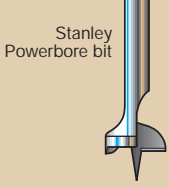
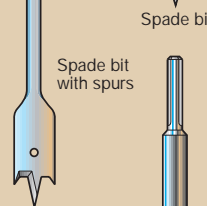
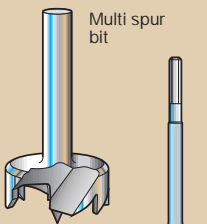
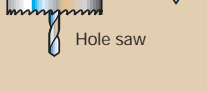
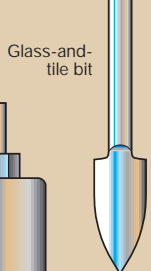
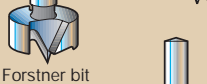
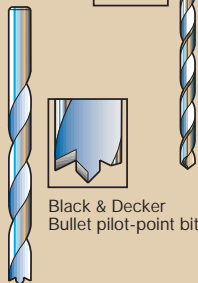


# WOOD<sup>®</sup> Magazine's

## DRILL PRESS SPEED CHART

### Recommended operating speeds (RPM)

Accessory	Softwood (Pine)	Hardwood (Hard Maple)	Acrylic	Brass	Aluminum	Steel	Shop Notes
<b>Twist drill bits*</b>							
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	
1 1/16" - 1"	750	500	NR	400	1000	350	
<b>Black &amp; Decker Bullet pilot-point bits*</b>							
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	
<b>Brad-point bits*</b>							
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	
<b>Forstner bits</b>							
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	
<b>Glass-and-tile bits (Listed speeds are for glass and tile—not softwood.)</b>							
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	
<b>Hole saws*</b>							
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	
<b>Multi spur bits*</b>							
2 1/8" - 4"	250	250	NR	NR	NR	NR	Smaller sizes also available; use Forstner speeds.
<b>Spade bits*</b>							
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	
<b>Spade bits with spurs</b>							
3/8" - 1"	2000	1800	500	NR	NR	NR	Best bit for acrylic. Clamp work securely.
<b>Stanley Powerbore bits*</b>							
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.

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

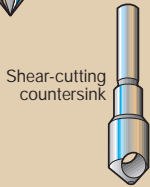
**Always wear a face shield for optimum protection.**

#### 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



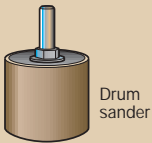
Shear-cutting countersink



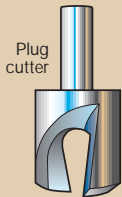
Countersink screw pilot bit



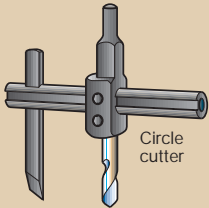
Taper drill bit with countersink



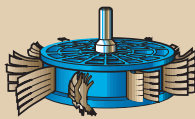
Drum sander



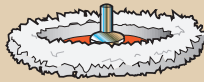
Plug cutter



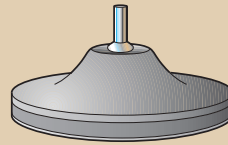
Circle cutter



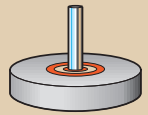
Flap sander



Polishing wheel



Flex disc sander



Grinding wheel