

HARTLAUER BITS

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Service with an edge

1-800-644-2487

Router Bits
By Hartlauer

- 10% Bit Discount
- Free Domestic Bit Shipping
- Large Stock
- Competitive Pricing



February 2022 Price List
Prices are subject to change without notice

HARTLAUER BITS

Service with an edge

10% Discount
plus FREE domestic ground
shipping on ALL Router Bits!



LMT • ONSRUD

10-00	HSS 1 FL "O" Straight	7
37-00	SC Engravers	10
40-000	HSS 1 FL Spiral	6
40-100	HSS 2 FL Spiral	6
48-000	CT 1-2 FL Straight	7
52-000	SC 2 FL Spiral	3
52-200	SC 2 FL Wood Spiral	7
52-600	SC 2 FL "O" Spiral	5
52-700	SC 2 FL Spiral Up	4
52-900	SC 2 FL Heavy Duty	7
55-000	SC 4 FL Upcut Spiral	5
56-000	SC 2 FL Straight	5
56-200	SC 2 FL Straight	7
56-600	SC 2 FL "O" Straight	4
58-000	SC 3 FL Spiral	8
60-100	SC 1-2 FL Up/down	7
60-200	SC 3 FL Up/down	8
61-000	SC 1 FL "O" Straight	3
62-600	SC 1 FL "O" Downcut	6
62-700	SC 1 FL "O" Downcut	4
63-000	SC 1 FL Spiral	3
63-400	SC 1 FL Spiral	6
63-500	SC 1 FL "O" Spiral	4
63-600	SC 1 FL "O" Spiral	6
63-700	SC 1 FL "O" Spiral	4
63-750	SC 1 FL "O" Spiral	4
63-800	SC 1 FL Metric P	4
63-900	SC 1 FL Metric M	6
65-000	SC 1 FL Super "O"	3
67-000	SC Burr for Fiberglass	8
67-200	SC 3 FL for Phenolic	8
83-300	SC 2 FL Spiral	5

LMT • BELIN

12000	SC 1 FL Spiral Downcut	4
13000	SC 1 FL Spiral Up	4
33000	SC 1 FL Spiral Up	6
102000	SC 3 FL Ferrous Cutter	5

Amana Tool

51000	SC 1 FL Spiral	7
1000	Insert Tooling	10
RCK	Cutting Inserts	10

ROBB JACK

GTS-200	SC 2 FL Spiral Up	4
C8-200	SC 2 FL Spiral Up	6

Collets & Accessories

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3-D Cutting	8
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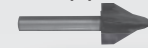
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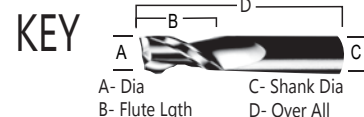
Always
Free Cutting
Help

1-800-644-2487

541-343-0390
outside USA & CAN

email: sales@hartlauerbits.com

Quick Tip: When cutting the last pass on the job, move the bit in .010 of an inch to cut a sliver out of the previous passes. This creates the look of the material being cut in one pass.



b - Ball Nosed
h - Hartlauer custom-made
TiN - Titanium Nitrate Coated
AlTiN - Aluminum Titanium Nitrate Coated
SC - Solid Carbide
HSS - High Speed Steel
CT - Carbide Tipped

General Purpose Cutters

65-000 - Upcut Solid Carbide 1-Flute "O" Spiral

The Amazing Super "O"

The polished flute allows for razor sharp cutting with easy chip evacuation and a smooth bottom finish. These cut well in most materials.

Wood Aluminum Plastic LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
65-000	1/16	1/4	1/8	2	46.70	42.00
65-010	1/8	1/4	1/4	2	50.30	45.25
65-013	1/8	1/2	1/8	2	47.85	43.00
65-012	1/8	1/2	1/4	2	50.30	45.25
65-019	3/16	5/8	3/16	2	55.75	50.00
65-018	3/16	5/8	1/4	2	69.55	62.50
65-021	3/16	7/8	1/4	2-1/2	75.25	67.50
65-020	3/16	1-1/4	1/4	3	80.45	72.25
65-023	1/4	5/8	1/4	2	63.90	57.50
65-025	1/4	7/8	1/4	2-1/2	74.10	66.50
65-026	1/4	1-1/4	1/4	3	90.50	81.25
65-027	1/4	1-1/2	1/4	3	96.80	87.00
65-033	3/8	1-1/8	3/8	3	126.75	114.00



52-000 - Upcut Solid Carbide 2-Flute Spiral

All-Purpose 2-Fluter

Designed as a general purpose spiral for Long-life usage. Great in foam, gatorboard, HDU and ultrboard.

Wood Aluminum Plastic LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
52-040	1/8	1/2	1/4	2	37.65	33.75
52-040T	1/8	1/2	1/4	2	35.75	32.17
52-141h	1/8	5/8	1/4	2	42.30	38.00
52-142h	1/8	3/4	1/4	2-1/2	52.20	46.75
52-050	5/32	9/16	1/4	2	37.65	33.75
52-050T	5/32	9/16	1/4	2	35.75	32.17
52-060	3/16	5/8	1/4	2	37.65	33.75
52-060T	3/16	5/8	1/4	2	35.75	32.17
52-080	1/4	3/4	1/4	2-1/2	37.65	33.75
52-180h	1/4	1-1/4	1/4	2-1/2	44.14	39.50
52-090	9/32	3/4	3/8	2-1/2	48.75	43.85
52-120	3/8	7/8	3/8	2-1/2	64.05	57.50
52-160	1/2	1	1/2	3	106.85	96.00



92-000 - Upcut Solid Carbide 1-Flute Sp/St

Endmills

by Various Manufacturers

A small diameter all-purpose cutter at a budget price.

Natural Wood Aluminum Plastic

Part	Dia	Cut Lgth	Shank Dia	Over All	Str/ Spiral	List	Our Price
92-020	1/16	3/16	1/8	1-1/2	ST	14.00	12.60
92-021	1/16	3/16	1/8	1-1/2	SP	12.00	10.80
92-030	3/32	1/4	1/8	1-1/2	ST	16.00	14.40



92-000 - Upcut Solid Carbide 2-Flute Spiral

These endmills, which are used for metal cutting are at a budget price. They also cut good in wood.

Aluminum Natural Wood

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
92-05	1/32	3/32	1/8	1-1/2	8.00	7.20
92-105	3/64	3/32	1/8	1-1/2	12.75	11.47
92-10	3/64	1/8	1/8	1-1/2	9.00	8.10
92-20	1/16	3/16	1/8	1-1/2	8.00	7.20
92-21	1/16	3/8	1/8	1-1/2	14.00	12.60
92-30	3/32	5/16	1/8	1-1/2	6.00	5.40
92-40	1/8	7/16	1/8	1-1/2	6.00	5.40
92-60	3/16	5/8	3/16	2-1/2	11.00	9.90
92-060	3/16	5/8	1/4	2-1/2	14.50	13.05
92-80	1/4	3/4	1/4	2-1/2	11.00	9.90
92-85	3/8	1	3/8	2-1/2	30.00	27.00
92-90	1/2	1-1/2	1/2	3	47.00	42.30



64-000 - Downcut Solid Carbide 1-Flute "O" Spiral

The downcut version of the 65-000 series.

Wood Aluminum Plastic LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
64-000	1/16	1/4	1/8	2	46.70	42.00
64-012	1/8	1/2	1/4	2	53.05	47.50
64-018	3/16	5/8	1/4	2	56.25	50.50
64-025	1/4	3/4	1/4	2	60.00	54.00

BOSCH This bit is similar to 52-000

85910M	1/4	3/4	1/4	2	25.35	22.82
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Downcut to 52-000

57-040	1/8	1/2	1/4	2	37.65	33.75
57-060	3/16	5/8	1/4	2	37.65	33.75
57-080	1/4	3/4	1/4	2-1/2	37.65	33.75

63-000 - Upcut Solid Carbide 1-Flute Spiral

General purpose spiral with several times the life than other high speed steel counterparts.

Plastic Aluminum LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
63-040	1/8	1/2	1/4	2	41.70	37.50
63-040T	1/8	1/2	1/4	2	39.25	35.32
63-060	3/16	5/8	1/4	2	41.70	37.50
63-060T	3/16	5/8	1/4	2	39.25	35.32
63-080	1/4	3/4	1/4	2-1/2	41.70	37.50
63-080T	1/4	3/4	1/4	2-1/2	39.25	35.32



61-000 Solid Carbide 1-Flute "O" Straight

The all purpose "O" flute cutter to try when others are not doing the job. Try these before using a downcut spiral.

LMT • ONSRUD Natural Wood Aluminum Plastic

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
61-040	1/8	1/2	1/4	2	46.20	41.50
61-050	5/32	9/16	1/4	2	46.20	41.50
61-060	3/16	5/8	1/4	2	46.20	41.50
61-063h	3/16	1	1/4	2-1/2	46.25	41.62
61-080	1/4	3/4	1/4	2-1/2	46.20	41.50

These bits are similar to 61-000

SC01	1/16	5/16	1/4	1-1/2	27.83	25.05
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51000 - Upcut Solid Carbide 1-Flute "O" Spiral

Produce super clean smooth cuts especially in acrylic materials and other plastics and wood.

Hard Plastic Wood

New Amana Tool

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
51441	1/16	1/4	1/4	2	47.75	42.95
51411	1/8	1/2	1/4	2	47.75	42.95
51417	3/16	5/8	1/4	2	48.95	44.05
51404	1/4	3/4	1/4	2-1/2	45.85	41.25



Plastic Cutters

GTS-201 - Upcut 2-Flute Spiral

Solid Carbide

Designed to cut hard plastics with a smooth finish.



Plastic Cutter

ROBB JACK

Hard Plastic

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
GTS-201-04	1/8	1/2	1/4	2	32.05	28.80
GTS-201-08	1/4	3/4	1/4	2-1/2	32.05	28.80

56-000

2-Flute Straight

Solid Carbide

Straight edge "V" flute for plastics.



Composite Plastic Hard Plastic

LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
56-040	1/8	1/2	1/4	2	37.65	33.75
56-060	3/16	5/8	1/4	2	37.65	33.75
56-080	1/4	3/4	1/4	2-1/2	37.65	33.75
BOSCH This bit is similar to 56-000						
85213M	1/8	3/8	1/4	1-1/2	20.92	18.83

63-500 - Upcut 1-Flute Spiral

Solid Carbide

Crafted to rout acrylic while maintaining long tool life. Cutter will give smooth finish in cast or extruded plastic.



Hard & Soft Plastics

Soft Plastic Hard Plastic

LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
63-505	1/16	1/4	1/4	2	43.75	39.25
63-510	1/8	1/4	1/4	2	45.45	40.75
63-515	1/8	1/2	1/4	2	45.45	40.75
63-520	3/16	5/8	1/4	2	48.65	43.75
63-525	1/4	3/8	1/4	2-1/2	52.40	47.00
63-530	1/4	3/4	1/4	2-1/2	54.35	48.75
63-535	3/8	1-3/8	3/8	3	107.55	96.75

63-700 - Upcut 1 Flute "O" Spiral

Solid Carbide



#1 Best Seller

Designed to provide a smooth finish in hard and soft plastics. However, can be used as an all purpose cutter Great for ACM Alucobond, Dibond, Centra, and Max Metal.

LMT • ONSRUD

Hard Plastic Soft Plastic Wood Aluminum Plastic

Part Hard	Part Soft	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
63-700	63-750	1/16	1/4	1/4	2	39.75	35.75
63-701		1/16	1/4	1/8	2	35.75	32.00
63-710		1/8	1/4	1/4	2	39.75	35.75
63-711		1/8	1/4	1/8	2	36.95	33.25
63-712	63-762	1/8	1/2	1/4	2	39.75	35.75
63-713		1/8	1/2	1/8	2	35.75	32.00
63-706		1/8	5/8	1/4	2-1/2	44.95	40.25
63-707		1/8	3/4	1/4	2-1/2	47.65	42.75
63-715		5/32	9/16	1/4	2	38.85	34.75
63-716		3/16	3/8	3/16	2	35.75	32.00
63-717		3/16	3/8	1/4	2	39.75	35.75
63-718	63-768	3/16	5/8	1/4	2	39.75	35.75
63-719		3/16	5/8	3/16	2	36.95	33.25
63-708h		3/16	7/8	1/4	2-1/2	58.24	52.25
63-720		7/32	3/4	1/4	2-1/2	38.85	34.75
63-724		1/4	3/8	1/4	2	37.90	34.00
63-725	63-775	1/4	3/4	1/4	2-1/2	39.75	35.75
63-726	63-776	1/4	1-1/4	1/4	3	47.10	42.25
63-727		1/4	1-1/2	1/4	3	47.40	42.50
63-731		3/8	3/4	3/8	3	64.75	58.25
63-733		3/8	1-1/8	3/8	3	68.65	61.75
63-735		3/8	1-5/8	3/8	3-1/2	78.90	71.00

62-700 - Downcut 1-Flute "O" Spiral

Solid Carbide

The downcut version of the 63-700 Series. A good option for cutting Coroplast

Wood Aluminum Plastic LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
62-712	1/8	1/2	1/4	2	39.75	35.75
62-718	3/16	5/8	1/4	2	39.75	35.75
62-725	1/4	3/4	1/4	2-1/2	39.75	35.75
62-726	1/4	1-1/4	1/4	3	47.10	42.25
62-733	3/8	1-1/8	3/8	3	68.65	61.75

63-800 - Metric

1-Flute "O" Spiral

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
63-816	3mm	12mm	6mm	64mm	39.00	35.00
63-830	5mm	16mm	6mm	64mm	39.00	35.00
63-838	6mm	20mm	6mm	64mm	39.00	35.00

12000 13000

1-Flute Spiral

Solid Carbide

"O" Fluted with polished inside and out to leave a smooth finish in plastics.

Soft Plastic Hard Plastic

LMT • BELIN



Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
Downcut						
12317	1/8	1/2	1/4	1-1/2	38.25	34.43
12476	3/16	5/8	1/4	2	38.25	34.43
12635	1/4	3/4	1/4	2	38.25	34.43
Upcut						
13317	1/8	1/2	1/4	1-1/2	38.25	34.43
13317A	1/8	1/2	1/8	2	28.50	25.65
13317B	1/8	3/4	1/8	2	32.60	29.34
13476	3/16	5/8	1/4	2	38.25	34.43
13476A	3/16	5/8	3/16	2	31.75	28.58
13476B	3/16	1-1/4	1/4	3	49.00	44.10
13635	1/4	3/4	1/4	2	38.25	34.43
13635A	1/4	1-1/2	1/4	3	49.00	44.10
13635C	1/4	1-1/8	1/4	3	44.95	40.46
13952	3/8	1-1/8	3/8	3	68.45	61.61

These router bits are similar to the Onsrud 62-700 and 63-700 Series

56-600

2-Flute Straight

Solid Carbide

Two edge "O" flute designed to give a smooth finish.

Soft Plastic Hard Plastic

LMT • ONSRUD



Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
56-612	1/8	1/2	1/4	2	36.25	32.50
56-618	3/16	5/8	1/4	2	36.25	32.50
56-625	1/4	1	1/4	2-1/2	39.85	35.75
56-638	3/8	7/8	3/8	2-1/2	73.45	66.00

52-700 Upcut

2-Flute O Spiral

Solid Carbide

Amazing finish in acrylics with a smoother bottom finish

New!

Soft Plastic Hard Plastic Wood

LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
52-703	1/8	1/2	1/4	2	58.40	52.50
52-708	3/16	3/8	3/16	2-1/2	62.60	56.25
52-710	3/16	5/8	1/4	2-1/2	64.40	57.75
52-707	1/4	7/8	1/4	3	68.45	61.50
52-700	1/4	1-1/4	1/4	3	71.55	64.25
52-709	3/8	1	3/8	3	107.60	96.75
52-701	3/8	1-1/2	3/8	4	123.30	110.75
52-702	1/2	1-1/4	1/2	4	132.75	119.25

Plastic Cutters

61-000P Solid Carbide
1-Flute "O" Straight

Designed for cutting all plastics.

Plastic LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
61-041	1/8	5/16	1/4	2	39.25	35.25
61-042	1/8	1/2	1/4	2	42.05	37.75
61-061	3/16	3/8	1/4	2	39.25	35.25
61-062	3/16	5/8	1/4	2	42.05	37.75
61-063h	3/16	1	1/4	2-1/2	46.25	41.62
61-081	1/4	3/8	1/4	2-1/2	42.15	37.75
61-082	1/4	3/4	1/4	2-1/2	43.90	39.50

52-600 - Upcut Solid Carbide
2-Flute Spiral

Designed with a double "O" flute for smooth finish & less lift on materials than spirals. Great in corian, lexan and rubber.

Soft Plastic Hard Plastic LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
52-622	1/4	3/8	1/4	2-1/2	34.00	30.50
52-624	1/4	3/4	1/4	2-1/2	36.25	32.50
52-638	3/8	1	3/8	3	70.45	63.25
52-650	1/2	1-1/8	1/2	3-1/2	122.40	110.00
52-655	1/2	2-1/8	1/2	4-1/2	183.85	165.25

85000M - Downcut Solid Carbide
2-Flute Spiral

Amazing Plastic Cutter

Hard Plastic BOSCH

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
85611M	1/4	1	1/4	2-1/2	28.56	25.71

56-000 Solid Carbide
2-Flute Straight

Straight edge "V" flute for plastics.

Hard Plastic LMT • ONSRUD

Plastic Cutter

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
56-041	1/8	1/4	1/4	2	35.95	32.25
56-062	3/16	5/8	1/4	2	37.65	33.75
56-082	1/4	3/4	1/4	2-1/2	39.60	35.50

55-000 - Upcut Solid Carbide
4-Flute Spiral

Equally adaptable to low or high spindle speed in CNC machining.

* Limited quantity while supply lasts

Composite Plastic LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
55-040	1/8	1/2	1/4	2	40.15	36.10
55-088h	1/4	1/2	1/4	2	19.00	17.10
55-088T	1/4	1/2	1/4	2	21.50	19.35
55-088AIT	1/4	1/2	1/4	2	35.00	31.50
55-080	1/4	3/4	1/4	2-1/2	43.95	39.50

85-000M Solid Carbide
2-Flute Straight

Straight edge "V" flute for plastics.

Hard Plastic Composite Plastic BOSCH

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
85213M	1/8	3/8	1/4	1-1/2	20.92	18.83

85000M High Speed Steel
1-Flute "O" Straight

Natural Soft Wood Soft Plastic BOSCH

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
85092	1/8	5/16	1/4	1-5/8	8.50	7.65
85152	1/8	5/8	1/4	2	7.25	6.98
85154	1/4	1	1/4	2-3/8	8.50	7.65

Metal Cutters

83-300 - Upcut Solid Carbide
2-Flute Spiral

AlTiN coated to provide heat and wear resistance to achieve decent tool life in ferrous materials.

Steel LMT • ONSRUD

Steel Cutter

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
83-305AITiN	1/8	1/4	1/8	2	42.70	38.25
83-310AITiN	3/16	3/8	3/16	2-1/2	59.25	53.25
83-315AITiN	1/4	1/2	1/4	2-1/2	61.55	55.25

51400 - Upcut Solid Carbide
3-Flute Spiral

Coated to provide heat and wear resistance in ferrous materials.

New Amana Tool

Steel Brass

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
51460	1/8	3/8	1/4	1-1/2	56.20	50.58
51462	3/16	7/16	1/4	1-7/8	57.30	51.57
51464	1/4	5/8	1/4	2-3/8	57.30	51.57

102000 - Upcut Solid Carbide
3-Flute Spiral

Coated to provide heat and wear resistance in ferrous materials.

* Limited quantity while supply lasts

Steel Brass LMT • BELIN

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
102317	1/8	3/8	1/4	1-1/2	48.14	43.30
102476	3/16	7/16	1/4	1-7/8	48.14	43.30
102635	1/4	5/8	1/4	2-3/8	48.14	43.30

Metal Cutters

33000 - Upcut Solid Carbide

1-Flute "O" Spiral

Made to cut non-ferrous metals.



Aluminum	Copper	Brass	LMT • BELIN			
Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
33317	1/8	5/16	1/4	1-1/2	46.85	42.17
33317A	1/8	5/16	1/8	1-1/2	30.75	27.68
33476	3/16	1/2	1/4	2	46.85	42.17
33476A	3/16	1/2	3/16	2	35.25	31.73
33635	1/4	5/8	1/4	2	46.85	42.17
33635A	1/4	3/4	1/4	2	54.70	49.23

These router bits are similar to the Onsrud 63-600 Series

C8-200 - Upcut Solid Carbide

2-Flute Spiral

Capable of non-ferrous metal and all purpose cutting.



Wood	Plastic	ROBB JACK				
Aluminum	Copper	Brass				
Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
C8-201-04	1/8	1/4	1/4	2	25.15	22.60
C8-203-04	1/8	1/2	1/4	2-1/2	33.95	30.55
C8-201-06	3/16	3/8	1/4	2	25.15	22.60
C8-203-06	3/16	5/8	1/4	2-1/2	33.95	30.55
C8-201-08	1/4	1/2	1/4	2	25.15	22.60
C8-203-08	1/4	3/4	1/4	2-1/2	33.95	30.55

These bits are similar to Onsrud's 52-000 series.

92-000 - Upcut Solid Carbide

4-Flute Spiral High Speed Steel

The metal cutter at a budget price.

Aluminum							
Part	Dia	Cut Lgth	Shank Dia	Over All	Made Of	List	Our Price
92-101	3/64	1/8	1/8	1-1/2	SC	12.50	11.25
92-201	1/16	3/16	1/8	1-1/2	SC	10.00	9.00
92-202	1/16	1/4	1/8	1-1/2	SC	10.00	9.00
92-301	3/32	3/8	1/8	1-1/2	SC	10.00	9.00
92-401	1/8	7/16	1/8	1-1/2	SC	6.00	5.40
92-601	3/16	5/8	3/16	2	SC	12.50	11.25
92-184	1/4	1-1/4	1/4	2-1/2	SC	19.50	17.55
92-81	5/16	1	5/16	3	SC	43.00	38.70
92-484	1/2	3	1/2	6	SC	144.00	129.60

40-100 High Speed Steel

2-Flute Spiral

Cost effective solution where tool life is not the primary concern. Great bit for a one time job.



Aluminum	Natural Wood	LMT • ONSRUD				
Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
40-101h	1/8	3/8	1/4	2	10.50	9.45
40-101T	1/8	3/8	1/4	2	12.50	11.25
40-101L	1/8	3/8	1/4	2-5/8	14.35	12.75
40-103h	3/16	5/8	1/4	2-1/4	11.50	10.35
40-103T	3/16	5/8	1/4	2-1/4	13.50	12.15
40-103L	3/16	5/8	1/4	2-7/8	15.50	13.75
40-107	1/4	3/4	1/4	2-3/4	11.55	10.25
40-107T	1/4	3/4	1/4	2-3/4	12.00	10.80
40-111	1/4	1	1/4	3	14.45	13.00

Downcut to 40-100

40-102	1/8	5/16	1/4	2-5/8	14.35	12.75
40-104	3/16	5/8	1/4	2-7/8	15.50	13.75
40-106	1/4	5/8	1/4	2-3/4	13.35	12.00
40-108	1/4	3/4	1/4	2-3/4	12.65	11.25

63-400 - Upcut Solid Carbide

1-Flute Spiral

Designed for clean cutting in soft aluminum like 3003 alloy



Just for Soft Aluminum

Soft Aluminum	LMT • ONSRUD					
Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
63-420	3/16	1/4	1/4	2	93.40	84.00
63-430	1/4	1/4	1/4	2-1/2	73.55	66.00

40-000 - Upcut High Speed Steel

1-Flute Spiral

Designed for routing application where speed and chip removal are a primary concern. Great bit for a one time job.



Aluminum	Natural Wood	LMT • ONSRUD				
Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
40-001	1/8	3/8	1/4	2-5/8	19.65	17.50
40-003	3/16	5/8	1/4	2-7/8	17.55	15.75
40-007	1/4	3/4	1/4	2-3/4	14.45	13.00
40-011	1/4	1	1/4	3	14.25	12.80

63-600 - Upcut Solid Carbide

1-Flute Spiral

Our #1 Aluminum Cutter



These "O" fluted tools are designed for use at high speeds in metal cutting. Also try them in plastics.

LMT • ONSRUD

Hard Aluminum

Upcut of 63-600

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
63-602	1/16	1/4	1/8	1-1/2	39.40	35.25
63-603	3/32	1/4	1/8	2	40.60	36.50
63-604	1/8	1/4	1/8	1-1/2	41.50	37.25
63-606	1/8	1/4	1/4	2	48.90	44.00
63-610	1/8	1/2	1/4	2	51.95	46.75
63-612	3/16	3/8	3/16	1-1/2	47.50	42.75
63-614	3/16	3/8	1/4	2	51.95	46.75
63-618	3/16	5/8	1/4	2	54.85	49.25
63-620	1/4	3/8	1/4	2	51.75	46.50
63-622	1/4	3/4	1/4	2-1/2	56.15	50.50
63-624	1/4	1-1/4	1/4	3	80.75	72.50
63-625	3/8	3/4	3/8	3	95.90	86.25
63-626	3/8	1-1/8	3/8	3	116.25	104.50
63-631	1/2	1-1/8	1/2	3-1/2	148.00	133.00

Downcut of 63-600

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
62-602	1/16	1/4	1/8	1-1/2	39.40	35.25
62-604	1/8	1/4	1/8	1-1/2	41.50	37.25
62-606	1/8	1/4	1/4	2	48.90	44.00
62-614	3/16	3/8	1/4	2	51.95	46.75
62-620	1/4	3/8	1/4	2	51.75	46.50

Metric of 63-600

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
63-912	3mm	8mm	6mm	64mm	69.35	62.25
63-930	5mm	16mm	6mm	64mm	69.35	62.25
63-934	6mm	8mm	6mm	64mm	71.90	64.50

Wood Cutters

10-00 High Speed Steel
1-Flute "O" Straight

Designed to provide optimum chip removal at fast feed rates. Excellent for hand-fed operations.

Soft Plastic Natural Soft Wood LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
10-00	1/16	3/16	1/4	2	16.70	15.00
10-01	3/32	3/8	1/4	2	15.80	14.00
10-02	1/8	3/8	1/4	2	16.70	15.00
10-20	1/8	1/2	1/4	2	18.30	16.25
10-22	3/16	3/4	1/4	2	17.85	16.00
10-07	1/4	1	1/4	2-3/8	13.80	12.25

52-200 - Upcut Solid Carbide
2-Flute Spiral

Designed for tool rigidity, long life and high quality finish.

Wood Routs

Solid Surface Composite Wood Natural Wood LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
52-240	1/8	1/2	1/4	2	32.40	29.00
52-260	3/16	3/4	1/4	2	32.40	29.00
52-280	1/4	7/8	1/4	2-1/2	36.70	33.00
52-285	1/4	1	1/4	2-1/2	37.90	34.00
52-287	1/4	1-1/8	1/4	3	42.15	37.75
52-320	3/8	1-1/8	3/8	3	62.75	56.25
52-360	1/2	1-1/8	1/2	3	100.50	90.25

56-200 Solid Carbide
2-Flute Straight

Provides a superior finish in a variety of wood materials & optimum cutter life. Less splinters in fibrous woods like cedar.

Wood Routs

LMT • ONSRUD Plywood Composite Wood Natural Wood

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
56-240	1/8	1/2	1/4	2	33.10	29.75
56-260	3/16	3/4	1/4	2	33.10	29.75
56-280	1/4	7/8	1/4	2-1/2	37.65	33.75
56-285	1/4	1	1/4	2-1/2	38.70	34.75
56-287	1/4	1-1/8	1/4	3	43.05	38.50
56-320	3/8	1-1/8	3/8	3	64.05	57.50
56-360	1/2	1-1/8	1/2	3	102.50	92.25

60-100MW Solid Carbide
Up/Down
1-2-Flute Spiral

Compression Spirals

Gives you the benefits of both the upcut spiral and the downcut spirals in one.

2-Sided Laminates Composite Wood Natural Wood LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
1 Flute						
60-102MW	1/8	3/8	1/4	2-1/2	66.10	59.25
60-106MW	3/16	5/8	1/4	2-1/2	75.25	67.50
60-111MW	1/4	7/8	1/4	2-1/2	82.95	74.50
60-120MW	3/8	1-1/8	3/8	3	92.25	83.00
2 Flute						
60-113MW	1/4	7/8	1/4	2-1/2	85.95	77.25
60-124MW	3/8	1-1/8	3/8	3	112.85	101.50

48-000 Carbide Tipped
2 Flute Straight

Cost effective alternative, especially in larger diameters.

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Foam Hard Plastic Composite Wood Natural Wood

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
48-012	3/8	3/4	1/4	2-1/4	31.95	28.75
48-058	3/8	1-1/4	3/8	2-3/4	29.35	26.25
48-183	1/2	2-1/2	1/2	4-1/2	53.60	48.00

These router bits are similar to the Onsrud 48-000 Series

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
45-190	1/16	3/16	1/4	1-5/8	30.00	27.00

63-200 - Upcut Solid Carbide
1-Flute Spiral

Designed for routing where aggressive chip removal is necessary. Provides tool rigidity, long life and high quality.

Wood Routs

LMT • ONSRUD Composite Wood Natural Wood

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
63-240	1/8	1/2	1/4	2	41.70	37.53
63-280	1/4	7/8	1/4	2-1/2	41.70	37.53

52-900 - Upcut Solid Carbide
2-Flute Spiral

Extreme Heavy Duty for all woods.

Wood LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
52-910	1/4	7/8	1/4	2-1/2	30.90	27.75

85000M Carbide Tipped
2-Flute Straight

BOSCH

Natural Wood Composite Wood Plastic Foam

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
85427M	1/2	1	1/2	2-1/2	24.32	21.89
85242M	1/2	1-1/2	1/2	3	25.75	23.18
85251M	1/2	2	1/2	4	29.46	26.52
85243M	1	1-1/4	1/2	2-7/8	33.24	29.92

61-200 Solid Carbide
1-Flute "O" Straight

"O" flute that provides fast, free cutting for long tool life.

Wood Routs

Composite Wood Natural Wood LMT • ONSRUD

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
61-240	1/8	1/2	1/4	2	46.20	41.50
61-280	1/4	7/8	1/4	2-1/2	46.20	41.50
61-285	1/4	1	1/4	2-1/2	48.45	41.50

Specialty Cutters

SR-0-000 - Upcut Solid Carbide
2 & 4 Flute Spiral

Miniatures for detailing
in 3D routing.

Miniature End Mills for highly detailed routing and engraving. Use with high spindle speeds.

ROBB JACK

Wood	Aluminum	Plastic				
Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
2 Flute						
SR-2-030	.030	.0900	1/8	1-1/2	19.30	17.35
4 Flute						
SR-4-047	.047	.1410	1/8	1-1/2	18.75	16.85

60-200 - Upcut Solid Carbide
3-Flute Spiral

Low Helix Finishers

Low helix finishers, designed for perfect balance and ultra smooth finish over a wide range.

LMT • ONSRUD

Composite Plastic Solid Surface Plastic Natural Wood

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
Upcut Spiral						
60-241	1/4	7/8	1/4	3	59.60	53.50
Dowcut Spiral						
60-250	1/2	1-1/8	1/2	3-1/2	129.50	116.50

67-000 Solid Carbide

Fiberglass and Phenolic

Fiberglass

LMT • ONSRUD

Phenolic

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
Burr Bit for Fiberglass						
67-080	1/4	3/4	1/4	2-1/2	45.40	40.75
Phenolic Cutter						
67-211	1/2	1-1/8	1/2	3	158.05	142.00

52-200B - Upcut Solid Carbide
2-Flute Spiral

Ball Nosed for 3-D

Ball-nosed for carving and modeling operations.

Wood	Aluminum	Plastic				
Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
B-203-02	1/16	3/16	1/8	1-1/2	27.00	24.30
52-235B	1/16	1/4	1/8	2	52.35	47.00
52-235Bh	1/16	1/4	1/4	2	43.54	39.00
52-240B	1/8	1/2	1/4	2	56.25	50.50
52-260B	3/16	3/4	1/4	2	56.25	50.50
52-280B	1/4	7/8	1/4	2-1/2	56.25	50.50
52-564Bh	1/4	2-1/4	1/4	4	80.00	72.00
52-320B	3/8	1-1/8	3/8	3	89.10	80.00
52-360B	1/2	1-1/8	1/2	3	136.95	123.25

66-300 - Upcut Solid Carbide
2-Flute Spiral

Designed for pocketing or routing applications where the bottom needs to be smooth.

Smooth Rounded Bottoms

LMT • ONSRUD

Plastic Aluminum

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
66-308	1/8	1/4	1/4	2	49.80	44.50
66-314	1/4	3/8	1/4	2	52.40	47.00
66-320	3/8	5/8	3/8	2-1/2	78.25	70.25

58-000 - Upcut Solid Carbide
59-000 - Dowcut Solid Carbide
3-Flute Spiral

Designed to rout difficult to cut material when horsepower or spindle speed may be a problem.

* Limited quantity while supply lasts

LMT • ONSRUD

Composite Plastic Fiberglass Phenolic Plastic

Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
58-040	1/8	1/2	1/4	2	38.75	34.85
58-060	3/16	5/8	1/4	2	43.95	39.50
58-080	1/4	3/4	1/4	2-1/2	43.95	39.50
Dowcuts						
59-080	1/4	3/4	1/4	2-1/2	43.00	38.50

52-200BL - Upcut Solid Carbide
2-Flute Spiral

Extended Reach

Has a long spinback for an (ERL) Extended Reach Length. The ball nose is designed for 3D cutting.

Wood	Aluminum	Foam					
Part	Dia	Cut Lgth	Shank Dia	ERL	Over All	List	Our Price
Ball Nose Tipped							
52-235BL	1/16	1/4	1/4	-	3	72.70	65.25
52-240BL	1/8	1/2	1/4	1-5/8	3	76.10	68.25
52-260BL	3/16	3/4	1/4	1-5/8	3	76.10	68.25
92-664B	1/4	3/8	1/4	4-3/8	6	62.00	55.80
52-280BL	1/4	1	1/4	2-5/8	4	85.90	77.25
52-320BL	3/8	1-1/8	3/8	2-5/8	4	136.95	123.25
Flat Tipped							
92-664	1/4	3/8	1/4	4-3/8	6	61.00	54.90

66-400 Solid Carbide
6-Flute Spiral

Honeycomb Cardboard

Designed for cutting bioboard, falconboard and honeycomb cardboard.

Honeycomb Cardboard							
Part	Dia	Cut Lgth	Upcut Lgth	Shank Dia	Over All	List	Our Price
66-405	3/8	1-1/4	0.25	3/8	3	132.35	119.00

77-100 - Upcut Solid Carbide
3-Flute Tapered Ball

Designed to give small diameters more strength in 3D routing with 1/16 radius ball.


LMT • ONSRUD

Part	Dia	Cut Depth	Shank Dia	Over All	Deg	List	Our Price
77-102	1/8	1-1/2	1/4	3	1°	102.25	92.00
77-104	1/8	1	1/4	3	3°	88.55	79.50
77-106	1/8	3/4	1/4	3	5°	85.20	76.50
77-108	1/8	1/2	1/4	2	7°	81.80	73.50

Shaping Tools

"V" Cutting Carbide Tipped
2-Flute Straight

Designed for "V" routing and tapering edges.




Part	Width	Cut Depth	Shank Dia	Over All	List	Our Price
45° Included Angle						
92-45V	5/8	3/4	1/4	2-1/4	25.00	22.50
60° Included Angle						
92-60V	1/2	1/2	1/4	2-1/8	22.00	19.80
92-61V	3/4	3/4	1/4	2	22.00	19.80
1541WS	1/4	7/32	1/4	2	24.13	21.72
1560WS	1/2	7/16	1/2	2-1/4	32.21	28.99
37-82	1	3/4	1/2	3-1/2	42.20	37.75
90° Included Angle						
85219M	9/16	9/32	1/4	1-1/2	27.38	24.65
84306M	3/4	3/8	1/2	2	48.80	43.92
1504WS	3/4	3/8	1/2	2-1/4	57.95	52.16
84309M	1	1/2	1/2	2-3/8	50.19	45.18
85220M	1-1/4	5/8	1/4	1-3/4	47.19	42.48
37-87	1-1/2	7/8	1/2	3	49.20	44.25
92-24V	2	1	1/2	3-3/8	46.50	41.85
120° Included Angle						
92-12V	1-1/4	3/8	1/4	1-7/8	33.00	29.70
92-120V	1-1/4	3/8	1/2	2	40.00	36.00
37-92	2	9/16	1/2	2-7/8	49.20	44.25
140° Included Angle						
37-97	2	23/64	1/2	2-5/8	49.20	44.25

NOTE: 85-219 & 85-220 do not come to a true point

"V" Taper Solid Carbide
1-Flute Straight

Designed to put a slight draft onto edges.




LMT • ONSRUD

Part	Tip	Cut Depth	Shank Dia	Over All	List	Our Price
7 Degree						
16-48h	1/32	1/4	1/4	1-1/2	32.00	28.75
18-00h	3/32	13/16	1/4	2	41.50	37.25
10 Degree						
18-01h	3/32	3/8	1/4	2	51.00	45.75

"V" Cutting CNC Carbide Tipped
1-Flute Straight

Allows you to turn the blade when the blade gets dull and purchase a new blade when blade is dull.



Insert Tooling
Amana Tool

Part	Degree	Cut Depth	Shank Dia	Over All	List	Our Price
1045	45°	1	1/2	2-3/8	80.60	72.54
1108	60°	29/32	1/2	2-7/8	85.05	76.55
1102	90°	3/4	1/2	3	134.15	120.74
1103	100°	11/16	1/2	3-3/16	134.15	120.74
1105	110°	5/8	1/2	3-3/16	148.20	133.38
1104	120°	9/16	1/2	3-1/16	181.30	163.17
1107	130°	1/2	1/2	3	187.45	168.71
1110	140°	13/32	1/2	3-1/16	190.65	171.59
1106	150°	19/64	1/2	2-15/16	190.65	171.59
1109	160°	13/64	1/2	2-25/32	198.90	179.01


Replacement Blades

Degree	General Purpose	Our Price	Part # for MDF	Our Price
45° 60°	RCK 56	27.68	RCK 350	33.21
90°	RCK 134	19.80	RCK 351	23.63
100° 110°	RCK 119	19.80	RCK 352	23.63
120°	RCK 136	19.80	RCK 353	23.63
130° 150° 160°	RCK 137	19.80	RCK 354	23.63
140°	RCK 59	21.06	RCK 346	25.79

37-00 Solid Carbide
1-Flute Straight

Engraving bits for bottom loading routers.

LMT • ONSRUD Recommended speed: 18,000 RPM 90 IPM



Part	Tip	Degree	Cut Lgth	Shank Dia	Over All	List	Our Price
37-01	0.005	60°	1/4	1/4	2	34.55	31.00
37-03	0.010	60°	1/4	1/4	2	34.55	31.00
37-05	0.020	60°	1/4	1/4	2	34.55	31.00
37-07	0.030	60°	1/4	1/4	2	34.55	31.00
37-21	0.005	30°	1/2	1/4	2	34.55	31.00
37-23	0.010	30°	1/2	1/4	2	34.55	31.00
37-25	0.020	30°	1/2	1/4	2	34.55	31.00
37-27	0.030	30°	1/2	1/4	2	34.55	31.00
37-29	0.040	30°	1/2	1/4	2	34.55	31.00
37-31	0.060	30°	1/2	1/4	2	34.55	31.00

37-00
2-Flute Straight

For "V" bottom routing with a 90 degree tip.

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Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
37-50	3/16	5/8	1/4	2	58.30	52.25
37-51	1/4	3/4	1/4	2	55.90	50.25

37-00 Carbide Tipped
2-Flute Straight

Folding Tools
Folding tool for Dibond or Alucobond.

Dibond/Alucobond LMT • ONSRUD




Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
37-71	1/2	3/8	1/4	2	83.10	74.75
37-72	1/2	3/8	1/2	2	89.15	80.00

Recommended speed: 12,000 RPM at 120 IPM
Recommended speed: 18,000 RPM at 180 IPM

52-200B - Upcut Solid Carbide
2-Flute Spiral

Ball-nosed for carving and modeling operations.

LMT • ONSRUD




Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
B-203-02	1/16	3/16	1/8	1-1/2	27.00	24.30
52-235B	1/16	1/4	1/8	2	52.35	47.00
52-235Bh	1/16	1/4	1/4	2	43.54	39.00
52-240B	1/8	1/2	1/4	2	56.25	50.50
52-260B	3/16	3/4	1/4	2	56.25	50.50
52-280B	1/4	7/8	1/4	2-1/2	56.25	50.50
52-564Bh	1/4	2-1/4	1/4	4	80.00	72.00
52-320B	3/8	1-1/8	3/8	3	89.10	80.00
52-360B	1/2	1-1/8	1/2	3	136.95	123.25

Part	Dia	Cut Lgth	Shank Dia	ERL	Over All	List	Our Price
Ball Nose with Extended Reach Length							
52-235BL	1/16	1/4	1/4	-	3	72.70	65.25
52-240BL	1/8	1/2	1/4	1-5/8	3	76.10	68.25
52-260BL	3/16	3/4	1/4	1-5/8	3	76.10	68.25
92-664B	1/4	3/8	1/4	4-3/8	6	62.00	55.80
52-280BL	1/4	1	1/4	2-5/8	4	85.90	77.25
52-320BL	3/8	1-1/8	3/8	2-5/8	4	136.95	123.25
Flat Tipped with Extended Reach Length							
92-664	1/4	3/8	1/4	4-3/8	6	61.00	54.90

77-100 - Upcut Solid Carbide
3-Flute Spiral

Designed to give small diameters more strength in 3D routing.



Part	Dia	Cut Depth	Shank Dia	Over All	Deg	List	Our Price
Upcut Spiral with 1/16" radius							
77-102	1/8	1-1/2	1/4	3	1°	102.25	92.00
77-104	1/8	1	1/4	3	3°	88.55	79.50
77-106	1/8	3/4	1/4	3	5°	85.20	76.75
77-108	1/8	1/2	1/4	2	7°	81.80	73.50

Shaping Tools & Accessories

Core Box 2-Flute Straight

Carbide Tipped

Designed for groove cutting.



Part	Dia	Cut Lgth	Shank Dia	Over All	List	Our Price
85444M	1/4	1/4	1/4	2	26.02	23.42
85445M	3/8	1/4	1/4	2	33.47	29.72
85446M	1/2	3/8	1/4	2	34.42	30.98
85447M	5/8	7/16	1/4	2	34.76	31.29
92-06	3/4	5/8	1/4	2	19.00	17.10
92-07	7/8	5/8	1/2	2-1/2	24.00	21.60
92-08	1	3/4	1/2	2-1/2	24.00	21.60

Table Surfacers

Carbide Tipped



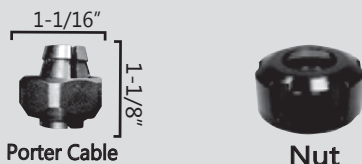
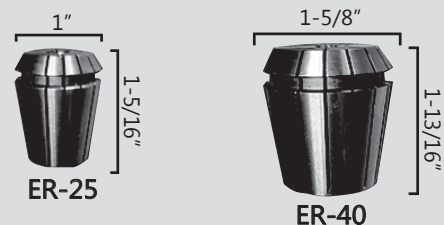
For resurfacing spoilboards.

Part	Dia	Cut Lgth	Shank Dia	OAL	List	Our Price
85243M	1	1-1/4	1/2	2-7/8	33.24	29.92
1303WS	1-1/4	1/2	1/4	2-1/8	37.59	33.84
91-000	1-1/4	1/2	1/2	2	59.50	53.50
Recommended Speed for 91-000: 16,000 RPM at 200 IPM						
91-250	2-1/2	1/2	1/2	2-7/8	175.00	157.50

Replacement Blades

Part	Edges	List	Our Price
HI-R12 (each)	Hersaf 4	5.50	4.95
91-125 (10 pack)	Onsrud 4	74.30	66.50

Collets & Nuts



Available Sizes

1/8" - 3/16" - 1/4" - 5/16" - 3/8" - 1/2"

SYOZ-20 Collet.....	43.20
Nut.....	74.70
RDO-20 Collet.....	33.66
Nut.....	53.00
ER-20 Collet.....	30.60
Nut.....	61.20
ER-25 Collet.....	31.50
Nut.....	64.80
ER-32 Collet.....	31.50
Nut.....	56.70
ER-40 Collet.....	36.00
Nut.....	60.30
Porter Cable Collet with Nut	
1/4" - 3/8" - 1/2".....	12.50ea

Accessories

Collet Brushes

Brass Collet Cleaning Brushes
sizes 1/4" - 3/8" - 1/2".....8.55 **Our price 7.50**

Double Stick Tape

(Used to hold the material down while being cut)

1/2" wide - 36 yd (72 per case).....	7.00 per roll
3/4" wide - 36 yd (48 per case).....	10.00 per roll
1" wide - 36 yd (36 per case).....	12.50 per roll
2" wide - 36 yd (24 per case).....	28.00 per roll
3" wide - 36 yd (12 per case).....	36.00 per roll

Metal Adapter

1/8" - 1/4".....	6.00	Our price 5.40
3/16" - 1/4".....	6.00	Our price 5.40
1/4" - 1/2".....	6.00	Our price 5.40
5/16" - 1/2".....	6.00	Our price 5.40
3/8" - 1/2".....	6.00	Our price 5.40

How to find the Perfect Feed Rate

1. Feed Rate = Chipload x RPM x # of flutes
2. Start at the low end of the feed rates.
3. Increase the feed rate until:
 - a. The edge finish deteriorates, OR
 - b. The router bit risk breakage.
4. After one of the above happens, decrease feed rate by 10% and reduce the RPM's until the edge finish once again deteriorates.

**THIS IS THE POINT OF MAXIMUM
PRODUCTIVITY AND BEST TOOL LIFE!**

Chipload is the amount of material
each cutting edge slices off per revolution.

CHIPLOAD CHART

	1/8" dia	3/16" dia	1/4" dia
Hard Plastics			
63-700	.006 - .008	.008 - .010	.010 - .012
56-000P	.002 - .004	.004 - .006	.004 - .006
63-500	.003 - .005	.003 - .005	.004 - .006
Soft Plastics			
61-000P	.004 - .006	.006 - .008	.008 - .012
63-750	.004 - .006	.006 - .008	.008 - .012
Soft Wood			
52-200	.006 - .008	.006 - .008	.007 - .009
56-200	.004 - .006	.005 - .007	.006 - .008
Hard Wood			
52-200	.003 - .005	.004 - .006	.005 - .007
56-200	.003 - .005	.004 - .006	.005 - .007
Foam			
52-550	.002 - .004	.002 - .004	.004 - .006
48-000	.002 - .004	.002 - .004	.003 - .005
Aluminum			
63-600	.002 - .004	.003 - .006	.003 - .006
65-000	.002 - .004	.003 - .006	.003 - .006

NOTICE!!!!

If depth of cut is 2 times the diameter - reduce chipload by 25%
If depth of cut is 3 times the diameter - reduce chipload by 50%

Plunge Feed Rate: When cutting with a single flute
reduce the feed rate by 50%

RPM is your spindle speed

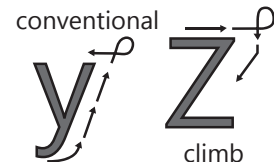
Recommended RPM's	
1/16" dia	24,000 - 30,000 rpms
1/8" dia	21,000 - 24,000 rpms
3/16" dia	19,000 - 21,000 rpms
1/4" dia	16,000 - 18,000 rpms

TIP: The smaller diameter bits act stronger if they are spun at a higher rpm. This helps maintain the same surface feet per minute as a larger diameter tool.



Service with an edge

- Make chips not dust. The bit should be relatively cool to the touch. Large chips take the heat with them. Heat removes the cobalt binder from the bit dulling the edge, greatly reducing tool life.
- Bits that have the same size shank and cutting diameter are stronger and more economical. (ex: 63-719 has a 3/16" dia. with a 3/16" shank).
- Cutting edge lengths should be as short as possible to reduce vibration and readout. If the bit is too long the leverage will cause the bit to break.
- Do not run out of cutting edge length, the flute fadeout and shank will not leave a desirable finish.
- Cut material in several passes (depth of cut should be no more than diameter of the bit). When using a downcut only go down half the diameter of the bit. Exception: always cut foam and coroplast in one pass. Coroplast cuts best with a downcut spiral.
- Cut thick material in several passes (except foam).
- Use a Ramp-in entry so that the chips have a place to exit, instead of plunging into the material.
- Do not dwell in the cut because this causes more friction, loop the corners to maintain an ideal chipload.
- For a better edge finish cut 0.010" - 0.015" oversize, then take a final pass that cuts to desired dimensions.
- When cutting natural fibrous woods, try a high-speed steel bit because they are sharper.
- Go to www.plasticrouting.com for additional help on plastic cutting.
- Try a straight fluted bit before using a downcut spiral.
- Use a larger diameter bit; they are stronger, throw the chips better, and leave better finishes.
- Use the correct bit for the application. Any router bit can be an all-purpose cutter, however specially designed tools will cut better and last longer.
- Once a tool has been used in metal, it should not be used in woods or plastics.
- Use a lubricant or coolant in metal cutting.
- TiN coated bits for aluminum and AlTiN for ferrous materials.
- Do not use dull bits.
- Listen for abnormal sounds. You can tell a lot about how a tool is cutting by the sound it makes.
- Use proper colleting and fixturing.
- Make sure material is held down so that it won't shift. Resurface spoilboard and cover unused areas to maximize vacuum hold.
- Check dust collector often.
- Avoid adapter bushings for extended use, instead buy the right size of collet.
- Check the finish on your scrap material. Is the finish on the scrap better than the stuff you are keeping? If so, change the direction of your feed. Conventional vs. climb cut.



The number one cause of tool breakage is improper collet maintenance!

Proper Colleting Maintenance

- If a tool breaks in the collet, or up on the shank, replace the collet immediately and throw away the old collet. This is a sign that your collet is worn out. The tool has slipped in the collet and then been regripped causing the tool to break.

- Collets should be changed every 400 to 600 hours of run time. The spring capacity, elasticity, of the collet is fatigued and its ability to grip the bit has deteriorated. Also change collet nuts when wear is evident.

- Clean the collet after every bit change with a brass brush and non flammable cleaner.

- Wax the collet's threads with paraffin wax occasionally. This helps to tighten the hold.

- Insert the bit into the collet so that that shank fills 80% of the collet. DO NOT clamp down on the flute fadeout area of the bit (the machined area above the cutting edge). Use a collet plug, if necessary to fill collet.