

## PRODUCTS

Material conversion:

## New product concept for considerable increase in tool life!

In order to fulfil the user's demands for top-performing tools, Hommel + Keller's focus has turned to product features that raise tool life.

Powder metallurgy steels have increasingly become the first choice whenever the material to process has become a harder nut to crack, as for example when machining stainless steel, alloyed and high-alloyed steels or titanium.

Compared to the traditional high speed cutting steels (HSS), powder metallurgy steels stand out with their special characteristics:

- High warm hardness
- High ability to work under pressure
- High toughness
- High wear resistance
- Homogeneous structure

### POWDER METALLURGY KNURLING WHEELS

Field experiments for form and cut knurling applications have produced evidence that: Due to the high wear resistance and toughness of powder metallurgy knurling wheels, tool life can be increased by 3-5 times.

The comparison below shows how striking the increase in tool life is for this application, an increase of 3 times using a PM (S 590) knurling wheel.

### TEST RESULT:

In the material experiment under study, a knurling wheel made of HSS (1.3343) was tested against a PM (S590) knurling wheel. All other application parameters remained the same.

|                           |                                    |
|---------------------------|------------------------------------|
| <b>Knurling profile:</b>  | RAA P, 1,0 mm                      |
| <b>Knurling wheel:</b>    | BR 30° 15 x 4 x 8                  |
| <b>Work piece Ø:</b>      | 20 mm                              |
| <b>Knurl length:</b>      | 20 mm                              |
| <b>Material:</b>          | 1.4305<br>(303S31 Stainless Steel) |
| <b>Cut knurling tool:</b> | RF 1                               |
| <b>Machine:</b>           | Boley BE42                         |

### SPEED RATES:

Vc = 40 m/min  
Vf = 0,07 mm/rev

### HSS (1.3343)

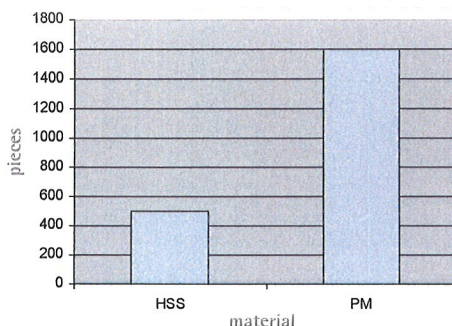
**Wheel life:** : 500 pcs/knurling wheel  
**Performance:** 6283 cm<sup>2</sup>

### PM (S590)

**Wheel life:** 1600 pcs/knurling wheel  
**Performance:** 20105 cm<sup>2</sup>

### TOOL LIFE COMPARISON

HSS (1.3343) – PM (S590):



## Hommel + Keller changes over!

As your tool supplier for premium products we want to make the material advantages available to you at once. Our complete standard stock programme will therefore be converted from HSS knurling wheels into powder metal (PM S590) knurling wheels. HSS knurling wheels will be delivered on demand only.

As an end-user, you will benefit from this change due to:

### Advantages:

- Failure-free production cycles
- Reduced cutting forces
- Increased tool life
- Reduced tool costs
- Reduced setting costs

### PROJECT PLANNING:

We already have a wide range of PM knurling wheels on stock. This basis programme contains the most common dimensions and pitch sizes.

In the following months, we will start to sell off all HSS stock items and replace them with the PM version. The official day for the complete conversion is July, 31<sup>st</sup> 2008. By then we want to have changed over most of the inventory. As we keep thousands of different knurl types on stock, the material conversion is quite a challenge for the whole Hommel + Keller team. We will do our best to satisfy your requests, but also hope for your understanding should there be a delivery shortage in individual cases.

**zeus Powder Metallurgy knurling wheels:**  
Improved product quality, increased tool life, higher process safety.

## New Knurling & Marking Tools from Zeus.

Now with incredible gains in flexibility, stability and tool life!

- Flexible use for right and left hand orientation with fast and easy tool conversion.
- Stable tool design for improved tool positioning on the work piece.
- Flexible use for shanks 20 and 25 through vertical adjustment mechanism.
- Rigid tool design offers high process safety and excellent knurling quality.

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