Member IMC Group Tungaloy INDUSTRY 4.0

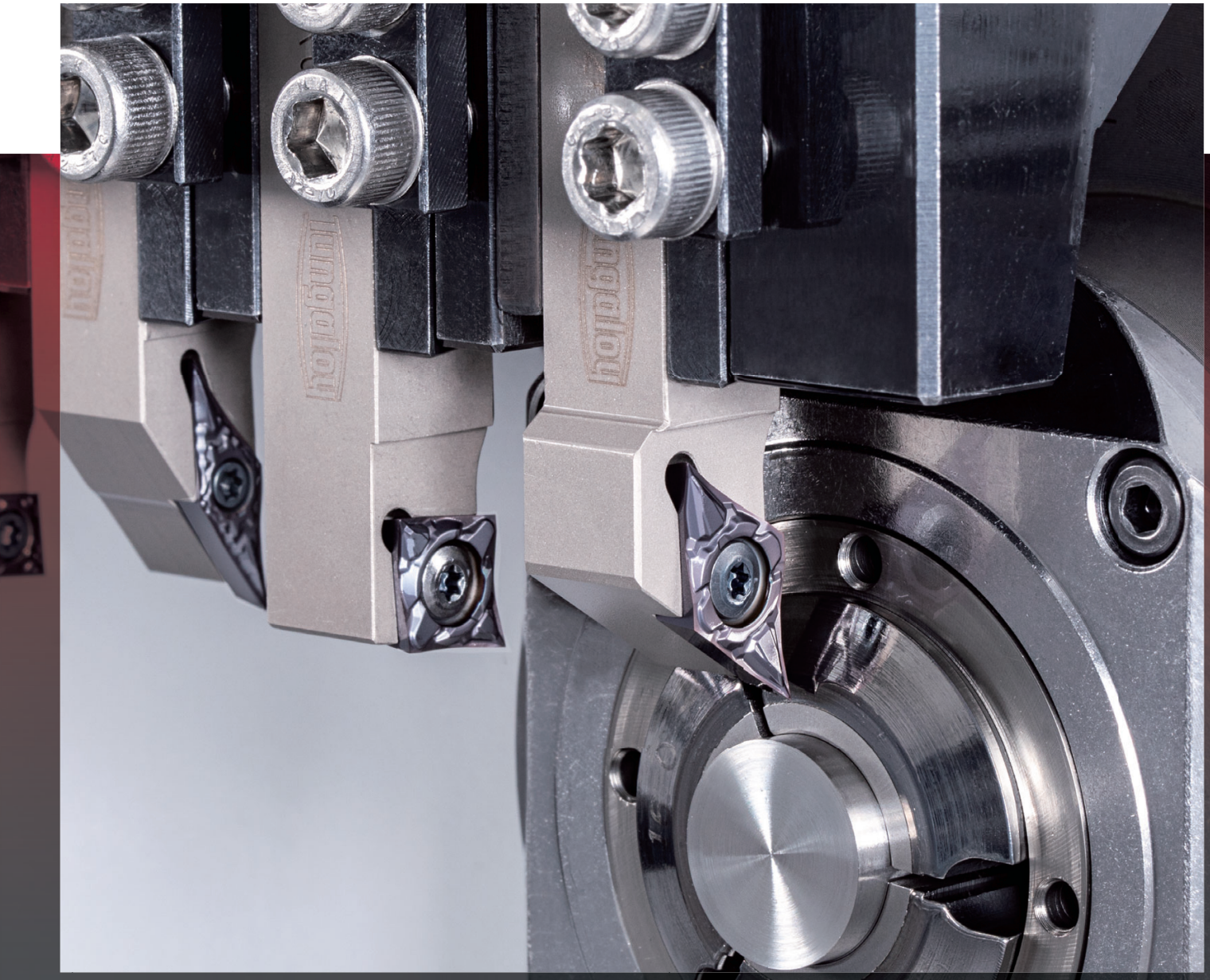
TurnLine

Grades for small parts machining

SH725

Tungaloy Report No. 436S1-US

New JP chipbreaker for excellent chip control and high part precision in small parts machining



TUNGALOY ADDFORCE ACCELERATED LINES

SH725

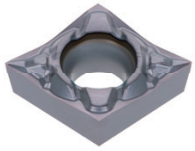
For more information

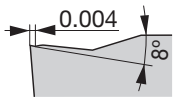
Pressed 3D chipbreaker series for small parts machining

Full lineup of chipbreakers for unrivaled chip control and super surface finishing

New

JP First choice chipbreaker for high precision finishing



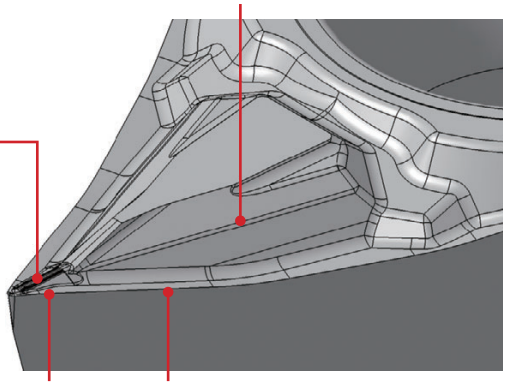


Eliminates chip nesting and other chip-associated issues that impede the shop's productivity and provides stable chip breaking over a wide range of feed rates and D.O.C.

- Effective chip breaking for high part quality
- Versatile geometry designed for a broad application range
- Eliminates burr generation and controls vibration during aggressive D.O.C.

Secondary rake with multiple facets
Guides and redirects chips generated during machining at great cutting depths

A protrusion extending towards the nose radius
Provides excellent chip control in the finish to super-finish cutting



Cutting edge with a steep inclination angle
- For better chip evacuation
- For reduced cutting loads

Primary rake with variable angles
Controls the generation of burrs and vibration when machining at a maximum cutting depth capability

■ Chip control

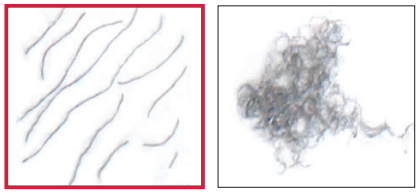
JP | Competitor

P
Insert : DCGT 32.50 FN-JP
Workpiece material: 1045
Cutting speed : *Vc* = 262 sfm
Feed : *f* = 0.001 ipr
Depth of cut : *ap* = 0.020"
Coolant : Wet

JP | Competitor

P
Insert : DCGT 32.50 FN-JP
Workpiece material: 1045
Cutting speed : *Vc* = 262 sfm
Feed : *f* = 0.001 ipr
Depth of cut : *ap* = 0.118"
Coolant : Wet

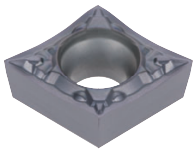
JP | Competitor

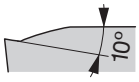


M
Insert : DCGT 32.50 FN-JP
Workpiece material: 304SS
Cutting speed : *Vc* = 262 sfm
Feed : *f* = 0.001 ipr
Depth of cut : *ap* = 0.002"
Coolant : Wet

JP chipbreaker provides superior chip control over a broad range of applications from super-finishing with light D.O.C. to aggressive cutting depth.

JS First choice chipbreaker for finish cutting

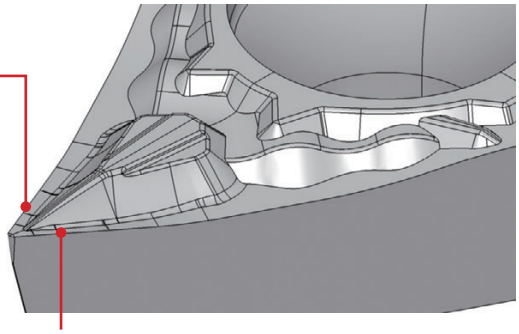




Chipbreaker geometry that allows light cutting action and excellent chip breaking

- A steep cutting edge inclination angle for better chip control and reduced cutting load
- A unique protrusion that extends towards the radius effectively controls chip flow from small to large cutting depths

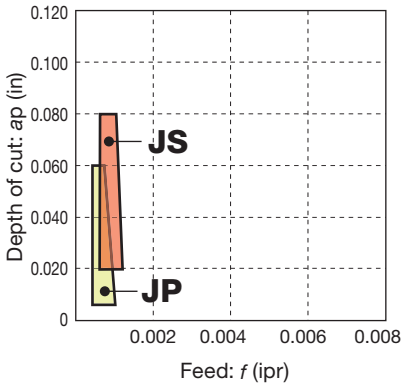
Cutting edge with a steep inclination angle
Provides good chip evacuation and reduced cutting loads



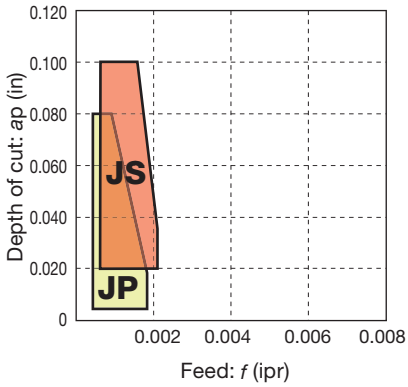
Rake with variable angles and steep protrusion
Provides stable chip control in the small to large cutting depth range and also maintains cutting edge integrity and sharpness over extended period of time

Chip control range

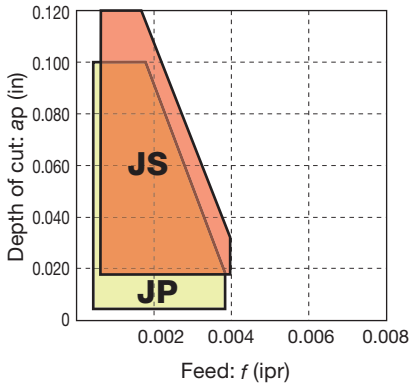
RE < 0.002"



RE < 0.004"

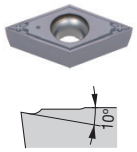


RE < 0.008"

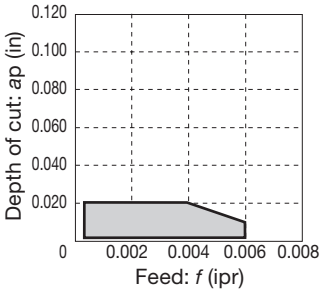


Complementary chipbreakers

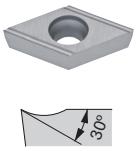
01



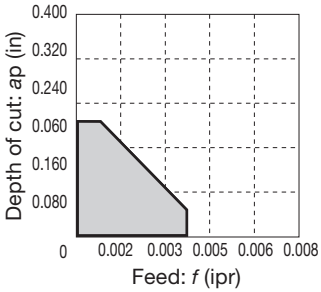
Pressed-in chipbreaker for high part quality that provides good chip control in the light D.O.C. range.



J10



Ground-in chipbreaker that demonstrates good chip control when machining at varying cutting depths.



SH725

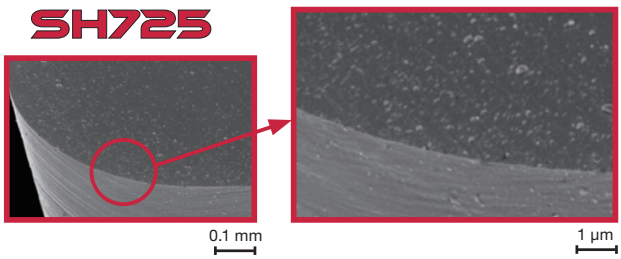
STANDARD CUTTING CONDITIONS

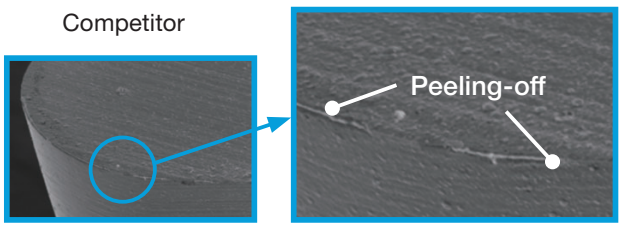
ISO	Workpiece materials	Chipbreaker	Grade	Cutting speed *Vc* (sfm)	Depth of cut *ap* (in)	Feed: *f* (ipr) RE < 0.001"	RE < 0.004"	RE < 0.008"	RE < 0.016"
P	Carbon steel Alloy steel	JP	SH725	33 - 656	0.002 - 0.098	0.0008 - 0.0012	0.001 - 0.002	0.001 - 0.004	-
		JS	SH725	33 - 656	0.020 - 0.118	0.0008 - 0.0012	0.001 - 0.002	0.001 - 0.004	0.002 - 0.008
M	Stainless steel	JP	SH725	33 - 656	0.002 - 0.098	0.0008 - 0.0012	0.001 - 0.002	0.001 - 0.004	-
		JS	SH725	33 - 656	0.020 - 0.118	0.0008 - 0.0012	0.001 - 0.002	0.001 - 0.004	0.002 - 0.008

SH725 PVD grade exclusively designed for precise-part machining "High adhesion strength and sharp cutting edge" ➡ Amazing tool life with excellent sharpness!

Newly developed coating layer

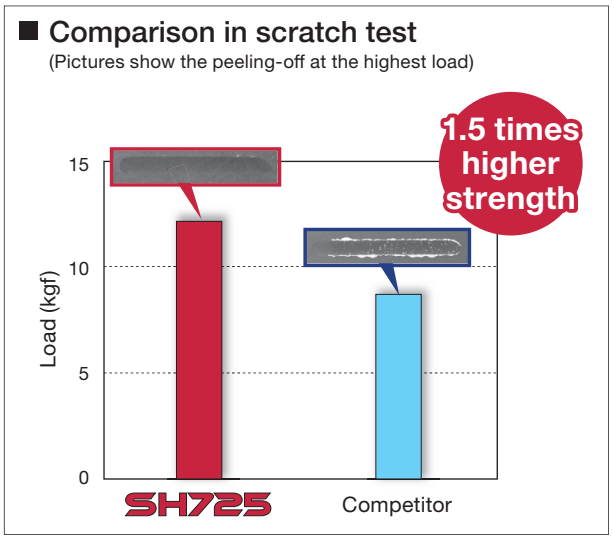
No peeling-off even on sharp cutting edges





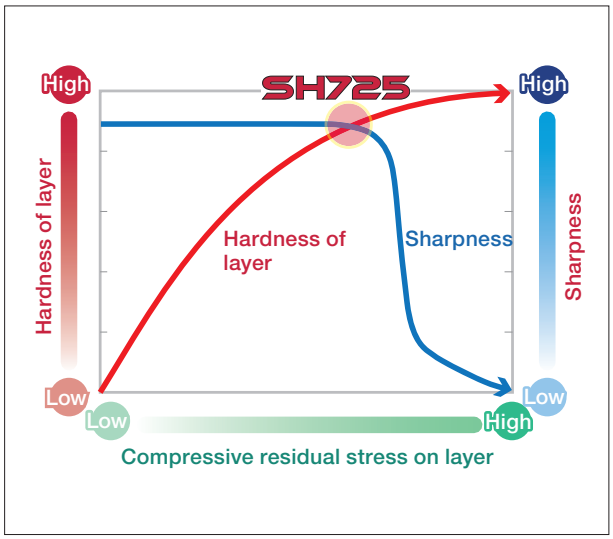
Drastically improved adhesion strength

Latest coating technology is effectively applied



Hard coating layer on the sharp cutting edge

Innovative coating with both hardness and sharpness

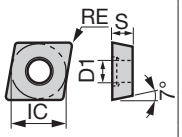


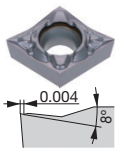
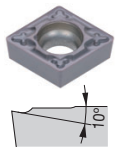
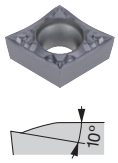
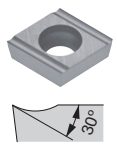
● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC

Rhombic, 80°
with hole
Positive 7°

P	Steel	●ⓒ
M	Stainless	●ⓒ
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Dimension (in) RE	IC	S	D1
Precision finishing (sharp edge)	**JP**	**CCGT 21.5V FN-JP**	**CCGT060200FN-JP**	●	<0.002	0.250	0.094	0.110
		CCGT 21.50 FN-JP	CCGT060201FN-JP	●	<0.004	0.250	0.094	0.110
		CCGT 21.50.5 FN-JP	CCGT060202FN-JP	●	<0.008	0.250	0.094	0.110
		CCGT 32.5V FN-JP	**CCGT09T300FN-JP**	●	<0.002	0.375	0.156	0.173
		CCGT 32.50 FN-JP	CCGT09T301FN-JP	●	<0.004	0.375	0.156	0.173
		CCGT 32.50.5 FN-JP	CCGT09T302FN-JP	●	<0.008	0.375	0.156	0.173
	01	**CCGT 21.50.5 F-01**	**CCGT060202F-01**	●	<0.008	0.250	0.094	0.110
		CCGT 21.51 F-01	CCGT060204F-01	●	<0.016	0.250	0.094	0.110
		CCGT 32.50.5 F-01	**CCGT09T302F-01**	●	<0.008	0.375	0.156	0.173
		CCGT 32.51 F-01	CCGT09T304F-01	●	<0.016	0.375	0.156	0.173
Finishing to medium cutting (sharp edge)	**JS**	**CCGT 21.5V FN-JS**	**CCGT060200FN-JS**	●	<0.002	0.250	0.094	0.110
		CCGT 21.50 FN-JS	CCGT060201FN-JS	●	<0.004	0.250	0.094	0.110
		CCGT 21.50.5 FN-JS	CCGT060202FN-JS	●	<0.008	0.250	0.094	0.110
		CCGT 21.51 FN-JS	CCGT060204FN-JS	●	<0.016	0.250	0.094	0.110
		CCGT 32.5V FN-JS	**CCGT09T300FN-JS**	●	<0.002	0.375	0.156	0.173
		CCGT 32.50 FN-JS	CCGT09T301FN-JS	●	<0.004	0.375	0.156	0.173
		CCGT 32.50.5 FN-JS	CCGT09T302FN-JS	●	<0.008	0.375	0.156	0.173
		CCGT 32.51 FN-JS	CCGT09T304FN-JS	●	<0.016	0.375	0.156	0.173
	J10	**CCGT 21.5V FR-J10**	**CCGT060200FR-J10**	●	0.001	0.250	0.094	0.110
		CCGT 21.5V FL-J10	CCGT060200FL-J10	●	0.001	0.250	0.094	0.110
		CCGT 21.50 FR-J10	CCGT060201FR-J10	●	0.004	0.250	0.094	0.110
		CCGT 21.50 FL-J10	CCGT060201FL-J10	●	0.004	0.250	0.094	0.110
		CCGT 21.50.5 FR-J10	CCGT060202FR-J10	●	0.008	0.250	0.094	0.110
		CCGT 21.50.5 FL-J10	CCGT060202FL-J10	●	0.008	0.250	0.094	0.110
		CCGT 32.5V FR-J10	**CCGT09T300FR-J10**	●	0.001	0.375	0.156	0.173
		CCGT 32.5V FL-J10	CCGT09T300FL-J10	●	0.001	0.375	0.156	0.173
		CCGT 32.50 FR-J10	CCGT09T301FR-J10	●	0.004	0.375	0.156	0.173
		CCGT 32.50 FL-J10	CCGT09T301FL-J10	●	0.004	0.375	0.156	0.173
		CCGT 32.50.5 FR-J10	CCGT09T302FR-J10	●	0.008	0.375	0.156	0.173
		CCGT 32.50.5 FL-J10	CCGT09T302FL-J10	●	0.008	0.375	0.156	0.173
		CCGT 32.51 FR-J10	CCGT09T304FR-J10	●	0.016	0.375	0.156	0.173

Corner radius (RE) with a sign of inequality (<) means minus tolerance.

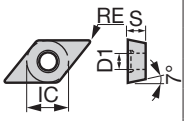
● : New product
● : Line up

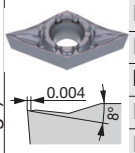
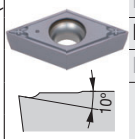
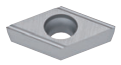
● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

DC

Rhombic, 55° with hole Positive 7°

P	Steel	●ⓒ
M	Stainless	●ⓒ
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Dimension (in) RE	IC	S	D1
Precision finishing (sharp edge)	JP	DCGT 21.5V FN-JP	DCGT070200FN-JP	●	<0.002	0.250	0.094	0.110
		DCGT 21.50 FN-JP	DCGT070201FN-JP	●	<0.004	0.250	0.094	0.110
		DCGT 21.50.5 FN-JP	DCGT070202FN-JP	●	<0.008	0.250	0.094	0.110
		DCGT 32.5V FN-JP	DCGT11T300FN-JP	●	<0.002	0.375	0.156	0.173
		DCGT 32.50 FN-JP	DCGT11T301FN-JP	●	<0.004	0.375	0.156	0.173
		DCGT 32.50.5 FN-JP	DCGT11T302FN-JP	●	<0.008	0.375	0.156	0.173
	01	DCGT 21.50.5 F-01	DCGT070202F-01	●	<0.008	0.250	0.094	0.110
		DCGT 21.51 F-01	DCGT070204F-01	●	<0.016	0.250	0.094	0.110
		DCGT 32.50.5 F-01	DCGT11T302F-01	●	<0.008	0.375	0.156	0.173
		DCGT 32.51 F-01	DCGT11T304F-01	●	<0.016	0.375	0.156	0.173
Finishing to medium cutting (sharp edge)	JS	DCGT 21.5V FN-JS	DCGT070200FN-JS	●	<0.002	0.250	0.094	0.110
		DCGT 21.50 FN-JS	DCGT070201FN-JS	●	<0.004	0.250	0.094	0.110
		DCGT 21.50.5 FN-JS	DCGT070202FN-JS	●	<0.008	0.250	0.094	0.110
		DCGT 32.5V FN-JS	DCGT11T300FN-JS	●	<0.002	0.375	0.156	0.173
		DCGT 32.50 FN-JS	DCGT11T301FN-JS	●	<0.004	0.375	0.156	0.173
		DCGT 32.50.5 FN-JS	DCGT11T302FN-JS	●	<0.008	0.375	0.156	0.173
		DCGT 32.51 FN-JS	DCGT11T304FN-JS	●	<0.016	0.375	0.156	0.173
	J10	DCGT 21.5V FR-J10	DCGT070200FR-J10	●	0.001	0.250	0.094	0.110
		DCGT 21.5V FL-J10	DCGT070200FL-J10	●	0.001	0.250	0.094	0.110
		DCGT 21.50 FR-J10	DCGT070201FR-J10	●	0.004	0.250	0.094	0.110
		DCGT 21.50 FL-J10	DCGT070201FL-J10	●	0.004	0.250	0.094	0.110
		DCGT 21.50.5 FR-J10	DCGT070202FR-J10	●	0.008	0.250	0.094	0.110
		DCGT 21.50.5 FL-J10	DCGT070202FL-J10	●	0.008	0.250	0.094	0.110
		DCGT 21.51 FR-J10	DCGT070204FR-J10	●	0.016	0.250	0.094	0.110
		DCGT 21.51 FL-J10	DCGT070204FL-J10	●	0.016	0.250	0.094	0.110
		DCGT 32.5V FR-J10	DCGT11T300FR-J10	●	0.001	0.375	0.156	0.173
		DCGT 32.5V FL-J10	DCGT11T300FL-J10	●	0.001	0.375	0.156	0.173
		DCGT 32.50 FR-J10	DCGT11T301FR-J10	●	0.004	0.375	0.156	0.173
		DCGT 32.50 FL-J10	DCGT11T301FL-J10	●	0.004	0.375	0.156	0.173
		DCGT 32.50.5 FR-J10	DCGT11T302FR-J10	●	0.008	0.375	0.156	0.173
		DCGT 32.50.5 FL-J10	DCGT11T302FL-J10	●	0.008	0.375	0.156	0.173

Corner radius (RE) with a sign of inequality (<) means minus tolerance.

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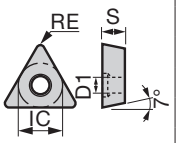
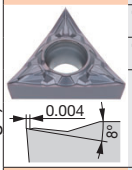
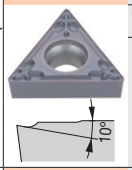
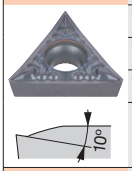
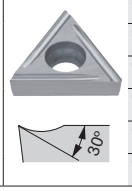
TC

Triangular, 60°
with hole
Positive 7°

P	Steel	●ⓒ
M	Stainless	●ⓒ
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Dimension (in) RE	IC	S	D1
Precision finishing (sharp edge)	JP	TCGT 21.5V FN-JP	TCGT110200FN-JP	★	<0.002	0.250	0.094	0.110
		TCGT 21.50 FN-JP	TCGT110201FN-JP	★	<0.004	0.250	0.094	0.110
		TCGT 21.50.5 FN-JP	TCGT110202FN-JP	★	<0.008	0.250	0.094	0.110
	01	TCGT 21.50.5 F-01	TCGT110202F-01	●	<0.008	0.250	0.094	0.110
		TCGT 21.51 F-01	TCGT110204F-01	●	<0.016	0.250	0.094	0.110
Finishing to medium cutting (sharp edge)	JS	TCGT 21.5V FN-JS	TCGT110200FN-JS	●	<0.002	0.250	0.094	0.110
		TCGT 21.50 FN-JS	TCGT110201FN-JS	●	<0.004	0.250	0.094	0.110
		TCGT 21.50.5 FN-JS	TCGT110202FN-JS	●	<0.008	0.250	0.094	0.110
		TCGT 21.51 FN-JS	TCGT110204FN-JS	●	<0.016	0.250	0.094	0.110
	J10	TCGT 21.5V FR-J10	TCGT110200FR-J10	●	0.001	0.250	0.094	0.110
		TCGT 21.5V FL-J10	TCGT110200FL-J10	●	0.001	0.250	0.094	0.110
		TCGT 21.50 FR-J10	TCGT110201FR-J10	●	0.004	0.250	0.094	0.110
		TCGT 21.50 FL-J10	TCGT110201FL-J10	●	0.004	0.250	0.094	0.110
		TCGT 21.50.5 FR-J10	TCGT110202FR-J10	●	0.008	0.250	0.094	0.110
		TCGT 21.50.5 FL-J10	TCGT110202FL-J10	●	0.008	0.250	0.094	0.110
		TCGT 21.51 FR-J10	TCGT110204FR-J10	●	0.016	0.250	0.094	0.110

Corner radius (RE) with a sign of inequality (<) means minus tolerance.

★ : Will be released in Q1 2023
● : Line up

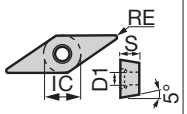
Insert POSITIVE TYPE

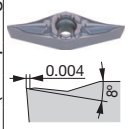
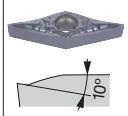
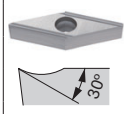
● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

VB

Rhombic, 35° with hole Positive 5°

P	Steel	●ᑕ
M	Stainless	●ᑕ
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation Inch	Designation Metric	Coated SH725	Dimension (in) RE	IC	S	D1
Precision finishing (sharp edge)	JP	VBGT 22V FN-JP	VBGT110300FN-JP	●	<0.002	0.250	0.125	0.110
		VBGT 220 FN-JP	VBGT110301FN-JP	●	<0.004	0.250	0.125	0.110
		VBGT 220.5 FN-JP	VBGT110302FN-JP	●	<0.008	0.250	0.125	0.110
Finishing to medium cutting (sharp edge)	JS	VBGT 22V FN-JS	VBGT110300FN-JS	●	<0.002	0.250	0.125	0.110
		VBGT 220 FN-JS	VBGT110301FN-JS	●	<0.004	0.250	0.125	0.110
		VBGT 220.5 FN-JS	VBGT110302FN-JS	●	<0.008	0.250	0.125	0.110
		VBGT 221 FN-JS	VBGT110304FN-JS	●	<0.016	0.250	0.125	0.110
	J10	VBGT 22V FR-J10	VBGT110300FR-J10	●	0.001	0.250	0.125	0.110
		VBGT 22V FL-J10	VBGT110300FL-J10	●	0.001	0.250	0.125	0.110
		VBGT 220 FR-J10	VBGT110301FR-J10	●	0.004	0.250	0.125	0.110
		VBGT 220 FL-J10	VBGT110301FL-J10	●	0.004	0.250	0.125	0.110
		VBGT 220.5 FR-J10	VBGT110302FR-J10	●	0.008	0.250	0.125	0.110
		VBGT 220.5 FL-J10	VBGT110302FL-J10	●	0.008	0.250	0.125	0.110
		VBGT 221 FR-J10	VBGT110304FR-J10	●	0.016	0.250	0.125	0.110
		VBGT 221 FL-J10	VBGT110304FL-J10	●	0.016	0.250	0.125	0.110

Corner radius (RE) with a sign of inequality (<) means minus tolerance.

● : New product
● : Line up

Oct. 2022 (TJ)