

#### CNC ALUMINUM CUTTING SPIRAL '0' FLUTE

Solid Carbide . Single Flute . Up & Down-Cut

Using the highest quality carbide, these bits have a special proprietary edge processing system featuring a super high polished cutting edge with a unique "mirror finish". The result is clean cuts, less chance for chip re-welding, a superior surface finish and longer tool life.





ØD	В	Ød	L	'Up-Cut' Tool No.	'Down-Cut' Tool No.
1.5mm	4mm	3mm	30mm	51370	_
2mm	6mm	6mm	64mm	57300	_
2.5mm	6mm	6mm	64mm	57301	_
3mm	8mm	3mm	30mm	51371	
3mm	8mm	6mm	63mm	51490	-
3mm	12mm	6mm	50mm	_	57307
3mm	12mm	6mm	64mm	57302	_
4mm	8mm	4mm	66mm	57303	
4mm	20mm	6mm	63mm	51492	
5mm	16mm	6mm	63mm	51494	-
6mm	8mm	6mm	64mm	57304	_
6mm	20mm	6mm	64mm	51496	-
6mm	32mm	6mm	76mm	-	57308
8mm	25mm	8mm	64mm	51498	_
8mm	38mm	8mm	76mm	57305	_

76mm

57306

30mm ▲ Warning: Maximum RPM=35,000

10mm



- · Exceptional cut quality



#### **Excellent For Cutting:**

- · Aluminum
- Aluminum 5052
- Aluminum 6061 · Aluminum Alloys
- · Aluminum Composite
- Material (ACM) Aluminum Composite
- Panel (ACP)
- ALPOLIC® Copper Composite Material (CCM)
- Alucobond® Alupanel<sup>®</sup>
- Brass

 Etalbond® · Gold Silver Wood

Dibond<sup>®</sup>

Durabond

e-panel<sup>TM</sup>

· Fomex® with Aluminum Face Titanium Composite Material (TCM)



## CNC ALUMINUM CUTTING SPIRAL '0' FLUTE

10mm

Solid Carbide . Single Flute . Down-Cut

Produce super clean, smooth cuts in aluminum and non-ferrous metals. ZrN Coated. For material cut list visit www.amanatool.com



▲ Warning: Never attempt to cut ferrous metals with these bits. Inspect cut quality, adjust feed / speed accordingly. For optimal results and extended tool life use mist lubricant system or air cooling.







#### Benefits of ZrN Coating:

- . Creates a harder and tougher cutting edge . Optimized flute geometry and low Total
  - Indicated Runout (TIR) guarantees clean cuts. essentially eliminates sanding and reduces chatter when used with low TIR spindles
- . Allows for a prolonged cutting edge life . Helps to prevent the build-up of material in the flutes while cutting
- · High flute volume supports high feed rates and chip loads

Router Bits





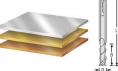














#### Benefits of ZrN Coating:

- · Creates a harder and sharper cutting edge · Allows for a prolonged cutting edge life
- . Helps to prevent the build-up of material in the flutes while cutting
- . High resistance to wear for faster speeds
- · Less friction and heat buildup

Dibond<sup>®</sup>

Ethafoam

Excellent for	Cutting:		7
Acrylonitrile     Butadiene     Styrene     (ABS)     Acrylic     Aluminum     Brass     Bronze     Copper     Gold	Expanded Polystyrene Foam (EPS)     Extruded Polystyrene Foam (XPS)     Foam Board     Graphite     20lbs High Density	Non-Ferrous Metals     Phenolics     Phenolic Composites     Polyethylene Foam     Polylam     Polyurethane Foam	(States Staff ):
<ul><li>Silver</li><li>Titanium</li></ul>	<ul><li>Urethane</li><li>High Density</li></ul>	PVC     PVC Fnam	W
<ul> <li>Composite</li> </ul>	Polyethylene	Board	a° W

. High Density . Sign Foam · Expanded Urethane · Tooling Board Polypropylene (HDU) Lexan™ Fiberglass MDF/HDF

(HDPE)

 XLPE (Cross Linked) Polyethylene) Foam

Sign Board

→ | d | ←

#### ACM DOUBLE FDGE FOLDING

#### Carbide Tipped . V-Groove

Designed for shaping Aluminum Composite (sandwich) Materials with 90°, 108°, 135° and 155° angle V-grooves with flat bottom. Ideal for wall panel fabrication. Widely used for cladding many diverse exterior and interior applications. The long lasting durability of the material makes it an excellent choice for buildings, signage, displays, etc. Routing V-shaped grooves, whereby the aluminum cover and a part of the polyethylene core is removed, allows for folding the remaining material.

#### For Scoring Aluminum Composite Materials Including:

ØD1

- · Aluminum, Clay, Zinc & · Alucobond® Wood Composite Panels Alupanel<sup>a</sup> Dibond®
- Aluminum Composite Material (ACM) Aluminum Composite
- Panel (ACP) ALPOLIC® Copper Composite Material (CCM)
- a° a1°
- Durahond e-panel · PE and FR Cores
  - Etalbond<sup>®</sup> · Phenolics
- Plexiglas Titanium Composite Material (TCM)
- Wood

· Plastic/Acrylic

### 90° 45° 12.7mm (1/2) 2.3mm (0.09") 9.53mm (3/8) 5.16mm (13/64) 6mm 50.8mm (2) 45792-M

#### ALUMINUM CUTTING 55° HELIX END MILLS

Endmills with upgraded helix angles are your friend when better surface finishes, reduced vibrations, enhanced chip removal and improved dimensional tolerances all take priority over material removal rates.

New 55° helix 3 flute endmills with the ideal geometry for superb finishing of aluminum and other non-ferrous materials.

Unique design for cutting aluminum, brass, bronze, copper and

her non-ferr	ous materials.					
ØD	В	Ød	L	Flutes	Tool No.	
3mm	15mm	6mm	75mm	3	51821	
6mm	35mm	6mm	100mm	3	51823	
8mm	45mm	8mm	100mm	3	51824	
10mm	45mm	10mm	100mm	3	51820	

### INDUSTRIAL

# //3DCarving

Specially designed for 2D and 3D CNC profiling and carving with CNC machines. The high-shear ball nose tips cut smooth 2D and 3D contours with reduced stepping while the optimized flute geometry and low Total Indicated Runout (TIR) guarantees clean cuts, essentially eliminates sanding and reduces chatter. The high flute volume supports high feed rates and chip loads while the high aspect ratio is excellent for single pass, deep-reach cutting. Manufactured with high balance which allows tools to be run up to 60,000 RPMs. Adjust your chip load and feed rate accordingly.





### CNC 2D/3D CARVING TAPERED AND STRAIGHT

Solid Carbide . Ball Nose (Conical Ball) . Up-Cut

טט	D	d	n	riute	υu	L	I DUI NO.
0.5mm	26.5mm	6.2°	0.25mm	3	6mm	75mm	46473
0.8mm	25mm	6.2°	0.40mm	3	6mm	75mm	46470
1mm	3mm	0.10°	0.5mm	3	3.18mm (1/8)	38.1mm (1-1/2)	46471
1.5mm	25mm	5.4°	0.75mm	4	6mm	75mm	46472
3.2mm	38mm	1°	1.6mm	3	6mm	75mm	46474
6.0mm	38mm	0.10°	3.0mm	2	6mm	75mm	46479

#### Solid Carbide . Flat Bottom (Square End) . Up-Cut

ØD	В	a°	Flute	Ød	L	Tool No.	
1mm	3mm	0.10°	3	3.18mm (1/8)	38.1mm (1-1/2)	46581 †	
6mm	38mm	0.10°	2	6mm	75mm	46585	

† Router collet reducer RB-102 (1/4 to 1/8) available for 1/8 shank bits.



#### CNC 2D/3D CARVING TAPERED BALL NOSE & STRAIGHT

Solid Carbide . Ball Nose (Conical Ball) . Up-Cut

Specially designed for 2D and 3D CNC profiling and carving with CNC machines. Spektra<sup>TM</sup> bits feature a nACo® nanocomposite coating with an extreme nanohardness and heat resistance.



ØD	В	a°	R	Flute	Ød	L	Tool No.
.50mm	19mm	3.7°	0.25mm	3	3mm	75mm	48418-K-M
1.5mm	26mm	5°	0.75mm	3	6mm	75mm	48420-K-M
1.5mm	26mm	5.4°	0.75mm	4	6mm	76mm	48422-K
3mm	26mm	3.6°	1.5mm	3	6mm	75mm	46286-K-M

#### Solid Carbide • Flat Bottom (Square End) • Up-Cut

ØD	В	a°	Flute	Ød	L	Tool No.
3mm	28mm	0.10°	4	6mm	63mm	48424-K

#### Spektra™ 2D/3D Bits Excellent for Cutting:

- · Acrylonitrile Butadiene · Ethylene-vinyl Acetate Styrene (ABS)
- Acrylic · Acrylic Stone
- · Composite Corian
- · Coroplast® Dibond<sup>8</sup>
- Ethafoam
- Expanded Polypropylene (EPP)
- Foam (EVA) Expanded Polypropylene (FPP)
- Expanded Polystyrene Foam (EPS)
- · Extruded Polystyrene Foam (XPS) Fiberglass
  - · Fiberglass PCB Board · Foam Board
- 20lbs High Density Urethane . High Density Polyethylene (HDPE)
- . High Density Urethane (HDU) • LexanTh
- MDE/HDE PAI FOAM™
- Plastics · Poly (methyl methacrylate) (PMMA) · Phenolics
  - Phenolic Composites

#### Applications:

- · A perfect router bit for 3D carving
- . Precision 2D and 3D large scale carving · Dimensional signage & 3D millwork
- · 2D/3D contouring, profiling, modeling &
- pattern making · Cabinetry, furniture making
- · Jewelry mold making

#### Benefits of Spektra™ Coating:

- · Provides longevity and produces cutting results of the highest quality
- · Prevents high heat and oxidation · Impressive solid hardness on
- cutting areas . Increased longevity up to 2.5 times compared to uncoated bits





- PVC · PVC Foam Board
- Sign Board . Sign Foam Tooling Board
- Wood · XLPE (Cross Linked Polyethylene) Foam

# ZrN

#### CNC 2D/3D CARVING TAPERED BALL NOSE

High Speed Steel (HSS) . Ball Nose (Conical Ball) . Up-Cut

Specially designed for 2D and 3D CNC profiling and carving with CNC machines. The high-shear ball nose tips cut smooth 2D and 3D contours with reduced stepping while the optimized flute geometry and low Total Indicated Runout (TIR) guarantees clean cuts, essentially eliminates sanding and reduces chatter. The high flute volume supports high feed rates and chip loads while the high aspect ratio is excellent for single pass, deep-reach cutting. Manufactured with high balance which allows tools to be run up to 60,000 RPMs. Adjust your chip load and feed rate accordingly





· Phenolics

· Polylam

. Sign Board

· Sign Foam

Tooling Board

· Phenolic Composites

· Polyethylene Foam

· Polyurethane Foam PVC
 PVC Foam Board

ØD	В	a°	R	Flute	Ød	L	Tool No.	
0.5mm	26mm	5.8°	0.25mm	3	6mm	76mm	HSS1298-M	
1.5mm	26mm	5.1°	0.75mm	3	6mm	76mm	HSS1303-M	
3mm	26mm	3.5°	1.5mm	3	6mm	76mm	HSS1304-M	

#### Benefits of ZrN Coating:

- . Creates a harder and sharper cutting edge
- . Allows for a prolonged cutting edge life
- . Helps to prevent the build-up of material in the flutes while cutting
- . High resistance to wear for faster speeds
- . Less friction and heat buildup

#### **Excellent for Cutting:**

- Acrylic
- Aluminum Brass
- Bronze
- Copper
- · Gold Silver
- Titanium
- Composite
- Dibond® Ethafoam
- · Acrylonitrile Butadiene Styrene (ABS) · Expanded Polypropylene (EPP)
  - Fiberglass · Fnam Board

    - · Graphite
    - 20lbs High Density Urethane . High Density Polyethylene (HDPE) . High Density Urethane (HDU)

Expanded Polystyrene Foam (EPS)

. Extruded Polystyrene Foam (XPS)

- LevanTh MDF/HDF
- . Non-Ferrous Metals



→ I d I ←











 Wood · XLPE (Cross Linked Polyethylene) Foam



- Extends tool life · Exceptional cut quality

#### **Excellent for Cutting:**

- · Plastic, Acrylic
- · Acetal and Nylon
- · Acrylic Stone · Acrylonitrile Butadiene Styrene
- (ABS) Aluminum Composite Material (ACM)
- Alupanel
- Corian
- · Coroplast
- Correx Boards
- · Corrugated Polypropylene
- Delrin
- Dibond<sup>®</sup>
- Extruded Acrylic
- · Foam Board
- Fomex<sup>®</sup>
- · Gatorfoam<sup>a</sup>
- · Hard Plastic . High Density Polyethylene
- (HDPE)
- · High Density Urethane (HDU Board)
- . High Impact Polystyrene (HIPS)
- . HIPS with Digital Printing · Hydroxy-Terminated Polyether
- (HTPE) . King ColorCore®, The Multi-Color Engravable Polymer Sheet



#### CNC PLASTIC CUTTING SPIRAL 'O' FLUTE

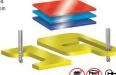
Solid Carbide . Single Flute . Up-Cut & Down-Cut

Made according to strict tolerances from an exclusive carbide grade polished to a mirror finish using Amana's unique process. Designed to eject chips either up or down. Ideal for industrial applications.

Produce super clean, smooth cuts in plastics. Metric sized.

For complete list of materials visit www.amanatool.com





→ID I+		→ D I←							V		GIG
Up-	Cut	Down-Cut			Down-Cut'					'Up-Cut'	Down-Cut'
ØD	В	Ød	L	Tool No.	Tool No.	ØD	В	Ød	L	Tool No.	Tool No.
2mm	6mm	3mm	50mm	51634	_	5mm	16mm	6mm	64mm	57321	57332
2mm	8mm	2mm	50mm	57310	_	5mm	30mm	5mm	64mm	57322	_
2mm	8mm	6mm	64mm	57311	_	6mm	8mm	6mm	64mm	57323	-
2.5mm	8mm	2.5mm	50mm	57312	_	6mm	12mm	6mm	64mm	57324	-
2.5mm	8mm	6mm	64mm	57313	_	6mm	16mm	6mm	63mm	51638	-
3mm	8mm	3mm	50mm	57314	_	6mm	20mm	6mm	64mm	51495	_
3mm	8mm	6mm	64mm	57315	_	6mm	30mm	6mm	75mm	51497	-
3mm	12mm	3mm	64mm	51491	_	6mm	30mm	6mm	76mm	_	57333
3mm	12mm	6mm	50mm	_	51526	6mm	32mm	6mm	75mm	_	51527
3mm	12mm	6mm	64mm	57316	_	6mm	38mm	6mm	75mm	51499	_
4mm	8mm	4mm	64mm	57317	_	6mm	38mm	6mm	76mm	_	57334
4mm	12mm	4mm	64mm	51636	-	8mm	25mm	8mm	64mm	57325	_
4mm	20mm	4mm	64mm	57318	_	8mm	38mm	8mm	76mm	57326	57336
4mm	20mm	6mm	64mm	57319	57331	10mm	30mm	10mm	76mm	57327	_
4mm	30mm	4mm	64mm	57320	_	10mm	35mm	10mm	76mm	57328	_
5mm	16mm	5mm	64mm	51493	-	12mm	38mm	12mm	76mm	57329	_

#### CNC PLASTIC CUTTING SPIRAL '0' FLUTE

#### Solid Carbide . Single Flute . Up-Cut ØD Ωd L Tool No. 1mm 4mm 3mm 30mm 51390-K 1 1mm 4mm 3mm 30mm 51394-K 1.2mm 4mm 30mm 51395-K 3mm 1.4mm 4mm 3mm 30mm 51396-K 1.5mm 6mm 3mm 30mm 51391-K 1.6mm 6mm 3mm 30mm 51397-K









Manufactured from our exclusive ultra-fine micrograin carbide, these bits feature a 30 degree Center Cutting Mill End with a 45 degree comer chamfer (for extra strength) and Aluminum Titanium Nitride (AITIN) coating for superior cut quality.

#### **Excellent For Cutting:**

· Stainless Steel · Low Carbon Steel · Plastics

Composites

- Steel Cast Iron

  - Material (MCM) Magnesium

#### Titanium (up to 40HRC hardness)

#### Benefits of AITIN Coating:

- · Extra wear resistance
- · Allows for faster feed & speed rates · Cutting edge protected from wear · Better chip evacuation

AITIN COATED BITS

- · Superior cutting quality & extended tool life
- . Less heat build-up











Perfect for the signmaking industry. Our special carbide grade combined with the AITIN coating results in amazing performance. The unique corner chamfer gives the bits additional strength.

#### STRAIGHT PLUNGE FOR UNDERSIZED PLYWOOD DADO

Carbide Tipped . 2 Flute

Actual



ØD	Plywood Thickness	В	Ød	L	Tool No.	
6mm	_	25mm	6mm	57mm	45213	
8mm	_	25mm	8mm	63mm	45215	
12mm	_	38mm	12mm	79mm	45253	



#### PLASTIC CUTTING SPIRAL BALL NOSE

Solid Carbide • 2 Flute • Up-Cut

Designed to eliminate tool marks that commonly appear when used with plastic and solid surface materials. Due to the highly polished finish and unique tool geometry, the spiral ball nose router bit delivers superior surface finish of at least 28 Ra (roughness average) in various materials. The up-cut router bits also eject chips up, to help prevent chip-out on the bottom of the material.







3mm	1.5mm	12mm	6mm	50mm	2	46453
4mm	2mm	12mm	4mm	50mm	2	46454
5mm	2.5mm	12mm	5mm	50mm	2	46455
6mm	3mm	22mm	6mm	63mm	2	46456
10mm	5mm	29mm	10mm	75mm	2	46457
12mm	6mm	29mm	12mm	75mm	2	46458





#### CNC COMPRESSION SPIRAL FLUTE

Solid Carbide • 2 Flute

Special carbide for longer lifetime in abrasive material. Designed for CNC applications requiring high feed rates and a clean finish. Particularly suitable for double-sided melamine or laminated material.

For complete details on Spektra™ visit www.amanatool.com/spektra

	ØD	В	B1	Ød	L	Flute	Tool No.
	3mm	20mm	6mm	6mm	64mm	2	48302-K
	3mm	21mm	6mm	3mm	64mm	2	46180-K-M
	6mm	20mm	7mm	6mm	64mm	2	48304-K
	6mm	25mm	7mm	6mm	64mm	2	46175-K
	8mm	25mm	11mm	8mm	64mm	2	48306-K
	8mm	32mm	11mm	8mm	71 mm	2	48308-K
	10mm	25mm	15mm	10mm	64mm	2	48310-K
	10mm	32mm	12mm	10mm	76mm	2	48312-K
	10mm	35mm	15.4mm	10mm	76mm	2	48314-K
	12mm	32mm	12mm	12mm	71 mm	2	48316-K
	12mm	35mm	12mm	12mm	76mm	2	46185-K
	12mm	42mm	12mm	12mm	81mm	2	48318-K
	6mm	22mm	5mm	6mm	75mm	3	48320-K
	6mm	28mm	5mm	6mm	75mm	3	48322-K
	8mm	25mm	11mm	8mm	64mm	3	48323-K-M
	8mm	32mm	11mm	8mm	71 mm	3	48325-K-M
	12mm	32mm	9mm	12mm	75mm	3	48324-K
	12mm	41mm	9mm	12mm	88mm	3	48326-K







Top View

- · Acrylic · Acrylic Stone
- · Acrylonitrile Butadiene Styrene (ABS)
- Aluminum
- Brass Copper
- Corian
- Coroplast®
- Fomex®
- . Perspex® Cast Acrylic Sheet Plexiglas<sup>®</sup> Poly (methyl methacrylate) (PMMA)
- · Sign Foam
  - · Solid Surface . StarBoard® (King StarBoard 'R') High Density
  - Polyethylene Sheet (HDPE)
  - Wood



Top View

→ | d | ←







- CERP Double-Sided Melamine
- Laminate
- MDF/HDF · Melamine Particleboard
- . Oriented Strand Board (OSB) · Softwood/Hardwood Veneered Plywood















#### CNC MORTISE COMPRESSION SPIRAL

Solid Carbide • 2 & 3 Flute • For Mortising Work

These tools have a much shorter up-cut section than the standard compression tools. They are ideal for mortising, grooving and dado. The Spektra™ nACo<sup>o</sup> nanocomposite coating is a micro thin ceramic coating which enables the tool's cutting edge to retain crucial sharpness and lubricity. This provides longevity and produces cutting results of the highest quality.

For complete details on Spektra™ visit www.amanatool.com/spektra

#### **Excellent For Cutting:**

- MDF/HDF
- Plywood Double-Sided Melamine
   Softwood/Hardwood
- · Laminate

ØD	В	B1	Ød	L	Flute	Tool No.
5mm	25mm	4.763mm	5mm	64mm	2	48351-K
6mm	22mm	4.76mm (3/16)	6mm	64mm	2	46025-K
8mm	25mm	5mm	8mm	64mm	2	48352-K
10mm	22mm	5mm	10mm	76mm	2	48354-K
12mm	25mm	6.35mm (1/4)	12mm	76mm	2	46027-K
6mm	25mm	4.7mm	6mm	75mm	3	48358-K



Top View









→ D I←

Up-Cut

Top View





# SPIRAL FLUTE PLUNGE

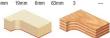
Solid Carbide • 2 Flute • Up-Cut & Down-Cut

Spektra™ micro-thin coating provides longevity and cutting results of the highest quality. For complete details on Spektra<sup>TM</sup> visit www.amanatool.com/spektra

Excellent	For	Cuttin	a:

12mm 32mm 12mm 75mm 2

<ul><li>MDF/</li><li>Lamir</li></ul>		Melamin Softwood	e 1/Hardwo		neered Plywood	量 闸 🖫
ØD	В	Ød	L	Flute	'Up-Cut' Tool No.	'Down-Cut' Tool No.
1.5mm	5mm	3mm	50mm	2		48210-K
1.5mm	6mm	3mm	50mm	2		48212-K
3mm	12mm	6mm	50mm	2	_	48214-K
3mm	20mm	6mm	63mm	2	48116-K	48216-K
6mm	19mm	6mm	63mm	2	48118-K	48218-K
6mm	25mm	6mm	63mm	2	48120-K	48220-K



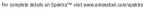


#### SPIRAL BALL NOSE

#### Solid Carbide • 2 Flute

The Spektra™ nACo® nanocomposite coating is a micro thin ceramic coating which enables the tool's cutting edge to retain crucial sharpness and lubricity. This provides longevity

and produces cutting results of the highest quality.



- **Excellent For Cutting:** · Softwood/Hardwood
- MDF
- . Soft/Hard Plastic

· Sign Foam





~ Q

48228-K 48502-K



ØD	R	В	Ød	L	Tool No.	Tool No.
6mm	3mm	25mm	6mm	63mm	48403-K	_

#### MINI SPOILBOARD SURFACING, RABBETING, FLYCUTTER. SLAB LEVELER & PLANER

Insert Carbide with Scorer and 2+2 Knife Design

Mini design for tight corners, Exclusive carbide grade for highest quality of cut. Mini insert spoilboard surfacing & rabbeting with scorer utilizes 4-sided carbide inserts, great for cutting tight corners Features unique 2+2 insert knife design that contains two cutting flutes and two up-shear scorers, which provide a smoother finish at the bottom of the cut than traditional two-knife style router bits. Max cutting depth is 1/4".

. HDU Board

UHMWPE\*

#### Perfect for:

- · Resurfacing spoilboards using CNC
- · 2+2 spoilboards contain two bottom scorers for better performance, finer surface finish and better clearance for 90° corners
- · Planing large glued-up panels using CNC
- . Surfacing and finishing wood using timber slab machines

#### · Rabbeting and slotting

#### Designed for planing & rabbeting the following materials: Plywood/Chipboard\* · Plastic/Acrylic\*

- MDF Fiberboard
- · Balsa Core\*
- · HDF/LDF
- . Epoxy (Epoxy Resins)\*
- Hardwood/Softwood\*
- \* For optimal results and maximum insert life, replace inserts

#### with optional general purpose knives (sold separately) Recommendations: For surfacing solid woods it is recommended to remove both bottom scorers.











Rent. MDF Knives Max RPM Tool No

38.1mm (1-1/2) 12.7mm (1/2) 6mm 46.03mm (1-13/16) HMA-12, HCK-70\* 24 000 RC-2239 38.1mm (1-1/2) 12.7mm (1/2) 12mm 58.74mm (2-5/16) HMA-12, HCK-70\* 24,000 RC-2253 ★

- \* Optional General Purpose knives #AMA-12 & #RCK-70.
- \* Optional Solid Wood DLC\* coated knives: #AMA-12-DLC & #RCK-70-DLC.
- † Diamond-Like Carbon (DLC) is a nanocomposite coating that has unique properties of natural diamond low friction, high hardness and high corrosion resistance.

#RC-2253 repl. screws: bottom: (2) #67155, key #5015; sides; (2) #67115, key #5005.

Note: This tool is not designed to plunge! You must ramp down to a depth of 1/4" deep over a 20" run. Use the max RPM allowed (24,000) and start the feed rate at about 320 inches per minute, and go up until you get waves, then back down to a smooth cut/finish.

- \* Warning: For CNC use only.
- ▲ Warning: Proper torques rating to tighten down screws is 2-3Nm Torques. A Warning: Make sure that your router sled rails are fully stable and squared.

#### CNC HEAVY DUTY SPOILBOARD PLUNGING, SURFACING, PLANING, FLYCUTTER & SLAB LEVELER

#### Insert Carbide • 3 Wing

Insert carbide spoilboard surfacing & chamfering router bit utilizes 4-sided carbide inserts, great for planing large surface areas. Higher number of teeth allows for a higher feed rate. Featuring solid carbide insert knives with four cutting edges that allow users to rotate the knife when one side becomes dull providing the highest-quality finish available.

- . Capable of removing thin layers of material, less than 0.001" per pass . Tool can plunge up to a maximum depth of 6mm (1/4"), then start resurfacing
- . The unique chamfer corner insert design creates a flawless surface
- . The 3 wing wing design results in a more balanced tool while running







1-1/2	1-3/04	3/04	3/4	3/10	OIIIIII	~	DPV-409		0	NU-2200-W	
2-1/2	2	5/64	53/64	1/4	12mm	2-19/32	RCK-459	**	3	RC-2255-M	
Montional	General Pr	urmoo kr	ivoc #RCs	CA57	Ontional !	Solid Wood	DLC coates	l kniv	00:1	BCK-457-DLC	

\*\*\* Optional Solid Wood DLC coated knives: #RCK-453-DLC.

#### Repl. screws: (3) #67110, key #5005

▲ Warning: Proper torques rating to tighten down screws is 2-3Nm Torques.

▲ Warning: Make sure that your router sled rails are fully stable and squared.

· Two cutting flutes and two up-shear scorers, which provide a smoother finish at the bottom of the cut than traditional two-knife style router bits. Mini design for tighter corners · Utilizes 4-sided carbide inserts · Exclusive carbide grade for highest quality of cut · Maximum cutting efficiency · Faster material removal process





IIHMWPF\*

Tool holder

sold senarately

Torx<sup>®</sup> key included.



#### Designed for planing & chamfering the following materials:

- MDF · Plywood/Chiphoard\* Plastic/Acrylic\* HDII Board\*
  - Fiberhoard · Balsa Core\* · HDF/LDF . Fnoxy (Fnoxy Resins)\* · Hardwood/Softwood\*

 Maximum cutting efficiency · Faster material removal process

\* For optimal results and maximum insert life, replace inserts with optional general purpose knives (sold separately).



## SPOILBOARD SURFACING, RABBETING, FLYCUTTER, SLAB LEVELER & SURFACE PLANER

Insert Carbide • 2-Wina

These industrial router bits feature solid carbide insert knives with four cutting edges that allow users to rotate the knife when one side becomes dull, providing the highest-quality finish available on woodworking tools. Used in resurfacing of particleboard, MDF and balsa core material. Optional general purpose knives for chipboard, balsa core, hardwood/softwood and plastic.

#### Perfect for:

- · Resurfacing spoilboards using CNC
- . Planing large glued-up panels using CNC
- . Surfacing and finishing wood using timber slab machines
- · Rabbeting and slotting
  - . Utilizes 4-sided carbide inserts . Exclusive carbide grade for highest quality of cut
    - . Maximum cutting efficiency
    - · Faster material removal process

# Designed for planing & rabbeting the following materials: Hardwood/Softwood\*

- MDF Fiberboard · HDF/LDF
- · Plywood/Chipboard\* · Balsa Core\* . Epoxy (Epoxy Resins)\*
- Plastic/Acrylic\* . HDU Board\*
- UHMWPE\*
- \* For optimal results and maximum insert life, replace inserts with optional general purpose knives (sold separately). .



Max Cut Depth (A) Repl. MDF Knives Repl. Screws Max RPN 38.1mm (1-1/2) 12mm 6mm 42.86mm (1-11/16) 6.35mm (1/4) HMA-121 67117 24.000 RC-2256 +

- + Mini Design.
- † Optional general purpose knives #AMA-12, Optional Solid Wood DLC<sup>1</sup> coated knives: #AMA-12-DLC
- **A Warning:** Proper torques rating to tighten down screws is 2-3Nm Torques.
- A Warning: Make sure that your router sled rails are fully stable and squared.

# Tool holder sold separately.

# SPOILBOARD SURFACING, RABBETING, FLYCUTTER, SLAB LEVELER, SURFACE PLANER & FLATTENING

Carbide Tipped • 3 & 4 Flute

Carbide tipped spoilboard surfacing & rabbeting router bit great for cutting tight corners and surface planing. Also suitable for router sled machines, Make sure that your router sled is fully stable and squared.

#### Perfect for:

- · Resurfacing spoilboards using CNC
- . Planing large glued-up panels using CNC
- . Surfacing and finishing wood using timber slab machines
- · Rabbeting and slotting

#### Designed for planing & rabbeting the following materials:

- MDF · Balsa Core
- Fiberboard · Hardwood/Softwood · Plastic
- HDF/LDF
- · Chipboard







1	ØD	В	Ød	L	Flute	Max RPM	Tool N
. *	28mm	12mm	6mm	43mm	3	28,000	4552

#### V-GROOVE SIGNMAKING & LETTERING

#### Carbide Tipped • 2 Flute

Cut decorative V-Grooves and lettering on signs with these bits. Use with an edge guide to chamfer and bevel edges.

#### Designed for planing & rabbeting the following materials:

- · Acrylic Plywood
- · Composite · Sign Board
- Foam · 20lbs High Density
- Laminate Urethane Melamine Veneered Plywood
- · MDF/HDF Wood
- Xanita Board Plastic







→ d I+





#### 6mm Shank . Solid Carbide . Single Flute

For extra-fine carving and lettering details for signmaking in wood, plastic, aluminum and solid surface materials.

The Spektra™ nACo® nanocomposite coating is a micro thin ceramic coating which enables the tool's cutting edge to retain crucial sharpness and lubricity. This provides longevity and produces cutting results of the highest quality.

#### 15° Single Flute

t = ti	p width	В	Ød	L	Tool No.
0.1	3mm	24mm	6mm	58mm	45611-K-M
30° Single Flute					
t = ti	p width	В	Ød	L	Tool No.
0.1	3mm	11mm	6mm	57mm	45771-MK





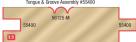
#### POINT CUTTING ROUND OVER Solid Carbide & Carbide Tipped . Single & 2 Flute

For trimming, lettering & fluting. Bit is not guaranteed due to a very fine plunge point.



Solid carbide.







#### **Excellent For Cutting:**

- · Acrylic Stone Aluminum
- . Carbon Fiber Reinforced
- Polymer (CFRP) Composite
- Corian
- · Coroplast®
- · Fiberglass
- . Fiberglass PCB Board
- HDPF
- Lexan<sup>TM</sup> Phenolics (PMMA)
- · Plastic · Poly (methyl methacrylate)







Ton View

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#### SPIRAL COMPOSITE, FIBERGLASS AND PHENOLIC CUTTING

#### Solid Carbide • 3 Flute • Up-Cut

Amana's Modern Finishing Geometry (MFG) incorporates high shear, multi-flute and a ZrN coating designed for the ultimate combination of finish and tool longetivity in aerospace materials. Modern-day materials present challenges to the fabricator. Using these

special multi-flute edge tools featuring ZrN ceramic coating, addresses these challenges with a winning geometry combination.

The Spektra™ nACo® nanocomposite micro-thin coating provides longevity

and cutting results of the highest quality. For complete details on Spektra™ visit www.amanatool.com/spektra



				~	
ØD	В	Ød	L	Flute	Tool No.
6mm	19mm	6mm	63mm	3	48430-K





#### → D |← -H D I+ **Excellent for Cutting:**

- · Carbon Fiber Panels · CERP
- · Carbon Graphite Fiberglass
- Fiberglass PCB Board . FRP & GFR
- Micarta<sup>1</sup> Plastic, PVC & Acrylic Thermosetting Plastics . Thermoset Composites

→Idl+

В

→ | D | ←

Top View

#### CNC CARRON GRAPHITE & CARRON FIRER PANEL CUTTING SPIRAL

#### Solid Carbide . Down-Cut

These carbon graphite and carbon fiber cutting solid carbide router bits are designed to produce a minimum failure in composite materials such as layers separating and a significant loss of mechanical toughness.

The rapidly growing use of Carbon Fiber Reinforced Polymers (CFRP) necessitates tooling designed to effectively meet the challenges of such composites. Experts have recognized the need for a tool geometry combining a highly abrasion-resistant carbide substrate generous fluting, and an impact zone that not only "shatters" the hard carbon fibers but also keeps heat down.

These industrial router bits combat abrasion heat and the breakdown of composites for clean, accurate cuts.









	Ton !	View				
	тор	V IOVV		Uncoated	Spektra™	
D	В	Ød	L	Tool No.	Tool No.	
nm	13mm	3mm	50mm	48450	48450-K	ī
nm	19mm	6mm	75mm	_	48452-K	

#### END MILL POINT DIAMOND PATTERN, COMPOSITE CUTTING

#### Solid Carbide . Single Flute

This bit is designed especially for cutting fiberglass, fiberglass PCB Board, composites, phenolic and other highly abrasive materials. Works well on epoxies made with carbon, glass and composite materials. The up-cut/down-cut diamond pattern cutting edges effectively grinds through the material evenly in all directions.

- **Excellent for Cutting:** · Composites
- Fiberglass · Fiberglass PCB Board
- . Fiber Reinforced Plastic (FRP) G10 / FR-4 and G11 / FR-5
- · Glass Reinforced Plastic (GRP) Glass Fiber Beinforced
- Polymer Plastic Materials (GFR)
- · Phenolic
- . Phenolic "Garolite" G-7











# NDUSTRIAL **CNC** Router Bits

#### **Excellent For Cutting:**

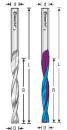
- · Acrylonitrile-Butadiene-Styrene (ABS)
- · Ethafoam
- Ethylene-Vinyl Acetate Foam (EVA) Expanded Polypropylene (EPP)
- · Expanded Polystyrene Foam (EPS)
- · Extruded Polystyrene Foam (XPS) . Flexible Polyurethane Foam (FPF)
- Fomex®
- Lexan™
- PALFOAM™ · Polyethylene Foam
- · Polylam
- Polyurethane Foam
   XLPE (Cross Linked)
- Polyethylene) Foam

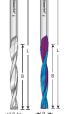












Top View

#### CNC FOAM CUTTING SPIRAL

#### Solid Carbide • 2 Flute • Up-Cut & Down-Cut

Specifically designed for milling Polyurethane Foam and Expanded Polystyrene (EPS) to ensure your foam projects are milled with unparalleled accuracy, detail and clarity. Achieve both precision and depth for foam carving and milling applications. Provides deeper cuts and larger slices with fewer passes in thick materials, resulting in improved productivity and less assembly.

The up-cut spiral ejects chips away from the work-piece.



#### Flat Bottom (Square End)

ØD	В	Ød	L	Uncoated Tool No.	Spektra™ Tool No.
3mm	29mm	6mm	63mm	48442	48442-K
6mm	58mm	6mm	100mm	48444	48444-K

#### Flat Bottom

Snektra<sup>TM</sup> Flat Bottom

# FOAM CUTTING HIGH SPEED STEEL (HSS) STRAIGHT V-FLUTE

#### High Speed Steel (HSS) . 2 Flute

V-flutes are selected when a balanced tool is critical for smooth finish. Excellent for hand-fed operations.

#### **Excellent For Cutting:**

- . Crosslinked Polyethylene Foam (XLPE)
- · Ethafoam
- . Flexible Polyurethane Foam (FPF)
- Expanded Polypropylene (EPP)
- Fornex® · Natural Woods
  - Polvethylene Foam

  - · Polylam









ØD



54mm

HSS1611-M



# CNC V-GROOVE, MITER FOLD, SIGNMAKING & LETTERING - 1/4" & 1/2" SHANK

Wood

Xanita® Board\*



Insert Carbide . Single Flute & 2 Flute . 60°

Designed for V-Grooving, signmaking, lettering, miter folding and chamfering your material to a perfect joint! Excellent solution for etching. General purpose knives included. For material cut list see next page. · Veneered Plywood

#### **Excellent For Cutting:**

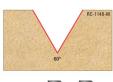
- Laminate · Composites · Composite Decking Melamine MDF/HDF Foam
- 20lbs High Density King ColorCore®. Plastic PVC Urethane The Multi-Color . Sign Board Engravable
- Polymer Sheet Solid Surface

#### **Excellent For Engraving:**

 Aluminum Conner · Carbon Fiber • Gold Brass Bronze Silver

"When working with Xanita LightBoard panel (X-board\*, X-board\* plus) we recommend using MDF knives for better results.





Gen. Purnose

Repl. Knife



RCK-350



→ | d | <

Max Repl. Knife Screw RPM Tool No. 67117 28.000 RC-1148-M

### IN-TFCH™

#### Insert Carbide Knives . 1 Flute . Industrial Quality

Popular insert router bit profiles provide all woodworkers access to the industrial-grade technology, at an affordable price. By replacing worn knives instead of sharpening standard carbide tipped bits, router bit dimensions, cutting quality and accuracy remain constant during the life of the tool. Ideal for routing softwood/hardwood as well as harder materials such as MDF and Chipboard.

#### Benefits of the in-Tech™ Series include:

- · Cutting accuracy remains constant during the life of the insert carbide knife
- Priced comparably to brazed router bits with at least 4 times longer tool life

a1° Ød

6mm

- · Superior cutting quality
- No re-sharpening costs
- · Nine popular profile sizes in 1/4" shank
- · Harder grade tungsten carbide

ØD





52mm

Description

V-Groove



Flute



BRAZED BITS with at least	LONGER TOOL LIFE











Repl. Knives Tool No. AMA-12\* RC-45711-M









#### A must-have tool for every woodworker!

# 82° COUNTERSINK WITH ADJUSTABLE DEPTH-STOP & NO-THRUST BEARING

Quick Release 6mm Hex Shank • Carbide Tipped

2-Wing With HSS M2 Fully Ground Drill

#### No Burning, No Marring & No Friction

Features an adjustable, heavy-duty, revolving metal depth-stopper with a strong thrust ball bearing for quick and easy adjustment of the countersink depth without scratching or burning surfaces. The open space allows for chip evacuation.

User friendly design enables control of the drill length and its replacement, without the need to disassemble the depth-stop.

Enables users to drill a pilot hole and tapered countersink in one step. Adjustable depth stop and independent stop collar prevent marking of the work-piece and perfect countersink depth control.

#### **Excellent For Drilling:**

- · Aluminum/Non-Ferrous
- Aluminum Composite Material (ACM)
- Chipboard
- Composites
- Composite Decking Materials
   Man-Made Boards
- MDF
- Natural Woods
- Plywood





No-Thrust Ball Bearing eliminates the scratching or burning of the surface.

Wood Screw .

Replacement NF1/4-28 x 3/16 set screw #67083 for drill tightening. Replacement 1/8 x 5/32 double-sided hex key #5019 (included).

Drill Repl. Ød L DIN Drill Bit Tool No.

 Size
 0D
 0D1
 B
 a°
 0d
 L
 DIN
 Drill Bit
 Tool No.

 #6
 9.5mm
 3.2mm
 1.2-9.5mm
 49°
 6mm
 67mm
 1897
 630-226
 55227-M

 Replacement NF1/4 x 1/4 set screw #67070 for tightening depth stop.



▲ Warning: When drilling aluminum/non-ferrous, for optimal results and extended tool life, use llubricant or air cooling. Make sure the material is fixed and drill is stable during drilling.



#### #45408-3-M

3 Flute CNC router bit with 6mm cutting diameter with solid carbide cutting edges brazed into steel 12mm shank.



#### FEED & SPEED\*

Up to 20,000 MMPM feed rate at 18,000 RPM cutting particle board. Please refer to website for additional information.

\*Rate may change depending on material and cnc machine type.

#### INDUSTRIAL

# INCREASE YOUR PRODUCTIVITY AT LOWER COST

- Designed for 19mm laminated boards for nesting and grooving at an extremely fast feed rate and cost savings
- . The unique design contributes to superb
- performance and excellent cutting results
- Designed primarily for high speed CNC production
- . Long lasting harder carbide

#45408-3-M



#### **Excellent For Cutting:**

- · Particle Board, MDF & Melamine:
- Feed rate up to 20,000 MMPM\* at 18,000 RPM\*\*
- Plywood: Feed rate up to 12,500 MMPM\* at 18,000 RPM\*\*







ØD	В	Ød	L	Flute	Tool No.
6mm	19mm	12mm	76mm	3	45408-3-M
6mm	21mm	12mm	77mm	3	45185-M



AMS-119-M

#### 3-PC. MATT'S CNC STARTER







1/4" Shank . Insert Carbide & Solid Carbide Router Bit Pack

Designed for a wide variety of applications. Each router bit is manufactured from Amana's exclusive grade carbide according to stringent quality standards. For material cut list visit www.amanatool.com

Includes

Set No.

48218-K, 48224-K & RC-1148-M

AMS-119-M



AMS-109-M

# 4-PC. MATT'S CNC STARTER









#### 1/8" & 1/4" Shank . Insert Carbide & Solid Carbide Router Bit Pack

Designed for a wide variety of applications. Each router bit is manufactured from Amana's exclusive grade carbide according to stringent quality standards.

For material cut list visit www.amanatool.com

Includes RC-1148-M, 48218-K, 48224-K & 48210-K Set No.

AMS-109-M



AMS-231-M

# 5-PC. BLUELINE CNC STARTER







1/4" Shank • Insert Carbide & Solid Carbide Router Bit Set

Designed for a wide variety of applications. Each router bit is manufactured from Amana's exclusive grade carbide according to stringent quality standards. For material cut list visit www.amanatool.com

Includes

48224-K, 48218-K, 45771-MK, RC-1148-M & 48304-K

Set No.

AMS-231-M



1/4" Shank . Solid Carbide Router Bit Collection Designed specifically for a wide variety of applications. Also perfect for signmaking. With Spektra™ Bits.

8-PC. CNC V-GROOVE, POINT ROUNDOVER &









Includes

45704M, 45705-M, 49403-K, 48118-K, 48422-K, 56125-M, 48218-K & 48224-K AMS-177-K-M



INDUSTRIAL METRIC

# CNC MASTER ROUTER BIT COLLECTION

LED ILLUMINATED LOCKABLE DISPLAY WITH INTEGRATED LED LOGO HEADER, MIRRORED INTERIOR AND REAL WOOD!



Features

Top selling 48 SKU's Locking door with two keys Specifications
34" H x 30" W x 13" D
Weighs 24lbs (empty); 45lbs (with tools)



Order Set #AMS-CNC-48M





LED Illuminated, Mirrored Interior and Solid Wood Display

48 pieces of the most versatile CNC, industrial, high performance solid carbide, carbide-tipped and solid carbide insert router bits. Router bits feature superior cutting edges, Spektra™ coating or mirror-like finish (on some of the tools), balancing, carbide of different grades for different materials/applications and excellent tool design to allow for repeat sharpening. 48 pieces of the most versatile CNC industrial quality high performance solid carbide carbide tipped and solid carbide insert router bits. Stored in a freestanding or wall-mounted wood display with locking clear acrylic door that measures 27-1/2" H x 22-1/2" W x 6" D.

#### The Ultimate CNC Cutting Solution for Advanced Material Types!

51634

57314

51491

57319

57321

51495

51497

57327

51370

57300

51/100

57302

51/102

51494

57305

57306

51610

51614

CNC Cutting Solutions for Challenging Material Types

#### **Excellent For Cutting:**

- · Aluminum, Brass, Bronze, Copper, Gold, Silver & Titanium
- ACM
- Aluminum FoamCore
- Composite Corrugated Polypropylene
- Durabond<sup>®</sup> Fiberglass
- . Fiberglass PCB Board
- FoamCore · Gator Board
- Graphite Melamine
- MDF/HDF
- Laminate · Phenolic Composites Plastic, Acrylic & Plexiglas\*

Spiral 3mm Dia., 8mm Cut Length

Spiral 3mm Dia., 12mm Cut Length

Spiral 4mm Dia., 20mm Cut Length

Spiral 5mm Dia., 16mm Cut Length

Spiral 6mm Dia., 20mm Cut Length

Spiral 6mm Dia., 30mm Cut Length Spiral 10mm Dia., 30mm Cut Length

Spiral 1.5mm Dia., 4mm Cut Length

Spiral 2mm Dia\_ 6mm Cut Length

Spiral 3mm Dia., 8mm Cut Length

Spiral 3mm Dia., 12mm Cut Lenoth

Spiral 4mm Dia., 20mm Cut Length

Spiral 5mm Dia., 16mm Cut Length

Spiral 8mm Dia., 38mm Cut Length

Spiral 10mm Dia., 30mm Cut Length

Spiral 3mm Dia., 10mm Cut Length

Spiral 6mm Dia., 16mm Cut Length

Steel Cutting Aluminum Titanium

Nitride (AITIN) Coated AITIN ECONTED BITS.

Aluminum 'O' Flute

- . Sign Foam, Sign Board & HDU
- Solid Surface
- . Steel and Stainless Steel
- Veneered Plywood Wood
- Xanita® X-Board™ & Lightboard™

#### 2D/3D Carving

46581	ZrN 3D Carving Flat Bottom 1mm Dia., 0.10°
46473	ZrN 3D Carving Ball Nose 0.5mm Dia., 6.2°
46470	ZrN 3D Carving Ball Nose 0.8mm Dia., 6.2°
46472	ZrN 3D Carving Ball Nose 1.5mm Dia., 5.4°
46474	ZrN 3D Carving Ball Nose 3.2mm Dia., 1°
46479	ZrN 3D Carving Ball Nose 6mm Dia., 0.10°
48422-K	Spektra 3D Carving Ball Nose 1.5mm Dia., 5.4°
Rall No	

46453 Spiral 3mm Dia., 1.5mm Radius 46456 Spiral 6mm Dia 3mm Badius 48403-K Spektra Spiral 6mm Dia., 3mm Radius

# Spektra™ Coated SPEKTRA

48302-K Compression Spiral 3mm Dia., 20mm Cut Length 46025-K Mortise Compression Spiral 6mm Dia., 22mm Cut Length 46175-K Compression Spiral 6mm Dia.. 25mm Cut Length 48314-K Compression Spiral 10mm Dia., 35mm Cut Length 46185-K

Compression Spiral 12mm Dia., 35mm Cut Length 46027-K Mortise Compression Spiral 12mm Dia., 25mm Cut Length

#### Set Includes:

- . Top selling 48 SKUs
- · Solid wood lockable cabinet
- · Plastic bushings keep bits straight & rust-free
- . Locking acrylic cabinet door
- . Bits are organized by material-type for easy tool selections

#### Plastic '0' Flute Aluminum Composite Material (ACM) Spiral 2mm Dia., 6mm Cut Length 45792-M 90° V-Groove, 12.7mm Dia.

Engravin	g
45771-MK	Spektra 30° Engraving, 0.13mm Tip Width, 11mm Cut Length
56125-M	Point Cutting Round Over 6mm Dia, 3mm Radius

### Composite, Fiberglass & Phenolic Spektra™ Coated

Composite Cutting 6mm Dia., 19mm Cut Length 48430-K

#### Foam Spektra™ Coated

48442-K Spiral 3mm Dia., 28mm Cut Length 48444-K Spiral 6mm Dia., 57mm Cut Length

#### Signmaking

RC-45711-M90° In-Tech CNC V-Groove 17.6mm Dia., 8.5mm Cut Length

RC-1148-M\*60° Insert CNC V-Groove 27mm Dia.. 23mm Cut Length

#### Wood/MDF

48116-K

RC-2256\* Mini Insert Spoilboard 38.1mm Dia., 12mm Cut Length Mini Insert Spoilboard 38.1mm Dia., 12.7mm Cut Length BC-2253\* 48118-K Spektra Spiral Flute Plunge 6mm Dia, 19mm Cut Length Up-Cut 48218-K Spektra Spiral Flute Plunge mm Dia, 19mm Cut Length Down-Cut Spektra Spiral Flute Plunge, 3mm Dia, 12mm Cut Length Down-Cut 48214-K

Spektra Spiral Flute Plunge, 3mm Dia, 20mm Cut Length Up-Cut

<sup>\*</sup> Items are from Amana Tool® Industrial Division