



Countersinks



Including
Uniflute®

The original
single flute
countersink

 Designed
and
Manufactured
in the USA



M.A. FORD
High Performance Cutting Tools

Countersinks



 Designed
and
Manufactured
in the USA

 **M.A. FORD**
High Performance Cutting Tools

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All M.A. Ford® products are manufactured in dedicated cells that combine the latest production technology with experienced machinists and operators. Our Countersink Teams apply decades of experience to making our famous Uniflute® Countersink, as well as our complete family of 2, 3, and 6 flute countersinks.

Countersinks

For Machine or Hand Countersinking

The Original Countersink from M.A. Ford®

M.A. Ford® provides one of the most complete lines of high-speed steel and carbide countersinks. Tools are available in a variety of flute designs for countersinking virtually any material by machine or by hand.

Heat Treated Countersinks Deliver Increased Productivity and Tool Life

All M.A. Ford® HSS countersinks are heat treated in an electronically controlled vacuum furnace. This assures precise hardening and eliminates the possibility of decarburization. All heat treating is done in our own facilities for maximum control and assurance of desired hardness and toughness.

Most M.A. Ford® HSS countersinks receive an additional heat treat process known as the Steam Homogeneous Process. This process is like a final tempering, relieving internal grinding stresses. The result is a much tougher cutting edge that stays sharper, longer. Additionally, the Steam Homogeneous Process provides a tough, hard, porous oxide film on the tool that is sufficient enough to retain cutting oil, further reducing frictional heat and extending tool life.



NEW Coated Countersinks



See pages 3-4 and 9-10 for coated countersinks

Coating Properties

	TiN	ALtima® Blaze
Micro Hardness (HV)	2300	3200
Max. Working Temperature	600°C 1112°F	1100°C 2012°F
Color	Gold	Blue Gray

ALtima® Blaze

features high temperature hardness and oxidation resistance that provides extreme wear resistance under all machining conditions.

TiN

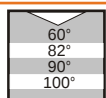
provides a higher surface hardness and increased lubricity over an uncoated tool.

Factory Regrinding Service Available.
Call Customer Service for Details.

Uniflute® Series 60

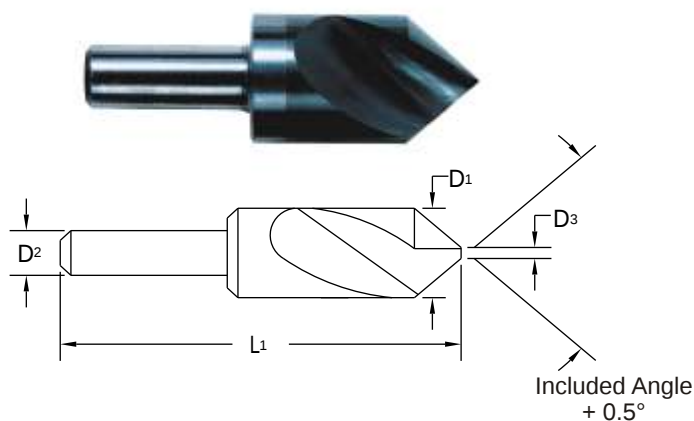
C

Z=1



Recommended for use on abrasive, non-metallic and non-ferrous materials.

- Easily resharpened.
- Can be used on hardened steel and work hardening alloys.
- Rigid set-ups and good machinery maintenance are a must.
- Not recommended for use in hand-held tools.



60°		82°		90°		100°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
60012501	60001	60012502	60006	60012503	60011	60012504	60016	1/8	1/8	.030*	1-1/2
60018701	60021	60018702	60026	60018703	60031	60018704	60036	3/16	3/16	.045	1-1/2
60025001	60041	60025002	60046	60025003	60051	60025004	60056	1/4	1/4	.045	2
60037501	60061	60037502	60066	60037503	60071	60037504	60076	3/8	1/4	.060	2
60050001	60081	60050002	60086	60050003	60091	60050004	60096	1/2	1/4	.060	2-3/8
60075001	60101	60075002	60106	60075003	60111	60075004	60116	3/4	1/2	.120	3
60100001	60121	60100002	60126	60100003	60131	60100004	60136	1	1/2	.120	3

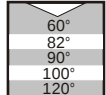
*60° - .015 max.

Standard angles may be modified from 55° to 120°.

HSS Uniflute® Series 61

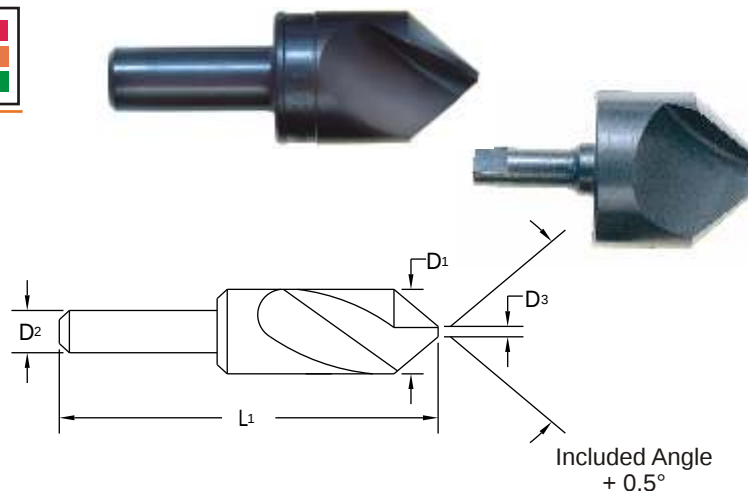
HSS

Z=1



This is the original single flute countersink designed for general purpose countersinking, chamfering or deburring.

- Self piloting and completely chatterless.
- No secondary burrs formed.
- Each size may be used on a wide range of hole diameters.
- Use on machine tool or in hand-held tool applications.
- Easily resharpened.
- Steam homogeneous surface treatment (blackening) to prolong tool life and prevent galling.



60°		82°		90°		100°		120°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
61012501	61001	61012502	61006	61012503	61011	61012504	61016	61012506	61021	1/8	1/8	.030	1-1/2
61018701	61026	61018702	61031	61018703	61036	61018704	61041	61018706	61046	3/16	3/16	.045	1-1/2
61025001	61051	61025002	61056	61025003	61061	61025004	61066	61025006	61071	1/4	1/4	.045	2
61037501	61076	61037502	61081	61037503	61086	61037504	61091	61037506	61096	3/8	1/4	.060	2
61050001	61101	61050002	61106	61050003	61111	61050004	61116	61050006	61121	1/2	1/4	.060	2
61062501	61126	61062502	61131	61062503	61136	61062504	61141	61062506	61146	5/8	1/4	.060	2-1/4
61075001	61151	61075002	61156	61075003	61161	61075004	61166	61075006	61171	3/4	1/2	.120	2-3/4
61100001	61176	61100002	61181	61100003	61186	61100004	61191	61100006	61196	1	1/2	.120	2-3/4
61125001	61201	61125002	61206	61125003	61211					1-1/4	1/2*	.120	3
61150001	61216	61150002	61221	61150003	61226					1-1/2	3/4*	.250	3-1/2
61200001	61231	61200002	61236	61200003	61241					2	3/4*	.500	3-3/4
61250001	61246	61250002	61251	61250003	61256					2-1/2	3/4*	.750	5
61300001	61261	61300002	61266	61300003	61271					3	3/4*	1.000	5-1/4

*Straight shank with tang drive.

Standard angles may be modified from 55° to 119°.

Countersinks

HSS Uniflute®
Series 61B

HSS

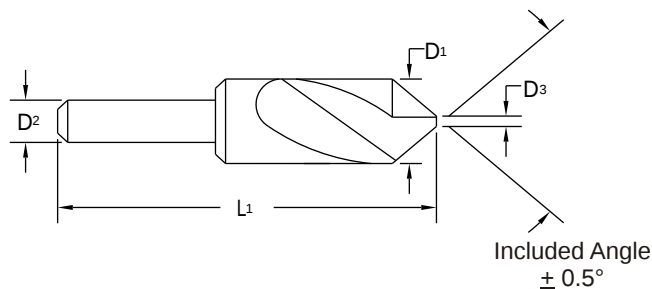


Z=1



This is the original single flute countersink designed for general purpose countersinking, chamfering or deburring.

- Self piloting and completely chatterless.
- No secondary burs formed.
- Each size may be used on a wide range of hole diameters.
- Use on machine tool or in hand-held tool applications.
- Easily resharpened.
- ALtima® Blaze for extreme wear resistance under all machining conditions.



60°		82°		90°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
61B012501	61003	61B012502	61008	61B012503	61013	1/8	1/8	.030	1-1/2
61B018701	61028	61B018702	61033	61B018703	61038	3/16	3/16	.045	1-1/2
61B025001	61053	61B025002	61058	61B025003	61063	1/4	1/4	.045	2
61B037501	61078	61B037502	61083	61B037503	61088	3/8	1/4	.060	2
61B050001	61103	61B050002	61108	61B050003	61113	1/2	1/4	.060	2
61B062501	61128	61B062502	61133	61B062503	61138	5/8	1/4	.060	2-1/4
61B075001	61153	61B075002	61158	61B075003	61163	3/4	1/2	.120	2-3/4
61B100001	61178	61B100002	61183	61B100003	61188	1	1/2	.120	2-3/4

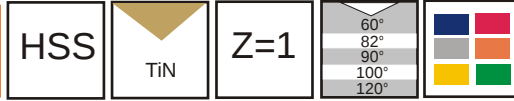
100°		120°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
61B012504	61018	61B012506	61023	1/8	1/8	.030	1-1/2
61B018704	61043	61B018706	61048	3/16	3/16	.045	1-1/2
61B025004	61068	61B025006	61073	1/4	1/4	.045	2
61B037504	61093	61B037506	61098	3/8	1/4	.060	2
61B050004	61118	61B050006	61123	1/2	1/4	.060	2
61B062504	61143	61B062506	61148	5/8	1/4	.060	2-1/4
61B075004	61168	61B075006	61173	3/4	1/2	.120	2-3/4
61B100004	61193	61B100006	61198	1	1/2	.120	2-3/4

Angles modified from 55° to 119° available as a special.
Contact customer service for details.

Coating Properties

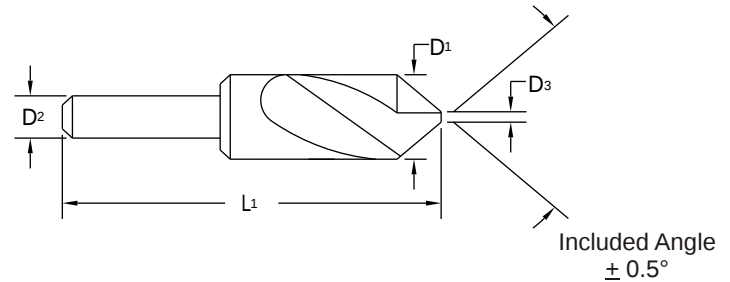
	TiN	ALtima® Blaze
Micro Hardness (HV)	2300	3200
Max. Working Temperature	600°C 1112°F	1100°C 2012°F
Color	Gold	Blue Gray

HSS Uniflute® Series 61T



This is the original single flute countersink designed for general purpose countersinking, chamfering or deburring.

- Self piloting and completely chatterless.
- No secondary burs formed.
- Each size may be used on a wide range of hole diameters.
- Use on machine tool or in hand-held tool applications.
- Easily resharpened.
- TiN coating for higher surface hardness and increased lubricity.



60°		82°		90°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
61T012501	61002	61T012502	61007	61T012503	61012	1/8	1/8	.030	1-1/2
61T018701	61027	61T018702	61032	61T018703	61037	3/16	3/16	.045	1-1/2
61T025001	61052	61T025002	61057	61T025003	61062	1/4	1/4	.045	2
61T037501	61077	61T037502	61082	61T037503	61087	3/8	1/4	.060	2
61T050001	61102	61T050002	61107	61T050003	61112	1/2	1/4	.060	2
61T062501	61127	61T062502	61132	61T062503	61137	5/8	1/4	.060	2-1/4
61T075001	61152	61T075002	61157	61T075003	61162	3/4	1/2	.120	2-3/4
61T100001	61177	61T100002	61182	61T100003	61187	1	1/2	.120	2-3/4

100°		120°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
61T012504	61017	61T012506	61022	1/8	1/8	.030	1-1/2
61T018704	61042	61T018706	61047	3/16	3/16	.045	1-1/2
61T025004	61067	61T025006	61072	1/4	1/4	.045	2
61T037504	61092	61T037506	61097	3/8	1/4	.060	2
61T050004	61117	61T050006	61122	1/2	1/4	.060	2
61T062504	61142	61T062506	61147	5/8	1/4	.060	2-1/4
61T075004	61167	61T075006	61172	3/4	1/2	.120	2-3/4
61T100004	61192	61T100006	61197	1	1/2	.120	2-3/4

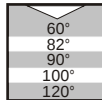
Modified angles from 55° to 119° available as a special.
Contact customer service for details.

Countersinks

Uniflute® Series 61 Sets

HSS

Z=1



Set of four Series 61 Uniflute® countersinks includes 1/4", 1/2", 3/4" and 1" diameter tools. Sets are available with 60°, 82°, 90°, 100° or 120° included angles. Tools are packaged in plastic cases.

Set of seven Series 61 Uniflute® countersinks includes 3/16", 1/4", 3/8", 1/2", 5/8", 3/4" and 1" diameter tools. Sets are available with 60°, 82°, 90°, 100° or 120° included angles. Tools are packaged in plastic cases.

4 Piece Set No.	EDP	Included Angle
64100001	64001	60°
64100002	64006	82°
64100003	64011	90°
64100004	64016	100°
64100006	64021	120°

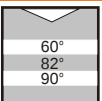


7 Piece Set No.	EDP	Included Angle
64100071	64003	60°
64100072	64008	82°
64100073	64013	90°
64100074	64018	100°
64100076	64023	120°

Uniflute® Series 62

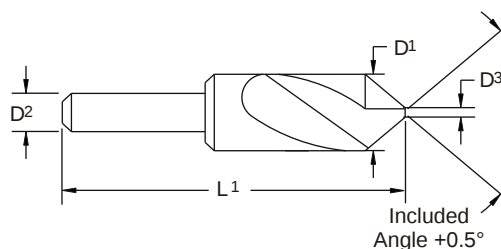
HI Alloy
HSS

Z=1



Manufactured from a high alloy steel for machining stainless steel and high temperature alloys.

- Fewer tool changes on long run production jobs.
- Easily resharpened.
- Steam homogeneous surface treatment (blackening) to prolong tool life and prevent galling.



60°		82°		90°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
62025001	62001	62025002	62006	62025003	62011	1/4	1/4	.045	2
62050001	62016	62050002	62021	62050003	62026	1/2	1/4	.060	2
62075001	62031	62075002	62036	62075003	62041	3/4	1/2	.120	2-3/4
62100001	62046	62100002	62051	62100003	62056	1	1/2	.120	2-3/4

Standard angles may be modified from 55° to 120°.

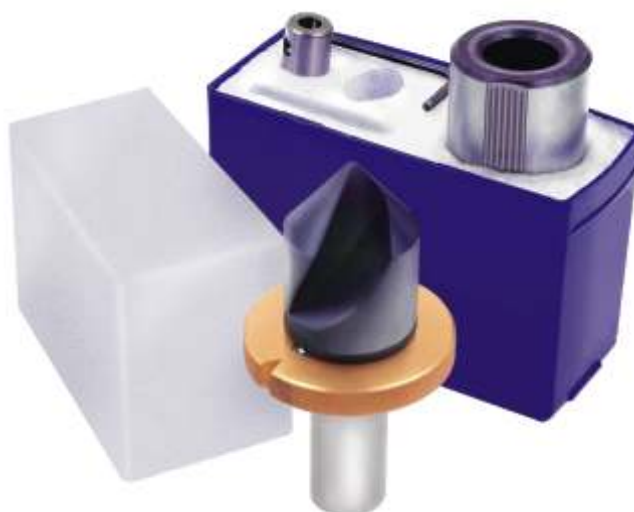
Factory Regrinding Service Available.
Call Customer Service for Details.

Unicam Series 65

Resharpener Fixture

The Unicam Resharpener Fixture is designed to resharpen Uniflute® countersinks. The unique cam relief is quickly and easily reground on dull tools, greatly extending tool life.

- Can be used on a tool and cutter grinder, surface grinder or a pedestal grinder.
- Resharpens tools with 1/4", 1/2" or 3/4" shanks.
- Packaged in plastic case.
- Includes detailed instructions on set-up and operation.
- Not recommended for 2-1/2" or 3" tools.

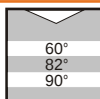


Unicam Resharpener Fixture	
Tool No.	EDP
65000000	65001

Tri-flute Series 66

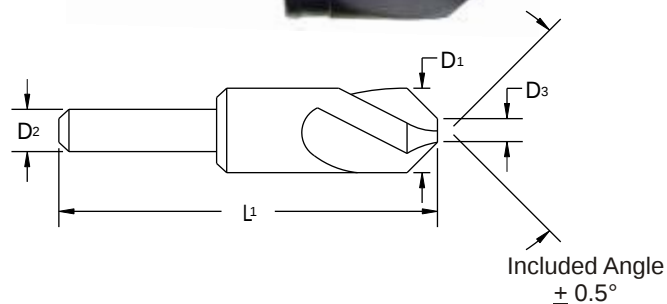
HSS

Z=3



Designed for general purpose machining at higher feed rates than are possible with the Uniflute® design.

- Cam relief geometry allows machining at greater feed rates.
- Steam homogeneous surface treatment (blackening) to prolong tool life and prevent galling.



60°		82°		90°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
66025001	66001	66025002	66006	66025003	66011	1/4	1/4	0.06	2
66037501	66016	66037502	66021	66037503	66026	3/8	1/4	0.09	2
66050001	66031	66050002	66036	66050003	66041	1/2	1/4	0.15	2
66062501	66046	66062502	66051	66062503	66056	5/8	1/4	0.18	2-1/4
66075001	66061	66075002	66066	66075003	66071	3/4	1/2	0.21	2-3/4
66100001	66076	66100002	66081	66100003	66086	1	1/2	0.25	2-3/4
66125001	66091	66125002	66096	66125003	66101	1-1/4	1/2*	0.37	3
66150001	66106	66150002	66111	66150003	66116	1-1/2	3/4*	0.50	3-1/2

*Straight Shank with tang drive.
Standard angles may be modified from 55° to 120°.

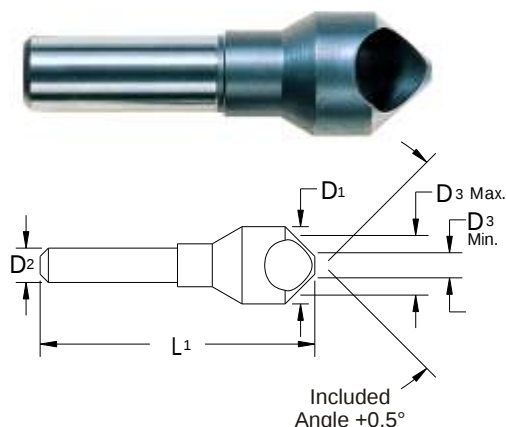
Countersinks

Single Cutting Edge Series 67



Designed for general purpose countersinking, chamfering or deburring.

- Efficient stock removal, chatter-free finish.
- 3/16" and 1/4" tools are double ended.
- Bright finish helps reduce chip build-up on cutting edge.

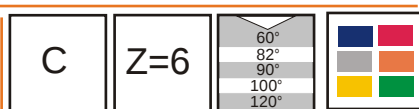


60°		82°		90°		100°		Diameter	Shank	Non-Cutting OD		OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Min.**	D3 Max.	L1
67018701	67001	67018702	67006	67018703	67011			3/16	3/16	.06	.17	1-1/2
67025001	67016	67025002	67021	67025003	67026			1/4	1/4	.09	.23	2
67043701	67031	67043702	67036	67043703	67041			7/16	1/4	.15	.40	2
67056201	67046	67056202	67051	67056203	67056			9/16	1/4	.19	.53	2
67081201	67061	67081202	67066	67081203	67071			13/16	1/2	.25	.78	2-5/8
67112501	67076	67112502	67081	67112503	67086			1-1/8	1/2	.44	1.03	2-7/8
67150001	67091	67150002	67096	67150003	67101	*67150004	67103	1-1/2	1/2	.50	1.46	3-1/2

*Contact customer service for availability.

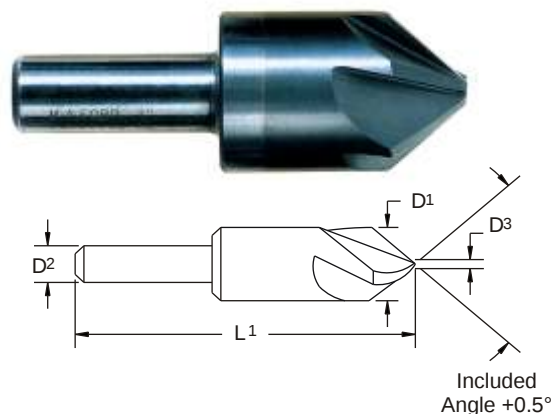
**15% to 30% greater for 60° countersinks only.

Chatterless Six Flute Series 78



Solid Carbide construction (steel shanks on tools 3/8" diameter and larger) makes this countersink ideal for hardened steel, high temperature alloys and other tough jobs.

- Rigid set-ups and good machine tool maintenance are a must.
- Not recommended for hand-held applications.



60°		82°		90°		100°		120°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
78012501	78001	78012502	78006	78012503	78011	78012504	78016	78012506	78021	1/8	1/8	0.03	1-1/2
78018701	78026	78018702	78031	78018703	78036	78018704	78041	78018706	78046	3/16	3/16	0.04	1-1/2
78025001	78051	78025002	78056	78025003	78061	78025004	78066	78025006	78071	1/4	1/4	0.06	2
78037501	78076	78037502	78081	78037503	78086	78037504	78091	78037506	78096	3/8	1/4	0.09	2
78050001	78101	78050002	78106	78050003	78111	78050004	78116	78050006	78121	1/2	3/8	0.15	2-1/8
78062501	78126	78062502	78131	78062503	78136	78062504	78141	78062506	78146	5/8	3/8	0.18	2-3/8
78075001	78151	78075002	78156	78075003	78161	78075004	78166	78075006	78171	3/4	1/2	0.21	2-3/4
78100001	78176	78100002	78181	78100003	78186	78100004	78191	78100006	78196	1	1/2	0.25	2-3/4
78125001	78201	78125002	78206	78125003	78211					1-1/4	1/2*	0.37	3
78150001	78216	78150002	78221	78150003	78226					1-1/2	3/4*	0.43	3-1/2

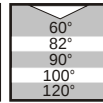
*Straight shank with tang drive.

Customer Service
800-553-8024

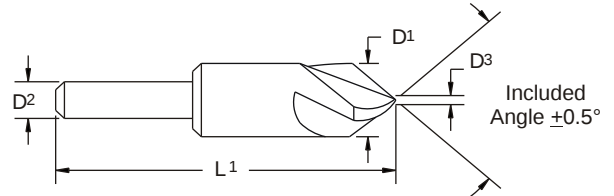
Chatterless Six Flute Series 79

HSS

Z=6



Standard six flute countersinks are designed for economical, general purpose countersinking, chamfering or deburring. Because of the multiple flute design, chip loads are generally smaller. Even at maximum speeds, chatter-free machining is possible. Steam homogeneous surface treatment (blackening) is used to prolong tool life and prevent galling.



60°		82°		90°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
79012501	79021	79012502	79026	79012503	79031	1/8	1/8	0.03	1-1/2
79018701	79046	79018702	79051	79018703	79056	3/16	3/16	0.04	1-1/2
79025001	79071	79025002	79076	79025003	79081	1/4	1/4	0.06	2
79031201	79096	79031202	79101	79031203	79106	5/16	1/4	0.08	2
79037501	79121	79037502	79126	79037503	79131	3/8	1/4	0.09	2
79050001	79146	79050002	79151	79050003	79156	1/2	3/8	0.15	2
79062501	79171	79062502	79176	79062503	79181	5/8	3/8	0.18	2-1/4
79075001	79196	79075002	79201	79075003	79206	3/4	1/2	0.21	2-3/4
79087501	79221	79087502	79226	79087503	79231	7/8	1/2	0.23	2-3/4
79100001	79246	79100002	79251	79100003	79256	1	1/2	0.25	2-3/4
79125001	79271	79125002	79276	79125003	79281	1-1/4	1/2**	0.37	3
79150001	79296	79150002	79301	79150003	79306	1-1/2	3/4**	0.43	3-1/2
79200001	79321	79200002	79326	79200003	79331	2	3/4**	0.62	3-3/4
79250001	79346	79250002	79351	79250003	79356	2-1/2	3/4**	0.75	5
79300001	79361	79300002	79366	79300003	79371	3	3/4**	1	5-1/4

100°		110°		120°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
79012504	79036	*79012505	79038	79012506	79041	1/8	1/8	0.03	1-1/2
79018704	79061			79018706	79066	3/16	3/16	0.04	1-1/2
79025004	79086	*79025005	79088	79025006	79091	1/4	1/4	0.06	2
79031204	79111	*79031205	79113	79031206	79116	5/16	1/4	0.08	2
79037504	79136	*79037505	79138	79037506	79141	3/8	1/4	0.09	2
79050004	79161			79050006	79166	1/2	3/8	0.15	2
79062504	79186			79062506	79191	5/8	3/8	0.18	2-1/4
79075004	79211			79075006	79216	3/4	1/2	0.21	2-3/4
79087504	79236			79087506	79241	7/8	1/2	0.23	2-3/4
79100004	79261	*79100005	79263	79100006	79266	1	1/2	0.25	2-3/4
79125004	79286	*79125005	79288	79125006	79291	1-1/4	1/2**	0.37	3
79150004	79311	*79150005	79313	79150006	79316	1-1/2	3/4**	0.43	3-1/2
79200004	79336			79200006	79341	2	3/4**	0.62	3-3/4

*Call customer service for availability.

**Straight shank with tang drive.

Factory Regrinding Service Available.
Call Customer Service for Details.

Countersinks

Chatterless
Six Flute
Series 79B

HSS

ALtima®
Blaze

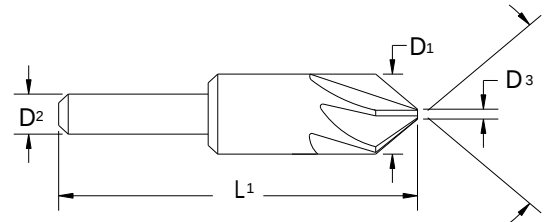
Z=6

60°
82°
90°
100°
120°



Standard six flute countersinks are designed for economical, general purpose countersinking, chamfering or deburring. Because of the multiple flute design, chip loads are generally smaller. Even at maximum speeds, chatter-free machining is possible.

ALtima® Blaze for extreme wear resistance under all machining conditions.



Included Angle
 $\pm 0.5^\circ$

60°		82°		90°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
79B012501	79023	79B012502	79028	79B012503	79033	1/8	1/8	0.03	1-1/2
79B018701	79048	79B018702	79053	79B018703	79058	3/16	3/16	0.04	1-1/2
79B025001	79073	79B025002	79078	79B025003	79083	1/4	1/4	0.06	2
79B037501	79123	79B037502	79128	79B037503	79133	3/8	1/4	0.09	2
79B050001	79148	79B050002	79153	79B050003	79158	1/2	3/8	0.15	2
79B062501	79173	79B062502	79178	79B062503	79183	5/8	3/8	0.18	2-1/4
79B075001	79198	79B075002	79203	79B075003	79208	3/4	1/2	0.21	2-3/4
79B100001	79248	79B100002	79253	79B100003	79258	1	1/2	0.25	2-3/4

100°		120°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
79B012504	79038	79B012506	79043	1/8	1/8	0.03	1-1/2
79B018704	79063	79B018706	79068	3/16	3/16	0.04	1-1/2
79B025004	79088	79B025006	79093	1/4	1/4	0.06	2
79B037504	79138	79B037506	79143	3/8	1/4	0.09	2
79B050004	79163	79B050006	79168	1/2	3/8	0.15	2
79B062504	79188	79B062506	79193	5/8	3/8	0.18	2-1/4
79B075004	79213	79B075006	79218	3/4	1/2	0.21	2-3/4
79B100004	79263	79B100006	79268	1	1/2	0.25	2-3/4

Coating Properties

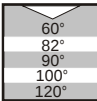
	TiN	ALtima® Blaze
Micro Hardness (HV)	2300	3200
Max. Working Temperature	600°C 1112°F	1100°C 2012°F
Color	Gold	Blue Gray

Chatterless Six Flute Series 79T

HSS



Z=6

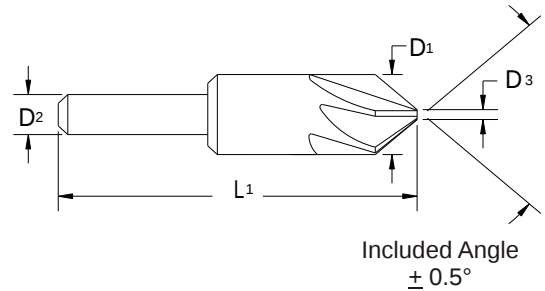


Series 79T
TiN

Coated Countersinks

Standard six flute countersinks are designed for economical, general purpose countersinking, chamfering or deburring. Because of the multiple flute design, chip loads are generally smaller. Even at maximum speeds, chatter-free machining is possible.

TiN coating for higher surface hardness and increased lubricity.



60°		82°		90°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
79T012501	79022	79T012502	79027	79T012503	79032	1/8	1/8	0.03	1-1/2
79T018701	79047	79T018702	79052	79T018703	79057	3/16	3/16	0.04	1-1/2
79T025001	79072	79T025002	79077	79T025003	79082	1/4	1/4	0.06	2
79T037501	79122	79T037502	79127	79T037503	79132	3/8	1/4	0.09	2
79T050001	79147	79T050002	79152	79T050003	79157	1/2	3/8	0.15	2
79T062501	79172	79T062502	79177	79T062503	79182	5/8	3/8	0.18	2-1/4
79T075001	79197	79T075002	79202	79T075003	79207	3/4	1/2	0.21	2-3/4
79T100001	79247	79T100002	79252	79T100003	79257	1	1/2	0.25	2-3/4

100°		120°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
79T012504	79037	79T012506	79042	1/8	1/8	0.03	1-1/2
79T018704	79062	79T018706	79067	3/16	3/16	0.04	1-1/2
79T025004	79087	79T025006	79092	1/4	1/4	0.06	2
79T037504	79137	79T037506	79142	3/8	1/4	0.09	2
79T050004	79162	79T050006	79167	1/2	3/8	0.15	2
79T062504	79187	79T062506	79192	5/8	3/8	0.18	2-1/4
79T075004	79212	79T075006	79217	3/4	1/2	0.21	2-3/4
79T100004	79262	79T100006	79267	1	1/2	0.25	2-3/4

Countersinks

Chatterless Six Flute Series 79 Sets

HSS

Z=6



Set of four Series 79 countersinks include 1/4", 1/2", 3/4" and 1" diameter tools. Sets are available with 60°, 82°, 90° or 100° included angles. Tools are packaged in plastic cases.

4 Piece Set No.	EDP	Included Angle
79000011	79003	60°
79000012	79008	82°
79000013	79013	90°
79000014	79019	100°



Set of seven Series 79 countersinks include 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" and 1" diameter tools. Sets are available with 60°, 82°, 90° or 100° included angles. Tools are packaged in plastic cases.

7 Piece Set No.	EDP	Included Angle
79000001	79001	60°
79000002	79006	82°
79000003	79011	90°
79000004	79016	100°

Aircraft Series 92

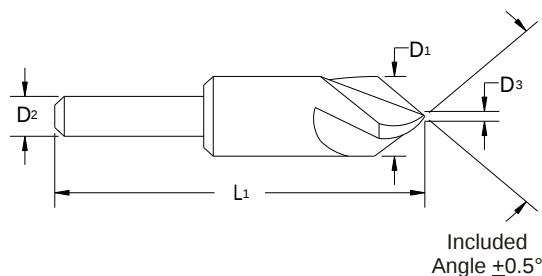
HSS

Z=3



Designed for countersinking, chamfering and deburring aircraft type metals.

- Bright finish helps reduce chip build-up on the cutting edge.
- Spiral flute geometry for a clean, chatterless finish.
- Each size may be used on a wide range of hole diameters.



60°		82°		90°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
92025001	94101	92025002	94103	92025003	94105	1/4	1/4	0.07	1-1/4
92037501	94113	92037502	94115	92037503	94117	3/8	1/4	0.11	1-5/8
92050001	94125	92050002	94127	92050003	94129	1/2	1/4	0.15	2
92062501	94137	92062502	94139	92062503	94141	5/8	1/4	0.19	2-1/4
92075001	94149	92075002	94151	92075003	94153	3/4	1/2	0.23	3
92087501	94161	92087502	94163	92087503	94165	7/8	1/2	0.26	3
92100001	94173	92100002	94175	92100003	94177	1	1/2	0.30	3-1/4
92112501	94185	92112502	94187	92112503	94189	1-1/8	1/2	0.34	3-1/4
92125001	94197	92125002	94199	92125003	94201	1-1/4	5/8	0.38	3-1/2
92150001	94209	92150002	94211	92150003	94213	1-1/2	3/4	0.45	3-7/8
92200001	94221	92200002	94223	92200003	94225	2	3/4	0.60	4-1/4

Standard angles may be modified from 55° to 119°.

Series 92 Continued

100°		110°		120°		Diameter	Shank	Non-Cutting OD	OAL
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	D3 Max.	L1
92025004	94107	*92025005	94109	92025006	94111	1/4	1/4	0.07	1-1/4
92037504	94119	*92037505	94121	92037506	94123	3/8	1/4	0.11	1-5/8
92050004	94131			92050006	94135	1/2	1/4	0.15	2
92062504	94143			92062506	94147	5/8	1/4	0.19	2-1/4
92075004	94155			92075006	94159	3/4	1/2	0.23	3
92087504	94167	*92087505	94169	92087506	94171	7/8	1/2	0.26	3
92100004	94179	*92100005	94181	92100006	94183	1	1/2	0.30	3-1/4
92112504	94191			92112506	94195	1-1/8	1/2	0.34	3-1/4
92125004	94203	*92125005	94205	92125006	94207	1-1/4	5/8	0.38	3-1/2
92150004	94215			92150006	94219	1-1/2	3/4	0.45	3-7/8
92200004	94227			92200006	94231	2	3/4	0.60	4-1/4

*Call Customer Service for Availability.

Standard angles may be modified from 55° to 119°.

Aircraft Set Series 92



Set of five Series 92 countersinks include 1/4", 3/8", 1/2", 5/8" and 3/4" diameter tools. Sets are available with 60°, 82°, 90°, 100° or 120° included angles. Tools are packaged in plastic cases.

5 Piece Set No.	EDP	Included Angle
92000011	96380	60°
92000012	96381	82°
92000013	96382	90°
92000014	96383	100°
92000016	96385	120°



Customer Service
800-553-8024

Countersinks

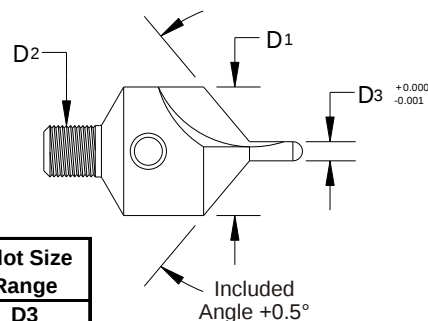
Micro-Stop Series 83

HSS

Z=2



- Integral pilot size must be specified to any diameter within the indicated range.
- May be ordered with a radius blend between the pilot and countersink angle. Specify any radius between .020" and .070".



82°	90°	100°	120°	Diameter	Shank	Pilot Size Range
Tool No.	Tool No.	Tool No.	Tool No.	D1	D2	D3
*83D00002	*83D00003	*83D00004	*83D00006	5/16	1/4-28	1/16-1/8
83E00002	83E00003	83E00004	83E00006	3/8	1/4-28	1/16-3/16
83F00002	83F00003	83F00004	83F00006	7/16	1/4-28	3/32-3/16
83G00002	83G00003	83G00004	83G00006	1/2	1/4-28	3/32-1/4
83H00002	83H00003	83H00004	83H00006	5/8	1/4-28	5/32-3/8
*83J00002	*83J00003	*83J00004	*83J00006	3/4	3/8-24	3/16-3/8
*83K00002	*83K00003	*83K00004	*83K00006	7/8	3/8-24	3/16-1/2
*83N00002	*83N00003	*83N00004	*83N00006	1	3/8-24	3/16-1/2
*83P00002	*83P00003	*83P00004	*83P00006	1-1/8	3/8-24	1/4-5/16

Standard angles may be modified from 78° to 119°.

* Call customer service for availability.

Micro-Stop Series 83TC

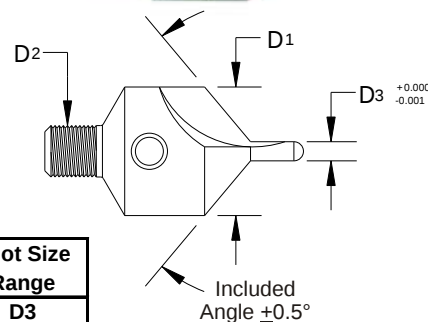
C

Z=2



Solid carbide construction (steel shank) makes these tools ideal for machining titanium, high temperature alloys, hardened steel and many of the new composite materials.

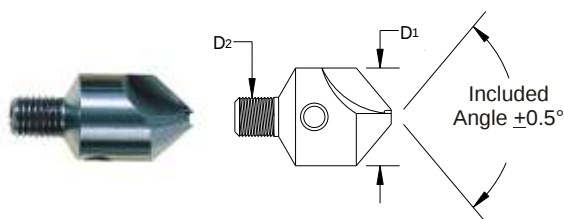
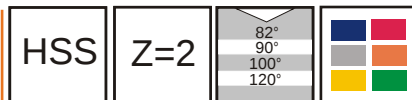
- Integral pilot size must be specified to any diameter within the indicated range.



82°	90°	100°	120°	Diameter	Shank	Pilot Size Range
Tool No.	Tool No.	Tool No.	Tool No.	D1	D2	D3
83E00002TC	83E00003TC	83E00004TC	83E00006TC	3/8	1/4-28	3/32-3/16
83F00002TC	83F00003TC	83F00004TC	83F00006TC	7/16	1/4-28	3/32-3/16
83G00002TC	83G00003TC	83G00004TC	83G00006TC	1/2	1/4-28	3/32-1/4
83H00002TC	83H00003TC	83H00004TC	83H00006TC	5/8	1/4-28	1/8-3/8
*83J00002TC	*83J00003TC	*83J00004TC	*83J00006TC	3/4	3/8-24	5/32-3/8
*83K00002TC	*83K00003TC	*83K00004TC	*83K00006TC	7/8	3/8-24	3/16-1/2
*83N00002TC	*83N00003TC	*83N00004TC	*83N00006TC	1	3/8-24	3/16-3/8

* Call customer service for availability.

Micro-Stop Series 84



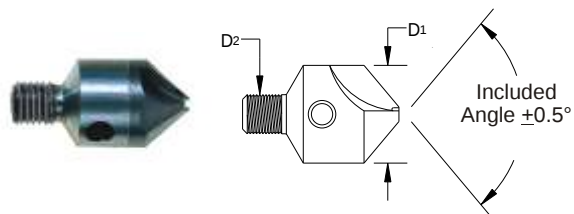
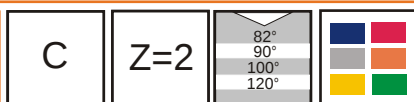
Use interchangeable steel pilots as shown on page 16.

82°		90°		100°		120°		Diameter	Shank	Pilot
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	Series
84375002	84049	84375003	84055	84375004	84061	84375006	84067	3/8	1/4-28	850
84437502	84073	84437503	84079	84437504	84085	84437506	84091	7/16	1/4-28	850
84500002	84097	84500003	84103	84500004	84109	84500006	84115	1/2	1/4-28	850
84625002	84121	84625003	84127	84625004	84133	84625006	84139	5/8	1/4-28	851
						*84750006	84172	3/4	3/8-24	852
						*84750006F	84175	3/4	7/16-20	852
*84100002	84001			*84100004	84013	*84100006	84019	1	3/8-24	852
*84100002F	84004					*84100006F	84022	1	7/16-20	852
*84112502	84025			*84112504	84037			1-1/8	3/8-24	852
*84112502F	84028			*84112504F	84040	*84112506F	84046	1-1/8	7/16-20	852

*Call Customer Service for Availability.

Standard angles may be modified from 78° to 99°.

Micro-Stop Series 84TC



Solid carbide construction (steel shank) makes these tools ideal for machining titanium, high temperature alloys, hardened steel and many of the new composite materials.

Use interchangeable steel pilots as shown on pg 16.

82°		90°		100°		120°		Diameter	Shank	Pilot
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	D2	Series
84375002TC	84552	84375003TC	84558	84375004TC	84564	84375006TC	84570	3/8	1/4-28	850
84437502TC	84576	84437503TC	84582	84437504TC	84588	84437506TC	84594	7/16	1/4-28	850
84500002TC	84600	84500003TC	84606	84500004TC	84612	84500006TC	84618	1/2	1/4-28	850
84625002TC	84624	84625003TC	84630	84625004TC	84636	84625006TC	84642	5/8	1/4-28	851

Factory Regrinding Service Available.
Call Customer Service for Details.

Customer Service
800-553-8024

Countersinks

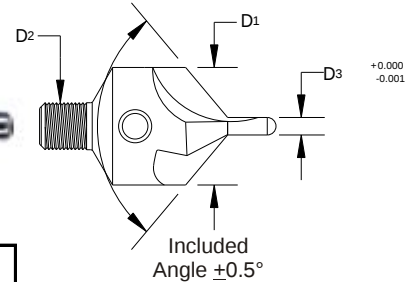
Micro-Stop Series 86

HSS

Z=3



- Integral pilot size must be specified to any diameter within the indicated range.
- May be ordered with a radius blend between the pilot and countersink angle. Specify any radius between .020" and .070".



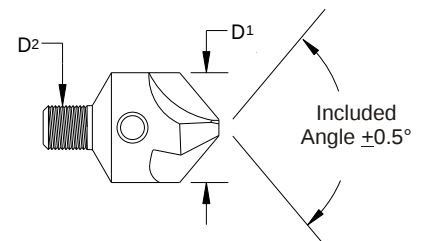
82°	90°	100°	120°	Diameter	Shank	Pilot Size Range
Tool No.	Tool No.	Tool No.	Tool No.	D1	D2	D3
86E00002	86E00003	86E00004	86E00006	3/8	1/4-28	1/16-3/16
86F00002	86F00003	86F00004	86F00006	7/16	1/4-28	3/32-3/16
86G00002	86G00003	86G00004	86G00006	1/2	1/4-28	3/32-1/4
86H00002	86H00003	86H00004	86H00006	5/8	1/4-28	5/32-3/8
*86J00002	*86J00003	*86J00004	*86J00006	3/4	3/8-24	1/4-3/8
*86K00002	*86K00003	*86K00004	*86K00006	7/8	3/8-24	3/16-3/8
*86N00002	*86N00003	*86N00004	*86N00006	1	3/8-24	3/16-1/2
*86P00002	*86P00003	*86P00004	*86P00006	1-1/8	3/8-24	3/16-3/8

*Call Customer Service for Availability.
Standard angles may be modified from 78° to 119°.

Micro-Stop Series 87

HSS

Z=3



Use interchangeable steel pilots as shown on page 16.

82°	90°	100°	120°	Diameter	Shank	Pilot Series
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Tool No.
87375002	87049	87375003	87052	87375004	87055	87375006
87437502	87061	87437503	87064	87437504	87067	87437506
87500002	87073	87500003	87076	87500004	87079	87500006
87625002	87085	87625003	87088	87625004	87091	87625006
*87750002F	87100					*87750006F
				*87100004	87013	*87100006
*87100002F	87004	*87100003F	87010	*87100004F	87016	*87100006F
*87112502	87025	*87112503	87031	*87112504	87037	*87112506

*Call Customer Service for Availability.
Standard angles may be modified from 78° to 99°.

Countersink Pilot Series 850

HSS, .086" Shank



Countersink Pilot Series 851

HSS, .093" Shank



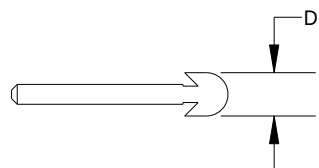
Countersink Pilot Series 852

HSS, .170" Shank



Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	D1	
						Size	Decimal
85009370	85001	85109370	85034			3/32	.0937
85009800	85004					40	.0980
85012500	85007	85112500	85037			1/8	.1250
85012850	85010					30	.1285
85015620	85013					5/32	.1562
85015900	85016					21	.1590
85018750	85019	85118750	85040	*85218750	85052	3/16	.1875
85019350	85022			*85219350	85055	10	.1935
85021870	85025			*85221870	85058	7/32	.2187
85025000	85028	85125000	85043	*85225000	85061	1/4	.2500
85025700	85031			*85225700	85064	F	.2570
		85131250	85046			5/16	.3125
		85137500	85049	*85237500	85070	3/8	.3750

*Call Customer Service for Availability.
Special Pilot diameters available on request.



Customer Service 800-553-8024

Safety Note: Always wear the appropriate personal protection equipment such as safety glasses and protective clothing when using solid carbide or HSS cutting tools. Machines should be fully guarded. Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.

Countersinks

Micro-Stop Fixtures

Series 80

Micro-Stop fixtures are designed for precise countersinking and deburring operations that ensures perpendicular alignment with the workpiece and exact depth of cut control. When the fixture is properly adjusted, only the pilot or tip end of the cutter will extend beyond the end of the fixture. However, when the tool is fed into the hole, the cutting edge is exposed, and a cut is made to a predetermined depth.

- Accommodates a complete selection of Micro-Stop countersinks and burring cutters.
- 120° seating angle ensures precise axial alignment of threaded shank tools.
- Use in hand tool or machine tool applications.
- Depth of cut control in .001" increments.



Non-Marking Pad Series 80000006

Steel



EDP 80011

- Steel non-marking pads offer long life.
- Designed for 80000002 Micro-Stop Fixtures.

Non-Marking Pad Series 80000007

Plastic



EDP 80016

- Plastic non-marking pads afford maximum workpiece protection.
- Designed for 80000002 Micro-Stop Fixtures.

Non-Marking Pads are designed to protect workpiece surface finishes. They also help ensure perpendicular alignment with the workpiece.

Tool No.	EDP	Cutter Diameter		Shank	Thread
		Min.	Max.		
80000002	80006	N.A.	5/8	1/4	1/4-28
80000008	80021	3/4	7/8	3/8	7/16-20
80000009	80026	3/4	7/8	3/8	3/8-24
80000010	80031	3/4	1-1/8	3/8	7/16-20
80000011	80036	3/4	1-1/8	3/8	3/8-24
80000006	80011	Steel Non-Marking Pad			
80000007	80016	Plastic Non-Marking Pad			

Application Data

Uniflute® Feed Rates

Uniflute® countersinks are designed with cam relief; therefore feed rates should not exceed .005" per revolution on larger diameter holes. Reduced feeds also are recommended for smaller holes. A controlled feed results in the chatter-free finishes associated with the Uniflute®.

Multiple Flute Feeds

Multiple flute countersinks are designed for increased feed rates. Because there is more than one cutting edge, chip loads are not excessive, and chatter can be controlled, allowing higher feeds.

Speeds

To determine optimum speed, start at the lower end of the speed range, and then increase speeds until performance is maximized. When a countersink is operated at excessive RPM, chatter may result, and cutting edges can overheat and become prematurely dull.

Material	SFM			
	HSS	HSS TiN Coated	HSS ALtima® Blaze Coated	Carbide
Aluminum / Aluminum Alloys	150-250	190-315	240-400	300-500
Brass / Bronze (ordinary)	75-125	90-160	120-200	150-250
Iron - Cast (soft)	75-125	90-160	120-200	125-225
Iron - Cast (medium hard)	50-100	65-125	80-160	100-175
Iron - Hard Chilled	10-20	15-25	20-35	20-35
Iron - Malleable	80-90	100-115	130-145	90-150
Magnesium / Magnesium Alloys	125-250	160-310	200-400	250-400
Monel, High Nickel Steel	30-50	40-65	50-80	50-75
Plastics, Bakelite	100-250	125-315	160-400	250-400
Steel - Mild (.2 - .3 carbon)	80-100	100-125	130-160	120-170
Steel - Mild (.4 - .5 carbon)	70-80	85-100	115-130	80-150
Tool Steels (1.2 carbon)	50-60	65-75	80-100	60-100
Steel - Forgings	40-50	50-65	65-80	50-80
Steel - Alloys (300 - 400 Brinnell)	20-30	25-40	35-50	30-50
Steel - High Tensile (35 - 40 Rc)	30-40	40-50	50-65	40-60
Steel - High Tensile (40 - 45 Rc)	25-35	30-45	40-56	35-55
Steel - High Tensile (45 - 50 Rc)	15-25	20-30	25-40	25-40
Steel - High Tensile (50 - 55 Rc)	7-15	10-20	15-30	15-20
Stainless Steel - Free Machining	30-80	40-100	50-130	80-125
Stainless Steel - Work Hardening	15-50	20-65	30-80	50-75
Ti-75A (commercially pure Titanium)	50-60	65-75	80-100	60-90
Inconel Alloys	15-20	20-25	25-35	25-35

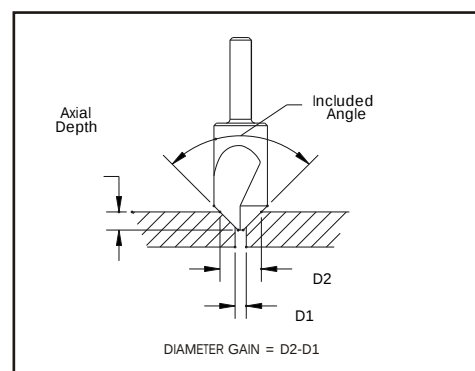
Conversion Formulas
 $(\text{SFM} \times 3.82) / \text{Tool Diameter} = \text{RPM}$

Minimum Body Diameter For 82° Flat Head Cap Screws

Screw Size	Series 67 Size	All other C'sinks Size
#4	7/16	1/4
#5	9/16	5/16
#6	9/16	5/16
#8	9/16	3/8
#10	9/16	1/2
#12	13/16	1/2
1/4	13/16	5/8
5/16	1-1/8	3/4
3/8	1-1/8	7/8
7/16	1-1/8	7/8
1/2	1-1/2	1
5/8	1-1/2	1-1/4
3/4	1-1/2	1-1/2

Diameter Gain in Size For Each .001" of Axial Depth in Hole

Included Angle	Axial Depth	Diameter Gain
30°	0.001	0.0005
45°	0.001	0.0008
60°	0.001	0.0010
82°	0.001	0.0017
90°	0.001	0.0020
100°	0.001	0.0028
120°	0.001	0.0034



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