



Precision Measuring Instruments

Catalog No.5002



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02-214-0101

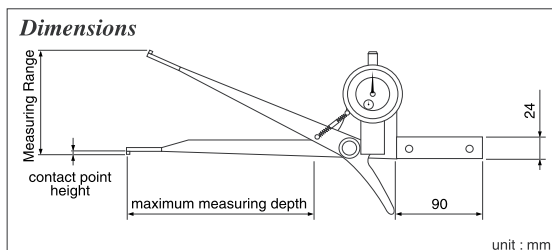
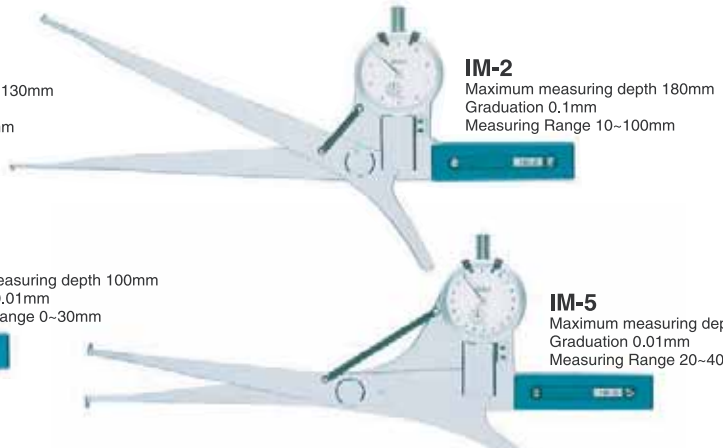
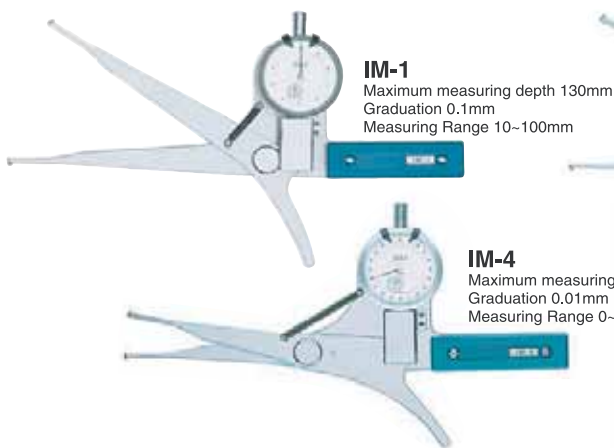
CALIPER-GAUGES

As to internal caliper gauge IM-880 series, the distance between contact points facing outside is firstly set at standard dimension with ring gauge or micrometer. Then, it is measured by inserting contact point into internal dimension part to be measured after its Outer Dial of which moves together with rotated Bezel is set at "zero". The displacement of indicator from "0" point of outer dial is to be measured at that time. The value adding the read displacement to standard dimension or deducting it from standard dimension is the dimension of internal diameter. This series attaches spare contact point which can set accurate dimension corresponding to size of internal dimension. External caliper gauge is opposite, namely reading the value by holding workpiece with 2 contact points facing inside.



Internal Dial Caliper Gauge

- These gauges are designed for use in measuring deep internal diameter of bores of castings etc, and for internal reading in fabrications. Clearance has been provided for use in recessed bores. The convenient retraction lever allows one-hand operation.



Specifications

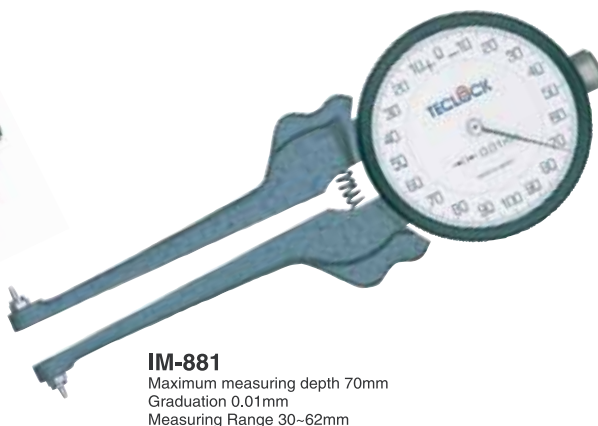
Model	Graduation (mm)	Measuring Range (mm)	Indication Error (mm)	Maximum measuring depth (mm)	Contact point height (mm)	Measuring Force (N)	Weight (g)
IM-1	0.1	10-100	± 0.1	130	2	5 or less	500
IM-2	0.1	10-100	± 0.1	180	2	5 or less	620
IM-4	0.01	10-30	± 0.02	100	2	5 or less	500
IM-5	0.01	20-40	± 0.02	150	4	5 or less	600

Internal size of workpiece is 10mm, 15mm, 20mm and 30mm or over against measuring applicable depth.

Model	Internal size			
	10	15	20	30-
IM-1	35	50	80	130
IM-2	35	50	80	180
IM-4	35	50	80	100
IM-5	—	—	140	150

Inside of workpiece should be straight or round shape without step etc.

- Internal caliper gauge to measure internal diameter of cylindrical workpiece and recessed groove diameter. It can measure groove diameter of "O" ring by modifying spare contact point.
- Set dimension within ± 1mm (indication range 2mm) can be comparatively measured (880 series) by alternatively using auxiliary spare contact point in accordance with measured dimension.
- Please set standard dimension within measuring range with micrometer or ring gauge.



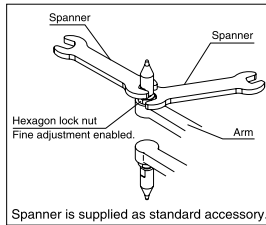


CALIPER GAUGES

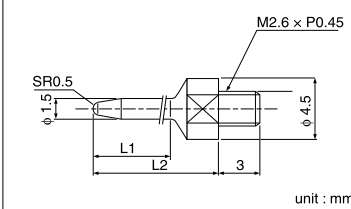


IM-882
Maximum measuring depth 90mm
Graduation 0.01mm
Measuring Range 55-153mm

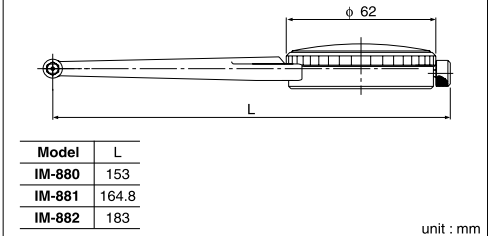
Mounting Method of Spare Contact Point



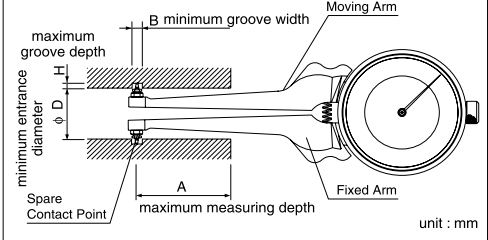
Dimensions : Spare Contact Point (option)



External Dimensions



Dimensions



Specifications

Model	Graduation (mm)	Measuring Range (mm)	Indicating range (mm)	Indication Error (μm)	Measuring Force (N)	Spare Contact Point		maximum measuring depth A (mm)	entrance diameter φ D (mm)	groove depth H (mm)	minimum groove width B (mm)	Weight (g)
						Code No.	Measuring Range (mm)					
IM-880	0.01	20-35	2	± 20	3 or less	ZS-401	20-23	50	15	2.5	2.5	175
						ZS-402	22-25		15	3.5		
						ZS-403	24-27		16	4		
						ZS-404	26-29		18	4		
						ZS-405	28-31		20	4		
						ZS-406	30-33		22	4		
						ZS-407	32-35		24	4		
IM-881	0.01	30-62	2	± 20	3 or less	ZS-408	30-38	70	24	3	2.5	185
						ZS-409	36-44		27.4	4.3		
						ZS-410	42-50		33.4	4.3		
						ZS-411	48-56		39.4	4.3		
						ZS-412	54-62		45.4	4.3		
						ZS-413	55-73		45	5		
						ZS-414	71-89		54	8.5		
IM-882	0.01	55-153	2	± 20	3 or less	ZS-415	87-105	90	70	8.5	3.5	200
						ZS-416	103-121		86	8.5		
						ZS-417	119-137		102	8.5		
						ZS-418	135-153		118	8.5		

IM-880: measuring range with extension rods (mm)

Spare Contact Point	extension rods	Measuring Range	
ZS-689 L = 7		ZS-401	34-37
		ZS-402	36-39
		ZS-403	38-41
		ZS-404	40-43
		ZS-405	42-45
		ZS-406	44-47
		ZS-407	46-49
ZS-690 L = 14		ZS-401	48-51
		ZS-402	50-53
		ZS-403	52-55
		ZS-404	54-57
		ZS-405	56-59
		ZS-406	58-61
		ZS-407	60-63
ZS-691 L = 21		ZS-401	62-65
		ZS-402	64-67
		ZS-403	66-69
		ZS-404	68-71
		ZS-405	70-73
		ZS-406	72-75
		ZS-407	74-77
ZS-692 L = 28		ZS-401	76-79
		ZS-402	78-81
		ZS-403	80-83
		ZS-404	82-85
		ZS-405	84-87
		ZS-406	86-89
		ZS-407	88-91

IM-881: measuring range with extension rods (mm)

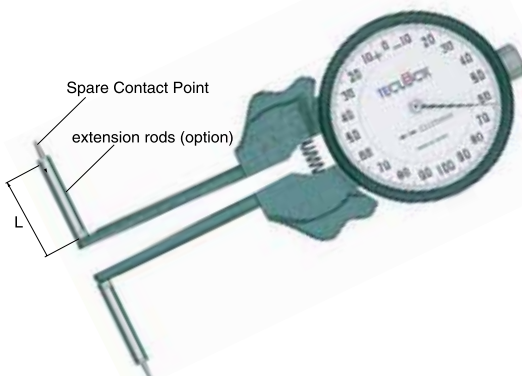
Spare Contact Point	extension rods	Measuring Range	
ZS-693 L = 15		ZS-408	60-68
		ZS-409	66-74
		ZS-410	72-80
		ZS-411	78-86
		ZS-412	84-92
		ZS-408	90-98
		ZS-409	96-104
ZS-694 L = 30		ZS-410	102-110
		ZS-411	108-116
		ZS-412	114-122
		ZS-408	120-128
		ZS-409	126-134
		ZS-410	132-140
		ZS-411	138-146
ZS-695 L = 45		ZS-412	144-152

IM-882: measuring range with extension rods (mm)

Spare Contact Point	extension rods	Measuring Range	
ZS-696 L = 48		ZS-413	151-169
		ZS-414	167-185
		ZS-415	183-201
		ZS-416	199-217
		ZS-417	215-233
		ZS-418	231-249
		ZS-413	247-265
		ZS-414	263-281
		ZS-415	279-297
		ZS-416	295-313
		ZS-417	311-329
		ZS-418	327-345

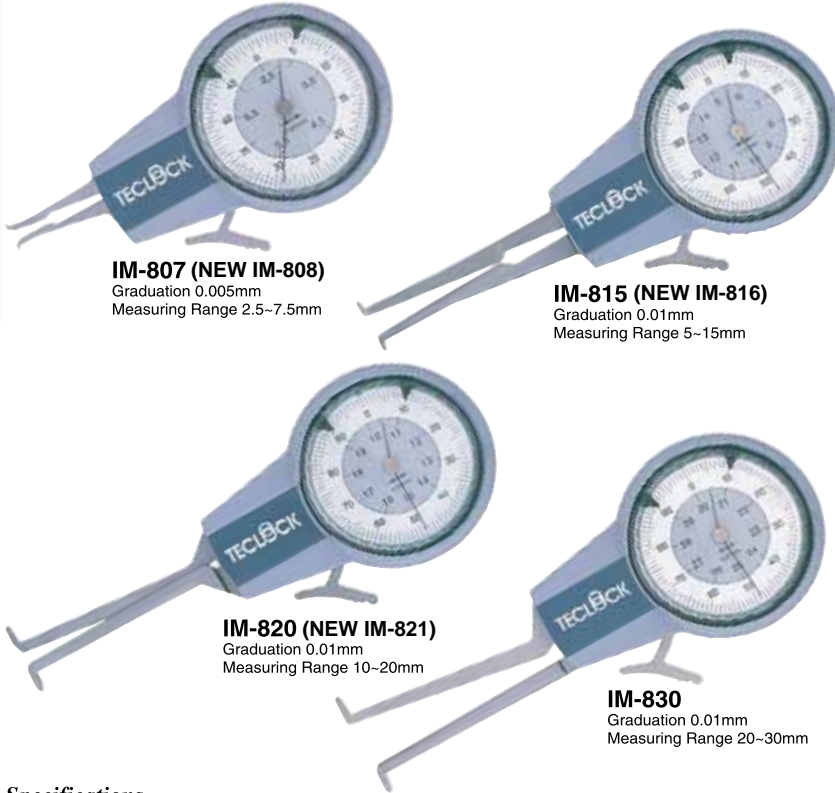
Optional Extension Rods

- IM-880 series dial caliper gauges can measure internal dimension up to measuring range in the right list by installing extension rods. Standard products of spare extension rods can be used as it is.





- Measuring internal diameter of workpiece by arm lever operation.
- Suitable for measuring groove of narrow place of workpiece.
- Hard metal of arm edges minimizes the wear.
- Easy direct reading with coaxial short hand.

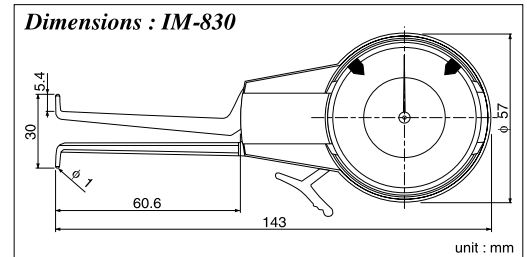
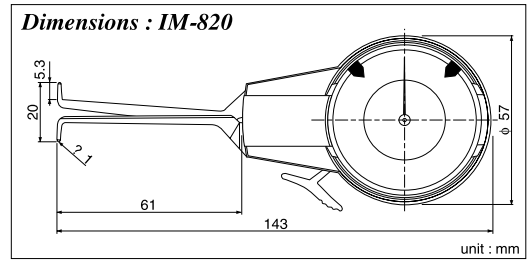
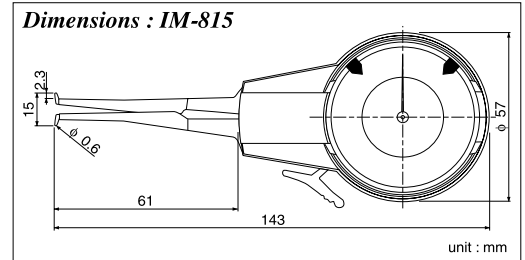
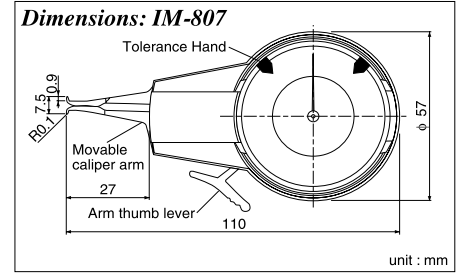


IM-807 (NEW IM-808)
Graduation 0.005mm
Measuring Range 2.5~7.5mm

IM-815 (NEW IM-816)
Graduation 0.01mm
Measuring Range 5~15mm

IM-820 (NEW IM-821)
Graduation 0.01mm
Measuring Range 10~20mm

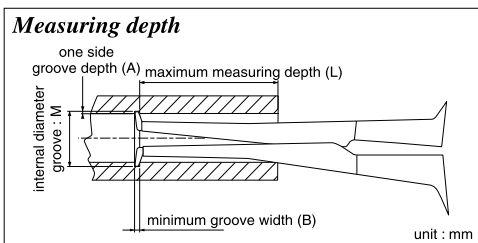
IM-830
Graduation 0.01mm
Measuring Range 20~30mm



Specifications

Model	Graduation (mm)	Measuring Range (mm)	Movable Range (mm)	Pointer Revolution (mm)	Indication Error (μm)	Repeatability (μm)	Measuring Force (N)	Weight (g)
IM-807	0.005	2.5~7.5	2.3~7.8	0.5	± 15	5	1.7 or less	120
IM-816	0.01	5~15	4.7~15.5	1	± 20	5	1.7 or less	140
IM-821	0.01	10~20	9.5~20.5	1	± 20	5	1.7 or less	140
IM-830	0.01	20~30	14.7~30.5	1	± 20	5	1.7 or less	140

Relationship Table of "Internal diameter groove" and "Maximum measuring depth"



IM-807 Internal diameter groove : M (mm)

One side measuring depth : A (mm)	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5
0	0/10	0/10	0/10	0/10	0/10	0/11	0/11	0/11	0/11	0/12	0/12
0.2		0.3/9	0.3/9	0.3/9	0.3/9	0.3/10	0.4/10	0.4/10	0.4/10	0.4/10	0.4/10
0.4			0.4/8	0.4/8	0.4/8	0.4/9	0.4/9	0.4/9	0.4/9	0.4/10	0.4/10
0.6				0.5/7	0.5/7	0.5/7	0.5/8	0.5/8	0.5/8	0.5/8	0.5/9
0.7	B/L			0.6/5	0.6/5	0.6/6	0.6/6	0.6/6	0.6/6	0.6/7	0.6/7

IM-815 Internal diameter groove : M (mm)

One side measuring depth : A (mm)	5	6	7	8	9	10	11	12	13	14	15
0	0/29	0/31	0/31	0/32	0/32	0/33	0/34	0/35	0/36	0/37	0/39
0.5		0.6/9	0.6/29	0.6/29	0.6/29	0.6/29	0.6/30	0.6/31	0.6/32	0.6/34	0.6/35
1			0.9/25	0.9/25	0.9/26	0.9/26	0.9/27	0.9/28	0.9/29	0.9/30	0.9/31
1.5				1.1/22	1.1/23	1.1/23	1.1/24	1.1/25	1.1/26	1.1/27	1.1/28
2					1.3/12	1.3/13	1.3/15	1.3/19	1.3/22	1.3/23	1.3/24
2.3	B/L					1.6/4	1.6/4	1.6/5	1.7/7	1.8/11	1.7/22

IM-820 Internal diameter groove : M (mm)

One side measuring depth : A (mm)	10	11	12	13	14	15	16	17	18	19	20
0	0/55	0/56	0/56	0/56	0/57	0/57	0/57	0/57	0/57	0/57	0/58
0.5		1.4/55	1.4/56	1.4/56	1.4/56	1.4/56	1.4/56	1.4/56	1.4/57	1.4/57	1.4/57
1			1.4/56	1.4/56	1.4/56	1.4/56	1.4/56	1.4/56	1.4/56	1.4/56	1.4/57
1.5				1.4/55	1.4/55	1.4/55	1.4/56	1.4/56	1.4/56	1.4/56	1.4/56
2					1.4/55	1.4/55	1.5/55	1.5/55	1.5/55	1.5/56	1.5/56
2.5						1.4/55	1.5/55	1.5/55	1.6/55	1.6/55	1.6/55
3							1.5/54	1.6/54	1.6/55	1.6/55	1.6/55
3.5								1.6/54	1.6/54	1.6/54	1.7/55
4									1.7/54	1.7/54	1.7/54
4.5	B/L									1.7/53	1.8/54

IM-830 Internal diameter groove : M (mm)

One side measuring depth : A (mm)	20	21	22	23	24	25	26	27	28	29	30
0	0/58	0/58	0/58	0/59	0/59	0/59	0/60	0/61	0/61	0/61	0/61
0.5		1.3/58	1.4/58	1.4/59	1.4/59	1.4/59	1.4/60	1.4/60	1.4/61	1.5/61	1.5/61
1			1.4/58	1.4/58	1.4/59	1.4/59	1.4/59	1.4/60	1.4/60	1.5/61	1.5/61
1.5				1.5/58	1.5/58	1.5/59	1.5/59	1.5/59	1.5/60	1.6/60	1.6/61
2					1.5/58	1.5/59	1.5/59	1.5/59	1.6/60	1.6/60	1.6/61
2.5						1.6/58	1.6/59	1.6/59	1.6/59	1.7/60	1.7/60
3							1.6/58	1.6/59	1.6/59	1.7/60	1.8/60
3.5								1.6/58	1.7/59	1.9/59	1.8/60
4									1.8/59	1.9/59	1.9/59
4.5	B/L									2.0/53	20/59

B = Minimum groove width L = Maximum measuring depth



External Dial Caliper Gauges

● These Gauges are designed for use in measuring external dimension of large measuring work piece and special form workpiece such as castings, forgings and sheet metal work which are difficult to measure . Please select according to shape and measuring depth. The convenient retraction lever allows for one-hand operation and good gauge control.



GM-1
Maximum measuring depth 125mm
Graduation 0.1mm
Measuring Range 0-90mm

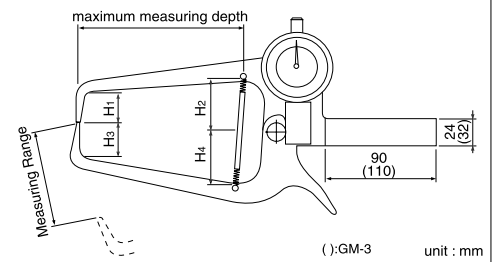


GM-2
Maximum measuring depth 250mm
Graduation 0.1mm
Measuring Range 0-90mm



GM-3
Maximum measuring depth 400mm
Graduation 0.1mm
Measuring Range 0-90mm

Dimensions



Overall length of GM-3 is large as 635mm.



GM-9
Maximum measuring depth 100mm
Graduation 0.1mm
Measuring Range 0-30mm

Dimension Table

Model	H ₁	H ₂	H ₃	H ₄
GM-1	25	40	25	40
GM-2	50	60	50	60
GM-3	60	70	60	80
GM-9	2	12	2	12
GM-11	2	6	2	6
GM-20	17	11	17	11
GM-21	65	70	10	15
GM-22	20	25	65	70

unit : mm



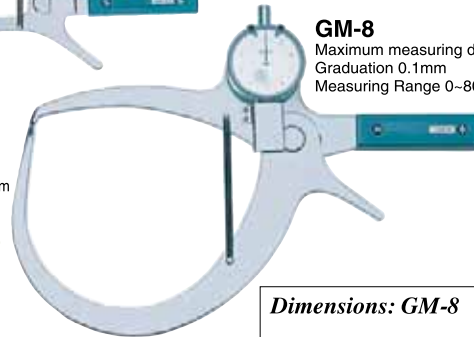
GM-11
Maximum measuring depth 125mm
Graduation 0.1mm
Measuring Range 0-50mm



GM-20
Maximum measuring depth 125mm
Graduation 0.1mm
Measuring Range 0-80mm



GM-21
Maximum measuring depth 220mm
Graduation 0.1mm
Measuring Range 0-90mm

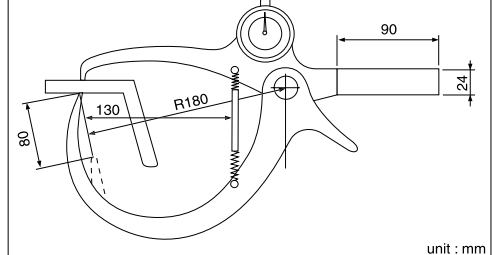


GM-8
Maximum measuring depth 130mm
Graduation 0.1mm
Measuring Range 0-80mm



GM-22
Maximum measuring depth 250mm
Graduation 0.1mm
Measuring Range 0-90mm

Dimensions: GM-8



Specifications

Model	Graduation (mm)	Measuring Range (mm)	Indication Error (mm)	maximum measuring depth (mm)	Measuring Force (N)	Weight (g)
GM-1	0.1	0-90	± 0.1	125	5 or less	530
GM-2	0.1	0-90	± 0.2	250	5 or less	800
GM-3	0.1	0-90	± 0.2	400	10 or less	1,400
GM-8	0.1	0-80	± 0.1	130	5 or less	550
GM-9	0.1	0-30	± 0.1	100	5 or less	460
GM-11	0.1	0-50	± 0.1	125	5 or less	480
GM-20	0.1	0-80	± 0.1	125	5 or less	500
GM-21	0.1	0-90	± 0.1	220	5 or less	660
GM-22	0.1	0-90	± 0.2	250	5 or less	720