

Dial Test Indicators

SERIES 513

FEATURES

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



- 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 $\varnothing 8\text{mm}$ ($\varnothing 0.315$ in) plain stem (21CAB104) for the Metric models or a $\varnothing 9.52\text{mm}$ ($\varnothing 3/8$ 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:
 - $\varnothing 4\text{mm}$ ($\varnothing 0.157$ in) stem: **21CAB106**
 - $\varnothing 6\text{mm}$ ($\varnothing 0.236$ 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.

One piece movement for high-impact resistance and durability



Four models are available:



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

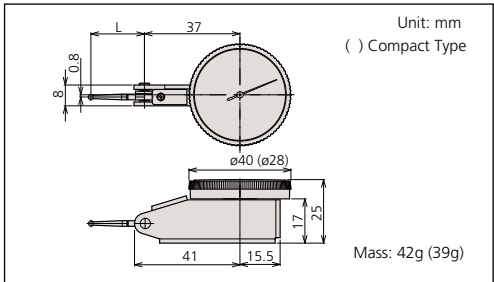


513-404-10E



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

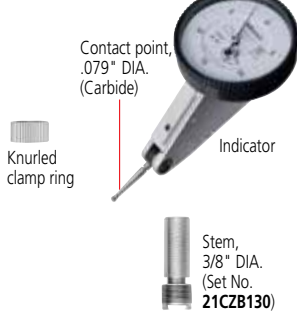
Set Configuration: Test Indicators

Inch

Full set



Basic set



Metric

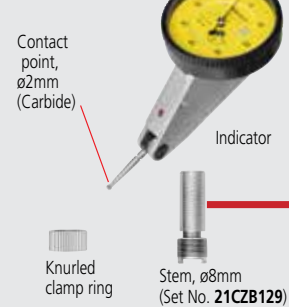
Full set



Plus set



Basic set



Anti-magnet type



Double scale spacing type



Long contact point type



Jeweled bearing type



Compact type



With revolution counter type



SPECIFICATIONS

Inch

Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	L (mm)							—	—
	Basic set	Full set													
.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.		Range	Accuracy	Dial reading	Measuring force	L (mm)							—	—
	Basic set	Full set													
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.		Range	Accuracy	Dial reading	Measuring force	L (mm)			—	—	—	—
	Basic set	Full set											
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

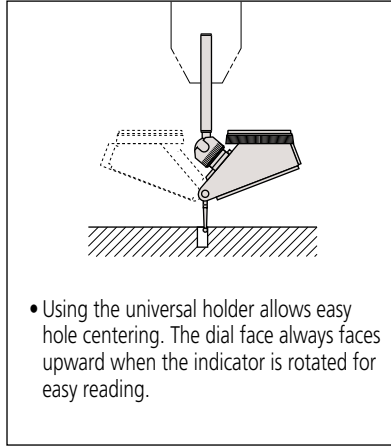
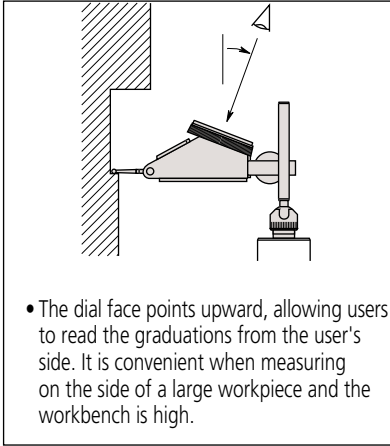
Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	L (mm)			—	—	—	—
	Basic set	Full set											
.0005", 0.01mm	513-406-10E	513-406-10T	.03", 0.7mm	±.0005"	0-15-0, 0-35-0	0.3N or less	19.9	✓	✓	—	—	—	—

Dial Test Indicators

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

FEATURES

- Specially designed for easy viewing of measurements.



513-444-10E



513-445-10E



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



513-455-10E

Optional Accessories

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



Anti-magnet type



With revolution counter type



Jeweled bearing type

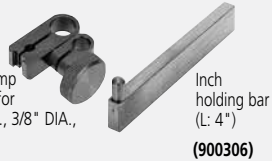


Long contact point type

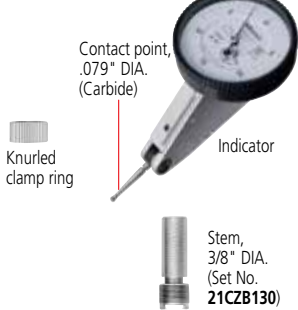
Set Configuration: Test Indicators

Inch

Full set

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

Basic set



Metric

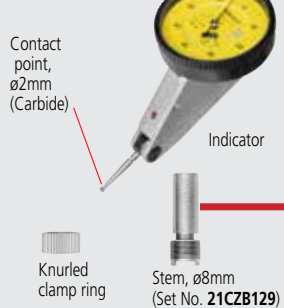
Full set



Plus set



Basic set



SPECIFICATIONS

Metric Horizontal (20° tilted face) type

Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)			
	Basic set	Full set									
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.		Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)					Remarks
	Basic set	Full set											
.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.		Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)		
	Basic set	Full set								
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.		Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)		
	Basic set	Full set								
.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

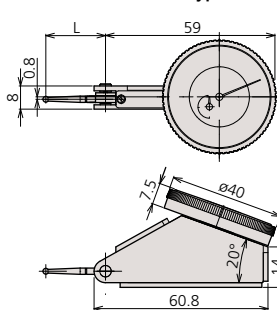
Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	
	Basic set	Full set							
0.01mm	513-484-10E	513-484-10T	0.8mm	8μm	0-40-0	0.3N or less	68	20.9	✓

Inch Parallel type

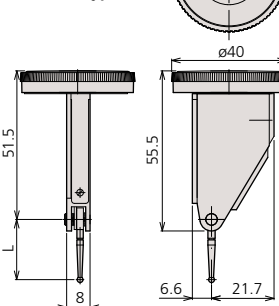
Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	
	Basic set	Full set							
.0005"	513-482-10A	513-482-10T	.03"	±.0005"	0-15-0	0.3N or less	68	20	✓

DIMENSIONS

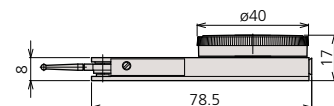
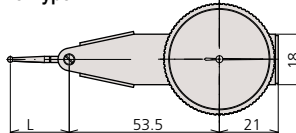
Horizontal (20° Tilted Face) Type



Vertical Type



Parallel Type



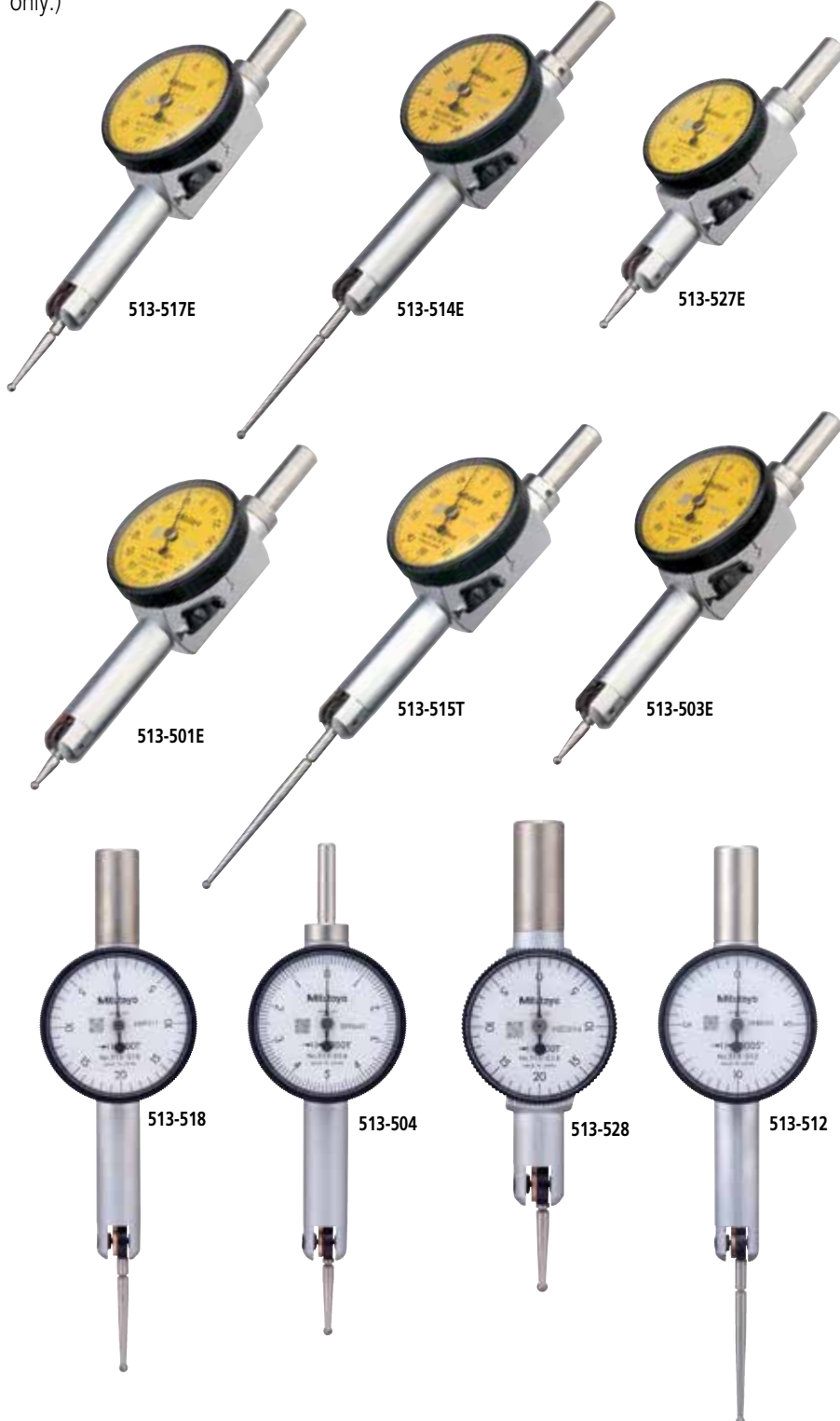
unit: mm

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 an O-ring to keep out water / oil.



513-514E



513-517E
513-527E



513-515T



513-503E



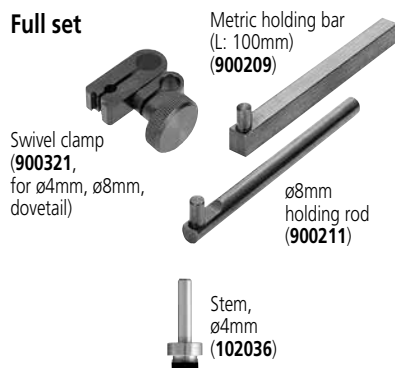
513-501E

Optional Accessories

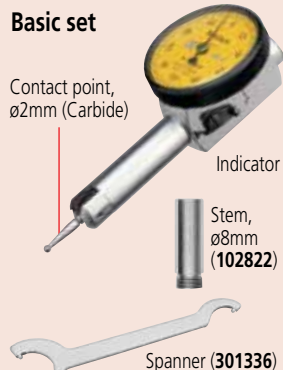
- : Swivel clamp
- : Holding bar
- : Stem
- : Contact points

Set Configuration: Metric

Full set

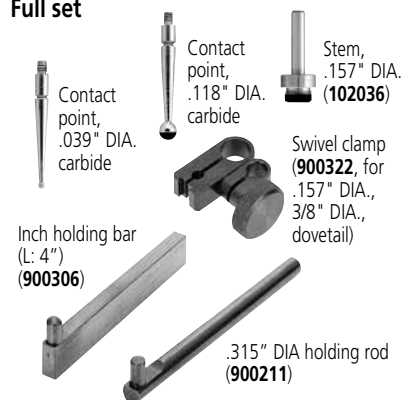


Basic set

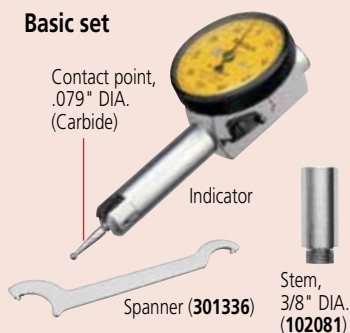


Set Configuration: Inch

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

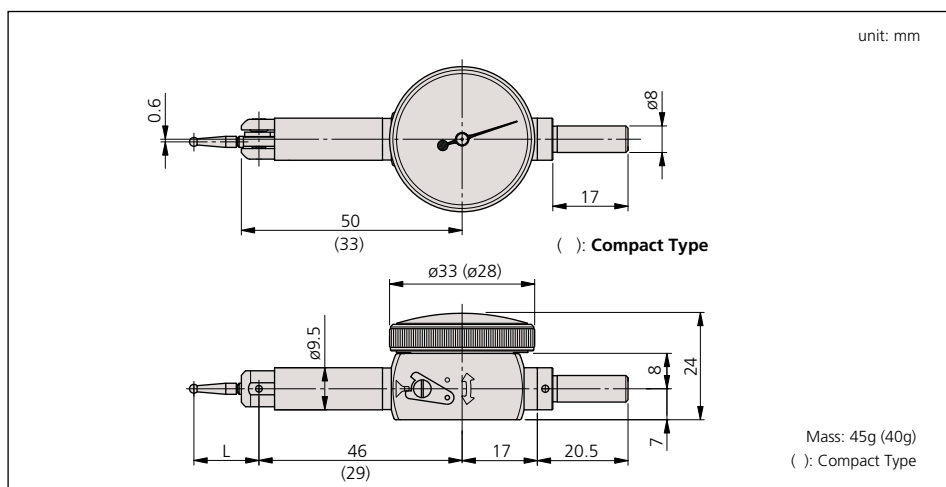
Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	L (mm)			
	Basic set	Full set								
.001"	513-518	513-518T	.04"	±.001"	0-20-0	0.3N or less	26.5	—	✓	—
.001"	513-528	513-528T	.04"	±.001"	0-20-0	0.3N or less	18.7	—	✓	✓
.0005"	513-512	513-512T	.02"	±.0005"	0-10-0	0.3N or less	37.4	✓	✓	—
.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
513-504	513-528	131314	103011	131315	—
513-512	—	131316	131324	131317	—
513-514E	—	137746	129949	137747	—
513-515T	—	136235	136013	136236	190656
513-517E	—	103013	103006	103014	190549
513-518	—	103008	103007	103009	—

DIMENSIONS AND MASS

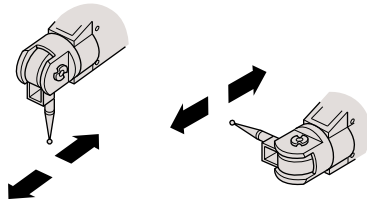


Dial Test Indicators

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

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	✓

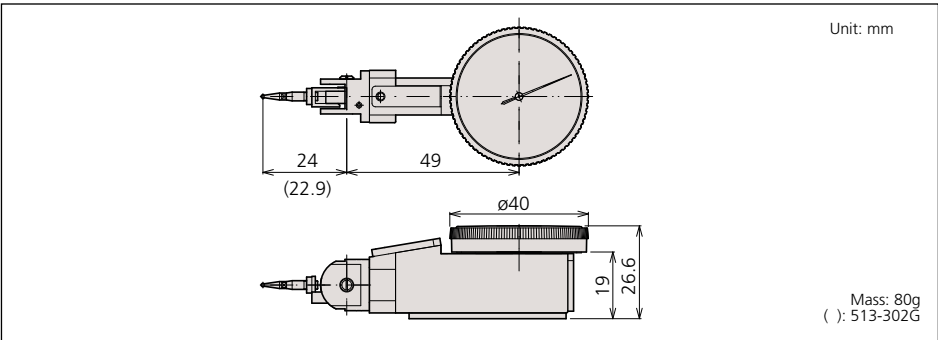


Jeweled bearing type

Inch

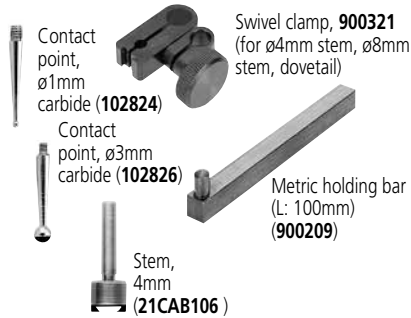
Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force	
	Basic set	Full set					
.0005"	513-302G	513-302GT	.03"	±.0005"	0-15-0	0.3N or less	✓

DIMENSIONS AND MASS

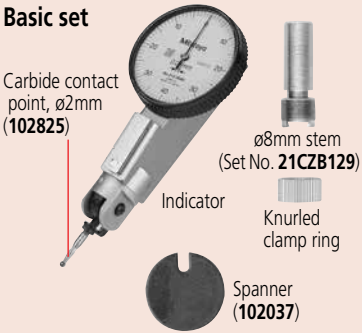


Set Configuration: Metric

Full set

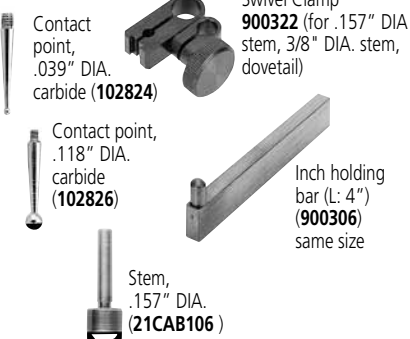


Basic set

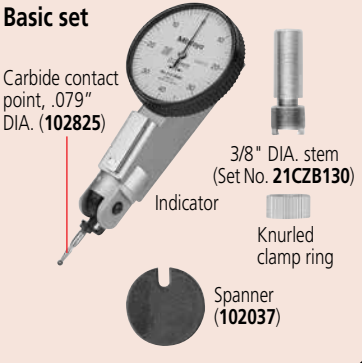


Set Configuration: Inch

Full set



Basic set

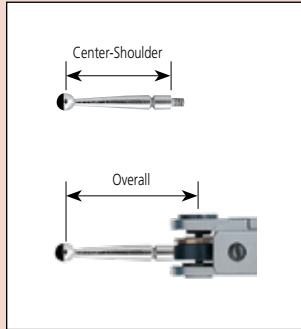


Optional Accessories

- : Swivel clamp
- : Holding bar
- : Stem

Contact Points and Clamp Holders

Optional Accessories for Dial Test Indicator



Inch		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 ¹ 513-443-16A
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 ¹ 513-442-16A 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		

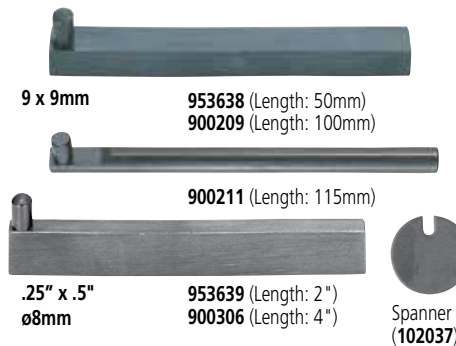
Metric		Part No.						Test Indicator Code No.		
Length (mm)										
9.4	12.9	—	—	21CZA044	21CZA036	21CZA045	21CZA212	513-401-10E 513-405-10E 513-503E 513-527E	513-471-10E 513-425-10E 513-455-10E 513-455-10E	
11.2	14.7	190547	190548	103017	103010	103018	21CZA209	513-404-10E 513-464-10E 513-484-10E	513-444-10E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

*1 Denotes Pocket Indicators

*2 Denotes Universal Indicator

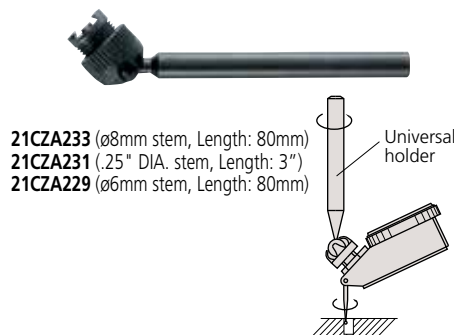
*3 Indicator Ships with Ruby Contact

Holding Bars (with 6mm mounting pin)



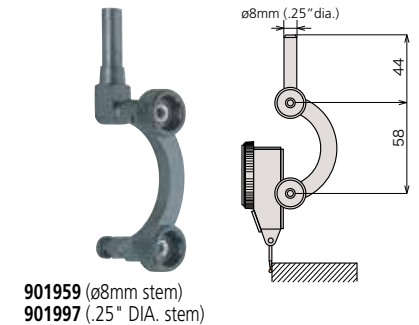
Universal Holder

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



Centering Holder

- Allows large diameter cylinders or holes to be centered.



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.

