The Three-S Promise:
Superior Standards & Services!

Measuring pin catalogue

- Measuring pins
- Measuring pin sets
- Storage cases
- Test Certificates
- Magnetic measuring pins

DREI-S-WERK

PRECISION STANDARD TOOLS
PINNING SYSTEMS
DREI-S-technologies
DREI-S measuring pins are high-precision testing instruments with a tolerance of ± 1μm in tolerance class I. Boasting excellent reliability and hard-wearing qualities, they are ideal for use in quality assurance, in stock receipt control and in manufacturing processes. They are simple to use and very suitable for measurement tests on work pieces in manufacture, e.g. for testing bore holes on jig boring machines and/or on jig milling machines.

Our many years of experience, continuous investment in complex manufacturing plants and high-precision, PC-networked quality control plants guarantee the quality of DREI-S measuring pins, which hold a leading position in the European market.

DREI-S measuring pins are particularly suitable for the measurement of even the smallest bore holes. In contrast to expensive internal measuring instruments, their length offers a significant advantage: deep bore holes can be measured not only for their dimensional accuracy but also for their linearity and angularity.

DREI-S measuring pins can also be used for the measurement of angularity, distances between holes, dovetail guides, profile depths, guide surfaces and groove measurements. In addition, they are suitable as adjustment controllers for a wide variety of measuring instruments such as micrometers, dial gauges, as well as go / no–go gauges.

DREI-S measuring pins are manufactured from gauge steel, hardness 60 – 64 HRC in accordance with DIN 2269, and tested at a temperature of 20° C ± 1° C.

DREI-S measuring pin holders allow the straightforward creation of individual go / no–go gauges, whereby two measuring pins are placed in the holder to serve as the upper and lower limit of a given tolerance range.

Here you can see some illustrations of some of the applications already implemented.
MEASURING PINS

DREI-S measuring pins are ideal for use as calibrating pins, as well to complement or expand incomplete pin sets.

**Nominal diameter**
- Standard dimensions from Ø 0.10 – 25.00 mm

**Accuracy in accordance with DIN 2269**
- Tolerance class I = ± 0.001 mm
- Tolerance class II = ± 0.002 mm

**Grading**
- As standards, increasing by 0.01 mm
- Customised grading available on request

**Material in accordance with DIN 2269**
- Calibrated steel with hardness of 60-64 HRC, aged

**Longitudinal expansion coefficient**
- \((11.5 \pm 1) \times 10^{-6} \times K^{-1}\)

**Reference temperature in accordance with DIN 102**
- 20° C ±1° C

**Length including chamfer**
- from Ø 0.10 – 0.99 mm: 40 mm
- from Ø 1.00 – 25.00 mm: 70 mm

**Deviation**
- For pins between Ø 0.10 - 0.49 mm a 1/1000 mm grading is also possible
- Standard length l = 30 mm
- Tolerance class 0 = ± 0.0005 mm

**Chamfer (see following sketches)**
- from Ø 0.10 – 0.99 mm both ends plain
- from Ø 1.00 – 10.00 mm one end bevelled
- from Ø 10.01 – 25.00 mm both ends bevelled

**Size and shape of bevelling in accordance with DIN 2269; serves as protection against damage and makes insertion easier**

**Labelling**
- from Ø 0.10 – 1.49 mm unlabelled
- from Ø 1.50 – 2.99 mm labelling on centre of testing surface *)
- from Ø 3.00 – 10.00 mm labelling on sharp-edged front surface
- from Ø 10.01 – 25.00 mm labelling on a front surface

**The tolerance class is not specified**

**Roundness**
- Tolerance class I und II ≤ 1 μm

**Surface roughness given in Rz, in accordance with DIN 4768**
- Tolerance class I und II ≤ 1 μm
- Other surfaces in accordance with DIN 2269

*) **CAUTION:**
- Because of possible enlargement in diameter, do not test above the marks!
DREI-S measuring pin sets are available in tolerance class I = ± 0.001 mm or II = ± 0.002 mm in the diameter range of 0.10 – 25.00 mm Ø, with a standard grading of 0.01 mm. The measuring pins are supplied in high-quality storage cases. Each pin is positioned individually in a high-quality plastic plate by means of bore holes which are sized to fit the pin diameter and labelled appropriately.

We supply 30 standard sets of measuring pins „from stock“. Each set is available in two tolerance classes.

The storage cases are available in 3 sizes. The appropriate size is determined by the content, i.e. according to the number of items and their diameter.

Customised gradings are also available by special order.
<table>
<thead>
<tr>
<th>Set No.</th>
<th>Sets</th>
<th>Storage cases</th>
<th>Size</th>
<th>Contents (pcs.)</th>
<th>Diameter size in mm</th>
<th>Grading in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1 B</td>
<td>20</td>
<td>1.00 – 20.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1 B</td>
<td>40</td>
<td>0.50 – 20.00</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1 A</td>
<td>41</td>
<td>1.00 – 5.00</td>
<td>1.00</td>
<td>0.10</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1 A</td>
<td>50</td>
<td>5.10 – 10.00</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1 B</td>
<td>91</td>
<td>1.00 – 10.00</td>
<td>1.05 – 10.05</td>
<td>0.10</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>1 B</td>
<td>91</td>
<td>1.05 – 10.05</td>
<td>1.00 – 20.00</td>
<td>0.10</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>3 B</td>
<td>100</td>
<td>10.10 – 20.00</td>
<td>1.00 – 20.00</td>
<td>0.10</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>4 B</td>
<td>191</td>
<td>1.00 – 20.00</td>
<td>0.50 – 5.00</td>
<td>0.05</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>1 B</td>
<td>91</td>
<td>0.50 – 5.00</td>
<td>1.00 – 5.00</td>
<td>0.05</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>1 B</td>
<td>81</td>
<td>5.05 – 10.00</td>
<td>5.05 – 10.00</td>
<td>0.05</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>1.00 – 10.00</td>
<td>1.00 – 10.00</td>
<td>0.05</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>2 B</td>
<td>181</td>
<td>2.02 – 4.00</td>
<td>2.02 – 4.00</td>
<td>0.02</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>1 B</td>
<td>76</td>
<td>4.02 – 6.00</td>
<td>4.02 – 6.00</td>
<td>0.02</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>6.02 – 8.00</td>
<td>6.02 – 8.00</td>
<td>0.02</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>8.02 – 10.00</td>
<td>8.02 – 10.00</td>
<td>0.02</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>5 B</td>
<td>451</td>
<td>1.00 – 10.00</td>
<td>1.00 – 10.00</td>
<td>0.02</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>1 A</td>
<td>51</td>
<td>0.50 – 1.00</td>
<td>0.50 – 1.00</td>
<td>0.01</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>1 B</td>
<td>101</td>
<td>1.00 – 2.00</td>
<td>1.00 – 2.00</td>
<td>0.01</td>
</tr>
<tr>
<td>19</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>2.01 – 3.00</td>
<td>2.01 – 3.00</td>
<td>0.01</td>
</tr>
<tr>
<td>20</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>3.01 – 4.00</td>
<td>3.01 – 4.00</td>
<td>0.01</td>
</tr>
<tr>
<td>21</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>4.01 – 5.00</td>
<td>4.01 – 5.00</td>
<td>0.01</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>5.01 – 6.00</td>
<td>5.01 – 6.00</td>
<td>0.01</td>
</tr>
<tr>
<td>23</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>6.01 – 7.00</td>
<td>6.01 – 7.00</td>
<td>0.01</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>7.01 – 8.00</td>
<td>7.01 – 8.00</td>
<td>0.01</td>
</tr>
<tr>
<td>25</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>8.01 – 9.00</td>
<td>8.01 – 9.00</td>
<td>0.01</td>
</tr>
<tr>
<td>26</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>9.01 – 10.00</td>
<td>9.01 – 10.00</td>
<td>0.01</td>
</tr>
<tr>
<td>27</td>
<td>1</td>
<td>1 B</td>
<td>100</td>
<td>1.00 – 10.00</td>
<td>1.00 – 10.00</td>
<td>0.10*</td>
</tr>
<tr>
<td>29*</td>
<td>1</td>
<td>1 C</td>
<td>273</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*in addition, for each nominal diameter, a test pin is included with + 0.01 overdimension and – 0.01 underdimension.
DREI-S storage cases protect the measuring pins and at the same time enable a clear storage system. They are available in 3 sizes with a bore hole depth corresponding to the length of DREI-S measuring pins.

**Design:**
- Wooden frame in black enamel.
- Black plastic retaining panel with bore holes.
- Labelling on all bore holes to show diameter sizes.
- Tolerance class is specified on the plate.
External dimensions/capacity

Size A
Small storage case
L approx. 175 mm, W approx. 155 mm, H approx. 84 mm

Capacity
55 measuring pins 0.10 – 0.99 mm Ø
50 measuring pins 1.00 – 6.99 mm Ø
25 measuring pins 7.00 – 13.00 mm Ø

Size B
Standard storage case
L approx. 325 mm, W approx. 155 mm, H approx. 84 mm

Capacity
100 measuring pins 0.10 – 10.00 mm Ø
55 measuring pins 10.01 – 14.99 mm Ø
36 measuring pins 15.00 – 19.99 mm Ø
21 measuring pins 20.00 – 25.00 mm Ø

Size C
Large storage case
With special dimensions, L approx. 415 mm, W approx. 325 mm, H approx. 84 mm

Capacity
according to diameter,
up to 300 measuring pins
Replaceable PLASTIC HANDLES and METAL HOLDERS for measuring pins

Metal pin holders made of zinc die casting

DREI-S measuring pin holders allow the straightforward creation of individual goods/spoilage calibres, whereby two measuring pins are placed in the holder to serve as the upper and lower limit of a given tolerance range. The measuring pin holders are available in 5 sizes.

### Plastic handles

The use of thin measuring pins may result in the pins heating up. Under these circumstances, the rated dimensions can no longer be guaranteed. Measuring pins with a diameter range of Ø 0.40 to 5.30 mm may be supplied with replaceable plastic handles.

<table>
<thead>
<tr>
<th>Size of holder</th>
<th>Span range</th>
<th>Length of holder</th>
<th>Length of span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 1</td>
<td>1 - 2 mm</td>
<td>approx. 60 mm</td>
<td>approx. 26 mm</td>
</tr>
<tr>
<td>Size 2</td>
<td>2 - 4 mm</td>
<td>approx. 68 mm</td>
<td>approx. 30 mm</td>
</tr>
<tr>
<td>Size 3</td>
<td>4 - 6 mm</td>
<td>approx. 76 mm</td>
<td>approx. 33 mm</td>
</tr>
<tr>
<td>Size 4</td>
<td>6 - 8 mm</td>
<td>approx. 84 mm</td>
<td>approx. 35 mm</td>
</tr>
<tr>
<td>Size 5</td>
<td>8 - 10 mm</td>
<td>approx. 92 mm</td>
<td>approx. 37 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Handle length</th>
<th>Span range</th>
<th>Diameter of handle</th>
<th>Length of handle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 1</td>
<td>0.40 – 0.80 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 2</td>
<td>0.80 – 1.30 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 3</td>
<td>1.30 – 1.80 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 4</td>
<td>1.80 – 2.30 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 5</td>
<td>2.30 – 2.80 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 6</td>
<td>2.80 – 3.30 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 7</td>
<td>3.30 – 3.80 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 8</td>
<td>3.80 – 4.30 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 9</td>
<td>4.30 – 4.80 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
<tr>
<td>Size 10</td>
<td>4.80 – 5.30 mm</td>
<td>approx. 8 mm</td>
<td>approx. 14 mm</td>
</tr>
</tbody>
</table>
CERTIFICATES OF
ACCURACY

The following certificates of accuracy
can be issued for measuring pins

Certificate of accuracy no. 1 (free of charge)
General confirmation that the diameters of the measuring pins are in accordance with tolerance class I or II of DIN 2269.
Surface roughness and roundness ≤ 1 μm.

Certificate of accuracy no. 2* (at extra charge)
Each measuring pin is listed and classified in a table showing rated and actual diameter.
e.g. rated Ø 2.30 act. Ø 2.2998 Tol. I
rated Ø 2.35 act. Ø 2.3502 Tol. I
Surface roughness and roundness ≤ 1μm.

Certificate of accuracy no. 3* (at extra charge)
Each measuring pin is listed in a table showing both rated and actual diameter, and measured roughness and roundness.
e.g. rated Ø 2.30 act. Ø 2.2998 rgh. 0.65 rd. 0.75
rated Ø 2.35 act. Ø 2.350 rgh. 0.50 rd. 0.60
Surface roughness and roundness ≤ 1μm

In all our certificates of accuracy you can find directions to DKD (German Calibration Laboratory) or PTB (Physical-Technical Institute of Germany) for the return of the measuring tools.

Certificate of accuracy

Issued on: 20.08.03
Certificate no.: 3020/9/ „Year”
Order no.: 402008
For: Smith & Co KG
91126 Schwabach

Test item: Measuring pin set rated 0.500 – 5.000 mm
Tolerance class: II ± 0.002 mm Reference temperature according to DIN 102 → 20° C ± 1° C
Test instrument length: KLM – 60.01 DKD Calibration no. 0526/01/03 and 0527/01/03
Measuring deviation: (± 0.2 + 2 x L/100) μm, L given in mm
Reference pins: No. 2989 PTB 99
No.: 0733 DKD-K-00303-04-03
Roundness no.: 87707 DKD 12653-99
Roughness no.: 0427 RNDH 2 n. EN 814 003 PTB 03

Certificate of accuracy no. 4 (price according to scope of test)
If required, all measuring pins can be certified by an external, DKD-approved test laboratory.

*) for measuring pins of less than 0.50 mm, only certificate no.1 can be issued.
Magnetic measuring pins facilitate the testing procedures. Specially suitable for rational gear wheel measurement. Additional possible implementations include testing procedures on work items where conventional measuring pins either roll away or fall down due to position (e.g. measurement of diagonal surfaces).

In the case of steel work items, the pins are self-adhesive, thus facilitating the test procedure.

The magnetic strength of the magnetic measuring pins is both significantly higher than in the case of magnetic measuring pins made of steel, and does not deteriorate over time.

### Nominal diameter

<table>
<thead>
<tr>
<th></th>
<th>1.00</th>
<th>1.25</th>
<th>1.50</th>
<th>1.524</th>
<th>1.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.65</td>
<td>1.75</td>
<td>2.00</td>
<td>2.032</td>
<td>2.25</td>
<td></td>
</tr>
<tr>
<td>2.50</td>
<td>2.75</td>
<td>3.00</td>
<td>3.25</td>
<td>3.50</td>
<td></td>
</tr>
<tr>
<td>4.00</td>
<td>4.25</td>
<td>4.50</td>
<td>5.00</td>
<td>5.25</td>
<td></td>
</tr>
<tr>
<td>6.00</td>
<td>7.00</td>
<td>8.00</td>
<td>9.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Accuracy

Tolerance I = ± 0.001 mm

### Length

35 mm

*Customised items can also be supplied by special order.*
Example:
Use of magnetic measuring pins
Additional high-precision standard parts available from our product range:

• Ejector pins DIN ISO 6751 / DIN ISO 8694 / DIN ISO 8693 / DIN ISO 1530
• Ejector sleeves DIN ISO 8405
• Core pins / centre sleeves
• Ejector pins: customized models

• Piercing punches DIN 9861 / DIN 9840 / DIN 9844 / DIN 9843 / DIN ISO 8020
• Piercing punches with trombone neck
• Perforation pins
• Pull-through punches according to DIN 7952
• Rectangular and square piercing punches DIN 9846
• Piercing punches: customized models

• Preforge/- upsetting ejector pins
• Hexagonal punches / extrusion punches
• Special punches
• Parts manufactured according to drawing
• Paid work

• Dowel pins DIN ISO 8734 (similar to previous std. DIN 6325)
• Dowel pins DIN ISO 8735 (similar to previous std. DIN 7979)

• Machining tools and equipment
• Cutting-off and surface grinding machine
• External grinding machine

Always one step ahead

DREI-S was the first manufacturer of ejector pins in Europe and a pioneer in the introduction of the previous DIN 1530 standard. We therefore have a long tradition of active involvement in DIN standards. DREI-S-WERK was also a pioneer in the implementation of new nitriding technologies, which are now standard on the market.

150 years of successful industrial manufacturing speaks for our experience and innovative approach. Initiative, responsibility, lateral thinking, and the desire to continually improve and extend our range with new products are the driving forces behind our company and its employees.