

**TURNLINE** Shallow grooving inserts

# GTGN type

**NEW**

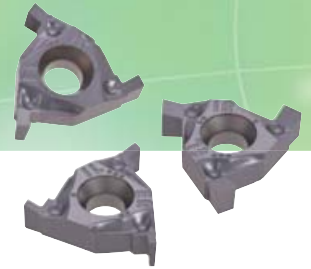
Newly developed grooving insert with 3 edges



# GTGN type

## Best solution for external/internal shallow groove machining

New inserts offer high performance and economical advantages



### Features

#### ● Suitable for highly precise grooving

#### Accurate ground inserts with sharp edge and excellent chip control

Highly recommended for accurate grooving such as circlip grooving.

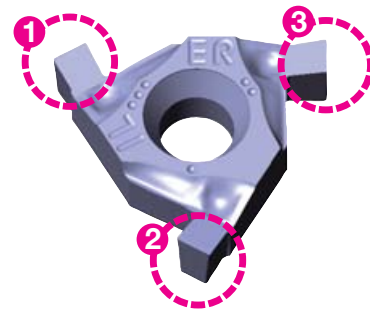
Combining with the SH730 grade, the new range demonstrates high sharpness and stability for long tool life

Groove width *W*: 1.0 ~ 2.25 mm, tolerance: ±0.03 mm

Groove depth *T*: 1.25 ~ 1.8 mm

#### ● Economical advantages

- Lay-down insert with 3 cutting edges
- Can be used with a number of toolholders to reduce inventory  
By just changing the shim, toolholders for TungThread can be used for GTGN inserts.



Toolholder applicable for both GTGN and TungThread by just changing the shim.



Note: GTGN insert can't be used on specific toolholders that don't need shim.  
Shim for GTGN insert can't be applied to competitors' toolholders.

### Standard cutting conditions

Work materials	Grades	Cutting speed <i>V<sub>c</sub></i> (m/min)	Feed <i>f</i> (mm/rev)
Steels S45C, SCM440 etc. (C45, 42CrMo4 etc.)	SH730	50 - 150	0.05 - 0.10
Stainless steels SUS304, SUS316 etc. (X5CrNi18-9, X5CrNiMo17-12-2 etc.)		30 - 150	0.05 - 0.10
Heat-resistant alloys, Titanium alloys etc. (Ti-6Al-4V etc.)		30 - 100	0.05 - 0.10

# Cutting performance

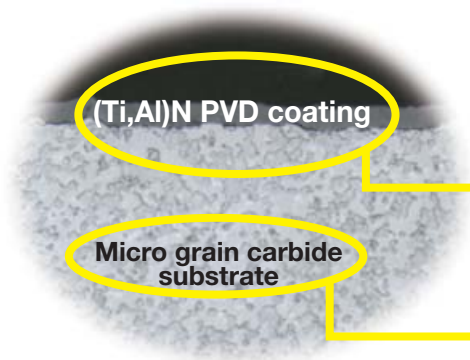
Work materials	Feed f (mm/rev)		
	0.05	0.075	0.1
S45C C45			
SCM415 15CrMo4			
SUS304 XSCrNi18-9			

**GTGN demonstrates remarkable chip control when cutting various types of work material.**

Insert : GTGN-16ER/IL140  
 Toolholder : CER2525M16DT  
 Shim : G16ER/IL-DT  
 Cutting speed :  $V_c = 100$  m/min  
 Groove width :  $W = 1.4$  mm  
 Coolant : Wet

# Grade

## SH730 PVD coated grade



Delivers a stable performance with the combination of exclusive (Ti, Al)N coating and extremely tough substrate.

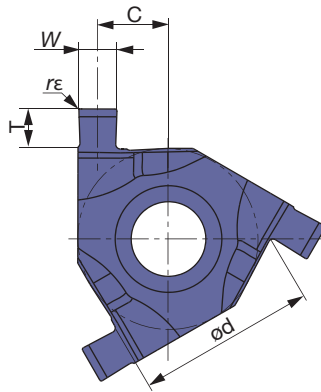
**Excellent chipping and welding resistance**

Thin (Ti, Al)N coated layers are tightly adhered to create a sharp cutting edge.

**Improved plastic deformation resistance and toughness**

Application	Grade	Substrate			Coating layer		Features
	Application code	Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Main Composition	Thickness (μm)	
 Steel	SH730	14.4	91.5	3.0	Flash coating (Ti, Al)N base	1	<b>For steel and stainless steel (Thin PVD)</b> Excels in cutting edge sharpness and wear resistance.
	P20 - P35						
 Stainless	SH730	14.4	91.5	3.0	Flash coating (Ti, Al)N base	1	
	M20 - M35						
 Superalloys	SH730	14.4	91.5	3.0	Flash coating (Ti, Al)N base	1	
	S20 - S35						

# Insert



ER/IL shown

Insert size	Groove width $W \pm 0.03$ (mm)	Cat. No.	Grade	Dimensions (mm)				Shim	
			Coated	$\phi d$	Max. groove depth T	$r_{\epsilon}$	Center of width C	Dual method clamp type; Screw-on/ Clamp-on	Clamp-on type
			SH730						
16	1.00	GTGN-16ER/IL100	●	9.525	1.25	0.1	4.22	G16ER/IL-DT	G16ER/IL-S
	1.20	GTGN-16ER/IL120	●		1.30		4.12		
	1.40	GTGN-16ER/IL140	●		1.50		4.02		
	1.70	GTGN-16ER/IL170	●		1.70		3.87		
	1.95	GTGN-16ER/IL195	●		1.70		3.75		
	2.25	GTGN-16ER/IL225	●		1.80		3.60		
16	1.00	GTGN-16EL/IR100	●	9.525	1.25	0.1	4.22	G16EL/IR-DT	G16EL/IR-S
	1.20	GTGN-16EL/IR120	●		1.30		4.12		
	1.40	GTGN-16EL/IR140	●		1.50		4.02		
	1.70	GTGN-16EL/IR170	●		1.70		3.87		
	1.95	GTGN-16EL/IR195	●		1.70		3.75		
	2.25	GTGN-16EL/IR225	●		1.80		3.60		

Note: GTGN insert is applicable for both external and internal grooving, but the hand of tool is opposite in external and internal machining. Shim for GTGN is exclusive to each type of toolholders

Packing quantity = 10 pcs

# Shim

Cat. No.	Toolholder			Insert
	Type	External	Internal	
G16ER/IL-DT	Screw-on Clamp-on	CER□□□□□16DT	TCNL□□□□□16DT	GTGN-16ER/IL□□□
G16EL/IR-DT		CEL□□□□□16DT	TCNR□□□□□16DT	GTGN-16EL/IR□□□
G16ER/IL-S	Clamp-on	B-CER16M16 CER3232P16T	CNL□□□□□16	GTGN-16ER/IL□□□
G16EL/IR-S		B-CEL16M16	CNR□□□□□16	GTGN-16EL/IR□□□

● : Stocked items

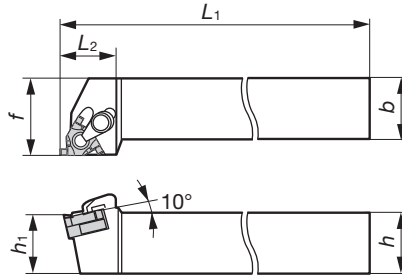
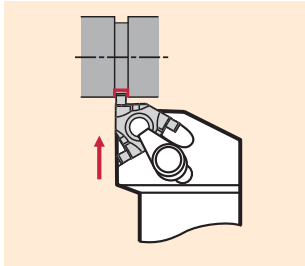
# External toolholders

\* When using the GTGN insert, the exclusive shim shown in the table must be used. Exclusive shim should be ordered separately.

## CE R/L


### External grooving

### Dual method clamp type




Right hand (R) shown

### Steel shank Screw-on, clamp-on type

Cat. No	Stock	Dimensions (mm)						Insert	Shim *
		<i>h</i>	<i>b</i>	<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>h</i> <sub>1</sub>	<i>f</i>		
CER1212H16DT	●	12	12	100	24	12	16	GTGN-16ER/IL□□□	G16ER/IL-DT
CEL1212H16DT	●	12	12	100	24	12	16	GTGN-16EL/IR□□□	G16EL/IR-DT
CER1616H16DT	●	16	16	100	24	16	20	GTGN-16ER/IL□□□	G16ER/IL-DT
CEL1616H16DT	●	16	16	100	24	16	20	GTGN-16EL/IR□□□	G16EL/IR-DT
CER2020K16DT	●	20	20	125	24	20	25	GTGN-16ER/IL□□□	G16ER/IL-DT
CEL2020K16DT	●	20	20	125	24	20	25	GTGN-16EL/IR□□□	G16EL/IR-DT
CER2525M16DT	●	25	25	150	28	25	32	GTGN-16ER/IL□□□	G16ER/IL-DT
CEL2525M16DT	●	25	25	150	28	25	32	GTGN-16EL/IR□□□	G16EL/IR-DT

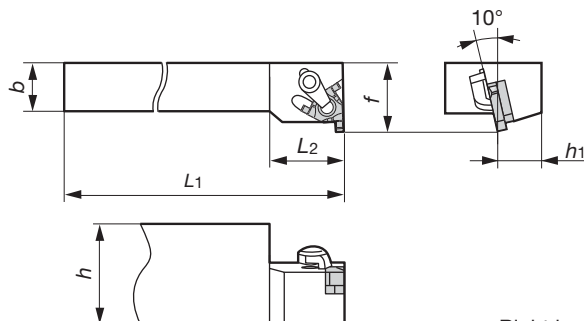
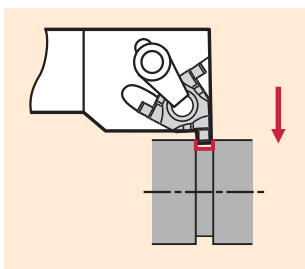
### Steel shank Clamp-on type

Cat. No	Stock	Dimensions (mm)						Insert	Shim *
		<i>h</i>	<i>b</i>	<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>h</i> <sub>1</sub>	<i>f</i>		
CER3232P16T	●	32	32	170	32	32	40	GTGN-16ER/IL□□□	G16ER/IL-S

## B-CE R/L


### External grooving

### Clamp-on type for gang tooling lathe



Right hand (R) shown

### Steel shank Clamp-on type for gang tooling lathe

Cat. No	Stock	Dimensions (mm)						Insert	Shim *
		<i>h</i>	<i>b</i>	<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>h</i> <sub>1</sub>	<i>f</i>		
B-CER16M16	●	32	16	150	24	16	22	GTGN-16ER/IL□□□	G16ER/IL-S
B-CEL16M16	●	32	16	150	24	16	22	GTGN-16EL/IR□□□	G16EL/IR-S

● : Stocked items

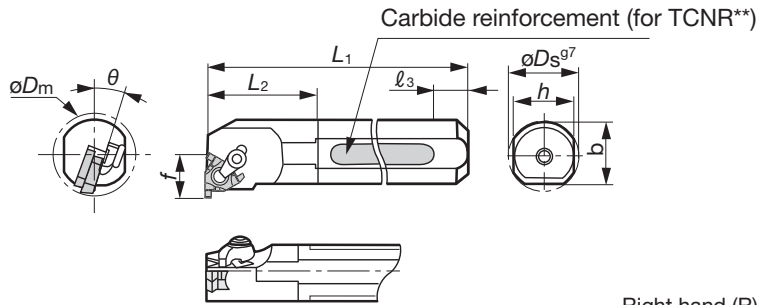
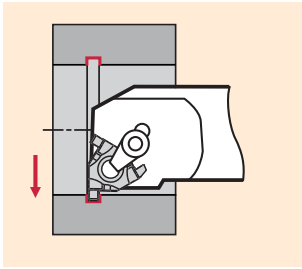
# Internal toolholders

\* When using the GTGN insert, the exclusive shim shown in the table must be used. Exclusive shim should be ordered separately.

**CN R/L**


**Internal grooving**

**Dual method clamp type**




Right hand (R) shown

## Tsuppari-Ichiban with carbide reinforcement Screw-on, clamp-on type









Cat. No	Stock	Dimensions (mm)								$\theta$	Insert	Shim *
		Min. bore dia. $\phi D_m$	$\phi D_s$	$f$	$L_1$	$L_2$	$l_3$	$h$	$b$			
TCNR0020R16DT	●	24	20	14	200	30	49	18	-	15°	GTGN-16EL/IR□□□	G16EL/IR-DT
TCNR0025S16DT	●	29	25	16.5	250	38	64	23	-	15°	GTGN-16EL/IR□□□	G16EL/IR-DT

## Steel shank Clamp-on type

Cat. No	Stock	Dimensions (mm)								$\theta$	Insert	Shim *
		Min. bore dia. $\phi D_m$	$\phi D_s$	$f$	$L_1$	$L_2$	$l_3$	$h$	$b$			
CNR0020P16	●	24	20	14	170	30	-	18	19	15°	GTGN-16EL/IR□□□	G16EL/IR-S
CNL0020P16	●	24	20	14	170	30	-	18	19	15°	GTGN-16ER/IL□□□	G16ER/IL-S
CNR0025R16	●	29	25	16.5	200	38	-	23	24	15°	GTGN-16EL/IR□□□	G16EL/IR-S
CNL0025R16	●	29	25	16.5	200	38	-	23	24	15°	GTGN-16ER/IL□□□	G16ER/IL-S
CNR0032S16	●	37	32	20.1	250	48	-	30	31	15°	GTGN-16EL/IR□□□	G16EL/IR-S
CNL0032S16	●	37	32	20.1	250	48	-	30	31	15°	GTGN-16ER/IL□□□	G16ER/IL-S

● : Stocked items

# Replacement parts

Cat. No	Clamp set	Shim screw	Clamping screw	Wrench	Cat. No	Clamp set	Shim screw	Clamping screw	Wrench
									
CER/L1212H16DT	CSP16	DTS5-3.5	CSTB-3.5ST	T-15F	TCNR/L0020R16DT	CSP16	DTS5-3.5	CSTB-3.5ST	T-15F
CER/L1616H16DT				P-3.5	TCNR/L0025S16DT				P-3.5
CER/L2020K16DT									
CER/L2525M16DT									
CER/L3232P16T									
B-CER/L16M16				T-15F	CNR/L0020P16				
					CNR/L0025R16			T-15F	
					CNR/L0032S16				



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