

# TOOLS OF THE TRADE

MARCH 2024



## Choose The Right End Mill For The Job

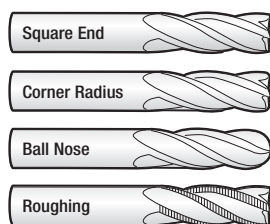
All at equal quality, better pricing, & in stock in USA



At Sowa Tool, we strive to make our customers' experience easy and enjoyable and take great pride in our reputation as a trusted and reliable brand. By combining our 6-plus decades of industry expertise with our agility and size to provide tailored and one-stop-shop solutions, we help our customers reach their goals. Our long-term customers have come to know us for our dedication to quality and customer satisfaction.

Our GS Tooling branded products are guaranteed to meet the most stringent industry benchmarks. The performance of GS Tooling end mills, at such a reasonable cost, is without a doubt one of the best deals available on the marketplace today.

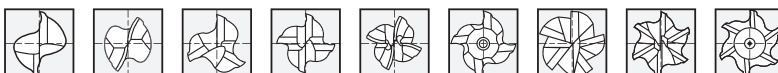
### TYPES:



### LENGTHS:



### FLUTES:



### FINISHES:



Compare our End Mills with other brands... the biggest difference you'll find is unrivaled value for your money!



OTHER  
BRANDS

| Quality Material:  |   |   |
|--|---|---|
| Solid Sub-Micron Micrograin Carbide                          | ✓ | ✓ |
| Superior Tolerance:  |   |   |
| Ground to a Tolerance of h6                                  | ✓ | ✓ |
| Variety of Finishes:   |   |   |
| Uncoated for Aluminum  | ✓ | ✓ |
| Titanium Carbonitride (TiCN) for Aluminum                    | ✓ | ✓ |
| Uncoated   | ✓ | ✓ |
| Titanium Aluminum Nitride (TiAlN)                            | ✓ | ✓ |
| Aluminum Titanium Nitride (AlTiN)                            | ✓ | ✓ |
| 2 to 8-Flutes:   |   |   |
| Available in 2, 3, 4, 5, 6 & 8-Flutes                        | ✓ | ✓ |
| Most Common Types:   |   |   |
| Available in Square End, Ball Nose, Corner Radius & Roughing | ✓ | ✓ |
| Other:   |   |   |
| Stock available in USA & Canada                              | ✓ | ✓ |
| Decades of performance                                       | ✓ | ✓ |
| <b>UNRIVALED VALUE FOR YOUR MONEY</b>                        | ✓ | ✗ |

## Carbide End Mills for Aluminum

### 2-Flute Square End, 40° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Uncoated Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|-------------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 101020            | 15.43    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 101028            | 26.95    |
| 1/2                | 1/2              | 1                  | 3                    | 101032            | 43.18    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 101036            | 83.26    |
| 3/4                | 3/4              | 1-1/2              | 4                    | 101040            | 122.08   |

### 2-Flute Corner Radius, 35° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Corner Radius | Uncoated Code No. | Price \$ | TiCN Coated Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|---------------|-------------------|----------|----------------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 0.010         | 153212            | 15.43    | 153404               | 18.98    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 0.015         | 153216            | 26.95    | 153408               | 33.15    |
| 1/2                | 1/2              | 1                  | 3                    | 0.020         | 153220            | 43.18    | 153412               | 53.11    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 0.020         | 153222            | 83.26    | 153414               | 102.41   |
| 3/4                | 3/4              | 1-1/2              | 4                    | 0.030         | 153224            | 122.08   | 153416               | 150.16   |

End Mills designed specifically for milling aluminum and all non-ferrous materials, made of solid, sub-micron micrograin carbide.

**40° helix** permits much higher speed and feed rates without chip loading. Spindle and feed rates can be increased by fifty percent for greater productivity while maintaining excellent part surface finish. **35° helix** is slightly less aggressive but are supplied with a corner radius to help break up sharp corners, distributing cutting forces more evenly and

### 3-Flute Square End, 40° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Uncoated Code No. | Price \$ | TiCN Coated Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|-------------------|----------|----------------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 153324            | 15.43    | 153374               | 18.98    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 153332            | 26.95    | 153382               | 33.15    |
| 1/2                | 1/2              | 1                  | 3                    | 153336            | 43.18    | 153386               | 53.11    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 153340            | 83.26    | 153390               | 102.41   |
| 3/4                | 3/4              | 1-1/2              | 4                    | 153344            | 122.08   | 153394               | 150.16   |

### 3-Flute Corner Radius, 35° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Corner Radius | Uncoated Code No. | Price \$ | TiCN Coated Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|---------------|-------------------|----------|----------------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 0.005         | 153154            | 15.43    | 153048               | 18.98    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 0.005         | 153158            | 26.95    | 153052               | 33.15    |
| 1/2                | 1/2              | 1-1/4              | 3                    | 0.005         | 153162            | 43.18    | 153056               | 53.11    |
| 5/8                | 5/8              | 1-5/8              | 3-1/2                | 0.005         | 153164            | 83.26    | 153058               | 102.41   |
| 3/4                | 3/4              | 1-5/8              | 4                    | 0.005         | 153166            | 122.08   | 153060               | 150.16   |

helping to prevent wear and chipping while prolonging functional tool life. **Choose 3-flute** designs for slotting and profiling applications where faster chip evacuation is required while machining at higher speeds.

**Titanium Carbonitride (TiCN)** coating offers high surface lubricity, reduces friction, and increases chip flow. The resistance in heat and hardness allows the tool to run at 20-30% higher machining speeds than uncoated end mills.

## Square End Carbide End Mills

### 2-Flute Square End, 30° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Uncoated Code No. | Price \$ | TiAlN Code No. | Price \$ | AlTiN Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|-------------------|----------|----------------|----------|----------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 103854            | 14.65    | 102810         | 19.98    | 104608         | 20.75    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 103857            | 25.62    | 102814         | 33.55    | 104616         | 34.90    |
| 1/2                | 1/2              | 1                  | 3                    | 103859            | 41.01    | 102818         | 50.06    | 104620         | 52.21    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 103887            | 79.09    | 102822         | 92.18    | 104624         | 96.33    |
| 3/4                | 3/4              | 1-1/2              | 4                    | 103889            | 115.95   | 102826         | 131.40   | 104628         | 137.50   |

### 3-Flute Square End, 30° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Uncoated Code No. | Price \$ | TiAlN Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|-------------------|----------|----------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 101092            | 14.65    | 102371         | 19.98    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 101097            | 25.62    | 102381         | 33.55    |
| 1/2                | 1/2              | 1                  | 3                    | 101099            | 41.01    | 102384         | 50.06    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 101101            | 79.09    | 102386         | 92.18    |
| 3/4                | 3/4              | 1-1/2              | 4                    | 101103            | 115.95   | 102388         | 131.40   |

### 4-Flute Square End, 30° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Uncoated Code No. | Price \$ | TiAlN Code No. | Price \$ | AlTiN Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|-------------------|----------|----------------|----------|----------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 103864            | 14.65    | 102840         | 19.98    | 104708         | 20.75    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 103867            | 25.62    | 102844         | 33.55    | 104716         | 34.90    |
| 1/2                | 1/2              | 1                  | 3                    | 103869            | 41.01    | 102848         | 50.06    | 104720         | 52.21    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 103934            | 79.09    | 102852         | 92.18    | 104724         | 96.33    |
| 3/4                | 3/4              | 1-1/2              | 4                    | 103936            | 115.95   | 102856         | 131.40   | 104728         | 137.50   |

General purpose, sub-micron micrograin carbide end mills ideal for deeper slotting applications where a balance of cutting edges, chip evacuation and heat dissipation is required. All end mills are center cutting and can be used for plunging applications.

**3-flute end mills** offer maximum chip clearance therefore reducing chip packing.

**Ball end mills** have a helical gash on ball end for reduced cutting force and better chip

## Ball Nose Carbide End Mills

### 2-Flute Ball Nose, 30° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Uncoated Code No. | Price \$ | TiAlN Code No. | Price \$ | AlTiN Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|-------------------|----------|----------------|----------|----------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 103874            | 18.21    | 102866         | 23.50    | 104658         | 24.67    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 103875            | 29.21    | 102870         | 37.19    | 104666         | 39.05    |
| 1/2                | 1/2              | 1                  | 3                    | 103876            | 54.36    | 102872         | 63.44    | 104670         | 66.61    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 103893            | 87.92    | 102876         | 100.99   | 104674         | 106.04   |
| 3/4                | 3/4              | 1-1/2              | 4                    | 103895            | 129.39   | 102878         | 144.83   | 104678         | 152.07   |

### 3-Flute Ball Nose, 30° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Uncoated Code No. | Price \$ | TiAlN Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|-------------------|----------|----------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 101122            | 18.21    | 102474         | 23.50    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 101127            | 29.21    | 102479         | 37.19    |
| 1/2                | 1/2              | 1                  | 3                    | 101129            | 54.36    | 102483         | 63.44    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 101131            | 87.92    | 102487         | 100.99   |
| 3/4                | 3/4              | 1-1/2              | 4                    | 101133            | 129.39   | 102491         | 144.83   |

### 4-Flute Ball Nose, 30° Helix



| Cutting Dia. (in.) | Shank Dia. (in.) | Flute Length (in.) | Overall Length (in.) | Uncoated Code No. | Price \$ | TiAlN Code No. | Price \$ | AlTiN Code No. | Price \$ |
|--------------------|------------------|--------------------|----------------------|-------------------|----------|----------------|----------|----------------|----------|
| 1/4                | 1/4              | 3/4                | 2-1/2                | 103882            | 18.21    | 102886         | 23.50    | 104758         | 24.67    |
| 3/8                | 3/8              | 1                  | 2-1/2                | 103884            | 29.21    | 102890         | 37.19    | 104766         | 39.05    |
| 1/2                | 1/2              | 1                  | 3                    | 103885            | 54.36    | 102892         | 63.44    | 104770         | 66.61    |
| 5/8                | 5/8              | 1-1/4              | 3-1/2                | 103940            | 87.92    | 102896         | 100.99   | 104774         | 106.04   |
| 3/4                | 3/4              | 1-1/2              | 4                    | 103942            | 129.39   | 102898         | 144.83   | 104778         | 152.07   |

evacuation. 4-flute ball nose end mills offer wear resistance and minimal deflection for excellent size control.

**Both TiAlN and AlTiN coatings are designed for difficult to machine materials. TiAlN coating** reduces heat in cases where interrupted cuts may be encountered. **AlTiN coating** is better for dry machining applications, non-interrupted cuts and for abrasive applications.



Sowa Tool & Machine Co. Ltd.

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