MELIN TOOL PRODUCT PORTFOLIO
EXPERIENCE • TECHNOLOGY • PERFORMANCE • PRODUCTIVITY

2018

Premium Solid Carbide & Cobalt HSS End Mills, Drills & Cutting Tools

MELIN PRODUCT PORTFOLIO
» High Performance
» General Purpose
» End Mills
» Drills
» Countersinks
» Burs

www.melintool.com
Melin Offers a range of \textit{IN HOUSE} coating options that allows us to provide you with the best coating for your applications. We can put any of our coatings, EVEN DIAMOND on any tool style and size you need!

\textbf{Conventional Coatings}

- TiN
- TiCN
- AlTiN
- nACo
- nACo
- TiB
- ZrN
- DLC Diamond
- CVD Diamond
- TiCN - Titanium Carbonitride
- AlTiN - Aluminum Titanium Nitride
- nACo - Aluminum Titanium Nitride + Silicon Nitride
- nACo - Aluminum Chrome Nitride + Silicon Nitride
- nACo - Titanium diboride
- ZrN - Zirconium Nitride

\textbf{High Performance Coatings}

- grey-black
- blue-black
- violet-blue
- blue-grey
- white-gold
- light copper
- copper
- TiXCo - TiN-nACo-TiSiN Copper
- TiB
- DLC Diamond
- CVD Diamond
- Amorphous Diamond
- TiCN - Titanium Carbonitride
- AlTiN - Aluminum Titanium Nitride
- nACo - Aluminum Titanium Nitride + Silicon Nitride
- nACo - Aluminum Chrome Nitride + Silicon Nitride
- nACo - Titanium diboride
- ZrN - Zirconium Nitride

\textbf{SHANK OPTIONS}

\textbf{Standard} A plain shank with a matted finish and H6 tolerance specifications, particular to the tool diameter.

\textbf{Weldon Flat} A flat ground into the shank for locking methods of tool holders, that fully complies with industry specifications of the dimensions and positioning location.

\textbf{Rough Grip} Blasted shank aids in further assisting in the prevention of slippage inside the tool holder while still maintaining H6 tolerance, some customers prefer to have the shank sand blasted, which reduces the surface finish of the tool’s shank and helps to reduce pull out.

\textbf{Haimer Safe Lock™} This licensed system offers the pull out protection for your round shank tools! The shanks have helical grooves ground into our shanks. Combined with the proper tool holding system, this technology prevents the tool from pulling out or spinning while undergoing extreme machining applications. The advantages are that it offers positive form locking mechanism, a NON-SLIP holding solution, a VIBRATION-FREE machining process and extended tool life. Ideal for cutting costly material found in the \textit{AEROSPACE, ENERGY,} and \textit{AUTOMOTIVE} markets.

\textbf{Coolant Thru Single Hole}

\textbf{Coolant Thru Double Hole}

\textbf{Coolant Grooves}

\textbf{Whistle Notch}

\textbf{Combination Shank}
Melin continues to provide our customers with the latest technology to enhance the benefits our tools already provide. Listed below are specialized and customizable services Melin offers for both our standard and high performance tooling.

**Melin Services**

- Metal Max Testing
- FAST TurnAround SPL
- Second Look Quoting

**MetalMax Testing**

Melin’s EXPERT technical field application engineers are available to provide FREE on-site, “tap testing” analysis of your machine, for fine tuning cutting parameters to dramatically reduce vibration and optimize productivity. Contact your local distributor, our regional sales rep, Melin customer service, or visit us Online to submit a request. [www.melintool.com](http://www.melintool.com)

**FAST Delivery On Specials**

Get your special QUICKLY! Getting the MOST from your tooling & maximizing performance, requires completely aligned tooling & set up process’ tailored to the specific application at hand. Many times, that requires customizing the cutting tool geometry and coating to provide the least amount of machining time.

- Melin Tool is set up to deliver what you need... FAST!

**Need A Second Look?**

Sometimes the job can’t wait. We understand... and can take care of you. Our manufacturing processes are highly flexible to enable FAST priority adjustments just for this purpose. We’re a LARGE manufacturer, with small business maneuverability. If our quoted lead time isn’t good enough.. Call us. We’ll surprise you at how often we can help!

Call Customer Service to get your quote with expedited lead times: 216-362-4200
**High Performance Aluminum Alloys**

### 2 Flute • 30° for High Velocity Machining

**Series: HVMG2**

- Designed for aggressive machining
- Unique geometry reduces cutting pressures and vibration at high feed rates
- Highly polished OD and flute face prevents chip build-up
- No Neck options available, to allow you to order any size you need
- Available in Metric

### 3 Flute • 37° for High Velocity Machining

**Series: HVMG3**

- Designed for aggressive machining
- Unique geometry reduces cutting pressures and vibration at high feed rates
- Highly polished OD and flute face prevents chip build-up
- Wiper flat for improved floor finishes
- No Neck options available, to allow you to order any size you need
- Available in Metric

### 3 Flute • Rougher for High Velocity Machining

**Series: HVRMG3**

- For roughing operations
- Unique geometry reduces cutting pressures and vibration at high feed rates
- Highly polished OD and flute face prevents chip build-up
- Knuckles shorten chip length aiding in chip evacuation
- No Neck options available, to allow you to order any size you need
- Available in Metric

### 3 Flute • 37° Square End Mill

**Series: EXMG**

- Higher chip load per revolution over 2 flute HP tool
- Outstanding in heavy slotting and pocketing operations
- Wiper flat and polish grinds produce superior surface finishes on both walls and floor
- Polished flute face optimizes chip evacuation and avoids chip nesting
- H6 Tolerance shank for use in shrink fit holders
- Available in Metric

### 2 Flute • 45° Square End Mill

**Series: AXMG45**

- For universal operations on Aluminum and Cast Aluminum Alloys
- Edge prep provides superior edge strength and faster chip flow
- Wiper flats and polish grinding produce superior surface finishes on walls and floors
- Polished flute face and edge prep optimizes chip evacuation and avoids chip nesting
- H6 Tolerance shank for use in shrink fit holders
- Available in Metric

### 2 Flute • 45° Ball Nose End Mill

**Series: AXMG45-___-B**

- For universal operations on Aluminum and Cast Aluminum Alloys
- Edge prep provides superior edge strength and faster chip flow
- Polished primary produces superior surface finishes on walls and floors
- Polished flute face and edge prep optimizes chip evacuation and avoids chip nesting
- H6 Tolerance shank for use in shrink fit holders
High Performance Aluminum Alloys

5 Flute • 45° for Trochoidal Toolpathing
Series: GXMG5
- Outstanding performance for High Feed Finishing of Aerospace wing spars
- Effective on all CNC machines 5-35 HP
- Generates 50-60% higher metal removal rates over 3 flute HP tools
- Unique Edge Prep minimizes chatter, extends tool life
- Wiper flat and polish grinds produce superior surface finishes on both walls and floor
- Available in Metric

2 Flute • 35° for Light Duty CNC Machines
Series: ALMG
- For universal machining in non-ferrous materials
- Small corner radius for added strength and smoother cutting action
- Excellent cost value for small production runs
- Available in Metric

3 Flute • 35° for Light Duty CNC Machines
Series: ELMG
- For universal machining in non-ferrous materials
- Small corner radius for added strength and smoother cutting action
- Excellent cost value for small production runs
- Available in Metric

3 Flute • Powdered Metal Rougher for Aggressive Machining
Series: ERFPM
- Outstanding performance in large diameter work
- Truncated, ground profile enables optimum chip evacuation
- Enables heavy cutting while still leaving good finishes
- Polished flute face eliminates chip build-up

2 Flute • 38° Helix Cobalt SQ & Ball Nose End Mills
Series: AA & AA-\_B
- Designed for conventional machining of Aluminum Alloys
- Excellent for use in large diameter work
- Requires less horsepower and speed than carbide cutters
- Polished flutes
- Fully compliant with NAS 986

Recommended Aluminum Coatings
Melin provides SEVERAL coated options to fit your every need!
Order any of our tools with a Conventional or High Performance Coating
- TiCN
- ZrN
- nACRo
- DLC
- TiB2

Conventional Coatings 8 High Performance Coatings
**High Performance Titanium & High Temp Alloys**

3 Flute • Variable Flute - HP Roughing & Finishing Applications

**Series: VXMG3T**

- Geometry designed to reduce chatter, universal machining operations
- Unique Titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Proprietary nACRo coating allows for higher SFM and is especially effective in extending tool life
- Available in Metric

4 Flute • Variable Flute - HP Roughing Applications

**Series: VXMG4T**

- Geometry designed to reduce chatter, universal machining operations
- Unique Titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Proprietary nACRo coating allows for higher SFM and is especially effective in extending tool life
- Excellent for heavy cuts, deep slotting and long axial depth profiling
- Available in Metric

4 Flute • Variable Flute - Ball Nose HP Roughing Applications

**Series: VXMG4T-B**

- Geometry designed to reduce chatter, universal and Z-axis machining operations
- Unique Titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Proprietary nACRo coating allows for higher SFM and is especially effective in extending tool life
- Excellent for heavy cuts, deep slotting and long axial depth profiling
- Available in Metric

5 Flute • Variable Flute - HP Roughing Applications

**Series: VXMG5T**

- Geometry designed to reduce chatter, universal machining operations
- Unique Titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Proprietary nACRo coating allows for higher SFM and is especially effective in extending tool life
- Excellent for heavy cuts, deep slotting and long axial depth profiling
- Available in Metric

4 Flute • Variable Flute - HP Roughing Applications

**Series: VXMG4T-SF (Safe Lock)**

- Geometry designed to reduce chatter, universal machining operations
- Unique Titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Proprietary nACRo coating allows for higher SFM and is especially effective in extending tool life
- Excellent for heavy cuts, deep slotting and long axial depth profiling
- Haimer Safe Lock™ pull out protection on shank
- Several sizes stocked for immediate delivery

5 Flute • Variable Flute - HP Roughing Applications

**Series: VXMG5T-SL (Safe Lock)**

- Geometry designed to reduce chatter, universal machining operations
- Unique Titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Proprietary nACRo coating allows for higher SFM and is especially effective in extending tool life
- Excellent for heavy cuts, deep slotting and long axial depth profiling
- Haimer Safe Lock™ pull out protection on shank
- Several sizes stocked for immediate delivery
**High Performance Titanium & High Temp Alloys**

### 6 Flute • Variable Fl - Roughing & Finishing Applications

**Series: VXMG6T**

- Geometry designed to reduce chatter, universal machining operations
- Unique Titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Proprietary nACRo coating allows for higher SFM and is especially effective in extending tool life
- Excellent for roughing & finishing applications

### 7 Flute • Variable Fl - Light to Medium Finishing Applications

**Series: VXMG7-___-NACRO**

- Geometry designed to reduce chatter, utilizing maximum metal removal rates
- Unique titanium focused geometry and edge prep enables efficient cutting action
- Additional flutes provide over 40% higher metal removal rates over 4 & 5 flute tools
- Extreme metal removal rates delivered at full flute length & 15% x D radial depth
- Excellent for high feed machining processes
- Available in Metric

### 9 Flute • Variable Fl - Fine-Finishing Applications

**Series: VXMG9-___-NACRO**

- Designed to deliver outstanding surface finishes, utilizing maximum metal removal rates
- Unique Titanium focused geometry and edge prep enables efficient cutting action
- Extreme metal removal rates delivered at full flute length & 5% x D radial depth
- Proprietary nACRo coating allows for higher SFM and is especially effective in extending tool life
- Ideal for finishing tight tolerance walls
- Available in Metric

### 3 Flute • 35° for Stainless Steel

**Series: EMG35**

- Unique geometry and higher helix maximizes heat & wear resistance
- Outstanding performance in single pass slotting applications
- Cost effective for use on older, NC machines on short run production
- Available in Metric

### 5 Flute • 45° for Stainless Steels/Nickel Based Alloys

**Series: GMG**

- Unique geometry and higher helix maximizes resistance to heat and wear
- Outstanding performance in heavy profiling applications
- Cost effective for use on short run production
- Available in Metric

### 4 or 6 Flute • Cobalt Aerocut Roughing End Mill

**Series: CCAC**

- Designed for high volume removal of Titanium Alloys
- Unique sinusoidal wave along flute provides ideal chip evacuation
- Enables heavy cuts at high feed rates while eliminating chip nesting
- Outstanding performance on large Gantry-style machines

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melin tool company • 5565 venture dr • cleveland • ohio • 44130
High Performance Ferrous Materials

4 Flute • Variable Flute - HP Roughing Applications

Series: VXMG4

- Geometry designed for reducing chatter, universal machining operations
- Ideal for use on Steel and Stainless Alloys and Cast Iron
- Proprietary nACo coating provides extended tool life over conventional coatings
- Excellent for heavy cuts, deep slotting and long axial depth profiling
- Available in Metric

Series: VXMG5

- Geometry designed for reducing chatter, universal machining operations
- Ideal for use on Steel and Stainless Alloys and Cast Iron
- Proprietary nACo coating provides extended tool life over conventional coatings
- Excellent for heavy cuts, deep slotting and long axial depth profiling
- Available in Metric

Series: VXMG7

- Geometry designed for reducing chatter, utilizing maximum metal removal rates
- Additional flutes provide over 40% higher metal removal rates over 4 & 5 flute tools
- Extreme metal removal rates delivered at full flute length & 15% x D radial depth
- Proprietary nACo coating provides extended tool life over conventional coatings
- Available in Metric

Series: VXMG9

- Designed to deliver outstanding surface finishes, utilizing maximum metal removal rates
- Extreme metal removal rates delivered at full flute length & 5% x D radial depth
- Proprietary nACo coating provides extended tool life over conventional coatings
- Ideal for finishing tight tolerance walls
- Available in Metric

4 Flute • Variable Fl - General Machining Applications

Series: VHMG

- Designed to reduce vibration in heavier cuts
- Effective on all medium hardness Ferrous Materials
- Proprietary nACo coating provides extended tool life over conventional coatings
- Available in Metric

Series: VHMG-__-B

- Designed to reduce vibration in heavier cuts
- Effective on all medium hardness Ferrous Materials
- Proprietary nACo coating provides extended tool life over conventional coatings
**High Performance Ferrous Materials**

**5 Flute • Variable FL - General Machining Applications**

**Series: GVHMG**

- Designed to reduce vibration in heavier cuts, with higher metal removal rates
- Effective on all medium hardness Ferrous Materials
- Proprietary nACo coating provides extended tool life over conventional coatings

**3 Flute • 60° General Machining Application in Stainless Steels**

**Series: EMG60**

- Extra High Helix keeps a cutting edge in the material throughout the machining process
- Produces outstanding surface finishes
- Requires minimum horsepower

**Multi Flute • Fine Profile Roughing End Mill**

**Series: CRMG**

- Sinusoidal ground profile enables maximum metal removal rates
- Provides outstanding heat resistance and minimum tool wear
- Effective on all medium hardness Ferrous Materials
- Available in Metric

**Multi Flute • Rougher Finisher**

**Series: CRFMG**

- A single tool for roughing and semi-finishing in a single pass
- Truncated, ground profile enables optimum chip evacuation
- Enables heavy cutting while still leaving good finishes
- Available in Metric

**4 Flute • Performance End Mill**

**Series: MPMG**

- Best performance in Wide Variety of materials.
- Blend between High Performance and General Purpose end mill.
- Comes in Stub, Standard, Long, & XL lengths.

**5 Flute • Performance End Mill**

**Series: MPMG5**

- Best performance in Wide Variety of materials.
- Blend between High Performance and General Purpose end mill.
- Comes in Stub, Standard, & Long lengths.
**HIGH PERFORMANCE DIE & MOLD - HARDENED STEELS**

### 2 Flute • Corner Radius for Multi Axis Machining

**Series: HMG1-___-SF-R**

- Designed for use with multi axis machines on die & mold steels
- Short Flute and reinforced core provide added strength
- Proprietary coatings provide extended tool life over conventional coatings
- Shank tolerance is h5
- Available in Metric

### 2 Flute • Ball Nose for Z-Axis Machining

**Series: HMG1-___-SF-B**

- Designed for use with multi axis machines on die & mold steels
- Short Flute and reinforced core provide added strength
- Proprietary coatings provide extended tool life over conventional coatings
- Shank tolerance is h5
- Available in Metric

### 2 Flute • Ball Nose for Hard Milling in Die & Mold Applications

**Series: HMG-___-B**

- Designed for use with multi axis machines on hardened materials
- Short Flute and reinforced core provide added strength
- Proprietary nACo coating provides extended tool life over conventional coatings
- Available in Metric

### 6 Flute • 45° Profiling End Mill

**Series: CCMG45**

- Designed for machining at high metal removal rates in light to medium finishing applications
- Maximized core diameter provides exceptional rigidity and strength
- Proprietary nACo coating provides extended tool life over conventional coatings
- Available in Metric

### 2 & 4 Flute • HIGH FEED CARBIDE END MILL

**Series: HXMG-__**

- Designed for use in High Feed milling processes that reduce total machining time by 3-4 times over conventional methods.
- Enables high feed per tooth with shallow depth of cut for highest metal removal rates
- Cutting forces are directed at the machine spindle in the axial direction which means less vibration and greater tool life.
- Especially suited for small molds and medical work
- Available in Metric

### 4 Flute • HIGH FEED CARBIDE END MILL

**Series: HXMG4-___-HM**

- Designed for use in High Feed milling processes that reduce total machining time by 3-4 times over conventional methods.
- Enables high feed per tooth with shallow depth of cut for highest metal removal rates
- Cutting forces are directed at the machine spindle in the axial direction which means less vibration and greater tool life.
- Especially suited for small molds and medical work
- Available in Metric
**High Performance Graphite & Composites**

**2 & 4 Flute • SQ CVD Diamond Coating**

**Series: AMG-___-DIA & CCMG-___-DIA**

- For optimum productivity in machining Graphite, High Silicon Aluminum & Composite Materials
- Ideal for slotting, pocketing, Z-axis machining and taking heavy radial depth of cuts
- Special carbide substrate with 6% cobalt binder enables proper adhesion of coating
- Up to 20 micron thickness of pure crystalline diamond structure provides maximum tool life

**Multi Flute • Composite Router for Carbon Fiber**

**Series: CRMGd**

- Designed for high productivity results in machining CRFP composite materials
- Eliminates fiber breakout and delamination
- Provides improve edge finishes
- Ideal for work on airplane skins and other honeycomb work pieces

**Multi Flute • DLC Amorphous Diamond Coating**

**Series: AMG-___-DLC, EMG-___-DLC, CCMG-___-DLC**

- For enhanced productivity in machining Graphite, High Silicon Aluminum & Composite Materials
- Ideal for slotting, pocketing and taking heavy radial depth of cuts
- Hydrogen free diamond-like carbon (DLC) provides extended tool life at lower tool cost

**Fiberglass Routers**

**Series: FRMG**

- Designed for machining composites, graphite, carbon fiber, honeycomb & fiberglass materials
- NE - No End Cut: For use where end of fiberglass router is not in contact with work piece
- SQ - Square Cut: For use where square corners or smooth surfaces are required for work piece
- DP - Drill Point Cut: For use where plunging applications are required before routing operations

**2 & 4 Flute • Ball Nose CVD Diamond Coating**

**Series: AMG-___-B-DIA & CCMG-___-B-DIA**

- For optimum productivity in machining Graphite, High Silicon Aluminum & Composite Materials
- Ideal for finishing applications and long axial depths of cut
- Special carbide substrate with 6% cobalt binder enables proper adhesion of coating
- Up to 20 micron thickness of pure crystalline diamond structure provides maximum tool life

**Multi Flute • Ball Nose DLC Amorphous Diamond Coating**

**Series: AMG-___-B-DLC, EMG-___-B-DLC, CCMG-___-B-DLC**

- For enhanced productivity in machining Graphite, High Silicon Aluminum & Composite Materials
- Ideal for finishing applications and long axial depths of cut
- Hydrogen free diamond-like carbon (DLC) provides extended tool life at lower tool cost
**High Performance Various Materials**

### 2 Flute • 140° Point **Coolant Hole Drill**
**Series: CDR**
- Designed for use in Steel & Stainless Alloys and Cast Iron
- Available with 3x, 5x & 7x diameter drill depths
- Coolant hole is centered in the helix through each flute
- Has a Self-Centering drill point
  - Unique geometry & honed edge prep minimizes need for pecking
  - Proprietary nACo coating provides extended tool life over conventional coatings
- Available in Metric

### 2 Flute • 140° Point **without Coolant Hole Drill**
**Series: MDR**
- Designed for use most Ferrous Materials
- Has a Self-Centering drill point
- Unique geometry & honed edge prep minimizes need for pecking
- Proprietary nACo coating provides extended tool life over conventional coatings

### Multi Flute • 60° Straight & Helical Flute, Un Thread Mills
**Series: TM-___-**
- Threads large diameter holes faster and more accurately than conventional or high performance taps
- Helps to save on tooling costs versus using larger taps
- Reduces chatter
- Available in Metric

### Multi Flute • Straight & Helical Flute, NPT Thread Mills
**Series: TM-___-NPT-__**
- Helps to save on tooling costs versus using larger taps
- Reduces chatter

### Multi Flute • Single Form Thread Mills
**Series: TM**
- Designed for milling precision I.D. & O.D threads in all types of steels, non-ferrous metals, & exotic metals
- Single form thread can be used for a wide range of thread pitches
HIGH PERFORMANCE VARIOUS MATERIALS

2 & 4 Flute • 220° Spherical Ball End Mills

Series: VBMG_

- Designed for multi-axis cavity work in die & mold applications
- For undercutting & deburring applications on multi-axis CNC machines
- Effective on hardened materials
- Available in Metric

2 & 4 Flute • 270° Spherical Ball End Mills

Series: VBMG_-270

- Designed for multi-axis cavity work in die & mold applications
- Micro sizes available
- For undercutting & deburring applications on multi-axis CNC machines
- Effective on hardened materials

Powdered Metal End Mills

Multi Flute • PM Fine & Coarse Pitch Roughing

Series: CCFPM, CCRPM

Fine Pitch
- Fine Pitch - finer sinusoidal form on cutting edge, finer chips are produced compared to coarse
- Provides longer tool life and enable faster SFM than M42 Cobalt
- For use in profiling cuts and shallow slots (less than 1x diameter axial depth)
- Ideal for stainless & exotic materials

Coarse Pitch
- Coarse Pitch - have sinusoidal form on cutting edge, small chips are produced which allow for faster feed rates then conventional end mills
- For use in all heavy cuts and pocketing
- These tools will plunge out

4 Flute • PM Variable Flute End Mill

Series: VHPM

- Helix changes along flute
- Increase stability during cutting action
- Small corner radius for added strength and smoother cutting action
- Available with nACo coating for improved tool life and increase production output.

4 Flute • PM Finishing End Mills

Series: CCPM

- Available in stub, medium, and long lengths
- Reinforced core geometry provides exceptional rigidity
- Up to 4 times diameter length of cut
- Designed for use in titanium, stainless, & exotic materials.
**GENERAL PURPOSE CARBIDE END MILLS**

### 2, 3 & 4 Flute • 30° Single End Mills

**Series:** AMG, EMG, CCMG

- Used for general purpose milling in most materials
- Higher helix provides freer cutting
- Enhanced performance in Stainless Steels
- Long reach sizes available
- Available in stub, long, & extra long lengths
- Also available in Metric/Inch & Metric

### 2, 3 & 4 Flute • 30° Ball Nose Single End Mills

**Series:** AMG-__-B, EMG-__-B, CCMG-__-B

- Used for general purpose milling in most materials
- Higher helix provides freer cutting
- Provides enhanced performance in Stainless Steels
- Long reach sizes available
- Available in stub, long, & extra long lengths
- Available in Metric

### 2 & 4 Flute • 30° Corner Radius End Mills

**Series:** AMG-__-R__, CCMG-__-R__

- Used for general purpose milling in most materials
- Corner radius provides added strength
- Used when a radius on the finished piece is permissible or required
- Made from premium submicron grain carbide
- Available in Metric

### 2 & 4 Flute • 30° NC Tolerance Square End Mills

**Series:** AMG-__-NC, CCMG-__-NC

- Used in applications when cutting compensation is not available
- Special OD tolerance
- Made from premium submicron grain carbide

### 2 & 4 Flute • 30° NC Tolerance Ball Nose End Mill

**Series:** AMG-__-B-NC, CCMG-__-B-NC

- Used in applications when cutting compensation is not available
- Special OD tolerance
- Made from premium submicron grain carbide

### 2 & 4 Flute • Double End Square End Mills

**Series:** BSMG, DDSMG

- Used for general purpose milling in most materials
- Economical alternative to single mills
- Used for radius and contouring part surfaces
- Short flute length. High rigidity and minimal tool deflection
General Purpose Carbide End Mills

2 & 4 Flute • Double End Ball Nose End Mills
Series: BSMG-__-B, DDSMG-__-B

- Used for general purpose milling in most materials
- Economical alternative to single mills
- Used for radius and contouring part surfaces
- Short flute length. High rigidity and minimal tool deflection

2, 3 & 4 Flute • 40° Single End Mills
Series: AMG40, EMG40, CCMG40

- Used for general purpose milling in most materials
- Long reach sizes available
- Available from 1/16 to 1 inch.
  (In 1/64 increments through 1/2 inch)
- Available in stub, long, & extra long lengths

Special Use Carbide End Mills

2 & 4 Flute • 40° Ball Nose End Mills
Series: AMG40-__-B, CCMG40-__-B

- Used for general purpose milling in most materials
- Long reach sizes available
- Available from 1/16 to 1 inch.
  (In 1/64 increments through 1/2 inch)
- Available in stub, long, & extra long lengths

2 & 4 Flute • Straight Flute End Mills
Series: SAMG

- Used for cutting keyways
- Used on CONVENTIONAL materials
- Made from premium submicron grain carbide

Single or 2 Flute • Routers for Plastic, Aluminum, Wood
Series: PRMG (plastic), ARMG (alum)
WRUMG & WRDMG (wood)

- Plastic & Aluminum routers have a unique rake and clearance angles for fast removal rates
- Wood routers have right hand spirals (up cut) or left hand spirals (down cut)
- Made from premium submicron grain carbide

2 Flute • Die Sinking Ball End Mills
Series: AMGDS-__-B

- Straight Flute
- Available in 6°, 10°, 14°, and 20° included angles
- Used for reworking die and mold steels
- Made from premium submicron grain carbide
Special Use Carbide End Mills

3 Flute • 30° Tapered Sq & Ball Nose End Mills
Series: EMG-__-_T, EMG-__-_TB
- Used in the die and mold industry
- Made from premium submicron grain carbide

2, 3 & 4 Flute • Corner Rounding End Mills
Series: BRMG, RMG, RCMG
- 2 Flutes are double ended corner rounding end mills - Micro sizes available
- Ideal for adding a small radius to the workpiece corners for optimal edge finish in medium hard ferrous materials.
- Can provide uniform finish on corners
- Made from premium submicron grain carbide

2 & 4 Flute • Single & Double End Chamfer Mills
Series: CMG2, CMG4, DMG2
- Available in 60° or 90°
- Eliminate hard deburring operations & provides uniform finish
- Also available in M7 HSS

Multi Flute • Back Chamfer Tools
Series: BC, BCL
- Used for front and back chamfering of blind holes
- BC - Multiple flute milling cutter
- BCL - Single flute lathe tool
- Solid carbide head brazed to carbide shank
- 1/32 flat with 90° included angle
- Long length option available, necked for reach

2 & 4 Flute • 60°, 82°, 90° Drill Points
Series: AMG-__-DP, CCMG-__-DP
- Micro sizes available

Carbide Blanks - Centerless Ground, Plain, 1/2 Round, Square, Ball, Conical & Split Ball
Series: Melin EDPs
- Single and double end available for engraving blanks
- Available in 30°, 60° & 90°
- Made from premium submicron grain carbide

*Sharp point for groove milling available
2 & 4 Flute • 30° Micro Square End Mills
Series: AMG, CCMG

- Designed for aggressive machining
- Unique geometry reduces cutting pressures and vibration at high feed rates
- Highly polished OD and flute face prevents chip build-up
- 4 Flute available Diamond Coated

3 Flute • 30° Micro Square End Mills
Series: EMG

- Designed for aggressive machining
- Unique geometry reduces cutting pressures and vibration at high feed rates
- Highly polished OD and flute face prevents chip build-up

4 Flute • 30° Micro Corner Radius End Mills
Series: CCMG-__-R__
Multi Flute • Fine Pitch Roughing - CC & NCC  
**Series:** CCFP, CFP

- Due to the finer sinusoidal form ground on profile, finer chips are produced than coarse pitch, which are easier flushed away and reduced re-cutting and packing
- For use in profiling cuts & shallow slots (less than 1x dia axial depth)
- Ideal for stainless & exotic materials
- All rougher’s 5/8 and under are ONLY available center cutting

Multi Flute • Coarse Pitch Roughing - CC & NCC  
**Series:** CCRP, CRP, CR(HSS)

- For use in all heavy cuts and pocketing applications
- Designed for maximum metal removal rates in ferrous materials
- All rougher’s 5/8 and under are ONLY available center cutting

Multi Flute • T-Slot Coarse Pitch Rougher  
**Series:** CRPN

- Used for roughing out “T” slots
- For machining in steel & cast iron materials

Multi Flute • Roughing/Finishing End Mills  
**Series:** CCRFP, CRFP, ERFP

- Can remove material at high roughing speeds while producing finishes close to conventional end mills, due to the chip breaker form
- Can produce a 100-125 RMS surface finish in a single pass
- ERFP - 35° fine pitch rougher/finisher for aluminum
- CRFP - All rougher’s 5/8 and under are only available center cutting
General Purpose Cobalt & HSS End Mills

2, 3, 4, 6 & 8 Flute • Single End SQ End Mills
Series: A, E, C<sub>(NCC)</sub>, CC

- General purpose milling in most materials
- Offered in stub, standard, medium, long, and extra long lengths
- 3 flutes usually enable feed rates at least 50% heavier than 2 flute
- Offered in a “AS or CS” series - which provides an undersized shank for bridgeport style mills
- C - Non Center Cutting Series
- Available in Metric

2 & 4 Flute • Single End Corner Radius End Mills
Series: A-__-R__, CC-__-R__

- General purpose milling in most materials
- Offered in stub, standard, medium, long, and extra long lengths

2, 3, & 4 Flute • Single End Long Reach SQ End Mills
Series: AN, EN, CN<sub>(NCC)</sub>, CCN

- Short flute & extended neck provide maximum rigidity and reduced deflection
- CN- Non-Center Cutting Series
- 2 & 4 Flute neck diameter reduced by .020 for clearance

2, 3, & 4 Flute • Single End Ball Nose End Mills
Series: A-__-B, E-__-B, CC-__-B

- General purpose milling in most materials
- Offered in stub, standard, medium, long, and extra long lengths
- 3 flutes usually enable feed rates at least 50% heavier than 2 flute
- Available in Metric

Specials/Custom Tools

We love specials!! Get the most from your tooling and truly maximize performance! Many times, that requires customizing the cutting tool geometry and even the coating recipe so the least amount of machining time is required. That lowers manufacturing costs! But it also requires speed of supply. Melin Tool is set up to deliver what you need… FAST!

2 & 4 Flute • Single End Long Reach Ball Nose
Series: AN-__-B, CCN-__-B

- Short flute & extended neck provide maximum rigidity and reduced deflection
- 2 & 4 Flute neck diameter reduced .020 for clearance
General Purpose Cobalt & HSS End Mills

2, 3, & 4 Flute • Double End SQ End Mills
Series: B, F, D
- General purpose milling in most materials
- Double ended end mills
- 3 & 4 flute available both center-cutting and non-center-cutting
- Available in Metric

3 Flute • 60° Helix Single End Mills
Series: E60
- Used in stainless steel, titanium, inconel, and high temperature alloy materials
- High helix increase length of cutting edge which reduces cutting load variation and provides excellent surface finish

3 & 4 Flute • Corner Rounding End Mills
Series: R, RC
- Designed to produce a radius between a horizontal and vertical surface
- Tools are formed-relieved which allows the form to be maintained after resharpening
- Cutters with radius 1/32 to 7/16 are M42 cobalt
- Cutters with radius ≥ to 15/32 are M7 HSS

2 Flute • 60°, 82°, 90°, 100° & 120° Drill Points
Series: A-____-DP____
- Designed to produce chamfers on an edge of any Ferrous or Non-Ferrous Materials
- 10° Helix provides outstanding edge strength
- Available in standard, medium, long and extra long lengths.
**3 Flute • 150° General Purpose Carbide Drill**

**Series: LDR**

- 150° point angle
- Made from Premium submicron grain carbide
- Available in fractional, letter, & metric sizes

**2 Flute • 118° Jobber Length Carbide Drill**

**Series: HDR**

- General purpose carbide drill
- Jobber length drills are 118° notched point
- Made from premium submicron grain carbide
- Available for fractional, letter, wire & metric sizes

**2 Flute • 135° Stub Length Carbide Drill**

**Series: IDR**

- General purpose carbide drill
- Stub length drills are 135° notched point
- Made from premium submicron grain carbide
- Available in fractional, letter, wire, & metric sizes

**2 Flute • 140° Straight Flute Carbide Drill**

**Series: JDR**

- 140° point used to drill approximately 3X the diameter depth
- Made from premium submicron grain carbide
- Available in fractional, letter, wire & metric sizes

**2 Flute • 60° Included Angle Combo Drill & CSK**

**Series: KDR & HSCD**

- Carbide: For centering and spot drilling applications when high accuracy is necessary
  - Especially suited for difficult to machine materials
  - 60° included angle
- HSS: 60° included angle
  - For centering & spot drilling applications when high accuracy is necessary
  - Economical alternative to single end

**2 Flute • 80°, 90° & 120° NC Spotting Drills**

**Series: HDRNC, HSNC (M42)**

- Carbide point angles: 60°, 90° & 120°
- M42 Cobalt point angles: 82°, 90° & 120°
- Available in metric
**Countersinks**

### 0 Flute • HSSCo M42 & HSS Single & Double End

**Series:** HSPO, HSO

- Designed with a radial relieved single edge for the fast removal without chatter
- Higher heat & abrasion resistance for use on high-tensile, alloys, stainless steel, & other hard to machine abrasive materials

### 3 Flute • CARB, HSSCo M42, & HSS Countersinks

**Series:** C3, HSP3, HSP3-___-T, HS3

- Carbide: For highly abrasive & hard to machine materials. Applications in Cast Iron Alloy Steel, or Glass Reinforced Plastics
- Radial relief on the angle contributes to smooth, chatter-free operations
- Used for countersinking holes for centers or enlarging existing holes

### 4 Flute • CARB & HSS Countersinks

**Series:** C4, HS4, HS4DP, HSMC

- **C4**: For highly abrasive and hard to machine materials. Eliminates high cost tool changes.
- **HS4**: 2+2 staggered flute design for smooth, chatter-free cutting, works well in non-ferrous applications such as Aluminum and Plastic
- **HS4DP**: Drill and countersink with one tool, geometry allows spot drilling & countersinking in one operation
- **HSMC**: radial clearance & added shank length for use in turret lathes and screw machine work

### 6 Flute • CARB, HSSCo M42, HSS Countersinks

**Series:** C6, C6NC, HSP6, HS6, HS6NC, HS6EL

- **C6**: For highly abrasive and hard to machine materials
- **C6NC**: Use on CNC & preset machines
- **HSP6**: Excellent for countersinking difficult to machine materials
- **HS6**: Flutes are staggered to ensure smoother, chatter-free cutting action. HS6EL has extended length for hard to reach applications
**Countersinks & Burs**

**Multi Flute • Double End Countersinks**

*Series: DC1, DC4, DC6, DHS1, DHS4, DHS6*

- Standard angle of 60°, 82°, 90°, 100°, 110°, & 120°
- Economical alternative to single end
- Available in both Solid Carbide and HSS

**Multi Flute • Countersink Sets**

**Solid Carbide Burs • Double Cut**

*Series: S_

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Follow the Melin team @melin_tool. Our in house technical team is standing by to help solve all your application problems and give you a little insight into the Melin family. Follow us to see all the latest things happening over in Cleveland, Ohio.

**Technical Team**

Our application specialists are standing by to help solve problems for you. Either send us a video directly or mention us. We are happy to help in any way we can.

- Real time application help
- No one knows a Melin tool better than us!
- Allows you to connect with our team
- Up close look at what you can do with Melin
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