

Roughers

MEDIUM PITCH ROUGHER

For maximum stock removal of mild, stainless, and hardened steels and alloys.



ODxLOCxShankODxOAL	No. of Flutes	Part No. Uncoated	No. of Flutes	Part No. TiALN
1/4 x 3/4 x 1/4 x 2-1/2	3	ES08-0001	3	ES08-0010
5/16 x 3/4 x 5/16 x 2-1/2	3	ES08-0013	3	ES08-0022
3/8 x 7/8 x 3/8 x 2-1/2	3	ES08-0025	3	ES08-0034
1/2 x 1 x 1/2 x 3	4	ES08-0037	4	ES08-0046
5/8 x 1-1/4 x 5/8 x 3-1/2	4	ES08-0049	4	ES08-0058
3/4 x 1-1/2 x 3/4 x 4	4	ES08-0061	4	ES08-0070
1 x 1-1/2 x 1 x 4	5	ES08-0073	5	ES08-0082

FINE PITCH ROUGHER

For maximum stock removal of titanium, inconel, waspaloy and other advanced materials.



ODxLOCxShankODxOAL	No. of Flutes	Part No. Uncoated	No. of Flutes	Part No. TiALN
1/4 x 3/4 x 1/4 x 2-1/2	3	ES08-0002	3	ES08-0011
5/16 x 3/4 x 5/16 x 2-1/2	3	ES08-0014	3	ES08-0023
3/8 x 7/8 x 3/8 x 2-1/2	3	ES08-0026	3	ES08-0035
1/2 x 1 x 1/2 x 3	4	ES08-0038	4	ES08-0047
5/8 x 1-1/4 x 5/8 x 3-1/2	4	ES08-0050	4	ES08-0059
3/4 x 1-1/2 x 3/4 x 4	4	ES08-0062	4	ES08-0071
1 x 1-1/2 x 1 x 4	6	ES08-0074	6	ES08-0083

COARSE PITCH ROUGHER

For maximum stock removal of aluminum, brass, bronze, and other lightweight alloys.



ODxLOCxShankODxOAL	No. of Flutes	Part No. Uncoated	No. of Flutes	Part No. TiALN
1/4 x 3/4 x 1/4 x 2-1/2	3	ES08-0003	3	ES08-0012
5/16 x 3/4 x 5/16 x 2-1/2	3	ES08-0015	3	ES08-0024
3/8 x 7/8 x 3/8 x 2-1/2	3	ES08-0027	3	ES08-0036
1/2 x 1 x 1/2 x 3	3	ES08-0039	3	ES08-0048
5/8 x 1-1/4 x 5/8 x 3-1/2	3	ES08-0051	3	ES08-0060
3/4 x 1-1/2 x 3/4 x 4	3	ES08-0063	3	ES08-0072
1 x 1-1/2 x 1 x 4	3	ES08-0075	3	ES08-0084

Rougher Use: Rougher or Hoggers are useful for rapid removal of large amounts of material. The Chip Breaker design allows for more cutting fluid to the cutting edge and dissipates heat better. There is a wide range of variations in rougher profile forms for different material groups. The coarser the pitch of the roughing edge, the more material removed the rougher the finish will be. In addition most roughers have eccentric relief so regrinding can be only done on the face of the flute.