Tungaloy
Member IMC Group

Keeping the Customer First

Tungaloy Report No. 384-E4

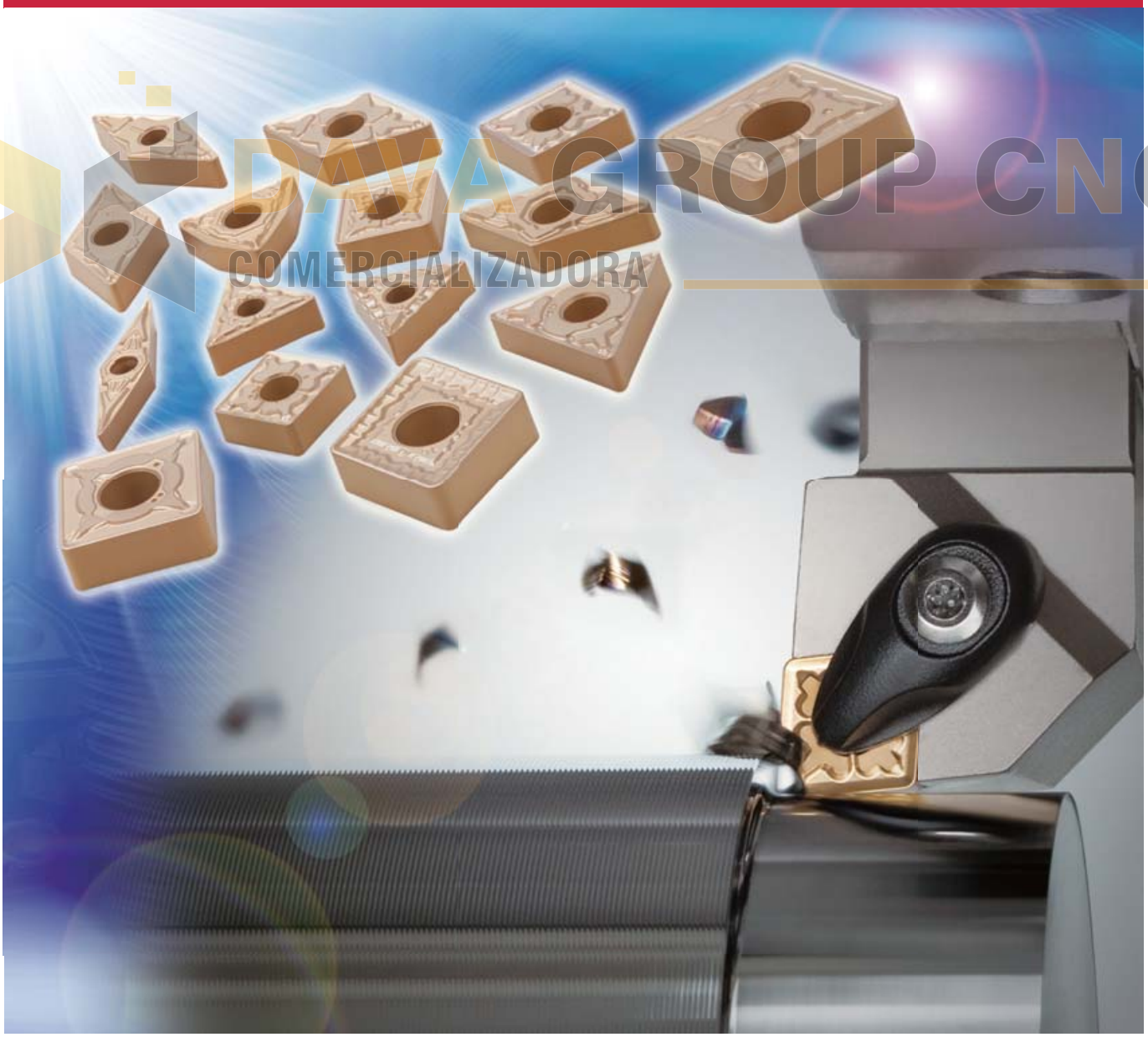
TURNLINE CVD coated grade for steel turning

T9100 SERIES

Upgrade

PREMIUMTEC
TUNGALOY

Extremely stable tool life due to amazing chipping resistance



Extremely Stable Tool

New Triple Technology !

Provides a high level of reliability with its excellent fracture resistance!

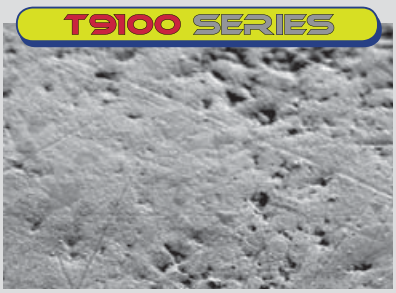
Features

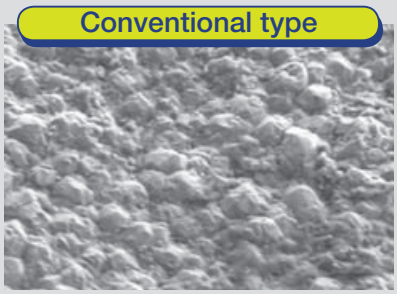
● Special Surface Technology

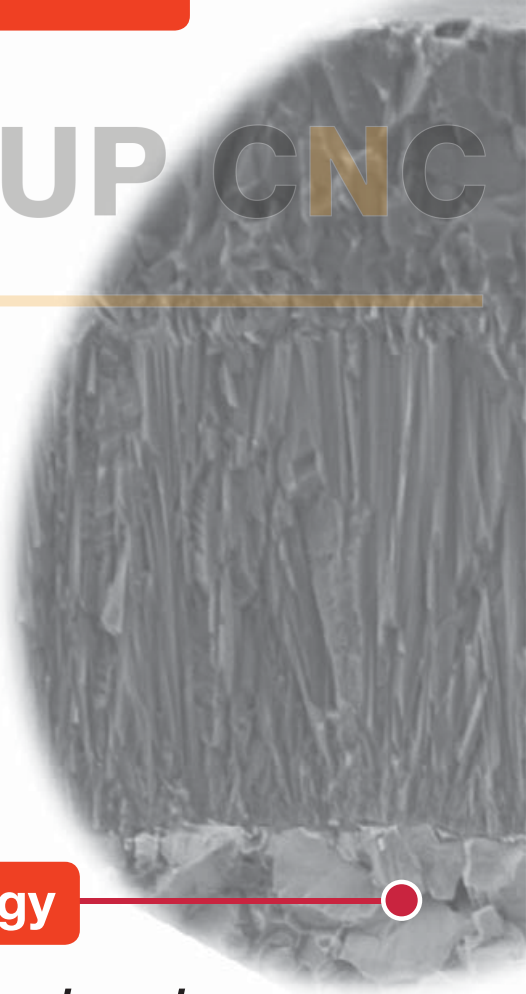
PREMIUMTEC
TUNGALOY

Smooth insert surface prevents chip adhesion and improves chip flow.

■ Comparison of coated surfaces







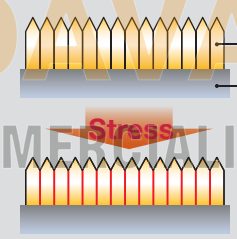
● Adhesion Reinforcement Technology

This specialised treatment enhances the bond between the coating and the substrate.

Life !

Columnar Stabilization Technology

T9100 SERIES

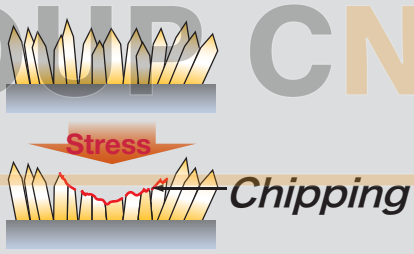


Disperses the stress

Prevents randomly developed cracks !!

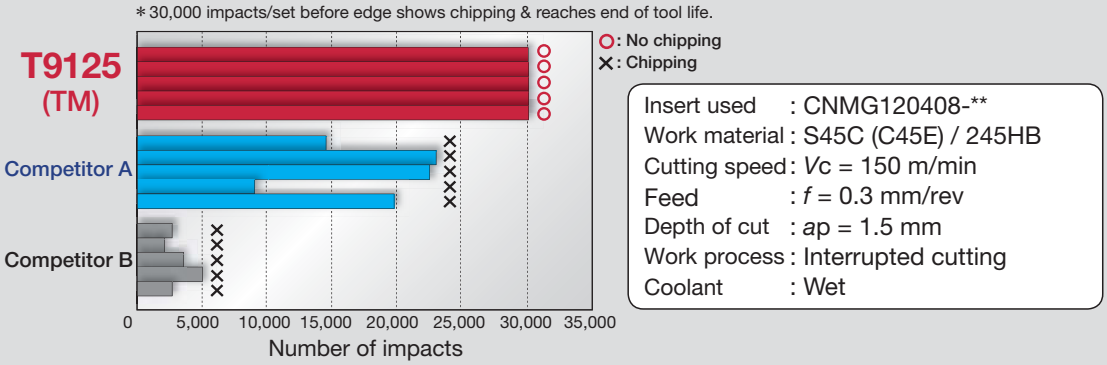
Excellent fracture resistance & extended tool life!

Conventional



Growing cracks leads to the peeling off the coating

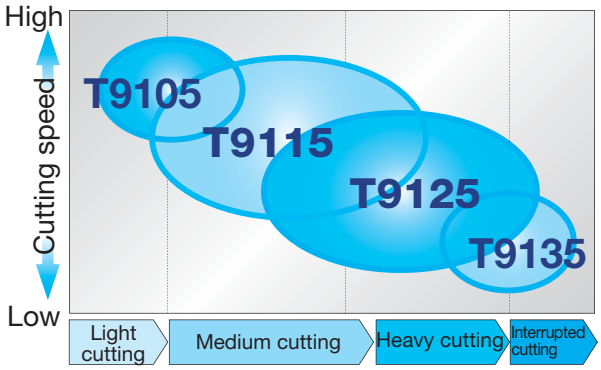
T9125 chipping or fracture resistance

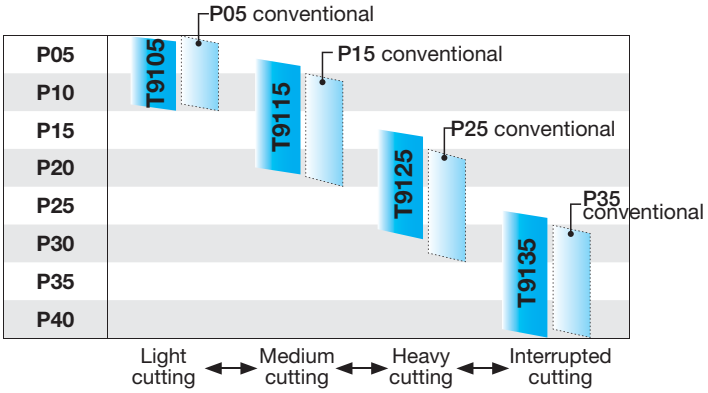


Insert used	: CNMG120408-**
Work material	: S45C (C45E) / 245HB
Cutting speed	: *Vc* = 150 m/min
Feed	: *f* = 0.3 mm/rev
Depth of cut	: *ap* = 1.5 mm
Work process	: Interrupted cutting
Coolant	: Wet

Result ***Even under heavy interrupted cutting, the tool life of the T9125 is extremely stable.***

Grades

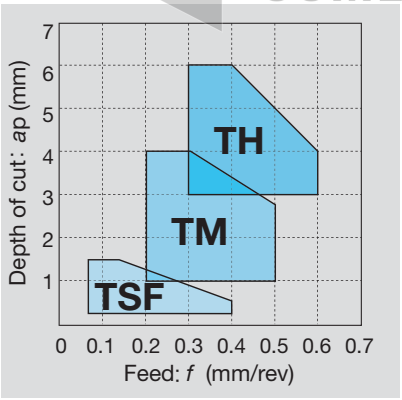


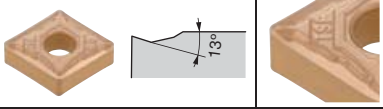
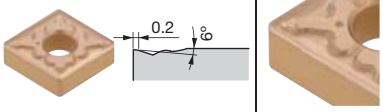
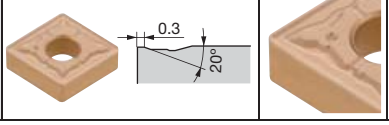


Appli-cation	Grade	Substrate			Coating layer		Features
	Application code	Specific gravity	HRA	GPa	Main Composition	Thickness (μm)	
P Steel	T9105 P01 - P10	14.2	91.5	2.4	Continuously formed columnar crystal TiCN + Al_2O_3	16	**Highly stable grade for steel turning** *Special Surface Technology* PREMIUMTEC **T9105** shows excellent performance during high speed cutting. **T9115** demonstrates a good balance of wear and impact resistance. Applicable for continuous to light interrupted cutting. **T9125** demonstrates excellent chipping resistance. Applicable for medium to heavy cutting. **T9135** shows excellent impact resistance during heavy interrupted cutting.
	T9115 P10 - P20	13.9	91.0	2.5			
	T9125 P20 - P30	13.7	90.0	2.6			
	T9135 P30 - P40	13.5	89.0	2.6			

Chipbreaker (For negative type inserts)

Basic chipbreakers

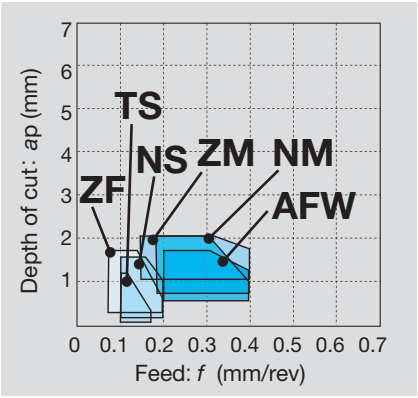


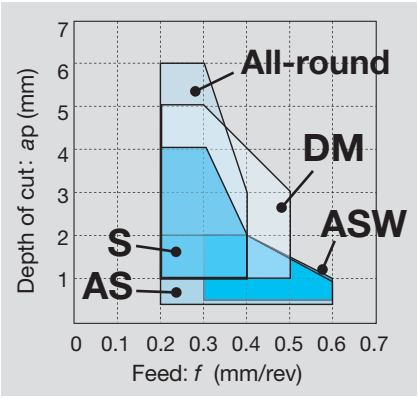
Application	Chipbreaker	Shape	Features
Finishing	TSF		First choice chipbreaker for finishing steels. The dimple structure decreases the contact area between the insert surface and chips, resulting in significant reduction of heat occurrence.
Medium cutting	TM		General-purpose, low cutting force chipbreaker provided with a wide range of chip control area, featuring the unique protrusion adjacent to the corner and cutting sharp-ness due to the high-rake angle.
Medium to heavy cutting	TH		Double-sided, three-dimensional chipbreaker provided with tougher cutting edges and smooth chip breakability. Also excels in high-feed machining.

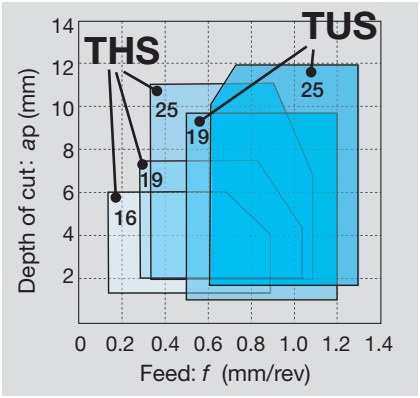
Standard cutting conditions

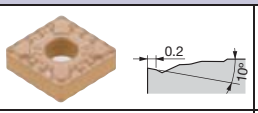
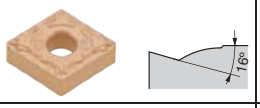
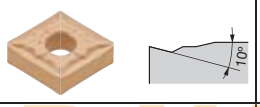
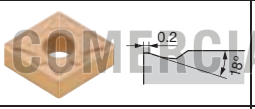
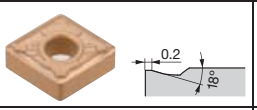
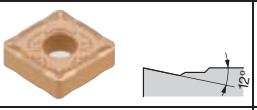
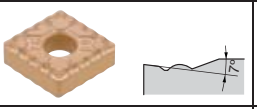
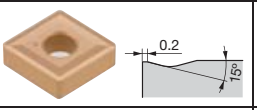
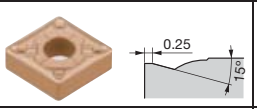
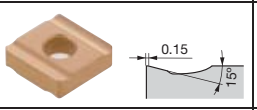
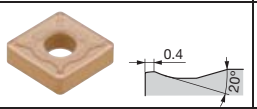
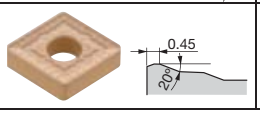
Application	Machining mode	Chipbreaker	Grades	Cutting speed *Vc* (m/min)	Depth of cut *ap* (mm)	Feed *f* (mm/rev)
Finishing	Continuous	TSF	T9105	180 - 350	0.2 - 1.5	0.08 - 0.4
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
Medium cutting	Continuous	TM	T9105	180 - 350	1.0 - 5.0	0.2 - 0.5
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
Medium to heavy cutting	Continuous	TH	T9105	180 - 350	3.0 - 6.0	0.3-0.6
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		

Complementary chipbreakers





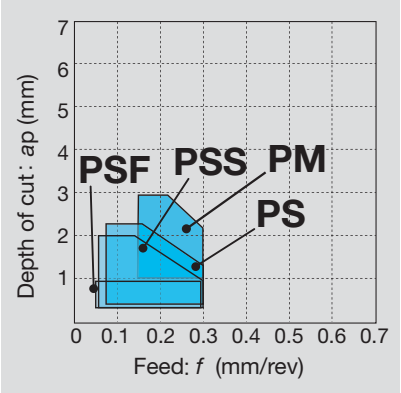


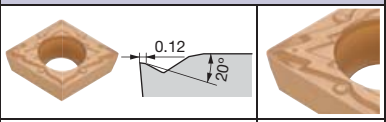
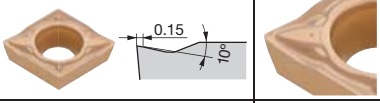
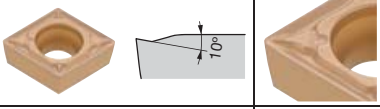
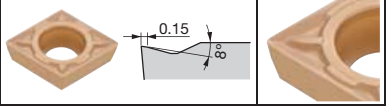
Application	Chipbreaker	Shape	Features
Finishing	ZF		Suitable for temporary increases in depth of cut such as on flange sections. Excels in chip control and is best for machining of lead free steels.
	New NS		The finishing chipbreaker has remarkable chip control under low feed and small depth of cut conditions. Suitable for machining near net shape components.
	New TS		Ideal chipbreaker for finishing under a wide range of cutting conditions. Sharp cutting edge allows excellent chip control in the machining of shaft like components.
	AFW		Features positive land and excellent chip control. Applicable for small D.O.C and high-feed cutting. Provided with wiping function.
High feed, small depth of cut	New AS		Advanced chipbreaker that is suitable for turning at high feeds and small depths of cut. Applicable for the machining of forged components with high productivity.
	ASW		Negative land design contributes to high reliability and edge strength. Applicable for small D.O.C and high-feed cutting. Provided with wiping function.
Finishing to medium cutting	NM		NM chipbreaker has a well designed protrusion and a strong edge for increased feed rates. It is suitable for highly productive turning of forged steel.
	ZM		Superior chip control in profiling and machining rounded forms. Ideally suited for machining lead free steels.
Medium cutting	New All-round		Highly reliable chipbreaker for medium cutting under a wide range of conditions from continuous to interrupted cutting.
	New DM		Enhanced chipbreaker with exceptional fracture resistance that provides excellent chip control under a wide range of medium cutting conditions.
	New S		Sharp cutting edge and simply designed chipbreaker offer exceptional chip control and high productivity in medium cutting applications.
Heavy cutting	New THS		Optimum chipbreaker that is suitable for machining with a fluctuating depth of cut in medium to heavy turning. Optimized cutting edge provides high strength and low cutting forces.
Heavy cutting (Single sided)	New TUS		Single sided chipbreaker that has uniquely designed protrusions for outstanding chip control when machining large depths of cut. Optimum cutting edge design increases fracture resistance.

Standard cutting conditions

Application	Machining mode	Chipbreaker	Grades	Cutting speed *Vc* (m/min)	Depth of cut *ap* (mm)	Feed *f* (mm/rev)
Finishing	Continuous	ZF	T9105	180 - 350	0.2 - 1.5	0.07 - 0.2
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
	Continuous	NS	T9105	180 - 350	0.2-1.5	0.07 - 0.25
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
	Continuous	TS	T9105	180 - 350	0.2 - 1.5	0.08 - 0.2
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
	Continuous	AFW	T9105	180 - 350	0.5 - 1.5	0.2 - 0.4
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
High feed, small depth of cut	Continuous	AS	T9105	180 - 350	0.5 - 2.0	0.2 - 0.6
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
	Continuous	ASW	T9105	180 - 350	0.5 - 2.0	0.3 - 0.6
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
Finishing to medium cutting	Continuous	NM	T9105	180 - 350	0.5 - 2.0	0.15 - 0.4
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
	Continuous	ZM	T9105	180 - 350	0.7 - 2.0	0.2 - 0.4
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
Medium cutting	Continuous	All-round	T9105	180 - 350	1.0 - 6.0	0.2 - 0.4
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
	Continuous	DM	T9105	180 - 350	1.0 - 5.0	0.2 - 0.5
	Continuous to Light interrupted		T9115	100 -300		
	Light interrupted		T9125	80 -180		
	Heavy interrupted		T9135	50 - 150		
	Continuous	S	T9105	180 - 350	1.0 - 4.0	0.2 - 0.4
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
Heavy cutting	Continuous	THS	T9105	180 - 350	1.5 - 11.0	0.3 - 1.0
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		
Heavy cutting (Single sided)	Continuous	TUS	T9105	180 - 350	1.0 - 12.0	0.5 - 1.5
	Continuous to Light interrupted		T9115	100 - 300		
	Light interrupted		T9125	80 - 180		
	Heavy interrupted		T9135	50 - 150		

Chipbreaker (For positive type inserts)



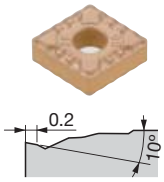
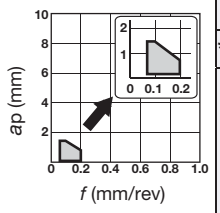
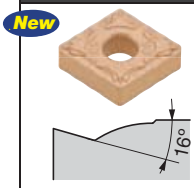
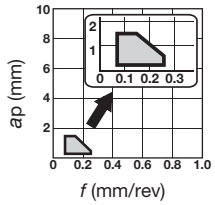
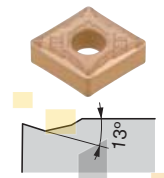
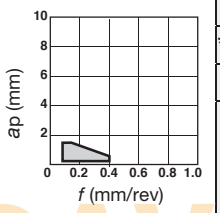
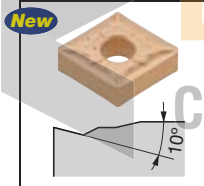
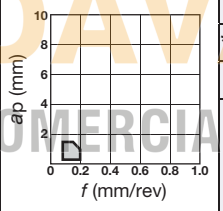
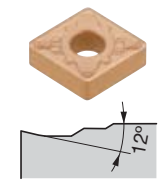
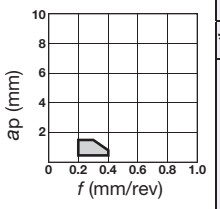
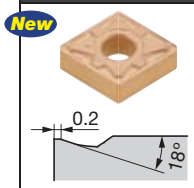
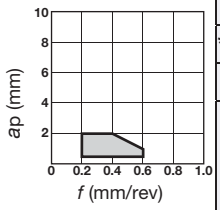
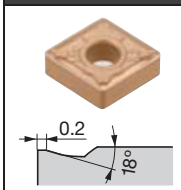
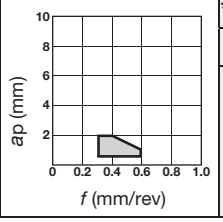
Application	Chipbreaker	Shape	Features
Finishing	**PSF**		First choice chipbreaker for finishing with low cutting force and high wear resistance. The PSF has excellent chip control at a low depth of cut and reduces chip control problems.
Finishing to light cutting	**PSS**		The PSS chipbreaker is suitable for finishing to light cutting in stainless steel and internal turning. It has excellent chip control with low cutting forces.
Finishing to medium cutting	**PS**		This three-dimensional, finishing chipbreaker features excellent chip control and a sharp cutting action. The economical "M" class insert is applicable for a wide range of applications, delivering highly efficient boring.
Medium cutting	**PM**		Basic chipbreaker for medium cutting. This features excellent cutting sharpness and chip control.

Standard cutting conditions

Application	Machining mode	Chipbreaker	Grades	Cutting speed *Vc* (m/min)	Depth of cut *ap* (mm)	Feed *f* (mm/rev)
Finishing	Continuous	**PSF**	**T9105**	180 - 350	0.1 - 0.5	0.08 - 0.3
	Continuous to Light interrupted		**T9115**	100 - 300		
	Light interrupted		**T9125**	80 - 180		
	Heavy interrupted		**T9135**	50 - 150		
Finishing to light cutting	Continuous	**PSS**	**T9105**	180 - 350	0.3 - 2.0	0.08 - 0.3
	Continuous to Light interrupted		**T9115**	100 - 300		
	Light interrupted		**T9125**	80 - 180		
	Heavy interrupted		**T9135**	50 - 150		
Finishing to medium cutting	Continuous	**PS**	**T9105**	180 - 350	0.5 - 2.5	0.08 - 0.3
	Continuous to Light interrupted		**T9115**	100 - 300		
	Light interrupted		**T9125**	80 - 180		
	Heavy interrupted		**T9135**	50 - 150		
Medium cutting	Continuous	**PM**	**T9105**	180 - 350	1.0 - 3.0	0.15 - 0.3
	Continuous to Light interrupted		**T9115**	100 - 300		
	Light interrupted		**T9125**	80 - 180		
	Heavy interrupted		**T9135**	50 - 150		

Inserts Negative type

Rhombic, 80°

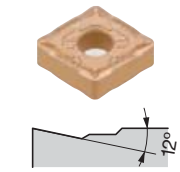
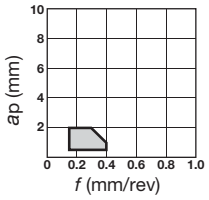
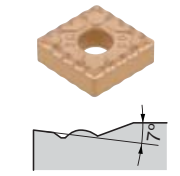
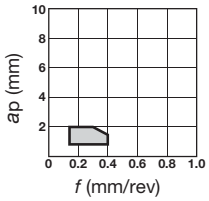
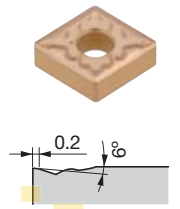
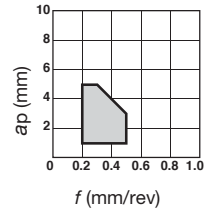
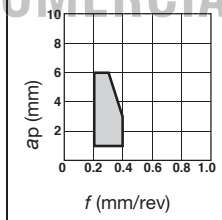
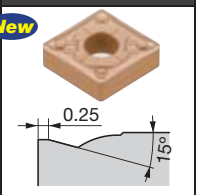
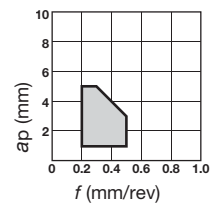
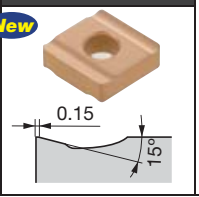
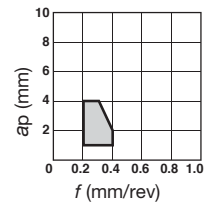
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**ZF** 		**CNMG120404-ZF**		●	●		12.7	4.76	5.16	0.4
			***CNMG120408-ZF**		●	●	★				0.8
	NS New 		***CNMG120408-NS**		★	★		12.7	4.76	5.16	0.8
	TSF 		**CNMG120404-TSF**	★	●	●		12.7	4.76	5.16	0.4
			***CNMG120408-TSF**	●	●	●	●				0.8
			CNMG120412-TSF		●	●					1.2
	TS New 		**CNMG120404-TS**	★	★	★		12.7	4.76	5.16	0.4
			***CNMG120408-TS**	★	★	★	★				0.8
			CNMG120412-TS		★	★	★				1.2
	AFW 		**CNMG120404-AFW**		●	●		12.7	4.76	5.16	0.4
			***CNMG120408-AFW**	★	●	●	★				0.8
High feed, small depth of cut	**AS** New 		**CNMG120404-AS**	★	★	★		12.7	4.76	5.16	0.4
			***CNMG120408-AS**	★	★	★	★				0.8
			CNMG120412-AS		★	★	★				1.2
	ASW 		***CNMG120408-ASW**	●	●	●		12.7	4.76	5.16	0.8
			CNMG120412-ASW	●	●	●					1.2

*Note: Chipbreaker cross sections are of * marked insert.

● : Stocked items
★ : Available in 2012

Rhombic, 80°

Negative inserts

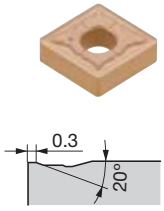
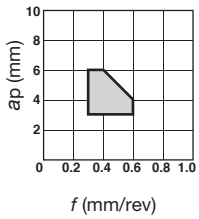
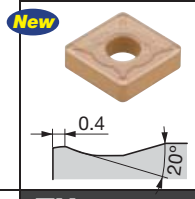
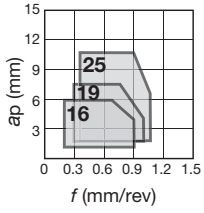
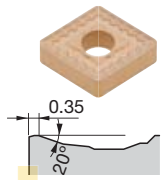
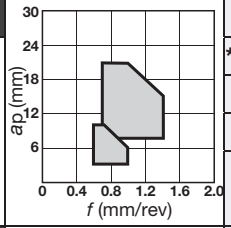
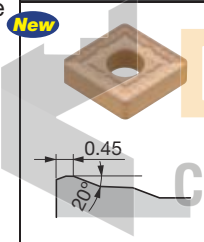
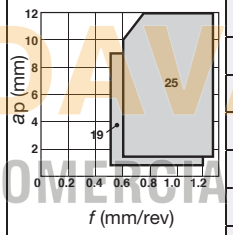
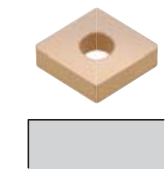
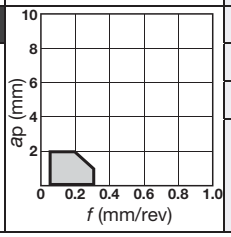
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**NM** 		CNMG120408-NM	★	●	●	★	12.7	4.76	5.16	0.8
			*CNMG120412-NM		●	●	★				1.2
	ZM 		*CNMG120408-ZM		●	●	★	12.7	4.76	5.16	0.8
			CNMG120412-ZM		●	●	★				1.2
			CNMG120416-ZM		●	●					1.6
Medium cutting	**TM** 		CNMG090304-TM		●	●		9.525	3.18	3.81	0.4
			CNMG090308-TM		●	●	★				0.8
			CNMG120404-TM	●	●	●	●	12.7	4.76	5.16	0.4
			*CNMG120408-TM	●	●	●	●				0.8
			CNMG120412-TM	●	●	●	●				1.2
			CNMG120416-TM		●	●	★				1.6
			CNMG160612-TM	●	●	●	●	15.875	6.35	6.35	1.2
			CNMG190608-TM	★	●	●	★	19.05	6.35	7.93	0.8
			CNMG190612-TM	★	●	●	★				1.2
	All-round New 		CNMG090304		●	●		9.525	3.18	3.81	0.4
			CNMG090308	●	●	●	★				0.8
			CNMG120404	★	●	●	★	12.7	4.76	5.16	0.4
			*CNMG120408	●	●	●	●				0.8
			CNMG120412	●	●	●	●				1.2
			CNMG120416	●	●	●	★				1.6
			CNMG160608	★	●	●	★	15.875	6.35	6.35	0.8
			CNMG160612	●	●	●	●				1.2
			CNMG160616	●	●	●	●				1.6
			CNMG190608		●	●	★	19.05	6.35	7.93	0.8
			CNMG190612	★	●	●	★				1.2
			CNMG190616		●	●	★				1.6
	DM New 		CNMG120404-DM		★	★		12.7	4.76	5.16	0.4
			*CNMG120408-DM	●	●	●	●				0.8
			CNMG120412-DM	●	●	●	●				1.2
	S New 		CNMG120404R-S			●	★	12.7	4.76	5.16	0.4
			CNMG120404L-S			●	★				0.4
			*CNMG120408R-S			●	●				0.8
			CNMG120408L-S			●	●				0.8

*Note: Chipbreaker cross sections are of * marked insert.

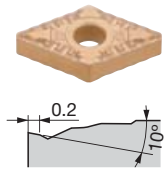
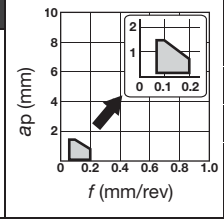
● : Stocked items
★ : Available in 2012

Rhombic, 80°

Negative inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thickness s	Hole dia ød1	Corner radius rε
Medium to heavy cutting	**TH** 		*CNMG120408-TH	●	●	●	●	12.7	4.76	5.16	0.8
			CNMG120412-TH	●	●	●	●				1.2
			CNMG120416-TH	●	●	●	●				1.6
			CNMG160612-TH	●	●	●	●	15.875	6.35	6.35	1.2
			CNMG160616-TH	★	●	●	●				1.6
			CNMG190612-TH	●	●	●	●	19.05	6.35	7.93	1.2
			CNMG190616-TH	●	●	●	●				1.6
	THS New 		*CNMG160612-THS		★	★		15.875	6.35	6.35	1.2
			CNMG160616-THS		★	★					1.6
			CNMG190612-THS		●	●		19.05	6.35	7.93	1.2
			CNMG190616-THS		●	●					1.6
			CNMG190624-THS		●	●					2.4
			CNMG250924-THS		●	●		25.4	9.52	9.12	2.4
Heavy cutting (Single sided)	**TU** 		CNMM190612-TU			★	★	19.05	6.35	7.93	1.2
			*CNMM190616-TU			★	★				1.6
			CNMM190624-TU		★	★	★				2.4
			CNMM250924-TU			★	★	25.4	9.52	9.12	2.4
	TUS New 		*CNMM190608-TUS		●	●		19.05	6.35	7.93	0.8
			CNMM190612-TUS		●	●					1.2
			CNMM190616-TUS		●	●					1.6
			CNMM190624-TUS		●	●					2.4
			CNMM190632-TUS		●	●					3.2
			CNMM250916-TUS		●	●		25.4	9.52	9.12	1.6
			CNMM250924-TUS		●	●					2.4
			CNMM250932-TUS		●	●					3.2
Finishing to medium cutting	**-** 		CNMA120408	★				12.7	4.76	5.16	0.8
			CNMA120412	★							1.2
			CNMA120416	★							1.6

Rhombic, 55°

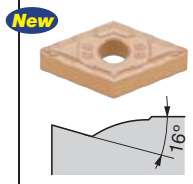
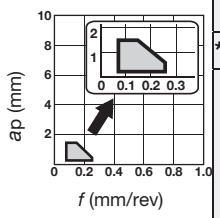
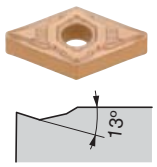
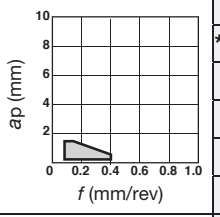
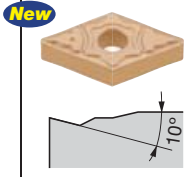
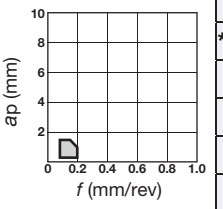
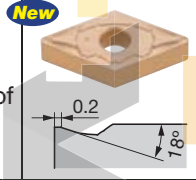
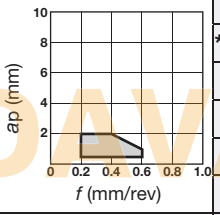
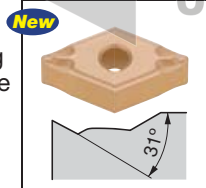
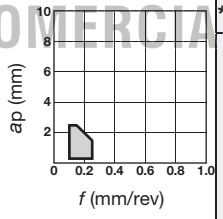
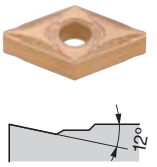
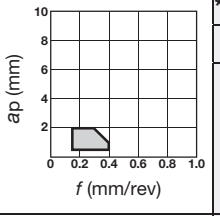
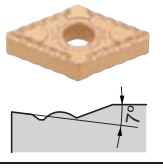
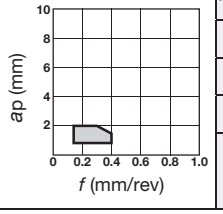
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thickness s	Hole dia ød1	Corner radius rε
Finishing	**ZF** 		DNMG150404-ZF		●	●	★	12.7	4.76	5.16	0.4
			*DNMG150408-ZF		●	●	★				0.8
			DNMG150412-ZF		●	●	★				1.2
			DNMG150604-ZF		●	●		12.7	6.35	5.16	0.4
			DNMG150608-ZF		●	●	★				0.8
			DNMG150612-ZF		●	●					1.2

*Note: Chipbreaker cross sections are of * marked insert.

● : Stocked items
★ : Available in 2012

Rhombic, 55°

Negative inserts

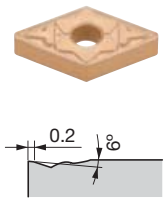
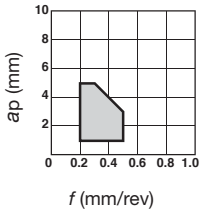
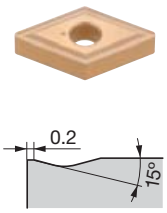
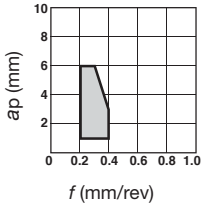
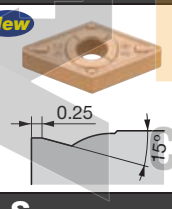
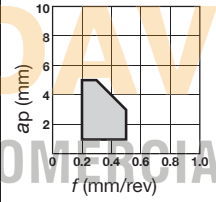
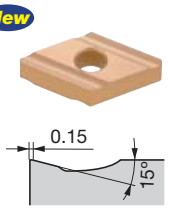
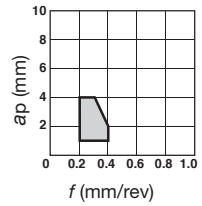
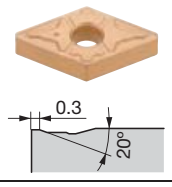
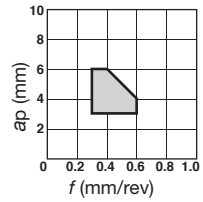
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**NS** New 		**DNMG150404-NS**			★		12.7	4.76	5.16	0.4
			***DNMG150408-NS**	★	★	★					0.8
	TSF 		**DNMG150404-TSF**	●	●	●	●	12.7	4.76	5.16	0.4
			***DNMG150408-TSF**	●	●	●	●				0.8
			DNMG150412-TSF	●	●	●	●				1.2
			DNMG150604-TSF		●	●		12.7	6.35	5.16	0.4
			DNMG150608-TSF	●	●	●	●				0.8
			DNMG150612-TSF	●	●	●	●				1.2
	TS New 		**DNMG150404-TS**		★	★	★	12.7	4.76	5.16	0.4
			***DNMG150408-TS**	★	★	★	★				0.8
			DNMG150412-TS	★	★	★	★				1.2
			DNMG150608-TS		★	★		12.7	6.35	5.16	0.8
			DNMG150612-TS		★	★					1.2
High feed, small depth of cut	**AS** New 		**DNMG150404-AS**		★		★	12.7	4.76	5.16	0.4
			***DNMG150408-AS**		★	★	★				0.8
			DNMG150412-AS		★	★	★				1.2
			DNMG150604-AS		★			12.7	6.35	5.16	0.4
			DNMG150608-AS		★	★					0.8
			DNMG150612-AS		★						1.2
Boring (Double sided)	**CB** New 		***DNMG110408-CB**		★			9.525	4.76	3.81	0.8
Finishing to medium cutting	**NM** 		***DNMG150408-NM**		●	●	★	12.7	4.76	5.16	0.8
			DNMG150412-NM		●	●	★				1.2
	ZM 		***DNMG150408-ZM**		●	●	★	12.7	4.76	5.16	0.8
			DNMG150412-ZM		●	●	★				1.2
			DNMG150608-ZM		●	●	★	12.7	6.35	5.16	0.8
			DNMG150612-ZM		●	●					1.2

*Note: Chipbreaker cross sections are of * marked insert.

● : Stocked items
★ : Available in 2012

Rhombic, 55°

Negative inserts

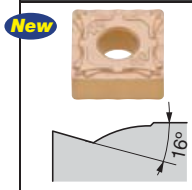
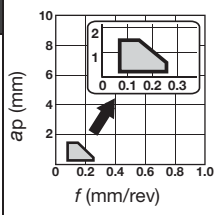
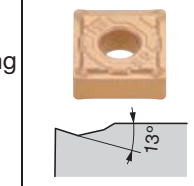
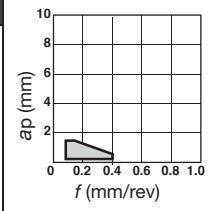
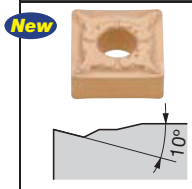
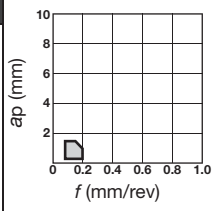
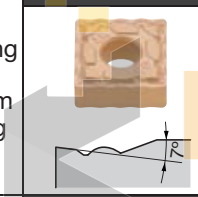
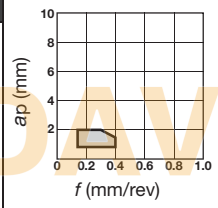
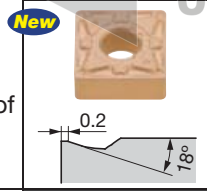
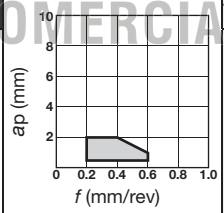
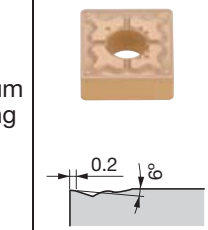
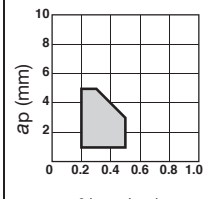
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Medium cutting	**TM** 		DNMG110404-TM		●	●	★	9.525	4.76	3.81	0.4
			DNMG110408-TM		●	●	★				0.8
			DNMG150404-TM	●	●	●	●	12.7	4.76	5.16	0.4
			*DNMG150408-TM	●	●	●	●				0.8
			DNMG150412-TM	●	●	●	●				1.2
			DNMG150416-TM		●	●					1.6
			DNMG150604-TM	●	●	●	●	12.7	6.35	5.16	0.4
			DNMG150608-TM	●	●	●	●				0.8
			DNMG150612-TM	●	●	●	●				1.2
			DNMG150616-TM		●	●					1.6
	All-round New 		DNMG110404		●	●		9.525	4.76	3.81	0.4
			DNMG110408	●	●	●	●				0.8
			DNMG150404		●	●	★	12.7	4.76	5.16	0.4
			*DNMG150408	●	●	●	●				0.8
			DNMG150412	★	●	●	★				1.2
			DNMG150416		●	●					1.6
			DNMG150604		●	●		12.7	6.35	5.16	0.4
			DNMG150608	★	●	●	★				0.8
			DNMG150612	★	●	●	★				1.2
			DNMG150616		●	●					1.6
	DM New 		*DNMG150408-DM		●	●	★	12.7	4.76	5.16	0.8
			DNMG150412-DM	●	●	●	●				1.2
			DNMG150604-DM		★			12.7	6.35	5.16	0.4
			DNMG150608-DM		●	●	★				0.8
			DNMG150612-DM	●	●	●	●				1.2
			DNMG150616-DM	★							1.6
	S New 		DNMG150404R-S			●	★	12.7	4.76	5.16	0.4
			DNMG150404L-S			●	★				0.4
			*DNMG150408R-S			●	●				0.8
			DNMG150408L-S			●	●				0.8
			DNMG150604R-S			●	★	12.7	6.35	5.16	0.4
			DNMG150604L-S			●	★				0.4
			DNMG150608R-S			●	★				0.8
			DNMG150608L-S			●	★				0.8
Medium to heavy cutting	**TH** 		*DNMG150408-TH		●	●	★	12.7	4.76	5.16	0.8
			DNMG150412-TH		●	●	★				1.2
			DNMG150416-TH		●	●					1.6
			DNMG150608-TH		●	●	★	12.7	6.35	5.16	0.8
			DNMG150612-TH		●	●	★				1.2
			DNMG150616-TH		●	●	●				1.6

*Note: Chipbreaker cross sections are of * marked insert.

● : Stocked items
★ : Available in 2012

Square, 90°

Negative inserts

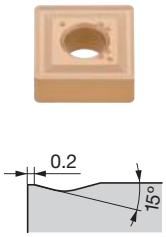
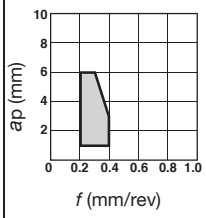
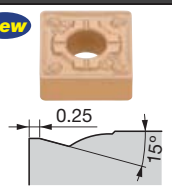
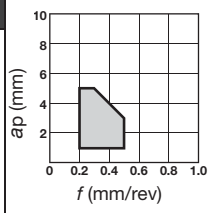
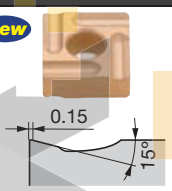
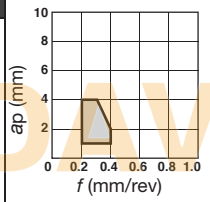
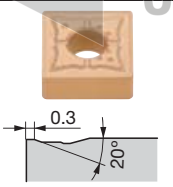
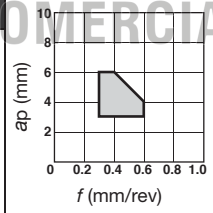
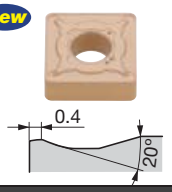
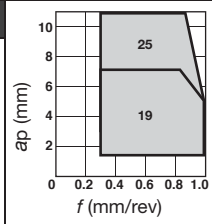
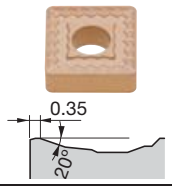
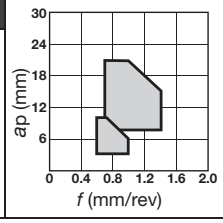
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**NS** New 		*SNMG120408-NS		★	★		12.7	4.76	5.16	0.8
	TSF 		SNMG120404-TSF		●	●		12.7	4.76	5.16	0.4
			*SNMG120408-TSF		●	●					0.8
			SNMG120412-TSF		●	●					1.2
	TS New 		SNMG120404-TS		★	★		12.7	4.76	5.16	0.4
			*SNMG120408-TS	★	★	★	★				0.8
			SNMG120412-TS		★	★	★				1.2
Finishing to medium cutting	**ZM** 		*SNMG120408-ZM		★	★	★	12.7	4.76	5.16	0.8
			SNMG120412-ZM		★	★	★				1.2
High feed, small depth of cut	**AS** New 		*SNMG120408-AS	★	★			12.7	4.76	5.16	0.8
Medium cutting	**TM** 		SNMG090304-TM		●	●	★	9.525	3.18	3.81	0.4
			SNMG090308-TM		●	●	★				0.8
			SNMG120404-TM		●	●		12.7	4.76	5.16	0.4
			*SNMG120408-TM	●	●	●	●				0.8
			SNMG120412-TM	●	●	●	●				1.2
			SNMG120416-TM		●	●	●				1.6
			SNMG150608-TM		●			15.875	6.35	6.35	0.8
			SNMG150612-TM		●						1.2
			SNMG190608-TM		●			19.05	6.35	7.93	0.8
			SNMG190612-TM		●						1.2

*Note: Chipbreaker cross sections are of * marked insert.

● : Stocked items
★ : Available in 2012

Square, 90°

Negative inserts

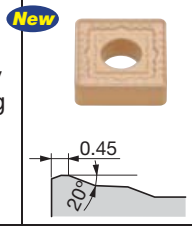
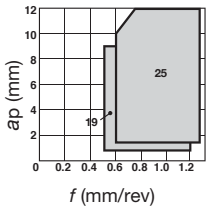
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thickness s	Hole dia ød1	Corner radius rε
Medium cutting	**All-round** New 		SNMG090304		●	●		9.525	3.18	3.81	0.4
			SNMG090308		●	●	★				0.8
			SNMG120404		●	●	★	12.7	4.76	5.16	0.4
			*SNMG120408	★	●	●	★				0.8
			SNMG120412	★	●	●	★				1.2
			SNMG120416	★	●	●	★				1.6
			SNMG120420		●	●	★				2.0
			SNMG150612		●	●	★	15.875	6.35	6.35	1.2
			SNMG150616		●	●					1.6
			SNMG190612		●	●	★	19.05	6.35	7.93	1.2
			SNMG190616		●	●	★				1.6
			SNMG250724		●	●	★	25.4	7.94	9.12	2.4
	DM New 		*SNMG120408-DM		●	●		12.7	4.76	5.16	0.8
			SNMG120412-DM		●	●	★				1.2
	S New 		SNMG120404R-S			●	★	12.7	4.76	5.16	0.4
			SNMG120404L-S			●	★				0.4
			*SNMG120408R-S			●	★				0.8
			SNMG120408L-S			●	★				0.8
Medium to heavy cutting	**TH** 		*SNMG120408-TH		●	●	★	12.7	4.76	5.16	0.8
			SNMG120412-TH		●	●	★				1.2
			SNMG150612-TH	★	●	●		15.875	6.35	6.35	1.2
			SNMG150616-TH	★	●	●					1.6
			SNMG190612-TH	★	●	●	★	19.05	6.35	7.93	1.2
			SNMG190616-TH	★	●	●	★				1.6
	THS New 		*SNMG190608-THS		●	●		19.05	6.35	7.93	0.8
			SNMG190612-THS		●	●					1.2
			SNMG190616-THS		●	●					1.6
			SNMG190624-THS		●	●					2.4
			SNMG250716-THS		●	●		25.4	7.94	9.12	1.6
			SNMG250724-THS		●	●					2.4
Heavy cutting	**TU** 		*SNMM190616-TU				★	19.05	6.35	7.93	1.6
			SNMM190624-TU			★	★				2.4
			SNMM250724-TU			★	★	25.4	7.94	9.12	2.4
			SNMM250924-TU		★	★		25.4	9.52	9.12	2.4

*Note: Chipbreaker cross sections are of * marked insert.

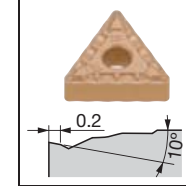
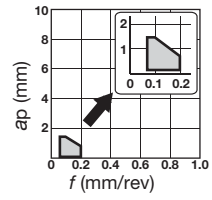
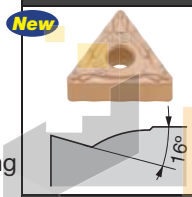
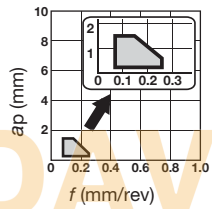
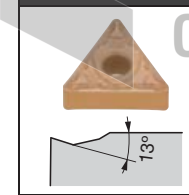
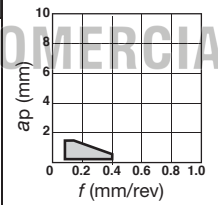
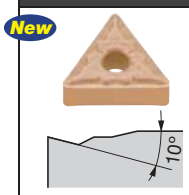
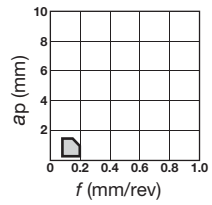
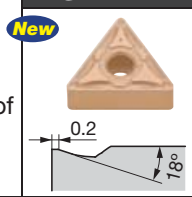
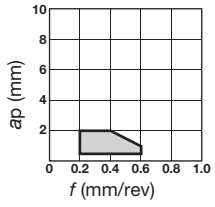
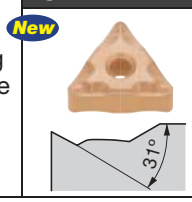
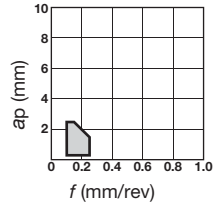
● : Stocked items
★ : Available in 2012

Square, 90°

Negative inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Heavy cutting	**TUS** New 		*SNMM190612-TUS		●	●		19.05	6.35	7.93	1.2
			SNMM190616-TUS		●	●					1.6
			SNMM190624-TUS		●	●					2.4
			SNMM250724-TUS		●	●		25.4	7.94	9.12	2.4
			SNMM250732-TUS		●	●					3.2
			SNMM250924-TUS		●	●		25.4	9.52	9.12	2.4
			SNMM250932-TUS		●	●					3.2

Triangular, 60°

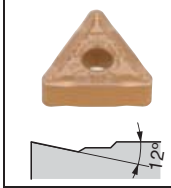
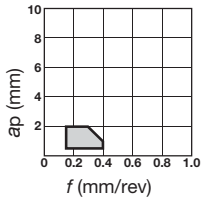
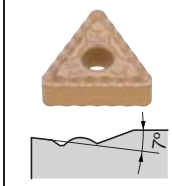
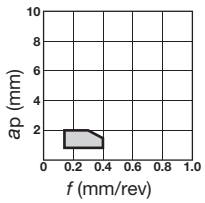
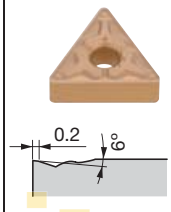
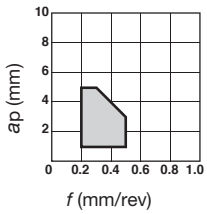
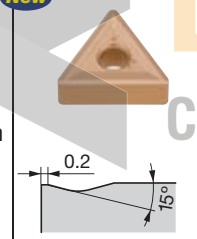
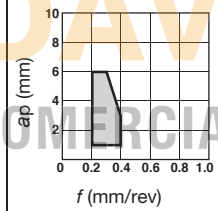
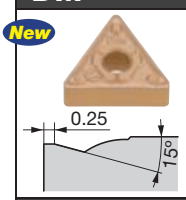
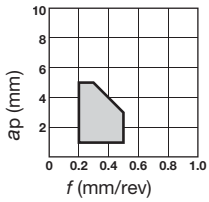
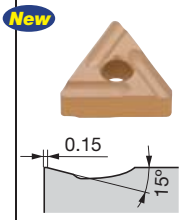
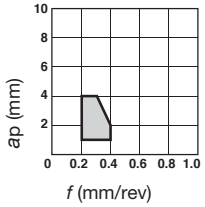
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**ZF** 		TNMG160404-ZF		●	●	★	9.525	4.76	3.81	0.4
			*TNMG160408-ZF		●	●	★				0.8
	NS New 		TNMG160404-NS		★	★		9.525	4.76	3.81	0.4
			*TNMG160408-NS	★	★	★					0.8
	TSF 		TNMG160404-TSF		●	●	●	9.525	4.76	3.81	0.4
			*TNMG160408-TSF	★	●	●	●				0.8
			TNMG160412-TSF		●	●	●				1.2
	TS New 		TNMG160404-TS		★	★	★	9.525	4.76	3.81	0.4
			*TNMG160408-TS	★	★	★	★				0.8
			TNMG160412-TS	★	★	★	★				1.2
High feed, small depth of cut	**AS** New 		TNMG160404-AS			★	★	9.525	4.76	3.81	0.4
			*TNMG160408-AS	★	★	★	★				0.8
			TNMG160412-AS	★	★	★					1.2
Boring (Double sided)	**CB** New 		TNMG110304-CB		★			6.35	3.18	2.26	0.4
			*TNMG110308-CB		★						0.8

*Note: Chipbreaker cross sections are of * marked insert.

● : Stocked items
★ : Available in 2012

Triangular, 60°

Negative inserts

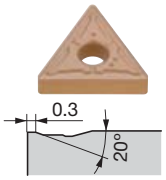
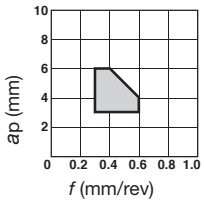
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades (Coated) T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**NM** 		*TNMG160408-NM			★		9.525	4.76	3.81	0.8
			TNMG160412-NM		●	●					1.2
	ZM 		TNMG160404-ZM		●	●	★	9.525	4.76	3.81	0.4
			TNMG160408-ZM		●	●	★				0.8
			*TNMG160412-ZM		●	●	★				1.2
			TNMG220412-ZM			★		12.7	4.76	5.16	1.2
Medium cutting	**TM** 		TNMG110304-TM		●	●	★	6.35	3.18	2.26	0.4
			TNMG110308-TM		●	●	★				0.8
			TNMG160404-TM		●	●	●	9.525	4.76	3.81	0.4
			*TNMG160408-TM	●	●	●	●				0.8
			TNMG160412-TM	●	●	●	●				1.2
			TNMG220408-TM	★	●	●	★	12.7	4.76	5.16	0.8
			TNMG220412-TM		●	●	★				1.2
			TNMG220416-TM		●	●					1.6
	All-round New 		TNMG110304		●	●		6.35	3.18	2.26	0.4
			TNMG110308		●	●					0.8
			TNMG160404	★	●	●	★	9.525	4.76	3.81	0.4
			*TNMG160408	★	●	●	★				0.8
			TNMG160412	●	●	●	●				1.2
			TNMG160416		●	●	★				1.6
			TNMG160420		●	●	★				2.0
			TNMG220408	★	●	●	★	12.7	4.76	5.16	0.8
			TNMG220412	★	●	●	★				1.2
			TNMG220416		●	●					1.6
	DM New 		*TNMG160408-DM	★	●	●	★	9.525	4.76	3.81	0.8
			TNMG160412-DM		●	●					1.2
	S New 		TNMG160404R-S			●	★	9.525	4.76	3.81	0.4
			TNMG160404L-S			●	★				0.4
			*TNMG160408R-S			●	●				0.8
			TNMG160408L-S			●	●				0.8
			TNMG220404R-S			●	★	12.7	4.76	5.16	0.4
			TNMG220404L-S			●	★				0.4
			TNMG220408R-S			●	●				0.8
			TNMG220408L-S			●	●				0.8

*Note: Chipbreaker cross sections are of * marked insert.

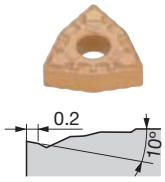
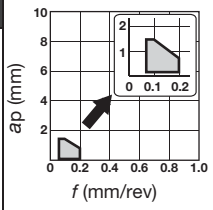
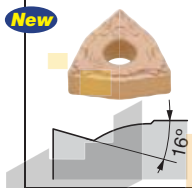
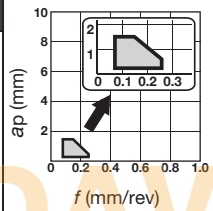
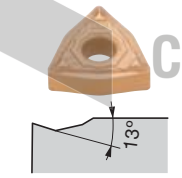
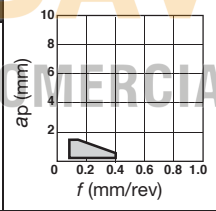
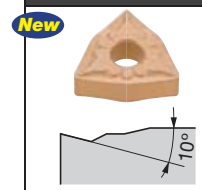
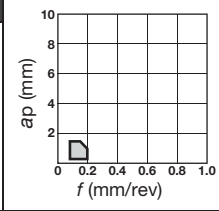
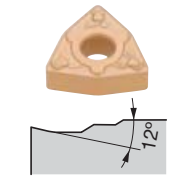
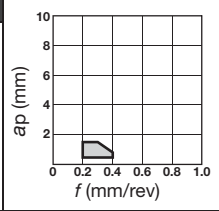
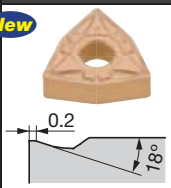
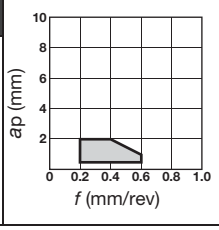
● : Stocked items
★ : Available in 2012

Triangular, 60°

Negative inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Medium to heavy cutting	**TH** 		*TNMG220408-TH		●	●	★	12.7	4.76	5.16	0.8
			TNMG220412-TH		●	●	★				1.2

Trigon, 80°

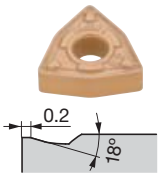
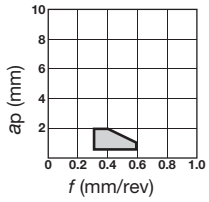
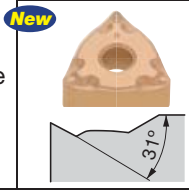
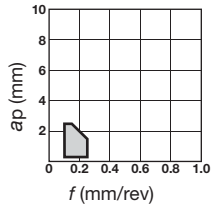
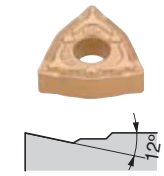
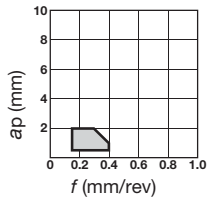
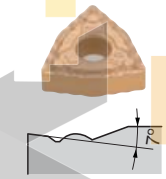
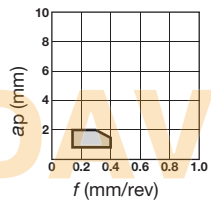
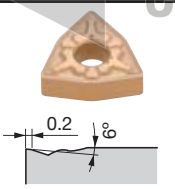
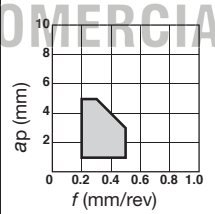
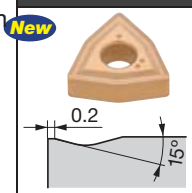
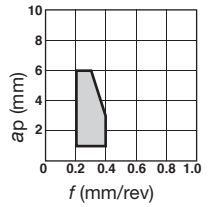
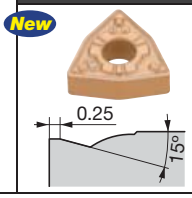
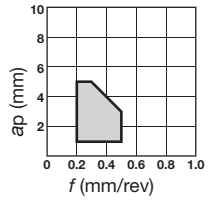
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
	ZF 		WNMG060404-ZF		●	●		9.525	4.76	3.81	0.4
			WNMG060408-ZF		●	●					0.8
			WNMG080404-ZF		●	●	★	12.7	4.76	5.16	0.4
			*WNMG080408-ZF		●	●	★				0.8
	NS New 		WNMG080404-NS		★	★		12.7	4.76	5.16	0.4
			*WNMG080408-NS		★	★					0.8
Finishing	**TSF** 		WNMG060404-TSF		●	●		9.525	4.76	3.81	0.4
			*WNMG060408-TSF		●	●					0.8
			WNMG080404-TSF		●	●	★	12.7	4.76	5.16	0.4
			WNMG080408-TSF		●	●	●				0.8
			WNMG080412-TSF		●	●	★				1.2
	TS New 		WNMG080404-TS		★	★	★	12.7	4.76	5.16	0.4
			*WNMG080408-TS		★	★	★				0.8
			WNMG080412-TS		★	★	★				1.2
	AFW 		WNMG060404-AFW		●	●		9.525	4.76	3.81	0.4
			WNMG060408-AFW	●	●	●	●				0.8
			WNMG080404-AFW		●	●		12.7	4.76	5.16	0.4
			*WNMG080408-AFW	●	●	●	●				0.8
High feed, small depth of cut	**AS** New 		WNMG080404-AS	★				12.7	4.76	5.16	0.4
			*WNMG080408-AS	★	★	★	★				0.8
			WNMG080412-AS	★	★	★	★				1.2

*Note: Chipbreaker cross sections are of * marked insert.

● : Stocked items
★ : Available in 2012

Trigon, 80°

Negative inserts

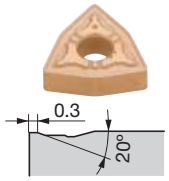
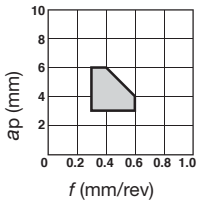
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
High feed, small depth of cut	**ASW** 		WNMG060408-ASW	★	●	●		9.525	4.76	3.81	0.8
			WNMG060412-ASW	●	●	●	●				1.2
			*WNMG080408-ASW	●	●	●	●	12.7	4.76	5.16	0.8
			WNMG080412-ASW	●	●	●	●				1.2
Boring (Double sided)	**CB** New 		WNMG060404-CB			★		9.525	4.76	3.81	0.4
			*WNMG060408-CB			★					0.8
Finishing to medium cutting	**NM** 		*WNMG080408-NM	★	●	●		12.7	4.76	5.16	0.8
			WNMG080412-NM	●	●	●	●				1.2
	ZM 		WNMG060408-ZM		●	●	★	9.525	4.76	3.81	0.8
			WNMG060412-ZM		●	●	★				1.2
			*WNMG080408-ZM		●	●	★	12.7	4.76	5.16	0.8
			WNMG080412-ZM		●	●	★				1.2
			WNMG080416-ZM		●	●					1.6
Medium cutting	**TM** 		WNMG060404-TM		●	●	★	9.525	4.76	3.81	0.4
			WNMG060408-TM	●	●	●	●				0.8
			WNMG080404-TM	★	●	●	●	12.70	4.76	5.16	0.4
			*WNMG080408-TM	●	●	●	●				0.8
			WNMG080412-TM	●	●	●	●				1.2
			WNMG080416-TM	●	●	●	●				1.6
	All-round New 		WNMG060404		●	●		9.525	4.76	3.81	0.4
			WNMG060408		●	●					0.8
			WNMG080404	★	●	●	★	12.7	4.76	5.16	0.4
			*WNMG080408	●	●	●	●				0.8
			WNMG080412	●	●	●	●				1.2
			WNMG080416	★	●	●	★				1.6
	DM New 		*WNMG080408-DM	★	●	●	●	12.7	4.76	5.16	0.8
			WNMG080412-DM	★	●	●	●				1.2

*Note: Chipbreaker cross sections are of * marked insert.

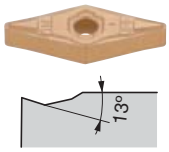
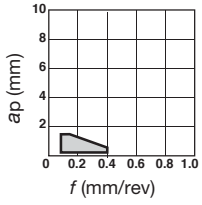
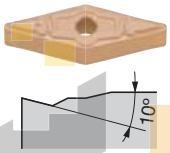
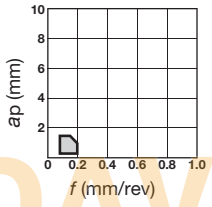
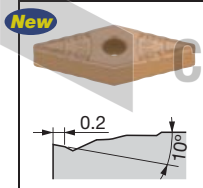
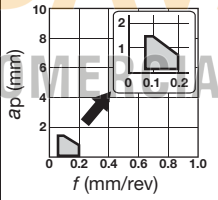
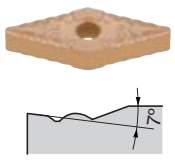
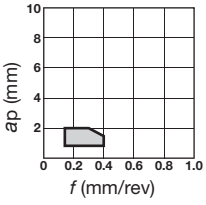
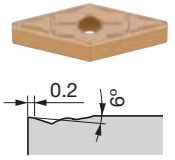
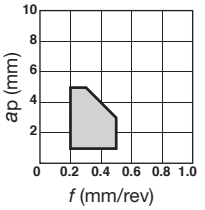
● : Stocked items
★ : Available in 2012

Trigon, 80°

Negative inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Medium to heavy cutting	**TH** 		*WNMG080408-TH	★	●	●	●	12.7	4.76	5.16	0.8
			WNMG080412-TH	●	●	●	●				1.2
			WNMG080416-TH	★	●	●					1.6
			WNMG100612-TH		●	●		15.875	6.35	6.35	1.2
			WNMG100616-TH		●	●					1.6

Rhombic, 35°

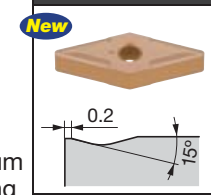
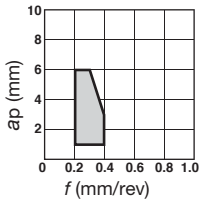
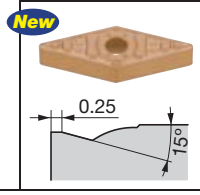
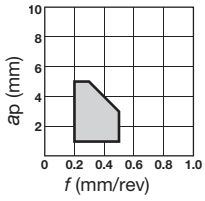
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**ZF** 		VNMG160404-ZF		●	●	★	9.525	4.76	3.81	0.4
			*VNMG160408-ZF		●	●	★				0.8
			VNMG160412-ZF		★	★	★				1.2
	TSF 		VNMG160404-TSF	●	●	●	●	9.525	4.76	3.81	0.4
			*VNMG160408-TSF	●	●	●	●				0.8
			VNMG160412-TSF	●	●	●	●				1.2
	TS New 		VNMG160404-TS		★	★	★	9.525	4.76	3.81	0.4
			*VNMG160408-TS		★	★	★				0.8
			VNMG160412-TS		★	★	★				1.2
Finishing to medium cutting	**ZM** 		*VNMG160408-ZM		●	●	★	9.525	4.76	3.81	0.8
			VNMG160412-ZM		●	●	★				1.2
Medium cutting	**TM** 		VNMG160404-TM	★	●	●	★	9.525	4.76	3.81	0.4
			*VNMG160408-TM	●	●	●	●				0.8
			VNMG160412-TM	●	●	●	●				1.2

*Note: Chipbreaker cross sections are of * marked insert.

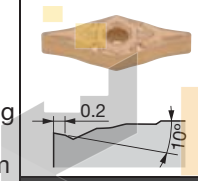
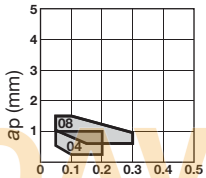
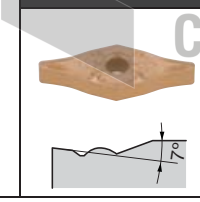
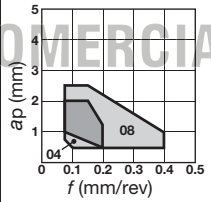
● : Stocked items
★ : Available in 2012

Rhombic, 35°

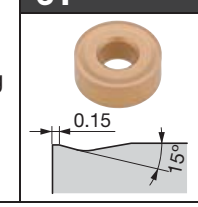
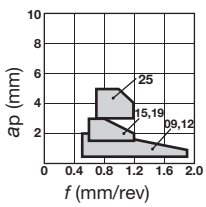
Negative inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Medium cutting	**All-round** 		VNMG160404	●	●	●	●	9.525	4.76	3.81	0.4
			*VNMG160408	★	●	●	★				0.8
			VNMG160412		●	●					1.2
	DM 		*VNMG160408-DM	★	●	●	★	9.525	4.76	3.81	0.8
			VNMG160412-DM		●	●	★				1.2

Rhombic, 25°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**ZF** 		YNMG160404-ZF			●	★	9.525	4.76	3.81	0.4
			*YNMG160408-ZF			●	★				0.8
	ZM 		YNMG160404-ZM			●	★	9.525	4.76	3.81	0.4
			*YNMG160408-ZM			●	★				0.8

Round

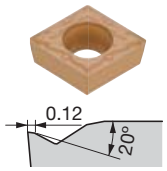
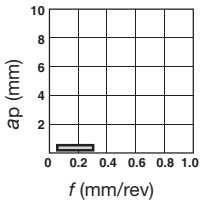
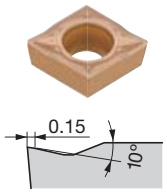
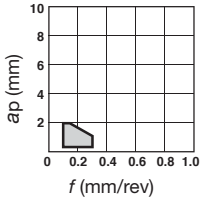
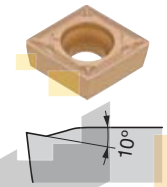
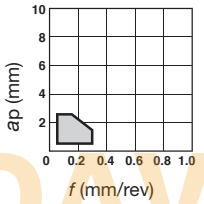
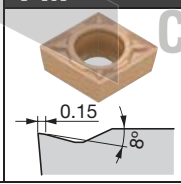
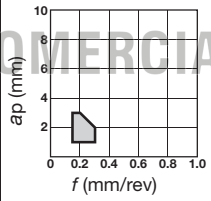
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Heavy cutting	**61** 		RNMG090300-61		●	●		9.525	3.97	3.81	-
			*RNMG120400-61	★	●	●	★	12.7	4.76	5.16	-
			RNMG150600-61		●	●		15.875	6.35	6.43	-
			RNMG190600-61		●	●	★	19.05	6.35	7.93	-
			RNMG250900-61		●	●		25.4	9.52	9.22	-

*Note: Chipbreaker cross sections are of * marked insert.

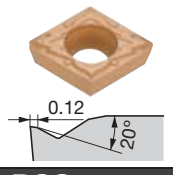
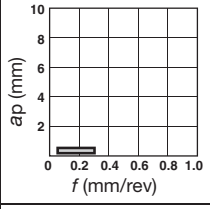
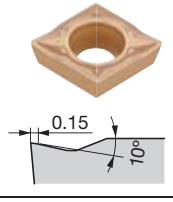
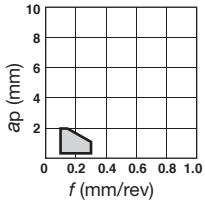
● : Stocked items
★ : Available in 2012

Inserts Positive type

Rhombic, 80° (7°)

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	PSF 		CCMT060204-PSF		●	●		6.35	2.38	2.8	0.4
			CCMT09T304-PSF		●	●		9.525	3.97	4.4	0.4
			*CCMT09T308-PSF		●	●					0.8
Finishing to light cutting	PSS 		CCMT060204-PSS		●	●		6.35	2.38	2.8	0.4
			CCMT060208-PSS		●	●					0.8
			*CCMT09T304-PSS		●	●		9.525	3.97	4.4	0.4
			CCMT09T308-PSS		●	●					0.8
			CCMT120404-PSS		●	●		12.7	4.76	5.5	0.4
			CCMT120408-PSS		●	●					0.8
			CCMT120412-PSS		●	●					1.2
Finishing to medium cutting	PS 		CCMT060202-PS		●	●		6.35	2.38	2.8	0.2
			CCMT060204-PS		●	●					0.4
			*CCMT060208-PS		●	●					0.8
			CCMT09T302-PS		●	●		9.525	3.97	4.4	0.2
			CCMT09T304-PS		●	●					0.4
			CCMT09T308-PS		●	●					0.8
			CCMT120404-PS		●	●		12.70	4.76	5.5	0.4
			CCMT120408-PS		●	●					0.8
			CCMT120412-PS		●	●					1.2
Medium cutting	PM 		CCMT060204-PM		●	●		6.35	2.38	2.8	0.4
			CCMT060208-PM		●	●					0.8
			CCMT09T304-PM		●	●		9.525	3.97	4.4	0.4
			*CCMT09T308-PM		●	●					0.8
			CCMT09T312-PM		●	●					1.2

Rhombic, 80° (11°)

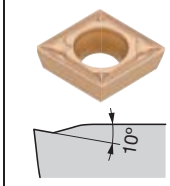
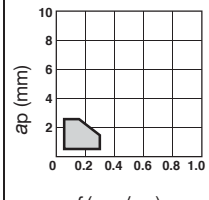
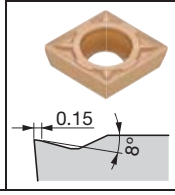
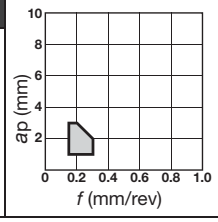
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	PSF 		CPMT060204-PSF		●	●		6.35	2.38	2.8	0.4
			CPMT080204-PSF		●	●		7.94	2.38	3.4	0.4
			*CPMT090304-PSF		●	●		9.525	3.18	4.4	0.4
			CPMT09T304-PSF		●	●		9.525	3.97	4.4	0.4
Finishing to light cutting	PSS 		CPMT060204-PSS		●	●		6.35	2.38	2.8	0.4
			CPMT080204-PSS		●	●		7.94	2.38	3.4	0.4
			CPMT080208-PSS		●	●					0.8
			*CPMT090304-PSS		●	●		9.525	3.18	4.4	0.4
			CPMT090308-PSS		●	●					0.8
			CPMT09T304-PSS		●	●		9.523	3.97	4.4	0.4
			CPMT09T308-PSS		●	●					0.8

*Note: Chipbreaker cross sections are of * marked insert.

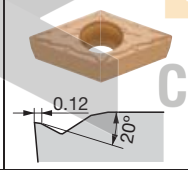
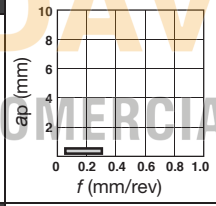
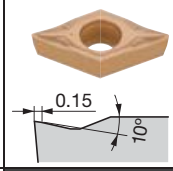
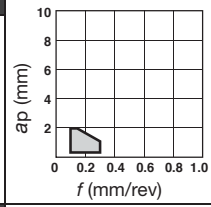
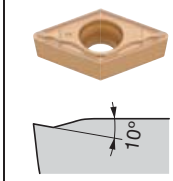
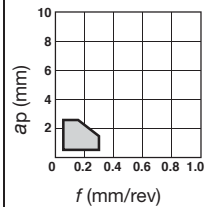
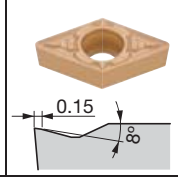
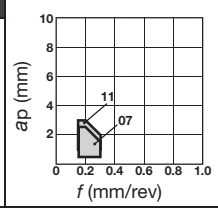
● : Stocked items
★ : Available in 2012

Rhombic, 80° (11°)

Positive inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**PS** 		CPMT060202-PS		●	●		6.35	2.38	2.8	0.2
			CPMT060204-PS		●	●					0.4
			CPMT080202-PS		●	●		7.94	2.38	3.4	0.2
			CPMT080204-PS		●	●					0.4
			CPMT080208-PS		●	●					0.8
			*CPMT090304-PS		●	●		9.525	3.18	4.4	0.4
			CPMT090308-PS		●	●					0.8
			CPMT09T302-PS		●	●		9.525	3.97	4.4	0.2
			CPMT09T304-PS		●	●					0.4
			CPMT09T308-PS		●	●					0.8
Medium cutting	**PM** 		CPMT060208-PM		●	●		6.35	2.38	2.8	0.8
			*CPMT090304-PM		●	●		9.525	3.18	4.4	0.4
			CPMT090308-PM		●	●					0.8

Rhombic, 55° (7°)

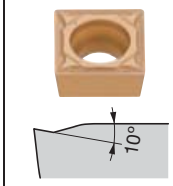
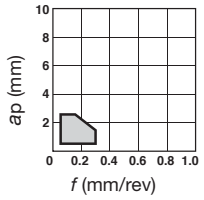
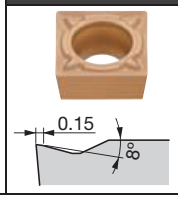
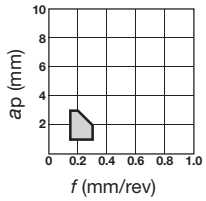
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**PSF** 		DCMT070204-PSF		●	●		6.35	2.38	2.8	0.4
			*DCMT11T304-PSF		●	●		9.525	3.97	4.4	0.4
			DCMT11T308-PSF		●	●					0.8
Finishing to light cutting	**PSS** 		DCMT070204-PSS		●	●		6.35	2.38	2.8	0.4
			DCMT070208-PSS		●	●					0.8
			*DCMT11T304-PSS		●	●		9.525	3.97	4.4	0.4
			DCMT11T308-PSS		●	●					0.8
			DCMT11T312-PSS		●	●					1.2
Finishing to medium cutting	**PS** 		DCMT070202-PS		●	●		6.35	2.38	2.8	0.2
			*DCMT070204-PS		●	●					0.4
			DCMT070208-PS		●	●					0.8
			DCMT11T302-PS		●	●		9.525	3.97	4.4	0.2
			*DCMT11T304-PS		●	●					0.4
			DCMT11T308-PS		●	●					0.8
			DCMT11T312-PS		●	●					1.2
Medium cutting	**PM** 		DCMT070204-PM		●	●		6.35	2.38	2.8	0.4
			DCMT070208-PM		●	●					0.8
			DCMT11T304-PM		●	●		9.525	3.97	4.4	0.4
			*DCMT11T308-PM		●	●					0.8
			DCMT11T312-PM			●					1.2

*Note: Chipbreaker cross sections are of * marked insert.

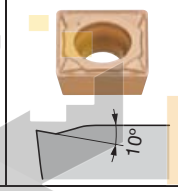
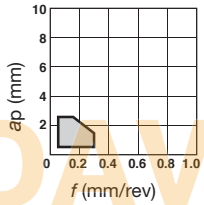
● : Stocked items
★ : Available in 2012

Square, 90° (7°)

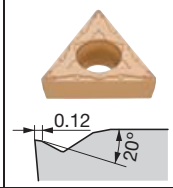
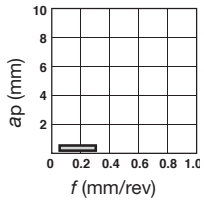
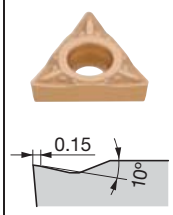
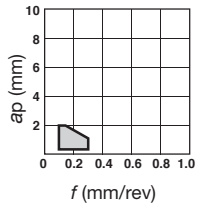
Positive inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**PS** 		*SCMT09T304-PS		●	●		9.525	3.97	4.4	0.4
			SCMT09T308-PS		●	●					0.8
			SCMT120404-PS		●	●		12.7	4.76	5.5	0.4
			SCMT120408-PS		●	●					0.8
Medium cutting	**PM** 		*SCMT09T304-PM		●	●		9.525	3.97	4.4	0.4
			SCMT09T308-PM		●	●					0.8
			SCMT120408-PM		★	●		12.7	4.76	5.5	0.8
			SCMT120412-PM			●					1.2

Square, 90° (11°)

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**PS** 		SPMT090304-PS		●	●		9.525	3.18	4.4	0.4
			SPMT090308-PS		●	●					0.8
			SPMT120404-PS		●	●		12.7	4.76	5.5	0.4
			*SPMT120408-PS		●	●					0.8

Triangular, 60° (7°)

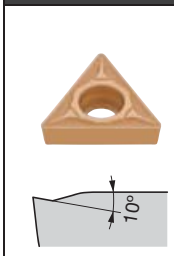
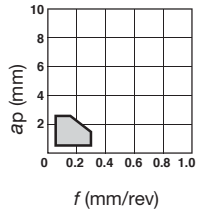
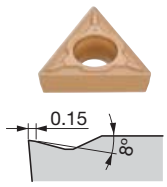
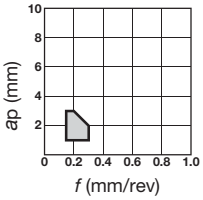
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**PSF** 		TCMT090204-PSF		●	●		5.56	2.38	2.5	0.4
			*TCMT110204-PSF		●	●		6.35	2.38	2.8	0.4
			TCMT110304-PSF		●	●		6.35	3.18	2.8	0.4
			TCMT16T304-PSF		●	●		9.525	3.97	4.4	0.4
Finishing to light cutting	**PSS** 		TCMT090204-PSS		●	●		5.56	2.38	2.5	0.4
			TCMT090208-PSS		●	●					0.8
			*TCMT110204-PSS		●	●		6.35	2.38	2.8	0.4
			TCMT110208-PSS		●	●					0.8
			TCMT110304-PSS		●	●		6.38	3.18	2.8	0.4
			TCMT110308-PSS		●	●					0.8
			TCMT16T304-PSS		●	●		9.525	3.97	4.4	0.4
			TCMT16T308-PSS		●	●					0.8
			TCMT16T312-PSS		●	●					1.2

*Note: Chipbreaker cross sections are of * marked insert.

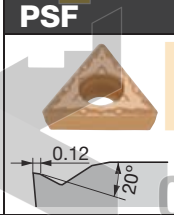
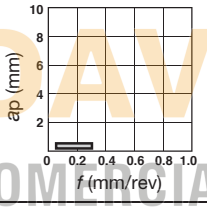
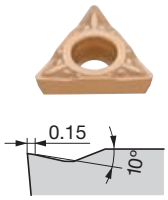
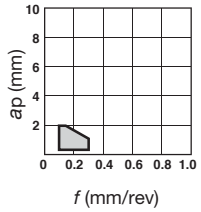
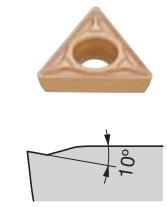
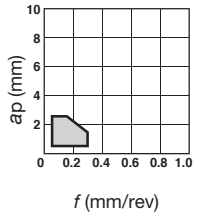
● : Stocked items
★ : Available in 2012

Triangular, 60° (7°)

Positive inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**PS** 		**TCMT110202-PS**		●	●		6.35	2.38	2.8	0.2
			***TCMT110204-PS**		●	●					0.4
			TCMT110208-PS		●	●					0.8
			TCMT110302-PS		●	●		6.35	3.18	2.8	0.2
			TCMT110304-PS		●	●					0.4
			TCMT110308-PS		●	●					0.8
			TCMT16T302-PS		●	●		9.525	3.97	4.4	0.2
			TCMT16T304-PS		●	●					0.4
			TCMT16T308-PS		●	●					0.8
Medium cutting	**PM** 		**TCMT110204-PM**		●	●		6.35	2.38	2.8	0.4
			TCMT110208-PM		●	●					0.8
			***TCMT16T304-PM**		●	●		9.525	3.97	4.4	0.4
			TCMT16T308-PM		●	●					0.8
			TCMT16T312-PM		●	●					1.2

Triangular, 60° (11°)

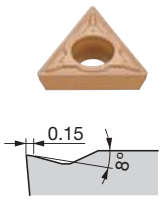
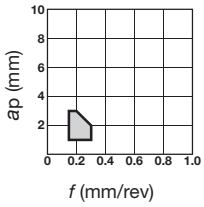
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**PSF** 		**TPMT090204-PSF**		●	●		5.56	2.38	2.5	0.4
			***TPMT110204-PSF**		●	●		6.35	2.38	2.8	0.4
			TPMT110304-PSF		●	●		6.35	3.18	3.4	0.4
			TPMT130304-PSF		●	●		7.94	3.18	3.4	0.4
			TPMT16T304-PSF		●	●		9.525	3.97	4.4	0.4
Finishing to light cutting	**PSS** 		**TPMT090204-PSS**		●	●		5.56	2.38	2.5	0.4
			TPMT090208-PSS		●	●					0.8
			***TPMT110204-PSS**		●	●		6.35	2.38	2.8	0.4
			TPMT110208-PSS		●	●					0.8
			TPMT110304-PSS		●	●		6.35	3.18	3.4	0.4
			TPMT110308-PSS		●	●					0.8
			TPMT130304-PSS		●	●		7.94	3.18	3.4	0.4
			TPMT130308-PSS		●	●					0.8
			TPMT16T304-PSS		●	●		9.525	3.97	4.4	0.4
			TPMT16T308-PSS		●	●					0.8
Finishing to medium cutting	**PS** 		**TPMT090202-PS**		●	●		5.56	2.38	2.5	0.2
			TPMT090204-PS		●	●					0.4
			TPMT090208-PS		●	●					0.8
			TPMT110202-PS		●	●		6.35	2.38	2.8	0.2
			***TPMT110204-PS**		●	●					0.4
			TPMT110208-PS		●	●					0.8
			TPMT110304-PS		●	●		6.35	3.18	3.4	0.4
			TPMT110308-PS		●	●					0.8
			TPMT130302-PS		●	●		7.94	3.18	3.4	0.2
			TPMT130304-PS		●	●					0.4
			TPMT130308-PS		●	●					0.8
			TPMT16T304-PS		●	●		9.525	3.97	4.4	0.4
			TPMT16T308-PS		●	●					0.8

*Note: Chipbreaker cross sections are of * marked insert.

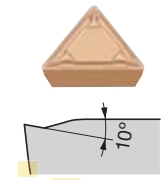
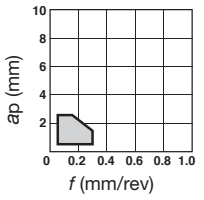
● : Stocked items
★ : Available in 2012

Triangular, 60° (11°)

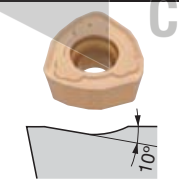
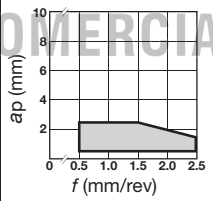
Positive inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Medium cutting	**PM** 		**TPMT110204-PM**		●	●		6.35	2.38	2.8	0.4
			TPMT110208-PM		●	●					0.8
			TPMT110304-PM		●	●		6.35	3.18	3.4	0.4
			TPMT110308-PM		●	●					0.8
			TPMT130304-PM			●		7.94	3.18	3.4	0.4
			TPMT130308-PM			●					0.8
			***TPMT16T304-PM**			●		9.525	3.97	4.4	0.4
			TPMT16T308-PM			●					0.8
			TPMT16T312-PM			●					1.2

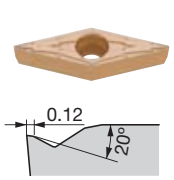
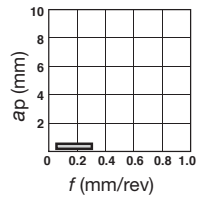
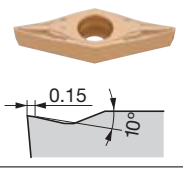
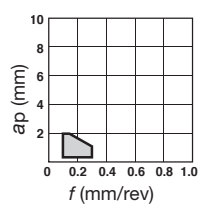
Triangular, 60° (11°) without hole

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**PS** 		***TPMR110304-PS**			●		6.35	3.18	-	0.4
			TPMR110308-PS			●					0.8
			TPMR160304-PS			●		9.525	3.18	-	0.4
			TPMR160308-PS			●					0.8

Trigon, 80° (11°)

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Heavy cutting	**ML** 		***WPMT090725ZPR-ML**		●	●		15.0	7	5.5	2.5
			WPMT090725ZPL-ML		●	●					

Rhombic, 35° (5°)

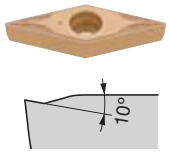
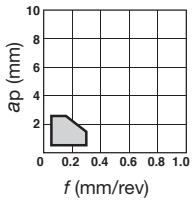
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**PSF** 		**VBMT110304-PSF**		●	●		6.35	3.18	2.8	0.4
			***VBMT160404-PSF**		●	●		9.525	4.76	4.4	0.4
Finishing to light cutting	**PSS** 		**VBMT110304-PSS**		●	●		6.35	3.18	2.8	0.4
			VBMT110308-PSS		●	●					0.8
			***VBMT160404-PSS**		●	●		9.525	4.76	4.4	0.4
			VBMT160408-PSS		●	●					0.8
			VBMT160412-PSS		●	●					1.2

*Note: Chipbreaker cross sections are of * marked insert.

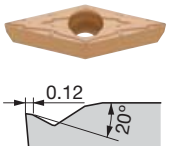
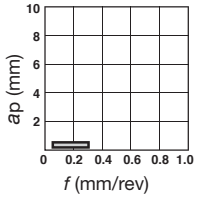
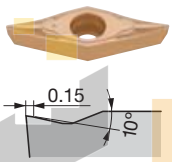
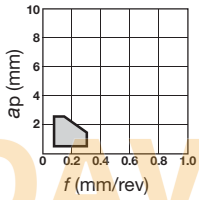
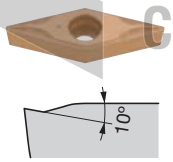
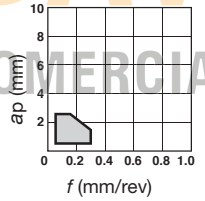
● : Stocked items
★ : Available in 2012

Rhombic, 35° (5°)

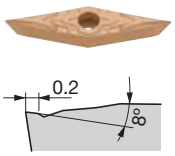
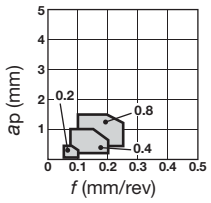
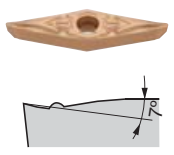
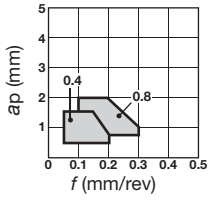
Positive inserts

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**PS** 		*VBMT110302-PS		●	●		6.35	3.18	2.8	0.2
			VBMT110304-PS		●	●					0.4
			VBMT110308-PS		●	●					0.8
			VBMT160402-PS		●	●		9.525	4.76	4.4	0.2
			VBMT160404-PS		●	●					0.4
			VBMT160408-PS		●	●					0.8

Rhombic, 35° (7°)

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	**PSF** 		VCMT080204-PSF		●	●		4.76	2.38	2.3	0.4
			VCMT110304-PSF		●	●		6.35	3.18	2.8	0.4
			*VCMT160404-PSF		●	●		9.525	4.76	4.4	0.4
			VCMT160408-PSF		●	●					0.8
Finishing to light cutting	**PSS** 		VCMT110304-PSS		●	●		6.35	3.18	2.8	0.4
			VCMT110308-PSS		●	●					0.8
			*VCMT160404-PSS		●	●		9.525	4.76	4.4	0.4
			VCMT160408-PSS		●	●					0.8
Finishing to medium cutting	**PS** 		VCMT110302-PS		●	●		6.35	3.18	2.8	0.2
			VCMT110304-PS		●	●					0.4
			*VCMT110308-PS		●	●					0.8
			VCMT160404-PS		●	●		9.525	4.76	4.4	0.4
			VCMT160408-PS		●	●					0.8

Rhombic, 25° (7°)

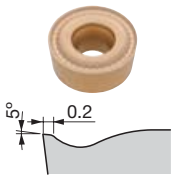
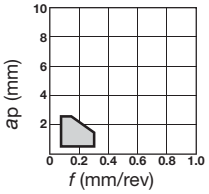
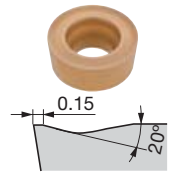
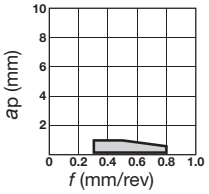
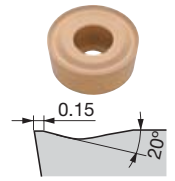
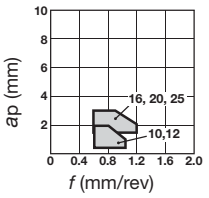
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades Coated T9105	T9115	T9125	T9135	Dimensions (mm) I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**ZF** 		YWMT11T202-ZF			●		4.679	2.78	2.3	0.2
			YWMT11T204-ZF			●					0.4
			*YWMT16T302-ZF			●		7.018	3.97	2.86	0.2
			YWMT16T304-ZF			●					0.4
			YWMT16T308-ZF			●					0.8
	ZM 		YWMT11T204-ZM			●		4.679	2.78	2.3	0.4
			*YWMT16T304-ZM			●		7.018	3.97	2.86	0.4
			YWMT16T308-ZM			●					0.8

*Note: Chipbreaker cross sections are of * marked insert.

● : Stocked items
★ : Available in 2012

Round, (7°)

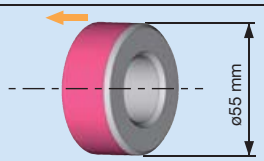
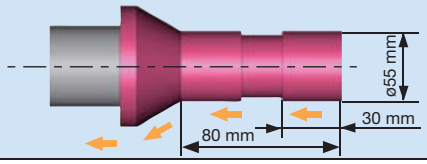
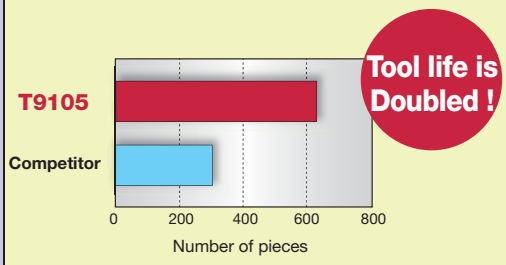
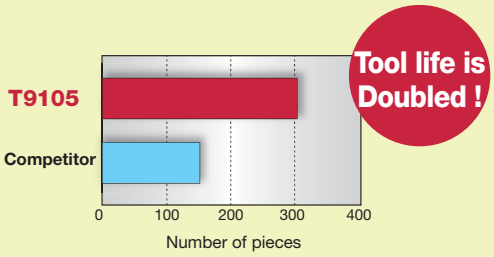
Positive inserts

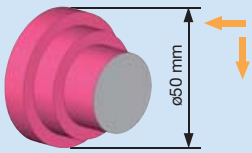
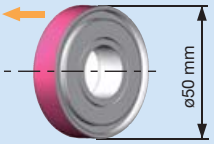
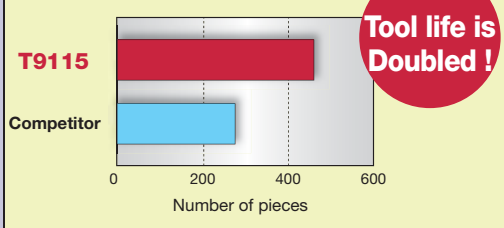
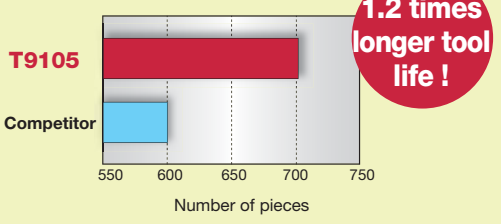
Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coated T9105	T9115	T9125	T9135	Dimensions (mm): I.C.dia ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting	**RS** 		**RCMT10T3M0-RS**		●	●		10.0	3.97	4.4	-
			RCMT1204M0-RS		●	●		12.0	4.76	4.4	-
			***RCMT1606M0-RS**		●	●		16.0	6.35	5.5	-
			RCMT2006M0-RS			●		20	6.35	6.5	-
			RCMT2507M0-RS			●		25	7.94	7.6	-
Heavy cutting	**61** 		**RCMT0502M0-61**		●	●		5.0	2.38	2.5	-
			***RCMT0602M0-61**		●	●		6.0	2.38	2.8	-
			RCMT0803M0-61		●	●		8.0	3.18	3.4	-
	61 		**RCMM1003M0-61**		●	●		10.0	3.18	3.6	-
			RCMM1204M0-61		●	●		12.0	4.76	4.2	-
			***RCMM1606M0-61**		●	●		16.0	6.35	5.2	-
			RCMM2006M0-61		●	●		20.0	6.35	6.5	
			RCMM2507M0-61		●	●		25.0	7.94	7.2	

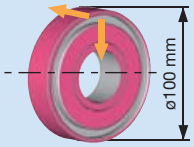
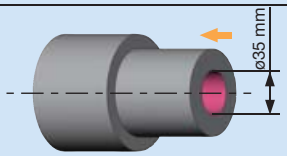
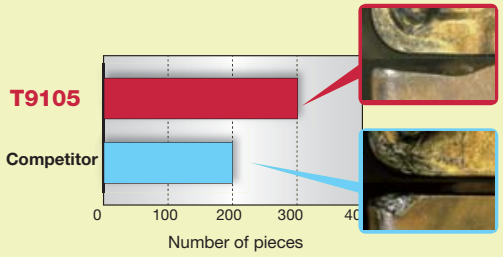
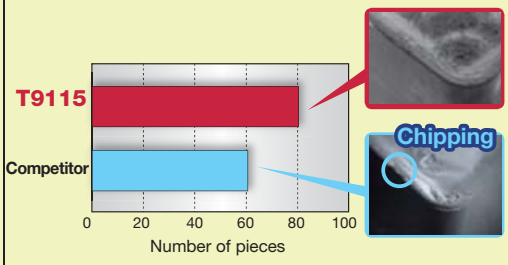
*Note: Chipbreaker cross sections are of * marked insert.

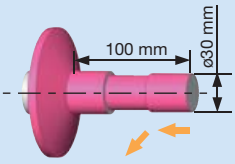
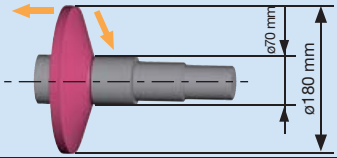
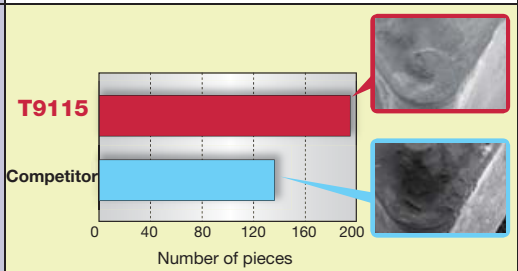
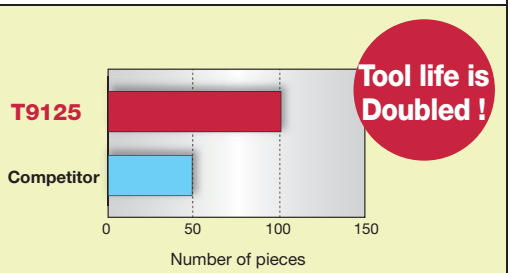
● : Stocked items
★ : Available in 2012

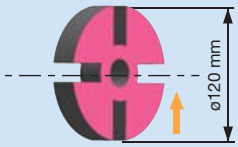
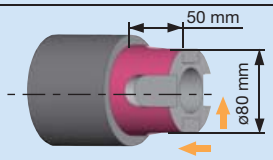
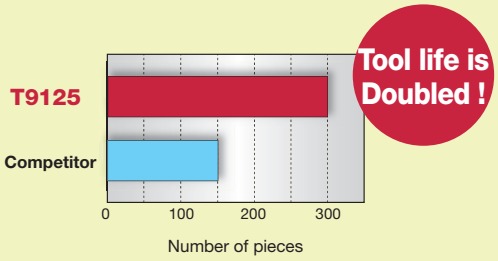
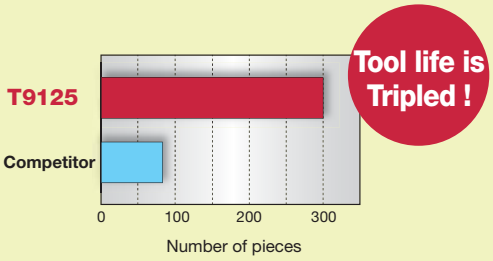
Practical examples

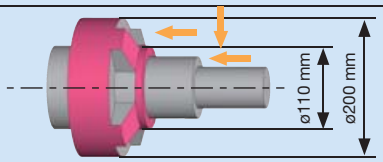
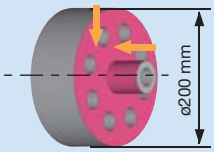
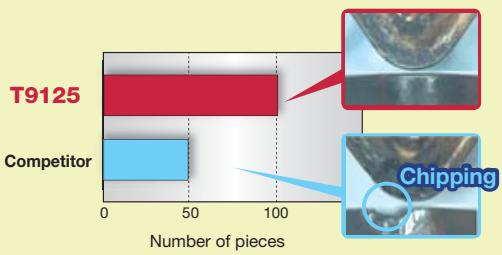
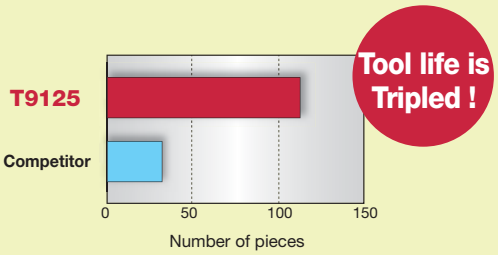
Workpiece type		Automotive parts	Shaft parts
Insert		WNMG080412-TM	DNMG150412-TM
Grade		T9105	T9105
Work material		S45C / C45	S45C / C45
			
Cutting conditions	Cutting speed: *Vc* (m/min)	180	200
	Feed: *f* (mm/rev)	0.2	0.3
	Depth of cut: *ap* (mm)	2.0	1.5
	Machining	External turning (continuous)	External profiling (continuous)
	Coolant	Wet	Wet
Results		 Tool life is doubled. T9105 grade offers long and stable tool life due to high wear and chipping resistance.	 T9105 at least doubles the tool life. This grade offers extended tool life with improved wear and chipping resistance.

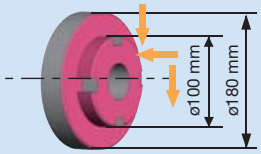
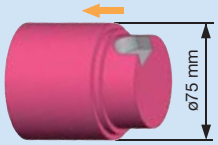
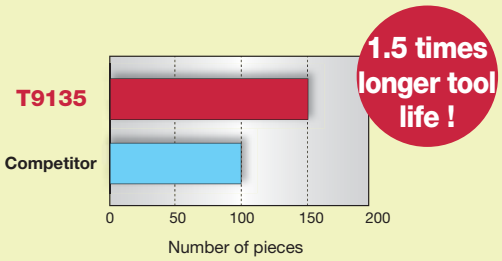
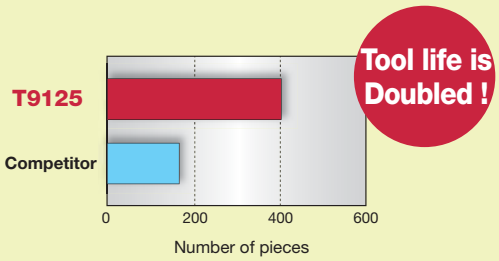
Workpiece type		Automotive parts	Bearing parts
Insert		WNMG080412-TM	TNMG160408-TSF
Grade		T9115	T9115
Work material		S45C / C45	SUJ2 / 100Cr6
			
Cutting conditions	Cutting speed: *Vc* (m/min)	240	180
	Feed: *f* (mm/rev)	0.4	0.1
	Depth of cut: *ap* (mm)	1.4	0.7
	Machining	External and face turning (continuous)	External turning (continuous)
	Coolant	Wet	Wet
Results		 T9115 demonstrates remarkable chipping resistance that delivers stable and extended tool life without any sudden fractures. This tool life is also applicable to intermittent machining.	 With improved wear and chipping resistance the T9115 offers stable and long life when finish machining.

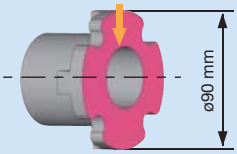
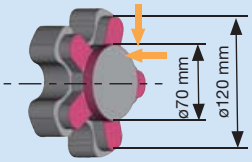
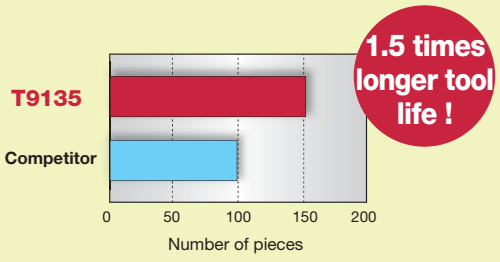
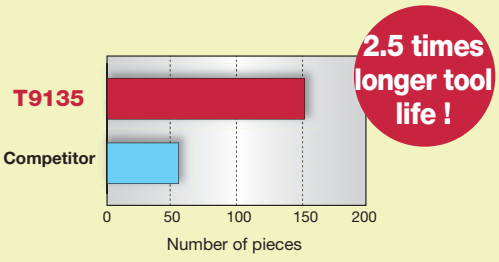
Workpiece type		Bearing parts	Machine parts
Insert		WNMG080408-ZM	CNMG120408-TM
Grade		T9115	T9115
Work material		SCM415 / 18CrMo4	S45C / C45
			
Cutting conditions	Cutting speed: *Vc* (m/min)	180	180
	Feed: *f* (mm/rev)	0.2	0.3
	Depth of cut: *ap* (mm)	1.0	3.0
	Machining	External and face turning (continuous)	Internal turning (roughing / continuous)
	Coolant	Wet	Wet
Results		 T9105 has 1.5 times longer tool life. The T9115 offers extremely stable tool life with exceptional fracture resistance that prevents any sudden tool breakages.	 Increases productivity by 30%. Machine down-time is reduced.

Workpiece type		Automotive parts	Shaft parts
Insert		DNMG150408-TM	VNMG160412-TM
Grade		T9115	T9125
Work material		S45C / C45	SCM415 / 18CrMo4
			
Cutting conditions	Cutting speed: *Vc* (m/min)	200	280
	Feed: *f* (mm/rev)	0.25	0.35
	Depth of cut: *ap* (mm)	2.0	1.3
	Machining	External profiling (continuous)	External and face turning (continuous)
	Coolant	Wet	Wet
Results		 The T9115 machined 190 pieces continuously. The competitor insert machined between 100 to 150 pieces, proving very unstable with frequent fractures. Tool life is extended 1.5 times with Tungaloy insert.	 Tool life has been doubled. The T9125 grade prevents the occurrence of chipping and fracture.

Workpiece type		Automotive parts	Machine parts
Insert		CNMG120408-TM	WNMG080408
Grade		T9125	T9125
Work material		SCr420 / 20Cr4	S20C / C22E
			
Cutting conditions	Cutting speed: *Vc* (m/min)	220	150
	Feed: *f* (mm/rev)	0.2	0.30 (External) 0.25 (Facing)
	Depth of cut: *ap* (mm)	1.0	1.0
	Machining	Face turning (interrupted)	External turning (interrupted)
	Coolant	Dry	Wet
Results		 Tool life has been doubled. There was no chipping on the edge and tool life proved very stable.	 The T9125 produced 300 pieces. The tool life of the competitor's grade was 80 to 100 pieces, this variation proved unstable.

Workpiece type		Hub parts	Cylinder parts
Insert		CNMG120412-TM	CNMG120408-NM
Grade		T9125	T9125
Work material		S53C / C53	SCM440 / 42CrMo4
			
Cutting conditions	Cutting speed: *Vc* (m/min)	200	150
	Feed: *f* (mm/rev)	0.3	0.3
	Depth of cut: *ap* (mm)	1.5	0.3
	Machining	External and face turning (interrupted)	External and face turning (Interrupted)
	Coolant	Wet	Wet
Results		 Tool life has been doubled. T9125 grade offers stable and longer life in heavy interrupted cutting.	 T9125 has 3.0 times longer tool life. T9125 demonstrates excellent chipping resistance. Applicable for medium to heavy cutting.

Workpiece type		Gear parts	Automotive parts
Insert		WNMG080412-TM	CNMG120412-TM
Grade		T9135	T9125
Work material		SCM420 / 18CrMo4	SCM440 / 42CrMo4
			
Cutting conditions	Cutting speed: *Vc* (m/min)	200	150
	Feed: *f* (mm/rev)	0.3	0.3
	Depth of cut: *ap* (mm)	1.5	1.5
	Machining	External and face turning (Interrupted)	External and face turning (Interrupted)
	Coolant	Wet	Wet
Results		 Tool life of T9135 is significantly improved due to reductions in chipping and unexpected fracture.	 Even when conducting interrupted machining, the T9215 provides exceptional stability credit to its high impact resistance.

Workpiece type		Axle parts	Axle parts
Insert		CNMG120412-TM	CNMG120416-TH
Grade		T9135	T9135
Work material		S55C / C55	S55C / C55
			
Cutting conditions	Cutting speed: *Vc* (m/min)	180	150
	Feed: *f* (mm/rev)	0.3	0.35
	Depth of cut: *ap* (mm)	1.3	1.0
	Machining	Face turning (Interrupted)	External and face turning (Interrupted)
	Coolant	Wet	Wet
Results		 T9135 has 1.5 times longer tool life. It reduces chipping on the cutting edge when interrupted cutting. The T9135 also provides good surface finishes and stable tool life.	 T9135 has 2.5 times longer tool life. Sudden fractures on the cutting edge when interrupted cutting are drastically reduced to deliver significantly longer tool life.

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26/11/1997

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