

Member IMC Group
Ingersoll
Cutting Tools

Ingersoll **TAE GU** line

**NEW
PRODUCT
UPDATE**

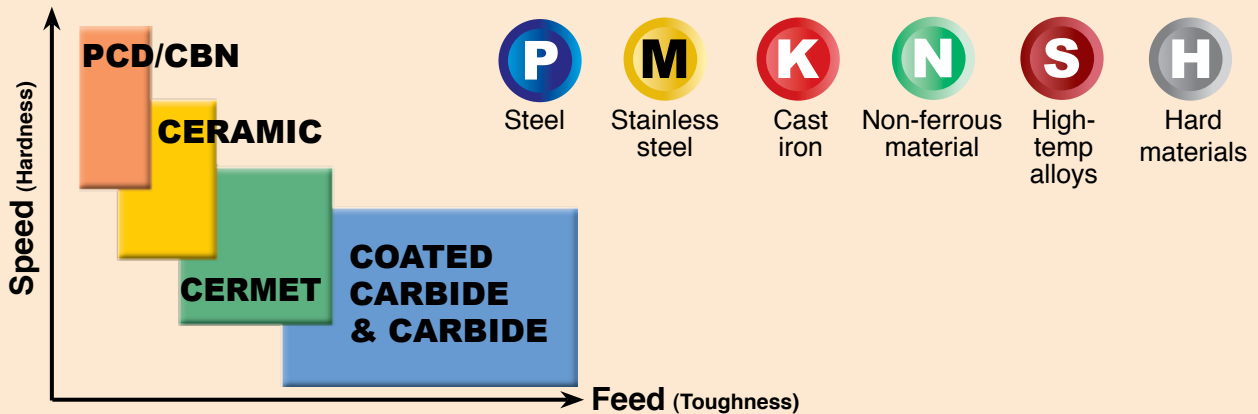
2007/2008





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Grade



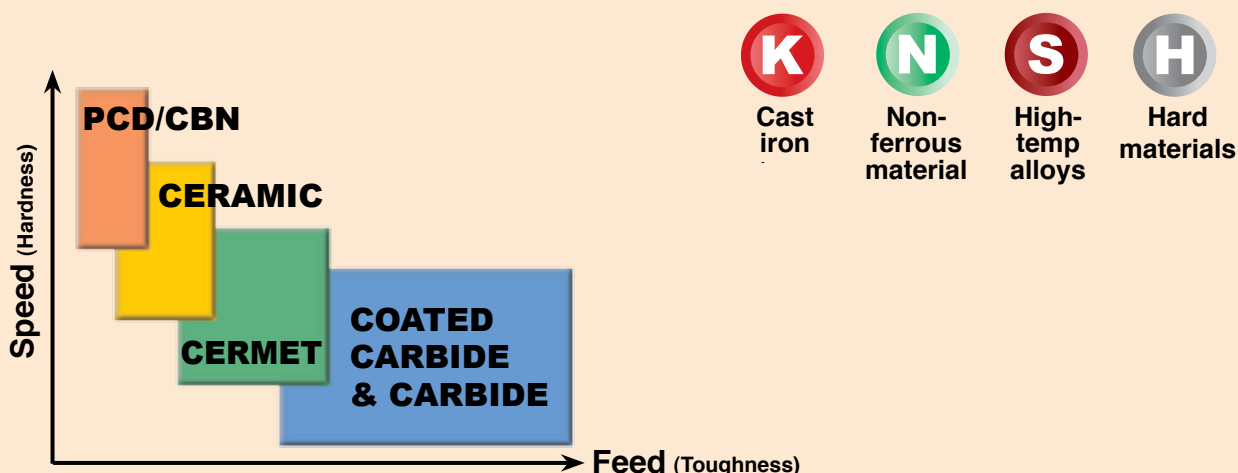
Grade	ISO	Characteristics & Applications
New TT1300 CVD COATED	K05 — K15	- For high speed turning of cast iron and steel. - Thick aluminum oxide coating on a high wear resistant substrate. - First choice for machining gray cast iron at elevated cutting speeds (Rough & Finish).
New TT7310 CVD COATED	K05 — K15 P05 — P15	- First choice for roughing and finishing ductile cast iron. - Thick coating on tough substrate for wear and chipping resistance. - Can also be used for gray cast iron.
New TT8115 CVD COATED	P10 — P25	- For high speed turning of steel. - High crater and flank wear resistance. - First choice for finish machining of steel with carbide.
TT3500 CVD COATED	P15 — P35	- Wide application use in steel turning. - Excellent wear resistance and toughness. - For medium to rough turning.
TT5030 PVD COATED	S05 — S20 M05 — M20	- For turning a wide range of high temp alloys. - Very hard submicron substrate with high fracture toughness.
TT5100 CVD COATED	M15 — M35 S15 — S35 P20 — P40	- For turning a wide range of sticky materials such as stainless steel and low carbon steel. - Excellent chipping and sticking resistance. - First choice grade for machining stainless steel and low carbon steel (Finish and Medium).
New TT7100 CVD COATED	M25 — M40 P25 — P45	- For low speed turning of steel and stainless steel. - Very tough grade. - For heavy roughing and interrupted cutting on steel and stainless steel.
TT8020 PVD COATED	M30 — M40 S30 — S40 P30 — P45	- For medium to low speed turning of stainless steel, exotic alloy & low carbon steel. - Toughest grade in turning product line. - For interrupted cuts on stainless steel and exotic alloys.
CT3000 CERMET	P10 — P15 M10 — M15 K10 — K15	- Provides excellent surface finish when turning steel, stainless steel and cast iron. - Excellent wear resistance and low coefficient of friction.
PV3010 PVD COATED CERMET	P05 — P15 K05 — K15 M05 — M15	- Provides excellent surface finish when turning steel, stainless steel and cast iron. - Longer tool life guaranteed credit to its high wear resistance.
K10 CARBIDE	K10 — K20 S10 — S20 N10 — N20	- General turning of cast iron, exotic alloys and non-ferrous materials including aluminum and copper alloy. - Excellent wear resistance grade.

Superior Performance with a variety of TaeguTurn Grades!

Recommended Cutting Speeds: V= SFM

Materials							
Low Carbon Steel	Low Carbon Alloy Steel	Carbon Steel	Alloy Steel	Stainless Steel	High-Temp Alloys	Cast Iron	Aluminum Alloy
						500-1400	
						500-1200	
1300-2600	1000-1950	500-1300	330-1150			330-1000	
820-1950	500-1640	330-1150	260-1000				
					100-330		
500-1640	230-1150	230-820	230-720	230-750	100-260		
200-1150	200-1000	200-650	200-600	200-650			
230-1000	230-820	230-500	230-430	160-500	65-130		
820-2300	500-1800	500-1150	330-1050	650-890		330-1000	
1000-2620	500-1970	500-1300	330-1150	650-1000		330-1150	
					65-100	260-600	200-4900

Grade



Grade	Composition	Characteristics & Applications
KP300 PCD	PCD +Binder	- For general use on aluminum alloy. - Excellent combination of wear resistance and toughness.
KB50 CBN	CBN +Binder	- Excellent wear resistant grade with low CBN content. - For finishing applications on hard materials.
TB650 CBN	CBN +Binder	- High wear resistant grade with CBN content. - For a wide range of turning applications on hardened steel and other hard materials.
KB90A CBN	CBN +Binder	- Solid CBN with excellent impact resistance. - For high speed machining of cast iron. - Can be applied for rough to medium machining of hardened steel.
KB90 CBN	CBN +Binder	- Excellent toughness with high CBN content. - For high speed machining of cast iron. - Can be applied to interrupted cutting on hardened steel and other materials.
AW20 CERAMIC	Al ₂ O ₃ + ZrO ₂	- Excellent wear resistant grade with chemical stability and temperature resistance. - For high speed continuous turning of cast iron. - For finishing applications on hardened steel and hard materials.
New AB2010 COATED CERAMIC	(Al ₂ O ₃ +TiCN) +TiN PVD Coating	- Excellent wear resistant and extended tool life. - Very good combination with improved wear and fracture resistance. - Finishing operations on hard steels and hardened cast irons.
AB20 CERAMIC	Al ₂ O ₃ +TiCN	- High wear resistant grade with excellent cutting edge stability. - For high speed continuous turning of hardened steel and other hard materials. - For finishing applications on cast iron.
AB30 CERAMIC	Al ₂ O ₃ +TiC	- Mixed ceramic with good toughness and wear resistance. - For general use on hardened steel, cast iron and hard materials . - Can be applied to interrupted cutting conditions.
AS10 CERAMIC	Si ₃ N ₄	- High wear resistant grade with excellent toughness and thermal shock resistance. - For general use on cast iron. - Wet and dry cutting.
SC10 COATED CERAMIC	AS10 + CVD	- Wear resistant grade with excellent toughness and thermal shock resistance. - For high speed turning of cast iron. - Wet and dry cutting.
AS20 CERAMIC	Si ₃ N ₄	- Very tough Si₃N₄ ceramic grade with high cutting edge stability. - For roughing to finishing applications with high temperature nickel based alloys. - Wet and dry cutting.

TAEGLline

Solution for High Speed Machining!

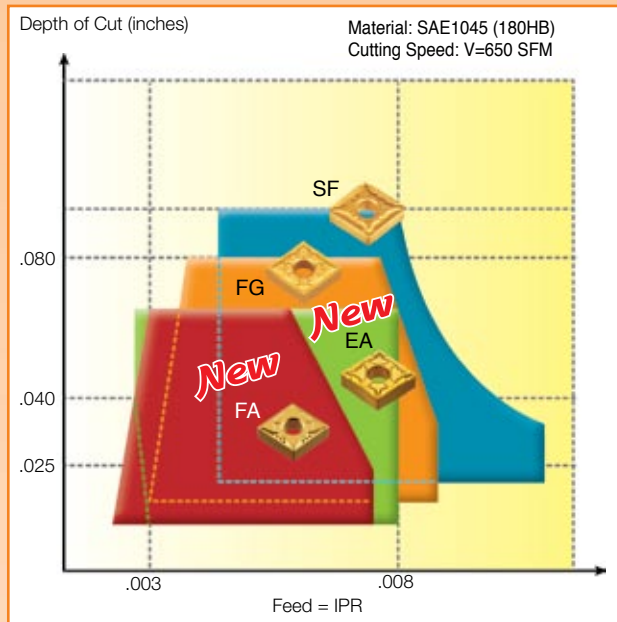
Recommended Cutting Conditions: V=SFM, f=IPR							
Materials							
Grey Cast Iron (180-220HB)	Ductile Cast Iron (200-240HB)	Chilled Cast Iron (400-700HB)	H.S.S. Roll	Sintered Metal	Hardened Steel (46-65HRC)	Aluminum Alloy	Ni-Based Super Alloy
						1970-9840 .002-.012	
					330-820 .004-.008		
			160-330 .016-.031		260-660 .004-.009		
1640-3940 .004-.012	980-2620 .004-.012	260-490 .004-.012		330-660 .002-.008	200-490 .004-.012		
310-3280 .002-.006	980-1970 .002-.006				330-820 .004-.006		
					260-980 .002-.006		
980-2620 .004-.012	980-1640 .004-.008	160-660 .002-.008			160-820 .004-.008		
980-2620 .004-.020	820-1640 .004-.016	160-490 .002-.008			160-660 .004-.010		
980-2620 .008-.031	820-1640 .008-.024						
980-3280 .008-.031	820-1970 .008-.024						
							330-1150 .004-.012

TAEGUline

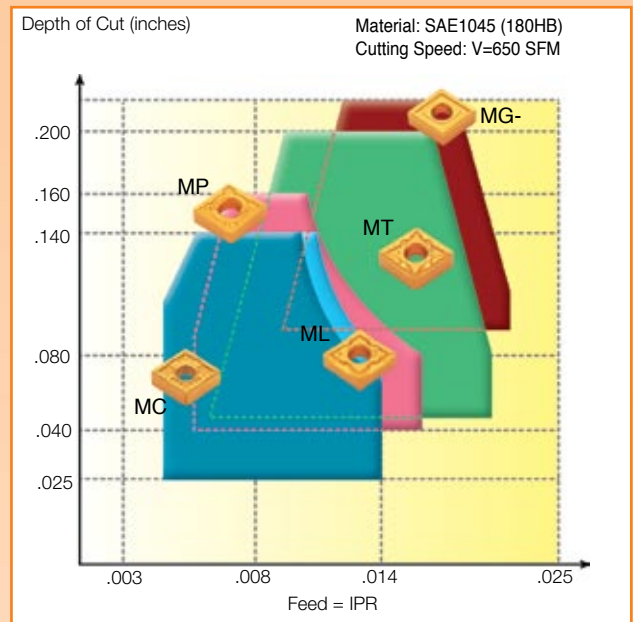
■ Chipbreakers

Negative Inserts

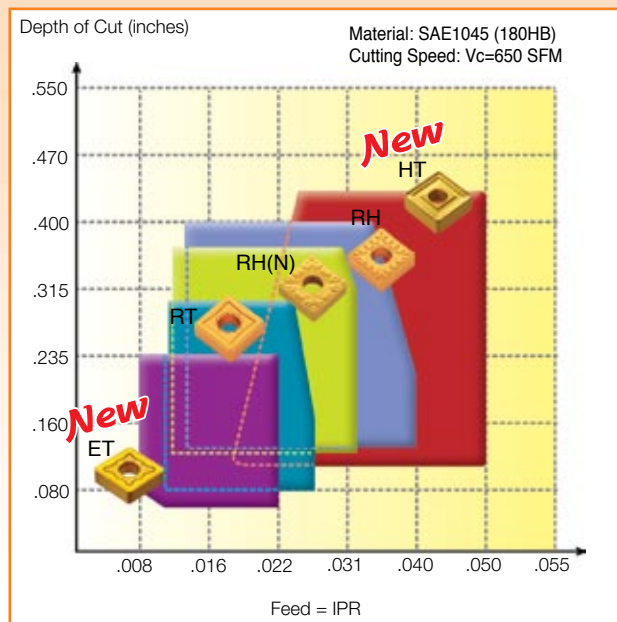
For Finish Application



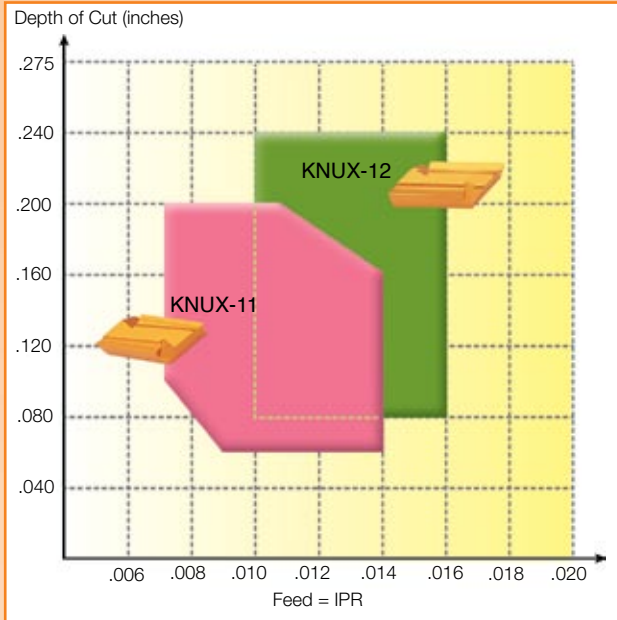
For Medium Application



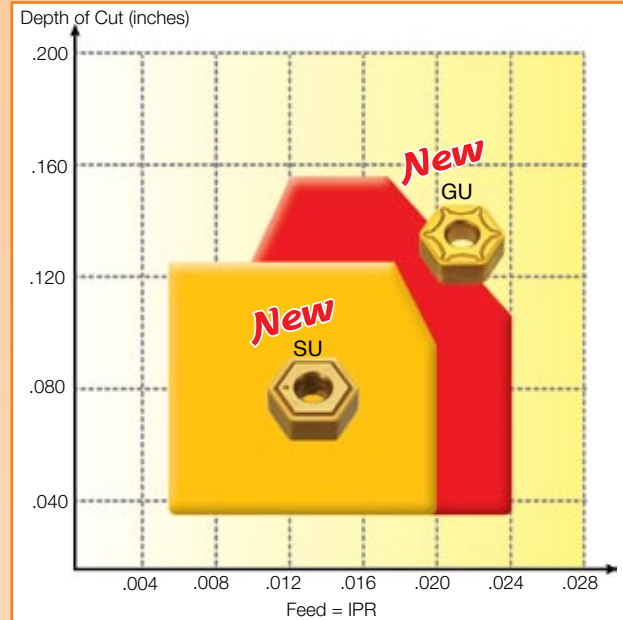
For Rough Application



KNUX Type

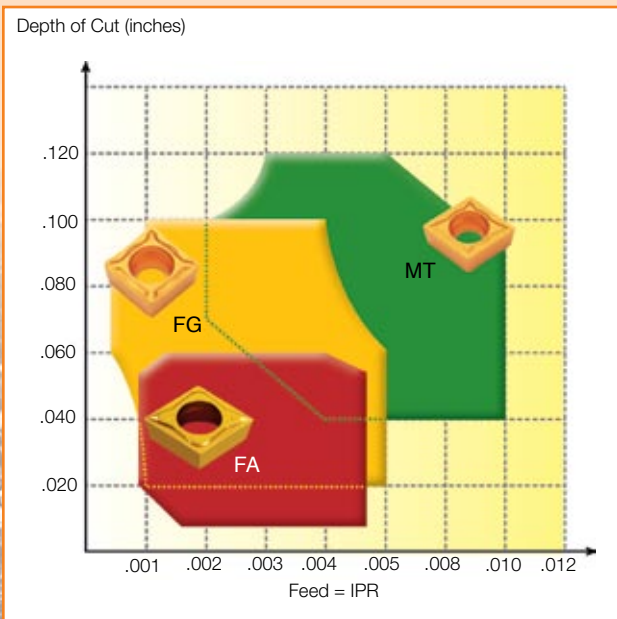


HNMG Type

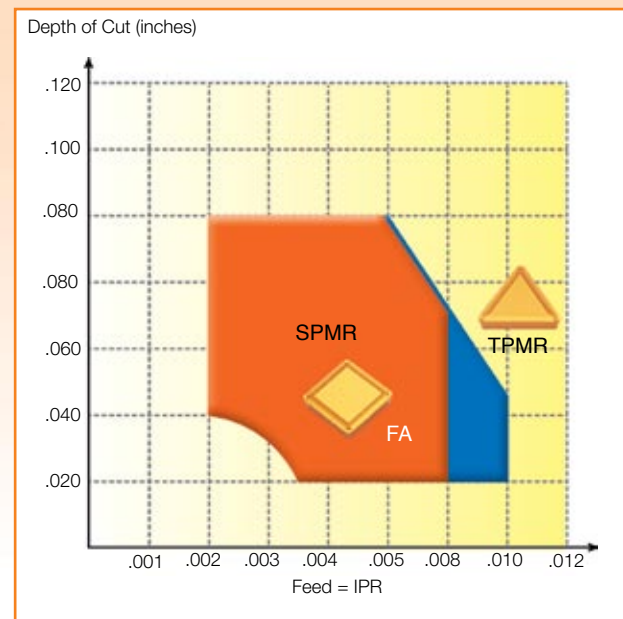


Positive Inserts

For Finish to Medium Applications



For Medium Applications



Features

- Very economical solution with 12 cutting edges.
- Wiper geometry provides exceptional productivity and high quality surface finish.
- 120 degree angle provides a strong insert design and excellent resistance against notching.
- When used in conjunction with the T-Holder designed tools, the Hex-Turn provides a 45 degree lead angle for both turning and facing operations.

Main Applications



HNMG 432 GU



HNMG 432 SU

Main Applications

GU chipbreaker

General turning of steels and cast irons

Main Grades:

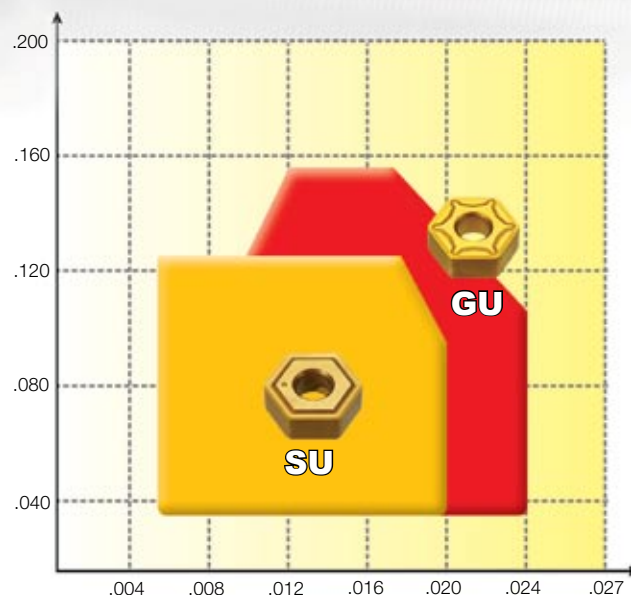
TT1300, TT3500, TT5100

SU chipbreaker

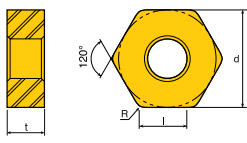
Turning of nickel based super alloys and stainless steels.

Main Grades:

TT5100, TT5030



Stocked items & recommended cutting conditions

Shape	Designation	Dimension(mm)			Recommended cutting conditions		Grade & Vc(mm)			
		d	t	r	feed(mm/rev)	ap(mm)	TT1300	TT3500	TT5100	TT5030
	HNMG 432 GU	.500	.187	.031	.014 (.006-.022)	.040 (.020-.140)	● 900	● 920	● 805	
	HNMG 432 SU				.010 (.006-.018)	.060 (.020-.120)			● 705 525	● 490 175

Carbon Steel 0.45%

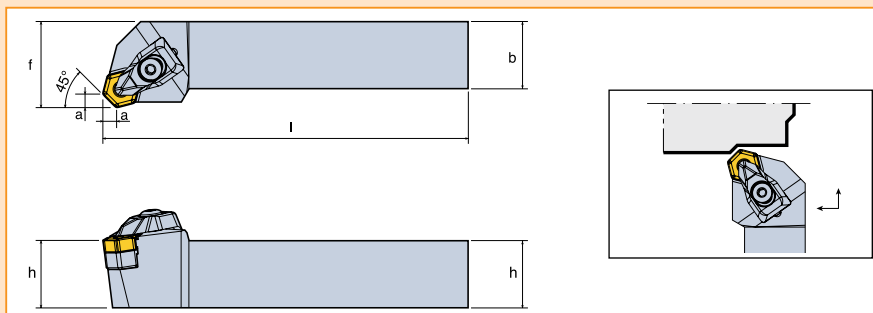
Stainless Steel

Inconel

Cast Iron

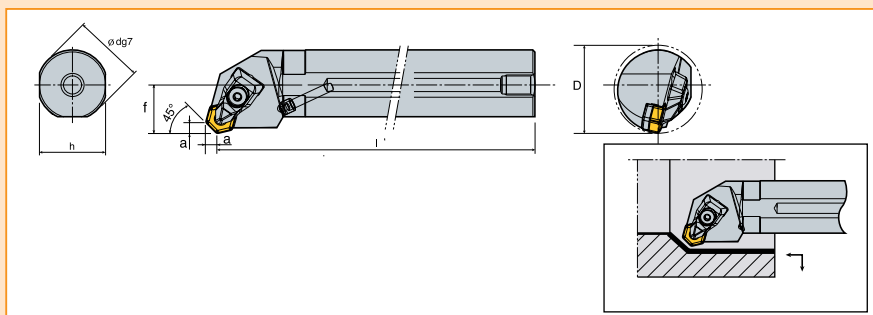
● Stocked item

External tool holders



Designation	Stock		Dimension (mm)					Insert	Components					
	R	L	h	b	l	f	a		Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
THSNR/L 12-4B			.75	.75	.75	.75	.75	 HN□□43□						
THSNR/L 16-4D			1.00	1.00	6.0	1.25	.165		DLM 4	DLS 4	TSH 44	SO 40050I	DSP 4	L-W 3
THSNR/L 20-4D			1.25	1.25	6.0	1.50	.165							

Boring bars



Designation	Stock	Dimension (mm)								Insert	Components						
		R	L	d	h	l	f	D	a		Shim	Clamp	Clamp Screw	Shim Screw	Spring	Nozzle	Wrench
A20U THSNR/L	4			1.00	1.2	14	.77	1.57	.165	 HN□□43□							
A24V THSNR/L	4			1.50	1.45	16	.90	2.00	.165		TSH 44	DLM 4	DLS 4	SO40050I	DSP 4	NZ 104	
A32V THSNR/L	4			2.00	1.85	16	1.39	2.48	.165								

New ■ MINI-TURN

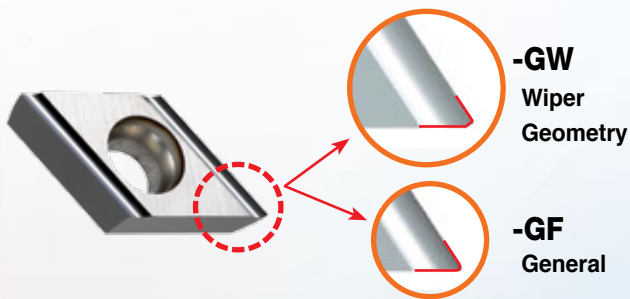
For small part machining

Ingersoll's new MINITURN family has been specifically designed for small part machining applications. The concept is to combine a high accuracy ground insert with holders to provide improved machining conditions on small part production.

Features

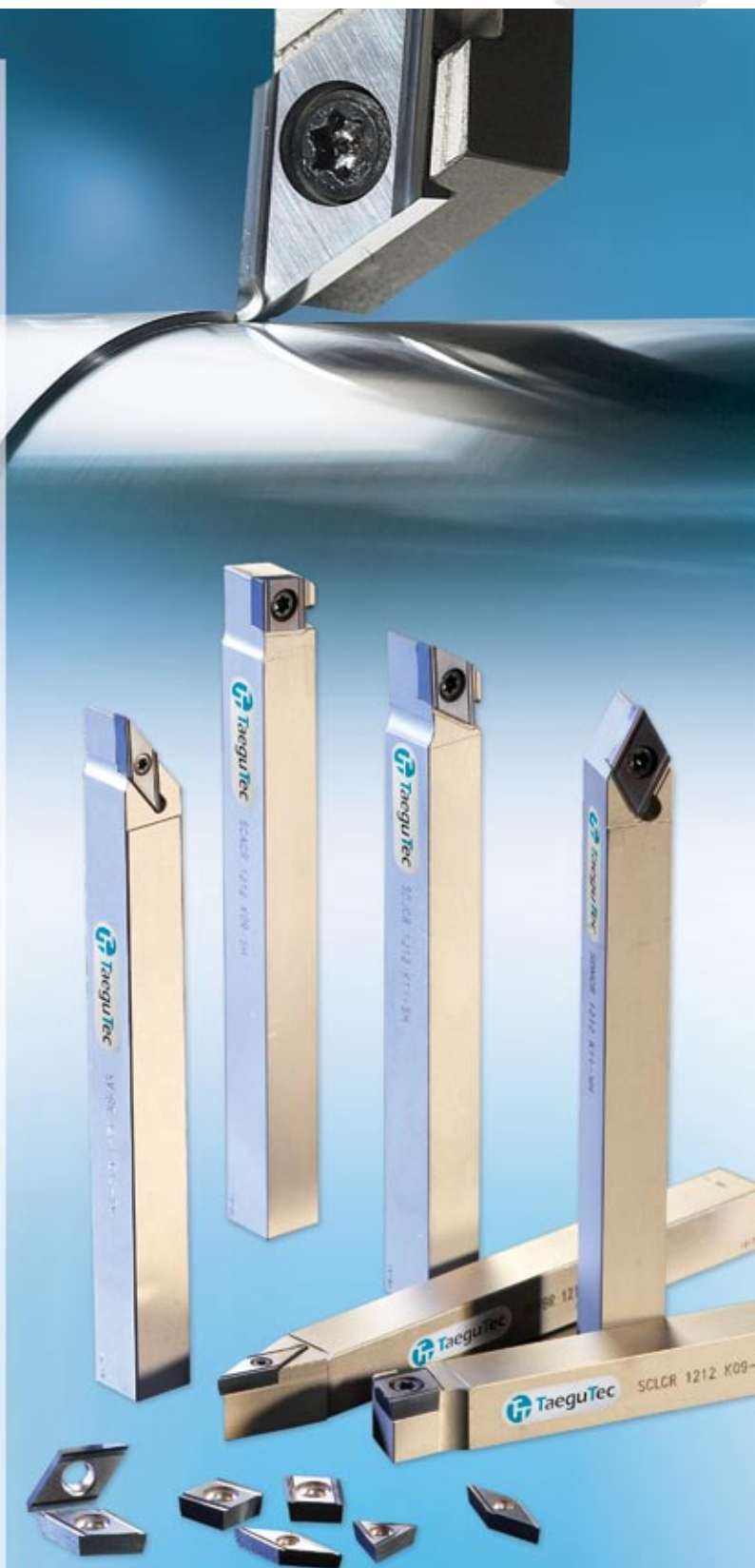
- Accurate - E class tolerance insert
Thickness tolerance: $\pm 0.001"$ (G tolerance: $\pm 0.005"$)
Corner radius tolerance: $\pm 0.0008"$ (G tolerance: $\pm 0.005"$)
- Accurate index position after insert replacement.
- GW geometry has a small corner radius with wiper geometry to provide excellent machining conditions and quality of surface finish.
- Application areas: wide range of steels, alloy steels and stainless steels.

Variety of ISO conventional and wiper geometry



PVD Coated grade TT9020

Grade TT9020 is being introduced in both geometries. It has a fine grain carbide substrate with a TiCN PVD coating. This has been proven in extensive testing to be the ultimate combination providing excellent cutting conditions, extended tool life with improved resistance to wear and insert chipping.



TAEGUline

Stocked items-Inserts

ASA Designation	Corner Radius	ASA Designation	Corner Radius
CCET 21.50 R-GF	.004	TCET 221 R-GF	.016
CCET 21.50.5 R-GF	.008	VBET 220 R-GF	.004
CCET 21.51 R-GF	.016	VBET 220.5 R-GF	.008
CCET 32.50 R-GF	.004	VBET 221 R-GF	.016
CCET 32.50.5 R-GF	.008	CCET 21.5X0 R-GW	.001
CCET 32.21 R-GF	.016	CCET 21.5X0 L-GW	.001
DCET 21.50 R-GF	.004	CCET 32.5X0 R-GW	.001
DCET 21.50.5 R-GF	.008	CCET 32.5X0L-GW	.001
DCET 21.51 R-GF	.016	DCET 21.5X0 R-GW	.001
DCET 32.50 R-GF	.004	DCET 21.5X0 L-GW	.001
DCET 32.50.5 R-GF	.008	DCET 32.5X0 R-GW	.001
DCET 32.51 R-GF	.016	DCET 32.5X0 L-GW	.001
TCET 220 R-GF	.004	VBET 22X0 R-GW	.001
TCET 220.5R-GF	.008	VBET 22X0 L-GW	.001

Stocked Metric-Holders

ISO Designation		ASA Designation	
SCACR 0808 K06-SH	SDNCN 0808 K07-SH	SCACR 06- 2C-SH	SVJBR 08- 3C-SH
SCACR 1010 K06-SH	SDNCN 1010 K07-SH	SCACR 08- 3C-SH	SVJBR 10- 3C-SH
SCACR 1010 K09-SH	SDNCN 1010 K11-SH	SCACR 10- 3C-SH	SVVBN 06- 2C-SH
SCACR 1212 K09-SH	SDNCN 1212 K11-SH	SCLCR 06- 2C-SH	SVVBN 08- 3C-SH
SCACR 1616 K09-SH	SDNCN 1616 K11-SH	SCLCR 06- 2C-SH	SVVBN 10- 3C-SH
SCLCR 0808 K06-SH	STGCR 1010 K11-SH	SCLCR 06- 2C-SH	
SCLCR 1010 K06-SH	STGCR 1212 K11-SH	SCJCR 06- 2C-SH	
SCLCR 1010 K09-SH	STGCR 1616 K11-SH	SCJCR 06- 2C-SH	
SCLCR 1212 K09-SH	SVJBR 1010 K11-SH	SCJCR 06- 2C-SH	
SCLCR 1616 K09-SH	SVJBR 1212 K11-SH	SDNCN 06- 2C-SH	
SDJCR 0808 K07-SH	SVJBR 1212 K11-SH	SDNCN 08- 3C-SH	
SDJCR 1010 K07-SH	SVJBR 1616 K11-SH	SDNCN 10- 3C-SH	
SDJCR 1010 K11-SH	SVVBN 1010 K11-SH	SDNCN 06- 2C-SH	
SDJCL 1212 K11-SH	SVVBN 1212 K11-SH	SDNCN 08- 3C-SH	
SDJCR 1212 K11-SH	SVVBN 1616 K11-SH	SDNCN 10- 3C-SH	
SDJCR 1616 K11-SH		SVJBR 06- 2C-SH	

Stocked Inch-Holders

Coated ceramic insert for hardened steel

New aluminum oxide ceramic grade with TiN PVD coating. The main application area for this grade is the turning of hard materials (Harder than HRC40).

Features

- Excellent wear resistance with extended tool life when compared to uncoated ceramic grades being applied on high speed applications.
- TiN coating makes it easy to identify used corners.
- Successful application of ceramic inserts on hard materials can provide significant cost advantages compared to CBN.
- The combination of this ceramic grade with TiN PVD coating provides improved wear resistance and fracture toughness.
- Application area is in the finish machining of hardened steels and cast iron.

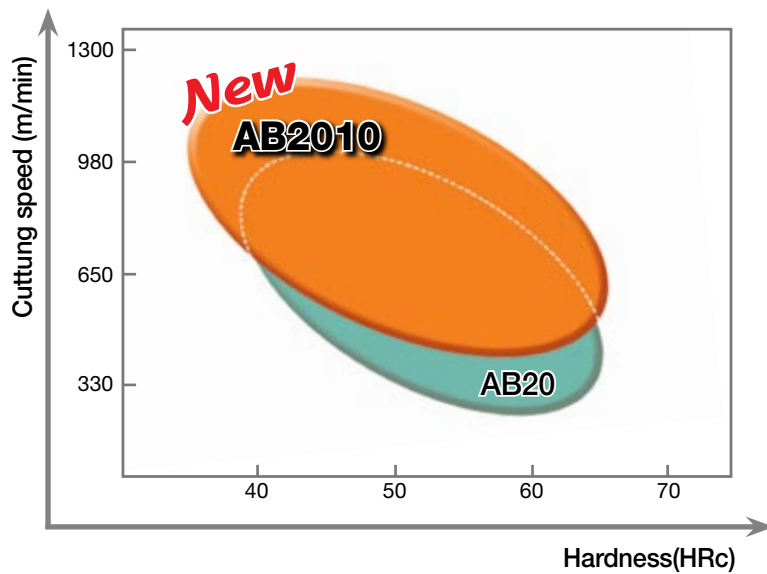


Hard
materials



TAEGUline

Application range of AB2010



Stocked items

ASA Designation	ASA Designation	ASA Designation
CNGA 431	SNGA 431	TNGA 333
CNGA 432	SNGA 432	TNGA 431
CNGA 432 S7	SNGA 433	TNGN 332
CNGN 432	SNGN 431	TPGN 221
CNGN 452	SNGN 432	TPGN 222
DNGA 432	SNGN 433	TPGN 321
DNGA 441	SNGN 434	TPGN 322
DNGA 442	SNGN 452	VNGA 332
DNGA 443	SNGN 453	VNGA 333
	SNGN 453 S7	VNGA 333 S
RNGN 43	TNGA 331	WNGA 432
RNGN 45	TNGA 332	WNGA 433

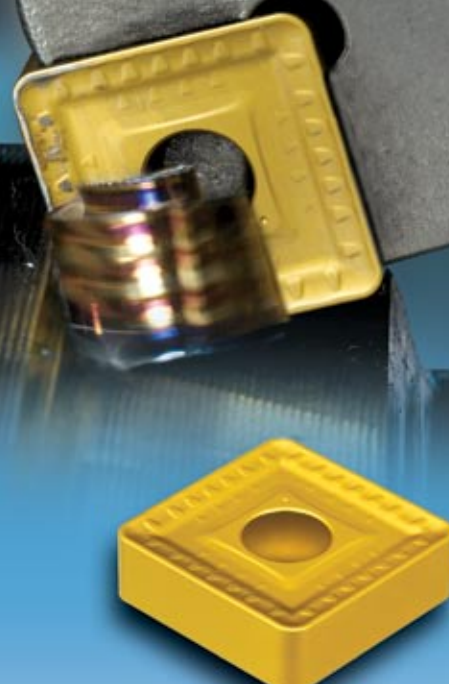
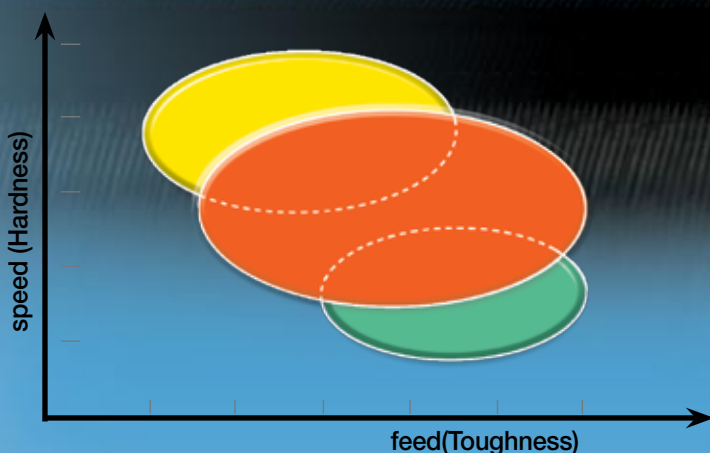
New TT7100

New turning grade for heavy duty applications

Features

- Very tough carbide substrate base - with a CVD coating provides both excellent toughness and chipping resistance.
- Tough grade provides stable cutting conditions on a wide range of medium to roughing applications at low cutting speed.
- Improved stability when heavy duty turning or machining heavy interrupted cuts on steels and stainless steels.

Application range of TT7100



Stocked items

ASA Designation	ASA Designation	ASA Designation
CNMG 432	CNMM 644 HD	SNMG 643
CNMG 432 MC	DNMG 441 R-VF	SNMM 643 RH
CNMG 432 MT	DNMG 442 MC	SNMM 644 RH
CNMG 432 RT	DNMG 442 ML	SNMM 646 RH
CNMG 433 MT	DNMG 442 MT	SNMM 856 RH
CNMG 433 RT	DNMG 442 R-VF	SNMM 866 HT
CNMG 543 RT	KNUX 331 R11	TNMG 332 MT
CNMG 642	RCMX 250700	TNMG 432
CNMG 643	RCMX 320900	TNMG 654
CNMG 643 RT	SCMT 32.52 MT	TPMR 321
CNMG 644 RT	SNMG 431	WNMG 432 MT
CNMG 866 RT	SNMG 431	WNMG 432 RT
CNMM 643 RH	SNMG 432	

TAEGUline

Wiper geometry for Ceramic and CBN Inserts

TaeguTec's new wiper geometry for ceramic and CBN turning inserts will dramatically increase productivity and improve the quality of surface finish. The main application areas for these inserts are the turning of hard materials and high speed machining of cast irons.



Main Applications

Hardened steels

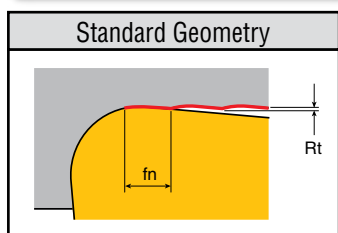
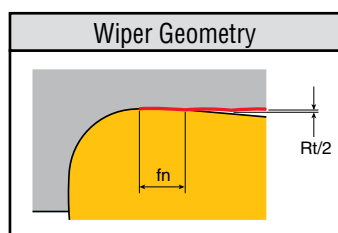
Ceramic Grade: **AB20**

CBN Grades: **TB650, KB50**

Cast irons

Ceramic Grade: **AS10**

CBN Grade: **KB90**



Stocked items

Designation	Grade				
	AB20	AS10	KB50	TB650	KB90
CNGA 431 WZ-LS			●	●	
CNGA 431 WZ-LS2				●	
CNGA 432 WZ-LS			●	●	●
CNGA 432 WZ-LS2				●	
CNGA 432 T6-WZ		●			
CNGA 432 WZ-LN			●	●	
CNGA 432 T7-WZ	●				
CNGA 433 WZ-LS			●	●	●
CNGA 433 WZ-LS2				●	
CNGA 433 WZ-LN				●	●
CNGA 433 T7-WZ	●	●			
WNGA 432 WZ-LS3				●	
WNGA 432 T7-WZ	●				
WNGA 433 T7-WZ		●			
CCGW 32.51 WZ-LS			●	●	
CCGW 32.51 WZ-LS2				●	
CCGW 32.52 WZ-LS				●	
CNGX 453 T7-WZ				●	

- CNGA 432 T7-WZ AS10
- WZ : Wiper geometry
- Edge preparations
T6: .004" x 20°
T7: .008" x 20°

Ground Insert with ML Chipbreaker

*Super Alloy
Machining Solution*

Features

- Double-sided negative ground insert.
- Sharp positive cutting edge provides low cutting forces.
- Improved surface quality and extended tool life when machining nickel based super alloys.



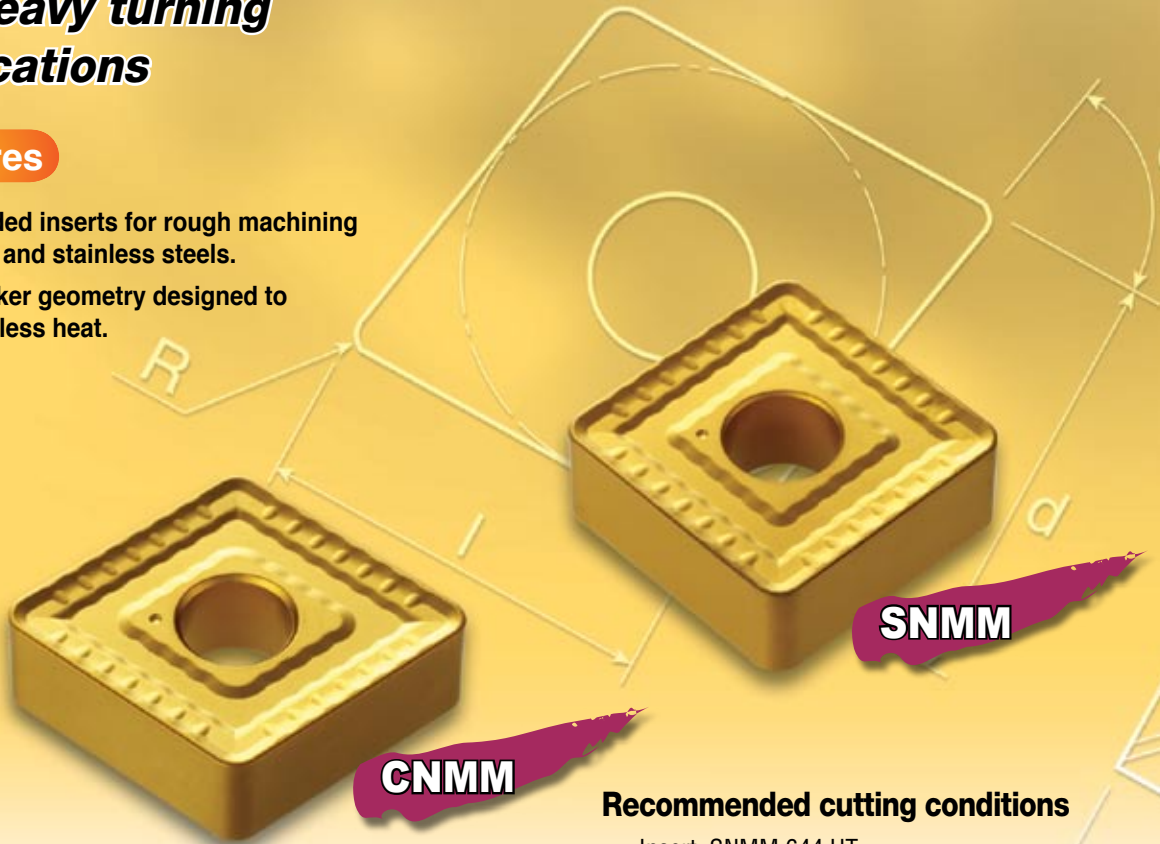
Stocked items

ASA Designation	ASA Designation
CNGG 430 ML	CNGG 430.5 ML
CNGG 431 ML	CNGG 432 ML
DNGG 431 ML	DNGG 432 ML
VNGG 330 ML	VNGG 330.5 ML
VNGG 331 ML	

For heavy turning applications

Features

- Single sided inserts for rough machining on steels and stainless steels.
- Chipbreaker geometry designed to generate less heat.

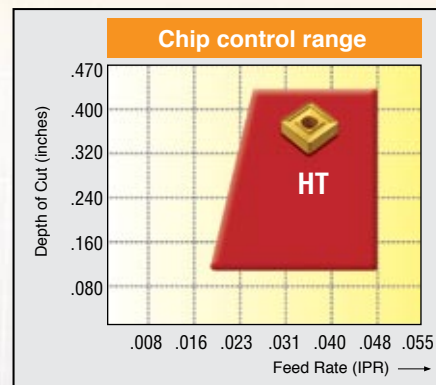


Grades:

TT1500/TT8115
TT3500
TT5100
TT7100

Recommended cutting conditions

- Insert: SNMM 644 HT
- $f = .027$ (.018 - .047) IPR
- $a_p = .275$ (.137 - .433) INCHES



Stocked items

ISO Designation	ISO Designation	ISO Designation
CNMM 643 HT	CNMM 644 HT	CNMM 646 HT
CNMM 856 HT	CNMM 866 HT	SNMM 643 HT
SNMM 644 HT	SNMM 646 HT	SNMM 856 HT
SNMM 866 HT		

Finishing application in exotic materials

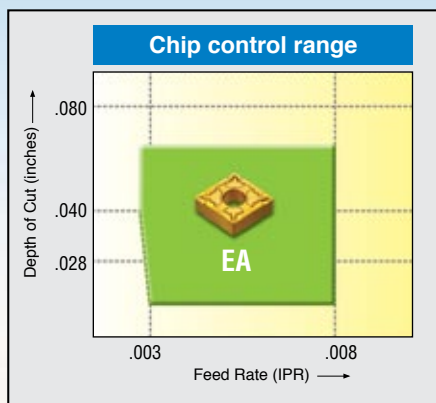
Features

- Double sided inserts for finishing application on stainless steels and exotic materials.
- Suitable for chip control at low depth of cut and low to medium feed rate.
- Sharp cutting and helical angle to minimize cutting force



Recommended cutting conditions

- Insert: CNMG 431 EA
- $f = .004$ (.002 - .012) IPR
- $a_p = .020$ (.006 - .060) INCHES



Grade:

CT3000
TT1500/TT8115
TT3500
TT5030
TT5100
TT8020

Stocked items

ASA Designation	ASA Designation
CNMG 431 EA	CNMG 432 EA

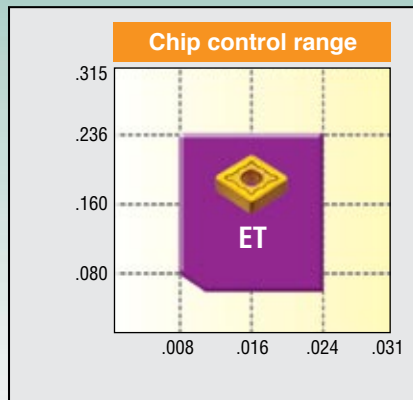
Roughing application in exotic materials

Features

- Double sided inserts for roughing application on stainless steels and exotic materials.
- High positive rake angle to minimize bulid up edge and low cutting force.

Recommended cutting conditions

- Insert: CNMG 433 ET
- $f = .014$ (.008 - .024) IPR
- $a_p = .118$ (.040 - .236) INCHES



Grade: **TT3500**
TT5030
TT5100

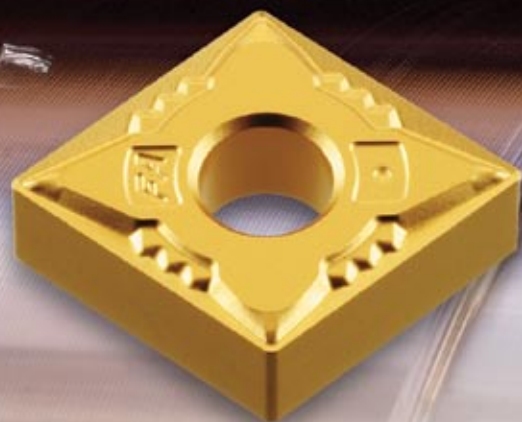
Stocked items

ASA Designation	ASA Designation	ASA Designation
CNMG 432 ET	CNMG 433 ET	CNMG 543 ET
CNMG 643 ET	CNMG 644 ET	

Solutions for Super Finish Machining

Features

- Excellent chip control on super finishing and semi-finishing applications.
- Suitable for steels, stainless steels and heat resistant alloys.
- Ideal for very low depths of cut.

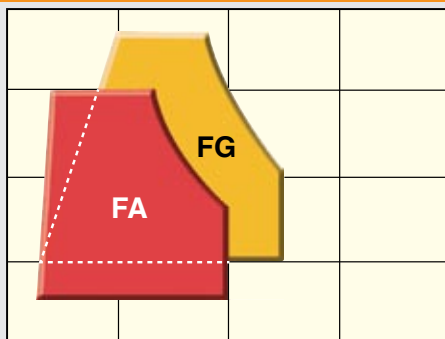


Grade: **CT3000**
PV3010
TT1500/TT8115
TT3500
TT5030
TT5100
TT8020

Recommended cutting conditions

- Insert: CNMG 431 FA
- $f = .003$ (.002 - -.008) IPR
- $a_p = .012$ (.008 - .060) INCHES

Chip control range



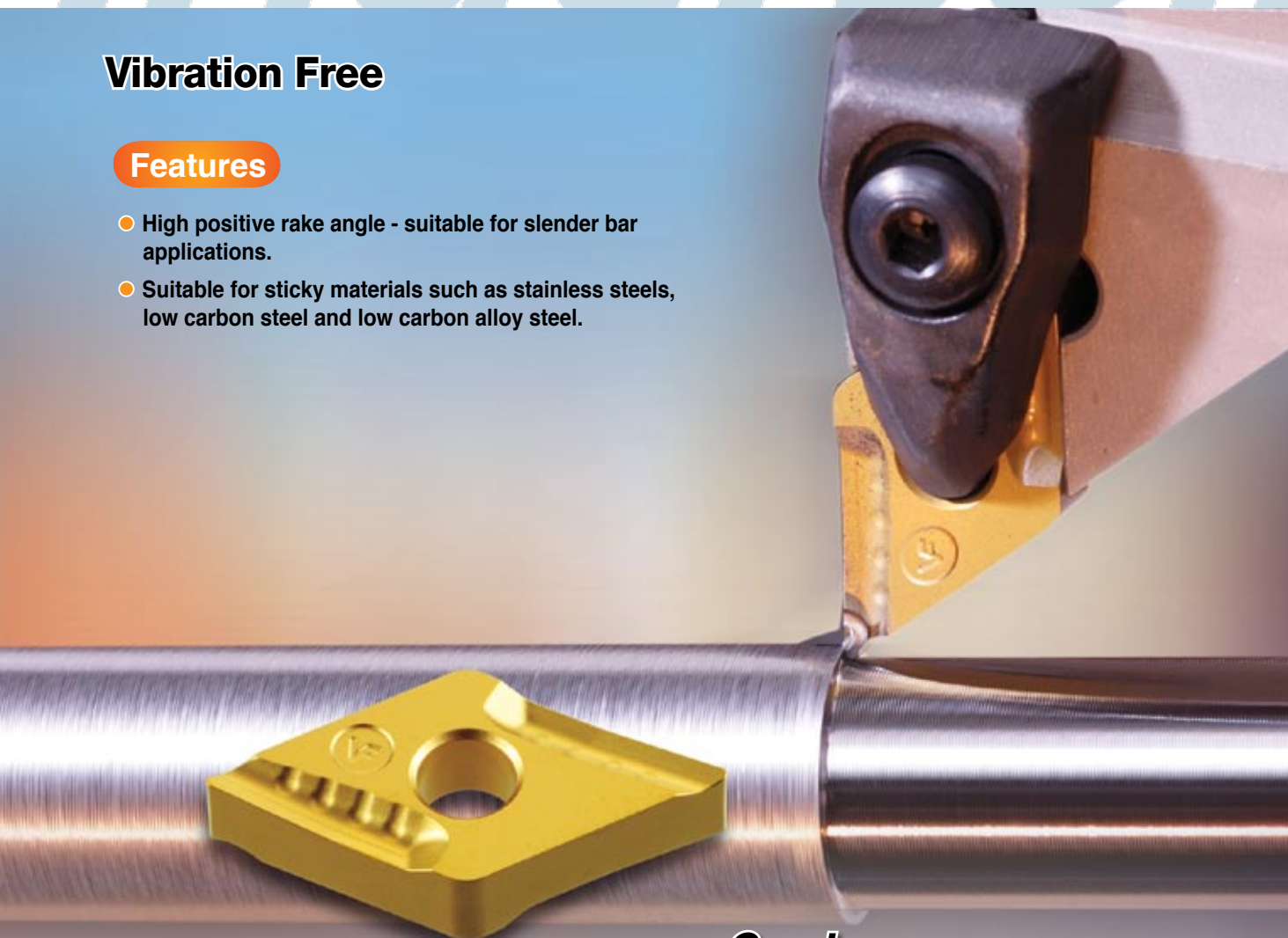
Stocked items

ASA Designation	ASA Designation
CCMT 21.50.5 FA	DCMT 21.50.5 FA
New CCMT 21.51 FA	DCMT 32.50.5 FA
New CCMT 32.50.5 FA	DNMG 432 FA
CCMT 32.51 FA	New DNMG 442 FA
CCMT 32.52 FA	New TCMT 21.51 FA
New CNMG 431 FA	New VBMT 332 FA
New CNMG 432 FA	New VNMG 332FA

Vibration Free

Features

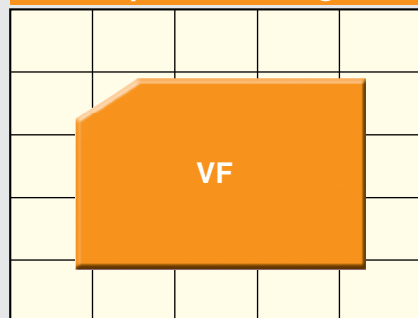
- High positive rake angle - suitable for slender bar applications.
- Suitable for sticky materials such as stainless steels, low carbon steel and low carbon alloy steel.



Recommended cutting conditions

- Insert: DNMG 431 R-VF
- $f = .006$ (.003 - .016) IPR
- $ap = .060$ (.028 - .138) INCHES

Chip control range



Grade: **CT3000**
TT1500/TT8115
TT3500
TT5100

Stocked items

ASA Designation	ASA Designation
DNMG 431L-VF	DNMG 431R-VF
DNMG 441L-VF	DNMG 441R-VF
DNMG 432L-VF	DNMG 432R-VF
DNMG 442L-VF	DNMG 442R-VF
TNMG 331L-VF	TNMG 331R-VF
TNMG 332L-VF	TNMG 332R-VF

New

INTERNAL TURNING **T-HOLDER**™

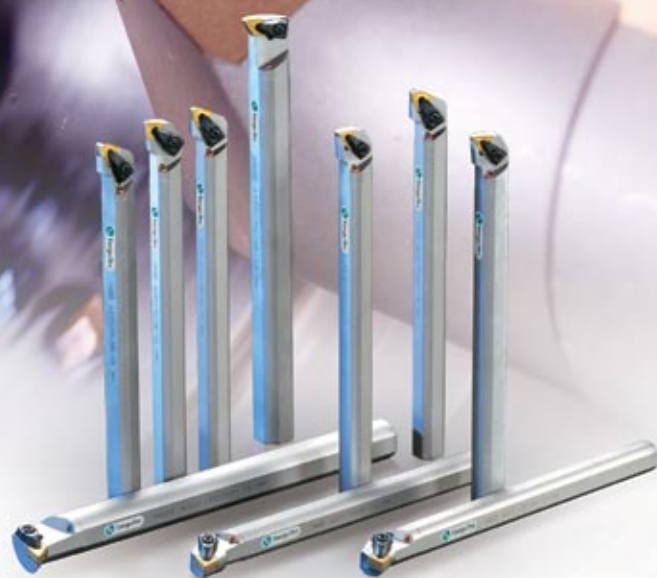
Excellent chip evacuation with strong clamping

Features

- Strong clamping force guarantees stable machining
- Simple and secure clamping action
- Accurate insert location and repeatability when indexing inserts
- Proven improvements in tool life
- The internal through coolant system provides exceptional chip evacuation



**Adjustable
coolant hole**



Stocked items

ASA Designation	Shank Dia.	ASA Designation	Shank Dia.	ASA Designation	Shank Dia.
A12S TWLNL 3	.750	A16T TWLNR 4	1.00	A24V TDUNL 4	1.50
A12S TWLNR 3	.750	A20U TCLNL 4	1.25	A24V TDUNR 4	1.50
A16T TCLNL 4	1.00	A20U TCLNR 4	1.25	A24V TWLNL 4	1.50
A16T TCLNR 4	1.00	A20U TDUNL 4	1.25	A24V TWLNR 4	1.50
A16T TSKNL 4	1.00	A20U TDUNR 4	1.25	A32W TCLNL 4	2.00
A16T TSKNR 4	1.00	A20U TTFNL 3	1.25	A32W TCLNR 4	2.00
A16T TTFNL 3	1.00	A20U TTFNR 3	1.25	A32W TDUNL 4	2.00
A16T TTFNR 3	1.00	A20U TWLNL 4	1.25	A32W TDUNR 4	2.00
A16T TWLNL 3	1.00	A20U TWLNR 4	1.25		
A16T TWLNL 4	1.00	A24V TCLNL 4	1.50		
A16T TWLNR 3	1.00	A24V TCLNR 4	1.50		

TAEGUline

Solid CBN Insert



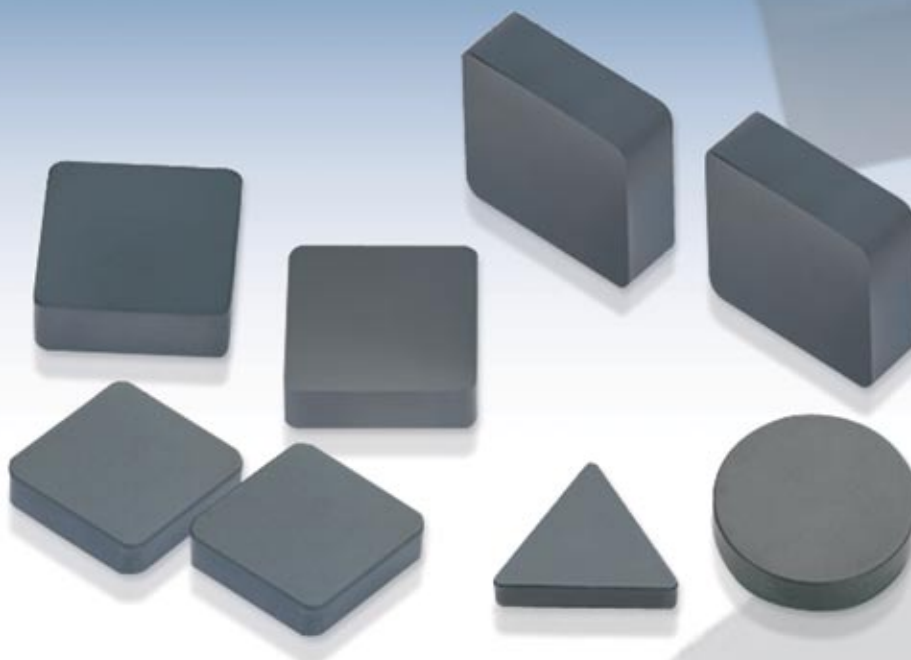
Cast
iron



Hard
materials

Features

- For high speed machining of cast iron.
- Can be applied for rough to medium machining of hardened steel.
- Excellent impact resistance.
- Can be more economical than brazed inserts.



Stocked items

ASA Designation	ASA Designation
CNM 322 SD	SNM 323 SD
CNM 323 SD	SNM 324 SD
CNM 324 SD	SNM 423 SD
RNM 32 SD	SNM 424 SD
RNM 42 SD	TNM 222 SD
SNM 322 SD	

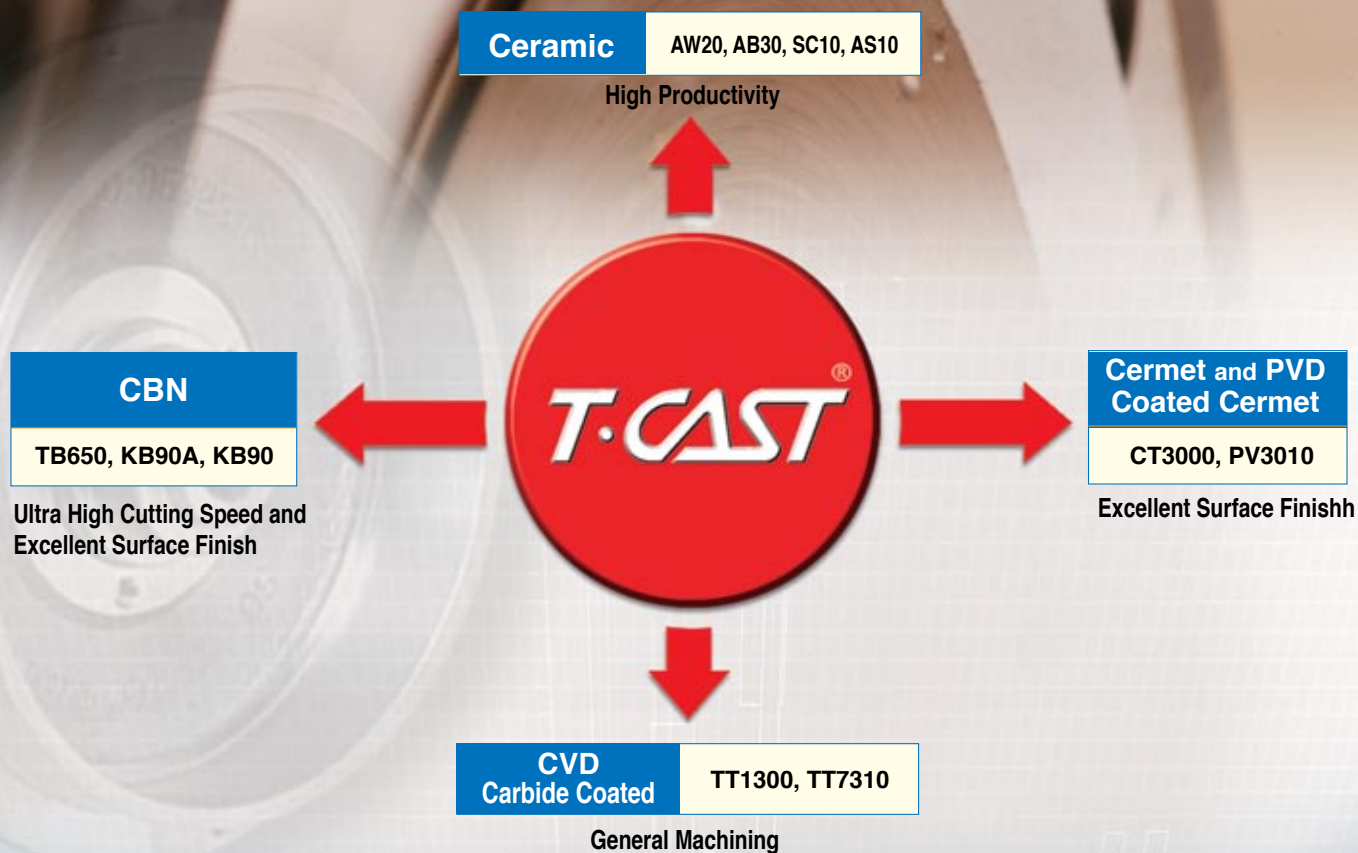
New **T·CAST** CARBIDE GRADES **TT1300, TT7310**

Solutions for Cast Iron Turning



TT1300 for Gray Iron
TT7310 for Ductile Iron

Simple selection guide and guaranteed performance with TaeguTec's **T·CAST** turning grades



TAEGUline

- Grey cast iron (180-220HBN)
- Ductile cast iron (200-240HBN)

Workpiece condition	Grades										
	TB650	KB90A	KB90	AW20	AB30	SC10	AS10	PV3010	CT3000	TT1300	TT7310
Scale & severe interruption											
Scale & light interruption											
No scale, continuous cut											

Recommended cutting parameters

Materials	Grades										
	TB650	KB90A	KB90	AW20	AB30	SC10	AS10	PV3010	CT3000	TT1300	TT7310
	Cutting speed (m/min), Feed rate (mm/rev)										
Grey cast iron (180-220HBN)		2620-3940 .004-.020	2620-3940 .004-.012	1310-3280 .003-.008	980-2620 .004-.010	980-3280 .008-.024	980-2620 .008-.024	330-1150 .008-.010	330-980 .008-.010	490-1480 .004-.028	330-480 .004-.028
Ductile cast iron (180-220HBN)	160-1640 .002-.008				820-1640 .002-.008	820-1970 .008-.024	820-1640 .008-.024	330-980 .004-.010	330-820 .004-.010		500-1150 .004-.020

Chipbreaker & grade selection by workpiece material

- Grey cast iron (180-220HBN)

Workpiece condition	Depth of cut	Chipbreaker/Grade				
		recommended cutting conditions (V,f)				
Roughing (Scale & severe interruption)	.160-.240	RT / TT1300 980, .016"	RT / TT7310 900, .016"			
	.240-	RT / TT1300 880, .016"	RT / TT7310 800, .016"			
Medium (Scale & light interruption)	.040-.100	-NMN / KB90A 2500, .012"	-NMN / KB90A 2500, .012"	-NGA / AS10 1770, .014"	MT / TT1300 1180, .014"	RT / TT1300 1050, .016"
	.100-.160	-NMN / KB90A 2360, .014"	-NGA / AS10 1770, .014"	RT / TT1300 980, .016"		
Finishing (No scale & continuous cut)	-.040	-NMN / KB90A 2620, .008"	-NGA / AW20 2620, .008"	-NGA / AB30 2300, .008"	-NGA / AS10 1970, .010"	MT/ TT1300 1310, .010"

- Ductile cast iron (200-240HBN)

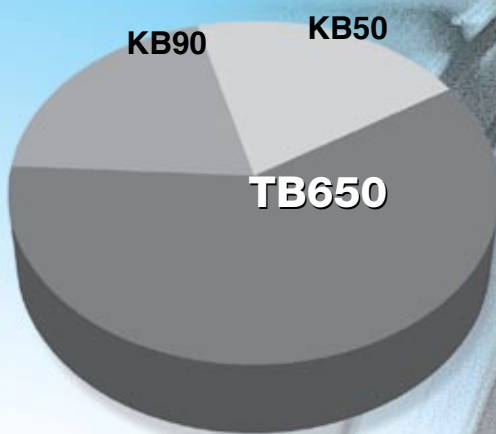
Workpiece condition	Depth of cut	Chipbreaker/Grade				
		recommended cutting conditions (V,f)				
Roughing (Scale & severe interruption)	.160-.240	RT / TT7310 800, .016"				
	.240-	RT / TT7310 750, .016"				
Medium (Scale & light interruption)	.040-.100	-NMA / TB650 1640, .008"	-NGA / AB30 1540, .008"	MT/ TT1300 1000, .012"	RT / TT1300 880, .014"	
	.100-.160	-NGA / AS10 1440, .012"	MT / TT7310 850, .014"	RT / TT7310 770, .014"		
Finishing (No scale & continuous cut)	-.040	-NMA / TB650 1700, .008"	-NGA / AB30 1700, .008"	MT / TT1300 1050, .008"	MT / PV3010 1050, .008"	MT/ CT3000 950, .008"

■ TB650

CBN Grade for Hardened Steel Turning



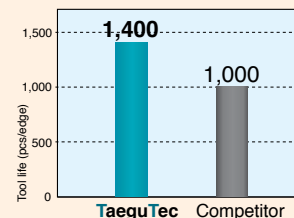
- **Application range:**
Hardened steel (Harder than HRC45)



- **Recommended cutting speed:**
V=165 - 720 SFM

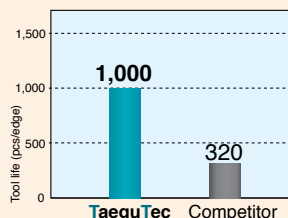
Case story 1

- Insert: TNMA 331 LN **TB650**
- Component: Nozzle
- Hardness: 60HRC
- Cutting speed(V): 260 SFM
- Feed rate(f): .004 IPR
- Depth of cut .005"
- Wet cutting
- Tool life: 1,400 pcs/edge



Case story 2

- Insert: CCGW 32.51 LS LN **TB650**
- Component: Sleeve
- Hardness: 45HRC
- Cutting speed(V): 450 SFM
- Feed rate(f): .004 IPR
- Depth of cut .006"
- Wet cutting
- Tool life: 1,000 pcs/edge

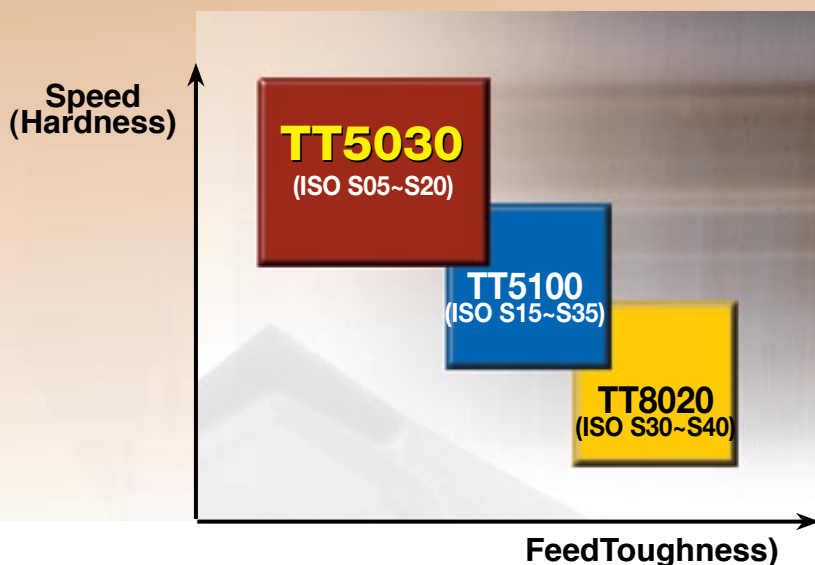


TT5030

**PVD Coated Grade
with Submicron Substrate
for Super Alloy Turning**

S
High-temp alloys

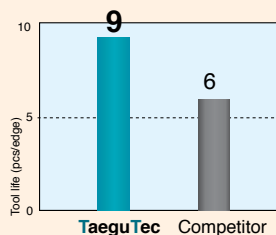
Application range: **Super alloy**



Recommended cutting speed(SFM) High temperature alloys: 100-330
Titanium alloys: 200 - 490
Hardened steel: 200 - 490

Case story

- Insert: CNMG432 MT **TT5030**
- Component: Shaft
- Material: Inconel 718
- Cutting speed(V): 150 SFM
- Feed rate(f): .006 IPR
- Depth of cut .040"
- Wet cutting



New

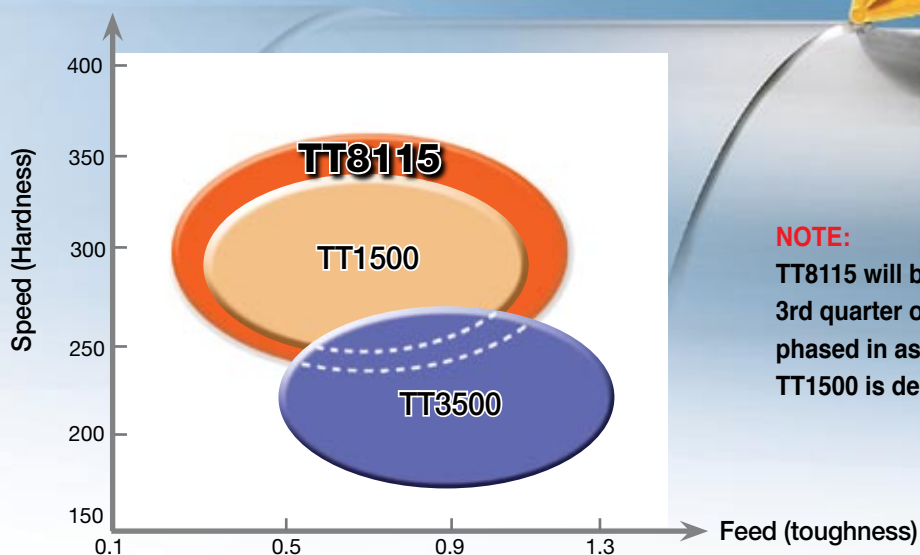
■ TT8115

CVD Coated for higher performance turning of steels

Features

- Improved wear resistance and toughness compared to existing TT1500 grade
- Suitable both at high cutting speeds as well as with light interrupted cuts in steel

Application range of TT8115

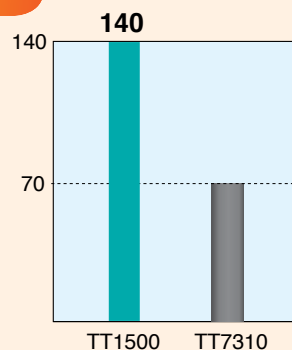


NOTE:

TT8115 will be available starting 3rd quarter of 2007 and will be phased in as existing stock of TT1500 is depleted,

Case story

- Operation: Ext. Turning (Interrupted)
- Insert: CNMG 120408 MC TT1500/8115
- Component: CV Joint
- Material: High Carbon Steel
- Cutting speed(V): 400-1100 SFM
- Feed rate(f): .012 IPR
- Depth of cut .040"-.080"
- Wet cutting
- Tool Life: 70/140



CT3000

Cermet Grade for Turning



Steel



Stainless
steel

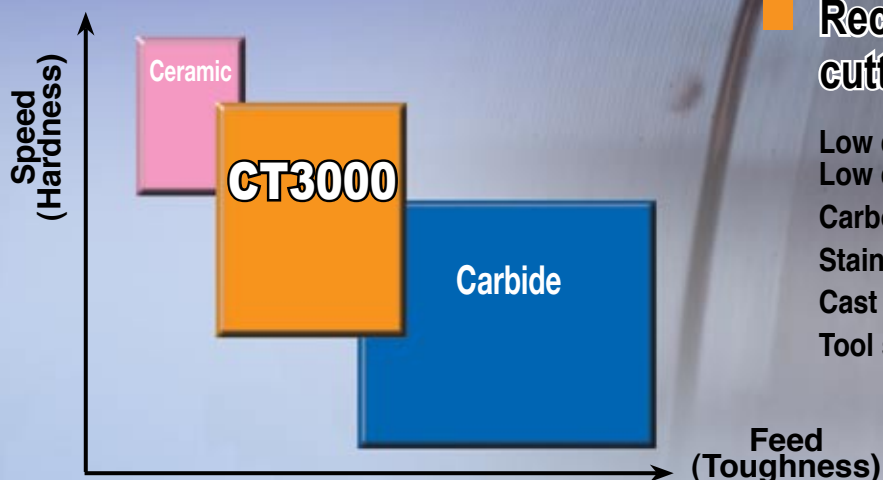


Cast
iron

Features

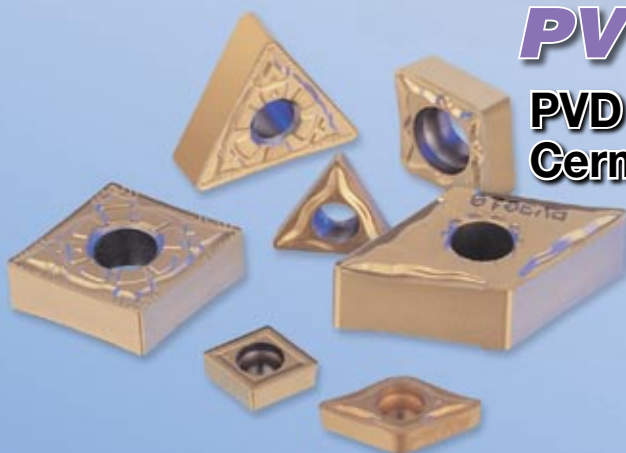
- For high surface finishes on steel, stainless steel and cast iron.
- Longer tool life guaranteed thanks to its excellent wear resistance and low coefficient of friction.

Application range



Recommended cutting speed (SFM)

Low carbon steel and
Low carbon alloy steel: 980-1470
Carbon steel and Alloy steel: 500-1200
Stainless steel: 650-890
Cast iron: 300-1200
Tool steel: 300-820



PV3010

PVD Coated
Cermet Grade for
Extended
Tool Life

K10 SOLUTIONS FOR ALUMINUM MACHINING

N

Non-ferrous material

FL

Positive Inserts for finish to medium machining

Chipbreaker with very sharp cutting edge and polished rake face provides high surface finish.



TCGT



SCGT



DCGT



RCGT



RCGT

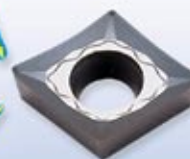
Solutions for *Aluminum Machining*



VCGT



RCGT



CCGT

Uncoated!
K10

Recommended for turning aluminum alloys and non-ferrous materials.

ML

Negative Inserts for roughing

Very sharp cutting edge for low cutting forces



TAEGUline

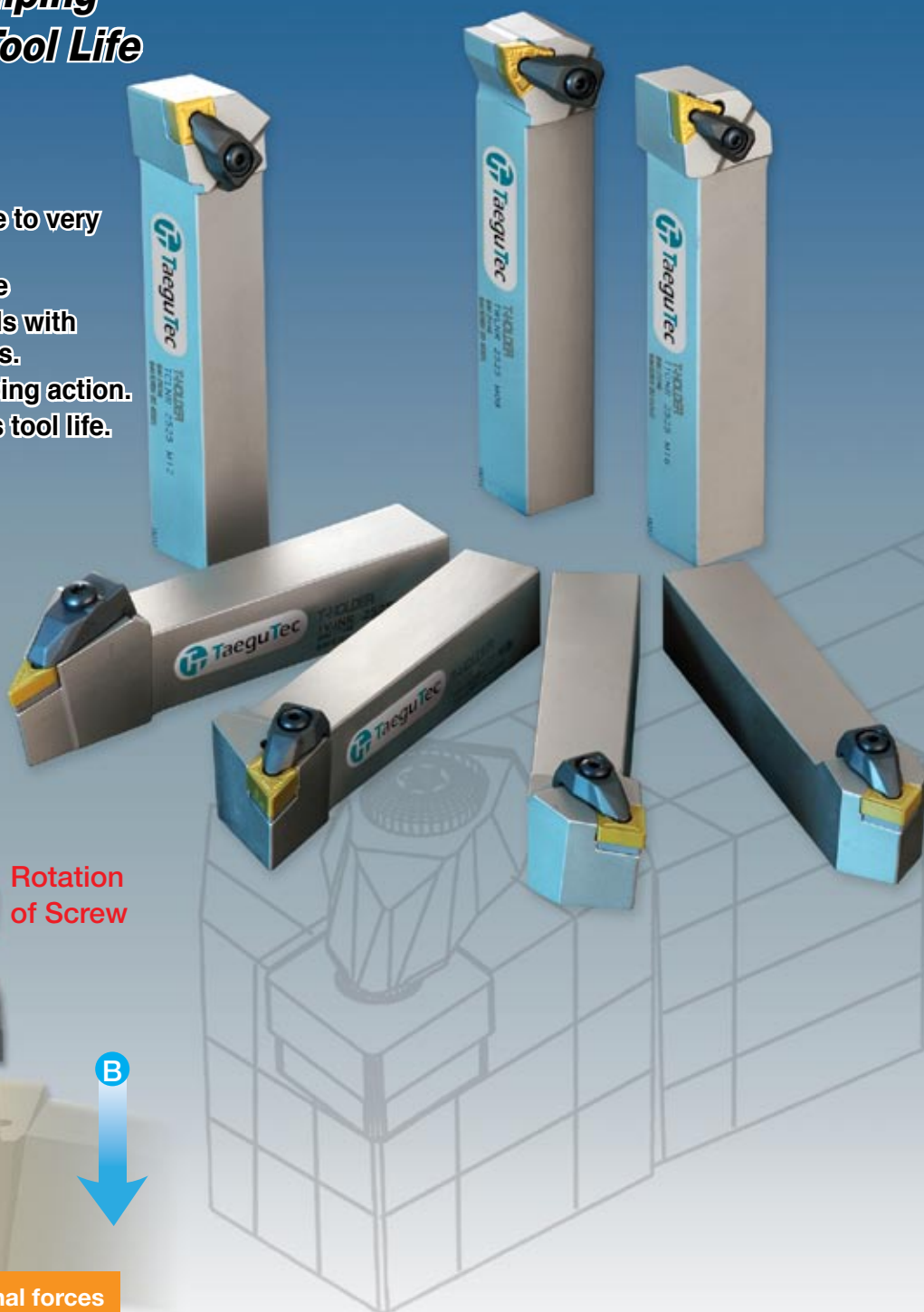
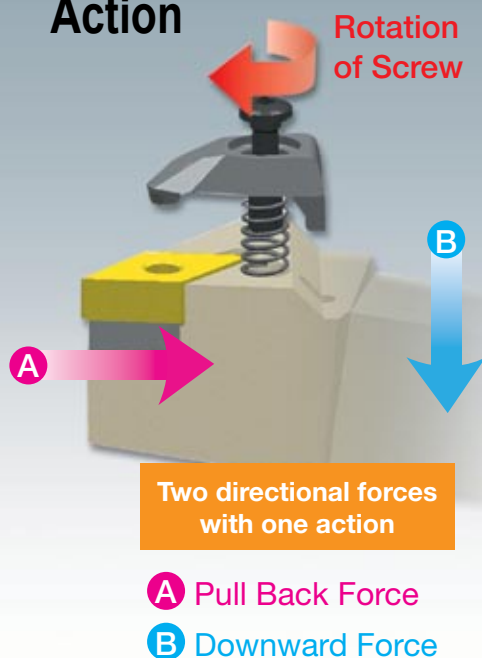
T-HOLDER

**For Strong Clamping
and Extended Tool Life**

Features

- Precision indexing due to very high clamping forces.
- Maximum rigidity while machining at high feeds with heavily interrupted cuts.
- Fast and simple clamping action.
- Significantly increases tool life.

Clamping Action



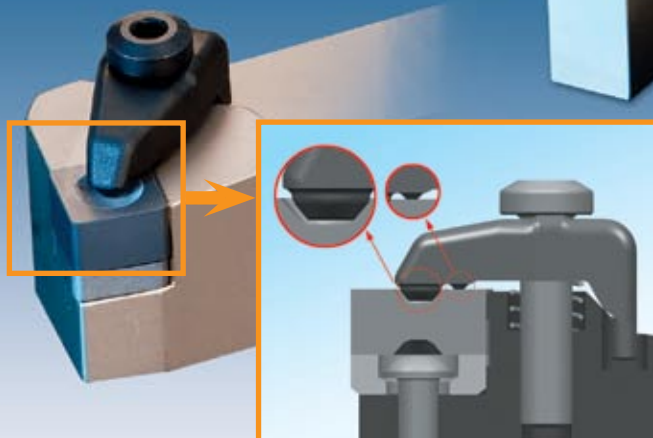
Ceramic insert with dimple for high feed cast iron machining



Cast iron

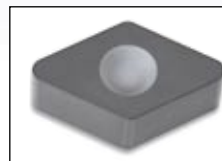
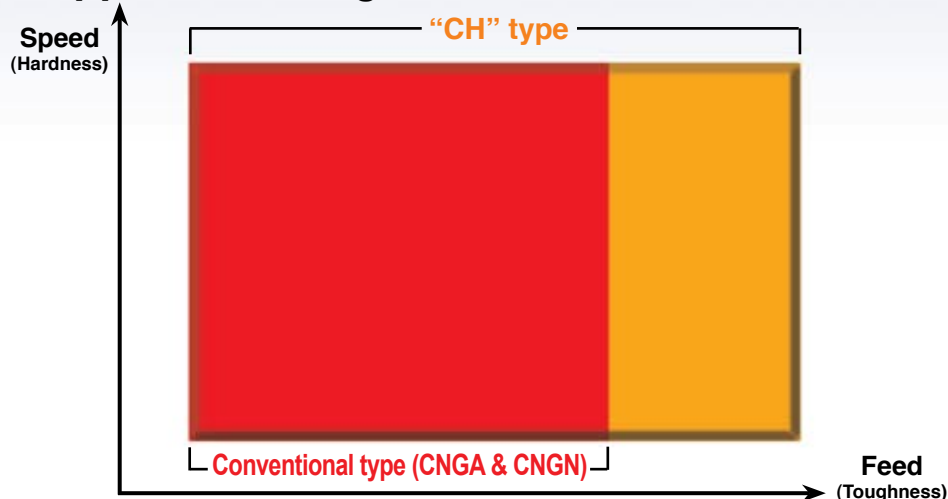
Features

- Accurate indexability thanks to a secure clamping mechanism.
- No insert movement even at high feeds or in heavily interrupted cuts.
- Very simple insert clamping action. Increased insert tool life.



AS10

Application range



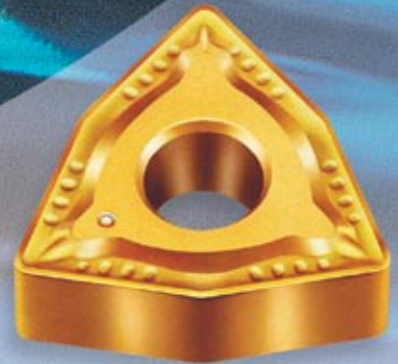
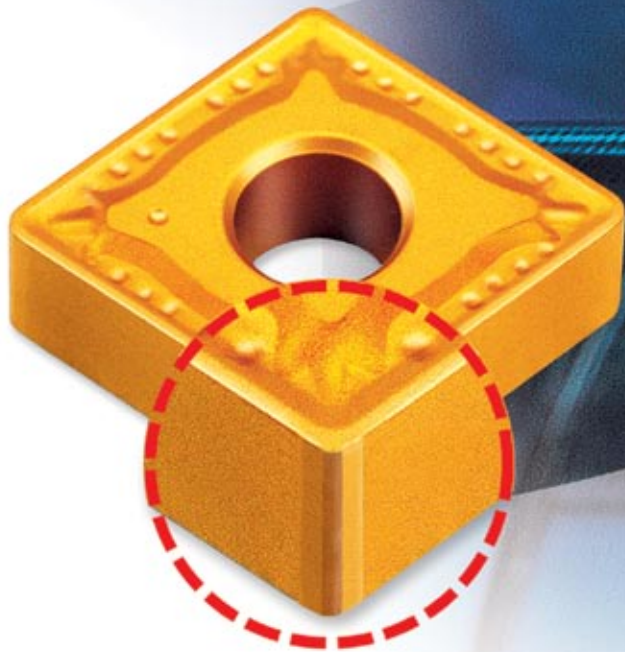
TAEGUline



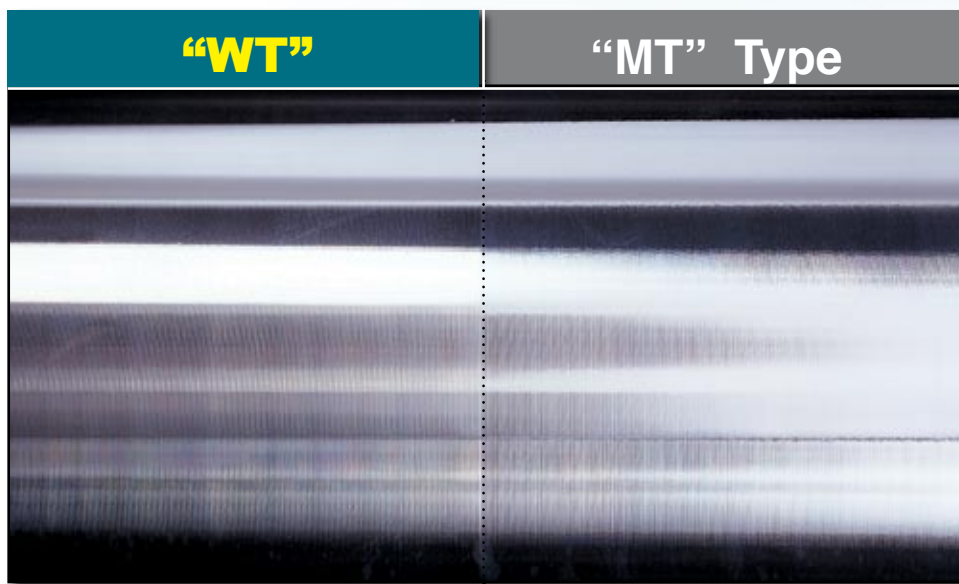
Steel



Cast
iron



The **“WT”** gives you **double the feed rate** of competitor's chipbreakers

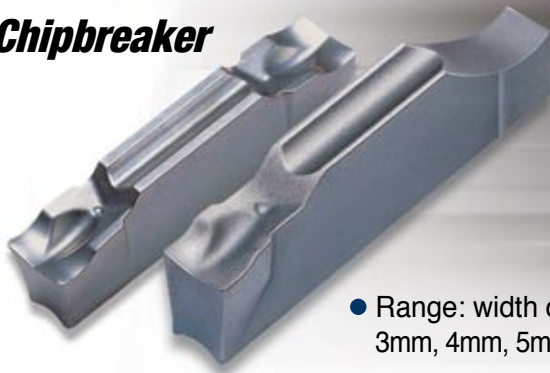


$f = .016$ IPR

$f = .008$ IPR

T-CLAMP ULTRA PLUS PARTING AND GROOVING

J Chipbreaker



New

- Range: width of cut 1.4mm, 2mm, 3mm, 4mm, 5mm, 6mm

TDJ/TSJ Insert

- Applications
 - Soft materials
 - Tube or pipe
 - Small diameter parts



TGB

TGB-MS



TGBR/L



TGER/L



- Block



TTBu

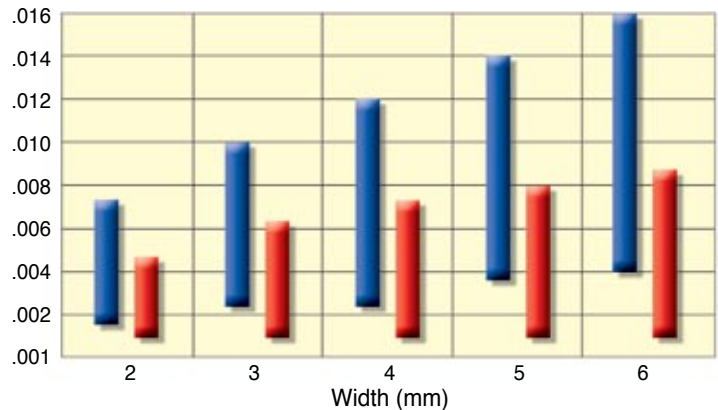
TTBN

C chipbreaker
J chipbreaker



Feed (IPR)

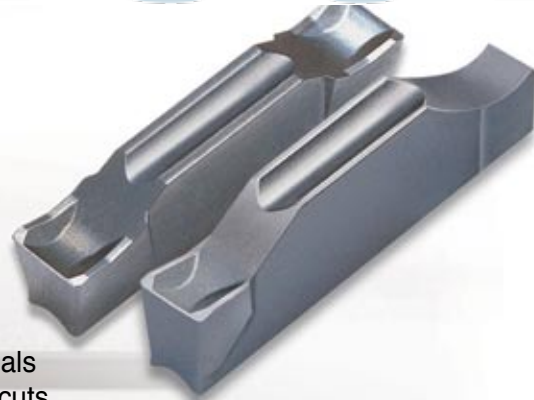
Material: SAE4140(HB240) Vc=260-400 SFM



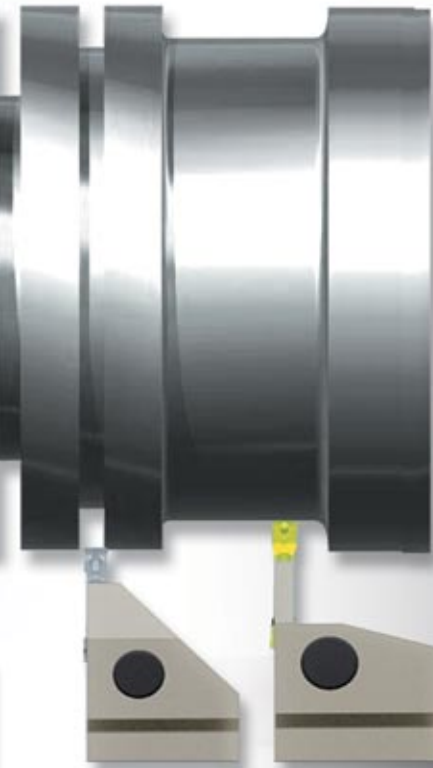
TAEGUline

C Chipbreaker

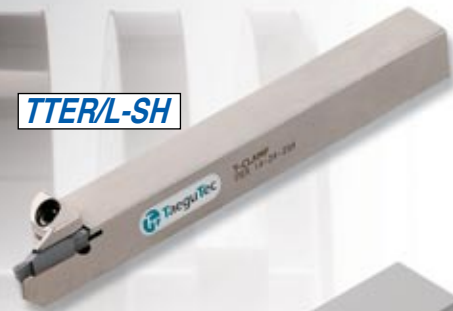
- Range: width of cut
2mm, 3mm, 4mm, 5mm,
6mm, 8mm
- Applications
 - Hard materials
 - Interrupted cuts
 - Large diameter parts



TDC/TSC Insert



TTER/L-SH



TTER/L



TTIR/L



Single-ended Inserts

Use single-ended inserts when parting or grooving to depths greater than insert length.

Double-ended Inserts

Use double-ended inserts when parting or grooving to depths less than insert length. The two cutting edges offer the most economical parting and grooving solution.

TDXU Insert

TDXU 3E-0.3

4E-0.4

5E-0.4

6E-0.4



TT5100

TT9030/TT7220

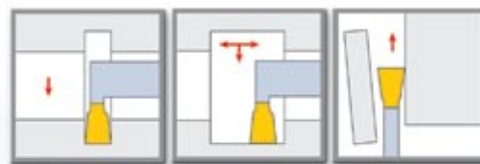


External Grooving

External Turning

Face Grooving

Face Turning



Internal Grooving

Internal Turning

Parting

- Excellent chip control on both turning and grooving applications
- TDXU can be used for several machining processes including: external grooving, external turning, face grooving, face turning, internal grooving, internal turning and parting

Cutting Conditions with TDXU

Materials		Hardness Brinell HB	External Turning			External Grooving			Internal Turning			Internal Grooving			Face Turning			Face Grooving		
			Feed (IPR)																	
TDXU 3E-0.3 TT5100			.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008
TDXU 4E-0.4 TT5100			.004	.008	.010	.004	.008	.010	.004	.008	.010	.004	.008	.010	.004	.008	.010	.004	.008	.010
TDXU 5E-0.4 TT5100			.004	.008	.012	.004	.008	.012	.004	.008	.012	.004	.008	.012	.004	.008	.012	.004	.008	.012
			Cutting Speed (SFM)																	
Carbon Steel	0.2%C	150	690	575	360	490	410	260	540	460	280	375	330	200	560	460	295	490	410	260
	0.45%C	190	650	525	330	460	360	230	510	410	260	360	295	180	525	430	260	460	360	230
	0.83%C	250	625	490	295	490	395	230	490	395	230	345	280	165	490	395	230	440	345	200
Alloy Steel	□	200	625	490	295	490	395	230	490	395	239	345	280	165	490	395	230	440	345	200
	200 - 250		610	475	280	475	375	215	475	375	215	330	260	165	490	375	230	430	345	200
	275 - 325		590	460	260	460	360	200	460	360	200	330	260	150	475	360	215	410	330	180
	325 - 375		410	250	165	330	200	130	330	200	130	230	130	100	330	200	130	295	180	130
	375 - 425		280	200	140	230	165	100	230	165	100	165	115	65	230	165	100	200	130	100
Stainless Steel	Mart	175 - 225	560	475	310	440	375	250	440	375	250	310	260	165	460	395	260	395	330	230
		275 - 325	430	375	280	330	295	215	330	295	215	230	215	165	345	295	230	295	260	200
	Aust	135 - 175	490	410	330	280	330	180	395	330	260	280	230	180	395	330	260	345	295	230

Ingersoll

Modular System for External and Face Machining

Increased productivity with an extensive and flexible modular system



Holder

TCHR/L 19	TCHPR/L 19
TCHR/L 25.4	TCHPR/L 25.4
TCHR/L 31.8	TCHPR/L 31.8

Adapters for External Grooving and Turning

- TCER/L 3T16
- TCER/L 4T16
- TCER/L 5T20
- TCER/L 6T20

Adapters for Face Grooving and Turning

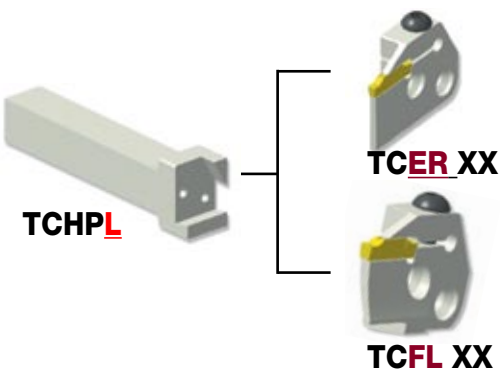
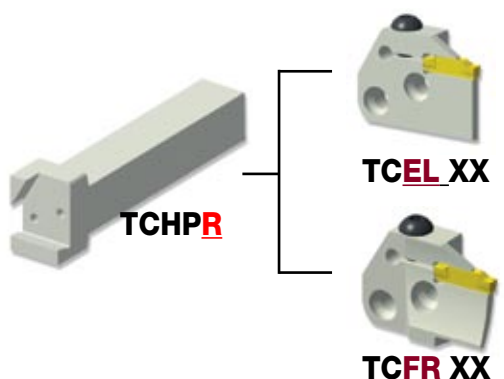
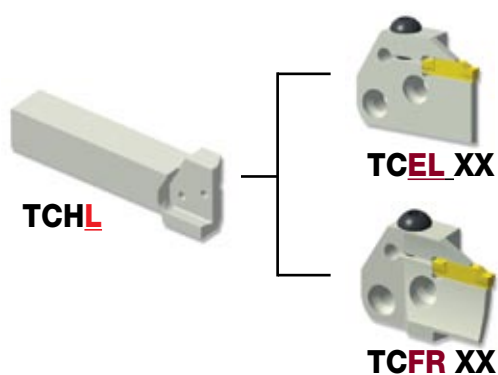
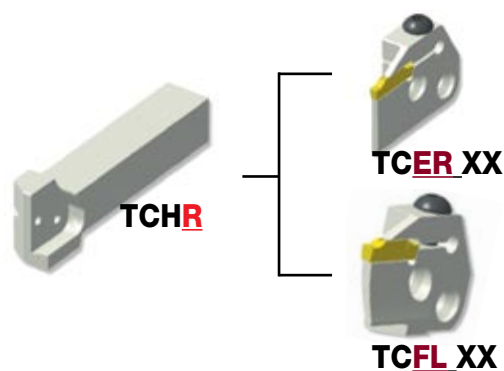
- TCFR/L 3T12-40-55 RN
- TCFR/L 3T12-55-75 RN
- TCFR/L 3T12-75-100 RN
- TCFR/L 3T12-100-140 RN
- TCFR/L 3T12-140-200 RN

- TCFR/L 4T16-50-70 RN
- TCFR/L 4T16-70-100 RN
- TCFR/L 4T16-100-150 RN
- TCFR/L 4T16-150-250 RN

- TCFR/L 5T20-55-80 RN
- TCFR/L 5T20-80-120 RN
- TCFR/L 5T20-120-180 RN
- TCFR/L 5T20-180-300 RN

- TCFR/L 6T25-60-90 RN
- TCFR/L 6T25-90-150 RN
- TCFR/L 6T25-150-250 RN
- TCFR/L 6T25-250-400 RN

■ Adapter and holder selection



TAEGUline

New

T-CLAMP
ULTRA PLUS

PRESSED INSERT FOR TURNING AND PROFILING

■ Features

- Unique chipbreaker for excellent chip control on turning, grooving and profile applications.
- Full radius, pressed and double-ended inserts.

■ Width of Inserts:

3mm, 4mm, 5mm, 6mm

■ Inserts

TDT3E-1.5 RU

TDT4E-2.0 RU

TDT5E-2.5 RU

TDT6E-3.0 RU

TT9030

TT5100

TAEGUline

Ingersoll provides inserts for wide grooving applications

■ Applications

Ball Bearing, Taper Roller Bearing,
Miniature Machined parts.

■ Shank Sizes of Holder;

Metric: 12x12, 16x16, 20x20, 25x25, 32x32
Inch: .500, .625, .750, 1.000, 1.250

■ Grades

TT7220 for Steel
TT6030 for Iron

■ Blank Width(W);

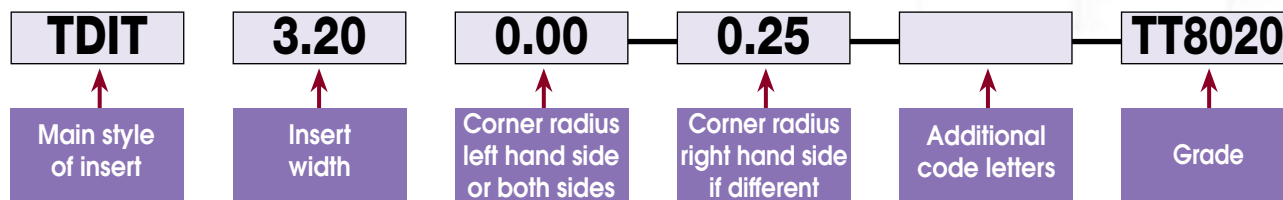
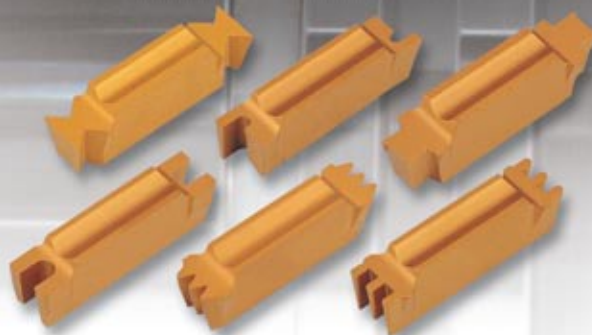
10, 15, 20, 25(mm)

W

In addition to the extensive standard product line we offer a tailor made service that expands the possibilities of the T-CLAMP ULTRA PLUS line. Please contact your nearest sales office or representative to discuss your requirements.

Quick quotation - Computerized quote system.

Quick delivery - Insert blanks are held in stock so that we can provide a quick delivery.



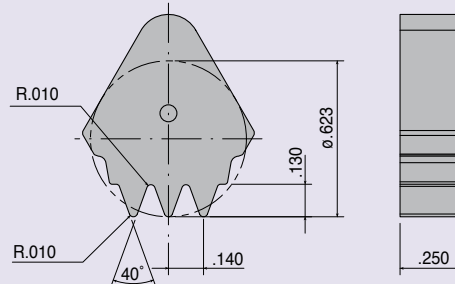
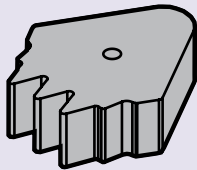
Examples

Shape	Designation	Remarks
	TDT 4.00-0.50	Symmetrical Type
	TDIT 3.20-0.00-0.25	Non-Symmetrical Type
	TDT 3.30-1.65	Full-R Type

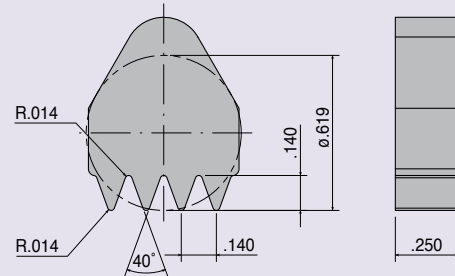
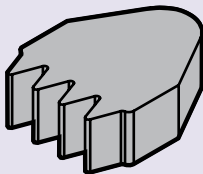
■ Inserts for Pulley Machining

Ingersoll provides pulley machining customers with a range of solutions and numerous inserts to support customers needs.

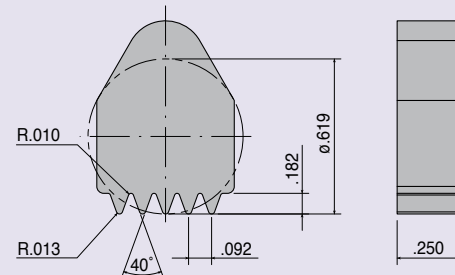
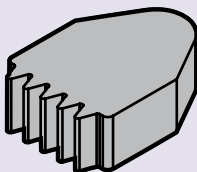
Description: ZT 2706043E-N3



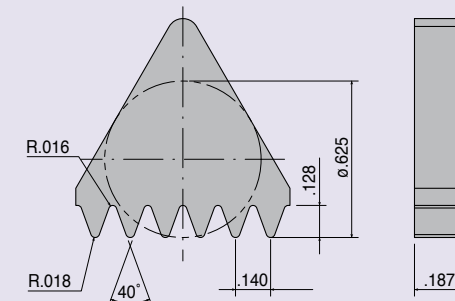
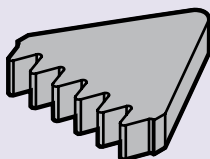
Description: ZT 2706035E-N4



Description: ZT 2706032E-N5



Description: ZT 2704045E-N6





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