

## CNC — Single Point Keyway Broaches

### A CNC Broaching Alternative

Broaching keyways on CNC machines today is as common as turning a part. It will eliminate part handling and improve your control when you design your process to incorporate short effective nibbling broaches that take the place of much longer tools and sometimes timely set up on secondary machines.

Blind hole and through hole CNC keyway broaching with standard tools that are off the shelf, will give you a profitable alternative and save you time.

Blind hole or through hole CNC keyway broaching is achieved through the use of single point nibbling cutters that are designed with two separate cutting surfaces at 180° apart. The one piece construction is created on a high speed tooling blank that is a common size round shank with ground timing flats to align the keyway for timing to the part it is broaching. These tools will offer long tool life, and can be easily sharpened many times for extended tool life. Ideally designed for either CNC lathe or CNC vertical machining centres, these tools can get the job done quickly and effectively:

- For a CNC lathe, the tool is mounted directly into the turret on centreline while a setscrew-locking holder will lock the tool in place and position
- For a CNC vertical machining centre, a collet will hold the tool shank and provide timing orientation. With the spindle locked, the broach can be brought in line with the pre-prepared bore diameter and chamferlead of the part to start broaching

With the spindle locked, the broach can be brought in line with the pre-prepared bore diameter and chamfer lead of the part to start broaching the keyway at a speed of 10 - 30 in/min and an in-feed of 0.003 -0.005 depth per pass, using a flood coolant for lubrication during the cut. The in-feeding cycle is repeated until the desired depth of the keyway is achieved. Chips can be removed from the bottom of the hole in a couple of ways:

- If the hole is a blind hole bore, remove the chips by either prior trepanning the bottom of the keyway area and allow chips to fall away
- Or pre-drill a hole from the outside to the inside of the part at the bottom of the keyway location.
- With a through hole, you can broach right through, but do not disengage with the part, and simply de-burr the keyway upon completion.

### Things That You Should Know:

- Standard tooling will come with common shank diameters
- The keyway size and length or depth of cut will determine the shank size
- Strength and rigidity in the set-up will give you longer tool life
- Consider using the larger shank size to process your jobs
- Keyway production will achieve excellent finishes and better accuracy
- You can design and create your own special tool with our help



### The Advantages

- Complete the part on one machine
- Only way to keyway a blind hole
- Cut down on set-up time
- Become more flexible with machining
- Manage small lot production
- Use cost effective standard tooling
- No bushing guide required
- No hydraulic press or pull required
- No additional operator needed



### Inch Shank

Size	Tolerance (in.)	Shank Dia. (in.)	Overall Length (in.)	Max L.O.C. (in.)	Hassay EDP No.	Code No.	Price \$
1/8	0.1265	0.625	3.75	1.50	69008	182627	657.05
4mm	0.159	0.625	3.75	1.50	69004	182629	657.05
3/16	0.189	0.625	3.75	1.50	69012	182630	657.05
5mm	0.198	0.625	3.75	1.50	69005	182631	657.05
6mm	0.238	0.875	4.50	2.00	69106	182632	705.53
1/4	0.252	0.875	4.50	2.00	69116	182633	705.53
5/16	0.314	0.875	4.50	2.00	69120	182634	981.75
8mm	0.317	0.875	4.50	2.00	69108	182635	705.53
3/8	0.377	1.00	4.50	2.00	69224	182636	773.46
10mm	0.396	1.00	4.50	2.00	69210	182637	773.46
12mm	0.4745	1.00	4.50	2.00	69212	182638	773.46
1/2	0.502	1.00	4.50	2.00	69232	182639	773.46

### Metric Shank

Size	Tolerance (in.)	Shank Dia. (mm)	Overall Length (in.)	Max L.O.C. (in.)	Hassay EDP No.	Code No.	Price \$
1/8	0.127	16	3.75	1.5	69308	182189	554.71
4mm	0.159	16	3.75	1.5	69304	182191	554.71
3/16	0.189	16	3.75	1.5	69312	182193	554.71
5mm	0.198	16	3.75	1.5	69305	182195	554.71
6mm	0.238	20	4.50	2	69406	182197	613.76
1/4	0.252	20	4.50	2	69416	182199	613.76
5/16	0.314	20	4.50	2	69420	182201	657.65
8mm	0.317	20	4.50	2	69408	182203	657.65
3/8	0.377	25	4.50	2	69524	182205	736.65
10mm	0.396	25	4.50	2	69510	182207	736.65
12mm	0.474	25	4.50	2	69512	182209	736.65
1/2	0.502	25	4.50	2	69532	182211	736.65



Use GS CAT40 ER Collet Chucks & Collets to hold your CNC Single Point Keyway Broaches.

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