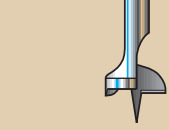
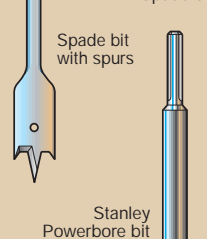
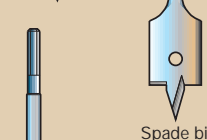
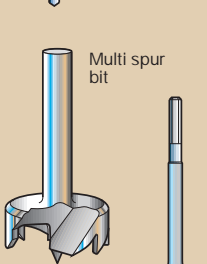
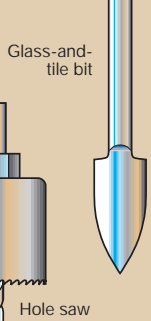
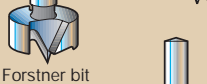
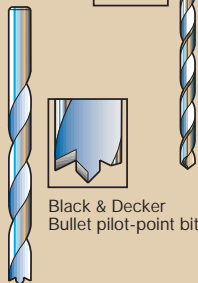


WOOD[®] Magazine's

DRILL PRESS SPEED CHART

Recommended operating speeds (RPM)

Accessory	Softwood (Pine)	Hardwood (Hard Maple)	Acrylic	Brass	Aluminum	Steel	Shop Notes
Twist drill bits*							
1/16" - 3/16"	3000	3000	2500	3000	3000	3000	Lubricate drill with oil when cutting steel 1/8" or thicker. Use center punch on all holes to prevent drill from wandering.
1/4" - 3/8"	3000	1500	2000	1200	2500	1000	
7/16" - 5/8"	1500	750	1500	750	1500	600	
11/16" - 1"	750	500	NR	400	1000	350	
Black & Decker Bullet pilot-point bits*							
1/8" - 3/16"	3000	3000	3000	2000	1500	3000	Good all-around bit. These cut more quickly than brad points and twist drills.
1/4" - 3/8"	3000	3000	2400	1500	1000	2000	
1/2"	3000	1500	1600	1500	750	1200	
Brad-point bits*							
1/8"	1800	1200	1500	NR	NR	NR	Raise 1/4" and smaller bits often to clear shavings and prevent heat build-up.
1/4"	1800	1000	1500	NR	NR	NR	
3/8"	1800	750	1500	NR	NR	NR	
1/2"	1800	750	1000	NR	NR	NR	
5/8"	1800	500	750	NR	NR	NR	
3/4"	1400	250	750	NR	NR	NR	
3/8"	1200	250	500	NR	NR	NR	
1"	1000	250	250	NR	NR	NR	
Forstner bits							
1/4" - 3/8"	2400	700	NR	NR	NR	NR	Raise 1/4"-3/8" bits often to clear shavings and prevent heat build-up. Make several shallow passes with larger bits; allow bit to cool between passes.
1/2" - 5/8"	2400	500	250	NR	NR	NR	
3/4" - 1"	1500	500	250	NR	NR	NR	
1 1/8" - 1 1/4"	1000	250	250	NR	NR	NR	
1 3/8" - 2"	500	250	NR	NR	NR	NR	
Glass-and-tile bits (Listed speeds are for glass and tile—not softwood.)							
1/8"	750	N	N	N	N	N	Wear safety goggles. Use drill press only. Do not apply excessive pressure. Lubricate with water while drilling. Reduce quill pressure when bit tip emerges from back side.
3/16"	600	R	R	R	R	R	
1/4"	500	NR	NR	NR	NR	NR	
5/16"	400	NR	NR	NR	NR	NR	
3/8"	350	NR	NR	NR	NR	NR	
1/2"	200	NR	NR	NR	NR	NR	
Hole saws*							
1" - 1 1/2"	500	350	NR	250	250	NR	Do not use with brass or aluminum thicker than 1/16". Avoid dense hardwoods such as hard maple.
1 5/8" - 2"	500	250	NR	150	250	NR	
2 1/8" - 2 1/2"	250-500	NR	NR	150	250	NR	
Multi spur bits*							
2 1/8" - 4"	250	250	NR	NR	NR	NR	Smaller sizes also available; use Forstner speeds.
Spade bits*							
1/4" - 1/2"	2000	1500	NR	NR	NR	NR	Clamp work to table to improve quality of hole.
5/8" - 1"	1750	1500	NR	NR	NR	NR	
1 1/8" - 1 1/2"	1500	1000	NR	NR	NR	NR	
Spade bits with spurs							
3/8" - 1"	2000	1800	500	NR	NR	NR	Best bit for acrylic. Clamp work securely.
Stanley Powerbore bits*							
3/8" - 1/2"	1800	500	NR	NR	NR	NR	Ideal for deep holes and end-grain drilling.
3/4" - 1"	1800	750	NR	NR	NR	NR	



Recommended operating speeds (RPM)

Circle cutters*

1 1/2" - 3"	500	250	250	NR	NR	NR	Drill one side, flip material over, place center bit in its hole, and resume cut.
3 1/4" - 6"	250	250	250	NR	NR	NR	

Shear-cutting countersinks

1/4" - 3/8"	1000 750	1000 700	700 700	700-1000 250-700	700-1000 250-700	NR NR	Cuts cleaner than traditional countersinks.
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Countersinks

2-flute	1400	1400	NR	NR	NR	NR	Raise and lower frequently for quicker cutting.
5-flute	1000	750	750	250	250	250	

Countersink screw pilot bits

All sizes	1500	1000	500	500	NR	NR	Clear twist drill often.
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Taper drill bits with countersinks

All sizes	500	250	250	NR	NR	NR	Clear bit often to prevent heat build-up.
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Plug cutters

All sizes	1000	500	NR	NR	NR	NR	Cut to full depth so bit chamfers plug.
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Drum sanders

Hard rubber	750	1500	750	NR	NR	NR	Avoid load-up and overheating.
Soft sleeveless	500	750	750	NR	NR	NR	
3" pneumatic	1750	1750	1750	NR	NR	NR	Decrease air pressure for fine contours.

5" flex discs	750	500	500	500	NR	NR	Adhesive-backed discs work best.
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Polishing wheels	1500	1500	1500	1500	2000	NR	Use light pressure.
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Flap sanders	2000	2000	2000	2000	2000	2400	Hold work firmly.
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Grinding wheels	NR	NR	NR	NR	NR	3000	Use 6" or smaller wheel.
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NR Not recommended * Back material to prevent chip-out.

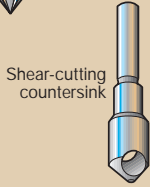
Always wear a face shield for optimum protection.

Notes

- Recommendations are based on visual and tactile tests under shop conditions. Drilling faster than recommended can cause overheating. Speeds slower than those recommended may cause poor-quality holes.
- All testing done on face grain. Reduce speed when drilling into end grain.
- Speeds based on new bits from the factory.



Countersink



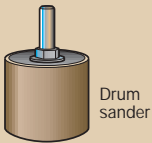
Shear-cutting countersink



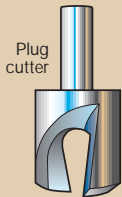
Countersink screw pilot bit



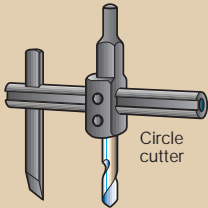
Taper drill bit with countersink



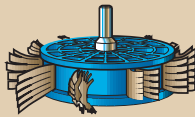
Drum sander



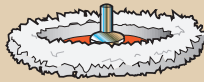
Plug cutter



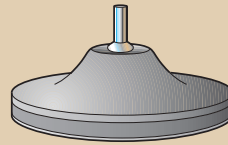
Circle cutter



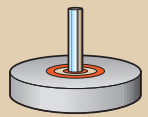
Flap sander



Polishing wheel



Flex disc sander



Grinding wheel