

## Indicating Plug Gages 844 D



### Features

- For the rapid testing of diameter, roundness and conicity of bores
- Especially suitable for testing batches with tight tolerances
- No rocking in the bore is required to determine the reversal point
- Therefore ideal for use in conjunction with a digital indicating instrument and for subsequent processing of measured values
- Measuring head has a hardened chromium plated guide cylinder and carbide tipped anvils
- The carbide expanding pin transfers radial movement to indicating instrument
- Constant measuring force as a result of built-in spring, thus eliminating user influence
- Measuring head, holder, depth extension, right angle attachments and depth stops are part of an extensive modular system

### Technical Data of the Measuring Heads

| Nominal diameter of the bore | Measuring range starting from the minimum bore dimension to be measured |                     |
|------------------------------|---|---------------------|
|                              | 844 Dk/844Dkr   | 844 Dks (from 4 mm) |
| 2.98 - 8 mm                  | = - 0.02 + 0.1 mm   | = - 0.02 + 0.1 mm   |
| over 8 - 16 mm               | = - 0.02 + 0.15 mm  | = - 0.02 + 0.15 mm  |
| over 16 - 32 mm              | = - 0.02 + 0.2 mm   | = - 0.02 + 0.15 mm  |
| over 32 - 70 mm              | = - 0.03 + 0.2 mm   | = - 0.03 + 0.15 mm  |
| over 70 - 200 mm             | = - 0.04 + 0.2 mm   | = - 0.04 + 0.15 mm  |

When placing an order please quote the nominal diameter and tolerances, for example:

| Bore diameter | Tolerance     |                     |
|---------------|---------------|---------------------|
|               | 844 Dk/844Dkr | 844 Dks (from 4 mm) |
| 35 D7         | + 80          | +105 $\mu\text{m}$  |
| 35 H7         | + 0           | +25 $\mu\text{m}$   |
| 35 R7         | - 50          | -25 $\mu\text{m}$   |

The diameter of the guide cylinder is produced between 0.02 and 0.07 mm smaller than the minimum dimension of the bore to be checked.

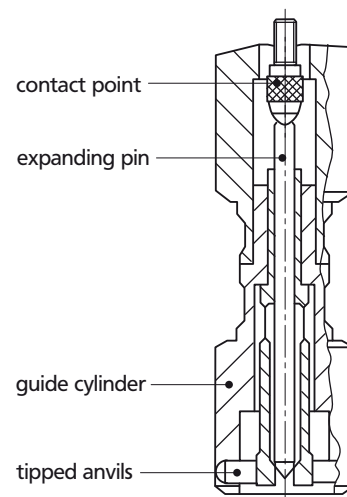
#### Example:

Plug Gage 844 Dk for bore 35 D7  
 Nominal diameter: 35 mm  
 Minimum dimension: 35.080 mm  
 Maximum dimension: 35.105 mm  
 Meas. range: 35.050 - 35.280 mm

### Accuracy

Hysteresis  
 Repeatability  
 Linearity  
 Linearity 844 Dks >16 mm

$f_U \leq 0.4 \mu\text{m}$   
 $f_W \leq 1 \mu\text{m}$   
 $\leq 1 \%$   
 $\leq 2 \%$



## Plug Gages

### Measuring Head 844 Dk, Standard version

|      | Nominal <sup>①</sup><br>diameter |    | Manufacturing <sup>②</sup><br>tolerance | Meas. range <sup>③</sup><br>dia. d | Order no.       |  |
|------|----------------------------------|----|---|------------------------------------|-----------------|--|
|      | mm                               | mm | mm                                      |                                    |                 |  |
| over | 2.98 - 3.99                      |    | -0.02/-0.04                             | 0.1                                | <b>4480184*</b> |  |
|      | 3.99 - 8                         |    | -0.02/-0.04                             | 0.1                                | <b>4478200*</b> |  |
| over | 8 - 16                           |    | -0.02/-0.04                             | 0.15                               | <b>4478201</b>  |  |
| over | 16 - 25                          |    | -0.02/-0.05                             | 0.2                                | <b>4478202</b>  |  |
| over | 25 - 32                          |    | -0.02/-0.05                             | 0.2                                | <b>4478204</b>  |  |
| over | 32 - 44                          |    | -0.02/-0.06                             | 0.2                                | <b>4478205</b>  |  |
| over | 44 - 50                          |    | -0.03/-0.06                             | 0.2                                | <b>4478206</b>  |  |
| over | 50 - 60                          |    | -0.03/-0.06                             | 0.2                                | <b>4478207</b>  |  |
| over | 60 - 70                          |    | -0.03/-0.06                             | 0.2                                | <b>4478208</b>  |  |
| over | 70 - 80                          |    | -0.04/-0.07                             | 0.2                                | <b>4478209</b>  |  |
| over | 80 - 90                          |    | -0.04/-0.07                             | 0.2                                | <b>4478210</b>  |  |
| over | 90 - 100                         |    | -0.04/-0.07                             | 0.2                                | <b>4478211</b>  |  |
| over | 100 - 110                        |    | -0.04/-0.07                             | 0.2                                | <b>4478212</b>  |  |
| over | 110 - 120                        |    | -0.04/-0.07                             | 0.2                                | <b>4478213</b>  |  |
| over | 120 - 130                        |    | -0.04/-0.07                             | 0.2                                | <b>4478214</b>  |  |
| over | 130 - 140                        |    | -0.04/-0.07                             | 0.2                                | <b>4478215</b>  |  |
| over | 140 - 150                        |    | -0.04/-0.07                             | 0.2                                | <b>4478216</b>  |  |
| over | 150 - 160                        |    | -0.04/-0.07                             | 0.2                                | <b>4478217</b>  |  |
| over | 160 - 170                        |    | -0.04/-0.07                             | 0.2                                | <b>4478218</b>  |  |
| over | 170 - 180                        |    | -0.04/-0.07                             | 0.2                                | <b>4478219</b>  |  |
| over | 180 - 190                        |    | -0.04/-0.07                             | 0.2                                | <b>4478220</b>  |  |
| over | 190 - 200                        |    | -0.04/-0.07                             | 0.2                                | <b>4478221</b>  |  |

① Nominal diameter = smallest bore diameter  
 ② dia. d in reference to the smallest bore diameter

③ Measuring range refers to the nominal diameter  
 \* With Adaptor for connection to the holder

## Plug Gages

**Measuring Head 844 Dks**, for blind holes, to measure almost to the base of a bore

|      | Nominal <sup>①</sup><br>diameter<br>mm | Manufacturing <sup>②</sup><br>tolerance<br>mm | Meas. range <sup>③</sup><br>dia. d<br>mm | Order no.       |  |
|------|--|---|--|-----------------|--|
|      | 4 - 8                                  | -0.02/-0.04                                   | 0.10                                     | <b>4478285*</b> |  |
| over | 8 - 16                                 | -0.02/-0.04                                   | 0.15                                     | <b>4478245</b>  |  |
| over | 16 - 25                                | -0.02/-0.05                                   | 0.15                                     | <b>4478230</b>  |  |
| over | 25 - 32                                | -0.02/-0.05                                   | 0.15                                     | <b>4478232</b>  |  |
| over | 32 - 44                                | -0.02/-0.06                                   | 0.15                                     | <b>4478233</b>  |  |
| over | 44 - 50                                | -0.03/-0.06                                   | 0.15                                     | <b>4478234</b>  |  |
| over | 50 - 60                                | -0.03/-0.06                                   | 0.15                                     | <b>4478235</b>  |  |
| over | 60 - 70                                | -0.03/-0.06                                   | 0.15                                     | <b>4478236</b>  |  |
| over | 70 - 80                                | -0.04/-0.07                                   | 0.15                                     | <b>4478237</b>  |  |
| over | 80 - 90                                | -0.04/-0.07                                   | 0.15                                     | <b>4478238</b>  |  |
| over | 90 - 100                               | -0.04/-0.07                                   | 0.15                                     | <b>4478239</b>  |  |
| over | 100 - 110                              | -0.04/-0.07                                   | 0.15                                     | <b>4478240</b>  |  |
| over | 110 - 120                              | -0.04/-0.07                                   | 0.15                                     | <b>4478241</b>  |  |
| over | 120 - 130                              | -0.04/-0.07                                   | 0.15                                     | <b>4478242</b>  |  |
| over | 130 - 140                              | -0.04/-0.07                                   | 0.15                                     | <b>4478243</b>  |  |
| over | 140 - 150                              | -0.04/-0.07                                   | 0.15                                     | <b>4478244</b>  |  |

① Nominal diameter = smallest bore diameter

② dia. d in reference to the smallest bore diameter

③ Measuring range refers to the nominal diameter

\* With adaptor for connection to the holder

## Plug Gages

**Measuring Head 844 Dkr**, with an extended guide cylinder to measure through holes from the edge of a bore, ideal for narrow parts

|      | Nominal <sup>①</sup><br>diameter<br>mm | Manufacturing <sup>②</sup><br>tolerance<br>mm | Meas. range <sup>③</sup><br>dia. d<br>mm | Order no.       |  |
|------|--|---|--|-----------------|--|
| over | 2.98 - 3.99                            | -0.02/-0.04                                   | 0.1                                      | <b>4478272*</b> |  |
|      | 3.99 - 8                               | -0.02/-0.04                                   | 0.1                                      | <b>4478250*</b> |  |
| over | 8 - 16                                 | -0.02/-0.04                                   | 0.15                                     | <b>4478251</b>  |  |
| over | 16 - 25                                | -0.02/-0.05                                   | 0.2                                      | <b>4478252</b>  |  |
| over | 25 - 32                                | -0.02/-0.05                                   | 0.2                                      | <b>4478254</b>  |  |
| over | 32 - 44                                | -0.02/-0.06                                   | 0.2                                      | <b>4478255</b>  |  |
| over | 44 - 50                                | -0.03/-0.06                                   | 0.2                                      | <b>4478256</b>  |  |
| over | 50 - 60                                | -0.03/-0.06                                   | 0.2                                      | <b>4478257</b>  |  |
| over | 60 - 70                                | -0.03/-0.06                                   | 0.2                                      | <b>4478258</b>  |  |
| over | 70 - 80                                | -0.04/-0.07                                   | 0.2                                      | <b>4478259</b>  |  |
| over | 80 - 90                                | -0.04/-0.07                                   | 0.2                                      | <b>4478260</b>  |  |
| over | 90 - 100                               | -0.04/-0.07                                   | 0.2                                      | <b>4478261</b>  |  |
| over | 100 - 110                              | -0.04/-0.07                                   | 0.2                                      | <b>4478262</b>  |  |
| over | 110 - 120                              | -0.04/-0.07                                   | 0.2                                      | <b>4478263</b>  |  |
| over | 120 - 130                              | -0.04/-0.07                                   | 0.2                                      | <b>4478264</b>  |  |
| over | 130 - 140                              | -0.04/-0.07                                   | 0.2                                      | <b>4478265</b>  |  |
| over | 140 - 150                              | -0.04/-0.07                                   | 0.2                                      | <b>4478266</b>  |  |
| over | 150 - 160                              | -0.04/-0.07                                   | 0.2                                      | <b>4478267</b>  |  |
| over | 160 - 170                              | -0.04/-0.07                                   | 0.2                                      | <b>4478268</b>  |  |
| over | 170 - 180                              | -0.04/-0.07                                   | 0.2                                      | <b>4478269</b>  |  |
| over | 180 - 190                              | -0.04/-0.07                                   | 0.2                                      | <b>4478270</b>  |  |
| over | 190 - 200                              | -0.04/-0.07                                   | 0.2                                      | <b>4478271</b>  |  |

① Nominal diameter = smallest bore diameter  
 ② dia. d in reference to the smallest bore diameter

③ Measuring range refers to the nominal diameter  
 \* With adaptor for connection to the holder

## Modular Unit System 844 D

### Standard Holder 844 Kg/844 Dg - Standard version

With locking clamp for an indicating instrument and a connecting thread for a measuring head. Heat insulated handle. The model 844 Dg is made from Invar steel.

| Cat. no. | Connecting thread g | Length L mm | Handle dia. D mm | Order no. |
|----------|---------------------|-------------|------------------|-----------|
| 844 Kg   | M6 x 0.75           | 50          | 14               | 4470851   |
| 844 Dg   | M10 x 1             | 150         | 26               | 4478851   |

### Short Holder 844 Dgk - Short version

With locking clamp for an indicating instrument and a connecting thread for a measuring head. Heat insulated handle.

| Cat. no. | Connecting thread g | Length L mm | Handle dia. D mm | Order no. |
|----------|---------------------|-------------|------------------|-----------|
| 844 Dgk  | M10 x 1             | 61          | 26               | 4478050   |

### Holder 844 Dge for Inductive Measuring Probes

With long sleeve for shock and waterproof mounting of inductive measuring probes. Strain relief clamp for probe cable. Threaded connection for measuring heads. Heat insulated handle.

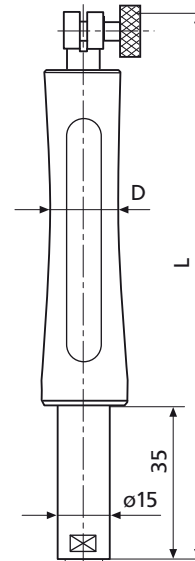
| Cat. no. | Connecting thread g | Length L mm | Handle dia. D mm | Order no. |
|----------|---------------------|-------------|------------------|-----------|
| 844 Dge  | M6 x 0.75           | 195         | 33               | 4478020   |
|          | M10 x 1             | 195         | 33               | 4478021   |

### Right Angle (Elbow) Attachment

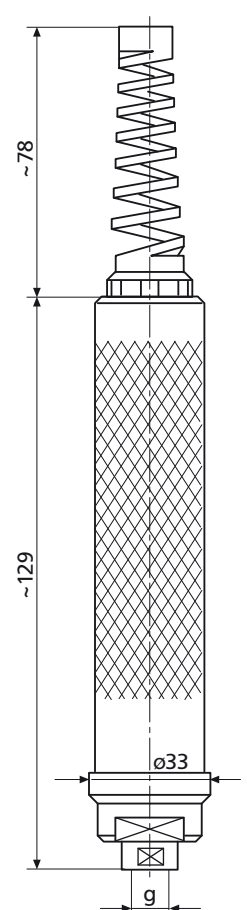
For measuring difficult to reach bores, e.g. in tight spaces, on a machine tool or when work piece bores are inconveniently located. For screwing in between holder and measuring head.

| Cat. no. | Connecting thread g mm | Elbow       |             | Order no. |
|----------|------------------------|-------------|-------------|-----------|
|          |                        | Length L mm | Height H mm |           |
| 844 Kw   | M6 x 0.75              | 26.5        | 22.5        | 4470110   |
| 844 Dw   | M10 x 1                | 36.7        | 17          | 4478110   |

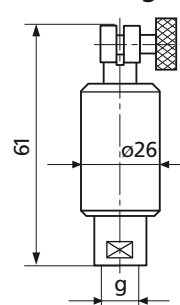
844 Kg / 844 Dg



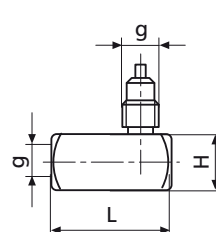
844 Dge



844 Dgk



844 Kw / 844 Dw



## Modular Unit System 844 D

### Extensions

For extra-deep bores. Screws in between holder and measuring heads. Several extensions can be screwed together as of 8 mm. Models 844 Dv and 844 Dvk made of **Invar steel**.

| Cat. no. | Connecting thread g | Length L mm/inch | dia. D mm/inch | Order no. |
|----------|---------------------|------------------|----------------|-----------|
| 844 Dvk  | M6x0.75/M3.5x0.35   | 64/ 2.5"         | 3.8 / .15"     | 4478080   |
| 844 Kv   | M6 x 0.75           | 64/ 2.5"         | 8 / .32"       | 4470070   |
| 844 Dv   | M10 x 1             | 64/ 2.5"         | 15 / .6"       | 4478070   |
| 844 Dv   | M10 x 1             | 80/ 3"           | 15 / .6"       | 4478071   |
| 844 Dv   | M10 x 1             | 100/ 4"          | 15 / .6"       | 4478072   |
| 844 Dv   | M10 x 1             | 125/ 5"          | 15 / .6"       | 4478073   |
| 844 Dv   | M10 x 1             | 250/ 10"         | 15 / .6"       | 4478074   |
| 844 Dv   | M10 x 1             | 500/ 20"         | 15 / .6"       | 4478075   |

### Depth Stops

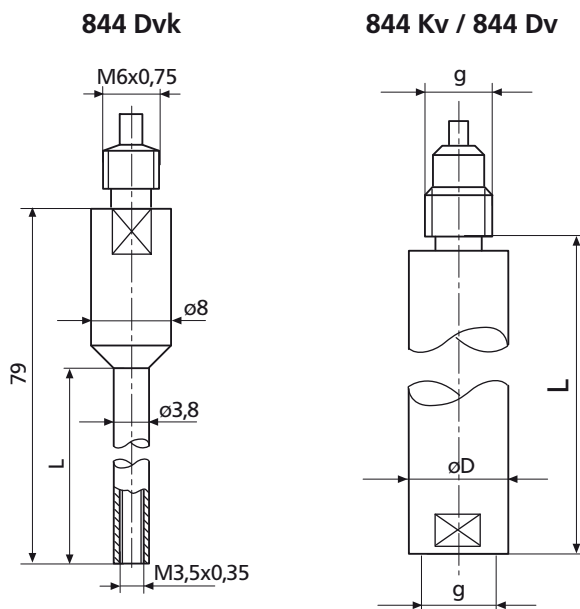
For limiting depth of insertion of measuring head in bore. Can be attached to Extensions 844 Kv or 844 Dv. With clamping screw.

| Cat. no. | Mounting hole dia. d mm/inch | Stop surface dia. A mm/inch | Height h mm/inch | Order no. |
|----------|------------------------------|-----------------------------|------------------|-----------|
| 844 Kt   | 8 / .32"                     | 24 / 1"                     | 60 / 2.36        | 4470115   |
| 844 Dt   | 15 / .6"                     | 45 / 1.8"                   | 30 / 1.18        | 4478115   |
| 844 Dt   | 15 / .6"                     | 75 / 3"                     | 30 / 1.18        | 4478116   |
| 844 Dt   | 15 / .6"                     | 110 / 4.3"                  | 30 / 1.18        | 4478117   |
| 844 Dt   | 15 / .6"                     | 160 / 6.3"                  | 30 / 1.18        | 4478118   |
| 844 Dt   | 15 / .6"                     | 220 / 8.6"                  | 30 / 1.18        | 4478119   |

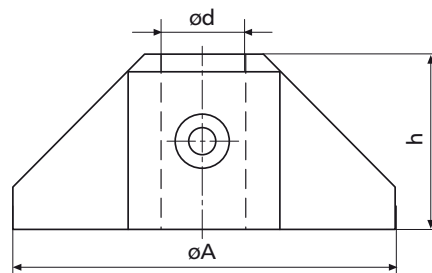
### Depth Stop Rings

For limiting depth of insertion of measuring head in bore. Clamped onto the measuring head.

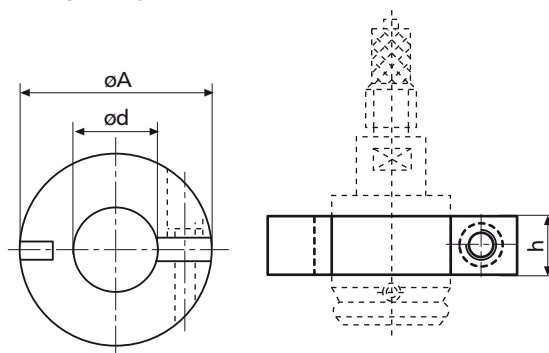
| Cat. no. | Mounting hole dia. d mm | Stop surface dia. A mm/inch | Height h mm/inch | Order no. |
|----------|-------------------------|-----------------------------|------------------|-----------|
| 844 Dtr  | 3 - 5                   | 27 / 1.1"                   | 10 / .4"         | 4478130   |
|          | > 5 - 8                 | 30 / 1.2"                   | 10 / .4"         | 4478130   |
|          | > 8 - 11                | 33 / 1.3"                   | 10 / .4"         | 4478130   |
|          | > 11 - 15               | 37 / 1.5"                   | 10 / .4"         | 4478130   |
|          | > 15 - 20               | 42 / 1.7"                   | 10 / .4"         | 4478130   |
|          | > 20 - 25               | 50 / 1.9"                   | 12 / .5"         | 4478131   |
|          | > 25 - 30               | 55 / 2.1"                   | 12 / .5"         | 4478131   |
|          | > 30 - 35               | 60 / 2.3"                   | 12 / .5"         | 4478131   |
|          | > 35 - 40               | 65 / 2.5"                   | 12 / .5"         | 4478131   |
|          | > 40 - 45               | 70 / 2.8"                   | 12 / .5"         | 4478131   |
|          | > 45 - 50               | 75 / 3.0"                   | 12 / .5"         | 4478132   |
|          | > 50 - 60               | 85 / 3.3"                   | 12 / .5"         | 4478132   |
|          | > 60 - 70               | 95 / 3.7"                   | 12 / .5"         | 4478132   |
|          | > 70 - 80               | 105 / 4.1"                  | 12 / .5"         | 4478132   |
|          | > 80 - 90               | 115 / 4.5"                  | 12 / .5"         | 4478133   |
|          | > 90 - 100              | 125 / 4.9"                  | 12 / .5"         | 4478133   |



844 Kt / 844 Dt



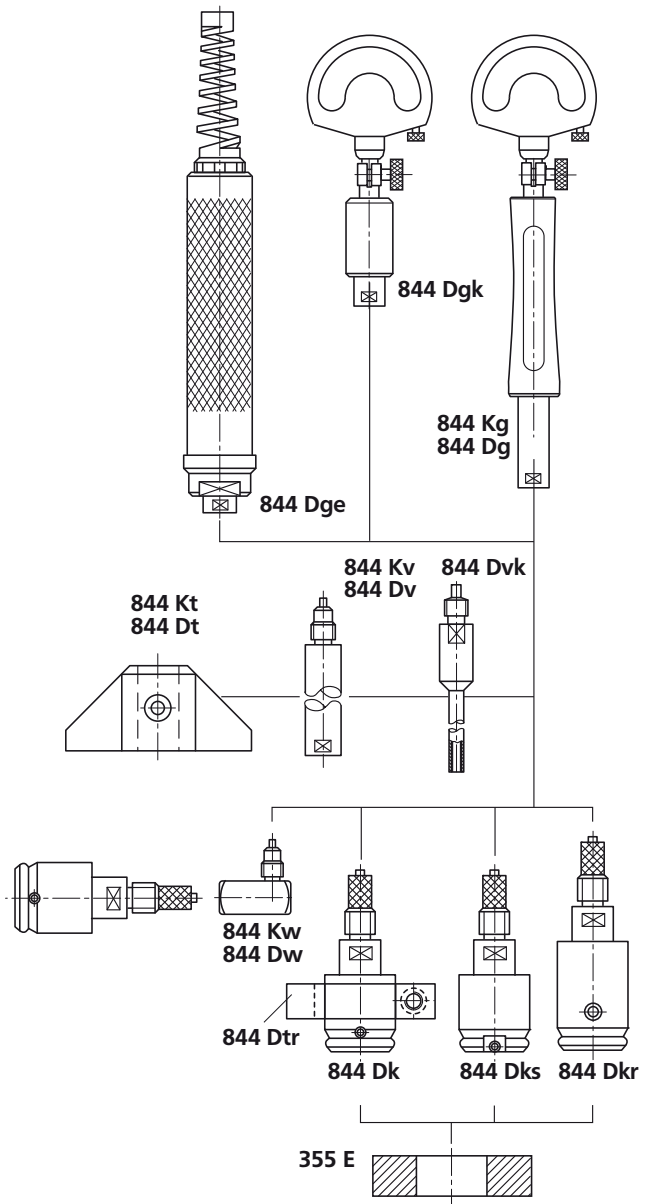
844 Dtr



| Modular units                | Diameter of Measuring Heads |           |                          |
|------------------------------|-----------------------------|-----------|--------------------------|
|                              | 2.98 - 8 mm                 | 8 - 16 mm | over 16 mm               |
| 844 Kg                       | 4470851                     |           |                          |
| 844 Dg                       | 4478851                     |           |                          |
| 844 Dgk                      | 4478050                     |           |                          |
| 844 Dge                      | 4478020                     |           | 4478021                  |
| 844 Dvk<br>844 Kv<br>844 Dv  | 4478080                     | 4470070   | 4478070<br>to<br>4478076 |
| 844 Kt<br>844 Dt             | 4470115                     |           | 4478115<br>to<br>4478119 |
| 844 Kw<br>844 Dw             | 4470110                     |           | 4478110                  |
| 844 Dk<br>844 Dks<br>844 Dkr |                             |           |                          |
| 355 E                        | see page 9-44               |           |                          |

| Modular unit | Diameter of Measuring Heads |            |            |             |
|--------------|-----------------------------|------------|------------|-------------|
|              | 2.98 - 20 mm                | 20 - 44 mm | 44 - 80 mm | 80 - 100 mm |
| 844 Dtr      | 4478130                     | 4478131    | 4478132    | 4478133     |



## Indicating Instruments

All indicating instruments that has a 8 mm mounting shank may be used. Recommended are:

| Indicator         | Readings   | Order no. |
|-------------------|--|-----------|
| Compramess 1004   | 5 $\mu\text{m}$  | 4333000   |
| Millimes 1003     | 1 $\mu\text{m}$  | 4334000   |
| Supramess 1002    | 0,5 $\mu\text{m}$  | 4335000   |
| Extramess 2000    | 0,2 $\mu\text{m}$ , 0,5 $\mu\text{m}$ , 1 $\mu\text{m}$                                    | 4346000   |
| Extramess 2001    | 0,2 $\mu\text{m}$ , 0,5 $\mu\text{m}$ , 1 $\mu\text{m}$                                    | 4346100   |
| Millimar C 1208   | $\pm 3$ , 10, 30, 100, 300, 1000 $\mu\text{m}$<br>3000 $\mu\text{m}$ , 10000 $\mu\text{m}$ | 5312080   |
| Millimar P 2004 M |  | 5323010   |
| Millimar S 1840   | $\pm 10$ , 30, 100, 300, 1000 $\mu\text{m}$<br>3000 $\mu\text{m}$ , 10000 $\mu\text{m}$    | 5318400   |
| Millimar P 2004 M |  | 5323010   |

Digital Indicators see Chapter 5

Electrical Indicating Instruments see Chapter 7

## Adjustment of Plug Gages 844 D

### Ring Gage 355 E:

Special wear-resistant gage steel. Hardened and lapped. With actual deviation engraved.

Dimensions: DIN 2250, type C  
 Manufacturing tolerance: DIN 2250  
 Available diameters: see page 13-19

## Accessories

### Stand 844 Kst



### Floating Holder 844 Ksts



#### Features

For quick checks of bores in small work pieces. Hardened table plate can be raised with lever, thus moving test piece into position. Plate can be clamped at any height for checking eccentricity. Particularly suited to use with digital indicators, where appropriate in conjunction with data printers or computer equipment, in cases where the determination of the reversal point is inappropriate.

|                        |            |
|------------------------|------------|
| Table dia.             | 58 mm      |
| Throat depth of arm    | 45 mm      |
| Table stroke           | 30 mm      |
| Max. work piece height | ca. 100 mm |

**Order no. 4470100**

#### Features

For use in conjunction with Stand 844 Kst. Enables measuring probe to find common axis of bore and measuring instrument quickly and easily on insertion into hole, thus providing optimum measuring speed and high accuracy. Particularly suitable for small diameters, as measuring confidence is considerably enhanced.

**Order no. 4470105**

### Angle Stop 844 Ka

Facilitates positioning of cylindrical work pieces under measuring instrument. For clamping to Stand 844 Kst.

**Order no. 4470120**

