

C.J. WINTER MACHINE TECHNOLOGIES, INC

THREAD ROLLING SOLUTIONS

A GUIDE TO THREAD ROLLING BASICS AND
THREAD ROLLING STYLES



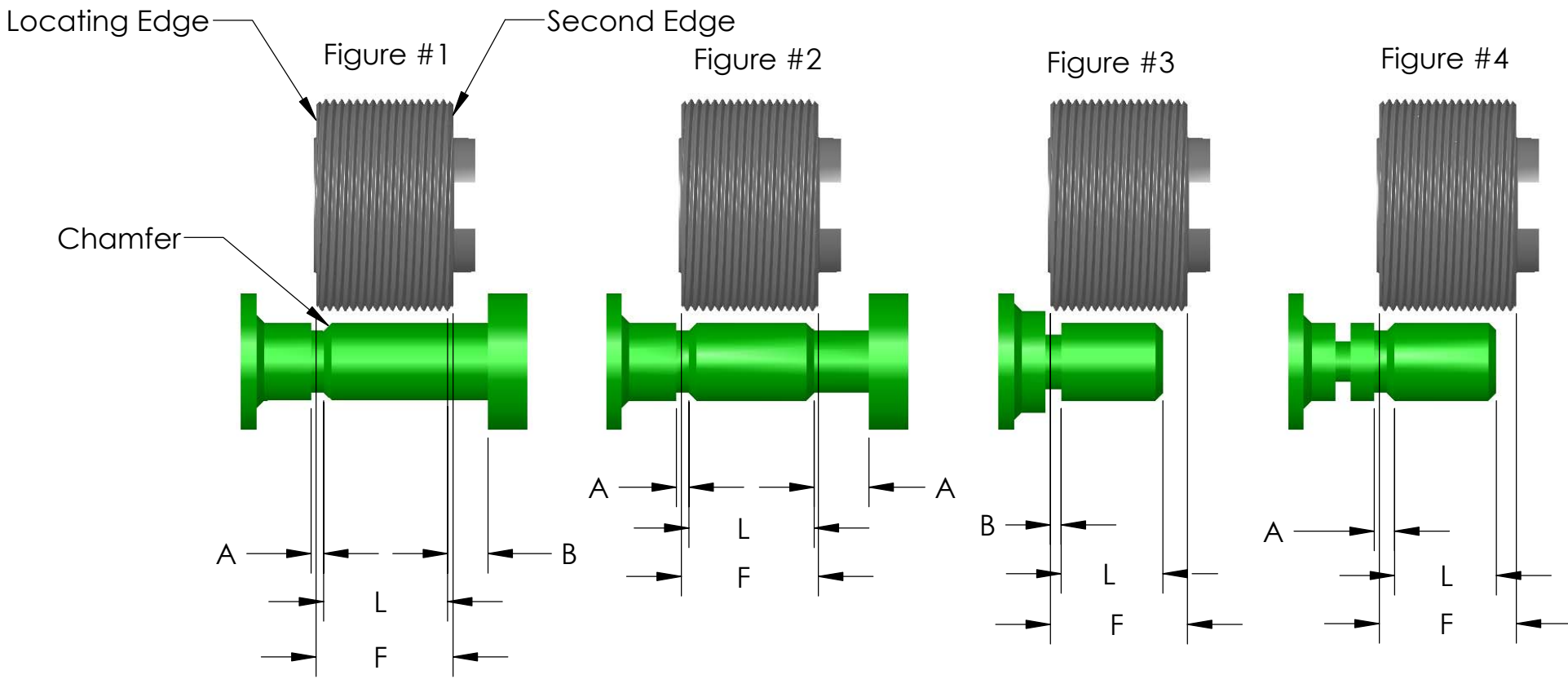
 **DAVENPORT**
MACHINE  **C. J. WINTER**
MACHINE TECHNOLOGIES

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How to Determine the Correct Working Face

Figures 1 through 4 are intended to help you calculate the working face "F" for various thread rolling applications, and how to position the roll properly.

The working face (or "F" dimension) of the thread roll must always be greater than the length of the thread that needs to be rolled. The general rule is to allow the thread to overhang each end of the blank by at least 1 ¼ threads (root to root or crest to crest = 1 thread).



A = Chamfer Side
 B = Shoulder Side
 L = Length of Rolled Thread
 P = Pitch

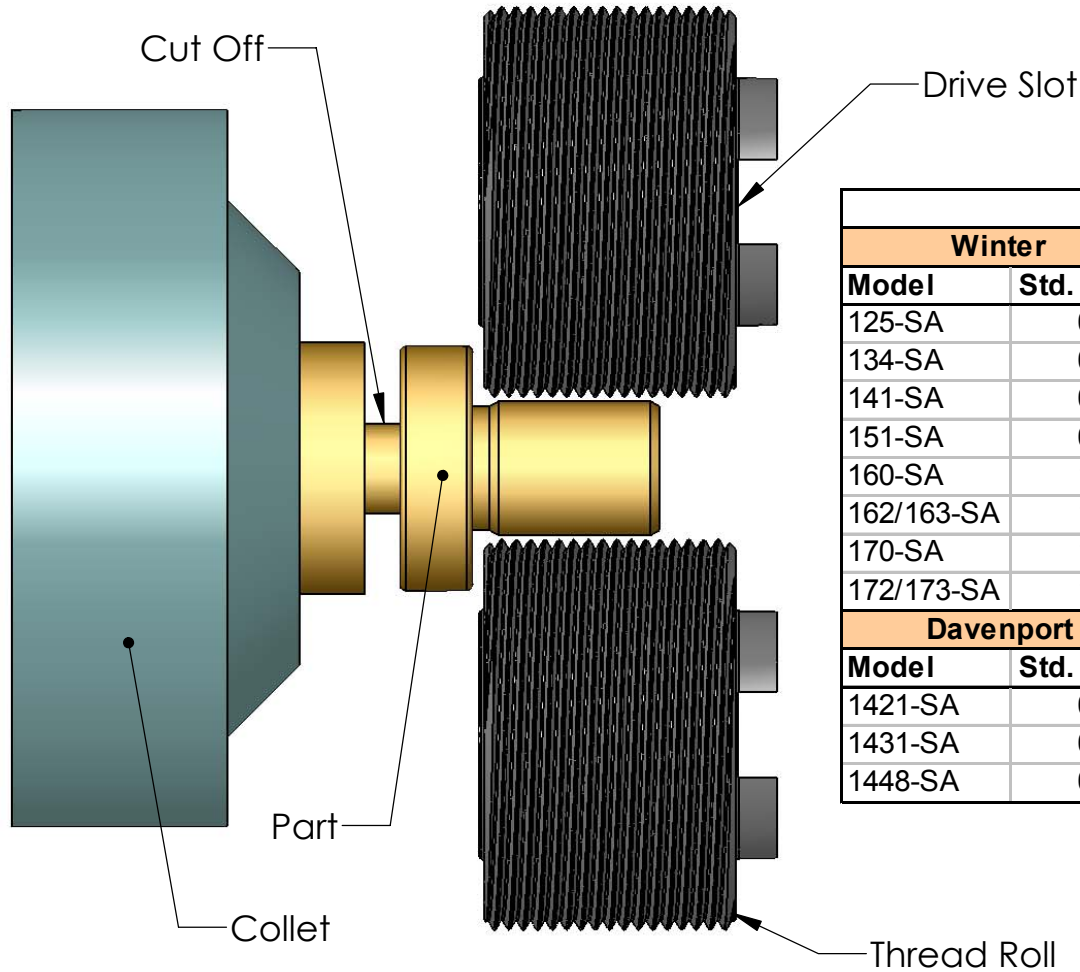
Figure #1 and #3 - $F = (2.25 \times P) + L$
 Figure #2 and #4 - $F = (2.50 \times P) + L$
 $A = 1.50 \times P$
 $B = 1.25 \times P$

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 Working Face Calculation



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TYPE C-1
Rolls for Straight Threads



WC-1 Standard Workface					
Winter		Landis		Detroit	
Model	Std. W.F.	Model	Std. W.F.	Model	Std. W.F.
125-SA	0.552	14GA	0.625	76000 (0-375)	0.468
134-SA	0.625	18GA	0.844	76100 (6-625)	0.625
141-SA	0.875	20GA	1.000	76200 (10-750)	0.812
151-SA	0.875	22GA	1.375	76300 (30-1000)	0.812
160-SA	1.530	24GA	1.500	76400 (25-1125)	1.062
162/163-SA	1.265	Reed			
170-SA	1.530	Model	Std. W.F.		
172/173-SA	1.265	B-5	0.500		
		B-8	0.500	Salvo	
		Model	Std. W.F.	Model	Std. W.F.
		B-10 (500-G2A)	0.625	CBL	0.812
		B-13 (750-G2A)	0.875	BBL	1.062
		B-18 (1000-G2A)	1.125	DBL	1.312
		B-36	1.125		

When to Use WC-1 Style

- 1) Rolling on outboard end of work.
- 2) Standard Working Face is satisfactory for length of thread to be rolled.
- 3) Position of attachment in relation to collet is not important.
- 4) Sufficient clearance is available on either side of working face.

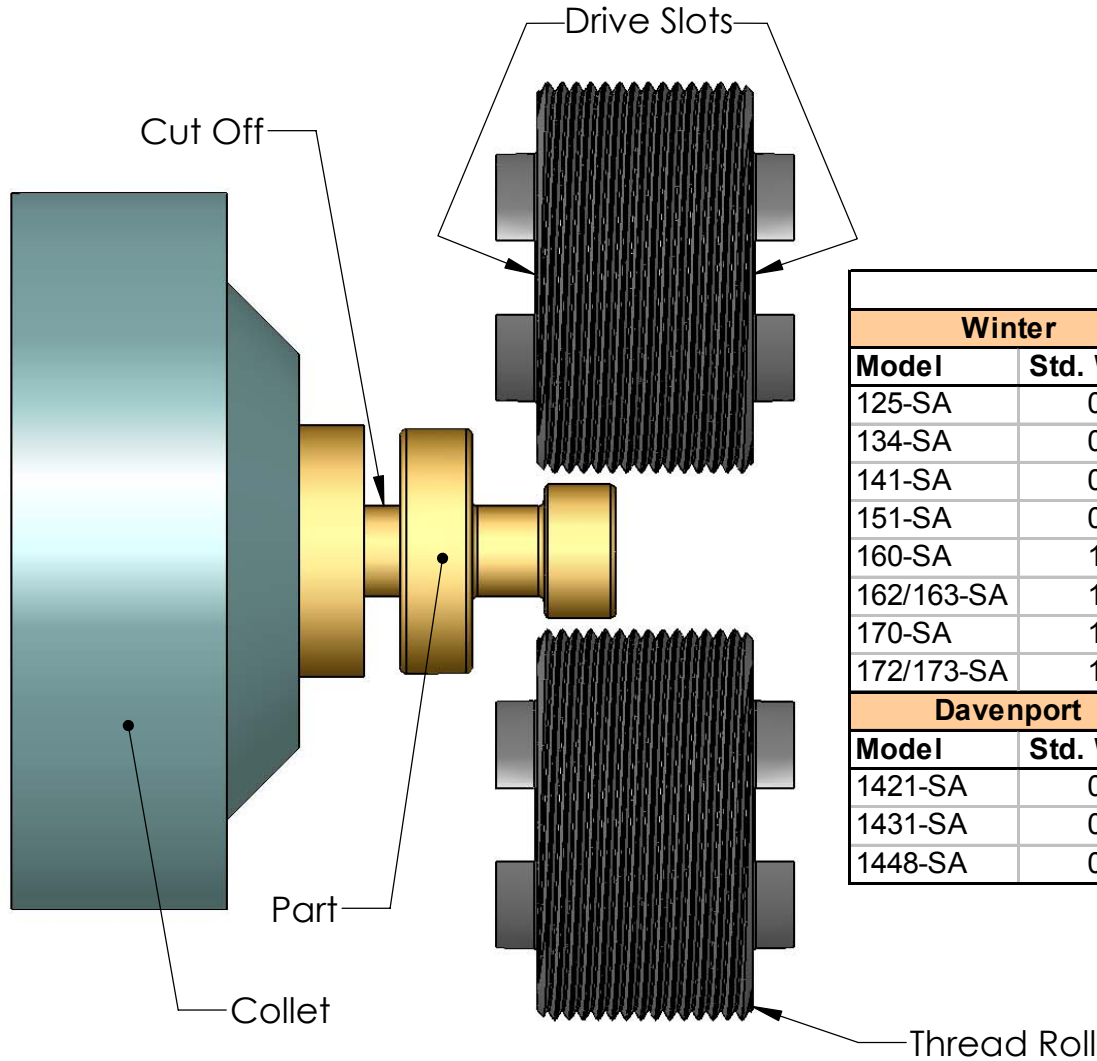
Standard: Working face as listed above

Optional: Special bevels, machined breakouts, bronze bushings, left handed threads, multiple leads.



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TYPE CR-1
Rolls for Straight Threads



WCR-1 Standard Workface					
Winter		Landis		Detroit	
Model	Std. W.F.	Model	Std. W.F.	Model	Std. W.F.
125-SA	0.480	14GA	0.500	76000 (0-375)	0.344
134-SA	0.500	18GA	0.750	76100 (6-625)	0.500
141-SA	0.750	20GA	0.813	76200 (10-750)	0.688
151-SA	0.750	22GA	1.000	76300 (30-1000)	0.688
160-SA	1.417	24GA	1.250	76400 (25-1125)	0.938
162/163-SA	1.135	Reed			
170-SA	1.417	Model	Std. W.F.		
172/173-SA	1.135	B-5	---		
Davenport		B-8	0.437	Salvo	
Model	Std. W.F.	B-10 (500-G2A)	0.500	Model	Std. W.F.
1421-SA	0.500	B-13 (750-G2A)	0.750	CBL	0.750
1431-SA	0.500	B-18 (1000-G2A)	1.000	BBL	0.937
1448-SA	0.500	B-36	1.000	DBL	1.187

When to Use WCR-1 Style

- 1) Length of thread on part to be reversed (doubling) production from each pair of rolls). See instructions on determining correct working face.

Standard: Double drive slots; working face as listed above

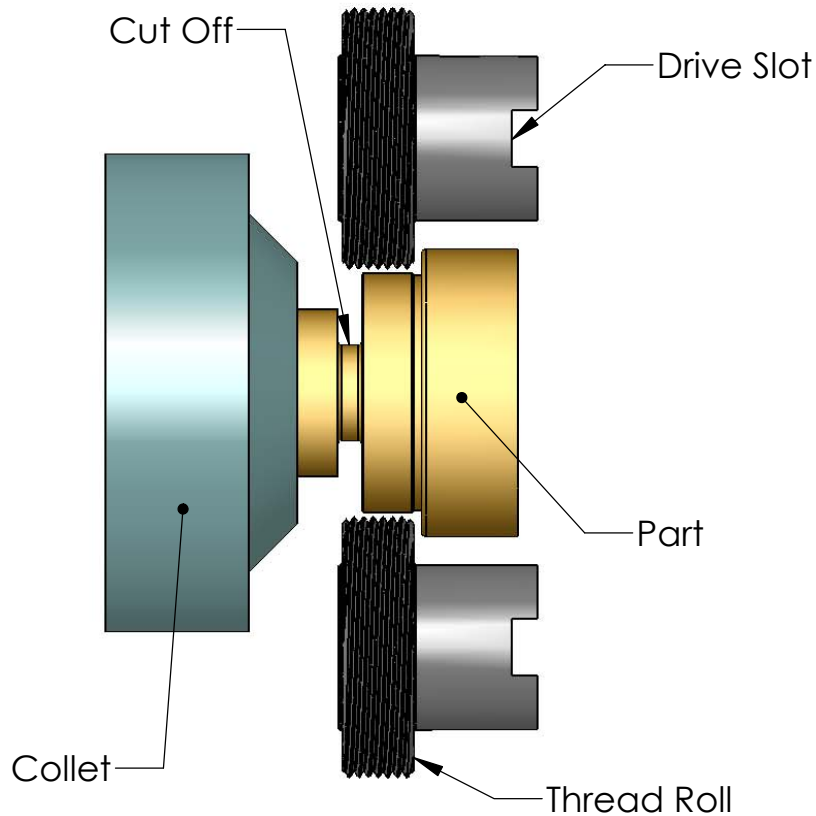
Optional: Special bevels, machined breakouts, bronze bushings, left handed threads, multiple leads.



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TYPE C-2

Rolls for Straight Threads



Working face must be specified when ordering WC-2 Style.

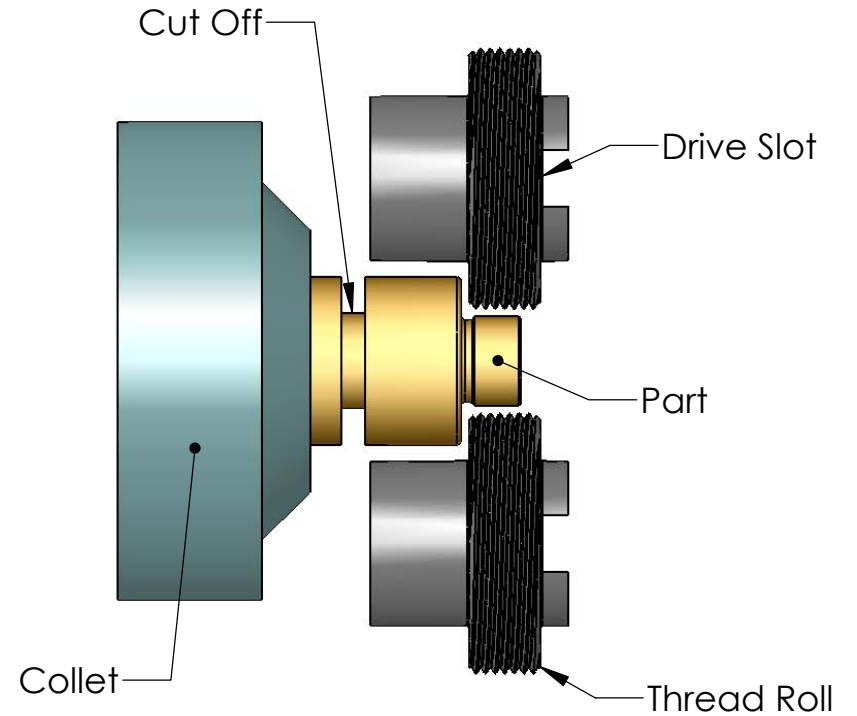
When to Use WC-2 Style

- 1) Rolling threads behind a shoulder at cut-off end.
- 2) Narrow width required due to part configuration.
- 3) Attachment to be positioned as close to collet as possible.

Optional: Special bevels, machined breakouts, bronze bushings, double drive slots, left handed threads, multiple leads.

TYPE C-3

Rolls for Straight Threads



Working face must be specified when ordering WC-3 Style.

When to Use WC-3 Style

- 1) Rolling threads behind a shoulder at cut-off end.
- 2) Narrow width required due to part configuration.
- 3) Attachment to be positioned as close to collet as possible.

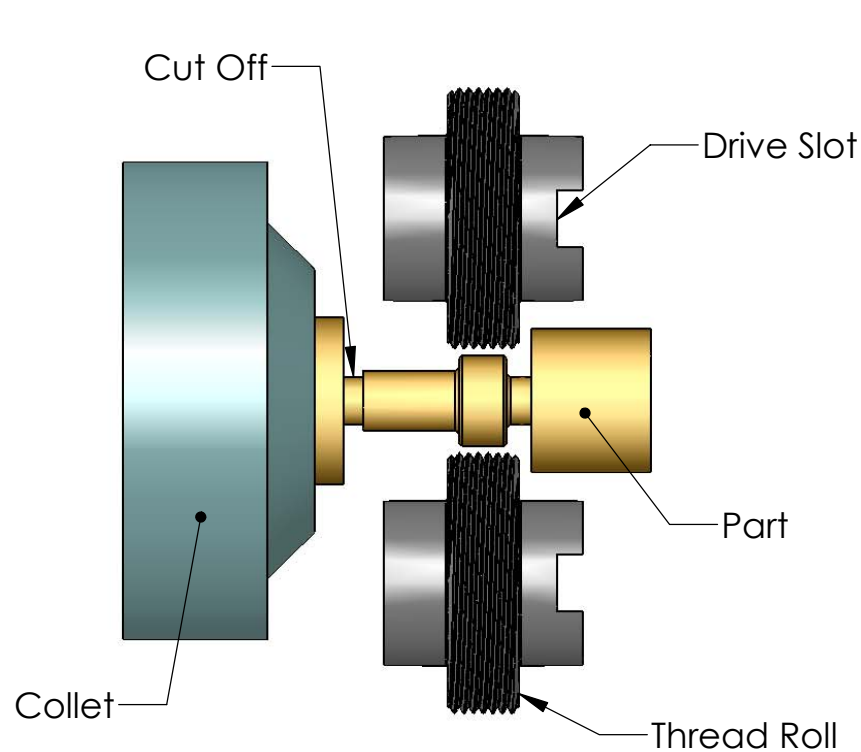
Optional: Special bevels, machined breakouts, bronze bushings, double drive slots, left handed threads, multiple leads.



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TYPE C-4

Rolls for Straight Threads



Working face must be specified when ordering WC-4 Style as well as the length of hub opposite the drive slot.

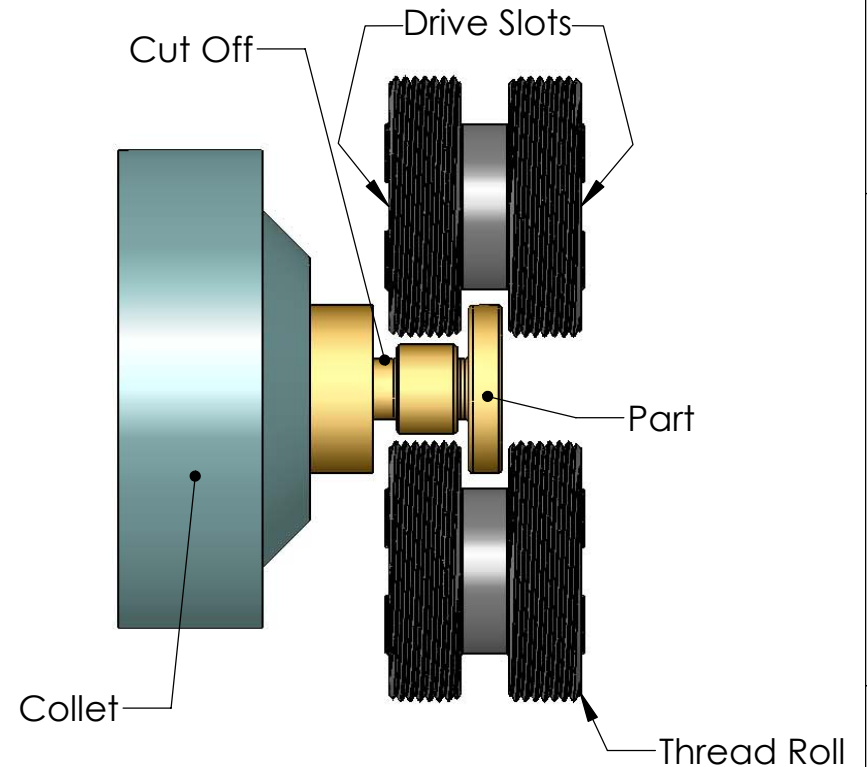
When to Use WC-4 Style

- 1) It is important to maintain position of attachment on the cross slide.
- 2) Need to maintain the position of the cut-off end of the part relative to the collet

Optional: Special bevels, machined breakouts, bronze bushings, double drive slots, left handed threads, multiple leads.

TYPE DR-5

Rolls for Straight Threads



Working face must be specified when ordering WDR-5 Style as well as groove diameter and/or stock diameter.

When to Use WDR-5 Style

- 1) When rolling two threads of the same diameter and pitch which are separated by a shoulder
- 2) Rolling behind a shoulder where length of thread permits rolls to be reversed (doubling production of 1 pair of rolls).

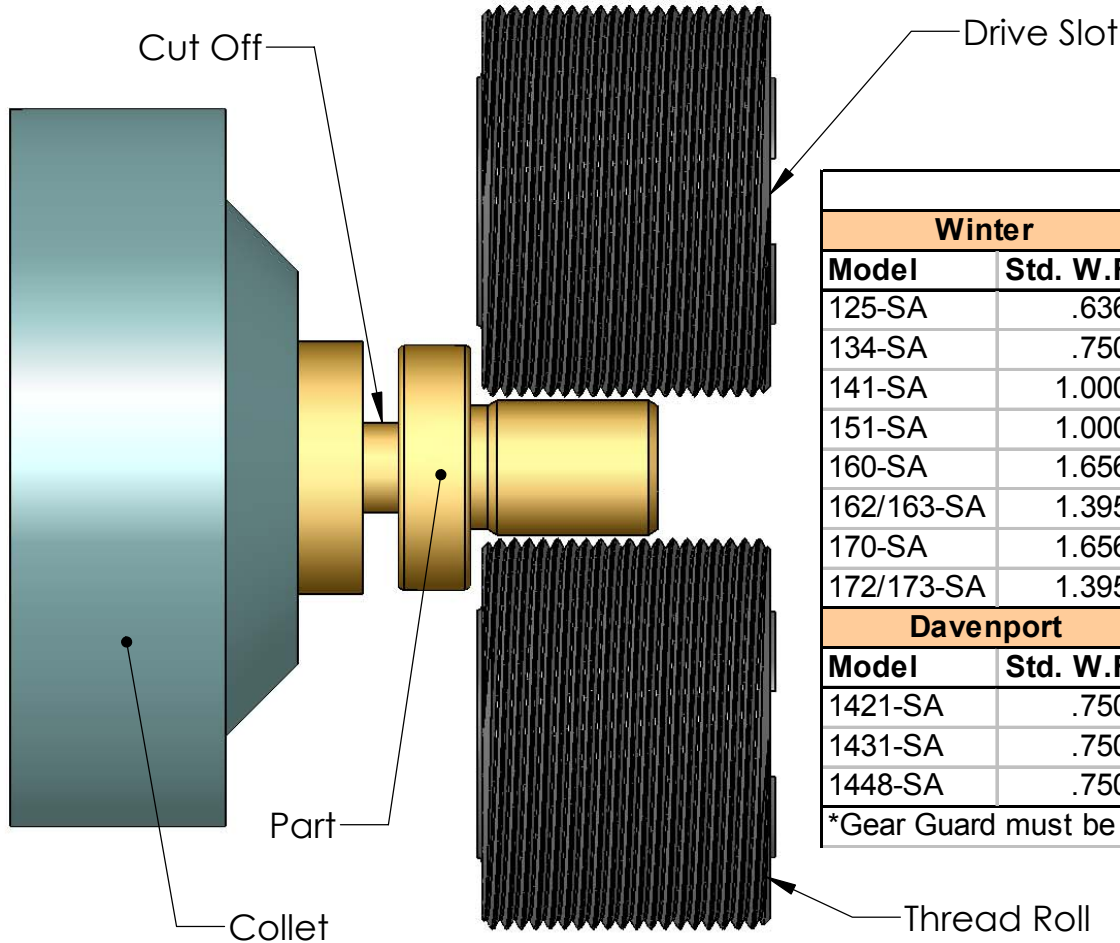
Standard: Recessed double drive slots.

Optional: Special bevels, machined breakouts, bronze bushings, left handed threads, multiple leads.



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TYPE D-1
Rolls for Straight Threads



WD-1 Standard Workface					
Winter		Landis		Detroit	
Model	Std. W.F.	Model	Std. W.F.	Model	Std. W.F.
125-SA	.636*	14GA	---	76000 (0-375)	0.593
134-SA	.750*	18GA	---	76100 (6-625)	0.750
141-SA	1.000*	20GA	---	76200 (10-750)	0.938
151-SA	1.000*	22GA	---	76300 (30-1000)	0.938
160-SA	1.656*	24GA	---	76400 (25-1125)	1.188
162/163-SA	1.395*	Reed			
170-SA	1.656*	Model	Std. W.F.		
172/173-SA	1.395*	B-5	---		
Davenport		B-8	0.560	Salvo	
Model	Std. W.F.	B-10 (500-G2A)	0.750	Model	Std. W.F.
1421-SA	.750*	B-13 (750-G2A)	1.000	CBL	0.937
1431-SA	.750*	B-18 (1000-G2A)	1.250	BBL	1.187
1448-SA	.750*	B-36	1.250	DBL	1.437
*Gear Guard must be removed when installing					

When to Use WD-1 Style

- 1) Working face of rolls with standard hubs is not sufficient for length of thread required. See instructions for determining correct working face.

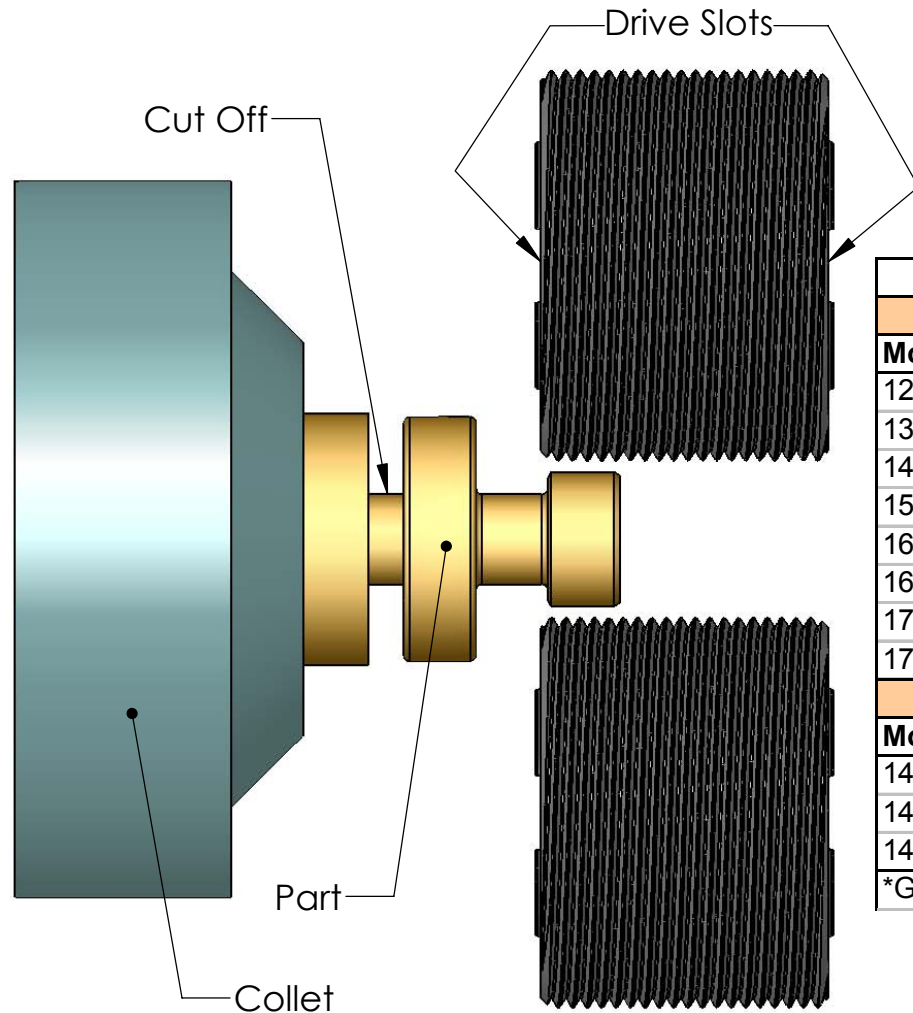
Standard: Recessed drive slot, extended standard working face as listed above.
Optional: Special bevels, machined breakouts, bronze bushings, left handed threads, multiple leads.



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Rolls for Straight Threads



WDR-1 Standard Workface					
Winter		Landis		Detroit	
Model	Std. W.F.	Model	Std. W.F.	Model	Std. W.F.
125-SA	0.636*	14GA	---	76000 (0-375)	0.593
134-SA	0.750*	18GA	---	76100 (6-625)	0.750
141-SA	1.000*	20GA	---	76200 (10-750)	0.938
151-SA	1.000*	22GA	---	76300 (30-1000)	0.938
160-SA	1.656*	24GA	---	76400 (25-1125)	1.188
162/163-SA	1.395*	Reed			
170-SA	1.656*	Model	Std. W.F.		
172/173-SA	1.395*	B-5	---		
		B-8	0.560	Salvo	
Model	Std. W.F.	B-10 (500-G2A)	0.750	Model	Std. W.F.
1421-SA	0.750*	B-13 (750-G2A)	1.000	CBL	0.937
1431-SA	0.750*	B-18 (1000-G2A)	1.250	BBL	1.187
1448-SA	0.750*	B-36	1.250	DBL	1.437

*Gear Guard must be removed when installing

When to Use WDR-1 Style

- Length of thread on part permits rolls to be reversed (doubling production on 1 pair of rolls).
See instructions on determining correct working face

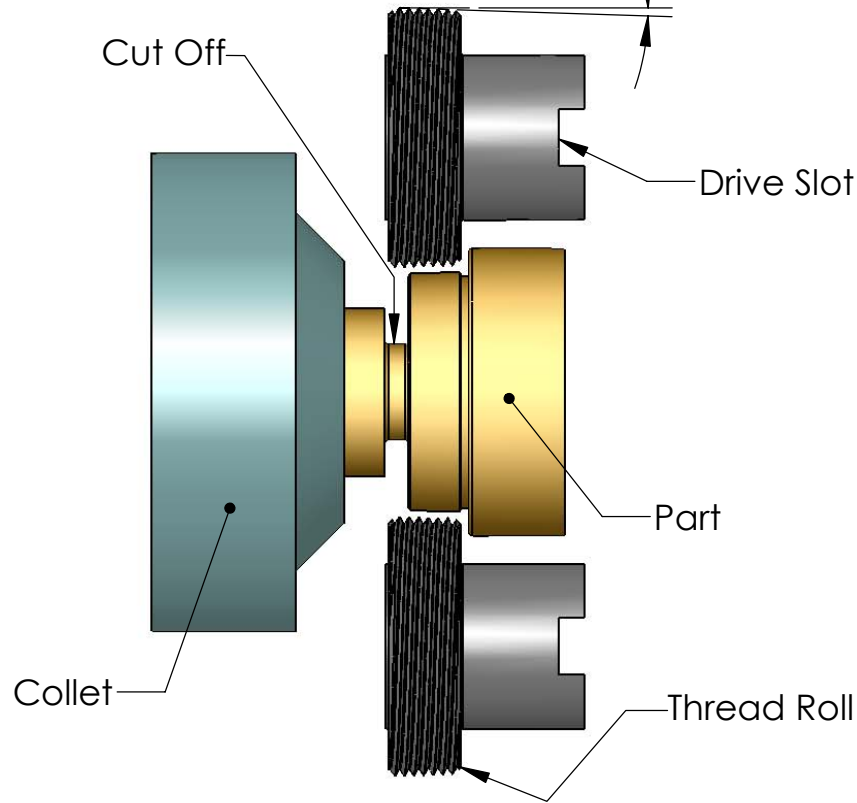
Standard: Recessed drive slots, working face as listed above

Optional: Special bevels, machined breakouts, bronze bushings, left handed threads, multiple leads.

TYPE K-2

Rolls for Taper Pipe Threads

1°47' Standard Taper



When to use K-2 Style

- 1) Rolling taper pipe threads with small end of work towards the collet

Standard: NPT or NPTF as specified 45 deg. Chamfer, working face as listed in table

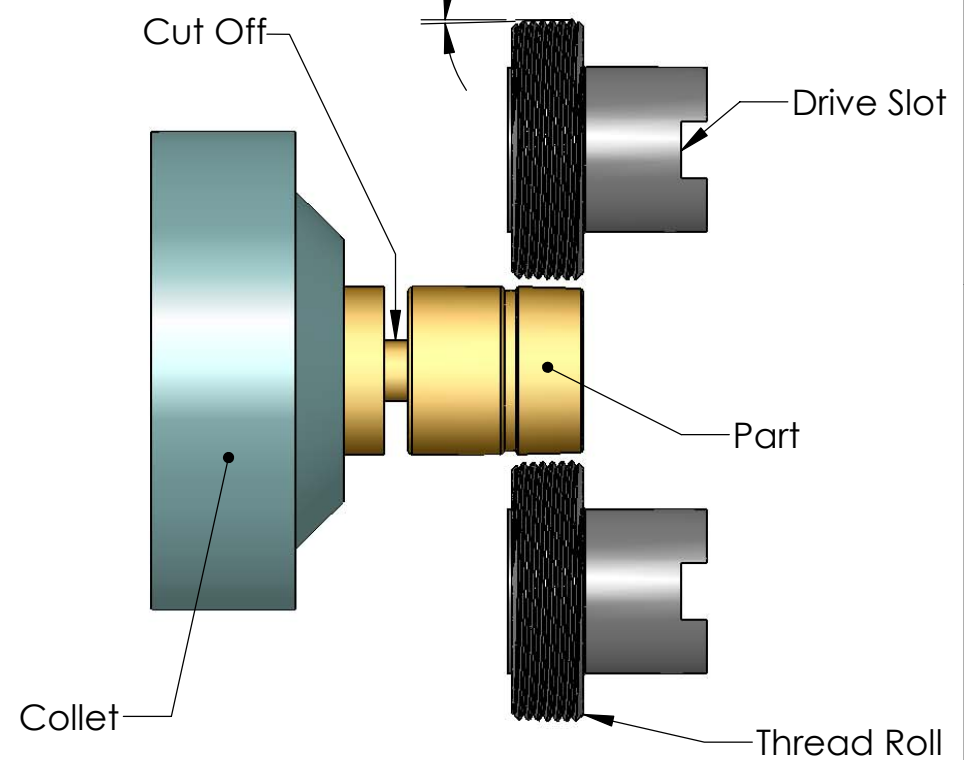
Optional: Special working face, bronze bushings

WK-2 and WQ-2 Standard Working Face								
1/16 -	27	NPT/NPTF	0.375		3/4 -	14	NPT/NPTF	0.724
1/8 -	27	NPT/NPTF	0.375		1.000 -	11.5	NPT/NPTF	0.900
1/4 -	18	NPT/NPTF	0.562		1 1/4 -	11.5	NPT/NPTF	0.924
3/8 -	18	NPT/NPTF	0.562		1 1/2 -	11.5	NPT/NPTF	0.941
1/2 -	14	NPT/NPTF	0.712					

TYPE Q-2

Rolls for Taper Pipe Threads

1°47' Standard Taper



When to use Q-2 Style

- 1) Rolling taper pipe threads with small end of work away from collet

4

3

2

1

4

3

2

1

C

B

A

C

B

A