

HIGH SPEED STEEL

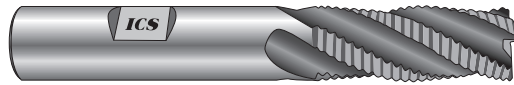
**SUPER (M2-AL) ROUGHING END MILLS**

ICS USA

HEAVY DUTY

NON-CENTER CUTTING

WELDON SHANK



RIGHT HAND CUT  
RIGHT HAND HELIX

COARSE TOOTH

Super (M2-AL) High Speed Steel Roughing End Mills are designed for roughing or hogging large amounts of metal prior to a finish mill operation. M2-AL High Speed Steel is a premium alloy formed by adding aluminum to the base chemical composition of M2 HSS to extend tool life and to dissipate heat. It is often referred to as "Super Steel". Roughing End Mills are also known as Hogging End Mills.

SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTES	PRICE REMA
1/4	3/8	5/8	2-7/16	4	16.98
5/16	3/8	3/4	2-1/2	4	17.54
3/8	3/8	3/4	2-1/2	4	19.44
1/2	1/2	1-1/4	3-1/4	4	20.90
1/2	1/2	2	4	4	27.28
5/8	5/8	1-5/8	3-3/4	4	26.72
3/4	5/8	1-5/8	3-3/4	4	33.78
3/4	5/8	3	5-1/8	4	41.84
3/4	3/4	1-5/8	3-3/4	4	33.78
3/4	3/4	3	5-1/4	4	41.84
7/8	3/4	1-7/8	4-1/8	5	39.94
7/8	3/4	3-1/2	5-5/8	5	48.56
1	3/4	2	4	5	46.32
1	1	2	4-1/2	4	46.32
1	1	3	5-1/2	5	59.76
1	1	4	6-1/2	5	61.22

SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTES	PRICE REMA
1-1/8	1	2	4-1/2	6	61.04
1-1/4	1-1/4	2	4-1/2	5	61.22
1-1/4	1-1/4	3	5-1/2	6	70.96
1-1/4	1-1/4	4	6-1/2	6	85.12
1-1/2	1-1/4	2	4-1/2	6	118.72
1-1/2	1-1/4	3	5-1/2	6	111.62
1-1/2	1-1/4	4	6-1/2	6	134.02
1-3/4	1-1/4	2	4-1/2	6	148.96
1-3/4	1-1/4	4	6-1/2	6	152.72
2	1-1/4	2	5-3/4	8	164.26
2	1-1/4	4	6-1/2	8	176.40
2	2	4	7-3/4	8	231.84
2	2	6	9-3/4	8	251.06
2	2	8	11-3/4	8	313.60
2	2	10	13-3/4	8	369.60
2	2	12	15-1/2	8	436.80

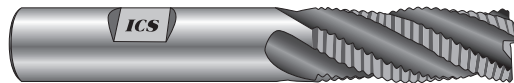
**COBALT (M42) ROUGHING END MILLS**

ICS USA

HEAVY DUTY

NON-CENTER CUTTING

WELDON SHANK



RIGHT HAND CUT  
RIGHT HAND HELIX

COARSE TOOTH

Cobalt Roughing End Mills are designed for roughing or hogging large amounts of metal prior to a finish milling operation. They are used for deep slotting or heavy side cuts and require less power than conventional end mills. Ideal for machining high alloyed steels, titanium alloys, and cast alloys. Form-relieved edges stay constant and can be resharpened by grinding the faces. Roughing End Mills are also known as Hogging End Mills.

SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTES	PRICE REMC
1/4	3/8	5/8	2-7/16	4	26.48
5/16	3/8	3/4	2-1/2	4	26.48
3/8	3/8	3/4	2-1/2	4	26.48
1/2	1/2	1-1/4	3-1/4	4	40.96
1/2	1/2	2	4	4	53.38
5/8	5/8	1-5/8	3-3/4	4	55.04
3/4	5/8	1-5/8	3-3/4	4	62.62
3/4	5/8	3	5-1/8	4	71.92
3/4	3/4	1-5/8	3-3/4	4	62.62
3/4	3/4	3	5-1/4	4	71.92
7/8	3/4	1-7/8	4-1/8	5	83.74
7/8	3/4	3-1/2	5-5/8	5	87.30
1	3/4	2	4	5	92.96
1	1	2	4-1/2	4	92.96
1	1	3	5-1/2	5	102.66
1	1	4	6-1/2	5	111.94

SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTES	PRICE REMC
1-1/8	1	2	4-1/2	6	114.24
1-1/4	1-1/4	2	4-1/2	5	148.40
1-1/4	1-1/4	3	5-1/2	6	165.88
1-1/4	1-1/4	4	6-1/2	6	178.38
1-1/2	1-1/4	2	4-1/2	6	177.12
1-1/2	1-1/4	3	5-1/2	6	200.44
1-1/2	1-1/4	4	6-1/2	6	211.76
1-3/4	1-1/4	2	4-1/2	6	237.38
1-3/4	1-1/4	4	6-1/2	6	269.10
2	1-1/4	2	5-3/4	8	270.90
2	1-1/4	4	6-1/2	8	327.54
2	2	4	7-3/4	8	453.00
2	2	6	9-3/4	8	505.64
2	2	8	11-3/4	8	691.64
2	2	10	13-3/4	8	831.60
2	2	12	15-1/2	8	970.22

NOTE:  
All 2" Shank Roughing End Mills have combination "Shur-Lock" shanks.

TOLERANCES  
Flute Dia.: +.005 - .005"  
Shank Dia.: +.0005 - .0005"