

DATA  
OUTPUT

- Measure depth of small groove and hole
- Resolution: 0.01mm/0.0005"
- Buttons: on/off, set, mm/inch, preset (+,-)
- Automatic power off, move the digital unit to turn on power
- Battery CR2032
- Data output
- Made of stainless steel
- Optional accessory: data output cable (code **7306-20**, **7302-SPC5A/SPC5B**, **7305-SPC2A**)

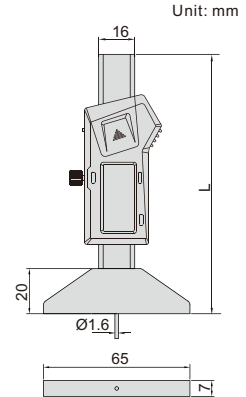
Code	Range	Accuracy	L
<b>1140-25</b>	0-25mm/0-1"	±0.02mm	114mm
<b>1140-50</b>	0-50mm/0-2"	±0.02mm	140mm



## MINI DIGITAL DEPTH GAGE WITH ROUND BAR



1140-25



DATA  
OUTPUT



1146-20A

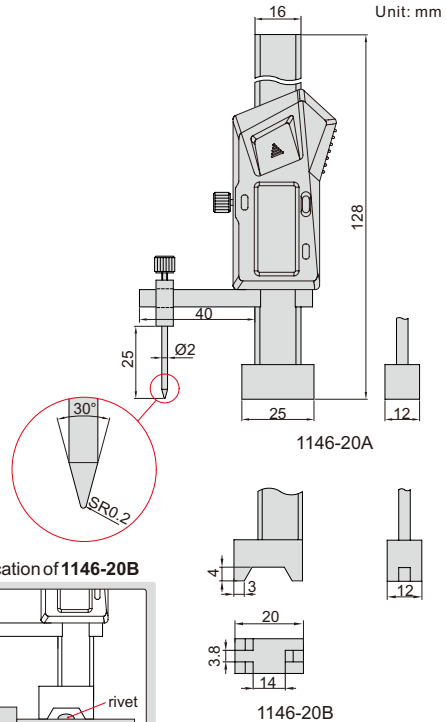


1146-20B

- Measure height difference of two surfaces (1146-20B suitable for surfaces with barrier, such as rivet)
- Resolution: 0.01mm/0.0005"
- Buttons: on/off, zero, mm/inch
- Automatic power off, move the digital unit to turn on power
- Battery CR2032
- Data output
- Made of stainless steel
- Optional accessory: data output cable (code 7306-20, 7302-SPC5A/SPC5B, 7305-SPC2A)

Code	Range	Accuracy
1146-20A	0~±20mm/0~±0.8"	±0.02mm
1146-20B	0~±20mm/0~±0.8"	±0.02mm

## MINI DIGITAL HEIGHT GAGE



# DIGITAL TAPER GAGE

ACTUAL SLOT WIDTH IS 1/10 OF THE READING

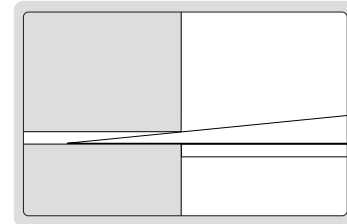
DATA OUTPUT



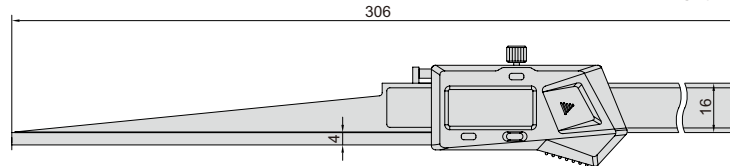
1160-10

- Measuring opening, slot width
- Resolution: 0.01mm/0.0005"
- Buttons: on/off, zero, mm/inch
- Automatic power off, move the digital unit to turn on power
- Battery CR2032
- Data output
- Made of stainless steel
- Optional accessory: data output cable(code **7306-20**, **7302-SPC5A/SPC5B**, **7305-SPC2A**)

measure slot width



Unit: mm



Code	Range	Accuracy
1160-10	0.2-10mm/0.008-0.394"	±0.03mm

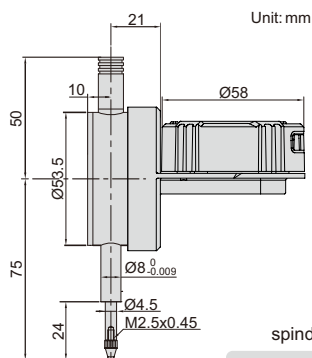
# BACK PLUNGER TYPE DIGITAL INDICATOR



DATA OUTPUT



2118-10



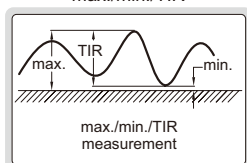
spindle lift knob is included



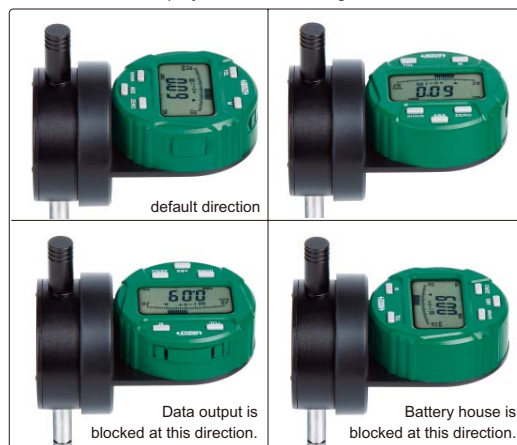
analog pointer



max./min./TIR



display direction is changeable



Remark: To change above direction, 4 fixing screws on the back of display need to be removed first.

- Display can rotate 320°, display direction is changeable
- Reading in digit and analog
- Button function: tolerance Go and No-Go display, data preset, measuring direction change, max./min./TIR measurement, inch/metric conversion, absolute/incremental measurement
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable (code **7306-40**, **7302-SPC3A**, **7305-SPC1A**), backs, contact points

display can rotate 320°



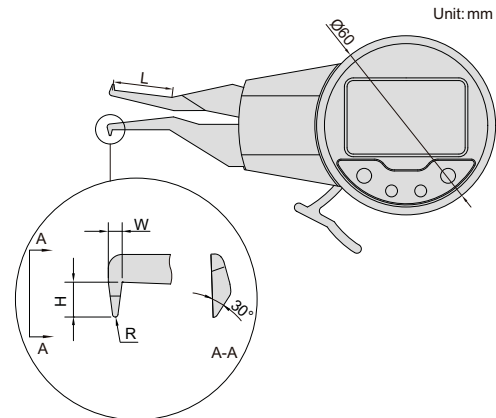
Code	Range	Resolution	Accuracy	Hysteresis	Remark
2118-10*	12.7mm/0.5"	0.01mm/0.0005"	20µm	10µm	flat back
2118-101*	12.7mm/0.5"	0.001mm/0.00005"	5µm	2µm	flat back

\* Supplied with manufacturer inspection certificate traceable to NIST USA

# DIGITAL INTERNAL CALIPER GAGES

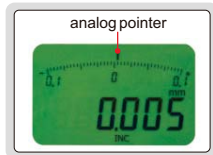


2121-15

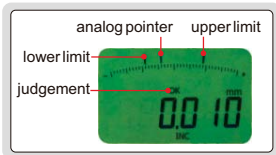


Unit: mm

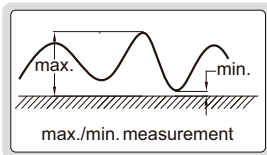
analog pointer



tolerance display



max./min.



(mm)

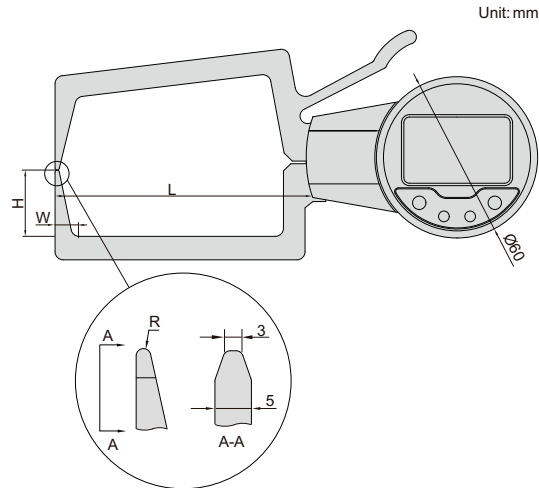
Code	Range	Accuracy	Repeatability	L	H	W	R
2121-15	5-15mm/0.2-0.6"	±0.03mm	0.01mm	20	2	1.5	R0.3
2121-25	5-25mm/0.2-1.0"	±0.03mm	0.01mm	35	1.5	1.0	R0.3
2121-31	10-30mm/0.4-1.2"	±0.03mm	0.01mm	55	5.5	2.5	R0.5
2121-41	20-40mm/0.8-1.6"	±0.03mm	0.01mm	80	6.0	3.0	R0.5
2121-51	30-50mm/1.2-2.0"	±0.03mm	0.01mm	80	8.0	3.0	R0.5
2121-61	40-60mm/1.6-2.4"	±0.03mm	0.01mm	80	8.0	3.0	R0.5

- Resolution: 0.005mm/0.0002"
- Reading in digit and analog
- Display can be rotated by 170°
- Button function: tolerance Go and No-Go display, data preset, max./min. measurement, data holding, inch/metric conversion, absolute/incremental measurement
- CR2032 battery, automatic power off
- Data output

# DIGITAL EXTERNAL CALIPER GAGES



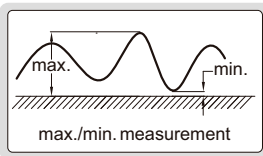
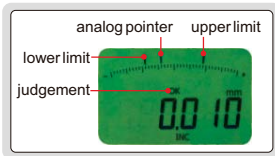
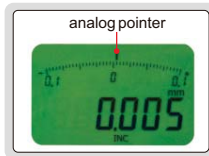
2131-21



analog pointer

tolerance display

max./min.



- Resolution: 0.005mm/0.0002"
- Reading in digit and analog
- Display can be rotated by 170°
- Button function:
  - tolerance Go and No-Go display,
  - data preset, max./min. measurement,
  - data holding, inch/metric conversion,
  - absolute/incremental measurement
- CR2032 battery, automatic power off
- Data output

(mm)

Code	Range	Accuracy	Repeatability	L	H	W	R
2131-21	0-20mm/0-0.8"	±0.03mm	0.01mm	80	25	6.5	R0.5
2131-31	10-30mm/0.4-1.2"	±0.03mm	0.01mm	80	25	6.5	R0.5
2131-41	20-40mm/0.8-1.6"	±0.03mm	0.01mm	80	25	6.5	R0.5
2131-51	30-50mm/1.2-2.0"	±0.03mm	0.01mm	80	25	6.5	R0.5
2131-61	40-60mm/1.6-2.4"	±0.03mm	0.01mm	80	25	6.5	R0.5

# WATERPROOF DIGITAL PROTRACTOR (HEAVY DUTY)

**IP54**  
WATERPROOF

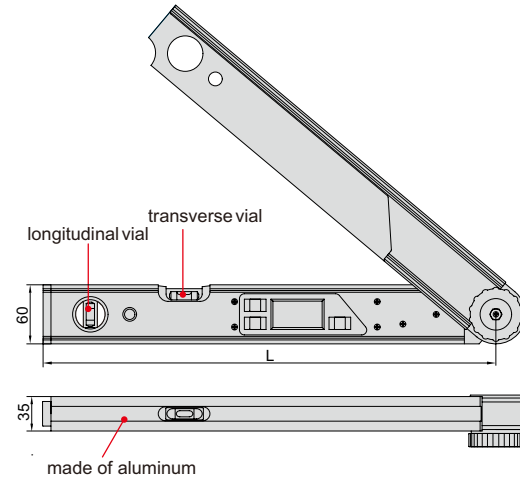
**ABSOLUTE**  
LEVEL

**AUTOMATIC**  
BACKLIGHT

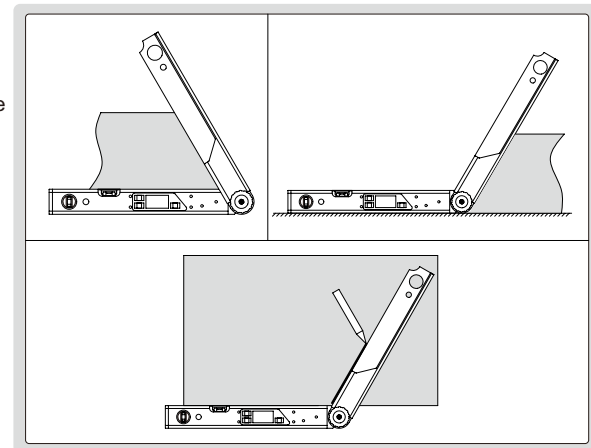
Unit: mm



**2174-225**



- Suitable for setting horizontal and vertical mitre angles of cutting machine
- Buttons: ON/OFF, HOLD/SUP, SPR/CNR/MTR/BVL
- IP54 dust/waterproof
- With transverse and longitudinal vials
- 2xAAA batteries
- Absolute level, zero setting is not needed when batteries are replaced
- Backlight will turn off in one minute after no data changing, automatic power off in 5 minutes



Code	Size (L)	Range	Resolution	Accuracy
2174-225	460mm	0 - 225°	0.05°	±0.10°

# DIGITAL LEVEL AND PROTRACTOR

**IP67**  
WATERPROOF

**ABSOLUTE**  
LEVEL

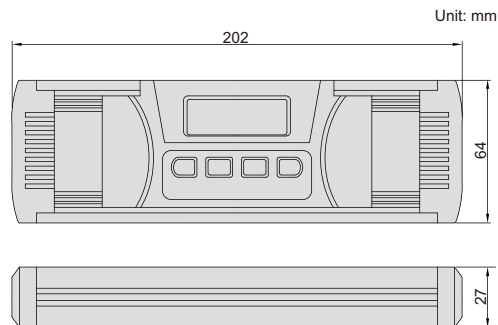
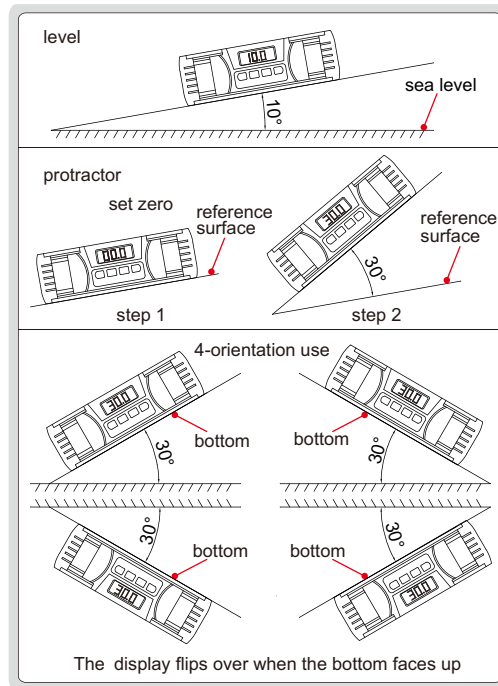
**BACKLIGHT**

**Buzzer Alarm**  
AT 0° AND 90°



2175-360

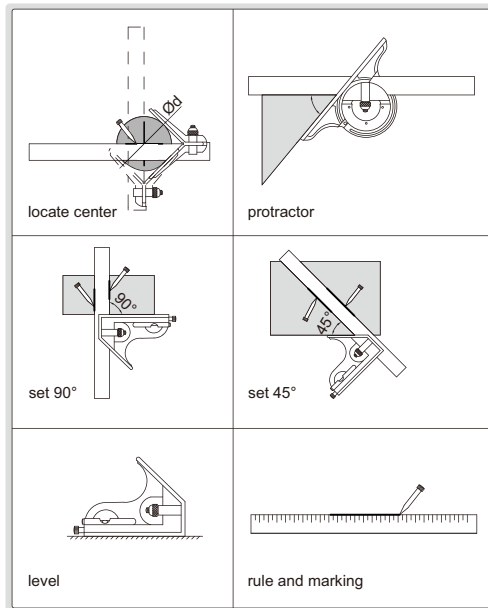
- IP67 dust/waterproof
- Aluminum frame, shock absorbing rubber end caps
- Magnetic bottom with V-groove for shafts
- The sea level is permanently set inside the chip, zero setting is not needed when batteries are replaced
- Buttons: ON/OFF, backlight/buzzer alarm, absolute and incremental measurement, unit (mm/m, %, °), HOLD (keep the reading)
- Three AAA batteries
- Automatic power off



Code	Range	Resolution	Accuracy
2175-360	0~360° (90°x4)	0.05° (=0.873mm/m)	0°: ±0.05°; others: ±0.1°



## COMBINATION SQUARE SET



- Center head (made of cast iron):  
To locate center of cylinder with diameter ( $\varnothing$ d): 30 - 100mm  
Accuracy:  $\pm 0.15$ mm
- Protractor head (made of cast iron):  
To set the blade at desired angle to an edge of a workpiece, and can be used to measure angles  
Range: 0-180°  
Accuracy:  $\pm 7$ min.
- Square head (made of cast iron):  
To set the blade at 90° or 45° to an edge of a workpiece  
Accuracy:  $\pm 8$ min for 90° square,  $\pm 10$ min for 45° square
- Blade (made of stainless steel):  
Range: 300mm/12",  
Graduation: 0.5mm and 1/32" on front face, 1mm and 1/64" on back face
- Optional accessory: rigid rule (code 7113)

Code	Remark
2278-2	2-piece set
2278-3	3-piece set
2278-180	4-piece set



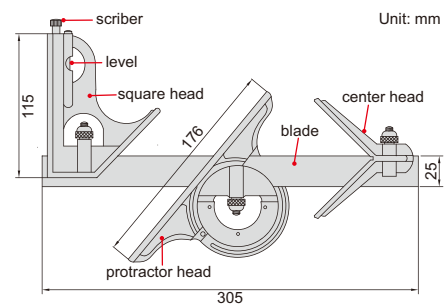
2278-2



2278-3



2278-180



# WATERPROOF DIAL INDICATORS

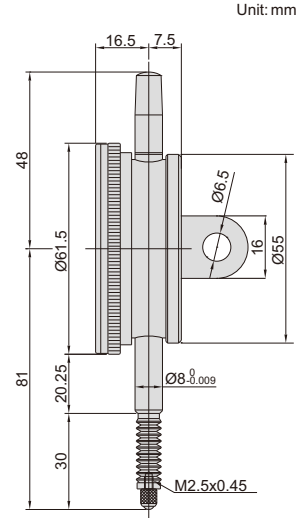
**IP54**  
WATERPROOF

**INSPECTION  
CERTIFICATE**  
TRACEABLE TO NIST



2324-10A

- Meet DIN878
- IP54 dust/waterproof
- With limit pointers
- Optional accessory: back, contact points



Code	Range	Graduation	Accuracy	Hysteresis	Range/rev	Dial reading	Remark
2324-10FA*	10mm	0.01mm	17µm	3µm	1mm	0-100	flat back
2324-10A*	10mm	0.01mm	17µm	3µm	1mm	0-100	lug back

\*Supplied with manufacturer inspection certificate traceable to NIST USA

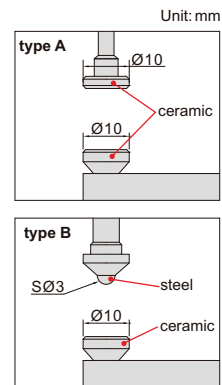
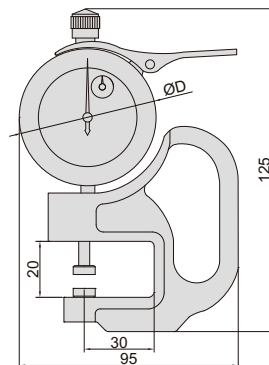
## THICKNESS GAGES



2364-10



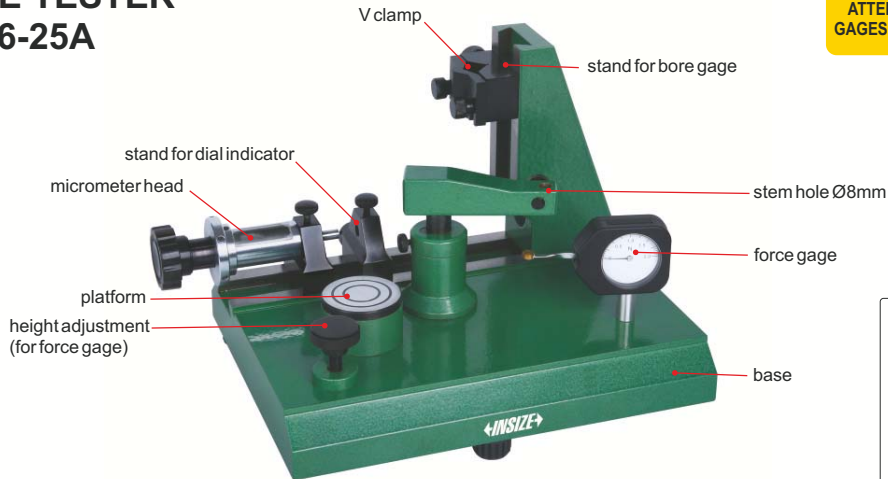
2364-1



Code	Range	Graduation	Accuracy	Type	ØD
2364-10	0-10mm	0.01mm	±0.02mm	A	58mm
2364-10B	0-10mm	0.01mm	±0.02mm	B	58mm
2364-1	0-1mm	0.001mm	±0.005mm	A	56mm

# DIAL GAGE TESTER CODE 2396-25A

ATTENTION: NOT SUITABLE FOR GAGES WITH GRADUATION 0.001MM



2396-25A



### Micrometer head

Range	Sampling interval	Accuracy	Hysteresis
0-25mm	0.1mm	4µm(0-25mm), 3µm(0-10mm), 2µm(0-1mm)	1µm

### Force gage

Range	Graduation	Accuracy
0-1.6N	0.05N	±5%(of load capacity)

### Platform

Diameter	Flatness	Roughness
50mm	1µm	0.05µm

### Half round gage block(optional)

Code	Parallelism
2396-block	1µm

- To calibrate dial indicators, test indicators and dial bore gages
- Dimension: 270x210x205mm
- Weight: 11kg



Inspect accuracy of dial indicators(range 0-25mm)



Inspect accuracy of dial bore gages (range 6-450mm)



Inspect accuracy of test indicators



Test force of dial indicators



Test repeatability of dial indicators



Test the effect of lateral force on accuracy of dial indicators (half round gage block is required)



Test the effect of lateral force on accuracy of test indicators (half round gage block is required)

# LARGE RANGE BACK PLUNGER TYPE DIAL TEST INDICATOR

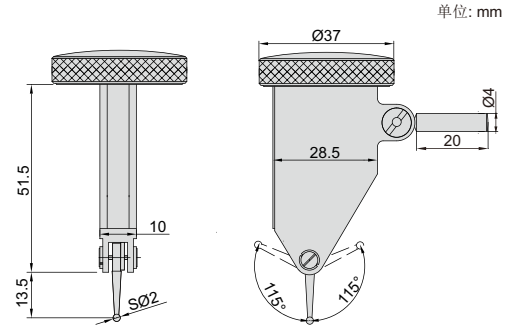
**INSPECTION  
CERTIFICATE**  
TRACEABLE TO NIST

JEWELLED  
BEARING

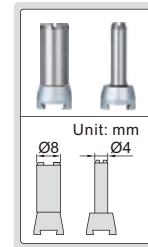


2480-16

- Dial Reading: 0-40-0
- Jeweled bearing
- Carbide contact point
- Two measuring directions
- Anti magnetic body
- Supplied with two clamps:  
diameter Ø4mm and Ø8mm
- Optional accessory: styli



clamp (included)



Code	Range	Graduation	Accuracy	Hysteresis
2480-16*	1.6mm	0.01mm	18µm	3µm

\* Supplied with manufacturer inspection certificate traceable to NIST USA

## BORE GAGE SETS

ATTENTION: NOT SUITABLE  
FOR 0.001MM DIAL INDICATORS

- Optional accessory:  
setting ring (code 6312)



2824-S160



2824-S3

packaging (code 2824-S3)



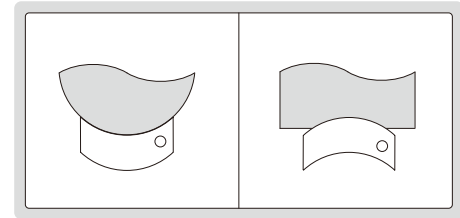
Code	Range	Indicator	Bore gages included	Accuracy	Repeatability
2824-S160	35-160mm	dial indicator, code 2308-10FA range 10mm, graduation 0.01mm	① 35-50mm (dial indicator and handle are not included) ② 50-160mm	35-50mm $\pm 0.018$ mm 50-160mm $\pm 0.018$ mm	0.003mm
2824-S3	18-160mm	dial indicator, code 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 $\pm 0.015$ mm 35-60mm $\pm 0.018$ mm 50-160mm $\pm 0.018$ mm	0.003mm

## RADIUS GAGE



**4802-31**

- Made of stainless steel

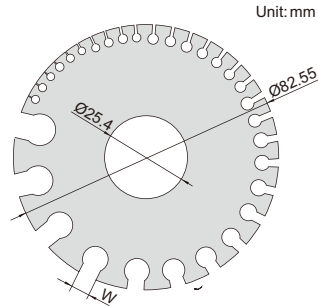


Code	Range	Radius of leaves included (mm)	Quantity of leaves	Accuracy
<b>4802-31</b>	25-40mm	25, 25.5, 26, 26.5, 27, 27.5, 28, 28.5, 29, 29.5, 30, 30.5, 31, 31.5, 32, 32.5, 33, 33.5, 34, 34.5, 35, 35.5, 36, 36.5, 37, 37.5, 38, 38.5, 39, 39.5, 40	31pcs	±0.06mm

# AMERICAN STANDARD WIRE GAGE

- For gaging non-ferrous wire and metals such as copper, brass and aluminum
- Hardened and satin chrome finish

Code	Range
4808	0-36 (8.250-0.127mm/.3249-.0050")



4808

No.	W
0	8.250mm (.3249")
1	7.350mm (.2893")
2	6.540mm (.2576")
3	5.830mm (.2294")
4	5.190mm (.2043")
5	4.620mm (.1819")
6	4.110mm (.1620")
7	3.670mm (.1443")

No.	W
8	3.260mm (.1285")
9	2.910mm (.1144")
10	2.590mm (.1019")
11	2.300mm (.0907")
12	2.050mm (.0808")
13	1.820mm (.0720")
14	1.630mm (.0641")
15	1.450mm (.0571")

No.	W
16	1.290mm (.0508")
17	1.150mm (.0453")
18	1.020mm (.0403")
19	0.912mm (.0359")
20	0.813mm (.0320")
21	0.724mm (.0285")
22	0.643mm (.0253")
23	0.574mm (.0226")

No.	W
24	0.511mm (.0201")
25	0.440mm (.0179")
26	0.404mm (.0159")
27	0.361mm (.0142")
28	0.320mm (.0126")
29	0.287mm (.0113")
30	0.254mm (.0100")
31	0.226mm (.0089")

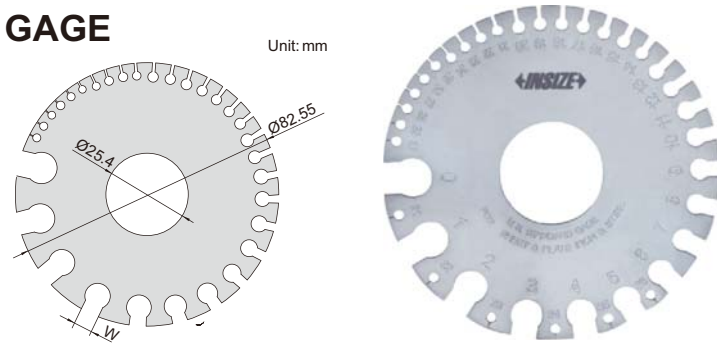
No.	W
32	0.203mm (.0080")
33	0.180mm (.0071")
34	0.160mm (.0063")
35	0.142mm (.0056")
36	0.127mm (.0050")



# U.S. STANDARD SHEET METAL GAGE

- For gaging sheet metal, plate iron and steel
- Hardened and satin chrome finish

Code	Range
4809	0-36 (7.938-0.179mm/.3125-.0070")



Unit: mm

4809

No.	W
0	7.938mm (.3125")
1	7.144mm (.2813")
2	6.747mm (.2656")
3	6.350mm (.2500")
4	5.953mm (.2344")
5	5.556mm (.2188")
6	5.159mm (.2031")
7	4.763mm (.1875")

No.	W
8	4.366mm (.1719")
9	3.969mm (.1563")
10	3.572mm (.1406")
11	3.175mm (.1250")
12	2.778mm (.1094")
13	2.381mm (.0938")
14	1.984mm (.0781")
15	1.786mm (.0703")

No.	W
16	1.588mm (.0625")
17	1.429mm (.0563")
18	1.270mm (.0500")
19	1.111mm (.0438")
20	0.953mm (.0375")
21	0.873mm (.0344")
22	0.794mm (.0313")
23	0.714mm (.0281")

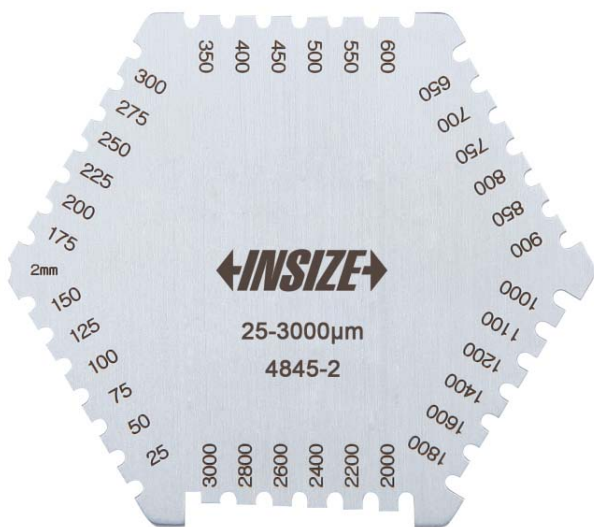
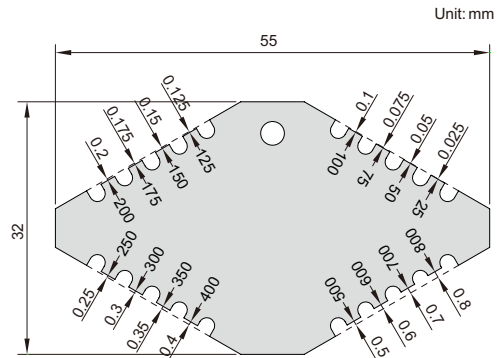
No.	W
24	0.635mm (.0250")
25	0.556mm (.0219")
26	0.476mm (.0188")
27	0.437mm (.0172")
28	0.397mm (.0156")
29	0.357mm (.0141")
30	0.318mm (.0125")
31	0.278mm (.0109")

No.	W
32	0.258mm (.0102")
33	0.238mm (.0094")
34	0.218mm (.0086")
35	0.198mm (.0078")
36	0.179mm (.0070")

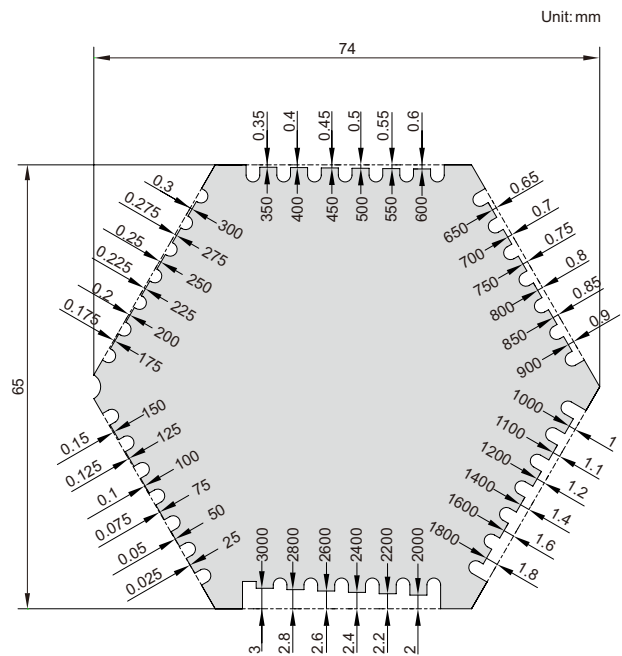
# WET FILM GAGE



4845-1



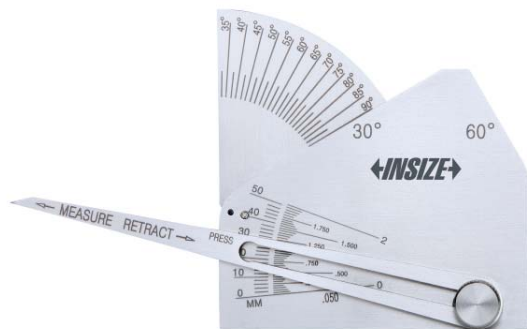
4845-2



- Made of stainless steel

Code	Range	Accuracy	Thickness
4845-1	25-800µm	±5µm	1.8mm
4845-2	25-3000µm	25-100µm: ±5µm 100µm-3000µm: ±5%	1mm

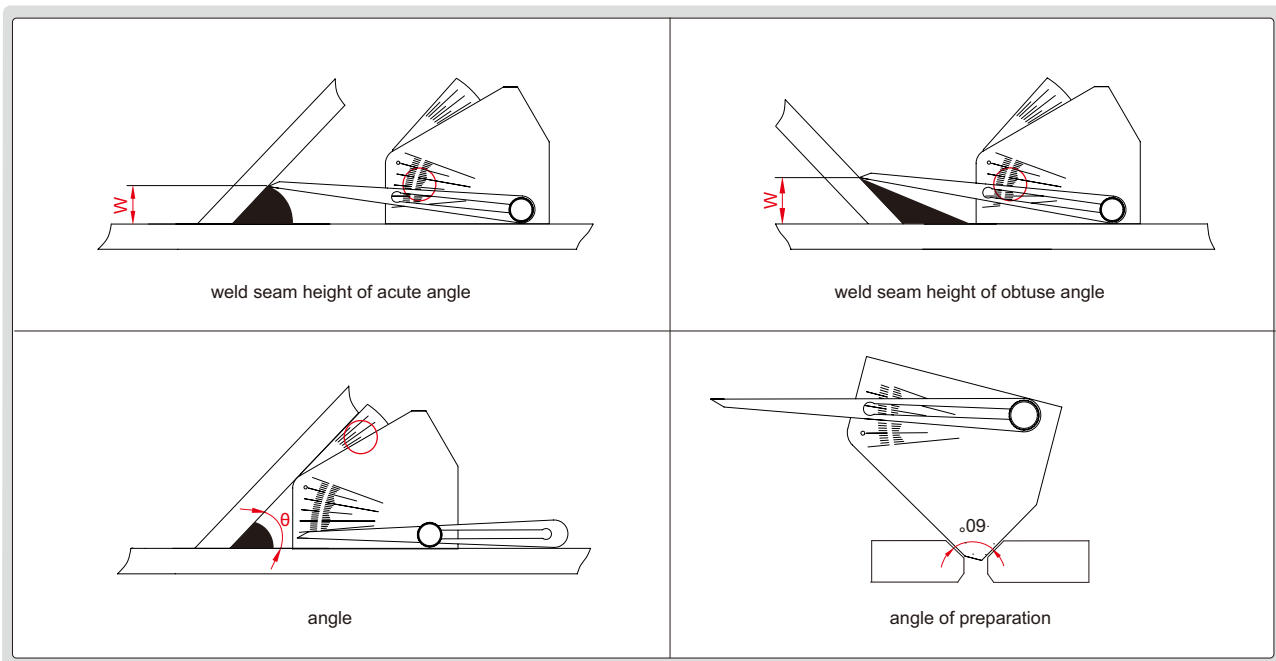
# FILLET WELDING GAGE



4846-1

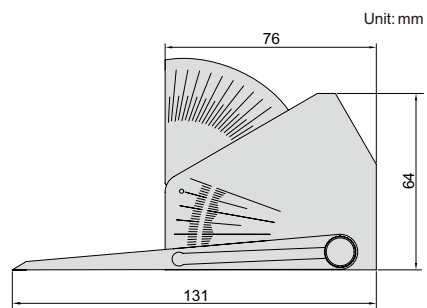
calculating card (included)

measure weld seam height  $W$  and angle  $\theta$ , calculate theoretical throat size  $t_e$  and leg height  $L_2$  according to  $W$  and  $\theta$ .



- Calculating card is included
- Made of stainless steel

Code	Measurement	Range	Graduation	Accuracy
4846-1	weld seam height $W$	0 - 50mm / 0-2"	2mm/.050"	$\pm 1$ mm
	angle $\theta$	30° - 90°	2.5°	$\pm 1^\circ$
	60° angle	—	—	$\pm 0.5^\circ$



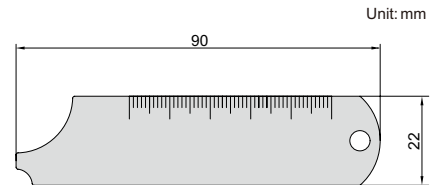
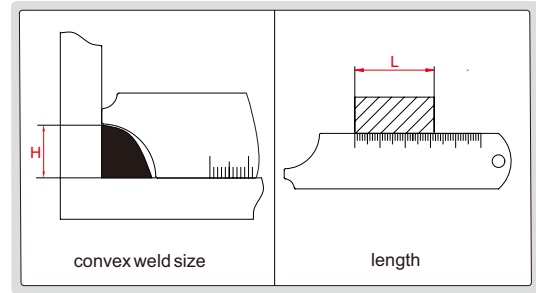
# FILLET WELDING GAGE



4847-1

- Measure convex weld sizes
- 3 blades are included
- Made of stainless steel

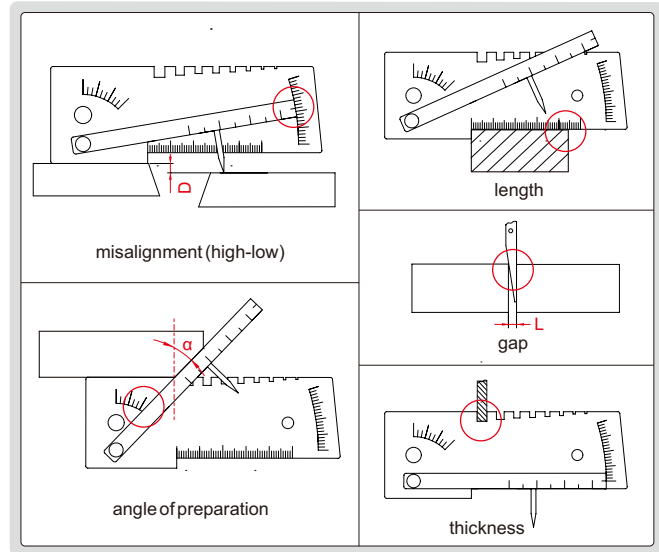
Code	Measurement	Range	Graduation	Accuracy
4847-1	convex weld size	4, 6, 8, 10, 12, 14mm	—	±0.5mm
	length	0 - 50mm	1mm	±0.5mm



# WELDING GAGE



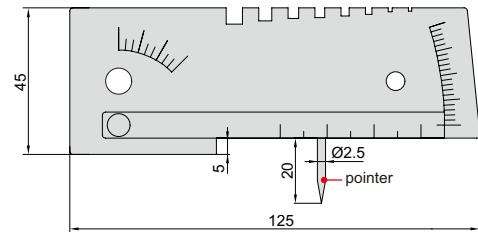
4848-1



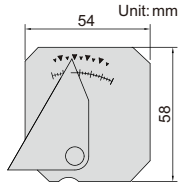
- Made of stainless steel

Unit: mm

Code	Measurement	Range	Graduation	Accuracy
4848-1	misalignment (high-low)	-5mm ~ +15mm	1mm	±0.5mm
	angle of preparation	0° - 45°	5°	±2.5°
	length	0 - 50mm	1mm	±0.5mm
	gap	1 - 4mm	0.5mm	±0.25mm
	thickness	1, 1.2, 2.0, 2.5, 3.0, 3.25, 4.0, 5.0mm	—	±0.1mm

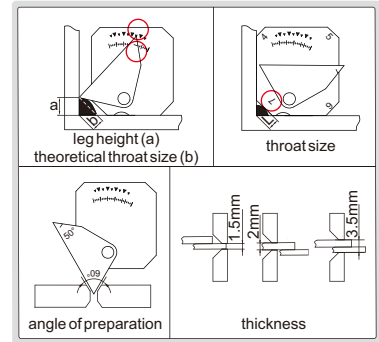


# WELDING GAGE



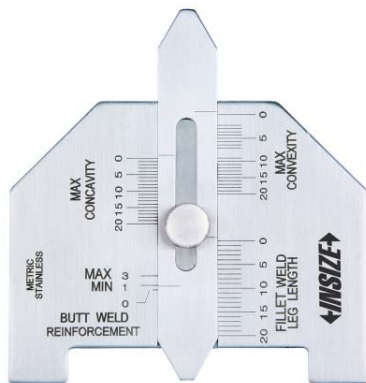
4850-1

- Made of stainless steel



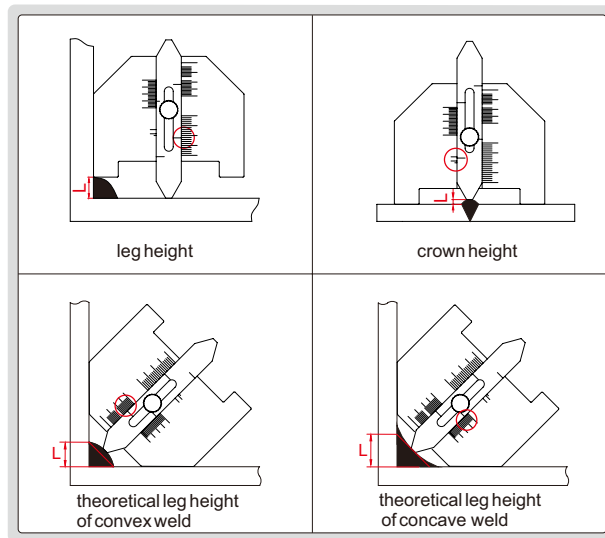
Code	Measurement	Range	Graduation	Accuracy
4850-1	leg height (a)	2-12mm	1mm	±0.5mm
	theoretical throat size (b)	0-18mm	1mm	±0.5mm
	throat size	4, 5, 6, 7mm	—	±0.5mm
	angle of preparation	50°, 60°	—	±1°
	thickness	1.5, 2, 3.5mm	—	±0.2mm

# WELDING GAGE

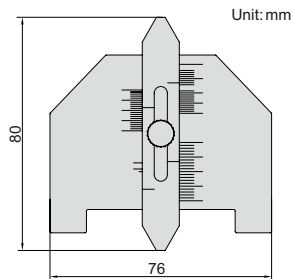


4851-1

- Made of stainless steel

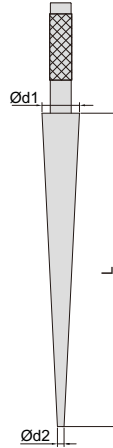


Code	Measurement	Range	Graduation	Accuracy
4851-1	leg height	0-20mm	1mm	±0.5mm
	crown height	0-3mm	—	±0.5mm
	theoretical leg height of convex weld	0-20mm	1mm	±0.5mm
	theoretical leg height of concave weld	0-20mm	1mm	±0.5mm



## TAPER BORE GAGES

- Quick measurement of bore diameter
- Hardened carbon steel, HRC50-58
- Satin chrome plated surface
- Aluminium oxidized handle



(mm)

Code	Range	Graduation	Accuracy	L	$\varnothing d1$	$\varnothing d2$
4852-1	1-6.5mm	0.1mm	$\pm 0.05\text{mm}$	62.5	7	0.8
4852-3	3-16mm	0.1mm	$\pm 0.05\text{mm}$	143	17	2.8
4852-15	15-30mm	0.1mm	$\pm 0.05\text{mm}$	165	31	14.7
4852-30	30-45mm	0.1mm	$\pm 0.05\text{mm}$	165	46	29.6



4852-3



## GEAR TOOTH PITCH GAGES



**4860-245**

- Check the module pitch of gear tooth
- Accuracy:  $\pm 0.05\text{mm}$
- Made of hardened stainless steel

Code	Range	Pressure angle	Quantity of leaves
4860-145	0.35-4.5mm	14.5°	16
4860-245	0.35-4.5mm	20°	16
4860-112	5-12mm	14.5°	8
4860-212	5-12mm	20°	8

