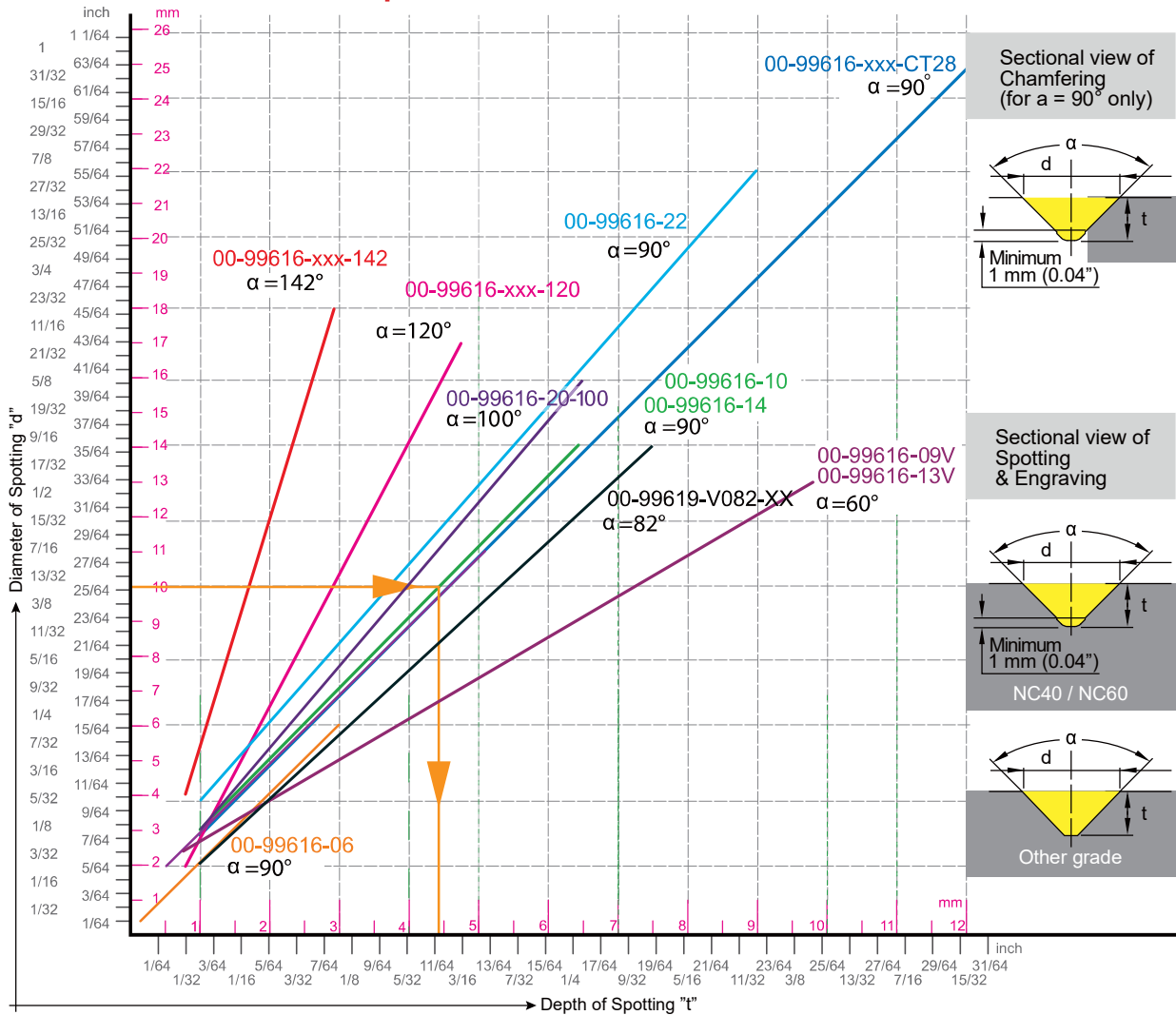


Cutting Data

► 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 $F = f \times S = \text{RPM} \times \text{IPR}$


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

Cutting Data

► N9MT-CT >> Insert Multi-function


Determine spindle speed and feed rate:

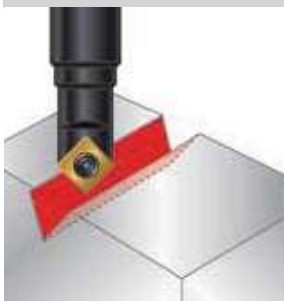
- Choose spotting depth to decide spotting diameter according to the Diameter/Depth chart on page 32.
- The spindle speed should be calculated by the maximum diameter of spotting, chamfering and grooving.

Spotting	Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
	Carbon Steel	150~250	0.05~0.10	NC40, NC2071
	Alloy Steel	100~200	0.04~0.08	NC40, NC2071
	Stainless Steel	65~125	0.03~0.06	NC10, NC60, NC40, NC2071
	Cast iron	80~150	0.05~0.10	NC40, NC10, NC2071
	Non-Ferrous Metal (Al, Cu)	150~300	0.05~0.10	NC10, NC9076, NC2071
	Ti, Ti-alloy	40~80	0.03~0.08	NC9076
	Hardened steel 40~56 HRC	30~60	0.03~0.08	NC60

* For technical construction reasons, the insert is not located on the center of the holder.

* Inserts with supporting edges can increase feed rate 50%.

Chamfering	Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
	Carbon Steel	150~320	0.15~0.24	NC40, NC2071
	Alloy Steel	100~250	0.12~0.20	NC40, NC2071
	Stainless Steel	65~125	0.1~0.20	NC10, NC60, NC40, NC2071
	Cast iron	150~250	0.15~0.25	NC40, NC10, NC2071
	Non-Ferrous Metal (Al, Cu)	150~320	0.15~0.25	NC10, NC9076, NC2071
	Ti, Ti-alloy	40~80	0.03~0.08	NC9076
	Hardened steel 40~56 HRC	30~60	0.03~0.08	NC60

Grooving	Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
	Carbon Steel	150~250	0.05~0.10	NC40, NC2071
	Alloy Steel	100~200	0.04~0.08	NC40, NC2071
	Stainless Steel	65~125	0.03~0.06	NC10, NC60, NC40, NC2071
	Cast iron	80~150	0.05~0.08	NC40, NC10, NC2071
	Non-Ferrous Metal (Al, Cu)	150~320	0.05~0.08	NC10, NC9076, NC2071
	Ti, Ti-alloy	40~80	0.03~0.08	NC9076
	Hardened steel 40~56 HRC	30~60	0.03~0.08	NC60