HIGH EFFICIENCY MILLING

What Is It?

High Efficiency Milling (HEM) has become a common term in machine shops worldwide, but what does it mean? Simply, HEM is a milling technique for roughing that utilizes the entire flute length, spreading the wear evenly across the cutting length of the tool.

How Does It Work?

Machining technology has been advancing with the devlopment of faster, more powerful machines. In order to keep up, many CAM applications are generating more efficient HEM tool paths. These tool paths adjust parameters to maintain constant tool load throughout the entire roughing operation and allow more aggressive speeds and feeds.

Advantages

- Increased metal removal rates
- Reduced cycle times
- Increased tool life

HIGH EFFICIENCY HEM MILLING

How Can Helical Help?

Helical manufactures some of the industry's highest performance end mills to meet the demands of HEM. As a result, our tools are simultaneously capable of lasting longer and withstanding aggressive HEM speeds and feeds.

Helical Milling Advisor™

The Helical Milling Advisor™ provides recommended speeds and feeds for HEM in a wide variety of materials. Download the Helical Milling Advisor™ for free at **helicaltool.com/millingadvisor**.

Helical™ MILLING ADVISOR

HXF -8 Flute Finisher For Steel

Helical
Manufacturers of High Performance Carbide Cutting Tools

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See other side for HEM case studies

Let Helical Impress You

With High Efficiency Milling Tools

High efficiency milling can only go so far with general tooling. That's why Helical offers thousands of high performance tools specifically designed to withstand the rigors of HEM strategies. The following case studies illustrate the power of HEM using Helical end mills versus traditional roughing.

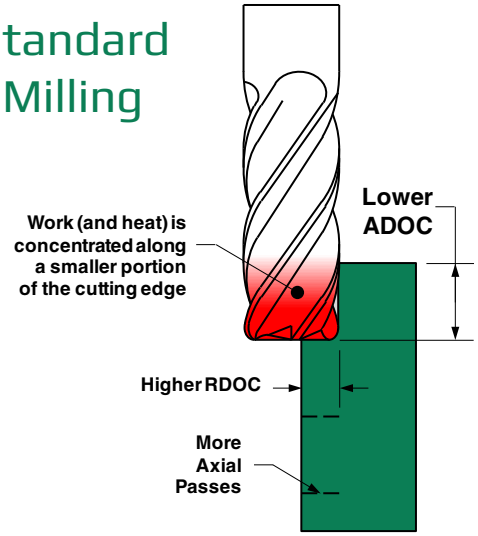
1/2" 5-Flute End Mill in 17-4ph (36 Rc) — (HEV-5)

	RPM	IPM	RDOC	ADOC	MRR	Cycle Time per Part	Parts per Tool	Tool Cost per Part
Traditional Roughing	2,200	20	.250 (50%)	.250 (50%)	1.25	11:20	15	14.66
HEM	6,000	80	.062 (12%)	.500 (100%)	2.50	7:00	40	9.22
Results	-	-	-	-	**+100%**	**-38.24%**	**+166.67%**	**-37.11%**

1/2" 3-Flute Rougher in 6061 Aluminum — (H45AL-C-3)

	RPM	IPM	RDOC	ADOC	MRR	Cycle Time per Part	Parts per Tool	Tool Cost per Part
Traditional Roughing	12,000	350	.250 (50%)	.500 (100%)	43.75	11:00	350	14.66
HEM	18,000	500	.200 (40%)	1.000 (200%)	100	3:00	900	3.33
Results	-	-	-	-	**+128.57%**	**-72.73%**	**+157.14%**	**-77.29%**

Standard Milling



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