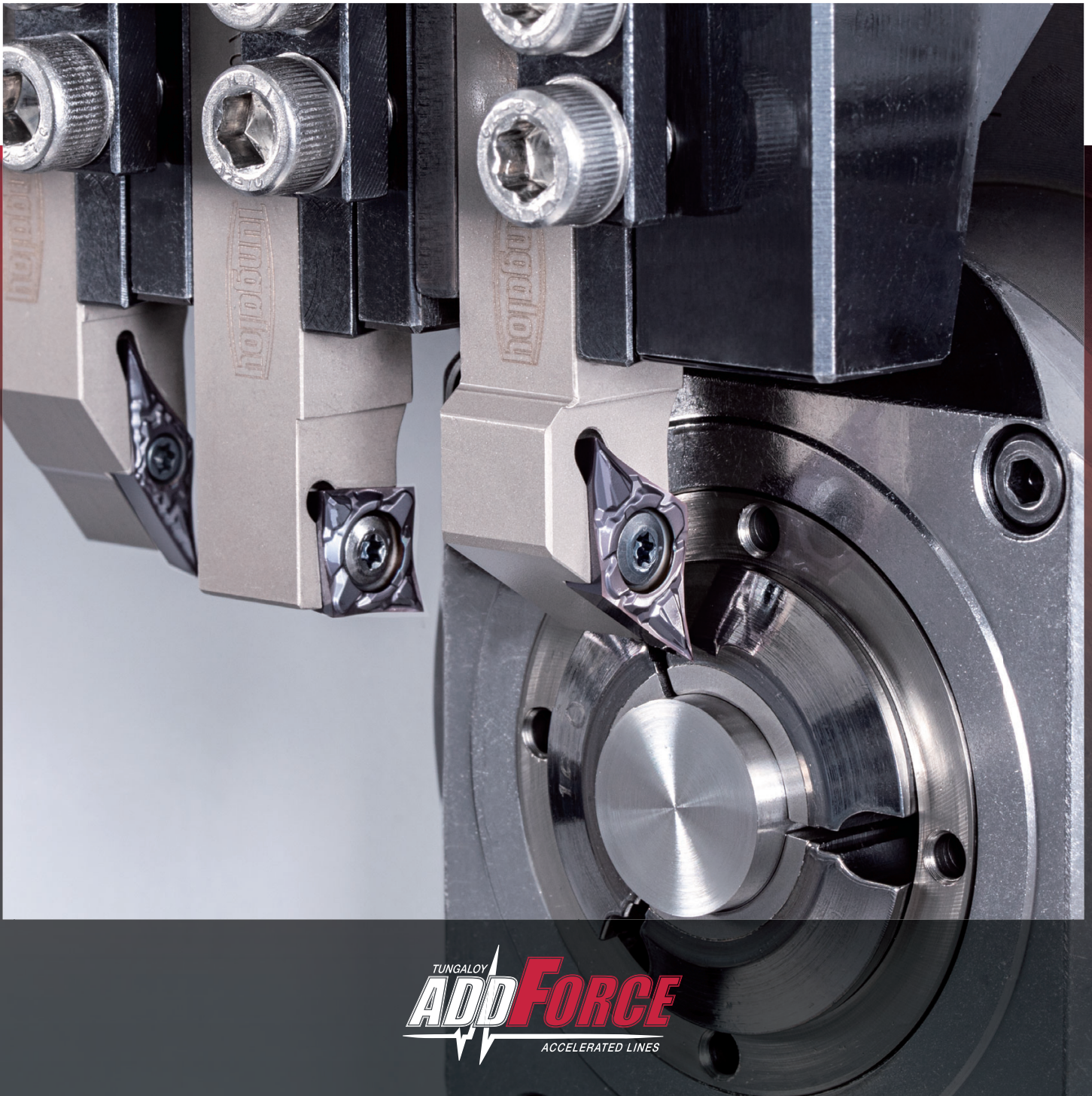


Grades for small parts machining

SH725

Tungaloy Report No. 436S1-G

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



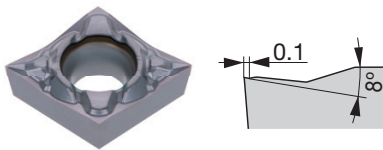


Pressed 3D chipbreaker series for small parts machining

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.

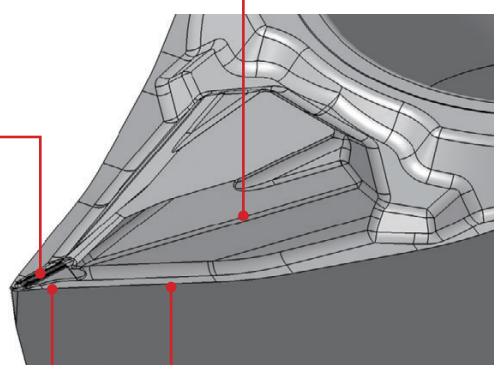
- Effective chip breaking for high part quality
- Versatile geometry designed for a broad application range
- Eliminates burr generation and controls vibration during aggressive D.O.C.

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



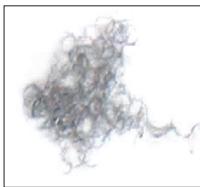
Cutting edge with a steep inclination angle

- For better chip evacuation
- For reduced cutting loads

Primary rake with variable angles

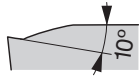
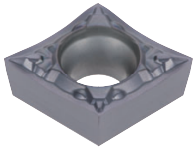
Controls the generation of burrs and vibration when machining at a maximum cutting depth capability

Chip control

JP	Competitor	JP	Competitor	JP	Competitor
					
P Insert : DCGT11T301FN-JP Workpiece material: S45C / C45 Cutting speed : Vc = 80 m/min Feed : f = 0.02 mm/rev Depth of cut : ap = 0.5 mm Coolant : Wet		P Insert : DCGT11T301FN-JP Workpiece material: S45C / C45 Cutting speed : Vc = 80 m/min Feed : f = 0.03mm/rev Depth of cut : ap = 3 mm Coolant : Wet		M Insert : DCGT11T301FN-JP Workpiece material: SUS304 / X5CrNi18-9 Cutting speed : Vc = 80 m/min Feed : f = 0.03 mm/rev Depth of cut : ap = 0.05 mm 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.

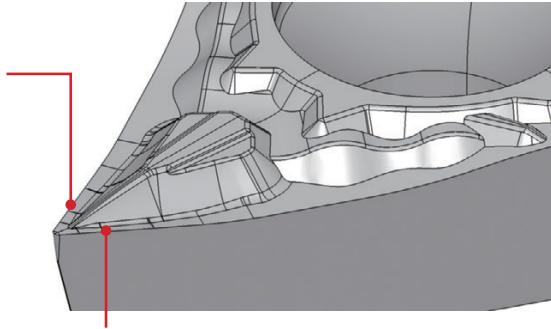
JS First choice chipbreaker for finish cutting



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

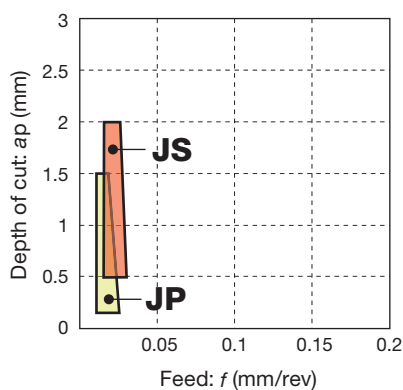
Cutting edge with a steep inclination angle
Provides good chip evacuation and reduced cutting loads



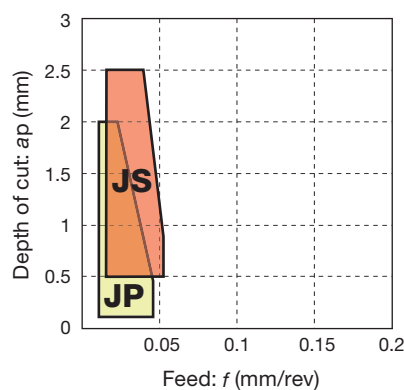
Rake with variable angles and steep protrusion
Provides stable chip control in the small to large cutting depth range and also maintains cutting edge integrity and sharpness over extended period of time

■ Chip control range

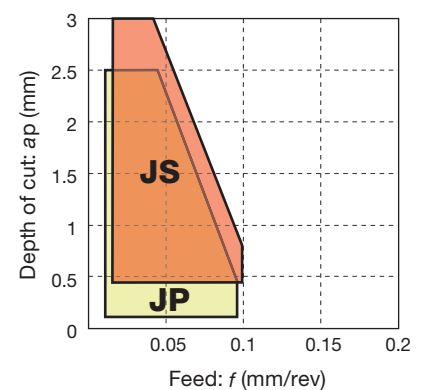
RE < 0.05 mm



RE < 0.1 mm

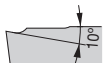
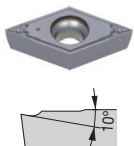


RE < 0.2 mm

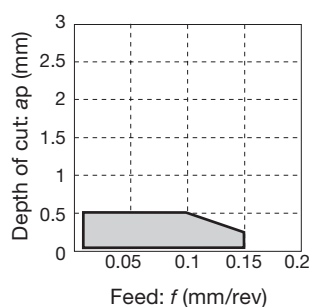


■ Complementary chipbreakers

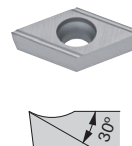
01



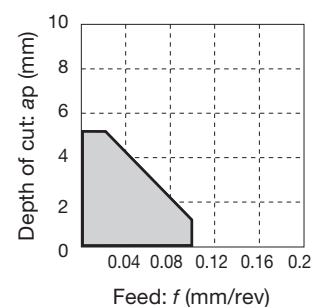
Pressed-in chipbreaker for high part quality that provides good chip control in the light D.O.C. range.



J10



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

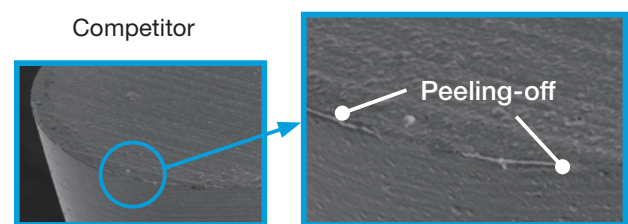
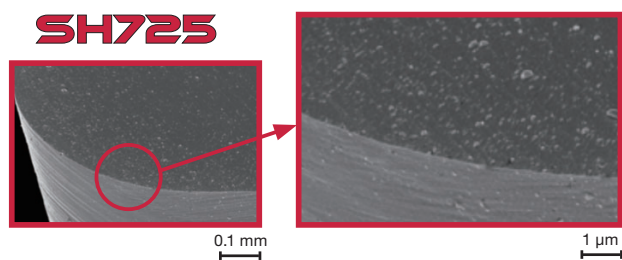


STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Chipbreaker	Grade	Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed: f (mm/rev)			
						RE < 0.03	RE < 0.1	RE < 0.2	RE < 0.4
P	Carbon steel Alloy steel	JP	SH725	10 - 200	0.05 - 2.5	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	-
		JS	SH725	10 - 200	0.5 - 3	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	0.05 - 0.2
M	Stainless steel	JP	SH725	10 - 200	0.05 - 2.5	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	-
		JS	SH725	10 - 200	0.5 - 3	0.02 - 0.03	0.02 - 0.05	0.02 - 0.1	0.05 - 0.2

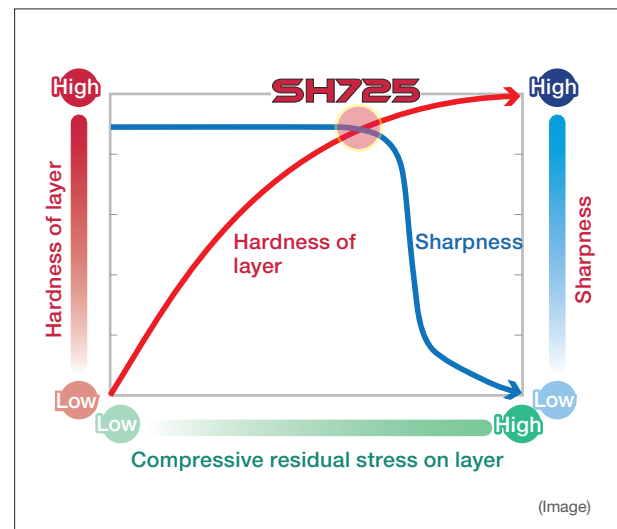
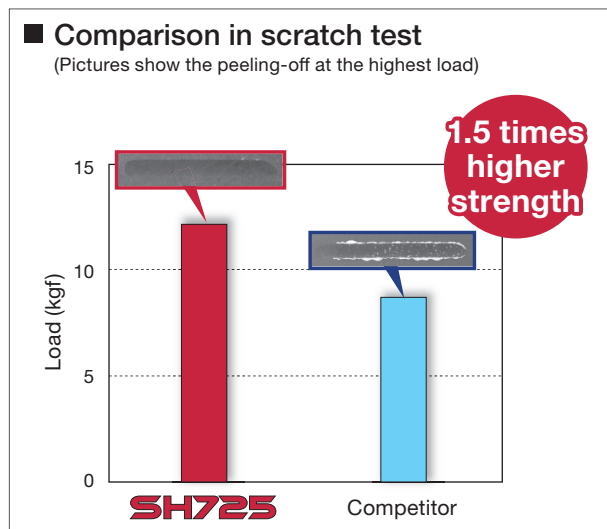
SH725 PVD grade exclusively designed for precise-part machining
 “High adhesion strength and sharp cutting edge”
 → Amazing tool life with excellent sharpness!

Newly developed coating layer
 No peeling-off even on sharp cutting edges



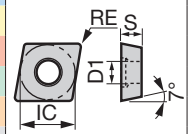
Drastically improved adhesion strength
 Latest coating technology is effectively applied

Hard coating layer on the sharp cutting edge
 Innovative coating with both hardness and sharpness





**Rhombic, 80°
with hole
Positive 7°**

[illegible]

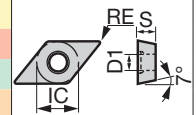
Corner radius (RE) with a sign of inequality (<) means minus tolerance.

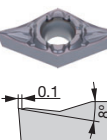
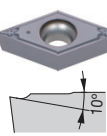
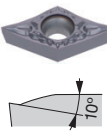
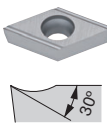
● : New product
● : Line up

**Rhombic, 55°
with hole
Positive 7°**



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



Application	Chipbreaker	Designation	Material		Coated																	Dimension (mm)			
			SH725																			RE	IC	S	D1
Precision finishing (sharp edge)	JP	DCGT070200FN-JP	●																		<0.05	6.35	2.38	2.8	
		DCGT070201FN-JP	●																		<0.1	6.35	2.38	2.8	
		DCGT070202FN-JP	●																		<0.2	6.35	2.38	2.8	
		DCGT11T300FN-JP	●																		<0.05	9.525	3.97	4.4	
		DCGT11T301FN-JP	●																		<0.1	9.525	3.97	4.4	
		DCGT11T302FN-JP	●																		<0.2	9.525	3.97	4.4	
	01	DCGT070202F-01	●																		<0.2	6.35	2.38	2.8	
		DCGT070204F-01	●																		<0.4	6.35	2.38	2.8	
		DCGT11T302F-01	●																		<0.2	9.525	3.97	4.4	
		DCGT11T304F-01	●																		<0.4	9.525	3.97	4.4	
Finishing to medium cutting (sharp edge)	JS	DCGT070200FN-JS	●																		<0.05	6.35	2.38	2.8	
		DCGT070201FN-JS	●																		<0.1	6.35	2.38	2.8	
		DCGT070202FN-JS	●																		<0.2	6.35	2.38	2.8	
		DCGT11T300FN-JS	●																		<0.05	9.525	3.97	4.4	
		DCGT11T301FN-JS	●																		<0.1	9.525	3.97	4.4	
		DCGT11T302FN-JS	●																		<0.2	9.525	3.97	4.4	
		DCGT11T304FN-JS	●																		<0.4	9.525	3.97	4.4	
	J10	DCGT070200FR-J10	●																		0.03	6.35	2.38	2.8	
		DCGT070200FL-J10	●																		0.03	6.35	2.38	2.8	
		DCGT070201FR-J10	●																		0.1	6.35	2.38	2.8	
		DCGT070201FL-J10	●																		0.1	6.35	2.38	2.8	
		DCGT070202FR-J10	●																		0.2	6.35	2.38	2.8	
		DCGT070202FL-J10	●																		0.2	6.35	2.38	2.8	
		DCGT070204FR-J10	●																		0.4	6.35	2.38	2.8	
		DCGT070204FL-J10	●																		0.4	6.35	2.38	2.8	
		DCGT11T300FR-J10	●																		0.03	9.525	3.97	4.4	
		DCGT11T300FL-J10	●																		0.03	9.525	3.97	4.4	
		DCGT11T301FR-J10	●																		0.1	9.525	3.97	4.4	
		DCGT11T301FL-J10	●																		0.1	9.525	3.97	4.4	
		DCGT11T302FR-J10	●																		0.2	9.525	3.97	4.4	
DCGT11T302FL-J10		●																		0.2	9.525	3.97	4.4		

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

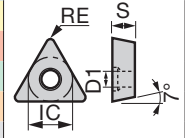
● : New product
● : Line up

TC



Triangular, 60°
with hole
Positive 7°

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

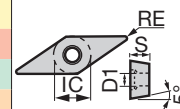


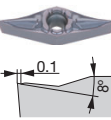
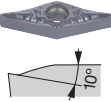
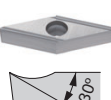
Application	Chipbreaker	Designation	Coated	Dimension (mm)			
				RE	IC	S	D1
Precision finishing (sharp edge)	JP	TCGT110200FN-JP	●	<0.05	6.35	2.38	2.8
		TCGT110201FN-JP	●	<0.1	6.35	2.38	2.8
		TCGT110202FN-JP	●	<0.2	6.35	2.38	2.8
	01	TCGT110202F-01	●	<0.2	6.35	2.38	2.8
		TCGT110204F-01	●	<0.4	6.35	2.38	2.8
Finishing to medium cutting (sharp edge)	JS	TCGT110200FN-JS	●	<0.05	6.35	2.38	2.8
		TCGT110201FN-JS	●	<0.1	6.35	2.38	2.8
		TCGT110202FN-JS	●	<0.2	6.35	2.38	2.8
		TCGT110204FN-JS	●	<0.4	6.35	2.38	2.8
	J10	TCGT110200FR-J10	●	0.03	6.35	2.38	2.8
		TCGT110200FL-J10	●	0.03	6.35	2.38	2.8
		TCGT110201FR-J10	●	0.1	6.35	2.38	2.8
		TCGT110201FL-J10	●	0.1	6.35	2.38	2.8
		TCGT110202FR-J10	●	0.2	6.35	2.38	2.8
		TCGT110202FL-J10	●	0.2	6.35	2.38	2.8
		TCGT110204FR-J10	●	0.4	6.35	2.38	2.8

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

● : New product
 ● : Line up

**Rhombic, 35°
with hole
Positive 5°**

[illegible]

Application	Chipbreaker	Designation	Material																Dimension (mm)						
			Coated																		RE	IC	S	D1	
Precision finishing (sharp edge)		JP	VBGT110300FN-JP	●																	<0.05	6.35	3.18	2.8	
			VBGT110301FN-JP	●																		<0.1	6.35	3.18	2.8
			VBGT110302FN-JP	●																		<0.2	6.35	3.18	2.8
Precision finishing (sharp edge)		JS	VBGT110300FN-JS	●																	<0.05	6.35	3.18	2.8	
			VBGT110301FN-JS	●																		<0.1	6.35	3.18	2.8
			VBGT110302FN-JS	●																		<0.2	6.35	3.18	2.8
			VBGT110304FN-JS	●																		<0.4	6.35	3.18	2.8
Finishing to medium cutting (sharp edge)		J10	VBGT110300FR-J10	●																	0.03	6.35	3.18	2.8	
			VBGT110300FL-J10	●																		0.03	6.35	3.18	2.8
			VBGT110301FR-J10	●																		0.1	6.35	3.18	2.8
			VBGT110301FL-J10	●																		0.1	6.35	3.18	2.8
			VBGT110302FR-J10	●																		0.2	6.35	3.18	2.8
			VBGT110302FL-J10	●																		0.2	6.35	3.18	2.8
			VBGT110304FR-J10	●																		0.4	6.35	3.18	2.8
			VBGT110304FL-J10	●																		0.4	6.35	3.18	2.8

● : New product
● : Line up



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