

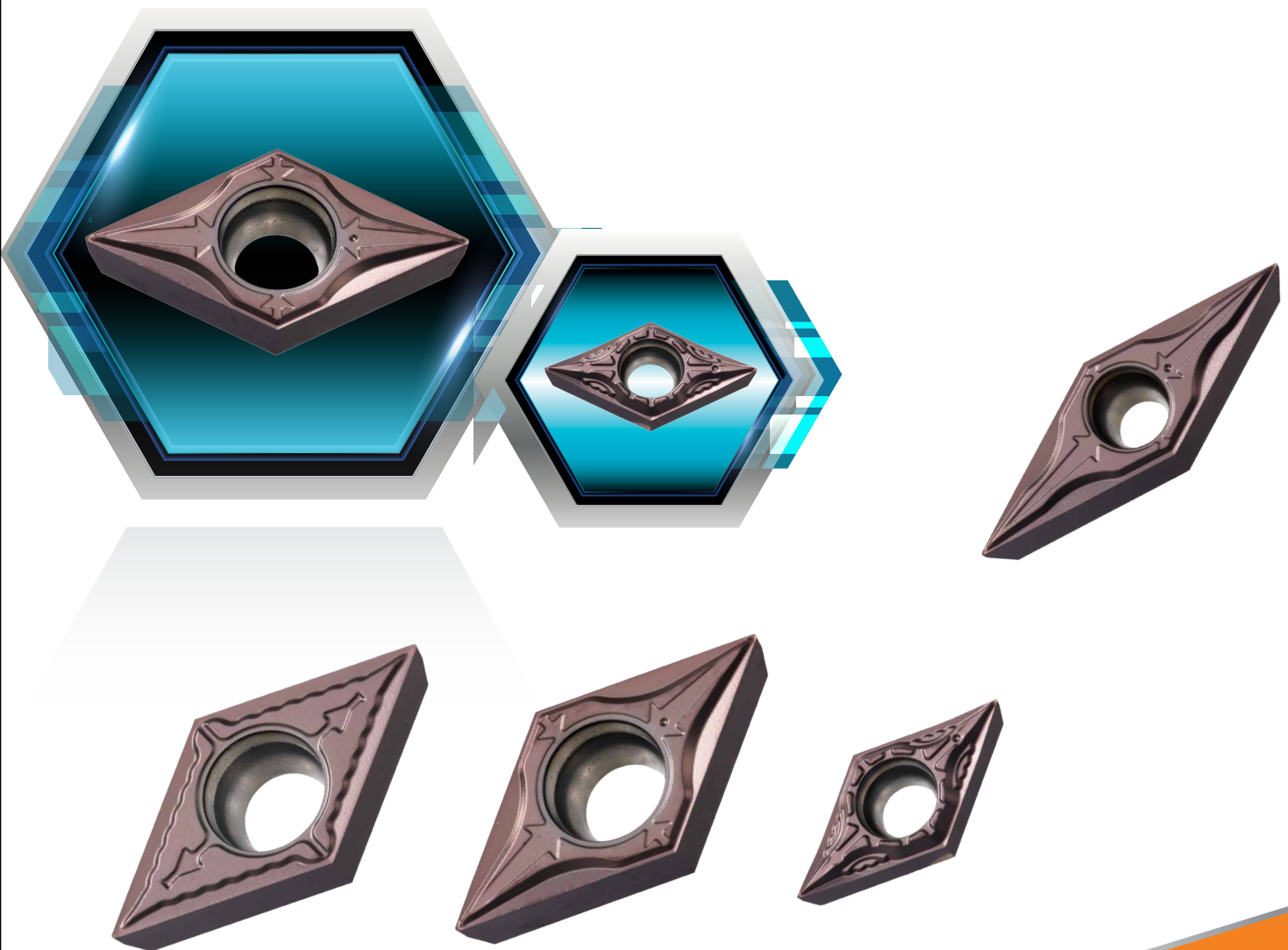
# NPN

New Product News



## TOP MINI

### New Turning Chip Breakers and Grades For Swiss Type Automatic Lathes



## KEY POINT

TaeguTec has launched new turning chip breakers and grades in the turning TOPMINI line for Swiss type automatic lathes.

When machining small components in Swiss type automatic lathes, longer tool life, excellent surface roughness and good chip control are required under low machining conditions. In addition, when processing a variety of workpiece materials, an integrated grade is required without the need of grade replacement. In line with these demands, TaeguTec has developed a new PVD coating grades and new chip breakers that can be applied to various materials and cutting ranges.

The new PVD coating grades **TT4410** and **TT4430** implement excellent wear resistance, longer tool life, as well as good surface finish and dimensional precision in various materials of small component machining under low cutting speed and feed. This is due to its superfine substrate, good coating adhesion, specialized coating layer that prevents coating peeling, improved chipping resistance and ground surface.

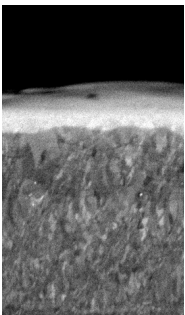
The **SL** chip breaker for super finishing has excellent chip control in areas with a low depth of 0.25 mm or less, minimizing chip control problems during machining.

The general purpose **SM** chip breaker has a low cutting force and good chip control in a wide area with a cutting depth of less than 1.5 mm. It ensures good surface finish and dimensional precision.

The **SH** chip breaker has a wide groove width, which is particularly suitable for processing automotive parts and has a low cutting force and good machining quality even at a maximum cutting depth of 3.5 mm. In addition, the line offers the “- F” type with a sharp edge that generates excellent surface finish due to the low cutting force, and the “- E” type with micro honing that prevents chipping during operation ensuring stable and longer tool life.

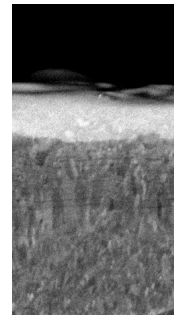
### TT4410 grade features

- High wear resistant micro-alloy substrate with excellent ground surface
- Multi AlTiCrN coating layer with improved bonding on substrate and anti-adhesion of workpiece material
- Suitable for steel, stainless steel, heat-resistant super alloy and Ti-alloy in high-speed continuous cutting
- Suitable for hardened steel in low-speed continuous cutting
- Dark brown color

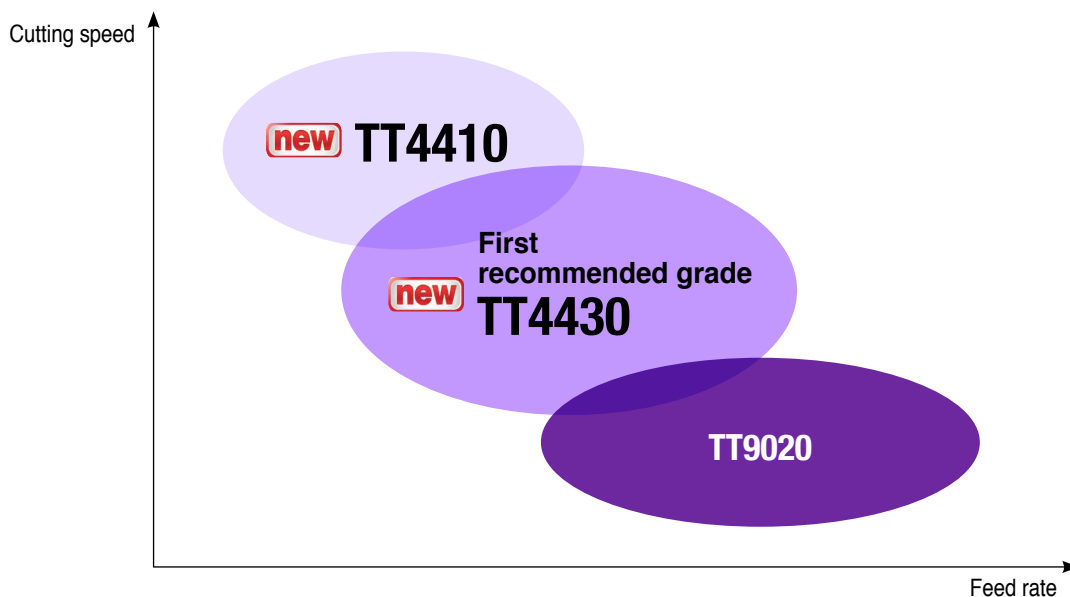


### TT4430 grade features


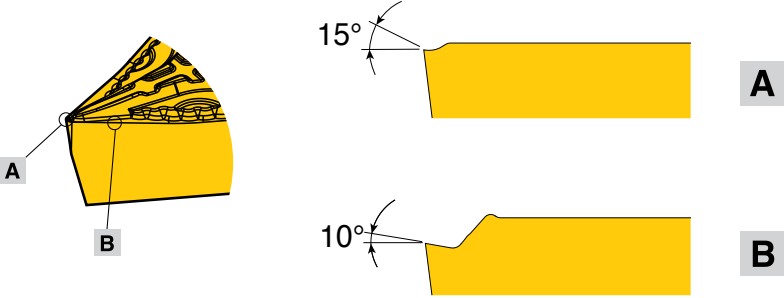
- High toughened micro-alloy
- Multi AlTiCrN coating layer with stabilized edge, anti-adhesion of workpiece material and high chipping resistance
- Suitable for steel, stainless steel, heat-resistant super alloy and Ti-alloy in low-medium speed continuous cutting and light interrupted cutting
- Dark brown color



## Application range

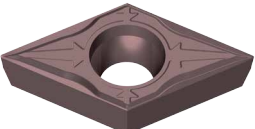
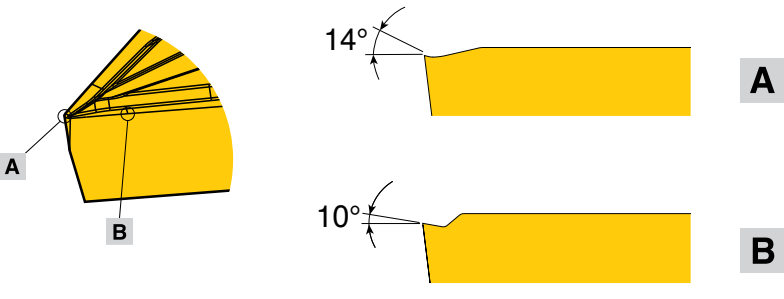


## SL chip breaker **new**

Chip breaker	Edge geometry
 <p style="text-align: center;">SL</p>	

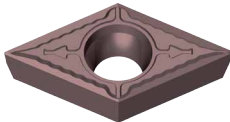
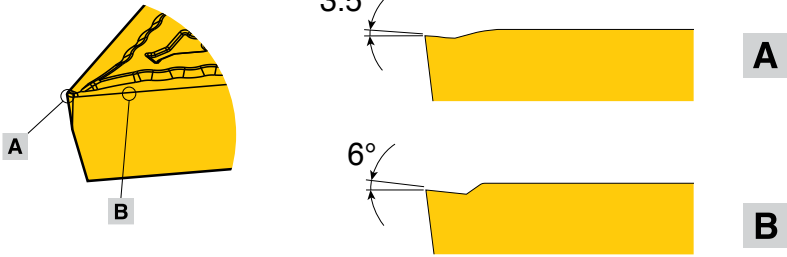
- High performance in low depth of cut and low feed machining
- Excellent chip control due to wave geometry edge and special inclined design
- Recommended depth of cut: 0.02-0.25 mm

## SM chip breaker **new**

Chip breaker	Edge geometry
 <p style="text-align: center;">SM</p>	

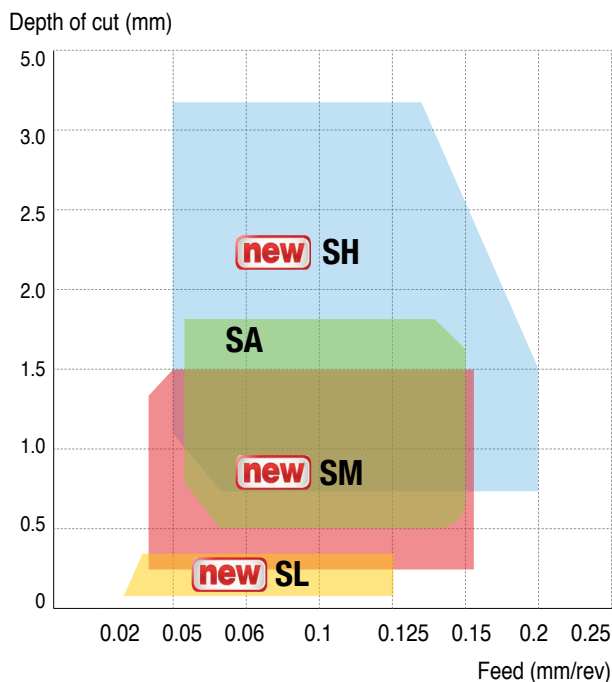
- 1st recommended chip breaker for Swiss type automatic lathes
- Stable cutting edge and low cutting force
- Long tool life and good surface finish
- Recommended depth of cut: 0.2-1.5 mm

## SH chip breaker **new**

Chip breaker	Edge geometry
 <p style="text-align: center;">SH</p>	

- Suitable for deep depth of cut machining
- Excellent chip control in a wide machining range
- A well coordinated cutting edge with sharpness and stiffness for various machining
- Recommended depth of cut: 0.7-3.5 mm

## Chip breaker range (peripheral ground insert)



- Insert : DCGT 11T302
- Cutting speed : 80 m/min
- Material: Stainless steel (AISI 304)

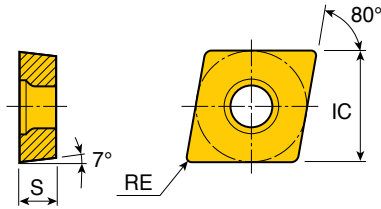
## Insert designation system

DCGT 11T302M SH-F  
                          1 2 3

1. M: Corner radius minus tolerance  
(ex 02M: lower than R0.2)
2. Chip breaker  
 SL: Low depth of cut chip breaker for Swiss type automatic lathes  
 SM: Medium depth of cut chip breaker for Swiss type automatic lathes  
 SH: Deep depth of cut chip breaker for Swiss type automatic lathes
3. Edge specification  
 F: Sharp edge  
 E: Micro honing edge

## CCGT

### Positive 7° clearance 80° rhombic inserts



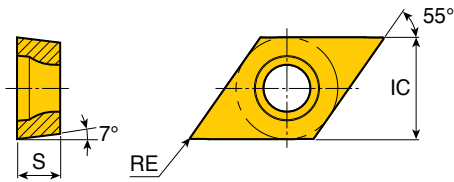
Size	Dimension (mm)		
	IC	S	RE
<b>06</b>	6.35	2.38	0.2
<b>09</b>	9.52	3.97	0.1-0.4

Insert	Designation	ap (mm)	Feed (mm/rev)	PVD coated	
				TT4410	TT4430
	<b>CCGT 060202M SL-F</b>	0.02-0.25	0.02-0.10	●	●
	<b>09T301M SL-F</b>	0.02-0.25	0.015-0.10	●	●
	<b>09T302M SL-F</b>	0.02-0.25	0.02-0.10	●	●
	<b>CCGT 060202M SM-F</b>	0.2-1.5	0.02-0.12	●	●
	<b>09T301M SM-F</b>	0.2-1.5	0.02-0.12	●	●
	<b>09T302M SM-F</b>	0.2-1.5	0.02-0.12	●	●
	<b>09T304M SM-F</b>	0.2-1.5	0.03-0.12	●	●
	<b>CCGT 09T304M SH-F</b>	0.7-3.5	0.07-0.17	●	●

●: Standard items

## DCGT

### Positive 7° clearance 55° rhombic inserts



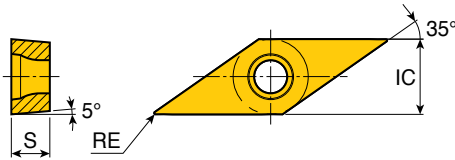
Size	Dimension (mm)		
	IC	S	RE
07	6.35	2.38	0.1-0.4
11	9.52	3.97	0.1-0.4

Insert	Designation	ap (mm)	Feed (mm/rev)	PVD coated	
				TT4410	TT4430
	DCGT 070201M SL-F	0.02-0.25	0.015-0.10	●	●
	070202M SL-F	0.02-0.25	0.02-0.10	●	●
	11T301M SL-F	0.02-0.25	0.015-0.10	●	●
	11T302M SL-F	0.02-0.25	0.02-0.10	●	●
	DCGT 070201M SM-F	0.2-1.5	0.02-0.12	●	●
	070202M SM-F	0.2-1.5	0.02-0.12	●	●
	070204M SM-F	0.2-1.5	0.03-0.12	●	●
	11T301M SM-F	0.2-1.5	0.02-0.12	●	●
	11T302M SM-F	0.2-1.5	0.02-0.12	●	●
	11T304M SM-F	0.2-1.5	0.03-0.12	●	●
	DCGT 11T302M SH-F	0.7-3.5	0.05-0.15	●	●
	11T304M SH-F	0.7-3.5	0.07-0.17	●	●
	11T302M SH-E	0.7-3.5	0.05-0.15		●



●: Standard items

## VBGT

### Positive 5° clearance 35° rhombic inserts



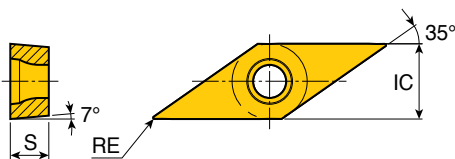
Size	Dimension (mm)		
	IC	S	RE
11	6.35	3.18	0.1-0.4

Insert	Designation	ap (mm)	Feed (mm/rev)	PVD coated	
				TT4410	TT4430
	VBGT 110302M SL-F	0.02-0.25	0.02-0.10	●	●
	VBGT 110301M SM-F	0.2-1.5	0.02-0.12	●	●
	110302M SM-F	0.2-1.5	0.02-0.12	●	●
	110304M SM-F	0.2-1.5	0.03-0.12	●	●



●: Standard items

## VCGT

### Positive 7° clearance 35° rhombic inserts



Size	Dimension (mm)		
	IC	S	RE
11	6.35	3.18	0.1-0.4

Insert	Designation	ap (mm)	Feed (mm/rev)	PVD coated	
				TT4410	TT4430
	VCGT 110302M SL-F	0.02-0.25	0.02-0.10	●	●
	VCGT 110301M SM-F	0.2-1.5	0.02-0.12	●	●
	110302M SM-F	0.2-1.5	0.02-0.12	●	●
	110304M SM-F	0.2-1.5	0.03-0.12	●	●

●: Standard items



## Recommended Cutting Conditions

### Machining data for turning grades

ISO	Material	Condition	Tensile strength (N/mm <sup>2</sup> )	Hardness HB	Material No.	Cutting speed Vc(m/min)			
						Coated			
						TT4410	TT4430		
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	170-380	160-370	
		>=0.25%C	Annealed	650	190	2	170-340	160-340	
		<0.55%C	Quenched and tempered	850	250	3	150-270	140-270	
		>=0.55%C	Annealed	750	220	4	170-270	160-270	
			Quenched and tempered	1000	300	5	150-250	140-250	
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed		600	200	6	150-270	140-270	
				930	275	7	60-130	60-130	
		Quenched and tempered		1000	300	8	50-100	50-100	
				1200	350	9	30-100	30-100	
	High alloy steel, cast steel and tool steel	Annealed		680	200	10	60-180	60-180	
Quenched and tempered			1100	325	11	40-80	40-80		
M	Stainless steel and cast steel	Ferritic / martensitic		680	200	12	150-380	120-270	
		Martensitic		820	240	13	150-270	120-250	
		Austenitic		600	180	14	90-240	90-220	
K	Gray cast iron (GG)	Ferritic			160	15			
		Pearlitic			250	16			
	Cast iron nodular (GGG)	Ferritic			180	17			
		Pearlitic			260	18			
	Malleable cast iron	Ferritic			130	19			
Pearlitic				230	20				
N	Aluminum - wrought alloy	Not cureable			60	21			
		Cured			100	22			
	Aluminum-cast, alloyed	<=12% Si	Not cureable			75	23		
			Cured			90	24		
		>12% Si	High temp.			130	25		
	Copper alloys	>1% Pb	Free cutting			110	26		
			Brass			90	27		
			Electrolitic copper			100	28		
	Non-metallic	Duroplastics, fiber plastics					29		
		Hard rubber					30		
S	High temp. alloys	Fe based	Annealed		200	31	40-170	40-160	
			Cured		280	32	40-150	30-130	
		Ni or Co based	Annealed		250	33	45-90	35-80	
			Cured		350	34	30-80	30-70	
			Cast		320	35	30-80	30-60	
	Titanium, Ti alloys		Rm 400		36	110-190	90-180		
		Alpha+beta alloys cured	Rm 1050		37	50-90	40-80		
H	Hardened steel	Hardened			55HRC	38			
		Hardened			60HRC	39			
	Chilled cast iron	Cast			400	40			
	Cast iron nodular	Hardened			55HRC	41			

■ Steel   
 ■ Stainless steel   
 ■ Cast iron   
 ■ Nonferrous   
 ■ High temp. alloys   
 ■ Hardened steel