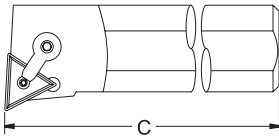


# INTERNAL MACHINING TOOL DESIGNATIONS

**C - Carbide**  
**E - Carbide w/coolant through**  
**A - Steel w/coolant through**  
**M - Heavy metal**  
**S - Steel**

**Bar Type**

<b>F - 3.0</b>	<b>Q - 7.0</b>
<b>G - 3.5</b>	<b>R - 8.0</b>
<b>H - 4.0</b>	<b>S - 10.0</b>
<b>J - 4.5</b>	<b>T - 12.0</b>
<b>K - 5.0</b>	<b>U - 14.0</b>
<b>L - 5.5</b>	<b>V - 16.0</b>
<b>M - 6.0</b>	<b>W - 18.0</b>
<b>N - 6.5</b>	<b>Y - 20.0</b>
<b>P - 6.75</b>	<b>X - Special</b>

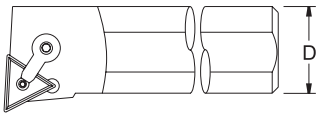


**Bar Length**



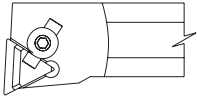
**Bar Diameter**

**Round Shanks:**  
(D) shown in 1/16 inch increments

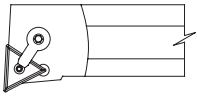


**Holding Method**

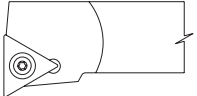
**C - Clamp Lock**



**M - Multiple Lock**



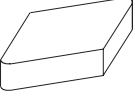
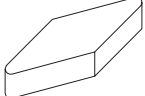





**S - Screw Lock**







# INTERNAL MACHINING TOOL DESIGNATIONS

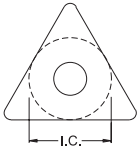
**Insert Shape**

<b>C - 80° Diamond</b> 	<b>T - Triangle</b> 
<b>D - 55° Diamond</b> 	<b>V - 35° Diamond</b> 
<b>R - Round</b> 	<b>W - 80° Trigon</b> 
<b>S - Square</b> 	

**Insert Clearance Angle**

<b>B - 5° Positive</b> 
<b>C - 7° Positive</b> 
<b>N - 0° Negative</b> 
<b>P - 11° Positive</b> 

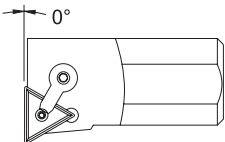
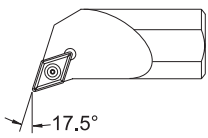
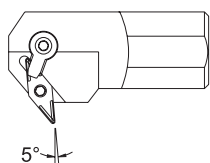
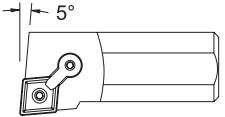
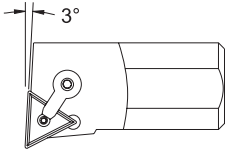
**Insert Size I.C.:**  
(I.C.) shown in 1/8 inch increments



**Insert Size I.C.**

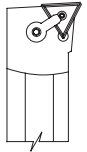
**T U N R - 3**

**Bar Style**

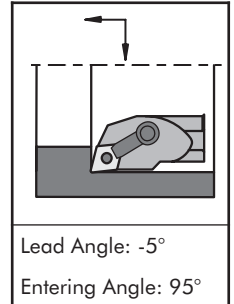
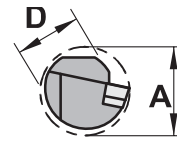
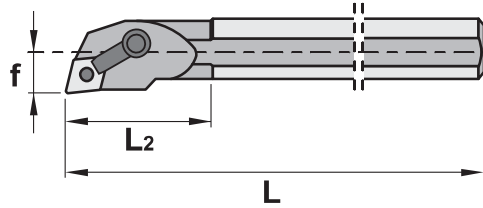
<b>F - Offset Shank</b> 0° End Cutting Edge Angle 	<b>Q - Offset Shank</b> 17.5° End Cutting Edge Angle 	<b>X - Offset Shank</b> 5° Back Cutting Edge Angle 
<b>L - Offset Shank</b> 5° End or Side Cut Edge Angle 	<b>U - Offset Shank</b> 3° End Cutting Edge Angle 	

**Hand of Tool**

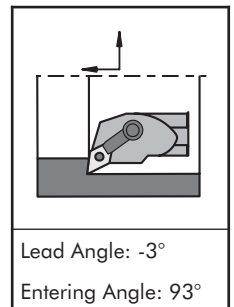
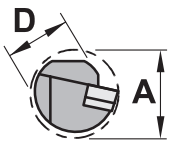
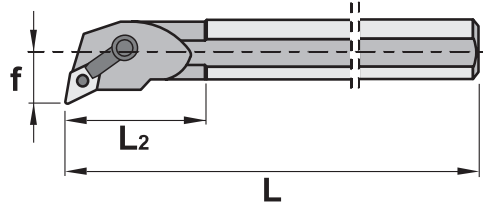
**R - Right Hand**  


**L - Left Hand**  


# INTERNAL PINLOCK TOOLS



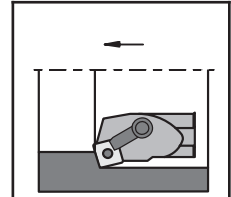
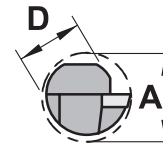
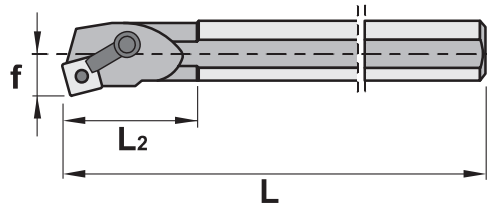
DESIGNATION	DIMENSIONS					INSERT (see pages 17-21)	SPARE PARTS			
	Min. Bore A	D	L	L <sub>2</sub>	f		Shim	Pin	Clamp	Clamp Screw
S16T-MCLNR/L-3	1.280	1.000	12.0	2.50	.640	CNM_-32_	---	NL-33	CL-6	XNS-36
S20U-MCLNR/L-3	1.530	1.250	14.0	3.00	.765		---	NL-44		XNS-47
S16T-MCLNR/L-4	1.280	1.000	12.0	2.50	.640	CNM_-43_	ICSN-432	NL-46	CL-20	XNS-48
S20U-MCLNR/L-4	1.530	1.250	14.0	3.00	.765					
S24U-MCLNR/L-4	1.780	1.500	14.0	3.00	.890					
S28U-MCLNR/L-4	2.030	1.750	14.0	4.00	1.015					
S32V-MCLNR/L-4	2.562	2.000	16.0	4.00	1.281					
S40V-MCLNR/L-4	3.062	2.500	16.0	4.00	1.531	CNM_-54_	ICSN-533	NL-58	CL-12	XNS-510
S32V-MCLNR/L-5	2.562	2.000	16.0	4.00	1.281					
S40V-MCLNR/L-5	3.062	2.500	16.0	4.00	1.531	CNM_-64_	ICSN-633	NL-68	CL-12	XNS-510
S32V-MCLNR/L-6	2.562	2.000	16.0	4.00	1.281					
S40V-MCLNR/L-6	3.062	2.500	16.0	4.00	1.531					



DESIGNATION	DIMENSIONS					INSERT (see pages 25-28)	SPARE PARTS			
	Min. Bore A	D	L	L <sub>2</sub>	f		Shim	Pin	Clamp	Clamp Screw
S16T-MDUNR/L-4	1.750	1.000	12.0	2.50	.875	DNM_-43	---	NL-44	CL-20	XNS-48
S20U-MDUNR/L-4	2.000	1.250	14.0	3.00	1.000					
S24U-MDUNR/L-4	2.250	1.500	14.0	3.00	1.125					
S32V-MDUNR/L-4	3.000	2.000	16.0	4.00	1.500					
S16T-MDUNR/L-44	1.750	1.000	12.0	2.50	.850	DNM_-44_	---	NL-44	CL-20	XNS-48
S20U-MDUNR/L-44	2.000	1.250	14.0	3.00	1.000					
S24U-MDUNR/L-44	2.850	1.500	14.0	3.00	1.125					
S32V-MDUNR/L-5	3.000	2.000	16.0	4.00	1.500	DNM_-54	IDSN-533	NL-58	CL-12	XNS-510
S40V-MDUNR/L-5	3.500	2.500	16.0	4.00	1.750					

# INTERNAL PINLOCK TOOLS

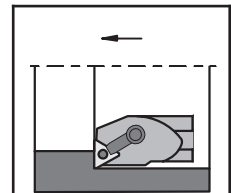
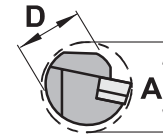
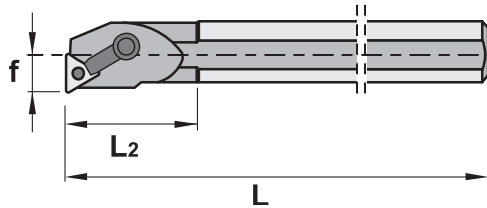
## S...-MSKNR/L



Lead Angle: 15°  
Entering Angle: 75°

DESIGNATION	DIMENSIONS					INSERT (see pages 32-35)	SPARE PARTS			
	Min. Bore A	D	L	L <sub>2</sub>	f		Shim	Pin	Clamp	Clamp Screw
S20U-MSKNR/L-4	1.530	1.250	14.0	3.00	.765	SNM_-43_	ISSN-432	NL-46	CL-20	XNS-48
S24U-MSKNR/L-4	1.780	1.500	14.0	3.00	.890		ISSN-533	NL-58	CL-12	XNS-510
S32V-MSKNR/L-5	2.562	2.000	16.0	4.00	1.281	SNM_-64_	ISSN-633	NL-68	CL-12	XNS-510
S32V-MSKNR/L-6	2.562	2.000	16.0	4.00	1.281					
S40V-MSKNR/L-6	3.062	2.500	16.0	4.00	1.531					

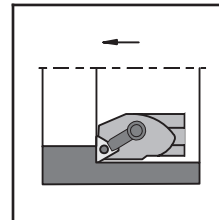
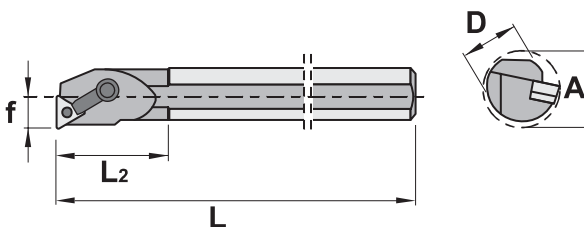
## S...-MTFNR/L



Lead Angle: 0°  
Entering Angle: 90°

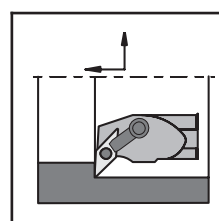
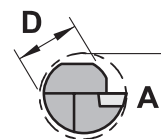
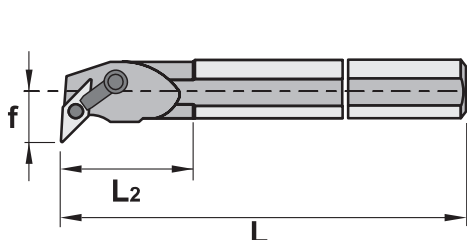
DESIGNATION	DIMENSIONS					INSERT (see pages 39-42)	SPARE PARTS			
	Min. Bore A	D	L	L <sub>2</sub>	f		Shim	Pin	Clamp	Clamp Screw
S16T-MTFNR/L-3	1.280	1.000	12.0	2.50	.640	TNM_-33_	---	NL-33L		XNS-47
S20U-MTFNR/L-3	1.530	1.250	14.0	3.00	.765		ITSN-322	NL-34L	CL-20	XNS-48
S24U-MTFNR/L-3	1.780	1.500	14.0	3.00	.890					
S20U-MTFNR/L-4	1.530	1.250	14.0	3.00	.765	TNM_-43_	ITSN-432	NL-46	CL-20	XNS-48
S24U-MTFNR/L-4	1.780	1.500	14.0	3.00	.890					
S28U-MTFNR/L-4	2.030	1.750	14.0	4.00	1.015					
S32V-MTFNR/L-4	2.562	2.000	16.0	4.00	1.281					
S40V-MTFNR/L-4	3.062	2.500	16.0	4.00	1.531					
S32V-MTFNR/L-5	2.562	2.000	16.0	4.00	1.281	TNM_-54_	ITSN-533	NL-58	CL-12	XNS-510

# INTERNAL PINLOCK TOOLS



Lead Angle:  $-3^{\circ}$   
Entering Angle:  $93^{\circ}$

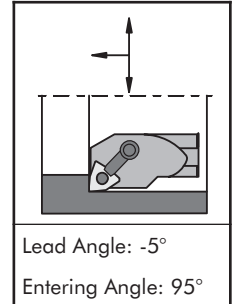
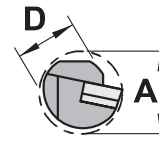
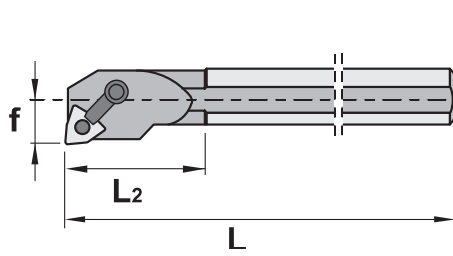
DESIGNATION	DIMENSIONS					INSERT (see pages 39-42)	SPARE PARTS			
	Min. Bore A	D	L	L <sub>2</sub>	f		Shim	Pin	Clamp	Clamp Screw
S16T-MTUNR/L-3	1.280	1.000	12.0	2.50	.640	TNM_-33_	---	NL-33L	CL-20	XNS-47
S24U-MTUNR/L-4	1.780	1.500	14.0	3.00	.890	TNM_-43_	ITSN-432	NL-46	CL-20	XNS-48



Lead Angle:  $-3^{\circ}$   
Entering Angle:  $93^{\circ}$

DESIGNATION	DIMENSIONS					INSERT	SPARE PARTS			
	Min. Bore A	D	L	L <sub>2</sub>	f		Shim	Pin	Clamp	Clamp Screw
S16T-MVUNR/L-3	2.000	1.000	12.0	2.50	1.000	VNM_-33_	IVSN-322	NL-34L	CL-20	XNS-47
S20U-MVUNR/L-3	2.250	1.250	14.0	3.00	1.125				CL-20	XNS-48
S24U-MVUNR/L-3	2.500	1.500	14.0	3.00	1.250				CL-22	XNS-48
S32V-MVUNR/L-4	3.250	2.000	16.0	4.00	1.500	VNM_-43_	IVSN-433	NL-46	CL-12	XNS-510
S40V-MVUNR/L-4	3.750	2.500	16.0	4.00	1.750				CL-12	XNS-510

# INTERNAL PINLOCK TOOLS



DESIGNATION	DIMENSIONS					INSERT (see pages 45-46)	SPARE PARTS			
	Min. Bore A	D	L	L <sub>2</sub>	f		Shim	Pin	Clamp	Clamp Screw
S16T-MWLNR/L-4	1.280	1.000	12.0	2.50	.640	WNM_-43_	---	NL-44	CL-20	XNS-47
S20U-MWLNR/L-4	1.530	1.250	14.0	3.00	.765		IWSN-433	NL-46		XNS-48
S24U-MWLNR/L-4	1.780	1.500	14.0	3.00	.890					