Dial Test Indicators

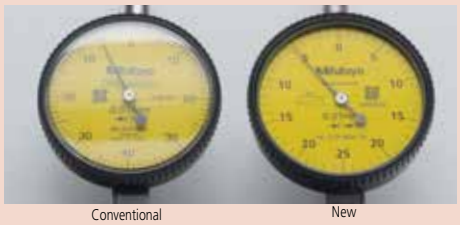
SERIES 513

FEATURES

- One piece movement for high-impact resistance and durability
- Contact point length is printed on dial face to avoid accuracy issues
- Scratch and smudge-resistant, anti-glare crystal for easy-to-read dial
- Newly designed contact point holder prevents backlash
- Includes NIST-traceable Certificate of Inspection - bidirectional
- Limit hands (optional) can be attached to the bezel, allowing easy identification of the upper and lower limits of tolerance.
- A ø8mm (ø0.315 in) plain stem (21CAB104) for the Metric models or a ø9.52mm (ø3/8 in) plain stem (21CAB105) for the Inch models that attaches to any dovetail on the frame is supplied as a standard accessory. Other sizes are available as optional accessories:
  ø4mm (ø0.157 in) stem: **21CAB106**
  ø6mm (ø0.236 in) stem: **21CAB103**
- Optional ruby tip has wear-resistance several times greater than a carbide tip and, since it is nonconductive, it can be used safely on an electrical discharge machine.
- Using universal fonts, changing dial face color and reviewing the relationship between pointer and scale marks have drastically improved readability.
- The O-ring seal on the bezel provides smooth rotation and prevents dust and oil from penetrating the dial face.
- Bonding the bezel and crystal eliminates a gap for cutting fluid or oil to penetrate the dial face.
- A flange prevents the bezel from unintentionally being removed during handling.
- Four models are available, each with a different orientation of the dial to allow the best visibility in any situation.
  – Standard - dial is on top of the frame.
  – Vertical: dial is on the end of the frame.
  – Standard (20° tilted face): dial is on top of the frame but tilted 20°.
  – Horizontal: dial is on the side of the frame.
- The conventional method of mounting the stylus pivot bearing screw in the frame is prone to loosen with prolonged use. A unique sub-plate structure has been incorporated in all models to eliminate this issue.

Contact point length is printed on dial face to avoid accuracy issues

Scratch and smudge-resistant, anti-glare crystal for easy-to-read dial



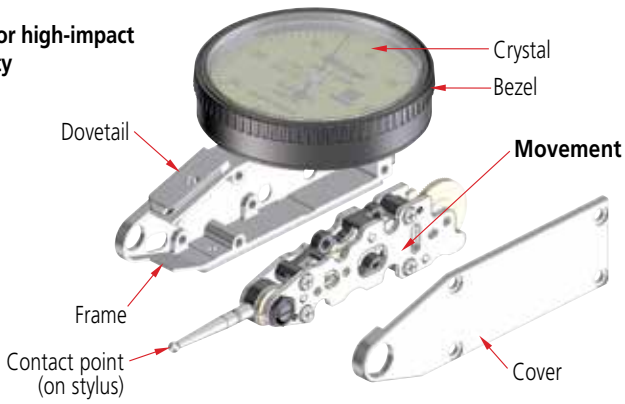
Conventional New

Newly designed contact point holder prevents backlash

Includes NIST-traceable Certificate of Inspection - bidirectional

Impact-resistant bezel

One piece movement for high-impact resistance and durability



Four models are available:

Standard Vertical Standard (20° Tilted face) Parallel

Mitutoyo

Dial Test Indicators

SERIES 513 — Horizontal Type

FEATURES

- Performs easy and accurate measurement of narrow or recessed areas, plus inside and outside diameters that dial indicators cannot access.
- No-clutch structure for automatic reversal of measuring direction.
- One-piece bezel and crystal design with O-ring provide resistance to water and dust.
- The glare-free flat crystal face has a scratch-resistant coating.
- High sensitivity and quick response because of jeweled bearings.
- Standard carbide contact point provide.

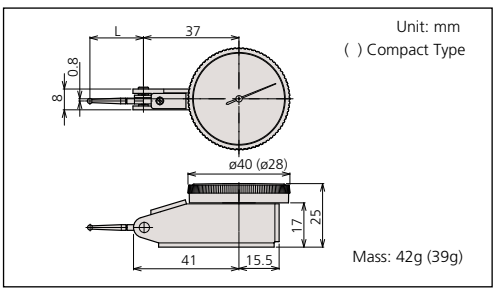
513-424-10E

513-414-10E

513-404-10E

513-402-10E

DIMENSIONS AND MASS



Optional Accessories

———: Swivel clamp
———: Holding bar
———: Stem
———: Contact points

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

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

No. 513-907-10E (inch)

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

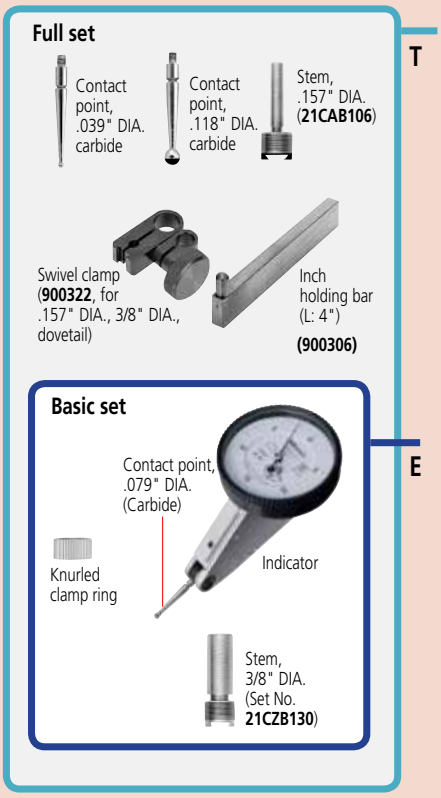
Description of Icon

Icon	Description
	With revolution counter
	Long contact point
	Jeweled bearing
	Double scale spacing, easy to read
	Compact
	Dustproof
	Anti-magnetic

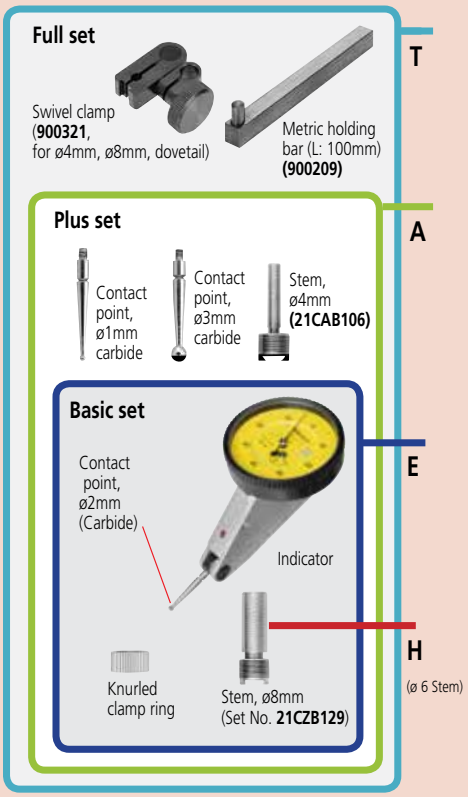
Anti-magnet type | Double scale spacing type | Long contact point type | Jeweled bearing type | Compact type | With revolution counter type

Set Configuration: Test Indicators

Inch



Metric




513-466-10E


513-464-10E


513-463-10E

SPECIFICATIONS

Inch

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	L (mm)						
.00005"	**513-407-10E**	**513-407-10T**	.008"	±.0001"	0-4-0	0.3N or less	19	✔	—	✔	—	—	—
.0005"	**513-402-10E**	**513-402-10T**	.03"	±.0005"	0-15-0	0.3N or less	19.9	✔	—	✔	—	—	—
.0005"	**513-472-10E***		.03"	±.0005"	0-15-0	0.3N or less	19.9	✔	—	✔	—	—	—
.0005"	**513-412-10E**	**513-412-10T**	.03"	±.0005"	0-15-0	0.2N or less	33.9	✔	✔	✔	—	—	—
.0005"	**513-479-10E***		.03"	±.0005"	0-15-0	0.2N or less	33.9	✔	✔	✔	—	—	—
.0005"	**513-462-10E**		.03"	±.0005"	0-15-0	0.3N or less	19.9	✔	—	✔	✔	—	—
.0001"	**513-403-10E**	**513-403-10T**	.008"	±.0001"	0-4-0	0.3N or less	19	✔	—	✔	—	—	—
.0001"	**513-473-10E***		.008"	±.0001"	0-4-0	0.3N or less	19	✔	—	✔	—	—	—
.0001"	**513-463-10E**		.008"	±.0001"	0-4-0	0.3N or less	15	✔	—	✔	✔	—	—

*Provided with a ø2mm ruby contact point as a substitute for ø2mm carbide contact point.

Metric

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	L (mm)						
0.01mm	**513-424-10E**	**513-424-10T**	0.5mm	5µm	0-25-0	0.3N or less	22.3	✔	✔	—	✔	—	—
0.01mm	**513-414-10E**	**513-414-10T**	0.5mm	10µm	0-25-0	0.2N or less	36.8	✔	✔	✔	✔	—	—
0.01mm	**513-466-10E**	-	0.5mm	5µm	0-25-0	0.3N or less	22.3	✔	✔	—	✔	✔	—
0.01mm	**513-478-10E***	-	0.5mm	5µm	0-25-0	0.3N or less	22.3	✔	—	—	✔	—	—
0.01mm	**513-404-10E**	**513-404-10T**	0.8mm	8µm	0-40-0	0.3N or less	20.9	✔	—	—	✔	—	—
0.01mm	**513-474-10E***	-	0.8mm	8µm	0-40-0	0.3N or less	20.9	✔	—	—	✔	—	—
0.01mm	**513-464-10E**	-	0.8mm	8µm	0-40-0	0.3N or less	20.9	✔	—	—	✔	✔	—
0.01mm	**513-415-10E**	**513-415-10T**	1mm	10µm	0-50-0	0.2N or less	44.5	✔	—	✔	✔	—	—
0.01mm	**513-477-10E***	-	1mm	10µm	0-50-0	0.2N or less	44.5	✔	—	✔	✔	—	—
0.01mm	**513-426-10E**	-	1.5mm	16µm	0-25-0	0.4N or less	22.3	✔	✔	—	✔	—	✔
0.002mm	**513-405-10E**	**513-405-10T**	0.2mm	4µm	0-100-0	0.3N or less	14.7	✔	—	—	✔	—	—
0.002mm	**513-465-10E**	-	0.2mm	4µm	0-100-0	0.3N or less	14.7	✔	—	—	✔	✔	—
0.002mm	**513-475-10H***	-	0.2mm	4µm	0-100-0	0.3N or Less	18.7	✔	—	—	✔	—	—
0.002mm	**513-425-10E**	-	0.6mm	7µm	0-100-0	0.4N or less	14.7	✔	—	—	✔	—	✔
0.001mm	**513-401-10E**	-	0.14mm	4µm	0-70-0	0.3N or less	12.8	✔	—	—	✔	—	—
0.001mm	**513-471-10E***	-	0.14mm	4µm	0-70-0	0.3N or less	12.8	✔	—	—	✔	—	—

*Provided with a ø2mm ruby contact point as a substitute for ø2mm carbide contact point.

Metric/inch

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	L (mm)						
0.002mm, .0001"	**513-409-10E**	**513-409-10T**	0.2mm, .0075"	3µm	0-10-0, 0-38-0	0.3N or less	14.7	✔	✔	—	—	—	—

Inch/Metric

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	L (mm)						
.0005", 0.01mm	**513-406-10E**	**513-406-10T**	.03", 0.7mm	±.0005"	0-15-0, 0-35-0	0.3N or less	19.9	✔	✔	—	—	—	—

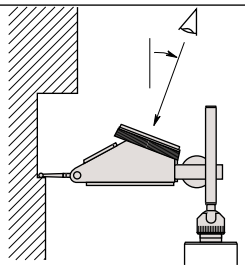
Mitutoyo

Dial Test Indicators

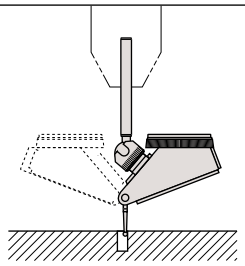
SERIES 513 — Horizontal (20° Tilted Face), Vertical and Parallel

FEATURES

- Specially designed for easy viewing of measurements.



- The dial face points upward, allowing users to read the graduations from the user's side. It is convenient when measuring on the side of a large workpiece and the workbench is high.



- Using the universal holder allows easy hole centering. The dial face always faces upward when the indicator is rotated for easy reading.

513-452-10E

513-482-10A

513-444-10E

513-455-10E

513-484-10E

513-442-10A

513-446-10A

513-444-10E

513-445-10E

513-454-10E
513-484-10E

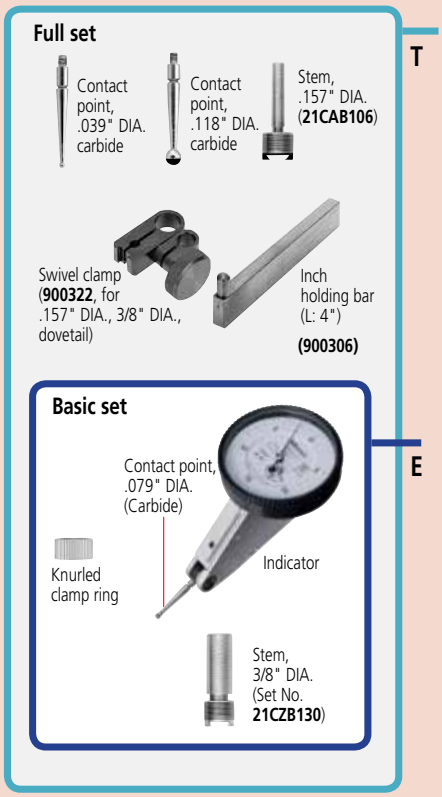
513-455-10E

Optional Accessories

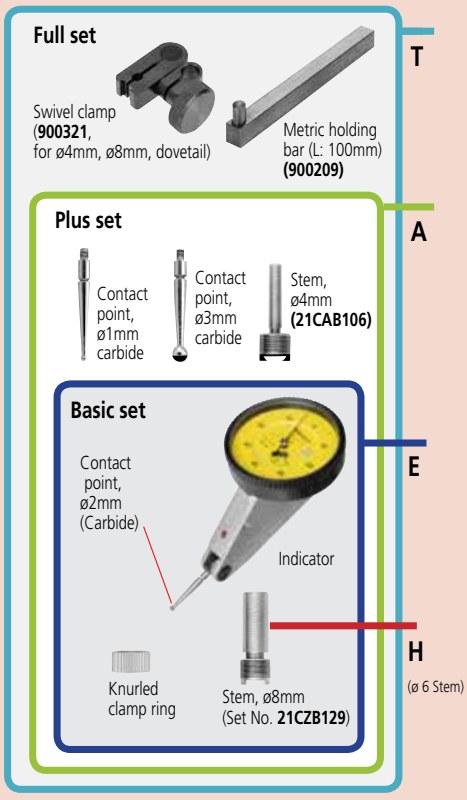
———: Swivel clamp
———: Holding bar
———: Stem
———: Contact points

Set Configuration: Test Indicators

Inch



Metric



Anti-magnet type | With revolution counter type | Jeweled bearing type | Long contact point type

SPECIFICATIONS

Metric Horizontal (20° tilted face) type

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)			
0.01mm	**513-444-10E**	**513-444-10T**	1.6mm	10µm	0-40-0	0.3N or less	48	20.9	✔	✔	✔
0.002mm	**513-445-10E**	**513-445-10T**	0.4mm	5µm	0-100-0	0.3N or less	48	14.7	✔	✔	✔

Inch Horizontal (20° tilted face) type

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)					Remarks
.0005"	**513-442-10A**	**513-442-10T**	.06"	±.0005"	0-15-0	0.3N or less	48	19.9	✔	✔	✔	—	—
.0005"	**513-442-16A**	**513-442-16T**	.06"	±.0005"	0-15-0	0.3N or less	48	19.9	✔	✔	✔	—	Black dial
.0005"	**513-446-10A**	**513-446-10T**	.06"	±.0005"	0-15-0	0.2N or less	48	33.9	✔	✔	✔	✔	—
.0005"	**513-446-16A**	**513-446-16T**	.06"	±.0005"	0-15-0	0.2N or less	48	33.9	✔	✔	✔	✔	Black dial
.0001"	**513-443-10A**	**513-443-10T**	.016"	±.0002"	0-4-0	0.3N or less	48	15	✔	✔	✔	—	—
.0001"	**513-443-16A**	**513-443-16T**	.016"	±.0002"	0-4-0	0.3N or less	48	15	✔	✔	✔	—	Black dial

Metric Vertical type

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)		
0.01mm	**513-454-10E**	**513-454-10T**	0.8mm	8µm	0-40-0	0.3N or less	50	20.9	✔	✔
0.002mm	**513-455-10E**	**513-455-10T**	0.2mm	3µm	0-100-0	0.3N or less	50	14.7	✔	✔

Inch Vertical type

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)		
.0005"	**513-452-10E**	**513-452-10T**	.03"	±.0005"	0-15-0	0.3N or less	50	19.9	✔	✔
.0001"	**513-453-10E**	**513-453-10T**	.008"	±.0001"	0-4-0	0.3N or less	50	19	✔	✔

Metric Parallel type

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	
0.01mm	**513-484-10E**	**513-484-10T**	0.8mm	8µm	0-40-0	0.3N or less	68	20.9	✔

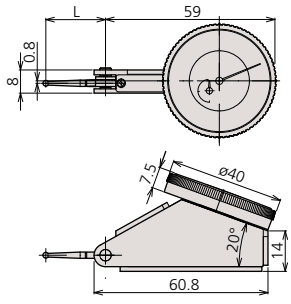
Inch Parallel type

Graduation	Order No. Basic set	Order No. Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	
.0005"	**513-482-10A**	**513-482-10T**	.03"	±.0005"	0-15-0	0.3N or less	68	20	✔

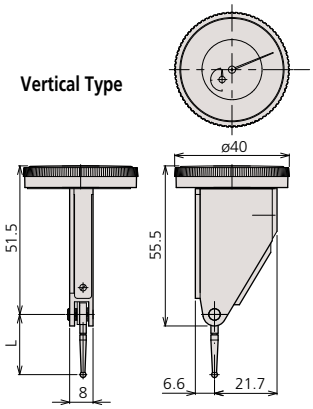
DIMENSIONS

unit: mm

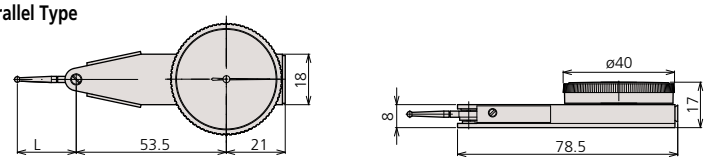
Horizontal (20° Tilted Face) Type



Vertical Type



Parallel Type



Mitutoyo

Pocket Dial Test Indicators

SERIES 513

FEATURES

- Jeweled bearings ensure high sensitivity and accuracy.
- Reversible measuring direction.
- Two holding bars are supplied. (Full sets only.)
- Fully adjustable bezel/dial face.
- Contact point is adjustable within 220°.
- Bezel is sealed with on O-ring to keep out water / oil.


513-517E


513-514E


513-527E


513-501E


513-515T


513-503E


513-518


513-504


513-528


513-512


513-514E


513-517E
513-527E


513-515T


513-503E

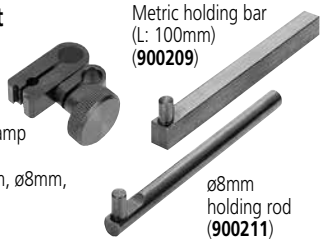

513-501E

Optional Accessories

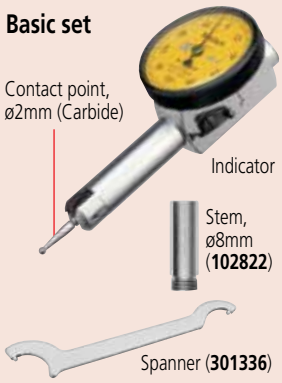
———: Swivel clamp
———: Holding bar
———: Stem
———: Contact points

Set Configuration: Metric

Full set

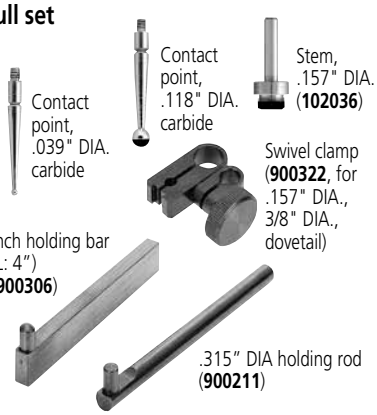


Basic set

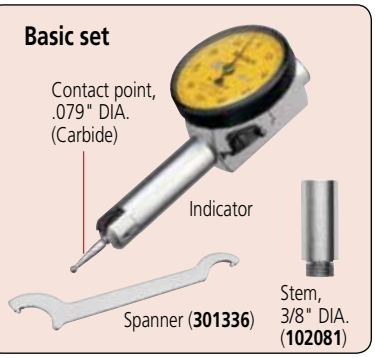


Set Configuration: Inch

Full set



Basic set



Long contact point type | Jeweled bearing type | Compact type

SPECIFICATIONS

Metric

Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	L (mm)			
	Basic set	Full set								
0.01mm	**513-514E**	**513-514T**	0.5mm	10µm	0-25-0	0.3N or less	36.8	✔	✔	—
0.01mm	**513-517E**	**513-517T**	0.8mm	8µm	0-40-0	0.3N or less	20.9	—	✔	—
0.01mm	**513-527E**	**513-527T**	0.8mm	8µm	0-40-0	0.3N or less	14.7	—	✔	✔
0.01mm	—	**513-515T**	1mm	10µm	0-50-0	0.3N or less	44.5	✔	✔	—
0.002mm	**513-503E**	**513-503T**	0.2mm	3µm	0-100-0	0.3N or less	14.7	—	✔	—
0.001mm	**513-501E**	**513-501T**	0.14mm	3µm	0-70-0	0.4N or less	12	—	✔	—

Inch

Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	L (mm)			
	Basic set	Full set								
.001"	**513-518**	**513-518T**	.04"	±.001"	0-20-0	0.3N or less	26.5	—	✔	—
.001"	**513-528**	**513-528T**	.04"	±.001"	0-20-0	0.3N or less	18.7	—	✔	✔
.0005"	**513-512**	**513-512T**	.02"	±.0005"	0-10-0	0.3N or less	37.4	✔	✔	—
.0001"	**513-504**	**513-504T**	.01"	±.0002"	0-5-0	0.3N or less	18.7	—	✔	—

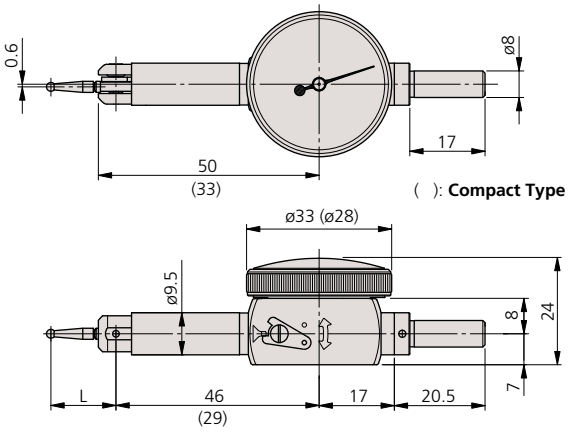
Optional Contact Points

Pocket Type

Order No.		1mm	2mm	3mm	0.5mm	0.7mm
513-501E		136756	136104	136758	—	—
513-503E	**513-527E**	103017	103010	103018	190547	190548
513-504	**513-528**	131314	103011	131315	—	—
513-512		131316	131324	131317	—	—
513-514E		137746	129949	137747	—	—
513-515T		136235	136013	136236	190656	190655
513-517E		103013	103006	103014	190549	190550
513-518		103008	103007	103009	—	—

DIMENSIONS AND MASS

unit: mm



Mass: 45g (40g)
( ): Compact Type

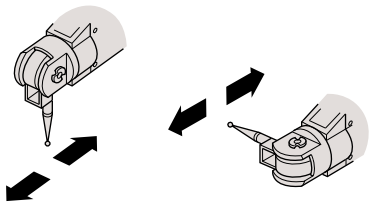
Mitutoyo

Dial Test Indicators

SERIES 513 — Universal Type

FEATURES

- Universal application for all directions. Not only the direction of the measuring point, but also the direction of measurement itself can be adjusted 360 degrees without moving the indicator.



513-304GE

SPECIFICATIONS

Jeweled bearing type

Metric

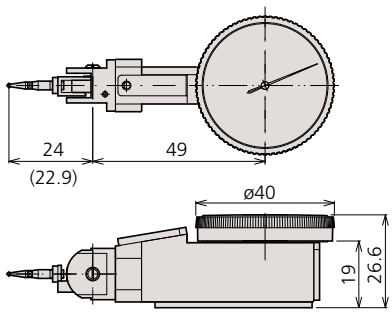
Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	
	Basic set	Full set					
0.01mm	**513-304GE**	**513-304GT**	0.8mm	8μm	0-40-0	0.3N or less	✔

Inch

Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	
	Basic set	Full set					
.0005"	**513-302G**	**513-302GT**	.03"	±.0005"	0-15-0	0.3N or less	✔

DIMENSIONS AND MASS

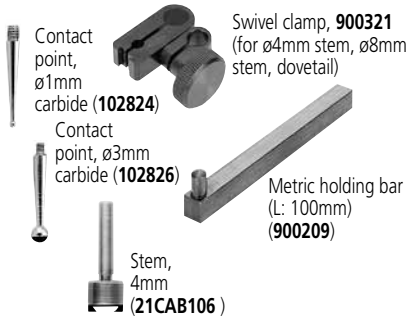
Unit: mm



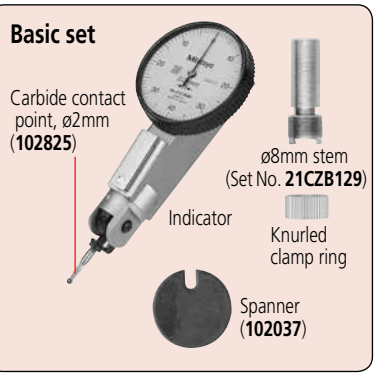
Mass: 80g
( ): 513-302G

Set Configuration: Metric

Full set

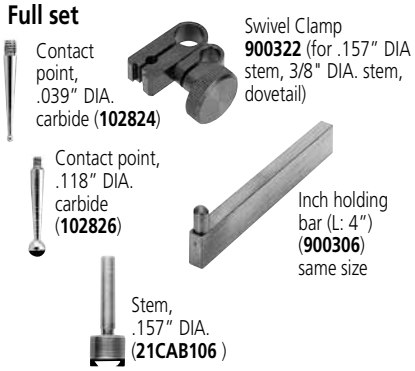


Basic set

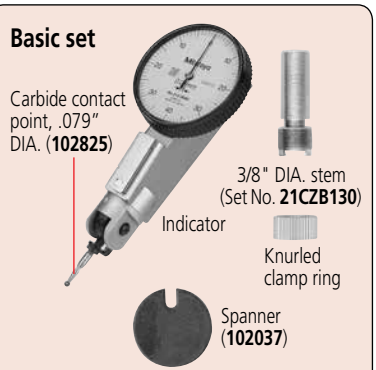


Set Configuration: Inch

Full set



Basic set

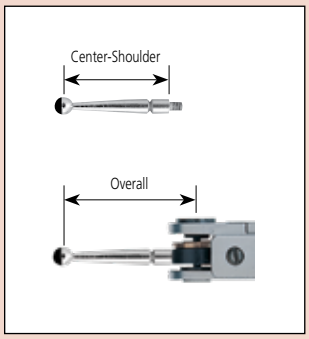


Optional Accessories

———: Swivel clamp
———: Holding bar
———: Stem

Contact Points and Clamp Holders

Optional Accessories for Dial Test Indicator



Inch

Length (mm)		Part No.						Test Indicator Code No.		
Center-Shoulder	Overall	ø0.5	ø0.7	ø1	ø2	ø3	Ruby Ø2mm			
11.5	15.0	—	—	136076	136075	136077	21CZA213	**513-403-10E** **513-453-10E**	**513-443-10A** **513-463-10E**	**513-473-10E***3 **513-443-16A**
16.4	19.9	—	—	133196	133195	133197	21CZA204	**513-401-10E** **513-406-10E** **513-452-10E**	**513-442-10A** **513-462-10E**	**513-472-10E***3 **513-442-16A** **513-482-10A**
30.4	33.9	—	—	136291	136290	136292	21CZA214	**513-412-10E** **513-446-16A**	**513-446-10A**	
15.2	18.7	—	—	131314	103011	131315	—	**513-504***1	**513-528***1	
23.0	26.5	—	—	103008	103007	103009	—	**513-518***1		
33.9	37.4	—	—	131316	131324	131317	—	**513-512***1		

Metric

Length (mm)		Part No.								
9.4	12.9	—	—	21CZA044	21CZA036	21CZA045	21CZA212	**513-401-10E**	**513-471-10E**	
11.2	14.7	190547	190548	103017	103010	103018	21CZA209	**513-405-10E** **513-503E** **513-527E**	**513-425-10E** **513-455-10E** **513-455-10E**	**513-445-10E**
17.4	20.9	190549	190550	103013	103006	103014	21CZA201	**513-404-10E** **513-464-10E** **513-484-10E**	**513-444-10E** **513-517E***1	**513-454-10E** **513-474-10E***3
18.7	22.2	190654	190653	137558	137557	137559	21CZA210	**513-424-10E** **513-478-10H***3	**513-426-10E**	**513-466-10E**
41.0	44.5	190656	190655	136235	136013	136236	21CZA211	**513-415-10E**	**513-515T***1	
33.3	36.8	—	—	137746	129949	137747	—	**513-414-10E**	**513-514E***1	
8.6	12.0	—	—	136756	136104	136758	—	**513-501E***1		
6.5	24.0	—	—	102824	102825	102826	—	**513-304GE***2	**513-302G***2	

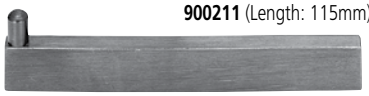
*1 Denotes Pocket Indicators
*2 Denotes Universal Indicator
*3 Indicator Ships with Ruby Contact

Holding Bars (with 6mm mounting pin)

9 x 9mm

953638 (Length: 50mm)
900209 (Length: 100mm)

900211 (Length: 115mm)



.25" x .5"
ø8mm

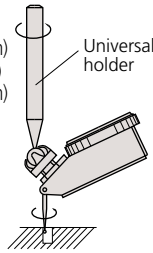
953639 (Length: 2")
900306 (Length: 4")

Spanner (**102037**)

Universal Holder

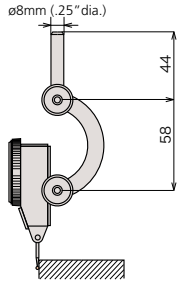
- Allows the indicator to be set at a desired position.

21CZA233 (ø8mm stem, Length: 80mm)
21CZA231 (.25" DIA. stem, Length: 3")
21CZA229 (ø6mm stem, Length: 80mm)



Centering Holder

- Allows large diameter cylinders or holes to be centered.

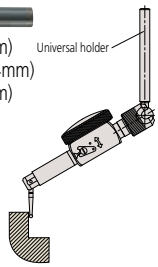


901959 (ø8mm stem)
901997 (.25" DIA. stem)

Universal Holder (pocket type)

- Since the Dial Test Indicator can be swiveled to a desired angle, the holder is useful for centering workpieces and installing workpieces on a milling machine.

21CZA234 (ø8mm stem, Length: 84mm)
21CZA232 (.25" DIA. stem, Length: 84mm)
21CZA230 (ø6mm stem, Length: 84mm)



Mitutoyo

Mitutoyo

Mitutoyo Quality

Lever-Type Dial Indicators

DIAL TEST INDICATORS

SMALL TOOL INSTRUMENTS
AND DATA MANAGEMENT

Bulletin No. 2232(3)

Lever Type Dial Indicator
Dial Test Indicator

Inspection

- A "Certificate of Inspection" is provided with Dial Test Indicators.

Easy-to-read dial

- Glare-free flat crystal face allows easy reading of graduations.
- Multi-layer and composite coatings allow a stain repellent, anti-reflective crystal.

Conventional New

Improved visibility

- Using universal fonts, changing dial face color and reviewing the relationship between pointer and scale marks have drastically improved visibility.

Conventional New

Attachable limit hands

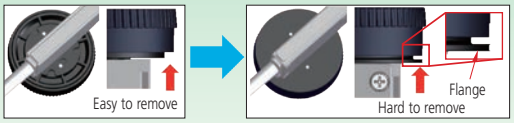
- Limit hands (optional) can be attached to the bezel the same as for dial indicators, allowing easy identification of the upper and lower limits of tolerance.

Contact point length is marked on the dial face

- As the length of the contact point fitted affects the indicator's scale factor the length that gives a scale factor of unity is marked on the dial face to assist a customer when ordering the correct replacement contact point.

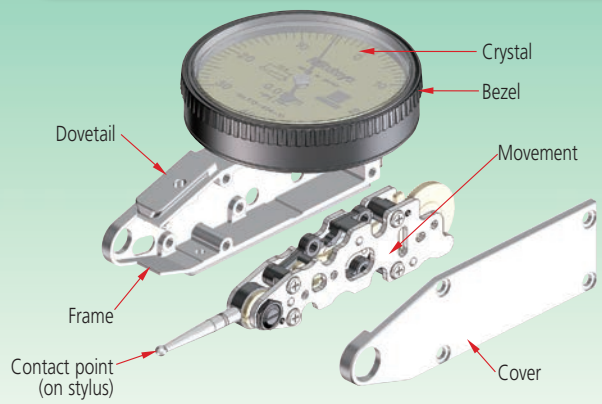
No bezel detachment

- A flange prevents the bezel from unintentional removal due to applying a force to the bezel during handling.

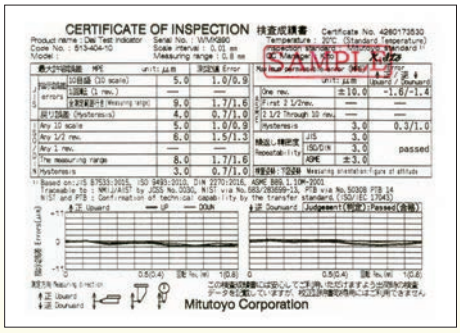


Conventional New

Naming of parts

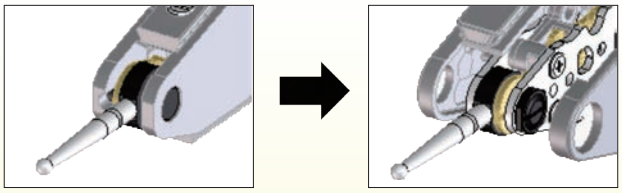


certificate attached


CERTIFICATE OF INSPECTION 検査成績書
SAMPLE
Mitutoyo Corporation

Improved contact point bearing gives smoother tracking

- The conventional method of mounting the contact point pivot bearing screw in the frame is prone to allowing looseness to develop with prolonged use. A unique sub-plate structure to house this screw has now been incorporated in all models and eliminates this issue.

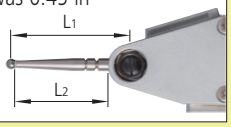


Contact point bearing screw held in frame. Contact point bearing screw held in sub-plate.

Extended contact point length for 0.001 mm, 0.002 mm, and 0.0001 in graduation models

- Longer contact points have been introduced on the most sensitive indicators to make probing those features of a workpiece that are difficult to access more user-friendly.

0.002 mm graduation models: L_1 now 18.7 mm, was 14.7 mm
L_2 now 15.2 mm, was 11.2 mm
0.001 mm graduation models: L_1 now 14.7 mm, was 12.8 mm
L_2 now 11.2 mm, was 9.3 mm
0.0001 in graduation models: L_1 now 0.75 in, was 0.59 in
L_2 now 0.61 in, was 0.45 in



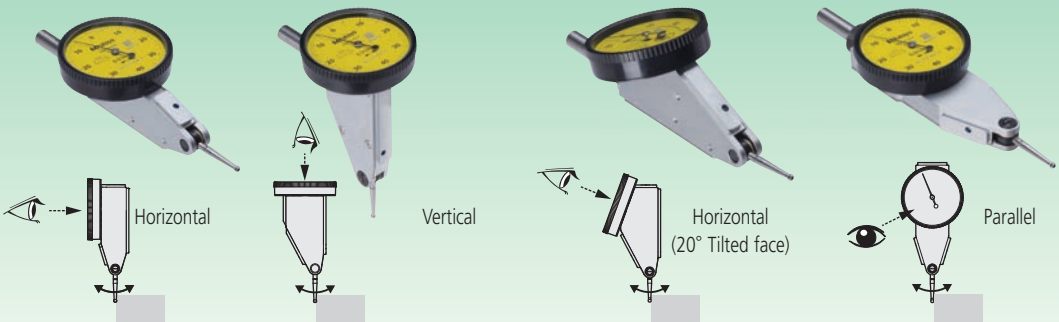
Ruby ball-tipped contact point added to lineup

- A ruby tip has resistance to wear several times greater than a carbide tip and, since it is nonconductive, it can be used with safety even on an electrical discharge machine.

A choice of dial position

Our product lineup offers four models, each with a different orientation of the dial on the frame to allow best visibility of the dial face in any specific situation.

- Horizontal type: the standard model - the dial is on top of the frame.
- Vertical type: the model with the dial on the end of the frame.
- Horizontal (20° tilted face) type: the model with the dial on top of the frame but tilted backward at 20°.
- Parallel type: the model with the dial on the side of the frame.



Mitutoyo

Lever Type Dial Indicator
Pocket Type Dial Test Indicator

Improved visibility

- Using universal fonts, changing dial face color and reviewing the relationship between pointer and scale marks have drastically improved visibility.

Conventional

New

Attachable limit hands

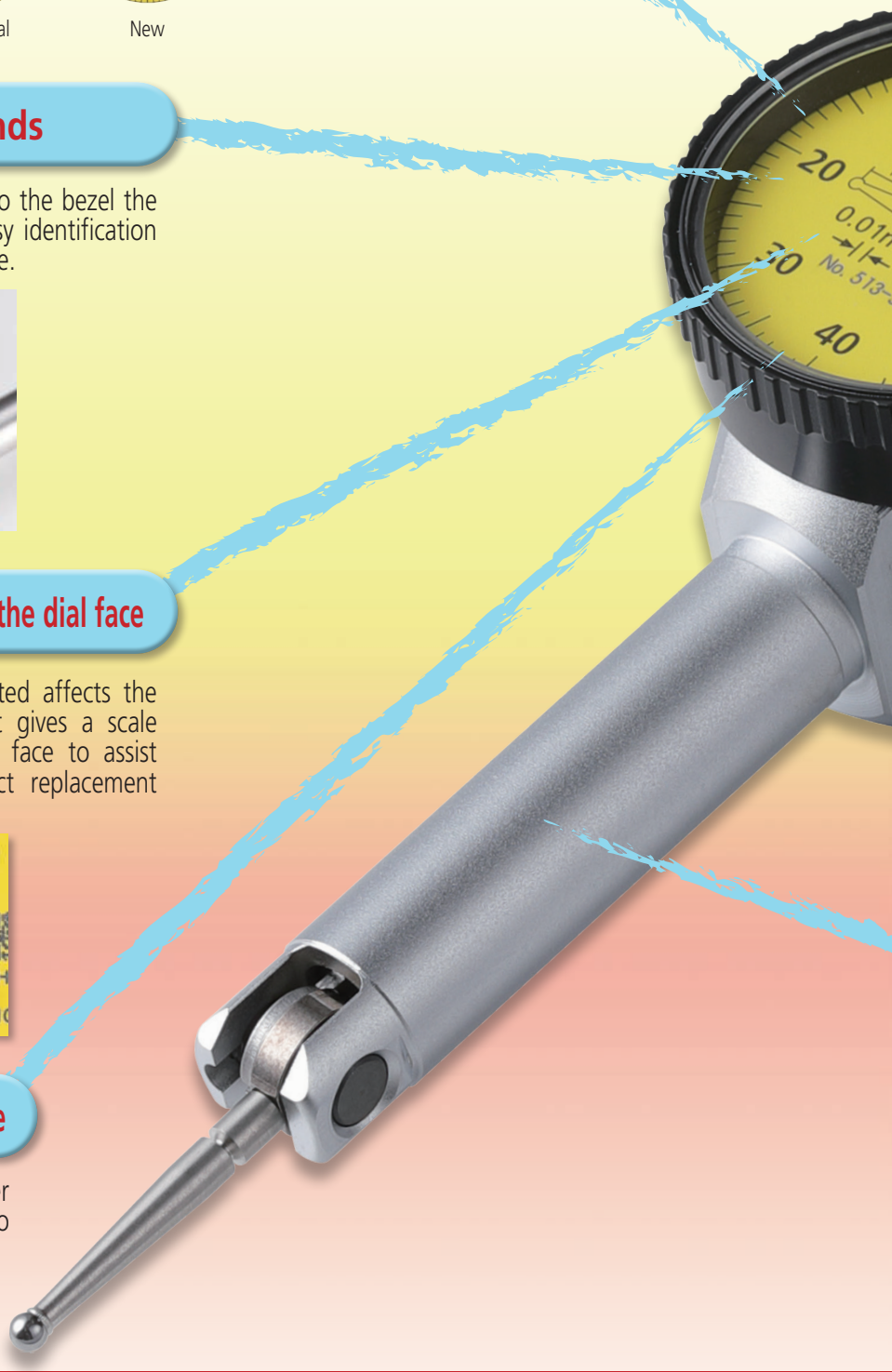
- Limit hands (optional) can be attached to the bezel the same as for dial indicators, allowing easy identification of the upper and lower limits of tolerance.

Contact point length is marked on the dial face

- As the length of the contact point fitted affects the indicator's scale factor the length that gives a scale factor of unity is marked on the dial face to assist a customer when ordering the correct replacement contact point.

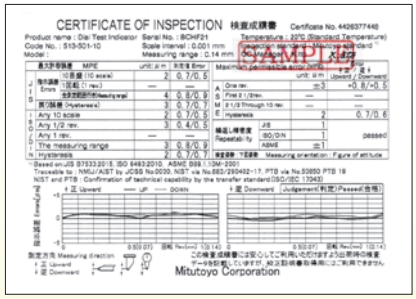
Integrated bezel and crystal structure

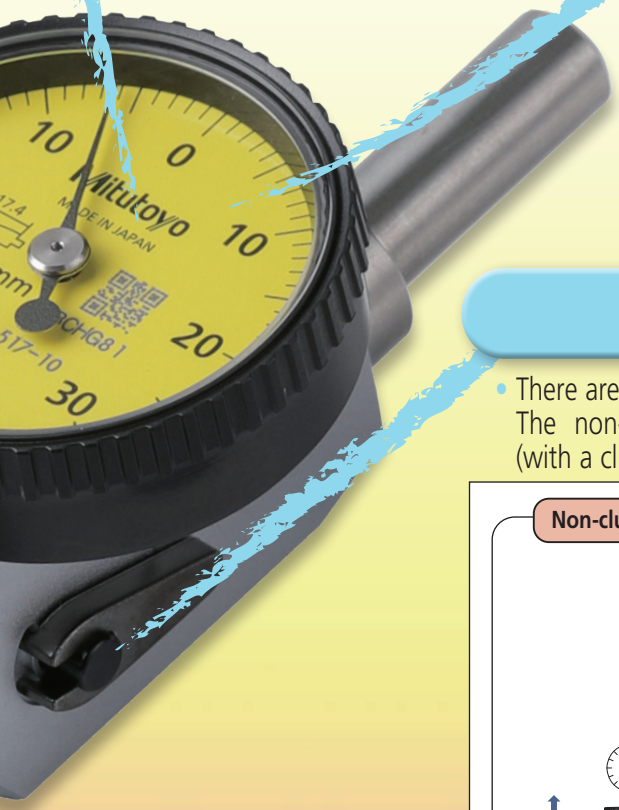
- Bonding the bezel and crystal together leaves no gap for cutting fluid or oil to penetrate through to the dial face.



Inspection certificate attached

- A "Certificate of Inspection" is provided with Pocket Type Dial Test Indicators.


CERTIFICATE OF INSPECTION 検査成績書
SAMPLE
Mitutoyo Corporation



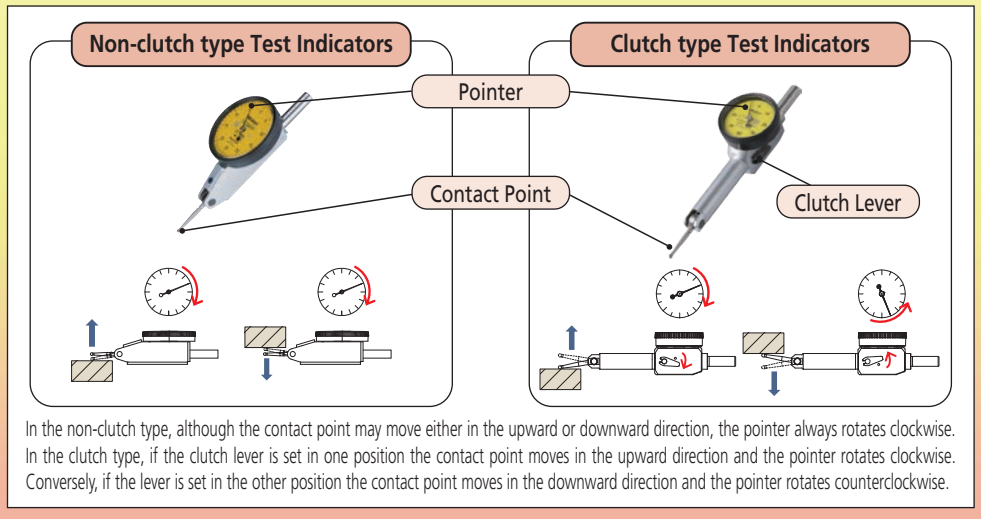
Easy-to-read dial

- Glare-free flat crystal face allows easy reading of graduations.
- Multi-layer and composite coatings allow a stain repellent, anti-reflective crystal.

Conventional New

Clutch type (with a clutch lever)

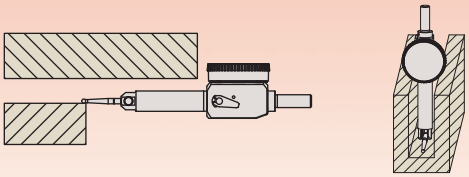
- There are two types of Mitutoyo Dial Test Indicator:
  The non-clutch type (without a clutch lever) and the clutch type (with a clutch lever)



In the non-clutch type, although the contact point may move either in the upward or downward direction, the pointer always rotates clockwise.
In the clutch type, if the clutch lever is set in one position the contact point moves in the upward direction and the pointer rotates clockwise. Conversely, if the lever is set in the other position the contact point moves in the downward direction and the pointer rotates counterclockwise.

Improved insertion depth

- Slim body can reach a shallow and deep space to be measured.



Horizontal (Standard model)

Metric Provides wide variations of models conforms to the required accuracy, range, and surface of workpieces.

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

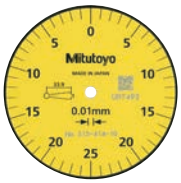
Contact point No. 137557

Graduation: 0.01 mm
Range: 0.5 mm

- Standard
- Double scale spacing
- Carbide contact point

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

Contact point No. 131324



Graduation: 0.01 mm
Range: 0.5 mm

- Long contact point
- Double scale spacing
- Carbide contact point

513-478-10E

Contact point No. 21CZA210

Graduation: 0.01 mm
Range: 0.5 mm

- Standard
- Double scale spacing
- Ruby contact point

513-474-10E

Contact point No. 21CZA201

Graduation: 0.01 mm
Range: 0.8 mm

- Standard
- Ruby contact point

513-466-10E

Contact point No. 137557

Graduation: 0.01 mm
Range: 0.5 mm

- Double scale spacing
- Compact
- Carbide contact point

513-464-10E

Contact point No. 103006

Graduation: 0.01 mm
Range: 0.8 mm

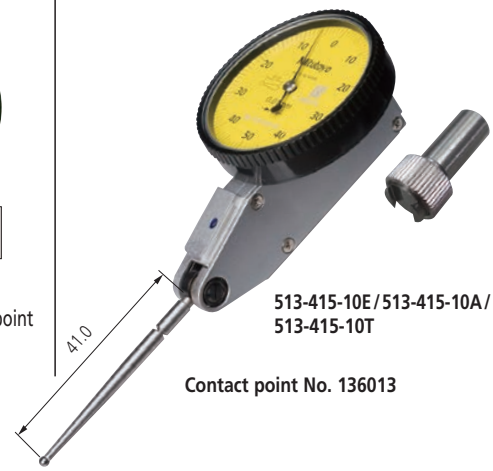
- Compact
- Carbide contact point

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

Contact point No. 103006

Graduation: 0.01 mm
Range: 0.8 mm

- Standard
- Carbide contact point



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

Contact point No. 136013

Graduation: 0.01 mm
Range: 1.0 mm

- Long contact point
- Carbide contact point

513-477-10E

Contact point No. 21CZA211

Graduation: 0.01 mm
Range: 1.0 mm

Long contact point
Ruby contact point

513-475-10E

Contact point No. 21CZB068

Graduation: 0.002 mm
Range: 0.2 mm

Standard
Ruby contact point

513-426-10E / 513-426-10A

Contact point No. 137557

Graduation: 0.01 mm
Range: 1.5 mm

With revolution counter
Double scale spacing
Carbide contact point

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

Contact point No. 103011

Graduation: 0.002 mm
Range: 0.6 mm

With revolution counter
Carbide contact point

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

Contact point No. 103011

Graduation: 0.002 mm
Range: 0.2 mm

Standard
Carbide contact point

513-465-10E

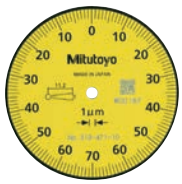
Contact point No. 103011

Graduation: 0.002 mm
Range: 0.2 mm

Compact
Carbide contact point

513-471-10E

Contact point No. 21CZA209



Graduation: 0.001 mm
Range: 0.14 mm

High accuracy
Ruby contact point

513-401-10E

Contact point No. 103010

Graduation: 0.001 mm
Range: 0.14 mm

High accuracy
Carbide contact point

Horizontal (Standard model)

Inch

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

Contact point No. 133195

Graduation: 0.0005 in
Range: 0.03 in

Standard
Carbide contact point

513-462-10E

Contact point No. 133195

Graduation: 0.0005 in
Range: 0.03 in

Compact
Carbide contact point

513-472-10E

Contact point No. 21CZA204

Graduation: 0.0005 in
Range: 0.03 in

Standard
Ruby contact point

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

Contact point No. 21CZB064

Graduation: 0.0001 in
Range: 0.008 in

Standard
Carbide contact point

513-412-10E / 513-412-10T

Contact point No. 136290

Graduation: 0.0005 in
Range: 0.03 in

Long contact point
Carbide contact point

513-473-10E

Contact point No. 21CZB112

Graduation: 0.0001 in
Range: 0.008 in

Standard
Ruby contact point

513-479-10E

Contact point No. 21CZA214

Graduation: 0.0005 in
Range: 0.03 in

Long contact point
Ruby contact point

513-463-10E

Contact point No. 21CZB064

Graduation: 0.0001 in
Range: 0.008 in

Compact
Carbide contact point

Metric / inch

513-409-10E / 513-409-10T

Contact point No. 103011

Graduation: 0.002 mm/0.0001 in
Range: 0.2 mm/0.0076 in

Carbide contact point

Inch / Metric

513-406-10E / 513-406-10T

Contact point No. 133195

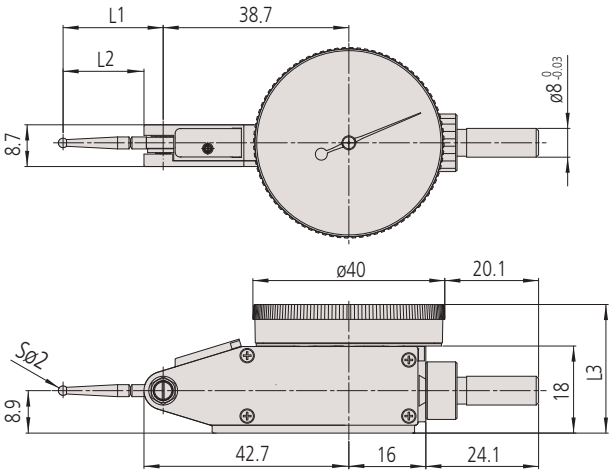
Graduation: 0.0005 in/0.01 mm
Range: 0.03 in/0.7 mm

Carbide contact point

DIMENSIONS

Horizontal

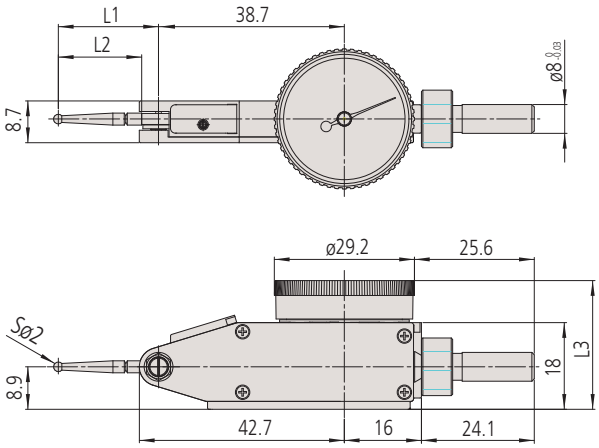
Unit: mm



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

Compact

Unit: mm



Type	Order No.	L1	L2	L3
Compact	**513-465-10E**	18.7	15.2	27
	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.

Horizontal (Standard model)

SPECIFICATIONS

Metric

Order No.			Graduation (mm)	Range (mm)	Dial reading	Maximum permissible error (MPE)* (μm)					Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
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	0.5	0-25-0	6	–	5	4	3	45	0.3 or less				✓	✓		✓	
513-478-10E	–	–														✓	✓			✓
513-466-10E	–	–									41	0.3 or less					✓	✓	✓	
513-404-10E	**513-404-10A**	**513-404-10T**		0.8	0-40-0	9					45					✓			✓	
513-414-10E	**513-414-10A**	**513-414-10T**		0.5	0-25-0	10			5			0.2 or less			✓		✓		✓	
513-474-10E	–	–		0.8	0-40-0	9			4			0.3 or less				✓				✓
513-464-10E	–	–									41							✓	✓	
513-415-10E	**513-415-10A**	**513-415-10T**		1.0	0-50-0	10			5		45	0.2 or less			✓				✓	
513-477-10E	–	–													✓					✓
513-426-10E	**513-426-10A**	–		1.5	0-25-0	16	10					0.4 or less		✓			✓		✓	
513-405-10E	**513-405-10A**	**513-405-10T**	0.002	0.2	0-100-0	4	–	2	3	1		0.3 or less				✓			✓	
513-471-10E	–	–	0.001	0.14	0-70-0								✓							✓
513-475-10E	–	–	0.002	0.2	0-100-0											✓				✓
513-425-10E	**513-425-10A**	–		0.6		7	5		4			0.4 or less		✓					✓	
513-465-10E	–	–		0.2		4	–		3		41	0.3 or less						✓	✓	
513-401-10E	–	–	0.001	0.14	0-70-0						45		✓						✓	

Inch

Order No.			Graduation (in)	Range (in)	Dial reading	Maximum permissible error (MPE)* (in)			Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Plus set	Full set				One rev.	Hysteresis	Repetability										
513-402-10E	–	**513-402-10T**	0.0005	0.03	0-15-0	±0.0005	0.0002	±0.0002	45	0.3 or less				✓			✓	
513-472-10E	–	–												✓				✓
513-412-10E	–	**513-412-10T**								0.2 or less			✓				✓	
513-479-10E	–	–											✓					✓
513-462-10E	–	–							41	0.3 or less						✓	✓	
513-403-10E	–	**513-403-10T**	0.0001	0.008	0-4-0	±0.0001	0.0001	±0.00004	45					✓			✓	
513-473-10E	–	–												✓				✓
513-463-10E	–	–							41							✓	✓	

Metric / Inch

Order No.			Graduation	Range	Dial reading	Maximum permissible error (MPE)* (μm)				Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
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	0.2 mm /0.0076 in	0-10-0 /0-38-0	4	2	3	1	45	0.3 or less							✓	

Inch / Metric

Order No.			Graduation	Range	Dial reading	Maximum permissible error (MPE)* (in)			Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Plus set	Full set				One rev.	Hysteresis	Repetability										
513-406-10E	–	**513-406-10T**	0.0005 in /0.01 mm	0.03 in /0.7 mm	0-15-0 /0-35-0	±0.0005	0.0002	±0.0002	45	0.3 or less							✓	

* We guarantee the accuracy of completed products by inspecting them with the dial face facing upward.

Note 1: Be sure to perform calibration with reference gage, etc. 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.

Note 2: Stem with dovetail groove is not included in the mass.

Note 3: **513-4XX-10** is indicated on the dial face. But the Order No. for the Special Set provided with the stem etc. has a suffix (E or T) at the end.

Parallel (The scale can be read from the front, with the contact point pivoting in a plane parallel to that of the dial face)

Metric

513-484-10E / 513-484-10A / 513-484-10T

Contact point No. 103006

Graduation: 0.01 mm
Range: 0.8 mm

Carbide contact point

513-486-10E

Contact point No. 137557

Graduation: 0.01 mm
Range: 0.5 mm

Double scale spacing
Carbide contact point

513-485-10E

Contact point No. 103011

Graduation: 0.002 mm
Range: 0.2 mm

Carbide contact point

Inch

513-482-10A / 513-482-10T

Contact point No. 133195

Graduation: 0.0005 in
Range: 0.03 in

Carbide contact point

SPECIFICATIONS

Metric

Order No.			Graduation (mm)	Range (mm)	Dial reading	Maximum permissible error (MPE)* (µm)				Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Plus set	Full set				Measuring range	10 scale divisions	Hysteresis	Repetability										
513-484-10E	**513-484-10A**	**513-484-10T**	0.01	0.8	0-40-0	9	5	4	3	53	0.3 or less							✓	
513-485-10E	–	–	0.002	0.2	0-100-0	4	2	3	1									✓	
513-486-10E	–	–	0.01	0.5	0-25-0	6	5	4	3							✓		✓	

Inch

Order No.			Graduation (in)	Range (in)	Dial reading	Maximum permissible error (MPE)* (in)			Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Plus set	Full set				One rev.	Hysteresis	Repetability											
–	**513-482-10A**	**513-482-10T**	0.0005	0.03	0-15-0	±0.0005	0.0002	±0.0002	53	0.3 or less							✓	

* We guarantee the accuracy of completed products by inspecting them with the dial face vertical.

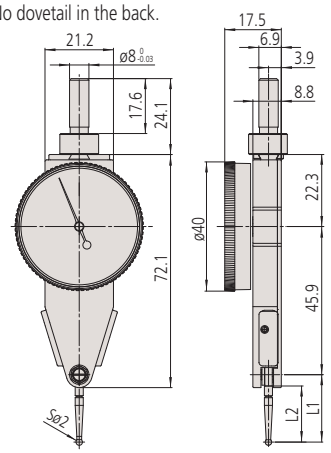
Note 1: Be sure to perform calibration with reference gage, etc. after exchanging the contact point. The inside parts may be damaged when the contact point is exchanged due to the breakage. In the case the of the significant deterioration in the operation, repair is required.

Note 2: Stem with dovetail groove is not included in the mass.

Note 3: **513-4XX-10** is indicated on the dial face. But the Order No. for the Special Set provided with the stem etc. has a suffix (E or T) at the end.

DIMENSIONS

* No dovetail in the back.



Unit: mm

Order No.	L1	L2
513-484-10E	20.9	17.4
513-485-10E	18.7	15.2
513-486-10E	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.

Vertical (Best suited for centering holes under the spindle of a machine tool)

Metric

513-454-10E/
513-454-10A/
513-454-10T

17.4

Contact point No. 103006

Graduation: 0.01 mm
Range: 0.8 mm

Carbide contact point

513-456-10E

18.7

Contact point No. 137557

Graduation: 0.01 mm
Range: 0.5 mm

Double scale spacing
Carbide contact point

513-455-10E/
513-455-10A/
513-455-10T

15.2

Contact point No. 103011

Graduation: 0.002 mm
Range: 0.2 mm

Carbide contact point

Inch

513-452-10E/513-452-10T

0.65 in

Contact point No. 133195

Graduation: 0.0005 in
Range: 0.03 in

Carbide contact point

513-453-10E/513-453-10T

0.61 in

Contact point No. 21CZB064

Graduation: 0.0001 in
Range: 0.008 in

Carbide contact point

SPECIFICATIONS

Metric

Order No.			Graduation (mm)	Range (mm)	Dial reading	Maximum permissible error (MPE)* (µm)				Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Plus set	Full set				Measuring range	10 scale divisions	Hysteresis	Repetability										
513-454-10E	**513-454-10A**	**513-454-10T**	0.01	0.8	0-40-0	9	5	4	3	46	0.3 or less							✓	
513-455-10E	**513-455-10A**	**513-455-10T**	0.002	0.2	0-100-0	4	2	3	1									✓	
513-456-10E	–	–	0.01	0.5	0-25-0	6	5	4	3							✓		✓	

Inch

Order No.			Graduation (in)	Range (in)	Dial reading	Maximum permissible error (MPE)* (in)			Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Plus set	Full set				One rev.	Hysteresis	Repetability											
513-452-10E	–	**513-452-10T**	0.0005	0.03	0-15-0	±0.0005	0.0002	±0.0002	46	0.3 or less							✓	
513-453-10E	–	**513-453-10T**	0.0001	0.008	0-4-0	±0.0001	0.0001	±0.00004									✓	

* We guarantee the accuracy of completed products by inspecting them with the dial face facing upward.

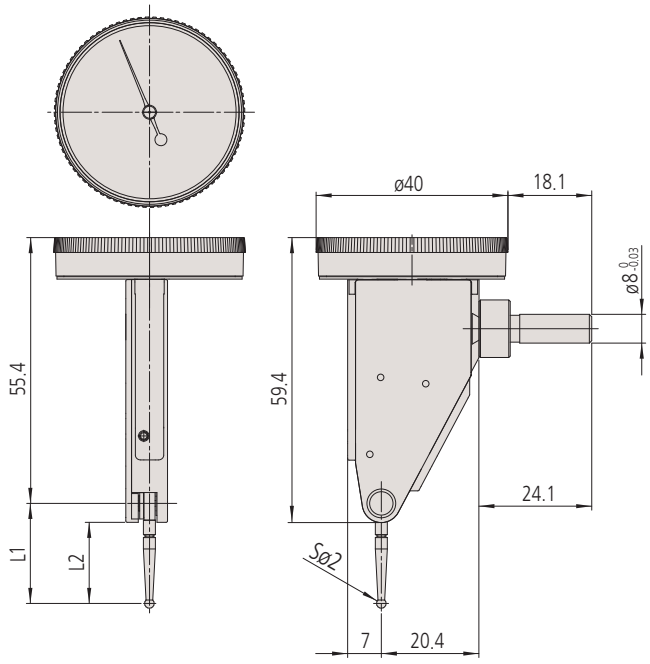
Note 1: Be sure to perform calibration with reference gage, etc. after exchanging the contact point. The inside parts may be damaged when the contact point is exchanged due to the breakage. In the case the of the significant deterioration in the operation, repair is required.

Note 2: Stem with dovetail groove is not included in the mass.

Note 3: **513-4XX-10** is indicated on the dial face. But the Order No. for the Special Set provided with the stem etc. has a suffix (E or T) at the end.

DIMENSIONS

Unit: mm



Order No.	L1	L2
513-454-10E	20.9	17.4
513-455-10E	18.7	15.2
513-456-10E	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.

Horizontal (20° Tilted Face) (Dial face inclined 20°, compared with the vertical type, allows easy reading)

Metric

513-444-10E / 513-444-10A / 513-444-10T

Contact point No. 103006

Graduation: 0.01 mm
Range: 1.6 mm

With revolution counter
Carbide contact point

513-445-10E / 513-445-10A / 513-445-10T

Contact point No. 103011

Graduation: 0.002 mm
Range: 0.4 mm

With revolution counter
Carbide contact point

Inch

513-442-10A / 513-442-10T

Contact point No. 133195

Graduation: 0.0005 in
Range: 0.06 in

With revolution counter
Carbide contact point

513-442-16A / 513-442-16T

Contact point No. 133195

Graduation: 0.0005 in
Range: 0.06 in

With revolution counter
Carbide contact point

513-446-10A / 513-446-10T

Contact point No. 136290

Graduation: 0.0005 in
Range: 0.06 in

With revolution counter
Long contact point
Carbide contact point

513-446-16A / 513-446-16T

Contact point No. 136290

Graduation: 0.0005 in
Range: 0.06 in

With revolution counter
Long contact point
Carbide contact point

513-443-10A / 513-443-10T

Contact point No. 21CZB064

Graduation: 0.0001 in
Range: 0.016 in

With revolution counter
Carbide contact point

513-443-16A / 513-443-16T

Contact point No. 21CZB064

Graduation: 0.0001 in
Range: 0.016 in

With revolution counter
Carbide contact point

SPECIFICATIONS

Metric

Order No.			Graduation (mm)	Range (mm)	Dial reading	Maximum permissible error (MPE)* (µm)					Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Plus set	Full set				Measuring range	One rev.	10 scale divisions	Hysteresis	Repetability										
513-444-10E	**513-444-10A**	**513-444-10T**	0.01	1.6	0-40-0	16	10	5	5	3	48	0.3 or less		✓					✓	
513-445-10E	**513-445-10A**	**513-445-10T**	0.002	0.4	0-100-0	6	5	2	4	1				✓					✓	

Inch

Order No.			Graduation (in)	Range (in)	Dial reading	Maximum permissible error (MPE)* (in)				Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Plus set	Full set				One rev.	First 2.5 rev.	Hysteresis	Repetability										
–	**513-442-10A**	**513-442-10T**	0.0005	0.06	0-15-0	±0.0005	±0.0005	0.0002	±0.0002	48	0.3 or less		✓					✓	
–	**513-442-16A**	**513-442-16T**											✓					✓	
–	**513-446-10A**	**513-446-10T**									0.2 or less		✓	✓				✓	
–	**513-446-16A**	**513-446-16T**											✓	✓				✓	
–	**513-443-10A**	**513-443-10T**	0.0001	0.016	0-4-0	±0.0002	±0.0002	0.0001	±0.00004		0.3 or less		✓					✓	
–	**513-443-16A**	**513-443-16T**											✓					✓	

* We guarantee the accuracy of completed products by inspecting them with the dial face facing upward.

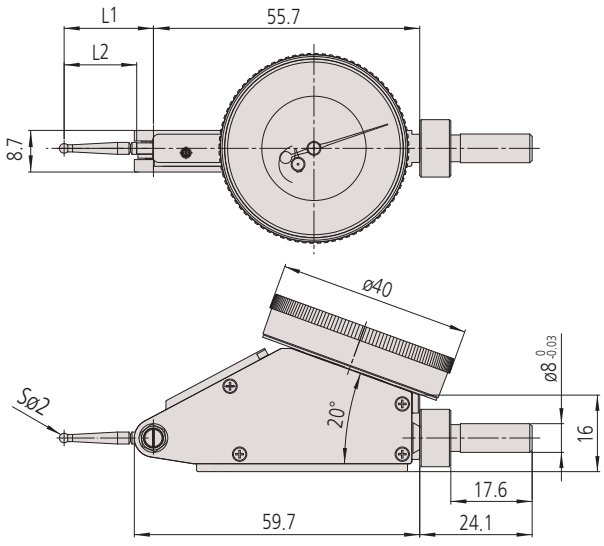
Note 1: Be sure to perform calibration with reference gage, etc. after exchanging the contact point. The inside parts may be damaged when the contact point is exchanged due to the breakage. In the case the of the significant deterioration in the operation, repair is required.

Note 2: Stem with dovetail groove is not included in the mass.

Note 3: **513-4XX-10** is indicated on the dial face. But the Order No. for the Special Set provided with the stem etc. has a suffix (E or T) at the end.

DIMENSIONS

Unit: mm



Order No.	L1	L2
513-445-10E	18.7	15.2
513-444-10E	20.9	17.4

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

Pocket Type (Slim design is suited for measurement in deep holes)

Clutch type (with a clutch lever)

NEW Products

Metric

513-517-10E/513-517-10T

Contact point No. 103006

Graduation: 0.01 mm
Range: 0.8 mm

- Standard
- Compact
- Carbide contact point

513-515-10E/513-515-10T

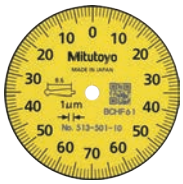
Contact point No. 136013

Graduation: 0.01 mm
Range: 1 mm

- Long contact point
- Compact
- Carbide contact point

513-501-10E/513-501-10T

Contact point No. 136104



Graduation: 0.001 mm
Range: 0.14 mm

- High accuracy
- Compact
- Carbide contact point

513-512-10E/513-512-10T

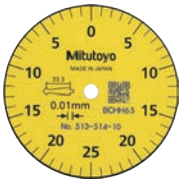
Contact point No. 131324

Graduation: 0.0005 in
Range: 0.02 in

- Long contact point
- Double scale spacing
- Compact
- Carbide contact point

513-514-10E/513-514-10T

Contact point No. 129949



Graduation: 0.01 mm
Range: 0.5 mm

- Long contact point
- Double scale spacing
- Compact
- Carbide contact point

513-503-10E/513-503-10T

Contact point No. 103010

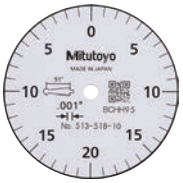
Graduation: 0.002 mm
Range: 0.2 mm

- Standard
- Compact
- Carbide contact point

Inch

513-518-10E/513-518-10T

Contact point No. 103007



Graduation: 0.001 in
Range: 0.04 in

- Compact
- Carbide contact point

513-504-10E/513-504-10T

Contact point No. 103011

Graduation: 0.0001 in
Range: 0.01 in

- Compact
- Carbide contact point

SPECIFICATIONS

Metric

Order No.		Graduation (mm)	Range (mm)	Dial reading	Maximum permissible error (MPE)* (µm)					Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Full set				Measuring range	One rev.	10 scale divisions	Hysteresis	Repetability										
513-517-10E	**513-517-10T**	0.01	0.8	0-40-0	9	–	5	4	3	50	0.3 or less				✓		✓	✓	
513-514-10E	**513-514-10T**	0.01	0.5	0-25-0	10	–	5	5	3	51	0.3 or less			✓		✓	✓	✓	
513-515-10E	**513-515-10T**	0.01	1	0-50-0	10	–	5	5	3	51	0.3 or less			✓			✓	✓	
513-503-10E	**513-503-10T**	0.002	0.2	0-100-0	4	–	2	3	1	50	0.4 or less				✓		✓	✓	
513-501-10E	**513-501-10T**	0.001	0.14	0-70-0	4	–	2	3	1	50	0.5 or less	✓					✓	✓	

Inch

Order No.		Graduation (in)	Range (in)	Dial reading	Maximum permissible error (MPE)* (in)				Mass (g)	Measuring force (N)	High accuracy	With revolution counter	Long contact point	Standard	Double scale spacing	Compact	Carbide contact point	Ruby contact point
Basic set	Full set				One rev.	First 2.5 rev.	Hysteresis	Repetability										
513-518-10E	**513-518-10T**	0.001	0.04	0-20-0	±0.001	-	0.0002	±0.0004	50	0.3 or less						✓	✓	
513-512-10E	**513-512-10T**	0.0005	0.02	0-10-0	±0.0005	-	0.0002	±0.0002	51	0.3 or less			✓		✓	✓	✓	
513-504-10E	**513-504-10T**	0.0001	0.01	0-5-0	±0.0002	-	0.0001	±0.00004	50	0.3 or less						✓	✓	

* We guarantee the accuracy of completed products by inspecting them with the dial face facing upward.

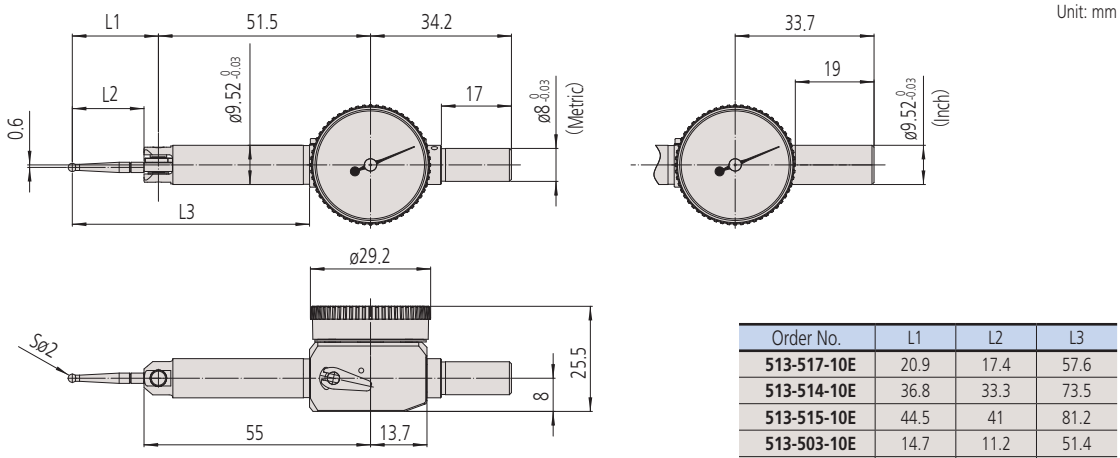
Note 1: Be sure to perform calibration with reference gage, etc. after exchanging the contact point. The inside parts may be damaged when the contact point is exchanged due to the breakage. In the case the of the significant deterioration in the operation, repair is required.

Note 2: Stem is not included in the mass.

Note 3: **513-5XX-10** is indicated on the dial face. But the Order No. for the Special Set provided with the stem etc. has a suffix (E or T) at the end.

DIMENSIONS

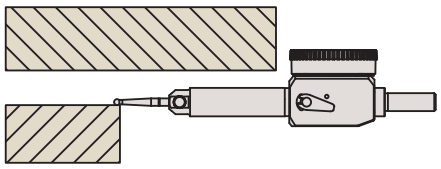
Unit: mm



Order No.	L1	L2	L3
513-517-10E	20.9	17.4	57.6
513-514-10E	36.8	33.3	73.5
513-515-10E	44.5	41	81.2
513-503-10E	14.7	11.2	51.4
513-501-10E	12.1	8.6	48.7

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

Pocket type can be fixed at the body (at ø9.52)



The slim body allows measurements in shallow space.

Set configuration

Horizontal

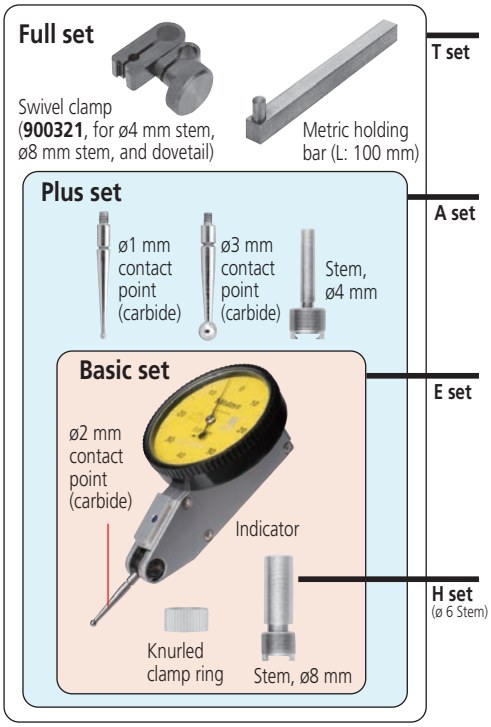
Horizontal (20° tilted face)

Parallel

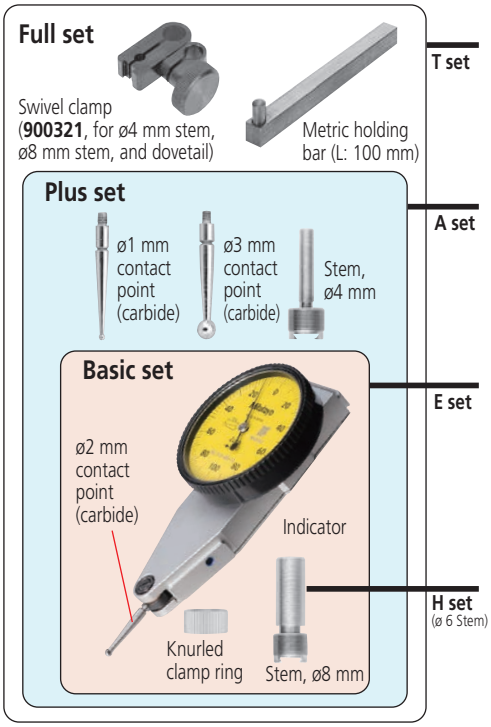
Vertical

Pocket type

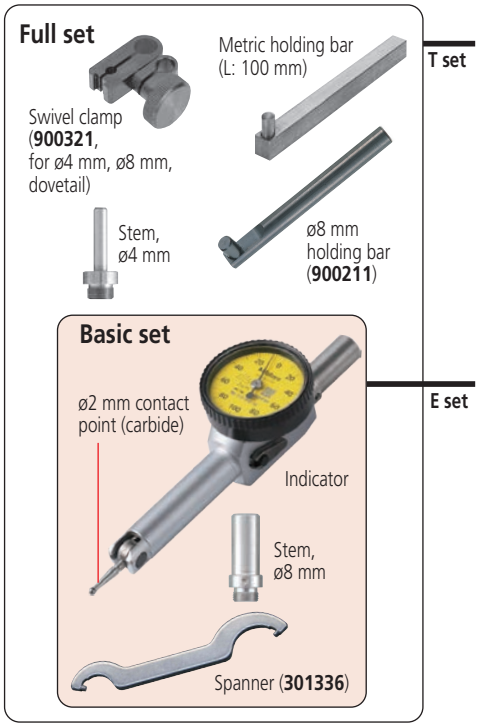
Metric and Metric / Inch



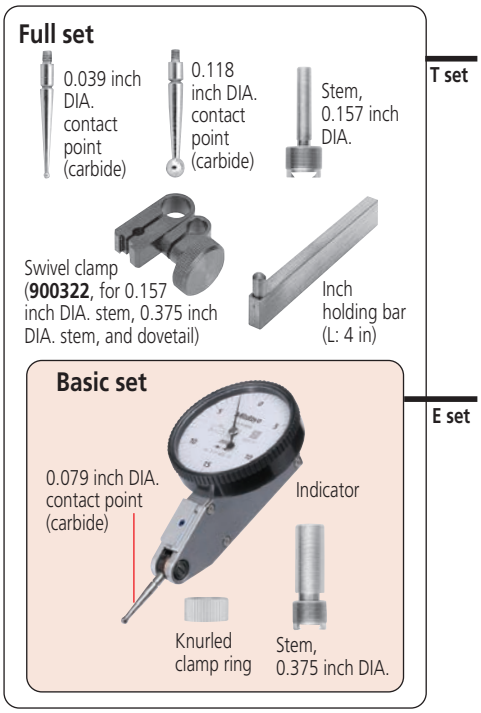
Metric



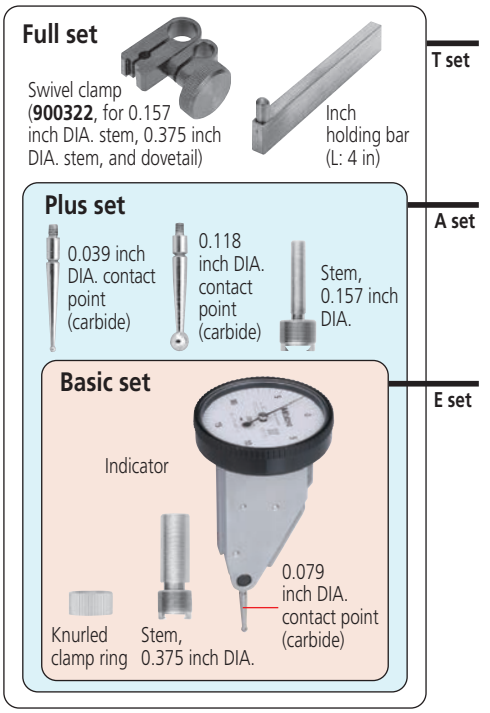
Metric



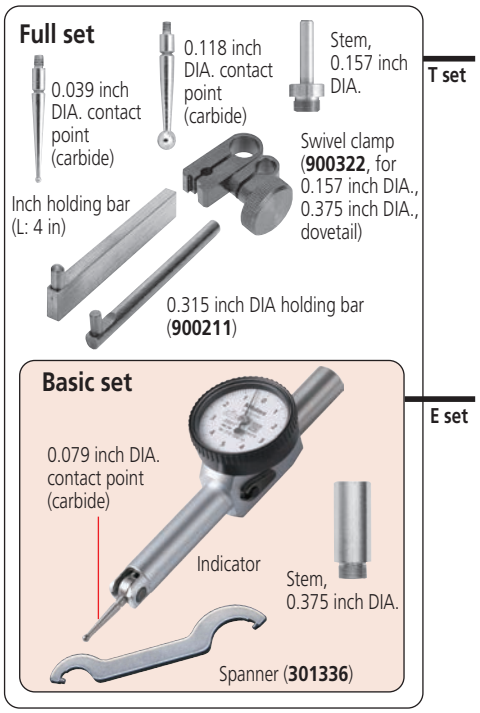
Inch and Inch / Metric



Inch

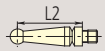
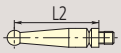
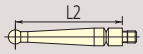
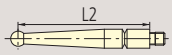
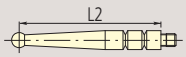
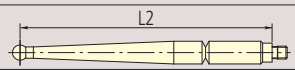
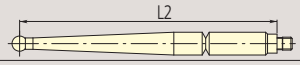
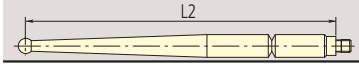


Inch



External dimensions of contact points for dial test indicators

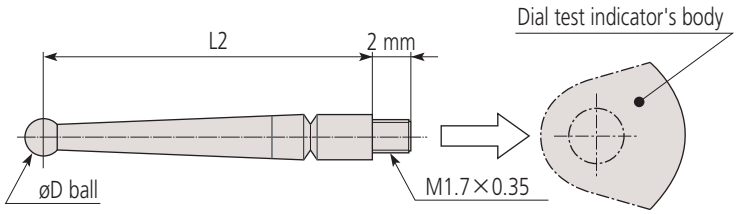
The length of the contact point is specific to each indicator model. Always use the contact point designed for your model.

	L2 (mm)	øD (mm) ø0.5 steel	ø0.7 steel	ø1 carbide	ø2 carbide	ø2 ruby	ø3 carbide	Applicable model
	8.6	–	–	**136756**	**136104**	–	**136758**	**513-501-10E, 513-501-10T**
	11.2	**190547**	**190548**	**103017**	**103010**	**21CZA209**	**103018**	**513-401-10E, 513-471-10E, 513-503-10E, 513-503-10T**
	15.2	**21CAB109**	**21CAB110**	**131314**	**103011**	**21CZB068**	**131315**	**513-405-10A, 513-405-10E, 513-404-10T, 513-425-10A, 513-425-10E, 513-465-10E, 513-445-10A, 513-445-10E, 513-445-10T, 513-455-10A, 513-455-10E, 513-455-10T, 513-475-10E, 513-485-10E**
	17.4	**190549**	**190550**	**103013**	**103006**	**21CZA201**	**103014**	**513-404-10A, 513-404-10E, 513-404-10T, 513-464-10E, 513-444-10A, 513-444-10E, 513-444-10T, 513-454-10A, 513-454-10E, 513-454-10T 513-484-10A, 513-484-10E, 513-484-10T, 513-474-10E, 513-517-10E, 513-517-10T**
	18.7	**190654**	**190653**	**137558**	**137557**	**21CZA210**	**137559**	**513-424-10A, 513-424-10E, 513-424-10T, 513-456-10E, 513-466-10E, 513-426-10A, 513-426-10E 513-478-10E, 513-486-10E**
	33.3	–	–	**137746**	**129949**	–	**137747**	**513-514-10E, 513-514-10T**
	33.9	**21CAB111**	**21CAB112**	**131316**	**131324**	–	**131317**	**513-414-10A, 513-414-10E, 513-414-10T**
	41.0	**190656**	**190655**	**136235**	**136013**	**21CZA211**	**136236**	**513-415-10A, 513-415-10E, 513-415-10T, 513-477-10E, 513-515-10E, 513-515-10T**

Note: Carbide contact point is slightly magnetic. ø1and ø3 contact points with non-conductive ruby ball which can be used for EDM machines are available by special order.

Contact point replacement

- To remove a contact point, wrap a soft waste cloth around the contact point and rotate it slowly while being pinched with pliers so as not to cause a scratch on it.
- After replacement of a contact point, the indicator must be calibrated against a reference. If a contact point is bent or broken, inner components might be damaged. In case of significant deterioration of accuracy or performance, the indicator needs to be repaired.
- Recommended tightening torque: 0.16 N·m

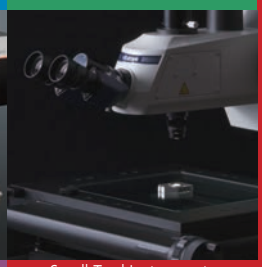


Coordinate Measuring Machines

Vision Measuring Systems

Form Measurement

Optical Measuring



Sensor Systems

Test Equipment and Seismometers

Digital Scale and DRO Systems

Small Tool Instruments and Data Management

Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

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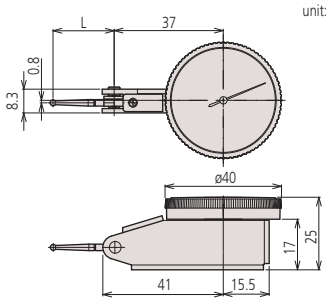
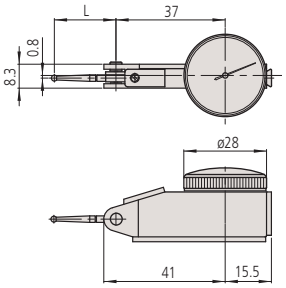
DIMENSIONS

unit: mm



Order No.	L
513-424E/513-478E	22.3
513-404E/513-474E	20.9
513-415E/513-477E	44.5
513-426E	22.3
513-405E/513-475E	14.7
513-425E	14.7
513-401E/513-471E	12.8
513-414E	36.8
513-409	14.7



Order No.	L
513-466E	22.3
513-464E	20.9
513-465E	14.7

Special Set: **No. 513-908 (mm)**

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

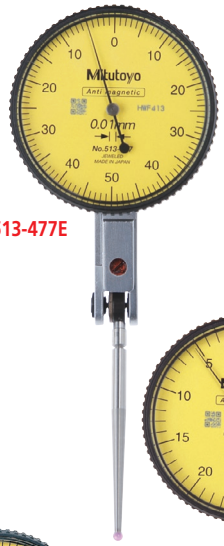
No. 513-907 (inch)

513-402: Dial test indicator
7014E: 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.


513-474E

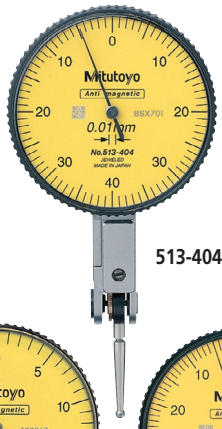

513-477E


513-471E

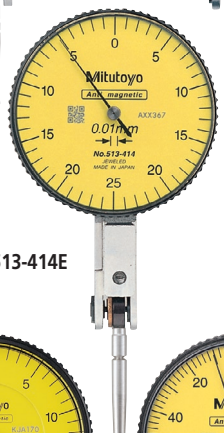

513-478E

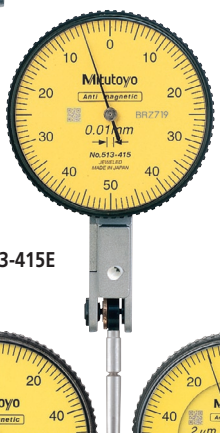

513-475E


513-424E


513-404E

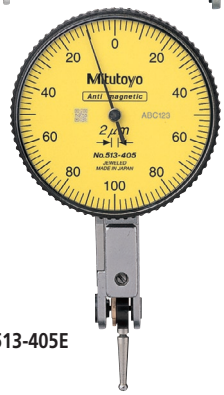
Ruby contact point models
- Higher resistance to wear
- Non-magnetic, non-conductive tip allows use in EDM processes


513-414E


513-415E

Carbide contact point models


513-426E


513-405E


513-425E


513-401E

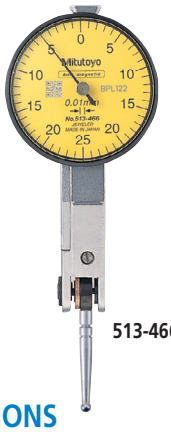
F

Mitutoyo

Dial Test Indicators

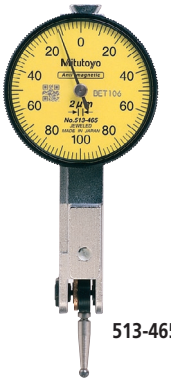
Comparison measuring instruments which ensure high quality, high accuracy and reliability.

Anti-magnet | Double scale spacing | Long stylus | Jeweled bearing | Compact | With revolution counter



513-466E

513-464E



513-465E

SPECIFICATIONS

Metric

Order No.			Graduation	Range	Accuracy	Dial reading	Measuring force						
Basic set	Plus set	Full set											
513-424E	513-424A	513-424T	0.01mm	0.5mm	5μm	0-25-0	0.3N or less	✔	✔	—	✔	—	—
513-478E	—	—	0.01mm	0.5mm	5μm	0-25-0	0.3N or less	✔	✔	—	✔	—	—
513-414E	513-414A	513-414T	0.01mm	0.5mm	10μm	0-25-0	0.2N or less	✔	✔	✔	✔	—	—
513-466E	—	—	0.01mm	0.5mm	5μm	0-25-0	0.3N or less	✔	✔	—	✔	✔	—
513-404E	513-404A	513-404T	0.01mm	0.8mm	8μm	0-40-0	0.3N or less	✔	—	—	✔	—	—
513-474E	—	—	0.01mm	0.8mm	8μm	0-40-0	0.3N or less	✔	—	—	✔	—	—
513-464E	—	—	0.01mm	0.8mm	8μm	0-40-0	0.3N or less	✔	—	—	✔	✔	—
513-415E	513-415A	513-415T	0.01mm	1mm	10μm	0-50-0	0.2N or less	✔	—	✔	✔	—	—
513-477E	—	—	0.01mm	1mm	10μm	0-50-0	0.2N or less	✔	—	✔	✔	—	—
513-426E	513-426A		0.01mm	1.5mm	8μm	0-25-0	0.4N or less	✔	✔	—	✔	—	✔
513-405E	513-405A	513-405T	0.002mm	0.2mm	3μm	0-100-0	0.3N or less	✔	—	—	✔	—	—
513-475E	—	—	0.002mm	0.2mm	3μm	0-100-0	0.3N or less	✔	—	—	✔	—	—
513-465E	—	—	0.002mm	0.2mm	3μm	0-100-0	0.3N or less	✔	—	—	✔	✔	—
513-425E	513-425A	—	0.002mm	0.6mm	6μm	0-100-0	0.4N or less	✔	—	—	✔	—	✔
513-401E	—	—	0.001mm	0.14mm	3μm	0-70-0	0.3N or less	✔	—	—	✔	—	—
513-471E	—	—	0.001mm	0.14mm	3μm	0-70-0	0.3N or less	✔	—	—	✔	—	—

Provided with a ø2mm ruby contact point as a substitute for ø2mm carbide contact point.

Inch

Order No.			Graduation	Range	Accuracy	Dial reading	Measuring force						
Basic set	Plus set	Full set											
513-402	—	513-402T	.0005"	.03"	±.0005"	0-15-0	0.3N or less	✔	—	✔	—	—	—
513-472	—	—	.0005"	.03"	±.0005"	0-15-0	0.3N or less	✔	—	✔	—	—	—
513-412	—	513-412T	.0005"	.03"	±.0005"	0-15-0	0.2N or less	✔	✔	✔	—	—	—
513-479	—	—	.0005"	.03"	±.0005"	0-15-0	0.2N or less	✔	✔	✔	—	—	—
513-462	—	—	.0005"	.03"	±.0005"	0-15-0	0.3N or less	✔	—	✔	✔	—	—
513-403	—	513-403T	.0001"	.008"	±.0001"	0-4-0	0.3N or less	✔	—	✔	—	—	—
513-473	—	—	.0001"	.008"	±.0001"	0-4-0	0.3N or less	✔	—	✔	—	—	—
513-463	—	—	.0001"	.008"	±.0001"	0-4-0	0.3N or less	✔	—	✔	✔	—	—

Provided with a .079"DIA ruby contact point as a substitute for .079"DIA carbide contact point.

Metric/inch

Order No.			Graduation	Range	Accuracy	Dial reading	Measuring force						
Basic set	Plus set	Full set											
513-409	—	513-409T	0.002mm, .0001"	0.2mm, .0075"	3μm	0-10-0, 0-3.8-0	0.3N or less	✔	✔	—	—	—	—

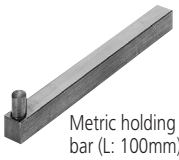
Inch/Metric

Order No.			Graduation	Range	Accuracy	Dial reading	Measuring force						
Basic set	Plus set	Full set											
513-406	—	513-406T	.0005", 0.01mm	.03", 0.7mm	±.0005"	0-15-0, 0-35-0	0.3N or less	✔	✔	—	—	—	—

Set Configuration: Metric and Metric/Inch

Full set

Swivel clamp (**900321**, for ø4mm, ø8mm, dovetail)



Metric holding bar (L: 100mm)

Plus set

Stylus, ø1mm carbide point

Stylus, ø3mm carbide point

Stem, ø4mm

Basic set

Stylus, ø2mm contact point (carbide)

Indicator

Knurled clamp ring

Stem, ø8mm

Set Configuration: Inch and Inch/Metric

Full set

Stylus, .039" DIA. carbide point

Stylus, .118" DIA. carbide point

Stem, .157" DIA.

Swivel clamp (**900322**, for .157" DIA., 3/8" DIA., dovetail)

Inch holding bar (L: 4")

Basic set

Stylus, .079" DIA. contact point (carbide)

Indicator

Knurled clamp ring

Stem, 3/8" DIA.

F