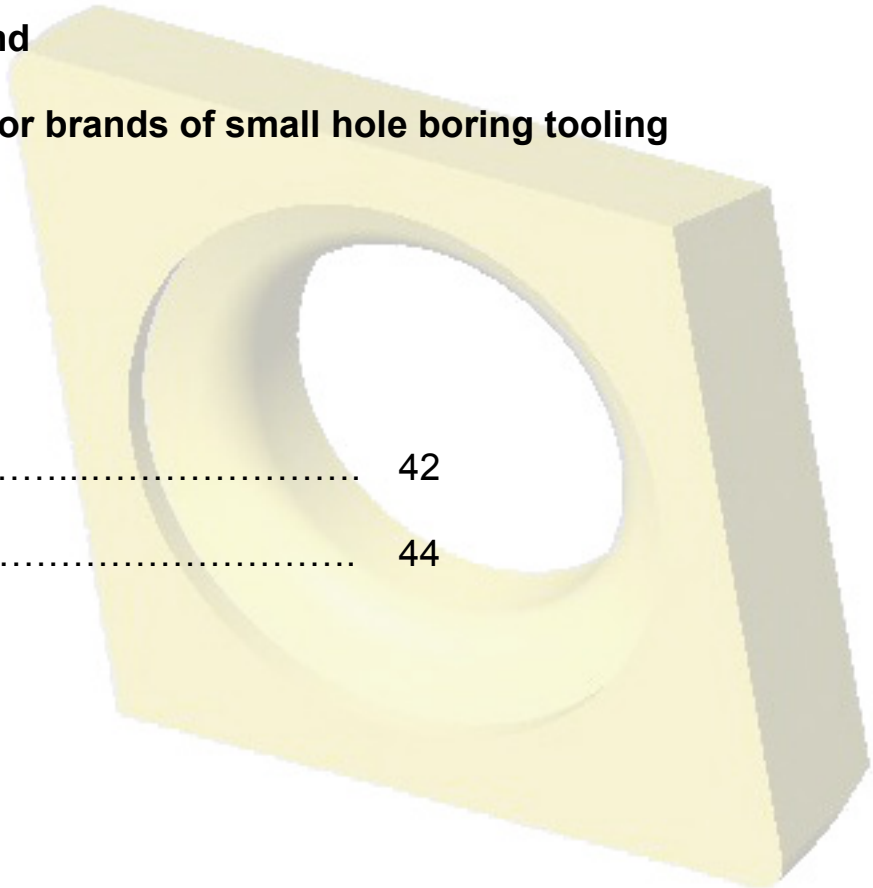


# Small Hole Boring Inserts

For boring holes as small as .180" in diameter

All inserts precision ground

Compatible with most major brands of small hole boring tooling



Grade and application data..... 42


Insert selection..... 44





**Ask about ANC's line of small hole boring bars with steel and solid carbide shanks**



## Small Hole Boring Inserts Grade and Application Data

PVD COATED				
Grade	ISO Class	Industry Class	Description	Coating
<b style="font-size: 1.2em;">AN4105</b> Light Roughing to Finishing	P05-P15	C7	AN4105 is based on a micro-grain, alloyed substrate and has a PVD coating of TiN to enhance lubricity. AN4105 has very high abrasion resistance and is best suited for finishing to general purpose operations on a wide variety of carbon and alloy steels.	 TiN Substrate

CVD COATED				
Grade	ISO Class	Industry Class	Description	Coating
<b style="font-size: 1.2em;">AN2020</b> Roughing to Semi-Finishing	P15-P30 M15-M30	C6	AN2020 is based on a hard, cobalt-enriched substrate and has a multi-layered gold coating to provide excellent thermal, wear, and mechanical shock resistance. Perfect general purpose grade for medium speeds and feeds in interrupted to semi-finishing cuts on carbon and alloy steels.	 TiN TiCN TiC TiN Substrate
<b style="font-size: 1.2em;">AN4010</b> Roughing to Semi-Finishing	P05-P20	C7	AN4010 has a micro-grain, alloyed substrate with a multi-layered gold coating, which includes a layer of aluminum oxide to allow it to run at much faster speeds than uncoated grades. AN4010 has excellent abrasion resistance and is best applied in general purpose machining of a wide variety of carbon and alloy steels.	 TiN Al <sub>2</sub> O <sub>3</sub> TiCN Substrate

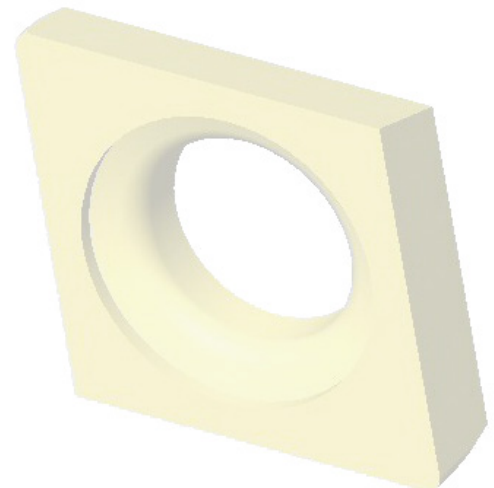
UNCOATED				
Grade	ISO Class	Industry Class	Description	
<b style="font-size: 1.2em;">AN2</b> Roughing to Semi-Finishing	K10-K25 N05-N15 S10-S20	C2	AN2 is an uncoated, unalloyed grade with good abrasive wear resistance. Designed for medium to rough turning of cast iron, non-ferrous materials, and high temperature alloys.	
<b style="font-size: 1.2em;">AN4</b> Fine Finishing	K05-K10 H01-H05	C2	AN4 is an uncoated, unalloyed grade designed specifically for fine finishing of cast irons at medium speeds and feed rates.	
<b style="font-size: 1.2em;">AN23</b> Semi-Finishing to Finishing	K05-K20 N01-N10 S05-S15	C3	AN23 is an uncoated, hard, unalloyed sub-micron grain grade. Exhibits excellent edge wear resistance combined with very high strength for machining heat resistant alloys, titanium, aluminum, and non-metals at high speeds and low feeds.	
<b style="font-size: 1.2em;">AN67</b> Light Roughing to Finishing	P05-P15	C7	AN67 is a very hard, uncoated alloyed grade with very high abrasion resistance. Designed for finishing to general purpose operations on a wide variety of carbon and alloy steels.	



# Small Hole Boring Inserts Grade and Application Data

<b>P</b> Steel alloys, cast steels, ferritic and martensitic stainless steels, and long chipping malleable irons					<b>M</b> Austenitic stainless steel, free machining steel, manganese steel, alloy cast iron, and malleable iron					<b>K</b> Cast iron and short chipping malleable iron							
C8		C7		C6	C5							C4		C3	C2		C1
P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30	K40			
	AN4105						AN2020					AN2					
	AN4010											AN23					
		AN2020										AN4					
	AN67																
More Wear ← → More Toughness					More Wear ← → More Toughness					More Wear ← → More Toughness							

<b>N</b> Non-ferrous metals, plastics, and wood					<b>S</b> High temperature alloys (nickel, iron, and cobalt based), titanium and titanium alloys					<b>H</b> Hard materials, such as chilled cast iron, hardened steel and hardened cast iron							
N01	N10	N20	N30	N40	S01	S10	S20	S30	S40	H01	H10	H20	H30	H40			
	AN2						AN2				AN4						
	AN23						AN23										
More Wear ← → More Toughness					More Wear ← → More Toughness					More Wear ← → More Toughness							

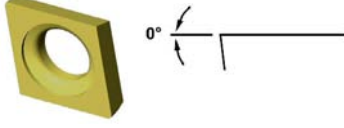
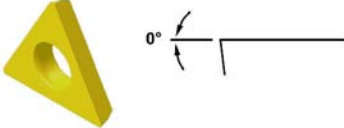
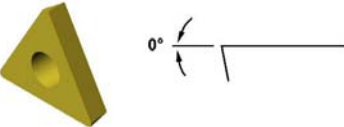
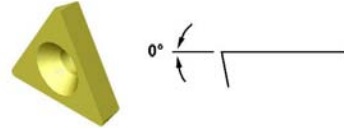
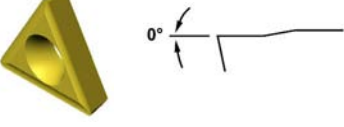




## Small Hole Boring Inserts

### SMALL HOLE BORING

with or without chip control, for screw fastening systems

	Part Number	Coated			Uncoated				Dimensions (inches)			
		AN2020	AN4105	AN4010	AN2	AN4	AN23	AN67	IC	Thick.	Radius	Hole
<b>CDCD</b> Medium Machining 80° Diamond 	CDCD 51.3002	•	•		•		•	•	5/32	.040	.002	.088
	CDCD 51.3007	•	•		•		•	•	5/32	.040	.007	.088
	CDCD 51.31	•	•		•		•	•	5/32	.040	1/64	.088
<b>TDED</b> Medium Machining Triangle 	TDED 51.5002	•	•		•		•	•	.160	.047	.002	.094
	TDED 51.5007	•	•		•		•	•	.160	.047	.007	.094
	TDED 51.51	•	•		•		•	•	.160	.047	1/64	.094
	TDED 51.52	•	•		•		•	•	.160	.047	1/32	.094
<b>TP</b> Medium Machining Triangle 	TP 41	•	•	•	•	•	•	•	1/4	3/32	1/64	.137
	TP 42	•	•	•	•	•	•	•	1/4	3/32	1/32	.137
	TP 61	•	•	•	•	•	•	•	3/8	1/8	1/64	.150
	TP 62	•	•	•	•	•	•	•	3/8	1/8	1/32	.150
<b>TPGB</b> Medium Machining Triangle 	TPGB 21.5002	•	•	•	•	•	•	•	1/4	3/32	.002	.115
	TPGB 21.5007	•	•	•	•	•	•	•	1/4	3/32	.007	.115
	TPGB 21.51	•	•	•	•	•	•	•	1/4	3/32	1/64	.115
	TPGB 21.52	•	•	•	•	•	•	•	1/4	3/32	1/32	.115
<b>TPGH</b> Medium Machining Triangle 	TPGH 21.5002	•	•		•		•	•	1/4	3/32	.002	.123
	TPGH 21.5007	•	•		•		•	•	1/4	3/32	.007	.123
	TPGH 21.51	•	•		•		•	•	1/4	3/32	1/64	.123
	TPGH 21.52	•	•		•		•	•	1/4	3/32	1/32	.123

