

**INDMILL**

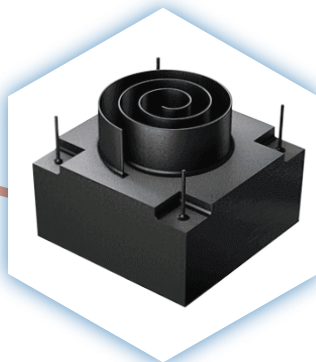
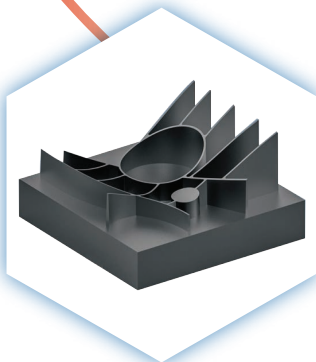
High Precision Milling Tools

# Graphite Machining



**Unmatched Precision**

Milling Tools Crafted for Graphite Machining



# High Precision Milling Tools for Graphite Machining

## Maximize Efficiency and Accuracy

Graphite is a highly abrasive material, but with AXIS high-performance milling tools, you can achieve exceptional precision, superior surface quality, and maximize efficiency. Engineered specifically for graphite machining, our tools offer unparalleled wear resistance and extended tool life, even in the most demanding environments.



## Key Challenges in Graphite Electrode Machining:

- **Optimized Tool Geometry for Efficient Chip Removal** : High RPMs require precision-balanced tools with ample chip room to ensure smooth chip evacuation. Our tools are designed with optimal geometries that enhance both machining efficiency and product quality, enabling you to achieve top-tier results in graphite machining.
- **Advanced High-Speed Machining**: With spindle speeds ranging from 30,000 to 60,000 RPM, modern high-speed machining centers allow for accelerated feeds, significantly reducing cycle times while enhancing surface finish and edge quality. This is crucial for intricate electrode designs where fragile micro-tools are often used, ensuring lower cutting forces and reduced tool breakage.

### Key Features

#### Superior Tool Material

Made with premium-grade, ultra-fine carbide for high durability and performance

#### Precision Geometry

Designed with cutting-edge geometry to minimize edge wear and ensure cleaner cuts



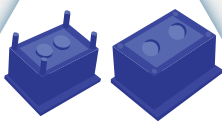
#### NexGen Coating

Specialized coating for high wear resistance, heat dissipation, and reduced friction

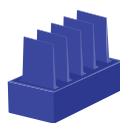
#### Long Tool Life

Built to withstand the abrasive nature of graphite, ensuring consistent performance over extended use

### Applications



Precision Mold & Die making



EDM Electrodes



Aerospace Components



Automotive Parts

# NexGen CVD Diamond Coatings

AXIS introducing CVD Diamond coated tools for machining of Graphite Electrodes and other graphite parts. As graphite is brittle in nature, so machining is also very difficult. Graphite electrodes used in EDM need to be precise and accurate. At AXIS, we provide tools with close tolerances and highly uniform CVD Diamond Coating resulting into high quality and precise machining of graphite electrodes.

## High Exceptional Performance

**Advanced mICRO Geometry**

**Fine and Keen Cutting Edge**

**High Hardness**

**Precise Cutting and Exceptional Wear Resistance**

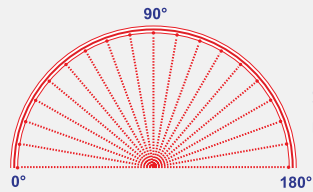
**Optimised Tool Design**

**Enhanced Chip Space and Efficient Chip Removal**

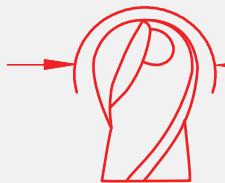
**mICRO-Fine Carbide**

**Increased Edge Strength and High Surface Finish**

## Accurate & Consistent Profile



**Ball Line Form**  
 Standard :  $\pm 0.005$   
 On Request :  $\pm 0.0015$



**Ball Radius Tolerance**  
 Standard :  
 R 0.10-R 1.50 :  $\pm 0.002\text{mm}$   
 R 2.00-8.00 :  $\pm 0.005\text{mm}$   
 On Request :  $\pm 0.0015\text{mm}$

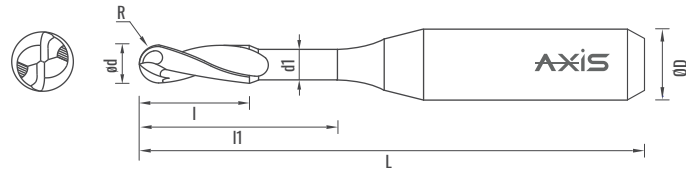


**Corner Radius Tolerance**  
 Standard :  
 R 0.10-R 1.00 :  $\pm 0.010\text{mm}$   
 R > 1.00 :  $\pm 0.020\text{mm}$   
 On Request :  $\pm 0.003\text{mm}$

## AXIS Portfolio

	Article	Tool Drawing	Series	Dia Range (mm)	Dia Tolerance	Concentricity
<b>INDMILL G<sup>+</sup></b>	B200		2 Flute Ballnose End Mill Diamond Coated	0.10 -12.00	+ 0.00 / - 0.010 for $\varnothing < 6.00$ + 0.00 / - 0.015 for $\varnothing \geq 6.00$	$0.003 \leq \varnothing 6.00, L \leq 60.00$ $0.005 > \varnothing 6.00$
	E215		2 Flute End Mill Corner Radius Diamond Coated	0.10 - 6.00	+ 0.00 / - 0.010 for $\varnothing < 6.00$ + 0.00 / - 0.015 for $\varnothing \geq 6.00$	$0.003 \leq \varnothing 6.00, L \leq 60.00$ $0.005 > \varnothing 6.00$
<b>INDMILL G</b>	B201		2 Flute Ballnose End Mill Diamond Coated	0.40 - 6.00	+ 0.00 / - 0.015	0.010
	E216		2 Flute End Mill Corner Radius Diamond Coated	0.80 - 6.00	+ 0.00 / - 0.015	0.010
	E218		4 Flute End Mill Corner Radius Diamond Coated	4.00 - 12.00	+ 0.00 / - 0.010 for $\varnothing < 4.00$ + 0.00 / - 0.030 for $\varnothing \geq 4.00$	0.010





**Dia Tolerance :**  
 + 0.00 / - 0.010 for Ød < 6.00  
 + 0.00 / - 0.015 for Ød ≥ 6.00

**Concentricity :**  
 0.003 ≤ Ø 6.00, L ≤ 60.00  
 0.005 > Ø 6.00

**APPLICATION**

Suitable for milling Graphite,  
 CFK/GFK, Green stage ceramic /  
 Carbides and Non ferrous

**ADVANTAGES**

- Higher dimensional accuracy
- Improved process capability
- Extreme wear resistance  
 CVD Diamond Coating
- Assured quality control

**PACKING**

Single tool per pack

**LABELLING**

Actual dia marking on label

**ON REQUEST**

Special Sizes / Inch Sizes

Ød	R ±0.003	l	l1	d1	L	ØD h5
0.10	0.05	0.15	0.20	0.09	60	4.00
0.10	0.05	0.15	0.40	0.09	60	4.00
0.15	0.075	0.20	0.30	0.14	60	4.00
0.15	0.075	0.20	0.60	0.14	60	4.00
0.20	0.10	0.30	0.60	0.18	60	4.00
0.20	0.10	0.30	1.00	0.18	60	4.00
0.20	0.10	0.30	1.50	0.18	60	4.00
0.30	0.15	0.50	0.50	0.27	60	4.00
0.30	0.15	0.50	1.00	0.27	60	4.00
0.30	0.15	0.50	1.50	0.27	60	4.00
0.30	0.15	0.50	3.00	0.27	60	4.00
0.30	0.15	0.50	4.50	0.27	60	4.00
0.30	0.15	0.50	6.00	0.27	60	4.00
0.40	0.20	0.60	2.00	0.36	60	4.00
0.40	0.20	0.60	4.00	0.36	60	4.00
0.40	0.20	0.60	6.00	0.36	60	4.00
0.40	0.20	0.60	8.00	0.36	60	4.00
0.50	0.25	0.70	2.50	0.45	60	4.00
0.50	0.25	0.70	5.00	0.45	60	4.00
0.50	0.25	0.70	7.50	0.45	60	4.00
0.50	0.25	0.70	10.00	0.45	60	4.00
0.60	0.30	1.00	3.00	0.55	60	4.00
0.60	0.30	1.00	6.00	0.55	60	4.00
0.60	0.30	1.00	9.00	0.55	60	4.00
0.60	0.30	1.00	12.00	0.55	60	4.00
0.80	0.40	1.20	4.00	0.75	60	4.00
0.80	0.40	1.20	8.00	0.75	60	4.00
0.80	0.40	1.20	12.00	0.75	60	4.00
0.80	0.40	1.20	16.00	0.75	60	4.00
1.00	0.50	1.60	5.00	0.95	60	4.00
1.00	0.50	1.60	10.00	0.95	60	4.00
1.00	0.50	1.60	15.00	0.95	60	4.00
1.00	0.50	1.60	20.00	0.95	60	4.00
1.50	0.75	2.40	5.00	1.40	60	4.00

# B200

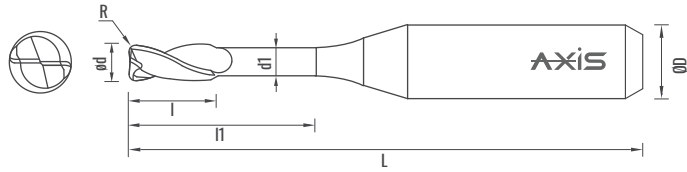
ød	R ≠0.003	l	ll	d1	L	ØD h5
1.50	0.75	2.40	10.00	1.40	60	4.00
1.50	0.75	2.40	15.00	1.40	60	4.00
1.50	0.75	2.40	20.00	1.40	60	4.00
2.00	1.00	3.00	6.00	1.90	60	4.00
2.00	1.00	3.00	12.00	1.90	60	4.00
2.00	1.00	3.00	18.00	1.90	60	4.00
2.00	1.00	3.00	24.00	1.90	60	4.00
2.00	1.00	3.00	30.00	1.90	60	4.00
3.00	1.50	3.50	9.00	2.90	60	6.00
3.00	1.50	3.50	14.00	2.90	60	6.00
3.00	1.50	3.50	18.00	2.90	60	6.00
3.00	1.50	3.50	24.00	2.90	60	6.00
3.00	1.50	3.50	30.00	2.90	60	6.00
3.00	1.50	3.50	35.00	2.90	70	6.00
3.00	1.50	3.50	45.00	2.90	100	6.00
4.00	2.00	4.00	12.00	3.80	60	6.00
4.00	2.00	4.00	16.00	3.80	60	6.00
4.00	2.00	4.00	24.00	3.80	60	6.00
4.00	2.00	4.00	30.00	3.80	60	6.00
4.00	2.00	4.00	35.00	3.80	70	6.00
4.00	2.00	4.00	40.00	3.80	100	6.00
5.00	2.50	5.00	15.00	4.80	60	6.00
5.00	2.50	5.00	30.00	4.80	60	6.00
5.00	2.50	5.00	50.00	4.80	100	6.00
6.00	3.00	6.00	18.00	5.80	60	6.00
6.00	3.00	6.00	30.00	5.80	60	6.00
6.00	3.00	6.00	35.00	5.80	70	6.00
6.00	3.00	6.00	45.00	5.80	100	6.00
6.00	3.00	6.00	60.00	5.80	100	6.00
8.00	4.00	8.00	30.00	7.70	70	8.00
8.00	4.00	8.00	80.00	7.70	140	8.00
10.00	5.00	10.00	30.00	9.70	70	10.00
10.00	5.00	10.00	100.0	9.70	150	10.00
12.00	6.00	12.00	30.00	11.70	80	12.00
12.00	6.00	12.00	100.0	11.70	150	12.00

# INDMILL G<sup>+</sup>

## 2 Flute End Mill Corner Radius Diamond Coated

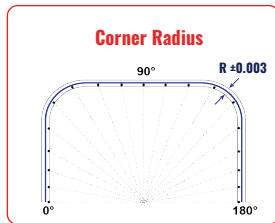


### E215



**Dia Tolerance :**  
+ 0.00 / - 0.010 for Ø < 6.00  
+ 0.00 / - 0.015 for Ø > 6.00

**Concentricity :**  
0.003 ≤ ø 6.00, L ≤ 60.00  
0.005 > ø 6.00



### APPLICATION

Suitable for milling Graphite,  
CFK/GFK, Green stage ceramic /  
Carbides and Non ferrous

### ADVANTAGES

- Higher dimensional accuracy
- Improved process capability
- Extreme wear resistance  
CVD Diamond Coating
- Assured quality control

### PACKING

Single tool per pack

### LABELLING

Actual dia marking on label

### ON REQUEST

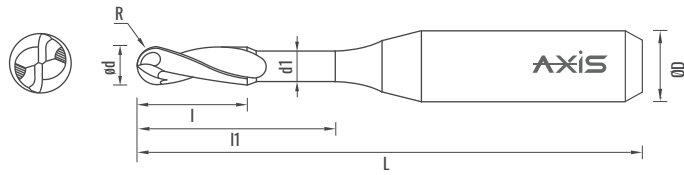
Special Sizes / Inch Sizes

ød	R ±0.003	l	l1	d1	L	ØD h5
0.10	0.01	0.15	0.20	0.08	60	4.00
0.10	0.01	0.15	0.40	0.08	60	4.00
0.15	0.01	0.20	0.30	0.13	60	4.00
0.15	0.01	0.20	0.60	0.13	60	4.00
0.20	0.02	0.30	0.60	0.17	60	4.00
0.20	0.02	0.30	1.00	0.17	60	4.00
0.20	0.02	0.30	1.50	0.17	60	4.00
0.30	0.02	0.50	0.50	0.25	60	4.00
0.30	0.02	0.50	1.00	0.25	60	4.00
0.30	0.02	0.50	1.50	0.25	60	4.00
0.30	0.02	0.50	3.00	0.25	60	4.00
0.30	0.02	0.50	4.50	0.25	60	4.00
0.30	0.02	0.50	6.00	0.25	60	4.00
0.40	0.02	0.60	2.00	0.34	60	4.00
0.40	0.02	0.60	4.00	0.34	60	4.00
0.40	0.02	0.60	6.00	0.34	60	4.00
0.40	0.02	0.60	8.00	0.34	60	4.00
0.50	0.05	0.70	2.50	0.44	60	4.00
0.50	0.05	0.70	3.50	0.44	60	4.00
0.50	0.05	0.70	5.00	0.44	60	4.00
0.50	0.05	0.70	7.50	0.44	60	4.00
0.50	0.05	0.70	10.00	0.44	60	4.00
0.60	0.05	1.00	3.00	0.54	60	4.00
0.60	0.05	1.00	6.00	0.54	60	4.00
0.60	0.05	1.00	9.00	0.54	60	4.00
0.60	0.05	1.00	12.00	0.54	60	4.00
0.80	0.05	1.20	4.00	0.74	60	4.00
0.80	0.05	1.20	8.00	0.74	60	4.00
0.80	0.05	1.20	12.00	0.74	60	4.00
0.80	0.05	1.20	16.00	0.74	60	4.00
1.00	0.05	1.60	5.00	0.94	60	4.00
1.00	0.05	1.60	10.00	0.94	60	4.00
1.00	0.05	1.60	15.00	0.94	60	4.00
1.00	0.05	1.60	20.00	0.94	60	4.00

# E215

ød	R ±0.003	l	fl	d1	L	ØD h5
1.00	0.10	1.60	5.00	0.94	60	4.00
1.00	0.10	1.60	10.00	0.94	60	4.00
1.00	0.10	1.60	15.00	0.94	60	4.00
1.00	0.10	1.60	20.00	0.94	60	4.00
1.50	0.05	2.40	5.00	1.40	60	4.00
1.50	0.05	2.40	10.00	1.40	60	4.00
1.50	0.05	2.40	15.00	1.40	60	4.00
1.50	0.05	2.40	20.00	1.40	60	4.00
1.50	0.15	2.40	5.00	1.40	60	4.00
1.50	0.15	2.40	10.00	1.40	60	4.00
1.50	0.15	2.40	15.00	1.40	60	4.00
1.50	0.15	2.40	20.00	1.40	60	4.00
2.00	0.05	3.00	6.00	1.90	60	4.00
2.00	0.05	3.00	12.00	1.90	60	4.00
2.00	0.05	3.00	18.00	1.90	60	4.00
2.00	0.05	3.00	24.00	1.90	60	4.00
2.00	0.05	3.00	30.00	1.90	60	4.00
2.00	0.15	3.00	20.00	1.90	60	4.00
2.00	0.30	3.00	6.00	1.90	60	4.00
2.00	0.30	3.00	12.00	1.90	60	4.00
2.00	0.30	3.00	18.00	1.90	60	4.00
2.00	0.30	3.00	24.00	1.90	60	4.00
2.00	0.30	3.00	30.00	1.90	60	4.00
3.00	0.05	3.50	9.00	2.80	60	6.00
3.00	0.05	3.50	18.00	2.80	60	6.00
3.00	0.05	3.50	30.00	2.80	60	6.00
3.00	0.05	3.50	45.00	2.80	100	6.00
3.00	0.30	3.50	9.00	2.80	60	6.00
3.00	0.30	3.50	18.00	2.80	60	6.00
3.00	0.30	3.50	30.00	2.80	60	6.00
3.00	0.30	3.50	45.00	2.80	100	6.00
3.00	0.50	3.00	8.00	2.90	60	6.00
4.00	0.05	4.00	12.00	3.80	60	6.00
4.00	0.05	4.00	24.00	3.80	60	6.00
4.00	0.05	4.00	40.00	3.80	100	6.00
4.00	0.50	4.00	12.00	3.80	60	6.00
4.00	0.50	4.00	24.00	3.80	60	6.00
4.00	0.50	4.00	40.00	3.80	100	6.00
5.00	0.05	5.00	15.00	4.80	60	6.00
5.00	0.05	5.00	30.00	4.80	60	6.00
5.00	0.05	5.00	50.00	4.80	100	6.00
5.00	0.50	5.00	15.00	4.80	60	6.00
5.00	0.50	5.00	30.00	4.80	60	6.00
5.00	0.50	5.00	50.00	4.80	100	6.00
6.00	0.05	6.00	18.00	5.80	60	6.00
6.00	0.05	6.00	30.00	5.80	60	6.00
6.00	0.05	6.00	60.00	5.80	100	6.00
6.00	0.50	6.00	18.00	5.80	60	6.00
6.00	0.50	6.00	30.00	5.80	60	6.00
6.00	0.50	6.00	45.00	5.80	100	6.00
6.00	0.50	6.00	60.00	5.80	100	6.00





**Dia Tolerance :**  
+ 0.00 / - 0.015

**Concentricity :**  
0.010 max.

**APPLICATION**

Suitable for milling Graphite,  
CFK/GFK, Green stage ceramic /  
Carbides and Non ferrous

**ADVANTAGES**

Higher dimensional accuracy

Improved process capability

Extreme wear resistance  
CVD Diamond Coating

**PACKING**

Single tool per pack

**ON REQUEST**

Special Sizes / Inch Sizes

ød	R ±0.007	l	l1	d1	L	ØD h5
0.40	0.20	0.40	4.00	0.35	55	3.00
0.50	0.25	0.50	5.00	0.45	55	3.00
0.50	0.25	0.50	10.00	0.45	55	3.00
0.60	0.30	0.80	6.00	0.56	55	3.00
0.80	0.40	1.00	8.00	0.75	55	3.00
0.80	0.40	1.00	12.00	0.75	55	3.00
1.00	0.50	1.00	5.00	0.90	55	3.00
1.00	0.50	1.00	10.00	0.90	55	3.00
1.00	0.50	1.00	15.00	0.90	55	3.00
1.00	0.50	1.00	20.00	1.40	55	3.00
1.50	0.75	2.00	10.00	0.90	55	3.00
1.50	0.75	2.00	15.00	1.40	55	3.00
1.50	0.75	2.00	25.00	1.40	55	3.00
2.00	1.00	2.00	10.00	1.90	55	3.00
2.00	1.00	2.00	15.00	1.90	55	3.00
2.00	1.00	2.00	20.00	1.90	55	3.00
2.00	1.00	2.00	25.00	1.90	65	3.00
2.00	1.00	2.00	30.00	1.90	65	3.00
3.00	1.50	3.00	15.00	2.90	65	4.00
3.00	1.50	3.00	30.00	2.90	75	4.00
4.00	2.00	4.00	30.00	3.90	75	5.00
6.00	3.00	6.00	30.00	5.90	75	6.00
6.00	3.00	6.00	50.00	5.90	90	6.00

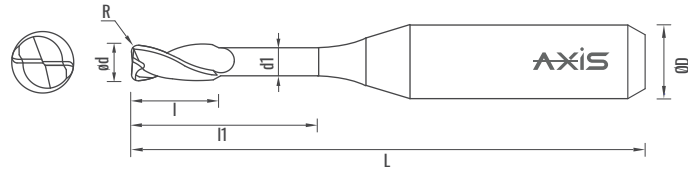


# INDMILL G

## 2 Flute End Mill Corner Radius Diamond Coated

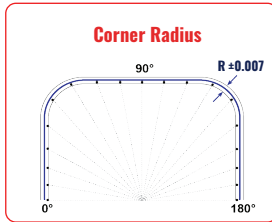


**E216**



Dia Tolerance :  
+ 0.00 / - 0.015

Concentricity :  
0.010 max.



### APPLICATION

Suitable for milling Graphite,  
CFK/GFK, Green stage ceramic /  
Carbides and Non ferrous

### ADVANTAGES

Higher dimensional accuracy

Improved process capability

Extreme wear resistance  
CVD Diamond Coating

### PACKING

Single tool per pack

### ON REQUEST

Special Sizes / Inch Sizes

ød	R ±0.007	l	l1	d1	L	ØD h5
0.80	0.08	1.00	4.00	0.75	55	3.00
1.00	0.10	1.00	5.00	0.90	55	3.00
1.00	0.10	1.00	10.00	0.90	55	3.00
1.00	0.10	1.00	15.00	0.90	55	3.00
1.50	0.15	2.00	10.00	1.40	55	3.00
1.50	0.15	2.00	15.00	1.40	55	3.00
2.00	0.20	2.00	10.00	1.90	65	3.00
2.00	0.20	2.00	15.00	1.90	65	3.00
2.00	0.20	2.00	25.00	1.90	65	3.00
2.00	0.50	2.00	15.00	2.90	65	3.00
3.00	0.30	3.00	25.00	1.90	75	4.00
3.00	0.50	3.00	30.00	2.90	75	4.00
6.00	0.50	6.00	40.00	5.90	90	6.00

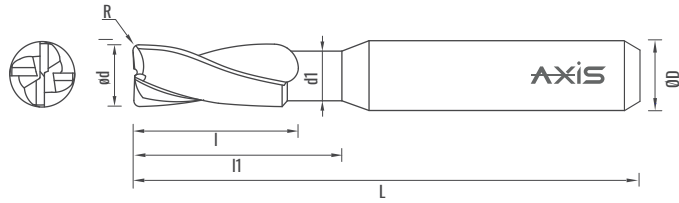


# INDMILL G

## 4 Flute End Mill Corner Radius Diamond Coated

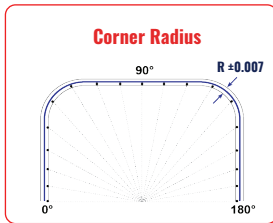


**E218**



**Dia Tolerance :**  
+ 0.00 / - 0.010 for  $\varnothing < 4.00$   
+ 0.00 / - 0.030 for  $\varnothing \geq 4.00$

**Concentricity :**  
0.010 max.



### APPLICATION

Suitable for milling Graphite,  
CFK/GFK, Green stage ceramic /  
Carbides and Non ferrous

### ADVANTAGES

- Higher dimensional accuracy
- Improved process capability
- Extreme wear resistance  
CVD Diamond Coating

### PACKING

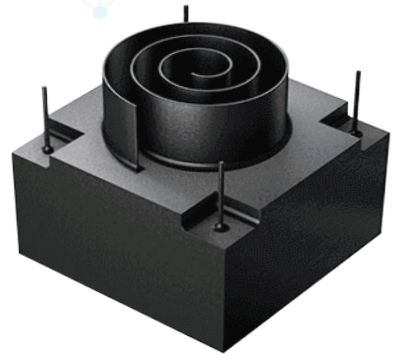
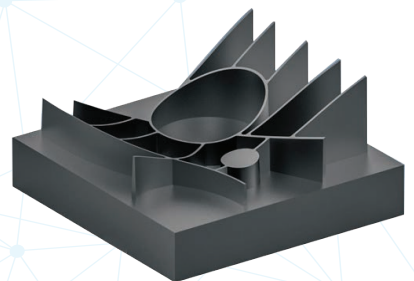
Single tool per pack

### ON REQUEST

Special Sizes / Inch Sizes

$\varnothing d$	R $\pm 0.010$	l	l1	d1	L	ØD h5
4.00	0.50	6.00	10.00	3.80	60	6.00
6.00	0.50	9.00	20.00	5.80	60	6.00
6.00	0.50	9.00	60.00	5.80	100	6.00
6.00	1.00	9.00	20.00	5.80	60	6.00
6.00	1.00	9.00	60.00	5.80	100	6.00
8.00	1.00	12.00	30.00	7.80	90	8.00
8.00	1.00	12.00	80.00	7.80	140	8.00
10.00	1.00	20.00	30.00	9.80	100	10.00
10.00	1.00	20.00	100.0	9.80	150	10.00
12.00	1.00	24.00	30.00	11.80	100	12.00
12.00	1.00	24.00	100.0	11.80	150	12.00





**Unmatched Precision**  
Milling Tools Crafted for Graphite Machining

# INDMILL

## High Precision Milling Tools Graphite Machining



**AXIS**  
Tools for mICRO mACHINING



 **IND-SPHINX PRECISION LTD (Unit B)**  
1 Taksal Road Parwanoo - Kasauli Marg  
Parwanoo Himachal Pradesh India 173220  
☎ +91 1792 232860 / 352600  
✉ [info@axis-microtools.com](mailto:info@axis-microtools.com) [www.axis-microtools.com](http://www.axis-microtools.com)

 **AXIS Europe GmbH**  
Danziger Str. 3, 88250 Weingarten  
☎ +49 (0)751 560 1589 - 0  
✉ [info@axis-europe.eu](mailto:info@axis-europe.eu) [www.axis-europe.eu](http://www.axis-europe.eu)



QUALITY • PRECISION • CONSISTENCY



PEOPLE