

Three Corner Type Grooving Tools

TGTS, TGTT, and SGT-type series

Newly added cermet grade NS730



**Exceptional
Insert Stability**

Three Corner Type Grooving Tools

TGTS, TGTT, and SGT-type series

SGT type

Range of groove widths: 0.33~4.5 mm
Max. groove depth: 2.0~2.5 mm

TGTT type

Range of groove widths: 0.33~4.5 mm
Max. groove depth: 2.0~5.0 mm

TGTS type

Range of groove widths: 0.33~4.5 mm
Max. groove depth: 2.5~5.0 mm

GB-type Inserts

Applicable for machining of various grooves

- In addition to the existing AH710 and KS05F, new NS730 grade has been added to the series.
- Available in a broad range of groove widths.

Cutting edge geometries

	GB-type	GB-R type
Groove shape	Normal groove (Square)	Full-radius groove (Round)
Range of groove widths	0.33 mm ~4.5 mm	1.0 mm (0.5R) ~4.0 mm (2R)

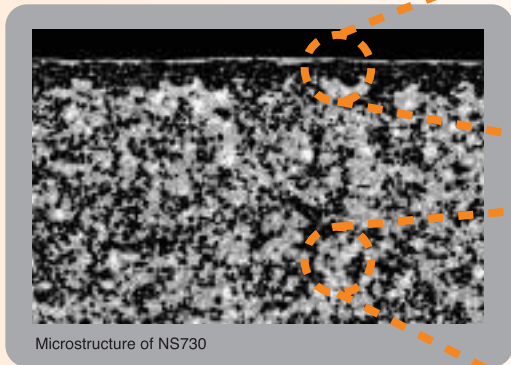
STANDARD CUTTING CONDITIONS

Work material	Hardness	Insert grade	Cutting speed (m/min)	Feed (mm/rev)
Carbon steels and alloy steels (JIS S45C, SCM415, etc.)	150-240HB	NS730	150(100-200)	0.10(0.02-0.25)
		AH710	100(60-150)	0.15(0.05-0.25)
Stainless steels (JIS SUS304, etc.)	< 240 HB	AH710	80(60-150)	0.10(0.05-0.15)
Gray cast irons (FC250, etc.)	Tensile strength < 350 N·mm ²	AH710	100(60-150)	0.10(0.05-0.15)
Non ferrous metals (Aluminum alloy, etc.)	—	KS05F	250(200-300)	0.10(0.05-0.15)

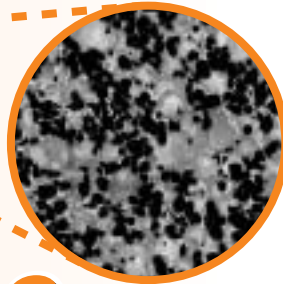
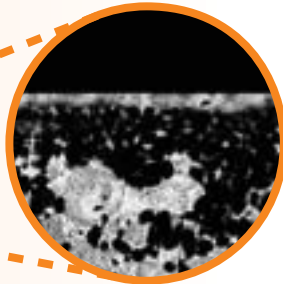
New Superfine Cermet
NS730

For machining steels

Four new technologies vastly improve surface accuracy, wear resistance, plastic-deformation resistance and impact resistance !



Microstructure of NS730

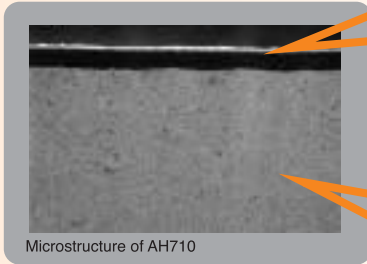


- **Smoothened insert surface**
The smoothed insert surface prevents chip welding and allows excellent surface finish.
→ Improved surface-finish accuracy
- **Homogeneously fine-grained structure**
Since the cermet structure is homogeneously fine-grained from inside to the surface, the wear is minimized and proceeds evenly.
→ Improved wear resistance
- **Reinforced skeleton structure**
Strengthens binding forces between the hard particles.
→ Improved plastic-deformation resistance
- **Tough fine-grained hard particles**
The skeleton structure consisting of fine-grained hard particles contributes to improved toughness.
→ Improved impact resistance

For machining of general steels, stainless steels, and cast irons

AH710

A combination of fine-grained cemented carbide and "Flash-Coat" more improves wear resistance !



Microstructure of AH710

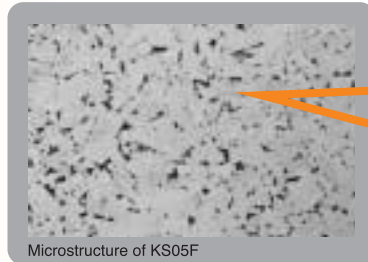
(Ti, Al) N-based PVD coating "Flash-Coat" which excels in wear resistance and adhesion.

Highly tough micro-grain cemented carbide which excels in chipping resistance.

For machining of nonferrous metals

KS05F

High hardness and high strength due to the homogeneous fine-grained structure contribute to the excellent resistance to wear, fracture, and chip welding !



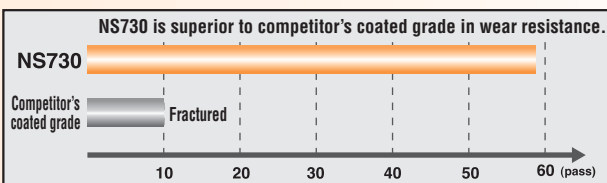
Microstructure of KS05F

Micro-grain cemented carbide in which wear resistance and impact resistance are balanced with a sophisticated technology.

CUTTING PERFORMANCE

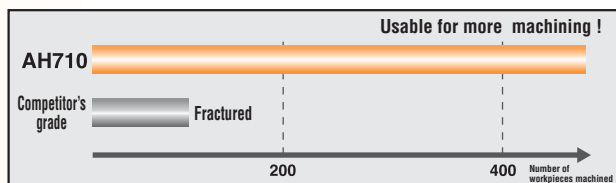
Machining of carbon steel (JIS S45C)

NS730	Competitor's coated grade	Work material: Carbon steel (JIS S45C) 242HB Toolholder: TGTSR2525M22-3 Insert: GBR43300 Groove width: W=3mm Groove depth: d=2mm Cutting speed: Vc=200m/min Feed: f=0.15mm/rev Coolant: Wet Note: One-pass grooving



Machining of stainless steel (JIS SUS 304)

AH710	Competitor's grade	Work material: Stainless steel (JIS SUS304) 275-331HB Toolholder: TGTSR2525M22-3 Insert: GBR43300 Groove width: W=3mm Groove depth: d=2mm Cutting speed: Vc=100m/min Feed: f=0.15mm/rev Coolant: Wet

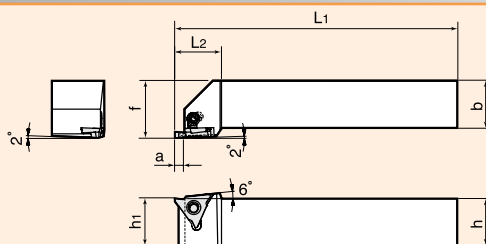
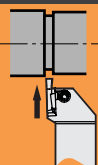


TOOLHOLDERS

TGTS type

External grooving

TGTS R/L



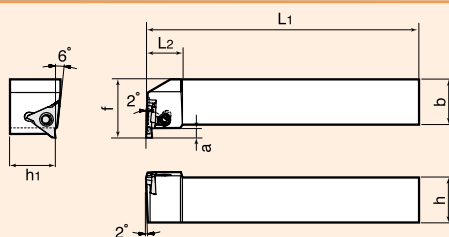
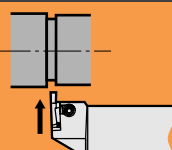
Right hand (R) shown.

Range of groove width (mm)	Max. groove depth (mm)	Toolholder Cat. No.	Stock		Applicable inserts	Dimensions (mm)								Clamp	Clamping screw	Wrench
			R	L		h	b	L ₁	L ₂	h ₁	f	a				
0.33~2.5	2.5	TGTSR/L2020K16	●	●	GBR/L32□□□□	20	20	125	25	20	25	2.8	CP900	MCS520 -2.5	P-2.5	
0.33~2.5	2.5	TGTSR/L2525M16	●	●	GBR/L32□□□□	25	25	150	25	25	30	2.8				
1.0~1.45	2	TGTSR/L2020K22-1	●	●	GBR/L43125~145 GBR/L43050R	20	20	125	25	20	25	2.5	CP910			
1.5~2.3	3.5	TGTSR/L2020K22-2	●	●	GBR/L43150~230 GBR/L43075R~100R	20	20	125	25	20	25	4.1				
2.5~4.5	5	TGTSR/L2020K22-3	●	●	GBR/L43250~450 GBR/L43125R~200R	20	20	125	25	20	25	5.4	CP910			
1.0~1.45	2	TGTSR/L2525M22-1	●	●	GBR/L43125~145 GBR/L43050R	25	25	150	25	25	30	2.5				
1.5~2.3	3.5	TGTSR/L2525M22-2	●	●	GBR/L43150~230 GBR/L43075R~100R	25	25	150	25	25	30	4.1	CP910			
2.5~4.5	5	TGTSR/L2525M22-3	●	●	GBR/L43250~450 GBR/L43125R~200R	25	25	150	25	25	30	5.4				

TGTT type

External grooving

TGTT R/L



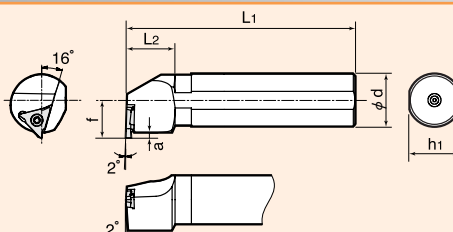
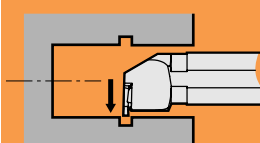
Right hand (R) shown.

Range of groove width (mm)	Max. groove depth (mm)	Toolholder Cat. No.	Stock		Applicable inserts	Dimensions (mm)								Clamp	Clamping screw	Wrench
			R	L		h	b	L ₁	L ₂	h ₁	f	a				
0.33~2.5	2.5	TGTTTR/L2020K16	●	●	GBL/R32□□□□	20	20	125	20	20	27	2.8	CP900	MCS520 -2.5	P-2.5	
0.33~2.5	2.5	TGTTTR/L2525M16	●	●	GBL/R32□□□□	25	25	150	20	25	32	2.8				
1.0~1.45	2	TGTTTR/L2020K22-1	●	●	GBL/R43125~145 GBL/R43050R	20	20	125	20	20	27	2.5	CP910			
1.5~2.3	3.5	TGTTTR/L2020K22-2	●	●	GBL/R43150~230 GBL/R43075R~100R	20	20	125	20	20	27	4.1				
2.5~4.5	5	TGTTTR/L2020K22-3	●	●	GBL/R43250~450 GBL/R43125R~200R	20	20	125	20	20	27	5.4	CP910			
1.0~1.45	2	TGTTTR/L2525M22-1	●	●	GBL/R43125~145 GBL/R43050R	25	25	150	20	25	32	2.5				
1.5~2.3	3.5	TGTTTR/L2525M22-2	●	●	GBL/R43150~230 GBL/R43075R~100R	25	25	150	20	25	32	4.1	CP910			
2.5~4.5	5	TGTTTR/L2525M22-3	●	●	GBL/R43250~450 GBL/R43125R~200R	25	25	150	20	25	32	5.4				

SGT type

Internal grooving

SGT R/L

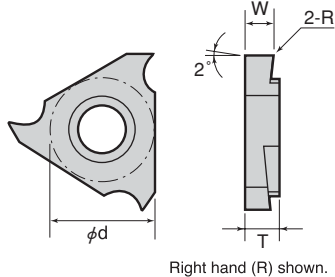


Right hand (R) shown.

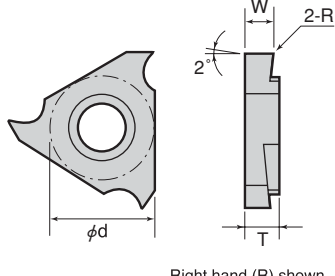
Range of groove width (mm)	Min. grooving dia. (mm)	Max. groove depth (mm)	Toolholder Cat. No.	Stock		Applicable inserts	Dimensions (mm)						Clamping screw	Wrench
				R	L		phi d	f	L ₁	L ₂	h ₁	a		
0.33~2.5	phi 35	2	S25R-SGTR/L16	●	●	GBL/R32□□□□	25	17.5	200	30	23	2.5	CSTB-4S	T-15F
1.0~4.5	phi 40	2.5	S32S-SGTR/L22	●	●	GBL/R43□□□□ GBL/R43□□□□R	32	23	250	30	30	3.0	CSTB-5S	T-20F

INSERTS

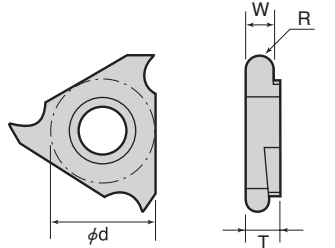
GBR/L32 type

	Dimensions (mm)			Insert Cat. No.	Stocked grades						Dimensions (mm)		
	W	Max. groove depth	R		Cermet		Coated		Uncoated		φ d	T	
	±0.025				NS730	AH710	KS05F	R	L	R			L
					R	L	R	L	R	L			
	0.33	0.8	0.03	GBR/L32033	●	●	●	●	●			9.525	3.18
	0.5	1.2	0.05	GBR/L32050	●	●	●	●	●				
	0.75	2	0.05	GBR/L32075	●	●	●	●	●				
	0.95	2	0.05	GBR/L32095	●	●	●	●	●				
	1	2	0.05	GBR/L32100	●	●	●	●	●				
	1.25	2	0.2	GBR/L32125	●	●	●	●	●				
	1.45	2	0.2	GBR/L32145	●	●	●	●	●				
	1.5	2	0.2	GBR/L32150	●	●	●	●	●				
	2	2.5	0.2	GBR/L32200	●	●	●	●	●				
	2.5	2.5	0.2	GBR/L32250	●	●	●	●	●				

GBR/L43 type

	Dimensions (mm)			Insert Cat. No.	Stocked grades						Dimensions (mm)		
	W	Max. groove depth	R		Cermet		Coated		Uncoated		φ d	T	
	±0.025				NS730	AH710	KS05F	R	L	R			L
					R	L	R	L	R	L			
	1.25	2	0.2	GBR/L43125	●	●	●	●	●			12.7	4.76
	1.45	2	0.2	GBR/L43145	●	●	●	●	●				
	1.5	3.5	0.2	GBR/L43150	●	●	●	●	●				
	1.75	3.5	0.2	GBR/L43175	●	●	●	●	●				
	1.85	3.5	0.2	GBR/L43185	●	●	●	●	●				
	2	3.5	0.2	GBR/L43200	●	●	●	●	●				
	2.3	3.5	0.2	GBR/L43230	●	●	●	●	●				
	2.5	5	0.3	GBR/L43250	●	●	●	●	●				
	2.65	5	0.3	GBR/L43265	●	●	●	●	●				
	2.8	5	0.3	GBR/L43280	●	●	●	●	●				
	3	5	0.3	GBR/L43300	●	●	●	●	●				
	3.3	5	0.3	GBR/L43330	●	●	●	●	●				
	3.5	5	0.3	GBR/L43350	●	●	●	●	●				
	4	5	0.4	GBR/L43400	●	●	●	●	●				
	4.3	5	0.4	GBR/L43430	●	●	●	●	●				
	4.5	5	0.4	GBR/L43450	●	●	●	●	●				

GBR/L43-R type (Full radius)

	Dimensions (mm)			Insert Cat. No.	Stocked grades						Dimensions (mm)		
	W	Max. groove depth	R		Cermet		Coated		Uncoated		φ d	T	
	±0.025				NS730	AH710	KS05F	R	L	R			L
					R	L	R	L	R	L			
	1	2	0.5	GBR/L43050R	●	●	●	●	●	●		12.7	4.76
	1.5	3.5	0.75	GBR/L43075R	●	●	●	●	●	●			
	2	3.5	1	GBR/L43100R	●	●	●	●	●	●			
	2.5	5	1.25	GBR/L43125R	●	●	●	●	●	●			
	3	5	1.5	GBR/L43150R	●	●	●	●	●	●			
	4	5	2	GBR/L43200R	●	●	●	●	●	●			

When using TGTT and SGT type tools, right hand (R) toolholders use left hand (L) inserts and left hand (L) toolholders use right hand (R) inserts.



Tungaloy Corporation

Head Office

Solid Square, 580 Horikawa-cho, Saiwai-ku, Kawasaki City, 212-8503 Japan
Phone: +81-44-548-9500 Facsimile: +81-44-548-9540

International Sales & Marketing Department

2-7, Sugasawa-cho, Tsurumi-ku, Yokohama City,
230-0027 Japan
Phone: +81-45-503-9040 Facsimile: +81-45-503-9042
Sales of machining tools

Tungaloy America, Inc.

1226A Michael Drive, Wood Dale, IL.60191, U.S.A.
Phone: +1-630-227-3700 Facsimile: +1-630-227-0690
Sales of machining tools

Tungaloy Europe GmbH

Elisabeth-Selbert-Strasse 3, 40764 Langenfeld, Germany
Phone: +49-2173-90420-0 Facsimile: +49-2173-90420-18
Sales of machining tools

Tungaloy France S.a.r.l.

6 Avenue des Andes, 91952 Courtaboeuf Cedex, France
Phone: +33-1-6486-4300 Facsimile: +33-1-6907-7817
Sales of machining tools

Tungaloy Italia S.p.A.

Via E. Andolfato 10, 20126 Milano, Italy
Phone: +39-02-252012-1 Facsimile: +39-02-252012-65
Sales of machining tools

Tungaloy Cutting Tool (Shanghai) Co.,Ltd.

United Plaza 1505, 1468 Nan Jing Road West, Shanghai 200040, China
Phone: +86-21-6247-0512 Facsimile: +86-21-6289-1302
Sales of machining tools

Thai Tungaloy Cutting Tool Co.,Ltd.

11th Floor, Sorachai Bldg. 23/7, Soi Sukhumvit 63,
Klongtonnue, Wattana Bangkok 10110, Thailand
Phone: +66-2-714-3130 Facsimile: +66-2-714-3134
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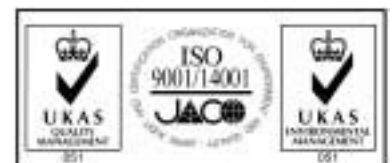
Tungaloy Singapore(Pte.),Ltd.

50 Kallang Avenue #06-03 Noel Corporate Building Singapore 339505
Phone: +65-6391-1833 Facsimile: +65-6299-4557
Sales of machining tools

Tungaloy de Mexico S.A.

C Los Arellano 113, Vista Alegre, Aguascalientes, AGS, Mexico 20290
Phone: +52-449-929-5410, Facsimile: +52-449-929-5411
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