NPA

EXPANSION

Member IMC Group Ingersoll Cutting Tools

New Product Announcement

TURNING

Insert Styles

CNGX 2.220.5 NEW
CNMX 2.221, 2.222
DNGX 2.220, 2.220.5, 2.221
DNMX 2.221, 2.222
WNMX 2.221, 2.222

Grades

CVD:
TT8115B, TT8125B, TT9225

PVD:
PV3010, PV3020, TT3020, TT4430, TT5080, TT9020

Uncoated:
CT3000

Materials

- Steel
- Stainless Steel
- Super Alloys

External Holders

Swiss Automatics:
.500", .625", 12mm, 16mm
Conventional lathes:
.625", .750"

Boring Bars

Conventional lathes:
.375", .500", .625"

RHINOTURNM™

A Double-Sided Mini-Size Insert and Holder Line, an Economical Alternative to Standard Positive Turning and Boring Inserts

RhinoTurnM is a compact, double-sided mini size insert that is suitable for the internal and external turning of small parts and can replace standard positive small inserts like CCMT 21.5x and DCMT 21.5x.

Features & Benefits

- Double-sided miniature inserts (7mm IC) for 2x the number of cutting edges!
- Optimized turning for low depths of cut (up to 2mm)
- Inserts feature the same cutting edge angle as standard positive inserts (zero degrees)
- Low cutting forces promotes very good surface finish
- Excellent chip control at lower depths of cut
- Stable screw clamping
- Suitable for general purpose machining of small parts, especially on Swiss type automatic lathes

For more information »

Features

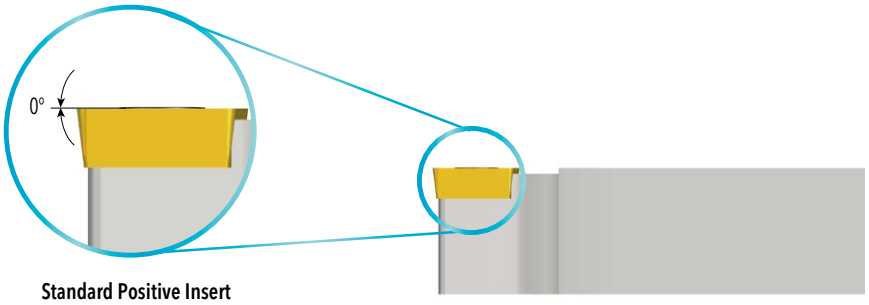
Although the insert is double-sided, it has the same edge angle as a conventional positive insert type when mounted to the holder. This results in low cutting forces which reduces vibration and produces excellent workpiece surface finish and machining accuracy, particularly at low depths of cut. The strong screw clamping design provides stable machining during manufacturing.

The inserts are available as CNMX, DNMX, and WNMX types for finishing, with precise DNGX and CNGX types suitable for Swiss-type automatic lathes.

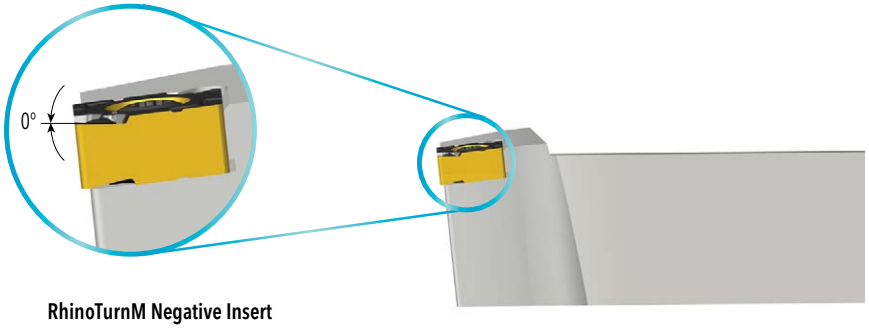
For external machining with Swiss type automatics, holders are available with inch (.500" & .625") and metric shanks (12mm & 16mm).

For conventional lathes, external holders are available with .625" & .750" shanks. For internal applications, boring bars are available with .375", .500" & .625" shanks. Metric tools are also available from our international warehouse.

Same Cutting Edge Angle as Standard Positive Insert



Standard Positive Insert



RhinoTurnM Negative Insert

Chip Breaker Designation for Pressed Inserts

F	G	P
1	2	3

1 - Applications	
F	Finishing
M	Medium
R	Roughing

2 - Cutting Conditions	
L	Light cutting
G	General cutting
T	Tough cutting

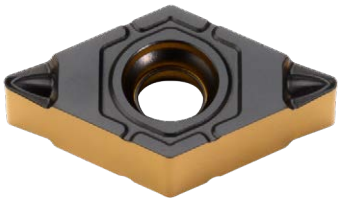
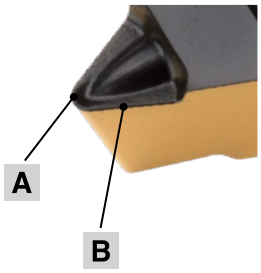
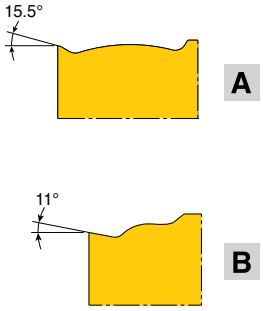
3 - Workpiece Materials	
P	Steel
M	Stainless steel
K	Cast iron
S	High temperature alloys

Chip Breaker Designation for Precision Ground Inserts

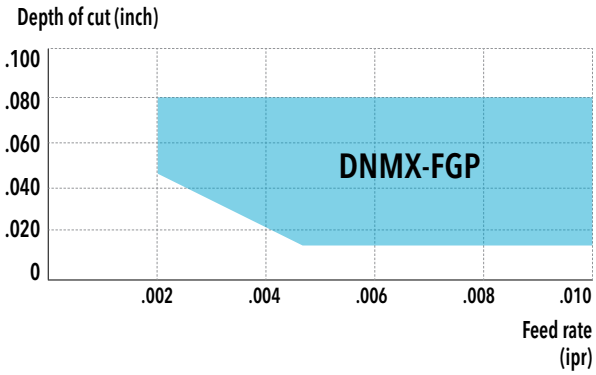
DNGX 2.220M SM-F
1 2 3

1. M: Corner radius minus tolerance (ex 0.5 radius designation will not exceed .008")
2. Chip breaker — SM: Medium depth of cut for medium
   NEW ST: Maximum depth of cut for roughing
3. Edge specification — F: Sharp edge
   E: Micro honed edge

DNMX-FGP Chip Breaker

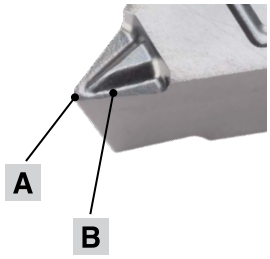
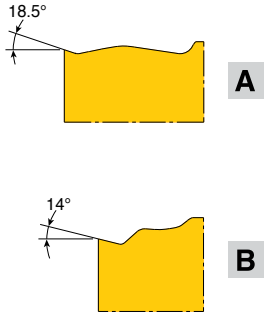
Chip breaker	Edge geometry
 For Finishing to Semi-Finishing	 

DNMX-FGP Chip Breaker Range

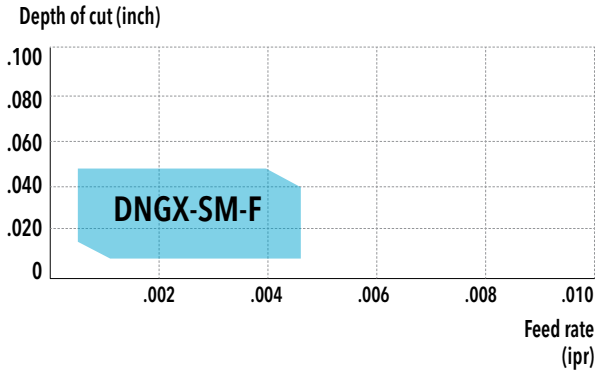


- Insert : DNMX 2.221 FGP
- Cutting speed (sfm) : 650
- Material : AISI 4140 (HB235~255)

DNGX-SM-F Chip Breaker

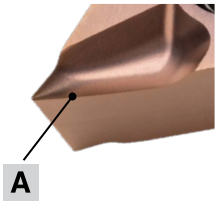
Chip breaker	Edge geometry
 General Purpose for Swiss Type Automatic Lathes	 

DNGX-SM-F Chip Breaker Range

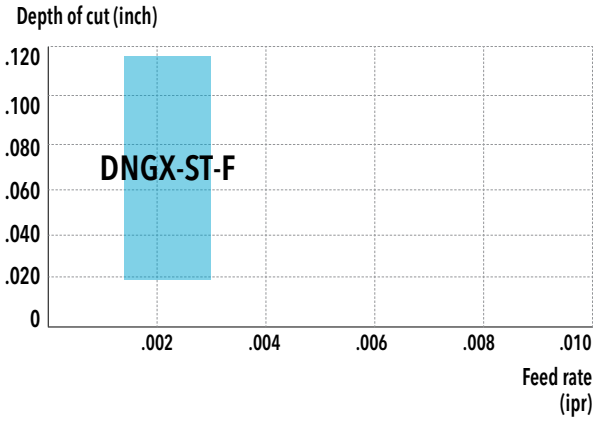


- Insert : DNGX 2.220 SM-F
- Cutting speed (sfm) : 260
- Material : AISI 304 (HB140~160)

DNGX-ST-F Chip Breaker NEW

Chip breaker	Edge geometry
 For Roughing	 

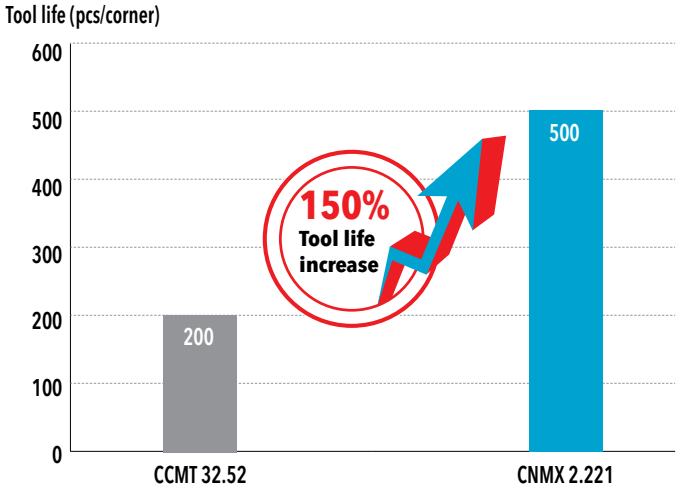
DNGX-ST-F Chip Breaker Range



- Insert : DNGX 2.220.5 ST-R-F
- Cutting speed (sfm) : 410
- Material : AISI 1045 (HB200~220)

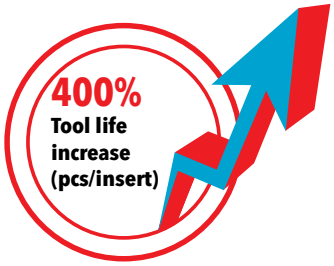
Case Study 1

		Ingersoll	Ingersoll
Material		AISI 1045	
Boring Bar		S16R SCLCL 09	A16Q SCLNR 0703
Insert		CCMT (32.52) MT TT8115	CNMX (2.221) FGP CT3000
Cutting speed	V (sfm)	705	
Feed rate	f (ipr)	.008	
Depth of cut	ap (inch)	.020	
Coolant		Wet	
Tool life (min)		200	500



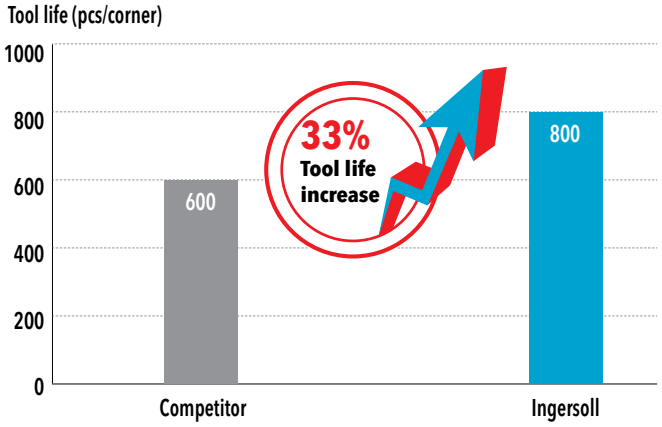
CCMT 32.52: 2 corners X 200 pcs = 400 pcs

CNMX 2.221: 4 corners X 500 pcs = 2,000 pcs



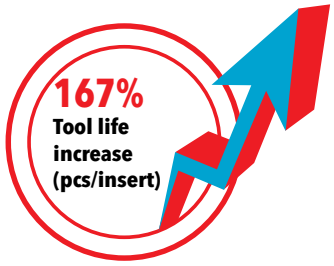
Case Study 2

		Competitor	Ingersoll
Material		AISI 1045	
Boring Bar		Ø16	A16Q SDUNR 0803
Insert		DCMT (21.51) (CVD coated)	DNMX (2.221) FGP TT8125
Cutting speed	V (sfm)	390-515	
Feed rate	f (ipr)	.005-.009	
Depth of cut	ap (inch)	.002-.006	
Coolant		Wet	
Tool life (min)		600	800



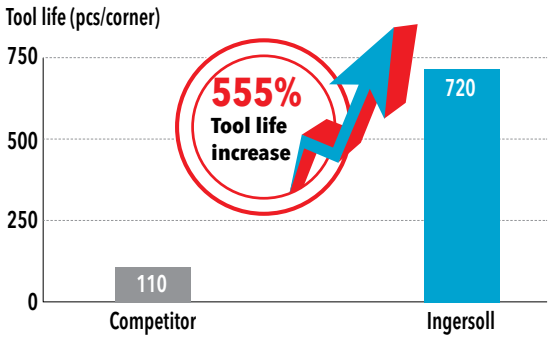
DCMT 21.51: 2 corners X 600 pcs = 1,200 pcs

DNMX 2.221: 4 corners X 800 pcs = 3,200 pcs



Case Study 3

		Competitor	Ingersoll
Material		Stainless steel, AISI 430 (HB160-180)	
Application		External turning	
Insert		DCGT 07 ISO insert	DNGX 080302M ST
Cutting speed	V (sfm)	148	
Feed rate	f (ipr)	.0006	
Depth of cut	ap (inch)	.060	
Coolant		Wet	
Tool life (min)		110	720

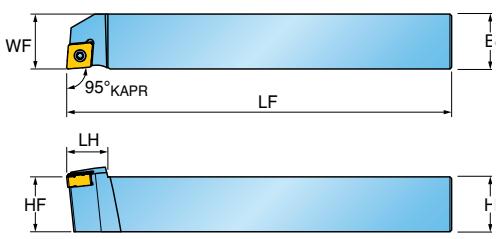


DCGT 07: 2-corner X 110 = 220 pcs

DNGX 08: 4-corner X 720 = 2,880 pcs

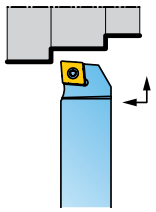
SCLNR/L-SH, SCLNR/L (CNMX INSERT)

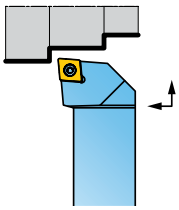
SCREW TYPE HOLDERS



SCLNR-SH

SCLNR

Approach angle	Part Number	Dimension (inch)						Insert
		H Shank Height	HF Functional Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	
95° 	SCLNR/L 08-2.2C-SH	.500	.500	.500	5.0	.500	.47	CNMX 2.22_
	SCLNR/L 10-2.2C-SH	.625	.625	.625	5.0	.625	.47	

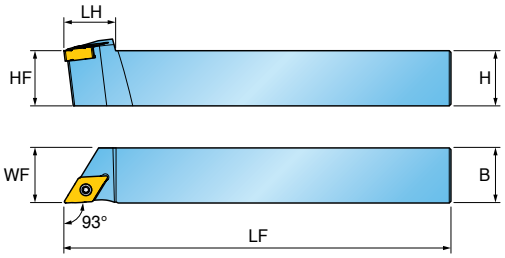
Approach angle	Part Number	Dimension (inch)						Insert
		H Shank Height	HF Functional Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	
95° 	SCLNR/L 10-2.2B	.625	.625	.625	4.5	.750	.63	CNMX 2.22_
	SCLNR/L 12-2.2B	.750	.750	.750	4.5	1.000	.78	

HARDWARE

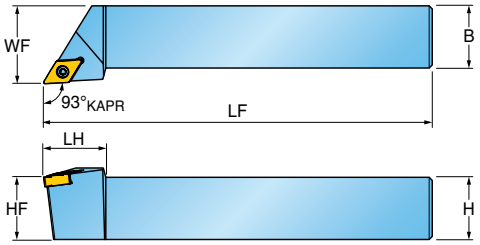
Part Number	Shim Screw	Wrench	Recommended Torque	
				
SCLNR/L	SM25-060-90	T 7P	8 in-lbs	

SDJNR/L-SH, SDJNR/L (DN_X INSERT)

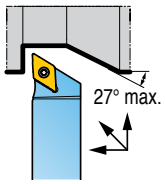
SCREW TYPE HOLDERS

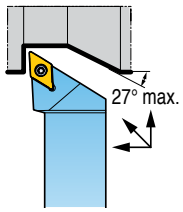


SDJNR-SH



SDJNR

Approach angle	Part Number	Dimension (inch)						Insert
		H Shank Height	HF Functional Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	
93° 	SDJNR/L 08-2.2C-SH	.500	.500	.500	5.0	.500	.59	DN...X 2.22_
	SDJNR/L 10-2.2C-SH	.625	.625	.625	5.0	.625	.59	

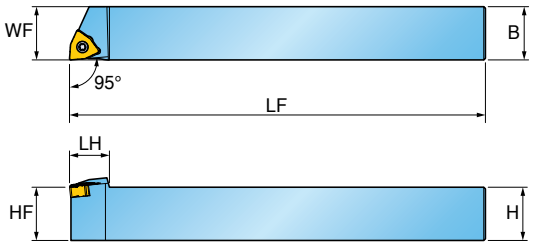
Approach angle	Part Number	Dimension (inch)						Insert
		H Shank Height	HF Functional Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	
93° 	SDJNR/L 10-2.2B	.625	.625	.625	4.5	.750	.63	DN...X 2.22_
	SDJNR/L 12-2.2B	.750	.750	.750	4.5	1.000	.78	

HARDWARE

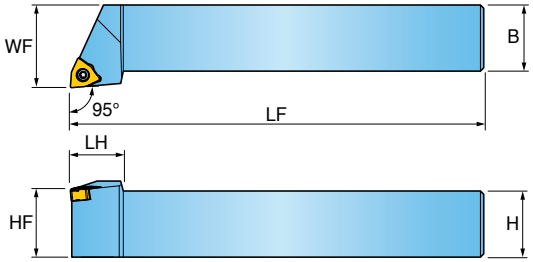
Part Number	Shim Screw	Wrench	Recommended Torque	
				
SDJNR/L	SM25-060-90	T7P	8 in-lbs	

SWLNR/L-SH, SWLNR/L (WNMX INSERT)

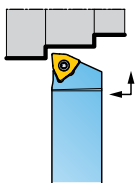
SCREW TYPE HOLDERS

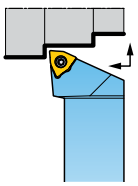


SWLNR-SH



SWLNR

Approach angle	Part Number	Dimension (inch)						Insert
		H Shank Height	HF Functional Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	
95° 	**SWLNR/L 08-2.2C-SH**	.500	.500	.500	5.0	.500	.47	WNMX 2.22_
	SWLNR/L 10-2.2C-SH	.625	.625	.625	5.0	.625	.47	

Approach angle	Part Number	Dimension (inch)						Insert
		H Shank Height	HF Functional Height	B Shank Width	LF Functional Length	WF Functional Width	LH Head Length	
95° 	**SWLNR/L 10-2.2B**	.625	.625	.625	4.5	.750	.63	WNMX 2.22_
	SWLNR/L 12-2.2B	.750	.750	.750	4.5	1.000	.63	

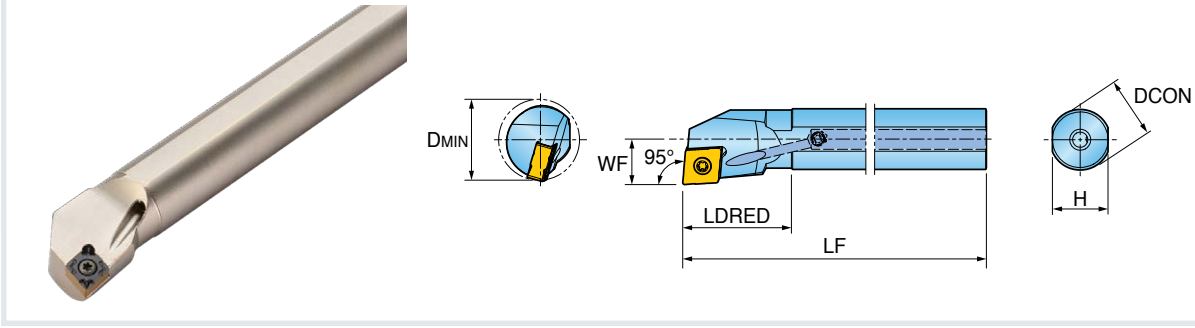
HARDWARE

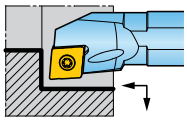
Part Number	Shim Screw	Wrench	Recommended Torque	
				
SWLNR/L	SM25-060-90	T 7P	8 in-lbs	

Coolant

A-SCLNR/L (CNMX INSERT)

SCREW TYPE BORING BARS WITH THRU COOLANT



Approach angle	Part Number	Dimension (inch)						Insert
		DCON Shank Diameter	DMIN Min. Bore Diameter	LF Functional Length	WF Functional Width	LDRED Reduced Body Dia. Length	H Shank Height	
95° 	A08M-SCLNR/L-2.2	.500	.63	6.00	.312	.84	.46	CNMX 2.22
	A10R-SCLNR/L-2.2	.625	.81	8.00	.406	.96	.58	

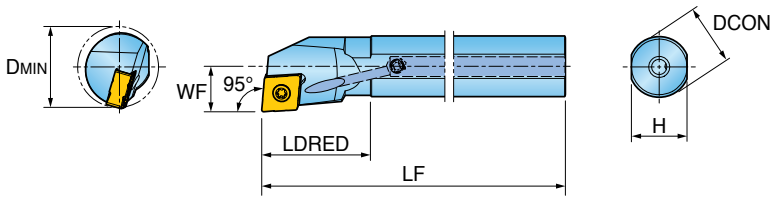
HARDWARE

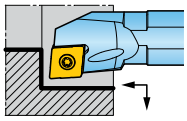
Part Number	Shim Screw	Wrench	Recommended Torque	
				
A-SCLNR/L	SM25-060-90	T7P	8 in-lbs	

Coolant

E-SCLNR/L (CN_X INSERT) NEW

SCREW TYPE BORING BARS WITH THRU COOLANT - CARBIDE SHANK



Approach angle	Part Number	Dimension (inch)						Insert
		DCON Shank Diameter	DMIN Min. Bore Diameter	LF Functional Length	WF Functional Width	LDRED Reduced Body Dia. Length	H Shank Height	
95° 	E06M-SCLNR/L-2.2	.375	.48	6.00	.250	.59	.34	CNMX 2.221
	E08R-SCLNR/L-2.2	.500	.60	8.00	.312	.71	.46	

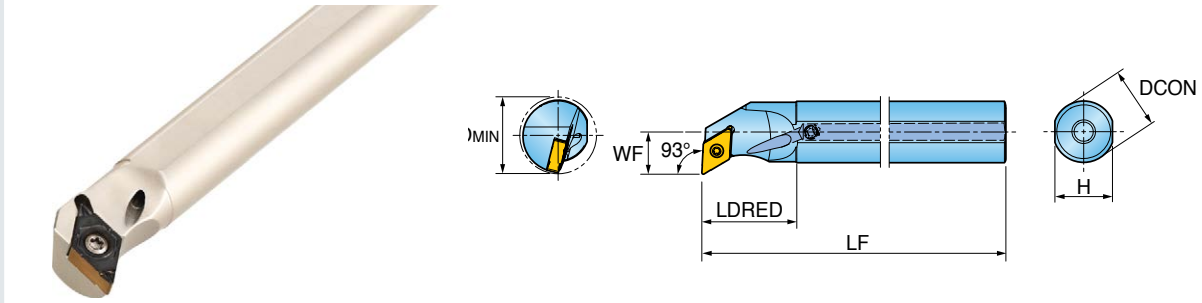
HARDWARE

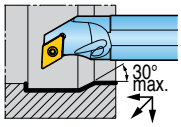
Part Number	Shim Screw	Wrench	Recommended Torque	
				
E-SCLNR/L	SM25-060-90	T7P	8 in-lbs	

Coolant

A-SDUNR/L (DN_X INSERT)

SCREW TYPE BORING BARS WITH THRU COOLANT



Approach angle	Part Number	Dimension (inch)						Insert
		DCON Shank Diameter	DMIN Min. Bore Diameter	LF Functional Length	WF Functional Width	LDRED Reduced Body Dia. Length	H Shank Height	
93° 	**A08M-SDUNR/L-2.2**	.500	.63	6.00	.312	.84	.46	DN_X 2.22
	A10R-SDUNR/L-2.2	.625	.81	8.00	.406	.96	.58	

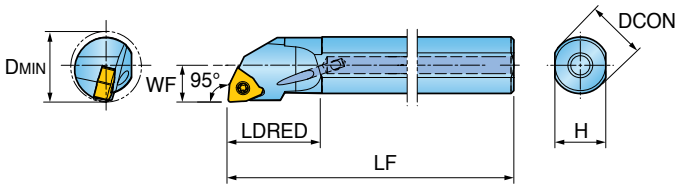
HARDWARE

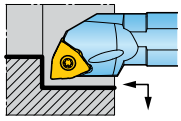
Part Number	Shim Screw	Wrench	Recommended Torque	
				
A-SDUNR/L	SM25-060-90	T7P	8 in-lbs	

Coolant

A-SWLNR/L (WNMX INSERT)

SCREW TYPE BORING BARS WITH THRU COOLANT



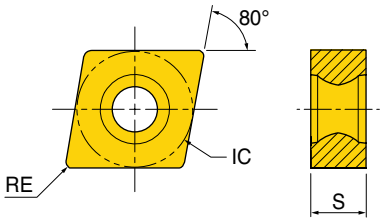
Approach angle	Part Number	Dimension (inch)						Insert
		DCON Shank Diameter	DMIN Min. Bore Diameter	LF Functional Length	WF Functional Width	LDRED Reduced Body Dia. Length	H Shank Height	
95° 	A08M-SWLNR/L-2.2	.500	.75	6.00	.375	.84	.46	WNMX 2.22
	A10R-SWLNR/L-2.2	.625	.85	8.00	.438	.96	.58	

HARDWARE

Part Number	Shim Screw	Wrench	Recommended Torque	
				
A-SWLNR/L	SM25-060-90	T7P	8 in-lbs	

Series CNGX-SM NEW

NEGATIVE 80° RHOMBIC INSERTS



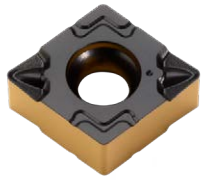
Size	Dimensions (inch)		
	IC Inscribed Circle	S Thickness	RE Corner Radius
2.220.5	.276	.125	.008

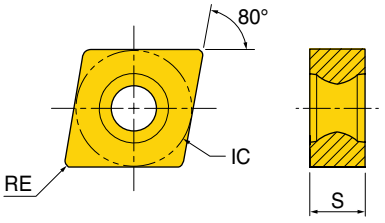
Part Number		ap (inch)		fn (ipr)		PVD Coated
ANSI	ISO	Depth of Cut		Feed Rate		TT4430
		Min.	Max.	Feed Min.	Feed Max.	
INCH						
CNGX2.220.5M-SM-F	CNGX070302M-SM-F	.008	.047	.001	.005	●

● = Standard Items

Series CNMX-FGP

NEGATIVE 80° RHOMBIC INSERTS





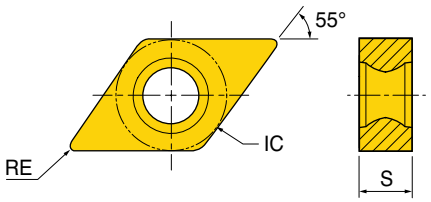
Size	Dimensions (inch)		
	IC Inscribed Circle	S Thickness	RE Corner Radius
2.2	.276	.125	.016
2.2	.276	.125	.031

Part Number		ap (inch)		fn (ipr)		Cermet			CVD Coated		PVD Coated		
ANSI	ISO	Depth of Cut		Feed Rate		CT3000	PV3010	PV3020	TT8115B	TT8125B	TT3020	TT5080	TT9020
		Min.	Max.	Feed Min.	Feed Max.								
INCH													
CNMX2.221FGP	CNMX070304FGP	.012	.080	.002	.010	●	●	●	●	●	●	●	●
CNMX2.222FGP	CNMX070308FGP	.016	.080	.003	.010		●		●	●	●	●	

● = Standard Items

Series DNGX-SM

NEGATIVE 55° RHOMBIC INSERTS



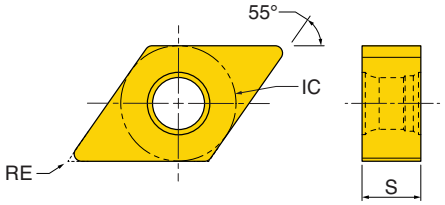
Size	Dimensions (inch)		
	IC Inscribed Circle	S Thickness	RE Corner Radius
2.220	.276	.125	.004
2.220.5	.276	.125	.008
2.221	.276	.125	.016

Part Number		ap (inch)		fn (ipr)		PVD Coated	
ANSI	ISO	Depth of Cut		Feed Rate		TT9020	TT4430
		Min.	Max.	Feed Min.	Feed Max.		
INCH							
DNGX2.220M-SM-F	DNGX080301M-SM-F	.004	.040	.0008	.004	●	●
DNGX2.220.5M-SM-F	DNGX080302M-SM-F	.008	.047	.0008	.005	●	●
DNGX2.221M-SM-F	DNGX080304M-SM-F	.008	.060	.0008	.006	●	●

● = Standard Items

Series DNGX-ST NEW

NEGATIVE 55° RHOMBIC INSERTS



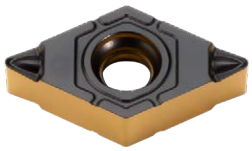
Size	Dimensions (inch)		
	IC Inscribed Circle	S Thickness	RE Corner Radius
2.220	.276	.125	.004
2.220.5	.276	.125	.008
2.221	.276	.125	.016

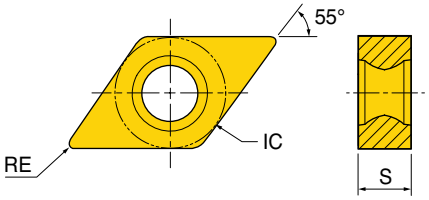
Part Number		ap (inch)		fn (ipr)		PVD Coated	
ANSI	ISO	Depth of Cut		Feed Rate		TT9020	TT4430
		Min.	Max.	Feed Min.	Feed Max.		
INCH							
DNGX2.220M-ST-R-E	DNGX080301M-ST-R-E	.012	.118	.0012	.0024		●
DNGX2.220M-ST-R-F	DNGX080301M-ST-R-F	.012	.118	.0012	.0024	●	●
DNGX2.220.5M-ST-R-E	DNGX080302M-ST-R-E	.020	.118	.0012	.0031		●
DNGX2.220.5M-ST-R-F	DNGX080302M-ST-R-F	.020	.118	.0012	.0031	●	●
DNGX2.221M-ST-R-E	DNGX080304M-ST-R-E	.028	.118	.0012	.0039		●
DNGX2.221M-ST-R-F	DNGX080304M-ST-R-F	.028	.118	.0012	.0039	●	●

● = Standard Items

Series DNMX-FGP

NEGATIVE 55° RHOMBIC INSERTS





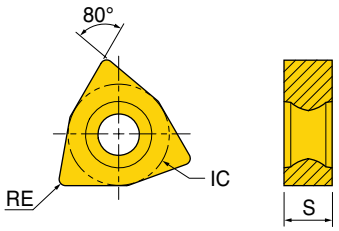
Size	Dimensions (inch)		
	IC Inscribed Circle	S Thickness	RE Corner Radius
2.221	.276	.125	.016
2.222	.276	.125	.031

Part Number		ap (inch)		fn (ipr)		Cermet			CVD Coated			PVD Coated	
ANSI	ISO	Depth of Cut		Feed Rate		CT3000	PV3010	PV3020	TT8115B	TT8125B	TT9225	TT5080	TT3020
		Min.	Max.	Feed Min.	Feed Max.								
INCH													
DNMX2.221FGP	DNMX080304FGP	.012	.080	.002	.010	●	●	●	●	●	●	●	●
DNMX2.222FGP	DNMX080308FGP	.016	.080	.003	.010	●	●		●	●		●	●

● = Standard Items

Series WNMX-FGP

NEGATIVE 80° TRIGON INSERTS



Size	Dimensions (inch)		
	IC Inscribed Circle	S Thickness	RE Corner Radius
2.221	.276	.125	.016
2.222	.276	.125	.031

Part Number		ap (inch)		fn (ipr)		Cermet		CVD Coated		PVD Coated	
ANSI	ISO	Depth of Cut		Feed Rate		CT3000	PV3010	TT8115B	TT8125B	TT5080	TT3020
		Min.	Max.	Feed Min.	Feed Max.						
INCH											
WNMX2.221FGP	WNMX040304FGP	.012	.080	.002	.010	●	●	●	●	●	●
WNMX2.222FGP	WNMX040308FGP	.016	.080	.003	.010		●	●	●	●	●

● = Standard Items