

# EXTReam Reamer

## Configuration and use

### **All EXTReam Reamers come complete with;**

- Complete set of teeth
- Puller/Driver for removal and installation of teeth
- Full set of jets and plugs

Jets and/or plugs for the EXTReam Reamers must be installed prior to use. Apply a small amount of anti-seize grease to the jet or plug prior to installation to allow easier changes for future bores.

### **Guidelines for jetting and/or plugging ports are as follows.**

- Solid rock conditions should have all front ports jetted. Side and rear ports may be configured for flow requirements.
- Cobble conditions should have all front and rear ports jetted. Use care in jetting flutes in cobble conditions based on binders in the soil. Care must be taken to reduce the chance of small cobble falling down behind the reamer or washing the “filter cake” wall away. Most cobble conditions would be best with all or most ports in the flutes to be plugged.
- Solid Sandstone and Solid Limestone conditions are best configured as stated above in Solid rock formations.
- Chunk rock and layer rock conditions may need one or more of the front ports, flute ports and rear ports to be plugged.
- Never plug all front ports of an EXTReam Reamer.

6”, 8” and 10” EXTReam Reamers may be used as stabilizing or centering reamers by removing the pulling eye from the rear and pulling a second EXTReam or other reamer behind. When set up in this configuration, jet one or more of the front ports, plug the flutes and rear of the reamer ports to force the fluid through the front EXTReam reamer to the trailing reamer.

### **Recommended teeth for various soil conditions.**

- Sandstone and Limestone are best suited to the conical style teeth that come standard in the EXTReam Reamer.
- Round or marble shaped teeth are recommended when using the EXTReam Reamer in Cobble conditions.

- The puller/driver included with the EXTReam Reamer is used simply by hooking the cup of the driver behind the relief on the tooth and sliding the weighted grip back to extract the tooth. Reverse the operation to install the tooth or a dead blow hammer may be used to drive the teeth into the pockets so as to not damage the carbide of the tooth during installation.
- Broken or worn teeth may be removed by welding a stud to the remaining tooth shank to provide a point with which to grip the tooth.
- All carbide buttons on the EXTReam Reamers may be replaced by brazing or silver soldering the replacement into the cleaned hole.

### **Proper use of the EXTReam Reamer**

- Required pullback pressure for the EXTReam Reamer to begin cutting is very low.
- Recommended pullback pressure should start at about 600# (without rod or product drag). Move up from starting pullback pressure as necessary until you find the “sweet spot” for fastest and smoothest pullback.
- Drilling fluids should be used with the EXTReam Reamer to carry cuttings and reduce wear.
- Use sufficient fluids based on the size hole being built and soil conditions. Minimum flow for each size reamer is listed below.
- Rotation speed varies with each drill, size of reamer and conditions encountered. Minimum rotational speed is simply fast enough to keep the drill from being overloaded and causing the drill to stall.

### **Drilling fluid requirements**

- 6” – 10 to 15 gallons per minute
- 8” – 10 to 15 gallons per minute
- 10” – 12 to 20 gallons per minute
- 12” – 12 to 25 gallons per minute
- 16” – 15 to 30 gallons per minute

### **Notes:**

- Adjust the rotation and fluid flow to suit the conditions encountered on each bore.
- Lower fluid volume may be required in conditions that are unstable.
- Higher fluid volume may be required in highly abrasive conditions.
- Pullback pressures will be variable based on ground conditions. At no time should the EXTReam Reamer require more than 2000# of pullback pressure to properly function.

- Pre-reaming is not required with the EXTReam Reamer as the cutting surface of each size reamer is continuous to the center shaft of the reamer. Teeth may have a tendency to vibrate out of the pockets in pre-reamed holes.
- When using the EXTReam Reamer on jobs where other reamers have failed, it may be necessary to reverse the bore path so the EXTReam Reamer is going into virgin soil conditions. If this is not an option, consider sliding the EXTReam Reamer into the existing hole by dead pull or rocking the reamer into the hole until virgin soil is encountered. When the bottom of the hole is reached, start the rotation of the reamer and use low pullback pressures to begin cutting.
- Clean the reamer thoroughly when the bore is completed to prevent drilling fluids from drying inside the reamer and plugging the ports.