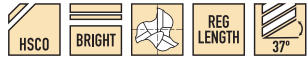


Regular Length Roughing End Mills For Aluminum HSCO



Speeds & Feeds > P. A45

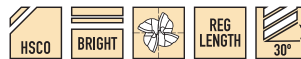
Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Code No.	Price \$
Inch						
1/4	3/8	5/8	2-7/16	3	104052	53.49
5/16	3/8	3/4	2-1/2	3	104054	57.81
3/8	3/8	3/4	2-1/2	3	104056	53.49
1/2	1/2	1-1/4	3-1/4	3	104058	73.44
5/8	5/8	1-5/8	3-3/4	3	104060	90.79
3/4	3/4	1-5/8	3-3/4	3	104062	115.03
1	1	2	4-1/2	3	104066	170.05
1-1/4	1-1/4	2	4-1/2	3	104068	239.77
1-1/2	1-1/4	2	4-1/2	3	104070	284.68

Regular Length Ball Nose Rougher HSCO



This general purpose rougher is designed for high production metal removal in a wide range of workpiece material.

- Multiple helical flutes
- Single end with weldon shank
- Ball end
- Round profile
- Coarse pitch



Speeds & Feeds > P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price \$
Inch						
1/4	3/8	5/8	2-7/16	3	104088	68.71
5/16	3/8	3/4	2-1/2	3	104089	73.04
3/8	3/8	3/4	2-1/2	4	104090	68.71
1/2	1/2	1-1/4	3-1/4	4	104091	94.42
5/8	5/8	1-5/8	3-3/4	4	104092	116.71
3/4	3/4	1-3/4	4	4	104093	145.23
1	3/4	2	4-1/2	5	104094	202.42
1	1	2	4-1/2	5	104095	210.01
1-1/4	1-1/4	2	4-1/2	6	104096	308.75
1-1/2	1-1/4	2	4-1/2	6	104097	413.85

Stub Length Fine Pitch Rougher HSCO



Fine Pitch Roughers

This general purpose rougher is designed for high production metal removal in a wide range of workpiece material. Suitable for a very broad spectrum of materials having high tensile strengths. Milled surfaces are of exceptional quality.

- Centre cutting
- Round profile
- Single end with weldon shank



Speeds & Feeds > P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price \$	TIAN Coated Code No.	Price \$
Inch								
1/4	3/8	1/4	2-1/16	3	104300	50.36	104320	66.21
3/8	3/8	3/8	2-5/32	3	104302	47.70	104322	72.97
1/2	1/2	1/2	2-1/2	3	104304	69.16	104324	92.04
5/8	5/8	5/8	2-3/4	3	104306	85.60	104326	129.03
3/4	3/4	3/4	2-7/8	3	104308	106.38	104328	146.37
7/8	3/4	7/8	3-1/8	3	104310	124.75	104330	168.89
1	1	1	3-3/4	3	104312	148.26	104332	204.87

Regular Length Fine Pitch Rougher HSCO



Speeds & Feeds > P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price \$	TIAN Coated Code No.	Price \$
Inch								
1/4	3/8	5/8	2-7/16	3	104150	41.99	104202	57.22
5/16	3/8	3/4	2-1/2	3	104152	41.99	104204	60.41
3/8	3/8	3/4	2-1/2	4	104154	41.98	104206	60.42
7/16	3/8	1	2-11/16	4	104156	57.65	104208	77.90
1/2	1/2	1-1/4	3-1/4	4	104158	57.67	104210	86.93
5/8	5/8	1-5/8	3-3/4	4	104160	71.33	104212	104.29
3/4	3/4	1-5/8	3-7/8	4	104162	88.74	104214	127.43
7/8	3/4	1-7/8	4-1/8	5	104164	109.82	104216	171.19
1	1	2	4-1/2	5	104166	128.38	104218	193.66
1-1/4	1-1/4	2	4-1/2	6	104168	208.12	104220	266.62
1-1/2	1-1/4	2	4-1/2	6	104170	278.76	104222	400.18
2	1-1/4	2	4-1/2	6	104172	334.84	104224	686.22

Long Length Fine Pitch Rougher HSCO



Speeds & Feeds > P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price \$	TIAN Coated Code No.	Price \$
Inch								
1/2	1/2	2	4	4	104250	75.21	104266	104.42
5/8	5/8	2-1/2	4-5/8	4	104252	102.97	104268	144.01
3/4	3/4	3	5-1/4	4	104254	110.96	104270	166.96
7/8	7/8	3-1/2	5-3/4	5	104256	134.76	104272	192.34
1	1	4	6-1/2	5	104258	172.80	104274	254.23
1-1/4	1-1/4	4	6-1/2	6	104260	254.73	104276	329.55
1-1/2	1-1/4	4	6-1/2	6	104262	302.34	104278	474.18
2	1-1/4	4	6-1/2	6	104264	466.74	104280	621.48

Rougher Finisher HSCO



Tools are finishing end mills with chipbreakers.

- Prevents chattering while achieving good chip control and high efficiency
- Centre cutting



Speeds & Feeds > P. A45

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	Bright Finish Code No.	Price \$
Inch						
1/4	3/8	5/8	2-7/16	4	103550	42.73
5/16	3/8	3/4	2-1/2	4	103551	42.73
3/8	3/8	3/4	2-1/2	4	103552	42.73
7/16	3/8	1	2-11/16	4	103553	57.67
1/2	1/2	1-1/4	3-1/4	4	103554	57.67
5/8	5/8	1-5/8	3-3/4	4	103555	71.35
3/4	3/4	1-5/8	3-3/4	4	103556	88.74
7/8	3/4	1-7/8	4-1/8	5	103557	114.11
1	1	2	4-1/2	5	103559	128.38
1-1/4	1-1/4	2	4-1/2	6	103560	254.57
1-1/2	1-1/4	2	4-1/2	6	103561	309.10
2	1-1/4	2	4-1/2	6	103562	438.92