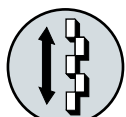
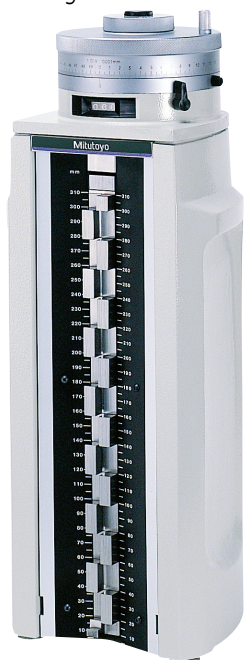


Reference Gages

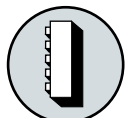
Length Standards Brought to You by Mitutoyo

Height Master SERIES 515

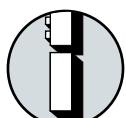
- Height Master is a bestselling product with a name that has become the industry standard for height reference instruments.



Staggered 20 mm blocks (movable)



Vertical orientation



Riser block

515-322

SPECIFICATIONS

| Metric | |
|-----------------------|---------------------|
| Order No. | 515-322 |
| Range (H) | $5 < H \leq 310$ mm |
| Graduation | 0.001 mm |
| Block step | 20 mm (staggered) |
| Micrometer adjustment | 20 mm |
| Micrometer feed | 0.5 mm/rev |
| Block pitch accuracy | ± 1.5 μ m |
| Parallelism of blocks | 1.0 μ m |
| Feed error | ± 1.0 μ m |
| Retrace error | 1.0 μ m |
| Mass | 23 kg |

Notes: 1) The block accuracy and the parallelism of blocks are relative to the main unit installation surface.
2) Supplied with a wooden storage case as standard.

| Inch | | |
|-----------------------|----------------------|----------------------|
| Order No. | 515-310 | 515-311 |
| Range (H) | 0.2 in < H ≤ 12.2 in | 0.2 in < H ≤ 12.2 in |
| Graduation | 0.00001 in | |
| Block step | 0.5 in (straight) | 1 in (staggered) |
| Micrometer adjustment | 1 in | |
| Micrometer feed | 0.025 in | |
| Block pitch accuracy | ±50 μin | |
| Parallelism of blocks | 40 μin | |
| Feed error | ±40 μin | |
| Retrace error | 40 μin | |
| Mass | 23 kg | |

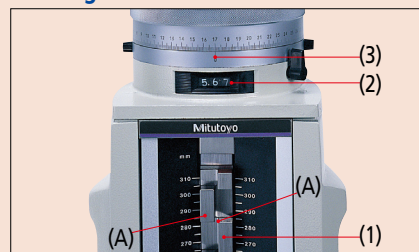
Notes: 1) The block accuracy and the parallelism of blocks are relative to the main unit installation surface.
2) Supplied with a wooden storage case as standard.



An inspection certificate is supplied as standard. Refer to page X for details.



Reading



(A) Height A

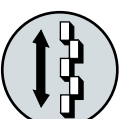
| | |
|-------------|------------|
| (1) Scale | 280. mm |
| (2) Counter | 5.67 mm |
| (3) Thimble | 0.000 mm |
| | 285.670 mm |

Digital Height Master SERIES 515

MeasurLink[®] ENABLED

Data Management Software by Mitutoyo

- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems. (Refer to Page A-3 for details.)



Staggered 20 mm blocks (movable)



Vertical orientation



Riser block

515-374

SPECIFICATIONS

| Metric | | | |
|-----------------------|-----------------------|----------------------|----------------------|
| Order No. | 515-374 | 515-376 | 515-378 |
| Range (H) | $10 < H \leq 310$ mm | $10 < H \leq 460$ mm | $10 < H \leq 610$ mm |
| Resolution | 0.001 mm | | |
| Block step | 20 mm (staggered) | | |
| Micrometer adjustment | 20 mm | | |
| Micrometer feed | 0.5 mm/rev | | |
| Block pitch accuracy | ± 1.5 μ m | | |
| Parallelism of blocks | $0 < H \leq 310$ mm | ± 2.5 μ m | |
| | $310 < H \leq 450$ mm | — | |
| | $450 < H \leq 610$ mm | ± 3.5 μ m | |
| Feed error | $0 < H \leq 310$ mm | 2.0 μ m | |
| | $310 < H \leq 610$ mm | — | |
| | — | ± 2.5 μ m | |
| Retrace error | ± 2.0 μ m | ± 2.5 μ m | |
| Mass | 9.5 kg | 13.6 kg | 16 kg |

* The block accuracy and the parallelism of blocks are based on main unit installation surface, which does not include the retrace error.



An inspection certificate is supplied as standard. Refer to page X for details.

MeasurLink[®] ENABLED

Data Management Software by Mitutoyo

Products equipped with the measurement data output function can be connected to the measurement data network system MeasurLink (refer to page A-5 for details).

Technical Data

| | |
|---------------|------------------------------------|
| Display: | LCD |
| Battery: | SR44 (2 pcs.), 938882 |
| Battery life: | Approx. 1.8 years under normal use |

Function

Zero setting, Presetting, ABS/INC switching, Data hold, Data output, Auto power off, inch/mm conversion (inch/mm models)
Alarm: Low voltage, Counting value composition error

Optional Accessories

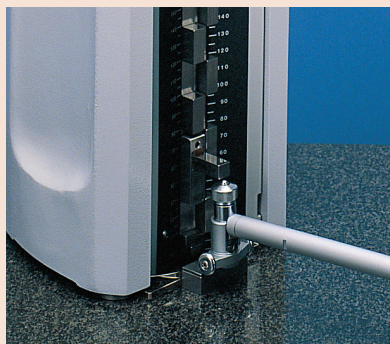
| | |
|----------|--|
| 515-111: | Auxiliary block kit for bore gage (mm) |
| 515-120: | Auxiliary block kit for bore gage (inch) |
| —: | Riser block (see page E-36.) |
| 959149: | SPC cable (1 m) |
| 959150: | SPC cable (2 m) |

| Inch | | | |
|-----------------------|---|---|---|
| Order No. | 515-375 | 515-377 | 515-379 |
| Range (H) | $0.5 \text{ in} < H \leq 12 \text{ in}$ | $0.5 \text{ in} < H \leq 18 \text{ in}$ | $0.5 \text{ in} < H \leq 24 \text{ in}$ |
| Resolution | 0.0001 in | | |
| Block step | 1 in (staggered) | | |
| Micrometer adjustment | 1 in | | |
| Micrometer feed | 0.025 in / rev | | |
| Block pitch accuracy | ± 100 μ in | | |
| Parallelism of blocks | $0 < H \leq 12$ in | ± 100 μ in | |
| | $12 \text{ in} < H \leq 18$ in | — | |
| | $18 \text{ in} < H \leq 24$ in | ± 150 μ in | |
| Feed error | $0 < H \leq 12$ in | 50 μ in | |
| | $12 \text{ in} < H \leq 18$ in | — | |
| | — | 100 μ in | |
| Retrace error | ± 100 μ in | ± 100 μ in | |
| Mass | 9.5 kg | 13.6 kg | 16 kg |

* The block accuracy and the parallelism of blocks are based on main unit installation surface, which does not include the retrace error.



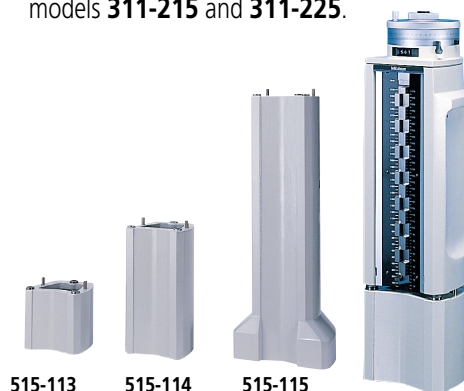
An inspection certificate is supplied as standard.
Refer to page X for details.



Height Master SERIES 515 — Optional accessories

Riser Blocks SERIES 515

- These riser blocks are designed to increase the measurable height.
- They can also be used on Square Master models **311-215** and **311-225**.



SPECIFICATIONS

| Metric | | | | |
|----------------|--------|----------|---------------------|---------|
| Order No. | Height | Accuracy | Variation in length | Mass |
| 515-113 | 150 mm | ±0.6 µm | 0.6 µm | 5.7 kg |
| 515-114 | 300 mm | ±1.0 µm | 0.8 µm | 11.8 kg |
| 515-115 | 600 mm | ±2.0 µm | 1.0 µm | 26.8 kg |

| Inch | | | | |
|----------------|--------|----------|---------------------|---------|
| Order No. | Height | Accuracy | Variation in length | Mass |
| 515-116 | 6 in | ±20 µin | 20 µin | 5.7 kg |
| 515-117 | 12 in | ±40 µin | 30 µin | 11.8 kg |
| 515-118 | 24 in | ±80 µin | 40 µin | 27.9 kg |

Auxiliary Block Kit SERIES 515 – for Bore Gage

- Used for efficient reference-setting of dial bore gages and tubular inside micrometers (18-150 mm) on a Height Master.



SPECIFICATIONS

| Metric | |
|----------------|--|
| Order No. | Model |
| 515-110 | Universal Height Master |
| 515-111 | Digital Height Master (515-374/376/378) |
| 515-112 | Height Master (515-322) |

| Inch | |
|----------------|---|
| Order No. | Model |
| 515-119 | Universal Height Master, Height Master (515-310) |
| 515-120 | Digital Height Master (515-375/377/379) |
| 515-121 | Height Master (515-311) |

Reference Gages

Length Standards Brought to You by Mitutoyo

Universal Height Master SERIES 515 — Usable in Vertical and Horizontal Orientations

- The Universal Height Master is designed for both vertical and horizontal orientation, providing a wide range of applications such as accuracy checking of machine tool table movements.
- Analog display by the built-in counter – the appearance and specifications are the same as model **515-322**.



515-520

SPECIFICATIONS

| Metric | | |
|-----------------------|-------------------|-----------------|
| Order No. | 515-520 | 515-523 |
| Range (H) | 5 < H ≤ 610 mm | 5 < H ≤ 1010 mm |
| Graduation | 0.001 mm | |
| Block step | 10 mm (staggered) | |
| Micrometer adjustment | 20 mm | |
| Micrometer feed | 0.5 mm/rev | |
| Block pitch accuracy | 0 < H ≤ 310 mm | ±1.5 μm |
| | 310 < H ≤ 610 mm | ±2.5 μm |
| | 610 < H ≤ 1010 mm | ±3.5 μm |
| Parallelism of blocks | 0 < H ≤ 610 mm | 1.5 μm |
| | 610 < H ≤ 1010 mm | 2 μm |
| Feed error | ±1.2 μm | ±1.5 μm |
| Retrace error | 1.2 μm | 1.5 μm |
| Mass | 4.2 kg | 63.5 kg |

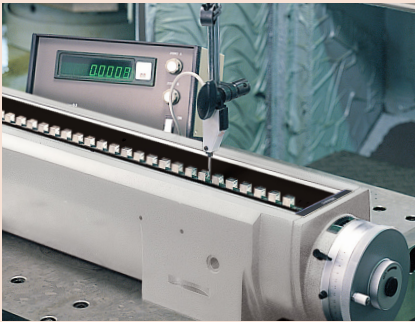
Notes: 1) The block accuracy and the parallelism of blocks are relative to the main unit installation surface.
2) Supplied with a wooden storage case as standard.

| Inch | | | |
|-----------------------|----------------------|----------------------|----------------------|
| Order No. | 515-512 | 515-510 | 515-513 |
| Range (H) | 0.2 in < H ≤ 18.2 in | 0.2 in < H ≤ 24.2 in | 0.2 in < H ≤ 40.2 in |
| Graduation | 0.00001 in | | |
| Block step | 0.5 in (staggered) | | |
| Micrometer adjustment | 1 in | | |
| Micrometer feed | 0.025 in/rev | | |
| Block pitch accuracy | 0 < H ≤ 12 in | ±50 μin | |
| | 12 in < H ≤ 24 in | ±100 μin | |
| | 24 in < H ≤ 40 in | ±150 μin | |
| Parallelism of blocks | H ≤ 24 in | 60 μin | |
| | 24 in < H ≤ 40 in | 80 μin | |
| Feed error | ±40 μin | ±60 μin | |
| Retrace error | 40 μin | 60 μin | |
| Mass | 4.2 kg | 63.5 kg | 63.5 kg |

Notes: 1) The block accuracy and the parallelism of blocks are relative to the main unit installation surface.
2) Supplied with a wooden storage case as standard.



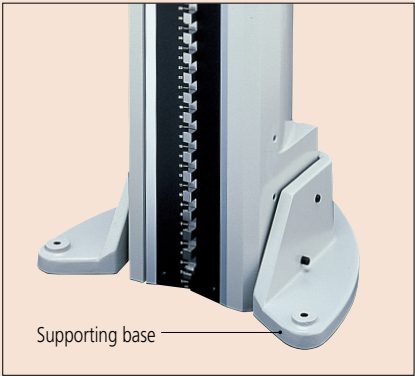
An inspection certificate is supplied as standard. Refer to page X for details.



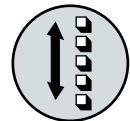
Using in horizontal orientation

Optional Accessories

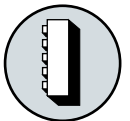
Supporting base
No.900574 (Dedicated for the Universal Height Master. Provided for **515-523** and **515-513** as standard.)
Stable vertical orientation is available.



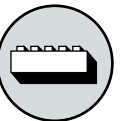
Supporting base



Single-row 10 mm blocks (movable)



Vertical orientation



Horizontal orientation

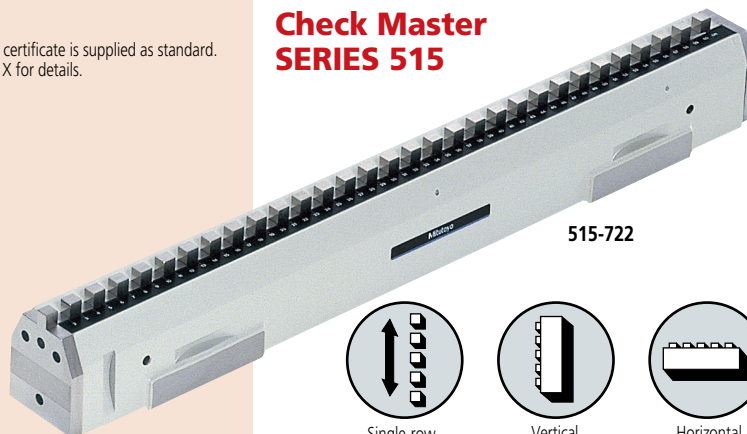


Riser block



An inspection certificate is supplied as standard.
Refer to page X for details.

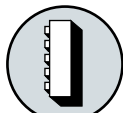
Check Master SERIES 515



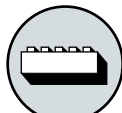
515-722



Single-row
10 mm (0.5 in) blocks



Vertical
orientation



Horizontal
orientation

- Designed to check the accuracy of table movements of machine tools and calibrate CMMs.
- Can be used in either vertical or horizontal orientation



515-724

515-723

515-722

SPECIFICATIONS

| Metric | | 515-720 | 515-721 | 515-722 | 515-723 | 515-724 |
|-----------------------|-------------------------|-------------------|---------|---------|-------------------|-------------------|
| Order No. | | 515-720 | 515-721 | 515-722 | 515-723 | 515-724 |
| Range (H) | | 300 mm | 450 mm | 600 mm | 1000 mm | 1500 mm |
| Block step | | 10 mm | | | | |
| Block pitch accuracy | $H \leq 310$ mm | ± 2.5 μ m | | | | |
| | $310 < H \leq 610$ mm | — | — | — | ± 3.5 μ m | |
| | $610 < H \leq 1010$ mm | — | — | — | ± 5.0 μ m | |
| | $1010 < H \leq 1510$ mm | — | — | — | — | ± 8.0 μ m |
| Parallelism of blocks | $H \leq 310$ mm | 1.2 μ m | | | | |
| | $310 < H \leq 610$ mm | — | — | — | 1.5 μ m | |
| | $610 < H \leq 1010$ mm | — | — | — | 2.0 μ m | |
| | $1010 < H \leq 1510$ mm | — | — | — | — | 2.5 μ m |
| Mass | | 7 kg | 10 kg | 13 kg | 22 kg | 30 kg |

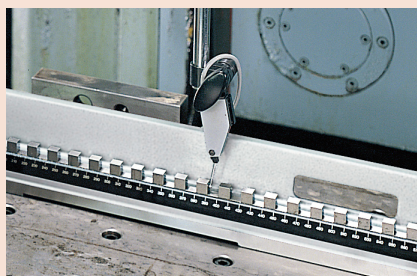
Notes: 1) The block accuracy and the parallelism of blocks are relative to the main unit installation surface.
2) Supplied with a wooden storage case as standard.

| Inch | | 515-710 | 515-711 | 515-712 | 515-713 |
|-----------------------|---------------------|--------------------|---------|--------------------|---------|
| Order No. | | 515-710 | 515-711 | 515-712 | 515-713 |
| Range (H) | | 12 in | 18 in | 24 in | 40 in |
| Block step | | 0.5 in | | | |
| Block pitch accuracy | $H \leq 12$ in | ± 100 μ in | | | |
| | $12 < H \leq 24$ in | — | — | ± 150 μ in | |
| | $24 < H \leq 40$ in | — | — | ± 200 μ in | |
| | $H \leq 12$ in | — | — | 50 μ in | |
| Parallelism of blocks | $12 < H \leq 24$ in | — | — | 60 μ in | |
| | $24 < H \leq 40$ in | — | — | 80 μ in | |
| Mass | | 7 kg | 10 kg | 13 kg | 22 kg |

Notes: 1) The block accuracy and the parallelism of blocks are relative to the main unit installation surface.
2) Supplied with a wooden storage case as standard.



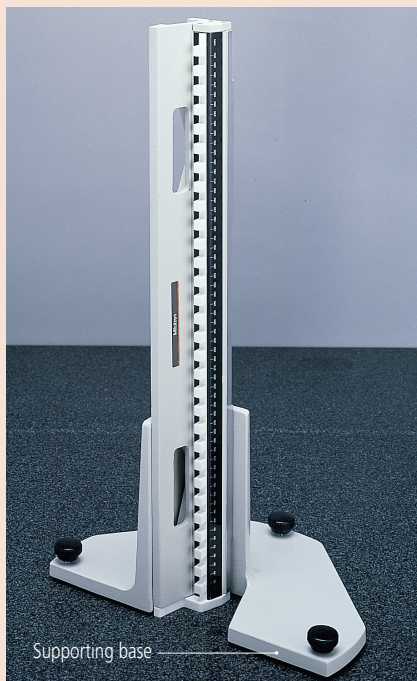
An inspection certificate is supplied as standard.
Refer to page X for details.



Using in horizontal orientation

Optional Accessories

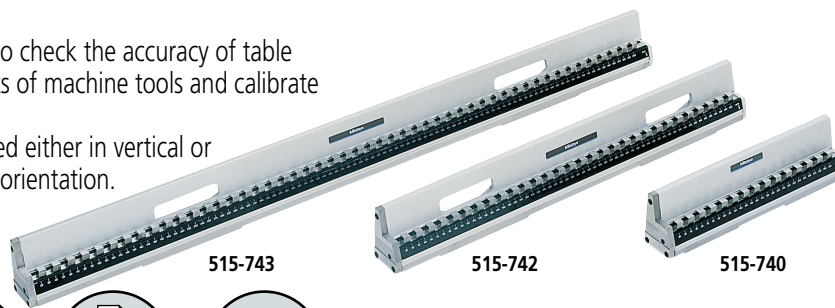
Supporting base
601167: Supporting base for vertical operation



Supporting base

High Accuracy Check Master SERIES 515

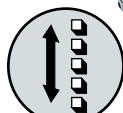
- Designed to check the accuracy of table movements of machine tools and calibrate CMMs.
- Can be used either in vertical or horizontal orientation.



515-743

515-742

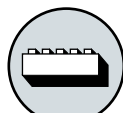
515-740



Single-row
10 mm (5 in) blocks



Vertical
orientation



Horizontal
orientation

SPECIFICATIONS

| Metric | | 515-740/515-760* | 515-741/515-761* | 515-742/515-762* | 515-743/515-763* | 515-744/515-764* |
|-----------------------|-------------------------|-------------------|------------------|------------------|-------------------|-------------------|
| Order No. | | 515-740/515-760* | 515-741/515-761* | 515-742/515-762* | 515-743/515-763* | 515-744/515-764* |
| Range (R) | | 300 mm | 450 mm | 600 mm | 1000 mm | 1500 mm |
| Block step | | 10 mm | | | | |
| Block pitch accuracy | $H \leq 310$ mm | ± 1.2 μ m | | | | |
| | $310 < H \leq 610$ mm | — | — | — | ± 1.8 μ m | |
| | $610 < H \leq 1010$ mm | — | — | — | ± 2.5 μ m | |
| | $1010 < H \leq 1510$ mm | — | — | — | — | ± 4.0 μ m |
| Parallelism of blocks | $H \leq 450$ mm | 1.0 μ m | | | | |
| | $450 < H \leq 1010$ mm | — | — | — | 1.5 μ m | |
| | $1010 < H \leq 1510$ mm | — | — | — | 2.0 μ m | |
| Mass | | 3.6 kg | 5.4 kg | 7.2 kg | 12 kg | 18 kg |

* Ceramic Check Master

Notes: 1) The block accuracy and the parallelism of blocks are relative to the main unit installation surface.
2) Supplied with a wooden storage case as standard.

| Inch | | | | | | |
|--------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
| Order No. | 515-730/ 515-750* | 515-731/ 515-751* | 515-732/ 515-752* | 515-733/ 515-753* | 515-734/ 515-754* | |
| Pange (R) | 12 in | 18 in | 24 in | 40 in | 60 in | |
| Block step | 0.5 in | | | | | |
| Block pitch accuracy | H ≤ 12 in | | ±50 μin | | | |
| | 12 in < H ≤ 24 in | | ±70 μin | | | |
| | 24 in < H ≤ 40 in | | ±100 μin | | | |
| | 40 in < H ≤ 60 in | | ±158 μin | | | |
| Parallelism of blocks | H ≤ 18 in | | 40 μin | | | |
| | 18 in < H ≤ 40 in | | 60 μin | | | |
| | 40 in < H ≤ 60 in | | 80 μin | | | |
| Mass | 3.6 ka | 5.4 ka | 7.2 ka | 12 ka | 18 ka | |

* Ceramic Check Master

Notes: 1) The block accuracy and the parallelism of blocks are relative to the main unit installation surface.
2) Supplied with a wooden storage case as standard.

Reference Gages

Length Standards Brought to You by Mitutoyo

Standard scales SERIES 182 — Made of Low Expansion Glass

- Standard scales can be used as a traceable standard of length for calibrating measuring instruments.
- These scales are manufactured using Mitutoyo's high-definition lithography technology in an underground scale manufacturing facility dedicated to the production of high-accuracy, high-quality line standards. They are considered top-grade length standards.

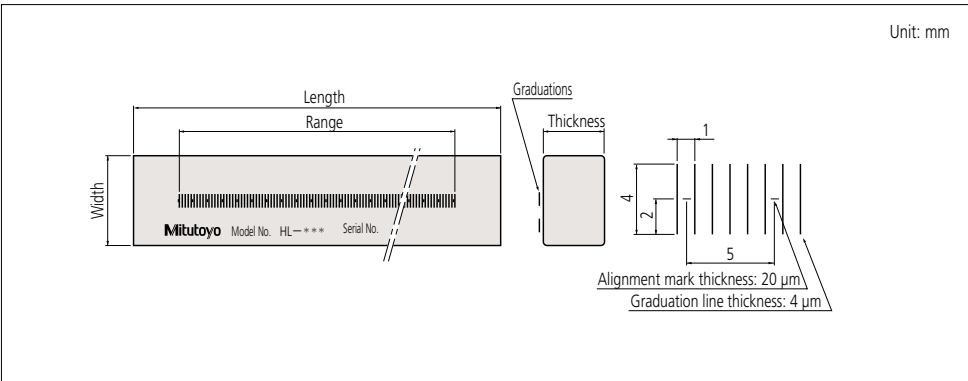


SPECIFICATIONS

| Metric | | | | |
|-------------|--------|--------|-------|-----------|
| Order No. | Range | Length | Width | Thickness |
| 182-501-50 | 250 mm | 280 mm | 20 mm | 10 mm |
| 182-501-60* | | | | |
| 182-502-50 | 500 mm | 530 mm | 30 mm | 20 mm |
| 182-502-60* | | | | |

* with English JCSS certificate.

DIMENSIONS



An inspection certificate is supplied as standard. Refer to page X for details.

Technical Data

Accuracy (at 20 °C): $(0.5+L/1000) \mu\text{m}$,
L = Measured length (mm)
Material: Low expansion glass
Thermal expansion coefficient: $(0.00\pm0.02)\times10^{-6}/\text{K}$
Graduation: 1 mm
Graduation line thickness: 4 μm
Mass: 0.75 kg (250 mm), 1.8 kg (500 mm)



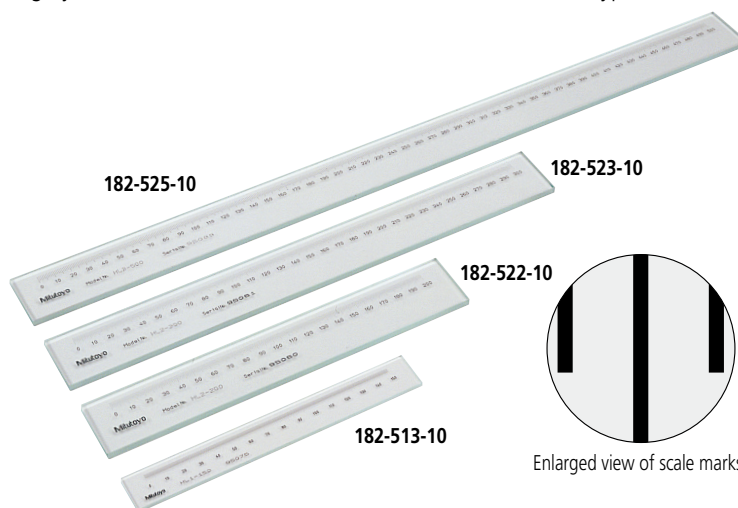
An inspection certificate is supplied as standard.
Refer to page X for details.

Technical Data

Accuracy (at 20 °C): $(1.5+2L/1000) \mu\text{m}$,
L = Measured length (mm)
Glass material: Soda-lime glass
Thermal expansion coefficient: $8.5 \times 10^{-6}/\text{K}$
Graduation:
0.1 mm (thickness: 20 μm)
0.5 mm (thickness: 50 μm)
1 mm (thickness: 100 μm)

Working Standard Scales SERIES 182

- Ideal for checking magnification accuracy of profile projectors and microscopes, and the table feeding accuracy of measuring equipment.
- These scales are manufactured using high-accuracy lithographic technologies. Mitutoyo has developed these technologies at the dedicated underground facility which was custom-built to produce highly accurate scales. Various sizes are available for each type to suit the application.



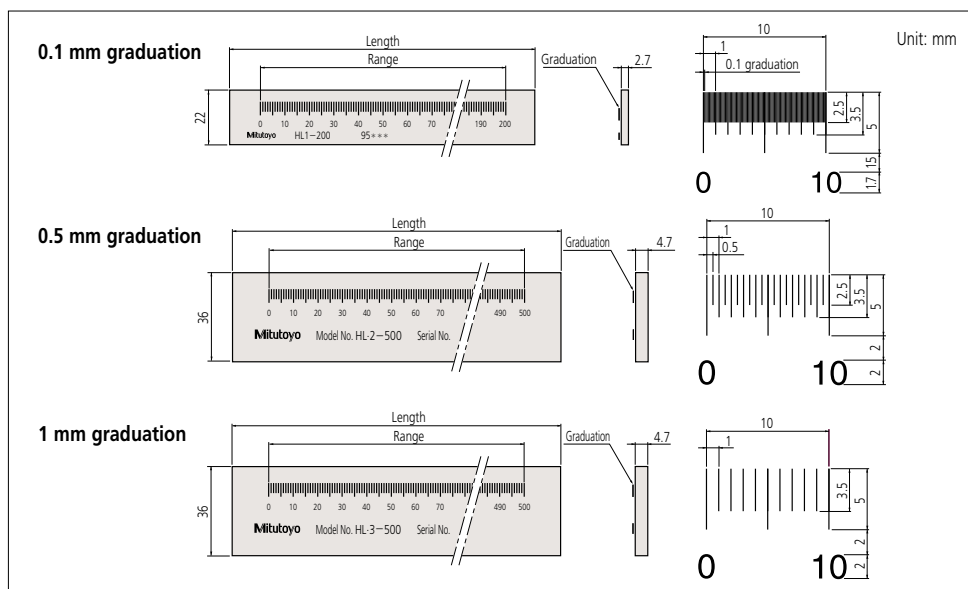
Enlarged view of scale marks

SPECIFICATIONS

| Metric | | | | | | |
|------------|---------|------------|---------|------------------|---------------------------|---------|
| Order No. | Range | Graduation | Length | Inspection pitch | Graduation line thickness | Length |
| 182-511-10 | 50 mm | 0.1 mm | 75 mm | 5 mm | 20 μm | 0.23 kg |
| 182-512-10 | 100 mm | | 125 mm | 10 mm | | 0.24 kg |
| 182-513-10 | 150 mm | | 175 mm | | | 0.25 kg |
| 182-514-10 | 200 mm | | 225 mm | | | 0.26 kg |
| 182-521-10 | 100 mm | 0.5 mm | 130 mm | 20 mm | 50 μm | 0.27 kg |
| 182-522-10 | 200 mm | | 230 mm | | | 0.32 kg |
| 182-523-10 | 300 mm | | 330 mm | | | 0.57 kg |
| 182-524-10 | 400 mm | | 430 mm | | | 0.71 kg |
| 182-525-10 | 500 mm | 1 mm | 530 mm | 25 mm | 100 μm | 0.86 kg |
| 182-531-10 | 250 mm | | 280 mm | | | 0.55 kg |
| 182-532-10 | 500 mm | | 530 mm | | | 1.22 kg |
| 182-533-10 | 750 mm | | 780 mm | | | 0.23 kg |
| 182-534-10 | 1000 mm | | 1030 mm | | | 1.54 kg |

Note: An inspection certificate produced by a standard scale automatic calibration system is supplied as standard.

DIMENSIONS



Reference Gages

Length Standards Brought to You by Mitutoyo

CERA Straight Master SERIES 311 — Straightness Measuring Gage

- The CERA Straight Master is a gage used for inspecting the straightness of travel of moving elements on equipment such as machine tools, CMMs, form measuring machines and semiconductor-related equipment.
- Precision lapped reference surfaces achieve higher accuracy than conventional models.
- Alumina ceramic construction achieves high resistance to abrasion and little secular change.
- Three types (high accuracy, ultra-high accuracy and double faced models) are available to suit the majority of applications. The double faced model has two reference faces for checking straightness in two orthogonal directions.



SPECIFICATIONS

| Metric — High accuracy model | | | | |
|------------------------------|----------------|----------------|-------------------|--------|
| Order No.* | Nominal length | Straightness*1 | Size (L x W x H) | Mass |
| 311-302 | 400 mm | 0.3 µm | 440 x 35 x 50 mm | 1.8 kg |
| 311-305 | 700 mm | 0.5 µm | 740 x 35 x 50 mm | 3 kg |
| 311-307 | 1000 mm | 1.0 µm | 1040 x 45 x 80 mm | 8 kg |
| 311-309 | 1300 mm | 1.5 µm | 1340 x 45 x 80 mm | 10 kg |

* Carrying handles (4 pcs) are provided as standard for **311-307/9**.
Note: Straightness is measured within the specified range with the instrument supported at the Bessel points to minimize deflection (0.2232 x overall length from each end).

| Metric — Ultra-high accuracy model | | | | |
|------------------------------------|----------------|----------------|-------------------|--------|
| Order No.* | Nominal length | Straightness*1 | Size (L x W x H) | Mass |
| 311-332 | 400 mm | 0.2 µm | 440 x 35 x 50 mm | 1.8 kg |
| 311-335 | 700 mm | 0.4 µm | 740 x 35 x 50 mm | 3 kg |
| 311-337 | 1000 mm | 0.5 µm | 1040 x 45 x 80 mm | 8 kg |
| 311-339 | 1300 mm | 0.7 µm | 1340 x 45 x 80 mm | 10 kg |

* Carrying handles (4 pcs) are provided as standard for **311-337/9**.
Note: Straightness is measured within the specified range with the instrument supported at the Bessel points to minimize deflection (0.2232 x overall length from each end).

| Inch — High accuracy model | | | | |
|----------------------------|----------------|----------------|-------------------|--------|
| Order No.* | Nominal length | Straightness*1 | Size (L x W x H) | Mass |
| 311-322 | 16 in | 12 µin | 440 x 35 x 50 mm | 1.8 kg |
| 311-325 | 28 in | 20 µin | 740 x 35 x 50 mm | 3 kg |
| 311-327 | 40 in | 40 µin | 1040 x 45 x 80 mm | 8 kg |
| 311-329 | 50 in | 60 µin | 1340 x 45 x 80 mm | 10 kg |

* Carrying handles (4 pcs) are provided as standard for **311-327/9**.
Note: Straightness is measured within the specified range with the instrument supported at the Bessel points to minimize deflection (0.2232 x overall length from each end).

| Inch — Ultra-high accuracy model | | | | |
|----------------------------------|----------------|----------------|-------------------|--------|
| Order No.* | Nominal length | Straightness*1 | Size (L x W x H) | Mass |
| 311-342 | 16 in | 8 µin | 440 x 35 x 50 mm | 1.8 kg |
| 311-345 | 28 in | 16 µin | 740 x 35 x 50 mm | 3 kg |
| 311-347 | 40 in | 20 µin | 1040 x 45 x 80 mm | 8 kg |
| 311-349 | 50 in | 28 µin | 1340 x 45 x 80 mm | 10 kg |

* Carrying handles (4 pcs) are provided as standard for **311-347/9**.
Note: Straightness is measured within the specified range with the instrument supported at the Bessel points to minimize deflection (0.2232 x overall length from each end).



Double faced model

SPECIFICATIONS

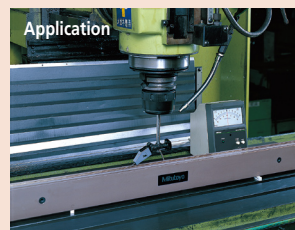
| Metric — Double faced model | | | | |
|-----------------------------|----------------|----------------|-------------------|--------|
| Order No.* | Nominal length | Straightness*1 | Size (L x W x H) | Mass |
| 311-352 | 400 mm | 0.3 µm | 440 x 45 x 80 mm | 3.2 kg |
| 311-355 | 700 mm | 0.5 µm | 740 x 45 x 80 mm | 5.5 kg |
| 311-357 | 1000 mm | 1.0 µm | 1040 x 45 x 80 mm | 8 kg |
| 311-359 | 1300 mm | 1.5 µm | 1340 x 45 x 80 mm | 10 kg |

* Fixings for carrying handles are not provided.
Note: Straightness is measured within the specified range with the instrument supported at the Bessel points to minimize deflection (0.2232 x overall length from each end).

| Inch — Double faced model | | | | |
|---------------------------|----------------|----------------|-------------------|--------|
| Order No.* | Nominal length | Straightness*1 | Size (L x W x H) | Mass |
| 311-362 | 16 in | 12 µin | 440 x 45 x 80 mm | 3.2 kg |
| 311-365 | 28 in | 20 µin | 740 x 45 x 80 mm | 5.5 kg |
| 311-367 | 40 in | 40 µin | 1040 x 45 x 80 mm | 8 kg |
| 311-369 | 50 in | 60 µin | 1340 x 45 x 80 mm | 10 kg |



An inspection certificate is supplied as standard. Refer to page X for details.



Standard accessories

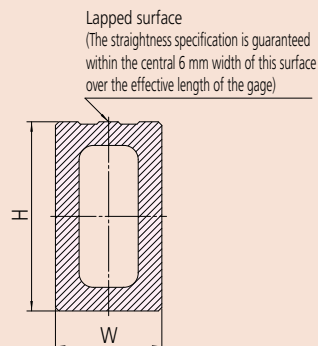
User's manual
Wooden case
Support blocks (ceramic): 3 pcs.
Chamois leather
Gloves

*Suffix Number for Inspection Certificate and Calibration Certificate

| Suffix No. | Certificate provided |
|------------|-------------------------|
| -20 | Inspection Certificate |
| -22 | Calibration Certificate |

Cross section

(High accuracy model, ultra-high accuracy model)

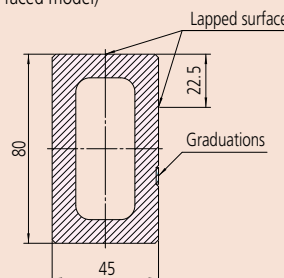


*Suffix Number for Inspection Certificate and Calibration Certificate

| Suffix No. | Certificate provided |
|------------|---------------------------------------|
| -20 | Provided with Inspection Certificate |
| -22 | Provided with Calibration Certificate |

Cross section

(Double faced model)





An inspection certificate is supplied as standard.
Refer to page X for details.

Technical Data

Reference surface

Perpendicularity tolerance: 1 μ m

Straightness tolerance: 1 μ m

Front/back faces

Perpendicularity tolerance: 5 μ m

Straightness tolerance: 5 μ m

Dedicated wooden case is provided.

High Precision Square SERIES 311

- The High Precision Square is a gage used for inspecting the travel straightness and axial perpendicularity of moving elements on equipment such as machine tools, CMMs, form measuring machines and semiconductor-related equipment.
- Four precision-lapped reference surfaces are provided.
- Better than 1 μ m / 300 mm straightness and perpendicularity of each (four) reference surface. In addition, front and back faces are accurate to better than 5 μ m / 300 mm.



311-111



311-112



311-113

SPECIFICATIONS

| Metric | | |
|-----------|-----------------------|---------|
| Order No. | Dimension (W x L x T) | Mass |
| 311-111 | 90 x 110 x 25 mm | 1.5 kg |
| 311-112 | 160 x 210 x 25 mm | 5.0 kg |
| 311-113 | 260 x 310 x 30 mm | 14.0 kg |

* 311-113 is supplied with a removable handle.

Reference Gages

Length Standards Brought to You by Mitutoyo

Square Master SERIES 311 — Squareness / Straightness Measuring

- Squareness (perpendicularity) and straightness measurements can be performed accurately and efficiently by just moving a lever.
- High accuracy perpendicularity and straightness measurement can be performed by prior setting to a master square using the built-in instrument squareness adjustment mechanism.
- Sliding force: Approx. 2 to 5 N



SPECIFICATIONS

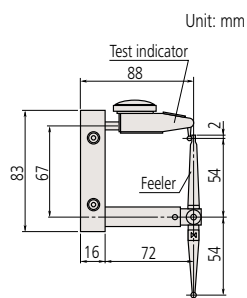
| Metric | | | | | |
|-----------|-----------------|------------|--------------|-------------------|---------|
| Order No. | Vertical travel | Squareness | Straightness | Dimension (WxDxT) | Mass |
| 311-215* | 150 mm | 3 μ m | 2 μ m | 180×200×420 mm | 13.7 kg |
| 311-225* | 250 mm | 6 μ m | 2.5 μ m | 180×200×520 mm | 16.2 kg |
| 311-245 | 450 mm | 9 μ m | 3.5 μ m | 220×220×720 mm | 24 kg |

* Riser blocks to extend the height of Square Masters can be used.

Optional accessory

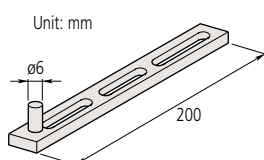
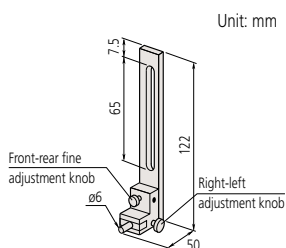
900565: Feeler

For probing surfaces that the contact point of a detector cannot reach.



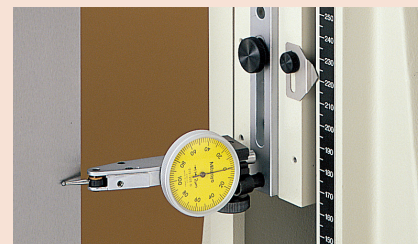
No.900571: Adjustable holder

Enables easy adjustment of indicator position.



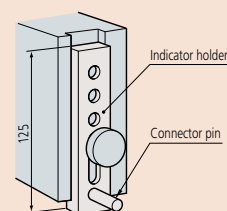
No.900551: Extension holder

Measurement position can be extended by using this 200 mm length holder instead of the indicator holder.

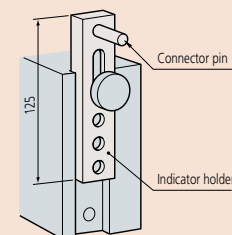


Mounting the indicator holder

Example 1



Example 2



Standard Accessories

513-401-10H (Metric)

513-401-10E (Inch)

902053: Clamp

601471: Indicator holder

538616: Hexagonal-head wrench (3 mm)

Note: Inspection certificate is not attached. Contact your local Mitutoyo sales office.

Optional accessory

900571: Adjustable holder

900551: Extension holder

900565: Feeler

Technical Data

Accuracy of graduations: ± 0.7 DIV (960-603),
 ± 0.3 DIV (960-703)

Precision Levels SERIES 960

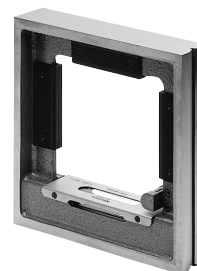
- High-precision longitudinal and transverse vials make it possible to check or level surfaces.

SPECIFICATIONS

| Order No. | Sensitivity | Dimensions (W x D x H) |
|-----------|-------------|------------------------|
| 960-603 | 0.02 mm/m | 200 x 44 x 38.2 mm |
| 960-703 | 0.02 mm/m | 200 x 44 x 200 mm |



960-603



960-703

Technical Data

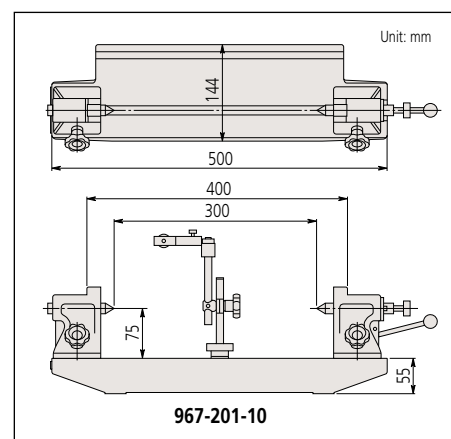
Maximum workpiece length: 300 mm
 Maximum workpiece dia.: 150 mm
 Mass: 13 kg

Bench Centers SERIES 967

FEATURES

- Used with a dial test indicator (optional), these Bench Centers provide precision measurement of concentricity on cylindrical workpieces.
- With an indicator clamp. (Holding stem diameter: 8 mm)

Dimensions



967-201-10

Reference Gages

Length Standards Brought to You by Mitutoyo

Steel Rules SERIES 182

- Clear graduations on satin-chrome finish.
- Stainless tempered.



182-101



182-102



182-103



182-105



182-201



182-202



182-205



182-302

SPECIFICATIONS

Metric Wide Rigid Rules

| Order No. | Graduations | Range | Width |
|-----------|---------------------------------|--------|-------|
| 182-111 | 1 mm, 0.5 mm (on both faces) | 150 mm | 19 mm |
| 182-131 | | 300 mm | 25 mm |
| 182-151 | | 450 mm | 30 mm |
| 182-171 | | 600 mm | 30 mm |

Inch/Metric Wide Rigid Rules

| Order No. | Graduations | Range | Width |
|-----------|------------------------------------|--------------|---------|
| 182-105 | 1/32 in, 1/64 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.75 in |
| 182-125 | | 12 in/300 mm | 0.98 in |
| 182-145 | | 18 in/450 mm | 1.18 in |
| 182-165 | | 24 in/600 mm | 1.18 in |
| 182-106 | 1/50 in, 1/100 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.75 in |
| 182-126 | | 12 in/300 mm | 0.98 in |
| 182-107 | 1/10 in, 1/100 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.75 in |
| 182-108 | 1/10 in, 1/50 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.75 in |

Inch Wide Rigid Rules

| Order No. | Graduations | Range | Width |
|-----------|--|-------|---------|
| 182-101 | 1/8 in, 1/16 in, 1/32 in, 1/64 in | 6 in | 0.75 in |
| 182-121 | | 12 in | 0.98 in |
| 182-141 | | 18 in | 0.71 in |
| 182-161 | | 24 in | 1.18 in |
| 182-102 | 1/50 in, 1/100 in, 1/32 in, 1/64 in | 6 in | 0.75 in |
| 182-122 | | 12 in | 0.98 in |
| 182-142 | | 18 in | 1.18 in |
| 182-162 | | 24 in | 1.18 in |
| 182-103 | 1/10 in, 1/100 in, 1/32 in, 1/64 in | 6 in | 0.75 in |
| 182-123 | | 12 in | 0.98 in |
| 182-143 | | 18 in | 1.18 in |
| 182-163 | | 24 in | 1.18 in |
| 182-104 | 1/10 in, 1/50 in, | 6 in | 0.75 in |
| 182-124 | 1/32 in, 1/64 in | 12 in | 0.98 in |

Metric Fully-Flexible Rules

| Order No. | Graduations | Range | Width |
|-----------|---------------------------------|--------|-------|
| 182-211 | 1 mm, 0.5 mm (on both faces) | 150 mm | 12 mm |
| 182-231 | | 300 mm | 12 mm |
| 182-251 | | 450 mm | 19 mm |
| 182-271 | | 600 mm | 19 mm |

Inch/Metric Fully-Flexible Rules

| Order No. | Graduations | Range | Width |
|-----------|------------------------------------|--------------|---------|
| 182-205 | 1/32 in, 1/64 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.47 in |
| 182-225 | | 12 in/300 mm | 0.47 in |
| 182-245 | | 18 in/450 mm | 0.75 in |
| 182-265 | | 24 in/600 mm | 0.75 in |
| 182-206 | 1/50 in, 1/100 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.47 in |
| 182-226 | | 12 in/300 mm | 0.47 in |
| 182-207 | 1/10 in, 1/100 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.47 in |
| 182-208 | 1/10 in, 1/50 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.47 in |

Inch Fully-Flexible Rules

| Order No. | Graduations | Range | Width |
|-----------|--|-------|---------|
| 182-201 | 1/8 in, 1/16 in, 1/32 in, 1/64 in | 6 in | 0.47 in |
| 182-221 | | 12 in | 0.47 in |
| 182-241 | | 18 in | 1.18 in |
| 182-261 | | 24 in | 0.75 in |
| 182-202 | 1/50 in, 1/100 in, 1/32 in, 1/64 in | 6 in | 0.47 in |
| 182-222 | | 12 in | 0.47 in |
| 182-242 | | 18 in | 0.75 in |
| 182-262 | | 24 in | 0.75 in |
| 182-203 | 1/10 in, 1/100 in, 1/32 in, 1/64 in | 6 in | 0.47 in |
| 182-223 | | 12 in | 0.47 in |
| 182-243 | | 18 in | 0.75 in |
| 182-263 | | 24 in | 0.75 in |
| 182-204 | 1/10 in, 1/50 in, | 6 in | 0.47 in |
| 182-224 | 1/32 in, 1/64 in | 12 in | 0.47 in |

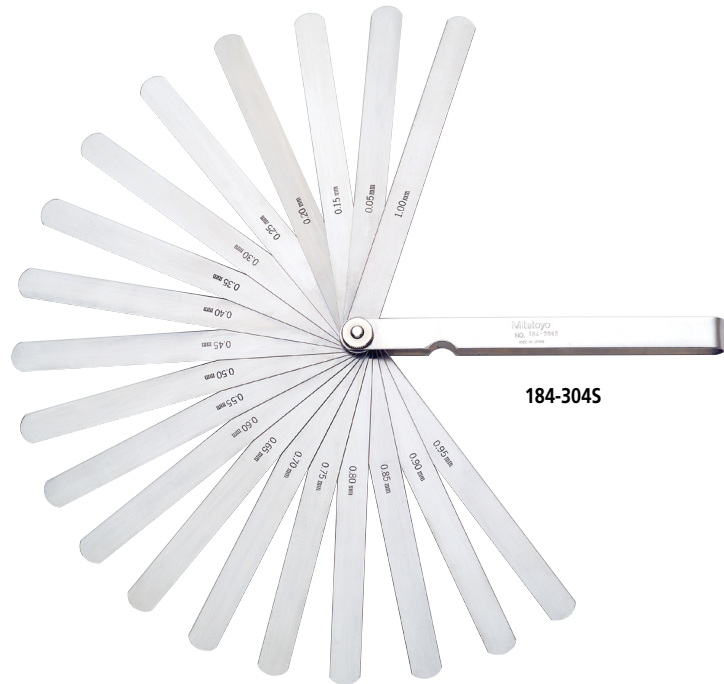
Inch/Metric Semi-Flexible Rules

| Order No. | Graduations* | Range | Width |
|-----------|---|---------------|---------|
| 182-302 | 1/16 in, 1/32 in, 1/64 in, 1 mm, 0.5 mm | 6 in/150 mm | 0.51 in |
| 182-303 | | 8 in/200 mm | 0.51 in |
| 182-305 | | 12 in/300 mm | 0.59 in |
| 182-307 | | 20 in/500 mm | 0.59 in |
| 182-309 | | 40 in/1000 mm | 0.59 in |

* Engraved on the front side only.

Thickness Gages SERIES 184

- Metric thickness gages are available with tapered leaves.
- Each leaf is marked with its thickness.
- Each leaf is detachable if necessary.



184-304S

SPECIFICATIONS

| Metric | | | |
|-----------|---------------|--|-----------|
| Order No. | Range | Composition of leaves | Remarks |
| 184-313S | 0.05 - 1 mm | 28 leaves: 0.05 - 0.15 mm by 0.01 mm, 0.2 - 1 mm by 0.05 mm | — |
| 184-303S | | 28 leaves: 0.05 - 0.15 mm by 0.01 mm, 0.2 - 1 mm by 0.05 mm | Long leaf |
| 184-304S | 0.05 - 1 mm | 20 leaves: 0.05 - 1 mm by 0.05 mm | Long leaf |
| 184-305S | 0.05 - 1 mm | 13 leaves: 0.05 - 0.3 mm by 0.05 mm, 0.4 - 1 mm by 0.1 mm | — |
| 184-301S | | 13 leaves: 0.05 - 0.3 mm by 0.05 mm, 0.4 - 1 mm by 0.1 mm | Long leaf |
| 184-306S | 0.05 - 0.8 mm | 10 leaves: 0.05 - 0.2 mm by 0.05 mm, 0.3 - 0.8 mm by 0.1 mm | — |
| 184-308S | | 10 leaves: 0.05 - 0.2 mm by 0.05 mm, 0.3 - 0.8 mm by 0.1 mm | Long leaf |
| 184-307S | 0.03 - 0.5 mm | 13 leaves: 0.03 - 0.1 mm by 0.01 mm, 0.2 - 0.5 mm by 0.1 mm, 0.15 mm | — |
| 184-302S | | 13 leaves: 0.03 - 0.1 mm by 0.01 mm, 0.2 - 0.5 mm by 0.1 mm, 0.15 mm | Long leaf |

DIMENSIONS

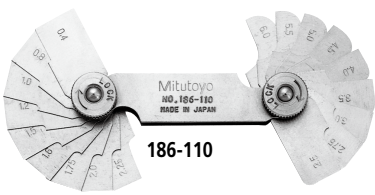
| Unit: mm | | | |
|----------|-----------|-----|-----|
| | Order No. | L1 | L2 |
| | 184-313S | 100 | 106 |
| | 184-303S | 150 | 156 |
| | 184-304S | 150 | 156 |
| | 184-305S | 100 | 106 |
| | 184-301S | 150 | 156 |
| | 184-306S | 100 | 106 |
| | 184-308S | 150 | 156 |
| | 184-307S | 100 | 106 |
| | 184-302S | 150 | 156 |

Reference Gages

Length Standards Brought to You by Mitutoyo

Radius Gages SERIES 186

- Radius size is stamped on each gage leaf.
- Each leaf comprises an internal and an external radius gage of the same size.
- With locking clamp.

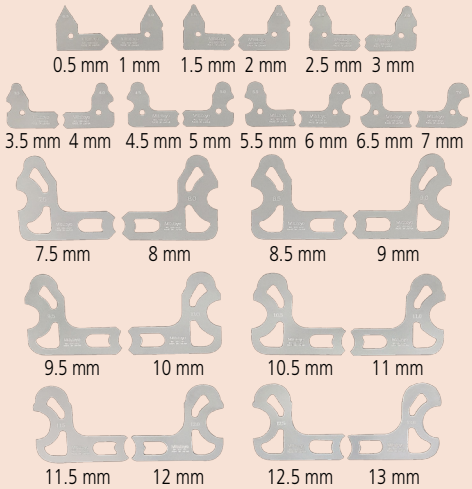


SPECIFICATIONS

| Metric | | | |
|-----------|--------------|--|-----------------------------|
| Order No. | Range | Composition of leaves | Remarks |
| 186-110 | 0.4 - 6 mm | 18 leaves: 0.4, 0.8, 1, 1.2, 1.5, 1.6 mm, 1.75 - 3 mm by 0.25 mm, 3.5 - 6 mm by 0.5 mm | 90° arc |
| 186-902 | 0.5 - 13 mm | 26 leaves: 0.5 - 13 mm by 0.5 mm | 90° arc, separate part type |
| 186-105 | 1 - 7 mm | 34 leaves: 1 - 3 mm by 0.25 mm, 3.5 - 7 mm by 0.5 mm | 180° arc |
| 186-106 | 7.5 - 15 mm | 32 leaves: 7.5 - 15 mm by 0.5 mm | 180° arc |
| 186-107 | 15.5 - 25 mm | 30 leaves: 15.5 - 20 mm by 0.5 mm, 21 - 25 mm by 1 mm | 180° arc |

| Inch | | | |
|-----------|--------------------|---|----------|
| Order No. | Range | Composition of leaves | Remarks |
| 186-103 | 1/32 in - 17/64 in | 16 leaves: 1/32 in - 17/64 in by 64ths | 90° arc |
| 186-101 | 1/32 in - 1/4 in | 30 leaves: 1/32 in - 1/4 in by 64ths | 180° arc |
| 186-102 | 17/64 in - 1/2 in | 16 leaves: 17/64 in - 1/2 in by 64ths | 180° arc |
| 186-104 | 9/32 in - 33/64 in | 16 leaves: 9/32 in - 33/64 in by 64ths | 90° arc |
| 186-901* | 1/64 in - 1/2 in | 25 leaves: 1/64 in - 17/64 in by 64ths, 9/32 in - 1/2 in by 32nds | — |

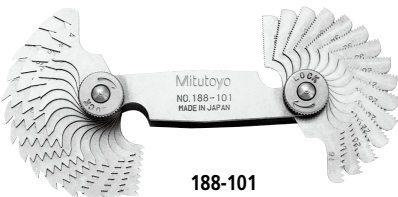
* Each gage has five measuring locations.



Composition of leaves for 186-902

Thread Pitch Gages SERIES 188

- Thread pitch is stamped on each gage.
- Metric, Unified, and Whitworth screw pitch gages.



SPECIFICATIONS

Metric Screw Pitch Gages

| Order No. | Range | Composition of leaves |
|-----------|-------------|---|
| 188-130 | 0.35 - 6 mm | 22 leaves: 0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6 mm and 60° angle gage |
| 188-122 | 0.4 - 7 mm | 21 leaves: 0.4, 0.5, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7 mm |
| 188-121 | 0.4 - 7 mm | 18 leaves: 0.4, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7 mm |

Unified Screw Pitch Gages

| Order No. | Range | Composition of leaves |
|-----------|------------|---|
| 188-111 | 4 - 42 TPI | 30 leaves: 4, 4 ^{1/2} , 5, 5 ^{1/2} , 6, 7, 8, 9, 10, 11, 11 ^{1/2} , 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42 TPI |

Note: Metric and Unified Pitch Gage Set (188-151) is available. It consists of 188-122 (Metric) and 188-111 (Unified).

Metric and Unified Screw Pitch Gage Set

| Order No. | Range | Composition of leaves |
|-----------|-----------------------|---------------------------------------|
| 188-151 | 0.4 - 7 mm/4 - 42 TPI | 51 leaves: Set of 188-122 and 188-111 |

Whitworth Screw Pitch Gages

| Order No. | Range | Composition of leaves |
|-----------|------------|---|
| 188-101 | 4 - 42 TPI | 30 leaves: 4, 4 ^{1/2} , 5, 5 ^{1/2} , 6, 7, 8, 9, 10, 11, 11 ^{1/2} , 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42 TPI |
| 188-102 | 4 - 60 TPI | 28 leaves: 4, 4 ^{1/2} , 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 34, 36, 40, 48, 60 TPI |

Technical Data

Range: - 360 ° to + 360 °
 Accuracy: $\pm 2'$ ($\pm 0.03^\circ$)
 Repeatability: 1'
 Resolution: 1' (0.01 °)
 Battery: Lithium Battery
 Battery life: 2,000 hours

Function

Presetting

Digimatic Universal Protractor SERIES 187

- Data output function makes it easy to gather statistical data.
- Can be attached to height gages using a gage holder (**950750**, metric)
- Setting preset value.
- Removable blade.

SPECIFICATIONS

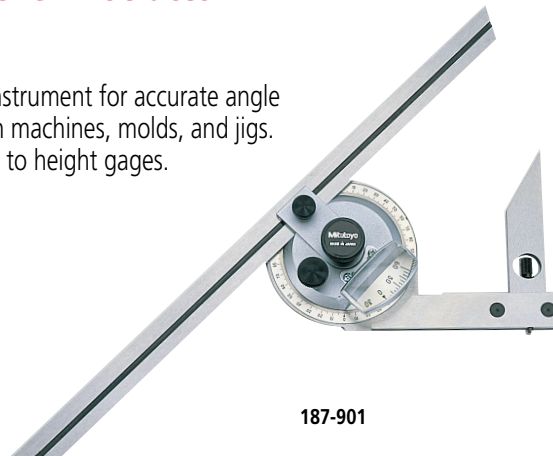
| Order No. | Blade length | Remarks (standard accessory) |
|----------------|--------------|--------------------------------------|
| 187-501 | 150 mm | Height gage holder (950750) |
| 187-502 | 300 mm | Height gage holder (950750) |
| 187-551 | 6 in | Height gage holder (950749) |
| 187-552 | 12 in | Height gage holder (950749) |



187-501

Universal Bevel Protractor SERIES 187

- High-precision instrument for accurate angle measurement on machines, molds, and jigs.
- Can be attached to height gages.
- Graduation: 5'



187-901

SPECIFICATIONS

| Metric | | |
|----------------|--------------|-----------------------|
| Order No. | Blade length | Remarks |
| 187-901 | 150, 300 mm | w/60°, 45°, 30° edges |
| 187-907 | 150 mm | w/60°, 45° edges |
| 187-908 | 300 mm | w/60°, 45° edges |

| Inch | | |
|----------------|--------------|-----------------------|
| Order No. | Blade length | Remarks |
| 187-902 | 6 in, 12 in | w/60°, 45°, 30° edges |
| 187-904 | 6 in | w/60°, 45° edges |
| 187-906 | 12 in | w/60°, 45° edges |

Technical Data

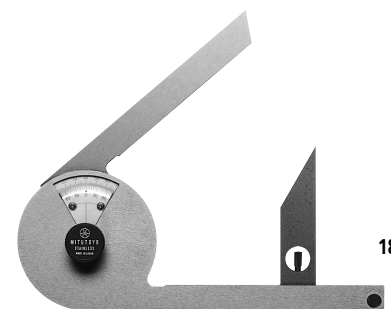
Range: 90 ° x 4 (360 °)
 Graduation: 5 min. (0 ° - 90 ° - 0 °)
 Blade edge angle: 30 ° and 60 °
 Mass: 260 g

Bevel Protractor SERIES 187

- Consists of three sheets of stainless steel, the middle one of which is made for angle measurements.

SPECIFICATIONS

| Order No. | Blade length | Remarks |
|----------------|--------------|------------------|
| 187-201 | 137 mm | w/60°, 30° edges |



187-201

Reference Gages

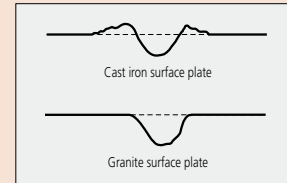
Length Standards Brought to You by Mitutoyo

Black Granite Surface Plates SERIES 517

- Natural granite is free from deterioration or dimensional change over time.
- Granite surface plates have significant advantages over cast iron surface plates: Twice as hard as cast iron. Non-magnetic. Low thermal expansion.
- Free from wringing, so there is no interruption of work.
- Free from burrs or protrusions because of the fine grain structure and insignificant stickiness; this ensures a high degree of flatness over a long service life and causes no damage to workpieces or instruments.
- Use these plates in a stable temperature environment. Since flatness error occurs when there is a temperature difference between the working surface and the underside, avoid working in direct sunlight. Also, do not place a plate in the vicinity of an air conditioner, etc. (Recommended environment: Temperature 20 ± 1 °C, Humidity 58 ± 2 %)



An inspection certificate is supplied as standard. Refer to page X for details.



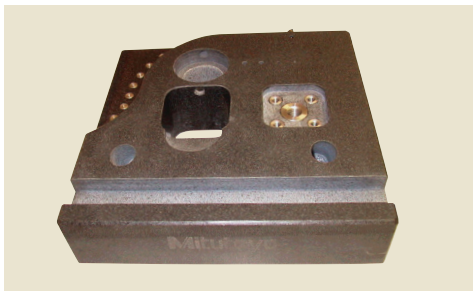
1000 x 750 mm



600 x 600 mm

Custom-made Granite Products

Mitutoyo can manufacture granite products to your design (such as main structural components of semiconductor instruments and process machinery).



Grinding CMM granite tables on a large grinding machine

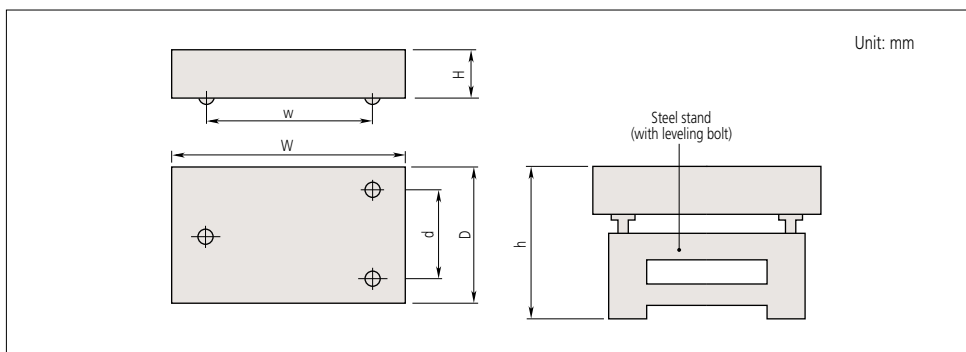
SPECIFICATIONS

| Order No. | Size | | | Flatness | Mass | Stand (Option) Order No. | | | h |
|-----------|------------------|---------|---------|----------|---------|--------------------------|-------------------|-------------|----------------|
| | WxDxh | d | w | | | Normal type | with safety frame | with caster | |
| 517-401 | 300×300×100 mm | 240 mm | 240 mm | 2 μm | 27 kg | — | — | — | — |
| 517-301 | | | | 3 μm | | | | | |
| 517-101 | | | | 5 μm | | | | | |
| 517-411 | 450×300×100 mm | 240 mm | 390 mm | 2 μm | 40 kg | — | — | — | — |
| 517-311 | | | | 3 μm | | | | | |
| 517-111 | | | | 6 μm | | | | | |
| 517-414 | 600×450×100 mm | 370 mm | 500 mm | 2.5 μm | 80 kg | 517-203 | 517-203R | 517-203CR | 755 - 775 mm*1 |
| 517-314 | | | | 4 μm | | | | | |
| 517-114 | | | | 8 μm | | | | | |
| 517-403 | 600×600×130 mm | 500 mm | 500 mm | 2.5 μm | 140 kg | 517-204 | 517-204R | 517-204CR | 755 - 775 mm*1 |
| 517-303 | | | | 5 μm | | | | | |
| 517-103 | | | | 8 μm | | | | | |
| 517-405 | 750×500×130 mm | 420 mm | 630 mm | 3 μm | 146 kg | 517-205 | 517-205R | 517-205CR | 755 - 775 mm*1 |
| 517-305 | | | | 5 μm | | | | | |
| 517-105 | | | | 9 μm | | | | | |
| 517-407 | 1000×750×150 mm | 630 mm | 700 mm | 3 μm | 337 kg | 517-206 | 517-206R | 517-206CR | 755 - 775 mm*1 |
| 517-307 | | | | 6 μm | | | | | |
| 517-107 | | | | 12 μm | | | | | |
| 517-409 | 1000×1000×150 mm | 700 mm | 700 mm | 3.5 μm | 450 kg | 517-207 | 517-207R | 517-207CR | 735 - 775 mm*1 |
| 517-309 | | | | 7 μm | | | | | |
| 517-109 | | | | 13 μm | | | | | |
| 517-413 | 1500×1000×200 mm | 700 mm | 1100 mm | 4 μm | 900 kg | 517-208 | 517-208R | 517-208CR | 735 - 775 mm*1 |
| 517-313 | | | | 8 μm | | | | | |
| 517-113 | | | | 16 μm | | | | | |
| 517-410 | 2000×1000×250 mm | 700 mm | 1500 mm | 4.5 μm | 1500 kg | 517-209 | 517-209R | 517-209CR | 735 - 775 mm*1 |
| 517-310 | | | | 9.5 μm | | | | | |
| 517-110 | | | | 19 μm | | | | | |
| 517-416 | 2000×1500×300 mm | 1100 mm | 1500 mm | 5 μm | 2700 kg | 517-210 | 517-210R | 517-210CR | 735 - 775 mm*1 |
| 517-316 | | | | 10 μm | | | | | |
| 517-116 | | | | 20 μm | | | | | |
| 517-317 | 2000×2000×350 mm | 1500 mm | 1500 mm | 11 μm | 4200 kg | — | — | — | 700 - 706 mm*1 |
| 517-117 | | | | 22 μm | | | | | |
| 517-318 | 3000×1500×400 mm | 1100 mm | 2000 mm | 12.5 μm | 5400 kg | — | — | — | 700 - 706 mm*1 |
| 517-118 | | | | 25 μm | | | | | |
| 517-319 | 3000×2000×500 mm | 1500 mm | 2000 mm | 13.5 μm | 9000 kg | — | — | — | 700 - 706 mm*1 |
| 517-119 | | | | 27 μm | | | | | |

* With leveling bolt.

*1 Distance from the bottom of the large granite plate block mount to the granite plate top surface.

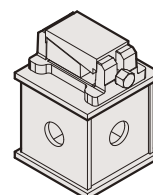
DIMENSIONS



SPECIFICATIONS: Stand

| Block mount | Applicable surface plate | |
|-------------|--------------------------|----------------------|
| Order No. | Order No. | Size (W × D × H) |
| 06AAY174 | 517-317 | 2000 × 2000 × 350 mm |
| | 517-117 | |
| 06AAY175 | 517-318 | 3000 × 1500 × 400 mm |
| | 517-118 | |
| 06AAY176 | 517-319 | 3000 × 2000 × 500 mm |
| | 517-119 | |

Block platform for supporting legs



Block platform for auxiliary legs

