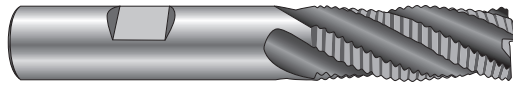


HIGH SPEED STEEL SUPER (M2-AL) ROUGHING END MILLS

ICS USA
WELDON SHANK

HEAVY DUTY

NON-CENTER CUTTING



COARSE TOOTH

**RIGHT HAND CUT
RIGHT HAND HELIX**

Super (M2-AL) High Speed Steel Roughing End Mills are designed for roughing or “hogging” large amounts of metal prior to a finish milling 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

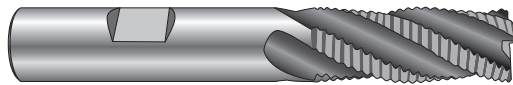
SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTES	PRICE REMA
1-1/8	1	2	4-1/2	6	61.04
1-1/4	1-1/4	2	4-1/2	5	61.22
1-1/4	1-1/4	3	5-1/2	6	70.96
1-1/4	1-1/4	4	6-1/2	6	85.12
1-1/2	1-1/4	2	4-1/2	6	118.72
1-1/2	1-1/4	3	5-1/2	6	111.62
1-1/2	1-1/4	4	6-1/2	6	134.02
1-3/4	1-1/4	2	4-1/2	6	148.96
1-3/4	1-1/4	4	6-1/2	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	582.40

COBALT (M42) ROUGHING END MILLS

ICS USA
WELDON SHANK

HEAVY DUTY

NON-CENTER CUTTING



COARSE TOOTH

**RIGHT HAND CUT
RIGHT HAND HELIX**

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"