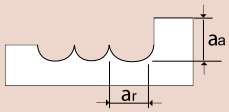
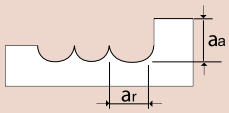
Standard Ball Nose Carbide 2 Flute and 3 Flute

Profiling (Fractional)

Hardness							Up to 30 HRC		30 to 40 HRC		40 to 50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		115 SFM		115 SFM		80 SFM		65 SFM		82 SFM	
Depth of Cut	a_a=0.3D a_r=0.7D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/64	32,000	7.5	11,000	3.5	11,000	3.1	8,000	1.8	6,400	0.9	8,000	1.8
5/64	16,000	7.5	5,600	3.5	5,600	3.1	4,000	1.8	3,200	0.9	4,000	1.8
1/8	10,000	7.5	3,700	3.9	3,700	3.5	2,600	2.0	2,100	1.2	2,600	2.2
5/32	8,000	7.5	2,800	3.9	2,800	3.5	2,000	2.0	1,600	1.2	2,000	2.2
3/16	6,400	7.5	2,200	3.9	2,200	3.5	1,600	2.0	1,300	1.2	1,600	2.2
1/4	5,300	7.5	1,900	3.9	1,900	3.5	1,320	2.0	1,000	1.2	1,320	2.2
5/16	4,000	8.7	1,400	3.9	1,400	3.5	1,000	2.0	800	1.2	1,000	2.2
13/32	3,200	8.7	1,100	3.9	1,100	3.5	800	2.0	640	1.2	800	2.2
15/32	2,600	8.7	930	3.9	930	3.5	660	2.0	530	1.2	660	2.2
5/8	2,000	8.7	700	3.9	700	3.5	500	2.0	400	1.2	500	2.2
25/32	1,600	8.7	560	3.9	560	3.5	400	2.0	320	1.2	400	2.2
1	1,200	8.7	450	3.9	450	3.5	320	2.0	250	1.2	320	2.2

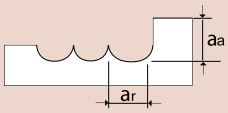
Profiling (Metric)

Hardness							Up to 30 HRC		30 to 40 HRC		40 to 50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	100 m/min		35 m/min		35 m/min		25 m/min		20 m/min		25 m/min	
Depth of Cut	a_a=0.3D a_r=0.7D											
Mill Dia.	Speed RPM	Feed m/min	Speed RPM	Feed m/min	Speed RPM	Feed m/min	Speed RPM	Feed m/min	Speed RPM	Feed m/min	Speed RPM	Feed m/min
1	32,000	190	11,000	90	11,000	80	8,000	45	6,400	24	8,000	45
2	16,000	190	5,600	90	5,600	80	4,000	45	3,200	24	4,000	45
3	10,000	190	3,700	100	3,700	90	2,600	50	2,100	30	2,600	55
4	8,000	190	2,800	100	2,800	90	2,000	50	1,600	30	2,000	55
5	6,400	190	2,200	100	2,200	90	1,600	50	1,300	30	1,600	55
6	5,300	190	1,900	100	1,900	90	1,320	50	1,000	30	1,320	55
8	4,000	220	1,400	100	1,400	90	1,000	50	800	30	1,000	55
10	3,200	220	1,100	100	1,100	90	800	50	640	30	800	55
12	2,600	220	930	100	930	90	660	50	530	30	660	55
16	2,000	220	700	100	700	90	500	50	400	30	500	55
20	1,600	220	560	100	560	90	400	50	320	30	400	55
25	1,200	220	450	100	450	90	320	50	250	30	320	55

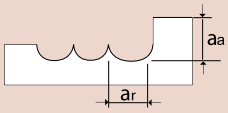
(1) Increase speeds & feeds 5-10% for Series 412BN, 414BN, 442BN and 444BN. (2) Reduce speeds & feeds 20-30% for Series 462BN and 464BN. (3) Reduce speeds & feeds 40-50% for Series 482BN and 484BN. (4) Increase speeds & feeds 20-30% for Series 402BN TiN and 404BN TiN. (5) Column for Hardened Steels (40-50 HRC) is for 402BN TiN and 404BN TiN only.

Standard Ball Nose Carbide 4 Flute and Multiple Flute

Profiling (Fractional)

Hardness							Up to 30 HRC		30 to 40 HRC		40 to 50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		100-115 SFM		100-130 SFM		65-100 SFM		65-82 SFM		43 SFM	
Depth of Cut	a_a=0.3D a_r=0.7D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/64	32,000	10.5	11,000	5.0	11,000	4.4	8,000	2.5	6,400	1.3	8,000	2.5
5/64	16,000	10.5	5,600	5.0	5,600	4.4	4,000	2.5	3,200	1.3	4,000	2.5
1/8	10,000	10.5	3,700	5.5	3,700	5.0	2,600	2.8	2,100	1.7	2,600	3.0
5/32	8,000	10.5	2,800	5.5	2,800	5.0	2,000	2.8	1,600	1.7	2,000	3.0
3/16	6,400	10.5	2,200	5.5	2,200	5.0	1,600	2.8	1,300	1.7	1,600	3.0
1/4	5,300	10.5	1,900	5.5	1,900	5.0	1,320	2.8	1,000	1.7	1,320	3.0
5/16	4,000	12.1	1,400	5.5	1,400	5.0	1,000	2.8	800	1.7	1,000	3.0
13/32	3,200	12.1	1,100	5.5	1,100	5.0	800	2.8	640	1.7	800	3.0
15/32	2,600	12.1	930	5.5	930	5.0	660	2.8	530	1.7	660	3.0
5/8	2,000	12.1	700	5.5	700	5.0	500	2.8	400	1.7	500	3.0
25/32	1,600	12.1	560	5.5	560	5.0	400	2.8	320	1.7	400	3.0
1	1,200	12.1	450	5.5	450	5.0	320	2.8	250	1.7	320	3.0

Profiling (Metric)

Hardness							Up to 30 HRC		30 to 40 HRC		40 to 50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	100 m/min		35-45 m/min		30-40 m/min		20-30 m/min		20-25 m/min		15 m/min	
Depth of Cut	a_a=0.3D a_r=0.7D											
Mill Dia.	Speed RPM	Feed m/min	Speed RPM	Feed m/min	Speed RPM	Feed m/min	Speed RPM	Feed m/min	Speed RPM	Feed m/min	Speed RPM	Feed m/min
1	32,000	226	11,000	126	11,000	112	8,000	63	6,400	33.6	8,000	63
2	16,000	226	5,600	126	5,600	112	4,000	63	3,200	33.6	4,000	63
3	10,000	226	3,700	140	3,700	126	2,600	70	2,100	42	2,600	77
4	8,000	226	2,800	140	2,800	126	2,000	70	1,600	42	2,000	77
5	6,400	226	2,200	140	2,200	126	1,600	70	1,300	42	1,600	77
6	5,300	226	1,900	140	1,900	126	1,320	70	1,000	42	1,320	77
8	4,000	308	1,400	140	1,400	126	1,000	70	800	42	1,000	77
10	3,200	308	1,100	140	1,100	126	800	70	640	42	800	77
12	2,600	308	930	140	930	126	660	70	530	42	660	77
16	2,000	308	700	140	700	126	500	70	400	42	500	77
20	1,600	308	560	140	560	126	400	70	320	42	400	77
25	1,200	308	450	140	450	126	320	70	250	42	320	77

(1) Increase speeds & feeds 5-10% for Series 412BN, 414BN, 442BN and 444BN. (2) Reduce speeds & feeds 20-30% for Series 462BN and 464BN. (3) Reduce speeds & feeds 40-50% for Series 482BN and 484BN. (4) Increase speeds & feeds 20-30% for Series 402BN TiN and 404BN TiN. (5) Column for Hardened Steels (40-50 HRC) is for 402BN TiN and 404BN TiN only.