RECOMMENDED HEX FORM SIZES AVAILABLE FOR CERTAIN MATERIALS

Recommended Speeds and Feeds (not to exceed min. or max.)

Internal Applications

ALUMINUM

5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1-1/8"	1-1/4"	1-1/2"	1-3/4"	2"
2500/.005			1700/.007			1400/.007						900/.008			600/.009	

F.C. BRASS

1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1-1/8"	1-1/4"	1-1/2"	1-3/4"
2250/.005				1500/.007			1200/.006					800/.007				500/.008

12L14

3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1-1/8"
2000/.004			1300/.006			1200/.006				700/.007				600/.009

ALLOY

1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"
2000/.004			1800/.005		1400/.005		900/.006				800/.007	

STAINLESS STEEL

1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"
2250/.004	2000/.004	1800/.004	1200/.005			1000/.005	

External Applications

ALUMINUM

3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1-1/8"	1-1/4"	1-3/8"
1600/.007			1500/.008			1200/.008		1100/.008					900/.008

F.C. BRASS

5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1-1/8"	1-1/4"	1-1/2"	1-3/8"	1-1/2"
1600/.007		1600/.008		1300/.007				1100/.007							900/.007	

12L14

1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1-1/8"	1-1/4"
1700/.006		1600/.006			1400/.006				900/.007				800/.007	

ALLOY

1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"
1800/.005				1500/.005		900/.006				800/.007	

STAINLESS STEEL

1/16"	3/32"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"
	2000/.004		1900/.004	1700/.004				800/.004	

- This chart is available to give you a starting point reference, higher speeds and feeds are possible.
- Recommended RPM can vary from 500 to 3500.
- Speeds and feeds can vary relative to workpiece configuration and material from .004 to .015 i.p.r.
- Feed rates under .004 i.p.r. can cause chips to lose flowing motion creating excessive end loading pressure.
- In all materials, the smaller the broach diameter, the lighter the feed should be.
- When retracting off or out of a part use rapid traverse.

NOTE: Skid marks on workpiece chamfer can be reduced or eliminated by slowing machine spindle and maintaining same feed rate prior to engagement of broach tool to the workpiece. After engagement, increase to recommended speed. Re-chamfering may be required to remove skid marks.

Tech Data

Broach Tool Material

Most rotary broach tools are made from M-2 H.S.S., a material that provides the required edge toughness in an operation which, by nature, does not generate much heat. Other materials available are Powdered Metal (PM4) or coated with TiN or TiCN.

Fluids/Coolants

Fluids play a minor role in rotary broaching. Any type of water or oil base fluid is acceptable The chip is a flowing type and the amount of heat generated is very minimal. When internal rotary broaching in blind holes, fluids should be applied on the broaching tool tip prior to contacting workpiece and not inside of workpiece pilot hole. Trapped fluid may be unable to escape, causing inability to broach to full depth. For external rotary broaching, fluids may be applied prior to or continuously on workpiece diameter.

Alignment Instructions

It is necessary to align end of broach tool to center line of workpiece diameter by means of adjusting screws located on sides of Holder. Alignment instructions are included with purchase of Tool Holder

Pilot Diameter Preparation For Internal Broaching

A pilot hole diameter with a lead chamfer is required. The pilot hole diameter should be at minimum, equal size to the distance across the flats or inscribed circle diameter of the form to be broached. The lead chamfer diameter must be slightly larger in diameter than the form being broached.

Note: Square and hexagon holes sometimes do not require full form. In these cases. pilot as large as possible. The less material to be broached, the less pressure will be caused while broaching.

The pilot hole depth must be drilled deeper than depth to be broached. There must be enough room at bottom of hole so chips can accumulate without excessive packing.

If no chips are allowed, after broaching they can be removed with either a boring tool or a flat bottom drill. A recess at bottom of hole will allow chips to break clean. Recess diameter should be larger than major diameter of form being broached.

Pilot Diameter Preparation For External Broaching

For external rotary broaching, the turned diameter on the workpiece should be smaller than the major diameter of the form being broached. If full form is required, turn diameter .0008" to .0015" larger than the final diameter.

For starting the external broach tool on workpiece, a lead chamfer is required. A 45° chamfer should be smaller than minor diameter and larger than major diameter. After broaching, the chamfer can be turned off.