



## Surface Finish

### Carbide and Ceramic Inserts



### Solid and Tipped CBN Inserts



#### Theoretical Surface Finish – $R_a$

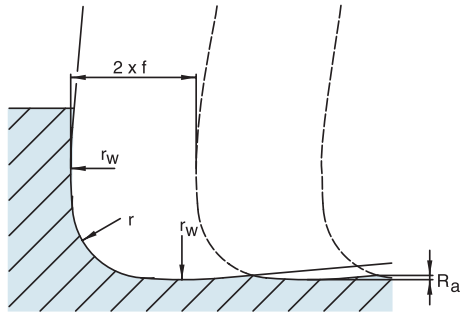
insert	feed rate – ipr (mm/rev)										
	$\mu$ in. ( $\mu$ m)										
FW, MW, & RW IC	.008 (0,2)	.012 (0,3)	.016 (0,4)	.020 (0,5)	.024 (0,6)	.028 (0,7)	.032 (0,8)	.036 (0,9)	.040 (1)	.044 (1,1)	.048 (1,2)
3/8" (9,53 mm)	14 (0,3)	30 (0,75)	50 (1,3)	80 (2)	—	—	—	—	—	—	—
1/2" (12,7 mm)	—	23 (0,6)	41 (1)	63 (1,6)	91 (2,2)	120 (3)	160 (4)	200 (5)	250 (6,2)	—	—
3/4" + 1" (19,05 mm) (25,4 mm)	—	—	—	—	103 (2,6)	141 (3,5)	184 (4,6)	232 (5,8)	287 (7,2)	347 (8,7)	413 (10,3)

#### Theoretical Surface Finish – $R_a$

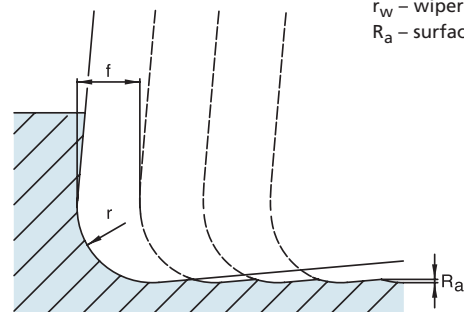
insert	feed rate – ipr (mm/rev)				
	$\mu$ in. ( $\mu$ m)				
Insert Size and Type IC	.004 (0,1)	.006 (0,15)	.008 (0,2)	.012 (0,3)	.016 (0,4)
FW 1/2" (12,7 mm)	3 (0,06)	6 (0,14)	10 (0,26)	23 (0,6)	41 (1,0)
MW 1/2" (12,7 mm)	2 (0,05)	4 (0,11)	7 (0,19)	17 (0,42)	29 (0,75)

## How It Works

### Wiper Insert



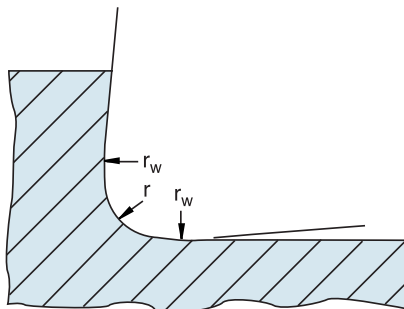
### Standard Insert



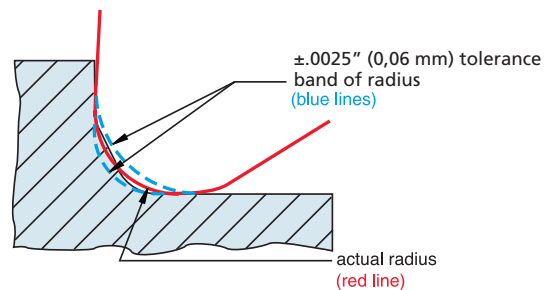
**LEGEND**  
 f – feed  
 r – corner radius  
 $r_w$  – wiper radius  
 $R_a$  – surface finish

## Corner Radius Configuration

CNMG and WNMG wiper inserts create a true corner radius on the workpiece, just as a standard insert does.



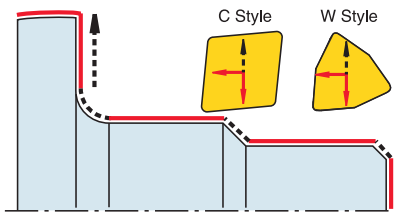
DNMG and TNMG wiper inserts do not provide an exact corner radius on the workpiece. The radius produced falls within a  $\pm 0.0025"$  (0,06 mm) tolerance band. (blue lines)



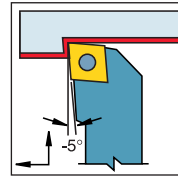


## C- and W-Style Inserts

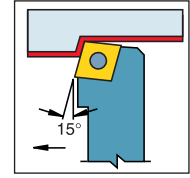
- surface with wiper effect
- - - surface with standard insert edge



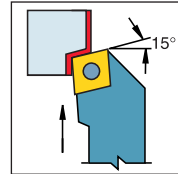
## KENLOC Toolholders



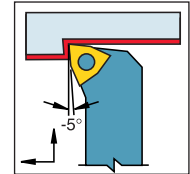
CN . . 80° corner insert  
requires MCLN 5° reverse lead angle  
toolholder



CN . . 100° corner insert  
requires MCRN 15° lead angle  
toolholder



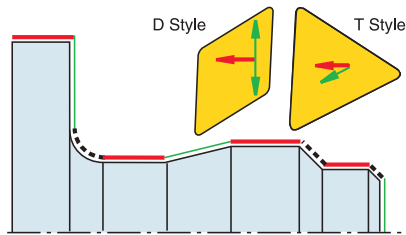
CN . . 100° corner  
insert requires MCKN 15° lead angle  
toolholder



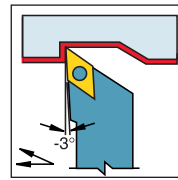
WN . . 80° corner insert  
requires MWLN 5° reverse lead  
angle toolholder

## D- and T-Style Inserts

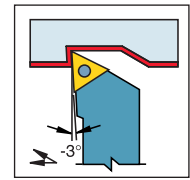
- surface finish with wiper effect
- - - surface with designated insert nose radius
- surface finish with .016" (0,41 mm) radius



## KENLOC Toolholders



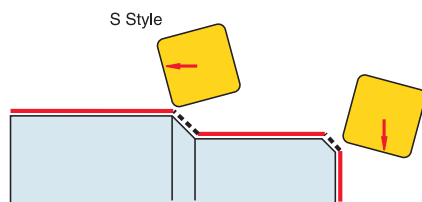
DN . . 55° corner insert  
requires MDJN 3° reverse lead angle  
toolholder



TN . . 60° corner insert  
requires MTJN 3° reverse lead  
angle toolholder

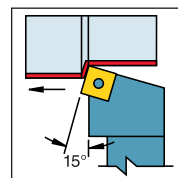
## S-Style Inserts

- surface with wiper effect
- - - surface with standard insert edge

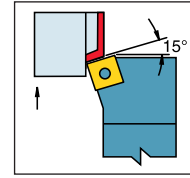


NOTE: The holder guidelines above also apply to ceramic/PCBN wiper inserts in similar insert shapes; i.e.: CNGA, CNGX, DNGA, etc.

## KENLOC Toolholders



SN . . 90° corner insert  
requires MSRN 15° lead angle  
toolholder



SN . . 90° corner insert  
requires MSKN 15° lead angle  
toolholder



## Surface Finish

### Carbide and Ceramic Inserts



### Tipped CBN Inserts



#### Theoretical Surface Finish – $R_a$

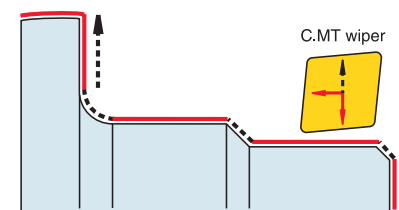
insert	feed rate – ipr (mm/rev)									
	.002 (0,05)	.004 (0,10)	.006 (0,15)	.008 (0,20)	.010 (0,25)	.012 (0,30)	.014 (0,35)	.016 (0,40)	.018 (0,45)	.020 (0,50)
FW, MW IC										
1/4" (6,35 mm)	1 (0,03)	6 (0,15)	14 (0,35)	22 (0,55)	35 (0,90)	49 (1,25)	—	—	—	—
3/8" (9,53 mm)	1 (0,02)	4 (0,10)	8 (0,20)	14 (0,35)	22 (0,55)	30 (0,75)	39 (1,00)	—	—	—
1/2" (12,7 mm)	1 (0,02)	2 (0,06)	6 (0,15)	10 (0,25)	16 (0,40)	24 (0,60)	31 (0,80)	39 (1,00)	51 (1,30)	63 (1,60)

#### Theoretical Surface Finish – $R_a$

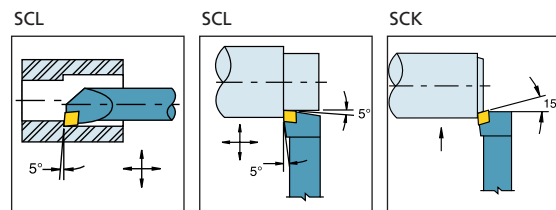
insert	feed rate – ipr (mm/rev)			
	.004 (0,10)	.006 (0,15)	.008 (0,20)	.012 (0,30)
Insert Size and Type IC				
FW 1/4" (6,35 mm)	6 (0,14)	13 (0,32)	22 (0,58)	—
MW 3/8" (9,53 mm)	4 (0,11)	9 (0,24)	17 (0,43)	38 (0,97)

## CCMT and CPMT Inserts

- surface with wiper effect
- - - surface with designated insert nose radius



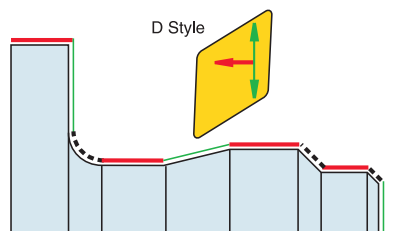
## SCREW-ON Toolholders and Boring Bars



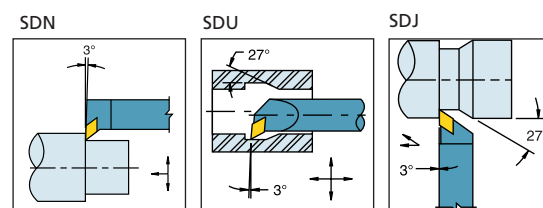
C.MT 80° inserts require 5° reverse lead SCL toolholders. C.MT 100° inserts require 15° lead SCK toolholders.

## DCMT- and DPMT-Style Inserts

- surface finish with wiper effect
- - - surface with designated insert nose radius
- surface finish with .016" (0,41mm) radius



## SCREW-ON Toolholders and Boring Bars



D.MT 55° inserts require a 3° reverse lead angle and can be used in SDN, SDU, and SDJ style toolholders and boring bars.