



**ECOTURN**  
TUNGALOY



**TURNLINE**

Tungaloy Report No. 426-E

w w w . t u n g a l o y . c o m

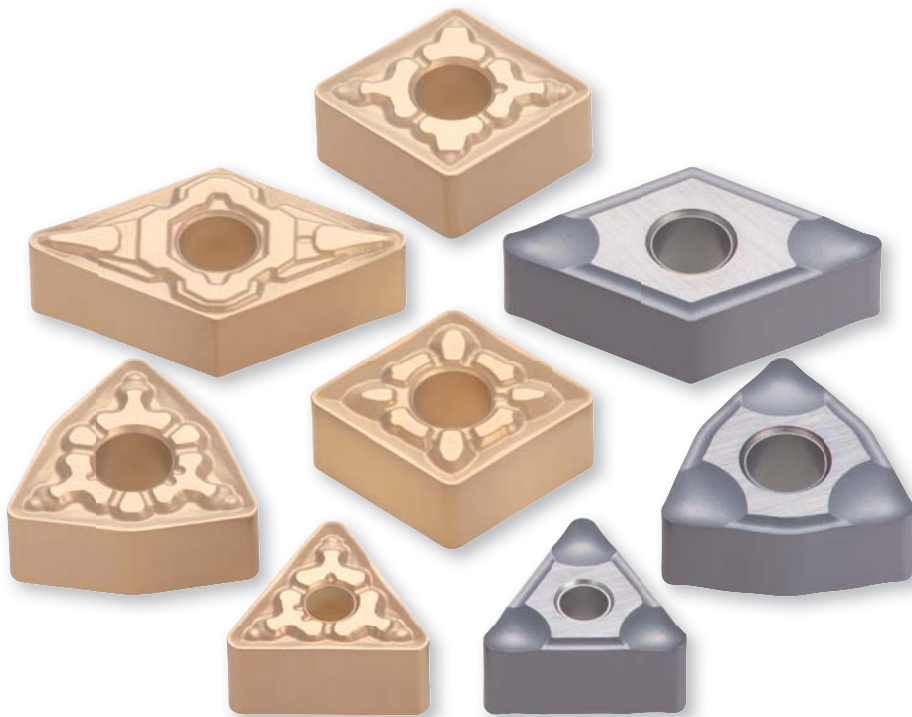
**Economical insert series!**





www.tungaloy.com

 **TurnLine**



**ECOTURN**  
TUNGALOY

Are you wasting **your valuable resources?**

Member IMC Group  
**Tungaloy**

# ECOTURN

TUNGALOY

## Economical small size 'Eco' insert series!

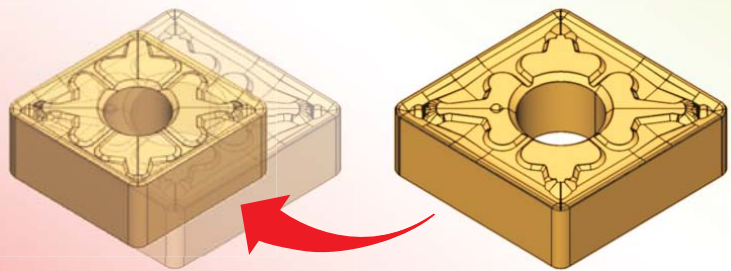
● Highly economical for maximum profit

● Highly ecological for the environment

- Small size insert with less resource consumption provides ecological benefits.

**ECOTURN**  
CNMG090408E type

Regular size  
CNMG120408 type

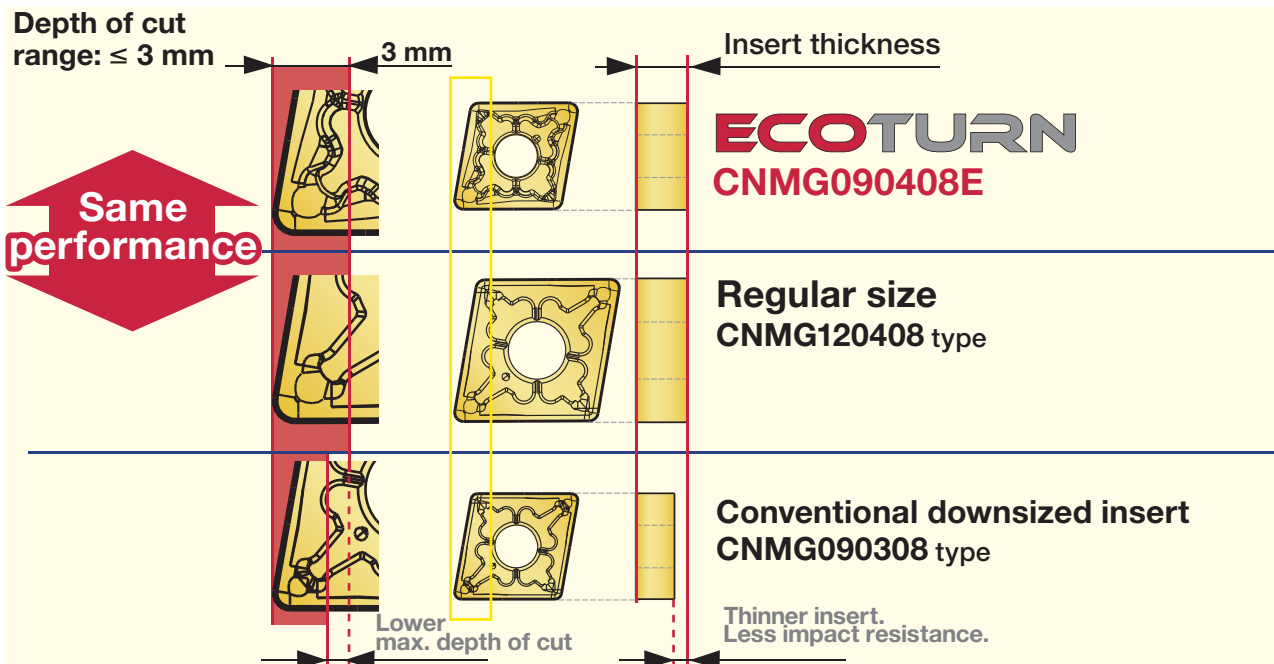


● Exceptional cutting performance

- Chipbreaker on EcoTurn inserts provide the same performance as regular sized inserts.

- The performance level of the EcoTurn insert up to 3 mm is equal to the regular sized CNMG120408 type insert.

### Comparison of insert thickness and chipbreaker

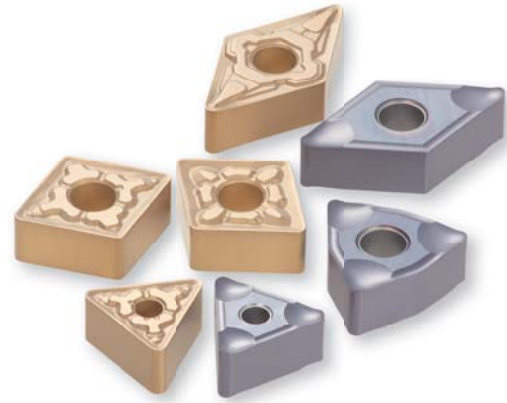




## ■ Depth of cut in general turning

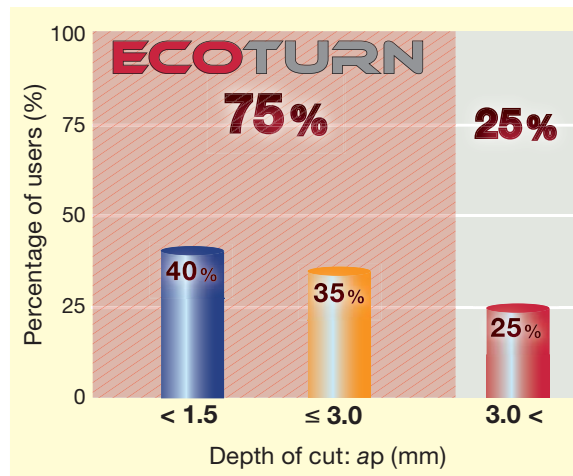
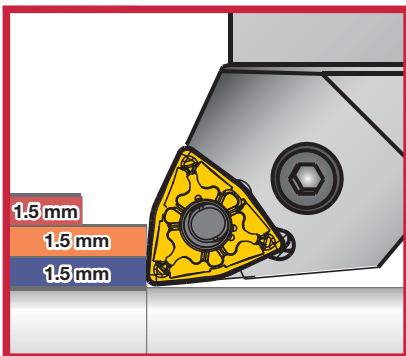
For 75%\* of applications in general turning, the depth of cut is less or equal to 3 mm.

\*Based on Tungaloy's market research

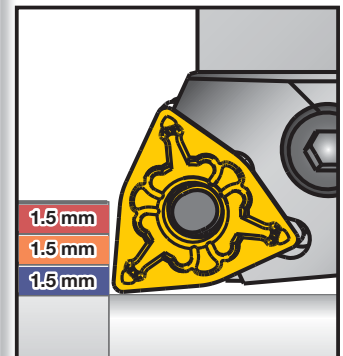


**ECOTURN**

**75%** WNMG060408E type



Regular size  
WNMG080408 type



## ● Ideal tooling management

### Ideal tooling

- Different grades should be selected, depending on application.
- Whether roughing or finishing, a suitable corner radius should be chosen.

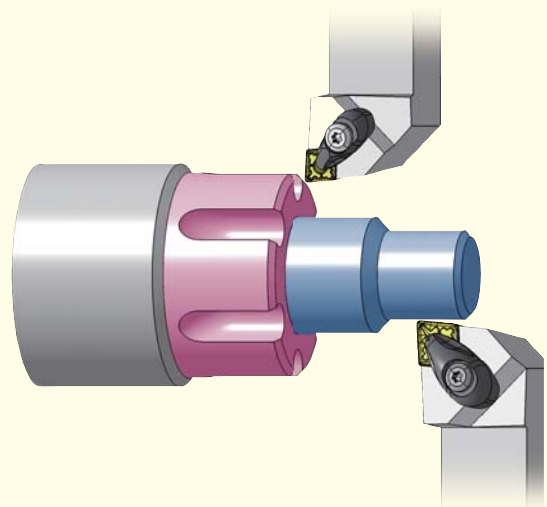
### Actual tooling

For preventing wrong operation, one insert type is used for different applications.

### Our proposal

**Using the EcoTurn series together with regular size insert prevents operation mistakes.**

**ECOTURN**

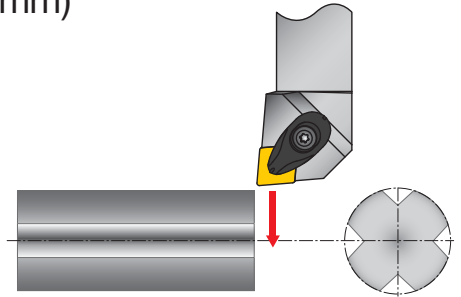
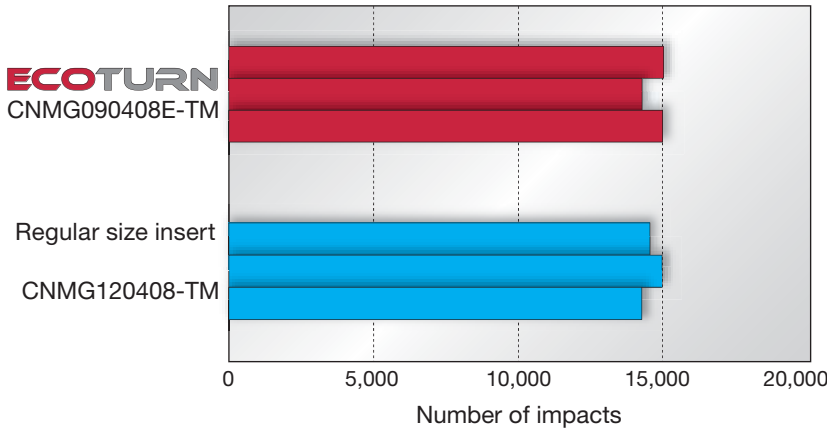


Regular size tool with  
CNMG120408 insert

## Cutting performance

### Comparison of fracture resistance

- The fracture resistance of the EcoTurn insert is equal to regular sized inserts due to the same shape of the chipbreaker and cutting edge.
- The EcoTurn insert exhibits the same level of fracture resistance under heavily interrupted machining. ( Max. depth of cut = 3 mm)



Workpiece : S45C / C45  
 Cutting speed :  $V_c = 150$  m/min  
 Feed :  $f = 0.25$  mm/rev  
 Depth of cut :  $a_p = 3.0$  mm  
 Work process : Face turning (Interrupted)  
 Coolant : Wet

### Comparison of chip control

- EcoTurn inserts demonstrate excellent chip control when working at the same parameters as regular sized inserts.

Workpiece : S45C / C45  
 Cutting speed :  $V_c = 200$  m/min  
 Coolant : Wet

#### ECOTURN CNMG090408E-TM

Depth of cut: $a_p$ (mm)	Condition	Feed: $f$ (mm/rev)				
		0.10	0.15	0.20	0.30	0.40
3.0						
2.0						
1.5						
1.0						
0.5						

#### Regular size insert CNMG120408-TM

Depth of cut: $a_p$ (mm)	Condition	Feed: $f$ (mm/rev)				
		0.10	0.15	0.20	0.30	0.40
3.0						
2.0						
1.5						
1.0						
0.5						

## Grades

### T9100 SERIES (CVD)



Steel

**NEW PREMIUMTEC**  
TUNGALOY

- Improves chipping resistance

**T9115:** For a wide range of applications requiring higher cutting speeds

**T9125:** First choice in light to medium cutting

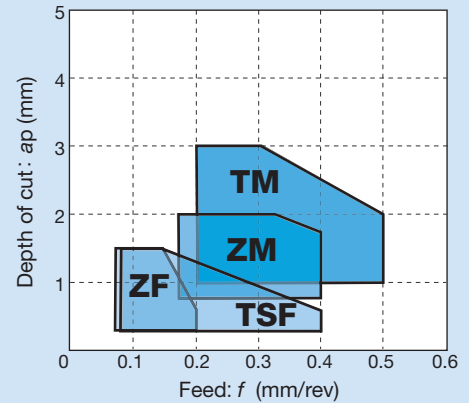
**NS9530 & GT9530**  
(Cermet) (Coated cermet)

**NEW PREMIUMTEC**  
TUNGALOY

- Improves fracture resistance with tough and smooth top layer

**NS9530:** Versatile cermet grade with incredible fracture resistance

**GT9530:** Coated cermet grade for high speed machining



#### Standard cutting conditions

Application	Chipbreaker	Grades	Cutting speed $V_c$ (m/min)			Depth of cut $a_p$ (mm)	Feed $f$ (mm/rev)
			Low carbon steels Alloy steels	Medium carbon steels Alloy steels	High carbon steels Alloy steels		
Finishing	TFS	NS9530	150 - 250	80 - 220	80 - 180	0.2 - 1.5	0.08 - 0.4
		GT9530	150 - 300	80 - 250	80 - 200		
		T9115	150 - 300	150 - 300	120 - 250		
		T9125	120 - 250	80 - 200	80 - 150		
	NEW ZF	T9115	150 - 300	150 - 300	120 - 250		
Finishing to medium cutting	NEW ZM	T9115	150 - 300	150 - 300	120 - 250	0.7 - 2.0	0.15 - 0.4
		T9125	120 - 250	80 - 200	80 - 150		
Medium cutting	TM	T9115	150 - 300	150 - 300	120 - 250	1.0 - 3.0	0.2 - 0.5
		T9125	120 - 250	80 - 200	80 - 150		

### AH600 SERIES (PVD)



Stainless

**NEW PREMIUMTEC**  
TUNGALOY

- Improves chipping resistance

**AH630:** First choice for stainless steel cutting

**AH645:** Excellent performance in heavily interrupted machining

### T6100 SERIES (CVD)

**NEW PREMIUMTEC**  
TUNGALOY

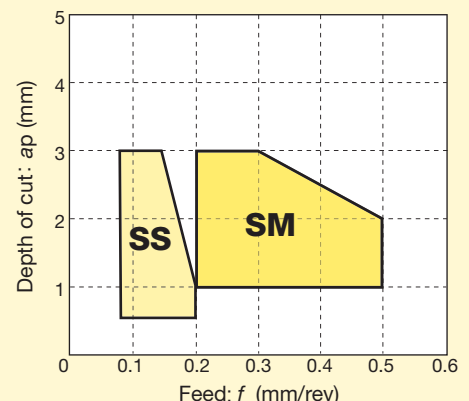
- Improves chipping resistance

**T6120:** - Outstanding wear resistance

- Excellent performance in continuous cutting

**T6130:** Complementary grade to AH630

when higher wear resistance is required.



#### Standard cutting conditions

Application	Chipbreaker	Grades	Cutting speed $V_c$ (m/min)			Depth of cut $a_p$ (mm)	Feed $f$ (mm/rev)
			Austenitic	Ferritic / Martensitic	Precipitation hardened		
Finishing	SS	AH630	90 - 190	110 - 210	60 - 90	0.5 - 3.0	0.08 - 0.2
		AH645	70 - 150	90 - 170	-		
Medium cutting	SM	T6120	140 - 240	160 - 280	80 - 150	1.0 - 3.0	0.2 - 0.5
		T6130	100 - 200	120 - 240	70 - 110		
		AH630	90 - 190	110 - 210	60 - 90		

**Inserts Negative type**

Rhombic, 80°

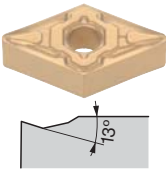
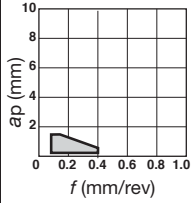
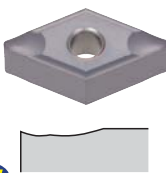
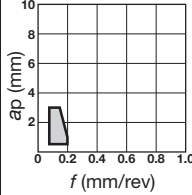
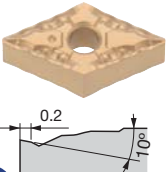
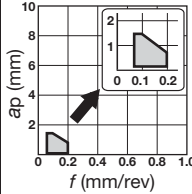
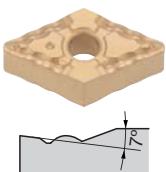
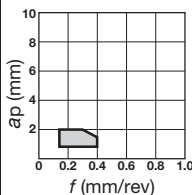
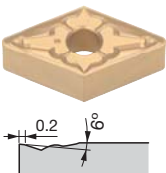
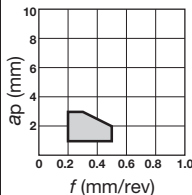
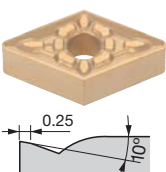
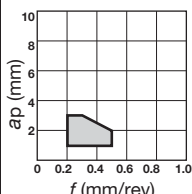
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades							Dimensions (mm)												
				Coated					Cermet	Coated cermet	I.C.dia	Thick- ness	Hole dia	Corner radius									
				T9115	T9125	T6120	T6130	AH630							AH645	NS9530	GT9530	ød	s	ød1	rε		
Finishing	<b>TSF</b> 		<b>CNMG090404E-TSF</b> <b>*CNMG090408E-TSF</b>	●	●					●	●	9.525	4.76	3.81	0.4	9.525	4.76	3.81	0.8				
	<b>SS</b> 		<b>CNMG090404E-SS</b> <b>*CNMG090408E-SS</b>					●	●			9.525	4.76	3.81	0.4	9.525	4.76	3.81	0.8				
	<b>NEW ZF</b> 		<b>CNMG090404E-ZF</b>	●	●								9.525	4.76	3.81	0.4							
	<b>NEW ZM</b> Finishing to medium cutting			<b>CNMG090408E-ZM</b>	●	●							9.525	4.76	3.81	0.8							
		<b>TM</b> 		<b>CNMG090404E-TM</b> <b>*CNMG090408E-TM</b> <b>CNMG090412E-TM</b>	●	●							9.525	4.76	3.81	0.4	9.525	4.76	3.81	0.8	9.525	4.76	3.81
	Medium cutting	<b>SM</b> 		<b>CNMG090404E-SM</b> <b>*CNMG090408E-SM</b> <b>CNMG090412E-SM</b>			●	●	●				9.525	4.76	3.81	0.4	9.525	4.76	3.81	0.8	9.525	4.76	3.81

\*Note: Chipbreaker cross sections are of the inserts marked \*

● : Stocked items



# Rhombic, 55°

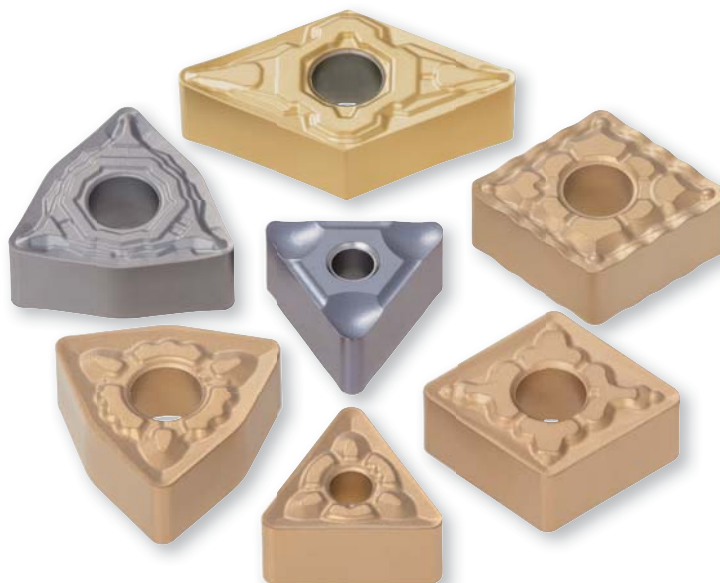
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades								Dimensions (mm)						
				Coated						Cermet	Coated cermet	I.C.dia	Thick- ness	Hole dia	Corner radius			
				T9115	T9125	T6120	T6130	AH630	AH645							NS9530	GT9530	ød
Finishing	<b>TSF</b> 		<b>DNMG110404E-TSF</b> * <b>DNMG110408E-TSF</b> <b>DNMG110412E-TSF</b>	●	●					●	●			9.525	4.76	3.81	0.4	
	<b>SS</b> 		<b>DNMG110404E-SS</b> * <b>DNMG110408E-SS</b>							●	●			9.525	4.76	3.81	0.8	
	<b>NEW ZF</b> 		<b>DNMG110404E-ZF</b>	●	●									9.525	4.76	3.81	0.4	
	<b>NEW ZM</b> Finishing to medium cutting			<b>DNMG110408E-ZM</b>	●	●									9.525	4.76	3.81	0.8
		<b>TM</b> 		<b>DNMG110404E-TM</b> * <b>DNMG110408E-TM</b> <b>DNMG110412E-TM</b>	●	●									9.525	4.76	3.81	0.4
	Medium cutting	<b>SM</b> 		<b>DNMG110404E-SM</b> * <b>DNMG110408E-SM</b>			●	●	●						9.525	4.76	3.81	0.4
						●	●	●						9.525	4.76	3.81	0.8	

\*Note: Chipbreaker cross sections are of the inserts marked \*

● : Stocked items

## Triangular, 60°

Application	Chipbreaker		Cat. No	Stocked grades							Dimensions (mm)				
	Appearance (Cross section)	f - ap		Coated			Cermet	Coated cermet	I.C.dia	Thick- ness	Hole dia	Corner radius			
				T9115	T9125	T6120							T6130	AH630	AH645
Finishing	<b>TSF</b>		<b>TNMG110404E-TSF</b>	●	●							6.35	4.76	2.26	0.4
			<b>*TNMG110408E-TSF</b>	●	●							6.35	4.76	2.26	0.8
	<b>SS</b>		<b>TNMG110404E-SS</b>					●	●			6.35	4.76	2.26	0.4
			<b>*TNMG110408E-SS</b>					●	●			6.35	4.76	2.26	0.8
Medium cutting	<b>TM</b>		<b>TNMG110404E-TM</b>	●	●							6.35	4.76	2.26	0.4
			<b>*TNMG110408E-TM</b>	●	●							6.35	4.76	2.26	0.8
			<b>TNMG110412E-TM</b>	●	●							6.35	4.76	2.26	1.2
	<b>SM</b>		<b>TNMG110404E-SM</b>			●	●	●				6.35	4.76	2.26	0.4
		<b>*TNMG110408E-SM</b>			●	●	●				6.35	4.76	2.26	0.8	



\*Note: Chipbreaker cross sections are of the inserts marked \*

● : Stocked items

# Trigon, 80°

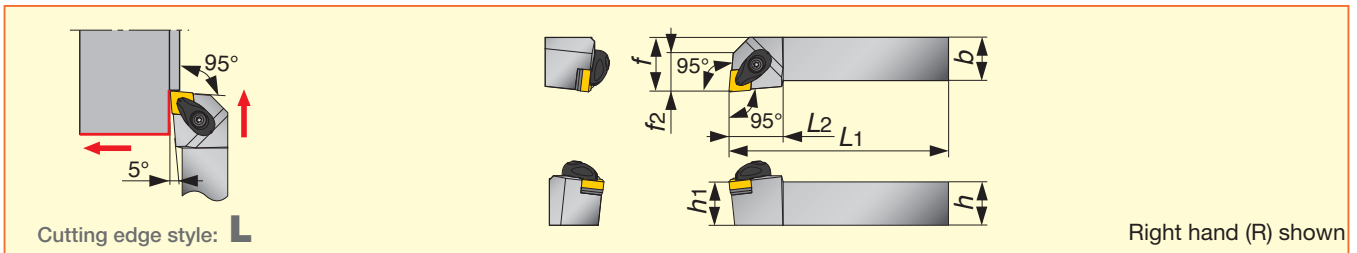
Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Cat. No	Stocked grades							Dimensions (mm)					
				Coated				Cermet	Coated cermet	I.C.dia	Thick- ness	Hole dia	Corner radius			
				T9115	T9125	T6120	T6130							AH630	AH645	NS9530
Finishing	<b>TSF</b>		<b>WNMG060404E-TSF</b> * <b>WNMG060408E-TSF</b> <b>WNMG060412E-TSF</b>	●	●					●	●	9.525	4.76	3.81	0.4	
	<b>SS</b>		<b>WNMG060404E-SS</b> * <b>WNMG060408E-SS</b> <b>WNMG060412E-SS</b>									9.525	4.76	3.81	0.4	
	<b>ZF</b>		<b>WNMG060404E-ZF</b>	●	●								9.525	4.76	3.81	0.4
Finishing to medium cutting	<b>ZM</b>		<b>WNMG060408E-ZM</b>	●	●							9.525	4.76	3.81	0.8	
Medium cutting	<b>TM</b>		<b>WNMG060404E-TM</b> * <b>WNMG060408E-TM</b> <b>WNMG060412E-TM</b>	●	●							9.525	4.76	3.81	0.4	
	<b>SM</b>		<b>WNMG060404E-SM</b> * <b>WNMG060408E-SM</b> <b>WNMG060412E-SM</b>			●	●	●				9.525	4.76	3.81	0.4	

\*Note: Chipbreaker cross sections are of the inserts marked \*

● : Stocked items

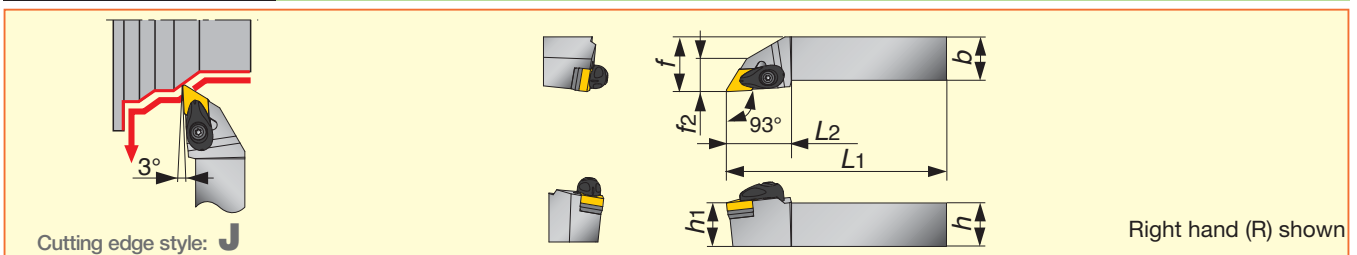
## External toolholders

### ACLN R/L External turning and facing A-type (Negative rake, clamp-on system)



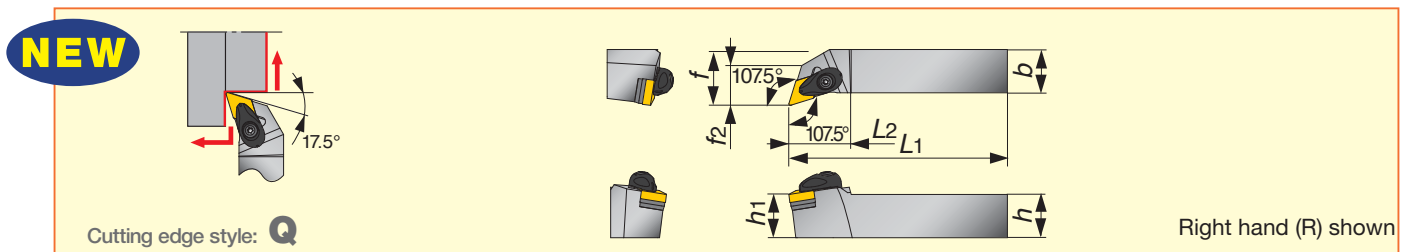
Cat. No	Stock			Dimensions (mm)					Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f				f <sub>2</sub>
ACLNR/L2020K0904-A	●	●	20	20	125	25	20	25	18	0.8	CN□□0904□□E	3.0
ACLNR/L2525M0904-A	●	●	25	25	150	25	25	32	18	0.8	CN□□0904□□E	3.0

### ADJN R/L External turning and profiling A-type (Negative rake, clamp-on system)



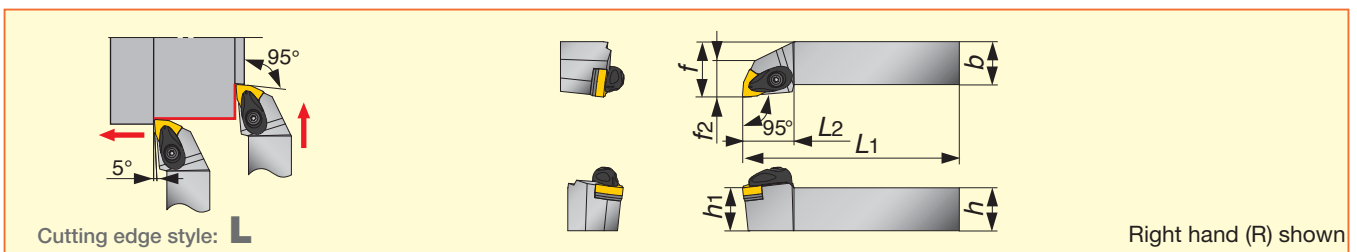
Cat. No	Stock			Dimensions (mm)					Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f				f <sub>2</sub>
ADJNR/L2020K1104-A	●	●	20	20	125	30	20	25	16	0.8	DN□□1104□□E	3.0
ADJNR/L2525M1104-A	●	●	25	25	150	30	25	32	19	0.8	DN□□1104□□E	3.0

### ADQN R/L External turning and profiling A-type (Negative rake, clamp-on system)



Cat. No	Stock			Dimensions (mm)					Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f				f <sub>2</sub>
ADQNR/L2020K1104-A	★	★	20	20	125	30	20	25	18	0.8	DN□□1104□□E	3.0
ADQNR/L2525M1104-A	★	★	25	25	150	30	25	32	20	0.8	DN□□1104□□E	3.0








### AWLN R/L External turning and facing A-type (Negative rake, clamp-on system)



Cat. No	Stock			Dimensions (mm)					Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f				f <sub>2</sub>
AWLNR/L2020K0604-A	●	●	20	20	125	27	20	25	16	0.8	WN□□0604□□E	3.0
AWLNR/L2525M0604-A	●	●	25	25	150	27	25	32	23	0.8	WN□□0604□□E	3.0

● : Stocked items  
★ : Available in May 2015

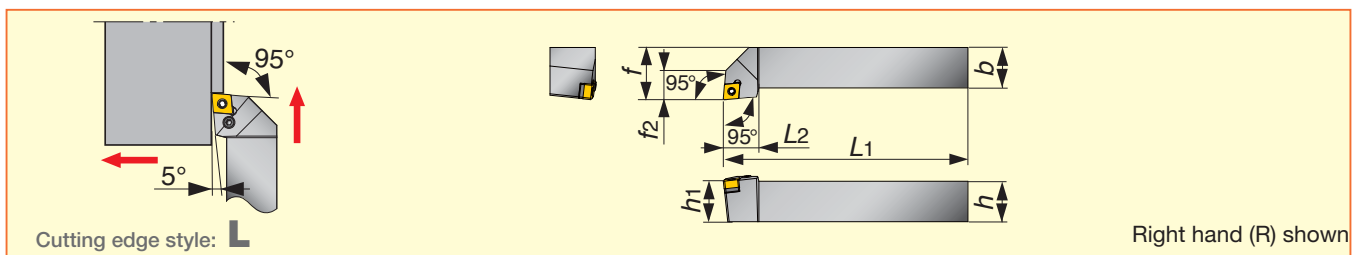
## A-type toolholder parts

Toolholder Cat. No	Applicable inserts	Clamp	Clamp screw	Spring	Spring pin	Shim	Shim screw	Wrench
								
ACLNR/L□□□□□0904-A	CN□□0904□□	ACP3S-E	ACS-5W	BP-7	SP-2.5	ASC322	CSTB-3.5	T-15F
ADJNR/L□□□□□1104-A	DN□□1104□□	ACP3S-E	ACS-5W	BP-7	SP-2.5	ASD322	CSTB-3.5	T-15F
ADQNR/L□□□□□1104-A	DN□□1104□□	ACP3S-E	ACS-5W	BP-7	SP-2.5	ASD322	CSTB-3.5	T-15F
AWLNR/L□□□□□0604-A	WN□□0604□□	ACP3S-E	ACS-5W	BP-7	SP-2.5	ASW322	CSTB-3.5	T-15F

### PCLN R/L

#### External turning and facing

P-type (Negative rake, lever lock system)

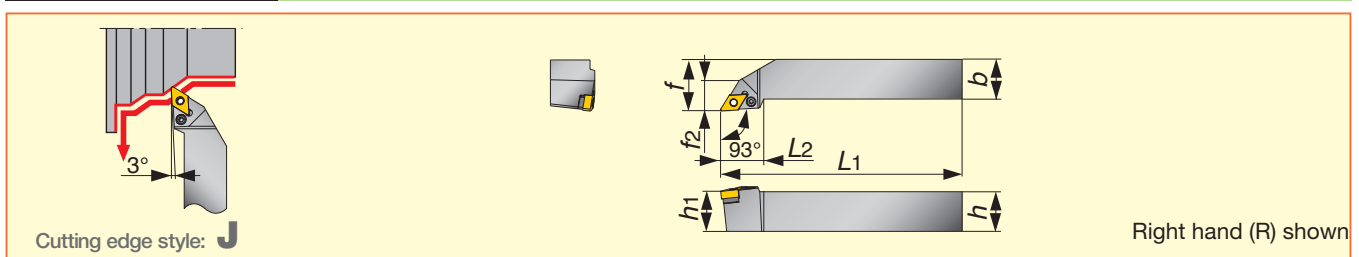


Cat. No	Stock		Dimensions (mm)							Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$	$f_2$			
PCLNR/L2020K0904	●	●	20	20	125	20	20	25	15	0.8	CN□□0904□□E	2.0
PCLNR/L2525M0904	●	●	25	25	150	20	25	32	18	0.8	CN□□0904□□E	2.0

### PDJN R/L

#### External turning and profiling

P-type (Negative rake, lever lock system)



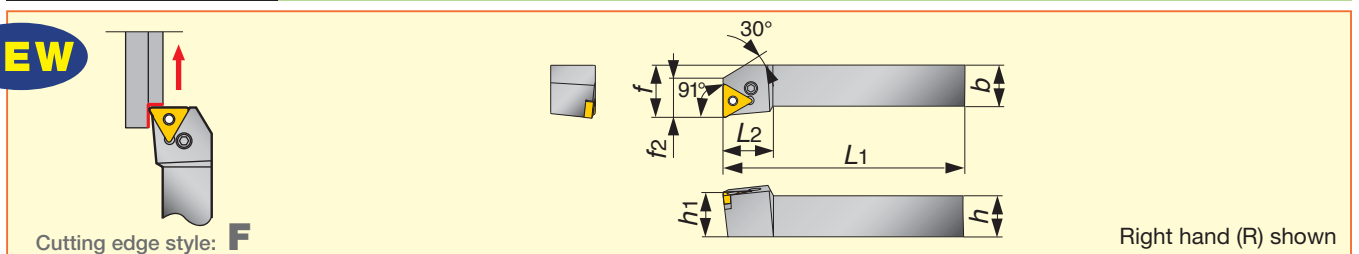
Cat. No	Stock		Dimensions (mm)							Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$	$f_2$			
PDJNR/L1616H1104	●	●	16	16	100	27	16	20	16	0.8	DN□□1104□□E	2.0
PDJNR/L2020K1104	●	●	20	20	125	27	20	25	16	0.8	DN□□1104□□E	2.0
PDJNR/L2525M1104	●	●	25	25	150	27	25	32	19	0.8	DN□□1104□□E	2.0

### PTFN R/L

#### Facing

P-type (Negative rake, lever lock system)

**NEW**

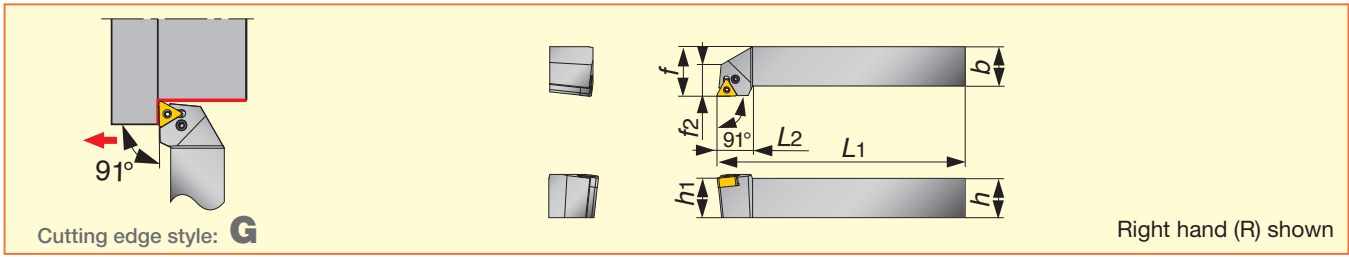


Cat. No	Stock		Dimensions (mm)							Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$	$f_2$			
PTFNR/L2020K1104	★	★	20	20	125	16	20	25	16	0.8	TN□□1104□□E	2.0
PTFNR/L2525M1104	★	★	25	25	150	22	25	32	20	0.8	TN□□1104□□E	2.0

● : Stocked items  
★ : Available in May 2015

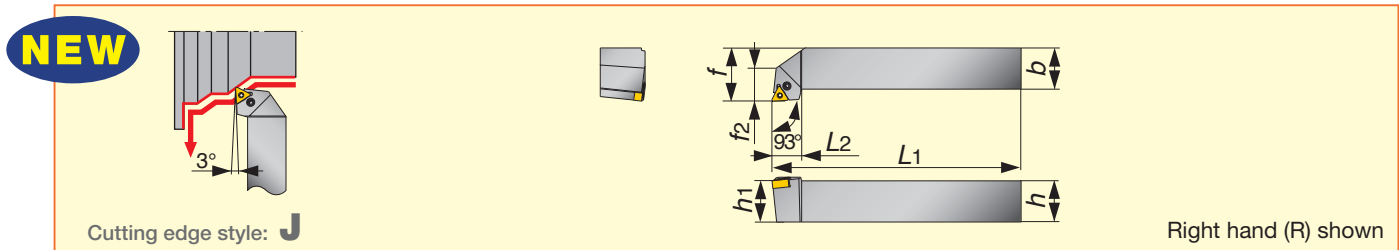


## PTGN R/L External turning and profiling P-type (Negative rake, lever lock system)



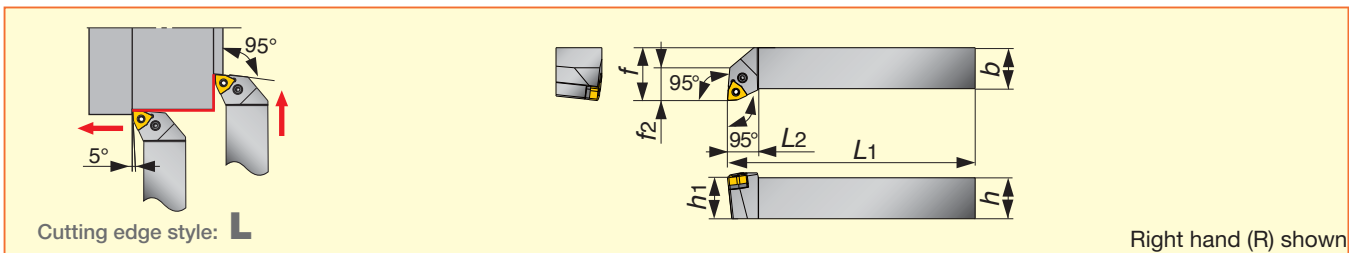
Cat. No	Stock		Dimensions (mm)						Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)	
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$				$f_2$
PTGNR/L2020K1104	●	●	20	20	125	20	20	25	15	0.8	TN□□1104□□E	2.0
PTGNR/L2525M1104	●	●	25	25	150	20	25	32	22.5	0.8	TN□□1104□□E	2.0

## PTJN R/L External turning and profiling P-type (Negative rake, lever lock system)



Cat. No	Stock		Dimensions (mm)						Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)	
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$				$f_2$
PTJNR/L2525M1104	★	★	25	25	150	18	25	32	20	0.8	TN□□1104□□E	2.0

## PWLN R/L External turning and facing P-type (Negative rake, lever lock system)



Cat. No	Stock		Dimensions (mm)						Std. corner radius $r_{\epsilon}$	Insert	Torque (N·m)	
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$				$f_2$
PWLN R/L2020K0604	●	●	20	20	125	15	20	25	18	0.8	WN□□0604□□E	2.0
PWLN R/L2525M0604	●	●	25	25	150	19	25	32	20	0.8	WN□□0604□□E	2.0

● : Stocked items  
★ : Available in May 2015

### P-type toolholder parts

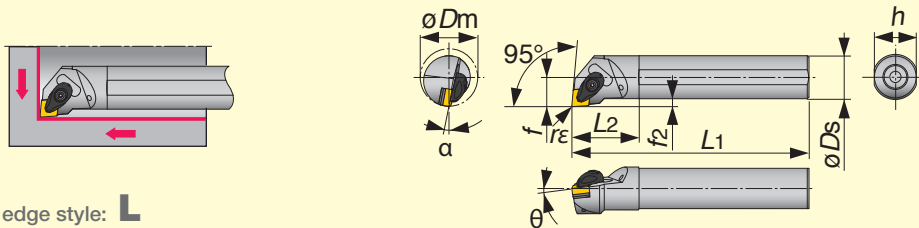
Toolholder Cat. No	Applicable inserts	Shim	Spring pin	Lever	Shim screw	Wrench
PCLNR/L□□□□□0904	CN□□0904□□E	LSC317	LSP3	LCL33	LCS3	P-2.5
PDJNR/L□□□□□1104	DN□□1104□□E	ELSD32	LSP3	LCL33L	LCS3	P-2.5
PT□NR/L□□□□□1104	TN□□1104□□E	-	-	LCL23	LCS23A	P-2.5
PWLN R/L□□□□□0604	WN□□0604□□E	LSW312	LSP3	LCL3	LCS3	P-2.5

# Internal toolholders

## ACLN R/L Boring and facing

A-type (Negative rake, clamp-on system)

**NEW**



Cutting edge style: **L**

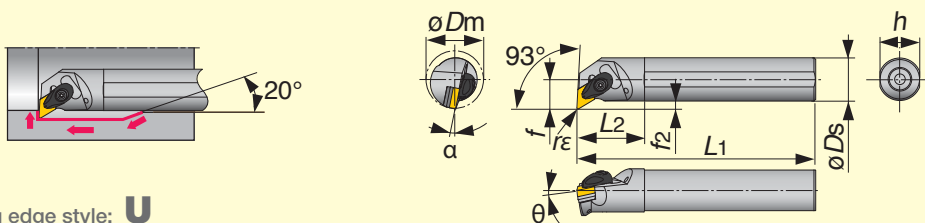
Right hand (R) shown

Cat. No.	Stock		Min. bore. dia. $\varnothing D_m$	Dimensions (mm)							Std. corner $r_E$	Insert	Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$				$\alpha$
A25R-ACLNR/L0904-D320	★	★	32	25	17	200	45	23	4.5	-6°	-13°	0.8	CN□□0904□□E	3.0
A32S-ACLNR/L0904-D400	★	★	40	32	22	250	50	30	6	-6°	-10°	0.8	CN□□0904□□E	3.0

## ADUN R/L Boring and profiling

A-type (Negative rake, clamp-on system)

**NEW**



Cutting edge style: **U**

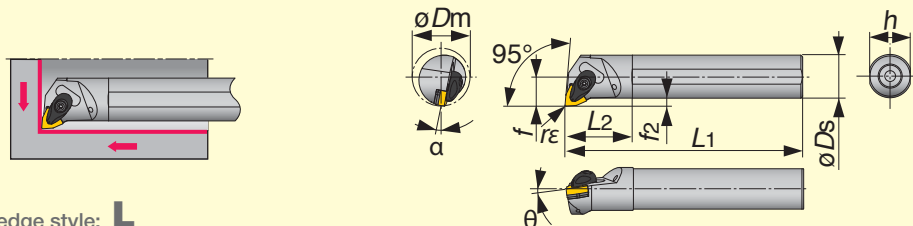
Right hand (R) shown

Cat. No.	Stock		Min. bore. dia. $\varnothing D_m$	Dimensions (mm)							Std. corner $r_E$	Insert	Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$				$\alpha$
A25R-ADUNR/L1104-D320	★	★	32	25	17	200	45	23	4.5	-6°	-13°	0.8	DN□□1104□□E	3.0
A32S-ADUNR/L1104-D400	★	★	40	32	22	250	50	30	6	-6°	-11°	0.8	DN□□1104□□E	3.0

## AWLN R/L Boring and facing

A-type (Negative rake / Double clamping system)

**NEW**



Cutting edge style: **L**

Right hand (R) shown

Cat. No.	Stock		Min. bore. dia. $\varnothing D_m$	Dimensions (mm)							Std. corner $r_E$	Insert	Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$				$\alpha$
A25R-AWLNR/L0604-D320	★	★	32	25	17	200	45	23	4.5	-6°	-13°	0.8	WN□□0604□□E	3.0
A32S-AWLNR/L0604-D400	★	★	40	32	22	250	50	30	6	-6°	-10°	0.8	WN□□0604□□E	3.0

● : Stocked items  
★ : Available in May 2015

## A-type toolholder parts

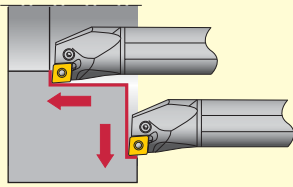
Toolholder Cat. No	Applicable inserts	Clamp	Clamping screw	Shim	Shim screw	Spring	Spring pin	Wrench
A□□□-ACLNR/L0904...	CN□□0904□□E	ACP3S-E	ACS-5W	ASC322	CSTB-3.5	BP-7	SP-2.5	T-15F
A□□□-ADUNR/L1104...	DN□□1104□□E	ACP3S-E	ACS-5W	ASD322	CSTB-3.5	BP-7	SP-2.5	T-15F
A□□□-AWLNR/L0604...	WN□□0604□□E	ACP3S-E	ACS-5W	ASW322	CSTB-3.5	BP-7	SP-2.5	T-15F

## PCLN R/L

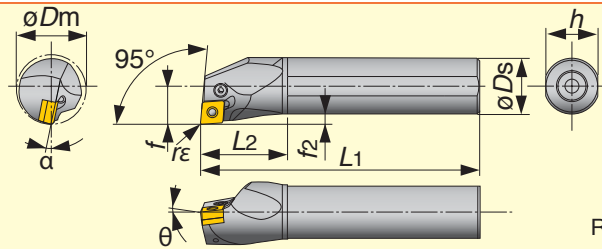
### Boring and internal facing

P-type (Negative rake, lever lock system)

**NEW**



Cutting edge style: **L**



Right hand (R) shown

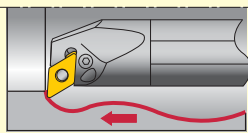
Cat. No.	Stock		Min bore. dia. $\theta D_m$	Dimensions (mm)								Std. corner $r_{\epsilon}$	Insert	Torque (N·m)
	R	L		$\theta D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$	$a$			
A16M-PCLNR/L0904-D200	★	★	20	16	11	150	32	15	3.0	-6°	16°	0.8	CN□□0904□□E	1.7
A20Q-PCLNR/L0904-D250	★	★	25	20	13	180	36	18	3.0	-6°	12°	0.8	CN□□0904□□E	1.7

## PDUN R/L

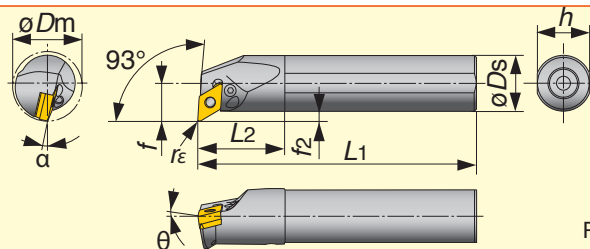
### Internal profiling

P-type (Negative rake, lever lock system)

**NEW**



Cutting edge style: **U**



Right hand (R) shown

Cat. No.	Stock		Min bore. dia. $\theta D_m$	Dimensions (mm)								Std. corner $r_{\epsilon}$	Insert	Torque (N·m)
	R	L		$\theta D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$	$a$			
A20Q-PDUNR/L1104-D250	★	★	25	20	13	180	36	18	3.0	-6°	-14°	0.8	DN□□1104□□E	1.7

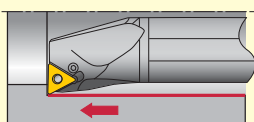
When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (PDUNL □□ type), and the left hand insert (L) is used for the right hand toolholders (PDUNR □□ type).

## PTFN R/L

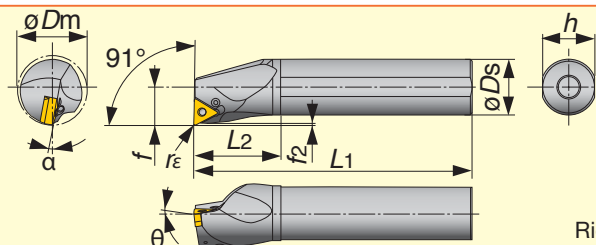
### Boring

P-type (Negative rake, lever lock system)

**NEW**



Cutting edge style: **F**



Right hand (R) shown

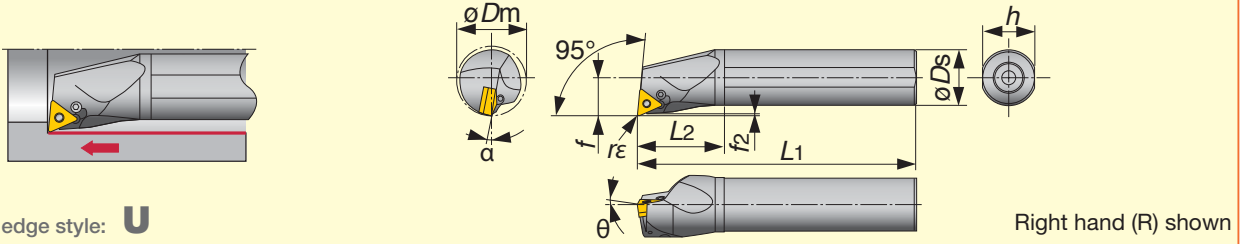
Cat. No.	Stock		Min bore. dia. $\theta D_m$	Dimensions (mm)								Std. corner $r_{\epsilon}$	Insert	Torque (N·m)
	R	L		$\theta D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$	$a$			
A25R-PTFNR/L1104-D320	★	★	32	25	17	200	45	23	1.3	-6°	-12°	0.8	TN□□1104□□E	2.0
A32S-PTFNR/L1104-D400	★	★	40	32	22	250	50	30	1.3	-6°	-10°	0.8	TN□□1104□□E	2.0

● : Stocked items  
★ : Available in May 2015

## PTUN R/L Boring

P-type (Negative rake, lever lock system)

**NEW**



Cutting edge style: **U**

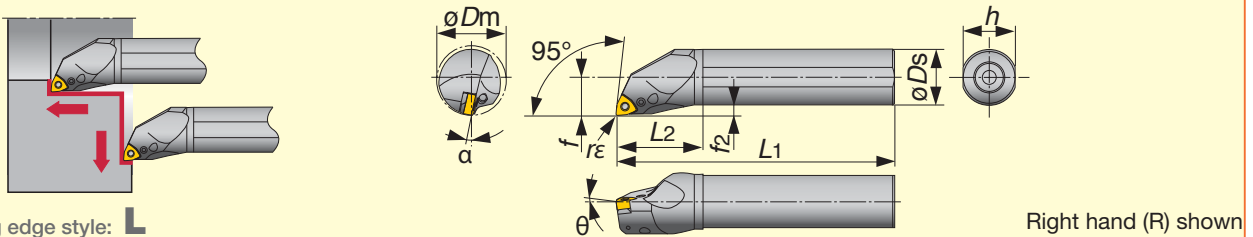
Right hand (R) shown

Cat. No.	Stock		Min bore. dia. $\phi D_m$	Dimensions (mm)								Std. corner $r_\epsilon$	Insert	Torque (N·m)
	R	L		$\phi D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$	$a$			
A25R-PTUNR/L1104-D320	★	★	32	25	17	200	45	23	1.2	-6°	-12°	0.8	TN□□1104□□E	2.0
A32S-PTUNR/L1104-D400	★	★	40	32	22	250	50	30	1.2	-6°	-10°	0.8	TN□□1104□□E	2.0

## PWLNR R/L Boring and facing

P-type (Negative rake, lever lock system)

**NEW**



Cutting edge style: **L**

Right hand (R) shown

Cat. No.	Stock		Min bore. dia. $\phi D_m$	Dimensions (mm)								Std. corner $r_\epsilon$	Insert	Torque (N·m)
	R	L		$\phi D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$	$a$			
A16M-PWLNR/L0604-D200	★	★	20	16	11	150	32	15	3.0	-6°	-17°	0.8	WN□□0604□□E	1.7
A20Q-PWLNR/L0604-D250	★	★	25	20	13	180	36	18	3.0	-6°	-14°	0.8	WN□□0604□□E	1.7

● : Stocked items  
★ : Available in May 2015

## P-type toolholder parts

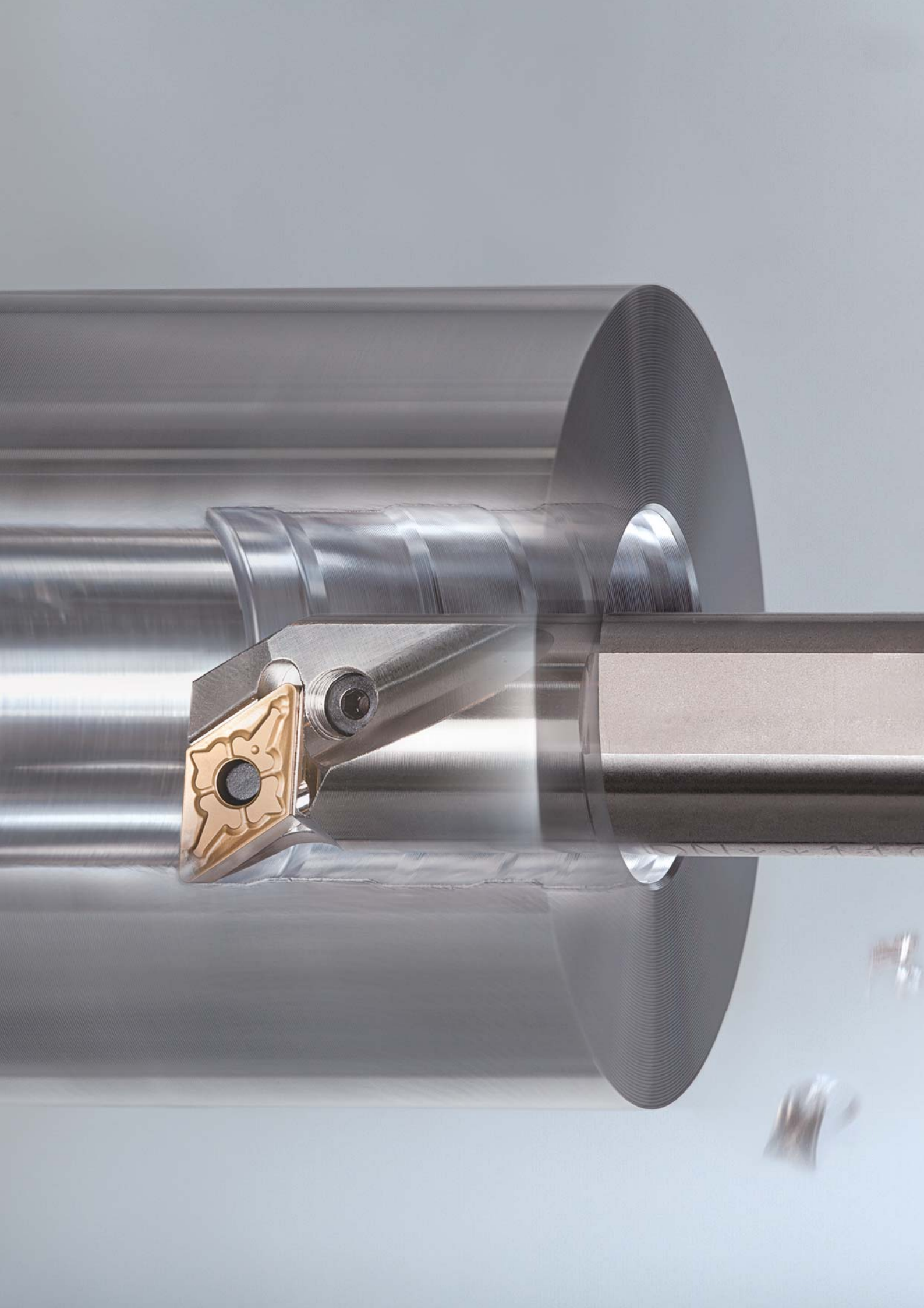
Toolholder Cat. No	Applicable inserts	Clamping screw	Lever	Wrench	Oil supply attachment	Screw for oil hole
A16M-PCLNR/L0904-D200	CN□□0904□□E	LCS33	LCL33N	P-2F	-	SSH3-4
A20Q-PCLNR/L0904-D250	CN□□0904□□E	LCS33	LCL33N	P-2F	EA20	SSH3-4
A20Q-PDUNR/L1104-D250	DN□□1104□□E	LCS22A	LCL33NL	P-2F	EA20	SSH2.5-3
A25R-PTFNR/L1104-D320	TN□□1104□□E	LCS23A	LCL23	P-2.5	EA-25	SSH4-5
A32S-PTFNR/L1104-D400	TN□□1104□□E	LCS23A	LCL23	P-2.5	EA-32	SSH4-5
A25R-PTUNR/L1104-D320	TN□□1104□□E	LCS23A	LCL23	P-2.5	EA-25	SSH4-5
A32S-PTUNR/L1104-D400	TN□□1104□□E	LCS23A	LCL23	P-2.5	EA-32	SSH4-5
A16M-PWLNR/L0604-D200	WN□□0604□□E	LCS33	LCL33N	P-2F	-	SSH3-4
A20Q-PWLNR/L0604-D250	WN□□0604□□E	LCS33	LCL33N	P-2F	EA20	SSH3-4

## Practical examples

Workpiece type		Machine part	Machine part (Automated manufacturing line)
Toolholder		ACLNL2525M0904-A	ACLNL2525M0904-A
Insert		CNMG090408E-TM	CNMG090408E-TM
Grade		T9115	T9115
Workpiece material		S50C / C50	Low alloy steel
Cutting conditions	Cutting speed: $V_c$ (m/min)	180	230
	Feed: $f$ (mm/rev)	0.2	0.25
	Depth of cut: $a_p$ (mm)	3.0	2.0
	Machining	External turning (Continuous cutting)	External turning (Continuous cutting)
Coolant		Wet	Wet
Results		<p>Current insert: CNMG1204 type. EcoTurn demonstrates excellent chip control with 3 mm depth of cut. T9115 grade achieves 1.5 times longer tool life.</p>	<p>Current P25 grade is suitable for interrupted parts, but not good for continuous cutting. By using EcoTurn and different type inserts, tool life of each insert drastically increases.</p>







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Jan. 2016 (TJ)