



## High Performance Solid Carbide Square Mini End Mills

Operating RPM: 18,000

Material	Spindle Speed SFM*	Chipload Per Tooth										
		Ø.010"	Ø.015"	Ø.020"	Ø.025"	Ø.030"	Ø.035"	Ø.040"	Ø.045"	Ø.050"	Ø.055"	Ø.060"
Steel: < 16 Rc	400 - 600	0.000045"	0.000055"	0.000065"	0.00008"	0.00011"	0.00013"	0.00015"	0.0002"	0.00025"	0.0003"	0.00035"
Steel: < 24 Rc (C)	300 - 470	0.00004"	0.00005"	0.00006"	0.00007"	0.00008"	0.00009"	0.0001"	0.00015"	0.0002"	0.00025"	0.0003"
Steel: 24 - 37 Rc	200 - 350	0.00003"	0.00004"	0.00005"	0.00006"	0.00007"	0.00008"	0.00009"	0.0001"	0.00015"	0.0002"	0.00025"
Steel: 37 - 45 Rc	150 - 220	0.00002"	0.00003"	0.00004"	0.00005"	0.00006"	0.00007"	0.00008"	0.00009"	0.0001"	0.00015"	0.0002"
Stainless Steel (400 Series)	375 - 500	0.00004"	0.00005"	0.000065"	0.000085"	0.00010"	0.00012"	0.000135"	0.00015"	0.000165"	0.00018"	0.00019"
Stainless Steel (300 Series)	150 - 225	0.000035"	0.000045"	0.00006"	0.00008"	0.0009"	0.0001"	0.00013"	0.00014"	0.00015"	0.00016"	0.00017"
Inconel/Nimonic/Waspaloy	65 - 95	0.00002"	0.00003"	0.00004"	0.00005"	0.00006"	0.00007"	0.00008"	0.00009"	0.0001"	0.00015"	0.0002"
Thermoplastics	1,500 - 2,000	0.00015"	0.0002"	0.00025"	0.0003"	0.00035"	0.0004"	0.00045"	0.00050"	0.00055"	0.0006"	0.00065"
Titanium	100 - 175	0.00002"	0.00003"	0.00004"	0.00005"	0.00006"	0.00007"	0.00008"	0.00009"	0.0001"	0.00015"	0.0002"

**SFM\*** Surface feet per minute

Simple Machining Calculations:

To find **RPM**:  $SFM \times 3.82 / \text{diameter of tool}$

To find **SFM**:  $0.262 \times \text{diameter of tool} \times \text{RPM}$

To find **Feed Rate**:  $\text{RPM} \times \# \text{ of flutes} \times \text{chip load}$

To find **Chip Load**:  $\text{IPM} / (\text{RPM} \times \# \text{ of Flutes})$

**Depth of Cut:** 1 x D Use recommended chip load

2 x D Reduce chip load by 25%

3 x D Reduce chip load by 50%

Tool Reference #'s				
2-Flute Square End	4-Flute Square End	2-Flute Ball End	4-Flute Ball End	
51660	51719	51739	51750	0.010" Dia.
51661	51720	51740	51751	0.015" Dia.
51662	51721	51741	51752	0.020" Dia.
51663	51722	51742	51753	0.025" Dia.
51664	51723	51743	51754	0.030" Dia.
51665	51724	51744	51755	0.035" Dia.
51666	51725	51745	51756	0.040" Dia.
51667	51726	51746	51757	0.045" Dia.
51668	51727	51747	51758	0.050" Dia.
51669	51728	51748	51759	0.055" Dia.
51679	51729	51749	51760	0.060" Dia.

**Disclaimer:** These values are based on test results using 18,000 RPM. Your results may vary. It is important to understand that these values are only recommendations.

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