

## STEEL MEASURING BALLS

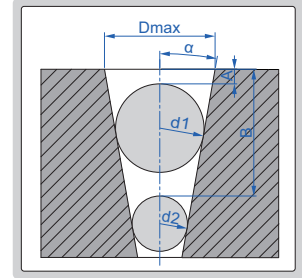


- To measure angle and diameter of taper holes
- Material: tool steel
- Hardness: HRC63
- Diameter accuracy:  $\pm 3\mu\text{m}$
- Roundness:  $1\mu\text{m}$
- Supplied with manufacturer inspection certificate



4168-S25

calculate angle ( $\alpha$ ) and diameter ( $D_{\text{max}}$ ) according to the ball diameter ( $d_1$ ,  $d_2$ ), height ( $A$ ) and depth ( $B$ )



### Individual

Code	Diameter
4168-01	1mm
4168-02	2mm
4168-03	3mm
4168-04	4mm
4168-05	5mm
4168-06	6mm
4168-07	7mm
4168-08	8mm
4168-09	9mm
4168-10	10mm
4168-11	11mm
4168-12	12mm
4168-13	13mm

### Individual

Code	Diameter
4168-14	14mm
4168-15	15mm
4168-16	16mm
4168-17	17mm
4168-18	18mm
4168-19	19mm
4168-20	20mm
4168-21	21mm
4168-22	22mm
4168-23	23mm
4168-24	24mm
4168-25	25mm

### Set (25 pairs)

Code	Steel balls included (one pair per size)
4168-S25	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25mm

## THREADED HOLE LOCATION GAUGES



ANY SIZE WITHIN THE RANGE OF M3-M150MM CAN BE CUSTOMIZED

ACCURACY CLASS CAN BE CUSTOMIZED



12



the concentricity between this surface and threaded part is less than  $3\mu\text{m}$

the taper of the thread part (top is big and bottom is small) lets the gauge fixed in the thread holes

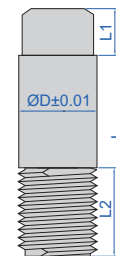


4662-12R



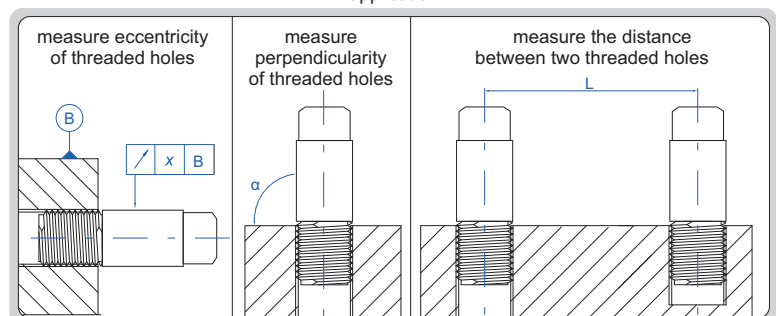
4662-3

Unit: mm



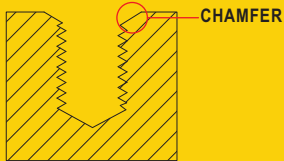
- Hardness: HRC60-63

### application



(mm)						
Code	Size	L	L1	L2	ØD	
4662-3	M3×0.5-6H	29	8	6	3	
4662-4	M4×0.7-6H	31.4	8	8.4	4	
4662-5	M5×0.8-6H	32.6	8	9.6	5	
4662-6	M6×1-6H	47	10	12	6	
4662-8	M8×1.25-6H	50	10	15	8	
4662-8P	M8×1-6H	47	10	12	8	
4662-10	M10×1.5-6H	53	10	18	10	
4662-10P	M10×1-6H	47	10	12	10	
4662-12	M12×1.75-6H	56	10	21	12	
4662-12P	M12×1-6H	47	10	12	12	
4662-12R	M12×1.5-6H	53	10	18	12	
4662-14	M14×2-6H	59	10	24	14	
4662-14P	M14×1-6H	47	10	12	14	
4662-14R	M14×1.5-6H	53	10	18	14	
4662-16	M16×2-6H	59	10	24	16	
4662-16P	M16×1-6H	47	10	12	16	
4662-16R	M16×1.5-6H	53	10	18	16	
4662-20	M20×2.5-6H	65	10	30	20	
4662-20P	M20×1-6H	47	10	12	20	
4662-20R	M20×1.5-6H	53	10	18	20	

ATTENTION: ONLY FOR THE WORKPIECES THAT THE CHAMFER IS CONCENTRIC WITH THE SCREW PART

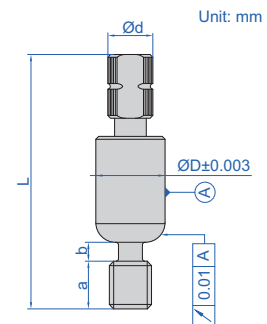


## THREADED HOLE LOCATION GAUGES

**INSIZE PLUS**  
MADE IN EUROPE



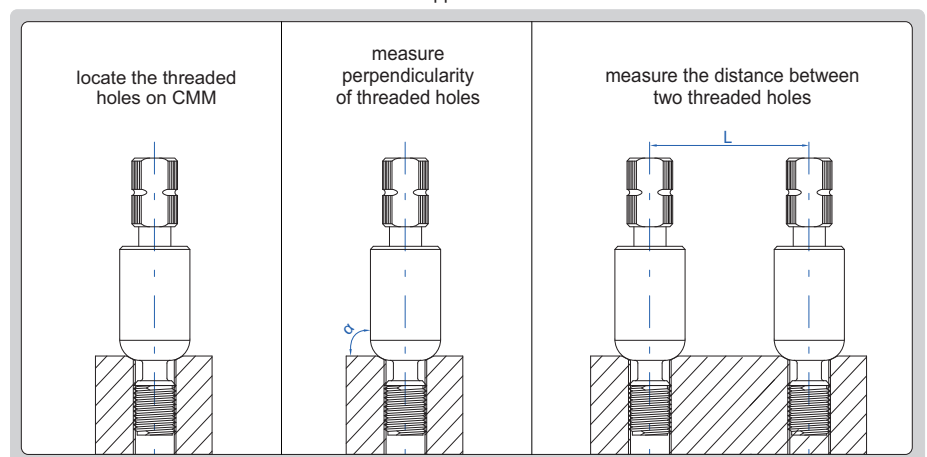
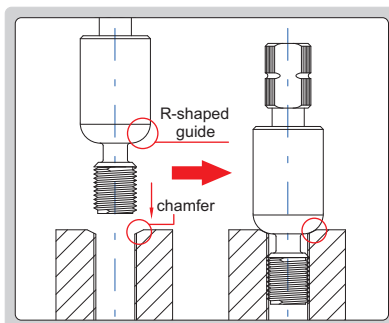
4676-12



- Only for the workpieces that the chamfer is concentric with the screw part

### application

there is a R-shaped guide, which leads the gauge to the center of the threaded holes by fitting the R-shaped guide on the chamfer of the threaded holes



(mm)

Code	Size	Ød	ØD	a	b	L
4676-3	M3×0.5	4	7	4	2	26
4676-4	M4×0.7	4	7	4	2	26
4676-5	M5×0.8	5.5	9	6	2	33
4676-6	M6×1.0	5.5	9	6	2	33
4676-8	M8×1.25	8.5	13	9	3.5	48
4676-10	M10×1.5	8.5	13	9	3.5	48
4676-12	M12×1.75	12	17	10	3.5	55

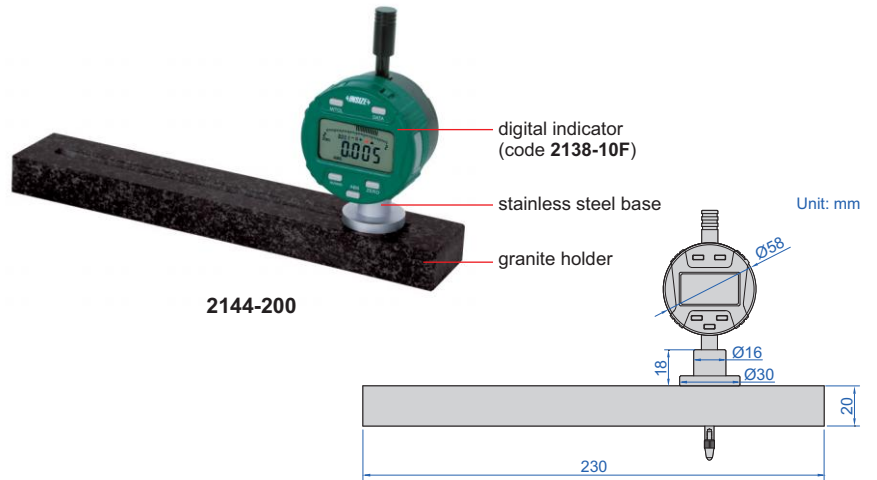
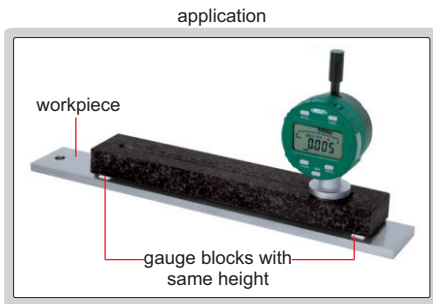


GRANITE HOLDER CAN BE CUSTOMIZED ACCORDING TO WORKPIECES

DATA OUTPUT

### STRAIGHTNESS/FLATNESS GAUGE

- Optional accessory: wireless transmitter code **7315-50M** (receiver is needed) page 6, bluetooth transmitter code **7214-50M** page 12, data output cable code **7302-40M** page 21



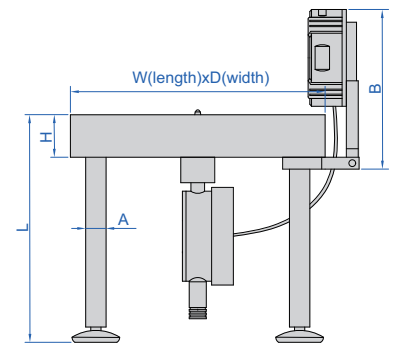
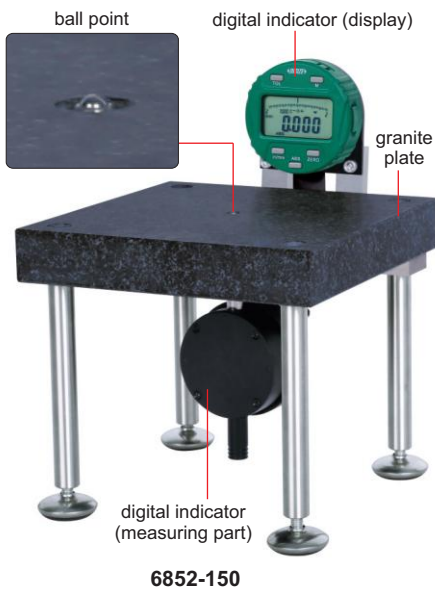
Code	Range	Digital indicator resolution	Straightness measurement accuracy	Parallelism of top and bottom surfaces of granite holder	Flatness of top and bottom surfaces of granite holder
2144-200	200mm	0.001mm/0.00005"	3µm	2µm	1.5µm



GRANITE PLATE CAN BE CUSTOMIZED ACCORDING TO WORKPIECES

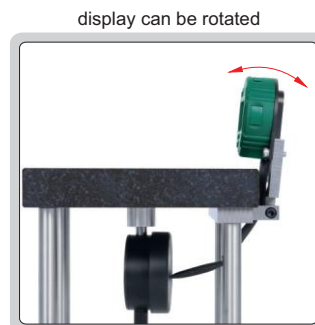
DATA OUTPUT

### FLATNESS MEASUREMENT STANDS



13

- Digital indicator resolution: 0.001mm/0.00005"
- Optional accessory: wireless transmitter code **7315-50M** (receiver is needed) page 6, bluetooth transmitter code **7214-50M** page 12, data output cable code **7302-40M** page 21, **7305-40M** page 17



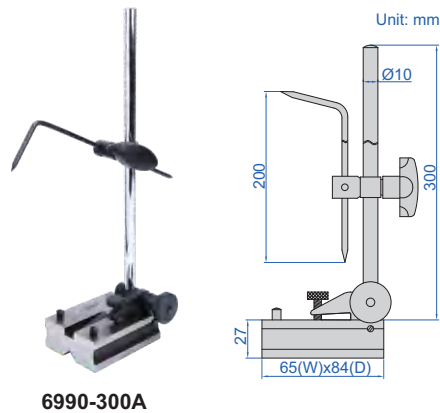
(mm)

Code	Flatness measurement accuracy	Flatness of granite plate	W	D	H	L	A	B	Remark
6852-150	2µm	2µm	150	150	25	135	Ø12	100	non-waterproof digital indicator
6852-300	2µm	2µm	300	300	50	210	Ø20	135	non-waterproof digital indicator
6852-300WP	2µm	2µm	300	300	50	210	Ø20	135	IP65 waterproof digital indicator

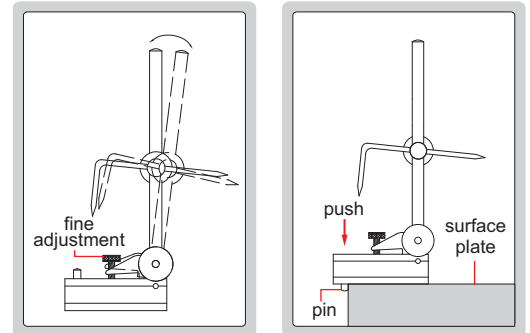
## HEIGHT SCRIBER

- Grooved bottom for cylinders
- Two pins to be set against the edge of surface plate

**Code**  
**6990-300A**



6990-300A



## SCRIBERS

- 7230 and 7231 are nickel plated, 7232 is zinc-plated

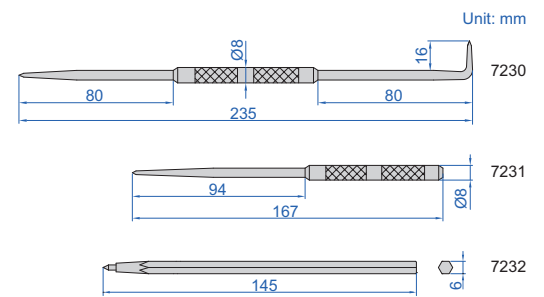
Code	Tip
7230	hardened tips
7231	hardened tip
7232	carbide tip



7230

7231

7232



## PRECISION SCREWDRIVER SET CODE ISGF-0901

- Includes:  
4pcs "-": 1.4mm, 2.0mm, 2.4mm, 3.0mm  
2pcs "+": 0#, 1#
- Rotating cap
- Material: CRV, hardness: HRC52~56



ISGF-0901

packaging



## LED FLASHLIGHT CODE ISGF-0501

- Toshiba high performance LED
- Powered by 3x AAA batteries (batteries are not included)
- Max output: 120 lumens
- Battery life: 4 hours
- Beam distance: 70 meters
- IP54 dust/waterproof

packaging



ISGF-0501

## MEASURING TOOLS REPAIR TOOL SET

- For repairing of calipers, micrometers and indicators
- Including:
  - 1) Slotted screwdriver, 1.4×20mm
  - 2) Slotted screwdriver, 2.0×20mm
  - 3) Slotted screwdriver, 2.4×25mm
  - 4) Slotted screwdriver, 3.0×25mm
  - 5) Cross screwdriver, 0#×25mm
  - 6) Cross screwdriver, 1#×25mm
  - 7) Magnetizer and demagnetizer
  - 8) Pointed tweezers, 125mm
  - 9) Mini needle-nose pliers, 5"
  - 10) Extended flat head allen wrench, 1.5×80mm
  - 11) Extended flat head allen wrench, 2.5×94mm
  - 12) Extended flat head allen wrench, 3×92mm
  - 13) Needle puller, 3 pcs
  - 14) Copper hammer, 126g
  - 15) Copper rod, Ø10×60mm
  - 16) Dial face suction cup, Ø30mm
  - 17) Oil stone, 100×20×10mm
  - 18) Cleaning brush
  - 19) Micrometer wrench
  - 20) Three point inside micrometer rod wrench, 2 pcs
  - 21) Anti rust oil, 30ml
  - 22) Special anti rust oil for micrometers, 30ml
  - 23) Dust free cloth, 5 pcs



7338-1

### Code

7338-1

## 2-PIECE MEASURING TOOL SETS

- Includes:
  - 1) Vernier caliper, range 0-150mm/0-6", graduation 0.05mm/1/128" (code **1205-150S**) for **5021**, graduation 0.02mm/0.001" (code **1205-1502S**) for **5021-2**
  - 2) Outside micrometer, range 0-25mm, graduation 0.01mm (code **3202-25A**)

Code	Remark
5021	vernier caliper, graduation 0.05mm/1/128" (code <b>1205-150S</b> )
5021-2	vernier caliper, graduation 0.02mm/0.001" (code <b>1205-1502S</b> )



5021

15

## 2-PIECE MEASURING TOOL SETS

- Includes:
  - 1) Digital caliper, range 0-150mm/0-6", resolution 0.01mm/0.0005", with thumb roller (code **1108-150**) for **5022**, without thumb roller (code **1108-150W**) for **5022-W**
  - 2) Digital outside micrometer, range 0-25mm/0-1", resolution 0.001mm/0.00005" (code **3109-25A**)

Code	Remark
5022	digital caliper, with thumb roller, code <b>1108-150</b>
5022-W	digital caliper, without thumb roller, code <b>1108-150W</b>



5022

481

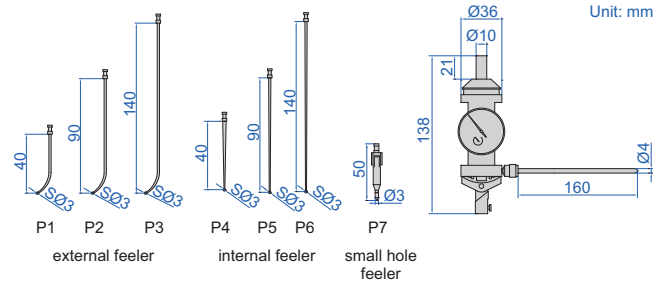
POPULAR MODEL



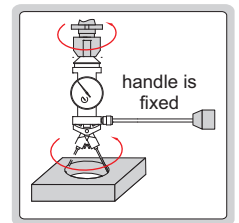
## CENTERING INDICATOR



2385-3



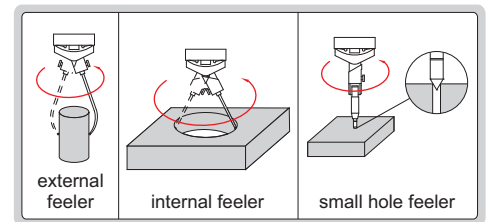
- Provides quick and accurate centering in boring and milling set-up
- Maximum speed is recommended not to exceed 800rpm



Feeler	Measuring diameter	Accuracy
P1	Ø0-60mm	0.015mm
P2	Ø0-160mm	0.02mm
P3	Ø0-250mm	0.03mm
P4	Ø3.2-80mm	0.015mm
P5	Ø3.2-180mm	0.02mm
P6	Ø3.2-280mm	0.03mm
P7	Ø0-2.8mm	0.015mm

Code

2385-3



REFER TO PAGE 280-281 FOR DETAILS

## DIAL INDICATOR HOLDERS



6296-1



6291-1



6297-1



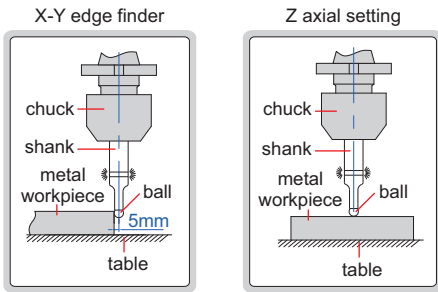
6294-1A



6295-1A

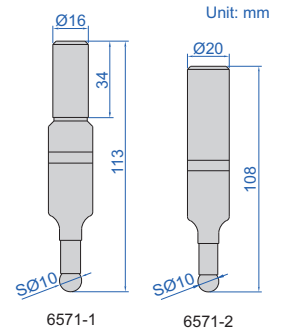
### 3D ELECTRONIC EDGE FINDERS

**INSIZE PLUS**  
MADE IN EUROPE

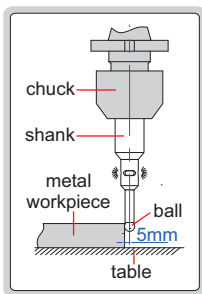


- The shank is electrically conducted to the metal workpiece through the chuck and table. The LED lights up, when the ball touches the workpiece
- Not suitable for rotary use
- Hardened contact ball

Code	Shank	Contact ball	Accuracy	Battery
6571-1	Ø16mm	SØ10mm	10µm	23A, 12V×1 pc
6571-2	Ø20mm	SØ10mm	10µm	23A, 12V×1 pc

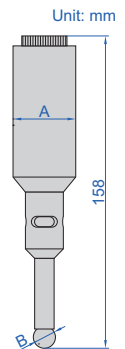


### LARGE SHANK ELECTRONIC EDGE FINDERS

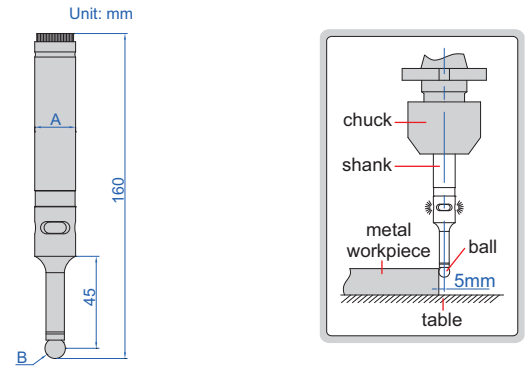


- The shank is electrically conducted to the metal workpiece through the chuck and table. The LED lights up and the beeper sounds (only for 6572-2), when the ball touches the workpiece
- Not suitable for rotary use
- Hardened shank and contact ball

Code	Shank (A)	Contact ball (B)	Accuracy	Beeper	Battery
6572-1	Ø32mm	SØ10mm	5µm	without	23A, 12V×1 pc
6572-2	Ø32mm	SØ10mm	5µm	with	23A, 12V×1 pc



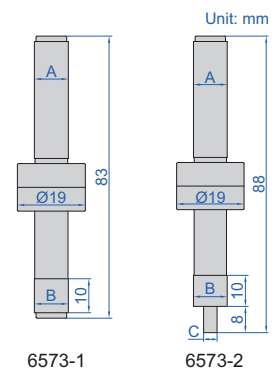
## ELECTRONIC EDGE FINDERS



- The shank is electrically conducted to the metal workpiece through the chuck and table. The LED lights up and the beeper sounds (only for **6566-3**), when the ball touches the workpiece
- Not suitable for rotary use
- Hardened shank and contact ball

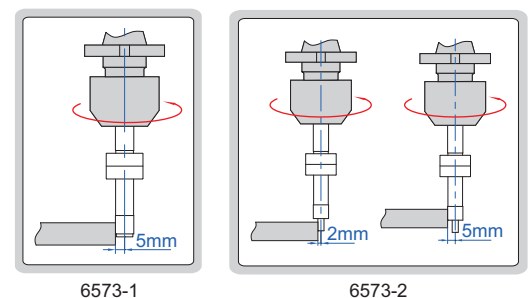
Code	Shank (A)	Contact ball (B)	Accuracy	Beeper	Battery
6566-2	Ø20mm	SØ10mm	5µm	without	23A, 12V×1 pc
6566-3	Ø20mm	SØ10mm	5µm	with	23A, 12V×1 pc

## NON-MAGNETIC EDGE FINDERS



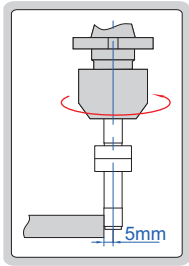
- TiAlN coating, non-magnetic, hardness HV2500, extremely wear resistance
- Suitable for machine speed 400~600rpm

Code	Shank (A)	Contact point (B)	Contact point (C)	Accuracy
6573-1	Ø10mm	Ø10mm	—	5µm
6573-2	Ø10mm	Ø10mm	Ø4mm	5µm

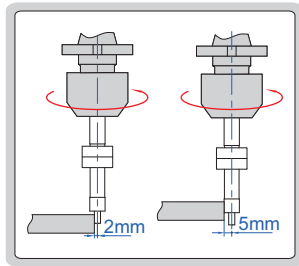




## EDGE FINDERS



6562-3



6562-4

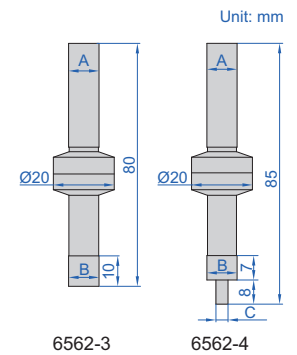


6562-3

6562-4

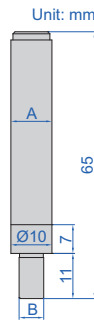
- Hardened shank and contact point
- Suitable for machine speed 400~600rpm

Code	Shank (A)	Contact point (B)	Contact point (C)	Accuracy
6562-3	Ø10mm	Ø10mm	—	5µm
6562-4	Ø10mm	Ø10mm	Ø4mm	5µm

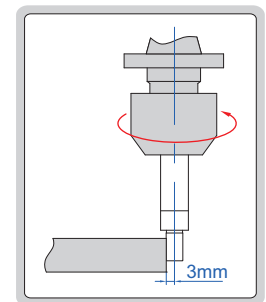


## EDGE FINDER

- Hardened shank and contact point
- Suitable for machine speed 400~600rpm



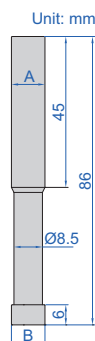
6567-1



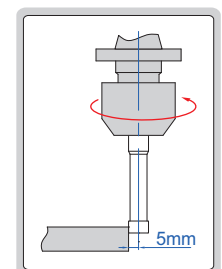
Code	Shank (A)	Contact point (B)	Accuracy
6567-1	Ø10mm	Ø6mm	8µm

## CERAMIC EDGE FINDER

- Ceramic contact point, non magnetic
- Suitable for machine speed 400~600rpm



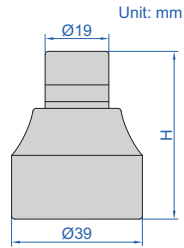
6568-1



Code	Shank (A)	Contact point (B)	Accuracy
6568-1	Ø10mm	Ø10mm	8µm

**LOW TEST FORCE**

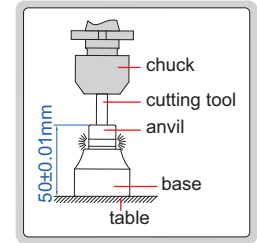
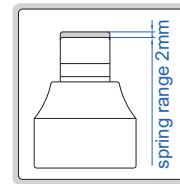
- The base is electrically conducted to the cutting tools through the table and chuck. The LED lights up when the cutting tool touches the anvil
- Magnetic base
- Two batteries LR44



6553-50

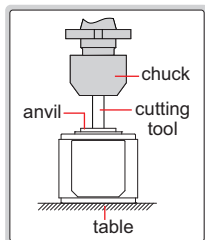
**ELECTRONIC ZERO SETTER**

**INSIZE PLUS**  
MADE IN EUROPE



Code	Height (H)	Accuracy	Test force
6553-50	50mm	±10µm	7N (at 49mm)

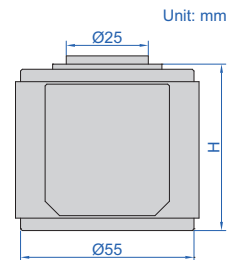
**IP65 WATERPROOF**



6557-50



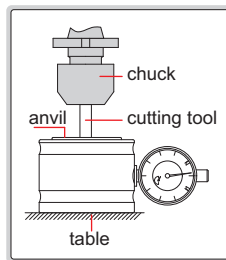
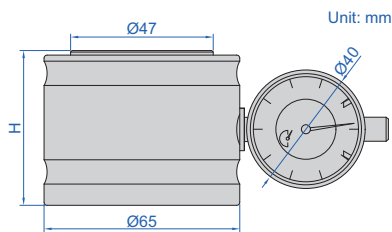
**DIGITAL ZERO SETTER**



- Resolution: 0.001mm/0.00005"
- IP65 dust/waterproof
- Buttons: on/off, mm/inch, zero
- CR2032 battery
- Automatic power off
- Magnetic base
- Automatic backlight at zero

Code	Height (H)	Anvil stroke	Accuracy *	Test force	Repeatability
6557-50	50mm	2.5mm	±10µm/0.0004"	10N (at 50mm)	2µm

\* The accuracy is ensured within Ø10mm of the center

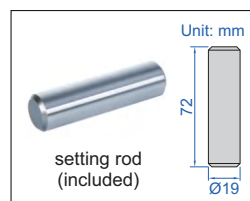
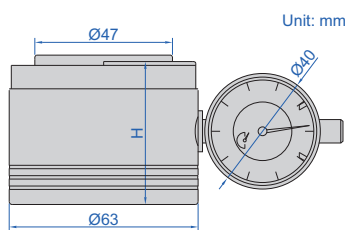


6554-50

**ZERO SETTER**

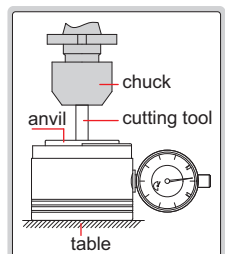
**INSIZE PLUS**  
MADE IN EUROPE

Code	Height (H)	Graduation	Accuracy	Test force
6554-50	50mm	0.01mm	±0.02mm	9N (at 50mm)



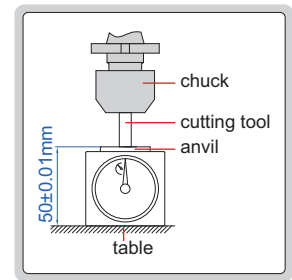
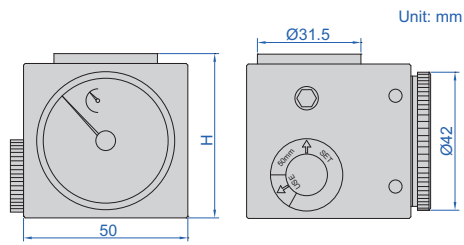
6556-50

**ZERO SETTER**



Code	Height (H)	Graduation	Accuracy	Test force
6556-50	50mm	0.01mm	±0.01mm	10N (at 50mm)

## ZERO SETTER

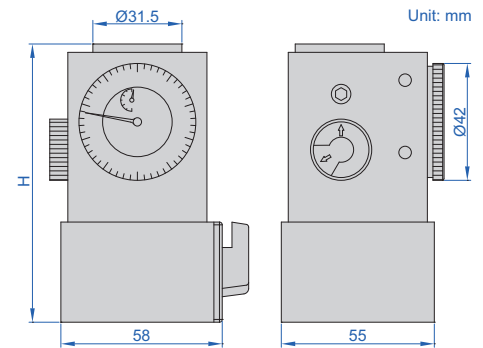
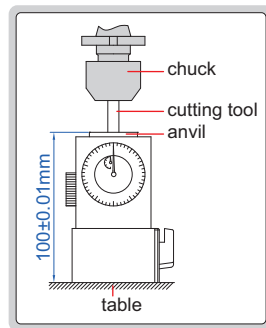


- Magnetic base

2397-502A

Code	Height (H)	Graduation	Accuracy	Test force
2397-502A	50mm	0.01mm	±0.01mm	9N (at 50mm)

## ZERO SETTER



- Magnetic base with on-off switch

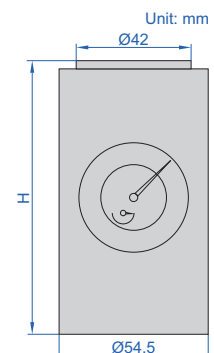
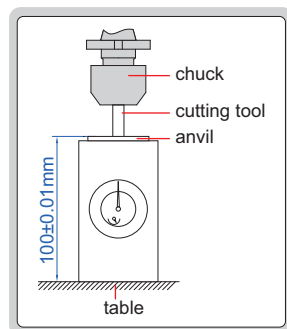
2394-100A

Code	Height (H)	Graduation	Accuracy	Test force
2394-100A	100mm	0.01mm	±0.01mm	9N (at 100mm)

## LOW TEST FORCE ZERO SETTER

**INSIZE PLUS**  
MADE IN EUROPE

LOW TEST FORCE



- Magnetic base
- Low test force, suitable for micro tools with minimum diameter Ø0.1mm

6555-100B

Code	Height (H)	Graduation	Accuracy	Test force
6555-100B	100mm	0.01mm	±0.01mm	1N (at 100mm)



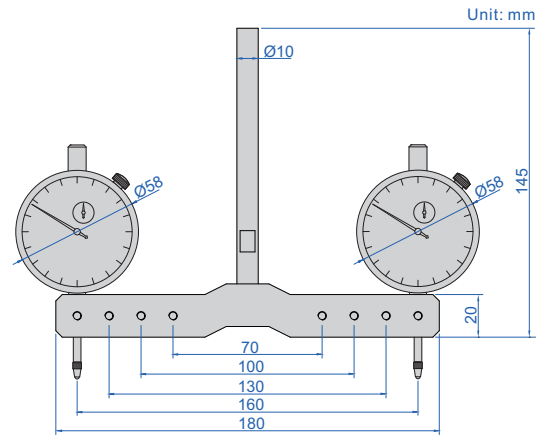
VIDEO



2257-10

- Used to detect and adjust the perpendicularity between the spindle and worktable of a vertical milling machine

## VERTICAL MILLING MACHINE PERPENDICULARITY MEASURING GAUGE



Code	Indicator	Accuracy
2257-10	dial indicator, code 2301-10F, range: 10mm, graduation: 0.01mm	5µm



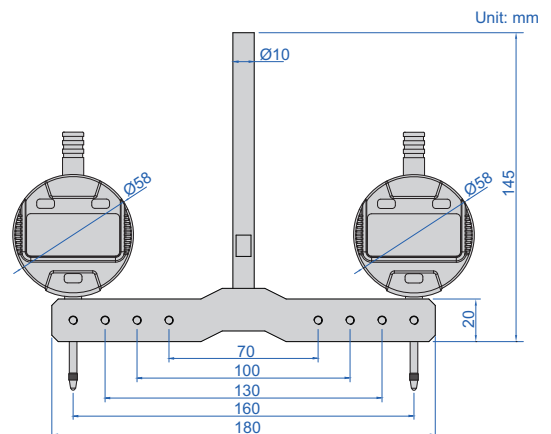
VIDEO



2258-101

- Used to detect and adjust the perpendicularity between the spindle and worktable of a vertical milling machine

## VERTICAL MILLING MACHINE PERPENDICULARITY MEASURING GAUGE



Code	Indicator	Accuracy
2258-101	digital indicator, code 2112-101F, range: 12.7mm/0.5", resolution: 0.001mm/0.00005"	3µm