

Dial Test Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

SERIES 513 — Dial Test Indicator Features

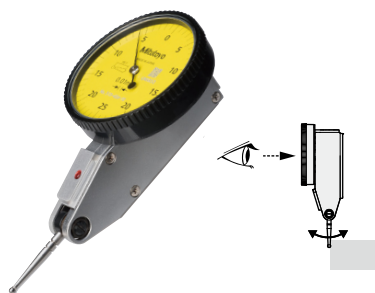
- Designed to probe surfaces that cannot be reached with a normal dial gauge. Useful both for alignment and for measurement purposes.
- Mitutoyo's proprietary new design permits smooth pointer operation.
- Strong frame provides excellent rigidity and durability.
- Non-magnetic pointer and contact point permit reliable operation even in magnetic environments.
- Clear and concise wide dial face allows excellent visibility.
- The surface of the crystal is hard-coated for excellent scratch resistance.
- Flat crystal makes graduations easy to read. Moreover, the O-ring sealing method used for the bezel prevents water or oil penetration. (Note that this type is NOT waterproof.)
- Six types are available: horizontal, horizontal (20° tilted face), vertical, parallel, universal, and pocket, allowing users to select the model most suited to their needs.
 - Horizontal: Standard
 - Horizontal (20° Tilted Face): Dial face inclined 20° compared with the vertical type, allows easy reading.
 - Vertical: Best suited for centering holes under the spindle of a machine tool.
 - Parallel: The scale can be read from the front, with the stylus pivoting in a plane parallel to that of the dial face.
 - Universal: The direction of the probe movement can be freely changed.
 - Pocket: Compact type.

Feature icons

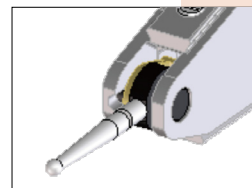
| Icon | Feature description |
|------|---|
| | High accuracy |
| | With revolution counter |
| | Long stylus |
| | Standard |
| | Double scale spacing |
| | Compact |
| | Carbide contact point (Slightly magnetic) |
| | Ruby contact point (non-magnetic) |



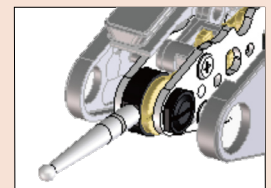
Horizontal



Vertical



Old design: Stylus bearing screw held in frame.



New design: Stylus bearing screw held in sub-plate provides smoother tracking action.

Horizontal (20° Tilted face)



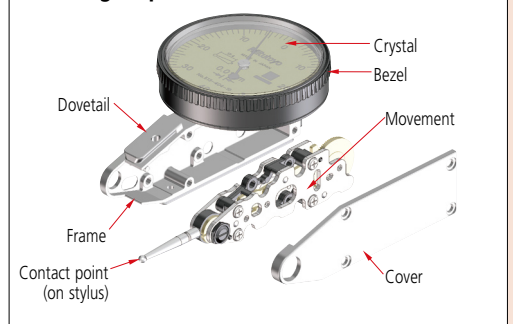
Parallel



Universal



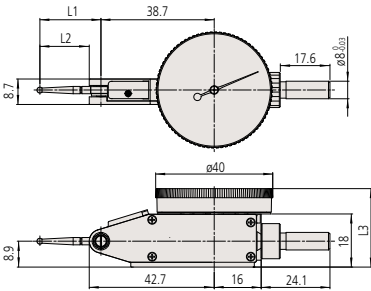
Naming of parts



DIMENSIONS

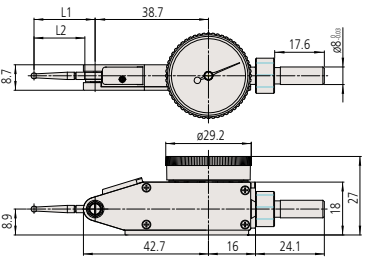
Horizontal

unit: mm



| Order No. | L1 | L2 | L3 |
|-----------------|------|------|----|
| 513-401-10E | | | |
| 513-471-10E | 14.7 | 11.2 | 27 |
| 513-405-10E/A/T | | | |
| 513-475-10E | 18.7 | 15.2 | 28 |
| 513-425-10E/A | | | |
| 513-404-10E/A/T | 20.9 | 17.4 | 27 |
| 513-474-10E | | | |
| 513-424-10E/A/T | 22.2 | 18.7 | 28 |
| 513-426-10E/A | | | |
| 513-478-10E | | | |
| 513-414-10E/A/T | 37.4 | 33.9 | 27 |
| 513-415-10E/A/T | 44.5 | 41.0 | |
| 513-477-10E | | | |

Compact



| Type | Order No. | L1 | L2 |
|---------|-------------|------|------|
| Compact | 513-465-10E | 18.7 | 15.2 |
| | 513-464-10E | 20.9 | 17.4 |
| | 513-466-10E | 22.2 | 18.7 |

Note: A slight difference may occur depending on the center of the contact point, graduation plate, and stem fixing position, etc.

Special Set: No.513-908-10E(Metric)

513-404-10E: Dial test indicator
7014-10: Mini magnetic stand

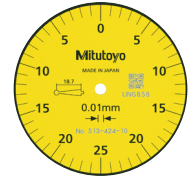
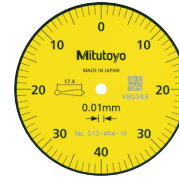
No.513-907-10E (inch)

513-402-10E: Dial test indicator
7014E-10: Mini magnetic stand



Dial Test Indicator SERIES 513 — Horizontal Type

- Provides easy access to shrouded surfaces that cannot be reached with conventional dial indicators.
- No-clutch structure for automatic reversal of measuring direction.
- Resistant to water and dust thanks to the one-piece bezel and O-ring seal for the crystal.
- The glare-free flat crystal face has a scratch-resistant coating.
- High sensitivity and quick response due to low-friction jeweled bearings.

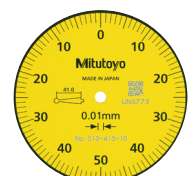
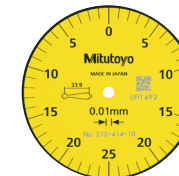


Graduation: 0.01 mm
Range: 0.8 mm

Graduation: 0.01 mm
Range: 0.5 mm

513-404-10E/513-404-10A/
513-404-10T/513-404-10C

513-424-10E/513-424-10A/
513-424-10T

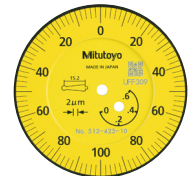
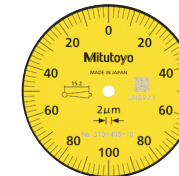


Graduation: 0.01 mm
Range: 0.5 mm

Graduation: 0.01 mm
Range: 1.0 mm

513-414-10E/513-414-10A/
513-414-10T

513-415-10E/513-415-10A/
513-415-10T

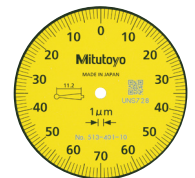
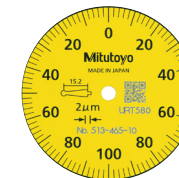


Graduation: 0.002 mm
Range: 0.2 mm

Graduation: 0.002 mm
Range: 0.6 mm

513-405-10E/513-405-10A/
513-405-10T

513-425-10E/513-425-10A

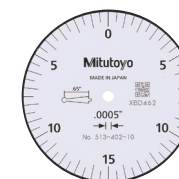


Graduation: 0.002 mm
Range: 0.2 mm

Graduation: 0.001 mm
Range: 0.14 mm

513-465-10E

513-401-10E



Graduation: 0.0005 in
Range: 0.03 in

Graduation: 0.0001 in
Range: 0.008 in

513-402-10E/513-402-10T

513-403-10E/513-403-10T

Dial Test Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

SPECIFICATIONS

| Metric | | | Graduation | Dial reading | Range | Accuracy | | | | Mass | Measuring force | High accuracy | With revolution counter | Long stylus | Standard | Double scale spacing | Compact | Carbide contact point (Slightly magnetic) | Ruby contact point (nonmagnetic) | | |
|-------------|-------------|-------------|------------|--------------|----------|-----------------|----------|--------------------|------------|---------------|-----------------|---------------|-------------------------|---------------|----------|----------------------|---------|---|----------------------------------|--------------|--|
| Basic set | Plus set | Full set | | | | Measuring range | One rev. | 10 scale divisions | Hysteresis | | | | | | | | | | | Repetability | |
| 513-424-10E | 513-424-10A | 513-424-10T | 0.01 mm | 0-25-0 | 0.5 mm | 6 μm | - | 4 μm | 5 μm | 3 μm | 45 g | 0.3 N or less | | | | | | | | | |
| 513-478-10E | - | - | | | | 10 μm | - | 5 μm | | | 41 g | 0.2 N or less | | | | | | | | | |
| 513-466-10E | - | - | | | 0-40-0 | 0.8 mm | 1.5 mm | 16 μm | 10 μm | 5 μm | 45 g | 0.4 N or less | | | | | | | | | |
| 513-414-10E | 513-414-10A | 513-414-10T | | | | | 9 μm | 4 μm | 41 g | 0.3 N or less | | | | | | | | | | | |
| 513-426-10E | 513-426-10A | - | | | 0-50-0 | 1.0 mm | 10 μm | - | 5 μm | 5 μm | 45 g | 0.2 N or less | | | | | | | | | |
| 513-404-10E | 513-404-10A | 513-404-10T | | | | | | | | | | | 4 μm | 3 μm | 41 g | 0.3 N or less | | | | | |
| 513-474-10E | - | - | | | 0-100-0 | 0.2 mm | 4 μm | - | 2 μm | 3 μm | 45 g | 0.3 N or less | | | | | | | | | |
| 513-464-10E | - | - | | | | | | | | | | | 7 μm | 5 μm | 41 g | 0.4 N or less | | | | | |
| 513-415-10E | 513-415-10A | 513-415-10T | | | 0.002 mm | 0-70-0 | 0.14 mm | 4 μm | - | 3 μm | 45 g | 0.3 N or less | | | | | | | | | |
| 513-475-10E | - | - | | | | | | | | | | | 7 μm | 5 μm | 41 g | 0.4 N or less | | | | | |
| 513-465-10E | - | - | 0.001 mm | 0-70-0 | 0.14 mm | 4 μm | - | 3 μm | 45 g | 0.3 N or less | | | | | | | | | | | |
| 513-425-10E | 513-425-10A | - | | | | | | | | | 7 μm | 5 μm | 41 g | 0.4 N or less | | | | | | | |
| 513-401-10E | - | - | | | | | | | | | | | | | | | | | | | |
| 513-471-10E | - | - | | | | | | | | | | | | | | | | | | | |

| Inch | | | Graduation | Dial reading | Range | Accuracy | | | Mass | Measuring force | High accuracy | With revolution counter | Long stylus | Standard | Double scale spacing | Compact | Carbide contact point (Slightly magnetic) | Ruby contact point (nonmagnetic) | | | | | | | | |
|-------------|----------|-------------|------------|--------------|----------|------------|------------|--------------|------|-----------------|---------------|-------------------------|-------------|----------|----------------------|---------|---|----------------------------------|--|--|--|--|--|--|--|--|
| Basic set | Plus set | Full set | | | | One rev. | Hysteresis | Repetability | | | | | | | | | | | | | | | | | | |
| 513-402-10E | - | 513-402-10T | 0.0005 in | 0-15-0 | 0.03 in | ±0.0005 in | 0.0002 in | ±0.0002 in | 45 g | 0.3 N or less | | | | | | | | | | | | | | | | |
| 513-472-10E | - | - | | | | | | | | | 0.2 N or less | | | | | | | | | | | | | | | |
| 513-412-10E | - | 513-412-10T | | | | | | | | | 41 g | | | | | | | | | | | | | | | |
| 513-479-10E | - | - | | | | | | | | | 0.3 N or less | | | | | | | | | | | | | | | |
| 513-462-10E | - | - | 0.0001 in | 0-4-0 | 0.008 in | ±0.0001 in | 0.0001 in | ±0.00004 in | 45 g | 0.3 N or less | | | | | | | | | | | | | | | | |
| 513-407-10E | - | 513-407-10T | | | | | | | | | 41 g | | | | | | | | | | | | | | | |
| 513-403-10E | - | 513-403-10T | | | | | | | | | 0.3 N or less | | | | | | | | | | | | | | | |
| 513-473-10E | - | - | | | | | | | | | 41 g | | | | | | | | | | | | | | | |
| 513-463-10E | - | - | | | | | | | | | | | | | | | | | | | | | | | | |

| Metric/Inch | | | Graduation | Dial reading | Range | Accuracy | | | | Mass | Measuring force | High accuracy | With revolution counter | Long stylus | Standard | Double scale spacing | Compact | Carbide contact point (Slightly magnetic) | Ruby contact point (nonmagnetic) |
|-------------|----------|-------------|----------------------|-----------------|--------------------|-----------------|--------------------|------------|--------------|------|-----------------|---------------|-------------------------|-------------|----------|----------------------|---------|---|----------------------------------|
| Basic set | Plus set | Full set | | | | Measuring range | 10 scale divisions | Hysteresis | Repetability | | | | | | | | | | |
| 513-409-10E | - | 513-409-10T | 0.002 mm / 0.0001 in | 0-10-0 / 0-38-0 | 0.2 mm / 0.0076 in | 4 μm | 2 μm | 3 μm | 1 μm | 45 g | 0.3 N or less | | | | | | | | |

| Inch/Metric | | | Graduation | Dial reading | Range | Accuracy | | | Mass | Measuring force | High accuracy | With revolution counter | Long stylus | Standard | Double scale spacing | Compact | Carbide contact point (Slightly magnetic) | Ruby contact point (nonmagnetic) |
|-------------|----------|-------------|---------------------|-----------------|------------------|-----------------|------------|--------------|------|-----------------|---------------|-------------------------|-------------|----------|----------------------|---------|---|----------------------------------|
| Basic set | Plus set | Full set | | | | Measuring range | Hysteresis | Repetability | | | | | | | | | | |
| 513-406-10E | - | 513-406-10T | 0.0005 in / 0.01 mm | 0-15-0 / 0-35-0 | 0.03 in / 0.7 mm | ±0.0005 in | 0.0002 in | ±0.0002 in | 45 g | 0.3 N or less | | | | | | | | |

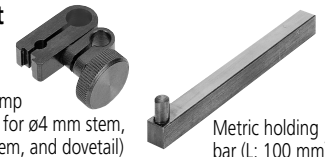
Note 1: Stem with ø8 dovetail groove is not included in the mass.

Note 2: Be sure to perform calibration with a reference gage after exchanging the contact point. The inside parts may be damaged when the contact point is exchanged due to the breakage. In the case the of the significant deterioration in the operation, repair is required.

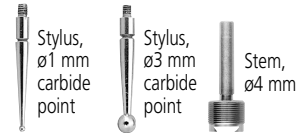
Set Configuration: Metric and Metric/Inch

Full set

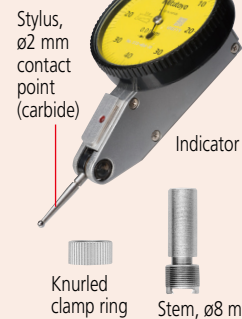
Swivel clamp (900321, for ø4 mm stem, ø8 mm stem, and dovetail) Metric holding bar (L: 100 mm)



Plus set



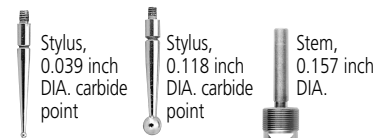
Basic set



Set Configuration: Inch and Inch/Metric

Full set

Stylus, 0.039 inch DIA. carbide point Stylus, 0.118 inch DIA. carbide point Stem, 0.157 inch DIA.



Swivel clamp (900322, for .157 inch DIA. stem, 3/8 inch DIA. stem, and dovetail) Inch holding bar (L: 4 inch)



Basic set

