

Precision Measuring Instruments

High-quality, innovative tools that measure up



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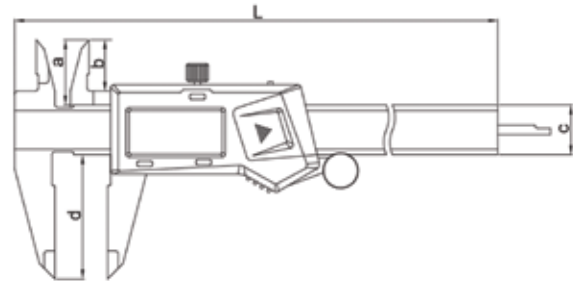
CALIPERS

Electronic Caliper



1108-150

- Resolution: 0.0005"/ 0.01mm
- Buttons: zero set, power on/off, inch/mm conversion
- Automatic power off, move the digital unit to turn on power
- Battery CR2032
- Meets DIN862 standard, stainless steel construction
- Data output via USB (sold separately)
- Supplied in fitted storage case



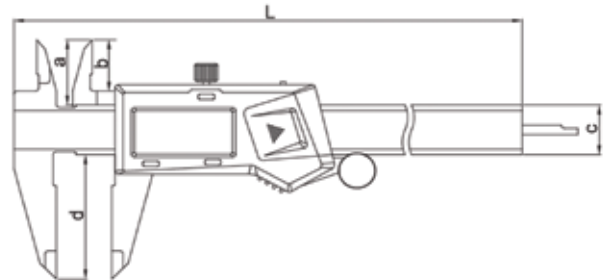
PART NUMBER	RANGE	ACCURACY	L	a	b	c	d
1108-150	0-6" / 0-150mm	±.0012"	9.291"	.827"	.630"	.630"	1.575"
1108-200	0-8" / 0-200mm		11.260"	.945"	.748"	.630"	1.969"
1108-300	0-12" / 0-300mm		15.748"	.948"	.807"	.669"	2.362"

Electronic Caliper



1102-150

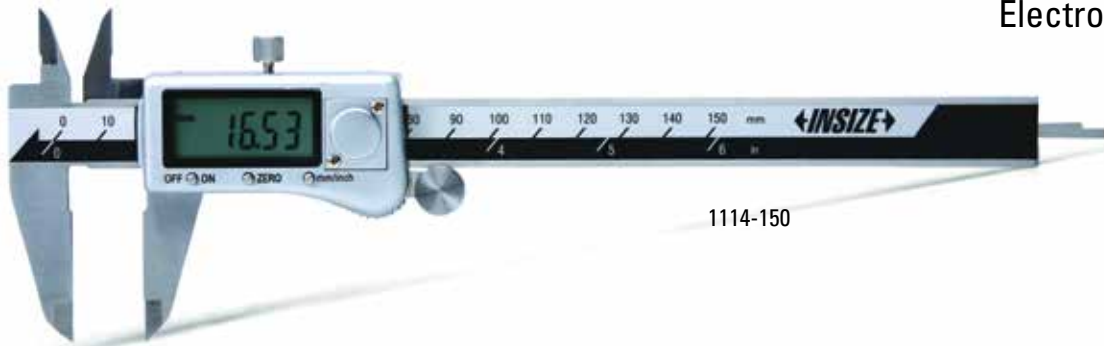
- Resolution: 0.01mm, 0.0005", 1/128"
- Buttons: unit (mm/in/fraction), ABS, on/off, zero
- Absolute and incremental measurement
- Battery CR2032, automatic power off
- Meets DIN862 standard, stainless steel construction
- Data output via SPC cable (sold separately)
- Supplied in fitted storage case



PART NUMBER	RANGE	ACCURACY	L	a	b	c	d
1102-150	0-6" / 0-150mm	±.0012"	9.213"	.827"	.650"	.630"	1.575"
1102-200	0-8" / 0-200mm		11.260"	.945"	.748"		1.969"
1102-300	0-12" / 0-300mm		15.354"	1.024"	.846"		2.362"

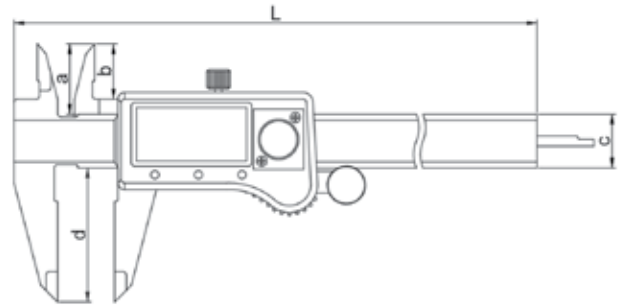
CALIPERS

Electronic Caliper



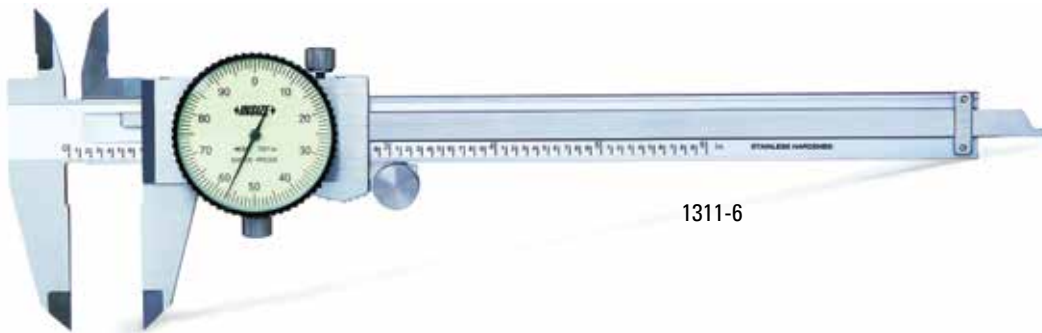
1114-150

- Resolution: 0.01mm, 0.0005", 1/128"
- Buttons: unit (mm/in/fraction), ABS, on/off, zero
- Absolute and incremental measurement
- Battery CR2032, automatic power off
- Meets DIN862 standard, stainless steel construction
- Data output via SPC cable (sold separately)
- Supplied in fitted storage case



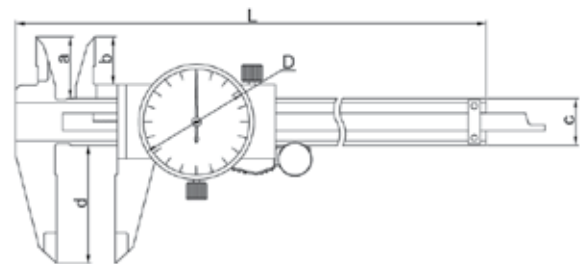
PART NUMBER	RANGE	ACCURACY	L	a	b	c	d
1114-150	0-6" / 0-150mm	±.0012"	9.291"	.827"	.630"	.630"	1.575"
1114-200	0-8" / 0-200mm		11.260"	.945"	.748"		1.969"
1114-300	0-12" / 0-300mm		15.748"	.948"	.807"	.669"	2.362"

Dial Caliper



1311-6

- Shockproof dial indicator
- Made of stainless steel
- Supplied in fitted storage case



PART NUMBER	RANGE	ACCURACY	L	a	b	c	d	D
1311-6	0-6" / 0-150mm	±.0015"	9.173"	.827"	.630"	.630"	1.575"	1.535" DIA
1311-8	0-8" / 0-200mm	±.002"	11.339"	.945"	.748"		1.969"	
1311-12	0-12" / 0-300mm		15.354"	.768"	.669"	2.520"		

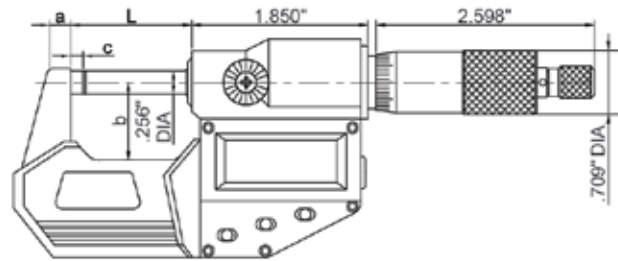
MICROMETERS

Electric Outside Micrometer



3101-25E

- Resolution: .00005" / 0.001mm
- IP65 dust/coolant proof
- Button functions: on/off, set, inch/mm, ABS/INC, data output
- Battery SR44 or LR44, automatic power off
- Ratchet stop
- Supplied with spherical anvil
- Data output via SPC cable (sold separately)
- Supplied in fitted storage case



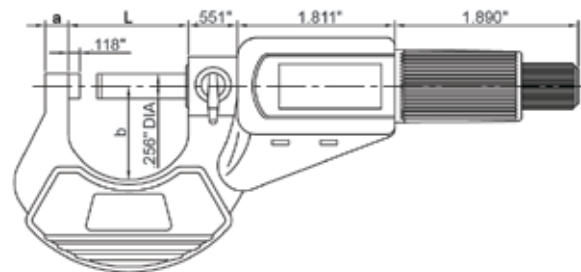
PART NUMBER	RANGE	ACCURACY	L	a	b	c
3101-25E	0-1" / 0-25mm	±.00008"	1.280"	.236"	.945"	.118"

Electric Outside Micrometer



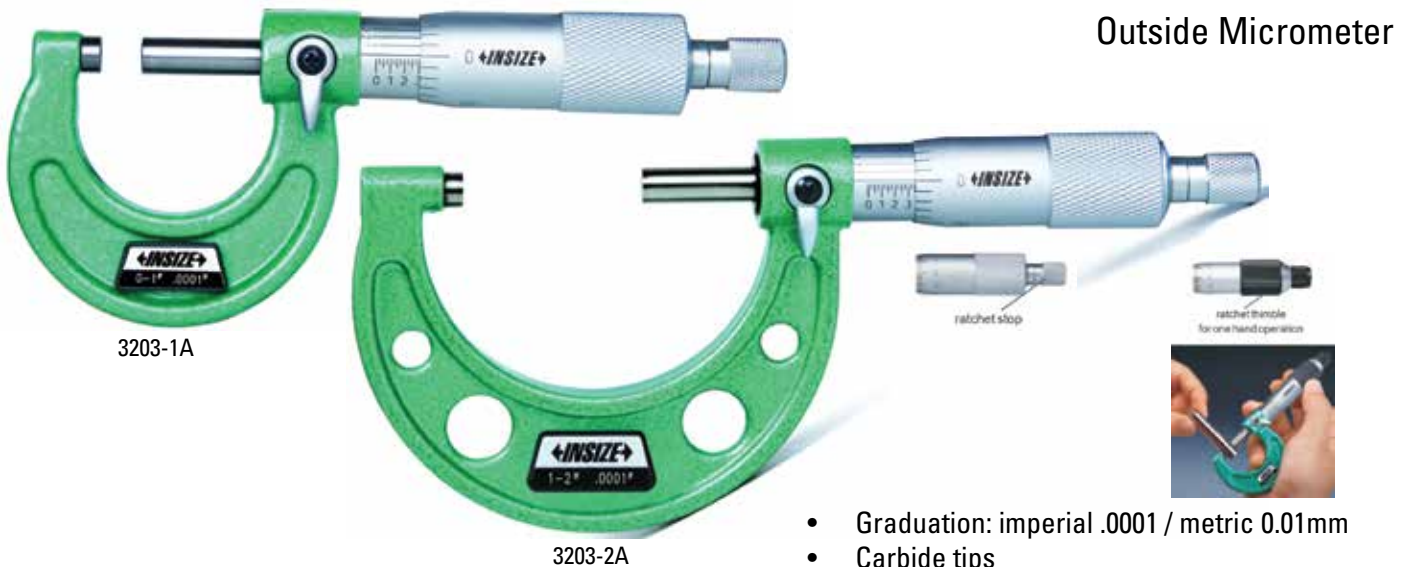
3109-25E

- Resolution: .00005" / 0.001mm
- IP65 dust/coolant proof
- Button functions: on/off, set, inch/mm, ABS/INC, data output
- Battery SR44 or LR44, automatic power off
- Ratchet stop
- Supplied with spherical anvil
- Data output via SPC cable (sold separately)
- Supplied in fitted storage case



PART NUMBER	RANGE	ACCURACY	L	a	b
3109-25E	0-1" / 0-25mm	±.00008"	1.260"	.236"	1.083"

MICROMETERS



- Graduation: imperial .0001 / metric 0.01mm
- Carbide tips
- 3202-2A supplied with setting standards
- Supplied in fitted storage case

Imperial (ratchet stop type)

PART NUMBER	RANGE	ACCURACY	L	a	b
3203-1	0-1"	.00016"	1.260"	.354"	1.102"
3203-2	1-2"		2.244"	.551"	1.496"

Imperial Sets (ratchet stop type)

PART NUMBER	RANGE	MICROMETERS INCLUDED
3203-33	0-3"	3203-1A, 3203-2A, 3203-3A
3203-66	0-6"	3203-1A, 3203-2A, 3203-3A, 3203-4A, 3203-5A, 3203-6A
3203-1212	0-12"	3203-1A, 3203-2A, 3203-3A, 3203-5A, 3203-6A, 3203-7A, 3203-8A, 3203-9A, 3203-10A, 3203-11A, 3203-12A

PART NUMBER	RANGE	ACCURACY	L	a	b
3203-1A	0-1"	.00016"	1.260"	.354"	1.102"
3203-2A	1-2"		2.244"	.551"	1.496"
3203-3A	2-3"	.0002"	3.228"	.591"	1.929"
3203-4A	3-4"		4.213"		2.362"
3203-5A	4-5"	.00024"	5.236"	.650"	2.874"
3203-6A	5-6"		6.220"		3.346"
3203-7A	6-7"	.00028"	7.205"	.764"	4.094"
3203-8A	7-8"		8.228"		4.606"
3203-9A	8-9"	.00031"	9.213"		5.118"
3203-10A	9-10"		10.236"		5.591"
3203-11A	10-11"	.00035"	11.220"		6.102"
3203-12A	11-12"		12.205"		6.614"

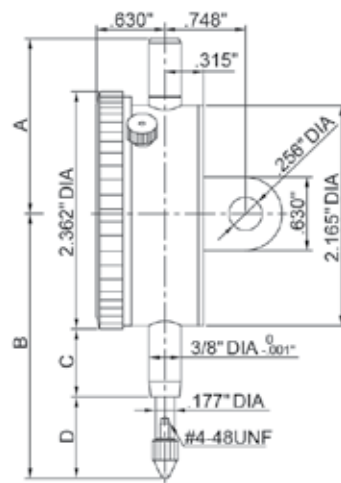
DIAL TEST INDICATORS

Dial Test Indicator



2307-1

- Lugback
- Supplied with tolerance index and bezel clamps
- Additional lugs and contact points available
- Supplied in fitted storage case



A	B	C	D
1.800"	2.953"	.787"	.984"

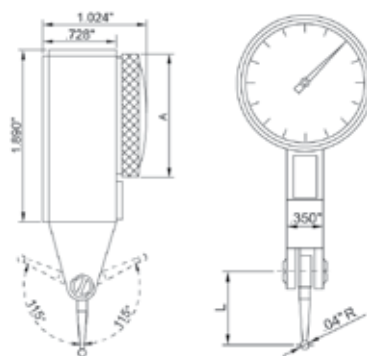
PART NUMBER	RANGE	GRADUATION	ACCURACY		RANGE /REV	DIAL READING
			FIRST 2.5 REV	OVERALL		
2307-1	.25"	.001"	.002"	.002"	.1"	0-100

Dial Test Indicator



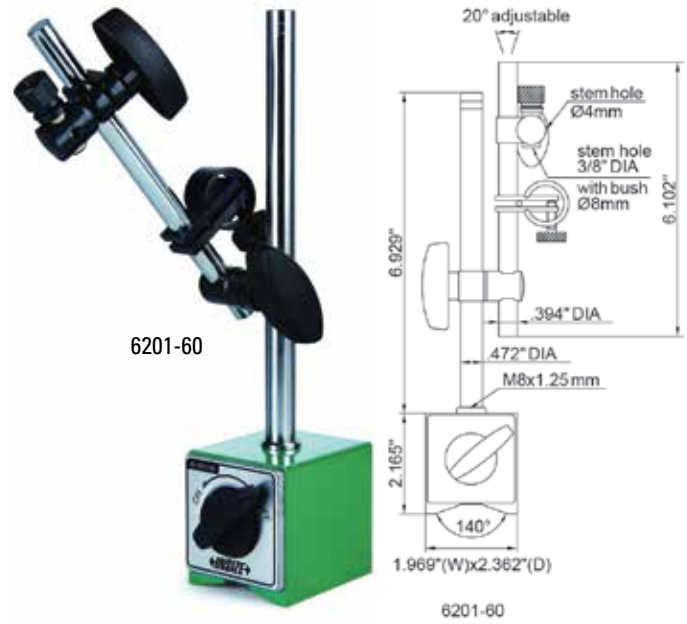
2380-31

- Jeweled bearing
- Carbide contact point
- Two measuring directions
- Anti-magnetic body
- Supplied with two clamps: 5/32" DIA and 3/8" DIA
- Additional stylus available
- Supplied in fitted storage case



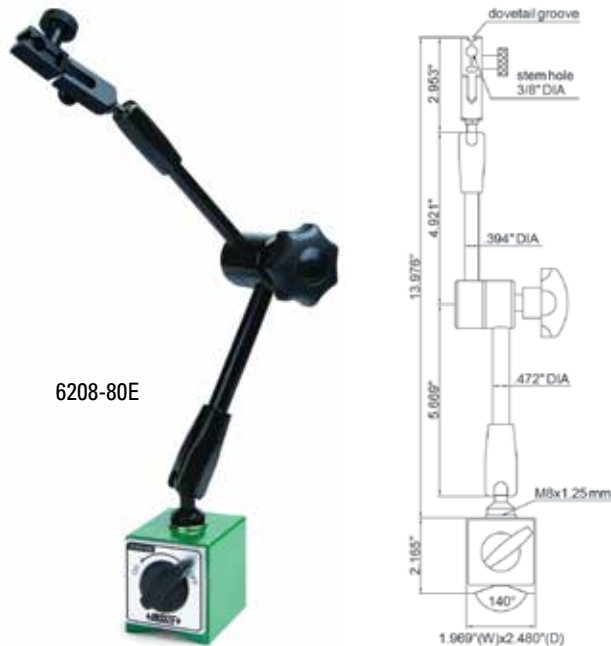
PART NUMBER	RANGE	GRADUATION	ACCURACY	DIAL READING	A	L
2380-35	.03"	.0005"	.0006"	0-15-0	1.18" DIA	.65"
2380-301		.001"	.001"		.748"	
2381-301		.0005"	.0006"		.768"	

MAGNETIC STANDS



- For electronic/dial indicators and dial test indicators

PART NUMBER	MAGNETIC FORCE	APPLICABLE HOLDING STEM	REMARK
6200-60	132lbf	3/8" DIA, Ø 8mm, Ø 4mm	WITHOUT FINE ADJUSTMENT
6201-60			WITH FINE ADJUSTMENT



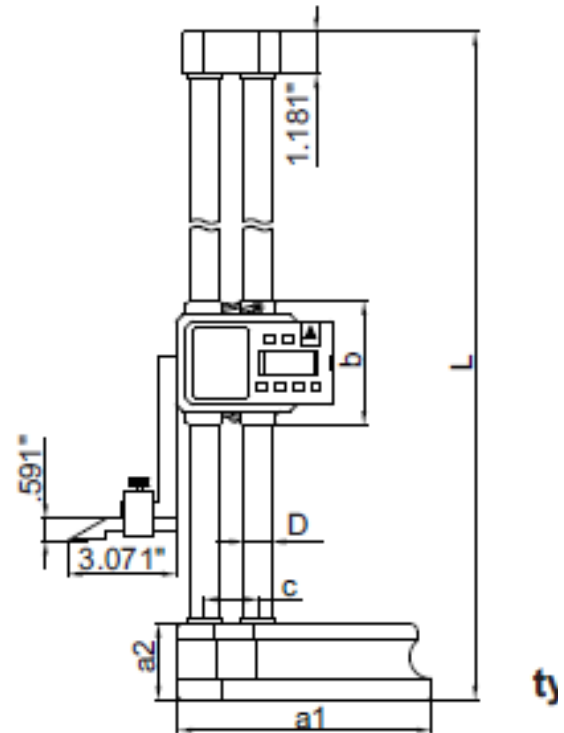
- For electronic/dial indicators and dial test indicators

PART NUMBER	MAGNETIC FORCE	APPLICABLE HOLDING STEM	REMARK
6208-80E	176lbf	3/8" DIA	WITH FINE ADJUSTMENT AND DOVETAIL GROOVE

ELECTRONIC HEIGHT GAGES



1151-300



- Resolution: .001"/0.01mm
- Buttons: on/off, zero, inch/mm, ABS/INC, preset+, preset-, set
- ABS/INC is for absolute and incremental measurement
- Carbide tipped scriber
- Made of stainless steel (except for base)
- SR44 or LR44 battery
- Data output

PART NUMBER	EDP NO.	RANGE	ACCURACY	L	a1	a2	b	c	d Dia.
1151-300	816100	0-12"/0-300mm	+/- .0016	18.701"	5.315"	1.693"	3.307"	1.299"	.591"
1151-450	816102	0-18"/0-450mm	+/- .002	25.984"	7.087"	2.126"	3.465"	1.496"	.787"
1151-600	816804	0-24"/0-600mm	+/- .002	31.890"	7.087"	2.126"	3.465"	1.496"	.787"

DIGITAL MICROSCOPE



PART NUMBER	STAND TYPE	MAGNIFICATION	PIXEL	ILLUMINATION	POWER SUPPLY
ISM-PM200SA	STANDARD	10X - 200X	1.3m (RESOLUTION: 1280X1024)	BUILT-IN ADJUSTABLE LED	USB 2.0 CABLE (VOLTAGE REQUIRED 5±0.1v)
ISM-PM200SB	UNIVERSAL				

INCLUDES 1 PC EACH:

- Digital Microscope
- Stand
- White/black plate
- Focus support ring for 80X/150X
- Focus support ring for 60X/200X
- Calibration rule (graduation 0.1mm)
- Calibration rule (graduation 1mm)
- ISM-PRO software disc

MAGNIFICATION	FOCUS DISTANCE	FIELD VIEW	ACCURACY
50X	.83"	.32x.25"	1.2mil
100X	.51"	.15x.12"	0.5mil
150X	.63"	.10x.08"	0.4mil
200X	.75"	.07x.06"	0.3mil













ISM-PRO SOFTWARE

Software for Digital Microscope






PART NUMBER ISM-PRO




- Applicable digital microscope: ISM-PM200SA, ISM-PM200SB, ISM-PM600SA, ISM-PM160L, ISMPM-160LA
- Languages: English, Japanese, Korean, German, Portuguese, Chinese
- Operation systems: Windows 7/XP/Vista
- Measurement:

 measure length of line or distance between two points	 measure radius, length and angle of arc
 measure distance between point and line	 measure angle with three points
 measure distance between two parallel lines	 measure angle with two lines
 measure length of continuous line	 measure distance between two circles
 measure area of rectangle	 add text
 measure radius, girth and area of circle	 add number with circle

- Edge detection measurement

 detect line automatically, and calculate length	 detect circle automatically, and calculate radius, girth and area
 detect arc automatically, and calculate radius, angle and arc length	 detect two parallel lines automatically, and calculate distance
 detect two lines automatically, and calculate angle	

- Edge detection measurement


 calibration is needed when magnification is changed

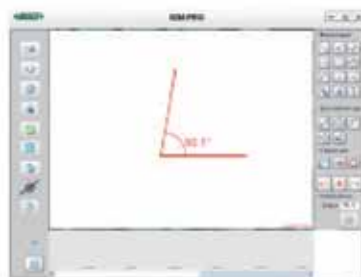
ISM-PRO SOFTWARE


- Comparison - Create line, angle or circle with desired size to compare with work pieces

 create line



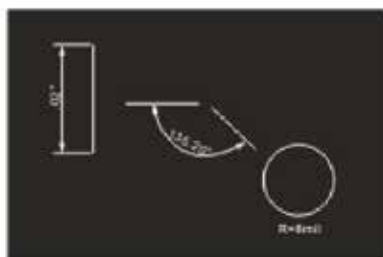
 create angle



 create circle with tolerance

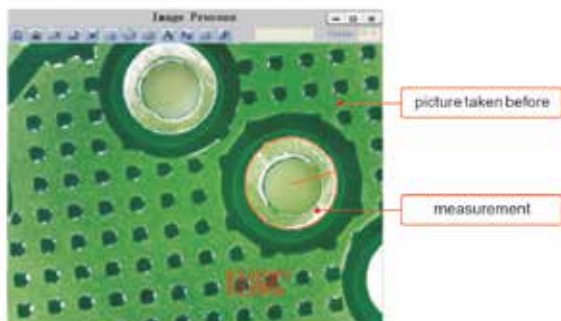


- Data input to CAD or excel:



- Zoom in: Zoom in the area where the mouse arrow is positioned

- Picture measurement:

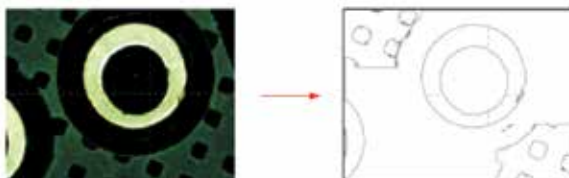


 measurement: measure the picture taken before

 edge detection measurement

 image process: image mirror, image negative, adjust brightness, filter

 edge detection



PORTABLE HARDNESS TESTER



- Supplied with impact device D
- Based on Leeb (HLD), converted to Vickers (HV), Brinell (HB), Rockwell (HRC and HRB), Shore (HS) and tensile strength (MPa)
- Connects with printer via Bluetooth
- LCD display and backlight
- Focus support ring for 60X/200X
- Automatic power off
- According to ASTM A956



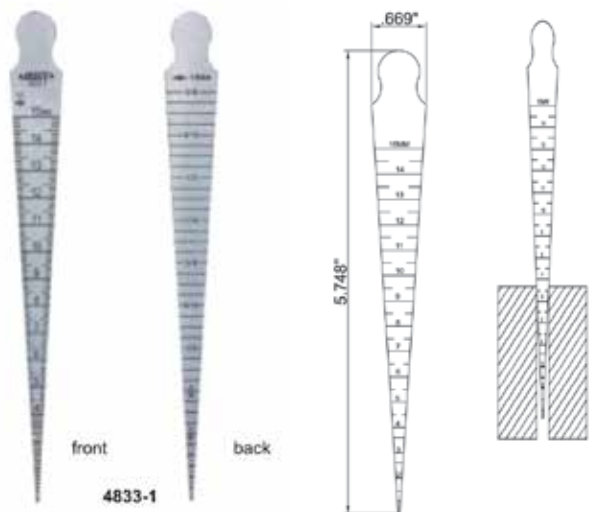
PART NUMBER	ISH-PHA-U	
MINIMUM READING	1HLV, 1HV, 1HB, 0.1HRC, 0.1HRB, 1HS, 1MPa	
ACCURACY	±6HLD (When HLD=800)	
DISPLAY	LEEB (HLD), CONVERTED HARDNESS, MATERIAL IMPACT DIRECTION, TEST TIME, AVERAGE VALUE, DATE	
OUTPUT	BLUETOOTH	
APPLICABLE WORKPIECE	MINIMUM WEIGHT	11.02lb
		4.41lb (ON SOLID SUPPORT)
		0.22lb (COUPLED ON PLATE)
	MINIMUM THICKNESS .2"	
MINIMUM RADIUS OF CURVED SURFACE .43"		
MAXIMUM ROUGHNESS (Ra) 64µin		
POWER SUPPLY	3-AAA BATTERIES / AC 110V	
DIMENSION	5.91 x 3.15 x .94"	
WEIGHT	0.44lb	

INCLUDES 1 PC EACH:

- Main unit
- Impact Device D
- Printer
- Hardness test block
- Focus support ring for 60X/200X
- Small support ring
- Cleaning brush
- AC/DC adapter

MATERIAL	HLD	HV	HB	HRC	HRB	HS	TENSILE STRENGTH (MPa)
STEEL & CAST STEEL	300-900	81-955	81-654	20-68	38-100	32-100	375-2639
TOOL STEEL	300-840	80-898		20-67			
STAINLESS STEEL	300-800	85-802	85-655		46-101		
CAST IRON	360-650		93-334				
CAST ALUMINUM ALLOY	170-570		19-164		23-84		
BRASS	200-550		40-173		13-95		
BRONZE	300-700		60-290				
COPPER	200-690		45-315				

GAGES & GAGE SETS

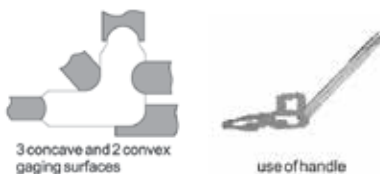


- Measure opening, slot width, hole size, etc.
- Made of stainless steel
- Supplied in storage pouch

PART NUMBER	RANGE	GRADUATION	ACCURACY
4833-1	1/32" - 5/8" 0.8mm-15mm	.32x.25"	1.2mil



PART NUMBER	RANGE	RADIUS OF LEAVES INCLUDED	QUANTITY OF LEAVES (INTERNAL+EXTERNAL)	ACCURACY
4801-15E	1-32" - 1/4"	1/32", 3/64" / 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 11/64", 3/16", 13/64", 7/32", 15/64", 1/4"	15+15	±.0012"
4801-16E	17/64" - 1/2"	17/64", 9/32", 19/64", 5/16", 21/64", 11/32", 23/64", 3/8", 25/32", 13/32", 27/64", 7/16", 29/64", 15/32", 31/64", 1/2"	16+16	±.0014
4801-16E1	17/32" - 1"	17/32", 9/16", 19/32", 5/8", 21/32", 11/16", 23/32", 3/4", 25/32", 13/16", 27/32", 7/8", 29/32", 15/16", 31/32", 1"	16+16	±.0017



- Each piece has 3 concave and 2 convex gaging surfaces
- Supplied in storage pouch

PART NUMBER	RANGE	RADIUS OF LEAVES INCLUDED	QUANTITY OF LEAVES	ACCURACY
4804-25E	1/64" - 1/2"	1/64", 1/32", 3/64" / 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 11/64", 3/16", 7/32", 15/64", 1/4", 17/64", 9/32", 5/16", 1/4", 17/64", 9/32", 5/16", 11/32", 3/8", 13/32", 7/16", 15/32", 1/2"	25	±.002"
48004-8E	9/16" - 1"	9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1"	8	±.0025"

SPC CABLES



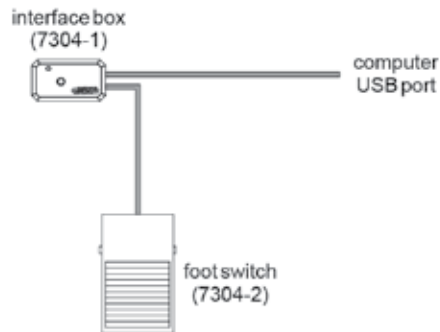
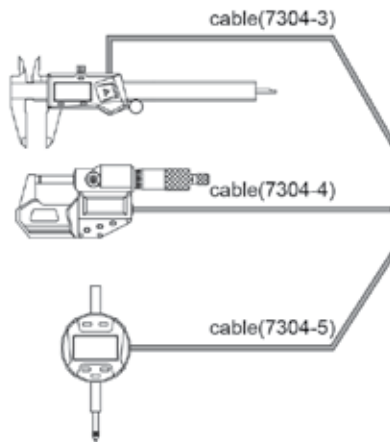
7304-1






7304-2



7304-3



- Without special software, the data can be input as keyboard signal to Excel, Word, CAD, Skype, etc.
- Press the red button on the interface box or the foot switch to input data. Foot switch is optional
- The interface box can accept all cables (7304-3, 7304-4, 7304-5), but can accept only one cable at a time

PART NUMBER	DESCRIPTION	APPLICABLE PRODUCTS	
7304-1	INTERFACE BOX WITH CABLE (LENGTH 80")		
7304-2	FOOT SWITCH WITH CABLE (LENGTH 60")		
7304-3	CABLE (LENGTH 20")		ELECTRONIC CALIPERS AND ELECTRONIC DEPTH GAGES
7304-4	CABLE (LENGTH 20")		ELECTRONIC MICROMETERS (EXCEPT 3108 AND 3109)
7304-5	CABLE (LENGTH 20")		ELECTRONIC INDICATORS

SPC CABLES



7302-SPC2



- Without special software, the data can be input as keyboard signal to Excel, Word, CAD, Skype, etc.
- Press the red button on the interface box to input data.
- Connects to computer via USB port
- Cable length 100"

PART NUMBER	APPLICABLE PRODUCTS	
7302-SPC1		ELECTRONIC CALIPERS AND ELECTRONIC DEPTH GAGES
7302-SPC2		ELECTRONIC MICROMETERS (EXCEPT 3108 AND 3109)
7302-SPC3		ELECTRONIC INDICATORS



7301-SPC1

PART NUMBER	APPLICABLE PRODUCTS
7301-SPC1	LARGE ELECTRONIC CALIPERS 1131 (TYPE B), 1133 (TYPE B)
7301-SPC2	ELECTRONIC HEIGHT GAGES 1151
7301-SPC4	ELECTRONIC CALIPERS 1102
7301-SPC5	ELECTRONIC HEIGHT GAGES 1150

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