

**TURNLINE**  
Turning tool for roughing operations

**TURNTEC**

**NEW**

**PREMIUMTEC**  
TUNGALOY

Latest cutting edge technology provides maximum productivity



## Features

● Optimal solution for high productivity rough machining !

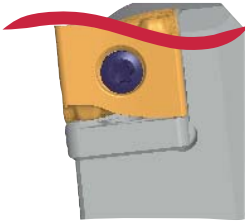
Strong insert for large depth of cut and scaled surface machining

Long curved cutting edge



Smooth chip evacuation  
Low cutting force

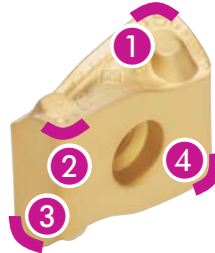
Large inclination on the cutting edge



Highly economical  
Excellent chipping resistance

4 corners available

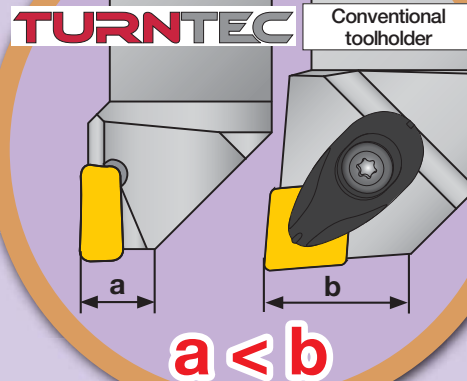
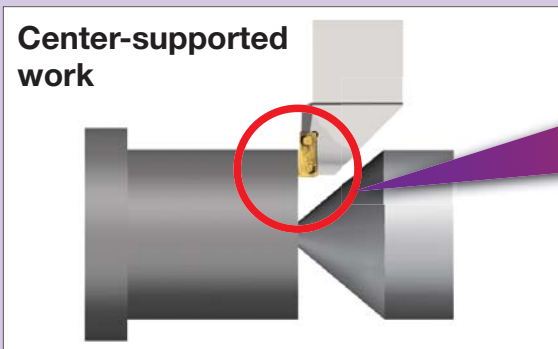
Thick insert that is tangentially clamped



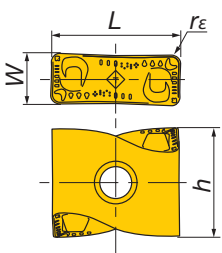
■ Suitable for center-supported work

High accessibility to center-supported work compared with conventional toolholders

Center-supported work



# Inserts



Cat. No.	Grades						Dimensions (mm)			
	Coated						W	L	h	r <sub>ε</sub>
	T9115		T9125		AH725					
	R	L	R	L	R	L				
LNMX160608R/L-TDR	●	●	●	●			6.4	16.2	13.5	0.8
LNMX160612R/L-TDR	●	●	●	●			6.4	16.2	13.5	1.2
LNMX160616R/L-TDR	●	●	●	●			6.4	16.2	13.5	1.6
LNMX160608R/L-MDR	★	★			★	★	6.4	16.2	13.5	0.8
LNMX160612R/L-MDR	★	★			★	★	6.4	16.2	13.5	1.2
LNMX160608R/L-TWR	★	★	★	★			6.4	16.2	13.5	0.8
LNMX160612R/L-TWR	★	★	★	★			6.4	16.2	13.5	1.2

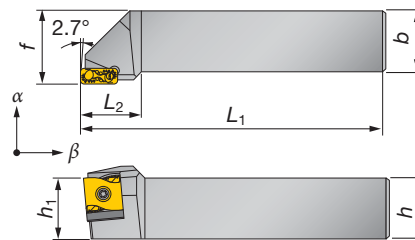
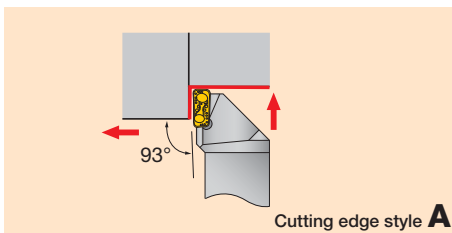
Right hand (R) shown.

# External toolholders

## TLAN R/L

External Turning & Facing

T-type (Negative rake, Screw-on system)



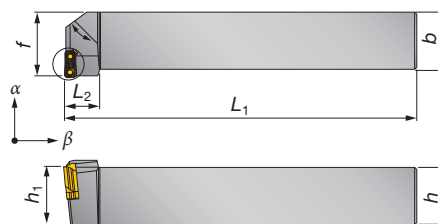
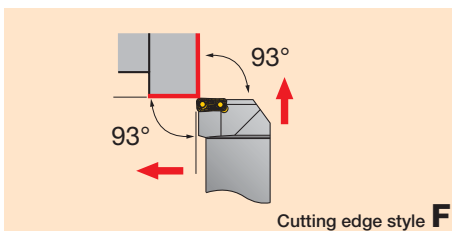
Right hand (R) shown.

Cat. No.	Stock		Dimensions (mm)								Inserts
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	α	β	
TLANR/L2020K16	●	●	20	20	125	25	20	25	-6°	-6°	LNMX1606□□R/L
TLANR/L2525M16	●	●	25	25	150	25	25	30	-6°	-6°	
TLANR/L3232P16	●	●	32	32	170	35	32	37	-6°	-6°	
TLANR/L4040R16	●	●	40	40	200	35	40	47	-6°	-6°	

## TLFN R/L

Facing & External Turning

T-type (Negative rake, Screw-on system)



Right hand (R) shown.

Cat. No.	Stock		Dimensions (mm)								Inserts
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	α	β	
TLFNR/L2525M16	●	●	25	25	150	20	25	30	-6°	-6°	LNMX1606□□L/R
TLFNR/L3232P16	●	●	32	32	170	20	32	37	-6°	-6°	

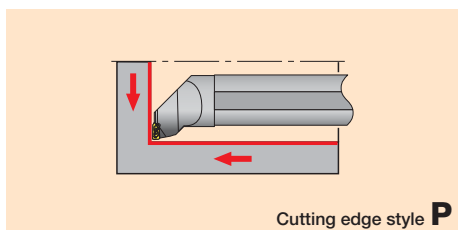
\*The right hand insert (R) is used for the left hand toolholders (TLFNL □□ type), and the left hand insert (L) is used for the right hand toolholders (TLFNR □□ type).

● : Stocked items  
★ : Available in 2011

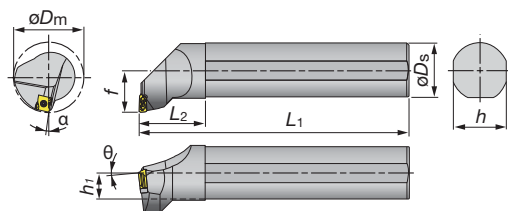
# Internal toolholders

## S-TLAN R/L Internal Turning & Facing

T-type (Negative rake, Screw-on system)



Cutting edge style **P**



Right hand (R) shown.

Cat. No.	Stock		Min bore dia. $\phi D_m$	Dimensions (mm)						$\alpha$	$\theta$	Inserts
	R	L		$\phi D_s$	$f$	$L_1$	$L_2$	$h$	$h_1$			
<b>S50U-TLANR/L16-D850</b>	●	●	85	50	37	350	63	46	23	-6°	-10°	<b>LNMX1606□□L/R</b>

\*The right hand insert (R) is used for the left hand toolholders (S-TLANR □□ type), and the left hand insert (L) is used for the right hand toolholders (S-TLANL □□ type).

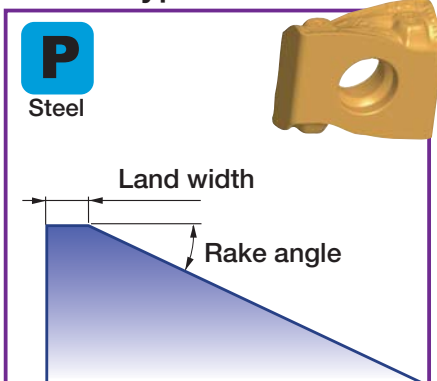
● : Stocked items

## Replacement parts

Cat. No.	Insert	Shim	Shim screw	Spring pin	Wrench for shim screw	Clamp screw	Wrench for clamp screw
TLANR/L2020K16	LNMX1606R/L	TSL16R/L	-	PSP-16	-	CSTB-4L115-S	KEYV-T15
TLANR/L2525M16							
TLANR/L3232P16							
TLANR/L4040R16							
TLFNR/L2525M16	LNMX1606L/R	TSL16L/R	-	PSP-16	-	CSTB-4L115-S	KEYV-T15
TLFNR/L3232P16							
S50U-TLANR/L16-D850	LNMX1606L/R	TSL16L/R	-	PSP-16	-	CSTB-4L115-S	KEYV-T15

# Chipbreakers

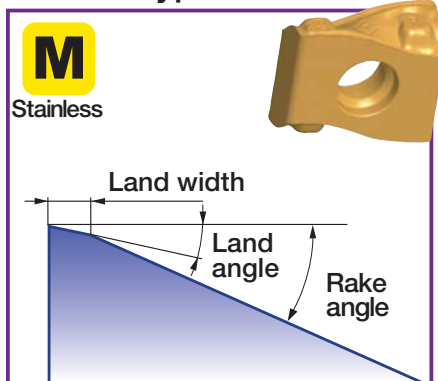
## TDR type



### For steel turning

- Excellent balance of low cutting force and edge strength

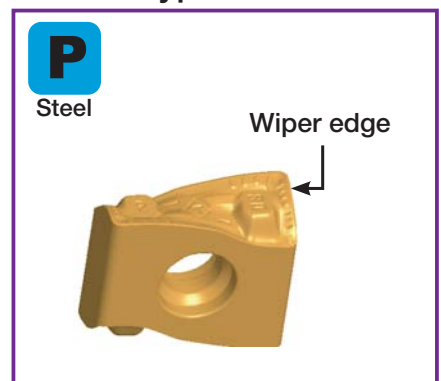
## MDR type



### For stainless steel turning

- Strong for stainless steel machining with sharp cutting edge

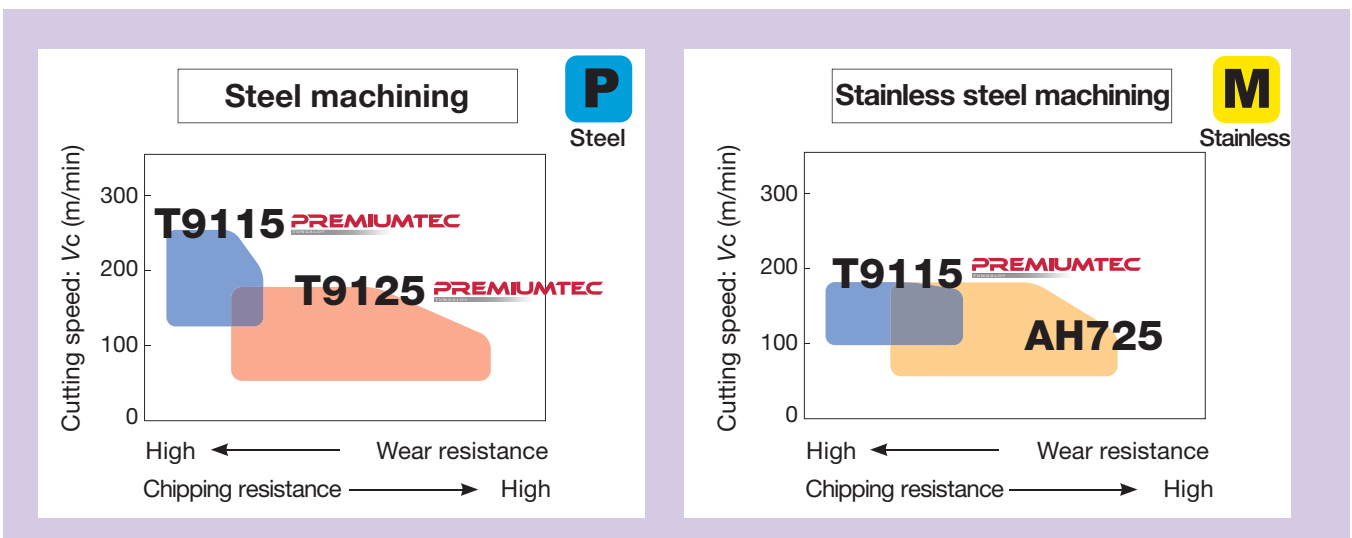
## TWR type



### With wiper edge

- Improves surface finish

## Application range



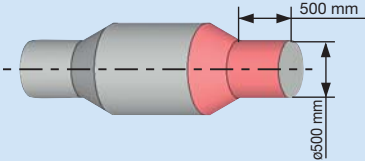
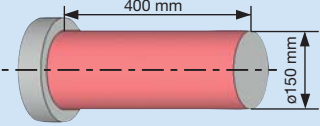
## Standard cutting conditions

### LNMX1606□□□-□□□+TLANR/L

Work materials	Chip-breakers	Grade	Cutting speed $V_c$ (m/min)	Depth of cut: $a_p$ (mm)			Feed: $f$ (mm/rev)		
				R0.8	R1.2	R1.6	R0.8	R1.2	R1.6
Steels S45C, SCM415 etc. (C45, 18CrMo4 etc.)	TDR	T9115	180 (120 - 250)	3 (0.5-5)	3.5 (0.8-6)	4.5 (1-8)	0.4 (0.15-0.6)	0.5 (0.25-0.8)	0.6 (0.3-1)
		T9125	120 (80 - 180)	2 (0.5-3.2)	2 (0.8-3.2)	2 (1-3.2)			
	MDR	T9115	180 (120 - 250)	4 (1.5-6)	4 (1.5-7)	-	0.3 (0.1-0.5)	0.4 (0.15-0.7)	-
		AH725	120 (50 - 180)	2 (0.5-3.2)	2 (0.8-3.2)				
	TWR	T9115	180 (120 - 250)	3 (0.5-5)	3.5 (0.8-6)	-	0.4 (0.15-0.6)	0.5 (0.25-0.8)	-
		T9125	120 (80 - 180)	2 (0.5-3.2)	2 (0.8-3.2)				
Stainless steels SUS304, SUS316 etc. (X5CrNi18-9, X5CrNiMo17-12-2 etc.)	TDR	T9115	150 (100 - 180)	3 (0.5-5)	3.5 (0.8-6)	4.5 (1-8)	0.4 (0.15-0.6)	0.5 (0.25-0.8)	0.6 (0.3-1)
		T9125	120 (80 - 180)	2 (0.5-3.2)	2 (0.8-3.2)	2 (1-3.2)			
	MDR	T9115	120 (100 - 150)	4 (1.5-6)	4 (1.5-7)	-	0.3 (0.1-0.5)	0.4 (0.15-0.7)	-
		AH725	120 (50 - 150)	2 (0.5-3.2)	2 (0.8-3.2)				
	TWR	T9115	150 (100 - 180)	3 (0.5-5)	3.2 (0.8-6)	-	0.4 (0.15-0.6)	0.5 (0.25-0.8)	-
		T9125	120 (80 - 180)	2 (0.5-3.2)	2 (0.8-3.2)				

\* Values in grey shows the condition for facing

# Practical examples

Workpiece type		Shaft	Shaft
Toolholder		TLANR3232P16	TLANR3232P16
Insert		LNMX160612R-TDR	LNMX160616R-TDR
Grade		T9125	T9125
Work material		Alloy steel	S45C / C45 (200HB)
Cutting conditions			
Cutting speed : $V_c$ (m/min)		80	150
Feed : $f$ (mm/rev)		0.6	0.6
Depth of cut : $a_p$ (mm)		5	8
Machining		External roughing operation	External roughing operation
Coolant		Dry	Dry
Results		 <p>Productivity Doubled!</p> <p><math>V_c \times f = 48</math></p> <p>Competitor <math>V_c \times f = 24</math></p> <p>The TDR insert with a deep inclination provides stable machining without chattering, even when feed is increased by 1.5 times.</p>	 <p>Machining time reduced 50%</p> <p>Even with a large DoC, the TDR insert enables higher feed machining compared to conventional ISO inserts with pressed chipbreakers.</p>



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