	60	6
2CPCDW 060 005 250	6 X R0.5	15	25	60	6
2CPCDW 060 010 200	6 X R1	6	20	60	6
2CPCDW 060 010 250	6 X R1	15	25	60	6
2CPCDW 080 003 200	8 X R0.3	8	20	60	8
2CPCDW 080 003 250	8 X R0.3	15	25	60	8
2CPCDW 080 005 200	8 X R0.5	8	20	60	8
2CPCDW 080 005 250	8 X R0.5	15	25	60	8
2CPCDW 080 010 200	8 X R1	8	20	60	8
2CPCDW 080 010 250	8 X R1	15	25	60	8
2CPCDW 100 005 250	10 X R0.5	10	25	70	10
2CPCDW 100 005 300	10 X R0.5	15	30	70	10
2CPCDW 100 010 250	10 X R1	10	25	70	10
2CPCDW 100 010 300	10 X R1	15	30	70	10
2CPCDW 120 005 250	12 X R0.5	10	25	80	12
2CPCDW 120 005 300	12 X R0.5	15	30	80	12
2CPCDW 120 010 250	12 X R1	10	25	80	12
2CPCDW 120 010 300	12 X R1	15	30	80	12

2BCBN

CBN, 2 Flutes High Speed Rib Ball End Mills



- **PCBN ENDMILL** for precise finishing ($\pm 5 \mu\text{m}$) of hardened steel (HRc50~72)
- Long tool life by high content PCBN.
- Excellent surface finish.
- Various flute length for optimum performance.
- Recommend high speed (20,000~50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)

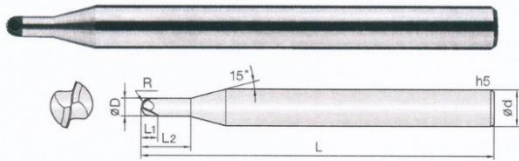


D Size	D Tolerance
ø0.2 - 6	+0 - -0.01mm

Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2BCBN 002 002 S04	0.1R X 0.2	0.2	-	48	4	2BCBN 010 050 S04	0.5R X 1	0.7	5	48	4
2BCBN 002 004 S04	0.1R X 0.2	0.4	-	48	4	2BCBN 010 060 S04	0.5R X 1	0.7	6	48	4
2BCBN 003 003 S04	0.15R X 0.3	0.3	-	48	4	2BCBN 010 080 S04	0.5R X 1	0.7	8	48	4
2BCBN 003 005 S04	0.15R X 0.3	0.5	-	48	4	2BCBN 010 100 S04	0.5R X 1	0.7	10	48	4
New 2BCBN 004 003 S04	0.2R X 0.4	0.3	-	48	4	2BCBN 010 120 S04	0.5R X 1	0.7	12	48	4
New 2BCBN 004 010 S04	0.2R X 0.4	0.3	1	48	4	2BCBN 010 160 S04	0.5R X 1	0.7	16	48	4
2BCBN 004 015 S04	0.2R X 0.4	0.3	1.5	48	4	New 2BCBN 012 008 S04	0.6R X 1.2	0.8	-	48	4
2BCBN 004 020 S04	0.2R X 0.4	0.3	2	48	4	New 2BCBN 012 020 S04	0.6R X 1.2	0.8	2	48	4
2BCBN 004 030 S04	0.2R X 0.4	0.3	3	48	4	2BCBN 012 040 S04	0.6R X 1.2	0.8	4	48	4
2BCBN 004 040 S04	0.2R X 0.4	0.3	4	48	4	2BCBN 012 060 S04	0.6R X 1.2	0.8	6	48	4
2BCBN 004 050 S04	0.2R X 0.4	0.3	5	48	4	2BCBN 012 080 S04	0.6R X 1.2	0.8	8	48	4
2BCBN 004 060 S04	0.2R X 0.4	0.3	6	48	4	2BCBN 012 100 S04	0.6R X 1.2	0.8	10	48	4
New 2BCBN 005 004 S04	0.25R X 0.5	0.4	-	48	4	2BCBN 012 120 S04	0.6R X 1.2	0.8	12	48	4
New 2BCBN 005 010 S04	0.25R X 0.5	0.4	1	48	4	2BCBN 012 160 S04	0.6R X 1.2	0.8	16	48	4
2BCBN 005 015 S04	0.25R X 0.5	0.4	1.5	48	4	2BCBN 015 010 S04	0.75R X 1.5	1	-	48	4
2BCBN 005 020 S04	0.25R X 0.5	0.4	2	48	4	2BCBN 015 020 S04	0.75R X 1.5	1	2	48	4
2BCBN 005 030 S04	0.25R X 0.5	0.4	3	48	4	2BCBN 015 040 S04	0.75R X 1.5	1	4	48	4
2BCBN 005 040 S04	0.25R X 0.5	0.4	4	48	4	2BCBN 015 060 S04	0.75R X 1.5	1	6	48	4
2BCBN 005 050 S04	0.25R X 0.5	0.4	5	48	4	2BCBN 015 080 S04	0.75R X 1.5	1	8	48	4
2BCBN 005 060 S04	0.25R X 0.5	0.4	6	48	4	2BCBN 015 100 S04	0.75R X 1.5	1	10	48	4
2BCBN 005 080 S04	0.25R X 0.5	0.4	8	48	4	2BCBN 015 120 S04	0.75R X 1.5	1	12	48	4
New 2BCBN 006 005 S04	0.3R X 0.6	0.5	-	48	4	2BCBN 015 140 S04	0.75R X 1.5	1	14	48	4
New 2BCBN 006 010 S04	0.3R X 0.6	0.5	1	48	4	2BCBN 015 160 S04	0.75R X 1.5	1	16	48	4
2BCBN 006 015 S04	0.3R X 0.6	0.5	1.5	48	4	2BCBN 015 180 S04	0.75R X 1.5	1	18	48	4
2BCBN 006 020 S04	0.3R X 0.6	0.5	2	48	4	New 2BCBN 020 012 S04	1R X 2	1.2	-	50	4
2BCBN 006 030 S04	0.3R X 0.6	0.5	3	48	4	New 2BCBN 020 030 S04	1R X 2	1.2	3	50	4
2BCBN 006 040 S04	0.3R X 0.6	0.5	4	48	4	2BCBN 020 040 S04	1R X 2	1.2	4	50	4
2BCBN 006 050 S04	0.3R X 0.6	0.5	5	48	4	2BCBN 020 060 S04	1R X 2	1.2	6	50	4
2BCBN 006 060 S04	0.3R X 0.6	0.5	6	48	4	2BCBN 020 080 S04	1R X 2	1.2	8	50	4
2BCBN 006 080 S04	0.3R X 0.6	0.5	8	48	4	2BCBN 020 100 S04	1R X 2	1.2	10	50	4
2BCBN 006 100 S04	0.3R X 0.6	0.5	10	48	4	2BCBN 020 120 S04	1R X 2	1.2	12	50	4
New 2BCBN 007 005 S04	0.35R X 0.7	0.5	-	48	4	2BCBN 020 140 S04	1R X 2	1.2	14	50	4
New 2BCBN 007 010 S04	0.35R X 0.7	0.5	1	48	4	2BCBN 020 160 S04	1R X 2	1.2	16	50	4
2BCBN 007 020 S04	0.35R X 0.7	0.5	2	48	4	2BCBN 020 180 S04	1R X 2	1.2	18	50	4
2BCBN 007 040 S04	0.35R X 0.7	0.5	4	48	4	New 2BCBN 025 016 S06	1.25R X 2.5	1.6	-	66	6
New 2BCBN 008 006 S04	0.4R X 0.8	0.6	-	48	4	New 2BCBN 025 030 S06	1.25R X 2.5	1.6	3	66	6
New 2BCBN 008 010 S04	0.4R X 0.8	0.6	1	48	4	2BCBN 025 060 S06	1.25R X 2.5	1.6	6	66	6
2BCBN 008 020 S04	0.4R X 0.8	0.6	2	48	4	2BCBN 025 100 S06	1.25R X 2.5	1.6	10	66	6
2BCBN 008 040 S04	0.4R X 0.8	0.6	4	48	4	2BCBN 025 160 S06	1.25R X 2.5	1.6	16	66	6
2BCBN 008 060 S04	0.4R X 0.8	0.6	6	48	4	2BCBN 025 200 S06	1.25R X 2.5	1.6	20	66	6
2BCBN 008 080 S04	0.4R X 0.8	0.6	8	48	4	New 2BCBN 030 018 S06	1.5R X 3	1.8	-	66	6
2BCBN 008 100 S04	0.4R X 0.8	0.6	10	48	4	New 2BCBN 030 030 S06	1.5R X 3	1.8	3	66	6
New 2BCBN 009 006 S04	0.45R X 0.9	0.6	-	48	4	2BCBN 030 060 S06	1.5R X 3	1.8	6	66	6
New 2BCBN 009 010 S04	0.45R X 0.9	0.6	1	48	4	2BCBN 030 080 S06	1.5R X 3	1.8	8	66	6
2BCBN 009 020 S04	0.45R X 0.9	0.6	2	48	4	2BCBN 030 100 S06	1.5R X 3	1.8	10	66	6
2BCBN 009 040 S04	0.45R X 0.9	0.6	4	48	4	2BCBN 030 120 S06	1.5R X 3	1.8	12	66	6
New 2BCBN 010 007 S04	0.5R X 1	0.7	-	48	4	2BCBN 030 160 S06	1.5R X 3	1.8	16	66	6
New 2BCBN 010 015 S04	0.5R X 1	0.7	1.5	48	4	2BCBN 030 200 S06	1.5R X 3	1.8	20	66	6
2BCBN 010 025 S04	0.5R X 1	0.7	2.5	48	4	New 2BCBN 040 024 S06	2R X 4	2.4	-	66	6
2BCBN 010 040 S04	0.5R X 1	0.7	4	48	4	New 2BCBN 040 040 S06	2R X 4	2.4	4	66	6

2SBCBN

CBN, 2 Flutes High Speed Straight Rib Ball End Mills



- **PCBN ENDMILL for precise finishing ($\pm 5 \mu\text{m}$) of hardened steel (HRC50~72)**
- Long tool life by high content PCBN.
- Straight type Design for Minimizing edge chipping.
- Excellent surface finish.
- Various flute length for optimum performance.
- Recommend high speed (20,000~50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)

2

CBN

R

R

R

0°

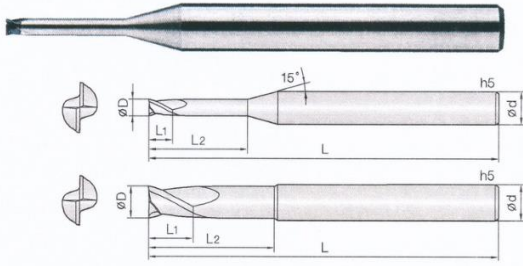
CUTTING DATA

±0.005
±0.007
±0.01
Helix Angle
279P

0.1 ~ 1.25R
1.5 ~ 2R
3R

D Size	D Tolerance
$\varnothing 0.2 - 6$	+0 - -0.01mm

Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia σ	Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2SBCBN 002 002 S04	0.1R X 0.2	0.2	-	48	4	New 2SBCBN 025 016 S06	1.25R X 2.5	1.6	-	66	6
2SBCBN 002 004 S04	0.1R X 0.2	0.4	-	48	4	New 2SBCBN 025 030 S06	1.25R X 2.5	1.6	3	66	6
2SBCBN 003 003 S04	0.15R X 0.3	0.3	-	48	4	2SBCBN 025 060 S06	1.25R X 2.5	1.6	6	66	6
2SBCBN 003 005 S04	0.15R X 0.3	0.5	-	48	4	New 2SBCBN 030 018 S06	1.5R X 3	1.8	-	66	6
New 2SBCBN 004 003 S04	0.2R X 0.4	0.3	-	48	4	New 2SBCBN 030 030 S06	1.5R X 3	1.8	3	66	6
New 2SBCBN 004 010 S04	0.2R X 0.4	0.3	1	48	4	2SBCBN 030 060 S06	1.5R X 3	1.8	6	66	6
2SBCBN 004 015 S04	0.2R X 0.4	0.3	1.5	48	4	2SBCBN 030 080 S06	1.5R X 3	1.8	8	66	6
New 2SBCBN 005 004 S04	0.25R X 0.5	0.4	-	48	4	2SBCBN 030 100 S06	1.5R X 3	1.8	10	66	6
New 2SBCBN 005 010 S04	0.25R X 0.5	0.4	1	48	4	2SBCBN 030 120 S06	1.5R X 3	1.8	12	66	6
2SBCBN 005 015 S04	0.25R X 0.5	0.4	1.5	48	4	2SBCBN 030 160 S06	1.5R X 3	1.8	16	66	6
2SBCBN 005 020 S04	0.25R X 0.5	0.4	2	48	4	2SBCBN 030 200 S06	1.5R X 3	1.8	20	66	6
New 2SBCBN 006 005 S04	0.3R X 0.6	0.5	-	48	4	New 2SBCBN 040 024 S06	2R X 4	2.4	-	66	6
New 2SBCBN 006 010 S04	0.3R X 0.6	0.5	1	48	4	New 2SBCBN 040 040 S06	2R X 4	2.4	4	66	6
2SBCBN 006 015 S04	0.3R X 0.6	0.5	1.5	48	4	2SBCBN 040 060 S06	2R X 4	2.4	6	66	6
2SBCBN 006 020 S04	0.3R X 0.6	0.5	2	48	4	2SBCBN 040 080 S06	2R X 4	2.4	8	66	6
2SBCBN 006 030 S04	0.3R X 0.6	0.5	3	48	4	2SBCBN 040 100 S06	2R X 4	2.4	10	66	6
2SBCBN 006 040 S04	0.3R X 0.6	0.5	4	48	4	2SBCBN 040 120 S06	2R X 4	2.4	12	66	6
New 2SBCBN 007 005 S04	0.35R X 0.7	0.5	-	48	4	2SBCBN 040 160 S06	2R X 4	2.4	16	66	6
New 2SBCBN 007 010 S04	0.35R X 0.7	0.5	1	48	4	2SBCBN 040 200 S06	2R X 4	2.4	20	66	6
2SBCBN 007 020 S04	0.35R X 0.7	0.5	2	48	4	2SBCBN 060 035 S06	3R X 6	3.5	-	83	6
New 2SBCBN 008 006 S04	0.4R X 0.8	0.6	-	48	4	2SBCBN 060 100 S06	3R X 6	3.5	10	83	6
New 2SBCBN 008 010 S04	0.4R X 0.8	0.6	1	48	4						
2SBCBN 008 020 S04	0.4R X 0.8	0.6	2	48	4						
2SBCBN 008 030 S04	0.4R X 0.8	0.6	3	48	4						
2SBCBN 008 040 S04	0.4R X 0.8	0.6	4	48	4						
New 2SBCBN 009 006 S04	0.45R X 0.9	0.6	-	48	4						
New 2SBCBN 009 010 S04	0.45R X 0.9	0.6	1	48	4						
2SBCBN 009 020 S04	0.45R X 0.9	0.6	2	48	4						
New 2SBCBN 010 007 S04	0.5R X 1	0.7	-	48	4						
New 2SBCBN 010 015 S04	0.5R X 1	0.7	1.5	48	4						
2SBCBN 010 025 S04	0.5R X 1	0.7	2.5	48	4						
2SBCBN 010 040 S04	0.5R X 1	0.7	4	48	4						
2SBCBN 010 050 S04	0.5R X 1	0.7	5	48	4						
2SBCBN 010 060 S04	0.5R X 1	0.7	6	48	4						
New 2SBCBN 012 008 S04	0.6R X 1.2	0.8	-	48	4						
New 2SBCBN 012 020 S04	0.6R X 1.2	0.8	2	48	4						
2SBCBN 012 040 S04	0.6R X 1.2	0.8	4	48	4						
New 2SBCBN 015 010 S04	0.75R X 1.5	1	-	48	4						
New 2SBCBN 015 020 S04	0.75R X 1.5	1	2	48	4						
2SBCBN 015 040 S04	0.75R X 1.5	1	4	48	4						
2SBCBN 015 060 S04	0.75R X 1.5	1	6	48	4						
2SBCBN 015 080 S04	0.75R X 1.5	1	8	48	4						
2SBCBN 015 100 S04	0.75R X 1.5	1	10	48	4						
New 2SBCBN 020 012 S04	1R X 2	1.2	-	50	4						
New 2SBCBN 020 030 S04	1R X 2	1.2	3	50	4						
2SBCBN 020 040 S04	1R X 2	1.2	4	50	4						
2SBCBN 020 060 S04	1R X 2	1.2	6	50	4						
2SBCBN 020 080 S04	1R X 2	1.2	8	50	4						
2SBCBN 020 100 S04	1R X 2	1.2	10	50	4						
2SBCBN 020 120 S04	1R X 2	1.2	12	50	4						



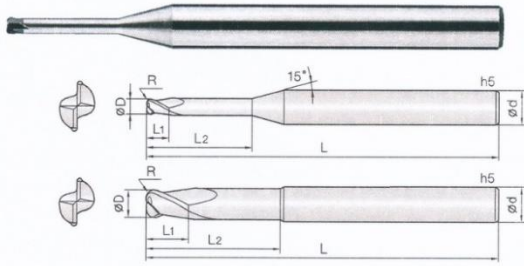
- **PCBN ENDMILL for precise finishing ($\pm 5\mu\text{m}$) of hardened steel (HRC50~72)**
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- Various flute length for optimum performance.
- Recommend high speed (20,000~50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)



D Size	D Tolerance
ø0.2 - 6	+0 ~ -0.01mm

Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2ECBN 002 002 S04	0.2	0.2	-	48	4	New 2ECBN 010 015 S04	1	0.7	1.5	48	4
2ECBN 002 004 S04	0.2	0.4	-	48	4	2ECBN 010 025 S04	1	0.7	2.5	48	4
2ECBN 003 003 S04	0.3	0.3	-	48	4	2ECBN 010 040 S04	1	0.7	4	48	4
2ECBN 003 005 S04	0.3	0.5	-	48	4	2ECBN 010 050 S04	1	0.7	5	48	4
New 2ECBN 004 003 S04	0.4	0.3	-	48	4	2ECBN 010 060 S04	1	0.7	6	48	4
New 2ECBN 004 010 S04	0.4	0.3	1	48	4	2ECBN 010 080 S04	1	0.7	8	48	4
2ECBN 004 015 S04	0.4	0.3	1.5	48	4	2ECBN 010 100 S04	1	0.7	10	48	4
2ECBN 004 020 S04	0.4	0.3	2	48	4	2ECBN 010 120 S04	1	0.7	12	48	4
2ECBN 004 030 S04	0.4	0.3	3	48	4	2ECBN 010 140 S04	1	0.7	14	48	4
2ECBN 004 040 S04	0.4	0.3	4	48	4	2ECBN 010 160 S04	1	0.7	16	48	4
2ECBN 004 050 S04	0.4	0.3	5	48	4	New 2ECBN 012 007 S04	1.2	0.7	-	48	4
2ECBN 004 060 S04	0.4	0.3	6	48	4	New 2ECBN 012 015 S04	1.2	0.7	1.5	48	4
New 2ECBN 005 004 S04	0.5	0.4	-	48	4	2ECBN 012 030 S04	1.2	0.7	3	48	4
New 2ECBN 005 010 S04	0.5	0.4	1	48	4	2ECBN 012 040 S04	1.2	0.7	4	48	4
2ECBN 005 015 S04	0.5	0.4	1.5	48	4	2ECBN 012 060 S04	1.2	0.7	6	48	4
2ECBN 005 020 S04	0.5	0.4	2	48	4	2ECBN 012 080 S04	1.2	0.7	8	48	4
2ECBN 005 030 S04	0.5	0.4	3	48	4	2ECBN 012 100 S04	1.2	0.7	10	48	4
2ECBN 005 040 S04	0.5	0.4	4	48	4	2ECBN 012 120 S04	1.2	0.7	12	48	4
2ECBN 005 050 S04	0.5	0.4	5	48	4	2ECBN 012 160 S04	1.2	0.7	16	48	4
2ECBN 005 060 S04	0.5	0.4	6	48	4	New 2ECBN 015 008 S04	1.5	0.8	-	48	4
2ECBN 005 080 S04	0.5	0.4	8	48	4	New 2ECBN 015 015 S04	1.5	0.8	1.5	48	4
New 2ECBN 006 005 S04	0.6	0.5	-	48	4	2ECBN 015 030 S04	1.5	0.8	3	48	4
New 2ECBN 006 010 S04	0.6	0.5	1	48	4	2ECBN 015 060 S04	1.5	0.8	6	48	4
2ECBN 006 015 S04	0.6	0.5	1.5	48	4	2ECBN 015 080 S04	1.5	0.8	8	48	4
2ECBN 006 020 S04	0.6	0.5	2	48	4	2ECBN 015 100 S04	1.5	0.8	10	48	4
2ECBN 006 030 S04	0.6	0.5	3	48	4	2ECBN 015 120 S04	1.5	0.8	12	48	4
2ECBN 006 040 S04	0.6	0.5	4	48	4	2ECBN 015 140 S04	1.5	0.8	14	48	4
2ECBN 006 060 S04	0.6	0.5	6	48	4	2ECBN 015 160 S04	1.5	0.8	16	48	4
2ECBN 006 080 S04	0.6	0.5	8	48	4	2ECBN 015 180 S04	1.5	0.8	18	48	4
2ECBN 006 100 S04	0.6	0.5	10	48	4	New 2ECBN 020 009 S04	2	0.9	-	50	4
New 2ECBN 007 005 S04	0.7	0.5	-	48	4	New 2ECBN 020 020 S04	2	0.9	2	50	4
New 2ECBN 007 015 S04	0.7	0.5	1.5	48	4	2ECBN 020 030 S04	2	0.9	3	50	4
2ECBN 007 025 S04	0.7	0.5	2.5	48	4	2ECBN 020 060 S04	2	0.9	6	50	4
2ECBN 007 040 S04	0.7	0.5	4	48	4	2ECBN 020 080 S04	2	0.9	8	50	4
2ECBN 007 060 S04	0.7	0.5	6	48	4	2ECBN 020 100 S04	2	0.9	10	50	4
New 2ECBN 008 006 S04	0.8	0.6	-	48	4	2ECBN 020 120 S04	2	0.9	12	50	4
New 2ECBN 008 015 S04	0.8	0.6	1.5	48	4	2ECBN 020 140 S04	2	0.9	14	50	4
2ECBN 008 025 S04	0.8	0.6	2.5	48	4	2ECBN 020 160 S04	2	0.9	16	50	4
2ECBN 008 040 S04	0.8	0.6	4	48	4	2ECBN 020 180 S04	2	0.9	18	50	4
2ECBN 008 060 S04	0.8	0.6	6	48	4	New 2ECBN 025 012 S06	2.5	1.2	-	66	6
2ECBN 008 080 S04	0.8	0.6	8	48	4	New 2ECBN 025 030 S06	2.5	1.2	3	66	6
2ECBN 008 100 S04	0.8	0.6	10	48	4	2ECBN 025 060 S06	2.5	1.2	6	66	6
New 2ECBN 009 006 S04	0.9	0.6	-	48	4	2ECBN 025 100 S06	2.5	1.2	10	66	6
New 2ECBN 009 015 S04	0.9	0.6	1.5	48	4	2ECBN 025 160 S06	2.5	1.2	16	66	6
2ECBN 009 025 S04	0.9	0.6	2.5	48	4	2ECBN 025 200 S06	2.5	1.2	20	66	6
2ECBN 009 040 S04	0.9	0.6	4	48	4	New 2ECBN 030 012 S06	3	1.2	-	66	6
2ECBN 009 060 S04	0.9	0.6	6	48	4	New 2ECBN 030 030 S06	3	1.2	3	66	6
2ECBN 009 080 S04	0.9	0.6	8	48	4	2ECBN 030 060 S06	3	1.2	6	66	6
2ECBN 009 100 S04	0.9	0.6	10	48	4	2ECBN 030 080 S06	3	1.2	8	66	6
New 2ECBN 010 007 S04	1	0.7	-	48	4	2ECBN 030 100 S06	3	1.2	10	66	6

Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2ECBN 030 120 S06	3	1.2	12	66	6						
2ECBN 030 160 S06	3	1.2	16	66	6						
2ECBN 030 200 S06	3	1.2	20	66	6						
New 2ECBN 040 015 S06	4	1.5	-	66	6						
New 2ECBN 040 030 S06	4	1.5	3	66	6						
2ECBN 040 060 S06	4	1.5	6	66	6						
2ECBN 040 080 S06	4	1.5	8	66	6						
2ECBN 040 100 S06	4	1.5	10	66	6						
2ECBN 040 120 S06	4	1.5	12	66	6						
2ECBN 040 160 S06	4	1.5	16	66	6						
2ECBN 040 200 S06	4	1.5	20	66	6						
2ECBN 060 030 S06	6	3	-	83	6						
2ECBN 060 100 S06	6	3	10	83	6						
2ECBN 060 200 S06	6	3	20	83	6						



- **PCBN ENDMILL for precise finishing ($\pm 5 \mu\text{m}$) of hardened steel (HRC50~72)**
- Long tool life by high content PCBN.
- Excellent surface finish.
- Various flute length for optimum performance.
- Recommend high speed (20,000~50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)



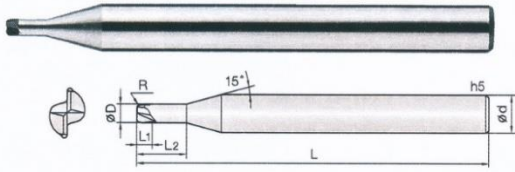
D Size	D Tolerance
ø0.2 ~ 6	+0 ~ -0.01mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
New 2CCBN 002 0002 002	0.2 X R0.02	0.2	-	48	4	2CCBN 008 002 060	0.8 X R0.2	0.6	6	48	4
New 2CCBN 002 0002 004	0.2 X R0.02	0.4	-	48	4	New 2CCBN 010 0002 015	1 X R0.02	0.7	1.5	48	4
New 2CCBN 002 0005 002	0.2 X R0.05	0.2	-	48	4	2CCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4
New 2CCBN 002 0005 004	0.2 X R0.05	0.4	-	48	4	2CCBN 010 0002 040	1 X R0.02	0.7	4	48	4
New 2CCBN 003 0002 003	0.3 X R0.02	0.3	-	48	4	2CCBN 010 0002 060	1 X R0.02	0.7	6	48	4
New 2CCBN 003 0002 005	0.3 X R0.02	0.5	-	48	4	2CCBN 010 0002 080	1 X R0.02	0.7	8	48	4
New 2CCBN 003 0005 003	0.3 X R0.05	0.3	-	48	4	2CCBN 010 0002 100	1 X R0.02	0.7	10	48	4
New 2CCBN 003 0005 005	0.3 X R0.05	0.5	-	48	4	New 2CCBN 010 0005 007	1 X R0.05	0.7	-	48	4
New 2CCBN 004 0002 003	0.4 X R0.02	0.3	-	48	4	New 2CCBN 010 0005 015	1 X R0.05	0.7	1.5	48	4
2CCBN 004 0002 015	0.4 X R0.02	0.3	1.5	48	4	2CCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4
2CCBN 004 0002 020	0.4 X R0.02	0.3	2	48	4	2CCBN 010 0005 040	1 X R0.05	0.7	4	48	4
New 2CCBN 004 0005 003	0.4 X R0.05	0.3	-	48	4	2CCBN 010 0005 060	1 X R0.05	0.7	6	48	4
2CCBN 004 0005 015	0.4 X R0.05	0.3	1.5	48	4	2CCBN 010 0005 080	1 X R0.05	0.7	8	48	4
2CCBN 004 0005 020	0.4 X R0.05	0.3	2	48	4	2CCBN 010 0005 100	1 X R0.05	0.7	10	48	4
New 2CCBN 004 001 003	0.4 X R0.1	0.3	-	48	4	New 2CCBN 010 001 007	1 X R0.1	0.7	-	48	4
2CCBN 004 001 015	0.4 X R0.1	0.3	1.5	48	4	New 2CCBN 010 001 015	1 X R0.1	0.7	1.5	48	4
2CCBN 004 001 020	0.4 X R0.1	0.3	2	48	4	2CCBN 010 001 025	1 X R0.1	0.7	2.5	48	4
New 2CCBN 005 0005 004	0.5 X R0.05	0.4	-	48	4	2CCBN 010 001 040	1 X R0.1	0.7	4	48	4
2CCBN 005 0005 015	0.5 X R0.05	0.4	1.5	48	4	2CCBN 010 001 060	1 X R0.1	0.7	6	48	4
2CCBN 005 0005 020	0.5 X R0.05	0.4	2	48	4	2CCBN 010 001 080	1 X R0.1	0.7	8	48	4
2CCBN 005 0005 030	0.5 X R0.05	0.4	3	48	4	2CCBN 010 001 100	1 X R0.1	0.7	10	48	4
2CCBN 005 0005 040	0.5 X R0.05	0.4	4	48	4	New 2CCBN 010 002 007	1 X R0.2	0.7	-	48	4
2CCBN 005 0005 050	0.5 X R0.05	0.4	5	48	4	New 2CCBN 010 002 015	1 X R0.2	0.7	1.5	48	4
New 2CCBN 005 001 004	0.5 X R0.1	0.4	-	48	4	2CCBN 010 002 025	1 X R0.2	0.7	2.5	48	4
2CCBN 005 001 015	0.5 X R0.1	0.4	1.5	48	4	2CCBN 010 002 040	1 X R0.2	0.7	4	48	4
2CCBN 005 001 020	0.5 X R0.1	0.4	2	48	4	2CCBN 010 002 060	1 X R0.2	0.7	6	48	4
2CCBN 005 001 030	0.5 X R0.1	0.4	3	48	4	2CCBN 010 002 080	1 X R0.2	0.7	8	48	4
2CCBN 005 001 040	0.5 X R0.1	0.4	4	48	4	2CCBN 010 002 100	1 X R0.2	0.7	10	48	4
2CCBN 005 001 050	0.5 X R0.1	0.4	5	48	4	New 2CCBN 010 003 007	1 X R0.3	0.7	-	48	4
New 2CCBN 006 0005 005	0.6 X R0.05	0.5	-	48	4	New 2CCBN 010 003 015	1 X R0.3	0.7	1.5	48	4
2CCBN 006 0005 020	0.6 X R0.05	0.5	2	48	4	2CCBN 010 003 025	1 X R0.3	0.7	2.5	48	4
2CCBN 006 0005 030	0.6 X R0.05	0.5	3	48	4	2CCBN 010 003 040	1 X R0.3	0.7	4	48	4
2CCBN 006 0005 040	0.6 X R0.05	0.5	4	48	4	2CCBN 010 003 060	1 X R0.3	0.7	6	48	4
2CCBN 006 0005 060	0.6 X R0.05	0.5	6	48	4	2CCBN 010 003 080	1 X R0.3	0.7	8	48	4
New 2CCBN 006 001 005	0.6 X R0.1	0.5	-	48	4	2CCBN 010 003 100	1 X R0.3	0.7	10	48	4
2CCBN 006 001 020	0.6 X R0.1	0.5	2	48	4	New 2CCBN 012 001 007	1.2 X R0.1	0.7	-	48	4
2CCBN 006 001 030	0.6 X R0.1	0.5	3	48	4	New 2CCBN 012 001 015	1.2 X R0.1	0.7	1.5	48	4
2CCBN 006 001 040	0.6 X R0.1	0.5	4	48	4	2CCBN 012 001 030	1.2 X R0.1	0.7	3	48	4
2CCBN 006 001 060	0.6 X R0.1	0.5	6	48	4	2CCBN 012 001 040	1.2 X R0.1	0.7	4	48	4
New 2CCBN 007 001 005	0.7 X R0.1	0.5	-	48	4	2CCBN 012 001 060	1.2 X R0.1	0.7	6	48	4
2CCBN 007 001 025	0.7 X R0.1	0.5	2.5	48	4	2CCBN 012 001 080	1.2 X R0.1	0.7	8	48	4
2CCBN 007 001 040	0.7 X R0.1	0.5	4	48	4	2CCBN 012 001 100	1.2 X R0.1	0.7	10	48	4
2CCBN 007 001 060	0.7 X R0.1	0.5	6	48	4	New 2CCBN 012 002 007	1.2 X R0.2	0.7	-	48	4
New 2CCBN 008 001 006	0.8 X R0.1	0.6	-	48	4	New 2CCBN 012 002 015	1.2 X R0.2	0.7	1.5	48	4
2CCBN 008 001 025	0.8 X R0.1	0.6	2.5	48	4	2CCBN 012 002 030	1.2 X R0.2	0.7	3	48	4
2CCBN 008 001 040	0.8 X R0.1	0.6	4	48	4	2CCBN 012 002 040	1.2 X R0.2	0.7	4	48	4
2CCBN 008 001 060	0.8 X R0.1	0.6	6	48	4	2CCBN 012 002 060	1.2 X R0.2	0.7	6	48	4
New 2CCBN 008 002 006	0.8 X R0.2	0.6	-	48	4	2CCBN 012 002 080	1.2 X R0.2	0.7	8	48	4
2CCBN 008 002 025	0.8 X R0.2	0.6	2.5	48	4	2CCBN 012 002 100	1.2 X R0.2	0.7	10	48	4
2CCBN 008 002 040	0.8 X R0.2	0.6	4	48	4						

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
New 2CCBN 012 003 007	1.2 X R0.3	0.7	-	48	4	2CCBN 020 002 080	2 X R0.2	0.9	8	50	4
New 2CCBN 012 003 015	1.2 X R0.3	0.7	1.5	48	4	2CCBN 020 002 100	2 X R0.2	0.9	10	50	4
2CCBN 012 003 030	1.2 X R0.3	0.7	3	48	4	New 2CCBN 020 003 009	2 X R0.3	0.9	-	50	4
2CCBN 012 003 040	1.2 X R0.3	0.7	4	48	4	New 2CCBN 020 003 020	2 X R0.3	0.9	2	50	4
2CCBN 012 003 060	1.2 X R0.3	0.7	6	48	4	2CCBN 020 003 030	2 X R0.3	0.9	3	50	4
2CCBN 012 003 080	1.2 X R0.3	0.7	8	48	4	2CCBN 020 003 060	2 X R0.3	0.9	6	50	4
2CCBN 012 003 100	1.2 X R0.3	0.7	10	48	4	2CCBN 020 003 080	2 X R0.3	0.9	8	50	4
New 2CCBN 015 0002 008	1.5 X R0.02	0.8	-	48	4	2CCBN 020 003 100	2 X R0.3	0.9	10	50	4
New 2CCBN 015 0002 015	1.5 X R0.02	0.8	1.5	48	4	New 2CCBN 020 005 009	2 X R0.5	0.9	-	50	4
2CCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4	New 2CCBN 020 005 020	2 X R0.5	0.9	2	50	4
2CCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4	2CCBN 020 005 030	2 X R0.5	0.9	3	50	4
2CCBN 015 0002 060	1.5 X R0.02	0.8	6	48	4	2CCBN 020 005 060	2 X R0.5	0.9	6	50	4
2CCBN 015 0002 080	1.5 X R0.02	0.8	8	48	4	2CCBN 020 005 080	2 X R0.5	0.9	8	50	4
2CCBN 015 0002 100	1.5 X R0.02	0.8	10	48	4	2CCBN 020 005 100	2 X R0.5	0.9	10	50	4
New 2CCBN 015 0005 008	1.5 X R0.05	0.8	-	48	4	New 2CCBN 025 001 012	2.5 X R0.1	1.2	-	66	6
New 2CCBN 015 0005 015	1.5 X R0.05	0.8	1.5	48	4	New 2CCBN 025 001 030	2.5 X R0.1	1.2	3	66	6
2CCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4	2CCBN 025 001 060	2.5 X R0.1	1.2	6	66	6
2CCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4	2CCBN 025 001 100	2.5 X R0.1	1.2	10	66	6
2CCBN 015 0005 060	1.5 X R0.05	0.8	6	48	4	New 2CCBN 025 002 012	2.5 X R0.2	1.2	-	66	6
2CCBN 015 0005 080	1.5 X R0.05	0.8	8	48	4	New 2CCBN 025 002 030	2.5 X R0.2	1.2	3	66	6
2CCBN 015 0005 100	1.5 X R0.05	0.8	10	48	4	2CCBN 025 002 060	2.5 X R0.2	1.2	6	66	6
New 2CCBN 015 001 008	1.5 X R0.1	0.8	-	48	4	2CCBN 025 002 100	2.5 X R0.2	1.2	10	66	6
New 2CCBN 015 001 015	1.5 X R0.1	0.8	1.5	48	4	New 2CCBN 025 003 012	2.5 X R0.3	1.2	-	66	6
2CCBN 015 001 030	1.5 X R0.1	0.8	3	48	4	New 2CCBN 025 003 030	2.5 X R0.3	1.2	3	66	6
2CCBN 015 001 040	1.5 X R0.1	0.8	4	48	4	2CCBN 025 003 060	2.5 X R0.3	1.2	6	66	6
2CCBN 015 001 060	1.5 X R0.1	0.8	6	48	4	2CCBN 025 003 100	2.5 X R0.3	1.2	10	66	6
2CCBN 015 001 080	1.5 X R0.1	0.8	8	48	4	New 2CCBN 030 001 012	3 X R0.1	1.2	-	66	6
2CCBN 015 001 100	1.5 X R0.1	0.8	10	48	4	New 2CCBN 030 001 030	3 X R0.1	1.2	3	66	6
New 2CCBN 015 002 008	1.5 X R0.2	0.8	-	48	4	2CCBN 030 001 060	3 X R0.1	1.2	6	66	6
New 2CCBN 015 002 015	1.5 X R0.2	0.8	1.5	48	4	2CCBN 030 001 100	3 X R0.1	1.2	10	66	6
2CCBN 015 002 030	1.5 X R0.2	0.8	3	48	4	2CCBN 030 001 160	3 X R0.1	1.2	16	66	6
2CCBN 015 002 040	1.5 X R0.2	0.8	4	48	4	2CCBN 030 001 200	3 X R0.1	1.2	20	66	6
2CCBN 015 002 060	1.5 X R0.2	0.8	6	48	4	New 2CCBN 030 002 012	3 X R0.2	1.2	-	66	6
2CCBN 015 002 080	1.5 X R0.2	0.8	8	48	4	New 2CCBN 030 002 030	3 X R0.2	1.2	3	66	6
2CCBN 015 002 100	1.5 X R0.2	0.8	10	48	4	2CCBN 030 002 060	3 X R0.2	1.2	6	66	6
New 2CCBN 015 003 008	1.5 X R0.3	0.8	-	48	4	2CCBN 030 002 100	3 X R0.2	1.2	10	66	6
New 2CCBN 015 003 015	1.5 X R0.3	0.8	1.5	48	4	2CCBN 030 002 160	3 X R0.2	1.2	16	66	6
2CCBN 015 003 030	1.5 X R0.3	0.8	3	48	4	2CCBN 030 002 200	3 X R0.2	1.2	20	66	6
2CCBN 015 003 040	1.5 X R0.3	0.8	4	48	4	New 2CCBN 030 003 012	3 X R0.3	1.2	-	66	6
2CCBN 015 003 060	1.5 X R0.3	0.8	6	48	4	New 2CCBN 030 003 030	3 X R0.3	1.2	3	66	6
2CCBN 015 003 080	1.5 X R0.3	0.8	8	48	4	2CCBN 030 003 060	3 X R0.3	1.2	6	66	6
2CCBN 015 003 100	1.5 X R0.3	0.8	10	48	4	2CCBN 030 003 100	3 X R0.3	1.2	10	66	6
New 2CCBN 020 0002 009	2 X R0.02	0.9	-	50	4	2CCBN 030 003 160	3 X R0.3	1.2	16	66	6
New 2CCBN 020 0002 020	2 X R0.02	0.9	2	50	4	2CCBN 030 003 200	3 X R0.3	1.2	20	66	6
2CCBN 020 0002 030	2 X R0.02	0.9	3	50	4	New 2CCBN 030 005 012	3 X R0.5	1.2	-	66	6
2CCBN 020 0002 060	2 X R0.02	0.9	6	50	4	New 2CCBN 030 005 030	3 X R0.5	1.2	3	66	6
2CCBN 020 0002 080	2 X R0.02	0.9	8	50	4	2CCBN 030 005 060	3 X R0.5	1.2	6	66	6
2CCBN 020 0002 100	2 X R0.02	0.9	10	50	4	2CCBN 030 005 100	3 X R0.5	1.2	10	66	6
New 2CCBN 020 0005 009	2 X R0.05	0.9	-	50	4	2CCBN 030 005 160	3 X R0.5	1.2	16	66	6
New 2CCBN 020 0005 020	2 X R0.05	0.9	2	50	4	2CCBN 030 005 200	3 X R0.5	1.2	20	66	6
2CCBN 020 0005 030	2 X R0.05	0.9	3	50	4	New 2CCBN 030 010 012	3 X R1	1.2	-	66	6
2CCBN 020 0005 060	2 X R0.05	0.9	6	50	4	New 2CCBN 030 010 030	3 X R1	1.2	3	66	6
2CCBN 020 0005 080	2 X R0.05	0.9	8	50	4	2CCBN 030 010 060	3 X R1	1.2	6	66	6
2CCBN 020 0005 100	2 X R0.05	0.9	10	50	4	2CCBN 030 010 100	3 X R1	1.2	10	66	6
New 2CCBN 020 001 009	2 X R0.1	0.9	-	50	4	2CCBN 030 010 160	3 X R1	1.2	16	66	6
New 2CCBN 020 001 020	2 X R0.1	0.9	2	50	4	2CCBN 030 010 200	3 X R1	1.2	20	66	6
2CCBN 020 001 030	2 X R0.1	0.9	3	50	4	New 2CCBN 040 001 015	4 X R0.1	1.5	-	66	6
2CCBN 020 001 060	2 X R0.1	0.9	6	50	4	New 2CCBN 040 001 030	4 X R0.1	1.5	3	66	6
2CCBN 020 001 080	2 X R0.1	0.9	8	50	4	2CCBN 040 001 060	4 X R0.1	1.5	6	66	6
2CCBN 020 001 100	2 X R0.1	0.9	10	50	4	2CCBN 040 001 100	4 X R0.1	1.5	10	66	6
New 2CCBN 020 002 009	2 X R0.2	0.9	-	50	4	2CCBN 040 001 160	4 X R0.1	1.5	16	66	6
New 2CCBN 020 002 020	2 X R0.2	0.9	2	50	4	New 2CCBN 040 002 015	4 X R0.2	1.5	-	66	6
2CCBN 020 002 030	2 X R0.2	0.9	3	50	4	New 2CCBN 040 002 030	4 X R0.2	1.5	3	66	6
2CCBN 020 002 060	2 X R0.2	0.9	6	50	4	2CCBN 040 002 060	4 X R0.2	1.5	6	66	6

단위 : mm

Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D × R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	생크 Shank Dia d	비고
2CCBN 040 002 100	4 X R0.2	1.5	10	66	6								
2CCBN 040 002 160	4 X R0.2	1.5	16	66	6								
New 2CCBN 040 003 015	4 X R0.3	1.5	-	66	6								
New 2CCBN 040 003 030	4 X R0.3	1.5	3	66	6								
2CCBN 040 003 060	4 X R0.3	1.5	6	66	6								
2CCBN 040 003 100	4 X R0.3	1.5	10	66	6								
2CCBN 040 003 160	4 X R0.3	1.5	16	66	6								
New 2CCBN 040 005 015	4 X R0.5	1.5	-	66	6								
New 2CCBN 040 005 030	4 X R0.5	1.5	3	66	6								
2CCBN 040 005 060	4 X R0.5	1.5	6	66	6								
2CCBN 040 005 100	4 X R0.5	1.5	10	66	6								
2CCBN 040 005 160	4 X R0.5	1.5	16	66	6								
New 2CCBN 040 010 015	4 X R1	1.5	-	66	6								
New 2CCBN 040 010 030	4 X R1	1.5	3	66	6								
2CCBN 040 010 060	4 X R1	1.5	6	66	6								
2CCBN 040 010 100	4 X R1	1.5	10	66	6								
2CCBN 040 010 160	4 X R1	1.5	16	66	6								
2CCBN 060 003 030	6 X R0.3	3	-	83	6								
2CCBN 060 003 150	6 X R0.3	3	15	83	6								
2CCBN 060 005 030	6 X R0.5	3	-	83	6								
2CCBN 060 005 150	6 X R0.5	3	15	83	6								
2CCBN 060 010 030	6 X R1	3	-	83	6								
2CCBN 060 010 150	6 X R1	3	15	83	6								

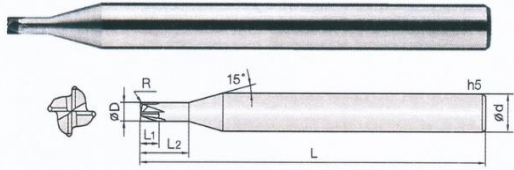


- **PCBN ENDMILL for precise finishing ($\pm 5\mu\text{m}$) of hardened steel (HRc50-72)**
- Long tool life by high content PCBN.
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- Excellent surface finish.
- Various flute length for optimum performance.
- Recommend high speed(20,000-50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)



D Size	D Tolerance
ø0.4 ~ 6	+0 ~ -0.01mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2SCCBN 004 0002 015	0.4 X R0.02	0.3	1.5	48	4	2SCCBN 030 005 060	3 X R0.5	1.2	6	66	6
2SCCBN 004 0005 015	0.4 X R0.05	0.3	1.5	48	4	2SCCBN 030 005 100	3 X R0.5	1.2	10	66	6
2SCCBN 004 001 015	0.4 X R0.1	0.3	1.5	48	4	2SCCBN 030 005 160	3 X R0.5	1.2	16	66	6
2SCCBN 005 0005 015	0.5 X R0.05	0.4	1.5	48	4	2SCCBN 030 010 060	3 X R1	1.2	6	66	6
2SCCBN 005 001 015	0.5 X R0.1	0.4	1.5	48	4	2SCCBN 030 010 100	3 X R1	1.2	10	66	6
2SCCBN 006 0005 020	0.6 X R0.05	0.5	2	48	4	2SCCBN 030 010 160	3 X R1	1.2	16	66	6
2SCCBN 006 001 020	0.6 X R0.1	0.5	2	48	4	2SCCBN 040 001 060	4 X R0.1	1.5	6	66	6
2SCCBN 008 001 020	0.8 X R0.1	0.6	2	48	4	2SCCBN 040 001 100	4 X R0.1	1.5	10	66	6
2SCCBN 008 002 020	0.8 X R0.2	0.6	2	48	4	2SCCBN 040 001 160	4 X R0.1	1.5	16	66	6
2SCCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4	2SCCBN 040 002 060	4 X R0.2	1.5	6	66	6
2SCCBN 010 0002 040	1 X R0.02	0.7	4	48	4	2SCCBN 040 002 100	4 X R0.2	1.5	10	66	6
2SCCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4	2SCCBN 040 002 160	4 X R0.2	1.5	16	66	6
2SCCBN 010 0005 040	1 X R0.05	0.7	4	48	4	2SCCBN 040 003 060	4 X R0.3	1.5	6	66	6
2SCCBN 010 001 025	1 X R0.1	0.7	2.5	48	4	2SCCBN 040 003 100	4 X R0.3	1.5	10	66	6
2SCCBN 010 001 040	1 X R0.1	0.7	4	48	4	2SCCBN 040 003 160	4 X R0.3	1.5	16	66	6
2SCCBN 010 002 025	1 X R0.2	0.7	2.5	48	4	2SCCBN 040 005 060	4 X R0.5	1.5	6	66	6
2SCCBN 010 002 040	1 X R0.2	0.7	4	48	4	2SCCBN 040 005 100	4 X R0.5	1.5	10	66	6
2SCCBN 010 003 025	1 X R0.3	0.7	2.5	48	4	2SCCBN 040 005 160	4 X R0.5	1.5	16	66	6
2SCCBN 010 003 040	1 X R0.3	0.7	4	48	4	2SCCBN 040 010 060	4 X R1	1.5	6	66	6
2SCCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4	2SCCBN 040 010 100	4 X R1	1.5	10	66	6
2SCCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4	2SCCBN 040 010 160	4 X R1	1.5	16	66	6
2SCCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4	2SCCBN 060 003 030	6 X R0.3	3	-	83	6
2SCCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4	2SCCBN 060 003 150	6 X R0.3	3	15	83	6
2SCCBN 015 001 030	1.5 X R0.1	0.8	3	48	4	2SCCBN 060 005 030	6 X R0.5	3	-	83	6
2SCCBN 015 001 040	1.5 X R0.1	0.8	4	48	4	2SCCBN 060 005 150	6 X R0.5	3	15	83	6
2SCCBN 015 002 030	1.5 X R0.2	0.8	3	48	4	2SCCBN 060 010 030	6 X R1	3	-	83	6
2SCCBN 015 002 040	1.5 X R0.2	0.8	4	48	4	2SCCBN 060 010 150	6 X R1	3	15	83	6
2SCCBN 015 003 030	1.5 X R0.3	0.8	3	48	4						
2SCCBN 015 003 040	1.5 X R0.3	0.8	4	48	4						
2SCCBN 020 0002 030	2 X R0.02	0.9	3	50	4						
2SCCBN 020 0002 060	2 X R0.02	0.9	6	50	4						
2SCCBN 020 0005 030	2 X R0.05	0.9	3	50	4						
2SCCBN 020 0005 060	2 X R0.05	0.9	6	50	4						
2SCCBN 020 001 030	2 X R0.1	0.9	3	50	4						
2SCCBN 020 001 060	2 X R0.1	0.9	6	50	4						
2SCCBN 020 002 030	2 X R0.2	0.9	3	50	4						
2SCCBN 020 002 060	2 X R0.2	0.9	6	50	4						
2SCCBN 020 003 030	2 X R0.3	0.9	3	50	4						
2SCCBN 020 003 060	2 X R0.3	0.9	6	50	4						
2SCCBN 020 005 030	2 X R0.5	0.9	3	50	4						
2SCCBN 020 005 060	2 X R0.5	0.9	6	50	4						
2SCCBN 025 001 060	2.5 X R0.1	1.2	6	66	6						
2SCCBN 025 002 060	2.5 X R0.2	1.2	6	66	6						
2SCCBN 025 003 060	2.5 X R0.3	1.2	6	66	6						
2SCCBN 030 001 060	3 X R0.1	1.2	6	66	6						
2SCCBN 030 001 100	3 X R0.1	1.2	10	66	6						
2SCCBN 030 002 060	3 X R0.2	1.2	6	66	6						
2SCCBN 030 002 100	3 X R0.2	1.2	10	66	6						
2SCCBN 030 003 060	3 X R0.3	1.2	6	66	6						
2SCCBN 030 003 100	3 X R0.3	1.2	10	66	6						



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ø0.8 - 6	+0 - -0.01mm

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4SCCBN 008 001 025	0.8 X R0.1	0.6	2.5	48	4	4SCCBN 030 005 100	3 X R0.5	1.2	10	66	6
4SCCBN 008 002 025	0.8 X R0.2	0.6	2.5	48	4	4SCCBN 030 005 160	3 X R0.5	1.2	16	66	6
4SCCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4	4SCCBN 030 010 060	3 X R1	1.2	6	66	6
4SCCBN 010 0002 040	1 X R0.02	0.7	4	48	4	4SCCBN 030 010 100	3 X R1	1.2	10	66	6
4SCCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4	4SCCBN 030 010 160	3 X R1	1.2	16	66	6
4SCCBN 010 0005 040	1 X R0.05	0.7	4	48	4	4SCCBN 040 001 060	4 X R0.1	1.5	6	66	6
4SCCBN 010 001 025	1 X R0.1	0.7	2.5	48	4	4SCCBN 040 001 100	4 X R0.1	1.5	10	66	6
4SCCBN 010 001 040	1 X R0.1	0.7	4	48	4	4SCCBN 040 001 160	4 X R0.1	1.5	16	66	6
4SCCBN 010 002 025	1 X R0.2	0.7	2.5	48	4	4SCCBN 040 002 060	4 X R0.2	1.5	6	66	6
4SCCBN 010 002 040	1 X R0.2	0.7	4	48	4	4SCCBN 040 002 100	4 X R0.2	1.5	10	66	6
4SCCBN 010 003 025	1 X R0.3	0.7	2.5	48	4	4SCCBN 040 002 160	4 X R0.2	1.5	16	66	6
4SCCBN 010 003 040	1 X R0.3	0.7	4	48	4	4SCCBN 040 003 060	4 X R0.3	1.5	6	66	6
4SCCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4	4SCCBN 040 003 100	4 X R0.3	1.5	10	66	6
4SCCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4	4SCCBN 040 003 160	4 X R0.3	1.5	16	66	6
4SCCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4	4SCCBN 040 005 060	4 X R0.5	1.5	6	66	6
4SCCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4	4SCCBN 040 005 100	4 X R0.5	1.5	10	66	6
4SCCBN 015 001 030	1.5 X R0.1	0.8	3	48	4	4SCCBN 040 005 160	4 X R0.5	1.5	16	66	6
4SCCBN 015 001 040	1.5 X R0.1	0.8	4	48	4	4SCCBN 040 010 060	4 X R1	1.5	6	66	6
4SCCBN 015 002 030	1.5 X R0.2	0.8	3	48	4	4SCCBN 040 010 100	4 X R1	1.5	10	66	6
4SCCBN 015 002 040	1.5 X R0.2	0.8	4	48	4	4SCCBN 040 010 160	4 X R1	1.5	16	66	6
4SCCBN 015 003 030	1.5 X R0.3	0.8	3	48	4	4SCCBN 060 003 030	6 X R0.3	3	-	83	6
4SCCBN 015 003 040	1.5 X R0.3	0.8	4	48	4	4SCCBN 060 003 150	6 X R0.3	3	15	83	6
4SCCBN 020 0002 030	2 X R0.02	0.9	3	50	4	4SCCBN 060 005 030	6 X R0.5	3	-	83	6
4SCCBN 020 0002 040	2 X R0.02	0.9	4	50	4	4SCCBN 060 005 150	6 X R0.5	3	15	83	6
4SCCBN 020 0002 060	2 X R0.02	0.9	6	50	4	4SCCBN 060 010 030	6 X R1	3	-	83	6
4SCCBN 020 0005 030	2 X R0.05	0.9	3	50	4	4SCCBN 060 010 150	6 X R1	3	15	83	6
4SCCBN 020 0005 040	2 X R0.05	0.9	4	50	4						
4SCCBN 020 0005 060	2 X R0.05	0.9	6	50	4						
4SCCBN 020 001 030	2 X R0.1	0.9	3	50	4						
4SCCBN 020 001 040	2 X R0.1	0.9	4	50	4						
4SCCBN 020 001 060	2 X R0.1	0.9	6	50	4						
4SCCBN 020 002 030	2 X R0.2	0.9	3	50	4						
4SCCBN 020 002 040	2 X R0.2	0.9	4	50	4						
4SCCBN 020 002 060	2 X R0.2	0.9	6	50	4						
4SCCBN 020 003 030	2 X R0.3	0.9	3	50	4						
4SCCBN 020 003 040	2 X R0.3	0.9	4	50	4						
4SCCBN 020 003 060	2 X R0.3	0.9	6	50	4						
4SCCBN 020 005 030	2 X R0.5	0.9	3	50	4						
4SCCBN 020 005 040	2 X R0.5	0.9	4	50	4						
4SCCBN 020 005 060	2 X R0.5	0.9	6	50	4						
4SCCBN 025 001 060	2.5 X R0.1	1.2	6	66	6						
4SCCBN 025 002 060	2.5 X R0.2	1.2	6	66	6						
4SCCBN 025 003 060	2.5 X R0.3	1.2	6	66	6						
4SCCBN 030 001 060	3 X R0.1	1.2	6	66	6						
4SCCBN 030 001 100	3 X R0.1	1.2	10	66	6						
4SCCBN 030 002 060	3 X R0.2	1.2	6	66	6						
4SCCBN 030 002 100	3 X R0.2	1.2	10	66	6						
4SCCBN 030 003 060	3 X R0.3	1.2	6	66	6						
4SCCBN 030 003 100	3 X R0.3	1.2	10	66	6						
4SCCBN 030 005 060	3 X R0.5	1.2	6	66	6						