KYOCERA

SGS
Solid Carbide Tools

Tools for Aluminum

New Expanded Offering

www.kyocera-sgstool.com

ISO 9001 Certified

S-CARB® HIGH PERFORMANCE END MILLS

The original, symmetrical flute design features an engineered flute form that provides high performance results through a full range of machining conditions. These tools are designed for aggressive aluminum, non-ferrous, and non-metallic machining requiring a high level of material removal.

Engineered Flute Design

- Effective chip removal at high feed rates
- Lower cutting forces than comparable products
- Improved balance at high spindle speeds
- Improved workpiece finish through better balance
- More effective plunging vs. conventional designs

Circular Land

- Increased control at various speed and feed levels
- Reduced chatter

Various Reach, Neck and End Options Available

- Ball End design for complex workpieces
- Necked design with blended diameter transitions provide clearance to reach
- Short flutes for maximum rigidity
- Axial slotting up to 1xD

Series 43 Metric Expanded Tools Available with Polished Flutes

- Polished flutes maximize chip evacuation and enhance finish allowing for higher feed rates
- Less built up edge due to lower co-efficient of friction

CARB
Solid Carbide End Mills for Aluminum

Aluminum

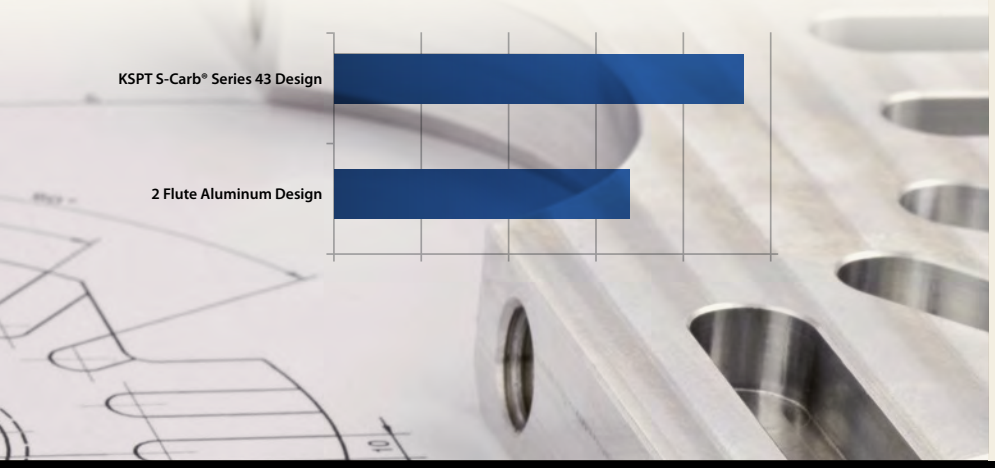
S-CARB® END MILLS FOR
ALUMINUM, NON-FERROUS &
NON-METALLIC MATERIALS

VALUE AT THE SPINDLE®

ENHANCED PRODUCTIVITY RESULTING FROM A SUPERIOR FLUTE DESIGN THAT MANAGES THE SIZE AND VOLUME OF CHIPS PRODUCED DURING AGGRESSIVE MACHINING.

Maximum RPM Capability

Results of Independent Lab Balance Analysis Testing per the ISO G2.5 Tolerance ½" Diameter Tools Equal Flute Lengths and Overall Lengths



Ti-NAMITE-B

Available with TiB_2 Coating (Titanium Diboride). This ceramic based coating ensures a smooth surface and a low affinity to cold welding or edge build-up, which makes it optimal for aluminum and copper applications. It has high toughness and high hardness.

Microhardness: 4000 HV
Oxidation Temperature: 850°C / 1562°F
Coefficient of Friction: 0.45
Thickness: 1 - 2 Microns (based on tool diameter)

S-CARB® **HIGH PERFORMANCE** END MILLS ARE IDEAL FOR **CYCLE TIME REDUCTION** IN TARGET APPLICATIONS SUCH AS:

Aerospace
- Structure components

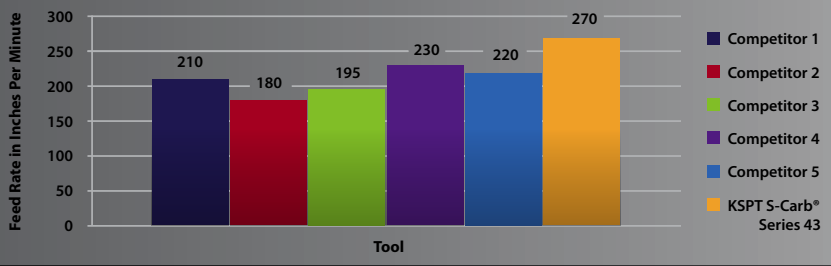
Automotive/Motorbike
- Performance aluminum wheels
- Non-ferrous housings, transmissions, manifolds, electronic pumps

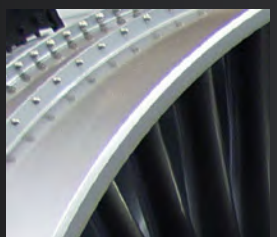
Mold & Die
- Non-ferrous mold cavities

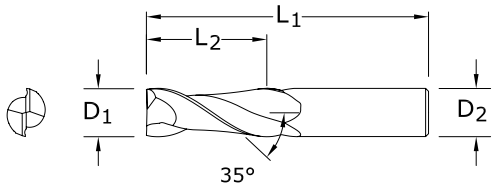
Firearms
- Aluminum components

Semiconductor
- Aluminum vacuum chambers

SLOTTING CAPABILITY: 3-FLUTE END MILLS
MAXIMUM FEED RATE ACHIEVED AT 100% SPINDLE LOAD ON A 30 HP VERTICAL MILL IN 6061 ALUMINUM @ 10,000 RPM .500" DEEP SLOT .500" DIAMETER TOOL



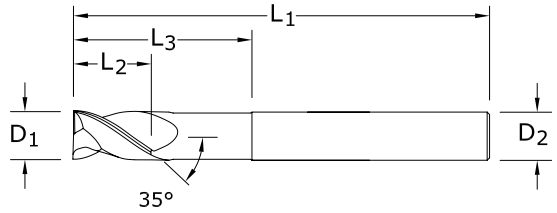




TOLERANCES (inch) DIAMETER	D_1	D_2
1/8 - 3/16	+0.00000 / –0.00032	h6
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

SERIES 47

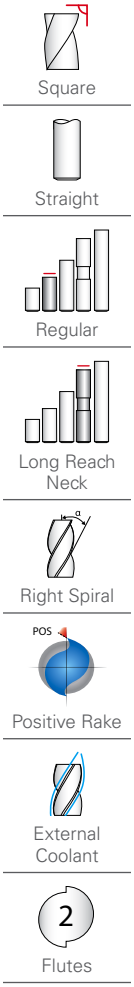
Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/8	3/8	1-1/2	1/8	34620	34660
3/16	9/16	2	3/16	34621	34661
1/4	3/4	2-1/2	1/4	34622	34662
5/16	13/16	2-1/2	5/16	34623	34663
3/8	1	2-1/2	3/8	34624	34664
1/2	1-1/4	3-1/4	1/2	34625	34665
5/8	1-5/8	3-3/4	5/8	34626	34666
3/4	1-5/8	4	3/4	34627	34667
1	2	4-1/2	1	34628	34668



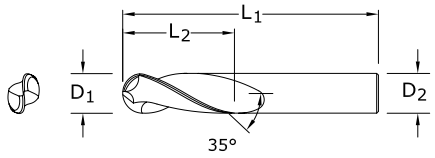
TOLERANCES (inch) DIAMETER	D_1	D_2
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

SERIES 47L

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	4	1/4	2-1/8	34640	34678
3/8	1/2	4	3/8	2-1/8	34641	34679
1/2	5/8	6	1/2	2-1/8	34642	34680
1/2	5/8	6	1/2	3-3/8	34643	34681
5/8	3/4	6	5/8	2-3/8	34644	34682
5/8	3/4	6	5/8	3-3/8	34645	34683
3/4	1	6	3/4	2-1/2	34646	34684
3/4	1	6	3/4	3-3/8	34647	34685



DIAMETER	TOLERANCES (inch) D_1	D_2	BALL RADIUS
1/8 - 3/16	+0.00000 / –0.00032	h6	+.0005 / -.0005
1/4 - 3/8	+0.00000 / –0.00035	h6	+.0005 / -.0005
1/2 - 5/8	+0.00000 / –0.00043	h6	+.0005 / -.0005
3/4 - 1	+0.00000 / –0.00051	h6	+.0005 / -.0005



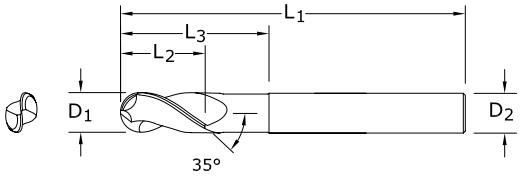
CARB Solid Carbide End Mills for Aluminum

SERIES 47B

Ball
Straight
Regular
Long Reach Neck
Right Spiral
Positive Rake
External Coolant
2 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/8	3/8	1-1/2	1/8	34630	34669
3/16	9/16	2	3/16	34631	34670
1/4	3/4	2-1/2	1/4	34632	34671
5/16	13/16	2-1/2	5/16	34633	34672
3/8	1	2-1/2	3/8	34634	34673
1/2	1-1/4	3-1/4	1/2	34635	34674
5/8	1-5/8	3-3/4	5/8	34636	34675
3/4	1-5/8	4	3/4	34637	34676
1	2	4-1/2	1	34638	34677

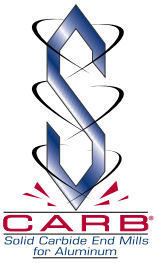
DIAMETER	TOLERANCES (inch) D_1	D_2	BALL RADIUS
1/4 - 3/8	+0.00000 / –0.00035	h6	+.0005 / -.0005
1/2 - 5/8	+0.00000 / –0.00043	h6	+.0005 / -.0005
3/4 - 1	+0.00000 / –0.00051	h6	+.0005 / -.0005

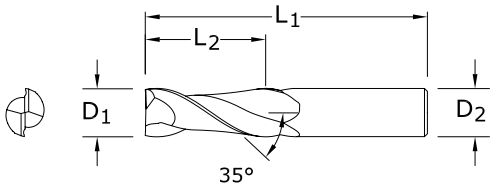


CARB Solid Carbide End Mills for Aluminum

SERIES 47LB

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	4	1/4	2-1/8	34650	34686
3/8	1/2	4	3/8	2-1/8	34651	34687
1/2	5/8	6	1/2	2-1/8	34652	34688
1/2	5/8	6	1/2	3-3/8	34653	34689
5/8	3/4	6	5/8	3-3/8	34654	34691
5/8	3/4	6	5/8	2-3/8	34655	34690
3/4	1	6	3/4	2-1/2	34656	34693
3/4	1	6	3/4	3-3/8	34657	34692

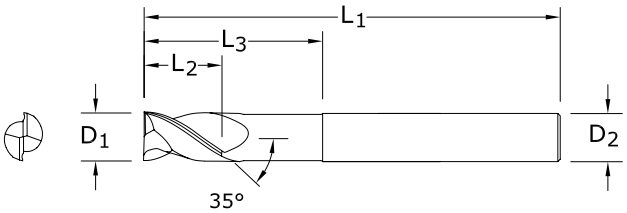




TOLERANCES (mm) DIAMETER	D_1	D_2
3	+0,000 / –0,006	h6
4 - 6	+0,000 / –0,008	h6
8 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20 - 25	+0,000 / –0,013	h6

SERIES 47M

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
3,0	8,0	38,0	3,0	44550	44587
4,0	11,0	50,0	4,0	44551	44588
5,0	13,0	50,0	5,0	44552	44589
6,0	13,0	57,0	6,0	44553	44590
8,0	19,0	63,0	8,0	44554	44591
10,0	22,0	72,0	10,0	44555	44592
12,0	26,0	83,0	12,0	44556	44593
14,0	26,0	83,0	14,0	44557	44594
16,0	32,0	92,0	16,0	44558	44595
20,0	38,0	104,0	20,0	44559	44596
25,0	44,0	104,0	25,0	44560	44597



TOLERANCES (mm) DIAMETER	D_1	D_2
6	+0,000 / –0,008	h6
8 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20	+0,000 / –0,013	h6

SERIES 47ML

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
6,0	10,0	100,0	6,0	54,0	44561	44609
8,0	12,0	100,0	8,0	54,0	44562	44610
10,0	12,0	100,0	10,0	54,0	44563	44611
12,0	16,0	150,0	12,0	80,0	44564	44612
16,0	20,0	150,0	16,0	80,0	44565	44613
20,0	25,0	150,0	20,0	80,0	44566	44614


Square


Straight


Regular


Long Reach Neck

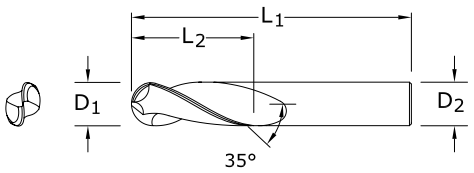

Right Spiral

Positive Rake


External Coolant

Flutes

TOLERANCES (mm)			
DIAMETER	D_1	D_2	BALL RADIUS
3	+0,000 / –0,006	h6	+0,0127 / -0,0127
4 - 6	+0,000 / –0,008	h6	+0,0127 / -0,0127
8 - 10	+0,000 / –0,009	h6	+0,0127 / -0,0127
12 - 16	+0,000 / –0,011	h6	+0,0127 / -0,0127
20 - 25	+0,000 / –0,013	h6	+0,0127 / -0,0127



CARB® Solid Carbide End Mills for Aluminum

SERIES 47MB

Ball

Straight

Regular

Long Reach Neck

Right Spiral

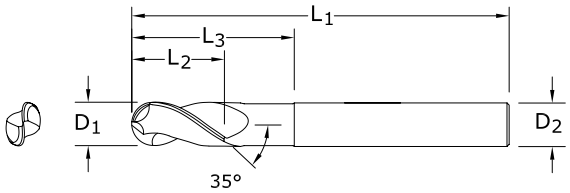
Positive Rake

External Coolant

2 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
3,0	8,0	38,0	3,0	44570	44598
4,0	11,0	50,0	4,0	44571	44599
5,0	13,0	50,0	5,0	44572	44600
6,0	13,0	57,0	6,0	44573	44601
8,0	19,0	63,0	8,0	44574	44602
10,0	22,0	72,0	10,0	44575	44603
12,0	26,0	83,0	12,0	44576	44604
14,0	26,0	83,0	14,0	44577	44605
16,0	32,0	92,0	16,0	44578	44606
20,0	38,0	104,0	20,0	44579	44607
25,0	44,0	104,0	25,0	44580	44608

TOLERANCES (mm)			
DIAMETER	D_1	D_2	BALL RADIUS
6	+0,000 / –0,008	h6	+0,0127 / -0,0127
6 - 10	+0,000 / –0,009	h6	+0,0127 / -0,0127
10 - 18	+0,000 / –0,011	h6	+0,0127 / -0,0127
18 - 25	+0,000 / –0,013	h6	+0,0127 / -0,0127

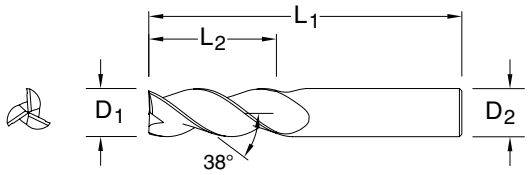


CARB® Solid Carbide End Mills for Aluminum

SERIES 47MLB

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
6,0	10,0	100,0	6,0	54,0	44581	44615
8,0	12,0	100,0	8,0	54,0	44582	44616
10,0	12,0	100,0	10,0	54,0	44583	44617
12,0	16,0	150,0	12,0	80,0	44584	44618
16,0	20,0	150,0	16,0	80,0	44585	44619
20,0	25,0	150,0	20,0	80,0	44586	44620

CARB
Solid Carbide End Mills for Aluminum



TOLERANCES (inch)		
DIAMETER	D_1	D_2
1/8 - 3/16	+0.00000 / –0.00032	h6
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

SERIES 43

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/8	3/8	1-1/2	1/8	34701	34728
3/16	5/16	2-1/2	3/16	34822	34857
3/16	9/16	2	3/16	34702	34729
3/16	3/4	2-1/2	3/16	34823	34858
1/4	3/8	2	1/4	34703	34730
1/4	1/2	2-1/2	1/4	34824	34859
1/4	3/4	2-1/2	1/4	34704	34731
1/4	1	3	1/4	34825	34860
1/4	1-1/4	3-1/2	1/4	34705	34732
1/4	1-3/4	4	1/4	34826	34861
5/16	7/16	2	5/16	34706	34733
5/16	5/8	2-1/2	5/16	34707	34734
5/16	1-1/4	4	5/16	34708	34735
3/8	1/2	2	3/8	34709	34736
3/8	1	2-1/2	3/8	34710	34737
3/8	1-1/4	3-1/2	3/8	34827	34862
3/8	1-1/2	3-1/2	3/8	34711	34738
3/8	2	4	3/8	34828	34863
1/2	5/8	2-1/2	1/2	34712	34739
1/2	1	3	1/2	34830	34865
1/2	1-1/4	3-1/4	1/2	34713	34740
1/2	1-5/8	4	1/2	34831	34866
1/2	2-1/2	5	1/2	34832	34867
1/2	2	4	1/2	34714	34741
1/2	3-1/8	6	1/2	34715	34742
5/8	3/4	3	5/8	34716	34743
5/8	1-5/8	3-3/4	5/8	34717	34744
5/8	2-1/8	4	5/8	34833	34868
5/8	2-1/2	5	5/8	34718	34745
5/8	3-1/4	6	5/8	34834	34869
5/8	3-3/4	6	5/8	34719	34746
3/4	1	3	3/4	34720	34747
3/4	1-5/8	4	3/4	34721	34748
3/4	2-1/4	5	3/4	34722	34749
3/4	3-1/4	6	3/4	34723	34750
1	1-1/4	4	1	34724	34751
1	2	4-1/2	1	34725	34752
1	2-5/8	6	1	34726	34753
1	3-1/4	6	1	34727	34754
1	4-1/8	7	1	34835	34870


Square


Straight


Stub, Regular, Long, Extra Long


Right Spiral

Positive Rake


External Coolant

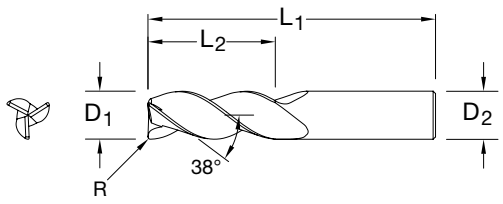
Flutes

TOLERANCES (inch)

DIAMETER	D_1	D_2
1/8 - 3/16	+0.00000 / –0.00032	h6
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)

R = +0.0000 / –0.0020



CARB® Solid Carbide End Mills for Aluminum

SERIES 43CR

Corner

Straight

Stub, Regular, Long

Right Spiral

Positive Rake

External Coolant

3 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/8	3/8	1-1/2	1/8	.010	34771	34793
3/16	9/16	2	3/16	.010	34772	34794
1/4	3/8	2-1/2	1/4	.010	35575	35665
1/4	3/8	2-1/2	1/4	.015	35576	35666
1/4	3/8	2-1/2	1/4	.030	35577	35667
1/4	3/8	2-1/2	1/4	.060	35578	35668
1/4	3/4	2-1/2	1/4	.010	34773	34795
1/4	3/4	2-1/2	1/4	.015	35579	35669
1/4	3/4	2-1/2	1/4	.030	34774	34796
1/4	3/4	2-1/2	1/4	.060	35580	35670
1/4	1	3	1/4	.010	35581	35671
1/4	1	3	1/4	.015	35582	35672
1/4	1	3	1/4	.030	35583	35673
1/4	1	3	1/4	.060	35584	35674
5/16	5/8	2-1/2	5/16	.030	34775	34797
3/8	1/2	3	3/8	.010	35585	35675
3/8	1/2	3	3/8	.015	35586	35676
3/8	1/2	3	3/8	.030	35587	35677
3/8	1/2	3	3/8	.060	35588	35678
3/8	1/2	3	3/8	.090	35589	35679
3/8	1	2-1/2	3/8	.010	34776	34798
3/8	1	2-1/2	3/8	.030	34777	34799
3/8	1	2-1/2	3/8	.060	32761	32825
3/8	1	3	3/8	.015	35590	35680
3/8	1	3	3/8	.090	35591	35681
3/8	1-1/2	4	3/8	.010	35592	35682
3/8	1-1/2	4	3/8	.015	35593	35683
3/8	1-1/2	4	3/8	.030	35594	35684
3/8	1-1/2	4	3/8	.060	35595	35685
3/8	1-1/2	4	3/8	.090	35596	35686
1/2	5/8	3	1/2	.010	35597	35687
1/2	5/8	3	1/2	.015	35598	35688
1/2	5/8	3	1/2	.030	35599	35689
1/2	5/8	3	1/2	.060	35600	35690
1/2	5/8	3	1/2	.090	35601	35691
1/2	5/8	3	1/2	.120	35602	35692
1/2	1	3	1/2	.010	35603	35693
1/2	1	3	1/2	.015	35604	35694
1/2	1	3	1/2	.030	35605	35695
1/2	1	3	1/2	.060	35606	35696

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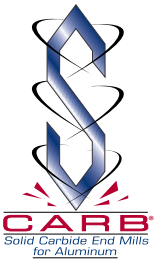

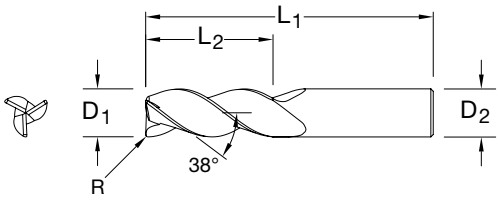

TOLERANCES (inch)

DIAMETER	D_1	D_2
1/8 - 3/16	+0.00000 / –0.00032	h6
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)

R = +0.0000 / –0.0020

SERIES 43CR *(CONTINUED)*

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/2	1	3	1/2	.090	35607	35697
1/2	1	3	1/2	.120	35608	35698
1/2	1-1/4	3	1/2	.015	35609	35699
1/2	1-1/4	3-1/4	1/2	.010	34778	34800
1/2	1-1/4	3-1/4	1/2	.030	34779	34801
1/2	1-1/4	3-1/4	1/2	.060	34780	34802
1/2	1-1/4	3-1/4	1/2	.090	34781	34803
1/2	1-1/4	3-1/4	1/2	.120	32766	32830
1/2	1-5/8	4	1/2	.010	35610	35700
1/2	1-5/8	4	1/2	.015	35611	35701
1/2	1-5/8	4	1/2	.030	35612	35702
1/2	1-5/8	4	1/2	.060	35613	35703
1/2	1-5/8	4	1/2	.090	35614	35704
1/2	1-5/8	4	1/2	.120	35615	35705
1/2	2	4	1/2	.010	35616	35706
1/2	2	4	1/2	.015	35617	35707
1/2	2	4	1/2	.030	35618	35708
1/2	2	4	1/2	.060	35619	35709
1/2	2	4	1/2	.090	35620	35710
1/2	2	4	1/2	.120	35621	35711
5/8	3/4	3-1/2	5/8	.030	35622	35712
5/8	3/4	3-1/2	5/8	.060	35623	35713
5/8	3/4	3-1/2	5/8	.090	35624	35714
5/8	3/4	3-1/2	5/8	.120	35625	35715
5/8	1-5/8	3-3/4	5/8	.030	34782	34804
5/8	1-5/8	3-3/4	5/8	.060	34783	34805
5/8	1-5/8	3-3/4	5/8	.090	34784	34806
5/8	1-5/8	3-3/4	5/8	.120	35626	35716
3/4	1	4	3/4	.030	35627	35717
3/4	1	4	3/4	.060	35628	35718
3/4	1	4	3/4	.090	35629	35719
3/4	1	4	3/4	.120	35630	35720
3/4	1	4	3/4	.190	35631	35721
3/4	1	4	3/4	.250	35632	35722
3/4	1-5/8	4	3/4	.030	34785	34807
3/4	1-5/8	4	3/4	.060	34786	34808
3/4	1-5/8	4	3/4	.090	34787	34809
3/4	1-5/8	4	3/4	.120	34815	34817
3/4	1-5/8	4	3/4	.190	35633	35723
3/4	1-5/8	4	3/4	.250	35634	35724

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Corner


Straight


Stub, Regular, Long


Right Spiral

Positive Rake


External Coolant

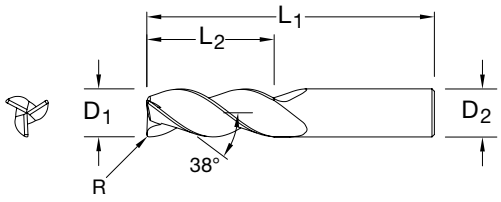
Flutes

TOLERANCES (inch)

DIAMETER	D_1	D_2
1/8 - 3/16	+0.00000 / –0.00032	h6
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)

R = +0.0000 / –0.0020



CARB® Solid Carbide End Mills for Aluminum

SERIES 43CR *(CONTINUED)*

Corner

Straight

Stub, Regular, Long

Right Spiral

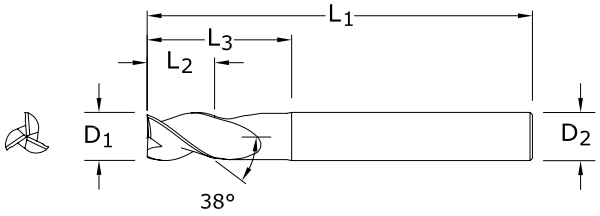
Positive Rake

External Coolant

3 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
3/4	2-1/4	5	3/4	.030	35635	35725
3/4	2-1/4	5	3/4	.060	35636	35726
3/4	2-1/4	5	3/4	.090	35637	35727
3/4	2-1/4	5	3/4	.120	35638	35728
3/4	2-1/4	5	3/4	.190	35639	35729
3/4	2-1/4	5	3/4	.250	35640	35730
1	1-1/4	5	1	.030	35641	35731
1	1-1/4	5	1	.060	35642	35732
1	1-1/4	5	1	.090	35643	35733
1	1-1/4	5	1	.120	35644	35734
1	1-1/4	5	1	.190	35645	35735
1	1-1/4	5	1	.250	35646	35736
1	2	4-1/2	1	.030	34789	34811
1	2	4-1/2	1	.060	34790	34812
1	2	4-1/2	1	.090	34791	34813
1	2	4-1/2	1	.120	34816	34818
1	2	5	1	.190	35647	35737
1	2	5	1	.250	35648	35738
1	3-1/4	6	1	.030	35649	35739
1	3-1/4	6	1	.060	35650	35740
1	3-1/4	6	1	.090	35651	35741
1	3-1/4	6	1	.120	35652	35742
1	3-1/4	6	1	.190	35653	35743
1	3-1/4	6	1	.250	35654	35744

CARB
Solid Carbide End Mills for Aluminum



TOLERANCES (inch)		
DIAMETER	D_1	D_2
1/8 - 3/16	+0.00000 / –0.00032	h6
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

SERIES 43L

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/8	5/32	3	1/8	1/2	32700	32725
1/8	5/32	3	1/8	3/4	32691	34888
3/16	7/32	3	3/16	1/2	32701	32726
3/16	7/32	3	3/16	3/4	32692	34889
1/4	3/8	4	1/4	3/4	32702	32727
1/4	3/8	4	1/4	1-1/2	32703	32728
1/4	3/8	4	1/4	2-1/8	32704	32729
5/16	7/16	4	5/16	1-1/8	32705	32730
5/16	7/16	4	5/16	2-1/8	32706	32731
3/8	1/2	4	3/8	1-1/8	32707	32732
3/8	1/2	4	3/8	2-1/8	32708	32733
1/2	5/8	4	1/2	1-3/8	32709	32734
1/2	5/8	6	1/2	2-1/8	32710	32735
1/2	5/8	6	1/2	3-3/8	32711	32736
1/2	5/8	6	1/2	4-1/4	32697	34894
5/8	3/4	4	5/8	1-3/4	32712	32737
5/8	3/4	4	5/8	2-3/8	32713	32738
5/8	3/4	6	5/8	3-3/8	32714	32739
5/8	3/4	6	5/8	4-3/8	32698	34895
3/4	1	4	3/4	1-3/4	32715	32740
3/4	1	6	3/4	2-3/8	32716	32741
3/4	1	6	3/4	3-3/8	32717	32742
3/4	1	6	3/4	4-3/8	32699	34896
1	1-1/4	6	1	2-3/8	32718	32743
1	1-1/4	6	1	3-3/8	32719	32744
1	1-1/4	7	1	4-3/8	32720	32745


Square


Straight


Long Reach Neck


Right Spiral

Positive Rake


External Coolant

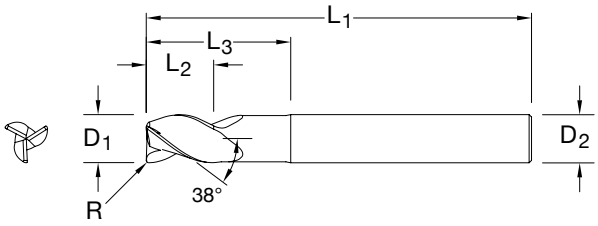
3
Flutes

TOLERANCES (inch)

DIAMETER	D_1	D_2
1/8 - 3/16	+0.00000 / –0.00032	h6
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)

R = +0.0000 / –0.0020



CARB® Solid Carbide End Mills for Aluminum

SERIES 43LC

Corner

Straight

Long Reach Neck

Right Spiral

Positive Rake

External Coolant

3 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/8	5/32	3	1/8	1/2	.010	32751	32815
3/16	7/32	3	3/16	1/2	.010	32752	32816
1/4	3/8	2-1/2	1/4	3/4	.015	35787	36235
1/4	3/8	2-1/2	1/4	3/4	.060	35788	36236
1/4	3/8	4	1/4	3/4	.010	32753	32817
1/4	3/8	4	1/4	3/4	.030	32754	32818
1/4	3/8	4	1/4	1-1/2	.010	32755	32819
1/4	3/8	4	1/4	1-1/2	.030	32756	32820
1/4	3/8	4	1/4	2-1/8	.010	32757	32821
1/4	3/8	4	1/4	2-1/8	.030	32758	32822
5/16	7/16	4	5/16	1-1/8	.030	32759	32823
5/16	7/16	4	5/16	2-1/8	.030	32760	32824
3/8	1/2	3	3/8	1-1/8	.015	35791	36239
3/8	1/2	3	3/8	1-1/8	.090	35792	36240
3/8	1/2	4	3/8	1-1/8	.030	32762	32826
3/8	1/2	4	3/8	1-1/8	.060	32763	32827
3/8	1/2	4	3/8	2-1/8	.030	32764	32828
3/8	1/2	4	3/8	2-1/8	.060	32765	32829
1/2	5/8	3	1/2	1-3/8	.015	35795	36243
1/2	5/8	4	1/2	1-3/8	.030	32767	32831
1/2	5/8	4	1/2	1-3/8	.060	32768	32832
1/2	5/8	4	1/2	1-3/8	.090	32769	32833
1/2	5/8	4	1/2	1-3/8	.120	32770	32834
1/2	5/8	4	1/2	2-1/4	.015	35796	36244
1/2	5/8	6	1/2	2-1/8	.030	32771	32835
1/2	5/8	6	1/2	2-1/8	.060	32772	32836
1/2	5/8	6	1/2	2-1/8	.090	32773	32837
1/2	5/8	6	1/2	2-1/8	.120	32774	32838
1/2	5/8	6	1/2	3-3/8	.030	32775	32839
1/2	5/8	6	1/2	3-3/8	.060	32776	32840
1/2	5/8	6	1/2	3-3/8	.090	32777	32841
1/2	5/8	6	1/2	3-3/8	.120	32778	32842
5/8	3/4	4	5/8	1-3/4	.030	32779	32843
5/8	3/4	4	5/8	1-3/4	.060	32780	32844
5/8	3/4	4	5/8	1-3/4	.090	32781	32845
5/8	3/4	4	5/8	1-3/4	.120	32782	32846

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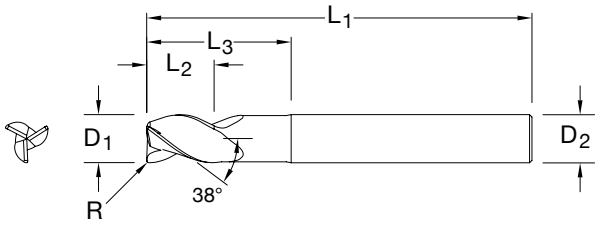
CARB
Solid Carbide End Mills for Aluminum



TOLERANCES (inch)

DIAMETER	D_1	D_2
1/8 - 3/16	+0.00000 / –0.00032	h6
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)

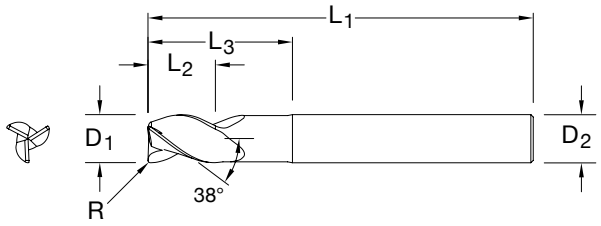
R = +0.0000 / –0.0020

SERIES 43LC *(CONTINUED)*

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
5/8	3/4	4	5/8	2-3/8	.030	32783	32847
5/8	3/4	4	5/8	2-3/8	.060	32784	32848
5/8	3/4	4	5/8	2-3/8	.090	32785	32849
5/8	3/4	4	5/8	2-3/8	.120	32786	32850
5/8	3/4	6	5/8	3-3/8	.030	32787	32851
5/8	3/4	6	5/8	3-3/8	.060	32788	32852
5/8	3/4	6	5/8	3-3/8	.090	32789	32853
5/8	3/4	6	5/8	3-3/8	.120	32790	32854
3/4	1	4	3/4	1-3/4	.030	32791	32855
3/4	1	4	3/4	1-3/4	.060	32792	32856
3/4	1	4	3/4	1-3/4	.090	32793	32857
3/4	1	4	3/4	1-3/4	.120	32794	32858
3/4	1	4	3/4	2	.190	35803	36251
3/4	1	4	3/4	2	.250	35804	36252
3/4	1	6	3/4	2-3/8	.030	32795	32859
3/4	1	6	3/4	2-3/8	.060	32796	32860
3/4	1	6	3/4	2-3/8	.090	32797	32861
3/4	1	6	3/4	2-3/8	.120	32798	32862
3/4	1	6	3/4	3-3/8	.030	32799	32863
3/4	1	6	3/4	3-3/8	.060	32800	32864
3/4	1	6	3/4	3-3/8	.090	32801	32865
3/4	1	6	3/4	3-3/8	.120	32802	32866
1	1-1/4	5	1	2-5/8	.190	35809	36257
1	1-1/4	5	1	2-5/8	.250	35810	36258
1	1-1/4	6	1	2-3/8	.030	32803	32867
1	1-1/4	6	1	2-3/8	.060	32804	32868
1	1-1/4	6	1	2-3/8	.090	32805	32869
1	1-1/4	6	1	2-3/8	.120	32806	32870
1	1-1/4	6	1	3-3/8	.030	32807	32871
1	1-1/4	6	1	3-3/8	.060	32808	32872
1	1-1/4	6	1	3-3/8	.090	32809	32873
1	1-1/4	6	1	3-3/8	.120	32810	32874
1	1-1/4	6	1	3-3/8	.190	35811	36259
1	1-1/4	6	1	3-3/8	.250	35812	36260

TOLERANCES (inch)		
DIAMETER	D_1	D_2
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)
R = +0.0000 / –0.0020



Corner

Straight

Long Reach Neck

Right Spiral

Positive Rake

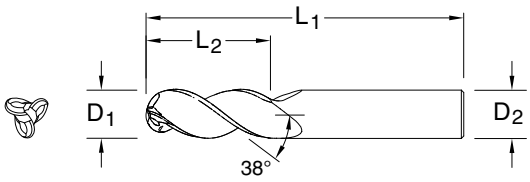
External Coolant

3
Flutes

SERIES 43EC

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	3	1/4	1-1/8	.015	35789	36237
1/4	3/8	3	1/4	1-1/8	.060	35790	36238
3/8	1/2	4	3/8	2-1/8	.015	35793	36241
3/8	1/2	4	3/8	2-1/8	.090	35794	36242
1/2	5/8	5	1/2	3-3/8	.015	35797	36245
1/2	5/8	6	1/2	4-1/4	.015	35798	36246
1/2	5/8	6	1/2	4-1/4	.030	35799	36247
1/2	5/8	6	1/2	4-1/4	.060	35800	36248
1/2	5/8	6	1/2	4-1/4	.090	35801	36249
1/2	5/8	6	1/2	4-1/4	.120	35802	36250
3/4	1	6	3/4	3-3/8	.190	35805	36253
3/4	1	6	3/4	3-3/8	.250	35806	36254
1	1-1/4	7	1	4-3/8	.030	35813	36261
1	1-1/4	7	1	4-3/8	.060	35814	36262
1	1-1/4	7	1	4-3/8	.090	35815	36263
1	1-1/4	7	1	4-3/8	.120	35816	36264
1	1-1/4	7	1	4-3/8	.190	35817	36265
1	1-1/4	7	1	4-3/8	.250	35818	36266

CARB
Solid Carbide End Mills for Aluminum



DIAMETER	TOLERANCES (inch) D_1	D_2	BALL RADIUS
1/4 - 3/8	+0.00000 / –0.00035	h6	+.0005 / -.0005
1/2 - 5/8	+0.00000 / –0.00043	h6	+.0005 / -.0005
3/4 - 1	+0.00000 / –0.00051	h6	+.0005 / -.0005

SERIES 43B

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	2	1/4	34916	34972
1/4	3/4	2-1/2	1/4	34917	34973
1/4	1	3	1/4	34918	34974
3/8	1/2	2	3/8	34919	34975
3/8	1	2-1/2	3/8	34920	34976
3/8	1-1/2	3-1/2	3/8	34921	34977
1/2	5/8	2-1/2	1/2	34922	34978
1/2	1	3	1/2	34923	34979
1/2	1-1/4	3	1/2	34924	34980
1/2	1-5/8	4	1/2	34925	34981
1/2	2	4	1/2	34926	34982
5/8	3/4	3	5/8	34927	34983
5/8	1-5/8	4	5/8	34928	34984
3/4	1	3	3/4	34929	34985
3/4	1-5/8	4	3/4	34930	34986
3/4	2-1/4	5	3/4	34931	34987
1	1-1/4	4	1	34932	34988
1	2	5	1	34933	34989
1	3-1/4	6	1	34934	34990


Ball


Straight


Stub, Regular, Long

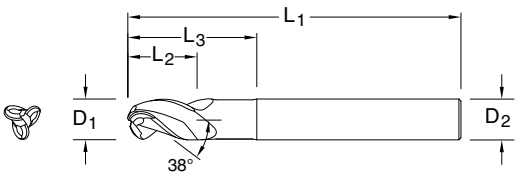

Right Spiral

Positive Rake


External Coolant

Flutes

DIAMETER	TOLERANCES (inch) D_1	D_2	BALL RADIUS
1/4 - 3/8	+0.00000 / –0.00035	h6	+.0005 / -.0005
1/2 - 5/8	+0.00000 / –0.00043	h6	+.0005 / -.0005
3/4 - 1	+0.00000 / –0.00051	h6	+.0005 / -.0005



CARB® Solid Carbide End Mills for Aluminum

SERIES 43LB

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	2-1/2	1/4	3/4	34941	35005
3/8	1/2	3	3/8	1-1/8	34943	35007
1/2	5/8	3	1/2	1-3/8	34945	35009
1/2	5/8	4	1/2	2-1/4	34946	35010
5/8	3/4	4	5/8	1-5/8	34949	35013
3/4	1	4	3/4	2	34951	35015
1	1-1/4	5	1	2-5/8	34954	35018
1	1-1/4	6	1	3-3/8	34955	35019

Ball

Straight

Long Reach Neck

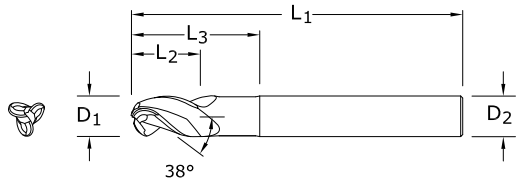
Right Spiral

Positive Rake

External Coolant

3 Flutes

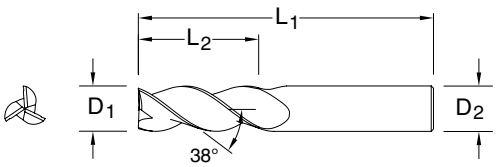
DIAMETER	TOLERANCES (inch) D_1	D_2	BALL RADIUS
1/4 - 3/8	+0.00000 / –0.00035	h6	+.0005 / -.0005
1/2 - 5/8	+0.00000 / –0.00043	h6	+.0005 / -.0005
3/4 - 1	+0.00000 / –0.00051	h6	+.0005 / -.0005



CARB® Solid Carbide End Mills for Aluminum

SERIES 43EB

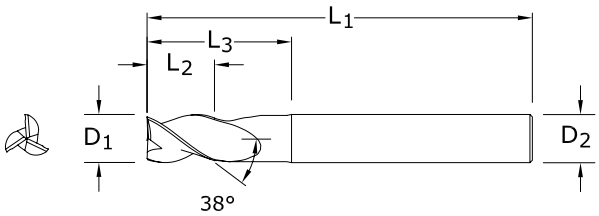
Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	3	1/4	1-1/8	34942	35006
3/8	1/2	4	3/8	2-1/8	34944	35008
1/2	5/8	5	1/2	3-3/8	34947	35011
1/2	5/8	6	1/2	4-1/4	34948	35012
5/8	3/4	6	5/8	3-3/8	34950	35014
3/4	1	6	3/4	3-3/8	34952	35016
1	1-1/4	7	1	4-3/8	34956	35020



TOLERANCES (mm)		
DIAMETER	D_1	D_2
6	+0,000 / –0,008	h6
8 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20	+0,000 / –0,013	h6

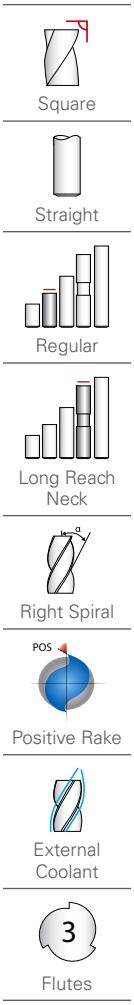
SERIES 43M

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
6,0	13,0	57,0	6,0	44701	44715
6,0	13,0	72,0	6,0	44702	44716
8,0	19,0	63,0	8,0	44703	44717
10,0	22,0	72,0	10,0	44705	44719
12,0	26,0	83,0	12,0	44708	44722
16,0	32,0	92,0	16,0	44711	44725
20,0	38,0	104,0	20,0	44714	44728
25,0	50,0	125,0	25,0	–	44731



SERIES 43ML

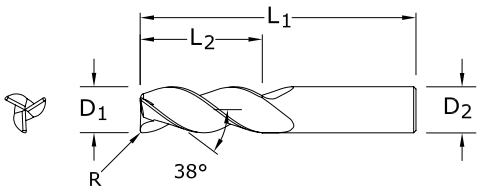
Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Ti-NAMITE-B (TiB_2) EDP No.
6,0	10,0	75,0	6,0	20,0	42706
8,0	12,0	75,0	8,0	25,0	42707
10,0	14,0	100,0	10,0	35,0	42708
12,0	16,0	100,0	12,0	40,0	42709
16,0	20,0	125,0	16,0	50,0	42710
20,0	25,0	150,0	20,0	65,0	42711



TOLERANCES (mm)		
DIAMETER	D_1	D_2
6	+0,000 / –0,008	h6
8 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20	+0,000 / –0,013	h6

CORNER RADIUS TOLERANCE (mm)

R = +0,00 / –0,05



CARB
Solid Carbide End Mills for Aluminum

Corner

Straight

Regular

Long Reach Neck

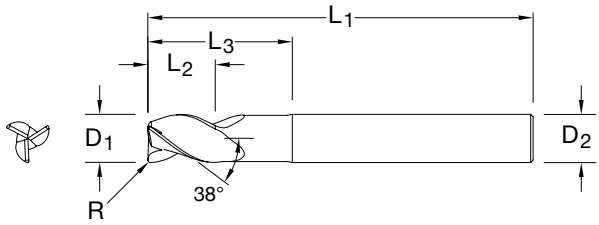
Positive Rake

External Coolant

3 Flutes

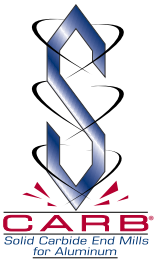
SERIES 43MCR

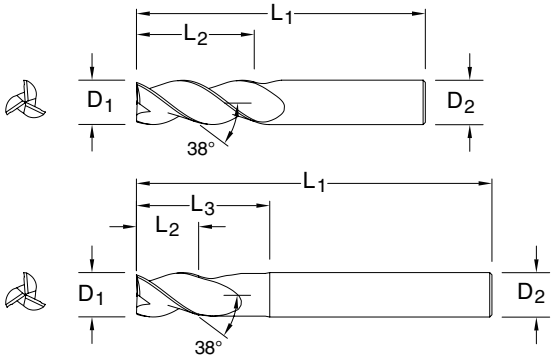
Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
6,0	13,0	57,0	6,0	1,5	–	44732
12,0	26,0	83,0	12,0	1,5	44814	44733
12,0	26,0	83,0	12,0	2,0	44815	44826
12,0	26,0	83,0	12,0	2,5	44816	44827
12,0	26,0	83,0	12,0	3,0	44817	44734
16,0	32,0	92,0	16,0	1,5	44818	44735
16,0	32,0	92,0	16,0	2,0	44819	44828
16,0	32,0	92,0	16,0	2,5	44820	44829
16,0	32,0	92,0	16,0	3,0	44821	44736
20,0	38,0	104,0	20,0	2,0	44822	44830
20,0	38,0	104,0	20,0	2,5	44823	44831
20,0	38,0	104,0	20,0	3,0	44824	44737



SERIES 43MLC

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
6,0	10,0	63,0	6,0	20,0	0,5	44769	44789
6,0	10,0	63,0	6,0	20,0	1,0	44770	44790
6,0	13,0	72,0	6,0	30,0	0,5	44771	44791
6,0	13,0	72,0	6,0	30,0	1,0	44772	44792
8,0	12,0	75,0	8,0	25,0	0,3	44773	44793
8,0	12,0	75,0	8,0	25,0	0,5	44774	44794
8,0	12,0	75,0	8,0	25,0	1,0	44775	44795
8,0	12,0	75,0	8,0	25,0	1,5	44776	44796
10,0	14,0	100,0	10,0	35,0	0,3	44777	44797
10,0	14,0	100,0	10,0	35,0	0,5	44778	44798
10,0	14,0	100,0	10,0	35,0	1,0	44779	44799
10,0	14,0	100,0	10,0	35,0	1,5	44780	44800
12,0	16,0	100,0	12,0	40,0	0,5	44781	44801
12,0	16,0	100,0	12,0	40,0	1,0	44782	44802
12,0	16,0	100,0	12,0	40,0	1,5	44783	44803
12,0	16,0	100,0	12,0	40,0	2,0	44784	44804
12,0	16,0	100,0	12,0	40,0	2,5	44832	44839
12,0	16,0	100,0	12,0	40,0	3,0	44833	44738
12,0	16,0	100,0	12,0	40,0	4,0	44834	44741
16,0	20,0	125,0	16,0	50,0	2,0	44785	44805
16,0	20,0	125,0	16,0	50,0	2,5	44835	44840
16,0	20,0	125,0	16,0	50,0	3,0	44836	44739
16,0	20,0	125,0	16,0	50,0	4,0	44786	44806
20,0	25,0	150,0	20,0	65,0	2,0	44787	44807
20,0	25,0	150,0	20,0	65,0	2,5	44837	44841
20,0	25,0	150,0	20,0	65,0	3,0	44838	44740
20,0	25,0	150,0	20,0	65,0	4,0	44788	44808





TOLERANCES (mm)		
DIAMETER	D_1	D_2
3	+0,000 / –0,006	h6
4 - 6	+0,000 / –0,008	h6
8 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20	+0,000 / –0,013	h6

SERIES 43M

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Polished Flute	Ti-NAMITE-B (TiB_2) EDP No.
3,0	8,0	52,0	6,0	–	•	44890
4,0	11,0	55,0	6,0	–	•	44891
5,0	13,0	57,0	6,0	–	•	44892
6,0	24,0	75,0	6,0	–	•	44893
8,0	32,0	75,0	8,0	–	•	44895
10,0	40,0	100,0	10,0	–	•	44896
12,0	48,0	100,0	12,0	–	•	44897
14,0	30,0	89,0	14,0	–	•	44898
14,0	18,0	125,0	14,0	45,0	•	44899
16,0	64,0	125,0	16,0	–	•	44900
20,0	80,0	150,0	20,0	–	•	44901


Square


Common


Straight


Regular, Long Reach Neck


Right Spiral

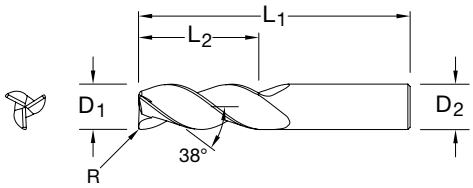
Positive Rake


External Coolant

3
Flutes

TOLERANCES (mm)		
DIAMETER	D_1	D_2
6	+0,000 / –0,008	h6
8 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20	+0,000 / –0,013	h6

CORNER RADIUS TOLERANCE (mm)
R = +0,00 / –0,05



CARB® Solid Carbide End Mills for Aluminum

Corner

Straight

Regular, Long

Right Spiral

Positive Rake

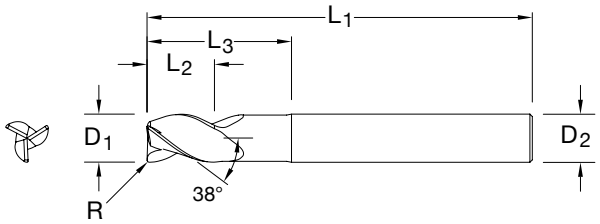
External Coolant

3 Flutes

SERIES 43MCR

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius R	Polished Flute	Ti-NAMITE-B (TiB_2) EDP No.
6,0	13,0	57,0	6,0	0,5	•	44902
6,0	13,0	57,0	6,0	1,0	•	44894
6,0	13,0	72,0	6,0	0,8	•	44842
6,0	13,0	72,0	6,0	1,2	•	44843
6,0	24,0	75,0	6,0	0,5	•	44844
6,0	24,0	75,0	6,0	1,0	•	44845
8,0	19,0	63,0	8,0	0,3	•	44846
8,0	19,0	63,0	8,0	0,5	•	44847
8,0	19,0	63,0	8,0	1,0	•	44848
8,0	19,0	63,0	8,0	1,5	•	44849
8,0	32,0	75,0	8,0	0,5	•	44850
8,0	32,0	75,0	8,0	1,0	•	44851
8,0	32,0	75,0	8,0	1,5	•	44852
8,0	32,0	75,0	8,0	2,0	•	44853
10,0	22,0	72,0	10,0	0,3	•	44854
10,0	22,0	72,0	10,0	0,5	•	44855
10,0	22,0	72,0	10,0	1,0	•	44856
10,0	22,0	72,0	10,0	1,5	•	44857
10,0	40,0	100,0	10,0	0,5	•	44858
10,0	40,0	100,0	10,0	1,0	•	44859
10,0	40,0	100,0	10,0	1,5	•	44860
10,0	40,0	100,0	10,0	2,0	•	44861
12,0	48,0	100,0	12,0	0,5	•	44862
12,0	48,0	100,0	12,0	1,0	•	44863
12,0	48,0	100,0	12,0	1,5	•	44864
12,0	48,0	100,0	12,0	2,0	•	44865
12,0	48,0	100,0	12,0	2,5	•	44866
12,0	48,0	100,0	12,0	3,0	•	44867
14,0	30,0	89,0	14,0	1,0	•	44868
14,0	30,0	89,0	14,0	2,0	•	44869
14,0	30,0	89,0	14,0	3,0	•	44870
16,0	32,0	92,0	16,0	4,0	•	44871
16,0	64,0	125,0	16,0	0,5	•	44872
16,0	64,0	125,0	16,0	1,0	•	44873
16,0	64,0	125,0	16,0	1,5	•	44874
16,0	64,0	125,0	16,0	2,0	•	44875
16,0	64,0	125,0	16,0	2,5	•	44876
16,0	64,0	125,0	16,0	3,0	•	44877
16,0	64,0	125,0	16,0	4,0	•	44878
20,0	38,0	104,0	20,0	4,0	•	44879
20,0	80,0	150,0	20,0	0,5	•	44880
20,0	80,0	150,0	20,0	1,0	•	44881
20,0	80,0	150,0	20,0	1,5	•	44882
20,0	80,0	150,0	20,0	2,0	•	44883
20,0	80,0	150,0	20,0	2,5	•	44884
20,0	80,0	150,0	20,0	3,0	•	44885
20,0	80,0	150,0	20,0	4,0	•	44886

CARB
Solid Carbide End Mills for Aluminum



TOLERANCES (mm)		
DIAMETER	D_1	D_2
8 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20	+0,000 / –0,013	h6

CORNER RADIUS TOLERANCE (mm)
R = +0,00 / –0,05

SERIES 43MLC Aero Radius Range

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Polished Flute	Ti-NAMITE-B (TiB_2) EDP No.
8,0	12,0	75,0	8,0	25,0	0,8	•	44950
8,0	12,0	75,0	8,0	25,0	1,2	•	44951
8,0	12,0	75,0	8,0	25,0	1,6	•	44952
10,0	14,0	100,0	10,0	35,0	0,8	•	44953
10,0	14,0	100,0	10,0	35,0	1,2	•	44954
10,0	14,0	100,0	10,0	35,0	1,6	•	44955
10,0	14,0	100,0	10,0	35,0	2,4	•	44956
12,0	16,0	100,0	12,0	40,0	0,8	•	44957
12,0	16,0	100,0	12,0	40,0	1,2	•	44958
12,0	16,0	100,0	12,0	40,0	1,6	•	44959
12,0	16,0	100,0	12,0	40,0	2,4	•	44960
14,0	18,0	125,0	14,0	45,0	1,0	•	44961
14,0	18,0	125,0	14,0	45,0	2,0	•	44962
14,0	18,0	125,0	14,0	45,0	3,0	•	44963
14,0	18,0	125,0	14,0	45,0	4,0	•	44964
16,0	20,0	125,0	16,0	50,0	0,8	•	44965
16,0	20,0	125,0	16,0	50,0	1,2	•	44966
16,0	20,0	125,0	16,0	50,0	1,6	•	44967
16,0	20,0	125,0	16,0	50,0	2,4	•	44968
16,0	20,0	125,0	16,0	50,0	3,2	•	44969
20,0	25,0	150,0	20,0	65,0	0,8	•	44970
20,0	25,0	150,0	20,0	65,0	1,2	•	44971
20,0	25,0	150,0	20,0	65,0	1,6	•	44972
20,0	25,0	150,0	20,0	65,0	2,4	•	44973
20,0	25,0	150,0	20,0	65,0	3,2	•	44974


Corner


Straight


Long Reach Neck

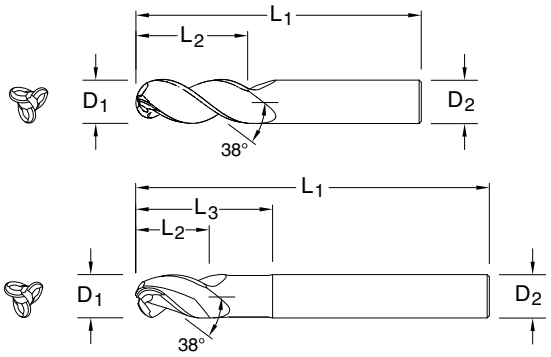

Right Spiral

Positive Rake


External Coolant

Flutes

DIAMETER	TOLERANCES (mm) D_1	D_2	BALL RADIUS
3	+0,000 / –0,006	h6	+0,0127 / -0,0127
4 - 6	+0,000 / –0,008	h6	+0,0127 / -0,0127
8 - 10	+0,000 / –0,009	h6	+0,0127 / -0,0127
12 - 16	+0,000 / –0,011	h6	+0,0127 / -0,0127
20 - 25	+0,000 / –0,013	h6	+0,0127 / -0,0127



CARB® Solid Carbide End Mills for Aluminum

SERIES 43MB

Ball

Common

Straight

Stub, Regular, Long, Long Reach Neck

Right Spiral

Positive Rake

External Coolant

3 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Polished Flute	Ti-NAMITE-B (TiB_2) EDP No.
3,0	4,5	57,0	6,0	–	•	44916
3,0	6,0	57,0	6,0	10,0	•	44917
3,0	9,0	57,0	6,0	16,0	•	44918
4,0	6,0	57,0	6,0	–	•	44919
4,0	8,0	57,0	6,0	13,0	•	44920
4,0	12,0	57,0	6,0	21,0	•	44921
5,0	7,5	57,0	6,0	–	•	44922
5,0	10,0	63,0	6,0	16,0	•	44923
5,0	15,0	63,0	6,0	26,0	•	44924
6,0	9,0	57,0	6,0	–	•	44925
6,0	12,0	63,0	6,0	19,0	•	44926
6,0	18,0	75,0	6,0	31,0	•	44927
8,0	12,0	63,0	8,0	–	•	44928
8,0	16,0	75,0	8,0	25,0	•	44929
8,0	24,0	83,0	8,0	41,0	•	44930
10,0	15,0	75,0	10,0	–	•	44931
10,0	20,0	83,0	10,0	31,0	•	44932
10,0	30,0	100,0	10,0	51,0	•	44933
12,0	18,0	83,0	12,0	–	•	44934
12,0	24,0	100,0	12,0	37,0	•	44935
12,0	36,0	130,0	12,0	61,0	•	44936
16,0	24,0	100,0	16,0	–	•	44937
16,0	32,0	130,0	16,0	49,0	•	44938
16,0	48,0	150,0	16,0	81,0	•	44939
20,0	30,0	108,0	20,0	–	•	44940
20,0	40,0	130,0	20,0	61,0	•	44941
20,0	60,0	150,0	20,0	101,0	•	44942
25,0	37,5	127,0	25,0	–	•	44943
25,0	50,0	152,0	25,0	76,0	•	44944
25,0	75,0	170,0	25,0	126,0	•	44945

HIGH PERFORMANCE S-CARB® CHIP BREAKER ROUGHING END MILLS

The original, symmetrical 3-flute design features an engineered flute form that provides high performance results through a full range of machining conditions. This expanded offering includes a variety of standard, reach, and corner radius options that are available with exclusive Ti-NAMITE-B coating for improved tool life.

CARB
Solid Carbide End Mills for Aluminum

VALUE AT THE SPINDLE®

DESIGN AND ENGINEERING ENSURE OUTSTANDING PERFORMANCE IN A VARIETY OF ALUMINUM APPLICATIONS.

SERIES **43CB** & **43MCB** FOR ALUMINUM, NON-FERROUS, & NON-METALLIC MATERIALS

SYMMETRICAL END GASHING:
Superior balance in a high-speed environment reduces vibration and increases plunging capabilities compared to traditional 3-flute designs

ENGINEERED FLUTE DESIGN:
Unique flute shape facilitates the rapid movement of the large volume of chips created during aggressive machining

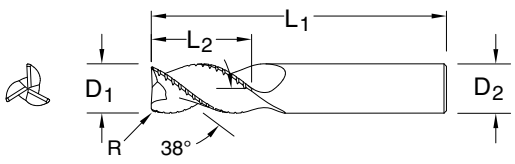
SPECIALIZED CHIP BREAKER:
The chip breaker disrupts the chip flow along the cutting edge, resulting in smaller and more controlled chips, while preventing material build-up between the cutting edge and tool

Flute Design

ENGINEERED

- Unique symmetrical 3-flute design with engineered flute form
- Engineered Chip Breakers reduce the load produced by a typical cutting edge: Ideal for low horsepower situations
- Unsurpassed plunging and pocketing capabilities

CARB
Solid Carbide End Mills for Aluminum



TOLERANCES (inch)

DIAMETER	D_1	D_2
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)

R = +0.0000 / –0.0020

SERIES 43CB

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	2-1/2	1/4	.020	33390	33450
1/4	1/2	2-1/2	1/4	.020	33391	33451
1/4	3/4	2-1/2	1/4	.020	33392	33452
1/4	1	3	1/4	.020	33393	33453
1/4	1-1/4	3-1/2	1/4	.020	33394	33454
1/4	1-3/4	4	1/4	.020	33395	33455
5/16	7/16	2-1/2	5/16	.020	33396	33456
5/16	11/16	2-1/2	5/16	.020	33397	33457
5/16	1	3	5/16	.020	33398	33458
5/16	2-1/8	4	5/16	.020	33400	33460
3/8	1/2	3	3/8	.020	33401	33461
3/8	1	2-1/2	3/8	.020	34300	34305
3/8	1-1/4	3-1/2	3/8	.020	33402	33462
3/8	1-1/2	4	3/8	.020	33403	33463
3/8	2	4	3/8	.020	33404	33464
1/2	5/8	3	1/2	.030	33406	33466
1/2	1	3	1/2	.030	33407	33467
1/2	1-1/4	3-1/4	1/2	.030	34301	34306
1/2	1-5/8	4	1/2	.030	33408	33468
1/2	2	4	1/2	.030	33409	33469
1/2	2-1/2	5	1/2	.030	33410	33470
1/2	3-1/8	6	1/2	.030	33411	33471
5/8	3/4	3-1/2	5/8	.030	33412	33472
5/8	1-5/8	3-3/4	5/8	.030	34302	34307
5/8	2-1/8	4	5/8	.030	33413	33473
5/8	3-1/4	6	5/8	.030	33415	33475
5/8	3-3/4	6	5/8	.030	33416	33476
3/4	1	4	3/4	.030	33417	33477
3/4	1-5/8	4	3/4	.030	34303	34308
3/4	2-1/4	4	3/4	.030	33418	33478
3/4	3-1/4	6	3/4	.030	33419	33479
3/4	4	6	3/4	.030	33420	33480
1	1-1/4	5	1	.030	33421	33481
1	2	4-1/2	1	.030	34304	34309
1	2-5/8	6	1	.030	33422	33482
1	3-1/4	6	1	.030	33423	33483
1	4-1/8	7	1	.030	33424	33484


Corner


Straight


Stub, Regular, Long, Extra Long


Right Spiral


Chip Breaker


External Coolant

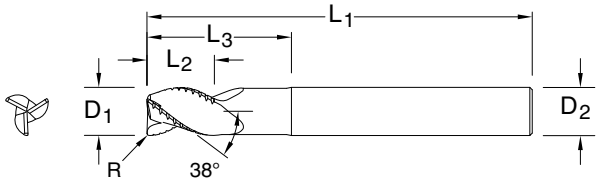
Positive Rake

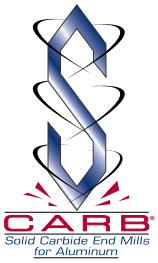
Flutes

TOLERANCES (inch)		
DIAMETER	D_1	D_2
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)

R = +0.0000 / –0.0020





SERIES 43LCB


Corner


Straight


Regular, Long Reach Neck


Right Spiral


Chip Breaker


External Coolant

Positive Rake

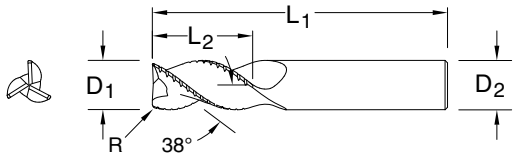
3
Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	4	1/4	3/4	.020	33500	33540
1/4	3/8	4	1/4	1-1/8	.020	33501	33541
1/4	3/8	4	1/4	2-1/8	.020	33502	33542
5/16	7/16	4	5/16	1-1/8	.020	33503	33543
5/16	7/16	4	5/16	2-1/8	.020	33504	33544
3/8	1/2	4	3/8	1-1/8	.020	33507	33547
3/8	1/2	4	3/8	2-1/8	.020	33508	33548
1/2	5/8	4	1/2	1-3/8	.030	33511	33551
1/2	5/8	4	1/2	2-1/4	.030	33512	33552
1/2	5/8	6	1/2	3-3/8	.030	33513	33553
1/2	5/8	6	1/2	4-1/4	.030	33514	33554
5/8	3/4	4	5/8	1-5/8	.030	33515	33555
5/8	3/4	6	5/8	2-3/8	.030	33516	33556
5/8	3/4	6	5/8	3-3/8	.030	33517	33557
5/8	3/4	6	5/8	4-3/8	.030	33518	33558
3/4	1	4	3/4	2	.030	33519	33559
3/4	1	6	3/4	2-1/2	.030	33520	33560
3/4	1	6	3/4	3-3/8	.030	33521	33561
3/4	1	6	3/4	4-3/8	.030	33522	33562
1	1-1/4	6	1	2-5/8	.030	33523	33563
1	1-1/4	6	1	3-3/8	.030	33524	33564
1	1-1/4	7	1	4-3/8	.030	33525	33565

TOLERANCES (mm)		
DIAMETER	D_1	D_2
6 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20	+0,000 / –0,013	h6

CORNER RADIUS TOLERANCE (mm)

R = +0,00 / –0,05



SERIES 43MCB

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius R	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
6,0	19,0	63,0	6,0	0,3	–	44299
8,0	19,0	63,0	8,0	0,3	44300	44305
10,0	22,0	72,0	10,0	0,3	44301	44306
12,0	26,0	83,0	12,0	1,0	44302	44307
16,0	32,0	92,0	16,0	1,0	44303	44308
20,0	38,0	104,0	20,0	1,0	44304	44309

NEW

HIGH PERFORMANCE ALUMINUM MACHINING

ADVANCED PRODUCTIVITY ROUGHING AND FINISHING

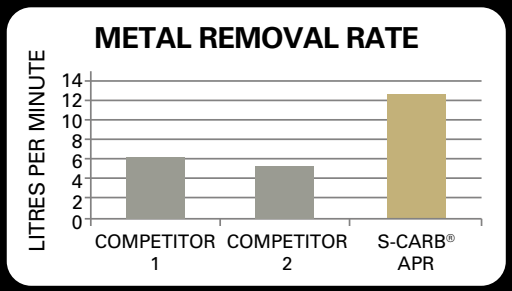
S-CARB® APR3
S-CARB® APR4

Bringing the Advanced Productivity Rougher to a new level of performance!

- 3 and 4 flute variable pitch geometry for reduced vibration
- Re-engineered flute design for reduced load at high metal removal rates
- Improved design for coolant and MQL
- 4 flute variant for ultimate metal removal rates on high-powered machines
- Ti-NAMITE-B coated for extended tool life

VALUE AT THE SPINDLE®

Setting new standards in Aluminum Airframe Machining.

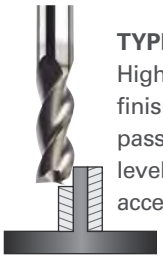


Superior metal removal rate achievement over competition.

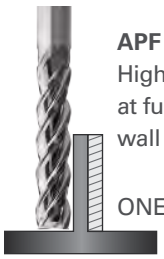
Developed and engineered for high-feed finishing of thin wall aluminum applications. Significant reduction in machining times, with straighter walls and superior finishes compared to waterlining.

S-CARB® APF

- 4 flute unique variable geometry reduces vibration and allows finishing of thin walls in one pass
- Through coolant design
- Polished flutes for superior finishes
- Significant reduction in cycle times



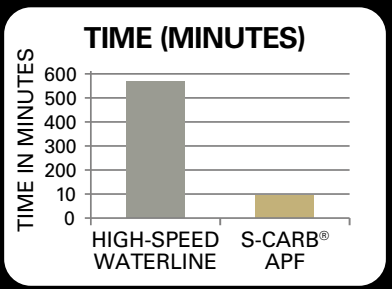
TYPICAL METHOD
High-speed waterline finishing, multiple passes at numerous levels to produce acceptable thin walls



APF METHOD
High-speed finishing at full depth without wall distortion

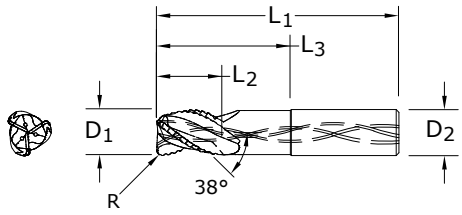
ONE HIT

ENGINEERED **FLUTE DESIGN**



Dramatic increase in productivity versus the high speed waterline finishing method, which requires multiple passes to produce acceptable thin walls.

CARB
Solid Carbide End Mills for Aluminum



TOLERANCES (inch)		
DIAMETER	D_1	D_2
3/4 - 1	–0.00040/–0.00200	h6

CORNER RADIUS TOLERANCE (inch)
R= +/– 0.0012

SERIES 43APR

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Ti-NAMITE-B (TiB_2) EDP No.
3/4	1-3/8	4-1/4	3/4	2-3/8	.030	34000
3/4	1-3/8	4-1/4	3/4	2-3/8	.060	34001
3/4	1-3/8	4-1/4	3/4	2-3/8	.090	34002
3/4	1-3/8	4-1/4	3/4	2-3/8	.120	34003
3/4	1-1/4	4-7/8	3/4	3	.030	34004
3/4	1-1/4	4-7/8	3/4	3	.060	34005
3/4	1-1/4	4-7/8	3/4	3	.090	34006
3/4	1-1/4	4-7/8	3/4	3	.120	34007
1	1-3/4	4-1/2	1	2-1/2	.030	34008
1	1-3/4	4-1/2	1	2-1/2	.060	34009
1	1-3/4	4-1/2	1	2-1/2	.090	34010
1	1-3/4	4-1/2	1	2-1/2	.120	34011
1	1-1/2	5-1/4	1	3-1/4	.030	34012
1	1-1/2	5-1/4	1	3-1/4	.060	34013
1	1-1/2	5-1/4	1	3-1/4	.090	34014
1	1-1/2	5-1/4	1	3-1/4	.120	34015

Available on request: • JetStream Technology • Side exit coolant holes


Corner


Straight


Long Reach Neck


Right Spiral


Chip Breaker/ Roughing Profile

Positive Rake


Internal Coolant

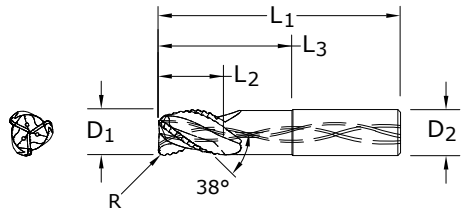
3
Flutes

TOLERANCES (mm)

DIAMETER	D_1	D_2
12 - 25	–0,010/–0,050	h6

CORNER RADIUS TOLERANCE (mm)

R = +/– 0,03



CARB® Solid Carbide End Mills for Aluminum

SERIES 43MAPR

Corner

Square

Straight

Long Reach Neck

Right Spiral

Chip Breaker/ Roughing Profile

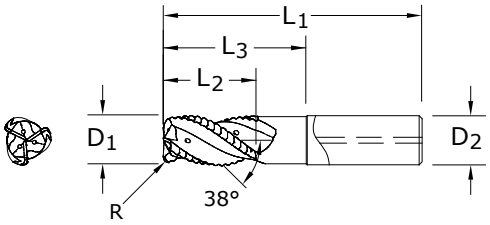
Positive Rake

Internal Coolant

3 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Ti-NAMITE-B (TiB_2) EDP No.
12,0	18,0	83,0	12,0	38,0	–	44650
12,0	18,0	83,0	12,0	38,0	2,0	44685
12,0	18,0	83,0	12,0	38,0	3,0	44686
12,0	18,0	83,0	12,0	38,0	4,0	44687
16,0	24,0	92,0	16,0	51,0	–	44652
16,0	24,0	92,0	16,0	51,0	2,0	44688
16,0	24,0	92,0	16,0	51,0	3,0	44689
16,0	24,0	92,0	16,0	51,0	4,0	44690
20,0	30,0	86,0	20,0	45,0	–	44646
20,0	30,0	86,0	20,0	45,0	3,0	44647
20,0	30,0	86,0	20,0	45,0	4,0	44648
20,0	30,0	86,0	20,0	45,0	5,0	44649
20,0	35,0	104,0	20,0	64,0	–	44653
20,0	35,0	104,0	20,0	64,0	3,0	44691
20,0	35,0	104,0	20,0	64,0	4,0	44692
20,0	35,0	104,0	20,0	64,0	5,0	44693
25,0	35,0	108,0	25,0	55,0	3,0	44809
25,0	35,0	108,0	25,0	55,0	4,0	44810
25,0	35,0	108,0	25,0	55,0	5,0	44811
25,0	35,0	140,0	25,0	80,0	–	44654
25,0	35,0	140,0	25,0	80,0	3,0	44694
25,0	35,0	140,0	25,0	80,0	4,0	44695
25,0	35,0	140,0	25,0	80,0	5,0	44696
25,0	35,0	140,0	25,0	90,0	3,0	44645

Available on request: • JetStream Technology • Side exit coolant holes



TOLERANCES (mm)		
DIAMETER	D_1	D_2
20 - 25	–0,01/–0,10	h6

CORNER RADIUS TOLERANCE (mm)
R= +/– 0,05

SERIES APR3

New Expanded Tools

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Ti-NAMITE-B (TiB_2) EDP No.
20,0	35,0	86,0	20,0	–	–	44990
20,0	35,0	86,0	20,0	45,0	3,0	44991
20,0	35,0	86,0	20,0	45,0	4,0	44992
20,0	35,0	106,0	20,0	–	–	44993
20,0	35,0	106,0	20,0	65,0	2,0	44994
20,0	35,0	106,0	20,0	65,0	3,0	44995
20,0	35,0	106,0	20,0	65,0	4,0	44996
20,0	35,0	106,0	20,0	65,0	5,0	44997
25,0	43,0	108,0	25,0	–	–	44998
25,0	43,0	108,0	25,0	60,0	2,0	44999
25,0	43,0	108,0	25,0	60,0	3,0	45000
25,0	43,0	108,0	25,0	60,0	4,0	45001
25,0	35,0	140,0	25,0	–	–	45002
25,0	35,0	140,0	25,0	80,0	3,0	45003
25,0	35,0	140,0	25,0	90,0	3,0	45004


Corner


Square


Straight


Regular, Long Reach Neck


Right Spiral


Chip Breaker/ Roughing Profile

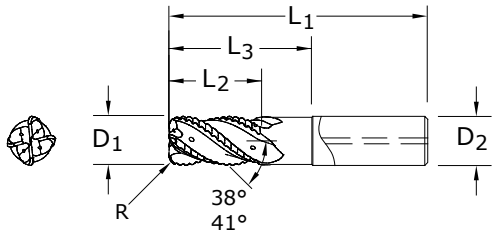
Positive Rake


Internal Coolant

Flutes

TOLERANCES (mm)		
DIAMETER	D_1	D_2
20 - 25	–0,01/–0,10	h6

CORNER RADIUS TOLERANCE (mm)
R= +/– 0,05



Corner

Square

Straight

Regular, Long Reach Neck

Variable Right Spiral

Chip Breaker/ Roughing Profile

Positive Rake

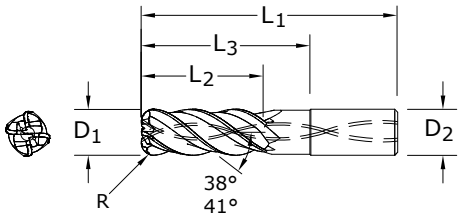
Internal Coolant

4 Flutes

SERIES APR4

New Expanded Tools

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Ti-NAMITE-B (TiB_2) EDP No.
20,0	35,0	86,0	20,0	–	–	45005
20,0	35,0	86,0	20,0	45,0	3,0	45006
20,0	35,0	86,0	20,0	45,0	4,0	45007
20,0	35,0	106,0	20,0	–	–	45008
20,0	35,0	106,0	20,0	65,0	2,0	45009
20,0	35,0	106,0	20,0	65,0	3,0	45010
20,0	35,0	106,0	20,0	65,0	4,0	45011
20,0	35,0	106,0	20,0	65,0	5,0	45012
25,0	43,0	108,0	25,0	–	–	45013
25,0	43,0	108,0	25,0	60,0	2,0	45014
25,0	43,0	108,0	25,0	60,0	3,0	45015
25,0	43,0	108,0	25,0	60,0	4,0	45016
25,0	35,0	140,0	25,0	–	–	45017
25,0	35,0	140,0	25,0	80,0	3,0	45018
25,0	35,0	140,0	25,0	90,0	3,0	45019



TOLERANCES (inch)		
DIAMETER	D_1	D_2
1/2 - 3/4	–0.00040/–0.00200	h6

CORNER RADIUS TOLERANCE (inch)
R= +/– 0.0018

SERIES 43APF

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Ti-NAMITE-B (TiB_2) EDP No.
1/2	1-1/4	3-1/4	1/2	1-5/8	.030	34016
1/2	1-1/4	3-1/4	1/2	1-5/8	.060	34017
1/2	1-1/4	3-1/4	1/2	1-5/8	.090	34018
1/2	1-1/4	3-1/4	1/2	1-5/8	.120	34019
1/2	2	4	1/2	2-3/8	.030	34020
1/2	2	4	1/2	2-3/8	.060	34021
1/2	2	4	1/2	2-3/8	.090	34022
1/2	2	4	1/2	2-3/8	.120	34023
3/4	1-7/8	4-1/4	3/4	2-3/8	.030	34024
3/4	1-7/8	4-1/4	3/4	2-3/8	.060	34025
3/4	1-7/8	4-1/4	3/4	2-3/8	.090	34026
3/4	1-7/8	4-1/4	3/4	2-3/8	.120	34027
3/4	3	5-3/8	3/4	3-1/2	.030	34028
3/4	3	5-3/8	3/4	3-1/2	.060	34029
3/4	3	5-3/8	3/4	3-1/2	.090	34030
3/4	3	5-3/8	3/4	3-1/2	.120	34031

Available on request: • JetStream Technology


Corner


Straight


Long Reach Neck


Variable Right Spiral


Flute Spacing Unequal

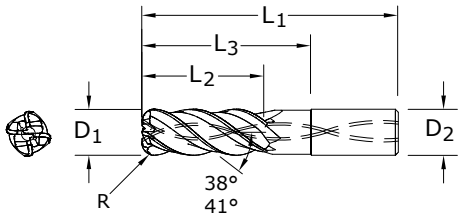
Positive Rake


Internal Coolant

4
Flutes

TOLERANCES (mm)		
DIAMETER	D_1	D_2
6 - 25	–0,010/–0,050	h6

CORNER RADIUS TOLERANCE (mm)
R = +/– 0,03



SERIES 43MAPF

Corner

Square

Straight

Long Reach Neck

Variable Right Spiral

Flute Spacing Unequal

Positive Rake

Internal Coolant

4 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Reach L_3	Corner Radius R	Ti-NAMITE-B (TiB_2) EDP No.
6,0	24,0	58,0	6,0	30,0	–	44627
8,0	32,0	64,0	8,0	40,0	–	44628
10,0	40,0	80,0	10,0	50,0	–	44629
12,0	30,0	83,0	12,0	40,0	–	44630
12,0	30,0	83,0	12,0	40,0	2,0	44745
12,0	30,0	83,0	12,0	40,0	3,0	44746
12,0	30,0	83,0	12,0	40,0	4,0	44747
12,0	30,0	83,0	12,0	50,0	0,5	44641
12,0	30,0	83,0	12,0	50,0	5,0	44642
12,0	48,0	100,0	12,0	62,0	–	44631
12,0	48,0	100,0	12,0	62,0	2,0	44748
12,0	48,0	100,0	12,0	62,0	3,0	44749
12,0	48,0	100,0	12,0	62,0	4,0	44750
16,0	42,0	93,0	16,0	51,0	5,0	44643
16,0	40,0	92,0	16,0	51,0	–	44634
16,0	40,0	92,0	16,0	51,0	2,0	44751
16,0	40,0	92,0	16,0	51,0	3,0	44752
16,0	40,0	92,0	16,0	51,0	4,0	44753
16,0	64,0	125,0	16,0	82,0	–	44635
16,0	64,0	125,0	16,0	82,0	2,0	44754
16,0	64,0	125,0	16,0	82,0	3,0	44755
16,0	64,0	125,0	16,0	82,0	4,0	44756
20,0	50,0	108,0	20,0	63,0	–	44636
20,0	50,0	108,0	20,0	63,0	3,0	44757
20,0	50,0	108,0	20,0	63,0	4,0	44758
20,0	50,0	108,0	20,0	63,0	5,0	44759
20,0	80,0	150,0	20,0	102,0	–	44637
20,0	80,0	150,0	20,0	102,0	3,0	44760
20,0	80,0	150,0	20,0	102,0	4,0	44761
20,0	80,0	150,0	20,0	102,0	5,0	44762
25,0	63,0	130,0	25,0	79,0	–	44638
25,0	63,0	130,0	25,0	79,0	3,0	44763
25,0	63,0	130,0	25,0	79,0	4,0	44764
25,0	63,0	130,0	25,0	79,0	5,0	44765
25,0	100,0	175,0	25,0	120,0	–	44639
25,0	100,0	175,0	25,0	120,0	3,0	44766
25,0	100,0	175,0	25,0	120,0	4,0	44767
25,0	100,0	175,0	25,0	120,0	5,0	44768

Available on request: • JetStream Technology

SKI-CARB END MILLS FOR NON-FERROUS, ALUMINUM, & NON-METALLIC APPLICATIONS

The Original 2 Flute **High Performance** End Mill for Aluminum

Design Features:

Varied Speed and Feed

- Circular Land reduces edge aggressiveness for varied speed and feed rates and allows for milling into corners while significantly reducing chatter.

Superior Chip Control

- Ski Land with primary and secondary flute wall construction minimizes chip interference by directing chips away from secondary flute.

Optimal Rake

- High Helix (45 degree) increases effective rake for greater shearing ability without reducing edge strength.

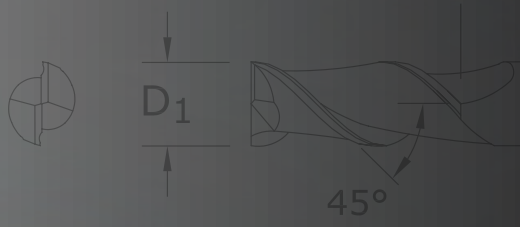
Outstanding Rigidity

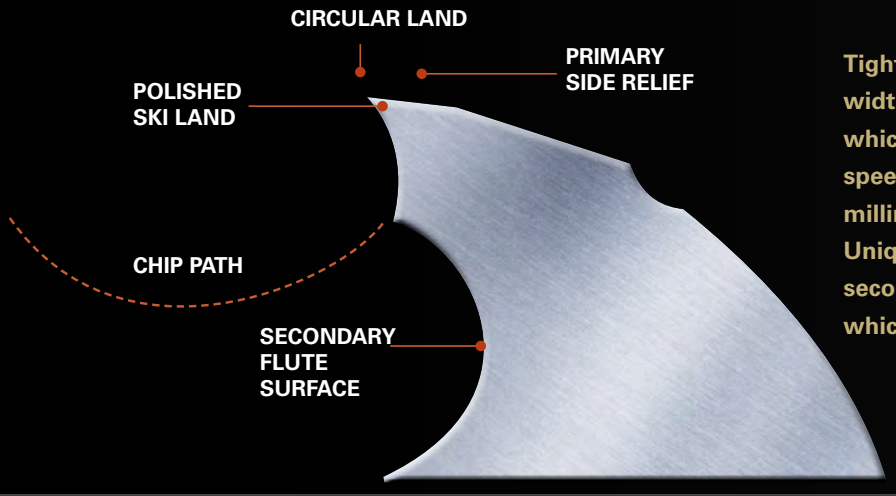
- Short Length increases rigidity.

Maximum Chip Protection

- Available Corner Radii offer additional protection against chipping.

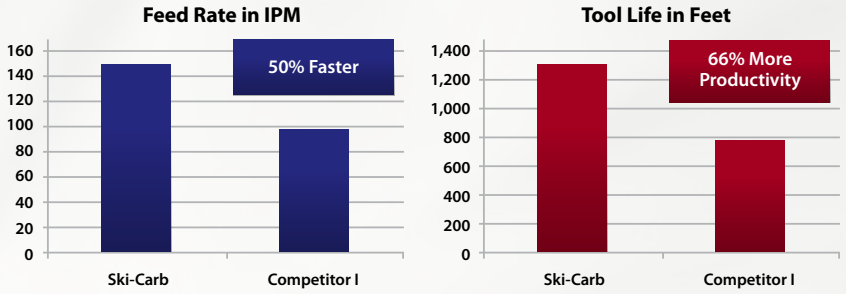
SkiCarb



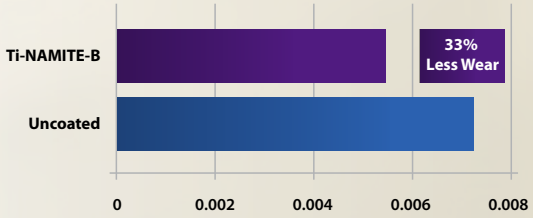


Tight control of the circular land width reduces edge aggressiveness, which allows for a wide variety of speed and feed rates. It also allows for milling into corners without chatter. Unique to the Ski-Carb is the primary-secondary flute wall construction, which reduces chip interference.

Slotting in 6061 - T6 Aluminum
1/2" Diameter - .300" Ad
8% Flood Coolant



Wear Comparison
A390 Cast Aluminum
10,000 rpm / 120 ipm
.100 Rw x .300 Ad



33% less wear with Ti-NAMITE-B after 400" of Machining

TI-NAMITE-B

Ti-NAMITE-B is an advanced coating developed specifically for the high performance machining of Aluminum and its alloys. Ti-NAMITE-B offers the following benefits:

- **Low affinity to Aluminum helps to prevent edge build-up**
- **Smooth surface structure drastically reducing friction to maximize chip flow**
- **High level of hardness providing excellent wear protection**

Microhardness: 4000 HV

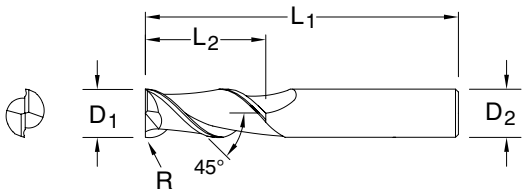
Oxidation Temperature: 850°C / 1562°F

Coefficient of Friction: 0.45

Thickness: 1 – 2 Microns (based on tool diameter)

ADVANCED Coating

SkiCarb



TOLERANCES (inch)		
DIAMETER	D_1	D_2
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)

R = +0.0000 / –0.0020

SERIES 44

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius* R (Optional)	Uncoated EDP No. w/Flat	Ti-NAMITE-B (TiB_2) EDP No. w/Flat	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/4	2-7/16	3/8	.015-.060	34501	34502	32033	32053
1/4	1-1/4	3-1/16	3/8	.015-.060	34503	34504	32034	32054
1/4	1-3/4	3-9/16	3/8	.015-.060	34505	34506	32035	32055
5/16	1-3/8	3-1/8	3/8	.015-.060	34507	34508	32036	32056
3/8	3/4	2-1/2	3/8	.015-.060	34509	34510	32037	32057
3/8	1-1/2	3-1/4	3/8	.015-.060	34511	34512	32038	32058
3/8	2-1/2	4-1/4	3/8	.015-.060	34513	34514	32039	32059
1/2	1-1/4	3-1/4	1/2	.015-.125	34515	34516	32040	32060
1/2	2	4	1/2	.015-.125	34517	34518	32041	32061
1/2	3	5	1/2	.015-.125	34519	34520	32042	32062
5/8	1-5/8	3-3/4	5/8	.015-.125	34521	34522	32043	32063
5/8	2-1/2	4-5/8	5/8	.015-.125	34523	34524	32044	32064
3/4	1-5/8	3-7/8	3/4	.015-.125	34525	34526	32045	32065
3/4	3	5-1/4	3/4	.015-.125	34527	34528	32046	32066
3/4	4	6-1/4	3/4	.015-.125	34529	34530	32047	32067
1	2	4-1/2	1	.015-.125	34531	34532	32048	32068
1	4	6-1/2	1	.015-.125	34533	34534	32049	32069

*Full range of Corner Radius options available.

Square

Common

Straight

Weldon Flat

Regular, Long, Extra Long

Right Spiral

External Coolant

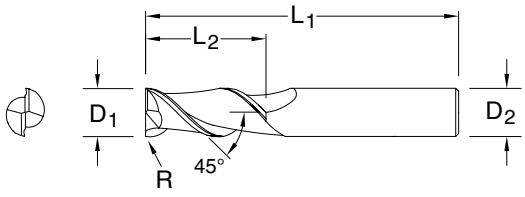
POS

Positive Rake

2

Flutes

SkiCarb



TOLERANCES (mm)		
DIAMETER	D_1	D_2
3	+0,000 / –0,006	h6
4 - 6	+0,000 / –0,008	h6
8 - 10	+0,000 / –0,009	h6
12 - 16	+0,000 / –0,011	h6
20	+0,000 / –0,013	h6

CORNER RADIUS TOLERANCE (mm)

R = +0,00 / –0,05

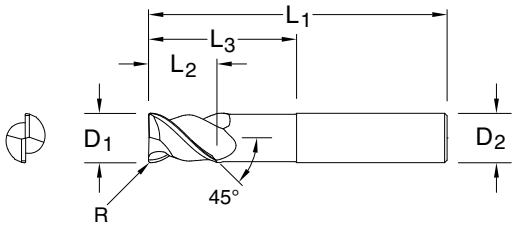
SERIES 44M

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Shank Diameter D_2	Corner Radius* R (Optional)	Uncoated EDP No. w/Flat	Ti-NAMITE-B (TiB_2) EDP No. w/Flat	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
3,0	8,0	52,0	6,0	0,38-0,76	44505	44506	49663	49674
4,0	11,0	55,0	6,0	0,38-0,76	44509	44510	49664	49675
5,0	13,0	57,0	6,0	0,38-0,76	44513	44514	49665	49676
6,0	13,0	57,0	6,0	0,38-1,52	44517	44518	49666	49677
8,0	19,0	69,0	10,0	0,38-1,52	44521	44522	49667	49678
10,0	22,0	72,0	10,0	0,38-1,52	44525	44526	49668	49679
12,0	26,0	83,0	12,0	0,38-3,17	44529	44530	49669	49680
14,0	26,0	83,0	14,0	0,38-3,17	44533	44534	49670	49681
16,0	32,0	92,0	16,0	0,38-3,17	44537	44538	49671	49682
18,0	32,0	92,0	18,0	0,38-3,17	44541	44542	49672	49683
20,0	38,0	104,0	20,0	0,38-3,17	44545	44546	49673	49684

*Full range of Corner Radius options available.

TOLERANCES (inch)		
DIAMETER	D_1	D_2
1/4 - 3/8	+0.00000 / –0.00035	h6
1/2 - 5/8	+0.00000 / –0.00043	h6
3/4 - 1	+0.00000 / –0.00051	h6

CORNER RADIUS TOLERANCE (inch)
R = +0.0000 / –0.0020



SkiCarb

SERIES 45

Corner

Straight

Weldon Flat

Stub

Right Spiral

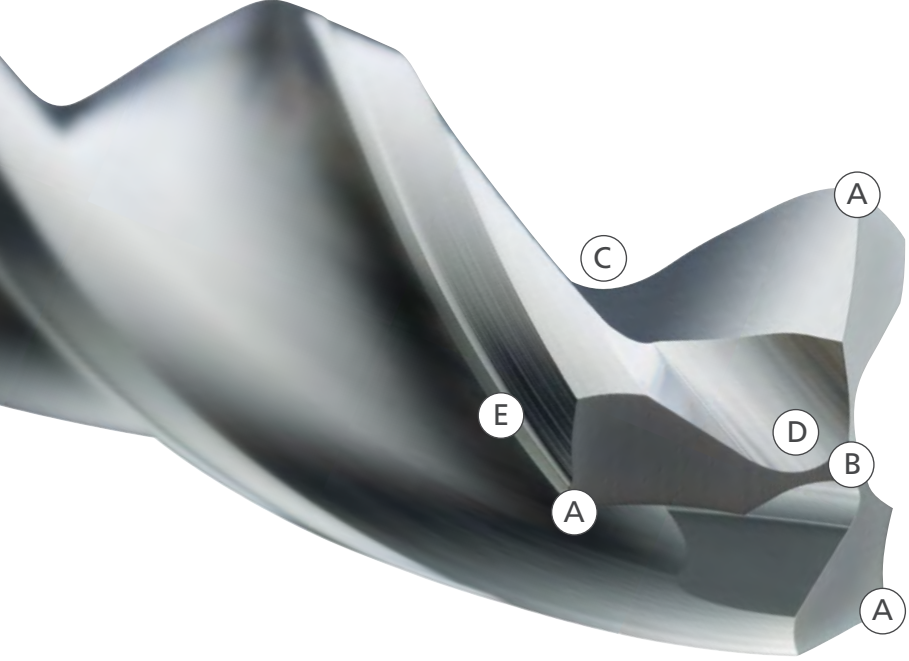
External Coolant

Positive Rake

2 Flutes

Cutting Diameter D_1	Length of Cut L_2	Overall Length L_1	Reach* (Optional) L_3	Shank Diameter D_2	Corner Radius R	Uncoated EDP No. w/Flat	Ti-NAMITE-B (TiB_2) EDP No. w/Flat	Uncoated EDP No.	Ti-NAMITE-B (TiB_2) EDP No.
1/4	3/8	2-1/2	1	3/8	.010	91257	91242	91250	91235
5/16	7/16	2-1/2	1-1/8	3/8	.012	91258	91243	91251	91236
3/8	9/16	2-1/2	1-1/8	3/8	.015	91259	91244	91252	91237
1/2	3/4	3	1-1/2	1/2	.020	91260	91245	91253	91238
5/8	7/8	3-1/2	1-3/4	5/8	.025	91261	91246	91254	91239
3/4	1	4	2	3/4	.030	91262	91247	91255	91240
1	1-1/4	4	2-1/8	1	.040	91263	91248	91256	91241

*Contact your KSPT Sales Representative for more information on Reach options.



SERIES 131N

HIGH PERFORMANCE CARBIDE DRILLS

The key features designed into the Hi-PerCarb Series 131N Drill allow the product to offer application benefits not only beyond that of standard carbide drills, but also other High Performance drills. Each feature of the Hi-PerCarb Series 131N Drill was uniquely engineered as a solution towards addressing the issues commonly encountered during high production drilling.

A TRI-MARGIN DESIGN
- improved hole stability over two-flute designs
- superior surface finish, roundness and hole cylindricity
- unsurpassed hole size control

B SELF-STABILIZING POINT
- pyramid design stabilizes the drill on contact with the workpiece

C OPEN FLUTE STRUCTURE
- efficiently transports chips while maintaining strength at high feed rates

D SCULPTED GASH
- allows chips to easily flow away from the drill center
- reduced cutting forces over competitive three-flute designs

E MINIMAL MARGIN DESIGN
- reduces frictional heat generated by excessive margin contact with the workpiece
- parallel design maintains contact width as margin wears for performance consistency

Now available with 3XD and 5XD Coated and Uncoated Options!

PERFORMANCE. PRECISION. PASSION.

HI-PERCARB SERIES 131N ALUMINUM DRILLS

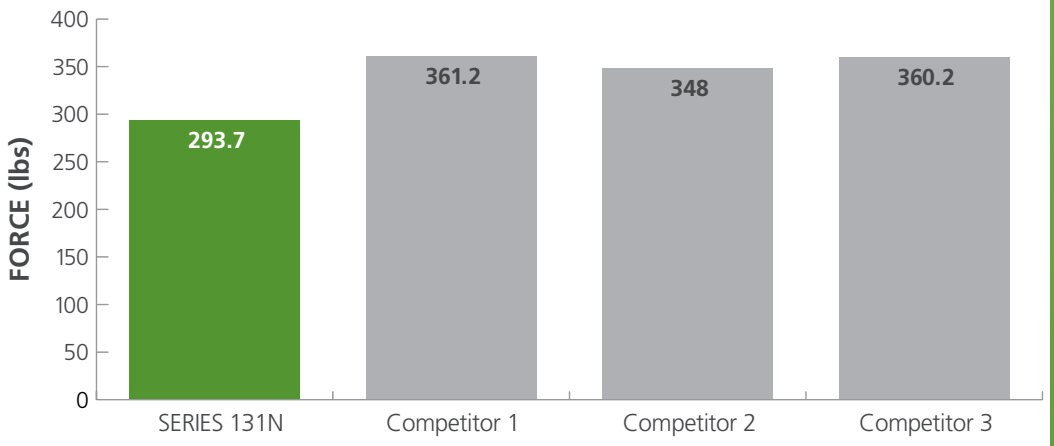
KYOCERA

SGS Solid Carbide Tools

PERFORMANCE.

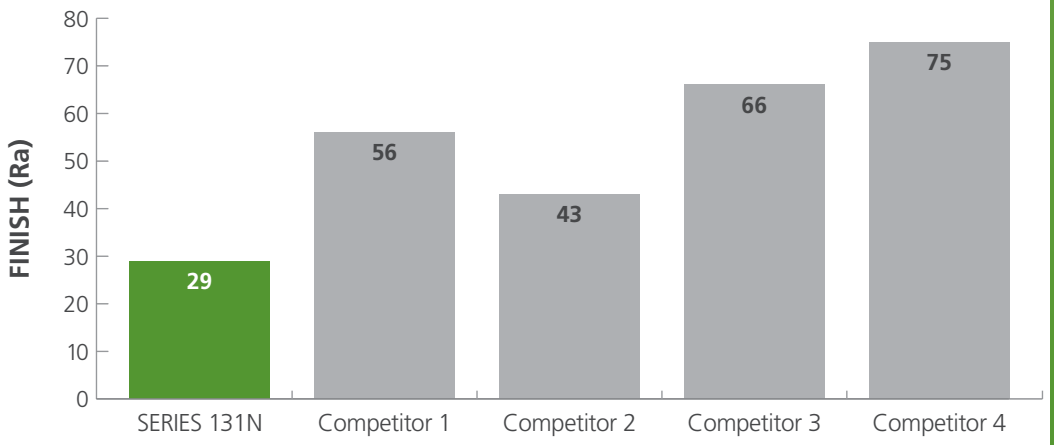
FORCE COMPARISON

Series 131N drills with 15-20% less force than the top competitors



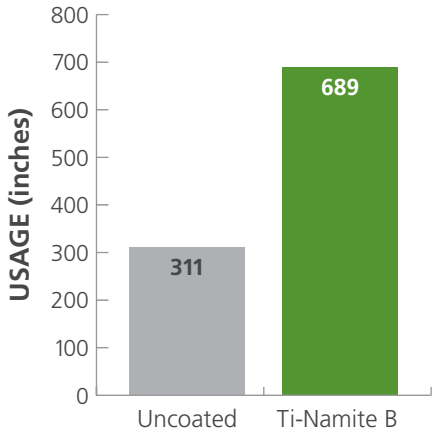
SURFACE FINISH COMPARISON

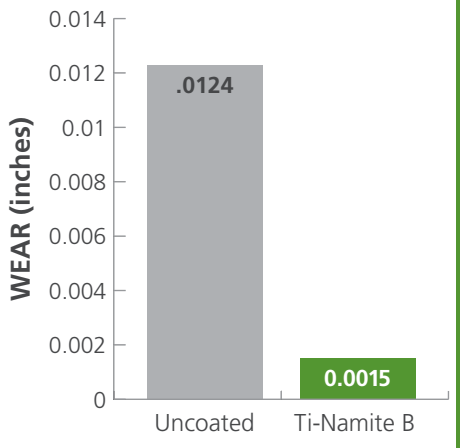
Series 131N drill results in improvement of hole finishes 30-60% over leading competitors



USAGE & WEAR COMPARISONS

Ti-NAMITE B coating significantly improves wear resistance, which is particularly beneficial when drilling high silicon aluminum alloys

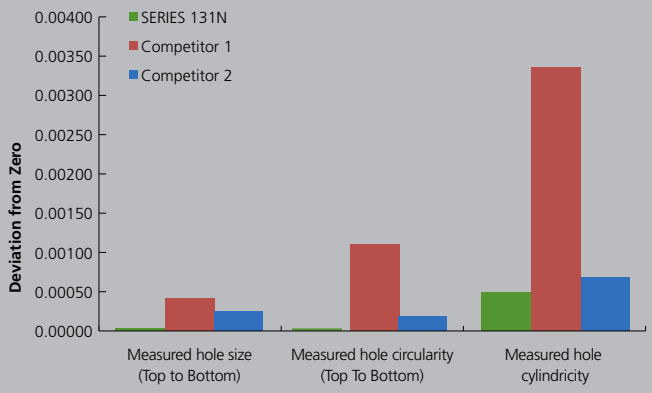




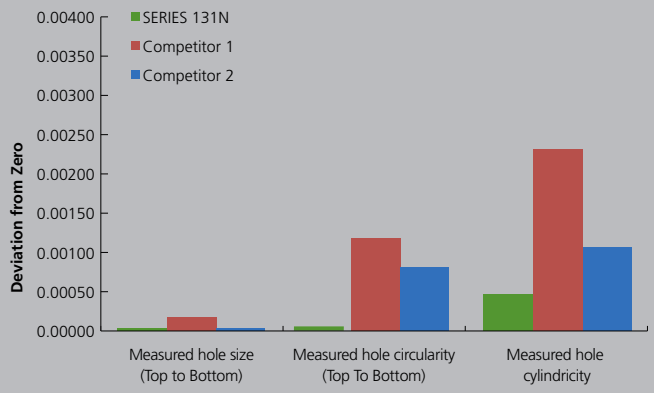
PRECISION.

SERIES 131N 3 Flute Drill vs. Competition 2 Flute Drill in 2024 Aluminum

4847 RPM
65 INCHES PER MINUTE



6786 RPM
100 INCHES PER MINUTE



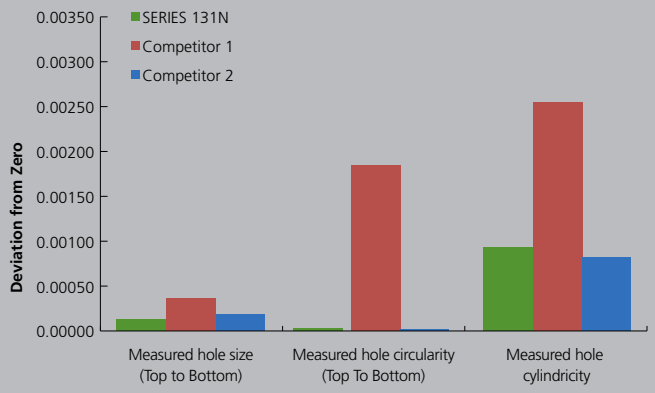
PASSION.

Lab Results Indicate the Hi-PerCarb Series 131N Drill outperforms the competition in measured hole quality at a variety of speed and feed rates.

KYOCERA

SGS Solid Carbide Tools

9530 RPM
200 INCHES PER MINUTE



Now also available uncoated!

Ti-NAMITE-B

This ceramic based coating ensures a smooth surface and a low affinity to cold welding or edge build-up, which makes it optimal for aluminum and copper applications. It has high toughness and high hardness.

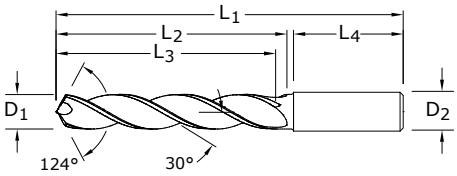
Microhardness: 4000 HV

Oxidation Temperature: 850°C / 1562°F

Coefficient of Friction: 0.45

Thickness: 1-2 Microns (based on tool diameter)

HI-PERCARB®
HIGH PERFORMANCE CARBIDE DRILLS



TOLERANCES (inch)

DIAMETER	D_1	D_2
≤.1181	+.00008/+.00047	h6
>.1181–.2362	+.00016/+.00063	h6
>.2362–.3937	+.00024/+.00083	h6
>.3937–.7087	+.00028/+.00098	h6
>.7087–1.1811	+.00031/+.00114	h6

TOLERANCES (mm)

DIAMETER	D_1	D_2
≤ 3	+0,002/+0,012	h6
> 3 - 6	+0,004/+0,016	h6
> 6 - 10	+0,006/+0,021	h6
> 10 - 18	+0,007/+0,025	h6

SERIES 131N 3XD

New Expanded Tools

Cutting Diameter D_1	Decimal Equiv.	Metric Equiv.	Tap Size Reference Only	Shank Diameter D_2	Overall Length L_1	Flute Length L_2	Min, Cleared Length L_3	Shank Length L_4	Uncoated EDP No.	Ti-NAMITE-B (TB) EDP No.
3,0 mm	0.1181			6,0	62,0	20,0	14,0	36,0	64600	67600
3,1 mm	0.1220			6,0	62,0	20,0	14,0	36,0	64601	67601
1/8	0.1250	3.18		6,0	62,0	20,0	14,0	36,0	54600	54700
3,2 mm	0.1260		M3,5 X 0,35	6,0	62,0	20,0	14,0	36,0	64602	67602
3,3 mm	0.1299		M4 X 0,7	6,0	62,0	20,0	14,0	36,0	64603	67603
3,4 mm	0.1339			6,0	62,0	20,0	14,0	36,0	64604	67604
#29	0.1360	3.45	8-32,8-36	6,0	62,0	20,0	14,0	36,0	54601	54701
3,5 mm	0.1378		M4 X 0,5	6,0	62,0	20,0	14,0	36,0	64605	67605
9/64	0.1406	3.57		6,0	62,0	20,0	14,0	36,0	54602	54702
3,6 mm	0.1417		M4 X 0,35	6,0	62,0	20,0	14,0	36,0	64606	67606
3,7 mm	0.1457		M4,5 X 0,75	6,0	62,0	20,0	14,0	36,0	64607	67607
3,8 mm	0.1496		10-24	6,0	66,0	24,0	17,0	36,0	64608	67608
3,9 mm	0.1535			6,0	66,0	24,0	17,0	36,0	64609	67609
5/32	0.1562	3.97		6,0	66,0	24,0	17,0	36,0	54603	54703
4,0 mm	0.1575		M4,5 X 0,5	6,0	66,0	24,0	17,0	36,0	64610	67610
#21	0.1590	4.04	10-32	6,0	66,0	24,0	17,0	36,0	54604	54704
4,1 mm	0.1614			6,0	66,0	24,0	17,0	36,0	64611	67611
4,2 mm	0.1654		M5 / M5 x 0,75	6,0	66,0	24,0	17,0	36,0	64612	67612
4,3 mm	0.1693			6,0	66,0	24,0	17,0	36,0	64613	67613
11/64	0.1719	4.37		6,0	66,0	24,0	17,0	36,0	54605	54705
4,4 mm	0.1732		12-24	6,0	66,0	24,0	17,0	36,0	64614	67614
4,5 mm	0.1772		M5 X 0,5	6,0	66,0	24,0	17,0	36,0	64615	67615
4,6 mm	0.1811		12-28	6,0	66,0	24,0	17,0	36,0	64616	67616
4,7 mm	0.1850		12-32	6,0	66,0	24,0	17,0	36,0	64617	67617
3/16	0.1875	4.76		6,0	66,0	28,0	20,0	36,0	54606	54706
4,8 mm	0.1890		7/32-32	6,0	66,0	28,0	20,0	36,0	64618	67618
4,9 mm	0.1929			6,0	66,0	28,0	20,0	36,0	64619	67619
5,0 mm	0.1969		M6 X 1	6,0	66,0	28,0	20,0	36,0	64620	67620
5,1 mm	0.2008		1/4-20	6,0	66,0	28,0	20,0	36,0	64621	67621
13/64	0.2031	5.16		6,0	66,0	28,0	20,0	36,0	54607	54707
5,2 mm	0.2047		M6 X 0,75	6,0	66,0	28,0	20,0	36,0	64622	67622
5,3 mm	0.2087			6,0	66,0	28,0	20,0	36,0	64623	67623
5,4 mm	0.2126			6,0	66,0	28,0	20,0	36,0	64624	67624
5,5 mm	0.2165		M6 X 0,5	6,0	66,0	28,0	20,0	36,0	64625	67625
7/32	0.2188	5.56	1/4-32	6,0	66,0	28,0	20,0	36,0	54608	54708
5,6 mm	0.2205			6,0	66,0	28,0	20,0	36,0	64626	67626
5,7 mm	0.2244			6,0	66,0	28,0	20,0	36,0	64627	67627
5,8 mm	0.2283			6,0	66,0	28,0	20,0	36,0	64628	67628
5,9 mm	0.2323			6,0	66,0	28,0	20,0	36,0	64629	67629
15/64	0.2344	5.95		6,0	66,0	28,0	20,0	36,0	54609	54709

(continued on next page)

Common
3xD Reach
Right Spiral
External Coolant
3 Flutes

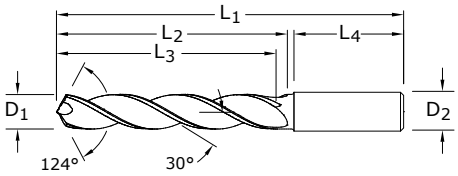
HI-PERCARB®
HIGH PERFORMANCE CARBIDE DRILLS

TOLERANCES (inch)

DIAMETER	D_1	D_2
≤.1181	+.00008/+.00047	h6
>.1181–.2362	+.00016/+.00063	h6
>.2362–.3937	+.00024/+.00083	h6
>.3937–.7087	+.00028/+.00098	h6
>.7087–1.1811	+.00031/+.00114	h6

TOLERANCES (mm)

DIAMETER	D_1	D_2
≤ 3	+0,002/+0,012	h6
> 3 - 6	+0,004/+0,016	h6
> 6 - 10	+0,006/+0,021	h6
> 10 - 18	+0,007/+0,025	h6



SERIES 131N 3XD

New Expanded Tools

Common

3xD Reach

Right Spiral

External Coolant

3 Flutes

Cutting Diameter D_1	Decimal Equiv.	Metric Equiv.	Tap Size Reference Only	Shank Diameter D_2	Overall Length L_1	Flute Length L_2	Min. Cleared Length L_3	Shank Length L_4	Uncoated EDP No.	Ti-NAMITE-B (TB) EDP No.
6,0 mm	0.2362		M7 X 1	6,0	66,0	28,0	20,0	36,0	64630	67630
6,1 mm	0.2402			8,0	79,0	34,0	24,0	36,0	64631	67631
6,2 mm	0.2441		M7 X 0,75	8,0	79,0	34,0	24,0	36,0	64632	67632
6,3 mm	0.2480			8,0	79,0	34,0	24,0	36,0	64633	67633
1/4	0.2500	6.35		8,0	79,0	34,0	24,0	36,0	54610	54710
6,4 mm	0.2520			8,0	79,0	34,0	24,0	36,0	64634	67634
6,5 mm	0.2559			8,0	79,0	34,0	24,0	36,0	64635	67635
F	0.2570	6.53	5/16-18	8,0	79,0	34,0	24,0	36,0	54611	54711
6,6 mm	0.2598			8,0	79,0	34,0	24,0	36,0	64636	67636
6,7 mm	0.2638			8,0	79,0	34,0	24,0	36,0	64637	67637
17/64	0.2656	6.75	5/16-20	8,0	79,0	34,0	24,0	36,0	54612	54712
6,8 mm	0.2677		M8 X 1,25	8,0	79,0	34,0	24,0	36,0	64638	67638
6,9 mm	0.2717		5/16-24	8,0	79,0	34,0	24,0	36,0	64639	67639
7,0 mm	0.2756		M8 X 1	8,0	79,0	34,0	24,0	36,0	64640	67640
7,1 mm	0.2795			8,0	79,0	41,0	29,0	36,0	64641	67641
9/32	0.2812	7.14	5/16-32	8,0	79,0	41,0	29,0	36,0	54613	54713
7,2 mm	0.2835		M8 X 0,75	8,0	79,0	41,0	29,0	36,0	64642	67642
7,3 mm	0.2874			8,0	79,0	41,0	29,0	36,0	64643	67643
7,4 mm	0.2913			8,0	79,0	41,0	29,0	36,0	64644	67644
7,5 mm	0.2953		M8 X 0,5	8,0	79,0	41,0	29,0	36,0	64645	67645
19/64	0.2969	7.54		8,0	79,0	41,0	29,0	36,0	54614	54714
7,6 mm	0.2992			8,0	79,0	41,0	29,0	36,0	64646	67646
7,7 mm	0.3031			8,0	79,0	41,0	29,0	36,0	64647	67647
7,8 mm	0.3071		M9 X 1,25	8,0	79,0	41,0	29,0	36,0	64648	67648
7,9 mm	0.3110			8,0	79,0	41,0	29,0	36,0	64649	67649
5/16	0.3125	7.94	3/8-16	8,0	79,0	41,0	29,0	36,0	54615	54715
8,0 mm	0.3150		M9 X 1	8,0	79,0	41,0	29,0	36,0	64650	67650
8,1 mm	0.3189			10,0	89,0	47,0	35,0	40,0	64651	67651
8,2 mm	0.3228			10,0	89,0	47,0	35,0	40,0	64652	67652
8,3 mm	0.3268			10,0	89,0	47,0	35,0	40,0	64653	67653
21/64	0.3281	8.33	3/8-20	10,0	89,0	47,0	35,0	40,0	54616	54716
8,4 mm	0.3307			10,0	89,0	47,0	35,0	40,0	64654	67654
Q	0.3320	8.43	3/8-24	10,0	89,0	47,0	35,0	40,0	54617	54717
8,5 mm	0.3346		M10 X 1,5	10,0	89,0	47,0	35,0	40,0	64655	67655
8,6 mm	0.3386			10,0	89,0	47,0	35,0	40,0	64656	67656
8,7 mm	0.3425			10,0	89,0	47,0	35,0	40,0	64657	67657
11/32	0.3438	8.73	3/8-32	10,0	89,0	47,0	35,0	40,0	54618	54718
8,8 mm	0.3465		M10 X 1,25	10,0	89,0	47,0	35,0	40,0	64658	67658
8,9 mm	0.3504			10,0	89,0	47,0	35,0	40,0	64659	67659
9,0 mm	0.3543		M10 X 1	10,0	89,0	47,0	35,0	40,0	64660	67660

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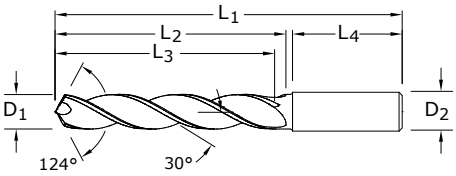
HI-PERCARB®
HIGH PERFORMANCE CARBIDE DRILLS



TOLERANCES (inch)

DIAMETER	D_1	D_2
≤.1181	+.00008/+.00047	h6
>.1181–.2362	+.00016/+.00063	h6
>.2362–.3937	+.00024/+.00083	h6
>.3937–.7087	+.00028/+.00098	h6
>.7087–1.1811	+.00031/+.00114	h6

TOLERANCES (mm)

DIAMETER	D_1	D_2
≤ 3	+0,002/+0,012	h6
> 3 - 6	+0,004/+0,016	h6
> 6 - 10	+0,006/+0,021	h6
> 10 - 18	+0,007/+0,025	h6

SERIES 131N 3XD

New Expanded Tools

Cutting Diameter D_1	Decimal Equiv.	Metric Equiv.	Tap Size Reference Only	Shank Diameter D_2	Overall Length L_1	Flute Length L_2	Min, Cleared Length L_3	Shank Length L_4	Uncoated EDP No.	Ti-NAMITE-B (TB) EDP No.
9,1 mm	0.3583			10,0	89,0	47,0	35,0	40,0	64661	67661
23/64	0.3594	9.13		10,0	89,0	47,0	35,0	40,0	54619	54719
9,2 mm	0.3622		M10 X 0,75	10,0	89,0	47,0	35,0	40,0	64662	67662
9,3 mm	0.3661			10,0	89,0	47,0	35,0	40,0	64663	67663
U	0.3680	9.35	7/16-14	10,0	89,0	47,0	35,0	40,0	54620	54720
9,4 mm	0.3701			10,0	89,0	47,0	35,0	40,0	64664	67664
9,5 mm	0.3740		M11 / M10 X 0,5	10,0	89,0	47,0	35,0	40,0	64665	67665
3/8	0.3750	9.53		10,0	89,0	47,0	35,0	40,0	54621	54721
9,6 mm	0.3780			10,0	89,0	47,0	35,0	40,0	64666	67666
9,7 mm	0.3819			10,0	89,0	47,0	35,0	40,0	64667	67667
9,8 mm	0.3858			10,0	89,0	47,0	35,0	40,0	64668	67668
9,9 mm	0.3898			10,0	89,0	47,0	35,0	40,0	64669	67669
25/64	0.3906	9.92	7/16-20	10,0	89,0	47,0	35,0	40,0	54622	54722
10,0 mm	0.3937			10,0	89,0	47,0	35,0	40,0	64670	67670
10,1 mm	0.3976			12,0	102,0	55,0	40,0	45,0	64671	67671
10,2 mm	0.4016		M12 X 1,75	12,0	102,0	55,0	40,0	45,0	64672	67672
10,3 mm	0.4055			12,0	102,0	55,0	40,0	45,0	64673	67673
13/32	0.4062	10.32		12,0	102,0	55,0	40,0	45,0	54623	54723
10,4 mm	0.4094			12,0	102,0	55,0	40,0	45,0	64674	67674
10,5 mm	0.4134		M12 X 1,5	12,0	102,0	55,0	40,0	45,0	64675	67675
10,6 mm	0.4173			12,0	102,0	55,0	40,0	45,0	64676	67676
10,7 mm	0.4213			12,0	102,0	55,0	40,0	45,0	64677	67677
27/64	0.4219	10.72	1/2-13	12,0	102,0	55,0	40,0	45,0	54624	54724
10,8 mm	0.4252		M12 X 1,25	12,0	102,0	55,0	40,0	45,0	64678	67678
10,9 mm	0.4291			12,0	102,0	55,0	40,0	45,0	64679	67679
11,0 mm	0.4331		M12 X 1	12,0	102,0	55,0	40,0	45,0	64680	67680
11,1 mm	0.4370			12,0	102,0	55,0	40,0	45,0	64681	67681
7/16	0.4375	11.11	1/4-18NPT	12,0	102,0	55,0	40,0	45,0	54625	54725
11,2 mm	0.4409			12,0	102,0	55,0	40,0	45,0	64682	67682
11,3 mm	0.4449			12,0	102,0	55,0	40,0	45,0	64683	67683
11,4 mm	0.4488			12,0	102,0	55,0	40,0	45,0	64684	67684
11,5 mm	0.4528		M12 X 0,5	12,0	102,0	55,0	40,0	45,0	64685	67685
11,6 mm	0.4567			12,0	102,0	55,0	40,0	45,0	64686	67686
11,7 mm	0.4606			12,0	102,0	55,0	40,0	45,0	64687	67687
11,8 mm	0.4646			12,0	102,0	55,0	40,0	45,0	64688	67688
11,9 mm	0.4685			12,0	102,0	55,0	40,0	45,0	64689	67689
15/32	0.4688	11.91	1/2-28	12,0	102,0	55,0	40,0	45,0	54626	54726
12,0 mm	0.4724		M14 X 2	12,0	102,0	55,0	40,0	45,0	64690	67690
31/64	0.4844	12.30	9/16-12	14,0	107,0	60,0	43,0	45,0	54627	54727
12,5 mm	0.4921		M14 X 1,5	14,0	107,0	60,0	43,0	45,0	64691	67691

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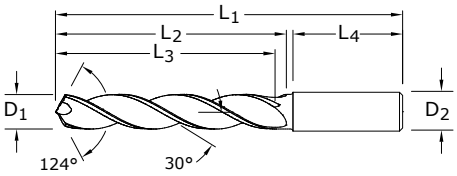
Common
3xD Reach
Right Spiral
External Coolant
3 Flutes

TOLERANCES (inch)

DIAMETER	D_1	D_2
≤.1181	+.00008/+.00047	h6
>.1181–.2362	+.00016/+.00063	h6
>.2362–.3937	+.00024/+.00083	h6
>.3937–.7087	+.00028/+.00098	h6
>.7087–1.1811	+.00031/+.00114	h6

TOLERANCES (mm)

DIAMETER	D_1	D_2
≤ 3	+0,002/+0,012	h6
> 3 - 6	+0,004/+0,016	h6
> 6 - 10	+0,006/+0,021	h6
> 10 - 18	+0,007/+0,025	h6



SERIES 131N 3XD

New Expanded Tools

Common

3xD
Reach

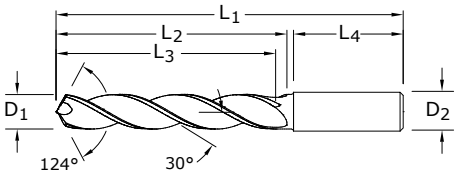
Right Spiral

External Coolant

3
Flutes

Cutting Diameter D_1	Decimal Equiv.	Metric Equiv.	Tap Size Reference Only	Shank Diameter D_2	Overall Length L_1	Flute Length L_2	Min. Cleared Length L_3	Shank Length L_4	Uncoated EDP No.	Ti-NAMITE-B (TB) EDP No.
1/2	0.5000	12.70		14,0	107,0	60,0	43,0	45,0	54628	54728
12,8 mm	0.5039		M14 X 1,25	14,0	107,0	60,0	43,0	45,0	64692	67692
13,0 mm	0.5118		M14 X 1	14,0	107,0	60,0	43,0	45,0	64693	67693
33/64	0.5156	13.10	9/16-18	14,0	107,0	60,0	43,0	45,0	54629	54729
13,5 mm	0.5315		5/8-11	14,0	107,0	60,0	43,0	45,0	64694	67694
13,8 mm	0.5433			14,0	107,0	60,0	43,0	45,0	64695	67695
14,0 mm	0.5512		M16 X 2	14,0	107,0	60,0	43,0	45,0	64696	67696
9/16	0.5625	14.29		16,0	115,0	65,0	45,0	48,0	54630	54730
14,5 mm	0.5709		M16 X 1,5	16,0	115,0	65,0	45,0	48,0	64697	67697
37/64	0.5781	14.68	5/8-18	16,0	115,0	65,0	45,0	48,0	54631	54731
14,8 mm	0.5827			16,0	115,0	65,0	45,0	48,0	64698	67698
15,0 mm	0.5906		M16 X 1	16,0	115,0	65,0	45,0	48,0	64699	67699
15,5 mm	0.6102		M18 X 2,5	16,0	115,0	65,0	45,0	48,0	64700	67700
15,8 mm	0.6220			16,0	115,0	65,0	45,0	48,0	64701	67701
5/8	0.6250	15.88	11/16-16	16,0	115,0	65,0	45,0	48,0	54632	54732
16,0 mm	0.6299			16,0	115,0	65,0	45,0	48,0	64702	67702
21/32	0.6562	16.67	3/4-10	18,0	123,0	73,0	51,0	48,0	54633	54733
11/16	0.6875	17.46	3/4-16	18,0	123,0	73,0	51,0	48,0	54634	54734
3/4	0.7500	19.05	13/16-16	20,0	131,0	79,0	55,0	50,0	54635	54735

HI-PERCARB®
HIGH PERFORMANCE CARBIDE DRILLS



TOLERANCES (inch)

DIAMETER	D_1	D_2
≤.1181	+.00008/+.00047	h6
>.1181–.2362	+.00016/+.00063	h6
>.2362–.3937	+.00024/+.00083	h6
>.3937–.7087	+.00028/+.00098	h6
>.7087–1.1811	+.00031/+.00114	h6

TOLERANCES (mm)

DIAMETER	D_1	D_2
≤ 3	+0,002/+0,012	h6
> 3 - 6	+0,004/+0,016	h6
> 6 - 10	+0,006/+0,021	h6
> 10 - 18	+0,007/+0,025	h6

SERIES 131N 5XD

New Expanded Tools

Cutting Diameter D_1	Decimal Equiv.	Metric Equiv.	Tap Size Reference Only	Shank Diameter D_2	Overall Length L_1	Flute Length L_2	Min. Cleared Length L_3	Shank Length L_4	Uncoated EDP No.	Ti-NAMITE-B (TB) EDP No.
3,0 mm	0.1181			6,0	66,0	28,0	23,0	36,0	65000	64800
3,1 mm	0.1220			6,0	66,0	28,0	23,0	36,0	65001	64801
1/8	0.1250	3.18		6,0	66,0	28,0	23,0	36,0	55000	54800
3,2 mm	0.1260		M3,5 X 0,35	6,0	66,0	28,0	23,0	36,0	65002	64802
3,3 mm	0.1299		M4 X 0,7	6,0	66,0	28,0	23,0	36,0	65003	64803
3,4 mm	0.1339			6,0	66,0	28,0	23,0	36,0	65004	64804
#29	0.1360	3.45	8-32,8-36	6,0	66,0	28,0	23,0	36,0	55001	54801
3,5 mm	0.1378		M4 X 0,5	6,0	66,0	28,0	23,0	36,0	65005	64805
9/64	0.1406	3.57		6,0	66,0	28,0	23,0	36,0	55002	54802
3,6 mm	0.1417		M4 X 0,35	6,0	66,0	28,0	23,0	36,0	65006	64806
3,7 mm	0.1457		M4,5 X 0,75	6,0	66,0	28,0	23,0	36,0	65007	64807
3,8 mm	0.1496		10-24	6,0	74,0	36,0	29,0	36,0	65008	64808
3,9 mm	0.1535			6,0	74,0	36,0	29,0	36,0	65009	64809
5/32	0.1562	3.97		6,0	74,0	36,0	29,0	36,0	55003	54803
4,0 mm	0.1575		M4,5 X 0,5	6,0	74,0	36,0	29,0	36,0	65010	64810
#21	0.1590	4.04	10-32	6,0	74,0	36,0	29,0	36,0	55004	54804
4,1 mm	0.1614			6,0	74,0	36,0	29,0	36,0	65011	64811
4,2 mm	0.1654		M5 / M5 x 0,75	6,0	74,0	36,0	29,0	36,0	65012	64812
4,3 mm	0.1693			6,0	74,0	36,0	29,0	36,0	65013	64813
11/64	0.1719	4.37		6,0	74,0	36,0	29,0	36,0	55005	54805
4,4 mm	0.1732		12-24	6,0	74,0	36,0	29,0	36,0	65014	64814
4,5 mm	0.1772		M5 X 0,5	6,0	74,0	36,0	29,0	36,0	65015	64815
4,6 mm	0.1811		12-28	6,0	74,0	36,0	29,0	36,0	65016	64816
4,7 mm	0.1850		12-32	6,0	74,0	36,0	29,0	36,0	65017	64817
3/16	0.1875	4.76		6,0	82,0	44,0	35,0	36,0	55006	54806
4,8 mm	0.1890		7/32-32	6,0	82,0	44,0	35,0	36,0	65018	64818
4,9 mm	0.1929			6,0	82,0	44,0	35,0	36,0	65019	64819
5,0 mm	0.1969		M6 X 1	6,0	82,0	44,0	35,0	36,0	65020	64820
5,1 mm	0.2008		1/4-20	6,0	82,0	44,0	35,0	36,0	65021	64821
13/64	0.2031	5.16		6,0	82,0	44,0	35,0	36,0	55007	54807
5,2 mm	0.2047		M6 X 0,75	6,0	82,0	44,0	35,0	36,0	65022	64822
5,3 mm	0.2087			6,0	82,0	44,0	35,0	36,0	65023	64823
5,4 mm	0.2126			6,0	82,0	44,0	35,0	36,0	65024	64824
5,5 mm	0.2165		M6 X 0,5	6,0	82,0	44,0	35,0	36,0	65025	64825
7/32	0.2188	5.56	1/4-32	6,0	82,0	44,0	35,0	36,0	55008	54808
5,6 mm	0.2205			6,0	82,0	44,0	35,0	36,0	65026	64826
5,7 mm	0.2244			6,0	82,0	44,0	35,0	36,0	65027	64827
5,8 mm	0.2283			6,0	82,0	44,0	35,0	36,0	65028	64828
5,9 mm	0.2323			6,0	82,0	44,0	35,0	36,0	65029	64829
15/64	0.2344	5.95		6,0	82,0	44,0	35,0	36,0	55009	54809

(continued on next page)

Common
5xD Reach
Right Spiral
External Coolant
3 Flutes

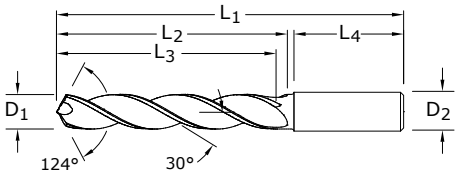
HI-PERCARB®
HIGH PERFORMANCE CARBIDE DRILLS

TOLERANCES (inch)

DIAMETER	D_1	D_2
≤.1181	+.00008/+.00047	h6
>.1181–.2362	+.00016/+.00063	h6
>.2362–.3937	+.00024/+.00083	h6
>.3937–.7087	+.00028/+.00098	h6
>.7087–1.1811	+.00031/+.00114	h6

TOLERANCES (mm)

DIAMETER	D_1	D_2
≤ 3	+0,002/+0,012	h6
> 3 - 6	+0,004/+0,016	h6
> 6 - 10	+0,006/+0,021	h6
> 10 - 18	+0,007/+0,025	h6



SERIES 131N 5XD

New Expanded Tools

Common

5xD Reach

Right Spiral

External Coolant

3 Flutes

Cutting Diameter D_1	Decimal Equiv.	Metric Equiv.	Tap Size Reference Only	Shank Diameter D_2	Overall Length L_1	Flute Length L_2	Min. Cleared Length L_3	Shank Length L_4	Uncoated EDP No.	Ti-NAMITE-B (TB) EDP No.
6,0 mm	0.2362		M7 X 1	6,0	82,0	44,0	35,0	36,0	65030	64830
6,1 mm	0.2402			8,0	91,0	53,0	43,0	36,0	65031	64831
6,2 mm	0.2441		M7 X 0,75	8,0	91,0	53,0	43,0	36,0	65032	64832
6,3 mm	0.2480			8,0	91,0	53,0	43,0	36,0	65033	64833
1/4	0.2500	6.35		8,0	91,0	53,0	43,0	36,0	55010	54810
6,4 mm	0.2520			8,0	91,0	53,0	43,0	36,0	65034	64834
6,5 mm	0.2559			8,0	91,0	53,0	43,0	36,0	65035	64835
F	0.2570	6.53	5/16-18	8,0	91,0	53,0	43,0	36,0	55011	54811
6,6 mm	0.2598			8,0	91,0	53,0	43,0	36,0	65036	64836
6,7 mm	0.2638			8,0	91,0	53,0	43,0	36,0	65037	64837
17/64	0.2656	6.75	5/16-20	8,0	91,0	53,0	43,0	36,0	55012	54812
6,8 mm	0.2677		M8 X 1,25	8,0	91,0	53,0	43,0	36,0	65038	64838
6,9 mm	0.2717		5/16-24	8,0	91,0	53,0	43,0	36,0	65039	64839
7,0 mm	0.2756		M8 X 1	8,0	91,0	53,0	43,0	36,0	65040	64840
7,1 mm	0.2795			8,0	91,0	53,0	43,0	36,0	65041	64841
9/32	0.2812	7.14	5/16-32	8,0	91,0	53,0	43,0	36,0	55013	54813
7,2 mm	0.2835		M8 X 0,75	8,0	91,0	53,0	43,0	36,0	65042	64842
7,3 mm	0.2874			8,0	91,0	53,0	43,0	36,0	65043	64843
7,4 mm	0.2913			8,0	91,0	53,0	43,0	36,0	65044	64844
7,5 mm	0.2953		M8 X 0,5	8,0	91,0	53,0	43,0	36,0	65045	64845
19/64	0.2969	7.54		8,0	91,0	53,0	43,0	36,0	55014	54814
7,6 mm	0.2992			8,0	91,0	53,0	43,0	36,0	65046	64846
7,7 mm	0.3031			8,0	91,0	53,0	43,0	36,0	65047	64847
7,8 mm	0.3071		M9 X 1,25	8,0	91,0	53,0	43,0	36,0	65048	64848
7,9 mm	0.3110			8,0	91,0	53,0	43,0	36,0	65049	64849
5/16	0.3125	7.94	3/8-16	8,0	91,0	53,0	43,0	36,0	55015	54815
8,0 mm	0.3150		M9 X 1	8,0	91,0	53,0	43,0	36,0	65050	64850
8,1 mm	0.3189			10,0	103,0	61,0	49,0	40,0	65051	64851
8,2 mm	0.3228			10,0	103,0	61,0	49,0	40,0	65052	64852
8,3 mm	0.3268			10,0	103,0	61,0	49,0	40,0	65053	64853
21/64	0.3281	8.33	3/8-20	10,0	103,0	61,0	49,0	40,0	55016	54816
8,4 mm	0.3307			10,0	103,0	61,0	49,0	40,0	65054	64854
Q	0.3320	8.43	3/8-24	10,0	103,0	61,0	49,0	40,0	55017	54817
8,5 mm	0.3346		M10 X 1,5	10,0	103,0	61,0	49,0	40,0	65055	64855
8,6 mm	0.3386			10,0	103,0	61,0	49,0	40,0	65056	64856
8,7 mm	0.3425			10,0	103,0	61,0	49,0	40,0	65057	64857
11/32	0.3438	8.73	3/8-32	10,0	103,0	61,0	49,0	40,0	55018	54818
8,8 mm	0.3465		M10 X 1,25	10,0	103,0	61,0	49,0	40,0	65058	64858
8,9 mm	0.3504			10,0	103,0	61,0	49,0	40,0	65059	64859
9,0 mm	0.3543		M10 X 1	10,0	103,0	61,0	49,0	40,0	65060	64860

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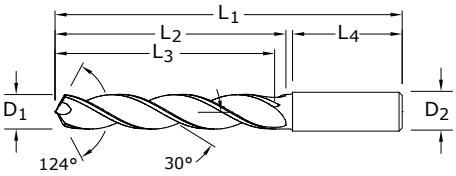
HI-PERCARB®
HIGH PERFORMANCE CARBIDE DRILLS



TOLERANCES (inch)

DIAMETER	D_1	D_2
≤.1181	+.00008/+.00047	h6
>.1181–.2362	+.00016/+.00063	h6
>.2362–.3937	+.00024/+.00083	h6
>.3937–.7087	+.00028/+.00098	h6
>.7087–1.1811	+.00031/+.00114	h6

TOLERANCES (mm)

DIAMETER	D_1	D_2
≤ 3	+0,002/+0,012	h6
> 3 - 6	+0,004/+0,016	h6
> 6 - 10	+0,006/+0,021	h6
> 10 - 18	+0,007/+0,025	h6

SERIES 131N 5XD

New Expanded Tools

Cutting Diameter D_1	Decimal Equiv.	Metric Equiv.	Tap Size Reference Only	Shank Diameter D_2	Overall Length L_1	Flute Length L_2	Min. Cleared Length L_3	Shank Length L_4	Uncoated EDP No.	Ti-NAMITE-B (TB) EDP No.
9,1 mm	0.3583			10,0	103,0	61,0	49,0	40,0	65061	64861
23/64	0.3594	9.13		10,0	103,0	61,0	49,0	40,0	55019	54819
9,2 mm	0.3622		M10 X 0,75	10,0	103,0	61,0	49,0	40,0	65062	64862
9,3 mm	0.3661			10,0	103,0	61,0	49,0	40,0	65063	64863
U	0.3680	9.35	7/16-14	10,0	103,0	61,0	49,0	40,0	55020	54820
9,4 mm	0.3701			10,0	103,0	61,0	49,0	40,0	65064	64864
9,5 mm	0.3740		M11 / M10 X 0,5	10,0	103,0	61,0	49,0	40,0	65065	64865
3/8	0.3750	9.53		10,0	103,0	61,0	49,0	40,0	55021	54821
9,6 mm	0.3780			10,0	103,0	61,0	49,0	40,0	65066	64866
9,7 mm	0.3819			10,0	103,0	61,0	49,0	40,0	65067	64867
9,8 mm	0.3858			10,0	103,0	61,0	49,0	40,0	65068	64868
9,9 mm	0.3898			10,0	103,0	61,0	49,0	40,0	65069	64869
25/64	0.3906	9.92	7/16-20	10,0	103,0	61,0	49,0	40,0	55022	54822
10,0 mm	0.3937			10,0	103,0	61,0	49,0	40,0	65070	64870
10,1 mm	0.3976			12,0	118,0	71,0	56,0	45,0	65071	64871
10,2 mm	0.4016		M12 X 1,75	12,0	118,0	71,0	56,0	45,0	65072	64872
10,3 mm	0.4055			12,0	118,0	71,0	56,0	45,0	65073	64873
13/32	0.4062	10.32		12,0	118,0	71,0	56,0	45,0	55023	54823
10,4 mm	0.4094			12,0	118,0	71,0	56,0	45,0	65074	64874
10,5 mm	0.4134		M12 X 1,5	12,0	118,0	71,0	56,0	45,0	65075	64875
10,6 mm	0.4173			12,0	118,0	71,0	56,0	45,0	65076	64876
10,7 mm	0.4213			12,0	118,0	71,0	56,0	45,0	65077	64877
27/64	0.4219	10.72	1/2-13	12,0	118,0	71,0	56,0	45,0	55024	54824
10,8 mm	0.4252		M12 X 1,25	12,0	118,0	71,0	56,0	45,0	65078	64878
10,9 mm	0.4291			12,0	118,0	71,0	56,0	45,0	65079	64879
11,0 mm	0.4331		M12 X 1	12,0	118,0	71,0	56,0	45,0	65080	64880
11,1 mm	0.4370			12,0	118,0	71,0	56,0	45,0	65081	64881
7/16	0.4375	11.11	1/4-18NPT	12,0	118,0	71,0	56,0	45,0	55025	54825
11,2 mm	0.4409			12,0	118,0	71,0	56,0	45,0	65082	64882
11,3 mm	0.4449			12,0	118,0	71,0	56,0	45,0	65083	64883
11,4 mm	0.4488			12,0	118,0	71,0	56,0	45,0	65084	64884
11,5 mm	0.4528		M12 X 0,5	12,0	118,0	71,0	56,0	45,0	65085	64885
11,6 mm	0.4567			12,0	118,0	71,0	56,0	45,0	65086	64886
11,7 mm	0.4606			12,0	118,0	71,0	56,0	45,0	65087	64887
11,8 mm	0.4646			12,0	118,0	71,0	56,0	45,0	65088	64888
11,9 mm	0.4685			12,0	118,0	71,0	56,0	45,0	65089	64889
15/32	0.4688	11.91	1/2-28	12,0	118,0	71,0	56,0	45,0	55026	54826
12,0 mm	0.4724		M14 X 2	12,0	118,0	71,0	56,0	45,0	65090	64890
31/64	0.4844	12.30	9/16-12	14,0	124,0	77,0	60,0	45,0	55027	54827
12,5 mm	0.4921		M14 X 1,5	14,0	124,0	77,0	60,0	45,0	65091	64891

(continued on next page)

Common
5xD Reach
Right Spiral
External Coolant
3 Flutes

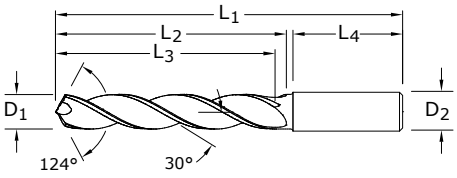
HI-PERCARB®
HIGH PERFORMANCE CARBIDE DRILLS

TOLERANCES (inch)

DIAMETER	D_1	D_2
≤.1181	+.00008/+.00047	h6
>.1181–.2362	+.00016/+.00063	h6
>.2362–.3937	+.00024/+.00083	h6
>.3937–.7087	+.00028/+.00098	h6
>.7087–1.1811	+.00031/+.00114	h6

TOLERANCES (mm)

DIAMETER	D_1	D_2
≤ 3	+0,002/+0,012	h6
> 3 - 6	+0,004/+0,016	h6
> 6 - 10	+0,006/+0,021	h6
> 10 - 18	+0,007/+0,025	h6



SERIES 131N 5XD

New Expanded Tools

Common

5xD Reach

Right Spiral

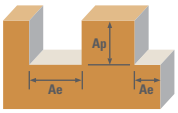
External Coolant

3 Flutes

Cutting Diameter D_1	Decimal Equiv.	Metric Equiv.	Tap Size Reference Only	Shank Diameter D_2	Overall Length L_1	Flute Length L_2	Min. Cleared Length L_3	Shank Length L_4	Uncoated EDP No.	Ti-NAMITE-B (TB) EDP No.
1/2	0.5000	12.70		14,0	124,0	77,0	60,0	45,0	55028	54828
12,8 mm	0.5039		M14 X 1,25	14,0	124,0	77,0	60,0	45,0	65092	64892
13,0 mm	0.5118		M14 X 1	14,0	124,0	77,0	60,0	45,0	65093	64893
33/64	0.5156	13.10	9/16-18	14,0	124,0	77,0	60,0	45,0	55029	54829
13,5 mm	0.5315		5/8-11	14,0	124,0	77,0	60,0	45,0	65094	64894
13,8 mm	0.5433			14,0	124,0	77,0	60,0	45,0	65095	64895
14,0 mm	0.5512		M16 X 2	14,0	124,0	77,0	60,0	45,0	65096	64896
9/16	0.5625	14.29		16,0	133,0	83,0	63,0	48,0	55030	54830
14,5 mm	0.5709		M16 X 1,5	16,0	133,0	83,0	63,0	48,0	65097	64897
37/64	0.5781	14.68	5/8-18	16,0	133,0	83,0	63,0	48,0	55031	54831
14,8 mm	0.5827			16,0	133,0	83,0	63,0	48,0	65098	64898
15,0 mm	0.5906		M16 X 1	16,0	133,0	83,0	63,0	48,0	65099	64899
15,5 mm	0.6102		M18 X 2,5	16,0	133,0	83,0	63,0	48,0	65100	64900
15,8 mm	0.6220			16,0	133,0	83,0	63,0	48,0	65101	64901
5/8	0.6250	15.88	11/16-16	16,0	133,0	83,0	63,0	48,0	55032	54832
16,0 mm	0.6299			16,0	133,0	83,0	63,0	48,0	65102	64902
21/32	0.6562	16.67	3/4-10	18,0	143,0	93,0	71,0	48,0	55033	54833
11/16	0.6875	17.46	3/4-16	18,0	143,0	93,0	71,0	48,0	55034	54834
3/4	0.7500	19.05	13/16-16	20,0	153,0	101,0	77,0	50,0	55035	54835

CARB Solid Carbide End Mills for Aluminum

SkiCarb

Series 44, 45, 43CR, 43CB, 43LC, 43, 43L, 43LCB, 43B, 43LB, 43EB, 43EC, 47, 47B, 47L, 47LB Fractional	Hardness		 Ae x D_1	Ap x D_1	Vc (SFM)		Diameter (D_1) (inch) 1/8	1/4	3/8	1/2	3/4	1
N	**ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075**	≤ 150 Bhn or ≤ 7 HRc	Slot	1	≤ 1	1600	RPM	48896	24448	16299	12224	8149	6112
							Fz	0.0009	0.0025	0.0045	0.0060	0.0070	0.0085
						(1280-1920)	Feed 2 flutes (IPM)	88	122	147	147	114	104
							Feed 3 flutes (IPM)	132	183	220	220	171	156
			Profile	≤ 0.5	≤ 1.5	2000	RPM	61120	30560	20373	15280	10187	7640
							Fz	0.0009	0.0025	0.0045	0.0060	0.0070	0.0085
						(1600-2400)	Feed 2 flutes (IPM)	110	153	183	183	143	130
							Feed 3 flutes (IPM)	165	229	275	275	214	195
			HSM	≤ 0.05	≤ 2	3300	RPM	100848	50424	33616	25212	16808	12606
							Fz	0.0021	0.0055	0.0105	0.0140	0.0165	0.0195
						(2640-3960)	Feed 2 flutes (IPM)	424	555	706	706	555	492
							Feed 3 flutes (IPM)	635	832	1059	1059	832	737
N	**ALUMINUM DIE CAST ALLOYS (HIGH SILICON) A-390, A-392, B-390**	≤ 125 Bhn or ≤ 77 HRb	Slot	1	≤ 1	600	RPM	18336	9168	6112	4584	3056	2292
							Fz	0.0009	0.0025	0.0045	0.0060	0.0070	0.0085
						(480-720)	Feed 2 flutes (IPM)	33	46	55	55	43	39
							Feed 3 flutes (IPM)	50	69	83	83	64	58
			Profile	≤ 0.5	≤ 1.5	750	RPM	22920	11460	7640	5730	3820	2865
							Fz	0.0009	0.0025	0.0045	0.0060	0.0070	0.0085
						(600-900)	Feed 2 flutes (IPM)	41	57	69	69	53	49
							Feed 3 flutes (IPM)	62	86	103	103	80	73
			HSM	≤ 0.05	≤ 2	1240	RPM	37894	18947	12631	9474	6316	4737
							Fz	0.0021	0.0055	0.0105	0.0140	0.0165	0.0195
						(992-1488)	Feed 2 flutes (IPM)	159	208	265	265	208	185
							Feed 3 flutes (IPM)	239	313	398	398	313	277
N	**COPPER ALLOYS Aluminum Bronze, Brass, Naval Brass, Red Brass**	≤ 140 Bhn or ≤ 3 HRc	Slot	1	≤ 1	865	RPM	26434	13217	8811	6609	4406	3304
							Fz	0.0008	0.0020	0.0040	0.0050	0.0060	0.0070
						(692-1038)	Feed 2 flutes (IPM)	42	53	70	66	53	46
							Feed 3 flutes (IPM)	63	79	106	99	79	69
			Profile	≤ 0.5	≤ 1.5	1080	RPM	33005	16502	11002	8251	5501	4126
							Fz	0.0008	0.0020	0.0040	0.0050	0.0060	0.0070
						(864-1296)	Feed 2 flutes (IPM)	53	66	88	83	66	58
							Feed 3 flutes (IPM)	79	99	132	124	99	87
			HSM	≤ 0.05	≤ 2	1780	RPM	54397	27198	18132	13599	9066	6800
							Fz	0.0017	0.0045	0.0085	0.0115	0.0140	0.0160
						(1424-2136)	Feed 2 flutes (IPM)	185	245	308	313	254	218
							Feed 3 flutes (IPM)	277	367	462	469	381	326

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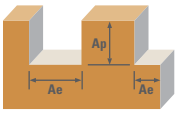
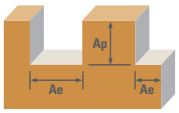
	Series 44, 45, 43CR, 43CB, 43LC, 43, 43L, 43LCB, 43B, 43LB, 43EB, 43EC, 47, 47B, 47L, 47LB Fractional	Hardness		 Ae x D_1	Ap x D_1	Vc (SFM)		Diameter (D_1) (inch) 1/8	1/4	3/8	1/2	3/4	1
N	COPPER ALLOYS Beryllium Copper, C110, Maganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Slot	1	≤ 1	345	RPM	10543	5272	3514	2636	1757	1318
						(276-414)	Fz	0.0008	0.0020	0.0040	0.0050	0.0060	0.0070
							Feed 2 flutes (IPM)	17	21	28	26	21	18
							Feed 3 flutes (IPM)	25	32	42	40	32	28
			Profile	≤ 0.5	≤ 1.5	430	RPM	13141	6570	4380	3285	2190	1643
						(344-516)	Fz	0.0008	0.0020	0.0040	0.0050	0.0060	0.0070
							Feed 2 flutes (IPM)	21	26	35	33	26	23
							Feed 3 flutes (IPM)	32	39	53	49	39	34
			HSM	≤ 0.05	≤ 2	710	RPM	21698	10849	7233	5424	3616	2712
						(568-852)	Fz	0.0017	0.0045	0.0085	0.0115	0.0140	0.0160
							Feed 2 flutes (IPM)	74	98	123	125	101	87
							Feed 3 flutes (IPM)	111	146	184	187	152	130
N	PLASTICS ABS, Polycarbonate, PVC, Polypropylene		Slot	1	≤ 1	1600	RPM	48896	24448	16299	12224	8149	6112
						(1280-1920)	Fz	0.0015	0.0040	0.0075	0.0100	0.0120	0.0140
							Feed 2 flutes (IPM)	147	196	244	244	196	171
							Feed 3 flutes (IPM)	220	293	367	367	293	257
			Profile	≤ 0.5	≤ 1.5	2000	RPM	61120	30560	20373	15280	10187	7640
						(1600-2400)	Fz	0.0015	0.0040	0.0075	0.0100	0.0120	0.0140
							Feed 2 flutes (IPM)	183	244	306	306	244	214
							Feed 3 flutes (IPM)	275	367	458	458	367	321
			HSM	≤ 0.05	≤ 2	3300	RPM	100848	50424	33616	25212	16808	12606
						(2640-3960)	Fz	0.0034	0.0090	0.0170	0.0230	0.0275	0.0320
							Feed 2 flutes (IPM)	686	908	1143	1160	924	807
							Feed 3 flutes (IPM)	1029	1361	1714	1740	1387	1210

Note:
- Bhn (Brinell), HRc (Rockwell C), HRb (Rockwell B)
- rpm = sfm x 3.82 / D_1
- ipm = Fz x number of flutes x rpm
- reduce speed and feed for materials harder than listed
- reduce cut depth and feed by 50% for long flute or long reach tools
- reduce feed and Ae when finish milling (.02 x D_1 maximum)
- refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

CARB Solid Carbide End Mills for Aluminum

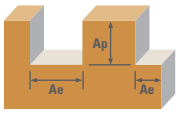
SkiCarb

	Series 44M, 43MCR, 43MLC, 43MCB, 43M, 43MB, 47M, 43ML, 47ML, 47MB, 47MLB Metric	Hardness		 Ae x D_1	Ap x D_1	Vc (m/min)		Diameter (D_1) (mm) 3	6	10	12	20	25
N	ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 7 HRc	Slot	1	≤ 1	490	RPM	52022	26011	15607	13005	7803	6243
						(392-588)	Fz	0.022	0.060	0.120	0.144	0.187	0.213
							Feed 2 flutes (mm/min)	2247	3121	3746	3745	2913	2653
							Feed 3 flutes (mm/min)	3371	4682	5618	5618	4370	3980
			Profile	≤ 0.5	≤ 1.5	610	RPM	64762	32381	19429	16190	9714	7771
						(488-732)	Fz	0.022	0.060	0.120	0.144	0.187	0.213
							Feed 2 flutes (mm/min)	2797	3885	4663	4662	3627	3303
							Feed 3 flutes (mm/min)	4196	5828	6994	6994	5440	4955
			HSM	≤ 0.05	≤ 2	1005	RPM	106698	53349	32009	26674	16005	12804
						(804-1206)	Fz	0.050	0.132	0.280	0.336	0.440	0.488
							Feed 2 flutes (mm/min)	10754	14083	17925	17924	14084	12484
							Feed 3 flutes (mm/min)	16131	21124	26888	26885	21126	18726
N	ALUMINUM DIE CAST ALLOYS (HIGH SILICON) A-390, A-392, B-390	≤ 125 Bhn or ≤ 77 HRb	Slot	1	≤ 1	185	RPM	19641	9820	5892	4910	2946	2357
						(148-222)	Fz	0.022	0.060	0.120	0.144	0.187	0.213
							Feed 2 flutes (mm/min)	848	1178	1414	1414	1100	1002
							Feed 3 flutes (mm/min)	1273	1768	2121	2121	1650	1503
			Profile	≤ 0.5	≤ 1.5	230	RPM	24418	12209	7326	6105	3663	2930
						(184-276)	Fz	0.022	0.060	0.120	0.144	0.187	0.213
							Feed 2 flutes (mm/min)	1055	1465	1758	1758	1367	1245
							Feed 3 flutes (mm/min)	1582	2197	2637	2637	2051	1868
			HSM	≤ 0.05	≤ 2	380	RPM	40343	20172	12103	10086	6052	4841
						(304-456)	Fz	0.050	0.132	0.280	0.336	0.440	0.488
							Feed 2 flutes (mm/min)	4066	5325	6778	6777	5325	4720
							Feed 3 flutes (mm/min)	6099	7987	10166	10166	7988	7081
N	COPPER ALLOYS Aluminum Bronze, Brass, Naval Brass, Red Brass	≤ 140 Bhn or ≤ 3 HRc	Slot	1	≤ 1	265	RPM	28134	14067	8440	7034	4220	3376
						(212-318)	Fz	0.019	0.048	0.107	0.120	0.160	0.175
							Feed 2 flutes (mm/min)	1080	1350	1801	1688	1350	1182
							Feed 3 flutes (mm/min)	1620	2025	2701	2532	2026	1773
			Profile	≤ 0.5	≤ 1.5	330	RPM	35035	17518	10511	8759	5255	4204
						(264-396)	Fz	0.019	0.048	0.107	0.120	0.160	0.175
							Feed 2 flutes (mm/min)	1345	1682	2242	2102	1682	1472
							Feed 3 flutes (mm/min)	2018	2522	3363	3153	2523	2207
			HSM	≤ 0.05	≤ 2	545	RPM	57861	28930	17358	14465	8679	6943
						(436-654)	Fz	0.041	0.108	0.227	0.276	0.373	0.400
							Feed 2 flutes (mm/min)	4721	6248	7869	7984	6480	5555
							Feed 3 flutes (m/min)	7082	9373	11804	11976	9721	8332

continued on next page

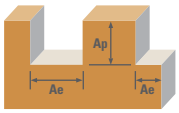
SkiCarb

CARB Solid Carbide End Mills for Aluminum

Series 44M, 43MCR, 43MLC, 43MCB, 43M, 43MB, 47M, 43ML, 47ML, 47MB, 47MLB Metric		Hardness		 Ae x D_1	Ap x D_1	Vc (m/min)		Diameter (D_1) (mm) 3	6	10	12	20	25
N	COPPER ALLOYS Beryllium Copper, C110, Maganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Slot	1	≤ 1	105	RPM	11148	5574	3344	2787	1672	1338
						(84-126)	Fz	0.019	0.048	0.107	0.120	0.160	0.175
							Feed 2 flutes (mm/min)	428	535	713	669	535	468
							Feed 3 flutes (mm/min)	642	803	1070	1003	803	702
			Profile	≤ 0.5	≤ 1.5	130	RPM	13802	6901	4141	3450	2070	1656
						(104-156)	Fz	0.019	0.048	0.107	0.120	0.160	0.175
							Feed 2 flutes (mm/min)	530	662	883	828	662	580
							Feed 3 flutes (mm/min)	795	994	1325	1242	994	870
			HSM	≤ 0.05	≤ 2	215	RPM	22826	11413	6848	5706	3424	2739
						(172-258)	Fz	0.041	0.108	0.227	0.276	0.373	0.400
							Feed 2 flutes (mm/min)	1862	2465	3104	3150	2556	2191
							Feed 3 flutes (mm/min)	2794	3697	4656	4725	3835	3287
N	PLASTICS ABS, Polycarbonate, PVC, Polypropylene		Slot	1	≤ 1	490	RPM	52022	26011	15607	13005	7803	6243
						(392-588)	Fz	0.036	0.096	0.200	0.240	0.320	0.350
							Feed 2 flutes (mm/min)	3745	4994	6243	6242	4994	4370
							Feed 3 flutes (mm/min)	5618	7490	9364	9363	7491	6555
			Profile	≤ 0.5	≤ 1.5	610	RPM	64762	32381	19429	16190	9714	7771
						(488-732)	Fz	0.036	0.096	0.200	0.240	0.320	0.350
							Feed 2 flutes (mm/min)	4662	6217	7771	7771	6217	5440
							Feed 3 flutes (mm/min)	6994	9325	11657	11656	9326	8160
			HSM	≤ 0.05	≤ 2	1005	RPM	106698	53349	32009	26674	16005	12804
						(804-1206)	Fz	0.082	0.216	0.453	0.552	0.733	0.800
							Feed 2 flutes (mm/min)	17412	23045	29022	29446	23473	20487
							Feed 3 flutes (mm/min)	26117	34567	43532	44169	35210	30730

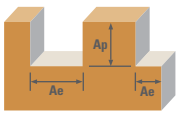
Note:
- Bhn (Brinell), HRc (Rockwell C), HRb (Rockwell B)
- rpm = (1000 x m/min) / (3.14 x D_1)
- mm / min = Fz x number of flutes x rpm
- reduce speed and feed for materials harder than listed
- reduce cut depth and feed by 50% for long flute or long reach tools
- reduce feed and Ae when finish milling (.02 x D_1 maximum)
- refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

CARB
Solid Carbide End Mills for Aluminum



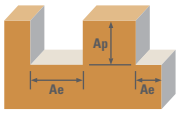
	Series 43APR Fractional	Hardness		Ae x D_1	Ap x D_1	Vc (sfm)		Diameter (D_1) (inch) 3/4	1
N	**ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075**	≤ 150 Bhn or ≤ 7 HRc	Slot	1	≤ 1	4920 (3936-5904)	RPM	25059	18794
							Fz	0.0060	0.0070
							Feed (in/min)	451	395
			Profile	≤ 0.5	≤ 1.5	6560 (5248-7872)	RPM	33412	25059
							Fz	0.0060	0.0070
							Feed (in/min)	601	526
	ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 7 HRc	Slot	1	≤ 1	3940 (3152-4728)	RPM	20068	15051
							Fz	0.0045	0.0053
							Feed (in/min)	271	239
			Profile	≤ 0.5	≤ 1.5	4920 (3936-5904)	RPM	25059	18794
							Fz	0.0045	0.0053
							Feed (in/min)	338	299

Note:
- Bhn (BrineII) HRc (Rockwell C)
- surface speed is dependent on machine spindle and fixturing
- balancing is recommended at ultra high surface speeds
- *tool life may be reduced when machining Lithium Alloys
- rpm = Vc x 3.82 / D_1
- ipm = Fz x 3 x rpm
- maximum recommended depths shown
- reduce speed and feed for materials harder than listed
- ramp angle = 15˚ (feed rate = 50%)
- plunge depth = 1 x D_1 (feed rate = 30%)
- refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



	Series 43MAPR Metric	Hardness		Ae x D_1	Ap x D_1	Vc (m/min)		Diameter (D_1) (mm) 12	16	20	25
N	**ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075**	≤ 150 Bhn or ≤ 7 HRc	Slot	1	≤ 1	1500 (1200-1800)	RPM	39788	29841	23873	19098
							Fz	0.080	0.110	0.150	0.180
							Feed (mm/min)	9549	9848	10743	10313
			Profile	≤ 0.5	≤ 1.5	2000 (1600-2400)	RPM	53050	39788	31830	25464
							Fz	0.080	0.110	0.150	0.180
							Feed (mm/min)	12732	13130	14324	13751
	ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 7 HRc	Slot	1	≤ 1	1200 (960-1440)	RPM	31830	23873	19098	15278
							Fz	0.060	0.083	0.110	0.140
							Feed (mm/min)	11459	5944	6302	6417
			Profile	≤ 0.5	≤ 1.5	1500 (1200-1800)	RPM	39788	29841	23873	19098
							Fz	0.060	0.083	0.110	0.140
							Feed (mm/min)	7162	7430	7878	8021

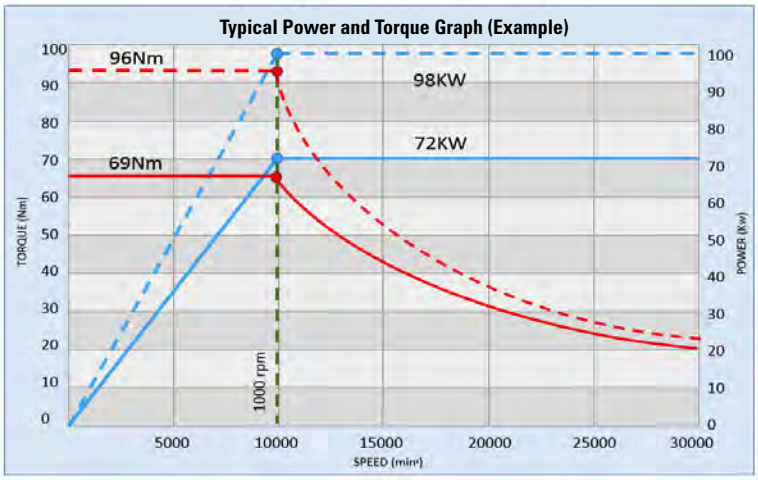
Note:
- Bhn (BrineII) HRc (Rockwell C)
- surface speed is dependent on machine spindle and fixturing
- balancing is recommended at ultra high surface speeds
- *tool life may be reduced when machining Lithium Alloys
- rpm = (Vc x 1000) / (D_1 x 3.14)
- mm/min = Fz x 3 x rpm
- maximum recommended depths shown
- reduce speed and feed for materials harder than listed
- ramp angle = 15˚ (feed rate = 50%)
- plunge depth = 1 x D_1 (feed rate = 30%)
- refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

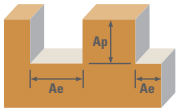


Series 43APR-3 43APR-4 Metric			Ae x D_1	Ap x D_1	Vc (m/min)		Diameter (D_1) (mm) APR-3 20	APR-3 25	APR-4 20	APR-4 25
N	ALUMINIUM ALLOYS 6068, 7075	Slot	1	≤ 1	1600	RPM	25461	20369	25461	20369
					(300-2100)	Fz	0.12	0.12	0.12	0.12
						Feed (mm/min)	9166	7333	12222	9777
		Profile	≤ 0.5	≤ 1.5	1800	RPM	28644	22915	28644	22915
					(300-2100)	Fz	0.15	0.15	0.15	0.15
						Feed (mm/min)	12890	10312	17187	13749
		HSM	≤ 0.1	≤ 2	2100	RPM	33418	26735	33418	26735
					(300-2100)	Fz	0.18	0.18	0.18	0.18
						Feed (mm/min)	18046	14437	24061	19249

Note:

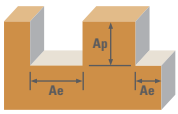
- For best results use the peak power of the specific machine torque chart.
- Typically 10kw is required to remove 1 litre of material (MMR).
- Eg. >> (Ae x Ap x Feed) / 1000000 >> Therefore Full slotting Ø25: 25 x 25 x 7333 = 4.58 Litres so it needs a min of 46Kw.
- Larger cuts and chip load consume more power.
- Review the power chart of each machine to determine MAX power for ultimate performance.
- Example below shows peak power @ 10,000 rpm.
- The APR-4 design is for ultimate metal removal but typicaly requires more power, and is also better suited to horizontal machines.
- The new coolant supply is designed for MQL as well as normal emulsion coolant on the same data.
- Ensure max MQL flow prior to cutting.
- Refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com).





	Series 43APF Fractional	Hardness		Ae x D_1	Ap x D_1	Vc (sfm)		Diameter (D_1) (inch) 1/2	3/4
N	**ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075**	≤ 150 Bhn or ≤ 7 HRc	Profile	≤ 0.1	≤ 2.5	2625	RPM	20055	13370
						(2100-3150)	Fz	0.0030	0.0050
							Feed (in/min)	241	267
			Profile	≤ 0.1	≤ 4	2625	RPM	20055	13370
						(2100-3150)	Fz	0.0020	0.0040
							Feed (in/min)	160	214
	ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 7 HRc	Profile	≤ 0.1	≤ 2.5	1970	RPM	15051	10034
						(1576-2364)	Fz	0.0030	0.0050
							Feed (in/min)	181	201
			Profile	≤ 0.1	≤ 4	1970	RPM	15051	10034
						(1576-2364)	Fz	0.0020	0.0040
							Feed (in/min)	120	161

Note:
- Bhn (Brinell) HRc (Rockwell C)
- surface speed is dependent on machine spindle and fixturing
- balancing is recommended at ultra high surface speeds
- *tool life may be reduced when machining Lithium Alloys
- rpm = Vc x 3.82 / D_1
- ipm = Fz x 4 x rpm
- maximum recommended depths shown
- reduce speed and feed for materials harder than listed
- finish cuts typically require reduced feed and cutting depths of 0.02 X D_1 maximum
- ramp angle = 6° (feed rate = 50%)
- plunging not recommended
- refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



	Series 43MAPF Metric	Hardness		Ae x D_1	Ap x D_1	Vc (m/min)		Diameter (D_1) (mm) 6	8	10	12	16	20	25
N	**ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075**	≤ 150 Bhn or ≤ 7 HRc	Profile	≤ 0.1	≤ 2.5	800	RPM	42440	31830	25464	21220	15915	12732	10186
						(640-960)	Fz	0.050	0.055	0.060	0.070	0.100	0.140	0.170
							Feed (mm/min)	8488	7003	6111	5942	6366	7130	6926
			Profile	≤ 0.1	≤ 4	800	RPM	42440	31830	25464	21220	15915	12732	10186
						(640-960)	Fz	0.040	0.045	0.050	0.050	0.070	0.100	0.120
							Feed (mm/min)	6790	5729	5093	4244	4456	5093	4889
	ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 7 HRc	Profile	≤ 0.1	≤ 2.5	600	RPM	31830	23873	19098	15915	11936	9549	7639
						(480-720)	Fz	0.050	0.055	0.060	0.070	0.100	0.140	0.170
							Feed (mm/min)	6366	5252	4584	4456	4774	5347	5195
			Profile	≤ 0.1	≤ 4	600	RPM	31830	23873	19098	15915	11936	9549	7639
						(480-720)	Fz	0.040	0.045	0.050	0.050	0.070	0.100	0.120
							Feed (mm/min)	5093	4297	3820	3183	3342	3820	3667

Note:
- Bhn (Brinell) HRc (Rockwell C)
- surface speed is dependent on machine spindle and fixturing
- balancing is recommended at ultra high surface speeds
- *tool life may be reduced when machining Lithium Alloys
- rpm = (Vc x 1000) / (D_1 x 3.14)
- mm/min = Fz x 4 x rpm
- maximum recommended depths shown
- reduce speed and feed for materials harder than listed
- finish cuts typically require reduced feed and cutting depths of 0.02 X D_1 maximum
- ramp angle = 6° (feed rate = 50%)
- plunging not recommended
- refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

	Series 131N 3D& 5D Fractional	Hardness	Vc (sfm)		Diameter (D_1) (inch) 1/8	3/16	1/4	3/8	1/2	5/8	3/4
N	**ALUMINUM ALLOYS < 12% SI 6061, 2024, 7075**	≤ 150 Bhn or ≤ 7 HRc	800	RPM	24448	16299	12224	8149	6112	4890	4075
			(640-960)	Fr	0.0055	0.0083	0.0110	0.0166	0.0221	0.0276	0.0331
				Feed (ipm)	135	135	135	135	135	135	135
	ALUMINUM ALLOYS > 12% SI A356.0, 390.0, 319.0	≤ 125 Bhn or ≤ 77 HRb	600	RPM	18336	12224	9168	6112	4584	3667	3056
			(480-720)	Fr	0.0055	0.0082	0.0109	0.0164	0.0218	0.0273	0.0327
				Feed (ipm)	100	100	100	100	100	100	100
	COPPER ALLOYS Alum Bronze, Muntz Brass, Navel Brass	≤ 175 Bhn or ≤ 16 HRc	550	RPM	16808	11205	8404	5603	4202	3362	2801
			(440-660)	Fr	0.0020	0.0030	0.0040	0.0061	0.0081	0.0101	0.0121
				Feed (ipm)	34	34	34	34	34	34	34
	PLASTICS Acrylic, PVC, Polypropylene		450	RPM	13752	9168	6876	4584	3438	2750	2292
			(360-540)	Fr	0.0025	0.0037	0.0049	0.0074	0.0099	0.0124	0.0148
				Feed (ipm)	34	34	34	34	34	34	34

Note:
- Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B)
- rpm = Vc x 3.82 / D_1
- ipm = Fr x RPM
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

	Series 131N 3D& 5D Metric	Hardness	Vc (m/min)		Diameter (D_1) (mm) 3	6	8	10	12	14	16
N	**ALUMINUM ALLOYS < 12% SI 6061, 2024, 7075**	≤ 150 Bhn or ≤ 7 HRc	244	RPM	25851	12926	9694	7755	6463	5540	4847
			(195-293)	Fr	0.133	0.265	0.354	0.442	0.531	0.619	0.708
				Feed (mm/min)	3430	3430	3430	3430	3430	3430	3430
	ALUMINUM ALLOYS > 12% SI A356.0, 390.0, 319.0	≤ 125 Bhn or ≤ 77 HRb	183	RPM	19388	9694	7271	5816	4847	4155	3635
			(146-219)	Fr	0.131	0.262	0.349	0.437	0.524	0.611	0.699
				Feed (mm/min)	2540	2540	2540	2540	2540	2540	2540
	COPPER ALLOYS Alum Bronze, Muntz Brass, Navel Brass	≤ 175 Bhn or ≤ 16 HRc	168	RPM	17773	8886	6665	5332	4443	3808	3332
			(134-201)	Fr	0.049	0.097	0.130	0.162	0.194	0.227	0.259
				Feed (mm/min)	864	864	864	864	864	864	864
	PLASTICS Acrylic, PVC, Polypropylene		137	RPM	14541	7271	5453	4362	3635	3116	2726
			(110-165)	Fr	0.059	0.119	0.158	0.198	0.238	0.277	0.317
				Feed (mm/min)	864	864	864	864	864	864	864

Note:
- Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B)
- rpm = (Vc x 1000) / (D_1 x 3.14)
- mm/min = Fr x RPM
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

SOLUTIONS AROUND THE GLOBE

KYOCERA SGS Precision Tools is an ISO-certified leader of round solid carbide cutting tool technology for the aerospace, metalworking, and automotive industries with manufacturing sites in the United States and United Kingdom. Our global network of Sales Representatives, Industrial Distributors, and Agents blanket the world selling into more than 60 countries.

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Brand names such as Z-Carb, S-Carb®, V-Carb, Hi-PerCarb, Multi-Carb have become synonymous with high performance tooling in the machining and metalworking industry.

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- Comprehensive tooling services
- Experienced Field Sales Engineers who work to optimize a tool for your particular application
- Dedicated multi-lingual customer service representatives

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