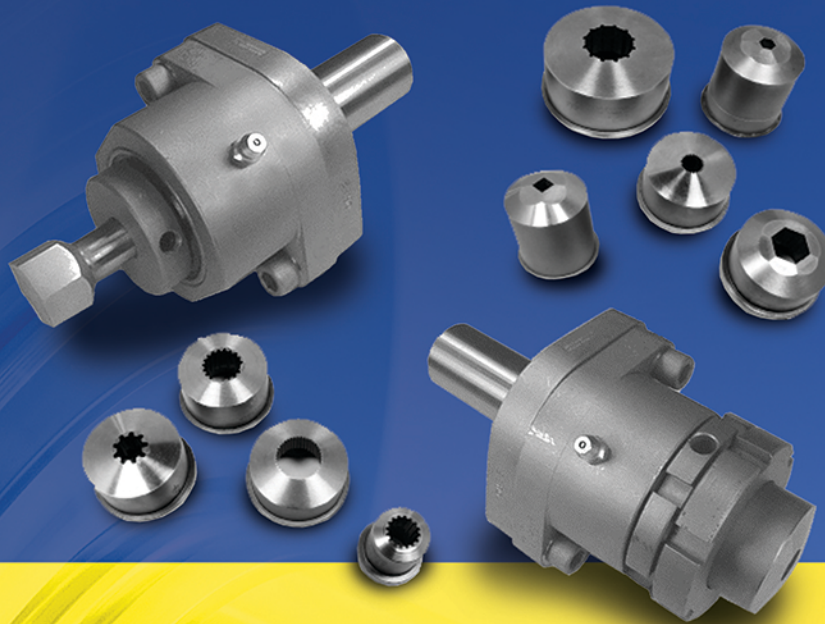




PREMIER TOOLING FOR THE MANUFACTURING INDUSTRY

*Rotary Broaching, Form Tooling, Dovetail Blanks,
Workholding, Toolholding and more*



Broaching Tools & Holders

WEB

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PHONE

(203) 753-2114

109 SCOTT ROAD, WATERBURY, CT 06705

A DIRECTORY OF BROACHING TOOLS & HOLDERS

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Please visit our website www.sommatool.com for a complete listing of our products.

Somma Tool Company is the leading manufacturer in the United States to offer a full line of tooling for screw machines. We offer preset and quick change tooling in addition to cutting tools, tool holders, work holders and accessories for screw machines, turret lathes and CNC lathes. Our goal is to provide superior value and innovation in our products and services, and to conduct all of our business activities with our customers, distributors, employees and vendors with integrity and respect. Our products are sold through a nationwide and worldwide network of distributors. Contact us today.



HIGH ATTACK ROTARY BROACH TOOL HOLDERS

KNOCK OUT **YOUR TOUGHEST JOBS** WITH THE 1-2 COMBINATION
OF OUR NEW HIGH-ATTACK BROACH HOLDER AND FORTE BROACHES

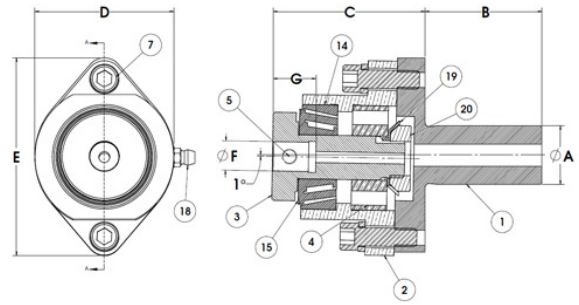
- The special design of this holder, reduces Z axis thrust by up to 50%
- Excellent choice for lower horsepower machines which cannot generate sufficient thrust
- Great alternative for difficult / large broaching applications
- Requires the use of made to order broaches

CONTACT SOMMA'S
ROTARY BROACH
ENGINEERING DEPARTMENT
FOR MORE INFORMATION

ADJUSTABLE INTERNAL ROTARY BROACH TOOL HOLDERS



This tool is used to produce hexagonal, square, and other non-round shapes on conventional lathes, mills, and screw machines without the need for a secondary operation. Due to the spindle offset, the turret forces needed to produce a part are minimized. The tool holder spindle is mounted in bearings allowing it to rotate or stop independent of the body without requiring auxiliary driving attachments.



Can be used on B&S, Davenport, and multi-spindle screw machines, as well as turret lathes and CNC machines.

Also available with CAT, VDI, CAPTO C6, HSK & Morse Taper Shanks.

CAT. NO.	A	B	C	D	E	F	G
ORB00/0.625	5/8"	1-1/2"	1-7/8"	1-1/2"	2-7/16"	8MM User Broach Series --00	9/16"
ORB00/0.750	3/4"	2"	1-29/32"	1-1/2"	2-7/16"	8MM User Broach Series --00	9/16"
ORB00/16MM	16MM	1-1/2"	1-7/8"	1-1/2"	2-7/16"	8MM User Broach Series --00	9/16"
ORB00/20MM	20MM	1-1/2"	1-7/8"	1-1/2"	2-7/16"	8MM User Broach Series --00	9/16"
ORB00/22MM	22MM	1-1/2"	1-7/8"	1-1/2"	2-7/16"	8MM User Broach Series --00	9/16"
ORB2/0.750	3/4"	2"	2-9/16"	2-3/8"	3-5/16"	1/2" Use Broach Series --2	3/4"
ORB2/1.000	1"	2"	2-9/16"	2-3/8"	3-5/16"	1/2" Use Broach Series --2	3/4"
ORB2/1.250	1-1/4"	3"	2-9/16"	2-3/8"	3-5/16"	1/2" Use Broach Series --2	3/4"
ORB2/1.500	1-1/2"	3"	2-9/16"	2-3/8"	3-5/16"	1/2" Use Broach Series --2	3/4"
ORB2/20MM	20MM	2"	2-9/16"	2-3/8"	3-5/16"	1/2" Use Broach Series --2	3/4"
ORB2/22MM	22MM	2"	2-9/16"	2-3/8"	3-5/16"	1/2" Use Broach Series --2	3/4"
ORB2/25MM	25MM	2"	2-9/16"	2-3/8"	3-5/16"	1/2" Use Broach Series --2	3/4"
ORB2/32MM	32MM	3"	2-9/16"	2-3/8"	3-5/16"	1/2" Use Broach Series --2	3/4"
ORBHD/1.000	1"	3"	4-15/32"	3-1/2"	5-1/4"	3/4 Use Broach Series --HD	1-1/4"
ORBHD/1.250	1-1/4"	3"	4-15/32"	3-1/2"	5-1/4"	3/4 Use Broach Series --HD	1-1/4"
ORBHD/1.500	1-1/2"	3"	4-15/32"	3-1/2"	5-1/4"	3/4 Use Broach Series --HD	1-1/4"
ORBHD/1.750	1-3/4"	3"	4-15/32"	3-1/2"	5-1/4"	3/4 Use Broach Series --HD	1-1/4"
ORBHD/32MM	32MM	3"	4-15/32"	3-1/2"	5-1/4"	3/4 Use Broach Series --HD	1-1/4"
ORBHD/40MM	40MM	3"	4-15/32"	3-1/2"	5-1/4"	3/4 Use Broach Series --HD	1-1/4"

Please lubricate holder before using:

For running at LOW to MODERATE RPM
we recommend ZENIPLEXII-Extreme Pressure Aluminum Complex Grease.
(Do not overpack with grease).

CAT. NO.	DESCRIPTION.
GREASE-ORB	Grease 14 oz. Tube.
For running HIGH RPM, use a good lubricating oil instead of this grease.	

ADJUSTABLE INTERNAL ER COLLET STYLE BROACH TOOL HOLDERS



More versatile, just change the collet to accept any shank diameter broaching tool within the collet range. For example, you can purchase three size collets, 0.315 (8mm), 0.472 (12mm), and 0.500 for the ER20 broach tool holder. This will allow you to use one holder for all common broach shank sizes. Built in stop screw allows you to adjust for different length broaches or to compensate for lengths on re-sharpened broaches. Eliminates necessity of centering cutting tool to "spindle" of broaching holder. No screws to knock cutting tool off center.

Use only exact size **High Precision** DIN6499 ER collets.

CAT. NO.	A	B	C	D	E	Nut Dia.	Collet I.D. (Standard)	Broach Series #
ORB00-ER16M/0.625	5/8"	1-1/2"	2-7/16"	1-1/2"	2-7/16"	22MM	8MM	-00
ORB00-ER16M/0.750*	3/4"	2"	2-1/2"	1-1/2"	2-7/16"	22MM	8MM	-00
ORB2-ER20H/0.750	3/4"	2"	3-1/2"	2-3/8"	3-5/16"	1.348	1/2"	-2
ORB2-ER20H/1.000	1"	2"	3-1/2"	2-3/8"	3-5/16"	1.348	1/2"	-2
ORB2-ER20H/1.250	1-1/4"	2"	3-1/2"	2-3/8"	3-5/16"	1.348	1/2"	-2
ORB2-ER20H/1.500	1-1/2"	2"	3-1/2"	2-3/8"	3-5/16"	1.348	1/2"	-2

NOTE: COLLET NUT, COLLET WRENCH, SPINDLE WRENCH AND STANDARD HIGH PRECISION COLLET INCLUDED WITH EACH CAT. NO.

*Limited Davenport applications due to 47/64" longer projection.

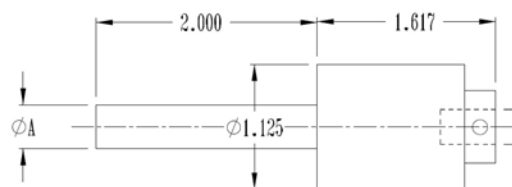
HIGH PRECISION REPLACEMENT COLLETS (Common Broach Shank Sizes)

CAT. NO.	I.D.
ER16-8HP	8mm /.315
ER20-8HP	8mm /.315
ER20-12HP	12mm/.472
ER20-1/2HP	.500

ADJUSTMENT FREE SWISS INTERNAL BROACH TOOL HOLDERS



- No center indicating required
- Adjustment free (with 28MM long broaches only)
- Smaller head diameter eliminates interference
- Short head length for limited back work space
- Built in wobble cutting features 1° angle
- Fits most Swiss type & gang machines
- Hex, Square and Six Lobed broaches in stock to fit these holders



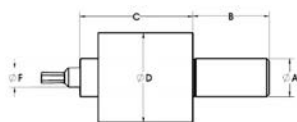
CAT. NO.	A
ORBSW/10MM	10MM
ORBSW/12MM	12MM
ORBSW/14MM	14MM
ORBSW/16MM	16MM
ORBSW/20MM	20MM
ORBSW/22MM	22MM
ORBSW/25MM	25MM
ORBSW/0.500	0.500"
ORBSW/0.625	0.625"
ORBSW/0.750	0.750"
ORBSW/1.000	1.000"

Hex, Square and Six Lobed Broaches in stock to fit these holders.

NOTE: **USE ONLY** SERIES# --SW BROACHES 8MM DIA X 28MM LONG

ADJUSTMENT FREE CNC INTERNAL BROACH TOOL HOLDERS

Introducing a wobble broach tool that can be quickly setup for use in CNC lathes.
(Not for use on milling machines)



CAT. NO.	A	B	C	D	E	F	BROACH SERIES #
ORB00-CT/0.625	5/8"	1-1/2"	1-7/8"	1-1/2"	2-7/16"	8MM	--00
ORB00-CT/0.750	3/4"	1-1/2"	1-7/8"	1-1/2"	2-7/16"	8MM	--00
ORB2-CT/0.750	3/4"	2"	2-15/16"	2-3/8"	3-5/16"	1/2"	--2
ORB2-CT/1.000	1"	2"	2-15/16"	2-3/8"	3-5/16"	1/2"	--2
ORB2-CT/1.250	1-1/4"	3"	2-15/16"	2-3/8"	3-5/16"	1/2"	--2
ORB2-CT/1.500	1-1/2"	3"	2-15/16"	2-3/8"	3-5/16"	1/2"	--2

- No center indicating required
- Requires X-Axis machine adjustment only for broach lengths other than the standard designated lengths of 1.250" oal for ORB00 holders and 1.750" oal for ORB2 holders.
- Hex and square broaches in stock for these holders

Also available with metric shanks.

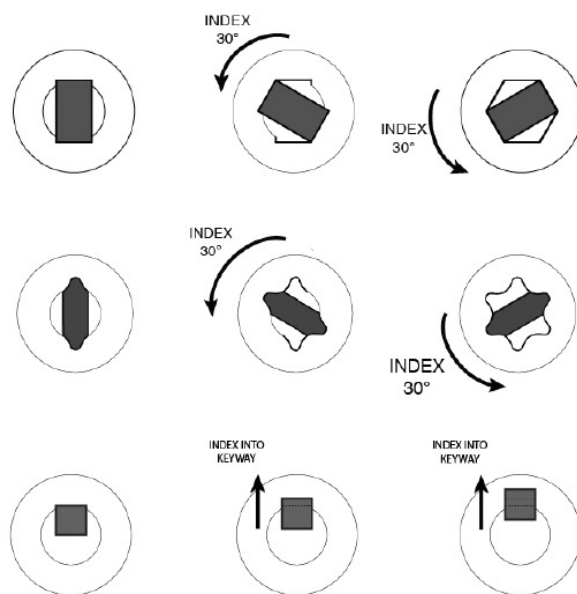
INDEX / STATIC PUNCH BROACHING

Index punch broaching is typically used on CNC machining centers for applications:

- Where the machine cannot generate enough thrust to form the entire shape desired.
- With more stringent requirements on the straightness of the form than can be achieved with rotary broaching.

The process involves punching a partial form in a prepared hole and indexing the spindle the required number of times to produce the finished form.

All Indexing broaches are made to order from superior Forte material to suit your application. Email sales@sommatool.com for a quote.



REPAIR KITS FOR SOMMA BROACH TOOL HOLDERS



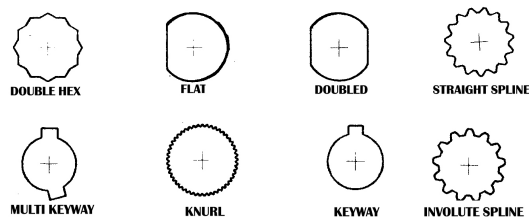
All kits now include a **bearing installation tool** as well as instructions

For Somma Holders with / in the Part #	Bearing Replacement Kit Part #	Bearing & Spindle Replacement Kit Part #
ORB00/...	REPAIR ORB00 KIT 1	REPAIR ORB00 KIT 2
ORB00/...	REPAIR ORB00 KIT 1	REPAIR ORB00 KIT 2
ORB2/...	REPAIR ORB2 KIT 1	REPAIR ORB2 KIT 2
ORB2/...	REPAIR ORB2 KIT 1	REPAIR ORB2 KIT 2
ORBHD/...	REPAIR ORBHD KIT 1	REPAIR ORBHD KIT 2
ORBHD/...	REPAIR ORBHD KIT 1	REPAIR ORBHD KIT 2

RE-SHARPENING SERVICE FOR SOMMA BROACHES

We offer re-sharpening service of internal and external broaches. Pricing is available upon request. The amount of re-sharpening possible will vary depending on the tolerance of your broach. We would, therefore, need to know the low limit to resharpen an internal broach or the high limit to resharpen an external broach.

These are examples of special shapes that have been successfully broached.
Let us quote on your requirements.



PLEASE INCLUDE THE FOLLOWING INFORMATION WITH YOUR SPECIAL BROACH INQUIRY:		
INTERNAL OR EXTERNAL H/S/S BROACH	TOLERANCE IF NOT SHOWN ON PRINT	IS H/S/S BROACH TO BE USED IN A SOMMA HOLDER?
SHAPE OF H/S/S BROACH FORM	MATERIAL GRADE OF PART	IF NOT, WHAT ARE THE BLANK DIM. FOR YOUR HOLDER AND DEGREE OF SPINDLE TILT
CLEARING ID ON INTERNAL?	ARE ANY INTERNAL RADII LESS THAN .0055 ON INT. BROACHES?	WHAT IS HOLDER SIZE OR SHANK DIA
EXTERNAL CLEARING ON OD?	ARE ANY EXTERNAL RADII LESS THAN .0055 ON EXT. BROACHES?	

Hex Rotary Broaches for Internal Forms

- Superior, hardened FORTE material
- Ground all over
- Angular clamping flat prevents pull out
- Available in T15PM H.S.S. (*prices on application*)



ROTARY BROACHING



from **Somma**
featuring our **FORTE** *material*



**The Toughest Broaching
Material Available**

**Improved Wear Resistance
for Better Tool Life**

**Industry Leading
Depth of Cut**

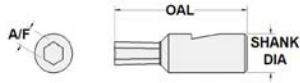
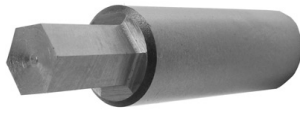
**Industry-Wide
Compatibility**

**Largest Stock of ANSI Hex
& Squares Available for
Same Day Shipping**

**Special Hex & Square
Sizes Available
in 1-2 Days**

INTERNAL HEX BROACHES

WITH 8MM DIA. SHANK X 28MM (1.102") OAL



- Superior, Hardened FORTE material
- Ground all over
- Angular clamping at prevents pull out
- Available in T15PM H.S.S.

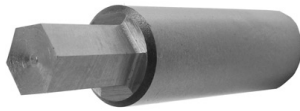
(Prices on application)

[See our Adjustment Free Internal Rotating Broach Holders For Swiss Machines.](#)

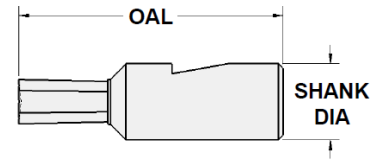
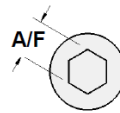
Inch / Hex, for ORBSW/... Holders 8MM (.315) Shank Diameter x 28MM (1.103) OAL			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
.050	.0505	.107	HXSW-050-F
1/16	.0630	.133	HXSW-1/16-F
5/64	.0786	.166	HXSW-5/64-F
3/32	.0947	.199	HXSW-3/32-F
7/64	.1106	.233	HXSW-7/64-F
1/8	.1265	.266	HXSW-1/8-F
9/64	.1421	.299	HXSW-9/64-F
5/32	.1582	.333	HXSW-5/32-F
3/16	.1895	.398	HXSW-3/16-F
7/32	.2212	.427	HXSW-7/32-F
1/4	.2525	.443	HXSW-1/4-F
9/32	.2837	.458	HXSW-9/32-F
5/16	.3152	.473	HXSW-5/16-F
11/32	.3467	.572	HXSW-11/32-F
3/8	.3782	.572	HXSW-3/8-F
Metric / Hex, for ORBSW/... Holders 8MM (.315) Shank Diameter x 28MM (1.103) OAL			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1.5MM	.0603	.127	HXSW-1.5-F
2.0MM	.0800	.169	HXSW-2.0-F
2.5MM	.1002	.211	HXSW-2.5-F
3.0MM	.1204	.253	HXSW-3.0-F
4.0MM	.1602	.337	HXSW-4.0-F
5.0MM	.1997	.420	HXSW-5.0-F
6.0MM	.2395	.436	HXSW-6.0-F
7.0MM	.2789	.456	HXSW-7.0-F
8.0MM	.3187	.475	HXSW-8.0-F
9.0MM	.3583	.572	HXSW-9.0-F
10.0MM	.3979	.572	HXSW-10.0-F

* Custom A/F & Depths of Cut available to quote upon request

INTERNAL HEX BROACHES WITH 8MM DIA. SHANK X 1-1/4" OAL



- Superior, Hardened FORTE material
- Ground all over
- Angular clamping at prevents pull out
- Fit all Rotating Broach Tools
- Available in T15PM H.S.S. (Prices on application)



Inch / Hex, for ORB00/... Holders 8MM (.315) Shank Diameter x 1-1/4" (1.250) OAL			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
.050	.0505	.107	HX00-050-F
1/16	.0630	.133	HX00-1/16-F
5/64	.0786	.166	HX00-5/64-F
3/32	.0947	.199	HX00-3/32-F
7/64	.1106	.233	HX00-7/64-F
1/8	.1265	.266	HX00-1/8-F
9/64	.1421	.299	HX00-9/64-F
5/32	.1582	.333	HX00-5/32-F
3/16	.1895	.398	HX00-3/16-F
7/32	.2212	.465	HX00-7/32-F
1/4	.2525	.531	HX00-1/4-F
9/32	.2837	.596	HX00-9/32-F
5/16	.3152	.621	HX00-5/16-F
11/32	.3467	.656	HX00-11/32-F
3/8	.3782	.656	HX00-3/8-F
13/32	.4097	.656	HX00-13/32-F
7/16	.4412	.656	HX00-7/16-F
15/32	.4727	.656	HX00-15/32-F
1/2	.5042	.656	HX00-1/2-F

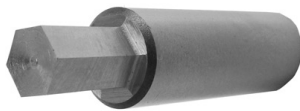
Metric / Hex, for ORB00/... Holders 8MM (.315) Shank Diameter x 1-1/4" (1.250) OAL			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1.5MM	.0603	.127	HX00-1.5-F
2.0MM	.0800	.169	HX00-2.0-F
2.5MM	.1002	.211	HX00-2.5-F
3.0MM	.1204	.253	HX00-3.0-F
4.0MM	.1602	.337	HX00-4.0-F
5.0MM	.1997	.420	HX00-5.0-F
6.0MM	.2395	.503	HX00-6.0-F
7.0MM	.2789	.586	HX00-7.0-F
8.0MM	.3187	.623	HX00-8.0-F
9.0MM	.3583	.656	HX00-9.0-F
10.0MM	.3979	.656	HX00-10.0-F
11.0MM	.4376	.656	HX00-11.0-F
12.0MM	.4774	.656	HX00-12.0-F

Hexagon go / no-go gages (with handle) are available upon request.

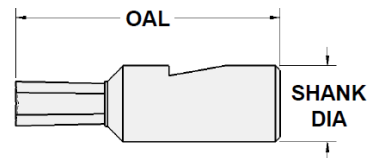
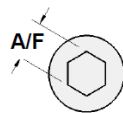
** Custom lengths, A/F, & Depths of Cut available to quote upon request*

INTERNAL HEX BROACHES

WITH ½" (.500") DIA. SHANK X 1-3/4" OAL



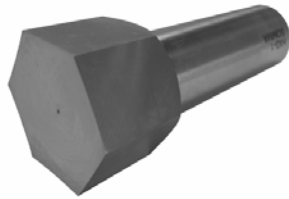
- Superior, Hardened FORTE material
- Ground all over
- Angular clamping at prevents pull out
- Fit all Rotating Broach Tools
- Available in T15PM H.S.S. (Prices on application)



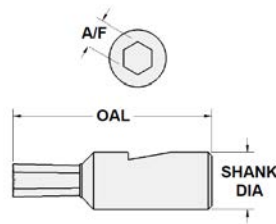
Inch / Hex, for ORB2/... Holders			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
3/32	.0947	.199	HX2-3/32-F
7/64	.1106	.233	HX2-7/64-F
1/8	.1265	.266	HX2-1/8-F
9/64	.1421	.299	HX2-9/64-F
5/32	.1582	.333	HX2-5/32-F
3/16	.1895	.398	HX2-3/16-F
7/32	.2212	.465	HX2-7/32-F
1/4	.2525	.531	HX2-1/4-F
9/32	.2837	.596	HX2-9/32-F
5/16	.3152	.662	HX2-5/16-F
11/32	.3467	.729	HX2-11/32-F
3/8	.3782	.794	HX2-3/8-F
13/32	.4097	.860	HX2-13/32-F
7/16	.4412	.875	HX2-7/16-F
15/32	.4727	.890	HX2-15/32-F
1/2	.5042	.906	HX2-1/2-F
17/32	.5357	.924	HX2-17/32-F
9/16	.5672	.969	HX2-9/16-F
19/32	.5987	.969	HX2-19/32-F
Inch / Hex, for ORB2/... Holders			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
5/8	.6302	.969	HX2-5/8-F
21/32	.6617	.969	HX2-21/32-F
11/16	.6932	.969	HX2-11/16-F
23/32	.7237	.969	HX2-23/32-F
3/4	.7562	.969	HX2-3/4-F

Metric / Hex, for ORB2/... Holders			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
2.0MM	.0800	.169	HX2-2.0-F
2.5MM	.1002	.211	HX2-2.5-F
3.0MM	.1204	.253	HX2-3.0-F
4.0MM	.1602	.337	HX2-4.0-F
5.0MM	.1997	.420	HX2-5.0-F
6.0MM	.2395	.503	HX2-6.0-F
7.0MM	.2798	.588	HX2-7.0-F
8.0MM	.3187	.670	HX2-8.0-F
9.0MM	.3583	.752	HX2-9.0-F
10.0MM	.3979	.836	HX2-10.0-F
11.0MM	.4376	.873	HX2-11.0-F
12.0MM	.4774	.893	HX2-12.0-F
13.0MM	.5170	.912	HX2-13.0-F
14.0MM	.5566	.969	HX2-14.0-F
15.0MM	.5968	.969	HX2-15.0-F
16.0MM	.6369	.969	HX2-16.0-F
17.0MM	.6770	.969	HX2-17.0-F
18.0MM	.7169	.969	HX2-18.0-F
19.0MM	.7568	.969	HX2-19.0-F

INTERNAL HEX BROACHES WITH 3/4" (.750") DIA. SHANK X 2-3/4" OAL



- Superior, Hardened FORTE material
- Ground all over
- Angular clamping at prevents pull out
- Fit all 3/4" I.D. Rotating Broach Tools
- Available in T15PM H.S.S. (Prices on application)



Inch / Hex, for ORBHD/... Holders 3/4" (.750) Shank Diameter x 2-3/4" (2.750) OAL			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1/4	.2525	.531	HXHD-1/4-F
9/32	.2837	.596	HXHD-9/32-F
5/16	.3152	.662	HXHD-5/16-F
11/32	.3467	.729	HXHD-11/32-F
3/8	.3782	.794	HXHD-3/8-F
13/32	.4097	.860	HXHD-13/32-F
7/16	.4412	.927	HXHD-7/16-F
15/32	.4727	.993	HXHD-15/32-F
1/2	.5042	1.059	HXHD-1/2-F
17/32	.5357	1.125	HXHD-17/32-F
9/16	.5672	1.191	HXHD-9/16-F
19/32	.5987	1.257	HXHD-19/32-F
5/8	.6302	1.323	HXHD-5/8-F
21/32	.6617	1.338	HXHD-21/32-F
11/16	.6932	1.354	HXHD-11/16-F
23/32	.7237	1.369	HXHD-23/32-F
3/4	.7562	1.385	HXHD-3/4-F
25/32	.7882	1.400	HXHD-25/32-F
13/16	.8202	1.469	HXHD-13/16-F
27/32	.8522	1.469	HXHD-27/32-F
7/8	.8842	1.469	HXHD-7/8-F
29/32	.9180	1.469	HXHD-29/32-F
15/16	.9517	1.469	HXHD-15/16-F
31/32	.9855	1.469	HXHD-31/32-F
1"	1.0192	1.469	HXHD-1-F

Metric / Hex, for ORBHD/... Holders 3/4" (.750) Shank Diameter x 2-3/4" (2.750) OAL			
NOMINAL HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
6.0MM	.2395	.503	HXHD-6.0-F
7.0MM	.2798	.588	HXHD-7.0-F
8.0MM	.3187	.670	HXHD-8.0-F
9.0MM	.3583	.752	HXHD-9.0-F
10.0MM	.3979	.836	HXHD-10.0-F
11.0MM	.4376	.919	HXHD-11.0-F
12.0MM	.4774	1.003	HXHD-12.0-F
13.0MM	.5170	1.086	HXHD-13.0-F
14.0MM	.5566	1.169	HXHD-14.0-F
15.0MM	.5968	1.254	HXHD-15.0-F
16.0MM	.6369	1.338	HXHD-16.0-F
17.0MM	.6770	1.346	HXHD-17.0-F
18.0MM	.7169	1.366	HXHD-18.0-F
19.0MM	.7568	1.385	HXHD-19.0-F
20.0MM	.7972	1.405	HXHD-20.0-F
21.0MM	.8375	1.469	HXHD-21.0-F
22.0MM	.8779	1.469	HXHD-22.0-F
23.0MM	.9173	1.469	HXHD-23.0-F
24.0MM	.9566	1.469	HXHD-24.0-F
25.0MM	.9960	1.469	HXHD-25.0-F
26.0MM	1.0354	1.469	HXHD-26.0-F

* Custom lengths, A/F, & Depths of Cut are available to quote upon request

Square Rotary Broaches for Internal Forms

- Superior, hardened FORTE material
- Ground all over
- Angular clamping flat prevents pull out
- Available in T15PM H.S.S. (*prices on application*)



ROTARY BROACHING



from **Somma**
featuring our **FORTE** material



**The Toughest Broaching
Material Available**

**Improved Wear Resistance
for Better Tool Life**

**Industry Leading
Depth of Cut**

**Industry-Wide
Compatibility**

**Largest Stock of ANSI Hex
& Squares Available for
Same Day Shipping**

**Special Hex & Square
Sizes Available
in 1-2 Days**

INTERNAL SQUARE BROACHES

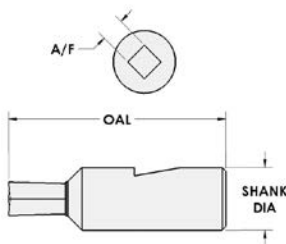
WITH 8MM DIA. SHANK X 28MM (1.102") OAL



Inch / Square, for ORBSW/... Holders 8MM (.315) Shank Diameter x 28MM (1.103) OAL			
NOMINAL SQUARE SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1/16	.0630	.133	SQSW-1/16-F
5/64	.0786	.166	SQSW-5/64-F
3/32	.0947	.199	SQSW-3/32-F
7/64	.1106	.233	SQSW-7/64-F
1/8	.1265	.266	SQSW-1/8-F
9/64	.1421	.299	SQSW-9/64-F
5/32	.1582	.333	SQSW-5/32-F
11/64	.1739	.366	SQSW-11/64-F
3/16	.1895	.398	SQSW-3/16-F
7/32	.2209	.427	SQSW-7/32-F
1/4	.2522	.443	SQSW-1/4-F
9/32	.2837	.458	SQSW-9/32-F
5/16	.3152	.473	SQSW-5/16-F
Metric / Square, for ORBSW/... Holders 8MM (.315) Shank Diameter x 28MM (1.103) OAL			
NOMINAL SQUARE SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1.5MM	.0603	.127	SQSW-1.5-F
2.0MM	.0800	.169	SQSW-2.0-F
2.5MM	.1002	.211	SQSW-2.5-F
3.0MM	.1204	.253	SQSW-3.0-F
4.0MM	.1602	.337	SQSW-4.0-F
5.0MM	.1997	.420	SQSW-5.0-F
6.0MM	.2392	.436	SQSW-6.0-F
7.0MM	.2789	.456	SQSW-7.0-F
8.0MM	.3187	.475	SQSW-7.0-F

* Custom A/F & Depths of Cut available to quote upon request

INTERNAL SQUARE BROACHES WITH 8MM DIA. SHANK X 1-1/4" OAL

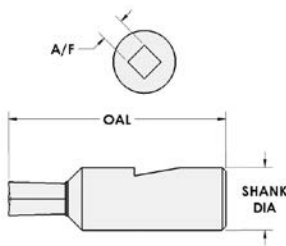


Inch / Square, for ORB00/... Holders 8MM (.315) Shank Diameter x 1-1/4" (1.250) OAL			
NOMINAL SQUARE SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1/16	.0630	.133	SQ00-1/16-F
5/64	.0786	.166	SQ00-5/64-F
3/32	.0947	.199	SQ00-3/32-F
7/64	.1106	.233	SQ00-7/64-F
1/8	.1265	.266	SQ00-1/8-F
9/64	.1421	.299	SQ00-9/64-F
5/32	.1582	.333	SQ00-5/32-F
11/64	.1739	.366	SQ00-11/64-F
3/16	.1895	.398	SQ00-3/16-F
7/32	.2209	.465	SQ00-7/32-F
1/4	.2522	.531	SQ00-1/4-F
9/32	.2837	.596	SQ00-9/32-F
5/16	.3152	.621	SQ00-5/16-F
11/32	.3467	.656	SQ00-11/32-F
3/8	.3782	.656	SQ00-3/8-F
13/32	.4097	.656	SQ00-13/32-F

Metric / Square, for ORB00/... Holders 8MM (.315) Shank Diameter x 1-1/4" (1.250) OAL			
NOMINAL SQUARE SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1.50MM	.0603	.127	SQ00-1.5-F
2.00MM	.0800	.169	SQ00-2.0-F
2.50MM	.1002	.211	SQ00-2.5-F
3.00MM	.1204	.253	SQ00-3.0-F
4.00MM	.1602	.337	SQ00-4.0-F
5.00MM	.1997	.420	SQ00-5.0-F
6.00MM	.2392	.503	SQ00-6.0-F
7.00MM	.2789	.586	SQ00-7.0-F
8.00MM	.3187	.623	SQ00-8.0-F
9.00MM	.3583	.656	SQ00-9.0-F
10.00MM	.3979	.656	SQ00-10.0-F

* Custom lengths, A/F, & Depths of Cut available to quote upon request

INTERNAL SQUARE BROACHES WITH ½" (.500") DIA. SHANK X 1-3/4" OAL



Inch / Square, for ORB2/... Holders 1/2" (.500) Shank Diameter x 1-3/4" (1.750) OAL			
NOMINAL SQUARE SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
3/32	.0947	.199	SQ2-3/32-F
7/64	.1106	.233	SQ2-7/64-F
1/8	.1265	.266	SQ2-1/8-F
9/64	.1421	.299	SQ2-9/64-F
5/32	.1582	.333	SQ2-5/32-F
3/16	.1895	.398	SQ2-3/16-F
7/32	.2209	.465	SQ2-7/32-F
1/4	.2522	.531	SQ2-1/4-F
9/32	.2837	.596	SQ2-9/32-F
5/16	.3152	.662	SQ2-5/16-F
11/32	.3467	.729	SQ2-11/32-F
3/8	.3782	.794	SQ2-3/8-F
13/32	.4097	.860	SQ2-13/32-F
7/16	.4412	.875	SQ2-7/16-F
1/2	.5042	.906	SQ2-1/2-F
17/32	.5357	.924	SQ2-17/32-F
9/16	.5672	.969	SQ2-9/16-F
19/32	.5987	.969	SQ2-19/32-F
5/8	.6302	.969	SQ2-5/8-F
11/16	.6932	.969	SQ2-11/16-F

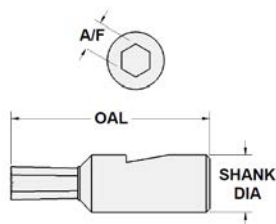
Metric / Square, for ORB2/... Holders 1/2" (.500) Shank Diameter x 1-3/4" (1.750) OAL			
NOMINAL SQUARE SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
2.00MM	.0800	.169	SQ2-2.0-F
2.50MM	.1002	.211	SQ2-2.5-F
3.00MM	.1204	.253	SQ2-3.0-F
4.00MM	.1602	.337	SQ2-4.0-F
5.00MM	.1997	.420	SQ2-5.0-F
6.00MM	.2392	.503	SQ2-6.0-F
7.00MM	.2798	.588	SQ2-7.0-F
8.00MM	.3187	.670	SQ2-8.0-F
9.00MM	.3583	.752	SQ2-9.0-F
10.00MM	.3979	.836	SQ2-10.0-F
11.0MM	.4376	.873	SQ2-11.0-F
12.0MM	.4774	.893	SQ2-12.0-F
13.0MM	.5170	.912	SQ2-13.0-F
14.0MM	.5566	.969	SQ2-14.0-F
15.0MM	.5968	.969	SQ2-15.0-F
16.0MM	.6369	.969	SQ2-16.0-F

* Custom lengths, A/F, & Depths of Cut available to quote upon request

INTERNAL SQUARE BROACHES WITH 3/4" (.750") DIA. SHANK X 2-3/4" OAL



- Superior, Hardened FORTE material
- Ground all over
- Angular clamping at prevents pull out
- Fit all 3/4" I.D. Rotating Broach Tools
- Available in T15PM H.S.S. (Prices on application)



Inch / Square, for ORBHD/... Holders 3/4" (.750) Shank Diameter x 2-3/4" (2.750) OAL			
NOMINAL SQUARE SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
9/32	.2837	.596	SQHD-9/32-F
5/16	.3152	.662	SQHD-5/16-F
11/32	.3467	.729	SQHD-11/32-F
3/8	.3782	.794	SQHD-3/8-F
13/32	.4097	.860	SQHD-13/32-F
7/16	.4412	.927	SQHD-7/16-F
15/32	.4727	.993	SQHD-15/32-F
1/2	.5042	1.059	SQHD-1/2-F
17/32	.5357	1.125	SQHD-17/32-F
9/16	.5672	1.191	SQHD-9/16-F
19/32	.5987	1.257	SQHD-19/32-F
5/8	.6302	1.323	SQHD-5/8-F
21/32	.6617	1.338	SQHD-21/32-F
11/16	.6932	1.354	SQHD-11/16-F
23/32	.7237	1.369	SQHD-23/32-F
3/4	.7562	1.385	SQHD-3/4-F
25/32	.7882	1.400	SQHD-25/32-F
13/16	.8202	1.469	SQHD-13/16-F

Metric / Square, for ORBHD/... Holders 3/4" (.750) Shank Diameter x 2-3/4" (2.750) OAL			
NOMINAL SQUARE SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
6.00MM	.2392	.503	SQHD-6.0-F
7.00MM	.2798	.588	SQHD-7.0-F
8.00MM	.3187	.670	SQHD-8.0-F
9.00MM	.3583	.752	SQHD-9.0-F
10.00MM	.3979	.836	SQHD-10.0-F
11.00MM	.4376	.919	SQHD-11.0-F
12.00MM	.4774	1.003	SQHD-12.0-F
13.00MM	.5170	1.086	SQHD-13.0-F
14.00MM	.5566	1.169	SQHD-14.0-F
15.00MM	.5968	1.253	SQHD-15.0-F
16.00MM	.6369	1.326	SQHD-16.0-F
17.00MM	.6770	1.346	SQHD-17.0-F
18.00MM	.7169	1.366	SQHD-18.0-F
19.00MM	.7568	1.385	SQHD-19.0-F
20.00MM	.7972	1.405	SQHD-20.0-F

* Custom lengths, A/F, & Depths of Cut are available to quote upon request

6-Lobed Rotary Broaches for Internal Forms



ROTARY BROACHING



from **Somma**
featuring our **FORTE** *material*



**The Toughest Broaching
Material Available**

**Improved Wear Resistance
for Better Tool Life**

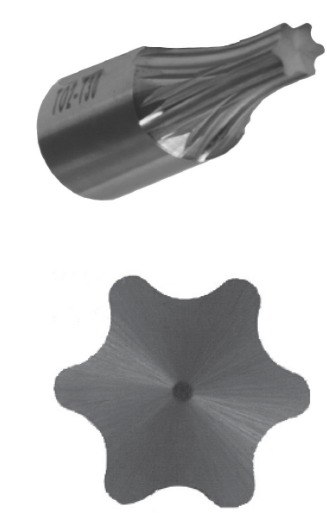
**Industry Leading
Depth of Cut**

**Industry-Wide
Compatibility**

**Largest Stock of ANSI Hex
& Squares Available for
Same Day Shipping**

**Special Hex & Square
Sizes Available
in 1-2 Days**

INTERNAL 6 LOBED BROACHES WITH 8MM DIA. SHANK X 28MM (1.102") OAL

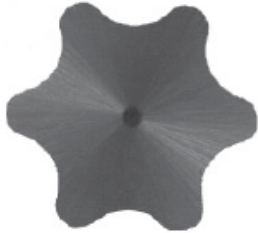
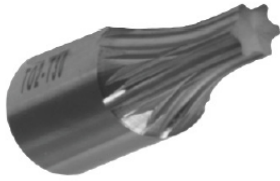


6 Lobed for ORBSW/... Holders 8MM Shank Diameter x 28MM		
NOMINAL 6-LOBE SIZE	MAX CUTTING DEPTH*	PART NO.
T5	.047	TOSW-T5
T6	.047	TOSW-T6
T7	.063	TOSW-T7
T8	.078	TOSW-T8
T9	.078	TOSW-T9
T10	.109	TOSW-T10
T15	.109	TOSW-T15
T20	.156	TOSW-T20
T25	.156	TOSW-T25
T27	.188	TOSW-T27
T30	.219	TOSW-T30

Available in T15PM H.S.S.
(Prices on application)

** Custom depths of cut available to quote upon request*

INTERNAL 6-LOBED BROACHES WITH 8MM DIA. SHANK X 1-1/4" OAL

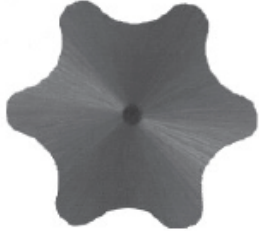
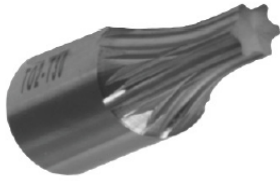


- Superior, Hardened FORTE material
- Ground all over
- Angular clamping at prevents pull out
- Fit all Rotating Broach Tools

6 Lobed for ORB00/... Holders 8MM Shank Diameter x 1-1/4"		
NOMINAL 6-LOBE SIZE	MAX CUTTING DEPTH*	PART NO.
T5	.047	T000-T5
T6	.047	T000-T6
T7	.063	T000-T7
T8	.078	T000-T8
T9	.078	T000-T9
T10	.109	T000-T10
T15	.109	T000-T15
T20	.156	T000-T20
T25	.156	T000-T25
T27	.188	T000-T27
T30	.219	T000-T30
T40	.250	T000-T40
T45	.313	T000-T45
T50	.344	T000-T50
T55	.344	T000-T55

** Custom lengths, A/F, & Depths of Cut available to quote upon request*

INTERNAL 6-LOBED BROACHES WITH ½" (.500") DIA. SHANK X 1-3/4" OAL



- Superior, Hardened FORTE material
- Ground all over
- Angular clamping at prevents pull out
- Fit all Rotating Broach Tools

6 Lobed for ORB2/... Holders 1/2" Shank Diameter x 1-3/4"		
NOMINAL 6-LOBE SIZE	MAX CUTTING DEPTH*	PART NO.
T5	.047	T02-T5
T6	.047	T02-T6
T7	.063	T02-T7
T8	.075	T02-T8
T9	.078	T02-T9
T10	.109	T02-T10
T15	.109	T02-T15
T20	.156	T02-T20
T25	.156	T02-T25
T27	.188	T02-T27
T30	.219	T02-T30
T40	.250	T02-T40
T50	.344	T02-T50
T55	.344	T02-T55
T60	.469	T02-T60
T70	.469	T02-T70
T90	.969	T02-T90
T100	.969	T02-T100

* Custom lengths, A/F, & Depths of Cut available to quote upon request

Double Hex Rotary Broaches for Internal Forms



ROTARY BROACHING



from **Somma**
featuring our **FORTE** *material*



The Toughest Broaching
Material Available

Improved Wear Resistance
for Better Tool Life

Industry Leading
Depth of Cut

Industry-Wide
Compatibility

Largest Stock of ANSI Hex
& Squares Available for
Same Day Shipping

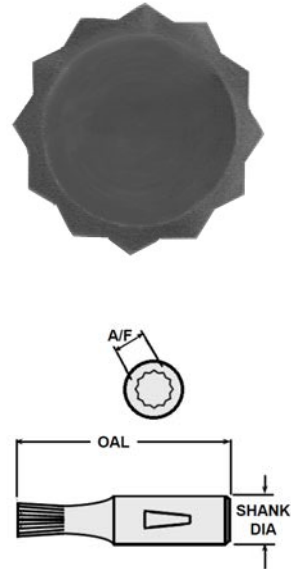
Special Hex & Square
Sizes Available
in 1-2 Days

INTERNAL DOUBLE HEX BROACHES



- Superior, Hardened FORTE material
- Ground all over
- Angular clamping at prevents pull out
- Fit all Rotating Broach Tools
- Available in T15PM H.S.S. (Prices on application)

.315 SHANK DIA.



Inch/Double Hex, for ORB00/... Holders			
DOUBLE HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1/4	.2525	.289	DHX00-1/4
9/32	.2840	.367	DHX00-9/32
5/16	.3155	.434	DHX00-5/16
11/32	.3467	.629	DHX00-11/32
3/8	.3785	.629	DHX00-3/8
13/32	.4097	.688	DHX00-13/32
7/16	.4415	.688	DHX00-7/16
15/32	.4725	.688	DHX00-15/32
1/2	.5045	.688	DHX00-1/2

Metric /Double Hex, for ORB00/... Holders 8MM (.315) Shank Diameter x 1-1/4" (1.250) OAL			
DOUBLE HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
6MM	.2395	.133	DHX00-6.0
7MM	.2785	.352	DHX00-7.0
8MM	.3185	.499	DHX00-8.0
9MM	.3575	.688	DHX00-9.0
10MM	.3985	.688	DHX00-10.0
11MM	.4365	.688	DHX00-11.0
12MM	.4775	.688	DHX00-12.0

.500 SHANK DIA.

Inch / Double Hex, for ORB2/... Holders 1/2" (.500) Shank Diameter x 1-3/4" (1.750) OAL			
DOUBLE HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
1/4	.2525	.320	DHX2-1/4
9/32	.2840	.356	DHX2-9/32
5/16	.3155	.381	DHX2-5/16
11/32	.3467	.438	DHX2-11/32
3/8	.3785	.486	DHX2-3/8
13/32	.4097	.539	DHX2-13/32
7/16	.4415	.602	DHX2-7/16
15/32	.4725	.678	DHX2-15/32
1/2	.5045	.946	DHX2-1/2
17/32	.5357	.946	DHX2-17/32
9/16	.5675	.946	DHX2-9/16
19/32	.5987	.946	DHX2-19/32
5/8	.6305	.946	DHX2-5/8
21/32	.6617	.946	DHX2-21/32
11/16	.6935	.946	DHX2-11/16
23/32	.7242	.946	DHX2-23/32
3/4	.7565	.946	DHX2-3/4

Metric /Double Hex, for ORB2/... Holders 1/2" (.500) Shank Diameter x 1-3/4" (1.750) OAL			
DOUBLE HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
6MM	.2395	.305	DHX2-6.0
7MM	.2785	.349	DHX2-7.0
8MM	.3195	.399	DHX2-8.0
9MM	.3575	.454	DHX2-9.0
10MM	.3985	.520	DHX2-10.0
11MM	.4365	.592	DHX2-11.0
12MM	.4775	.693	DHX2-12.0

.750 SHANK DIA.

Inch/Double Hex, for ORBHD/... Holders 3/4" (.750) Shank Diameter x 2-3/4" (2.750) OAL			
DOUBLE HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
13/32	.4097	.700	DHXHD-13/32
7/16	.4415	.730	DHXHD-7/16
15/32	.4725	.761	DHXHD-15/32
1/2	.5045	.796	DHXHD-1/2
7/32	.5357	.831	DHXHD-17/32
9/16	.5675	.872	DHXHD-9/16
19/32	.5987	.912	DHXHD-19/32
5/8	.6305	.959	DHXHD-5/8
21/32	.6617	1.011	DHXHD-21/32
11/16	.6935	1.071	DHXHD-11/16
23/32	.7242	1.438	DHXHD-23/32
3/4	.7565	1.438	DHXHD-3/4
25/32	.7877	1.438	DHXHD-25/32
13/16	.8195	1.438	DHXHD-13/16
27/32	.8512	1.438	DHXHD-27/32
7/8	.8845	1.438	DHXHD-7/8
29/32	.9157	1.438	DHXHD-29/32
15/16	.9470	1.438	DHXHD-15/16
31/32	.9782	1.438	DHXHD-31/32

Metric /Double Hex, for ORBHD/... Holders 3/4" (.750) Shank Diameter x 2-3/4" (2.750) OAL			
DOUBLE HEX SIZE	ACTUAL A/F*	MAX CUTTING DEPTH*	PART NO.
10.0MM	.3985	.689	DHXHD-10.0
11.0MM	.4365	.725	DHXHD-11.0
12.0MM	.4775	.766	DHXHD-12.0
13.0MM	.5165	.809	DHXHD-13.0
14.0MM	.5565	.857	DHXHD-14.0
15.0MM	.5965	.909	DHXHD-15.0
16.0MM	.6355	.967	DHXHD-16.0
17.0MM	.6775	1.039	DHXHD-17.0
18.0MM	.7145	1.118	DHXHD-18.0
19.0MM	.7575	1.247	DHXHD-19.0
20.0MM	.7945	-1.438	DHXHD-20.0
21.0MM	.8355	-1.438	DHXHD-21.0
22.0MM	.8785	-1.438	DHXHD-22.0
23.0MM	.9155	-1.438	DHXHD-23.0
24.0MM	.9565	-1.438	DHXHD-24.0
25.0MM	.9935	-1.438	DHXHD-25.0
26.0MM	1.0335	-1.438	DHXHD-26.0



Adjustable External Rotary Broach Tool Holders & Broaches

ADJUSTABLE EXTERNAL ROTARY BROACH TOOL HOLDERS



This tool is used to produce hexagons, splines or other irregular shapes on external surfaces of the workpiece as it is rotating in the spindle of the machine.

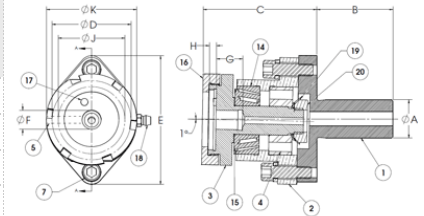
The ORBX00/0.750 & all ORB2 external holders can also be used for internal broaching!

Also available with CAT, VDI, CAPTO C6, HSK & Morse Taper Shanks.

CAT. NO.	A	B	C	D	E	F	G	H	J	K
ORBX00/0.625	5/8"	1-1/2"	2-1/32"	1-1/2"	2-7/16"	3/8"	.300	3/16"	24MM	1-5/8"
ORBX00/0.750	3/4"	2"	2-1/2"	1-1/2"	2-7/16"	1/2"	11/16"	3/16"	24MM	1-5/8"
ORBX00/16MM	16MM	1-1/2"	2-1/32"	1-1/2"	2-7/16"	3/8"	.300	3/16"	24MM	1-5/8"
ORBX00/20MM	20MM	1-1/2"	2-1/32"	1-1/2"	2-7/16"	3/8"	.300	3/16"	24MM	1-5/8"
ORBX00/22MM	22MM	1-1/2"	2-1/32"	1-1/2"	2-7/16"	3/8"	.300	3/16"	24MM	1-5/8"
ORB2/0.750	3/4"	2"	2-31/32"	2-3/8"	3-5/16"	1/2"	.700	3/16"	40MM	2-3/8"
ORB2/1.000	1"	2"	2-31/32"	2-3/8"	3-5/16"	1/2"	.700	3/16"	40MM	2-3/8"
ORB2/1.250	1-1/4"	3"	2-31/32"	2-3/8"	3-5/16"	1/2"	.700	3/16"	40MM	2-3/8"
ORB2/1.500	1-1/2"	3"	2-31/32"	2-3/8"	3-5/16"	1/2"	.700	3/16"	40MM	2-3/8"
ORB2/20MM	20MM	2"	2-31/32"	2-3/8"	3-5/16"	1/2"	.700	3/16"	40MM	2-3/8"
ORB2/22MM	22MM	2"	2-31/32"	2-3/8"	3-5/16"	1/2"	.700	3/16"	40MM	2-3/8"
ORB2/25MM	25MM	2"	2-31/32"	2-3/8"	3-5/16"	1/2"	.700	3/16"	40MM	2-3/8"
ORB2/32MM	32MM	3"	2-31/32"	2-3/8"	3-5/16"	1/2"	.700	3/16"	40MM	2-3/8"
ORB2HD/1.500	1-1/2"	3"	4-3/4"	3-1/2"	4-17/32"	--	--	3/16"	2-1/2"	3-5/8"
ORB2HD/1.750	1-3/4"	3"	4-3/4"	3-1/2"	4-17/32"	--	--	3/16"	2-1/2"	3-5/8"
ORB2HD/32MM	32MM	3"	4-3/4"	3-1/2"	4-17/32"	--	--	3/16"	2-1/2"	3-5/8"

Please lubricate holder before using:
For running at LOW to MODERATE RPM we recommend ZENIPLEXII-Extreme Pressure Aluminum Complex Grease.
(Do not overpack with grease).

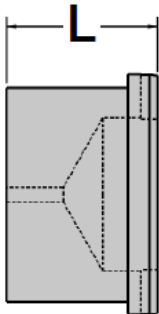
CAT. NO.	DESCRIPTION.
GREASE-ORB	Grease 14 oz. Tube.
	For running HIGH RPM, use a good lubricating oil instead of this grease.



	ORBX00/0.625	ORBX00/0.750	ORB2/0.750	ORB2/1.000	ORB2/1.250	ORB2/1.500	ORB2HD/1.500	ORB2HD/1.750
Part No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
3. Spindle	ORB200-3N	ORB200S-3N	ORB22-3N	ORB22-3N	ORB22-3N	ORB22-3N	ORB2HD-3	ORB2HD-3
5. Set Screw	-----	ORB2-5	ORB2-5	ORB2-5	ORB2-5	ORB2-5	-----	-----
16. Spindle Cap	ORB200-16	ORB200-16	ORB22-16	ORB22-16	ORB22-16	ORB22-16	ORB2HD-16	ORB2HD-16
17. Drive Pin	ORB200-17	ORB200-17	ORB22-17	ORB22-17	ORB22-17	ORB22-17	ORB2HD-17	ORB2HD-17
Spanner Wrench	ADH00-3	ADH00-3	ADH2-3	ADH2-3	ADH2-3	ADH2-3	ADH3-3	ADH3-3

EXTERNAL HEX BROACHES

Note: External square broaches and custom form broaches also available.



.9445 Mounting Diameter / Broaches for ORBX00 Holders

Inch / Hex, for ORBX00/... Holders .9445 MOUNTING DIAMETER			
HEX SIZE	A	L = 3/8" CAT. NO.	L = 1" CAT. NO.
1/4	.2435	EHX00-1/4	EHX0S-1/4
9/32	.2745	EHX00-9/32	EHX0S-9/32
5/16	.3045	EHX00-5/16	EHX0S-5/16
11/32	.3355	EHX00-11/32	EHX0S-11/32
3/8	.3665	EHX00-3/8	EHX0S-3/8
13/32	.3965	EHX00-13/32	EHX0S-13/32
7/16	.4275	EHX00-7/16	EHX0S-7/16

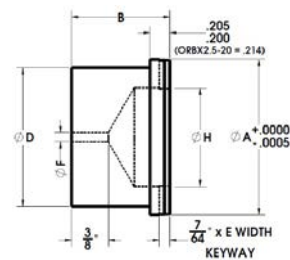
Metric / Hex, for ORBX00/... Holders .9445 MOUNTING DIAMETER			
HEX SIZE	A	L = 3/8" CAT. NO.	L = 1" CAT. NO.
6MM	.2275	EHX00-6.0	EHX0S-6.0
7MM	.2665	EHX00-7.0	EHX0S-7.0
8MM	.3055	EHX00-8.0	EHX0S-8.0
9MM	.3455	EHX00-9.0	EHX0S-9.0
10MM	.3845	EHX00-10.0	EHX0S-10.0

1.5745 Mounting Diameter / Broaches for ORBX2 Holders

Inch / Hex, for ORBX2/... Holders 1.5745 MOUNTING DIAMETER			
HEX SIZE	A	L = 3/8" CAT. NO.	L = 1" CAT. NO.
1/4	.2435	EHX2-1/4	EHX2L-1/4
9/32	.2745	EHX2-9/32	EHX2L-9/32
5/16	.3045	EHX2-5/16	EHX2L-5/16
11/32	.3355	EHX2-11/32	EHX2L-11/32
3/8	.3665	EHX2-3/8	EHX2L-3/8
13/32	.3965	EHX2-13/32	EHX2L-13/32
7/16	.4275	EHX2-7/16	EHX2L-7/16
15/32	.4625	EHX2-15/32	EHX2L-15/32
1/2	.4885	EHX2-1/2	EHX2L-1/2
17/32	.5195	EHX2-17/32	EHX2L-17/32
9/16	.5505	EHX2-9/16	EHX2L-9/16
19/32	.5815	EHX2-19/32	EHX2L-19/32
5/8	.6115	EHX2-5/8	EHX2L-5/8
21/32	.6425	EHX2-21/32	EHX2L-21/32
11/16	.6735	EHX2-11/16	EHX2L-11/16
23/32	.7045	EHX2-23/32	EHX2L-23/32
3/4	.7355	EHX2-3/4	EHX2L-3/4
25/32	.7665	EHX2-25/32	EHX2L-25/32
13/16	.7975	EHX2-13/16	EHX2L-13/16
27/32	.8285	EHX2-27/32	EHX2L-27/32
7/8	.8595	EHX2-7/8	EHX2L-7/8
29/32	.8905	EHX2-29/32	EHX2L-29/32
15/16	.9215	EHX2-15/16	EHX2L-15/16
31/32	.9515	EHX2-31/32	EHX2L-31/32
1"	.9815	EHX2-1	EHX2L-1

Metric / Hex, for ORBX2/... Holders 1.5745 MOUNTING DIAMETER			
HEX SIZE	A	L = 3/8" CAT. NO.	L = 1" CAT. NO.
6MM	.2275	EHX2-6.0	EHX2L-6.0
7MM	.2665	EHX2-7.0	EHX2L-7.0
8MM	.3055	EHX2-8.0	EHX2L-8.0
9MM	.3455	EHX2-9.0	EHX2L-9.0
10MM	.3845	EHX2-10.0	EHX2L-10.0
11MM	.4235	EHX2-11.0	EHX2L-11.0
12MM	.4615	EHX2-12.0	EHX2L-12.0
13MM	.5005	EHX2-13.0	EHX2L-13.0
14MM	.5395	EHX2-14.0	EHX2L-14.0
15MM	.5795	EHX2-15.0	EHX2L-15.0
16MM	.6185	EHX2-16.0	EHX2L-16.0
17MM	.6585	EHX2-17.0	EHX2L-17.0
18MM	.6975	EHX2-18.0	EHX2L-18.0
19MM	.7365	EHX2-19.0	EHX2L-19.0
20MM	.7745	EHX2-20.0	EHX2L-20.0
21MM	.8135	EHX2-21.0	EHX2L-21.0
22MM	.8525	EHX2-22.0	EHX2L-22.0
23MM	.8925	EHX2-23.0	EHX2L-23.0
24MM	.9315	EHX2-24.0	EHX2L-24.0
25MM	.9695	EHX2-25.0	EHX2L-25.0

EXTERNAL BROACH BLANKS



External Broach Blanks								
TO FIT	A	B	D	E	F	H	Forte H.S.S.	T15PM H.S.S.
							CAT. NO.	CAT. NO.
ORB00/...	0.9448	3/8	.750	.094	3/32	-	ORB00-20	ORB00-20-P
ORB00/...	0.9448	1"	.750	.094	3/32	1/2	ORB0S-20	ORB0S-20-P
ORB2/...	1.5740	1"	1.406	.188	3/32	1"	ORB2-20	ORB2-20-P
ORB2/...	1.5740	1-3/4	1.406	.188	3/32	1"	ORB2-20L	ORB2-20L-P
	2.312	1"	2.060	.086	3/32	1-1/2"	ORB2.5-20	ORB2.5-20-P
ORBHD/...	2.500	1-1/4	2.313	.188	3/32	1-3/16	ORBHD-20	ORBHD-20-P

BROACH GO / NO-GO GAGES WITH HANDLE

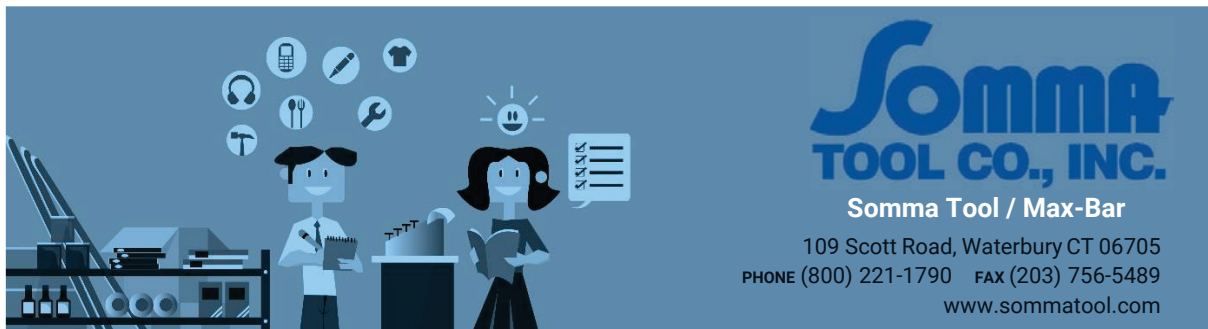


Custom made to your specifications or choose
from Somma standard sizes shown.

PART NUMBER	FOR CHECKING HEX SIZE	PART NUMBER	FOR CHECKING HEX SIZE
HEX GAGE SET-050	0.0500 / 0.0510	HEX GAGE SET-7/32	0.2187 / 0.2217
HEX GAGE SET-1/16	0.0625 / 0.0635	HEX GAGE SET-1/4	0.2500 / 0.2530
HEX GAGE SET-5/64	0.0781 / 0.0791	HEX GAGE SET-5/16	0.3125 / 0.3160
HEX GAGE SET-3/32	0.0937 / 0.0952	HEX GAGE SET-3/8	0.3750 / 0.3790
HEX GAGE SET-7/64	0.1094 / 0.1111	HEX GAGE SET-7/16	0.4375 / 0.4420
HEX GAGE SET-1/8	0.1250 / 0.1270	HEX GAGE SET-1/2	0.5000 / 0.5050
HEX GAGE SET-9/64	0.1406 / 0.1426	HEX GAGE SET-9/16	0.5625 / 0.5680
HEX GAGE SET-5/32	0.1562 / 0.1587	HEX GAGE SET-5/8	0.6250 / 0.6310
HEX GAGE SET-3/16	0.1875 / 0.1900	HEX GAGE SET-3/4	0.7500 / 0.7570

GAGES FOR TORX STYLE BROACHES PART NUMBER	GAGES FOR METRIC HEX BROACHES PART NUMBER
T5 6-LOBE GAGE SET	HEX GAGE SET-M1.5
T6 6-LOBE GAGE SET	HEX GAGE SET-M2
T7 6-LOBE GAGE SET	HEX GAGE SET-M2.5
T8 6-LOBE GAGE SET	HEX GAGE SET-M3
T9 6-LOBE GAGE SET	HEX GAGE SET-M4
T10 6-LOBE GAGE SET	HEX GAGE SET-M5
T15 6-LOBE GAGE SET	HEX GAGE SET-M6
T20 6-LOBE GAGE SET	HEX GAGE SET-M8
T27 6-LOBE GAGE SET	HEX GAGE SET-M10
T30 6-LOBE GAGE SET	HEX GAGE SET-M12
T40 6-LOBE GAGE SET	HEX GAGE SET-M14
T45 6-LOBE GAGE SET	
T50 6-LOBE GAGE SET	
T55 6-LOBE GAGE SET	

Recommended Broaching Speeds & Feeds



Speeds

ORB00 & ORBSW Holders	800-1200 RPM typical. Can go up to 3400 RPM if needed.
ORB2 & ORBHD Holders	800-1200 RPM

Feed Rates

Feed rates are not material-dependent

Hex or Square Up to Size...	Hex Feed IPR (inches per revolution)	Square Feed IPR (inches per revolution)
1/8" (.125)	.001/.002	.001/.002
1/4" (.250)	.002/.004	.002/.004
3/8" (.375)	.003/.005	.003/.005
1/2" (.500)	.004/.006	.003/.005
5/8" (.625)	.005/.007	.004/.006
3/4" (.750)	.005/.006	.004/.006
7/8" (.875)	.004/.005	.002/.004
1" (1.000)	.002/.004	.001/.003

ROTARY BROACHING FAQs

- [What is rotary broaching?](#)
- [How does rotary broaching work?](#)
- [What materials, coolant and coating do you recommend for broaching?](#)
- [What speeds & feeds should I be running at?](#)
- [What is the best way to center the broach?](#)
- [How should I prepare the hole to be broached?](#)
- [Is there anything I should know about the broaching tool itself?](#)
- [Is there any way to align features such as a cross-hole or a . at with a broached feature?](#)
- [Troubleshooting Common Broaching Issues](#)

What is rotary broaching?

Rotary broaching is the process by which a non-round shape is produced on either the inside or outside of a part.

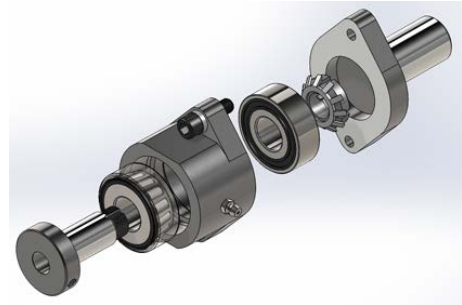
How does rotary broaching work?

Rotary broaching works because the head of the broaching holder is offset from the centerline of the shank on a 1° angle (see Video 1). This creates a shearing effect around the edges of the form being cut – essentially only a section of the form is being cut at any given time – which greatly reduces the amount of cutting pressure needed to form the desired feature.

The rotary broach holder has a spindle which spins independently of the rest of the holder. Thus, if you are rotary broaching on a lathe or screw machine, when the broach tool meets the rotating part, it begins spinning at the same rate as the part (see Video 2).

If you are rotary broaching on a mill or rotary transfer machine, the rotating broach and holder are fed towards a stationary part. In this case, when the broach tool meets the part, it will stop spinning (see Video 3).

Video 1: Rotary Broaching



Video 2: Internal and External Rotary Broaching

Video 3: Vertical Broaching (CNC Mill)

What materials, coolant and coating do you recommend for broaching?

Somma Tool recommends making the broaches out of Forte high speed steel. It has the best cost effectiveness and is resistant to chipping.

However, for tougher materials such as stainless or hardened steels or exotics, we would recommend making the broach out of T15 due to its better wear resistance compared to Forte.

If possible, broaching should be done with an oil-based coolant. This will provide more lubricity to the broaching process and could extend the tool life by as much as 2-3 times. If you can't use oil, a high-concentration water-soluble coolant is acceptable. 100% synthetic is not recommended and will result in poor tool life.

For most common materials a TiN coating will help the broach. TiN is also recommended if you are running 100% synthetic coolant as it will make up some of the lost lubricity.

TiCN will help when machining aluminum, cast iron or brass. TiAlN is recommended for broaching 1144 or nickel.

Alcrona is the best for machining Inconel, titanium, and stainless steels such as 416 or 17-4.

What speeds & feeds should I be running at?

The bearings on the smaller broach tool holders (8mm shank broaches) are designed to run at speeds up to 3400 RPM. The bearings on the larger broach tool holders ($\frac{1}{2}$ " & $\frac{3}{4}$ " shank broaches) are designed to run at speeds between 800-1200 RPM.

The following are the recommended feed rate ranges for common hex & square broaches:

Across-Flat Dimension	Hex (IPR)	Square (IPR)
1/8	.001/.002	.001/.002
1/4	.002/.004	.002/.004
3/8	.003/.005	.003/.005
1/2	.004/.006	.003/.005
5/8	.005/.007	.004/.006
3/4	.005/.006	.004/.006
7/8	.004/.005	.002/.004
1"	.002/.004	.001/.003

On the other hand, in softer materials such as aluminum, too slow of a feed rate could create a counterboring effect if the broach cannot properly grab into the material. For these materials, you should go no lower than a feed rate of .004 IPR.

What is the best way to center the broach?

The quickest and easiest way to center a broach can be seen in this video:

You measure the across-point or OD of the broach to be used and install the broach into the holder. Then install the holder into the machine. In a piece of scrap stock, drill and ream a hole to .001 larger than the previously measured across-point dimension.

Next, loosen the two cap screws on the holder so that the body separates from the shank by about $\frac{3}{16}$ ". Bring the broach head manually to within .030 of the hole and slide the broach into the hole. Continue jogging the turret towards the hole until the broach head is no longer separated from the shank.

Finally, tighten up the two cap screws while making sure that the broach and spindle can still rotate freely. This method will get you on center within approximately a .002 runout.

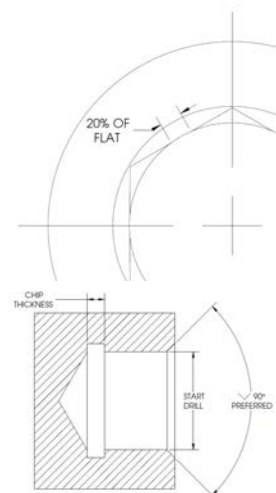
How should I prepare the hole to be broached?

For hex & square broaches, the ANSI standard is to allow 20% of the flat (see figure below) to be taken out by the start drill. The quick formula to calculate the start drill based on this is $1.0066 \times A/F$ for hex broaches and $1.0198 \times A/F$ for squares.

If you're not bound by any print specs, we recommend drilling the hole out up to a 33% witness mark. This will lessen the cutting force needed to broach. The formula to calculate the start drill based on this is $1.0184 \times A/F$ for hex broaches and $1.0541 \times A/F$ for squares.

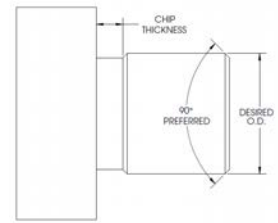
There should also be a 90° countersink at the start of the hole that is greater than the across-point or OD of the broach. This is absolutely necessary. If your print does not allow for the countersink, you can make the part longer and face off the countersink after the broaching process.

You can also put a recess at the bottom of the hole – again, greater than the across-point or OD. This is optional; however it will help the chips to clear out of the hole without having to go back in to drill them out after the broaching process.



For external forms, there are no ANSI-type standards. However, we do recommend turning the OD of the bar to below the across-point or to the OD of a non-polygonal broach. This will reduce the cutting pressure necessary by creating multiple chips.

There should be a 90° point to lower than the ID of the feature at the start of the feature to be broached. Again, this can be faced off afterwards if it's not allowable per the print.

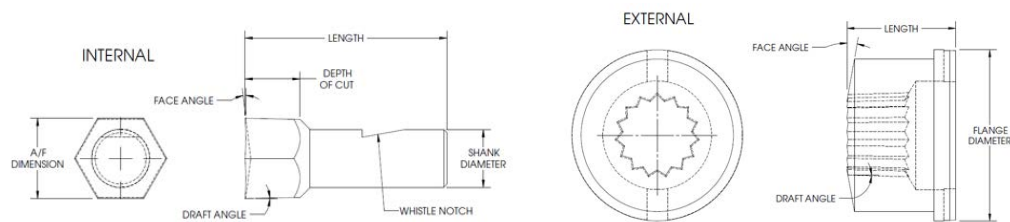


Turning an optional recess smaller than the ID at the end of the broached feature will also help in clearing chips from the workpiece.

Is there anything I should know about the broaching tool itself?

There are a few common features on every broaching tool.

First, every broach tool has a draft angle. This is ground or cut to be slightly greater than the 1° tilt of the holder to provide clearance in case the machine or tool isn't perfectly on center.



Each broach tool also has a face angle. These create a sharper cutting edge on the broach face and can vary on the broaches for different materials.

Internal broaches are located on their shank and held in place by a set screw clamped onto a whistle notch. External broaches are located on their outer flange and held in place by a spindle cap and drive pin.



Is there any way to align features such as a cross-hole or a flat with a broached feature?

Yes, there is. On horizontal applications, you can use a driven broach holder to align the features. On vertical applications, you can install a special attachment onto the non-rotating part of the tool spindle as shown in this video:

Troubleshooting Common Broaching Issues

The broach is “counterboring” the part instead of producing the form I want.

Counterboring is caused primarily in softer materials such as aluminum where the broach cannot grab the material and therefore does not rotate at the same speed as the material. There are a few ways to remedy this.

- Loosen the bearings in the holder
- If possible, you can broach .005-.010 into the part with the spindle stopped and then start rotating the workpiece or holder
- Increase the feed rate to .004 IPR minimum

The broach form is “spiraling” down the length of cut.

Spiraling is caused by misalignment between the broach and the work spindle. In an ideal world, the broach would be driven by the leading edge of the hole. However, due to the draft angle on the broach, the slight space that occurs could cause the broach to slip – especially on long cuts. There are a few ways to remedy this.

- If you believe your machine is rigid enough, the draft angle can be ground to exactly 1° instead of slightly more.
- You can reverse the spindle back and forth throughout the cut – although this will only create spiraling in the other direction giving you a somewhat straighter hole
- In some thin-walled applications, we’ve found that rotating the spindle in the opposite direction from which the start hole was drilled prevents spiraling.
- A driven broach holder will eliminate spiraling completely.

My machine isn’t powerful enough to broach a keyway form.

Keyways larger than 1/8” wide are one of the toughest forms to broach because of the large chip being taken out without the benefit of a start hole. If you are unable to pre-drill or mill the keyway so that the broach is only essentially taking out the corners, the best way to broach the part is on a machine that can be indexed. Install the broach directly into a collet in the turret (not in a rotary holder) and lock the machine spindle. Then “chisel” away at the form by indexing into the keyway in .005-.010 increments.

Another thing to keep in mind is that it will be less expensive to do this with a standard square broach with an across-flat dimension equal to the width of the keyway, rather than a specially formed keyway broach.



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