

ONSRUD

QUICK REFERENCE

MATERIAL	RECOMMENDED SERIES PART#s
Aluminum	40-000, 40-400, 40-500
Wood	
Soft-Medium	10-00, 40-000, 52-200, 56-200, 57-200, 60-000, 61-200, 62-200, 63-200
Medium-Hard	12-00, 48-000, 52-200, 56-200, 57-200, 60-000, 61-200, 62-200, 63-200
Composites	48-00, 48-500, 48-700, 56-000, 60-000, 60-200, 60-300, 61-000
Particle Board	48-00, 48-300, 52-200, 56-200, 57-200, 60-000, 61-200, 62-200, 63-200
Laminates	
Plywood	13-50, 13-75, 48-000, 48-400, 48-700
Wood/Plywood	13-50, 48-000
Wood/Aluminum	15-00, 18-00, 20-00, 18-50, 19-50
Plastics	
Flexible	11-00, 61-000 (ABS, polycarbonate, polyethylene, polystyrene, some PVC)
Rigid	12-00, 48-600, 56-000 (Acrylic, nylon, melamine, some PVC)
Reinforced	48-600 (Carbon fiber, fiberglass, aramid fiber)
Other	
Drywall	20-10
Metal Door	15-00, 15-50



This chart is not all-inclusive because it does not take into consideration the type of router (nor its condition), spindle speed, set up, fixture, feed method or feed rate. Non-standard conditions may also effect tool selection.

SPECIAL QUANTITY PRICING FOR ALL ONSRUD ITEMS

Order 5-9 of the same item to receive a **5% Discount**.
 Order 10 or more of the same item to receive a **10% Discount**.
For larger quantities call Ballew Saw & Tool for a quote.

High Speed Steel - Single Edge 'O' Flute

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
10-00	1/16	3/16	1/4	2	\$7.79
10-01	3/32	3/8	1/4	2	\$7.36
10-02	1/8	3/8	1/4	2	\$7.79
10-20	1/8	1/2	1/4	2	\$8.50
10-03	5/32	1/2	1/4	2	\$7.60 ★
10-04	3/16	5/8	1/4	2	\$6.46
10-22	3/16	3/4	1/4	2	\$8.31
10-05	7/32	5/8	1/4	2-1/8	\$6.03 ★
10-24	1/4	5/8	1/4	2-1/8	\$6.56
10-06	1/4	3/4	1/4	2-1/8	\$6.32
10-07	1/4	1	1/4	2-3/8	\$6.46
10-78	1/4	1 1/4	1/4	2-5/8	\$7.27
10-18	5/16	1	5/16	2-3/8	\$10.31
10-09	5/16	1	3/8	3	\$11.12 ★
10-10	3/8	1	3/8	2-1/2	\$9.41 ★
10-11	3/8	1	1/2	2-1/2	\$14.11
10-13	1/2	1 1/4	1/2	2-3/4	\$14.96

CED tolerance +/- .005



These tools combine open flute design with single edge geometry to provide optimum chip removal at fast feed rates. **Primary Uses:** Natural woods of soft to medium density and hardness. **Secondary Uses:** Flexible, non abrasive plastics.

High Speed Steel - Plastic Bit

SINGLE EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
11-01	1/8	1/2	1/4	2	\$10.36
11-03	3/16	5/8	1/4	2	\$8.31
11-05	1/4	3/4	1/4	2-1/8	\$7.27
11-07	1/4	1	1/4	2-3/8	\$8.17
11-71*	1/4	3/4	1/4	3-1/4	\$9.55
11-75*	1/8	5/8	1/4	3-1/4	\$12.16
11-77*	3/16	5/8	1/4	3-1/4	\$9.69
11-09	3/8	1	3/8	2-1/2	\$11.31
11-73*	3/8	1	3/8	3-1/2	\$12.68 ★
11-11	1/2	1-1/4	1/2	2-3/4	\$15.15 ★

CED tolerance +/- .005, except as noted.

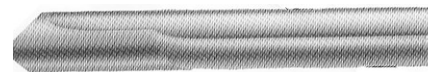
*Tools are designed and balanced for air routers with bearing, +.000 - .008.

DOUBLE EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
11-00	3/16	5/8	1/4	2	\$10.83
11-02	1/4	3/4	1/4	2-1/8	\$8.31
11-04	1/4	1	1/4	2-3/8	\$9.17
11-72*	1/4	3/4	1/4	3-1/4	\$10.32
11-76	1/4	3/4	1/4	3-3/4	\$11.26
11-78	1/4	2	1/4	3-1/4	\$15.06
11-06	3/8	1	3/8	2-1/2	\$13.16
11-74*	3/8	1	3/8	3-1/2	\$15.34
11-10	1/2	1 1/4	1/2	2-3/4	\$15.34 ★

CED tolerance +/- .005, except as noted.

*Tools are designed and balanced for air routers with bearing, +.000 - .008.



These 'O' flute tools were developed for cutting softer more flexible plastics. Single edge for faster feed rates. Double edge for smoother finish. **Primary Uses:** ABS, polycarbonate, polystyrene and some PVC plastics. **Secondary Uses:** Other plastics.

High Speed Steel - Double Edge 'V' Flute

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
12-30	1/8	3/8	1/4	2	\$8.31
12-31	5/32	1/2	1/4	2	\$9.55
12-32	3/16	3/4	1/4	2	\$8.84
12-33	7/32	3/4	1/4	2	\$9.79
12-00	1/4	3/4	1/4	2-1/8	\$6.56
12-01	1/4	1	1/4	2-3/8	\$7.17
12-79*	1/4	1	1/4	3	\$8.93
12-35	1/4	1	1/2	2-1/2	\$15.25
12-37*	1/4	1-1/4	1/4	3-1/4	\$11.92
12-03	5/16	1	3/8	3	\$13.40
12-36	5/16	1	1/2	2-1/2	\$17.24
12-24	3/8	1	1/4	2-1/4	\$14.63 ★
12-05	3/8	1	3/8	2-1/2	\$11.07
12-55*	3/8	1	3/8	3-1/2	\$12.64 ★
12-06	3/8	1	1/2	2-1/2	\$14.58
12-26	3/8	1-1/4	1/2	3-1/4	\$20.05
12-08	7/16	1-1/4	1/2	2-3/4	\$18.10 ★
12-09	1/2	1	1/4	2-1/4	\$15.82 ★
12-10	1/2	1-1/4	1/2	2-3/4	\$15.06
12-11	1/2	1-1/2	1/2	3-1/2	\$16.44
12-51	1/2	2	1/2	4	\$24.32
12-12	9/16	1-1/4	1/2	2-3/4	\$31.16
12-25	5/8	3/4	1/4	2-1/8	\$22.94 ★
12-13	5/8	1-1/4	1/2	2-3/4	\$35.58
12-27	3/4	1	1/4	2-1/4	\$43.42 ★
12-14	3/4	1-1/4	1/2	2-3/4	\$41.99
12-16	7/8	1-1/4	1/2	2-3/4	\$56.24
12-17	1	1-1/4	1/2	2-3/4	\$68.40
12-18	1-1/8	1-1/4	1/2	2-3/4	\$84.27 ★
12-19	1-1/4	1-1/4	1/2	2-3/4	\$84.93 ★

CED tolerance +/- .005 except as noted.

*Tools are designed and balanced for air routers with bearing, +.000 - .008.



These double edge V flutes are often selected when a balanced tool is critical for a smooth finish. They are a universal tool used in many different settings.

Primary Uses: Natural woods of medium to hard density and hardness.

Secondary Uses: Rigid, non abrasive plastics.

High Speed Steel - Double Edge On/Shear

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
12-86	1/8	3/8	1/4	2	\$9.36 ★
12-87	3/16	3/4	1/4	2	\$9.22 ★
12-80	1/4	3/4	1/4	2-1/8	\$7.08 ★
12-88	1/4	1	1/4	2-3/8	\$7.13 ★
12-81	5/16	1	1/2	2-1/2	\$17.05 ★
12-84	3/8	1	3/8	2-1/2	\$10.31 ★
12-82	3/8	1	1/2	2-1/2	\$14.68 ★
12-83	1/2	1-1/4	1/2	2-3/4	\$14.68 ★

CED tolerance +/- .005



These double edge V flutes with shearing action were developed to promote longer tool life with desired finish in many stationary routing applications.

Primary Uses: Natural woods of medium to hard density and hardness.

Secondary Uses: Rigid, non abrasive plastics.

Carbide Tipped - Opposite Shear

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
13-53	1/2	1-1/4	1/2	2-3/4	\$40.99
13-54	1/2	1-1/2	1/2	3	\$38.95
13-50	1/2	2	1/2	4	\$44.70
13-52	1/2	2-1/4	1/2	4-1/4	\$45.60
13-55	3/4	2	3/4	4	\$57.24
13-56	3/4	2-1/2	3/4	4-1/2	\$75.38

CED tolerance +/- .005



These up-cut / downcut shearing action tools were developed to minimize chipping or tear out on both sides of laminated or veneered stock. They cut with the ease and speed of a single edge tool. **Primary Uses:** Plywood, veneered doors or stock, sink cut outs or laminated materials. **Secondary Uses:** Solid surface materials and layered fibrous plastics.

High Speed Steel - Single Edge Up-cut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
14-00	1/2	2	1/2	4-1/4	\$23.37 ★
14-03	1/2	2-1/4	1/2	5-1/4	\$25.46 ★
14-04	1/2	2-1/2	1/2	4-1/4	\$28.07 ★
14-05	1/2	2-1/2	1/2	5-1/2	\$30.50 ★

CED tolerance + .000 - .015



These tools were developed for deep slotting where the up-cut action facilitates chip removal and for routing thick stock where use of a downcut is not practical. **Primary Uses:** Aluminum. **Secondary Uses:** Natural woods of soft to medium density and hardness.

High Speed Steel - Single Edge Downcut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
15-00	1/2	2	1/2	4-1/4	\$21.19 ★
15-02	1/2	2-1/4	1/2	4-1/4	\$22.99 ★
15-03	1/2	2-1/4	1/2	5-1/4	\$26.46
15-05	1/2	2-1/2	1/2	5-1/2	\$28.41

CED tolerance + .000 - .015



These tools were developed to rout thick laminated stock of aluminum and wood in construction and to make straight through cuts in thick stock of either material. **Primary Uses:** Aluminum and softer woods. **Secondary Uses:** Steel clad doors.

High Speed Steel - Drywall Bit

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
20-11	1/8	7/8	1/8	2-3/8	\$1.24
20-10	3/16	1	1/4	3-1/4	\$7.84



These spiral flute tools are designed to make cut outs in drywall. Used in manufactured housing and on site construction. **Uses:** Drywall cut outs.

Titanium Coated High Speed Steel Single Edge Door Bits

PART#	FOR DOOR MACHINE	CED	CEL	SHANK DIAMETER	OAL	PRICE
15-52	--	1/2	2-1/4	1/2	5-1/4	\$26.79
15-53	Ruvo	1/2	2-1/2	1/2	5-1/2	\$28.69
15-54	Ace	1/2	2-1/2	1/2	5	\$28.69
15-55	Falcon	1/2	2-1/2	1/2	5-1/2	\$28.69
15-57	Norfield	1/2	2-1/2	1/2	5-1/2	\$28.69
15-52T	--	1/2	2-1/4	1/2	5-1/4	\$36.48
15-53T	Ruvo	1/2	2-1/2	1/2	5-1/2	\$38.33
15-54T	Ace	1/2	2-1/2	1/2	5	\$38.33
15-55T*	Falcon	1/2	2-1/2	1/2	5-1/2	\$38.33
15-57T*	Norfield	1/2	2-1/2	1/2	5-1/2	\$38.33

CED tolerance +.000, -.015
* Have Flats

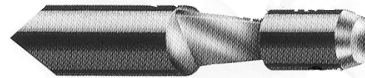


These downcut tools were developed specifically for metal clad doors. The tool geometry facilitates piercing steel and produces a superior cut for door lites and hardware openings. **Primary Uses:** Metal clad doors.

Solid Carbide - Single Edge Laminate Trim

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
27-00	1/4	1/4	1/4	1-1/2	\$11.83
27-01	1/4	1/4	1/4	1-1/2	\$11.83
27-02	1/4	1/4	1/4	1-1/2	\$11.54 ★
27-03	1/4	3/8	1/4	2	\$13.11
27-04	1/4	3/8	1/4	1-1/2	\$17.81

CED tolerance +.000 - .010



These tools are designed to trim counter tops. The pilot bears on the finished surface and acts as a guide to trim flush or with a bevel. Available with boring point if necessary to plunge and rout. **Uses:** Trimming laminate counter tops.

Solid Carbide - Double Edge Laminate Trim Bit

PART#	CED	CEL	SHANK DIAMETER	OAL	STYLE	PRICE
27-50	1/4	7/16	1/4	1 5/8	Flush	\$17.81
27-51	1/4	1/4	1/4	1 5/8	7° bevel	\$19.52 ★

CED tolerance +.000 - .004



These double edge tools with a pilot were developed to give a satin smooth finish. Available as flush trim or bevel bits. **Uses:** Trimming plastic parts.

High Speed Steel - 3 Flute CNC Door Bits

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
15-75	1/2	3	1/2	6	\$62.18 ★
15-75T*	1/2	3	1/2	6	\$81.04

CED tolerance +.000 - .015
*Titanium coated bit



These downcut tools are designed specifically for CNC machining metal clad doors. The tool geometry facilitates piercing steel and produces a superior cut for door lites and hardware openings. **Usage:** Metal clad doors.

Solid Carbide Double-Bearing Plastic Trim

PART#	CED	CEL	SHANK DIAMETER	OAL	FLUTE	PRICE
28-20	1/4	3/4	1/4	3	2	\$36.62
28-25	1/2	1-1/8	1/2	4	2	\$101.75
28-30*	1/2	1-1/8	1/2	4	3	\$139.51

CED tolerance +.000 - .004
* Up/down compression spiral.



Replacement Bearing Kits for Series 28

PART#	DESCRIPTION	PRICE
28-89	Kit for 28-20 Tool	\$8.98
28-88	Kit for 28-25 Tool	\$17.48
28-86	Kit for 28-30 Tool	\$12.78

These up-cut spirals were developed to trim stacked sheets of plastic. They use a double bearing guide to ensure smooth cutting action around a template. **Uses:** Trimming stacked sheets, plastics, and laminates.

High Speed Steel Single Edge Straight Pilot

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
18-00	1/4	3/4	1/4	2-3/4	\$6.32
18-02	3/8	7/8	3/8	2-7/8	\$8.98
18-03	1/2	1	1/2	3-1/2	\$14.54

CED tolerance +.000 - .010



These straight flute tools with boring points and pilots are the workhorse of the mobile home, modular home and RV Industries. **Uses:** Wood panels, vinyl coated panels, wall board and aluminum layered materials.

High Speed Steel - Up-cut Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
20-00	1/4	3/4	1/4	3	\$8.84
20-02	3/8	1	3/8	3-7/16	\$10.69
20-03	1/2	1-1/4	1/2	4	\$27.55

CED tolerance +.000 - .010



These spiral tools are designed to push chips away from the operator in mobile home and RV manufacturing plants. **Uses:** Aluminum and plywood sandwich panels, vinyl coated panels, wall board and layered material.

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
40-562	1/2	3-5/8	1/2	6	\$37.38
40-564	1/2	4-1/8	1/2	6-1/2	\$42.28

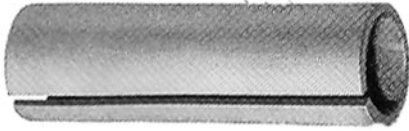
CED tolerance +.000 - .010



These 4-flute spiral tools are designed to cut thicker pieces of foam with upward chip flow. **Uses:** Foam.

Fiber Adapter Bushing

PART#	O.D.	I.D.	LENGTH	PRICE
33-01	1/4	1/8	1-1/4	\$12.92
33-02	1/4	3/16	1-1/4	\$12.92
33-03	1/2	1/4	1-1/2	\$12.92
33-04	1/2	5/16	1-1/2	\$12.92
33-05	1/2	3/8	1-1/2	\$12.92



These bushings are used to downsize the bore for smaller shank diameters. Bushings are not recommended for production routing. They should be used only as a temporary substitute for the proper size collet.

Primary Uses: Temporary collet downsizing.

High Speed Steel - Single Edge Downcut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
40-002	1/8	3/8	1/4	2-5/8	\$8.93
40-052	5/32	5/8	1/4	2-7/8	\$9.22 ★
40-004	3/16	5/8	1/4	2-7/8	\$8.88
40-054	7/32	7/8	1/4	3	\$9.12 ★
40-006**	1/4	5/8	1/4	2-3/4	\$7.08 ★
40-008**	1/4	3/4	1/4	2-3/4	\$7.32
40-010	1/4	3/4	1/2	3-1/4	\$14.96
40-012**	1/4	1	1/4	3	\$8.36
40-058**	1/4	1	1/4	3-1/4	\$9.36 ★

CED tolerance +/- .005

**CED tolerance +.000 - .005.

*Tools are designed and balanced for air routers with bearing, +.000 -.006.



These single edge downcut spirals are recommended in fixed through cut routing operations where speed is the primary concern and fixture is such that both chips and material are better off forced down. **Primary Uses:** Aluminum and natural woods. **Secondary Uses:** Non-abrasive plastics.

High Speed Steel - Single Edge Up-cut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
40-001	1/8	3/8	1/4	2-5/8	\$9.17
40-051	5/32	5/8	1/4	2-7/8	\$9.17 ★
40-003	3/16	5/8	1/4	2-7/8	\$8.17
40-053	7/32	7/8	1/4	3	\$8.60 ★
40-005**	1/4	5/8	1/4	2-3/4	\$6.75
40-007**	1/4	3/4	1/4	2-3/4	\$6.75
40-009	1/4	3/4	1/2	3-1/4	\$12.35
40-011**	1/4	1	1/4	3	\$7.55
40-015	5/16	1	5/16	3	\$9.79
40-019	5/16	1	3/8	3	\$12.11
40-021	5/16	3/4	1/2	3-1/4	\$12.83
40-023	5/16	1	1/2	3-1/2	\$14.01
40-031**	3/8	1	3/8	3	\$11.45
40-033	3/8	1	1/2	3-1/2	\$15.20
40-035	3/8	1-1/4	1/2	3-3/4	\$16.20
40-043	1/2	1	1/2	3	\$15.91 ★
40-037	1/2	1-1/4	1/2	3-1/4	\$17.34
40-039	1/2	1-1/2	1/2	3-1/2	\$20.19
40-041	1/2	1-1/2	1/2	4-1/2	\$22.18
40-016	5/16	1	5/16	3	\$9.50 ★
40-022	5/16	3/4	1/2	3-1/4	\$13.82
40-024	5/16	1	1/2	3-1/2	\$15.77
40-032*	3/8	1	3/8	3	\$11.54
40-030*	3/8	1	3/8	3-1/2	\$11.73 ★
40-034	3/8	1	1/2	3-1/2	\$15.39
40-036	3/8	1-1/4	1/2	3-3/4	\$16.86
40-044	1/2	1	1/2	3	\$17.05 ★
40-038	1/2	1-1/4	1/2	3-1/4	\$17.39 ★
40-040	1/2	1-1/2	1/2	3-1/2	\$20.19
40-042	1/2	1-1/2	1/2	4-1/2	\$21.52 ★

CED tolerance +/- .005

**CED tolerance +.000 - .005

*Tools are designed and balanced for air routers with bearing, +.000 -.006.



These single edge downcut spirals are recommended in fixed through cut routing operations where speed is the primary concern and fixture is such that both chips and material are better off forced down. **Primary Uses:** Aluminum and natural woods. **Secondary Uses:** Non-abrasive plastics.

Rust and Stain Remover

PART#	DESCRIPTION	PRICE
33-20	Rust Free Onsrud Cutter Cleaner	\$13.05 ★

RUST FREE is Non-Toxic, Biodegradable and Non-Flammable meeting the stringent safety standards set forth in today's workplace. It does an excellent job of cleaning resins that buildup on surfaces inside and outside the collet as well as cleans "bronzing" or "fretting" buildup from toolholder tapers. RUST FREE cleans without the use of harsh abrasives which can alter the shape and therefore reduce accuracy in clamping of High Performance Routing tools. Just spray it on, brush lightly with a brass brush, dry thoroughly and the surface is like new again. Works well at cleaning any surface rust from the work surfaces of machines.

Works on:

- Steel
- Stainless
- Chrome
- Porcelain
- Vinyl
- Cast Iron
- Fiberglass
- Tile
- Concrete
- Cloth



Router Collet Brushes

PART#	DESCRIPTION	PRICE
33-10	Collet Brush Kit (4 Brushes & tube)	\$21.09
33-15	1/4" Brush	\$6.32
33-16	3/8" Brush	\$6.32
33-17	1/2" Brush	\$6.32
33-18	3/4" Brush	\$6.32
33-19	1" Brush	\$9.50
33-25	Collet Brush Kit (includes 5 brushes & tube)	\$29.50

Designed to help remove dust and dirt from the shanks of router bits in order to keep performance up and extend the tool's life.



PRODUCT IMAGES AND PROFILES ARE NOT SHOWN ACTUAL SIZE

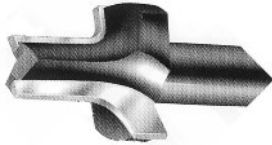
★ INDICATES THAT THE ITEM IS DISCONTINUED AND HAS LIMITED STOCK

ONSRUD

Carbide-Tipped - Double Edge Round and Rout

PART#	CED	SMALL CED	CEL	SHANK DIAMETER	OAL	CE RADIUS	PRICE
40-50	1	1/2	1-3/16	1/2	2-9/16	3/16	\$67.45
40-51	1	1/2	1-11/16	1/2	3-1/16	3/16	\$67.45
40-52	1-1/8	1/2	1-3/16	1/2	2-9/16	1/4	\$68.40
40-53	1-1/8	1/2	1-11/16	1/2	3-1/16	1/4	\$68.40
40-54	1-3/8	1/2	1-3/16	1/2	2-9/16	3/8	\$71.25
40-55	1-3/8	1/2	1-11/16	1/2	3-1/16	3/8	\$71.25

Radius tolerance +/- .010

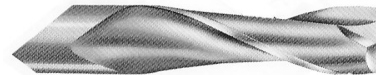


These two flute cutters were designed to put a radius on the edge and dress the stock. They will provide a smooth finish on natural woods and wood composites. **Primary Uses:** Natural wood, plywood and wood composites. **Secondary Uses:** Non-abrasive plastics.

High Speed Steel - Double Edge Up-cut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
40-101	1/8	3/8	1/4	2-5/8	\$6.65
40-103	3/16	5/8	1/4	2-7/8	\$7.17
40-153	7/32	7/8	1/4	3	\$8.88
40-105**	1/4	5/8	1/4	2-3/4	\$6.27
40-107**	1/4	3/4	1/4	2-3/4	\$5.42
40-109	1/4	3/4	1/2	3-1/4	\$12.83
40-111**	1/4	1	1/4	3	\$6.75
40-113	5/16	3/4	5/16	3	\$10.40 ★
40-115	5/16	1	5/16	3	\$11.40
40-117	5/16	3/4	3/8	3	\$11.54
40-119	5/16	1	3/8	3	\$11.50 ★
40-123	5/16	1	1/2	3-1/2	\$16.39
40-121	5/16	3/4	1/2	3-1/4	\$11.45
40-131**	3/8	1	3/8	3	\$10.17
40-133	3/8	1	1/2	3-1/2	\$12.16
40-135	3/8	1-1/4	1/2	3-3/4	\$16.15
40-143	1/2	1	1/2	3	\$13.78
40-137	1/2	1-1/4	1/2	3-1/4	\$13.82
40-139	1/2	1-1/2	1/2	3-1/2	\$16.20
40-141	3/4	1-1/4	1/2	3-1/4	\$35.86

CED tolerance +/- .005
**CED tolerance +.000 - .005



These double edge up-cut spirals provide a smoother finish when grooving, slotting or blind routing than do single edge tools. They are also recommended for through cuts when fixture requires upward chip removal. **Primary Uses:** Aluminum and natural woods. **Secondary Uses:** Non-abrasive plastics.

High Speed Steel - Double Edge Spiral

UP-CUT - (H) Hard wood (S) Soft wood

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
40-301(S)	1/8	1/2	1/4	2-5/8	\$7.13 ★
40-303(S)	3/16	3/4	1/4	2-3/4	\$7.13 ★
40-307(H)	1/4	7/8	1/4	2-3/4	\$5.75 ★
40-307(S)	1/4	7/8	1/4	2-3/4	\$5.75 ★
40-311(S)	1/4	1-1/8	1/4	3	\$6.46 ★
40-333(H)	3/8	1-1/8	3/8	3	\$12.87 ★
40-333(S)	3/8	1-1/8	3/8	3	\$12.87 ★
40-335(H)	3/8	1-1/4	1/2	3-1/4	\$17.01 ★
40-335(S)	3/8	1-1/4	1/2	3-1/4	\$17.01 ★
40-343(H)	1/2	1-1/8	1/2	3	\$14.54 ★
40-343(S)	1/2	1-1/8	1/2	3	\$14.54 ★
40-339(H)	1/2	1-5/8	1/2	3-1/2	\$17.15 ★
40-339(S)	1/2	1-5/8	1/2	3-1/2	\$17.15 ★

DOWNCUT - (H) Hard wood (S) Soft wood

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
40-302(S)	1/8	1/2	1/4	2-5/8	\$7.13 ★
40-304(S)	3/16	3/4	1/4	2-3/4	\$7.51 ★
40-308(H)	1/4	7/8	1/4	2-3/4	\$6.03 ★
40-308(S)	1/4	7/8	1/4	2-3/4	\$6.03 ★
40-312(S)	1/4	1-1/8	1/4	3	\$7.17 ★
40-334(H)	3/8	1-1/8	3/8	3	\$14.63 ★
40-334(S)	3/8	1-1/8	3/8	3	\$14.63 ★
40-336(H)	3/8	1-1/4	1/2	3-1/4	\$14.63 ★
40-336(S)	3/8	1-1/4	1/2	3-1/4	\$14.63 ★
40-344(H)	1/2	1-1/8	1/2	3	\$14.87 ★
40-344(S)	1/2	1-1/8	1/2	3	\$14.87 ★
40-340(H)	1/2	1-5/8	1/2	3-1/2	\$16.25 ★
40-340(S)	1/2	1-5/8	1/2	3-1/2	\$16.25 ★

CED tolerance +/- .005



These double edge spirals have unique geometry for cutting either hard or soft woods with improved tool life and excellent finish. **Primary Uses:** Natural woods. **Secondary Uses:** Plastics and aluminum.

High Speed Steel - Double Edge Downcut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
40-102	1/8	5/16	1/4	2-5/8	\$6.65
40-104	3/16	5/8	1/4	2-7/8	\$7.17
40-106**	1/4	5/8	1/4	2-3/4	\$6.22
40-108**	1/4	3/4	1/4	2-3/4	\$5.80
40-110	1/4	3/4	1/2	3-1/4	\$12.11
40-112**	1/4	1	1/4	3	\$6.75
40-158*	1/4	1	1/4	3-1/4	\$8.22
40-114	5/16	3/4	5/16	3	\$8.74 ★
40-116	5/16	1	5/16	3	\$9.69
40-122	5/16	3/4	1/2	3-1/4	\$13.02
40-124	5/16	1	1/2	3-1/2	\$13.82
40-132**	3/8	1	3/8	3	\$11.16
40-130*	3/8	1	3/8	3-1/2	\$11.73 ★
40-134	3/8	1	1/2	3-1/2	\$13.82
40-136	3/8	1-1/4	1/2	3-3/4	\$13.82
40-144	1/2	1	1/2	3	\$13.11 ★
40-138*	1/2	1-1/4	1/2	3-1/4	\$14.25
40-140	1/2	1-1/2	1/2	3-1/2	\$15.39
40-142	3/4	1-1/4	1/2	3-1/4	\$35.86

CED tolerance +/- .005
**CED tolerance +.000 -.005.

*Tools are designed and balanced for air routers with bearing, +.000 -.006



These double edge up-cut spirals provide a smoother finish cut in trimming, sizing and plunging operations than do single edge tools. They are also recommended when chip flow should be directed down to protect the finish on the top of the material being cut. **Primary Uses:** Aluminum and natural woods. **Secondary Uses:** Non-abrasive plastics.

Carbide-Tipped Plastic Bit

SINGLE EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
48-601	3/16	1/2	1/4	2	\$18.81 ★
48-603	1/4	3/4	1/4	2-1/8	\$15.63
48-678	1/4	3/4	1/4	3-1/4	\$19.95 ★
48-605	1/4	1	1/4	2-3/8	\$19.57
48-607	3/8	1	3/8	2-1/2	\$22.09
48-635*	3/8	1	3/8	3-1/2	\$23.42
48-609	1/2	1-1/4	1/2	2-3/4	\$23.75 ★

CED tolerance +/- .005 except as noted.

*Tools are designed and balanced for air routers with bearings +.000 - .006.

DOUBLE EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
48-650	3/16	1/2	1/4	2	\$21.23 ★
48-652	1/4	3/4	1/4	2-1/8	\$18.19
48-679	1/4	3/4	1/4	3-1/4	\$23.42
48-654	1/4	1	1/4	2-3/8	\$21.23 ★
48-656	3/8	1	3/8	2-1/2	\$24.70
48-636*	3/8	1	3/8	3-1/2	\$25.08 ★
48-658	1/2	1 1/4	1/2	2-3/4	\$27.36

CED tolerance +/- .005 except as noted.

*Tools are designed and balanced for air routers with bearings +.000 - .006.



These carbide tipped tools were developed specifically for cutting harder, more rigid plastics. Single edge bits are for faster feed rates. Double edge for smoother finish. **Primary Uses:** Plastics in the acrylic, nylon, melamine and rigid PVC families. **Secondary Uses:** Other plastics.

Carbide-Tipped CNC & MDF Bits Double Edge

PART#	OLD PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
48-700	-	1/4	7/8	1/4	2-3/8	\$25.37
48-701	-	3/8	1	3/8	2-1/2	\$26.74 ★
48-706	-	3/8	1	1/2	2-1/2	\$32.21
48-707	-	1/2	1	1/2	2-1/2	\$34.11
48-702	-	1/2	1-1/4	1/2	2-3/4	\$34.63
48-708	-	1/2	2	1/2	2-3/4	\$42.75
48-709	48-414	5/8	2	5/8	4	\$52.68
48-710	48-404	3/4	1-5/8	3/4	3-1/2	\$61.37
48-703	48-405	3/4	2-1/8	3/4	4	\$66.98
48-704	48-406	3/4	2-5/8	3/4	4-1/2	\$73.67
48-711	48-407	3/4	3	3/4	5	\$80.61
48-712	48-409	1	2-1/8	3/4	4	\$92.91
48-713	48-411	1	3	3/4	5	\$105.40

CED tolerance +/- .005



These carbide tipped tools were developed for CNC routing of MDF materials. These tools are designed with special carbide, stiffer tool bodies and superior edge geometry to withstand the rigor of CNC routing. Increased life comes from the combination of carbide grade, tool design and edge quality. **Primary Uses:** Medium density fiberboard. **Secondary Uses:** Hardwoods.

Solid Carbide - Double Edge - Up-cut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
52-040	1/8	1/2	1/4	2	\$20.95
52-050	5/32	9/16	1/4	2	\$20.95
52-060	3/16	5/8	1/4	2	\$20.95
52-060L	3/16	5/8	1/4	2	\$20.19 ★
52-070	7/32	5/8	1/4	2-1/2	\$18.38 ★
52-080	1/4	3/4	1/4	2-1/2	\$20.95
52-080L	1/4	3/4	1/4	2-1/2	\$20.19 ★
52-090	9/32	3/4	3/8	2-1/2	\$35.72
52-100	5/16	13/16	3/8	2-1/2	\$35.72
52-120	3/8	7/8	3/8	2-1/2	\$35.72
52-140	7/16	1	1/2	3	\$59.61
52-160	1/2	1	1/2	3	\$59.61

CED tolerance + .000 - .005



These carbide tools were designed as a general purpose spiral with several times the life of their high speed steel counterparts. They are used when up-cut chip flow is preferred. **Primary Uses:** Signmaking - cutting several wood, non-ferrous and plastic materials. **Secondary Uses:** Aluminum.

Solid Carbide - Double Edge - Up-cut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
52-622	1/4	3/8	1/4	2-1/2	\$19.00
52-624	1/4	3/4	1/4	2-1/2	\$20.24
52-626	6mm	25mm	6mm	64mm	\$16.58 ★
52-638	3/8	1	3/8	3	\$39.28
52-640	8mm	25mm	8mm	76mm	\$32.06 ★
52-650	1/2	1-1/8	1/2	3-1/2	\$68.21

CED tolerance +.000 - .004



These tools were developed to cut acrylic with a smooth finish and upward chip flow. **Primary Uses:** Acrylic, rigid plastics, some polycarbonates.

Solid Carbide - Double Edge Up-cut Spiral - CNC Ball Nose

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
52-240B	1/8	1/2	1/4	2	\$31.35
52-260B	3/16	3/4	1/4	2	\$31.35
52-280B	1/4	7/8	1/4	2-1/2	\$31.35
52-320B	3/8	1 1/8	3/8	3	\$49.69
52-360B	1/2	1 1/8	1/2	3	\$76.38
52-240BL	1/8	1/2	1/4	3	\$42.42
52-260BL	3/16	3/4	1/4	3	\$42.42
52-280BL	1/4	1	1/4	4	\$47.93
52-320BL	3/8	1-1/4	3/8	4	\$76.38
52-360BL	1/2	1-1/2	1/2	5	\$98.52

CED tolerance + .000 - .004

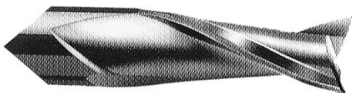


Solid Carbide - Double Edge Up-cut - Wood Rout

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
52-240	1/8	1/2	1/4	2	\$18.05
52-240L	1/8	1/2	1/4	2	\$19.95
52-244	1/8	1/2	1/8	2	\$19.52
52-250	5/32	5/8	1/4	2	\$18.05
52-251	5/32	1/2	1/4	2-1/2	\$17.48 ★
52-260	3/16	3/4	1/4	2	\$18.05
52-260L	3/16	3/4	1/4	2	\$19.95
52-261	3/16	3/4	1/4	2-1/2	\$19.86
52-264	3/16	3/4	3/16	2	\$17.20 ★
52-270	7/32	3/4	1/4	2-1/2	\$18.34
52-271	7/32	1	1/4	2-1/2	\$19.33
52-280	1/4	7/8	1/4	2-1/2	\$20.43
52-281	1/4	7/8	1/4	2-1/2	\$21.14
52-285	1/4	1	1/4	2-1/2	\$21.14
52-285L	1/4	1	1/4	2-1/2	\$23.28
52-287	1/4	1-1/8	1/4	3	\$23.51
52-290	9/32	1	5/16	2-1/2	\$34.96
52-300	5/16	1-1/8	5/16	3	\$34.96
52-310	5/16	1-1/8	1/2	3	\$58.38
52-310L	5/16	1-1/8	1/2	3	\$64.32
52-318	3/8	1	3/8	3	\$29.21
52-320	3/8	1-1/8	3/8	3	\$34.96
52-321	3/8	1-1/8	3/8	3	\$30.83 ★
52-325	3/8	1-1/4	3/8	3	\$37.34
52-325L	3/8	1-1/4	3/8	3	\$41.09
52-330	3/8	1-1/4	1/2	3	\$58.38
52-340	7/16	1	1/2	3	\$56.05
52-360	1/2	1-1/8	1/2	3	\$56.05
52-361	1/2	1-1/8	1/2	3	\$56.05
52-362	1/2	1-1/4	1/2	3	\$58.38
52-365	1/2	1-5/8	1/2	3-1/2	\$58.38
52-365L	1/2	1-5/8	1/2	3-1/2	\$64.27
52-366	1/2	1-5/8	1/2	3-1/2	\$58.38
52-367	1/2	2-1/8	1/2	4	\$64.27
52-370	17/32	1-1/8	1/2	3	\$140.17
52-380	5/8	1-5/8	5/8	3-1/2	\$140.17
52-385	5/8	2-1/8	5/8	4	\$151.86
52-385L	5/8	2-1/8	5/8	4	\$167.06
52-390	3/4	1-5/8	3/4	4	\$175.13
52-395	3/4	2-1/8	3/4	4	\$181.07
52-395L	3/4	2-1/8	3/4	4	\$199.64

CED tolerance +.000 - .004

(S) Soft woods (L) Left rotation



Double edge tools designed for routing wood and wood composites where upward chip removal, tool rigidity, long life and high quality finish are desired. **Primary Uses:** Wood and wood composites. **Secondary Uses:** Plastics.

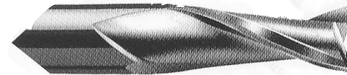
Solid Carbide - Three Edge Straight Rout Bit

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
53-040	1/8	1/2	1/4	2	\$24.56
53-080	1/4	3/4	1/4	2-1/2	\$24.56

Solid Carbide - Double Edge Up-cut Spiral - Wood Rout

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
52-410	4mm	16mm	6mm	64mm	\$18.10
52-411	5mm	20mm	6mm	64mm	\$18.10
52-412	6mm	25mm	6mm	64mm	\$20.38
52-414	8mm	25mm	8mm	64mm	\$37.95
52-416	10mm	35mm	10mm	76mm	\$43.75
52-418	12mm	35mm	12mm	76mm	\$58.38
52-420	14mm	50mm	14mm	88mm	\$113.95
52-422	16mm	55mm	16mm	100mm	\$150.39
52-424	18mm	60mm	18mm	120mm	\$182.21
52-426	20mm	60mm	20mm	120mm	\$228.95

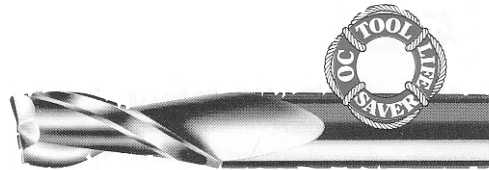
CED tolerance +.0mm -.1mm



Double Edge. These tools are designed for routing wood and wood composites where upward chip removal, tool rigidity, long life, and high quality finish is desired. **Primary Uses:** Wood and wood composites.

Solid Carbide - Double Edge Up-cut EXHD Standard

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
52-910	1/4	7/8	1/4	2-1/2	\$17.24
52-923	3/8	1-1/8	3/8	3	\$33.44
52-924	3/8	1-1/4	3/8	3	\$34.53
52-936	1/2	1-1/4	1/2	3	\$43.18



These tools are designed for routing wood and wood composites where extreme loads are placed upon cutting tools and when upward chip removal is required. **Primary Uses:** Wood and Wood Composites.

Solid Carbide - Multiple Edge Downcut Spiral

FOUR EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
54-440	3mm	12mm	6mm	64mm	\$21.09 ★
54-460	5mm	16mm	6mm	64mm	\$21.09 ★
54-480	6mm	19mm	6mm	76mm	\$21.09 ★

THREE EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
59-440	3mm	12mm	6mm	64mm	\$21.09 ★
59-460	5mm	16mm	6mm	64mm	\$21.09 ★
59-480	6mm	19mm	6mm	76mm	\$21.09 ★



These multiple flute carbide tools were designed to rout difficult to cut material when horsepower or spindle speed may be a problem. These tools employ downcut router geometry to hold material and force chips down while routing through the piece part. **Primary Uses:** Fiberglass and composite materials.

Solid Carbide - Four Edge - Downcut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
54-040	1/8	1/2	1/4	2	\$24.56
54-050	5/32	9/16	1/4	2	\$24.56 ★
54-060	3/16	5/8	1/4	2	\$24.56 ★
54-080	1/4	3/4	1/4	2-1/2	\$24.56

CED tolerance +.000 - .005



These multiple flute carbide tools were designed to rout difficult to cut material when horsepower or spindle speed may be a problem. **Primary Uses:** Wood and plastic laminates or composites. **Secondary Uses:** Other man made abrasive materials.

Solid Carbide - Four Edge - Up-cut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
55-040	1/8	1/2	1/4	2	\$24.56
55-050	5/32	9/16	1/4	2	\$24.56
55-060	3/16	5/8	1/4	2	\$24.56 ★
55-080	1/4	3/4	1/4	2 1/2	\$24.56

CED tolerance +.000 - .005



These multiple flute carbide tools were designed to rout difficult to cut material when horsepower or spindle speed may be a problem. They employ up-cut router rather than end mill geometry for better chip removal and smoother finish. **Primary Uses:** Wood and plastic laminates or composites. **Secondary Uses:** Other man made abrasive materials.

Solid Carbide - Double Edge - Straight

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
56-240	1/8	1/2	1/4	2	\$18.43
56-250	5/32	5/8	1/4	2	\$18.43
56-260	3/16	3/4	1/4	2	\$18.43
56-270	7/32	3/4	1/4	2-1/2	\$18.67
56-280	1/4	7/8	1/4	2-1/2	\$20.95
56-281	1/4	7/8	1/4	2-1/2	\$20.95 ★
56-285	1/4	1	1/4	2-1/2	\$21.52
56-287	1/4	1-1/8	1/4	3	\$23.99
56-290	9/32	1	5/16	2-1/2	\$35.72
56-300	5/16	1-1/8	1/2	3	\$35.72
56-310	5/16	1-1/8	1/2	3	\$59.61
56-320	3/8	1-1/8	3/8	3	\$35.72
56-321	3/8	1-1/8	3/8	3	\$31.45 ★
56-325	3/8	1-1/4	3/8	3	\$38.10
56-330	3/8	1-1/4	1/2	3	\$59.61
56-340	7/16	1	1/2	3	\$57.19
56-360	1/2	1-1/8	1/2	3	\$57.19
56-361	1/2	1-1/8	1/2	3	\$57.19
56-362	1/2	1-1/4	1/2	3-1/2	\$59.61
56-365	1/2	1-5/8	1/2	3-1/2	\$59.61
56-366	1/2	1-5/8	1/2	3-1/2	\$52.44 ★
56-370	17/32	1-1/8	1/2	3	\$142.98
56-385	5/8	2-1/8	5/8	4	\$154.85
56-390	3/4	1 5/8	3/4	4	\$178.70
56-395	3/4	2-1/8	3/4	4	\$184.68

CED tolerance +.000 - .004



The double edge wood rout in straight flute configuration provides a superior finish in a variety of materials and provides optimum cutter life. Plastics in the acrylic, nylon, melamine & rigid PVC families-tools ending in two. **Primary Uses:** Wood composites & thin laminated materials-all tools ending in zero. **Secondary Uses:** other composites.

Solid Carbide - Double Edge - Straight

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
56-040	1/8	1/2	1/4	2	\$20.95
56-050	5/32	9/16	1/4	2	\$20.95
56-060	3/16	5/8	1/4	2	\$20.95
56-070	7/32	5/8	1/4	2 1/2	\$20.95
56-080	1/4	3/4	1/4	2 1/2	\$20.95
56-084	1/4	3/4	1/4	3 1/4	\$24.56
56-090	9/32	3/4	3/8	2 1/2	\$35.72
56-100	5/16	13/16	3/8	2 1/2	\$35.72
56-120	3/8	7/8	3/8	2 1/2	\$35.72
56-140	7/16	1	1/2	3	\$59.61
56-160	1/2	1	1/2	3	\$59.61

CED tolerance +.000 - .004



Developed to rout difficult to cut materials. Plastics in the acrylic, nylon, melamine & rigid PVC families-tools ending in two. **Primary Uses:** Wood composites & thin laminated materials-all tools ending in zero. **Secondary Uses:** other composites.

Solid Carbide - Double Edge Straight Plastic Bit

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
56-041	1/8	1/4	1/4	2	\$20.09
56-061	3/16	3/8	1/4	2	\$20.09
56-062	3/16	5/8	1/4	2	\$20.95
56-062L	3/16	5/8	1/4	2	\$23.13
56-063	3/16	5/8	1/4	4	\$39.19
56-081	1/4	3/8	1/4	2-1/2	\$21.09
56-082	1/4	3/4	1/4	2-1/2	\$22.14
56-082L	1/4	3/4	1/4	2-1/2	\$24.51
56-086	1/4	1-1/4	1/4	4	\$41.33
56-121	3/8	5/8	3/8	2-1/2	\$40.23
56-122	3/8	7/8	3/8	2-1/2	\$41.61
56-122L	3/8	7/8	3/8	2-1/2	\$45.98
56-124	3/8	1-5/8	3/8	6	\$64.03
56-162	1/2	1	1/2	3	\$65.50
56-162L	1/2	1	1/2	3	\$72.15
56-164	1/2	2-1/8	1/2	6	\$89.40

CED tolerance +.000 - .004

(L) Left rotation



These carbide tools were developed as a tool to rout difficult materials particularly in small diameters. These tools were designed specifically to rout harder more rigid plastics. **Primary Uses:** Plastics in the acrylic, nylon, melamine and rigid PVC families.

Solid Carbide - Double Edge Straight 'O' Flute

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
56-430	4mm	16mm	6mm	64mm	\$18.05
56-431	5mm	20mm	6mm	64mm	\$18.05
56-432	6mm	25mm	6mm	64mm	\$20.28
56-434	8mm	25mm	8mm	76mm	\$37.86
56-436	10mm	35mm	10mm	88mm	\$43.61
56-438	12mm	35mm	12mm	88mm	\$58.14



These tools were developed with free cutting O flute geometry along with a double flute design for a smooth finish in soft flexible plastics.

Primary Uses: Soft Plastics.

Solid Carbide - Double Edge Straight 'V' Flute

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
56-410	4mm	16mm	6mm	64mm	\$15.87 ★
56-411	5mm	20mm	6mm	64mm	\$15.87 ★
56-412	6mm	25mm	6mm	64mm	\$18.34 ★
56-414	8mm	25mm	8mm	64mm	\$34.06 ★
56-416	10mm	35mm	10mm	88mm	\$39.28 ★
56-418	12mm	35mm	12mm	88mm	\$52.44 ★

CED tolerance +.0mm - .1mm



Double Edge. These tools are designed for routing when long life and high quality finish are desired. **Primary Uses:** Wood and wood composites.

Solid Carbide - Double Edge 'O' Flute Plastic Bit

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
56-612	1/8	1/2	1/4	2	\$20.24
56-614	1/8	5/8	1/4	4	\$28.93
56-616	3/16	3/8	1/4	2	\$19.43
56-618	3/16	5/8	1/4	2	\$20.24
56-620	3/16	1	1/4	4	\$28.93
56-624	1/4	3/8	1/4	2-1/2	\$20.24
56-625	1/4	1	1/4	2-1/2	\$22.23
56-625L	1/4	1	1/4	2-1/2	\$24.51
56-626	1/4	1	1/4	3-1/4	\$24.51
56-628	1/4	1-1/4	1/4	4	\$40.47
56-638	3/8	7/8	3/8	2-1/2	\$41.04
56-639	3/8	1	3/8	4	\$49.97
56-650	1/2	1	1/2	3	\$63.75
56-652	1/2	1	1/2	4	\$67.59
56-654	1/2	1-3/4	1/2	4	\$78.90
56-655*	1/2	2-1/8	1/2	6	\$89.16

CED tolerance +.000 - .004

* New Tool

(L) Left Rotation



These carbide tools were developed with free cutting 'O' flute geometry along with a double flute design for smooth finish in soft flexible plastics. Types of Plastic: ABS, Polycarbonate, Polystyrene and ductile PVC families.

Primary Uses: For the fast free cutting of 'O' flute geometry.

Solid Carbide - Double Edge Downcut Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
57-240	1/8	1/2	1/4	2	\$18.05
57-240L	1/8	1/2	1/4	2	\$19.95
57-244	1/8	1/2	1/8	2	\$19.52
57-250	5/32	5/8	1/4	2	\$18.05
57-251	5/32	1/2	1/4	2 1/2	\$19.86
57-260	3/16	3/4	1/4	2	\$18.05
57-260L	3/16	3/4	1/4	2	\$19.95
57-261	3/16	3/4	1/4	2 1/2	\$19.86
57-264	3/16	3/4	3/16	2	\$17.20 ★
57-270	7/32	3/4	1/4	2	\$18.34
57-271	7/32	1	1/4	2 1/2	\$19.33
57-280	1/4	7/8	1/4	2 1/2	\$20.43
57-281(S)	1/4	7/8	1/4	2 1/2	\$21.14
57-285	1/4	1	1/4	2 1/2	\$21.14
57-285L	1/4	1	1/4	2 1/2	\$23.28
57-287	1/4	1 1/8	1/4	3	\$23.51
57-290	9/32	1	5/16	2 1/2	\$34.96
57-300	5/16	1 1/8	5/16	3	\$34.96
57-310	5/16	1 1/8	1/2	3	\$58.38
57-310L	5/16	1 1/8	1/2	3	\$64.27
57-318	3/8	1	3/8	3	\$29.21
57-320	3/8	1 1/8	3/8	3	\$34.96
57-321(S)	3/8	1 1/8	3/8	3	\$30.83 ★
57-322*	3/8	7/8	3/8	3	\$33.44 ★
57-323*	3/8	1-1/4	3/8	3	\$36.48 ★
57-324*	3/8	3/4	3/8	2-1/2	\$27.36 ★
57-325	3/8	1 1/4	3/8	3	\$37.34
57-325L	3/8	1 1/4	3/8	3	\$41.09
57-326*	3/8	1	3/8	2-1/2	\$28.88
57-330	3/8	1 1/4	1/2	3	\$58.38
57-340	7/16	1	1/2	3	\$56.05
57-360	1/2	1 1/8	1/2	3	\$56.05
57-361	1/2	1 1/8	1/2	3	\$56.05
57-362	1/2	1 1/4	1/2	3	\$58.38
57-365	1/2	1 5/8	1/2	3 1/2	\$58.38
57-365L	1/2	1 5/8	1/2	3 1/2	\$64.27
57-366	1/2	1 5/8	1/2	3 1/2	\$58.38
57-367	1/2	2 1/8	1/2	4	\$64.27
57-370	17/32	1 1/8	1/2	3	\$140.17
57-380	5/8	1 5/8	5/8	3 1/2	\$140.17
57-385	5/8	2 1/8	5/8	4	\$151.86
57-385L	5/8	2 1/8	5/8	4	\$167.06
57-390	3/4	1 5/8	3/4	4	\$175.13
57-395	3/4	2 1/8	3/4	4	\$181.07
57-395L	3/4	2 1/8	3/4	4	\$199.26

CED tolerance +.000 - .004

* New Upholstery Router Bits

(S) Soft wood (L) Left Rotation



These double edge tools are designed for routing when downward chip removal, tool rigidity, long life, and high quality finish is desired. **Primary Uses:** Wood and wood composites. **Secondary Uses:** Plastics.

Solid Carbide - Double Edge - Downcut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
57-040	1/8	1/2	1/4	2	\$20.95
57-050	5/32	9/16	1/4	2	\$20.95
57-060	3/16	5/8	1/4	2	\$20.95
57-070	7/32	5/8	1/4	2-1/2	\$18.38 ★
57-080	1/4	3/4	1/4	2-1/2	\$20.95
57-090	9/32	3/4	3/8	2-1/2	\$35.72
57-100	5/16	13/16	3/8	2-1/2	\$35.72
57-120	3/8	7/8	3/8	2-1/2	\$35.72
57-140	7/16	1	1/2	3	\$59.61
57-160	1/2	1	1/2	3	\$59.61

CED tolerance +.000 - .005



These carbide tools were designed as a general purpose spiral with several times the life of their high speed counterparts. They are used when a downcut action is preferred. **Primary Uses:** Hard or abrasive materials. **Secondary Uses:** Man made composites.

Solid Carbide - Double Edge Downcut Spiral - Wood Rout

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
57-410	4mm	16mm	6mm	64mm	\$18.10
57-411	5mm	20mm	6mm	64mm	\$18.10
57-412	6mm	25mm	6mm	64mm	\$20.38
57-414	8mm	25mm	8mm	64mm	\$37.95
57-416	10mm	35mm	10mm	76mm	\$43.75
57-418	12mm	35mm	12mm	76mm	\$58.38
57-420	14mm	50mm	14mm	88mm	\$113.95
57-422	16mm	55mm	16mm	100mm	\$132.34 *
57-424	18mm	60mm	18mm	120mm	\$182.21
57-426	20mm	60mm	20mm	120mm	\$228.95

CED tolerance +.0mm - .1mm



Double Edge. These tools are designed for routing when downward chip removal, tool rigidity, long life, and high quality finish is desired.

Primary Uses: Wood and wood composites.

Solid Carbide - Double Edge - Downcut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
57-623	1/4	3/8	1/4	2-1/2	\$19.38
57-625	1/4	3/4	1/4	2-1/2	\$20.71
57-627	6mm	25mm	6mm	64mm	\$19.24
57-637	3/8	1	3/8	3	\$40.04
57-639	8mm	25mm	8mm	76mm	\$37.19
57-651	1/2	1 1/8	1/2	3-1/2	\$69.59

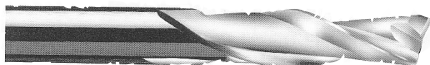
CED tolerance +.000 - .004



These tools were developed to cut acrylic with a smooth finish and downward chip flow. **Primary Uses:** Acrylic, rigid plastics, some polycarbonates.

Solid Carbide - Double Edge Downcut - EXHD Standard

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
57-910	1/4	7/8	1/4	2-1/2	\$17.24
57-921	3/8	7/8	3/8	3	\$31.83
57-923	3/8	1-1/8	3/8	3	\$33.44
57-924	3/8	1-1/4	3/8	3	\$34.53
57-936	1/2	1-1/4	1/2	3	\$43.18



These tools are designed for routing wood and wood composites where extreme loads are placed upon cutting tools and when upward chip removal is required. **Primary Uses:** Wood and Wood Composites.

Solid Carbide - Double Edge Mortise Compression Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-127L	3/8	1-1/8	3/8	3	\$86.88

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Solid Carbide - Multiple Edge Up-cut Spiral

THREE EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
58-040	1/8	1/2	1/4	2	\$24.56
58-060	3/16	5/8	1/4	2	\$24.56
58-080	1/4	3/4	1/4	2 1/2	\$24.56

CED tolerance +.000 - .004

FOUR EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
55-040	1/8	1/2	1/4	2	\$24.56
55-050	5/32	9/16	1/4	2	\$24.56
55-060	3/16	5/8	1/4	2	\$24.56
55-080	1/4	3/4	1/4	2 1/2	\$24.56

CED tolerance +.000 - .004



These multiple flute carbide tools were designed to rout difficult to cut material when horsepower or spindle speed may be a problem. They employ up-cut router rather than end mill geometry for better chip removal and smoother finish. **Primary Uses:** Fiberglass, Phenolic

Solid Carbide - Multiple Edge Downcut Spiral

THREE EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
59-040	1/8	1/2	1/4	2	\$24.56
59-060	3/16	5/8	1/4	2	\$24.56
59-080	1/4	3/4	1/4	2-1/2	\$24.56

CED tolerance +.000 - .004

FOUR EDGE

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
54-040	1/8	1/2	1/4	2	\$24.56
54-050	5/32	9/16	1/4	2	\$24.56
54-060	3/16	5/8	1/4	2	\$24.56
54-080	1/4	3/4	1/4	2-1/2	\$24.56

CED tolerance +.000 - .004



These multiple flute carbide tools were designed to rout difficult to cut material when horsepower or spindle speed may be a problem. These tools employ downcut router geometry to hold material and force chips down while routing through the piece part. **Primary Uses:** Fiberglass, Phenolic.

Solid Carbide - Three Edge High Helix Hoggers - Chipbreaker

UP-CUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-001	3/8	1-1/8	3/8	3-1/2	\$100.84
60-003	12mm	25mm	12mm	76mm	\$100.84
60-005	1/2	1-1/8	1/2	3-1/2	\$118.56
60-007	1/2	1-5/8	1/2	4	\$127.59
60-009	5/8	1-5/8	5/8	4	\$193.71
60-011	5/8	2-1/8	5/8	5	\$205.15
60-013	16mm	55mm	16mm	120mm	\$193.71
60-015	18mm	60mm	18mm	120mm	\$193.71
60-017	3/4	1-5/8	3/4	4	\$233.65
60-019	3/4	2-1/8	3/4	5	\$250.66

CED tolerance +.000 - .010

DOWNCUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-002	3/8	1-1/8	3/8	3-1/2	\$100.84
60-004	12mm	25mm	12mm	76mm	\$100.84
60-006	1/2	1-1/8	1/2	3-1/2	\$118.56
60-008	1/2	1-5/8	1/2	4	\$127.59
60-010	5/8	1-5/8	5/8	4	\$193.71
60-012	5/8	2-1/8	5/8	5	\$205.15
60-014	16mm	55mm	16mm	120mm	\$193.71
60-016	18mm	60mm	18mm	120mm	\$193.71
60-018	3/4	1-5/8	3/4	4	\$233.65
60-020	3/4	2-1/8	3/4	5	\$250.66

CED tolerance +.000 - .010



Solid Carbide - Three Edge Low Helix Hoggers - Chipbreaker

UP-CUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-037	3/8	11/8	3/8	31/2	\$103.47
60-053	1/2	11/8	3/8	31/2	\$121.46
60-051	1/2	15/8	1/2	4	\$130.82
60-065	5/8	15/8	5/8	4	\$174.80 *
60-061	5/8	21/8	5/8	5	\$210.28
60-073	3/4	15/8	3/4	4	\$239.45
60-071	3/4	21/8	3/4	5	\$256.93
60-055	12mm	25mm	12mm	76mm	\$118.56
60-063	18mm	55mm	16mm	120mm	\$198.60
60-075	18mm	60mm	18mm	120mm	\$222.16

DOWNCUT

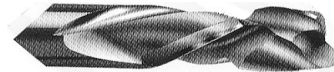
PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-038	3/8	11/8	3/8	31/2	\$103.41
60-054	1/2	11/8	1/2	31/2	\$121.46
60-052	1/2	15/8	1/2	4	\$130.82
60-066	5/8	15/8	5/8	4	\$198.60
60-062	5/8	21/8	5/8	5	\$210.28
60-074	3/4	15/8	3/4	4	\$239.45
60-072	3/4	21/8	3/4	5	\$256.93
60-056	12mm	25mm	12mm	76mm	\$118.56
60-064	16mm	55mm	16mm	120mm	\$198.60
60-076	18mm	60mm	18mm	120mm	\$222.16



Solid Carbide - Compression Up/Down Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-112	1/4	7/8	1/4	2-1/2	\$61.85
60-124	3/8	1 1/8	3/8	3	\$76.43
60-133	6mm	25mm	6mm	64mm	\$75.48
60-135	8mm	25mm	8mm	64mm	\$87.88
60-137	10mm	35mm	10mm	76mm	\$101.89
60-139	12mm	35mm	12mm	76mm	\$134.66
60-140	20mm	50mm	20mm	100mm	\$264.43
60-164	1/2	1	1/2	3	\$87.59
60-169	1/2	1-1/8	1/2	3	\$90.20
60-171	1/2	1-3/8	1/2	3 1/2	\$96.24
60-172	1/2	1-5/8	1/2	4	\$102.27
60-172L	1/2	1-5/8	1/2	4	\$112.53
60-186	5/8	2-1/4	5/8	5	\$218.36
60-186L	5/8	2-1/4	5/8	5	\$213.75 *
60-196	3/4	1-7/8	3/4	4	\$270.66
60-198	3/4	2-1/2	3/4	5	\$291.41
60-198L	3/4	2-1/2	3/4	5	\$320.53

CED tolerance + .000 - .004

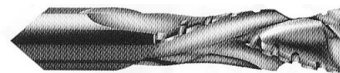


For optimum edge finish on both sides of laminates. **Primary Uses:** Double sided laminated materials. **Secondary Uses:** Hard wood & wood composites.

Solid Carbide - Compression Up/Down Spiral - Chipbreaker

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-123C	3/8	7/8	3/8	3	\$85.74
60-124C	3/8	1-1/8	3/8	3	\$84.12
60-135C	8mm	25mm	8mm	64mm	\$96.71
60-137C	10mm	35mm	10mm	76mm	\$112.10
60-139C	12mm	35mm	12mm	76mm	\$148.15
60-140C	20mm	50mm	20mm	100mm	\$290.99
60-163C	1/2	7/8	1/2	3	\$99.47
60-164C	1/2	1	1/2	3	\$96.47
60-169C	1/2	1-1/8	1/2	3	\$99.32
60-171C	1/2	1-3/8	1/2	3-1/2	\$105.97
60-172C	1/2	1-5/8	1/2	4	\$112.77
60-186C	5/8	2-1/4	5/8	5	\$240.40
60-196C	3/4	1-7/8	3/4	4	\$297.83

CED tolerance + .000 - .004

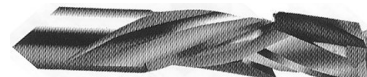


For optimum edge finish on both sides of laminates. These tools were designed to give the optimum edge finish of the compression spiral bits along with the chipbreaker/finisher design. **Primary Uses:** Double sided laminated materials. **Secondary Uses:** Hard wood and wood composites.

Solid Carbide - Three Edge Compression Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-125	3/8	1-1/8	3/8	3	\$91.58
60-174	1/2	1-1/8	1/2	3	\$108.25
60-175	1/2	1-5/8	1/2	3-1/2	\$120.46
60-197	3/4	2	3/4	4	\$320.29

CED tolerance +.000 - .004



Three Edge. Up-cut/downcut design for ultra high feed rates and optimum edge finish on both sides of laminated material. **Primary Uses:** Double sided laminated materials, hardwood and wood composites.

Solid Carbide - Compression Up/Down - Spiral Metric

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-134	8	20	8	64	\$81.70
60-136	10	25	10	70	\$96.09
60-138	12	35	12	76	\$127.40
60-142	16	55	16	100	\$228.57

CED tolerance + .000 - .15mm



For optimum edge finish on both sides of laminates. **Primary Uses:** Double sided laminated materials. **Secondary Uses:** Hard wood & wood composites.

Solid Carbide - Double Edge Chipbreaker Finisher

UP-CUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-307	3/8	1-1/8	3/8	3	\$66.17
60-311	1/2	1-1/8	1/2	3	\$90.20
60-313	1/2	1-5/8	1/2	3-1/2	\$96.24
60-315	1/2	2-1/8	1/2	4	\$108.30
60-317	1/2	1-7/8	1/2	3-1/2	\$102.32
60-321	5/8	2-1/8	5/8	4	\$210.28
60-325	3/4	2-1/8	3/4	4	\$239.45

CED tolerance +.000 - .004

DOWNCUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-308	3/8	1-1/8	3/8	3	\$66.17
60-312	1/2	1-1/8	1/2	3	\$90.20
60-314	1/2	1-5/8	1/2	3-1/2	\$96.24
60-316	1/2	2-1/8	1/2	4	\$108.30
60-318	1/2	1-7/8	1/2	3-1/2	\$102.32
60-322	5/8	2-1/8	5/8	4	\$210.28
60-326	3/4	2-1/8	3/4	4	\$239.45

CED tolerance +.000 - .004



Double Edge. For faster feed rates than a conventional two flute with a smooth finish. **Primary Uses:** Hardwoods MDF and plywood.

Solid Carbide - Three Edge - Finisher

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-239	1/4	3/8	1/4	3	\$30.40
60-240*	1/4	3/8	1/4	3	\$30.40
60-241	1/4	7/8	1/4	3	\$33.25
60-242*	1/4	7/8	1/4	3	\$33.25
60-243	3/8	5/8	3/8	3	\$62.65
60-244*	3/8	5/8	3/8	3	\$62.65
60-245	3/8	1	3/8	3	\$64.89
60-246*	3/8	1	3/8	3	\$64.89
60-249	1/2	1-1/8	1/2	3-1/2	\$72.20
60-250*	1/2	1-1/8	1/2	3-1/2	\$72.20
60-251	1/2	2-1/8	1/2	4-1/2	\$76.00
60-252*	1/2	2-1/8	1/2	4-1/2	\$76.00
60-253	1/2	1-5/8	1/2	4	\$79.80
60-254*	1/2	1-5/8	1/2	4	\$79.80
60-269	3/4	1-5/8	3/4	4	\$175.75
60-270*	3/4	1-5/8	3/4	4	\$175.75
60-271	3/4	2-1/8	3/4	5	\$185.25
60-272*	3/4	2-1/8	3/4	5	\$185.25

CED tolerance +.000 - .004

* downcut



These tools with the three flute design for perfect balance and ultra smooth finish operate over a wide speed and feed range. **Primary Uses:** Acrylic and other brittle plastics. Types of Plastic: Acrylic, Fiber Reinforced, melamine, nylon, phenolic and PVC.

Solid Carbide - Fiberglass Router

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
67-080	1/4	3/4	1/4	2 1/2	\$25.27
67-082	1/4	3/4	1/4	2 1/2 (2 flutes)	\$31.59
67-084	1/4	3/4	1/4	2 1/2 (Aramid)	\$50.64
67-090	4mm	6mm	6mm	50mm	\$24.70
67-091	6mm	9mm	6mm	63mm	\$32.35
67-092	6mm	25mm	6mm	75mm	\$40.04
67-093	8mm	25mm	8mm	63mm	\$55.34
67-094	10mm	25mm	10mm	75mm	\$57.90
67-095	12mm	25mm	12mm	75mm	\$73.34
67-120	3/8	7/8	3/8	2 1/2	\$56.95
67-122	3/8	7/8	3/8	2 1/2 (2 flutes)	\$63.13
67-124	3/8	7/8	3/8	2 1/2 (Aramid)	\$82.13
67-160	1/2	1	1/2	3	\$75.67
67-162	1/2	1	1/2	3 (2 flutes)	\$81.61
67-164	1/2	1	1/2	3 (Aramid)	\$94.72

CED tolerance +.000 -.002

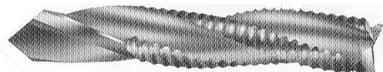


These carbide tools were originally designed as fiberglass routers. Their up-cut/downcut diamond design effectively shears fibrous materials. Certain tools in the line have been further developed to cut aramid fiber composites. **Primary Uses:** Fibrous, reinforced plastics.

Solid Carbide - Three Edge Lock Mortise

PART#	CED	CEL	MAX DOC	SHANK DIAMETER	OAL	PRICE
60-090	5/8	2	4-1/2	5/8	6-1/2	\$445.74
60-091	16mm	50mm	114mm	16mm	170mm	\$490.87

CED tolerance +.000 - .004/ +.0mm -.1mm



Three Edge. The scalloped up-cut cutting edge design and extra spin-back provide fast material removal in deep cuts for horizontal and vertical lock mortise routing. **Primary Uses:** Natural and manufactured wood.

Solid Carbide - Fiberglass - Rapid Router

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
67-305	3/8	1-1/8	3/8	3	\$62.32
67-314	1/2	1-5/8	1/2	3-1/2	\$76.62

CED tolerance +.000 - .004

67-305 (Up-cut); 67-314 (Downcut)



These two flute carbide tools with up/down chipbreakers cut fibrous materials at feed rates up to 200 IPM. **Primary Uses:** Fiberglass, Phenolic.

Solid Carbide - Up/Down Compression Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-102	1/8	3/8	1/4	2 1/2	\$44.98
60-106	3/16	5/8	1/4	2 1/2	\$48.50
60-110	1/4	7/8	1/4	2 1/2	\$54.10
60-120	3/8	1 1/8	3/8	3	\$66.17
60-120L	3/8	1 1/8	3/8	3	\$72.87
60-121	3/8	7/8	3/8	3	\$72.25
60-122(HS)	3/8	1	3/8	3	\$63.56 ★
60-132	6mm	25mm	6mm	64mm	\$52.87
60-160	1/2	1	1/2	3	\$90.20
60-161	1/2	7/8	1/2	3	\$90.20
60-161L	1/2	7/8	1/2	3	\$99.32
60-162(HS)	1/2	1	1/2	3 1/2	\$77.14 ★
60-165	1/2	1 5/8	1/2	3 1/2	\$96.24
60-165L	1/2	1 5/8	1/2	3 1/2	\$105.78
60-166	1/2	1 5/8	1/2	3 1/2	\$98.66
60-167	1/2	1 1/8	1/2	3	\$90.20
60-168(HW)	1/2	1 1/8	1/2	3	\$79.42 ★
60-170	1/2	1 3/8	1/2	3 1/2	\$96.24
60-185	5/8	2	5/8	4	\$198.55
60-195	3/4	2	3/4	4	\$270.66

CED tolerance = .000/-0.00

(M) Mortise up-cut for slotting; (HS) Hard surface double laminate geometry; (DE) Double edge up & down; (HW) Hardwood geometry; (L) Left rotation



Up-cut/downcut geometry makes possible single flute cutting speeds with optimum edge finish on both sides of laminated materials. **Primary Uses:** Laminated materials. **Secondary Uses:** Hard woods and wood composites.

Solid Carbide - Mortise Compression Spiral

SINGLE EDGE

PART#	CED	CEL	UP-CUT CEL	SHANK DIAMETER	OAL	PRICE
60-111	1/4	7/8	0.175	1/4	2-1/2	\$56.10
60-152	6mm	22mm	4mm	6mm	64mm	\$52.58
60-154	8mm	22mm	4mm	8mm	64mm	\$81.70
60-156	10mm	22mm	4mm	10mm	76mm	\$96.09
60-158	12mm	22mm	4mm	12mm	76mm	\$127.40

CED tolerance +.000 - .004/ +.0mm - .1mm

DOUBLE EDGE

PART#	CED	CEL	UP-CUT CEL	SHANK DIAMETER	OAL	PRICE
60-113	1/4	7/8	0.188	1/4	2-1/2	\$60.47
60-123	3/8	7/8	0.188	3/8	3	\$79.18
60-155	10mm	22mm	4mm	10mm	76mm	\$101.89
60-157	12mm	22mm	4mm	12mm	76mm	\$134.66
60-163	1/2	7/8	0.200	1/2	3	\$90.49
60-173	1/2	1-3/8	0.200	1/2	3-1/2	\$100.61
60-173L	1/2	1-3/8	0.200	1/2	3-1/2	\$110.68

CED tolerance +.000 - .004/ +.0mm - .1mm

THREE EDGE

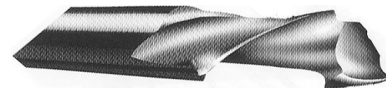
PART#	CED	CEL	UP-CUT CEL	SHANK DIAMETER	OAL	PRICE
60-126	3/8	7/8	0.200	3/8	3	\$91.58
60-176	1/2	7/8	0.200	1/2	3	\$108.25
60-177	1/2	1-3/8	0.200	1/2	3-1/2	\$120.46
60-199	3/4	2	0.200	3/4	4	\$320.29

CED tolerance +.000 - .004/ +.0mm - .1mm

FOUR EDGE

PART#	CED	CEL	UP-CUT CEL	SHANK DIAMETER	OAL	PRICE
60-563	1/2	7/8	0.200	1/2	3	\$132.57
60-573	1/2	1-3/8	0.200	1/2	3-1/2	\$150.20

CED tolerance +.000 - .004/ +.0mm - .1mm



Up-cut/downcut design for fast feed and excellent finish with short up-cut to allow mortise cut with downcut action. **Primary Uses:** Double-sided laminates and mortising, hardwood trimming and mortising.

Solid Carbide - Double Edge Chipbreaker Finisher

UP-CUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-411	8mm	25mm	8mm	64mm	\$56.57
60-413	10mm	35mm	10mm	76mm	\$63.97
60-415	12mm	35mm	12mm	76mm	\$95.00
60-417	16mm	55mm	16mm	100mm	\$192.47
60-419	18mm	60mm	18mm	120mm	\$324.81

CED tolerance +.0mm - .1mm



DOWNCUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-412	8mm	25mm	8mm	64mm	\$56.57
60-414	10mm	35mm	10mm	76mm	\$63.79
60-416	12mm	35mm	12mm	76mm	\$95.00
60-418	16mm	55mm	16mm	100mm	\$192.47
60-420	18mm	60mm	18mm	120mm	\$324.81

CED tolerance +.0mm - .1mm

Double Edge. For faster feed rates than a conventional two flute with a smooth finish. **Primary Uses:** Hardwoods MDF and plywood.

**Solid Carbide - Three Edge
Chipbreaker / Finisher**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-337	3/8	1 1/8	3/8	3	\$72.06
60-338*	3/8	1 1/8	3/8	3	\$72.06
60-350*	1/2	1 1/8	1/2	3	\$97.52
60-351	1/2	1 1/8	1/2	3	\$97.52
60-352*	1/2	1 5/8	1/2	3 1/2	\$102.27
60-353	1/2	1 5/8	1/2	3 1/2	\$102.27
60-354* NEW	1/2	1 3/8	1/2	3	\$99.80
60-355 NEW	1/2	1 3/8	1/2	3	\$99.80
60-360*	5/8	1 5/8	5/8	4	\$210.28
60-361	5/8	1 5/8	5/8	4	\$210.28
60-370*	3/4	1 5/8	3/4	4	\$251.18
60-371	3/4	1 5/8	3/4	4	\$251.18
60-372*	3/4	2 1/8	3/4	4	\$270.66
60-373	3/4	2 1/8	3/4	4	\$270.66
60-374*	3/4	3 1/8	3/4	6	\$396.86
60-375	3/4	3 1/8	3/4	6	\$396.86

CED tolerance + .000 - .004

* Downcut



For fast feed rates and smooth finish. **Primary Uses:** Hard woods and wood composites. **Secondary Uses:** Laminated materials and plastics.

**Solid Carbide - Three Edge
Chipbreaker / Finisher**

UP-CUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-431	8mm	25mm	8mm	64mm	\$66.17
60-433	10mm	35mm	10mm	76mm	\$78.14
60-435	12mm	35mm	12mm	76mm	\$114.24
60-437	16mm	55mm	16mm	100mm	\$228.57
60-439	18mm	60mm	18mm	120mm	\$396.96

CED tolerance +.0mm - .1mm

DOWNCUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-432	8mm	25mm	8mm	64mm	\$66.17
60-434	10mm	35mm	10mm	76mm	\$78.14
60-436	12mm	35mm	12mm	76mm	\$114.24
60-438	16mm	55mm	16mm	100mm	\$228.57
60-440	18mm	60mm	18mm	120mm	\$396.96

CED tolerance +.0mm - .1mm



Three Edge. For additional balance at fast feed rates with a smooth finish. **Primary Uses:** Hardwoods, plywood and wood composites.

**Solid Carbide - Three Edge
High Helix Finisher**

UP-CUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-461	6mm	25mm	6mm	76mm	\$42.61 *
60-451	8mm	25mm	8mm	76mm	\$47.64 *
60-453	10mm	35mm	10mm	76mm	\$51.87 *
60-455	12mm	35mm	12mm	88mm	\$77.33 *
60-457	16mm	55mm	16mm	120mm	\$179.98 *
60-459	18mm	60mm	18mm	120mm	\$307.09 *

CED tolerance +.0mm - .1mm

DOWNCUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-462	6mm	25mm	6mm	76mm	\$42.61 *
60-452	8mm	25mm	8mm	76mm	\$47.64 *
60-454	10mm	35mm	10mm	76mm	\$51.87 *
60-456	12mm	35mm	12mm	88mm	\$77.33 *
60-458	16mm	55mm	16mm	120mm	\$179.98 *
60-460	18mm	60mm	18mm	120mm	\$307.09 *

CED tolerance +.0mm - .1mm



Three Edge. For additional balance at fast feed rates with a smooth finish. **Primary Uses:** Hard woods and Wood Composites.

**Solid Carbide - Three Edge
Slow Helix Finisher**

UP-CUT

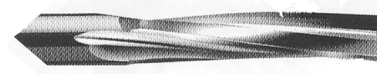
PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-481	6mm	25mm	6mm	76mm	\$46.88
60-471	8mm	25mm	8mm	76mm	\$52.87
60-473	10mm	35mm	10mm	76mm	\$57.43
60-475	12mm	35mm	12mm	88mm	\$85.69
60-477	16mm	55mm	16mm	120mm	\$161.50
60-479	18mm	60mm	18mm	120mm	\$185.25
60-483	14mm	45mm	14mm	110mm	\$124.40

CED tolerance +.0mm - .1mm

DOWNCUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-482	6mm	25mm	6mm	76mm	\$46.88
60-472	8mm	25mm	8mm	76mm	\$52.87
60-474	10mm	35mm	10mm	76mm	\$57.43
60-476	12mm	35mm	12mm	88mm	\$85.69
60-478	16mm	55mm	16mm	120mm	\$161.50
60-480	18mm	60mm	18mm	120mm	\$185.25
60-484	14mm	45mm	14mm	110mm	\$124.40

CED tolerance +.0mm - .1mm



Three Edge. Designed for perfect balance and ultra smooth finish over a wide speed range. **Primary Uses:** Hardwoods and wood composites.

Solid Carbide - Four Edge Compression Up/Down Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-564	1/2	1	1/2	3	\$132.57
60-569	1/2	1-1/8	1/2	3	\$137.18
60-571	1/2	1-3/8	1/2	3-1/2	\$150.20
60-572	1/2	1-5/8	1/2	4	\$157.42
60-586	5/8	2-1/4	5/8	5	\$270.80
60-596	3/4	1-7/8	3/4	4	\$334.66 ★
60-598	3/4	2-1/2	3/4	5	\$414.77

CED tolerance +.000 - .004



Four Edge. The ultimate in compression spiral tooling, these tools are designed to run on the newest generation CNC routers. They produce extremely fine finishes at high feed rates. **Primary Uses:** Double-sided laminated materials, hardwood and wood composites.

Solid Carbide - 4E HV Compression Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-664	1/2	1	1/2	3	\$148.91
60-669	1/2	1-1/8	1/2	3	\$151.19
60-671	1/2	1-3/8	1/2	3-1/2	\$164.78
60-672	1/2	1-5/8	1/2	4	\$173.76
60-686	5/8	2-1/4	5/8	5	\$200.83
60-696	3/4	1-7/8	3/4	4	\$291.13
60-698	3/4	2-1/2	3/4	5	\$358.82

CED tolerance +.000 - .004

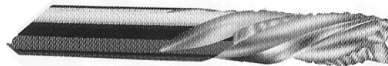


Four Edge. These tools combine a rough and finishing cut in one tool for rapid feed rates with a good finish. **Primary Uses:** High velocity routing of double laminated material and natural wood.

Solid Carbide - 4E HV Downcut Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-710	1/2	1-1/8	1/2	3-1/2	\$152.33
60-714	1/2	1-5/8	1/2	4	\$163.69
60-718	1/2	2-1/8	1/2	4-1/2	\$197.51
60-720	5/8	2-1/8	5/8	5	\$253.94
60-730	3/4	2-1/8	3/4	5	\$355.49

CED tolerance +.000 - .004



Four Edge. These tools combine a rough and finishing cut with downcut cutting action in one tool for rapid feed rates with a good finish. **Primary Uses:** High velocity routing of composite wood and natural wood.

Solid Carbide - 4E HV Up-cut Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-711	1/2	1-1/8	1/2	3-1/2	\$152.33
60-715	1/2	1-5/8	1/2	4	\$163.69
60-719	1/2	2-1/8	1/2	4-1/2	\$197.51
60-721	5/8	2-1/8	5/8	5	\$223.49 ★
60-731	3/4	2-1/8	3/4	5	\$355.49

CED tolerance +.000 - .004



Four Edge. These tools combine a rough and finishing cut with up-cut cutting action in one tool for rapid feed rates with a good finish. **Primary Uses:** High velocity routing of composite wood and natural wood.

Solid Carbide - Three Edge EXHD Hogger

UP-CUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-901	3/8	1	3/8	3	\$64.79
60-905	1/2	1	1/2	3	\$75.53
60-907	1/2	1-5/8	1/2	3-1/2	\$97.09
60-909	1/2	2-1/8	1/2	4	\$118.75

DOWNCUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-902	3/8	1-1/8	3/8	3	\$64.79
60-906	1/2	1-1/8	1/2	3	\$75.53
60-908	1/2	1-5/8	1/2	3-1/2	\$97.09
60-910	1/2	2-1/8	1/2	4	\$118.75



These tools are designed for heavy material removal operations where the router bit is subject to excessive cutting forces and finish is not a primary concern. **Primary Uses:** Wood and Wood Composites.

Solid Carbide - Double Edge EXHD Hogger

UP-CUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-951	3/8	1-1/8	3/8	3	\$40.99
60-955	1/2	1-1/8	1/2	3	\$47.55
60-957	1/2	1-5/8	1/2	3-1/2	\$60.42
60-959	1/2	2-1/8	1/2	4	\$71.20

DOWNCUT

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
60-950	3/8	1-1/8	3/8	3	\$40.99
60-954	1/2	1-1/8	1/2	3	\$47.55
60-956	1/2	1-5/8	1/2	3-1/2	\$60.42
60-958	1/2	2-1/8	1/2	4	\$71.20



These tools are designed to be fed very fast while withstanding excessive cutting forces and at the same time leaving a smooth finish. **Primary Uses:** Wood and Wood Composites.

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Solid Carbide - Single Edge - Straight

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
61-040	1/8	1/2	1/4	2	\$25.75
61-050	5/32	9/16	1/4	2	\$25.75
61-060	3/16	5/8	1/4	2	\$25.75
61-070	7/32	5/8	1/4	2-1/2	\$25.75
61-080	1/4	3/4	1/4	2-1/2	\$25.75
61-090	9/32	3/4	3/8	2-1/2	\$44.13
61-100	5/16	13/16	3/8	2-1/2	\$44.13
61-120	3/8	7/8	3/8	2-1/2	\$44.13
61-140	7/16	1	1/2	3	\$67.50
61-160	1/2	1	1/2	3	\$67.50

CED tolerance +.000 - .004



Single Edge. These carbide tools are designed to combine the fast free cutting of 'O' flute geometry with the tool life available from solid carbide particularly in small diameters. **Primary Uses:** Wood composites.

**Solid Carbide - Single Edge
Straight Plastic Bit**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
61-041	1/8	5/16	1/4	2	\$21.95
61-042	1/8	1/2	1/4	2	\$23.47
61-042L	1/8	1/2	1/4	2	\$25.89
61-043	1/8	5/8	1/4	4	\$30.78
61-044 NEW	1/8	1/2	1/8	2	\$20.14
61-045 NEW	1/8	5/8	1/8	3	\$21.19
61-052	5/32	9/16	1/4	23	\$24.27
61-061	3/16	3/8	1/4	2	\$21.59
61-062	3/16	5/8	1/4	2	\$23.47
61-062L	3/16	5/8	1/4	2	\$25.89
61-063	3/16	1	1/4	4	\$30.78
61-064 NEW	3/16	5/8	3/16	2-1/2	\$21.19
61-072	7/32	5/8	1/4	2-1/2	\$24.70
61-081	1/4	3/8	1/4	2-1/2	\$23.51
61-082	1/4	3/4	1/4	2-1/2	\$24.51
61-082L	1/4	3/4	1/4	2-1/2	\$26.98
61-083 NEW	1/4	3/4	1/4	3-1/4	\$27.74
61-083L NEW	1/4	3/4	1/4	3-1/4	\$30.59
61-084 NEW	1/4	1-1/4	1/4	4	\$31.40
61-085 NEW	1/4	1	1/4	3-1/4	\$29.02
61-121	3/8	5/8	3/8	2-1/2	\$40.61
61-122	3/8	7/8	3/8	2-1/2	\$42.32
61-123 NEW	3/8	1-5/8	3/8	6	\$62.32
61-162	1/2	1	1/2	3	\$61.18
61-164	1/2	1-5/8	1/2	4	\$70.02
61-166	1/2	2-1/8	1/2	6	\$83.46

CED tolerance +.000 - .004.
(L) Left rotation

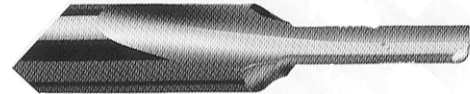


These carbide tools were developed to combine the fast free cutting of 'O' flute geometry with the tool life available from solid carbide particularly in small diameters. **Primary Uses:** All flexible, soft or ductile plastics. Types of Plastic: ABS, Polycarbonate, Polypropylene, PETG, Polyethylene, Polystyrene or PVC.

**Solid Carbide - Single Edge
Straight Wood Rout**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
61-240	1/8	1/2	1/4	2	\$25.75
61-260	3/16	3/4	1/4	2	\$25.75
61-280	1/4	7/8	1/4	2-1/2	\$25.75
61-285	1/4	1	1/4	2-1/2	\$27.03
61-300	5/16	1-1/8	5/16	3	\$38.90 ★
61-320	3/8	1-1/8	3/8	3	\$44.13
61-360	1/2	1-1/8	1/2	3	\$59.42 ★

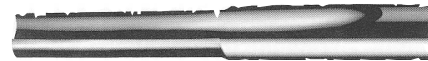
CED tolerance +.000 - .004



Single Edge. These straight flute wood rout tools are designed to enhance operations where benefits of spiral action is not needed. The single edge provides fast, free cutting with optimum cutter life. **Primary Uses:** Natural wood and wood composites.

Solid Carbide - Single Edge - Straight

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
61-410	4mm	16mm	6mm	64mm	\$25.51
61-411	5mm	20mm	6mm	64mm	\$25.51
61-412	6mm	25mm	6mm	64mm	\$25.51
61-414	8mm	25mm	8mm	64mm	\$35.44
61-416	10mm	35mm	10mm	88mm	\$39.81 ★
61-418	12mm	35mm	12mm	88mm	\$69.11



These tools are designed to combine the fast free cutting of 'O' flute geometry with the tool life available from solid carbide particularly in small diameters.

Primary Uses: ABS, HDPE, PE, PET, Polystyrene, Polypropylene, PVC, Acetal, Acrylic, UHMW, Polycarbonate.

Solid Carbide - Single Edge - Downcut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
62-040	1/8	1/2	1/4	2	\$23.32
62-080	1/4	3/4	1/4	2 1/2	\$23.32
62-100	5/16	13/16	3/8	2 1/2	\$44.13
62-120	3/8	7/8	3/8	2 1/2	\$38.90 ★

CED tolerance + .000 - .005



These carbide tools were developed for cutting through abrasive materials at extremely fast feed rates when small diameters are called for. **Primary Uses:** Hard or abrasive materials in the wood or wood composite family. **Secondary Uses:** Other abrasive materials.

Solid Carbide - Single Edge - Up-cut

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
63-040	1/8	1/2	1/4	2	\$23.32
63-050	5/32	9/16	1/4	2	\$23.32
63-060	3/16	5/8	1/4	2	\$23.32
63-070	7/32	5/8	1/4	2-1/2	\$20.47 ★
63-080	1/4	3/4	1/4	2-1/2	\$23.32
63-090	9/32	3/4	3/8	2-1/2	\$41.61
63-100	5/16	13/16	3/8	2-1/2	\$44.13
63-120	3/8	7/8	3/8	2-1/2	\$44.13
63-140	7/16	1	1/2	3	\$59.42 ★
63-160	1/2	1	1/2	3	\$67.50

CED tolerance + .000 - .004



These carbide tools were developed to replace high speed steel spirals when the material cut is too abrasive for steel or when the feed rates are too high for steel. They are often used in slotting or blind routing situations. **Primary Uses:** Hard or abrasive materials in the wood or wood composite family. **Secondary Uses:** Other abrasive materials.

Solid Carbide - Single Edge Downcut 'O' Flute

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
62-712	1/8	1/2	1/4	2	\$22.18
62-713 NEW	1/8	1/2	1/8	2	\$19.90
62-715	5/32	9/16	1/4	2	\$21.61
62-718	3/16	5/8	1/4	2	\$22.18
62-719 NEW	3/16	5/8	3/16	2	\$20.62
62-720	7/32	3/4	1/4	2-1/2	\$19.05 ★
62-725	1/4	3/4	1/4	2-1/2	\$22.18
62-726	1/4	1-1/4	1/4	3	\$26.22
62-733	3/8	1-1/8	3/8	3	\$38.29

CED tolerance +.000 - .004



These single edge spiral 'O' flute tools provide a smooth finish in hard plastics with downward chip removal. **Primary Uses:** Hard, rigid plastics. **Secondary Uses:** Soft, flexible plastics.

Solid Carbide - Single Edge Downcut Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
62-410	4	16	6	64	\$21.99 ★
62-411	5	20	6	64	\$21.99 ★
62-412	6	25	6	64	\$21.99 ★
62-414	8	25	8	64	\$37.95 ★



Metric. These carbide tools were developed to replace high speed steel spirals when the material cut is too abrasive for steel or when the feed rates are too high for steel. They are often used in slotting or blind routing situations. **Primary Uses:** Hardwoods or abrasive composites.

Solid Carbide - Single Edge Downcut 'O' Flute

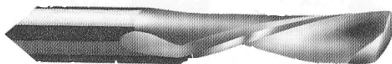
PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
62-762	1/8	1/2	1/4	2	\$22.18
62-768	3/16	5/8	1/4	2	\$22.18
62-775	1/4	3/4	1/4	2 1/2	\$22.18
62-776	1/4	1 1/4	1/4	3	\$26.22
62-783	3/8	1 1/8	3/8	3	\$38.29



These single edge spiral 'O' flute tools provide a smooth finish in soft plastics with downward chip removal. **Primary Uses:** Soft, flexible plastics. **Secondary Uses:** Hard, rigid plastics.

Solid Carbide - Single Edge Downcut 'O' Flute

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
62-604	1/8	1/4	1/8	1-1/2	\$22.04
62-606	1/8	1/4	1/4	2	\$27.27
62-610	1/8	1/2	1/4	2	\$28.93
62-612	3/16	3/8	3/16	1-1/2	\$26.55
62-614	3/16	3/8	1/4	2	\$28.93
62-618	3/16	5/8	1/4	2	\$30.59
62-620	1/4	3/8	1/4	2	\$28.83
62-622	1/4	3/4	1/4	2-1/2	\$31.30
62-624	1/4	1-1/4	1/4	3	\$45.03
62-626	3/8	1-1/8	3/8	3	\$64.79
62-630	5/16	1-1/8	3/8	3	\$76.19
62-634	21/64	1-3/4	1/2	3	\$88.64 ★



These spiral 'O' flute tools provide premium finishes in aluminum with fast feed rates and excellent chip extraction. **Primary Uses:** Sheet & extrusion material.

Solid Carbide - Single Edge Downcut Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
62-240	1/8	1/2	1/4	2	\$23.32
62-260	3/16	3/4	1/4	2	\$20.47 ★
62-280	1/4	7/8	1/4	2-1/2	\$23.32
62-285	1/4	1	1/4	2-1/2	\$24.56
62-300	5/16	1-1/8	5/16	3	\$34.53 ★
62-320	3/8	1-1/8	3/8	3	\$39.28
62-360	1/2	1-1/8	1/2	3	\$67.50

CED tolerance + .000 - .004



These single edge tools are designed for routing when aggressive downward chip removal is necessary in hand-offed or CNC applications. Other tool characteristics include rigidity, long life, and high quality finishes. **Primary Uses:** Wood and wood composites. **Secondary Uses:** Plastics.

**Solid Carbide - Single Edge
Up-cut 'O' Flute**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
63-802	2	8	2	50	\$20.62
63-804	2	8	6	64	\$21.71
63-806	2-1/2	8	2-1/2	50	\$20.62
63-808	2-1/2	8	6	64	\$21.71
63-810	3	8	3	50	\$20.62
63-812	3	8	6	64	\$21.71
63-814	3	12	3	64	\$20.62
63-816	3	12	6	64	\$21.71
63-818	4	8	4	64	\$20.62
63-820	4	12	4	64	\$21.71
63-822	4	20	4	64	\$22.75
63-824	4	20	6	64	\$25.65
63-826	4	30	4	64	\$25.65
63-828	5	16	5	64	\$20.62
63-830	5	16	6	64	\$21.71
63-832	5	30	5	64	\$31.59
63-834	6	8	6	64	\$20.81
63-836	6	12	6	64	\$21.33
63-838	6	20	6	64	\$21.71
63-840	6	30	6	76	\$25.65
63-842	6	38	6	76	\$25.98
63-844	8	25	8	64	\$32.11
63-846	8	38	8	76	\$33.49
63-848	10	30	10	76	\$40.09
63-849	10	35	10	76	\$42.28

CED tolerance +.000 - .004



Metric. These single edge spiral 'O' flute tools provide a smooth finish in hard plastics with a downward chip removal. **Primary Uses:** Acrylic, Nylon, PVC and Polycarbonate.

Solid Carbide - Single Edge - Up-cut Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
63-240	1/8	1/2	1/4	2	\$23.32
63-260	3/16	3/4	1/4	2	\$23.32
63-280	1/4	7/8	1/4	2-1/2	\$23.32
63-285	1/4	1	1/4	2-1/2	\$24.56
63-300	5/16	1-1/8	5/16	3	\$39.28
63-320	3/8	1-1/8	3/8	3	\$39.28
63-360	1/2	1-1/8	1/2	3	\$67.50

CED tolerance +.000 - .004



These single edge spiral tools are designed for routing wood and wood composites where aggressive upward chip removal is necessary in hand-fed or CNC applications. Other tool characteristics include rigidity, long life, and high quality finishes. **Primary Uses:** Wood and wood composites. **Secondary Uses:** Plastics.

Solid Carbide - Single Edge - Up-cut Spiral

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
63-410	4	16	6	64	\$21.99 ★
63-411	5	20	6	64	\$21.99 ★
63-412	6	25	6	64	\$21.99 ★
63-414	8	25	8	64	\$37.95 ★



Metric. These carbide tools were developed to replace high speed steel spirals when the material cut is too abrasive for steel or when the feed rates are too high for steel. They are often used in slotting or blind routing situations. **Primary Uses:** Hardwoods or abrasive composites.

**Solid Carbide - Single Edge
Downcut 'O' Flute**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
62-852	2	8	2	50	\$20.62
62-854	2	8	6	64	\$25.65
62-856	2-1/2	8	2-1/2	50	\$20.62
62-858	2-1/2	8	6	64	\$25.65
62-860	3	8	3	50	\$20.62
62-862	3	8	6	64	\$25.65
62-864	3	12	3	64	\$20.62
62-866	3	12	6	64	\$25.65
62-868	4	8	4	64	\$20.62
62-870	4	12	4	64	\$21.71
62-872	4	20	4	64	\$22.75
62-874	4	20	6	64	\$25.65
62-876	4	30	4	64	\$25.65
62-878	5	16	5	64	\$20.62
62-880	5	16	6	64	\$25.65
62-882	5	30	5	64	\$31.59
62-884	6	8	6	64	\$28.36
62-886	6	12	6	64	\$28.79
62-888	6	20	6	64	\$29.36
62-890	6	30	6	76	\$30.50
62-892	6	38	6	76	\$32.78
62-894	8	25	8	64	\$32.78
62-896	8	38	8	76	\$33.49
62-898	10	30	10	76	\$40.09
62-899	10	35	10	76	\$42.28

CED tolerance +.000 - .004



Metric. These single edge spiral 'O' flute tools provide a smooth finish in hard plastics with downward chip removal. **Primary Uses:** HDPE, HIPS, UHMW, ABS, PE, Polystyrene, Acetal, PET, Acrylic, Polycarbonate.

**Solid Carbide - Single Edge
Up-cut 'O' Flute**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
63-604	1/8	1/4	1/8	1-1/2	\$23.13
63-606	1/8	1/4	1/4	2	\$27.27
63-610	1/8	1/2	1/4	2	\$28.93
63-612	3/16	3/8	3/16	1-1/2	\$26.55
63-614	3/16	3/8	1/4	2	\$28.93
63-618	3/16	5/8	1/4	2	\$30.59
63-620	1/4	3/8	1/4	2	\$28.83
63-622	1/4	3/4	1/4	2-1/2	\$31.30
63-624	1/4	1-1/4	1/4	3	\$45.03
63-626	3/8	1-1/8	3/8	3	\$64.79
63-630	3/16	1-1/8	3/8	3	\$76.19
63-634	21/64	3/4	1/2	3	\$53.96

CED tolerance +.000 - .004



These spiral 'O' flute tools provide premium finishes in aluminum with fast feed rates and excellent chip extraction. **Primary Uses:** Aluminum signs.

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**Solid Carbide - Single Edge
Up-cut 'O' Flute**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
63-700	1/16	1/4	1/4	2	\$22.18
63-701 NEW	1/16	1/4	1/8	2	\$19.90
63-710	1/8	1/4	1/4	2	\$22.18
63-711 NEW	1/8	1/4	1/8	2	\$20.62
63-712	1/8	1/2	1/4	2	\$22.18
63-713 NEW	1/8	1/2	1/8	2	\$19.90
63-715	5/32	9/16	1/4	2	\$21.61
63-716 NEW	3/16	3/8	3/16	2	\$19.90
63-717	3/16	3/8	1/4	2	\$22.18
63-718	3/16	5/8	1/4	2	\$22.18
63-719 NEW	3/16	5/8	3/16	2	\$20.62
63-720	7/32	3/4	1/4	2-1/2	\$21.61
63-724 NEW	1/4	3/8	1/4	2	\$21.14
63-725	1/4	3/4	1/4	2-1/2	\$22.18
63-726	1/4	1-1/4	1/4	3	\$26.22
63-733	3/8	1-1/8	3/8	3	\$38.29

CED tolerance +.000 - .004



These single edge spiral 'O' flute tools provide a smooth finish in hard plastics with upward chip removal. **Primary Uses:** Hard, rigid plastics. **Secondary Uses:** Soft, flexible plastics.

**Solid Carbide - Single Edge
Up-cut 'O' Flute**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
63-750	1/16	1/4	1/4	2	\$22.18
63-751 NEW	1/16	1/4	1/8	2	\$19.90
63-760	1/8	1/4	1/4	2	\$22.18
63-761 NEW	1/8	1/4	1/8	2	\$20.62
63-762	1/8	1/2	1/4	2	\$22.18
63-763 NEW	1/8	1/2	1/8	2	\$19.90
63-766 NEW	3/16	3/8	3/16	2	\$19.90
63-767	3/16	3/8	1/4	2	\$22.18
63-768	3/16	5/8	1/4	2	\$22.18
63-769 NEW	3/16	5/8	3/16	2	\$20.62
63-774 NEW	1/4	3/8	1/4	2	\$21.14
63-775	1/4	3/4	1/4	2-1/2	\$22.18
63-776	1/4	1-1/4	1/4	3	\$26.22
63-783	3/8	1-1/8	3/8	3	\$38.29



These single edge spiral 'O' flute tools provide a smooth finish in soft plastics with upward chip removal. **Primary Uses:** Soft, flexible plastics. **Secondary Uses:** Hard, rigid plastics.

**Solid Carbide - Single Edge
Downcut 'O' Flute**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
62-802	2	8	2	50	\$20.62
62-804	2	8	6	64	\$25.65
62-806	2-1/2	8	2-1/2	50	\$20.62
62-808	2-1/2	8	6	64	\$25.65
62-810	3	8	3	50	\$20.62
62-812	3	8	6	64	\$25.65
62-814	3	12	3	64	\$20.62
62-816	3	12	6	64	\$25.65
62-818	4	8	4	64	\$20.62
62-820	4	12	4	64	\$21.71
62-822	4	20	4	64	\$22.75
62-824	4	20	6	64	\$25.65
62-826	4	30	4	64	\$25.65
62-828	5	16	5	64	\$20.62
62-830	5	16	6	64	\$25.65
62-832	5	30	5	64	\$31.59
62-834	6	8	6	64	\$28.36
62-836	6	12	6	64	\$28.97
62-838	6	20	6	64	\$29.36
62-840	6	30	6	76	\$30.50
62-842	6	38	6	76	\$32.78
62-844	8	25	8	64	\$32.78
62-846	8	38	8	76	\$33.49
62-848	10	30	10	76	\$40.09
62-849	10	35	10	76	\$42.28

CED tolerance +.000 -.004



Metric. These single edge spiral 'O' flute tools provide a smooth finish in hard plastics with downward chip removal. **Primary Uses:** Acrylic, Nylon, PVC and Polycarbonate.

**Solid Carbide - Single Edge
Up-cut 'O' Flute**

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
63-852	2	8	2	50	\$20.62
63-854	2	8	6	64	\$25.65
63-856	2-1/2	8	2-1/2	50	\$20.62
63-858	2-1/2	8	6	64	\$25.65
63-860	3	8	3	50	\$20.62
63-862	3	8	6	64	\$25.65
63-864	3	12	3	64	\$20.62
63-866	3	12	6	64	\$25.65
63-868	4	8	4	64	\$20.62
63-870	4	12	4	64	\$21.71
63-872	4	20	4	64	\$20.14
63-874	4	20	6	64	\$21.71
63-876	4	30	4	64	\$25.65
63-878	5	16	5	64	\$20.62
63-880	5	16	6	64	\$25.65
63-882	5	30	5	64	\$31.59
63-884	6	8	6	64	\$20.71
63-886	6	12	6	64	\$28.79
63-888	6	20	6	64	\$21.71
63-890	6	30	6	76	\$25.65
63-892	6	38	6	76	\$25.98
63-894	8	25	8	64	\$32.78
63-896	8	38	8	76	\$33.49
63-898	10	30	10	76	\$37.48
63-899	10	35	10	76	\$37.81

CED tolerance +.000 -.004



Metric. These single edge spiral 'O' flute tools provide a smooth finish in hard plastics with upward chip removal. **Primary Uses:** HDPE, HIPS, UHMW, ABS, PE, Polystyrene, Acetal, PET, Acrylic and Polycarbonate.

Solid Carbide - Edge Rounding

SINGLE EDGE 'O'

PART#	CED	CEL	SHANK DIAMETER	OAL	RADIUS	PRICE
66-082	1/4	3/4	1/4	2-1/2	1/8	\$37.57
66-083	1/4	3/4	1/4	2-1/2	3/16	\$37.57
66-084	1/4	3/4	1/4	2-1/2	1/4	\$37.57

CED tolerance +.000 - .004

SINGLE EDGE SPIRAL 'O'

PART#	CED	CEL	SHANK DIAMETER	OAL	RADIUS	PRICE
66-085 NEW	1/4	3/8	1/4	2-1/2	1/8	\$38.57
66-086 NEW	1/4	3/8	1/4	2-1/2	3/16	\$38.57
66-087 NEW	1/4	3/8	1/4	2-1/2	1/4	\$38.57

CED tolerance +.000 - .004

DOUBLE EDGE 'O'

PART#	CED	CEL	SHANK DIAMETER	OAL	RADIUS	PRICE
66-074	6mm	10mm	6mm	64mm	4mm	\$40.42
66-076	6mm	10mm	6mm	64mm	6mm	\$40.42
66-092	1/4	1	1/4	2-1/2	1/8	\$41.33
66-093	1/4	1	1/4	2-1/2	3/16	\$41.33
66-094	1/4	1	1/4	2-1/2	1/4	\$41.33

CED tolerance +.000 - .004

DOUBLE EDGE 'V'

PART#	CED	CEL	SHANK DIAMETER	OAL	RADIUS	PRICE
66-120	3/8	3/8	3/8	2-1/2	1/8	\$60.61
66-121	3/8	3/8	3/8	2-1/2	3/16	\$60.61
66-122	3/8	3/8	3/8	2-1/2	1/4	\$60.61
66-123	3/8	1/2	3/8	2-1/2	3/8	\$60.61
66-160	1/2	3/8	1/2	3	1/8	\$86.45
66-161	1/2	3/8	1/2	3	3/16	\$86.45
66-162	1/2	3/8	1/2	3	1/4	\$86.45
66-163	1/2	5/8	1/2	3	1/2	\$86.45

CED tolerance +.000 - .004

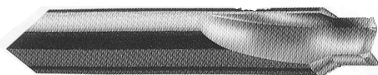


These solid carbide tools were designed for rounding the edge of plastic sheets or parts. They come in both single edge or double edge. **Primary Uses:** Rounding of plastic sheets or parts.

Solid Carbide - Rout and Chamfer

PART#	CED	CEL	SHANK DIAMETER	OAL	MATERIAL THICKNESS	PRICE
66-200	1/4	1/8	3/8	2-1/2	1/8	\$49.07
66-202	3/8	1/8	1/2	3	1/8	\$53.15 ★
66-204	1/4	3/16	3/8	2-1/2	3/16	\$49.07
66-206	3/8	3/16	1/2	3	3/16	\$53.15 ★
66-208	1/4	1/4	3/8	2-1/2	1/4	\$43.23 ★
66-210	3/8	1/4	1/2	3	1/4	\$60.37

CED tolerance +.000 - .004



These solid carbide tools are designed to provide up to a 1/16" top face chamfer and a finished side edge on plastic sheets or parts. **Primary Uses:** Decorative and Specialty.

Solid Carbide - Double Edge Bottom Surfacing

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
66-306	1/8	1/4	1/8	2	\$18.38 ★
66-308	1/8	1/4	1/4	2	\$27.74
66-314	1/4	3/8	1/4	2	\$29.21
66-320	3/8	5/8	3/8	2-1/2	\$43.70
66-326	1/2	7/8	1/2	3	\$68.54

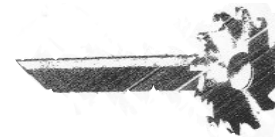
CED tolerance +.000 - .004



These tools were designed for pocketing applications where the bottom of the pocket must be smooth and have radii corners. Particularly useful in soft plastics, acrylic, and aluminum. **Primary Uses:** Decorative and Specialty.

Carbide-Tipped Saw - Flush Mount

PART#	CED	SHANK DIAMETER	OAL	PRICE
70-301	51	12	100	\$135.76
70-303	51	12	100	\$135.76
70-321	51	12	100	\$135.76
70-323	51	12	100	\$135.76
70-341	51	12	100	\$135.76
70-343	51	12	100	\$135.76
70-361	51	12	100	\$135.76
70-363	51	12	100	\$135.76



Metric. These carbide tipped saws are designed for flush trimming and slotting of both hard and soft plastics. Saws are permanently attached to arbors and are not reversible. 0° rack for soft plastics. -5° for hard; 10 teeth are for slow feeds and 16 for fast. All models have triple chip grind and a kerf of 2.4mm, with a 18.8mm collar.

Plastic Drills with Special Point

PART#	CED	CEL	SHANK DIAMETER	OAL	PRICE
70-502	1/8	1-1/2	1/8	2-3/4	\$3.61
70-506	5/32	1-15/16	5/32	3-1/8	\$3.56 ★
70-510	3/16	2-1/8	3/16	3-1/2	\$4.04 ★
70-514	1/4	2-7/16	1/4	4	\$5.18
70-520*	5/16	1-3/4	1/4	3-1/8	\$7.03
70-524*	3/8	2-1/4	1/4	4-3/8	\$9.17
70-528*	7/16	2-1/2	1/4	4-3/4	\$11.50
70-532*	1/2	2-5/8	1/4	5-1/8	\$13.82

* Shank Length 7/8"



Special tool steel, surface treated body, flute and point for max. lubrication. Point is precision ground for 60° angle for gradual penetration to minimize cracking and chipping of plastic materials. 0° rake angle on the cutting edge eliminates grabbing as the drill comes through the plastic surface.

Carbide-Tipped Saws

SOFT PLASTIC - SLOW FEED

PART#	CED	TEETH	RAKE	KERF	GRIND	PRICE
70-100	2	10	0°	.095	TCG	\$98.66
70-102	2-1/2	10	0°	.095	TCG	\$98.66
70-104	3	10	0°	.095	TCG	\$98.66
70-106	3-1/2	10	0°	.095	TCG	\$94.81 ★
70-108	4	10	0°	.095	TCG	\$98.66

SOFT PLASTIC - FAST FEED

PART#	CED	TEETH	RAKE	KERF	GRIND	PRICE
70-120	2	20	0°	.095	TCG	\$108.54 ★
70-122	2-1/2	20	0°	.095	TCG	\$108.54 ★
70-124	3	20	0°	.095	TCG	\$108.54 ★
70-126	3-1/2	20	0°	.095	TCG	\$108.54 ★
70-128	4	20	0°	.095	TCG	\$108.54 ★

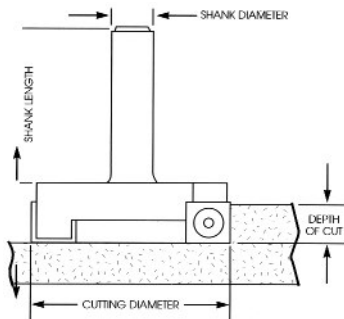
HARD PLASTIC - SLOW FEED

PART#	CED	TEETH	RAKE	KERF	GRIND	PRICE
70-140	2	10	-5°	.095	TCG	\$94.81 ★
70-142	2-1/2	10	-5°	.095	TCG	\$94.81 ★
70-144	3	10	-5°	.095	TCG	\$94.81 ★
70-146	3-1/2	10	-5°	.095	TCG	\$94.81 ★
70-148	4	10	-5°	.095	TCG	\$94.81 ★

HARD PLASTIC - FAST FEED

PART#	CED	TEETH	RAKE	KERF	GRIND	PRICE
70-160	2	20	-5°	.095	TCG	\$108.54
70-162	2-1/2	20	-5°	.095	TCG	\$108.54
70-164	3	20	-5°	.095	TCG	\$108.54
70-166	3-1/2	20	-5°	.095	TCG	\$108.54
70-168	4	20	-5°	.095	TCG	\$108.54

These carbide tipped saws are designed to trim and groove both hard and soft plastics. These saws run in conjunction with the saw arbors.



Saw Arbors

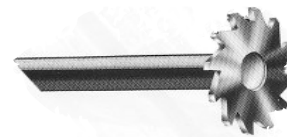
PART#	SHANK DIAMETER	OAL	PRICE
70-180	1/2	3-1/4	\$100.46
70-181	1/2	4-1/4	\$110.72
70-182	5/8	3-1/4	\$96.57 ★
70-184	3/4	3-1/4	\$96.57 ★
70-190	12mm	88mm	\$103.55
70-192	16mm	88mm	\$103.55

Saw arbors are designed to hold the carbide-tipped blades in place.

Carbide-Tipped Saw - Flush Mount

PART#	CED	COLLAR	SHANK DIA.	KERF	OAL	ROTATION	PRICE
70-204	1	9/16	1/2	.062	4	Right Hand	\$88.92
70-224	1-1/4	5/8	1/2	.062	4	Right Hand	\$110.25

CED tolerance +.000 - .004



These small diameter solid carbide arbor mounted saws are designed for trimming and slotting plastics. Saws are permanently attached to arbors and are not reversible.

Spoilboard - Surfacing Cutters

PART#	CUTTING DIA.	SHANK DIA.	SHANK LENGTH	MAX DEPTH	WINGS	CUTTING FACE	PRICE
91-102	2-1/2	1/2	2	1/2	2	Straight	\$338.20
91-104	2-1/2	1/2	2	1/2	2	Up-Shear	\$393.40
91-106	4	3/4	2-1/4	1/2	3	Straight	\$374.02
91-108	4	3/4	2-1/4	1/2	3	Up-Shear	\$440.90

Replacement Parts

PART#	DESCRIPTION	PRICE
91-125	Inserts (10 per pack)	\$44.37
91-130	Screw M4 (Old Version)	\$3.09
91-133	Screw M5	\$3.09

These Spoilboard Surfacing Cutters are used for surfacing both MDF, Particleboard, and Balsa Core where "Flow Through" or "High Flow" Cutting is employed using large capacity vacuum pumps. This method of surfacing Spoilboards allows for much faster table planing with the larger diameters offered. The replaceable inserts allow new edges to be "rotated" into use.

Carbide-Tipped Saw - Flush Mount

PART#	CED	TEETH	RAKE	SHANK DIA.	KERF	OAL	GRIND	ROTATION	PLASTIC	FEED RATE	PRICE
70-300	2	10	0°	1/2	.095	4	TCG	RH	Soft	Slow	\$139.03
70-302	2	10	0°	1/2	.095	4	TCG	LH	Soft	Slow	\$139.03
70-320	2	16	0°	1/2	.095	4	TCG	RH	Soft	Fast	\$139.03
70-322	2	16	0°	1/2	.095	4	TCG	LH	Soft	Fast	\$139.03
70-340	2	10	-5°	1/2	.095	4	TCG	RH	Hard	Slow	\$139.03
70-342	2	10	-5°	1/2	.095	4	TCG	LH	Hard	Slow	\$139.03
70-360	2	16	-5°	1/2	.095	4	TCG	RH	Hard	Fast	\$139.03
70-362	2	16	-5°	1/2	.095	4	TCG	LH	Hard	Fast	\$139.03

CED tolerance +.000 - .004

Designed for flush trimming and slotting of both hard and soft plastics. Saws are permanently attached to arbors and are not reversible.

