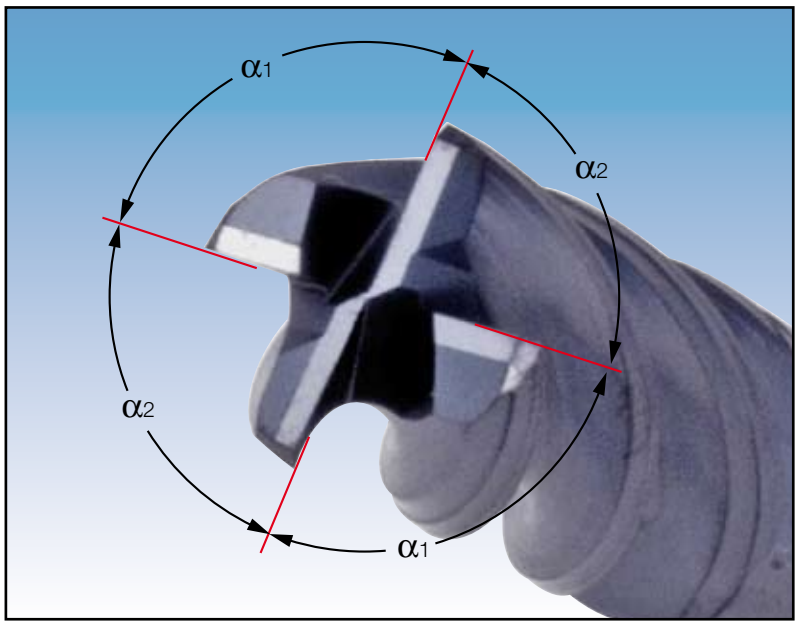
ISCAR
NPA
NEW PRODUCT ANNOUNCEMENT
MILLING SEPTEMBER 2007 • INCH ▶ 25-2007

CHATTER FREE
Solid Carbide Endmills

ISCAR is introducing 4 and 5 flute, 38° helix endmills with variable pitch for roughing and finishing operations. The new ECI…CF endmills feature excellent chatter dampening ability, due to their variable pitch.



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These new endmills are an excellent solution for low power machines with ISO40 or BT40 adaptations and for long overhang applications, improving their material removal rate and eliminating vibration.
They can be used for up to 2XD full slot machining of alloy and stainless steel, titanium and exotic materials.

ISCAR's new CHATTER FREE endmills maximize stock removal rate and reduce cycle time in most milling operations. Their unique ground geometry provides excellent surface finish and long tool life while machining at high material removal rates.

Cutting conditions for rough machining of alloy steel:
Cutting speed: 590-720 SFM
Feed: .001-.002 IPT
Depth of cut: 2XD
Width of cut: Full slot
Flushing type: Air (it is very important to keep the air tube in the direction opposite of the tool's motion).

Cutting conditions for rough machining of stainless steel:
Cutting speed: 330-395 SFM
Feed: .001-.002 in\tooth.
Depth of cut: 1.5D - 2XD
Width of cut: Full slot
Flushing type: emulsion/air

Attached are several field reports indicating the excellent performance of these new endmills.

Availability
In stock.

Prices
Your price list will be sent to you by the pricing department and it is available in the **GAL** system.

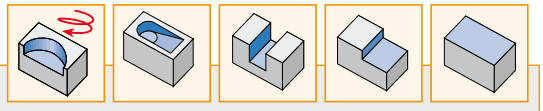
Sincerely,

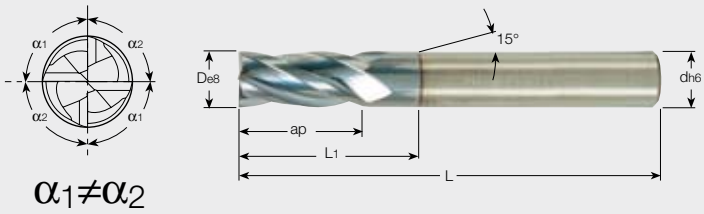
David Feldman
Chief Technical Officer,
ROTATING TOOLS
Iscar Headquarters

Sincerely,

Etay Sharabi
SOLIDMILL
Iscar Headquarters

CHATTER FREE





ECI-E4L 4 Flute Endmill, 38° Helix, Variable Pitch for Chatter Dampening

Designation	D	d	ap	L1	L	Ha°	Shank Style
ECI-E4L250-500/750C250CF	.250	.250	.50	.75	2.50	38	C
ECI-E4L312-625/1.0C312CF	.312	.312	.63	1.00	2.50	38	C
ECI-E4L375-750/1.25C37CF	.375	.375	.75	1.25	3.00	38	C
ECI-E4L375-750/1.25W37CF	.375	.375	.75	1.25	3.00	38	W
ECI-E4L500-1.0/1.5C500CF	.500	.500	1.00	1.50	3.50	38	C
ECI-E4L500-1.0/1.5W500CF	.500	.500	1.00	1.50	3.50	38	W
ECI-E4L625-1.25/1.7C62CF	.625	.625	1.25	1.70	4.00	38	C
ECI-E4L625-1.25/1.7W62CF	.625	.625	1.25	1.70	4.00	38	W
ECI-E4L750-1.5/2.25C75CF	.750	.750	1.50	2.25	5.00	38	C
ECI-E4L750-1.5/2.25W75CF	.750	.750	1.50	2.25	5.00	38	W

ECI-E5L 5 Flute Endmill, 38° Helix, Variable Pitch for Chatter Dampening

Designation	D	d	ap	L	Ha°	Shank Style
ECI-E5L250-625C250CF	.250	.250	.63	2.50	38	C
ECI-E5L312-780C312CF	.312	.312	.78	2.50	38	C
ECI-E5L375-937C37CF	.375	.375	.94	3.00	38	C
ECI-E5L375-937W37CF	.375	.375	.94	3.00	38	W
ECI-E5L500-1.25C500CF	.500	.500	1.25	3.50	38	C
ECI-E5L500-1.25W500CF	.500	.500	1.25	3.50	38	W
ECI-E5L625-1.56C62CF	.625	.625	1.56	4.00	38	C
ECI-E5L625-1.56W62CF	.625	.625	1.56	4.00	38	W
ECI-E5L750-1.87C75CF	.750	.750	1.87	5.00	38	C
ECI-E5L750-1.87W75CF	.750	.750	1.87	5.00	38	W

The available grade is IC900A (PVD coated).

TEST REPORT

Application: Shoulder Milling
Material: Cast iron modular (GGG)

	ISCAR	COMPETITOR
Tool Designation	ECI-E5L625-1.56C62CF	Dia .625
Diameter (inch)	.625	.625
Grade	IC900	TiALN COAT
Cutting Speed (sfm)	491	196
Depth of Cut (inch)	1.25	1.25
Width of Cut (inch)	.200	.200
Feed Per Tooth (in/t)	.057	.033
Table Feed (in/min)	85	20
Number of Passes	1	2
Surface Quality	Excellent	Fair
Pieces Per Cutting Tool	**100**	**50**

TEST REPORT

Application: Deep shoulder milling
Standard Code: SAE 4130
Hardness: 26 HRc

	ISCAR	COMPETITOR
Tool Designation	ECI-E5L500-1.25W500	1/2x1/2x1" 6 flute
Diameter (inch)	.500	.500
No. of Flutes	5	6
Grade	IC900	
Overhang (inch)	1.38	1.18
Cutting Speed (sfm)	1575	1575
Depth of Cut (inch)	1.0	1.0
Width of Cut (inch)	3	3
Feed Per Tooth (in/t)	.0012	.0010
Surface Quality	Excellent	Good
Pieces Per Cutter	**550**	**400**

MATERIAL GROUPS

ISO	Material		Condition	Tensile Strength Rm [Kpsi]	Hardness HB
P	Non-alloy steel, cast steel, free cutting steel	0.1 - 0.25 %C	Annealed	61	125
		0.25 - 0.25 %C	Annealed	94	190
		0.25 - 0.25 %C	Quenched and tempered	123	250
		0.55 - 0.80 %C	Annealed	109	220
		0.55 - 0.80 %C	Quenched and tempered	145	300
	Low alloy steel and cast steel (less than 5% alloying elements)		Annealed	87	200
			Quenched and tempered	135	275
				145	300
				174	350
	High alloy steel, cast steel and tool steel		Annealed	99	200
			Quenched and tempered	160	325
M	Stainless steel and cast steel		Ferritic/martensitic	99	200
			Martensitic	119	240
			Austenitic	87	180
K	Cast iron nodular (GGG)		Ferritic/pearlitic		180
			Pearlitic		260
	Grey cast iron (GG)		Ferritic		160
			Pearlitic		250
	Malleable cast iron		Ferritic		130
			Pearlitic		230
N	Aluminum-wrought alloy		Not cureable		60
			Cured		100
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75
			Cured		90
		>12% Si	High temperature		130
	Copper alloys	>1% Pb	Free cutting		110
			Brass		90
			Electrolitic copper		100
	Non-metallic		Duroplastics, fiber plastics		
			Hard rubber		
S	High temp. alloys	Fe based	Annealed		200
			Cured		280
	Super alloys	Ni or Co based	Annealed		250
			Cured		350
			Cast		320
	Titanium, Ti alloys			Rm 58	
		Alpha+beta alloys cured		Rm 152	
H	Hardened steel		Hardened		55 HRc
			Hardened		60 HRc
	Chilled cast iron		Cast		400
	Cast iron		Hardened		55 HRc

Recommended Cutting Conditions for CHATTER FREE Solid Carbide Endmills

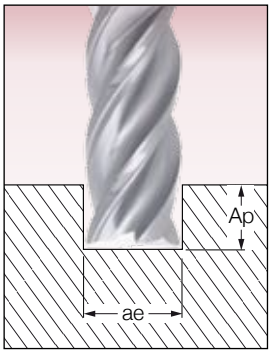
Cutting Speed (IC900)

Mtl. No.	V min SFM	V max SFM
1	850	920
2	660	750
3	520	720
4	520	720
5	460	590
6	520	720
7	390	590
8	430	590
9	460	590
10	430	590
11	230	390
12	260	520
13	200	490
14	200	390
15	260	850
16	430	790
17	490	920
18	300	920
19	490	920
20	460	790
21	2660	2760
22	2400	2720
23	2620	2760
24	2400	2720
25	1050	1120
26	1310	1410
27	1310	1410
28	890	980
29		
30		
31	70	130
32	70	100
33	70	100
34	70	100
35	100	230
36	100	230
37	100	230
38	100	160
39	100	130
40	200	260
41	100	160

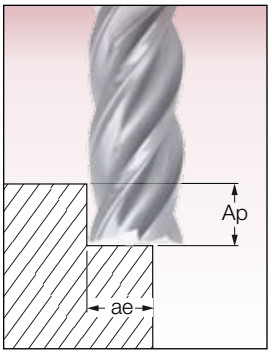
Recommended Feed

AP=0.5-1xD

D inch	Slotting	ae=D
	Fz(min)	Fz(max)
.236	.0010	.0024
.315	.0012	.0031
.394	.0012	.0035
.472	.0014	.0039
.630	.0020	.0047
.787	.0020	.0059

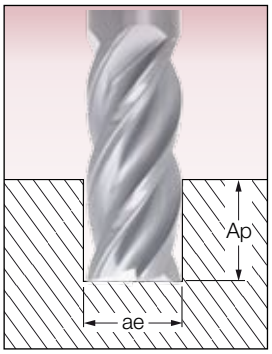


D inch	Side Milling	ae=0.45-0.75xD
	Fz(min)	Fz(max)
.236	.0010	.0028
.315	.0012	.0035
.394	.0012	.0039
.472	.0014	.0043
.630	.0020	.0051
.787	.0020	.0067



AP=1-2xD

D inch	Slotting	ae=D
	Fz(min)	Fz(max)
.236	.0010	.0020
.315	.0012	.0020
.394	.0012	.0020
.472	.0014	.0024
.630	.0020	.0028
.787	.0020	.0031



D inch	Side Milling	ae=0.45-0.75xD
	Fz(min)	Fz(max)
.236	.0010	.0024
.315	.0012	.0031
.394	.0012	.0035
.472	.0014	.0039
.630	.0020	.0043
.787	.0020	.0043