



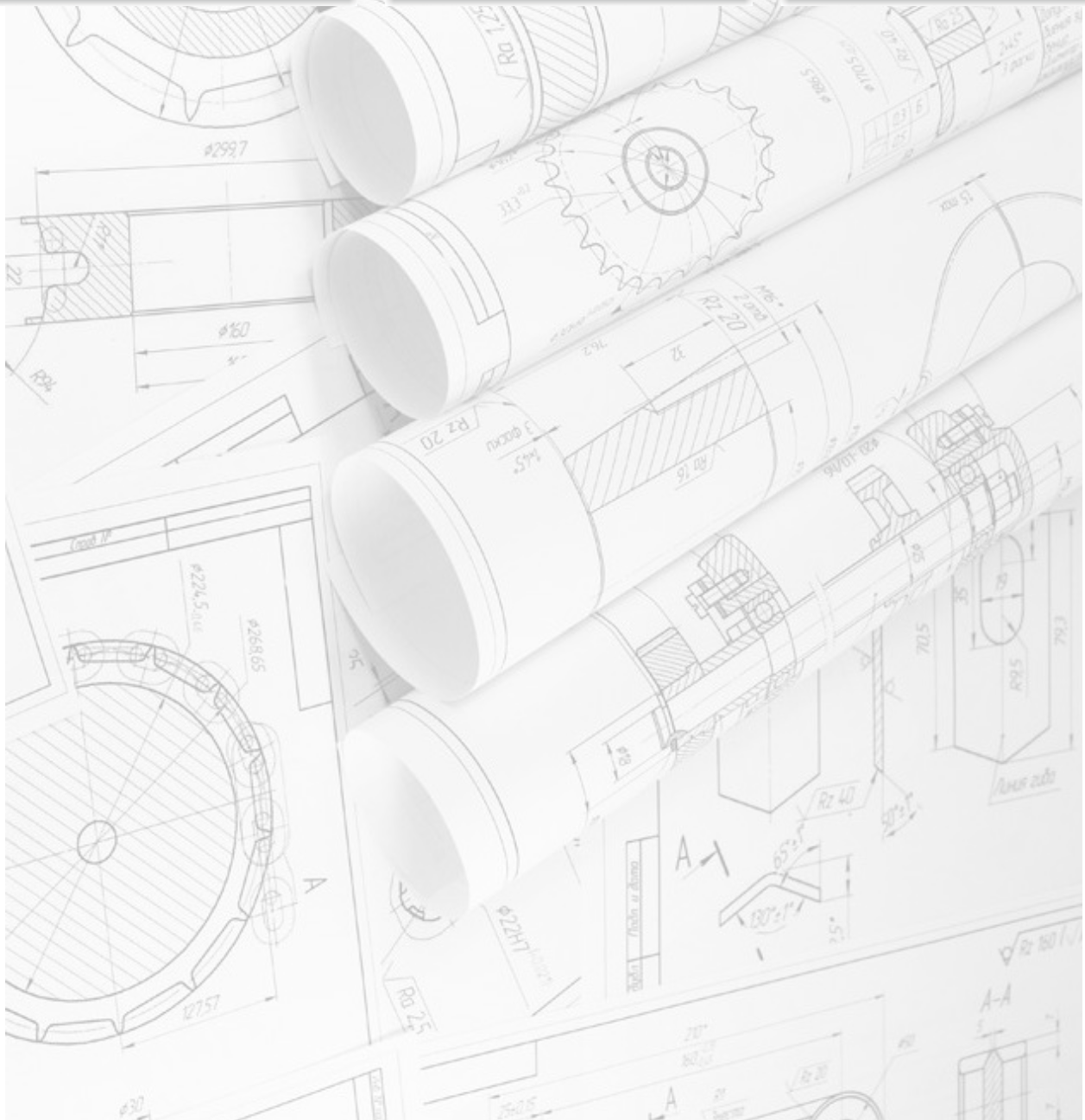
**Concentricity Gages**  
Page 394-398



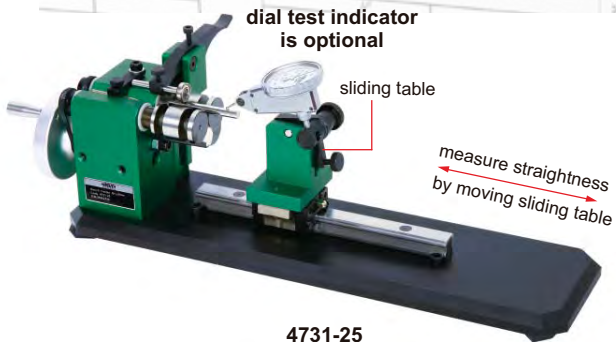
**Bench Centers**  
Page 398-404



**Shank Runout Testers**  
Page 405



## CONCENTRICITY GAGE WITH STRAIGHTNESS MEASUREMENT

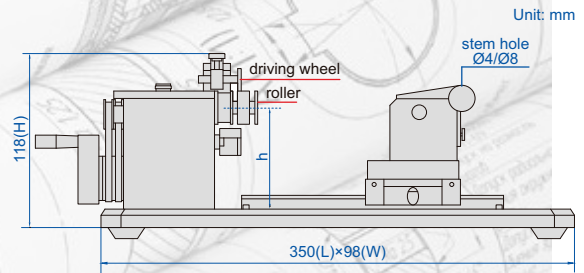
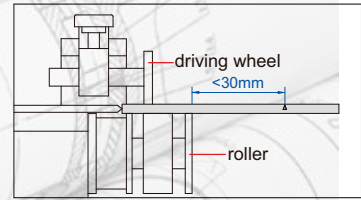


4731-25

- Maximum moving range of sliding table: 120mm
- Optional accessory: dial test indicator



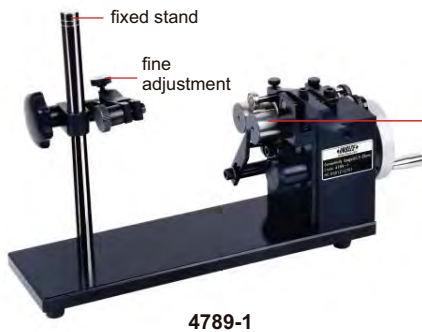
to ensure the accuracy 2 $\mu$ m, the distance between measuring point and roller should be <30mm



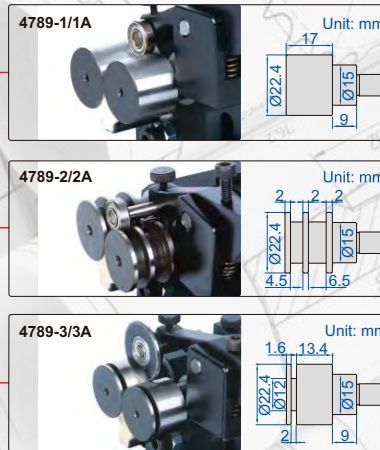
Unit: mm

Code	Diameter range	Workpiece length	Roller concentricity accuracy	Straightness measurement accuracy	Center height (h)	L×W×H	Weight
4731-25	Ø1-25mm	15-80mm	2 $\mu$ m	0.01mm	70mm	350×98×118mm	5.3kg

## CONCENTRICITY GAGES

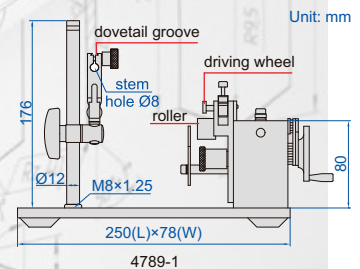
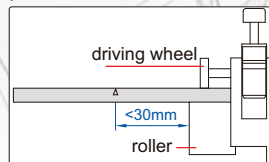


4789-1



4789-2A

to ensure the accuracy 2 $\mu$ m, the distance between measuring point and roller should be <30mm



Unit: mm

4789-1

- Accuracy 2 $\mu$ m
- Optional accessory: dial test indicator

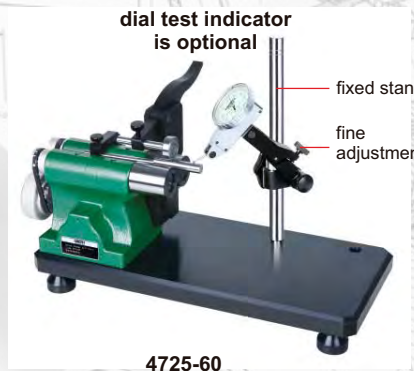
Code	Applicable diameter	Remark
4789-1	Ø3.5mm-25mm	fixed stand, high accuracy, inconvenient operation
4789-2	Ø1mm-25mm	fixed stand, high accuracy, inconvenient operation
4789-3	Ø1mm-25mm	fixed stand, high accuracy, inconvenient operation
4789-1A	Ø3.5mm-25mm	universal stand, low accuracy, convenient operation
4789-2A	Ø1mm-25mm	universal stand, low accuracy, convenient operation
4789-3A	Ø1mm-25mm	universal stand, low accuracy, convenient operation

HIGH STABILITY,  
LONG WORKING LIFE

CONCENTRICITY GAGES



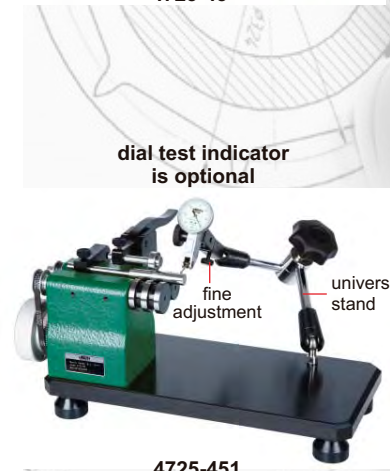
4725-45



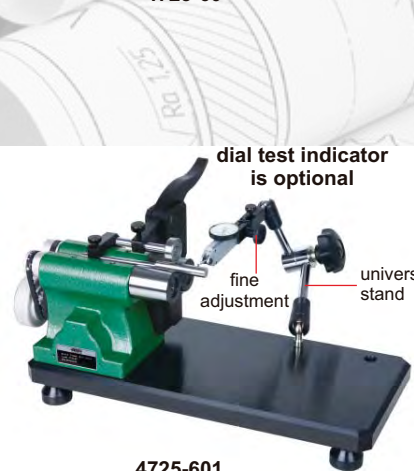
4725-60



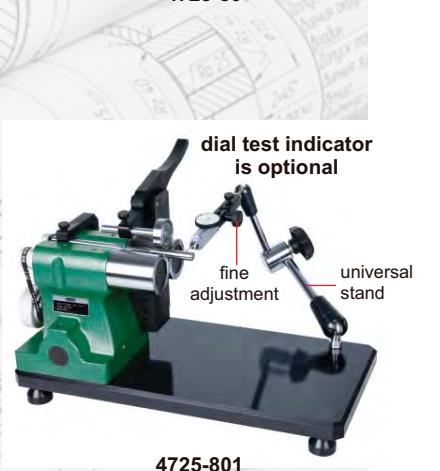
4725-80



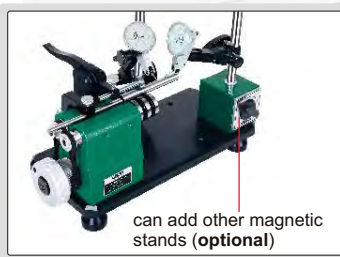
4725-451



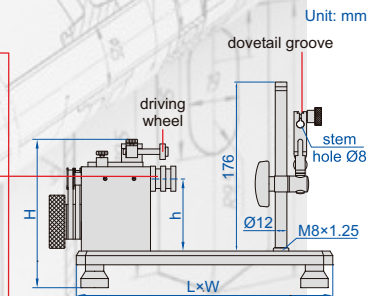
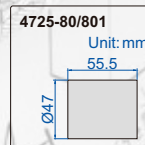
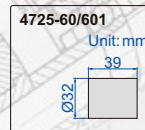
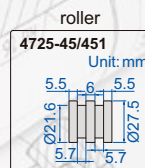
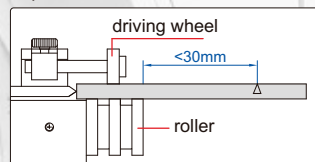
4725-601



4725-801



to ensure the accuracy 2µm, the distance between measuring point and roller should be <30mm

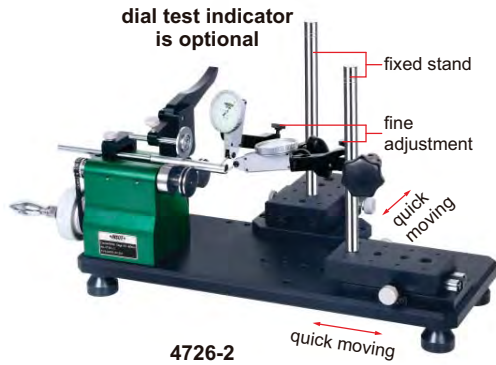


- With ball bearing, high stability, long working life
- Accuracy: 2µm
- Optional accessory: dial test indicator

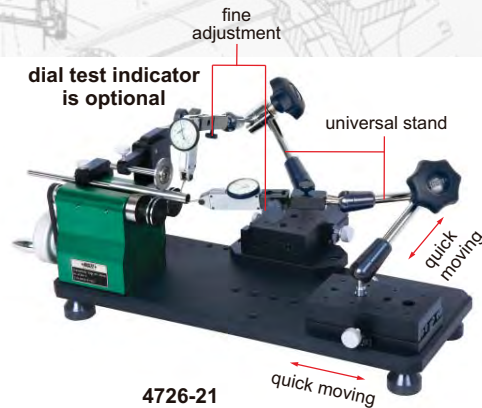
Code	Diameter range	Center height (h)	L×W×H	Weight	Remark
4725-45	Ø3-45mm	80mm	280×130×170mm	6kg	fixed stand, high accuracy, inconvenient operation
4725-60	Ø8-60mm	90mm	350×160×190mm	15.6kg	fixed stand, high accuracy, inconvenient operation
4725-80	Ø8-80mm	130mm	400×200×250mm	25kg	fixed stand, high accuracy, inconvenient operation
4725-451	Ø3-45mm	80mm	280×130×170mm	6kg	universal stand, low accuracy, convenient operation
4725-601	Ø8-60mm	90mm	350×160×190mm	15.6kg	universal stand, low accuracy, convenient operation
4725-801	Ø8-80mm	130mm	400×200×250mm	25kg	universal stand, low accuracy, convenient operation

**CONCENTRICITY GAGES**

**QUICK-POSITIONING, SUITABLE FOR MASS MEASUREMENT**



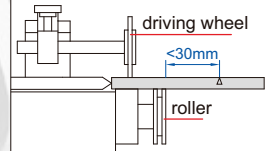
4726-2



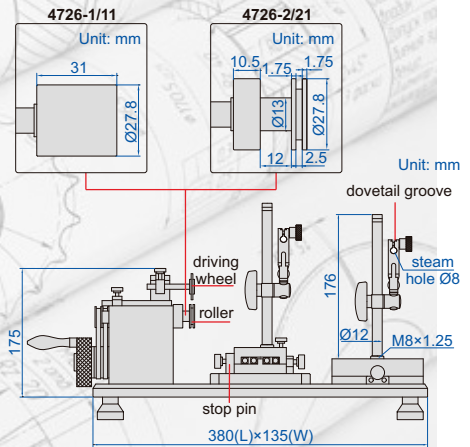
4726-21



to ensure the accuracy 2µm, the distance between measuring point and roller should be <30mm



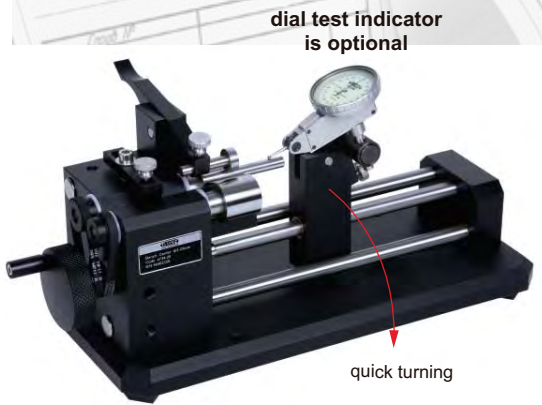
- With ball bearing, high stability, long working life
- Accuracy: 2µm
- Optional accessory: dial test indicator



Code	Applicable diameter	Remark
4726-1	Ø4-40mm	fixed stand, high accuracy, inconvenient operation
4726-2	Ø2-40mm	fixed stand, high accuracy, inconvenient operation
4726-11	Ø4-40mm	universal stand, low accuracy, convenient operation
4726-21	Ø2-40mm	universal stand, low accuracy, convenient operation

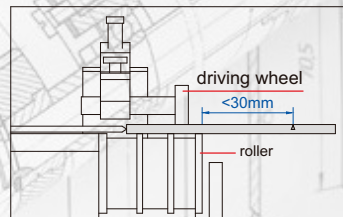
**QUICK POSITIONING CONCENTRICITY GAGE**

**QUICK-POSITIONING, SUITABLE FOR MASS MEASUREMENT**

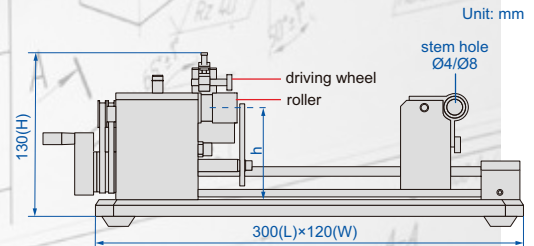


4734-25

to ensure the accuracy 2µm, the distance between measuring point and roller should be <30mm



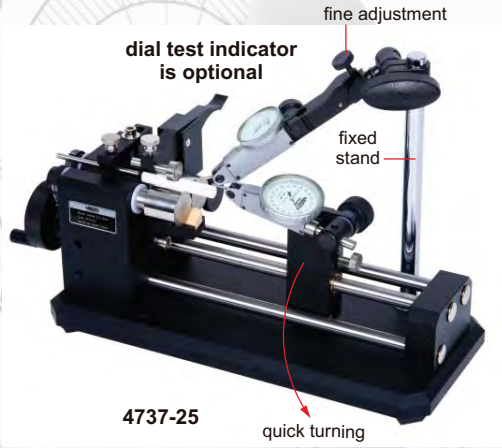
- Quick positioning, suitable for mass measurement
- Optional accessory: dial test indicators



Code	Diameter range	Workpiece length	Accuracy	Center height (h)	L×W×H	Weight
4734-25	Ø3-25mm	15-100mm	2µm	70mm	300×120×130mm	3kg

QUICK-POSITIONING, SUITABLE FOR MASS MEASUREMENT

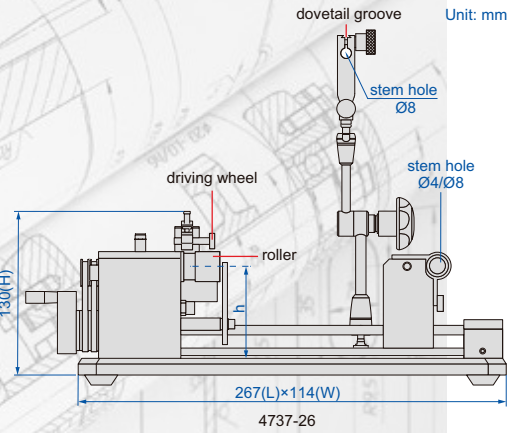
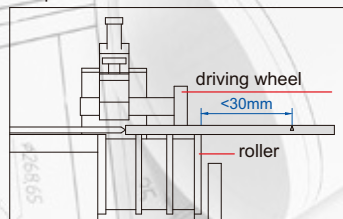
QUICK POSITIONING CONCENTRICITY GAGES



standard rod (included)



to ensure the accuracy 2µm, the distance between measuring point and roller should be <30mm



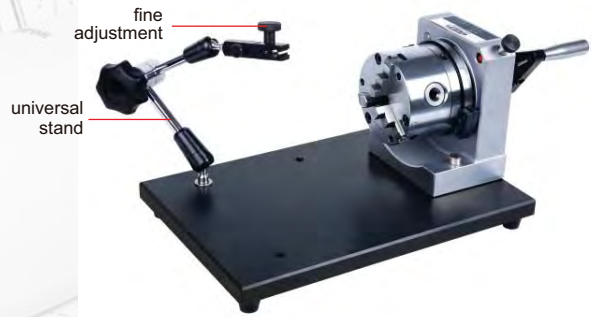
- Quick positioning, suitable for mass measurement
- Supplied with standard rod to verify accuracy
- Optional accessory: dial test indicators

Code	Diameter range	Workpiece length	Accuracy	Center height (h)	L×W×H	Weight	Remark
4737-25	Ø3-25mm	15-100mm	2µm	70mm	267×114×130mm	3kg	fixed stand, high accuracy, inconvenient operation
4737-26	Ø3-25mm	15-100mm	2µm	70mm	267×114×130mm	3kg	universal stand, low accuracy, convenient operation

**CONCENTRICITY GAGES**



4786-1



4786-2

- Accuracy: 3µm
- Ø50mm setting ring and Ø55mm calibration cylinder are included
- Optional accessory: dial test indicator

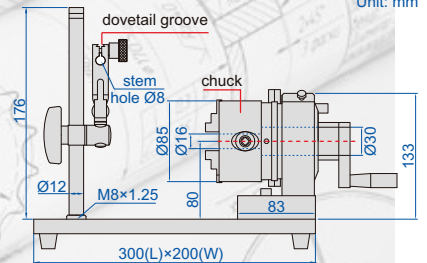
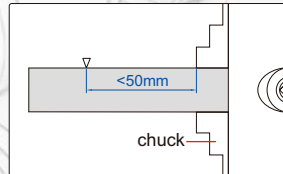


for cylinder



for tube

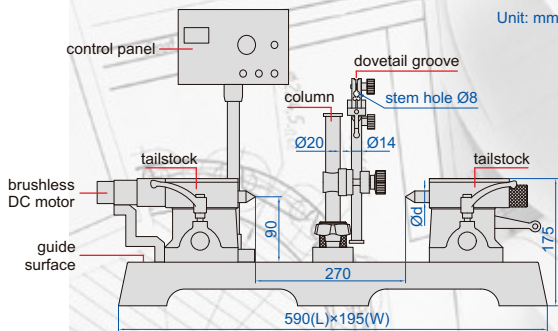
to ensure the accuracy 3µm, the distance between measuring point and roller should be <50mm



Unit: mm

Code	Applicable inside diameter	Applicable outside diameter	Remark
4786-1	Ø24-64mm	Ø2-70mm	fixed stand, high accuracy, inconvenient operation
4786-2	Ø24-64mm	Ø2-70mm	universal stand, low accuracy, convenient operation

**MOTORIZED BENCH CENTER**



Unit: mm



dial test indicator is optional

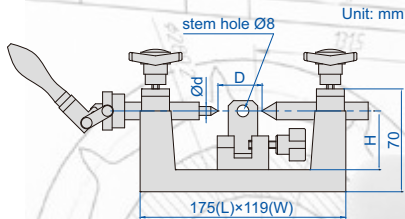
4735-270

- Moveable column
- Hardened cast-iron guide surface
- Motorized measurement is suitable for mass production inspection
- Power supply: AC220V/10A/(50/60)Hz
- Optional accessory: dial test indicators

Code	Parallelism*	Runout accuracy	Center height	Distance between two centers	Diameter of center (Ød)	Taper of center	Weight	Load
4735-270	0.010mm	2µm	90mm	270mm	18mm	MT2	40kg	25kg

\*Parallelism of two centers to the guide surface

## MINI BENCH CENTER



4721-75A

Code	Runout accuracy	Center height (H)	Distance between two centers (D)	Diameter of center (Ød)	Taper of center	Weight	Load
4721-75A	2µm	40mm	35-100mm	6mm	MT1	4.5kg	4kg

## BENCH CENTERS

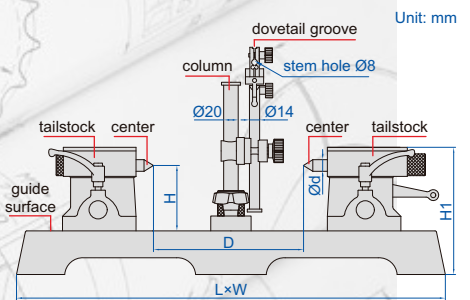
umbrella centers  
(optional)



rotary centers  
(optional)



4788-300



- Movable column
- Optional accessory: umbrella centers, rotary centers

### High accuracy

(mm)

Code	Parallelism*	Runout accuracy	Center height (H)	Distance between two centers (D)	L	W	H1	Diameter of center (Ød)	Taper of center	Weight	Load
4788-300	0.010mm	2µm	90	300	590	192	175	18.0	MT2	34kg	25kg
4788-400	0.010mm	2µm	130	400	770	206	241	24.1	MT3	66kg	60kg
4788-600	0.010mm	2µm	130	600	930	220	250	24.1	MT3	90kg	60kg
4788-600H2	0.010mm	2µm	200	600	930	220	325	24.1	MT3	105kg	60kg
4788-1000	0.010mm	3µm	130	1000	1330	220	262	24.1	MT3	112kg	60kg
4788-1000H2	0.010mm	3µm	200	1000	1330	220	337	24.1	MT3	125kg	85kg
4788-1000H3	0.010mm	3µm	300	1000	1330	220	442	31.6	MT4	165kg	85kg

### Standard accuracy

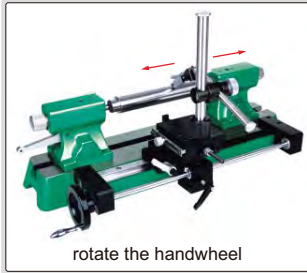
(mm)

Code	Parallelism*	Runout accuracy	Center height (H)	Distance between two centers (D)	L	W	H1	Diameter of center (Ød)	Taper of center	Weight	Load
4788-D2	0.010mm	3µm	90	200	490	180	175	20.0	MT2	27kg	25kg
4788-D3	0.010mm	3µm	90	300	590	195	175	20.0	MT2	36kg	25kg
4788-D4	0.012mm	3µm	130	400	730	205	241	28.0	MT3	68kg	60kg
4788-D6	0.015mm	3µm	130	600	930	220	250	28.0	MT3	91kg	60kg
4788-D8	0.015mm	3µm	130	800	1130	220	250	28.0	MT3	99kg	60kg
4788-D10	0.015mm	3µm	130	1000	1330	220	262	28.0	MT3	116kg	60kg

\* Parallelism of two centers to the guide surface

## BENCH CENTER WITH STRAIGHTNESS MEASUREMENT

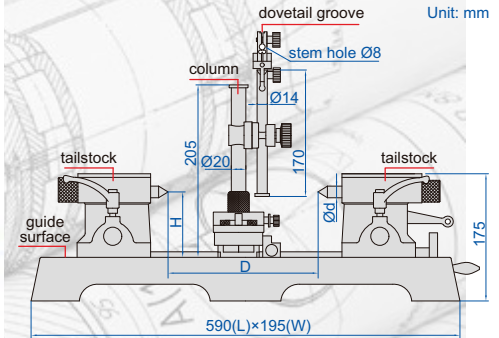
straightness measurement



rotate the handwheel



4723-300



- Hardened cast-iron guide surface

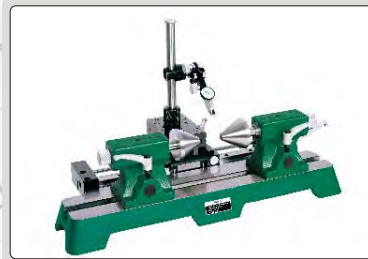
Code	Parallelism *	Runout accuracy	Accuracy of straightness measurement	Center height (H)	Distance between two centers (D)	Diameter of center (Ød)	Taper of center	Weight	Load
4723-300	4µm	2µm	0.02mm	90mm	300mm	18mm	MT2	38kg	25kg

\*Parallelism of two centers to the guide surface

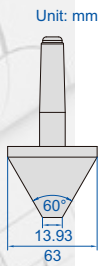
## BULL NOSE CENTERS

- Supplied in pair
- Suitable for 4723 and 4788 series bench centers

application



6391-MT2



Code	Taper of handle
6391-MT2	MT2
6391-MT3	MT3

## VERTICAL AND HORIZONTAL BENCH CENTER



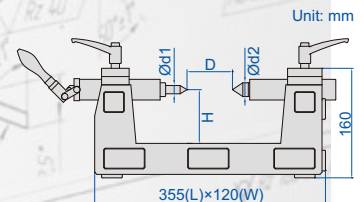
vertical use



horizontal use



side use

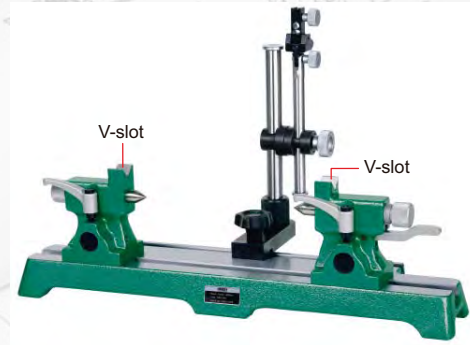
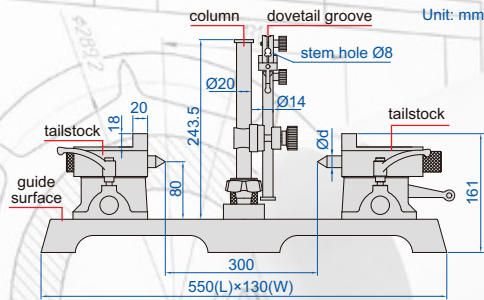


- For vertical, side and horizontal use

Code	Runout accuracy	Center height (H)	Distance between two centers (D)	Diameter of center (Ød1/Ød2)	Weight	Load
4722-200	2µm	80mm	200mm	16mm/20.2mm	22kg	25kg



## BENCH CENTER (BASIC TYPE)



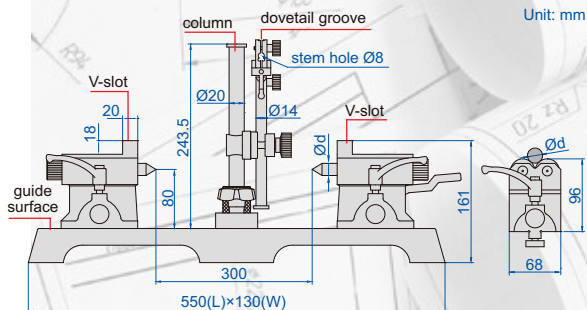
4782-300

- Hardened cast-iron guide surface
- Movable column
- V-slot for cylinder Ø4~Ø22mm

Code	Parallelism*	Runout accuracy	Center height	Distance between two centers	Diameter of center (Ød)	Load
4782-300	0.01mm	2µm	80mm	300mm	Ø16mm	25kg

\*Parallelism of two centers to the guide surface

## BENCH CENTER WITH ROLLER TAILSTOCKS



roller tailstocks (included)



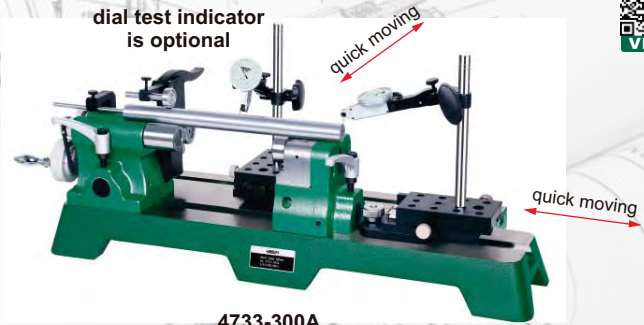
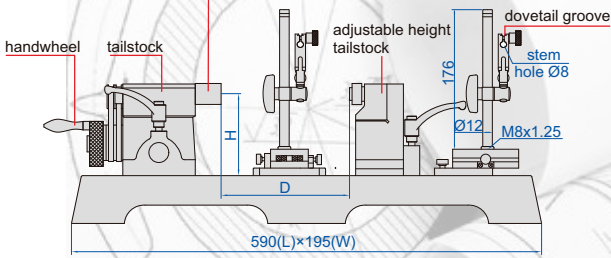
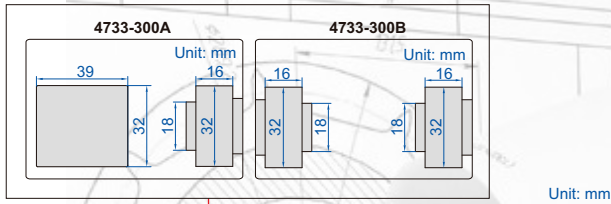
4720-300

- Hardened cast-iron guide surface
- Supplied with V-slot/center tailstocks and roller tailstocks
- V-slot for cylinder Ø4~22mm
- Roller for cylinder Ø5~100mm

Code	Parallelism*	Runout accuracy	Center height	Distance between two centers	Diameter of center (Ød)	Taper of center	Load
4720-300	0.01mm	2µm	80mm	300mm	16mm	MT1	25kg (40kg for roller tailstocks)

\*Parallelism of two centers to the guide surface

**BENCH CENTERS**

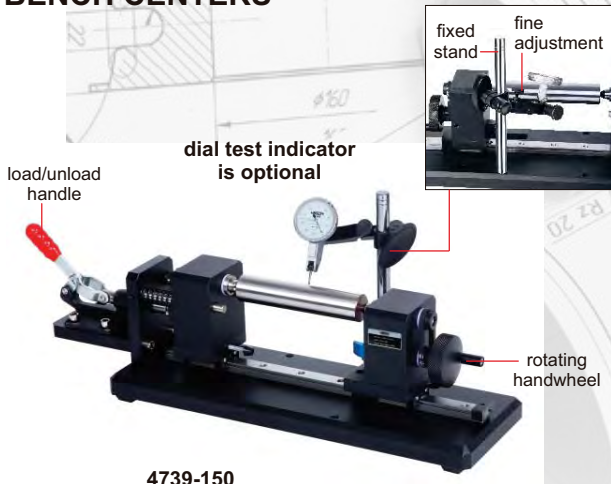


4733-300A

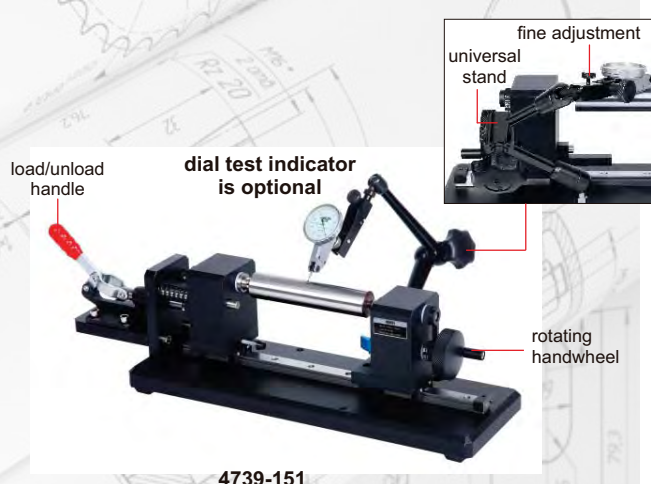
- Hardened cast-iron guide surface
- Quick moving is suitable for mass production inspection
- Adjustable height tailstock: 0-15mm, suitable for inspecting workpieces with different diameters
- Optional accessory: dial test indicator

Code	Runout accuracy	Center height (H)	Distance between two centers (D)	Applicable diameter	Adjustable height	Remarks
4733-300A	2µm	90mm	300mm	Ø8-60mm	0-15mm	with handwheel
4733-300B	2µm	90mm	300mm	Ø8-60mm	0-15mm	without handwheel

**BENCH CENTERS**



4739-150



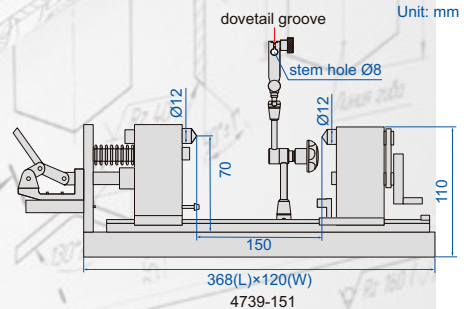
4739-151



POPULAR MODEL

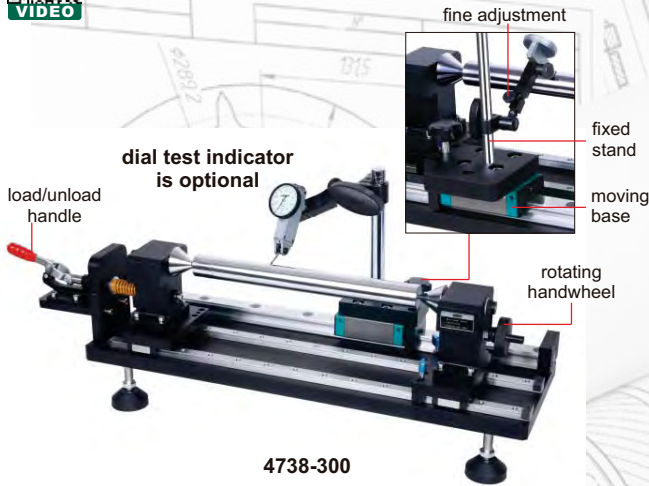
- Quick positioning, suitable for mass measurement
- Suitable for cylinders with outside diameter Ø3-140mm or inside diameter Ø1-12mm
- Supplied with standard rod to verify accuracy
- Optional accessory: dial test indicators

standard rod (included)

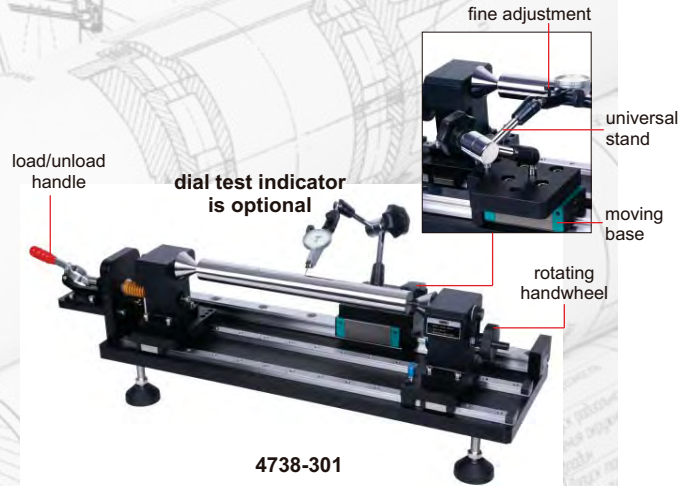


Code	Center height	Distance between two centers	Runout accuracy	Weight	Load	Remark
4739-150	70mm	150mm	2µm	6.5kg	15kg	fixed stand, high accuracy, inconvenient operation
4739-151	70mm	150mm	2µm	6.5kg	15kg	universal stand, low accuracy, convenient operation

BENCH CENTERS



4738-300

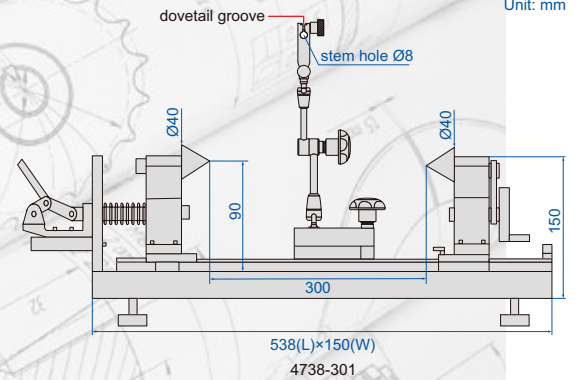


4738-301

dual base (optional)



standard rod (included)



Unit: mm

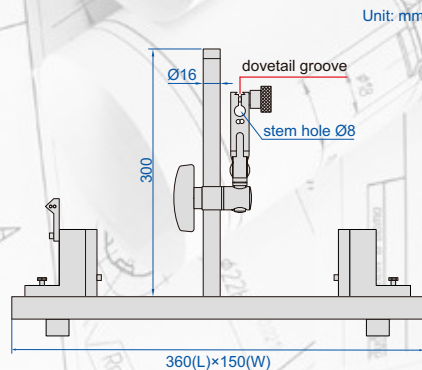
- Quick positioning, suitable for mass measurement
- Suitable for cylinders with outside diameter Ø3-180mm or inside diameter Ø1-40mm
- Supplied with standard rod to verify accuracy
- Optional accessory: dial test indicators

Code	Center height	Distance between two centers	Runout accuracy	Weight	Load	Remark
4738-300	90mm	300mm	2µm	15kg	20kg	fixed stand, high accuracy, inconvenient operation
4738-301	90mm	300mm	2µm	15kg	20kg	universal stand, low accuracy, convenient operation

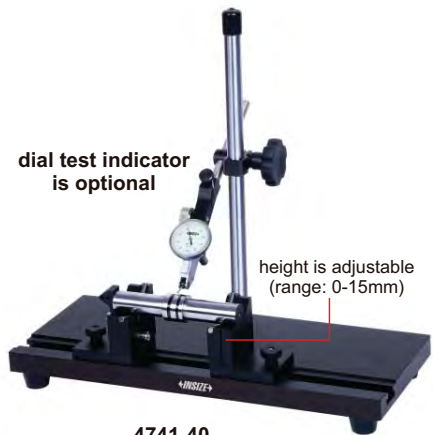


BENCH CENTER

- Quick positioning, suitable for mass measurement
- Optional accessory: dial test indicators



Unit: mm



4741-40

Code	Diameter range	Workpiece length	Accuracy	Weight
4741-40	Ø3-40mm	15-300mm	2µm	3.8kg

**VERTICAL BENCH CENTER**

- Distance between two centers (L): 360mm
- Hardened cast-iron guide surface
- Use handwheel to move the tailstock
- Optional accessory: magnetic stands, dial test indicator

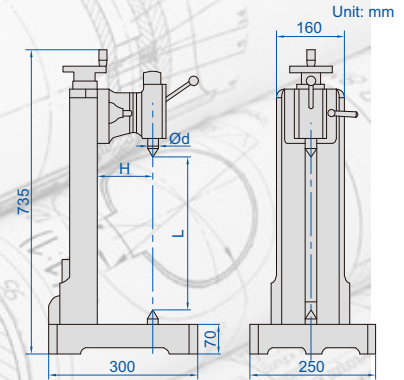
handwheel  
(move the tailstock)

tailstock

magnetic stand  
(optional)



4728-360

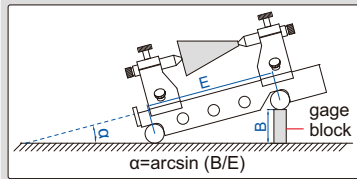


Code	Parallelism *	Runout accuracy	Center height (H)	Diameter of center (Ød)	Taper of center	Weight	Load
4728-360	0.01mm	2µm	130mm	24.1mm	MT3	85kg	80kg

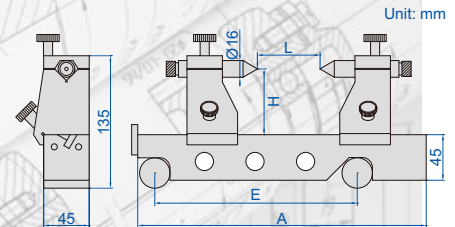
\*Parallelism of two centers to the guide surface

**TAPER INSPECTION INSTRUMENTS**

CAN BE CUSTOMIZED



4157-200



- Check the taper angle of taper bar/taper plug gages /Morse taper/ISO taper etc. The run out can be checked as well

Code	Center height (H)	Center distance (L)	Sine bar accuracy (when α=30°)	E	A
4157-200	65mm	200mm	±5 seconds	200mm	285mm
4157-300	65mm	300mm	±8 seconds	300mm	385mm

**MAGNETIC SQUARE WITH V GROOVE**

REFER TO PAGE 459 FOR DETAILS



6539-100

REFER TO PAGE  
452-458 FOR DETAILS

### V-BLOCKS



6896-11



6887-3



6897-1



6890-702



6888-1



6878-1



6891-1

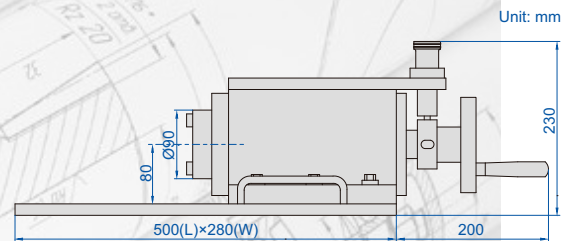


VIDEO



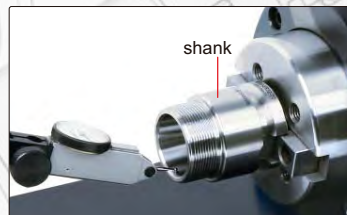
4771-30

### SHANK RUNOUT TESTERS

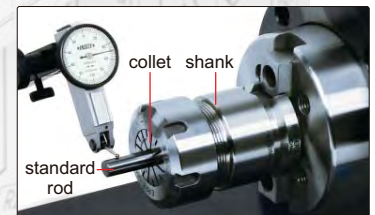


- Measure the radial runout of shanks, collets and cutting tools
- Optional accessory: dial test indicator, magnetic stand

measure radial runout of shank



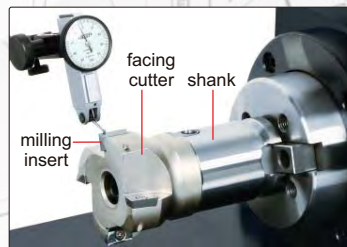
measure radial runout of collet



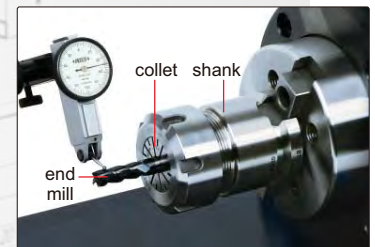
standard shank (included)



measure radial runout of cutter



measure radial runout of end mill



Code	Taper	Accuracy
4771-30	BT30	1µm
4771-40	BT40	1µm
4771-50	BT50	1µm