

1-800-GRAINGER (472-4643)

| Body Dia. | Shank Dia. | Shank Length | Overall Length | BRIGHT (UNCOATED) | | | | | TIALN | | | | |
|-------------------------------|------------|--------------|----------------|-------------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|--|--|
| | | | | 60° Item No. | 82° Item No. | 90° Item No. | 100° Item No. | 60° Item No. | 82° Item No. | 90° Item No. | 100° Item No. | | |
| Fast-Cut 1-Flute | | | | | | | | | | | | | |
| 1/8 in | 3/16 in | — | 1 1/4 in | 3ZXV6 | 3ZXV6 | 3ZXZ6 | 3ZYC6 | 3ZXW6 | 3ZYV6 | 3ZYA6 | 3ZYE5 | | |
| 3/16 in | 1/4 in | — | 1 3/8 in | 3ZXV7 | 3ZXV7 | 3ZXZ7 | 3ZYC7 | 3ZXW7 | 3ZYV7 | 3ZYA7 | 3ZYE7 | | |
| 1/4 in | 1/4 in | — | 1 1/2 in | 3ZXV8 | 3ZXV8 | 3ZXZ8 | 3ZYC9 | 3ZXW8 | 3ZYV8 | 3ZYA8 | 3ZYE9 | | |
| 3/8 in | 3/8 in | 7/8 in | 1 3/4 in | 3ZXV9 | 3ZXV9 | 3ZXZ9 | 3ZYD2 | 3ZXW9 | 3ZYV9 | 3ZYA9 | 3ZYF2 | | |
| 1/2 in | 1/2 in | 1 in | 2 in | — | — | 3ZYA1 | — | — | — | 3ZYC1 | — | | |
| 1/2 in | 1/2 in | 1 in | 2 in | 3ZXW1 | 3ZYX1 | — | 3ZYD4 | 3ZXK1 | 3ZXZ1 | — | 3ZYF4 | | |
| 3/8 in | 3/8 in | 1 in | 2 1/4 in | 3ZXW2 | 3ZYX2 | 3ZYA2 | 3ZYD6 | 3ZXK2 | 3ZXZ2 | 3ZYC2 | 3ZYF6 | | |
| 3/4 in | 3/4 in | 1 1/4 in | 2 3/4 in | 3ZXW3 | 3ZYX3 | 3ZYA3 | 3ZYD8 | 3ZXK3 | 3ZXZ3 | 3ZYC3 | 3ZYF7 | | |
| 1 in | 1/2 in | 1 1/4 in | 2 3/4 in | — | — | 3ZYA4 | — | — | — | — | — | | |
| 1 in | 1 in | 1 1/4 in | 2 3/4 in | 3ZXW4 | 3ZYX4 | — | 3ZYE1 | 3ZXK4 | 3ZXZ4 | 3ZYC4 | 3ZYF8 | | |
| 1 1/4 in | 3/4 in | 1 1/4 in | 3 in | — | — | 3ZYA5 | — | — | — | — | — | | |
| 1 1/4 in | 1 1/4 in | 1 1/4 in | 3 in | 3ZXW5 | 3ZYX5 | — | 3ZYE3 | 3ZXK5 | 3ZXZ5 | 3ZYC5 | 3ZYF9 | | |
| 3-Flute | | | | | | | | | | | | | |
| 1/8 in | 3/16 in | — | 1 1/4 in | 3ZYG1 | 3ZYJ1 | 3ZYL1 | 3ZYT1 | 3ZYH1 | 3ZYK1 | 3ZYP1 | 3ZV1 | | |
| 3/16 in | 1/4 in | — | 1 3/8 in | 3ZYG2 | 3ZYJ2 | 3ZYL3 | 3ZYT3 | 3ZYH2 | 3ZYK2 | 3ZYP3 | 3ZV3 | | |
| 1/4 in | 1/4 in | — | 1 1/2 in | 3ZYG3 | 3ZYJ3 | 3ZYL5 | 3ZYT5 | 3ZYH3 | 3ZYK3 | 3ZYP5 | 2ZTP2 | | |
| 3/8 in | 3/8 in | 7/8 in | 1 3/4 in | 3ZYG4 | 3ZYJ4 | 3ZYL7 | 3ZYT7 | 3ZYH4 | 3ZYK4 | 3ZYP7 | 2ZTV5 | | |
| 1/2 in | 1/2 in | 1 in | 2 in | 3ZYG5 | 3ZYJ5 | 3ZYL9 | 3ZYT9 | 3ZYH5 | 3ZYK5 | 3ZYP9 | 4CJT2 | | |
| 3/8 in | 3/8 in | 1 in | 2 1/4 in | 3ZYG6 | 3ZYJ6 | 3ZYL2 | 3ZYT2 | 3ZYH6 | 3ZYK6 | 3ZYP2 | 4CJT3 | | |
| 3/4 in | 3/4 in | 1 1/4 in | 2 3/4 in | 3ZYG7 | 3ZYJ7 | 3ZYL4 | 3ZYT4 | 3ZYH7 | 3ZYK7 | 3ZYP4 | 4CJT4 | | |
| 1 in | 1/2 in | 1 1/4 in | 2 3/4 in | 3ZYG8 | 3ZYJ8 | 3ZYL6 | 3ZYT6 | 3ZYH8 | 3ZYK8 | 3ZYP6 | 4CJT5 | | |
| 1 1/4 in | 1 1/4 in | 1 1/4 in | 3 in | 3ZYG9 | 3ZYJ9 | 3ZYL8 | 3ZYT8 | 3ZYH9 | 3ZYK9 | 3ZYP8 | 4CJT6 | | |
| 6-Flute | | | | | | | | | | | | | |
| 1/8 in | 3/16 in | — | 1 1/4 in | 4CJT7 | 4CJV9 | 4CJY2 | 4CKA4 | 4CJU8 | 4CJX1 | 4CJZ3 | 4CKC5 | | |
| 3/16 in | 1/4 in | — | 1 3/8 in | 4CJT8 | 4CJV1 | 4CJY3 | 4CKA5 | 4CJU9 | 4CJX2 | 4CJZ4 | 4CKC6 | | |
| 1/4 in | 1/4 in | — | 1 1/2 in | 4CJT9 | 4CJV2 | 4CJY4 | 4CKA6 | 4CJV1 | 4CJX3 | 4CJZ5 | 4CKC7 | | |
| 3/8 in | 3/8 in | 7/8 in | 1 3/4 in | 4CJU1 | 4CJV3 | 4CJY5 | 4CKA7 | 4CJV2 | 4CJX4 | 4CJZ6 | 4CKC8 | | |
| 1/2 in | 1/2 in | 1 in | 2 in | 4CJU2 | 4CJV4 | 4CJY6 | 4CKA8 | 4CJV3 | 4CJX5 | 4CJZ7 | 4CKC9 | | |
| 3/8 in | 3/8 in | 1 in | 2 1/4 in | 4CJU3 | 4CJV5 | 4CJY7 | 4CKA9 | 4CJV4 | 4CJX6 | 4CJZ8 | 4CKD1 | | |
| 3/4 in | 3/4 in | 1 1/4 in | 2 3/4 in | 4CJU4 | 4CJV6 | 4CJY8 | 4CKC1 | 4CJV5 | 4CJX7 | 4CJZ9 | 4CKD2 | | |
| 1 in | 1/2 in | 1 1/4 in | 2 3/4 in | 4CJU5 | 4CJV7 | 4CJY9 | 4CKC2 | 4CJV6 | 4CJX8 | 4CAK1 | 4CKD3 | | |
| 1 1/4 in | 1 1/4 in | 1 1/4 in | 3 in | 4CJU6 | — | 4CJZ1 | 4CKC3 | 4CJV7 | — | 4CAK2 | — | | |
| 1 1/4 in | 3/4 in | 1 1/4 in | 3 in | — | 4CJW8 | — | — | 4CJY9 | — | 4CJZ9 | 4CKD4 | | |
| 1 1/2 in | 3/4 in | 1 1/4 in | 3 1/2 in | 4CJU7 | 4CJW9 | 4CJZ2 | 4CKC4 | 4CJV8 | 4CJY1 | 4CAK3 | 4CKD5 | | |
| BRIGHT (UNCOATED) | | | | | | | | | | | | | |
| | | | | 82° Item No. | 90° Item No. | 100° Item No. | 60° Item No. | 82° Item No. | 90° Item No. | 100° Item No. | 60° Item No. | | |
| 5-Pc. Countersink Sets | | | | | | | | | | | | | |
| Fast-Cut Single Flutes | | | | | | | | | | | | | |
| Sizes Incl. | | | | 82° Item No. | 90° Item No. | 100° Item No. | 60° Item No. | 82° Item No. | 90° Item No. | 100° Item No. | 60° Item No. | | |
| 1/4", 3/8", 1/2", 3/4", 1" | | | | 4CKD8 | 4CKE1 | 4CKE3 | — | 4CKD9 | 4CKE2 | 4CKE4 | 4CKD7 | | |
| 3-Flutes | | | | | | | | | | | | | |
| 1/4", 3/8", 1/2", 3/4", 1" | | | | 4CKE7 | 4CKE9 | 4CKF2 | 4CKE5 | 4CKE8 | 4CKF1 | 4CKF3 | 4CKE6 | | |
| 6-Flutes | | | | | | | | | | | | | |
| 1/4", 3/8", 1/2", 3/4", 1" | | | | 4CKF6 | 4CKF8 | 4CKG1 | 4CKF4 | 4CKF7 | 4CKF9 | 4CKG2 | 4CKF5 | | |



Fast-Cut 1-Flute Bright (Uncoated) 3ZXV4

5-Pc. Set 6-Flutes 4CKF4



Carbide Countersinks

Carbide countersinks provide excellent wear resistance when machining the toughest materials, such as stainless steel.

Fast-Cut 1-Flute—Leaves clean edges on holes and has a high, positive rake that reduces vibration.

3-Flute—Typically provides better chip clearance and performs better when machining stringy materials than countersinks with more flutes.

6-Flute—Provides fast material removal and leaves a smooth finish. Removes more material with each revolution and typically provides more wear resistance than countersinks with fewer flutes.



Cobalt Steel Counterbores with Built-In Pilots

Counterbores make a flat-bottomed cavity at the top of a hole so that a bolt, nut, or other part is hidden beneath or sits flush with the top of the hole when installed into it. Also called solid pilot counterbores, these counterbores have a built-in pilot that keeps them centered in the hole to ensure a level seat. The pilot cannot be removed. Cobalt steel counterbores provide good wear resistance when machining hard materials at high speeds. For additional sizes, see Grainger.com®.



Oversized 2RTL8

| For Screw Size | Bore Dia. | Pilot Dia. | Overall Length | Shank Dia. | Item No. |
|--|------------|------------|----------------|------------|----------|
| Oversized | | | | | |
| #6 | 5/64 in | 9/64 in | 3 in | 1/32 in | 2RTL8 |
| #8 | 3/32 in | 11/64 in | 3 in | 1/4 in | 2RTN2 |
| #10 | 1/16 in | 13/64 in | 4 1/2 in | 3/32 in | 2RTN5 |
| 1/4 in | 13/32 in | 9/32 in | 4 1/2 in | 5/16 in | 2RTN9 |
| 1/2 in | 29/64 in | 1/4 in | 4 1/2 in | 3/8 in | 2RTN8 |
| 3/8 in | 3/64 in | 5/16 in | 4 1/2 in | 3/8 in | 2RTP2 |
| 3/8 in | 5/64 in | 5/8 in | 6 in | 3/8 in | 2RTR5 |
| 3/8 in | 1/2 in | 21/64 in | 4 1/2 in | 3/8 in | 2RTP3 |
| 3/8 in | 19/32 in | 13/32 in | 5 in | 1/2 in | 2RTP6 |
| 3/8 in | 37/64 in | 3/8 in | 5 in | 1/2 in | 2RTP5 |
| 7/8 in | 11/16 in | 29/64 in | 5 in | 1/2 in | 2RTP9 |
| 7/8 in | 49/64 in | 7/16 in | 5 in | 1/2 in | 2RTP8 |
| 1 1/2 in | 25/32 in | 33/64 in | 6 in | 1/2 in | 2RTR3 |
| 1 1/2 in | 49/64 in | 1/2 in | 6 in | 1/2 in | 2RTR2 |
| 5/8 in | 31/32 in | 5/8 in | 6 in | 5/8 in | 2RTR6 |
| 3/4 in | 1 3/16 in | 49/64 in | 7 in | 3/4 in | 2RTR8 |
| 1 in | 1 37/64 in | 1 1/2 in | 7 in | 1 in | 2RTR3 |
| Standard | | | | | |
| #4 | 1/64 in | 9/64 in | 3 in | 5/32 in | 2RTL3 |
| #5 | 1/64 in | 5/32 in | 3 in | 3/16 in | 2RTL6 |
| 1/16 in | 21/32 in | 27/64 in | 5 in | 1/2 in | 2RTP7 |
| 1/2 in | 3/4 in | 1/2 in | 5 in | 1/2 in | 2RTR1 |
| 5/8 in | 15/16 in | 5/8 in | 6 in | 5/8 in | 2RTR4 |
| 3/4 in | 1 1/64 in | 49/64 in | 7 in | 3/4 in | 2RTR7 |
| 1/2 in | 29/64 in | 5/64 in | 7 in | 3/8 in | 2RTR9 |
| M3 | 6.00 mm | 3.4 mm | 71.00 mm | 5.00 mm | 12J465 |
| M8 | 15.00 mm | 6.8 mm | 100.00 mm | 12.50 mm | 12J478 |
| M12 | 20.00 mm | 10.2 mm | 100.00 mm | 12.50 mm | 12J484 |
| 7-Pc. Sets | | | | | |
| #10, #6, #8, 1/2 in, 1/4 in, 3/8 in, 3/16 in | | | | | 1DBT3 |
| #10, #6, #8, 1/2 in +1/32 in OS, 1/4 in, 3/8 in, 3/16 in | | | | | 1DBT5 |
| #10, #6, #8, 1/2 in +1/64 in OS, 1/4 in, 3/8 in, 3/16 in | | | | | 1DBT4 |
| M3, M4, M5, M6, M8, M10 | | | | | 33UV20 |



7-Pc. Set 1DBT3

Broaches

■ High-speed steel

Broaches machine keyways and other shapes into a hole. **Davis-style keyway** broaches create precise keyways in the bore holes of pulleys, gears, washers, and other shaft-mounted parts to lock them to keyed shafts. **Hex** and **square** broaches punch hexagonal or square holes in fixtures, jigs, and sockets. Hex broaches turn a round pilot hole into a hexagonal hole in a single pass. Square broaches turn a round pilot hole into a square hole in a single pass.

| Keyway Width | Broach Length | Min. Length of Cut | Max. Length of Cut | Item No. |
|---------------------------|---------------|--------------------|--------------------|----------|
| Davis-Style Keyway | | | | |
| 1/8 in | 16 in | 5/8 in | 1 1/8 in | 12V210 |
| 3/16 in | 20 in | 3/8 in | 3 1/8 in | 12V215 |
| 1/4 in | 20 in | 1 1/8 in | 5 1/8 in | 12V219 |
| 3/8 in | 16 in | 1 1/8 in | 3 3/8 in | 12V220 |
| 9/16 in | 20 in | 1 1/8 in | 5 1/8 in | 12V225 |
| 1 in | 20 in | 1 1/8 in | 5 1/8 in | 12V229 |
| 2.00 mm | 16 in | 3/8 in | 1 1/8 in | 12V247 |
| 5.00 mm | 16 in | 3/8 in | 1 1/8 in | 12V250 |
| 8.00 mm | 20 in | 1 1/8 in | 3 1/8 in | 12V255 |
| 14.00 mm | 20 in | 1 1/8 in | 5 1/8 in | 12V259 |
| 25.00 mm | 20 in | 1 1/8 in | 5 1/8 in | 12V265 |

Davis-Style Keyway 12V210

| Hex Size | Drill Size | Min. Broach Length | Max. Length of Cut | Pressure Required | Item No. |
|------------|------------|--------------------|--------------------|-------------------|------------------|
| Hex | | | | | |
| 1/8 in | 1/8 in | 4 1/8 in | 3/8 in | 3/8 in | 120 lb 12V266 |
| 13/32 in | 19/32 in | 10 in | 1/2 in | 1 3/8 in | 4,100 lb 12V275 |
| 9/16 in | 9/16 in | 14 1/2 in | 1/2 in | 1 1/2 in | 6,700 lb 12V279 |
| 5/8 in | 5/8 in | 16 1/8 in | 5/8 in | 1 5/8 in | 7,250 lb 12V280 |
| 4.00 mm | 4.00 mm | 5 1/2 in | 1/4 in | 1/2 in | 340 lb 12V285 |
| 8.00 mm | 8.00 mm | 8 1/4 in | 3/8 in | 1 in | 2,175 lb 12V289 |
| 20.00 mm | 20.00 mm | 17 1/2 in | 5/8 in | 1 5/8 in | 14,150 lb 12V295 |
| 25.00 mm | 25.00 mm | 19 1/8 in | 5/8 in | 1 5/8 in | 22,000 lb 12V298 |

Hex 12V285

| Square Size | Drill Size | Min. Broach Length | Max. Length of Cut | Pressure Required | Item No. |
|---------------|------------|--------------------|--------------------|-------------------|------------------|
| Square | | | | | |
| 3/16 in | 3/16 in | 6 1/4 in | 3/8 in | 1/2 in | 1,200 lb 12V319 |
| 9/32 in | 19/64 in | 7 1/4 in | 3/8 in | 1 in | 2,300 lb 12V305 |
| 13/32 in | 27/64 in | 10 7/8 in | 1/2 in | 1 3/8 in | 5,200 lb 12V309 |
| 1/2 in | 1/2 in | 14 1/8 in | 3/8 in | 1 in | 5,000 lb 12V323 |
| 11/16 in | 3/4 in | 18 1/2 in | 5/8 in | 1 5/8 in | 7,300 lb 12V315 |
| 1 in | 1 3/32 in | 24 1/2 in | 1/2 in | 2 in | 12,500 lb 12V318 |
| 4.00 mm | 4.20 mm | 5 3/8 in | 5/16 in | 5/8 in | 1,000 lb 12V324 |
| 5.00 mm | 10.30 mm | 6 3/4 in | 19/64 in | 1 1/16 in | 2,040 lb 12V233 |
| 8.00 mm | 8.30 mm | 8 3/8 in | 7/16 in | 7/8 in | 2,500 lb 12V327 |
| 22.00 mm | 22.00 mm | 18 7/8 in | 7/8 in | 1 3/4 in | 9,500 lb 12V333 |
| 27.00 mm | 27.00 mm | 24 9/16 in | 7/8 in | 1 3/4 in | 10,500 lb 12V336 |
| #1 | #1 | 6 7/8 in | 1/4 in | 3/4 in | 1,580 lb 12V303 |
| #30 | #30 | 4 3/8 in | 3/8 in | 1/2 in | 700 lb 12V299 |

Square 12V299