

# URG<sup>®</sup> Underreamer

**HOLTE**  
MANUFACTURING

The Holte **URG<sup>®</sup>** consists of three major components:

## **DRIVER**

The driver has a splined shank that extends into the hammer, and is held in by split retainer rings, a pilot bit, and the arms that come in sets of three or four.

## **UNDERREAMER ARMS**

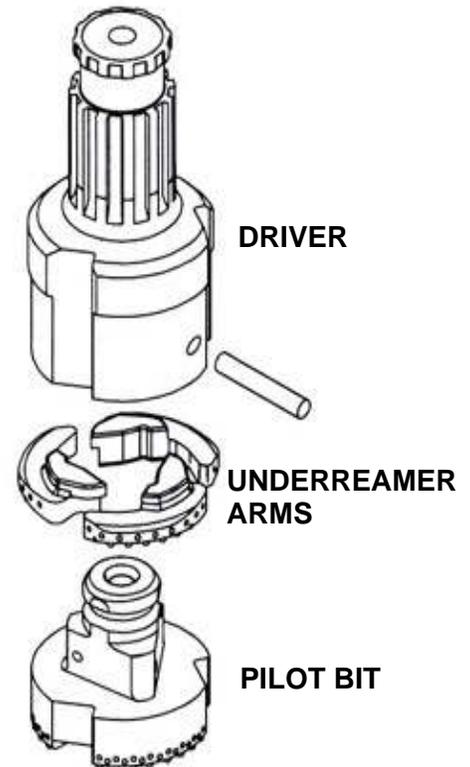
The arms are extended by means of a cam shaped shaft on the pilot bit. The arms are designed for concentric underreaming and can be purchased separately.

## **PILOT BIT**

The Pilot bit extends into the driver and is held in place by two large retaining pins. When the tools are rotated forward (clockwise) with the pilot bit sitting on the bottom, the resistance, or drag between the pilot bit and the bottom of the bore hole holds the pilot bit from rotating and causes the cam to push the arms out. Reverse rotation of the tools with the pilot bit sitting on the bottom allows the arms to retract.

Caution, In most cases rotation causes more wear than hammering (drilling). This is because most operators tend to rotate too fast. Slow smooth rotation is essential. 18 to 24 inch bits should only turn one to four rotations per minute.

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## **DRILLING TECHNIQUES FOR URG<sup>®</sup> UNDERREAMER**

Any drilling with a down hole hammer is done with the bit kept pushed fairly tight into the hammer. When using an underreamer it is harder to keep the bit closed. In loose formation the formation can blow away from in front of the bit and the casing will lay behind. You must keep the bit closed and the casing advancing. A rig with a controlled feed force or down pressure works the best. You can feed the hammer by holding back if you have enough weight with the drill pipes.

## **OILING THE DOWN HOLE HAMMER**

Hammers need oil in a steady continuous amount about one quart per hour per 1000 CFM. It is a good idea to double the oil for the first 20 hours on a new hammer and add a pint all at once at the start of each day or after being shut down for several hours.

## **AIR VELOCITY**

See the air velocity chart. If insufficient amount of air is being used to blow the cuttings out you can use larger drill pipes, add water, and foam or surge.