



**Wet Drilling**  
Operating Instructions

## General Safety Instructions:

### SYMBOLS:



Protective footwear must be worn



Ear protection + eye protection + dust mask must be worn



Protective clothing must be worn



Read using instructions and keep for future reference



**Failing to follow the using instructions may lead to serious personal injury.**

- Always wear protective equipment.
- Always disconnect the drill from the mains before changing the core or its accessories
- Always store the core in a clean and safe environment.
- Keep children away from the power tool and the core.
- Keep children away when you are working.
- Always ensure that the place of work is clean of any obstacles that could interfere with your work or cause injuries.
- Always ensure that you have a firm foothold when working.
- Do not work off ladders.
- When working at height, ensure that you are using a suitable platform and have secured yourself against falling.
- Consider the weight of the diamond core mounted on the drilling machine. Ensure you can hold it safely particularly when extracted material is inside the core.
- If you have any doubt about the harmfulness of the materials to be drilled, consult an expert! Never drill asbestos or materials containing asbestos

- Before drilling ensure that there are no electrical cables, gas pipes, water, sewage or drain pipes in the way.

### **Application:**

- Only use machines which are suitable for diamond wet drilling. If in doubt, consult expert advice. The correct power (min. 850 watts) and the correct speeds are important.
- Only use machines with a safety clutch.
- When using a 230v drilling machine ensure correct operation of the RCD unit before starting drilling.
- Remove the machine from the mains before fitting cores or accessories.
- Never use hammer action. Diamond drilling should be undertaken using rotary only.
- Select the correct speed for application and core diameter for maximum drilling performance.
- Always use sufficient water to cool the segments when wet drilling.

- When wet drilling it is possible for the core to jam in the hole. To avoid injury when this happens, the following instructions must be followed at all times:

Read and follow the using instructions of your machine at all times.

Ensure that your machine and its clutch is in good working order and serviced regularly.

Hold the machine firmly and with both hands if you are drilling by hand so that your hold is stronger than the setting of the clutch.

If you are drilling from a drill stand ensure the drill stand is fixed firmly and cannot move during drilling

Consult an expert if you are not sure that your machine is suitable for diamond drilling.

As soon as the clutch becomes active, let go of the trigger switch of the machine.

When hand-held diamond drilling, never lock the trigger switch of the machine. The machine must switch off as soon as you let go of the switch.

Never twist the core in the hole as doing so will lead to jamming.

- When drilling downward, make sure the core can drop safely without injuring someone below.
- When wet drilling use a water collection system. Never perform upward or overhead drilling without the use of a water collection device
- Do not drill in wet conditions. Switch off the machine if there is any water leakage.
- Only use clean tap water for cooling purposes.
- Prevent water from entering the motor. Make sure the RCD is not in contact with water.

### **Maintenance:**

- Diamond cores are maintenance free. Keep them clean and prevent rusting.
- Do not use damaged cores or accessories.

### **Materials:**

Certain very hard materials such as reinforced concrete can present problems for dry drilling. They may cause excessive heat & consequent blunting of

the diamond segment. This will result in poor drilling performance and can be overcome by using a water supply to cool the segments.

- Wet diamond cores are ideally suited for drilling:
  - Hard brick.
  - Block work.
  - Concrete
  - Hard Concrete without reinforcement.
  - Reinforced Concrete.
  - Flint Concrete.

## **Using Instructions:**

### **Wet Drilling with Diamond Cores:**

Marcris wet diamond cores have been designed to work with Marcris drilling machines & drill rigs. However they can be used on other machines suitable for diamond drilling.

### **Always follow the machine manufacturers using instructions for safe operation**

Refer to Marcris DDM2/3/4 & DS150/ DS250 safety & using instruction booklets.

## Rig Mounted

- Ensure the drill rig is securely fastened to the surface being drilled. Where possible use an anchor or vacuum system to secure. A loose rig leads to segment loss or jamming.
- Mark the area to be drilled.
- Ensure the power is switched off before fixing the drilling machine to drill rig.
- Securely fasten the DDM2/3/4 to the DS150/250
- For wet core drills with ½" BSP thread, screw the ½" BSP adaptor into the drill spindle.
- Screw the core drill with ½" BSP thread onto adaptor.
- For core drills with 1 ¼" UNC thread, screw directly into the drill spindle.
- Refer to the machine manual for operation of machine and connection to water supply.
- Turn on the tap on the machine hose so that a steady flow of water cools the segments.

- Slowly feed the core drill into the workpiece using the feed handle of the DS150 or DS250.
- At the start of drilling, apply light pressure to allow the core drill to mark the hole.
- Apply only gentle pressure during operation. Excessive force may damage the machine or core.
- Continue drilling until the hole is drilled
- Take extra care when the core is about to break through the surface to prevent splintering.
- Withdraw the core drill from hole by using the feed handle.
- Switch off the power on the machine and disconnect from the power supply.
- Remove the core drill from the machine using spanners.

## Hand held

- Ensure the power supply is off before assembling the core to the DDM2/3 machine.
- For wet core drills with a ½" BSP thread, screw

the ½" BSP adaptor into drill spindle.

- Screw the core drill with ½" BSP thread onto the adaptor.
- For core drills with a 1 ¼" UNC thread, screw directly into the drill spindle.
- Refer to machine manual for operation of machine and connection to water supply.
- If using a pilot drill to mark the hole, remove after the first 10mm so as not to damage the core.
- Turn on the tap on the machine hose so that a steady flow of water cools the segments.
- Approach the material with the core drill running and apply the tips of the segments to the material surface with the drill at a slight angle.
- As the segments bite into the material, bring the drill gradually to a horizontal position.
- Keep the core straight, don't jam it.
- Continue drilling applying only gentle pressure and clear the hole regularly of debris to prevent jamming.

- On completion, turn off the water supply, withdraw from the material and remove the extracted core out of the core taking care not to damage it. Dispose of extracted core safely.
- Remove the core from the drill adaptor or machine using spanners.
- Never lock the switch when handheld drilling. The machine must stop as soon as the switch is released.

## **Ideal Drilling Speeds:**

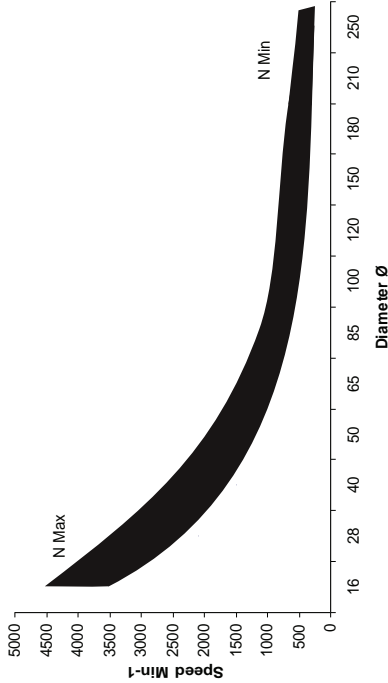
These are the ideal drilling speeds for efficient wet diamond drilling.

On your machine select the nearest speeds to those shown opposite.

### **Generally:**

The speed shown on your drill is the no load speed. The load speed is 1/3rd lower than the speed shown on the type plate of your drill. For softer materials use the higher speed - for very hard materials use the lower speed.

## Ideal Drilling Speeds: wet Drilling



## Problem Solving / Hints & Tips:

Take special care when drilling reinforced concrete.

How do I know I am drilling through Steel?

- Penetration reduces or stops.
- Water becomes clear.
- Black shavings come out of the bore hole.
- The core starts shuddering.

## Solution

- Reduce the pressure.
- Reduce the speed if possible.
- Be patient. Let the core work through the steel.

## Use sufficient water

- Normal water pressure is adequate.
- Insufficient water creates an abrasive slurry which causes excessive segment wear.
- Check that the water coming out of the bore hole is milky grey.

- Use a water collection ring to help contain used water safely and avoid mess.
- If the diamonds become glazed or polished re-dress on soft material or a sharpening stone and reduce the drilling speed.
- Soft or abrasive materials will cut easily but will cause more rapid wear of the core drill. With such materials, increasing drill speed will extend core life.
- Conversely for harder materials the drill speed should be decreased.
- Apply only gentle pressure when drilling. Excessive pressure can cause segment loss.
- If adaptor is jammed in the core, use a vice to aid removal.
- Do not use excessive force to remove the extracted cone. This is a precision tool and needs to be treated gently otherwise it will become damaged.

## **Marcryst Help Line:**

### **Technical Hotline UK:**

+44 (0) 1302 893253

### **Technical Hotline Germany:**

+49 (0) 7741 966 720

### **Technical Hotline Switzerland:**

+41 (0) 41 630 2543

**Marcrist International Limited**

Marcrist House  
Kirk Sandall Industrial Estate  
Doncaster DN3 1QR  
England

**T:** +44 (0)1302 890888

**F:** +44 (0)1302 883864

**E:** info@marcrist.com

**W:** www.marcrist.com

**Marcrist Diamantwerkzeuge**

**Vertriebsgesellschaft mbH**

Karl-Benz-Str. 8  
79761 Waldshut-Tiengen  
Deutschland

**T:** +49 (0)7741 966 72 0

**F:** +49 (0)7741 966 72 99

**E:** info@marcrist.de

**W:** www.marcrist.com

**Marcrist Diamantwerkzeuge GmbH**

Postfach 37  
5322 Koblenz  
Schweiz

**T:** +41 (0)41 630 25 43

**F:** +41 (0)41 630 25 63

**E:** info@marcrist.ch

**W:** www.marcrist.com