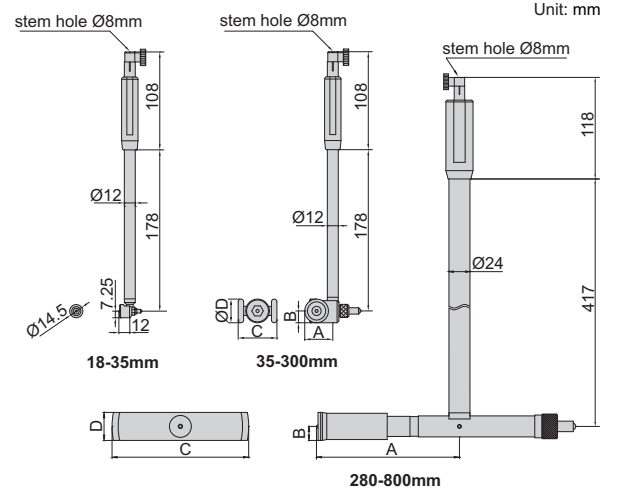


dial comparator is optional



- 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)
 - Bore gage setter

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

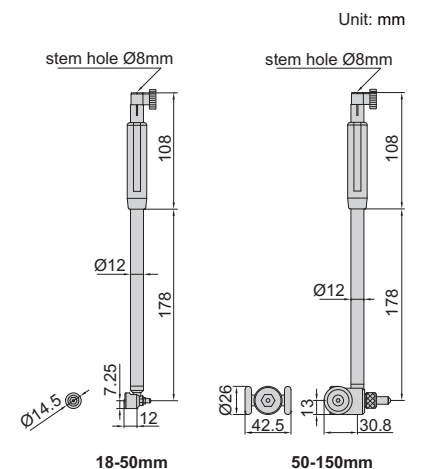
Code	A	B	C	D
2422-60	19.5mm	10.5mm	28mm	21mm
2422-150	30.8mm	13mm	42.5mm	26mm
2422-300	30.8mm	13mm	76.5mm	26mm
2422-510	164mm	16mm	156mm	32mm
2422-800	305mm	18mm	300mm	36mm

BORE GAGE SET
INSIZE PLUS
MADE IN EUROPE

dial comparator is optional



- 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)
 - Bore gage setter



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

GEAR BORE GAGES

INSIZE PLUS
MADE IN EUROPE

RELATIVE PRODUCT: INTERNAL GEAR
TOOTH MICROMETER (CODE 3638)

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

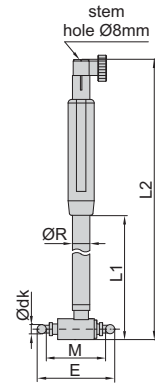
Code	Range (E)	Accuracy (without dial comparator)	Repeatability (without dial comparator)	ØR	L1	L2	Thread for ball points
2428-12	8-12mm	2µm	0.5µm	5	100	165	M1.6
2428-22	12-22mm	2µm	0.5µm	5	102	168	M1.6
2428-55	22-55mm	2µm	0.5µm	8	110	204	M2.5
2428-250	55-250mm	2µm	0.5µm	12	177	290	M4
2428-510	100-510mm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



dial comparator is optional

2428-55

ball points (optional)



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-E1	2428-B1	2428-C1	2428-C1
1.5mm	2428-A1D5	2428-E1D5	2428-B1D5	2428-C1D5	2428-C1D5
2mm	2428-A2	2428-E2	2428-B2	2428-C2	2428-C2
2.5mm	—	2428-E2D5	2428-B2D5	2428-C2D5	2428-C2D5
3mm	—	2428-E3	2428-B3	2428-C3	2428-C3
3.5mm	—	2428-E3D5	2428-B3D5	2428-C3D5	2428-C3D5
4mm	—	2428-E4	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

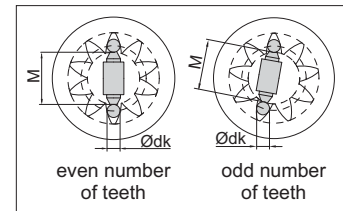
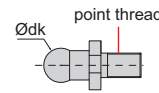


extension rod for points (included)



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-E1 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

INSIZE PLUS
MADE IN EUROPE

- 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)
 - Bore gage setter

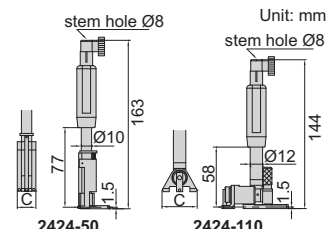


Code	Range	Accuracy (without dial indicator)	Repeatability (without dial indicator)	C
2424-50	20-50mm	4µm	1µm	18mm
2424-110	50-110mm	4µm	1µm	34mm
2424-300	110-300mm	4µm	1µm	81mm
2424-600	300-600mm	4µm	1µm	140mm

dial indicator is optional

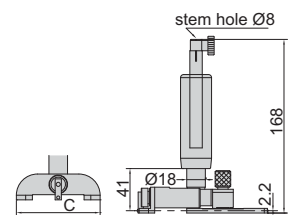


2424-300



2424-50

2424-110

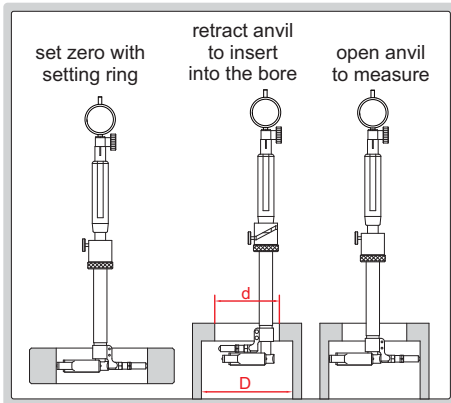


2424-300 and 2424-600



ROTARY BORE GAGE

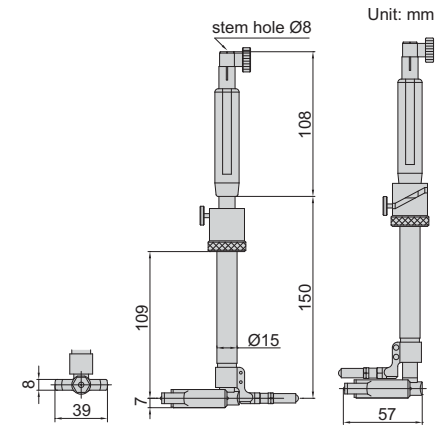
INSIZE PLUS
MADE IN EUROPE



- 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**)

dial indicator is optional

2921-150



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

* Repeatability includes the error of rotary anvil

MEASURE DIAMETER OF BORES WITH BARRIER INSIDE

ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS



application



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

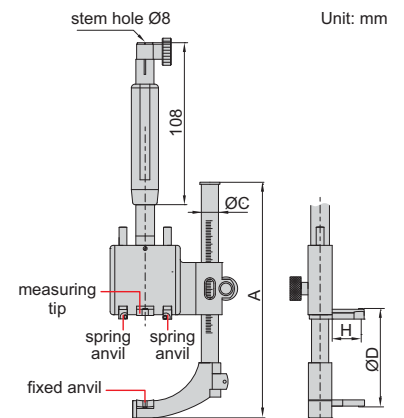
dial indicator is optional



2432-105

BORE GAGES FOR BARRIER INSIDE BORE

INSIZE PLUS
MADE IN EUROPE



(mm)

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

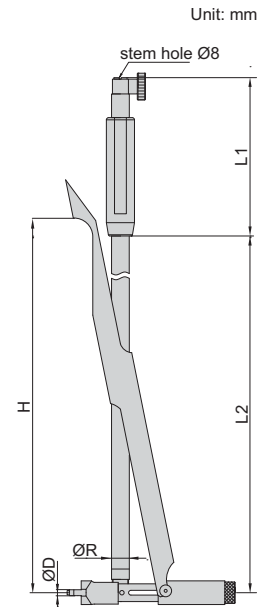
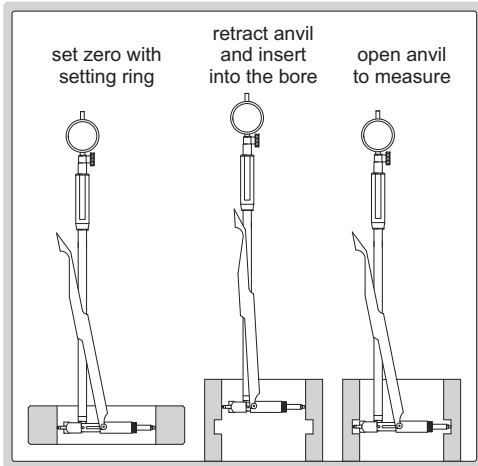
* For example, range of **2432-70** is 25-70mm, diameter of barrier is <D-6 (less than 45mm)
When measuring size is 40mm, D-6=34mm, so the maximum diameter of barrier is 34mm.
When measuring size is 60mm, D-6=54mm, however it should be less than 45mm, so the maximum diameter of barrier is 45mm.

INTERNAL GROOVE BORE GAGES

INSIZE PLUS
MADE IN EUROPE

INSPECTION CERTIFICATE
TRACEABLE TO NIST

6



- Measure diameter of internal grooves (width of groove > 3mm)
- Anvil is needed
- Optional accessory:
 - 0.01mm or 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	ØD	L1	L2
2433-120 *	60-120mm	8.5	120	2µm	1µm	10	3	85	150
2433-180 *	120-180mm	23	230	2µm	1µm	12	4	108	285
2433-300 *	180-300mm	30	280	2µm	1µm	18	4	120	245

* Supplied with manufacturer inspection certificate traceable to NIST USA

ANVIL (OPTIONAL)

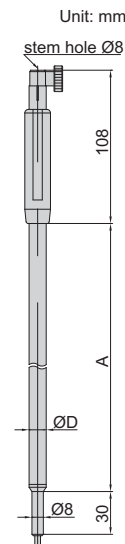
Code	Remark
2433-P□□□□	We design and make anvils according to the grooves to be measured.*

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

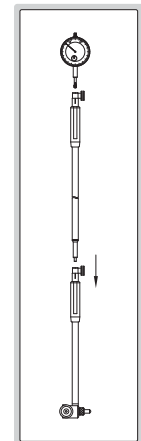
LONG HANDLES

INSIZE PLUS
MADE IN EUROPE

- To assist deep-hole measurement
- Can be used for bore gages 2422, 2428, 2423 and 2424



method of use



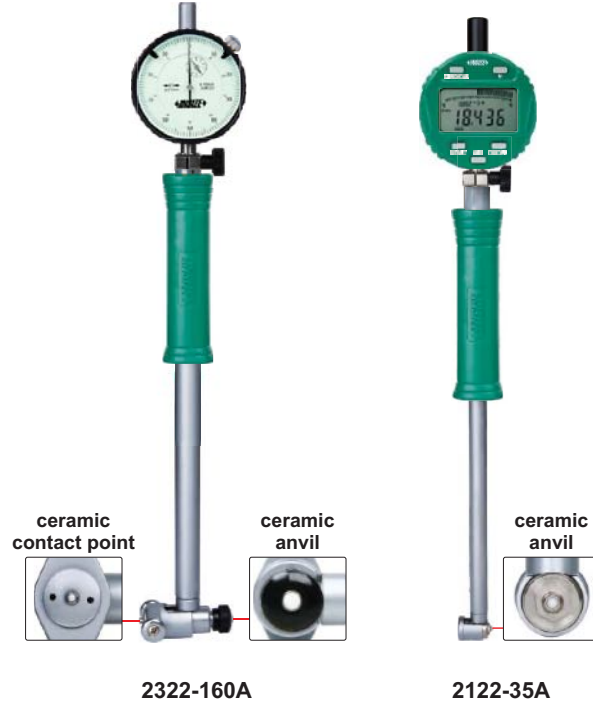
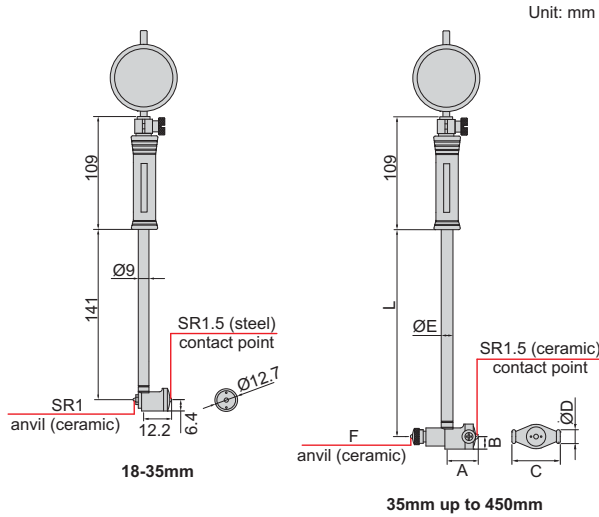
Code	Applicable bore gages	A	ØD
7352-500	above 35mm	438	12
7352-1000		938	12

ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS

DATA OUTPUT



BORE GAGES

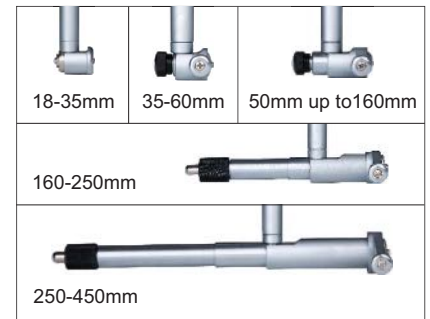


- Optional accessory: setting ring (code **6312**), long handle (code **7351**), bore gage setter

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

With dial indicator

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



With digital indicator

Code	Range	Indicator	Accuracy	Repeatability
2122-35A	18-35mm	digital indicator, code 2108-10F , range 12.7mm/0.5", resolution 0.002mm/0.0001" (can switch to: 0.01mm/0.0005")	±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

with digital indicator

Read the diameter directly, after inputting the size of setting ring.

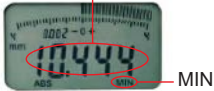
The minimum value tracking function can find the diameter automatically.

BORE GAGES FOR SMALL HOLES

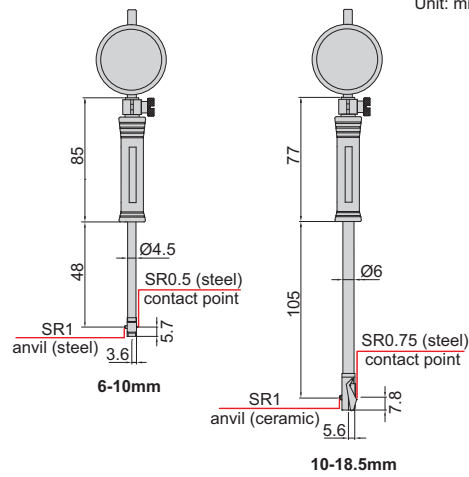
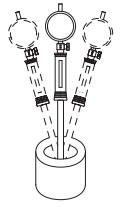
ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS

with digital indicator

Read the diameter directly, after inputting the size of setting ring.



The minimum value tracking function can find the diameter automatically.



Unit: mm

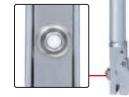


2852-10



DATA OUTPUT

ceramic anvil



2152-18



- Optional accessory: setting ring (code 6312), bore gage setter

With dial indicator

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

With digital indicator

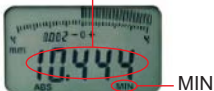
Code	Range	Indicator	Accuracy	Repeatability
2152-10	6-10mm	digital indicator, code 2108-10F, range 12.7mm/0.5", resolution 0.002mm/0.0001"	±0.012mm	0.003mm
2152-18	10-18.5mm	(can switch to: 0.01mm/0.0005")	±0.012mm	0.003mm

BORE GAGES

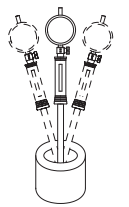
ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS

with digital indicator

Read the diameter directly, after inputting the size of setting ring.



The minimum value tracking function can find the diameter automatically.

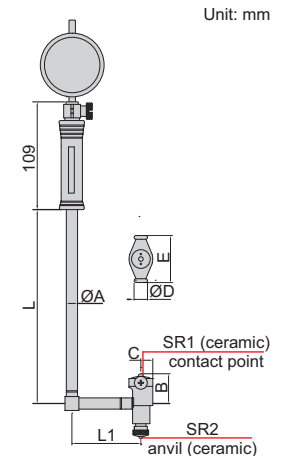


2308-10FA

2108-10F



2827-160A



Unit: mm

- Optional accessory: setting ring (code 6312), long handle (code 7351), bore gage setter

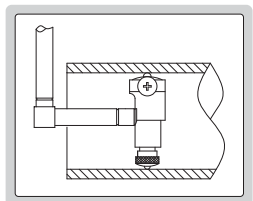
With dial indicator

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

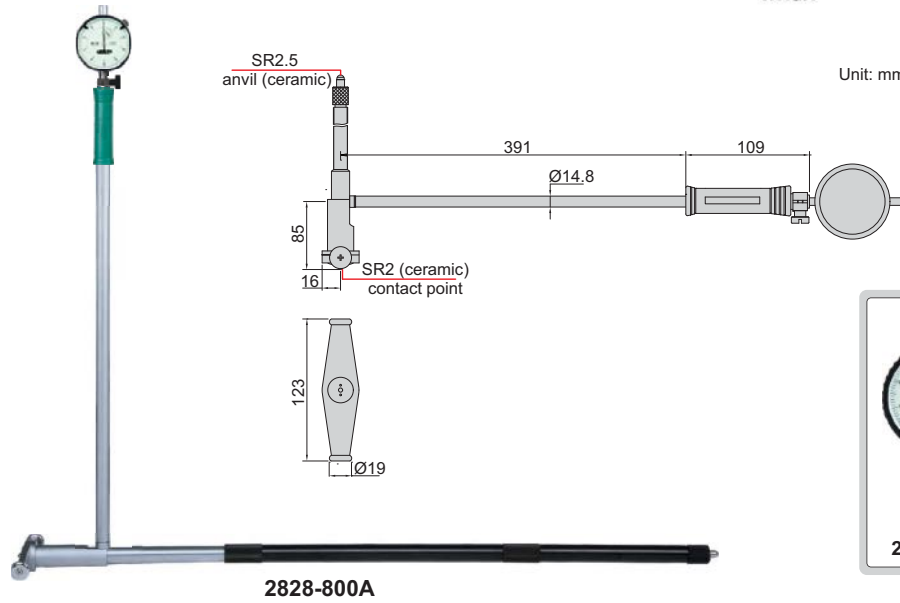
With digital indicator

Code	Range	Indicator	Accuracy	Repeatability
2127-60	35-60mm	digital indicator, code 2108-10F, range 12.7mm/0.5", resolution 0.002mm/0.0001"	±0.018mm	0.003mm
2127-160	50-160mm		±0.018mm	0.003mm
2127-250	160-250mm	(can switch to: 0.01mm/0.0005")	±0.018mm	0.003mm
2127-450	250-450mm		±0.018mm	0.003mm

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



ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS



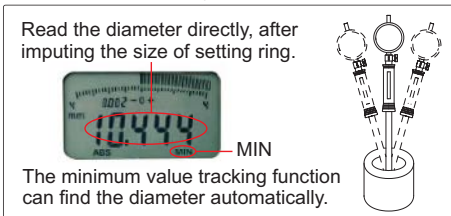
BORE GAGES



Code	Range	Indicator	Accuracy	Repeatability
2828-800A	400-800mm	dial indicator, code 2308-10FA , range 10mm, graduation 0.01mm	±0.025mm	0.003mm
2128-800A	400-800mm	digital indicator, code 2108-10F , range 12.7mm/0.5", resolution 0.002mm/0.0001" (can switch to: 0.01mm/0.0005")	±0.025mm	0.003mm



with digital indicator



ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS

BORE GAGE SETS

packaging (code **2824-S3**)



- Optional accessory: setting ring (code **6312**), long handle (code **7351**), bore gage setter

With dial indicator

Code	Range	Indicator	Bore gages included	Accuracy	Repeatability
2824-S160	35-160mm	dial indicator, code 2308-10FA , range 10mm, graduation 0.01mm	① 35-50mm (dial indicator and handle are not included) ② 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	① 18-35mm ② 35-60mm (dial indicator is not included) ③ 50-160mm (dial indicator is not included)	18-35mm ±0.015mm 35-60mm ±0.018mm 50-160mm ±0.018mm	0.003mm

With digital indicator

Code	Range	Indicator	Bore gages included	Accuracy	Repeatability
2724-S160	35-160mm	digital indicator, code 2108-10F range 12.7mm/0.5", resolution 0.002mm/0.0001" (can switch to: 0.01mm/0.0005")	① 35-50mm (digital indicator and handle are not included) ② 50-160mm	35-50mm ±0.018mm 50-160mm ±0.018mm	0.003mm
2724-S3	18-160mm	digital indicator, code 2108-10F range 12.7mm/0.5", resolution 0.002mm/0.0001" (can switch to: 0.01mm/0.0005")	① 18-35mm ② 35-60mm (digital indicator is not included) ③ 50-160mm (digital indicator is not included)	18-35mm ±0.015mm 35-60mm ±0.018mm 50-160mm ±0.018mm	0.003mm

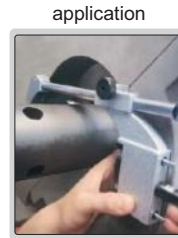
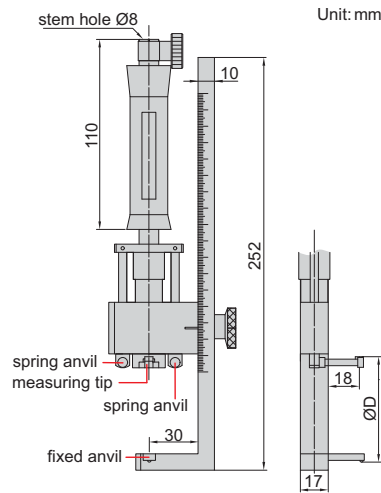
BORE GAGE FOR BARRIER INSIDE BORE

ATTENTION: NOT SUITABLE FOR 0.001MM DIAL INDICATORS

MEASURE DIAMETER OF BORES WITH BARRIER INSIDE



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



dial indicator is optional



2348-210

Code	Range ØD	Diameter of barrier Ød	Travel of measuring tip	Accuracy (without dial indicator)	Measuring force
2348-210*	40-210mm	<D-14 (less than 50mm)*	1.6	0.018	2N

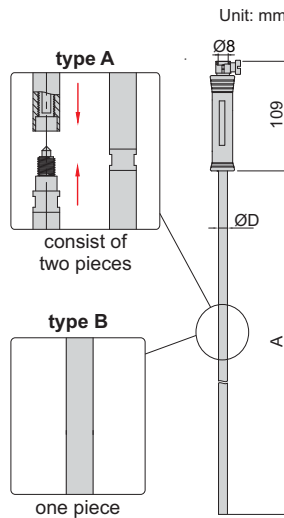
*For example:

When measuring size ØD is 40mm, D-14=26mm, so the diameter of barrier should be less than 26mm.
When measuring size ØD is 70mm, D-14=56mm, however it should be less than 50mm, so the diameter of barrier should be less than 50mm.

LONG HANDLES

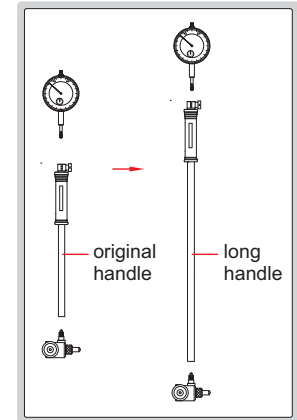
- To assist deep-hole measurement
- Can be used for bore gages 2122, 2127, 2322, 2724, 2824 and 2827

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	B
7351-EX23		1480	14.5	A
7351-EX24		1980	14.5	A



7351-EX11

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



ANVILS FOR BORE GAGES

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



7350-160

- For bore gages 2852, 2152, 2322, 2122, 2127, 2724, 2824 and 2827