

Milling Cutters



Positive axial rake provides

- Excellent burr-free cutting on the edges of the machined face
- Excellent flatness on the machined face
- Less machine horsepower required

Recommended work materials

- Cast Irons, Ductile Irons
- Carbon Steels, Alloy Steels & Stainless Steels

Available cutter diameter

- 2.5, 3.0, 4.0, 5.0 inch

Available lead angle

- 45°, 75°, 88°

Screw-on Positive inserts offer

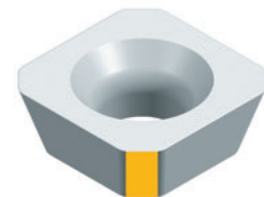
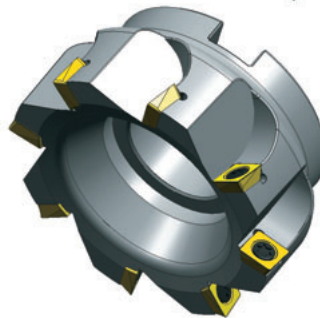
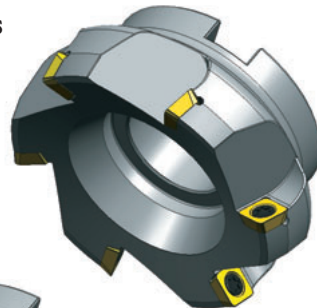
- Excellent index repeatability
- Cost Reduction in hardware - No clamps required

Wiper inserts also available

- Reduce surface finishes
- Increase feeds while maintaining good surface finishes

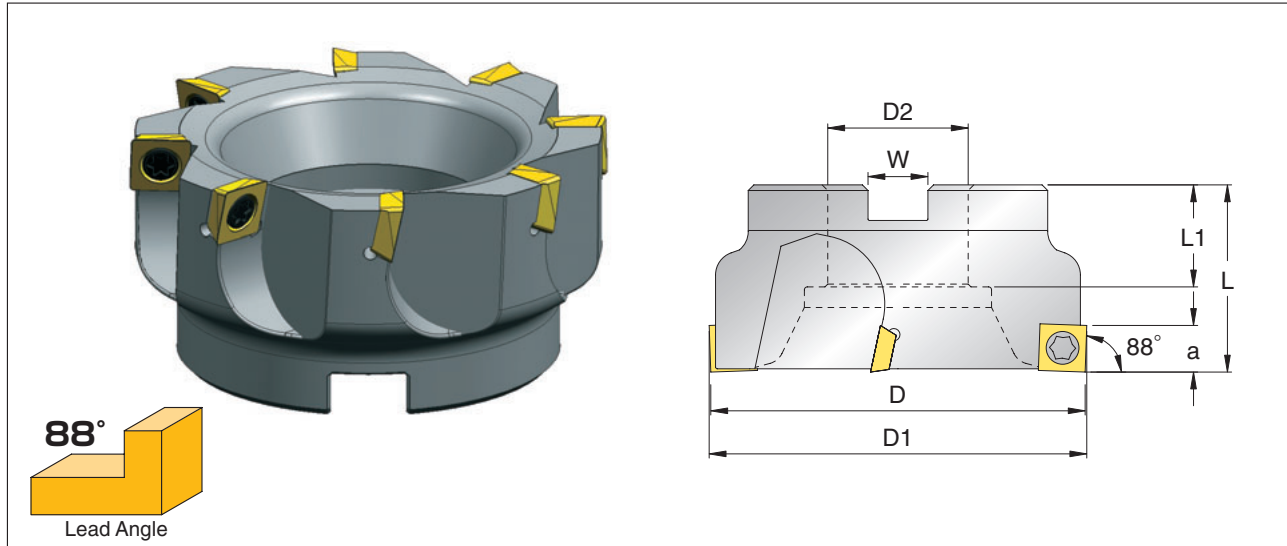
Note:

**Torque-control wrench needed for clamping ceramic inserts.
Recommended torque is 35lbs (4Nm).
Order TCW20 wrench separately.**





Wiper

● Lead angle 88 degree - SDW43 〈A.R. +12°, R.R. 0°〉



Cutter	Effective Cutting Dia. D	No. of Inserts	Dimensions (inch)						Weight
			D1	Height L	Bore D2	Keyway W	L1	a	
P250R100-SDW43-4C	2.500	4	2.590	2.000	1.000	.387	.780	.40	1.8 lbs
P300R100-SDW43-6C	3.000	6	3.070	2.000	1.000	.387	.780	.40	2.3 lbs
P400R150-SDW43-8C	4.000	8	4.070	2.000	1.500	.640	1.09	.40	3.3 lbs
P500R150-SDW43-10C	5.000	10	5.070	2.000	1.500	.640	1.09	.40	5.0 lbs

● Spare Parts

	
Insert screw IS-5x10	Torx wrench K5620

● Inserts

Fig.1: SDCW43

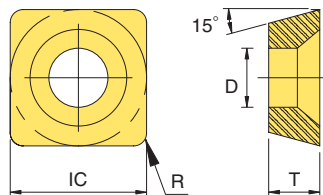
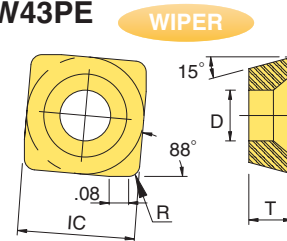



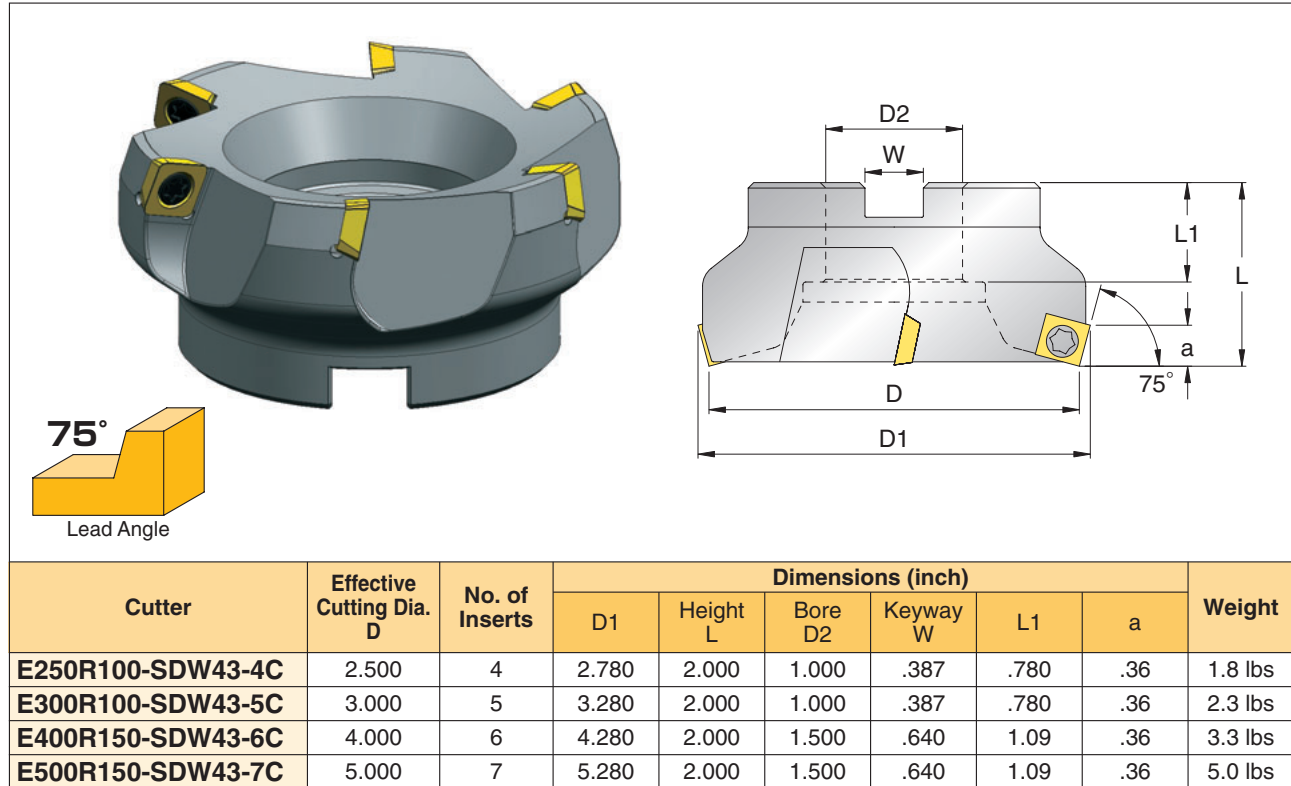
Fig.2: SDCW43PE



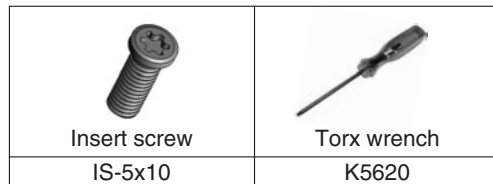
Shape	Insert	Dimensions (inch)					SX1	SX6	SX8	C7X
		IC	T	R	D	Fig.				
	SDCW432T0420	1/2	3/16	1/32	.216	1	●	●	●	●
	SDCW433T0420	1/2	3/16	3/64	.216	1	●	●	●	●
	SDCW434T0420	1/2	3/16	1/16	.216	1	●	●	●	●
	SDCW43PET0420R	1/2	3/16	1/32	.216	2	●	●	●	●

● : Stock

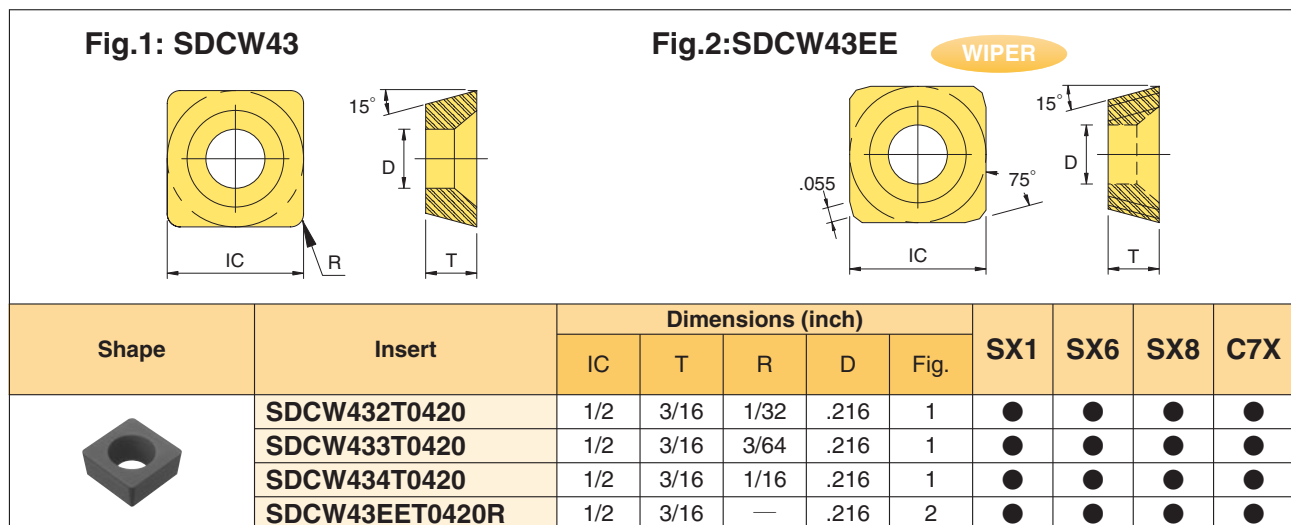
● Lead angle 75 degree - SDW43 (A.R. +12°, R.R. 0°)



● Spare Parts

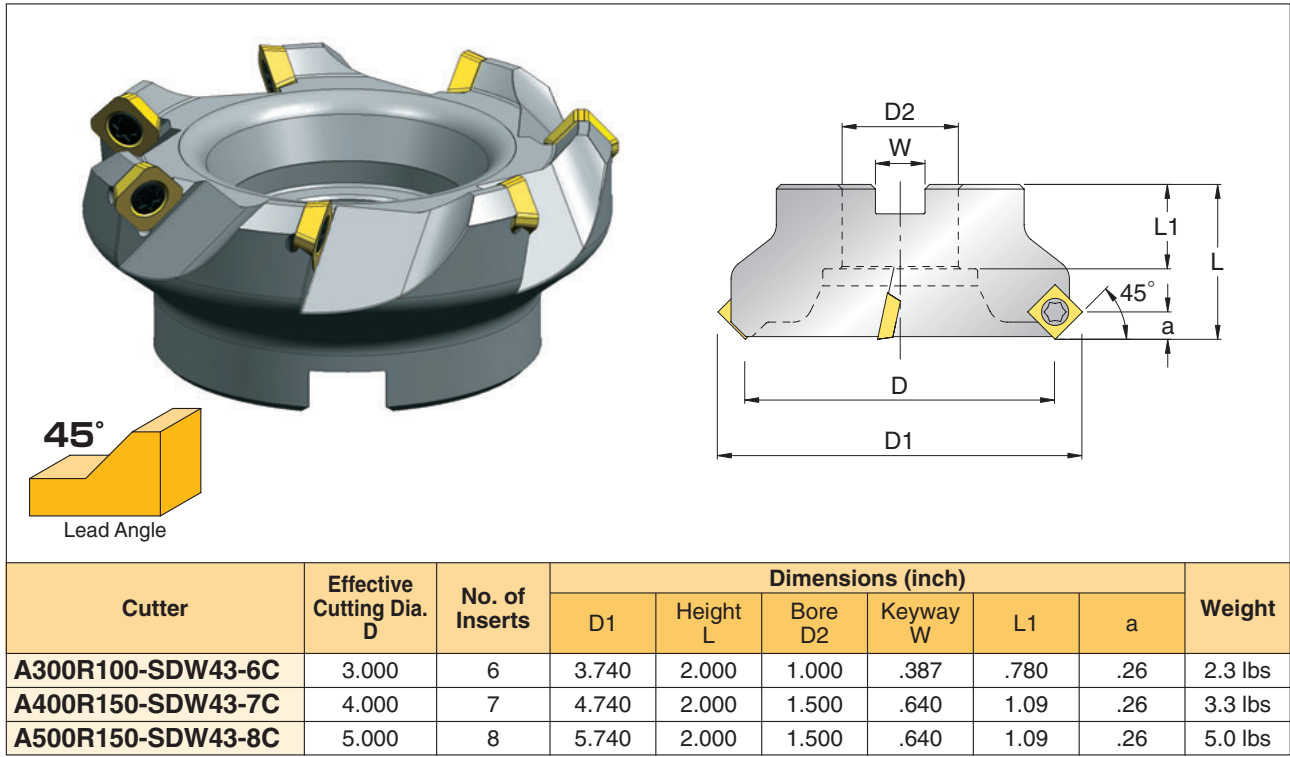


● Inserts





● : Stock

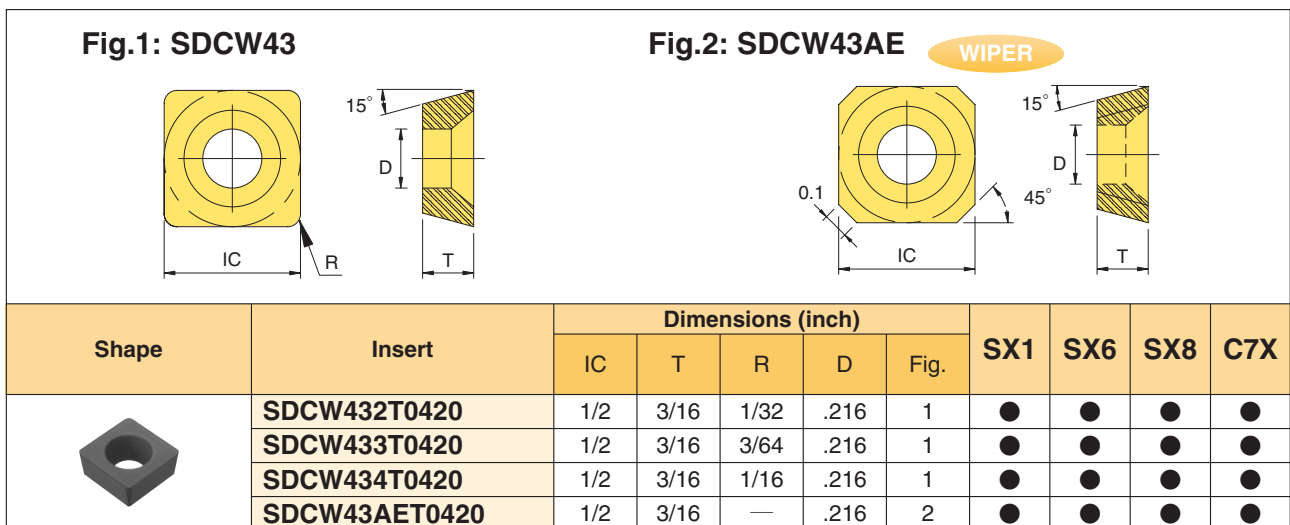
● Lead angle 45 degree - SDW43 (A.R. +12°, R.R. 0°)



● Spare Parts

	
Insert screw IS-5x10	Torx wrench K5620

● Inserts



● : Stock



HVM cutters excel in high feed and heavy depth of cut milling applications

- Clamp-on Negative inserts make high feed and heavy depth of cut machining possible
- Shim seats are located to protect milling cutter body

Recommended work materials

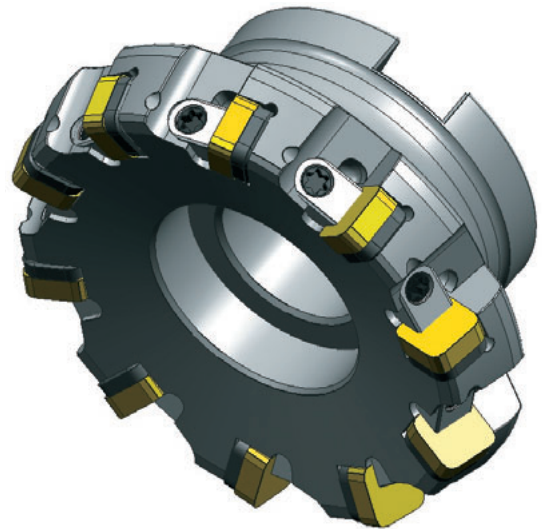
- Cast Irons, Ductile Irons
- Carbon Steels, Alloy Steels & Stainless Steels
- High Temperature Alloys
- Hardened Steels

Available cutter diameter

- 2.5, 3.0, 4.0, 5.0 inch

Available lead angle

- 75°



Wiper inserts also available

- Excellent surface roughness
- High feed machining with maintained surface roughness



Wiper

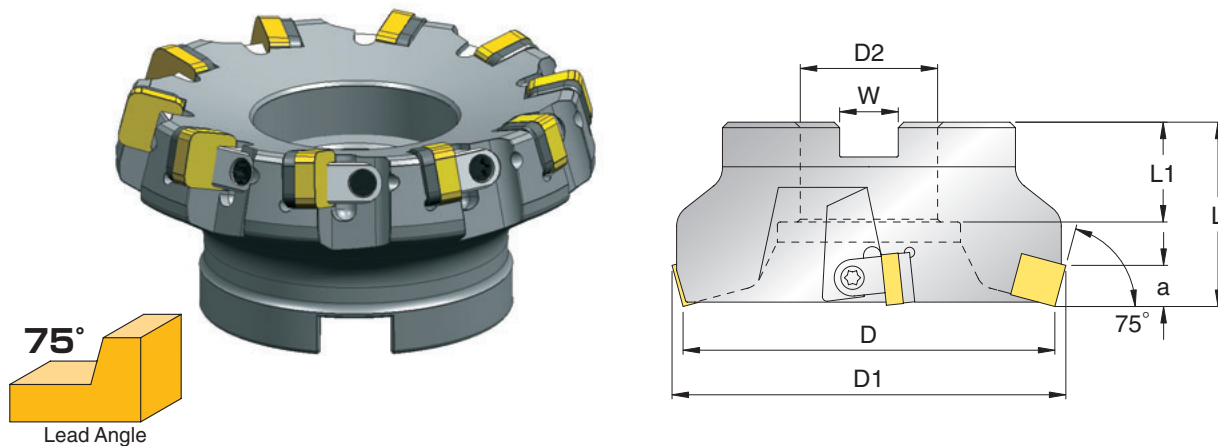
Chip-breaker inserts also available

- Excellent burr-free cutting
- Less tool pressure required



Chip-breaker

● Lead angle 75 degree - SN43 〈A.R. -6°, R.R. -10°〉



Cutter	Effective Cutting Dia. D	No. of Inserts	Dimensions (inch)						Weight
			D1	Height L	Bore D2	Keyway W	L1	a	
E250R100-SN43-6N	2.500	6	3.050	2.000	1.000	.387	.780	.36	2.0 lbs
E300R100-SN43-8N	3.000	8	3.550	2.000	1.000	.387	.780	.36	3.0 lbs
E400R150-SN43-10N	4.000	10	4.550	2.000	1.500	.640	1.09	.36	4.0 lbs
E500R150-SN43-12N	5.000	12	5.550	2.000	1.500	.640	1.09	.36	5.5 lbs

● Spare Parts

Wedge	Wedge screw	Torx wrench	Shim	Shim screw	Torx wrench
W6226	WS1266	K5615	S3212	SS1630	K5609

● Inserts

Fig.1: SNG43

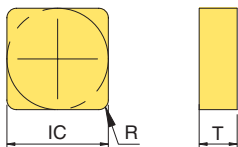


Fig.2: SNGF43

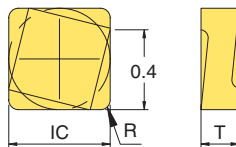
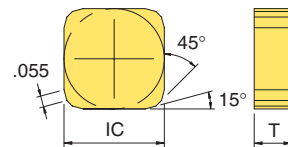


Fig.3: SNG43EN



Shape	Insert	Dimensions (inch)				SX1	SX5	SX6	SX8	SX9	WA1	C7X
		IC	T	R	Fig.							
	SNG432T0220	1/2	3/16	1/32	1		●			●	●	
	SNG432T0420	1/2	3/16	1/32	1	●		●	●	●	●	●
	SNG433T0220	1/2	3/16	3/64	1		●			●	●	
	SNG433T0420	1/2	3/16	3/64	1	●		●	●	●	●	●
	SNG434T0220	1/2	3/16	1/16	1		●			●	●	
	SNG434T0420	1/2	3/16	1/16	1	●		●	●	●	●	●
	SNGF433TRCC413	1/2	3/16	3/64	2	●						
	SNG43ENTN	1/2	3/16	—	3	●		●	●			●

● : Stock



XFM cutters offer higher feed capacity by engaging more teeth

Recommended work materials

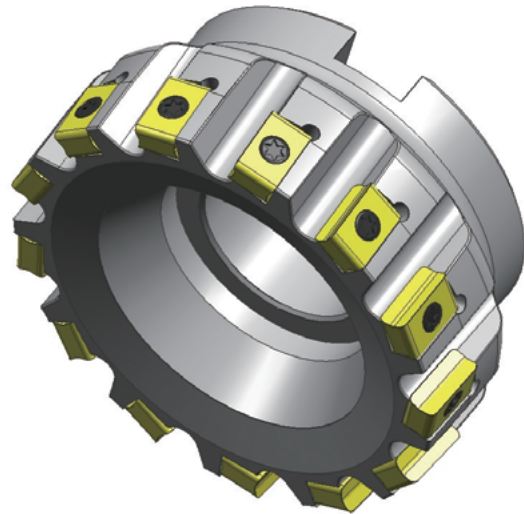
- Cast Irons, Ductile Irons

Available cutter diameter

- 3.0, 4.0, 5.0 inch

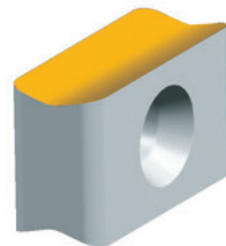
Available lead angle

- 88°



Screw-on Rectangular inserts with chip-breaker

- Sharpness and Toughness
- Reduced tool pressure
- Increased depth of cut
- Cost Reduction in hardware - No clamps required



Chip-breaker

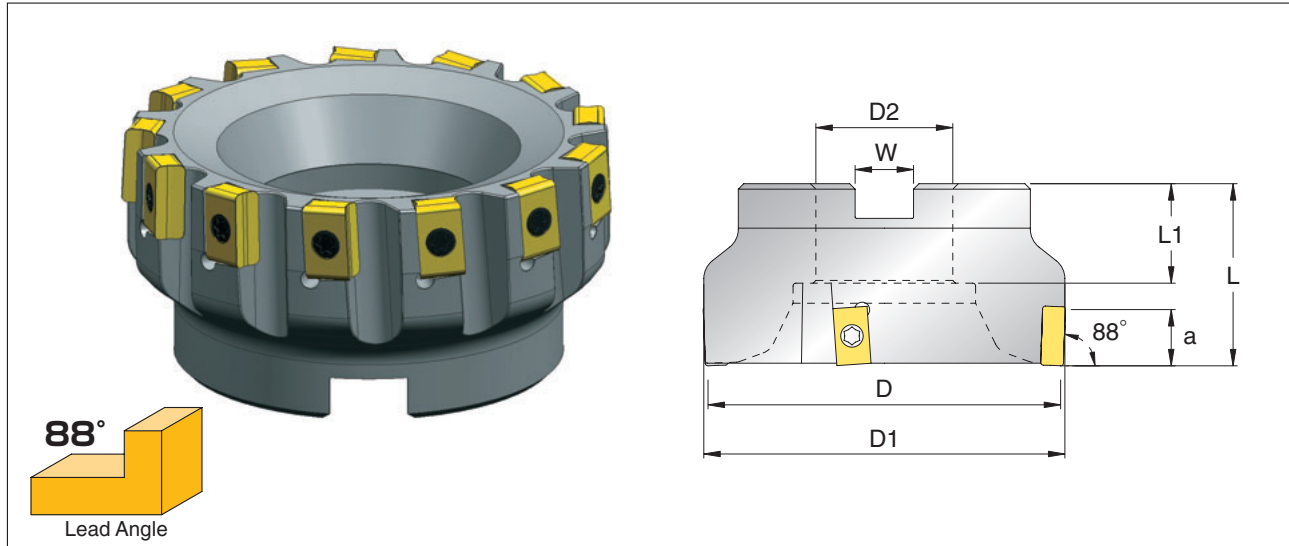
Note:

Torque-control wrench needed for clamping ceramic inserts.
Recommended torque is 35lbs (4Nm).
Order TCW15 wrench separately.

Note:



Only right hand cutter available at this time.

● Lead angle 88 degree - LNX324 〈A.R. -4°, R.R. 0°〉



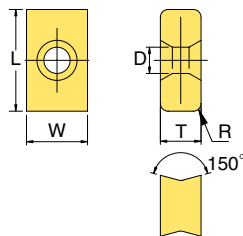
Cutter	Effective Cutting Dia. D	No. of Inserts	Dimensions (inch)						Weight
			D1	Height L	Bore D2	Keyway W	L1	a	
P300R100-LNX324-10C	3.000	10	3.130	2.000	1.000	.387	.770	.56	2.3 lbs
P400R150-LNX324-13C	4.000	13	4.130	2.000	1.500	.640	1.09	.56	3.3 lbs
P500R150-LNX324-16C	5.000	16	5.130	2.000	1.500	.640	1.09	.56	5.0 lbs


● Spare Parts

	
Insert screw IS-4x12	Torx wrench K5615

● Inserts

Fig.1: LNX324



Shape	Insert	Dimensions (inch)						SX1
		L	W	T	R	D	Fig.	
	LNX324-02T0420	5/8	3/8	1/4	1/32	.161	1	●
	LNX324-03T0420	5/8	3/8	1/4	3/64	.161	1	●
	LNX324-04T0420	5/8	3/8	1/4	1/16	.161	1	●

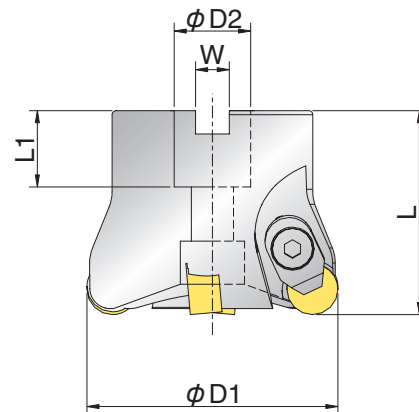
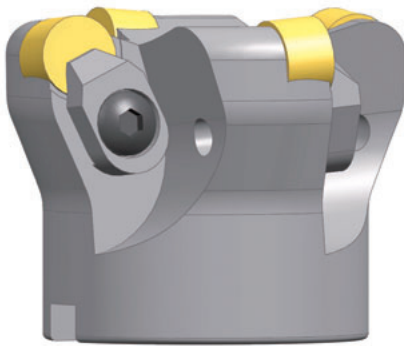
● : Stock



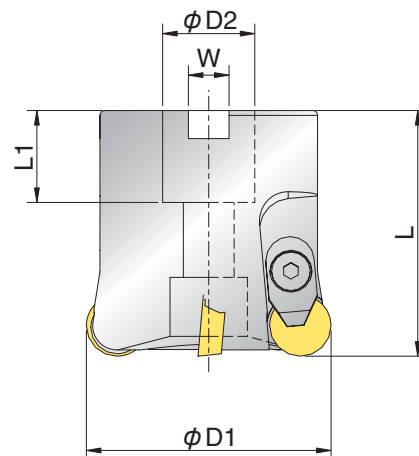
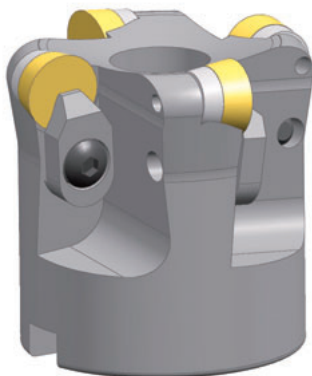
AHM with round style inserts make high speed milling of high temperature alloys and hardened steels possible

Recommended work materials


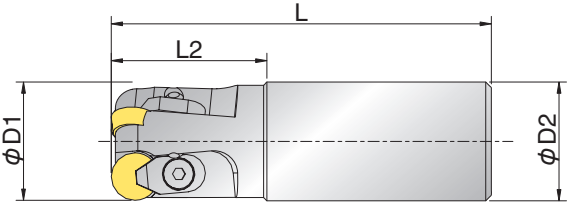
- High Temperature Alloys
- Hardened Steels





Cutter	Effective Cutting Dia. ϕ D1	No. of Inserts	Dimensions				Insert	
			Height L	Bore ϕ D2	Keyway W	L1		
RNIW200S075R03	2.000	3	2.000	.750	.322	.748	RNG45	
RNIW250S075R04	2.500	4		1.000	.387			
RNIW300S100R05	3.000	5						



Cutter	Effective Cutting Dia. $\phi D1$	No. of Inserts	Dimensions				Insert
			Height L	Bore $\phi D2$	Keyway W	L1	
RPIW200S075R04	2.000	4	2.000	.750	.322	.748	RPG43
RPIW300S100R05	3.000	5		1.000	.387		

 						
Cutter	Effective Cutting Dia. φ D1	No. of Inserts	Shank Diameter φ D2	Overall Length L	Head Length L2	Insert
RPIW125E125R03	1.250	3	1.250	4.000	1.640	RPG43
RPIW150E150R03	1.500		1.500		1.830	

● Inserts

Shape	Insert	Dimensions (inch)			WA1	SX5	SX9	HC7
		IC	T	R				
	RNG45E01	1/2	5/16	—	●		●	
	RNG45T0220				●	●	●	
	RNG45T0420				●	●	●	●
	RNG45Z0620				●			
	RNG45Z0825							●
	RPG43T0220	1/2	3/16	—	●	●	●	
	RPG43T0420				●	●	●	●
	RPG43Z0620				●			
	RPG43Z0825							●

● : Stock

● Spare Parts

Cutter					
RNIW200S075R03	AMS-6T	AOB-6S-T30	LLR-T30	—	—
RNIW250S075R04					
RNIW300S100R05					
RPIW125E125R03	AMS-5T	AOB-5S-T25	LLR-T25	—	—
RPIW150E150R03					
RPIW200S075R04					
RPIW300S100R05				ARP42A	M3×8

SX1, SX6 & SX8-Silicon Nitride Ceramics for Milling of Gray Cast Irons

NTK silicon nitride ceramics SX1, SX6 & SX8 make high-speed milling of cast iron possible. SX1 and SX6 grades have the highest silicon nitride content on the market. Both grades offer exceptional thermal shock resistance and wear resistance at high cutting speeds. Finer finishes and flatter surfaces can be obtained when SX1 and SX6 wiper inserts are used in high-speed milling. SX8 is the toughest silicon nitride grade for high speed milling of cast iron. Use SX8 for applications where lack of fracture toughness due to heavy depth of cut causes insert breakage.

SX1 Features

- Excellent notch wear resistance at high speeds
- Better thermal shock resistance at high speeds

SX6 Features

NEW

- Best notch wear resistance at high speeds
- Excellent wear resistance at high speeds
- Best thermal shock resistance at high speeds

SX8 Features

- Toughest silicon nitride ceramics on the market

Work Material	Depth of Cut (inch)	Grade	Dry	Wet	Cutting Speed (SFM)								Feed (IPT)						
					500	1000	1500	2000	2500	3000	3500		.002	.004	.006	.008	.010	.012	.014
Gray Cast Iron	.020 to .060	SX1	●	○															
		SX6	●	○															
		SX8	●	○															
	Over .060 or As cast	SX1	●	○															
		SX6	●	○															
		SX8	●	○															
Ductile Iron	.020 to .060	SX1	●	○															
		SX6	●	○															
		SX8	●	○															
		C7X	●	○															
	Over .060 or As cast	SX1	●	○															
		SX6	●	○															
		SX8	●	○															
		C7X	●	○															

● : 1st choice, ○ : 2nd choice

SX5 & SX9-SiAlON Ceramics for Milling of High Temperature Alloys

NTK SX5 and SX9 are SiAlON ceramics for high-speed milling of high temperature alloys. SiAlON ceramics offer better wear resistance and higher toughness than silicon nitride ceramics when machining high temperature alloys. SX5 is the toughest SiAlON grade on the market for machining high temperature alloys at high cutting speed. Use SX5 for applications where lack of fracture toughness due to heavy depth of cut causes insert breakage. SX9 has both the best thermal shock resistance and the best notch wear resistance in the SiAlON ceramics. Use SX9 for applications where thermal shock resistance or notch wear due to high-speed cutting cause insert breakage.

SX5 Features

- Excellent notch wear resistance at high speeds
- Toughest SiAlON grade on the market

SX9 Features

- Best notch wear resistance in the SiAlON ceramics
- Best thermal shock resistance in the SiAlON ceramics

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)					Feed (IPT)							Depth of Cut (INCH)						
				1500	2000	2500	3000	3500	.002	.003	.004	.005	.006	.007	.020	.040	.060	.080	.100	.120		
High Temperature Alloys	SX5	●	○																			
	SX9	●	○																			
	WA1	●	○																			

● : 1st choice, ○ : 2nd choice

WA1, Whisker-Reinforced Ceramic for Milling of High Temperature Alloys and Hardened Steels

NTK WA1 is a whisker-reinforced ceramic material with silicon-carbide(SiC) whiskers added to alumina. WA1 has been used widely for machining high temperature alloys and machining hardened steel at high cutting speeds. WA1 has a higher (SiC) content than other competitor's whisker-reinforced ceramics. The resulting material, WA1, shows higher toughness and better thermal shock resistance which are needed in milling applications.

WA1 Features

NEW

- Higher toughness compared with competitor's whisker reinforced ceramics
- Better thermal shock resistance compared with competitor's whisker ceramics
- Best notch wear resistance in the whisker-reinforced ceramics

HC7, Alumina-TiC Ceramic for Milling of Hardened Steels

NTK HC7 consists of aluminum oxide and titanium carbide (TiC). HC7 shows better surface view than whisker-reinforced ceramics in machining hardened steel. Use HC7 for finish milling applications where are needed surface roughness.

HC7 Features

- Excellent surface roughness in milling of hardened steel

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)					Feed (IPT)					Depth of Cut (INCH)						
				300	600	900	1200	1500	.002	.003	.004	.005	.010	.020	.030	.040	.050			
Hardened Steel	45 - 55 Rc	WA1	●	○																
		HC7	●	○																
	55 - 65 Rc	WA1	●	○																
		HC7	●	○																

● : 1st choice, ○ : 2nd choice

C7X - Cermet for Milling of Ductile Irons & Steels

NTK's newest cermet C7X, is designed for higher speed milling of ductile iron, carbon steels, alloy steels and stainless steels. By adding special alloy binders in the composition, C7X has special alloy binders which increase both its wear and thermal shock resistance. Also, C7X has increased fracture toughness comparable with some carbide milling grades on the market.

C7X Features

- Stable performance on semi-finishing and finishing steel regardless of dry or wet conditions
- High fracture toughness makes some roughing as well as finishing operations possible
- Stable tool life when milling with coolant by reducing chipping and breakage due to thermal cracks

Work Material		Depth of Cut (inch)	Grade	Dry	Wet	Cutting Speed (SFM)					Feed (IPT)				
						200	400	600	800	1000	.002	.004	.006	.008	0.10
Stainless Steel	400 Series-Martenstic & Ferritic	Up to .150	C7X	●	○										
	300 Series-Austenitic	Up to .150	C7X	●	○										
	Precipitation Hardness (17- 4etc)	Up to .100	C7X	●	○										
Carbon Steel-1000 Series & Alloy Steel-4000 5000 6000 8000 9000 Series	130 - 220 BHN	Up to .120	C7X	●	○										
	220 - 300 BHN	Up to .080	C7X	●	○										
	300 - 400 BHN	Up to .040	C7X	●	○										
	- 45 Rc	Up to .020	C7X	●	○										

● : 1st choice, ○ : 2nd choice