Nine9®

Accuracy
Coolant
Efficiency

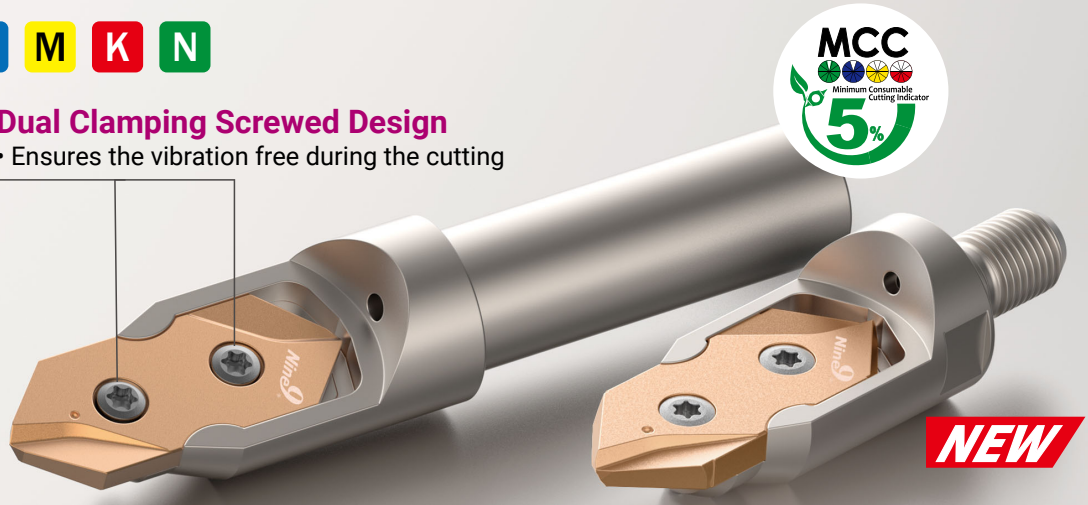
ACE Spot Drill >>>

Spotting Concept!

Spotting produces a shallow hole to get better hole position enabling to produce more accurate final product. Ideally, the proper spotting angle should have larger point angle than that of your drill, so the center of a drill shall be the first point to contact workpiece to avoid the drill walked or moved in starting drilling.

P M K N

MCC Minimum Consumable Cutting Indicator 5%



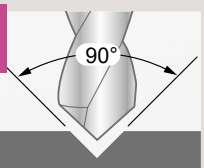
Dual Clamping Screwed Design

- Ensures the vibration free during the cutting

Features >>>

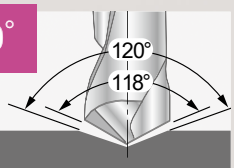
3 Angles : 90° / 120° / 142°

90°



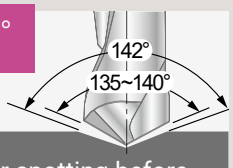
- For 90° point angle drill.

120°



- For spotting before drilling by 118° point angle drill.

142°



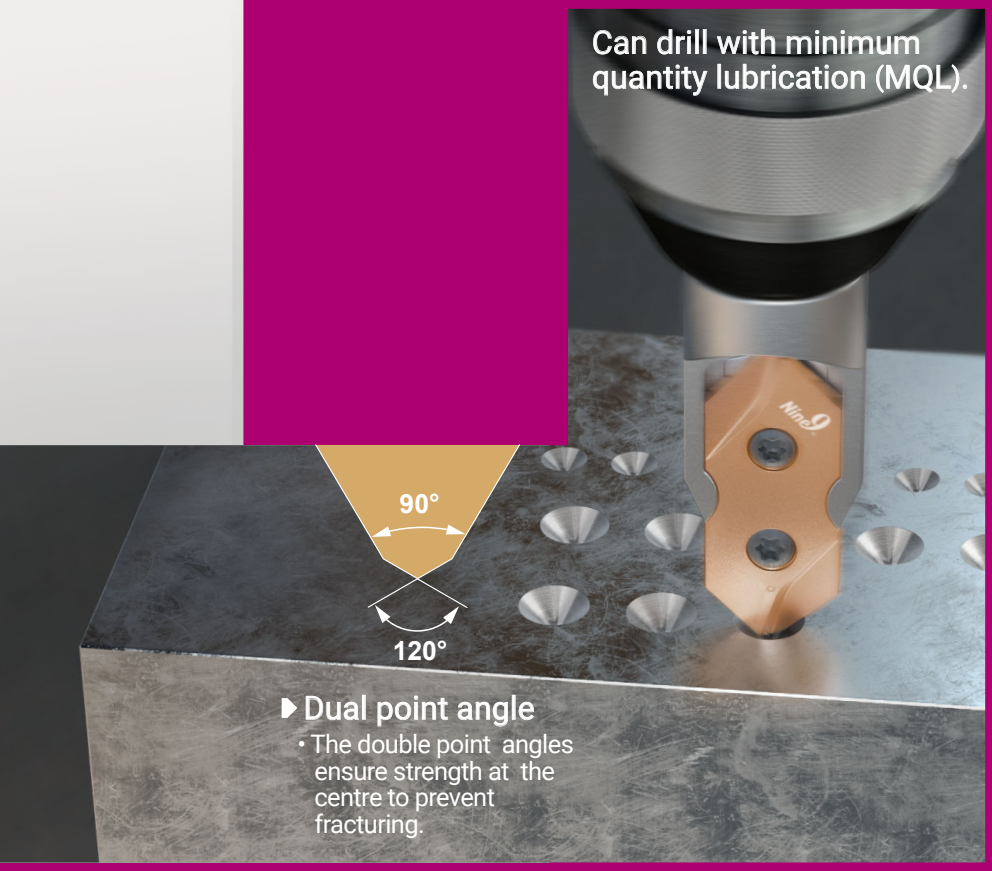
- For spotting before drilling by 135°~140° point angle high performance drill.

Excellent Repeatability. No Need Tool Length Re-setting By Insert Type.

High Rigidity, High Performance Cutting, Ultra-long Tool Life.

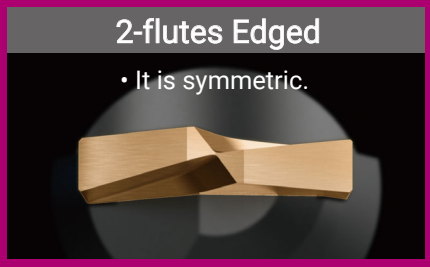
- Symmetric 2-flute edge design reducing the lateral force, it enhances ACE Spot drill rigidity enabling to run high feed rate.
- Double point angle makes the insert tip stronger to prolong service life, which results in lower production cost.

Applications



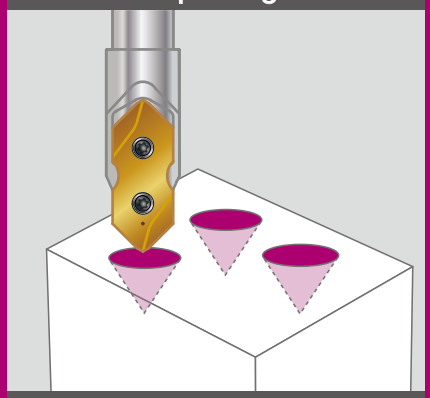
Internal Coolant

2-flutes Edged

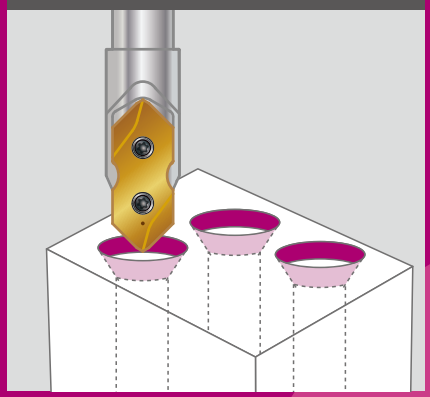


> "Nine9 spotting tool improves hole position, increases drill feed rate, extends tool life, enhances production efficiency, and ensures uniform hole quality."

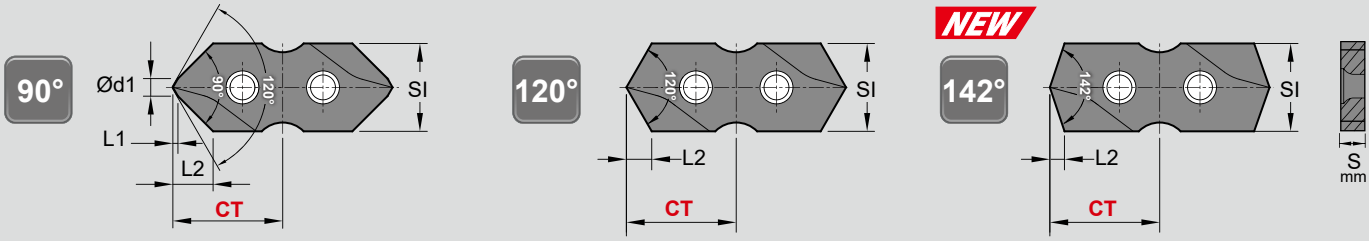
Spotting



Countersink



ACE Spot Drill spotting and countersink

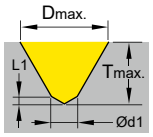


Inserts >>

NC2057: • Universal grade for alloy steel and cast iron.
• Each insert has 2 cutting edges.

NC5254: • For stainless steel.
• Each insert has 2 cutting edges.

XP9000: • High positive geometry and sharp edge produces excellent surface finish.
• For non-ferrous material such as aluminum, titanium, brass, copper and long cutting chip metal.
• Each insert has 2 cutting edges.



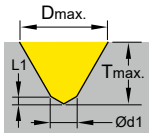
Sl	Angle ±0.5	Code	Parts No.		Coating	Grade	Dimensions Ød1	Dimensions L1	Dimensions L2	Dmax.	Tmax.	S	CT ±0.025
06	90°	06A031	S9MT06T1-090	NC2057	AlTiN+TiSiN	P35	1.2	0.35	2.75	5.5	2.5	1.8	7.5
		06A033		NC5254	Helica								
		06A032		XP9000	Uncoated								
	120°	06A041	S9MT06T1-120	NC2057	AlTiN+TiSiN		-	-	1.73	5.5	1.6		
		06A043		NC5254	Helica								
		06A042		XP9000	Uncoated								
	142°	06A051	S9MT06T1-142	NC2057	AlTiN+TiSiN		-	-	1.03	5.5	0.95		7.0
		06A053		NC5254	Helica								
		06A052		XP9000	Uncoated								
08	90°	06A131	S9MT0802-090	NC2057	AlTiN+TiSiN		1.6	0.46	3.6	7.5	3.4	2.4	10
		06A135		NC5254	Helica								
		06A132		XP9000	Uncoated								
	120°	06A141	S9MT0802-120	NC2057	AlTiN+TiSiN		-	-	2.3	7.5	2.2		
		06A143		NC5254	Helica								
		06A142		XP9000	Uncoated								
	142°	06A151	S9MT0802-142	NC2057	AlTiN+TiSiN		-	-	1.38	7.5	1.29		9
		06A153		NC5254	Helica								
		06A152		XP9000	Uncoated								
10	90°	06A231	S9MT1003-090	NC2057	AlTiN+TiSiN	P35	2	0.58	4.6	9.5	4.4	3.0	12.50
		06A233		NC5254	Helica								
		06A232		XP9000	Uncoated								
	120°	06A241	S9MT1003-120	NC2057	AlTiN+TiSiN		-	-	2.9	9.5	2.7		
		06A243		NC5254	Helica								
		06A242		XP9000	Uncoated								
	142°	06A251	S9MT1003-142	NC2057	AlTiN+TiSiN		-	-	1.72	9.5	1.64		11.50
		06A253		NC5254	Helica								
		06A252		XP9000	Uncoated								
12	90°	06A331	S9MT1203-090	NC2057	AlTiN+TiSiN		2.4	0.69	5.5	11.5	5.3	3.0	15
		06A333		NC5254	Helica								
		06A332		XP9000	Uncoated								
	120°	06A341	S9MT1203-120	NC2057	AlTiN+TiSiN		-	-	3.5	11.5	3.3		
		06A343		NC5254	Helica								
		06A342		XP9000	Uncoated								
	142°	06A351	S9MT1203-142	NC2057	AlTiN+TiSiN		-	-	2.07	11.5	1.98		13.5
		06A353		NC5254	Helica								
		06A352		XP9000	Uncoated								

*** 60° spotting inserts are available on request.**

The quantity of insert per box.:

Sl 06	Sl 08	Sl 10	Sl 12	Sl 16	Sl 20
5 pcs	5 pcs	5 pcs	5 pcs	2 pcs	1 pcs

ACE Spot Drill spotting and countersink



Inserts >>

SI	Angle ±0.5	Code	Parts No.	Coating	Grade	Dimensions Ød1	Dimensions L1	Dimensions L2	Dmax.	Tmax.	S	CT ±0.025
16	90°	06A431	S9MT1603-090 NC2057	AlTiN+TiSiN	P35	3.2	0.92	7.3	15.5	7.0	3.18	20
		06A433	S9MT1603-090 NC5254	Helica								
		06A432	S9MT1603-090 XP9000	Uncoated								
	120°	06A441	S9MT1603-120 NC2057	AlTiN+TiSiN		-	-	4.6	15.5	4.4		
		06A443	S9MT1603-120 NC5254	Helica								
		06A442	S9MT1603-120 XP9000	Uncoated								
	142°	06A451	S9MT1603-142 NC2057	AlTiN+TiSiN		-	-	2.76	15.5	2.67		18
		06A453	S9MT1603-142 NC5254	Helica								
		06A452	S9MT1603-142 XP9000	Uncoated								
20	90°	06A531	S9MT2004-090 NC2057	AlTiN+TiSiN	P35	4.0	1.16	9.2	19.5	8.9	4.76	25
		06A533	S9MT2004-090 NC5254	Helica								
		06A532	S9MT2004-090 XP9000	Uncoated								
	120°	06A541	S9MT2004-120 NC2057	AlTiN+TiSiN		-	-	5.8	19.5	5.6		
		06A543	S9MT2004-120 NC5254	Helica								
		06A542	S9MT2004-120 XP9000	Uncoated								
	142°	06A551	S9MT2004-142 NC2057	AlTiN+TiSiN		-	-	3.44	19.5	3.36		22
		06A553	S9MT2004-142 NC5254	Helica								
		06A552	S9MT2004-142 XP9000	Uncoated								

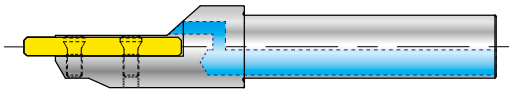
*** 60° spotting inserts are available on request.**

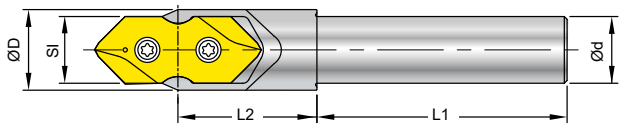
The quantity of insert per box.:

SI 06	SI 08	SI 10	SI 12	SI 16	SI 20
5 pcs	5 pcs	5 pcs	5 pcs	2 pcs	1 pcs

Cylindrical Shank >>

- Made of hardened high alloy steel, 53 HRC.
- Internal coolant.



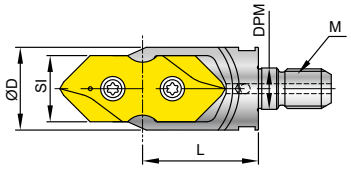


SI	Code	Parts No.	Ød	L1	L2	ØD	Screw	Key
06	6A0001	00-99688-SI06-06	6	27	14	8	*NS-18037 / 0.6Nm	NK-T6
08	6A0101	00-99688-SI08-08	8	36	19	10.5	*NS-20045 / 0.6Nm	NK-T6
10	6A0201	00-99688-SI10-10	10	40	22.5	13	*NS-25060 / 0.9Nm	NK-T7
12	6A0301	00-99688-SI12-12	12	45	25	15.5	NS-30072 / 2.0Nm	NK-T9
16	6A0401	00-99688-SI16-16	16	48	32	21	NS-35080 / 2.5Nm	NK-T15
20	6A0501	00-99688-SI20-20	20	50	35	26	NS-50125 / 5.5Nm	NK-T20

*Torque screwdriver is recommended.

Screw Fit Cutter >> NEW

- Made of hardened high alloy steel, 53 HRC.
- Internal coolant.



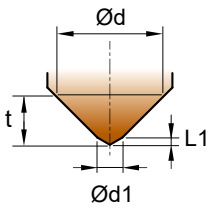
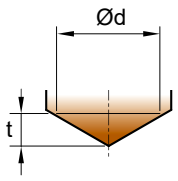
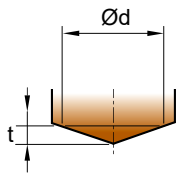
SI	Code	Parts No.	ØD	L	M	DPM	Screw	Key
06	6A2001	00-99688-SI06-M04	8	14.5	M4xP0.7	4.5	*NS-18037 / 0.6Nm	NK-T6
08	6A2101	00-99688-SI08-M05	10	19	M5xP0.8	5.5	*NS-20045 / 0.6Nm	NK-T6
10	6A2201	00-99688-SI10-M06	12	22	M6xP1.0	6.5	*NS-25060 / 0.9Nm	NK-T7
12	6A2301	00-99688-SI12-M08	16	25	M8xP1.25	8.5	NS-30072 / 2.0Nm	NK-T9
16	6A2401	00-99688-SI16-M10	20	31	M10xP1.5	10.5	NS-35080 / 2.5Nm	NK-T15
20	6A2501	00-99688-SI20-M12	25	35	M12xP1.75	12.5	NS-50125 / 5.5Nm	NK-T20

• Refer to Page 9-156 for extension bars.

*Torque screwdriver is recommended.

Technical Guide

From spot diameter "d" to get spotting depth "t".

90°	120°	142°
		
t = (Ød-Ød1) X 0.5 + L1	t = 0.289 X Ød	t = 0.172 X Ød

Metric		Inch	
$S = \frac{Vc \times 1000}{\pi \times d}$	d = diameter -mm	$S = \frac{(3.82 \times SFM)}{d}$	d = diameter-inch
	S = Spindle Speed -r.p.m.		S = Spindle Speed-r.p.m.
	Vc = Cutting Speed -m/min.	SFM = Vc x 3.28	SFM = Surface Speed-ft./min.
F = S x f	f = mm/rev.	F = r.p.m. x IPR	f = IPR = inch/rev.
	F = mm/min.		F = inch/min.

STEP files

or Search on internet.

Download Nine9

Cutting Data

SI06- S9MT06T1

	Workpiece Material	Vc (m/min)	f (mm/rev.)			Grade of insert
			90°	120°	142°	
P	Carbon steel C<0.3%	120 ~ 250	0.02 ~ 0.08	0.02 ~ 0.10	0.02 ~ 0.10	NC2057
P	Carbon steel C>0.3%	100 ~ 220				
P	Low alloy steel C<0.3%	100 ~ 200	0.02 ~ 0.07	0.02 ~ 0.08	0.02 ~ 0.08	
P	High alloy steel C>0.3%	80 ~ 180	0.02 ~ 0.06	0.02 ~ 0.07	0.02 ~ 0.07	
M	Stainless Steel	30 ~ 80	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.03	NC5254
K	Casting Iron	80 ~ 180	0.02 ~ 0.08	0.02 ~ 0.10	0.02 ~ 0.10	NC2057
N	Al, and non-ferrous metal	150 ~ 300	0.03 ~ 0.10	0.03 ~ 0.12	0.03 ~ 0.12	XP9000

SI08 - S9MT0802

	Workpiece Material	Vc (m/min)	f (mm/rev.)			Grade of insert
			90°	120°	142°	
P	Carbon steel C<0.3%	120 ~ 250	0.03 ~ 0.10	0.03 ~ 0.12	0.03 ~ 0.12	NC2057
P	Carbon steel C>0.3%	100 ~ 220				
P	Low alloy steel C<0.3%	100 ~ 200	0.03 ~ 0.08	0.03 ~ 0.10	0.03 ~ 0.10	
P	High alloy steel C>0.3%	80 ~ 180	0.03 ~ 0.07	0.03 ~ 0.08	0.03 ~ 0.08	
M	Stainless Steel	30 ~ 80	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	NC5254
K	Casting Iron	80 ~ 180	0.03 ~ 0.10	0.03 ~ 0.12	0.03 ~ 0.12	NC2057
N	Al, and non-ferrous metal	150 ~ 300	0.03 ~ 0.12	0.03 ~ 0.15	0.03 ~ 0.15	XP9000

Cutting Data

SI10 - S9MT1003

	Workpiece Material	Vc (m/min)	f (mm/rev.)			Grade of insert
			90°	120°	142°	
P	Carbon steel C<0.3%	120 ~ 250	0.04 ~ 0.15	0.05 ~ 0.20	0.05 ~ 0.20	NC2057
P	Carbon steel C>0.3%	100 ~ 220				
P	Low alloy steel C<0.3%	100 ~ 200	0.03 ~ 0.12	0.05 ~ 0.15	0.05 ~ 0.15	
P	High alloy steel C>0.3%	80 ~ 180	0.03 ~ 0.10	0.04 ~ 0.12	0.04 ~ 0.12	
M	Stainless Steel	30 ~ 80	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	NC5254
K	Casting Iron	80 ~ 180	0.03 ~ 0.12	0.05 ~ 0.15	0.05 ~ 0.15	NC2057
N	Al, and non-ferrous metal	150 ~ 300	0.04 ~ 0.20	0.05 ~ 0.25	0.05 ~ 0.25	XP9000

SI12 - S9MT1203

	Workpiece Material	Vc (m/min)	f (mm/rev.)			Grade of insert
			90°	120°	142°	
P	Carbon steel C<0.3%	120 ~ 250	0.05 ~ 0.20	0.06 ~ 0.25	0.06 ~ 0.25	NC2057
P	Carbon steel C>0.3%	100 ~ 220				
P	Low alloy steel C<0.3%	100 ~ 200	0.04 ~ 0.15	0.05 ~ 0.20	0.05 ~ 0.20	
P	High alloy steel C>0.3%	80 ~ 180	0.04 ~ 0.12	0.05 ~ 0.16	0.05 ~ 0.16	
M	Stainless Steel	30 ~ 80	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	NC5254
K	Casting Iron	80 ~ 180	0.04 ~ 0.15	0.05 ~ 0.20	0.05 ~ 0.20	NC2057
N	Al, and non-ferrous metal	150 ~ 300	0.05 ~ 0.22	0.06 ~ 0.25	0.06 ~ 0.25	XP9000

SI16 - S9MT1603

	Workpiece Material	Vc (m/min)	f (mm/rev.)			Grade of insert
			90°	120°	142°	
P	Carbon steel C<0.3%	120 ~ 250	0.05 ~ 0.20	0.06 ~ 0.25	0.06 ~ 0.25	NC2057
P	Carbon steel C>0.3%	100 ~ 220				
P	Low alloy steel C<0.3%	100 ~ 200	0.04 ~ 0.15	0.05 ~ 0.20	0.05 ~ 0.20	
P	High alloy steel C>0.3%	80 ~ 180	0.04 ~ 0.12	0.05 ~ 0.16	0.05 ~ 0.16	
M	Stainless Steel	30 ~ 80	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	NC5254
K	Casting Iron	80 ~ 180	0.04 ~ 0.15	0.05 ~ 0.20	0.05 ~ 0.20	NC2057
N	Al, and non-ferrous metal	150 ~ 300	0.05 ~ 0.25	0.06 ~ 0.25	0.06 ~ 0.25	XP9000

SI20 - S9MT2004

	Workpiece Material	Vc (m/min)	f (mm/rev.)			Grade of insert
			90°	120°	142°	
P	Carbon steel C<0.3%	120 ~ 250	0.05 ~ 0.25	0.06 ~ 0.30	0.06 ~ 0.30	NC2057
P	Carbon steel C>0.3%	100 ~ 220				
P	Low alloy steel C<0.3%	100 ~ 200	0.04 ~ 0.20	0.05 ~ 0.25	0.05 ~ 0.25	
P	High alloy steel C>0.3%	80 ~ 180	0.04 ~ 0.15	0.05 ~ 0.20	0.05 ~ 0.20	
M	Stainless Steel	30 ~ 80	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	NC5254
K	Casting Iron	80 ~ 180	0.04 ~ 0.20	0.05 ~ 0.25	0.05 ~ 0.25	NC2057
N	Al, and non-ferrous metal	150 ~ 300	0.05 ~ 0.30	0.06 ~ 0.30	0.06 ~ 0.30	XP9000