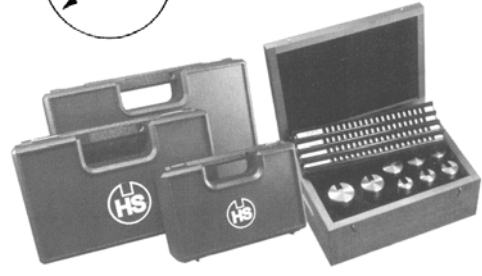
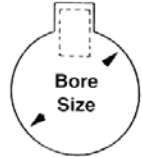


CHUCK JAWS
LATHE WORKHOLDING

BROACHES

KEYWAY BROACH SETS HIGH SPEED STEEL

Broach sets come in a durable plastic case (Dura-Case) and include broaches, bushings, shims, lubrication and operation guides.



No. Of Combos	Type	Description	Dura Case	
			Part Number	Price Each
15	Standard Precision #1	3 Broaches: 1/16-1, 3/32-1, 1/8-1 5 Bushings: 1/4-1, 5/16-1, 3/8-1, 7/16-1, 1/2-1	HS-15315	\$167.83
18	Standard Set C-1	4 Broaches: 1/8-II, 3/16-II, 1/4-III, 3/8-III 9 Bushings: 1/2-II, 5/8-II, 3/4-III, 7/8-II, 1-III, 1-1/8-III, 1-1/4-III, 1-3/8-III, 1-1/2-III	HS-15318	\$290.57
18	Standard Set C-1A	4 Broaches: 1/8-II, 3/16-II, 1/4-III, 3/8-III 9 Bushings: 9/16-II, 11/16-II, 13/16-II, 15/16-III, 1-1/16-III, 1-3/16-III, 1-5/16-III, 1-7/16-III, 1-9/16-III	HS-15319	\$290.57
15	Standard Set C-2	3 Broaches: 1/8-II, 3/16-III, 1/4-III 9 Bushings: 9/16-II, 11/16-II, 13/16-II, 15/16-III, 1-1/16-III, 1-3/16-III, 1-5/16-III, 1-7/16-III, 1-9/16-III	HS-15320	\$248.68
14	Standard Set C-2A	3 Broaches: 1/8-II, 3/16-III, 1/4-III 9 Bushings: 1/2-II, 5/8-II, 3/4-III, 7/8-II, 1-III, 1-1/8-III, 1-1/4-III, 1-3/8-III, 1-1/2-III	HS-15321	\$248.68
30	Standard Set C-10A	3 Broaches: 1/8-II, 3/16-III, 1/4-III 18 Bushings: 1/2-II, 9/16-II, 5/8-III, 11/16-II, 3/4-III, 13/16-II, 7/8-III, 15/16-III, 1-III, 1-1/16-III, 1-1/8-III, 1-3/16-III, 1-1/4-III, 1-5/16-III, 1-3/8-III, 1-7/16-III, 1-1/2-III, 1-9/16-III	HS-15330	\$355.01
36	Standard Set C-10	4 Broaches: 1/8-II, 3/16-II, 1/4-III, 3/8-III 18 Bushings: 1/2-II, 9/16-II, 5/8-III, 11/16-II, 3/4-III, 13/16-II, 7/8-III, 15/16-III, 1-III, 1-1/16-III, 1-1/8-III, 1-3/16-III, 1-1/4-III, 1-5/16-III, 1-3/8-III, 1-7/16-III, 1-1/2-III, 1-9/16-III	HS-15336	\$376.27

MACHINE VISES
MAGNETIC CHUCKS

RETENTION KNOBS
ER, DA, TG COLLETS

KEYWAY BROACHES WITH SHIMS HIGH SPEED STEEL-AMERICAN STANDARD



Used to cut keyways in machined round holes. Designed to be used with an arbor press or manually, it is suited for use in a variety of non-ferrous and ferrous materials.

- FEATURES:**
- Tapered broach allows teeth to cut key way to proper depth
 - Manufactured from high speed steel
 - Ground and hardened bar with cutting teeth on the edges
 - Replacement shims also available



TOOLHOLDERS
TAP HOLDERS

INDEXABLE DRILLS
TURNING & BORING

Broach Size/Type	Keyway Width Tolerance	Dimensions	No. Of Shims	Part Number	Price Each
1/16 -I	.0625-.0635	1/8 X 5 1/4	0	HS-10104	\$44.05
3/32 -I	.0937-.0947	1/8 X 5 1/4	0	HS-10106	\$44.05
1/8 -I	.1252-.1262	1/8 X 5 1/4	1	HS-10108	\$44.05
3/32 -II	.0937-.0947	3/16 X 7	0	HS-10206	\$52.19
1/8 -II	.1252-.1262	3/16 X 7	1	HS-10208	\$52.19
5/32 -II	.1564-.1574	3/16 X 7	1	HS-10210	\$52.19
3/16 -II	.1877-.1887	3/16 X 7	1	HS-10212	\$52.19
3/16 -III	.1877-.1887	3/8 X 11 7/8	1	HS-10312	\$64.19
1/4 -III	.2502-.2512	3/8 X 11 7/8	1	HS-10316	\$64.19
5/16 -III	.3127-.3137	3/8 X 11 7/8	1	HS-10320	\$64.19
3/8 -III	.3755-.3765	3/8 X 11 7/8	2	HS-10324	\$64.19

Broach Size/Type	Keyway Width Tolerance	Dimensions	No. Of Shims	Part Number	Price Each
5/16 -IV	.3127-.3137	9/16 X 13 7/8	1	HS-10420	\$98.25
3/8 -IV	.3755-.3765	9/16 X 13 7/8	2	HS-10424	\$98.25
7/16 -IV	.4380-.4390	9/16 X 13 7/8	2	HS-10428	\$98.25
1/2 -IV	.5006-.5016	9/16 X 13 7/8	3	HS-10432	\$98.25
9/16 -IV	.5630-.5640	9/16 X 13 7/8	3	HS-10436	\$234.47
5/8 -V	.6260-.6270	3/4 X 15 1/4	4	HS-10540	\$160.23
3/4 -V	.7517-.7525	3/4 X 15 1/4	5	HS-10548	\$160.23
7/8 -VI	.8765-.8775	1 X 19 1/4	6	HS-10656	\$296.89
1" -VI	1.0015-1.0025	1 X 19 1/4	7	HS-10664	\$296.89
1 1/8	1.1260-1.1270	1 1/8 X 23	8	HS-10666	\$823.69
1 1/4	1.2510-1.2520	1 1/4 X 23	9	HS-10668	\$928.31

ONE PASS KEYWAY BROACHES HIGH SPEED STEEL-AMERICAN STANDARD



Used to cut keyways in machined round holes in a single pass. Designed to be used with an arbor press or manually, it is suited for use in a variety of non-ferrous and ferrous materials.

- FEATURES:**
- Tapered broach allows teeth to cut key way to proper depth
 - Manufactured from high speed steel
 - Ground and hardened bar with cutting teeth on the edges
 - Replacement shims also available
 - Also available in metric sizes



Broach Size/Type	Keyway Width Tolerance	Dimensions Inches	Min. Length of Cut	Max. Length of Cut	Part Number	Price Each
1/8 II	.1252-.1262	3/16 X 10 3/4	1/4	1 1/2	HS-10208COP	\$142.10
5/32 II	.1564-.1574	3/16 X 10 3/4	1/4	1 1/2	HS-10210COP	\$176.89
3/16 II	.1877-.1887	3/16 X 10 3/4	1/4	1 1/2	HS-10212COP	\$176.89
3/16 III	.1877-.1887	3/8 X 18 1/2	5/16	1 11/16	HS-10312COP	\$213.59
1/4 III	.2502-.2512	3/8 X 18 1/2	5/16	1 11/16	HS-10316COP	\$213.59
5/16 III	.3127-.3137	3/8 X 18 1/2	5/16	1 11/16	HS-10320COP	\$213.59
3/8 III	.3755-.3765	3/8 X 18 1/2	5/16	1 11/16	HS-10324COP	\$213.59

ENDMILLS, DRILLS
TAPS & REAMERS

ABRASIVES
MEASURING TOOLS

EXTRA SHIMS FOR STANDARD KEYWAY BROACHES HIGH SPEED STEEL-AMERICAN STANDARD

Shims are designed to be placed between the bushing and the broach to allow the broach to cut deeper slots in the hole in succeeding passes.



Broach Size/Type	Thick.	Length x Width	Part Number	Price Each	Broach Size/Type	Thick.	Length x Width	Part Number	Price Each
1/8 I	.031	1 3/8 X 1/8	HS-30108	\$2.70	7/16 IV	.075	6 1/4 X 9/16	HS-30428	\$3.77
1/8 II	.031	1 7/8 X 3/16	HS-30208	\$2.70	1/2 IV	.062	6 1/4 X 9/16	HS-30432	\$3.77
5/32 II	.042	1 7/8 X 3/16	HS-30210	\$2.70	5/8 V	.062	6 3/4 X 3/4	HS-30540	\$3.77
3/16 II	.050	1 7/8 X 3/16	HS-30212	\$2.70	3/4 V	.062	6 3/4 X 3/4	HS-30548	\$3.77
3/16 III	.050	2 7/8 X 3/8	HS-30312	\$2.70	7/8 VI	.062	6 3/4 X 1	HS-30656	\$3.77
1/4 III	.062	2 7/8 X 3/8	HS-30316	\$2.70	1" VI	.062	6 3/4 X 1	HS-30664	\$3.77
5/16 III	.078	2 7/8 X 3/8	HS-30320	\$2.70	1.125	.062	7 X 1 1/8	HS-30740	\$6.37
3/8 III	.062	2 7/8 X 3/8	HS-30324	\$2.70	1.25	.062	7 X 1 1/4	HS-30750	\$6.37
5/16 IV	.078	6 1/4 X 9/16	HS-30420	\$3.77	1.375	.062	7 X 1 1/4	HS-30760	\$6.37
3/8 IV	.062	6 1/4 X 9/16	HS-30424	\$3.77	1.5	.062	7 X 1 1/4	HS-30770	\$6.37

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KEYWAY BUSHINGS KNURLED COLLAR & PLAIN TYPE

Designed for use with standard keyway broaches for cutting keyways in machined holes. Keyway bushings act as a guide to guide the keyway broach through the hole.

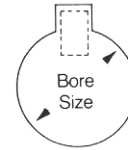
Plain Type: Used with Type IV & V broaches
Knurled Collar Type: Designed for use with Type I, II & III broaches



Plain Type Bushing



Collard Bushing



I Collared Bushings for I Broaches

Dia/Type	Length	Part Number	Price Each
1/4 I	1 1/8	HS-20116	\$10.63
5/16 I	1 1/8	HS-20120	\$10.63
3/8 I	1 1/8	HS-20124	\$10.63
7/16 I	1 1/8	HS-20128	\$10.63
1/2 I	1 1/8	HS-20132	\$10.63

II Collared Bushings for II Broaches

Dia/Type	Length	Part Number	Price Each
1/2 II	1 11/16	HS-20232	\$9.31
9/16 II	1 11/16	HS-20236	\$9.31
5/8 II	1 11/16	HS-20240	\$9.31
11/16 II	1 11/16	HS-20244	\$9.31
3/4 II	1 11/16	HS-20248	\$9.31
13/16 II	1 11/16	HS-20252	\$9.31
7/8 II	1 11/16	HS-20256	\$9.31

III Collared Bushings for III Broaches

Dia/Type	Length	Part Number	Price Each
3/4 III	2 1/2	HS-20348	\$12.50
13/16 III	2 1/2	HS-20352	\$12.50
7/8 III	2 1/2	HS-20356	\$12.50
15/16 III	2 1/2	HS-20360	\$12.50
1" III	2 1/2	HS-20364	\$12.50

III Collared Bushings for III Broaches

Dia/Type	Length	Part Number	Price Each
1 1/16 III	2 1/2	HS-20368	\$12.50
1 1/8 III	2 1/2	HS-20372	\$12.50
1 3/16 III	2 1/2	HS-20376	\$14.95
1 1/4 III	2 1/2	HS-20380	\$14.95
1 5/16 III	2 1/2	HS-20384	\$14.95
1 3/8 III	2 1/2	HS-20388	\$14.95
1 7/16 III	2 1/2	HS-20392	\$14.95
1 1/2 III	2 1/2	HS-20396	\$14.95
1 9/16 III	2 1/2	HS-20400	\$14.95

IV Plain Bushings for IV Broaches

Dia/Type	Length	Part Number	Price Each
1 7/16	4	HS-21492	\$14.95
1 1/2	4	HS-21496	\$14.95
1 9/16	4	HS-21500	\$14.95
1 5/8	4	HS-21504	\$14.95
1 11/16	4	HS-21508	\$21.07
1 3/4	4	HS-21512	\$21.07
1 13/16	5	HS-21516	\$21.07
1 7/8	5	HS-21520	\$21.07
1 15/16	5	HS-21524	\$23.03

IV Plain Bushings for IV Broaches

Dia/Type	Length	Part Number	Price Each
2"	5	HS-21528	\$21.56
2 1/16	5	HS-21532	\$21.56
2 1/8	5	HS-21536	\$21.56
2 3/16	5	HS-21540	\$21.56
2 1/4	5	HS-21544	\$30.63
2 5/16	5	HS-21548	\$30.63
2 3/8	6	HS-21552	\$30.63
2 7/16	6	HS-21556	\$30.63
2 1/2	6	HS-21560	\$39.15
2 9/16	6	HS-21564	\$39.15
2 5/8	6	HS-21568	\$39.15
2 11/16	6	HS-21572	\$39.15
2 3/4	6	HS-21576	\$39.15
2 13/16	6	HS-21580	\$39.15
2 7/8	6	HS-21584	\$39.15
2 15/16	6	HS-21588	\$39.15
3	6	HS-21592	\$39.15

Additional Sizes Available.

STANDARD SQUARE PUSH BROACHES

High Speed Steel

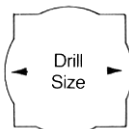
Used to cut square shaped holes in machined round holes. Designed to allow broach to start in a plain round hole and cut a precisely shaped square hole in a single pass. Designed to be used with an arbor press or manually, it is suited for use in a variety of non-ferrous and ferrous materials.

FEATURES:

- Each tooth is progressively larger and cuts slightly deeper than the previous tooth
- Manufactured from high speed steel
- Ground and hardened bar with cutting teeth on the edges
- Also available in metric sizes



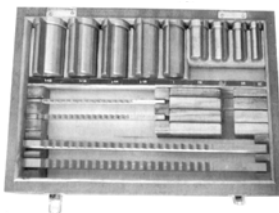
Size Square	Tolerance	Pilot Dia	Drill Size	Broach Length	Min LOC	Max LOC	Part Number	Price Each
1/8	.1250-.1260	.1280	#30	4 5/8	3/16	1/2	HS-13008	\$95.80
5/32	.1565-.1575	.1585	#21	5 5/8	1/4	1/2	HS-13010	\$108.29
3/16	.1880-.1890	.1930	#10	5 11/16	1/4	5/8	HS-13012	\$95.80
7/32	.2190-.2200	.2275	#1	6 7/8	1/4	3/4	HS-13014	\$108.29
1/4	.2505-.2515	.2651	17/64	7	1/4	3/4	HS-13016	\$95.80
9/32	.2815-.2825	.2964	19/64	7 1/4	3/8	1	HS-13018	\$120.05
5/16	.3130-.3140	.3276	21/64	8 1/8	3/8	1	HS-13020	\$98.10
11/32	.3440-.3450	.3589	23/64	9 5/8	3/8	1 1/4	HS-13022	\$155.77
3/8	.3755-.3765	.3901	25/64	9 7/8	3/8	1 1/4	HS-13024	\$124.95
13/32	.4065-.4075	.4214	27/64	10 7/8	1/2	1 3/8	HS-13026	\$185.47
7/16	.4385-.4395	.4526	29/64	11 3/8	1/2	1 3/8	HS-13028	\$159.01
15/32	.4690-.4700	.4995	1/2	12 1/2	1/2	1 3/8	HS-13030	\$242.55
1/2	.5005-.5015	.5307	17/32	12 5/8	1/2	1 3/8	HS-13032	\$183.75
9/16	.5630-.5640	.5932	19/32	14 7/8	1/2	1 1/2	HS-13036	\$232.75
5/8	.6260-.6270	.6557	21/32	16 13/16	5/8	1 5/8	HS-13040	\$273.18
11/16	.6885-.6895	.7495	3/4	18 1/2	5/8	1 5/8	HS-13044	\$318.01
3/4	.7510-.7520	.8120	13/16	18 7/8	5/8	1 5/8	HS-13048	\$368.97
7/8	.8765-.8775	.9370	15/16	22 3/4	1/2	2	HS-13056	\$531.16
1"	1.0020-1.0030	1.0932	1 3/32	24 1/2	1/2	2	HS-13064	\$552.48



KEYWAY BROACH SETS

Heavy Duty, High Speed Steel

- High speed steel
- Complete with wood case
- **30 piece set** includes 5 broaches, 18 collared bushings and 7 shims for 47 keyway combinations.
- **9 piece set** includes 3 broaches, 5 collared bushings and 1 shim for 15 keyway combinations.



No. Of Combos	Type	Description	Part Number	Price Each
15	Standard Style A	3 Broaches: 1/16-A, 3/32-A, 1/8-A 5 Bushings: 1/4, 5/16, 3/8, 7/16, 1/2	A-2006-0051	\$140.00
47	Standard Style B/C	5 Broaches: 1/8-B, 3/16-B, 1/4-C, 5/16-C, 3/8-C 18 Bushings: 1/2-B, 9/16-B, 5/8-B, 11/16-B, 3/4-B, 13/16-B, 7/8-B, 15/16-C, 1"-C, 1-1/16-C, 1-1/8-C, 1-3/16-C, 1-1/4-C, 1-5/16-C, 1-3/8-C, 1-7/16-C, 1-1/2-C, 1-9/16-C	A-2006-0056	\$350.00



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BROACHES

STANDARD HEXAGON PUSH BROACHES HIGH SPEED STEEL



Used to cut hexagonal shaped holes in machined round holes. Designed to allow broach to start in a plain round hole and cut a precisely shaped hexagonal hole in a single pass. Designed to be used with an arbor press or manually, it is suited for use in a variety of non-ferrous and ferrous materials.

FEATURES:

- Each tooth is progressively larger and cuts slightly deeper than the previous tooth
- Manufactured from high speed steel
- Ground and hardened bar with cutting teeth on the edges
- Also available in metric sizes



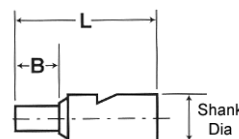
Hex Size	Tolerance	Pilot Dia	Drill Size	Broach Length	Min LOC	Max LOC	Part Number	Price Each
1/8	.1255-.1260	.1245	1/8	4 5/8	3/16	3/8	HS-12008	\$109.27
5/32	.1565-.1570	.1557	5/32	5 1/2	1/4	1/2	HS-12010	\$123.97
3/16	.1880-.1890	.1870	3/16	5 9/16	1/4	5/8	HS-12012	\$115.15
7/32	.2190-.2200	.2182	7/32	6	1/4	3/4	HS-12014	\$136.47
1/4	.2505-.2515	.2495	1/4	6 1/2	1/4	3/4	HS-12016	\$115.15
9/32	.2815-.2825	.2807	9/32	7 3/4	3/8	1	HS-12018	\$142.35
5/16	.3130-.3140	.3120	5/16	8 1/4	3/8	1	HS-12020	\$120.30
11/32	.3440-.3450	.3432	11/32	8 1/4	3/8	1 1/4	HS-12022	\$175.18
3/8	.3755-.3765	.3745	3/8	9	3/8	1 1/4	HS-12024	\$140.63
13/32	.4065-.4075	.4057	13/32	10	1/2	1 3/8	HS-12026	\$209.67
7/16	.4385-.4395	.4370	7/16	10 3/4	1/2	1 3/8	HS-12028	\$177.87
15/32	.4690-.4700	.4682	15/32	12 3/8	1/2	1 3/8	HS-12030	\$251.13
1/2	.5005-.5015	.4995	1/2	12 1/2	1/2	1 3/8	HS-12032	\$208.25
9/16	.5630-.5640	.5620	9/16	14 1/4	1/2	1 1/2	HS-12036	\$249.85
5/8	.6260-.6270	.6245	5/8	16 7/8	5/8	1 5/8	HS-12040	\$287.63
11/16	.6880-.6890	.6870	11/16	17	5/8	1 5/8	HS-12044	\$317.03
3/4	.7510-.7520	.7495	3/4	17 7/8	5/8	1 5/8	HS-12048	\$334.18
7/8	.8755-.8765	.8745	7/8	18 7/8	5/8	1 5/8	HS-12056	\$526.75
1"	1.0020-1.0030	.9995	1	19 7/8	5/8	1 5/8	HS-12064	\$551.99



INTERNAL HEX & SQUARE BROACHES HIGH SPEED STEEL

FEATURES:

- Also referred to as "wobble," "blind hole," "punch" and "rotary" broaches
- For use with screw machines, CNC turning machines and presses
- Also available in special forms- torx, octagons, splines- please call for more information
- For Rotary Broach Holders, please see the following page



HEXAGONAL PUNCH BROACHES .315 SHANK

Shank Dia	Hex Size	DOC B	OAL L	Part Number	Price Each
.315	.051	5/64	1-1/4	HS-66002	\$48.95
	1/16	3/32	1-1/4	HS-66004	\$48.95
	5/64	7/64	1-1/4	HS-66005	\$48.95
	3/32	9/64	1-1/4	HS-66006	\$48.95
	7/64	5/32	1-1/4	HS-66007	\$48.95
	1/8	3/16	1-1/4	HS-66008	\$48.95
	9/64	7/32	1-1/4	HS-66009	\$48.95
	5/32	1/4	1-1/4	HS-66010	\$48.95
	3/16	9/32	1-1/4	HS-66012	\$48.95
	7/32	11/32	1-1/4	HS-66014	\$48.95
	1/4	3/8	1-1/4	HS-66016	\$48.95
	9/32	3/8	1-1/2	HS-66018	\$64.63
	5/16	3/8	1-1/2	HS-66020	\$64.63
	11/32	7/16	1-1/2	HS-66022	\$64.63
	3/8	1/2	1-1/2	HS-66024	\$67.38
	13/32	1/2	1-1/2	HS-66026	\$67.38
	7/16	1/2	1-1/2	HS-66028	\$67.38
	15/32	1/2	1-1/2	HS-66030	\$67.38
1/2	1/2	1-1/2	HS-66032	\$67.38	

HEXAGONAL PUNCH BROACHES .500 SHANK

Shank Dia	Hex Size	DOC B	OAL L	Part Number	Price Each
.500	1/4	3/8	1-1/2	HS-66116	\$57.58
	9/32	7/16	1-1/2	HS-66118	\$57.58
	5/16	1/2	1-1/2	HS-66120	\$57.58
	11/32	9/16	1-1/2	HS-66122	\$57.58
	3/8	9/16	1-1/2	HS-66124	\$57.58
	13/32	5/8	2	HS-66126	\$76.69
	7/16	5/8	2	HS-66128	\$76.69
	15/32	5/8	2	HS-66130	\$76.69
	1/2	5/8	2	HS-66132	\$76.69
	17/32	5/8	2	HS-66134	\$78.89
	9/16	5/8	2	HS-66136	\$78.89
	19/32	5/8	2	HS-66138	\$80.61
	5/8	3/4	2	HS-66140	\$80.61
	21/32	3/4	2	HS-66142	\$82.81
	11/16	7/8	2	HS-66144	\$82.81
	23/32	7/8	2	HS-66146	\$84.77
	3/4	7/8	2	HS-66148	\$84.77

HEXAGONAL PUNCH BROACHES .750 SHANK

Shank Dia	Hex Size	DOC B	OAL L	Part Number	Price Each
.750	3/8	1/2	2-1/2	HS-66524	\$76.69
	7/16	1/2	2-1/2	HS-66528	\$76.69
	1/2	1/2	2-1/2	HS-66532	\$76.69
	9/16	3/4	2-1/2	HS-66536	\$106.33
	5/8	3/4	2-1/2	HS-66540	\$106.33
	3/4	7/8	2-3/4	HS-66548	\$112.21
	7/8	7/8	2-3/4	HS-66556	\$112.21
	1	7/8	2-3/4	HS-66564	\$120.30

HEXAGONAL PUNCH BROACHES .500 SHANK

Shank Dia	Hex Size	DOC B	OAL L	Part Number	Price Each
.500	3/32	9/64	1-1/2	HS-66106	\$57.58
	7/64	5/32	1-1/2	HS-66107	\$57.58
	1/8	3/16	1-1/2	HS-66108	\$57.58
	9/64	7/32	1-1/2	HS-66109	\$57.58
	5/32	1/4	1-1/2	HS-66110	\$57.58
	3/16	9/32	1-1/2	HS-66112	\$57.58
	7/32	9/32	1-1/2	HS-66114	\$57.58

SQUARE PUNCH BROACHES .315 SHANK

Shank Dia	Hex Size	DOC B	OAL L	Part Number	Price Each
.315	1/16	1/8	1-1/4	HS-68004	\$48.95
	3/32	9/64	1-1/4	HS-68006	\$48.95
	1/8	3/16	1-1/4	HS-68008	\$48.95
	5/32	1/4	1-1/4	HS-68010	\$48.95
	3/16	9/32	1-1/4	HS-68012	\$48.95
	7/32	11/32	1-1/4	HS-68014	\$48.95
	1/4	3/8	1-1/2	HS-68016	\$66.59
	9/32	3/8	1-1/2	HS-68018	\$66.59
	5/16	3/8	1-1/2	HS-68020	\$66.59
	11/32	3/8	1-1/2	HS-68022	\$67.57
	3/8	3/8	1-1/2	HS-68024	\$67.57

SQUARE PUNCH BROACHES .500 SHANK

Shank Dia	Hex Size	DOC B	OAL L	Part Number	Price Each
.500	3/32	9/64	1-1/2	HS-68106	\$57.58
	1/8	3/16	1-1/2	HS-68108	\$57.58
	5/32	1/4	1-1/2	HS-68110	\$57.58
	3/16	9/32	1-1/2	HS-68112	\$57.58
	7/32	11/32	1-1/2	HS-68114	\$57.58
	1/4	3/8	1-1/2	HS-68116	\$57.58
	9/32	7/16	1-1/2	HS-68118	\$57.58
	5/16	1/2	1-1/2	HS-68120	\$57.58
	11/32	9/16	1-1/2	HS-68122	\$80.85
	3/8	5/8	2	HS-68124	\$80.85
	7/16	5/8	2	HS-68128	\$80.85
	1/2	5/8	2	HS-68132	\$80.85
9/16	3/4	2	HS-68136	\$84.77	
5/8	7/8	2	HS-68140	\$84.77	

SQUARE PUNCH BROACHES .750 SHANK

Shank Dia	Hex Size	DOC B	OAL L	Part Number	Price Each
.750	1/2	5/8	2-1/2	HS-68532	\$127.35
	9/16	3/4	2-3/4	HS-68536	\$127.35
	5/8	3/4	2-3/4	HS-68540	\$131.81
	3/4	7/8	2-3/4	HS-68548	\$131.81

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BROACH HOLDERS/ARBOR PRESSES

B

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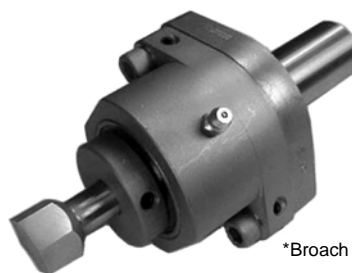
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TOOL STORAGE



NEW ITEM!



*Broach Not Included

ROTARY BROACH HOLDERS

Rotary/Punch Broaches can be used in a variety of machines to cut polygons in blind holes. Any type of CNC or manual turning, milling, drilling or screw machine. The practical forming length of rotary/punch broaching is usually up to 1-1/2 times the size of the broach (measured across flats).

Rotary Broach Holders: For optimal tool life in large production settings these broaches are used in Rotary Broach Holders. Holders and broaches are sold separately and available from stock for immediate delivery. These holders are for use on any type CNC or manual turning, milling, drilling or screw machine. The holder has an internal live spindle, which holds the end cutting broach tool. The centerline of the cutting tool is offset at 1" from the centerline of the work piece. This causes the broach to wobble creating a shearing effect as the broach is advanced into the work piece or vice versa as described below:

Broaching A Rotating Work Piece: In a turning or screw machine, the holder is mounted stationary while its internal live spindle and the broach rotates after contact with the rotating work piece (Diagram A). At the appropriate feed, the work piece is "sheared" by the pressure of the broach through a wobbling type action producing the polygon shape desired.

Broaching A Stationary Work Piece: In a milling or drilling machine, the holder is mounted into and rotates with the machine spindle while its internal live spindle along with the broach remains stationary upon contact with the stationary work piece (Diagram B). While the machine spindle is rotating, the broach's pressure shears the polygon shape into the work piece (wobbling type action).

Punching Versus Rotary Broaching: Many applications can be achieved without the rotary broach holder. For the purpose of merely punching a polygon into an existing pilot hole, these broaches have successfully been used with universal machining methods.

OAL	Shank Dia	Shank Length	Broach Shank Depth	Part Number	Price
For Broaches With .315 diameter shanks					
3-27/64	5/8"	1-1/2"	9/16	HS-P67040	\$980.00
3-59/64	3/4"	2"	9/16	HS-P67048S	\$1,012.00
For Broaches With .500 diameter shanks					
4-17/32	3/4"	2"	.742	HS-P67048S	\$1,095.00
	1"	2"	.742	HS-P67064	\$1,127.00
5-17/32	1-1/4"	3"	.742	HS-P67068	\$1,160.00
	1-1/2"	3"	.742	HS-P67072	\$1,195.00
For Broaches With .750 diameter shanks					
7-9/16	1-1/2"	3"	1.250	HS-P67072HDS	\$2,162.00
	1-3/4"	3"	1.250	HS-P67076HS	\$2,162.00

SINGLE LEVERAGE ARBOR PRESSES

NEW ITEM!

- Shimmed ram cap permits take-up for potential wear
- Adjustable handle allows convenient handle positioning
- Smooth action gears permits finite ram control
- Base opening and slotted table plate for arbor work on models noted
- Pedestals also available



Force Ton	Leverage Ratio	Table Type	RAM Size	Max Work Dia	Throat	Base Dimension	Wgt	Part Number	Price Each
1	25:1	Solid	1" x 1" x 7-1/2"	7"	3-1/2"	4-1/4" x 9-1/2"	25 lbs	DAKE-01001	\$285.00
1-1/2	32:1	Solid	1" x 1" x 12"	9"	4-1/2"	6" x 15"	60 lbs	DAKE-01002	\$395.00
1	25:1	Slotted	1" x 1" x 7-1/2"	7"	3-1/2"	4-1/4" x 9"	25 lbs	DAKE-01004	\$285.00
1-1/2	32:1	Slotted	1" x 1" x 12"	9"	4-1/2"	6" x 14"	65 lbs	DAKE-01005	\$395.00
3	36:1	Slotted	1-1/4" x 1-1/4" x 16-1/2"	14"	7"	7-1/4" x 18"	130 lbs	DAKE-01006	\$595.00

Pedestals For Arbor Presses

Description	Dimension w.x.d x h	Wgt	Part Number	Price
Pedestal for Models 01002 & 01005	10" X 18" X 36"	50	DAKE-01003	\$305.00
Pedestal for Model 01006	12" x 21" x 36"	70	DAKE-01007	480.00

ARBOR PRESSES

The Palmgren arbor press delivers the heavy force needed for riveting, squeezing, punching, bending, and other pressing applications. Sturdy, cast-iron construction. Removable machined steel anvil provides accurate work support in four slot positions. Rugged steel ram is driven by a machined pinion. Punches or tools may be added to the end of the ram with the aid of a magnetic insert. Base drilled for mounting on a bench or pedestal. PALM-61101 is equipped with a hand-wheel to perform light and quick press work.

The Arbor Press Stand provides a sturdy base and optimal height for easy operation. It has a slot on the top for pieces which need to extend below the base of the press table. Stand comes with built-in cup for catching expressed pieces. Base and top are cast iron; body of welded steel. Fits all 2-4 ton presses.



Force Ton	Swing	Anvil Dia.	Max Work Hgt.	Ram Dim.	Height	Base Dimension	Wgt	Part Number	Price Each
0.5	7-1/2"	3-3/8"	4-1/2"	3/4" x 3/4"	9-3/8"	5-1/8" x 9-3/8"	22 lbs	PALM-61051	\$54.40
1	8"	4-7/16"	6-1/8"	1" x 1"	11-1/8"	6-5/16 x 10-3/4"	27 lbs	PALM-61101	\$74.80
2	11-7/8"	6-5/8"	8"	1-1/4" x 1-1/4"	15-1/8"	11-1/8 x 16"	64 lbs	PALM-61201	\$149.60
3	12-1/2"	6-5/8"	12-5/8"	1-1/2" x 1-1/2"	21"	7-7/8 x 17-7/8"	102 lbs	PALM-61301	\$221.00

Arbor Press Stand

Top Dimension	Base Dimension	Height	Wgt	Part Number	Price Each
11-13/16" x 22-1/16"	11-13/16" x 22-1/4"	33-13/16"	100 lbs	PALM-70103	\$192.10

Arbor Press Stand
PALM-70103



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