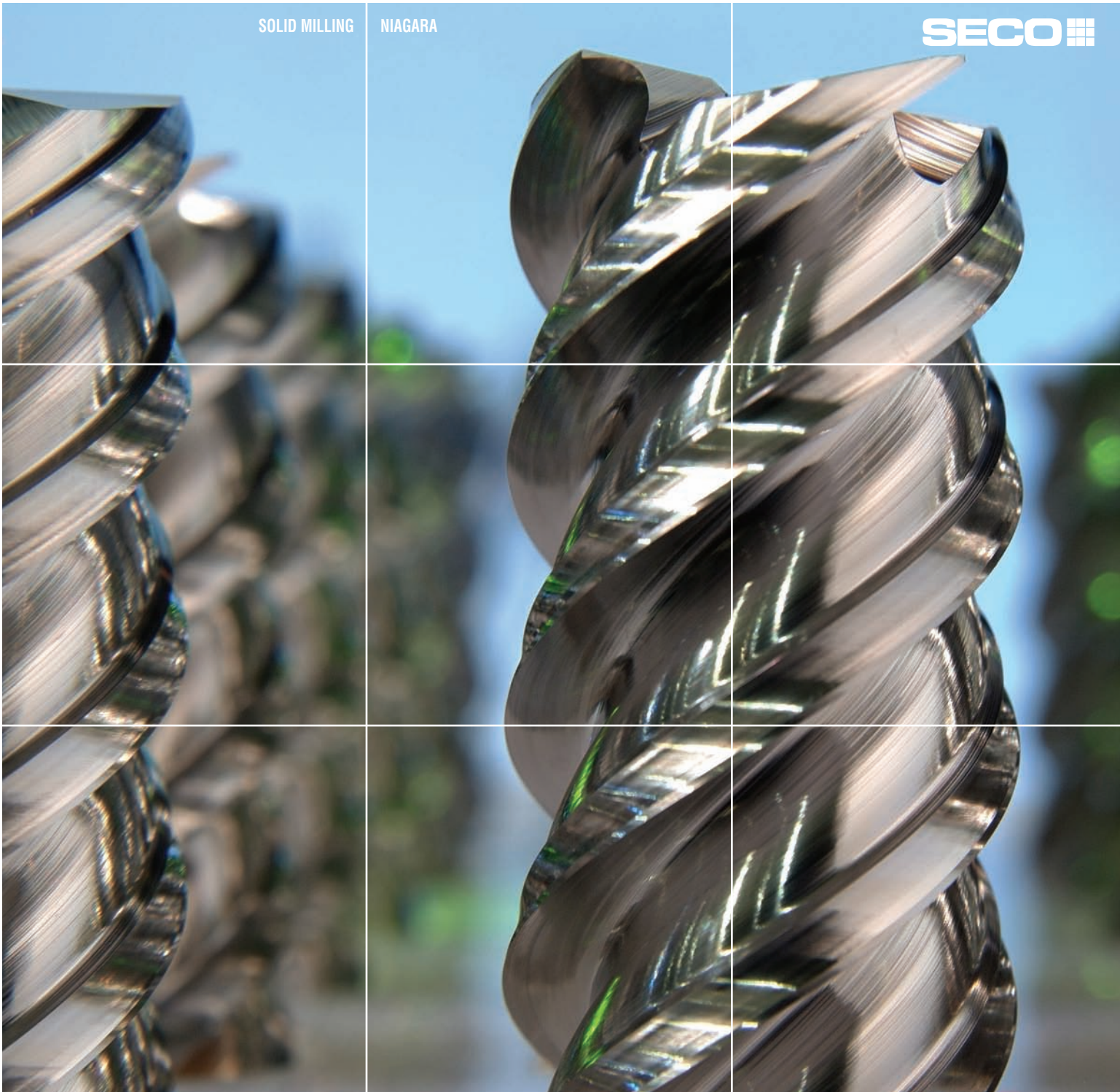


SOLID MILLING

NIAGARA

SECO 



WWW.NIGARACUTTER.COM



Niagara Cutter

SOLID CARBIDE, HIGH SPEED & COBALT END MILLS



SECO 



Niagara Cutter

Leading in High Performance Cutting Tools

Innovation / Technology / Quality / Service

A Test For Ourselves & A Promise To Our Customers

In the cutting tool industry, quality over time is assumed but not always achieved. No one in the industry pays more attention to the consistent quality of manufactured products than Niagara Cutter. Quality begins in our dedicated engineering, manufacturing and test facilities. Our in-plant machining laboratory, scanning electron microscope and fully equipped and staffed metallurgical laboratory are just a few of the resources to help guarantee that the promise we make is the promise we keep ... to provide the highest value cutting tools in the world.

SOLID CARBIDE END MILLS

STABILIZER™ - GP with Patented Asymmetrical Geometry

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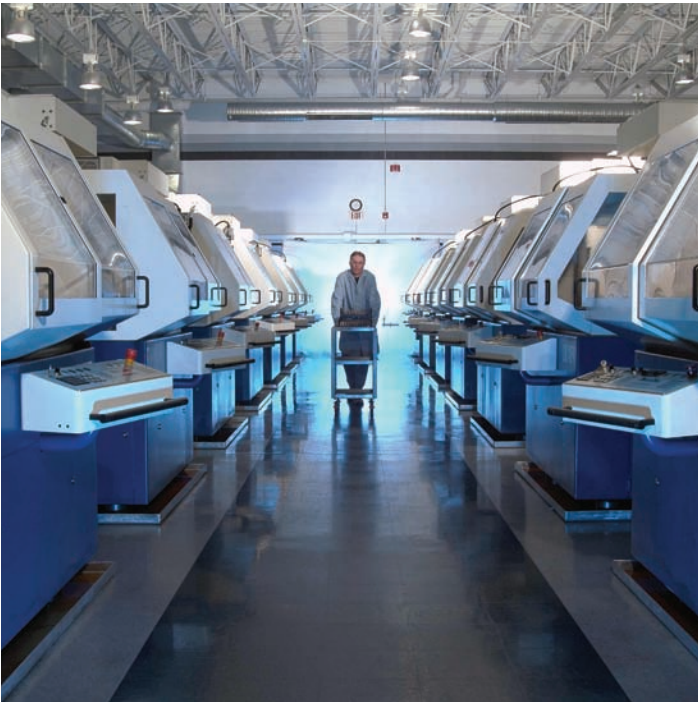
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Niagara Cutter Facilities - Automated End Mill Production FOCUS ON HIGH PRODUCTION, ROBOTICS & AUTOMATION



TOOL MATERIAL - SUBSTRATE

**SOLID
CARBIDE**

Material
Type

**Premium
Particle
Metal
8.5%
COBALT**

Material
Type

**M42
8%
COBALT**

Material
Type

HSS

Material
Type

PVD COATINGS

Uncoated

Offered
Uncoated

**TiN
COATED**

Offered with
TiN Coating

**TiCN
COATED**

Offered with
TiCN Coating

**TiAlN
COATED**

Offered with
TiAlN Coating

**Uncoated
AlCrN
AlTiN
COATED**

Offered Uncoated
or with AlCrN or
AlTiN Coating

**Uncoated
AlCrN
COATED**

Offered Uncoated or
with AlCrN Coating

**Uncoated
TiCN
COATED**

Offered Uncoated or
with TiCN Coating

**Uncoated
TiAlN
COATED**

Offered Uncoated or
with TiAlN Coating

**Uncoated
AlTiN
COATED**

Offered Uncoated or
with AlTiN Coating

**Uncoated
TiN
TiCN
TiAlN
COATED**

Offered Uncoated
or with TiN, TiCN
or TiAlN Coating

**Uncoated
AlCrN
TiCN
COATED**

Offered Uncoated
or with AlCrN or
TiCN Coating

**Uncoated
AlCrN
TiAlN
COATED**

Offered Uncoated
or with AlCrN or
TiAlN Coating

**AlTiN
COATED**

Offered with
AlTiN Coating

**AlCrN
COATED**

Offered with
AlCrN Coating

**AlCrN
AlTiN
COATED**

Offered with
AlCrN or AlTiN
Coatings

**AlCrN
TiAlN
COATED**

Offered with
AlCrN or TiAlN
Coatings

**AlCrN
AlTiN
TiAlN
COATED**

Offered with
AlCrN, AlTiN or
TiAlN Coatings

**CVD
Diamond
COATED**

Offered with
CVD Diamond
Coating

FLUTES

2 Flutes

Two Flutes

3 Flutes

Three Flutes

4 Flutes

Four Flutes

5 Flutes

Five Flutes

6 Flutes

Six Flutes

7 Flutes

Seven Flutes

**2 Flutes
4 Flutes**

Two and
Four Flutes

**3 Flutes
4 Flutes**

Three and
Four Flutes

**3 Flutes
5 Flutes**

Three and
Five Flutes

**4 Flutes
5 Flutes**

Four and
Five Flutes

**4 Flutes
6 Flutes**

Four and
Six Flutes

**5 Flutes
7 Flutes**

Five and
Seven Flutes

2 Flutes
3 Flutes
4 Flutes

Two, Three and Four Flutes

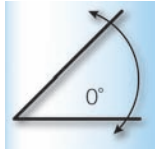
4 Flutes
5 Flutes
6 Flutes

Four, Five and Six Flutes

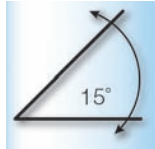
3 Flutes
4 Flutes
5 Flutes
6 Flutes

Three, Four, Five and Six Flutes

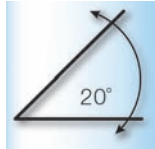
HELIX ANGLE



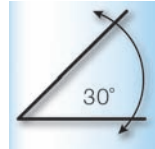
0°
Helix Angle



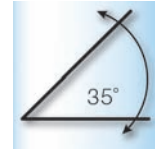
15°
Helix Angle



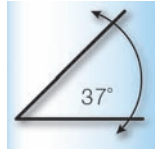
20°
Helix Angle



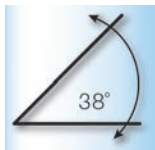
30°
Helix Angle



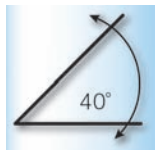
35°
Helix Angle



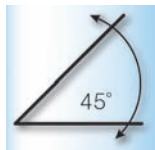
37°
Helix Angle



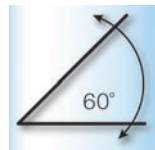
38°
Helix Angle



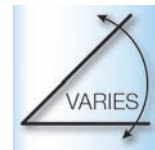
40°
Helix Angle



45°
Helix Angle

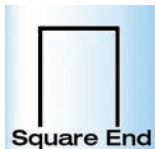


60°
Helix Angle



Varies
Helix Angle

TOOL END SHAPE



Square End
Square-End



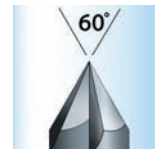
Corner Radius
Radius



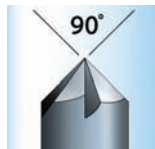
Ball-End
Ball-End



Corner Chamfer
Chamfer



60°
Chamfer Point



90°
Chamfer Point

END TEETH



Center Cutting
Center Cutting



Non Center Cutting
Non-Center Cutting

HELIX DIRECTION (RH / LH)



Right Hand Cutting
Right Hand Cutting



Left Hand Cutting
Left Hand Cutting

CHIP BREAKER, THREAD FORM



Chipbreaker



Coarse-Pitch Rougher



Fine-Pitch Rougher



Truncated



Thread Mill

STABILIZER™ GP

4 Flute



Profiling, Slotting
Carbon, Tool & Alloy Steels
Cast Iron, Copper

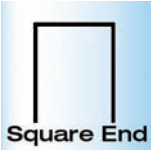
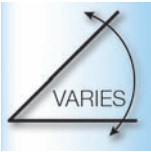
STS430

- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and Larger

**SOLID
CARBIDE**

**AICrN
AITIN
COATED**

4 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AICrN EDP #	AITiN EDP #
1/8	1/8	1/8	1-1/2	4	68200	60650
1/8	1/8	3/8	1-1/2	4	68201	60651
5/32	3/16	3/16	2	4	68202	60652
5/32	3/16	7/16	2	4	68203	60653
3/16	3/16	3/16	2	4	68204	60654
3/16	3/16	7/16	2	4	68205	60655
7/32	1/4	1/4	2	4	68206	60656
7/32	1/4	7/16	2-1/2	4	68207	60657
1/4	1/4	1/4	2	4	68208	60658
1/4	1/4	1/2	2-1/2	4	68209	60659
9/32	5/16	5/8	2-1/2	4	68210	60660
5/16	5/16	5/16	2	4	68211	60661
5/16	5/16	13/16	2-1/2	4	68212	60662
11/32	3/8	13/16	2-1/2	4	68213	60663
3/8	3/8	3/8	2	4	68214	60664
3/8	3/8	7/8	2-1/2	4	68215	60665
13/32	7/16	15/16	2-3/4	4	68216	60666
7/16	7/16	7/16	2-1/2	4	68217 •	60667
7/16	7/16	1	2-3/4	4	68218	60668
15/32	1/2	1	3	4	68219	60669
1/2	1/2	1/2	2-1/2	4	68220	60670
1/2	1/2	1	3	4	68221	60671
1/2	1/2	1-1/4	3	4	68222	57330
9/16	9/16	1-1/8	3-1/2	4	68223	60672
5/8	5/8	5/8	3	4	68224 •	60673
5/8	5/8	1-1/4	3-1/2	4	68225	60674
11/16	3/4	1-3/8	4	4	68226	57331
3/4	3/4	3/4	3	4	68227	60675
3/4	3/4	1-1/2	4	4	68228	60676
13/16	7/8	1-5/8	4	4	68229	57332
7/8	7/8	1-3/4	4	4	68230 •	57333
15/16	1	1-7/8	4	4	68231 •	57334 •
1	1	1	4	4	68232 •	60677 •
1	1	1-1/2	4	4	68233 •	60678
1	1	2	5	4	68234 •	57335 •
1-1/4	1-1/4	2-1/4	5	4	68235 •	57336 •

• Indicates a Standard, Non Stocked Item

STABILIZER™ GP 4 Flute with Radius

Profiling, Slotting
Carbon, Alloy & Tool Steels
Cast Iron, Copper

STR430

- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and Larger



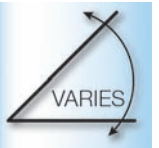
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AlCrN EDP #	AlTiN EDP #
1/8	1/8	1/8	1-1/2	0.010	4	68236	60679
1/8	1/8	3/8	1-1/2	0.010	4	68237	60680
5/32	3/16	3/16	2	0.010	4	68238	60681
5/32	3/16	7/16	2	0.010	4	68239	60682
3/16	3/16	3/16	2	0.010	4	68240	60683
3/16	3/16	7/16	2	0.010	4	68241	60684
7/32	1/4	1/4	2	0.020	4	68242	60685
7/32	1/4	7/16	2-1/2	0.020	4	68243	60686
1/4	1/4	1/4	2	0.020	4	68244	60687
1/4	1/4	1/2	2-1/2	0.020	4	68245	60688
9/32	5/16	5/8	2-1/2	0.020	4	68246	60689
5/16	5/16	5/16	2	0.020	4	68247 •	60690
5/16	5/16	13/16	2-1/2	0.020	4	68248	60691
11/32	3/8	13/16	2-1/2	0.020	4	68249 •	60692
3/8	3/8	3/8	2	0.020	4	68250	60693
3/8	3/8	7/8	2-1/2	0.020	4	68251	60694
13/32	7/16	15/16	2-3/4	0.020	4	68252 •	60695
7/16	7/16	7/16	2-1/2	0.020	4	68253 •	60696
7/16	7/16	1	2-3/4	0.020	4	68254 •	60697
15/32	1/2	1	3	0.030	4	68255 •	60698
1/2	1/2	1/2	2-1/2	0.030	4	68256	60699
1/2	1/2	1	3	0.030	4	68257	60700
1/2	1/2	1-1/4	3	0.030	4	68258	57337
9/16	9/16	1-1/8	3-1/2	0.030	4	68259 •	60701
5/8	5/8	5/8	3	0.030	4	68260	60702
5/8	5/8	1-1/4	3-1/2	0.030	4	68261	60703
11/16	3/4	1-3/8	4	0.030	4	68262 •	57338 •
3/4	3/4	3/4	3	0.030	4	68263	60704
3/4	3/4	1-1/2	4	0.030	4	68264	60705
13/16	7/8	1-5/8	4	0.030	4	68265 •	57339
7/8	7/8	1-3/4	4	0.030	4	68266 •	57340
15/16	1	1-7/8	4	0.030	4	68267 •	57341 •
1	1	1	4	0.030	4	68268 •	60706
1	1	1-1/2	4	0.030	4	68269	60707 •
1	1	2	5	0.030	4	68270 •	57342
1-1/4	1-1/4	2-1/4	5	0.030	4	68271 •	57343 •

SOLID CARBIDE

**AlCrN
AlTiN
COATED**

4 Flutes



Center Cutting

• Indicates a Standard, Non Stocked Item

STABILIZER™ GP

4 Flute Ball-End

Profiling, Slotting
Carbon, Alloy & Tool Steels
Cast Iron, Copper



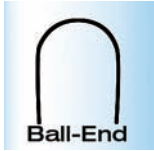
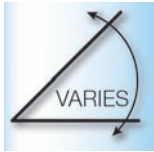
STB430

- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and Larger

**SOLID
CARBIDE**

**AICrN
AITIN
COATED**

4 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AICrN EDP #	AITiN EDP#
1/8	1/8	1/8	1-1/2	4	68272	60708
1/8	1/8	3/8	1-1/2	4	68273	60709
5/32	3/16	3/16	2	4	68274	60710
5/32	3/16	7/16	2	4	68275 •	60711
3/16	3/16	3/16	2	4	68276	60712
3/16	3/16	7/16	2	4	68277	60713
7/32	1/4	1/4	2	4	68278 •	60714
7/32	1/4	7/16	2-1/2	4	68279 •	60715
1/4	1/4	1/4	2	4	68280	60716
1/4	1/4	1/2	2-1/2	4	68281	60717
9/32	5/16	5/8	2-1/2	4	68282	60718 •
5/16	5/16	5/16	2	4	68283 •	60719
5/16	5/16	13/16	2-1/2	4	68284 •	60720
11/32	3/8	13/16	2-1/2	4	68285	60721 •
3/8	3/8	3/8	2	4	68286	60722
3/8	3/8	7/8	2-1/2	4	68287	60723
13/32	7/16	15/16	2-3/4	4	68288 •	60724
7/16	7/16	7/16	2-1/2	4	68289 •	60725 •
7/16	7/16	1	2-3/4	4	68290 •	60726
15/32	1/2	1	3	4	68291 •	60727 •
1/2	1/2	1/2	2-1/2	4	68292	60728
1/2	1/2	1	3	4	68293	60729
1/2	1/2	1-1/4	3	4	68294	57344
9/16	9/16	1-1/8	3-1/2	4	68295	60730
5/8	5/8	5/8	3	4	68296 •	60731
5/8	5/8	1-1/4	3-1/2	4	68297 •	60732
11/16	3/4	1-3/8	4	4	68298 •	57345 •
3/4	3/4	3/4	3	4	68299 •	60733
3/4	3/4	1-1/2	4	4	68300 •	60734
13/16	7/8	1-5/8	4	4	68301 •	57346 •
7/8	7/8	1-3/4	4	4	68302 •	57347 •
15/16	1	1-7/8	4	4	68303 •	57348 •
1	1	1	4	4	68304 •	60735 •
1	1	1-1/2	4	4	68305 •	60736 •
1	1	2	5	4	68306 •	57349 •
1-1/4	1-1/4	2-1/4	5	4	68307 •	57350 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

STABILIZER™ GP

4 Flute Neck Style with Radius

Profiling, Slotting
Carbon, Alloy & Tool Steels
Cast Iron, Copper

STRN430

- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and Larger



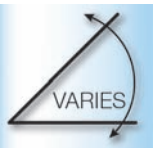
Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AICrN EDP #	AITiN EDP #
1/4	1/4	2-1/8	0.240	3/8	4	0.020	4	68308	60737
5/16	5/16	2-1/8	0.300	7/16	4	0.020	4	68309 •	60738
3/8	3/8	2-1/8	0.360	1/2	4	0.020	4	68310	60739
3/8	3/8	4-1/8	0.360	1/2	6	0.020	4	68311 •	60740
7/16	7/16	2-1/8	0.420	9/16	4	0.020	4	68312 •	60741
7/16	7/16	4-1/8	0.420	9/16	6	0.020	4	68313 •	60742
1/2	1/2	2-1/8	0.480	5/8	4	0.030	4	68314	60743
1/2	1/2	3-1/8	0.480	5/8	5	0.030	4	68315 •	60744
1/2	1/2	4-1/8	0.480	5/8	6	0.030	4	68316 •	60745
5/8	5/8	2-1/8	0.600	3/4	4	0.030	4	68317 •	60746
5/8	5/8	3-1/8	0.600	3/4	5	0.030	4	68318 •	60747
5/8	5/8	4	0.600	3/4	6	0.030	4	68319 •	60748
3/4	3/4	2	0.720	1	4	0.030	4	68320 •	60749
3/4	3/4	3	0.720	1	5	0.030	4	68321 •	60750
3/4	3/4	4	0.720	1	6	0.030	4	68322 •	60751
1	1	3	0.960	1-1/4	5	0.030	4	68323 •	60752 •
1	1	4	0.960	1-1/4	6	0.030	4	68324 •	60753

SOLID CARBIDE

**AICrN
AITiN
COATED**

4 Flutes



**RIGHT
HAND**

**Corner
Radius**

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

STABILIZER™ GP

4 Flute Neck Style Ball-End

Profiling, Slotting
Carbon, Alloy & Tool Steels
Cast Iron, Copper



STBN430

- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and Larger

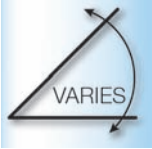
Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	AlCrN EDP #	AlTiN EDP #
1/4	1/4	2-1/8	0.240	3/8	4	4	68325	60754
5/16	5/16	2-1/8	0.300	7/16	4	4	68326 •	60755
3/8	3/8	2-1/8	0.360	1/2	4	4	68327 •	60756
3/8	3/8	4-1/8	0.360	1/2	6	4	68328	60757
7/16	7/16	2-1/8	0.420	9/16	4	4	68329 •	60758
7/16	7/16	4-1/8	0.420	9/16	6	4	68330 •	60759 •
1/2	1/2	2-1/8	0.480	5/8	4	4	68331	60760
1/2	1/2	3-1/8	0.480	5/8	5	4	68332	60761
1/2	1/2	4-1/8	0.480	5/8	6	4	68333 •	60762
5/8	5/8	2-1/8	0.600	3/4	4	4	68334 •	60763 •
5/8	5/8	3-1/8	0.600	3/4	5	4	68335 •	60764 •
5/8	5/8	4	0.600	3/4	6	4	68336 •	60765 •
3/4	3/4	2	0.720	1	4	4	68337 •	60766 •
3/4	3/4	3	0.720	1	5	4	68338 •	60767
3/4	3/4	4	0.720	1	6	4	68339 •	60768 •
1	1	3	0.960	1-1/4	5	4	68340 •	60769 •
1	1	4	0.960	1-1/4	6	4	68341 •	60770 •

SOLID CARBIDE

**AlCrN
AlTiN
COATED**

4 Flutes



Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

STABILIZER™ GP

Metric 4 Flute

Profiling, Slotting
Carbon, Alloy & Tool Steels
Cast Iron, Copper



STS430M

- US Patent # 6,991,409
- Eccentric OD Relief
- Asymmetrical Flute Geometry

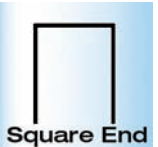
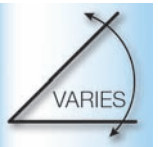
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlCrN EDP #	AlTiN EDP #
3mm	6mm	3mm	58mm	4	68342 •	57351
3mm	6mm	6mm	58mm	4	68343 •	57352
4mm	6mm	4mm	58mm	4	68344 •	57353
4mm	6mm	8mm	58mm	4	68345 •	57354
5mm	6mm	5mm	58mm	4	68346 •	57355
5mm	6mm	10mm	58mm	4	68347 •	57356
6mm	6mm	6mm	58mm	4	68348 •	57357
6mm	6mm	12mm	58mm	4	68349	57358
7mm	8mm	7mm	64mm	4	68350	57359 •
7mm	8mm	14mm	64mm	4	68351 •	57360
8mm	8mm	8mm	64mm	4	68352 •	57361
8mm	8mm	16mm	64mm	4	68353 •	57362
9mm	10mm	9mm	63mm	4	68354 •	57363 •
9mm	10mm	18mm	73mm	4	68355 •	57364
10mm	10mm	10mm	63mm	4	68356 •	57365
10mm	10mm	20mm	73mm	4	68357	57366
11mm	12mm	11mm	74mm	4	68358 •	57367 •
11mm	12mm	22mm	84mm	4	68359 •	57368
12mm	12mm	12mm	74mm	4	68360 •	57369
12mm	12mm	24mm	84mm	4	68361	57370
13mm	14mm	13mm	76mm	4	68362 •	57371
13mm	14mm	26mm	84mm	4	68363 •	57372
14mm	14mm	14mm	76mm	4	68364 •	57373 •
14mm	14mm	28mm	84mm	4	68365 •	57374
15mm	16mm	15mm	83mm	4	68366 •	57375
15mm	16mm	30mm	93mm	4	68367 •	57376
16mm	16mm	16mm	83mm	4	68368 •	57377 •
16mm	16mm	32mm	93mm	4	68369 •	57378
18mm	18mm	18mm	85mm	4	68370 •	57379 •
18mm	18mm	36mm	93mm	4	68371 •	57380
20mm	20mm	20mm	93mm	4	68372 •	57381 •
20mm	20mm	40mm	105mm	4	68373 •	57382
25mm	25mm	25mm	115mm	4	68374 •	57383 •
25mm	25mm	50mm	115mm	4	68375 •	57384 •

SOLID CARBIDE

**AlCrN
AlTiN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

STABILIZER™ GP Metric 4 Flute with Radius

Profiling, Slotting
Carbon, Alloy & Tool Steels
Cast Iron, Copper



STR430M

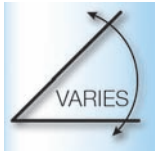
- US Patent # 6,991,409
- Eccentric OD Relief
- Asymmetrical Flute Geometry

Price Code E

**SOLID
CARBIDE**

**AlCrN
AITIN
COATED**

4 Flutes



**Center
Cutting**

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AlCrN EDP #	AITiN EDP #
3mm	6mm	3mm	58mm	0.25	4	68376 •	57385 •
3mm	6mm	6mm	58mm	0.25	4	68377 •	57386 •
4mm	6mm	4mm	58mm	0.25	4	68378 •	57387 •
4mm	6mm	8mm	58mm	0.25	4	68379	57388
5mm	6mm	5mm	58mm	0.25	4	68380 •	57389
5mm	6mm	10mm	58mm	0.25	4	68381 •	57390
6mm	6mm	6mm	58mm	0.50	4	68382	57391
6mm	6mm	12mm	58mm	0.50	4	68383 •	57392
7mm	8mm	7mm	64mm	0.50	4	68384 •	57393 •
7mm	8mm	14mm	64mm	0.50	4	68385 •	57394 •
8mm	8mm	8mm	64mm	0.50	4	68386 •	57395
8mm	8mm	16mm	64mm	0.50	4	68387 •	57396
9mm	10mm	9mm	63mm	0.50	4	68388 •	57397
9mm	10mm	18mm	73mm	0.50	4	68389 •	57398
10mm	10mm	10mm	63mm	0.50	4	68390 •	57399
10mm	10mm	20mm	73mm	0.50	4	68391	57400
11mm	12mm	11mm	74mm	0.50	4	68392 •	57401 •
11mm	12mm	22mm	84mm	0.50	4	68393 •	57402 •
12mm	12mm	12mm	74mm	0.75	4	68394 •	57403 •
12mm	12mm	24mm	84mm	0.75	4	68395 •	57404
13mm	14mm	13mm	76mm	0.75	4	68396 •	57405 •
13mm	14mm	26mm	84mm	0.75	4	68397 •	57406
14mm	14mm	14mm	76mm	0.75	4	68398 •	57407 •
14mm	14mm	28mm	84mm	0.75	4	68399 •	57408
15mm	16mm	15mm	83mm	0.75	4	68400 •	57409 •
15mm	16mm	30mm	93mm	0.75	4	68401 •	57410 •
16mm	16mm	16mm	83mm	0.75	4	68402 •	57411 •
16mm	16mm	32mm	93mm	0.75	4	68403 •	57412 •
18mm	18mm	18mm	85mm	0.75	4	68404 •	57413 •
18mm	18mm	36mm	93mm	0.75	4	68405 •	57414 •
20mm	20mm	20mm	93mm	0.75	4	68406 •	57415
20mm	20mm	40mm	105mm	0.75	4	68407 •	57416
25mm	25mm	25mm	115mm	0.75	4	68408 •	57417 •
25mm	25mm	50mm	115mm	0.75	4	68409 •	57418

• Indicates a Standard, Non Stocked Item

STABILIZER™ GP Metric 4 Flute Ball-End

Profiling, Slotting
Carbon, Alloy & Tool Steels
Cast Iron, Copper

STB430M

- US Patent # 6,991,409
- Eccentric OD Relief
- Asymmetrical Flute Geometry



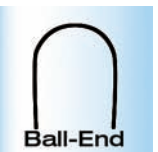
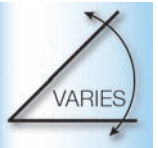
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AICrN EDP #	AITiN EDP #
3mm	6mm	3mm	58mm	4	68410 •	57419 •
3mm	6mm	6mm	58mm	4	68411 •	57420 •
4mm	6mm	4mm	58mm	4	68412 •	57421 •
4mm	6mm	8mm	58mm	4	68413 •	57422
5mm	6mm	5mm	58mm	4	68414 •	57423 •
5mm	6mm	10mm	58mm	4	68415 •	57424 •
6mm	6mm	6mm	58mm	4	68416 •	57425 •
6mm	6mm	12mm	58mm	4	68417 •	57426
7mm	8mm	7mm	64mm	4	68418 •	57427 •
7mm	8mm	14mm	64mm	4	68419 •	57428 •
8mm	8mm	8mm	64mm	4	68420 •	57429 •
8mm	8mm	16mm	64mm	4	68421 •	57430
9mm	10mm	9mm	63mm	4	68422 •	57431 •
9mm	10mm	18mm	73mm	4	68423 •	57432 •
10mm	10mm	10mm	63mm	4	68424 •	57433 •
10mm	10mm	20mm	73mm	4	68425 •	57434 •
11mm	12mm	11mm	74mm	4	68426 •	57435 •
11mm	12mm	22mm	84mm	4	68427 •	57436 •
12mm	12mm	12mm	74mm	4	68428 •	57437 •
12mm	12mm	24mm	84mm	4	68429 •	57438
13mm	14mm	13mm	76mm	4	68430 •	57439 •
13mm	14mm	26mm	84mm	4	68431 •	57440 •
14mm	14mm	14mm	76mm	4	68432 •	57441 •
14mm	14mm	28mm	84mm	4	68433 •	57442 •
15mm	16mm	15mm	83mm	4	68434 •	57443 •
15mm	16mm	30mm	93mm	4	68435 •	57444 •
16mm	16mm	16mm	83mm	4	68436 •	57445 •
16mm	16mm	32mm	93mm	4	68437 •	57446 •
18mm	18mm	18mm	85mm	4	68438 •	57447 •
18mm	18mm	36mm	93mm	4	68439 •	57448 •
20mm	20mm	20mm	93mm	4	68440 •	57449 •
20mm	20mm	40mm	105mm	4	68441 •	57450 •
25mm	25mm	25mm	115mm	4	68442 •	57451 •
25mm	25mm	50mm	115mm	4	68443 •	57452 •

**SOLID
CARBIDE**

**AICrN
AITiN
COATED**

4 Flutes



**Center
Cutting**

STABILIZER - GP Recommended Starting Point Speed and Feeds for Slotting & Profiling (Inch Series)																
Material	SFPM	1/4" Diameter			3/8" Diameter			1/2" Diameter			3/4" Diameter			1" Diameter		
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM
Steels																
1018/1020	600	9168	0.0013	45.8	6112	0.0019	45.8	4584	0.0025	45.8	3056	0.0031	38.2	2292	0.0038	34.4
1045	550	8404	0.0010	33.6	5603	0.0015	33.6	4202	0.0020	33.6	2801	0.0025	28.0	2101	0.0030	25.2
4140	500	7640	0.0010	30.6	5093	0.0015	30.6	3820	0.0020	30.6	2547	0.0025	25.5	1910	0.0030	22.9
4340	475	7258	0.0010	29.0	4839	0.0015	29.0	3629	0.0020	29.0	2419	0.0025	24.2	1815	0.0030	21.8
Cast Iron																
Ductile	425	6494	0.0013	32.5	4329	0.0019	32.5	3247	0.0025	32.5	2165	0.0031	27.1	1624	0.0038	24.4
Gray	550	8404	0.0013	42.0	5603	0.0019	42.0	4202	0.0025	42.0	2801	0.0031	35.0	2101	0.0038	31.5
Tool Steel																
A2	425	6494	0.0010	26.0	4329	0.0015	26.0	3247	0.0020	26.0	2165	0.0025	21.6	1624	0.0030	19.5
D2	200	5348	0.0010	21.4	3565	0.0015	21.4	2674	0.0020	21.4	1783	0.0025	17.8	1337	0.0030	16.0
H13	425	6494	0.0010	26.0	4329	0.0015	26.0	3247	0.0020	26.0	2165	0.0025	21.6	1624	0.0030	19.5
P20	375	5730	0.0013	28.7	3820	0.0019	28.7	2865	0.0025	28.7	1910	0.0031	23.9	1433	0.0038	21.5
S7	400	6112	0.0010	24.4	4075	0.0015	24.4	3056	0.0020	24.4	2037	0.0025	20.4	1528	0.0030	18.3

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 1 x Diameter

For Profiling with 25% of the tool diameter increase speed and feed by 25%

Niagara Cutter

STABILIZER - GP Recommended Starting Point Speed and Feeds (Slotting) ALL DATA METRIC																
Material	m/min	6mm Diameter			10mm Diameter			12mm Diameter			20mm Diameter			25mm Diameter		
		RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min
Steels																
1018/1020	183	9697	0.032	1231.5	5818	0.048	1108.4	4848	0.064	1231.5	2909	0.079	923.6	2327	0.095	886.7
1045	168	8889	0.025	903.1	5333	0.038	812.8	4444	0.051	903.1	2667	0.064	677.3	2133	0.076	650.2
4140	152	8081	0.025	821.0	4848	0.038	738.9	4040	0.051	821.0	2424	0.064	615.8	1939	0.076	591.1
4340	145	7677	0.025	780.0	4606	0.038	702.0	3838	0.051	780.0	2303	0.064	585.0	1842	0.076	561.6
Cast Iron																
Ductile	130	6869	0.032	872.3	4121	0.048	785.1	3434	0.064	872.3	2061	0.079	654.2	1648	0.095	628.1
Gray	168	8889	0.032	1128.9	5333	0.048	1016.0	4444	0.064	1128.9	2667	0.079	846.7	2133	0.095	812.8
Tool Steel																
A2	130	6869	0.025	697.9	4121	0.038	628.1	3434	0.051	697.9	2061	0.064	523.4	1648	0.076	502.5
D2	107	5657	0.025	574.7	3394	0.038	517.2	2828	0.051	574.7	1697	0.064	431.0	1358	0.076	413.8
H13	130	6869	0.025	697.9	4121	0.038	628.1	3434	0.051	697.9	2061	0.064	523.4	1648	0.076	502.5
P20	114	6061	0.032	769.7	3636	0.048	692.7	3030	0.064	769.7	1818	0.079	577.3	1455	0.095	554.2
S7	122	6465	0.025	656.8	3879	0.038	591.1	3232	0.051	656.8	1939	0.064	492.6	1551	0.076	472.9

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 1 x Diameter

For Profiling with 25% of the tool diameter increase speed and feed by 25%

STABILIZER™ HT

4 Flute with Radius



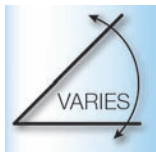
Stainless Steel
High Temperature Alloys
Nickel Based Alloys
Titanium and Titanium Alloys

STR440

- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and larger

**SOLID
CARBIDE**

**AICrN
AITiN
COATED**



4 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AICrN EDP #	AITiN EDP #
1/8	1/8	1/8	1-1/2	0.010	4	68444	57453
1/8	1/8	3/8	1-1/2	0.010	4	68445	57454
5/32	3/16	3/16	2	0.010	4	68446	57455
5/32	3/16	7/16	2	0.010	4	68447	57456
3/16	3/16	3/16	2	0.010	4	68448	57457
3/16	3/16	7/16	2	0.010	4	68449	57458
7/32	1/4	1/4	2	0.020	4	68450	57459
7/32	1/4	7/16	2-1/2	0.020	4	68451	57460
1/4	1/4	1/4	2	0.020	4	68452	57461
1/4	1/4	1/2	2-1/2	0.020	4	68453	57462
9/32	5/16	5/8	2-1/2	0.020	4	68454	57463
5/16	5/16	5/16	2	0.020	4	68455	57464
5/16	5/16	13/16	2-1/2	0.020	4	68456	57465
11/32	3/8	13/16	2-1/2	0.020	4	68457 •	57466
3/8	3/8	3/8	2	0.020	4	68458	57467
3/8	3/8	7/8	2-1/2	0.020	4	68459	57468
13/32	7/16	15/16	2-3/4	0.020	4	68460 •	57469 •
7/16	7/16	7/16	2-1/2	0.020	4	68461	57470
7/16	7/16	1	2-3/4	0.020	4	68462	57471
15/32	1/2	1	3	0.030	4	68463 •	57472
1/2	1/2	1/2	2-1/2	0.030	4	68464	57473
1/2	1/2	1	3	0.030	4	68465	57474
1/2	1/2	1-1/4	3	0.030	4	68466	57475
9/16	9/16	1-1/8	3-1/2	0.030	4	68467	57476
5/8	5/8	5/8	3	0.030	4	68468	57477
5/8	5/8	1-1/4	3-1/2	0.030	4	68469	57478
11/16	3/4	1-3/8	4	0.030	4	68470 •	57479 •
3/4	3/4	3/4	3	0.030	4	68471	57480
3/4	3/4	1-1/2	4	0.030	4	68472	57481
13/16	7/8	1-5/8	4	0.030	4	68473 •	57482
7/8	7/8	1-3/4	4	0.030	4	68474	57483
15/16	1	1-7/8	4	0.030	4	68475 •	57484
1	1	1	4	0.030	4	68476 •	57485
1	1	1-1/2	4	0.030	4	68477 •	57486
1	1	2	5	0.030	4	68478	57487
1-1/4	1-1/4	2-1/4	5	0.030	4	68479 •	57488 •

• Indicates a Standard, Non Stocked Item

STABILIZER™ HT 4 Flute Ball-End

Stainless Steel
High Temperature Alloys
Nickel Based Alloys
Titanium and Titanium Alloys



STB440

- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and larger

Price Code E

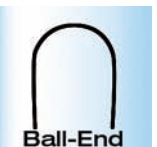
Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlCrN EDP #	AlTiN EDP #
1/8	1/8	1/8	1-1/2	4	68480	57489
1/8	1/8	3/8	1-1/2	4	68481	57490
5/32	3/16	3/16	2	4	68482 •	57491
5/32	3/16	7/16	2	4	68483	57492
3/16	3/16	3/16	2	4	68484	57493
3/16	3/16	7/16	2	4	68485	57494
7/32	1/4	1/4	2	4	68486 •	57495
7/32	1/4	7/16	2-1/2	4	68487 •	57496 •
1/4	1/4	1/4	2	4	68488	57497
1/4	1/4	1/2	2-1/2	4	68489	57498
9/32	5/16	5/8	2-1/2	4	68490 •	57499
5/16	5/16	5/16	2	4	68491	57500 •
5/16	5/16	13/16	2-1/2	4	68492	57501
11/32	3/8	13/16	2-1/2	4	68493 •	57502
3/8	3/8	3/8	2	4	68494	57503
3/8	3/8	7/8	2-1/2	4	68495	57504
13/32	7/16	15/16	2-3/4	4	68496 •	57505 •
7/16	7/16	7/16	2-1/2	4	68497 •	57506
7/16	7/16	1	2-3/4	4	68498 •	57507
15/32	1/2	1	3	4	68499 •	57508 •
1/2	1/2	1/2	2-1/2	4	68500	57509
1/2	1/2	1	3	4	68501	57510
1/2	1/2	1-1/4	3	4	68502	57511
9/16	9/16	1-1/8	3-1/2	4	68503 •	57512
5/8	5/8	5/8	3	4	68504 •	57513 •
5/8	5/8	1-1/4	3-1/2	4	68505 •	57514
11/16	3/4	1-3/8	4	4	68506 •	57515 •
3/4	3/4	3/4	3	4	68507	57516 •
3/4	3/4	1-1/2	4	4	68508 •	57517
13/16	7/8	1-5/8	4	4	68509 •	57518 •
7/8	7/8	1-3/4	4	4	68510 •	57519
15/16	1	1-7/8	4	4	68511 •	57520 •
1	1	1	4	4	68512 •	57521
1	1	1-1/2	4	4	68513 •	57522 •
1	1	2	5	4	68514 •	57523 •
1-1/4	1-1/4	2-1/4	5	4	68515 •	57524 •

SOLID CARBIDE

**AlCrN
AlTiN
COATED**



4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

STABILIZER™ HT

4 Flute Neck Style with Radius



Stainless Steel
High Temperature Alloys
Nickel Based Alloys
Titanium and Titanium Alloys

STRN440

- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and larger

Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AlCrN EDP #	AlTiN EDP #
1/4	1/4	2-1/8	0.240	3/8	4	0.020	4	68516	57525
5/16	5/16	2-1/8	0.300	7/16	4	0.020	4	68517	57526
3/8	3/8	2-1/8	0.360	1/2	4	0.020	4	68518	57527
3/8	3/8	4-1/8	0.360	1/2	6	0.020	4	68519 •	57528
7/16	7/16	2-1/8	0.420	9/16	4	0.020	4	68520 •	57529
7/16	7/16	4-1/8	0.420	9/16	6	0.020	4	68521 •	57530 •
1/2	1/2	2-1/8	0.480	5/8	4	0.030	4	68522	57531
1/2	1/2	3-1/8	0.480	5/8	5	0.030	4	68523 •	57532
1/2	1/2	4-1/8	0.480	5/8	6	0.030	4	68524 •	57533
5/8	5/8	2-1/8	0.600	3/4	4	0.030	4	68525 •	57534
5/8	5/8	3-1/8	0.600	3/4	5	0.030	4	68526 •	57535 •
5/8	5/8	4	0.600	3/4	6	0.030	4	68527 •	57536
3/4	3/4	2	0.720	1	4	0.030	4	68528 •	57537
3/4	3/4	3	0.720	1	5	0.030	4	68529 •	57538
3/4	3/4	4	0.720	1	6	0.030	4	68530	57539
1	1	3	0.960	1-1/4	5	0.030	4	68531 •	57540 •
1	1	4	0.960	1-1/4	6	0.030	4	68532 •	57541 •

SOLID CARBIDE

**AlCrN
AlTiN
COATED**

VARIES

RIGHT HAND

4 Flutes

Corner Radius

Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

STABILIZER™ HT 4 Flute Neck Style Ball-End

Stainless Steel
High Temperature Alloys
Nickel Based Alloys
Titanium and Titanium Alloys



STBN440

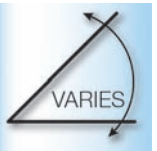
- US Patent # 6,991,409
- Eccentric Primary Relief
- Asymmetrical Flute Geometry
- Weldon Flat Standard on Shank Sizes 3/8" and larger

Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	AlCrN EDP #	AlTiN EDP #
1/4	1/4	2-1/8	0.240	3/8	4	4	68533	57542
5/16	5/16	2-1/8	0.300	7/16	4	4	68534 •	57543 •
3/8	3/8	2-1/8	0.360	1/2	4	4	68535	57544
3/8	3/8	4-1/8	0.360	1/2	6	4	68536	57545
7/16	7/16	2-1/8	0.420	9/16	4	4	68537 •	57546 •
7/16	7/16	4-1/8	0.420	9/16	6	4	68538 •	57547 •
1/2	1/2	2-1/8	0.480	5/8	4	4	68539	57548
1/2	1/2	3-1/8	0.480	5/8	5	4	68540 •	57549
1/2	1/2	4-1/8	0.480	5/8	6	4	68541	57550
5/8	5/8	2-1/8	0.600	3/4	4	4	68542 •	57551 •
5/8	5/8	3-1/8	0.600	3/4	5	4	68543 •	57552
5/8	5/8	4	0.600	3/4	6	4	68544	57553 •
3/4	3/4	2	0.720	1	4	4	68545	57554 •
3/4	3/4	3	0.720	1	5	4	68546 •	57555 •
3/4	3/4	4	0.720	1	6	4	68547 •	57556 •
1	1	3	0.960	1-1/4	5	4	68548 •	57557 •
1	1	4	0.960	1-1/4	6	4	68549 •	57558 •

**SOLID
CARBIDE**

**AlCrN
AlTiN
COATED**



4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

STABILIZER™ HT Metric 4 Flute with Radius

Stainless Steel
High Temp Alloys
Nickel Based Alloys
Titanium & Titanium Alloys



STR440M

- US Patent # 6,991,409
- Eccentric OD Relief
- Asymmetrical Flute Geometry

Price Code E

**SOLID
CARBIDE**

**AlCrN
AlTiN
COATED**

4 Flutes

VARIES

**RIGHT
HAND**

**Corner
Radius**

**Center
Cutting**

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AlCrN EDP #	AlTiN EDP #
3mm	6mm	3mm	58mm	0.25	4	68550	68665
3mm	6mm	6mm	58mm	0.25	4	68551	68666
4mm	6mm	4mm	58mm	0.25	4	68552 •	68667
4mm	6mm	8mm	58mm	0.25	4	68553	68668
5mm	6mm	5mm	58mm	0.25	4	68554 •	68669
5mm	6mm	10mm	58mm	0.25	4	68555	68670
6mm	6mm	6mm	58mm	0.50	4	68556	68671
6mm	6mm	12mm	58mm	0.50	4	68557	68672
7mm	8mm	7mm	64mm	0.50	4	68558	68673
7mm	8mm	14mm	64mm	0.50	4	68559 •	68674
8mm	8mm	8mm	64mm	0.50	4	68560 •	68675
8mm	8mm	16mm	64mm	0.50	4	68561	68676
9mm	10mm	9mm	63mm	0.50	4	68562	68677
9mm	10mm	18mm	73mm	0.50	4	68563 •	68678
10mm	10mm	10mm	63mm	0.50	4	68564	68679
10mm	10mm	20mm	73mm	0.50	4	68565	68680
11mm	12mm	11mm	74mm	0.50	4	68566 •	68681
11mm	12mm	22mm	84mm	0.50	4	68567 •	68682
12mm	12mm	12mm	74mm	0.75	4	68568	68683
12mm	12mm	24mm	84mm	0.75	4	68569	68684
13mm	14mm	13mm	76mm	0.75	4	68570	68685
13mm	14mm	26mm	84mm	0.75	4	68571 •	68686
14mm	14mm	14mm	76mm	0.75	4	68572 •	68687 •
14mm	14mm	28mm	84mm	0.75	4	68573 •	68688
15mm	16mm	15mm	83mm	0.75	4	68574 •	68689 •
15mm	16mm	30mm	93mm	0.75	4	68575 •	68690
16mm	16mm	16mm	83mm	0.75	4	68576 •	68691
16mm	16mm	32mm	93mm	0.75	4	68577	68692
18mm	18mm	18mm	85mm	0.75	4	68578 •	68693 •
18mm	18mm	36mm	93mm	0.75	4	68579 •	68694
20mm	20mm	20mm	93mm	0.75	4	68580 •	68695
20mm	20mm	40mm	105mm	0.75	4	68581 •	68696
25mm	25mm	25mm	115mm	0.75	4	68582 •	68697 •
25mm	25mm	50mm	115mm	0.75	4	68583 •	68698

• Indicates a Standard, Non Stocked Item

STABILIZER™ HT **Metric 4 Flute Ball-End**

Stainless Steel
High Temp Alloys
Nickel Based Alloys
Titanium & Titanium Alloys



STB440M

- US Patent # 6,991,409
- Eccentric OD Relief
- Asymmetrical Flute Geometry

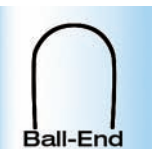
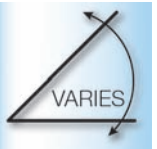
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlCrN EDP #	AlTiN EDP #
3mm	6mm	3mm	58mm	4	68584 •	57593
3mm	6mm	6mm	58mm	4	68585 •	57594
4mm	6mm	4mm	58mm	4	68586 •	57595 •
4mm	6mm	8mm	58mm	4	68587	57596
5mm	6mm	5mm	58mm	4	68588 •	57597
5mm	6mm	10mm	58mm	4	68589 •	57598
6mm	6mm	6mm	58mm	4	68590 •	57599
6mm	6mm	12mm	58mm	4	68591	57600
7mm	8mm	7mm	64mm	4	68592 •	57601 •
7mm	8mm	14mm	64mm	4	68593 •	57602 •
8mm	8mm	8mm	64mm	4	68594 •	57603
8mm	8mm	16mm	64mm	4	68595 •	57604
9mm	10mm	9mm	63mm	4	68596 •	57605 •
9mm	10mm	18mm	73mm	4	68597 •	57606 •
10mm	10mm	10mm	63mm	4	68598 •	57607
10mm	10mm	20mm	73mm	4	68599	57608
11mm	12mm	11mm	74mm	4	68600 •	57609 •
11mm	12mm	22mm	84mm	4	68601 •	57610 •
12mm	12mm	12mm	74mm	4	68602 •	57611
12mm	12mm	24mm	84mm	4	68603 •	57612
13mm	14mm	13mm	76mm	4	68604 •	57613 •
13mm	14mm	26mm	84mm	4	68605 •	57614
14mm	14mm	14mm	76mm	4	68606 •	57615 •
14mm	14mm	28mm	84mm	4	68607 •	57616
15mm	16mm	15mm	83mm	4	68608 •	57617 •
15mm	16mm	30mm	93mm	4	68609 •	57618 •
16mm	16mm	16mm	83mm	4	68610 •	57619 •
16mm	16mm	32mm	93mm	4	68611 •	57620
18mm	18mm	18mm	85mm	4	68612 •	57621 •
18mm	18mm	36mm	93mm	4	68613 •	57622
20mm	20mm	20mm	93mm	4	68614 •	57623
20mm	20mm	40mm	105mm	4	68615 •	57624
25mm	25mm	25mm	115mm	4	68616 •	57625 •
25mm	25mm	50mm	115mm	4	68617 •	57626 •

SOLID CARBIDE

**AlCrN
AlTiN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

STABILIZER - HT Recommended Starting Point Speed and Feeds for Slotting (Inch Series)

Material	SFPM	1/4" Diameter			3/8" Diameter			1/2" Diameter			3/4" Diameter			1" Diameter		
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM
Inconel																
625	135	2063	0.0006	5.0	1375	0.0009	5.0	1031	0.0012	5.0	688	0.0015	4.1	516	0.0018	3.7
718	90	1375	0.0005	2.8	917	0.0008	2.8	688	0.0010	2.8	458	0.0013	2.3	344	0.0015	2.1
Other Nickel Based																
Waspalloy	90	1375	0.0005	2.8	917	0.0008	2.8	688	0.0010	2.8	458	0.0013	2.3	344	0.0015	2.1
Hastelloy	90	1375	0.0005	2.8	917	0.0008	2.8	688	0.0010	2.8	458	0.0013	2.3	344	0.0015	2.1
A-286	110	1681	0.0005	3.4	1121	0.0008	3.4	840	0.0010	3.4	560	0.0013	2.8	420	0.0015	2.5
Titanium																
6AL-4V/Comm. Pure.	275	4202	0.0008	12.6	2801	0.0011	12.6	2101	0.0015	12.6	1401	0.0019	10.5	1051	0.0023	9.5
Stainless Steel																
303	400	6112	0.0009	20.8	4075	0.0013	20.8	3056	0.0017	20.8	2037	0.0021	17.3	1528	0.0026	15.6
304	400	6112	0.0009	20.8	4075	0.0013	20.8	3056	0.0017	20.8	2037	0.0021	17.3	1528	0.0026	15.6
316	400	6112	0.0009	20.8	4075	0.0013	20.8	3056	0.0017	20.8	2037	0.0021	17.3	1528	0.0026	15.6
15/5	350	5348	0.0009	18.2	3565	0.0013	18.2	2674	0.0017	18.2	1783	0.0021	15.2	1337	0.0026	13.6
17/4	350	5348	0.0009	18.2	3565	0.0013	18.2	2674	0.0017	18.2	1783	0.0021	15.2	1337	0.0026	13.6
416	350	5348	0.0009	18.2	3565	0.0013	18.2	2674	0.0017	18.2	1783	0.0021	15.2	1337	0.0026	13.6
Kovar/Invar	225	3438	0.0009	11.7	2292	0.0013	11.7	1719	0.0017	11.7	1146	0.0021	9.7	860	0.0026	8.8

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 1 x Diameter

For Profiling with 25% of the tool diameter increase speed by 25% and feed by 15%

STABILIZER - HT Recommended Starting Point Speed and Feeds for Profiling (Inch Series)

Material	SFPM	1/4" Diameter			3/8" Diameter			1/2" Diameter			3/4" Diameter			1" Diameter		
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM
Inconel																
625	155	2372	0.0008	7.1	1581	0.0011	7.1	1186	0.0015	7.1	791	0.0019	5.9	593	0.0023	5.3
718	104	1581	0.0006	4.0	1054	0.0009	4.0	791	0.0013	4.0	527	0.0016	3.3	395	0.0019	3.0
Other Nickel Based																
Waspalloy	104	1581	0.0006	4.0	1054	0.0009	4.0	791	0.0013	4.0	527	0.0016	3.3	395	0.0019	3.0
Hastelloy	104	1581	0.0006	4.0	1054	0.0009	4.0	791	0.0013	4.0	527	0.0016	3.3	395	0.0019	3.0
A-286	127	1933	0.0006	4.8	1289	0.0009	4.8	966	0.0013	4.8	644	0.0016	4.0	483	0.0019	3.6
Titanium																
6AL-4V/Comm. Pure.	316	4832	0.0009	18.1	3222	0.0014	18.1	2416	0.0019	18.1	1611	0.0023	15.1	1208	0.0028	13.6
Stainless Steel																
303	460	7029	0.0011	29.9	4686	0.0016	29.9	3514	0.0021	29.9	2343	0.0027	24.9	1757	0.0032	22.4
304	460	7029	0.0011	29.9	4686	0.0016	29.9	3514	0.0021	29.9	2343	0.0027	24.9	1757	0.0032	22.4
316	460	7029	0.0011	29.9	4686	0.0016	29.9	3514	0.0021	29.9	2343	0.0027	24.9	1757	0.0032	22.4
15/5	403	6150	0.0011	26.1	4100	0.0016	26.1	3075	0.0021	26.1	2050	0.0027	21.8	1538	0.0032	19.6
17/4	403	6150	0.0011	26.1	4100	0.0016	26.1	3075	0.0021	26.1	2050	0.0027	21.8	1538	0.0032	19.6
416	403	6150	0.0011	26.1	4100	0.0016	26.1	3075	0.0021	26.1	2050	0.0027	21.8	1538	0.0032	19.6
Kovar/Invar	259	3954	0.0011	16.8	2636	0.0016	16.8	1977	0.0021	16.8	1318	0.0027	14.0	988	0.0032	12.6

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 0.25 x Diameter

Niagara Cutter

STABILIZER - HT Recommended Starting Point Speed and Feeds (Slotting) ALL DATA METRIC																
Material	m/min	6mm Diameter			10mm Diameter			12mm Diameter			20mm Diameter			25mm Diameter		
		RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min
Inconel																
625	41	2182	0.015	133.0	1309	0.023	119.7	1091	0.030	133.0	655	0.038	99.8	524	0.046	95.8
718	27	1455	0.013	73.9	873	0.019	66.5	727	0.025	73.9	436	0.032	55.4	349	0.038	53.2
Other Nickel Based																
Waspalloy	27	1455	0.013	73.9	873	0.019	66.5	727	0.025	73.9	436	0.032	55.4	349	0.038	53.2
Hastelloy	27	1455	0.013	73.9	873	0.019	66.5	727	0.025	73.9	436	0.032	55.4	349	0.038	53.2
A-286	34	1778	0.013	90.3	1067	0.019	81.3	889	0.025	90.3	533	0.032	67.7	427	0.038	65.0
Titanium																
6AL-4V/Comm. Pure.	84	4444	0.019	338.7	2667	0.029	304.8	2222	0.038	338.7	1333	0.048	254.0	1067	0.057	243.8
Stainless Steel																
303	122	6465	0.022	558.3	3879	0.032	502.5	3232	0.043	558.3	1939	0.054	418.7	1551	0.065	402.0
304	122	6465	0.022	558.3	3879	0.032	502.5	3232	0.043	558.3	1939	0.054	418.7	1551	0.065	402.0
316	122	6465	0.022	558.3	3879	0.032	502.5	3232	0.043	558.3	1939	0.054	418.7	1551	0.065	402.0
15/5	107	5657	0.022	488.5	3394	0.032	439.6	2828	0.043	488.5	1697	0.054	366.4	1358	0.065	351.7
17/4	107	5657	0.022	488.5	3394	0.032	439.6	2828	0.043	488.5	1697	0.054	366.4	1358	0.065	351.7
416	107	5657	0.022	488.5	3394	0.032	439.6	2828	0.043	488.5	1697	0.054	366.4	1358	0.065	351.7
Kovar/Invar	69	3636	0.022	314.0	2182	0.032	282.6	1818	0.043	314.0	1091	0.054	235.5	873	0.065	226.1

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 1 x Diameter

For Profiling with 25% of the tool diameter increase speed by 25% and feed by 15%

STABILIZER™

5 Flute



Profiling
High Speed Milling
Trochoidal Milling
Stainless Steels
Titanium, High Temp Alloys
Carbon, Alloy & Tool Steels

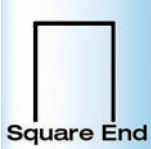
STS540

- US Patent # 6,991,409
- Asymmetrical Flute Geometry

**SOLID
CARBIDE**

**Uncoated
AlCrN
COATED**

5 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AlCrN EDP #
1/4	1/4	3/4	2-1/2	5	68618	68625
5/16	5/16	3/4	2-1/2	5	68619 •	68626
3/8	3/8	7/8	2-1/2	5	68620	68627
1/2	1/2	1-1/4	3	5	68621	68628
5/8	5/8	1-1/4	3-1/2	5	68622 •	68629
3/4	3/4	1-1/2	4	5	68623 •	68630
1	1	1-3/4	4	5	68624	68631 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

STABILIZER™ 5 Flute with Radius

Profiling
High Speed Milling
Trochoidal Milling
Stainless Steels
Titanium, High Temp Alloys
Carbon, Alloy & Tool Steels



STR540

- US Patent # 6,991,409
- Asymmetrical Flute Geometry

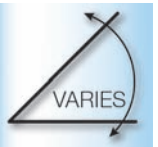
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AICrN EDP #
1/4	1/4	3/4	2-1/2	0.015	5	68632
5/16	5/16	3/4	2-1/2	0.015	5	68633
3/8	3/8	7/8	2-1/2	0.015	5	68634
1/2	1/2	1-1/4	3	0.015	5	68635
5/8	5/8	1-1/4	3-1/2	0.015	5	68636 •
3/4	3/4	1-1/2	4	0.015	5	68637 •
1	1	1-3/4	4	0.015	5	68638 •
1/4	1/4	3/4	2-1/2	0.030	5	68639
5/16	5/16	3/4	2-1/2	0.030	5	68640
3/8	3/8	7/8	2-1/2	0.030	5	68641
1/2	1/2	1-1/4	3	0.030	5	68642
5/8	5/8	1-1/4	3-1/2	0.030	5	68643
3/4	3/4	1-1/2	4	0.030	5	68644
1	1	1-3/4	4	0.030	5	68645 •
1/4	1/4	3/4	2-1/2	0.045	5	68646
5/16	5/16	3/4	2-1/2	0.045	5	68647 •
3/8	3/8	7/8	2-1/2	0.045	5	68648
1/2	1/2	1-1/4	3	0.045	5	68649
5/8	5/8	1-1/4	3-1/2	0.045	5	68650 •
3/4	3/4	1-1/2	4	0.045	5	68651
1	1	1-3/4	4	0.045	5	68652 •
1/2	1/2	1-1/4	3	0.060	5	68653
5/8	5/8	1-1/4	3-1/2	0.060	5	68654 •
3/4	3/4	1-1/2	4	0.060	5	68655 •
1	1	1-3/4	4	0.060	5	68656
1/2	1/2	1-1/4	3	0.090	5	68657
5/8	5/8	1-1/4	3-1/2	0.090	5	68658 •
3/4	3/4	1-1/2	4	0.090	5	68659
1	1	1-3/4	4	0.090	5	68660 •
1/2	1/2	1-1/4	3	0.125	5	68661
5/8	5/8	1-1/4	3-1/2	0.125	5	68662
3/4	3/4	1-1/2	4	0.125	5	68663
1	1	1-3/4	4	0.125	5	68664 •

**SOLID
CARBIDE**

**AICrN
COATED**

5 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

STABILIZER™

Metric 5 Flute



Profiling
High Speed Milling
Trochoidal Milling
Stainless Steels
Titanium, High Temp Alloys
Carbon, Alloy & Tool Steels

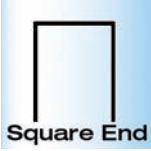
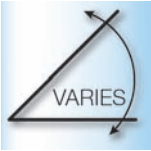
STS540M

- US Patent # 6,991,409
- Asymmetrical Flute Geometry

**SOLID
CARBIDE**

**AlCrN
AlTiN
COATED**

5 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlCrN EDP #	AlTiN EDP #
6mm	6mm	12mm	58mm	5	68708	68699
8mm	8mm	16mm	64mm	5	68709 •	68700
10mm	10mm	20mm	73mm	5	68710	68701
12mm	12mm	24mm	84mm	5	68711 •	68702
14mm	14mm	28mm	84mm	5	68712 •	68703
16mm	16mm	32mm	93mm	5	68713 •	68704
18mm	18mm	36mm	93mm	5	68714 •	68705
20mm	20mm	40mm	105mm	5	68715 •	68706
25mm	25mm	50mm	115mm	5	68716 •	68707 •

• Indicates a Standard, Non Stocked Item

Metric 5 Flute with Radius



Profiling
High Speed Milling
Trochoidal Milling
Stainless Steels
Titanium, High Temp Alloys
Carbon, Alloy & Tool Steels

STR540M

- US Patent # 6,991,409
- Increased Feed Rates
- Asymmetrical Flute Geometry

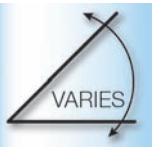
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AlCrN EDP #	AlTiN EDP #
6mm	6mm	12mm	58mm	0.50	5	68726 •	68717
8mm	8mm	16mm	64mm	0.50	5	68727	68718
10mm	10mm	20mm	73mm	0.50	5	68728	68719
12mm	12mm	24mm	84mm	0.75	5	68729	68720
14mm	14mm	28mm	84mm	0.75	5	68730 •	68721 •
16mm	16mm	32mm	93mm	0.75	5	68731 •	68722
18mm	18mm	36mm	93mm	1.00	5	68732 •	68723 •
20mm	20mm	40mm	105mm	1.00	5	68733 •	68724
25mm	25mm	50mm	115mm	1.00	5	68734 •	68725 •

SOLID CARBIDE

**AlCrN
AlTiN
COATED**

5 Flutes



Center Cutting

STABILIZER HT - STR540M Recommended Starting Point Speed & Feeds (Profiling) METRIC																
Material	m/min	6mm Diameter			10mm Diameter			12mm Diameter			20mm Diameter			25mm Diameter		
		RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min
Inconel																
625	40	2,120	0.015	159	1,272	0.023	143	1,060	0.030	159	636	0.038	119	509	0.045	115
718	28	1484	0.011	82	891	0.017	73	742	0.022	82	445	0.028	61	356	0.033	59
Other Nickel Based																
Waspalloy	28	1484	0.007	52	891	0.011	47	742	0.014	52	445	0.018	39	356	0.021	37
Hastelloy	28	1484	0.007	52	891	0.011	47	742	0.014	52	445	0.018	39	356	0.021	37
A-286	32	1696	0.007	55	1018	0.010	50	848	0.013	55	509	0.016	41	407	0.020	40
Titanium																
6AL-4V Comm. Pure.	75	3976	0.008	149	2385	0.011	134	1988	0.015	149	1193	0.019	112	954	0.023	107
Stainless Steel																
303	120	6361	0.006	191	3817	0.009	172	3181	0.012	191	1908	0.015	143	1527	0.018	137
304	120	6361	0.006	191	3817	0.009	172	3181	0.012	191	1908	0.015	143	1527	0.018	137
316	100	5301	0.006	159	3181	0.009	143	2650	0.012	159	1590	0.015	119	1272	0.018	115
15/5	102	5407	0.007	176	3244	0.010	158	2703	0.013	176	1622	0.016	132	1298	0.020	127
17/4	102	5407	0.007	176	3244	0.010	158	2703	0.013	176	1622	0.016	132	1298	0.020	127
416	102	5407	0.007	176	3244	0.010	158	2703	0.013	176	1622	0.016	132	1298	0.020	127
Kovar/Invar	70	3711	0.009	158	2226	0.013	142	1855	0.017	158	1113	0.021	118	891	0.026	114

Speeds and Feeds are based upon: ADOC = 1.5 x Diameter, RDOC = 0.5 x Diameter

Spced and Feed is for AlTiN. For AlCrN, increase m/min by 10% and mm/min by 10%

- Indicates a Standard, Non Stocked Item

STR540 Recommended Starting Point Speeds and Feeds (Profiling)

Material	SFPM	1/4" Diameter			3/8" Diameter			1/2" Diameter			3/4" Diameter			1" Diameter		
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM
Inconel																
625	140	2139	0.0009	9.6	1426	0.0014	9.6	1070	0.0018	9.6	713	0.0023	8.0	535	0.0027	7.2
718	100	1528	0.0008	5.7	1019	0.0011	5.7	764	0.0015	5.7	509	0.0019	4.8	382	0.0023	4.3
Other Nickel Based																
Waspalloy	105	1604	0.0008	6.0	1070	0.0011	6.0	802	0.0015	6.0	535	0.0019	5.0	401	0.0023	4.5
Hastelloy	105	1604	0.0008	6.0	1070	0.0011	6.0	802	0.0015	6.0	535	0.0019	5.0	401	0.0023	4.5
A-286	125	1910	0.0008	7.2	1273	0.0011	7.2	955	0.0015	7.2	637	0.0019	6.0	478	0.0023	5.4
Titanium																
6AL-4V/Comm. Pure.	300	4584	0.0011	25.8	3056	0.0017	25.8	2292	0.0023	25.8	1528	0.0028	21.5	1146	0.0034	19.3
Stainless Steel																
303	425	6494	0.0013	41.4	4329	0.0019	41.4	3247	0.0026	41.4	2165	0.0032	34.5	1624	0.0038	31.0
304	425	6494	0.0013	41.4	4329	0.0019	41.4	3247	0.0026	41.4	2165	0.0032	34.5	1624	0.0038	31.0
316	425	6494	0.0013	41.4	4329	0.0019	41.4	3247	0.0026	41.4	2165	0.0032	34.5	1624	0.0038	31.0
15/5	400	6112	0.0013	39.0	4075	0.0019	39.0	3056	0.0026	39.0	2037	0.0032	32.5	1528	0.0038	29.2
17/4	400	6112	0.0013	39.0	4075	0.0019	39.0	3056	0.0026	39.0	2037	0.0032	32.5	1528	0.0038	29.2
416	400	6112	0.0013	39.0	4075	0.0019	39.0	3056	0.0026	39.0	2037	0.0032	32.5	1528	0.0038	29.2
Kovar/Invar	275	4202	0.0013	26.8	2801	0.0019	26.8	2101	0.0026	26.8	1401	0.0032	22.3	1051	0.0038	20.1

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 0.15 x Diameter

Speeds and Feeds are based upon material hardness <32Rc

STR540 Recommended Starting Point Speeds and Feeds (Profiling)

Material	SFPM	1/4" Diameter			3/8" Diameter			1/2" Diameter			3/4" Diameter			1" Diameter		
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM
Steels																
1018/1020	625	9550	0.0019	89.5	6367	0.0028	89.5	4775	0.0038	89.5	3183	0.0047	74.6	2388	0.0056	67.1
1045	600	9168	0.0015	68.8	6112	0.0023	68.8	4584	0.0030	68.8	3056	0.0038	57.3	2292	0.0045	51.6
4140	550	8404	0.0015	63.0	5603	0.0023	63.0	4202	0.0030	63.0	2801	0.0038	52.5	2101	0.0045	47.3
4340	500	7640	0.0015	57.3	5093	0.0023	57.3	3820	0.0030	57.3	2547	0.0038	47.8	1910	0.0045	43.0
Cast Iron																
Ductile	500	7640	0.0019	71.6	5093	0.0028	71.6	3820	0.0038	71.6	2547	0.0047	59.7	1910	0.0056	53.7
Gray	625	9550	0.0019	89.5	6367	0.0028	89.5	4775	0.0038	89.5	3183	0.0047	74.6	2388	0.0056	67.1
Tool Steel																
A2	475	7258	0.0015	54.4	4839	0.0023	54.4	3629	0.0030	54.4	2419	0.0038	45.4	1815	0.0045	40.8
D2	425	6494	0.0015	48.7	4329	0.0023	48.7	3247	0.0030	48.7	2165	0.0038	40.6	1624	0.0045	36.5
H13	500	7640	0.0015	57.3	5093	0.0023	57.3	3820	0.0030	57.3	2547	0.0038	47.8	1910	0.0045	43.0
P20	500	7640	0.0019	71.6	5093	0.0028	71.6	3820	0.0038	71.6	2547	0.0047	59.7	1910	0.0056	53.7
S7	500	7640	0.0015	57.3	5093	0.0023	57.3	3820	0.0030	57.3	2547	0.0038	47.8	1910	0.0045	43.0

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 0.15 x Diameter

Speeds and Feeds are based upon material hardness <32Rc

Niagara Cutter

Ideal for Slotting
Aluminum
Non-Ferrous Materials

ELITE High Performance
2 Flute



A245

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief

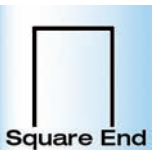
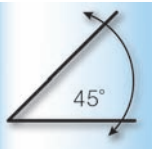
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiCN EDP #
1/8	1/8	1/4	1-1/2	2	61350	61442
1/8	1/8	3/8	1-1/2	2	61351	61443
5/32	3/16	5/16	2	2	61352	61444
5/32	3/16	1/2	2	2	61353	61445
3/16	3/16	5/16	2	2	61354	61446
3/16	3/16	9/16	2	2	61355	61447
7/32	1/4	3/8	2-1/2	2	61356	61448
7/32	1/4	3/4	2-1/2	2	61357	61449
1/4	1/4	3/8	2-1/2	2	61358	61450
1/4	1/4	3/4	2-1/2	2	61359	61451
1/4	1/4	1-1/4	4	2	61360	61452
9/32	5/16	7/16	2-1/2	2	61361 •	61453
9/32	5/16	13/16	2-1/2	2	61362 •	61454
5/16	5/16	7/16	2-1/2	2	61363	61455
5/16	5/16	13/16	2-1/2	2	61364	61456
5/16	5/16	1-1/4	3-1/2	2	61365	61457
5/16	5/16	2-1/4	4	2	61366	61458
11/32	3/8	1/2	2-1/2	2	61367 •	61459
11/32	3/8	1	2-1/2	2	61368 •	61460
3/8	3/8	1/2	2-1/2	2	61369	61461
3/8	3/8	1	2-1/2	2	61370	61462
3/8	3/8	1-1/2	4	2	61371	61463
13/32	7/16	9/16	2-3/4	2	61372 •	61464
13/32	7/16	1	2-3/4	2	61373 •	61465
7/16	7/16	9/16	2-3/4	2	61374 •	61466
7/16	7/16	1	2-3/4	2	61375	61467
15/32	1/2	5/8	3	2	61376 •	61468
15/32	1/2	1-1/4	3	2	61377 •	61469
1/2	1/2	5/8	3	2	61378	61470
1/2	1/2	1-1/4	3	2	61379	61471
1/2	1/2	2	4	2	61380	61472
1/2	1/2	3-1/8	6	2	61381	61473
5/8	5/8	3/4	3	2	61382 •	61474
5/8	5/8	1-5/8	3-1/2	2	61383	61475
5/8	5/8	2-1/2	5	2	61384	61476
5/8	5/8	3-3/4	6	2	61385	61477
3/4	3/4	1	3	2	61386	61478
3/4	3/4	1-5/8	4	2	61387	61479
3/4	3/4	2-1/4	5	2	61388	61480
3/4	3/4	3-1/4	6	2	61389	61481
3/4	3/4	4	6-1/2	2	61390	61482
1	1	1-1/4	4	2	61391 •	61483
1	1	2	5	2	61392	61484
1	1	2-5/8	6	2	61393 •	61485
1	1	3-1/4	6	2	61394	61486
1	1	4-1/8	7	2	61395 •	61487

SOLID CARBIDE

**Uncoated
TiCN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

ELITE High Performance 2 Flute with Radius

Aluminum
Non-Ferrous Materials



A245R

- Radius Program
- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief

Price Code E

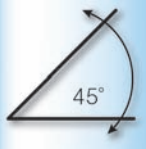
Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.010 Radius TiCN EDP #	0.020 Radius TiCN EDP #	0.030 Radius TiCN EDP #	0.045 Radius TiCN EDP #
1/8	1/8	3/8	1-1/2	2	90565 •	90566 •	90568 •	-
5/32	3/16	1/2	2	2	90569 •	90570 •	90571 •	-
3/16	3/16	9/16	2	2	90572 •	90573 •	90574 •	-
7/32	1/4	3/4	2-1/2	2	90578 •	90581 •	90585 •	-
1/4	1/4	3/4	2-1/2	2	90599 •	90603 •	90605 •	90622 •
9/32	5/16	13/16	2-1/2	2	90624 •	90625 •	90626 •	90627 •
5/16	5/16	13/16	2-1/2	2	90629 •	90630 •	90631 •	90632 •
5/16	5/16	2-1/4	4	2	90634 •	90635 •	90636 •	90637 •
11/32	3/8	1	2-1/2	2	90639 •	90641 •	90642 •	90643 •
3/8	3/8	1	2-1/2	2	90645 •	90646 •	90648 •	90649 •
13/32	7/16	1	2-3/4	2	90651 •	90652 •	90653 •	90654 •
7/16	7/16	1	2-3/4	2	90656 •	90657 •	90658 •	90659 •
15/32	1/2	1-1/4	3	2	90663 •	90664 •	90665 •	90666 •
1/2	1/2	5/8	3	2	90671 •	90672 •	90673 •	90674 •
1/2	1/2	1-1/4	3	2	90678 •	90679 •	90680 •	90681 •
1/2	1/2	2	4	2	90685 •	90686 •	90687 •	90688 •
1/2	1/2	3-1/8	6	2	90692 •	90693 •	90694 •	90695 •
5/8	5/8	1-5/8	3-1/2	2	90699 •	90700 •	90701 •	90702 •
5/8	5/8	3-3/4	6	2	90706 •	90707 •	90708 •	90709 •
3/4	3/4	1	3	2	90713 •	90714 •	90715 •	90716 •
3/4	3/4	2-1/4	5	2	90721 •	90722 •	90723 •	90724 •
3/4	3/4	4	6-1/2	2	90729 •	90730 •	90731 •	90732 •
1	1	2-5/8	6	2	90737 •	90738 •	90739 •	90740 •
1	1	4-1/8	7	2	90745 •	90746 •	90747 •	90748 •

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.060 Radius TiCN EDP #	0.090 Radius TiCN EDP #	0.125 Radius TiCN EDP #	0.190 Radius TiCN EDP #
7/32	1/4	3/4	2-1/2	2	90588 •	-	-	-
1/4	1/4	3/4	2-1/2	2	90623 •	-	-	-
9/32	5/16	13/16	2-1/2	2	90628 •	-	-	-
5/16	5/16	13/16	2-1/2	2	90633 •	-	-	-
5/16	5/16	2-1/4	4	2	90638 •	-	-	-
11/32	3/8	1	2-1/2	2	90644 •	-	-	-
3/8	3/8	1	2-1/2	2	90650 •	-	-	-
13/32	7/16	1	2-3/4	2	90655 •	-	-	-
7/16	7/16	1	2-3/4	2	90660 •	90661 •	90662 •	-
15/32	1/2	1-1/4	3	2	90667 •	90668 •	90669 •	-
1/2	1/2	5/8	3	2	90675 •	90676 •	90677 •	-
1/2	1/2	1-1/4	3	2	90682 •	90683 •	90684 •	-
1/2	1/2	2	4	2	90689 •	90690 •	90691 •	-
1/2	1/2	3-1/8	6	2	90696 •	90697 •	90698 •	-
5/8	5/8	1-5/8	3-1/2	2	90703 •	90704 •	90705 •	-
5/8	5/8	3-3/4	6	2	90710 •	90711 •	90712 •	-
3/4	3/4	1	3	2	90717 •	90718 •	90719 •	90720 •
3/4	3/4	2-1/4	5	2	90725 •	90726 •	90727 •	90728 •
3/4	3/4	4	6-1/2	2	90733 •	90734 •	90735 •	90736 •
1	1	2-5/8	6	2	90741 •	90742 •	90743 •	90744 •
1	1	4-1/8	7	2	90749 •	90750 •	90751 •	90752 •

SOLID CARBIDE

TiCN COATED

2 Flutes



RIGHT HAND

Corner Radius

Center Cutting

Niagara Cutter

ELITE High Performance 2 Flute Ball-End

Aluminum
Non-Ferrous Materials

AB245

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief



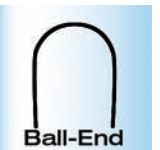
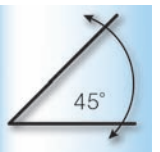
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiCN EDP #
1/4	1/4	3/8	2-1/2	2	66070	66102
1/4	1/4	3/4	2-1/2	2	66071	66103
5/16	5/16	7/16	2-1/2	2	66072 •	66104
5/16	5/16	13/16	2-1/2	2	66073	66105
3/8	3/8	1/2	2-1/2	2	66074	66106
3/8	3/8	1	2-1/2	2	66075	66107
7/16	7/16	9/16	2-3/4	2	66076 •	66108
7/16	7/16	1	2-3/4	2	66077 •	66109
1/2	1/2	5/8	3	2	66078	66110
1/2	1/2	1-1/4	3	2	66079	66111
5/8	5/8	3/4	3-1/2	2	66080 •	66112
5/8	5/8	1-5/8	3-1/2	2	66081 •	66113
3/4	3/4	1	3	2	66082	66114
3/4	3/4	1-5/8	4	2	66083	66115
1	1	1-1/4	4	2	66084	66116
1	1	2	5	2	66085 •	66117

**SOLID
CARBIDE**

**Uncoated
TiCN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

ELITE High Performance 2 Flute Neck Style

Aluminum
Non-Ferrous Materials



AN245

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief

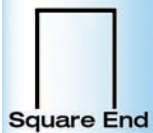
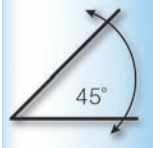
Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiCN EDP #
1/8	1/8	1/2	0.115	3/16	1-1/2	2	57948 •	57983
3/16	3/16	1/2	0.175	1/4	2	2	57949 •	57984
1/4	1/4	5/8	0.240	3/8	2	2	57950 •	57985
1/4	1/4	1-1/8	0.240	3/8	2-1/2	2	57951 •	57986
1/4	1/4	2-1/8	0.240	3/8	4	2	57952 •	57987
1/4	1/4	2-1/8	0.240	3/4	4	2	57953 •	57988
5/16	5/16	5/8	0.300	3/8	2	2	57954 •	57989
5/16	5/16	1	0.300	7/16	2-1/2	2	57955 •	57990
5/16	5/16	2-1/8	0.300	7/16	4	2	57956 •	57991
3/8	3/8	1-1/8	0.360	1/2	2-1/2	2	57957 •	57992
3/8	3/8	2-1/8	0.360	1/2	4	2	57958 •	57993
3/8	3/8	2-1/8	0.360	1	4	2	57959 •	57994
1/2	1/2	1-3/8	0.480	5/8	3	2	57960 •	57995
1/2	1/2	2-1/8	0.480	5/8	4	2	57961 •	57996
1/2	1/2	3-3/8	0.480	3/4	6	2	57963 •	57999
1/2	1/2	4	0.480	3/4	6	2	57964 •	57997
1/2	1/2	6	0.480	5/8	8	2	57962 •	57998
5/8	5/8	1-1/2	0.600	3/4	3-1/2	2	57965 •	58000
5/8	5/8	2-3/8	0.600	3/4	5	2	57966 •	58001
5/8	5/8	3-3/8	0.600	3/4	6	2	57967 •	58002
5/8	5/8	4	0.600	3/4	6	2	57968 •	58003
5/8	5/8	6	0.600	3/4	8	2	57969 •	58004
3/4	3/4	1-1/2	0.720	1	4	2	57970 •	58005
3/4	3/4	2-1/2	0.720	1	5	2	57971 •	58006
3/4	3/4	3-3/8	0.720	1	6	2	57972 •	58007
3/4	3/4	3-3/8	0.720	1-5/8	6	2	57973 •	58008
3/4	3/4	4	0.720	1	6	2	57974 •	58009
3/4	3/4	6	0.720	1	8	2	57975 •	58010
1	1	1-1/2	0.960	1	4	2	57976 •	58011
1	1	2-1/8	0.960	1	5	2	57977 •	58012
1	1	3-3/8	0.960	1-1/4	6	2	57978 •	58013
1	1	4	0.960	1-1/4	6	2	57979 •	58014
1	1	4	0.960	1-1/2	6	2	57980 •	58015
1	1	4-3/8	0.960	1-1/4	7	2	57981 •	58016
1	1	6	0.960	1-1/4	8	2	57982 •	58017

SOLID CARBIDE

**Uncoated
TiCN
COATED**

2 Flutes



**Center
Cutting**

Niagara Cutter

ELITE High Performance 2 Flute Neck Style with Radius

Aluminum
Non-Ferrous Materials

AN245R

- Standard with Corner Radius
- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief



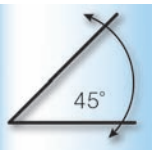
Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	Radius	No. of Flutes	TiCN EDP #
1/8	1/8	1/2	0.115	3/16	1-1/2	0.010	2	90525 •
3/16	3/16	1/2	0.175	1/4	2	0.010	2	90526 •
1/4	1/4	5/8	0.240	3/8	2	0.010	2	90527 •
1/4	1/4	1-1/8	0.240	3/8	2-1/2	0.010	2	90528 •
1/4	1/4	2-1/8	0.240	3/8	4	0.010	2	90529 •
1/4	1/4	2-1/8	0.240	3/4	4	0.010	2	90530 •
5/16	5/16	5/8	0.300	3/8	2	0.010	2	90531 •
5/16	5/16	1	0.300	7/16	2-1/2	0.010	2	90532 •
5/16	5/16	2-1/8	0.300	7/16	4	0.010	2	90533 •
3/8	3/8	1-1/8	0.360	1/2	2-1/2	0.010	2	90537 •
3/8	3/8	2-1/8	0.360	1/2	4	0.010	2	90535 •
3/8	3/8	2-1/8	0.360	1	4	0.010	2	90536 •
1/2	1/2	1-3/8	0.480	5/8	3	0.030	2	91414 •
1/2	1/2	2-1/8	0.480	5/8	4	0.030	2	90538 •
1/2	1/2	6	0.480	5/8	8	0.030	2	90540 •
1/2	1/2	3-3/8	0.480	3/4	6	0.030	2	90541 •
1/2	1/2	4	0.480	3/4	6	0.030	2	90542 •
5/8	5/8	1-1/2	0.600	3/4	3-1/2	0.030	2	90543 •
5/8	5/8	2-3/8	0.600	3/4	5	0.030	2	90544 •
5/8	5/8	3-3/8	0.600	3/4	6	0.030	2	90546 •
5/8	5/8	4	0.600	3/4	6	0.030	2	90547 •
5/8	5/8	6	0.600	3/4	8	0.030	2	90548 •
3/4	3/4	1-1/2	0.720	1	4	0.030	2	90549 •
3/4	3/4	2-1/2	0.720	1	5	0.030	2	90550 •
3/4	3/4	3-3/8	0.720	1	6	0.030	2	90551 •
3/4	3/4	3-3/8	0.720	1-5/8	6	0.030	2	90552 •
3/4	3/4	4	0.720	1	6	0.030	2	90553 •
3/4	3/4	6	0.720	1	8	0.030	2	90554 •
1	1	1-1/2	0.960	1	4	0.030	2	90555 •
1	1	2-1/8	0.960	1	5	0.030	2	90556 •
1	1	3-3/8	0.960	1-1/4	6	0.030	2	90557 •
1	1	4	0.960	1-1/4	6	0.030	2	90561 •
1	1	4	0.960	1-1/2	6	0.030	2	90562 •
1	1	4-3/8	0.960	1-1/4	7	0.030	2	90563 •
1	1	6	0.960	1-1/4	8	0.030	2	90564 •

**SOLID
CARBIDE**

**TiCN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance 2 Flute Neck Style Ball-End

Aluminum
Non-Ferrous Materials



ANB245

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief

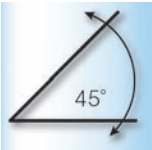
Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiCN EDP #
3/8	3/8	2-1/8	0.360	3/4	4	2	58028 •	58033
1/2	1/2	4-1/8	0.480	1	6	2	58029 •	58034
5/8	5/8	4	0.600	1-1/4	6	2	58030 •	58035
3/4	3/4	4-1/8	0.720	1-1/2	7	2	58031 •	58036
1	1	4-1/4	0.960	2	7	2	58032 •	58037

**SOLID
CARBIDE**

**Uncoated
TiCN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance

3 Flute

High Volume Material Removal
Aluminum and Non-Ferrous Materials

A340

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief



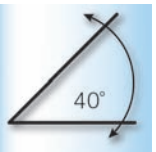
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	Unc EDP #	TiCN EDP #
3/16	3/16	1/4	2	0.010	3	57880	57909
1/4	1/4	5/16	2-1/2	0.010	3	57883	57912
3/8	3/8	1/2	2-1/2	0.015	3	57886	57915
3/8	3/8	1/2	3	0.015	3	57887 •	57916
1/2	1/2	5/8	3	0.020	3	57891 •	57920
1/2	1/2	5/8	4	0.020	3	57892 •	57921
5/8	5/8	3/4	3-1/2	0.025	3	57896 •	57925
3/4	3/4	1	4	0.030	3	57899 •	57928
3/4	3/4	1	5	0.030	3	57900 •	57929
1	1	1-1/4	4	0.040	3	57904 •	57933
1	1	1-1/4	5	0.040	3	57905 •	57934

SOLID CARBIDE

Uncoated TiCN COATED

3 Flutes



Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance 3 Flute Neck Style

High Volume Material Removal
Aluminum and Non-Ferrous Materials



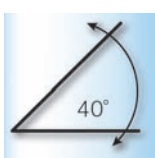
AN340

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief

**SOLID
CARBIDE**

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	Radius	No. of Flutes	Unc EDP #	TiCN EDP #
3/16	3/16	9/16	0.178	1/4	2	0.010	3	57881 •	57910
3/16	3/16	1-9/16	0.178	1/4	3	0.010	3	57882	57911
1/4	1/4	3/4	0.240	5/16	2-1/2	0.010	3	57884	57913
1/4	1/4	1-3/4	0.240	5/16	3-1/4	0.010	3	57885	57914
3/8	3/8	7/8	0.360	1/2	2-1/2	0.015	3	57888	57917
3/8	3/8	1-3/8	0.360	1/2	3	0.015	3	57889	57918
3/8	3/8	2-3/8	0.360	1/2	4	0.015	3	57890	57919
1/2	1/2	1-1/8	0.480	5/8	3	0.020	3	57893	57922
1/2	1/2	2-1/8	0.480	5/8	4	0.020	3	57894	57923
1/2	1/2	3-1/8	0.480	5/8	5	0.020	3	57895	57924
5/8	5/8	1-1/2	0.600	3/4	3-1/2	0.025	3	57897 •	57926
5/8	5/8	2-1/2	0.600	3/4	5	0.025	3	57898	57927
3/4	3/4	1-7/8	0.720	1	4	0.030	3	57901 •	57930
3/4	3/4	2-7/8	0.720	1	5	0.030	3	57902 •	57931
3/4	3/4	3-7/8	0.720	1	6	0.030	3	57903 •	57932
1	1	1-5/8	0.960	1-1/4	4	0.040	3	57906	57935
1	1	2-5/8	0.960	1-1/4	5	0.040	3	57907 •	57936
1	1	3-5/8	0.960	1-1/4	6	0.040	3	57908 •	57937

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance 3 Flute Finisher

Ideal for Peripheral Milling
Aluminum
Non-Ferrous Materials

A345

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief



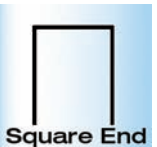
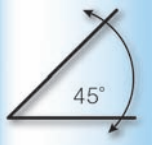
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiCN EDP #
1/8	1/8	1/4	1-1/2	3	61534	61626
1/8	1/8	3/8	1-1/2	3	61535	61627
5/32	3/16	5/16	2	3	61536	61628
5/32	3/16	1/2	2	3	61537	61629
3/16	3/16	5/16	2	3	61538	61630
3/16	3/16	9/16	2	3	61539	61631
7/32	1/4	3/8	2-1/2	3	61540	61632
7/32	1/4	3/4	2-1/2	3	61541	61633
1/4	1/4	3/8	2-1/2	3	61542	61634
1/4	1/4	3/4	2-1/2	3	61543	61635
1/4	1/4	1-1/4	4	3	61544	61636
9/32	5/16	7/16	2-1/2	3	61545 •	61637
9/32	5/16	13/16	2-1/2	3	61546	61638
5/16	5/16	7/16	2-1/2	3	61547	61639
5/16	5/16	13/16	2-1/2	3	61548	61640
5/16	5/16	1-1/4	3-1/2	3	61549	61641
5/16	5/16	2-1/4	4	3	61550	61642
11/32	3/8	1/2	2-1/2	3	61551 •	61643
11/32	3/8	1	2-1/2	3	61552 •	61644
3/8	3/8	1/2	2-1/2	3	61553	61645
3/8	3/8	1	2-1/2	3	61554	61646
3/8	3/8	1-1/2	4	3	61555	61647
13/32	7/16	9/16	2-3/4	3	61556 •	61648
13/32	7/16	1	2-3/4	3	61557 •	61649
7/16	7/16	9/16	2-3/4	3	61558	61650
7/16	7/16	1	2-3/4	3	61559	61651
15/32	1/2	5/8	3	3	61560 •	61652
15/32	1/2	1-1/4	3	3	61561 •	61653
1/2	1/2	5/8	3	3	61562	61654
1/2	1/2	1-1/4	3	3	61563	61655
1/2	1/2	2	4	3	61564	61656
1/2	1/2	3-1/8	6	3	61565	61657
5/8	5/8	3/4	3	3	61566	61658
5/8	5/8	1-5/8	3-1/2	3	61567	61659
5/8	5/8	2-1/2	5	3	61568	61660
5/8	5/8	3-3/4	6	3	61569	61661
3/4	3/4	1	3	3	61570	61662
3/4	3/4	1-5/8	4	3	61571	61663
3/4	3/4	2-1/4	5	3	61572	61664
3/4	3/4	3-1/4	6	3	61573	61665
3/4	3/4	4	6-1/2	3	61574	61666
1	1	1-1/4	4	3	61575	61667
1	1	2	5	3	61576	61668
1	1	2-5/8	6	3	61577	61669
1	1	3-1/4	6	3	61578	61670
1	1	4-1/8	7	3	61579	61671

**SOLID
CARBIDE**

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

ELITE High Performance 3 Flute Finisher with Radius

Aluminum
Non-Ferrous Materials



A345R

- Radius Program
- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief

Price Code E

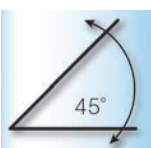
Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.010 Radius TiCN EDP #	0.020 Radius TiCN EDP #	0.030 Radius TiCN EDP #	0.045 Radius TiCN EDP #
1/8	1/8	3/8	1-1/2	3	90753	90755	90756	-
5/32	3/16	1/2	2	3	90757	90759	90760	-
3/16	3/16	9/16	2	3	90761	90763	90764	-
7/32	1/4	3/4	2-1/2	3	90765 •	90767 •	90768	-
1/4	1/4	3/4	2-1/2	3	90769	90775	90776	90777
9/32	5/16	13/16	2-1/2	3	90779 •	90781 •	90782 •	90783 •
5/16	5/16	13/16	2-1/2	3	90785 •	90787 •	90788	90789 •
5/16	5/16	2-1/4	4	3	90791 •	90793 •	90794 •	90795 •
11/32	3/8	1	2-1/2	3	90797	90799 •	90800 •	90801
3/8	3/8	1	2-1/2	3	90803	90805	90806	90807
13/32	7/16	1	2-3/4	3	90809 •	90811 •	90812 •	90813 •
7/16	7/16	1	2-3/4	3	90815 •	90817 •	90818	90819 •
15/32	1/2	1-1/4	3	3	90823 •	90825 •	90826 •	90827 •
1/2	1/2	5/8	3	3	90831	90833	90834	90835 •
1/2	1/2	1-1/4	3	3	90839	90841	90842	90843
1/2	1/2	2	4	3	90849	90851	90852	90853 •
1/2	1/2	3-1/8	6	3	90857	90859 •	90860 •	90861 •
5/8	5/8	1-5/8	3-1/2	3	90865 •	90867 •	90868	90869 •
5/8	5/8	3-3/4	6	3	90873 •	90875 •	90876 •	90877 •
3/4	3/4	1	3	3	90881	90883	90884	90885 •
3/4	3/4	2-1/4	5	3	90890	90892 •	90893	90894
3/4	3/4	4	6-1/2	3	90900 •	90902 •	90903 •	90904 •
1	1	2-5/8	6	3	90909 •	90911 •	90912 •	90913 •
1	1	4-1/8	7	3	90898 •	90919 •	90920	90921 •

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.060 Radius TiCN EDP #	0.090 Radius TiCN EDP #	0.125 Radius TiCN EDP #	0.190 Radius TiCN EDP #
1/4	1/4	3/4	2-1/2	3	90778	-	-	-
9/32	5/16	13/16	2-1/2	3	90784 •	-	-	-
5/16	5/16	13/16	2-1/2	3	90790	-	-	-
5/16	5/16	2-1/4	4	3	90796	-	-	-
11/32	3/8	1	2-1/2	3	90802 •	-	-	-
3/8	3/8	1	2-1/2	3	90808	-	-	-
13/32	7/16	1	2-3/4	3	90814 •	-	-	-
7/16	7/16	1	2-3/4	3	90820 •	90821 •	90822	-
15/32	1/2	1-1/4	3	3	90828 •	90829 •	90830 •	-
1/2	1/2	5/8	3	3	90836	90837 •	90838	-
1/2	1/2	1-1/4	3	3	90844	90847	90848	-
1/2	1/2	2	4	3	90854	90855	90856	-
1/2	1/2	3-1/8	6	3	90862	90863 •	90864	-
5/8	5/8	1-5/8	3-1/2	3	90870 •	90871	90872	-
5/8	5/8	3-3/4	6	3	90878 •	90879 •	90880 •	-
3/4	3/4	1	3	3	90886	90887	90888 •	90889
3/4	3/4	2-1/4	5	3	90895	90896	90897	90899 •
3/4	3/4	4	6-1/2	3	90905 •	90906 •	90907 •	90534 •
1	1	2-5/8	6	3	90914	90915 •	90916 •	90917 •
1	1	4-1/8	7	3	90922 •	90923 •	90924 •	90925 •

SOLID CARBIDE

TiCN COATED

3 Flutes



Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance 3 Flute Neck Style Finisher

Slotting / Pocketing
Long Reach Peripheral Milling
Aluminum

AN345

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief



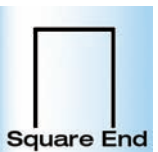
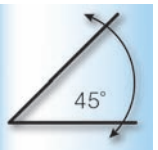
Price Code: E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
1/4	1/4	2-1/8	0.240	3/8	4	3	18597
1/4	1/4	1	0.240	1/2	3	3	57938
1/4	1/4	1-1/2	0.240	1/2	4	3	57939
5/16	5/16	2-1/8	0.300	7/16	4	3	18598
3/8	3/8	1-1/8	0.360	3/8	2-1/2	3	18599
3/8	3/8	2-1/8	0.360	1/2	4	3	18600
3/8	3/8	4-1/8	0.360	1/2	6	3	18601
3/8	3/8	2	0.360	3/4	4	3	57940 •
3/8	3/8	3	0.360	3/4	5	3	57941
1/2	1/2	1-3/8	0.480	1/2	3	3	18602
1/2	1/2	2-1/8	0.480	5/8	4	3	18603
1/2	1/2	3	0.480	5/8	5	3	57942
1/2	1/2	4-1/8	0.480	5/8	6	3	18604
5/8	5/8	2	0.600	3/4	4	3	18605
5/8	5/8	4	0.600	3/4	6	3	18606 •
3/4	3/4	1-3/4	0.720	3/4	4	3	18607 •
3/4	3/4	2-1/2	0.720	1	5	3	18608 •
3/4	3/4	3-1/2	0.720	1	6	3	18609
3/4	3/4	4-1/8	0.720	1	7	3	18610
1	1	2-1/2	0.960	1-1/4	5	3	18611 •
1	1	3-1/2	0.960	1-1/4	6	3	18612 •
1	1	4-1/4	0.960	1-1/4	7	3	18613 •

SOLID CARBIDE

Uncoated

3 Flutes



Center Cutting

• Indicates a Standard, Non Stocked Item

ELITE High Performance

3 Flute Neck Style Finisher with Radius



AN345R

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief

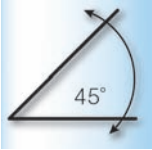
Price Code: E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	0.010 Radius TiCN EDP #	0.020 Radius TiCN EDP #	0.030 Radius TiCN EDP #
1/4	1/4	2-1/8	0.240	3/8	4	3	90288 •	90255	90289 •
1/4	1/4	1	0.240	1/2	3	3	90489	90279 •	90490 •
1/4	1/4	1-1/2	0.240	1/2	4	3	90497 •	90281 •	90498 •
5/16	5/16	2-1/8	0.300	7/16	4	3	90292	90262 •	90293 •
3/8	3/8	1-1/8	0.360	3/8	2-1/2	3	90296 •	90263	90297 •
3/8	3/8	2-1/8	0.360	3/8	4	3	90301	90265	90302 •
3/8	3/8	4-1/8	0.360	3/8	6	3	90307 •	90266	90308 •
3/8	3/8	2	0.360	3/4	4	3	90501 •	90282 •	90506 •
3/8	3/8	3	0.360	3/4	5	3	90515	90283 •	90516 •
1/2	1/2	1-3/8	0.480	1/2	3	3	90311 •	90267	90312 •
1/2	1/2	2-1/8	0.480	5/8	4	3	90341 •	90268	90342 •
1/2	1/2	3	0.480	5/8	5	3	90519 •	90286 •	90520 •
1/2	1/2	4-1/8	0.480	5/8	6	3	90348 •	90269	90350 •
5/8	5/8	2	0.600	3/4	4	3	90355 •	90270 •	90356 •
5/8	5/8	4	0.600	3/4	6	3	90361 •	90271	90362 •
3/4	3/4	1-3/4	0.720	3/4	4	3	90367 •	90272 •	90368 •
3/4	3/4	2-1/2	0.720	1	5	3	90374 •	90273 •	90375 •
3/4	3/4	3-1/2	0.720	1	6	3	90380 •	90274 •	90382 •
3/4	3/4	4-1/8	0.720	1	7	3	90387 •	90275 •	90388 •
1	1	2-1/2	0.960	1-1/4	5	3	90393 •	90276 •	90394 •
1	1	3-1/2	0.960	1-1/4	6	3	90399 •	90277 •	90401 •
1	1	4-1/4	0.960	1-1/4	7	3	90447 •	90278	90449 •

SOLID CARBIDE

TiCN COATED

3 Flutes



RIGHT HAND

Corner Radius

Center Cutting

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	0.045 Radius TiCN EDP #	0.060 Radius TiCN EDP #	0.090 Radius TiCN EDP #	0.125 Radius TiCN EDP #
1/4	1/4	2-1/8	0.240	3/8	4	3	90290 •	90291 •	-	-
1/4	1/4	1	0.240	1/2	3	3	90491 •	90492	-	-
1/4	1/4	1-1/2	0.240	1/2	4	3	90499 •	90500 •	-	-
5/16	5/16	2-1/8	0.300	7/16	4	3	90294 •	90295 •	-	-
3/8	3/8	1-1/8	0.360	3/8	2-1/2	3	90298 •	90299 •	-	-
3/8	3/8	2-1/8	0.360	3/8	4	3	90303 •	90306	-	-
3/8	3/8	4-1/8	0.360	3/8	6	3	90309 •	90310 •	-	-
3/8	3/8	2	0.360	3/4	4	3	90510 •	90514 •	-	-
3/8	3/8	3	0.360	3/4	5	3	90517 •	90518 •	-	-
1/2	1/2	1-3/8	0.480	1/2	3	3	90313 •	90338	90339 •	90340 •
1/2	1/2	2-1/8	0.480	5/8	4	3	90343 •	90344 •	90346 •	90347
1/2	1/2	3	0.480	5/8	5	3	90521 •	90522	90523 •	90524 •
1/2	1/2	4-1/8	0.480	5/8	6	3	90351 •	90352 •	90353 •	90354 •
5/8	5/8	2	0.600	3/4	4	3	90357 •	90358 •	90359 •	90360 •
5/8	5/8	4	0.600	3/4	6	3	90363 •	90364 •	90365	90366 •
3/4	3/4	1-3/4	0.720	3/4	4	3	90369 •	90370 •	90371 •	90372 •
3/4	3/4	2-1/2	0.720	1	5	3	90376 •	90377 •	90378 •	90379
3/4	3/4	3-1/2	0.720	1	6	3	90383 •	90384 •	90385 •	90386 •
3/4	3/4	4-1/8	0.720	1	7	3	90389 •	90390	90391 •	90392 •
1	1	2-1/2	0.960	1-1/4	5	3	90395 •	90396 •	90397 •	90398 •
1	1	3-1/2	0.960	1-1/4	6	3	90402 •	90403 •	90404 •	90441 •
1	1	4-1/4	0.960	1-1/4	7	3	90474 •	90482 •	90486 •	90488 •

• Indicates a Standard, Non Stocked Item

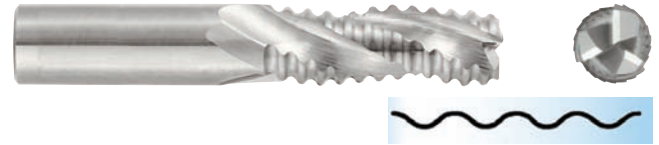
Niagara Cutter

ELITE High Performance 3 Flute Coarse-Pitch Rougher

Aluminum
Non-Ferrous Materials

AR330

- Standard with 45° Corner Chamfer
- Form Ground Flute Shape



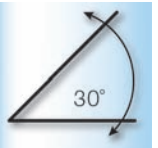
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Chamfer Width	No. of Flutes	Unc EDP #	TiCN EDP #
1/4	1/4	3/8	2	0.020	3	76194	76226
1/4	1/4	3/4	2-1/2	0.020	3	76195	76227
5/16	5/16	7/16	2	0.020	3	76196	76228
5/16	5/16	13/16	2-1/2	0.020	3	76197	76229
3/8	3/8	1/2	2	0.020	3	76198 •	76230
3/8	3/8	1	2-1/2	0.020	3	76199	76231
7/16	7/16	9/16	2-1/2	0.020	3	76200 •	76232
7/16	7/16	1	2-3/4	0.020	3	76201 •	76233
1/2	1/2	5/8	2-1/2	0.025	3	76202	76234
1/2	1/2	1-1/4	3	0.025	3	76203	76235
5/8	5/8	3/4	3	0.025	3	76204 •	76236
5/8	5/8	1-5/8	3-1/2	0.025	3	76205	76237
3/4	3/4	1	3	0.025	3	76206	76238
3/4	3/4	1-5/8	4	0.025	3	76207	76239
1	1	1-1/4	4	0.025	3	76208 •	76240
1	1	2	5	0.025	3	76209 •	76241

**SOLID
CARBIDE**

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

ELITE High Performance Metric 3 Flute Finisher

Aluminum
Non-Ferrous



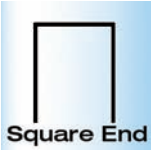
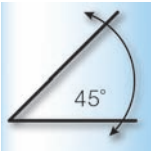
A345M

- Cylindrical Land to Eliminate Chatter
- Form Ground Flute Shape
- Eccentric Primary Relief

**SOLID
CARBIDE**

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiCN EDP #
3mm	3mm	6mm	39mm	3	47809	47810
3mm	3mm	12mm	39mm	3	47811	47812
4mm	4mm	6mm	51mm	3	47813	47814
4mm	4mm	12mm	51mm	3	47815	47816
5mm	5mm	14mm	51mm	3	47817	47818
6mm	6mm	8mm	51mm	3	47819	47820
6mm	6mm	16mm	58mm	3	47821	47822
8mm	8mm	10mm	59mm	3	47823	47824
8mm	8mm	20mm	64mm	3	47825	47826
10mm	10mm	11mm	67mm	3	47827	47828
10mm	10mm	22mm	73mm	3	47829	47830
12mm	12mm	12mm	74mm	3	47831	47832
12mm	12mm	32mm	84mm	3	47833	47834
14mm	14mm	16mm	76mm	3	47835	47836
14mm	14mm	32mm	84mm	3	47837	47838
16mm	16mm	16mm	83mm	3	47839	47840
16mm	16mm	36mm	93mm	3	47841	47842
18mm	18mm	38mm	85mm	3	47843	47844
18mm	18mm	45mm	100mm	3	47845	47846
20mm	20mm	38mm	100mm	3	47847	47848
20mm	20mm	50mm	105mm	3	47849 •	47850
25mm	25mm	38mm	115mm	3	47851 •	47852
25mm	25mm	60mm	140mm	3	47853 •	47854

A345M - Recommended Starting Point Speed & Feeds (Slotting) METRIC																				
		6mm Diameter				10mm Diameter				12mm Diameter				20mm Diameter				25mm Diameter		
Material	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min				
Aluminum																				
6061-T6	457	24,242	0.150	10,909	14,545	0.249	10,865	12,121	0.300	10,909	7,273	0.375	8,182	5,818	0.450	7,854				
7075-T6	427	22,626	0.125	8,485	13,576	0.208	8,451	11,313	0.250	8,485	6,788	0.313	6,364	5,430	0.375	6,109				

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 1 x Diameter

A345M - Recommended Starting Point Speed & Feeds (Profiling) METRIC																				
		6mm Diameter				10mm Diameter				12mm Diameter				20mm Diameter				25mm Diameter		
Material	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min				
Aluminum																				
6061-T6	503	26,666	0.180	14,400	16,000	0.299	14,342	13,333	0.360	14,400	8,000	0.450	10,800	6,400	0.540	10,368				
7075-T6	470	24,889	0.150	11,200	14,933	0.249	11,155	12,444	0.300	11,200	7,467	0.375	8,400	5,973	0.450	8,064				

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 0.25 x Diameter

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance

3 Flute

Ideal for Slotting
Steel, Stainless Steel,
Titanium & High Temp Alloys

S335

- Standard with Radius
- Weldon Flat Standard



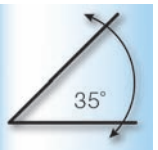
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	Unc EDP #	AITiN EDP #
1/8	1/8	1/4	1-1/2	0.010	3	61718	61802
1/8	1/8	1/2	1-1/2	0.010	3	61719	61803
5/32	3/16	5/16	2	0.010	3	61720	61804
5/32	3/16	9/16	2	0.010	3	61721	61805
3/16	3/16	5/16	2	0.010	3	61722	61806
3/16	3/16	9/16	2	0.010	3	61723 •	61807
7/32	1/4	3/8	2	0.020	3	61724 •	61808
7/32	1/4	3/4	2-1/2	0.020	3	61725 •	61809
1/4	1/4	3/8	2	0.020	3	61726	61810
1/4	1/4	3/4	2-1/2	0.020	3	61727	61811
9/32	5/16	7/16	2	0.020	3	61728 •	61812
9/32	5/16	13/16	2-1/2	0.020	3	61729 •	61813
5/16	5/16	7/16	2	0.020	3	61730	61814
5/16	5/16	13/16	2-1/2	0.020	3	61731	61815
11/32	3/8	1/2	2	0.020	3	61732 •	61816
11/32	3/8	1	2-1/2	0.020	3	61733 •	61817
3/8	3/8	1/2	2	0.020	3	61734	61818
3/8	3/8	1	2-1/2	0.020	3	61735	61819
7/16	7/16	9/16	2-1/2	0.020	3	61736 •	61820
7/16	7/16	1	2-3/4	0.020	3	61737 •	61821
1/2	1/2	5/8	2-1/2	0.030	3	61738	61822
1/2	1/2	1-1/4	3	0.030	3	61739	61823
5/8	5/8	3/4	3	0.030	3	61740 •	61824
5/8	5/8	1-5/8	3-1/2	0.030	3	61741	61825
3/4	3/4	1	3	0.030	3	61742 •	61826
3/4	3/4	1-5/8	4	0.030	3	61743	61827
1	1	1-1/4	4	0.030	3	61744 •	61828
1	1	2	5	0.030	3	61745	61829

SOLID CARBIDE

Uncoated AITiN COATED

3 Flutes



Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance

3 Flute Ball-End

Ideal for Slotting
Steel, Stainless Steel,
Titanium & High Temp Alloys

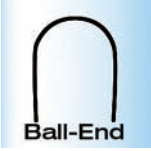
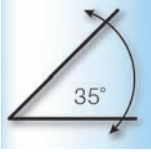


SB335
•Weldon Flat Standard

**SOLID
CARBIDE**

**Uncoated
AITIN
COATED**

3 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AITiN EDP #
1/8	1/8	1/4	1-1/2	3	66134	66218
1/8	1/8	1/2	1-1/2	3	66135	66219
5/32	3/16	5/16	2	3	66136 •	66220
5/32	3/16	9/16	2	3	66137 •	66221
3/16	3/16	5/16	2	3	66138 •	66222
3/16	3/16	9/16	2	3	66139	66223
7/32	1/4	3/8	2	3	66140 •	66224
7/32	1/4	3/4	2-1/2	3	66141 •	66225
1/4	1/4	3/8	2	3	66142	66226
1/4	1/4	3/4	2-1/2	3	66143	66227
9/32	5/16	7/16	2	3	66144 •	66228
9/32	5/16	13/16	2-1/2	3	66145 •	66229
5/16	5/16	7/16	2	3	66146 •	66230
5/16	5/16	13/16	2-1/2	3	66147 •	66231
11/32	3/8	1/2	2	3	66148 •	66232
11/32	3/8	1	2-1/2	3	66149 •	66233
3/8	3/8	1/2	2	3	66150 •	66234
3/8	3/8	1	2-1/2	3	66151	66235
7/16	7/16	9/16	2-1/2	3	66152 •	66236
7/16	7/16	1	2-3/4	3	66153 •	66237
1/2	1/2	5/8	2-1/2	3	66154 •	66238
1/2	1/2	1-1/4	3	3	66155	66239
5/8	5/8	3/4	3	3	66156 •	66240
5/8	5/8	1-5/8	3-1/2	3	66157 •	66241
3/4	3/4	1	3	3	66158 •	66242
3/4	3/4	1-5/8	4	3	66159	66243
1	1	1-1/4	4	3	66160 •	66244
1	1	2	5	3	66161 •	66245

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance 3 Flute Neck Style

Slotting / Pocketing
Long Reach Peripheral Milling
Steel, Stainless Steel, Titanium
and Exotic Alloys



SN335

- Form Ground Flute Shape
- Standard with Radius
- Weldon Flat Standard

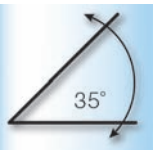
Price Code: E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AITiN EDP #
1/4	1/4	2-1/8	.240	3/8	4	0.020	3	18648
5/16	5/16	2-1/8	.300	7/16	4	0.020	3	18649
3/8	3/8	2-1/8	.360	1/2	4	0.020	3	18650
3/8	3/8	3-3/8	.360	1/2	6	0.020	3	18651
7/16	7/16	2-1/8	.420	9/16	4	0.020	3	18652
7/16	7/16	3-3/8	.420	9/16	6	0.020	3	18653
1/2	1/2	2-1/8	.480	5/8	4	0.030	3	18654
1/2	1/2	3-1/8	.480	5/8	5	0.030	3	18655
1/2	1/2	4-1/8	.480	5/8	6	0.030	3	18656
5/8	5/8	2-1/8	.600	3/4	4	0.030	3	18657
5/8	5/8	3-1/8	.600	3/4	5	0.030	3	18658
5/8	5/8	4	.600	3/4	6	0.030	3	18659
3/4	3/4	2	.720	1	4	0.030	3	18660
3/4	3/4	3	.720	1	5	0.030	3	18661
3/4	3/4	4	.720	1	6	0.030	3	18662
1	1	3	.960	1-1/4	5	0.030	3	18663
1	1	4	.960	1-1/4	6	0.030	3	18664

**SOLID
CARBIDE**

**AITiN
COATED**

3 Flutes



**RIGHT
HAND**

**Corner
Radius**

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

ELITE High Performance 5 Flute Finisher

Ideal for Peripheral Finish Milling
Steel, Stainless Steel, Titanium &
High Temp Alloys



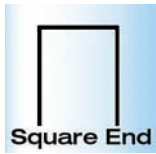
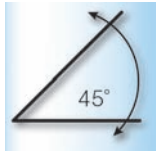
S545

•Eccentric Primary Relief

**SOLID
CARBIDE**

**Uncoated
AITIN
COATED**

**5 Flutes
7 Flutes**



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AITiN EDP #
1/8	1/8	1/4	1-1/2	5	61830	61983
1/8	1/8	1/2	1-1/2	5	61831	61984
5/32	3/16	5/16	2	5	61832	61985
5/32	3/16	9/16	2	5	61833 •	61986
3/16	3/16	5/16	2	5	61834	61987
3/16	3/16	9/16	2	5	61835	61988
7/32	1/4	3/8	2	5	61836 •	61989
7/32	1/4	3/4	2-1/2	5	61837	61990
1/4	1/4	3/8	2	5	61838	61991
1/4	1/4	3/4	2-1/2	5	61839	61992
1/4	1/4	1-1/4	4	5	61840	61993
9/32	5/16	7/16	2	5	61841	61994
9/32	5/16	13/16	2-1/2	5	61842	61995
5/16	5/16	7/16	2	5	61843	61996
5/16	5/16	13/16	2-1/2	5	61844	61997
5/16	5/16	1-1/4	4	5	61845 •	61998
5/16	5/16	2-1/8	4	5	61846 •	61999
11/32	3/8	1/2	2	5	61847 •	62000
11/32	3/8	1	2-1/2	5	61848 •	62001
3/8	3/8	1/2	2	5	61849	62002
3/8	3/8	1	2-1/2	5	61850	62003
3/8	3/8	1-1/2	4	5	61851	62004
3/8	3/8	2-1/2	6	5	61852 •	62005
13/32	7/16	9/16	2-1/2	5	61853 •	62006
13/32	7/16	1	2-3/4	5	61854 •	62007
7/16	7/16	9/16	2-1/2	5	61855 •	62008
7/16	7/16	1	2-3/4	5	61856 •	62009
7/16	7/16	2	4	5	61857 •	62010
15/32	1/2	5/8	2-1/2	5	61858 •	62011
15/32	1/2	1-1/4	3	5	61859 •	62012
1/2	1/2	5/8	2-1/2	5	61860	62013
1/2	1/2	1-1/4	3	5	61861	62014
1/2	1/2	2	4	5	61862	62015
1/2	1/2	3-1/8	6	5	61863	62016
9/16	9/16	1-1/2	3-1/2	5	55330 •	55333
5/8	5/8	3/4	3	5	61864 •	62017
5/8	5/8	1-5/8	3-1/2	5	61865	62018
5/8	5/8	2-1/2	5	5	61866	62019
5/8	5/8	4	6	5	61867	62020
3/4	3/4	1	3	5	61868	62021
3/4	3/4	1-5/8	4	5	61869	62022
3/4	3/4	2-1/4	5	5	61870	62023
3/4	3/4	3-1/4	6	5	61871	62024
3/4	3/4	4	6	5	61872	62025
1	1	1-1/4	4	5	61873 •	62026
1	1	2	4	5	61874	62027
1	1	2-5/8	6	5	61875	62028
1	1	3-1/4	6	5	61876	62029
1	1	4-1/8	7	5	61877	62030
1-1/4	1-1/4	2	4-1/2	7	61878	62031
1-1/4	1-1/4	3-1/4	6	7	61879	62032
1-1/4	1-1/4	5	7-1/2	7	61880	62033

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance 5 Flute Finisher with Radius

Ideal for Peripheral Finish Milling
Steel, Stainless Steel
Titanium & High Temp Alloys



S545R

•Eccentric Primary Relief

Price Code E

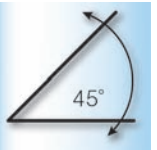
Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.015 Radius AITiN EDP #	0.020 Radius AITiN EDP #	0.030 Radius AITiN EDP #	0.045 Radius AITiN EDP #
1/8	1/8	1/4	1-1/2	5	90927	90928	-	-
1/8	1/8	1/2	1-1/2	5	90929	90930	-	-
3/16	3/16	5/16	2	5	90931	90932	-	-
3/16	3/16	9/16	2	5	90908	90933	-	-
1/4	1/4	3/8	2	5	90935	90936	90937	90938
1/4	1/4	3/4	2-1/2	5	90926	90940	90934	90941
5/16	5/16	7/16	2	5	90943	90944	90945	90946 •
5/16	5/16	13/16	2-1/2	5	90947	90948	90939	90949 •
3/8	3/8	1/2	2	5	90950	90952	90953	90954
3/8	3/8	1	2-1/2	5	90956	90957	90958	90942
7/16	7/16	9/16	2-1/2	5	90960	90961	90962 •	90963
7/16	7/16	1	2-3/4	5	90951	90972	90973	90976 •
1/2	1/2	5/8	2-1/2	5	90982	90987	91004	91008
1/2	1/2	1-1/4	3	5	90959	91012	91013	91015
5/8	5/8	3/4	3	5	91042 •	91051	91060	91075 •
5/8	5/8	1-5/8	3-1/2	5	90980	91079	91084	91086 •
3/4	3/4	1	3	5	91095	91096	91097	91098
3/4	3/4	1-5/8	4	5	91039	91105	91107	91108
1	1	1-1/4	3	5	91133	91135	91136	91138
1	1	2	4	5	91094	91146 •	91148	91149

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.060 Radius AITiN EDP #	0.090 Radius AITiN EDP #	0.125 Radius AITiN EDP #	0.190 Radius AITiN EDP #
3/8	3/8	1/2	2	5	90955	-	-	-
7/16	7/16	9/16	2-1/2	5	90964	90965 •	90967	-
7/16	7/16	1	2-3/4	5	90977	90978 •	90979	-
1/2	1/2	5/8	2-1/2	5	91009	91010	91011	-
1/2	1/2	1-1/4	3	5	91017	91019	91021	-
5/8	5/8	3/4	3	5	91076	91077 •	91078	-
5/8	5/8	1-5/8	3-1/2	5	91090	91091	91093	-
3/4	3/4	1	3	5	91099	91102 •	91103	91104
3/4	3/4	1-5/8	4	5	91110	91111	91116	91117
1	1	1-1/4	3	5	91139 •	91142 •	91143	91145 •
1	1	2	4	5	91152	91155 •	91158	91163

SOLID CARBIDE

AITiN COATED

5 Flutes



Center Cutting

• Indicates a Standard, Non Stocked Item

ELITE High Performance 4 Flute Fine-Pitch Rougher

Steel & Stainless Steel



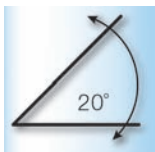
SR420

- Fine-Pitch Knuckle Form
- Standard with 45° Corner Chamfer
- Weldon Flat Standard

**SOLID
CARBIDE**

**Uncoated
AITIN
COATED**

**4 Flutes
5 Flutes**



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Chamfer Width	No. of Flutes	Unc EDP #	AITiN EDP #
1/4	1/4	3/8	2	0.020	4	76130	76178
1/4	1/4	3/4	2-1/2	0.020	4	76131	76179
5/16	5/16	7/16	2	0.020	4	76132	76180
5/16	5/16	13/16	2-1/2	0.020	4	76133	76181
3/8	3/8	1/2	2	0.020	4	76134	76182
3/8	3/8	1	2-1/2	0.020	4	76135	76183
7/16	7/16	9/16	2-1/2	0.020	4	76136 •	76184
7/16	7/16	1	2-3/4	0.020	4	76137	76185
1/2	1/2	5/8	2-1/2	0.025	4	76138	76186
1/2	1/2	1-1/4	3	0.025	4	76139	76187
5/8	5/8	3/4	3	0.025	4	76140	76188
5/8	5/8	1-5/8	3-1/2	0.025	4	76141	76189
3/4	3/4	1	3	0.025	4	76142	76190
3/4	3/4	1-5/8	4	0.025	4	76143	76191
1	1	1-1/4	4	0.025	5	76144 •	76192
1	1	2	5	0.025	5	76145	76193

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance 5 Flute Fine-Pitch Rougher

Designed for Peripheral Milling (25% of Tool Dia. Max.)
Steel, Stainless Steel,
Titanium & High Temp Alloys

SR545

- Fine-Pitch Knuckle Profile
- Standard with 45° Corner Chamfer



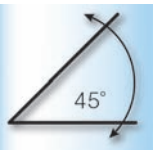
Price Code: E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Chamfer Width	No. of Flutes	Unc EDP #	AlTiN EDP #
3/8	3/8	1/2	2	0.020	5	99050 •	99092
3/8	3/8	1	2-1/2	0.020	5	99051 •	99093
7/16	7/16	9/16	2-1/2	0.020	5	99052 •	99094
7/16	7/16	1	2-3/4	0.020	5	99053 •	99095
1/2	1/2	5/8	2-1/2	0.025	5	99054 •	99096
1/2	1/2	1-1/4	3	0.025	5	99055 •	99097
5/8	5/8	3/4	3	0.025	5	99056 •	99098 •
5/8	5/8	1-5/8	3-1/2	0.025	5	99057 •	99099
3/4	3/4	1	3	0.025	5	99058 •	99100
3/4	3/4	1-5/8	4	0.025	5	99059 •	99101
1	1	1-1/4	4	0.025	5	99060 •	99102 •
1	1	2	4	0.025	5	99061 •	99103 •
1-1/4	1-1/4	2	4-1/2	0.025	7	99062 •	99104 •
1-1/4	1-1/4	3-1/4	6	0.025	7	99063 •	99105 •

**SOLID
CARBIDE**

**Uncoated
AlTiN
COATED**

**5 Flutes
7 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance Metric 3 Flute

Designed for Slotting and Pocketing
Steels, Stainless Steels
& High Temp Alloys

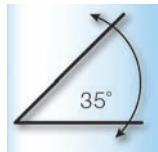


S335M
•Standard with Radius

**SOLID
CARBIDE**

**Uncoated
AITIN
COATED**

3 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	Unc EDP #	AITiN EDP #
3mm	3mm	6mm	39mm	0.20	3	47763 •	47764 •
3mm	3mm	12mm	39mm	0.20	3	47765 •	47766 •
4mm	4mm	6mm	51mm	0.20	3	47767 •	47768 •
4mm	4mm	12mm	51mm	0.20	3	47769 •	47770 •
5mm	5mm	14mm	51mm	0.20	3	47771 •	47772 •
6mm	6mm	8mm	51mm	0.50	3	47773 •	47774 •
6mm	6mm	16mm	58mm	0.50	3	47775 •	47776 •
8mm	8mm	10mm	59mm	0.50	3	47777 •	47778 •
8mm	8mm	20mm	64mm	0.50	3	47779 •	47780 •
10mm	10mm	11mm	67mm	0.50	3	47781 •	47782 •
10mm	10mm	22mm	73mm	0.50	3	47783 •	47784 •
12mm	12mm	12mm	74mm	1.00	3	47785 •	47786 •
12mm	12mm	32mm	84mm	1.00	3	47787 •	47788 •
14mm	14mm	16mm	76mm	1.00	3	47789 •	47790 •
14mm	14mm	32mm	84mm	1.00	3	47791 •	47792 •
16mm	16mm	16mm	83mm	1.00	3	47793 •	47794 •
16mm	16mm	36mm	93mm	1.00	3	47795 •	47796 •
18mm	18mm	38mm	85mm	1.00	3	47797 •	47798 •
18mm	18mm	45mm	100mm	1.00	3	47799 •	47800 •
20mm	20mm	38mm	100mm	1.00	3	47801 •	47802 •
20mm	20mm	50mm	105mm	1.00	3	47803 •	47804 •
25mm	25mm	38mm	115mm	1.00	3	47805 •	47806 •
25mm	25mm	60mm	140mm	1.00	3	47807 •	47808 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance Metric 5 Flute Finisher

Ideal for Peripheral Finish Milling
Steel, Stainless Steel
Titanium & High Temp Alloys



S545M

•Eccentric Primary Relief

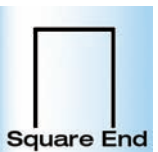
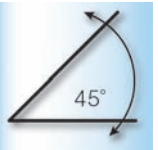
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlTiN EDP #
4mm	4mm	11mm	50mm	5	67967
6mm	6mm	13mm	57mm	5	67969
8mm	8mm	19mm	63mm	5	67970
10mm	10mm	22mm	72mm	5	67972
12mm	12mm	26mm	83mm	5	67973

**SOLID
CARBIDE**

**AlTiN
COATED**

5 Flutes



**Center
Cutting**

Niagara Cutter

ELITE High Performance

Metric 6 Flute Finisher

Ideal for Peripheral Finish Milling
Steel, Stainless Steel
Titanium & High Temp Alloys



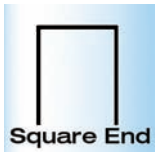
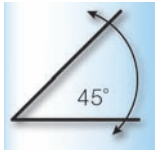
S645M

•Eccentric Primary Relief

**SOLID
CARBIDE**

**Uncoated
AlCrN
AlTiN
COATED**

6 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AlTiN EDP #	AlCrN EDP #
3mm	3mm	6mm	39mm	6	47855 •	47856 •	47983 •
3mm	3mm	12mm	39mm	6	47857 •	47858	47984 •
4mm	4mm	6mm	51mm	6	47859 •	47860 •	47985 •
4mm	4mm	12mm	51mm	6	47861 •	47862	47986 •
5mm	5mm	14mm	51mm	6	47863 •	47864	47987 •
6mm	6mm	8mm	51mm	6	47865 •	47866	47988
6mm	6mm	16mm	58mm	6	47867 •	47868	47989 •
8mm	8mm	10mm	59mm	6	47869 •	47870 •	47990 •
8mm	8mm	20mm	64mm	6	47871 •	47872	47991 •
10mm	10mm	11mm	67mm	6	47873 •	47874 •	47992 •
10mm	10mm	22mm	73mm	6	47875 •	47876	47993 •
12mm	12mm	12mm	74mm	6	47877 •	47878 •	47994 •
12mm	12mm	32mm	84mm	6	47879 •	47880	47995 •
14mm	14mm	16mm	76mm	6	47881 •	47882 •	47996 •
14mm	14mm	32mm	84mm	6	47883	47884 •	47997 •
16mm	16mm	16mm	83mm	6	47885 •	47886 •	47998 •
16mm	16mm	36mm	93mm	6	47887 •	47888	47999 •
18mm	18mm	38mm	85mm	6	47889 •	47890 •	48000 •
18mm	18mm	45mm	100mm	6	47891 •	47892 •	48001 •
20mm	20mm	38mm	100mm	6	47893 •	47894 •	48002 •
20mm	20mm	50mm	105mm	6	47895 •	47896 •	48003 •
25mm	25mm	38mm	115mm	6	47897 •	47898 •	48004 •
25mm	25mm	60mm	140mm	6	47899	47900 •	48005 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE High Performance Metric 4 Flute Fine-Pitch Rougher

Steel & Stainless Steel

SR420M

- 45° Corner Chamfer
- Fine-Pitch Knuckle Profile



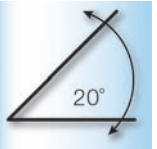
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Chamfer Width	No. of Flutes	AlTiN EDP #
6mm	6mm	8mm	51mm	0.50	4	47901 •
6mm	6mm	16mm	58mm	0.50	4	47902
8mm	8mm	10mm	59mm	0.50	4	47903
8mm	8mm	20mm	64mm	0.50	4	47904
10mm	10mm	11mm	67mm	0.50	4	47905
10mm	10mm	22mm	73mm	0.50	4	47906
12mm	12mm	12mm	74mm	1.00	4	47907
12mm	12mm	32mm	84mm	1.00	4	47908
14mm	14mm	16mm	76mm	1.00	4	47909 •
14mm	14mm	32mm	84mm	1.00	4	47910
16mm	16mm	16mm	83mm	1.00	4	47911 •
16mm	16mm	36mm	93mm	1.00	4	47912
18mm	18mm	38mm	85mm	1.00	4	47913 •
18mm	18mm	45mm	100mm	1.00	4	47914
20mm	20mm	38mm	100mm	1.00	4	47915
20mm	20mm	50mm	105mm	1.00	4	47916
25mm	25mm	38mm	115mm	1.00	5	47917 •
25mm	25mm	60mm	140mm	1.00	5	47918

SOLID CARBIDE

AlTiN COATED

**4 Flutes
5 Flutes**



RIGHT HAND



Center Cutting

SR420M - Recommended Starting Point Speed & Feeds (Slotting) METRIC																
Material	m/min	6mm Diameter			10mm Diameter			12mm Diameter			20mm Diameter			25mm Diameter		
		RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min
Stainless Steel																
303	91	4,848	0.014	262	2,909	0.022	261	2,424	0.027	262	1,455	0.034	196	1,164	0.041	189
304	91	4,848	0.014	262	2,909	0.022	261	2,424	0.027	262	1,455	0.034	196	1,164	0.041	189
316	91	4,848	0.013	242	2,909	0.021	241	2,424	0.025	242	1,455	0.031	182	1,164	0.038	175
15/5	80	4,242	0.013	212	2,545	0.021	211	2,121	0.025	212	1,273	0.031	159	1,018	0.038	153
17/4	80	4,242	0.011	187	2,545	0.018	186	2,121	0.022	187	1,273	0.028	140	1,018	0.033	134
416	80	4,242	0.011	187	2,545	0.018	186	2,121	0.022	187	1,273	0.028	140	1,018	0.033	134
Kovar/Invar	51	2,727	0.013	136	1,636	0.021	136	1,364	0.025	136	818	0.031	102	655	0.038	98
Steels																
1018/1020	146	7,757	0.015	465	4,654	0.025	464	3,879	0.030	465	2,327	0.038	349	1,862	0.045	335
1045	134	7,111	0.013	356	4,267	0.021	354	3,556	0.025	356	2,133	0.031	267	1,707	0.038	256
4140	122	6,465	0.013	323	3,879	0.021	322	3,232	0.025	323	1,939	0.031	242	1,551	0.038	233
4340	116	6,141	0.013	307	3,685	0.021	306	3,071	0.025	307	1,842	0.031	230	1,474	0.038	221
Cast Iron																
Ductile	97	5,151	0.018	361	3,091	0.029	359	2,576	0.035	361	1,545	0.044	270	1,236	0.053	260
Gray	126	6,667	0.018	467	4,000	0.029	465	3,333	0.035	467	2,000	0.044	350	1,600	0.053	336
Tool Steel																
A2	97	5,151	0.016	330	3,091	0.027	328	2,576	0.032	330	1,545	0.040	247	1,236	0.048	237
D2	80	4,242	0.016	272	2,545	0.027	270	2,121	0.032	272	1,273	0.040	204	1,018	0.048	195
H13	97	5,151	0.016	330	3,091	0.027	328	2,576	0.032	330	1,545	0.040	247	1,236	0.048	237
P20	86	4,545	0.018	318	2,727	0.029	317	2,273	0.035	318	1,364	0.044	239	1,091	0.053	229
S7	91	4,848	0.016	310	2,909	0.027	309	2,424	0.032	310	1,455	0.040	233	1,164	0.048	223

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 1 x Diameter

• Indicates a Standard, Non Stocked Item

Niagara Cutter

S335M - Recommended Starting Point Speed & Feeds (Slotting) METRIC																
Material	m/min	6mm Diameter			10mm Diameter			12mm Diameter			20mm Diameter			25mm Diameter		
		RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min
Inconel																
625	33	1,745	0.015	80	1,047	0.025	79	873	0.030	80	524	0.038	60	419	0.046	57
718	22	1,164	0.013	44	698	0.021	44	582	0.025	44	349	0.032	33	279	0.038	32
Other Nickel Based																
Waspalloy	22	1,164	0.013	44	698	0.021	44	582	0.025	44	349	0.032	33	279	0.038	32
Hastelloy	2	1,164	0.013	44	698	0.021	44	852	0.025	44	349	0.032	33	279	0.036	32
A-286	27	1,422	0.013	54	853	0.021	54	711	0.025	54	427	0.032	41	341	0.038	39
Titanium																
6AL-4V/Comm. Pure	55	2,909	0.019	166	1,745	0.032	166	1,455	0.038	166	873	0.048	125	698	0.057	120
Stainless Steel																
303	79	4,202	0.022	272	2,521	0.036	271	2,101	0.043	272	1,261	0.054	204	1,008	0.065	196
304	79	4,202	0.022	272	2,521	0.036	271	2,101	0.043	272	1,261	0.054	204	1,008	0.065	196
316	79	4,202	0.022	272	2,521	0.036	271	2,101	0.043	272	1,261	0.054	204	1,008	0.065	196
15/5	69	3,677	0.022	238	2,206	0.036	237	1,838	0.043	238	1,103	0.054	179	882	0.065	171
17/4	69	3,677	0.022	238	2,206	0.036	237	1,838	0.043	238	1,103	0.054	179	882	0.065	171
416	69	3,677	0.022	238	2,206	0.036	237	1,838	0.043	238	1,103	0.054	179	882	0.065	171
Kovar/Invar	45	2,364	0.022	153	1,418	0.036	152	1,182	0.043	153	709	0.054	115	567	0.065	110
Steels																
1018/1020	117	6,222	0.033	607	3,733	0.054	604	3,111	0.065	607	1,867	0.081	455	1,493	0.098	437
1045	117	6,222	0.028	513	3,733	0.046	511	3,111	0.055	513	1,867	0.069	385	1,493	0.083	370
4140	107	5,657	0.028	467	3,394	0.046	465	2,828	0.055	467	1,697	0.069	350	1,358	0.083	336
4340	101	5,374	0.028	443	3,224	0.046	442	2,687	0.055	443	1,612	0.069	332	1,290	0.083	319
Cast Iron																
Ductile	104	5,495	0.038	618	3,297	0.062	616	2,747	0.075	618	1,645	0.094	464	1,319	0.113	445
Gray	117	6,222	0.038	700	3,733	0.062	697	3,111	0.075	700	1,867	0.094	525	1,493	0.113	504
Tool Steel																
A2	85	4,525	0.033	441	2,715	0.054	439	2,263	0.065	441	1,358	0.081	331	1,086	0.098	318
D2	75	3,960	0.033	386	2,376	0.054	385	1,980	0.065	386	1,188	0.081	290	950	0.098	278
H13	85	4,525	0.033	441	2,715	0.054	439	2,263	0.065	441	1,358	0.081	331	1,086	0.098	318
P20	80	4,242	0.038	477	2,545	0.062	475	2,121	0.075	477	1,273	0.094	358	1,018	0.113	344
S7	80	4,242	0.033	414	2,545	0.054	412	2,121	0.065	414	1,273	0.081	310	1,018	0.098	298

S645M - Recommended Starting Point Speed and Feeds (Profiling) METRIC																
Material	m/min	6mm Diameter			10mm Diameter			12mm Diameter			20mm Diameter			25mm Diameter		
		RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min
Inconel																
625	37	1,964	0.014	165	1,178	0.023	164	982	0.028	165	589	0.035	124	471	0.042	119
718	25	1,309	0.013	98	785	0.021	98	655	0.025	98	393	0.031	74	314	0.038	71
Other Nickel Based																
Waspalloy	25	1,309	0.013	98	785	0.021	98	655	0.025	98	393	0.031	74	314	0.038	71
Hastelloy	25	1,309	0.013	98	785	0.021	98	655	0.025	98	393	0.031	74	314	0.038	71
A-286	30	1,600	0.013	120	960	0.021	120	800	0.025	120	480	0.031	90	384	0.038	86
Titanium																
6AL-4V / Comm. Pure	67	3,556	0.019	405	2,133	0.032	404	1,778	0.038	405	1,067	0.048	304	853	0.057	292
Stainless Steel																
303	85	4,525	0.014	380	2,715	0.023	379	2,263	0.028	380	1,358	0.035	285	1,086	0.042	274
304	85	4,525	0.014	380	2,715	0.023	379	2,263	0.028	380	1,358	0.035	285	1,086	0.042	274
316	85	4,525	0.014	380	2,715	0.023	379	2,263	0.028	380	1,358	0.035	285	1,086	0.042	274
15/5	75	3,960	0.014	333	2,376	0.023	331	1,980	0.028	333	1,188	0.035	249	950	0.042	239
17/4	75	3,960	0.014	333	2,376	0.023	331	1,980	0.028	333	1,188	0.035	249	950	0.042	239
416	75	3,960	0.014	333	2,376	0.023	331	1,980	0.028	333	1,188	0.035	249	950	0.042	239
Kovar/Invar	55	2,909	0.014	244	1,745	0.023	243	1,455	0.028	244	873	0.035	183	698	0.042	176
Steels																
1018/1020	122	6,465	0.019	737	3,879	0.032	734	3,232	0.038	737	1,939	0.048	553	1,551	0.057	531
1045	122	6,465	0.019	737	3,879	0.032	734	3,232	0.038	737	1,939	0.048	553	1,551	0.057	531
4140	122	6,465	0.019	737	3,879	0.032	734	3,232	0.038	737	1,939	0.048	553	1,551	0.057	531
4340	116	6,141	0.019	700	3,685	0.032	697	3,071	0.038	700	1,842	0.048	525	1,474	0.057	504
Cast Iron																
Ductile	104	5,495	0.018	577	3,297	0.029	575	2,747	0.035	577	1,648	0.044	433	1,319	0.053	415
Gray	134	7,111	0.015	640	4,267	0.025	637	3,556	0.030	640	2,133	0.038	480	1,707	0.045	461
Tool Steel																
A2	104	5,495	0.015	495	3,297	0.025	493	2,747	0.030	495	1,648	0.038	371	1,319	0.045	356
D2	85	4,525	0.015	407	2,715	0.025	406	2,263	0.030	407	1,358	0.038	305	1,086	0.045	293
H13	104	5,495	0.015	495	3,297	0.025	493	2,747	0.030	495	1,648	0.038	371	1,319	0.045	356
P20	91	4,848	0.015	436	2,909	0.025	435	2,424	0.030	436	1,455	0.038	327	1,164	0.045	314
S7	98	5,172	0.015	465	3,103	0.025	464	2,586	0.030	465	1,551	0.038	349	1,241	0.045	335

Speeds and Feeds are based upon: ADOC = 1 x Diameter, RDOC = 1 x Diameter

Niagara Cutter

2 Flute General Purpose

C230



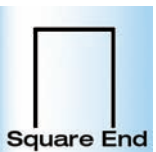
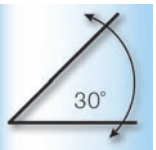
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/64	1/8	1/32	1-1/2	2	85260	85336
1/32	1/8	5/64	1-1/2	2	85261	85337
1/32	1/8	3/32	1-1/2	2	54012	54018
3/64	1/8	7/64	1-1/2	2	85262	85338
3/64	1/8	1/8	1-1/2	2	54013	54019
1/16	1/8	1/8	1-1/2	2	85408	85434
1/16	1/8	3/16	1-1/2	2	85263	85339
1/16	1/8	1/4	1-1/2	2	55334	55430
5/64	1/8	3/16	1-1/2	2	85264	85340
5/64	1/8	1/4	1-1/2	2	55335	55431
3/32	1/8	3/16	1-1/2	2	85409	85435
3/32	1/8	9/32	1-1/2	2	85265	85341
3/32	1/8	3/8	1-1/2	2	55336	55432
7/64	1/8	3/8	1-1/2	2	85266	85342
1/8	1/8	1/4	1-1/2	2	85410	85436
1/8	1/8	1/2	1-1/2	2	85267	85343
1/8	1/8	5/8	2	2	55337	55433
1/8	1/8	3/4	3	2	55338	55434
1/8	1/8	1	3	2	55339	55435
9/64	3/16	1/2	2	2	85268	85344
5/32	3/16	5/16	2	2	85411	85437
5/32	3/16	1/2	2	2	85269	85345
11/64	3/16	5/8	2	2	85270	85346
3/16	3/16	3/8	2	2	85412	85438
3/16	3/16	5/8	2	2	85271	85347
3/16	3/16	3/4	2-1/2	2	85448	85484
3/16	3/16	1	3	2	55340	55436
3/16	3/16	1	4	2	55341	55437
3/16	3/16	1-1/8	3	2	85449	85485
13/64	1/4	5/8	2-1/2	2	85272	85348
7/32	1/4	7/16	2	2	85413	85439
7/32	1/4	5/8	2-1/2	2	85273	85349
15/64	1/4	3/4	2-1/2	2	85274	85350
1/4	1/4	1/2	2	2	85414	85440
1/4	1/4	3/4	2-1/2	2	85275	85351
1/4	1/4	1	3	2	55342	55438
1/4	1/4	1	4	2	55343	55439
1/4	1/4	1-1/8	3	2	85450	85486
1/4	1/4	1-1/2	4	2	85451	85487
1/4	1/4	1-1/2	6	2	55344	55440
17/64	5/16	3/4	2-1/2	2	85276	85352
9/32	5/16	3/4	2-1/2	2	85277	85353
19/64	5/16	13/16	2-1/2	2	85278	85354 •

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

2 Flute General Purpose

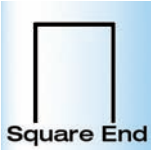
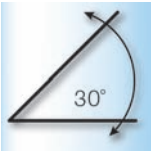


C230

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
5/16	5/16	1/2	2	2	85415	85441
5/16	5/16	13/16	2-1/2	2	85279	85355
5/16	5/16	1	3	2	55345	55441
5/16	5/16	1	4	2	55346	55442
5/16	5/16	1-1/8	3	2	85452	85488
5/16	5/16	1-1/2	6	2	55347	55443
5/16	5/16	1-5/8	4	2	85453	85489
21/64	3/8	1	2-1/2	2	85280	85356
11/32	3/8	1	2-1/2	2	85281	85357
23/64	3/8	1	2-1/2	2	85282	85358 •
3/8	3/8	5/8	2	2	85416	85442
3/8	3/8	1	2-1/2	2	85283	85359
3/8	3/8	1	3	2	55348	55444
3/8	3/8	1	4	2	55349	55445
3/8	3/8	1-1/8	3	2	85454	85490
3/8	3/8	1-1/2	6	2	55350	55446
3/8	3/8	1-3/4	4	2	85455	85491
3/8	3/8	2	4	2	55351	55447
3/8	3/8	3	6	2	55352	55448
25/64	7/16	1	2-3/4	2	85284	85360 •
13/32	7/16	1	2-3/4	2	85285	85361
27/64	7/16	1	2-3/4	2	85286	85362 •
7/16	7/16	5/8	2-1/2	2	85417	85443
7/16	7/16	1	2-3/4	2	85287	85363
7/16	7/16	1	4	2	55353	55449 •
7/16	7/16	1-1/2	6	2	55354	55450 •
7/16	7/16	2	4	2	55355	55451
7/16	7/16	2	4-1/2	2	85456 •	85492
7/16	7/16	3	6	2	85457	85493 •
29/64	1/2	1	3	2	85288 •	85364 •
15/32	1/2	1	3	2	85289 •	85365
31/64	1/2	1	3	2	85290 •	85366 •
1/2	1/2	5/8	2-1/2	2	85418	85444
1/2	1/2	1	3	2	85291	85367
1/2	1/2	1	4	2	55356	55452
1/2	1/2	1-1/2	6	2	55357	55453
1/2	1/2	2	4	2	55358	55454
1/2	1/2	2	4-1/2	2	85458	85494
1/2	1/2	3	6	2	85459	85495
9/16	9/16	1-1/8	3-1/2	2	85292	85368
9/16	9/16	2	6	2	55359 •	55455 •
9/16	9/16	3	6	2	55360	55456 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute General Purpose

C230



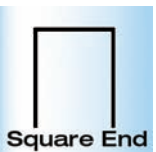
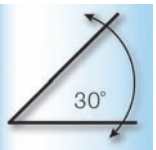
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
5/8	5/8	3/4	3	2	85419	85445
5/8	5/8	1-1/4	3-1/2	2	85293	85369
5/8	5/8	2	6	2	55361	55457
5/8	5/8	2-1/4	5	2	85460	85496 •
5/8	5/8	3	6	2	85461	85497
11/16	3/4	1-3/8	4	2	85294	85370
3/4	3/4	1	3	2	85420	85446
3/4	3/4	1-1/2	4	2	85295	85371
3/4	3/4	2	6	2	55362	55458
3/4	3/4	2-1/4	5	2	85462	85498
3/4	3/4	3	6	2	85463	85499
3/4	3/4	4	7	2	55363	55459 •
7/8	7/8	1-1/2	4	2	85296	85372
1	1	1-1/2	4	2	85297	85373
1	1	2	6	2	55364	55460 •
1	1	2-1/4	5	2	85464	85500 •
1	1	3	6	2	85465	85501 •
1	1	4	7	2	55365 •	55461 •

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

2 Flute with Radius General Purpose

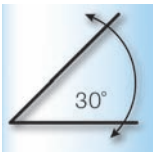


C230R

**SOLID
CARBIDE**

**TiAIN
COATED**

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.015 Radius TiAIN EDP #	0.020 Radius TiAIN EDP #	0.030 Radius TiAIN EDP #	0.045 Radius TiAIN EDP #
1/8	1/8	1/2	1-1/2	2	91165	91167	-	-
3/16	3/16	5/8	2	2	91168	91169	-	-
1/4	1/4	3/4	2-1/2	2	91170	91172	91173	91174
5/16	5/16	13/16	2-1/2	2	91175 •	91176 •	91183	91319
3/8	3/8	1	2-1/2	2	91321	91322	91323	91325
7/16	7/16	1	2-3/4	2	91327 •	91329 •	91330 •	91331 •
1/2	1/2	1	3	2	91335	91336 •	91337	91338
5/8	5/8	1-1/4	3-1/2	2	91343	91344 •	91345 •	91346
3/4	3/4	1-1/2	4	2	91132 •	91350 •	91352 •	91354 •
1	1	1-1/2	4	2	91363 •	91364 •	91365 •	91366 •

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.060 Radius TiAIN EDP #	0.090 Radius TiAIN EDP #	0.125 Radius TiAIN EDP #	0.190 Radius TiAIN EDP #
7/16	7/16	1	2-3/4	2	91332	91333	91334	-
1/2	1/2	1	3	2	91339	91341	91342	-
5/8	5/8	1-1/4	3-1/2	2	91347	91348 •	91349	-
3/4	3/4	1-1/2	4	2	91159	91356 •	91358	91362
1	1	1-1/2	4	2	91367 •	91368 •	91369	91371 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Ball-End General Purpose

CB230



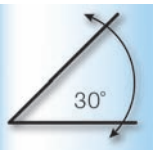
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/64	1/8	1/32	1-1/2	2	86149	86225
1/32	1/8	5/64	1-1/2	2	86150	86226
1/32	1/8	3/32	1-1/2	2	54020	54032
3/64	1/8	7/64	1-1/2	2	86151	86227
3/64	1/8	1/8	1-1/2	2	54021	54033
1/16	1/8	1/8	1-1/2	2	55462	55615
1/16	1/8	3/16	1-1/2	2	86152	86228
1/16	1/8	1/4	1-1/2	2	54022	54034
5/64	1/8	3/16	1-1/2	2	86153	86229
5/64	1/8	1/4	1-1/2	2	54023	54035
3/32	1/8	3/16	1-1/2	2	55463	55616
3/32	1/8	9/32	1-1/2	2	86154	86230
3/32	1/8	3/8	1-1/2	2	55464	55617
7/64	1/8	3/8	1-1/2	2	86155	86231
1/8	1/8	1/4	1-1/2	2	55465	55618
1/8	1/8	1/2	1-1/2	2	86156	86232
1/8	1/8	5/8	2	2	55466	55619
1/8	1/8	3/4	3	2	55467	55620
1/8	1/8	1	3	2	55468	55621
9/64	3/16	1/2	2	2	86157	86233
5/32	3/16	5/16	2	2	55469	55622
5/32	3/16	1/2	2	2	86158	86234
11/64	3/16	5/8	2	2	86159	86235
3/16	3/16	3/8	2	2	55470	55623
3/16	3/16	5/8	2	2	86160	86236
3/16	3/16	1	3	2	55471	55624
3/16	3/16	1	4	2	55472	55625
3/16	3/16	1-1/8	3	2	55473	55626
13/64	1/4	5/8	2-1/2	2	86161 •	86237
7/32	1/4	7/16	2	2	55474	55627
7/32	1/4	5/8	2-1/2	2	86162 •	86238
15/64	1/4	3/4	2-1/2	2	86163 •	86239 •
1/4	1/4	1/2	2	2	55475	55628
1/4	1/4	3/4	2-1/2	2	86164	86240
1/4	1/4	1	3	2	55476	55629
1/4	1/4	1	4	2	55477	55630
1/4	1/4	1-1/2	4	2	55478	55631
1/4	1/4	1-1/2	6	2	55479	55632
17/64	5/16	3/4	2-1/2	2	86165	86241 •
9/32	5/16	3/4	2-1/2	2	86166	86242
19/64	5/16	13/16	2-1/2	2	86167	86243 •
5/16	5/16	1/2	2	2	55480	55633
5/16	5/16	13/16	2-1/2	2	86168	86244

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

2 Flutes



Ball-End

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

2 Flute Ball-End General Purpose

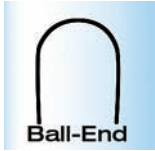
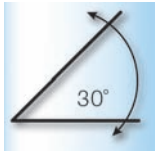


CB230

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
5/16	5/16	1	3	2	55481	55634
5/16	5/16	1	4	2	55482	55635
5/16	5/16	1-1/2	6	2	55483 •	55636 •
5/16	5/16	1-5/8	4	2	55484	55637
21/64	3/8	1	2-1/2	2	86169 •	86245 •
11/32	3/8	1	2-1/2	2	86170 •	86246 •
23/64	3/8	1	2-1/2	2	86171	86247
3/8	3/8	5/8	2	2	55485	55638
3/8	3/8	1	2-1/2	2	86172	86248
3/8	3/8	1	3	2	55486	55639
3/8	3/8	1	4	2	55487	55640
3/8	3/8	1-1/2	6	2	55488	55641
3/8	3/8	2	4	2	55489	55642
3/8	3/8	3	6	2	55490	55643
25/64	7/16	1	2-3/4	2	86173 •	86249 •
13/32	7/16	1	2-3/4	2	86174 •	86250 •
27/64	7/16	1	2-3/4	2	86175 •	86251 •
7/16	7/16	5/8	2-1/2	2	55491	55644
7/16	7/16	1	2-3/4	2	86176	86252
7/16	7/16	1	4	2	55492 •	55645 •
7/16	7/16	1-1/2	6	2	55493 •	55646 •
7/16	7/16	2	4	2	55494 •	55647 •
7/16	7/16	3	6	2	55495 •	55648 •
29/64	1/2	1	3	2	86177 •	86253 •
15/32	1/2	1	3	2	86178 •	86254 •
31/64	1/2	1	3	2	86179 •	86255 •
1/2	1/2	5/8	2-1/2	2	55496	55649
1/2	1/2	1	3	2	86180	86256
1/2	1/2	1	4	2	55497	55650
1/2	1/2	1-1/2	6	2	55498	55651
1/2	1/2	2	4	2	55499	55652
1/2	1/2	3	6	2	55500	55653
9/16	9/16	1-1/8	3-1/2	2	86181 •	86257 •
9/16	9/16	2	6	2	55501 •	55654 •
9/16	9/16	3	6	2	55502 •	55655 •
5/8	5/8	3/4	3	2	55503	55656 •
5/8	5/8	1-1/4	3-1/2	2	86182	86258
5/8	5/8	2	6	2	55504	55657 •
5/8	5/8	3	6	2	55505	55658
11/16	3/4	1-3/8	4	2	86183 •	86259 •
3/4	3/4	1	3	2	55506 •	55659

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Ball-End General Purpose

CB230



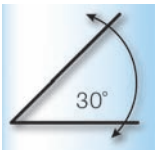
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
3/4	3/4	1-1/2	4	2	86184	86260
3/4	3/4	2	6	2	55507	55660 •
3/4	3/4	3	6	2	55508 •	55661 •
3/4	3/4	4	6	2	55509 •	55662 •
7/8	7/8	1-1/2	4	2	86185 •	86261 •
1	1	1-1/2	4	2	86186	86262 •
1	1	2	6	2	55510 •	55663
1	1	3	6	2	55511	55664 •
1	1	4	7	2	55512 •	55665 •

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

2 Flutes



Ball-End

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

2 Flute NC Tolerance General Purpose



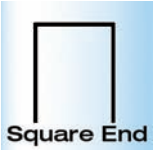
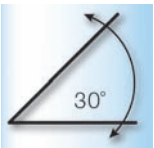
CNC230

•Weldon Flat Standard on Shank Sizes - 3/8", 1/2", 5/8", 3/4" and 1"

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
1/8	1/8	1/2	1-1/2	2	85747 •	85775
5/32	3/16	9/16	2	2	85748 •	85776
3/16	3/16	5/8	2	2	85749 •	85777
7/32	1/4	5/8	2-1/2	2	85750 •	85778 •
1/4	1/4	3/4	2-1/2	2	85751 •	85779
9/32	5/16	3/4	2-1/2	2	85752 •	85780
5/16	5/16	13/16	2-1/2	2	85753 •	85781
3/8	3/8	7/8	2-1/2	2	85754 •	85782
7/16	7/16	7/8	2-1/2	2	85755 •	85783
1/2	1/2	1	3	2	85756	85784
9/16	9/16	1-1/4	3-1/2	2	85757	85785 •
5/8	5/8	1-1/4	3-1/2	2	85758	85786
3/4	3/4	1-1/2	4	2	85759	85787
1	1	1-1/2	4	2	85760	85788 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute NC Tolerance Ball-End General Purpose

CNCB230

•Weldon Flat Standard on Shank Sizes - 3/8", 1/2", 5/8", 3/4" and 1"



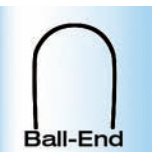
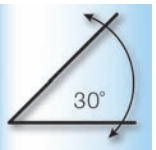
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/8	1/8	1/2	1-1/2	2	85790 •	85818
5/32	3/16	9/16	2	2	85791 •	85819 •
3/16	3/16	5/8	2	2	85792	85820
7/32	1/4	5/8	2-1/2	2	85793 •	85821 •
1/4	1/4	3/4	2-1/2	2	85794	85822
9/32	5/16	3/4	2-1/2	2	85795 •	85823 •
5/16	5/16	13/16	2-1/2	2	85796 •	85824
3/8	3/8	7/8	2-1/2	2	85797	85825
7/16	7/16	7/8	2-1/2	2	85798 •	85826 •
1/2	1/2	1	3	2	85799 •	85827
9/16	9/16	1-1/4	3-1/2	2	85800 •	85828 •
5/8	5/8	1-1/4	3-1/2	2	85801 •	85829 •
3/4	3/4	1-1/2	4	2	85802 •	85830 •
1	1	1-1/2	4	2	85803 •	85831 •

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

2 Flute Double-End General Purpose

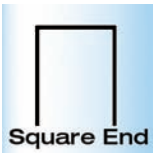
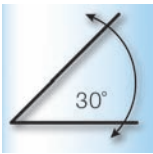


CD230
•Weldon Flat Standard

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
1/8	3/8	3/8	3-1/16	2	85375	85397
5/32	3/8	7/16	3-1/8	2	85376	85398
3/16	3/8	1/2	3-1/4	2	85377	85399
7/32	3/8	9/16	3-3/8	2	85378 •	85400
1/4	3/8	5/8	3-3/8	2	85379	85401
9/32	3/8	11/16	3-1/2	2	85380 •	85402 •
5/16	3/8	3/4	3-1/2	2	85381	85403
11/32	3/8	3/4	3-1/2	2	85382 •	85404
3/8	3/8	3/4	3-1/2	2	85383	85405
7/16	1/2	7/8	4	2	85384	85406
1/2	1/2	1	4	2	85385	85407

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End Stub Length General Purpose

CSD230



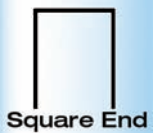
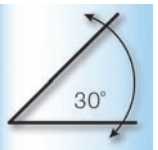
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/32	1/8	1/16	1-1/2	2	89650	89653
3/64	1/8	3/32	1-1/2	2	89654	89657
1/16	1/8	1/8	1-1/2	2	89658	89661
5/64	1/8	1/8	1-1/2	2	89662	89665
3/32	1/8	3/16	1-1/2	2	89666	89669
7/64	1/8	3/16	1-1/2	2	89670	89673
1/8	1/8	1/4	1-1/2	2	89674	89677
9/64	3/16	5/16	2	2	89678	89681
5/32	3/16	5/16	2	2	89682	89685
11/64	3/16	5/16	2	2	89686	89689
3/16	3/16	3/8	2	2	89690	89693
13/64	1/4	1/2	2-1/2	2	89694	89697
7/32	1/4	1/2	2-1/2	2	89698	89701
15/64	1/4	1/2	2-1/2	2	89702	89705 •
1/4	1/4	1/2	2-1/2	2	89706	89709
9/32	5/16	1/2	2-1/2	2	89710	89713
5/16	5/16	1/2	2-1/2	2	89714	89717
11/32	3/8	9/16	2-1/2	2	89718 •	89721 •
3/8	3/8	9/16	2-1/2	2	89722	89725
7/16	7/16	9/16	2-3/4	2	89726 •	89729 •
1/2	1/2	5/8	3	2	89730	89733

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End Stub Length Ball-End

General Purpose

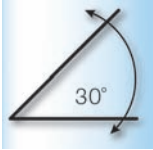


CSDB230

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/32	1/8	1/16	1-1/2	2	89734	89737
3/64	1/8	3/32	1-1/2	2	89738	89741
1/16	1/8	1/8	1-1/2	2	89742	89745
5/64	1/8	1/8	1-1/2	2	89746	89749
3/32	1/8	3/16	1-1/2	2	89750	89753
7/64	1/8	3/16	1-1/2	2	89754	89757
1/8	1/8	1/4	1-1/2	2	89758	89761
9/64	3/16	5/16	2	2	89762	89765
5/32	3/16	5/16	2	2	89766	89769
11/64	3/16	5/16	2	2	89770 •	89773
3/16	3/16	3/8	2	2	89774	89777
13/64	1/4	1/2	2-1/2	2	89778 •	89781
7/32	1/4	1/2	2-1/2	2	89782 •	89785
15/64	1/4	1/2	2-1/2	2	89786 •	89789 •
1/4	1/4	1/2	2-1/2	2	89790	89793
9/32	5/16	1/2	2-1/2	2	89794 •	89797
5/16	5/16	1/2	2-1/2	2	89798	89801
11/32	3/8	9/16	2-1/2	2	89802 •	89805 •
3/8	3/8	9/16	2-1/2	2	89806	89809
7/16	7/16	9/16	2-3/4	2	89810 •	89813 •
1/2	1/2	5/8	3	2	89814	89817

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 2 Flute General Purpose

C230M



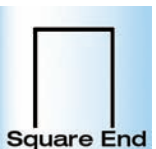
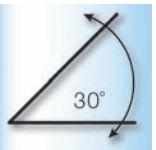
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AlTiN EDP #
0.2mm	3mm	0.4mm	39mm	2	34391 •	34392 •
0.3mm	3mm	0.6mm	39mm	2	34393 •	34394 •
0.4mm	3mm	0.8mm	39mm	2	34395 •	34396 •
0.5mm	3mm	1mm	39mm	2	34397 •	34398 •
0.6mm	3mm	1.2mm	39mm	2	34399 •	34400 •
0.8mm	3mm	1.6mm	39mm	2	34401 •	34402 •
1mm	3mm	2mm	39mm	2	34403 •	34404 •
1mm	3mm	4mm	39mm	2	46327 •	46328
1.2mm	3mm	2.4mm	39mm	2	34405 •	34406 •
1.5mm	3mm	3mm	39mm	2	34407 •	34408 •
1.5mm	3mm	4.5mm	39mm	2	46329	46330
1.8mm	3mm	3.6mm	39mm	2	34409 •	34410 •
2mm	3mm	4mm	39mm	2	34411 •	34412 •
2mm	3mm	6.3mm	39mm	2	46331	46332
2.5mm	3mm	9.5mm	39mm	2	46333 •	46334
3mm	3mm	6mm	39mm	2	47667	47668
3mm	3mm	12mm	39mm	2	46335	46336
3.5mm	4mm	12mm	51mm	2	46337 •	46338
4mm	4mm	6mm	51mm	2	47669 •	47670 •
4mm	4mm	14mm	51mm	2	46339	46340
4.5mm	6mm	16mm	51mm	2	46341 •	46342
5mm	6mm	16mm	51mm	2	46343 •	46344
6mm	6mm	9mm	51mm	2	47671 •	47672 •
6mm	6mm	19mm	51mm	2	46345 •	46346
7mm	8mm	19mm	64mm	2	46347 •	46348
8mm	8mm	10mm	64mm	2	47673 •	47674 •
8mm	8mm	20mm	64mm	2	46349 •	46350
9mm	10mm	22mm	73mm	2	46351 •	46352
10mm	10mm	10mm	73mm	2	47675 •	47676 •
10mm	10mm	22mm	73mm	2	46353	46354
11mm	12mm	25mm	74mm	2	46355 •	46356
12mm	12mm	12mm	74mm	2	47677 •	47678 •
12mm	12mm	25mm	74mm	2	46357	46358
14mm	14mm	32mm	84mm	2	46359 •	46360
16mm	16mm	16mm	93mm	2	47679 •	47680 •
16mm	16mm	32mm	93mm	2	46361 •	46362
18mm	18mm	19mm	100mm	2	47681 •	47682 •
18mm	18mm	38mm	100mm	2	46363 •	46364
20mm	20mm	19mm	100mm	2	47683 •	47684 •
20mm	20mm	38mm	100mm	2	46365 •	46366
25mm	25mm	38mm	101mm	2	46367 •	46368 •

**SOLID
CARBIDE**

**Uncoated
AlTiN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 2 Flute Ball-End

General Purpose

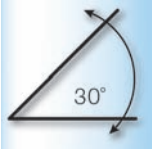


CB230M

**SOLID
CARBIDE**

**Uncoated
AITIN
COATED**

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AITiN EDP #
0.2mm	3mm	0.4mm	39mm	2	34413 •	34414 •
0.3mm	3mm	0.6mm	39mm	2	34415 •	34416 •
0.4mm	3mm	0.8mm	39mm	2	34417 •	34418
0.5mm	3mm	1mm	39mm	2	34419 •	34420 •
0.6mm	3mm	1.2mm	39mm	2	34421 •	34422 •
0.8mm	3mm	1.6mm	39mm	2	34423 •	34424 •
1mm	3mm	2mm	39mm	2	34425 •	34426
1mm	3mm	4mm	39mm	2	46369 •	46370
1.2mm	3mm	2.4mm	39mm	2	34427 •	34428 •
1.5mm	3mm	3mm	39mm	2	34429 •	34430 •
1.5mm	3mm	4.5mm	39mm	2	46371 •	46372
1.8mm	3mm	3.6mm	39mm	2	34431 •	34432 •
2mm	3mm	4mm	39mm	2	34433 •	34434 •
2mm	3mm	6.3mm	39mm	2	46373	46374
2.5mm	3mm	9.5mm	39mm	2	46375	46376 •
3mm	3mm	6mm	39mm	2	47919 •	47920 •
3mm	3mm	12mm	39mm	2	46377	46378
3.5mm	4mm	12mm	51mm	2	46379 •	46380 •
4mm	4mm	6mm	51mm	2	47921 •	47922 •
4mm	4mm	14mm	51mm	2	46381 •	46382
4.5mm	6mm	16mm	51mm	2	46383 •	46384 •
5mm	6mm	16mm	51mm	2	46385	46386
6mm	6mm	9mm	51mm	2	47923 •	47924 •
6mm	6mm	19mm	51mm	2	46387 •	46388
7mm	8mm	19mm	64mm	2	46389 •	46390
8mm	8mm	10mm	64mm	2	47925 •	47926 •
8mm	8mm	20mm	64mm	2	46391 •	46392
9mm	10mm	22mm	73mm	2	46393 •	46394 •
10mm	10mm	10mm	73mm	2	47927 •	47928 •
10mm	10mm	22mm	73mm	2	46395 •	46396
11mm	12mm	25mm	74mm	2	46397 •	46398 •
12mm	12mm	12mm	74mm	2	47929 •	47930 •
12mm	12mm	25mm	74mm	2	46399 •	46400 •
14mm	14mm	32mm	84mm	2	46401 •	46402 •
16mm	16mm	16mm	93mm	2	47931 •	47932 •
16mm	16mm	32mm	93mm	2	46403 •	46404
18mm	18mm	19mm	100mm	2	47933 •	47934 •
18mm	18mm	38mm	100mm	2	46405 •	46406 •
20mm	20mm	19mm	100mm	2	47935 •	47936 •
20mm	20mm	38mm	100mm	2	46407 •	46408
25mm	25mm	38mm	101mm	2	46409 •	46410 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

3 Flute General Purpose

C330



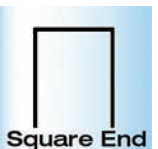
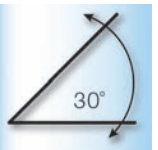
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/64	1/8	1/32	1-1/2	3	85919	85995 •
1/32	1/8	5/64	1-1/2	3	85920	85996
3/64	1/8	7/64	1-1/2	3	85921	85997
1/16	1/8	3/16	1-1/2	3	85922	85998
5/64	1/8	3/16	1-1/2	3	85923	85999
3/32	1/8	9/32	1-1/2	3	85924	86000
7/64	1/8	3/8	1-1/2	3	85925	86001
1/8	1/8	1/2	1-1/2	3	85926	86002
9/64	3/16	1/2	2	3	85927	86003
5/32	3/16	1/2	2	3	85928	86004
11/64	3/16	5/8	2	3	85929 •	86005
3/16	3/16	5/8	2	3	85930	86006
13/64	1/4	5/8	2-1/2	3	85931	86007
7/32	1/4	5/8	2-1/2	3	85932	86008
15/64	1/4	3/4	2-1/2	3	85933	86009
1/4	1/4	3/4	2-1/2	3	85934	86010
17/64	5/16	3/4	2-1/2	3	85935	86011 •
9/32	5/16	3/4	2-1/2	3	85936	86012
19/64	5/16	13/16	2-1/2	3	85937 •	86013 •
5/16	5/16	13/16	2-1/2	3	85938	86014
21/64	3/8	1	2-1/2	3	85939 •	86015 •
11/32	3/8	1	2-1/2	3	85940 •	86016
23/64	3/8	1	2-1/2	3	85941 •	86017 •
3/8	3/8	1	2-1/2	3	85942	86018
25/64	7/16	1	2-3/4	3	85943 •	86019 •
13/32	7/16	1	2-3/4	3	85944 •	86020
27/64	7/16	1	2-3/4	3	85945 •	86021 •
7/16	7/16	1	2-3/4	3	85946	86022
29/64	1/2	1	3	3	85947 •	86023 •
15/32	1/2	1	3	3	85948 •	86024 •
31/64	1/2	1	3	3	85949 •	86025 •
1/2	1/2	1	3	3	85950	86026
9/16	9/16	1-1/8	3-1/2	3	85951	86027
5/8	5/8	1-1/4	3-1/2	3	85952	86028
11/16	3/4	1-3/8	4	3	85953 •	86029 •
3/4	3/4	1-1/2	4	3	85954	86030
7/8	7/8	1-1/2	4	3	85955 •	86031
1	1	1-1/2	4	3	85956	86032

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

3 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

3 Flute Ball-End General Purpose

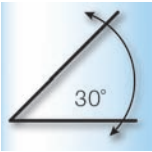


CB330

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

3 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
1/64	1/8	1/32	1-1/2	3	86034 •	86110 •
1/32	1/8	5/64	1-1/2	3	86035	86111
3/64	1/8	7/64	1-1/2	3	86036	86112
1/16	1/8	3/16	1-1/2	3	86037 •	86113
5/64	1/8	3/16	1-1/2	3	86038 •	86114
3/32	1/8	9/32	1-1/2	3	86039	86115
7/64	1/8	3/8	1-1/2	3	86040 •	86116 •
1/8	1/8	1/2	1-1/2	3	86041	86117
9/64	3/16	1/2	2	3	86042	86118 •
5/32	3/16	1/2	2	3	86043	86119
11/64	3/16	5/8	2	3	86044 •	86120
3/16	3/16	5/8	2	3	86045	86121
13/64	1/4	5/8	2-1/2	3	86046 •	86122 •
7/32	1/4	5/8	2-1/2	3	86047 •	86123
15/64	1/4	3/4	2-1/2	3	86048 •	86124 •
1/4	1/4	3/4	2-1/2	3	86049	86125
17/64	5/16	3/4	2-1/2	3	86050 •	86126 •
9/32	5/16	3/4	2-1/2	3	86051 •	86127 •
19/64	5/16	13/16	2-1/2	3	86052 •	86128 •
5/16	5/16	13/16	2-1/2	3	86053	86129
21/64	3/8	1	2-1/2	3	86054 •	86130 •
11/32	3/8	1	2-1/2	3	86055 •	86131 •
23/64	3/8	1	2-1/2	3	86056 •	86132 •
3/8	3/8	1	2-1/2	3	86057	86133
25/64	7/16	1	2-3/4	3	86058	86134 •
13/32	7/16	1	2-3/4	3	86059 •	86135 •
27/64	7/16	1	2-3/4	3	86060 •	86136 •
7/16	7/16	1	2-3/4	3	86061 •	86137
29/64	1/2	1	3	3	86062 •	86138 •
15/32	1/2	1	3	3	86063 •	86139 •
31/64	1/2	1	3	3	86064 •	86140 •
1/2	1/2	1	3	3	86065	86141
9/16	9/16	1-1/8	3-1/2	3	86066	86142
5/8	5/8	1-1/4	3-1/2	3	86067	86143
11/16	3/4	1-3/8	4	3	86068 •	86144 •
3/4	3/4	1-1/2	4	3	86069	86145
7/8	7/8	1-1/2	4	3	86070 •	86146
1	1	1-1/2	4	3	86071 •	86147 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute General Purpose

C360



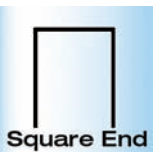
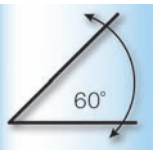
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
1/4	1/4	3/4	2-1/2	3	18854	86850
5/16	5/16	13/16	2-1/2	3	18856	86851
3/8	3/8	7/8	2-1/2	3	18858	86852
7/16	7/16	1	3	3	18860	86853
1/2	1/2	1	3	3	18862	86854
9/16	9/16	1-1/4	3-1/2	3	18864 •	86855
5/8	5/8	1-1/4	3-1/2	3	18866	86856
3/4	3/4	1-1/2	4	3	18868 •	86857
3/4	3/4	1-1/2	4	4	18870 •	86858
1	1	1-1/2	4	3	18872 •	86859 •
1	1	1-1/2	4	4	18874 •	86860 •

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

**3 Flutes
4 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Metric 3 Flute General Purpose

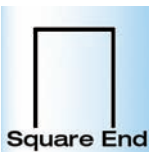
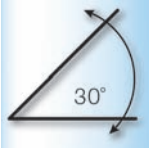


C330M

**SOLID
CARBIDE**

**Uncoated
AITIN
COATED**

3 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AITiN EDP #
1mm	3mm	4mm	39mm	3	47703 •	47704
1.5mm	3mm	4.5mm	39mm	3	47705 •	47706 •
2mm	3mm	6.3mm	39mm	3	47707 •	47708
2.5mm	3mm	9.5mm	39mm	3	47709 •	47710
3mm	3mm	6mm	39mm	3	47711 •	47712 •
3mm	3mm	12mm	39mm	3	47713 •	47714
3.5mm	4mm	12mm	51mm	3	47715 •	47716 •
4mm	4mm	6mm	51mm	3	47717 •	47718 •
4mm	4mm	14mm	51mm	3	47719	47720
4.5mm	6mm	16mm	51mm	3	47721 •	47722 •
5mm	6mm	16mm	51mm	3	47723 •	47724
6mm	6mm	9mm	51mm	3	47725 •	47726 •
6mm	6mm	19mm	51mm	3	47727	47728
7mm	8mm	19mm	64mm	3	47729 •	47730 •
8mm	8mm	10mm	64mm	3	47731 •	47732 •
8mm	8mm	20mm	64mm	3	47733 •	47734
9mm	10mm	22mm	73mm	3	47735	47736 •
10mm	10mm	10mm	73mm	3	47737 •	47738 •
10mm	10mm	22mm	73mm	3	47739 •	47740
11mm	12mm	25mm	74mm	3	47741 •	47742
12mm	12mm	12mm	74mm	3	47743 •	47744 •
12mm	12mm	25mm	74mm	3	47745 •	47746
14mm	14mm	32mm	84mm	3	47747 •	47748
16mm	16mm	16mm	93mm	3	47749 •	47750 •
16mm	16mm	32mm	93mm	3	47751 •	47752
18mm	18mm	19mm	100mm	3	47753 •	47754 •
18mm	18mm	38mm	100mm	3	47755 •	47756 •
20mm	20mm	19mm	100mm	3	47757 •	47758 •
20mm	20mm	32mm	104mm	3	47759 •	47760 •
25mm	25mm	38mm	101mm	3	47761 •	47762 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute General Purpose

C430



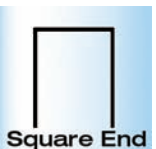
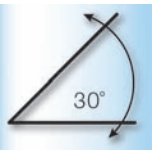
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/64	1/8	1/32	1-1/2	4	85503	85579
1/32	1/8	5/64	1-1/2	4	85504	85580
1/32	1/8	3/32	1-1/2	4	55666	55792
3/64	1/8	7/64	1-1/2	4	85505	85581
3/64	1/8	1/8	1-1/2	4	55667	55793
1/16	1/8	1/8	1-1/2	4	85652	85678
1/16	1/8	3/16	1-1/2	4	85506	85582
1/16	1/8	1/4	1-1/2	4	55668	55794
1/16	1/8	1	3	4	55669 •	55795
1/16	1/8	1	4	4	55670 •	55796
5/64	1/8	3/16	1-1/2	4	85507	85583
5/64	1/8	1/4	1-1/2	4	55671	55797
3/32	1/8	3/16	1-1/2	4	85653	85679
3/32	1/8	9/32	1-1/2	4	85508	85584
3/32	1/8	3/8	1-1/2	4	55672	55798
3/32	1/8	1	3	4	55673 •	55799
3/32	1/8	1	4	4	55674 •	55800 •
7/64	1/8	3/8	1-1/2	4	85509	85585
1/8	1/8	1/4	1-1/2	4	85654	85680
1/8	1/8	1/2	1-1/2	4	85510	85586
1/8	1/8	5/8	2	4	55675	55801
1/8	1/8	3/4	3	4	55676	55802
1/8	1/8	1	3	4	55677	55803
1/8	1/8	1	4	4	55678	55804
9/64	3/16	1/2	2	4	85511	85587
5/32	3/16	5/16	2	4	85655	85681
5/32	3/16	1/2	2	4	85512	85588
11/64	3/16	5/8	2	4	85513	85589
3/16	3/16	3/8	2	4	85656	85682
3/16	3/16	5/8	2	4	85514	85590
3/16	3/16	3/4	2-1/2	4	85692	85728
3/16	3/16	1	3	4	55679	55805
3/16	3/16	1	4	4	55680	55806
3/16	3/16	1-1/8	3	4	85693	85729
13/64	1/4	5/8	2-1/2	4	85515	85591
7/32	1/4	7/16	2	4	85657	85683
7/32	1/4	5/8	2-1/2	4	85516	85592
15/64	1/4	3/4	2-1/2	4	85517	85593
1/4	1/4	1/2	2	4	85658	85684
1/4	1/4	3/4	2-1/2	4	85518	85594
1/4	1/4	1	3	4	55681	55807
1/4	1/4	1	4	4	55682	55808
1/4	1/4	1-1/8	3	4	85694	85730

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute General Purpose



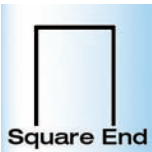
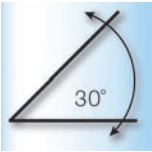
C430

Price Code C

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

4 Flutes



**Center
Cutting**

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
1/4	1/4	1-1/2	4	4	85695	85731
1/4	1/4	1-1/2	6	4	55683	55809
17/64	5/16	3/4	2-1/2	4	85519	85595
9/32	5/16	3/4	2-1/2	4	85520	85596
19/64	5/16	13/16	2-1/2	4	85521	85597
5/16	5/16	1/2	2	4	85659	85685
5/16	5/16	13/16	2-1/2	4	85522	85598
5/16	5/16	1	3	4	55684	55810
5/16	5/16	1	4	4	55685	55811
5/16	5/16	1-1/8	3	4	85696	85732
5/16	5/16	1-1/2	6	4	55686	55812
5/16	5/16	1-5/8	4	4	85697	85733
21/64	3/8	1	2-1/2	4	85523	85599
11/32	3/8	1	2-1/2	4	85524	85600
23/64	3/8	1	2-1/2	4	85525	85601
3/8	3/8	5/8	2	4	85660	85686
3/8	3/8	1	2-1/2	4	85526	85602
3/8	3/8	1	3	4	55687	55813
3/8	3/8	1	4	4	55688	55814
3/8	3/8	1-1/8	3	4	85698	85734
3/8	3/8	1-1/2	6	4	55689	55815
3/8	3/8	1-3/4	4	4	85699	85735
3/8	3/8	2	4	4	55690	55816
3/8	3/8	3	6	4	55691	55817
25/64	7/16	1	2-3/4	4	85527	85603
13/32	7/16	1	2-3/4	4	85528	85604
27/64	7/16	1	2-3/4	4	85529	85605
7/16	7/16	5/8	2-1/2	4	85661	85687
7/16	7/16	1	2-3/4	4	85530	85606
7/16	7/16	1	4	4	55692	55818
7/16	7/16	1-1/2	6	4	55693	55819
7/16	7/16	2	4	4	55694	55820
7/16	7/16	2	4-1/2	4	85700	85736
7/16	7/16	3	6	4	85701	85737
29/64	1/2	1	3	4	85531	85607
15/32	1/2	1	3	4	85532	85608
31/64	1/2	1	3	4	85533	85609
1/2	1/2	5/8	2-1/2	4	85662	85688
1/2	1/2	1	3	4	85534	85610
1/2	1/2	1	4	4	55695	55821
1/2	1/2	1-1/2	6	4	55696	55822
1/2	1/2	2	4	4	55697	55823
1/2	1/2	2	4-1/2	4	85702	85738

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute General Purpose

C430



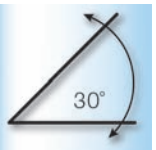
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/2	1/2	3	6	4	85703	85739
9/16	9/16	1-1/8	3-1/2	4	85535	85611
9/16	9/16	2	6	4	55698	55824
9/16	9/16	3	6	4	55699	55825
5/8	5/8	3/4	3	4	85663	85689
5/8	5/8	1-1/4	3-1/2	4	85536	85612
5/8	5/8	2	6	4	55700	55826
5/8	5/8	2-1/4	5	4	85704	85740
5/8	5/8	3	6	4	85705	85741
11/16	3/4	1-3/8	4	4	85537	85613
3/4	3/4	1	3	4	85664	85690
3/4	3/4	1-1/2	4	4	85538	85614
3/4	3/4	2	6	4	55701	55827
3/4	3/4	2-1/4	5	4	85706	85742
3/4	3/4	3	6	4	85707	85743
3/4	3/4	4	6	4	55702	55828
7/8	7/8	1-1/2	4	4	85539	85615
1	1	1	3	4	55703	55829
1	1	1-1/2	4	4	85540	85616
1	1	2	6	4	55704	55830
1	1	2-1/4	5	4	85708	85744
1	1	3	6	4	85709	85745
1	1	4	7	4	55705	55831
1-1/4	1-1/4	2	4-1/2	4	55706	55832 •
1-1/4	1-1/4	3	6	4	55707	55833 •

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute with Radius General Purpose

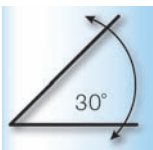


C430R

**SOLID
CARBIDE**

**TiAIN
COATED**

4 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.015 Radius TiAIN EDP #	0.020 Radius TiAIN EDP #	0.030 Radius TiAIN EDP #	0.045 Radius TiAIN EDP #
1/8	1/8	1/2	1-1/2	4	91372	91373	91374	-
3/16	3/16	5/8	2	4	91375	91376	91377	-
1/4	1/4	3/4	2-1/2	4	91378	91379	91380	91381
5/16	5/16	13/16	2-1/2	4	91382	91383	91384	91385
3/8	3/8	1	2-1/2	4	91386	91387	91389	91390
7/16	7/16	1	2-3/4	4	91391	91392	91393	91394
1/2	1/2	1	3	4	91353	91398	91399	91401
5/8	5/8	1-1/4	3-1/2	4	91406	91408	91409	91410
3/4	3/4	1-1/2	4	4	91361	91415	91416	91417
1	1	1-1/2	4	4	91422	91423	91405	91424

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	0.060 Radius TiAIN EDP #	0.090 Radius TiAIN EDP #	0.125 Radius TiAIN EDP #	0.190 Radius TiAIN EDP #
7/16	7/16	1	2-3/4	4	91395	91396	91397	-
1/2	1/2	1	3	4	91402	91403	91404	-
5/8	5/8	1-1/4	3-1/2	4	91411	91412	91413	-
3/4	3/4	1-1/2	4	4	91418	91419	91420	91421
1	1	1-1/2	4	4	91425	91426 •	91427	91428 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Ball-End General Purpose

CB430



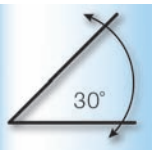
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/64	1/8	1/32	1-1/2	4	86264	86340
1/32	1/8	5/64	1-1/2	4	86265	86341
1/32	1/8	3/32	1-1/2	4	55834	56014
3/64	1/8	7/64	1-1/2	4	86266	86342
3/64	1/8	1/8	1-1/2	4	55835	56015
1/16	1/8	1/8	1-1/2	4	55836	56016
1/16	1/8	3/16	1-1/2	4	86267	86343
1/16	1/8	1/4	1-1/2	4	55837	56017
1/16	1/8	1	3	4	55838 •	56018
1/16	1/8	1	4	4	55839 •	56019
5/64	1/8	3/16	1-1/2	4	86268	86344
5/64	1/8	1/4	1-1/2	4	55840	56020
3/32	1/8	3/16	1-1/2	4	55841	56021
3/32	1/8	9/32	1-1/2	4	86269	86345
3/32	1/8	3/8	1-1/2	4	55842	56022
3/32	1/8	1	3	4	55843 •	56023
3/32	1/8	1	4	4	55844 •	56024
7/64	1/8	3/8	1-1/2	4	86270	86346
1/8	1/8	1/4	1-1/2	4	55845	56025
1/8	1/8	1/2	1-1/2	4	86271	86347
1/8	1/8	5/8	2	4	55846	56026
1/8	1/8	3/4	3	4	55847	56027
1/8	1/8	1	3	4	55848	56028
1/8	1/8	1	4	4	55849 •	56029
9/64	3/16	1/2	2	4	86272	86348
5/32	3/16	5/16	2	4	55850	56030
5/32	3/16	1/2	2	4	86273	86349
11/64	3/16	5/8	2	4	86274 •	86350
3/16	3/16	3/8	2	4	55851	56031
3/16	3/16	5/8	2	4	86275	86351
3/16	3/16	1	3	4	55852	56032
3/16	3/16	1	4	4	55853	56033
3/16	3/16	1-1/8	3	4	55854	53972
13/64	1/4	5/8	2-1/2	4	86276 •	86352
7/32	1/4	7/16	2	4	55855	53973
7/32	1/4	5/8	2-1/2	4	86277	86353
15/64	1/4	3/4	2-1/2	4	86278	86354
1/4	1/4	1/2	2	4	55856	53974
1/4	1/4	3/4	2-1/2	4	86279	86355
1/4	1/4	1	3	4	55857	53975
1/4	1/4	1	4	4	55858	53976
1/4	1/4	1-1/2	4	4	55859	53977
1/4	1/4	1-1/2	6	4	55860	53978

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

4 Flutes



Ball-End

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute Ball-End General Purpose

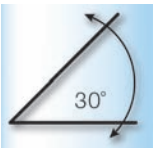


CB430

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

4 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
17/64	5/16	3/4	2-1/2	4	86280	86356
9/32	5/16	3/4	2-1/2	4	86281	86357
19/64	5/16	13/16	2-1/2	4	86282	86358
5/16	5/16	1/2	2	4	55861	53979
5/16	5/16	13/16	2-1/2	4	86283	86359
5/16	5/16	1	3	4	55862	53980
5/16	5/16	1	4	4	55863	53981
5/16	5/16	1-1/2	6	4	55864 •	53982 •
5/16	5/16	1-5/8	4	4	55865	53983
21/64	3/8	1	2-1/2	4	86284	86360
11/32	3/8	1	2-1/2	4	86285 •	86361
23/64	3/8	1	2-1/2	4	86286	86362
3/8	3/8	5/8	2	4	55866	53984
3/8	3/8	1	2-1/2	4	86287	86363
3/8	3/8	1	3	4	55867	53985
3/8	3/8	1	4	4	55868	53986
3/8	3/8	1-1/2	6	4	55869	53987
3/8	3/8	2	4	4	55870	53988
3/8	3/8	3	6	4	55871	53989
25/64	7/16	1	2-3/4	4	86288	86364 •
13/32	7/16	1	2-3/4	4	86289	86365
27/64	7/16	1	2-3/4	4	86290 •	86366 •
7/16	7/16	5/8	2-1/2	4	55872	53990
7/16	7/16	1	2-3/4	4	86291	86367
7/16	7/16	1	4	4	55873 •	53991
7/16	7/16	1-1/2	6	4	55874	53992
7/16	7/16	2	4	4	55875 •	53993
7/16	7/16	3	6	4	55876 •	53994 •
29/64	1/2	1	3	4	86292 •	86368
15/32	1/2	1	3	4	86293	86369
31/64	1/2	1	3	4	86294 •	86370 •
1/2	1/2	5/8	2-1/2	4	55877	53995
1/2	1/2	1	3	4	86295	86371
1/2	1/2	1	4	4	55878	53996
1/2	1/2	1-1/2	6	4	55879	53997
1/2	1/2	2	4	4	55880	53998
1/2	1/2	3	6	4	55881	53999
9/16	9/16	1-1/8	3-1/2	4	86296	86372
9/16	9/16	2	6	4	55882	54000 •
9/16	9/16	3	6	4	55883 •	54001 •
5/8	5/8	3/4	3	4	55884	54002
5/8	5/8	1-1/4	3-1/2	4	86297	86373
5/8	5/8	2	6	4	55885 •	54003

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Ball-End General Purpose

CB430



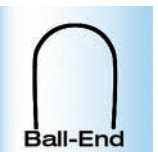
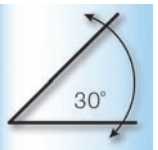
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
5/8	5/8	3	6	4	55886 •	54004
11/16	3/4	1-3/8	4	4	86298 •	86374
3/4	3/4	1	3	4	55887	54005
3/4	3/4	1-1/2	4	4	86299	86375
3/4	3/4	2	6	4	55888	54006
3/4	3/4	3	6	4	55889	54007
3/4	3/4	4	6	4	55890	54008
7/8	7/8	1-1/2	4	4	86300 •	86376
1	1	1-1/2	4	4	86301	86377
1	1	2	6	4	55891	54009
1	1	3	6	4	55892	54010
1	1	4	7	4	55893	54011

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute NC Tolerance General Purpose



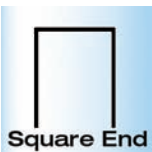
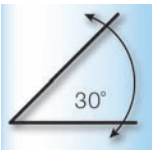
CNC430

•Weldon Flat Standard on Shank Sizes - 3/8", 1/2", 5/8", 3/4" and 1"

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

4 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
1/8	1/8	1/2	1-1/2	4	85833	85861
5/32	3/16	9/16	2	4	85834	85862
3/16	3/16	5/8	2	4	85835	85863
7/32	1/4	5/8	2-1/2	4	85836 •	85864
1/4	1/4	3/4	2-1/2	4	85837	85865
9/32	5/16	3/4	2-1/2	4	85838	85866 •
5/16	5/16	13/16	2-1/2	4	85839	85867
3/8	3/8	7/8	2-1/2	4	85840	85868
7/16	7/16	7/8	2-1/2	4	85841	85869
1/2	1/2	1	3	4	85842	85870
9/16	9/16	1-1/4	3-1/2	4	85843	85871
5/8	5/8	1-1/4	3-1/2	4	85844	85872
3/4	3/4	1-1/2	4	4	85845	85873
1	1	1-1/2	4	4	85846	85874

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute NC Tolerance Ball-End General Purpose

CNCB430

•Weldon Flat Standard on Shank Sizes - 3/8", 1/2", 5/8", 3/4" and 1"



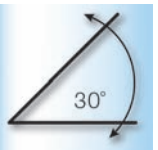
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/8	1/8	1/2	1-1/2	4	85876	85904
5/32	3/16	9/16	2	4	85877	85905
3/16	3/16	5/8	2	4	85878 •	85906
7/32	1/4	5/8	2-1/2	4	85879 •	85907 •
1/4	1/4	3/4	2-1/2	4	85880 •	85908
9/32	5/16	3/4	2-1/2	4	85881 •	85909 •
5/16	5/16	13/16	2-1/2	4	85882 •	85910 •
3/8	3/5	7/8	2-1/2	4	85883 •	85911
7/16	7/16	7/8	2-1/2	4	85884 •	85912 •
1/2	1/2	1	3	4	85885 •	85913
9/16	9/16	1-1/4	3-1/2	4	85886 •	85914 •
5/8	5/8	1-1/4	3-1/2	4	85887 •	85915 •
3/4	3/4	1-1/2	4	4	85888 •	85916 •
1	1	1-1/2	4	4	85889 •	85917 •

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute Double-End General Purpose

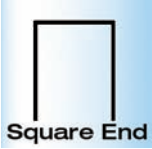
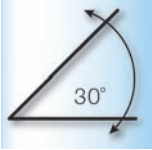


CD430
•Weldon Flat Standard

**SOLID
CARBIDE**

**Uncoated
TiAlN
COATED**

4 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAlN EDP #
1/8	3/8	3/8	3-1/16	4	85618	85640
5/32	3/8	7/16	3-1/8	4	85619	85641
3/16	3/8	1/2	3-1/4	4	85620	85642
7/32	3/8	9/16	3-3/8	4	85621	85643
1/4	3/8	5/8	3-3/8	4	85622	85644
9/32	3/8	11/16	3-1/2	4	85623	85645
5/16	3/8	3/4	3-1/2	4	85624	85646
11/32	3/8	3/4	3-1/2	4	85625 •	85647
3/8	3/8	3/4	3-1/2	4	85626	85648
7/16	1/2	7/8	4	4	85627	85649
1/2	1/2	1	4	4	85628	85650

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Double-End Stub Length General Purpose

CSD430



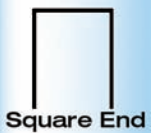
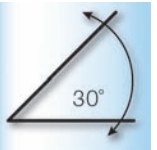
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/32	1/8	1/16	1-1/2	4	89818	89821
3/64	1/8	3/32	1-1/2	4	89822	89825
1/16	1/8	1/8	1-1/2	4	89826	89829
5/64	1/8	1/8	1-1/2	4	89830	89833
3/32	1/8	3/16	1-1/2	4	89834	89837
7/64	1/8	3/16	1-1/2	4	89838	89841
1/8	1/8	1/4	1-1/2	4	89842	89845
9/64	3/16	5/16	2	4	89846	89849
5/32	3/16	5/16	2	4	89850	89853
11/64	3/16	5/16	2	4	89854	89857
3/16	3/16	3/8	2	4	89858	89861
13/64	1/4	1/2	2-1/2	4	89862	89865
7/32	1/4	1/2	2-1/2	4	89866	89869
15/64	1/4	1/2	2-1/2	4	89870	89873
1/4	1/4	1/2	2-1/2	4	89874	89877
9/32	5/16	1/2	2-1/2	4	89878	89881
5/16	5/16	1/2	2-1/2	4	89882	89885
11/32	3/8	9/16	2-1/2	4	89886	89889
3/8	3/8	9/16	2-1/2	4	89890	89893
7/16	7/16	9/16	2-3/4	4	89894	89897
1/2	1/2	5/8	3	4	89898	89901

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Double-End Stub Length Ball-End

General Purpose

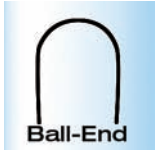
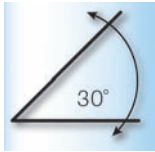


CSDB430

**SOLID
CARBIDE**

**Uncoated
TiAIN
COATED**

4 Flutes



**Center
Cutting**

Price Code: C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	TiAIN EDP #
1/32	1/8	1/16	1-1/2	4	89902	89905
3/64	1/8	3/32	1-1/2	4	89906	89909
1/16	1/8	1/8	1-1/2	4	89910	89913
5/64	1/8	1/8	1-1/2	4	89914	89917
3/32	1/8	3/16	1-1/2	4	89918	89921
7/64	1/8	3/16	1-1/2	4	89922	89925
1/8	1/8	1/4	1-1/2	4	89926	89929
9/64	3/16	5/16	2	4	89930 •	89933
5/32	3/16	5/16	2	4	89934 •	89937
11/64	3/16	5/16	2	4	89938	89941
3/16	3/16	3/8	2	4	89942	89945
13/64	1/4	1/2	2-1/2	4	89946 •	89949
7/32	1/4	1/2	2-1/2	4	89950 •	89953
15/64	1/4	1/2	2-1/2	4	89954 •	89957 •
1/4	1/4	1/2	2-1/2	4	89958	89961
9/32	5/16	1/2	2-1/2	4	89962 •	89965
5/16	5/16	1/2	2-1/2	4	89966	89969
11/32	3/8	9/16	2-1/2	4	89970	89973 •
3/8	3/8	9/16	2-1/2	4	89974	89977
7/16	7/16	9/16	2-3/4	4	89978 •	89981
1/2	1/2	5/8	3	4	89982	89985

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 4 Flute General Purpose

C430M



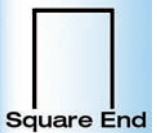
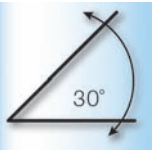
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AITiN EDP #
0.2mm	3mm	0.4mm	39mm	4	34435 •	34436 •
0.3mm	3mm	0.6mm	39mm	4	34437 •	34438 •
0.4mm	3mm	0.8mm	39mm	4	34439 •	34440 •
0.5mm	3mm	1mm	39mm	4	34441 •	34442 •
0.6mm	3mm	1.2mm	39mm	4	34443 •	34444 •
0.8mm	3mm	1.6mm	39mm	4	34445 •	34446 •
1.0mm	3mm	2mm	39mm	4	34447 •	34448 •
1mm	3mm	4mm	39mm	4	46411 •	46412 •
1.2mm	3mm	2.4mm	39mm	4	34449 •	34450 •
1.5mm	3mm	3mm	39mm	4	34451 •	34452 •
1.5mm	3mm	4.5mm	39mm	4	46413 •	46414 •
1.8mm	3mm	3.6mm	39mm	4	34453 •	34454 •
2.0mm	3mm	4mm	39mm	4	34455 •	34456 •
2mm	3mm	6.3mm	39mm	4	46415 •	46416 •
2.5mm	3mm	9.5mm	39mm	4	46417 •	46418 •
3mm	3mm	6mm	39mm	4	47685 •	47686 •
3mm	3mm	12mm	39mm	4	46419 •	46420 •
3mm	3mm	25mm	75mm	4	34327 •	34328 •
3.5mm	4mm	12mm	51mm	4	46421 •	46422 •
4mm	4mm	6mm	51mm	4	47687 •	47688 •
4mm	4mm	14mm	51mm	4	46423 •	46424 •
4mm	4mm	25mm	75mm	4	34329 •	34330 •
4.5mm	6mm	16mm	51mm	4	46425 •	46426 •
5mm	5mm	25mm	75mm	4	34331 •	34332 •
5mm	6mm	16mm	51mm	4	46427 •	46428 •
6mm	6mm	9mm	51mm	4	47689 •	47690 •
6mm	6mm	19mm	51mm	4	46429 •	46430 •
6mm	6mm	25mm	75mm	4	34333 •	34334 •
6mm	6mm	25mm	150mm	4	34335 •	34336 •
7mm	8mm	19mm	64mm	4	46431 •	46432 •
8mm	8mm	10mm	64mm	4	47691 •	47692 •
8mm	8mm	20mm	64mm	4	46433 •	46434 •
8mm	8mm	25mm	75mm	4	34337 •	34338 •
8mm	8mm	25mm	150mm	4	34339 •	34340 •
9mm	10mm	22mm	73mm	4	46435 •	46436 •
10mm	10mm	10mm	73mm	4	47693 •	47694 •
10mm	10mm	22mm	73mm	4	46437 •	46438 •
10mm	10mm	38mm	100mm	4	34341 •	34342 •
10mm	10mm	38mm	150mm	4	34343 •	34344 •
11mm	12mm	25mm	74mm	4	46439 •	46440 •
12mm	12mm	12mm	74mm	4	47695 •	47696 •
12mm	12mm	25mm	74mm	4	46441 •	46442 •
12mm	12mm	50mm	100mm	4	34345 •	34346 •
12mm	12mm	75mm	150mm	4	34347 •	34348 •
14mm	14mm	32mm	84mm	4	46443 •	46444 •
14mm	14mm	75mm	150mm	4	34349 •	34350 •
16mm	16mm	16mm	93mm	4	47697 •	47698 •
16mm	16mm	32mm	93mm	4	46445 •	46446 •
16mm	16mm	75mm	150mm	4	34351 •	34352 •
18mm	18mm	19mm	100mm	4	47699 •	47700 •
18mm	18mm	38mm	100mm	4	46447 •	46448 •
18mm	18mm	75mm	150mm	4	34353 •	34354 •
20mm	20mm	19mm	100mm	4	47701 •	47702 •
20mm	20mm	38mm	100mm	4	46449 •	46450 •
20mm	20mm	75mm	150mm	4	34355 •	34356 •
25mm	25mm	38mm	101mm	4	46451 •	46452 •
25mm	25mm	75mm	150mm	4	34357 •	34358 •

**SOLID
CARBIDE**

**Uncoated
AITiN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Metric 4 Flute Ball-End General Purpose

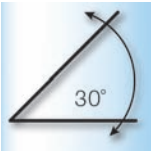


CB430M

**SOLID
CARBIDE**

**Uncoated
AITIN
COATED**

4 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AITiN EDP #
0.2mm	3mm	0.4mm	39mm	4	34457 •	34458 •
0.3mm	3mm	0.6mm	39mm	4	34459 •	34460 •
0.4mm	3mm	0.8mm	39mm	4	34461 •	34462 •
0.5mm	3mm	1mm	39mm	4	34463 •	34464 •
0.6mm	3mm	1.2mm	39mm	4	34465 •	34466 •
0.8mm	3mm	1.6mm	39mm	4	34467 •	34468 •
1.0mm	3mm	2mm	39mm	4	34469 •	34470 •
1mm	3mm	4mm	39mm	4	46453	46454
1.2mm	3mm	2.4mm	39mm	4	34471 •	34472 •
1.5mm	3mm	3mm	39mm	4	34473 •	34474 •
1.5mm	3mm	4.5mm	39mm	4	46455 •	46456 •
1.8mm	3mm	3.6mm	39mm	4	34475 •	34476 •
2.0mm	3mm	4mm	39mm	4	34477 •	34478 •
2mm	3mm	6.3mm	39mm	4	46457	46458
2.5mm	3mm	9.5mm	39mm	4	46459	46460 •
3mm	3mm	6mm	39mm	4	47937 •	47938
3mm	3mm	12mm	39mm	4	46461 •	46462
3mm	3mm	25mm	75mm	4	34359 •	34360 •
3.5mm	4mm	12mm	51mm	4	46463 •	46464 •
4mm	4mm	6mm	51mm	4	47939 •	47940 •
4mm	4mm	14mm	51mm	4	46465 •	46466
4mm	4mm	25mm	75mm	4	34361 •	34362 •
4.5mm	6mm	16mm	51mm	4	46467 •	46468 •
5mm	6mm	25mm	75mm	4	34363 •	34364 •
5mm	6mm	16mm	51mm	4	46469	46470
6mm	6mm	9mm	51mm	4	47941 •	47942 •
6mm	6mm	19mm	51mm	4	46471 •	46472
6mm	6mm	25mm	75mm	4	34365 •	34366 •
6mm	6mm	25mm	150mm	4	34367 •	34368 •
7mm	8mm	19mm	64mm	4	46473 •	46474 •
8mm	8mm	10mm	64mm	4	47943 •	47944 •
8mm	8mm	20mm	64mm	4	46475	46476
8mm	8mm	25mm	75mm	4	34369 •	34370 •
8mm	8mm	25mm	150mm	4	34371 •	34372 •
9mm	10mm	22mm	73mm	4	46477 •	46478 •
10mm	10mm	10mm	73mm	4	47945	47946 •
10mm	10mm	22mm	73mm	4	46479 •	46480
10mm	10mm	38mm	100mm	4	34373 •	34374
10mm	10mm	38mm	150mm	4	34375 •	34376 •
11mm	12mm	25mm	74mm	4	46481 •	46482 •
12mm	12mm	12mm	74mm	4	47947 •	47948 •
12mm	12mm	25mm	74mm	4	46483 •	46484 •
12mm	12mm	50mm	100mm	4	34377 •	34378 •
12mm	12mm	75mm	150mm	4	34379 •	34380 •
14mm	14mm	32mm	84mm	4	46485 •	46486 •
14mm	14mm	75mm	150mm	4	34381 •	34382 •
16mm	16mm	16mm	93mm	4	47949 •	47950 •
16mm	16mm	32mm	93mm	4	46487	46488 •
16mm	16mm	75mm	150mm	4	34383 •	34384 •
18mm	18mm	19mm	100mm	4	47951 •	47952 •
18mm	18mm	38mm	100mm	4	46489 •	46490
18mm	18mm	75mm	150mm	4	34385 •	34386 •
20mm	20mm	19mm	100mm	4	47953 •	47954 •
20mm	20mm	38mm	100mm	4	46491 •	46492
20mm	20mm	75mm	150mm	4	34387 •	34388 •
25mm	25mm	38mm	101mm	4	46493 •	46494 •
25mm	25mm	75mm	150mm	4	34389 •	34390 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 4 Flute Neck Style General Purpose

CN430M



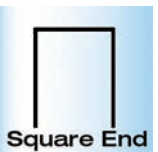
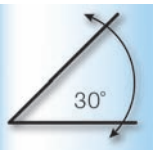
Price Code C

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP #	AlTiN EDP #
6mm	6mm	18mm	9mm	64mm	4	47955 •	47956 •
6mm	6mm	27mm	9mm	64mm	4	47957 •	47958 •
8mm	8mm	24mm	12mm	80mm	4	47959 •	47960 •
8mm	8mm	32mm	12mm	80mm	4	47961 •	47962 •
10mm	10mm	30mm	15mm	89mm	4	47963 •	47964 •
10mm	10mm	40mm	15mm	89mm	4	47965 •	47966 •
12mm	12mm	36mm	18mm	100mm	4	47967 •	47968 •
12mm	12mm	48mm	18mm	100mm	4	47969 •	47970 •
16mm	16mm	48mm	24mm	125mm	4	47971 •	47972 •
16mm	16mm	60mm	24mm	125mm	4	47973 •	47974 •
20mm	20mm	50mm	30mm	140mm	4	47975 •	47976 •
20mm	20mm	65mm	30mm	140mm	4	47977 •	47978 •
25mm	25mm	65mm	38mm	150mm	4	47979 •	47980 •
25mm	25mm	75mm	38mm	150mm	4	47981 •	47982 •

**SOLID
CARBIDE**

**Uncoated
AlTiN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

C230M & CB230M - TiAlN Coated Recommended Starting Point Speed & Feeds (Slotting) METRIC																		
Material	6mm Diameter				10mm Diameter				12mm Diameter				20mm Diameter			25mm Diameter		
	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min		
Steels																		
1018/1020	91	4,848	0.023	222	2,909	0.038	221	2,424	0.046	222	1,455	0.057	166	1,164	0.069	160		
1045	84	4,444	0.017	147	2,667	0.027	146	2,222	0.033	147	1,333	0.041	110	1,067	0.050	106		
4140	76	4,040	0.017	133	2,424	0.027	133	2,020	0.033	133	1,212	0.041	100	970	0.050	96		
4340	76	4,040	0.017	133	2,424	0.027	133	2,020	0.033	133	1,212	0.041	100	970	0.050	96		
Plastics																		
Polycarbonate	152	8,081	0.064	1,026	4,848	0.105	1,022	4,040	0.127	1,026	2,424	0.159	770	1,939	0.191	739		
Copper																		
High Silicon Bronze	183	9,697	0.038	739	5,818	0.063	736	4,848	0.076	739	2,909	0.095	554	2,327	0.114	532		
Copper Alloys																		
Beryllium Copper	183	9,697	0.038	739	5,818	0.063	736	4,848	0.076	739	2,909	0.095	554	2,327	0.114	532		
Cast Iron																		
Ductile	91	4,848	0.019	185	2,909	0.032	184	2,424	0.038	185	1,455	0.048	139	1,164	0.057	133		
Gray	114	6,061	0.025	308	3,636	0.042	307	3,030	0.051	308	1,818	0.064	231	1,455	0.076	222		
Inconel																		
625	30	1,616	0.019	62	970	0.032	61	808	0.038	62	485	0.048	46	388	0.057	44		
718	20	1,050	0.019	40	630	0.032	40	525	0.038	40	315	0.048	30	252	0.057	29		
Titanium																		
6AL-4V/Comm. Pure	56	2,990	0.019	114	1,794	0.032	113	1,495	0.038	114	897	0.048	85	718	0.057	82		
Tool Steel (Annealed)																		
A2	69	3,636	0.019	139	2,182	0.032	138	1,818	0.038	139	1,091	0.048	104	873	0.057	100		
D2	53	2,828	0.019	108	1,697	0.032	107	1,414	0.038	108	848	0.048	81	679	0.057	78		
H13	66	3,475	0.019	132	2,085	0.032	132	1,737	0.038	132	1,042	0.048	99	834	0.057	95		
P20	56	2,990	0.019	114	1,794	0.032	113	1,495	0.038	114	897	0.048	85	718	0.057	82		
S7	61	3,232	0.019	123	1,939	0.032	123	1,616	0.038	123	970	0.048	92	776	0.057	89		
Stainless Steel																		
303	53	2,828	0.019	108	1,697	0.032	107	1,414	0.038	108	848	0.048	81	679	0.057	78		
304	53	2,828	0.019	108	1,697	0.032	107	1,414	0.038	108	848	0.048	81	679	0.057	78		
316	50	2,667	0.019	102	1,600	0.032	101	1,333	0.038	102	800	0.048	76	640	0.057	73		
15 / 5	50	2,667	0.019	102	1,600	0.032	101	1,333	0.038	102	800	0.048	76	640	0.057	73		
17 / 4	46	2,424	0.019	92	1,455	0.032	92	1,212	0.038	92	727	0.048	69	582	0.057	67		
416	46	2,424	0.019	92	1,455	0.032	92	1,212	0.038	92	727	0.048	69	582	0.057	67		

Speeds and Feeds are based upon: ADOC = 1/2 x Diameter, RDOC = 1 x Diameter

C330M - Recommended Starting Point Speed & Feeds (Slotting) METRIC																		
Material	6mm Diameter				10mm Diameter				12mm Diameter				20mm Diameter			25mm Diameter		
	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min		
Steels																		
1018 / 1020	91	4,848	0.019	277	2,909	0.032	276	2,424	0.038	277	1,455	0.048	208	1,164	0.057	200		
1045	84	4,444	0.013	169	2,667	0.021	169	2,222	0.025	169	1,333	0.032	127	1,067	0.038	122		
4140	76	4,040	0.013	154	2,424	0.021	153	2,020	0.025	154	1,212	0.032	115	970	0.038	111		
4340	76	4,040	0.013	154	2,424	0.021	153	2,020	0.025	154	1,212	0.032	115	970	0.038	111		
Plastics																		
Polycarbonate	152	8,081	0.064	1,539	4,848	0.105	1,533	4,040	0.127	1,539	2,424	0.159	1,155	1,939	0.191	1,108		
Copper																		
High Silicon Bronze	183	9,697	0.038	1,108	5,818	0.063	1,104	4,848	0.076	1,108	2,909	0.095	831	2,327	0.114	798		
Copper Alloys																		
Beryllium Copper	183	9,697	0.038	1,108	5,818	0.063	1,104	4,848	0.076	1,108	2,909	0.095	831	2,327	0.114	798		
Cast Iron																		
Ductile	91	4,848	0.019	277	2,909	0.032	276	2,424	0.038	277	1,455	0.048	208	1,164	0.057	200		
Gray	114	6,061	0.025	462	3,636	0.042	460	3,030	0.051	462	1,818	0.064	346	1,455	0.076	333		
Inconel																		
625	30	1,616	0.013	62	970	0.021	61	808	0.025	62	485	0.032	46	388	0.038	44		
718	20	1,050	0.013	40	630	0.021	40	525	0.025	40	315	0.032	30	252	0.038	29		
Titanium																		
6AL-4V/Comm Pure	56	2,990	0.019	171	1,794	0.032	170	1,495	0.038	171	897	0.048	128	718	0.057	123		
Tool Steel (Annealed)																		
A2	69	3,636	0.013	139	2,182	0.021	138	1,818	0.025	139	1,091	0.032	104	873	0.038	100		
D2	53	2,828	0.013	108	1,697	0.021	107	1,414	0.025	108	848	0.032	81	679	0.038	78		
H13	66	3,475	0.013	132	2,085	0.021	132	1,737	0.025	132	1,042	0.032	99	834	0.038	95		
P20	56	2,990	0.013	114	1,794	0.021	113	1,495	0.025	114	897	0.032	85	718	0.038	82		
S7	61	3,232	0.013	123	1,939	0.021	123	1,616	0.025	123	970	0.032	92	776	0.038	89		
Stainless Steel																		
303	53	2,828	0.013	108	1,697	0.021	107	1,414	0.025	108	848	0.032	81	679	0.038	78		
304	53	2,828	0.013	108	1,697	0.021	107	1,414	0.025	108	848	0.032	81	679	0.038	78		
316	50	2,667	0.013	102	1,600	0.021	101	1,333	0.025	102	800	0.032	76	640	0.038	73		
15/5	50	2,667	0.013	102	1,600	0.021	101	1,333	0.025	102	800	0.032	76	640	0.038	73		
17/4	46	2,424	0.013	92	1,455	0.021	92	1,212	0.025	92	727	0.032	69	582	0.038	67		
416	46	2,424	0.013	92	1,455	0.021	92	1,212	0.025	92	727	0.032	69	582	0.038	67		

Speeds and Feeds are based upon ADOC = 1/2 x Diameter, RDOC = 1 x Diameter

For Profiling with 25% of the tool diameter increase speed by 15% and feed by 15%

C430M & CB430M - TiAIN Coated Recommended Starting Point Speed & Feeds (Slotting) METRIC																		
Material	6mm Diameter				10mm Diameter				12mm Diameter				20mm Diameter			25mm Diameter		
	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min		
Steels																		
1018/1020	91	4,848	0.015	296	2,909	0.023	266	2,424	0.030	296	1,455	0.038	222	1,164	0.046	213		
1045	84	4,444	0.013	226	2,667	0.019	203	2,222	0.025	226	1,333	0.032	169	1,067	0.038	163		
4140	76	4,040	0.013	205	2,424	0.019	185	2,020	0.025	205	1,212	0.032	154	970	0.038	148		
4340	76	4,040	0.013	205	2,424	0.019	185	2,020	0.025	205	1,212	0.032	154	970	0.038	148		
Plastics																		
Polycarbonate	152	8,081	0.064	2,053	4,848	0.095	1,847	4,040	0.127	2,053	2,424	0.159	1,539	1,939	0.191	1,478		
Copper																		
High Silicon Bronze	183	9,697	0.038	1,478	5,818	0.057	1,330	4,848	0.076	1,478	2,909	0.095	1,108	2,327	0.114	1,064		
Copper Alloys																		
Beryllium Copper	183	9,697	0.038	1,478	5,818	0.057	1,330	4,848	0.076	1,478	2,909	0.095	1,108	2,327	0.114	1,064		
Cast Iron																		
Ductile	91	4,848	0.019	369	2,909	0.029	333	2,424	0.038	369	1,455	0.048	277	1,164	0.057	266		
Gray	114	6,061	0.025	616	3,636	0.038	554	3,030	0.051	616	1,818	0.064	462	1,455	0.076	443		
Inconel																		
625	30	1,616	0.013	82	970	0.019	74	808	0.025	82	485	0.032	62	388	0.038	59		
718	20	1,050	0.013	53	630	0.019	48	525	0.025	53	315	0.032	40	252	0.038	38		
Titanium																		
6AL-4V / Comm. Pure	56	2,990	0.015	182	1,794	0.023	164	1,495	0.030	182	897	0.038	137	718	0.046	131		
Tool Steel (Annealed)																		
A2	69	3,636	0.013	185	2,182	0.019	166	1,818	0.025	185	1,091	0.032	139	873	0.038	133		
D2	53	2,828	0.013	144	1,697	0.019	129	1,414	0.025	144	848	0.032	108	679	0.038	103		
H13	66	3,475	0.013	177	2,085	0.019	159	1,737	0.025	177	1,042	0.032	132	834	0.038	127		
P20	56	2,990	0.031	152	1,794	0.019	137	1,495	0.025	152	897	0.032	114	718	0.038	109		
S7	61	3,232	0.013	164	1,939	0.019	148	1,616	0.025	164	970	0.032	123	776	0.038	118		
Stainless Steel																		
303	53	2,828	0.013	144	1,697	0.019	129	1,414	0.025	144	848	0.032	108	679	0.038	103		
304	53	2,828	0.013	144	1,697	0.019	129	1,414	0.025	144	848	0.032	108	679	0.038	103		
316	50	2,667	0.013	135	1,600	0.019	122	1,333	0.025	135	800	0.032	102	640	0.038	98		
15 / 5	50	2,667	0.013	135	1,600	0.019	122	1,333	0.025	135	800	0.032	102	640	0.038	98		
17 / 4	46	2,424	0.013	123	1,455	0.019	111	1,212	0.025	123	727	0.032	92	582	0.038	89		
416	46	2,424	0.013	123	1,455	0.019	111	1,212	0.025	123	727	0.032	92	582	0.038	89		

Speeds and Feeds are based upon: ADOC = 1/2 x Diameter, RDOC = 1 x Diameter For Profiling with 25% of the tool diameter increase speed by 15% and feed by 15%

CN430M - Recommended Starting Point Speed & Feeds (Slotting) METRIC																		
Material	6mm Diameter				10mm Diameter				12mm Diameter				20mm Diameter			25mm Diameter		
	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min		
Steels																		
1018 / 1020	73	3,879	0.015	236	2,327	0.023	213	1,939	0.030	236	1,164	0.038	177	931	0.046	170		
1045	67	3,556	0.013	181	2,133	0.019	163	1,778	0.025	181	1,067	0.032	135	853	0.038	130		
4140	61	3,232	0.013	164	1,939	0.019	148	1,616	0.025	164	970	0.032	123	776	0.038	118		
4340	61	3,232	0.013	164	1,939	0.019	148	1,616	0.025	164	970	0.032	123	776	0.038	118		
Plastics																		
Polycarbonate	122	6,465	0.064	1,642	3,879	0.095	1,478	3,232	0.127	1,642	1,939	0.159	1,232	1,551	0.191	1,182		
Copper																		
High Silicon Bronze	146	7,757	0.038	1,182	4,654	0.057	1,064	3,879	0.076	1,182	2,327	0.095	887	1,862	0.114	851		
Copper Alloys																		
Beryllium Copper	146	7,757	0.038	1,182	4,654	0.057	1,064	3,879	0.076	1,182	2,327	0.095	887	1,862	0.114	851		
Cast Iron																		
Ductile	73	3,879	0.019	296	2,327	0.029	266	1,939	0.038	296	1,164	0.048	222	931	0.057	213		
Gray	114	6,061	0.025	616	3,636	0.038	554	3,030	0.051	616	1,818	0.064	462	1,455	0.076	443		
Inconel																		
625	24	1,293	0.013	66	776	0.019	59	646	0.025	66	388	0.032	49	310	0.038	47		
718	16	840	0.013	43	504	0.019	38	420	0.025	43	252	0.032	32	202	0.038	31		
Titanium																		
6AL-4V/Comm Pure	45	2,392	0.015	146	1,435	0.023	131	1,196	0.030	146	718	0.038	109	574	0.046	105		
Tool Steel (Annealed)																		
A2	55	2,909	0.013	148	1,745	0.019	133	1,455	0.025	148	873	0.032	111	698	0.038	106		
D2	53	2,828	0.013	144	1,697	0.019	129	1,414	0.025	144	848	0.032	108	679	0.038	103		
H13	52	2,780	0.013	141	1,668	0.019	127	1,390	0.025	141	834	0.032	106	667	0.038	102		
P20	45	2,392	0.013	122	1,435	0.019	109	1,196	0.025	122	718	0.032	91	574	0.038	87		
S7	49	2,586	0.013	131	1,551	0.019	118	1,293	0.025	131	776	0.032	99	621	0.038	95		
Stainless Steel																		
303	43	2,263	0.013	115	1,358	0.019	103	1,131	0.025	115	679	0.032	86	543	0.038	83		
304	43	2,263	0.013	115	1,358	0.019	103	1,131	0.025	115	679	0.032	86	543	0.038	83		
316	40	2,133	0.013	108	1,280	0.019	98	1,067	0.025	108	640	0.032	81	512	0.038	78		
15/5	40	2,133	0.013	108	1,280	0.019	98	1,067	0.025	108	640	0.032	81	512	0.038	78		
17/4	37	1,939	0.013	99	1,164	0.019	89	970	0.025	99	582	0.032	74	465	0.038	71		
416	37	1,939	0.013	99	1,164	0.019	89	970	0.025	99	582	0.032	74	465	0.038	71		

Speeds and Feeds are based upon ADOC = 1/3 x Diameter, RDOC = 1 x Diameter

For Profiling with 15% of the tool diameter increase speed by 15% and feed by 15%

Niagara Cutter

2 Flute Decimal



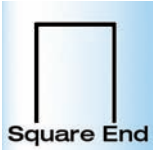
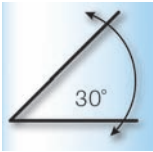
ME230

- All Tools 1/8" Shank, 1-1/2" Overall Length
- Sub Micron Grain Carbide
- .005" - .055" in .001" Increments
- .060" - .120" in .005" Increments

**SOLID
CARBIDE**

Uncoated

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
.005	1/8	.0150	1-1/2	2	59570
.006	1/8	.0180	1-1/2	2	59571 •
.007	1/8	.0210	1-1/2	2	59572
.008	1/8	.0240	1-1/2	2	59573
.009	1/8	.0270	1-1/2	2	59574 •
.010	1/8	.0300	1-1/2	2	59575
.011	1/8	.0330	1-1/2	2	59576
.012	1/8	.0360	1-1/2	2	59577
.013	1/8	.0390	1-1/2	2	59578
.014	1/8	.0420	1-1/2	2	59579 •
.015	1/8	.0450	1-1/2	2	59580
.016	1/8	.0480	1-1/2	2	59581
.017	1/8	.0510	1-1/2	2	59582
.018	1/8	.0540	1-1/2	2	59583 •
.019	1/8	.0570	1-1/2	2	59584 •
.020	1/8	.0600	1-1/2	2	59585
.021	1/8	.0630	1-1/2	2	59586 •
.022	1/8	.0660	1-1/2	2	59587
.023	1/8	.0690	1-1/2	2	59588
.024	1/8	.0720	1-1/2	2	59589
.025	1/8	.0750	1-1/2	2	59590
.026	1/8	.0780	1-1/2	2	59591 •
.027	1/8	.0810	1-1/2	2	59592
.028	1/8	.0840	1-1/2	2	59593
.029	1/8	.0870	1-1/2	2	59594
.030	1/8	.0900	1-1/2	2	59595
.031	1/8	.0930	1-1/2	2	59596
.032	1/8	.0960	1-1/2	2	59597
.033	1/8	.0990	1-1/2	2	59598
.034	1/8	.1020	1-1/2	2	59599 •
.035	1/8	.1050	1-1/2	2	59600
.036	1/8	.1080	1-1/2	2	59601
.037	1/8	.1110	1-1/2	2	59602
.038	1/8	.1140	1-1/2	2	59603
.039	1/8	.1170	1-1/2	2	59604
.040	1/8	.1200	1-1/2	2	59605
.041	1/8	.1230	1-1/2	2	59606
.042	1/8	.1260	1-1/2	2	59607 •
.043	1/8	.1290	1-1/2	2	59608
.044	1/8	.1320	1-1/2	2	59609
.045	1/8	.1350	1-1/2	2	59610
.046	1/8	.1380	1-1/2	2	59611
.047	1/8	.1410	1-1/2	2	59612
.048	1/8	.1440	1-1/2	2	59613
.049	1/8	.1470	1-1/2	2	59614 •
.050	1/8	.1500	1-1/2	2	59615
.051	1/8	.1530	1-1/2	2	59616
.052	1/8	.1560	1-1/2	2	59617
.053	1/8	.1590	1-1/2	2	59618
.054	1/8	.1620	1-1/2	2	59619
.055	1/8	.1650	1-1/2	2	59620
.060	1/8	.1800	1-1/2	2	59621
.065	1/8	.1950	1-1/2	2	59622
.070	1/8	.2100	1-1/2	2	59623
.075	1/8	.2250	1-1/2	2	59624
.080	1/8	.2400	1-1/2	2	59625
.085	1/8	.2550	1-1/2	2	59626
.090	1/8	.2700	1-1/2	2	59627
.095	1/8	.2850	1-1/2	2	59628
.100	1/8	.3000	1-1/2	2	59629
.105	1/8	.3150	1-1/2	2	59630
.110	1/8	.3300	1-1/2	2	59631
.115	1/8	.3450	1-1/2	2	59632
.120	1/8	.3600	1-1/2	2	59633

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Decimal Ball-End



MEB230

- All Tools 1/8" Shank, 1-1/2" Overall Length
- Sub Micron Grain Carbide
- .005" - .055" in .001" Increments
- .060" - .120" in .005" Increments

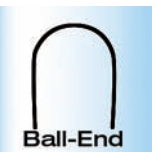
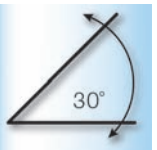
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
.010	1/8	.0300	1-1/2	2	59634
.011	1/8	.0330	1-1/2	2	59635
.012	1/8	.0360	1-1/2	2	59636
.013	1/8	.0390	1-1/2	2	59637
.014	1/8	.0420	1-1/2	2	59638
.015	1/8	.0450	1-1/2	2	59639
.016	1/8	.0480	1-1/2	2	59640 •
.017	1/8	.0510	1-1/2	2	59641 •
.018	1/8	.0540	1-1/2	2	59642
.019	1/8	.0570	1-1/2	2	59643 •
.020	1/8	.0600	1-1/2	2	59644
.021	1/8	.0630	1-1/2	2	59645
.022	1/8	.0660	1-1/2	2	59646 •
.023	1/8	.0690	1-1/2	2	59647
.024	1/8	.0720	1-1/2	2	59648
.025	1/8	.0750	1-1/2	2	59649
.026	1/8	.0780	1-1/2	2	59650 •
.027	1/8	.0810	1-1/2	2	59651 •
.028	1/8	.0840	1-1/2	2	59652 •
.029	1/8	.0870	1-1/2	2	59653
.030	1/8	.0900	1-1/2	2	59654
.031	1/8	.0930	1-1/2	2	59655
.032	1/8	.0960	1-1/2	2	59656
.033	1/8	.0990	1-1/2	2	59657 •
.034	1/8	.1020	1-1/2	2	59658 •
.035	1/8	.1050	1-1/2	2	59659
.036	1/8	.1080	1-1/2	2	59660 •
.037	1/8	.1110	1-1/2	2	59661 •
.038	1/8	.1140	1-1/2	2	59662 •
.039	1/8	.1170	1-1/2	2	59663
.040	1/8	.1200	1-1/2	2	59664
.041	1/8	.1230	1-1/2	2	59665
.042	1/8	.1260	1-1/2	2	59666
.043	1/8	.1290	1-1/2	2	59667
.044	1/8	.1320	1-1/2	2	59668 •
.045	1/8	.1350	1-1/2	2	59669
.046	1/8	.1380	1-1/2	2	59670
.047	1/8	.1410	1-1/2	2	59671
.048	1/8	.1440	1-1/2	2	59672 •
.049	1/8	.1470	1-1/2	2	59673 •
.050	1/8	.1500	1-1/2	2	59674
.051	1/8	.1530	1-1/2	2	59675
.052	1/8	.1560	1-1/2	2	59676
.053	1/8	.1590	1-1/2	2	59677
.054	1/8	.1620	1-1/2	2	59678 •
.055	1/8	.1650	1-1/2	2	59679
.060	1/8	.1800	1-1/2	2	59680
.065	1/8	.1950	1-1/2	2	59681
.070	1/8	.2100	1-1/2	2	59682
.075	1/8	.2250	1-1/2	2	59683
.080	1/8	.2400	1-1/2	2	59684
.085	1/8	.2550	1-1/2	2	59685
.090	1/8	.2700	1-1/2	2	59686
.095	1/8	.2850	1-1/2	2	59687
.100	1/8	.3000	1-1/2	2	59688
.105	1/8	.3150	1-1/2	2	59689
.110	1/8	.3300	1-1/2	2	59690
.115	1/8	.3450	1-1/2	2	59691
.120	1/8	.3600	1-1/2	2	59692

SOLID CARBIDE

Uncoated

2 Flutes



Ball-End

Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Decimal Stub Length



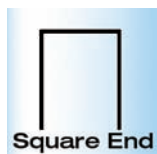
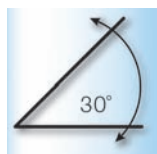
MES230

- All Tools 1/8" Shank, 1-1/2" Overall Length
- Sub Micron Grain Carbide
- .005" - .055" in .001" Increments
- .060" - .120" in .005" Increments

**SOLID
CARBIDE**

Uncoated

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
.005	1/8	.0075	1-1/2	2	59693
.006	1/8	.0090	1-1/2	2	59694
.007	1/8	.0105	1-1/2	2	59695
.008	1/8	.0120	1-1/2	2	59696
.009	1/8	.0135	1-1/2	2	59697 •
.010	1/8	.0150	1-1/2	2	59698
.011	1/8	.0165	1-1/2	2	59699 •
.012	1/8	.0180	1-1/2	2	59700 •
.013	1/8	.0195	1-1/2	2	59701 •
.014	1/8	.0210	1-1/2	2	59702 •
.015	1/8	.0225	1-1/2	2	59703
.016	1/8	.0240	1-1/2	2	59704
.017	1/8	.0255	1-1/2	2	59705 •
.018	1/8	.0270	1-1/2	2	59706
.019	1/8	.0285	1-1/2	2	59707 •
.020	1/8	.0300	1-1/2	2	59708
.021	1/8	.0315	1-1/2	2	59709 •
.022	1/8	.0330	1-1/2	2	59710
.023	1/8	.0345	1-1/2	2	59711
.024	1/8	.0360	1-1/2	2	59712
.025	1/8	.0375	1-1/2	2	59713
.026	1/8	.0390	1-1/2	2	59714
.027	1/8	.0405	1-1/2	2	59715 •
.028	1/8	.0420	1-1/2	2	59716 •
.029	1/8	.0435	1-1/2	2	59717 •
.030	1/8	.0450	1-1/2	2	59718
.031	1/8	.0465	1-1/2	2	59719
.032	1/8	.0480	1-1/2	2	59720
.033	1/8	.0495	1-1/2	2	59721 •
.034	1/8	.0510	1-1/2	2	59722 •
.035	1/8	.0525	1-1/2	2	59723
.036	1/8	.0540	1-1/2	2	59724
.037	1/8	.0555	1-1/2	2	59725
.038	1/8	.0570	1-1/2	2	59726
.039	1/8	.0585	1-1/2	2	59727
.040	1/8	.0600	1-1/2	2	59728
.041	1/8	.0615	1-1/2	2	59729 •
.042	1/8	.0630	1-1/2	2	59730
.043	1/8	.0645	1-1/2	2	59731
.044	1/8	.0660	1-1/2	2	59732
.045	1/8	.0675	1-1/2	2	59733
.046	1/8	.0690	1-1/2	2	59734
.047	1/8	.0705	1-1/2	2	59735
.048	1/8	.0720	1-1/2	2	59736
.049	1/8	.0735	1-1/2	2	59737
.050	1/8	.0750	1-1/2	2	59738
.051	1/8	.0765	1-1/2	2	59739
.052	1/8	.0780	1-1/2	2	59740
.053	1/8	.0795	1-1/2	2	59741
.054	1/8	.0810	1-1/2	2	59742 •
.055	1/8	.0825	1-1/2	2	59743

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Decimal Stub Length Ball-End



MESB230

- All Tools 1/8" Shank, 1-1/2" Overall Length
- Sub Micron Grain Carbide
- .005" - .055" in .001" Increments
- .060" - .120" in .005" Increments

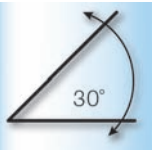
Price Code: C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
.005	1/8	.0075	1-1/2	2	59744
.006	1/8	.0090	1-1/2	2	59745
.007	1/8	.0105	1-1/2	2	59746
.008	1/8	.0120	1-1/2	2	59747
.009	1/8	.0135	1-1/2	2	59748
.010	1/8	.0150	1-1/2	2	59749
.011	1/8	.0165	1-1/2	2	59750
.012	1/8	.0180	1-1/2	2	59751
.013	1/8	.0195	1-1/2	2	59752
.014	1/8	.0210	1-1/2	2	59753
.015	1/8	.0225	1-1/2	2	59754
.016	1/8	.0240	1-1/2	2	59755
.017	1/8	.0255	1-1/2	2	59756 •
.018	1/8	.0270	1-1/2	2	59757
.019	1/8	.0285	1-1/2	2	59758
.020	1/8	.0300	1-1/2	2	59759
.021	1/8	.0315	1-1/2	2	59760 •
.022	1/8	.0330	1-1/2	2	59761
.023	1/8	.0345	1-1/2	2	59762
.024	1/8	.0360	1-1/2	2	59763
.025	1/8	.0375	1-1/2	2	59764
.026	1/8	.0390	1-1/2	2	59765
.027	1/8	.0405	1-1/2	2	59766 •
.028	1/8	.0420	1-1/2	2	59767
.029	1/8	.0435	1-1/2	2	59768 •
.030	1/8	.0450	1-1/2	2	59769
.031	1/8	.0465	1-1/2	2	59770
.032	1/8	.0480	1-1/2	2	59771
.033	1/8	.0495	1-1/2	2	59772 •
.034	1/8	.0510	1-1/2	2	59773 •
.035	1/8	.0525	1-1/2	2	59774
.036	1/8	.0540	1-1/2	2	59775
.037	1/8	.0555	1-1/2	2	59776
.038	1/8	.0570	1-1/2	2	59777
.039	1/8	.0585	1-1/2	2	59778
.040	1/8	.0600	1-1/2	2	59779
.041	1/8	.0615	1-1/2	2	59780
.042	1/8	.0630	1-1/2	2	59781
.043	1/8	.0645	1-1/2	2	59782
.044	1/8	.0660	1-1/2	2	59783 •
.045	1/8	.0675	1-1/2	2	59784
.046	1/8	.0690	1-1/2	2	59785
.047	1/8	.0705	1-1/2	2	59786
.048	1/8	.0720	1-1/2	2	59787
.049	1/8	.0735	1-1/2	2	59788
.050	1/8	.0750	1-1/2	2	59789
.051	1/8	.0765	1-1/2	2	59790
.052	1/8	.0780	1-1/2	2	59791
.053	1/8	.0795	1-1/2	2	59792
.054	1/8	.0810	1-1/2	2	59793
.055	1/8	.0825	1-1/2	2	59794

SOLID CARBIDE

Uncoated

2 Flutes



RIGHT HAND



Ball-End

Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Decimal



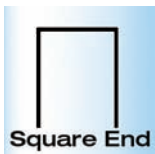
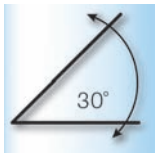
ME430

- All Tools 1/8" Shank, 1-1/2" Overall Length
- Sub Micron Grain Carbide
- .005" - .055" in .001" Increments
- .060" - .120" in .005" Increments

**SOLID
CARBIDE**

Uncoated

4 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
.005	1/8	.0150	1-1/2	4	59795
.006	1/8	.0180	1-1/2	4	59796
.007	1/8	.0210	1-1/2	4	59797
.008	1/8	.0240	1-1/2	4	59798
.009	1/8	.0270	1-1/2	4	59799 •
.010	1/8	.0300	1-1/2	4	59800
.011	1/8	.0330	1-1/2	4	59801 •
.012	1/8	.0360	1-1/2	4	59802
.013	1/8	.0390	1-1/2	4	59803
.014	1/8	.0420	1-1/2	4	59804
.015	1/8	.0450	1-1/2	4	59805
.016	1/8	.0480	1-1/2	4	59806
.017	1/8	.0510	1-1/2	4	59807 •
.018	1/8	.0540	1-1/2	4	59808
.019	1/8	.0570	1-1/2	4	59809 •
.020	1/8	.0600	1-1/2	4	59810
.021	1/8	.0630	1-1/2	4	59811 •
.022	1/8	.0660	1-1/2	4	59812 •
.023	1/8	.0690	1-1/2	4	59813 •
.024	1/8	.0720	1-1/2	4	59814
.025	1/8	.0750	1-1/2	4	59815
.026	1/8	.0780	1-1/2	4	59816
.027	1/8	.0810	1-1/2	4	59817 •
.028	1/8	.0840	1-1/2	4	59818
.029	1/8	.0870	1-1/2	4	59819
.030	1/8	.0900	1-1/2	4	59820
.031	1/8	.0930	1-1/2	4	59821
.032	1/8	.0960	1-1/2	4	59822 •
.033	1/8	.0990	1-1/2	4	59823
.034	1/8	.1020	1-1/2	4	59824 •
.035	1/8	.1050	1-1/2	4	59825
.036	1/8	.1080	1-1/2	4	59826 •
.037	1/8	.1110	1-1/2	4	59827
.038	1/8	.1140	1-1/2	4	59828
.039	1/8	.1170	1-1/2	4	59829
.040	1/8	.1200	1-1/2	4	59830
.041	1/8	.1230	1-1/2	4	59831
.042	1/8	.1260	1-1/2	4	59832
.043	1/8	.1290	1-1/2	4	59833 •
.044	1/8	.1320	1-1/2	4	59834 •
.045	1/8	.1350	1-1/2	4	59835
.046	1/8	.1380	1-1/2	4	59836
.047	1/8	.1410	1-1/2	4	59837 •
.048	1/8	.1440	1-1/2	4	59838
.049	1/8	.1470	1-1/2	4	59839 •
.050	1/8	.1500	1-1/2	4	59840
.051	1/8	.1530	1-1/2	4	59841 •
.052	1/8	.1560	1-1/2	4	59842
.053	1/8	.1590	1-1/2	4	59843 •
.054	1/8	.1620	1-1/2	4	59844 •
.055	1/8	.1650	1-1/2	4	59845
.060	1/8	.1800	1-1/2	4	59846
.065	1/8	.1950	1-1/2	4	59847
.070	1/8	.2100	1-1/2	4	59848
.075	1/8	.2250	1-1/2	4	59849
.080	1/8	.2400	1-1/2	4	59850
.085	1/8	.2550	1-1/2	4	59851
.090	1/8	.2700	1-1/2	4	59852
.095	1/8	.2850	1-1/2	4	59853
.100	1/8	.3000	1-1/2	4	59854
.105	1/8	.3150	1-1/2	4	59855
.110	1/8	.3300	1-1/2	4	59856
.115	1/8	.3450	1-1/2	4	59857
.120	1/8	.3600	1-1/2	4	59858

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Decimal Ball-End



MEB430

- All Tools 1/8" Shank, 1-1/2" Overall Length
- Sub Micron Grain Carbide
- .005" - .055" in .001" Increments
- .060" - .120" in .005" Increments

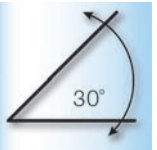
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
.015	1/8	.0450	1-1/2	4	59859
.016	1/8	.0480	1-1/2	4	59860 •
.017	1/8	.0510	1-1/2	4	59861
.018	1/8	.0540	1-1/2	4	59862
.019	1/8	.0570	1-1/2	4	59863
.020	1/8	.0600	1-1/2	4	59864
.021	1/8	.0630	1-1/2	4	59865 •
.022	1/8	.0660	1-1/2	4	59866
.023	1/8	.0690	1-1/2	4	59867 •
.024	1/8	.0720	1-1/2	4	59868
.025	1/8	.0750	1-1/2	4	59869
.026	1/8	.0780	1-1/2	4	59870
.027	1/8	.0810	1-1/2	4	59871
.028	1/8	.0840	1-1/2	4	59872
.029	1/8	.0870	1-1/2	4	59873
.030	1/8	.0900	1-1/2	4	59874
.031	1/8	.0930	1-1/2	4	59875
.032	1/8	.0960	1-1/2	4	59876
.033	1/8	.0990	1-1/2	4	59877 •
.034	1/8	.1020	1-1/2	4	59878
.035	1/8	.1050	1-1/2	4	59879
.036	1/8	.1080	1-1/2	4	59880
.037	1/8	.1110	1-1/2	4	59881
.038	1/8	.1140	1-1/2	4	59882
.039	1/8	.1170	1-1/2	4	59883
.040	1/8	.1200	1-1/2	4	59884
.041	1/8	.1230	1-1/2	4	59885 •
.042	1/8	.1260	1-1/2	4	59886
.043	1/8	.1290	1-1/2	4	59887 •
.044	1/8	.1320	1-1/2	4	59888 •
.045	1/8	.1350	1-1/2	4	59889
.046	1/8	.1380	1-1/2	4	59890
.047	1/8	.1410	1-1/2	4	59891
.048	1/8	.1440	1-1/2	4	59892
.049	1/8	.1470	1-1/2	4	59893
.050	1/8	.1500	1-1/2	4	59894
.051	1/8	.1530	1-1/2	4	59895
.052	1/8	.1560	1-1/2	4	59896
.053	1/8	.1590	1-1/2	4	59897 •
.054	1/8	.1620	1-1/2	4	59898
.055	1/8	.1650	1-1/2	4	59899
.060	1/8	.1800	1-1/2	4	59900
.065	1/8	.1950	1-1/2	4	59901
.070	1/8	.2100	1-1/2	4	59902
.075	1/8	.2250	1-1/2	4	59903
.080	1/8	.2400	1-1/2	4	59904
.085	1/8	.2550	1-1/2	4	59905
.090	1/8	.2700	1-1/2	4	59906
.095	1/8	.2850	1-1/2	4	59907
.100	1/8	.3000	1-1/2	4	59908
.105	1/8	.3150	1-1/2	4	59909
.110	1/8	.3300	1-1/2	4	59910
.115	1/8	.3450	1-1/2	4	59911
.120	1/8	.3600	1-1/2	4	59912

SOLID CARBIDE

Uncoated

4 Flutes



RIGHT HAND

Ball-End

Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Decimal Stub Length



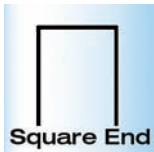
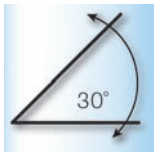
MES430

- All Tools 1/8" Shank, 1-1/2" Overall Length
- Sub Micron Grain Carbide
- .005" - .055" in .001" Increments
- .060" - .120" in .005" Increments

**SOLID
CARBIDE**

Uncoated

4 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
.005	1/8	.0075	1-1/2	4	59913
.006	1/8	.0090	1-1/2	4	59914
.007	1/8	.0105	1-1/2	4	59915 •
.008	1/8	.0120	1-1/2	4	59916
.009	1/8	.0135	1-1/2	4	59917
.010	1/8	.0150	1-1/2	4	59918
.011	1/8	.0165	1-1/2	4	59919
.012	1/8	.0180	1-1/2	4	59920
.013	1/8	.0195	1-1/2	4	59921 •
.014	1/8	.0210	1-1/2	4	59922
.015	1/8	.0225	1-1/2	4	59923
.016	1/8	.0240	1-1/2	4	59924
.017	1/8	.0255	1-1/2	4	59925 •
.018	1/8	.0270	1-1/2	4	59926 •
.019	1/8	.0285	1-1/2	4	59927 •
.020	1/8	.0300	1-1/2	4	59928
.021	1/8	.0315	1-1/2	4	59929 •
.022	1/8	.0330	1-1/2	4	59930 •
.023	1/8	.0345	1-1/2	4	59931 •
.024	1/8	.0360	1-1/2	4	59932 •
.025	1/8	.0375	1-1/2	4	59933
.026	1/8	.0390	1-1/2	4	59934 •
.027	1/8	.0405	1-1/2	4	59935
.028	1/8	.0420	1-1/2	4	59936 •
.029	1/8	.0435	1-1/2	4	59937 •
.030	1/8	.0450	1-1/2	4	59938
.031	1/8	.0465	1-1/2	4	59939
.032	1/8	.0480	1-1/2	4	59940 •
.033	1/8	.0495	1-1/2	4	59941 •
.034	1/8	.0510	1-1/2	4	59942 •
.035	1/8	.0525	1-1/2	4	59943
.036	1/8	.0540	1-1/2	4	59944 •
.037	1/8	.0555	1-1/2	4	59945 •
.038	1/8	.0570	1-1/2	4	59946 •
.039	1/8	.0585	1-1/2	4	59947 •
.040	1/8	.0600	1-1/2	4	59948
.041	1/8	.0615	1-1/2	4	59949 •
.042	1/8	.0630	1-1/2	4	59950 •
.043	1/8	.0645	1-1/2	4	59951 •
.044	1/8	.0660	1-1/2	4	59952 •
.045	1/8	.0675	1-1/2	4	59953
.046	1/8	.0690	1-1/2	4	59954 •
.047	1/8	.0705	1-1/2	4	59955
.048	1/8	.0720	1-1/2	4	59956 •
.049	1/8	.0735	1-1/2	4	59957 •
.050	1/8	.0750	1-1/2	4	59958
.051	1/8	.0765	1-1/2	4	59959 •
.052	1/8	.0780	1-1/2	4	59960
.053	1/8	.0795	1-1/2	4	59961 •
.054	1/8	.0810	1-1/2	4	59962 •
.055	1/8	.0825	1-1/2	4	59963

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Decimal Stub Length Ball-End



MESB430

- All Tools 1/8" Shank, 1-1/2" Overall Length
- Sub Micron Grain Carbide
- .005" - .055" in .001" Increments
- .060" - .120" in .005" Increments

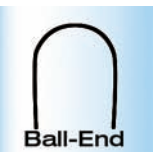
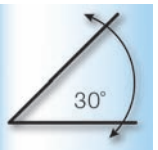
Price Code C

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP #
.010	1/8	.0150	1-1/2	4	59964
.011	1/8	.0165	1-1/2	4	59965 •
.012	1/8	.0180	1-1/2	4	59966 •
.013	1/8	.0195	1-1/2	4	59967 •
.014	1/8	.0210	1-1/2	4	59968 •
.015	1/8	.0225	1-1/2	4	59969
.016	1/8	.0240	1-1/2	4	59970 •
.017	1/8	.0255	1-1/2	4	59971 •
.018	1/8	.0270	1-1/2	4	59972 •
.019	1/8	.0285	1-1/2	4	59973 •
.020	1/8	.0300	1-1/2	4	59974
.021	1/8	.0315	1-1/2	4	59975 •
.022	1/8	.0330	1-1/2	4	59976 •
.023	1/8	.0345	1-1/2	4	59977 •
.024	1/8	.0360	1-1/2	4	59978 •
.025	1/8	.0375	1-1/2	4	59979 •
.026	1/8	.0390	1-1/2	4	59980 •
.027	1/8	.0405	1-1/2	4	59981 •
.028	1/8	.0420	1-1/2	4	59982 •
.029	1/8	.0435	1-1/2	4	59983 •
.030	1/8	.0450	1-1/2	4	59984 •
.031	1/8	.0465	1-1/2	4	59985 •
.032	1/8	.0480	1-1/2	4	59986 •
.033	1/8	.0495	1-1/2	4	59987 •
.034	1/8	.0510	1-1/2	4	59988 •
.035	1/8	.0525	1-1/2	4	59989 •
.036	1/8	.0540	1-1/2	4	59990 •
.037	1/8	.0555	1-1/2	4	59991 •
.038	1/8	.0570	1-1/2	4	59992 •
.039	1/8	.0585	1-1/2	4	59993 •
.040	1/8	.0600	1-1/2	4	59994
.041	1/8	.0615	1-1/2	4	59995 •
.042	1/8	.0630	1-1/2	4	59996 •
.043	1/8	.0645	1-1/2	4	59997 •
.044	1/8	.0660	1-1/2	4	59998 •
.045	1/8	.0675	1-1/2	4	59999 •
.046	1/8	.0690	1-1/2	4	60000 •
.047	1/8	.0705	1-1/2	4	60001 •
.048	1/8	.0720	1-1/2	4	60002 •
.049	1/8	.0735	1-1/2	4	60003 •
.050	1/8	.0750	1-1/2	4	60004
.051	1/8	.0765	1-1/2	4	60005 •
.052	1/8	.0780	1-1/2	4	60006 •
.053	1/8	.0795	1-1/2	4	60007 •
.054	1/8	.0810	1-1/2	4	60008 •
.055	1/8	.0825	1-1/2	4	60009 •

SOLID CARBIDE

Uncoated

4 Flutes



Ball-End

Center Cutting

• Indicates a Standard, Non Stocked Item

2 Flute

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

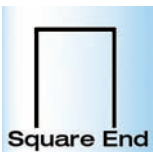
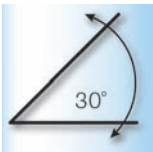


DIA230

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

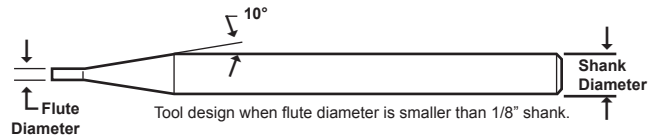
2 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/64	1/8	3/64	1-1/2	2	77898
1/32	1/8	3/32	1-1/2	2	77901 •
3/64	1/8	1/8	1-1/2	2	77170 •
1/16	1/8	3/16	1-1/2	2	77904
5/64	1/8	1/4	1-1/2	2	77171 •
3/32	1/8	3/8	1-1/2	2	77907
1/8	1/8	1/2	1-1/2	2	77910
3/16	3/16	5/8	2	2	77913
1/4	1/4	3/4	2-1/2	2	77916
5/16	5/16	13/16	2-1/2	2	77919 •
3/8	3/8	7/8	2-1/2	2	77922
7/16	7/16	1	2-3/4	2	77925 •
1/2	1/2	1	3	2	77928
5/8	5/8	1-1/4	3-1/2	2	77172 •
3/4	3/4	1-3/8	4	2	77173 •



For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Ball-End

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

DiamondPlus™ Coated Solid Carbide



DIAB230

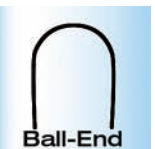
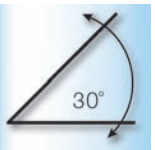
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/64	1/8	3/64	1-1/2	2	77931
1/32	1/8	3/32	1-1/2	2	77934
3/64	1/8	1/8	1-1/2	2	77174
1/16	1/8	3/16	1-1/2	2	77937
5/64	1/8	1/4	1-1/2	2	77175 •
3/32	1/8	3/8	1-1/2	2	77940 •
1/8	1/8	1/2	1-1/2	2	77943
3/16	3/16	5/8	2	2	77946 •
1/4	1/4	3/4	2-1/2	2	77949
5/16	5/16	13/16	2-1/2	2	77952 •
3/8	3/8	7/8	2-1/2	2	77955 •
7/16	7/16	1	2-3/4	2	77958 •
1/2	1/2	1	3	2	77961
5/8	5/8	1-1/4	3-1/2	2	77176 •
3/4	3/4	1-3/8	4	2	77177 •

**SOLID
CARBIDE**

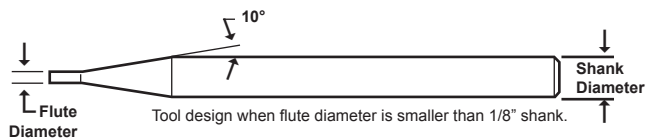
**CVD
Diamond
COATED**

2 Flutes



Ball-End

**Center
Cutting**



For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Long Length DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

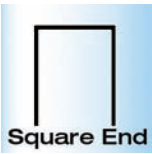
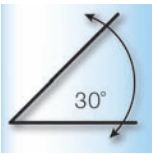


DIAL230

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

2 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/8	1/8	1	3	2	77964
3/16	3/16	1-1/8	3	2	77967 •
3/16	3/16	1	4	2	72651 •
1/4	1/4	1-1/4	3	2	77970
1/4	1/4	1-3/8	4	2	72657 •
1/4	1/4	1-3/8	6	2	72663 •
5/16	5/16	1-3/8	3-1/8	2	77973 •
5/16	5/16	1-3/8	4	2	72669 •
3/8	3/8	1-3/8	3-1/4	2	77976 •
3/8	3/8	1-3/8	4	2	72675 •
3/8	3/8	1-3/8	6	2	72681 •
7/16	7/16	1-3/4	3-3/4	2	77979 •
1/2	1/2	1-3/8	4	2	18691 •
1/2	1/2	2	4	2	77982 •
1/2	1/2	1-3/8	6	2	18692 •
1/2	1/2	3	6	2	72687 •

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Long Length Ball-End

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIALB230

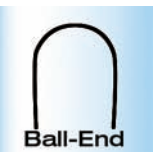
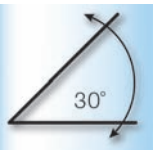
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/8	1/8	1	3	2	77985
3/16	3/16	1	4	2	77988 •
3/16	3/16	1-1/8	3	2	72654 •
1/4	1/4	1-1/4	3	2	77991 •
1/4	1/4	1-3/8	4	2	72660 •
1/4	1/4	1-3/8	6	2	72666 •
5/16	5/16	1-3/8	3-1/8	2	77994 •
5/16	5/16	1-3/8	4	2	72672 •
3/8	3/8	1-3/8	3-1/4	2	77997 •
3/8	3/8	1-3/8	4	2	72678 •
3/8	3/8	1-3/8	6	2	72684 •
7/16	7/16	1-3/4	3-3/4	2	78000 •
1/2	1/2	1-3/8	4	2	18693 •
1/2	1/2	1-3/8	6	2	18694 •
1/2	1/2	2	4	2	78003 •
1/2	1/2	3	6	2	72690

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

2 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 2 Flute

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

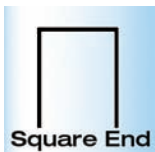
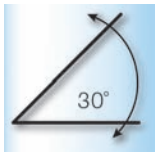


DIA230M

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

2 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1mm	3mm	4mm	45mm	2	77259
2mm	3mm	10mm	45mm	2	77260
3mm	3mm	15mm	45mm	2	77261
4mm	4mm	15mm	55mm	2	77262
6mm	6mm	20mm	64mm	2	77263
8mm	8mm	20mm	64mm	2	77264
10mm	10mm	25mm	63mm	2	77265
12mm	12mm	30mm	76mm	2	77266

For Speed and Feed Information, Match Color Code from Page 135. ■

● Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 2 Flute Ball-End

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIAB230M

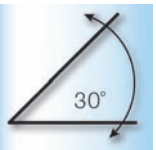
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1mm	3mm	4mm	45mm	2	77267
2mm	3mm	10mm	45mm	2	77268
3mm	3mm	15mm	45mm	2	77269
4mm	4mm	15mm	55mm	2	77270
6mm	6mm	20mm	64mm	2	77271
8mm	8mm	20mm	64mm	2	77272
10mm	10mm	25mm	63mm	2	77273
12mm	12mm	30mm	76mm	2	77274

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

2 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

4 Flute

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

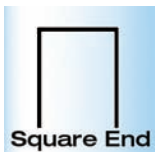
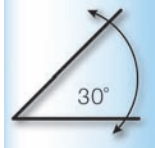


DIA430

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

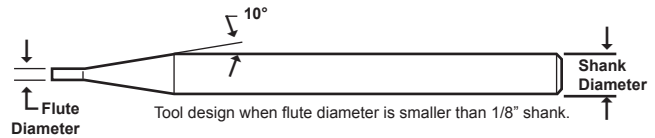
4 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/64	1/8	3/64	1-1/2	4	77790
1/32	1/8	3/32	1-1/2	4	77793
3/64	1/8	1/8	1-1/2	4	77178
1/16	1/8	3/16	1-1/2	4	77796
5/64	1/8	1/4	1-1/2	4	77179 •
3/32	1/8	3/8	1-1/2	4	77799
1/8	1/8	1/2	1-1/2	4	77802
3/16	3/16	5/8	2	4	77805
1/4	1/4	3/4	2-1/2	4	77808
5/16	5/16	13/16	2-1/2	4	77811
3/8	3/8	7/8	2-1/2	4	77814
7/16	7/16	1	2-3/4	4	77817 •
1/2	1/2	1	3	4	77820
5/8	5/8	1-1/4	3-1/2	4	77180 •
3/4	3/4	1-3/8	4	4	77181 •



For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Square-End with Radius DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIACR430

•Standard with Radius

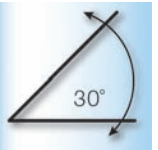
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	Diamond EDP #
1/16	1/16	3/16	1-1/2	0.010	4	18415
1/16	1/16	3/16	1-1/2	0.015	4	18416
1/8	1/8	1/2	1-1/2	0.015	4	18417
1/8	1/8	1/2	1-1/2	0.020	4	18418
1/8	1/8	1	3	0.015	4	77186 •
1/8	1/8	1	3	0.020	4	77187 •
3/16	3/16	5/8	2	0.020	4	18419
3/16	3/16	5/8	2	0.030	4	18420 •
3/16	3/16	1-3/8	3	0.020	4	77188 •
3/16	3/16	1-3/8	3	0.030	4	77189 •
1/4	1/4	3/4	2-1/2	0.020	4	18421
1/4	1/4	3/4	2-1/2	0.030	4	18422
1/4	1/4	1-3/8	4	0.020	4	77190
1/4	1/4	1-3/8	4	0.030	4	77191
3/8	3/8	7/8	2-1/2	0.020	4	18423
3/8	3/8	7/8	2-1/2	0.030	4	18424
3/8	3/8	1-3/8	4	0.020	4	77192 •
3/8	3/8	1-3/8	4	0.030	4	77193 •
1/2	1/2	1	3	0.030	4	18425
1/2	1/2	1	3	0.060	4	18426
1/2	1/2	1-3/8	4	0.030	4	77194
1/2	1/2	1-3/8	4	0.060	4	77195 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

4 Flute Ball-End

DiamondPlus™ Coated Solid Carbide



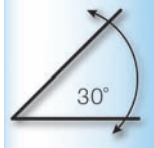
Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

DIAB430

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

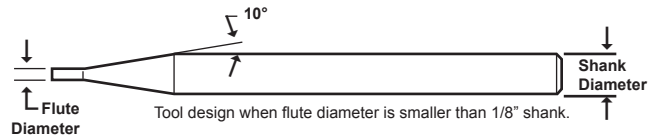
4 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/64	1/8	3/64	1-1/2	4	77823
1/32	1/8	3/32	1-1/2	4	77826
3/64	1/8	1/8	1-1/2	4	77182 •
1/16	1/8	3/16	1-1/2	4	77829
5/64	1/8	1/4	1-1/2	4	77183 •
3/32	1/8	3/8	1-1/2	4	77832
1/8	1/8	1/2	1-1/2	4	77835
3/16	3/16	5/8	2	4	77838
1/4	1/4	3/4	2-1/2	4	77841
5/16	5/16	13/16	2-1/2	4	77844 •
3/8	3/8	7/8	2-1/2	4	77847 •
7/16	7/16	1	2-3/4	4	77850 •
1/2	1/2	1	3	4	77853
5/8	5/8	1-1/4	3-1/2	4	77184 •
3/4	3/4	1-3/8	4	4	77185 •



For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

4 Flute Neck Style Stub Length-of-Cut DiamondPlus™ Coated Solid Carbide



DIAXS430

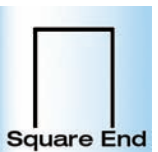
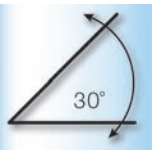
Price Code E

Flute Dia	Shank Dia	Length of Cut	Reach	Neck Dia	Overall Length	No. of Flutes	Diamond EDP #
1/16	1/8	1/16	5/16	0.057	3	4	77206 •
3/32	1/8	3/32	15/32	0.086	3	4	77207 •
1/8	1/8	1/8	5/8	0.115	3	4	77208 •
3/16	3/16	3/16	11/16	0.177	3	4	77209 •
1/4	1/4	1/4	3/4	0.240	4	4	77210 •
5/16	5/16	5/16	15/16	0.302	4	4	77211 •
3/8	3/8	3/8	1-1/8	0.365	4	4	77212 •
1/2	1/2	1/2	1-1/2	0.490	6	4	77213 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Neck Style Stub Length-of-Cut with Radius DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

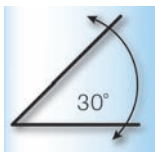


DIAXSR430

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	Radius	No. of Flutes	Diamond EDP #
1/8	1/8	5/8	0.115	1/8	3	0.015	4	77222 •
1/8	1/8	5/8	0.115	1/8	3	0.020	4	77223 •
3/16	3/16	11/16	0.177	3/16	3	0.030	4	77224 •
1/4	1/4	3/4	0.240	1/4	4	0.015	4	77225 •
1/4	1/4	3/4	0.240	1/4	4	0.030	4	77226 •
1/4	1/4	3/4	0.240	1/4	4	0.060	4	77227 •
3/8	3/8	1-1/8	0.365	3/8	4	0.030	4	77228 •
1/2	1/2	1-1/2	0.490	1/2	6	0.060	4	77229 •

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

4 Flute Neck Style Stub Length-of-Cut Ball-End DiamondPlus™ Coated Solid Carbide



DIAXSB430

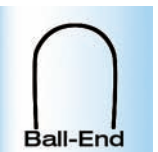
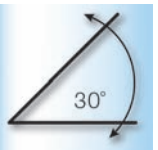
Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/16	1/8	5/16	0.057	1/16	3	4	77214
3/32	1/8	15/32	0.086	3/32	3	4	77215 •
1/8	1/8	5/8	0.115	1/8	3	4	77216 •
3/16	3/16	11/16	0.177	3/16	3	4	77217 •
1/4	1/4	3/4	0.240	1/4	4	4	77218 •
5/16	5/16	15/16	0.302	5/16	4	4	77219 •
3/8	3/8	1-1/8	0.365	3/8	4	4	77220 •
1/2	1/2	1-1/2	0.490	1/2	6	4	77221 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Long Length DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

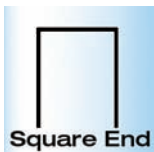
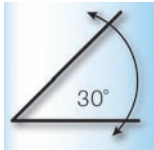


DIAL430

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/8	1/8	1	3	4	77856
3/16	3/16	1	4	4	77859
3/16	3/16	1-1/8	3	4	72693
1/4	1/4	1-1/4	3	4	77862
1/4	1/4	1-3/8	4	4	72699
1/4	1/4	1-3/8	6	4	72705
5/16	5/16	1-3/8	3-1/8	4	77865 •
5/16	5/16	1-3/8	4	4	72711 •
3/8	3/8	1-3/8	3-1/4	4	77868
3/8	3/8	1-3/8	4	4	72717
3/8	3/8	1-3/8	6	4	72723
7/16	7/16	1-3/4	3-3/4	4	77871
1/2	1/2	1-3/8	4	4	18695
1/2	1/2	1-3/8	6	4	18696 •
1/2	1/2	2	4	4	77874
1/2	1/2	3	6	4	72729

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Long Length Ball-End

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIALB430

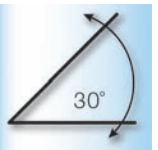
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/8	1/8	1	3	4	77877
3/16	3/16	1	4	4	77880
3/16	3/16	1-1/8	3	4	72696
1/4	1/4	1-1/4	3	4	77883
1/4	1/4	1-3/8	4	4	72702
1/4	1/4	1-3/8	6	4	72708
5/16	5/16	1-3/8	3-1/8	4	77886 •
5/16	5/16	1-3/8	4	4	72714
3/8	3/8	1-3/8	3-1/4	4	77889 •
3/8	3/8	1-3/8	4	4	72720
3/8	3/8	1-3/8	6	4	72726
7/16	7/16	1-3/4	3-3/4	4	77892 •
1/2	1/2	1-3/8	4	4	18697
1/2	1/2	1-3/8	6	4	18698
1/2	1/2	2	4	4	77895
1/2	1/2	3	6	4	72732

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

4 Flute Neck Style DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

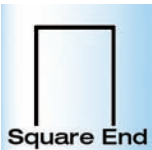
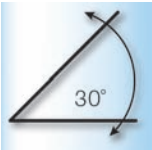


DIAXR430

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

**2 Flutes
4 Flutes**



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/64	1/8	5/32	0.140	3/64	1-1/2	2	77230 •
1/32	1/8	5/16	0.028	3/32	1-1/2	4	77231 •
1/32	1/8	3/8	0.028	3/32	3	4	77196 •
1/32	1/8	1/2	0.028	3/32	3	4	77201 •
3/64	1/8	15/32	0.043	3/16	1-1/2	4	77232 •
3/64	1/8	9/16	0.043	9/64	3	4	77197 •
3/64	1/8	3/4	0.043	9/64	3	4	77202 •
1/16	1/8	5/8	0.057	3/16	1-1/2	4	77233 •
1/16	1/8	3/4	0.057	3/16	3	4	77198 •
1/16	1/8	1	0.057	3/16	3	4	77203 •
3/32	1/8	15/16	0.086	3/8	3	4	77234 •
3/32	1/8	1	0.086	9/32	3	4	77199 •
3/32	1/8	1-1/2	0.086	9/32	3	4	77204 •
1/8	1/8	1-1/2	0.115	3/8	3	4	77200 •
1/8	1/8	1-1/2	0.115	3/4	3	4	77235 •
1/8	1/8	2	0.115	3/8	3	4	77205 •
3/16	3/16	1-7/8	0.177	3/4	4	4	77236 •
1/4	1/4	2-1/2	0.240	1	4	4	77237 •

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Neck Style with Radius

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIAARR430

•Standard with Radius

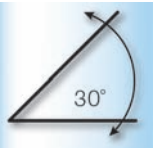
Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	Radius	No. of Flutes	Diamond EDP #
1/32	1/8	5/16	0.028	3/64	1-1/2	0.005	4	77246 •
1/32	1/8	3/8	0.028	3/32	3	0.005	4	18671
1/32	1/8	1/2	0.028	3/32	3	0.005	4	18676
3/64	1/8	15/32	0.043	3/16	1-1/2	0.010	4	77247 •
3/64	1/8	9/16	0.043	9/64	3	0.010	4	18672
3/64	1/8	3/4	0.043	9/64	3	0.010	4	18677
1/16	1/8	5/8	0.057	3/16	1-1/2	0.010	4	77248 •
1/16	1/8	3/4	0.057	3/16	3	0.010	4	18673
1/16	1/8	1	0.057	3/16	3	0.010	4	18678
3/32	1/8	15/16	0.086	3/8	3	0.015	4	77249 •
3/32	1/8	15/16	0.086	3/8	3	0.020	4	77250 •
3/32	1/8	1	0.086	9/32	3	0.010	4	18674
3/32	1/8	1-1/2	0.086	9/32	3	0.010	4	18679
1/8	1/8	1-1/2	0.115	3/8	3	0.010	4	18675
1/8	1/8	1-1/2	0.115	3/4	3	0.015	4	77251 •
1/8	1/8	1-1/2	0.115	3/4	3	0.020	4	77252 •
1/8	1/8	1-1/2	0.115	3/4	3	0.030	4	77253
1/8	1/8	2	0.115	3/8	3	0.010	4	18680
3/16	3/16	1-7/8	0.177	3/4	4	0.030	4	77254 •
1/4	1/4	2-1/2	0.240	1	4	0.015	4	77255 •
1/4	1/4	2-1/2	0.240	1	4	0.020	4	77256 •
1/4	1/4	2-1/2	0.240	1	4	0.030	4	77257 •
1/4	1/4	2-1/2	0.240	1	4	0.060	4	77258 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Neck Style Ball-End DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

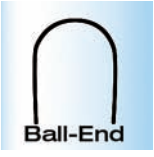
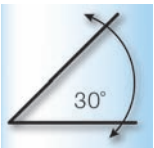


DIAXRB430

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

**2 Flutes
4 Flutes**



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Reach	Neck Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1/64	1/8	5/32	0.014	3/64	1-1/2	2	77238
1/32	1/8	5/16	0.028	3/32	1-1/2	4	77239 •
1/32	1/8	3/8	0.028	3/32	3	4	18681
1/32	1/8	1/2	0.028	3/32	3	4	18686
3/64	1/8	15/32	0.043	3/16	1-1/2	4	77240 •
3/64	1/8	9/16	0.043	9/64	3	4	18682
3/64	1/8	3/4	0.043	9/64	3	4	18687
1/16	1/8	5/8	0.057	3/16	1-1/2	4	77241 •
1/16	1/8	3/4	0.057	3/16	3	4	18683
1/16	1/8	1	0.057	3/16	3	4	18688
3/32	1/8	15/16	0.086	3/8	3	4	77242 •
3/32	1/8	1	0.086	9/32	3	4	18684
3/32	1/8	1-1/2	0.086	9/32	3	4	18689
1/8	1/8	1-1/2	0.115	3/8	3	4	18685
1/8	1/8	1-1/2	0.115	3/4	3	4	77243 •
1/8	1/8	2	0.115	3/8	3	4	18690
3/16	3/16	1-7/8	0.177	3/4	4	4	77244 •
1/4	1/4	2-1/2	0.240	1	4	4	77245 •

For Speed and Feed Information, Match Color Code from Page 135. ■

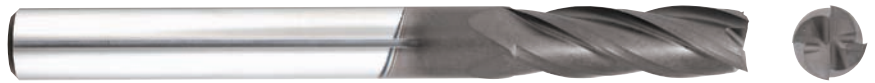
• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 4 Flute

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

DiamondPlus™ Coated Solid Carbide



DIA430M

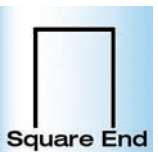
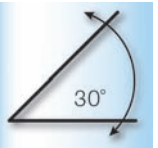
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1mm	3mm	4mm	45mm	4	77275
2mm	3mm	10mm	45mm	4	77276
3mm	3mm	15mm	45mm	4	77277
4mm	4mm	15mm	55mm	4	77278
6mm	6mm	20mm	64mm	4	77279
8mm	8mm	20mm	64mm	4	77280
10mm	10mm	25mm	63mm	4	77281
12mm	12mm	30mm	76mm	4	77282

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 4 Flute with Radius

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

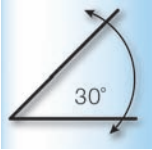


DIACR430M

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	Diamond EDP #
3mm	3mm	15mm	45mm	0.30mm	4	77291
3mm	3mm	15mm	45mm	0.50mm	4	77292
4mm	4mm	15mm	55mm	0.30mm	4	77293
4mm	4mm	15mm	55mm	0.50mm	4	77294
6mm	6mm	20mm	64mm	0.50mm	4	77295
6mm	6mm	20mm	64mm	1.00mm	4	77296
8mm	8mm	20mm	64mm	0.50mm	4	77297
8mm	8mm	20mm	64mm	1.00mm	4	77298
10mm	10mm	25mm	63mm	0.50mm	4	77299
10mm	10mm	25mm	63mm	1.00mm	4	77300
12mm	12mm	30mm	76mm	0.50mm	4	77301
12mm	12mm	30mm	76mm	1.00mm	4	77302

For Speed and Feed Information, Match Color Code from Page 135. ■

● Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 4 Flute Ball-End

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIAB430M

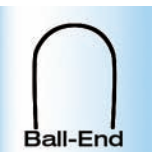
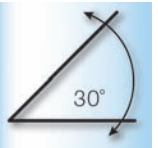
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Diamond EDP #
1mm	3mm	4mm	45mm	4	77283
2mm	3mm	10mm	45mm	4	77284
3mm	3mm	15mm	45mm	4	77285
4mm	4mm	15mm	55mm	4	77286
6mm	6mm	20mm	64mm	4	77287
8mm	8mm	20mm	64mm	4	77288
10mm	10mm	25mm	63mm	4	77289
12mm	12mm	30mm	76mm	4	77290

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

4 Flutes



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Coarse-Pitch Compression Cutter DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



| X Dim |

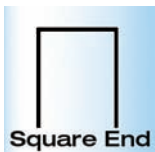
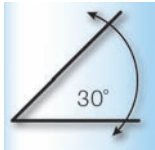
DIACC - Coarse-Pitch

- Chip Breaking Notches
- Open Flute Design

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

**3 Flutes
5 Flutes**



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	"X" Dim	No. of Flutes	Diamond EDP #
1/4	1/4	3/4	2-1/2	0.150	3	77311
3/8	3/8	1	3	0.213	3	77312 •
1/2	1/2	1-1/4	3	0.275	5	77313

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Fine-Pitch Compression Cutter DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics

DIACC - Fine-Pitch

- Chip Breaking Notches
- Open Flute Design



| X Dim |

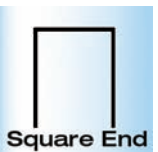
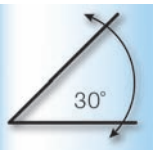
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	"X" Dim	No. of Flutes	Diamond EDP #
1/4	1/4	3/4	2-1/2	0.150	5	68196 •
3/8	3/8	1	3	0.213	5	68197 •
1/2	1/2	1-1/4	3	0.275	7	68198 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

**5 Flutes
7 Flutes**



**Center
Cutting**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Coarse-Pitch Burr with End Mill Point DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIAEPB - Coarse-Pitch

- New Positive End Cutting Geometry
- Low Cutting Forces
- High Shearing Capabilities to Reduce Material Delamination
- Can be Utilized up to 100% Radial Engagement
- Better Shearing/Freer Machining with Lower Cutting Forces

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Diamond EDP #
1/8	1/8	1/2	2	68077 •
1/4	1/4	3/4	2-1/2	68078 •
1/4	1/4	1-3/8	3	68079 •
1/4	1/4	2	4	68080 •
3/8	3/8	1-3/8	3-1/4	68081
3/8	3/8	2-1/8	4	68082 •
1/2	1/2	1	3	68083 •
1/2	1/2	2	4	68084 •

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Fine-Pitch Burr with End Mill Point DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIAEPB - Fine-Pitch

- New Positive End Cutting Geometry
- Low Cutting Forces
- High Shearing Capabilities to Reduce Material Delamination
- Higher Feed Rates and Material Removal Rates
- Better Surface Finish / 32 Ra

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Diamond EDP #
1/8	1/8	1/2	1-1/2	68172 •
1/4	1/4	3/4	2-1/2	68173 •
1/4	1/4	1-3/8	3	68174 •
1/4	1/4	2	4	68175 •
3/8	3/8	1-3/8	3-1/4	68176 •
3/8	3/8	2-1/8	4	68177 •
1/2	1/2	1	3	68178 •
1/2	1/2	2	4	68179 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Coarse-Pitch Burr with Plunge Point DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIAPPB - Coarse-Pitch

- Drill Point Design
- Positive Cutting Point Geometry
- End Cutting to the Bottom of the Tool
- Lower Cutting Temperatures
- Can be Utilized up to 100% Radial Engagement
- Better Shearing/Freer Machining with Lower Cutting Forces

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Diamond EDP #
1/8	1/8	1/2	2	68085 •
1/4	1/4	3/4	2-1/2	68086 •
1/4	1/4	1-3/8	3	68087
1/4	1/4	2	4	68088 •
3/8	3/8	1-3/8	3-1/4	68089 •
3/8	3/8	2-1/8	4	68090 •
1/2	1/2	1	3	68091 •
1/2	1/2	2	4	68092 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Fine-Pitch Burr with Plunge Point DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fibers,
Composite Applications,
Graphite & Green Ceramics



DIAPPB - Fine Pitch

- Drill Point Design
- Positive Cutting Point Geometry
- End Cutting to the Bottom of the Tool
- Higher Feed Rates and Material Removal Rates
- Better Surface Finish / 32 Ra

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Diamond EDP #
1/8	1/8	1/2	1-1/2	68180 •
1/4	1/4	3/4	2-1/2	68181 •
1/4	1/4	1-3/8	3	68182 •
1/4	1/4	2	4	68183 •
3/8	3/8	1-3/8	3-1/4	68184 •
3/8	3/8	2-1/8	4	68185 •
1/2	1/2	1	3	68186 •
1/2	1/2	2	4	68187 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Metal Fiber Router DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fibers,
Composite Applications,
Graphite & Green Ceramics



DIAMFR

- Aggressive Geometry Providing High Shearing without Material Delamination
- Positive End Cutting Geometry

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Diamond EDP #
1/8	1/8	1/2	2	68069 •
3/16	3/16	5/8	2	68070
1/4	1/4	3/4	2-1/2	68071 •
1/4	1/4	1-3/8	3	68072 •
5/16	5/16	7/8	3-1/8	68073 •
3/8	3/8	1-3/8	3-1/4	68074 •
1/2	1/2	1	3	68075 •
1/2	1/2	2	4	68076 •

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Drill / Reamer / Countersink

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIADRC

Price Code E

Drill Dia	Drill Length	Reamer Dia	Reamer Length	Shank Dia	C'Sink Dia	C'Sink Included Angle	Overall Length	Diamond EDP #
0.149	0.149	0.159	7/8	5/16	0.286	100	3-1/8	68161 •
0.181	0.181	0.191	1	3/8	0.353	100	3-1/4	68162 •
0.242	0.210	0.252	1	1/2	0.476	100	4	68163 •

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Coarse-Pitch Fiber Router Burr with Burr End DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIABEB - Coarse-Pitch

- Positive Cutting Geometry for High Shear Capability
- Lower Cutting Forces
- Can be Utilized up to 100% Radial Engagement
- Better Shearing/Free Machining with Lower Cutting Forces

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Diamond EDP #
1/8	1/8	1/2	1-1/2	68093 •
1/4	1/4	3/4	2-1/2	68094 •
1/4	1/4	1-3/8	3	68095 •
1/4	1/4	2	4	68096 •
3/8	3/8	1-3/8	3-1/4	68097
3/8	3/8	2-1/8	4	68098 •
1/2	1/2	1	3	68099 •
1/2	1/2	2	4	68100 •

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Fine-Pitch Fiber Router Burr with Burr End

DiamondPlus™ Coated Solid Carbide

Designed for Carbon Fiber,
Composite Applications,
Graphite & Green Ceramics



DIABEB - Fine-Pitch

- Positive Cutting Geometry for High Shear Capability
- Lower Cutting Forces
- Can be Utilized up to 100% Radial Engagement
- Better Shearing/Freer Machining with Lower Cutting Forces

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Diamond EDP #
1/8	1/8	1/2	1-1/2	68188 •
1/4	1/4	3/4	2-1/2	68189 •
1/4	1/4	1-3/8	3	68190 •
1/4	1/4	2	4	68191 •
3/8	3/8	1-3/8	3-1/4	68192 •
3/8	3/8	2-1/8	4	68193 •
1/2	1/2	1	3	68194 •
1/2	1/2	2	4	68195 •

**SOLID
CARBIDE**

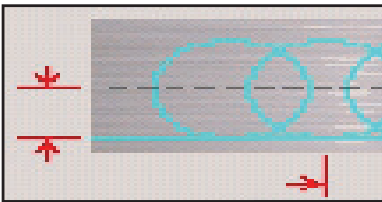
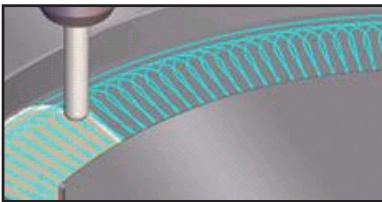
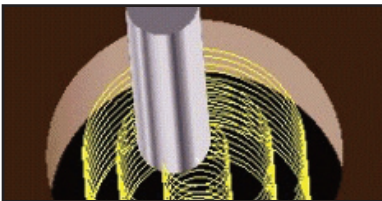
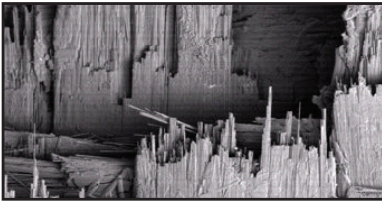
**CVD
Diamond
COATED**

For Speed and Feed Information, Match Color Code from Page 135. ■

• Indicates a Standard, Non Stocked Item



Diamond Coated Trouble Shooting Guide



Application	Issue	Causes	Solution
Milling	Fiber Pull-Out	<ol style="list-style-type: none"> 1) Dull cutting edge 2) Improper edge preparation 	<ol style="list-style-type: none"> 1) Replace cutting tool 2) Change processing technique to Trochoidal or Peel Milling 3) Change cutter radial engagement 4) Contact Niagara Cutter Application Engineering
Milling	Uncut Fibers	<ol style="list-style-type: none"> 1) Dull cutting edge 2) Feed rates too aggressive 	<ol style="list-style-type: none"> 1) Replace cutting tool 2) Change processing technique to Trochoidal or Peel Milling 3) Decrease feed rates
Milling	Delamination	<ol style="list-style-type: none"> 1) Helix angle too high 2) Too much cutter engagement 	<ol style="list-style-type: none"> 1) Change cutting tool geometry 2) Decrease cutter engagement
Milling	Chatter / Vibration	<ol style="list-style-type: none"> 1) Unstable work holding 2) To much of cutting edge engaged. 	<ol style="list-style-type: none"> 1) Reinforce fixture and clamping methods 2) Modify cutting conditions / machining technique
Profile Milling	Torn Fibers	<ol style="list-style-type: none"> 1) Improper cutter angle of attack on the work piece 	<ol style="list-style-type: none"> 1) Change cutting tool angle of attack using the CAM software, do not pass over the center of the cutting tool
Drilling	Fiber Pull-Out	<ol style="list-style-type: none"> 1) Dull cutting edge 2) Improper edge preparation 	<ol style="list-style-type: none"> 1) Change cutting tool 2) Modify processing technique to helical interpolation 3) Contact Niagara Cutter Application Engineering
Drilling	Uncut Fibers	<ol style="list-style-type: none"> 1) Dull cutting edge 2) Feed rates too aggressive 	<ol style="list-style-type: none"> 1) Change cutting tool point angle 2) Decrease feed rates 3) Change processing technique to helical interpolation
Drilling	Delamination	<ol style="list-style-type: none"> 1) Feed rate too aggressive 2) Improper drill point angle 	<ol style="list-style-type: none"> 1) Decrease feed rates 2) Contact Niagara Cutter Application Engineering



Diamond Coated Speed and Feed Guidelines

	Flute Dia	Carbon, Carbon Graphite, Unfilled Plastics		Composites		Fiberglass Filled Plastics		Green Ceramics, Green Carbide	
		Speed SFPM	Feed IPR	Speed SFPM	Feed IPR	Speed SFPM	Feed IPR	Speed SFPM	Feed IPR
Metal Fiber & Conventional Router Burrs	1/8"	1600-3200	.0008-.0025	1200-2800	.0004-.0008	1200-2800	.0004-.0008	800-1600	.0004-.0008
	3/16"	1600-3200	.0015-.0030	1200-2800	.0005-.0010	1200-2800	.0005-.0010	800-1600	.0008-.0020
	1/4"	1600-3200	.0025-.0040	1200-2800	.0008-.0020	1200-2800	.0008-.0020	800-1600	.0015-.0030
	5/16"	1600-3200	.0030-.0050	1200-2800	.0025-.0040	1200-2800	.0025-.0040	800-1600	.0025-.0040
	3/8"	1600-3200	.0040-.0065	1600-3200	.0030-.0055	1600-3200	.0030-.0055	800-1600	.0030-.0055
	1/2"	1600-3200	.0065-.0080	1600-3200	.0050-.0070	1600-3200	.0050-.0070	800-1600	.0050-.0070
	5/8"	1600-3200	.0080-.0100	1600-3200	.0060-.0080	1600-3200	.0060-.0080	800-1600	.0060-.0080
Drilling	3/4"	1600-3200	.0100-.0120	1600-3200	.0080-.0100	1600-3200	.0080-.0100	800-1600	.0080-.0100
	1/8"	500-2400	.0015-.0040	500-1600	.0008-.0020	500-1600	.0008-.0020	300-1200	.0008-.0025
	3/16"	800-2400	.0025-.0040	800-1600	.0010-.0025	800-1600	.0010-.0025	300-1200	.0015-.0030
	1/4"	800-2400	.0030-.0050	800-1600	.0015-.0030	800-1600	.0015-.0030	300-1200	.0025-.0040
	5/16"	800-2400	.0040-.0055	800-1600	.0030-.0050	800-1600	.0030-.0050	300-1200	.0030-.0050
	3/8"	800-2400	.0050-.0080	800-1600	.0040-.0065	800-1600	.0040-.0065	300-1200	.0050-.0070
	1/2"	800-2400	.0060-.0090	800-1600	.0060-.0090	800-1600	.0065-.0120	300-1200	.0065-.0080
Compression Cutter DiamondPlus	5/8"	800-2400	.0060-.0100	800-1600	.0060-.0100	800-1600	.0080-.0120	300-1200	.0070-.0090
	3/4"	800-2400	.0070-.0120	800-1600	.0070-.0120	800-1600	.0090-.0130	300-1200	.0070-.0100
	1/8"	1000-3200	.0003-.0006	700-2800	.0002-.0005	1000-2800	.0004-.0008	800-1600	.0002-.0005
	3/16"	1000-2800	.0004-.0008	700-2800	.0003-.0007	1000-2800	.0005-.0010	800-1600	.0002-.0005
	1/4"	1000-2800	.0008-.0013	700-2800	.0007-.0012	1000-2800	.0008-.0020	800-1600	.0004-.0007
	5/16"	1000-2800	.0010-.0017	700-2800	.0010-.0015	1000-2800	.0025-.0040	800-1600	.0008-.0014
	3/8"	1000-2800	.0010-.0025	700-2800	.0015-.0025	1000-3200	.0030-.0055	800-1600	.0008-.0018
	1/2"	1000-2800	.0015-.0040	700-2800	.0020-.0040	1000-3200	.0050-.0070	800-1600	.0010-.0025
Metric DiamondPlus Coated	5/8"	1000-3000	.0035-.0060	700-3000	.0040-.0060	1000-3200	.0060-.0080	800-1600	.0015-.0040
	3/4"	1000-3200	.0055-.0080	700-3200	.0060-.0080	1000-3200	.0080-.0100	800-1600	.0020-.0060
	1mm	300-975	.0070-.0100	210-850	.0050-.0130	300-850	.0100-.0200	250-480	.0050-.0130
	2mm	300-850	.0100-.0200	210-850	.0100-.0180	300-850	.0130-.0250	250-480	.0050-.0130
	3mm	300-850	.0200-.0330	210-850	.0200-.0300	300-850	.0200-.0510	250-480	.0100-.0180
	4mm	300-850	.0250-.0430	210-850	.0300-.0380	300-850	.0640-.1020	250-480	.0200-.0360
	6mm	300-850	.0250-.0630	210-850	.0400-.0640	300-975	.0760-.1400	250-480	.0200-.0460
	8mm	300-850	.0380-.1000	210-850	.0500-.1000	300-975	.1270-.1780	250-480	.0250-.0640
	10mm	300-910	.0880-.1520	210-910	.1000-.1500	300-975	.1520-.2080	250-480	.0380-.1020
	12mm	300-975	.1390-.2000	210-975	.1500-.2000	300-975	.2030-.2540	250-480	.0510-.1520

Niagara Cutter

2 Flute 60° Chamfer

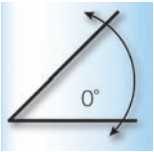


CM260

**SOLID
CARBIDE**

**TiAIN
COATED**

2 Flutes



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Chamfer	Length of Cut	Overall Length	No. of Flutes	TiAIN EDP #
1/4	1/4	60	3/16	2-1/2	2	76590
3/8	3/8	60	5/16	2-1/2	2	76591
1/2	1/2	60	7/16	3	2	76592

Note: Chamfer angle tolerance is $\pm 0^\circ 30'$

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute 90° Chamfer

CM290



Price Code C

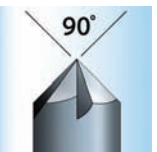
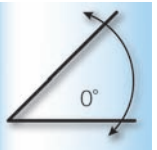
Flute Dia	Shank Dia	Chamfer	Length of Cut	Overall Length	No. of Flutes	TiAIN EDP #
1/4	1/4	90	1/8	2-1/2	2	76593
3/8	3/8	90	3/16	2-1/2	2	76594
1/2	1/2	90	1/4	3	2	76595

Note: Chamfer angle tolerance is $\pm 0^\circ 30'$

**SOLID
CARBIDE**

**TiAIN
COATED**

2 Flutes



**Center
Cutting**

Niagara Cutter

4 Flute 60° Chamfer

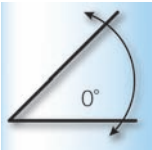


CM460

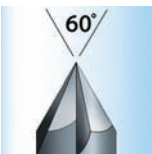
**SOLID
CARBIDE**

**TiAIN
COATED**

4 Flutes



**RIGHT
HAND**



**Center
Cutting**

Price Code C

Flute Dia	Shank Dia	Chamfer	Length of Cut	Overall Length	No. of Flutes	TiAIN EDP #
1/4	1/4	60	3/16	2-1/2	4	76596
3/8	3/8	60	5/16	2-1/2	4	76597
1/2	1/2	60	7/16	3	4	76598
3/4	3/4	60	5/8	3	4	76599

Note: Chamfer angle tolerance is $\pm 0^\circ 30'$

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute 90° Chamfer

CM490



Price Code C

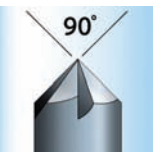
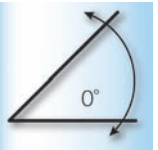
Flute Dia	Shank Dia	Chamfer	Length of Cut	Overall Length	No. of Flutes	TiAIN EDP #
1/4	1/4	90	1/8	2-1/2	4	76600
3/8	3/8	90	3/16	2-1/2	4	76601
1/2	1/2	90	1/4	3	4	76602
3/4	3/4	90	3/8	3	4	76603

Note: Chamfer angle tolerance is $\pm 0^\circ 30'$

**SOLID
CARBIDE**

**TiAIN
COATED**

4 Flutes



**Center
Cutting**

2 Flute Ball-End



Ideal for Milling Hardened Mold
and Die Steels up to 52 HRC

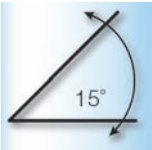
Rough and Finish Milling of
Contours and Complex Shapes

MB215
•7° Draft Angle

**SOLID
CARBIDE**

**AlTiN
COATED**

2 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlTiN EDP #
1/32	1/4	1/32	2-1/2	2	76670
1/16	1/4	1/16	2-1/2	2	76671
3/32	1/4	3/32	2-1/2	2	76672
1/8	1/4	1/8	3	2	76673
3/16	1/4	3/16	3	2	76674
1/4	1/4	1/4	3	2	76675
5/16	5/16	5/16	3	2	76676
3/8	3/8	3/8	3	2	76677
7/16	7/16	7/16	4	2	76678 •
1/2	1/2	1/2	4	2	76679

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 2 Flute Ball-End

Ideal for Milling Hardened Mold
and Die Steels up to 52 HRC

Rough and Finish Milling of
Contours and Complex Shapes

MB215M

•7° Draft Angle



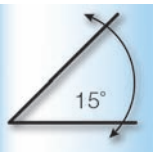
Price Code E

Flute Dia	Shank Dia	Neck Dia	Neck Length	Length of Cut	Overall Length	No. of Flutes	AlTiN EDP #
1mm	6mm	0.9mm	1mm	1mm	64mm	2	76660
2mm	6mm	1.9mm	2mm	2mm	64mm	2	76661
3mm	6mm	2.9mm	3mm	3mm	64mm	2	76662
4mm	6mm	3.9mm	4mm	4mm	64mm	2	76663
5mm	6mm	4.9mm	5mm	5mm	64mm	2	76664
6mm	6mm	5.9mm	6mm	6mm	64mm	2	76665
8mm	8mm	7.8mm	8mm	8mm	80mm	2	76666
10mm	10mm	9.8mm	10mm	10mm	82mm	2	76667
12mm	12mm	11.8mm	12mm	12mm	100mm	2	76668
16mm	16mm	15.8mm	16mm	16mm	120mm	2	76669 •

**SOLID
CARBIDE**

**AlTiN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

6 Flute

Ideal for Peripheral Milling
of Hard Steels up to 52 HRC

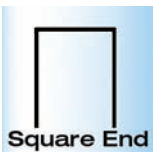
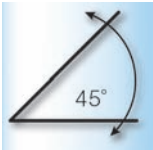


M645

**SOLID
CARBIDE**

**AlTiN
COATED**

6 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlTiN EDP #
1/8	1/4	3/8	3	6	76605
3/16	1/4	1/2	3	6	76607
1/4	1/4	5/8	3	6	76609
5/16	5/16	3/4	3	6	76611
3/8	3/8	1	3	6	76613
1/2	1/2	1-1/8	4	6	76615

• Indicates a Standard, Non Stocked Item

Niagara Cutter

6 Flute with Radius

Ideal for Peripheral Milling
of Hard Steels up to 52 HRc



M645R

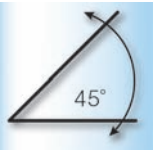
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AlTiN EDP #
1/8	1/4	3/8	3	0.020	6	76604
3/16	1/4	1/2	3	0.020	6	76606
1/4	1/4	5/8	3	0.020	6	76608
5/16	5/16	3/4	3	0.020	6	76610
3/8	3/8	1	3	0.020	6	76612
1/2	1/2	1-1/8	4	0.030	6	76614

**SOLID
CARBIDE**

**AlTiN
COATED**

6 Flutes



**RIGHT
HAND**

**Corner
Radius**

**Center
Cutting**

2 Flute Ball-End



Ideal for Milling Hardened Mold
and Die Steels up to 62 HRc

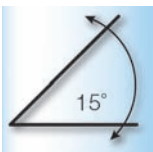
Rough and Finish Milling of
Contours and Complex Shapes

MBZ215
•7° Draft Angle

**SOLID
CARBIDE**

**AlTiN
COATED**

2 Flutes



**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Neck Dia	Neck Length	Length of Cut	Overall Length	No. of Flutes	AlTiN EDP #
1/32	1/4	0.027	1/32	1/32	2-1/2	2	76690
1/16	1/4	0.059	1/16	1/16	2-1/2	2	76691
3/32	1/4	0.090	3/32	3/32	2-1/2	2	76692
1/8	1/4	0.121	1/8	1/8	3	2	76693
3/16	1/4	0.184	3/16	3/16	3	2	76694
1/4	1/4	0.246	1/4	1/4	3	2	76695
5/16	5/16	0.304	5/16	5/16	3	2	76696
3/8	3/8	0.367	3/8	3/8	3	2	76697
7/16	7/16	0.430	7/16	7/16	4	2	76698 •
1/2	1/2	0.492	1/2	1/2	4	2	76699

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 2 Flute Ball-End

Ideal for Milling Hardened Mold and Die Steels up to 62 HRC

Rough and Finish Milling of Contours and Complex Shapes

MBZ215M

•7° Draft Angle



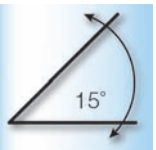
Price Code E

Flute Dia	Shank Dia	Neck Dia	Neck Length	Length of Cut	Overall Length	No. of Flutes	AlTiN EDP #
1mm	6mm	0.9mm	1mm	1mm	60mm	2	76680
2mm	6mm	1.9mm	2mm	2mm	60mm	2	76681 •
3mm	6mm	2.9mm	3mm	3mm	60mm	2	76682 •
4mm	6mm	3.9mm	4mm	4mm	60mm	2	76683
5mm	6mm	4.9mm	5mm	5mm	60mm	2	76684
6mm	6mm	5.9mm	6mm	6mm	60mm	2	76685
8mm	8mm	7.8mm	8mm	8mm	80mm	2	76686 •
10mm	10mm	9.8mm	10mm	10mm	80mm	2	76687 •
12mm	12mm	11.8mm	12mm	12mm	100mm	2	76688 •
16mm	16mm	15.8mm	16mm	16mm	105mm	2	76689 •

SOLID CARBIDE

AlTiN COATED

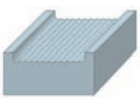

2 Flutes



Ball-End

Center Cutting

MBZ215M - Recommended Starting Point Speed & Feeds METRIC													
Material	3mm Diameter			6mm Diameter			10mm Diameter			12mm Diameter			
	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min
30 - 45 HRC	183	19,394	0.050	1,939	9,697	0.100	1,969	5,818	0.166	1,932	4,848	0.200	1,939
45 - 52 HRC	160	16,970	0.043	1,442	8,485	0.085	1,442	5,091	0.141	1,437	4,242	0.170	1,442
52 - 62 HRC	130	13,737	0.030	824	6,869	0.060	824	4,121	0.100	821	3,434	0.120	824

Work Material	30 - 45 HRC	45 - 52 HRC	52 - 62 HRC
		Axial depth-of-cut up to 10% of tool diameter	Axial depth-of-cut up to 5% of tool diameter
	Radial depth-of-cut up to 30% of tool diameter	Radial depth-of-cut up to 20% of tool diameter	Radial depth-of-cut up to 10% of tool diameter
	Reduce radial stepover for finishing	Reduce radial stepover for finishing	Reduce radial stepover for finishing

• Indicates a Standard, Non Stocked Item

Niagara Cutter

6 Flute

Ideal for Peripheral Milling of
Hard Steels up to 62 HRC

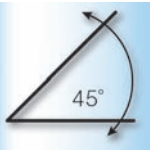


MZ645

**SOLID
CARBIDE**

**AlTiN
COATED**

6 Flutes



**RIGHT
HAND**

Square End

**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlTiN EDP #
1/8	1/4	3/8	3	6	76617
3/16	1/4	1/2	3	6	76619
1/4	1/4	5/8	3	6	76621
5/16	5/16	3/4	3	6	76623
3/8	3/8	1	3	6	76625
1/2	1/2	1-1/8	4	6	76627

Work Material	30 - 45 HRC		45 - 52 HRC		52 - 62 HRC	
		Axial depth-of-cut up to 150% of tool diameter	Axial depth-of-cut up to 100% of tool diameter	Axial depth-of-cut up to 100% of tool diameter	Axial depth-of-cut up to 100% of tool diameter	Axial depth-of-cut up to 100% of tool diameter
	Radial depth-of-cut up to 10% of tool diameter	Radial depth-of-cut up to 5% of tool diameter	Radial depth-of-cut up to 5% of tool diameter	Radial depth-of-cut up to 5% of tool diameter	Radial depth-of-cut up to 2% of tool diameter	Radial depth-of-cut up to 2% of tool diameter

• Indicates a Standard, Non Stocked Item

Niagara Cutter

6 Flute with Radius

Ideal for Peripheral Milling of
Hard Steels up to 62 HRc



MZ645R

•Standard with Radius

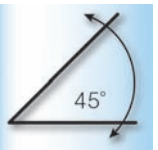
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AlTiN EDP #
1/8	1/4	3/8	3	0.020	6	76616
3/16	1/4	1/2	3	0.020	6	76618
1/4	1/4	5/8	3	0.020	6	76620
5/16	5/16	3/4	3	0.020	6	76622
3/8	3/8	1	3	0.020	6	76624
1/2	1/2	1-1/8	4	0.030	6	76626

**SOLID
CARBIDE**

**AlTiN
COATED**

6 Flutes



**RIGHT
HAND**

**Corner
Radius**

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 6 Flute

Designed for Profiling
Applications up to 62 HRc

Excellent for HSM Applications

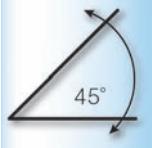


MZ645M

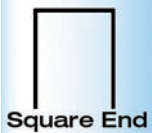
**SOLID
CARBIDE**

**AlTiN
COATED**

6 Flutes



**RIGHT
HAND**



Square End

**Center
Cutting**

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	AlTiN EDP #
3mm	6mm	3mm	75mm	6	76716 •
3mm	6mm	9mm	75mm	6	76645
4mm	6mm	12mm	75mm	6	76647 •
5mm	6mm	5mm	75mm	6	76717 •
5mm	6mm	15mm	75mm	6	76649 •
6mm	6mm	6mm	75mm	6	76718 •
6mm	6mm	15mm	75mm	6	76651
8mm	8mm	8mm	80mm	6	76719 •
8mm	8mm	20mm	80mm	6	76653
10mm	10mm	10mm	80mm	6	76720 •
10mm	10mm	25mm	80mm	6	76655 •
12mm	12mm	12mm	100mm	6	76721 •
12mm	12mm	30mm	100mm	6	76657 •
16mm	16mm	40mm	120mm	6	76659 •

MZ645M - Recommended Starting Point Speed & Feeds METRIC

Material	3mm Diameter			6mm Diameter			10mm Diameter			12mm Diameter			
	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min
30 - 45 HRc	168	17,778	0.019	2,000	8,889	0.038	2,000	5,333	0.062	1,992	4,444	0.075	2,000
45 - 52 HRc	137	14,545	0.015	1,309	7,273	0.030	1,309	4,364	0.050	1,304	3,636	0.060	1,309
52 - 62 HRc	122	12,929	0.010	776	6,465	0.020	776	3,879	0.033	773	3,232	0.040	776

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric 6 Flute with Radius

Designed for Profiling
Applications up to 62 HRc

Excellent for HSM Applications



MZR645M

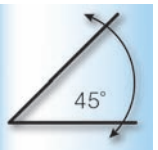
Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	Radius	No. of Flutes	AlTiN EDP #
3mm	6mm	3mm	60mm	0.50	6	76710 •
3mm	6mm	9mm	60mm	0.50	6	76644
4mm	6mm	12mm	60mm	0.50	6	76646 •
5mm	6mm	5mm	60mm	0.50	6	76711 •
5mm	6mm	15mm	60mm	0.50	6	76648 •
6mm	6mm	6mm	60mm	0.50	6	76712 •
6mm	6mm	15mm	60mm	0.50	6	76650 •
8mm	8mm	8mm	80mm	0.50	6	76713
8mm	8mm	20mm	80mm	0.50	6	76652
10mm	10mm	10mm	80mm	0.50	6	76714
10mm	10mm	25mm	80mm	0.80	6	76654
12mm	12mm	12mm	100mm	0.80	6	76715 •
12mm	12mm	30mm	100mm	0.80	6	76656 •
16mm	16mm	40mm	105mm	0.80	6	76658 •

SOLID CARBIDE

AlTiN COATED

6 Flutes



Center Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

ELITE Die / Mold End Mills

Application / Speed & Feed Guidelines



MB215 and MBZ215

Work Material	30 - 45 HRc				45 - 52 HRc				52 - 62 HRc			
	Tool Dia (Inch)	Speed (SFPM)	RPM	Chip Load Per Tooth	Feed IPM	Speed (SFPM)	RPM	Chip Load Per Tooth	Feed IPM	Speed (SFPM)	RPM	Chip Load Per Tooth
1/32	350	42,784	0.0008"	68.45	300	36,672	0.0007"	52.81	300	36,672	0.0005"	36.97
1/16	500	30,560	0.0010"	61.12	425	25,976	0.0009"	46.76	375	22,920	0.0006"	28.88
3/32	500	20,373	0.0012"	48.90	450	18,336	0.0011"	39.61	400	16,299	0.0008"	24.64
1/8	600	18,336	0.0020"	73.34	500	15,280	0.0018"	55.01	400	12,224	0.0013"	30.80
3/16	700	14,261	0.0030"	85.57	550	11,205	0.0027"	60.51	425	8,659	0.0019"	32.73
1/4	750	11,460	0.0040"	91.68	600	9,168	0.0036"	66.01	450	6,876	0.0025"	34.66
5/16	780	9,535	0.0070"	133.49	650	7,946	0.0063"	100.11	500	6,112	0.0044"	53.91
3/8	830	8,455	0.0073"	123.44	700	7,131	0.0066"	93.70	500	5,093	0.0046"	46.85
1/2	900	6,876	0.0080"	110.02	775	5,921	0.0072"	85.26	500	3,820	0.0050"	38.51
5/8	700	4,278	0.0090"	77.01	550	3,362	0.0081"	54.46	400	2,445	0.0057"	27.72
3/4	550	2,801	0.0090"	50.42	450	2,292	0.0081"	37.13	400	2,037	0.0057"	23.10
1	500	1,910	0.0095"	36.29	450	1,719	0.0086"	29.39	400	1,528	0.0060"	18.29
	Axial depth of cut up to 10% of tool diameter.				Axial depth of cut up to 5% of tool diameter.				Axial depth of cut up to 3% of tool diameter.			
	Radial depth of cut up to 30% of tool diameter. Reduce radial step over for finishing.				Radial depth of cut up to 20% of tool diameter. Reduce radial step over for finishing.				Radial depth of cut up to 10% of tool diameter. Reduce radial step over for finishing.			

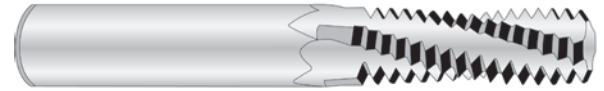


M645 and MZ645

Work Material	30 - 45 HRc				45 - 52 HRc				52 - 62 HRc			
	Tool Dia (Inch)	Speed (SFPM)	RPM	Chip Load Per Tooth	Feed IPM	Speed (SFPM)	RPM	Chip Load Per Tooth	Feed IPM	Speed (SFPM)	RPM	Chip Load Per Tooth
1/8	650	19,864	0.00080"	95.35	500	15,280	0.00060"	55.01	400	12,224	0.00042"	30.80
3/16	650	13,243	0.00120"	95.35	500	10,187	0.00090"	55.01	400	8,149	0.00063"	30.80
1/4	600	9,168	0.00150"	82.51	500	7,640	0.00113"	51.57	450	6,876	0.00079"	32.49
5/16	550	6,723	0.00200"	80.68	450	5,501	0.00150"	49.51	450	5,501	0.00105"	34.66
3/8	500	5,093	0.00250"	76.40	450	4,584	0.00188"	51.57	400	4,075	0.00131"	32.09
1/2	450	3,438	0.00300"	61.88	450	3,438	0.00225"	46.41	400	3,056	0.00158"	28.88
	Axial depth of cut up to 150% of tool diameter.				Axial depth of cut up to 100% of tool diameter.				Axial depth of cut up to 100% of tool diameter.			
	Radial depth of cut up to 10% of tool diameter.				Radial depth of cut up to 5% of tool diameter.				Radial depth of cut up to 2% of tool diameter.			

TM100UN

• Helical Flutes for Internal and External Threading



Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size 75%	Drill Size 50%	Unc EDP #	AlCrN EDP #
2	56	0.065	1/8	0.1250	2	3	50	49	68745	68746
4	40	0.085	1/8	0.1750	2	3	43	41	68747	68748
6	32	0.100	1/8	0.2180	2	3	36	32	68749	68750
8	32	0.115	1/8	0.2500	2	3	29	27	68751	68752
10	24	0.134	3/16	0.3130	2	3	25	20	68753	68754
10	28	0.134	3/16	0.3130	2	3	23	19	68755	68756
10	32	0.134	3/16	0.3130	2	3	21	18	68757	68758
1/4	20	0.180	3/16	0.5000	2-1/2	3	7	7/32	68759	68760
1/4	28	0.180	3/16	0.5000	2-1/2	3	3	1	68761	68762
1/4	32	0.180	3/16	0.5000	2-1/2	3	7/32	1	68763	68764
5/16	18	0.235	1/4	0.6250	2-1/2	3	F	J	68765	68766
5/16	24	0.235	1/4	0.6250	2-1/2	3	I	9/32	68767	68768
5/16	32	0.235	1/4	0.6250	2-1/2	3	9/32	L	68769	68770
3/8	16	0.285	5/16	0.7500	3	3	5/16	Q	68771	68772
3/8	24	0.285	5/16	0.7500	3	3	Q	S	68773	68774
7/16	14	0.305	5/16	0.8750	3	3	U	25/64	68775	68776
7/16	20	0.305	5/16	0.8750	3	3	25/64	13/32	68777	68778
1/2	13	0.350	3/8	0.8750	3-1/2	3	27/64	29/64	68779	68780
1/2	20	0.350	3/8	0.8750	3-1/2	3	29/64	15/32	68781	68782
1/2	28	0.350	3/8	0.8750	3-1/2	3	15/32	15/32	68783	68784
9/16	12	0.370	3/8	0.8750	3-1/2	4	31/64	33/64	68785	68786
9/16	18	0.370	3/8	0.8750	3-1/2	4	33/64	17/32	68787	68788
5/8	11	0.470	1/2	1.2500	4	4	17/32	9/16	68789	68790
5/8	12	0.470	1/2	1.2500	4	4	35/64	9/16	68791	68792
5/8	18	0.470	1/2	1.2500	4	4	37/64	19/32	68793	68794
3/4	10	0.495	1/2	1.2500	4	4	21/32	11/16	68795	68796
3/4	12	0.495	1/2	1.2500	4	4	43/64	11/16	68797	68798
3/4	16	0.495	1/2	1.2500	4	4	11/16	45/64	68799	68800
3/4	20	0.495	1/2	1.2500	4	4	45/64	23/32	68801	68802
7/8	9	0.620	5/8	1.3750	4	4	49/64	51/64	68803	68804
7/8	12	0.620	5/8	1.3750	4	4	51/64	13/16	68805	68806
7/8	14	0.620	5/8	1.3750	4	4	13/16	53/64	68807	68808
7/8	16	0.620	5/8	1.3750	4	4	13/16	53/64	68809	68810
7/8	20	0.620	5/8	1.3750	4	4	53/64	27/32	68811	68812
1	8	0.620	5/8	1.3750	4	4	7/8	59/64	68813	68814
1	12	0.620	5/8	1.3750	4	4	15/16	61/64	68815	68816
1	16	0.620	5/8	1.3750	4	4	15/16	61/64	68817	68818

SOLID CARBIDE

Uncoated AlCrN COATED

**3 Flutes
4 Flutes**

UN Thread Mills



TM120UN

- Helical Flutes for Internal & External Threading
- Coolant-Through Feature

**SOLID
CARBIDE**

**AICrN
COATED**

**3 Flutes
4 Flutes**

Price Code F

Thread Size	Pitch	Cutting Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size 75%	Drill Size 50%	AICrN EDP #
10	24	0.134	3/16	0.3130	2	3	25	20	34479
10	32	0.134	3/16	0.3130	2	3	21	18	34480
1/4	20	0.180	3/16	0.5000	2-1/2	3	7	7/32	34481
1/4	28	0.180	3/16	0.5000	2-1/2	3	3	1	34482
5/16	18	0.235	1/4	0.6250	2-1/2	3	F	J	34483
5/16	24	0.235	1/4	0.6250	2-1/2	3	I	9/32	34484
3/8	16	0.285	5/16	0.7500	3	3	5/16	Q	34485
3/8	24	0.285	5/16	0.7500	3	3	Q	S	34486
7/16	14	0.305	5/16	0.8750	3	3	U	25/64	34487
7/16	20	0.305	5/16	0.8750	3	3	25/64	13/32	34488
1/2	13	0.350	3/8	0.8750	3-1/2	3	27/64	29/64	34489
1/2	20	0.350	3/8	0.8750	3-1/2	3	29/64	15/32	34490
9/16	12	0.370	3/8	0.8750	3-1/2	4	31/64	33/64	34491
9/16	18	0.370	3/8	0.8750	3-1/2	4	33/64	17/32	34492
5/8	11	0.470	1/2	1.2500	4	4	17/32	9/16	34493
3/4	10	0.495	1/2	1.2500	4	4	21/32	11/16	34494
3/4	12	0.495	1/2	1.2500	4	4	43/64	11/16	34495
3/4	16	0.495	1/2	1.2500	4	4	11/16	45/64	34496
7/8	9	0.620	5/8	1.3750	4	4	49/64	51/64	34497
1	8	0.620	5/8	1.3750	4	4	7/8	59/64	34498

TM160UN

- Helical Flutes for Internal & External Threading
- Extended Reach



Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Reach	Overall Length	No. of Flutes	Drill Size 75%	Drill Size 50%	AlCrN EDP #
2	56	0.065	1/8	0.0600	0.235	2	3	50	49	34564
4	40	0.085	1/8	0.0800	0.300	2	3	43	41	34565
6	32	0.100	1/8	0.1000	0.330	2	3	36	32	34566
8	32	0.115	1/8	0.1000	0.450	2	3	29	27	34567
10	24	0.134	3/16	0.1250	0.300	2	3	25	20	34568
10	28	0.134	3/16	0.1100	0.400	2	3	23	19	34569
10	32	0.134	3/16	0.1000	0.500	2	3	21	18	34570
1/4	20	0.180	3/16	0.1500	0.670	2-1/2	3	7	7/32	34571
1/4	28	0.180	3/16	0.1100	0.875	2-1/2	3	3	1	34572
1/4	32	0.180	3/16	0.1000	0.950	2-1/2	3	7/32	1	34573
5/16	18	0.235	1/4	0.1700	1	2-1/2	3	F	J	34574
5/16	24	0.235	1/4	0.1250	1.250	2-1/2	3	I	9/32	34575
5/16	32	0.235	1/4	0.1000	1.375	2-1/2	3	9/32	L	34576
3/8	16	0.285	5/16	0.1880	1.350	3	3	5/16	Q	34577
3/8	24	0.285	5/16	0.1250	1.625	3	3	Q	S	34578
7/16	14	0.305	5/16	0.2150	1.375	3	3	U	25/64	34579
7/16	20	0.305	5/16	0.1500	1.670	3	3	25/64	13/32	34580
1/2	13	0.350	3/8	0.2300	1.670	4	3	27/64	29/64	34581
1/2	20	0.350	3/8	0.1500	1.250	4	3	29/64	15/32	34582
1/2	28	0.350	3/8	0.1100	2.250	4	3	15/32	15/32	34583
9/16	12	0.370	3/8	0.2500	1.725	4	4	31/64	33/64	34584
9/16	18	0.370	3/5	0.1700	2.100	4	4	33/64	17/32	34585
5/8	11	0.470	1/2	0.2750	2.400	4-1/2	4	17/32	9/16	34586
5/8	12	0.470	1/2	0.2500	2.525	4-1/2	4	35/64	9/16	34587
5/8	18	0.470	1/2	0.1700	2.900	4-1/2	4	37/64	19/32	34588
3/4	10	0.495	1/2	0.3000	2.500	5	4	21/32	11/16	34589
3/4	12	0.495	1/2	0.2500	2.750	5	4	43/64	11/16	34590
3/4	16	0.495	1/2	0.1880	3.000	5	4	11/16	45/64	34591
3/4	20	0.495	1/2	0.1500	3.188	5	4	45/64	23/32	34592
7/8	9	0.620	5/8	0.3330	3.300	6	4	49/64	51/64	34593
7/8	12	0.620	5/8	0.2500	3.725	6	4	51/64	13/16	34594
7/8	14	0.620	5/8	0.2150	3.900	6	4	13/16	53/64	34595
7/8	16	0.620	5/8	0.1880	4.000	6	4	13/16	53/64	34596
7/8	20	0.620	5/8	0.1500	4.188	6	4	53/64	27/32	34597
1	8	0.620	5/8	0.3750	3.150	6	4	7/8	59/64	34598
1	12	0.620	5/8	0.2500	3.725	6	4	15/16	61/64	34599
1	16	0.620	5/8	0.1880	4.000	6	4	15/16	61/64	34600

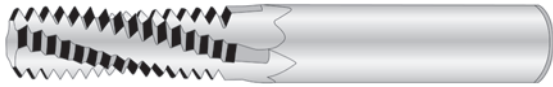
SOLID CARBIDE

AlCrN COATED

**3 Flutes
4 Flutes**

Niagara Cutter

UN Thread Mill CVD Diamond Coated



TM140UN

•Helical Flutes for Internal & External Threading

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

3 Flutes

Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size 75%	Drill Size 50%	Diamond EDP #
2	56	0.065	1/8	0.0600	2	3	50	49	34534
4	40	0.085	1/8	0.0800	2	3	43	41	34535
6	32	0.100	1/8	0.1000	2	3	36	32	34536
8	32	0.115	1/8	0.1000	2	3	29	27	34537
10	24	0.134	3/16	0.1250	2	3	25	20	34538
10	28	0.134	3/16	0.1100	2	3	23	19	34539
10	32	0.134	3/16	0.1000	2	3	21	18	34540
1/4	20	0.180	3/16	0.1500	2-1/2	3	7	7/32	34541
1/4	28	0.180	3/16	0.1100	2-1/2	3	3	1	34542
1/4	32	0.180	3/16	0.1000	2-1/2	3	7/32	1	34543
5/16	18	0.235	1/4	0.1700	2-1/2	3	F	J	34544
5/16	24	0.235	1/4	0.1250	2-1/2	3	I	9/32	34545
5/16	32	0.235	1/4	0.1000	2-1/2	3	9/32	L	34546
3/8	16	0.285	5/16	0.1880	3	3	5/16	Q	34547
3/8	24	0.285	5/16	0.1250	3	3	Q	S	34548
7/16	14	0.305	5/16	0.2150	3	3	U	25/64	34549
7/16	20	0.305	5/16	0.1500	3	3	25/64	13/32	34550
1/2	13	0.350	3/8	0.2300	4	3	27/64	29/64	34551
1/2	20	0.350	3/8	0.1500	4	3	29/64	15/32	34552
1/2	28	0.350	3/8	0.1100	4	3	15/32	15/32	34553

• Indicates a Standard, Non Stocked Item

TM200NPT

•Straight Flutes for Internal & External Threading



Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size	Unc EDP #	AlCrN EDP #
1/16	27	0.245	1/4	0.4375	2-1/2	3	B	68819	68820
1/8	27	0.245	1/4	0.4375	2-1/2	3	21/64	68821	68822
1/4	18	0.305	5/16	0.6250	3	3	27/64	68823	68824
3/8	18	0.305	5/16	0.6250	3	3	9/16	68825	68826
1/2	14	0.495	1/2	0.8750	4	4	11/16	68827	68828
3/4	14	0.495	1/2	0.8750	4	4	29/32	68829	68830
1	11.5	0.620	5/8	1.1250	4	4	1-5/32	68831	68832
2.5	8	0.745	3/4	1.5000	5	4	2-39/64	68833	68834

**SOLID
CARBIDE**

**Uncoated
AlCrN
COATED**

**3 Flutes
4 Flutes**

NPTF Thread Mills



TM300NPTF

•Straight Flutes for Internal & External Threading

Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size	Unc EDP #	AICrN EDP #
1/16	27	0.245	1/4	0.4375	2-1/2	3	B	68835	68836
1/8	27	0.245	1/4	0.4375	2-1/2	3	21/64	68837	68838
1/4	18	0.305	5/16	0.6250	3	3	27/64	68839	68840
3/8	18	0.305	5/16	0.6250	3	3	9/16	68841	68842
1/2	14	0.495	1/2	0.8750	4	4	11/16	68843	68844
3/4	14	0.495	1/2	0.8750	4	4	29/32	68845	68846
1.0	11.5	0.620	5/8	1.1250	4	4	1-5/32	68847	68848

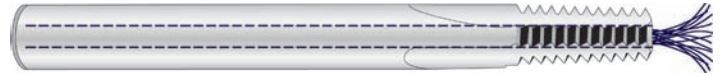
**SOLID
CARBIDE**

**Uncoated
AICrN
COATED**

**3 Flutes
4 Flutes**

TM320NPTF

- Straight Flutes for Internal & External Threading
- Coolant-Through Feature



Price Code F

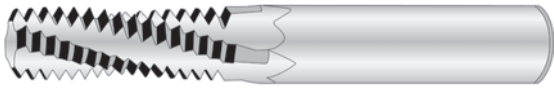
Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size	AlCrN EDP #
1/16	27	0.245	1/4	0.4375	2-1/2	3	B	34499
1/8	27	0.245	1/4	0.4375	2-1/2	3	21/64	34500
1/4	18	0.305	5/16	0.6250	3	3	27/64	34501
3/8	18	0.305	5/16	0.6250	3	3	9/16	34502
1/2	14	0.495	1/2	0.8750	4	4	11/16	34503
3/4	14	0.495	1/2	0.8750	4	4	29/32	34504
1	11.5	0.620	5/8	1.1250	4	4	1-5/32	34505

**SOLID
CARBIDE**

**AlCrN
COATED**

**3 Flutes
4 Flutes**

Metric Thread Mills



TM500MM

• Helical Flutes for Internal & External Threading

Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size 75%	Unc EDP #	AICrN EDP #
M3	.5	2.2mm	4mm	4.5mm	51mm	3	39	68897	68898
M4	.7	2.9mm	4mm	7mm	51mm	3	30	68899	68900
M5	.75	3.1mm	6mm	8mm	51mm	3	19	68901	68902
M6	1	4.3mm	6mm	13mm	64mm	3	8	68903	68904
M8	1.25	5.9mm	6mm	16mm	64mm	3	H	68905	68906
M10	1.25	7.6mm	8mm	19mm	64mm	3	11/32	68907	68908
M10	1.5	7.6mm	8mm	19mm	64mm	3	R	68909	68910
M12	1.25	9.1mm	10mm	23mm	88mm	3	27/64	68911	68912
M12	1.75	9.1mm	10mm	23mm	88mm	3	13/32	68913	68914
M16	2	11.9mm	12mm	32mm	100mm	4	35/64	68915	68916
M20	2.5	12.5mm	14mm	32mm	100mm	4	11/16	68917	68918
M24	3	15.7mm	16mm	35mm	100mm	4	53/64	68919	68920

**SOLID
CARBIDE**

**Uncoated
AICrN
COATED**

**3 Flutes
4 Flutes**

TM520MM

- Helical Flutes for Internal & External Threading
- Coolant-Through Feature



Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size	AlCrN EDP #
M6	1	4.3mm	6mm	13mm	64mm	3	8	34525
M8	1.25	5.9mm	6mm	16mm	64mm	3	H	34526
M10	1.25	7.6mm	8mm	19mm	64mm	3	11/32	34527
M10	1.5	7.6mm	8mm	19mm	64mm	3	R	34528
M12	1.25	9.1mm	10mm	23mm	88mm	3	27/64	34529
M12	1.75	9.1mm	10mm	23mm	88mm	3	13/32	34530
M16	2	11.9mm	12mm	32mm	100mm	4	35/64	34531
M20	2.5	12.5mm	14mm	32mm	100mm	4	11/16	34532
M24	3	15.7mm	16mm	35mm	100mm	4	53/64	34533

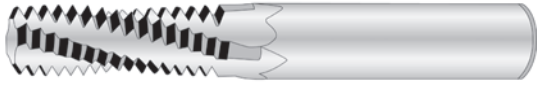
**SOLID
CARBIDE**

**AlCrN
COATED**

**3 Flutes
4 Flutes**

Niagara Cutter

Metric Thread / Inch Shank Thread Mills



TM400MI

• Helical Flutes for Internal & External Threading

Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size 75%	Unc EDP #	AICrN EDP #
M3	.5	0.085	1/8	0.1780	2	3	39	68849	68850
M3.5	.6	0.095	1/8	0.2350	2	3	32	68851	68852
M4	.7	0.115	1/8	0.2760	2	3	30	68853	68854
M5	.75	0.120	1/8	0.3130	2	3	19	68855	68856
M5	.8	0.120	1/8	0.3130	2	3	19	68857	68858
M6	1	0.170	3/16	0.5000	2-1/2	3	8	68859	68860
M8	1	0.235	1/4	0.6250	2-1/2	3	J	68861	68862
M8	1.25	0.235	1/4	0.6250	2-1/2	3	H	68863	68864
M10	1.25	0.300	5/16	0.7500	3	3	11/32	68865	68866
M10	1.5	0.300	5/16	0.7500	3	3	R	68867	68868
M12	1.25	0.360	3/8	0.8750	3-1/2	3	27/64	68869	68870
M12	1.75	0.360	3/8	0.8750	3-1/2	3	13/32	68871	68872
M14	1.25	0.370	3/8	0.8750	3-1/2	4	1/2	68873	68874
M14	1.5	0.370	3/8	0.8750	3-1/2	4	1/2	68875	68876
M14	2	0.370	3/8	0.8750	3-1/2	4	15/32	68877	68878
M16	2	0.470	1/2	1.2500	4	4	35/64	68879	68880
M18	2.5	0.490	1/2	1.2500	4	4	39/64	68881	68882
M20	1.5	0.495	1/2	1.2500	4	4	47/64	68883	68884
M20	2	0.495	1/2	1.2500	4	4	11/16	68885	68886
M20	2.5	0.495	1/2	1.2500	4	4	11/16	68887	68888
M24	1.5	0.620	5/8	1.3730	4	4	22.5mm	68889	68890
M24	2	0.620	5/8	1.3730	4	4	7/8	68891	68892
M24	2.5	0.620	5/8	1.3730	4	4	21.5mm	68893	68894
M24	3	0.620	5/8	1.3750	4	4	53/64	68895	68896

**SOLID
CARBIDE**

**Uncoated
AlCrN
COATED**

**3 Flutes
4 Flutes**

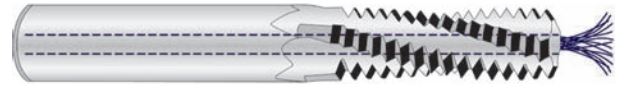
• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric Thread / Inch Shank Thread Mills

TM420MI

- Helical Flutes for Internal & External Threading
- Coolant-Through Feature



Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size 75%	AICrN EDP #
M6	1	0.170	3/16	0.5000	2-1/2	3	8	34506
M8	1	0.235	1/4	0.6250	2-1/2	3	J	34507
M8	1.25	0.235	1/4	0.6250	2-1/2	3	H	34508
M10	1.25	0.300	5/16	0.7500	3	3	11/32	34509
M10	1.5	0.300	5/16	0.7500	3	3	R	34510
M12	1.25	0.360	3/8	0.8750	3-1/2	3	27/64	34511
M12	1.75	0.360	3/8	0.8750	3-1/2	3	13/32	34512
M14	1.25	0.370	3/8	0.8750	3-1/2	4	1/2	34513
M14	1.5	0.370	3/8	0.8750	3-1/2	4	1/2	34514
M14	2	0.370	3/8	0.8750	3-1/2	4	15/32	34515
M16	2	0.470	1/2	1.2500	4	4	35/64	34516
M18	2.5	0.490	1/2	1.2500	4	4	39/64	34517
M20	1.5	0.495	1/2	1.2500	4	4	47/64	34518
M20	2	0.495	1/2	1.2500	4	4	11/16	34519
M20	2.5	0.495	1/2	1.2500	4	4	11/16	34520
M24	1.5	0.620	5/8	1.3730	4	4	22.5mm	34521
M24	2	0.620	5/8	1.3730	4	4	7/8	34522
M24	2.5	0.620	5/8	1.3730	4	4	21.5mm	34523
M24	3	0.620	5/8	1.3750	4	4	53/64	34524

**SOLID
CARBIDE**

**AICrN
COATED**

**3 Flutes
4 Flutes**

Metric Thread Mills



TM560MM

- Helical Flutes for Internal & External Threading
- Extended Reach

Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Reach	Overall Length	No. of Flutes	Drill Size 75%	AICrN EDP #
M3	.5	2.2mm	4mm	1.5mm	9mm	51mm	3	39	34601
M4	.7	2.9mm	4mm	2.1mm	12.7mm	51mm	3	30	34602
M5	.75	3.1mm	6mm	2.3mm	13mm	75mm	3	19	34603
M6	1	4.3mm	6mm	3.0mm	19.5mm	75mm	3	8	34604
M8	1.25	5.9mm	6mm	3.8mm	29mm	75mm	3	H	34605
M10	1.25	7.6mm	8mm	3.8mm	43.5mm	80mm	3	11/32	34606
M10	1.5	7.6mm	8mm	4.5mm	40mm	80mm	3	R	34607
M12	1.25	9.1mm	10mm	3.8mm	52.5mm	100mm	3	27/64	34608
M12	1.75	9.1mm	10mm	5.3mm	48mm	100mm	3	13/32	34609
M16	2	11.9mm	12mm	6.0mm	66.5mm	120mm	4	35/64	34610
M20	2.5	12.5mm	14mm	7.5mm	64mm	120mm	4	11/16	34611
M24	3	15.7mm	16mm	9.0mm	83mm	120mm	4	53/64	34612

**SOLID
CARBIDE**

**AICrN
COATED**

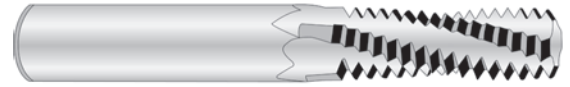
**3 Flutes
4 Flutes**

Niagara Cutter

Metric Thread Mills CVD Diamond Coated

TM540MM

- Helical Flutes for Internal & External Threading



Price Code F

Thread Size	Pitch	Cutter Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Drill Size 75%	Diamond EDP #
M3	0.5	2.2mm	4mm	4.5mm	55mm	3	39	34554
M4	0.7	2.9mm	4mm	7mm	55mm	3	30	34555
M5	0.75	3.1mm	6mm	8mm	64mm	3	19	34556
M6	1	4.3mm	6mm	13mm	64mm	3	8	34557
M8	1.25	5.9mm	6mm	16mm	64mm	3	H	34558
M10	1.25	7.6mm	8mm	19mm	64mm	3	11/32	34559
M10	1.5	7.6mm	8mm	19mm	64mm	3	R	34560
M12	1.25	9.1mm	10mm	23mm	63mm	3	27/64	34561
M12	1.75	9.1mm	10mm	23mm	63mm	3	13/32	34562
M16	2	11.9mm	12mm	32mm	76mm	4	35/64	34563

**SOLID
CARBIDE**

**CVD
Diamond
COATED**

**3 Flutes
4 Flutes**

Thread Mill Application Recommendations

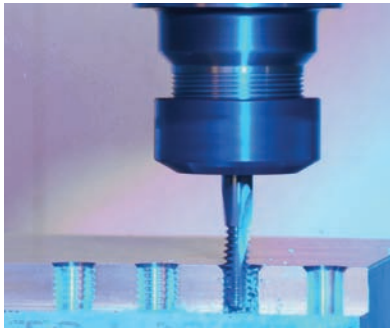
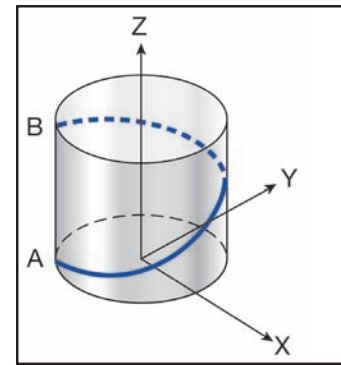
Thread milling tools form a thread using a motion referred to as helical interpolation. This process involves the movement of all three axes on the machine simultaneously. The X and Y axes move in a circular motion and the Z in an axial direction per 360 degrees at a distance equal to the pitch of the thread being machined.

Shown in Figure 1 the programmed tool path starts from the bottom (Point A) and moves toward the top (Point B). A right-hand thread will be climb cut using this process.

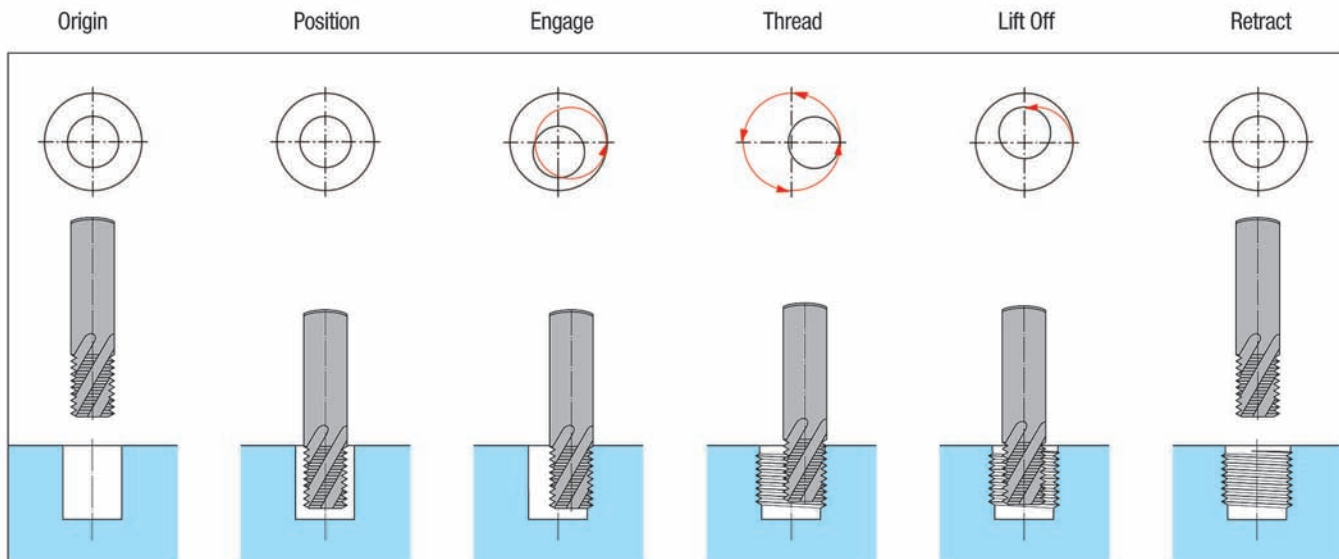
Note: When machining a right-hand thread you will be machining from bottom-to-top for climb cutting. If machining a left-hand thread you will start from top-to-bottom with a right-hand helix tool. Left-hand threads can be climb cut with a left-hand helix tool starting from the bottom-to-top.

- Climb milling is the preferred method
- Move the tool to the center of the location thread to be milled
- Start from the bottom of the hole to avoid re-cutting any chips
- Offset tool from center of the hole to allow a smooth start into the thread
- For difficult materials it may be necessary to make multiple passes
- When threading Inconel, Stainless, Hastelloy, Waspaloy, reduce the amount of percentage of thread; consider 50 – 60%. Request approval from your customer before implementing

Figure 1



Tool Path During Thread Milling





Thread Forms & Design

Standard Niagara Cutter Thread Mills - Thread Form Styles

- Unified National Coarse – UNC / 60 Degree / Common Std.
- Unified National Fine – UNF / 60 Degree / Common Std.
- Unified National Extra Fine – UNEF / 60 Degree / Common Std.
- National Pipe Tapered – NPT – 60 Degree
- National Pipe Tapered - NPTF
- Metric – M Series

Special Thread Mills Available Upon Request - Thread Form Styles

- UNJ - 60 Degree - Aerospace Threads / Controlled Root & Crest
- ACME Screw Threads – 29 Degree High Strength
- Buttress Threads – Three different styles 50, 45, and 33 Degree Threads
- American Petroleum Industry – API / 60 Degree / Controlled Root & Crest
- Whitworth Threads – 55 Degree

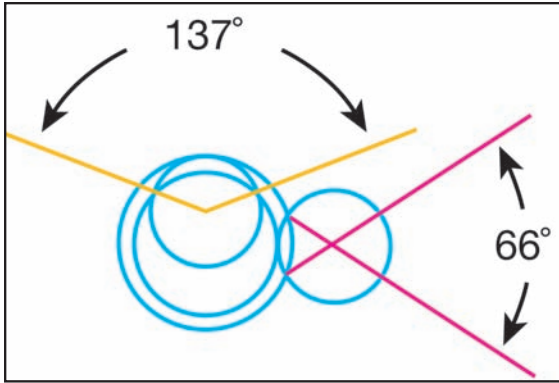
Please contact Niagara Cutter at 800-861-6111 if you have a special thread mill requirement. Information for special threads will include thread style, size, pitch, form & depth.

Thread Mill Design

Niagara Cutter Thread Mills are designed and comply with following standards:

- UN - ASME B1.1
- NPT / NPTF - ANSI / ASME B1.20.1
- Metric ISO 724

Niagara Cutter



Thread Mills - understanding feed rate calculation

Normal milling feed rates are calculated from the center-line of the cutting tool. The regular feed rate calculation is Feed Rate = Revolutions per Minute (RPM) x Number of Cutting Teeth x Chip per Tooth. The circular motion of the thread mill cutting action requires a different calculation to be used.

For an internal thread the feed rate at the cutting edge actually increases as the cutter diameter increases. For an external thread the feed rate at the cutting edge actually decreases as the cutter diameter increases. As shown in the illustration below the internal has 137 degree engagement and the external has only 66 degree engagement.

Formulas:

Internal Thread

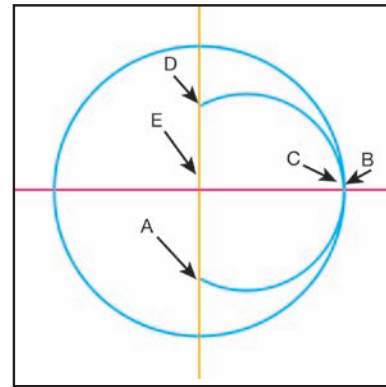
Feed Rate to be Programmed = Actual Feed Rate x (Diameter of the Work – Diameter of the Cutter) / Diameter of the Work

External Thread

Feed Rate to be Programmed = Actual Feed Rate x (Diameter of the Work + Diameter of the Cutter) / Diameter of the Work

Thread Mill Programming

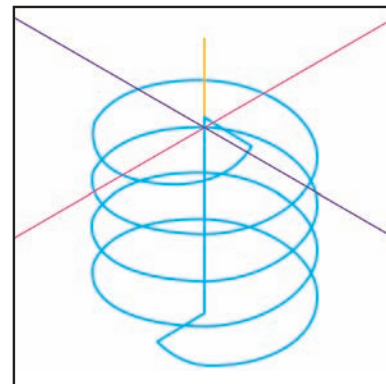
- A) Start Location
G01 G41 X_____ Y_____ D_____ F_____
- B) Ramp into full depth-of-cut (Smooth Entrance)
G03 X_____ Y_____
- C) Counter Clockwise interpolation (Climb Cut)
G03 X_____ Y_____ Z Thread Pitch I_____ J_____
- D) Ramp off for a smooth exit
G03 X_____ Y_____
- E) Ramp away from work surface
G01 G40 X_____ Y_____



Mastercam® offers an excellent thread mill programming routine. The programming is very easy to use. You will need to know the following application information:

Thread Size / Cutter Diameter / Thread Depth / Number of Passes / SFM / IPT

The thread milling routine can be found under Toolpaths / Circle Paths / Thread Mill in Mastercam





Thread Mill Justification

Is it faster to thread mill or tap the work piece?

This question is often asked. Look at the following example:

Threading Application Comparison

Material	4140 Steel	
Thread Size	1/4 - 20	
Depth-of-Thread	1/2"	
Parameters	Thread Milling	Standard Tapping
SFM	150	50
IPM	16.04	38.20
Time-in-Cut (seconds)	.100	.218

Thread milling is generating a very small circumference at a high feed rate.

Example: Circumference = .050" Feed Rate = 16.04 IPM

Tapping vs Thread Milling

Machining Comparison	Thread Mill	Traditional Tap
Broken Tooling Easy to Remove	+	-
Free Cutting	+	-
Consistent Results	+	-
Easy to thread difficult materials: Inconel, Stainless, Titanium, etc.	+	-
Special Programming	-	+



Thread Mill Parameters

Niagara Thread Mill Parameters

Material Group	Grades	Recommended Percentage of Thread •	SFM	Feed Rate (IPT) Cutting Tool Diameter							
				1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4
Brass / Bronze	Free Machining and Cast	70	500	0.0004	0.0007	0.0010	0.0015	0.0018	0.0022	0.0030	0.0037
Copper Alloys	1100	70	600	0.0004	0.0007	0.0009	0.0012	0.0015	0.0020	0.0025	0.0032
Aluminum Alloys	6061, 7050, 7075	70	600	0.0004	0.0008	0.0012	0.0017	0.0021	0.0025	0.0035	0.0040
Gray Cast Irons	Gray	75	425	0.0005	0.0007	0.0010	0.0013	0.0017	0.0025	0.0032	0.0040
Ductile Cast Irons	Ductile	75	500	0.0004	0.0006	0.0009	0.0011	0.0014	0.0018	0.0028	0.0035
Titanium Alloys	6 Al 4V 255	60	350 250	0.0003 0.0003	0.0005 0.0004	0.0007 0.0006	0.0009 0.0008	0.0012 0.0011	0.0015 0.0013	0.0021 0.0018	0.0028 0.0022
Low Carbon Steels < 25 HRC	12L14 1008 1018 1020	70	500	0.0003	0.0006	0.0010	0.0013	0.0017	0.0020	0.0027	0.0035
Med. Carbon Steels 25 - 35 HRC	1030 4140 4340	70	350	0.0003	0.0006	0.0010	0.0012	0.0015	0.0018	0.0025	0.0032
High Carbon Steels 36 - 46 HRC	4140 4340 52100	60	250	0.0002	0.0004	0.0007	0.0009	0.0012	0.0015	0.0020	0.0028
Tool Steels 35 - 45 HRC	H10, D2 A2, M2	60	325 250	0.0001	0.0003	0.0005	0.0007	0.0010	0.0012	0.0015	0.0018
Tool Steels >45 HRC	H10, D2 A2, M2	50	150	0.0001	0.0002	0.0004	0.0005	0.0007	0.0009	0.0012	0.0015
Nickel Alloys	Inconel Waspaloy Hastelloy Monel Nickel	50	80	0.0002	0.0004	0.0005	0.0007	0.0009	0.0012	0.0016	0.0022
			100	0.0002	0.0004	0.0005	0.0007	0.0009	0.0012	0.0016	0.0022
			200	0.0002	0.0006	0.0008	0.0010	0.0013	0.0018	0.0022	0.0028
Stainless Alloys	300 Series 400 Series 15-5, 13-8 Nitronic	55 - 65	350	0.0003	0.0004	0.0006	0.0008	0.0011	0.0015	0.0020	0.0025
			400	0.0003	0.0004	0.0006	0.0008	0.0011	0.0015	0.0020	0.0025
			250	0.0003	0.0004	0.0006	0.0008	0.0011	0.0015	0.0020	0.0025
			150	0.0003	0.0004	0.0005	0.0007	0.0010	0.0014	0.0018	0.0022
Composites / Ceramics	Composites Ceramics	60	350	0.0003	0.0005	0.0007	0.0009	0.0012	0.0015	0.0021	0.0028
			250	0.0003	0.0004	0.0006	0.0008	0.0011	0.0013	0.0018	0.0022

• Note: A reduction in thread engagement will increase thread mill tool life and will not effect the integrity or the thread strength.

TOLERANCES FOR SOLID CARBIDE END MILLS

CUTTING DIAMETER TOLERANCES

End Mill Style	Number of Flutes	Niagara Tolerance	Corresponding List Numbers
Single-End Finishers	All	+ .000 / - .002	STS430, STR430, STB430, STRN430, STBN430, STS430M, STR430M, STB430M, STR440, STB440, STRN440, STBN440, STR440M, STB440M, STS540, STR540, STS540M, STR540M, A245, A245R, AB245, AN245, AN245R, ANB245, A340, AN340, A345, A345R, AN345, AN345R, A345M, S335, SB335, SN335, S545, S545R, S335M, S545M, S645M, C230, C230R, C330, C360, C430, C430R, CB230, CB330, CB430, C230M, C430M, CB230M, CB430M, C330M, CN430M
Single-End Finishers NC Tolerance	2, 4	+ .001 / - .000	CNC230, CNCB230, CNC430, CNCB430
Single-End Roughers	3, 4, 5	+ .000 / - .003	AR330, SR420, SR545, SR420M
Single-End Micro Decimal	2, 4	+ / - .0005	ME230, MES230, MEB230, MESB230, ME430, MES430, MEB430, MESB430
Double-End Finishers	2, 4	+ .000 / - .002	CD230, CD430, CSD230, CSD430, CSDB230, CSDB430
Thread Mills	All	+ .000 / - .002	TM100UN, TM120UN, TM160UN, TM140UN, TM200NPT, TM300NPTF, TM320NPTF, TM500MM, TM520MM, TM560MM, TM540MM, TM400MI, TM420MI
Composite Cutting Tools	All	+ .000 / - .002	DIACC, DIAEPB, DIAPPB, DIABEB, DIAMFR
Diamond Coated End Mills	2, 4	+ / - .001	DIA230, DIA430, DIAB230, DIAB430, DIACR430, DIAL230, DIAL430, DIALB230, DIALB430, DIAXR430, DIAXRB430, DIAXRR430, DIAXS430, DIAXSB430, DIAXSR430, DIA230M, DIAB230M, DIA430M, DIAB430M, DIACR430M
Die / Mold	6	+ .000 / - .002	M645, M645R, MZ645, MZ645R, MZ645M, MZR645M
Die / Mold Flute Dia < Shank Dia	2	+ / - .0005	MB215, MB215M, MBZ215, MBZ215M
Die / Mold Flute Dia = Shank Dia	2	+ .000 / - .001	MB215, MB215M, MBZ215, MBZ215M
Ball-End	All	All Sizes	Ball Radius Tolerance: Flute Diameter Tolerance / 2

SHANK DIAMETER TOLERANCES

End Mill Style	Niagara Tolerance
All Inch Shank	- .0001 / - .0004
All Metric Shank	h6

LENGTH OF CUT TOLERANCES

End Mill Style	Niagara Tolerance
All Except Micro Decimal	+ .030 / - 0
Micro Decimal	+ .010 / - 0

OVERALL LENGTH TOLERANCES

End Mill Style	Niagara Tolerance
All	+ / - .060

Note: All Dimensions are in Inches Unless Otherwise Noted.

2 Flute General Purpose



S203

- Designed for All Materials
- Slotting / Pocketing
- Weldon Flat Standard

Price Code A

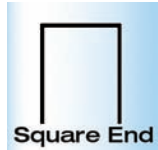
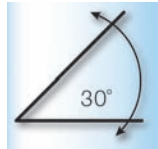
Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	2-5/16	2	20041	20040
5/32	3/8	7/16	2-5/16	2	20051	20050
11/64	3/8	7/16	2-5/16	2	20059	20058
3/16	3/8	3/16	2-1/16	2	21061	21060
3/16	3/8	7/16	2-5/16	2	20061	20060
3/16	3/8	5/8	2-7/16	2	22061	22060
3/16	3/8	3/4	2-5/8	2	23061	23060
13/64	3/8	7/16	2-5/16	2	20069	20068
7/32	3/8	1/4	2-1/16	2	21071 •	21070
7/32	3/8	1/2	2-5/16	2	20071	20070
7/32	3/8	3/4	2-9/16	2	22071	22070 •
7/32	3/8	7/8	2-11/16	2	23071	23070
15/64	3/8	1/2	2-5/16	2	20079	20078
1/4	3/8	1/4	2-1/16	2	21081	21080
1/4	3/8	1/2	2-5/16	2	20081	20080
1/4	3/8	3/4	2-5/8	2	22081	22080
1/4	3/8	1	2-7/8	2	23081	23080
17/64	3/8	9/16	2-5/16	2	20089	20088
9/32	3/8	5/16	2-1/16	2	21091	21090
9/32	3/8	9/16	2-5/16	2	20091	20090
9/32	3/8	1	2-3/4	2	22091	22090
9/32	3/8	1-3/8	3-1/8	2	23091	23090
19/64	3/8	9/16	2-5/16	2	20099	20098
5/16	3/8	5/16	2-1/16	2	21101	21100
5/16	3/8	9/16	2-5/16	2	20101	20100
5/16	3/8	1	2-3/4	2	22101	22100
5/16	3/8	1-3/8	3-1/8	2	23101	23100
21/64	3/8	9/16	2-5/16	2	20109	20108
11/32	3/8	3/8	2-1/8	2	21111	21110
11/32	3/8	9/16	2-5/16	2	20111	20110
11/32	3/8	1-1/8	2-7/8	2	22111	22110
11/32	3/8	1-1/2	3-1/4	2	23111	23110
23/64	3/8	9/16	2-5/16	2	20119	20118
3/8	3/8	3/8	2-1/8	2	21121	21120
3/8	3/8	9/16	2-5/16	2	20121	20120
3/8	3/8	1-1/8	2-7/8	2	22121	22120
3/8	3/8	1-1/2	3-1/4	2	23121	23120
25/64	3/8	13/16	2-1/2	2	20129	20128
13/32	3/8	7/16	2-1/8	2	21131	21130 •
13/32	3/8	13/16	2-1/2	2	20131	20130
13/32	3/8	1-3/8	3-1/16	2	22131	22130
13/32	3/8	2	3-11/16	2	23131	23130
27/64	3/8	13/16	2-1/2	2	20139	20138
7/16	3/8	7/16	2-1/8	2	21141	21140
7/16	3/8	13/16	2-1/2	2	20141	20140
7/16	3/8	1-3/8	3-1/16	2	22141	22140

• Indicates a Standard, Non Stocked Item

HSS

**Uncoated
TiN
COATED**

2 Flutes



**Center
Cutting**

2 Flute General Purpose



S203

- Designed for All Materials
- Slotting / Pocketing
- Weldon Flat Standard

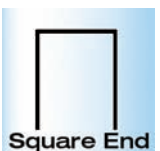
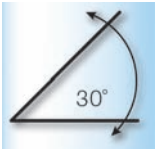
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TIN EDP
7/16	3/8	2	3-11/16	2	23141	23140
29/64	3/8	13/16	2-1/2	2	20149	20148
15/32	3/8	1/2	2-3/16	2	21151 •	21150
15/32	3/8	13/16	2-1/2	2	20151	20150
15/32	3/8	1-1/2	3-3/16	2	22151	22150
15/32	3/8	2	3-11/16	2	23151 •	23150
31/64	3/8	13/16	2-1/2	2	20159	20158
1/2	3/8	13/16	2-1/2	2	20161	20167
1/2	1/2	1/2	2-1/2	2	21162	21160
1/2	1/2	1	3	2	20162	20160
1/2	1/2	1-1/2	3-1/2	2	22162	22160
1/2	1/2	2	4	2	23162	23160
33/64	1/2	1	3	2	20169	20168
17/32	1/2	5/8	2-5/8	2	21172	21170
17/32	1/2	1-1/8	3-1/8	2	20172	20170
17/32	1/2	1-7/8	3-7/8	2	22172	22170
17/32	1/2	2-1/2	4-1/2	2	23172	23170 •
35/64	1/2	1-1/8	3-1/8	2	20179	20178
9/16	1/2	5/8	2-5/8	2	21182	21180 •
9/16	1/2	1-1/8	3-1/8	2	20182	20180
9/16	1/2	1-7/8	3-7/8	2	22182	22180
9/16	1/2	2-1/2	4-1/2	2	23182	23180
37/64	1/2	1-1/8	3-1/8	2	20189	20188
19/32	1/2	1-1/8	3-1/8	2	20192	20190
39/64	5/8	1-5/16	3-7/16	2	20199	20198
5/8	1/2	1-1/8	3-1/8	2	20202	20207
5/8	5/8	5/8	2-3/4	2	21203	21200
5/8	5/8	1-5/16	3-7/16	2	20203	20200
5/8	5/8	1-5/8	3-3/4	2	22204	22201
5/8	5/8	1-7/8	4	2	22203	22200
5/8	5/8	2	4-1/8	2	23204	23201
5/8	5/8	2-1/2	4-5/8	2	23203	23200
41/64	5/8	1-5/16	3-7/16	2	20209	20208
21/32	5/8	1-5/16	3-7/16	2	20213	20210
43/64	5/8	1-5/16	3-7/16	2	20219 •	20218 •
11/16	1/2	1-5/16	3-5/16	2	20222	20227
11/16	1/2	1-5/8	3-5/8	2	22222	22221
11/16	5/8	3/4	2-7/8	2	21223	21220
11/16	5/8	1-5/16	3-7/16	2	20223	20220
11/16	5/8	2-1/4	4-3/8	2	22223	22220
11/16	5/8	3	5-1/8	2	23223	23220 •
45/64	3/4	1-5/16	3-9/16	2	20229	20228
23/32	3/4	1-5/16	3-9/16	2	20234	20230
47/64	3/4	1-5/16	3-9/16	2	20239	20238 •
3/4	1/2	1-5/16	3-5/16	2	20242	20241
3/4	5/8	1-5/16	3-7/16	2	20243	20247

HSS

Uncoated
TiN
COATED

2 Flutes



Center
Cutting

• Indicates a Standard, Non Stocked Item

2 Flute General Purpose



S203

- Designed for All Materials
- Slotting / Pocketing
- Weldon Flat Standard

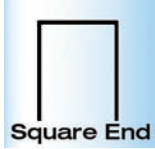
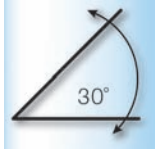
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
3/4	3/4	3/4	3	2	21244	21240
3/4	3/4	1-5/16	3-9/16	2	20244	20240
3/4	3/4	1-3/4	4	2	22245	22241
3/4	3/4	2-1/4	4-1/2	2	22244	22240
3/4	3/4	3	5-1/4	2	23244	23240
49/64	3/4	1-1/2	3-3/4	2	20249	20248 •
25/32	3/4	1-1/2	3-3/4	2	20254	20250
51/64	3/4	1-1/2	3-3/4	2	20259 •	20258 •
13/16	5/8	1-1/2	3-5/8	2	20263	20267
13/16	3/4	7/8	3-1/8	2	21264	21260 •
13/16	3/4	1-1/2	3-3/4	2	20264	20260
13/16	3/4	2-5/8	4-7/8	2	22264	22260
13/16	3/4	3-1/2	5-3/4	2	23264	23260 •
53/64	7/8	1-1/2	3-3/4	2	20269 •	20268 •
27/32	7/8	1-1/2	3-3/4	2	20275	20270
55/64	7/8	1-1/2	3-3/4	2	20279 •	20278 •
7/8	5/8	1-1/2	3-5/8	2	20283	20281
7/8	3/4	1-1/2	3-3/4	2	20284	20287
7/8	7/8	7/8	3-1/8	2	21285	21280
7/8	7/8	1-1/2	3-3/4	2	20285	20280
7/8	7/8	2	4-1/4	2	22286	22281
7/8	7/8	2-1/2	4-3/4	2	22289	22288 •
7/8	7/8	2-5/8	4-7/8	2	22285 •	22280 •
7/8	7/8	3-1/2	5-3/4	2	23285	23280
57/64	7/8	1-5/8	3-7/8	2	20289 •	20288 •
29/32	7/8	1-5/8	3-7/8	2	20295	20290
59/64	7/8	1-5/8	3-7/8	2	20299 •	20298 •
15/16	3/4	1-1/2	3-3/4	2	20304	20303
15/16	7/8	1	3-1/4	2	21305 •	21300 •
15/16	7/8	1-5/8	3-7/8	2	20305	20300
15/16	7/8	3	5-1/4	2	22305 •	22300 •
15/16	7/8	4	6-1/4	2	23305 •	23300 •
61/64	1	1-5/8	4-1/8	2	20309 •	20308 •
31/32	1	1-5/8	4-1/8	2	20316	20310
63/64	1	1-5/8	4-1/8	2	20319 •	20318 •
1	5/8	1-1/2	3-5/8	2	20323	20322
1	3/4	1-1/2	3-3/4	2	20324	20321
1	7/8	1-1/2	3-3/4	2	20325	20328
1	1	1	3-1/2	2	21326	21320
1	1	1-5/8	4-1/8	2	20326	20320
1	1	2-1/4	4-3/4	2	22327	22321
1	1	3	5-1/2	2	22326	22320
1	1	4	6-1/2	2	23326	23320
1-1/16	3/4	1-1/2	3-3/4	2	20344	20348
1-1/16	1	1-5/8	4-1/8	2	20346	20340
1-1/8	3/4	1-5/8	3-7/8	2	20364	20361

HSS

**Uncoated
TiN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

2 Flute General Purpose



S203

- Designed for All Materials
- Slotting / Pocketing
- Weldon Flat Standard

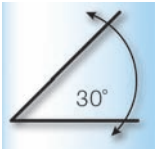
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TIN EDP
1-1/8	7/8	1-5/8	3-7/8	2	20365	20362
1-1/8	1	1-5/8	4-1/8	2	20366	20360
1-1/8	1	2-1/4	4-3/4	2	22366	22361 •
1-1/8	1	3	5-1/2	2	22369	22368
1-3/16	3/4	1-5/8	3-7/8	2	20384	20381
1-3/16	1	1-5/8	4-1/8	2	20386	20380
1-1/4	3/4	1-5/8	3-7/8	2	20404	20402
1-1/4	7/8	1-5/8	3-7/8	2	20405	20403 •
1-1/4	1	1-5/8	4-1/8	2	20406	20401
1-1/4	1	2-1/4	4-3/4	2	22408	22401 •
1-1/4	1	3	5-1/2	2	22409	22403 •
1-1/4	1-1/4	1-5/8	4-1/8	2	20407	20400
1-1/4	1-1/4	2-1/4	4-3/4	2	22406	22402 •
1-1/4	1-1/4	3	5-1/2	2	22407 •	22400 •
1-5/16	1	1-5/8	4-1/8	2	20426	20420
1-3/8	3/4	1-5/8	3-7/8	2	20444	20448
1-3/8	1	1-5/8	4-1/8	2	20446	20440
1-3/8	1	2-1/4	4-3/4	2	22446	22442 •
1-3/8	1	3	5-1/2	2	22449	22448 •
1-7/16	1	1-5/8	4-1/8	2	20466	20460 •
1-1/2	3/4	1-5/8	3-7/8	2	20484	20482
1-1/2	1	1-5/8	4-1/8	2	20486	20481
1-1/2	1-1/4	1-5/8	4-1/8	2	20487	20480
1-1/2	1-1/4	2-1/4	4-3/4	2	22488	22481 •
1-1/2	1-1/4	3	5-1/2	2	22487 •	22480
1-9/16	1-1/4	1-5/8	4-1/8	2	20507	20500 •
1-5/8	1-1/4	1-5/8	4-1/8	2	20527	20520
1-5/8	1-1/4	2-1/4	4-3/4	2	22527	22521 •
1-5/8	1-1/4	3	5-1/2	2	22529 •	22528 •
1-11/16	1-1/4	1-5/8	4-1/8	2	20547 •	20540 •
1-3/4	3/4	1-5/8	3-7/8	2	20564	20563
1-3/4	1-1/4	1-5/8	4-1/8	2	20567	20560
1-3/4	1-1/4	2-1/4	4-3/4	2	22567 •	22561 •
1-3/4	1-1/4	3	5-1/2	2	22569 •	22568 •
1-13/16	1-1/4	1-5/8	4-1/8	2	20587 •	20580 •
1-7/8	1-1/4	1-5/8	4-1/8	2	20607	20600 •
1-7/8	1-1/4	2-1/4	4-3/4	2	22607 •	22601 •
1-7/8	1-1/4	3	5-1/2	2	22609 •	22608 •
1-15/16	1-1/4	1-5/8	4-1/8	2	20627 •	20620 •
2	3/4	1-5/8	3-7/8	2	20644	20643
2	1-1/4	1-5/8	4-1/8	2	20647	20640
2	1-1/4	2-1/4	4-3/4	2	22646	22642 •
2	1-1/4	3	5-1/2	2	22647	22640

HSS

Uncoated
TiN
COATED

2 Flutes



Center
Cutting

• Indicates a Standard, Non Stocked Item

2 Flute Keyway Tolerance

General Purpose

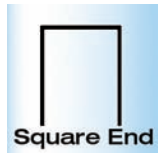
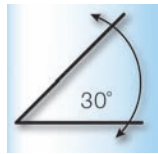


SK204

- Designed for All Materials
- Weldon Flat Standard

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	2-5/16	2	82045	82040
3/16	3/8	7/16	2-5/16	2	82065	82060
7/32	3/8	1/2	2-5/16	2	82075	82070
1/4	3/8	1/2	2-5/16	2	82085	82080
9/32	3/8	9/16	2-5/16	2	82095	82090 •
5/16	3/8	9/16	2-5/16	2	82105	82100
11/32	3/8	9/16	2-5/16	2	82115	82110 •
3/8	3/8	9/16	2-5/16	2	82125	82120
13/32	3/8	13/16	2-1/2	2	82135	82130 •
7/16	3/8	13/16	2-1/2	2	82145	82140
15/32	3/8	13/16	2-1/2	2	82155 •	82150 •
1/2	1/2	1	3	2	82165	82160
17/32	1/2	1-1/8	3-1/8	2	82175	82170
9/16	1/2	1-1/8	3-1/8	2	82185	82180
5/8	5/8	1-5/16	3-7/16	2	82205	82200
11/16	5/8	1-5/16	3-7/16	2	82225 •	82220
3/4	3/4	1-5/16	3-9/16	2	82245	82240
13/16	3/4	1-1/2	3-3/4	2	82265	82260 •
7/8	7/8	1-1/2	3-3/4	2	82285	82280
15/16	7/8	1-5/8	3-7/8	2	82305 •	82300 •
1	1	1-5/8	4-1/8	2	82325	82320
1-1/8	1	1-5/8	4-1/8	2	82365	82360 •
1-1/4	1-1/4	1-5/8	4-1/8	2	82405 •	82400 •
1-3/8	1	1-5/8	4-1/8	2	82445 •	82440 •
1-1/2	1-1/4	1-5/8	4-1/8	2	82485 •	82480 •
1-3/4	1-1/4	1-5/8	4-1/8	2	82565 •	82560 •
2	1-1/4	1-5/8	4-1/8	2	82645 •	82640 •



• Indicates a Standard, Non Stocked Item

2 Flute Ball-End General Purpose



SB207

- Designed for All Materials
- Slotting / Pocketing / Contour Milling Applications
- Weldon Flat Standard

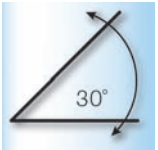
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	2-5/16	2	24041	24040
3/16	3/8	1/2	2-3/8	2	24061	24060
1/4	3/8	5/8	2-7/16	2	24081	24080
5/16	3/8	3/4	2-1/2	2	24101	24100
3/8	3/8	3/4	2-1/2	2	24121	24120
7/16	1/2	1	3	2	24142	24140
7/16	1/2	1-3/4	3-3/4	2	24143	24148
1/2	1/2	1	3	2	24162	24160
9/16	1/2	1-1/8	3-1/8	2	24182	24180
5/8	1/2	1-1/8	3-1/8	2	24202	24208
5/8	5/8	1-3/8	3-1/2	2	24203	24200
11/16	5/8	1-3/8	3-1/2	2	24223	24220
3/4	1/2	1-5/16	3-5/16	2	24242	24248
3/4	3/4	1-5/8	3-7/8	2	24244	24240
13/16	3/4	2	4-1/4	2	24264	24260
7/8	3/4	2	4-1/4	2	24284	24288
7/8	7/8	2	4-1/4	2	24285	24280
15/16	3/4	2-1/4	4-1/2	2	24304	24300
1	3/4	2-1/4	4-1/2	2	24324	24328
1	1	2-1/4	4-3/4	2	24326	24320
1-1/8	3/4	1-5/8	3-7/8	2	24364	24368
1-1/8	1	2-1/4	4-3/4	2	24366	24360
1-1/4	3/4	1-5/8	3-7/8	2	24404	24408
1-1/4	1-1/4	2-1/2	5	2	24407 •	24400 •
1-3/8	3/4	1-5/8	3-7/8	2	24444	24440
1-3/8	1-1/4	2-1/2	5	2	24447	24448
1-1/2	3/4	1-5/8	3-7/8	2	24484	24488
1-1/2	1-1/4	2-1/2	5	2	24487	24480 •
1-3/4	1-1/4	1-5/8	4-1/8	2	24567	24560
2	1-1/4	1-5/8	4-1/8	2	24647	24640

HSS

Uncoated
TiN
COATED

2 Flutes



RIGHT
HAND

Ball-End

Center
Cutting

• Indicates a Standard, Non Stocked Item

2 Flute Neck Style General Purpose



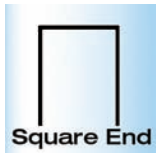
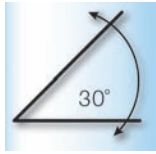
SEL250

- Designed for All Materials
- Slotting / Pocketing
- Weldon Flat Standard

HSS

**Uncoated
TiN
COATED**

2 Flutes



**Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	13/16	3/8	2-3/8	2	25041	25040
3/16	3/8	1-1/8	1/2	2-11/16	2	25061	25060
1/4	3/8	1-1/2	5/8	3-1/16	2	25081	25080
5/16	3/8	1-3/4	3/4	3-5/16	2	25101	25100
3/8	3/8	1-3/4	3/4	3-5/16	2	25121	25120
7/16	1/2	1-29/32	1	3-11/16	2	25142	25140 •
1/2	1/2	2-7/32	1	4	2	25162	25160
5/8	5/8	2-23/32	1-3/8	4-5/8	2	25203	25200
3/4	3/4	3-11/32	1-5/8	5-3/8	2	25244	25240
7/8	7/8	3-31/32	2	6	2	25285	25280
1	1	4-31/32	2-1/2	7-1/4	2	25326	25320
1-1/4	1-1/4	4-31/32	3	7-1/4	2	25407	25400 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Neck Style Ball-End General Purpose

SEB270

- Designed for All Materials
- Slotting / Pocketing / Contour Milling Applications
- Weldon Flat Standard



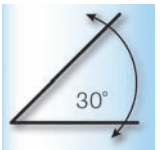
Price Code A

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	13/16	2-3/8	2	27041	27040
3/16	3/8	1/2	1-1/8	2-11/16	2	27061	27060
1/4	3/8	5/8	1-1/2	3-1/16	2	27081	27080
5/16	3/8	3/4	1-3/4	3-5/16	2	27101	27100
3/8	3/8	3/4	1-3/4	3-5/16	2	27121	27120
7/16	1/2	1	1-29/32	3-11/16	2	27142 •	27140 •
1/2	1/2	1	2-7/32	4	2	27162	27160
5/8	5/8	1-3/8	2-23/32	4-5/8	2	27203	27200 •
3/4	3/4	1-5/8	3-11/32	5-3/8	2	27244	27240
7/8	7/8	2	3-31/32	6	2	27285	27280 •
1	1	2-1/2	4-31/32	7-1/4	2	27326	27320 •
1-1/4	1-1/4	3	4-31/32	7-1/4	2	27407 •	27400 •

HSS

Uncoated
TiN
COATED

2 Flutes



Ball-End

Center
Cutting

• Indicates a Standard, Non Stocked Item

2 Flute Double-End General Purpose



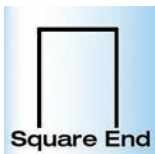
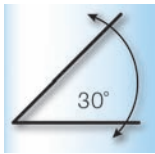
D201

- Designed for All Materials
- Slotting / Pocketing
- Weldon Flat Standard

HSS

**Uncoated
TiN
COATED**

2 Flutes



**Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
7/64	3/8	3/8	3-1/16	2	28039	28038
1/8	3/8	3/8	3-1/16	2	28041	28040
9/64	3/8	7/16	3-1/8	2	28049	28048
5/32	3/8	7/16	3-1/8	2	28051	28050
11/64	3/8	7/16	3-1/8	2	28059	28058
3/16	3/8	7/16	3-1/8	2	28061	28060
13/64	3/8	1/2	3-1/8	2	28069	28068
7/32	3/8	1/2	3-1/8	2	28071	28070
15/64	3/8	1/2	3-1/8	2	28079	28078
1/4	3/8	1/2	3-1/8	2	28081	28080
17/64	3/8	9/16	3-1/8	2	28089	28088
9/32	3/8	9/16	3-1/8	2	28091	28090
19/64	3/8	9/16	3-1/8	2	28099	28098
5/16	3/8	9/16	3-1/8	2	28101	28100
21/64	3/8	9/16	3-1/8	2	28109	28108
11/32	3/8	9/16	3-1/8	2	28111	28110
23/64	3/8	9/16	3-1/8	2	28119	28118
3/8	3/8	9/16	3-1/8	2	28121	28120
25/64	1/2	13/16	3-3/4	2	28129	28128
13/32	1/2	13/16	3-3/4	2	28132	28130
27/64	1/2	13/16	3-3/4	2	28139	28138
7/16	1/2	13/16	3-3/4	2	28142	28140
29/64	1/2	13/16	3-3/4	2	28149	28148
15/32	1/2	13/16	3-3/4	2	28152	28150
31/64	1/2	13/16	3-3/4	2	28159	28158 •
1/2	1/2	13/16	3-3/4	2	28162	28160
17/32	5/8	1-1/8	4-1/2	2	28173	28170
9/16	5/8	1-1/8	4-1/2	2	28183	28180
19/32	5/8	1-1/8	4-1/2	2	28193	28190
5/8	5/8	1-1/8	4-1/2	2	28203	28200
21/32	3/4	1-5/16	5	2	28214	28210 •
11/16	3/4	1-5/16	5	2	28224	28220
23/32	3/4	1-5/16	5	2	28234 •	28230 •
3/4	3/4	1-5/16	5	2	28244	28240
25/32	7/8	1-9/16	5-1/2	2	28255 •	28250 •
13/16	7/8	1-9/16	5-1/2	2	28265	28260
27/32	7/8	1-9/16	5-1/2	2	28275 •	28270 •
7/8	7/8	1-9/16	5-1/2	2	28285	28280
29/32	1	1-5/8	5-7/8	2	28296 •	28290 •
15/16	1	1-5/8	5-7/8	2	28306	28300
31/32	1	1-5/8	5-7/8	2	28316 •	28310 •
1	1	1-5/8	5-7/8	2	28326	28320

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End Ball-End General Purpose



DB260

- Designed for All Materials
- Slotting / Pocketing / Contour Milling Applications
- Weldon Flat Standard

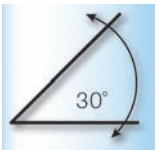
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/16	2-11/16	2	26042	26048
1/8	3/8	3/8	3-1/16	2	26041	26040
5/32	3/8	7/16	3-1/8	2	26051	26050
3/16	3/8	9/32	2-13/16	2	26062	26068
3/16	3/8	7/16	3-1/8	2	26061	26060 •
7/32	3/8	1/2	3-1/8	2	26071	26070 •
1/4	3/8	3/8	2-7/8	2	26082	26088
1/4	3/8	1/2	3-1/8	2	26081	26080
9/32	3/8	9/16	3-1/8	2	26091	26090
5/16	3/8	9/16	3-1/8	2	26101	26100
11/32	3/8	9/16	3-1/8	2	26111	26110 •
3/8	3/8	9/16	3-1/8	2	26121	26120
7/16	1/2	13/16	3-3/4	2	26142	26140 •
1/2	1/2	13/16	3-3/4	2	26162	26160
5/8	5/8	1-1/8	4-1/2	2	26203	26200 •
3/4	3/4	1-5/16	5	2	26244	26240 •
7/8	7/8	1-9/16	5-1/2	2	26285 •	26280 •
1	1	1-5/8	5-7/8	2	26326 •	26320 •

HSS

Uncoated
TiN
COATED

2 Flutes



RIGHT
HAND

Ball-End

Center
Cutting

• Indicates a Standard, Non Stocked Item

2 Flute Metric Flute General Purpose

Metric Flute Diameter
Inch Shank



SMM830

- Designed for All Materials
- Slotting / Pocketing
- Weldon Flat Standard

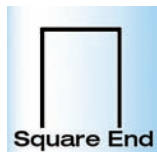
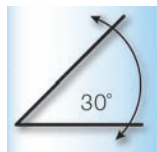
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
3mm	3/8	3/8	2-5/16	2	83030	83031
3.5mm	3/8	7/16	2-5/16	2	83035	83036
4mm	3/8	7/16	2-5/16	2	83040	83041
4.5mm	3/8	7/16	2-5/16	2	83045	83046
5mm	3/8	7/16	2-5/16	2	83050	83051
5.5mm	3/8	1/2	2-5/16	2	83055	83056
6mm	3/8	1/2	2-5/16	2	83060	83061
6.5mm	3/8	1/2	2-5/16	2	83065	83066
7mm	3/8	9/16	2-5/16	2	83070	83071
7.5mm	3/8	9/16	2-5/16	2	83075	83076
8mm	3/8	9/16	2-5/16	2	83080	83081
8.5mm	3/8	9/16	2-5/16	2	83085	83086
9mm	3/8	9/16	2-5/16	2	83090	83091
9.5mm	3/8	9/16	2-5/16	2	83095 •	83096 •
10mm	3/8	13/16	2-1/2	2	83100	83101
10.5mm	3/8	13/16	2-1/2	2	83105	83106
11mm	3/8	13/16	2-1/2	2	83110	83111
11.5mm	3/8	13/16	2-1/2	2	83115	83116
12mm	3/8	13/16	2-1/2	2	83120	83121
12.5mm	1/2	1	3	2	83125 •	83126
13mm	1/2	1	3	2	83130	83131
13.5mm	1/2	1-1/8	3-1/8	2	83135	83136
14mm	1/2	1-1/8	3-1/8	2	83140	83141
14.5mm	1/2	1-1/8	3-1/8	2	83145	83146
15mm	1/2	1-1/8	3-1/8	2	83150	83151
16mm	5/8	1-5/16	3-7/16	2	83160	83161
17mm	5/8	1-5/16	3-7/16	2	83170	83171
18mm	3/4	1-5/16	3-9/16	2	83180	83181
19mm	3/4	1-5/16	3-9/16	2	83190	83191
20mm	3/4	1-1/2	3-3/4	2	83200	83201
21mm	7/8	1-1/2	3-3/4	2	83210	83211
22mm	7/8	1-1/2	3-3/4	2	83220	83221
23mm	7/8	1-5/8	3-7/8	2	83230	83231
24mm	1	1-5/8	4-1/8	2	83240 •	83241 •
25mm	1	1-5/8	4-1/8	2	83250	83251

HSS

Uncoated
TiN
COATED

2 Flutes



Center
Cutting

• Indicates a Standard, Non Stocked Item

3 Flute General Purpose



STF320

- Designed for All Materials
- Slotting / Pocketing / Profiling
- Weldon Flat Standard

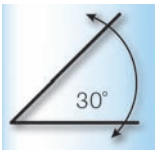
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	2-5/16	3	32041	32040
3/16	3/8	1/2	2-3/8	3	32061	32060
1/4	3/8	5/8	2-7/16	3	32081	32080
1/4	3/8	1-1/4	3-1/8	3	30081	30080
5/16	3/8	3/4	2-1/2	3	32101	32100
5/16	3/8	1-3/8	3-1/8	3	30101	30100
3/8	3/8	3/4	2-1/2	3	32121	32120
3/8	3/8	1-1/2	3-1/4	3	30121	30120
7/16	3/8	1	2-11/16	3	32141	32140
7/16	1/2	1-3/4	3-3/4	3	30142	30140
1/2	3/8	1	2-11/16	3	32161	32163
1/2	1/2	1-1/4	3-1/4	3	32162	32160
1/2	1/2	2	4	3	30162	30160
9/16	1/2	1-3/8	3-3/8	3	32182	32180
5/8	1/2	1-3/8	3-3/8	3	32202	32201
5/8	5/8	1-5/8	3-3/4	3	32203	32200
5/8	5/8	2-1/2	4-5/8	3	30203	30200
3/4	1/2	1-5/8	3-5/8	3	32242	32241
3/4	5/8	1-5/8	3-3/4	3	32243	32245
3/4	3/4	1-5/8	3-7/8	3	32244	32240
3/4	3/4	3	5-1/4	3	30244	30240
7/8	5/8	1-7/8	4	3	32283 •	32281 •
7/8	3/4	1-7/8	4-1/8	3	32284	32282
7/8	7/8	1-7/8	4-1/8	3	32285 •	32280
7/8	7/8	3-1/2	5-3/4	3	30285 •	30280 •
1	5/8	1-7/8	4	3	32323 •	32321 •
1	3/4	1-7/8	4-1/8	3	32324	32322
1	7/8	1-7/8	4-1/8	3	32325 •	32327 •
1	1	2	4-1/2	3	32326	32320
1	1	4	6-1/2	3	30326	30320
1-1/8	1	2	4-1/2	3	32366 •	32360 •
1-1/4	1	2	4-1/2	3	32406 •	32400 •
1-1/4	1-1/4	2	4-1/2	3	32407 •	32408
1-1/4	1-1/4	4	6-1/2	3	30407 •	30400
1-1/2	1	2	4-1/2	3	32486 •	32480 •
1-1/2	1-1/4	2	4-1/2	3	32487 •	32488 •
1-1/2	1-1/4	4	6-1/2	3	30487 •	30480 •
1-3/4	1-1/4	2	4-1/2	3	32567 •	32560 •
2	1-1/4	2	4-1/2	3	32647 •	32640 •
2	1-1/4	4	6-1/2	3	30647 •	30640 •

HSS

Uncoated
TiN
COATED

3 Flutes



RIGHT
HAND



Square End

Center
Cutting

3 Flute Double-End General Purpose



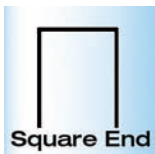
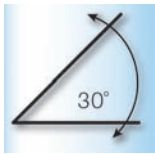
DTF310

- Designed for All Materials
- Slotting / Pocketing / Profiling
- Weldon Flat Standard

HSS

**Uncoated
TiN
COATED**

3 Flutes



**Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	3 1/16	3	31041	31040
3/16	3/8	1/2	3 1/4	3	31061	31060
1/4	3/8	5/8	3 3/8	3	31081	31080
5/16	3/8	3/4	3 1/2	3	31101	31100
3/8	3/8	3/4	3 1/2	3	31121	31120
7/16	1/2	1	4 1/8	3	31142	31140 •
1/2	1/2	1	4 1/8	3	31162	31160
9/16	5/8	1 3/8	5	3	31183	31180 •
5/8	5/8	1 3/8	5	3	31203	31200 •
3/4	3/4	1 5/8	5 5/8	3	31244	31240
7/8	7/8	1 7/8	6 1/8	3	31285 •	31280 •
1	1	1 7/8	6 3/8	3	31326	31320 •

• Indicates a Standard, Non Stocked Item

2 Flute General Purpose



A208

- Aluminum / Non-Ferrous Alloys
- Cylindrical Margin to Eliminate Chatter
- Slotting / Pocketing
- Weldon Flat Standard

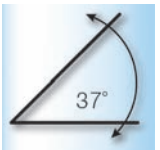
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/8	3/8	3/8	2-5/16	2	90041	89336
3/16	3/8	1/2	2-3/8	2	90061	89337
1/4	3/8	5/8	2-7/16	2	90081	89338
1/4	3/8	1-1/4	3-1/16	2	92081	89374
1/4	3/8	1-3/4	3-9/16	2	94081	89399
5/16	3/8	3/4	2-1/2	2	90101	89339
5/16	3/8	1-3/8	3-1/8	2	92101	89375
5/16	3/8	2	3-3/4	2	94101	89410
3/8	3/8	3/4	2-1/2	2	90121	89340
3/8	3/8	1-1/2	3-1/4	2	92121	89376
3/8	3/8	2-1/2	4-1/4	2	94121	89411
7/16	3/8	1	2-11/16	2	90141	89341
7/16	1/2	1-3/4	3-3/4	2	92142	89377
7/16	1/2	2-3/4	4-3/4	2	94142	89412
1/2	1/2	1-1/4	3-1/4	2	90162	89342
1/2	1/2	2	4	2	92162	89378
1/2	1/2	3	5	2	94162	89413
9/16	1/2	1-3/8	3-3/8	2	90182	89343
5/8	1/2	1-3/8	3-3/8	2	90202	89344
5/8	5/8	1-5/8	3-3/4	2	90203	89345
5/8	5/8	2-1/2	4-5/8	2	92203	89379
5/8	5/8	4	6-1/8	2	94203	89414
11/16	5/8	1-5/8	3-3/4	2	90223	89346
3/4	1/2	1-5/8	3-5/8	2	90242	89347
3/4	3/4	1-5/8	3-7/8	2	90244	89348
3/4	3/4	3	5-1/4	2	92244	89380
3/4	3/4	4	6-1/4	2	94244	89415
13/16	3/4	1-7/8	4-1/8	2	90264	89349
7/8	3/4	1-7/8	4-1/8	2	90284	89350
7/8	7/8	1-7/8	4-1/8	2	90285	89351
7/8	7/8	3-1/2	5-3/4	2	92285	89381
7/8	7/8	5	7-1/4	2	94285	89416
15/16	7/8	1-7/8	4-1/8	2	90305	89352 •
1	3/4	1-7/8	4-1/8	2	90324	89353
1	1	2	4-1/2	2	90326	89354
1	1	4	6-1/2	2	92326	89382
1	1	6	8-1/2	2	94326	89417 •
1-1/4	1-1/4	2	4-1/2	2	90407	89355 •
1-1/4	1-1/4	4	6-1/2	2	92407	89383 •
1-1/4	1-1/4	6	8-1/2	2	94407	89418 •
1-1/2	1-1/4	2	4-1/2	2	90487	89356
1-1/2	1-1/4	4	6-1/2	2	92487 •	89384
1-1/2	1-1/4	8	10-1/2	2	94487	89419
1-3/4	1-1/4	2	4-1/2	2	90567 •	89357
1-3/4	1-1/4	4	6-1/2	2	92567 •	89385 •
2	1-1/4	2	4-1/2	2	90647	89358
2	1-1/4	4	6-1/2	2	92647	89386

HSS

Uncoated
TiCN
Coated

2 Flutes



Center
Cutting

• Indicates a Standard, Non Stocked Item

2 Flute Ball-End



AB910

- Aluminum / Non-Ferrous
- Cylindrical Margin to Eliminate Chatter
- Slotting / Pocketing / Contour Milling Applications
- Weldon Flat Standard

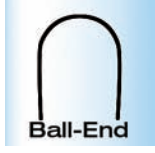
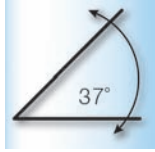
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TICN EDP
1/4	3/8	5/8	2-7/16	2	91081	89359
1/4	3/8	1-1/4	3-1/16	2	93081	89387
1/4	3/8	1-3/4	3-9/16	2	95081	89420 •
5/16	3/8	3/4	2-1/2	2	91101	89360 •
5/16	3/8	1-3/8	3-1/8	2	93101	89388
5/16	3/8	2	3-3/4	2	95101	89421
3/8	3/8	3/4	2-1/2	2	91121	89361
3/8	3/8	1-1/2	3-1/4	2	93121	89389
3/8	3/8	2-1/2	4-1/4	2	95121	89422
7/16	3/8	1	2-11/16	2	91141	89362 •
7/16	1/2	1-3/4	3-3/4	2	93142	89390 •
7/16	1/2	2-3/4	4-3/4	2	95142	89423 •
1/2	1/2	1-1/4	3-1/4	2	91162	89363
1/2	1/2	2	4	2	93162	89391
1/2	1/2	3	5	2	95162	89424
5/8	1/2	1-3/8	3-3/8	2	91202	89364 •
5/8	5/8	1-5/8	3-3/4	2	91203	89365
5/8	5/8	2-1/2	4-5/8	2	93203	89392 •
5/8	5/8	4	6-1/8	2	95203	89425 •
3/4	1/2	1-5/8	3-5/8	2	91242	89366 •
3/4	3/4	1-5/8	3-7/8	2	91244	89367
3/4	3/4	3	5-1/4	2	93244	89393
3/4	3/4	4	6-1/4	2	95244	89426 •
7/8	3/4	1-7/8	4-1/8	2	91284 •	89368 •
7/8	7/8	1-7/8	4-1/8	2	91285	89369 •
7/8	7/8	3-1/2	5-3/4	2	93285 •	89394 •
7/8	7/8	5	7-1/4	2	95285 •	89427 •
1	3/4	1-7/8	4-1/8	2	91324	89370
1	1	2	4-1/2	2	91326	89371
1	1	4	6-1/2	2	93326	89395 •
1	1	6	8-1/2	2	95326	89428
1-1/4	1-1/4	2	4-1/2	2	91407	89372 •
1-1/4	1-1/4	4	6-1/2	2	93407 •	89396 •
1-1/4	1-1/4	6	8-1/2	2	95407 •	89429 •
1-1/2	1-1/4	2	4-1/2	2	91487 •	89373
1-1/2	1-1/4	4	6-1/2	2	93487	89397 •
1-1/2	1-1/4	8	10-1/2	2	95487 •	89430 •
1-3/4	1-1/4	2	4-1/2	2	91567 •	79404 •
2	1-1/4	2	4-1/2	2	91647	79405 •
2	1-1/4	4	6-1/2	2	93647	89398 •

HSS

**Uncoated
TICN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End General Purpose



DA206

- Aluminum / Non-Ferrous Alloys
- Cylindrical Margin to Eliminate Chatter
- Slotting / Pocketing
- Weldon Flat Standard

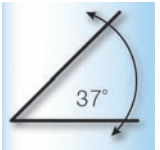
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/8	3/8	3/8	3-1/16	2	96041	89431
3/16	3/8	7/16	3-1/8	2	96061	89432
1/4	3/8	1/2	3-1/8	2	96081	89433
5/16	3/8	9/16	3-1/8	2	96101	89434 •
3/8	3/8	9/16	3-1/8	2	96121	89435
7/16	1/2	13/16	3-3/4	2	96142	89436 •
1/2	1/2	13/16	3-3/4	2	96162	89437
9/16	5/8	1-1/8	4-1/2	2	96183	89438 •
5/8	5/8	1-1/8	4-1/2	2	96203	89439 •
11/16	3/4	1-5/16	5	2	96224 •	89440 •
3/4	3/4	1-5/16	5	2	96244	89441 •
13/16	7/8	1-9/16	5-1/2	2	96265 •	89442 •
7/8	7/8	1-9/16	5-1/2	2	96285 •	89443 •
15/16	1	1-5/8	5-7/8	2	96306 •	89444 •
1	1	1-5/8	5-7/8	2	96326 •	89445 •

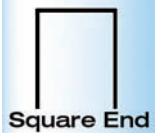
HSS

**Uncoated
TiCN
COATED**

2 Flutes



**RIGHT
HAND**



Square End

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

3 Flute For Aluminum

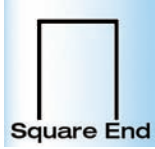
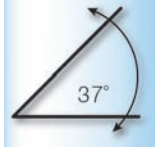


A337

- Cylindrical Margin to Eliminate Chatter
- Slotting / Pocketing / Profiling
- Weldon Flat Standard

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TICN EDP
3/16	3/8	1/2	2-3/8	3	33800	33802
1/4	3/8	3/8	2-3/16	3	33803	33805
1/4	3/8	5/8	2-7/16	3	33806	33808
1/4	3/8	1-1/4	3-1/16	3	33809	33811
1/4	3/8	1-3/4	3-9/16	3	33812	33814
5/16	3/8	3/8	2-1/8	3	33815 •	33817 •
5/16	3/8	3/4	2-1/2	3	33818	33820
5/16	3/8	1-3/8	3-1/8	3	33821	33823
5/16	3/8	2	3-3/4	3	33824	33826
3/8	3/8	3/8	2-1/8	3	33827 •	33829 •
3/8	3/8	3/4	2-1/2	3	33830	33832
3/8	3/8	1-1/2	3-1/4	3	33833	33835
3/8	3/8	2-1/2	4-1/4	3	33836	33838
7/16	1/2	1/2	2-1/2	3	33839 •	33841 •
7/16	1/2	1-1/4	3-1/4	3	33842	33844
7/16	1/2	1-3/4	3-3/4	3	33845	33847
7/16	1/2	2-3/4	4-3/4	3	33848	33850
1/2	1/2	1/2	2-1/2	3	33851	33853
1/2	1/2	1-1/4	3-1/4	3	33854	33856
1/2	1/2	2	4	3	33857	33859
1/2	1/2	3	5	3	33860	33862
5/8	5/8	5/8	2-3/4	3	33863	33865
5/8	5/8	1-5/8	3-3/4	3	33866	33868
5/8	5/8	2	4-1/8	3	33869	33871
5/8	5/8	2-1/2	4-5/8	3	33872	33874
5/8	5/8	3	5-1/8	3	33875	33877
3/4	3/4	3/4	3	3	33878	33880
3/4	3/4	1-5/8	3-7/8	3	33881	33883
3/4	3/4	2-1/4	4-1/2	3	33884	33886
3/4	3/4	3	5-1/4	3	33887	33889
3/4	3/4	4	6-1/4	3	33890	33892
7/8	7/8	1-7/8	4-1/8	3	33893	33895
1	1	1	3-1/2	3	33896	33898
1	1	2	4-1/2	3	33899	33901
1	1	3	5-1/2	3	33902	33904
1	1	6	8-1/2	3	33908	33910
1	1	6	8-1/2	3	33908	33910
1-1/4	1-1/4	2	4-1/2	3	33911	33913
1-1/4	1-1/4	3	5-1/2	3	33914	33916
1-1/4	1-1/4	4	6-1/2	3	33917	33919
1-1/4	1-1/4	6	8-1/2	3	33920	33922
1-1/2	1-1/4	2	4-1/2	3	33923	33925 •
1-1/2	1-1/4	3	5-1/2	3	33926	33928 •
1-1/2	1-1/4	4	6-1/2	3	33929	33931 •
1-1/2	1-1/4	6	8-1/2	3	33932	33934
2	1-1/4	2	4-1/2	3	33935 •	33937 •
2	1-1/4	3	5-1/2	3	33938 •	33940 •
2	1-1/4	4	6-1/2	3	33941 •	33943 •
2	1-1/4	6	8-1/2	3	33944 •	33946 •
2	2	2	5-3/4	3	33947 •	33949 •
2	2	4	7-3/4	3	33950 •	33952 •
2	2	6	9-3/4	3	33953 •	33955 •
2	2	8	11-3/4	3	33956 •	33958 •



• Indicates a Standard, Non Stocked Item

Niagara Cutter

3 Flute Ball-End For Aluminum



AB337

- Cylindrical Margin to Eliminate Chatter
- Slotting / Pocketing / Profile / Contour
- Milling Applications
- Weldon Flat Standard

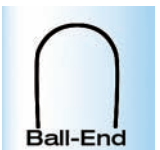
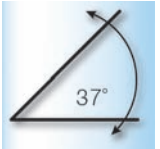
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/2	1/2	1-1/4	3-1/4	3	33959	33961
1/2	1/2	2	4	3	33962	33964
3/4	3/4	1-5/8	3-7/8	3	33965 •	33967
3/4	3/4	3	5-1/4	3	33968	33970
1	1	2	4-1/2	3	33971	33973
1	1	4	6-1/2	3	33974 •	33976
1-1/4	1-1/4	2	4-1/2	3	33977 •	33979 •
1-1/4	1-1/4	4	6-1/2	3	33980 •	33982 •

HSS

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

3 Flute Neck Style For Aluminum



AL337

- Cylindrical Margin to Eliminate Chatter
- Slotting / Pocketing / Profiling
- Weldon Flat Standard

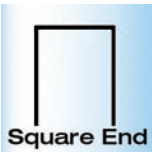
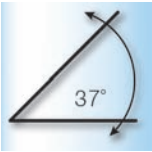
Price Code A

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/2	1/2	4	1-1/4	6	3	08688	08738
5/8	5/8	5	1-1/2	7-1/8	3	08694	08746
3/4	3/4	6	2	8-1/4	3	08698	08748
1	1	8	2-1/2	10-1/2	3	08706	08754 •
1-1/4	1-1/4	10	3-1/2	12-1/2	3	08708 •	08758 •

HSS

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

Niagara Cutter

3 Flute Chipbreaker Rougher / Finisher For Aluminum



ACB337

- Cylindrical Margin to Eliminate Chatter
- Slotting / Pocketing / Profiling
- Weldon Flat Standard

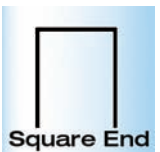
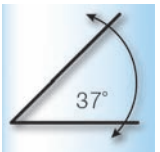
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
3/8	3/8	3/8	2-1/8	3	70750 •	70838
3/8	3/8	3/4	2-1/2	3	70751	70839
3/8	3/8	1-1/2	3-1/4	3	70752 •	70840
3/8	3/8	2-1/2	4-1/4	3	70753 •	70841
7/16	1/2	1/2	2-1/2	3	70754 •	70842 •
7/16	1/2	1	3-1/4	3	70755 •	70843
7/16	1/2	1-3/4	3-3/4	3	70756 •	70844
7/16	1/2	2-3/4	4-3/4	3	70757 •	70845 •
1/2	1/2	1/2	2-1/2	3	70758 •	70846
1/2	1/2	1-1/4	3-1/4	3	70759	70847
1/2	1/2	2	4	3	70760	70848
1/2	1/2	3	5	3	70761 •	70849 •
5/8	5/8	5/8	2-3/4	3	70762 •	70850 •
5/8	5/8	1-5/8	3-3/4	3	70763 •	70851
5/8	5/8	2	4-1/8	3	70764	70852 •
5/8	5/8	2-1/2	4-5/8	3	70765 •	70853 •
5/8	5/8	3	5-1/8	3	70766 •	70854 •
3/4	3/4	3/4	2-7/8	3	70767 •	70855
3/4	3/4	1-5/8	3-7/8	3	70768	70856
3/4	3/4	2-1/4	4-1/2	3	70769 •	70857
3/4	3/4	3	5-1/8	3	70770	70858
3/4	3/4	4	6-1/4	3	70771	70859 •
7/8	7/8	1-7/8	4-1/8	3	70772 •	70860 •
1	1	1	3-1/2	3	70773 •	70861
1	1	2	4-1/2	3	70774	70862
1	1	3	5-1/2	3	70775	70863
1	1	4	6-1/2	3	70776	70864
1	1	6	8-1/2	3	70777 •	70865 •
1-1/4	1-1/4	2	4-1/2	3	70778	70866
1-1/4	1-1/4	3	5-1/2	3	70779 •	70867
1-1/4	1-1/4	4	6-1/2	3	70780 •	70868
1-1/4	1-1/4	6	8-1/2	3	70781 •	70869 •
1-1/2	1-1/4	2	4-1/2	3	70782 •	70870 •
1-1/2	1-1/4	3	5-1/2	3	70783	70871 •
1-1/2	1-1/4	4	6-1/2	3	70784 •	70872 •
1-1/2	1-1/4	6	8-1/2	3	70785 •	70873 •
2	1-1/4	2	4-1/2	3	70786 •	70874 •
2	1-1/4	3	5-1/2	3	70787 •	70875 •
2	1-1/4	4	6-1/2	3	70788 •	70876 •
2	1-1/4	6	8-1/2	3	70789 •	70877 •
2	2	2	5-3/4	3	70790 •	70878 •
2	2	4	7-3/4	3	70791 •	70879 •
2	2	6	9-3/4	3	70792 •	70880 •
2	2	8	11-3/4	3	70793 •	70881 •

HSS

Uncoated
TiCN
COATED

3 Flutes



Center
Cutting

• Indicates a Standard, Non Stocked Item

Multi Flute General Purpose



S404

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	2-5/16	4	35041	35040
5/32	3/8	7/16	2-5/16	4	35051	35050
11/64	3/8	1/2	2-3/8	4	35059	35058
3/16	3/8	3/16	2-1/16	4	34061	34060
3/16	3/8	1/2	2-3/8	4	35061	35060
3/16	3/8	5/8	2-1/2	4	36061	36060
3/16	3/8	3/4	2-5/8	4	37061	37060
3/16	3/8	1	2-7/8	4	33061	33060
3/16	3/8	1-1/8	3	4	38061	38060
13/64	3/8	1/2	2-3/8	4	35069	35068
7/32	3/8	1/4	2-1/16	4	34071 •	34070 •
7/32	3/8	5/8	2-7/16	4	35071	35070
7/32	3/8	3/4	2-9/16	4	36071	36070
7/32	3/8	7/8	2-11/16	4	37071	37070
7/32	3/8	1-1/4	3-1/16	4	33071	33070
7/32	3/8	1-3/4	3-9/16	4	38071	38070
15/64	3/8	5/8	2-7/16	4	35079	35078
1/4	3/8	1/4	2-1/16	4	34081	34080
1/4	3/8	5/8	2-7/16	4	35081	35080
1/4	3/8	3/4	2-9/16	4	36081	36080
1/4	3/8	1-1/4	3-1/16	4	37081	37080
1/4	3/8	1-1/2	3-5/16	4	33081	33080
1/4	3/8	1-3/4	3-9/16	4	38081	38080
17/64	3/8	5/8	2-7/16	4	35089	35088
9/32	3/8	5/16	2-1/8	4	34091 •	34090 •
9/32	3/8	5/8	2-7/16	4	35091	35090
9/32	3/8	1	2-3/4	4	36091	36090
9/32	3/8	1-3/8	3-1/8	4	37091	37090
9/32	3/8	1-5/8	3-3/8	4	33091	33090 •
9/32	3/8	2	3-3/4	4	38091	38090
19/64	3/8	3/4	2-1/2	4	35099	35098
5/16	3/8	5/16	2-1/16	4	34101	34100
5/16	3/8	3/4	2-1/2	4	35101	35100
5/16	3/8	1	2-3/4	4	36101	36100
5/16	3/8	1-3/8	3-1/8	4	37101	37100
5/16	3/8	1-5/8	3-3/8	4	33101	33100
5/16	3/8	2	3-3/4	4	38101	38100
21/64	3/8	3/4	2-1/2	4	35109	35108
11/32	3/8	3/8	2-1/8	4	34111 •	34110 •
11/32	3/8	3/4	2-1/2	4	35111	35110
11/32	3/8	1-1/8	2-7/8	4	36111	36110
11/32	3/8	1-1/2	3-1/4	4	37111	37110
11/32	3/8	1-7/8	3-5/8	4	33111 •	33110 •
11/32	3/8	2-1/2	4-1/4	4	38111	38110 •
23/64	3/8	3/4	2-1/2	4	35119	35118
3/8	3/8	3/8	2-1/8	4	34121	34120
3/8	3/8	3/4	2-1/2	4	35121	35120
3/8	3/8	1-1/8	2-7/8	4	36121	36120
3/8	3/8	1-1/2	3-1/4	4	37121	37120
3/8	3/8	1-7/8	3-5/8	4	33121	33120
3/8	3/8	2-1/2	4-1/4	4	38121	38120
25/64	3/8	1	2-11/16	4	35129	35128
13/32	3/8	7/16	2-1/8	4	34131	34130 •
13/32	3/8	1	2-11/16	4	35131	35130
13/32	3/8	1-3/8	3-1/16	4	36131	36130
13/32	3/8	2	3-11/16	4	37131	37130
13/32	3/8	2-1/4	3-15/16	4	33131 •	33130 •
13/32	3/8	2-5/8	4-5/16	4	38131	38130
27/64	3/8	1	2-11/16	4	35139	35138

• Indicates a Standard, Non Stocked Item

Multi Flute General Purpose



S404

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

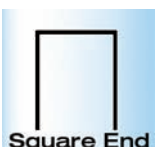
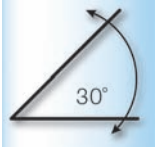
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
7/16	3/8	7/16	2-1/8	4	34141	34140
7/16	3/8	1	2-11/16	4	35141	35140
7/16	3/8	1-3/8	3-1/16	4	36141	36140
7/16	3/8	2	3-11/16	4	37141	37140
7/16	3/8	2-1/4	3-15/16	4	33141	33140
7/16	3/8	2-5/8	4-5/16	4	38141	38140
7/16	1/2	1-3/4	3-3/4	4	37142	37148
29/64	3/8	1	2-11/16	4	35149	35148
15/32	3/8	1/2	2-3/16	4	34151 •	34150 •
15/32	3/8	1	2-11/16	4	35151	35150
15/32	3/8	1-1/2	3-3/16	4	36151 •	36150 •
15/32	3/8	2	3-11/16	4	37151 •	37150 •
15/32	3/8	2-1/2	4-3/16	4	33151 •	33150 •
15/32	3/8	3	4-11/16	4	38151 •	38150 •
31/64	3/8	1	2-11/16	4	35159	35158
1/2	3/8	1	2-11/16	4	35161	35167
1/2	1/2	1/2	2-1/2	4	34162	34160
1/2	1/2	1-1/4	3-1/4	4	35162	35160
1/2	1/2	1-1/2	3-1/2	4	36162	36160
1/2	1/2	2	4	4	37162	37160
1/2	1/2	2-1/2	4-1/2	4	33162	33160
1/2	1/2	3	5	4	38162	38160
33/64	1/2	1-1/4	3-1/4	4	35169	35168
17/32	1/2	5/8	2-5/8	4	34172 •	34170
17/32	1/2	1-7/8	3-7/8	4	36172	36170
17/32	1/2	2-1/2	4-1/2	4	37172	37170
17/32	1/2	3-1/8	5-1/8	4	33172 •	33170
17/32	1/2	4	6	4	38172	38170 •
17/32	1/2	1-3/8	3-3/8	4	35172	35170
35/64	1/2	1-3/8	3-3/8	4	35179	35178
9/16	1/2	5/8	2-5/8	4	34182	34180
9/16	1/2	1-3/8	3-3/8	4	35182	35180
9/16	1/2	1-7/8	3-7/8	4	36182	36180
9/16	1/2	2-1/2	4-1/2	4	37182	37180
9/16	1/2	3-1/8	5-1/8	4	33182	33180
9/16	1/2	4	6	4	38182	38180
37/64	1/2	1-3/8	3-3/8	4	35189	35188
19/32	1/2	1-3/8	3-3/8	4	35192	35190
39/64	5/8	1-5/8	3-3/4	4	35199	35198
5/8	1/2	1-3/8	3-3/8	4	35202	35207
5/8	5/8	5/8	2-3/4	4	34203	34200
5/8	5/8	1-5/8	3-3/4	4	35203	35200
5/8	5/8	1-7/8	4	4	36203	36200
5/8	5/8	2-1/2	4-5/8	4	37203	37200
5/8	5/8	3-1/8	5-1/4	4	33203	33200
5/8	5/8	4	6-1/8	4	38203	38200
41/64	5/8	1-5/8	3-3/4	4	35209	35208
21/32	5/8	1-5/8	3-3/4	4	35213	35210
43/64	5/8	1-5/8	3-3/4	4	35219	35218
11/16	1/2	1-5/8	3-5/8	4	35222	35227
11/16	5/8	3/4	2-7/8	4	34223	34220
11/16	5/8	1-5/8	3-3/4	4	35223	35220
11/16	5/8	2-1/4	4-3/8	4	36223	36220
11/16	5/8	3	5-1/8	4	37223	37220 •
11/16	5/8	3-1/2	5-5/8	4	33223 •	33220
11/16	5/8	4	6-1/8	4	38223	38220 •
45/64	3/4	1-5/8	3-7/8	4	35229	35228 •
23/32	3/4	1-5/8	3-7/8	4	35234	35230
47/64	3/4	1-5/8	3-7/8	4	35239	35238 •

HSS

Uncoated
TiN
COATED

4 Flutes
6 Flutes
8 Flutes



Non
Center
Cutting

• Indicates a Standard, Non Stocked Item

Multi Flute General Purpose



S404

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

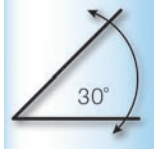
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
3/4	1/2	3/4	2-3/4	4	87242	87240
3/4	1/2	1-5/8	3-5/8	4	35242	35241
3/4	1/2	3	5	4	37242	37248
3/4	5/8	1-5/8	3-3/4	4	35243	35247
3/4	3/4	3/4	3	4	34244	34240
3/4	3/4	1-1/2	3-3/4	6	35246	35255
3/4	3/4	1-5/8	3-7/8	4	35244	35240
3/4	3/4	2-1/4	4-1/2	4	36244	36240
3/4	3/4	3	5-1/4	4	37244	37240
3/4	3/4	3-1/2	5-3/4	4	33244	33240
3/4	3/4	4	6-1/4	4	38244	38240
49/64	3/4	1-7/8	4-1/8	4	35249	35248
25/32	3/4	1-7/8	4-1/8	4	35254	35250
51/64	3/4	1-7/8	4-1/8	4	35259	35258
13/16	5/8	1-7/8	4	6	35263	35267
13/16	3/4	7/8	3-1/8	4	34264	34260
13/16	3/4	1-7/8	4-1/8	4	35264	35260
13/16	3/4	2-5/8	4-7/8	4	36264	36260
13/16	3/4	3-1/2	5-3/4	4	37264	37260
13/16	3/4	4-3/8	6-5/8	4	33264	33260
13/16	3/4	5	7-1/4	4	38264	38260
53/64	7/8	1-7/8	4-1/8	4	35269	35268
27/32	7/8	1-7/8	4-1/8	4	35275	35270
55/64	7/8	1-7/8	4-1/8	4	35279	35278
7/8	1/2	7/8	2-7/8	4	87282	87280
7/8	5/8	1-7/8	4	6	35283	35281
7/8	3/4	1-7/8	4-1/8	4	35284	35287
7/8	7/8	7/8	3-1/8	4	34285	34280
7/8	7/8	1-7/8	4-1/8	4	35285	35280
7/8	7/8	2-5/8	4-7/8	4	36285	36280
7/8	7/8	3-1/2	5-3/4	4	37285	37280
7/8	7/8	4-3/8	6-5/8	4	33285	33280
7/8	7/8	5	7-1/4	4	38285	38280
57/64	7/8	1-7/8	4-1/8	4	35289	35288
29/32	7/8	1-7/8	4-1/8	4	35295	35290
59/64	7/8	1-7/8	4-1/8	4	35299	35298
15/16	5/8	1-7/8	4	6	35303	35301
15/16	3/4	1-7/8	4-1/8	4	35304	35302
15/16	7/8	1	3-1/4	4	34305	34300
15/16	7/8	1-7/8	4-1/8	4	35305	35300
15/16	7/8	3	5-1/4	4	36305	36300
15/16	7/8	4	6-1/4	4	37305	37300
15/16	7/8	5	7-1/4	4	33305	33300
15/16	7/8	6	8-1/4	4	38305	38300
61/64	1	2	4-1/2	4	35309	35308
31/32	1	2	4-1/2	4	35316	35310
63/64	1	2	4-1/2	4	35319	35318
1	1/2	1	3	6	87322	87321
1	5/8	1-7/8	4	6	35323	35322
1	3/4	1-1/4	3-1/2	4	87324	87323
1	3/4	1-1/4	3-1/2	6	87328	87327
1	3/4	1-7/8	4-1/8	4	35324	35321
1	7/8	1-7/8	4-1/8	4	35325	35328
1	1	1	3-1/2	4	34326	34320
1	1	2	4-1/2	4	35326	35320
1	1	3	5-1/2	4	36326	36320
1	1	4	6-1/2	4	37326	37320
1	1	5	7-1/2	4	33326	33320
1	1	6	8-1/2	4	38326	38320

HSS

**Uncoated
TiN
COATED**

**4 Flutes
6 Flutes
8 Flutes**



**Non
Center
Cutting**

• Indicates a Standard, Non Stocked Item



S404

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

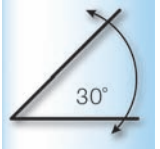
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1-1/16	3/4	2	4-1/4	6	35344	35348
1-1/16	1	2	4-1/2	6	35346	35340
1-1/8	1/2	1	3	6	87362	87361
1-1/8	3/4	1-1/4	3-1/2	6	87364	87363
1-1/8	3/4	2	4-1/4	6	35364	35361
1-1/8	7/8	2	4-1/4	6	35365	35362 •
1-1/8	1	2	4-1/2	6	35366	35360
1-1/8	1	4	6-1/2	6	37366	37360
1-3/16	3/4	2	4-1/4	6	35384	35381
1-3/16	1	2	4-1/2	6	35386	35380
1-1/4	1/2	1	3	6	87402	87401 •
1-1/4	3/4	1-1/4	3-1/2	6	87404	87403
1-1/4	3/4	2	4-1/4	6	35404	35402
1-1/4	7/8	2	4-1/4	6	35405	35403 •
1-1/4	1	2	4-1/2	6	35406	35401
1-1/4	1	4	6-1/2	6	37406	37401
1-1/4	1-1/4	2	4-1/2	6	35407	35400
1-1/4	1-1/4	3	5-1/2	4	36407	36400
1-1/4	1-1/4	4	6-1/2	6	37407	37400
1-1/4	1-1/4	6	8-1/2	6	38407	38400
1-5/16	1	2	4-1/2	6	35426	35420
1-3/8	3/4	1-1/4	3-1/2	6	87444	87443
1-3/8	3/4	2	4-1/4	6	35444	35448
1-3/8	1	2	4-1/2	6	35446	35440
1-3/8	1	4	6-1/2	6	37446	37440
1-7/16	1	2	4-1/2	6	35466	35460 •
1-1/2	3/4	1-1/4	3-1/2	6	87484	87483
1-1/2	3/4	2	4-1/4	6	35484	35482
1-1/2	1	2	4-1/2	6	35486	35481
1-1/2	1	4	6-1/2	6	37486	37481 •
1-1/2	1-1/4	2	4-1/2	6	35487	35480
1-1/2	1-1/4	3	5-1/2	4	36487	36480
1-1/2	1-1/4	4	6-1/2	6	37487	37480
1-1/2	1-1/4	8	10-1/2	6	38487	38480
1-9/16	1-1/4	2	4-1/2	6	35507	35500 •
1-5/8	1-1/4	2	4-1/2	6	35527	35520 •
1-5/8	1-1/4	4	6-1/2	6	37527	37520 •
1-11/16	1-1/4	2	4-1/2	6	35547	35540 •
1-3/4	3/4	2	4-1/4	6	35564	35561
1-3/4	1	1-1/4	3-3/4	8	87566 •	87560
1-3/4	1-1/4	2	4-1/2	6	35567	35560 •
1-3/4	1-1/4	3	5-1/2	4	36567 •	36560 •
1-3/4	1-1/4	4	6-1/2	6	37567	37560
1-13/16	1-1/4	2	4-1/2	6	35587 •	35580 •
1-7/8	1-1/4	2	4-1/2	6	35607	35600 •
1-7/8	1-1/4	4	6-1/2	6	37607 •	37600 •
1-15/16	1-1/4	2	4-1/2	6	35627 •	35620 •
2	3/4	2	4-1/4	8	35644	35641
2	1	1-1/4	3-3/4	8	87646 •	87640 •
2	1-1/4	2	4-1/2	8	35647	35640
2	1-1/4	3	5-1/2	4	36647	36640 •
2	1-1/4	3	5-1/2	6	36648 •	36649 •
2	1-1/4	4	6-1/2	8	37647	37640
2-1/4	1-1/4	1-1/2	4	8	87727 •	87720 •
2-1/2	1-1/4	1-1/2	4	8	87807 •	87800 •

HSS

Uncoated
TiN
COATED

4 Flutes
6 Flutes
8 Flutes



Non
Center
Cutting

Multi Flute Center-Cutting

General Purpose



SC406

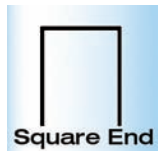
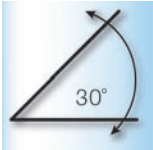
- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

Price Code A

HSS

**Uncoated
TiN
Coated**

**4 Flutes
6 Flutes
8 Flutes**



**Center
Cutting**

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	2-5/16	4	40041	40040
5/32	3/8	1/2	2-3/8	4	40051	40050
3/16	3/8	3/16	2-1/16	4	39061	39060
3/16	3/8	1/2	2-3/8	4	40061	40060
3/16	3/8	5/8	2-1/2	4	41061	41060
3/16	3/8	3/4	2-5/8	4	42061	42060
3/16	3/8	1	2-7/8	4	43061	43060
3/16	3/8	1-1/8	3	4	44061	44060
7/32	3/8	1/4	2-1/16	4	39071	39070 •
7/32	3/8	5/8	2-7/16	4	40071	40070
7/32	3/8	3/4	2-9/16	4	41071	41070
7/32	3/8	7/8	2-11/16	4	42071	42070
7/32	3/8	1-1/4	3-1/16	4	43071	43070
7/32	3/8	1-3/4	3-9/16	4	44071	44070
1/4	3/8	1/4	2-1/16	4	39081	39080
1/4	3/8	5/8	2-7/16	4	40081	40080
1/4	3/8	3/4	2-9/16	4	41081	41080
1/4	3/8	1-1/4	3-1/16	4	42081	42080
1/4	3/8	1-1/2	3-5/16	4	43081	43080
1/4	3/8	1-3/4	3-9/16	4	44081	44080
9/32	3/8	5/16	2-1/8	4	39091	39090
9/32	3/8	5/8	2-7/16	4	40091	40090
9/32	3/8	1	2-3/4	4	41091	41090
9/32	3/8	1-3/8	3-1/8	4	42091	42090
9/32	3/8	1-5/8	3-3/8	4	43091	43090 •
9/32	3/8	2	3-3/4	4	44091	44090
5/16	3/8	5/16	2-1/16	4	39101	39100
5/16	3/8	3/4	2-1/2	4	40101	40100
5/16	3/8	1	2-3/4	4	41101	41100
5/16	3/8	1-3/8	3-1/8	4	42101	42100
5/16	3/8	1-5/8	3-3/8	4	43101	43100
5/16	3/8	2	3-3/4	4	44101	44100
11/32	3/8	3/8	2-1/8	4	39111 •	39110 •
11/32	3/8	3/4	2-1/2	4	40111	40110
11/32	3/8	1-1/8	2-7/8	4	41111	41110
11/32	3/8	1-1/2	3-1/4	4	42111	42110
11/32	3/8	1-7/8	3-5/8	4	43111	43110 •
11/32	3/8	2-1/2	4-1/4	4	44111	44110
3/8	3/8	3/8	2-1/8	4	39121	39120
3/8	3/8	3/4	2-1/2	4	40121	40120
3/8	3/8	1-1/8	2-7/8	4	41121	41120
3/8	3/8	1-1/2	3-1/4	4	42121	42120
3/8	3/8	1-7/8	3-5/8	4	43121	43120
3/8	3/8	2-1/2	4-1/4	4	44121	44120
13/32	3/8	7/16	2-1/8	4	39131 •	39130
13/32	3/8	1	2-11/16	4	40131	40130
13/32	3/8	1-3/8	3-1/16	4	41131	41130
13/32	3/8	2	3-11/16	4	42131	42130
13/32	3/8	2-1/4	3-15/16	4	43131	43130 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Center-Cutting General Purpose



SC406

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

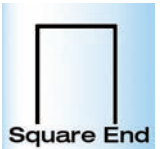
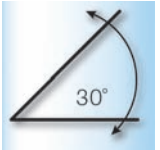
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
13/32	3/8	2-5/8	4-5/16	4	44131	44130
7/16	3/8	7/16	2-1/8	4	39141	39140
7/16	3/8	1	2-11/16	4	40141	40140
7/16	3/8	1-3/8	3-1/16	4	41141	41140
7/16	3/8	2	3-11/16	4	42141	42140
7/16	3/8	2-1/4	3-15/16	4	43141	43140
7/16	3/8	2-5/8	4-5/16	4	44141	44140
15/32	3/8	1/2	2-3/16	4	39151 •	39150
15/32	3/8	1	2-11/16	4	40151	40150
15/32	3/8	1-1/2	3-3/16	4	41151 •	41150 •
15/32	3/8	2	3-11/16	4	42151 •	42150 •
15/32	3/8	2-1/2	4-3/16	4	43151 •	43150 •
15/32	3/8	3	4-11/16	4	44151 •	44150 •
1/2	3/8	1	2-11/16	4	40161	40167
1/2	1/2	1/2	2-1/2	4	39162	39160
1/2	1/2	1-1/4	3-1/4	4	40162	40160
1/2	1/2	1-1/2	3-1/2	4	41162	41160
1/2	1/2	2	4	4	42162	42160
1/2	1/2	2-1/2	4-1/2	4	43162	43160
1/2	1/2	3	5	4	44162	44160
17/32	1/2	5/8	2-5/8	4	39172	39170
17/32	1/2	1-3/8	3-3/8	4	40172	40170
17/32	1/2	1-7/8	3-7/8	4	41172 •	41170 •
17/32	1/2	2-1/2	4-1/2	4	42172	42170
17/32	1/2	3-1/8	5-1/8	4	43172	43170
17/32	1/2	4	6	4	44172	44170
9/16	1/2	5/8	2-5/8	4	39182	39180
9/16	1/2	1-3/8	3-3/8	4	40182	40180
9/16	1/2	1-7/8	3-7/8	4	41182	41180
9/16	1/2	2-1/2	4-1/2	4	42182	42180
9/16	1/2	3-1/8	5-1/8	4	43182	43180
9/16	1/2	4	6	4	44182	44180
5/8	5/8	5/8	2-3/4	4	39203	39200
5/8	5/8	1-5/8	3-3/4	4	40203	40200
5/8	5/8	1-7/8	4	4	41203	41200
5/8	5/8	2-1/2	4-5/8	4	42203	42200
5/8	5/8	3-1/8	5-1/4	4	43203	43200
5/8	5/8	4	6-1/8	4	44203	44200
11/16	5/8	3/4	2-7/8	4	39223	39220 •
11/16	5/8	1-5/8	3-3/4	4	40223	40220
11/16	5/8	2-1/4	4-3/8	4	41223	41220
11/16	5/8	3	5-1/8	4	42223	42220
11/16	5/8	3-1/2	5-5/8	4	43223	43220
11/16	5/8	4	6-1/8	4	44223	44220
3/4	1/2	1-5/8	3-5/8	4	40242	40248
3/4	3/4	3/4	3	4	39244	39240
3/4	3/4	1-5/8	3-7/8	4	40244	40240
3/4	3/4	2-1/4	4-1/2	4	41244	41240
3/4	3/4	3	5-1/4	4	42244	42240

HSS

**Uncoated
TiN
COATED**

**4 Flutes
6 Flutes
8 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Multi Flute Center-Cutting General Purpose



SC406

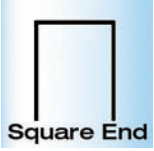
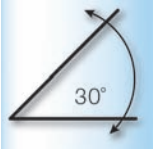
- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

Price Code A

HSS

**Uncoated
TiN
COATED**

**4 Flutes
6 Flutes
8 Flutes**



**Center
Cutting**

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
3/4	3/4	3-1/2	5-3/4	4	43244	43240
3/4	3/4	4	6-1/4	4	44244	44240
13/16	3/4	7/8	3-1/8	4	39264	39260
13/16	3/4	1-7/8	4-1/8	4	40264	40260
13/16	3/4	2-5/8	4-7/8	4	41264	41260
13/16	3/4	3-1/2	5-3/4	4	42264	42260
13/16	3/4	4-3/8	6-5/8	4	43264	43260
13/16	3/4	5	7-1/4	4	44264	44260
7/8	7/8	7/8	3-1/8	4	39285	39280
7/8	7/8	1-7/8	4-1/8	4	40285	40280
7/8	7/8	2-5/8	4-7/8	4	41285	41280
7/8	7/8	3-1/2	5-3/4	4	42285	42280
7/8	7/8	4-3/8	6-5/8	4	43285	43280
7/8	7/8	5	7-1/4	4	44285	44280
15/16	7/8	1	3-1/4	4	39305 •	39300 •
15/16	7/8	1-7/8	4-1/8	4	40305	40300
15/16	7/8	3	5-1/4	4	41305	41300 •
15/16	7/8	4	6-1/4	4	42305	42300 •
15/16	7/8	5	7-1/4	4	43305 •	43300 •
15/16	7/8	6	8-1/4	4	44305 •	44300 •
1	3/4	1-7/8	4-1/8	4	40324	40321
1	1	1	3-1/2	4	39326	39320
1	1	2	4-1/2	4	40326	40320
1	1	3	5-1/2	4	41326	41320
1	1	4	6-1/2	4	42326	42320
1	1	5	7-1/2	4	43326	43320
1	1	6	8-1/2	4	44326	44320
1-1/8	1	2	4-1/2	4	40366	40360
1-1/8	1	4	6-1/2	6	42366	42360
1-1/4	1	2	4-1/2	4	40406	40401
1-1/4	1	4	6-1/2	6	42406	42401
1-1/4	1-1/4	2	4-1/2	4	40407	40400
1-1/4	1-1/4	3	5-1/2	4	41407	41400
1-1/4	1-1/4	4	6-1/2	6	42407	42400
1-1/4	1-1/4	6	8-1/2	6	44407	44400
1-1/2	1	4	6-1/2	6	42486	42481 •
1-1/2	1-1/4	2	4-1/2	4	40487	40480
1-1/2	1-1/4	3	5-1/2	4	41487	41480 •
1-1/2	1-1/4	4	6-1/2	6	42487	42480
1-1/2	1-1/4	8	10-1/2	6	44487	44480
1-3/4	1-1/4	2	4-1/2	6	40567	40560
1-3/4	1-1/4	3	5-1/2	4	41567 •	41560 •
1-3/4	1-1/4	4	6-1/2	6	42567 •	42560 •
2	1-1/4	2	4-1/2	6	40647	40640
2	1-1/4	3	5-1/2	4	41647 •	41640 •
2	1-1/4	3	5-1/2	6	41648	41649 •
2	1-1/4	4	6-1/2	8	42647	42640 •

• Indicates a Standard, Non Stocked Item

Multi Flute Ball-End General Purpose



SB470

- Designed for All Materials
- Profile / Contour Milling Applications
- Weldon Flat Standard

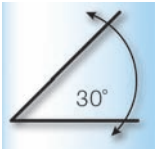
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/4	3/8	5/8	2-7/16	4	47081	47080
1/4	3/8	1	2-13/16	4	47082	47083
1/4	3/8	1-1/4	3-1/16	4	48081	48080
1/4	3/8	1-3/4	3-9/16	4	49081	49080
5/16	3/8	3/4	2-1/2	4	47101	47100
5/16	3/8	1-3/8	3-1/8	4	48101	48100
5/16	3/8	2	3-3/4	4	49101	49100
3/8	3/8	3/4	2-1/2	4	47121	47120
3/8	3/8	1-1/2	3-1/4	4	48121	48120
3/8	3/8	2	3-3/4	4	48122	48123
3/8	3/8	2-1/2	4-1/4	4	49121	49120
1/2	1/2	1	3	4	47163	47161
1/2	1/2	1-1/4	3-1/4	4	47162	47160
1/2	1/2	2	4	4	48162	48160
1/2	1/2	2-1/2	4-1/2	4	48163	48168
1/2	1/2	3	5	4	49162	49160
5/8	5/8	1-1/4	3-3/8	4	47204	47201
5/8	5/8	1-5/8	3-3/4	4	47203	47200
5/8	5/8	2-1/2	4-5/8	4	48203	48200
5/8	5/8	3	5-1/8	4	48204	48201
5/8	5/8	4	6-1/8	4	49203	49200
3/4	3/4	1-5/8	3-7/8	4	47244	47240
3/4	3/4	2-1/4	4-1/2	4	48245	48241
3/4	3/4	3	5-1/4	4	48244	48240
3/4	3/4	4	6-1/4	4	49244	49240
3/4	3/4	4-1/2	6-3/4	4	49245	49241
7/8	7/8	1-7/8	4-1/8	4	47285	47280
1	1	2	4-1/2	4	47326	47320
1	1	3	5-1/2	4	48327	48321
1	1	4	6-1/2	4	48326	48320
1	1	5	7-1/2	4	49327 •	49321 •
1	1	6	8-1/2	4	49326	49320
1-1/4	1-1/4	2	4-1/2	4	47407	47400
1-1/4	1-1/4	3	5-1/2	4	48408 •	48401 •
1-1/4	1-1/4	4	6-1/2	6	48407	48400 •
1-1/4	1-1/4	6	8-1/2	4	49408 •	49401 •
1-1/4	1-1/4	6	8-1/2	6	49407 •	49400 •
1-1/2	1-1/4	2	4-1/2	4	47487	47480 •
1-1/2	1-1/4	4	6-1/2	6	48487 •	48480 •
1-1/2	1-1/4	8	10-1/2	6	49487 •	49480 •

HSS

Uncoated
TiN
COATED

4 Flutes
6 Flutes



Ball-End

Center
Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Neck Style



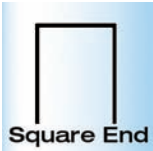
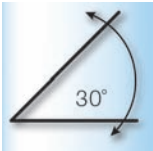
SLR600

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

HSS

**Uncoated
TIN
COATED**

**4 Flutes
6 Flutes**



**Non
Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
3/8	3/8	3-1/4	1	5	4	60121	60120
1/2	1/2	4	1-1/4	6	4	60162	60160
5/8	5/8	5	1-1/2	7-1/8	4	60203	60200
3/4	3/4	6	2	8-1/4	4	60244	60240
1	1	8	2-1/2	10-1/2	4	60326	60320
1-1/4	1-1/4	10	3-1/2	12-1/2	6	60407	60400 •
2	2	12	4	15-1/4	6	60649 •	60640 •
2-1/2	2-1/2	12	4	15-3/4	6	60800 •	60801 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Neck Style Center-Cutting General Purpose



SLRC602

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

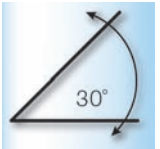
Price Code A

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
3/8	3/8	3-1/4	1	5	4	79121	79120
1/2	1/2	4	1-1/4	6	4	79162	79160
5/8	5/8	5	1-1/2	7-1/8	4	79203	79200
3/4	3/4	6	2	8-1/4	4	79244	79240
1	1	8	2-1/2	10-1/2	4	79326	79320

HSS

**Uncoated
TiN
COATED**

4 Flutes



**RIGHT
HAND**



Square End

**Center
Cutting**

Niagara Cutter

4 Flute Neck Style Ball-End

General Purpose



SLRB601

- Designed for All Materials
- Profile / Contour Milling Applications
- Weldon Flat Standard

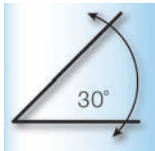
Price Code A

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
3/8	3/8	3-1/4	1	5	4	80121	80120
1/2	1/2	4	1-1/4	6	4	80162	80160
5/8	5/8	5	1-1/2	7-1/8	4	80203	80200
3/4	3/4	6	2	8-1/4	4	80244	80240
1	1	8	2-1/2	10-1/2	4	80326	80320

HSS

**Uncoated
TiN
COATED**

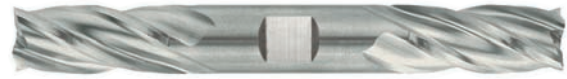
4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute Double-End General Purpose



D400

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

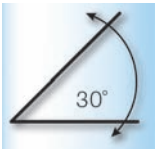
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
7/64	3/8	3/8	3-1/16	4	45039	45030
1/8	3/8	3/8	3-1/16	4	45041	45040
9/64	3/8	7/16	3-1/8	4	45049	45048
5/32	3/8	7/16	3-1/8	4	45051	45050
11/64	3/8	1/2	3-1/4	4	45059	45058
3/16	3/8	1/2	3-1/4	4	45061	45060
13/64	3/8	9/16	3-1/4	4	45069	45068
7/32	3/8	9/16	3-1/4	4	45071	45070
15/64	3/8	5/8	3-3/8	4	45079	45078
1/4	3/8	5/8	3-3/8	4	45081	45080
17/64	3/8	11/16	3-3/8	4	45089	45088
9/32	3/8	11/16	3-3/8	4	45091	45090
19/64	3/8	3/4	3-1/2	4	45099 •	45098 •
5/16	3/8	3/4	3-1/2	4	45101	45100
21/64	3/8	3/4	3-1/2	4	45109	45108
11/32	3/8	3/4	3-1/2	4	45111	45110
23/64	3/8	3/4	3-1/2	4	45119	45118 •
* 3/8	3/8	3/4	3-1/2	4	45121	45120
25/64	1/2	1	4-1/8	4	45129	45128
13/32	1/2	1	4-1/8	4	45132	45130
27/64	1/2	1	4-1/8	4	45139 •	45138
7/16	1/2	1	4-1/8	4	45142	45140
29/64	1/2	1	4-1/8	4	45149 •	45148 •
15/32	1/2	1	4-1/8	4	45152	45150
31/64	1/2	1	4-1/8	4	45159 •	45158 •
* 1/2	1/2	1	4-1/8	4	45162	45160
17/32	5/8	1-3/8	5	4	45173	45170
9/16	5/8	1-3/8	5	4	45183	45180
19/32	5/8	1-3/8	5	4	45193	45190 •
* 5/8	5/8	1-3/8	5	4	45203	45200
21/32	3/4	1-5/8	5-5/8	4	45214 •	45210 •
11/16	3/4	1-5/8	5-5/8	4	45224	45220
23/32	3/4	1-5/8	5-5/8	4	45234 •	45230 •
* 3/4	3/4	1-5/8	5-5/8	4	45244	45240
25/32	7/8	1-7/8	6-1/8	4	45255 •	45250
13/16	7/8	1-7/8	6-1/8	4	45265	45260
27/32	7/8	1-7/8	6-1/8	4	45275 •	45270 •
* 7/8	7/8	1-7/8	6-1/8	4	45285	45280
29/32	1	1-7/8	6-3/8	4	45296 •	45290 •
15/16	1	1-7/8	6-3/8	4	45306 •	45300 •
31/32	1	1-7/8	6-3/8	4	45316 •	45310 •
* 1	1	1-7/8	6-3/8	4	45326	45320

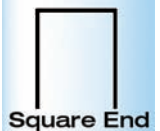
HSS

Uncoated
TiN
COATED

4 Flutes



RIGHT
HAND



Square End

Non
Center
Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Double-End Center-Cutting General Purpose



DC402

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

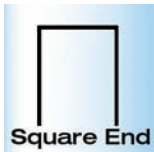
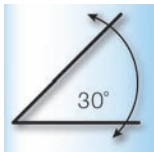
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/8	3/8	3/8	3-1/16	4	46041	46040
5/32	3/8	7/16	3-1/8	4	46051	46050
3/16	3/8	1/2	3-1/4	4	46061	46060
7/32	3/8	9/16	3-1/4	4	46071	46070
1/4	3/8	5/8	3-3/8	4	46081	46080
9/32	3/8	11/16	3-3/8	4	46091	46090
5/16	3/8	3/4	3-1/2	4	46101	46100
11/32	3/8	3/4	3-1/2	4	46111	46110
3/8	3/8	3/4	3-1/2	4	46121	46120
13/32	1/2	1	4-3/16	4	46132	46130
7/16	1/2	1	4-1/8	4	46142	46140
15/32	1/2	1	4-1/8	4	46152 •	46150 •
1/2	1/2	1	4-1/8	4	46162	46160
9/16	5/8	1-3/8	5	4	46183	46180
5/8	5/8	1-3/8	5	4	46203	46200
11/16	3/4	1-5/8	5-5/8	4	46224	46220
3/4	3/4	1-5/8	5-5/8	4	46244	46240
7/8	7/8	1-7/8	6-1/8	4	46285	46280
1	1	1-7/8	6-3/8	4	46326	46320

HSS

**Uncoated
TiN
COATED**

4 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute Metric Flute General Purpose

Metric Flute
Inch Shank



SMM850

- Designed for All Materials
- Profile Milling Applications
- Weldon Flat Standard

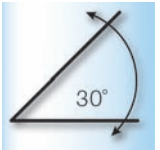
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
3mm	3/8	3/8	2-5/16	4	85030	83031
3.5mm	3/8	1/2	2-3/8	4	85035	85036
4mm	3/8	1/2	2-3/8	4	85040	85041
4.5mm	3/8	1/2	2-3/8	4	85045	85046
5mm	3/8	1/2	2-3/8	4	85050	85051
5.5mm	3/8	5/8	2-7/16	4	85055	85056
6mm	3/8	5/8	2-7/16	4	85060	85061
6.5mm	3/8	5/8	2-7/16	4	85065	85066
7mm	3/8	5/8	2-7/16	4	85070	85071
7.5mm	3/8	3/4	2-1/2	4	85075	85076
8mm	3/8	3/4	2-1/2	4	85080	85081
8.5mm	3/8	3/4	2-1/2	4	85085	85086
9mm	3/8	3/4	2-1/2	4	85090	85091
9.5mm	3/8	3/4	2-1/2	4	85095 •	85096
10mm	3/8	1	2-11/16	4	85100	85101
10.5mm	3/8	1	2-11/16	4	85105	85106
11mm	3/8	1	2-11/16	4	85110	85111
11.5mm	3/8	1	2-11/16	4	85115	85116
12mm	3/8	1	2-11/16	4	85120	85121
12.5mm	1/2	1-1/4	3-1/4	4	85125	85126
13mm	1/2	1-1/4	3-1/4	4	85130	85131
13.5mm	1/2	1-3/8	3-3/8	4	85135	85136
14mm	1/2	1-3/8	3-3/8	4	85140	85141
14.5mm	1/2	1-3/8	3-3/8	4	85145	85146
15mm	1/2	1-3/8	3-3/8	4	85150	85151
16mm	5/8	1-5/8	3-3/4	4	85160	85161
17mm	5/8	1-5/8	3-3/4	4	85170	85171
18mm	3/4	1-5/8	3-7/8	4	85180	85181
19mm	3/4	1-5/8	3-7/8	4	85190	85191 •
20mm	3/4	1-7/8	4-1/8	4	85200	85201
21mm	7/8	1-7/8	4-1/8	4	85210	85211 •
22mm	7/8	1-7/8	4-1/8	4	85220	85221 •
23mm	7/8	1-7/8	4-1/8	4	85230 •	85231
24mm	1	2	4-1/2	4	85240 •	85241
25mm	1	2	4-1/2	4	85250	85251 •

HSS

Uncoated
TiN
COATED

4 Flutes



RIGHT
HAND



Square End

Non
Center
Cutting

• Indicates a Standard, Non Stocked Item

2 Flute General Purpose



SR208

- Designed for All Materials
- Slotting / Pocketing Milling Applications

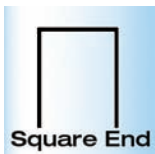
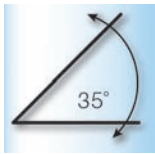
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/32	3/16	3/32	1-1/2	2	66012	66014
3/64	3/16	9/64	1-1/2	2	66015	66016
1/16	3/16	3/16	1-1/2	2	66022	66024
5/64	3/16	15/64	1-1/2	2	66025	66026
3/32	3/16	9/32	1-1/2	2	66032	66034
7/64	3/16	21/64	1-1/2	2	66035	66036
1/8	3/16	3/8	1-1/2	2	66042	66044
9/64	3/16	27/64	1-1/2	2	66045	66046
5/32	3/16	7/16	1-1/2	2	66052	66054
11/64	3/16	1/2	1-1/2	2	66055	66056 •
3/16	3/16	1/2	1-1/2	2	66062	66064

HSS

**Uncoated
TiN
COATED**

2 Flutes



**Center
Cutting**

2 Flute Double-End General Purpose



DR209

- Designed for All Materials
- Slotting / Pocketing Milling Applications

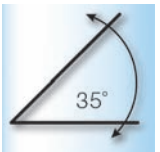
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/32	3/16	3/32	2	2	66010	66017
3/64	3/16	9/64	2	2	66019	66018
1/16	3/16	3/16	2-1/4	2	66020	66027
5/64	3/16	15/64	2-1/4	2	66029	66028
3/32	3/16	9/32	2-1/4	2	66030	66037
7/64	3/16	21/64	2-1/4	2	66039	66038
1/8	3/16	3/8	2-1/4	2	66040	66047
9/64	3/16	27/64	2-1/4	2	66049	66048
5/32	3/16	7/16	2-1/4	2	66050	66057
11/64	3/16	1/2	2-1/4	2	66059 •	66058
3/16	3/16	1/2	2-1/4	2	66060	66068

HSS

**Uncoated
TiN
COATED**

2 Flutes



**RIGHT
HAND**



Square End

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End Stub-Length General Purpose



DS211

- Designed for All Materials
- Slotting / Pocketing Milling Applications

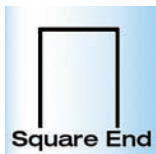
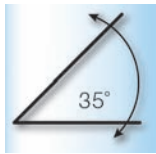
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/32	3/16	3/64	1-7/8	2	64010	64017
3/64	3/16	1/16	1-7/8	2	64019	64018
1/16	3/16	3/32	2	2	64020	64027
5/64	3/16	1/8	2	2	64029	64028
3/32	3/16	9/64	2	2	64030	64037
7/64	3/16	11/64	2	2	64039	64038 •
1/8	3/16	3/16	2	2	64040	64047
9/64	3/16	7/32	2	2	64049	64048 •
5/32	3/16	15/64	2	2	64050	64057
11/64	3/16	17/64	2	2	64059	64058 •
3/16	3/16	9/32	2	2	64060	64068

HSS

**Uncoated
TiN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End Long-Length General Purpose



DL213

- Designed for All Materials
- Slotting / Pocketing Milling Applications

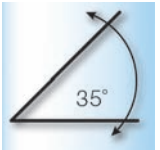
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/16	3/16	7/32	2-1/2	2	68020	68028
3/32	3/16	9/32	2-5/8	2	68030	68038 •
1/8	3/16	3/4	3-1/8	2	68040	68048
5/32	3/16	7/8	3-1/4	2	68050	68058
3/16	3/16	1	3-1/8	2	68060	68068

HSS

**Uncoated
TiN
COATED**

2 Flutes



**RIGHT
HAND**



Square End

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End Ball-End General Purpose



DB215

- Designed for All Materials
- Slotting / Pocketing / Contour Milling Applications

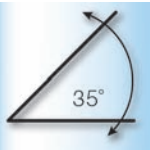
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/16	3/16	3/16	2-1/4	2	67010	67018
3/32	3/16	9/32	2-1/4	2	67030	67038
1/8	3/16	3/8	2-1/4	2	67040	67048
5/32	3/16	7/16	2-1/4	2	67050	67058 •
3/16	3/16	1/2	2-1/4	2	67060	67068

HSS

**Uncoated
TiN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End Stub-Length Ball-End General Purpose



DBS217

- Designed for All Materials
- Slotting / Pocketing / Contour Milling Applications

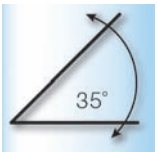
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/16	3/16	3/32	2	2	65020	65028
3/32	3/16	9/64	2	2	65030	65038 •
1/8	3/16	3/16	2	2	65040	65048
5/32	3/16	15/64	2	2	65050	65058 •
3/16	3/16	9/32	2	2	65060	65068

HSS

**Uncoated
TiN
COATED**

2 Flutes



**RIGHT
HAND**



Ball-End

**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute General Purpose



SR414

- Designed for All Materials
- Profile Milling Applications

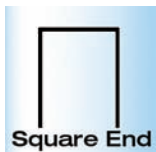
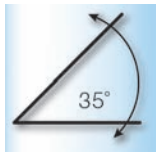
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/16	3/16	3/16	1-1/2	4	76022	76024
5/64	3/16	1/4	1-1/2	4	76025	76026
3/32	3/16	9/32	1-1/2	4	76032	76034
7/64	3/16	21/64	1-1/2	4	76035	76036
1/8	3/16	3/8	1-1/2	4	76042	76044
9/64	3/16	27/64	1-1/2	4	76045	76046
5/32	3/16	7/16	1-1/2	4	76052	76054
11/64	3/16	1/2	1-1/2	4	76055 •	76056 •
3/16	3/16	1/2	1-1/2	4	76062	76064

HSS

**Uncoated
TiN
COATED**

4 Flutes



**Non
Center
Cutting**

Niagara Cutter

4 Flute Double-End General Purpose



DR416

- Designed for All Materials
- Profile Milling Applications

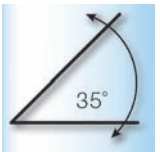
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/16	3/16	3/16	2-1/4	4	76020	76028
3/32	3/16	9/32	2-1/4	4	76030	76038
1/8	3/16	3/8	2-1/4	4	76040	76048
5/32	3/16	7/16	2-1/4	4	76050	76058
3/16	3/16	1/2	2-1/4	4	76060	76068

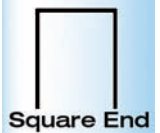
HSS

**Uncoated
TiN
COATED**

4 Flutes



**RIGHT
HAND**



Square End

**Non
Center
Cutting**

Niagara Cutter

4 Flute Double-End Stub-Length General Purpose



DS420

- Designed for All Materials
- Profile Milling Applications

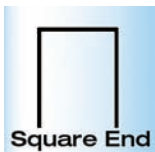
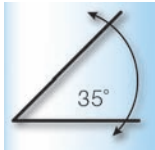
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/16	3/16	3/32	2	4	74020	74028
3/32	3/16	9/64	2	4	74030	74038
1/8	3/16	3/16	2	4	74040	74048
5/32	3/16	15/64	2	4	74050 •	74058 •
3/16	3/16	9/32	2	4	74060	74068

HSS

**Uncoated
TiN
COATED**

4 Flutes



**Non
Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

4 Flute Double-End Long-Length General Purpose

DL418

- Designed for All Materials
- Profile Milling Applications



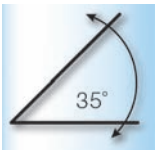
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiN EDP
1/16	3/16	7/32	2-1/2	4	78020	78028
3/32	3/16	9/32	2-5/8	4	78030	78038
1/8	3/16	3/4	3-1/8	4	78040	78048
5/32	3/16	7/8	3-1/4	4	78050	78058
3/16	3/16	1	3-3/8	4	78060	78068

HSS

**Uncoated
TiN
COATED**

4 Flutes



**RIGHT
HAND**



Square End

**Non
Center
Cutting**

Six Packs



Six Pack End Mill Kits

Price Code A

Description	No. of Flutes	Unc EDP	TiN EDP	TiCN EDP
S203 - 2 Flute Single-End End Mills 20061, 20081, 20101, 20121, 20162, 20203	2	20666	98666	
D201 - 2 Flute Double-End End Mills 28061, 28081, 28101, 28121, 28162, 28203	2	28666	66286	
A337 - 3 Flute Single-End End Mills for Aluminum 33802, 33808, 33820, 33832, 33856, 33868	3	63170		63172
S404 - 4 Flute Single-End End Mill 35061, 35081, 35101, 35121, 35162, 35203	4	35666	99666	
SC406 - 4 Flute Single-End End Mill 40061, 40081, 40101, 40121, 40162, 40203	4	40666	64066	
D400 - 4 Flute Double-End End Mill 45061, 45081, 45101, 45121, 45162, 45203	4	45666	64566	

TOLERANCES FOR HIGH SPEED STEEL END MILLS

CUTTING DIAMETER TOLERANCES					
End Mill Style	Number of Flutes	Type or Range	ANSI* Tolerance	Niagara Tolerance	Corresponding List Numbers
Double End Finishers	2, 3 & 4	Center Cutting	+ .0000 / - .0015	+ .0000 / - .0015	D201, D400, DA206, DB215, DB260, DBS217, DC402, DL213, DL418, DR209, DR416, DS211, DS420, DTF310
	4 Flute Non-Center Cutting	Flute Smaller Than Shank	+ .003 / - .000	+ .001 / - .000	D400
		Shank & Flute Same Size	+ .0000 / - .0025	+ .0000 / - .0015	
Single End Finishers	2	Stub Length	+ .0000 / - .0015	+ .0000 / - .0015	A208, A337, AB337, AB910, ACB337, AL337, S203, S404, SB207, SB470, SC406, SEB270, SEL250, SK204, SLRB601, SLRC602, SR208, SR414, STF320, SLR600
	2, 3, 4, 6 & 8	All Except Heavy Duty	+ .003 / - .000	+ .001 / - .000	
Metric Finishers with Inch Shanks	2 & 4	All Sizes	No Specification	+ .001 / - .000	SMM830, SMM850
Ball-End	All	All Sizes	No Specification	Ball Radius Tolerance: Flute Diameter Tolerance / 2	

SHANK DIAMETER TOLERANCES		
End Mill Type	ANSI* Tolerance	Niagara Tolerance
All Inch Shanks	- .0001 / - .0005	- .0001 / - .0005

LENGTH-OF-CUT DIAMETER TOLERANCES		
End Mill Type	ANSI* Tolerance	Niagara Tolerance
All Except Heavy Duty	+ .031 / - .031	+ .031 / - .000
Heavy Duty	+ .062 / - .062	+ .062 / - .000

OVERALL LENGTH DIAMETER TOLERANCES		
End Mill Type	ANSI* Tolerance	Niagara Tolerance
All Except Heavy Duty 3" Diameter Flutes	+ .062 / - .062	+ .062 / - .000
3" Diameter Heavy Duty	+ .125 / - .125	+ .125 / - .000

*Taken from Table 77 of the USA Standards for Milling Cutters and End Mills, ANSI B94.19-1985 published by the American society of Mechanical Engineers.

Note: All Dimensions are in Inches Unless Otherwise Noted.

2 Flute General Purpose



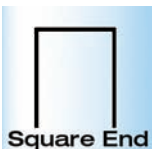
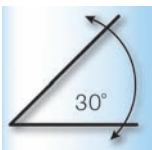
SP205

- All Materials
- Pocketing / Slotting
- High Temp Alloys
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

2 Flutes



**Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/8	3/8	3/8	2-5/16	2	50041	88565
5/32	3/8	7/16	2-5/16	2	50051	88566
3/16	3/8	7/16	2-5/16	2	50061	88567
7/32	3/8	1/2	2-5/16	2	50071	88568 •
1/4	3/8	1/2	2-5/16	2	50081	88569
9/32	3/8	9/16	2-5/16	2	50091	88570 •
5/16	3/8	9/16	2-5/16	2	50101	88571
11/32	3/8	9/16	2-5/16	2	50111	88572 •
3/8	3/8	9/16	2-5/16	2	50121	88573
7/16	3/8	13/16	2-1/2	2	50141	88574
1/2	3/8	13/16	2-1/2	2	50161	88575 •
1/2	1/2	1	3	2	50162	88576
9/16	1/2	1-1/8	3-1/8	2	50182	88577
5/8	5/8	1-5/16	3-7/16	2	50203	88578
3/4	1/2	1-5/16	3-5/16	2	50242	88579
3/4	3/4	1-5/16	3-9/16	2	50244	88580
7/8	7/8	1-1/2	3-3/4	2	50285	88581
1	3/4	1-1/2	3-3/4	2	50324	88582
1	1	1-5/8	4-1/8	2	50326	88583
1-1/8	1	1-5/8	4-1/8	2	50366	88584 •
1-1/4	1	1-5/8	4-1/8	2	50406	88585 •
1-1/4	1-1/4	1-5/8	4-1/8	2	50407 •	88586 •
1-1/2	1-1/4	1-5/8	4-1/8	2	50487 •	88587 •
2	1-1/4	1-5/8	4-1/8	2	50647 •	88588 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

2 Flute Double-End General Purpose



DP530

- All Materials
- Pocketing / Slotting
- Weldon Flat Standard

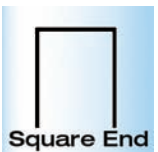
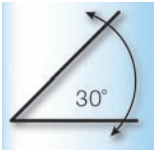
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/8	3/8	3/8	3-1/16	2	53041	88672
5/32	3/8	7/16	3-1/8	2	53051	88673
3/16	3/8	7/16	3-1/8	2	53061	88674
7/32	3/8	1/2	3-1/8	2	53071	88675
1/4	3/8	1/2	3-1/8	2	53081	88676
9/32	3/8	9/16	3-1/8	2	53091	88677
5/16	3/8	9/16	3-1/8	2	53101	88678
11/32	3/8	9/16	3-1/8	2	53111	88679
3/8	3/8	9/16	3-1/8	2	53121	88680
7/16	1/2	13/16	3-3/4	2	53142	88681 •
1/2	1/2	13/16	3-3/4	2	53162	88682
9/16	5/8	1-1/8	4-1/2	2	53183	88683 •
5/8	5/8	1-1/8	4-1/2	2	53203	88684
3/4	3/4	1-5/16	5	2	53244	88685 •
7/8	7/8	1-9/16	5-1/2	2	53285 •	88686 •
1	1	1-5/8	5-7/8	2	53326 •	88687 •

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

2 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

2 Flute Metric Flute General Purpose

Inch Shank

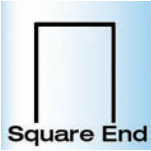
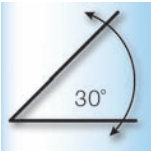


- SMM835**
- All Materials
 - Pocketing
 - Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

2 Flutes



**Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
2mm	3/8	5/16	2-5/16	2	72840	88934 •
3mm	3/8	5/16	2-5/16	2	72841	88935
4mm	3/8	7/16	2-5/16	2	72842	88936
5mm	3/8	1/2	2-5/16	2	72843	88937
6mm	3/8	1/2	2-5/16	2	72844	88938
7mm	3/8	9/16	2-5/16	2	72845	88939
8mm	3/8	9/16	2-5/16	2	72846	88940
10mm	3/8	13/16	2-1/2	2	72847	88941
12mm	1/2	13/16	2-1/2	2	72848	88942
14mm	1/2	1-1/8	3-1/8	2	72849	88943
16mm	5/8	1-5/16	3-7/16	2	72850	88944 •
18mm	5/8	1-5/16	3-7/16	2	72851	88945 •
20mm	3/4	1-1/2	3-3/4	2	72852	88946
22mm	3/4	1-1/2	3-3/4	2	72853	88947 •

• Indicates a Standard, Non Stocked Item



EX350

- Form Ground Flutes
- Profile Milling Applications
- Weldon Flat Standard

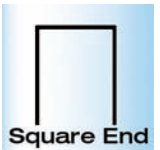
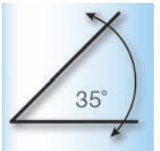
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
3/8	3/8	3/8	2-1/8	4	53340	53456
3/8	3/8	3/4	2-1/2	4	53341	53457
3/8	3/8	2-1/2	4-1/4	4	53342	53458
1/2	1/2	1/2	2-1/2	4	53343	53459
1/2	1/2	1-1/4	3-1/4	4	53344	53460
1/2	1/2	3	5	4	53345	53461
1/2	1/2	4	6	4	53346	53462
5/8	5/8	5/8	2-3/4	4	53347	53463
5/8	5/8	1-5/8	3-3/4	4	53348	53464
5/8	5/8	2-1/2	4-5/8	4	53349	53465
5/8	5/8	3	5-1/8	4	53350	53466
5/8	5/8	4	6-1/8	4	53351	53467
3/4	3/4	3/4	3	4	53352	53468
3/4	3/4	1-5/8	3-7/8	4	53353	53469
3/4	3/4	1-5/8	3-7/8	6	53354	53470
3/4	3/4	2	4-1/4	4	53355	53471
3/4	3/4	2	4-1/4	6	53356	53472
3/4	3/4	3	5-1/4	4	53357	53473
3/4	3/4	3	5-1/4	6	53358 •	53474 •
3/4	3/4	4	6-1/4	4	53359	53475
3/4	3/4	4	6-1/4	6	53360 •	53476 •
7/8	7/8	1-7/8	4-1/8	4	53361	53477
7/8	7/8	1-7/8	4-1/8	6	53362 •	53478 •
1	1	1	3-1/2	4	53363	53479
1	1	2	4-1/2	4	53364	53480
1	1	2	4-1/2	6	53365	53481 •
1	1	3	5-1/2	4	53366	53482
1	1	3	5-1/2	6	53367	53483
1	1	4	6-1/2	4	53368	53484
1	1	4	6-1/2	6	53369 •	53485 •
1	1	6	8-1/2	4	53370	53486
1	1	6	8-1/2	6	53371 •	53487 •
1-1/4	1-1/4	2	4-1/2	4	53372 •	53488
1-1/4	1-1/4	2	4-1/2	6	53373	53489 •
1-1/4	1-1/4	3	5-1/2	4	53374 •	53490
1-1/4	1-1/4	3	5-1/2	6	53375 •	53491 •
1-1/4	1-1/4	4	6-1/2	4	53376	53492 •
1-1/4	1-1/4	4	6-1/2	6	53377 •	53493 •
1-1/4	1-1/4	6	8-1/2	4	53378 •	53494 •
1-1/4	1-1/4	6	8-1/2	6	53379	53495 •
1-1/2	1-1/4	2	4-1/2	4	53380 •	53496 •
1-1/2	1-1/4	2	4-1/2	6	53381 •	53497 •
1-1/2	1-1/4	3	5-1/2	4	53382 •	53498
1-1/2	1-1/4	3	5-1/2	6	53383 •	53499 •
1-1/2	1-1/4	4	6-1/2	4	53384 •	53500 •
1-1/2	1-1/4	4	6-1/2	6	53385	53501 •
1-1/2	1-1/4	6	8-1/2	4	53386 •	53502 •
1-1/2	1-1/4	6	8-1/2	6	53387 •	53503 •
2	2	2	5-3/4	4	53388 •	53504 •
2	2	2	5-3/4	6	53389	53505 •
2	2	3	6-3/4	4	53390 •	53506 •
2	2	3	6-3/4	6	53391 •	53507 •
2	2	4	7-3/4	4	53392 •	53508 •
2	2	4	7-3/4	6	53393	53509 •
2	2	6	9-3/4	4	53394 •	53510 •
2	2	6	9-3/4	6	53395 •	53511 •
2	2	8	11-3/4	4	53396 •	53512 •
2	2	8	11-3/4	6	53397 •	53513 •

Premium
Particle
Metal
8.5%
COBALT

Uncoated
TiCN
COATED

4 Flutes
6 Flutes



Center
Cutting

• Indicates a Standard, Non Stocked Item

Multi Flute General Purpose



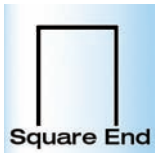
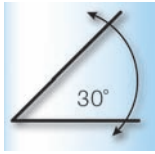
SP408

- All Materials
- Profiling
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
6 Flutes**



**Non
Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/8	3/8	3/8	2-5/16	4	46668	46870
5/32	3/8	1/2	2-3/8	4	46669 •	46871 •
3/16	3/8	1/2	2-3/8	4	46670	46872
7/32	3/8	5/8	2-7/16	4	46671 •	46873 •
1/4	3/8	5/8	2-7/16	4	46672	46874
1/4	3/8	1-1/4	3-1/16	4	46673	46875
1/4	3/8	1-3/4	3-9/16	4	46674	46876 •
9/32	3/8	5/8	2-7/16	4	46675 •	46877 •
5/16	3/8	3/4	2-1/2	4	46676	46878
5/16	3/8	1-3/8	3-1/8	4	46677	46879 •
5/16	3/8	2	3-3/4	4	46678	46880 •
11/32	3/8	3/4	2-1/2	4	46679 •	46881
3/8	3/8	3/4	2-1/2	4	46680	46882
3/8	3/8	1-1/2	3-1/4	4	46681	46883
3/8	3/8	2-1/2	4-1/4	4	46682	46884
13/32	3/8	1	2-11/16	4	46683	46885
7/16	3/8	1	2-11/16	4	46684	46886
7/16	1/2	1-3/4	3-3/4	4	46685	46887
15/32	1/2	1-1/4	3-1/4	4	46686	46888 •
1/2	3/8	1	2-11/16	4	46687	46889 •
1/2	1/2	1-1/4	3-1/4	4	46688	46890
1/2	1/2	1-1/4	3-1/4	6	46689 •	46891 •
1/2	1/2	2	4	4	46690	46892
1/2	1/2	3	5	4	46691	46893 •
17/32	1/2	1-3/8	3-3/8	4	46692	46894
9/16	1/2	1-3/8	3-3/8	4	46693	46895 •
19/32	1/2	1-3/8	3-3/8	4	46694	46896
5/8	1/2	1-3/8	3-3/8	4	46695	46897 •
5/8	5/8	1-5/8	3-3/4	4	46696	46898
5/8	5/8	1-5/8	3-3/4	6	46697	46899 •
5/8	5/8	2-1/2	4-5/8	4	46698	46900
5/8	5/8	4	6-1/8	4	46699 •	46901 •
21/32	1/2	1-5/8	3-5/8	4	46700 •	46902 •
11/16	1/2	1-5/8	3-5/8	4	46701 •	46903 •
11/16	5/8	1-5/8	3-3/4	4	46702	46904
23/32	1/2	1-5/8	3-5/8	4	46703 •	46905 •
3/4	1/2	1-5/8	3-5/8	4	46704	46906 •
3/4	5/8	1-5/8	3-3/4	4	46705	46907 •
3/4	3/4	1-5/8	3-7/8	4	46706	46908
3/4	3/4	1-5/8	3-7/8	6	46707	46909
3/4	3/4	3	5-1/4	4	46708	46910
3/4	3/4	4	6-1/4	4	46709	46911
25/32	5/8	1-7/8	4	4	46710	46912

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute General Purpose



SP408

- All Materials
- Profiling
- Weldon Flat Standard

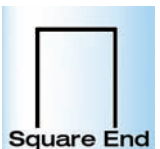
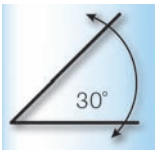
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
13/16	5/8	1-7/8	4	4	46711	46913
27/32	5/8	1-7/8	4	6	46712 •	46914 •
7/8	5/8	1-7/8	4	6	46713 •	46915 •
7/8	3/4	1-7/8	4-1/8	4	46714	46916 •
7/8	7/8	1-7/8	4-1/8	4	46715 •	46917 •
7/8	7/8	3-1/2	5-3/4	4	46716	46918 •
7/8	7/8	5	7-1/4	4	46717	46919 •
29/32	3/4	1-7/8	4-1/8	4	46718 •	46920 •
15/16	5/8	1-7/8	4	6	46719 •	46921
31/32	3/4	1-7/8	4-1/8	4	46720 •	46922 •
1	5/8	1-7/8	4	6	46721	46923 •
1	3/4	1-7/8	4-1/8	4	46722	46924
1	3/4	1-7/8	4-1/8	6	46723	46925 •
1	7/8	1-7/8	4-1/8	4	46724 •	46926 •
1	7/8	1-7/8	4-1/8	6	46725 •	46927 •
1	1	2	4-1/2	4	46726	46928
1	1	2	4-1/2	6	46727 •	46929 •
1	1	3	5-1/2	4	46728	46930
1	1	3	5-1/2	6	46729 •	46931
1	1	4	6-1/2	4	46730	46932
1	1	4	6-1/2	6	46731 •	46933 •
1	1	5	7-1/2	4	46732 •	46934
1	1	5	7-1/2	6	46733 •	46935 •
1	1	6	8-1/2	4	46734 •	46936
1	1	6	8-1/2	6	46735 •	46937 •
1-1/8	7/8	2	4-1/2	6	46736 •	46938 •
1-1/8	1	2	4-1/2	4	46737 •	46939 •
1-1/8	1	2	4-1/2	6	46738 •	46940 •
1-1/8	1	4	6-1/2	6	46739 •	46941 •
1-1/4	7/8	2	4-1/4	6	46740 •	46942 •
1-1/4	1	2	4-1/2	6	46741 •	46943 •
1-1/4	1	4	6-1/2	6	46742 •	46944 •
1-1/4	1-1/4	2	4-1/2	6	46743 •	46945 •
1-1/4	1-1/4	3	5-1/2	6	46744	46946 •
1-1/4	1-1/4	4	6-1/2	6	46745	46947
1-1/4	1-1/4	5	7-1/2	6	46746 •	46948 •
1-1/4	1-1/4	6	8-1/2	6	46747	46949
1-3/8	1	2	4-1/2	6	46748	46950 •
1-1/2	1	2	4-1/2	6	46749	46951 •
1-1/2	1	4	6-1/2	6	46750 •	46952 •
1-1/2	1-1/4	2	4-1/2	6	46751 •	46953 •
1-1/2	1-1/4	3	5-1/2	6	46752 •	46954 •
1-1/2	1-1/4	4	6-1/2	6	46753	46955

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
6 Flutes**



**Non
Center
Cutting**

• Indicates a Standard, Non Stocked Item

Multi Flute General Purpose



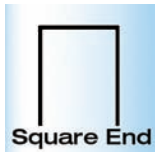
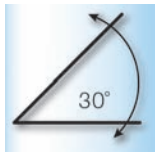
SP408

- All Materials
- Profiling
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
6 Flutes**



**Non
Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1-1/2	1-1/4	5	7-1/2	6	46754	46956 •
1-1/2	1-1/4	6	8-1/2	6	46755	46957
1-1/2	1-1/4	8	10-1/2	6	46756	46958 •
1-3/4	1-1/4	2	4-1/2	6	46757 •	46959 •
1-3/4	1-1/4	3	5-1/2	6	46758 •	46960 •
1-3/4	1-1/4	4	6-1/2	6	46759 •	46961 •
2	1-1/4	2	4-1/2	8	46760 •	46962 •
2	1-1/4	3	5-1/2	8	46761 •	46963 •
2	1-1/4	4	6-1/2	8	46762 •	46964
2	2	2	5-3/4	4	46763 •	46965 •
2	2	2	5-3/4	6	46764 •	46966 •
2	2	4	7-3/4	4	46765 •	46967 •
2	2	4	7-3/4	6	46766 •	46968 •
2	2	6	9-3/4	6	46767	46969
2	2	8	11-3/4	6	46768 •	46970

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Center-Cutting General Purpose



SPC408

- All Materials
- Profiling
- Weldon Flat Standard

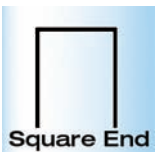
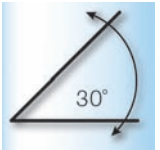
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/8	3/8	3/8	2-5/16	4	52041	88604
5/32	3/8	1/2	2-3/8	4	52051	88605
3/16	3/8	3/16	2-1/16	4	52049	89446
3/16	3/8	1/2	2-3/8	4	52061	88606
7/32	3/8	5/8	2-7/16	4	52071	88607
1/4	3/8	1/4	2-1/16	4	52069	89447
1/4	3/8	5/8	2-7/16	4	52081	88608
1/4	3/8	1-1/4	3-1/16	4	52082	88609
1/4	3/8	1-3/4	3-9/16	4	52083	88610
9/32	3/8	5/8	2-7/16	4	52091	88611
5/16	3/8	5/16	2-1/16	4	52109	89448
5/16	3/8	3/4	2-1/2	4	52101	88612
5/16	3/8	1-3/8	3-1/8	4	52102	88613
5/16	3/8	2	3-3/4	4	52103	88614 •
11/32	3/8	3/4	2-1/2	4	52111	88615
3/8	3/8	3/8	2-1/8	4	52129	89449
3/8	3/8	3/4	2-1/2	4	52121	88616
3/8	3/8	1-1/2	3-1/4	4	52122	88617
3/8	3/8	2-1/2	4-1/4	4	52123	88618
7/16	3/8	1	2-11/16	4	52141	88619
7/16	3/8	2	3-11/16	4	52142	88620
1/2	3/8	1	2-11/16	4	52166	88625
1/2	1/2	1-1/4	3-1/4	4	52160	88621
1/2	1/2	1-1/4	3-1/4	6	52162	88622
1/2	1/2	2	4	4	52163	88623
1/2	1/2	3	5	4	52164	88624
1/2	1/2	4	6	4	52167	88626
9/16	1/2	1-3/8	3-3/8	4	52182	88627
5/8	5/8	1-5/8	3-3/4	4	52200	88628
5/8	5/8	1-5/8	3-3/4	6	52203	88631
5/8	5/8	2-1/2	4-5/8	4	52201	88629
5/8	5/8	3	5-1/8	4	52202	88630
5/8	5/8	4	6-1/8	4	52204	88632 •
3/4	1/2	1-5/8	3-5/8	4	52206	88633
3/4	3/4	1-5/8	3-7/8	4	52240	88634
3/4	3/4	1-5/8	3-7/8	6	52244	88638
3/4	3/4	2	4-1/4	4	52241	88635
3/4	3/4	2	4-1/4	6	52249 •	88641
3/4	3/4	3	5-1/4	4	52242	88636
3/4	3/4	3	5-1/4	6	52246	88639
3/4	3/4	4	6-1/4	4	52243	88637
3/4	3/4	4	6-1/4	6	52247	88640
7/8	7/8	1-7/8	4-1/8	4	52285	88642

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
6 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Center-Cutting General Purpose



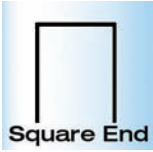
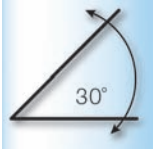
SPC408

- All Materials
- Profiling
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
6 Flutes**



**Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
7/8	7/8	3-1/2	5-3/4	4	52286	88643
1	3/4	1-7/8	4-1/8	4	52334	88652
1	1	2	4-1/2	4	52320	88644
1	1	2	4-1/2	6	52326	88649
1	1	3	5-1/2	4	52321	88645
1	1	3	5-1/2	6	52327	88650
1	1	4	6-1/2	4	52322	88646
1	1	4	6-1/2	6	52324	88648
1	1	6	8-1/2	4	52323	88647
1	1	6	8-1/2	6	52329	88651 •
1-1/8	1	2	4-1/2	6	52366	88653
1-1/8	1	4	6-1/2	6	52367	88654 •
1-1/4	1	2	4-1/2	4	52414	88663 •
1-1/4	1	2	4-1/2	6	52416	88664 •
1-1/4	1-1/4	2	4-1/2	4	52400	88655
1-1/4	1-1/4	2	4-1/2	6	52407	88660
1-1/4	1-1/4	3	5-1/2	4	52401	88656 •
1-1/4	1-1/4	3	5-1/2	6	52406	88659
1-1/4	1-1/4	4	6-1/2	4	52402	88657
1-1/4	1-1/4	4	6-1/2	6	52409	88661
1-1/4	1-1/4	6	8-1/2	4	52403	88658 •
1-1/4	1-1/4	6	8-1/2	6	52410	88662 •
1-1/2	1	4	6-1/2	6	52494	88668 •
1-1/2	1-1/4	2	4-1/2	4	52480	88665
1-1/2	1-1/4	2	4-1/2	6	52487	88667
1-1/2	1-1/4	4	6-1/2	6	52486	88666 •
1-1/4	1-1/4	8	10-1/2	6	52499	88669 •
2	1-1/4	2	4-1/2	6	52644	88670 •
2	1-1/4	4	6-1/2	6	52646	88671 •

• Indicates a Standard, Non Stocked Item

Multi Flute Ball-End General Purpose



SPB540

- All Materials
- Profiling / Contouring
- Weldon Flat Standard

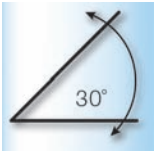
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/8	3/8	3/8	2-5/16	4	54041	88688
3/16	3/8	1/2	2-3/8	4	54061	88689
1/4	3/8	5/8	2-7/16	4	54081	88690
1/4	3/8	1	2-13/16	4	67267 •	67337
1/4	3/8	1-1/4	3-1/8	4	67268	67338
1/4	3/8	1-3/4	3-9/16	4	67269	67339 •
5/16	3/8	3/4	2-1/2	4	54101 •	88691
5/16	3/8	1-3/8	3-1/8	4	67270 •	67340 •
5/16	3/8	2	3-3/4	4	67271	67341 •
3/8	3/8	3/4	2-1/2	4	54121	88692
3/8	3/8	1-1/2	3-1/4	4	67272	67342
3/8	3/8	2	3-3/4	4	67273	67343 •
3/8	3/8	2-1/2	4-1/4	4	67274 •	67344 •
1/2	1/2	1-1/4	3-1/4	4	54160	88693
1/2	1/2	1	3	4	67275 •	67345
1/2	1/2	2	4	4	67276	67346
1/2	1/2	2-1/2	4-1/2	4	67277 •	67347
1/2	1/2	3	5	4	67278 •	67348
5/8	5/8	1-5/8	3-3/4	4	54200	88694
5/8	5/8	1-1/4	3-3/8	4	67279 •	67349 •
5/8	5/8	2-1/2	4-5/8	4	67280	67350 •
5/8	5/8	3	5-1/8	4	67281 •	67351 •
5/8	5/8	4	6-1/8	4	67282 •	67352 •
3/4	3/4	1-5/8	3-7/8	4	54240	88695
3/4	3/4	2-1/4	4-1/2	4	67283 •	67353
3/4	3/4	3	5-1/4	4	67284	67354
3/4	3/4	4	6-1/4	4	67285 •	67355 •
3/4	3/4	4-1/2	6-3/4	4	67286 •	67356
7/8	7/8	1-7/8	4-1/8	4	54280 •	88696 •
1	1	2	4-1/2	4	54320	88697 •
1	1	3	5-1/2	4	67287	67357
1	1	4	6-1/2	4	67288 •	67358
1	1	5	7-1/2	4	67289	67359 •
1	1	6	8-1/2	4	67290	67360 •
1-1/4	1-1/4	2	4-1/2	6	54407	88698
1-1/4	1-1/4	3	5-1/2	6	67291 •	67361 •
1-1/4	1-1/4	4	6-1/2	6	67292 •	67362 •
1-1/4	1-1/4	6	8-1/2	6	67293 •	67363 •
1-1/2	1-1/4	2	4-1/2	6	54487	88699 •
1-1/2	1-1/4	4	6-1/2	6	67294 •	67364 •
1-1/2	1-1/4	6	8-1/2	6	67295 •	67365 •
1-1/2	1-1/4	8	10-1/2	6	67296 •	67366 •
2	2	2	5-3/4	6	67297 •	67367 •
2	2	3	6-3/4	6	67298 •	67368 •
2	2	4	7-3/4	6	67299 •	67369 •
2	2	6	9-3/4	6	67300 •	67370 •
2	2	8	11-3/4	6	67301 •	67371 •

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
6 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute Double-End General Purpose

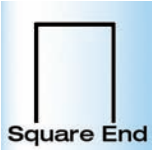
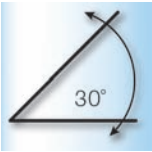


- DPC560**
- All Materials
 - Profiling
 - Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

4 Flutes



**Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/8	3/8	3/8	3-1/16	4	56041	88715
5/32	3/8	7/16	3-1/8	4	56051	88716
3/16	3/8	1/2	3-1/4	4	56061	88717
7/32	3/8	9/16	3-1/4	4	56071	88718
1/4	3/8	5/8	3-3/8	4	56081	88719
9/32	3/8	11/16	3-3/8	4	56091	88720 •
5/16	3/8	3/4	3-1/2	4	56101	88721
11/32	3/8	3/4	3-1/2	4	56111	88722
3/8	3/8	3/4	3-1/2	4	56121	88723
7/16	1/2	1	4-1/8	4	56142	88724
1/2	1/2	1	4-1/8	4	56162	88725
9/16	5/8	1-3/8	5	4	56183	88726
5/8	5/8	1-3/8	5	4	56203	88727
3/4	3/4	1-5/8	5-5/8	4	56244	88728
7/8	7/8	1-7/8	6-1/8	4	56285	88729 •
1	1	1-7/8	6-3/8	4	56326	88730

• Indicates a Standard, Non Stocked Item

Niagara Cutter

8 Flute Large Diameter General Purpose



HDP890

- All Materials
- Profiling
- Weldon Flat Standard

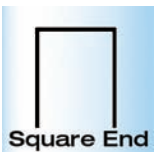
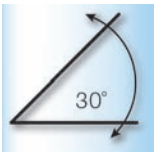
Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
2	2	2	5-3/4	8	60537 •	60553 •
2	2	3	6-3/4	8	60538 •	60554 •
2	2	4	7-3/4	8	60539 •	60555 •
2	2	5	8-3/4	8	60540 •	60556 •
2	2	6	9-3/4	8	60541 •	60557 •
2	2	8	11-3/4	8	60542 •	60558 •
2	2	10	13-3/4	8	60543 •	60559 •
2	2	12	15-3/4	8	60544 •	60560 •

**8%
COBALT
HSCO**

**Uncoated
TiCN
COATED**

8 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

4 Flute Metric Flute General Purpose

Inch Shank

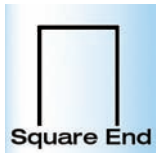
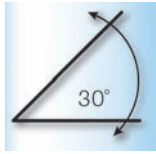


- SMM845**
- All Materials
 - Profiling
 - Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

4 Flutes



**Center
Cutting**

Price Code A

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
2mm	3/8	3/8	2-5/16	4	72860	88948
3mm	3/8	3/8	2-5/16	4	72861	88949
4mm	3/8	7/16	2-5/16	4	72862	88950
5mm	3/8	9/16	2-1/2	4	72863	88951
6mm	3/8	5/8	2-1/2	4	72864	88952
7mm	3/8	11/16	2-1/2	4	72865	88953 •
8mm	3/8	3/4	2-1/2	4	72866	88954
10mm	3/8	1	2-11/16	4	72867	88955
12mm	1/2	1	2-11/16	4	72868	88956
14mm	1/2	1-3/8	3-3/8	4	72869	88957
16mm	5/8	1-5/8	3-3/4	4	72870	88958 •
18mm	5/8	1-5/8	3-3/4	4	72871	88959 •
20mm	3/4	1-7/8	4-1/8	4	72872	88960
25mm	1	2	4-1/2	4	72873	88961 •

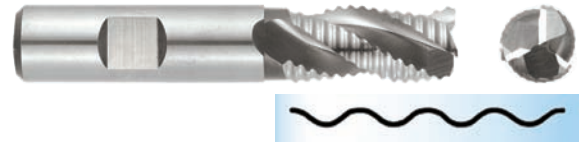
• Indicates a Standard, Non Stocked Item

Niagara Cutter

3 Flute Coarse-Pitch Rougher

RTM713

- All Materials
- Profiling / Slotting
- Weldon Flat Standard



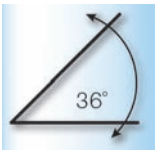
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/4	3/8	1/4	2-1/8	3	73089	89020
1/4	3/8	5/8	2-1/2	3	73081	89019
3/8	3/8	3/8	2-1/4	3	73129 •	89023 •
3/8	3/8	7/8	2-3/4	3	73121	89022
1/2	1/2	1/2	2-9/16	3	73169 •	89026
1/2	1/2	1	3-1/16	3	73162	89025
5/8	5/8	5/8	2-7/8	3	73209	89028
5/8	5/8	1-1/4	3-1/2	3	73203	89027 •
3/4	3/4	3/4	3	3	73249	89030
3/4	3/4	1-1/2	3-3/4	3	73244	89029
7/8	7/8	7/8	3-1/8	3	73287 •	89032 •
7/8	1	7/8	3-1/2	3	73289 •	89033 •
7/8	1	1-3/4	4-3/8	3	73286 •	89031 •
1	3/4	1	3-1/4	3	73327	89035
1	1	1	3-7/8	3	73329	89036 •
1	1	1-3/4	4-5/8	3	73326	89034
1-1/4	1-1/4	1-1/4	4-1/8	3	73409 •	89044 •
1-1/4	1-1/4	2	4-7/8	3	73407 •	89043 •

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

3 Flute Coarse-Pitch Rougher for Aluminum

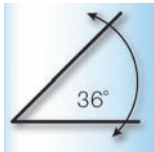


RHC752

- Aluminum / Non-Ferrous Materials
- Profiling / Slotting
- Weldon Flat Standard

**8%
COBALT
HSCO**

**Uncoated
TiCN
COATED**



3 Flutes



**Center
Cutting**

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
3/16	3/8	1/2	2-3/8	3	75303	79459
1/4	3/8	5/8	2-7/16	3	75215	79460
1/4	3/8	1-1/4	3-1/16	3	75307	79461
5/16	3/8	3/4	2-1/2	3	75309	79462
5/16	3/8	1-3/8	3-1/8	3	75311	79463
3/8	3/8	3/4	2-1/2	3	75201	69360
3/8	3/8	1-1/2	3-1/4	3	75203	79464
7/16	3/8	1	2-11/16	3	75207 •	79465 •
1/2	1/2	1	3	3	75313	79466
1/2	1/2	1-1/4	3-1/4	3	75205	69361
1/2	1/2	1-5/8	3-5/8	3	75315	79467
1/2	1/2	2	4	3	75209	69362
1/2	1/2	2-1/2	4-1/2	3	75317	79468
1/2	1/2	3	5	3	75319	79469
9/16	1/2	1-3/8	3-3/8	3	75210 •	79470 •
5/8	5/8	3/4	2-7/8	3	75321	79471 •
5/8	5/8	1-1/4	3-3/8	3	75323 •	79472
5/8	5/8	1-5/8	3-3/4	3	75213	69363
5/8	5/8	2-1/8	4-1/4	3	75325 •	79473
5/8	5/8	2-1/2	4-5/8	3	75217	69364
5/8	5/8	3-1/8	5-1/4	3	75219 •	79474 •
11/16	5/8	1-5/8	3-3/4	3	75327 •	79475
3/4	5/8	1-5/8	3-3/4	3	75231 •	79476 •
3/4	3/4	3/4	3	3	75233	69368
3/4	3/4	1-1/4	3-1/2	3	75227	79477
3/4	3/4	1-1/2	3-3/4	3	75229	69367
3/4	3/4	1-5/8	3-7/8	3	75221	69365
3/4	3/4	2	4-1/4	3	75225	69366
3/4	3/4	2-1/2	4-3/4	3	75223	79478
3/4	3/4	3	5-1/4	3	75235	79479
3/4	3/4	4-1/8	6-3/8	3	75329	79480 •
13/16	3/4	1-7/8	4-1/8	3	75331 •	79481 •
7/8	3/4	1-1/8	3-3/8	3	75333 •	79482 •
7/8	3/4	1-1/2	3-3/4	3	75241 •	69370
7/8	3/4	1-7/8	4-1/8	3	75243 •	79483 •
7/8	3/4	3-1/2	5-3/4	3	75247 •	79484 •
7/8	7/8	1-1/8	3-3/8	3	75335 •	79485 •
7/8	7/8	1-7/8	4-1/8	3	75237	69369 •
7/8	7/8	3-1/2	5-3/4	3	75239 •	79486 •
1	3/4	3/4	3	3	75257	69374 •
1	3/4	1-1/8	3-3/8	3	75259 •	79487 •
1	3/4	1-1/2	3-3/4	3	75253	69373
1	3/4	2	4-1/4	3	75255 •	79488
1	3/4	3	5-1/4	3	75337 •	79489 •
1	3/4	4	6-1/4	3	75339 •	79490 •
1	1	1-1/8	3-5/8	3	75343 •	79491 •
1	1	1-5/8	4-1/8	3	75347 •	79492 •
1	1	2	4-1/2	3	75245	69371

• Indicates a Standard, Non Stocked Item

Niagara Cutter

3 Flute Coarse-Pitch Rougher for Aluminum

RHC752

- Aluminum / Non-Ferrous Materials
- Profiling / Slotting
- Weldon Flat Standard

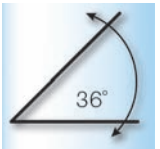


Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1	1	3	5-1/2	3	75249	69372
1	1	4	6-1/2	3	75351	79493
1	1	6	8-1/2	3	75251	79494 •
1-1/8	3/4	1-1/8	3-3/8	3	75355 •	79495 •
1-1/8	3/4	2	4-1/4	3	75359 •	79496 •
1-1/8	1	2	4-1/2	3	75363 •	79497 •
1-1/8	1	3-1/2	6	3	75271 •	79498 •
1-1/4	3/4	3/4	3	3	75273 •	69378 •
1-1/4	3/4	1-1/8	3-3/8	3	75275 •	79499 •
1-1/4	3/4	1-1/2	3-3/4	3	75269	69377 •
1-1/4	3/4	2	4-1/4	3	75263 •	79500 •
1-1/4	1-1/4	1-3/8	3-7/8	3	75267 •	79501 •
1-1/4	1-1/4	2	4-1/2	3	75261	69375
1-1/4	1-1/4	3	5-1/2	3	75265	69376 •
1-1/4	1-1/4	4	6-1/2	3	75367	79502 •
1-1/4	1-1/4	6	8-1/2	3	75371	79503 •
1-3/8	3/4	1-1/8	3-3/8	3	75375 •	79504 •
1-3/8	3/4	2	4-1/4	3	75379 •	79505 •
1-1/2	3/4	3/4	3	3	75289	69382 •
1-1/2	3/4	1-1/8	3-3/8	3	75383 •	79506 •
1-1/2	3/4	1-1/2	3-3/4	3	75285 •	69381 •
1-1/2	3/4	2	4-1/4	3	75279	79507 •
1-1/2	1-1/4	2	4-1/2	3	75277 •	69379 •
1-1/2	1-1/4	3	5-1/2	3	75281 •	69380 •
1-1/2	1-1/4	4	6-1/2	3	75283	79508
1-1/2	1-1/4	5	7-1/2	3	75287 •	79509 •
1-1/2	1-1/4	6	8-1/2	3	75291 •	79510 •
1-3/4	3/4	1-1/8	3-3/8	3	75295 •	79511 •
1-3/4	3/4	2	4-1/4	3	75299 •	79512 •
1-3/4	1-1/4	2	4-1/2	3	75387 •	79513 •
1-3/4	1-1/4	4	6-1/2	3	75389 •	79514 •
2	3/4	3/4	3	3	75305 •	69386 •
2	3/4	1-1/8	3-3/8	3	75391 •	79515 •
2	3/4	2	4-1/4	3	75393 •	79516 •
2	1-1/4	2	4-1/2	3	75395 •	79517 •
2	1-1/4	4	6-1/2	3	75397 •	79518 •
2	1-1/4	6-1/8	8-5/8	3	75399 •	79519 •
2	2	2	5-3/4	3	75293 •	69383 •
2	2	3	6-3/4	3	75297 •	69384 •
2	2	4	7-3/4	3	75301 •	69385 •
2	2	5	8-3/4	3	75401 •	79520 •
2	2	6	9-3/4	3	75403 •	79521 •
2	2	7	10-3/4	3	75405 •	79522 •
2	2	8	11-3/4	3	75407 •	79523 •
2	2	10	13-3/4	3	75409 •	79524 •
2	2	12	15-3/4	3	75411 •	79525 •

8%
COBALT
HSCO

Uncoated
TiCN
COATED



3 Flutes



Center
Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

3 Flute Coarse-Pitch Neck Style Rougher

General Purpose



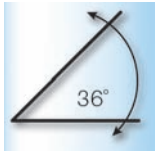
RHLC754

- Aluminum/Non-Ferrous Materials
- Profiling / Slotting
- Weldon Flat Standard

**8%
COBALT
HSCO**

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

Price Code B

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1	1	4	2-1/2	6-1/2	3	75421	89112 •
1	1	6	2-1/2	8-1/2	3	75425	89113 •
1-1/4	1-1/4	4	2-1/2	6-1/2	3	75437 •	89114 •
1-1/4	1-1/4	6	2-1/2	8-1/2	3	75441	89115 •
1-1/2	1-1/4	4	2-1/2	6-1/2	3	75451 •	89116 •
1-1/2	1-1/4	5	2-1/2	7-1/2	3	75455 •	89117 •
1-1/2	1-1/4	6	2-1/2	10-1/2	3	75459 •	89118 •
2	2	4	2-1/2	7-3/4	3	75471 •	89119 •
2	2	6	2-1/2	9-3/4	3	75475 •	89120 •
2	2	8	2-1/2	11-3/4	3	75477 •	89121 •
2	2	10	2-1/2	13-3/4	3	75481 •	89122 •
2	2	12	2-1/2	15-3/4	3	75485 •	89123 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

3 Flute Fine-Pitch Rougher General Purpose



RTM447

- All Materials
- Profiling / Slotting
- High Temp Alloys
- Weldon Flat Standard

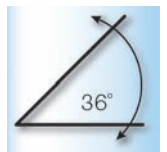
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/4	3/8	1/4	2-1/8	3	44701	88456
1/4	3/8	5/8	2-1/2	3	44703	88457
3/8	3/8	3/8	2-1/4	3	44705	88458
3/8	3/8	7/8	2-3/4	3	44707	88459
1/2	1/2	1/2	2-9/16	3	44709	88460
1/2	1/2	1	3-1/16	3	44711	88461
5/8	5/8	5/8	2-7/8	3	44713	88462
5/8	5/8	1-1/4	3-1/2	3	44715	88463
3/4	3/4	3/4	3	3	44717 •	88464
3/4	3/4	1-1/2	3-3/4	3	44719	88465
7/8	7/8	7/8	3-1/8	3	44721 •	88466 •
7/8	1	7/8	3-1/2	3	44723 •	88467 •
7/8	1	1-3/4	4-3/8	3	44725 •	88468 •
1	3/4	1	3-1/4	3	44727 •	88469
1	1	1	3-7/8	3	44729 •	88470 •
1	1	1-3/4	4-5/8	3	44731	88471
1-1/4	1-1/4	1-1/4	4-1/8	3	44733 •	88472 •
1-1/4	1-1/4	2	4-7/8	3	44735 •	88473 •

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

3 Flutes



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Coarse-Pitch Rougher

General Purpose



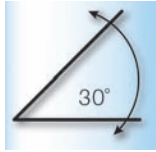
REM710

- All Materials
- Profiling / Slotting
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes
10 Flutes**



**Non
Center
Cutting**

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
3/16	3/8	1/2	2-3/8	4	71061	69290
1/4	3/8	5/8	2-7/16	4	71081	71084
1/4	3/8	1-1/8	2-15/16	4	71092	70939
1/4	3/8	1-1/4	3-1/16	4	71082	69291
5/16	3/8	3/4	2-1/2	4	71101	71104
5/16	3/8	1-3/8	3-1/8	4	71102	69293
3/8	3/8	3/4	2-1/2	4	71121	71124
3/8	3/8	1-3/8	3-1/8	4	71126	70940
3/8	3/8	1-1/2	3-1/4	4	71122	69294
7/16	3/8	1	2-11/16	4	71141	69295
1/2	1/2	1	3	4	71161	79420
1/2	1/2	1-1/4	3-1/4	4	71162	71165
1/2	1/2	1-5/8	3-5/8	4	72162	79421
1/2	1/2	2	4	4	71163	69296
1/2	1/2	2-1/2	4-1/2	4	72163	79422
1/2	1/2	3	5	4	72167	79423
9/16	1/2	1-3/8	3-3/8	4	71182	69297
5/8	5/8	3/4	2-7/8	4	71206	79424
5/8	5/8	1-1/4	3-3/8	4	71202	79425
5/8	5/8	1-5/8	3-3/4	4	71203	71208
5/8	5/8	2-1/8	4-1/4	4	72203	79426
5/8	5/8	2-1/2	4-5/8	4	71204	69298
5/8	5/8	3-1/8	5-1/4	4	72204	79427
11/16	5/8	1-5/8	3-3/4	4	71223	79428
3/4	5/8	1-5/8	3-3/4	4	71243	69301
3/4	3/4	3/4	3	4	72243	69300
3/4	3/4	1-1/4	3-1/2	4	71241	79429
3/4	3/4	1-1/2	3-3/4	4	72241	79430
3/4	3/4	1-5/8	3-7/8	4	71244	71245
3/4	3/4	2	4-1/4	4	71247	79431
3/4	3/4	2-1/2	4-3/4	4	72245	79432
3/4	3/4	3	5-1/4	4	72244	69299
3/4	3/4	4-1/8	6-3/8	4	72248	79433
13/16	3/4	1-7/8	4-1/8	5	71264	79434
7/8	3/4	1-1/8	3-3/8	5	71280	79435
7/8	3/4	1-1/2	3-3/4	5	71288	79436
7/8	3/4	1-7/8	4-1/8	5	72284	69302
7/8	3/4	3-1/2	5-3/4	5	71283	69303
7/8	7/8	1-1/8	3-3/8	5	72283	79437
7/8	7/8	1-7/8	4-1/8	5	71284	69304
7/8	7/8	3-1/2	5-3/4	5	71285	69305
1	3/4	3/4	3	5	71324	69310
1	3/4	1-1/8	3-3/8	5	72325	79438
1	3/4	1-1/2	3-3/4	5	72324	69309
1	3/4	2	4-1/4	5	71330	79439
1	3/4	3	5-1/4	5	72316	79440
1	3/4	4	6-1/4	5	72317	79441
1	1	1-1/8	3-5/8	5	72318	79442
1	1	1-5/8	4-1/8	5	72319	79443
1	1	2	4-1/2	5	71326	71329
1	1	3	5-1/2	5	71327	69306
1	1	4	6-1/2	5	72326	69307
1	1	6	8-1/2	5	72327	69308
1-1/8	3/4	1-1/8	3-3/8	6	71364	79444
1-1/8	3/4	2	4-1/4	6	71365	79445

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Coarse-Pitch Rougher General Purpose



REM710

- All Materials
- Profiling / Slotting
- Weldon Flat Standard

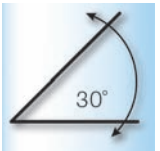
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1-1/8	1	2	4-1/2	6	71366	69311
1-1/8	1	3-1/2	6	6	71367 •	79446
1-1/4	3/4	3/4	3	6	71404	69317
1-1/4	3/4	1-1/8	3-3/8	6	71403 •	79447 •
1-1/4	3/4	1-1/2	3-3/4	6	72404	69316
1-1/4	3/4	2	4-1/4	6	71406	79448
1-1/4	1-1/4	1-3/8	3-7/8	6	72403 •	79449
1-1/4	1-1/4	2	4-1/2	6	71407	69312
1-1/4	1-1/4	3	5-1/2	6	71408	69313
1-1/4	1-1/4	4	6-1/2	6	72407	69314
1-1/4	1-1/4	6	8-1/2	6	72408	69315
1-3/8	3/4	1-1/8	3-3/8	6	71444	79450 •
1-3/8	3/4	2	4-1/4	6	72444 •	79451 •
1-1/2	3/4	3/4	3	6	71484 •	69325
1-1/2	3/4	1-1/8	3-3/8	6	71485 •	79452 •
1-1/2	3/4	1-1/2	3-3/4	6	72484	69324
1-1/2	3/4	2	4-1/4	6	72485	79453
1-1/2	1-1/4	2	4-1/2	6	71487	69318
1-1/2	1-1/4	3	5-1/2	6	71488	69319
1-1/2	1-1/4	4	6-1/2	6	72487	69320
1-1/2	1-1/4	5	7-1/2	6	72488	69321 •
1-1/2	1-1/4	6	8-1/2	6	71489	69322
1-1/2	1-1/4	8	10-1/2	6	72489	69323
1-3/4	3/4	1-1/8	3-3/8	6	71564 •	79454 •
1-3/4	3/4	2	4-1/4	6	71566 •	79455 •
1-3/4	1-1/4	2	4-1/2	6	72564	69326 •
1-3/4	1-1/2	2-1/2	5-3/8	6	72568 •	69327 •
1-3/4	1-1/4	4	6-1/2	6	72574	69328
1-3/4	1-1/2	4-1/2	7-3/8	6	72569 •	69329 •
2	3/4	3/4	3	8	71644 •	69330
2	3/4	1-1/8	3-3/8	8	71640	79456
2	3/4	2	4-1/4	8	71642 •	79457 •
2	1-1/4	2	4-1/2	8	71645	69331
2	1-1/4	4	6-1/2	8	71648 •	69332
2	1-1/4	6-1/8	8-5/8	8	72647 •	79458 •
2	2	2	5-3/4	8	71323 •	69333 •
2	2	3	6-3/4	8	71333 •	69334
2	2	4	7-3/4	8	71343	69335
2	2	5	8-3/4	8	71353 •	69336 •
2	2	6	9-3/4	8	71363 •	69337
2	2	7	10-3/4	8	71373 •	69338 •
2	2	8	11-3/4	8	71383	69339
2	2	10	13-3/4	8	71303 •	69340
2	2	12	15-3/4	8	71304 •	69341 •
2-1/2	2	4	7-3/4	8	72491 •	69342 •
2-1/2	2	6	9-3/4	8	72495 •	69343 •
2-1/2	2	8	11-3/4	8	72499 •	69344 •
2-1/2	2	10	13-3/4	8	72503 •	69345 •
2-1/2	2	12	15-3/4	8	72507 •	69346 •
3	2-1/2	4	7-3/4	10	72511 •	69347 •
3	2-1/2	6	9-3/4	10	72515 •	69348 •
3	2-1/2	8	11-3/4	10	72519 •	69349 •
3	2-1/2	10	13-3/4	10	72523 •	69350 •
3	2-1/2	12	15-3/4	10	72527 •	69351 •

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes
10 Flutes**



**Non
Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Coarse-Pitch Center-Cutting Rougher

General Purpose



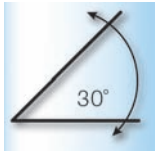
REC700

- All Materials
- Profiling / Slotting
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes**



**Center
Cutting**

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
3/16	3/8	1/2	2-3/8	4	70013	88861
1/4	3/8	5/8	2-7/16	4	70015	88862
1/4	3/8	3/8	2-3/16	4	70210	70212
1/4	3/8	1-1/4	3-1/16	4	70017	88863
5/16	3/8	3/4	2-1/2	4	70019	88864
5/16	3/8	1-3/8	3-1/8	4	70021	88865
3/8	3/8	1/2	2-1/4	4	70213	70215
3/8	3/8	3/4	2-1/2	4	70023	88866
3/8	3/8	1-1/2	3-1/4	4	70025	88867
7/16	3/8	1	2-11/16	4	70027	88868
1/2	1/2	5/8	2-5/8	4	70216	70218
1/2	1/2	1	3	4	70129	88869
1/2	1/2	1-1/4	3-1/4	4	70031	88870
1/2	1/2	1-5/8	3-5/8	4	70033	79526
1/2	1/2	2	4	4	70035	88871
1/2	1/2	2-1/2	4-1/2	4	70137	79527
1/2	1/2	3	5	4	70139	79528
9/16	1/2	1-3/8	3-3/8	4	70037	88872
5/8	5/8	5/8	2-3/4	4	70219 •	70222 •
5/8	5/8	3/4	2-7/8	4	70127 •	79529
5/8	5/8	1-1/4	3-3/8	4	70029	79530
5/8	5/8	1-5/8	3-3/4	4	70039	88873
5/8	5/8	2-1/8	4-1/4	4	70041 •	79531 •
5/8	5/8	2-1/2	4-5/8	4	70043	88874
5/8	5/8	3-1/8	5-1/4	4	70045	79532
11/16	5/8	1-5/8	3-3/4	4	70147	79533
3/4	5/8	1-5/8	3-3/4	4	70053	88878
3/4	3/4	3/4	3	4	70049	88876
3/4	3/4	1-1/4	3-1/2	4	70151	79534
3/4	3/4	1-1/2	3-3/4	4	70153	79535
3/4	3/4	1-5/8	3-7/8	4	70047	88875
3/4	3/4	2	4-1/4	4	70149	79536
3/4	3/4	2-1/2	4-3/4	4	70155	79537
3/4	3/4	3	5-1/4	4	70051	88877
3/4	3/4	4-1/8	6-3/8	4	70157	79538
13/16	3/4	1-7/8	4-1/8	5	70159	79539
7/8	3/4	1-1/8	3-3/8	5	70165 •	79540
7/8	3/4	1-1/2	3-3/4	5	70057	79541 •
7/8	3/4	1-7/8	4-1/8	5	70055	88879
7/8	3/4	3-1/2	5-3/4	5	70059	88880 •
7/8	7/8	1-1/8	3-3/8	5	70061 •	79542
7/8	7/8	1-7/8	4-1/8	5	70063	88881
7/8	7/8	3-1/2	5-3/4	5	70065 •	88882 •
1	3/4	3/4	3	5	70069	79543
1	3/4	1-1/8	3-3/8	5	70073 •	79544
1	3/4	1-1/2	3-3/4	5	70079	88887
1	3/4	2	4-1/4	5	70081	88888
1	3/4	3	5-1/4	5	70083	79545 •
1	3/4	4	6-1/4	5	70085 •	79546 •
1	1	1	3-1/2	5	70224	70226
1	1	1-1/8	3-5/8	5	70167	79547 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Coarse-Pitch Center-Cutting Rougher General Purpose

REC700

- All Materials
- Profiling / Slotting
- Weldon Flat Standard



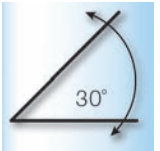
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1	1	1-5/8	4-1/8	5	70171	79548 •
1	1	2	4-1/2	5	70067	88883
1	1	3	5-1/2	5	70071	88884
1	1	4	6-1/2	5	70075	88885
1	1	6	8-1/2	5	70077 •	88886 •
1-1/8	3/4	1-1/8	3-3/8	6	70173	79549 •
1-1/8	3/4	2	4-1/4	6	70175 •	79550 •
1-1/8	1	2	4-1/2	6	70177	79551 •
1-1/8	1	3-1/2	6	6	70179 •	79552 •
1-1/4	3/4	3/4	3	6	70181 •	79553 •
1-1/4	3/4	1-1/8	3-3/8	6	70183	79554 •
1-1/4	3/4	1-1/2	3-3/4	6	70185 •	79555 •
1-1/4	3/4	2	4-1/4	6	70187 •	79556
1-1/4	1-1/4	1-1/4	3-3/4	6	70227 •	70229 •
1-1/4	1-1/4	1-3/8	3-7/8	6	70189 •	79557 •
1-1/4	1-1/4	2	4-1/2	6	70087	88889
1-1/4	1-1/4	3	5-1/2	6	70089	79558
1-1/4	1-1/4	4	6-1/2	6	70091	88890
1-1/4	1-1/4	6	8-1/2	6	70093	79559
1-3/8	3/4	1-1/8	3-3/8	6	70095 •	79560 •
1-3/8	3/4	2	4-1/4	6	70097 •	79561 •
1-1/2	3/4	3/4	3	6	70191 •	79562 •
1-1/2	3/4	1-1/8	3-3/8	6	70193 •	79563 •
1-1/2	3/4	1-1/2	3-3/4	6	70195 •	79564 •
1-1/2	3/4	2	4-1/4	6	70197 •	79565 •
1-1/2	1-1/4	2	4-1/2	6	70099	88891
1-1/2	1-1/4	3	5-1/2	6	70101 •	79566 •
1-1/2	1-1/4	4	6-1/2	6	70103	88892
1-1/2	1-1/4	5	7-1/2	6	70105 •	79567 •
1-1/2	1-1/4	6	8-1/2	6	70107 •	79568 •
1-3/4	3/4	1-1/8	3-3/8	6	70109 •	79569 •
1-3/4	3/4	2	4-1/4	6	70113 •	79570 •
1-3/4	1-1/4	2	4-1/2	6	70117 •	79571 •
1-3/4	1-1/4	4	6-1/2	6	70121 •	79572 •
2	3/4	3/4	3	8	70123 •	79573 •
2	3/4	1-1/8	3-3/8	8	70125 •	79574 •
2	3/4	2	4-1/4	8	70131 •	79575 •
2	1-1/4	2	4-1/2	8	70133	79576 •
2	1-1/4	4	6-1/2	8	70135 •	79577 •
2	1-1/4	6-1/8	8-5/8	8	70141 •	79578 •
2	2	2	5-3/4	8	70143 •	79579 •
2	2	3	6-3/4	8	70111	88893 •
2	2	4	7-3/4	8	70115	88894 •
2	2	5	8-3/4	8	70145	79580 •
2	2	6	9-3/4	8	70119 •	88895
2	2	7	10-3/4	8	70202 •	79581 •
2	2	8	11-3/4	8	70205 •	79582 •
2	2	10	13-3/4	8	70207 •	79583 •
2	2	12	15-3/4	8	70209 •	79584 •

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Coarse-Pitch Ball-End Rougher



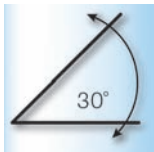
RMB700

- All Materials
- Profiling / Slotting
- Contouring
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
5 Flutes
6 Flutes**



**Center
Cutting**

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/2	1/2	1-1/4	3-1/4	4	70162	88897
1/2	1/2	2	4	4	70163	79585
5/8	5/8	1-5/8	3-3/4	4	70203	88898
5/8	5/8	2-1/2	4-5/8	4	70223 •	79586 •
3/4	3/4	1-5/8	3-7/8	4	70244	88899
3/4	3/4	3	5-1/4	4	70245	79587
1	1	2	4-1/2	5	70326 •	88900
1	1	4	6-1/2	5	70327 •	79588 •
1-1/4	1-1/4	2	4-1/2	6	70407 •	88904 •
1-1/2	1-1/4	2	4-1/2	6	70487	88905 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Coarse-Pitch Neck Style Rougher General Purpose

RXC753

- All Materials
- Profiling / Slotting
- Weldon Flat Standard



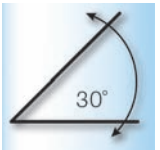
Price Code B

Flute Dia	Shank Dia	Reach	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1	1	4	2-1/2	6-1/2	5	75341	89100
1	1	6	2-1/2	8-1/2	5	75345	89101
1-1/4	1-1/4	4	2-1/2	6-1/2	6	75349 •	89102 •
1-1/4	1-1/4	6	2-1/2	8-1/2	6	75353	89103 •
1-1/2	1-1/4	4	2-1/2	6-1/2	6	75357 •	89104 •
1-1/2	1-1/4	5	2-1/2	7-1/2	6	75361 •	89105 •
1-1/2	1-1/4	8	2-1/2	10-1/2	6	75365 •	89106 •
2	2	4	2-1/2	7-3/4	8	75369 •	89107 •
2	2	6	2-1/2	9-3/4	8	75373	89108 •
2	2	8	2-1/2	11-3/4	8	75377 •	89109 •
2	2	10	2-1/2	13-3/4	8	75381 •	89110 •
2	2	12	2-1/2	15-3/4	8	75385 •	89111 •

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**5 Flutes
6 Flutes
8 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

EXCEL Series

Multi Flute Fine-Pitch Rougher PM HSCO

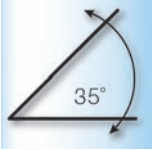
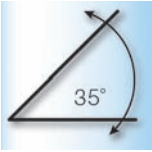


EXR350

- Slotting / Pocketing / Profile Applications
- Weldon Flat Standard

Premium Particle Metal 8.5% COBALT

Uncoated TiAIN COATED



Center Cutting

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiAIN EDP
3/8	3/8	3/8	2-1/4	4	53808	53910 •
3/8	3/8	3/4	2-1/2	4	53809 •	53911
3/8	3/8	1-1/2	3-1/4	4	53810	53912
1/2	1/2	1/2	2-9/16	4	53811	53913
1/2	1/2	1-1/4	3-1/4	4	53812	53914
1/2	1/2	2	4	4	53813	53915
5/8	5/8	5/8	2-7/8	4	53814 •	53916 •
5/8	5/8	1-5/8	3-3/4	4	53815	53917
5/8	5/8	2-1/2	4-5/8	4	53816	53918
3/4	3/4	3/4	3	4	53817 •	53919
3/4	3/4	1-5/8	3-3/4	4	53818	53920
3/4	3/4	3	5-1/4	4	53819	53921
1	1	1	3-7/8	5	53820 •	53922
1	1	2	4-1/2	5	53821	53923
1	1	3	5-1/2	5	53822	53924
1	1	4	6-1/2	5	53823 •	53925
1	1	6	8-1/2	5	53824 •	53926 •
1-1/4	1-1/4	1-1/4	4-1/8	6	53825 •	53927
1-1/4	1-1/4	2	4-1/2	6	53826	53928 •
1-1/4	1-1/4	3	5-1/2	6	53827 •	53929
1-1/4	1-1/4	4	6-1/2	6	53828	53930
1-1/4	1-1/4	6	8-1/2	6	53829 •	53931 •
1-1/2	1-1/4	2	4-1/2	6	53830 •	53932 •
1-1/2	1-1/4	3	5-1/2	6	53831 •	53933 •
1-1/2	1-1/4	4	6-1/2	6	53832 •	53934
1-1/2	1-1/4	6	8-1/2	6	53833 •	53935 •
1-1/2	1-1/4	8	10-1/2	6	53834 •	53936 •
2	2	2	5-3/4	8	53835 •	53937 •
2	2	3	6-3/4	8	53836 •	53938 •
2	2	4	7-3/4	8	53837 •	53939 •
2	2	6	9-3/4	8	53838 •	53940 •
2	2	8	11-3/4	8	53839 •	53941 •
2	2	10	13-3/4	8	53840 •	53942 •
2	2	12	15-3/4	8	53841 •	53943 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Fine-Pitch Rougher General Purpose



REM445

- All Materials
- Profiling / Slotting
- High Temp Alloys
- Weldon Flat Standard

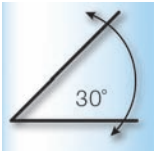
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiAlN EDP
3/16	3/8	1/2	2-3/8	4	44501	75655
1/4	3/8	5/8	2-7/16	4	44503	75656
1/4	3/8	1-1/4	3-1/16	4	44505	75657
5/16	3/8	3/4	2-1/2	4	44507	75658
5/16	3/8	1-3/8	3-1/8	4	44509	75659
3/8	3/8	3/4	2-1/2	4	44511	75660
3/8	3/8	1-1/2	3-1/4	4	44513	75661
7/16	3/8	1	2-11/16	4	44515	75662
1/2	1/2	1	3	4	45415	75663
1/2	1/2	1-1/4	3-1/4	4	44517	75664
1/2	1/2	1-5/8	3-5/8	4	45417	75665
1/2	1/2	2	4	4	44519	75666
1/2	1/2	2-1/2	4-1/2	4	45419	75667
1/2	1/2	3	5	4	45421	75668
9/16	1/2	1-3/8	3-3/8	4	44521	75669
5/8	5/8	3/4	2-7/8	4	45423	75670
5/8	5/8	1-1/4	3-3/8	4	45425	75671
5/8	5/8	1-5/8	3-3/4	4	44523	75672
5/8	5/8	2-1/8	4-1/4	4	45427	75673
5/8	5/8	2-1/2	4-5/8	4	44525	75674
5/8	5/8	3-1/8	5-1/4	4	45429	75675
11/16	5/8	1-5/8	3-3/4	4	45431	75676
3/4	5/8	1-5/8	3-3/4	4	44533	75677
3/4	3/4	3/4	3	4	44531	75678
3/4	3/4	1-1/4	3-1/2	4	45433	75679
3/4	3/4	1-1/2	3-3/4	4	45435	75680
3/4	3/4	1-5/8	3-7/8	4	44527	75681
3/4	3/4	2	4-1/4	4	45437	75682
3/4	3/4	2-1/2	4-3/4	4	45439	75683
3/4	3/4	3	5-1/4	4	44529	75684
3/4	3/4	4-1/8	6-3/8	4	45441	75685
13/16	3/4	1-7/8	4-1/8	5	45443	75686
7/8	3/4	1-1/8	3-3/8	5	45445	75687
7/8	3/4	1-1/2	3-3/4	5	45447	75688
7/8	3/4	1-7/8	4-1/8	5	44535	75689
7/8	3/4	3-1/2	5-3/4	5	44537	75690
7/8	7/8	1-1/8	3-3/8	5	45449	75691
7/8	7/8	1-7/8	4-1/8	5	44539	75692
7/8	7/8	3-1/2	5-3/4	5	44541	75693
1	3/4	3/4	3	5	44553	75694
1	3/4	1-1/8	3-3/8	5	45451	75695
1	3/4	1-1/2	3-3/4	5	44551	75696
1	3/4	2	4-1/4	5	45453	75697
1	3/4	3	5-1/4	5	45455	75698
1	3/4	4	6-1/4	5	45457	75699
1	1	1-1/8	3-5/8	5	45459	75700
1	1	1-5/8	4-1/8	5	45461	75701
1	1	2	4-1/2	5	44543	75702
1	1	3	5-1/2	5	44545	75703
1	1	4	6-1/2	5	44547	75704
1	1	6	8-1/2	5	44549	75705
1-1/8	3/4	1-1/8	3-3/8	6	45463	75706
1-1/8	3/4	2	4-1/4	6	45465	75707
1-1/8	1	2	4-1/2	6	44555	75708

**M42
8%
COBALT**

**Uncoated
TiAlN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes
10 Flutes**



**Non
Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Fine-Pitch Rougher

General Purpose



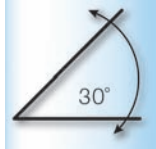
REM445

- All Materials
- Profiling / Slotting
- High Temp Alloys
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiAlN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes
10 Flutes**



**Non
Center
Cutting**

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiAlN EDP
1-1/8	1	3-1/2	6	6	45467 •	75709 •
1-1/4	3/4	3/4	3	6	44567 •	75710 •
1-1/4	3/4	1-1/8	3-3/8	6	45471 •	75711 •
1-1/4	3/4	1-1/2	3-3/4	6	44565	75712
1-1/4	3/4	2	4-1/4	6	45475	75713
1-1/4	1-1/4	1-3/8	3-7/8	6	45477 •	75714 •
1-1/4	1-1/4	2	4-1/2	6	44557	75715
1-1/4	1-1/4	3	5-1/2	6	44559	75716
1-1/4	1-1/4	4	6-1/2	6	44561	75717
1-1/4	1-1/4	6	8-1/2	6	44563	75718
1-3/8	3/4	1-1/8	3-3/8	6	45479 •	75719 •
1-3/8	3/4	2	4-1/4	6	45481 •	75720 •
1-1/2	3/4	3/4	3	6	44583 •	75721 •
1-1/2	3/4	1-1/8	3-3/8	6	45483 •	75722 •
1-1/2	3/4	1-1/2	3-3/4	6	44581	75723
1-1/2	3/4	2	4-1/4	6	45485	75724
1-1/2	1-1/4	2	4-1/2	6	44569 •	75725
1-1/2	1-1/4	3	5-1/2	6	44571	75726
1-1/2	1-1/4	4	6-1/2	6	44573 •	75727
1-1/2	1-1/4	5	7-1/2	6	44575 •	75728
1-1/2	1-1/4	6	8-1/2	6	44577	75729
1-1/2	1-1/4	8	10-1/2	6	44579 •	75730
1-3/4	3/4	1-1/8	3-3/8	6	45487 •	75731 •
1-3/4	3/4	2	4-1/4	6	45489 •	75732 •
1-3/4	1-1/4	2	4-1/2	6	44633 •	75733 •
1-3/4	1-1/4	4	6-1/2	6	44635 •	75734 •
1-3/4	1-1/2	2-1/2	5-3/8	6	44585 •	75735 •
1-3/4	1-1/2	4-1/2	7-3/8	6	44587 •	75736 •
2	3/4	3/4	3	8	44589 •	75737 •
2	3/4	1-1/8	3-3/8	8	45491	75738
2	3/4	2	4-1/4	8	45493 •	75739 •
2	1-1/4	2	4-1/2	8	44591	75740
2	1-1/4	4	6-1/2	8	44593	75741
2	1-1/4	6-1/8	8-5/8	8	45495 •	75742 •
2	2	2	5-3/4	8	44595 •	75743 •
2	2	3	6-3/4	8	44597 •	75744
2	2	4	7-3/4	8	44599	75745 •
2	2	5	8-3/4	8	44601 •	75746 •
2	2	6	9-3/4	8	44603 •	75747
2	2	7	10-3/4	8	44605 •	75748 •
2	2	8	11-3/4	8	44607	75749 •
2	2	10	13-3/4	8	44609 •	75750 •
2	2	12	15-3/4	8	44611 •	75751 •
2-1/2	2	4	7-3/4	8	44613 •	75752 •
2-1/2	2	6	9-3/4	8	44615 •	75753 •
2-1/2	2	8	11-3/4	8	44617 •	75754 •
2-1/2	2	10	13-3/4	8	44619 •	75755 •
2-1/2	2	12	13-3/4	8	44621 •	75756 •
3	2-1/2	4	7-3/4	10	44623 •	75757 •
3	2-1/2	6	9-3/4	10	44625 •	75758 •
3	2-1/2	8	11-3/4	10	44627 •	75759 •
3	2-1/2	10	13-3/4	10	44629 •	75760 •
3	2-1/2	12	15-3/4	10	44631 •	75761 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Fine-Pitch Center-Cutting Rougher General Purpose



REC448

- All Materials
- Profiling / Slotting
- High Temp Alloys
- Weldon Flat Standard

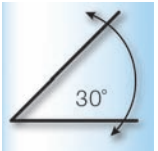
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiAIN EDP
3/16	3/8	1/2	2-3/8	4	44839	14554
1/4	3/8	5/8	2-7/16	4	44841	14555
1/4	3/8	1-1/4	3-1/16	4	44843	14556
1/4	3/8	3/8	2-3/16	4	44870	14557
5/16	3/8	3/4	2-1/2	4	44845	14558
5/16	3/8	1-3/8	3-1/8	4	44847 •	14559
3/8	3/8	1/2	2-1/4	4	44873	14560
3/8	3/8	3/4	2-1/2	4	44849	14561
3/8	3/8	1-1/2	3-1/4	4	44851	14562
7/16	3/8	1	2-11/16	4	44853	14563
1/2	1/2	5/8	2-5/8	4	44876	14564
1/2	1/2	1-1/4	3-1/4	4	44801	14565
1/2	1/2	2	4	4	44803	14566
9/16	1/2	1-3/8	3-3/8	4	44855	14567
5/8	5/8	5/8	2-3/4	4	44879	14568
5/8	5/8	1-1/4	3-3/8	4	44857	14569
5/8	5/8	1-5/8	3-3/4	4	44805	14570
5/8	5/8	2-1/2	4-5/8	4	44807	14571
3/4	5/8	1-5/8	3-3/4	4	44861	14572
3/4	3/4	3/4	3	4	44859	14573
3/4	3/4	1-5/8	3-7/8	4	44809	14574
3/4	3/4	3	5-1/4	4	44811	14575
7/8	3/4	1-7/8	4-1/8	5	44813 •	14576 •
7/8	3/4	3-1/2	5-3/4	5	44815 •	14577
7/8	7/8	1-7/8	4-1/8	5	44817 •	14578
7/8	7/8	3-1/2	5-3/4	5	44863 •	14579 •
1	3/4	1-1/2	3-3/4	5	44867 •	14580
1	3/4	2	4-1/4	5	44869	14581
1	1	1	3-1/2	5	44882 •	14582
1	1	2	4-1/2	5	44819	14583
1	1	3	5-1/2	5	44821	14584
1	1	4	6-1/2	5	44823	14585
1	1	6	8-1/2	5	44865 •	14586 •
1-1/4	1-1/4	1-1/4	3-3/4	6	44885 •	14587 •
1-1/4	1-1/4	2	4-1/2	6	44825	14588
1-1/4	1-1/4	3	5-1/2	6	14596	14589
1-1/4	1-1/4	4	6-1/2	6	44827 •	14590
1-1/2	1-1/4	2	4-1/2	6	44829	14591
1-1/2	1-1/4	4	6-1/2	6	44831 •	14592 •
2	2	3	6-3/4	8	44833	14593 •
2	2	4	7-3/4	8	44835 •	14594 •
2	2	6	9-3/4	8	44837	14595 •

**M42
8%
COBALT**

**Uncoated
TiAIN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Fine-Pitch Ball-End Rougher



RMB449

- All Materials
- Profiling / Slotting
- Contouring
- High Temp Alloys
- Weldon Flat Standard

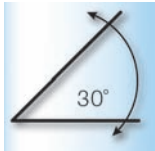
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiAIN EDP
1/2	1/2	1-1/4	3-1/4	4	44901	75764
1/2	1/2	2	4	4	45901 •	75765
5/8	5/8	1-5/8	3-3/4	4	44903	75766
5/8	5/8	2-1/2	4-5/8	4	45903	75767 •
3/4	3/4	1-5/8	3-7/8	4	44905	75768
3/4	3/4	3	5-1/4	4	45905	75769 •
1	1	2	4-1/2	5	44907	75770
1	1	4	6-1/2	5	45907	75771
1-1/4	1-1/4	2	4-1/2	6	44909 •	75772 •
1-1/2	1-1/4	2	4-1/2	6	44911 •	75773 •

M42
8%
COBALT

Uncoated
TiAIN
COATED

4 Flutes
5 Flutes
6 Flutes



Center
Cutting

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Truncated Rougher General Purpose

RFM440

- All Materials
- Profiling / Slotting
- Weldon Flat Standard



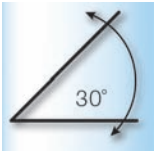
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
3/16	3/8	1/2	2-3/8	4	44063	43700
1/4	3/8	5/8	2-7/16	4	44083	43701
1/4	3/8	1-1/4	3-1/16	4	44085	43702
5/16	3/8	3/4	2-1/2	4	44103	43703
5/16	3/8	1-3/8	3-1/8	4	44105	43704
3/8	3/8	3/4	2-1/2	4	44123	43705
3/8	3/8	1-1/2	3-1/4	4	44125	43706
7/16	3/8	1	2-11/16	4	44143	43707 •
1/2	1/2	1	3	4	44157	43708
1/2	1/2	1-1/4	3-1/4	4	43163	43709
1/2	1/2	1-5/8	3-5/8	4	44163	43710
1/2	1/2	2	4	4	44165	43711
1/2	1/2	2-1/2	4-1/2	4	44167	43712 •
1/2	1/2	3	5	4	44169	43713
9/16	1/2	1-3/8	3-3/8	4	44183	43714 •
5/8	5/8	3/4	2-7/8	4	44201 •	43715 •
5/8	5/8	1-1/4	3-3/8	4	44202 •	43716
5/8	5/8	1-5/8	3-3/4	4	44204	43717
5/8	5/8	2-1/8	4-1/4	4	44205	43718 •
5/8	5/8	2-1/2	4-5/8	4	44206	43719
5/8	5/8	3-1/8	5-1/4	4	44207 •	43720 •
11/16	5/8	1-5/8	3-3/4	4	44222	43721
3/4	5/8	1-5/8	3-3/4	4	43241 •	43722
3/4	3/4	3/4	3	4	44241	43723 •
3/4	3/4	1-1/4	3-1/2	4	44242 •	43724
3/4	3/4	1-1/2	3-3/4	4	44243 •	43725 •
3/4	3/4	1-5/8	3-7/8	4	44245 •	43726
3/4	3/4	2	4-1/4	4	44246	43727
3/4	3/4	2-1/2	4-3/4	4	44247 •	43728 •
3/4	3/4	3	5-1/4	4	44248	43729
3/4	3/4	4-1/8	6-3/8	4	44249	43730 •
13/16	3/4	1-7/8	4-1/8	5	44265 •	43731 •
7/8	3/4	1-1/8	3-3/8	5	44281 •	43732 •
7/8	3/4	1-1/2	3-3/4	5	44282 •	43733 •
7/8	3/4	1-7/8	4-1/8	5	44283 •	43734 •
7/8	3/4	3-1/2	5-3/4	5	44284	43735 •
7/8	7/8	1-1/8	3-3/8	5	44286 •	43736 •
7/8	7/8	1-7/8	4-1/8	5	44287 •	43737 •
7/8	7/8	3-1/2	5-3/4	5	44288	43738
1	3/4	3/4	3	5	44321 •	43739 •
1	3/4	1-1/8	3-3/8	5	44322 •	43740
1	3/4	1-1/2	3-3/4	5	44323	43741
1	3/4	2	4-1/4	5	44324 •	43742 •
1	3/4	3	5-1/4	5	44325 •	43743 •
1	3/4	4	6-1/4	5	44327 •	43744 •
1	1	1-1/8	3-5/8	5	44328 •	43745 •
1	1	1-5/8	4-1/8	5	44329 •	43746 •
1	1	2	4-1/2	5	43322	43747

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes**



**Non
Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Truncated Rougher

General Purpose



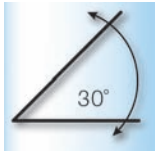
RFM440

- All Materials
- Profiling / Slotting
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TICN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes**



**Non
Center
Cutting**

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TICN EDP
1	1	3	5-1/2	5	43323 •	43748 •
1	1	4	6-1/2	5	43324 •	43749 •
1	1	6	8-1/2	5	43325 •	43750 •
1-1/8	3/4	1-1/8	3-3/8	6	44362 •	43751 •
1-1/8	3/4	2	4-1/4	6	44364 •	43752 •
1-1/8	1	2	4-1/2	6	44366	43753 •
1-1/8	1	3-1/2	6	6	44368	43754 •
1-1/4	3/4	3/4	3	6	44401 •	43755 •
1-1/4	3/4	1-1/8	3-3/8	6	44402 •	43756 •
1-1/4	3/4	1-1/2	3-3/4	6	44403	43757 •
1-1/4	3/4	2	4-1/4	6	44404	43758 •
1-1/4	1-1/4	1-3/8	3-7/8	6	44405 •	43759 •
1-1/4	1-1/4	2	4-1/2	6	44406 •	43760 •
1-1/4	1-1/4	3	5-1/2	6	44408 •	43761 •
1-1/4	1-1/4	4	6-1/2	6	44409	43762 •
1-1/4	1-1/4	6	8-1/2	6	43409 •	43763 •
1-3/8	3/4	1-1/8	3-3/8	6	44441 •	43764 •
1-3/8	3/4	2	4-1/4	6	44442 •	43765 •
1-1/2	3/4	3/4	3	6	43480 •	43766 •
1-1/2	3/4	1-1/8	3-3/8	6	44481 •	43767 •
1-1/2	3/4	1-1/2	3-3/4	6	44482 •	43768 •
1-1/2	3/4	2	4-1/4	6	44483 •	43769 •
1-1/2	1-1/4	2	4-1/2	6	44484 •	43770 •
1-1/2	1-1/4	3	5-1/2	6	44485 •	43771 •
1-1/2	1-1/4	4	6-1/2	6	44486	43772 •
1-1/2	1-1/4	5	7-1/2	6	44488 •	43773 •
1-1/2	1-1/4	6	8-1/2	6	44489 •	43774 •
1-3/4	3/4	1-1/8	3-3/8	6	43562 •	43775 •
1-3/4	3/4	2	4-1/4	6	43564 •	43776 •
1-3/4	1-1/4	2	4-1/2	6	43566 •	43777 •
1-3/4	1-1/4	4	6-1/2	6	43568 •	43778 •
2	3/4	3/4	3	8	44640 •	43779 •
2	3/4	1-1/8	3-3/8	8	44641 •	43780 •
2	3/4	2	4-1/4	8	44642 •	43781 •
2	1-1/4	2	4-1/2	8	44643 •	43782 •
2	1-1/4	4	6-1/2	8	44644 •	43783 •
2	1-1/4	6-1/8	8-5/8	8	44645 •	43784 •
2	2	2	5-3/4	8	44646 •	43785 •
2	2	3	6-3/4	8	44647 •	43786 •
2	2	4	7-3/4	8	44648 •	43787 •
2	2	5	8-3/4	8	44649 •	43788 •
2	2	6	9-3/4	8	44650 •	43789 •
2	2	7	10-3/4	8	44652 •	43790 •
2	2	8	11-3/4	8	44653 •	43791 •
2	2	10	13-3/4	8	44654 •	43792 •
2	2	12	15-3/4	8	44656 •	43793 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Truncated Center-Cutting Rougher General Purpose

RFM441

- All Materials
- Profiling / Slotting
- Weldon Flat Standard



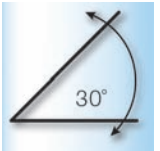
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/4	3/8	5/8	2-7/16	4	41667	41669
3/8	3/8	3/4	2-1/2	4	41670	41672
1/2	1/2	1-1/4	3-1/4	4	41673	41675
1/2	1/2	2	4	4	41679	41681
1/2	1/2	3	5	4	41682	41684
5/8	5/8	1-5/8	3-3/4	4	41685	41687
5/8	5/8	2-1/2	4-5/8	4	41691 •	41693 •
5/8	5/8	4	6-1/8	4	41694 •	41696
3/4	3/4	1-5/8	3-7/8	4	41697	41699
3/4	3/4	2	4-1/4	4	41703	41705
3/4	3/4	3	5-1/4	4	41709 •	41711
3/4	3/4	4	6-1/4	4	41715 •	41717
7/8	7/8	1-7/8	4-1/8	5	41721 •	41723 •
1	1	2	4-1/2	5	41724	41726
1	1	3	5-1/2	5	41730 •	41732
1	1	4	6-1/2	5	41736 •	41738
1	1	6	8-1/2	5	41742 •	41744 •
1-1/4	1-1/4	2	4-1/2	6	41748 •	41750 •
1-1/4	1-1/4	3	5-1/2	6	41751 •	41753 •
1-1/4	1-1/4	4	6-1/2	6	41754 •	41756
1-1/4	1-1/4	6	8-1/2	6	41757 •	41759 •
1-1/2	1-1/4	2	4-1/2	6	41760 •	41762 •
1-1/2	1-1/4	4	6-1/2	6	41763 •	41765 •
2	1-1/4	2	4-1/2	8	41766 •	41768 •
2	2	3	6-3/4	8	41769 •	41771 •
2	2	4	7-3/4	8	41772 •	41774 •
2	2	6	9-3/4	8	41775 •	41777 •

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
5 Flutes
6 Flutes
8 Flutes**



**Center
Cutting**

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Chip Breaker Center-Cutting Rougher

General Purpose



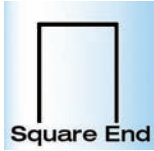
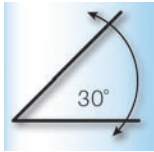
RFCB444

- All Materials
- Profiling / Slotting
- Weldon Flat Standard

**M42
8%
COBALT**

**Uncoated
TiCN
COATED**

**4 Flutes
6 Flutes**



**Center
Cutting**

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of Flutes	Unc EDP	TiCN EDP
1/4	3/8	5/8	2-7/16	4	44912 •	44914 •
3/8	3/8	3/4	2-1/2	4	44915	44917
1/2	1/2	1-1/4	3-1/4	4	44918	44920
1/2	1/2	1-1/4	3-1/4	6	44921 •	44923 •
1/2	1/2	2	4	4	44924 •	44926 •
1/2	1/2	3	5	4	44927 •	44929 •
5/8	5/8	1-5/8	3-3/4	4	44930 •	44932
5/8	5/8	1-5/8	3-3/4	6	44933 •	44935 •
5/8	5/8	2-1/2	4-5/8	4	44936 •	44938 •
5/8	5/8	4	6-1/8	4	44939 •	44941 •
3/4	3/4	1-5/8	3-7/8	4	44942	44944
3/4	3/4	1-5/8	3-7/8	6	44945 •	44947 •
3/4	3/4	2	4-1/4	4	44948 •	44950 •
3/4	3/4	2	4-1/4	6	44951 •	44953 •
3/4	3/4	3	5-1/4	4	44954 •	44956 •
3/4	3/4	3	5-1/4	6	44957 •	44959 •
3/4	3/4	4	6-1/4	4	44960 •	44962 •
3/4	3/4	4	6-1/4	6	44963 •	44965 •
7/8	7/8	1-7/8	4-1/8	4	44966 •	44968 •
1	1	2	4-1/2	4	44969 •	44971 •
1	1	2	4-1/2	6	44972	44974
1	1	3	5-1/2	4	44975 •	44977 •
1	1	3	5-1/2	6	44978 •	44980 •
1	1	4	6-1/2	4	44981 •	44983 •
1	1	4	6-1/2	6	44984	44986 •
1	1	6	8-1/2	4	44987 •	44989 •
1	1	6	8-1/2	6	44990 •	44992 •
1-1/4	1-1/4	2	4-1/2	6	44993 •	44995 •
1-1/4	1-1/4	3	5-1/2	6	44996 •	44998 •
1-1/4	1-1/4	4	6-1/2	6	44999 •	45001 •
1-1/4	1-1/4	6	8-1/2	6	45002 •	45004 •
1-1/2	1-1/4	2	4-1/2	6	45005 •	45007 •
1-1/2	1-1/4	4	6-1/2	6	45008 •	45010 •
2	1-1/4	2	4-1/2	6	45011 •	45013 •
2	2	3	6-3/4	6	45014 •	45016 •
2	2	4	7-3/4	6	45017 •	45019 •
2	2	6	9-3/4	6	45020 •	45022 •

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Variable Face Profile General Purpose

Stainless Steel
Titanium

VFP

- Optimal Chip Formation & Evacuation
- Polished Flute Face
- Weldon Flat Standard

4F



6F



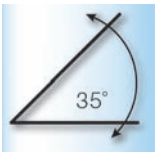
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	Chamfer	No. of Flutes	List Name	Unc EDP
3/4	3/4	1-5/8	3-7/8	0.030	4	VFP435	68948
3/4	3/4	2-1/4	4-1/2	0.030	4	VFP435	68949
3/4	3/4	3	5-1/4	0.030	4	VFP435	68950
3/4	3/4	4	6-1/4	0.030	4	VFP435	68951
1	1	2	4-1/2	0.030	4	VFP435	68952
1	1	2	4-1/2	0.030	6	VFP635	68953
1	1	3	5-1/2	0.030	4	VFP435	68954
1	1	3	5-1/2	0.030	6	VFP635	68955
1	1	4	6-1/2	0.030	4	VFP435	68956
1	1	4	6-1/2	0.030	6	VFP635	68957
1-1/4	1-1/4	2	4-1/2	0.040	4	VFP435	68958
1-1/4	1-1/4	2	4-1/2	0.040	6	VFP635	68959
1-1/4	1-1/4	3	5-1/2	0.040	4	VFP435	68960
1-1/4	1-1/4	3	5-1/2	0.040	6	VFP635	68961
1-1/4	1-1/4	4	6-1/2	0.040	4	VFP435	68962
1-1/4	1-1/4	4	6-1/2	0.040	6	VFP635	68963
1-1/4	1-1/4	6	8-1/2	0.040	6	VFP635	68964
1-1/2	1-1/4	2	4-1/2	0.040	6	VFP635	68965
1-1/2	1-1/4	3	5-1/2	0.040	6	VFP635	68966
1-1/2	1-1/4	4	6-1/2	0.040	6	VFP635	68967
1-1/2	1-1/4	6	8-1/2	0.040	6	VFP635	68968
2	2	2	5-3/4	0.040	6	VFP635	68969
2	2	3	6-3/4	0.040	6	VFP635	68970
2	2	4	7-3/4	0.040	6	VFP635	68971
2	2	6	9-3/4	0.040	6	VFP635	68972
2	2	8	11-3/4	0.040	6	VFP635	68973

M42
8%
COBALT

Uncoated

4 Flutes
6 Flutes



Center
Cutting

VFP635 - Recommended Starting Point Speed & Feeds (Slotting)

Material	SFPM	3/4" Diameter			1" Diameter			1-1/4" Diameter			1-1/2" Diameter			2" Diameter			Axial Depth Max
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	
Titanium 6Al4V																	
< 350 Bhn (38 Rc)	60	306	0.0032	3.9	229	0.0036	5.0	183	0.0042	4.6	153	0.0052	4.8	115	0.0058	4.0	1 x Dia
> 350 Bhn (38 Rc)	40	204	0.0025	2.0	153	0.0026	2.4	122	0.0033	2.4	102	0.0040	2.4	76	0.0044	2.0	0.75 x Dia
Stainless Steel																	
< 350 Bhn (38 Rc)	100	509	0.0032	6.5	382	0.0036	8.3	306	0.0045	8.3	255	0.0052	7.9	191	0.0058	6.6	1 x Dia
> 350 Bhn (38 Rc)	60	509	0.0027	5.5	229	0.0030	4.1	183	0.0035	3.9	153	0.0045	4.1	115	0.0050	3.4	0.75 x Dia

Speeds and Feeds are based upon: ADOC = 1 x Diameter

VFP635 - Recommended Starting Point Speed & Feeds (Profiling)

Material	SFPM	3/4" Diameter			1" Diameter			1-1/4" Diameter			1-1/2" Diameter			2" Diameter			Axial Depth Max	Radial Depth Max
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM		
Titanium 6Al4V																		
< 350 Bhn (38 Rc)	60	306	0.0038	4.7	229	0.0043	5.9	183	0.0050	5.5	153	0.0062	5.7	115	0.0070	4.8	1.5 x Dia	0.4 x Dia
> 350 Bhn (38 Rc)	40	204	0.0030	2.4	153	0.0032	2.9	122	0.0040	2.9	102	0.0048	2.9	76	0.0053	2.4	1 x Dia	0.25 x Dia
Stainless Steel																		
< 350 Bhn (38 Rc)	100	509	0.0038	7.8	382	0.0043	9.9	306	0.0054	9.9	255	0.0062	9.5	191	0.0070	8.0	1.5 x Dia	0.5 x Dia
> 350 Bhn (38 Rc)	60	306	0.0032	4.0	229	0.0036	5.0	183	0.0042	4.6	153	0.0054	5.0	115	0.0060	4.1	1 x Dia	0.25 x Dia

Speeds and Feeds are based upon: ADOC = 1.5 x Diameter, RDOC = 0.25 x Diameter

- Indicates a Standard, Non Stocked Item

Niagara Cutter

Multi Flute Variable Face Profile

General Purpose

Stainless Steel
Titanium



4F

VFP²

- For Less Rigid Setups
- Optimal Chip Formation & Evacuation
- Polished Flute Face
- Weldon Flat Standard

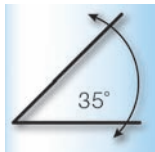


6F

M42
8%
COBALT

Uncoated

4 Flutes
6 Flutes



Center
Cutting

Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	Chamfer	No. of Flutes	List Name	Unc EDP
3/4	3/4	1-5/8	3-7/8	0.030	4	VFP ² 435	68974
3/4	3/4	2-1/4	4-1/2	0.030	4	VFP ² 435	68975 •
3/4	3/4	3	5-1/4	0.030	4	VFP ² 435	68976 •
3/4	3/4	4	6-1/4	0.030	4	VFP ² 435	68977 •
1	1	2	4-1/2	0.030	4	VFP ² 435	68978 •
1	1	2	4-1/2	0.030	6	VFP ² 635	68979
1	1	3	5-1/2	0.030	4	VFP ² 435	68980
1	1	3	5-1/2	0.030	6	VFP ² 635	68981
1	1	4	6-1/2	0.030	4	VFP ² 435	68982 •
1	1	4	6-1/2	0.030	6	VFP ² 635	68983 •
1-1/4	1-1/4	2	4-1/2	0.040	4	VFP ² 435	68984 •
1-1/4	1-1/4	2	4-1/2	0.040	6	VFP ² 635	68985
1-1/4	1-1/4	3	5-1/2	0.040	4	VFP ² 435	68986 •
1-1/4	1-1/4	3	5-1/2	0.040	6	VFP ² 635	68987
1-1/4	1-1/4	4	6-1/2	0.040	4	VFP ² 435	68988 •
1-1/4	1-1/4	4	6-1/2	0.040	6	VFP ² 635	68989
1-1/4	1-1/4	6	8-1/2	0.040	6	VFP ² 635	68990 •
1-1/2	1-1/4	2	4-1/2	0.040	6	VFP ² 635	68991 •
1-1/2	1-1/4	3	5-1/2	0.040	6	VFP ² 635	68992 •
1-1/2	1-1/4	4	6-1/2	0.040	6	VFP ² 635	68993 •
1-1/2	1-1/4	6	8-1/2	0.040	6	VFP ² 635	68994 •
2	2	2	5-3/4	0.040	6	VFP ² 635	68995 •
2	2	3	6-3/4	0.040	6	VFP ² 635	68996 •
2	2	4	7-3/4	0.040	6	VFP ² 635	68997 •
2	2	6	9-3/4	0.040	6	VFP ² 635	68998 •
2	2	8	11-3/4	0.040	6	VFP ² 635	68999 •

VFP ² 635 - Recommended Starting Point Speed & Feeds (Slotting)																		
Material	SFPM	3/4" Diameter				1" Diameter			1-1/4" Diameter			1-1/2" Diameter			2" Diameter			Axial Depth Max
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM		
Titanium 6Al4V																		
< 350 Bhn (38 Rc)	60	306	0.0034	4.1	229	0.0038	5.2	183	0.0044	4.9	153	0.0055	5.0	115	0.0061	4.2	1 x Dia	
> 350 Bhn (38 Rc)	40	204	0.0026	2.1	153	0.0027	2.5	122	0.0035	2.5	102	0.0042	2.6	76	0.0046	2.1	0.75 x Dia	
Stainless Steel																		
< 350 Bhn (38 Rc)	100	509	0.0034	6.8	382	0.0038	8.7	306	0.0047	8.7	255	0.0055	8.3	191	0.0061	7.0	1 x Dia	
> 350 Bhn (38 Rc)	60	306	0.0028	3.5	229	0.0032	4.3	183	0.0037	4.0	153	0.0047	4.3	115	0.0053	3.6	0.75 x Dia	

Speeds and Feeds are based upon: ADOC = 1 x Diameter

VFP ² 635 - Recommended Starting Point Speed & Feeds (Profiling)																			
Material	SFPM	3/4" Diameter				1" Diameter			1-1/4" Diameter			1-1/2" Diameter			2" Diameter			Axial Depth Max	Radial Depth Max
		RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM	RPM	CPT	IPM			
Titanium 6Al4V																			
< 350 Bhn (38 Rc)	60	306	0.0040	4.9	229	0.0045	6.2	183	0.0053	5.8	153	0.0066	6.0	15	0.0073	5.0	1.5 x Dia	0.4 x Dia	
> 350 Bhn (38 Rc)	40	204	0.0032	2.6	153	0.0034	3.1	122	0.0042	3.0	102	0.0050	3.1	76	0.0055	2.5	1 x Dia	0.25 x Dia	
Stainless Steel																			
< 350 Bhn (38 Rc)	100	509	0.0040	8.2	382	0.0045	10.4	306	0.0057	10.4	255	0.0066	10.0	191	0.0073	8.4	1.5 x Dia	0.5 x Dia	
> 350 Bhn (38 Rc)	60	306	0.0034	4.2	229	0.0038	5.2	183	0.0044	4.9	153	0.0057	5.2	115	0.0063	4.3	1 x Dia	0.25 x Dia	

Speeds and Feeds are based upon: ADOC = 1.5 x Diameter, RDOC = 0.25 x Diameter

• Indicates a Standard, Non Stocked Item

Niagara Cutter

Metric Multi Flute Variable Face Profile

General Purpose

Stainless Steels
Titanium

VFP635M

- Variable Flute Pitch
- Polished Flute Faces
- Weldon Flat Standard



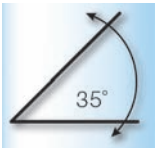
Price Code B

Flute Dia	Shank Dia	Length of Cut	Overall Length	Chamfer	No. of Flutes	Unc EDP	AlCrN EDP	TiAlN EDP
16mm	16mm	32mm	92mm	0.50	4	68921	68922	68923
18mm	16mm	32mm	92mm	0.50	4	68924	68925	68926
20mm	20mm	38mm	114mm	0.75	4	68927	68928	68929
25mm	25mm	45mm	121mm	0.75	4	68930	68931	68932
25mm	25mm	45mm	121mm	0.75	6	68933	68934	68935
30mm	25mm	45mm	121mm	1.00	4	68936	68937	68938
30mm	25mm	45mm	121mm	1.00	6	68939	68940	68941
32mm	32mm	53mm	132mm	1.00	4	68942	68943	68944
32mm	32mm	53mm	132mm	1.00	6	68945	68946	68947

8%
COBALT
HSCO

Uncoated
AlCrN
TiAlN
COATED

4 Flutes
6 Flutes



Center
Cutting

VFP635M - Recommended Starting Point Speed & Feeds (Slotting) METRIC														
Material	16mm Diameter			20mm Diameter			25mm Diameter			32mm Diameter			Axial Depth	
	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	Maximum
Titanium 6Al4V														
<38 Rc	23	419	0.084	141	335	0.097	130	268	0.122	196	209	0.142	178	1 x Dia
>38 Rc	17	309	0.051	63	248	0.017	70	198	0.091	108	155	0.102	95	0.75 x Dia

VFP635M - Recommended Starting Point Speed & Feeds (Profiling) METRIC															
Material	16mm Diameter			20mm Diameter			25mm Diameter			32mm Diameter			Radial Depth	Axial Depth	
	m/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	RPM	CPT	mm/min	Maximum	Maximum
Titanium 6Al4V															
<38 Rc	23	419	0.102	171	335	0.119	150	268	0.152	244	209	0.178	223	0.4 x Dia	1.5 x Dia
>38 Rc	17	309	0.071	88	248	0.089	88	198	0.114	135	155	0.127	118	0.25 x Dia	1 x Dia

• Indicates a Standard, Non Stocked Item

Six Packs



Six Pack End Mill Kits

Price Code B

Description	No. of Flutes	Unc EDP	TiCN EDP	TiAlN EDP
REM710 - 4 Flute Coarse-Pitch Roughing End Mill 71061, 71081, 71101, 71121, 71162, 71203	4	67166	66716	
REM445 - 4 Flute Fine-Pitch Roughing End Mill 44501, 44503, 44507, 44511, 44517, 44523	4	64466		63182
RFM440 - 4 Flute Truncated Roughing/Finishing End Mill 44063, 44083, 44103, 44123, 43163, 44204	4	63183	47666	

TOLERANCES FOR COBALT END MILLS

CUTTING DIAMETER TOLERANCES

End Mill Style	Number of Flutes	Type or Range	ANSI* Tolerance	Niagara Tolerance	Corresponding List Numbers
Double-End Finishers	2 & 4	Center Cutting	+ .0000 / - .0015	+ .0000 / - .0015	DP530, DPC560
Single-End Finishers	2, 4, 6 & 8	**All Except Heavy Duty	+ .003 / - .000	+ .001 / - .000	EX350, SP205, SP408, SPC408, SPB540
Heavy Duty Finishers	4, 6 & 8	Heavy Duty with 2" & 2-1/2" Diameter Shanks	+ .005 / - .000	+ .005 / - .000	HDP890 **(All Single End Finishers With 2" & 2-1/2" Diameter Shanks)
Multi Flute Coarse and Fine Pitch Roughers	4, 5, 6, 8 & 10	1" Flute & Under	+ .025 / - .005	+ .003 / - .000	EXR350, RMB700, RMB449, REM710, REC700, RXC753, REM445, REC448
		1-1/8" Flute & Over		+ .006 / - .000	
All 3 Flute Coarse and Fine Pitch Roughers	3	All Sizes	+ .025 / - .005	+ .005 / - .000	RTM713, RHC752, RHLC754, RTM447
Truncated Rougher/Finisher and Chipbreakers	3, 4, 5, 6 & 8	All Sizes	No Specifications	+ .001 / - .000	RFM440, RFM441, RFCB444
Metric Finishers with Inch Shank	2 & 4	All Sizes	No Specifications	+ .001 / - .000	SMM835, SMM845
VFP Inch and Metric	4 & 6	All Sizes	No Specifications	+ .002 / - .000	VFP435, VFP635, VFP ² 435, VFP ² 635, VFP635M
Ball-End	All	All Sizes	No Specifications	Ball Radius Tolerances: Flute Diameter Tolerance / 2	

Shank Diameter Tolerances			
End Mill Type	Other Specification	ANSI* Tolerance	Niagara Tolerance
All Inch Shanks		- .0001 / - .0005	- .0001 / - .0005
All Metric Shanks	Specification per DIN 1835 Form B	No Specification	DIN (h6) mm

Length of Cut Tolerances			
End Mill Type	Other Specification	ANSI* Tolerance	Niagara Tolerance
All Except Heavy Duty		+ .031 / - .031	+ .031 / - .000
Heavy Duty		+ .062 / - .062	+ .062 / - .000
All Metric Shanks	Specification per DIN ANS	No Specification	+ 0.7mm / - 0

Overall Length Tolerance			
End Mill Type	Other Specification	ANSI* Tolerance	Niagara Tolerance
All Except Heavy Duty 3" Diameter Flutes		+ .062 / - .062	+ .062 / - .000
3" Diameter Heavy Duty		+ .125 / - .125	+ .125 / - .000
All Metric Shanks	Specification per DIN ANS	No Specification	+ 0.7mm / - 0

*Taken from Table 77 of the USA Standards for Milling Cutters and End Mills, ANSI B94. 19-1985 published by the American Society of Mechanical Engineers.

Note: All dimensions are in inches unless otherwise noted.

Niagara Cutter

Recommended Starting Speed and Feed Rates for Niagara High Speed Steel / Cobalt End Mills (Uncoated)

Materials	Speed SFPM	Feed (Inch / Tooth) End Mill Diameter							
		1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
NONFERROUS MATERIALS									
Aluminum & Aluminum Alloys 2024-T4/T6, 2014, 6061-T6/T651, 7075-T6	500 - 1500	.001	.002	.002	.003	.004	.005	.006	.007
Copper Yellow Brass, High Lead Brass, Red Brass	200 - 800	.001	.001	.002	.0025	.003	.004	.004	.005
Copper Alloys Alum/Bronze, Low Silicon Bronze	100 - 300	.001	.001	.002	.0025	.003	.004	.004	.005
STAINLESS STEEL									
Martensitic 403, 410, 416, 420, 440	30 - 150	.0001	.0002	.0005	.0005	.001	.001	.003	.004
Austenitic 200 Series, 302, 303, 304L, 316L	30 - 150	.0005	.0005	.001	.001	.002	.002	.004	.006
Precipitation 13-8, 15-5, 17-4	30 - 150	.0001	.0002	.0005	.001	.0015	.002	.003	.004
HIGH TEMP ALLOYS									
Cobalt Base Stellite, HS-21, Haynes 25/188, X-40, L-605	5 - 25	.0004	.0005	.001	.001	.001	.001	.0015	.002
Nickel Base INCONEL 600/625, Nickel 200-270, Monel 400-405, Monel K500, PermaNickel 300, Incoloy 901/903	10 - 35	.0005	.0005	.001	.001	.002	.0025	.003	.004
Iron Base Incoloy 800-802, Multimet N-155, Timken 16-25-6	10 - 30	.0005	.0005	.001	.0015	.002	.0025	.003	.004
STEELS									
Low Alloy Steels Maraging 10XX, 11XX, 13XX	50 - 200	.0005	.001	.0015	.002	.003	.004	.005	.006
Medium Alloy Steels 200, 250, 300	50 - 250	.0005	.0005	.001	.002	.0025	.0035	.004	.005
High Alloy Steels Mold & Die A-2/6/10, P20, 01, 02, 06, H-11, H-13	35 - 150	.0005	.0005	.001	.001	.001	.0015	.002	.004
High Strength Steels 4140, 4340, 6150, 52100	30 - 150	.0005	.0005	.001	.001	.001	.0015	.002	.004
CAST IRON									
Ductile Iron Ductile Cast Iron	50 - 250	.0005	.0005	.001	.002	.0025	.0035	.004	.005
Cast Iron Gray Cast Iron	50 - 250	.0005	.0005	.001	.002	.0025	.0035	.004	.005
TITANIUM									
Titanium Alloys Commercially Pure, 6AL-4V, ASTM 1/2/3, 6AL-2SN-4Zr-2MO-.25Si	30 - 150	.0005	.0005	.0005	.001	.001	.0015	.002	.004

Niagara Cutter

Niagara Microshield™ Thin Film Coatings and Superior Geometry Elevate Milling Performance to Match the Capabilities of Today's Sophisticated Machining Centers

In high speed production milling applications, Niagara Cutter Microshield™ Coatings are essential in reaching maximum efficiency. Niagara offers **five** levels of Microshield™ coatings on all standard products to provide the most effective coating selection for any metal removal application.

Niagara Cutter Microshield™ Coatings Provide High Performance Options

- Increase Tool Life
- Increase Process Reliability
- Increase Speeds and Feeds
- Improve Productivity

COATING PROPERTIES

Microshield Coating	TiN	TiCN	TiAlN	AlTiN	AlCrN
Microhardness (HV 0.05)	2300	3000	3500	3300	3200
Coefficient of Friction (Dry)	0.4	0.4	0.4	0.4	0.35
Coating Thickness	2 - 4 microns	2 - 4 microns	2 - 3 microns	1 - 3 microns	2 - 5 microns
Maximum Working Temperature	1100° F (600° C)	750° F (400° C)	1470° F (800° C)	1650° F (900° C)	2000° F (1100° C)
Coating Color	Gold	Blue / Grey	Purple / Grey	Blue / Black	Blue / Grey

Microshield™ TiN - Titanium Nitride

A general purpose coating for Solid Carbide, HSS and HSCO end mills that provides effective protection against wear, abrasion and edge buildup. Primary applications are milling steels in a non-hardened condition.

Microshield™ TiCN - Titanium Carbonitride

Incorporation of Carbon into the TiN matrix to increase hardness and abrasion resistance. TiCN is an alternative to TiN for HSS and HSCO applications where additional wear resistance is required. Primary Solid Carbide applications are milling Aluminum Alloys and Cast Iron.

Microshield™ TiAlN - Titanium Aluminum Nitride

TiAlN offers a higher level of thermal stability above TiN and TiCN with abrasion resistance. Ideal for high heat applications found in milling steels, stainless steels and high temp alloys with a hardness of 52 HRc and below.

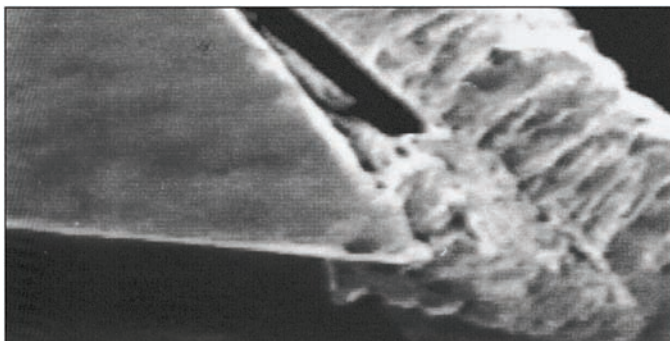
Microshield™ AlTiN - Aluminum Titanium Nitride

Increased thermal stability when milling high temp alloys and Die / Mold steels with a hardness of 52 HRc and above. Excellent for HSM applications. HSS and HSCO end mills can not be coated with AlTiN.

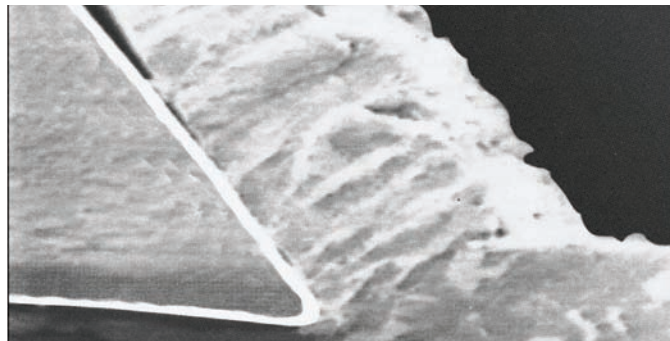
Microshield™ AlCrN - Aluminum Chromium Nitride

AlCrN offers outstanding oxidation and hot hardness. Excellent wear resistance under conventional and extreme conditions when milling Die / Mold steels with a hardness of 52 HRc and below. Also excellent for stainless steel applications.

Chip Formation at the Cutting Edge (Scanning Electron Microscope)



Uncoated - Accumulation of workpiece material creates a build-up condition on the cutting edge due to heat and pressure. Chip formation is the result of tearing or pulling rather than cutting. This will affect tool life, surface finish and workpiece accuracy.



Microshield™ TiN Coated - Ultra thin film coating improves lubricity to enhance chip flow and resist galling and build-up. This coated tool will last longer because less heat is generated at the cutting edge resulting in improved surface finish and accuracy, even at accelerated feeds and speeds.

Niagara Cutter

Niagara Cutter

Application Engineering

It starts with listening and learning and then culminates with a product that does not just perform, but outperforms that which previously existed. Between initial concept and final product there is application engineering, prototype development, exhaustive product testing and critical analysis – a truly innovative, and comprehensive, systems approach to world-class products. Niagara Cutter has not only dedicated itself to this process of constant improvement, but is proud of its record of significant innovation and industry advancements.

Manufacturing Technology

Niagara Cutter continues to invest heavily in automated processes, but in the final analysis, these machines are only as capable as their programming and maintenance allows and the final products are only as consistent as the parameters set by Niagara's machinists. It is in these areas where no machine can match the human contribution. Niagara Cutter aggressively pursues continuous improvement, in its automated operations, and its people. Therefore, the perfect operation between man and machine at Niagara Cutter results in a company that is far greater than the sum of the parts in achieving consistency and accuracy.

Products - High Performance Cutting Tool Solutions

Niagara Cutter offers many product styles, including end mills, thread mills and special cutting tools to customer blue prints. With multiple material substrates (high-speed steel, cobalt, tungsten carbide), tool geometries and thin film coatings, we provide a complete product range to meet your cutting tool requirements. Our job is not just producing millions of premium cutting tools; it is producing premium cutting tools specifically for your application and for absolute optimum performance, by asking the critical questions and quickly responding with the most effective solution.

WARRANTY

Niagara Cutter warrants to original equipment manufacturers, distributors and industrial and commercial users of its products that each new product manufactured or supplied by Niagara Cutter shall be free from defects in material and workmanship. Niagara Cutter's obligation under this warranty is limited to furnishing without additional charge a replacement or, at its option, repairing or issuing credit for any product which shall within one year from the date of sale be returned freight prepaid to the plant designated by a Niagara Cutter representative and which upon inspection is determined by Niagara Cutter to be defective in materials or workmanship. Complete information as to operating conditions, machine setup, and application of cutting fluid should accompany any product returned for inspection. The provisions of this warranty shall not apply to any Niagara Cutter product which has been subjected to misuse, improper operating conditions, machine setup or application of cutting fluid or which has been repaired or altered if such repair or alteration in the judgement of Niagara Cutter would adversely affect performance of the product. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Niagara Cutter shall have no liability or responsibility on any claim of any kind, whether in contract, tort or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery or use of any product sold hereunder, in excess of the cost of replacement or repair as provided herein. IN NO EVENT SHALL NIAGARA CUTTER BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. Niagara Cutter makes no other warranty, express or implied, except as set forth above; and Niagara Cutter neither assumes nor authorizes any other person or entity to assume for it any other obligation or liability in connection with any of its products.

Niagara Cutter Manufacturer ID Number 698036

NOTICE Because we are constantly engaged in a program of product improvement, tool specifications are subject to change at any time.

WARNING

Any cutting tool may chip or fragment in use. Always use machine guards, protective clothing and safety glasses to prevent burns or other injury to body or eyes from flying particles or chips. Wet or dry grinding of cutting tools produces potentially hazardous dusts or mists; to avoid adverse health effects use adequate ventilation and read material safety data sheet for applicable tool material or grade before grinding.



LEADING IN HIGH-PERFORMANCE CUTTING TOOLS



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