

Manufacturing Tolerances and Specifications: Reamers

Reamer Diameter Tolerances (Inches)

Large Diameter	Tolerances
Up to 1-4	+ .0001 / + .0004
Over 1/4 up to 1	+ .0001 / + .0005
Over 1	+ .0002 / + .0006

Drill Reamer Tolerances (Inches)

Reamer Diameters	Tolerance
Up to ... 1/8	+ .0005/- .0
Over 1/8 up 1/4	+ .0005/- .0
Over 1/4 up to 1	+ .0006/- .0
Over 1 up to 3	+ .0007/- .0

These limits apply to reamer diameter only, refer to drill specifications (Minor Diameter) for drill diameter limits.

Overall Length & Flute

Length Tolerances (Inches)

Diameter Range	Tolerances
From .100" up to 1.000" + 0.60 / -.060	
Over 1.000 up to 2.000 + .100 / -.100	
Over 2.000 up to 4.000 +.125 / -.125	

Include Angle Tolerances

Diameter Range	Lead Angles	Step Angles
From .100 up to .500	+/-3°	+/-2°
From .500 up to 3.000	+/-2°	+/-1°

Lip Height Variation

Diameter Range (Inches)	Lead & Step Angles
From .100 up to .118	0.001 (TIV)
From .118 up to .236	0.0012 (TIV)
From .236 up to .472	0.0015 (TIV)
From .472 up to 1.000	0.002 (TIV)
From 1.000 up to 3.000	0.0025 (TIV)

Back Taper

.0001 to .0002" per inch of flute length on diameter, to a maximum of .001" on diameter regardless of flute length.

Lead Angle Depth

80% of nominal reamer diameter.

Cutting Edge Relief Angles

7 to 10° relief angle clearance on all lead and step angles

Step Length Tolerances

On all multi-diameter tools, each step length will be maintained to within +/- .008"

Reamer Straightness

Reamer Straightness (or run-out) is a significant element controlling the performance of any cutting tool that rotates. Therefore, straightness / run-out must be rigidly controlled during the manufacturing process. Melcut will maintain standard industrial control limits for all regular length tools. However, as a manufacturer of special cutting tools, many of our products fall outside standard specifications and subject to tool diameter: tool overall length and the tool construction, the control limits will vary. Test procedures and actual limits for individual tools will be made available on request.