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Member IMC Group Tungaloy

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TurnLine

TURNLINE

Tungaloy Report No. 391-E

www.tungaloy.com

New PVD grade for general purpose is added in multi-functional series

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TurnLine

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Multi-functional tool system for diverse grooving applications!

New grade AH7025 with excellent stability is added!

Member IMC Group Tungaloy

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Multi-functional tool reduces tool cost and shortens set-up time.

Various insert grades are applicable for a wide range of applications.

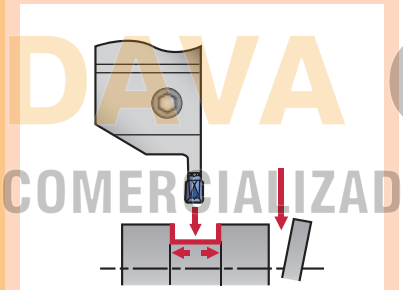
Multi-functional grooving system

Suitable for diverse grooving operations

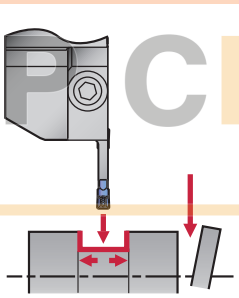
External grooving, turning, and parting

CTER/L
- Screw clamp
- *W* = 2 mm - 8 mm
- *ar* = 8 mm - 36 mm
- Shank size: 16 - 32 mm

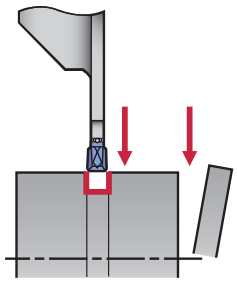
JCTER/L
- Screw clamp
- *W* = 1.4 mm - 3 mm
- *ar* = 10 mm - 16 mm
- Shank size: 10 - 20 mm
- For small auto lathe



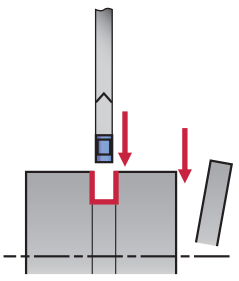
CAER/L
- Blade type
- Screw clamp
- *W* = 3 mm - 6 mm
- *ar* = 16 mm - 20 mm
- Shank size: 20 - 32 mm



CGER/L
- Self clamp
- *W* = 1.4 mm - 3 mm
- *ar* = 10 mm - 16 mm
- Shank size: 10 mm - 20 mm
- For small auto lathe

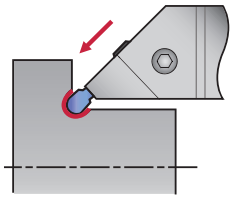


CGP
- Self clamp
- *W* = 1.4 mm - 8 mm
- Max parting dia: ø120 mm
- Shank size: 20 mm - 25 mm

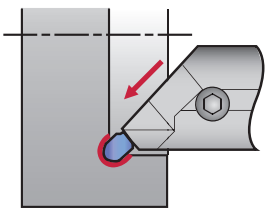


External and internal undercutting

CGEUR/L
- Screw clamp
- *W* = 3 mm - 6 mm
- *ar* = 2.8 mm - 3.4 mm
- Shank size: 16 mm - 25 mm



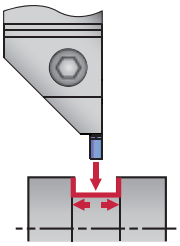
CGIUR/L
- Screw clamp
- *W* = 3 mm - 6 mm
- *ar* = 2.8 mm
- Shank size: ø20 mm - ø25 mm

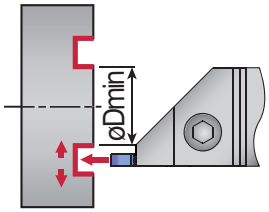


External and face grooving, and turning

CTEFR/L

- Screw clamp
- *W* = 2 mm - 6 mm
- *ar* = 4.8 mm
- Shank size:
  20 mm - 25 mm

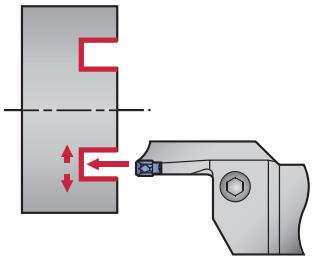




Face grooving and turning

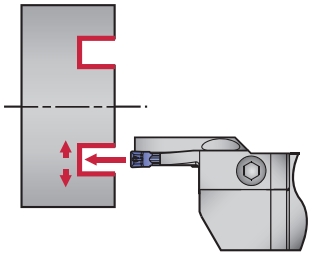
CTFR/L

- Screw clamp
- *W* = 3 mm - 6 mm
- *ar* = 10 mm - 25 mm
- Shank size: 25 mm



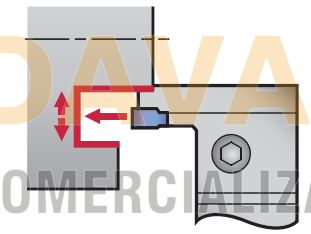
CAFR/L

- Blade type
- Screw clamp
- *W* = 3 mm - 6 mm
- *ar* = 12 mm - 25 mm
- Shank size:
  20 mm - 32 mm



CTFVR/L

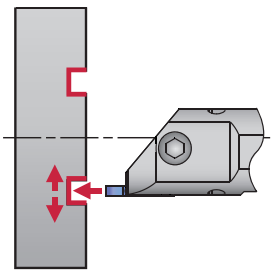
- Screw clamp
- *W* = 3 mm - 6 mm
- *ar* = 10 mm - 20 mm
- Shank size: 25 mm

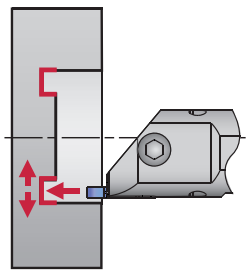


Face grooving, internal face grooving and turning

CTIFR/L

- Screw clamp
- *W* = 3 mm - 6 mm
- *ar* = 5.5 mm
- Shank size:
  ø25 mm - ø32 mm

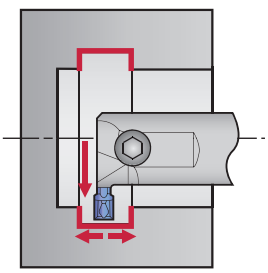




Internal face grooving and turning

CTIR/L

- Screw clamp
- *W* = 2 mm - 8 mm
- *ar* = 4 mm - 10 mm
- ø*D*m = ø25 mm
- Shank size:
  ø16 mm - ø40 mm



Cutting performance

New AH7025 grade - Drastically improved reliability with world's first technology

Tool life comparison in grooving

Alloy steel
(SCM440 / 42CrMo4) **P**

AH7025

No. of grooving: 60 pcs

Conventional grade

No. of grooving: 30 pcs

Insert	: DTE3-040 AH7025
Cutting speed	: *Vc* = 150 m/min
Feed	: *f* = 0.17 mm/rev
Groove depth	: 17 mm
Machining	: External grooving
Coolant	: Wet

New AH7025 grade allows stable machining without peeling off, even in twice longer cutting time than conventional grade.

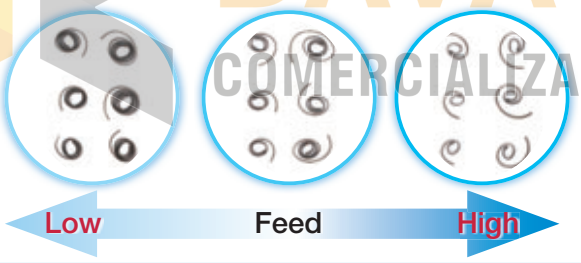
→ **The combination of Nano-multi-layered AlTiN Coating with high Al content and tough substrate provides highly efficient machining in various grooving operations.**

Unique chipbreaker provides excellent chip formation under various conditions.

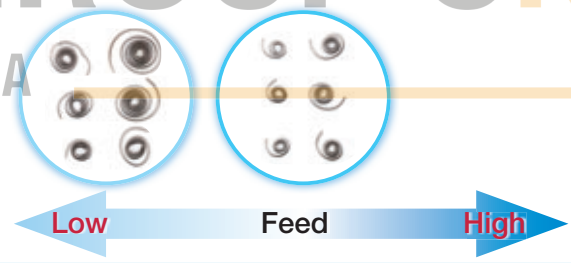
Grooving and parting

Carbon steel
(S45C / C45) **P**

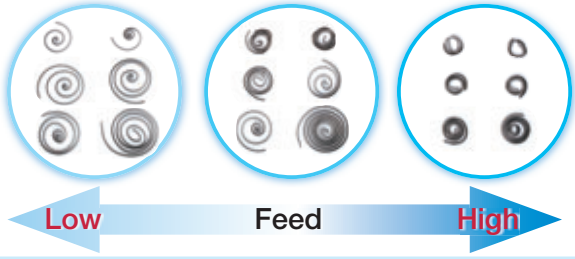
DGM4-030



DGS4-030



DTE4-040



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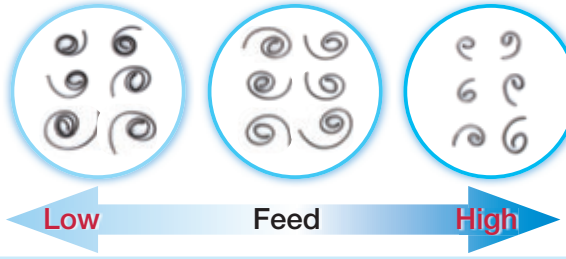

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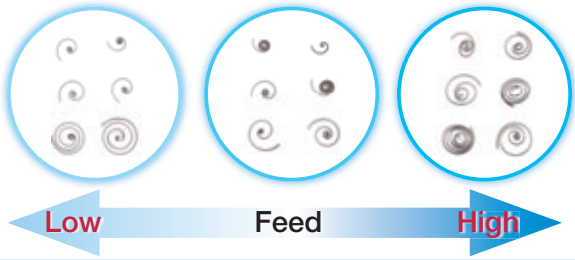
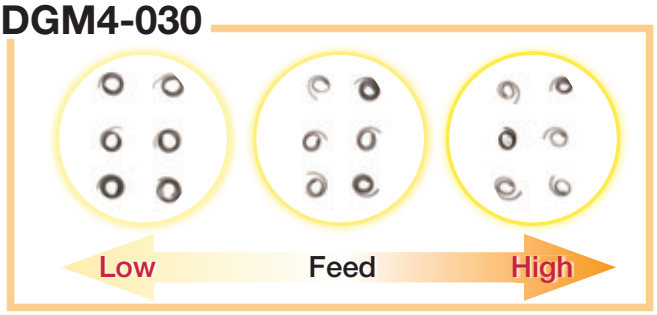


Grooving and parting

Stainless steel
(SUS304 / X5CrNi18-9)

M

DGM4-030



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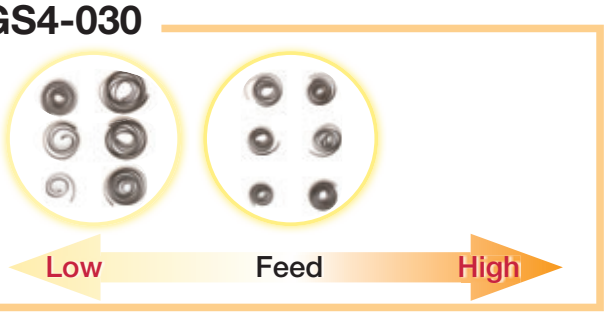

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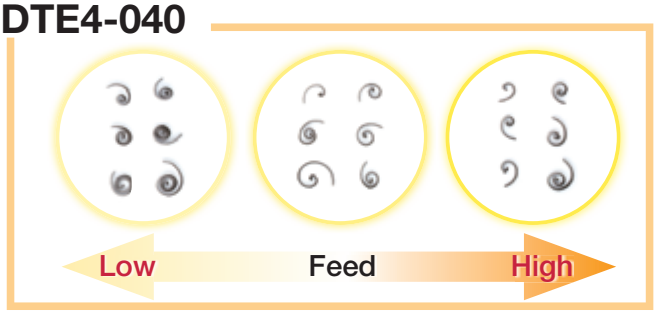

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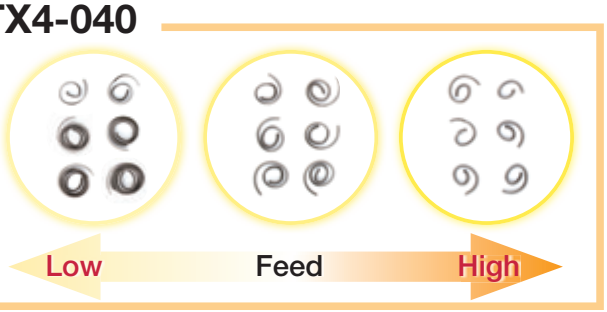

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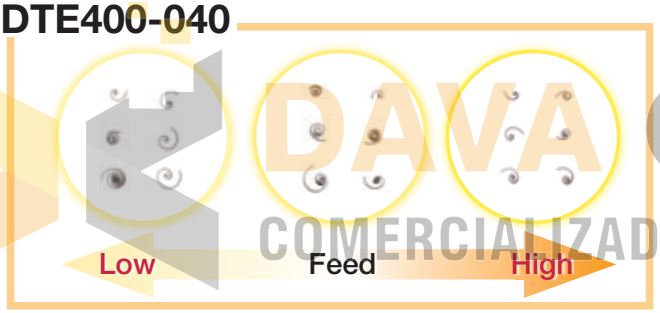


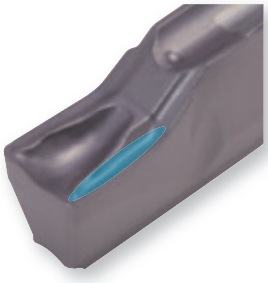
Grooving, parting, and turning

DTE

Good chip evacuation in turning at high feed due to the wide distance between the cutting edge and the chip former.

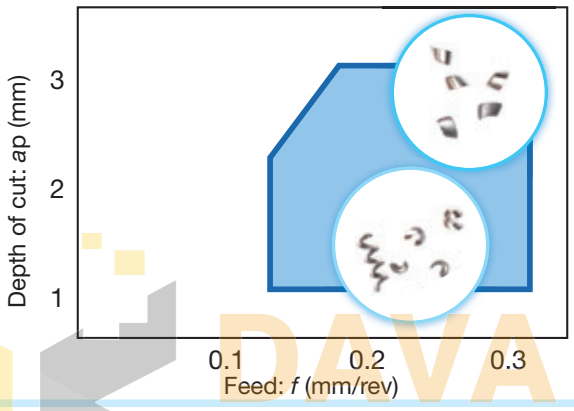
DTX

- Good cutting performance in grooving.
- Excellent chip formation in turning at low feed as the distance between the cutting edge and the chip former is small.



P Carbon steel (S45C / C45)

DTE4-040



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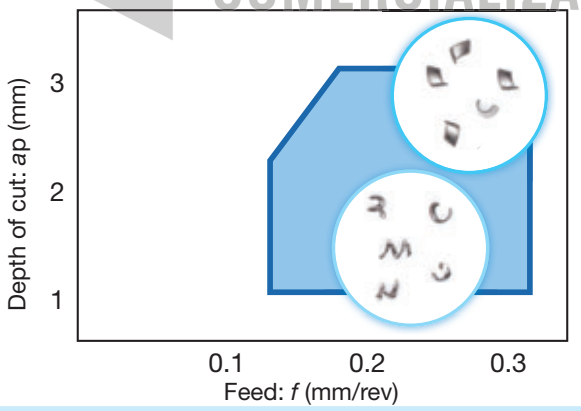

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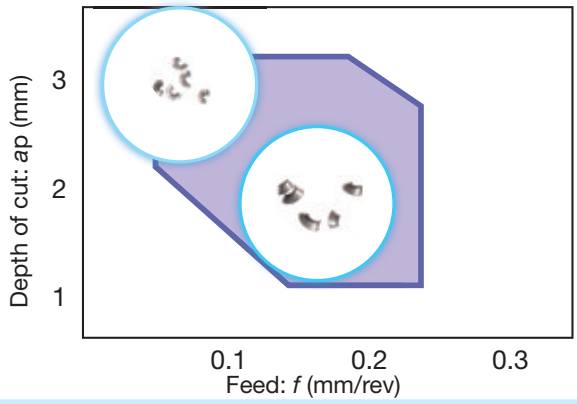
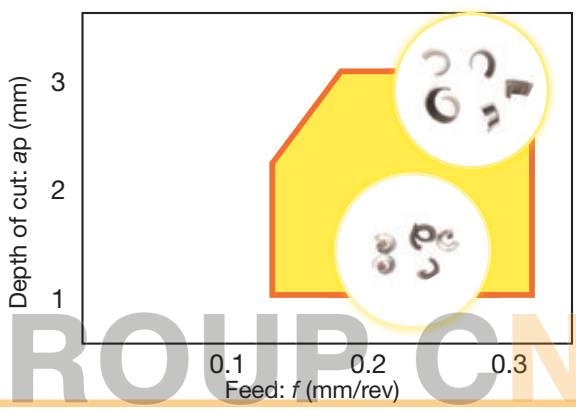


M Stainless steel (SUS304 / X5CrNi18-9)

DTE4-040



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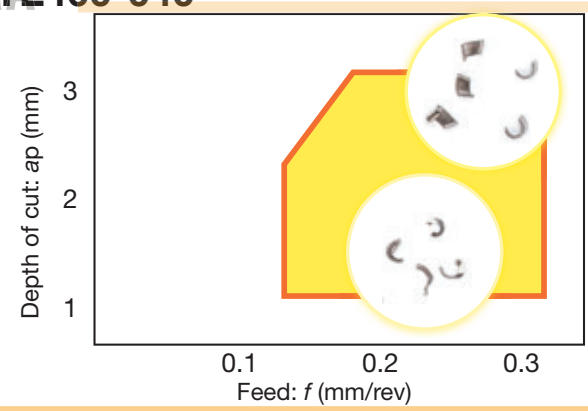

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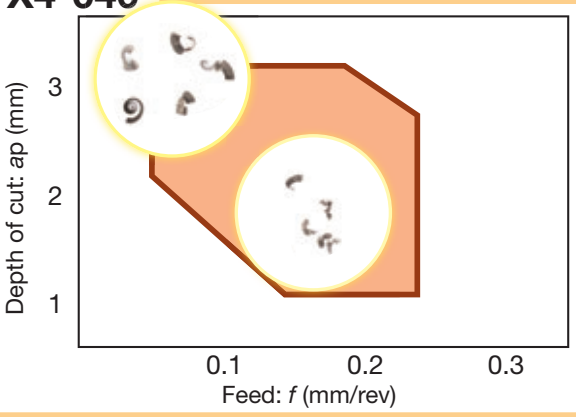


Grades

NEW AH7025 P M S

- First recommended grade for general purpose
- New PVD coating with high Al content provides excellent adhesion strength
- Improved wear and chipping resistance

AH725 P M S

- Recommended for general purpose machining
- Newly developed coating with well controlled crystal structure and fracture resistance
- Improved adhesion strength

T9125 P

- Suitable for steel machining at high speed
- New CVD coating and substrate deliver an outstanding balance of wear and chipping resistance

NS9530 P

- Advanced cermet for finish cutting of steel
- Innovative grade with incredible fracture and high wear resistance

GH130 P M K

- Recommended for interrupted machining
- TiCNO PVD coating layer with high wear resistance
- High hardness and wear resistance

AH905 S

- Remarkable for machining of heat resistant alloy
- Exclusive coating layer improves adhesion strength and wear resistance

TH10 N

- Recommended for non-ferrous materials

BX360 H

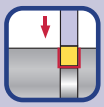
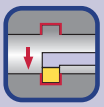
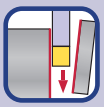
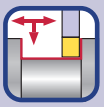
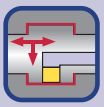
- Suitable for hardened steel machining
- Ideal balance of wear and chipping resistance due to the optimum CBN content and grain size

KS05F N S

- Recommended for non-ferrous materials and titanium

Grade	Substrate		Coating layer		Features
	Specific gravity	Hard-ness	Main Composition	Thickness (μm)	
NEW AH7025	14.4	91.3 HRA	(Al,Ti)N	3.5	First recommended grade with excellent wear resistance and toughness, that is suitable for machining of a wide range of materials.
AH725	14.4	91.5 HRA	(Ti,Al)N	2	PVD coated "Flash-coating" fine grain cemented carbide
T9125	13.7	90.0 HRA	TiCN + Al_2O_3	16	This versatile grade dramatically improves chipping resistance
NS9530	6.8	91.7 HRA	-	-	Versatile cermet grade with incredible fracture and wear resistance
GH130	14.1	89.5 HRA	TiCNO	3	Superior resistance to chipping and fracture Excels in interrupted cutting
AH905	15.0	93.0 HRA	(Al,Ti)N	1.5	Excels in both cutting edge sharpness and wear resistance
TH10	14.7	92.0 HRA	-	-	Carbide grade with excellent wear resistance and toughness
KS05F	15.0	93.0 HRA	-	-	Carbide grade with excellent wear, fracture, and chip-welding resistances
BX360	-	3200 - 3400 Hv	-	-	CBN grade with exceptional balance of wear and chipping resistance

Insert application

Insert	Application						
	Grooving			Parting	Turning		
	External	Internal	Face		External	Internal	Face
							
DGM / SGM	●		●	●			
DGS / SGS	●		●	●			
DTE	●		●		●		●
DGG	●		●				
DGE	●						
DTX	●	●	●	●	●	●	●
DTI		●				●	
DGIM / DGIS		●					
DTF			●				●
DTR	●		●		●		●
DTIU	● Undercutting	● Undercutting					
DTA					● Al wheel machining	● Al wheel machining	
SGN	●						

Standard cutting conditions

ISO	Workpiece materials	Hardness	Priority	Grade	Cutting speed *Vc* (m/min)
P	Steels (S45C / C45, SCM435 / 34CrMo4 etc.)	< 300 HB	First choice	**AH7025, AH725**	50 - 180
		< 300 HB	Priority for wear resistance	**T9125**	80 - 200
		< 300 HB	Priority for impact resistance	**GH130**	50 - 120
		< 300 HB	Priority for surface finish	**NS9530**	80 - 220
M	Stainless steels (SUS303 / X10CrNiS18-9 etc.)	< 200 HB	First choice	**AH7025, AH725**	50 - 120
		< 200 HB	Priority for impact resistance	**GH130**	50 - 120
K	Grey cast irons (FC250 / GG25 / 250 etc.)	-	First choice	**GH130**	50 - 180
	Ductile cast irons (FCD450 / GGG45 / 450-10S etc.)	-	First choice	**GH130**	50 - 120
N	Aluminium alloys (Si < 12%)	-	First choice	**TH10**	100 - 500
S	Titanium alloys (Ti-6Al-4V etc.)	< HRC 40	First choice	**AH905**	20 - 80
		< HRC 40	Priority for impact resistance	**AH7025, AH725**	20 - 80
H	Hardened steels (SCM435 / 34CrMo4)	> HRC 50	First choice	**BX360**	80 - 150

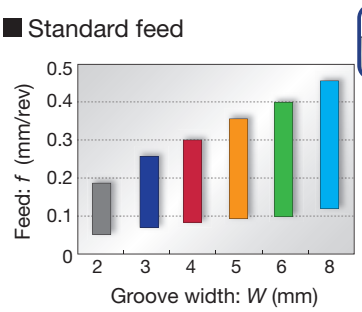
Features of inserts

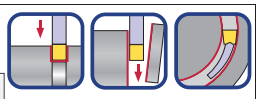
External grooving and parting

DGM type (2 corners) SGM type (1 corner)

1st choice for external grooving and parting off

- Smooth chip evacuation
- Well-designed edge with high strength
- Handed insert available

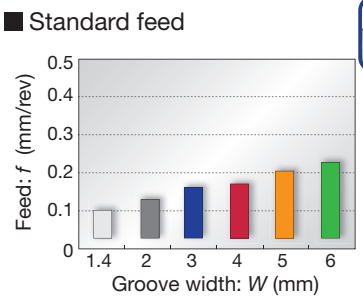


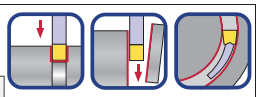


DGS type (2 corners) SGS type (1 corner)

Lower cutting force and superior sharpness

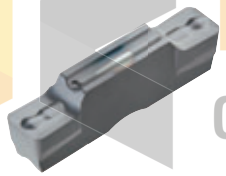
- Unique-designed edge and chipbreaker
- Handed insert available





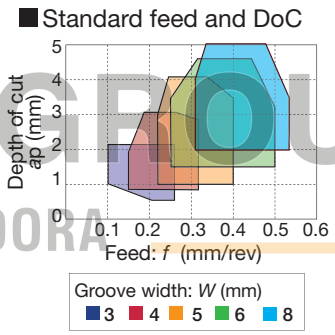
External and face grooving, and turning

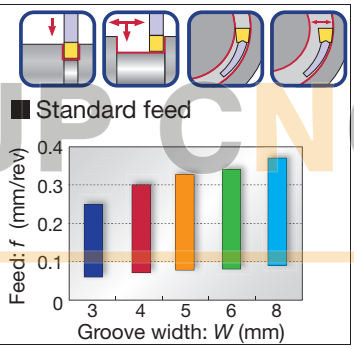
DTE type (2 corners)



For general purpose

- Unique chipbreaker makes chips shorter
- Molded and ground insert available



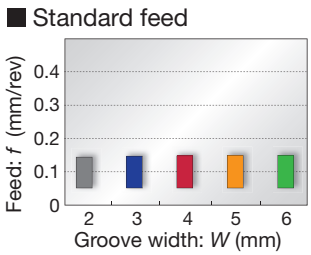


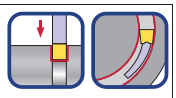
External and face grooving

DGG type (2 corners)

For non-ferrous materials and titanium

- Chipbreaker with low cutting force
- Sharp cutting edge that prevents vibration and delivers fine surface finish





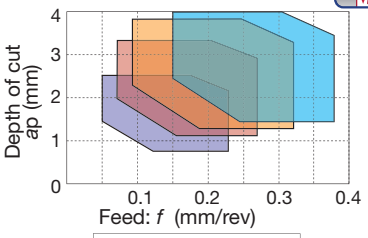
External, internal and face grooving, and turning

DTX type (2 corners)

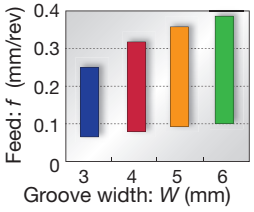
Multi-functional type

- Well balanced sharpness and strength
- Multi functional insert

■ Standard feed and DoC



■ Standard feed



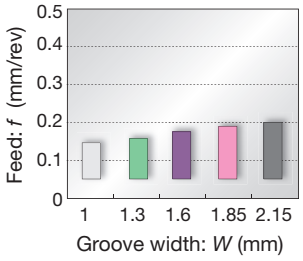
External grooving

DGE type (2 corners)

For high accurate and shallow groove

- Excellent chip control

■ Standard feed



Profiling and undercutting

DTR type (2 corners)

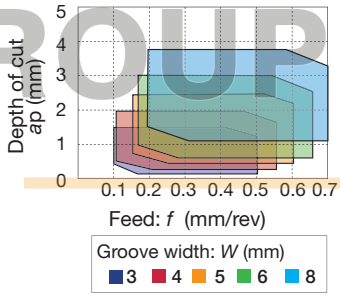
Molded

Ground

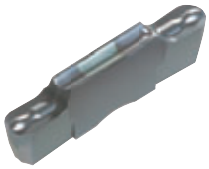
Full radius type

- Excellent chip control
- Molded and ground insert available

■ Standard feed and DoC



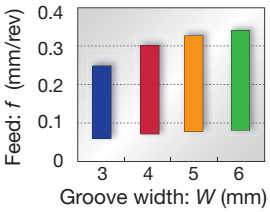
DTIU type (2 corners)



Full radius type

- Excellent chip control
- For undercutting

■ Standard feed and DoC



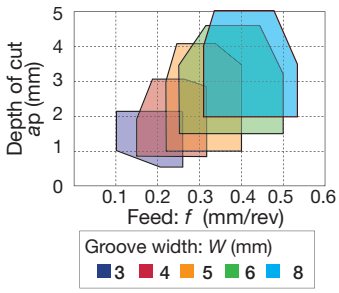
Internal grooving and turning

DTI type (2 corners)

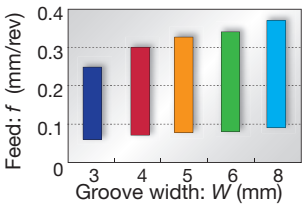
1st choice for internal grooving

- Unique chipbreaker makes chips shorter
- Molded and ground insert available

■ Standard feed and DoC



■ Standard feed



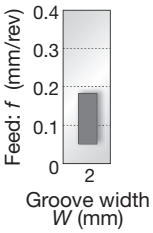
Small diameter internal grooving

DGIM type (2 corners)

2 mm insert width only (For general purpose)

- Unique chipbreaker for excellent chip control
- Excellent fracture resistance due to optimum land on the cutting edge
- For general applications on steels & stainless steels

■ Standard feed

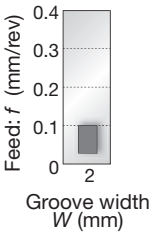


DGIS type (2 corners)

2 mm insert width only (Lower cutting force)

- Low cutting force due to a unique land geometry
- Applicable for low carbon steels & stainless steels

■ Standard feed



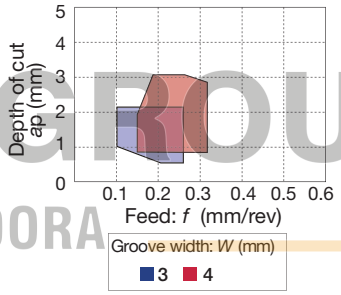
Face grooving and turning

DTF type (2 corners)

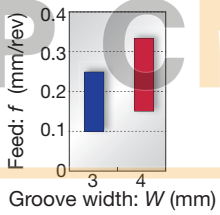
1st choice for face grooving

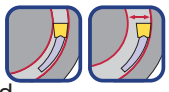
- Unique chipbreaker makes chips shorter
- Handed insert

■ Standard feed and DoC



■ Standard feed





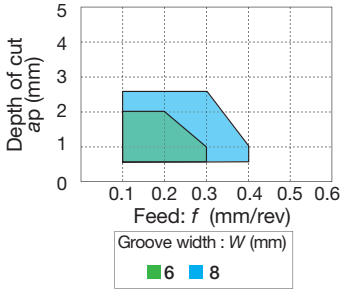
Aluminium wheel machining

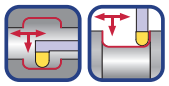
DTA type (2 corners)

Full radius type

- Excellent chip control
- For aluminium wheel profiling
- Ground insert

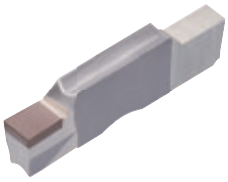
■ Standard feed and DoC





External grooving of hardened steels

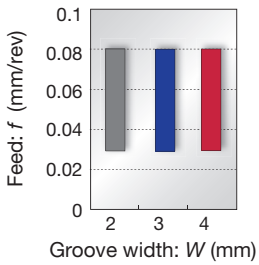
SGN-CBN type (1 corner)



For hardened steel cutting

- Optimum cutting edge shape for grooving of hardened steels
- High tolerance width for finishing (W = ±0.025 mm)

■ Standard feed

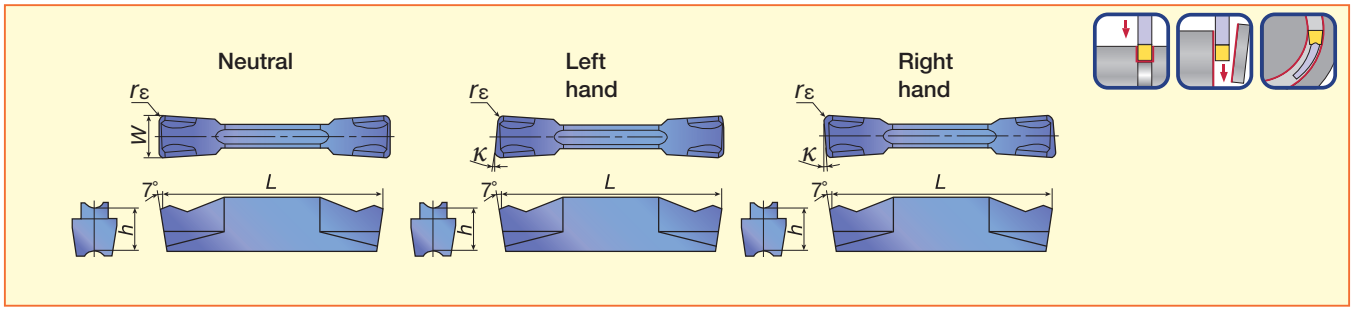


Inserts

Notation of “insert seat size”

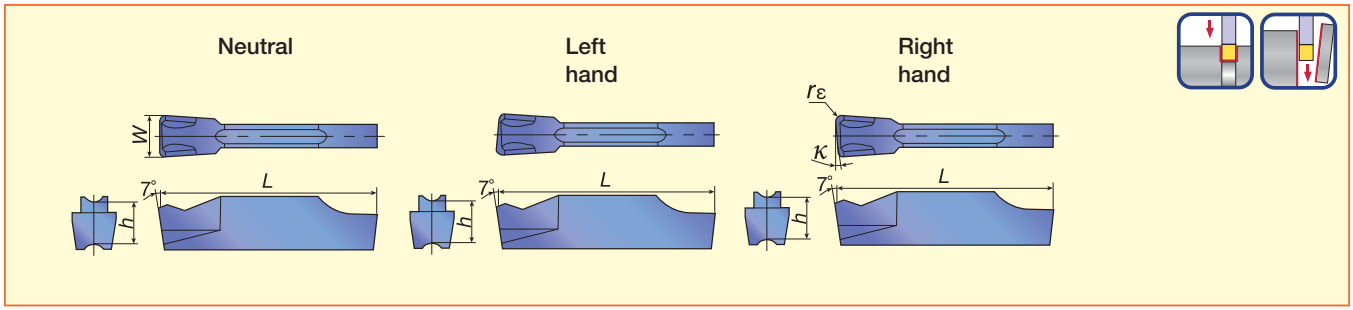
Seat size and grooving width are different. The seat size measurement is for the specification of the setting insert. Please note this point.

DGM External grooving and parting off, 2 corner



Insert seat size	Cat. No.	Grades: Coated T9125 R	T9125 L	AH7025 (NEW) R	AH7025 L	AH725 R	AH725 L	AH905 R	AH905 L	GH130 R	GH130 L	Cermet NS9530 R	NS9530 L	Dimensions (mm): W±0.05	rε	L	h	κ
2	DGM2-020	●		●		●				●		●		2	0.2	20	5	-
2	DGM2-020-6R/L					●	●			●	●			2	0.2	19.8	5	6°
2	DGM2-020-8R/L					●	●			●	●			2	0.2	19.8	5	8°
2	DGM2-020-15R/L					●	●			●	●			2	0.2	19.8	5	15°
2	DGM2-002-15R/L					●	●			●	●			2	0.02	19.35	5	15°
3	DGM3-020	●		●		●		●		●		●		3	0.2	20	5	-
3	DGM3-020-6R/L					●	●			●	●			3	0.2	19.9	5	6°
3	DGM3-002-6R/L					●	●			●	●			3	0.02	19.45	5	6°
3	DGM3-020-15R/L					●	●			●	●			3	0.2	19.9	5	15°
4	DGM4-030	●		●		●		●		●		●		4	0.3	20	5	-
4	DGM4-030-4R/L					●	●			●	●			4	0.3	19.8	5	4°
4	DGM4-030-15R/L					●	●			●	●			4	0.3	19.8	5	15°
5	DGM5-030	●		●		●		●		●		●		5	0.3	25	5.5	-
5	DGM5-030-4R					●				●				5	0.3	24.9	5.5	4°
6	DGM6-030	●		●		●		●		●				6	0.3	25	5.5	-
8	DGM8-040	●				●				●				8	0.4	30	6.7	-

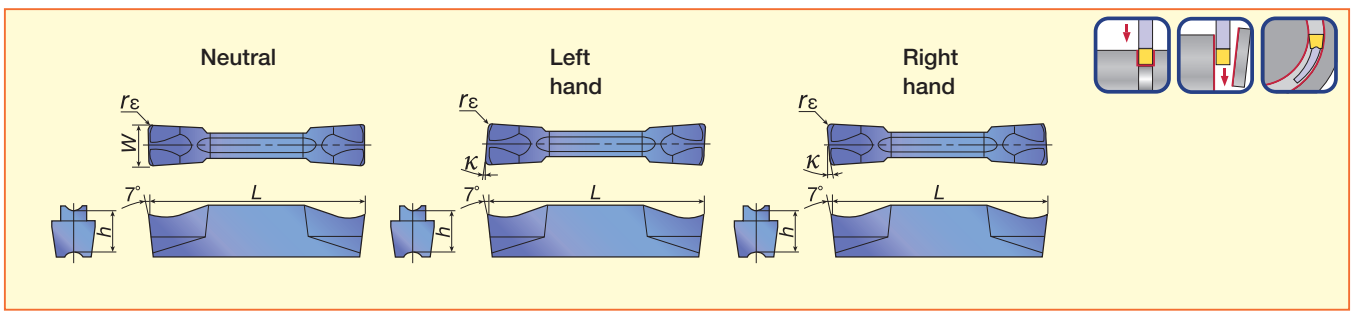
SGM External deep grooving and parting off, 1 corner



Insert seat size	Cat. No.	Grades: Coated AH725 R	AH725 L	GH130 R	GH130 L	Dimensions (mm): W±0.05	rε	L	h	κ
2	SGM2-020		●		●	2	0.2	20	5	-
2	SGM2-020-6R/L	●	●	●	●	2	0.2	19.8	5	6°
3	SGM3-020		●		●	3	0.2	20	5	-
3	SGM3-020-6R/L	●	●	●	●	3	0.2	19.6	5	6°
3	SGM3-020-15R/L	●	●	●	●	3	0.2	19.6	5	15°
4	SGM4-030		●		●	4	0.3	20	5	-
4	SGM4-030-4R/L	●	●	●	●	4	0.3	19.65	5	4°
5	SGM5-030		●		●	5	0.3	25	5.5	-
6	SGM6-030		●		●	6	0.3	25	5.5	-

● : Stocked items

DGS External grooving and parting off, 2 corner



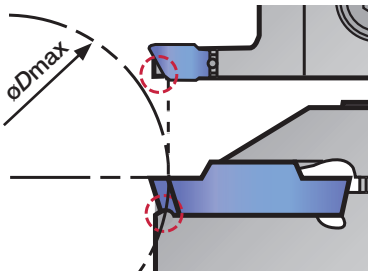
Insert seat size	Cat. No.	Grades										Dimensions (mm)				
		Coated								Cermet						
		T9125		AH7025 NEW		AH725		GH130		NS9530						
		R	L	R	L	R	L	R	L	R	L	W±0.05	r_ε	L	h	κ
1	DGS1.4-016					●		●				1.4	0.16	16	4.3	-
2	DGS2-020	●		●		●		●		●		2	0.2	20	5	-
2	DGS2-020-6R/L					●	●	●	●			2	0.2	19.95	5	6°
2	DGS2-002-6R/L					●	●	●	●			2	0.02	19.8	5	6°
2	DGS2-020-15R/L					●	●	●	●			2	0.2	19.95	5	15°
2	DGS2-002-15R/L					●	●	●	●			2	0.02	19.8	5	15°
3	DGS3-020	●		●		●		●		●		3	0.2	20	5	-
3	DGS3-020-6R/L					●	●	●	●			3	0.2	19.9	5	6°
3	DGS3-002-6R/L					●	●	●	●			3	0.02	19.6	5	6°
3	DGS3-020-15R/L					●	●	●	●			3	0.2	19.9	5	15°
3	DGS3-002-15R/L					●	●	●	●			3	0.02	19.45	5	15°
4	DGS4-030	●		●		●		●		●		4	0.3	20	5	-
4	DGS4-030-4R/L					●	●	●	●			4	0.3	19.8	5	4°
5	DGS5-030	●				●		●		●		5	0.3	25	5.5	-
6	DGS6-030	●				●		●				6	0.3	25	5.5	-

Caution

Cat. No.	øDmax (mm)
DGM2-002-15R/L	28
DGM3-002-15R/L	29
DGM4-030-15R/L	30
SGM3-020-15R/L	103

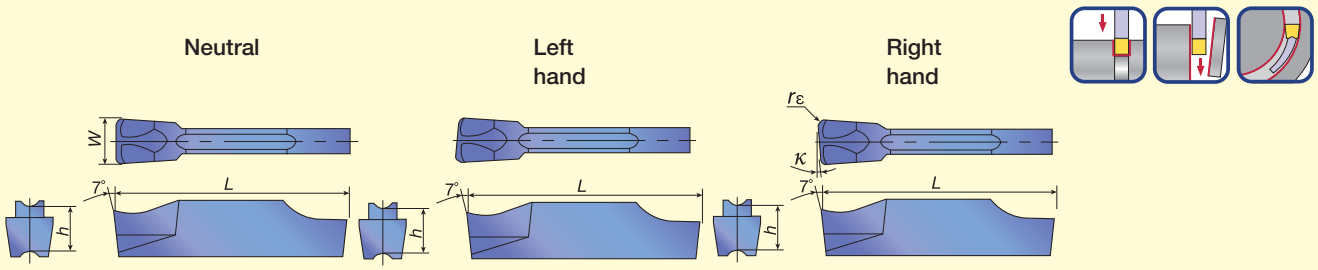
Cat. No.	øDmax (mm)
DGS2-002-15R/L	28
DGS3-002-15R/L	29
SGS3-020-15R/L	103
SGS3-002-15R/L	34

The tool will interfere with the workpiece when grooving larger diameter than øDmax.



● : Stocked items

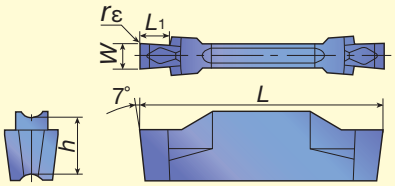
SGS External deep grooving and parting off, 1 corner



Insert seat size	Cat. No.	Grades Coated AH725 R	AH725 L	GH130 R	GH130 L	Dimensions (mm) W±0.05	rε	L	h	κ
2	SGS2-020	●		●		2	0.2	20	5	-
2	SGS2-020-6R/L	●	●	●	●	2	0.2	19.8	5	6°
2	SGS2-020-15R/L	●	●	●	●	2	0.2	19.8	5	15°
3	SGS3-020	●		●		3	0.2	20	5	-
3	SGS3-020-6R/L	●	●	●	●	3	0.2	19.64	5	6°
3	SGS3-002-6R/L	●	●	●	●	3	0.02	19.8	5	6°
3	SGS3-020-15R/L	●	●	●	●	3	0.2	19.64	5	15°
3	SGS3-002-15R/L	●	●	●	●	3	0.02	19.8	5	15°
4	SGS4-030	●		●		4	0.3	20	5	-
5	SGS5-030	●		●		5	0.3	25	5.5	-
6	SGS6-030	●		●		6	0.3	25	5.5	-

DGE External grooving

Ground



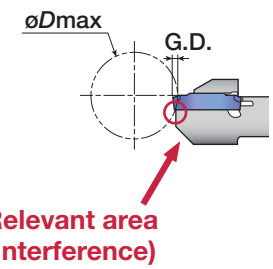
Insert seat size	Cat. No.	Grades Coated AH725	Coated GH130	Cermet NS9530	Dimensions (mm) W±0.02	rε±0.05	L1	L	h
2	DGE100-000	●	●	●	1.00	0.00	2.5	20	5
2	DGE130-000	●	●	●	1.30	0.00	2.5	20	5
2	DGE160-010	●	●	●	1.60	0.10	2.5	20	5
2	DGE185-010	●	●	●	1.85	0.10	3.5	20	5
2	DGE215-015	●	●	●	2.15	0.15	3.5	20	5

Caution

*ø*Dmax is limited as shown in the picture to the right according to the groove depth, G.D. Please refer to the following table.

G.D = Groove depth

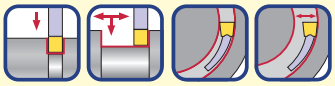
Cat. No.	Max. groove depth (mm)	*ø*Dmax (mm) G.D. = 1	G.D. = 1.5	G.D. = 2	G.D. = 2.5	G.D. = 3
DGE100-000	2	∞	18.6	11.5	-	-
DGE130-000						
DGE160-010						
DGE185-010	3				8.8	7
DGE215-015						

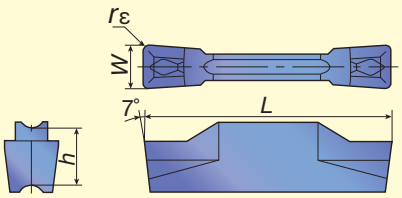


● : Stocked items

DTE External, face grooving and turning

Ground

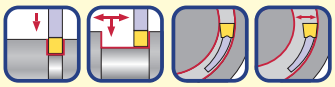


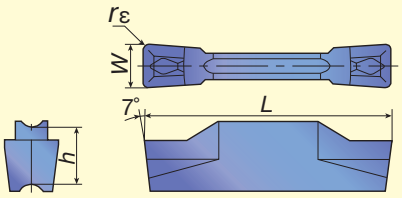


Insert seat size	Cat. No.	Grades					Dimensions (mm)			
		Coated				Cermet				
		T9125	NEW AH7025	AH725	GH130	NS9530	W±0.02	rε±0.05	L	h
3	DTE265-015	●	●	●	●	●	2.65	0.15	20	5
3	DTE300-020	●	●	●	●	●	3	0.2	20	5
3	DTE300-040	●		●	●	●	3	0.4	20	5
3	DTE315-015	●		●	●	●	3.15	0.15	20	5
4	DTE400-040	●		●	●	●	4	0.4	20	5
4	DTE400-080	●	●	●	●	●	4	0.8	20	5
4	DTE415-015	●		●	●	●	4.15	0.15	20	5
5	DTE478-055	●		●	●	●	4.78	0.55	25	5.5
5	DTE500-040	●		●	●	●	5	0.4	25	5.5
5	DTE500-080	●	●	●	●	●	5	0.8	25	5.5
5	DTE515-015	●		●	●		5.15	0.15	25	5.5
6	DTE600-080	●	●	●	●		6	0.8	25	5.5
6	DTE600-120	●		●	●		6	1.2	25	5.5
8	DTE800-080	●		●	●		8	0.8	30	6.7
8	DTE800-120	●		●	●		8	1.2	30	6.7

DTE External, face grooving and turning

Molded



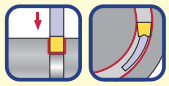


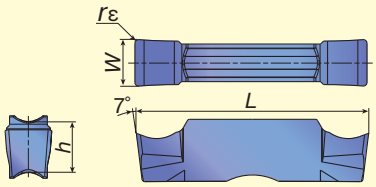
Insert seat size	Cat. No.	Grades					Dimensions (mm)			
		Coated				Cermet				
		T9125	NEW AH7025	AH725	GH130	NS9530	W±0.02	rε±0.05	L	h
3	DTE3-040	●	●	●	●	●	3	0.4	20	5
4	DTE4-040	●	●	●	●	●	4	0.4	20	5

● : Stocked items

DGG External and face grooving

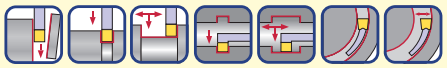
Ground

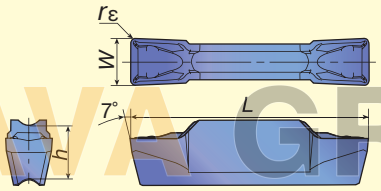




Insert seat size	Cat. No.	Grades		Dimensions (mm)			
		Cermet	Carbide				
		NS9530	KS05F	W±0.02	rε±0.05	L	h
2	DGG200-020	●	●	2	0.2	20	5.0
3	DGG300-020	●	●	3	0.2	20	5.0
4	DGG400-040	●	●	4	0.4	20	5.0
5	DGG500-040	●	●	5	0.4	25	5.5
6	DGG600-040	●	●	6	0.4	25	5.5

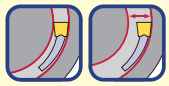
DTX External, internal, face grooving and turning

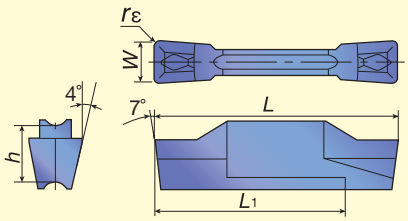




Insert seat size	Cat. No.	Grades					Dimensions (mm)			
		Coated				Cermet				
		T9125	AH7025 NEW	AH725	GH130	NS9530	W±0.05	rε	L	h
3	DTX3-030	●	●	●	●	●	3	0.3	20	5.0
4	DTX4-040	●	●	●	●	●	4	0.4	20	5.0
5	DTX5-040	●	●	●	●	●	5	0.4	25	5.5
6	DTX6-080			●	●		6	0.8	25	5.5

DTF Face grooving and turning





Right-hand (R) shown.

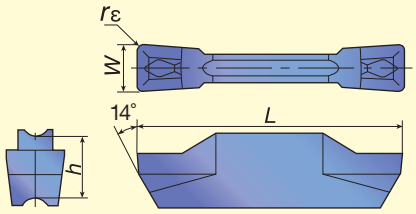
Insert seat size	Cat. No.	Grades								Dimensions (mm)				
		Coated						Cermet						
		T9125		AH725		GH130		NS9530						
		R	L	R	L	R	L	R	L	W±0.05	rε	L	h	L1
3	DTF3-040-R/L	●	●	●	●	●	●	●	●	3	0.4	20	5	16
4	DTF4-040-R/L	●	●	●	●	●	●	●	●	4	0.4	20	5	16

Apply right-hand inserts on right-hand toolholders and left-hand inserts on left-hand toolholders.

● : Stocked items

DTI Internal grooving and turning

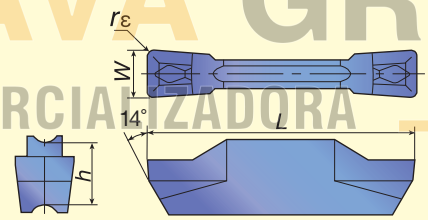
Ground



Insert seat size	Cat. No.	Grades				Dimensions (mm)			
		Coated			Cermet				
		T9125	AH725	GH130	NS9530	W±0.02	rε±0.05	L	h
3	DTI300-040	●	●	●	●	3	0.4	20	5
4	DTI400-040	●	●	●	●	4	0.4	20	5
4	DTI400-080	●	●	●	●	4	0.8	20	5
5	DTI500-040	●	●	●	●	5	0.4	25	5.5
5	DTI500-080	●	●	●	●	5	0.8	25	5.5
6	DTI600-080	●	●	●		6	0.8	25	5.5
6	DTI600-120	●	●	●		6	1.2	25	5.5
8	DTI800-080	●	●	●		8	0.8	30	6.7
8	DTI800-120	●	●	●		8	1.2	30	6.7

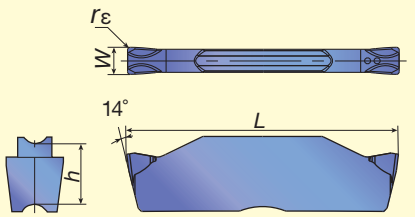
DTI Internal grooving and turning

Molded



Insert seat size	Cat. No.	Grades					Dimensions (mm)			
		Coated				Cermet				
		T9125	NEW AH7025	AH725	GH130	NS9530	W±0.05	rε	L	h
3	DTI3-040	●	●	●	●	●	3	0.4	20	5
4	DTI4-040	●		●	●	●	4	0.4	20	5

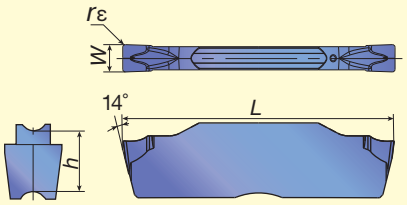
DGIM Small diameter internal grooving



Insert seat size	Cat. No.	Grades				Dimensions (mm)			
		Coated			Cermet				
		T9125	AH725	GH130	NS9530	W±0.05	rε	L	h
2	DGIM2-020	●	●	●	●	2	0.2	20	5

● : Stocked items

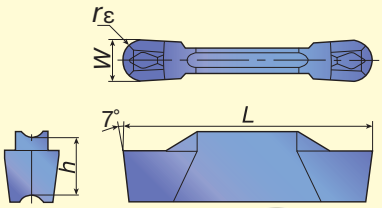
DGIS Small diameter internal grooving



Insert seat size	Cat. No.	Grades				Dimensions (mm)			
		Coated			Cermet				
		T9125	AH725	GH130	NS9530	W±0.05	rε	L	h
2	DGIS2-020	●	●	●	●	2	0.2	20	5

DTR Profiling and undercutting

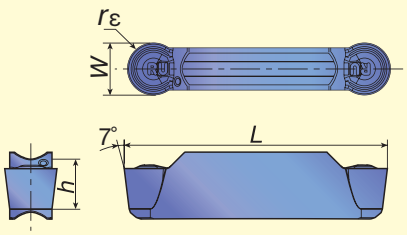
Ground



Insert seat size	Cat. No.	Grades				Dimensions (mm)			
		Coated			Cermet				
		T9125	AH725	GH130	NS9530	W±0.02	rε	L	h
3	DTR300-150	●	●	●	●	3.00	1.50	20	5.0
4	DTR400-200	●	●	●	●	4.00	2.00	20	5.0
5	DTR478-239	●	●	●	●	4.78	2.39	25	5.5
5	DTR500-250	●	●	●	●	5.00	2.50	25	5.5
6	DTR600-300	●	●	●		6.00	3.00	25	5.5

DTR Profiling and undercutting

Molded

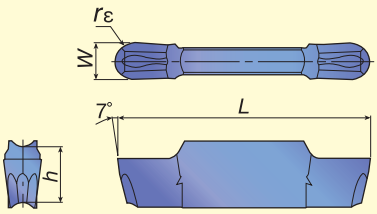


Insert seat size	Cat. No.	Grades						Dimensions (mm)			
		Coated					Cermet				
		T9125	NEW AH7025	AH725	AH905	GH130	NS9530	W±0.05	rε	L	h
3	DTR3-150	●	●	●	●	●	●	3	1.5	20	5.0
4	DTR4-200	●	●	●	●	●	●	4	2.0	20	5.0
5	DTR5-250	●	●	●	●	●	●	5	2.5	25	5.5
6	DTR6-300	●	●	●		●		6	3	25	5.5
8	DTR8-400	●		●		●		8	4	30	6.7

● : Stocked items

DTIU Profiling and undercutting

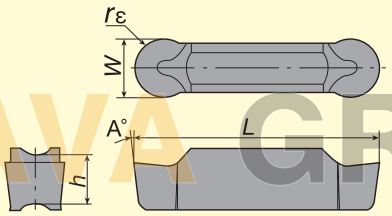
Ground



Insert seat size	Cat. No.	Grades Coated		Dimensions (mm)			
		AH725	GH130	W±0.02	rε	L	h
3	DTIU300-150	●	●	3.00	1.50	20	5.0
4	DTIU400-200	●	●	4.00	2.00	20	5.0
5	DTIU500-250	●	●	5.00	2.50	25	5.5
6	DTIU600-300	●	●	6.00	3.00	25	5.5

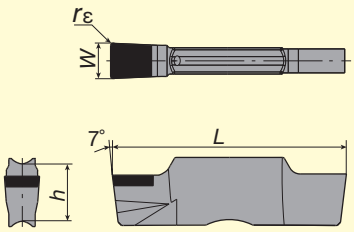
DTA Aluminium wheel machining

Ground



Insert seat size	Cat. No.	Grades Carbide	Dimensions (mm)				
		TH10	W±0.02	rε	L	h	A
6	DTA600-300	●	6.00	3.00	25	5.5	7°
8	DTA800-400	●	8.00	4.00	30	6.7	10°

SGN External grooving of hardened steels



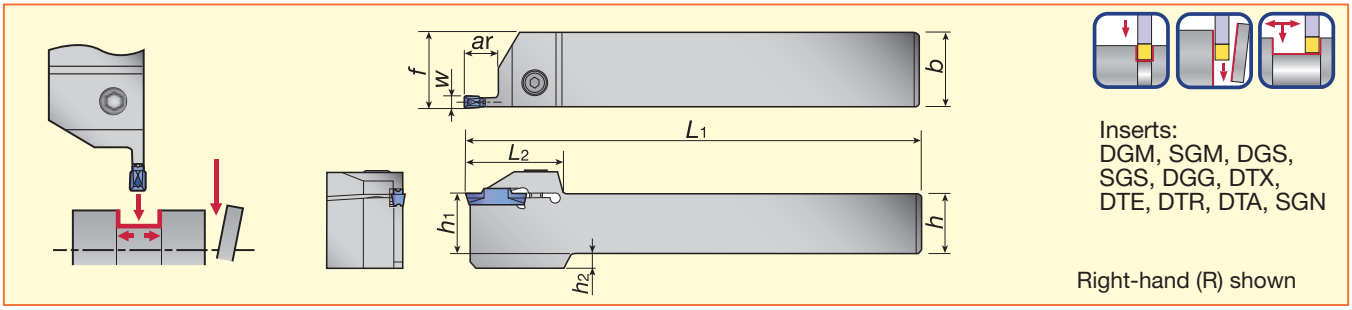
Insert seat size	Cat. No.	Grades CBN	Dimensions (mm)			
		BX360	W±0.025	rε	L	h
2	SGN200-020	●	2.00	0.2	20	5.0
3	SGN300-020	●	3.00	0.2	20	5.0
4	SGN400-020	●	4.00	0.2	20	5.0

● : Stocked items

Toolholders

Mono block type

CTER/L External grooving and turning



Inserts:
DGM, SGM, DGS, SGS, DGG, DTX, DTE, DTR, DTA, SGN

Right-hand (R) shown

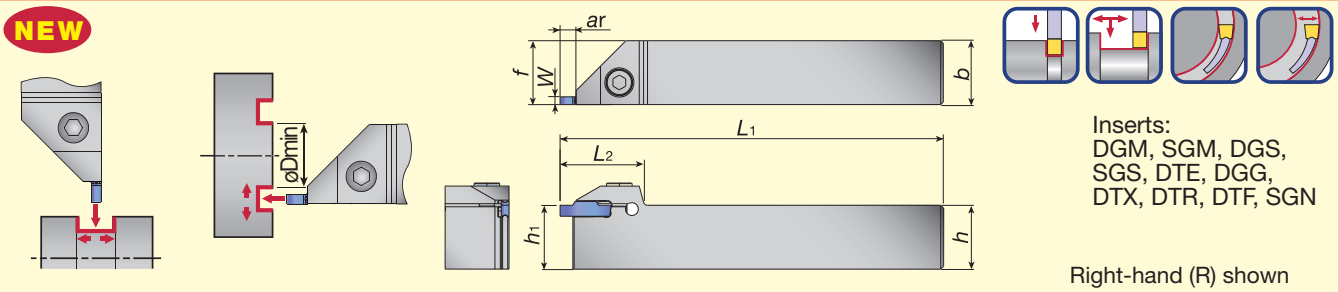
Insert seat size	Cat. No.	Stock R	Stock L	Max. groove depth[1] ar (mm)	Dimensions (mm) h1	b	h	L1	f[2]	W	h2	L2	Parts Clamping screw	Wrench
2	CTER/L1616-2T08	●	●	8	16	16	16	110	16.1	2	4	33	CM5x0.8x16-A	P-4
2	CTER/L2020-2T08	●	●	8	20	20	20	125	20.1	2	-	33	CM5x0.8x20-A	P-4
2	CTER/L2525-2T08	●	●	8	25	25	25	150	25.1	2	-	33	CM5x0.8x25-A	P-4
2	CTER/L1616-2T12	●	●	12	16	16	16	110	16.1	2	4	32	CM5x0.8x16-A	P-4
2	CTER/L2020-2T12	●	●	12	20	20	20	125	20.1	2	-	32	CM5x0.8x20-A	P-4
2	CTER/L2525-2T12	●	●	12	25	25	25	150	25.1	2	-	32	CM5x0.8x25-A	P-4
2	CTER/L1616-2T17	●	●	17	16	16	16	110	16.1	2	4	37	CM5x0.8x16-A	P-4
2	CTER/L2020-2T17	●	●	17	20	20	20	125	20.1	2	-	37	CM5x0.8x20-A	P-4
2	CTER/L2525-2T17	●	●	17	25	25	25	150	25.1	2	-	37	CM5x0.8x25-A	P-4
3	CTER/L1616-3T09	●	●	9	16	16	16	110	16.3	3	4	32	CM5x0.8x16-A	P-4
3	CTER/L2020-3T09	●	●	9	20	20	20	125	20.3	3	-	32	CM5x0.8x20-A	P-4
3	CTER/L2525-3T09	●	●	9	25	25	25	150	25.3	3	-	32	CM5x0.8x25-A	P-4
3	CTER/L2020-3T12	●	●	12	20	20	20	125	20.3	3	-	32	CM5x0.8x20-A	P-4
3	CTER/L2525-3T12	●	●	12	25	25	25	150	25.3	3	-	32	CM5x0.8x25-A	P-4
3	CTER/L1616-3T20	●	●	20	16	16	16	110	16.3	3	4	38.5	CM5x0.8x16-A	P-4
3	CTER/L2020-3T20	●	●	20	20	20	20	125	20.3	3	-	38.5	CM5x0.8x20-A	P-4
3	CTER/L2525-3T20	●	●	20	25	25	25	150	25.3	3	-	38.5	CM5x0.8x25-A	P-4
3	CTER/L2525-3T25	●	●	25	25	25	25	150	25.3	3	-	44.5	CM5x0.8x25-A	P-4
4	CTER/L1616-4T10	●	●	10	16	16	16	110	16.5	4	4	32	CM6x1x16-A	P-5
4	CTER/L2020-4T10	●	●	10	20	20	20	125	20.5	4	-	32	CM6x1x20-A	P-5
4	CTER/L2525-4T10	●	●	10	25	25	25	150	25.5	4	-	32	CM6x1x25-A	P-5
4	CTER/L2020-4T15	●	●	15	20	20	20	125	20.5	4	-	33	CM6x1x20-A	P-5
4	CTER/L2525-4T15	●	●	15	25	25	25	150	25.6	4	-	33	CM6x1x25-A	P-5
4	CTER/L1616-4T25	●	●	25	16	16	16	110	16.5	4	4	45	CM6x1x16-A	P-5
4	CTER/L2020-4T25	●	●	25	20	20	20	125	20.5	4	-	45	CM6x1x20-A	P-5
4	CTER/L2525-4T25	●	●	25	25	25	25	150	25.5	4	-	45	CM6x1x25-A	P-5
4	CTER/L3232-4T25	●	●	25	32	32	32	170	32.5	4	-	45	CM6x1x25-A	P-5
5	CTER/L2020-5T12	●	●	12	20	20	20	125	20.6	5	-	37	CM6x1x20-A	P-5
5	CTER/L2525-5T12	●	●	12	25	25	25	150	25.6	5	-	37	CM6x1x25-A	P-5
5	CTER/L2525-5T20	●	●	20	25	25	25	150	25.6	5	-	37	CM6x1x25-A	P-5
5	CTER/L2525-5T32	●	●	32	25	25	25	150	25.5	5	-	56	CM6x1x25-A	P-5
5	CTER/L3232-5T32	●	●	32	32	32	32	170	32.5	5	-	56	CM6x1x25-A	P-5
6	CTER/L2020-6T12	●	●	12	20	20	20	125	20.6	6	-	37	CM8x1.25x20-A	P-6
6	CTER/L2525-6T12	●	●	12	25	25	25	150	25.6	6	7	37	CM8x1.25x25-A	P-6
6	CTER/L2525-6T20	●	●	20	25	25	25	150	25.6	6	-	41	CM8x1.25x25-A	P-6
6	CTER/L2525-6T32	●	●	32	25	25	25	150	25.5	6	7	56	CM8x1.25x25-A	P-6
6	CTER/L3232-6T32	●	●	32	32	32	32	170	32.5	6	-	56	CM8x1.25x25-A	P-6
8	CTER/L2525-8T16	●	●	16	25	25	25	150	26.1	8	7	47	CM8x1.25x25-A	P-6
8	CTER/L2525-8T25	●	●	25	25	25	25	150	26.1	8	7	47	CM8x1.25x25-A	P-6
8	CTER/L3232-8T25	●	●	25	32	32	32	170	33.1	8	-	47	CM8x1.25x25-A	P-6
8	CTER/L2525-8T36	●	●	36	25	25	25	150	26.1	8	7	60	CM8x1.25x25-A	P-6
8	CTER/L3232-8T36	●	●	36	32	32	32	170	33.1	8	-	60	CM8x1.25x25-A	P-6

(1) When depth is deeper than insert length, 1 corner type is recommended.
(2) "*f*" value in the above table is calculated with groove width "*W*" shown in the table.

● : Stocked items

CTEFR/L External and face grooving and turning

NEW



Inserts:
DGM, SGM, DGS,
SGS, DTE, DGG,
DTX, DTR, DTF, SGN

Right-hand (R) shown

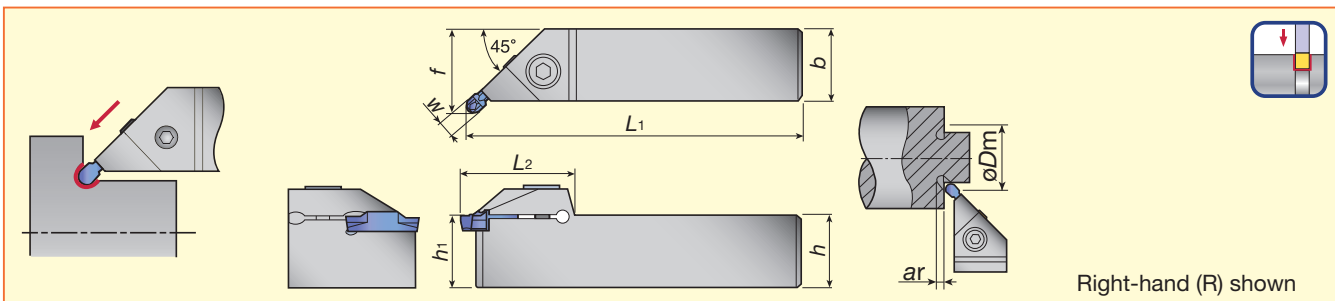
Insert seat size	Cat. No.	Stock R	Stock L	Max. groove depth ar (mm)	Dimensions (mm) h1	b	h	L1	f(2)	W	L2	Parts Clamping screw	Wrench
2, 3, 4	CTEFR/L2020-4T04	●	●	4.8	20	20	20	125	20.5	4	33	CM6x1x20-A	P-5
2, 3, 4	CTEFR/L2525-4T04	●	●	4.8	25	25	25	150	25.5	4	33	CM6x1x25-A	P-5
5, 6	CTEFR/L2020-6T04	●	●	4.8	20	20	20	125	20.6	6	37	CM6x1x20-A	P-5
5, 6	CTEFR/L2525-6T04	●	●	4.8	25	25	25	150	25.6	6	37	CM6x1x25-A	P-5

(1) "*f*" value in the above table is calculated with groove width "*W*" shown in the table.

Inserts	Groove width W (mm)	Min. dia. for face grooving øDmin (mm)
DGM / DGS / SGN	2	295
DGM / DGS / SGN	3	92
DGM / DGS / SGN	4	37
DGM / DGS	5	60
DGM / DGS	6	57
DTE / DGG	3	62
DTE / DGG	4	42
DTE / DGG	5	64
DTE / DGG	6	61

Inserts	Groove width W (mm)	Min. dia. for face grooving øDmin (mm)
DTR	3	44
DTR	4	32
DTR	5	48
DTR	6	48
DTX	3	19
DTX	4	20
DTX	5	20
DTX	6	23
DTF	3	19
DTF	4	20

CGEUR/L External undercutting



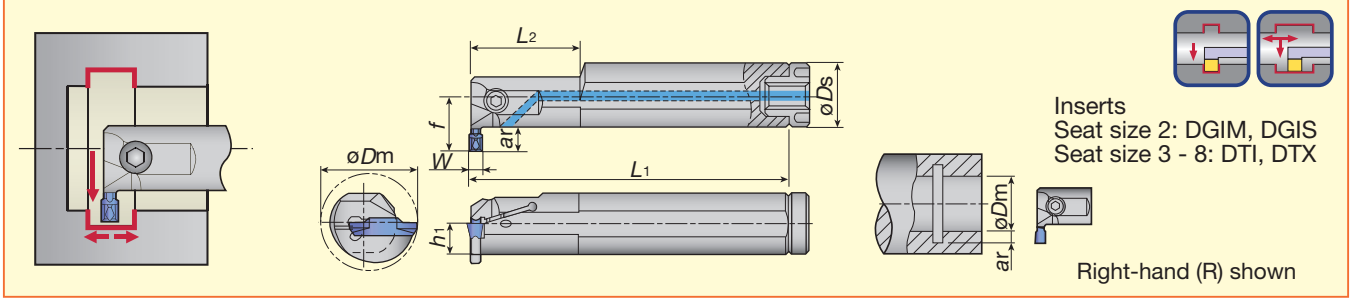
Right-hand (R) shown

Insert seat size	Cat. No.	Stock R	Stock L	Min. dia. øDm (mm)	Max. groove depth ar (mm)	Dimensions (mm) b	h	L1	f(1)	W	h1	L2	Inserts	Parts Clamping screw	Wrench
3	CGEUR/L1616-3T02	●	●	32	2.8	16	16	110	19.3	3	16	30	DTIU	CM5x0.8x16-A	P-4
3	CGEUR/L2020-3T02	●	●	32	2.8	20	20	125	23.3	3	20	30	DTIU	CM5x0.8x16-A	P-4
3	CGEUR/L2525-3T02	●	●	32	2.8	25	25	150	28.3	3	25	30	DTIU	CM5x0.8x16-A	P-4
4	CGEUR/L1616-4T02	●	●	32	2.8	16	16	110	19.5	4	16	31	DTIU	CM6x1x16-A	P-5
4	CGEUR/L2020-4T02	●	●	32	2.8	20	20	125	23.5	4	20	31	DTIU	CM6x1x20-A	P-5
4	CGEUR/L2525-4T02	●	●	32	2.8	25	25	150	28.5	4	25	31	DTIU	CM6x1x25-A	P-5
5, 6	CGEUR/L2525-6T03	●	●	34	3.4	25	25	150	28.9	6	25	35	DTIU	CM6x1x25-A	P-5

(1) "*f*" value in the above table is calculated with groove width "*W*" shown in the table.

● : Stocked items

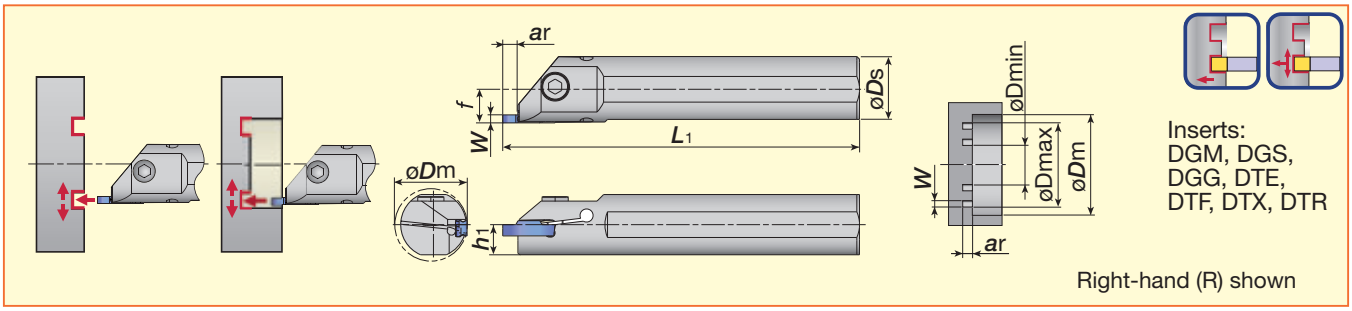
CTIR/L Internal grooving and turning



Insert seat size	Cat. No.	Stock R	Stock L	Min. dia. øDm (mm)	Max. groove depth ar (mm)	Dimensions (mm) øDs	h1	h	L1(1)	f	W	L2	Parts: Clamping screw	Wrench	Seal cap	Internal screw
2	CTIR/L16-2T08-D250	●	●	25	8	16	7.5	14	125	16.5	2	-	CM5x0.8x10-A	P-4	CA-16	M6
2	CTIR/L20-2T06-D250	●	●	25	6	20	9	18	160	15.8	2	-	CM5x0.8x12-A	P-4	CA-20	M6
3	CTIR/L20-3T06-D250	●	●	25	6	20	9	18	160	15.8	3	40	CM5x0.8x12-A	P-4	CA-20	M6
3	CTIR/L25-3T05-D250	●	●	25	5.1	25	11.5	23	200	17.5	3	40	CM5x0.8x16-A	P-4	CA-25	R1/8"
3	CTIR/L25-3T08-D320	●	●	32	8	25	11.5	23	200	21.5	3	40	CM5x0.8x16-A	P-4	CA-25	R1/8"
3	CTIR/L32-3T10-D400	●	●	40	10	32	15	30	250	27	3	60	CM5x0.8x16-A	P-4	CA-32	R1/8"
4	CTIR/L20-4T06-D250	●	●	25	6	20	9	18	160	15.8	4	40	CM5x0.8x12-A	P-4	CA-20	M6
4	CTIR/L25-4T08-D320	●	●	32	8	25	11.5	23	200	21.5	4	40	CM5x0.8x16-A	P-4	CA-25	R1/8"
4	CTIR/L32-4T04-D310	●	●	31	4	32	15	30	250	20.8	4	60	CM5x0.8x16-A	P-4	CA-32	R1/8"
4	CTIR/L32-4T10-D400	●	●	40	10	32	15	30	250	27	4	60	CM5x0.8x16-A	P-4	CA-32	R1/8"
5	CTIR/L25-5T05-D310	●	●	31	5	25	11.5	23	200	17.3	5	60	CM6x1x16-A	P-5	CA-25	R1/8"
5	CTIR/L32-5T10-D400	●	●	40	10	32	15	30	250	27	5	60	CM6x1x20-A	P-5	CA-32	R1/8"
6	CTIR/L32-6T04-D310	●	●	31	4	32	15	30	250	20.8	6	60	CM6x1x20-A	P-5	CA-32	R1/8"
6	CTIR/L32-6T10-D400	●	●	40	10	32	15	30	250	27	6	60	CM6x1x20-A	P-5	CA-32	R1/8"
8	CTIR/L32-8T05-D370	●	●	37	5	32	15	30	250	21.3	8	60	CM6x1x25-A	P-5	CA-32	R1/8"
8	CTIR/L40-8T05-D420	●	●	42	5.8	40	19	38	300	25.8	8	65	CM6x1x25-A	P-5	CA-40	R1/8"

(1) "L_1" value in the above table is calculated with groove width "W" shown in the table.

CTIFR/L Internal face grooving and turning

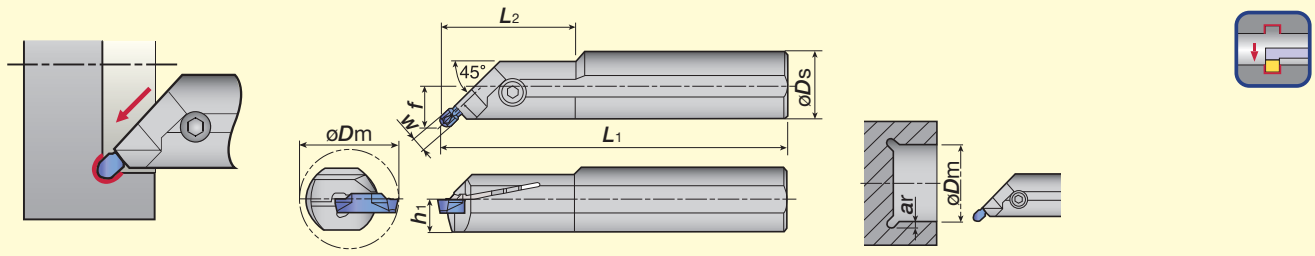


Insert seat size	Cat. No.	Stock R	Stock L	Max. groove depth ar (mm)	Dimensions (mm) øDs	h1	h	L1(1)	f	W	Parts: Clamping screw	Wrench
3, 4	CTIFR/L25-4T05-D270	●	●	5.5	25	11.5	11.5	200	13.3	4	CM6x1x16-A	P-5
3, 4	CTIFR/L32-4T05-D340	●	●	5.5	32	15	15	250	16.8	4	CM6x1x20-A	P-5
5, 6	CTIFR/L25-5T05-D270	●	●	5.5	25	11.5	11.5	200	13.3	6	CM6x1x16-A	P-5
5, 6	CTIFR/L32-5T05-D340	●	●	5.5	32	15	15	250	16.8	6	CM6x1x20-A	P-5

Insert seat size	Min. bore dia. øDm (mm) øDs = 25 mm	øDs = 32 mm	øDmin (mm) DGM, DGS, DGG	DTE	DTF / DTX	DTR	øDmax (mm)
3	26.3	33.3	92	62	19	44	∞
4	26.8	33.8	37	42	20	32	∞
5	26.3	33.3	60	64	20	48	∞
6	26.8	33.8	57	61	23	48	∞

● : Stocked items

CGIUR/L Internal undercutting

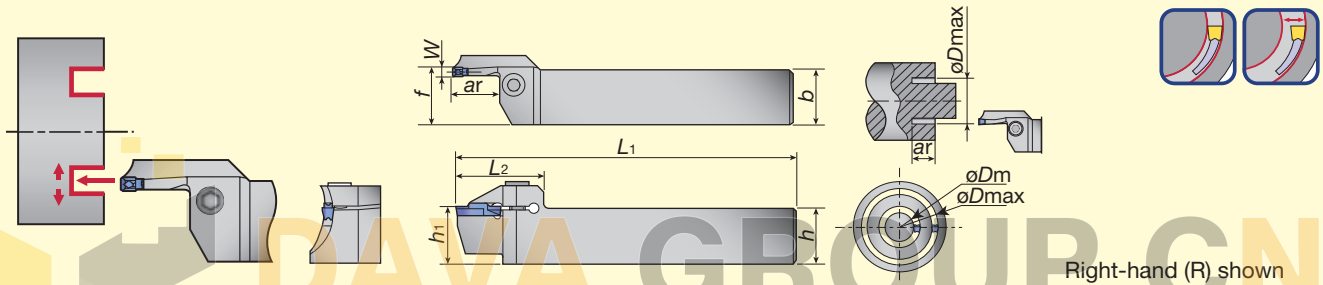


Right-hand (R) shown

Insert seat size	Cat. No.	Stock R	Stock L	Min. dia. øDm (mm)	Max. groove depth ar (mm)	Dimensions (mm) øDs	h1	h	L1	f(1)	W	L2	Inserts	Parts Clamping screw	Wrench
3	CGIUR/L 20-3T02-D380	●	●	38	2.8	20	9.5	19	160	12.8	3	-	DTIU	CM5x0.8x12-A	P-4
3	CGIUR/L 25-3T02-D380	●	●	38	2.8	25	11.5	23	200	14.8	3	40	DTIU	CM5x0.8x16-A	P-4
4	CGIUR/L 20-4T02-D380	●	●	38	2.8	20	9.5	19	160	12.9	4	-	DTIU	CM5x0.8x16-A	P-4
4	CGIUR/L 25-4T02-D460	●	●	46	2.8	25	11.5	23	200	14.9	4	40	DTIU	CM5x0.8x16-A	P-4
5, 6	CGIUR/L 25-6T02-D460	●	●	46	2.8	25	11.5	23	200	15.2	6	-	DTIU	CM6x1x16-A	P-5

(1) "*f*" value in the above table is calculated with groove width "*W*" shown in the table.

CTFR/L Face grooving and turning



Right-hand (R) shown

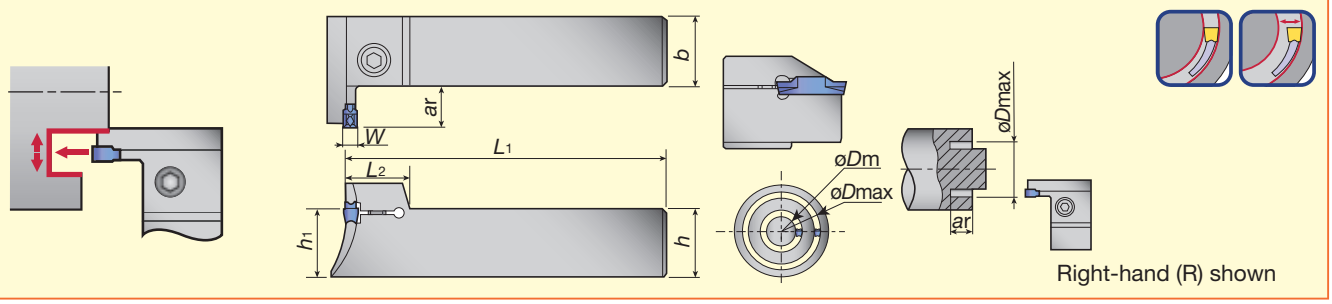
Insert seat size	Cat. No.	Stock R	Stock L	Min. dia. øDm (mm)	Max. dia. øDm (mm)	Max. groove depth(1) ar (mm)	Dimensions (mm) h1	b	h	L1	f(3)	W	L2	Parts Clamping screw	Wrench
3	CTFR/L2525-3T10-024035	●	●	24	35	10	25	25	25	150	25.5	3	38	CM6x1x25-A	P-5
3	CTFR/L2525-3T10-029040	●	●	29	40	10	25	25	25	150	25.5	3	38	CM6x1x25-A	P-5
3	CTFR/L2525-3T10-034050	●	●	34	50	10	25	25	25	150	25.5	3	38	CM6x1x25-A	P-5
3	CTFR/L2525-3T15-044070	●	●	44	70	15	25	25	25	150	25.5	3	38	CM6x1x25-A	P-5
3	CTFR/L2525-3T15-064100	●	●	64	100	15	25	25	25	150	25.5	3	38	CM6x1x25-A	P-5
4	CTFR/L2525-4T10-022036	●	●	22	36	10	25	25	25	150	25.6	4	39	CM6x1x25-A	P-5
4	CTFR/L2525-4T20-028042	●	●	28	42	20(2)	25	25	25	150	25.6	4	39	CM6x1x25-A	P-5
4	CTFR/L2525-4T20-034050	●	●	34	50	20(2)	25	25	25	150	25.6	4	39	CM6x1x25-A	P-5
4	CTFR/L2525-4T20-042070	●	●	42	70	20	25	25	25	150	25.6	4	39	CM6x1x25-A	P-5
4	CTFR/L2525-4T20-062120	●	●	62	120	20	25	25	25	150	25.6	4	39	CM6x1x25-A	P-5
4	CTFR/L2525-4T20-112200	●	●	112	200	20	25	25	25	150	25.6	4	39	CM6x1x25-A	P-5
5	CTFR/L2525-5T25-050080	●	●	50	80	25	25	25	25	150	25.6	5	49	CM8x1.25x25-A	P-6
5	CTFR/L2525-5T25-070110	●	●	70	110	25	25	25	25	150	25.6	5	49	CM8x1.25x25-A	P-6
5	CTFR/L2525-5T25-100150	●	●	100	150	25	25	25	25	150	25.6	5	49	CM8x1.25x25-A	P-6
5	CTFR/L2525-5T25-140200	●	●	140	200	25	25	25	25	150	25.6	5	49	CM8x1.25x25-A	P-6
6	CTFR/L2525-6T25-048070	●	●	48	70	25	25	25	25	150	25.6	6	49	CM8x1.25x25-A	P-6
6	CTFR/L2525-6T25-058100	●	●	58	100	25	25	25	25	150	25.6	6	49	CM8x1.25x25-A	P-6
6	CTFR/L2525-6T25-088180	●	●	88	180	25	25	25	25	150	25.6	6	49	CM8x1.25x25-A	P-6
6	CTFR/L2525-6T25-168400	●	●	168	400	25	25	25	25	150	25.6	6	49	CM8x1.25x25-A	P-6

Insert seat size	Cat. No.	Inserts
3	CTFR/L2525-3T10-024035	DTF, DTX
3	CTFR/L2525-3T10-029040	DTF, DTX
3	CTFR/L2525-3T10-034050	DTF, DTX
3	CTFR/L2525-3T15-044070	DTF, DTX, DTE, DTR
3	CTFR/L2525-3T15-064100	DTF, DTX, DTE, DGG, DGM, DGS, DTR
4	CTFR/L2525-4T10-022036	DTF, DTX
4	CTFR/L2525-4T20-028042	DTF, DTX
4	CTFR/L2525-4T20-034050	DTF, DTX
4	CTFR/L2525-4T20-042070	DTF, DTX, DTE, DGG, DGM, DGS, DTR
4	CTFR/L2525-4T20-062120	DTF, DTX, DTE, DGG, DGM, DGS, DTR
4	CTFR/L2525-4T20-112200	DTF, DTX, DTE, DGG, DGM, DGS, DTR
5	CTFR/L2525-5T25-...	DTX, DTE, DGG, DGM, DGS, DTR
6	CTFR/L2525-6T25-...	DTX, DTE, DGG, DGM, DGS, DTR

(1) When depth is deeper than insert length, 1 corner type is recommended.
(2) When DTF insert is installed, Max. "ar" should be 15 mm.
(3) "*f*" value in the above table is calculated with groove width "*W*" shown in the table.

● : Stocked items

CTFVR/L Face grooving and turning



Right-hand (R) shown

Insert seat size	Cat. No.	Stock R	Stock L	Min. dia. øDm (mm)	Max. dia. øDm (mm)	Max. groove depth ar (mm)	Dimensions (mm) h1	b	h	L1	W	L2	Parts Clamping screw	Wrench
3	CTFVR/L2525-3T10-024035	●	●	24	35	10	25	25	25	150	3	18	CM5x0.8x25-A	P-4
3	CTFVR/L2525-3T10-029040	●	●	29	40	10	25	25	25	150	3	18	CM5x0.8x25-A	P-4
3	CTFVR/L2525-3T10-034050	●	●	34	50	10	25	25	25	150	3	18	CM5x0.8x25-A	P-4
3	CTFVR/L2525-3T15-044060	●	●	44	60	15	25	25	25	150	3	18	CM5x0.8x25-A	P-4
3	CTFVR/L2525-3T15-054085	●	●	54	85	15	25	25	25	150	3	18	CM5x0.8x25-A	P-4
4	CTFVR/L2525-4T12-022040	●	●	22	40	12	25	25	25	150	4	18.5	CM6x1x25-A	P-5
4	CTFVR/L2525-4T15-032050	●	●	32	50	15	25	25	25	150	4	18.5	CM6x1x25-A	P-5
4	CTFVR/L2525-4T15-042060	●	●	42	60	15	25	25	25	150	4	18.5	CM6x1x25-A	P-5
4	CTFVR/L2525-4T15-052085	●	●	52	85	15	25	25	25	150	4	18.5	CM6x1x25-A	P-5
5	CTFVR/L2525-5T20-050080	●	●	50	80	20	25	25	25	150	5	22	CM8x1.25x25-A	P-6
5	CTFVR/L2525-5T20-070110	●	●	70	110	20	25	25	25	150	5	22	CM8x1.25x25-A	P-6
5	CTFVR/L2525-5T20-100150	●	●	100	150	20	25	25	25	150	5	22	CM8x1.25x25-A	P-6
5	CTFVR/L2525-5T20-140200	●	●	140	200	20	25	25	25	150	5	22	CM8x1.25x25-A	P-6
6	CTFVR/L2525-6T20-048085	●	●	48	85	20	25	25	25	150	6	22	CM8x1.25x25-A	P-6
6	CTFVR/L2525-6T20-073150	●	●	73	150	20	25	25	25	150	6	22	CM8x1.25x25-A	P-6
6	CTFVR/L2525-6T20-138250	●	●	138	250	20	25	25	25	150	6	22	CM8x1.25x25-A	P-6

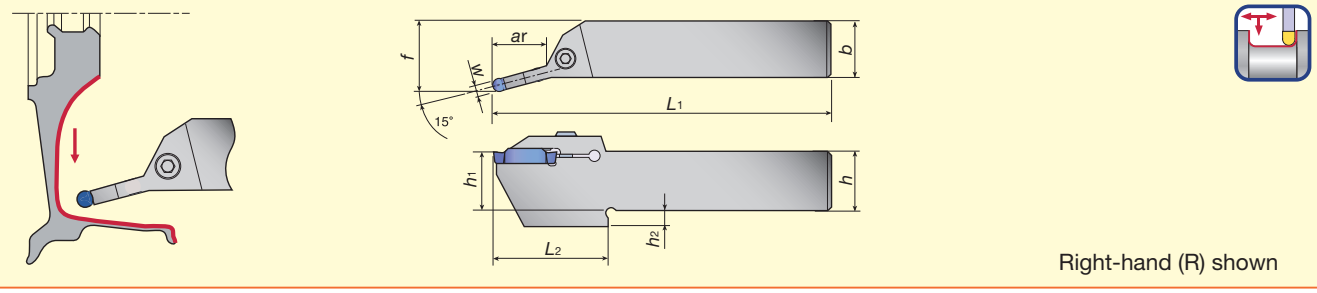
Insert seat size	Cat. No.	Inserts
3	CTFVR/L2525-3T10-024035	DTF, DTX
3	CTFVR/L2525-3T10-029040	DTF, DTX
3	CTFVR/L2525-3T10-034050	DTF, DTX, DTR
3	CTFVR/L2525-3T15-044060	DTF, DTX, DTE, DTR
3	CTFVR/L2525-3T15-054085	DTF, DTX, DTE, DGG, DGM, DGS, DTR
4	CTFVR/L2525-4T12-022040	DTF, DTX
4	CTFVR/L2525-4T15-032050	DTF, DTX
4	CTFVR/L2525-4T15-042060	DTF, DTX, DTE, DGG, DGM, DGS, DTR
4	CTFVR/L2525-4T15-052085	DTF, DTX, DTE, DGG, DGM, DGS, DTR
5	CTFVR/L2525-5T20-...	DTX, DTE, DGG, DGM, DGS, DTR
6	CTFVR/L2525-6T20-...	DTX, DTE, DGG, DGM, DGS, DTR

(1) Min. diameter øDm of DTE, DGS and DGM insert

Inserts	øDm (mm)	Note
DTE3 / DGS3 / DGM3	ø92	When diameter is smaller than øDm, DTF or DTX type insert is recommended.
DTE4 / DGS4 / DGM4	ø42	

● : Stocked items

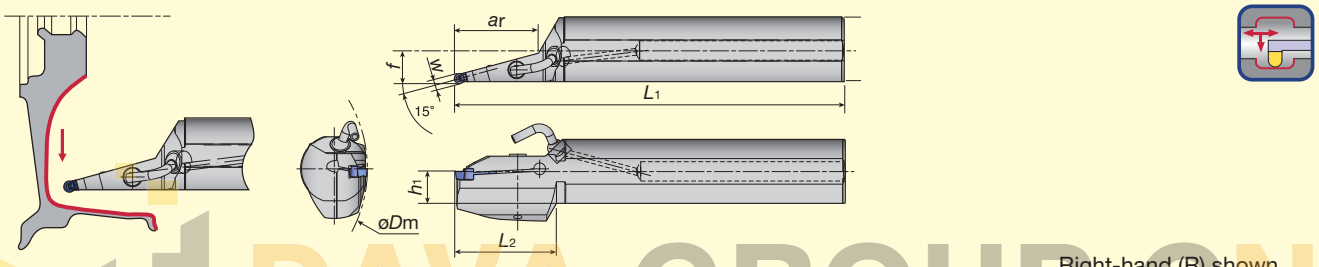
CTER/L-15A Internal profiling for aluminium wheel machining



Right-hand (R) shown

Insert seat size	Cat. No.	Stock R	Stock L	Max. groove depth ar (mm)	Dimensions (mm) h1	b	h	h2	L1	f	W	L2	Inserts	Parts Clamping screw	Parts Wrench
6	CTER/L2525-6T25-15A	●	●	25	25	25	25	7	150	32.2	6	50.5	DTA	CM6x1x25-A	P-5
8	CTER/L2525-8T30-15A	●	●	30	25	25	25	7	150	32.9	8	55	DTA	CM6x1x25-A	P-5

CGIUR/L-15A Internal profiling for aluminium wheel machining



Right-hand (R) shown

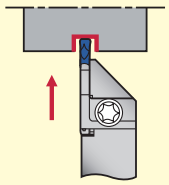
Insert seat size	Cat. No.	Stock R	Stock L	Min. dia. øDm (mm)	Max. groove depth ar (mm)	Dimensions (mm) øDs	h1	h	L1	f	W	L2	Inserts	Parts Clamping screw	Parts Wrench	Parts Seal cap	Parts Internal screw
6	CGIUR/L40-6T50-D160-15A	●	●	160	50	40	19	38.5	320	19.7	6	60	DTA	CM6x1x25-A	P-5	CA-40	R1/8"
8	CGIUR/L40-8T83-D160-15A	●	●	160	83	40	19	38.5	320	20.5	8	85	DTA	CM6x1x25-A	P-5	CA-40	R1/8"
6	CGIUR/L50-6T85-D200-15A	●	●	200	85	50	23.5	48.5	350	25.2	6	85	DTA	CM6x1x25-A	P-5	CA-40	R1/8"
8	CGIUR/L50-8T85-D200-15A	●	●	200	85	50	23.5	48.5	350	25.9	8	85	DTA	CM6x1x25-A	P-5	CA-40	R1/8"

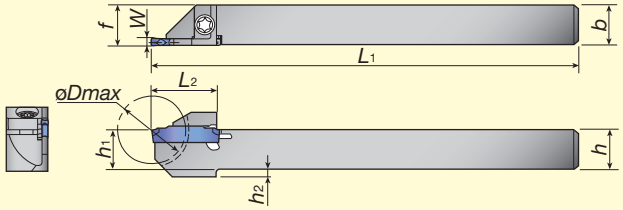
Nozzle parts

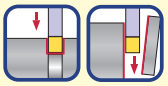
Coolant pipe	Coolant nozzle
PNZ5	CNZ125

● : Stocked items

JCTER/L Grooving for small lathes







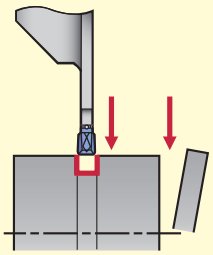
Inserts
Seat size 1: DGS1.4-016
Seat size 2, 3: DGM, SGM, DGS, SGS, DGE, DTE, DGG

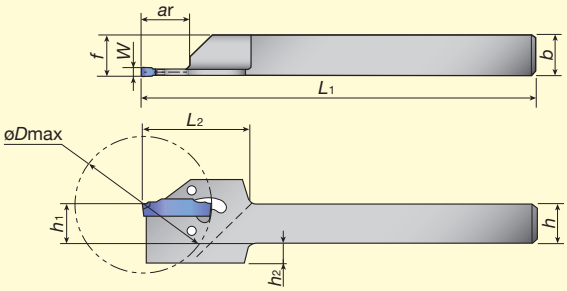
Right-hand (R) shown

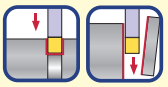
Insert seat size	Cat. No.	Stock R	Stock L	Max. dia. øDm (mm)	Dimensions (mm) h_1	b	h	L_1	$f^{(1)}$	W	h_2	L_2	Parts Clamping screw	Parts Wrench
1	JCTER/L1010-1.4T10	●	●	20	10	10	10	125	10.2	1.4	-	18	CSHB-4-A	T-15F
2	JCTER/L1010-2T10	●	●	20	10	10	10	125	10.1	2	2	19	CSHB-4-A	T-15F
1	JCTER/L1212-1.4T12	●	●	24	12	12	12	125	12.2	1.4	-	19.5	CSHB-4-A	T-15F
2	JCTER/L1212-2T12	●	●	24	12	12	12	125	12.1	2	2	19	CSHB-4-A	T-15F
3	JCTER/L1212-3T12	●	●	24	12	12	12	125	12.3	3	2	19	CSHB-4-A	T-15F
1	JCTER/L1414-1.4T12	●	●	24	14	14	14	125	14.2	1.4	-	19.5	CSHB-4-A	T-15F
2	JCTER/L1414-2T12	●	●	24	14	14	14	125	14.1	2	-	19	CSHB-4-A	T-15F
1	JCTER/L1616-1.4T16	●	●	32	16	16	16	125	16.2	1.4	-	24	CSHB-4-A	T-15F
2	JCTER/L1616-2T16	●	●	32	16	16	16	125	16.1	2	-	24	CSHB-4-A	T-15F
3	JCTER/L1616-3T16	●	●	32	16	16	16	125	16.3	3	-	24	CSHB-4-A	T-15F
3	JCTER/L2020-3T16	●	●	32	20	20	20	125	20.3	3	-	24	CSHB-4-A	T-15F
1	JCTER/L1010X1.4T10	●	●	20	10	10	10	120	10.2	1.4	-	18	CSHB-4-A	T-15F
2	JCTER/L1010X2T10	●	●	20	10	10	10	120	10.1	2	2	19	CSHB-4-A	T-15F
1	JCTER/L1212F1.4T12	●	●	24	12	12	12	85	12.2	1.4	-	19.5	CSHB-4-A	T-15F
1	JCTER/L1212X1.4T12	●	●	24	12	12	12	120	12.2	1.4	-	19.5	CSHB-4-A	T-15F
2	JCTER/L1212F2T12	●	●	24	12	12	12	85	12.1	2	2	19	CSHB-4-A	T-15F
2	JCTER/L1212X2T12	●	●	24	12	12	12	120	12.1	2	2	19	CSHB-4-A	T-15F
3	JCTER/L1212F3T12	●	●	24	12	12	12	85	12.3	3	2	19	CSHB-4-A	T-15F
3	JCTER/L1212X3T12	●	●	24	12	12	12	120	12.3	3	2	19	CSHB-4-A	T-15F
1	JCTER/L1616X1.4T16	●	●	32	16	16	16	120	16.2	1.4	-	24	CSHB-4-A	T-15F
2	JCTER/L1616X2T16	●	●	32	16	16	16	120	16.1	2	-	24	CSHB-4-A	T-15F
3	JCTER/L1616X3T16	●	●	32	16	16	16	120	16.3	3	-	24	CSHB-4-A	T-15F
3	JCTER/L2020H3T16	●	●	32	20	20	20	100	20.3	3	-	24	CSHB-4-A	T-15F

(1) "*f*" value in the above table is calculated with groove width "*W*" shown in the table.

CGER/L Deep grooving and parting off







Inserts:
Seat size 1 = DGS1.4-016
Seat size 2, 3, 4 = DGM, SGM, DGS, SGS, SGN, DGG

Right-hand (R) shown

Insert seat size	Cat. No.	Stock R	Stock L	Max. dia. øDm (mm) DGS/M	Max. dia. øDm (mm) SGS/M	Max. groove depth ar (mm)	Dimensions (mm) h_1	b	h	L_1	$f^{(1)}$	W	h_2	L_2	Parts Wrench$^{(2)}$
1	CGER/L2020-1.4T14	●	●	29	29	9.7	20	20	20	125	20.2	1.4	-	30	CRW23
2	CGER/L1212-2T17	●	●	35	35	11.8	12	12	12	150	12.1	2	6	30	CRW33
2	CGER/L1616-2T17	●	●	35	35	11.8	16	16	16	150	16.1	2	2	30	CRW33
2	CGER/L2020-2T17	●	●	35	35	9.8	20	20	20	125	20.1	2	-	30	CRW33
3	CGER/L1212-3T19	●	●	38	40	12	12	12	12	150	12.3	3	6	30	CRW33
3	CGER/L1616-3T19	●	●	38	45	14.9	16	16	16	150	16.3	3	2	30	CRW33
3	CGER/L2020-3T19	●	●	38	45	13.2	20	20	20	125	20.3	3	-	30	CRW33
4	CGER/L2020-4T19	●	●	38	55	20.3	20	20	20	125	20.4	4	-	32	CRW33

(1) "*f*" value in the above table is calculated with groove width "*W*" shown in the table.
(2) Wrench, CRW□□, should be ordered separately. Please see information below about wrench usage.

● : Stocked items

CGP blades

CGP Deep grooving and parting off

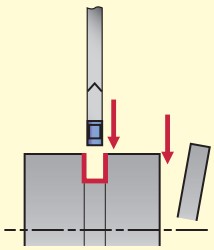


Fig. 1

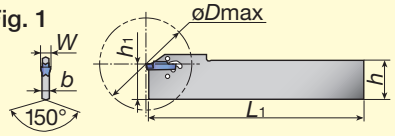


Fig. 2

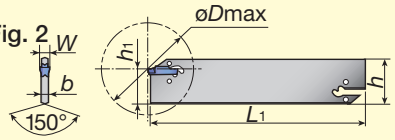
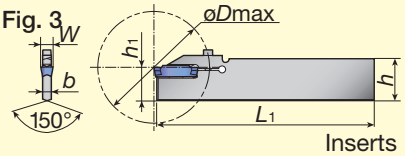
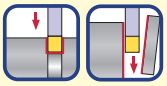


Fig. 3





Inserts
Seat size 1: DGS1.4-016
Seat size 2 - 6: SGM, SGS, DGM(2), DGS(2), DTX(2), DGG
Seat size 8: DGM8-040

Right-hand (R) shown

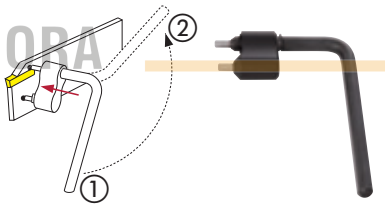
Insert seat size	Cat. No.	Stock	*Max. parting off dia. øDm (mm)	Dimensions (mm)					Parts		Fig.
				h_1	b	h	L_1	W	Clamping screw	Wrench(3)	
1	CGP26-1.4S	●	26	21.4	1	26	150	1.4	-	CRW23	1
1	CGP32-1.4D	●	26	24.8	1	32	150	1.4		CRW23	2
2	CGP26-2S	●	40	21.4	1.8	26	150	2	-	CRW33	1
2	CGP32-2D	●	50	24.8	1.8	32	150	2		CRW33	2
3	CGP26-3S	●	50	21.4	2.4	26	150	3	-	CRW33	1
3	CGP32-3D	●	100	24.8	2.4	32	150	3		CRW33	2
4	CGP26-4S	●	80	21.4	3.2	26	150	4	-	CRW33	1
4	CGP32-4D	●	100	24.9	3.2	32	150	4		CRW33	2
4	CGP45-4D	●	120	38.1	3.2	45	150	4		CRW33	2
5	CGP32-5D	●	120	24.9	4	32	150	5	-	CRW33	2
6	CGP32-6D	●	120	24.9	5.2	32	150	6	-	CRW33	2
8	CGP32-8S-CL(1)	●	80	24.9	6.2	32	150	8	CM4x0.7x20-M0-A	P-3	3

(1) Max groove depth is 28.5 mm.
(2) When depth is deeper than insert length, 1 corner type is recommended.
(3) Wrench, CRW□□, should be ordered separately.

Caution

Newly developed wrench

Insert is clamped by the elastic deformation of upper jaw.
Low clamping stress increases the stability and tool life.

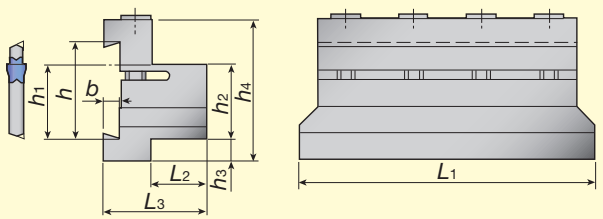


① → ② : unclamp
② → ① : clamp

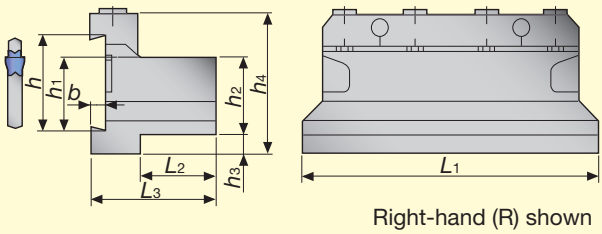
Tool block for CGP blades

CTBF / CTBU Deep grooving and parting off

CTBF type



CTBU type



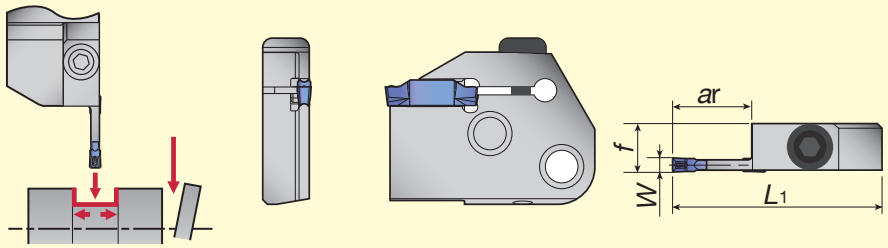
Right-hand (R) shown

Cat. No.	Stock	Dimensions (mm)									Blade	Parts		
		h_1	b	h	L_1	h_2	h_3	h_4	L_2	L_3		Clamping screw	Clamp	Wrench
CTBF25-45	●	38.1	5.5	45	110	25	25	66	22	40	CGP	CM6x1.0x40-A	-	P-5
CTBF32-45	●	38.1	5.5	45	120	32	18	66	28	45	CGP	CM6x1.0x40-A	-	P-5
CTBU20-26	●	21.4	4	26	86	20	9	43	21	38	CGP	CM6x30-S	CT-86	P-5
CTBU25-26	●	21.4	4	26	110	25	5	45	23	42	CGP	CM6x30-S	CT-105	P-5
CTBU20-32	●	24.8	5.3	32	100	20	13	50	19	38	CGP	CM6x30-S	CT-100	P-5
CTBU25-32	●	24.8	5.3	32	110	25	8	50	23	42	CGP	CM6x30-S	CT-110	P-5
CTBU32-32	●	24.8	5.3	32	110	32	5	54	29	48	CGP	CM6x30-S	CT-110	P-5

● : Stocked items

Blades (For general purpose)

CAER/L External grooving and turning

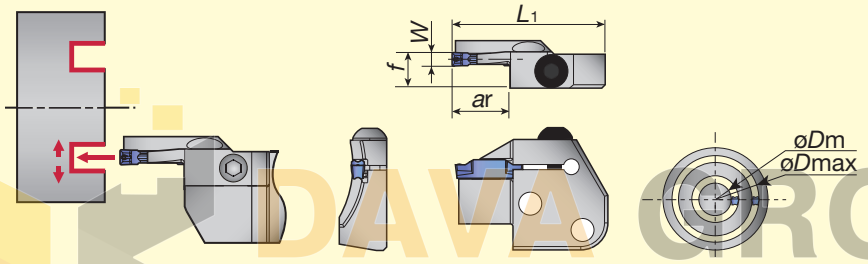


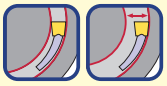
Inserts: DGS, SGS, DGM, SGM, DTX, DTE, DGG, DTR, SGN
Shanks: CHFVR/L, CHSR/L

Right-hand (R) shown

Insert seat size	Cat. No.	Stock R	Stock L	*Max. groove depth ar (mm)	Dimensions (mm) L_1	Dimensions (mm) f	Dimensions (mm) W	Parts Clamping screw	Parts Wrench
3	CAER/L-3T16	●	●	16	45	10.4	3	BHM6-20-A	P-4
4	CAER/L-4T16	●	●	16	45	10.5	4	BHM6-20-A	P-4
5	CAER/L-5T20	●	●	20	49	10.5	5	BHM6-20-A	P-4
6	CAER/L-6T20	●	●	20	49	10.5	6	BHM6-20-A	P-4

CAFR/L Face grooving and turning





Inserts[5]
CAFR/L-3T12-040055: DTF
Seat size 3[3] - 6: DTF[4], DTE, DGG, DTX, DGS, DGM, DTR
Shanks: CHFVR/L, CHSR/L

Right-hand (R) shown

Insert seat size	Cat. No.	Stock R	Stock L	Min. dia. øDm (mm)	Max. dia. øDm (mm)	Max. groove depth ar (mm)	Dimensions (mm) L_1	Dimensions (mm) f[2]	Dimensions (mm) W	Parts Clamping screw	Parts Wrench
3	CAFR/L-3T12-040055	●	●	40	55	12	45	10.4	3	BHM6-20-A	P-4
3	CAFR/L-3T12-055075	●	●	55	75	12	45	10.4	3	BHM6-20-A	P-4
3	CAFR/L-3T12-075100	●	●	75	100	12	45	10.4	3	BHM6-20-A	P-4
3	CAFR/L-3T12-100140	●	●	100	140	12	45	10.4	3	BHM6-20-A	P-4
3	CAFR/L-3T12-140200	●	●	140	200	12	45	10.4	3	BHM6-20-A	P-4
4	CAFR/L-4T16-050070	●	●	50	70	16	45	10.5	4	BHM6-20-A	P-4
4	CAFR/L-4T16-070100	●	●	70	100	16	45	10.5	4	BHM6-20-A	P-4
4	CAFR/L-4T16-100150	●	●	100	150	16	45	10.5	4	BHM6-20-A	P-4
4	CAFR/L-4T16-150250	●	●	150	250	16	45	10.5	4	BHM6-20-A	P-4
5	CAFR/L-5T20-055080	●	●	55	80	20	49	10.5	5	BHM6-20-A	P-4
5	CAFR/L-5T20-080120	●	●	80	120	20	49	10.5	5	BHM6-20-A	P-4
5	CAFR/L-5T20-120180	●	●	120	180	20	49	10.5	5	BHM6-20-A	P-4
5	CAFR/L-5T20-180300	●	●	180	300	20	49	10.5	5	BHM6-20-A	P-4
5	CAFR/L-5T20-300000	●	●	300	∞	20	49	10.5	5	BHM6-20-A	P-4
6	CAFR/L-6T25-060090	●	●	60	90	25[1]	55	10.5	6	BHM6-20-A	P-4
6	CAFR/L-6T25-090150	●	●	90	150	25[1]	55	10.5	6	BHM6-20-A	P-4
6	CAFR/L-6T25-150250	●	●	150	250	25[1]	55	10.5	6	BHM6-20-A	P-4
6	CAFR/L-6T25-250400	●	●	250	400	25[1]	55	10.5	6	BHM6-20-A	P-4

(1) When depth is deeper than insert length, 1 corner type is recommended.
(2) "*f*" value in the above table is calculated with groove width "*W*" shown in the table.
(3) Not applicable for CAFR/L-3T12-040055
(4) Seat sizes of DTF are only 3 and 4.

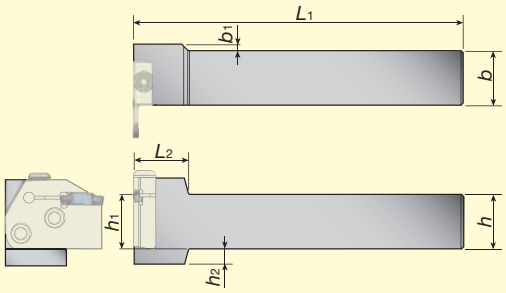
(5) Min. diameter ø*D*m of DTE, DGS and DGM insert

Inserts	ø*D*m (mm)	Note
DTE 3 / DGS 3 / DGM 3	ø92	When diameter is smaller than ø*D*m, DTF or DTX type insert is recommended.
DTE 4 / DGS 4 / DGM 4	ø42	
DTE 5 / DGS 5 / DGM 5	ø64	
DTE 6 / DGS 6 / DGM 6	ø61	

● : Stocked items

Toolholders for blades

CHFVR/L Horizontal type

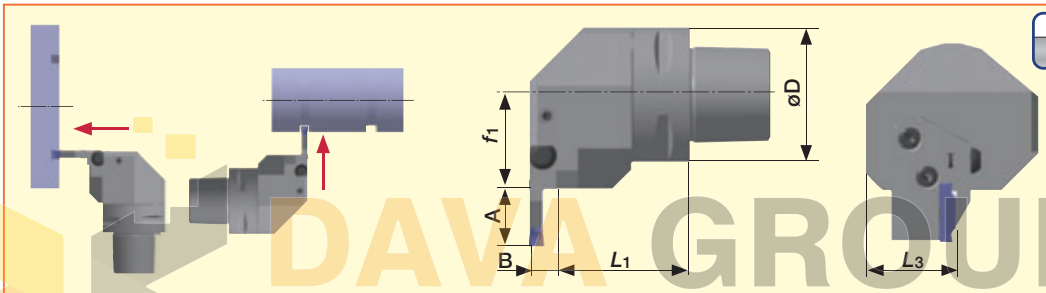


Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)							Parts	
	R	L	h_1	b	h	L_1	b_1	h_2	L_2	Clamping screw	Wrench
CHFVR/L2020	●	●	20	20	20	150	8	12	25	CSHB-6-A	P-4
CHFVR/L2525	●	●	25	25	25	150	3	7	25	CSHB-6-A	P-4
CHFVR/L3232	●	●	32	32	32	170	-	-	25	CSHB-6-A	P-4

*Note: **Blades** = CAER/L, CAFR/L

C-CHFVR/L TUNGCAP Horizontal type



Right-hand (R) shown

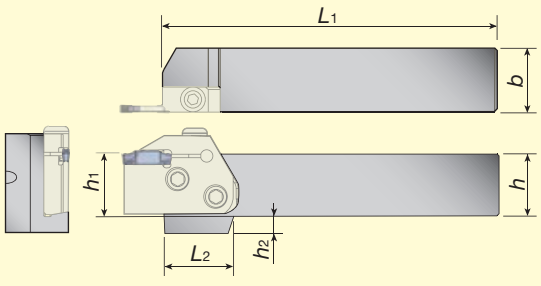
Cat. No.	Stock		Dimensions (mm)						Clamping screw	Wrench	Coolant nozzle	Coolant pipe
	R	L	øD	L_1	A*	L_3	f_1	B*				
C4CHFVR/L27050N (2)			40	42.5	Table 1	36	27	Table 1	CSHB-6-A	P-4	(4)	-
C5CHFVR/L35060 (1)	●	●	50	49.5	Table 1	36	35	Table 1	CSHB-6-A	P-4	(3)	PNZ5
C5CHFVR/L35060N (2)	●	●	50	49.5	Table 1	36	35	Table 1	CSHB-6-A	P-4	(4)	-
C6CHFVR/L45065 (1)	●	●	63	54.5	Table 1	41	45	Table 1	CSHB-6-A	P-4	(3)	PNZ5
C6CHFVR/L45065N (2)	●	●	63	54.5	Table 1	41	45	Table 1	CSHB-6-A	P-4	(4)	-

(1) Capable for normal pressure coolant
(2) Capable for 7Mpa coolant pressure
(3) CNZ125 (4) SATZ-M10X1-M5
A*, B*: Please refer to the next page.

Combination of blade and toolholder

Toolholders	Blades			
	CAER□□□	CAEL□□□	CAFR□□□	CAFL□□□
CHFVR***		●	●	
CHFVL***	●			●

CHSR/L Vertical type



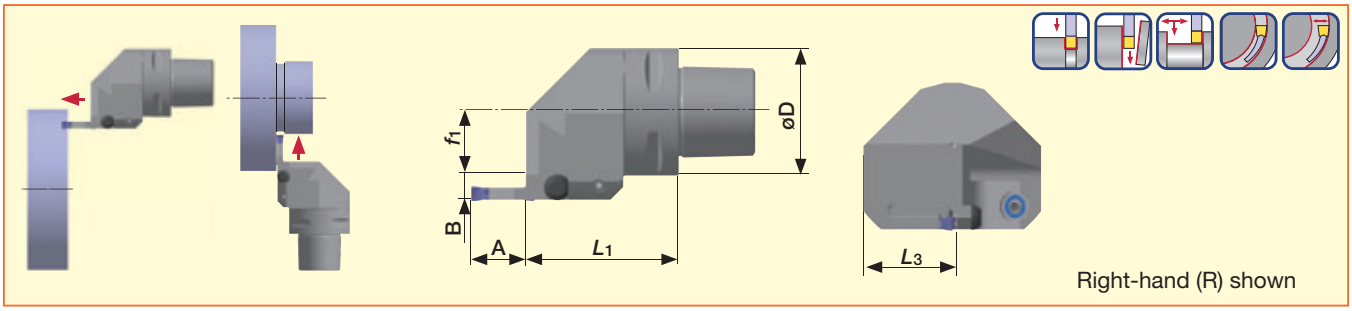
Blades: CAER/L, CAFR/L

Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)						Parts	
	R	L	h_1	b	h	L_1	h_2	L_2	Clamping screw	Wrench
CHSR/L2020	●	●	20	20	20	133	12	35	CSHB-6-A	P-4
CHSR/L2525	●	●	25	25	25	133	7	28	CSHB-6-A	P-4
CHSR/L3232	●	●	32	32	32	153	-	28	CSHB-6-A	P-4

● : Stocked items

C-CHSR/L TUNGCAP Vertical type



Right-hand (R) shown

Cat. No.	Stock R	Stock L	Dimensions (mm) øD	L1	A*	L3	f1	B*	Clamping screw	Wrench	Coolant nozzle	Coolant pipe
C4CHSR/L27050N (2)	●	●	40	50	Table 1	36	16.5	Table 1	CSHB-6-A	P-4	(4)	-
C5CHSR/L35060 (1)	●	●	50	60	Table 1	36	24.5	Table 1	CSHB-6-A	P-4	(3)	PNZ5
C5CHSR/L35060N (2)	●	●	50	60	Table 1	36	24.5	Table 1	CSHB-6-A	P-4	(4)	-
C6CHSR/L45065 (1)		●	63	65	Table 1	41	34.5	Table 1	CSHB-6-A	P-4	(3)	PNZ5
C6CHSR/L45065N (2)	●	●	63	65	Table 1	41	34.5	Table 1	CSHB-6-A	P-4	(4)	-

(1) Capable for normal pressure coolant
(2) Capable for 7Mpa coolant pressure
(3) CNZ125
(4) SATZ-M10X1-M5

● : Stocked items
★ : Available in 2015

Combination of blade and toolholder

Toolholders	Blades CAER□□□	CAEL□□□	CAFR□□□	CAFL□□□
CHSR***	●			●
CHSL***		●	●	

Table 1

Offset dimensions for blade

Application	Blades	Dimensions (mm) A*	B*
For external grooving	CAER/L-3T16	16	10.4
	CAER/L-4T16	16	10.5
	CAER/L-5T20	20	10.5
	CAER/L-6T20	20	10.5
For face grooving	CAFR/L-3T12-*	12	10.4
	CAFR/L-4T16-*	16	10.5
	CAFR/L-5T20-*	20	10.5
	CAFR/L-6T20-*	25	10.5

Notice in “turning”

When turning, the insert is pushed by the directional cutting force feed. As a result of this condition the diameter of the workpiece may change. (see Fig. 1) In such cases, trial cutting is essential to measure the actual diameter. For your reference, sample of compensated values are shown in Fig. 2.

Fig. 1

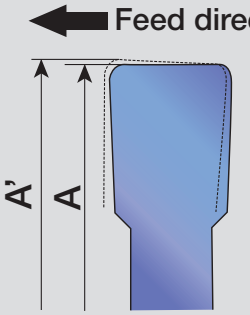
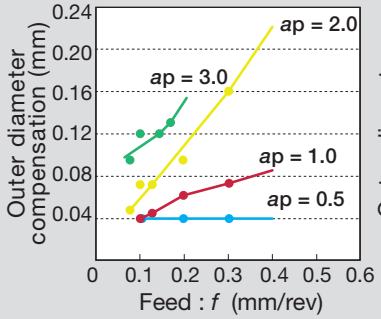
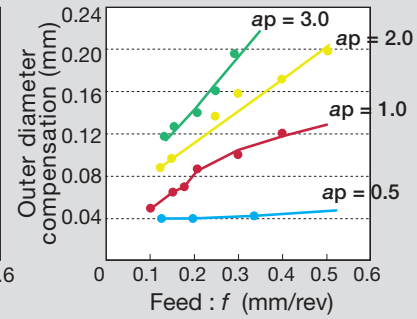


Fig. 2 Value of compensation

Insert : DTE300-040
Toolholder : CTER2525-3T09



Insert : DTE400-040
Toolholder : CTER2525-4T10



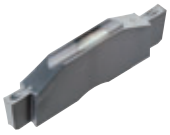
Guideline for ordering special inserts

Specially designed inserts are available upon request.

Acceptable specification

- *Specialized inserts must be manufactured from the main insert styles shown below.*
- *AH725, GH130 and TH10 grades are available.*

※ *Please contact Tungaloy for more details.*

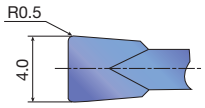
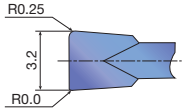
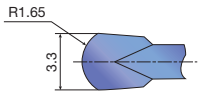
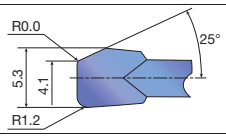
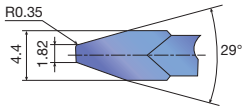
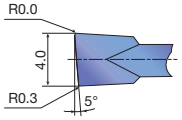
External grooving & turning		Internal grooving & turning	Profiling & undercutting	
DTE (Ground)	**DGE (Ground)**	**DTI (Ground)**	**DTR (Ground)**	**DTIU (Ground)**
				

Designation system for special inserts (sample)

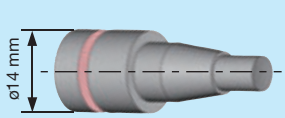
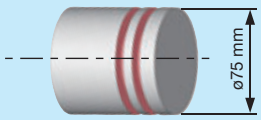
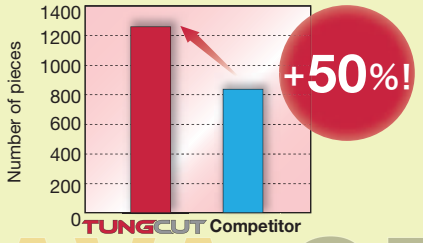
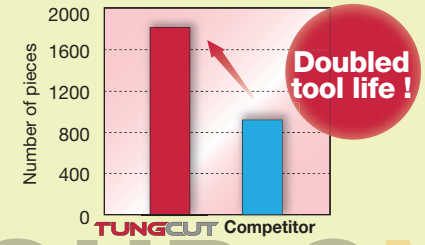
DTE 320 - 000R-025L AH725

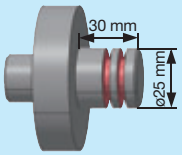
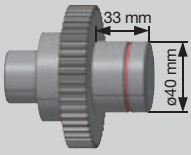
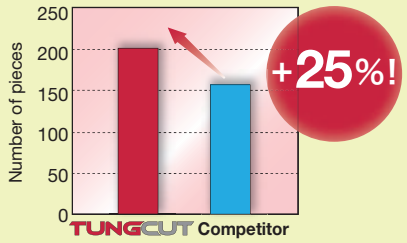
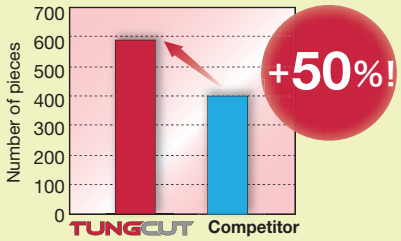
1. Main style of insert
2. Max. width of insert
3. Additional codes
4. Grade

Sample of shape

Shape	Samples of designation	Note
	**DTE400-050 GH130**	Main style: DTE type Special corner radius
	**DTE320-000R 025L AH725**	Main style: DTE type Special corner radius, asymmetric type
	**DTR330-165 TH10**	Main style: DTR type Full radius type with special insert width
	**DTE530-120R-25LA TH10**	Main style: DTE type Special figure of groove, asymmetric type
	**DTE440-035-29A TH10**	Main style: DTE type Special figure of groove
	**DTE400-030R-005RA TH10**	Main style: DTE type Right handed insert with special angle and corner radius.

Practical examples

Workpiece type		Automotive parts	Machine parts
Toolholder		CTER1616-2T08	CTER2525-4T10
Insert		DGM2-020	DGM4-030
Grade		AH725	AH725
Workpiece material		SCr440 / 41Cr4	SCr440 / 41Cr4
		 P	 P
Cutting conditions	Grooving width: *W* (mm)	2	4
	Cutting speed: *Vc* (m/min)	94	150
	Feed: *f* (mm/rev)	0.08	0.10
	Machining	Parting off	Grooving
	Cutting edge depth (mm)	-	6
	Coolant	Water soluble	Water soluble
Results		 TungCut has higher wear resistance and achieves tool life improvements of 150%.	 TungCut provides better chip control and doubles tool life.

Workpiece type		Machine parts	Gear
Toolholder		CTEL2020-3T09	CTER2525-2T08
Insert		DTE3-040	SGN200-020
Grade		T9125	BX360
Workpiece material		S53C / C53	SCM415H (58HRC) / 18CrMo4
		 P	 H
Cutting conditions	Grooving width: *W* (mm)	3	2
	Cutting speed: *Vc* (m/min)	200	120
	Feed: *f* (mm/rev)	0.2	0.05
	Machining	Grooving	Grooving
	Cutting edge depth (mm)	5	0.8
	Coolant	Water soluble	Water soluble
Results		 The excellent wear resistance of TungCut improves tool life by 25%, even when machining at high speed.	 TungCut extends tool life by 1.5 times when hardened steel cutting. This is a result of the extremely stable CBN grade.

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