

TURNLINE Ceramic insert with dimple **DIMPLEFX**



New innovative clamping system delivers high productivity !



NEW

Ceramic insert with dimple

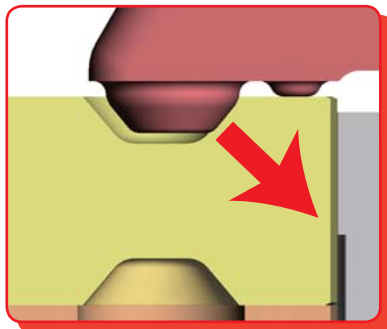
Double clamping system enables Economical 12 corner inserts

Features

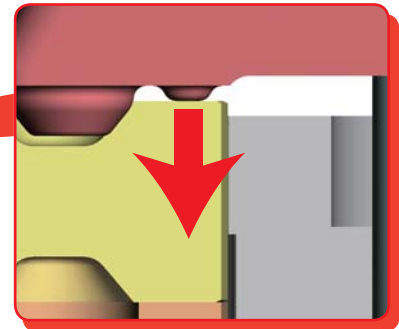
● Double clamping system

High feed machining with exceptional rigidity !

*Pulling down
by "dimple"*

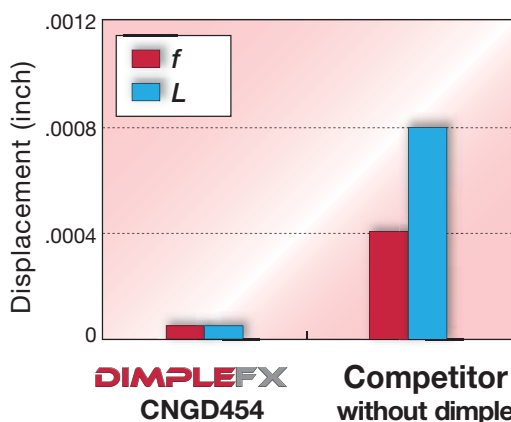


*Pressing
the top*

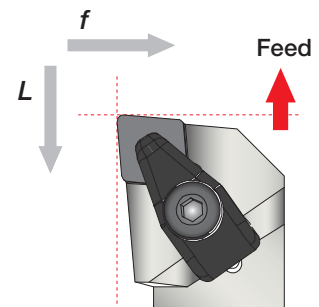


Permits operation from underside

■ Comparison of clamping force



Work material : No.35
Cutting speed : $V_c = 1640$ sfm
Feed : $f = .024$ ipr
Depth of cut : $a_p = .160$ inch
Application : Heavy interrupted cutting
Number of passes : 10



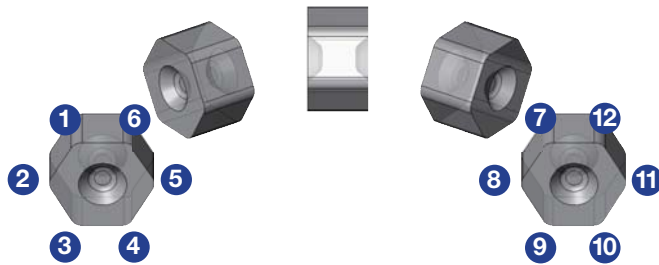
Tight clamping

Tool life is extremely stable

extremely high feed turning ! available !

● Double sided hexagonal insert with 12 corners

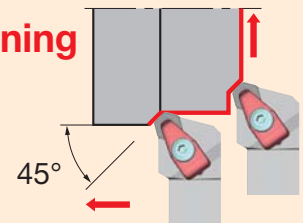
150% more corners when compared to square inserts !



Exclusive toolholder is available

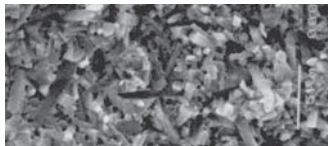
Suitable for high productivity machining

- Max. depth of cut
 $a_p = .120$ inch
- Max. feed
 $f = .024$ ipr



● FX105 ceramic for high speed machining

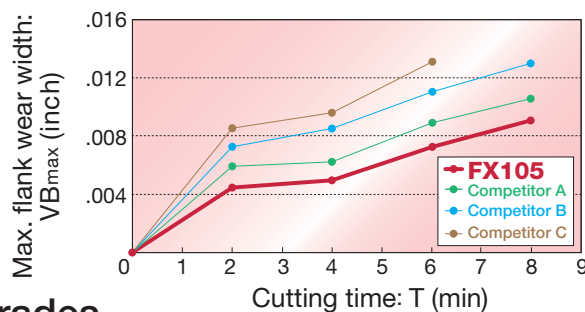
■ Microstructure of FX105



Features

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

● Cutting performance



Insert : HNGD453 FX105
SNGN type (Competitor)

Work material : No.35
Cutting speed : $V_c = 1640$ sfm
Feed : $f = .020$ ipr
Depth of cut : $a_p = .120$ inch
Work process : Facing, continuous cutting
Coolant : Water soluble

● Grades

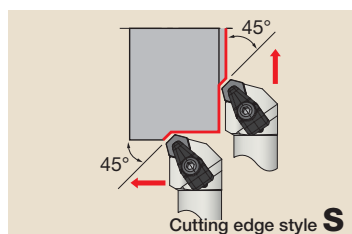
Application	Grade	Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Fracture Toughness K_{IC} (MPa $m^{1/2}$)	Modulus of elasticity (GPa)	Features
 Cast Iron	FX105	3.2	93.0	1.3	6.1	3	• A silicon nitride based ceramic used for high speed cutting of cast irons. • Has superior strength, toughness and thermal characteristics when compared with Al_2O_3 based ceramics.

Toolholders

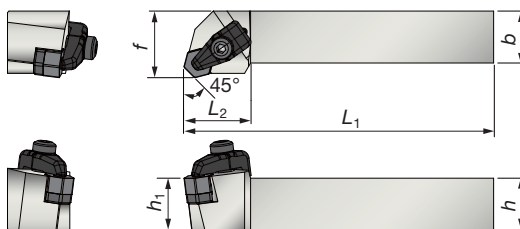
CHSN R

Turning & Facing

C type (Negative rake, Double clamping system)



NEW



Inch

Cat. No.	Stock	Dimensions (inch)							Std. Corner r_{ϵ}	insert	Torque (lbf·ft)
		h	b	L_1	L_2	h_1	f	f_2			
CHSNR16M45-RD	●	1.000	1.000	6.000	1.260	1.000	1.250	—	.047	HNGD45□	3.0

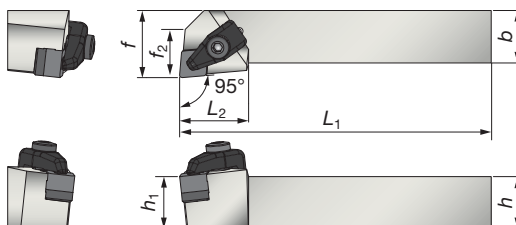
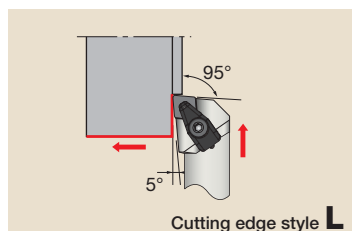
Metric

Cat. No.	Stock	Dimensions (mm)							Std. Corner r_{ϵ}	insert	Torque (N·m)
		h	b	L_1	L_2	h_1	f	f_2			
CHSNR2525M0507-RD	●	25	25	150	32	25	32	—	1.2	HNGD0507□□	4.0

CCLN R/L

Turning & Facing

C type (Negative rake, Double clamping system)



Right hand (R) shown.

Inch

Cat. No.	Stock	Dimensions (inch)							Std. Corner r_{ϵ}	insert	Torque (lbf·ft)
		h	b	L_1	L_2	h_1	f	f_2			
CCLNR16M45-RD	●	1.000	1.000	6.000	1.300	1.000	1.250	.910	.047	CNGD45□	3.0
CCLNL16M45-RD	●	1.000	1.000	6.000	1.300	1.000	1.250	.910	.047		

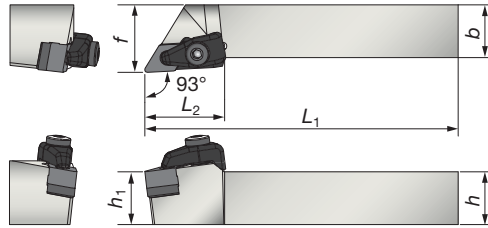
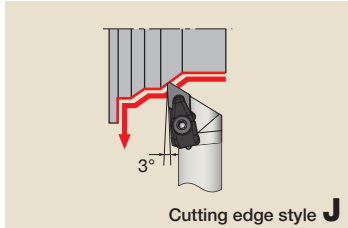
Metric

Cat. No.	Stock	Dimensions (mm)							Std. Corner r_{ϵ}	insert	Torque (N·m)
		h	b	L_1	L_2	h_1	f	f_2			
CCLNR2525M1207-RD	●	25	25	150	33	25	32	23	1.2	CNGD1207□□	4.0
CCLNL2525M1207-RD	●	25	25	150	33	25	32	23	1.2		
CCLNR3225P1207-RD	●	32	25	170	33	32	32	23	1.2		

● : Stocked items

CDJN R/L**Turning & External Profiling**

C type (Negative rake, Double clamping system)



Right hand (R) shown.

Inch

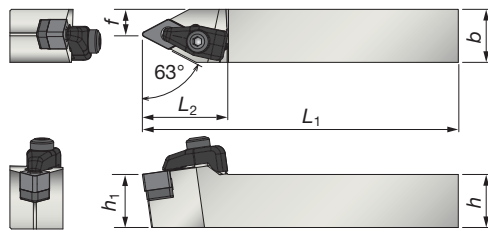
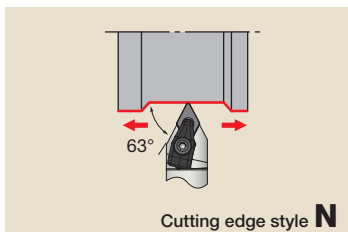
Cat. No.	Stock	Dimensions (inch)							Std. Corner r_E	insert	Torque (lbf-ft)
		h	b	L_1	L_2	h_1	f	f_2			
CDJNR16M45-RD	●	1.000	1.000	6.000	1.500	1.000	1.250	—	.047	DNGD45□	3.0
CDJNL16M45-RD	●	1.000	1.000	6.000	1.500	1.000	1.250	—	.047		

Metric

Cat. No.	Stock	Dimensions (mm)							Std. Corner r_E	insert	Torque (N·m)
		h	b	L_1	L_2	h_1	f	f_2			
CDJNR2525M1507-RD	●	25	25	150	38	25	32	—	1.2	DNGD1507□□	4.0
CDJNL2525M1507-RD	●	25	25	150	38	25	32	—	1.2		
CDJNR3225P1507-RD	●	32	25	170	38	32	32	—	1.2		

CDNN N**Turning & External Profiling**

C type (Negative rake, Double clamping system)



Inch

Cat. No.	Stock	Dimensions (inch)							Std. Corner r_E	insert	Torque (lbf-ft)
		h	b	L_1	L_2	h_1	f	f_2			
CDNNN16M45-RD	●	1.000	1.000	6.000	1.580	1.000	.500	—	.047	DNGD45□	3.0

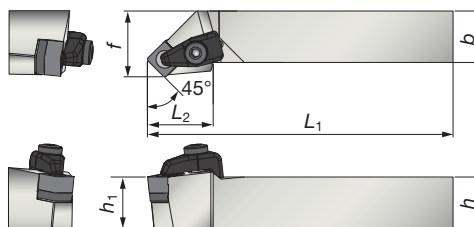
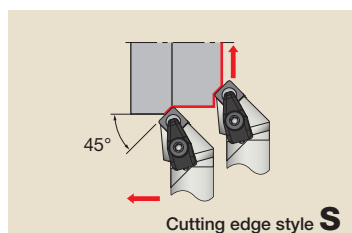
Metric

Cat. No.	Stock	Dimensions (mm)							Std. Corner r_E	insert	Torque (N·m)
		h	b	L_1	L_2	h_1	f	f_2			
CDNNN2525M1507-RD	●	25	25	150	40	25	12.5	—	1.2	DNGD1507□□	4.0

● : Stocked items

CSSN R/L

Turning, Facing & Chamfering C type (Negative rake, Double clamping system)



Right hand (R) shown.

Inch

Cat. No.	Stock	Dimensions (inch)							Std. Corner r_{ϵ}	insert	Torque (lbf-ft)
		h	b	L_1	L_2	h_1	f	f_2			
CSSNR16M45-RD	●	1.000	1.000	6.000	1.260	1.000	1.250	—	.047	SNGD45□	3.0
CSSNL16M45-RD	●	1.000	1.000	6.000	1.260	1.000	1.250	—	.047		

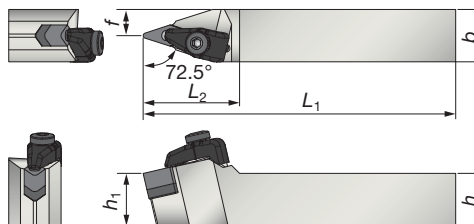
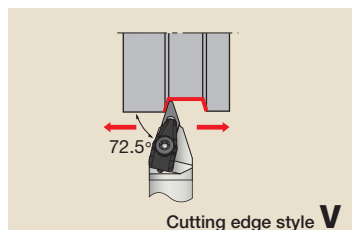
Metric

Cat. No.	Stock	Dimensions (mm)							Std. Corner r_{ϵ}	insert	Torque (N·m)
		h	b	L_1	L_2	h_1	f	f_2			
CSSNR2525M1207-RD	●	25	25	150	32	25	32	—	1.2	SNGD1207□□	4.0
CSSNL2525M1207-RD	●	25	25	150	32	25	32	—	1.2		

CVVN N

Turning & Facing

C type (Negative rake, Double clamping system)



Inch

Cat. No.	Stock	Dimensions (inch)							Std. Corner r_{ϵ}	insert	Torque (lbf-ft)
		h	b	L_1	L_2	h_1	f	f_2			
CVVNN16M35-RD	●	1.000	1.000	6.000	1.810	1.000	.500	—	.047	VNGD35□	3.0

Metric

Cat. No.	Stock	Dimensions (mm)							Std. Corner r_{ϵ}	insert	Torque (N·m)
		h	b	L_1	L_2	h_1	f	f_2			
CVVNN2525M1607-RD	●	25	25	150	46	25	12.5	—	1.2	VNGD160712	4.0

● : Stocked items

Standard cutting conditions

Application	Grades	Work materials	Cutting speed V_c (sfm)	Depth of cut a_p (inch)	Feed f (ipr)
	FX105	Gray cast irons	2300 (1000 - 3300)	.040 (.002 - .120)	.012 (.002 - .024)
		Ductile cast irons	650 (330 - 1000)	.040 (.002 - .120)	.008 (.002 - .016)

Inserts

Features	Shape	Cat. No.		Grades	Dimensions (inch)			
		Inch	Metric		I.C.dia ød	Thickness s	Hole dia ød ₁	Corner R r _ε
				FX105				
Finish to medium cutting		HNGD453	HNGD050712	●	.500	.313	—	.047
		HNGD454	HNGD050716	●	.500	.313	—	.062
		CNGD453	CNGD120712	●	.500	.313	—	.047
		CNGD454	CNGD120716	●	.500	.313	—	.062
		DNGD452	DNGD150708	●	.500	.313	—	.031
		DNGD453	DNGD150712	●	.500	.313	—	.047
		DNGD454	DNGD150716	●	.500	.313	—	.062
		SNGD453	SNGD120712	●	.500	.313	—	.047
		SNGD454	SNGD120716	●	.500	.313	—	.062
		VNGD353	VNGD160712	●	.375	.313	—	.047

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

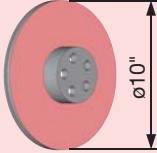
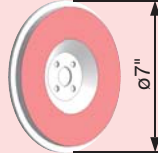
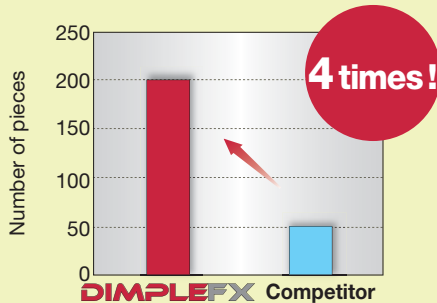
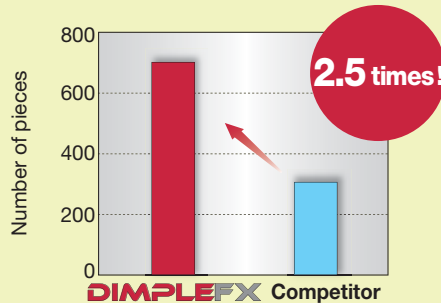
● : Stocked items

Replacement parts

Cat. No.	Insert		Shim	Shim screw	Clamp	clamping screw	Spring	Wrench
	Cat. No.	Shape						
CHSNR16M45-RD	HNGD45□		CH44-A	BH-40050-A				
CCLNR16M45-RD	CNGD45□		CC44-A					
CCLNL16M45-RD								
CDJNR16M45-RD	DNGD45□		CD44-A					
CDJNL16M45-RD								
CDNNN16M45-RD								
CSSNR16M45-RD	SNGD45□		CS44-A					
CSSNL16M45-RD								
CVVNN16M35-RD	VNGD35□		CV34-A	BH-4-10-A				

* : For operation from underside

Practical examples

Work piece type		Brake disk	Automotive parts (Rotor)
Toolholder		CCLNR16M45-RD	CSSNR16M45-RD
Insert		CNGD454	SNGX454
Grade		FX105	FX105
Work material		Gray cast iron	Ductile cast iron
			
Cutting conditions	Cutting speed: V_c (sfm)	1500	650
	Feed : f (ipr)	.018	.014
	Depth of cut: ap (inch)	.080	.080
	Machining	Continuous cutting	Continuous cutting
	Coolant	Wet	Wet
Results			
		Machining is very stable when conducting high feed cutting !	Edge damage is very small and stable, even when machining ductile cast iron.



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