



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.



► Dual Clamping Screwed Design

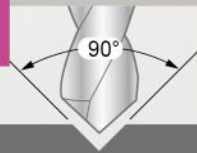
- ensures the vibration free during the cutting



Features >>>

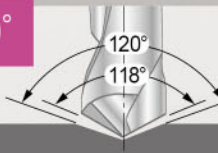
► 4 Angles : 90° / 120° / 142°

90°



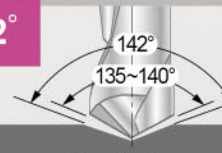
• For 90° point angle drill.

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.

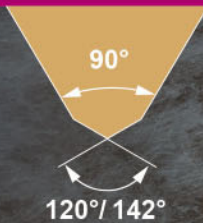
► High Rigidity, Hpc High Performance Cutting, Ultra-long Tool Life.

- 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

Can drill with minimum quantity lubrication (MQL).



► **Dual point angle**
• The double point angles ensure strength at the centre to prevent fracturing.

Internal Coolant

• Optimized coolant design for better balancing.

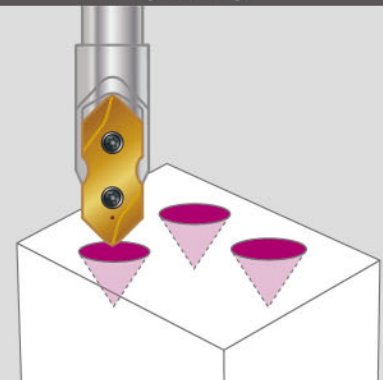


2-flutes edged

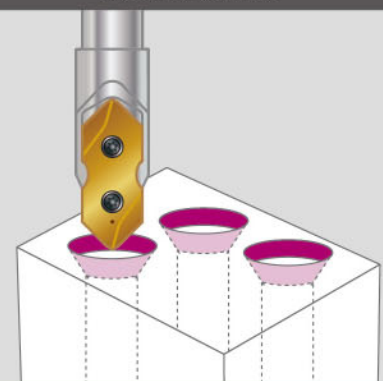
• It is symmetric.



Spotting

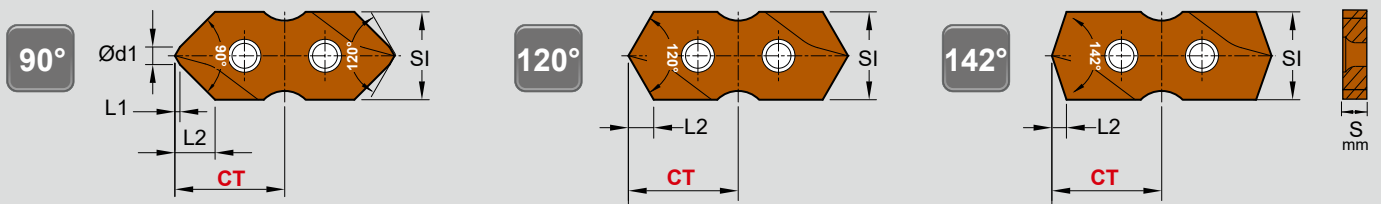


Countersink



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

ACE Spot Drill spotting and countersink

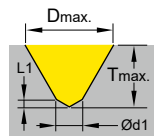


► Inserts >>

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.

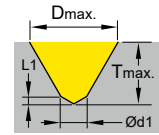


SI	Angle ±0.5	Code	Parts No.	Coating	Grade	Ød1	L1	L2	Dmax.	Tmax.	S	CT ±0.025
06	90°	06A031		NC2057	AL(L)	P35	1.2	0.35	2.75	5.5	2.5	7.5
		06A033	S9MT06T1-090	NC5254	Helica							
		06A032		XP9000	Uncoated							
	120°	06A041		NC2057	AL(L)		-	-	1.73	5.5	1.6	1.8
		06A043	S9MT06T1-120	NC5254	Helica					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

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

ACE Spot Drill spotting and countersink



► Inserts >>

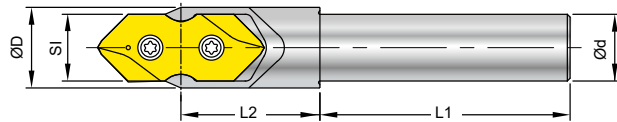
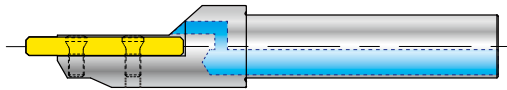
SI	Angle ±0.5	Code	Parts No.	Coating	Grade	Ød1	L1	L2	Dmax.	Tmax.	S	CT ±0.025	
16	90°	06A431	NC2057	AL(L)	P35	3.2	0.92	7.3	15.5	7.0	3.18	20	
		06A43	S9MT1603-090	NC5254									Helica
		06A432		XP9000									Uncoated
	120°	06A441	NC2057	AL(L)		-	-	4.6	15.5	4.4			
		06A443	S9MT1603-120	NC5254		Helica							
		06A442		XP9000		Uncoated							
	142°	06A451	NC2057	AL(L)		-	-	2.76	15.5	2.67			
		06A453	S9MT1603-142	NC5254		Helica							
		06A452		XP9000		Uncoated							
20	90°	06A531	NC2057	AL(L)	P35	4.0	1.16	9.2	19.5	8.9	4.76	25	
		06A533	S9MT2004-090	NC5254									Helica
		06A532		XP9000									Uncoated
	120°	06A541	NC2057	AL(L)		-	-	5.8	19.5	5.6			
		06A543	S9MT2004-120	NC5254		Helica							
		06A542		XP9000		Uncoated							
	142°	06A551	NC2057	AL(L)		-	-	3.44	19.5	3.36			
		06A553	S9MT2004-142	NC5254		Helica							
		06A552		XP9000		Uncoated							

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.

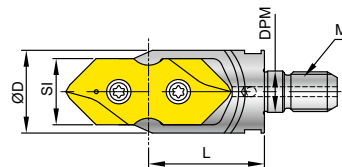


SI	Code	Parts No.	Ød	L1	L2	ØD	Screw	Key
06	6A0001	00-99688-SI06-06	6	27	14	8	*NS-18037 / 0.6Nm	NK-T6
08	6A0101	00-99688-SI08-08	8	36	19	10.5	*NS-20045 / 0.6Nm	NK-T6
10	6A0201	00-99688-SI10-10	10	40	22.5	13	*NS-25060 / 0.9Nm	NK-T7
12	6A0301	00-99688-SI12-12	12	45	25	15.5	NS-30072 / 2.0Nm	NK-T9
16	6A0401	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 >>

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



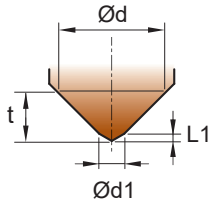
SI	Code	Parts No.	ØD	L	M	DPM	Screw	Key
06	6A2001	00-99688-SI06-M04	8	14.5	M4xP0.7	4.5	*NS-18037 / 0.6Nm	NK-T6
08	6A2101	00-99688-SI08-M05	10	19	M5xP0.8	5.5	*NS-20045 / 0.6Nm	NK-T6
10	6A2201	00-99688-SI10-M06	12	22	M6xP1.0	6.5	*NS-25060 / 0.9Nm	NK-T7
12	6A2301	00-99688-SI12-M08	16	25	M8xP1.25	8.5	NS-30072 / 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

*Torque screwdriver is recommended.

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

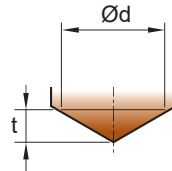
Insert Spec.	S9MT06T1			S9MT0802			S9MT1003			S9MT1203			S9MT1603			S9MT2004		
Angle	90°	120°	142°	90°	120°	142°	90°	120°	142°	90°	120°	142°	90°	120°	142°	90°	120°	142°
Tmax.	2.5	1.6	0.95	3.4	2.2	1.29	4.4	2.7	1.64	5.3	3.3	1.98	7.0	4.4	2.67	8.9	5.6	3.36
Ød1	1.2	-	1.6	-	-	2	-	-	2.4	-	-	3.2	-	-	4.0	-	-	-
L1	0.35	-	0.46	-	-	0.58	-	-	0.69	-	-	0.92	-	-	1.16	-	-	-

90°



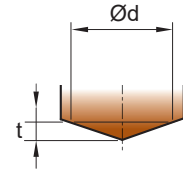
$$t = (\text{Ød} - \text{Ød1}) \times 0.5 + L1$$

120°



$$t = 0.289 \times \text{Ød}$$

142°



$$t = 0.172 \times \text{Ød}$$

Calculate spindle speed and feed rate

Metric	
$S = \frac{Vc \times 1000}{\pi \times d}$	d = diameter -mm
	S = Spindle Speed -r.p.m.
$F = S \times f$	Vc = Cutting Speed -m/min.
	f = mm/rev.
	F = mm/min.

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

STEP files



or Search on internet.



Cutting data

S106 - S9MT06T1		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
	Carbon steel C>0.3%	100 ~ 220				
	Low alloy steel C<0.3%	100 ~ 200				
	High alloy steel C>0.3%	80 ~ 180				
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

S108 - S9MT0802		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
	Carbon steel C>0.3%	100 ~ 220				
	Low alloy steel C<0.3%	100 ~ 200				
	High alloy steel C>0.3%	80 ~ 180				
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

SI10 - S9MT1003		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
	Carbon steel C>0.3%	100 ~ 220				
	Low alloy steel C<0.3%	100 ~ 200				
	High alloy steel C>0.3%	80 ~ 180				
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

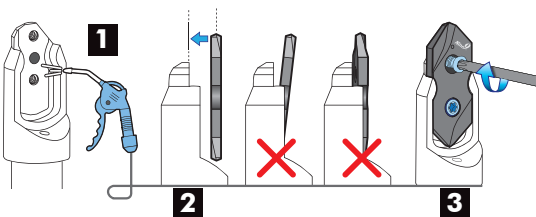
SI12 - S9MT1203		Vc (m/min)	f (mm/rev.)			Grade of insert
			90°	120°	142°	
P	Carbon steel C<0.3%	120 ~ 250	0.05 ~ 0.20	0.06 ~ 0.25	0.06 ~ 0.25	NC2057
	Carbon steel C>0.3%	100 ~ 220				
	Low alloy steel C<0.3%	100 ~ 200				
	High alloy steel C>0.3%	80 ~ 180				
M	Stainless Steel	30 ~ 80	0.01 ~ 0.04	0.01 ~ 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		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
	Carbon steel C>0.3%	100 ~ 220				
	Low alloy steel C<0.3%	100 ~ 200				
	High alloy steel C>0.3%	80 ~ 180				
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		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
	Carbon steel C>0.3%	100 ~ 220				
	Low alloy steel C<0.3%	100 ~ 200				
	High alloy steel C>0.3%	80 ~ 180				
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

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Clamping insert



Loosen insert

