

## 4-Flute Ball Nose Stub Length

Strength, rigidity and improved tool life can be obtained with this stub length end mill.



Bright: Speeds & Feeds > P. A33  
TiAlN: Speeds & Feeds > P. A36

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price \$	TiAlN Code No.	Price \$
<b>Inch</b>							
1/32	1/8	5/64	1-1/2	101280	18.47	102681	22.00
3/64	1/8	3/32	1-1/2	101281	18.47	102683	22.00
1/16	1/8	1/8	1-1/2	101282	13.62	102685	17.11
5/64	1/8	5/32	1-1/2	101283	12.85	102687	16.36
3/32	1/8	3/16	1-1/2	101284	12.85	102689	16.36
7/64	1/8	7/32	1-1/2	101285	13.17	102691	16.68
1/8	1/8	1/4	1-1/2	101286	12.52	102693	16.03
9/64	3/16	9/32	2	101287	17.54	102694	21.03
5/32	3/16	5/16	2	101288	17.54	102695	21.03
3/16	3/16	3/8	2	101289	16.64	102781	20.15
7/32	1/4	7/16	2	101290	22.07	102783	27.54
1/4	1/4	1/2	2	101291	21.71	102785	27.21
5/16	5/16	1/2	2	101292	29.71	102787	37.50
3/8	3/8	5/8	2	101293	36.70	102789	44.50
7/16	7/16	5/8	2-1/2	101294	45.41	102791	57.71
1/2	1/2	5/8	2-1/2	101295	60.54	102793	72.83
5/8	5/8	3/4	3	101296	166.55	102795	130.06
3/4	3/4	1	3	101297	166.55	102797	183.65
<b>Metric</b>							
1	3	2	39	101710	19.83	102891	23.42
1.5	3	3	39	101711	19.83	102893	23.42
2	3	4	39	101712	14.64	-	-
2.5	3	5	39	101713	13.81	-	-
3	3	6	39	101714	13.46	102941	17.04
3.5	4	7	51	101715	18.85	-	-
4	4	8	51	101716	17.91	-	-
4.5	5	9	51	101717	23.68	-	-
5	5	10	51	101718	22.30	102935	27.87
6	6	12	51	101719	23.42	102945	28.98
7	8	12	51	101720	30.63	-	-
8	8	12	51	101721	31.97	-	-
9	10	14	51	101722	39.48	102943	47.46
10	10	14	51	101723	43.64	-	-
11	11	16	64	101724	46.40	-	-
12	12	16	64	101725	65.10	-	-

## 4-Flute Ball Nose Regular Length

The industry standard. Wear resistance and minimal deflection for excellent size control.

**For:** General Purpose Milling, Production Milling, Contouring  
**On:** Steels, Stainless Steels



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Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price \$	TiAlN Code No.	Price \$
<b>Inch</b>							
1/8	1/8	1/2	1-1/2	103880	15.13	102882	18.63
3/16	3/16	5/8	2	103881	19.94	102884	23.44
1/4	1/4	3/4	2-1/2	103882	24.77	102886	31.97
5/16	5/16	13/16	2-1/2	103883	32.47	102888	43.33
3/8	3/8	1	2-1/2	103884	39.74	102890	50.60
1/2	1/2	1	3	103885	73.96	102892	86.31
9/16	9/16	1-1/8	3-1/2	103939	107.73	102894	125.52
5/8	5/8	1-1/4	3-1/2	103940	119.63	102896	137.41
11/16	3/4	1-3/8	4	103941	199.15	102895	220.13
3/4	3/4	1-1/2	4	103942	176.06	102898	197.06
7/8	7/8	1-1/2	4	103943	282.06	102897	313.09
1	1	1-1/2	4	103944	305.38	102900	336.43
<b>Metric</b>							
1	3	3	39	102737	19.83	101635	23.40
1.5	3	5	39	102738	19.83	101636	23.40
2	3	7	39	102760	18.69	101637	22.29
2.5	3	8	39	102761	17.91	101638	21.48
3	3	10	39	102762	16.26	101639	19.83
3.5	4	12	51	102763	23.87	101656	27.43
4	4	14	51	102764	21.40	101657	24.98
4.5	5	14	51	102765	26.93	101658	32.52
5	5	16	51	102766	25.95	101659	33.33
6	6	19	64	102767	26.59	101660	33.97
7	8	19	64	102768	34.14	101661	45.17
8	8	21	64	102769	34.92	101662	45.95
9	10	22	70	102770	42.66	101663	53.70
10	10	25	70	102771	49.85	101664	62.44
11	11	25	70	102772	52.48	101665	65.05
12	12	25	76	102773	64.22	101666	91.94
14	14	30	89	102775	115.59	101667	133.76
16	16	32	89	102776	128.35	101668	146.53
18	18	35	102	102777	188.88	101669	210.38
20	20	38	102	102778	253.30	101686	285.01
25	25	38	102	102779	294.96	101687	326.65

## Multi-Flute Rougher Regular Length — TiAlN Coated

These fine pitch roughing end mills have an excellent flute design for roughing applications in a variety of materials. TiAlN coating enhances speeds-feeds and tool life.

- 4 flutes



TiAlN: Speeds & Feeds > P. A35

Cutting Dia.	Shank Dia.	Flute Length	Overall Length	Bright Code No.	Price \$	TiAlN Code No.	Price \$
<b>Inch</b>							
1/4	1/4	3/4	2-1/2	102150	47.20	102185	53.55
5/16	5/16	3/4	2-1/2	102155	52.25	102190	61.48
3/8	3/8	1	2-1/2	102160	65.27	102200	74.48
1/2	1/2	1-1/4	3	102165	90.07	102205	95.67
5/8	5/8	1-1/4	3-1/2	102170	145.14	102210	152.41
3/4	3/4	1-5/8	4	102175	212.24	102215	218.83
1	1	1-3/4	4	102180	360.41	102220	386.91

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Tolerances - Inch			Tolerances - Metric		
Size	Diameter	Shank Diameter	Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"	1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm
Steel		Stainless Steel	Cast Iron/Hardened		Aluminum