

A cartoon illustration of Albert Einstein. He has his characteristic wild, white hair and a white mustache. He is wearing a blue long-sleeved shirt. He is holding a quill pen in his right hand, which is raised in a 'V' or 'peace' sign gesture. In his left hand, he holds a rolled-up scroll. A registered trademark symbol (®) is visible in the bottom left corner of the image.

OSCILLATING KNIVES - Most knives run best with speeds of 100-800in/min. Lower plunge speed and lift angles in complicated cuts and harder materials to avoid blade breakage.

SPIRAL - Most applications are finished best using up-cut bits. If you encounter print chipping or lamination separation/damage, use a down-cut bit for best top finish. For a good finish on both sides, use compression or straight-cut bits.

CUTTING EDGE DIAMETER - For fastest cutting, use the largest diameter bit possible. Only use small diameter bits if you need finer detail.

CUTTING EDGE LENGTH - In harder materials, use the smallest length bit that your material thickness will allow.

ROUTER BITS ONLY - To calculate feed rate, gather the following information for your bit from the chart below

$$\text{Feed Rate (in/min)} = \# \text{ of flutes} \times \text{RPM} \times \text{chipload}$$

1. Number of flutes - This is the number of cutting edges for each bit. It is usually 1 or 2.

2. RPM - This is the actual spindle RPM that you are running at (ex.- 60,000). The chart below will show the max RPM for each bit. For the fastest cutting possible, use the max RPM listed in the chart. Slow down RPM's when using single flute bits to reduce vibration.

3. Chipload - This is the amount of material each flute removes during each revolution. If there is too low of a chip load you risk burning out the tool, too high of a chipload and you risk breaking the tool. The lower number represents the recommended chip size in the hardest material, and the higher number represents the recommended chip size in the softest material that the tool can cut. If you are unsure on a starting point, select a value in the middle.

Flutes = 1
Max RPM = 50,000
Chipload Range = .008-.010

Hard Material $1 \times 50,000 \times .008 = 400\text{in/min}$
Soft Material $1 \times 50,000 \times .010 = 550\text{in/min}$

(DO NOT EXCEED THE MAX RPM LISTED BELOW OR
DAMAGE MAY OCCUR TO YOUR SPINDLE)

1/16" — 1.6mm	1/2" — 12.8mm
1/8" — 3.2mm	3/4" — 19.0mm
1/4" — 6.5mm	1" — 25.4mm

SELECT YOUR MATERIAL

			GOOD	BEST	DIBL EDGE	KISS CUT	SINGLE EDGE OSCILLATING ONLY	METAL	SINGLE FLUTE	DOUBLE FLUTE	WOOD	DOUBLE FLUTE
ADHESIVE PRODUCTS	Cast Film, Decal Vinyl, Diamond Grade™, Foil, Label Stock, Mounting Adhesive, Reflective Film, Static Cling Film, 3M Vinyl™	0-0.2mm 0.2-0.4mm 0.4-0.6mm										
CORRUGATED BOARDS, HEAVY	Corrugated Paperboard, Falcom Board™, Honeycomb Board, Reboard™ X-Bond™	0-3mm 3-9mm 9-12mm 13-20mm 21-25mm										
FABRICS	Cotton, Felt, Fibrous Tissue, Polyester, Texile	0-1mm 1-6mm										
FOAM BOARDS, HARD	Gatorfoam™ Gatorplast™ Polystyrene Foam, SmartX™ Ultraboard™	0-1mm 1-9mm 9-12mm 13-18mm 18-20mm 21-25mm										
FOAM BOARDS, SOFT	Kapa™, Foam Board, Fome-Cor™ FoamX, Styrofoam	0-1mm 1-8mm 8-12mm 13-18mm 18-20mm 21-25mm										
METALS	Brass, Copper, Sheet Metal, Solid Aluminum, Steel, Zinc	0-0.5mm 0.5-2mm										
PAPER PRODUCTS	Card Stock, Chip Board, Folding Carton, Katz Board™ Paper, Poster Paper, Solid Board, Stock	0-0.5mm 0.5-1mm 1-3mm										
PLASTIC, ALUMINUM FACED	Alocobond™ Alumatico™ Alumiface™ Dibond™ E-Panel™ Omega-Bond™ PolyMetal™	0-8mm 9-12mm 13-18mm										
PLASTIC, CORRUGATED	Coroplast™ Corrugated Plastic, Plastic Corrugate	0-3mm 3-9mm 9-12mm 13-20mm 21-25mm										
PLASTIC, FLEXIBLE	Gasket, Imitation Leather, Leather, Magnet, Neoprene, Rubber, Varnish Blanket	0-2mm 2-4mm 4-8mm										
PLASTIC, HARD	Acrylic, Countertop Laminate, Lenticular™ Lexan™ Plexiglas™ Polycarbonate	0-1mm 1-8mm 8-12mm 13-18mm 18-20mm 20-25mm										
PLASTIC, SOFT	Banner Foil, Bantex™ Celtec™ Komatex™ Polypropylene Polystyrene, PVC, PVC Foil, Sintra™ Styrene	0-3mm 3-9mm 9-12mm 13-18mm 18-20mm 20-25mm										
WOOD	Engraving Board, Gator-ply™ Fibermate™ Greenboard™ Hard Woods, MDF; Particle Board, Plywood, Veneer	0-1mm 1-8mm 8-12mm 13-18mm 18-20mm 20-25mm										

PRICE LIST

		Cut Angle	Max Material Thickness	Individual Price	As Low As
DOUBLE EDGE	DE12	80°	6mm	\$56.00 each	\$47.00 each
	DE12M	80°	8mm	\$56.00 each	\$47.00 each
	DE12R	80°	6mm	\$59.00 each	\$55.00 each
	DE12S	80°	6mm	\$37.00 each	\$31.00 each
	DE13	60°	7mm	\$56.00 each	\$47.00 each
	DE13R	60°	7mm	\$59.00 each	\$55.00 each
	DE13S	60°	7mm	\$37.00 each	\$31.00 each
STEEL	H502	36/45°	5mm	\$4.00 each	\$3.50 each
	H503	45/45°	5mm	\$4.00 each	\$3.50 each
	H510	35°	5mm	\$2.00 each	\$1.50 each
	H511		20"	\$0.25 each	\$0.20 each
	H573		20"	\$2.00 each	\$1.75 each
WISS CUT	KC1	40/35°	1mm	\$17.00 each	\$14.00 each
	KC2	30/35°	1mm	\$17.00 each	\$14.00 each
	KC3	40/35°	1mm	\$17.00 each	\$14.00 each
	KC4	25/55°	2mm	\$17.00 each	\$14.00 each
	KC5	20/55°	2.5mm	\$17.00 each	\$14.00 each
	KC6	30/30°	1mm	\$32.00 each	\$27.00 each
	KC9	30/45°	1mm	\$32.00 each	\$27.00 each
ROTARY	R50	Ø 23.8mm	3.5mm	\$57.00 each	\$49.00 each
	R51	Ø 23.8mm	5mm	\$55.00 each	\$47.00 each
	R52	Ø 30.2mm	7mm	\$57.50 each	\$49.00 each

UNDERSTAND OUR BLADE/BIT NAMES & SPECS

DE = Double Edge	M = Metal	DF = Double Flute
HS = Steel	P = Plastic	LF = Linear Foot
KC = Kiss Cut	W = Wood	SF = Single Flute
R = Rotary	X = Multi-purpose	ø = Diameter
SE = Single Edge	XS = Specialty	S = Straight Flute

P = Plastic
1 = # flutes
6 = 6mm cutting edge diameter
25 = 25mm cutting edge length
11 = up cut





















All specifications are subject to change without prior notice.

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		Cut Angle	Max. Physical Thickness	Individual Price	As Low As
SINGLE EDGE	 SE12	40°	8mm	\$35.00 each	\$30.00 each
	 SE16	35°	8mm	\$36.00 each	\$30.00 each
	 SE16M	45/90°	18mm	\$40.00 each	\$35.00 each
	 SE16R	35°	8mm	\$39.00 each	\$33.00 each
	 SE17	25°	12mm	\$36.00 each	\$30.00 each
	 SE17R	25°	12mm	\$39.00 each	\$36.00 each
	 SE18R	45°	8mm	\$41.00 each	\$30.00 each
	 SE19R	35°	12mm	\$41.00 each	\$36.00 each
	OSCILLATING ONLY	 SE20	63/84°	9mm	\$43.00 each
 SE21		63/84°	12mm	\$43.00 each	\$37.00 each
 SE21R		63/84°	12mm	\$46.00 each	\$39.00 each
 SE22		79/63°	14mm	\$43.00 each	\$37.00 each
 SE26		22/63°	8mm	\$36.00 each	\$30.00 each
 SE27		25/27°	20mm	\$49.00 each	\$41.00 each
 SE27R		25/27°	20mm	\$52.00 each	\$44.00 each
 SE28		41/45°	25mm	\$52.00 each	\$44.00 each
 SE29		3/5/45°	28mm	\$54.00 each	\$46.00 each
 SE29R		3/5/45°	28mm	\$57.00 each	\$48.50 each
SINGLE EDGE		 SE30	15/40°	2mm	\$17.00 each
	 SE33	26/38°	5mm	\$19.00 each	\$16.00 each
	 SE35 (Load Only)	25°	5mm	\$28.00 each	\$25.00 each
	 SE38	38°	25mm	\$34.00 each	\$29.00 each
	 SE42	15/55°	12mm	\$27.00 each	\$23.00 each
	 SE61	5/81°	13mm	\$44.00 each	\$38.00 each
	 SE62	15/80°	13mm	\$38.00 each	\$32.00 each
	 SE63	15/86°	29mm	\$46.00 each	\$39.00 each
	 SE71	0/45°	18mm	\$40.00 each	\$32.00 each
	 SE246 (Wingsharp R, 0.00 only)	45/90°	8/20 mm	\$47.00 each	\$40.00 each
	SE346 (Load, Offsets)	45/90°	8/20 mm	\$47.00 each	\$40.00 each

WHEN QUALITY COUNTS,
CONTACT THE GURU!

			Spiral	Shank Size	Max RPM	Max Material Thickness	Cutting Edge Diameter	Drillbit Design	Individual Price	As Low As
METAL	M1-308U	up	6mm	60,000	8mm	3mm	005-005	\$35.00 each	\$30.00 each	
	M1-408U	up	6mm	60,000	8mm	4mm	004-006	\$35.00 each	\$30.00 each	
	M1-508UC (COATED)	up	6mm	55,000	8mm	5mm	005-007	\$38.00 each	\$33.00 each	
	M1-508U	up	6mm	55,000	8mm	5mm	005-005	\$35.00 each	\$30.00 each	
	M1-608UC (COATED)	up	6mm	50,000	8mm	6mm	006-006	\$38.00 each	\$33.00 each	
	M1-608U	up	6mm	50,000	8mm	6mm	006-006	\$35.00 each	\$30.00 each	
	M2-406UC (COATED)	up	6mm	60,000	6mm	4mm	003-006	\$42.00 each	\$36.00 each	
	M2-606UC (COATED)	up	6mm	60,000	6mm	6mm	005-007	\$42.00 each	\$36.00 each	
	M2-303U	up	3mm	60,000	3mm	3mm	002-004	\$27.50 each	\$24.00 each	
	M2-303US	up	1/8"	60,000	3mm	1/8"	002-004	\$25.00 each	\$22.00 each	
SF PLASTIC	P1-208D	down	6mm	60,000	8mm	2mm	003-005	\$27.00 each	\$23.00 each	
	P1-208U	up	6mm	60,000	8mm	2mm	003-005	\$27.00 each	\$23.00 each	
	P1-306U	up	6mm	60,000	6mm	3mm	004-006	\$27.00 each	\$23.00 each	
	P1-312D	down	6mm	60,000	12mm	3mm	004-006	\$27.00 each	\$23.00 each	
	P1-312U	up	6mm	60,000	12mm	3mm	004-006	\$27.00 each	\$23.00 each	
	P1-418D	down	6mm	60,000	18mm	4mm	005-007	\$27.00 each	\$23.00 each	
	P1-418U	up	6mm	60,000	18mm	4mm	005-007	\$27.00 each	\$23.00 each	
	P1-518D	down	6mm	55,000	18mm	5mm	006-008	\$27.00 each	\$23.00 each	
	P1-518U	up	6mm	55,000	18mm	5mm	006-008	\$27.00 each	\$23.00 each	
	P1-613U	up	6mm	60,000	12mm	6mm	008-011	\$29.00 each	\$24.00 each	
	P1-625D	down	6mm	55,000	25mm	6mm	008-012	\$29.00 each	\$25.00 each	
	P1-625U	up	6mm	55,000	25mm	6mm	008-012	\$29.00 each	\$25.00 each	
	P2-312D	down	3mm	60,000	12mm	3mm	004-006	\$21.00 each	\$18.00 each	
	P2-312DS	down	1/8"	60,000	12mm	1/8"	004-006	\$21.00 each	\$18.00 each	
	P2-312U	up	3mm	60,000	12mm	3mm	004-006	\$21.00 each	\$18.00 each	
	P2-312US	up	1/8"	60,000	12mm	1/8"	004-006	\$21.00 each	\$18.00 each	
DF PLASTIC	P2-412D	down	4mm	60,000	12mm	4mm	005-007	\$21.00 each	\$18.00 each	
	P2-412U	up	4mm	60,000	12mm	4mm	005-007	\$21.00 each	\$18.00 each	
	P2-418D	down	6mm	60,000	18mm	4mm	005-007	\$29.00 each	\$24.50 each	
	P2-418U	up	6mm	60,000	18mm	4mm	005-007	\$27.00 each	\$23.00 each	
	P2-520D	down	6mm	60,000	20mm	5mm	006-008	\$27.00 each	\$23.00 each	
	P2-520U	up	6mm	60,000	20mm	5mm	006-008	\$27.00 each	\$23.00 each	
	P2-613U	up	6mm	60,000	13mm	6mm	008-010	\$29.00 each	\$25.00 each	
	P2-625D	down	6mm	60,000	25mm	6mm	008-010	\$29.00 each	\$25.00 each	
P2-625U	up	6mm	60,000	25mm	6mm	008-010	\$29.00 each	\$25.00 each		

		Spiral	Shank Size	Max RPM	Max Material	Cutting Edge Diameter	Optimal Range	Individual Price	As Low As	
WOOD	W2-410D		down	6mm	60,000	18mm	4mm	.005-.008	\$19.00 each	\$16.00 each
	W2-410U		up	6mm	60,000	18mm	4mm	.006-.008	\$19.00 each	\$16.00 each
	W2-625D		down	6mm	60,000	25mm	6mm	.007-.009	\$19.00 each	\$16.00 each
	W2-625U		up	6mm	60,000	25mm	6mm	.007-.009	\$19.00 each	\$16.00 each
DF MULTIPURPOSE	X1-300S		straight	1/4"	22,000	7mm	1/8"	.004-.007	\$28.50 each	\$24.50 each
	X2-418S		straight	6mm	60,000	18mm	4mm	.006-.008	\$27.00 each	\$23.00 each
	X2-420D		down	6mm	60,000	20mm	4mm	.006-.008	\$32.00 each	\$27.00 each
	X2-420U		up	6mm	60,000	20mm	4mm	.006-.008	\$32.00 each	\$27.00 each
	X2-520C		comp.	6mm	60,000	20mm	5mm	.004-.006	\$65.00 each	\$55.00 each
	X2-625C		comp.	6mm	60,000	25mm	6mm	.010-.012	\$65.00 each	\$55.00 each
	X2-625D		down	6mm	60,000	25mm	6mm	.008-.010	\$32.00 each	\$27.00 each
	X2-625S		straight	6mm	60,000	25mm	6mm	.006-.009	\$27.00 each	\$23.00 each
	X2-625U		up	6mm	60,000	25mm	6mm	.008-.010	\$32.00 each	\$27.00 each
	X2-650U		up	6mm	60,000	50mm	6mm	.007-.009	\$37.00 each	\$32.00 each
SPECIALTY	ENGRAVING BITS		n/a	6mm	60,000	n/a	.01-1 mm	n/a	\$30.00 each	\$25.50 each
	T-SLOT ROUTER BITS		straight	6mm	40,000	10mm	10mm	.002-.003	\$40.00 each	\$34.00 each
	V-GROOVE ROUTER BITS		up	6mm	40,000	9mm	12mm	.002-.003	\$45.00 each	\$38.00 each
	BALL NOSE ROUTER BITS		up	6mm	60,000	12-25 mm	3-6 mm	check web	\$32.00 each	\$27.00 each
	EDGE ROUNING BITS		n/a	6mm	45,000	18mm	1/4"	n/a	\$80.00 each	\$69.00 each
ACCESSORIES	COLLETS								\$30 - \$210 each	
	BELT SEAMING									
	PEN CARTRIDGES									
	SPINDLES									
	AQUILINE									
	CONVEYOR BELTS									
	CUTTING UNDERLAY									
	GURU GRIP									
	WHEELS									
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