



### zeus marking technology

Revolving system
Spring-return system
Stamps









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# Benefits and added value

#### Why mark?

In this day and age, marking of workpieces is absolutely indispensable for state-of-the-art production technologies with assemblies and system components. Immediate traceability, batch separation and tracking, as well as complete production documentation are essential requirements in many sectors.

But many types of marking for various applications are time-consuming, inflexible and therefore also cost-intensive.

With zeus marking technology, workpieces and turned parts of all types can be marked quickly, affordable and flexibly. The marking process is integrated directly in the machining process without changing to a separate machine.

As a result, there are no additional equipping costs – transport and storage times are eliminated.

#### Why zeus?

zeus marking technology is:

Fast: Processing times are significantly shorter in comparison with other marking technologies such as laser marking, needle embossing, etc.

**Affordable:** With the complete machining on a single machine, equipping times are significantly reduced and/or minimised.

**Flexible:** Compatible with all conventional machines and CNC lathes and milling centres.

#### Features and benefits

- Improved quality of documentation
- Durability due to embossing
- Quality characteristic
- Component can be painted
- Elimination of separate work processes
- Immediate traceability
- Batch separation and tracking
- Complete production documentation
- Clear differentiation from the competition or no-name products
- Modern, just-in-time production requires absolute reliability
- Lateral drives can be removed after completion of the marking process
- Special characters can be used as a drive, e.g. logos, backslash, asterisks, number signs, etc.

# And where is it used?



Automotive



Valves



Eitting



Machine construction



Aerospace



Hydraulics / pneumatics



Consumer goods



Decorative



Jewellerv



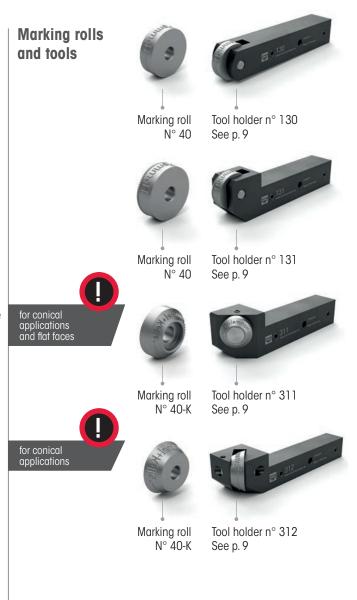


The revolving system is particularly useful for large and mid-sized series and for **recurring components**.

The marking roll is custom-built and adapted to the diameter of each individual workpiece. Thanks to the user-friendly mount system, operators can exchange the rolls quickly and easily so that the tool can be used for a broad range of different workpieces and markings.

#### Features and benefits

- Fast and economical
- Marking rolls can be easily exchanged
- Easy handling
- The marking is dependent on the workpiece diameter
- A drive provides for perfect revolving application of the marking
- Multiple revolutions ensure perfect precision and definition of the impression
- Perfect concentricity of max. 0.03 mm is essential
- The workpiece diameter must be guaranteed within very close tolerances (+/-0.025 mm)
- Lateral drives can be removed after completion of the marking process
- Marking on conical surfaces is possible







The spring-return system offers a maximum of flexibility in all areas. You may use it for multiple workpieces with different diameters. Exchangeable marking segments facilitate economic text changes. The versatile spring-return system is designed for fast and easy exchange of the entire segment mount/marking roll unit.

#### **Features and benefits**

- Suitable for marking of different workpiece diameters
- Flexible marking for different applications due to exchangeable text segments, such as consecutive batch numbers, serial numbers, manufacturing data, etc.
- When you need a different text, you can simply exchange the entire mount unit – quick and easy
- Possible to mark workpieces up to a shoulder
- Three driving points guarantee a perfect impression during the rotating process
- Marking without driving points is possible, as long as the C-axis can be controlled
- Marking is achieved by one-time partial revolution of the mount unit, which stops at the end of the text
- Desired depth can be achieved at fast speed



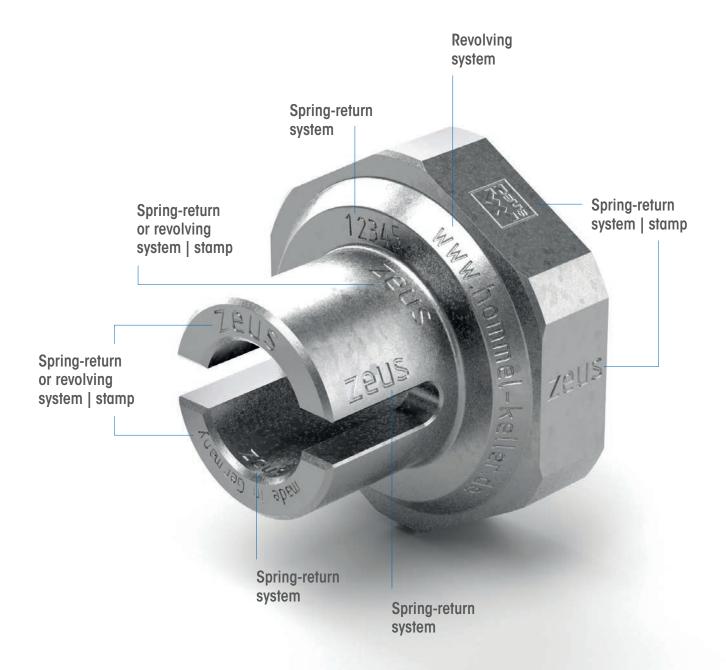


### **Applications**



# Where and how can workpieces be marked?

The example shows that you can mark at practically any position. Whether you require marking on spherical or conical surface, up to a shoulder, on end face or inner surface – zeus marking technology will satisfy your requirements.





### Overview



### Revolving marking system – with marking roll

| Tool n° | Marking<br>roll n° | Marking on<br>workpiece      | Marking<br>roll Ø<br>[mm] | Marking<br>roll width<br>[mm] | Shank size<br>[mm]   | Adaptable to shank size | Integrated centre height | Marking up<br>to a shoulder |
|---------|--------------------|------------------------------|---------------------------|-------------------------------|----------------------|-------------------------|--------------------------|-----------------------------|
| 130     | 40                 | Circumference                | Application-<br>specific  | Application-<br>specific      | Machine-<br>specific | -                       | -                        | -                           |
| 131     | 40                 | Circumference                | Application-<br>specific  | Application-<br>specific      | Machine-<br>specific | _                       | •                        | _                           |
| 311     | 40-K               | End face/<br>Conical surface | Application-<br>specific  | Application-<br>specific      | Machine-<br>specific | -                       | •                        | -                           |
| 312     | 40-K               | End face/<br>Conical surface | Application-<br>specific  | Application-<br>specific      | Machine-<br>specific | _                       |                          | _                           |

### Spring-return marking system – with marking roll

| Tool n° | Marking<br>roll n° | Marking on<br>workpiece                  | Marking<br>roll Ø<br>[mm] | Marking<br>roll width<br>[mm] | Shank size<br>[mm] | Adaptable to shank size | Integrated centre height | Marking up<br>to a shoulder |
|---------|--------------------|--|---------------------------|-------------------------------|--------------------|-------------------------|--------------------------|-----------------------------|
| 421     | 41                 | Circumference/<br>End face/<br>Flat face | 25                        | 6                             | 16                 | 20/25                   | •                        | -                           |
| 422     | 41                 | Circumference/<br>End face/<br>Flat face | 15                        | 5                             | 8                  | 10/12/16                | •                        | _                           |
| 422     | 41                 | Circumference/<br>End face/<br>Flat face | 15                        | 7                             | 8                  | 10/12/16                | •                        | •                           |

### Spring-return marking system – with marking segments

| Tool n° | Marking<br>segment<br>No. | Marking on<br>workpiece                  | Marking<br>segment Ø<br>[mm] | Segment<br>width<br>[mm] | Shank size<br>[mm] | Adaptable to shank size | Integrated centre height | Marking up<br>to the collar |
|---------|---------------------------|--|------------------------------|--------------------------|--------------------|-------------------------|--------------------------|-----------------------------|
| 431     | 42                        | Circumference/<br>End face/<br>Flat face | 45                           | 6                        | 16                 | 20/25                   | •                        | -                           |
| 432     | 43                        | Circumference/<br>End face/<br>Flat face | 30                           | 8                        | 8                  | 10/12/16                | •                        | •                           |
| 432     | 43                        | Circumference/<br>End face/<br>Flat face | 50                           | 8                        | 16                 | 20/25                   | •                        | -                           |





### Marking roll n° 40





#### **Benefits**

- Easy handling
- Fast and economical
- Suitable for series production
- Marking rolls can be easily exchanged
- All characters can be used as a drive, e.g. logos, backslash, asterisks, number signs, etc.

#### **Features**

- The design of marking roll n° 40 is dependent on the workpiece diameter
- A drive provides for perfect revolving application of the marking.

The lateral drives can be removed after marking

| Product features   |   | For<br>marking tools |  |  |
|--------------------|---|----------------------|--|--|
| Flank angle        | 90°                                     |                      |  |  |
| Roll width [mm]    | Application-specific                    |                      |  |  |
| Typeface           | According to DIN 1451                   | 130/131              |  |  |
| Additional details | See "Technology"<br>starting on page 20 |                      |  |  |

### Marking roll n° 40-K





#### **Benefits**

- Easy handling
- Fast and economical
- Suitable for series production
- Marking rolls can be easily exchanged
- All characters can be used as a drive, e.g. logos, backslash, asterisks, number signs, etc.

#### **Features**

- The design of marking roll n° 40-K is dependent on the pitch circle/marking diameter
- A drive provides for perfect revolving application of the marking

| Product features   |   | For<br>marking tools |  |
|--------------------|---|----------------------|--|
| Flank angle        | 90°                                     |                      |  |
| Roll width [mm]    | Roll width [mm] Application-specific    |                      |  |
| Typeface           | According to DIN 1451                   | 311/312              |  |
| Additional details | See "Technology"<br>starting on page 20 |                      |  |







### Tool n° 130/131



Ideal for all markings, with impressive ease of use

#### **Product features**

- Centre height must be adjusted (series 130)
- Top edge of shank = centre height (series 131)
- Set screws in shank for correcting alignment
- Carbide pin

The tool holders are custom designed for the marking roll for your application.

### Tool n° 311/312



Ideal for marking applications on conical surfaces and flat faces

#### **Product features**

- Top edge of shank = centre height
- Set screws in shank for correcting alignment
- Carbide bolts (series 311)
- Carbide pin (series 312)

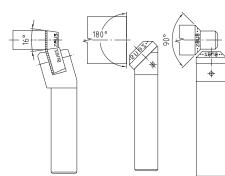
### Examples of applications for tool $n^{\circ}$ 311

- Marking on flat faces When applying the marking to a flat face, the calculated position of the pitch circle diameter must be taken into account
- Marking conical surfaces You must match the pitch circle diameter of the marking roll to the desired position on the workpiece

### Examples of applications for tool n° 312

Marking conical surfaces You must match the pitch circle diameter of the marking roll to the desired position on the workpiece

The tool holders are custom designed for the marking roll for your application.







### Marking roll n° 41



#### **Benefits**

- Especially versatile since it is independent of the workpiece diameter
- Marking is possible at high speed
- Change of the reading direction is possible (see operating manual)

#### ble at Centre height corresponds

to the first marking point

Marking positions can be set as desired

characters on workpiece

**Application** 

Precise positioning of

circumference

#### **Features**

- The design of marking roll n° 41 is independent of the workpiece diameter
- Three driving points guarantee a perfect impression. They may be placed to the side of the characters
- Full depth and definition are accomplished in one go
- All characters can be used as a drive, e.g. logos, backslash, asterisks, number signs, etc.

| Standard design                       |   | For<br>marking tools |
|---------------------------------------|---|----------------------|
| Flank angle                           | 90°                                     |                      |
| Dimensions<br>(Ø x width x bore) [mm] | 25 x 6 x 6                              | 421                  |
| Typeface                              | According to DIN 1451                   | 421                  |
| Max.<br>character height              | See "Technology"<br>starting on page 20 |                      |



Independent of the workpiece diameter; modular design for extra flexibility





### Tool set 421



#### **Product features**

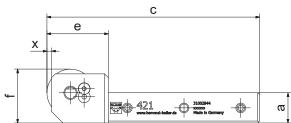
- Modular design: Tool can be used as right-hand and left-hand version
- Modular shank design: shank size 16 x 16 mm, adaptable
- Top edge of shank = centre height
- Set screws in shank for correcting alignment
- Hardened pin
- Right spring (pre-mounted) for spindle direction M3 (CW), see page 27

#### Set consisting of

- 1 x base shank (solid shank version) tool 421-16M
- 1 x shank adapter 20 x 20 mm
- 1 x shank adapter 25 x 25 mm
- 1 x spring, left (for changing the direction of rotation)
- In high-quality case

#### **TOOL SET**

| Order no. | Tool holder                   |    | Dimension [mm] |       |    |      |      |     |  |
|-----------|-------------------------------|----|----------------|-------|----|------|------|-----|--|
|           | designation                   | а  | b              | С     | d  | е    | f    | Χ   |  |
|           | 421-16M250606                 | 16 | 16             | 112.5 | 25 | 32.5 | 28.5 | 2.5 |  |
| 31002844  | With shank adapter 20 x 20 mm | 20 | 20             | 112.5 | 25 | 32.5 | 32.5 | 2.5 |  |
|           | With shank adapter 25 x 25 mm | 25 | 25             | 112.5 | 25 | 32.5 | 37.5 | 2.5 |  |



#### E-KIT

| Order no. | Direction |
|-----------|-----------|
| 21BHR1503 | right     |
| 21BHR1504 | left      |









### Marking roll n° 41



#### **Benefits**

- Especially versatile since it is independent of the workpiece diameter
- Marking is possible at high speed

#### **Features**

- The design of marking roll n° 41 is independent of the workpiece diameter
- Three driving points guarantee a perfect impression. They may be placed to the side of the characters
- Full depth and definition are accomplished in one go
- All characters can be used as a drive, e.g. logos, backslash, asterisks, number signs, etc.

#### **Application**

- Precise positioning of characters on workpiece circumference
- Centre height corresponds to first marking point
- Marking positions can be set as desired
- Possible to mark workpieces up to a shoulder

| Standard design  |                                      | For<br>marking tools |
|--|--------------------------------------|----------------------|
| Flank angle  | 90°                                  |                      |
| Dimensions 15 x 5 x 6 (Ø x width x bore) [mm] 15 x 7 x 6 |                                      | 422                  |
| Typeface   | According to DIN 1451                | 422                  |
| Max.<br>character height                                 | See "Technology" starting on page 20 |                      |



Ideal for lathes with limited space; enables marking directly at a shoulder





### Tool set 422



#### **Product features**

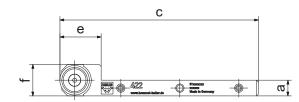
- Modular shank design: shank size 8 x 8 mm, adaptable
- Top edge of shank = centre height
- Set screws in shank for correcting alignment
- Possible to mark workpieces up to a shoulder (for 15 x 7 x 6 mm marking roll)
- Hardened pin
- Right spring (pre-mounted) for spindle direction M3 (CW), see page 27

#### Set consisting of

- 1 x base shank (solid shaft version) tool 422-08R
- 1 x shank adapter 10 x 10 mm
- 1 x shank adapter 12 x 12 mm
- 1 x shank adapter 16 x 16 mm
- In high-quality case

#### **TOOL SET**

| Order no. | Tool holder                   |    | mens | sion [m | nm] |    |    |   |
|-----------|-------------------------------|----|------|---------|-----|----|----|---|
|           | designation                   | а  | b    | С       | d   | е  | f  | Χ |
|           | 422-08R150506-A               | 8  | 8    | 101     | 24  | 21 | 16 | 1 |
| 31002843  | With shank adapter 10 x 10 mm | 12 | 12   | 101     | 24  | 21 | 18 | 1 |
| 31002043  | With shank adapter 12 x 12 mm | 12 | 12   | 101     | 24  | 21 | 20 | 1 |
|           | With shank adapter 16 x 16 mm | 16 | 16   | 101     | 24  | 21 | 24 | 1 |



#### E-KIT

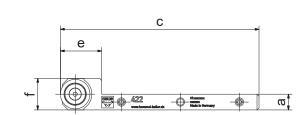
| Order no. | Direction |  |
|-----------|-----------|--|
| 21BHR1505 | right     |  |

Set and E-kit also available in I/h version on request

# The state of the s

#### TOOL SET UP TO A SHOULDER

| Order no. | Tool holder                   |    | Dimension [mm] |     |      |    |    |   |  |
|-----------|-------------------------------|----|----------------|-----|------|----|----|---|--|
|           | designation                   | а  | b              | С   | d    |    | f  | Χ |  |
|           | 422-08R150706                 | 8  | 8              | 101 | 24.5 | 21 | 16 | 1 |  |
| 21002044  | With shank adapter 10 x 10 mm | 10 | 10             | 101 | 24.5 | 21 | 18 | 1 |  |
| 31002846  | With shank adapter 12 x 12 mm | 12 | 12             | 101 | 24.5 | 21 | 20 | 1 |  |
|           | With shank adapter 16 x 16 mm | 16 | 16             | 101 | 24.5 | 21 | 24 | 1 |  |



#### E-KIT

| Order no. | Direction |
|-----------|-----------|
| 21BHR1507 | right     |

100

0.5 mm d

(13)

Set and E-kit also available in I/h version on request





### Marking segment n° 42



#### **Benefits**

- Especially versatile, since it is independent of the workpiece diameter
- Exchangeable segments enable fast, flexible, and economical adaptation of the text for different applications
- Marking is possible at high speed
- Change of the reading direction is possible (see operating manual)
- Exchangeable segment mount unit for faster switching to a different text

- Segments can be exchanged individually
- Full depth and definition are accomplished in one go
- All characters can be used as a drive, e.g. logos, backslash, asterisks, number signs, etc.

#### **Application**

- Precise positioning of characters on workpiece circumference
- Centre height corresponds to first marking point
- Marking positions can be set as desired

#### **Features**

- The design of marking segment n° 42 is independent of the workpiece diameter
- Three driving points guarantee a perfect impression.
   They may be placed to the side of the characters
- Marking without driving points is generally possible

| Standard design                       |                                      | For<br>marking tools |
|---------------------------------------|--------------------------------------|----------------------|
| Flank angle                           | 90°                                  |                      |
| Dimensions<br>(Ø x width x bore) [mm] | 45 x 6 x 33                          | 431                  |
| Typeface                              | According to DIN 1451                | 431                  |
| Max.<br>character height              | See "Technology" starting on page 20 |                      |

| Order no.<br>character height<br>2 mm | Order no.<br>character height<br>3 mm | Segments<br>designation     |  |  |
|---------------------------------------|---------------------------------------|-----------------------------|--|--|
| 82000067                              |                                       | Start segment               |  |  |
| 82002237                              | 82002300                              | Letter set A-Z              |  |  |
| 82000441                              | 82000378                              | Numeral set 0-9             |  |  |
| 82000433                              | 82000041                              | Special character . (dot)   |  |  |
| 82000879                              | 82002230                              | Special character/(slash)   |  |  |
| 82000416                              | 82000040                              | Special character – (minus) |  |  |
| 82000065                              |                                       | End segment                 |  |  |



Impressive freedom of marking; modular design for extra flexibility





### Tool set 431



#### **Product features**

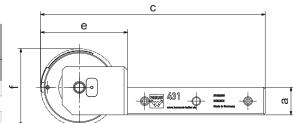
- Modular design:
   Tool can be used as right-hand and left-hand version
- Modular shank design: shank size 16 x 16 mm, adaptable
- Top edge of shank = centre height
- Set screws in shank for correcting alignment
- Hardened pin
- Right spring (pre-mounted) for spindle direction M3 (CW), see page 27

#### Set consisting of

- 1 x base shank (solid shank version) tool 431-16M
- 1 x shank adapter 20 x 20 mm
- 1 x shank adapter 25 x 25 mm
- 1 x spring, left (for changing the direction of rotation)
- 1 x start and end segment
- In high-quality case

#### **TOOL SET**

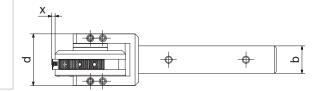
| Order no. | Order no. Tool holder         |    | Dimension [mm] |       |    |      |      |   |  |
|-----------|-------------------------------|----|----------------|-------|----|------|------|---|--|
|           | designation                   | а  | b              | С     | d  | е    |      | Χ |  |
|           | 431-16M450633-A               | 16 | 16             | 130.5 | 30 | 50.5 | 45   | 2 |  |
| 31002845  | With shank adapter 20 x 20 mm | 20 | 20             | 130.5 | 20 | 50.5 | 45   | 2 |  |
|           | With shank adapter 25 x 25 mm | 25 | 25             | 130.5 | 20 | 50.5 | 47.5 | 2 |  |



#### E-KIT

| Order no. | Direction |
|-----------|-----------|
| 21BHR1509 | right     |
| 21BHR1510 | left      |









### Marking segment n° 43



#### **Benefits**

- Especially versatile, since it is independent of the workpiece diameter
- Exchangeable segments enable fast, flexible, and economical adaptation of the text for different applications
- Marking is possible at high speed
- Reading direction can be changed by turning the T-shaped segments
- Possible to mark workpieces up to a shoulder
- Exchangeable segment mount unit for faster switching to a different text

#### **Features**

- The design of marking segment  $n^{\circ}$  43 is independent of the workpiece diameter
- Three driving points guarantee a perfect impression. They may be placed to the side of the characters
- Marking without driving points is generally possible
- Segments can be exchanged individually
- Full depth and definition are accomplished in one go
- All characters can be used as a drive, e.g. logos, backslash, asterisks, number signs, etc.

#### **Application**

- Precise positioning of characters on workpiece circumference
- Centre height corresponds to first marking point
- Marking positions can be set as desired

| Standard design                       | Standard design                      |     |  |  |
|---------------------------------------|--------------------------------------|-----|--|--|
| Flank angle                           | 90°                                  |     |  |  |
| Dimensions<br>(Ø x width x bore) [mm] | 30 x 8 x 18<br>50 x 8 x 38           | 432 |  |  |
| Typeface                              | According to DIN 1451                | 432 |  |  |
| Max.<br>character height              | See "Technology" starting on page 20 |     |  |  |

#### **SEGMENTS Ø 30**

| Order no.<br>character height<br>2 mm | Order no.<br>character height<br>3 mm | Segments<br>designation     |
|---------------------------------------|---------------------------------------|-----------------------------|
| 8500                                  | 00000                                 | Start segment               |
| 85001018                              | 85001139                              | Letter set A-Z              |
| 85000991                              | 85000621                              | Numeral set 0-9             |
| 85001019                              | 85002485                              | Special character . (dot)   |
| 85001059                              | 85001537                              | Special character/(slash)   |
| 85001654                              | 85001257                              | Special character – (minus) |
| 8500003                               |                                       | End segment                 |

#### **SEGMENTS Ø 50**

| Order no.<br>character height<br>2 mm | Order no.<br>character height<br>3 mm | Segments<br>designation     |  |  |
|---------------------------------------|---------------------------------------|-----------------------------|--|--|
| 850                                   | 00113                                 | Start segment               |  |  |
| 85001819                              | 85001283                              | Letter set A-Z              |  |  |
| 85001431                              | 85000476                              | Numeral set 0-9             |  |  |
| 85002486                              | 85002487                              | Special character . (dot)   |  |  |
| 85001857                              | 85001131                              | Special character/(slash)   |  |  |
| 85001912                              | 85001600                              | Special character – (minus) |  |  |
| 85000114                              |                                       | End segment                 |  |  |

### Freedom in text design and reading direction





### Tool set 432



#### **Product features**

- Modular shank design: shank size 8 x 8 mm and 16 x 16 mm, adaptable
- Top edge of shank = centre height
- Set screws in shank for correcting alignment
- Hardened pin
- Right spring (pre-mounted) for spindle direction M3 (CW), see page 27

#### Set consisting of

#### Tool 432-08R

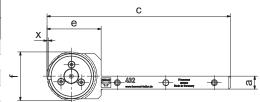
- 1 x base shank (solid shank version) tool 432-08R
- 1 x shank adapter 10 x 10 mm
- 1 x shank adapter 12 x 12 mm
- 1 x shank adapter 16 x 16 mm
- 1 x start and end segment
- In high-quality case

#### Tool 432-16R

- 1 x base shank (solid shank version) tool 432-16R
- 1 x shank adapter 20 x 20 mm
- 1 x shank adapter 25 x 25 mm
- 1 x start and end segment
- In high-quality case

#### **TOOL SET**

| Order no. | Tool holder<br>designation    | Dimension [mm] |    |       |      |      |    |   |
|-----------|-------------------------------|----------------|----|-------|------|------|----|---|
|           |                               | а              | b  | С     | d    | е    | f  | Χ |
|           | 432-08R300818                 | 8              | 8  | 113.5 | 31.5 | 33.5 | 30 | 1 |
| 31002833  | With shank adapter 10 x 10 mm | 10             | 10 | 113.5 | 31.5 | 33.5 | 30 | 1 |
| 31002033  | With shank adapter 12 x 12 mm | 12             | 12 | 113.5 | 31.5 | 33.5 | 30 | 1 |
|           | With shank adapter 16 x 16 mm | 16             | 16 | 113.5 | 31.5 | 33.5 | 31 | 1 |



#### E-KIT

| Order no. | Direction |
|-----------|-----------|
| 21BHR1081 | right     |

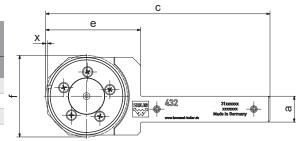




Set and E-kit also available in I/h version on request

#### **TOOL SET**

| Order no. | Order no.                     | Tool holder                   | Dimension [mm] |       |       |      |      |    |   |  |
|-----------|-------------------------------|-------------------------------|----------------|-------|-------|------|------|----|---|--|
|           | designation                   | а                             | b              | С     | d     | е    | f    | Χ  |   |  |
|           |                               | 432-16R500838                 | 16             | 16    | 138.5 | 31.5 | 58.5 | 50 | 1 |  |
| 31002849  | With shank adapter 20 x 20 mm | 20                            | 20             | 138.5 | 31.5  | 58.5 | 50   | 1  |   |  |
|           |                               | With shank adapter 25 x 25 mm | 25             | 25    | 138.5 | 31.5 | 58.5 | 50 | 1 |  |



#### E-KIT

| Order no. | Direction |     |              |  |
|-----------|-----------|-----|--------------|--|
| 21BHR1111 | right     | σ σ | <del>-</del> |  |

Set and E-kit also available in I/h version on request





# Engraving technology







### Rolls | embossing drums



#### **Marking rolls**

Marking optionally with raised or recessed lettering

#### **Embossing drums**

- Embossing and printing of various materials, such as leather and textiles
- Marking optionally with raised or recessed lettering

#### **Hand stamps**

- Marking of various materials for identification, numbering or decoration
- Your individual logos and symbols are manufactured exactly to your specifications

#### **Machine stamps**

- Embossing of all types of materials
- Shank end suitable for journal, groove or square holder
- Production is based on your requirements and drawings

#### Special engraving

■ For marking of complex surfaces we will be glad to develop an individual solution. Based on your data and drawings we will develop and deliver the right tool, also for exceptionally complex applications





# Technology



Visit www.hommel-keller.de for video clips about marking technology.
Our marking tools will convince you!



### Important information





#### **Guidelines for process parameters**

| System        | Material                                     | Workpiece Ø | Speed n [rpm]                              | Feed rate, radial<br>f [mm/U]  | Impression depth (PT)<br>a <sub>p</sub> value [mm]* |
|---------------|--|-------------|--|--|---|
| Revolving     | up to max. $R_{\rm m} = 1000 \text{ N/mm}^2$ | Any         | 200  | 0.08   | r = 0.075<br>$\emptyset = 0.15$                     |
| Spring-return | up to max. $R_{m} = 1000 \text{ N/mm}^{2}$   | Any         | 200<br>Unwinding via C-axis<br>is possible | f = d x π<br>(d = workpiece<br>diameter)<br>High speed (possible<br>with restrictions) | r = 0.075<br>Ø = 0.15                               |



The values provided here are recommendations (base values) and must be optimised for the application.

\* The impression depth must always be greater than the concentricity (Ø 0.03 mm).

The embossing quality and the wear of the marking rolls/segments is dependent on:

- the combination of workpiece diameter and speed
- the feed rate
- the material
- and the application (e.g. clamping set-up single- or double-sided)

Surfaces for marking must be clean (free of surface contaminants) to ensure optimal driving of the segments and the marking roll. When marking in axial direction – spindle stop (speed = 0), feed rate in axial direction = feed rate in radial direction.

### Spring-return system – start-up when stopped

- 1. Spindle at standstill
- 2. Infeed of tool to desired impression depth
- 3. Run spindle slowly
- 4. Return of tool

### Explanation of tool holder designation



\* L = I/h design M = modular design

### Explanation of marking roll designation



#### Shank adapter





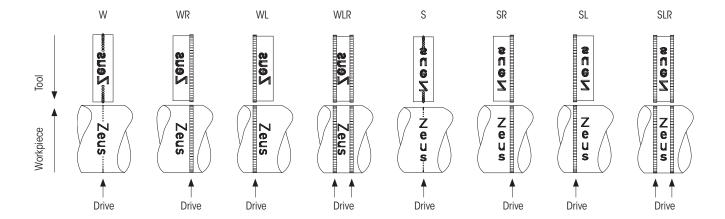
With the modular tool sets 421 and 431 the adapter is used to change the shank size asymmetrically.



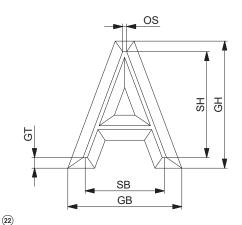


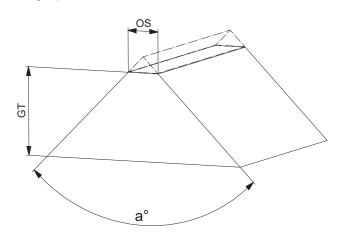
### Marking roll specifications

- 1. Typefaces
- The standard typeface is based on DIN 1451 (Other typefaces available on request)
- A .dxf file is needed for logos and special characters
- 2. Possible marking types | drives
- To ensure continuous rotation of the tool, a drive is needed, which can be custom designed (logo, backslash, asterisks, number signs, etc.) and removed by means of reworking (cutting off, finish machining, bevelling, etc.)



- 3. Character height/ embossing depth
- The standard flank angle is 90° (Other flank angles available on request)
- Minimum character height: 0.8 mm
- Maximum character height: Depending on the roll width all standard sizes are possible
- The character height is measured on the offset (see figure below)
- Standard embossing depth: 0.35 mm





 $a^{\circ}$  = flank angle

GT = embossing depth

GB = embossing width

GH = embossing height

SB = character width

SH = character height

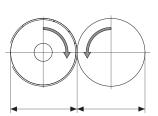
OS = offset





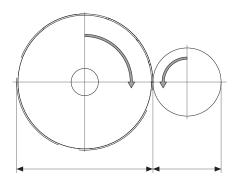


4. Diameter ratio: Marking roll – workpiece ■ The diameter of the marking roll is dependent on the workpiece diameter



Marking roll  $\emptyset$  : Workpiece  $\emptyset$  i = 1 : 1

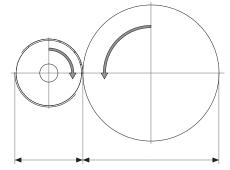
i = 1



Marking roll Ø: Workpiece Ø

i = n : 1

i > 1



Marking roll  $\emptyset$ : Workpiece  $\emptyset$ 

i = 1:n

i < 1

### Practical guidance

- 1. Preparation of workpiece
- The surface must be clean
- Perfect concentricity is essential (0.03 mm)
- The diameter of the workpiece must be very precise (max. tolerance: +/- 0.025 mm)
- 2. Impression depth
- The standard impression depth is 0.075 mm relative to the radius/ 0.15 mm relative to the diameter
- Impression depths exceeding the recommended maximum values may cause character distortions
- 3. Marking as part of the machining process
- The position of the drive on the workpiece should be taken into account during the machining process
- There is a danger that weak parts of the workpiece are deformed during marking.

We recommend marking to be carried out on the strong parts of the workpiece and/or before the critical machining steps





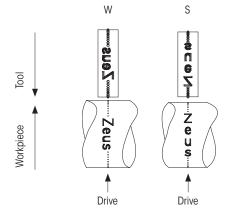
### Specification of the marking roll/segments

#### 1. Typefaces

- The standard typeface is based on DIN 1451 (Other typefaces available on request)
- A .dxf file is needed for logos and special characters

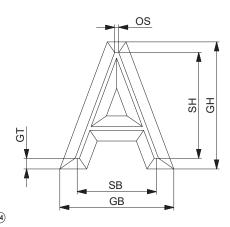
### 2. Possible marking types | drives

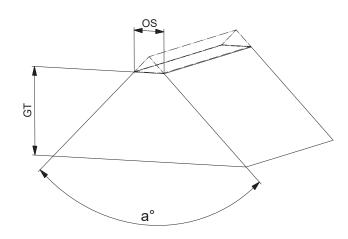
- In the standard version the drive is positioned on the centre of the marking roll/marking segment
- On request, the drive, which can be custom designed (logo, backslash, asterisks, number signs, etc.), can be applied to the side of the characters and removed afterwards by reworking (cutting off, finish machining, bevelling, etc.)



#### 3. Character height/ embossing depth

- The standard flank angle is 90° (Other flank angles available on request)
- Minimum character height: 0.8 mm
- Maximum character height: Segment width 1 mm (Example: max. character height = 6 mm 1 mm = 5 mm)
- The character height is measured on the offset (see figure below)
- Standard embossing depth: 0.35 mm





 $a^{\circ}$  = flank angle

GT = embossing depth

GB = embossing width

GH = embossing height

SB = character width

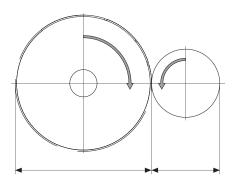
SH = character height

OS = offset





4. Diameter ratio: Roll/segments – workpiece ■ The diameter of the marking roll/segments is **independent** of the workpiece diameter



Marking segment Ø:

i = n : m

### Practical guidance

- 1. Preparation of workpiece
- The surface must be clean
- Perfect concentricity is essential (0.03 mm)

- 2. Impression depth
- The standard impression depth is 0.075 mm relative to the radius/ 0.15 mm relative to the diameter
- Impression depths exceeding the recommended maximum values may cause character distortions
- 3. Marking as part of the machining process
- The position of the drive on the workpiece should be taken into account during the machining process
- There is a danger that weak parts of the workpiece are deformed during marking. We recommend marking to be carried out on the strong parts of the workpiece and/or before the critical machining steps





Company

#### **RSVP Tooling, Inc.**

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www.rsvptooling.com



| -  | Post Code, City  |              |  |  |
|--|--|--------------|--|--|
|  | Contact person   |              |  |  |
| quiry  | Tel./email   |              |  |  |
| quiry  | Number of marking rolls  |              |  |  |
| This form is available   | Application Cylindrical roll Tapered roll  |              |  |  |
| for download at<br>www.hommel-keller.de  | W WR WL WLR S SR SL S  | SLR          |  |  |
| Caution: For implementation of a logo or special character we reserve the right to add an extra charge to the invoice. Please provide us with the corresponding .dxf file. | Sens Zens Xens Xens Xens Xens Xens Xens Xens X   | Zeus<br>808Z |  |  |
|  | Workpiece diameter Width of marking roll Bore of marking roll                          |              |  |  |
|  | Logo   |              |  |  |
|  | ☐ Text   |              |  |  |
|  | 1. Line:   |              |  |  |
|  | 2. Line:   |              |  |  |
| Please include   | 3. Line:   |              |  |  |
| a drawing of the<br>workpiece  | Character height Typeface DIN 1451 Other   |              |  |  |
| νοικρισσο  | Drive  |              |  |  |
|  | Pitch: Standard 0.8 mm If no specifications are provide for the drive, we will use the | ed           |  |  |
|  | Width: Standard 1.0 mm Hommel+Keller standard.   |              |  |  |
| zeus – a brand name  | Tool holder Yes No Tool Right Left Version   |              |  |  |
| of Hommel+Keller   | Number of tool holders Shank size  |              |  |  |
| THOMMEL PRÄZISIONSWERKZEUGE  | Comment  |              |  |  |
| Hommel+Keller  |  |              |  |  |
| Präzisionswerkzeuge GmbH<br>78554 Aldingen · Germany   |  |              |  |  |
| Tel. +49 7424 9705-0<br>info@hommel-keller.de  |  |              |  |  |
| www.hommel-keller.de   |  |              |  |  |





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# Inquiry

This form is available for download at www.hommel-keller.de

Caution: For implementation of a logo or special character we reserve the right to add an extra charge to the invoice. Please provide us with the corresponding .dxf file.

| Company                |               |                           |        |      |      |
|------------------------|---------------|---------------------------|--------|------|------|
| Post Code, City        |               |                           |        |      |      |
| Contact person         |               |                           |        |      |      |
| Tel./email             |               |                           |        |      |      |
| Number of marking      | g rolls       | Quantity of tool          | sets   |      |      |
| Tool set               | 421 422       | 431                       | 432    |      |      |
| Marking roll/ segments | Ø 25 Ø 15x5x6 | Ø 15x7x6 up to the collar | Ø 45   | Ø 30 | Ø 50 |
| Logo                   |               |                           |        |      |      |
| Text                   | Text position | Centred                   | Offset |      |      |
| 1. Line:               |               |                           |        |      |      |
| 2. Line:               |               |                           |        |      |      |
| 3. Line:               |               |                           |        |      |      |
| Character height       | Typeface      | DIN 1451                  | Other  |      |      |
| 22.00.00.9111          | 1,700,000     |                           |        |      |      |



#### zeus – a brand name of Hommel+Keller



PRÄZISIONSWERKZEUGE

Comment

#### Hommel+Keller

Präzisionswerkzeuge GmbH 78554 Aldingen · Germany Tel. +49 7424 9705-0 info@hommel-keller.de www.hommel-keller.de

| Application A  | Application B  |  |  |  |
|--|--|--|--|--|
| Rotation  Direction of rotation M3 Direction of rotation M4 CCW)                                 | Rotation  Direction of rotation M3 Direction of rotation M4 (CCW)                                  |  |  |  |
| Selecting a mount  | Selecting a mount  |  |  |  |
| Working spindle/ chuck main spindle  Selection for I/h mount  Selection for I/h mount  Workpiece | r/h mount  Reading direction  Selection for r/h mount  Working spindle/chuck main spindle  4 3 2 1 |  |  |  |
| Selection for r/h mount  | Selection for   OOOO   I/h mount   8 7 6 5   |  |  |  |
|  | <del> </del>   |  |  |  |
| Selecting a mount  | Selecting a mount  |  |  |  |
| r/h mount  | I/h mount  |  |  |  |





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