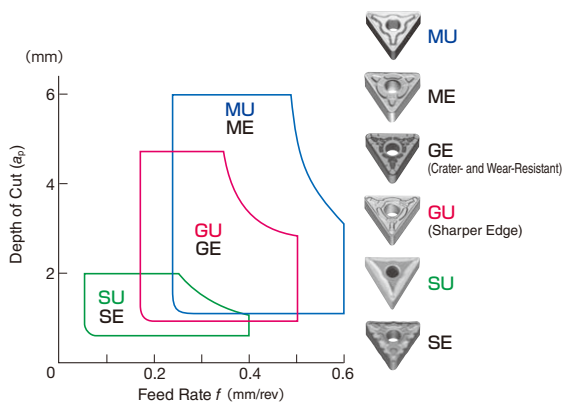
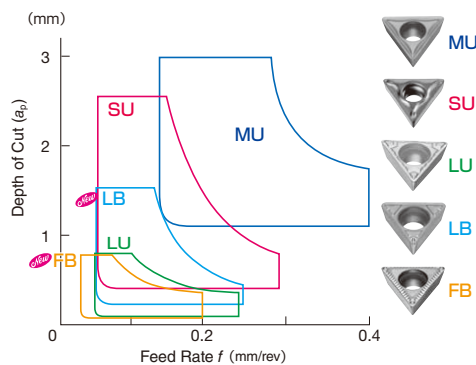


Main Chipbreakers

Negative Type

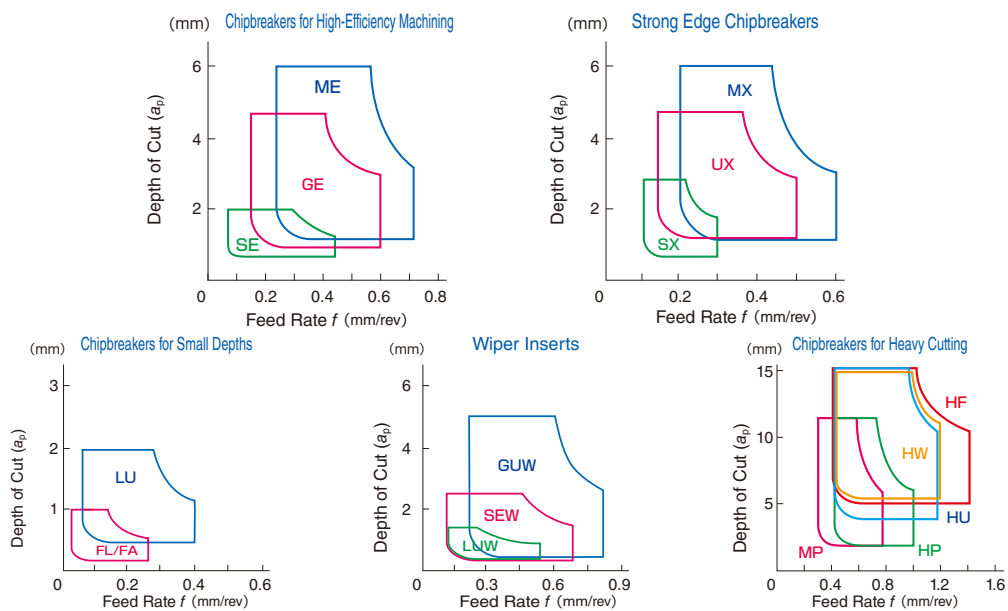


Positive Type



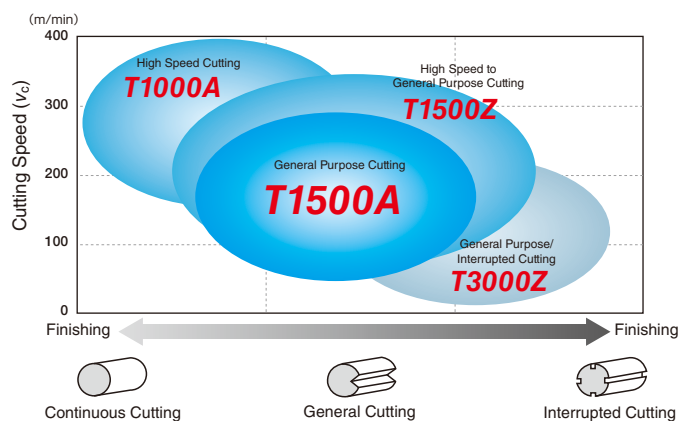
Sub-Chipbreakers

Negative Type

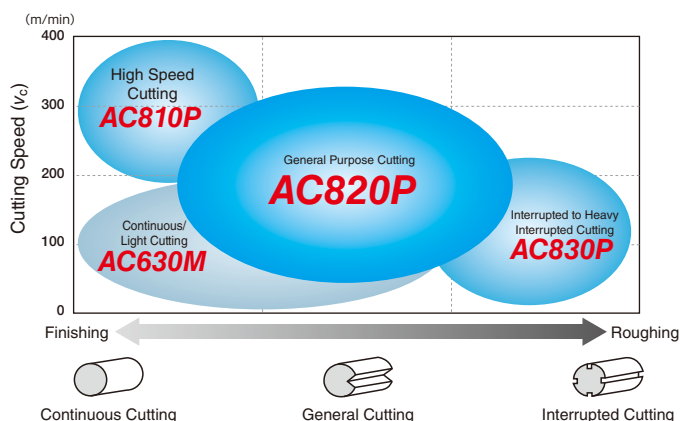


Grades

● Fine Finishing To Finishing



● Finishing to Rough Cutting



Recommended Cutting Conditions/ Representative Chipbreakers



Steel

Work
Material



Recommended Cutting Conditions

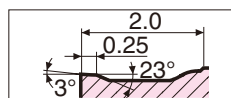
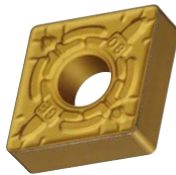
(Red text indicates 1st recommendation.)

Work Material	Cutting Process	Chipbreaker	Grade	Cutting Conditions		
				Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed V_c (m/min)
Soft Steel	Fine Finishing	FL	T1500Z	0.2-0.6-1.0	0.05-0.15-0.25	100-250-400
	Finishing	LU	AC810P	0.5-1.0-1.5	0.1-0.25-0.4	260-340-420
	Medium	GU	AC820P	1.0-2.5-4.0	0.2-0.35-0.5	200-260-320
	Rough	MU	AC830P	2.0-4.0-6.0	0.3-0.45-0.6	140-180-220
Medium Carbon Steel	Fine Finishing	FL	T1500Z	0.2-0.6-1.0	0.05-0.15-0.25	100-200-300
	Finishing	LU	AC810P	0.5-1.0-1.5	0.1-0.25-0.4	210-275-340
	Medium	GU	AC820P	1.0-2.5-4.0	0.2-0.35-0.5	150-190-230
	Rough	MU	AC830P	2.0-4.0-6.0	0.3-0.45-0.6	110-135-160
High Carbon Steel	Fine Finishing	FL	T1500Z	0.2-0.6-1.0	0.05-0.15-0.25	50-150-250
	Finishing	LU	AC810P	0.5-1.0-1.5	0.1-0.25-0.4	170-225-280
	Medium	GU	AC820P	1.0-2.5-4.0	0.2-0.35-0.5	130-165-200
	Rough	MU	AC830P	2.0-4.0-6.0	0.3-0.45-0.6	90-120-150

Breaker

General Purpose GE Type Chipbreaker

Achieves high efficiency and longer tool life with reduced rake face wear.
Delivers stable chip control performance from shallow cutting depths onwards.



Cross Section of Chipbreaker

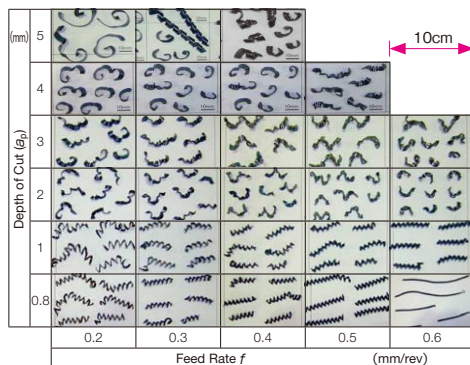
The center ridge provides stable chip control.

The side ridges alleviate stress concentration and reduce rake face wear.



GE Type Chip Control

Work Material: SCM415 Cutting Conditions: $v_c=200$ m/min Dry

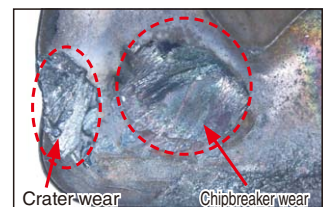


Wear Resistance

Work Material: SCM435 Cutting Conditions: $v_c=250$ m/min $f=0.4$ mm/rev $a_p=2.0$ mm



GE Type Chipbreaker

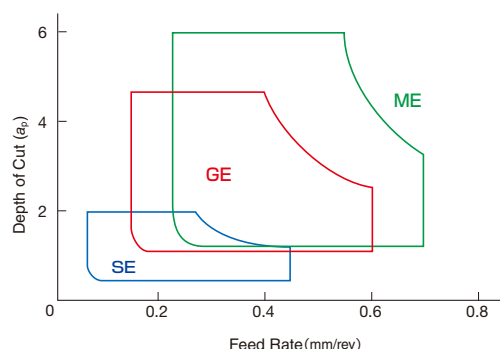


Conventional Chipbreaker

**Reduces rake face wear (crater wear and chipbreaker wear).
Achieves longer tool life and reduces machining costs.**

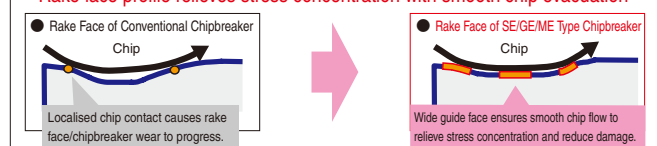
Shared Features of the High Efficiency Chipbreaker Series

Application Range



Characteristics

Rake face profile relieves stress concentration with smooth chip evacuation



Grades

High Speed Cutting General Purpose Cutting Interrupted Cutting

AC810P / AC820P / AC830P

AC800P Series covers a wide range of machining applications from high speed to interrupted cutting.

- All grades feature **Super FF Coat**, which has excellent wear and chipping resistance.
- Versatile GE Type chipbreaker suited to high-feed applications. High efficiency, long tool life.

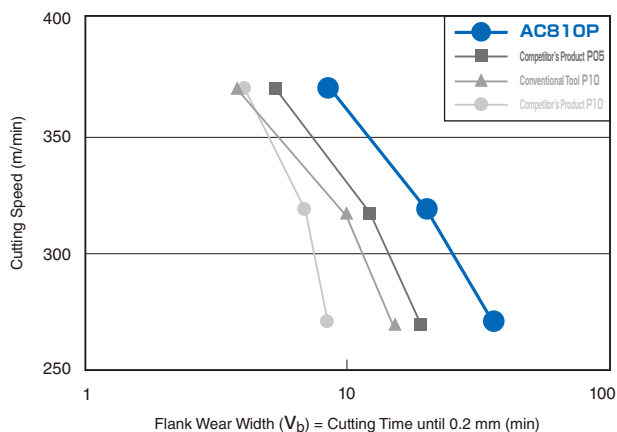
AC810P : In addition to **FF-TiCN**, which has excellent peel-off and wear resistance, this grade features a **tough, thick Alumina coating** enhanced by newly developed **grain growth control technology**, excellent wear resistance and long tool life in high-speed, high-feed cutting.

AC820P : In addition to **FF-TiCN**, which has excellent peel-off and wear resistance, this grade features a high-density structured **FF-Al₂O₃** layer using new **smooth surface treatment technology**, and also employs **coating thickness control technology** to achieve excellent versatility, stability, and long tool life.

AC830P : In addition to **FF-TiCN**, which has excellent peel-off and wear resistance, this grade features a strengthened **FF-Al₂O₃** layer using new **stress control technology**, and moreover provides excellent reliability and wear resistance in heavy interrupted cutting to achieve long tool life.

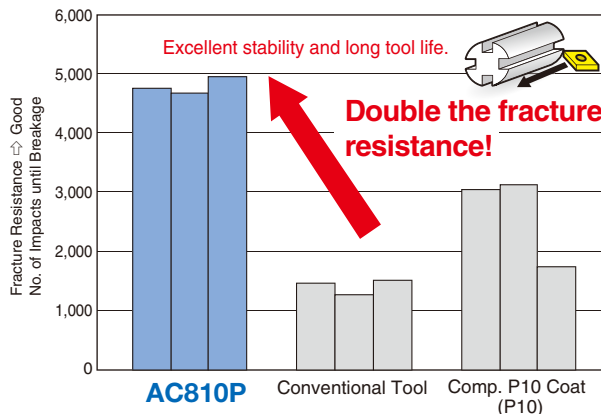
AC810P Cutting Performance

● Continuous Cutting (V-T chart)



Work Material: SCM435 (Continuous) Insert: CNMG120408N-GU
Cutting Conditions: $v_c=270$ to 370 m/min $f=0.3$ mm/rev $a_p=1.5$ mm Wet

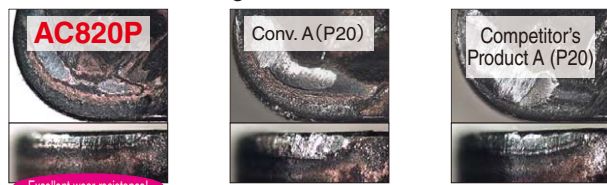
● Interrupted Cutting



Work Material: SCM435 (Interrupted) Insert: CNMG120408N-GU
Cutting Conditions: $v_c=330$ to 350 m/min $f=0.19$ to 0.22 mm/rev $a_p=1.5$ mm Wet

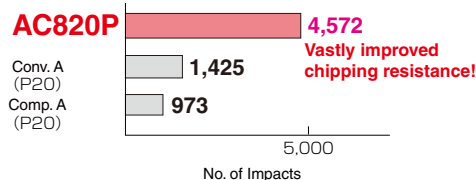
AC820P Cutting Performance

● Continuous Cutting



Work Material: S45C (Continuous) Insert: CNMG120408N-GE
Cutting Conditions: $v_c=270$ m/min $f=0.4$ mm/rev $a_p=1.2$ mm Wet $T=21$ min

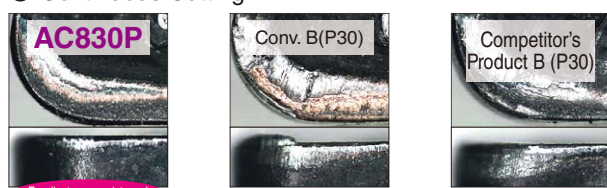
● Interrupted Cutting



Work Material: SCM435 (Interrupted) Insert: CNMG120408N-GE
Cutting Conditions: $v_c=350$ m/min $f=0.2$ mm/rev $a_p=1.5$ mm Wet

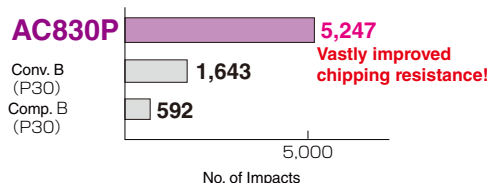
AC830P Cutting Performance

● Continuous Cutting

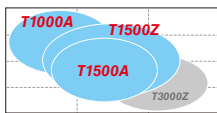


Work Material: SCM435 (Continuous) Insert: CNMG120408N-GU
Cutting Conditions: $v_c=240$ m/min $f=0.3$ mm/rev $a_p=1.5$ mm Wet $T=18$ min

● Interrupted Cutting



Work Material: SCM435 (Interrupted) Insert: CNMG120408N-GU
Cutting Conditions: $v_c=250$ m/min $f=0.24$ mm/rev $a_p=1.5$ mm Wet



Representative Grades / Performance Recommended Cutting Conditions



Steel

Work
Material

Grades

Uncoated Cermet

T1000A / T1500A / T1500Z

Coated Cermet

T1000A : A high hardness cermet that combines excellent wear resistance and toughness. Achieves high tolerances in continuous cutting of steel and finishing of powdered metal and cast iron.

T1500A : A general purpose cermet made from hard grains with different grain sizes and functionality that provides a good balance of wear resistance and toughness. Also achieves good surface finish.

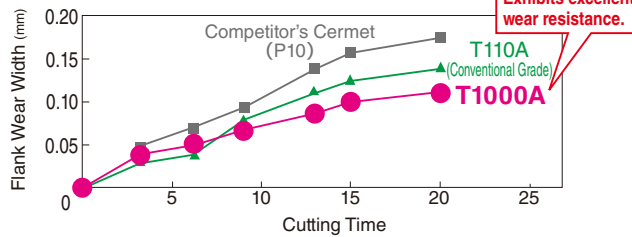
T1500Z : Employs Brilliant Coat PVD coating with excellent lubricity to provide better wear resistance and stable finished surfaces in low-cutting-speed applications such as machining small workpieces or low carbon steel.



Performance

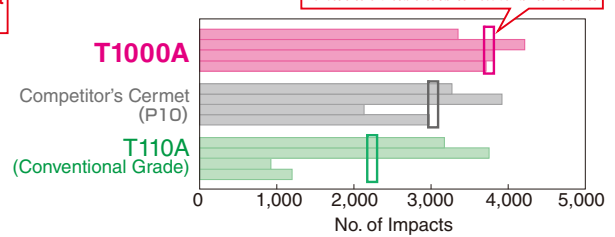
T1000A Performance

Wear Resistance



Work Material : SCM435 Insert : CNMG120408N-SU
Cutting Conditions: $v_c=320\text{m/min}$ $f=0.20\text{mm/rev}$ $a_p=1.5\text{mm Dry}$

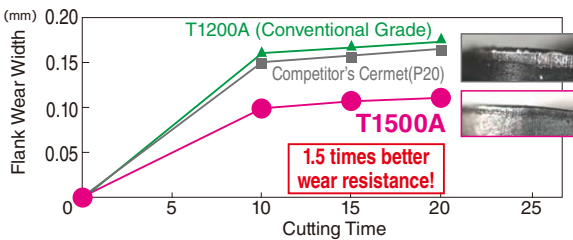
Fracture Resistance



Work Material : SCM435 Insert : CNMG120408N-SU
Cutting Conditions: $v_c=230\text{m/min}$ $f=0.20\text{mm/rev}$ $a_p=1.0\text{mm Wet}$

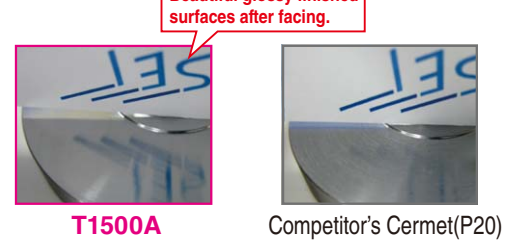
T1500A Performance

Wear Resistance



Work Material : SCM435 Insert : CNMG120408N-SU
Cutting Conditions: $v_c=230\text{m/min}$ $f=0.20\text{mm/rev}$ $a_p=1.0\text{mm Wet}$

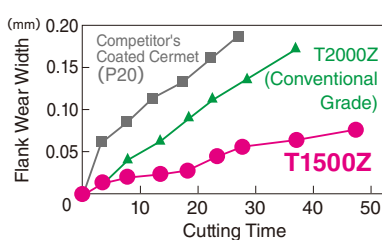
Machined Surface Finish



Work Material : S45C Insert : DNMG150404N-LU
Cutting Conditions: $v_c=150\text{m/min}$ $f=0.12\text{mm/rev}$ $a_p=0.1\text{mm Wet}$

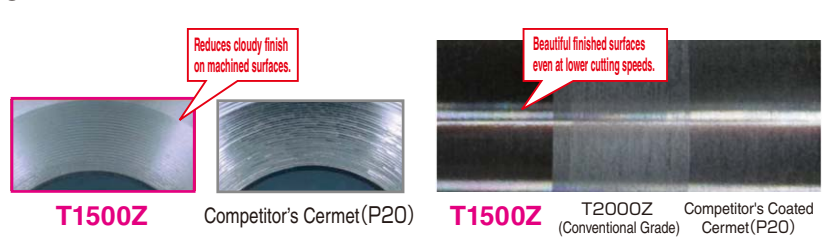
T1500Z Performance

Wear Resistance



Work Material : SCM435 Insert : CNMG120408N-SU
Cutting Conditions: $v_c=230\text{m/min}$ $f=0.20\text{mm/rev}$ $a_p=1.0\text{mm Wet}$

Machined Surface Finish



Work Material : SNCM220H Insert : DNMG150408N-SU
Cutting Conditions: $v_c=150\text{m/min}$ $f=0.20\text{mm/rev}$ $a_p=1.0\text{mm Wet}$

Work Material : STKM13A Insert : CNMG120408N-SU
Cutting Conditions: $v_c=100\text{m/min}$ $f=0.15\text{mm/rev}$ $a_p=1.0\text{mm Wet}$

Recommended Cutting Conditions

Work Material	Cutting Process	Chipbreaker	Grades	Cutting Conditions		
				Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Min. - Optimum - Max. Cutting Speed V_c (m/min)
Soft Steel (SS41 and others)	Fine Finishing	FA/FL	T1500Z	0.2-0.5-1.0	0.05-0.15-0.25	150-280-400
	Finishing	LU	T3000Z	0.3-1.0-1.8	0.08-0.20-0.35	150-280-400
Alloy Steel Carbon Steel (S45C, SCM435, and others)	Fine Finishing	FA/FL	T1500A	0.2-0.5-1.0	0.05-0.15-0.25	100-200-300
	Finishing	SU/SE	T1500A	0.5-1.0-2.0	0.08-0.20-0.35	100-200-300
	Medium	GU	T1500Z	0.8-2.2-4.0	0.15-0.25-0.50	100-200-300
High Carbon Steel Carbon Steel (SCM440H and others)	Fine Finishing	FA/FL	T1000A	0.2-0.5-1.0	0.05-0.15-0.25	50-150-250
	Finishing	SU/SE	T1500Z	0.5-1.0-2.0	0.08-0.20-0.35	50-150-250
	Medium	GU	T1500Z	0.8-2.2-4.0	0.15-0.25-0.50	50-150-250

A

Grades

Steel

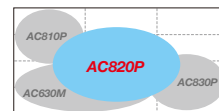
Stainless
Steel

Cast Iron

Exotic
Alloy

Hardened
Steel

Non-Ferrous
Metal

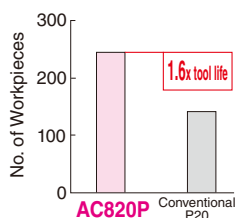
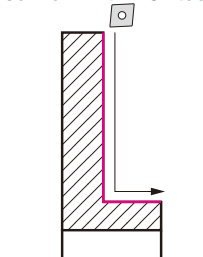


Application Examples

AC820P

S48C Turbine Hub

Good stability and wear resistance in rough cutting of mill-scaled work with 1.6x tool life.

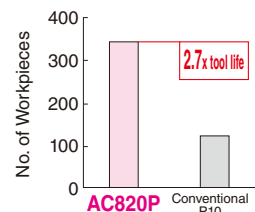
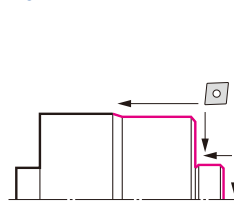


Insert: CNMG120408N-GE (AC820P)

Cutting Conditions: $v_c=210\text{m/min}$ $f=0.3\text{mm/rev}$ $a_p=1.0\text{mm}$ Wet

SCr420H Output Shaft

Good wear resistance in high-speed conditions and 2.7x tool life.

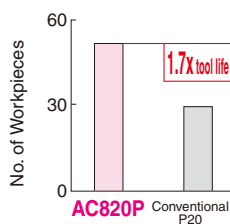
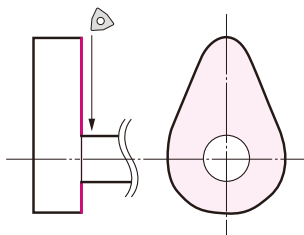


Insert: CNMG120408N-SX (AC820P)

Cutting Conditions: $v_c=$ up to 400m/min $f=0.25\text{mm/rev}$ $a_p=0.5$ to 1.2mm Wet

SCM435 Balancer

High reliability in interrupted cutting with 1.7x tool life.

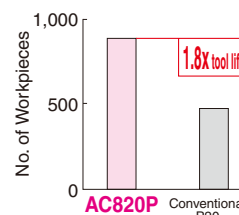
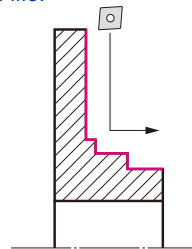


Insert: WNMG080408N-GU (AC820P)

Cutting Conditions: $v_c=220\text{m/min}$ $f=0.18\text{mm/rev}$ $a_p=10\text{mm}$ Wet

SCM415 Turbine Hub

Low alloy steel and good finishing. Stable cutting with 1.8x tool life.

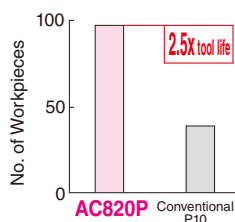
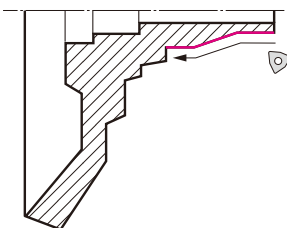


Insert: CNMG120408N-GU (AC820P)

Cutting Conditions: $v_c=200\text{m/min}$ $f=0.25\text{mm/rev}$ $a_p=2.0\text{mm}$ Wet

S48C Compact Knuckle

No sudden breakages and significantly improved stability with 2.5x tool life.

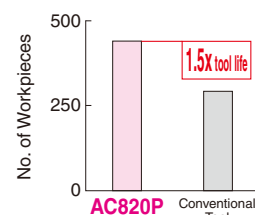
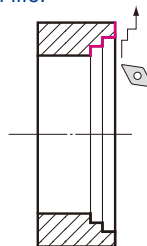


Insert: WNMG080412N-LU (AC820P)

Cutting Conditions: $v_c=192\text{m/min}$ $f=0.45\text{mm/rev}$ $a_p=1.0$ to 2.0mm Wet

S45C Ring

Good wear resistance in rough cutting of mill-scaled work and 1.5x tool life.

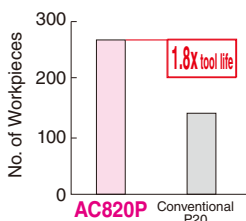
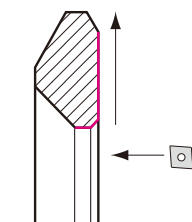


Insert: DNMG150412N-SX (AC820P)

Cutting Conditions: $v_c=200\text{m/min}$ $f=0.15$ - 0.35mm/rev $a_p=1.0$ to 2.0mm Wet

SCM425 Gear

Good wear resistance in high-feed conditions with 1.8x tool life.

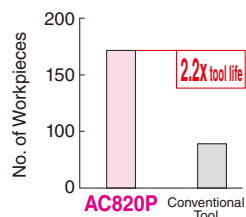
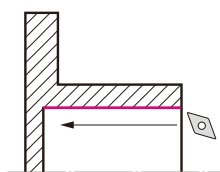


Insert: CNMG120408N-MU (AC820P)

Cutting Conditions: $v_c=220\text{m/min}$ $f=0.5\text{mm/rev}$ $a_p=5\text{mm}$ Wet

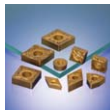
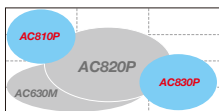
S35C Carrier Flange

Positive type with good wear resistance and 2.2x tool life.



Insert: DCMT11T308N-SU (AC820P)

Cutting Conditions: $v_c=180\text{m/min}$ $f=0.17\text{mm/rev}$ $a_p=1\text{mm}$ Wet



Application Examples (2)



Steel

Work
Material

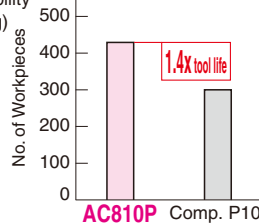
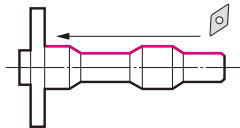
Application Examples

AC810P

SCr415 Hub

Good tool life in rough cutting of mill-scaled work.

In rough cutting of mill-scaled work, **AC810P** provides superior wear resistance and cutting edge stability compared to competitor's grade (P10 coating) and has achieved 1.4 times longer tool life.

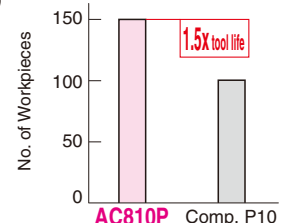
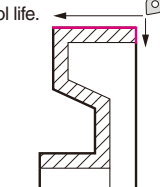


Insert: DNMG150612N-GE (AC810P)
Cutting Conditions: $v_c=204\text{m/min}$ $f=0.35$ to 0.45mm/rev $a_p=1.5$ to 3.0mm Wet

S45C Hub

Good tool life in rough cutting of mill-scaled work.

In rough cutting of mill-scaled work, **AC810P** provides superior wear resistance compared to competitor's grade (P10 coating) and has achieved 1.5 times longer tool life.

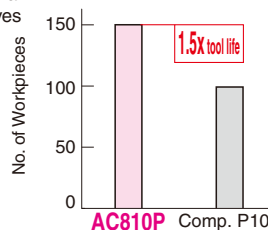
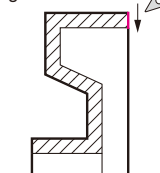


Insert: WNMG080412N-GU (AC810P)
Cutting Conditions: $v_c=250\text{m/min}$ $f=0.4\text{mm/rev}$ $a_p=1.5\text{mm}$ Wet

S45C Hub

Long tool life and stable cutting edge.

AC810P gives higher cutting edge stability than competitor's grade (P10 coating) and achieves 1.5 times longer tool life.

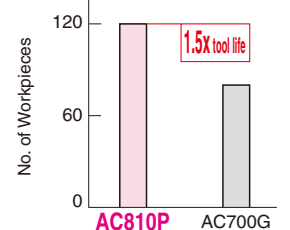
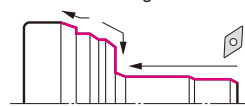


Insert: VBMT160408N-SU (AC810P)
Cutting Conditions: $v_c=240\text{m/min}$ $f=0.25\text{mm/rev}$ $a_p=0.7\text{mm}$ Wet

S45C CVJ Outer Race

Long tool life in high speed machining applications.

In high-speed dry machining, **AC810P** provides superior wear resistance compared to conventional grade (AC700G) and has achieved 1.5 times longer tool life.

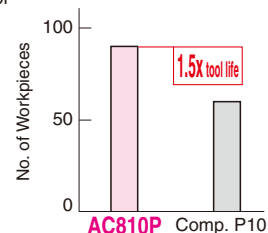
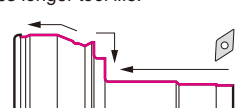


Insert: DNMG150612N-LU (AC810P)
Cutting Conditions: $v_c=350\text{m/min}$ $f=0.20$ to 0.45mm/rev $a_p=0.4$ to 0.5mm Dry

S53C CVJ Outer Race

Long tool life in dry cutting applications.

In dry machining, **AC810P** provides superior wear resistance compared to competitor's grade (P10 coating) and has achieved 1.5 times longer tool life.

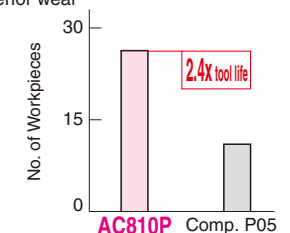
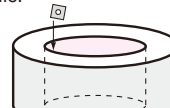


Insert: DNMG150612N-GE (AC810P)
Cutting Conditions: $v_c=270\text{m/min}$ $f=0.35$ to 0.38mm/rev $a_p=1.5\text{mm}$ Dry

S45C Coupling

On par with P05 grade.

In high-feed cutting, **AC810P** provides superior wear resistance compared to competitor's grade (P05 coating) and has achieved 2.4 times longer tool life.



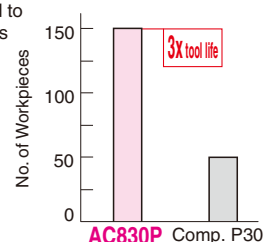
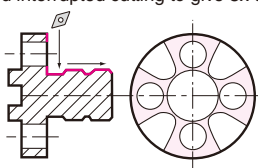
Insert: SNMG150616N-MU (AC810P)
Cutting Conditions: $v_c=175\text{m/min}$ $f=0.66\text{mm/rev}$ $a_p=2.6\text{mm}$ Wet

AC830P

S55C Hub Unit

Long tool life in both interrupted and continuous cutting!

AC830P offers reduced chipping compared to competitor's grade (P30) in both continuous and interrupted cutting to give 3x tool life.

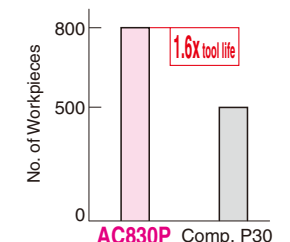
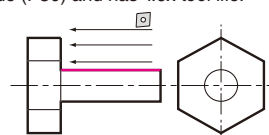


Insert: DNMG150412N-UX (AC830P)
Cutting Conditions: $v_c=150\text{m/min}$ $f=0.25\text{mm/rev}$ $a_p=1.0\text{mm}$ Wet

SS400 Bolt

Long tool life in both interrupted and continuous cutting!

AC830P offers superior chipping and wear resistance compared to competitor's grade (P30) and has 1.6x tool life.



Insert: CNMG120408N-GU (AC830P)
Cutting Conditions: $v_c=170\text{m/min}$ $f=0.25\text{mm/rev}$ $a_p=2.5\text{mm}$ Wet

A

Grades

Steel

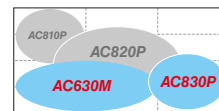
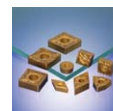
Stainless
Steel

Cast Iron

Exotic
Alloy

Hardened
Steel

Non-Ferrous
Metal



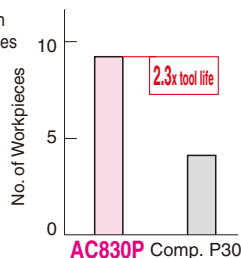
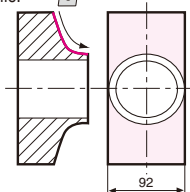
Application Examples

AC830P

S50C Machine Component

Improved efficiency and long tool life.

AC830P provides cutting speed that is 25% faster than competitor's grade (P30 coating) and achieves 2.3 times longer tool life.



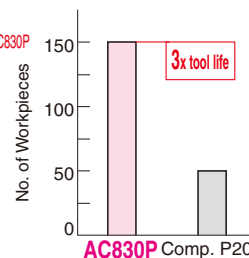
Insert : CNMG120412N-MU (AC830P)

Cutting Conditions : $v_c=120$ to 150m/min $f=0.25\text{mm/rev}$ $a_p=1.5\text{mm}$ Wet

SCM415 Cam Shaft

On par with P20 grade.

In comparison to competitor's grade (P20 coating) which suffered from sudden breakages leading to unstable tool life (30 to 70 workpieces), AC830P provides stable tool life that is 3 times longer (140 to 160 workpieces).



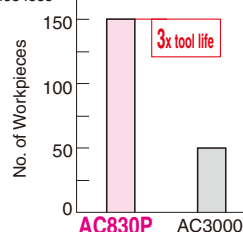
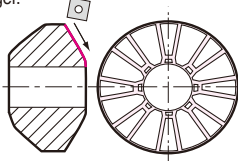
Insert : DNMG150408N-GU (AC830P)

Cutting Conditions : $v_c=220\text{m/min}$ $f=0.25\text{mm/rev}$ $a_p=1.0\text{mm}$ Wet

SCr420 Pinion Gear

Stable, long tool life in heavy interrupted cutting.

In heavy interrupted cutting of gears, AC830P provides less abnormal damage compared to conventional grade (AC3000) and has achieved stable tool life that is 3 times longer.



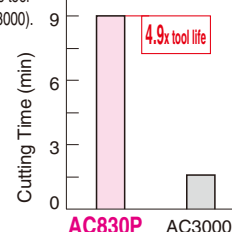
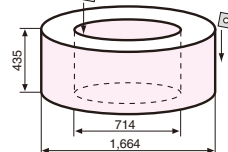
Insert : SNMG120412N-UX (AC830P)

Cutting Conditions : $v_c=170\text{m/min}$ $f=0.35\text{mm/rev}$ $a_p=1.5\text{mm}$ Wet

SNCM420 Large Gear for Construction Equipment

Stable, long tool life in heavy cutting.

In heavy cutting with varying cut depths, AC830P achieves stable tool life that is 4.9 times longer compared to conventional grade (AC3000).



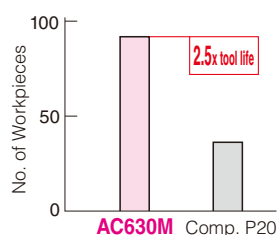
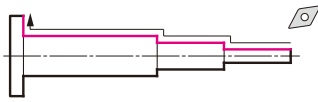
Insert : SNMM190616N-HG (AC830P)

Cutting Conditions : $v_c=115\text{m/min}$ $f=0.8\text{mm/rev}$ $a_p=5$ to 10mm Wet

AC630M

SNCM439 Shaft

AC630M suppresses vibration and has 2.5x tool life of competitor's P20 grade.

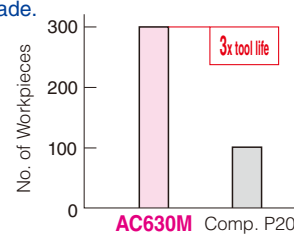
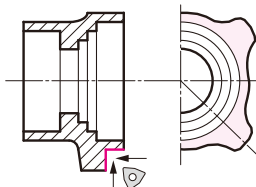


Insert : DNMG150404N-EX (AC630M)

Cutting Conditions : $v_c=180\text{m/min}$ $f=0.18\text{mm/rev}$ $a_p=0.5\text{mm}$ Wet

S53C Hub

AC630M has no chipping during light interrupted cutting and has 3x tool life of competitor's P20 grade.



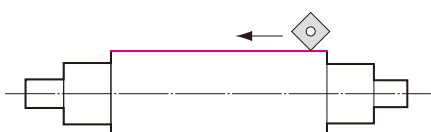
Insert : WNMG080412N-GU (AC630M)

Cutting Conditions : $v_c=180\text{m/min}$ $f=0.35\text{mm/rev}$ $a_p=0.8\text{mm}$ Wet

AC900G

Alloy Steel Forged Steel Roll

Reduced cutting resistance during rough cutting of mill-scaled work and improved feed rate have improved efficiency by 1.5x.

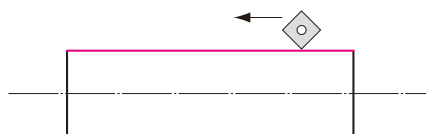


Insert : SNMM310924N-HW (AC900G)

Cutting Conditions : $v_c=98\text{m/min}$ $f=1.2\text{mm/rev}$ $a_p=15$ to 20mm Wet

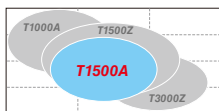
Alloy Steel Axle

Stable tool life on rough, mill-scaled work.



Insert : SNMM310924N-MP (AC900G)

Cutting Conditions : $v_c=50\text{m/min}$ $f=1.0\text{mm/rev}$ $a_p=15$ to 21mm Dry



Application Examples(4)



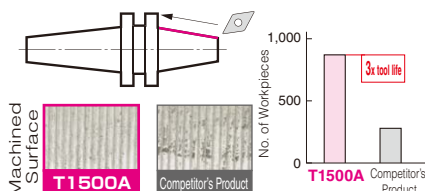
Steel

Work
Material

Application Examples

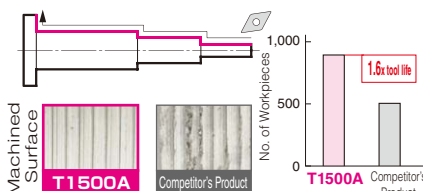
T1500A (M Class Insert)

SCM415 Arbor



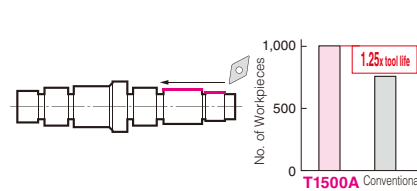
Insert : DNMG150408N-LU (T1500A)
Cutting Conditions : $v_c=200\text{m/min}$ $f=0.25\text{mm/rev}$
 $a_p=0.3\text{mm}$ Wet

SCM435 Shaft



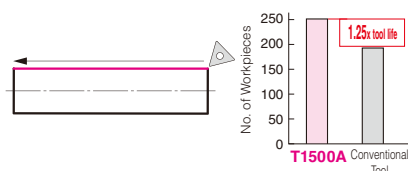
Insert : DNMG150408N-SU (T1500A)
Cutting Conditions : $v_c=200\text{m/min}$ $f=0.18\text{mm/rev}$
 $a_p=0.15\text{mm}$ Wet

SCM435 Gear Shaft



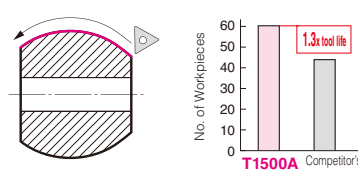
Insert : DNMG150404N-LU (T1500A)
Cutting Conditions : $v_c=90$ to 140m/min $f=0.15\text{mm/rev}$
 $a_p=0.25\text{mm}$ Wet

S45C Shaft



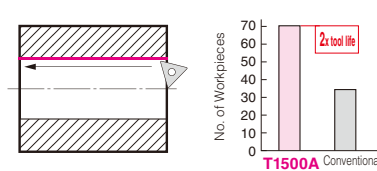
Insert : TNMG160404N-FL (T1500A)
Cutting Conditions : $v_c=200\text{m/min}$ $f=0.12\text{mm/rev}$
 $a_p=0.35\text{mm}$ Wet

SUS316 Valve



Insert : TNMG160408N-SU (T1500A)
Cutting Conditions : $v_c=140\text{m/min}$ $f=0.12\text{mm/rev}$
 $a_p=0.15\text{mm}$ Wet

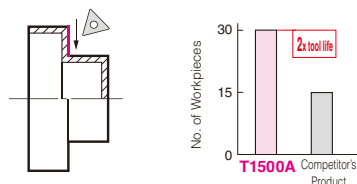
STKM13A Machine Component



Insert : TNMG160404N-SU (T1500A)
Cutting Conditions : $v_c=150\text{m/min}$ $f=0.07\text{mm/rev}$
 $a_p=0.1\text{mm}$ Wet

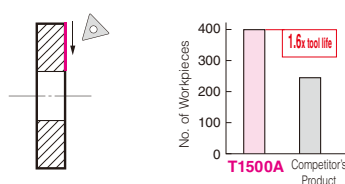
T1500A (G Class Insert)

SAPH400 Automotive Component



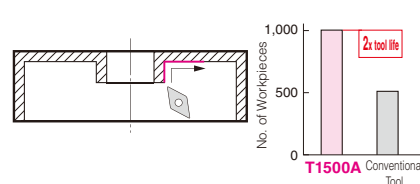
Insert : TNGG160402L-UM (T1500A)
Cutting Conditions : $v_c=180\text{m/min}$ $f=0.25\text{mm/rev}$
 $a_p=0.25\text{mm}$ Wet

S45C Transmission Part



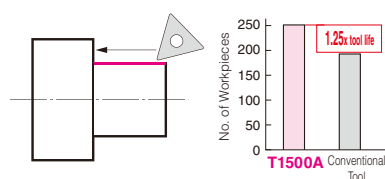
Insert : TNGG160402L-FY (T1500A)
Cutting Conditions : $v_c=300\text{m/min}$ $f=0.05\text{mm/rev}$
 $a_p=0.1\text{mm}$ Wet

SPH440 Drum Brake Component



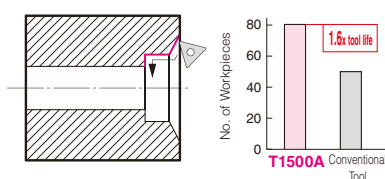
Insert : DNGG150404R-UM (T1500A)
Cutting Conditions : $v_c=280\text{m/min}$ $f=0.07\text{mm/rev}$
 $a_p=0.25\text{mm}$ Wet

SCM435 Pump Part



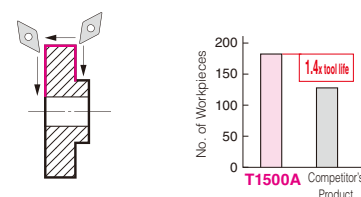
Insert : TNGG160404R-UM (T1500A)
Cutting Conditions : $v_c=100\text{m/min}$ $f=0.25\text{mm/rev}$
 $a_p=1.0\text{mm}$ Wet

S45C Sleeve



Insert : TPGT110304L-SD (T1500A)
Cutting Conditions : $v_c=200\text{m/min}$ $f=0.15\text{mm/rev}$
 $a_p=0.2\text{mm}$ Wet

S45C Machine Component



Insert : DCGT070202L-FX (T1500A)
Cutting Conditions : v_c to 240m/min $f=0.03\text{mm/rev}$
 $a_p=0.05\text{mm}$ Wet

A

Grades

Steel

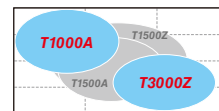
Stainless
Steel

Cast Iron

Exotic
Alloy

Hardened
Steel

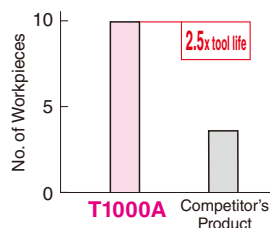
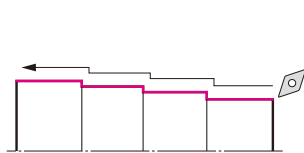
Non-Ferrous
Metal



Application Examples

T1000A

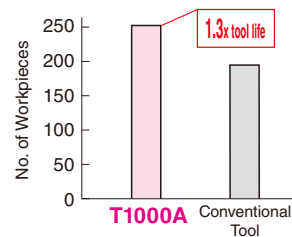
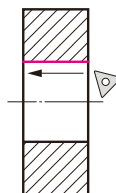
SCM440 Shaft



Insert: DNMG150408N-SU (T1000A)

Cutting Conditions: $v_c=180\text{m/min}$, $f=0.10$ to 0.25mm/rev , $a_p=0.4\text{mm}$, Wet

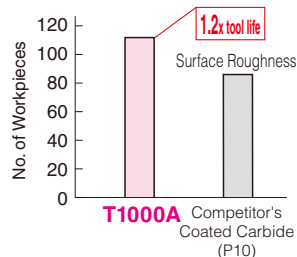
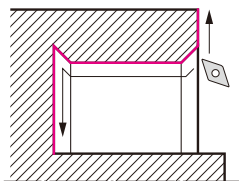
S45C Flange



Insert: TPGT110304L-SD (T1000A)

Cutting Conditions: $v_c=180\text{m/min}$, $f=0.08\text{mm/rev}$, $a_p=0.15\text{mm}$, Wet

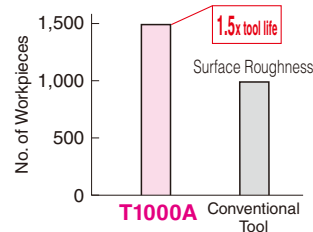
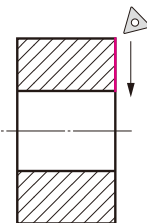
S30C Automotive Component



Insert: DCMT070208N-SU (T1000A)

Cutting Conditions: $v_c=230\text{m/min}$, $f=0.05\text{mm/rev}$, $a_p=0.3$ to 0.7mm , Wet

S25C Automotive Component

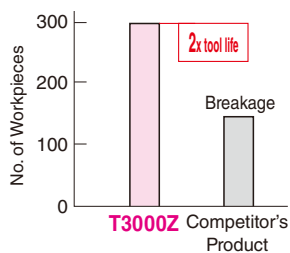
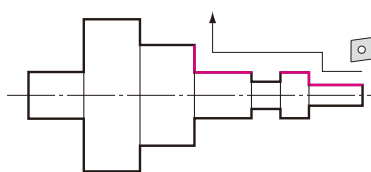


Insert: TNGG160404L-FX (T1000A)

Cutting Conditions: $v_c=80$ to 170m/min , $f=0.10\text{mm/rev}$, $a_p=0.2\text{mm}$, Dry

T3000Z

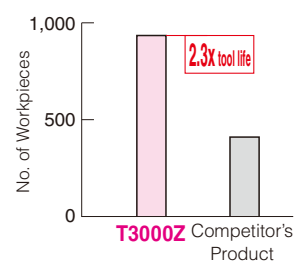
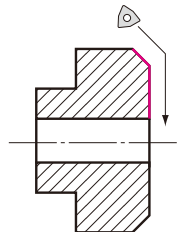
S48C Shaft (Interrupted Cutting)



Insert: CNMG120408N-SX (T3000Z)

Cutting Conditions: $v_c=220\text{m/min}$, $f=0.25\text{mm/rev}$, $a_p=1.8\text{mm}$, Wet

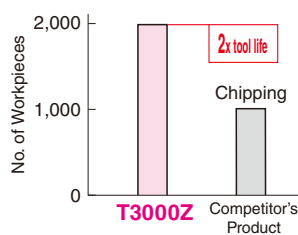
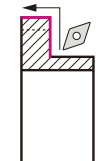
SCr420H Cone Clutch



Insert: WNMG080408N-LU (T3000Z)

Cutting Conditions: $v_c=200\text{m/min}$, $f=0.20\text{mm/rev}$, $a_p=1.0\text{mm}$, Wet

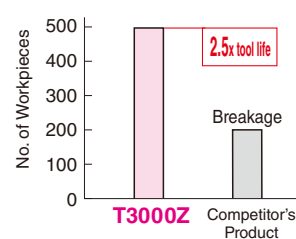
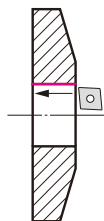
SCr420H Clutch Gear (Interrupted Cutting)



Insert: DNMG150408N-LU (T3000Z)

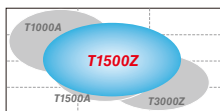
Cutting Conditions: $v_c=200\text{m/min}$, $f=0.3\text{mm/rev}$, $a_p=0.3$ to 0.5mm , Wet

S45C Machine Component



Insert: CPMT090304N-SU (T3000Z)

Cutting Conditions: $v_c=100\text{m/min}$, $f=0.20\text{mm/rev}$, $a_p=1.0\text{mm}$, Wet



Application Examples (6)



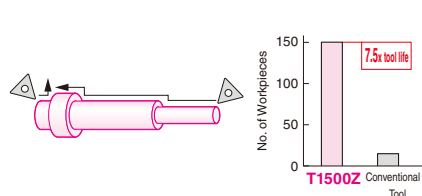
Steel

Work Material

Application Examples

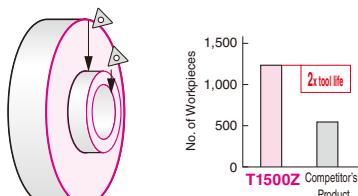
T1500Z

SCM415 Shaft



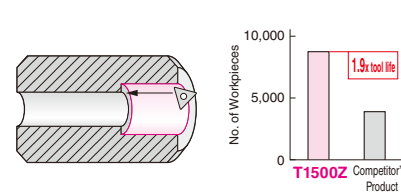
Insert: TNMG160408N-SU (T1500Z)
Cutting Conditions: $v_c=220\text{m/min}$, $f=0.26$ to 0.34mm/rev , $a_p=0.2$ to 0.25mm , Wet

SCM420H Automotive Component



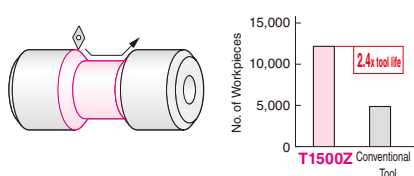
Insert: TNMG160408N-LU (T1500Z)
Cutting Conditions: $v_c=200\text{m/min}$, $f=0.15\text{mm/rev}$, $a_p=1.0\text{mm}$, Wet

S48C Guide



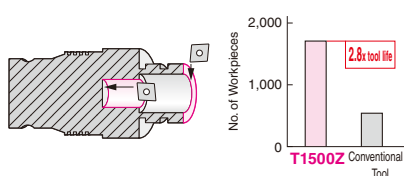
Insert: TPMT090204N-LU (T1500Z)
Cutting Conditions: $v_c=162\text{m/min}$, $f=0.13\text{mm/rev}$, $a_p=0.55\text{mm}$, Wet

S45C Sleeve



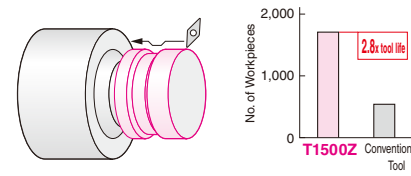
Insert: DCMT11T304N-LU (T1500Z)
Cutting Conditions: $v_c=230\text{m/min}$, $f=0.10\text{mm/rev}$, $a_p=0.50\text{mm}$, Wet

S43C Lower Shaft



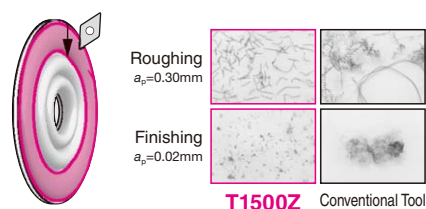
Insert: CPGT080208N-SD (T1500Z)
Cutting Conditions: $v_c=140\text{m/min}$, $f=0.15\text{mm/rev}$, $a_p=0.5\text{mm}$, Wet

S43C Machine Component



Insert: VNMG160408N-FL (T1500Z)
Cutting Conditions: $v_c=180\text{m/min}$, $f=0.2\text{mm/rev}$, $a_p=0.2$ to 0.9mm , Wet

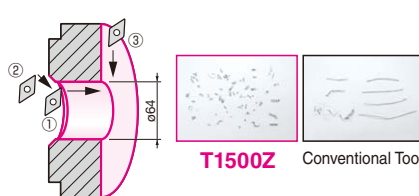
SAPH440 (Press Material) Piston Component



Criteria : Undulation of Finished Surface

Insert: DCMT11T308N-FB (T1500Z)
Cutting Conditions : $v_c=360\text{m/min}$ $f=0.14\text{mm/rev}$
 $a_p=\text{Rough : }0.30\text{mm}$ Finishing : 0.02mm Wet

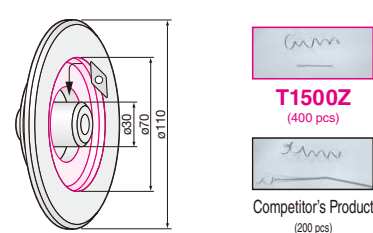
SCM420H Clutch Component



Criteria : Surface Properties (Clouding and Exit Burrs)

Insert: DCMT11T304N-FB (T1500Z)
Cutting Conditions : $v_c=220\text{m/min}$ $f=$ ① 0.15 ② 0.12 ③ 0.18mm/rev $a_p=0.25\text{mm}$ Wet

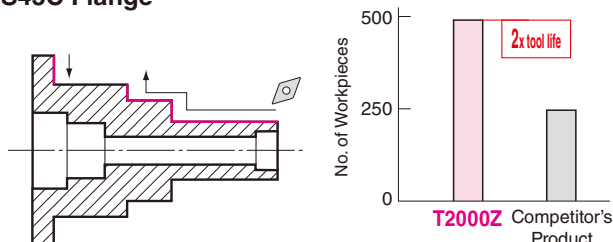
S45C Hub



Insert: VBMT160408N-LB (T1500Z)
Cutting Conditions : $v_c=240\text{m/min}$ $f=0.25$ to 0.28mm/rev $a_p=0.6\text{mm}$ Wet

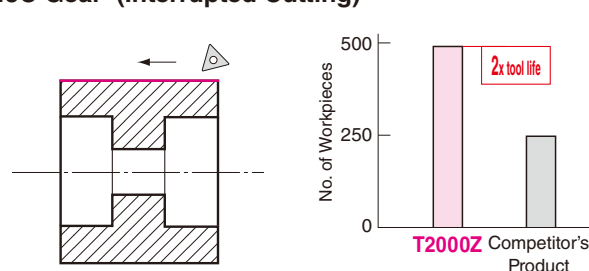
T2000Z

S45C Flange



Insert: DNMG150408N-SU (T2000Z)
Cutting Conditions: $v_c=200\text{m/min}$, $f=0.28\text{mm/rev}$, $a_p=1.5\text{mm}$, Wet

S45C Gear (Interrupted Cutting)



Insert: TNGG160404R-UM (T2000Z)
Cutting Conditions: $v_c=300\text{m/min}$, $f=0.15\text{mm/rev}$, $a_p=2.0\text{mm}$, Wet

A

Grades

Steel

Stainless Steel

Cast Iron

Exotic Alloy

Hardened Steel

Non-Ferrous Metal