

Integrity, Discipline, Innovation

IDI Precision Machinery Ltd.

# IDI Diamond Coated Tools

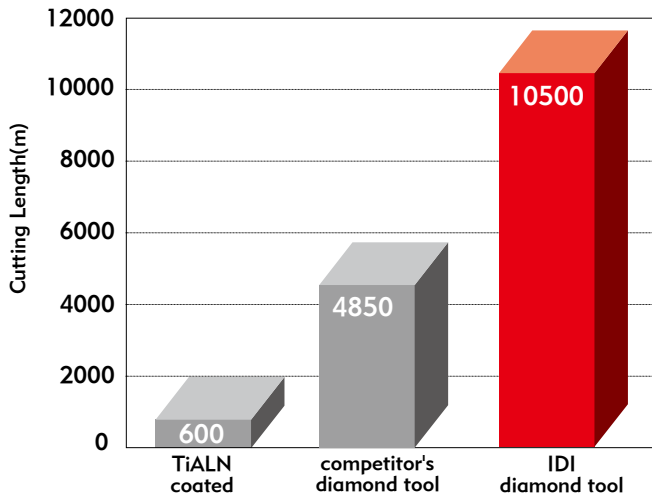
## Features:

IDI diamond coated tools have top cutting performance and the longest tool life. With specially sintered substrate, high performance tool geometry and excellent diamond coating, IDI tool's life time can exceed 12-20 times that of uncoated ones. From Year 2008, IDI becomes the only manufacture in the world, who provides both metric and English sized diamond coated tools and also diamond coated milling inserts for graphite roughing!

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**Application:**

**Graphite milling:**

for semiconductor industry, die and mold industry..., etc.

**Composite materials:**

CFRP (carbon fiber reinforced plastics), Glass fiber plastics, PEEK, PBI..., etc. (contact us for this application)

**Ceramics in green state machining**

**Cutting condition:**

Tool: R3 ball nose endmill

Vc=220m/min.

Pitch=0.08mm

Graphite: POCO EDM200

Application: Graphite electrode Z level finishing

Note: Tool life depends on machine tool, tool holder, graphite hardness and surface quality requirement..., etc. The above data may not fit all cases.



**Competitor's diamond tool:**  
after 4850m cutting length



**IDI diamond tool:**  
after 10500m cutting length

**IDI Diamond Coated Tools Codes** (for English unit tools only)

**DES12-4-20-22-33**

1 2 3 4 5 6 7 8

<b>1</b> Diamond Coating	<b>4</b> Cutting Diameter Dimension Code
<b>2</b> M:Metric E:English	<b>5</b> No. of Flutes
<b>3</b> S:Square End B:Ball Nose C:Corner Radius R:Roughing Tool	<b>6</b> Flute Length Dimension Code
	<b>7</b> Effective Length Dimension Code
	<b>8</b> Overall Length Dimension Code

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# Tools for Graphite Roughing

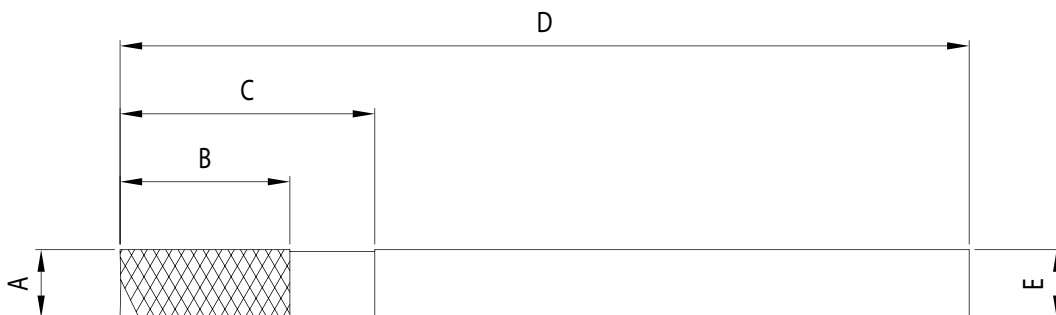
## Shank Tools

unit: inch

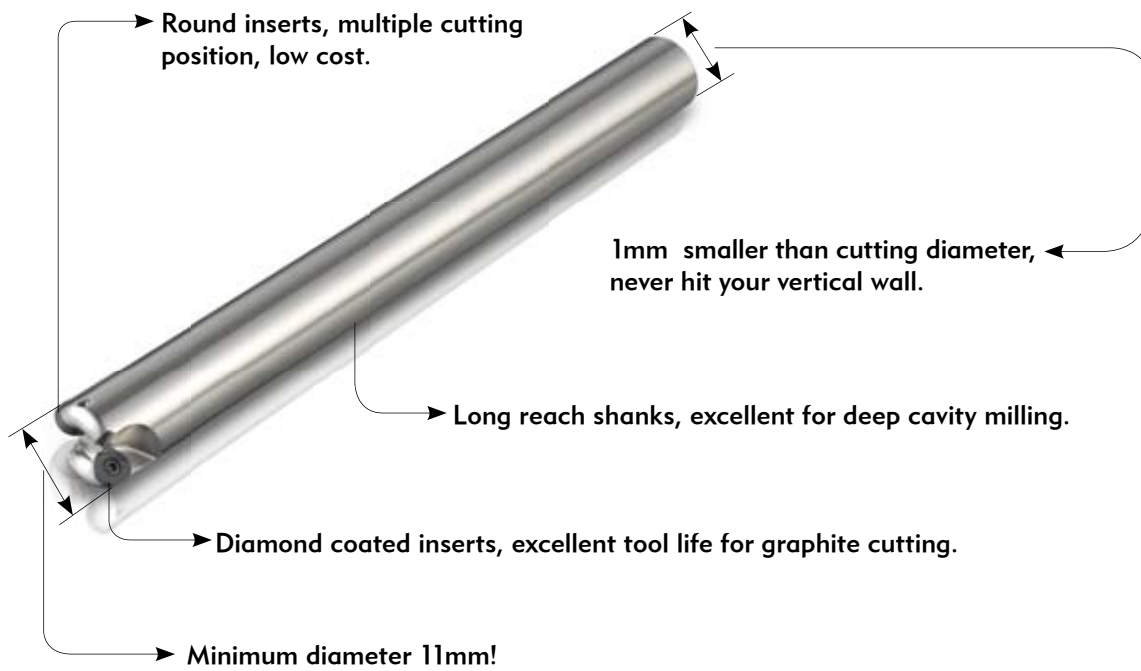
Part No.	Cutting Diameter A	No. of Flutes	Flute Length B	Effective Length C	Overall Length D	Shank Diameter E
DER08-2-14-18-31	1/8	2	3/8	5/8	2 1/2	1/8
DER11-2-16-20-32	3/16	2	1/2	3/4	3	3/16
DER12-2-20-22-31	1/4	2	3/4	1	2 1/2	1/4
DER12-2-20-22-33	1/4	2	3/4	1	4	1/4
DER14-2-23-26-33	3/8	2	1 1/8	1 1/2	4	3/8

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# Diamond Coated Insert Systems for Graphite Cutting

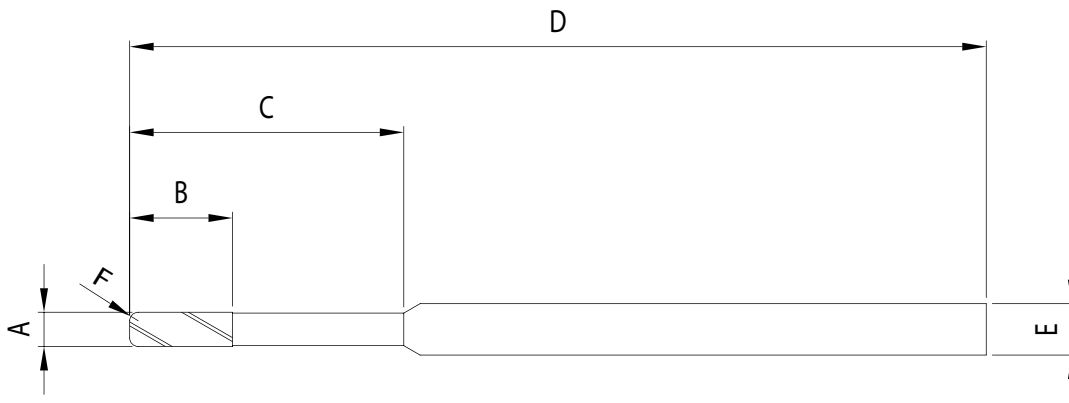


unit: mm

Part No.	Cutting Diameter (mm)	Shank Diameter (mm)	Overall Length (mm)	No. of Flutes	Insert Type
T-D11R2.5-S10-L125	D11R2.5	10	125	2	RDHX0501
T-D13R2.5-S12-L150	D13R2.5	12	150	2	RDHX0501
T-D17R4-S16-L200	D17R4	16	200	2	RDHX0802
T-D21R4-S20-L200	D21R4	20	200	2	RDHX0802
T-D26R4-S25-L250	D26R4	25	250	3	RDHX0802


Part No.	Photos
RDHX0501	
RDHX0802	
SEHT1204	







## Mini Tools

unit: inch

Tool Type	Part No.	Cutting Diameter A	No. of Flutes	Flute Length B	Effective Length C	Overall Length D	Shank Diameter E
Square End 	DES02-2-04-04-30	1/64	2	3/64	3/64	2	1/8
	DES02-2-04-10-30	1/64	2	3/64	5/32	2	1/8
	DES03-2-07-07-30	1/32	2	3/32	3/32	2	1/8
	DES03-2-07-13-30	1/32	2	3/32	5/16	2	1/8
	DES03-2-07-16-30	1/32	2	3/32	1/2	2	1/8
	DES04-2-09-09-30	3/64	2	9/64	9/64	2	1/8
	DES04-2-09-13-30	3/64	2	9/64	5/16	2	1/8
	DES04-2-09-16-30	3/64	2	9/64	1/2	2	1/8
	DES04-2-09-20-30	3/64	2	9/64	3/4	2	1/8
	DES05-2-11-11-31	1/16	2	3/16	3/16	2 1/2	1/8
	DES05-2-11-14-31	1/16	2	3/16	3/8	2 1/2	1/8
	DES05-2-11-16-31	1/16	2	3/16	1/2	2 1/2	1/8
	DES05-2-11-19-31	1/16	2	3/16	13/20	2 1/2	1/8
	DES05-2-11-21-31	1/16	2	3/16	4/5	2 1/2	1/8
	DES05-2-11-22-31	1/16	2	3/16	1	2 1/2	1/8
	DES07-4-11-11-31	3/32	4	3/16	3/16	2 1/2	1/8
	DES07-4-11-14-31	3/32	4	3/16	3/8	2 1/2	1/8
	DES07-4-11-16-31	3/32	4	3/16	1/2	2 1/2	1/8
	DES07-4-11-22-31	3/32	4	3/16	1	2 1/2	1/8




unit: inch

Tool Type	Part No.	Cutting Diameter A	No. of Flutes	Flute Length B	Effective Length C	Overall Length D	Shank Diameter E	Corner Radius F
Ball Nose 	DEB02-2-04-04-30	1/64	2	3/64	3/64	2	1/8	
	DEB02-2-04-10-30	1/64	2	3/64	5/32	2	1/8	
	DEB03-2-07-07-30	1/32	2	3/32	3/32	2	1/8	
	DEB03-2-07-13-30	1/32	2	3/32	5/16	2	1/8	
	DEB03-2-07-16-30	1/32	2	3/32	1/2	2	1/8	
	DEB04-2-09-09-30	3/64	2	9/64	9/64	2	1/8	
	DEB04-2-09-13-30	3/64	2	9/64	5/16	2	1/8	
	DEB04-2-09-16-30	3/64	2	9/64	1/2	2	1/8	
	DEB04-2-09-20-30	3/64	2	9/64	3/4	2	1/8	
	DEB05-2-11-11-31	1/16	2	3/16	3/16	2 1/2	1/8	
	DEB05-2-11-14-31	1/16	2	3/16	3/8	2 1/2	1/8	
	DEB05-2-11-16-31	1/16	2	3/16	1/2	2 1/2	1/8	
	DEB05-2-11-19-31	1/16	2	3/16	13/20	2 1/2	1/8	
	DEB05-2-11-21-31	1/16	2	3/16	4/5	2 1/2	1/8	
	DEB05-2-11-22-31	1/16	2	3/16	1	2 1/2	1/8	
	DEB07-4-11-11-31	3/32	4	3/16	3/16	2 1/2	1/8	
	DEB07-4-11-14-31	3/32	4	3/16	3/8	2 1/2	1/8	
	DEB07-4-11-16-31	3/32	4	3/16	1/2	2 1/2	1/8	
DEB07-4-11-22-31	3/32	4	3/16	1	2 1/2	1/8		
Corner Radius 	DEC05-2-11-11-31	1/16	2	3/16	3/16	2 1/2	1/8	0.01
	DEC05-2-11-14-31	1/16	2	3/16	3/8	2 1/2	1/8	0.01
	DEC05-2-11-16-31	1/16	2	3/16	1/2	2 1/2	1/8	0.01
	DEC05-2-11-19-31	1/16	2	3/16	13/20	2 1/2	1/8	0.01
	DEC05-2-11-21-31	1/16	2	3/16	4/5	2 1/2	1/8	0.01
	DEC05-2-11-22-31	1/16	2	3/16	1	2 1/2	1/8	0.01
	DEC07-4-11-11-31	3/32	4	3/16	3/16	2 1/2	1/8	0.01
	DEC07-4-11-14-31	3/32	4	3/16	3/8	2 1/2	1/8	0.01
	DEC07-4-11-16-31	3/32	4	3/16	1/2	2 1/2	1/8	0.01
	DEC07-4-11-22-31	3/32	4	3/16	1	2 1/2	1/8	0.01





## Standard Tools

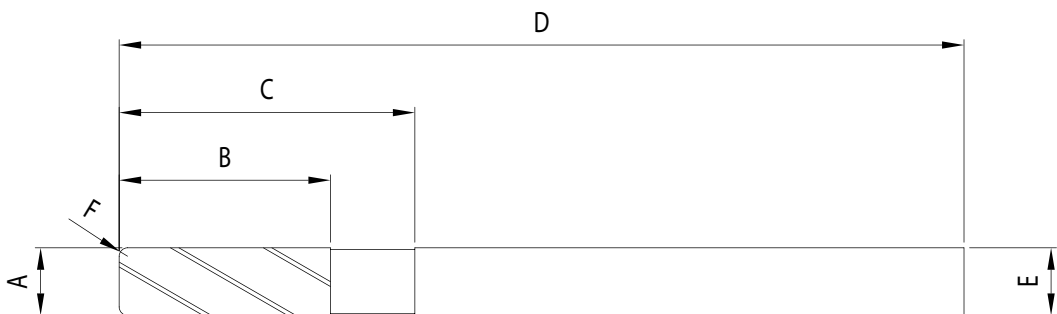
unit: inch

Tool Type	Part No.	Cutting Diameter A	No. of Flutes	Flute Length B	Effective Length C	Overall Length D	Shank Diameter E
Square End 	DES08-4-14-18-32	1/8	4	3/8	5/8	3	1/8
	DES11-4-16-20-32	3/16	4	1/2	3/4	3	3/16
	DES11-4-16-20-33	3/16	4	1/2	3/4	4	3/16
	DES12-4-20-22-31	1/4	4	3/4	1	2 1/2	1/4
	DES12-4-20-22-33	1/4	4	3/4	1	4	1/4
	DES12-4-20-22-34	1/4	4	3/4	1	6	1/4
	DES14-4-23-26-33	3/8	4	1 1/8	1 1/2	4	3/8
	DES14-4-23-26-34	3/8	4	1 1/8	1 1/2	6	3/8
	DES16-4-26-29-33	1/2	4	1 1/2	1 7/8	4	1/2
	DES16-4-26-29-34	1/2	4	1 1/2	1 7/8	6	1/2



unit: inch

Tool Type	Part No.	Cutting Diameter A	No. of Flutes	Flute Length B	Effective Length C	Overall Length D	Shank Diameter E	Corner Radius F
Ball Nose 	DEB08-4-14-18-32	1/8	4	3/8	5/8	3	1/8	
	DEB11-4-16-20-32	3/16	4	1/2	3/4	3	3/16	
	DEB11-4-16-20-33	3/16	4	1/2	3/4	4	3/16	
	DEB12-4-20-22-31	1/4	4	3/4	1	2 1/2	1/4	
	DEB12-4-20-22-33	1/4	4	3/4	1	4	1/4	
	DEB12-4-20-22-34	1/4	4	3/4	1	6	1/4	
	DEB14-4-23-26-33	3/8	4	1 1/8	1 1/2	4	3/8	
	DEB14-4-23-26-34	3/8	4	1 1/8	1 1/2	6	3/8	
	DEB16-4-26-29-33	1/2	4	1 1/2	1 7/8	4	1/2	
	DEB16-4-26-29-34	1/2	4	1 1/2	1 7/8	6	1/2	
Corner Radius 	DEC08-4-14-18-32	1/8	4	3/8	5/8	3	1/8	0.015
	DEC11-4-16-20-32	3/16	4	1/2	3/4	3	3/16	0.02
	DEC11-4-16-20-33	3/16	4	1/2	3/4	4	3/16	0.02
	DEC12-4-20-22-31	1/4	4	3/4	1	2 1/2	1/4	0.02
	DEC12-4-20-22-33	1/4	4	3/4	1	4	1/4	0.02
	DEC12-4-20-22-34	1/4	4	3/4	1	6	1/4	0.02
	DEC14-4-23-26-33	3/8	4	1 1/8	1 1/2	4	3/8	0.04
	DEC14-4-23-26-34	3/8	4	1 1/8	1 1/2	6	3/8	0.04
	DEC16-4-26-29-33	1/2	4	1 1/2	1 7/8	4	1/2	0.04
	DEC16-4-26-29-34	1/2	4	1 1/2	1 7/8	6	1/2	0.04



# Customer Examples

## Graphite Roughing:

**Tool:** D13R2.5 RDHX0501 diamond coated milling inserts  
**Spindle speed:** 5000 rpm  
**Feedrate:** 4000mm/min.  
**Graphite:** POCO EDM200  
**ap**=0.5mm, **ae**=7mm  
**Tool life:** 3-4 hours/day, two inserts last about 40 work days



## Graphite Finishing

**Tool:** DMB4-4-15-20-75 4mm ball nose end mill  
**Spindle speed:** 6000 rpm  
**Feedrate:** 2400mm/min.  
**Graphite:** for semiconductor use, Shore's hardness over 70  
**ae**=0.1mm  
**Tool life:** over 15 times of TiALN coated tools



## Ceramic Finishing

**Tool:** DMB1-2-3-16-50 1mm ball nose end mill  
**Spindle speed:** 25000 rpm  
**Feedrate:** 500mm/min.  
**Ceramic:** Zirconia for dental use  
**Tool life:** over 50 times of TiALN coated tools

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