

MEASURING TIPS FOR INTERNAL SCREW THREAD MICROMETERS

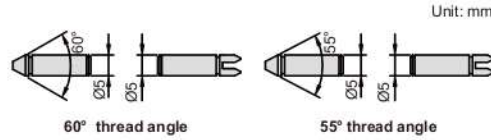
- Supplied in pair
- Suitable for 3226 series micrometers

Metric and unified screw (60° thread angle)

Code	Pitch
7321-T11	0.4-0.5mm/64-48TPI
7321-T12	0.6-0.9mm/44-28TPI
7321-T13	1-1.75mm/24-14TPI
7321-T14	2-3mm/13-9TPI
7321-T15	3.5-5mm/8-5TPI
7321-T16	5.5-7mm /4.5-3.5TPI
7321-T1S	6 pairs/set, including all above tips



7321-T1S



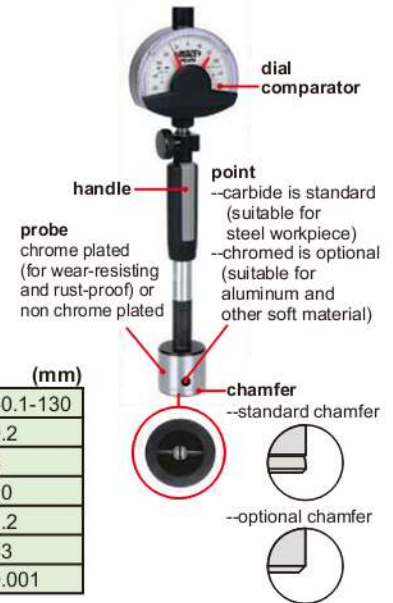
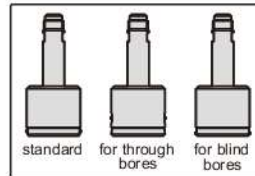
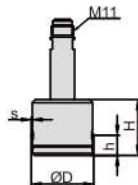
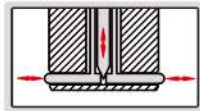
Whitworth screw (55° thread angle)

Code	Pitch
7321-T21	60-48TPI
7321-T22	48-40TPI
7321-T23	40-32TPI
7321-T24	32-24TPI
7321-T25	24-18TPI
7321-T26	18-14TPI
7321-T27	14-10TPI
7321-T28	10-7TPI
7321-T29	7-4.5TPI
7321-T210	4.5-3.5TPI
7321-T2S	10 pairs/set, including all above tips

BORE PLUG GAGES



principle of measurement



SPECIFICATION OF PROBE

Range	2-3	3.1-4	4.1-6	6.1-9	9.1-12	12.1-20	20.1-40	40.1-60	60.1-130
Travel of point (s)	0.15	0.15	0.15	0.2	0.2	0.2	0.2	0.2	0.2
Height of point (h)	standard	1	1.5	1.5	2.5	2.5	2.5	3.5	4
	for through bores	—	6	6	6	10	10	10	10
for blind bores	0.7	1	1	1	1	1	1.2	1.2	1.2
Height of probe (H)	17.5	26	10	15	15	15	20	28	33
Repeatability	0.001	0.001	0.001	0.0005	0.0005	0.0005	0.0005	0.0005	0.001

PROBE

Code	Type
4653-A□□□□	standard, non chrome plated
4653-B□□□□	for through bores, non chrome plated
4653-C□□□□	for blind bores, non chrome plated
4653-D□□□□	standard, chrome plated
4653-E□□□□	for through bores, chrome plated
4653-F□□□□	for blind bores, chrome plated



HANDLE

Code	Length (L)	Retraction
4653-150	45	without
4653-1105	105	without
4653-1235	235	without
4653-H70	70	with



Ordering examples:

Code	Type	Range
4653-A30D6H7 *	standard, non chrome plated	30.6H7
4653-E18D2H8 *	for through bores, chrome plated	18.2H8

* "D" stands for "."

DEPTH STOP

Code	Applicable for probe
4653-G□□□□	3.0-60mm



Ordering example:

Code	Applicable for probe
4653-G22H7	22H7

EXTENSION ROD FOR HANDLE

Code	Length (H)
4653-R50	50mm
4653-R100	100mm
4653-R250	250mm
4653-R500	500mm



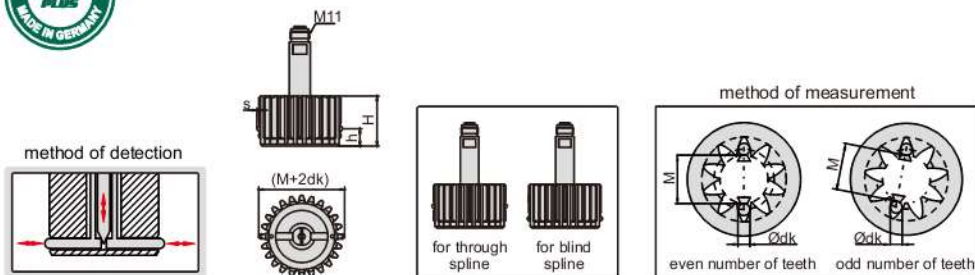
SETTING RING

Code
6312-□□□□□





INTERNAL SPLINE PLUG GAGES



PROBE SPECIFICATION

(mm)

Range	8-15	12.1-20	20.1-40	40.1-60
Travel of point (s)	0.2	0.2	0.2	0.2
Height of point (h)	for through bores	6	10	10
	for blind bores	4	6	6
Height of sleeve (H)	for through bores	18.5	22.5	28
	for blind bores	16.5	18.5	24
Repeatability	0.002	0.002	0.002	0.002

PROBE

Code	Type
4655-A □□□□	for through spline
4655-B □□□□	for blind spline

Probe ordering examples:

Code	Type	Range
4655-A20D8 *	for through spline	20.8mm
4655-B16D6 *	for blind spline	16.6mm

* "D" stands for "."

HANDLE (OPTIONAL)

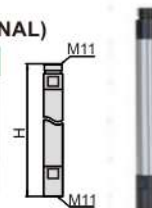
(mm)

Code	Length (L)	Retraction
4653-150	45	without
4653-1105	105	without
4653-1235	235	without
4653-H70	70	with



EXTENSION ROD FOR HANDLE (OPTIONAL)

Code	Length (H)
4653-R50	50
4653-R100	100
4653-R250	250
4653-R500	500



SETTING MASTER (OPTIONAL)

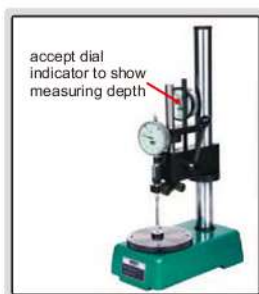
Code	Remark
4655-□□□□-SETTER	design according to probes



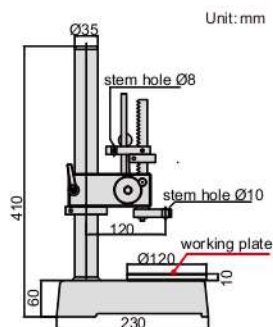
VIDEO

- For split type dial bore gages 2421, 2426, 2427 and 2429
- Maximum working stroke: 90mm
- Accept dial indicator to show measuring depth

Code
2491-250



STAND FOR SPLIT DIAL BORE GAGES



2491-250



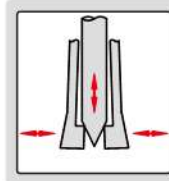
SPLIT TYPE DIAL BORE GAGES

dial indicator
is not included



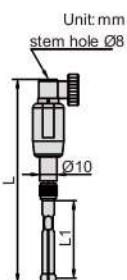
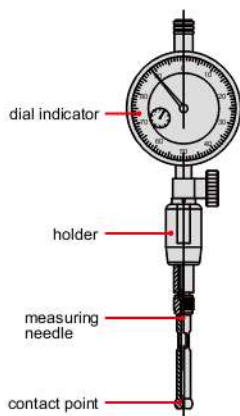
- Split type contact points
- Accuracy (without indicator):
3µm (measuring range 0.95~10mm),
4µm (measuring range 10~20.6mm)
- Repeatability (without indicator): 1µm

principle of measurement



(mm)

Code	Contact point				Measuring needle	Setting ring	
	Measuring range	Measuring depth (L1)	Total length (L)	Material		Code	Diameter
2426-1	0.95-1.15	13	89	carbide tip	2426-N1D4	6312-R1	1
2426-1D1	1.07-1.25	13	89	carbide tip		6312-R1D1	1.1
2426-1D2	1.17-1.35	13	89	carbide tip		6312-R1D2	1.2
2426-1D3	1.27-1.45	13	89	carbide tip		6312-R1D3	1.3
2426-1D4	1.37-1.55	13	89	carbide tip		6312-R1D4	1.4
2426-1D75	1.5-1.9	17	93	carbide tip	2426-N2D25	6312-1D75	1.75
2426-2	1.8-2.2	17	93	carbide tip		6312-2	2
2426-2D25	2.05-2.45	17	93	carbide tip	2426-N4	6312-2D25	2.25
2426-2D5	2.3-2.7	25	101	carbide tip		6312-2D5	2.5
2426-2D75	2.55-2.95	25	101	carbide tip		6312-2D75	2.75
2426-3	2.8-3.2	25	101	carbide tip		6312-3	3
2426-3D25	3.05-3.45	25	101	carbide tip		6312-3D25	3.25
2426-3D5	3.3-3.7	25	101	carbide tip	2426-N9	6312-3D5	3.5
2426-3D75	3.55-3.95	25	101	carbide tip		6312-3D75	3.75
2426-4	3.8-4.2	25	101	carbide tip		6312-4	4
2426-4D5	4.15-4.8	41	118	hard chromed		6312-4D5	4.5
2426-5	4.7-5.3	41	118	hard chromed		6312-5	5
2426-5D5	5.2-5.8	41	118	hard chromed	2426-N20	6312-5D5	5.5
2426-6	5.7-6.3	41	118	hard chromed		6312-6	6
2426-6D5	6.2-6.8	41	118	hard chromed		6312-6D5	6.5
2426-7	6.7-7.3	41	118	hard chromed		6312-7	7
2426-7D5	7.2-7.8	45	118	hard chromed		6312-7D5	7.5
2426-8	7.7-8.3	45	118	hard chromed	2426-N20	6312-8	8
2426-8D5	8.2-8.8	45	118	hard chromed		6312-8D5	8.5
2426-9	8.7-9.3	45	118	hard chromed		6312-9	9
2426-10	9.2-10.5	45	118	hard chromed		6312-10	10
2426-11	10.2-11.5	45	118	hard chromed		6312-11	11
2426-12	11.2-12.5	45	118	hard chromed	2426-N20	6312-12	12
2426-13	12.2-13.5	45	118	hard chromed		6312-13	13
2426-14	13.4-14.6	45	118	hard chromed		6312-14	14
2426-15	14.4-15.6	45	118	hard chromed		6312-15	15
2426-16	15.4-16.6	45	118	hard chromed		6312-16	16
2426-17	16.4-17.6	45	118	hard chromed	2426-N20	6312-17	17
2426-18	17.4-18.6	45	118	hard chromed		6312-18	18
2426-19	18.4-19.6	45	118	hard chromed		6312-19	19
2426-20	19.4-20.6	45	118	hard chromed		6312-20	20



HOLDER

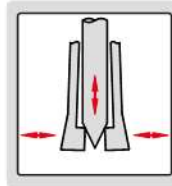
Code	Retraction	Applicable points
2426-HOLDER1	without	all
2426-HOLDER2	with	all



SPLIT TYPE DIAL BORE GAGE SETS

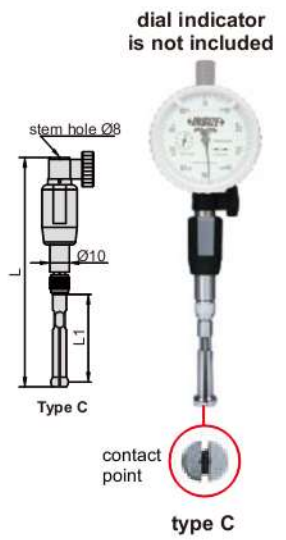
- Split type contact points
- Accuracy (without indicator): 3µm (measuring range 0.95~10mm), 4µm (measuring range 10~20.6mm)
- Repeatability (without indicator): 1µm
- Setting rings and dial indicators are optional

principle of measurement



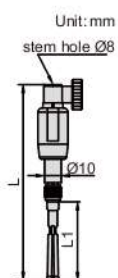
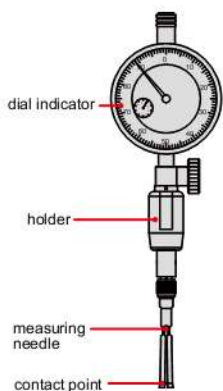
(mm)

Code	Range	Quantity of points	Measuring range of point	Measuring depth (L1)	Total length (L)	Material	Type of point	Setting ring (optional)	
								Code	Diameter
2421-1D4	0.95-1.55	5	0.95-1.15	13	89	carbide tip	A	6312-R1	1
			1.07-1.25	13	89	carbide tip	A	6312-R1D1	1.1
			1.17-1.35	13	89	carbide tip	A	6312-R1D2	1.2
			1.27-1.45	13	89	carbide tip	A	6312-R1D3	1.3
			1.37-1.55	13	89	carbide tip	A	6312-R1D4	1.4
2421-4	1.5-4.2	10	1.5-1.9	17	93	carbide tip	A	6312-1D75	1.75
			1.8-2.2	17	93	carbide tip	A	6312-2	2
			2.05-2.45	17	93	carbide tip	A	6312-2D25	2.25
			2.3-2.7	25	101	carbide tip	A	6312-2D5	2.5
			2.55-2.95	25	101	carbide tip	A	6312-2D75	2.75
			2.8-3.2	25	101	carbide tip	A	6312-3	3
			3.05-3.45	25	101	carbide tip	A	6312-3D25	3.25
			3.3-3.7	25	101	carbide tip	A	6312-3D5	3.5
			3.55-3.95	25	101	carbide tip	A	6312-3D75	3.75
			3.8-4.2	25	101	carbide tip	A	6312-4	4
2421-7D5	4.15-7.8	7	4.15-4.8	41	118	hard chromed	B	6312-4D5	4.5
			4.7-5.3	41	118	hard chromed	B	6312-5	5
			5.2-5.8	41	118	hard chromed	B	6312-5D5	5.5
			5.7-6.3	41	118	hard chromed	B	6312-6	6
			6.2-6.8	41	118	hard chromed	B	6312-6D5	6.5
			6.7-7.3	41	118	hard chromed	B	6312-7	7
			7.2-7.8	45	118	hard chromed	C	6312-7D5	7.5
2421-12	7.7-12.5	6	7.7-8.3	45	118	hard chromed	C	6312-8	8
			8.2-8.8	45	118	hard chromed	C	6312-8D5	8.5
			8.7-9.3	45	118	hard chromed	C	6312-9	9
			9.2-10.5	45	118	hard chromed	C	6312-10	10
			10.2-11.5	45	118	hard chromed	C	6312-11	11
			11.2-12.5	45	118	hard chromed	C	6312-12	12
2421-20	12.2-20.6	8	12.2-13.5	45	118	hard chromed	C	6312-13	13
			13.4-14.6	45	118	hard chromed	C	6312-14	14
			14.4-15.6	45	118	hard chromed	C	6312-15	15
			15.4-16.6	45	118	hard chromed	C	6312-16	16
			16.4-17.6	45	118	hard chromed	C	6312-17	17
			17.4-18.6	45	118	hard chromed	C	6312-18	18
			18.4-19.6	45	118	hard chromed	C	6312-19	19
			19.4-20.6	45	118	hard chromed	C	6312-20	20
2421-121	4.15-12.5	13	4.15-4.8	41	118	hard chromed	B	6312-4D5	4.5
			4.7-5.3	41	118	hard chromed	B	6312-5	5
			5.2-5.8	41	118	hard chromed	B	6312-5D5	5.5
			5.7-6.3	41	118	hard chromed	B	6312-6	6
			6.2-6.8	41	118	hard chromed	B	6312-6D5	6.5
			6.7-7.3	41	118	hard chromed	B	6312-7	7
			7.2-7.8	45	118	hard chromed	C	6312-7D5	7.5
			7.7-8.3	45	118	hard chromed	C	6312-8	8
			8.2-8.8	45	118	hard chromed	C	6312-8D5	8.5
			8.7-9.3	45	118	hard chromed	C	6312-9	9
			9.2-10.5	45	118	hard chromed	C	6312-10	10
			10.2-11.5	45	118	hard chromed	C	6312-11	11
			11.2-12.5	45	118	hard chromed	C	6312-12	12

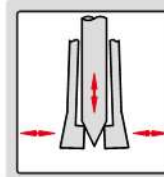


SPLIT TYPE DIAL BORE GAGES FOR BLIND HOLES

dial indicator
is not included



principle of measurement



- Split type contact points
- Accuracy (without indicator):
3µm (measuring range 1.5~10mm),
4µm (measuring range 10~20.6mm)
- Repeatability (without indicator): 1µm

Contact point				Measuring needle	Setting ring	
Code	Measuring range	Measuring depth (L1)	Total length (L)	Code	Code	Diameter
2427-1D75	1.5-1.9	17	93	2426-N2D25	6312-1D75	1.75
2427-2	1.8-2.2	17	93		6312-2	2
2427-2D25	2.05-2.45	17	93		6312-2D25	2.25
2427-2D5	2.3-2.7	25	101	2426-N4	6312-2D5	2.5
2427-2D75	2.55-2.95	25	101		6312-2D75	2.75
2427-3	2.8-3.2	25	101		6312-3	3
2427-3D25	3.05-3.45	25	101		6312-3D25	3.25
2427-3D5	3.3-3.7	25	101		6312-3D5	3.5
2427-3D75	3.55-3.95	25	101		6312-3D75	3.75
2427-4	3.8-4.2	25	101	2427-N9	6312-4	4
2427-4D5	4.15-4.8	41	118		6312-4D5	4.5
2427-5	4.7-5.3	41	118		6312-5	5
2427-5D5	5.2-5.8	41	118		6312-5D5	5.5
2427-6	5.7-6.3	41	118		6312-6	6
2427-6D5	6.2-6.8	41	118		6312-6D5	6.5
2427-7	6.7-7.3	41	118		6312-7	7
2427-7D5	7.2-7.8	45	118		6312-7D5	7.5
2427-8	7.7-8.3	45	118		6312-8	8
2427-8D5	8.2-8.8	45	118	6312-8D5	8.5	
2427-9	8.7-9.3	45	118	2427-N20	6312-9	9
2427-10	9.2-10.5	45	118		6312-10	10
2427-11	10.2-11.5	45	118		6312-11	11
2427-12	11.2-12.5	45	118		6312-12	12
2427-13	12.2-13.5	45	118		6312-13	13
2427-14	13.4-14.6	45	118		6312-14	14
2427-15	14.4-15.6	45	118		6312-15	15
2427-16	15.4-16.6	45	118		6312-16	16
2427-17	16.4-17.6	45	118		6312-17	17
2427-18	17.4-18.6	45	118		6312-18	18
2427-19	18.4-19.6	45	118		6312-19	19
2427-20	19.4-20.6	45	118	6312-20	20	

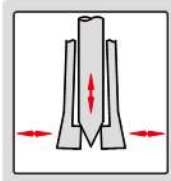


HOLDER

Code	Retraction	Applicable points
2426-HOLDER1	without	all
2426-HOLDER2	with	all



principle of measurement

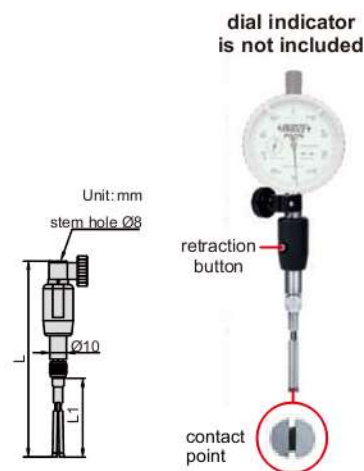


SPLIT TYPE DIAL BORE GAGE SETS FOR BLIND HOLES



2429-4

Code	Range	Quantity of points	Measuring range of point	Measuring depth (L1)	Total length (L)	Setting ring (optional)	
						Code	Diameter
2429-4	1.5-4.2	10	1.5-1.9	17	93	6312-1D75	1.75
			1.8-2.2	17	93	6312-2	2
			2.05-2.45	17	93	6312-2D25	2.25
			2.3-2.7	25	101	6312-2D5	2.5
			2.55-2.95	25	101	6312-2D75	2.75
			2.8-3.2	25	101	6312-3	3
			3.05-3.45	25	101	6312-3D25	3.25
			3.3-3.7	25	101	6312-3D5	3.5
			3.55-3.95	25	101	6312-3D75	3.75
			3.8-4.2	25	101	6312-4	4
2429-7D5	4.15-7.8	7	4.15-4.8	41	118	6312-4D5	4.5
			4.7-5.3	41	118	6312-5	5
			5.2-5.8	41	118	6312-5D5	5.5
			5.7-6.3	41	118	6312-6	6
			6.2-6.8	41	118	6312-6D5	6.5
			6.7-7.3	41	118	6312-7	7
			7.2-7.8	45	118	6312-7D5	7.5
2429-12	7.7-12.5	6	7.7-8.3	45	118	6312-8	8
			8.2-8.8	45	118	6312-8D5	8.5
			8.7-9.3	45	118	6312-9	9
			9.2-10.5	45	118	6312-10	10
			10.2-11.5	45	118	6312-11	11
			11.2-12.5	45	118	6312-12	12
2429-20	12.2-20.6	8	12.2-13.5	45	118	6312-13	13
			13.4-14.6	45	118	6312-14	14
			14.4-15.6	45	118	6312-15	15
			15.4-16.6	45	118	6312-16	16
			16.4-17.6	45	118	6312-17	17
			17.4-18.6	45	118	6312-18	18
			18.4-19.6	45	118	6312-19	19
			19.4-20.6	45	118	6312-20	20



- Split type contact points
- Accuracy (without indicator):
3µm (measuring range 1.5~10mm),
4µm (measuring range 10~20.6mm)
- Repeatability (without indicator): 1µm
- Setting rings and dial indicators are optional



BORE GAGES FOR SMALL HOLES

- Applicable for 0.01mm or 0.001mm graduation dial indicators
- Carbide contact point and anvil
- Optional accessory: dial indicator or dial comparator, setting ring (code 6312)

Code	Range	Accuracy (without dial comparator)	Repeatability (without dial comparator)	(mm)				
				L1	L2	ØR	ØD	h
2425-6	4.5-6mm	2µm	0.5µm	80	147	4	4	2
2425-8	6-8mm	2µm	0.5µm	100	165	5	5.2	2.6
2425-12	8-12mm	2µm	0.5µm	100	166	5	6.5	3.25
2425-20	12-20mm	2µm	0.5µm	110	204	8	9	4.5



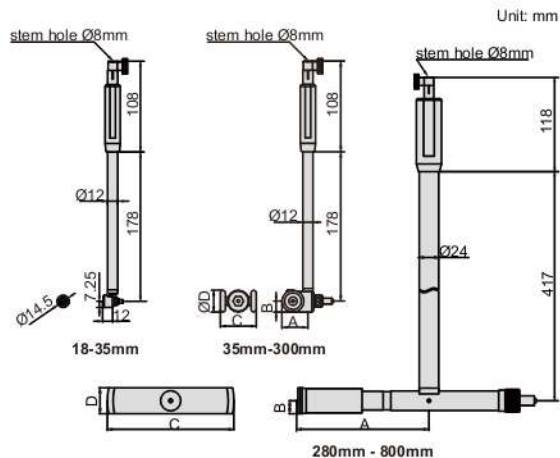
BORE GAGES



dial comparator
is not included



2422-150



- Applicable for 0.01mm or 0.001mm graduation dial indicators
- Optional accessory:
 - Dial indicator or dial comparator
 - Setting ring (code **6312**)
 - Long handle (code **7352**)

Code	Range	Accuracy (without dial comparator)	Repeatability (without dial comparator)
2422-35	18-35mm	4µm	2µm
2422-60	35-60mm	4µm	2µm
2422-150	50-150mm	4µm	2µm
2422-300	150-300mm	4µm	2µm
2422-510	280-510mm	3µm	1.5µm
2422-800	400-800mm	3µm	1.5µm

Range	A	B	C	D
35-60mm	19.5	10.5	28	21
50-150mm	30.8	13	42.5	26
150-300mm	30.8	13	76.5	26
280-510mm	164	16	156	32
400-800mm	305	18	300	36

BORE GAGE SET



dial comparator is not included



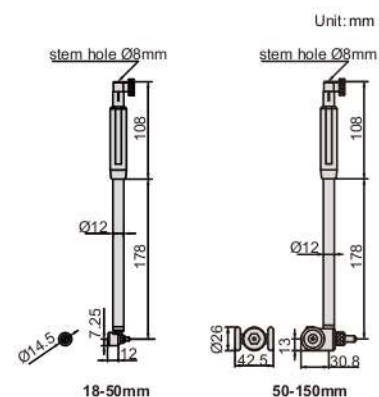
2423-S2

- Includes bore gages 18-50mm and 50-150mm
- Optional accessory:
 - 0.01mm or 0.001mm graduation dial indicator or dial comparator
 - Setting ring (code **6312**)
 - Long handle (code **7352**)



18-50mm

50-150mm

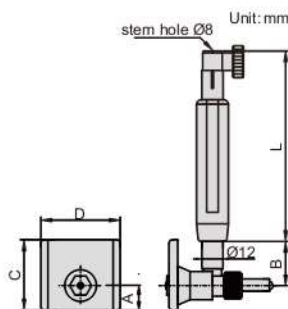


Code	Range	Accuracy (without dial comparator)	Repeatability (without dial comparator)
2423-S2	18-150mm	4µm	2µm



SELF-POSITIONING, NO NEED TO FIND TURNING POINT (MINIMUM VALUE)

- Self-positioning, no need to find turning point (minimum value)
- Carbide contact point
- Optional accessory:
 - 0.01mm or 0.001mm graduation dial indicators or dial comparator
 - Setting ring (code 6312)



dial indicator is not included

BORE GAGES



2431-80

Code	Range	Accuracy (without dial indicator)	Repeatability (without dial indicator)	A	B	C	D	L
2431-35	20-35mm	2µm	1µm	9	21	12	16	89
2431-55	35-55mm	2µm	1µm	10	23	30	28	96
2431-80	50-80mm	2µm	1µm	15	25	40	45	108
2431-120	80-120mm	2µm	1µm	15	25	40	60	108
2431-170	120-170mm	2µm	1µm	18	30	50	88	119

RELATIVE PRODUCT: INTERNAL GEAR TOOTH MICROMETER (CODE 3637, 3638)

- Tungsten carbide ball points, diameter accuracy 2µm
- Optional accessory:
 - Dial indicator or dial comparator
 - Ball points
 - Thread adaptor
 - Setting ring (code 6312)
 - Long handle (code 7352)

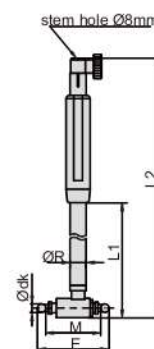
dial comparator is not included

GEAR BORE GAGES



2428-55

ball points (optional)



Code	Range (E)	Accuracy (without dial comparator)	Repeatability (without dial comparator)	ØR	L1	L2	Thread for ball points
2428-12	8-12mm	2µm	0.5µm	5	100	165	M1.6
2428-22	12-22mm	2µm	0.5µm	5	102	168	M1.6
2428-55	22-55mm	2µm	0.5µm	8	110	204	M2.5
2428-250	55-250mm	2µm	0.5µm	12	177	290	M4
2428-510	250-510mm	2µm	0.5µm	18	235	363	M4

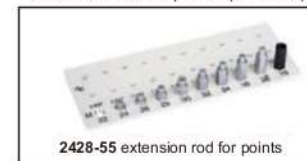
Ball points (optional)

Ball point diameter Ødk	2428-12	2428-22	2428-55	2428-250	2428-510
	point thread M1.6	point thread M1.6	point thread M2.5	point thread M4	point thread M4
	point code	point code	point code	point code	point code
1mm	2428-A1	2428-A1	2428-B1	2428-C1	2428-C1
1.5mm	2428-A1D5	2428-A1D5	2428-B1D5	2428-C1D5	2428-C1D5
2mm	2428-A2	2428-A2	2428-B2	2428-C2	2428-C2
2.5mm	—	2428-A2D5	2428-B2D5	2428-C2D5	2428-C2D5
3mm	—	2428-A3	2428-B3	2428-C3	2428-C3
3.5mm	—	2428-A3D5	2428-B3D5	2428-C3D5	2428-C3D5
4mm	—	2428-A4	2428-B4	2428-C4	2428-C4
4.5mm	—	—	2428-B4D5	2428-C4D5	2428-C4D5
5mm	—	—	2428-B5	2428-C5	2428-C5
5.5mm	—	—	2428-B5D5	2428-C5D5	2428-C5D5
6mm	—	—	2428-B6	2428-C6	2428-C6
6.5mm	—	—	2428-B6D5	2428-C6D5	2428-C6D5
7mm	—	—	2428-B7	2428-C7	2428-C7
7.5mm	—	—	2428-B7D5	2428-C7D5	2428-C7D5
8mm	—	—	2428-B8	2428-C8	2428-C8
8.5mm	—	—	2428-B8D5	2428-C8D5	2428-C8D5
9mm	—	—	2428-B9	2428-C9	2428-C9
9.5mm	—	—	2428-B9D5	2428-C9D5	2428-C9D5
10mm	—	—	2428-B10	2428-C10	2428-C10

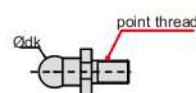
ball points (optional), in pair



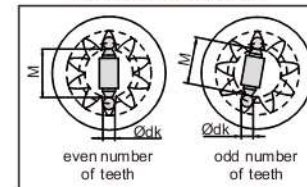
extension rod for points (included)



2428-55 extension rod for points



method of measurement



even number of teeth / odd number of teeth

Thread adaptor (optional)

Code	Thread	Remark
2428-D1	M1.6/M2.5	For example, use 2428-A1 with 2428-D1 to replace 2428-B1
2428-D2	M2.5/M4	For example, use 2428-B1 with 2428-D2 to replace 2428-C1

BORE GAGES FOR BLIND HOLES

- To measure diameter of shallow and blind holes
- Optional accessory:
 - 0.01mm or 0.001mm graduation dial indicators
 - Setting ring (code **6312**)
 - Long handle (code **7352**)



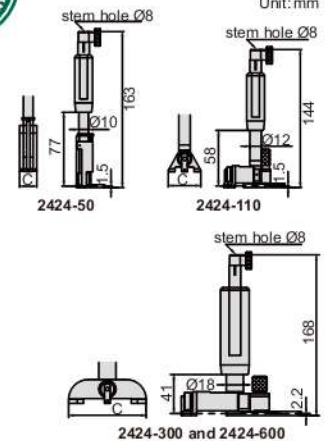
(mm)

Code	Range	Accuracy (without dial indicator)	Repeatability (without dial indicator)	C
2424-50	20-50mm	4µm	1µm	18
2424-110	50-110mm	4µm	1µm	34
2424-300	110-300mm	4µm	1µm	81
2424-600	300-600mm	4µm	1µm	140

dial indicator is not included

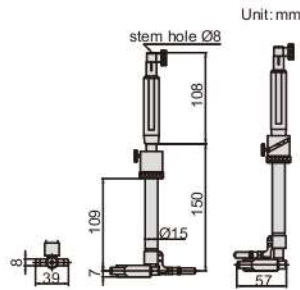


2424-300



ROTARY BORE GAGE

- Rotary anvil, to measure bores with small opening
- D: bore diameter to be measured, d: minimum opening diameter (see right drawing)
- d=57mm (D ≤ 95mm)
- d=D-38 (D > 95mm)
- Optional accessory:
 - 0.01mm or 0.001mm graduation dial indicator or dial comparator
 - Setting ring (code **6312**)
 - Long handle (code **7352**)



Unit: mm

Code	Range	Accuracy (without dial indicator)	Repeatability* (without dial indicator)
2921-150	80-150mm	2µm	1µm

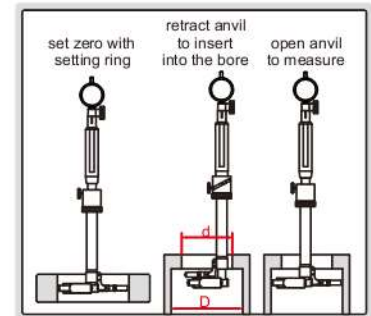
* Repeatability includes the error of rotary anvil

dial indicator is not included



2921-150

rotary anvil

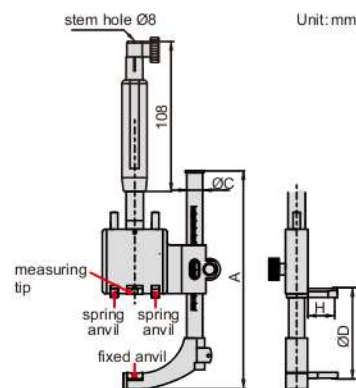
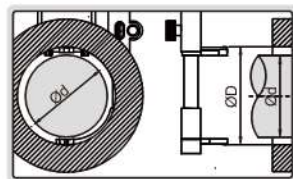


BORE GAGES

MEASURE DIAMETER OF BORES WITH BARRIER INSIDE

ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS

- Measure diameter of bores with barrier inside
- Optional accessory:
 - 0.01mm graduation dial indicators
 - Setting ring (code **6312**)



Unit: mm

dial indicator is not included

Code	Range ØD	Diameter of barrier Ød	Travel of measuring tip	Measuring depth H	Accuracy (without dial indicator)	Measuring force	A	ØC
2432-70	25-70mm	<D-6 (less than 45mm)*	2.5	12	0.01	1.5N	115	10
2432-105	35-105mm	<D-11 (less than 70mm)*	3.0	18	0.01	2.5N	150	11
2432-210	100-210mm	<D-20 (less than 130mm)*	3.5	30	0.015	2.5N	233	15
2432-280	100-280mm	<D-20 (less than 130mm)*	3.5	30	0.015	2.5N	303	15
2432-500	200-500mm	<D-20 (less than 240mm)*	3.5	30	0.02	2.5N	622	30

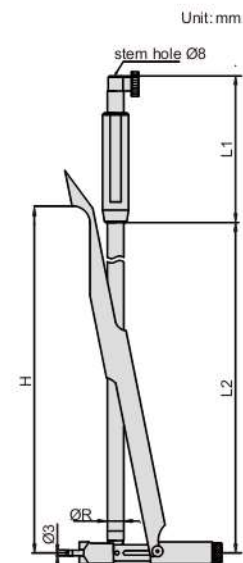
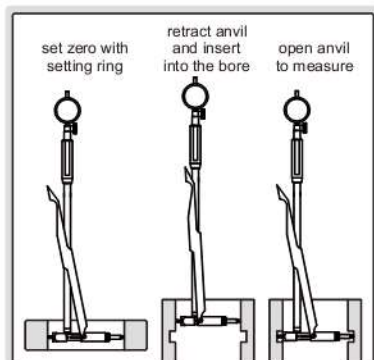
* For example, range of 2432-70 is 25-70mm, diameter of barrier is <D-6 (less than 45mm). When measuring size is 40mm, D-6=34mm, so the maximum diameter of barrier is 34mm. When measuring size is 60mm, D-6=54mm, however it should be less than 45mm, so the maximum diameter of barrier is 45mm.



2432-105



INTERNAL GROOVE BORE GAGES



- Measure diameter of internal grooves (width of groove > 3mm)
- Anvil is needed
- Optional accessory:
 - 0.001mm graduation dial indicators
 - Setting ring (code 6312)

Code	Range	Retraction of anvil	Measuring depth H	Accuracy (without dial indicator)	Repeatability (without dial indicator)	ØR	L1	L2
2433-120	60-120mm	8.5	180	2µm	1µm	10	105	215
2433-180	120-180mm	23	230	2µm	1µm	12	108	285
2433-300	180-300mm	30	230	2µm	1µm	18	130	285

ANVIL (OPTIONAL)

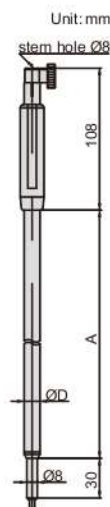
Code	Remark
2433-P□□□□	We design and make anvils according to the grooves to be measured. *

* Note: please provide the dimension of grooves to be measured.



LONG HANDLES

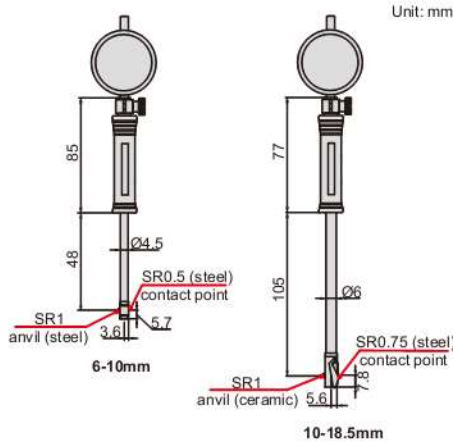
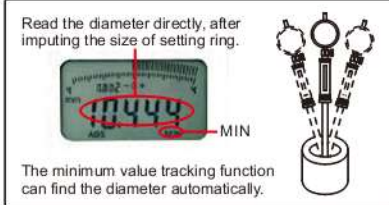
- To assist deep-hole measurement
- Can be used for bore gages 2422, 2423, 2424 and 2921



Code	Applicable bore gages	A	ØD
7352-500	above 35mm	438	12
7352-1000		938	12

BORE GAGES FOR SMALL HOLES

ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS



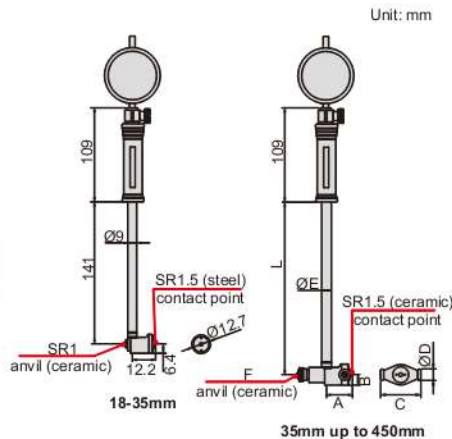
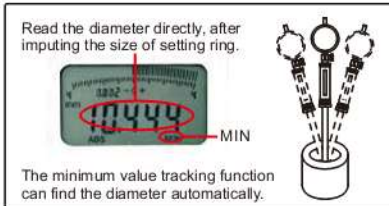
Optional accessory: setting ring (code 6312)

Code	Range	Indicator	Accuracy	Repeatability
2852-10	6-10mm	dial indicator, range 3mm, graduation 0.01mm (code 2311-3F)	±0.012mm	0.003mm
2852-18	10-18.5mm		±0.012mm	0.003mm

Code	Range	Indicator	Accuracy	Repeatability
2152-10	6-10mm	digital indicator, range 12.7mm/0.5", resolution 0.002mm/0.0001" (code 2108-10F)	±0.012mm	0.003mm
2152-18	10-18.5mm		±0.012mm	0.003mm

BORE GAGES

ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS

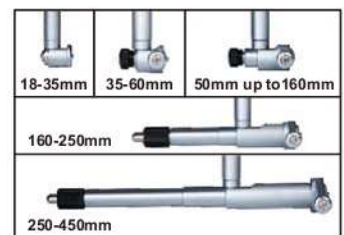


Range	A	B	C	ØD	ØE	F	L
35-60mm	22	9	27	13	12.8	SR2	141
50-100mm	26	9	35	13	12.8	SR2	141
50-160mm	26	9	35	13	12.8	SR2	141
100-160mm	26	9	35	13	12.8	SR2	141
160-250mm	56.5	13	74.5	15	12.8	SR2	241
250-450mm	86.5	15	101.5	15	14.5	SR2.5	241

Code	Range	Indicator	Accuracy	Repeatability
2322-35A	18-35mm	dial indicator, range 10mm, graduation 0.01mm (code 2308-10FA)	±0.015mm	0.003mm
2322-60A	35-60mm		±0.018mm	0.003mm
2322-100A	50-100mm		±0.018mm	0.003mm
2322-160A	50-160mm		±0.018mm	0.003mm
2322-161A	100-160mm		±0.018mm	0.003mm
2322-250A	160-250mm		±0.018mm	0.003mm
2322-450A	250-450mm		±0.018mm	0.003mm

Code	Range	Indicator	Accuracy	Repeatability
2122-35A	18-35mm	digital indicator, range 12.7mm/0.5", resolution 0.002mm/0.0001" (code 2108-10F)	±0.015mm	0.003mm
2122-60A	35-60mm		±0.018mm	0.003mm
2122-100A	50-100mm		±0.018mm	0.003mm
2122-160A	50-160mm		±0.018mm	0.003mm
2122-161A	100-160mm		±0.018mm	0.003mm
2122-250A	160-250mm		±0.018mm	0.003mm
2122-450A	250-450mm		±0.018mm	0.003mm

Optional accessory: setting ring (code 6312), long handle (code 7351)



ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS



BORE GAGE SETS

packaging (code 2824-S3)

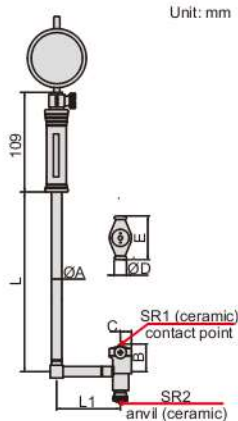


Optional accessory: setting ring (code 6312)

Code	Range	Indicator	Bore gages included	Accuracy	Repeatability
2824-S160	35-160mm	dial indicator, code 2308-10FA range 10mm, graduation 0.01mm	⌀ 35-50mm (dial indicator and handle are not included) ⌀ 50-160mm	35-50mm ±0.018mm 50-160mm ±0.018mm	0.003mm
2824-S3	18-160mm	dial indicator, code 2308-10FA range 10mm, graduation 0.01mm	⌀ 18-35mm ⌀ 35-60mm (dial indicator is not included) ⌀ 50-160mm (dial indicator is not included)	18-35mm ±0.015mm 35-60mm ±0.018mm 50-160mm ±0.018mm	0.003mm



2827-160A



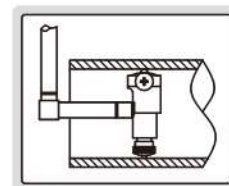
Unit: mm

ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS

Optional accessory: setting ring (code 6312)

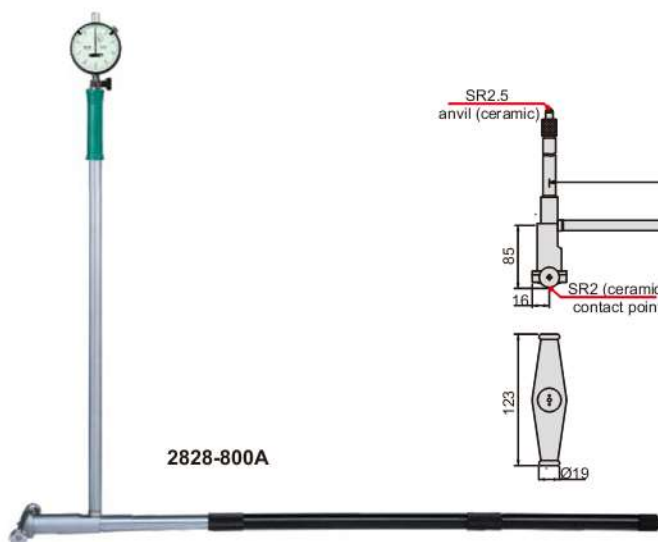
Range	ØA	B	C	ØD	E	L	L1
35-60mm	12.8	22	9	13	27	141	75
50-160mm	12.8	28.5	9.2	13	35	141	76.2
160-250mm	14.5	62.0	12.7	15	74.5	391	100
250-450mm	14.5	91.5	15.0	15	101.5	391	100

BORE GAGES



Code	Range	Indicator	Accuracy	Repeatability
2827-60A	35-60mm	dial indicator	±0.018mm	0.003mm
2827-160A	50-160mm	code 2308-10FA	±0.018mm	0.003mm
2827-250A	160-250mm	range 10mm, graduation 0.01mm	±0.018mm	0.003mm
2827-450A	250-450mm		±0.018mm	0.003mm

ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS



2828-800A

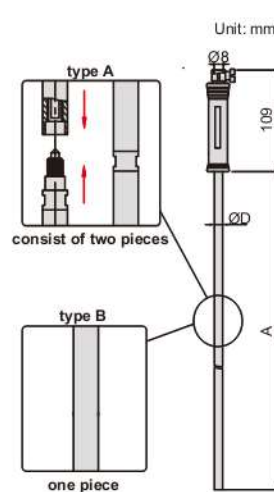
Unit: mm

Code	Range	Indicator	Accuracy	Repeatability
2828-800A	400-800mm	dial indicator code 2308-10FA, range 10mm, graduation 0.01mm	±0.025mm	0.003mm

LONG HANDLES

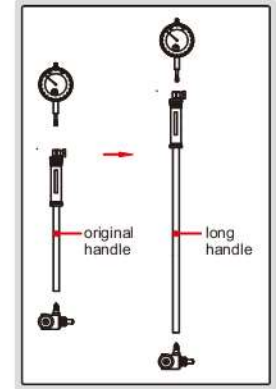
- To assist deep-hole measurement
- Can be used for bore gages 2322 and 2122

Code	Applicable bore gages	A	ØD	Type
7351-EX11	35-60mm,	475	13	B
7351-EX12	50-100mm,	980	13	
7351-EX13	50-160mm,	1480	14.5	A
7351-EX14	100-160mm	1980	14.5	
7351-EX21	160-250mm, 250-450mm	480	14.5	B
7351-EX22		980	14.5	A
7351-EX23		1480	14.5	
7351-EX24		1980	14.5	



7351-EX11

method of use (replace the original handle with long handle)



ANVILS FOR BORE GAGES



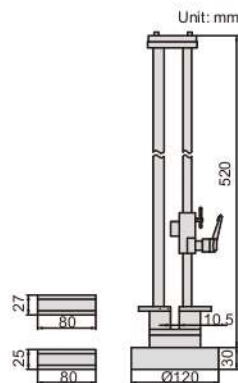
7350-160

- For 2852, 2152, 2322, 2122, 2824, 2827

Code	Applicable bore gages	Material of measuring face	Quantity per set	Measuring range of anvil (mm)
7350-10	6-10mm	steel	9pcs	6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10
7350-18	10-18.5mm	ceramic	9pcs	10, 11, 12, 13, 14, 15, 16, 17, 18
7350-35	18-35mm	ceramic	9pcs	18, 20, 22, 24, 26, 28, 30, 32, 34
7350-60	35-60mm	ceramic	6pcs	35, 40, 45, 50, 55, 60
7350-100	50-100mm	ceramic	11pcs	50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100
7350-160	50-160mm	ceramic	12pcs	50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105
7350-161	100-160mm	ceramic	12pcs	50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105
7350-250	160-250mm	ceramic	5pcs	160, 170, 180, 190, 200
7350-450	250-450mm	ceramic	5pcs	250, 260, 270, 280, 290

BORE GAGE SETTER

- Used together with gage blocks to set bore gages



2395-400



Code	Setting range
2395-400	18-400mm

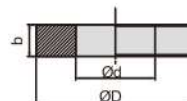
SETTING RINGS

CAN SUPPLY CUSTOM SETTING RING FROM Ø1.500MM TO Ø315.000MM, FOR EXAMPLE, Ø17.085MM

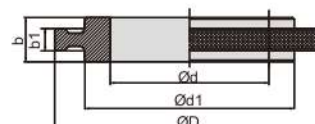


6312-20

- For zero setting of inside micrometers, three points internal micrometers and bore gages
- Deviation (difference between the ordered size and the size marked on the setting ring when supplied):
For example, the ordered size is Ø10.125mm, the size marked on the setting ring when supplied may be Ø10.127mm
- Meet DIN2250-1:2008



Ø1.5mm-100mm



Ø100mm-315mm

(mm)				
Diameter d**	b	D	Deviation	Roundness and cylindricity
Ø1.5-2.5	4	22	±2.0µm	0.3µm
Ø2.5-3	5	22	±2.0µm	0.3µm
Ø3-5	5	22	±2.0µm	0.4µm
Ø5-10	8	32	±2.0µm	0.4µm
Ø10-15	10	38	±3.0µm	0.5µm
Ø15-18	12	45	±3.0µm	0.5µm
Ø18-20	12	45	±3.0µm	0.6µm
Ø20-25	14	53	±3.0µm	0.6µm
Ø25-30	16	63	±4.0µm	0.6µm
Ø30-32	16	63	±4.0µm	0.7µm
Ø32-40	18	71	±4.0µm	0.7µm
Ø40-50	20	85	±4.0µm	0.7µm
Ø50-60	20	100	±4.0µm	0.8µm
Ø60-70	24	112	±4.0µm	0.8µm
Ø70-80	24	125	±4.0µm	0.8µm
Ø80-90	24	140	±4.0µm	1.0µm
Ø90-100	24	160	±4.0µm	1.0µm

(mm)							
Diameter d**	b	b1	d1	D	Deviation	Roundness and cylindricity	
Ø100-110	28	14	132	170	±5.0µm	1.0µm	
Ø110-120	28	16	140	180	±5.0µm	1.0µm	
Ø120-130	28	16	150	190	±6.0µm	1.2µm	
Ø130-140	28	18	160	200	±6.0µm	1.2µm	
Ø140-150	28	18	170	212	±6.0µm	1.2µm	
Ø150-160	28	20	180	224	±6.0µm	1.2µm	
Ø160-170	32	20	190	236	±6.0µm	1.2µm	
Ø170-180	32	20	200	250	±6.0µm	1.2µm	
Ø180-190	32	22	212	265	±7.0µm	1.4µm	
Ø190-200	32	22	224	280	±7.0µm	1.4µm	
Ø200-212	32	22	236	300	±7.0µm	1.4µm	
Ø212-224	32	25	250	315	±7.0µm	1.4µm	
Ø224-236	36	25	265	335	±7.0µm	1.4µm	
Ø236-250	36	28	280	355	±7.0µm	1.4µm	
Ø250-265	36	28	300	375	±8.0µm	1.6µm	
Ø265-280	36	28	315	400	±8.0µm	1.6µm	
Ø280-300	36	32	335	425	±8.0µm	1.6µm	
Ø300-315	36	32	355	450	±8.0µm	1.6µm	

** For example Ø3-5mm means Ø3mm<diameter d<Ø5mm

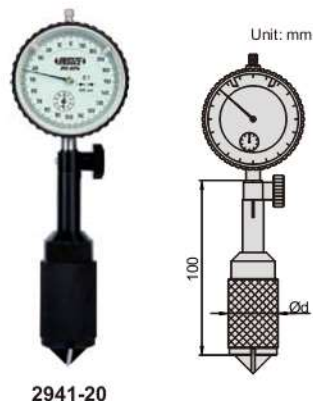
(mm)		(mm)		(mm)		(mm)		(mm)	
Code	Size	Code	Size	Code	Size	Code	Size	Code	Size
6312-1D5*	Ø1.5	6312-17*	Ø17	6312-33*	Ø33	6312-49*	Ø49	6312-137D5*	Ø137.5
6312-2*	Ø2	6312-18*	Ø18	6312-34*	Ø34	6312-50*	Ø50	6312-150*	Ø150
6312-3*	Ø3	6312-19*	Ø19	6312-35*	Ø35	6312-55*	Ø55	6312-162D5*	Ø162.5
6312-4*	Ø4	6312-20*	Ø20	6312-36*	Ø36	6312-60*	Ø60	6312-175*	Ø175
6312-5*	Ø5	6312-21*	Ø21	6312-37*	Ø37	6312-62*	Ø62	6312-187D5*	Ø187.5
6312-6*	Ø6	6312-22*	Ø22	6312-38*	Ø38	6312-65*	Ø65	6312-200*	Ø200
6312-7*	Ø7	6312-23*	Ø23	6312-39*	Ø39	6312-70*	Ø70	6312-212D5*	Ø212.5
6312-8*	Ø8	6312-24*	Ø24	6312-40*	Ø40	6312-75*	Ø75	6312-225*	Ø225
6312-9*	Ø9	6312-25*	Ø25	6312-41*	Ø41	6312-80*	Ø80	6312-237D5*	Ø237.5
6312-10*	Ø10	6312-26*	Ø26	6312-42*	Ø42	6312-85*	Ø85	6312-250*	Ø250
6312-11*	Ø11	6312-27*	Ø27	6312-43*	Ø43	6312-87*	Ø87	6312-262D5*	Ø262.5
6312-12*	Ø12	6312-28*	Ø28	6312-44*	Ø44	6312-90*	Ø90	6312-275*	Ø275
6312-13*	Ø13	6312-29*	Ø29	6312-45*	Ø45	6312-95*	Ø95	6312-287D5*	Ø287.5
6312-14*	Ø14	6312-30*	Ø30	6312-46*	Ø46	6312-100*	Ø100	6312-300*	Ø300
6312-15*	Ø15	6312-31*	Ø31	6312-47*	Ø47	6312-112D5	Ø112.5		
6312-16*	Ø16	6312-32*	Ø32	6312-48*	Ø48	6312-125*	Ø125		

* Supplied with manufacturer inspection certificate

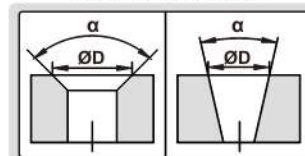
INTERNAL CHAMFER GAGES

- Measure end diameter of chamfer or taper holes
- With limit pointers

Code	Range $\varnothing D$	Applicable angle α	Graduation	Accuracy	$\varnothing d$
2941-20	0.5-20.1mm	0-90°	0.01mm	±0.02mm	28.3
2941-40	20-40mm	0-90°	0.01mm	±0.02mm	50
2941-203	0.5-20.1mm	90-127°	0.02mm	±0.04mm	28.3
2941-403	20-40mm	90-127°	0.02mm	±0.04mm	50



measure end diameter of chamfer or taper holes



DIGITAL INTERNAL CHAMFER GAGES

- Measure end diameter of chamfer or taper holes
- Resolution: 0.01mm/0.0005"

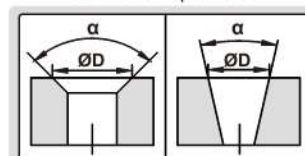
Code	Range $\varnothing D$	Applicable angle α	Accuracy	$\varnothing d$
2942-20	0.5-20.1mm	0-90°	±0.02mm	28.3
2942-40	20-40mm	0-90°	±0.02mm	50
2942-203	0.5-20.1mm	90-127°	±0.04mm	28.3
2942-403	20-40mm	90-127°	±0.04mm	50



DATA OUTPUT



measure end diameter of chamfer or taper holes

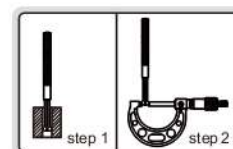
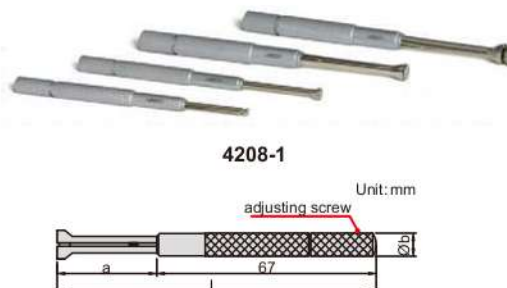


SMALL HOLE GAGE SET

- 4 gages per set
- For small holes, slots and grooves, etc.
- Satin chrome finish

Range	L	a	$\varnothing b$
3-5mm	90	22.5	5.5
5-7.5mm	97.6	30	5.5
7.5-10mm	102.8	35	8.5
10-13mm	108	40	8.5

Code	Total range	Gages included
4208-1	3-13mm	3-5mm, 5-7.5mm, 7.5-10mm, 10-13mm

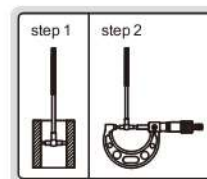


TELESCOPING GAGE SET

- 6 gages per set
- For quick measurement of inside diameter of holes and width of slots
- Satin chrome finish

Range	L	$\varnothing a$	$\varnothing b$	$\varnothing c$
8-12.7mm	115	3.9	2.9	6.2
12.7-19mm	115	5.3	3.8	6.2
19-32mm	115	5.3	3.8	6.2
32-54mm	137	7.6	6.1	7.2
54-90mm	137	7.6	6.1	7.2
90-150mm	137	7.6	6.1	7.2

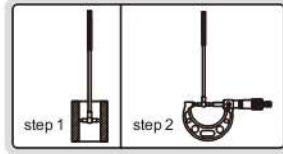
Code	Total range	Gages included
4206-1	8-150mm	8-12.7mm, 12.7-19mm, 19-32mm, 32-54mm, 54-90mm, 90-150mm



LONG HANDLE TELESCOPING GAGES



4209-6



- For quick measurement of inside diameter of deep holes and width of slots
- Satin chrome finish

(mm)					
Code	Range	L	Øa	Øb	Øc
4209-1	8-12.7mm	250	3.9	2.9	6.2
4209-2	12.7-19mm	250	5.3	3.8	6.2
4209-3	19-32mm	250	5.3	3.8	6.2
4209-4	32-54mm	300	7.6	6.1	7.2
4209-5	54-90mm	300	7.6	6.1	7.2
4209-6	90-150mm	300	7.6	6.1	7.2



DATA OUTPUT



LARGE DIAMETER GAGE CODE ISQ-RA600

- To measure large external or internal diameters
- Automatic judgment and display external or internal diameter
- Titanium arm, light in weight
- Backlight LCD display, can rotate 180° for easy reading
- Memory of 12 readings and average calculation
- With minimum and maximum measurement mode
- Angle can be displayed



external diameter measurement



internal diameter measurement



display of angle



software (included), data output, save and print

Accuracy sample by diameters

Diameter	Accuracy
500mm	±0.018mm
1000mm	±0.043mm
1500mm	±0.085mm
2000mm	±0.143mm
2500mm	±0.218mm
3000mm	±0.310mm
4000mm	±0.543mm
5000mm	±0.843mm
6000mm	±1.210mm

SPECIFICATION

Range	external	Ø500~6000mm/19.69~236.22"
	internal	Ø1100~6000mm/43.31~236.22"
Resolution	0.01mm/0.001"	
Accuracy	±(0.01+D²/30)mm (D is the diameter to be measured, in meter)	
Power supply	rechargeable battery (for 8 hours working)	
Weight	3.8kg	

STANDARD DELIVERY

Main unit	1pc
AC/DC adapter	1pc
USB cable and software	1pc

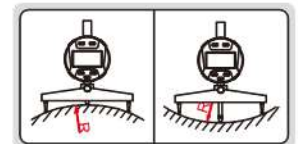
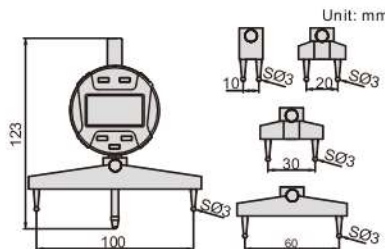
- Buttons: on/off, hold, mm/inch, s (select jaws), zero
- Measure radius of internal or external arcs
- Display can be rotated by 320°
- Supplied with 5 jaws for different sizes of arc
- Battery CR2032, automatic power off

ATTENTION: NO DATA OUTPUT



DIGITAL RADIUS GAGE

Measuring jaw	Range of radius (R)
10mm	5-11mm
20mm	11-22mm
30mm	22-83mm
60mm	83-250mm
100mm	250-910mm



2183

Code	Range of radius (R)	Resolution	Accuracy (mm)
2183	5-910mm/0.2-35.83"	0.005mm/0.00005"	±0.01R*

* R is the radius to be measured

TAPE BORE GAGES



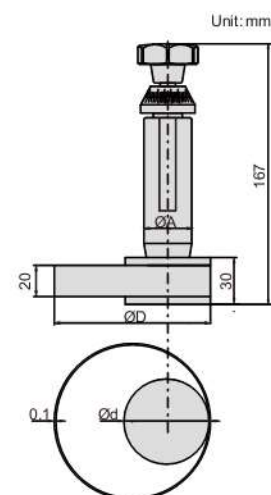
MEASURE INTERNAL DIAMETER OF FLEXIBLE MATERIALS (FOR EXAMPLE, BELT)

- Graduation: 0.1mm
- Accuracy: 0.2mm

Code	Range ØD	Ød	ØA	Measuring depth (mm)
2430-24	14-24mm	13.5	13	15-60
2430-40	22-40mm	21.5	21	15-60
2430-60	35-60mm	34.5	30.5	15-96
2430-100	55-100mm	54.5	30.5	15-106
2430-180	95-180mm	94.5	30.5	15-106
2430-255	170-255mm	169.5	30.5	15-106
2430-330	245-330mm	244.5	30.5	15-106



2430-100



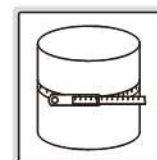
CIRCUMFERENCE TAPES

ATTENTION: BASIC MODEL

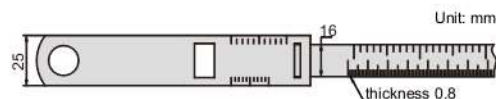
- Graduation: 0.1mm
- Measure diameter and circumference of pipes, trees, tires, etc.
- Laser engraved scale
- Made of stainless steel



7114-950



Code	Circumference range	Diameter range	Accuracy	
			Circumference	Diameter
7114-950	60-950mm	Ø20-300mm	±1.5mm	±0.5mm
7114-2200	940-2200mm	Ø300-700mm	±1.5mm	±0.5mm
7114-3460	2190-3460mm	Ø700-1100mm	±1.5mm	±0.5mm



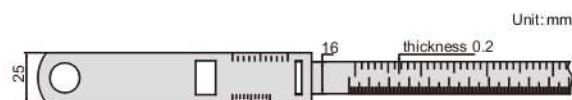
CIRCUMFERENCE TAPES



- Graduation: 0.1mm
- Measure diameter and circumference of pipes, trees, tires, etc.
- Laser engraved scale
- Made of stainless steel



7115-3460



Code	Circumference range	Diameter range	Accuracy	
			Circumference	Diameter
7115-950 *	150-950mm	Ø50-300mm	±0.60mm	±0.20mm
7115-2200	940-2200mm	Ø300-700mm	±0.60mm	±0.20mm
7115-3460	2190-3460mm	Ø700-1100mm	±0.60mm	±0.20mm
7115-4720	3450-4720mm	Ø1100-1500mm	±0.90mm	±0.30mm
7115-5980	4710-5980mm	Ø1500-1900mm	±0.90mm	±0.30mm

* When diameter range Ø50-100mm, the accuracy of circumference is ±0.90mm, diameter is ±0.30mm.

