

## PRODUCT BULLETIN



Drill up to 3" diameter holes by hand with the ETN 2001 P. Use either wet or dry core bits.

### PRODUCT APPLICATION: CORE DRILLS *How to Drill Through Concrete & Masonry Fast and Efficiently*

A core drill is a power tool for boring holes through concrete, reinforced concrete, brick, block, stone and masonry. Specialized core bits - hollow steel cylinders fitted with segmented diamond teeth - grind away the surface to create a hole. Popular core bits range in size from 3/8" to 14" diameter. Most drill 12" deep, but longer bits are available as well as extensions and threaded barrels.

Read on to learn how to properly drill through brick, block, stone, and concrete with a core drill. By following these suggestions, you will save time, money and improve your results.

### WATER

If you are drilling with a wet diamond core bit, it is better to use less water than more water. Less water enables the diamonds to grind away the concrete. Too much water pressure washes away the concrete grit and prevents new diamonds from being exposed. **For the best results, apply water until the slurry resembles a heavily creamed coffee.** A proper slurry will help the grinding process by keeping the core bit cool. The diamonds will remain exposed and stay in contact with particles in the slurry.

### ANCHOR BASE

When rig anchoring, make sure your drill rig is secured using physical anchors rated for core drilling. Adjust the rig so that it is level. Check to verify the rig does not rock in place.

### VACUUM BASE

You can use a base vacuum when the surface is smooth and the vacuum gasket is in good working order. **Never use a vacuum base when drilling into a wall or ceiling. It is dangerous.** Also, make sure your vacuum filter bottle has no water or debris inside it because they can harm your vacuum. Use a vacuum gauge to make sure your vacuum pressure is adequate to do the job.

### DIAMOND

Match the diamond to the application. Consider the material being drilled and the diamond bond specifications of the core bit. Too hard of a bond increases drilling time. Too soft of a bond will prematurely wear away the diamond. **If the diamond glazes over, drill into an abrasive block to reveal a fresh diamond grinding surface.** Here are some general tips for selecting core bits:

- Select a hard diamond matrix for softer material (brick, block, limestone, marble, & sandstone)
- Select a soft diamond matrix for harder material (concrete, reinforced concrete, flint, basalt, & granite)

*Drill up to 14" holes through  
concrete with the EBM 350/3P*



## PRESSURE

It is very important to maintain steady, even pressure. **Correct pressure will achieve maximum core bit life.** Too little pressure can cause the diamonds to glaze over. Inconsistent pressure or pecking will cause the drill to glaze over. Too much pressure will overload the drill causing damage to both the core bit and the drill motor.

## SPEED

Set your motor to the appropriate revolutions per minute (rpm) to grind properly and prevent glazing the diamond segments. When set at the ideal surface speed, the core bit will cut efficiently. **For example, smaller core bits require higher RPMs.** If set too slow, the job will take too long and the drill may glaze. See chart A to the right for recommended speeds.

## POWER

To sustain the correct drilling speed, you need adequate power. **Larger core bits require more power.** If the drill is under-powered, it will overheat during operation and damage the tool. See Chart B for recommended power for electric, pneumatic, and hydraulic drills.

Most core drills are electric-powered. When drilling, listen to the electric motor. When in use, the pitch of the motor will lower. If the motor begins screeching or the mechanical clutch slips, reduce feed pressure immediately.

Core drills are also available in pneumatic and hydraulic versions for special applications in a variety of environments including underwater.

## SAFETY

Increase safety on the job site by using a core drill with a ground-fault circuit interrupter (GFCI) when drilling in wet conditions. **A GFCI monitors the flow of current and will trip the electrical circuit if it detects a dangerous imbalance.**

Always exercise caution when operating core drills and refer to user manual for proper maintenance and safety procedures.

*Anchor core drills sideways and drill through walls. Attach a hi-efficiency vacuum and collect dust, water and slurry produced during operation.*

## CHART A

| Core Bit Diameter | Recommended RPMs |       |         |
|-------------------|------------------|-------|---------|
|                   | Minimum          | Ideal | Maximum |
| 1"                | 2400             | 3200  | 4000    |
| 2"                | 1200             | 1600  | 2000    |
| 3"                | 800              | 1050  | 1300    |
| 4"                | 600              | 800   | 1000    |
| 5"                | 475              | 640   | 800     |
| 6"                | 400              | 530   | 665     |
| 7"                | 340              | 450   | 600     |
| 8"                | 300              | 400   | 500     |
| 10"               | 240              | 320   | 400     |
| 12"               | 200              | 265   | 330     |
| 14"               | 170              | 225   | 285     |

## CHART B

| Core Bit Diameter | Recommended Power |         |          |
|-------------------|-------------------|---------|----------|
|                   | Amps Min.         | HP Min. | GPM Min. |
| 1"-4"             | 13                | 1-2     | 6        |
| 5"                | 15                | 2       | 6        |
| 6"                | 15                | 2       | 6        |
| 7"                | 15                | 2-3     | 7        |
| 8"                | 15                | 2-3     | 7        |
| 10"               | 18                | 2-3     | 7        |
| 12"               | 18                | 3       | 8        |
| 14"               | 20                | 3       | 8        |

