

X060 SERIES

One holder supports the entire X060 series insert

- No need to reset tool length.
- High positive rake angle.
- Multi-side grinding.
- High speed, high feed rate.



Engraving

30° / 45° / 60° / 90°
Burr-Free!



Spotting

90° / 120° / 142°
0.1mm & 0.2mm tips



Deburring

60° / 90°, 6 flutes
Ideal for fine hole
deburring.

Nine9®



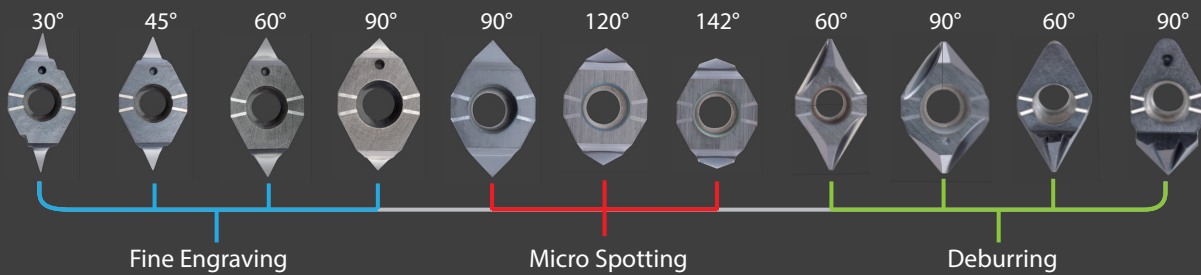
No Need To Choose, Nine9 Does It All

X060 Series

Patent

US 9,579,812 B2
US 9,764,396 B2

One holder supports the entire X060 series insert



X060 Insert

NC2032

- For all kinds of steel < HRC 40, carbon steel, alloy steel, and cast iron.

NC2035

- ALDURA coating, reduces heat and tool wear.
- For steel with heat treatment up to HRC 50.

XP9001

- For non-ferrous metal, aluminum, brass, copper, plastic, acrylic.



Products	Grade	Coating	P Steel	M Stainless Steel	K Cast Iron	N Non- Ferrous	H Hardened Steel Up to 50 HRC
Engraving	NC2032	TiAIN	●		●		
	NC2035	ALDURA	◎		○		●
	XP9001	Uncoated		○		●	
Micro Spot Drill	NC2032	TiAIN	●	◎	●		
	NC2035	ALDURA	◎		○		●
	XP9001	Uncoated		○		●	
NC Deburring	NC2032	TiAIN	●	○	◎	◎	
	XP9001	Uncoated				●	

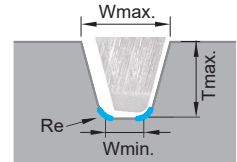
● Best ◎ Suit ○ Possible

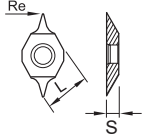
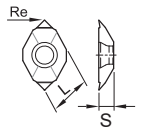
Engraving | 30° / 45° / 60° / 90°

- Multi-side grinding, excellent performance.
- Higher cutting speed and depth of cut.
- No need to reset tool length.
- Each insert has 2 cutting edges.
- Widely used for marking on machine components, medical components, gun components, mold and die, automotive parts, gears, bearings and luxury goods.

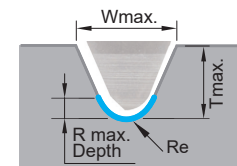


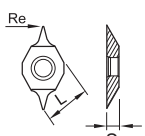
• Radius Angled Form



Angle	Code	Parts No.	Coating	Grade		Dimensions			Wmin.	Wmax.	Tmax.
						L	S	Re			
30°	01X0140	NC2032	TiAIN	K20F		6	2.05	0.04	0.20	0.52	0.6
	01X0141	X060A30W020R	NC2035								
	01X0142	XP9001	Uncoated								
45°	01X0021	NC2032	TiAIN	K20F		6	2.05	0.04	0.20	0.86	0.8
	01X0153	X060A45W020R	NC2035								
	01X0154	XP9001	Uncoated								
60°	01X0063	NC2032	TiAIN	K20F		6	2.05	0.04	0.20	1.36	1.0
	01X0165	X060A60W020R	NC2035								
	01X0166	XP9001	Uncoated								
90°	01X0207	NC2032	TiAIN	K20F		6	2.05	0.04	0.2	2.2	1.0
	01X0208	X060A90W020R	NC2035								
	01X0209	XP9001	Uncoated								

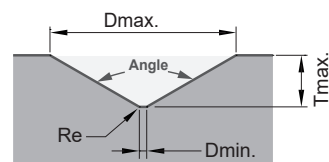
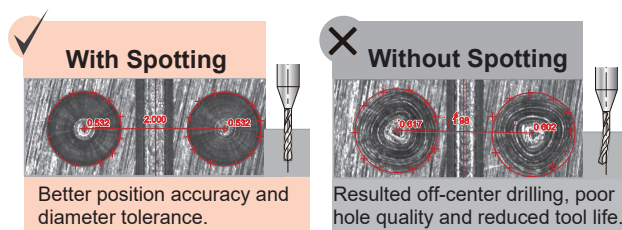
• Radius Form



Angle	Code	Parts No.	Coating	Grade		Dimensions			R max. Depth	Wmax.	Tmax.
						L	S	Re			
30°	01X0119	NC2032	TiAIN	K20F		6	2.05	0.2	0.15	0.63	0.6
	01X0132	X060A30R020	NC2035								
	01X0134	XP9001	Uncoated								
45°	01X0013	NC2032	TiAIN	K20F		6	2.05	0.2	0.12	0.93	0.8
	01X0149	X060A45R020	NC2035								
	01X0150	XP9001	Uncoated								
60°	01X0117	NC2032	TiAIN	K20F		6	2.05	0.2	0.10	1.39	1.0
	01X0158	X060A60R020	NC2035								
	01X0159	XP9001	Uncoated								

0.1 and 0.2_{mm} | 90° / 120° / 142° Micro Spotting

- It produces a consistent surface for micro drill success fully to enter the workpiece, especially for round, angled or curved surfaces.
- To improve hole location and tool life of a deep hole drill or micro drill.
- High efficiency! Long tool life! Cost saving!
- Each insert has 2 cutting edges.

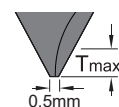
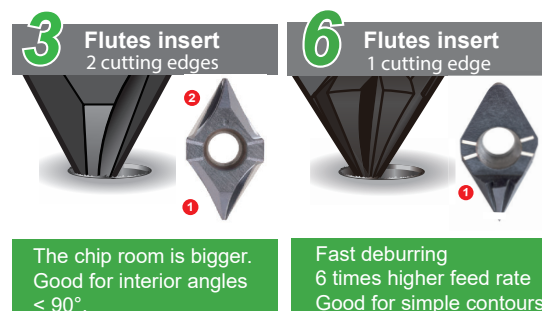


Angle ±0.5	Code	Parts No.		Coating	Grade		Dimensions			Dmin.	Dmax.	Tmax.
							L	S	Re			
90°	01X0082	X060A90W010R	NC2032	TiAlN	K20F		6	2.05	0.02	0.1	1.1	0.5
	01X0221		NC2035	ALDURA								
	01X0220		XP9001	Uncoated								
90°	01X0207	*X060A90W020R	NC2032	TiAlN					0.04	0.2	2.2	1.0
	01X0208		NC2035	ALDURA								
	01X0209		XP9001	Uncoated								
120°	01X0222	X060A120W010R	NC2032	TiAlN	K20F				0.02	0.1	2.53	0.7
142°	01X0223	X060A142W010R	NC2032	TiAlN	K20F				0.02	0.1	2.42	0.4

* X060A90W020R is also good for engraving.

Deburring | 60° / 90°

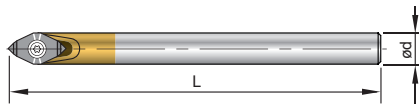
- Ideal for fine hole deburring.
- Smallest chamfer diameter $\phi 0.5\text{mm}$.
- Achieve high speed and feed rate on CNC machine.
- Retain exceptional positional accuracy of the deburring depth and diameter.



Angle	Code	Part No.		Coating	Grade	Flutes		Dimensions		Tmin.	Tmax.
								L	S		
60°	01X611	X060A60T3	NC2032	TiAlN	K20F	3		6	2.8	0.1	0.9
	01X612		XP9001	Uncoated							
90°	01X911	X060A90T3	NC2032	TiAlN							
	01X912		XP9001	Uncoated							
60°	01X601	X060A60T6	NC2032	TiAlN	K20F	6		6	2.0	0.1	1.8
90°	01X901	X060A90T6	NC2032							0.5	1.5

Holder

- One holder supports the entire X060 series of carbide inserts.
- XL (100mm length) is only for Al, Al-alloy cutting, unbalanced <0.6gm.

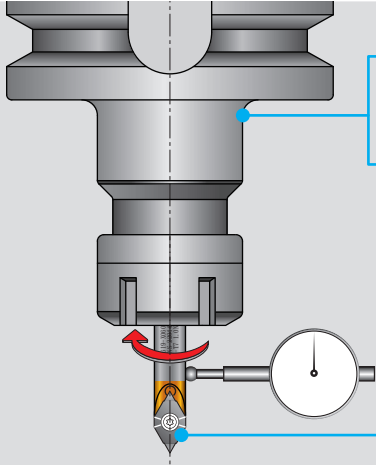


Code	Parts No.	Shank	Ød	L	Screw	Key
69X001	00-99619-X060-06	Steel	6	40	*NS-22044 0.9Nm	NK-T7
69X002	00-99619-X060-06L	Carbide	6	60		
69X003	00-99619-X060-06LS	Steel	6	60		
69X004	00-99619-X060-06XL	Carbide	6	100		
69X005	00-99619-X060-08	Steel	8	60		

*Torque screwdriver is recommended.

Technical guide

► Before you start, please pay attention the following conditions



- 1 Recommended of tool holders**
High precision spring collet chucks, shrink fit chucks, hydraulic chuck.
- 2 Pre-balance the tool holder**
minimum **G6.3/10,000 r.p.m.** is necessary.
- 3 The downward feed rate of the Z-axis**
should be **reduced to 50%** of the table feed rate.
- 4 Tool shank runout:**
below 0.01 mm.
- 5 Torque screwdriver is recommended**

6 Cutting fluid and cooling condition

Emulsion / Oil		Oil	Air
P Steel	M Stainless Steel	N Non-Ferrous	K Cast Iron
S Titanium	H Hardened Steel		

► Clamping insert

- Place and hold the insert in the insert pocket against the positioning side.

1. Place the insert in the insert pocket.

Place



➡

2. Align and push insert against insert pocket.

Align & Press



➡

3. Insert the screw and tighten it at 0.9Nm.

Tighten



Cutting Data

► 30° Engraving - X060A30W020R / X060A30R020

(Tmax. : 0.6mm)

Workpiece Material	S (r.p.m)	f (mm/rev.)		Depth of cut (mm)						Grade of Insert
		Radius Angled	Radius	1st	2nd	3rd	4th	5th ~	Finishing	
P Carbon steel	8000 ~ 40000	0.001 ~ 0.010	0.002 ~ 0.015	0.15	0.1	0.05	0.05	0.05	0.02	NC2032
Alloy steel		0.001 ~ 0.006	0.002 ~ 0.010	0.15	0.1	0.05	0.05	0.03	0.02	NC2032, NC2035
M Stainless steel		0.001 ~ 0.006	0.002 ~ 0.010	0.1	0.05	0.05	0.03	0.03	0.02	NC2032
K Cast Iron		0.001 ~ 0.006	0.002 ~ 0.010	0.15	0.1	0.05	0.05	0.03	0.02	NC2032
N Non-ferrous metal		0.001 ~ 0.012	0.002 ~ 0.020	0.2	0.1	0.1	0.05	0.05	0.02	XP9001
H Hardened steel < HRC50		0.001 ~ 0.005	0.002 ~ 0.006	0.1	0.05	0.03	0.03	0.02	0.01	NC2035

► 45° Engraving - X060A45W020R / X060A45R020

(Tmax. : 0.8mm)

Workpiece Material	S (r.p.m)	f (mm/rev.)		Depth of cut (mm)						Grade of Insert
		Radius Angled	Radius	1st	2nd	3rd	4th	5th ~	Finishing	
P Carbon steel	8000 ~ 40000	0.002 ~ 0.012	0.002 ~ 0.015	0.25	0.15	0.1	0.05	0.05	0.03	NC2032
Alloy steel		0.002 ~ 0.010	0.002 ~ 0.010	0.2	0.1	0.05	0.05	0.05	0.03	NC2032, NC2035
M Stainless steel		0.002 ~ 0.008	0.002 ~ 0.010	0.2	0.1	0.05	0.05	0.05	0.03	NC2032
K Cast Iron		0.002 ~ 0.010	0.002 ~ 0.010	0.2	0.1	0.1	0.05	0.05	0.03	NC2032
N Non-ferrous metal		0.002 ~ 0.015	0.002 ~ 0.020	0.3	0.2	0.1	0.1	0.05	0.03	XP9001
H Hardened steel < HRC50		0.002 ~ 0.006	0.002 ~ 0.006	0.15	0.1	0.05	0.05	0.03	0.02	NC2035

► 60° Engraving - X060A60W020R / X060A60R020

(Tmax. : 1.0mm)

Workpiece Material	S (r.p.m)	f (mm/rev.)		Depth of cut (mm)						Grade of Insert
		Radius Angled	Radius	1st	2nd	3rd	4th	5th ~	Finishing	
P Carbon steel	8000 ~ 40000	0.002 ~ 0.012	0.002 ~ 0.015	0.3	0.2	0.1	0.1	0.05	0.03	NC2032
Alloy steel		0.002 ~ 0.010	0.002 ~ 0.010	0.3	0.1	0.1	0.05	0.05	0.03	NC2032, NC2035
M Stainless steel		0.002 ~ 0.008	0.002 ~ 0.010	0.2	0.1	0.1	0.05	0.05	0.03	NC2032
K Cast Iron		0.002 ~ 0.010	0.002 ~ 0.010	0.3	0.1	0.1	0.05	0.05	0.03	NC2032
N Non-ferrous metal		0.002 ~ 0.015	0.002 ~ 0.020	0.3	0.2	0.1	0.1	0.05	0.03	XP9001
H Hardened steel < HRC50		0.002 ~ 0.006	0.002 ~ 0.006	0.2	0.1	0.05	0.05	0.03	0.02	NC2035

► 90° Engraving - X060A90W020R

(Tmax. : 1.0mm)

Workpiece Material	S (r.p.m)	f (mm/rev.)	Depth of cut (mm)						Grade of Insert
			1st	2nd	3rd	4th	5th ~	Finishing	
P Carbon steel	8000 ~ 40000	0.002 ~ 0.015	0.3	0.2	0.1	0.1	0.05	0.03	NC2032
Alloy steel		0.002 ~ 0.010	0.3	0.1	0.1	0.05	0.05	0.03	NC2032, NC2035
M Stainless steel		0.002 ~ 0.010	0.2	0.1	0.1	0.05	0.05	0.03	NC2032
K Cast Iron		0.002 ~ 0.010	0.3	0.1	0.1	0.05	0.05	0.03	NC2032
N Non-ferrous metal		0.002 ~ 0.020	0.4	0.3	0.2	0.1	0.05	0.03	XP9001
H Hardened steel < HRC50		0.002 ~ 0.006	0.2	0.1	0.05	0.05	0.03	0.02	NC2035

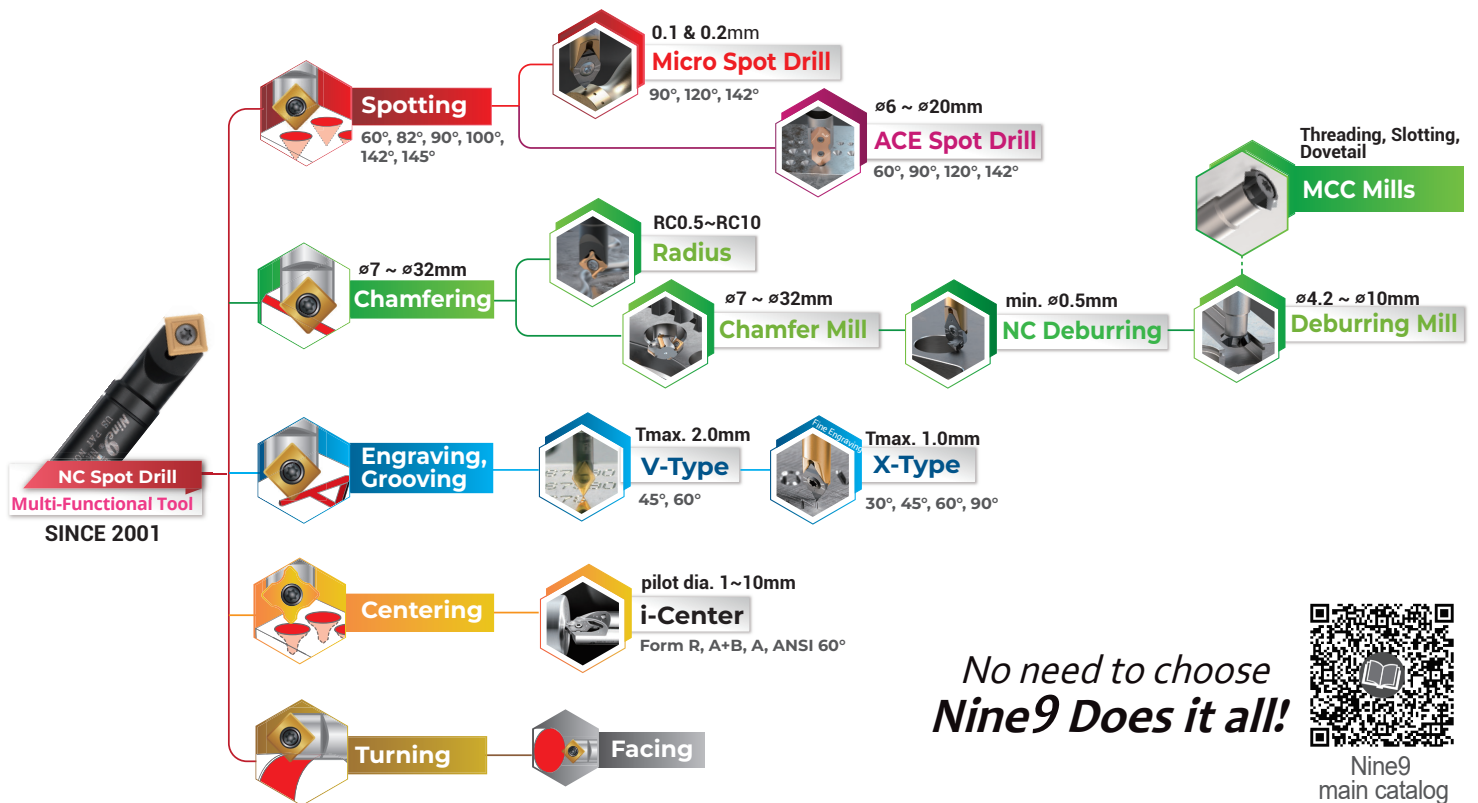
Cutting Data

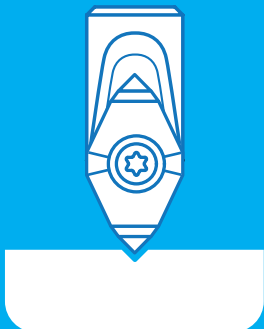
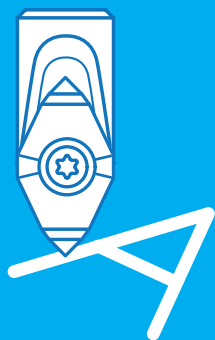
► Micro Spotting - X060A90W010R / X060A90W020R / X060A120W010R / X060A142W010R

Workpiece Material	S (r.p.m.)	f (mm/rev.)			Grade of Insert
		X060A90W010R	X060A90W020R	X060A120W010R X060A142W010R	
P Carbon steel	8000 ~ 40000	0.002 ~ 0.012	0.002 ~ 0.015	0.002 ~ 0.015	NC2032
P Alloy steel		0.002 ~ 0.010	0.002 ~ 0.010	0.002 ~ 0.010	NC2032, NC2035
M Stainless steel		0.002 ~ 0.008	0.002 ~ 0.010	0.002 ~ 0.010	NC2032
K Cast Iron		0.002 ~ 0.010	0.002 ~ 0.010	0.002 ~ 0.010	NC2032
N Non-ferrous metal		0.002 ~ 0.015	0.002 ~ 0.020	-	XP9001
H Hardened steel < HRC50		0.002 ~ 0.006	0.002 ~ 0.006	-	NC2035

► Deburring - X060A60T3 / X060A60T6

Workpiece Material	S (r.p.m.)	Feed Rate (mm / tooth)	Grade of Insert
P Carbon steel	8000~40000	0.005-0.05	NC2032
P Alloy steel	6000~35000	0.005-0.04	
M Stainless steel	6000~25000	0.005-0.03	
K Cast Iron	6000~35000	0.005-0.03	
N Non-ferrous metal	8000~40000	0.005-0.05	XP9001





X060 One Tool, Infinite Possibilities



Always Better
JIMMORE
International Corp.

