Titespot® Coolant Driven KEYCUTTER

How They Work
Titespot® Coolant Driven Keycutters incorporate a positive displacement ball piston motor powered by your high pressure coolant system (300–2,000 PSI depending upon the “load” of the application). The drive shaft transmits power from the motor to the arbor type stagger tooth cutter via the drive pins. Exhausted coolant is directed at the cutter interface.

Features and Benefits
▼ Machine spindle rotation not required for power. Spindle can be used as an indexer to machine multiple keyways with one Keycutter.
▼ Odd size or wide keyways can be produced by multiple passes.
▼ Loads easily from ATC on a machining center.
▼ Combines keycutting with boring or turning operations on lathes.
▼ Effective in blind or thru bore applications.
▼ Gear reduction generates up to 10 ft. lbs. of torque at 1,000 PSI coolant pressure.
▼ Machines keyways and splines in bores down to 1/2” in diameter.
**Sizes and Dimensions**

![Diagram](image)

**Cutter Model MBS Ratio CD W D**

<table>
<thead>
<tr>
<th>Model</th>
<th>L</th>
<th>E</th>
<th>X</th>
<th>Y</th>
<th>S</th>
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<tbody>
<tr>
<td>KC01</td>
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<td>.060</td>
<td>.000</td>
<td>.498</td>
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<td>.132</td>
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</table>

**Performance Data**

**Speed is based on flow**

At approximately 70% volumetric efficiency the positive displacement ball piston motor will rotate at 900 RPM per GPM flow.

To calculate cutter RPM: \[
\text{RPM} = \frac{\text{Flow in GPM} \times 900}{\text{Gear ratio}}
\]

Example: KC02 Keycutter with Cutter #103, coolant flow 9 GPM.  
\[
\frac{9 \text{(GPM)} \times 900 \text{(RPM of motor per GPM flow)}}{4.5 \text{(gear ratio of KC02)}} = 1800 \text{ RPM}
\]

**Torque is based on pressure**

Under test conditions, the ball piston motor develops .019 in. lbs. of torque for each PSI of coolant pressure.

To calculate Keycutter torque: \[
\text{Torque} = \text{Pressure} \times .019 \times \text{gear ratio}
\]

Example: KC03 Keycutter with Cutter #302 at 800 PSI coolant pressure  
\[
800 \text{(coolant pressure in PSI)} \times .019 \times 5.5 \text{(gear ratio of KC03)} = 83.6 \text{ in. lbs. or 6.96 ft. lbs. of torque.}
\]

To calculate metal removal rate: **As a general rule, metal removal rate is one cubic inch per minute per horsepower for steel, three cubic inches per minute per horsepower for aluminum.**

To calculate theoretical horsepower: \[
\text{Horsepower} = \frac{(\text{Pressure in PSI} \times .019) \times (\text{Flow in GPM} \times 900)}{63025}
\]

**How to Order**

Choose: Shank – Model – Cutter  
*Example:* Cat 50 – KC03 – 302  
SS – KC02 – 202

**Stay up-to-date by visiting our website at**  
www.eltool.com

For information on ELTOOL’s complete line of coolant driven drill heads, request Catalog T-2

**For Technical Assistance call our Application Dept. toll-free 1-877-4ELTOOL (435-8665)**

**Please consult factory for information on specials including:**

- ▼ HSK, Capto, ABS, other shank styles
- ▼ DIN B or external coolant delivery
- ▼ Special cutter sizes or Keycutter lengths

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