

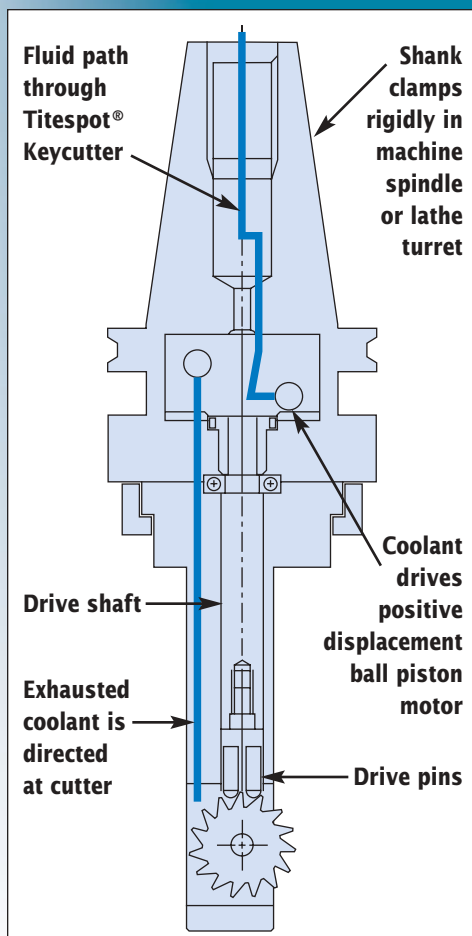
# ELTOOL

## Titespot® Coolant Driven KEYCUTTER

NEW

**Eliminate Secondary  
Broaching Operations  
on Gears, Sheaves,  
Hubs and Pulleys**

**For Lathes and  
Machining Centers**



### 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.

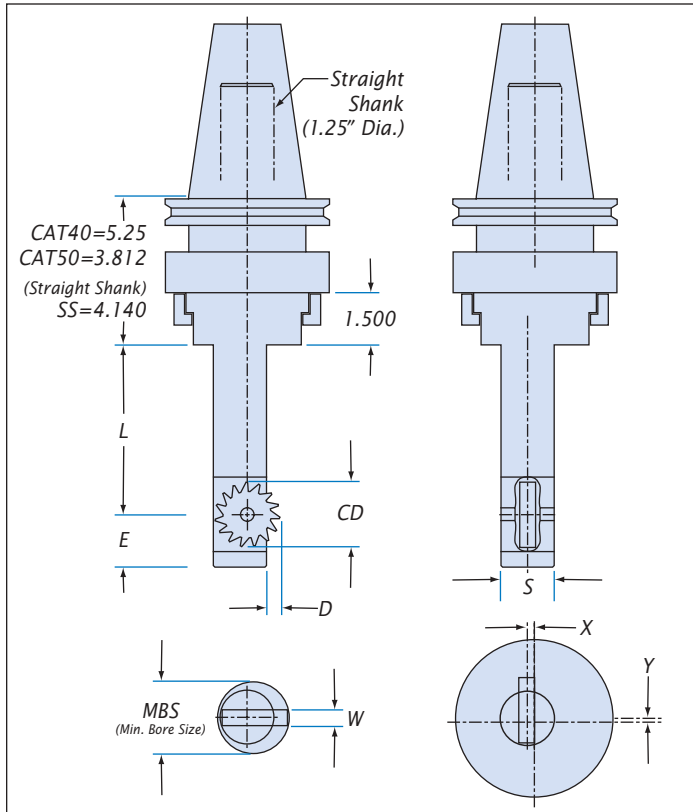
### Features and Benefits

- ▼ 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.



Cutting multiple keyways on a machining center.

## Sizes and Dimensions



Model	L	E	X	Y	S
KC01	2.0	.500	.060	.000	.498
KC02	4.0	.750	.132	.000	.748
KC03	4.0	1.250	.170	.050	1.248
KC04	6.0	1.375	.322	.000	1.497

Cutter	Model	MBS	Ratio	CD	W	D
101	KC01	.500	4.0:1	.524	.094	.051
102	KC01	.500	4.0:1	.554	.125	.066
103	KC01	.625	4.5:1	.622	.125	.100
201	KC02	.750	3.7:1	.794	.187	.100
202	KC02	.875	3.7:1	.874	.187	.140
203	KC02	.875	4.0:1	.874	.250	.140
301	KC03	1.250	5.0:1	1.158	.250	.130
302	KC03	1.312	5.5:1	1.288	.250	.195
303	KC03	1.312	6.5:1	1.530	.375	.316
401	KC04	1.500	4.0:1	1.532	.375	.195
402	KC04	1.500	4.3:1	1.622	.500	.260
403	KC04	1.625	5.0:1	1.902	.500	.380

## 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:  $(\text{Flow in GPM} \times 900) \div \text{Gear ratio} = \text{RPM}$

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:  $\text{PSI} \times .019 \times \text{gear ratio} = \text{torque}$

Example: KC03 Keycutter with Cutter #302 at 800 PSI coolant pressure

$$800(\text{coolant pressure in PSI}) \times .019 \times 5.5(\text{gear ratio of KC03}) = 83.6 \text{ in. lbs. or } 6.96 \text{ ft. lbs. of torque.}$$

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:

$$\frac{(\text{Pressure in PSI} \times .019) \times (\text{Flow in GPM} \times 900)}{63025} = \text{Horsepower}$$

## 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](http://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

# ELTOOL

ELTOOL Corporation 1665 Central Ave. Cincinnati, OH 45214  
Ph: 513-723-1772 Fax: 513-721-8974 Email: [info@eltool.com](mailto:info@eltool.com)