NTK650

For small components | New HiPIMS Coating

Member IMC Group
NTK CUTTING TOOLS

S HRSA | M Stainless steel | P Steel

Full tooling is possible with the NTK650, which has been expanded to application of S,M, and P.

CERtainly [but not only] CERamics
Outstanding solutions for demanding applications

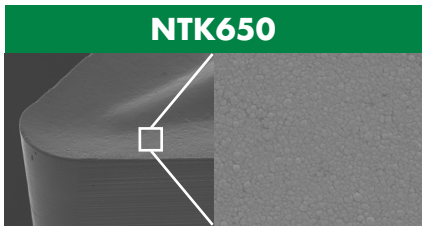
NTK650

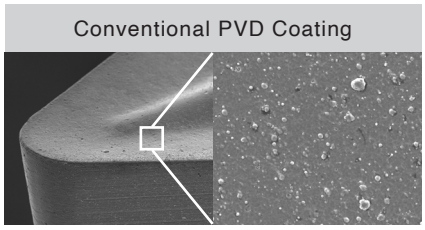
For small components | New HiPIMS Coating

Dim-Stability × Superior Finish = Extend tool life

| Features

- New HiPIMS coating improves surface smoothness and suppresses in-film defects, It significantly enhances anti-welding performance and provides stable processing.
- Excellent wear resistance even when machining difficult-to-cut machine materials where the cutting edge is subject to high temperatures.





| Performance

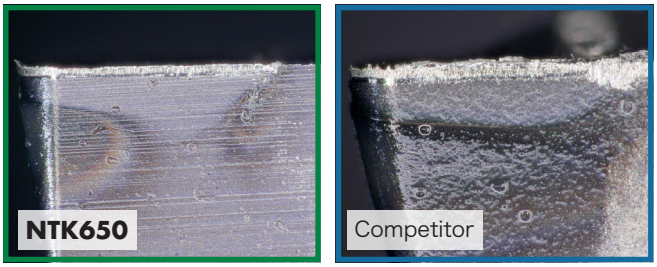
- Excellent surface finish and long tool life for Ni-base alloys as well as M- and P-class alloys.
- Best performance for small-diameter components (up to ϕ20)

Excellent wear resistance

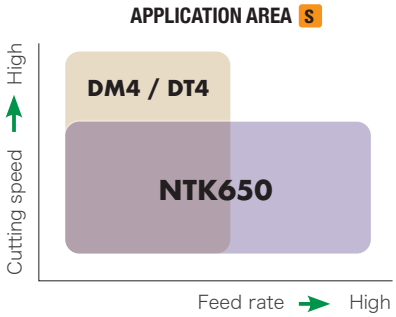
S HRSA

Inconel718

Shape:DCGT11T302, v_c=50m/min, f=0.05mm/rev, a_p=1.0mm, WET



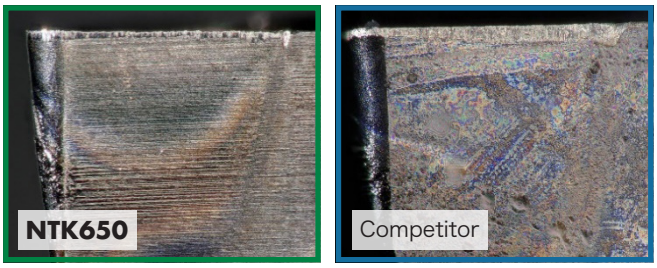
NTK650 doubled the wear resistance comparing with competitor



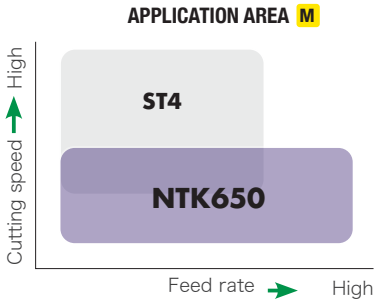
M Stainless steel

Stainless steel

Shape:DCGT11T302, v_c=160m/min, f=0.05mm/rev, a_p=1.0mm, WET



NTK650 doubled the wear resistance comparing with competitor

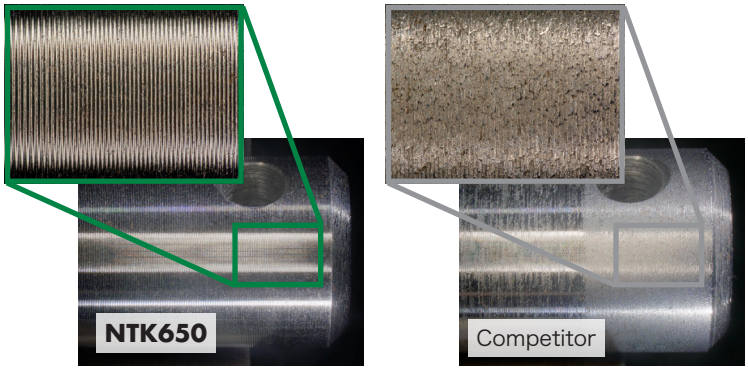


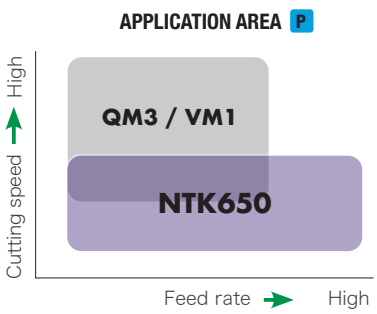
Excellent surface smoothness

P Steel

S45C

Shape:DCGT11T301, v_c=78m/min, f=0.085mm/rev, a_p=1.5mm, WET





Improved surface roughness near the hole and Doubling the tool life

NTK Chipbreaker

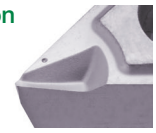
Expanded lineup for all applications

The optimal chip breaker can be selected according to the material and processing conditions.

Front turning S M P

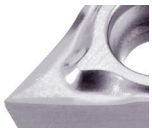
Compatible for Vibration / Non-Vibration cutting

TMV



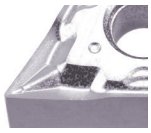
Exceptional sharpness

CL



Up-sharp-edge like positive insert

UL

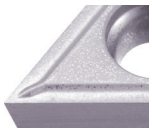


High-efficiency machining

TMV-WP

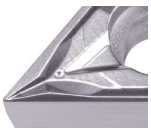
Exceptional toughness

AM3



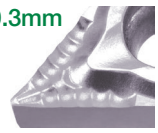
Versatile type

YL



Super finish, a_p=0.05-0.3mm

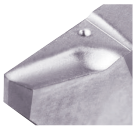
AMX



Back turning S M P

Good surface finish

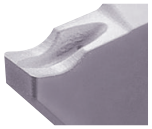
BM



Parting

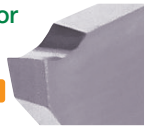
Good chip control

CX M P



First recommendation for S-class components

Ground chipbreaker S



Grooving

Good chip control

GX M P

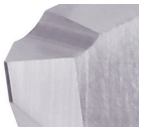
First recommendation for S-class components

Ground chipbreaker S

Threading S M P

Broad applicability

Ground chipbreaker



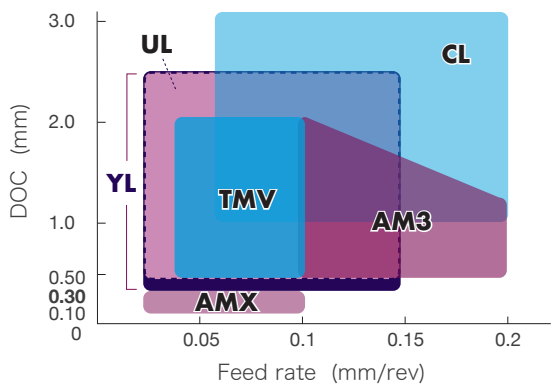
Boring S M P

Smooth chip control

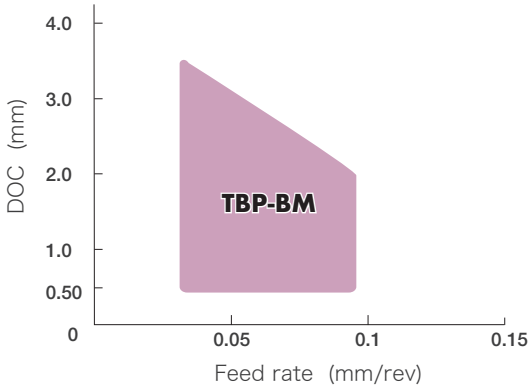
FG

Function range

Front turning

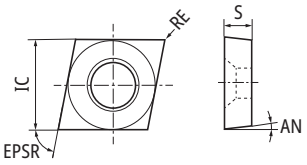


Back turning

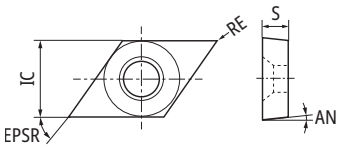


Front turning

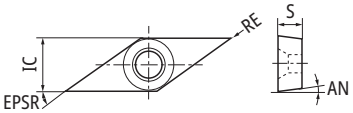
No.1



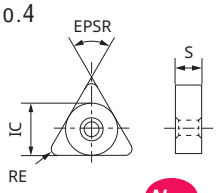
No.2



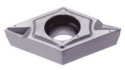
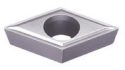
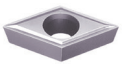
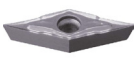
No.3



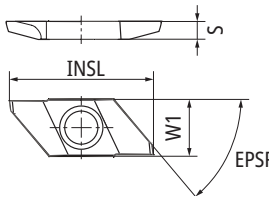
No.4

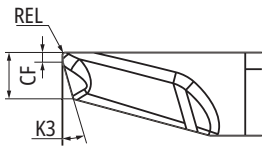


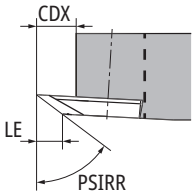
New

Shape	Figure	Item number (Metric)	CECC	EPSR °	IC mm	S mm	AN °	RE mm	BS mm	PVD 650
	1	CCGT09T301MRTMV	Sharp Edge	80	9.525	3.97	7	0.08	-	●
		CCGT09T302MRTMV	Sharp Edge	80	9.525	3.97	7	0.18	–	●
		CCGT09T304MRTMV	Sharp Edge	80	9.525	3.97	7	0.38	–	●
		CCGT09T301MYL	Sharp Edge	80	9.525	3.97	7	0.08	-	●
		CCGT09T302MYL	Sharp Edge	80	9.525	3.97	7	0.18	–	●
		CCGT09T304MYL	Sharp Edge	80	9.525	3.97	7	0.38	–	●
		CCGT09T301MCL	Sharp Edge	80	9.525	3.97	7	0.08	-	●
		CCGT09T302MCL	Sharp Edge	80	9.525	3.97	7	0.18	–	●
		CCGT09T304MCL	Sharp Edge	80	9.525	3.97	7	0.38	–	●
		CCGT09T301MFNAM3	Sharp Edge	80	9.525	3.97	7	0.08	-	●
		CCGT09T302MFNAM3	Sharp Edge	80	9.525	3.97	7	0.18	–	●
		CCGT09T304MFNAM3	Sharp Edge	80	9.525	3.97	7	0.38	–	●
	2	DCGT11T301MRTMV	Sharp Edge	55	9.525	3.97	7	0.08	–	●
		DCGT11T302MRTMV	Sharp Edge	55	9.525	3.97	7	0.18	–	●
		DCGT11T304MRTMV	Sharp Edge	55	9.525	3.97	7	0.38	–	●
		DCGT11T301MRTMV-WP	Sharp Edge	55	9.525	3.97	7	0.08	(0.3)	●
		DCGT11T302MRTMV-WP	Sharp Edge	55	9.525	3.97	7	0.18	(0.3)	●
		DCGT11T301MYL	Sharp Edge	55	9.525	3.97	7	0.08	–	●
		DCGT11T302MYL	Sharp Edge	55	9.525	3.97	7	0.18	–	●
		DCGT11T304MYL	Sharp Edge	55	9.525	3.97	7	0.38	–	●
		DCGT11T301MCL	Sharp Edge	55	9.525	3.97	7	0.08	–	●
		DCGT11T302MCL	Sharp Edge	55	9.525	3.97	7	0.18	–	●
		DCGT11T304MCL	Sharp Edge	55	9.525	3.97	7	0.38	–	●
		DCGT11T301MFNAM3	Sharp Edge	55	9.525	3.97	7	0.08	–	●
		DCGT11T302MFNAM3	Sharp Edge	55	9.525	3.97	7	0.18	–	●
		DCGT11T304MFNAM3	Sharp Edge	55	9.525	3.97	7	0.38	–	●
		DCGT11T301MAMX	Sharp Edge	55	9.525	3.97	7	0.08	–	●
		DCGT11T302MAMX	Sharp Edge	55	9.525	3.97	7	0.18	–	●
		DCGT11T304MAMX	Sharp Edge	55	9.525	3.97	7	0.38	–	●
		DCGT11T3005AM3-WP	Sharp Edge	55	9.525	3.97	7	0.05	(0.3)	●
		DCGT11T3015AM3-WP	Sharp Edge	55	9.525	3.97	7	0.15	(0.3)	●
	3	VCGT110302MRTMV	Sharp Edge	35	6.35	3.18	7	0.18	–	●
		VCGT110304MRTMV	Sharp Edge	35	6.35	3.18	7	0.38	–	●
		VCGT110301MYL	Sharp Edge	35	6.35	3.18	7	0.08	–	●
		VCGT110302MYL	Sharp Edge	35	6.35	3.18	7	0.18	–	●
		VCGT110304MYL	Sharp Edge	35	6.35	3.18	7	0.38	–	●
		VCGT110301MCL	Sharp Edge	35	6.35	3.18	7	0.08	–	●
		VCGT110302MCL	Sharp Edge	35	6.35	3.18	7	0.18	–	●
		VCGT110301MFNAM3	Sharp Edge	35	6.35	3.18	7	0.08	–	●
		VCGT110302MFNAM3	Sharp Edge	35	6.35	3.18	7	0.18	–	●
		VCGT110304MFNAM3	Sharp Edge	35	6.35	3.18	7	0.38	–	●
	4	TNGG160402MRTMV	Sharp Edge	60	9.525	4.76	–	0.18	–	●
		TNGG160404MRTMV	Sharp Edge	60	9.525	4.76	–	0.38	–	●
		TNGG160401MFNUL	Sharp Edge	60	9.525	4.76	–	0.08	–	●
		TNGG160402MFNUL	Sharp Edge	60	9.525	4.76	–	0.18	–	●
		TNGG160404MFNUL	Sharp Edge	60	9.525	4.76	–	0.38	–	●

Back turning



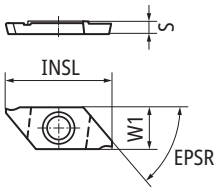




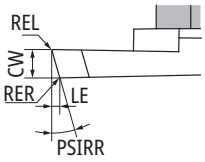
New

Shape	Item number (Metric)	Hand	Chip-breaker	LE mm	CDX mm	CF mm	CW mm	EPSR °	INSL mm	K3 °	PSIRR mm	REL °	S mm	W1 mm	PVD 650
	TBP72FR05-BM	R	Yes	3.5	5.3	0.3	1.4	50	20	16	72	0.05	2.5	8	●
	TBP72FR10M-BM	R	Yes	3.5	5.3	0.3	1.4	50	20	16	72	0.08	2.5	8	●
	TBP72FR20M-BM	R	Yes	3.5	5.3	0.3	1.4	50	20	16	72	0.18	2.5	8	●

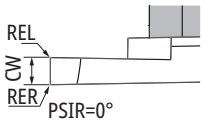
Parting



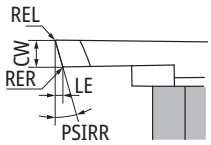
No.1



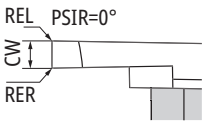
No.2



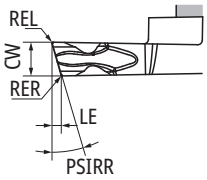
No.3



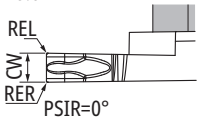
No.4



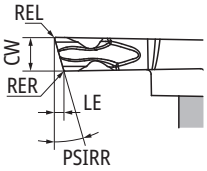
No.5



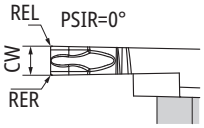
No.6



No.7



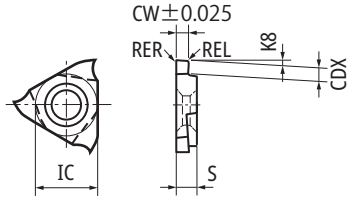
No.8



New

Shape	Figure	Item number (Metric)	Hand	Chip-breaker	CUTDIA mm	CW mm	EPSR °	INSL mm	LE mm	PSIRR °	REL mm	RER mm	S mm	W1 mm	PVD 650
	1	CTP10FR	R	Yes	12	1	50	20	0.32	16	0.05	0.05	2.5	8	●
	1	CTP15FR	R	Yes	12	1.5	50	20	0.46	16	0.05	0.05	2.5	8	●
	1	CTP20FR	R	Yes	12	2	50	20	0.61	16	0.05	0.05	2.5	8	●
	2	CTP10FRN	R	Yes	12	1	50	20	–	0	0.05	0.05	2.5	8	●
	2	CTP15FRN	R	Yes	12	1.5	50	20	–	0	0.05	0.05	2.5	8	●
	2	CTP15FRN02	R	Yes	12	1.5	50	20	–	0	0.2	0.2	2.5	8	●
	2	CTP20FRN	R	Yes	12	2	50	20	–	0	0.05	0.05	2.5	8	●
	2	CTP20FRN02	R	Yes	12	2	50	20	–	0	0.2	0.2	2.5	8	●
	3	CTP10FLK	L	Yes	11	1	50	20	0.32	16	0.05	0.05	2.5	8	●
	3	CTP15FLK	L	Yes	11	1.5	50	20	0.46	16	0.05	0.05	2.5	8	●
	4	CTP10FLN	L	Yes	12	1	50	20	–	0	0.05	0.05	2.5	8	●
	4	CTP15FLN	L	Yes	12	1.5	50	20	–	0	0.05	0.05	2.5	8	●
	4	CTP15FLN02	L	Yes	12	1.5	50	20	–	0	0.2	0.2	2.5	8	●
	4	CTP20FLN	L	Yes	12	2	50	20	–	0	0.05	0.05	2.5	8	●
	4	CTP20FLN02	L	Yes	12	2	50	20	–	0	0.2	0.2	2.5	8	●
	5	CTP13FR-CX	R	Yes	12	1.3	50	20	0.4	16	0.05	0.05	2.5	8	●
	5	CTP15FR-CX	R	Yes	12	1.5	50	20	0.46	16	0.05	0.05	2.5	8	●
	6	CTP10FRN-CX	R	Yes	12	1	50	20	–	0	0.05	0.05	2.5	8	●
	6	CTP15FRN-CX	R	Yes	12	1.5	50	20	–	0	0.05	0.05	2.5	8	●
	7	CTP15FLK-CX	L	Yes	11	1.5	50	20	0.46	16	0.05	0.05	2.5	8	●
	8	CTP10FLN-CX	L	Yes	12	1	50	20	–	0	0.05	0.05	2.5	8	●
	8	CTP15FLN-CX	L	Yes	12	1.5	50	20	–	0	0.05	0.05	2.5	8	●
	8	CTP15FLN02-CX	L	Yes	12	1.5	50	20	–	0	0.2	0.2	2.5	8	●

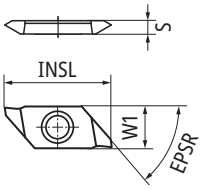
Grooving

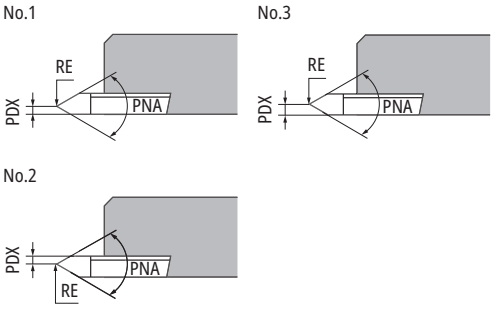


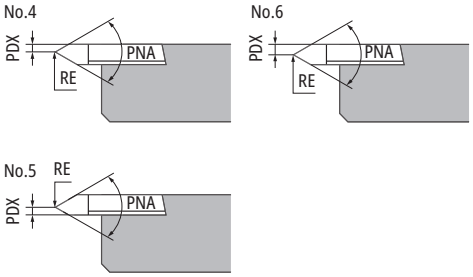
New

Shape	Item number (Metric)	Hand	Chip-breaker	APMX mm	CDX mm	CW mm	EPSR °	GAN °	IC mm	K8 °	REL mm	RER mm	S mm	PVD 650
	GTMH32050RGX	R	Yes	0.9	1.2	0.5	60	17	9.525	2	0.05	0.05	3.18	●
	GTMH32075RGX	R	Yes	1.6	2	0.75	60	17	9.525	2	0.05	0.05	3.18	●
	GTMH32100RGX	R	Yes	1.6	2	1	60	17	9.525	2	0.05	0.05	3.18	●
	GTMH32100RGX01	R	Yes	1.6	2	1	60	17	9.525	2	0.1	0.1	3.18	●
	GTMH32150RGX	R	Yes	2.7	3	1.5	60	17	9.525	2	0.05	0.05	3.18	●
	GTMH32150RGX01	R	Yes	2.7	3	1.5	60	17	9.525	2	0.1	0.1	3.18	●
	GTMH32150RGX02	R	Yes	2.7	3	1.5	60	17	9.525	2	0.2	0.2	3.18	●
	GTMH32200RGX	R	Yes	2.7	3	2	60	17	9.525	2	0.05	0.05	3.18	●
	GTMH32200RGX01	R	Yes	2.7	3	2	60	17	9.525	2	0.1	0.1	3.18	●
	GTMH32200RGX02	R	Yes	2.7	3	2	60	17	9.525	2	0.2	0.2	3.18	●
	GTMH32300RGX	R	Yes	2.7	3	3	60	17	9.525	2	0.05	0.05	3.18	●
	GTMH32300RGX02	R	Yes	2.7	3	3	60	17	9.525	2	0.2	0.2	3.18	●
	GTMX32050RT	R	Yes	0.9	1.2	0.5	60	14	9.525	2	0.05	0.05	3.18	●
	GTMX32075RT	R	Yes	1.6	2	0.75	60	14	9.525	2	0.05	0.05	3.18	●
	GTMX32100RT	R	Yes	1.6	2	1	60	14	9.525	2	0.05	0.05	3.18	●
	GTMX32100RT01	R	Yes	1.6	2	1	60	14	9.525	2	0.1	0.1	3.18	●
	GTMX32150RT	R	Yes	2.7	3	1.5	60	14	9.525	2	0.05	0.05	3.18	●
	GTMX32150RT02	R	Yes	2.7	3	1.5	60	14	9.525	2	0.2	0.2	3.18	●
	GTMX32200RT	R	Yes	2.7	3	2	60	14	9.525	2	0.05	0.05	3.18	●
	GTMX32200RT02	R	Yes	2.7	3	2	60	14	9.525	2	0.2	0.2	3.18	●
	GTMX32300RT	R	Yes	2.7	3	3	60	14	9.525	2	0.05	0.05	3.18	●
	GTMX32300RT02	R	Yes	2.7	3	3	60	14	9.525	2	0.2	0.2	3.18	●

Threading



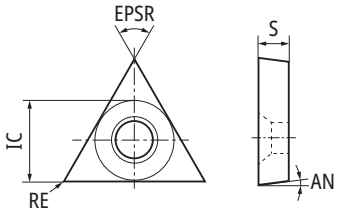




New

Shape	Figure	Item number (Metric)	Hand	Chip-breaker	Pitch mm	TPI /inch	EPSR °	INSL mm	PDX mm	PNA °	RE mm	S mm	W1 mm	PVD 650
	1	TTP60FR4A	R	Yes	0.2 - 0.75	127 - 34	50	19.9	0.4	60	(0.05)or less flat	2.5	8	●
	2	TTP60FR4B	R	Yes	0.2 - 0.75	127 - 34	50	19.9	0.4	60	(0.05)or less flat	2.5	8	●
	1	TTP60FR8A	R	Yes	0.4 - 1.25	63 - 21	50	19.9	0.8	60	(0.05)	2.5	8	●
	2	TTP60FR8B	R	Yes	0.4 - 1.25	63 - 21	50	19.9	0.8	60	(0.05)	2.5	8	●
	3	TTP60FR-N	R	Yes	1 - 1.5	25 - 17	50	19.9	1.25	60	(0.1)	2.5	8	●
	4	TTP60FL4A	L	Yes	0.2 - 0.75	127 - 34	50	19.9	0.4	60	(0.05)or less flat	2.5	8	●
	5	TTP60FL4B	L	Yes	0.2 - 0.75	127 - 34	50	19.9	0.4	60	(0.05)or less flat	2.5	8	●
	4	TTP60FL8A	L	Yes	0.4 - 1.25	63 - 21	50	19.9	0.8	60	(0.05)	2.5	8	●
	5	TTP60FL8B	L	Yes	0.4 - 1.25	63 - 21	50	19.9	0.8	60	(0.05)	2.5	8	●
	6	TTP60FL-N	L	Yes	1 - 1.5	25 - 17	50	19.9	1.25	60	(0.1)	2.5	8	●

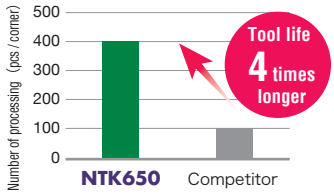
Boring

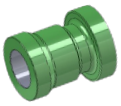
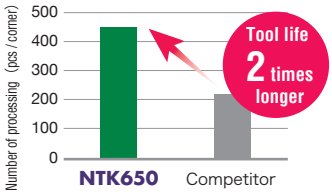


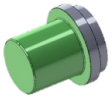
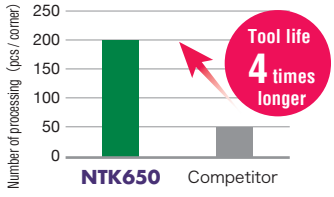
New

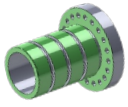
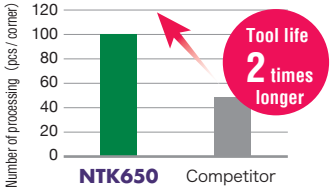
Shape	Item number (Metric)	CECC	EPSR °	IC mm	S mm	AN °	RE mm	BS mm	PVD 650
	TPGH110302RFG	Sharp Edge	60	6.35	3.18	11	0.2	–	●
	TPGH110304RFG	Sharp Edge	60	6.35	3.18	11	0.4	–	●

Practical examples

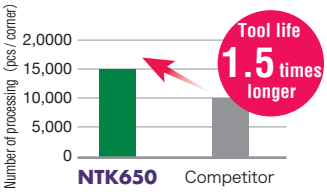
Component name	Precision equipment
Insert	CCGT11T301MYL
Grade	**NTK650**
Material (S HRSA)	Hastelloy C22
	 Processing Surface improvement
Cutting condition: Cutting speed (m/min)	132
Cutting condition: Rotation speed (rpm)	-
Cutting condition: Feed (mm/rev)	~0.02
Cutting condition: DOC (mm)	~0.425
Cutting condition: Machining area	Facing + OD turning
Cutting condition: Coolant	WET
Results	
	Current tool had poor outer dia. Processing surface, requiring separate processes. NTK650 consolidates processes and achieves four times tool life with a good surface condition.

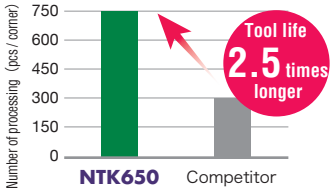
Component name	Connector
Insert	VCGT110304MYL
Grade	**NTK650**
Material (S HRSA)	Incoloy A286
	 Processing Surface improvement
Cutting condition: Cutting speed (m/min)	36
Cutting condition: Rotation speed (rpm)	1,600
Cutting condition: Feed (mm/rev)	0.04
Cutting condition: DOC (mm)	1.0
Cutting condition: Machining area	Facing + OD turning
Cutting condition: Coolant	WET
Results	
	Current tool had problem with dimension stability.NTK650 achieving stable dimension and roughness, Doubling the tool life longer.

Component name	Pin
Insert	DCGT11T302MYL
Grade	**NTK650**
Material (M Stainless)	SUS440C / 440C
	 Processing Surface improvement
Cutting condition: Cutting speed (m/min)	47
Cutting condition: Rotation speed (rpm)	1,500
Cutting condition: Feed (mm/rev)	0.03
Cutting condition: DOC (mm)	2.0
Cutting condition: Machining area	Facing + OD turning
Cutting condition: Coolant	WET
Results	
	Current tool had unstable outer dia. dimensions. NTK650 has improved stable machining accuracy and improved surface quality, and extending tool life 4 times longer.

Component name	Connector
Insert	CCGT09T302MYL
Grade	**NTK650**
Material (M Stainless)	SUS440C / 440C
	 Processing Surface improvement
Cutting condition: Cutting speed (m/min)	69
Cutting condition: Rotation speed (rpm)	1,100
Cutting condition: Feed (mm/rev)	0.04
Cutting condition: DOC (mm)	0.2
Cutting condition: Machining area	Facing + OD turning
Cutting condition: Coolant	WET
Results	
	Current tool had unstable surface roughness, requiring inspection for all. NTK650 achieves stable machining accuracy, doubling the tool life.

Practical examples

Component name		Nut
Insert		DCGT11T302MYL
Grade		**NTK650**
Material	P Steel	SUM23 Leadless / 1215 Leadless
Cutting condition	Cutting speed (m/min)	94
	Rotation speed (rpm)	5,000
	Feed (mm/rev)	0.05
	DOC (mm)	1.0
	Machining area	Facing + OD turning
	Coolant	WET
Results		 Current tool had rough surfaces. NTK650 achieves glossy and smooth surfaces, extending the tool life 1.5 times.

Component name		Pin
Insert		CCGT09T301MYL
Grade		**NTK650**
Material	P Steel	S45C / 1045
Cutting condition	Cutting speed (m/min)	78
	Rotation speed (rpm)	-
	Feed (mm/rev)	0.085
	DOC (mm)	1.5
	Machining area	Facing + OD turning
	Coolant	WET
Results		 Current tool experienced white cloudiness near the outer hole. NTK650 achieves a glossy surface, improving appearance. Additionally, its stable dimensional accuracy extends the tool life to 2.5 times longer.

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