

Recommended Countersink Speeds and Feeds

MATERIAL	FEED PER TOOTH (FPT)	H.S.S. SPEED (SFM)	CARBIDE SPEED (SFM)
ALUMINUM/ALUMINUM ALLOYS	.001-.002	150-250	300-500
BRASS/BRONZE	.001-.002	75-125	150-250
IRON - CAST (SOFT)	.001-.002	75-125	125-225
IRON - CAST (MEDIUM HARD)	.001-.002	50-100	100-175
IRON - MALLEABLE	.001-.002	80-90	90-150
MAGNESIUM/MAGNESIUM ALLOYS	.001-.002	125-250	250-400
HIGH NICKEL STEEL	.001-.002	30-50	50-75
PLASTIC, BAKELITE	.001-.002	100-250	250-400
STEEL - MILD	.001-.002	70-100	80-170
STEEL - TOOL	.001-.002	50-60	60-100
STEEL - FORGINGS	.001-.002	40-50	50-80
STEEL - ALLOY (300-400 BRINELL)	.001-.002	20-30	30-50
STEEL - HIGH TENSILE (35-45 RC)	.001-.002	25-40	35-60
STEEL - HIGH TENSILE (45-50 RC)	.001-.002	15-25	25-40
STEEL - HIGH TENSILE (50-55 RC)	.001-.002	7-15	15-20
STAINLESS STEEL (FREE MACHINING)	.001-.002	30-80	80-125
STAINLESS STEEL (WORK HARDENING)	.001-.002	15-50	50-75
INCONEL ALLOY, HASTELLOY WROUGHT	.001-.002	15-20	25-35
HASTELLOY (CAST)	.001-.002	5-7	7-15

RPM = SFM x 3.82 ÷ CUTTER O.D.
IPR = FPT x NUMBER OF TEETH
IPM = IPR x RPM

THE ABOVE SURFACE FEET PER MINUTE ARE TO BE USED AS A GUIDE.
 USE OF GOOD QUALITY CUTTING FLUID IS RECOMMENDED.
 FOR ADDITIONAL INFORMATION CALL (416) 661-3066

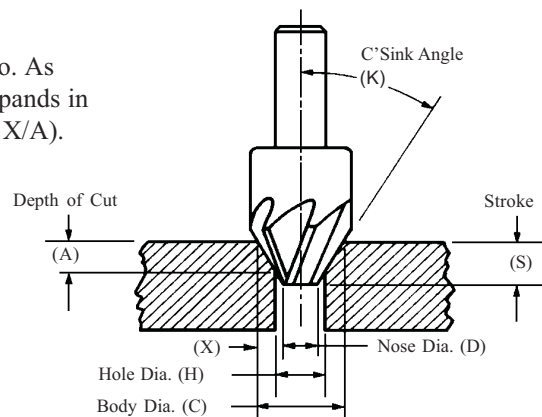
CNC-K™ Precision Countersink Programming/Technical Information

Designed specifically for use in NC, CNC and preset machine tools, these precision countersinks feature Chatterless™ tooth geometry. Tight tolerances on angles, diameters and lengths assure setting accuracy. Available in 30°, 41°, 45°, 50°, 55° and 60° centerline angles. Other angles and sizes available upon request.

Technical and Programming Information

NOTE: For any depth the Countersink diameter expands in a direct ratio. As you travel in the (A) direction along the axis of the Countersink (X) expands in a direct relationship to angle (K) (forming an angle with the tangent of X/A).

Since the angle expands on both sides of the drilled hole; you must use 2 times the tangent of the angle for your ratio (R).



Angle (K)	Ratio (R) = $2 \frac{X}{A}$
30°	1.15
41°	1.74
45°	2.00
50°	2.38
55°	2.86
60°	3.46

Calculations
$C = H + RA$
$A = \frac{C - H}{R}$
$S = \frac{C - D}{R}$
$X = \frac{C - H}{2}$

Angle (K) TANGENT = $\frac{X}{A}$

Example:

.500 hole diameter, countersink to .875 cut diameter with 41° angle (use NCK-1"-41°)

$A = \frac{.875 - .500}{1.74} = .216$ $S = \frac{.875 - .203}{1.74} = .386$