



OSG Diamond Tool Co., Ltd.

THE N-BRAND

CATALOGUE
OSG DIAMOND TOOL

03


N-BRAND

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ND-NS2311 Vol.3-2 E





N-BRAND

THE N-BRAND

OSG Diamond Tool Co., Ltd.

OSG Diamond Tool presents
Niche products by
New Market-Creation Tools

Explore the latest processing techniques that we've been eager to explore. However, there were significant barriers such as time and cost associated with taking on these challenges. OSG Diamond Tool is committed to providing rapid delivery and cost-effective pricing for our next-generation processing solutions to meet the needs of those embracing these challenges. Transforming new technology into future value!



New



N-Insert M L
Single Crystal Diamond Inserts



N-FaceMill M W P
Single Crystal Diamond Face Milling Tools



N-InnerR Mill M P
End Mills for Rounding and Chamfering



N-Square Mill M
Single Crystal Diamond Square End Mills



N-Ball Mill M
Single Crystal Diamond Ball End Mills



N-Super Hale P C
PCD / CBN Super Hale Bite

New



N-Chamfer Mill M
Single Crystal Diamond Chamfering Cutter

New



N-Boring Bite M L
Single Crystal Diamond Boring Bite

New



N-Radius Mill M
Single Crystal Diamond Radius End Mill

New



N-Drill M
Single Crystal Diamond Drill

New



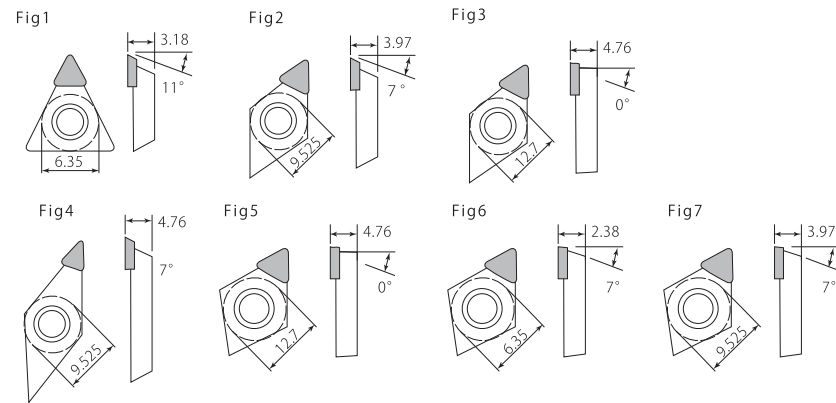
N-Double Square Mill M
Single Crystal Diamond Two-flute End Mill

M P W C L
Single Crystal Diamond PCD Carbide CBN Lathe Milling

Single Crystal Diamond Inserts

N-Insert

For turning resin and non-ferrous metals
achievable mirror finish



Product Lineup

Model Part Number	R	Stock	Fig
TPGW110302-MCD	0.2	●	Fig1
TPGW110304-MCD	0.4	●	Fig1
TPGW110308-MCD	0.8	○	Fig1
TPGW110310-MCD	1	○	Fig1
DCGW11T302-MCD	0.2	●	Fig2
DCGW11T304-MCD	0.4	●	Fig2
DCGW11T308-MCD	0.8	○	Fig2
DCGW11T310-MCD	1	○	Fig2
DNGA150404-MCD	0.4	●	Fig3
DNGA150408-MCD	0.8	●	Fig3
DNGA150410-MCD	1	○	Fig3
DNGA150412-MCD	1.2	○	Fig3
VCGW160402-MCD	0.2	●	Fig4
VCGW160404-MCD	0.4	●	Fig4
VCGW160408-MCD	0.8	○	Fig4
CNGA120404-MCD	0.4	●	Fig5
CNGA120408-MCD	0.8	●	Fig5
CCGW060202-MCD	0.2	●	Fig6
CCGW060204-MCD	0.4	●	Fig6
CCGW09T302-MCD	0.2	●	Fig7
CCGW09T304-MCD	0.4	●	Fig7

Machining Conditions

Work Material	Vc Cutting Speed	ap (mm) Depth of Cut	Coolant
Silver	50~300	0.005~0.05	Cutting Fluid
Aluminum	100~2,500	0.005~0.05	Emulsion
Magnesium	100~2,500	0.005~0.05	Emulsion
Gold	50~300	0.005~0.05	Cutting Fluid
Copper	50~500	0.005~0.04	Cutting Fluid
PC	50~200	0.01~0.1	Emulsion/Air
PE	80~350	0.01~0.1	Emulsion
PEEK	60~250	0.01~0.1	Emulsion
PMMA	80~300	0.01~0.1	Emulsion/Air
POM	80~350	0.01~0.1	Emulsion
PTFE	70~300	0.01~0.1	Emulsion
PVC	60~250	0.01~0.1	Emulsion

○ is a semi-stock item (Delivery time: approx. 40 days)
Other shapes are available upon request. (Delivery time: approx. 40 days).

Single Crystal Diamond Inserts

N-Insert

For turning resin and non-ferrous metals
achievable mirror finish

Application/Lathe
Immediate Delivery

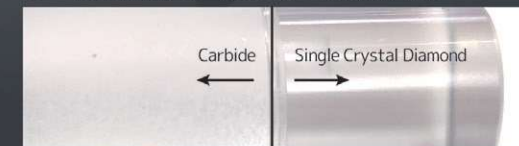
Product Lineup

Mirror surface from resin to non-ferrous metals can be completed by cutting

Carbide + PCD: Cutting + Buff Polishing OR Gas Polishing
Single Crystal Diamond: Cutting Only

Machining time is dramatically reduced

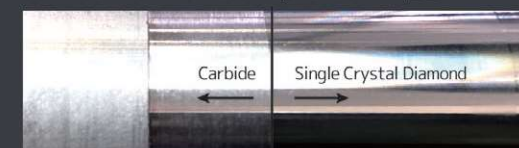
Acrylic Resin (Extruded Material)
φ20 external finishing process
Vc=188m/min fz=0.01 ap=0.05mm 仕上



Brass
φ30 external finishing process
Vc=188m/min fz=0.01 ap=0.05mm 仕上



ADC12
φ20 external finishing process
Vc=188m/min fz=0.01 ap=0.05mm 仕上



Product Lineup

Model Part Number	R
TPGW110302-MCD	R0.2
TPGW110304-MCD	R0.4
TPGW110308-MCD	R0.8
TPGW110310-MCD	R1.0
DCGW11T302-MCD	R0.2
DCGW11T304-MCD	R0.4
DCGW11T308-MCD	R0.8
DCGW11T310-MCD	R1.0
DNGA150404-MCD	R0.4
DNGA150408-MCD	R0.8
DNGA150410-MCD	R1.0
DNGA150412-MCD	R1.2
VCGW160402-MCD	R0.2
VCGW160404-MCD	R0.4
VCGW160408-MCD	R0.8
CNGA120404-MCD	R0.4
CNGA120408-MCD	R0.8
CCGW060202-MCD	R0.2
CCGW060204-MCD	R0.4
CCGW09T302-MCD	R0.2
CCGW09T304-MCD	R0.4

● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item (Delivery time: approx 40 days).
Other shapes are available upon request. (Delivery time: approx. 40 days).

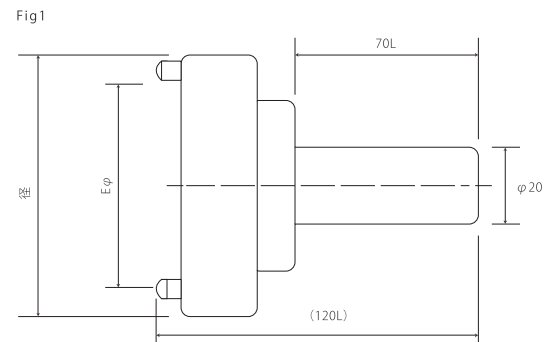
Additional Options

Achieve high precision with R precision finishing.
Improve surface accuracy with R precision lapping.

Single Crystal Diamond Face Milling Tools

N-Face Mill

Face milling operations enable mirror cutting on materials such as resin.



Eφ is Effective Finishing Diameter (Mirror Finish)



Product Lineup

Cutter body + Arbor				
Model Part Number	φ	Eφ	Stock	Fig
N-FM080	φ80	φ73	●	Fig1
N-FM100	φ100	φ93	●	Fig1
N-FM125	φ125	φ118	●	Fig1

Arbor Diameter : φ20
Other shapes are available upon request.
(Delivery time: approx. 45 days).

Blade			
Model Part Number	Material	Stock	Application
N-FM-MCD	Single Crystal Diamond	●	Finishing
N-FM-PCD	PCD	●	Coarse
N-FM-WC	Carbide	●	Coarse

Machining Conditions

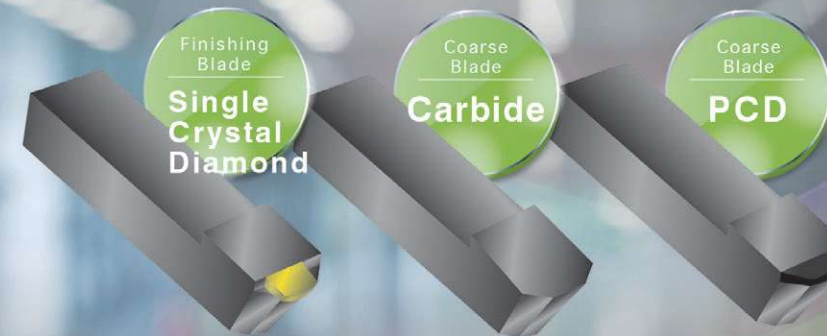
Work Material	Vc Cutting Speed	ap (mm) Depth of Cut	Coolant
Silver	50~300	0.005~0.05	Cutting Fluid
Aluminum	100~2,500	0.005~0.05	Emulsion
Magnesium	100~2,500	0.005~0.05	Emulsion
Gold	50~300	0.005~0.05	Cutting Fluid
Copper	50~500	0.005~0.04	Cutting Fluid
PC	50~200	0.01~0.1	Emulsion/Air
PE	80~350	0.01~0.1	Emulsion
PEEK	60~250	0.01~0.1	Emulsion
PMMA	80~300	0.01~0.1	Emulsion/Air
POM	80~350	0.01~0.1	Emulsion
PTFE	70~300	0.01~0.1	Emulsion
PVC	60~250	0.01~0.1	Emulsion

Single Crystal Diamond Face Milling Tools

N-FaceMill

Face milling operations enable mirror cutting on materials such as resin.

Featuring a lightweight aluminum body that is compatible with BT30 tool holders



Mirror cutting is achievable with **Single Crystal Diamond Only**

Rough and finishing processes are completed in a single step

- >Reduction of Buff Polishing Process
- >Reduction in Processing Time
- >Easy Setup
- >Regrinding Possible

Size Range

Cutter Diameter: φ80~
Arbor Diameter: φ16~



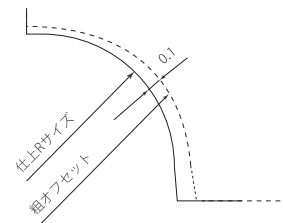
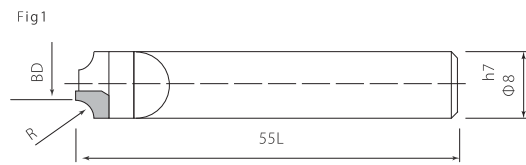
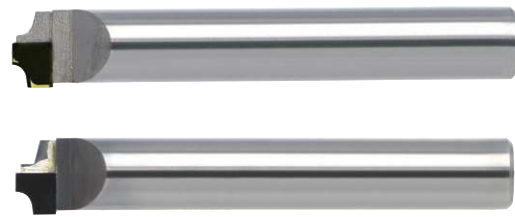
When combined with other single crystal tools, various ideas come forth!



End Mills for Rounding and Chamfering

N-InnerR Mill

Mirror surface cutting is possible with resin R chamfering



Product Lineup

R0.75				
Model Part Number	BD	Material	Stock	Application
N-RM R0.75 - PCD	φ4.0	PCD	○	Coarse
N-RM R0.75 - MCD	φ4.0	Single Crystal Diamond	○	Finishing

R1.0				
Model Part Number	BD	Material	Stock	Application
N-RM R1.0 - PCD	φ4.0	PCD	●	Coarse
N-RM R1.0 - MCD	φ4.0	Single Crystal Diamond	●	Finishing

R1.25				
Model Part Number	BD	Material	Stock	Application
N-RM R1.25 - PCD	φ4.0	PCD	○	Coarse
N-RM R1.25 - MCD	φ4.0	Single Crystal Diamond	○	Finishing

R1.5				
Model Part Number	BD	Material	Stock	Application
N-RM R1.5 - PCD	φ4.0	PCD	●	Coarse
N-RM R1.5 - MCD	φ4.0	Single Crystal Diamond	●	Finishing

○ is a semi-stock item (Delivery time: approx. 45 days)
Other shapes are available upon request. (Delivery time: approx. 45 days).

Coarse Machining Conditions

Rotational Speed : S=10,000~15,000rpm/min
Table Feed : Vf=300~1,000mm/min

Finish Machining Conditions

Acrylic Processing
For Polycarbonate, approximately 1/2 of the values below
Rotational Speed : S=10,000~15,000rpm/min
Table Feed : Vf=300~1,000mm/min
Depth of Cut : ap= ~0.1mm
Reference values, may vary depending on the material being cut and the machining equipment.

End Mills for Rounding and Chamfering

N-InnerR Mill

Mirror surface cutting is possible with resin R chamfering

Application M/C
Immediate Delivery

Achieving mirror finish
with cutting for
edge beveling

No Polishing Required!

Mirror finish achievable
through cutting

Traditional Processing: Cutting + Buff Polishing
or Gas Polishing

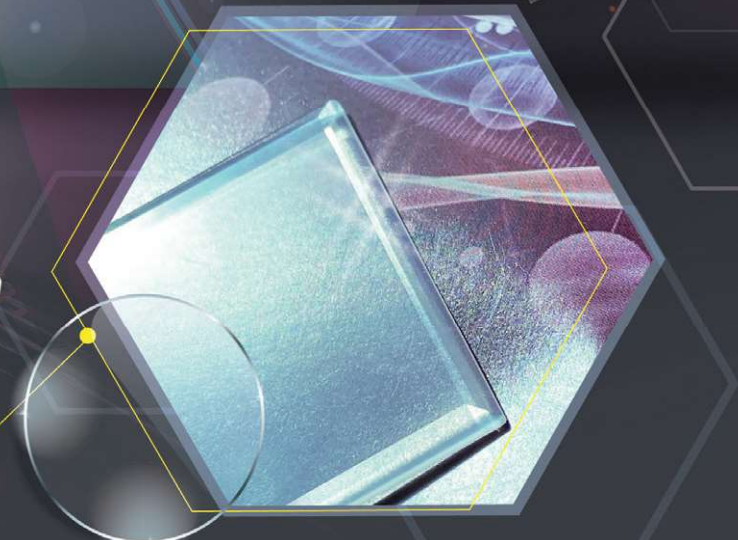
Since it's only cutting,
process reduction is possible.



[Coarse] R2.0 - PCD(R2.1)
Vc = 251m, Vf = 1,000mm/min

[Finishing] R2.0 - MCD
Vc = 188m, Vf = 1,000mm/min

Achieved with Our Original
Blade Specifications

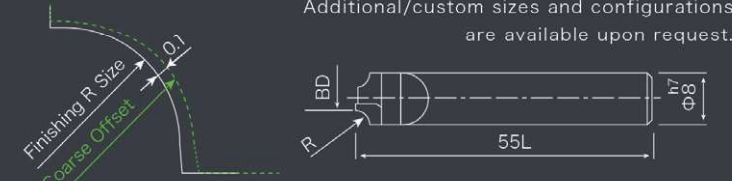


Model Part Number	Application	BD	Stock
N-RM R0.75 - PCD	Coarse	φ4.0	○
N-RM R0.75 - MCD	Finishing	φ4.0	○
N-RM R1.0 - PCD	Coarse	φ4.0	●
N-RM R1.0 - MCD	Finishing	φ4.0	○
N-RM R1.25 - PCD	Coarse	φ4.0	○
N-RM R1.25 - MCD	Finishing	φ4.0	○
N-RM R1.5 - PCD	Coarse	φ4.0	●
N-RM R1.5 - MCD	Finishing	φ4.0	○
N-RM R1.75 - PCD	Coarse	φ4.0	○
N-RM R1.75 - MCD	Finishing	φ4.0	○
N-RM R2.0 - PCD	Coarse	φ4.0	●
N-RM R2.0 - MCD	Finishing	φ4.0	○
N-RM R2.25 - PCD	Coarse	φ4.0	○
N-RM R2.25 - MCD	Finishing	φ4.0	○
N-RM R2.5 - PCD	Coarse	φ4.0	●
N-RM R2.5 - MCD	Finishing	φ4.0	○

● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item (Delivery time: approx 45 days.)

For pricing details, contact us.

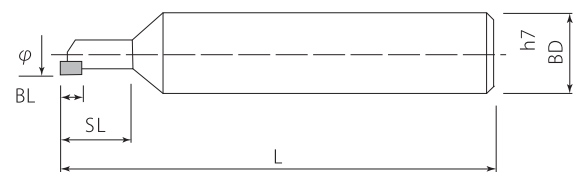
Additional/custom sizes and configurations are available upon request.



Single Crystal Diamond Square End Mills

N-Square Mill

Achieved high-quality mirror finish on the outer perimeter and extended the tool lifespan.



Machining of Resins and Non-Ferrous Metals
Reduce the rotational speed to one-third for hard and brittle materials

Product Lineup

Model Part Number	φ	BL	SL	BD	L	Stock
N-SM0010	φ0.1	0.05	0.3	6	50	●
N-SM0020	φ0.2	0.1	0.6	6	50	●
N-SM0030	φ0.3	0.15	0.9	6	50	●
N-SM0040	φ0.4	0.2	1.2	6	50	○
N-SM0050	φ0.5	0.25	1.5	6	50	●
N-SM0060	φ0.6	0.3	1.8	6	50	○
N-SM0070	φ0.7	0.35	2.1	6	50	○
N-SM0080	φ0.8	0.4	2.4	6	50	●
N-SM0090	φ0.9	0.45	2.7	6	50	○
N-SM0100	φ1	0.5	1.5	6	55	●
N-SM0200	φ2	1.5	3	6	55	●
N-SM0400	φ4	2	6	6	55	●
N-SM0600	φ6	3	9	8	55	●
N-SM0800	φ8	4	12	8	55	●
N-SM1000	φ10	5	15	10	60	●
N-SM1200	φ12	6	18	12	60	●

○ is a semi-stock item (Delivery time: approx. 45 days)
Other shapes are available upon request. (Delivery time: approx. 45 days).

Machining Conditions

φ	Rotational Speed (min-1)	ap (mm) Depth of Cut
φ0.1	10,000~40,000	0.004
φ0.2	10,000~40,000	0.009
φ0.3	10,000~40,000	0.01
φ0.4	10,000~40,000	0.01
φ0.5	10,000~40,000	0.02
φ0.6	10,000~40,000	0.03
φ0.7	10,000~40,000	0.03
φ0.8	10,000~40,000	0.04
φ0.9	10,000~40,000	0.04
φ1	10,000~40,000	0.04
φ2	10,000~30,000	0.09
φ4	10,000~20,000	0.1
φ6	5,000~10,000	0.1
φ8	5,000~10,000	0.1
φ10	5,000~10,000	0.1
φ12	5,000~10,000	0.1

Recommend high-speed rotation whenever possible.
Reference values, may vary depending on the material being cut and the machining equipment



Single Crystal Diamond Square End Mills

N-Square Mill

Achieved high-quality mirror finish on the outer perimeter and extended the tool lifespan.

Application M/C
Immediate Delivery

Mirror finish achievable through cutting

Surface roughen is improved six times compared to carbide cutting tools.



World's Longest: 12mm~ Blade Length

Seamless production of single crystal diamond tools with blade widths ranging from 12mm and above is exclusively offered by Nissin Diamond. Also, suitable for work pieces with a minimum thickness of 12mm.

Acrylic: An Example of Pocket Perimeter Machining



With various single crystal diamond tools, the possibilities expand even further

Product Lineup

Model Part Number	φ	BL	SL	BD	L	Stock
N-SM0010	φ0.1	0.05	0.3	6	50	●
N-SM0020	φ0.2	0.1	0.6	6	50	●
N-SM0030	φ0.3	0.15	0.9	6	50	●
N-SM0040	φ0.4	0.2	1.2	6	50	○
N-SM0050	φ0.5	0.25	1.5	6	50	●
N-SM0060	φ0.6	0.3	1.8	6	50	○
N-SM0070	φ0.7	0.35	2.1	6	50	○
N-SM0080	φ0.8	0.4	2.4	6	50	●
N-SM0090	φ0.9	0.45	2.7	6	50	○
N-SM0100	φ1	0.5	1.5	6	55	●
N-SM0200	φ2	1.5	3	6	55	●
N-SM0400	φ4	2	6	6	55	●
N-SM0600	φ6	3	9	8	55	●
N-SM0800	φ8	4	12	8	55	●
N-SM1000	φ10	5	15	10	60	●
N-SM1200	φ12	6	18	12	60	●

● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item (Delivery time: approx 45 days.)

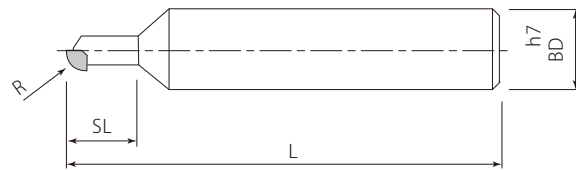
For pricing inquiries, please feel free to contact us.



Single Crystal Diamond Ball End Mills

N-Ball Mill

Mirror Finish and Extended Lifespan
Achieved for Free-form Surfaces



Machining of Resins and Non-Ferrous Metals
Reduce the rotational speed to
one-third for hard and brittle materials

Product Lineup

Model Part Number	R	SL	BD	L	Stock
N -BM0010	0.1	0.6	6	50	●
N -BM0020	0.2	1.2	6	50	●
N -BM0030	0.3	1.8	6	50	●
N -BM0040	0.4	2.4	6	50	○
N -BM0050	0.5	3	6	50	●
N -BM0060	0.6	3.6	6	50	○
N -BM0070	0.7	4.2	6	50	○
N -BM0080	0.8	4.8	6	50	●
N -BM0090	0.9	5.4	6	50	○
N -BM0100	1	5	6	50	●
N -BM0150	1.5	5	6	50	○
N -BM0200	2	5	6	50	●
N -BM0250	2.5	5	6	50	○
N -BM0300	3	5	6	50	●
N -BM0350	3.5	8	8	50	○
N -BM0400	4	8	8	50	●
N -BM0450	4.5	10	10	50	○
N -BM0500	5	10	10	50	●

○ is a semi-stock item (Delivery time: approx. 45 days)
Other shapes are available upon request. (Delivery time: approx. 45 days).

Machining Conditions

ϕ	^(min-1) Rotational Speed	^{ap (mm)} Depth of Cut
$\phi 0.1$	10,000~40,000	0.004
$\phi 0.2$	10,000~40,000	0.009
$\phi 0.3$	10,000~40,000	0.01
$\phi 0.4$	10,000~40,000	0.01
$\phi 0.5$	10,000~40,000	0.02
$\phi 0.6$	10,000~40,000	0.03
$\phi 0.7$	10,000~40,000	0.03
$\phi 0.8$	10,000~40,000	0.04
$\phi 0.9$	10,000~40,000	0.04
$\phi 1$	10,000~40,000	0.04
$\phi 2$	10,000~30,000	0.09
$\phi 4$	10,000~20,000	0.1
$\phi 6$	5,000~10,000	0.1
$\phi 8$	5,000~10,000	0.1
$\phi 10$	5,000~10,000	0.1
$\phi 12$	5,000~10,000	0.1

Recommend high-speed rotation whenever possible.
Reference values, may vary depending on the material
being cut and the machining equipment



Single Crystal Diamond Ball End Mills

N-Ball Mill

Mirror Finish and Extended Lifespan
Achieved for Free-form Surfaces

Application M/C Immediate Delivery

Maximize your company's
strengths through our diverse
product range and the flexibility
of our 'mirror finishing' technology,
which includes speciali

Product Lineup

Model Part Number	R	SL	BD	L	Stock
N -BM0010	0.1	0.6	6	50	●
N -BM0020	0.2	1.2	6	50	●
N -BM0030	0.3	1.8	6	50	●
N -BM0040	0.4	2.4	6	50	○
N -BM0050	0.5	3	6	50	●
N -BM0060	0.6	3.6	6	50	○
N -BM0070	0.7	4.2	6	50	○
N -BM0080	0.8	4.8	6	50	●
N -BM0090	0.9	5.4	6	50	○
N -BM0100	1	5	6	50	●
N -BM0150	1.5	5	6	50	○
N -BM0200	2	5	6	50	●
N -BM0250	2.5	5	6	50	○
N -BM0300	3	5	6	50	●
N -BM0350	3.5	8	8	50	○
N -BM0400	4	8	8	50	●
N -BM0450	4.5	10	10	50	○
N -BM0500	5	10	10	50	●

● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item (Delivery time: approx 45 days.)

Single Crystal Diamond Tool

Compare edges with a ball end mills of the same size

×5000 Enlarged view

Labels: Rake face, chamfer, Outer second face

PCD - Carbide Tool

Compare edges with a ball end mills of the same size

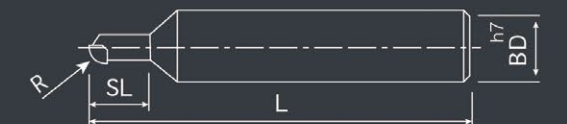
×5000 Enlarged view

Labels: Rake face, Outer second face

Mirror finish achievable

Clouding of the cutting surface

For pricing inquiries,
please feel free to contact us.

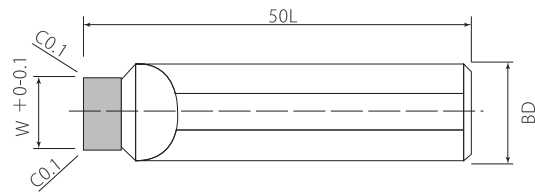


The work piece's surface roughness is 1/6th that of PCD,
and achieving mirror finishes exclusively through cutting is possible only with single crystal diamond tools

PCD / CBN Super Hale Bite

N-Super Hale

The Birth of Tools for Maximizing Surface Precision



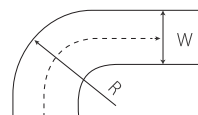
Product Lineup

PCD				
Model Part Number	W	BD	MinC	Stock
N-SH4-PCD	4	φ6	R8	●
N-SH5-PCD	5	φ6	R7	●
N-SH6-PCD	6	φ6	R6.5	●
N-SH7-PCD	7	φ8	R8	●
N-SH8-PCD	8	φ8	R8.5	●
N-SH9-PCD	9	φ10	R9.2	●
N-SH10-PCD	10	φ10	R10.5	●

CBN				
Model Part Number	W	BD	MinC	Stock
N-SH4-CBN	4	φ6	R8	○
N-SH5-CBN	5	φ6	R7	●
N-SH6-CBN	6	φ6	R6.5	○
N-SH7-CBN	7	φ8	R8	○
N-SH8-CBN	8	φ8	R8.5	○
N-SH9-CBN	9	φ10	R9.2	○
N-SH10-CBN	10	φ10	R10.5	●

○ is a semi-stock item (Delivery time: approx. 40 days)
Other shapes are available upon request.
(Delivery time: approx. 40 days).

MinC is
The R-dimension of the curve in the machining path with the smallest radius



For interference prevention, verification is required

Examples of Aluminum Processing



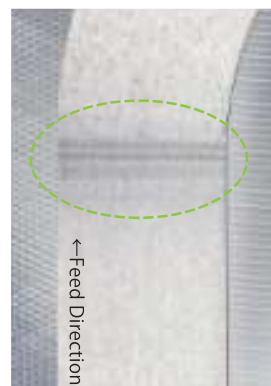
←: Machining Direction

Machine : a61nx(Pro.6) Sealing Face Width : 10mm
Work Material : Aluminum (A5052) Groove Depth : 0.03mm
Work Size : 90 × 55 × 10mm Feed Rate : 6,000mm/min
Tool Material : Carbide

Surface Finish Our Achieved Values

- ① Ra0.304 μm ② Ra0.330 μm
- ③ Ra0.315 μm ④ Ra0.356 μm

General Hale Machining



Super Hale Machining



Single Crystal Diamond / PCD / CBN

N-Super Hale

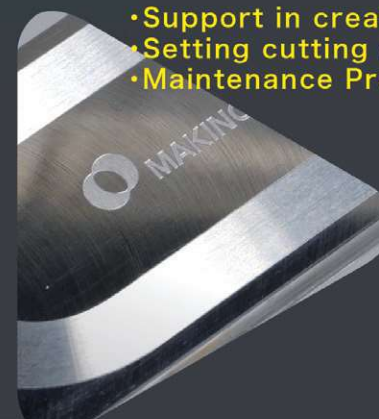
The Birth of Tools for Maximizing Surface Precision

Long-term stability of seal groove processing accuracy

Custom-designed solutions to meet specific processing needs

Seamless production of single crystal diamond inserts with blade widths exceeding 10mm is also feasible.

- Support in creating custom machining programs for customers
- Setting cutting conditions & producing Super Hale bite
- Maintenance Procedures for Super hale bite



SMART TOOL
Super Hale™

Compatible with super Hale specifications

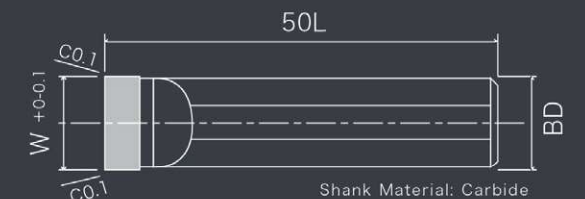
About

Next generation hale machining technology solution developed by Makino Milling Machine, Co., Ltd. Realization of ultra-high vacuum seal surface without polishing

SMART TOOL is a product developed by Makino Milling Machine Co., Ltd.

immediate delivery stock items of PCD and CBN tools.

N-SuperHale



P C D	Model Part Number	W	BD	MinC	Stock
	N-SH4-PCD	4	φ6	R8	●
	N-SH5-PCD	5	φ6	R7	●
	N-SH6-PCD	6	φ6	R6.5	●
	N-SH7-PCD	7	φ8	R8	●
	N-SH8-PCD	8	φ8	R8.5	●
	N-SH9-PCD	9	φ10	R9.2	●
	N-SH10-PCD	10	φ10	R10.5	●

C B N	Model Part Number	W	BD	MinC	Stock
	N-SH4-CBN	4	φ6	R8	○
	N-SH5-CBN	5	φ6	R7	●
	N-SH6-CBN	6	φ6	R6.5	○
	N-SH7-CBN	7	φ8	R8	○
	N-SH8-CBN	8	φ8	R8.5	○
	N-SH9-CBN	9	φ10	R9.2	○
	N-SH10-CBN	10	φ10	R10.5	●

● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item (Delivery time: approx 40 days.)

MinC is
The R-dimension of the curve in the machining path with the smallest radius



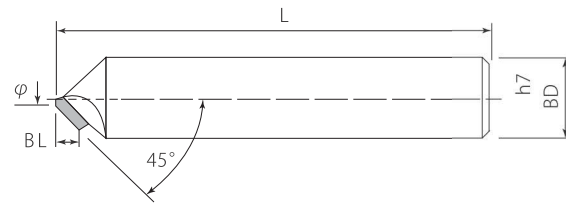
For interference prevention, verification is required



Single Crystal Diamond Chamfering Cutter *New*

N-Chamfer Mill

Mirror finish and long tool life of chamfering process are possible



φ is not a bottom cutting edge and V-groove processing is not possible. Only for 45-degree chamfering.

Product Lineup

Model Part Number	φ	BL	BD	L	Stock
N-CM01	φ1	~C1	6	55	●
N-CM02	φ1	~C2	6	55	○
N-CM03	φ1	~C3	8	55	●
N-CM04	φ1	~C4	10	55	○
N-CM05	φ1	~C5	12	55	●

○ is a semi-stock item (Delivery time: approx. 45 days)
Other shapes are available upon request.
(Delivery time: approx. 45 days).

Machining Conditions

φ	(min-1) Rotational Speed	ap (mm) Depth of Cut
φ0.1	10,000~40,000	0.004
φ0.2	10,000~40,000	0.009
φ0.3	10,000~40,000	0.01
φ0.4	10,000~40,000	0.01
φ0.5	10,000~40,000	0.02
φ0.6	10,000~40,000	0.03
φ0.7	10,000~40,000	0.03
φ0.8	10,000~40,000	0.04
φ0.9	10,000~40,000	0.04
φ1	10,000~40,000	0.04
φ2	10,000~30,000	0.09
φ4	10,000~20,000	0.1
φ6	5,000~10,000	0.1
φ8	5,000~10,000	0.1
φ10	5,000~10,000	0.1
φ12	5,000~10,000	0.1

Recommend high-speed rotation whenever possible.
Reference values, may vary depending on the material being cut and the machining equipment

Single Crystal Diamond Chamfering Cutter

N-Chamfer Mill

Mirror finish and long tool life of chamfering process are possible *New*

Application M/C
Immediate Delivery

N-Face Mill
N-Ball Mill
N-Square Mill

Combination with
N-brand products
improve processing efficiency

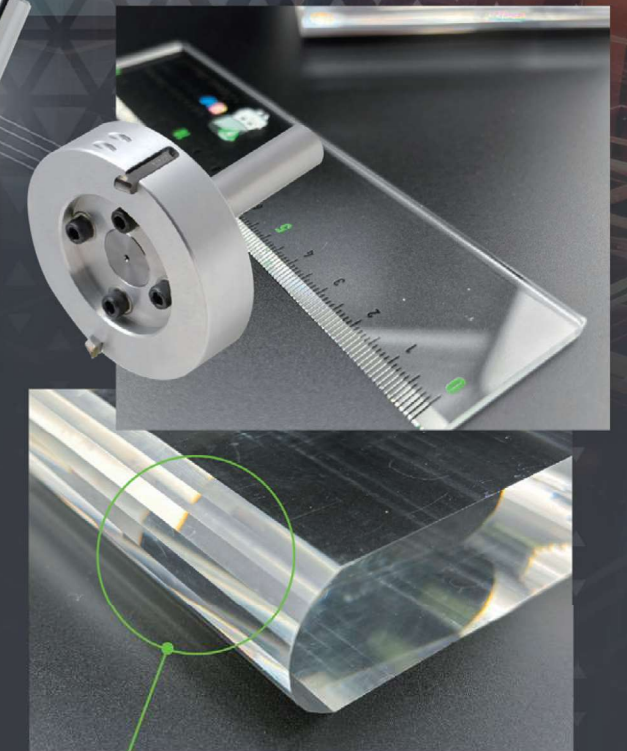
Product Lineup

Model Part Number	φ	BL	BD	L	Stock
N-CM01	φ1	~C1	6	55	●
N-CM02	φ1	~C2	6	55	○
N-CM03	φ1	~C3	8	55	●
N-CM04	φ1	~C4	8	55	○
N-CM05	φ1	~C5	12	55	●

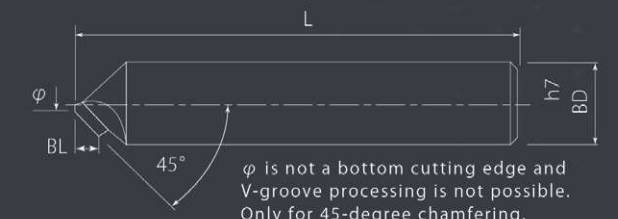
● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item
(Delivery time: approx 45 days.)
Other shapes are available upon request.
(Delivery time: approx. 45days).



Maximum C10 machining tools are also available upon request.



Various idea processing is possible not only for chamfering.



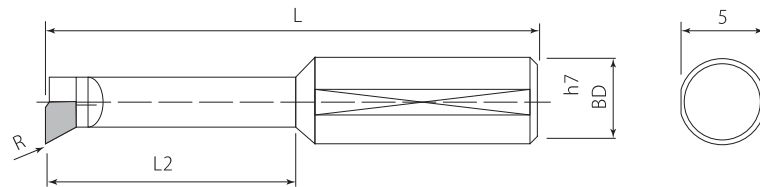
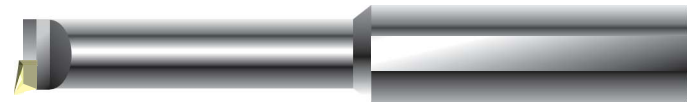
φ is not a bottom cutting edge and V-groove processing is not possible. Only for 45-degree chamfering.



Single Crystal Diamond Boring Bite New

N-Boring Bite

Mirror finish on inner diameter cutting is possible.



Product Lineup

Model Part Number	R	Minimum machining diameter	L2	BD	L	Stock
N-BB03	R0.05	φ3	25	6	70	●
N-BB04	R0.05	φ4	25	6	70	●
N-BB05	R0.05	φ5	30	6	70	●
N-BB06	R0.05	φ6	30	6	70	●

● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item
(Delivery time: approx 45 days.)
Other shapes are available upon request.
(Delivery time: approx. 45days).

Machining Conditions

Work Material	Vc Cutting Speed	ap (mm) Depth of Cut	Coolant
Silver	50~300	0.005~0.05	Cutting Fluid
Aluminum	100~2,500	0.005~0.05	Emulsion
Magnesium	100~2,500	0.005~0.05	Emulsion
Gold	50~300	0.005~0.05	Cutting Fluid
Copper	50~500	0.005~0.04	Cutting Fluid
PC	50~200	0.01~0.1	Emulsion/Air
PE	80~350	0.01~0.1	Emulsion
PEEK	60~250	0.01~0.1	Emulsion
PMMA	80~300	0.01~0.1	Emulsion/Air
POM	80~350	0.01~0.1	Emulsion
PTFE	70~300	0.01~0.1	Emulsion
PVC	60~250	0.01~0.1	Emulsion

Single Crystal Diamond Boring Bite

N-Boring Bite

Mirror finish on inner diameter cutting is possible. New

Application / Lathe
Immediate Delivery

N-Insert

Combination with N-brand products
improve processing efficiency

Suitable for the smallest machining diameter that cannot be machined with inserts of φ6 or smaller



Single Crystal Diamond

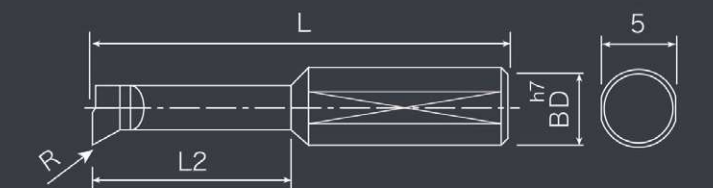
For the most stable machining of Ra0.1 or less.

Product Lineup

Model Part Number	R	Minimum machining diameter	L2	BD	L	Stock
N-BB03	R0.05	φ3	25	6	70	●
N-BB04	R0.05	φ4	25	6	70	●
N-BB05	R0.05	φ5	30	6	70	●
N-BB06	R0.05	φ6	30	6	70	●

● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item
(Delivery time: approx 45 days.)
For pricing inquiries, please feel free to contact us

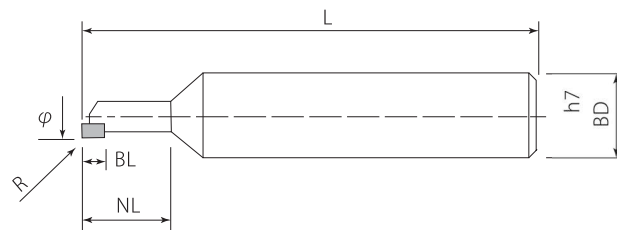
Other shapes are available upon request.
(Delivery time: approx. 40days).



Single Crystal Diamond Radius End Mill New

N-Radius Mill

Mirror finish processing available
for flat and curved surface processing



Product Lineup

Model Part Number	R	φ	BL	NL	BD	L	Stock
N -RM0010	0.02	φ0.1	0.05	0.3	6	50	●
N -RM0020	0.02	φ0.2	0.1	0.6	6	50	●
N -RM0030	0.05	φ0.3	0.15	0.9	6	50	●
N -RM0040	0.05	φ0.4	0.2	1.2	6	50	○
N -RM0050	0.05	φ0.5	0.25	1.5	6	50	●
N -RM0060	0.05	φ0.6	0.3	1.8	6	50	○
N -RM0070	0.05	φ0.7	0.35	2.1	6	50	○
N -RM0080	0.05	φ0.8	0.4	2.4	6	50	●
N -RM0090	0.05	φ0.9	0.45	2.7	6	50	○
N -RM0100	0.2	φ1	0.5	1.5	6	55	●
N -RM0200	0.2	φ2	1.5	3	6	55	●
N -RM0400	0.2	φ4	2	6	6	55	●
N -RM0600	0.2	φ6	3	9	8	55	●
N -RM0800	0.2	φ8	4	12	8	55	●
N -RM1000	0.2	φ10	5	15	10	60	●
N -RM1200	0.2	φ12	6	18	12	60	●

●Standard Stock Item ○Semi-Standard Stock Item
○is a Semi-Standard Stock Item
(Delivery time: approx 45 days.)
Other shapes are available upon request.
(Delivery time: approx. 45days).

Machining of Resins and Non-Ferrous Metals
Reduce the rotational speed to
one-third for hard and brittle materials

Machining Conditions

φ	^(min-1) Rotational Speed	^{ap (mm)} Depth of Cut
φ0.1	10,000~40,000	0.004
φ0.2	10,000~40,000	0.009
φ0.3	10,000~40,000	0.01
φ0.4	10,000~40,000	0.01
φ0.5	10,000~40,000	0.02
φ0.6	10,000~40,000	0.03
φ0.7	10,000~40,000	0.03
φ0.8	10,000~40,000	0.04
φ0.9	10,000~40,000	0.04
φ1	10,000~40,000	0.04
φ2	10,000~30,000	0.09
φ4	10,000~20,000	0.1
φ6	5,000~10,000	0.1
φ8	5,000~10,000	0.1
φ10	5,000~10,000	0.1
φ12	5,000~10,000	0.1

Recommend high-speed rotation whenever possible.
Reference values, may vary depending on the material
being cut and the machining equipment

Single Crystal Diamond Radius End Mill

N-Radius Mill New

Mirror finish processing available
for flat and curved surface processing

Application M/C
Immediate Delivery

Product Lineup

Model Part Number	R	φ	BL	NL	BD	L	Stock
N -RM0010	0.02	φ0.1	0.05	0.3	6	50	●
N -RM0020	0.02	φ0.2	0.1	0.6	6	50	●
N -RM0030	0.05	φ0.3	0.15	0.9	6	50	●
N -RM0040	0.05	φ0.4	0.2	1.2	6	50	○
N -RM0050	0.05	φ0.5	0.25	1.5	6	50	●
N -RM0060	0.05	φ0.6	0.3	1.8	6	50	○
N -RM0070	0.05	φ0.7	0.35	2.1	6	50	○
N -RM0080	0.05	φ0.8	0.4	2.4	6	50	●
N -RM0090	0.05	φ0.9	0.45	2.7	6	50	○
N -RM0100	0.2	φ1	0.5	1.5	6	55	●
N -RM0200	0.2	φ2	1.5	3	6	55	●
N -RM0400	0.2	φ4	2	6	6	55	●
N -RM0600	0.2	φ6	3	9	8	55	●
N -RM0800	0.2	φ8	4	12	8	55	●
N -RM1000	0.2	φ10	5	15	10	60	●
N -RM1200	0.2	φ12	6	18	12	60	●

●Standard Stock Item ○Semi-Standard Stock Item
○is a Semi-Standard Stock Item
(Delivery time: approx 45 days.)
Other shapes are available upon request.
(Delivery time: approx. 45days).

**Mirror finish achievable
through cutting**

**Surface roughen is improved
six times compared to
carbide cutting tools.**



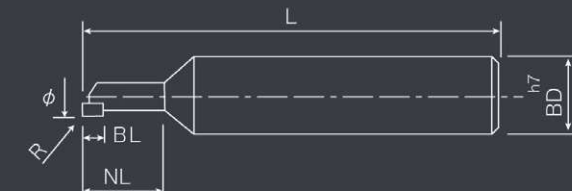
Acrylic: An Example of
Pocket Perimeter
Machining

**World's Longest: 12mm~
Blade Length**

Seamless production of single crystal diamond tools
with blade widths ranging from 12mm and above
is exclusively offered by Nissin Diamond.
Also, suitable for work
pieces with a minimum thickness of 12mm.

N-Face Mill
N-Ball Mill
N-Chamfer Mill

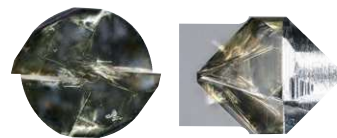
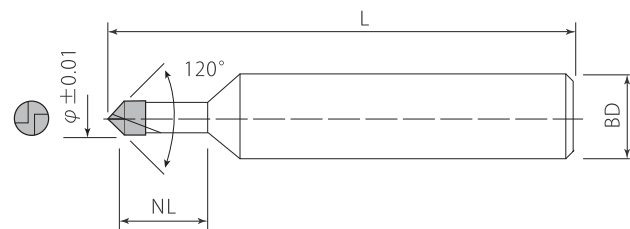
**Combination with N-brand products
improve processing efficiency**



Single Crystal Diamond Drill New

N-Drill

Mirror finish drilling is possible with resin and hard-brittle materials



Product Lineup

Model Part Number	φ	NL	BD	L	在庫
N-DR0040	φ 0.4	4	4	40	●
N-DR0050	φ 0.5	5	4	40	●
N-DR0060	φ 0.6	6	4	40	○
N-DR0070	φ 0.7	7	4	40	○
N-DR0080	φ 0.8	8	4	40	○
N-DR0090	φ 0.9	9	4	40	○
N-DR0100	φ 1.0	10	4	40	●
N-DR0110	φ 1.1	11	4	40	○
N-DR0120	φ 1.2	12	4	40	○
N-DR0130	φ 1.3	13	4	40	○
N-DR0140	φ 1.4	14	4	40	○
N-DR0150	φ 1.5	15	4	40	●

Machining Conditions

Work Material	V _c Cutting Speed	f (mm/min) Feed
Aluminum	10~30	3
Copper	10~30	3
CFRP	10~30	3
Carbide	10~25	3
Glass	10~30	3
resin	10~30	3

Reference values
Note: Varies depending on the work material and the processing machine.
Please use step processing
Step amount : 0.01 ~ 0.02mm

●Standard Stock Item ○Semi-Standard Stock Item
○is a Semi-Standard Stock Item
(Delivery time: approx 45 days.)
Other shapes are available upon request.
(Delivery time: approx. 45days.)



Single Crystal Diamond Drill

N-Drill New

Mirror finish drilling is possible with resin and hard-brittle materials

Application M/C
Immediate Delivery

Mirror finish drilling is possible with resin and hard-brittle materials

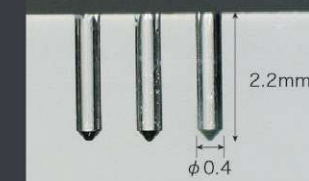


Industry's first 2-blade design



The cutting edge shape is applicable from centering to drilling in machining of hard and brittle materials.

Acrylic Drilling Process



Android II vertical type
n=12,000rpm/min-1
fz=0.004mm/rev
Step=0.02mm
Water Soluble Cutting Fluid

N-Chamfer Mill

Combination with N-brand products improve processing efficiency



Ceramics and glass, etc.

Stable hole diameter accuracy while ensuring cutting discharge performance.

Product Lineup

Model Part Number	φ	NL	BD	L	Stock
N-DR0040	φ 0.4	4	4	40	●
N-DR0050	φ 0.5	5	4	40	●
N-DR0060	φ 0.6	6	4	40	○
N-DR0070	φ 0.7	7	4	40	○
N-DR0080	φ 0.8	8	4	40	○
N-DR0090	φ 0.9	9	4	40	○
N-DR0100	φ 1.0	10	4	40	●
N-DR0110	φ 1.1	11	4	40	○
N-DR0120	φ 1.2	12	4	40	○
N-DR0130	φ 1.3	13	4	40	○
N-DR0140	φ 1.4	14	4	40	○
N-DR0150	φ 1.5	15	4	40	●

●Standard Stock Item ○Semi-Standard Stock Item
○is a Semi-Standard Stock Item
(Delivery time: approx 45 days.)
Other shapes are available upon request.
(Delivery time: approx. 45days.)

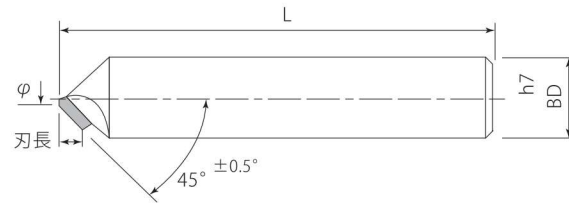


単結晶ダイヤモンド面取りカッター

New

N-Chamfer Mill

面取り加工の鏡面仕上と長寿命が可能



φは底切刃でなく、V溝加工は出来ません。
45°面取り加工専用となります。

ラインナップ

型式品名	φ	刃長	BD	L	在庫
N-CM01	φ1	~C1	6	55	●
N-CM02	φ1	~C2	6	55	○
N-CM03	φ1	~C3	8	55	●
N-CM04	φ1	~C4	10	55	○
N-CM05	φ1	~C5	12	55	●

※○は準在庫品(納期:約40日)となります。
※その他希望形状ありましたらご対応させていただきます。(納期:約40日)

切削加工条件

被削材	Vc 切削速度	ap (mm) 切込量	クーラント
銀	50~300	0.005~0.05	切削油
アルミニウム	100~2,500	0.005~0.05	エマルジョン
マグネシウム	100~2,500	0.005~0.05	エマルジョン
金	50~300	0.005~0.05	切削油
銅	50~500	0.005~0.04	切削油
PC	50~200	0.01~0.1	エマルジョン / エア
PE	80~350	0.01~0.1	エマルジョン
PEEK	60~250	0.01~0.1	エマルジョン
PMMA	80~300	0.01~0.1	エマルジョン / エア
POM	80~350	0.01~0.1	エマルジョン
PTFE	70~300	0.01~0.1	エマルジョン
PVC	60~250	0.01~0.1	エマルジョン

※出来るだけ高回転を推奨。
※ルーターやM/Cでの樹脂加工の場合は回転半分以下でも可能
※参考値 被削材や加工機械により異なります。

※目安
回転速度(n)=10,000~40,000rpm/min
1刃あたり送り(fz)=0.01~0.05mm/rpm
テーブル送り(Vf)=100~500mm/min

N-BRAND

単結晶ダイヤモンド面取りカッター

N-Chamfer Mill

面取り加工の鏡面仕上が可能

New

用途
M/C

標準化
即納

N-Face Mill
N-Ball Mill
N-Square Mill

などのN-BRAND製品などの
組み合わせで加工を効率化

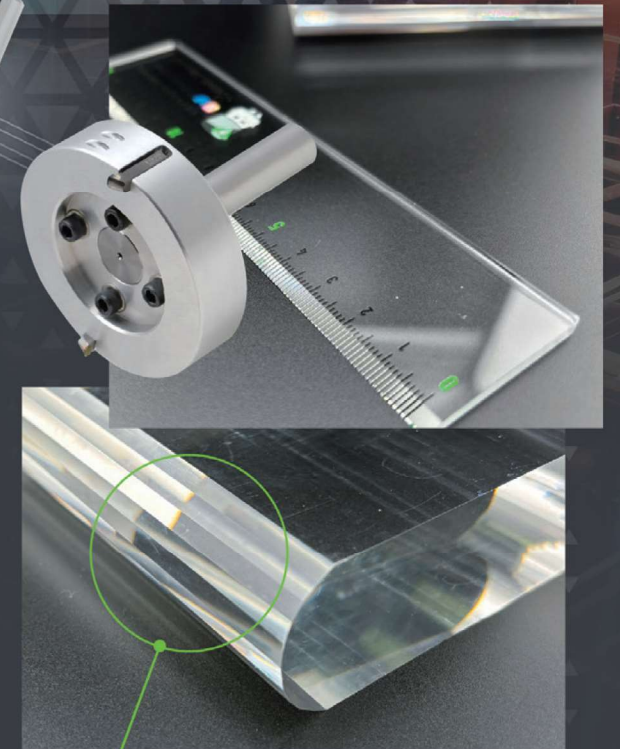
ラインナップはこちら

型式品名	φ	刃長	BD	L	在庫
N-CM01	φ1	~C1	6	55	●
N-CM02	φ1	~C2	6	55	○
N-CM03	φ1	~C3	8	55	●
N-CM04	φ1	~C4	8	55	○
N-CM05	φ1	~C5	12	55	●

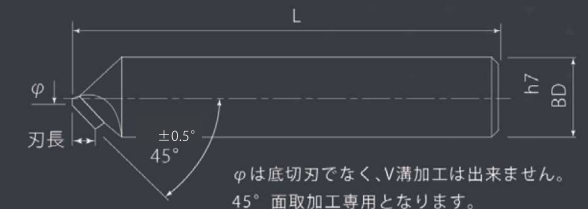
●…即納標準品 ○…準在庫品(納期:約40日間)

価格についてはお気軽にお問い合わせ下さい

このラインナップ以外のサイズや特殊形状も承ります。



面取り加工だけでなく、
使い方次第でアイデア満載!



φは底切刃でなく、V溝加工は出来ません。
45°面取り加工専用となります。

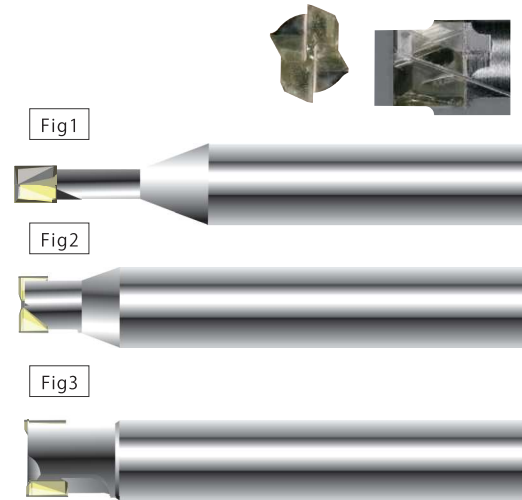
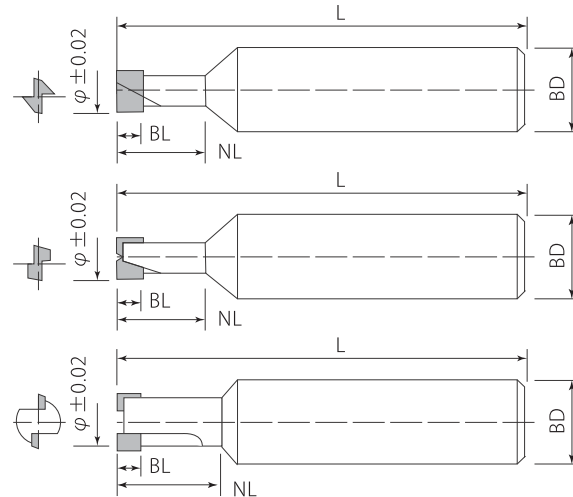
Point 最大C10加工用も製作可能



Single Crystal Diamond Two-flute End Mill New

N-Double Square Mill

Mirror finish processing available for flat and curved surface processing



Machining of Resins and Non-Ferrous Metals
Reduce the rotational speed to one-third for hard and brittle materials

Machining Conditions

φ	(min-1) Rotational Speed	ap (mm) Depth of Cut
φ 0.1	10,000~40,000	0.004
φ 0.2	10,000~40,000	0.009
φ 0.3	10,000~40,000	0.01
φ 0.4	10,000~40,000	0.01
φ 0.5	10,000~40,000	0.02
φ 0.6	10,000~40,000	0.03
φ 0.7	10,000~40,000	0.03
φ 0.8	10,000~40,000	0.04
φ 0.9	10,000~40,000	0.04
φ 1	10,000~40,000	0.04
φ 2	10,000~30,000	0.09
φ 4	10,000~20,000	0.1
φ 6	5,000~10,000	0.1
φ 8	5,000~10,000	0.1
φ 10	5,000~10,000	0.1
φ 12	5,000~10,000	0.1

Recommend high-speed rotation whenever possible.
Reference values, may vary depending on the material being cut and the machining equipment

Product Lineup

Model Part Number	φ	BL	NK	BD	L	Fig	Stock
N-DSM0050	φ 0.5	0.25	1.5	4	50	Fig1	●
N-DSM0100	φ 1	0.5	3	4	50	Fig1	●
N-DSM0200	φ 2	1	6	4	50	Fig2	●
N-DSM0400	φ 4	2	12	6	50	Fig2	●
N-DSM0600	φ 6	3	18	6	50	Fig3	●

● Standard Stock Item ○ Semi-Standard Stock Item
○ is a Semi-Standard Stock Item
(Delivery time: approx 45 days.)
Other shapes are available upon request.
(Delivery time: approx. 45days).



Single Crystal Diamond Two-flute End Mill

N-Double Square Mill

Mirror finish processing available for flat and curved surface processing New

Single Crystal Diamond
Mirror finish

Point

High efficiency
Two-flute

Application M/C
Immediate
Delivery



Product Lineup

Model Part Number	φ	BL	NL	BD	L	Fig	Stock
N-DSM0050	φ 0.5	0.25	1.5	4	50	Fig1	●
N-DSM0100	φ 1	0.5	3	4	50	Fig1	●
N-DSM0200	φ 2	1	6	4	50	Fig2	●
N-DSM0400	φ 4	2	12	6	50	Fig2	●
N-DSM0600	φ 6	3	18	6	50	Fig3	●

● Standard Stock Item ○ Semi-Standard Stock Item
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Mirror surface from resin to non-ferrous metals can be completed by cutting



Various machining operations from side machining to pocket machining with a two-flute tool

High efficiency

N-Face Mill
N-Ball Mill
N-Chamfer Mill

Combination with N-brand products improve processing efficiency

