

# Bore Gages

For easy and accurate measurement of inside diameters

## Bore Gages

### SERIES 511 — with Micrometer Head

- Micrometer head is attached to the anvil for accurate dimensional setting.
- Longer plunger stroke with no effect on accuracy.
- Carbide is used for the contact point ensuring high durability and wear resistance.
- This model reduces the influence of heat from the operator's hand by approx. 50 % by increasing the grip size and making the grip hollow-structured, thereby retaining high-accuracy measurement.
- Wide measuring range with sub-anvils.
- The indicator (dial indicator, Digimatic indicator) and dial protection cover are optional. Select an indicator from the recommended dial indicators and Digimatic indicators. Please contact us for advice when using an indicator other than the recommended indicators.
- Optional Extension Rods can be attached for measuring deep holes. (For details, refer to page C-45)
- A Bore Gage Checker and a range of Setting Rings are available to aid in accurately setting a gage before making a measurement. (For details, refer to pages C-46 and C-47)



511-803

511-804



511-804

Note: The dial indicator and the protection cover are optional.



511-806

Note: The dial indicator and the protection cover are optional.

## SPECIFICATIONS

| Metric    |             |                              |                     |                 |                |                                      |                       |                 |           |         |                    |
|-----------|-------------|------------------------------|---------------------|-----------------|----------------|--------------------------------------|-----------------------|-----------------|-----------|---------|--------------------|
| Order No. | Range (mm)  | Stroke of contact point (mm) | Measuring force (N) | Guide force (N) | Content of set |                                      |                       |                 |           |         |                    |
|           |             |                              |                     |                 | Bore gage      | Dial indicator                       | Dial protection cover | Micrometer head | Sub-Anvil | Spanner | Probing depth (mm) |
| 511-803   | 60 - 100    | 1.6                          | 5 or less           | 10 or less      | 511-803        | Not supplied                         | Not supplied          | 1 pc.           | 2 pcs.    | 3 pcs.  | 150                |
| 511-804   | 100 - 160   |                              |                     |                 | 511-804        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-805   | 150 - 250   |                              | 6 or less           | 15 or less      | 511-805        |                                      |                       |                 | 4 pcs.    |         | 250                |
| 511-806   | 250 - 400   |                              |                     | 20 or less      | 511-806        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-807   | 400 - 600   |                              |                     |                 | 511-807        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-808   | 600 - 800   |                              |                     |                 | 511-808        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-823   | 60 - 100    | 1.6                          | 5 or less           | 10 or less      | 511-803        | 2109SB-10<br>(Graduation: 0.001 mm)  | 21DZA000              | 1 pc.           | 2 pcs.    | 3 pcs.  | 150                |
| 511-824   | 100 - 160   |                              |                     |                 | 511-804        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-825   | 150 - 250   |                              | 6 or less           | 15 or less      | 511-805        |                                      |                       |                 | 4 pcs.    |         | 250                |
| 511-826   | 250 - 400   |                              |                     | 20 or less      | 511-806        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-827   | 400 - 600   |                              |                     |                 | 511-807        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-828   | 600 - 800   |                              |                     |                 | 511-808        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-813   | 60 - 100    | 1.6                          | 5 or less           | 10 or less      | 511-803        | 2046SB<br>(Graduation: 0.01 mm)      | 21DZA000              | 1 pc.           | 2 pcs.    | 3 pcs.  | 150                |
| 511-814   | 100 - 160   |                              |                     |                 | 511-804        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-815   | 150 - 250   |                              | 6 or less           | 15 or less      | 511-805        |                                      |                       |                 | 4 pcs.    |         | 250                |
| 511-816   | 250 - 400   |                              |                     | 20 or less      | 511-806        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-817   | 400 - 600   |                              |                     |                 | 511-807        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-818   | 600 - 800   |                              |                     |                 | 511-808        |                                      |                       |                 | 2 pcs.    |         |                    |
| Inch      |             |                              |                     |                 |                |                                      |                       |                 |           |         |                    |
| Order No. | Range (in)  | Stroke of contact point (in) | Measuring force (N) | Guide force (N) | Content of set |                                      |                       |                 |           |         |                    |
|           |             |                              |                     |                 | Bore gage      | Dial indicator                       | Dial protection cover | Micrometer head | Sub-Anvil | Spanner | Probing depth (in) |
| 511-833   | 2.4 - 4.0   | 0.063                        | 5 or less           | 10 or less      | 511-833        | Not supplied                         | Not supplied          | 1 pc.           | 2 pcs.    | 3 pcs.  | 6                  |
| 511-834   | 4.0 - 6.4   |                              |                     |                 | 511-834        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-835   | 6.0 - 10.0  |                              | 6 or less           | 15 or less      | 511-835        |                                      |                       |                 | 4 pcs.    |         | 10                 |
| 511-836   | 10.0 - 16.0 |                              |                     | 20 or less      | 511-836        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-837   | 16.0 - 24.0 |                              |                     |                 | 511-837        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-838   | 24.0 - 32.0 |                              |                     |                 | 511-838        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-853   | 2.4 - 4.0   | 0.063                        | 5 or less           | 10 or less      | 511-833        | 2923SB-10<br>(Graduation: 0.0001 in) | 21DZA000              | 1 pc.           | 2 pcs.    | 3 pcs.  | 4                  |
| 511-854   | 4.0 - 6.4   |                              |                     |                 | 511-834        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-855   | 6.0 - 10.0  |                              | 6 or less           | 15 or less      | 511-835        |                                      |                       |                 | 4 pcs.    |         | 6                  |
| 511-856   | 10.0 - 16.0 |                              |                     | 20 or less      | 511-836        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-857   | 16.0 - 24.0 |                              |                     |                 | 511-837        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-858   | 24.0 - 32.0 |                              |                     |                 | 511-838        |                                      |                       |                 | 2 pcs.    |         | 10                 |
| 511-843   | 2.4 - 4.0   | 0.063                        | 5 or less           | 10 or less      | 511-833        | 2922SB<br>(Graduation: 0.0005 in)    | 21DZA000              | 1 pc.           | 2 pcs.    | 3 pcs.  | 4                  |
| 511-844   | 4.0 - 6.4   |                              |                     |                 | 511-834        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-845   | 6.0 - 10.0  |                              | 6 or less           | 15 or less      | 511-835        |                                      |                       |                 | 4 pcs.    |         | 6                  |
| 511-846   | 10.0 - 16.0 |                              |                     | 20 or less      | 511-836        |                                      |                       |                 | 3 pcs.    |         |                    |
| 511-847   | 16.0 - 24.0 |                              |                     |                 | 511-837        |                                      |                       |                 | 2 pcs.    |         |                    |
| 511-848   | 24.0 - 32.0 |                              |                     |                 | 511-838        |                                      |                       |                 | 2 pcs.    |         | 10                 |

Note 1: Storage boxes for 511-807/808/837/838 models are made of wood. The boxes of other models are made of plastic.

Note 2: It is not permissible to expand measuring range using sub-anvils other than as supplied as standard accessories. (The measurement accuracy in such cases is not guaranteed.)

## Technical Data

- Accuracy: Metric models 2 µm  
Inch models 0.00008 in
- Repeatability: Metric models 0.5 µm  
Inch models 0.00002 in
- Adjacent error: Metric models 1 µm  
Inch models 0.00004 in

## Optional Accessories

- Dial indicator (See Chapter F)
- Dial protection cover: **21DZA000** (See page C-45)

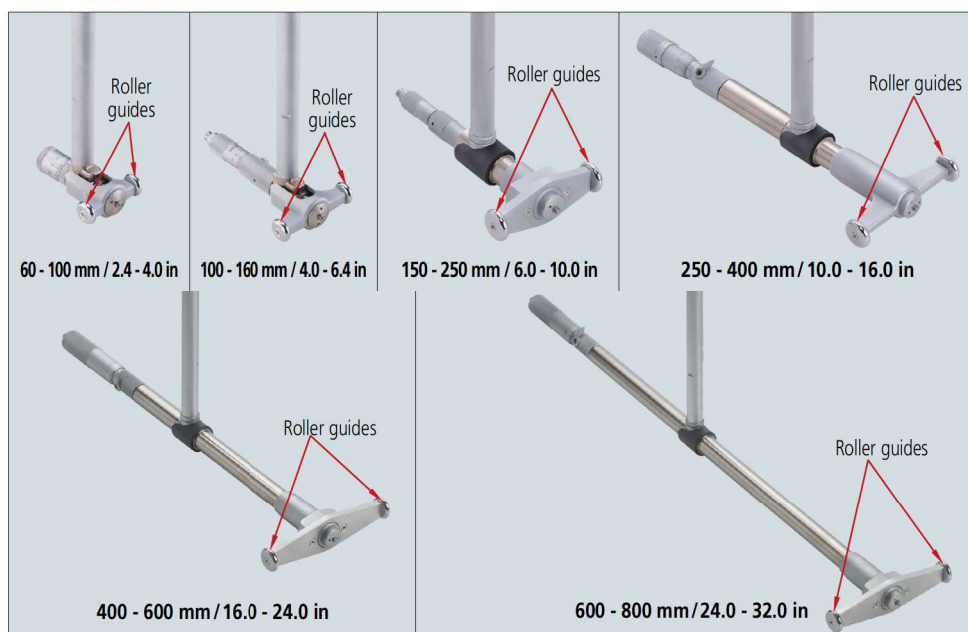
## Recommended Dial Indicators (see Chapter F)

- Metric models: **2046SB** (0.01 mm)  
**2972TB** (0.01 mm - One-revolution type)  
**2109SB-10** (0.001 mm)  
**2900SB-10** (0.001 mm - One-revolution type)
- Inch models: **2922SB** (0.0005 in)  
**2977TB** (0.0005 in - One-revolution type)  
**2923SB-10** (0.0001 in)  
**2910SB-10** (0.0001 in - One-revolution type)

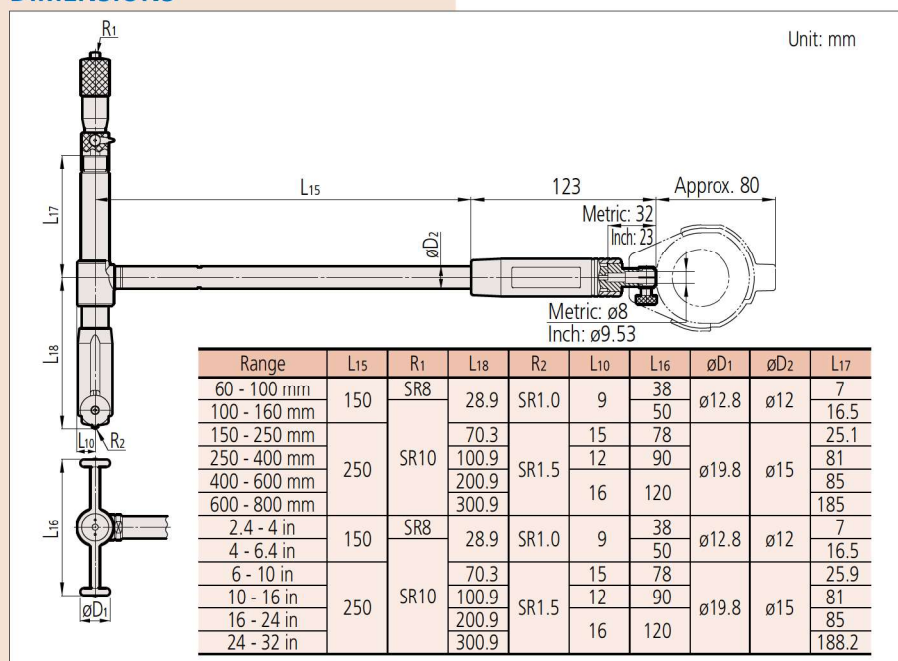
## Recommended Digimatic Indicators (see Chapter F)

- Metric models: **543-310B** (ID-C112GXB: 0.001 mm)
  - Inch models: **543-312B** (ID-C112GEXB: 0.001 mm/0.00005 in)
- Note: Indicators equipped with rubber bellows, such as water-proof types, cannot be used.

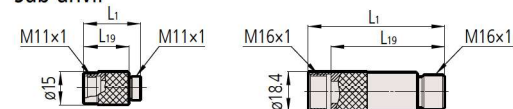
## Contact Points



## DIMENSIONS



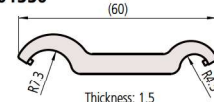
## Sub-anvil



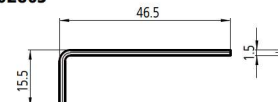
Note: It is not permissible to use a sub-anvil other than as supplied as a standard accessory, or widen a measuring range by using multiple sub-anvils. (The measurement accuracy in such cases is not guaranteed.)

## Spanner

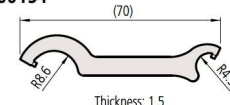
### 301336



### 202863



### 200154



## STANDARD ACCESSORIES

| Metric                |                 |             |            |                 |                 |         |          |                                   |  |
|-----------------------|-----------------|-------------|------------|-----------------|-----------------|---------|----------|-----------------------------------|--|
| Bore gage (Main body) | Micrometer head |             |            | Sub-Anvil       |                 |         |          | Spanner                           |  |
|                       | Order No.       | Stroke (mm) | Screw size | Marked No. (mm) | Order No.       | L1 (mm) | L19 (mm) | Order No.                         |  |
| 511-803               | 21DZA267        | 10          | M11x1      | 10              | 208892          | 15      | 10       | 301336 (2 pcs.)<br>202863 (1 pc.) |  |
|                       |                 |             |            | 20              | 208894          | 25      | 20       |                                   |  |
| 511-804               | 21DZA268        | 13          | M11x1      | 10              | 208892          | 15      | 10       | 301336 (2 pcs.)                   |  |
|                       |                 |             |            | 20              | 208894 (2 pcs.) | 25      | 20       |                                   |  |
| 511-805               | 21DZA268        | 13          | M11x1      | 10              | 208892          | 15      | 10       | 301336 (2 pcs.)                   |  |
|                       |                 |             |            | 20              | 208894 (2 pcs.) | 25      | 20       |                                   |  |
|                       |                 |             |            | 50              | 21DAA492        | 55      | 50       |                                   |  |
| 511-806               | 953118          | 25          | M16x1      | 25              | 208926          | 35      | 25       | 200154 (2 pcs.)                   |  |
|                       |                 |             |            | 50              | 208928 (2 pcs.) | 60      | 50       |                                   |  |
| 511-807               | 953120          | 50          | M16x1      | 50              | 208928          | 60      | 50       | 200154 (2 pcs.)                   |  |
|                       |                 |             |            | 100             | 208932          | 110     | 100      |                                   |  |
| 511-808               | 953120          | 50          | M16x1      | 50              | 208928          | 60      | 50       | 200154 (2 pcs.)                   |  |
|                       |                 |             |            | 100             | 208932          | 110     | 100      |                                   |  |

| Inch                  |                 |             |            |                 |                 |         |          |                                   |  |
|-----------------------|-----------------|-------------|------------|-----------------|-----------------|---------|----------|-----------------------------------|--|
| Bore gage (Main body) | Micrometer head |             |            | Sub-Anvil       |                 |         |          | Spanner                           |  |
|                       | Order No.       | Stroke (in) | Screw size | Marked No. (in) | Order No.       | L1 (in) | L19 (in) | Order No.                         |  |
| 511-833               | 21DZA272        | 0.4         | M11x1      | 0.4             | 208893          | 0.6     | 0.4      | 301336 (2 pcs.)<br>202863 (1 pc.) |  |
|                       |                 |             |            | 0.8             | 208895          | 1.0     | 0.8      |                                   |  |
| 511-834               | 21DZA273        | 0.5         | M11x1      | 0.4             | 208893          | 0.6     | 0.4      | 301336 (2 pcs.)                   |  |
|                       |                 |             |            | 0.8             | 208895 (2 pcs.) | 1.0     | 0.8      |                                   |  |
| 511-835               | 21DZA273        | 0.5         | M11x1      | 0.4             | 208893          | 0.6     | 0.4      | 301336 (2 pcs.)                   |  |
|                       |                 |             |            | 0.8             | 208895 (2 pcs.) | 1.0     | 0.8      |                                   |  |
|                       |                 |             |            | 2               | 21DAA493        | 2.2     | 2        |                                   |  |
| 511-836               | 21DZA275        | 1.0         | M16x1      | 1               | 208927          | 1.4     | 1        | 200154 (2 pcs.)                   |  |
|                       |                 |             |            | 2               | 208929 (2 pcs.) | 2.4     | 2        |                                   |  |
| 511-837               | 902313          | 2.0         | M16x1      | 2               | 208929          | 2.4     | 2        | 200154 (2 pcs.)                   |  |
|                       |                 |             |            | 4               | 208933          | 4.4     | 4        |                                   |  |
| 511-838               | 902313          | 2.0         | M16x1      | 2               | 208929          | 2.4     | 2        | 200154 (2 pcs.)                   |  |
|                       |                 |             |            | 4               | 208933          | 4.4     | 4        |                                   |  |