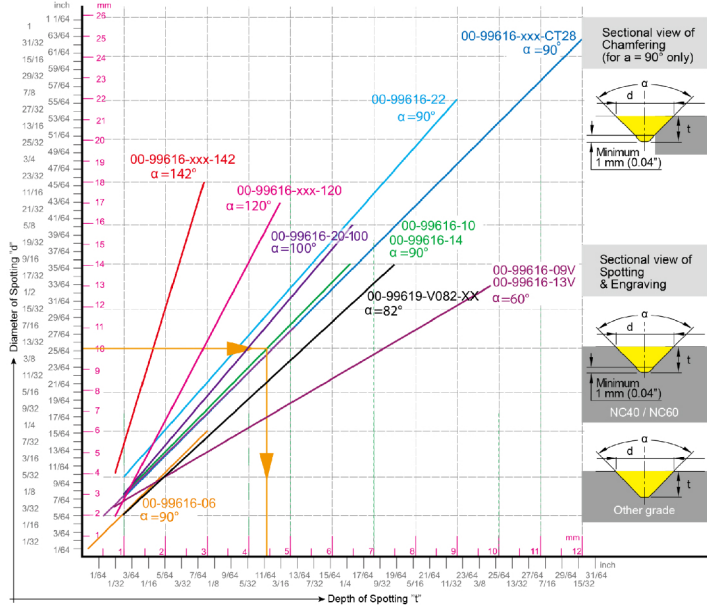


Cutting Data

► Diameter / Depth Chart and Speed / Feed Rate
Calculation of NC Spot Drill



► Instruction of Use >>

- 1. From Spot diameter "d" to get drill depth " t " .
- 2. Point angle "α" is determined by which tool holder you use.
- 3. From "d" draw a horizontal line to get intersection of the line by point angle "α".
- 4. From the intersection draw a vertical line to the bottom to have depth of spotting " t " . " t " is the drill depth of the NC program.
- 5. The sectional view of spotting will depend on the shape of insert, NC40 and other grades of inserts have different sectional view.
- 6. For chamfering, do not use tip of insert, 1mm(0.04") minimum clearance is required for a smooth surface finish.

► Calculate spindle speed and feed rate >>

- 1. Using your "d" value and cutting speed Vc from the data sheet, calculate spindle speed "S"(RPM).
- 2. " F" feed rate per minute F = f x S = RPM x IPR

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

► N9MT-RC Insert >> Corner Rounding

Determine spindle speed and feed:
To decide running speed of the tools and feed rate, please calculate spindle speed and feed rate according to the following formula and cutting data:

$d = 2 \times X$

mm

$S = \frac{Vc \times 1000}{d \times \pi}$

r.p.m.

$F = S \times f$

mm/min.

d = diameter of the tool for calculation purpose

X = tool radius offset (ref. page 1-18-20 for RC inserts)

Vc = Cutting Speed -m/min.

S = Spindle Speed -r.p.m.

F = mm/min.

f = mm/rev.

Calculate tool length offset on machining center

X = tool radius offset (ref. page 1-18-20 for RC inserts)

Y = distance to the center of radius. (ref. page 1-18-20 for RC inserts)

TL' = tool length

TL = tool length offset.

H = tool radius offset

TL = TL' - Y,

H = X

RC Insert	Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
	Carbon steel	150~320	0.05~0.10	NC40, NC2071
	Alloy steel	100~250	0.05~0.10	NC40, NC2071
	High alloy steel	80~150	0.04~0.08	NC40, NC2071
	Stainless steel	65~125	0.05~0.10	NC9036
	Casting iron	150~250	0.05~0.10	NC40, NC2071
	Aluminum, Al-alloy Si < 12%	150~320	0.05~0.10	NC9036
	Al-alloy Si > 12%	100~300	0.05~0.10	NC9036
	Cu	200~250	0.05~0.10	NC9036
	Brass and Bronze	150~250	0.05~0.10	NC9036
	Ti, Ti-alloy	40~80	0.03~0.08	NC9036

► N9MT-R Insert >> Corner Rounding (4 cutting edges)

R Insert	Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
	Carbon steel	150~320	0.05~0.10	NC2071
	Alloy steel	100~250	0.04~0.08	NC2071
	High alloy steel	60~80	0.03~0.06	NC2071
	Casting iron	150~250	0.05~0.10	NC2071