

Tungaloy

Member IMC Group

Keeping the Customer First

Tungaloy Report No. 392-E

TURNLINE Ceramic insert with dimple

DIMPLEFX

NEW

New innovative clamping system delivers high productivity !



NEW

Ceramic insert with dimple

Double clamping system enables Economical 12 corner inserts

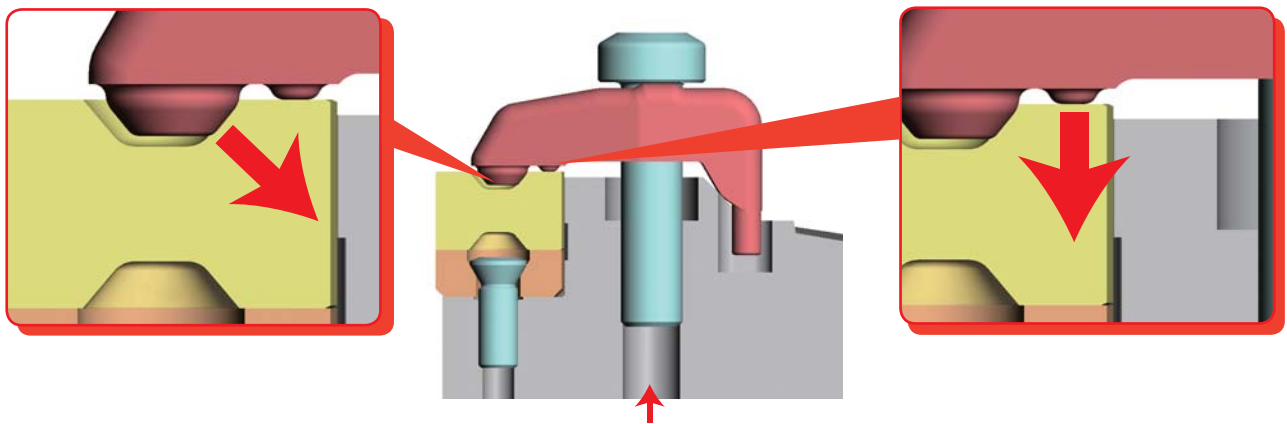
Features

● Double clamping system

High feed machining with exceptional rigidity !

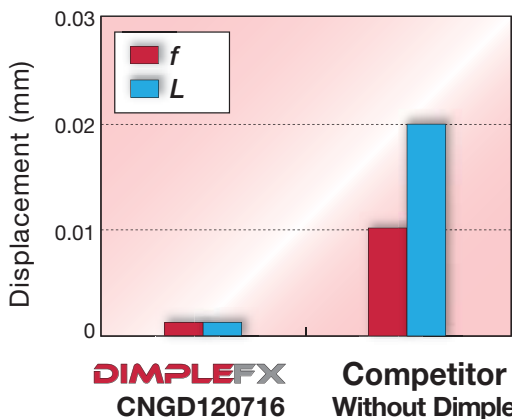
Pulling down by "dimple"

Pressing the top

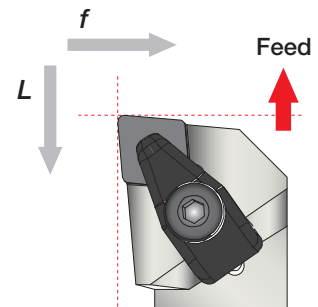


Permits operation from underside

■ Comparison of clamping force



Work material : FC250
 Cutting speed : $V_c = 500$ m/min
 Feed : $f = 0.6$ mm/rev
 Depth of cut : $a_p = 4$ mm
 Application : Heavy interrupted cutting
 Number of passes : 10



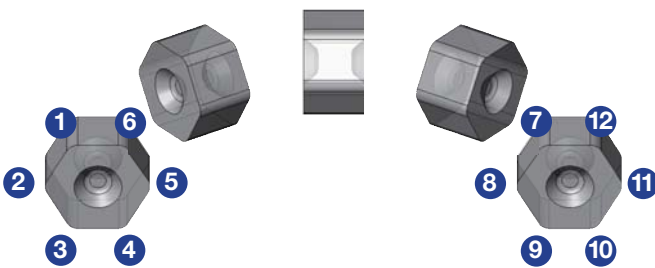
Tight clamping

Tool life is extremely stable

extremely high feed turning ! available !

● Double sided hexagonal insert with 12 corners

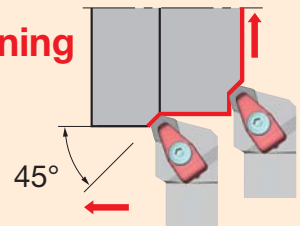
150% more corners when compared to square inserts !



Exclusive toolholder is available

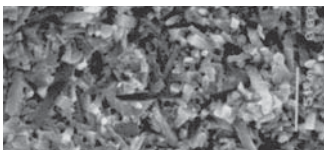
Suitable for high productivity machining

- Max. of depth of cut $a_p = 3 \text{ mm}$
- Max. feed $f = 0.6 \text{ mm/rev}$



● FX105 ceramic for high speed machining

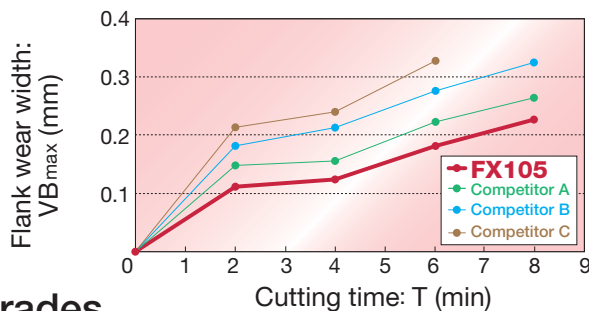
■ Microstructure of FX105



Features


**Wear and fracture resistance are excellent.
Exceptional thermal crack resistance.**

● Cutting performance



Insert : HNGD050712 (FX105)
SNGN12 type (Competitor)
Work material : FC250
Cutting speed : $V_c = 500 \text{ m/min}$
Feed : $f = 0.5 \text{ mm/rev}$
Depth of cut : $a_p = 3.0 \text{ mm}$
Work process : Facing, continuous cutting
Coolant : Water soluble

● Grades

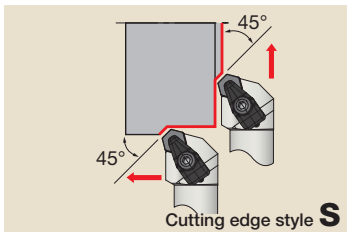
Application	Grade	Specific gravity	Hardness (HRA)	Transverse rupture strength (GPa)	Fracture Toughness K_{1c} (MPa $m^{1/2}$)	Modulus of elasticity (GPa)	Features
	FX105	3.2	93.0	1.3	6.1	3	<ul style="list-style-type: none"> • A silicon nitride based ceramic used for high speed cutting of cast irons. • Has superior strength, toughness and thermal characteristics when compared with Al_2O_3 based ceramics.

Toolholders

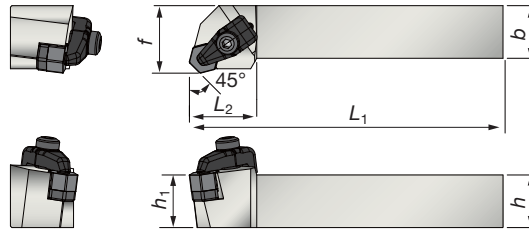
CHSN R

Turning & Facing

C type (Negative rake, Double clamping system)



NEW



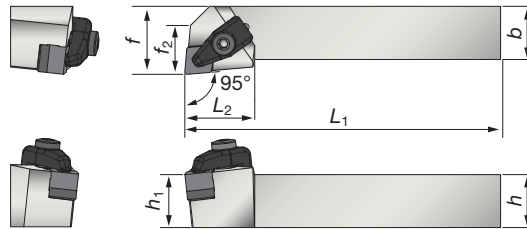
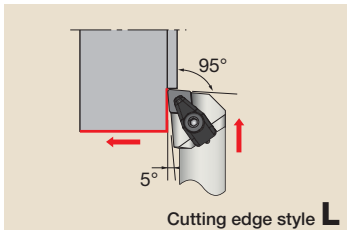
Cat. No.	Stock	Dimensions (mm)							Std. Corner r_E	insert
		h	b	L_1	L_2	h_1	f	f_2		
CHSNR2525M0507-RD	●	25	25	150	32	25	32	—	1.2	HNGD0507□□

*Recommend clamping torque: 4.0 N·m

CCLN R/L

Turning & Facing

C type (Negative rake, Double clamping system)



Right hand (R) shown.

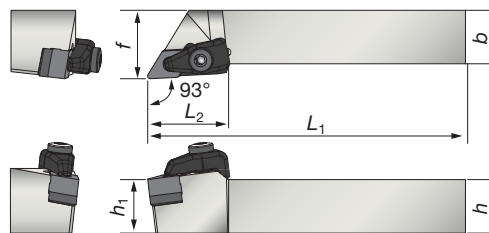
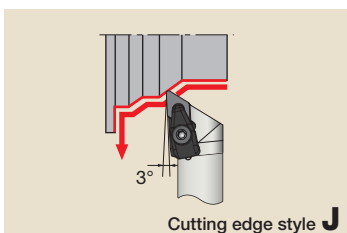
Cat. No.	Stock	Dimensions (mm)							Std. Corner r_E	insert
		h	b	L_1	L_2	h_1	f	f_2		
CCLNR2525M1207-RD	●	25	25	150	33	25	32	23	1.2	CNGD1207□□
CCLNL2525M1207-RD	●	25	25	150	33	25	32	23	1.2	
CCLNR3225P1207-RD	●	32	25	170	33	32	32	23	1.2	

*Recommend clamping torque: 4.0 N·m

CDJN R/L

Turning & External Profiling

C type (Negative rake, Double clamping system)



Right hand (R) shown.

Cat. No.	Stock	Dimensions (mm)							Std. Corner r_E	insert
		h	b	L_1	L_2	h_1	f	f_2		
CDJNR2525M1507-RD	●	25	25	150	38	25	32	—	1.2	DNGD1507□□
CDJNL2525M1507-RD	●	25	25	150	38	25	32	—	1.2	
CDJNR3225P1507-RD	●	32	25	170	38	32	32	—	1.2	

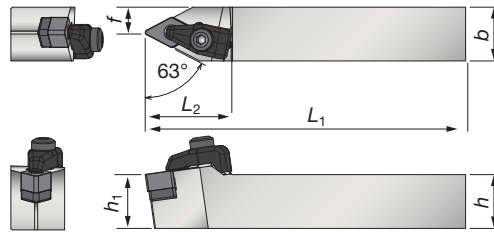
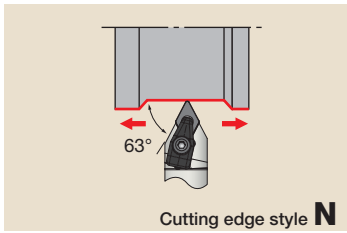
*Recommend clamping torque: 4.0 N·m

● : Stocked items

CDNN N

Turning & External Profiling

C type (Negative rake, Double clamping system)



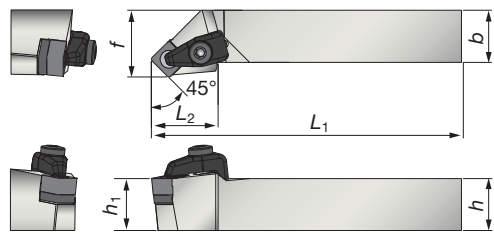
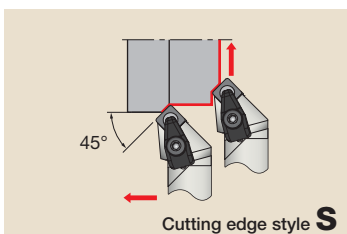
Cat. No.	Stock	Dimensions (mm)							Std. Corner r_{FE}	insert
		h	b	L_1	L_2	h_1	f	f_2		
CDNN2525M1507-RD	●	25	25	150	40	25	12.5	—	1.2	DNGD1507□□

*Recommend clamping torque: 4.0 N·m

CSSN R/L

Turning, Facing & Chamfering

C type (Negative rake, Double clamping system)



Right hand (R) shown.

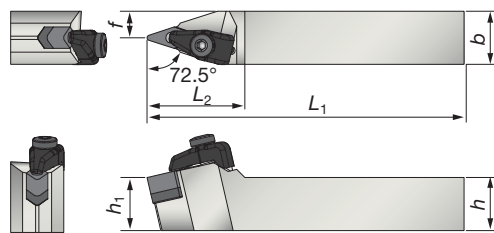
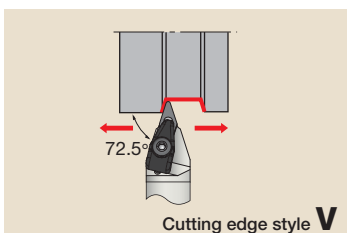
Cat. No.	Stock	Dimensions (mm)							Std. Corner r_{FE}	insert
		h	b	L_1	L_2	h_1	f	f_2		
CSSNR2525M1207-RD	●	25	25	150	32	25	32	—	1.2	SNGD1207□□
CSSNL2525M1207-RD	●	25	25	150	32	25	32	—	1.2	

*Recommend clamping torque: 4.0 N·m

CWVN N

Turning & Facing

C type (Negative rake, Double clamping system)



Cat. No.	Stock	Dimensions (mm)							Std. Corner r_{FE}	insert
		h	b	L_1	L_2	h_1	f	f_2		
CVVNN2525M1607-RD	●	25	25	150	46	25	12.5	—	1.2	VNGD160712






*Recommend clamping torque: 4.0 N·m

● : Stocked items

Standard cutting conditions

















Application	Grades	Work materials	Cutting speed V_c (m/min)	Depth of cut a_p (mm)	Feed f (mm/rev)
	FX105	Grey cast irons	700 (300 - 1000)	1.0 (0.05 - 3.0)	0.3 (0.05 - 0.6)
		Ductile cast irons	200 (100 - 300)	1.0 (0.05 - 3.0)	0.2 (0.05 - 0.4)

Inserts

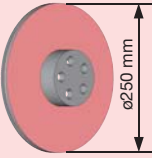
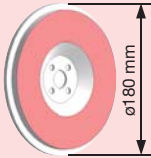
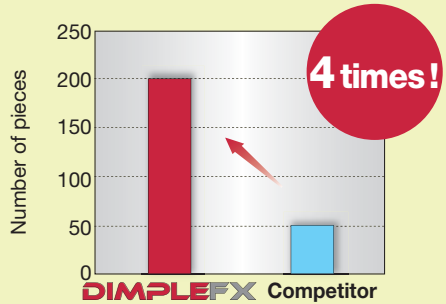
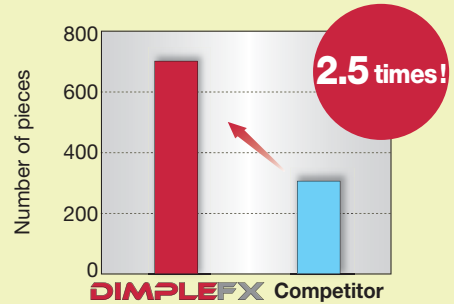
Features	Shape	Cat. No.	Grades	Dimensions (mm)			
			FX105	I.C.dia ød	Thickness s	Hole dia ød ₁	Corner R rε
Finish to medium cutting		HNGD050712	●	12.7	7.94	–	1.2
		HNGD050716	●	12.7	7.94	–	1.6
		CNGD120712	●	12.7	7.94	–	1.2
		CNGD120716	●	12.7	7.94	–	1.6
		DNGD150708	●	12.7	7.94	–	0.8
		DNGD150712	●	12.7	7.94	–	1.2
		DNGD150716	●	12.7	7.94	–	1.6
		SNGD120712	●	12.7	7.94	–	1.2
		SNGD120716	●	12.7	7.94	–	1.6
		VNGD160712	●	9.525	7.94	–	1.2

Note: Only applicable to special C type toolholders for dimple inserts.

Parts

Cat. No.	Insert		Shim	Shim screw	Clamp	clamping screw	Spring	Wrench					
	Cat. No.	Shape											
CHSNR2525M0507-RD	HNGD0507□□		CH44-A	BH-40050-A									
CCLNR2525M1207-RD	CNGD1207□□		CC44-A	BH5-10-A									
CCLNL2525M1207-RD			CD44-A										
CCLNR3225P1207-RD													
CDJNR2525M1507-RD	DNGD1507□□		CD44-A						CCP4-A				
CDJNL2525M1507-RD													
CDJNR3225P1507-RD													
CDNNN2525M1507-RD	DNGD1507□□		CS44-A							CCS4-A			
CSSNR2525M1207-RD	SNGD1207□□												
CSSNL2525M1207-RD													
CVVNN2525M1607-RD	VNGD160712		CV34-A								BH-4-10-A	BP-5-A	P4, P3 (For bottom side)

Practical Examples

Work piece type		High feed machining of auto parts	Automotive parts
Toolholder		CCLNR2525M1207-RD	CSSNR2525M1207-RD
Insert		CNGD120716	SNGX120716
Grade		FX105	FX105
Work material		Grey cast iron (Brake disk)	Ductile cast iron (Rotor)
			
Cutting conditions	Cutting speed: V_c (m/min)	450	200
	Feed : f (mm/rev)	0.45	0.35
	Depth of cut: a_p (mm)	2.0	2.0
	Machining	Continuous cutting	Continuous cutting
	Coolant	Water soluble	Water soluble
Results		 <p>4 times!</p>	 <p>2.5 times!</p>
		<p>Machining is very stable when conducting high feed cutting !</p>	



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