

This annular cutter is designed for drilling holes in steel, copper, brass, aluminum, stainless steel, special alloys and rails.

### Technical recommendations for drilling:

#### 1. Always use a pilot pin

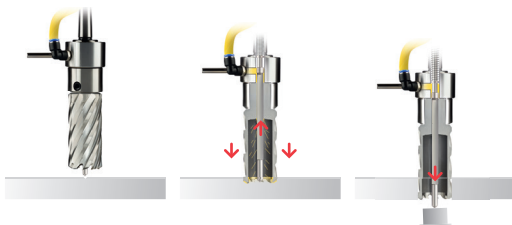
For precise drilling, position the pilot pin on your material "in the center" of the hole you want to drill, and turn on the magnet. Make sure that the magnetic drilling machine did not move, whilst turning on the magnet.

Pilot pins are essential for the use of annular cutters, as they provide the following practical uses:

Precise positioning

Open & close of oil flow

Ejects plug (slug)



#### 2. Use the appropriate cutting lubricant; oil, spray or paste

Correct and sufficient cooling is especially important when drilling hard and resistant materials, such as stainless steel. Drilling these

types of materials requires both internal and external cutter lubrication. Drilling in vertical and upright positions requires the use of cutting pastes and/or sprays.

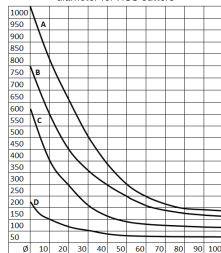
#### 3. Reasons for the slug being stuck inside the annular cutter

- Using too much pressure while drilling;
- Lack or insufficient cooling and lubrication;
- Incorrectly selected drilling speed;
- Annular cutter wear;
- Ejector spring wear.

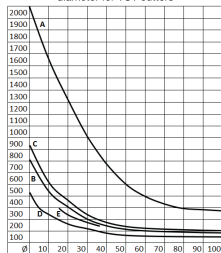
#### 4. Select the correct drilling speed

The selected drilling speed is very important. The drilling speed depends on diameter, annular cutter type and material. For recommendations see table below.

Recommended drilling speed (rpm) / cutter diameter for HSS cutters



Recommended drilling speed (rpm) / cutter diameter for TCT cutters



When the drilling speed is more than 25% lower than the recommended speed, we advise to not execute your drilling job. Tungsten Carbide Tipped (TCT) annular cutters are more sensitive to excessively low speed, this leads to increased vibration and teeth damage. High Speed Steel annular cutters (HSS) on the contrary, are more sensitive when recommended values are exceeded by more than 20%.

### 5. Feed rate

Construction and stainless steel .....	0.08-0.12 mm / rpm
Cast iron .....	0.12-0.20 mm / rpm
Non-ferrous metals.....	0.22-0.45 mm / rpm
Special alloys.....	0.05-0.08 mm / rpm

- At the start of your drilling job, cut the feed from above mentioned recommendations in half.
- Remember that excessive pressure on the annular cutter will not increase performance!
- When drilling fragile material try to drill in one go, so without making stops
- When processing speed is important then use Tungsten Carbide Tipped (TCT) annular cutters and a magnetic drilling machine with increased rotational speed.
- If you have to apply significant effort, perhaps the annular cutter has become dull or the material being drilled is too hard for this type of annular cutter.

### 6. Maintenance recommendations

Clean the annular cutter periodically. When drilling holes deeper

## Manual

than 30 mm repeat the following steps every 20 - 30 mm:

- Take out the annular cutter and clean it from chips;
- Lubricate the hole with cutting lubricant or paste;
- Continue drilling with lower feed.

### 7. Possible causes of annular cutter breakage:

- Lack of cutting lubricant:  
Always use an (Eurobor) cutting lubricant. This will allow you to reduce friction, which means avoiding heating the annular cutter and the material. Never use water, car-window cleaner liquid, solvents or other liquids as a cutting lubricant. It will not only lead to damage of the annular cutter, but also all other equipment;
- Disbalance of the integrated slide:  
Check to see if the machine is adjusted correctly;
- Strong pressure on the feed handle during drilling job;
- Working with parts that are not securely fastened;
- Lap drilling or reaming of already existing holes;
- Working with multilayer material, such as sandwich panels:  
In this case it's better to use special Eurobor "stack" annular cutters;
- Damaged drilling chuck;
- Low magnetic force due to a damaged magnet, uneven or dirty metal surface, foreign objects between steel and magnet;
- Drilling of profile metal and steel of variable thickness.

All these factors directly affect the conditions and lifetime of the annular cutter. Therefore, if you want to expand the lifetime of your annular cutter and achieve maximum efficiency keep these factors in mind and never forget to check all other machine components.