



# BEARING & TOOL CENTRE



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## Our Sister Concern : RELIEF SERVICE CENTRE

Repairs, Removal of Jaw Error, Bore Gauge Extension, Instrument Modifications & Spares

## Quotation

### 52 | Dial Gauge / Plunger Dial / Dial Indicator – mm

Range-mm	W	C	D%	10	5	20 / 25	30	50	100
Least Count				0.01	0.01	0.01	0.01	0.01	0.01
Insize Rs.	12	Y		1430	1782	2724	3719	6942	17860
Code				2301-10	2308-5FA	2302-25	2310-30A	2309-50	2309-100D
Catalog				Page -3,4,5	Page -3,4,5	Page -3,4,5	Page -3,4,5	Page -3,4,5	Page -3,4,5
Aerospace Rs.		N	10	440	810	1320			
Advance Rs.		N	10	800					
M & W Rs.	6	N		1000	1300	1800	1950	4300	
Code				DG 10	DG 05	DG 25	DG 30	DG 50	
Catalog				Page – 11	Page – 11	Page – 11	Page – 11	Page – 11	
Kann Rs.	12	Y	10	600	650	1600	1200	1600	
Code				M2	M7	M2/25	M2/30	M2/50	
Catalog				Page -6,7,8	Page -6,7,8	Page -6,7,8	Page -6,7,8	Page -6,7,8	
Baker Rs.	12	Y	15	1240	1165	2245		5300	
Code				K02	K04	K08		J72	
Catalog				Page – 9,10	Page – 9,10	Page – 9,10		Page – 9,10	
Precision Rs.	12	Y	20	1100		2500			
Peacock	12	N	5	1880					
Catalog				Page-11					
Mitutoyo Rs.	12	Y	5	1694	2636	4260	5665	6526	18093
Code				2046	1044	2050	2052	3058	3062
Catalog				Page-12,13,14	Page-12,13,14	Page-12,13,14	Page-12,13,14	Page-12,13,14	Page-12,13,14

Range-mm	W	C	D%	1	5	5	12
Least Count				0.001	.001	.002	.002
Insize Rs.	12	Y		4901			
Code				2313-1A			
Catalog				Page -3,4,5	Page -3,4,5	Page -3,4,5	Page -3,4,5
Aerospace Rs.		N	10	1890		1500	
M & W Rs.	6	N		2150			
Code				DG 01			
Catalog				Page – 11			
Kann Rs.	12	Y	10	1200ss		1210	
Code				M2/10			
Catalog				Page -6,7,8			
Baker Rs.	12	Y	15	2890		3225	5230
Code				K17S		K12	K14
Catalog				Page – 9,10		Page – 9,10	Page – 9,10
Precision Rs.	12	Y	20	3000			
Mitutoyo Rs.	12	Y	5	3514	6223		
Code				2109	2119		
Catalog				Page-12,13,14	Page-12,13,14		

**Note:- Aerospace item once sold will not be taken back even if it is Faulty.**

**€ 20% Discount only on Ko2 baker model**

**52 – 1 | Dial Gauge / Plunger Dial / Dial Indicator – inch**

Range-mm	W	C	D%	0 . 5"	0 . 125"
Least Count				0 . 001	0. 0005
<b>Baker Rs.</b>	12	Y	15	1610	1980
Code				<b>K52</b>	<b>K54</b>
Catalog				Page – 9,10	Page – 9,10
<b>Mitutoyo Rs.</b>	12	N	5	4260	4071
Code				<b>2414</b>	<b>2922</b>
Catalog				Page-12,13,14	Page-12,13,14

### Spares & Repair

Pointer Big	Pointer Small	Extension	Glass	Contact Point – Steel	Contact Point – Carbide	Servicing
Rs. 50	Rs. 50	Rs. 100	Rs. 30	Rs. 50	Rs. 150	Rs. 100

\*\*\* W – Warranty, C – Certificate , D- Discount

## Terms & Conditions –

- Goods offered - Subject to Prior Sale
- Price Validity: "15 Days from Date of Quotation"
- C.S.T 2% extra against form C. Otherwise 5% without form C For Out of Gujarat Sales only.
- VAT 5% extra for Sales within Gujarat. Prices Ex-Godown Ahmedabad.
- Payment against Proforma Invoice, Packing, Forwarding & Freight extra.
- **Bank Detail** – Kotak Mahindra Bank Ltd.
- **Branch** – Shivranjini
- **Bank IFSC Code** - KKBK 0000 810
- **Bank Account No.** 08102 00000 2689
- Note - While making payment online do mention your Company's name.
- TIN NO 24070901229 , CST No. 24570901229
- We are looking forward to your valued orders.

# INSIZE MAKE

## DIAL INDICATOR



2301-10

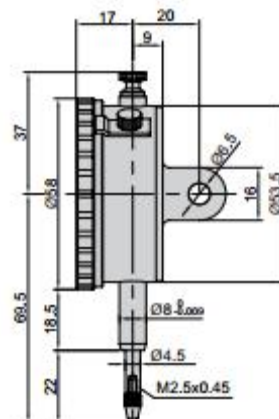
- Jeweled bearing
- Supplied with limit hands and bezel clamp
- Packed in carton box
- Optional accessory: backs, contact points



packed in carton box



Unit: mm



Code	Range	Graduation	Accuracy	Hysteresis	Range/rev	Dial reading	Remark
2301-10*	10mm	0.01mm	17μm	3μm	1mm	0-100	lug back with spare flat back
2301-10F*	10mm	0.01mm	17μm	3μm	1mm	0-100	flat back

\*Supplied with manufacturer inspection certificate traceable to NIST

## DIAL INDICATOR

- Supplied with limit pointers and bezel clamp
- Optional accessory: backs (page 101), contact points (page 98-100)



2310-30A

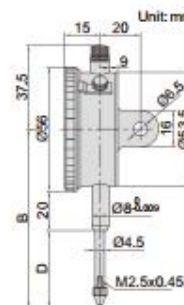
(mm)

Code	Range	Graduation	Accuracy	Hysteresis	Range/rev	Dial reading	Remark	B	D
2310-20FA*	20mm	0.01mm	25μm	5μm	1mm	0-100	flat back	83	35
2310-30FA*	30mm	0.01mm	35μm	7μm	1mm	0-100	flat back	88	40
2310-20A*	20mm	0.01mm	25μm	5μm	1mm	0-100	lug back	83	35
2310-30A*	30mm	0.01mm	35μm	7μm	1mm	0-100	lug back	88	40

\*Supplied with manufacturer inspection certificate traceable to NIST USA



Unit: mm



**JEWELLED BEARING**

[illegible]

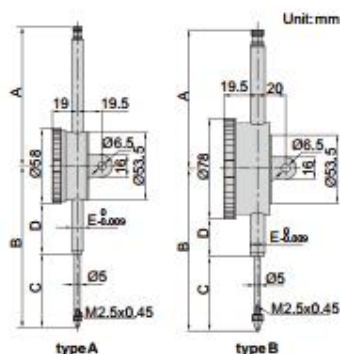
- | Code        | Range | Graduation | Accuracy | Hysteresis | Range/rev | Dial reading | Remark    |
|-------------|-------|------------|----------|------------|-----------|--------------|-----------|
| 2308-3FA *  | 3mm   | 0.01mm     | 14µm     | 3µm        | 1mm       | 0-100        | flat back |
| 2308-5FA *  | 5mm   | 0.01mm     | 16µm     | 3µm        | 1mm       | 0-100        | flat back |
| 2308-10FA * | 10mm  | 0.01mm     | 17µm     | 3µm        | 1mm       | 0-100        | flat back |
| 2308-3A *   | 3mm   | 0.01mm     | 14µm     | 3µm        | 1mm       | 0-100        | lug back  |
| 2308-5A *   | 5mm   | 0.01mm     | 16µm     | 3µm        | 1mm       | 0-100        | lug back  |
| 2308-10A *  | 10mm  | 0.01mm     | 17µm     | 3µm        | 1mm       | 0-100        | lug back  |

**JEWELLED BEARING**



- 

### DIAL INDICATOR



Code	Type	A	B	C	D	E
2309-30F	A	37.5	89.5	40.9	19.5	Ø8
2309-30	A	37.5	89.5	40.9	19.5	Ø8
2309-50	A	108.3	126.2	57.7	39.5	Ø8
2309-50D	B	108.3	126.2	57.7	29.5	Ø8
2309-80	A	138.4	168.4	88	51.3	Ø8
2309-80D	B	138.4	168.4	88	41.3	Ø8
2309-100D	B	167.6	207.8	108	60.8	Ø10

Code	Range	Graduation	Type	Accuracy	Hysteresis	Range/rev	Dial reading	Remark
2309-30F *	30mm	0.01mm	A	35µm	7µm	1mm	0-100	flat back
2309-30 *	30mm	0.01mm	A	35µm	7µm	1mm	0-100	lug back
2309-50 *	50mm	0.01mm	A	40µm	8µm	1mm	0-100	flat back with spare lug back
2309-50D *	50mm	0.01mm	B	40µm	8µm	1mm	0-100	flat back with spare lug back
2309-80	80mm	0.01mm	A	50µm	9µm	1mm	0-100	flat back with spare lug back
2309-80D	80mm	0.01mm	B	50µm	9µm	1mm	0-100	flat back with spare lug back
2309-100D	100mm	0.01mm	B	50µm	9µm	1mm	0-100	flat back with spare lug back



## PRECISION DIAL INDICATOR

JEWELLED  
BEARING

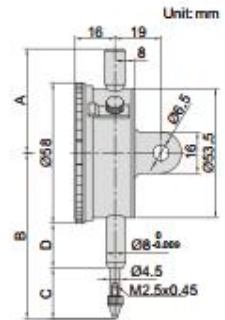


2313-1A

- Graduation: 0.001mm
- Jeweled bearing
- Supplied with limit pointers and bezel clamp
- Optional accessory: backs (page 101), contact points (page 98~100)

Code	Range	Accuracy	Hysteresis	Range/rev	Dial reading	Remark	(mm)			
2313-1FA*	1mm	5μm	2μm	0.2mm	0-100-0	flat back	A	B	C	D
2313-2FA*	2mm	8μm	2.5μm	0.2mm	0-100-0	flat back	45	62.5	19.5	15
2313-1A*	1mm	5μm	2μm	0.2mm	0-100-0	lug back	45	62.5	19.5	15
2313-2A*	2mm	8μm	2.5μm	0.2mm	0-100-0	lug back	45	62.5	19.5	15

\* Supplied with manufacturer inspection certificate traceable to NIST USA

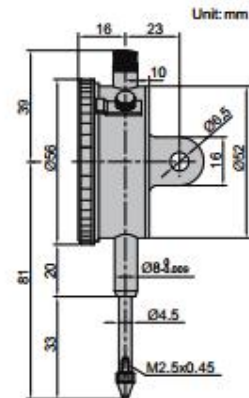


## DIAL INDICATOR



2302-25

packed in carton box



- Supplied with limit pointers and bezel clamp
- Packed in carton box
- Optional accessory: backs, contact points

Code	Range	Graduation	Accuracy	Hysteresis	Range/rev	Dial reading	Remark
2302-25*	25mm	0.01mm	35μm	7μm	1mm	0-100	lug back with spare flat back
2302-25F*	25mm	0.01mm	35μm	7μm	1mm	0-100	flat back

\* Supplied with manufacturer inspection certificate traceable to NIST

# KANN MAKE

## STANDARD DIAL GAUGES

( 0.001mm, 0.002mm, 0.005mm, 0.01mm, 0.02mm, 0.1mm)



**M2**



**M2/10**

MODEL	DIAL DIA.	L.C.	RANGE	GRADUATION	PRICE
M2/10	57mm	0.001mm	1mm	0 - 100 - 0	1100
M2/11	80mm	0.001mm	1mm	0 - 100 - 0	1500
M2/5/1	57mm	0.002mm	5mm	0 - 20	1100
M8	57mm	0.005mm	5mm	0 - 50 - 0	1100
M2	57mm	0.01mm	10mm	0 - 100	550
M3	57mm	0.01mm	10mm	0 - 50 - 0	600
M7	57mm	0.01mm	5mm	0-100	650
M5	57mm	0.02mm	10mm	0 - 100	700
M6	80mm	0.01mm	10mm	0 - 100	900
M10A	57mm	0.1mm	10mm	0 - 100	650

**ONE REVOLUTION DIAL GAUGES.**

(0.001mm, 0.01mm)

**M2/16**

MODEL	DIAL DIA.	L.C.	RANGE	GRADUATION	PRICE
M2/14	57mm	0.001mm	0.16mm	80 - 0 - 80	1600
M2/12	80mm	0.001mm	0.16mm	80 - 0 - 80	1800
M2/16	57mm	0.001mm	0.16mm	50 - 0 - 50	1600
M2/15	80mm	0.001mm	0.16mm	50 - 0 - 50	1800
M2/1	57mm	0.01mm	0.9mm	40 - 0 - 40	600
M2/2	57mm	0.01mm	1.6mm	80 - 0 - 80	650

**MINIATURE DIAL GAUGES.**

(0.01mm, 0.001")

MODEL	DIAL DIA.	L.C.	RANGE	GRADUATION	PRICE
M4	40mm	0.01mm	5mm	0 - 100	600/-
M4/1	40mm	0.01mm	5mm	0 - 50 - 0	600/-
M4/2	40mm	0.01mm	3mm	0 - 100	600/-
M4/3	40mm	0.01mm	3mm	0 - 50 - 0	600/-
Z4	40mm	0.001"	0.2"	0 - 100	750/-
Z5	40mm	0.001"	0..2"	0 - 50 - 0	750/-

**INCH DIAL GAUGES.**

MODEL	DIAL DIA.	L.C.	RANGE	GRADUATION	PRICE
Z2	57mm	0.001"	0.4"	0 - 100	850/-
Z3	57mm	0.001"	0.4"	0 - 50 - 0	850/-
Z2/25	57mm	0.001"	1"	0 - 100	1200/-

### LONG TRAVEL DIAL GAUGES.

(0.01mm, 0.1mm)



M10/C



M2/30



M2/50

MODEL	DIAL DIA.	L.C.	RANGE	GRADUATION	LIST PRICE
M2/25	57mm	0.01mm	25mm	0 - 100	1200
M2/30	57mm	0.01mm	30mm	0 - 100	1100
M2/25/80	80mm	0.01mm	25mm	0 - 100	1600
M2/30/80	80mm	0.01mm	30mm	0 - 100	1500
M2/50	57mm	0.01mm	50mm	0 - 100	1400
M2/50/80	80mm	0.01mm	50mm	0 - 100	1650
M10C	57mm	0.1mm	30mm	0 - 10	700
M10D	57mm	0.1mm	30mm	0 - 10	800

\*= also available in 0 - 50 - 0 dial marking

### DIAL GAUGES FOR HARDNESS TESTING MACHINES.



MODEL	DIAL DIA.	DESCRIPTION	PRICE
A - 80	80mm	for rockwell machine with B & C scale.	1400
AS - 80	80mm	for rockwell cum superficial machine	1400
AH - 80	80mm	for brinell machine	1400
A - 92	92mm	for rockwell machine with B & C scale.	1400
AS - 92	92mm	for rockwell cum superficial machine	1400
RASN	95mm	for rockwell machine with B & C scale( export model)	1800
RASN - T	95mm	for rockwell cum superficial machine.(export model)	1800
O'	57mm	for optical machine	750



# BAKER MAKE

## PLUNGER TYPE DIAL GAUGES (MODEL 56)

PRODUCT CODE	TYPE	READING	RANGE	GRADUATION	UNIT RATE ₹
D01399000	KZ	0.01 mm	0.8 mm	40-0-40	1,340.00
D01359000	KO1	0.01 mm	10.0 mm	0-50-0	1,240.00
D01099000	KO2	0.01 mm	10.0 mm	0-100	1,240.00
D01369000	KO3	0.01 mm	5.0 mm	0-50-0	1,165.00
D01379000	KO4	0.01 mm	5.0 mm	0-100	1,165.00
D06119000	KO5	0.1 mm	10.0 mm	0-10	1,165.00
D06129000	KO6	0.1 mm	25.0 mm	0-10	1,630.00
D01389000	KO8	0.01 mm	25.0 mm	0-100	2,245.00
D01429000	KO7	0.01 mm	30.0 mm	0-100	2,700.00
D23129000	KO9	0.002 mm	2.0 mm	0-10-0	2,700.00
D23139000	K10	0.002 mm	2.0 mm	0-20	2,700.00
D23149000	K11	0.002 mm	5.0 mm	0-10-0	3,225.00
D23119000	K12	0.002 mm	5.0 mm	0-20	3,225.00
D23159000	K13	0.002 mm	12.0 mm	0-10-0	5,230.00
D23169000	K14	0.002 mm	12.0 mm	0-20	5,230.00
D28089000	K17S	0.001 mm	1.0 mm	0-100-0	2,890.00
D11109000	K52	0.001 inch	0.5 inch	0-100	1,610.00
D11089000	K50	0.001 inch	1.0 inch	0-100	2,120.00
D16059000	K53	0.0005 inch	0.5 inch	0-25-0	1,980.00
D16069000	K54	0.0005 inch	0.5 inch	0-50	1,980.00

## PLUNGER TYPE DIAL GAUGES (MODEL 88)

PRODUCT CODE	TYPE	READING	RANGE	GRADUATION	UNIT RATE ₹
D01149000	J72	0.01 mm	50.0 mm	0-100	5,300.00

## PLUNGER TYPE DIAL GAUGES



TYPE	READING	RANGE	GRADUATION
<b>MODEL 40</b>	J39	0.01 mm	5 mm
	J40	0.01 mm	5 mm
	J41	0.001 inch	0.25 inch
	J42	0.001 inch	0.25 inch
<b>MODEL 56</b>	JO1	0.01 mm	10 mm
	JO2	0.01 mm	10 mm
	JO3	0.01 mm	5 mm
	JO4	0.01 mm	5 mm
	JO8A	0.01 mm	25 mm
	JZ	0.01 mm	0.8 mm
	JO5	0.1 mm	10 mm
	JO6	0.1 mm	25 mm
	JO9A	0.002 mm	2 mm
	J10A	0.002 mm	2 mm
	J11A	0.002 mm	5 mm
	J12A	0.002 mm	5 mm
	J13	0.002 mm	12 mm
	J14	0.002 mm	12 mm
	J17A	0.001 mm	1 mm
	J51	0.001 inch	0.5 inch
	J52	0.001 inch	0.5 inch
	J50A	0.001 inch	1 inch
	JY	0.001 inch	0.08 inch

J53	0.0005 inch	0.5 inch	0-25-0
J54	0.0005 inch	0.5 inch	0-50
J61A	0.0001 inch	0.2 inch	0-50-0
J62A	0.0001 inch	0.2 inch	0-100
J63	0.0001 inch	0.5 inch	0-50-0
J64	0.0001 inch	0.5 inch	0-100
<b>MODEL 88</b>	J72	0.01 mm	50 mm
	J76	0.001 inch	2 inch
<b>MODEL 105</b>	J101	0.01 mm	2 mm



### BACK PLUNGER TYPE DIAL GAUGES

TYPE F02

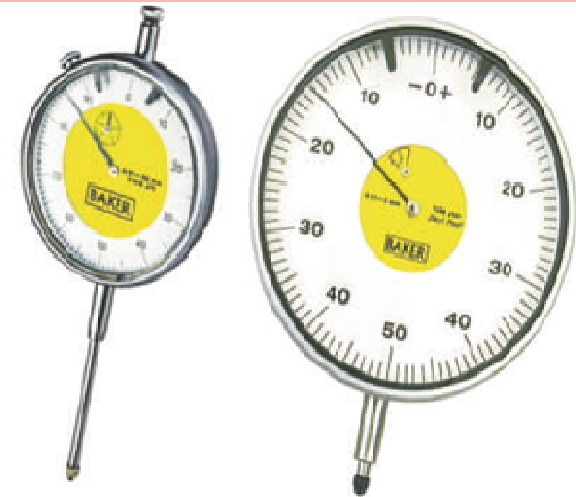
TYPE	READING	RANGE	GRADUATION
<b>MODEL 38</b>	FO1	0.01 mm	2.0 mm
	FO2	0.01 mm	2.0 mm
	F51	0.001 inch	0.1 inch
	F52	0.001 inch	0.1 inch



### UNIVERSAL TEST SETS

TYPE UI02

TYPE	READING	RANGE	GRADUATION
UI01	0.01 mm	2.0 mm	0-50-0
UI02	0.01 mm	2.0 mm	0-100
UI51	0.001 inch	0.1 inch	0-50-0
UI52	0.001 inch	0.1 inch	0-100

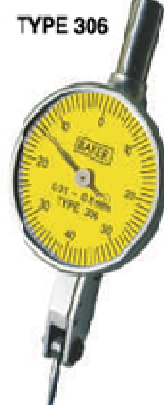


## LEVER TYPE DIAL GAUGES

TYPE 302



TYPE 306



TYPE 304



Supplied with 1mm Ø T. C. Ball Stylus, Height Gauge Adaptor, 4 mm Ø & 8 mm Ø Dovetail Spigot Assembly and Universal Clamp as standard accessories in a box.

TYPE	READING	RANGE	GRADUATION
<b>MODEL 29</b>	302	0.01 mm	0.8 mm
	304	0.002 mm	0.2 mm
	301	0.0005 inch	0.03 inch
	303	0.0001 inch	0.008 inch
<b>MODEL 38</b>	306	0.01 mm	0.8 mm
	306	0.002 mm	0.2 mm
	306	0.0005 inch	0.03 inch
	306	0.0001 inch	0.008 inch

Supplied fitted with 2 mm Ø T. C. Ball Stylus and 8 mm Ø Spigot Assembly only in a box.

TYPE	READING	RANGE	GRADUATION
<b>MODEL 29</b>	302A	0.01 mm	0.8 mm
	304A	0.002 mm	0.2 mm
	301A	0.0005 inch	0.03 inch
	303A	0.0001 inch	0.008 inch
<b>MODEL 38</b>	306A	0.01 mm	0.8 mm
	308A	0.002 mm	0.2 mm
	305A	0.0005 inch	0.03 inch
	307A	0.0001 inch	0.008 inch

## DIAL DEPTH GAUGES



TYPE J158A/3

TYPE	READING	RANGE	GRADUATION
J158/0	0.1 mm	0-200 mm	10-0
J158A/3	0.01 mm	0-200 mm	100-0
J158A/1	0.001 inch	0-8 inch	100-0

# PEACOCK MAKE

# Standard Dial Gauges

JIS B 7503

0.01mm

Dial Gauges are widely used manufacturing plants.

- The stem, made of SK quench hardened with strength, is malfunction-free due to fastening.
- The shock-proof mechanism prevents gears from damage due to shocks arisen by abruptly pushing up the spindle.
- The turning section of the outer frame sealed by the O-ring and the back inside sealed by the packing are waterproof and dust-proof in construction.
- The back is increased in strength by four screws, and the lug can be turned 90 degrees in the installation way.

<HG>

High Precision Type



107-HG

Graduation: 0.01mm  
Range: 10mm

- Indication error  $\pm 10\mu\text{m}$
- Retrace error  $4\mu\text{m}$
- Includes accuracy



107-DX

Graduation: 0.01mm  
Range: 10mm

- Durable type (Spindle  $\phi 5\text{mm}$ )
- Lug back



107

Graduation: 0.01mm  
Range: 10mm

- Lug back



107F

Graduation: 0.01mm  
Range: 10mm

- Flat back

## M&W MAKE



( 0.001mm )

**Dial Indicator**  
( 0.01mm )

CODE	RANGE	DIAL DIA	PRICE
DG 05	0-5 mm	40 mm	1,300/-
DG 10	0-10 mm	58 mm	1,000/-
DG 25	0-25 mm	58 mm	1,800/-
DG 30	0-30 mm	58 mm	1,950/-
DG 50	0-50 mm	75 mm	4,300/-

CODE	RANGE	DIAL DIA	PRICE
DG 01	0-1 mm	58 mm	2,150/-

## MITUTOYO MAKE



# Dial Indicator

## SERIES 2 — Standard Type, 0.01mm Resolution

Series 2 dial indicators are Mitutoyo's most popular, and have the widest application.

### FEATURES

- Standard 0.01mm graduation dial gauges having an outer frame with an outside diameter of 57mm. All types come with limit pins and an outer frame clamp as standard.
- The outer clamp and lifting lever (optional) can be attached to either the right or left side. These parts can be easily installed and removed without tools.
- Secured adhesion between the outer frame and crystal as well as the use of an O-ring ensure countermeasures against water and oil permeation via the front face.
- The stem spindle is made of high-strength quench-hardened stainless steel which resists strenuous use.
- A carbide contact point is used.
- The grand gear uses stainless steel that is resistant to wear and deformation.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.



2046S



2046S-60



(Refer to the page 9 for details.)



2046S  
2046SH  
2046S-09  
2046S-15  
2046S-80  
2046SLB



2046SY



2046S-60  
2046S-69



2047S





Shockproof type



Waterproof type



Long stem type



Jeweled bearing type



w/ coaxial revolution counter



Reverse reading type

## SPECIFICATIONS

## Metric

ISO/JIS type

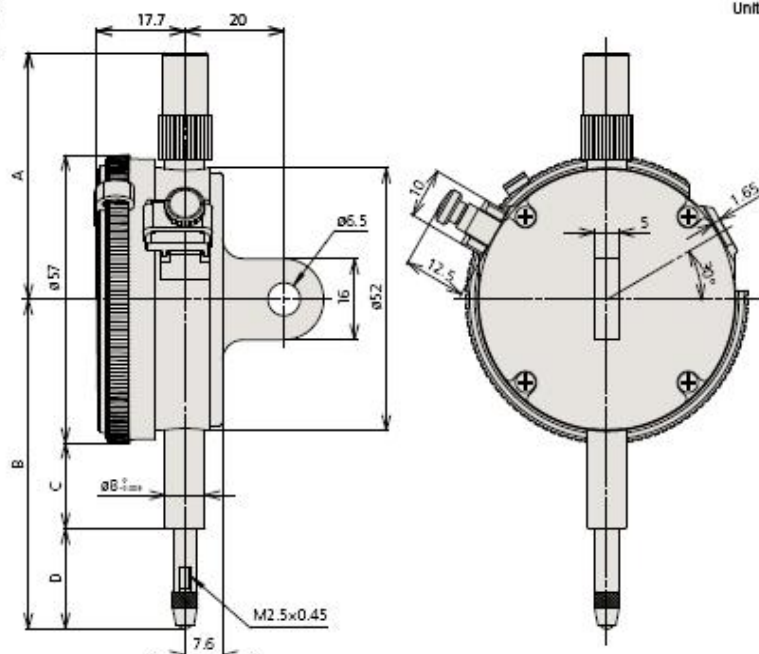
Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force						
	w/ lug	Flat-back										
0.01mm	2044S	2044SB	5mm (1mm)	±12μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	2044S-09	2044SB-09	5mm (1mm)	±13μm	0-100	1.4N or less	✓	—	—	—	—	—
0.01mm	2044S-60	2044SB-60	5mm (1mm)	±12μm	0-100	2.5N or less	—	✓	—	—	—	—
0.01mm	2045S	2045SB	5mm (1mm)	±12μm	0-50-0	1.4N or less	—	—	—	—	—	—
0.01mm	2046S	2046SB	10mm (1mm)	±13μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	2046SY	2046SYB	10mm (1mm)	±13μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	2046SH	2046SHB	10mm (1mm)	±8μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	—	2046SLB	10mm (1mm)	±13μm	0-100	1.4N or less	—	—	✓	—	—	—
0.01mm	2046S-09	2046SB-09	10mm (1mm)	±15μm	0-100	1.4N or less	✓	—	—	—	—	—
0.01mm	2046S-60	2046SB-60	10mm (1mm)	±13μm	0-100	2.5N or less	—	✓	—	—	—	—
0.01mm	2046S-69	2046SB-69	10mm (1mm)	±15μm	0-100	2.5N or less	✓	✓	—	—	—	—
0.01mm	2046S-15	2046SB-15	10mm (1mm)	±13μm	0-100	0.8N or less*	—	—	—	✓	—	—
0.01mm	2310S-10	2310SB-10	10mm (1mm)	±15μm	0-100	1.4N or less	—	—	—	✓	✓	—
0.01mm	2902S	2902SB	10mm (1mm)	±13μm	100-0	1.4N or less	—	—	—	—	—	✓
0.01mm	2047S	2047SB	10mm (1mm)	±13μm	0-50-0	1.4N or less	—	—	—	—	—	—

\*Use in a vertical position only (contact point downward).

## DIMENSION

ISO/JIS Type

Unit: mm



Note 1: Dimensions of the Inch (ANSI/ASD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.

Note 2: Inch (ANSI/ASD Type) dial indicator is provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

Order No.	A	B	C	D
2044S	48.8	65.2	16.9	19.8
2044S-09	48.8	65.2	16.9	19.8
2044S-60	48.8	70	12.3	29.2
2045S	48.8	65.2	16.9	19.8
2046S	48.8	65.2	16.9	19.8
2046SH	48.8	65.2	16.9	19.8
2046SLB	48.8	85.2	36.9	19.8
2046S-09	48.8	65.2	16.9	19.8
2046S-60	48.8	70	12.3	29.2
2046S-69	48.8	70	12.3	29.2
2046S-15	48.8	65.2	16.9	19.8
2310S-10	48.8	65.2	16.9	19.8
2902S	48.8	65.2	16.9	19.8
2047S	48.8	65.2	16.9	19.8



2902S



2310S-10

2044S  
2044S-60  
2044S-09

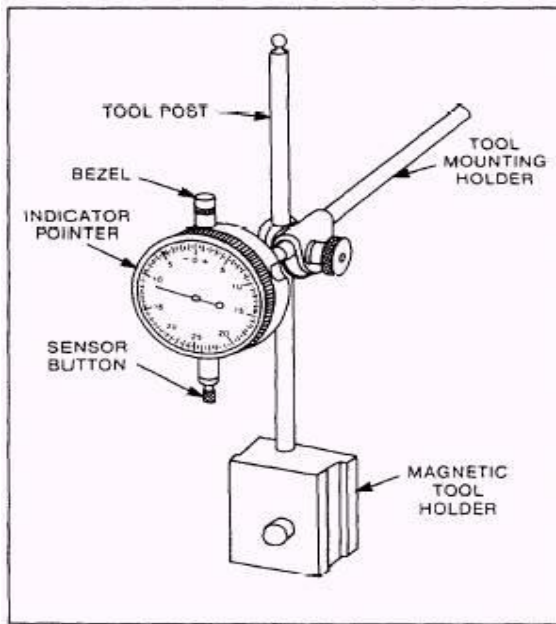
2045S

## Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)

A dial indicator is used to measure shaft runout, shaft thrust, gear backlash, flywheel face runout, flywheel housing concentricity, and valve seat concentricity. You can mount a dial indicator on a test stand or, with clamps and a magnetic base, directly on the equipment to be measured. Figure 2-1 shows a typical dial indicator with mounting accessories. Most dial indicators have components such as a bezel, indicator pointer, tool post and clamp, magnetic toolholder, and sensor button that are used in taking measurements.

The following procedures explain how to use the indicator to take shaft runout and crankshaft end play measurements. Procedures for taking other measurements are similar.



**Figure 2-1.—Typical dial indicator with mounting accessories.**

### Shaft Runout

When you need to measure a shaft's runout, select a suitable position on the shaft, free of keyways, corrosion, or other damage. Clean the surface and remove any burrs around scratches or dents. To take the runout measurement, use the following procedure:

1. Place the shaft in well-oiled V-blocks. If the shaft is a crankshaft, place the bearing journals in the V-blocks.
2. Attach the magnetic base to a machined surface. Mount the dial indicator on a tool mounting holder and attach the holder to the base.
3. Adjust the mounting post so you can easily read the face of the dial.
4. Move the indicator toward the shaft until the sensor button just touches the surface you wish to measure.
5. Continue moving the indicator slowly toward the shaft until the dial pointer has moved to the midpoint of its travel on the dial face.
6. Leave the pointer at midtravel and turn the bezel until the zero on the dial is aligned with the pointer.
7. You can now rotate and watch the pointer to see if it moves. The total amount the pointer moves is called the total indicator reading (TIR). If the shaft is straight, the pointer should remain at zero.

### Crankshaft End Play or Thrust Readings

To measure crankshaft end play or thrust, use the following procedure:

1. Attach the dial indicator to a convenient place near the vibration damper.
  2. Position the dial indicator gauge so the contact point touches the front of the vibration damper and moves the dial indicator near the midpoint of its range.
  3. Insert one end of a pry bar between a main bearing cap and a crankshaft counterweight.
- NOTE:** DO NOT INSERT THE PRYBAR BETWEEN THE VIBRATION DAMPER AND THE BLOCK TO MEASURE THE CRANKSHAFT END PLAY. You may dent the damper and render it ineffective.
4. Move the crankshaft toward the dial indicator. Be sure to maintain a constant pressure on the prybar.
  5. Set the dial indicator to zero.
  6. Remove the prybar and then reinsert it on the other side of the main bearing cap.
  7. Carefully pry the crankshaft in the opposite direction to measure the crankshaft end play. Repeat your