Drills, Drill Bits, & Accessories

Electric Drill Safety

- Wear eye protection
- Tie back long hair
- When operating larger drills, use both hands &, if necessary, an auxiliary handle.
- Disconnect the power plug or remove the battery pack before installing or removing drill bits.
- Center the drill bit in the chuck & tighten the chuck securely. Make certain the drill bit is held securely in the chuck.

Electric Drill Safety

- Never use a bit with a square, tapered tang in a electric drill. The drills chuck will not hold this type of bit securely.
- Be sure the chuck key has been removed before starting the drill.
- Do not force the drill into any material. Use an even, steady pressure.
- Never drill through cloth. It will twist around the bit.

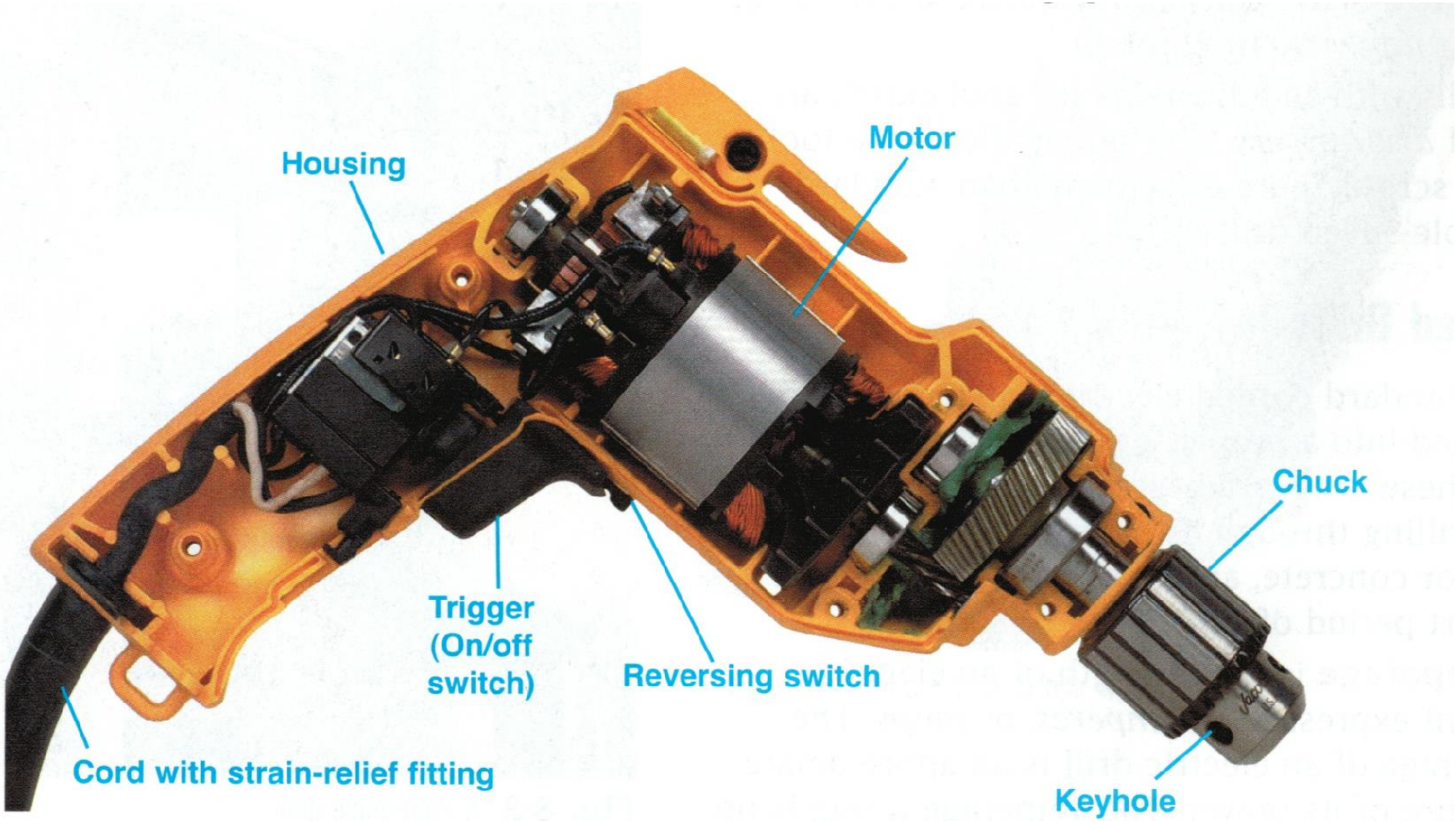
Electric Drill Safety

- Do not hold small pieces of material with your fingers. Clamp them down to prevent them from spinning as they are being drilled.

- Put the drill down with the drill bit facing away from you. When laying down the drill, always point the drill bit away from you, even when it is coasting to a stop.

- Keep loose clothing or long hair away from the spinning bit, as they may become entangled very quickly.

Electric Drill



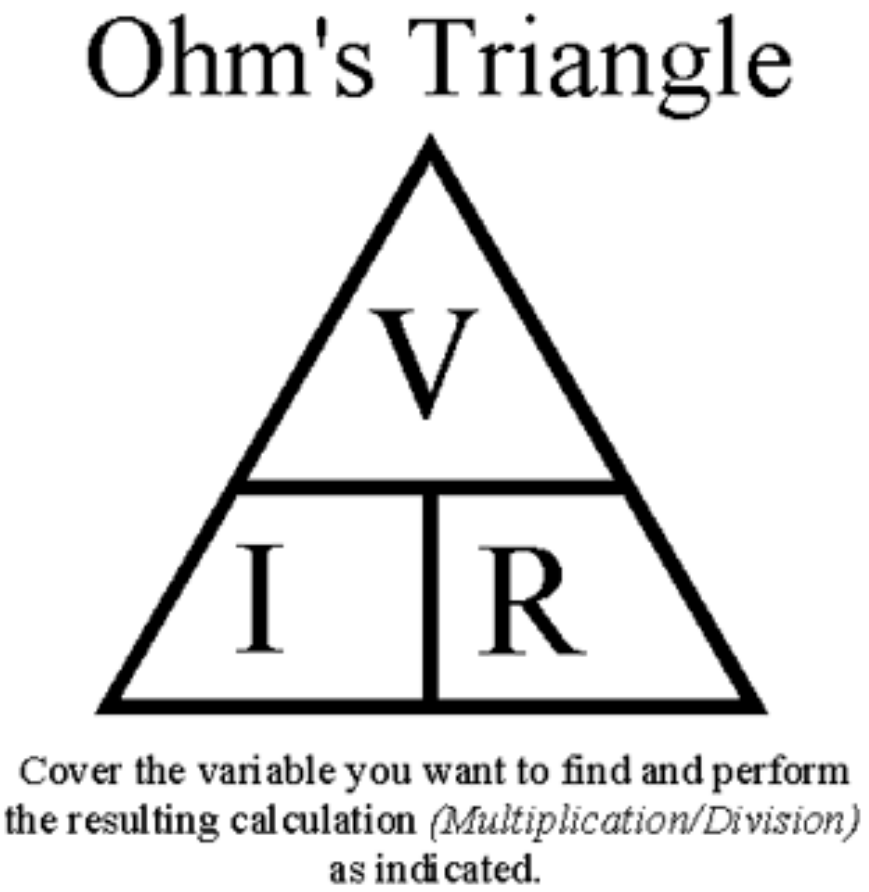
Corded Drills

Ohms Law

Ohm’s Law Sates that:

- V=I*R
- V (Voltage measured in volts)
- I (Current measured in amperes)
- R (Resistance measured in ohms)

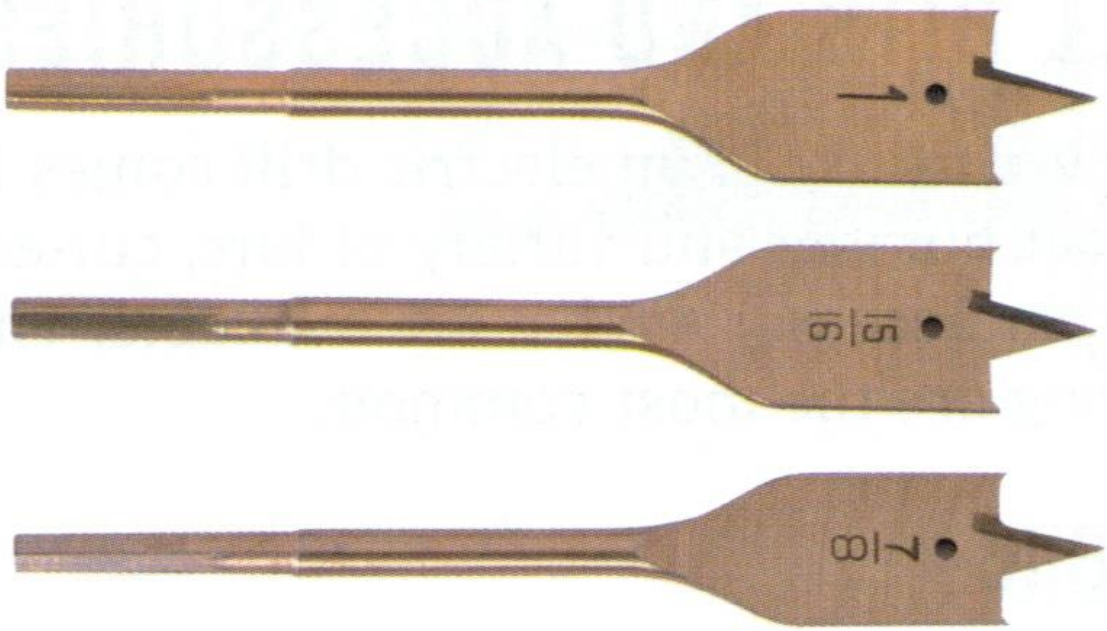
To understand this equation, think of electricity like a water hose: The voltage is the water pressure in the hose, the current is the rate at which the water flows, and the resistance is the size of the hose.



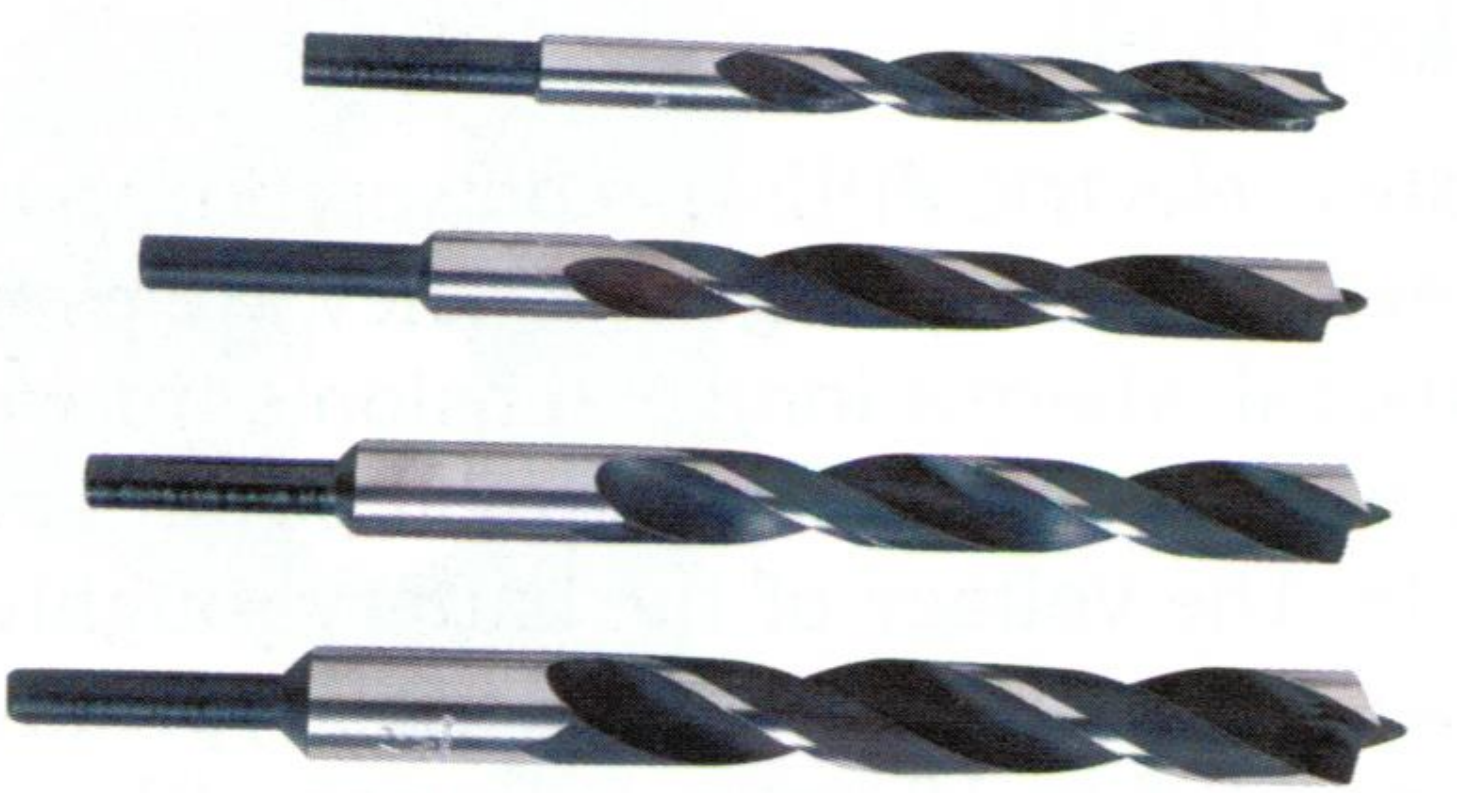
Cordless Drills

Drill Bits & Accessories

Spade Bit

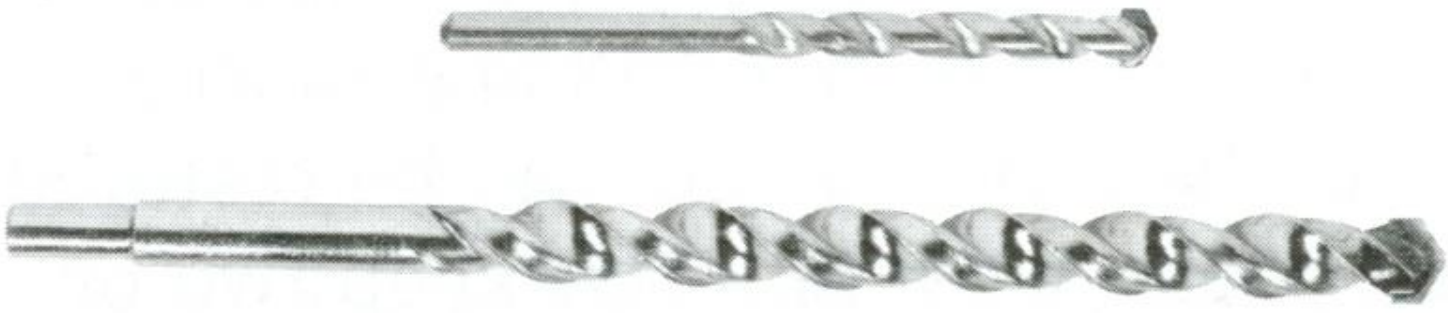


Brad-point Bits

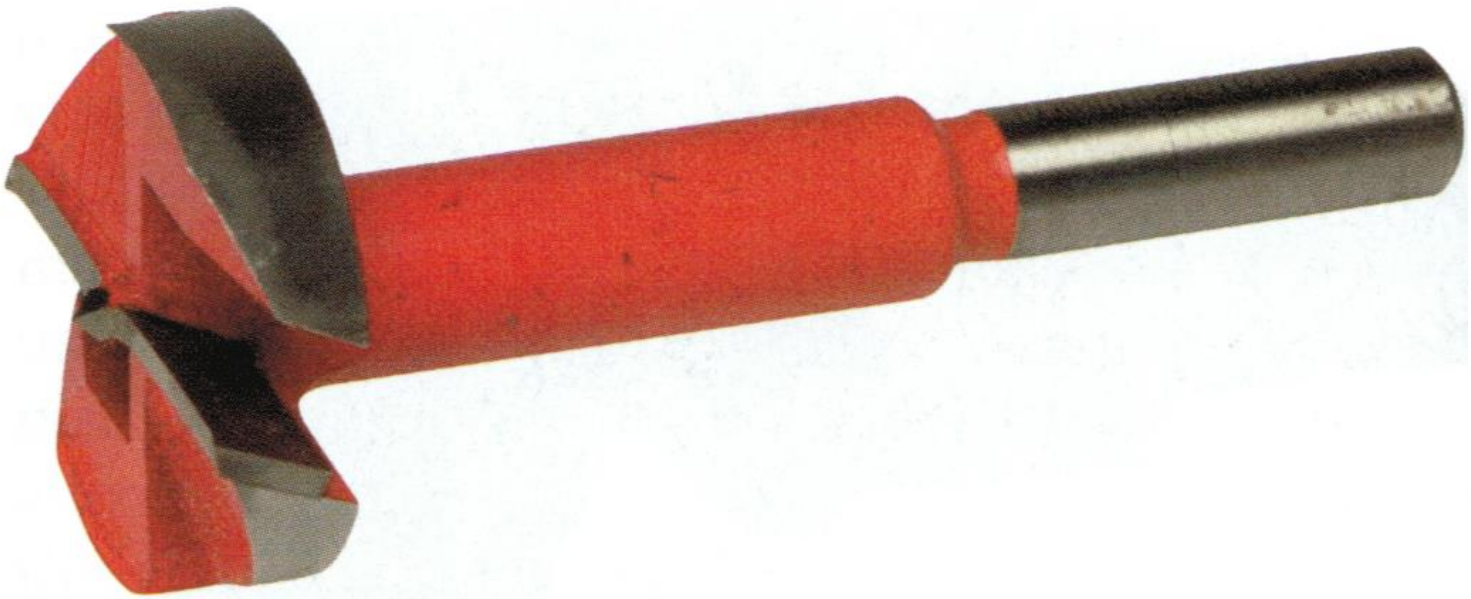


Auger Bits

Masonry Bits

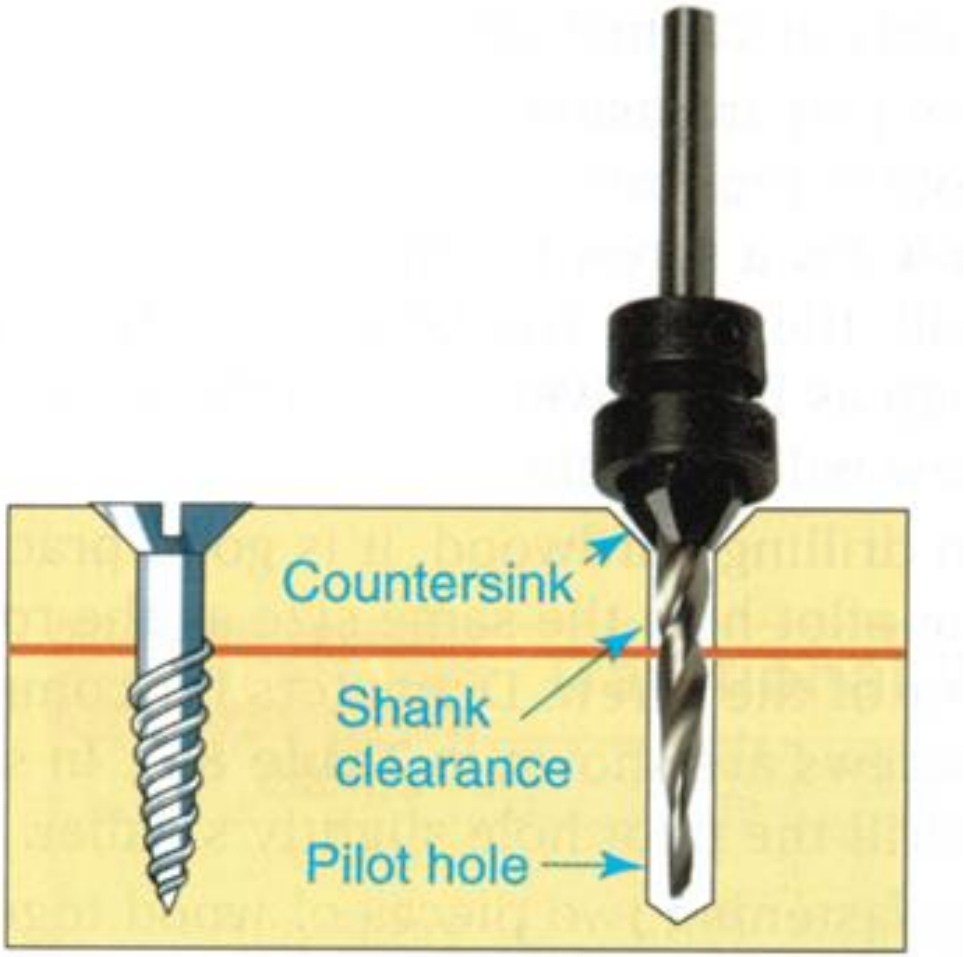


Forstner Bit

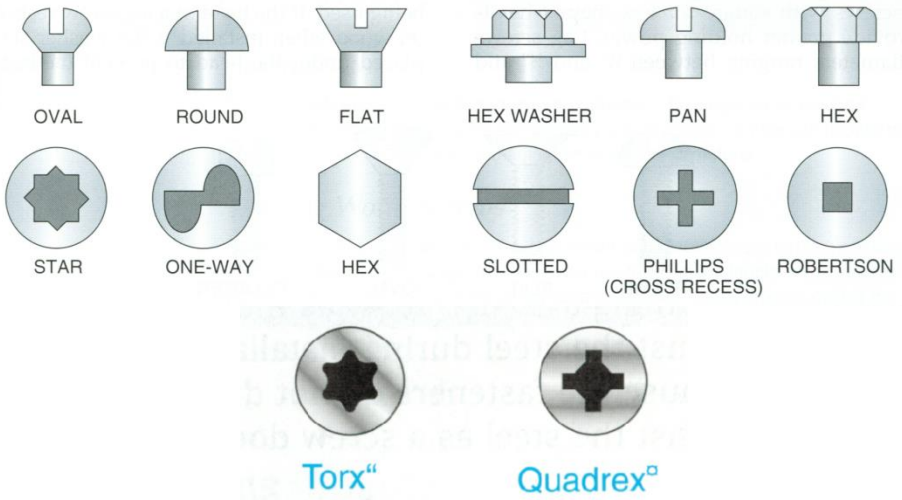


Countersink Bit

Combination Bit



Screw Driving Bits

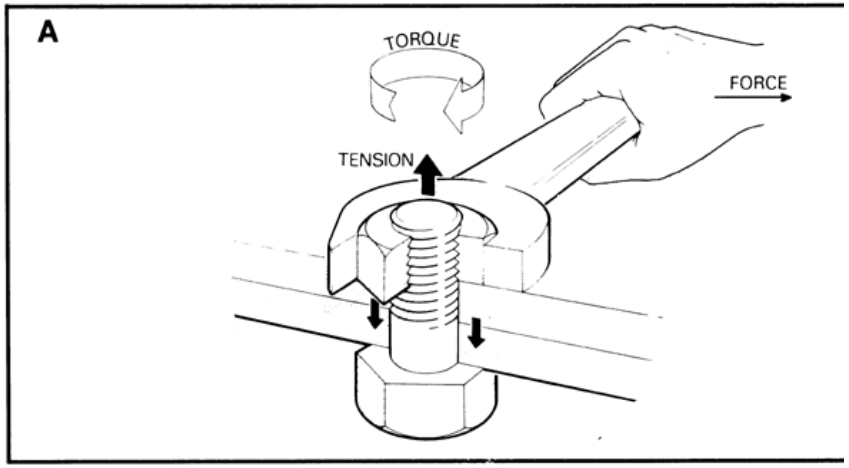


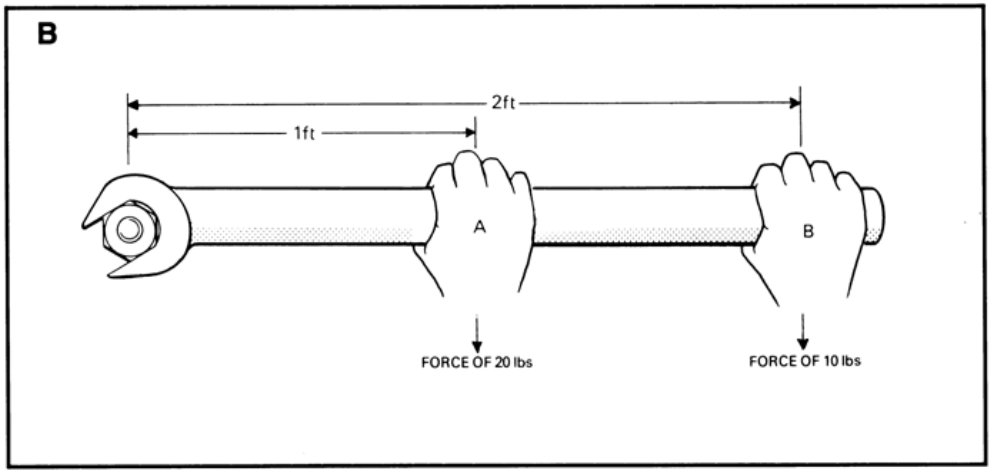
Hole Saws

Mixing Paddle

What is Torque?

Torque = Force * Distance





What is Torque?

Torque = Force * Distance

Question

What is the torque produced by a 65-pound force pushing on a 3” lever?

What is Torque?

Torque = Force * Distance

Question

What is the torque produced by a 65-pound force pushing on a 3” lever?

Answer

195lb-in

Installing & Removing a Bit

1) Unplug the drill or remove its battery pack.

2) Determine if the shank of the chosen drill bit will fit into the chuck.

3) Open the jaws of the chuck by twisting its collar.

4) Insert the shank of the bit as far as possible. Then turn the collar by hand to close the jaws. Check that the shank is centered between the jaws. If not, open the jaws and center it.

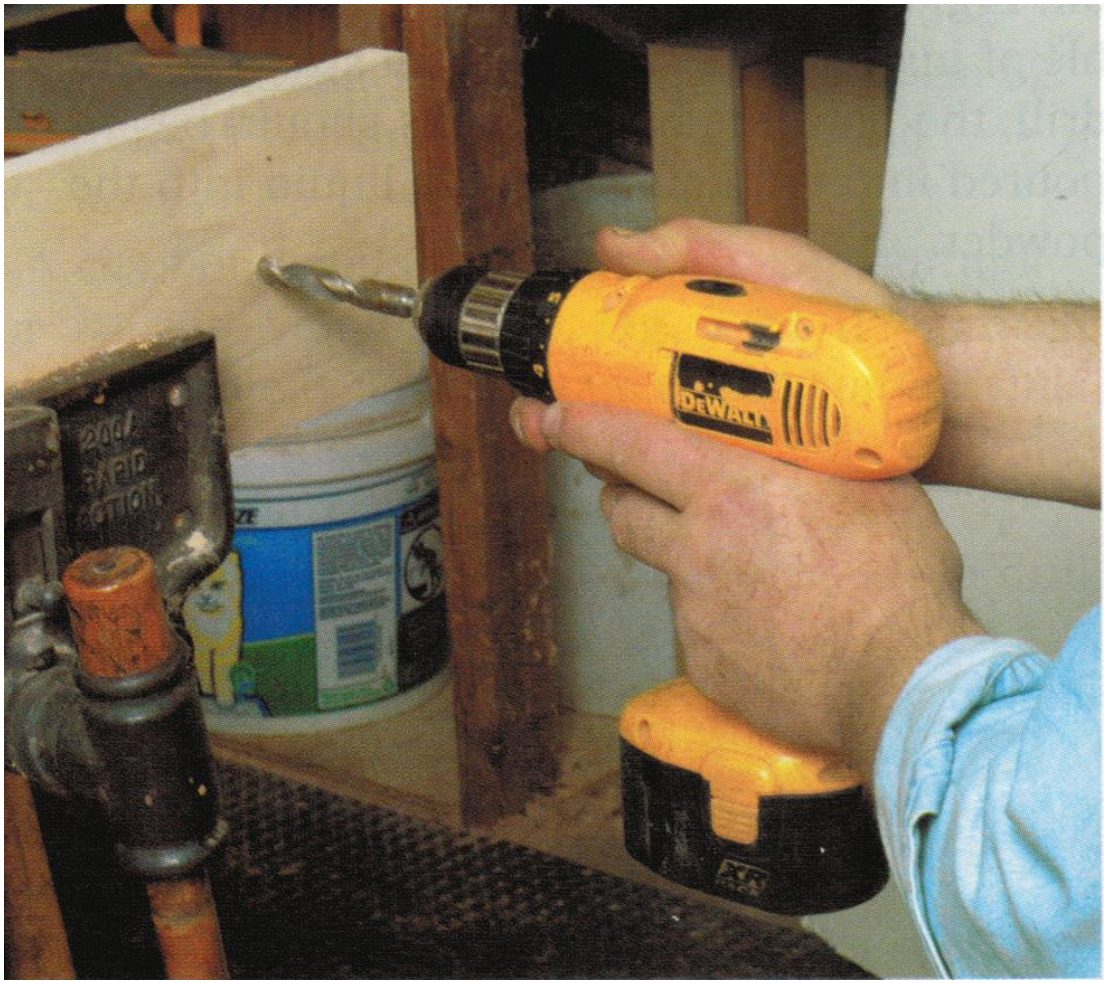
Installing & Removing a Bit

5) Tighten the chuck by inserting the chuck key in each of the three keyholes in succession. Remove the chuck key.

6) If the drill has a keyless chuck, twist the two portions until the jaws are tight.

7) The friction of drilling creates heat in a bit. Allow a bit to cool before removing it from the drill. To remove a bit, unplug the drill or remove the battery pack. Then open the chuck.

Drilling Techniques



Drilling in Wood Techniques

Table 8-A. Traditional Wood Screws

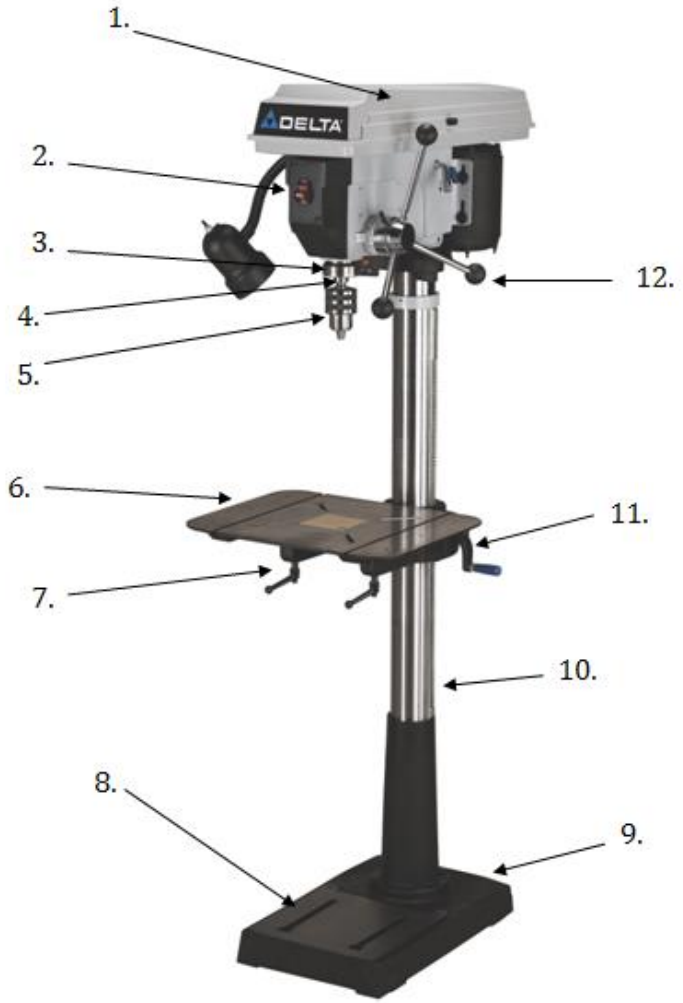
Gauge	2	3	4	5	6	7	8	9	10	12	14
Head-bore size	11/64"	13/64"	15/64"	1/4"	9/32"	5/16"	11/32"	23/64"	25/64"	7/16"	1/2"
Shank-hole size	3/32"	3/32"	7/64"	1/8"	9/64"	5/32"	5/32"	11/64"	3/16"	7/32"	1/4"
Pilot-hole size: Hardwood	1/16"	1/16"	5/64"	5/64"	3/32"	7/64"	7/64"	1/8"	1/8"	9/64"	5/32"
Pilot-hole size: Softwood	1/16"	1/16"	1/16"	1/16"	5/64"	3/32"	3/32"	7/64"	7/64"	1/8"	9/64"
Phillips-head point size	#1			#2						#3	
Square-drive bit size	#0			#1			#2			#3	

Available Lengths: 1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8", 1 3/4", 2", 2 1/4", 2 1/2", 2 3/4", 3", 3 1/4", 3 1/2", 3 3/4", 4"

Drilling in Metal Techniques

Impact Drivers

Drill Press



1._Speed Control (pulleys)_ 2._Switch_ 3._Quill_

4._Spindel_ 5._Chuck_ 6._Table_

7._Table Lock_ 8._T-slot_ 9._Base_

10._Column_ 11._Table Positioning Handle 12._Feed Handle_

Recommended Extension Cord Sizes for use with Portable Electric Tools

Name-plate Amperes	Cord Length in Feet							
	25	50	75	100	125	150	175	200
1	16	16	16	16	16	16	16	16
2	16	16	16	16	16	16	16	16
3	16	16	16	16	16	16	14	14
4	16	16	16	16	16	14	14	12
5	16	16	16	16	14	14	12	12
6	16	16	16	14	14	12	12	12
7	16	16	14	14	12	12	12	10
8	14	14	14	14	12	12	10	10
9	14	14	14	12	12	10	10	10
10	14	14	14	12	12	10	10	10
11	12	12	12	12	10	10	10	8
12	12	12	12	12	10	10	8	8
13	12	12	12	12	10	10	8	8
14	10	10	10	10	10	10	8	8
15	10	10	10	10	10	8	8	8
16	10	10	10	10	10	8	8	8
17	10	10	10	10	10	8	8	8
18	8	8	8	8	8	8	8	8
19	8	8	8	8	8	8	8	8
20	8	8	8	8	8	8	8	8

Notes: Wire sizes are for 3-CDR Cords, one CDR of which is used to provide a continuous grounding circuit from tool housing to receptacle. Wire sizes shown are A.W.G. (American Wire Gauge). Based on 115V power supply; Ambient Temp. of 30˚C, 86˚F.