

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



Newly designed contact point holder prevents backlash



Includes NIST-traceable Certificate of Inspection - bidirectional



One piece movement for high-impact resistance and durability



Four models are available:



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Dial Test Indicators

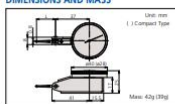
SERIES S13 — Horizontal Type

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.



DIMENSIONS AND MASS



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Optional Accessories

- Travel clamp
- Stem
- Contact points

Special Set: No. S13-906-10E (mm)

S13-906-10E Dial test indicator

2014-10E Mini magnetic stand

No. S13-907-10E (inch)

S13-907-10E Dial test indicator

7014-10 Mini magnetic stand

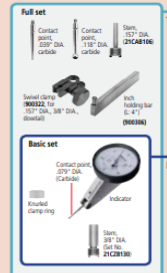


Description of Icon

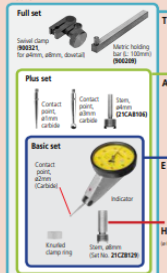
Icon	Description
	Mini revolution counter
	Long contact point
	Jeweled bearing
	Double scale spacing, easy to read
	Compact
	Display
	Anti-magnetic

Set Configuration: Test Indicators

Inch



Metric



SPECIFICATIONS

Order No.	Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	Notes
00001	S13-400-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00005	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00009	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00013	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00017	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00021	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00025	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00029	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00033	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00037	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00041	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00045	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00049	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00053	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓

Order No.	Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	Notes
00057	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00061	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00065	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00069	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00073	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00077	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00081	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00085	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00089	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00093	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00097	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00101	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00105	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00109	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00113	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00117	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00121	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00125	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00129	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00133	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00137	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00141	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00145	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00149	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓

Order No.	Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	Notes
00153	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00157	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00161	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00165	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓

Order No.	Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	Notes
00169	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00173	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00177	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00181	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓

Order No.	Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	Notes
00185	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00189	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00193	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00197	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓

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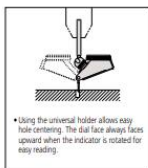
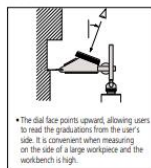
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Dial Test Indicators

SERIES S13 — Horizontal (20° Tilted Face), Vertical and Parallel

FEATURES

- Specially designed for easy viewing of measurements.

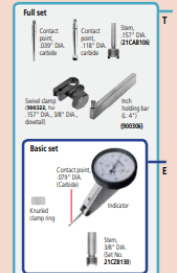


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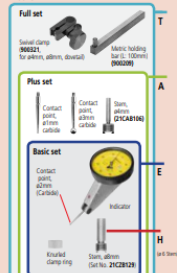


Set Configuration: Test Indicators

Inch



Metric



Order No.	Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	Notes
00201	S13-400-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00205	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00209	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00213	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00217	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00221	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00225	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00229	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00233	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00237	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00241	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00245	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00249	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00253	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00257	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00261	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00265	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00269	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00273	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00277	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00281	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00285	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00289	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00293	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00297	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00301	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓

Order No.	Full set	Range	Accuracy	Dial reading	Measuring force	Mass (g)	L (mm)	Notes
00305	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00309	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00313	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00317	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00321	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00325	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00329	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00333	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00337	S13-424-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00341	S13-414-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00345	S13-404-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓
00349	S13-402-10E	0.001"	±0.0001"	0.001"	0.38 or less	19.9	19.9	✓

Choice of dial position

Four models are available, each with a different orientation of the dial to allow the best visibility in any situation.

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

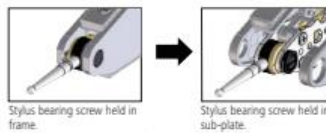


Multi-layer coatings on the crystal

- Hard, antifouling and non-glare coatings on the crystal inhibit scratches, contamination and glare on the surface.

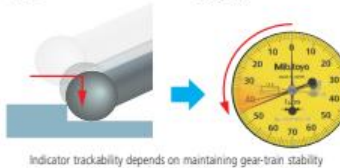
Improved stylus bearing

- 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.



Maintain trackability

- The ability of the indicator to track small changes in displacement deteriorates with prolonged use due to minute changes in clearance between the gears. Redesigned mounting for the gears enables the ability to maintain good trackability.



Horizontal (Standard model)

Metric Wide variations of models conform to the required accuracy range and surface of workpieces.

513-424-10 Contact point No. 137557	Graduation: 0.01mm Range: 0.5mm 513-424-10A/513-424-10T Standard Double scale spacing Carbide contact point (Anti-magnet)	513-414-10 Contact point No. 131324	Graduation: 0.01mm Range: 0.5mm 513-414-10A/513-414-10T Long stylus Carbide contact point (Anti-magnet) Double scale spacing	513-471-10 Contact point No. 21CZA11	Graduation: 0.01mm Range: 1.5mm 513-471-10E Ruby contact point (non-magnet) Long stylus	513-475-10 Contact point No. 21CZB08	Graduation: 0.01mm Range: 0.5mm 513-475-10E Ruby contact point (non-magnet) Standard
513-478-10 Contact point No. 21CZA10	Graduation: 0.01mm Range: 0.5mm 513-478-10E Ruby contact point (non-magnet) Standard Double scale spacing	513-474-10 Contact point No. 21CZA201	Graduation: 0.01mm Range: 0.5mm 513-474-10E Ruby contact point (non-magnet) Standard	513-426-10 Contact point No. 137557	Graduation: 0.01mm Range: 1.5mm 513-426-10E/513-426-10A With revolution counter Double scale spacing Carbide contact point (Anti-magnet)	513-425-10 Contact point No. 103011	Graduation: 0.01mm Range: 0.5mm 513-425-10E/513-425-10A With revolution counter Carbide contact point (Anti-magnet)
513-466-10 Contact point No. 137557	Graduation: 0.01mm Range: 0.5mm 513-466-10E Small face diameter Double scale spacing Compact Carbide contact point (Anti-magnet)	513-464-10 Contact point No. 103006	Graduation: 0.01mm Range: 0.5mm 513-464-10E Small face diameter Compact Carbide contact point (Anti-magnet)	513-405-10 Contact point No. 103011	Graduation: 0.01mm Range: 0.5mm 513-405-10A/513-405-10T Standard Carbide contact point (Anti-magnet)	513-465-10 Contact point No. 103011	Graduation: 0.01mm Range: 0.5mm 513-465-10E Small face diameter Compact Carbide contact point (Anti-magnet)
513-404-10 Contact point No. 103006	Graduation: 0.01mm Range: 0.5mm 513-404-10A/513-404-10T Standard Carbide contact point (Anti-magnet)	513-415-10 Contact point No. 136013	Graduation: 0.01mm Range: 0.5mm 513-415-10A/513-415-10T Long stylus Carbide contact point (Anti-magnet)	513-471-10 Contact point No. 21CZA209	Graduation: 0.01mm Range: 0.5mm 513-471-10E Ruby contact point (non-magnet) High accuracy	513-401-10 Contact point No. 103010	Graduation: 0.01mm Range: 0.5mm 513-401-10E High accuracy Carbide contact point (Anti-magnet)



Mitutoyo



Machinery																
Order No.			Indication accuracy													
Basic set	Plus set	Full set	Graduation	Range	Dial reading	Measuring range	10 scale divisions	Resolution	Repeatability	Max.	Measuring force	Repeatability	10 scale divisions	Resolution	Repeatability	Max.
100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%																
113-424-101	113-424-106	113-424-107	0.01 mm													
113-438-101																
113-466-101				0.5 mm	0.25/0	6 mm	4 µm			45g	0.38 or less	✓	✓	✓	✓	✓
113-466-102						6 mm	4 µm			41g	0.38 or less	✓	✓	✓	✓	✓
113-466-103	113-466-106	113-466-107														
113-474-101	113-474-106	113-474-107		0.5 mm	0.25/0	10 mm	5 µm			45g	0.38 or less	✓	✓	✓	✓	✓
113-474-102				0.8 mm	0.40/0	9 mm	5 µm			41g	0.38 or less	✓	✓	✓	✓	✓
113-466-104																
113-475-101	113-475-106	113-475-107		1.0 mm	0.50/0	10 mm	5 µm			45g	0.38 or less	✓	✓	✓	✓	✓
113-477-101				1.0 mm	0.50/0	10 mm	5 µm			41g	0.38 or less	✓	✓	✓	✓	✓
113-475-102	113-475-106	113-475-107														
140-405-101	140-405-106	140-405-107	0.002 mm	0.2 mm	0.10/0	10 mm	2 µm			45g	0.48 or less	✓	✓	✓	✓	✓
113-477-102			0.001 mm	0.16 mm	3.75/0	2 µm			41g	0.38 or less	✓	✓	✓	✓	✓	✓
113-475-103			0.2 mm	0.1 mm	0.10/0	2 µm			41g	0.38 or less	✓	✓	✓	✓	✓	✓
113-425-101	113-425-106	113-425-107	0.002 mm	0.2 mm	0.10/0	10 mm	2 µm			45g	0.38 or less	✓	✓	✓	✓	✓
140-405-102			0.2 mm	0.1 mm	0.10/0	2 µm			41g	0.38 or less	✓	✓	✓	✓	✓	✓

tech

[illegible]

Metric/Inch

Method/tech												
Order file			Indicator accuracy							Other		
Basic set	Plus set	Full set	Graduation	Range	Dial reading	Measuring range	10 scale divisions	Hydrometers	Repeatability	Mass	Measuring force	Other
513-400-100	-	513-400-107	0.002mm 0.0025	0.2mm 0.025	0-150	4mm	2mm	3mm	1mm	45g	0.2N or less	☒ 21 Trip up on easy ☒ 22 Water resistance (water) ☒ 23 Low g-pain ☒ 24 Low g-pain ☒ 25 Gradual scale reading ☒ 26 Comfort ☒ 27 No change contact force ☒ 28 Fully vertical pose

Touch/Metric

TechMetric									
Order No.			Indication accuracy				Mass		
Basic set	Plus set	Full set	Graduation	Range	Dial reading	Measuring range	Hysteresis	Repeatability	Measuring force
513-406-106	—	513-406-107	0.0005 mm	0.03 mm	0-15.6	±0.0005 mm	0.0002 mm	0.0002 mm	450 g, 0.20 mN

DIMENSIONS

