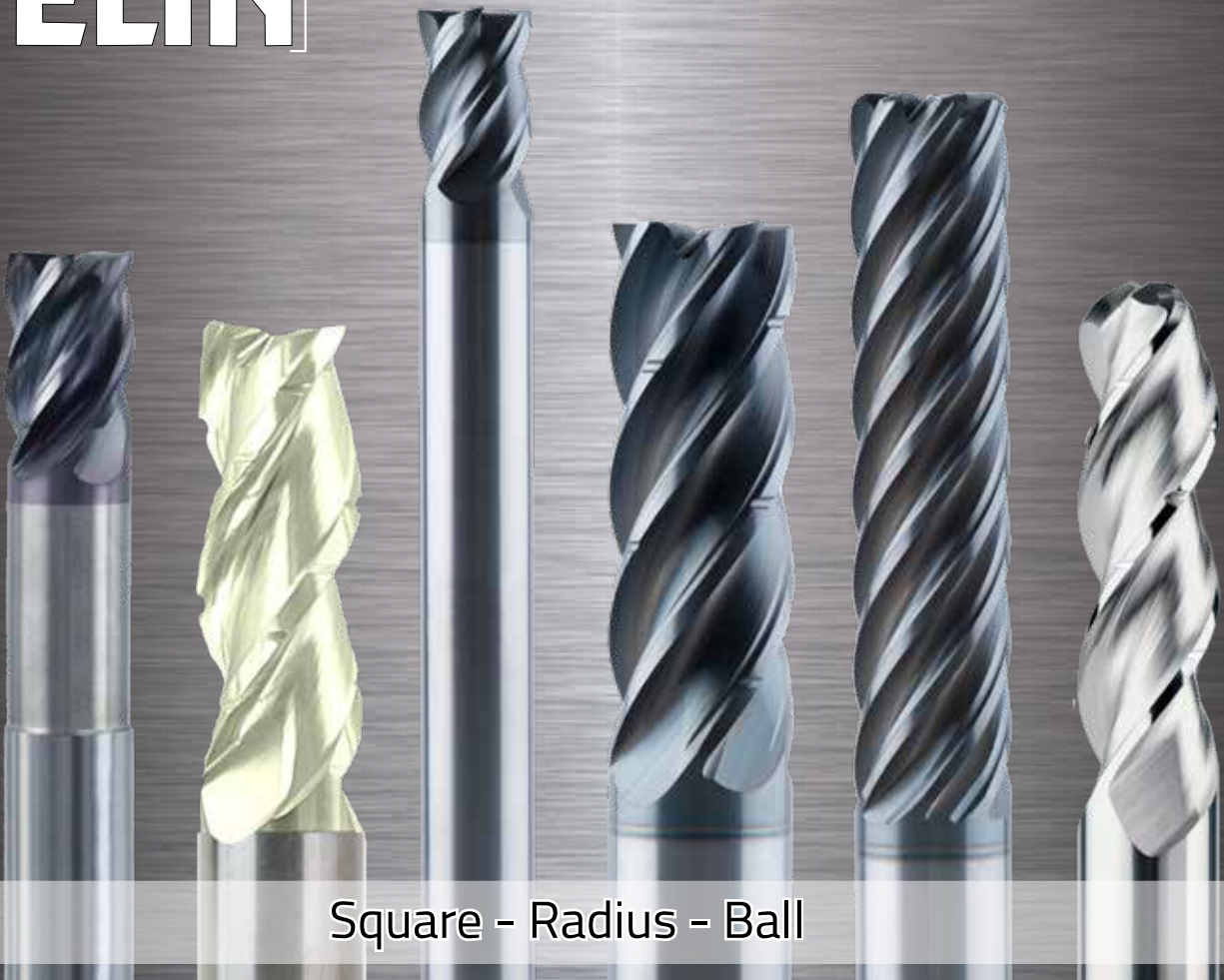




Ultra High Performance Catalog



MELIN^{UHP+}



Square - Radius - Ball

ULTRA HIGH PERFORMANCE UHP+

For use in Aluminum, TITANIUM, STAINLESS STEELS, INCONEL & NICKEL BASED

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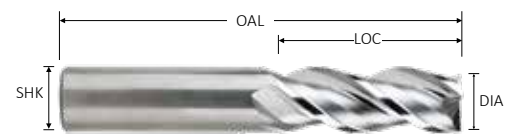
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3 FLUTE • 39° HELIX

Series: **MAL3**

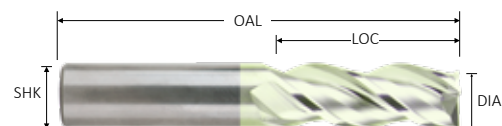
- End geometry designed for aggressive ramping
- Polish grinds produce superior surface finishes on both walls and floor
- Polished flute face optimizes chip evacuation and avoids chip nesting
- Bright finish is ideal for aluminum finishing applications
- h6 Tolerance shank for use in shrink fit holders



DIA	SHK	LOC	OAL	SQ	SQ \$	R.010	R.015	R.020	R.030	R.060	R.090	R.120	R.190	R.250	Rad \$	Ball	Ball \$
1/8	1/8	1/4	1-1/2	100500	\$16.82	100510	100520	100530	100540						\$19.76	100600	\$21.57
1/8	1/8	3/8	2	100660	\$16.98	100670	100680	100690	100700						\$19.92	100760	\$21.75
1/8	1/8	1/2	2	100820	\$16.98	100830	100840	100850	100860						\$19.92	100920	\$21.75
3/16	3/16	5/16	2	100980	\$17.06	100990	101000	101010	101020						\$20.21	101080	\$22.19
3/16	3/16	3/4	2-1/2	101300	\$18.02	101310	101320	101330	101340						\$21.17	101400	\$23.14
1/4	1/4	3/8	2	101460	\$18.53	101470	101480	101490	101500	101510					\$22.30	101560	\$24.54
1/4	1/4	1/2	2-1/2	101620	\$19.64	101630	101640	101650	101660	101670					\$23.40	101720	\$25.64
1/4	1/4	5/8	2-1/2	101780	\$19.64	101790	101800	101810	101820	101830					\$23.40	101880	\$25.64
1/4	1/4	3/4	2-1/2	101940	\$20.25	101950	101960	101970	101980	101990					\$24.02	102040	\$26.27
1/4	1/4	1	3	102100	\$28.08	102110	102120	102130	102140	102150					\$31.84	102200	\$34.07
5/16	5/16	13/16	2-1/2	102580	\$23.80	102590	102600	102610	102620	102630					\$28.09	102680	\$30.57
5/16	5/16	1	3	102740	\$30.80	102750	102760	102770	102780	102790					\$35.09	102840	\$37.56
3/8	3/8	1/2	2	102900	\$25.33	102910	102920	102930	102940	102950		102970			\$30.32	103000	\$33.09
3/8	3/8	1	3	103060	\$31.56	103070	103080	103090	103100	103110		103130			\$36.56	103160	\$39.32
3/8	3/8	1-1/4	3	103220	\$33.45	103230	103240	103250	103260	103270		103290			\$38.45	103320	\$41.22
3/8	3/8	1-1/2	3-1/2	103380	\$47.99	103390	103400	103410	103420	103430		103450			\$52.99	103480	\$55.76
3/8	3/8	2	4	103540	\$50.76	103550	103560	103570	103580	103590		103610			\$55.76	103640	\$58.52
1/2	1/2	5/8	2-1/2	103700	\$37.60	103710	103720	103730	103740	103750	103760	103770			\$43.22	103800	\$46.35
1/2	1/2	1	3	103860	\$42.45	103870	103880	103890	103900	103910	103920	103930			\$48.08	103960	\$51.22
1/2	1/2	1-1/4	3	104020	\$45.38	104030	104040	104050	104060	104070	104080	104090			\$51.01	104120	\$54.14
1/2	1/2	1-5/8	4	104180	\$55.83	104190	104200	104210	104220	104230	104240	104250			\$61.46	104280	\$64.60
1/2	1/2	2	4	104340	\$64.94	104350	104360	104370	104380	104390	104400	104410			\$70.57	104440	\$73.69
1/2	1/2	2-1/2	5	104500	\$72.98	104510	104520	104530	104540	104550	104560	104570			\$78.58	104600	\$81.72
5/8	5/8	3/4	3	104820	\$77.24		104830		104840	104850	104860	104870			\$83.95	104920	\$87.57
5/8	5/8	1-1/4	3-1/2	104980	\$79.38		104990		105000	105010	105020	105030			\$86.08	105080	\$89.69
5/8	5/8	1-5/8	3-1/2	105140	\$81.45		105150		105170	105180	105190	105200			\$88.16	105240	\$91.77
3/4	3/4	1	4	105780	\$125.29		105790		105800	105810	105820	105830	105840	105850	\$133.08	105880	\$137.19
3/4	3/4	1-5/8	4	105940	\$136.65		105950		105960	105970	105980	105990	106000	106010	\$144.44	106040	\$148.54
3/4	3/4	2-1/4	5	106100	\$157.76		106110		106115	106120	106130	106140	106150	106160	\$165.55	106200	\$169.66
3/4	3/4	3-1/4	6	106260	\$184.20		106270		106280	106290	106300	106310	106320	106330	\$191.99	106360	\$196.10
1	1	1-1/4	4	107060	\$181.80				107080	107090	107100	107110	107120	107130	\$191.03	107160	\$195.93
1	1	2	5	107220	\$215.08				107240	107250	107260	107270	107280	107290	\$224.32	107320	\$229.22
1	1	3-1/4	6	107380	\$262.83				107400	107410	107420	107430	107440	107450	\$272.06	107480	\$276.95



- End geometry designed for aggressive ramping
- Polish grinds produce superior surface finishes on both walls and floor
- Polished flute face optimizes chip evacuation and avoids chip nesting
- ZrN Coating maximizes performance in Non-Ferrous Materials
- h6 Tolerance shank for use in shrink fit holders



Carbide	3	Center Cutting	39°	ZrN	h6	Square	Radius	Ball					
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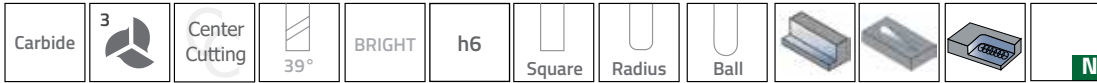
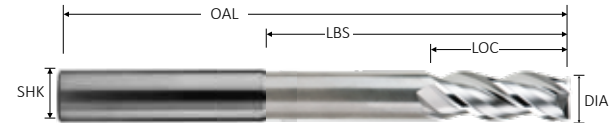
DIA	SHK	LOC	OAL	SQ	SQ \$	R.010	R.015	R.020	R.030	R.060	R.090	R.120	R.190	R.250	Rad \$	Ball	Ball \$
1/8	1/8	1/4	1-1/2	600500	\$18.14	600510	600520	600530	600540						\$21.08	600600	\$22.90
1/8	1/8	3/8	2	600660	\$18.31	600670	600680	600690	600700						\$21.26	600760	\$23.07
1/8	1/8	1/2	2	600820	\$18.31	600830	600840	600850	600860						\$21.26	600920	\$23.07
3/16	3/16	5/16	2	600980	\$19.10	600990	601000	601010	601020						\$22.25	601080	\$24.21
3/16	3/16	3/4	2-1/2	601300	\$21.07	601310	601320	601330	601340						\$24.21	601400	\$26.19
1/4	1/4	3/8	2	601460	\$21.06	601470	601480	601490	601500	601510					\$24.82	601560	\$27.06
1/4	1/4	1/2	2-1/2	601620	\$23.44	601630	601640	601650	601660	601670					\$27.20	601720	\$29.43
1/4	1/4	5/8	2-1/2	601780	\$23.44	601790	601800	601810	601820	601830					\$27.20	601880	\$29.43
1/4	1/4	3/4	2-1/2	601940	\$24.06	601950	601960	601970	601980	601990					\$27.81	602040	\$30.05
1/4	1/4	1	3	602100	\$31.87	602110	602120	602130	602140	602150					\$35.64	602200	\$37.87
5/16	5/16	13/16	2-1/2	602580	\$29.54	602590	602600	602610	602620	602630					\$33.82	602680	\$36.29
5/16	5/16	1	3	602740	\$36.54	602750	602760	602770	602780	602790					\$40.82	602840	\$43.29
3/8	3/8	1/2	2	602900	\$29.15	602910	602920	602930	602940	602950		602970			\$34.16	603000	\$36.92
3/8	3/8	1	3	603060	\$37.30	603070	603080	603090	603100	603110		603130			\$42.30	603160	\$45.07
3/8	3/8	1-1/4	3	603220	\$39.19	603230	603240	603250	603260	603270		603290			\$44.19	603320	\$46.96
3/8	3/8	1-1/2	3-1/2	603380	\$55.63	603390	603400	603410	603420	603430		603450			\$60.64	603480	\$63.40
3/8	3/8	2	4	603540	\$58.40	603550	603560	603570	603580	603590		603610			\$63.40	603640	\$66.16
1/2	1/2	5/8	2-1/2	603700	\$44.06	603710	603720	603730	603740	603750	603760	603770			\$49.68	603800	\$52.80
1/2	1/2	1	3	603860	\$48.91	603870	603880	603890	603900	603910	603920	603930			\$54.54	603960	\$57.67
1/2	1/2	1-1/4	3	604020	\$51.84	604030	604040	604050	604060	604070	604080	604090			\$57.47	604120	\$60.60
1/2	1/2	1-5/8	4	604180	\$64.45	604190	604200	604210	604220	604230	604240	604250			\$70.08	604280	\$71.11
1/2	1/2	2	4	604340	\$73.56	604350	604360	604370	604380	604390	604400	604410			\$79.18	604440	\$82.31
1/2	1/2	2-1/2	5	604500	\$83.74	604510	604520	604530	604540	604550	604560	604570			\$89.36	604600	\$92.48
5/8	5/8	3/4	3	604820	\$88.89		604830		604840	604850	604860	604870			\$95.60	604920	\$99.15
5/8	5/8	1-1/4	3-1/2	604980	\$90.98		604990		605000	605010	605020	605030			\$97.69	605080	\$101.30
5/8	5/8	1-5/8	3-1/2	605140	\$93.10		605150		605170	605180	605190	605200			\$99.81	605240	\$103.43
3/4	3/4	1	4	605780	\$137.71		605790		605800	605810	605820	605830	605840	605850	\$145.50	605880	\$149.59
3/4	3/4	1 5/8	4	605940	\$149.06		605950		605960	605970	605980	605990	606000	606010	\$156.85	606040	\$160.94
3/4	3/4	2-1/4	5	606100	\$173.27		606110		606115	606120	606130	606140	606150	606160	\$181.06	606200	\$185.17
3/4	3/4	3-1/4	6	606260	\$202.78		606270		606280	606290	606300	606310	606320	606330	\$210.57	606360	\$214.67
1	1	1-1/4	4	607060	\$207.17				607080	607090	607100	607110	607120	607130	\$216.37	607160	\$221.29
1	1	2	5	607220	\$245.40				607240	607250	607260	607270	607280	607290	\$254.64	607320	\$259.53
1	1	3-1/4	6	607380	\$298.75				607400	607410	607420	607430	607440	607450	\$307.99	607480	\$312.88



3 FLUTE • 39° HELIX - REDUCED NECK

Series: **MAL3-RN**

- End geometry designed for aggressive ramping
- Polish grinds produce superior surface finishes on both walls and floor
- Reduced Neck designed for deep pocketing and long reach applications
- Polished flute face optimizes chip evacuation and avoids chip nesting
- Bright finish is ideal for aluminum finishing applications
- h6 Tolerance on DIA & SHK



DIA	SHK	LOC	LBS	OAL	SQ	SQ \$	R.015	R.030	R.060	R.120	RAD \$	Ball	Ball \$
1/8	1/8	1/4	3/4	3	110800	\$20.64	110810	110820			\$23.58	110825	\$25.40
1/8	1/8	1/4	1	3	110830	\$21.21	110840	110850			\$24.15	110855	\$25.96
3/16	3/16	5/16	3/4	3	110860	\$21.80	110870	110880			\$24.95	110885	\$26.91
3/16	3/16	5/16	1	3	110900	\$22.35	110910	110920			\$25.50	110925	\$27.48
1/4	1/4	1/2	1	3	110930	\$24.95	110940	110950	110960		\$28.71	110965	\$30.94
1/4	1/4	1/2	1-1/2	3	110970	\$26.08	110980	110990	111000		\$29.84	111005	\$32.08
1/4	1/4	1/2	2	4	111010	\$29.90	111020	111030	111040		\$33.66	111045	\$35.90
1/4	1/4	1/2		4	111050	\$23.59	111060	111070	111080		\$27.37	111085	\$29.61
3/8	3/8	3/4	1-1/4	3	111090	\$35.24	111100	111110	111120	111130	\$40.24	111135	\$43.00
3/8	3/8	3/4	1-1/2	4	111140	\$41.53	111150	111160	111170	111180	\$46.53	111185	\$49.29
3/8	3/8	3/4	2	4	111190	\$42.55	111200	111210	111220	111230	\$47.54	111235	\$50.31
3/8	3/8	3/4	3	5	111240	\$48.65	111250	111260	111270	111280	\$53.66	111285	\$56.42
3/8	3/8	3/4		5	111290	\$40.14	111300	111310	111320	111330	\$45.14	111335	\$47.91
1/2	1/2	1	1-1/2	4	111340	\$59.43		111350	111360	111370	\$65.06	111375	\$68.20
1/2	1/2	1	2	4	111380	\$60.53		111390	111400	111410	\$66.16	111415	\$69.30
1/2	1/2	1	3	5	111420	\$74.03		111430	111440	111450	\$79.66	111455	\$82.79
1/2	1/2	1	4	6	111460	\$82.98		111470	111480	111490	\$88.61	111495	\$91.74
1/2	1/2	1		6	111500	\$70.71		111510	111520	111530	\$76.32	111535	\$79.45
5/8	5/8	1-1/4	2	4	111540	\$95.73		111550	111560	111570	\$102.45	111575	\$106.05
5/8	5/8	1-1/4	3	5	111580	\$113.27		111590	111600	111610	\$119.99	111615	\$123.60
5/8	5/8	1-1/4	4	6	111620	\$128.05		111630	111640	111650	\$134.76	111655	\$138.37
5/8	5/8	1-1/4		6	111660	\$114.56		111670	111680	111690	\$121.28	111695	\$124.88
3/4	3/4	1-3/8	2	4	111700	\$146.50		111710	111720	111730	\$154.29	111735	\$158.39
3/4	3/4	1-3/8	3	5	111740	\$173.52		111750	111760	111770	\$181.31	111775	\$185.41
3/4	3/4	1-3/8	4	6	111780	\$194.55		111790	111800	111810	\$202.35	111815	\$206.45
3/4	3/4	1-3/8		6	111820	\$180.18		111830	111840	111850	\$187.97	111855	\$192.07
1	1	1-1/2	2	4	111860	\$193.42		111870	111880	111890	\$202.65	111895	\$207.55
1	1	1-1/2	3	5	111900	\$235.35		111910	111920	111930	\$244.58	111935	\$249.47
1	1	1-1/2	4	6	111940	\$268.94		111950	111960	111970	\$278.17	111975	\$283.06
1	1	1-1/2		6	111980	\$252.78		111990	112000	112010	\$262.02	112015	\$266.91

No LBS Listed* - These tools are designed with long overall lengths for adding a custom LBS. They are not delivered with a reduced neck

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ORDER TODAY: 888.857.6835

■ ZrN Coating ■ ZrN Coating ■ ZrN Coating ■ ZrN Coating ■ ZrN Coating

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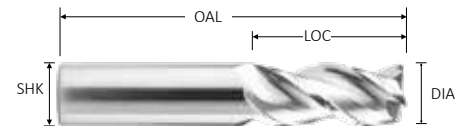
3 FLUTE • 39° HELIX • CHIPBREAKER

Series: **MAL3CB**



CHIP BREAKER

- End geometry designed for aggressive ramping
- Polish grinds produce superior surface finishes on both walls and floor
- Polished flute face optimizes chip evacuation and avoids chip nesting
- Bright finish is ideal for aluminum finishing applications
- h6 Tolerance on DIA & SHK
- Aggressive Chip Breaker to avoid chip build up and nesting



Carbide	3	Center Cutting	39°	BRIGHT	h6	Square	Radius	Ball									
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DIA	SHK	LOC	OAL	SQ	SQ \$	R.010	R.015	R.020	R.030	R.060	R.090	R.120	R.190	R.250	Rad \$	Ball	Ball \$
1/4	1/4	3/8	2	101460B	\$22.50	101470B	101480B	101490B	101500B	101510B					\$26.26	101560B	\$28.50
1/4	1/4	1/2	2-1/2	101620B	\$23.60	101630B	101640B	101650B	101660B	101670B					\$27.37	101720B	\$29.61
1/4	1/4	5/8	2-1/2	101780B	\$23.60	101790B	101800B	101810B	101820B	101830B					\$27.37	101880B	\$29.61
1/4	1/4	3/4	2-1/2	101940B	\$24.22	101950B	101960B	101970B	101980B	101990B					\$27.99	102040B	\$30.23
1/4	1/4	1	3	102100B	\$32.05	102110B	102120B	102130B	102140B	102150B					\$35.81	102200B	\$38.04
5/16	5/16	13/16	2-1/2	102580B	\$27.97	102590B	102600B	102610B	102620B	102630B					\$32.26	102680B	\$34.72
5/16	5/16	1	3	102740B	\$34.98	102750B	102760B	102770B	102780B	102790B					\$39.26	102840B	\$41.73
3/8	3/8	1/2	2	102900B	\$29.49	102910B	102920B	102930B	102940B	102950B		102970B			\$34.50	103000B	\$37.26
3/8	3/8	1	3	103060B	\$35.73	103070B	103080B	103090B	103100B	103110B		103130B			\$40.74	103160B	\$43.50
3/8	3/8	1-1/4	3	103220B	\$37.62	103230B	103240B	103250B	103260B	103270B		103290B			\$42.63	103320B	\$45.39
3/8	3/8	1-1/2	3-1/2	103380B	\$52.15	103390B	103400B	103410B	103420B	103430B		103450B			\$57.16	103480B	\$59.92
3/8	3/8	2	4	103540B	\$54.93	103550B	103560B	103570B	103580B	103590B		103610B			\$59.93	103640B	\$62.70
1/2	1/2	5/8	2-1/2	103700B	\$42.88	103710B	103720B	103730B	103740B	103750B	103760B	103770B			\$48.51	103800B	\$51.64
1/2	1/2	1	3	103860B	\$47.74	103870B	103880B	103890B	103900B	103910B	103920B	103930B			\$53.37	103960B	\$56.50
1/2	1/2	1-1/4	3	104020B	\$50.67	104030B	104040B	104050B	104060B	104070B	104080B	104090B			\$56.29	104120B	\$59.42
1/2	1/2	1-5/8	4	104180B	\$61.12	104190B	104200B	104210B	104220B	104230B	104240B	104250B			\$66.75	104280B	\$69.88
1/2	1/2	2	4	104340B	\$70.23	104350B	104360B	104370B	104380B	104390B	104400B	104410B			\$75.85	104440B	\$78.99
1/2	1/2	2-1/2	5	104500B	\$78.26	104510B	104520B	104530B	104540B	104550B	104560B	104570B			\$83.88	104600B	\$87.01
5/8	5/8	3/4	3	104820B	\$83.48		104830B		104840B	104850B	104860B	104870B			\$90.18	104920B	\$93.80
5/8	5/8	1-1/4	3-1/2	104980B	\$85.61		104990B		105000B	105010B	105020B	105030B			\$92.32	105080B	\$95.93
5/8	5/8	1-5/8	3-1/2	105140B	\$87.69		105150B		105170B	105180B	105190B	105200B			\$94.40	105240B	\$98.01
3/4	3/4	1	4	105780B	\$134.54		105790B		105800B	105810B	105820B	105830B	105840B	105850B	\$142.33	105880B	\$146.43
3/4	3/4	1-5/8	4	105940B	\$145.89		105950B		105960B	105970B	105980B	105990B	106000B	106010B	\$153.68	106040B	\$157.78
3/4	3/4	2-1/4	5	106100B	\$167.01		106110B		106115B	106120B	106130B	106140B	106150B	106160B	\$174.80	106200B	\$178.90
3/4	3/4	3-1/4	6	106260B	\$193.44		106270B		106280B	106290B	106300B	106310B	106320B	106330B	\$201.23	106360B	\$205.34
1	1	1-1/4	4	107060B	\$192.02				107080B	107090B	107100B	107110B	107120B	107130B	\$201.26	107160B	\$206.16
1	1	2	5	107220B	\$225.32				107240B	107250B	107260B	107270B	107280B	107290B	\$234.55	107320B	\$239.44
1	1	3-1/4	6	107380B	\$273.05				107400B	107410B	107420B	107430B	107440B	107450B	\$282.28	107480B	\$287.19



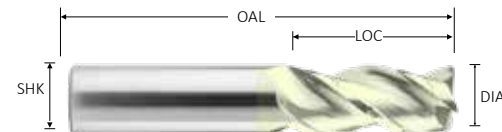
3 FLUTE • 39° HELIX • CHIPBREAKER

Series: **MAL3CB**



CHIP BREAKER

- End geometry designed for aggressive ramping
- Polish grinds produce superior surface finishes on both walls and floor
- Polished flute face optimizes chip evacuation and avoids chip nesting
- ZrN Coating maximizes performance in Non-Ferrous Materials
- h6 Tolerance on DIA & SHK
- Aggressive Chip Breaker to avoid chip build up and nesting



DIA	SHK	LOC	OAL	SQ	SQ \$	R.010	R.015	R.020	R.030	R.060	R.090	R.120	R.190	R.250	Rad \$	Ball	Ball \$
1/4	1/4	3/8	2	601460B	\$25.02	601470B	601480B	601490B	601500B	601510B					\$28.79	601560B	\$31.03
1/4	1/4	1/2	2 1/2	601620B	\$27.39	601630B	601640B	601650B	601660B	601670B					\$31.16	601720B	\$33.40
1/4	1/4	5/8	2 1/2	601780B	\$27.39	601790B	601800B	601810B	601820B	601830B					\$31.16	601880B	\$33.40
1/4	1/4	3/4	2 1/2	601940B	\$28.01	601950B	601960B	601970B	601980B	601990B					\$31.78	602040B	\$34.02
1/4	1/4	1	3	602100B	\$35.84	602110B	602120B	602130B	602140B	602150B					\$39.60	602200B	\$41.83
5/16	5/16	13/16	2 1/2	602580B	\$33.71	602590B	602600B	602610B	602620B	602630B					\$37.99	602680B	\$40.46
5/16	5/16	1	3	602740B	\$40.71	602750B	602760B	602770B	602780B	602790B					\$44.99	602840B	\$47.46
3/8	3/8	1/2	2	602900B	\$33.33	602910B	602920B	602930B	602940B	602950B		602970B			\$38.33	603000B	\$41.09
3/8	3/8	1	3	603060B	\$41.46	603070B	603080B	603090B	603100B	603110B		603130B			\$46.47	603160B	\$49.23
3/8	3/8	1 1/4	3	603220B	\$43.35	603230B	603240B	603250B	603260B	603270B		603290B			\$48.36	603320B	\$51.12
3/8	3/8	1 1/2	3 1/2	603380B	\$59.80	603390B	603400B	603410B	603420B	603430B		603450B			\$64.81	603480B	\$67.57
3/8	3/8	2	4	603540B	\$62.57	603550B	603560B	603570B	603580B	603590B		603610B			\$67.58	603640B	\$70.34
1/2	1/2	5/8	2 1/2	603700B	\$49.34	603710B	603720B	603730B	603740B	603750B	603760B	603770B			\$54.97	603800B	\$58.10
1/2	1/2	1	3	603860B	\$54.20	603870B	603880B	603890B	603900B	603910B	603920B	603930B			\$59.83	603960B	\$62.96
1/2	1/2	1 1/4	3	604020B	\$57.13	604030B	604040B	604050B	604060B	604070B	604080B	604090B			\$62.75	604120B	\$65.88
1/2	1/2	1 5/8	4	604180B	\$69.74	604190B	604200B	604210B	604220B	604230B	604240B	604250B			\$75.37	604280B	\$78.50
1/2	1/2	2	4	604340B	\$78.84	604350B	604360B	604370B	604380B	604390B	604400B	604410B			\$84.47	604440B	\$87.60
1/2	1/2	2 1/2	5	604500B	\$89.02	604510B	604520B	604530B	604540B	604550B	604560B	604570B			\$94.65	604600B	\$97.78
5/8	5/8	3/4	3	604820B	\$95.13		604830B		604840B	604850B	604860B	604870B			\$101.84	604920B	\$105.45
5/8	5/8	1-1/4	3-1/2	604980B	\$97.22		604990B		605000B	605010B	605020B	605030B			\$103.93	605080B	\$107.54
5/8	5/8	1 5/8	3 1/2	605140B	\$99.34		605150B		605170B	605180B	605190B	605200B			\$106.05	605240B	\$109.66
3/4	3/4	1	4	605780B	\$146.95		605790B		605800B	605810B	605820B	605830B	605840B	605850B	\$154.74	605880B	\$158.84
3/4	3/4	1 5/8	4	605940B	\$158.30		605950B		605960B	605970B	605980B	605990B	606000B	606010B	\$166.09	606040B	\$170.19
3/4	3/4	2 1/4	5	606100B	\$182.51		606110B		606115B	606120B	606130B	606140B	606150B	606160B	\$190.30	606200B	\$194.41
3/4	3/4	3 1/4	6	606260B	\$212.02		606270B		606280B	606290B	606300B	606310B	606320B	606330B	\$219.81	606360B	\$223.91
1	1	1-1/4	4	607060B	\$217.39				607080B	607090B	607100B	607110B	607120B	607130B	\$226.63	607160B	\$231.53
1	1	2	5	607220B	\$255.63				607240B	607250B	607260B	607270B	607280B	607290B	\$264.86	607320B	\$269.76
1	1	3 1/4	6	607380B	\$308.98				607400B	607410B	607420B	607430B	607440B	607450B	\$318.21	607480B	\$323.11



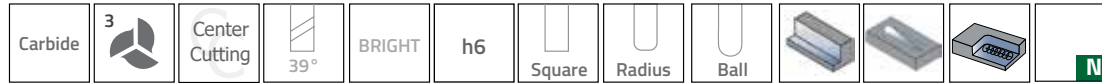
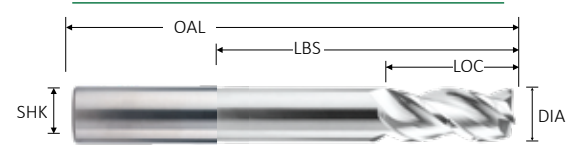
3 FLUTE • 39° HELIX - REDUCED NECK • CHIPBREAKER

Series: **MAL3CB-RN**



CHIP BREAKER

- End geometry designed for aggressive ramping
- Polish grinds produce superior surface finishes on both walls and floor
- Reduced Neck designed for deep pocketing and long reach applications
- Polished flute face optimizes chip evacuation and avoids chip nesting
- Bright finish is ideal for aluminum finishing applications
- h6 Tolerance on DIA & SHK



DIA	SHK	LOC	LBS	OAL	SQ	SQ \$	R.015	R.030	R.060	R.120	RAD \$	Ball	Ball \$
1/8	1/8	1/4	3/4	3	110800B	\$20.64	110810B	110820B			\$23.58	110825B	\$25.40
1/8	1/8	1/4	1	3	110830B	\$21.21	110840B	110850B			\$24.15	110855B	\$25.96
3/16	3/16	5/16	3/4	3	110860B	\$21.80	110870B	110880B			\$24.95	110885B	\$26.91
3/16	3/16	5/16	1	3	110900B	\$22.35	110910B	110920B			\$25.50	110925B	\$27.48
1/4	1/4	1/2	1	3	110930B	\$24.95	110940B	110950B	110960B		\$28.71	110965B	\$30.94
1/4	1/4	1/2	1-1/2	3	110970B	\$26.08	110980B	110990B	111000B		\$29.84	111005B	\$32.08
1/4	1/4	1/2	2	4	111010B	\$29.90	111020B	111030B	111040B		\$33.66	111045B	\$35.90
1/4	1/4	1/2		4	111050B	\$23.59	111060B	111070B	111080B		\$27.37	111085B	\$29.61
3/8	3/8	3/4	1-1/4	3	111090B	\$35.24	111100B	111110B	111120B	111130B	\$40.24	111135B	\$43.00
3/8	3/8	3/4	1-1/2	4	111140B	\$41.53	111150B	111160B	111170B	111180B	\$46.53	111185B	\$49.29
3/8	3/8	3/4	2	4	111190B	\$42.55	111200B	111210B	111220B	111230B	\$47.54	111235B	\$50.31
3/8	3/8	3/4	3	5	111240B	\$48.65	111250B	111260B	111270B	111280B	\$53.66	111285B	\$56.42
3/8	3/8	3/4		5	111290B	\$40.14	111300B	111310B	111320B	111330B	\$45.14	111335B	\$47.91
1/2	1/2	1	1-1/2	4	111340B	\$59.43		111350B	111360B	111370B	\$65.06	111375B	\$68.20
1/2	1/2	1	2	4	111380B	\$60.53		111390B	111400B	111410B	\$66.16	111415B	\$69.30
1/2	1/2	1	3	5	111420B	\$74.03		111430B	111440B	111450B	\$79.66	111455B	\$82.79
1/2	1/2	1	4	6	111460B	\$82.98		111470B	111480B	111490B	\$88.61	111495B	\$91.74
1/2	1/2	1		6	111500B	\$70.71		111510B	111520B	111530B	\$76.32	111535B	\$79.45
5/8	5/8	1-1/4	2	4	111540B	\$95.73		111550B	111560B	111570B	\$102.45	111575B	\$106.05
5/8	5/8	1-1/4	3	5	111580B	\$113.27		111590B	111600B	111610B	\$119.99	111615B	\$123.60
5/8	5/8	1-1/4	4	6	111620B	\$128.05		111630B	111640B	111650B	\$134.76	111655B	\$138.37
5/8	5/8	1-1/4		6	111660B	\$114.56		111670B	111680B	111690B	\$121.28	111695B	\$124.88
3/4	3/4	1-3/8	2	4	111700B	\$146.50		111710B	111720B	111730B	\$154.29	111735B	\$158.39
3/4	3/4	1-3/8	3	5	111740B	\$173.52		111750B	111760B	111770B	\$181.31	111775B	\$185.41
3/4	3/4	1-3/8	4	6	111780B	\$194.55		111790B	111800B	111810B	\$202.35	111815B	\$206.45
3/4	3/4	1-3/8		6	111820B	\$180.18		111830B	111840B	111850B	\$187.97	111855B	\$192.07
1	1	1-1/2	2	4	111860B	\$193.42		111870B	111880B	111890B	\$202.65	111895B	\$207.55
1	1	1-1/2	3	5	111900B	\$235.35		111910B	111920B	111930B	\$244.58	111935B	\$249.47
1	1	1-1/2	4	6	111940B	\$268.94		111950B	111960B	111970B	\$278.17	111975B	\$283.06
1	1	1-1/2		6	111980B	\$252.78		111990B	112000B	112010B	\$262.02	112015B	\$266.91

No LBS Listed* - These tools are designed with long overall lengths for adding a custom LBS. They are not delivered with a reduced neck



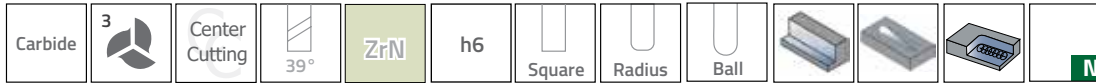
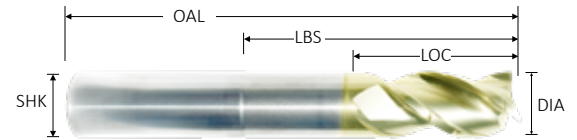
3 FLUTE • 39° HELIX - REDUCED NECK • CHIPBREAKER

Series: **MAL3CB-RN**



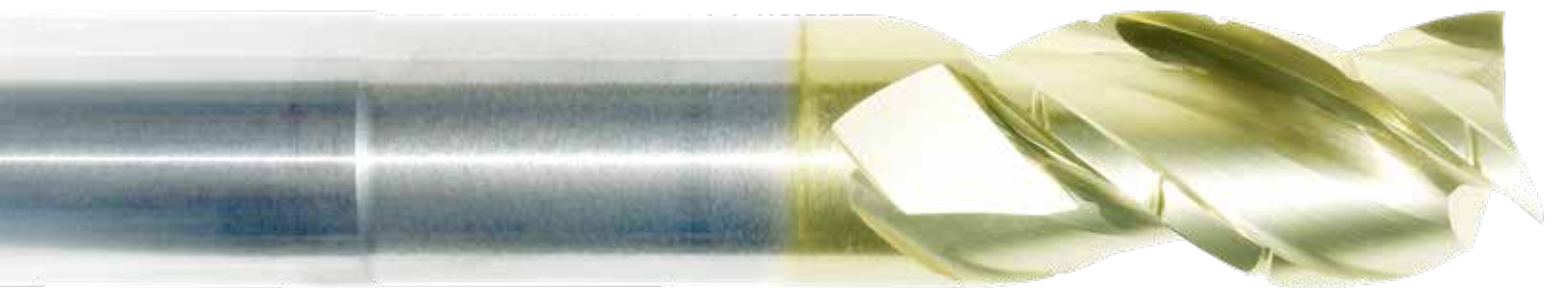
CHIP BREAKER

- End geometry designed for aggressive ramping
- Polish grinds produce superior surface finishes on both walls and floor
- Reduced Neck designed for deep pocketing and long reach applications
- Polished flute face optimizes chip evacuation and avoids chip nesting
- ZrN Coating maximizes performance in Non-Ferrous Materials
- h6 Tolerance on DIA & SHK



DIA	SHK	LOC	LBS	OAL	SQ	SQ \$	R.015	R.030	R.060	R.120	RAD \$	Ball	Ball \$
1/8	1/8	1/4	3/4	3	610800B	\$22.65	610810B	610820B			\$25.59	610825B	\$27.39
1/8	1/8	1/4	1	3	610830B	\$23.21	610840B	610850B			\$26.15	610855B	\$27.96
3/16	3/16	5/16	3/4	3	610860B	\$24.84	610870B	610880B			\$27.98	610885B	\$29.96
3/16	3/16	5/16	1	3	610900B	\$25.40	610910B	610920B			\$28.55	610925B	\$30.52
1/4	1/4	1/2	1	3	610930B	\$28.74	610940B	610950B	610960B		\$32.51	610965B	\$34.74
1/4	1/4	1/2	1-1/2	3	610970B	\$29.87	610980B	610990B	611000B		\$33.63	611005B	\$35.87
1/4	1/4	1/2	2	4	611010B	\$34.94	611020B	611030B	611040B		\$38.71	611045B	\$40.95
1/4	1/4	1/2		4	611050B	\$28.64	611060B	611070B	611080B		\$32.41	611085B	\$34.65
3/8	3/8	3/4	1-1/4	3	611090B	\$39.06	611100B	611110B	611120B	611130B	\$44.07	611135B	\$46.83
3/8	3/8	3/4	1-1/2	4	611140B	\$46.61	611150B	611160B	611170B	611180B	\$51.62	611185B	\$54.38
3/8	3/8	3/4	2	4	611190B	\$47.63	611200B	611210B	611220B	611230B	\$52.64	611235B	\$55.40
3/8	3/8	3/4	3	5	611240B	\$54.77	611250B	611260B	611270B	611280B	\$59.78	611285B	\$62.54
3/8	3/8	3/4		5	611290B	\$46.26	611300B	611310B	611320B	611330B	\$51.27	611335B	\$54.03
1/2	1/2	1	1-1/2	4	611340B	\$67.52		611350B	611360B	611370B	\$73.13	611375B	\$76.26
1/2	1/2	1	2	4	611380B	\$68.62		611390B	611400B	611410B	\$74.24	611415B	\$77.36
1/2	1/2	1	3	5	611420B	\$83.73		611430B	611440B	611450B	\$89.34	611455B	\$92.48
1/2	1/2	1	4	6	611460B	\$94.29		611470B	611480B	611490B	\$99.91	611495B	\$103.04
1/2	1/2	1		6	611500B	\$82.01		611510B	611520B	611530B	\$87.62	611535B	\$90.75
5/8	5/8	1-1/4	2	4	611540B	\$107.34		611550B	611560B	611570B	\$114.05	611575B	\$117.66
5/8	5/8	1-1/4	3	5	611580B	\$127.80		611590B	611600B	611610B	\$134.51	611615B	\$138.12
5/8	5/8	1-1/4	4	6	611620B	\$145.47		611630B	611640B	611650B	\$152.17	611655B	\$155.78
5/8	5/8	1-1/4		6	611660B	\$131.97		611670B	611680B	611690B	\$138.68	611695B	\$142.30
3/4	3/4	1-3/8	2	4	611700B	\$158.91		611710B	611720B	611730B	\$166.70	611735B	\$170.80
3/4	3/4	1-3/8	3	5	611740B	\$188.42		611750B	611760B	611770B	\$196.21	611775B	\$200.31
3/4	3/4	1-3/8	4	6	611780B	\$211.92		611790B	611800B	611810B	\$219.71	611815B	\$223.82
3/4	3/4	1-3/8		6	611820B	\$197.55		611830B	611840B	611850B	\$205.34	611855B	\$209.44
1	1	1-1/2	2	4	611860B	\$218.79		611870B	611880B	611890B	\$228.03	611895B	\$232.92
1	1	1-1/2	3	5	611900B	\$265.80		611910B	611920B	611930B	\$275.03	611935B	\$279.92
1	1	1-1/2	4	6	611940B	\$304.45		611950B	611960B	611970B	\$313.69	611975B	\$318.58
1	1	1-1/2		6	611980B	\$288.30		611990B	612000B	612010B	\$297.54	612015B	\$302.43

No LBS Listed* - These tools are designed with long overall lengths for adding a custom LBS. They are not delivered with a reduced neck



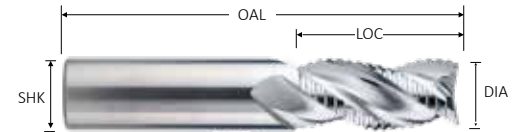
3 FLUTE • ROUGHER FOR HIGH VELOCITY MACHINING

Series: **MAL3R**



- › End geometry designed for aggressive ramping
- › Unique geometry reduces cutting pressures and vibration at high feed rates
- › Polished flute face optimizes chip evacuation and avoids chip nesting
- › h6 Tolerance on DIA & SHK
- › Knuckles shorten chip length aiding in chip evacuation

ROUGHER



Carbide	3	Center Cutting	39°	BRIGHT	h6	Radius					N
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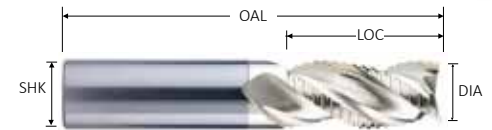
DIA	SHK	LOC	OAL	R.030	R.060	R.120	Rad \$
1/4	1/4	3/4	2-1/2	110000			\$33.24
1/4	1/4	1	3	110050			\$41.50
3/8	3/8	1/2	2	110100			\$39.53
3/8	3/8	1	3	110150			\$46.63
1/2	1/2	5/8	2-1/2	110200	110210	110220	\$54.87
1/2	1/2	1	3	110250	110260	110270	\$60.38
1/2	1/2	1-1/4	3	110300	110310	110320	\$63.74
1/2	1/2	2	4	110350	110360	110370	\$84.59
5/8	5/8	3/4	3	110400	110410	110420	\$97.70
5/8	5/8	1-1/4	3-1/2	110450	110460	110470	\$100.70
3/4	3/4	1-5/8	4	110500	110510	110520	\$165.72
3/4	3/4	2-1/4	5	110550	110560	110570	\$187.92
1	1	1-1/4	4	110600	110610	110620	\$213.64
1	1	2	5	110650	110660	110670	\$248.22

3 FLUTE • ROUGHER FOR HIGH VELOCITY MACHINING



- › End geometry designed for aggressive ramping
- › Unique geometry reduces cutting pressures and vibration at high feed rates
- › Polished flute face optimizes chip evacuation and avoids chip nesting
- › h6 Tolerance on DIA & SHK
- › Knuckles shorten chip length aiding in chip evacuation
- › ZrN Coating maximizes performance in Non-Ferrous Materials

ROUGHER



Carbide	3	Center Cutting	39°	ZrN	h6	Radius					N
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DIA	SHK	LOC	OAL	R.030	R.060	R.120	Rad \$
1/4	1/4	3/4	2-1/2	610000			\$37.03
1/4	1/4	1	3	610050			\$45.29
3/8	3/8	1/2	2	610100			\$43.35
3/8	3/8	1	3	610150			\$52.36
1/2	1/2	5/8	2-1/2	610200	610210	610220	\$61.33
1/2	1/2	1	3	610250	610260	610270	\$66.83
1/2	1/2	1 1/4	3	610300	610310	610320	\$70.19
1/2	1/2	2	4	610350	610360	610370	\$93.20
5/8	5/8	3/4	3	610400	610410	610420	\$109.36
5/8	5/8	1-1/4	3-1/2	610450	610460	610470	\$112.31
3/4	3/4	1-5/8	4	610500	610510	610520	\$178.13
3/4	3/4	2-1/4	5	610550	610560	610570	\$203.45
1	1	1-1/4	4	610600	610610	610620	\$239.01
1	1	2	5	610650	610660	610670	\$278.53

ZrN Coating ■ ZrN Coating ■ ZrN Coating

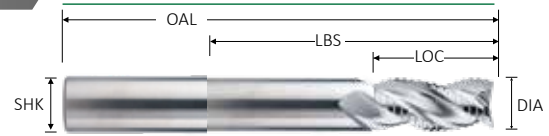
3 FLUTE • REDUCED NECK ROUGHER - HIGH VELOCITY MACHINING

Series: **MAL3R-RN**



ROUGHER

- ▶ End geometry designed for aggressive ramping
- ▶ Unique geometry reduces cutting pressures and vibration at high feed rates
- ▶ Reduced Neck designed for deep pocketing and long reach applications
- ▶ Polished flute face optimizes chip evacuation and avoids chip nesting
- ▶ h6 Tolerance on DIA & SHK
- ▶ Knuckles shorten chip length aiding in chip evacuation



DIA	SHK	LOC	LBS	OAL	R.030	R.060	R.120	RAD \$
1/2	1/2	1	2	4	113390	113400	113410	\$77.82
1/2	1/2	1	3	5	113430	113440	113450	\$91.31
1/2	1/2	1	4	6	113470	113480	113490	\$100.26
3/4	3/4	1-3/8	3	5	113750	113760	113770	\$202.60
3/4	3/4	1-3/8	4	6	113790	113800	113810	\$223.63
3/4	3/4	1-3/8		6	113830	113840	113850	\$209.25
1	1	1-1/2	3	5	113910	113920	113930	\$266.94
1	1	1-1/2	4	6	113950	113960	113970	\$300.53
1	1	1-1/2		6	113990	114000	114010	\$284.38

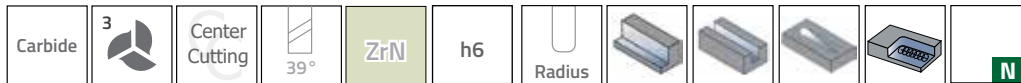
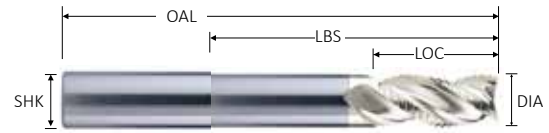
No LBS Listed* - These tools are designed with long overall lengths for adding a custom LBS. They are not delivered with a reduced neck

3 FLUTE • REDUCED NECK ROUGHER - HIGH VELOCITY MACHINING



ROUGHER

- ▶ End geometry designed for aggressive ramping
- ▶ Unique geometry reduces cutting pressures and vibration at high feed rates
- ▶ Reduced Neck designed for deep pocketing and long reach applications
- ▶ Polished flute face optimizes chip evacuation and avoids chip nesting
- ▶ h6 Tolerance on DIA & SHK
- ▶ Knuckles shorten chip length aiding in chip evacuation
- ▶ ZrN Coating maximizes performance in Non-Ferrous Materials



DIA	SHK	LOC	LBS	OAL	R.030	R.060	R.120	RAD \$
1/2	1/2	1	2	4	613390	613400	613410	\$85.16
1/2	1/2	1	3	5	613430	613440	613450	\$101.00
1/2	1/2	1	4	6	613470	613480	613490	\$111.56
3/4	3/4	1-3/8	3	5	613750	613760	613770	\$217.49
3/4	3/4	1-3/8	4	6	613790	613800	613810	\$241.00
3/4	3/4	1-3/8		6	613830	613840	613850	\$226.62
1	1	1-1/2	3	5	613910	613920	613930	\$297.39
1	1	1-1/2	4	6	613950	613960	613970	\$336.04
1	1	1-1/2		6	613990	614000	614010	\$319.89

No LBS Listed* - These tools are designed with long overall lengths for adding a custom LBS. They are not delivered with a reduced neck

SPEED & FEED INFORMATION

SPEED & FEEDS FOR SERIES: MAL3

DESCRIPTION: 3 FLUTE - 39° HELIX ALUMINUM ALLOY

Notes

Note: All technical data provided are suggested starting points. They may be increase or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE Team with questions

Material Guide			Condition	SFM	CHIP PER TOOTH								
					1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
ISO-N	Wrought Aluminum Alloys	6061-T6/T651, 7075-T6, 2024-T4/T6, 2014	Slotting	1800	0.0012	0.0018	0.0020	0.0024	0.0032	0.0041	0.0040	0.0048	0.0082
			≤ 65% Dia. Profiling	2400	0.0015	0.0024	0.0032	0.0048	0.0047	0.0056	0.0080	0.0096	0.0112
	Cast Aluminum Alloys	319, 328, 360, 383	Slotting	900	0.0012	0.0018	0.0022	0.0024	0.0034	0.0045	0.0040	0.0048	0.0090
			≤ 65% Dia. Profiling	1200	0.0015	0.0024	0.0028	0.0048	0.0043	0.0055	0.0080	0.0096	0.0110
	Copper	Red Brass, High Lead Brass, Yellow Brass, C-17200, Navel Brass, A-17, High Silicon Bronze	Slotting	475	0.0008	0.0008	0.0016	0.0020	0.0024	0.0030	0.0032	0.0032	0.0060
			≤ 65% Dia. Profiling	625	0.0011	0.0011	0.0022	0.0028	0.0033	0.0040	0.0045	0.0045	0.0080
	Copper Alloys	Low Silicon Bronze, Alum/Bronze, Beryllium Copper, Nickel Silver, Oxygen-Free Copper	Slotting	425	0.0008	0.0008	0.0016	0.0020	0.0024	0.0030	0.0032	0.0032	0.0060
			≤ 65% Dia. Profiling	600	0.0011	0.0011	0.0022	0.0028	0.0033	0.0040	0.0045	0.0045	0.0080
	Magnesium		Slotting	1400	0.0012	0.0018	0.0020	0.0024	0.0032	0.0042	0.0048	0.0064	0.0084
			≤ 65% Dia. Profiling	1600	0.0015	0.0024	0.0032	0.0048	0.0047	0.0056	0.0080	0.0096	0.0112
	Plastics	Acrylics, Polycarbonate, Phenolics	Slotting	600	0.0020	0.0024	0.0032	0.0048	0.0052	0.0056	0.0080	0.0096	0.0112
			≤ 15% Dia. Profiling	800	0.0008	0.0016	0.0024	0.0032	0.0032	0.0060	0.0064	0.0080	0.0120

SPEED & FEEDS FOR SERIES: MAL3R

DESCRIPTION: 3 FLUTE - 39° HELIX ALUMINUM ALLOY - ROUGHER

Material Guide			Condition	SFM	CHIP PER TOOTH								
					1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
ISO-N	Wrought Aluminum Alloys	6061-T6/T651, 7075-T6, 2024-T4/T6, 2014	Slotting	1800	0.0012	0.0018	0.0020	0.0024	0.0032	0.0041	0.0040	0.0048	0.0082
			≤ 75% Dia. Profiling	2400	0.0015	0.0024	0.0032	0.0048	0.0047	0.0056	0.0080	0.0096	0.0112
	Cast Aluminum Alloys	319, 328, 360, 383	Slotting	900	0.0012	0.0018	0.0022	0.0024	0.0034	0.0045	0.0040	0.0048	0.0090
			≤ 75% Dia. Profiling	1200	0.0015	0.0024	0.0028	0.0048	0.0043	0.0055	0.0080	0.0096	0.0110
	Copper	Red Brass, High Lead Brass, Yellow Brass, C-17200, Navel Brass, A-17, High Silicon Bronze	Slotting	475	0.0008	0.0008	0.0016	0.0020	0.0024	0.0030	0.0032	0.0032	0.0060
			≤ 75% Dia. Profiling	625	0.0011	0.0011	0.0022	0.0028	0.0033	0.0040	0.0045	0.0045	0.0080
	Copper Alloys	Low Silicon Bronze, Alum/Bronze, Beryllium Copper, Nickel Silver, Oxygen-Free Copper	Slotting	425	0.0008	0.0008	0.0016	0.0020	0.0024	0.0030	0.0032	0.0032	0.0060
			≤ 70% Dia. Profiling	600	0.0011	0.0011	0.0022	0.0028	0.0033	0.0040	0.0045	0.0045	0.0080
	Magnesium		Slotting	1400	0.0012	0.0018	0.0020	0.0024	0.0032	0.0042	0.0048	0.0064	0.0084
			≤ 75% Dia. Profiling	1600	0.0015	0.0024	0.0032	0.0048	0.0047	0.0056	0.0080	0.0096	0.0112
	Plastics	Acrylics, Polycarbonate, Phenolics	Slotting	600	0.0020	0.0024	0.0032	0.0048	0.0052	0.0056	0.0080	0.0096	0.0112
			≤ 15% Dia. Profiling	800	0.0008	0.0016	0.0024	0.0032	0.0032	0.0060	0.0064	0.0080	0.0120

LOCAL PICK-UP/DELIVERY
MOBILE INVENTORY
ONSITE TECHNICAL SUPPORT

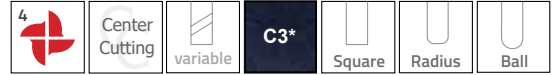


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4 FLUTE SERIES FOR ROUGHING & FINISHING

Series: **MTi4**



SERIES: MTi4

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	OAL	Sq	R.010	R.015	R.020	R.030	R.060	R.090	R.120	R.156	R.190	Ball
1/8	1/8	1/4	1-1/2	320500	320520	320540		320560						320570
				\$13.23	\$13.23	\$13.23		\$16.43						\$17.52
1/8	1/8	1/2	2	320580	320600	320620		320640						320650
				\$13.63	\$13.63	\$13.63		\$17.96						\$18.01
1/8	1/8	3/4	2-1/2	320660	320680	320700		320720						320730
				\$15.75	\$20.95	\$20.95		\$20.95						\$21.02
3/16	3/16	5/16	2	320740	320760	320780		320800						320810
				\$15.85	\$15.85	\$15.85		\$18.45						\$20.79
3/16	3/16	9/16	2-1/2	320820	320840	320860		320880						320890
				\$17.10	\$17.10	\$17.10		\$20.08						\$22.35
3/16	3/16	3/4	2-1/2	320900	320920	320940		320960						320970
				\$17.68	\$23.16	\$23.16		\$23.16						\$23.08
1/4	1/4	3/8	2	320980		321000	321020	321040	321060	321080				321090
				\$19.41		\$20.85	\$20.85	\$21.23	\$23.26	\$24.32				\$25.23
1/4	1/4	1/2	2-1/2	321100		321120	321140	321160	321180	321200				321210
				\$22.29		\$23.06	\$23.06	\$23.06	\$28.22	\$30.39				\$29.04
1/4	1/4	3/4	2-1/2	321220		321240	321260	321280	321300	321320				321330
				\$23.63		\$24.76	\$24.76	\$24.76	\$29.78	\$31.89				\$29.58
1/4	1/4	1-1/4	3	321340		321360	321380	321400	321420	321440				321450
				\$28.70		\$34.48	\$34.48	\$34.48	\$35.44	\$37.56				\$36.86
5/16	5/16	7/16	2	321460		321480		321500	321520	321540				321550
				\$25.38		\$27.26		\$27.26	\$31.88	\$35.00				\$32.66
5/16	5/16	13/16	2-1/2	321560		321580		321600	321620	321640				321650
				\$30.13		\$31.48		\$31.48	\$36.79	\$39.93				\$38.92
5/16	5/16	1	3	321660		321680		321700	321720	321740				321750
				\$34.86		\$40.14		\$40.14	\$41.11	\$44.23				\$44.60
3/8	3/8	1/2	2	321760		321780	321800	321820	321840	321860	321880			321890
				\$33.74		\$35.59	\$35.59	\$35.59	\$38.40	\$41.86	\$42.97			\$42.77
3/8	3/8	1	2-1/2	321900		321920	321940	321960	321980	322000	322020			322030
				\$36.27		\$39.22	\$39.22	\$39.22	\$40.47	\$44.02	\$45.07			\$46.43
3/8	3/8	1-1/4	3	322040		322060	322080	322100	322120	322140	322160			322170
				\$41.99		\$47.04	\$47.04	\$47.04	\$48.27	\$51.29	\$55.49			\$52.50
3/8	3/8	1-3/4	4	322180		322200	322220	322240	322260	322280	322300			322310
				\$45.06		\$50.35	\$50.35	\$50.35	\$51.50	\$54.67	\$55.93			\$56.35
1/2	1/2	5/8	2-1/2	322320		322340		322360	322380	322400	322420	322440	322460	322470
				\$53.96		\$56.87		\$56.87	\$61.26	\$64.48	\$65.93	\$67.41	\$68.73	\$66.30
1/2	1/2	1	3	322480		322500		322520	322540	322560	322580	322600	322620	322630
				\$56.93		\$59.16		\$59.16	\$63.19	\$66.53	\$68.61	\$70.08	\$71.55	\$68.27
1/2	1/2	1-1/4	3	322640		322660		322680	322700	322720	322740	322760	322780	322790
				\$58.99		\$61.24		\$61.24	\$64.04	\$68.44	\$70.39	\$71.82	\$73.30	\$69.95
1/2	1/2	1-5/8	4	322800		322820		322840	322860	322880	322900	322920	322940	322950
				\$72.73		\$76.27		\$76.27	\$77.56	\$81.08	\$82.76	\$84.23	\$85.70	\$84.08
1/2	1/2	2	4	322960		322980		323000	323020	323040	323060	323080	323100	323110
				\$74.05		\$79.36		\$79.36	\$80.44	\$84.18	\$85.84	\$87.32	\$88.78	\$85.40

SIZES CONTINUED ON NEXT PAGE

C3* COATING- UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL

4 FLUTE SERIES FOR ROUGHING & FINISHING

Series: **MTi4**

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	OAL	SQ	R.015	R.030	R.060	R.090	R.120	R.156	R.190	R.250	R.375	Ball
5/8	5/8	3/4	3	323120	323140	323160	323180	323200	323220	323240	323260			323270
				\$102.84	\$105.99	\$105.99	\$108.28	\$111.26	\$115.64	\$117.11	\$118.60			\$119.64
5/8	5/8	1-1/4	3-1/2	323280	323300	323320	323340	323360	323380	323400	323420			323430
				\$104.09	\$109.52	\$109.52	\$111.92	\$114.79	\$118.19	\$119.68	\$121.14			\$122.18
5/8	5/8	1-5/8	3-1/2	323440	323460	323480	323500	323520	323540	323560	323580			323590
				\$113.26	\$116.13	\$116.13	\$122.45	\$125.87	\$128.98	\$130.44	\$131.92			\$133.07
5/8	5/8	2-1/8	4	323600	323620	323640	323660	323680	323700	323720	323740			323750
				\$120.81	\$126.83	\$126.83	\$128.30	\$131.35	\$134.01	\$135.47	\$136.94			\$138.00
5/8	5/8	2-1/2	5	323760	323780	323800	323820	323840	323860	323880	323900			323910
				\$143.18	\$148.69	\$148.69	\$149.65	\$152.71	\$155.55	\$157.02	\$158.50			\$159.55
3/4	3/4	1	3	323920	323940	323960	323980	324000	324020	324040	324060	324080		324090
				\$159.21	\$163.53	\$163.53	\$165.79	\$166.86	\$170.56	\$172.47	\$174.23	\$174.23		\$183.68
3/4	3/4	1-5/8	4	324100	324120	324140	324160	324180	324200	324220	324240	324260		324270
				\$164.01	\$168.41	\$168.41	\$171.18	\$175.00	\$178.05	\$179.01	\$179.20	\$179.20		\$191.03
3/4	3/4	2-1/4	5	324280	324300	324320	324340	324360	324380	324400	324420	324440		324450
				\$171.28	\$179.30	\$179.30	\$182.07	\$185.79	\$188.19	\$190.10	\$190.10	\$190.10		\$201.75
3/4	3/4	2-3/4	5	324460	324480	324500	324520	324540	324560	324580	324600	324620		324630
				\$184.26	\$189.57	\$189.57	\$190.73	\$194.37	\$195.95	\$201.44	\$200.94	\$200.94		\$208.73
3/4	3/4	3-1/4	6	324640	324660	324680	324700	324720	324740	324760	324780	324800		324810
				\$205.69	\$210.93	\$210.93	\$204.72	\$208.84	\$220.43	\$220.88	\$220.88	\$220.88		\$233.85
1	1	1-1/4	4	324820	324840	324860	324880	324900	324920	324940	324960	324980	325000	325010
				\$240.48	\$259.11	\$251.27	\$251.65	\$252.41	\$255.39	\$255.39	\$255.39	\$256.04	\$292.42	\$306.69
1	1	2	4-1/2	325020	325040	325060	325080	325100	325120	325140	325160	325180	325200	325210
				\$284.62	\$292.56	\$292.56	\$293.54	\$295.98	\$298.48	\$300.69	\$300.69	\$301.35	\$308.75	\$323.12
1	1	2-5/8	5	325220	325240	325260	325280	325300	325320	325340	325360	325380	325400	325410
				\$306.99	\$319.98	\$319.98	\$320.28	\$321.23	\$325.15	\$326.06	\$325.15	\$325.82	\$345.90	\$360.23
1	1	3-1/4	6	325420	325440	325460	325480	325500	325520	325540	325560	325580	325600	325610
				\$320.66	\$327.92	\$327.92	\$328.20	\$329.07	\$332.39	\$332.39	\$332.51	\$333.17	\$384.39	\$398.67
1	1	4-1/4	7	325620	325640	325660	325680	325700	325720	325740	325760	325780	325800	325810
				\$420.65	\$425.86	\$425.86	\$427.33	\$429.54	\$432.43	\$434.89	\$437.33	\$437.33	\$442.26	\$456.62

4 FLUTE

C3* COATING- UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL



NC TOOL SERVICE LLC
ORDER TODAY: 888.857.6835

4 FLUTE SERIES • REDUCED NECK & LONG SHANK

Series: **MTi4**



SERIES: MTi4-RN

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	LBS	OAL	SQ	R.010	R.015	R.020	R.030	R.060	R.090	R.120	R.156	R.190	Ball
1/8	1/8	3/16	3/8	2	330500	330520	330540		330560						330570
					\$18.83	\$19.48	\$19.48		\$23.34						\$24.17
1/8	1/8	3/16	1/2	2	330580	330600	330620		330640						330650
					\$19.64	\$19.88	\$20.65		\$24.32						\$25.13
1/8	1/8	3/16	3/4	2-1/2	330660	330680	330700		330720						330730
					\$20.76	\$21.40	\$21.85		\$26.24						\$26.72
3/16	3/16	1/4	1/2	2	330740	330760	330780		330800						330810
					\$22.88	\$23.59	\$23.59		\$28.36						\$28.83
3/16	3/16	1/4	3/4	2-1/2	330820	330840	330860		330880						330890
					\$23.91	\$24.69	\$24.69		\$28.94						\$29.48
3/16	3/16	1/4	1-1/8	2-1/2	330900	330920	330940		330960						330970
					\$24.92	\$25.52	\$25.52		\$29.85						\$30.42
1/4	1/4	3/8	3/4	4	330980		331000	331020	331040	331060	331080				331090
					\$34.08		\$39.36	\$39.36	\$39.36	\$40.33	\$41.46				\$41.78
1/4	1/4	3/8	1-1/8	4	331100		331120	331140	331160	331180	331200				331210
					\$36.38		\$41.69	\$41.69	\$41.69	\$42.64	\$43.41				\$44.03
1/4	1/4	3/8	2-1/8	4	331220		331240	331260	331280	331300	331320				331330
					\$37.91		\$42.63	\$42.63	\$42.63	\$43.58	\$44.96				\$45.17
1/4	1/4	3/8		4	331340		331360	331380	331400	331420	331440				331450
					\$28.49		\$33.78	\$33.78	\$33.78	\$34.75	\$35.50				\$36.12
5/16	5/16	7/16	1-1/8	4	331460		331480		331500	331520	331540				331550
					\$44.94		\$49.77		\$49.77	\$51.36	\$52.98				\$54.03
5/16	5/16	7/16	2-1/8	4	331560		331580		331600	331620	331640				331650
					\$48.21		\$53.21		\$53.21	\$54.81	\$56.40				\$56.98
5/16	5/16	7/16		4	331660		331680		331700	331720	331740				331750
					\$36.66		\$41.51		\$41.51	\$43.11	\$44.70				\$45.77
3/8	3/8	1/2	1-1/8	4	331760		331780	331800	331820	331840	331860	331880			331890
					\$51.83		\$55.54	\$55.54	\$55.54	\$57.78	\$60.56	\$62.85			\$63.42
3/8	3/8	1/2	2-1/8	4	331900		331920	331940	331960	331980	332000	332020			332030
					\$55.01		\$58.86	\$58.86	\$58.86	\$59.82	\$62.72	\$65.01			\$65.97
3/8	3/8	1/2	3-1/8	6	332040		332060	332080	332100	332120	332140	332160			332170
					\$72.09		\$78.47	\$78.47	\$78.47	\$79.70	\$82.30	\$85.10			\$86.12
3/8	3/8	1/2	4-1/8	6	332180		332200	332220	332240	332260	332280	332300			332310
					\$76.58		\$84.12	\$84.12	\$84.12	\$85.54	\$87.74	\$90.78			\$91.93
3/8	3/8	1/2		6	332320		332340	332360	332380	332400	332420	332440			332450
					\$61.64		\$68.27	\$68.27	\$68.27	\$69.24	\$72.14	\$74.44			\$75.46
1/2	1/2	5/8	1-1/2	4	332460		332480		332500	332520	332540	332560	332580	332600	332610
					\$76.37		\$81.78		\$81.78	\$83.54	\$86.58	\$88.85	\$91.56	\$94.29	\$96.39
1/2	1/2	5/8	2-1/4	4	332620		332640		332660	332680	332700	332720	332740	332760	332770
					\$82.12		\$87.80		\$87.80	\$89.36	\$91.95	\$93.95	\$97.41	\$100.14	\$101.90
1/2	1/2	5/8	3-3/8	6	332780		332800		332820	332840	332860	332880	332900	332920	332930
					\$119.08		\$125.84		\$125.84	\$126.82	\$128.45	\$128.45	\$134.06	\$136.79	\$137.70
1/2	1/2	5/8	4-1/8	6	332940		332960		332980	333000	333020	333040	333060	333080	333090
					\$123.06		\$129.72		\$129.72	\$131.04	\$131.22	\$132.23	\$138.05	\$140.76	\$142.14
1/2	1/2	5/8		6	333100		333120		333140	333160	333180	333200	333220	333240	333250
					\$106.16		\$112.92		\$112.92	\$113.90	\$118.43	\$118.43	\$121.15	\$123.88	\$124.78
1/2	1/2	5/8		8	333260		333280		333300	333320	333340	333360	333380	333400	333410
					\$124.29		\$131.05		\$131.05	\$132.02	\$136.55	\$136.55	\$139.27	\$142.00	\$142.91

LONG SHANK OPTION*: ALLOWS THE FLEXIBILITY TO ADD ANY LBS SIZE YOU NEED WITHOUT THE WAIT. THESE SIZES ARE STOCKED FOR QUICK TURN AROUND ON CUSTOM LBS NEEDS OR GRIND THE NECK YOURSELF

4 FLUTE SERIES • REDUCED NECK & LONG SHANK

Series: **MTi4**

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	LBS	OAL	SQ	R.015	R.030	R.060	R.090	R.120	R.156	R.190	R.250	R.375	Ball
5/8	5/8	3/4	1-5/8	4	333420	333440	333460	333480	333500	333520	333540	333560			333570
					\$132.22	\$137.81	\$137.81	\$136.08	\$139.59	\$144.50	\$148.01	\$151.50			\$153.64
5/8	5/8	3/4	2-3/8	6	333580	333600	333620	333640	333660	333680	333700	333720			333730
					\$178.35	\$184.74	\$184.74	\$185.03	\$187.24	\$190.59	\$200.04	\$203.56			\$205.52
5/8	5/8	3/4	3-3/8	6	333740	333760	333780	333800	333820	333840	333860	333880			333890
					\$194.03	\$194.33	\$194.33	\$196.61	\$200.09	\$201.73	\$205.22	\$208.73			\$213.89
5/8	5/8	3/4	4-1/8	6	333900	333920	333940	333960	333980	334000	334020	334040			334050
					\$197.93	\$203.50	\$203.50	\$204.59	\$208.09	\$209.69	\$213.18	\$215.14			\$220.51
5/8	5/8	3/4		6	334060	334080	334100	334120	334140	334160	334180	334200			334210
					\$163.95	\$170.73	\$170.73	\$177.64	\$180.98	\$180.98	\$184.49	\$187.98			\$189.39
3/4	3/4	1	2	4	334220	334240	334260	334280	334300	334320	334340	334360	334380		334390
					\$170.23	\$177.00	\$177.00	\$177.98	\$180.92	\$182.50	\$186.23	\$186.23	\$186.23		\$192.45
3/4	3/4	1	2-1/2	6	334400	334420	334440	334460	334480	334500	334520	334540	334560		334570
					\$209.61	\$216.78	\$216.78	\$217.15	\$218.01	\$218.01	\$224.70	\$224.70	\$224.70		\$232.38
3/4	3/4	1	3-3/8	6	334580	334600	334620	334640	334660	334680	334700	334720	334740		334750
					\$219.56	\$224.66	\$224.66	\$227.23	\$228.82	\$230.81	\$235.56	\$235.56	\$235.56		\$241.77
3/4	3/4	1	4-1/8	6	334760	334780	334800	334820	334840	334860	334880	334900	334920		334930
					\$223.31	\$228.45	\$228.45	\$229.66	\$233.06	\$234.60	\$239.40	\$239.40	\$239.40		\$245.50
3/4	3/4	1		6	334940	334960	334980	335000	335020	335040	335060	335080	335100		335110
					\$198.33	\$205.10	\$205.10	\$206.10	\$210.60	\$210.60	\$214.43	\$214.43	\$214.43		\$220.54
3/4	3/4	1	4-7/8	7	335120	335140	335160	335180	335200	335220	335240	335260	335280		335290
					\$284.37	\$300.42	\$300.42	\$301.65	\$305.03	\$306.58	\$311.38	\$311.38	\$311.38		\$312.81
3/4	3/4	1		7	335300	335320	335340	335360	335380	335400	335420	335440	335460		335470
					\$255.27	\$271.33	\$205.10	\$272.54	\$275.95	\$277.48	\$282.28	\$282.28	\$282.28		\$283.72
3/4	3/4	1		9	335480	335500	335520	335540	335560	335580	335600	335620	335640		335650
					\$331.78	\$347.83	\$347.83	\$349.05	\$352.44	\$353.99	\$358.79	\$358.79	\$358.79		\$360.21
1	1	1-1/4	2-1/4	4	335660	335680	335700	335720	335740	335760	335780	335800	335820	335840	335850
					\$266.76	\$273.07	\$273.07	\$274.02	\$281.09	\$284.55	\$285.11	\$285.11	\$285.87	\$304.97	\$307.37
1	1	1-1/4	2-5/8	6	335860	335880	335900	335920	335940	335960	335980	336000	336020	336040	336050
					\$321.81	\$328.60	\$328.60	\$333.09	\$334.04	\$338.23	\$338.23	\$338.23	\$338.91	\$352.16	\$354.77
1	1	1-1/4	3-3/8	6	336060	336080	336100	336120	336140	336160	336180	336200	336220	336240	336250
					\$336.84	\$343.60	\$343.60	\$347.50	\$349.05	\$352.33	\$353.25	\$353.25	\$353.92	\$369.17	\$371.42
1	1	1-1/4	4-1/8	6	336260	336280	336300	336320	336340	336360	336380	336400	336420	336440	336450
					\$347.08	\$355.85	\$355.85	\$358.02	\$358.69	\$362.90	\$362.90	\$362.90	\$363.58	\$377.79	\$380.56
1	1	1-1/4		6	336460	336480	336500	336520	336540	336560	336580	336600	336620	336640	336650
					\$309.87	\$316.66	\$316.66	\$326.42	\$329.89	\$331.51	\$336.47	\$336.47	\$339.20	\$336.47	\$341.82
1	1	1-1/4	4-5/8	7	336660	336680	336700	336720	336740	336760	336780	336800	336820	336840	336850
					\$404.22	\$418.94	\$418.94	\$425.89	\$429.34	\$430.97	\$435.85	\$435.85	\$435.85	\$439.80	\$439.28
1	1	1-1/4		7	336860	336880	336900	336920	336940	336960	336980	337000	337020	337040	337050
					\$369.16	\$383.90	\$383.90	\$390.84	\$394.28	\$395.91	\$400.81	\$400.81	\$400.81	\$404.76	\$404.22
1	1	1-1/4		12-1/2	337060	337080	337100	337120	337140	337160	337180	337200	337220	337240	337250
					\$602.31	\$617.05	\$617.05	\$623.99	\$627.44	\$629.06	\$633.96	\$633.96	\$633.96	\$637.91	\$637.37

LONG SHANK OPTION: ALLOWS THE FLEXIBILITY TO ADD ANY LBS SIZE YOU NEED WITHOUT THE WAIT. THESE SIZES ARE STOCKED FOR QUICK TURN AROUND ON CUSTOM LBS NEEDS OR GRIND THE NECK YOURSELF.

C3* COATING- UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL

4 FLUTE



SERIES: MTi5

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	OAL	SQ	R.010	R.015	R.020	R.030	R.060	R.090	R.120	R.156	R.190	Ball
1/8	1/8	1/4	1-1/2	300500	300520	300540		300560						300570
				\$13.23	\$13.23	\$13.23		\$16.43						\$17.52
1/8	1/8	1/2	2	300580	300600	300620		300640						300650
				\$13.63	\$13.63	\$13.63		\$17.96						\$18.01
1/8	1/8	3/4	2-1/2	300660	300680	300700		300720						300730
				\$15.75	\$20.95	\$20.95		\$20.95						\$20.65
3/16	3/16	5/16	2	300740	300760	300780		300800						300810
				\$15.85	\$15.85	\$15.85		\$18.45						\$20.79
3/16	3/16	9/16	2-1/2	300820	300840	300860		300880						300890
				\$17.10	\$17.10	\$17.10		\$20.08						\$22.35
3/16	3/16	3/4	2-1/2	300900	300920	300940		300960						300970
				\$17.68	\$23.16	\$23.16		\$23.16						\$23.08
1/4	1/4	3/8	2	300980		301000	301020	301040	301060	301080				301090
				\$19.41		\$22.01	\$22.01	\$22.01	\$23.26	\$24.32				\$25.23
1/4	1/4	1/2	2-1/2	301100		301120	301140	301160	301180	301200				301210
				\$22.49		\$24.13	\$24.13	\$24.13	\$29.10	\$30.39				\$29.04
1/4	1/4	3/4	2-1/2	301220		301240	301260	301280	301300	301320				301330
				\$23.84		\$31.45	\$26.10	\$26.10	\$30.91	\$33.04				\$30.71
1/4	1/4	1-1/4	3	301340		301360	301380	301400	301420	301440				301450
				\$28.70		\$34.48	\$34.48	\$34.48	\$35.44	\$37.56				\$36.86
5/16	5/16	7/16	2	301460		301480		301500	301520	301540				301550
				\$25.38		\$30.81		\$30.81	\$31.88	\$35.00				\$32.66
5/16	5/16	13/16	2-1/2	301560		301580		301600	301620	301640				301650
				\$30.33		\$32.94		\$32.94	\$36.79	\$39.93				\$38.92
5/16	5/16	1	3	301660		301680		301700	301720	301740				301750
				\$35.16		\$40.46		\$40.46	\$41.42	\$44.55				\$44.91
3/8	3/8	1/2	2	301760		301780	301800	301820	301840	301860	301880			301890
				\$34.68		\$37.76	\$37.76	\$37.76	\$39.01	\$42.47	\$43.58			\$43.37
3/8	3/8	1	2-1/2	301900		301920	301940	301960	301980	302000	302020			302030
				\$37.66		\$39.87	\$39.87	\$39.87	\$41.12	\$44.67	\$45.72			\$47.07
3/8	3/8	1-1/4	3	302040		302060	302080	302100	302120	302140	302160			302170
				\$41.99		\$47.37	\$47.37	\$47.37	\$48.42	\$51.69	\$56.18			\$52.50
3/8	3/8	1-3/4	4	302180		302200	302220	302240	302260	302280	302300			302310
				\$45.06		\$50.35	\$50.35	\$50.35	\$51.50	\$54.67	\$55.93			\$56.35
1/2	1/2	5/8	2-1/2	302320		302340		302360	302380	302400	302420	302440	302460	302470
				\$54.97		\$60.17		\$60.17	\$61.64	\$65.18	\$66.54	\$68.02	\$69.32	\$66.30
1/2	1/2	1	3	302480		302500		302520	302540	302560	302580	302600	302620	302630
				\$57.71		\$63.02		\$63.02	\$64.38	\$67.92	\$69.40	\$70.86	\$72.33	\$69.05
1/2	1/2	1-1/4	3	302640		302660		302680	302700	302720	302740	302760	302780	302790
				\$59.87		\$65.56		\$65.56	\$64.38	\$70.06	\$71.64	\$73.09	\$74.56	\$71.21
1/2	1/2	1-5/8	4	302800		302820		302840	302860	302880	302900	302920	302940	302950
				\$75.36		\$78.88		\$78.88	\$80.16	\$83.69	\$85.36	\$86.83	\$88.31	\$86.68
1/2	1/2	2	4	302960		302980		303000	303020	303040	303060	303080	303100	303110
				\$76.23		\$81.54		\$81.54	\$82.60	\$86.35	\$88.01	\$89.49	\$90.97	\$87.56

SIZES CONTINUED ON NEXT PAGE

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	OAL	SQ	R.015	R.030	R.060	R.090	R.120	R.156	R.190	R.250	R.375	Ball
5/8	5/8	3/4	3	303120	303140	303160	303180	303200	303220	303240	303260			303270
				\$108.93	\$114.81	\$114.81	\$115.79	\$118.83	\$121.30	\$122.76	\$124.24			\$125.27
5/8	5/8	1-1/4	3-1/2	303280	303300	303320	303340	303360	303380	303400	303420			303430
				\$112.95	\$118.74	\$118.74	\$119.81	\$122.76	\$125.32	\$126.79	\$128.25			\$129.31
5/8	5/8	1-5/8	3-1/2	303440	303460	303480	303500	303520	303540	303560	303580			303590
				\$127.08	\$132.77	\$132.77	\$133.75	\$136.70	\$139.30	\$140.78	\$142.24			\$143.39
5/8	5/8	2-1/8	4	303600	303620	303640	303660	303680	303700	303720	303740			303750
				\$132.19	\$137.84	\$137.84	\$138.81	\$141.84	\$144.51	\$145.98	\$147.45			\$148.50
5/8	5/8	2-1/2	5	303760	303780	303800	303820	303840	303860	303880	303900			303910
				\$148.82	\$154.33	\$154.33	\$155.31	\$158.34	\$161.20	\$162.66	\$164.14			\$165.19
3/4	3/4	1	3	303920	303940	303960	303980	304000	304020	304040	304060	304080		304090
				\$162.86	\$168.06	\$168.06	\$169.43	\$172.87	\$174.63	\$176.12	\$179.54	\$179.54		\$187.33
3/4	3/4	1-5/8	4	304100	304120	304140	304160	304180	304200	304220	304240	304260		304270
				\$178.08	\$183.46	\$183.46	\$184.56	\$188.05	\$189.71	\$191.19	\$194.71	\$194.71		\$202.51
3/4	3/4	2-1/4	5	304280	304300	304320	304340	304360	304380	304400	304420	304440		304450
				\$197.18	\$202.48	\$202.48	\$203.66	\$207.29	\$208.75	\$211.21	\$213.41	\$213.87		\$221.63
3/4	3/4	2-3/4	5	304460	304480	304500	304520	304540	304560	304580	304600	304620		304630
				\$204.14	\$209.45	\$209.45	\$210.61	\$214.25	\$215.83	\$221.32	\$220.82	\$220.82		\$228.61
3/4	3/4	3-1/4	6	304640	304660	304680	304700	304720	304740	304760	304780	304800		304810
				\$224.76	\$230.15	\$230.15	\$231.33	\$234.77	\$236.53	\$238.74	\$241.44	\$241.44		\$249.22
1	1	1-1/4	4	304820	304840	304860	304880	304900	304920	304940	304960	304980	305000	305010
				\$287.48	\$292.78	\$292.78	\$294.05	\$296.25	\$299.27	\$301.47	\$304.26	\$304.26	\$309.18	\$323.45
1	1	2	4-1/2	305020	305040	305060	305080	305100	305120	305140	305160	305180	305200	305210
				\$303.48	\$308.86	\$308.86	\$309.86	\$312.31	\$315.06	\$317.27	\$320.17	\$320.17	\$325.07	\$339.45
1	1	2-5/8	5	305220	305240	305260	305280	305300	305320	305340	305360	305380	305400	305410
				\$351.48	\$356.58	\$356.58	\$357.97	\$360.41	\$363.07	\$365.28	\$368.18	\$368.18	\$373.08	\$387.39
1	1	3-1/4	6	305420	305440	305460	305480	305500	305520	305540	305560	305580	305600	305610
				\$372.28	\$377.73	\$377.73	\$378.73	\$380.93	\$384.11	\$386.34	\$389.04	\$389.04	\$393.94	\$408.21
1	1	4-1/4	7	305620	305640	305660	305680	305700	305720	305740	305760	305780	305800	305810
				\$428.29	\$433.50	\$433.50	\$434.97	\$437.18	\$440.07	\$442.53	\$444.99	\$444.99	\$449.88	\$464.25
1-1/4	1-1/4	2	4-1/2	305820	305840	305860	305880	305900	305920	305940	305960	305980	306000	306010
				\$631.47	\$637.96	\$637.96	\$641.09	\$644.61	\$646.24	\$648.71	\$651.30	\$651.30	\$657.19	\$694.65
1-1/4	1-1/4	3-1/4	6	306020	306040	306060	306080	306100	306120	306140	306160	306180	306200	306210
				\$690.35	\$697.15	\$697.15	\$700.22	\$703.77	\$705.40	\$707.84	\$710.45	\$710.45	\$716.33	\$753.51

5 FLUTE

C3* COATING- UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL

NC TOOL SERVICE LLC

ORDER TODAY: 888.857.6835



SERIES: MTi5-RN

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	LBS	OAL	SQ	R.010	R.015	R.020	R.030	R.060	R.090	R.120	R.156	R.190	R.250	R.375	Ball
1/8	1/8	3/16	3/8	2	310500	310520	310540		310560								310570
					\$18.83	\$19.48	\$19.48		\$23.34								\$24.17
1/8	1/8	3/16	1/2	2	310580	310600	310620		310640								310650
					\$19.64	\$19.88	\$20.65		\$24.32								\$25.13
1/8	1/8	3/16	3/4	2-1/2	310660	310680	310700		310720								310730
					\$20.76	\$21.40	\$21.85		\$26.24								\$26.72
3/16	3/16	1/4	1/2	2	310740	310760	310780		310800								310810
					\$22.88	\$23.59	\$23.59		\$28.36								\$28.83
3/16	3/16	1/4	3/4	2-1/2	310820	310840	310860		310880								310890
					\$23.91	\$24.69	\$24.69		\$28.94								\$29.48
3/16	3/16	1/4	1-1/8	2-1/2	310900	310920	310940		310960								310970
					\$24.92	\$25.52	\$25.52		\$29.85								\$30.42
1/4	1/4	3/8	3/4	4	310980		311000	311020	311040	311060	311080						311090
					\$34.08		\$39.36	\$39.36	\$39.36	\$40.33	\$41.46						\$41.78
1/4	1/4	3/8	1-1/8	4	311100		311120	311140	311160	311180	311200						311210
					\$36.38		\$41.69	\$41.69	\$41.69	\$42.64	\$43.41						\$44.03
1/4	1/4	3/8	2-1/8	4	311220		311240	311260	311280	311300	311320						311330
					\$39.38		\$44.11	\$44.11	\$44.11	\$45.06	\$46.43						\$46.65
1/4	1/4	3/8		4	311340		311360	311380	311400	311420	311440						311450
					\$28.49		\$33.78	\$33.78	\$33.78	\$34.75	\$35.50						\$36.12
5/16	5/16	7/16	1-1/8	4	311460		311480		311500	311520	311540						311550
					\$44.94		\$49.77		\$49.77	\$51.36	\$52.98						\$54.03
5/16	5/16	7/16	2-1/8	4	311560		311580		311600	311620	311640						311650
					\$48.21		\$53.21		\$53.21	\$54.81	\$56.40						\$56.98
5/16	5/16	7/16		4	311660		311680		311700	311720	311740						311750
					\$36.66		\$41.51		\$41.51	\$43.11	\$44.70						\$45.77
3/8	3/8	1/2	1-1/8	4	311760		311780	311800	311820	311840	311860	311880					311890
					\$52.51		\$56.23	\$56.23	\$56.23	\$58.48	\$61.26	\$63.53					\$64.11
3/8	3/8	1/2	2-1/8	4	311900		311920	311940	311960	311980	312000	312020					312030
					\$57.01		\$60.86	\$60.86	\$60.86	\$61.83	\$64.71	\$67.01					\$67.96
3/8	3/8	1/2	3-1/8	6	312040		312060	312080	312100	312120	312140	312160					312170
					\$74.99		\$81.64	\$81.64	\$81.64	\$82.60	\$85.48	\$87.78					\$88.82
3/8	3/8	1/2	4-1/8	6	312180		312200	312220	312240	312260	312280	312300					312310
					\$76.94		\$84.38	\$84.38	\$84.38	\$85.60	\$89.02	\$91.31					\$92.44
3/8	3/8	1/2		6	312320		312340	312360	312380	312400	312420	312440					312450
					\$61.64		\$68.27	\$68.27	\$68.27	\$69.24	\$72.14	\$74.44					\$75.46
1/2	1/2	5/8	1-1/2	4	312460		312480		312500	312520	312540	312560	312580	312600			312610
					\$77.93		\$83.34		\$83.34	\$85.10	\$88.14	\$90.41	\$93.12	\$95.85			\$97.95
1/2	1/2	5/8	2-1/4	4	312620		312640		312660	312680	312700	312720	312740	312760			312770
					\$83.52		\$90.41		\$90.41	\$91.39	\$94.33	\$95.89	\$98.63	\$101.36			\$103.12
1/2	1/2	5/8	3-3/8	6	312780		312800		312820	312840	312860	312880	312900	312920			312930
					\$123.00		\$129.76		\$129.76	\$130.73	\$135.24	\$135.24	\$137.97	\$140.69			\$141.60
1/2	1/2	5/8	4-1/8	6	312940		312960		312980	313000	313020	313040	313060	313080			313090
					\$127.22		\$133.88		\$133.88	\$137.50	\$140.98	\$140.98	\$142.21	\$144.93			\$146.30
1/2	1/2	5/8		6	313100		313120		313140	313160	313180	313200	313220	313240			313250
					\$106.16		\$112.92		\$112.92	\$113.90	\$118.43	\$118.43	\$121.15	\$123.88			\$124.78
1/2	1/2	5/8		8	313260		313280		313300	313320	313340	313360	313380	313400			313410
					\$124.29		\$131.05		\$131.05	\$132.02	\$136.55	\$136.55	\$139.27	\$142.00			\$142.91

LONG SHANK OPTION: ALLOWS FLEXIBILITY TO ADD ANY LBS SIZE WITHOUT THE WAIT. THESE SIZES ARE STOCKED FOR QUICK TURN AROUND ON CUSTOM LBS NEEDS OR GRIND THE NECK YOURSELF.

SIZES CONTINUED ON NEXT PAGE

5 FLUTE SERIES • REDUCED NECK & LONG SHANK

Series: **MTi5**

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	LBS	OAL	SQ	R.015	R.030	R.060	R.090	R.120	R.156	R.190	R.250	R.375	Ball
5/8	5/8	3/4	1-5/8	4	313420	313440	313460	313480	313500	313520	313540	313560			313570
					\$132.22	\$137.81	\$137.81	\$136.08	\$139.59	\$144.50	\$148.01	\$151.50			\$153.64
5/8	5/8	3/4	2-3/8	6	313580	313600	313620	313640	313660	313680	313700	313720			313730
					\$179.52	\$186.29	\$186.29	\$193.22	\$196.54	\$196.54	\$200.04	\$203.56			\$205.52
5/8	5/8	3/4	3-3/8	6	313740	313760	313780	313800	313820	313840	313860	313880			313890
					\$201.31	\$201.63	\$201.63	\$203.91	\$207.39	\$209.01	\$212.52	\$216.01			\$221.19
5/8	5/8	3/4	4-1/8	6	313900	313920	313940	313960	313980	314000	314020	314040			314050
					\$212.72	\$214.01	\$214.01	\$215.09	\$218.58	\$220.19	\$223.69	\$225.65			\$231.02
5/8	5/8	3/4		6	314060	314080	314100	314120	314140	314160	314180	314200			314210
					\$163.95	\$170.73	\$170.73	\$177.64	\$180.98	\$180.98	\$184.49	\$187.98			\$189.39
3/4	3/4	1	2	4	314220	314240	314260	314280	314300	314320	314340	314360	314380		314390
					\$171.00	\$177.77	\$177.77	\$178.75	\$181.69	\$183.27	\$187.00	\$187.00	\$187.00		\$193.22
3/4	3/4	1	2-1/2	6	314400	314420	314440	314460	314480	314500	314520	314540	314560		314570
					\$216.34	\$223.11	\$223.11	\$224.09	\$228.59	\$228.59	\$232.43	\$232.43	\$232.43		\$238.55
3/4	3/4	1	3-3/8	6	314580	314600	314620	314640	314660	314680	314700	314720	314740		314750
					\$220.55	\$225.65	\$225.65	\$228.22	\$229.83	\$231.80	\$236.57	\$236.57	\$236.57		\$242.76
3/4	3/4	1	4-1/8	6	314760	314780	314800	314820	314840	314860	314880	314900	314920		314930
					\$224.30	\$229.44	\$229.44	\$230.66	\$234.06	\$235.59	\$240.39	\$240.39	\$240.39		\$246.50
3/4	3/4	1		6	314940	314960	314980	315000	315020	315040	315060	315080	315100		315110
					\$198.33	\$205.10	\$205.10	\$206.10	\$210.60	\$210.60	\$214.43	\$214.43	\$214.43		\$220.54
3/4	3/4	1	4-7/8	7	315120	315140	315160	315180	315200	315220	315240	315260	315280		315290
					\$284.37	\$300.42	\$300.42	\$301.65	\$305.03	\$306.58	\$311.38	\$311.38	\$311.38		\$312.81
3/4	3/4	1		7	315300	315320	315340	315360	315380	315400	315420	315440	315460		315470
					\$255.27	\$271.33	\$271.33	\$272.54	\$275.95	\$277.48	\$282.28	\$282.28	\$282.28		\$283.72
3/4	3/4	1		9	315480	315500	315520	315540	315560	315580	315600	315620	315640		315650
					\$331.78	\$347.83	\$347.83	\$349.05	\$352.44	\$353.99	\$358.79	\$358.79	\$358.79		\$360.21
1	1	1-1/4	2-1/4	4	315660	315680	315700	315720	315740	315760	315780	315800	315820	315840	315850
					\$293.14	\$300.29	\$300.29	\$302.22	\$307.29	\$309.62	\$320.68	\$320.68	\$320.68		\$325.08
1	1	1-1/4	2-5/8	6	315860	315880	315900	315920	315940	315960	315980	316000	316020	316040	316050
					\$332.55	\$339.32	\$339.32	\$349.08	\$352.56	\$354.18	\$359.15	\$359.15	\$359.15	\$361.79	\$364.40
1	1	1-1/4	3-3/8	6	316060	316080	316100	316120	316140	316160	316180	316200	316220	316240	316250
					\$347.99	\$354.74	\$354.74	\$361.40	\$364.85	\$366.46	\$375.02	\$375.02	\$375.02	\$379.24	\$381.50
1	1	1-1/4	4-1/8	6	316260	316280	316300	316320	316340	316360	316380	316400	316420	316440	316450
					\$363.09	\$369.87	\$369.87	\$376.81	\$380.25	\$381.89	\$386.78	\$386.78	\$386.78	\$390.71	\$393.50
1	1	1-1/4		6	316460	316480	316500	316520	316540	316560	316580	316600	316620	316640	316650
					\$309.87	\$316.66	\$316.66	\$326.42	\$329.89	\$331.51	\$336.47	\$336.47	\$339.20	\$336.47	\$341.82
1	1	1-1/4	4-5/8	7	316660	316680	316700	316720	316740	316760	316780	316800	316820	316840	316850
					\$404.22	\$418.94	\$418.94	\$425.89	\$429.34	\$430.97	\$435.85	\$435.85	\$435.85	\$439.80	\$439.28
1	1	1-1/4		7	316860	316880	316900	316920	316940	316960	316980	317000	317020	317040	317050
					\$369.16	\$383.90	\$383.90	\$390.84	\$394.28	\$395.91	\$400.81	\$400.81	\$400.81	\$404.76	\$404.22
1	1	1-1/4		12-1/2	317060	317080	317100	317120	317140	317160	317180	317200	317220	317240	317250
					\$602.31	\$617.05	\$617.05	\$623.99	\$627.44	\$629.06	\$633.96	\$633.96	\$633.96	\$637.91	\$637.37
1-1/4	1-1/4	1-1/2	3-3/8	6	317260	317280	317300	317320	317340	317360	317380	317400	317420	317440	317450
					\$781.14	\$783.64	\$783.64	\$784.62	\$784.62	\$786.18	\$791.01	\$791.01	\$791.01	\$795.88	\$820.80
1-1/4	1-1/4	1-1/2		6	317460	317480	317500	317520	317540	317560	317580	317600	317620	317640	317650
					\$748.64	\$751.12	\$751.12	\$752.12	\$752.12	\$753.67	\$758.51	\$758.51	\$758.51	\$763.35	\$788.28
1-1/4	1-1/4	1-1/2	5-3/8	8	317660	317680	317700	317720	317740	317760	317780	317800	317820	317840	317850
					\$899.87	\$904.00	\$904.00	\$904.00	\$909.88	\$909.88	\$914.07	\$914.07	\$914.07	\$921.69	\$947.40
1-1/4	1-1/4	1-1/2		8	317860	317880	317900	317920	317940	317960	317980	318000	318020	318040	318050
					\$851.79	\$855.91	\$855.91	\$855.91	\$861.78	\$861.78	\$865.97	\$865.97	\$865.97	\$873.60	\$899.31
1-1/4	1-1/4	1-1/2		12-1/2	318060	318080	318100	318120	318140	318160	318180	318200	318220	318240	318250
					\$1,145.00	\$1,149.14	\$1,149.14	\$1,149.14	\$1,155.00	\$1,155.00	\$1,159.19	\$1,159.19	\$1,159.19	\$1,166.81	\$1,192.53

LONG SHANK OPTION: ALLOWS FLEXIBILITY TO ADD ANY LBS SIZE WITHOUT THE WAIT. THESE SIZES ARE STOCKED FOR QUICK TURN AROUND ON CUSTOM LBS NEEDS OR GRIND THE NECK YOURSELF. **C3* COATING-** UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL

5 FLUTE



CHIP BREAKER

SERIES: MTi5C

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	OAL	SQ	R.015	R.030	R.060	R.090	R.120
1/4	1/4	1-1/4	3	301340C	301360C	301400C			
				\$32.53	\$38.40	\$38.40			
3/8	3/8	1-1/4	3	302040C	302060C	302100C	302120C		
				\$46.02	\$51.48	\$51.48	\$52.54		
1/2	1/2	1-1/4	3	302640C	302660C	302680C	302700C		
				\$64.17	\$69.95	\$69.95	\$68.74		
1/2	1/2	2-1/8	4	302960C	302980C	303000C	303020C		
				\$82.29	\$87.67	\$87.67	\$88.76		
5/8	5/8	1-1/4	3-1/2	303280C	303300C	303320C	303340C		
				\$118.04	\$123.91	\$123.91	\$125.02		
5/8	5/8	1-5/8	3-1/2	303440C	303460C	303480C	303500C		
				\$133.14	\$138.93	\$138.93	\$139.91		
5/8	5/8	2-1/8	4	303600C	303620C	303640C	303660C		
				\$139.33	\$145.07	\$145.07	\$146.06		
3/4	3/4	1-5/8	4	304100C	304120C	304140C	304160C	304180C	304200C
				\$184.91	\$190.38	\$190.38	\$191.49	\$195.02	\$196.71
3/4	3/4	2-1/4	5	304280C	304300C	304320C	304340C	304360C	304380C
				\$205.56	\$210.93	\$210.93	\$212.13	\$215.81	\$217.32
3/4	3/4	3-1/4	6	304640C	304660C	304680C	304700C	304720C	304740C
				\$235.58	\$241.06	\$241.06	\$242.25	\$245.75	\$247.53
1	1	1-1/2	4	304820C	304840C	304860C	304880C	304900C	304920C
				\$295.19	\$300.57	\$300.57	\$301.86	\$304.11	\$307.15
1	1	2-5/8	5	305220C	305240C	305260C	305280C	305300C	305320C
				\$362.94	\$368.12	\$368.12	\$369.53	\$372.00	\$374.70
1	1	3-1/4	6	305420C	305440C	305460C	305480C	305500C	305520C
				\$385.32	\$390.86	\$390.86	\$391.86	\$394.11	\$397.33

C3* COATING- UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL



CHIPBREAKER - ADD A CUSTOMIZED DESIGN

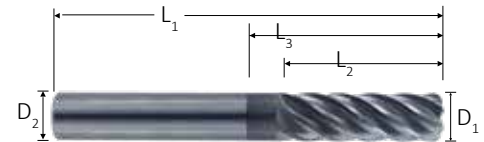
- Add a Chipbreaker design to any UHP* Series
- Standard Stocked Chipbreaker design on **5 & 7 Flute**
- Customized between two styles of chipbreaker to aid in avoiding chip build up and chip nesting.



6 FLUTE SERIES • ROUGHING & FINISHING

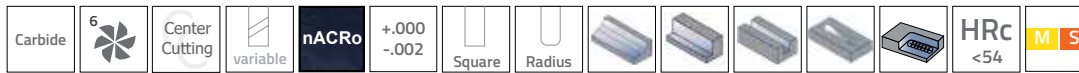
Series: **VXMG6T**

- Geometry designed to reduce chatter, universal machining operations
- Unique titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Excellent for roughing & finishing applications



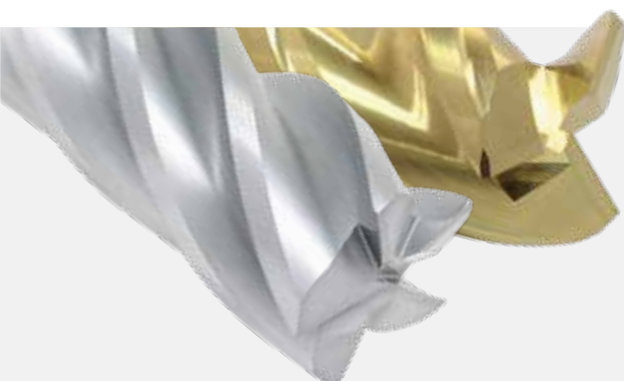
TITANIUM • STAINLESS STEELS • TOOL STEELS

SERIES: VXMG6T



DIA D ₁	SHK D ₂	LOC L ₂	LBS L ₃	OAL L ₁	CORNER	PART NAME	nACRo EDP	PRICE
3/8	3/8	1		3	SQ	VXMG6T-1212-NR	H7191	\$39.72
3/8	3/8	1		3	0.015	VXMG6T-1212-R015	H7192	\$39.72
3/8	3/8	1		3	0.030	VXMG6T-1212-R030	H7196	\$39.72
3/8	3/8	1		3	0.060	VXMG6T-1212-R060	H7193	\$39.72
3/8	3/8	1	1-7/8	4	0.015	VXMG6T-1212-R015N1	H7194	\$50.49
3/8	3/8	1	1-7/8	4	0.030	VXMG6T-1212-R030N1	H7195	\$50.49
1/2	1/2	1-1/4		3	SQ	VXMG6T-1616-NR	H7201	\$65.15
1/2	1/2	1-1/4		3	0.015	VXMG6T-1616-R015	H7197	\$65.15
1/2	1/2	1-1/4		3	0.030	VXMG6T-1616-R030	H7198	\$65.15
1/2	1/2	1-1/4		3	0.060	VXMG6T-1616-R060	H7199	\$65.15
1/2	1/2	1-1/4		3	0.120	VXMG6T-1616-R120	H7200	\$65.15
1/2	1/2	1-1/4	2-1/4	4	SQ	VXMG6T-1616-NRN1	H7861	\$108.21
1/2	1/2	1-1/4	2-1/4	4	0.030	VXMG6T-1616-R030N1	H7202	\$108.21
1/2	1/2	1-1/4	2-1/4	4	0.060	VXMG6T-1616-R060N1	H7203	\$108.21
1/2	1/2	1-1/4	2-1/4	4	0.120	VXMG6T-1616-R120N1	H7862	\$108.21
1/2	1/2	1-1/4	3	5	SQ	VXMG6T-1616-NRN2	H7863	\$124.13
1/2	1/2	1-1/4	3	5	0.030	VXMG6T-1616-R030N2	H7864	\$124.13
1/2	1/2	1-1/4	3	5	0.060	VXMG6T-1616-R060N2	H7865	\$124.13
1/2	1/2	1-1/4	3	5	0.120	VXMG6T-1616-R120N2	H7866	\$124.13
5/8	5/8	1-1/4		3-1/2	SQ	VXMG6T-2020-NR	H7206	\$113.54
5/8	5/8	1-1/4		3-1/2	0.030	VXMG6T-2020-R030	H7204	\$113.54
5/8	5/8	1-1/4		3-1/2	0.060	VXMG6T-2020-R060	H7205	\$113.54
5/8	5/8	1-1/4	2-1/4	4	0.030	VXMG6T-2020-R030N1	H7207	\$185.48
5/8	5/8	1-1/4	2-1/4	4	0.060	VXMG6T-2020-R060N1	H7208	\$185.48
3/4	3/4	1-5/8		4	SQ	VXMG6T-2424-NR	H7209	\$170.86
3/4	3/4	1-5/8		4	0.030	VXMG6T-2424-R030	H7210	\$170.86
3/4	3/4	1-5/8		4	0.060	VXMG6T-2424-R060	H7215	\$170.86
3/4	3/4	1-5/8		4	0.090	VXMG6T-2424-R090	H7211	\$170.86
3/4	3/4	1-5/8		4	0.120	VXMG6T-2424-R120	H7212	\$170.86
3/4	3/4	1-5/8	3	5	SQ	VXMG6T-2424-NRN1	H7825	\$217.16
3/4	3/4	1-5/8	3	5	0.030	VXMG6T-2424-R030N1	H7213	\$217.16
3/4	3/4	1-5/8	3	5	0.060	VXMG6T-2424-R060N1	H7214	\$217.16
3/4	3/4	1-5/8	3	5	0.120	VXMG6T-2424-R120N1	H7826	\$217.16
1	1	1-3/4		4-1/2	SQ	VXMG6T-3232-NR	H7220	\$269.17
1	1	1-3/4		4-1/2	0.030	VXMG6T-3232-R030	H7216	\$269.17
1	1	1-3/4		4-1/2	0.060	VXMG6T-3232-R060	H7217	\$269.17
1	1	1-3/4		4-1/2	0.120	VXMG6T-3232-R120	H7218	\$269.17
1	1	1-3/4	3-1/4	5-1/2	SQ	VXMG6T-3232-N1	H7867	\$303.16
1	1	1-3/4	3-1/4	5-1/2	0.030	VXMG6T-3232-R030N1	H7221	\$303.16
1	1	1-3/4	3-1/4	5-1/2	0.060	VXMG6T-3232-R060N1	H7222	\$303.16
1	1	1-3/4	3-1/4	5-1/2	0.120	VXMG6T-3232-R120N1	H7868	\$303.16
1-1/4	1-1/4	2-1/4		5	SQ	VXMG6T-4040-NR	H7225	\$459.17
1-1/4	1-1/4	2-1/4		5	0.030	VXMG6T-4040-R030	H7223	\$459.17

6 FLUTE



REGRIND/RESHARPEN
MODIFICATIONS & COATINGS

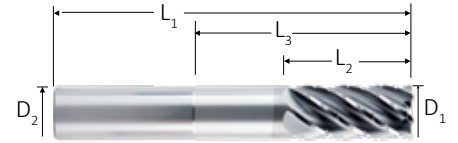
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6 FLUTE • ROUGHING & FINISHING - CHIPBREAKER

Series: **VXMG6TCB**



- Geometry designed to reduce chatter, universal machining operations
- Unique titanium focused geometry and edge prep enables efficient cutting action
- Eccentric relief provides an exceptionally strong cutting edge
- Excellent for roughing & finishing applications
- Aggressive Chip Breaker option available to avoid chip nesting



CHIP BREAKER



DIA D ₁	SHK D ₂	LOC L ₂	LBS L ₃	OAL L ₁	CORNER	PART NAME	nACRo EDP	PRICE
3/8	3/8	1		3	0.015	VXMG6TCB-1212-R015	H7192B	\$45.75
3/8	3/8	1		3	0.030	VXMG6TCB-1212-R030	H7196B	\$45.75
3/8	3/8	1		3	0.060	VXMG6TCB-1212-R060	H7193B	\$45.75
3/8	3/8	1	1-7/8	4	0.015	VXMG6TCB-1212-R015N1	H7194B	\$56.52
3/8	3/8	1	1-7/8	4	0.030	VXMG6TCB-1212-R030N1	H7195B	\$56.52
1/2	1/2	1-1/4		3	0.015	VXMG6TCB-1616-R015	H7197B	\$72.36
1/2	1/2	1-1/4		3	0.030	VXMG6TCB-1616-R030	H7198B	\$72.36
1/2	1/2	1-1/4		3	0.060	VXMG6TCB-1616-R060	H7199B	\$72.36
1/2	1/2	1-1/4		3	0.120	VXMG6TCB-1616-R120	H7200B	\$72.36
1/2	1/2	1-1/4	2-1/4	4	0.030	VXMG6TCB-1616-R030N1	H7202B	\$115.42
1/2	1/2	1-1/4	2-1/4	4	0.060	VXMG6TCB-1616-R060N1	H7203B	\$115.42
1/2	1/2	1-1/4	2-1/4	4	0.120	VXMG6TCB-1616-R120N1	H7862B	\$115.42
1/2	1/2	1-1/4	3	5	0.030	VXMG6TCB-1616-R030N2	H7864B	\$131.33
1/2	1/2	1-1/4	3	5	0.060	VXMG6TCB-1616-R060N2	H7865B	\$131.33
1/2	1/2	1-1/4	3	5	0.120	VXMG6TCB-1616-R120N2	H7866B	\$131.33
5/8	5/8	1-1/4		3-1/2	0.030	VXMG6TCB-2020-R030	H7204B	\$121.01
5/8	5/8	1-1/4		3-1/2	0.060	VXMG6TCB-2020-R060	H7205B	\$121.01
5/8	5/8	1-1/4	2-1/4	4	0.030	VXMG6TCB-2020-R030N1	H7207B	\$192.95
5/8	5/8	1-1/4	2-1/4	4	0.060	VXMG6TCB-2020-R060N1	H7208B	\$192.95
3/4	3/4	1-5/8		4	0.030	VXMG6TCB-2424-R030	H7210B	\$181.73
3/4	3/4	1-5/8		4	0.060	VXMG6TCB-2424-R060	H7215B	\$181.73
3/4	3/4	1-5/8		4	0.090	VXMG6TCB-2424-R090	H7211B	\$181.73
3/4	3/4	1-5/8		4	0.120	VXMG6TCB-2424-R120	H7212B	\$181.73
3/4	3/4	1-5/8	3	5	0.030	VXMG6TCB-2424-R030N1	H7213B	\$228.04
3/4	3/4	1-5/8	3	5	0.060	VXMG6TCB-2424-R060N1	H7214B	\$228.04
3/4	3/4	1-5/8	3	5	0.120	VXMG6TCB-2424-R120N1	H7826B	\$228.04
1	1	1-3/4		4-1/2	0.030	VXMG6TCB-3232-R030	H7216B	\$281.79
1	1	1-3/4		4-1/2	0.060	VXMG6TCB-3232-R060	H7217B	\$281.79
1	1	1-3/4		4-1/2	0.120	VXMG6TCB-3232-R120	H7218B	\$281.79
1	1	1-3/4	3-1/4	5-1/2	0.030	VXMG6TCB-3232-R030N1	H7221B	\$315.78
1	1	1-3/4	3-1/4	5-1/2	0.060	VXMG6TCB-3232-R060N1	H7222B	\$315.78
1	1	1-3/4	3-1/4	5-1/2	0.120	VXMG6TCB-3232-R120N1	H7868B	\$315.78
1-1/4	1-1/4	2-1/4		5	0.030	VXMG6TCB-4040-R030	H7223B	\$478.64

6 FLUTE



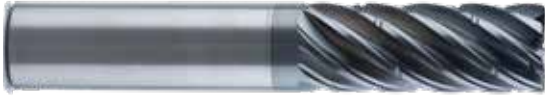


SERIES: MTi7

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	OAL	SQ	R.015	R.030	R.060	R.090	R.120
3/16	3/16	9/16	2-1/2	380820	380860				
				\$17.10	\$17.10				
3/16	3/16	3/4	2-1/2	380900	380940				
				\$17.68	\$23.16				
1/4	1/4	1/2	2-1/2	381100	381120	381160			
				\$22.49	\$24.13	\$24.13			
1/4	1/4	3/4	2-1/2	381220	381240	381280			
				\$23.84	\$31.45	\$26.10			
1/4	1/4	1-1/4	3	381340	381360	381400			
				\$28.70	\$34.48	\$34.48			
3/8	3/8	1/2	2	381760	381780	381820	381840		
				\$34.68	\$37.76	\$37.76	\$39.01		
3/8	3/8	1	2-1/2	381900	381920	381960	381980		
				\$37.66	\$39.87	\$39.87	\$41.12		
3/8	3/8	1-1/4	3	382040	382060	382100	382120		
				\$41.99	\$47.37	\$47.37	\$48.42		
1/2	1/2	5/8	2-1/2	382320	382340	382360	382380		
				\$54.97	\$60.17	\$60.17	\$61.64		
1/2	1/2	1	3	382480	382500	382520	382540		
				\$57.71	\$63.02	\$63.02	\$64.38		
1/2	1/2	1-1/4	3	382640	382660	382680	382700		
				\$59.87	\$65.56	\$65.56	\$64.38		
1/2	1/2	2-1/8	4	382960	382980	383000	383020		
				\$76.23	\$81.54	\$81.54	\$82.60		
5/8	5/8	3/4	3	383120	383140	383160	383180		
				\$108.93	\$114.81	\$114.81	\$115.79		
5/8	5/8	1-1/4	3-1/2	383280	383300	383320	383340		
				\$112.95	\$118.74	\$118.74	\$119.81		
5/8	5/8	1-5/8	3-1/2	383440	383460	383480	383500		
				\$127.08	\$132.77	\$132.77	\$133.75		
5/8	5/8	2-1/8	4	383600	383620	383640	383660		
				\$132.19	\$137.84	\$137.84	\$138.81		
3/4	3/4	1	3	383920	383940	383960	383980		384020
				\$162.86	\$168.06	\$168.06	\$169.43		\$174.63
3/4	3/4	1-5/8	4	384100	384120	384140	384160		384200
				\$178.08	\$183.46	\$183.46	\$184.56		\$189.71
3/4	3/4	2-1/4	5	384280	384300	384320	384340		384380
				\$197.18	\$202.48	\$202.48	\$203.66		\$208.75
3/4	3/4	3-1/4	6	384640	384660	384680	384700		384740
				\$224.76	\$230.15	\$230.15	\$231.33		\$236.53
1	1	1-1/2	4	384820	384840	384860	384880		384920
				\$287.48	\$292.78	\$292.78	\$294.05		\$299.27
1	1	2-5/8	5	385220	385240	385260	385280		385320
				\$351.48	\$356.58	\$356.58	\$357.97		\$363.07
1	1	3-1/4	6	385420	385440	385460	385480	385500	385520
				\$372.28	\$377.73	\$377.73	\$378.73	\$380.93	\$384.11

C3* COATING- UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL



SERIES: MTi7C

TITANIUM • STAINLESS STEELS • TOOL STEELS

DIA	SHK	LOC	OAL	SQ	R.015	R.030	R.060	R.090	R.120
1/4	1/4	1-1/4	3	381340C	381360C	381400C			
				\$33.54	\$39.41	\$39.41			
3/8	3/8	1-1/4	3	382040C	382060C	382100C	382120C		
				\$47.03	\$52.48	\$52.48	\$53.56		
1/2	1/2	1-1/4	3	382640C	382660C	382680C	382700C		
				\$65.18	\$70.97	\$70.97	\$69.76		
1/2	1/2	2-1/8	4	382960C	382980C	383000C	383020C		
				\$83.91	\$89.29	\$89.29	\$90.38		
5/8	5/8	1-1/4	3-1/2	383280C	383300C	383320C	383340C		
				\$119.05	\$124.93	\$124.93	\$126.01		
5/8	5/8	1-5/8	3-1/2	383440C	383460C	383480C	383500C		
				\$134.46	\$140.24	\$140.24	\$141.23		
5/8	5/8	2-1/8	4	383600C	383620C	383640C	383660C		
				\$141.06	\$146.80	\$146.80	\$147.78		
3/4	3/4	1-5/8	4	384100C	384120C	384140C	384160C	384180C	384200C
				\$186.23	\$191.70	\$191.70	\$192.79	\$196.34	\$198.03
3/4	3/4	2-1/4	5	384280C	384300C	384320C	384340C	384360C	384380C
				\$207.39	\$212.76	\$212.76	\$213.95	\$217.63	\$219.13
3/4	3/4	3-1/4	6	384640C	384660C	384680C	384700C	384720C	384740C
				\$238.21	\$243.69	\$243.69	\$244.88	\$248.39	\$250.16
1	1	1-1/2	4	384820C	384840C	384860C	384880C	384900C	384920C
				\$296.20	\$301.58	\$301.58	\$302.87	\$305.12	\$308.15
1	1	2-5/8	5	385220C	385240C	385260C	385280C	385300C	385320C
				\$365.05	\$370.24	\$370.24	\$371.64	\$374.13	\$376.83
1	1	3-1/4	6	385420C	385440C	385460C	385480C	385500C	385520C
				\$387.96	\$393.48	\$393.48	\$394.49	\$396.73	\$399.96

C3* COATING- UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL



CHIPBREAKER - ADD A CUSTOMIZED DESIGN

- Add a Chipbreaker design to any UHP+ Series
- Standard Stocked Chipbreaker design on **5 & 7 Flute**
- Customized between two styles of chipbreaker to aid in avoiding chip build up and chip nesting.





INCONEL • NICKEL BASED

SERIES: **MNi4**

DIA	SHK	LOC	OAL	R.015	R.020	R.030	R.060	R.090	R.120	Ball
1/8	1/8	1/4	1-1/2	340540		340560				340570
				\$12.58		\$15.61				\$16.64
1/8	1/8	1/2	2	340620		340640				340650
				\$12.95		\$17.07				\$17.11
3/16	3/16	5/16	2	340780		340800				340810
				\$15.05		\$17.52				\$19.74
3/16	3/16	9/16	2-1/2	340860		340880				340890
				\$16.24		\$19.07				\$21.23
1/4	1/4	3/8	2	341000	341020	341040	341060	341080		341090
				\$20.90	\$20.90	\$20.90	\$22.10	\$23.10		\$23.97
1/4	1/4	1/2	2-1/2	341120	341140	341160	341180	341200		341210
				\$22.92	\$22.92	\$22.92	\$27.63	\$28.87		\$27.59
1/4	1/4	3/4	2-1/2	341240	341260	341280	341300	341320		341330
				\$29.88	\$24.81	\$24.81	\$29.38	\$31.40		\$29.18
1/4	1/4	1	3	341332	341333	341334	341335	341336		341337
				\$33.61	\$33.61	\$33.61	\$34.56	\$36.62		\$35.94
5/16	5/16	7/16	2	341480		341500	341520	341540		341550
				\$29.28		\$29.28	\$30.27	\$33.26		\$31.03
5/16	5/16	13/16	2-1/2	341580		341600	341620	341640		341650
				\$31.30		\$31.30	\$34.95	\$37.94		\$36.98
3/8	3/8	1/2	2	341780	341800	341820	341840	341860	341880	341890
				\$35.87	\$35.87	\$35.87	\$37.05	\$40.34	\$41.41	\$41.21
3/8	3/8	1	2-1/2	341920	341940	341960	341980	342000	342020	342030
				\$37.87	\$37.87	\$37.87	\$39.06	\$42.44	\$43.44	\$44.73
3/8	3/8	1-1/4	3	342060	342080	342100	342120	342140	342160	342170
				\$44.99	\$44.99	\$44.99	\$45.99	\$49.12	\$53.36	\$49.87
1/2	1/2	5/8	2-1/2	342340		342360	342380	342400	342420	342470
				\$56.71		\$56.71	\$58.12	\$61.49	\$62.78	\$62.54
1/2	1/2	1	3	342500		342520	342540	342560	342580	342630
				\$59.43		\$59.43	\$60.72	\$64.08	\$65.49	\$65.16
1/2	1/2	1-1/4	3	342660		342680	342700	342720	342740	342790
				\$61.86		\$61.86	\$60.72	\$66.13	\$67.62	\$67.21
1/2	1/2	1-5/8	4	342820		342840	342860	342880	342900	342950
				\$74.51		\$74.51	\$75.71	\$79.08	\$80.66	\$81.92

4 FLUTE

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NC TOOL SERVICE LLC

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5 FLUTE SERIES • INCONEL & NICKEL BASED MATERIAL



INCONEL • NICKEL BASED

SERIES: MNi5

DIA	SHK	LOC	OAL	R.015	R.020	R.030	R.060	R.090	R.120	Ball
1/4	1/4	3/8	2	361000	361020	361040	361060	361080		361090
				\$22.01	\$22.01	\$22.01	\$23.26	\$24.32		\$25.23
1/4	1/4	1/2	2-1/2	361120	361140	361160	361180	361200		361210
				\$24.13	\$24.13	\$24.13	\$29.10	\$30.39		\$29.04
1/4	1/4	3/4	2-1/2	361240	361260	361280	361300	361320		361330
				\$31.45	\$26.10	\$26.10	\$30.91	\$33.04		\$30.71
1/4	1/4	1	3	361332	361333	361334	361335	361336		361337
				\$34.48	\$34.48	\$34.48	\$35.44	\$37.56		\$36.86
5/16	5/16	7/16	2	361480		361500	361520	361540		361550
				\$30.81		\$30.81	\$31.88	\$35.00		\$32.66
5/16	5/16	13/16	2-1/2	361580		361600	361620	361640		361650
				\$32.94		\$32.94	\$36.79	\$39.93		\$38.92
3/8	3/8	1/2	2	361780	361800	361820	361840	361860	361880	361890
				\$37.76	\$37.76	\$37.76	\$39.01	\$42.47	\$43.58	\$43.37
3/8	3/8	1	2-1/2	361920	361940	361960	361980	362000	362020	362030
				\$39.87	\$39.87	\$39.87	\$41.12	\$44.67	\$45.72	\$47.07
3/8	3/8	1-1/4	3	362060	362080	362100	362120	362140	362160	362170
				\$47.37	\$47.37	\$47.37	\$48.42	\$51.69	\$56.18	\$52.50
1/2	1/2	5/8	2-1/2	362340		362360	362380	362400	362420	362470
				\$60.17		\$60.17	\$61.64	\$65.18	\$66.54	\$66.30
1/2	1/2	1	3	362500		362520	362540	362560	362580	362630
				\$63.02		\$63.02	\$64.38	\$67.92	\$69.40	\$69.05
1/2	1/2	1-1/4	3	362660		362680	362700	362720	362740	362790
				\$65.56		\$65.56	\$64.38	\$70.06	\$71.64	\$71.21
1/2	1/2	1-5/8	4	362820		362840	362860	362880	362900	362950
				\$78.88		\$78.88	\$80.16	\$83.69	\$85.36	\$86.68
5/8	5/8	3/4	3	363140		363160	363180	363200	363220	363270
				\$114.81		\$114.81	\$115.79	\$118.83	\$121.30	\$125.27
5/8	5/8	1-1/4	3-1/2	363300		363320	363340	363360	363380	363430
				\$118.74		\$118.74	\$119.81	\$122.76	\$125.32	\$129.31
5/8	5/8	1-5/8	3-1/2	363460		363480	363500	363520	363540	363590
				\$132.77		\$132.77	\$133.75	\$136.70	\$139.30	\$143.39
3/4	3/4	1	3	363940		363960	363980	364000	364020	364090
				\$168.06		\$168.06	\$169.43	\$172.87	\$174.63	\$187.33
3/4	3/4	1-5/8	4	364120		364140	364160	364180	364200	364270
				\$183.46		\$183.46	\$184.56	\$188.05	\$189.71	\$202.51
3/4	3/4	2-1/4	5	364300		364320	364340	364360	364380	364450
				\$202.48		\$202.48	\$203.66	\$207.29	\$208.75	\$221.63
1	1	1-1/2	4	364840		364860	364880	364900	364920	365010
				\$292.77		\$292.77	\$288.05	\$296.25	\$299.26	\$323.44

C3* COATING- UNIQUE MELIN COATING OPTIMIZED FOR DIFFICULT-TO-MACHINE MATERIALS SUCH AS TITANIUM & STAINLESS STEEL

SPEED & FEED INFORMATION

Notes

Note: All technical data provided are suggested starting points. They may be increase or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE Team with questions

SPEED & FEEDS FOR SERIES: MT14 - PROFILING

DESCRIPTION: 4 FLUTE - PROFILING - VARIABLE HELIX FOR ROUGHING & FINISHING

FOR SLOTTING - SEE CHART FOR MT14 FOR SLOTTING

Material Guide			Condition		SFM	FL	CHIP PER TOOTH									
							1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	
ISO-M	Precipitation	13-8, 15-5, 17-4PH	High Speed Profiling @ Full Length Axial		450	4	0.0013	0.0018	0.0024	0.0031	0.0037	0.0049	0.0062	0.0074	0.0099	
			Profiling @ Full Length Axial		325	4	0.0013	0.0017	0.0024	0.0031	0.0036	0.0047	0.0060	0.0071	0.0096	
	Austenitic	302, 303, 304L, 316L	High Speed Profiling @ Full Length Axial		475	4	0.0015	0.0020	0.0029	0.0038	0.0044	0.0060	0.0074	0.0089	0.0119	
			Profiling @ Full Length Axial		325	4	0.0015	0.0021	0.0028	0.0037	0.0043	0.0057	0.0071	0.0085	0.0114	
	Martensitic	403, 410, 416	High Speed Profiling @ Full Length Axial		500	4	0.0014	0.0020	0.0026	0.0034	0.0040	0.0053	0.0066	0.0080	0.0106	
			Profiling @ Full Length Axial		375	4	0.0015	0.0023	0.0030	0.0040	0.0045	0.0061	0.0076	0.0090	0.0122	
ISO-P	High Strength Steels	4140, 4340, 52100	High Speed Profiling @ Full Length Axial		500	4	0.0014	0.0020	0.0026	0.0034	0.0040	0.0053	0.0066	0.0080	0.0106	
			Profiling @ Full Length Axial		375	4	0.0015	0.0024	0.0030	0.0040	0.0045	0.0061	0.0076	0.0090	0.0122	
	High Alloy Steels Mold & Die	A-2, P20, 01, 02, D2, H-13	High Speed Profiling @ Full Length Axial		475	4	0.0012	0.0017	0.0023	0.0030	0.0034	0.0044	0.0056	0.0067	0.0090	
			Profiling @ Full Length Axial		350	4	0.0014	0.0019	0.0025	0.0033	0.0039	0.0051	0.0064	0.0077	0.0103	
	Medium Alloy Steels	200,250, 300	High Speed Profiling @ Full Length Axial		425	4	0.0014	0.0020	0.0026	0.0034	0.0040	0.0053	0.0066	0.0080	0.0106	
			Profiling @ Full Length Axial		375	4	0.0015	0.0024	0.0030	0.0040	0.0045	0.0061	0.0076	0.0090	0.0122	
	Low Alloy Steels-Maraging	10XX, 11XX, 13XX	High Speed Profiling @ Full Length Axial		525	4	0.0015	0.0024	0.0029	0.0038	0.0043	0.0058	0.0072	0.0087	0.0117	
			Profiling @ Full Length Axial		400	4	0.0017	0.0025	0.0034	0.0044	0.0060	0.0066	0.0083	0.0100	0.0133	
ISO-K	Ductile Iron	ASTM A536, ASTM 897	High Speed Profiling @ Full Length Axial		475	4	0.0011	0.0015	0.0021	0.0027	0.0032	0.0042	0.0053	0.0062	0.0083	
			Profiling @ Full Length Axial		350	4	0.0013	0.0016	0.0024	0.0031	0.0036	0.0047	0.0060	0.0071	0.0096	
	Cast Iron	SAE J431, ASTM A48	High Speed Profiling @ Full Length Axial		500	4	0.0013	0.0019	0.0024	0.0031	0.0037	0.0050	0.0062	0.0075	0.0100	
			Profiling @ Full Length Axial		375	4	0.0015	0.0023	0.0028	0.0037	0.0043	0.0057	0.0071	0.0085	0.0114	
ISO-S	Titanium Alloys	6AL-4V, ASTM 1, 2, 3, 6AL-2S	High Speed Profiling @ Full Length Axial		425	4	0.0012	0.0017	0.0023	0.0030	0.0034	0.0045	0.0057	0.0068	0.0090	
			Profiling @ Full Length Axial		300	4	0.0012	0.0017	0.0022	0.0029	0.0034	0.0043	0.0055	0.0065	0.0087	

For 5553, decrease SFM and IPM by 25%

MT14 Stepcover for Dynamic Milling shouldn't surpass 25% of Dia inside

LOCAL PICK-UP/DELIVERY
MOBILE INVENTORY



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SPEED & FEED INFORMATION

SPEED & FEEDS FOR SERIES: MTi4 FOR SLOTTING

DESCRIPTION: 4 FLUTE - SLOTting - VARIABLE HELIX FOR ROUGHING & FINISHING

FOR PROFILING - SEE CHART FOR MTi4 FOR PROFILING

Notes

Note: All technical data provided are suggested starting points. They may be increase or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE Team with questions

Material Guide			Condition	SFM	FL	CHIP PER TOOTH								
						1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
ISO-M	Precipitation	13-8, 15-5, 17-4PH	Slotting @ ≤ 1 x D	250	4	0.0008	0.0013	0.0017	0.0022	0.0024	0.0033	0.0041	0.0050	0.0067
	Austenitic	302, 303, 304L, 316L	Slotting @ ≤ 1 x D	275	4	0.0010	0.0015	0.0019	0.0025	0.0030	0.0040	0.0050	0.0059	0.0079
	Martensitic	403, 410, 416	Slotting @ ≤ 1 x D	300	4	0.0011	0.0017	0.0021	0.0027	0.0031	0.0042	0.0053	0.0063	0.0085
ISO-P	High Strength Steels	4140, 4340, 52100	Slotting @ ≤ 1 x D	300	4	0.0011	0.0016	0.0021	0.0027	0.0031	0.0042	0.0053	0.0063	0.0085
	High Alloy Steels Mold & Die	A-2, P20, 01, 02, D2, H-13	Slotting @ ≤ 1 x D	275	4	0.0008	0.0013	0.0018	0.0024	0.0027	0.0035	0.0045	0.0053	0.0071
	Medium Alloy Steels	200,250, 300	Slotting @ ≤ 1 x D	325	4	0.0006	0.0006	0.0018	0.0024	0.0029	0.0036	0.0048	0.0061	0.0073
	Low Alloy Steels-Maraging	10XX, 11XX, 13XX	Slotting @ ≤ 1 x D	325	4	0.0012	0.0018	0.0023	0.0030	0.0035	0.0046	0.0058	0.0069	0.0092
ISO-K	Ductile Iron Ductile Cast Iron	ASTM A536, ASTM 897	Slotting @ ≤ 1 x D	400	4	0.0006	0.0010	0.0012	0.0016	0.0018	0.0024	0.0030	0.0036	0.0048
	Cast Iron Grey Cast Iron	SAE J431, ASTM A48	Slotting @ ≤ 1 x D	450	4	0.0007	0.0012	0.0015	0.0019	0.0022	0.0029	0.0036	0.0044	0.0058
ISO-S	Titanium Alloys	6AL-4V, ASTM 1, 2, 3, 6AL-2S	Slotting @ ≤ 1 x D	275	4	0.0007	0.0012	0.0016	0.0020	0.0023	0.0030	0.0038	0.0046	0.0061
For 5553, decrease SFM and IPM by 25%														

For 5553, decrease SFM and IPM by 25%

Long and Extra Long LOC should have feed reduced by 50%

SPEED & FEED INFORMATION

Notes

Note: All technical data provided are suggested starting points. They may be increase or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE Team with questions

SPEED & FEEDS FOR SERIES: MTI5 - PROFILING

DESCRIPTION: 5 FLUTE - PROFILING - VARIABLE INDEX FOR ROUGHING & FINISHING

FOR SLOTTING - SEE CHART FOR MTI5 FOR SLOTTING

Material Guide			Condition	SFM	FL	CHIP PER TOOTH									
						1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"
ISO-M	Precipitation	13-8, 15-5, 17-4PH	High Speed Profiling @ Full Length Axial	450	5	0.0013	0.0018	0.0024	0.0031	0.0037	0.0049	0.0062	0.0074	0.0099	0.0123
			Profiling @ Full Length Axial	325	5	0.0013	0.0017	0.0024	0.0031	0.0036	0.0047	0.0060	0.0071	0.0096	0.0120
	Austenitic	302, 303, 304L, 316L	High Speed Profiling @ Full Length Axial	475	5	0.0015	0.0020	0.0029	0.0038	0.0044	0.0060	0.0074	0.0089	0.0119	0.0148
			Profiling @ Full Length Axial	325	5	0.0015	0.0021	0.0028	0.0037	0.0043	0.0057	0.0071	0.0085	0.0114	0.0143
	Martensitic	403, 410, 416	High Speed Profiling @ Full Length Axial	500	5	0.0014	0.0020	0.0026	0.0034	0.0040	0.0053	0.0066	0.0080	0.0106	0.0132
			Profiling @ Full Length Axial	375	5	0.0015	0.0023	0.0030	0.0040	0.0045	0.0061	0.0076	0.0090	0.0122	0.0152
ISO-P	High Strength Steels	4140, 4340, 52100	High Speed Profiling @ Full Length Axial	500	5	0.0014	0.0020	0.0026	0.0034	0.0040	0.0053	0.0066	0.0080	0.0106	0.0132
			Profiling @ Full Length Axial	375	5	0.0015	0.0024	0.0030	0.0040	0.0045	0.0061	0.0076	0.0090	0.0122	0.0152
	High Alloy Steels Mold & Die	A-2, P20, 01, 02, D2, H-13	High Speed Profiling @ Full Length Axial	475	5	0.0012	0.0017	0.0023	0.0030	0.0034	0.0044	0.0056	0.0067	0.0090	0.0113
			Profiling @ Full Length Axial	350	5	0.0014	0.0019	0.0025	0.0033	0.0039	0.0051	0.0064	0.0077	0.0103	0.0128
	Medium Alloy Steels	200,250, 300	High Speed Profiling @ Full Length Axial	425	5	0.0014	0.0020	0.0026	0.0034	0.0040	0.0053	0.0066	0.0080	0.0106	0.0132
			Profiling @ Full Length Axial	375	5	0.0015	0.0024	0.0030	0.0040	0.0045	0.0061	0.0076	0.0090	0.0122	0.0152
	Low Alloy Steels- Maraging	10XX, 11XX, 13XX	High Speed Profiling @ Full Length Axial	525	5	0.0015	0.0024	0.0029	0.0038	0.0043	0.0058	0.0072	0.0087	0.0117	0.0146
			Profiling @ Full Length Axial	400	5	0.0017	0.0025	0.0034	0.0044	0.0060	0.0066	0.0083	0.0100	0.0133	0.0167
ISO-K	Ductile Iron	ASTM A536, ASTM 897	High Speed Profiling @ Full Length Axial	475	5	0.0011	0.0015	0.0021	0.0027	0.0032	0.0042	0.0053	0.0062	0.0083	0.0104
			Profiling @ Full Length Axial	350	5	0.0013	0.0016	0.0024	0.0031	0.0036	0.0047	0.0060	0.0071	0.0096	0.0120
	Cast Iron	SAE J431, ASTM A48	High Speed Profiling @ Full Length Axial	500	5	0.0013	0.0019	0.0024	0.0031	0.0037	0.0050	0.0062	0.0075	0.0100	0.0124
			Profiling @ Full Length Axial	375	5	0.0015	0.0023	0.0028	0.0037	0.0043	0.0057	0.0071	0.0085	0.0114	0.0143
ISO-S	Titanium Alloys	6AL-4V, ASTM 1, 2, 3, 6AL-2S	High Speed Profiling @ Full Length Axial	425	5	0.0012	0.0017	0.0023	0.0030	0.0034	0.0045	0.0057	0.0068	0.0090	0.0113
			Profiling @ Full Length Axial	300	5	0.0012	0.0017	0.0022	0.0029	0.0034	0.0043	0.0055	0.0065	0.0087	0.0109

For 5553, decrease SFM and IPM by 25%

MTI5 Stepover for Dynamic Milling shouldn't surpass 25% of Dia. inside



NC TOOL SERVICE LLC

ORDER TODAY: 888.857.6835

SPEED & FEED INFORMATION

SPEED & FEEDS FOR SERIES: MT15 FOR SLOTTING

DESCRIPTION: 5 FLUTE - SLOTTING - VARIABLE INDEX FOR ROUGHING & FINISHING

FOR PROFILING - SEE CHART FOR MT15 FOR PROFILING

Notes

Note: All technical data provided are suggested starting points. They may be increase or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE Team with questions

Material Guide			Condition	SFM	FL	CHIP PER TOOTH									
						1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"
ISO-M	Precipitation	13-8, 15-5, 17-4PH	Slotting @ ≤ 1 x D	250	5	0.0008	0.0013	0.0017	0.0022	0.0024	0.0033	0.0041	0.0050	0.0067	0.0083
	Austenitic	302, 303, 304L, 316L	Slotting @ ≤ 1 x D	275	5	0.0010	0.0015	0.0019	0.0025	0.0030	0.0040	0.0050	0.0059	0.0079	0.0098
	Martensitic	403, 410, 416	Slotting @ ≤ 1 x D	300	5	0.0011	0.0017	0.0021	0.0027	0.0031	0.0042	0.0053	0.0063	0.0085	0.0105
ISO-P	High Strength Steels	4140, 4340, 52100	Slotting @ ≤ 1 x D	300	5	0.0011	0.0016	0.0021	0.0027	0.0031	0.0042	0.0053	0.0063	0.0085	0.0105
	High Alloy Steels Mold & Die	A-2, P20, O1, O2, D2, H-13	Slotting @ ≤ 1 x D	275	5	0.0008	0.0013	0.0018	0.0024	0.0027	0.0035	0.0045	0.0053	0.0071	0.0090
	Medium Alloy Steels	200, 250, 300	Slotting @ ≤ 1 x D	325	5	0.0006	0.0006	0.0018	0.0024	0.0029	0.0036	0.0048	0.0061	0.0073	0.0091
	Low Alloy Steels-Maraging	10XX, 11XX, 13XX	Slotting @ ≤ 1 x D	325	5	0.0012	0.0018	0.0023	0.0030	0.0035	0.0046	0.0058	0.0069	0.0092	0.0115
ISO-K	Ductile Iron	ASTM A536, ASTM 897	Slotting @ ≤ 1 x D	400	5	0.0006	0.0010	0.0012	0.0016	0.0018	0.0024	0.0030	0.0036	0.0048	0.0061
	Ductile Cast Iron														
	Cast Iron Grey Cast Iron	SAE J431, ASTM A48	Slotting @ ≤ 1 x D	450	5	0.0007	0.0012	0.0015	0.0019	0.0022	0.0029	0.0036	0.0044	0.0058	0.0073
ISO-S	Titanium Alloys	6AL-4V, ASTM 1, 2, 3, 6AL-2S	Slotting @ ≤ 1 x D	275	5	0.0007	0.0012	0.0016	0.0020	0.0023	0.0030	0.0038	0.0046	0.0061	0.0076

For 5553, decrease SFM and IPM by 25%

Long and Extra Long LOC should have feed reduced by 50%



SPEED & FEED INFORMATION

SPEED & FEEDS FOR SERIES: MTI7 - PROFILING

DESCRIPTION: 7 FLUTE - PROFILING - VARIABLE HELIX FOR ROUGHING & FINISHING

Notes

Note: All technical data provided are suggested starting points. They may be increase or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE Team with questions

Material Guide			Condition		SFM	FL	CHIP PER TOOTH							
							1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
ISO-M	Precipitation	13-8, 15-5, 17-4PH	High Speed Profiling @ Full Length Axial		450	7	0.0013	0.0018	0.0024	0.0037	0.0049	0.0062	0.0074	0.0099
			Profiling @ Full Length Axial		325	7	0.0013	0.0017	0.0024	0.0036	0.0047	0.0060	0.0071	0.0096
	Austenitic	302, 303, 304L, 316L	High Speed Profiling @ Full Length Axial		475	7	0.0015	0.0020	0.0029	0.0044	0.0060	0.0074	0.0089	0.0119
			Profiling @ Full Length Axial		325	7	0.0015	0.0021	0.0028	0.0043	0.0057	0.0071	0.0085	0.0114
	Martensitic	403, 410, 416	High Speed Profiling @ Full Length Axial		500	7	0.0014	0.0020	0.0026	0.0040	0.0053	0.0066	0.0080	0.0106
			Profiling @ Full Length Axial		375	7	0.0015	0.0023	0.0030	0.0045	0.0061	0.0076	0.0090	0.0122
ISO-P	High Strength Steels	4140, 4340, 52100	High Speed Profiling @ Full Length Axial		500	7	0.0014	0.0020	0.0026	0.0040	0.0053	0.0066	0.0080	0.0106
			Profiling @ Full Length Axial		375	7	0.0015	0.0024	0.0030	0.0045	0.0061	0.0076	0.0090	0.0122
	High Alloy Steels Mold & Die	A-2, P20, 01, 02, D2, H-13	High Speed Profiling @ Full Length Axial		475	7	0.0012	0.0017	0.0023	0.0034	0.0044	0.0056	0.0067	0.0090
			Profiling @ Full Length Axial		350	7	0.0014	0.0019	0.0025	0.0039	0.0051	0.0064	0.0077	0.0103
	Medium Alloy Steels	200,250, 300	High Speed Profiling @ Full Length Axial		425	7	0.0014	0.0020	0.0026	0.0040	0.0053	0.0066	0.0080	0.0106
			Profiling @ Full Length Axial		375	7	0.0015	0.0024	0.0030	0.0045	0.0061	0.0076	0.0090	0.0122
	Low Alloy Steels-Maraging	10XX, 11XX, 13XX	High Speed Profiling @ Full Length Axial		525	7	0.0015	0.0024	0.0029	0.0043	0.0058	0.0072	0.0087	0.0117
			Profiling @ Full Length Axial		400	7	0.0017	0.0025	0.0034	0.0060	0.0066	0.0083	0.0100	0.0133
	Ductile Iron	ASTM A536, ASTM 897	High Speed Profiling @ Full Length Axial		475	7	0.0011	0.0015	0.0021	0.0032	0.0042	0.0053	0.0062	0.0083
	Ductile Cast Iron		Profiling @ Full Length Axial		350	7	0.0013	0.0016	0.0024	0.0036	0.0047	0.0060	0.0071	0.0096
ISO-K	Cast Iron	SAE J431, ASTM A48	High Speed Profiling @ Full Length Axial		500	7	0.0013	0.0019	0.0024	0.0037	0.0050	0.0062	0.0075	0.0100
			Profiling @ Full Length Axial		375	7	0.0015	0.0023	0.0028	0.0043	0.0057	0.0071	0.0085	0.0114
	Grey Cast Iron		High Speed Profiling @ Full Length Axial		425	7	0.0012	0.0017	0.0023	0.0034	0.0045	0.0057	0.0068	0.0090
			Profiling @ Full Length Axial		300	7	0.0012	0.0017	0.0022	0.0034	0.0043	0.0055	0.0065	0.0087
ISO-S	Titanium Alloys	6AL-4V, ASTM 1, 2, 3, 6AL-2S	High Speed Profiling @ Full Length Axial		425	7	0.0012	0.0017	0.0023	0.0034	0.0045	0.0057	0.0068	0.0090
			Profiling @ Full Length Axial		300	7	0.0012	0.0017	0.0022	0.0034	0.0043	0.0055	0.0065	0.0087

For 5553, decrease SFM and IPM by 25%

MTI7 Steppover for Dynamic Milling shouldn't surpass 10% of Dia and Should be 7% or less



LOCAL PICK-UP/DELIVERY
MOBILE INVENTORY

NC TOOL SERVICE LLC

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SPEED & FEED INFORMATION

SPEED & FEEDS FOR SERIES: MNi4

DESCRIPTION: 4 FLUTE - VARIABLE HELIX FOR ROUGHING & FINISHING

Notes

Note: All technical data provided are suggested starting points. They may be increase or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE Team with questions

Material Guide			Condition	SFM	CHIP PER TOOTH									
					FL	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
ISO-M	Precipitation	13-8, 15-5, 17-4PH	Slotting @ $\leq 1 \times D$	225	4	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
			Profiling @ $2 \times D$ Axial / $\leq .15 D$ Radial	225	4	0.0008	0.0012	0.0016	0.0019	0.0024	0.0032	0.0040	0.0048	0.0064
	Austenitic	302, 303, 304L, 316L	Slotting @ $\leq 1 \times D$	225	4	0.0007	0.0010	0.0013	0.0016	0.0020	0.0026	0.0033	0.0040	0.0053
			Profiling @ $2 \times D$ Axial / $\leq .15 D$ Radial	250	4	0.0009	0.0013	0.0018	0.0021	0.0026	0.0035	0.0044	0.0053	0.0070
	Martensitic	403, 410, 416	Slotting @ $\leq 1 \times D$	300	4	0.0007	0.0011	0.0014	0.0017	0.0021	0.0028	0.0035	0.0042	0.0056
			Profiling @ $2 \times D$ Axial / $\leq .15 D$ Radial	325	4	0.0009	0.0014	0.0018	0.0022	0.0027	0.0036	0.0045	0.0054	0.0072
ISO-S	Cobalt Base	Stellite, Haynes 25, 188, X-40, L-605	Slotting @ $.5 \times D$	95	4	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
			Profiling @ $2 \times D$ Axial / $\leq .15 D$ Radial	150	4	0.0008	0.0012	0.0016	0.0019	0.0024	0.0032	0.0040	0.0048	0.0064
	Nickel Base	Inconel 600, 625, 718, Nickel 200, 270, Invar, Monel 400, 405, K-Monel, PermaNickel 300, Inconel 600	Slotting @ $.5 \times D$	95	4	0.0007	0.0010	0.0013	0.0016	0.0020	0.0026	0.0033	0.0040	0.0053
			Profiling @ $2 \times D$ Axial / $\leq .15 D$ Radial	150	4	0.0009	0.0013	0.0018	0.0021	0.0026	0.0035	0.0044	0.0053	0.0070
	Iron Base	Incoloy 800-802, Multimet N-155, Timken 16-26-6	Slotting @ $.5 \times D$	95	4	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
			Profiling @ $2 \times D$ Axial / $\leq .15 D$ Radial	130	4	0.0008	0.0012	0.0016	0.0019	0.0024	0.0032	0.0040	0.0048	0.0064
ISO-P	High Strength Steels	4140, 4340, 52100	Slotting @ $\leq 1 \times D$	325	4	0.0004	0.0006	0.0008	0.0010	0.0012	0.0016	0.0020	0.0024	0.0032
			Profiling @ $2 \times D$ Axial / $\leq .15 D$ Radial	400	4	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
	High Alloy Steels Mold & Die	A-2, P20, 01, 02, D2, H-13	Slotting @ $\leq 1 \times D$	275	4	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
			Profiling @ $2 \times D$ Axial / $\leq .15 D$ Radial	350	4	0.0008	0.0012	0.0016	0.0019	0.0024	0.0032	0.0040	0.0048	0.0064



SPEED & FEED INFORMATION

SPEED & FEEDS FOR SERIES: MNi5

DESCRIPTION: 5 FLUTE - VARIABLE HELIX FOR ROUGHING & FINISHING

Notes

Note: All technical data provided are suggested starting points. They may be increase or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE Team with questions

Material Guide			Condition	SFM	FL	CHIP PER TOOTH								
						1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
ISO-M	Precipitation	13-8, 15-5, 17-4PH	Slotting @ ≤ 1 x D	225	5	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
			Profiling @ 2 x D Axial / ≤ .15 D Radial	225	5	0.0008	0.0012	0.0016	0.0019	0.0024	0.0032	0.0040	0.0048	0.0064
	Austenitic	302, 303, 304L, 316L	Slotting @ ≤ 1 x D	225	5	0.0007	0.0010	0.0013	0.0016	0.0020	0.0026	0.0033	0.0040	0.0053
			Profiling @ 2 x D Axial / ≤ .15 D Radial	250	5	0.0009	0.0013	0.0018	0.0021	0.0026	0.0035	0.0044	0.0053	0.0070
	Martensitic	403, 410, 416	Slotting @ ≤ 1 x D	300	5	0.0007	0.0011	0.0014	0.0017	0.0021	0.0028	0.0035	0.0042	0.0056
			Profiling @ 2 x D Axial / ≤ .15 D Radial	325	5	0.0009	0.0014	0.0018	0.0022	0.0027	0.0036	0.0045	0.0054	0.0072
ISO-S	Cobalt Base	Stellite, Haynes 25, 188, X-40, L-605	Slotting @ .5 x D	95	5	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
			Profiling @ 2 x D Axial / ≤ .15 D Radial	150	5	0.0008	0.0012	0.0016	0.0019	0.0024	0.0032	0.0040	0.0048	0.0064
	Nickel Base	Inconel 600, 625, 718, Nickel 200, 270, Invar, Monel 400, 405, K-Monel, PermaNickel 300, Inconel 600	Slotting @ .5 x D	95	5	0.0007	0.0010	0.0013	0.0016	0.0020	0.0026	0.0033	0.0040	0.0053
			Profiling @ 2 x D Axial / ≤ .15 D Radial	150	5	0.0009	0.0013	0.0018	0.0021	0.0026	0.0035	0.0044	0.0053	0.0070
	Iron Base	Incoloy 800-802, Multimet N-155,Timken 16-26-6	Slotting @ .5 x D	95	5	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
			Profiling @ 2 x D Axial / ≤ .15 D Radial	130	5	0.0008	0.0012	0.0016	0.0019	0.0024	0.0032	0.0040	0.0048	0.0064
ISO-P	High Strength Steels	4140, 4340, 52100	Slotting @ ≤ 1 x D	325	5	0.0004	0.0006	0.0008	0.0010	0.0012	0.0016	0.0020	0.0024	0.0032
			Profiling @ 2 x D Axial / ≤ .15 D Radial	400	5	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
	High Alloy Steels Mold & Die	A-2, P20, 01, 02, D2, H-13	Slotting @ ≤ 1 x D	275	5	0.0006	0.0009	0.0012	0.0014	0.0018	0.0024	0.0030	0.0036	0.0048
			Profiling @ 2 x D Axial / ≤ .15 D Radial	350	5	0.0008	0.0012	0.0016	0.0019	0.0024	0.0032	0.0040	0.0048	0.0064

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