

CUTTING DATA

Threading & Reaming Tools

Starting parameters for solid carbide taps, solid carbide thread mills and solid carbide reamers.

Taps	Thread Mills	Reamers	Metric
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How to use this guide

For taps, feed is synchronized to pitch. For thread mills, use cutter diameter and helical interpolation. For reamers, control pre-hole size, stock allowance and alignment.

Solid carbide taps - starting Vc

Workpiece	Starting Vc (m/min)	Notes
Low-carbon steel, <125 HB	10-25	Rigid machine tapping
Carbon / alloy steel, <35 HRC	8-20	General carbide tap
Quenched / tool steel, 35-48 HRC	5-12	Dedicated geometry
Austenitic stainless steel	5-12	High-lubricity coolant
Cast iron	10-25	Material-specific flute
Aluminum / non-ferrous	20-50	Anti-BUE geometry
Titanium / nickel	3-8	Low speed / strong lubrication
Hardened steel >45 HRC	2-6	Purpose-built process only

Tap feed relationship

Tap feed per revolution = thread pitch

$V_f = \text{RPM} \times \text{pitch}$

THREAD MILLS & REAMERS

Thread mill starting data

Material	Vc (m/min)	fz by cutter D
Steel	60-110	<3: .003-.012; 3-6: .008-.025; 6-12: .015-.045; >12: .025-.070
Stainless	35-70	Use lower half
Cast iron	70-120	General range
Aluminum	120-250	Sharp/polished edge
Titanium	20-40	Low engagement
Nickel alloy	15-30	Heat control
Hardened steel	30-60	Dedicated coating

Solid carbide reamer starting data

Workpiece	Vc (m/min)	fn (mm/rev)
Carbon / alloy steel	50-90	0.06-0.25
Stainless steel	30-55	0.05-0.20
Cast iron	60-110	0.08-0.30
Aluminum / non-ferrous	100-200	0.08-0.35
Titanium / nickel	20-35	0.04-0.15
Hardened steel	25-45	0.04-0.15

PROCESS GUIDANCE

Reaming stock allowance on diameter

Finished hole D	Starting stock
<6 mm	0.05-0.15 mm
6-12 mm	0.10-0.25 mm
>12 mm	0.15-0.35 mm

Thread milling • Use CAM/control feed compensation for internal helical paths. • Use multiple radial passes for large or difficult threads. • Reduce feed for long-reach thread mills.	Reaming • Avoid dwell at full depth. • Check runout and pre-hole straightness before lowering feed. • Maintain enough feed to cut rather than rub.
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