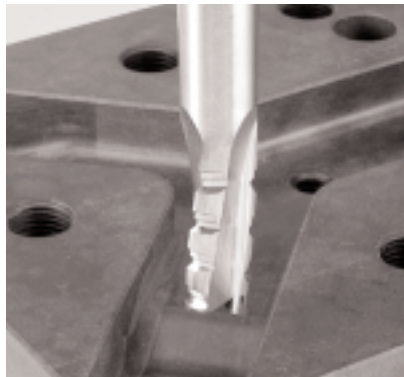


THINK MECHANICAL

MILLING AND ROUTING TOOLS FOR MECHANICAL PLASTICS

(ABS, Acetal, Delrin, Delrin II, Hydrex, UHMW, PEEK, Nylon, Cast Nylon, Polycarbonate, Polyurethane, Polyester, PTFE, Polyetherimide, Acrylic, PET)

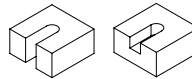


- Tooling developed specifically for milling plastics
- Output increases of 40 to 50% possible with recommended chiploads located at www.onsrud.com/MechanicalPlasticChipload.html
- Open flute design evacuates chips effectively and eliminates rewelding
- Design allows for roughing and finishing with one tool
- Deburring eliminated as a result of finer surface finishes

52-000 | Double Edge - Solid Carbide Upcut Spiral



Designed as a general purpose spiral with several times the life of their high speed steel counterparts. They are used when upward chip flow is preferred.

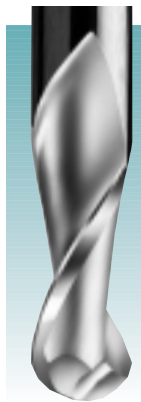


PART #	CED	CEL	SHK DIA	OAL
52-040	1/8	1/2	1/4	2
52-050	5/32	9/16	1/4	2
52-060	3/16	5/8	1/4	2
52-060L	3/16	5/8	1/4	2
52-070	7/32	5/8	1/4	2 1/2
52-080	1/4	3/4	1/4	2 1/2
52-080L	1/4	3/4	1/4	2 1/2
52-090	9/32	3/4	3/8	2 1/2
52-100	5/16	13/16	3/8	2 1/2
52-120	3/8	7/8	3/8	2 1/2
52-140	7/16	1	1/2	3
52-160	1/2	1	1/2	3

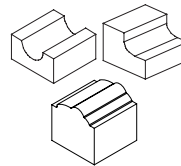
HELIX ANGLE = 30°

L=Left Hand Rotation

52-200B/BL | Double Edge - Solid Carbide Upcut Spiral



Designed for carving and modeling operations. Their improved tip geometry gives a superior cut compared to most ballnose endmills.



PART #	CED	CEL	SHK DIA	OAL
52-235B	1/16	1/4	1/8	2
52-244B	1/8	1/2	1/8	2
52-240B	1/8	1/2	1/4	2
52-260B	3/16	3/4	1/4	2
52-280B	1/4	7/8	1/4	2 1/2
52-320B	3/8	1 1/8	3/8	3
52-360B	1/2	1 1/8	1/2	3
52-386B	5/8	2 1/4	5/8	4
52-397B	3/4	2 1/2	3/4	5

EXTENDED LENGTH

52-235BL	1/16	1/4	1/8	3
52-244BL	1/8	1/2	1/8	3
52-240BL	1/8	1/2	1/4	3
52-260BL	3/16	3/4	1/4	3
52-280BL	1/4	1	1/4	4
52-320BL	3/8	1 1/4	3/8	4
52-360BL	1/2	1 1/2	1/2	5
52-386BL	5/8	2 1/2	5/8	5
52-397BL	3/4	3	3/4	6

HELIX ANGLE = 30°

THINK ONSRUD

12/04

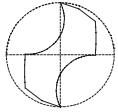


Leitz Metalworking Technology Group

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Fax 847.362.5028
www.onsrud.com
www.plasticrouting.com

52-600

Double Edge - Solid Carbide Upcut Spiral O Flute



Low helix geometry designed to cut soft and hard plastic with a smooth finish and upward chip flow.



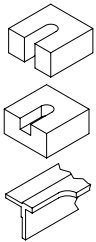
PART #	CED	CEL	SHK DIA	OAL
52-622	1/4	3/8	1/4	2 1/2
52-624	1/4	3/4	1/4	2 1/2
52-638	3/8	1	3/8	3
52-650	1/2	1 1/8	1/2	3 1/2
52-652	1/2	1 5/8	1/2	3 1/2
52-655	1/2	2 1/8	1/2	4 1/2
52-660	5/8	2 1/8	5/8	5
52-664	3/4	3 1/8	3/4	6

METRIC

52-626	6mm	25mm	6mm	64mm
52-640	8mm	25mm	8mm	76mm
52-642	10mm	25mm	10mm	76mm
52-644	12mm	35mm	12mm	88mm

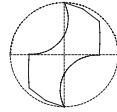
HELIX ANGLE ≈ 11°

▶ **NEW TOOLS** in BOLD



52-700

Double Edge - Solid Carbide Upcut Spiral O Flute



High helix geometry designed to cut soft plastic with a smooth finish and upward chip flow. Special point geometry for improved bottom finish.

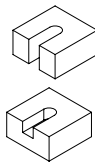


PART #	CED	CEL	SHK DIA	OAL
52-700	1/4	1 1/4	1/4	3
52-701	3/8	1 1/2	3/8	4
52-702	1/2	1 1/4	1/2	4
52-704	1/2	1 3/4	1/2	4
52-706	1/2	2 1/8	1/2	4
52-712	5/8	1 3/4	5/8	5
52-714	5/8	2 1/4	5/8	5
52-724	3/4	2 1/2	3/4	5

METRIC

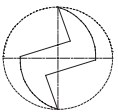
52-742	12mm	35mm	12mm	100mm
52-744	12mm	45mm	12mm	100mm
52-746	12mm	55mm	12mm	100mm
52-752	16mm	45mm	16mm	120mm
52-754	16mm	55mm	16mm	120mm
52-764	20mm	65mm	20mm	125mm

HELIX ANGLE ≈ 22°



56-000P

Double Edge - Solid Carbide Straight



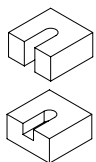
Designed specifically to rout harder, more rigid plastics.



PART #	CED	CEL	SHK DIA	OAL
56-041	1/8	1/4	1/4	2
56-061	3/16	3/8	1/4	2
56-062	3/16	5/8	1/4	2
56-062L	3/16	5/8	1/4	2
56-063*	3/16	5/8	1/4	4
56-081	1/4	3/8	1/4	2 1/2
56-082	1/4	3/4	1/4	2 1/2
56-082L	1/4	3/4	1/4	2 1/2
56-086*	1/4	1 1/4	1/4	4
56-121	3/8	5/8	3/8	2 1/2
56-122	3/8	7/8	3/8	2 1/2
56-122L	3/8	7/8	3/8	2 1/2
56-124*	3/8	1 5/8	3/8	6
56-162	1/2	1	1/2	3
56-162L	1/2	1	1/2	3
56-164*	1/2	2 1/8	1/2	6

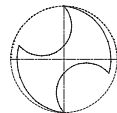
L = Left Hand Rotation

* These tools are designed and toleranced for Air Routers with guide

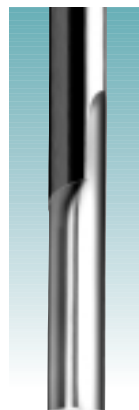


56-600

Double Edge - Solid Carbide O Flute Straight

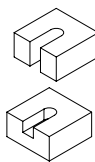


Designed with free cutting O flute geometry along with a double flute design for smooth finish.



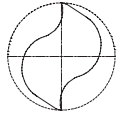
PART #	CED	CEL	SHK DIA	OAL
52-700	1/4	1 1/4	1/4	3
56-610	1/8	5/16	1/4	2
56-612	1/8	1/2	1/4	2
56-614	1/8	5/8	1/4	4
56-616	3/16	3/8	1/4	2
56-618	3/16	5/8	1/4	2
56-620	3/16	1	1/4	4
56-624	1/4	3/8	1/4	2 1/2
56-625	1/4	1	1/4	2 1/2
56-625L	1/4	1	1/4	2 1/2
56-626	1/4	1	1/4	3 1/4
56-628	1/4	1 1/4	1/4	4
56-638	3/8	7/8	3/8	2 1/2
56-639	3/8	1	3/8	4
56-650	1/2	1	1/2	3
56-652	1/2	1	1/2	4
56-654	1/2	1 3/4	1/2	4
56-655	1/2	2 1/8	1/2	6

L = Left Hand Rotation



57-000

Double Edge - Solid Carbide Downcut Spiral



Designed as a general purpose spiral with several times the life of their high speed counterparts. They are used when a downward chipflow action is preferred.

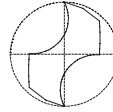
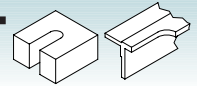


PART #	CED	CEL	SHK DIA	OAL
57-040	1/8	1/2	1/4	2
57-050	5/32	9/16	1/4	2
57-060	3/16	5/8	1/4	2
57-070	7/32	5/8	1/4	2 1/2
57-080	1/4	3/4	1/4	2 1/2
57-090	9/32	3/4	3/8	2 1/2
57-100	5/16	13/16	3/8	2 1/2
57-120	3/8	7/8	3/8	2 1/2
57-140	7/16	1	1/2	3
57-160	1/2	1	1/2	3

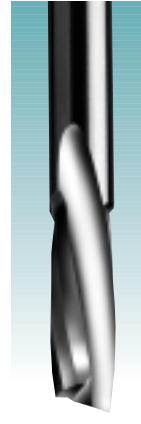
HELIX ANGLE ≈ 30°

57-600

Double Edge - Solid Carbide Downcut Spiral O Flute



Designed to cut plastic with a smooth finish and downward chip flow.



PART #	CED	CEL	SHK DIA	OAL
57-623	1/4	3/8	1/4	2 1/2
57-625	1/4	3/4	1/4	2 1/2
57-637	3/8	1	3/8	3
57-651	1/2	1 1/8	1/2	3 1/2

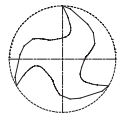
METRIC

57-627	6mm	25mm	6mm	64mm
57-639	8mm	25mm	8mm	76mm
57-643	10mm	25mm	10mm	76mm
57-645	12mm	35mm	12mm	88mm

HELIX ANGLE = 22°

60-200

Three Edge - Solid Carbide Low Helix Finisher



Designed for perfect balance and ultra smooth finish over a wide speed range.



UPCUT

PART #	CED	CEL	SHK DIA	OAL
60-239	1/4	3/8	1/4	3
60-241	1/4	7/8	1/4	3
60-243	3/8	5/8	3/8	3
60-245	3/8	1 1/8	3/8	3
60-249	1/2	1 1/8	1/2	3 1/2
60-253	1/2	1 5/8	1/2	4
60-251	1/2	2 1/8	1/2	4 1/2
60-269	3/4	1 5/8	3/4	4
60-271	3/4	2 1/8	3/4	5
60-277	3/4	3 1/8	3/4	6

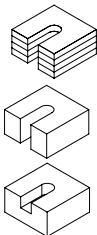
HELIX ANGLE = 11°

DOWNCUT

PART #	CED	CEL	SHK DIA	OAL
60-240	1/4	3/8	1/4	3
60-242	1/4	7/8	1/4	3
60-244	3/8	5/8	3/8	3
60-246	3/8	1 1/8	3/8	3
60-250	1/2	1 1/8	1/2	3 1/2
60-254	1/2	1 5/8	1/2	4
60-252	1/2	2 1/8	1/2	4 1/2
60-270	3/4	1 5/8	3/4	4
60-272	3/4	2 1/8	3/4	5
60-278	3/4	3 1/8	3/4	6

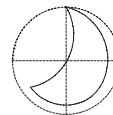
HELIX ANGLE ≈ 11°

▶ **NEW TOOLS** in BOLD

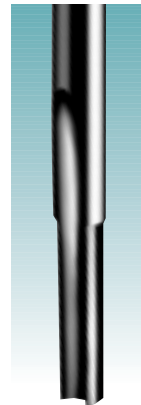


61-000P

Single Edge - Solid Carbide Straight



Designed to combine the fast free cutting of O flute geometry with the tool life available from solid carbide particularly in small diameters.



PART #	CED	CEL	SHK DIA	OAL
61-041	1/8	5/16	1/4	2
61-044	1/8	1/2	1/8	2
61-042	1/8	1/2	1/4	2
61-042L	1/8	1/2	1/4	2
61-045	1/8	5/8	1/8	3
61-043	1/8	5/8	1/4	4
61-052	5/32	9/16	1/4	2
61-061	3/16	3/8	1/4	2
61-064	3/16	5/8	3/16	2 1/2
61-062	3/16	5/8	1/4	2
61-062L	3/16	5/8	1/4	2
61-063*	3/16	1	1/4	4
61-072	7/32	5/8	1/4	2 1/2
61-081	1/4	3/8	1/4	2 1/2
61-082	1/4	3/4	1/4	2 1/2
61-082L	1/4	3/4	1/4	2 1/2
61-083*	1/4	3/4	1/4	3 1/4
61-083L*	1/4	3/4	1/4	3 1/4
61-085*	1/4	1	1/4	3 1/4
61-084*	1/4	1 1/4	1/4	4
61-121	3/8	5/8	3/8	2 1/2
61-122	3/8	7/8	3/8	2 1/2
61-123*	3/8	1 5/8	3/8	6
61-162	1/2	1	1/2	3
61-164	1/2	1 5/8	1/2	4
61-166	1/2	2 1/8	1/2	6

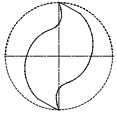
* These tools are designed and tolerated for air routers with guide bushings. L= left hand rotation

66-300

Double Edge - Solid Carbide



66-350



Designed for pocketing applications where the bottom of the pocket must be smooth.

PART #	CED	CORNER RAD	CEL	SHK DIA	OAL
66-306	1/8	.020	1/4	1/8	2
66-307	1/8	.002	1/4	1/8	2
66-308	1/8	.020	1/4	1/4	2
66-309	1/8	.002	1/4	1/4	2
66-314	1/4	.030	3/8	1/4	2
66-315	1/4	.002	3/8	1/4	2
66-320	3/8	.030	5/8	3/8	2 1/2
66-321	3/8	.002	5/8	3/8	2 1/2
66-326	1/2	.030	7/8	1/2	3
66-327	1/2	.002	7/8	1/2	3
66-328	3/4	.040	1 1/8	3/4	4

METRIC

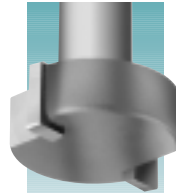
66-356	3mm	1mm	6mm	3mm	40mm
66-358	3mm	1mm	6mm	6mm	51mm
66-364	6mm	1.25mm	10mm	6mm	51mm
66-370	8mm	1.25mm	12mm	8mm	64mm
66-376	12mm	1.25mm	20mm	12mm	76mm

HELIX ANGLE ≈ 30°

▶ **NEW TOOLS** in BOLD

90-000 91-000

Spoilboard Surfacing Cutters



Carbide Tipped



Insert Style

Designed for surfacing MDF, particleboard and balsa core where "flow through" or "high flow" fixturing is employed using large capacity vacuum pumps. This method of surfacing spoilboards allows for much faster table planing.

STRAIGHT

PART #	CED	SHK DIA	SHK LGTH	# OF WINGS
91-000*	1/4	1/2	1 1/2	2

* = Carbide Tipped

UP-SHEAR

PART #	CED	SHK DIA	SHK LGTH	# OF WINGS
90-014	4	3/4	2 1/4	3

These tools are dynamically balanced and approved for use on CNC routers. Max RPM 18,000 1/8" Depth of cut MAX.

* DOC = Maximum Depth of Cut Proper running speed for

Spoilboard Surfaces: 2 1/2" diameter tools should be fed at 200-600 IPM at 12,000-16,000 RPM. 4" diameter tools should be fed at 200-600 IPM at 12,000-14,000 RPM.

* Do Not Exceed 1/8" Depth Per Pass

PART #	DESCRIPTION
90-056	Radius Insert 10/pk
90-102	Screws
90-104	Wrench

82-100 | Insert Milling Cutters

Designed for smooth finishes over a wide range of materials.



DOUBLE EDGE END MILL

PART #	CED	CEL	ERL	SHK DIA	OAL	INSERT	SCREW	WRENCH
82-104*	1	.530	2	1	4 1/4	82-016	82-052	82-055
82-106*	1 1/4	.530	2	1 1/4	4 1/4	82-016	82-052	82-055
82-105	1	.530	2	3/4	8	82-016	82-052	82-055
82-107	1 1/4	.530	2	1	8	82-016	82-052	82-055

* Supplied with Weldon Flats on the shank

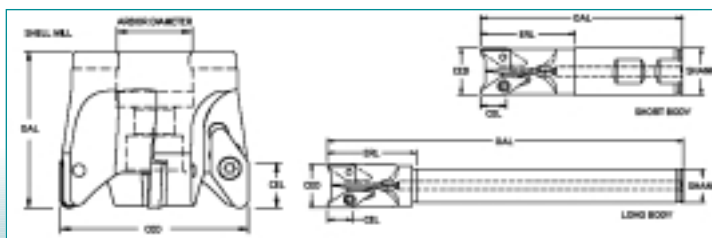
THREE EDGE END MILL

PART #	CED	CEL	ERL	SHK DIA	OAL	INSERT	SCREW	WRENCH
82-108*	1 1/2	.530	2	1 1/4	4 7/8	82-016	82-052	82-055
82-109	1 1/2	.530	2	1 1/4	8	82-016	82-052	82-055

* Supplied with Weldon Flats on the shank

SHELL MILL

PART #	CED	CEL	ARBOR DIA	OAL	FLUTES	INSERT	SCREW	WRENCH
82-120	2	.590	3/4	2 1/8	4	82-016	82-052	82-055
82-122	2 1/2	.590	1	2 1/8	4	82-022	82-054	82-055
82-124	3	.590	1	2 1/8	5	82-022	82-054	82-055



METRIC TOOLS:

56-430, 56-450, 61-400 SERIES
TO VIEW METRIC TOOLS VISIT
WWW.ONSRUD.COM