

Precision Measuring Instruments

Catalog No.5002

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02-214-0101

TEST INDICATORS

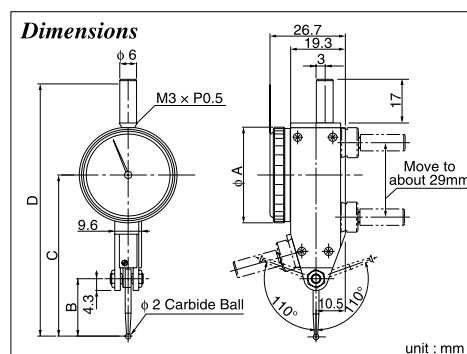
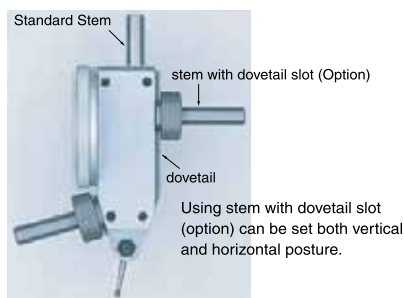
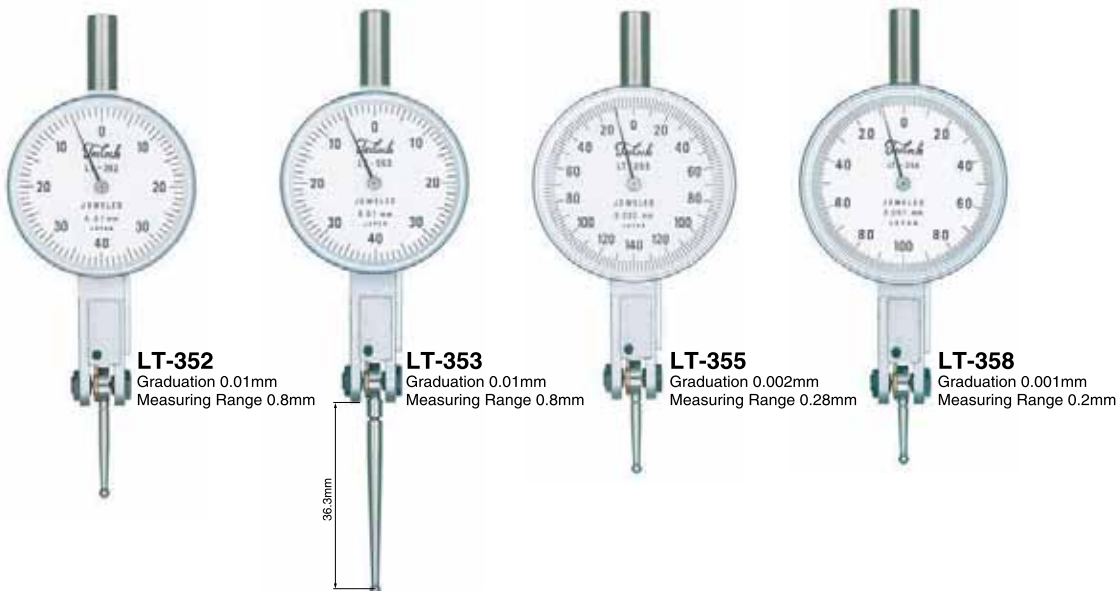
Dial Test Indicator are designed to be positioned for easy and accurate readability and are applicable for various usages such as measuring dimension, parallelism and centering of workpiece and measuring revolution axis of machinery equipment and turn-out of workpieces processed by Lathe etc., and making table face of machinery equipment parallel. This has strong point if compared with standard dial indicator and has sensitivity for microscopic dimension displacement measurement. As its stylus is leg type with ball edge, narrow space can be measured, where its edge (standard ϕ 2mm ultra hard ball) can enter.

φ 0.6mm, φ 0.8mm, and φ 1.0mm stylus are also available



Auto-Clutch Test Indicator

- As miniature bearing (pivot ball bearing) is used for stylus revolution bearing, it is not affected by grooved axis and the indication is very stable.
- Measuring direction is proper and opposite automatically changed by auto-clutch mechanism without change lever. It is always read accurately in any case, as stylus always rotates in clockwise direction.
- Stylus can be set at any desired position of angle of 220°circle.
- Stem with dovetail slot (option) can be mounted to 2 points such as front and back part.
- A carbide ball stylus is provided as standard for less abrasion and stylus is made of stainless.
- Stylus and pointer are anti-magnetic and not affected by magnetism.



Dimension Table

Model	A	B	C	D
LT-352	35	21	59	101
LT-353	35	40.6	78.5	120.5
LT-355	38.4	18	56	98
LT-358	38.4	15	53	87.5

unit : mm

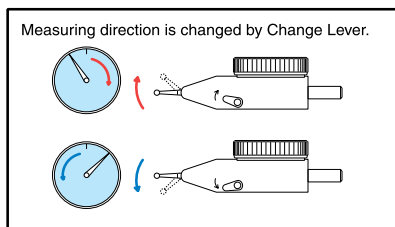
Specifications

Model	Graduation (mm)	Measuring Range (mm)	Dial Reading	Measuring Force (N)	Repeatability (μm)	Adjacent Error (μm)	Accuracy on full range (μm)	Hysteresis (μm)	Standard Stylus	Weight (g)
LT-352	0.01	0.8	0-40-0	0.2 or less	3	5	8	3	ZS-709	75
LT-353	0.01	0.8	0-40-0	0.2 or less	3	5	8	4	ZS-710	75
LT-355	0.002	0.28	0-140-0	0.25 or less	1	2	3	2	ZS-711	75
LT-358	0.001	0.2	0-100-0	0.25 or less	1	2	2	2	ZS-712	75



Lever type Test Indicator

- Performs easy and accurate measurement of narrow or deep portions, and inside and outside run-out that dial indicators cannot access.
- Measuring direction can be changed by change lever.
- Main bearings are jeweled for high-sensitivity and quick-response (all models).
- A carbide ball stylus is provided as standard for less abrasion.
- Stylus is made of stainless steel.
- Stylus and pointer are anti-magnetic and not affected by magnetism.
- Due to the low measuring force, this is suitable for measurement of thin workpiece as well.



LT-310
Graduation 0.01mm
Measuring Range 0.8mm



LT-311
Graduation 0.01mm
Measuring Range 0.8mm



LT-314
Graduation 0.01mm
Measuring Range 0.5mm



LT-315
Graduation 0.01mm
Measuring Range 0.8mm



LT-316
Graduation 0.01mm
Measuring Range 1.0mm



LT-370
Graduation 0.002mm
Measuring Range 0.28mm

PS type Test Indicator

- Shock from the angle excepting measuring direction can be avoided and body is protected by TECLOCK original shock preventing mechanism (PS mechanism) of center of stylus.

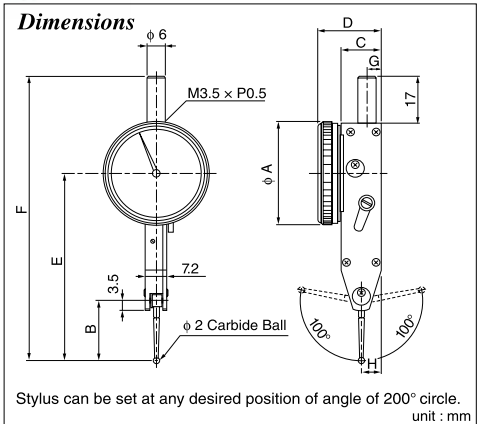
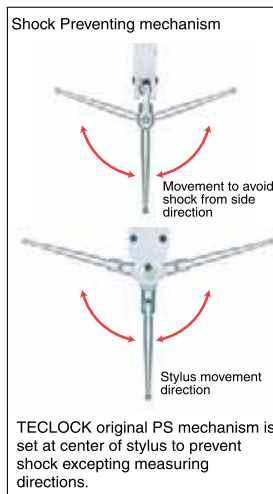


LT-315PS
Graduation 0.01mm
Measuring Range 0.8mm



LT-316PS
Graduation 0.01mm
Measuring Range 1.0mm

Major dimension is equal to LT-315 and LT-316.



Dimension Table

Model	A	B	C	D	E	F	G	H
LT-310	28.4	15.3	14	21.7	47.3	79.3	5	7
LT-311	35	15.3	13.8	21.5	47.3	78.3	5	7
LT-314	35	21.4	13.5	21.2	64.4	97.4	4.8	6.8
LT-315	35	20.1	13.5	21.4	63.1	97.1	4.8	6.8
LT-316	35	42.8	13.5	21.4	85.8	118.8	4.8	6.8
LT-370	38.4	12	13.5	21.4	55	89	4.8	6.8

unit : mm

Specifications

Model	Graduation (mm)	Measuring Range (mm)	Dial Reading	Measuring Force (N)	Repeatability (μm)	Adjacent Error (μm)	Accuracy on full range (μm)	Hysteresis (μm)	Standard Stylus	Weight (g)
LT-310	0.01	0.8	0-40-0	0.4 or less	3	5	8	3	ZS-700	50
LT-311	0.01	0.8	0-40-0	0.4 or less	3	5	8	3	ZS-700	60
LT-314	0.01	0.5	0-25-0	0.4 or less	3	5	5	3	ZS-701	70
LT-315	0.01	0.8	0-40-0	0.4 or less	3	5	8	3	ZS-702	70
LT-316	0.01	1.0	0-50-0	0.4 or less	3	5	10	4	ZS-704	70
LT-370	0.002	0.28	0-140-0	0.4 or less	1	2	3	2	ZS-713	75
LT-315PS	0.01	0.8	0-40-0	0.4 or less	3	5	8	3	ZS-703	70
LT-316PS	0.01	1.0	0-50-0	0.4 or less	3	5	10	4	ZS-705	70

DIAL INDICATORS

TECLOCK Dial Indicator is definitely utilized at the production site where dimensional high accuracy is needed to be confirmed. The graduation (1-graduation) depends on usage and TECLOCK offers best quality dial indicators with 0.001mm, 0.005mm, 0.01mm, 0.05mm and 0.1mm graduations. The strokes are available from 0.16mm (the shortest) up to 150mm. Dial Indicator is normally not used independent but its stem or lugback is fixed to a jig and holds workpiece with measuring stands and contact point, and displacement volume is read by short hand and pointer. This dial indicator is applied for direct measurement to measure actual dimension and comparative measurement for measuring displacement volume from a certain standard dimension.



0.001mm Dial Indicator

- Durability is pursued by protecting mechanical parts like gears with unique shock proof mechanism.
- Jeweled bearing for extreme durability, toughness and stability.
- Stable repeatability is realized by most advanced TECLOCK Lever enlargement mechanism built-in.
- Tolerance hand is provided as standard accessory (all models) for positive tolerance setting.
- Lifting lever can be mounted.
- Bezel clamp can be mounted (Option), excepting TM-1201PW.



TM-1201
Graduation 0.001mm
Measuring Range 1mm



TM-1201PW
Graduation 0.001mm
Measuring Range 1mm
Oil-Proof Type



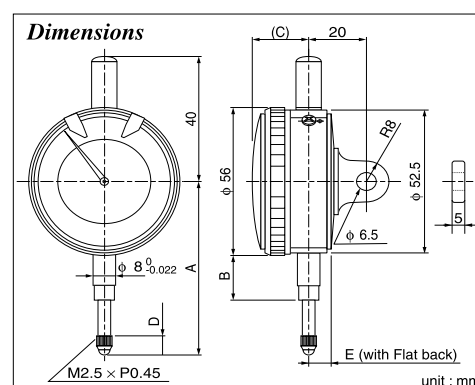
TM-1251
Graduation 0.001mm
Measuring Range 1mm
One Revolution 0.1mm
Green Colored Dial



TM-1202
Graduation 0.001mm
Measuring Range 2mm



TM-1205
Graduation 0.001mm
Measuring Range 5mm



Dimension Table

Model	A	B	C	D	E
TM-1201	62	18	15	7.5	8
TM-1201PW	65.5	(18)	13.5	11	8.5
TM-1251	62	18	15	7.5	8
TM-1202	62	18	15	7.5	8
TM-1205	62	18	15.5	7.5	8

unit : mm

Specifications

Model	Graduation (mm)	Measuring Range (Free stroke) (mm)	Repeatability (μm)	Indication Error (μm)					Hysteresis (μm)	Standard Contact Point	Measuring Force (N)	Weight (g)
				Adjacent Error	1/2 Revolution	1 Revolution	2 Revolution	Total Range				
TM-1201	0.001	1(3)	0.5	2.5	± 3	± 4	± 4	± 5	3	ZS-017	1.5 or less	170
TM-1201PW	0.001	1(3)	0.5	2.5	± 3	± 4	± 4	± 5	3	ZS-028	1.5 or less	180
TM-1251	0.001	1(3)	0.5	2.5	± 3	± 4	± 4	± 5	3	ZS-017	1.5 or less	170
TM-1202	0.001	2(2)	0.5	4	± 5	± 6	± 6	± 7	3	ZS-017	1.5 or less	170
TM-1205	0.001	5(-)	1	5	± 6	± 7	± 8	± 10	4	ZS-017	1.5 or less	170

In case flat back is required, please add suffix "f" to the end of model number. (example =TM-1201f)

0.01mm Dial Indicator

- Achieved highest accuracy and durability made by pursuing precision components.
- TECLOCK unique and original shock proof mechanism is built-in
- Lifting lever can be mounted.
- Bezel clamp can be mounted (Option), excepting TM-110 PW / TM-110G.



TM-110
Graduation 0.01mm
Measuring Range 10mm
Hardened Stainless Steel Stem



TM-110R
Graduation 0.01mm
Measuring Range 10mm
Reverse Reading



TM-110D
Graduation 0.01mm
Measuring Range 10mm



TM-110-4A
Graduation 0.01mm
Measuring Range 10mm
with Oil Ejection Holed Bezel



TM-110PW
Graduation 0.01mm
Measuring Range 10mm
Oil-Proof Type

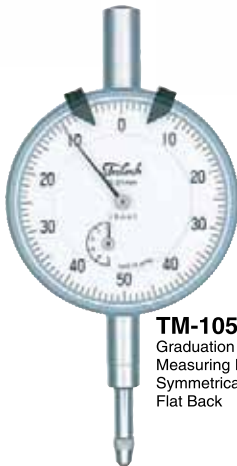


TM-110G
Graduation 0.01mm
Measuring Range 10mm
with Stop Hand

Peak Retaining Function



TM-110P
Graduation 0.01mm
Measuring Range 10mm
Dial Reading(0-0.5-1.0)
Green Colored Dial



TM-105
Graduation 0.01mm
Measuring Range 5mm
Symmetrical Dial
Flat Back



TM-105W
Graduation 0.01mm
Measuring Range 5mm
Continuous Dial

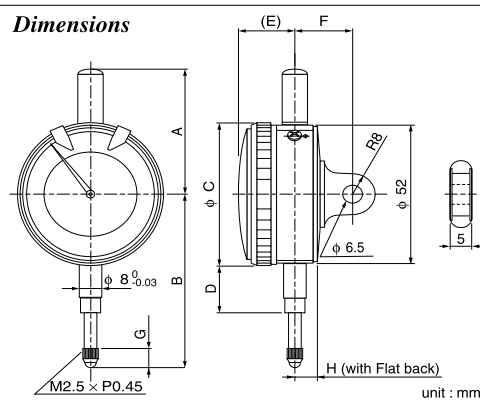


TM-5106
Graduation 0.01mm
Measuring Range 5mm

0.005mm Dial Indicator



TM-5105
Graduation 0.005mm
Measuring Range 5mm



Dimension Table

Model	A	B	C	D	E	F	G	H
TM-110	48.7	65	55	18	15.5	20	7.5	7.8
TM-110R	48	65	55	18	15.5	20	7.5	7.8
TM-110D	48	65	55	18	17.6	20	7.5	7.8
TM-110-4A	48	65	55	18	15.5	20	7.5	7.8
TM-110PW	44.5	68.5	56	(17.5)	14.5	20	11	8.3
TM-110G	48	65	55	18	17.3	20	7.5	7.8
TM-110P	48	65	55	18	15.5	20	7.5	7.8
* TM-105	48	65	55	18	15.5	※	7.5	7.8
TM-105W	48	65	55	18	15.5	20	7.5	7.8
TM-5106	48	65	55	18	15.5	20	7.5	7.8
TM-5105	48	65	55	18	15.5	20	7.5	7.8

* Indicator is supplied with Flat back

unit : mm

Specifications

Model	Graduation (mm)	Measuring Range (mm)	Repeatability (μm)	Indication Error (μm)					Hysteresis (μm)	Standard Contact Point	Measuring Force (N)	Weight (g)
				Adjacent Error	1/2 Revolution	1 Revolution	2 Revolution	Total Range				
TM-110	0.01	10	5	8	± 9	± 10	± 15	± 15	5	ZS-017	1.4 or less	110
TM-110R	0.01	10	5	8	± 9	± 10	± 15	± 15	5	ZS-017	1.4 or less	165
TM-110D	0.01	10	5	8	± 9	± 10	± 15	± 15	5	ZS-017	1.4 or less	165
TM-110-4A	0.01	10	5	8	± 9	± 10	± 15	± 15	5	ZS-017	1.4 or less	165
TM-110PW	0.01	10	5	8	± 9	± 10	± 15	± 15	5	ZS-028	1.4 or less	165
TM-110G	0.01	10	5	8	± 9	± 10	± 15	± 15	5	ZS-017	2.0 or less	165
TM-110P	0.01	10	5	8	± 9	± 10	± 15	± 15	5	ZS-017	1.4 or less	145
TM-105	0.01	5	5	8	± 9	± 10	± 12	± 12	5	ZS-017	1.4 or less	145
TM-105W	0.01	5	5	8	± 9	± 10	± 12	± 12	5	ZS-017	1.4 or less	145
TM-5106	0.01	5	3	7	± 8	± 9	± 10	± 12	5	ZS-017	1.4 or less	145
TM-5105	0.005	5	3	7	± 8	± 9	± 10	± 12	5	ZS-017	1.4 or less	145

In case flat back is required, please add suffix "F" to the end of model name.



DIAL INDICATORS

Small Dial Indicator

- Lifting lever can be mounted, excepting TM-34.
- Line-up of measuring range 3.5mm, 4mm, 5mm and 10mm.
- Bezel clamp (Option) can be mounted on TM-35, TM-35-01, TM-35-02D.



TM-35
Graduation 0.01mm
Measuring Range 5mm



TM-35-01
Graduation 0.1mm
Measuring Range 10mm



TM-35-02D
Graduation 0.01mm
Measuring Range 10mm



TM-34
Graduation 0.01mm
Measuring Range 4mm



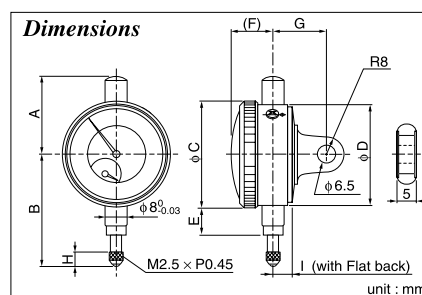
TM-36
Graduation 0.005mm
Measuring Range 3.5mm



TM-37
Graduation 0.01mm
Measuring Range 3.5mm



TM-37C
Graduation 0.01mm
Measuring Range 3.5mm
Flat Back



Dimension Table

Model	A	B	C	D	E	F	G	H	I
TM-35	27.4	41.3	39	36.5	10	14.5	19	5	6.2
TM-35-01	32.5	46	39	36.5	10	14.5	19	5	6.2
TM-35-02D	32.5	46	39	36.5	10	16.5	19	5	6.2
TM-34	20	39.5	36	32	11.5	13	19	5	6.5
TM-36	33.5	50	47	44	13	15.5	19.7	7.5	7
TM-37	33.5	50	47	44	13	15.5	19.7	7.5	7
* TM-37C	33.5	50	47	44	13	15.5	19.7	7.5	7

* Indicator is supplied with flat back.

unit : mm

Specifications

Model	Graduation (mm)	Measuring Range (mm)	Repeatability (μm)	Indication Error (μm)			Hysteresis (μm)	Standard Contact Point	Measuring Force (N)	Weight (g)
				Adjacent Error	1 Revolution	Total Range				
TM-35	0.01	5	5	9	± 13	± 15	6	ZS-014	1.3 or less	70
TM-35-01	0.1	10	—	—	—	± 50	—	ZS-014	1.5 or less	70
TM-35-02D	0.01	10	5	9	± 13	± 18	7	ZS-014	1.6 or less	75
TM-34	0.01	4	5	8	± 11	± 15	6	ZS-014	1.0 or less	60
TM-36	0.005	3.5	5	8	± 10	± 12	5	ZS-017	1.2 or less	115
TM-37	0.01	3.5	5	8	± 10	± 12	6	ZS-017	1.2 or less	115
TM-37C	0.01	3.5	5	8	± 10	± 12	6	ZS-017	1.2 or less	115

In case flat back is required, please add suffix "F" to the end of model name.

0.01mm Long Stroke Dial Indicator

- 20mm, 30mm long stroke dial indicators are available.
- TECLOCK unique shock proof mechanism is built-in to all models.
- Lifting lever can be mounted, excepting KM-121PW.
- Bezel clamp (Option) can be mounted, excepting KM-121PW.



KM-121
Graduation 0.01mm
Measuring Range 20mm



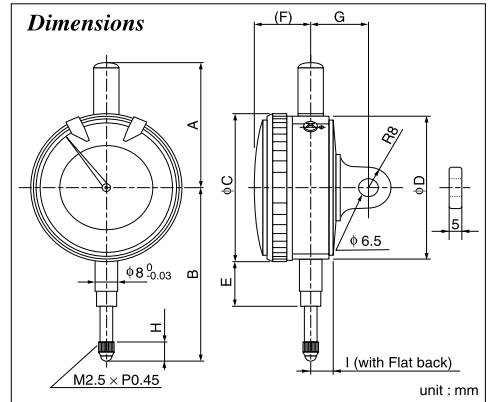
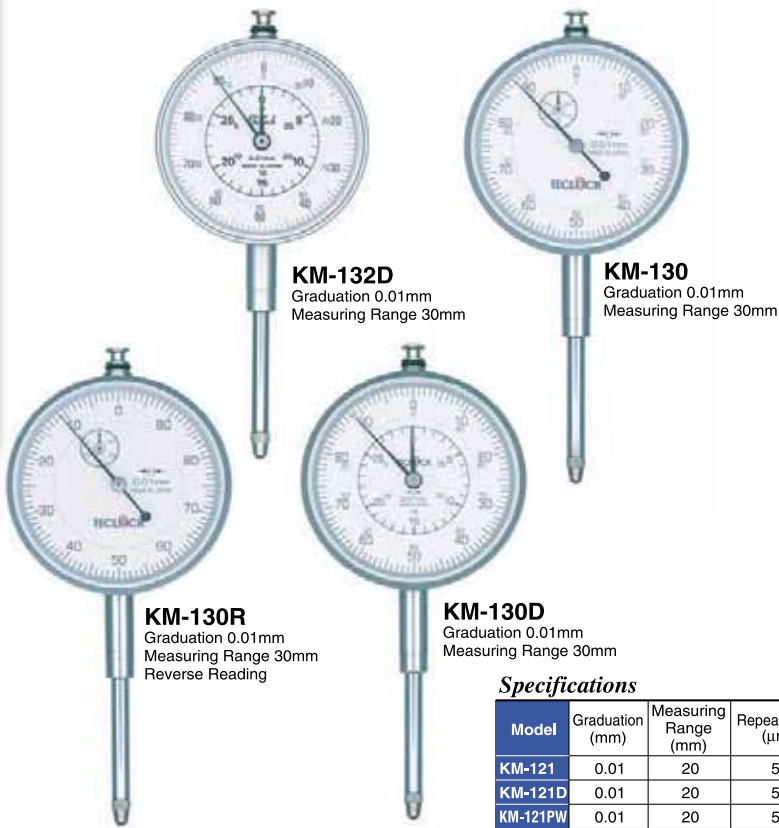
KM-121D
Graduation 0.01mm
Measuring Range 20mm



KM-121PW
Graduation 0.01mm
Measuring Range 20mm
Oil-proof type



KM-131
Graduation 0.01mm
Measuring Range 30mm



Dimension Table

Model	A	B	C	D	E	F	G	H	I
KM-121	36	75	55	52	18	15.5	20	7.5	7.8
KM-121D	36	75	55	52	18	17.6	20	7.5	7.8
KM-121PW	55	89	56	52	(17.5)	14.5	20	11	8.3
KM-131	36	85	55	52	18	15.5	20	7.5	8
KM-132D	36	85	55	52	18	17.3	20	7.5	8
KM-130	38.5	92	59	54.5	22.7	17.5	22	7.5	9.6
KM-130R	38.5	92	59	54.5	22.7	17.5	22	7.5	9.6
KM-130D	38.5	92	59	54.5	22.7	19.5	22	7.5	9.6

unit : mm

Specifications

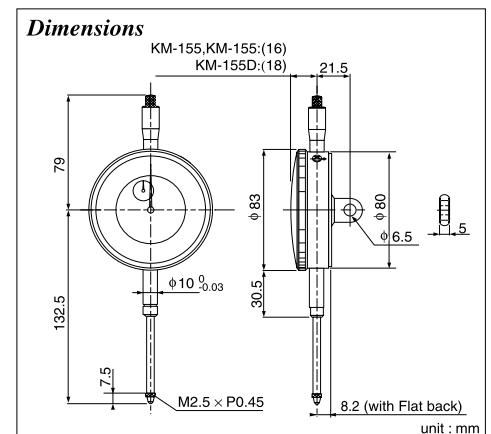
Model	Graduation (mm)	Measuring Range (mm)	Repeatability (μm)	Indication Error (μm)			Hysteresis (μm)	Standard Contact Point	Measuring Force (N)	Weight (g)
				Adjacent Error	1 Revolution	Total Range				
KM-121	0.01	20	5	10	± 15	± 20	7	ZS-017	2.2 or less	145
KM-121D	0.01	20	5	10	± 15	± 20	7	ZS-017	2.2 or less	150
KM-121PW	0.01	20	5	10	± 15	± 20	7	ZS-028	2.2 or less	165
KM-131	0.01	30	5	14	± 18	± 35	8	ZS-017	2.5 or less	150
KM-132D	0.01	30	5	14	± 18	± 35	8	ZS-017	2.5 or less	150
KM-130	0.01	30	5	14	± 18	± 25	7	ZS-017	2.2 or less	200
KM-130R	0.01	30	5	14	± 18	± 25	7	ZS-017	2.2 or less	200
KM-130D	0.01	30	5	14	± 18	± 25	7	ZS-017	2.2 or less	200

In case flat back is required, please add suffix "f" to the end of model name.

Long Stroke Dial Indicator

- 50mm, 100mm, 150mm long stroke dial indicators with a bezel diameter of 83mm are available.
- Measuring up to 150mm stroke is materialized with highest precision components of high durability and TECLOCK original and unique enlargement mechanism is built-in.

- Bezel clamp (Option) can be mounted, excepting KM-05100, KM-05150.
- Long stroke dial indicator is widely used for construction, civil engineering industries etc.



Specifications

Model	Graduation (mm)	Measuring Range (mm)	Repeatability (μm)	Indication Error (μm)			Hysteresis (μm)	Standard Contact Point	Measuring Force (N)	Weight (g)
				Adjacent Error	1 Revolution	Total Range				
KM-55	0.05	50	20	30	± 50	± 100	15	ZS-017	2.5 or less	370
KM-155	0.01	50	5	15	± 20	± 35	9	ZS-017	2.5 or less	370
KM-155D	0.01	50	5	15	± 20	± 35	9	ZS-017	2.5 or less	370

In case flat back is required, please add suffix "f" to the end of model name.

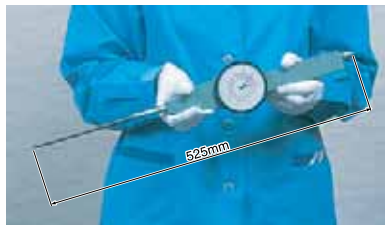


DIAL INDICATORS

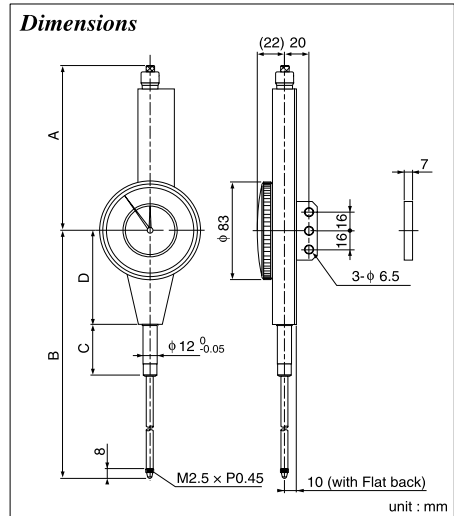


KM-05100
Graduation 0.05mm
Measuring Range 100mm

KM-05150
Graduation 0.05mm
Measuring Range 150mm



The longest mechanical type model : KM-05150



Dimension Table

Model	A	B	C	D
KM-05100	140	235	44	80
KM-05150	190	335	55	120

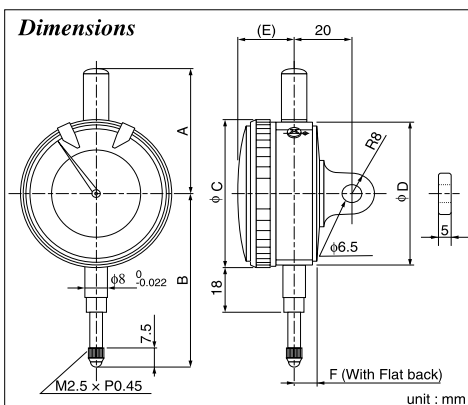
unit : mm

Specifications

Model	Graduation (mm)	Measuring Range (mm)	Repeatability (μm)	Total Range Indication Error (μm)	Hysteresis (μm)	Standard Contact Point	Measuring Force (N)	Weight (g)
KM-05100	0.05	100	30	± 100	15	ZS-018	2.5 or less	550
KM-05150	0.05	150	30	± 150	15	ZS-018	3.0 or less	680

One Revolution Dial Indicator

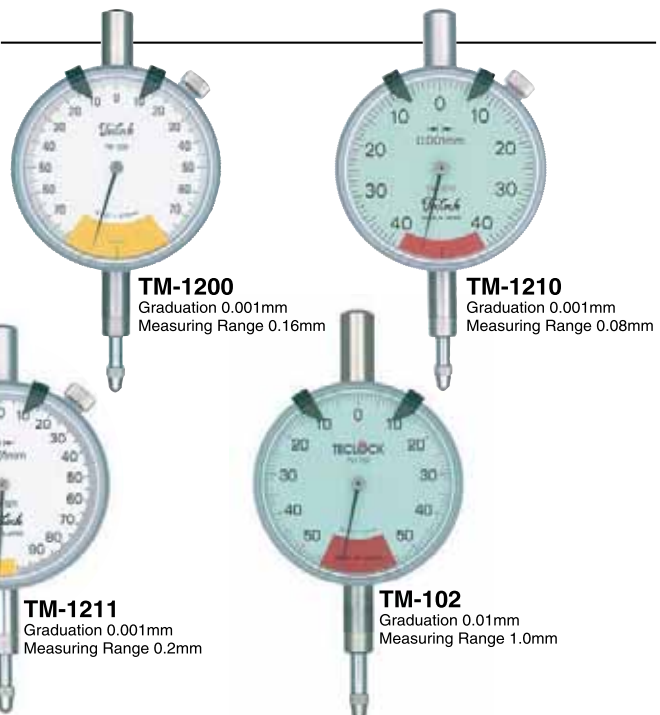
- The One revolution dial indicator eliminates reading errors which may occur on conventional continuous-reading dial indicators, and effective for comparative measurement with 0.001mm and 0.01mm graduation.
- Highest Durability is materialized with TECLOCK original enlargement mechanism.
- Measuring ranges are subdivided for 0.08mm, 0.16mm, 0.2mm and 1.0mm.
- Bezel clamp is supplied with 0.001mm dial indicator.
- Lifting lever can be mounted.



Dimension Table

Model	A	B	C	D	E	F
TM-1200	44.5	62	56	52.5	15	8
TM-1210	44.5	62	56	52.5	15	8
TM-1211	44.5	62	56	52.5	15	8
TM-102	48	65	55	52	15.5	8

unit : mm



TM-1200
Graduation 0.001mm
Measuring Range 0.16mm

TM-1210
Graduation 0.001mm
Measuring Range 0.08mm

TM-1211
Graduation 0.001mm
Measuring Range 0.2mm

TM-102
Graduation 0.01mm
Measuring Range 1.0mm

Specifications

Model	Graduation (mm)	Measuring Range (mm)	Repeatability (μm)	Indication Error (μm)			Hysteresis (μm)	Standard Contact Point	Measuring Force (N)	Weight (g)
				Adjacent Error	1 Revolution	Total Range				
TM-1200	0.001	0.16(3.5)	0.5	2.5	—	± 5	3	ZS-017	1.5 or less	170
TM-1210	0.001	0.08(3.5)	0.5	2.5	—	± 3.5	3	ZS-017	1.5 or less	170
TM-1211	0.001	0.2(3.5)	0.5	2.5	—	± 5	3	ZS-017	1.5 or less	170
TM-102	0.01	1(4.0)	5	7	—	± 10	5	ZS-017	1.4 or less	145

In case flat back is required, please add suffix "F" to the end of model name.



0.1mm Dial Indicator

- 0.1mm graduation series dial indicators and 10mm, 20mm and 30mm stroke are available.
- Lifting lever can be mounted.

- This is used to measure approximate dimensional judgment for woodwork and leather goods etc., and also applicable for measurement of judge deviation dimension.
- Bezel clamp can be mounted (Option).



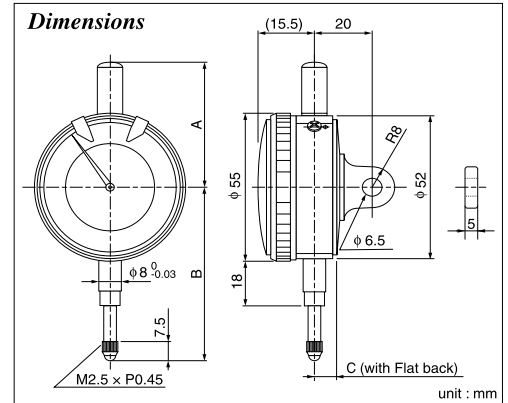
TM-91
Graduation 0.1mm
Measuring Range 10mm



TM-91R
Graduation 0.1mm
Measuring Range 10mm
Reverse Reading



KM-92
Graduation 0.1mm
Measuring Range 20mm



Dimension Table

Model	A	B	C
TM-91	48	65	7.8
TM-91R	48	65	7.8
KM-92	36	75	7.8
KM-93	36	85	7.8

unit : mm



KM-93
Graduation 0.1mm
Measuring Range 30mm

Specifications

Model	Graduation (mm)	Measuring Range (mm)	Repeatability (μm)	Indication Error (μm)		Hysteresis (μm)	Standard Contact Point	Measuring Force (N)	Weight (g)
				1 Revolution	Total Range				
TM-91	0.1	10	35	—	± 50	—	ZS-017	1.4 or less	140
TM-91R	0.1	10	35	—	± 50	—	ZS-017	1.4 or less	140
KM-92	0.1	20	35	± 50	± 60	—	ZS-017	2.2 or less	145
KM-93	0.1	30	35	± 50	± 70	—	ZS-017	2.5 or less	145

In case flat back is required, please add suffix "f" to the end of model name.

Back Plunger Dial Indicator

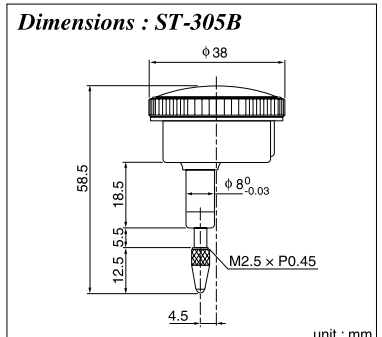
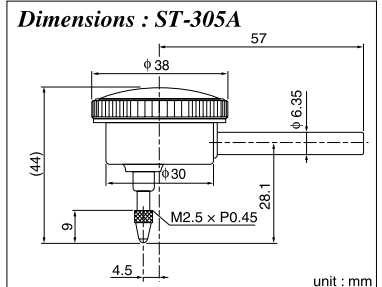
- The dial face is perpendicular to the spindle, which makes it suitable for leveling machine tables, measuring narrow portions, and measuring other configurations where readings are not easily obtained with standard dial indicators.



ST-305A
Arm type
Graduation 0.01mm
Measuring Range 5mm



ST-305B
Stem type
Graduation 0.01mm
Measuring Range 5mm



Specifications

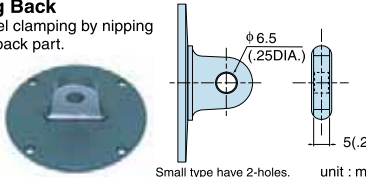
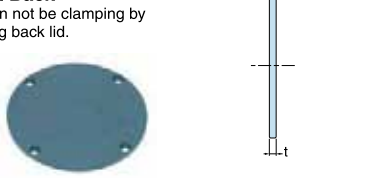
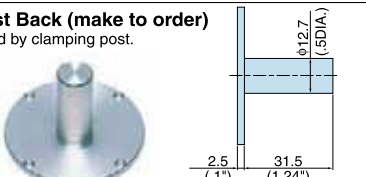
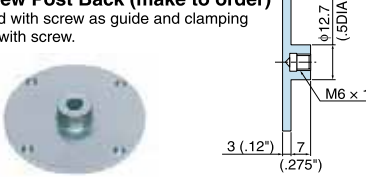
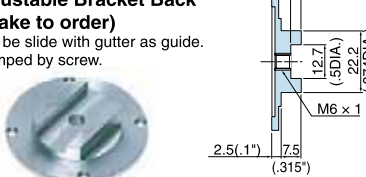
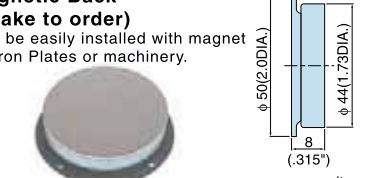
Model	Graduation (mm)	Measuring Range (mm)	Repeatability (μm)	Indication Error (μm)					Hysteresis (μm)	Measuring Force (N)	Weight (g)
				Adjacent Error	1/2 Revolution	1 Revolution	2 Revolution	Total Range			
ST-305A	0.01	5	5	10	± 12	± 15	± 20	± 20	6	1.4 or less	80
ST-305B	0.01	5	5	10	± 12	± 15	± 20	± 20	6	1.4 or less	80



DIAL INDICATORS

Parts & Accessories

Backs

Backs	Code No	Applicable models
Lug Back Bezel clamping by nipping lug back part. 	ZL-005 AI-935, AI-936 ZL-007 TM-36, TM-37, TM-37C ZL-009 AI-9111, AI-9112, AI-964-1, AI-964-2, AI-905, AI-906, ZL-010 AI-911, AI-912, AI-921, AI-921B, AI-922, AM-921, AM-922, TM-1200, TM-1201, TM-1201PW, TM-1202, TM-102, TM-110, TM-110D, TM-5105, TM-5106, TM-91, KM-92, KM-93, KM-121, KM-121D, KM-121PW, KM-131, KM-132D ZL-012 TM-1205, TI-1205 ZL-013 KM-130, KM-130D ZL-017 KM-55, KM-155, KM-155D ZL-021 TM-34 ZL-024 TM-35, TM-35-01, TM-35-02D, TI-35	
Flat Back It can not be clamping by using back lid. 	ZL-060 TM-34 ZL-062 TM-35, TM-35-01, TM-35-02D, AI-935, AI-936, TI-35 ZL-063 TM-36, TM-37, TM-37C ZL-066 TM-1200, TM-1201, TM-1201PW, TM-1202, TM-102, TM-110, TM-110D, TM-110PW, TM-110G, TM-105, TM-105W, (Plastic) TM-5105, TM-5106, TM-91, KM-92, KM-93, KM-121, KM-121D, KM-121PW, KM-131, KM-132D, AI-9111, AI-9112, ZL-067 AI-964-1, AI-964-2, AI-905, AI-906, AI-911, AI-912, AI-921, AI-921B, AI-922, AM-921, AM-922, TI-111, TI-105, (Alumi) TI-105W, KI-121, TI-1111, TI-1112 ZL-072 KM-55, KM-155, KM-155D ZL-073 TM-1205, TI-1205 ZL-076 KM-130, KM-130D ZL-081 AI-951, AI-951B	
Post Back (make to order) Used by clamping post. 	ZL-120 TM-1200, TM-1201, TM-1201PW, TM-1202, TM-102, TM-110, TM-110D, TM-110PW, TM-110G, TM-105, TM-105W, TM-5105, TM-5106, TM-91, KM-92, KM-93, KM-121, KM-121D, KM-121PW, KM-131, KM-132D, AI-9111, AI-9112, AI-964-1, AI-964-2, AI-905, AI-906, AI-911, AI-912, AI-921, AI-921B, AI-922, AM-921, AM-922, TI-111, TI-105, TI-105W, KI-121, TI-1111, TI-1112 ZL-121 TM-35, TM-35-01, TM-35-02D, AI-935, AI-936, TI-35 ZL-122 TM-36, TM-37, TM-37C ZL-123 KM-130, KM-130D ZL-124 KM-55, KM-155, KM-155D	
Screw Post Back (make to order) Used with screw as guide and clamping this with screw. 	ZL-130 TM-1200, TM-1201, TM-1201PW, TM-1202, TM-102, TM-110, TM-110D, TM-110PW, TM-110G, TM-105, TM-105W, TM-5105, TM-5106, TM-91, KM-92, KM-93, KM-121, KM-121D, KM-121PW, KM-131, KM-132D, AI-9111, AI-9112, AI-964-1, AI-964-2, AI-905, AI-906, AI-911, AI-912, AI-921, AI-921B, AI-922, AM-921, AM-922, TI-111, TI-105, TI-105W, KI-121, TI-1111, TI-1112 ZL-131 TM-35, TM-35-01, TM-35-02D, AI-935, AI-936, TI-35 ZL-132 TM-36, TM-37, TM-37C ZL-133 KM-130, KM-130D ZL-134 KM-55, KM-155, KM-155D	
Adjustable Bracket Back (make to order) Can be slide with gutter as guide. Clamped by screw. 	ZL-140 TM-1200, TM-1201, TM-1201PW, TM-1202, TM-102, TM-110, TM-110D, TM-110PW, TM-110G, TM-105, TM-105W, TM-5105, TM-5106, TM-91, KM-92, KM-93, KM-121, KM-121D, KM-121PW, KM-131, KM-132D, AI-9111, AI-9112, AI-964-1, AI-964-2, AI-905, AI-906, AI-911, AI-912, AI-921, AI-921B, AI-922, AM-921, AM-922, TI-111, TI-105, TI-105W, KI-121, TI-1111, TI-1112 ZL-142 TM-35, TM-35-01, TM-35-02D, AI-935, AI-936, TI-35 ZL-141 TM-36, TM-37, TM-37C ZL-143 KM-55, KM-155, KM-155D	
Magnetic Back (make to order) Can be easily installed with magnet on iron Plates or machinery. 	ZL-900 TM-1200, TM-1201, TM-1201PW, TM-1202, TM-102, TM-110, TM-110D, TM-110PW, TM-110G, TM-105, TM-105W, TM-5105, TM-5106, TM-91, KM-92, KM-93, KM-121, KM-121D, KM-121PW, KM-131, KM-132D, AI-9111, AI-9112, AI-964-1, AI-964-2, AI-905, AI-906, AI-911, AI-912, AI-921, AI-921B, AI-922, AM-921, AM-922, TI-111, TI-105, TI-105W, KI-121, TI-1111, TI-1112	

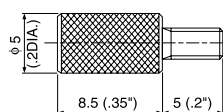
Contact point set (Metric & Inch)



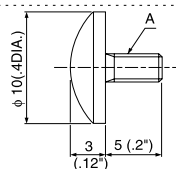
ZS-900
M2.5 x P0.45



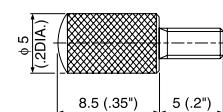
ZS-901
4-48UNF



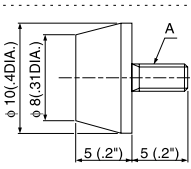
M2.5 x P0.45 ZS-512
4-48UNF ZS-165



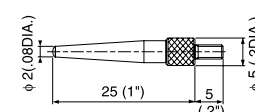
M2.5 x P0.45 ZS-508
4-48UNF ZS-150



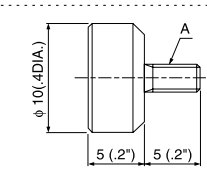
M2.5 x P0.45 ZS-020
4-48UNF ZS-154



M2.5 x P0.45 ZS-508
4-48UNF ZS-167



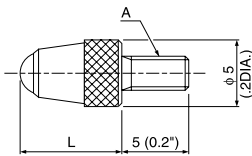
M2.5 x P0.45 ZS-036
4-48UNF ZS-155



M2.5 x P0.45 ZS-509
4-48UNF ZS-168

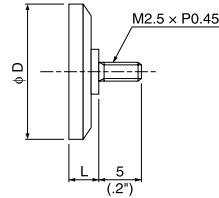


φ 3.2 Ball Point



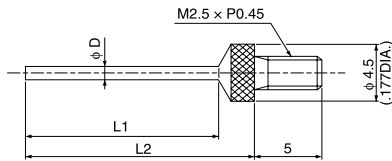
L	Material	Code No.	A
7.5	Carbide	ZS-047	M2.5 × P0.45
	Steel	ZS-017	M2.5 × P0.45
11	Steel	ZS-018	M2.5 × P0.45
11.7	Steel	ZS-600	M2.5 × P0.45
15	Steel	ZS-031	M2.5 × P0.45
17.3	Steel	ZS-034	M2.5 × P0.45
22	Steel	ZS-105	M2.5 × P0.45

Flat Point



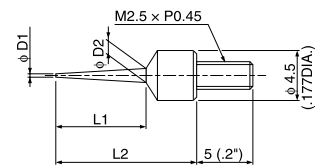
D	L	Material	Code No.
10	4	Carbide	ZS-505
		Ceramics	ZS-539
5	10	Carbide	ZS-532
5	4	Carbide	ZS-533
4.5	17.3	Steel	ZS-594
30	4	Steel	ZS-536
18	4	Steel	ZS-506

Flat Needle Point



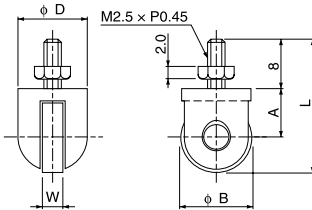
D	L1	L2	Material	Code No.
1.0	14.5	17.3	Steel	ZS-527
1.5	14.5	17.3	Steel	ZS-528
1.5	24.5	27.3	Steel	ZS-529
2.0	14.5	17.3	Steel	ZS-530
2.0	24.5	27.3	Steel	ZS-531
2.0	34.5	37.3	Steel	ZS-541
0.5	12	17.3	Carbide	ZS-577
0.8	12	17.3	Carbide	ZS-578
1.0	12	17.3	Carbide	ZS-579
1.5	12	17.3	Carbide	ZS-580
1.5	22	27.3	Carbide	ZS-581
2.0	12	17.3	Carbide	ZS-582
2.0	22	27.3	Carbide	ZS-583

Needle Point



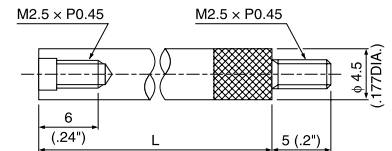
D1	D2	L1	L2	Material	Code No.
0.12	1.12	3.4	10.1	Steel	ZS-515
0.3	1.3	8.0	12.5	Steel	ZS-518
0.3	1.7	14.5	17.3	Steel	ZS-523
0.3	0.97	34.3	37.3	Steel	ZS-543
0.12	1.3	6	12.5	Steel	ZS-595
0.3	0.97	28.7	31.7	Steel	ZS-113

Roller Point



A	B	D	L	W	Material	Code No.
5.5	6	6	16.5	2.6	Steel	ZS-802
8	11	11	21.5	4	Steel	ZS-803
13.5	22	14	32.5	7	Steel	ZS-804

Extension Rod



L	Material	Code No.
10	Stainless Steel	ZS-670
20	Stainless Steel	ZS-663
40	Stainless Steel	ZS-664
60	Stainless Steel	ZS-665
80	Stainless Steel	ZS-666

Lifting Lever Set

For improved inspection efficiency when using a dial indicator mounted on a stand Spindle can be moved up and down by installing lift lever.



- ① When lifting lever is down.
- ② Spindle moves upwards.
- ③ Pointer rotates in clockwise direction.
- ④ Short hand rotates in counter clockwise direction.

With Lifting Lever
TM-110

Code No.	Applicable Models
ZY-900	TM-91, TM-110, TM-110P, TM-110D, TM-110-4A, TM-110G, DM-210, DM-210P, DM-211, DM-213, DM-214, DM-280, DM-283, TI-111
ZY-901	TM-35, TI-35
ZY-902	TM-102, TM-105, TM-105W, TM-5105, TM-1200, TM-1201, TM-1202, TM-1205, TM-1251, TM-1210, TM-1211, DM-250, DM-250P, DM-251, TI-1111, TI-1112, TI-1205, TI-105, TI-105W
ZY-903	KM-130, KM-130D
ZY-904	KM-121, KM-121D, KM-131, KM-132D, KM-92, KM-93, DM-220, DM-221, DM-223, DM-223P, DM-224, DM-224P, DM-230, DM-233, DM-234, KI-121
ZY-905	TM-36, TM-37, TM-37C
ZY-907	PC-440, PC-465, DMD-210, DMD-211, DMD-213, DMD-214, DMD-215, DMD-293
ZY-909	AI-905, AI-906, AI-911, AI-912, AI-964-1, AI-964-2
ZY-910	AI-921, AI-921B, AI-922, AM-921, AM-922
ZY-911	AI-911, AI-912
ZY-914	PC-480, PC-485, DMD-210S, DMD-211S, DMD-213S, DMD-250S, DMD-252S

TEST INDICATORS

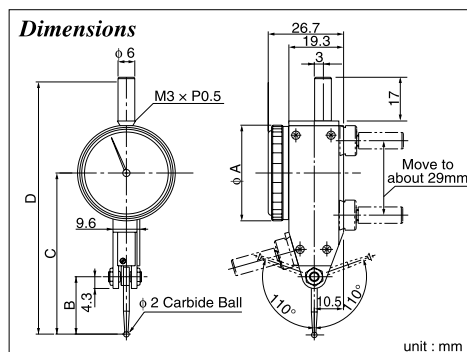
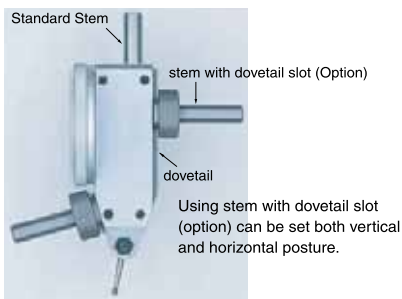
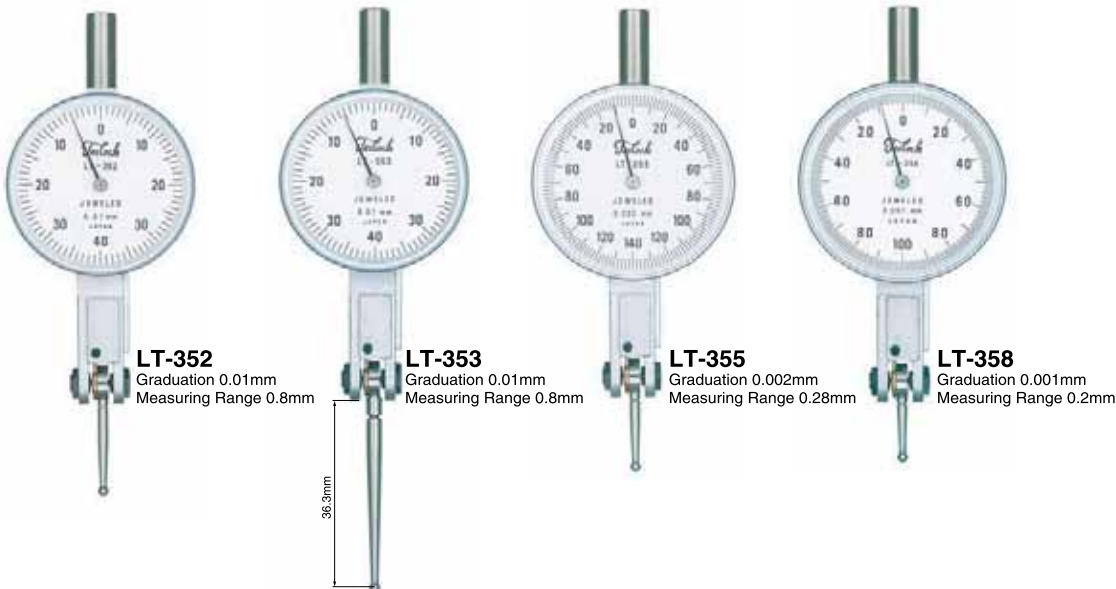
Dial Test Indicator are designed to be positioned for easy and accurate readability and are applicable for various usages such as measuring dimension, parallelism and centering of workpiece and measuring revolution axis of machinery equipment and turn-out of workpieces processed by Lathe etc., and making table face of machinery equipment parallel. This has strong point if compared with standard dial indicator and has sensitivity for microscopic dimension displacement measurement. As its stylus is leg type with ball edge, narrow space can be measured, where its edge (standard ϕ 2mm ultra hard ball) can enter.

ϕ 0.6mm, ϕ 0.8mm, and ϕ 1.0mm stylus are also available



Auto-Clutch Test Indicator

- As miniature bearing (pivot ball bearing) is used for stylus revolution bearing, it is not affected by grooved axis and the indication is very stable.
- Measuring direction is proper and opposite automatically changed by auto-clutch mechanism without change lever. It is always read accurately in any case, as stylus always rotates in clockwise direction.
- Stylus can be set at any desired position of angle of 220° circle.
- Stem with dovetail slot (option) can be mounted to 2 points such as front and back part.
- A carbide ball stylus is provided as standard for less abrasion and stylus is made of stainless.
- Stylus and pointer are anti-magnetic and not affected by magnetism.



Dimension Table

Model	A	B	C	D
LT-352	35	21	59	101
LT-353	35	40.6	78.5	120.5
LT-355	38.4	18	56	98
LT-358	38.4	15	53	87.5

unit : mm

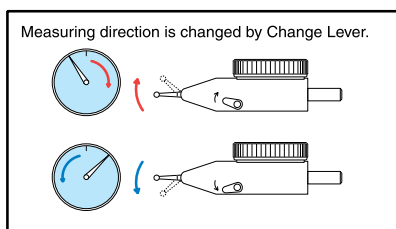
Specifications

Model	Graduation (mm)	Measuring Range (mm)	Dial Reading	Measuring Force (N)	Repeatability (μ m)	Adjacent Error (μ m)	Accuracy on full range (μ m)	Hysteresis (μ m)	Standard Stylus	Weight (g)
LT-352	0.01	0.8	0-40-0	0.2 or less	3	5	8	3	ZS-709	75
LT-353	0.01	0.8	0-40-0	0.2 or less	3	5	8	4	ZS-710	75
LT-355	0.002	0.28	0-140-0	0.25 or less	1	2	3	2	ZS-711	75
LT-358	0.001	0.2	0-100-0	0.25 or less	1	2	2	2	ZS-712	75



Lever type Test Indicator

- Performs easy and accurate measurement of narrow or deep portions, and inside and outside run-out that dial indicators cannot access.
- Measuring direction can be changed by change lever.
- Main bearings are jeweled for high-sensitivity and quick-response (all models).
- A carbide ball stylus is provided as standard for less abrasion.
- Stylus is made of stainless steel.
- Stylus and pointer are anti-magnetic and not affected by magnetism.
- Due to the low measuring force, this is suitable for measurement of thin workpiece as well.



LT-310
Graduation 0.01mm
Measuring Range 0.8mm



LT-311
Graduation 0.01mm
Measuring Range 0.8mm



LT-314
Graduation 0.01mm
Measuring Range 0.5mm



LT-315
Graduation 0.01mm
Measuring Range 0.8mm



LT-316
Graduation 0.01mm
Measuring Range 1.0mm



LT-370
Graduation 0.002mm
Measuring Range 0.28mm

PS type Test Indicator

- Shock from the angle excepting measuring direction can be avoided and body is protected by TECLOCK original shock preventing mechanism (PS mechanism) of center of stylus.

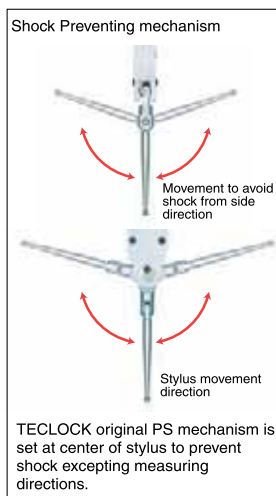


LT-315PS
Graduation 0.01mm
Measuring Range 0.8mm

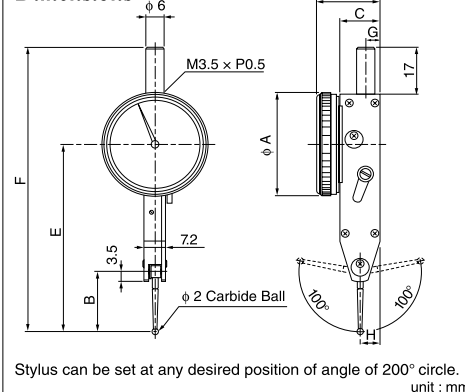


LT-316PS
Graduation 0.01mm
Measuring Range 1.0mm

Major dimension is equal to LT-315 and LT-316.



Dimensions



Dimension Table

Model	A	B	C	D	E	F	G	H
LT-310	28.4	15.3	14	21.7	47.3	79.3	5	7
LT-311	35	15.3	13.8	21.5	47.3	78.3	5	7
LT-314	35	21.4	13.5	21.2	64.4	97.4	4.8	6.8
LT-315	35	20.1	13.5	21.4	63.1	97.1	4.8	6.8
LT-316	35	42.8	13.5	21.4	85.8	118.8	4.8	6.8
LT-370	38.4	12	13.5	21.4	55	89	4.8	6.8

unit : mm

Specifications

Model	Graduation (mm)	Measuring Range (mm)	Dial Reading	Measuring Force (N)	Repeatability (μm)	Adjacent Error (μm)	Accuracy on full range (μm)	Hysteresis (μm)	Standard Stylus	Weight (g)
LT-310	0.01	0.8	0-40-0	0.4 or less	3	5	8	3	ZS-700	50
LT-311	0.01	0.8	0-40-0	0.4 or less	3	5	8	3	ZS-700	60
LT-314	0.01	0.5	0-25-0	0.4 or less	3	5	5	3	ZS-701	70
LT-315	0.01	0.8	0-40-0	0.4 or less	3	5	8	3	ZS-702	70
LT-316	0.01	1.0	0-50-0	0.4 or less	3	5	10	4	ZS-704	70
LT-370	0.002	0.28	0-140-0	0.4 or less	1	2	3	2	ZS-713	75
LT-315PS	0.01	0.8	0-40-0	0.4 or less	3	5	8	3	ZS-703	70
LT-316PS	0.01	1.0	0-50-0	0.4 or less	3	5	10	4	ZS-705	70



TEST INDICATORS

Parts & Accessories

Stylus

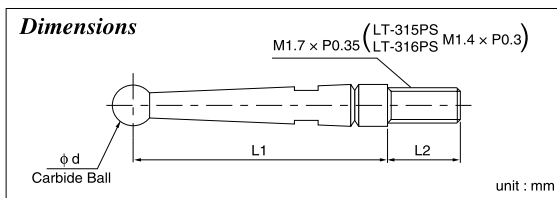
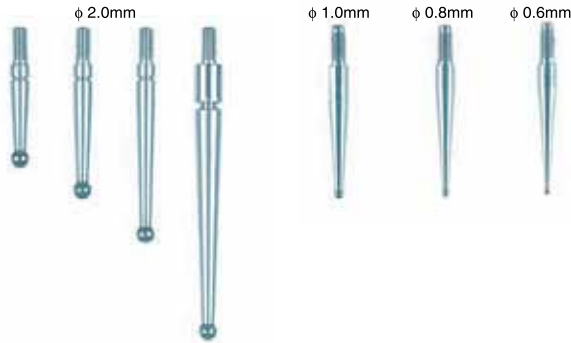
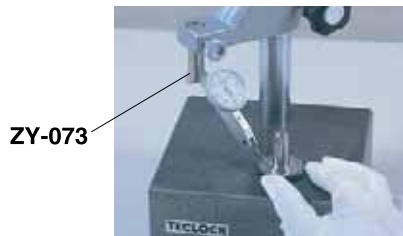


Table for applicable Stylus and Parts

Model	L1 (mm)	L2 (mm)	ϕ d (mm)			
			ϕ 0.6	ϕ 0.8	ϕ 1.0	ϕ 2.0 (Standard)
LT-310	13.30	4.00	ZS-744	ZS-755	ZS-766	ZS-700
LT-311	13.30	4.00	ZS-744	ZS-755	ZS-766	ZS-700
LT-314	19.45	4.00	ZS-745	ZS-756	ZS-767	ZS-701
LT-315	18.10	4.00	ZS-746	ZS-757	ZS-768	ZS-702
LT-316	28.40	4.00	ZS-748	ZS-759	ZS-770	ZS-704
LT-370	10.00	4.00	ZS-754	ZS-765	ZS-776	ZS-713
LT-352	17.80	4.00	ZS-750	ZS-761	ZS-772	ZS-709
LT-353	37.38	4.00	ZS-751	ZS-762	ZS-773	ZS-710
LT-355	14.80	4.00	ZS-752	ZS-763	ZS-774	ZS-711
LT-358	11.80	4.00	ZS-753	ZS-764	ZS-775	ZS-712
LT-315PS	8.65	1.80	ZS-747	ZS-758	ZS-769	ZS-703
LT-316PS	28.40	1.80	ZS-749	ZS-760	ZS-771	ZS-705

Holder with Clamp

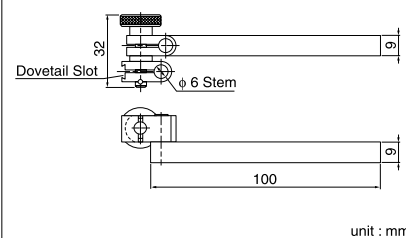
Holds a dial test indicator by its dovetail or by its stem mounting hole of $\phi 6$ mm. Since holder allows the indicator to move freely about a clamp, it is useful for centering workpieces and setting up workpieces on a machine tool.



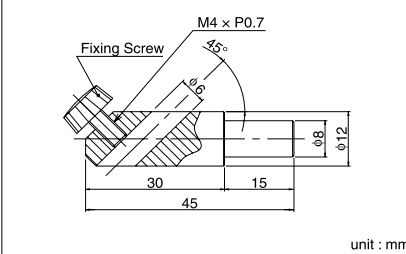
The photo shows that a part is inspected with Dial Test Indicator fixed to ZY-073 holder which is installed on Stand.

Code No.	Specification
ZY-062	Dovetail slot or $\phi 6$ mm stem
ZY-073	$\phi 6$ mm stem (Setting angle 45°)

Dimensions: ZY-062

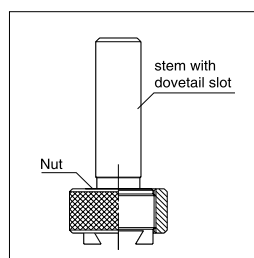
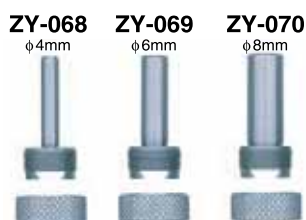


Dimensions: ZY-073



Stem with dovetail slot for Auto-Clutch Test indicator (Option)

Standard stem diameter is 6mm but $\phi 4$ mm and $\phi 8$ mm are also available on request



Applicable for LT-352, LT-353, LT-355, LT-358